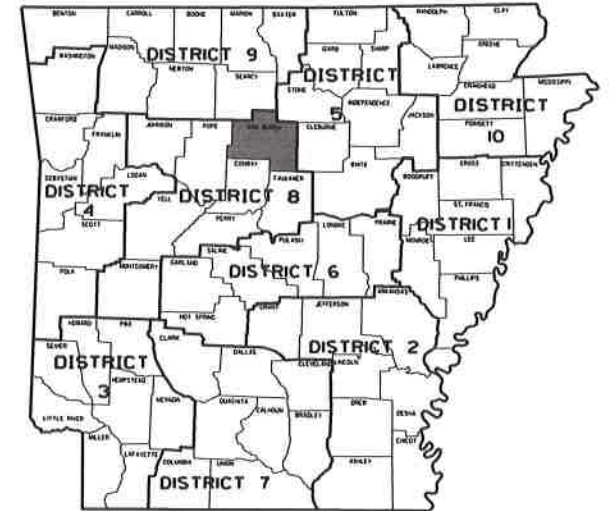


DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	1	82
PEE DEE CREEK STR. & APPRS. (CLINTON) (S)						



ARK. HWY. DIST. NO. 8

DESIGN TRAFFIC DATA

DESIGN YEAR.....2044
2024 ADT.....4800
2044 ADT.....5600
2044 DHV.....616
DIRECTIONAL DISTRIBUTION.....0.60
TRUCKS.....5%
DESIGN SPEED.....55 MPH

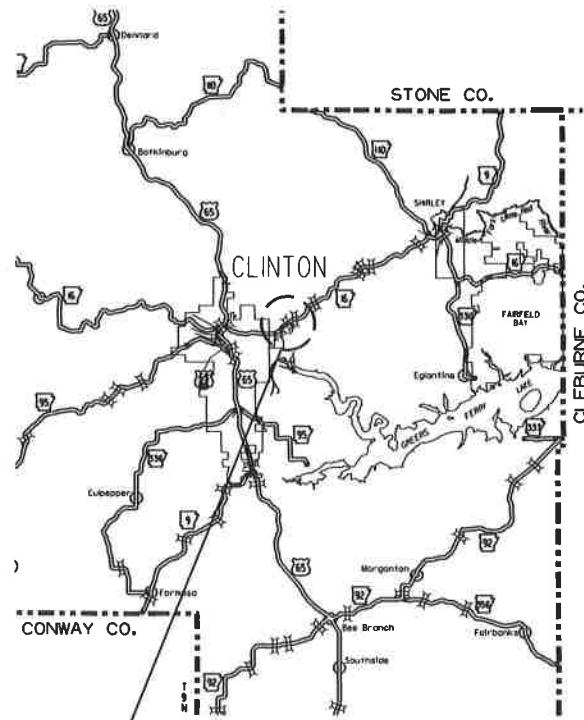
ARKANSAS DEPARTMENT OF TRANSPORTATION CONSTRUCTION PLANS FOR STATE HIGHWAY

PEE DEE CREEK STR. & APPRS. (CLINTON) (S)

VAN BUREN COUNTY
ROUTE 16 SECTION 10

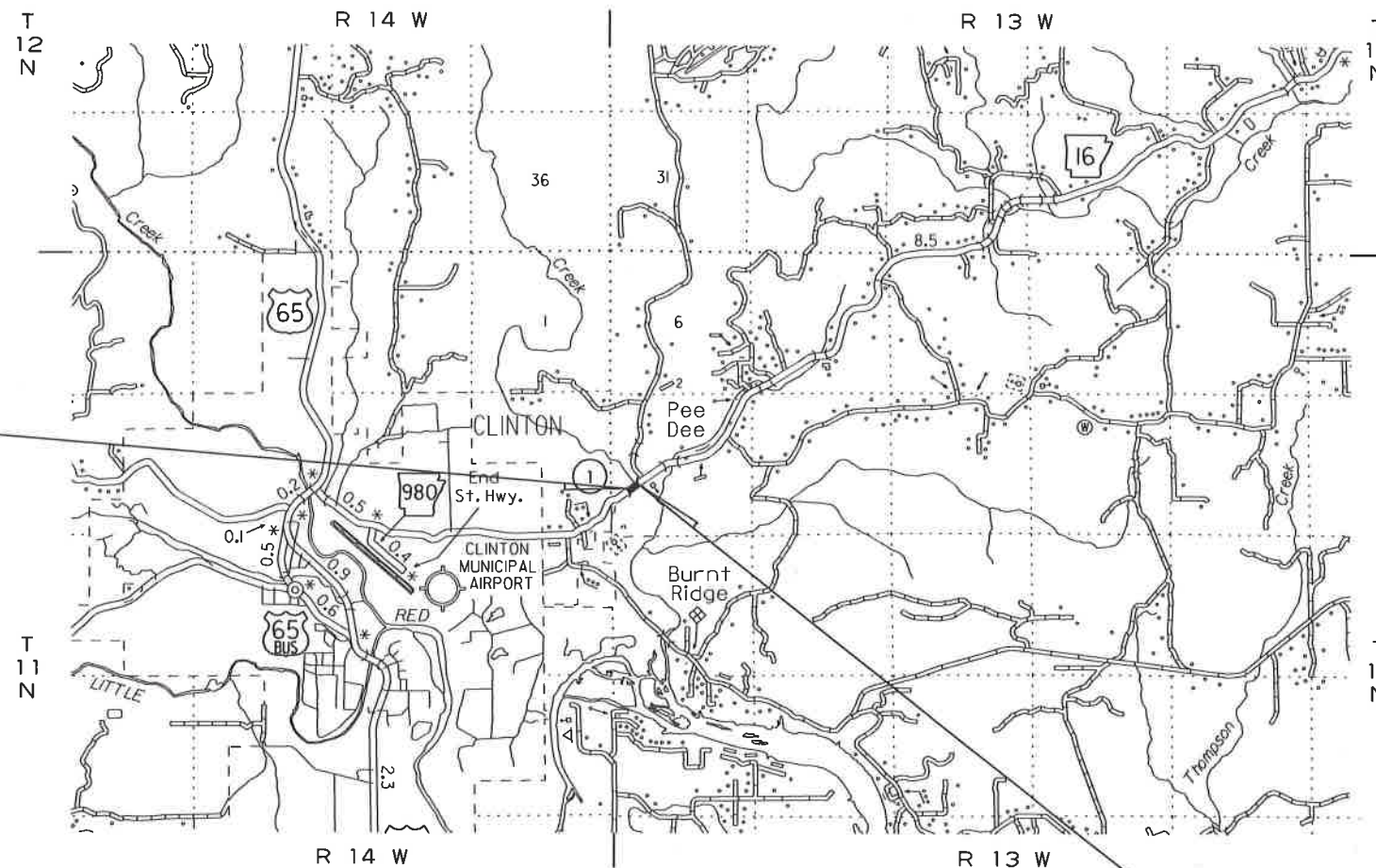
JOB 080614

FED. AID PROJ. NHPP-BFP-0071(41)



VICINITY MAP

NOT TO SCALE



PROJECT AREA

BRIDGE DATA

- 1 BR. END STA. 114+54.50
BR. NO. 07565
34'-0" CLEAR ROADWAY
201'-0" TOTAL LENGTH
200'-0" CONTINUOUS W-BEAM UNIT
(5 SPANS @ 40')
BR. END STA. 116+55.50

STA. 101+00.00
BEGIN JOB 080614
LOG MILE 2.27

STA. 129+69.00
END JOB 080614

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°36'09"	N 35°36'17"	N 35°36'25"
LONGITUDE	W 92°25'18"	W 92°25'03"	W 92°24'47"

LENGTH OF PROJECT CALCULATED ALONG C.L.				
GROSS LENGTH OF PROJECT	2869.00	FEET OR	0.543	MILES
NET ROADWAY	2668.00		0.505	MILES
NET BRIDGES	201.00		0.038	MILES
NET PROJECT	2869.00		0.543	MILES

APPROVED



CHIEF ENGINEER - PRECONSTRUCTION

JAN 22 2024

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	2	82
INDEX OF SHEETS						



Digitally signed
by Trinity Smith
Date:
2023.12.11
14:27:38-06'00'

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.
1	TITLE SHEET		
2	INDEX OF SHEETS		
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4	GOVERNING SPECIFICATIONS		
5 - 8	TYPICAL SECTIONS OF IMPROVEMENT		
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21 - 27	MAINTENANCE OF TRAFFIC DETAILS		
28	PERMANENT PAVEMENT MARKING DETAILS		
29 - 33	QUANTITIES		
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35	SUMMARY OF QUANTITIES AND REVISIONS		
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45	DETAILS OF END BENTS	7565	64434
46	DETAILS OF INTERMEDIATE BENTS (SHEET 1 OF 2)	7565	64435
47	DETAILS OF INTERMEDIATE BENTS (SHEET 2 OF 2)	7565	64436
48	DETAILS OF ELASTOMERIC BEARINGS	7565	64437
49	DETAILS OF 200'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 1 OF 5)	7565	64438
50	DETAILS OF 200'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 2 OF 5)	7565	64439
51	DETAILS OF 200'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 3 OF 5)	7565	64440
52	DETAILS OF 200'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 4 OF 5)	7565	64441
53	DETAILS OF 200'-0" INTEGRAL CONTINUOUS W-BEAM UNIT (SHEET 5 OF 5)	7565	64442
54	DETAILS OF TYPE SPECIAL APPROACH SLABS	7565	64442A
55 - 82	CROSS SECTIONS		

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

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	3	82
STANDARD DRAWINGS & GENERAL NOTES						



12-11-2023

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-16
55006	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES	09-02-15
55007	STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES	02-11-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	04-14-23
55020	STANDARD DETAILS FOR STEEL H-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
CDP-1	CONCRETE DITCH PAVING	12-08-16
DR-2	DETAILS OF DRIVEWAYS & 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-7	GUARDRAIL DETAILS	11-07-19
GR-8	GUARDRAIL DETAILS	11-07-19
GR-9	GUARDRAIL DETAILS	11-07-19
GR-10	GUARDRAIL DETAILS	11-07-19
GR-11	GUARDRAIL DETAILS	11-07-19
GR-12	GUARDRAIL DETAILS	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
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-19
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	05-20-21
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	08-12-21
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
WF-2	WIRE FENCE WATER GAPS	04-20-79
WF-4	WIRE FENCE TYPE C AND D	08-22-02

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 CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
- THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
02/01/24		6	ARK.	080614	4	82
		GOVERNING SPECS.				



GOVERNING SPECIFICATIONS (1 OF 2)

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

NUMBER

TITLE

- ERRATA___ ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
- FHWA-1273___ REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
- FHWA-1273___ SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
- FHWA-1273___ SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
- FHWA-1273___ SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
- FHWA-1273___ SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
- FHWA-1273___ SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
- FHWA-1273___ SUPPLEMENT - WAGE RATE DETERMINATION
- 100-3___ CONTRACTOR'S LICENSE
- 100-4___ DEPARTMENT NAME CHANGE
- 102-2___ ISSUANCE OF PROPOSALS
- 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
- 505-1___ PORTLAND CEMENT CONCRETE DRIVEWAY
- 600-2___ INCIDENTAL CONSTRUCTION
- 603-1___ LANE CLOSURE NOTIFICATION
- 604-1___ RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
- 604-3___ TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
- 605-1___ CONCRETE DITCH PAVING
- 606-1___ PIPE CULVERTS FOR SIDE DRAINS
- 617-1___ GUARDRAIL TERMINAL (TYPE 2)
- 617-2___ GUARDRAIL DELINEATORS
- 620-1___ MULCH COVER
- 800-1___ STRUCTURES
- 802-3___ CONCRETE FOR STRUCTURES
- 802-4___ CEMENT
- 804-2___ REINFORCING STEEL FOR STRUCTURES
- 807-2___ STEEL STRUCTURES
- 808-1___ INSTALLATION OF ELASTOMERIC BEARINGS
- 808-2___ ELASTOMERIC BEARINGS

GOVERNING SPECIFICATIONS (2 OF 2)

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

NUMBER

TITLE

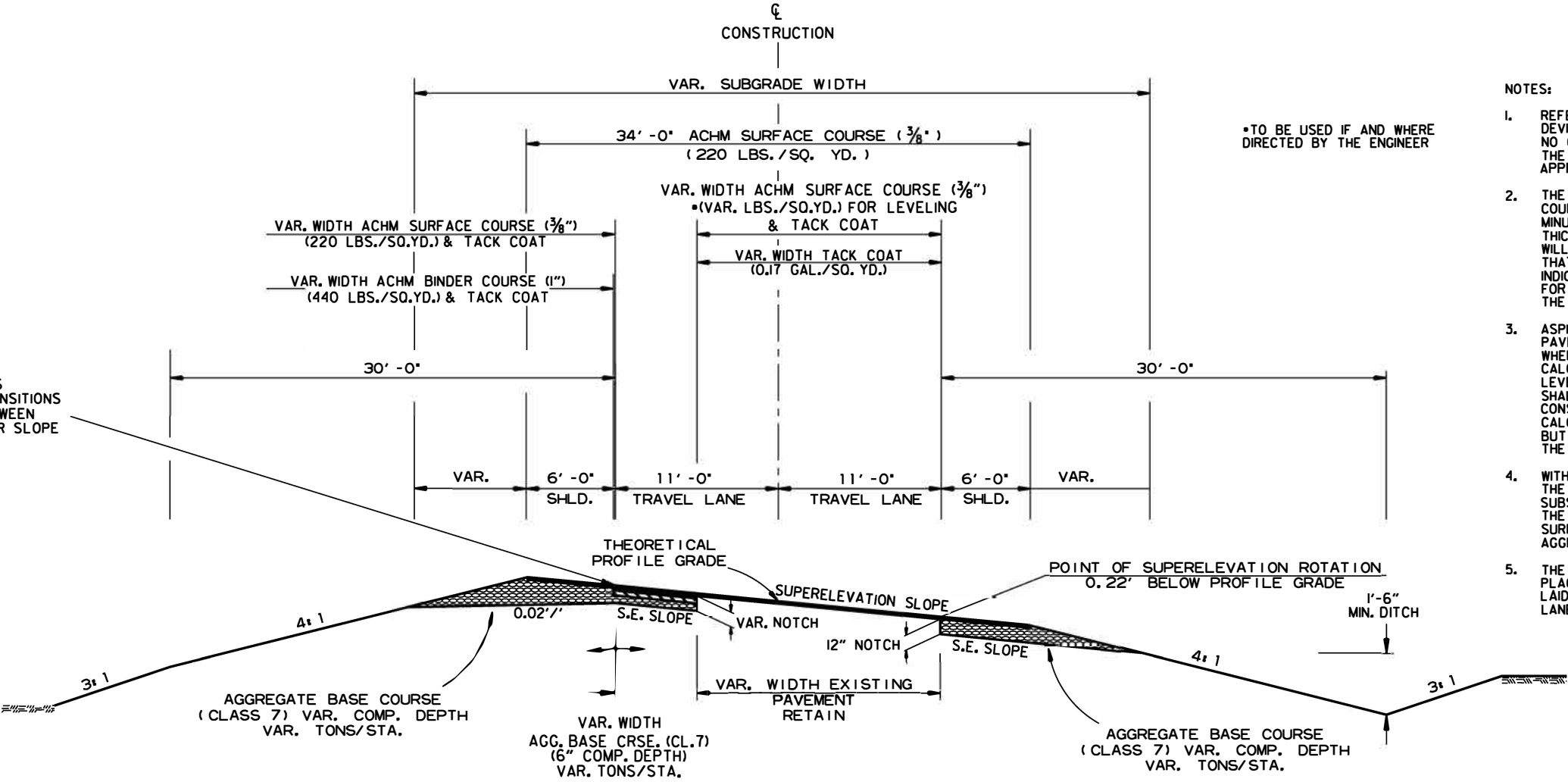
- JOB 080614___ BIDDING REQUIREMENTS AND CONDITIONS
- JOB 080614___ BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
- JOB 080614___ BROADBAND INTERNET SERVICE FOR FIELD OFFICE
- JOB 080614___ BUY AMERICA - CONSTRUCTION MATERIALS
- JOB 080614___ CARGO PREFERENCE ACT REQUIREMENTS
- JOB 080614___ CAVE DISCOVERY
- JOB 080614___ CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
- JOB 080614___ COLD MILLING - COUNTY PROPERTY
- JOB 080614___ CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS
- JOB 080614___ DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
- JOB 080614___ DESIGN OF ASPHALT MIXTURES - AGGREGATES
- JOB 080614___ DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
- JOB 080614___ DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
- JOB 080614___ ESTABLISHING CONTRACT TIME – WORKING DAY CONTRACT
- JOB 080614___ GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
- JOB 080614___ LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
- JOB 080614___ MANDATORY ELECTRONIC CONTRACT
- JOB 080614___ MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
- JOB 080614___ NESTING SITES OF MIGRATORY BIRDS
- JOB 080614___ OFF-SITE RESTRAINING CONITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
- JOB 080614___ PARTNERING REQUIREMENTS
- JOB 080614___ PERCENT AIR VOIDS AND NDESIGN FOR ACHM SURFACE COURSE
- JOB 080614___ PLASTIC PIPE
- JOB 080614___ PRICE ADJUSTMENT FOR ASPHALT BINDER
- JOB 080614___ PRICE ADJUSTMENT FOR FUEL
- JOB 080614___ PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
- JOB 080614___ SECTION 404 NATIONWIDE 14 PERMIT REQUIREMENTS
- JOB 080614___ SHORING FOR CULVERTS
- JOB 080614___ SOIL STABILIZATION
- JOB 080614___ SPECIAL CLEARING PUP SEASON REQUIREMENTS
- JOB 080614___ STORM WATER POLLUTION PREVENTION PLAN
- JOB 080614___ SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
- JOB 080614___ TOTAL SOLAR ECLIPSE
- JOB 080614___ UTILITY ADJUSTMENTS
- JOB 080614___ VALUE ENGINEERING
- JOB 080614___ WARM MIX ASPHALT
- JOB 080614___ WATER POLLUTION CONTROL
- JOB 080614___ WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER FOR TREE CLEARING

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	5	82
TYPICAL SECTIONS OF IMPROVEMENT						



12-11-2023

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



*TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

- NOTES:
1. 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.
 2. 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.
 3. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
 4. WITH THE 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.
 5. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.

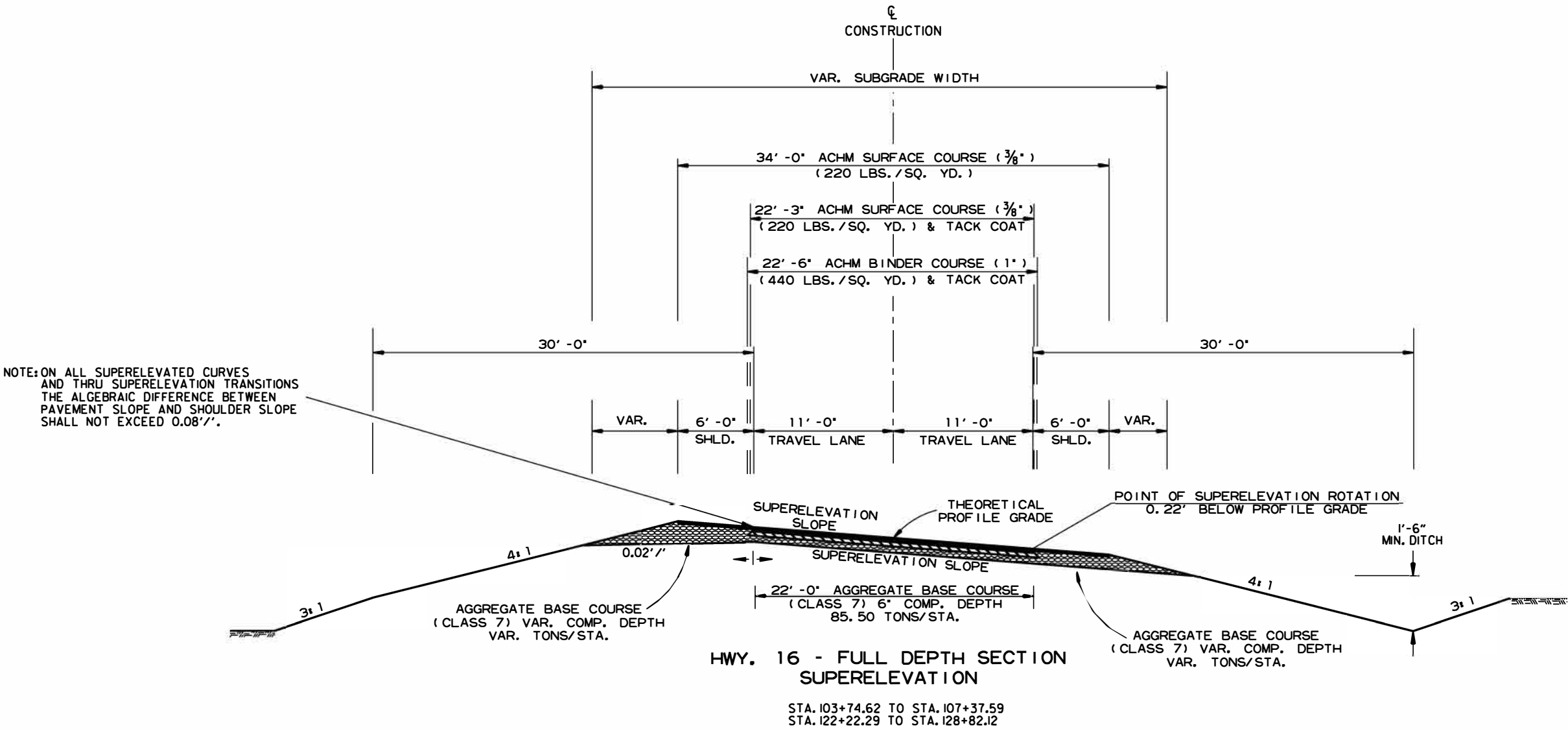
HWY. 16 - NOTCH, WIDEN, AND OVERLAY SECTION
SUPERELEVATION

STA. 101+00.00 TO STA. 103+74.62
STA. 128+82.12 TO STA. 129+69.00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	6	82
TYPICAL SECTIONS OF IMPROVEMENT						



12-11-2023

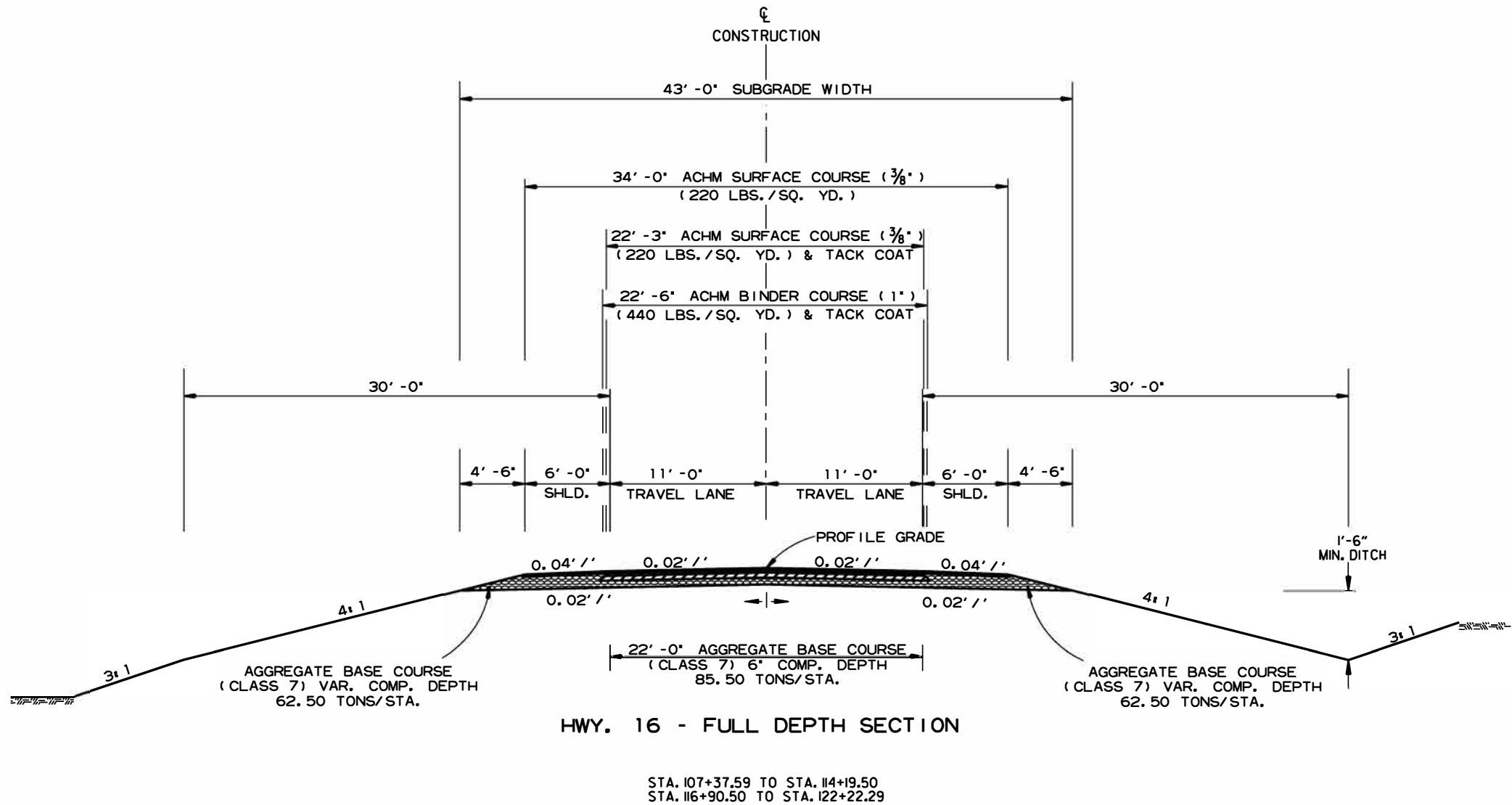


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 - THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	7	82
TYPICAL SECTIONS OF IMPROVEMENT						



12-11-2023

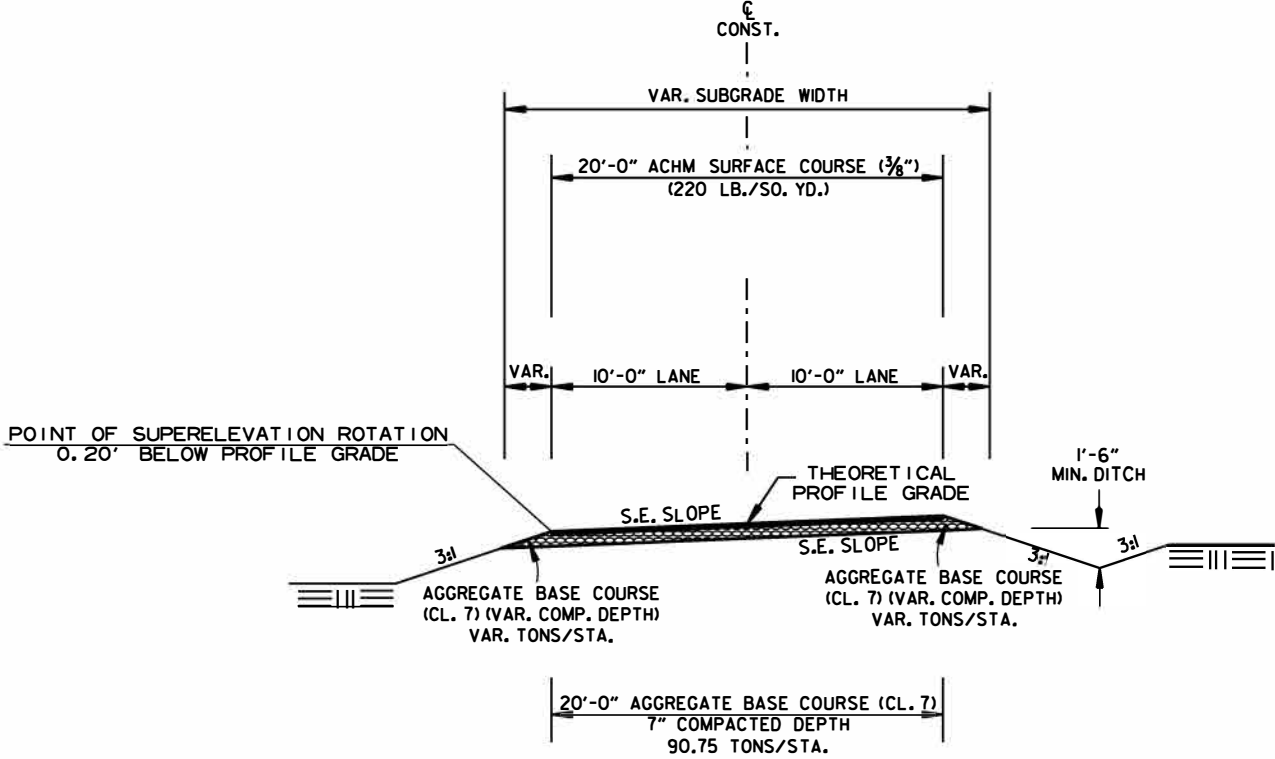


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DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	8	82
TYPICAL SECTIONS OF IMPROVEMENT						



12-11-2023



COUNTY ROAD 93 - FULL DEPTH SECTION
SUPERELEVATION

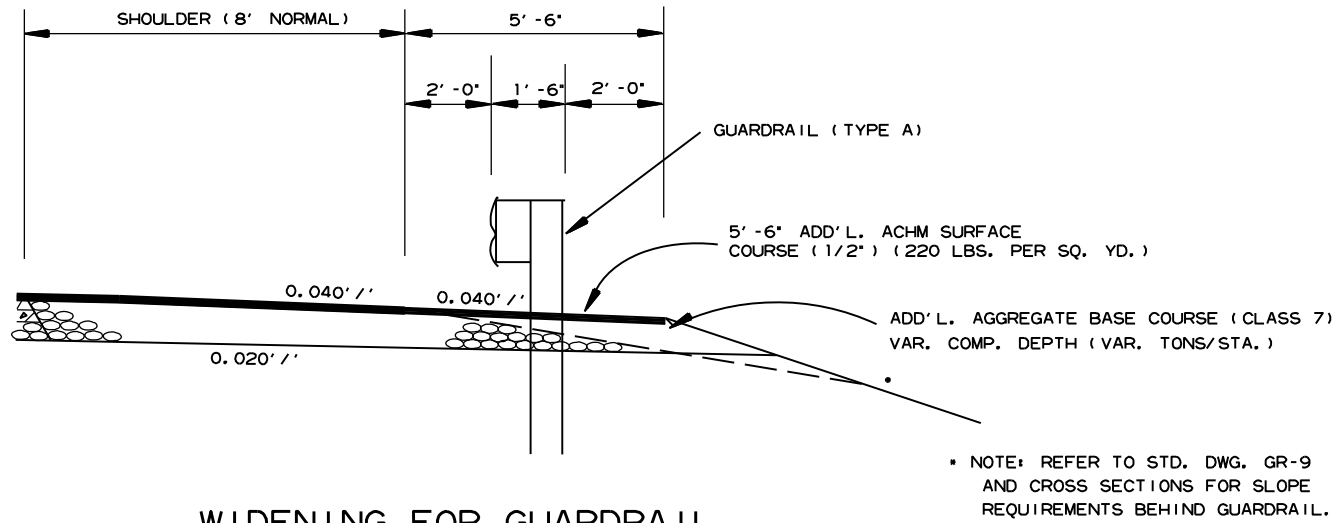
STA. 200+25.72 TO STA. 204+19.58

- NOTES:
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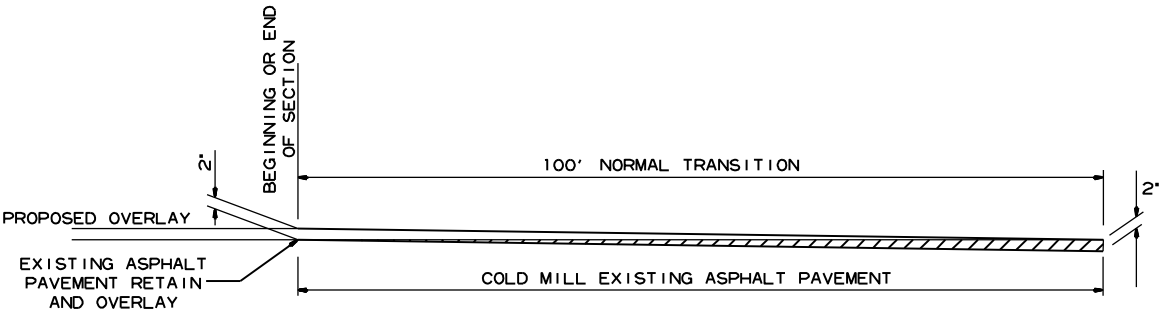
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	9	82
SPECIAL DETAILS						



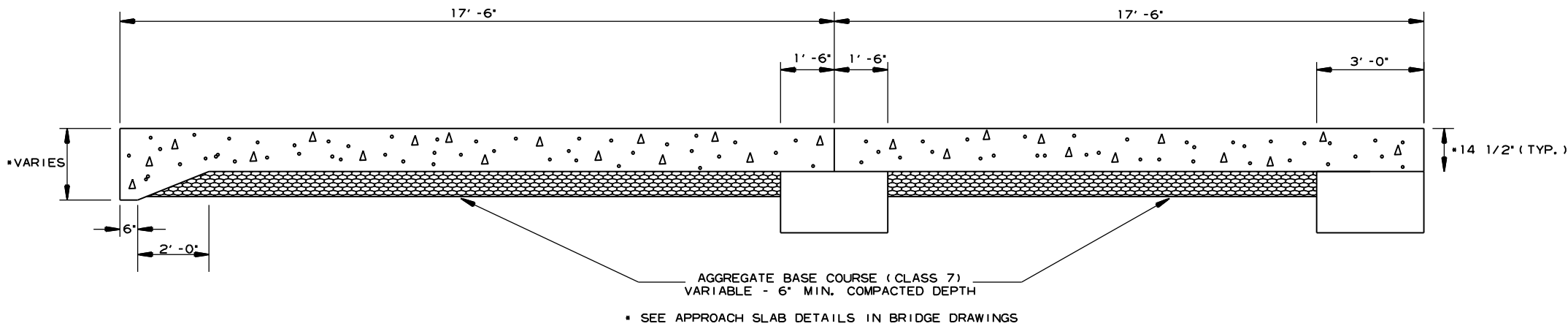
12-11-2023



WIDENING FOR GUARDRAIL



DETAIL FOR TRANSITIONS

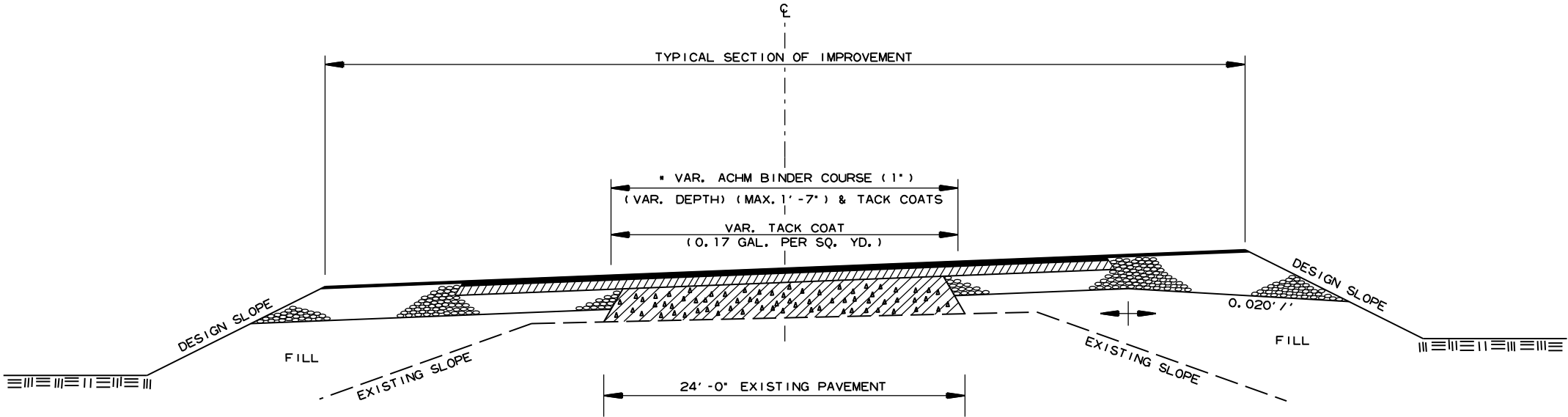


SECTION OF APPROACH SLAB

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	10	82
SPECIAL DETAILS						



12-11-2023

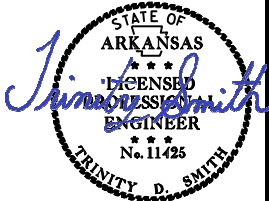


• 7" AGGREGATE BASE COURSE (CLASS 7)
TO BE REPLACED WITH ACHM BINDER COURSE (1")

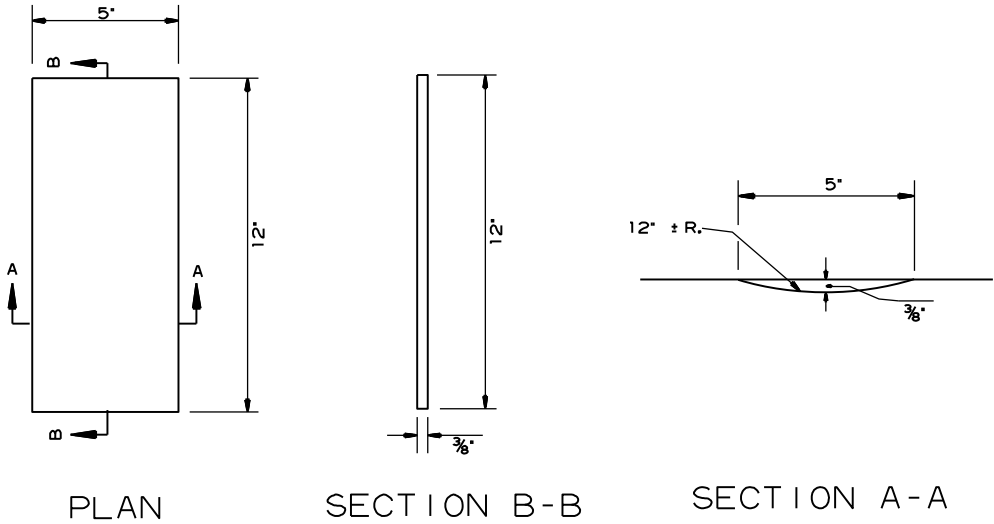
METHOD OF RAISING GRADE

- 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 SECTION 210, SUBSECTION 210.09, OF THE STANDARD SPECIFICATIONS.

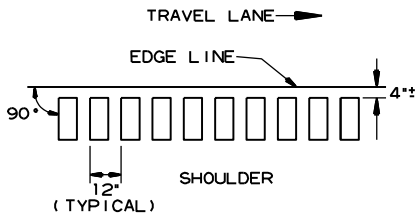
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	11	82
SPECIAL DETAILS						



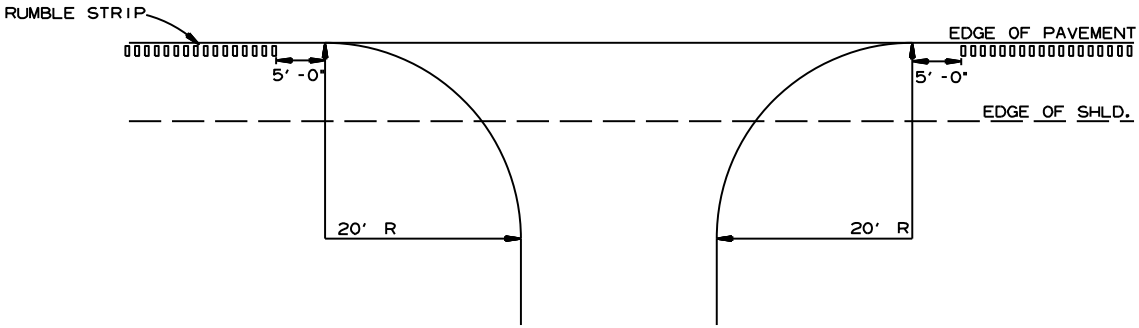
12-11-2023



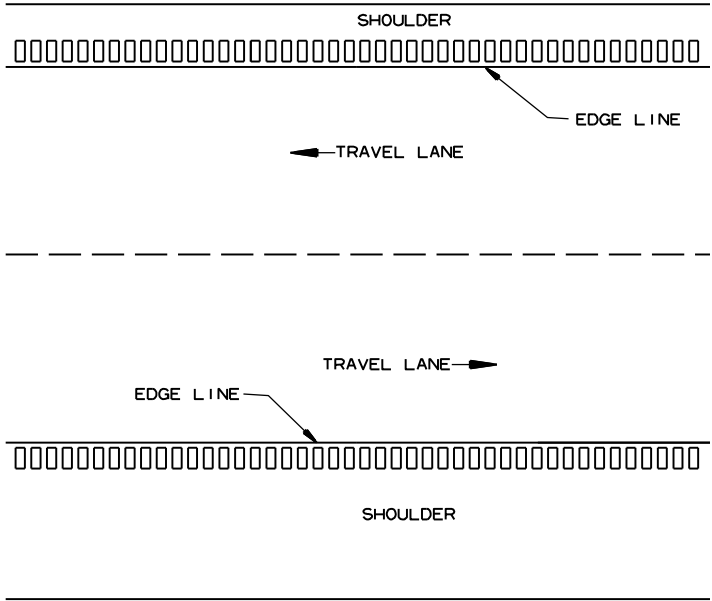
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



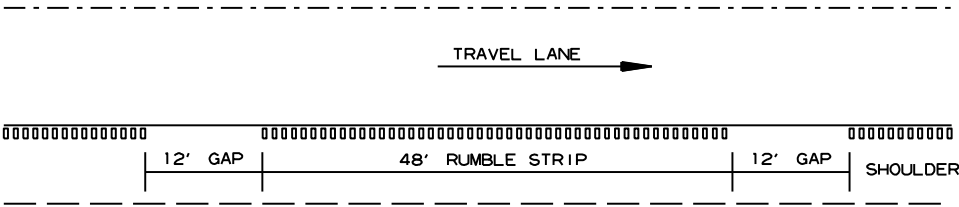
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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



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

DETAIL FOR GAP PATTERN RUMBLE STRIP

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	12	82
TEMPORARY EROSION CONTROL DETAILS						



12-11-2023

LEGEND

E-5

SAND BAG DITCH CHECKS

E-6

ROCK DITCH CHECKS

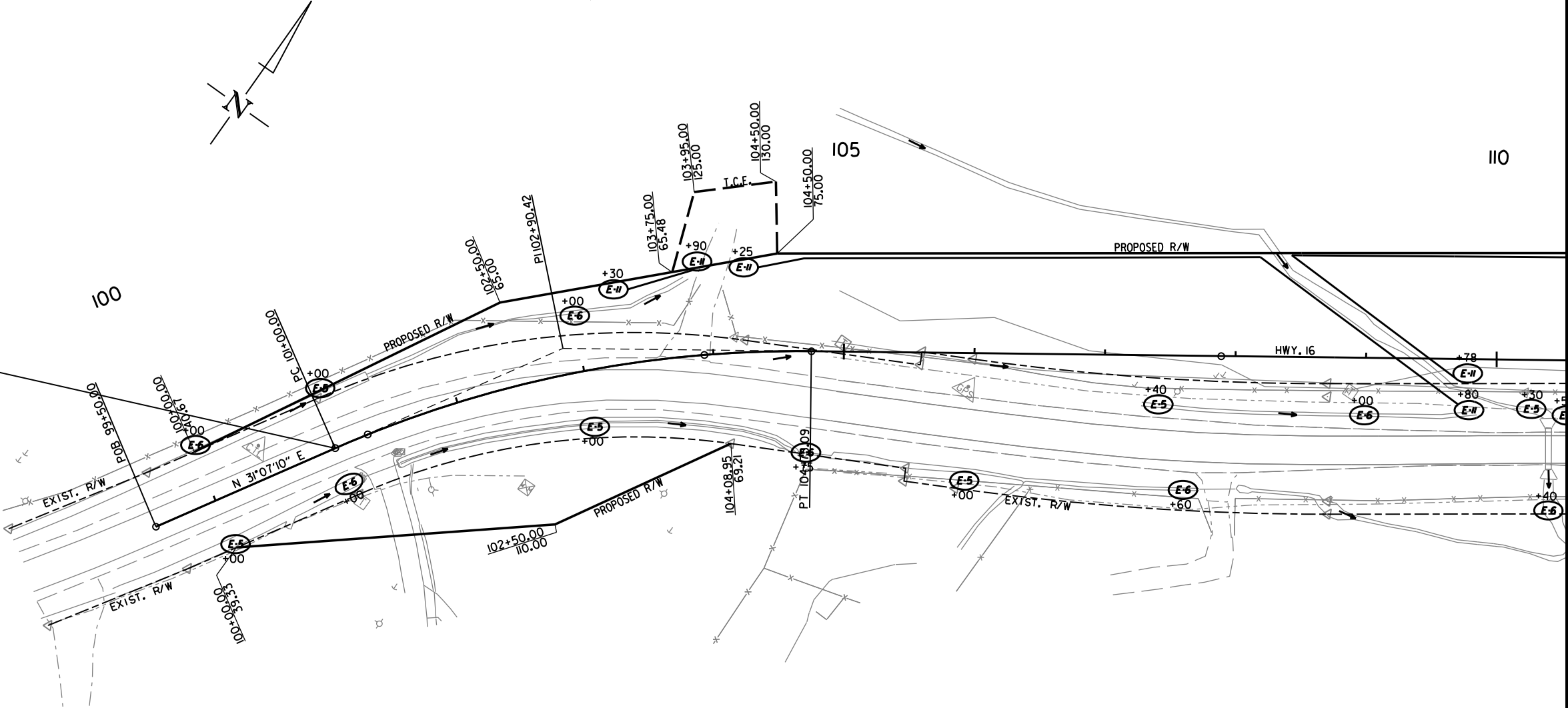
E-11

E-11

SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.

STA. 101+00.00
BEGIN JOB 080614
LOG MILE 2.27



REVISIONS

DATE OF REVISION	REVISION

CLEARING & GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	13	82
TEMPORARY EROSION CONTROL DETAILS						

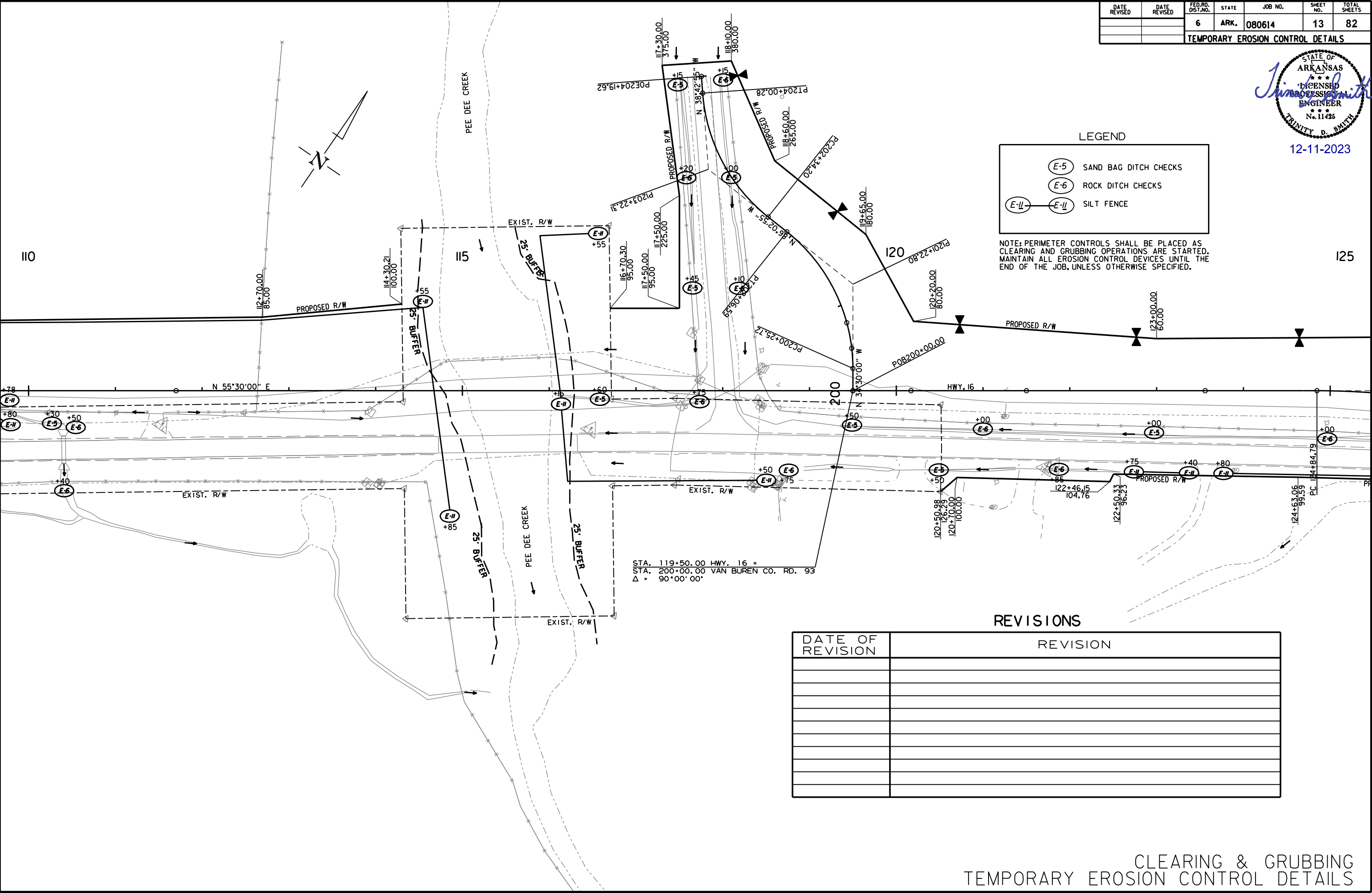


12-11-2023

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. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



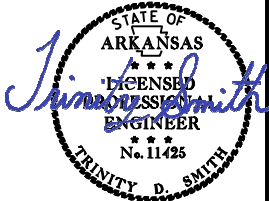
STA. 119+50.00 HWY. 16 =
STA. 200+00.00 VAN BUREN CO. RD. 93
Δ = 90°00'00"

REVISIONS

DATE OF REVISION	REVISION

CLEARING & GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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TEMPORARY EROSION CONTROL DETAILS						

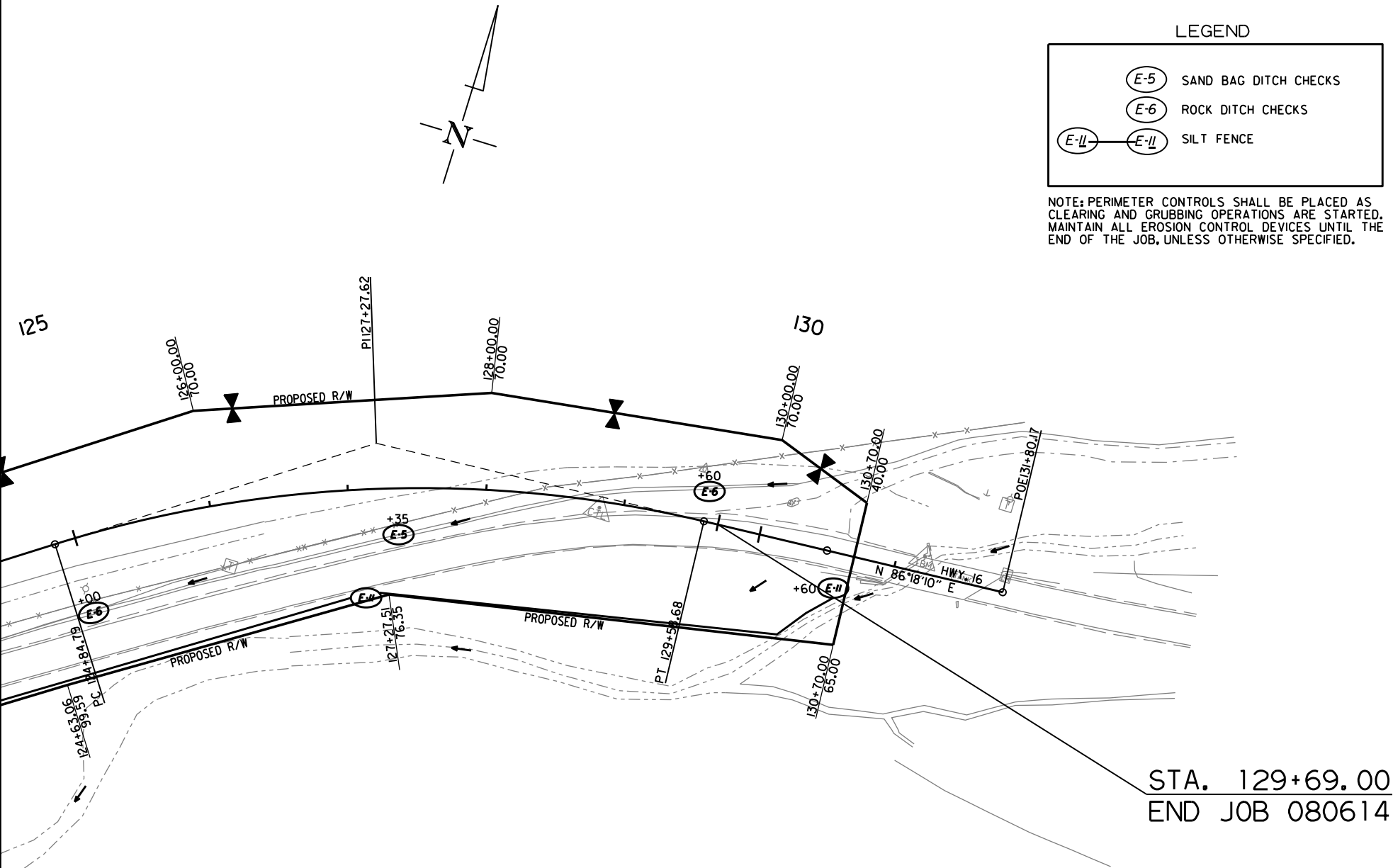


12-11-2023

LEGEND

	SAND BAG DITCH CHECKS
	ROCK DITCH CHECKS
	SILT FENCE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED. MAINTAIN ALL EROSION CONTROL DEVICES UNTIL THE END OF THE JOB, UNLESS OTHERWISE SPECIFIED.



REVISIONS

DATE OF REVISION	REVISION

CLEARING & GRUBBING
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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TEMPORARY EROSION CONTROL DETAILS						

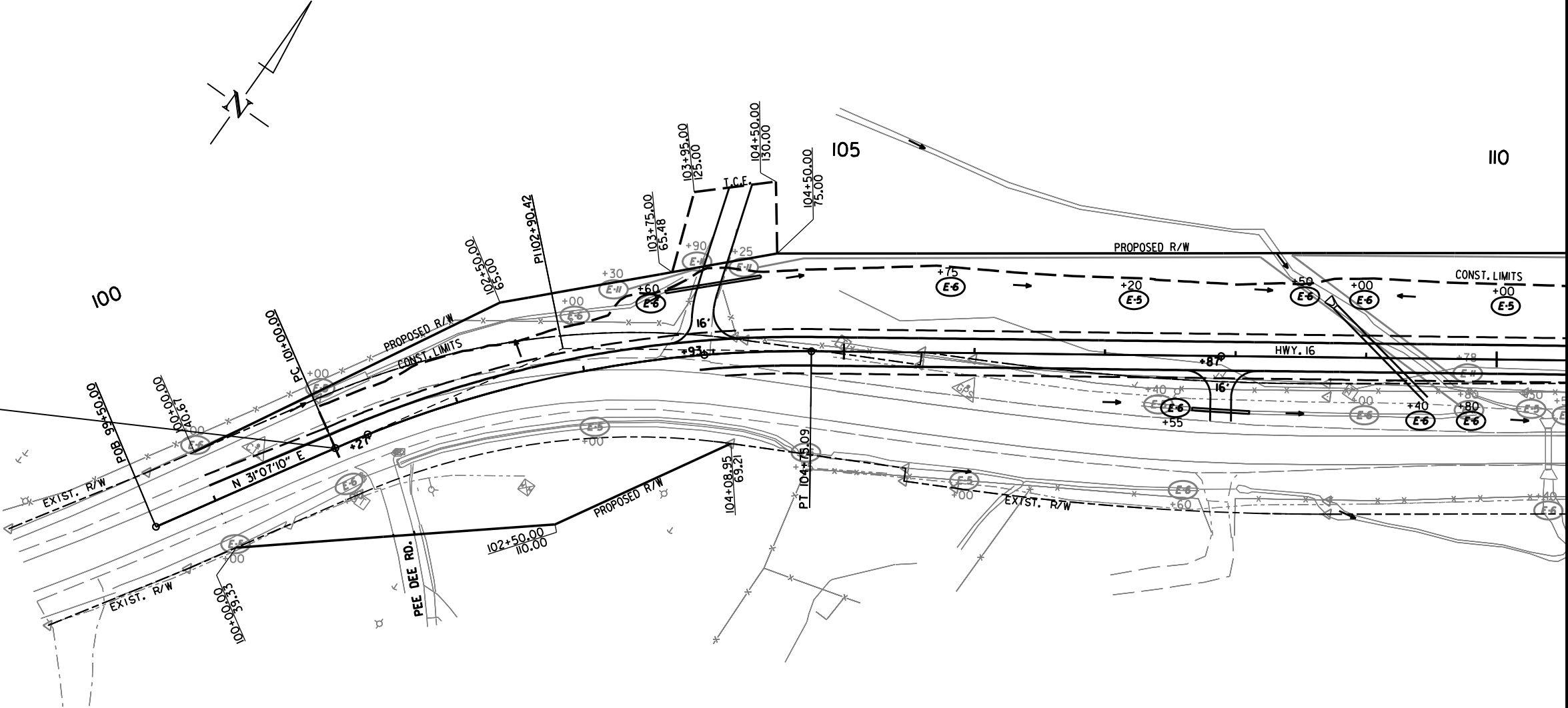


12-11-2023

LEGEND

	SAND BAG DITCH CHECKS
	ROCK DITCH CHECKS
	SILT FENCE

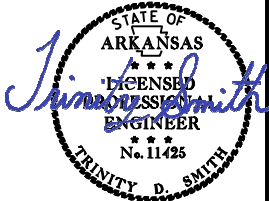
STA. 101+00.00
BEGIN JOB 080614
LOG MILE 2.27



REVISIONS

DATE OF REVISION	REVISION

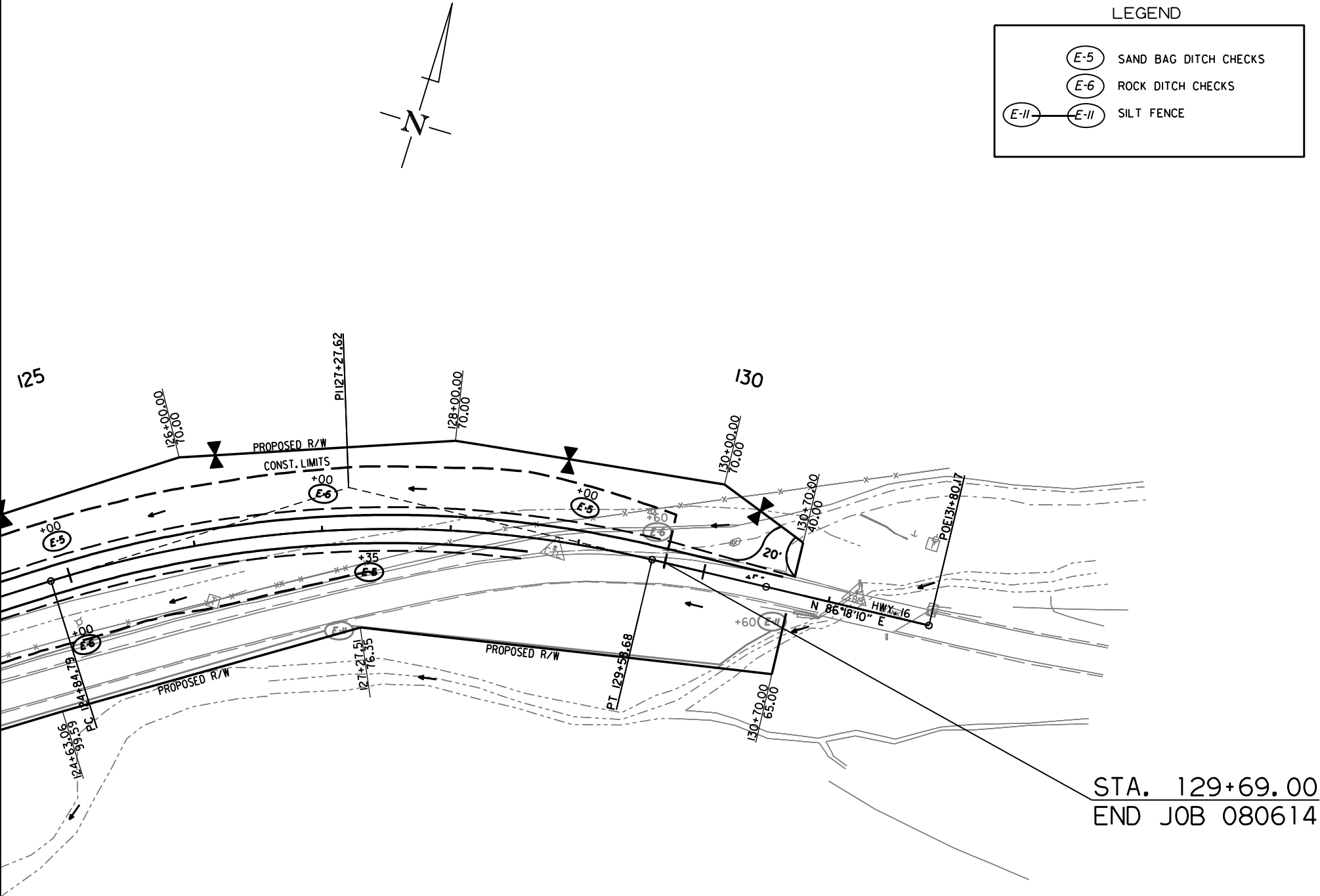
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TEMPORARY EROSION CONTROL DETAILS						



12-11-2023

LEGEND

	SAND BAG DITCH CHECKS
	ROCK DITCH CHECKS
	SILT FENCE



REVISIONS

DATE OF REVISION	REVISION

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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TEMPORARY EROSION CONTROL DETAILS						

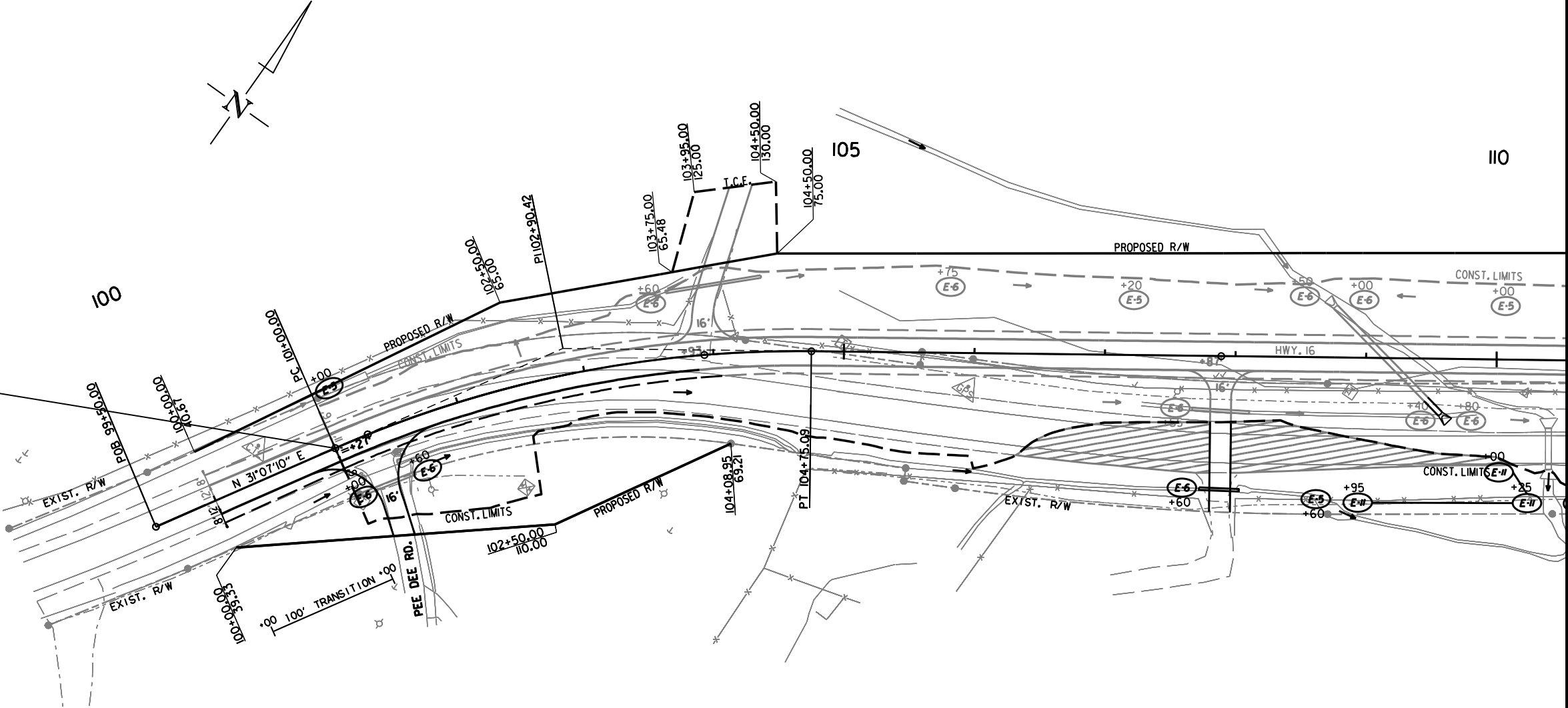


12-11-2023

LEGEND

- SAND BAG DITCH CHECKS
- ROCK DITCH CHECKS

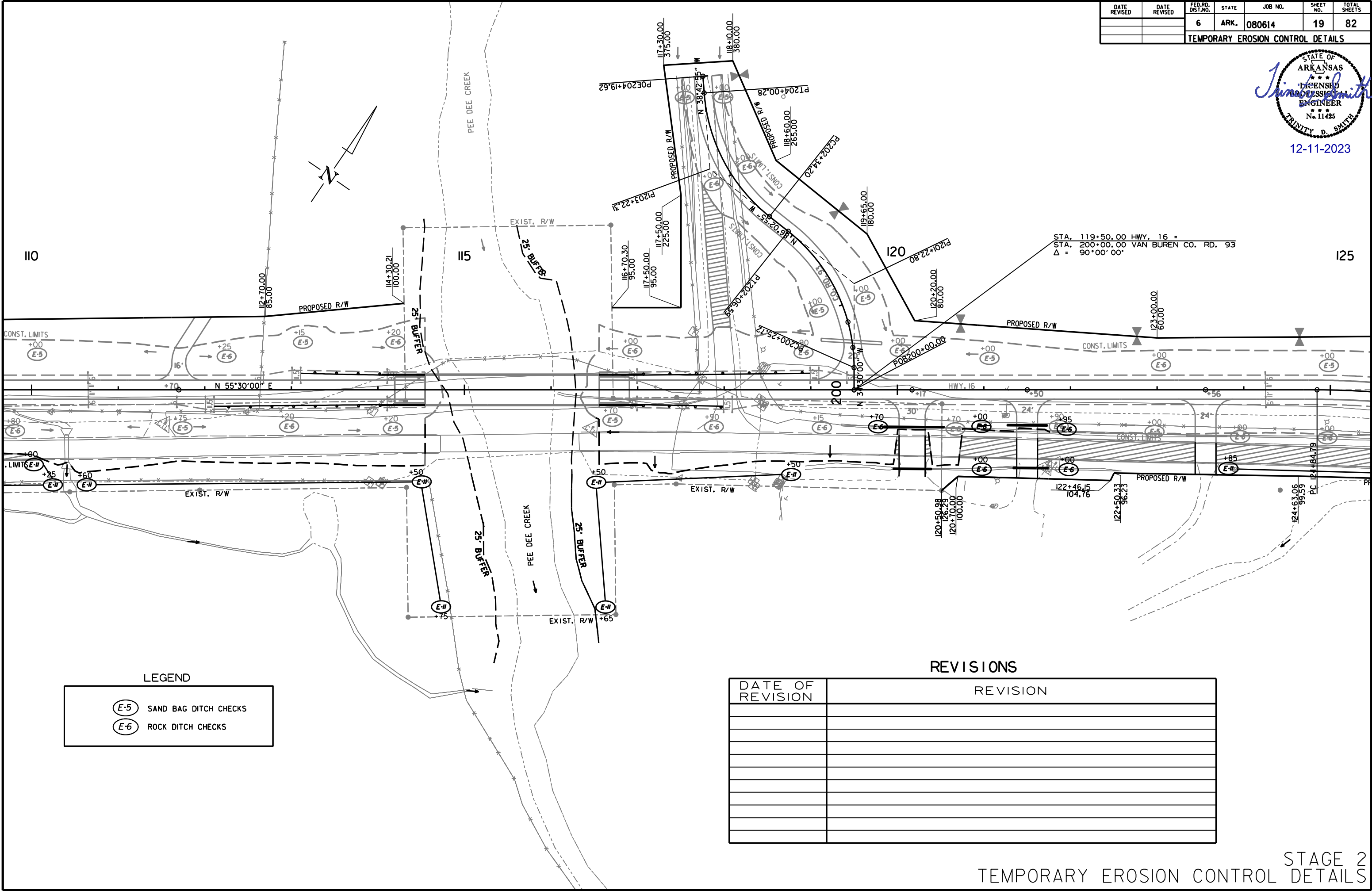
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BEGIN JOB 080614
LOG MILE 2.27



REVISIONS

DATE OF REVISION	REVISION

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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TEMPORARY EROSION CONTROL DETAILS						



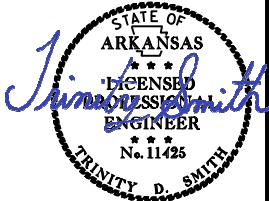
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- SAND BAG DITCH CHECKS
- ROCK DITCH CHECKS

REVISIONS

DATE OF REVISION	REVISION

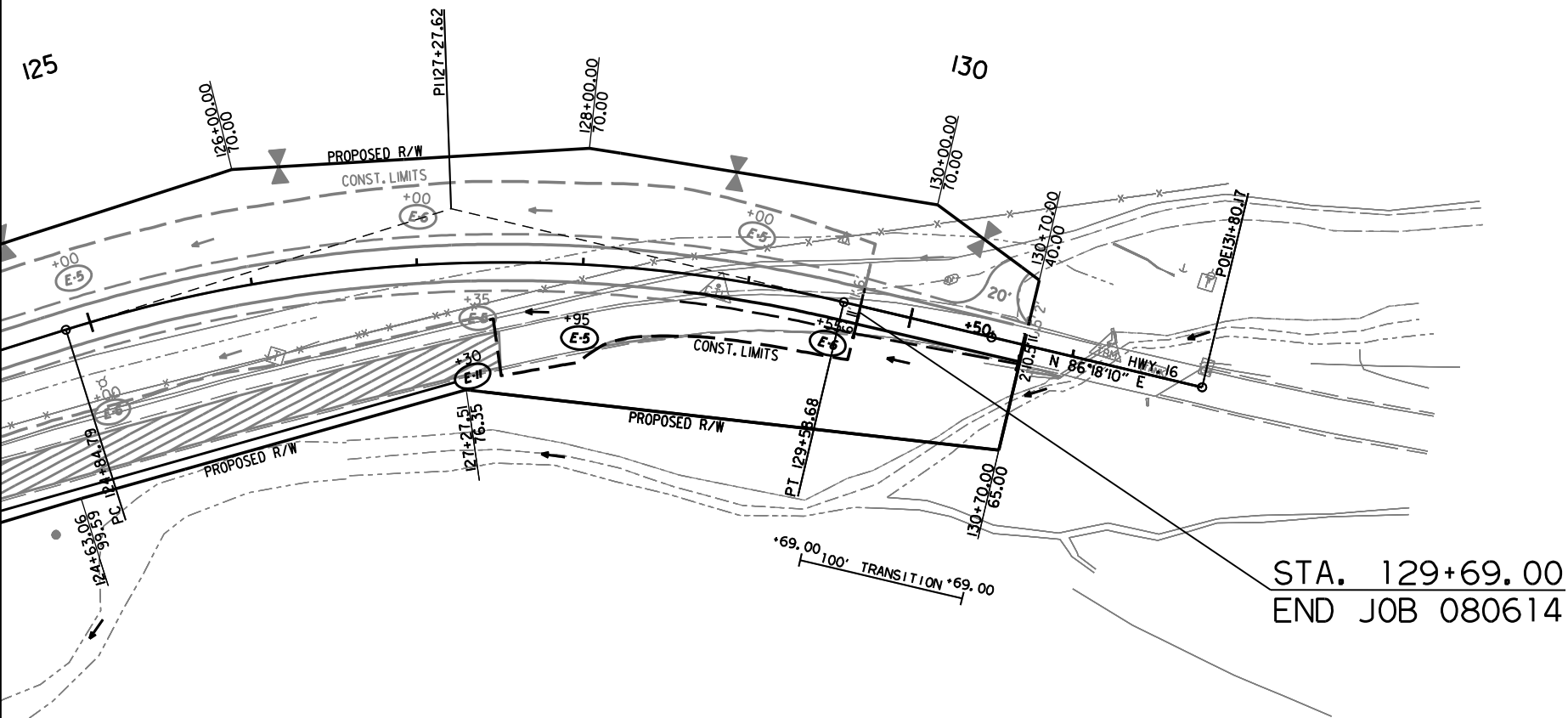
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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TEMPORARY EROSION CONTROL DETAILS						



12-11-2023

LEGEND

- SAND BAG DITCH CHECKS
- ROCK DITCH CHECKS

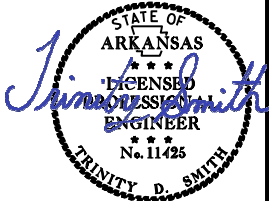


STA. 129+69.00
END JOB 080614

REVISIONS

DATE OF REVISION	REVISION

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	21	82
MAINTENANCE OF TRAFFIC DETAILS						



12-11-2023

STAGE 1 CONSTRUCTION SEQUENCE

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE BEGINNING AND END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAIL

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

CONSTRUCT HWY. 16 LT. AND PROPOSED BRIDGE AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

APPLY LEVELING COURSE TO EXISTING LANES IF AND WHERE DIRECTED BY THE ENGINEER.

STAGE 2 CONSTRUCTION SEQUENCE

FURNISH AND INSTALL P.C.C.B. AND T.I.A.B. AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

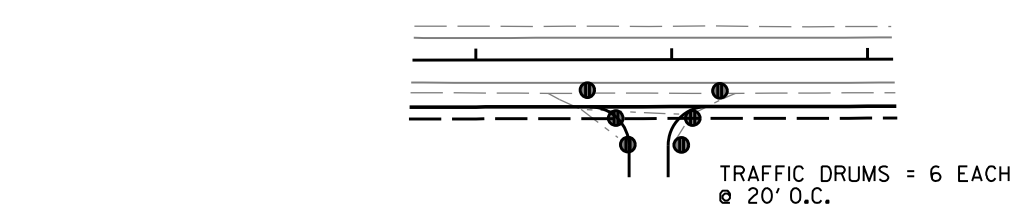
INSTALL CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

SHIFT TRAFFIC ONTO THE PROPOSED HWY. 16 LANES.

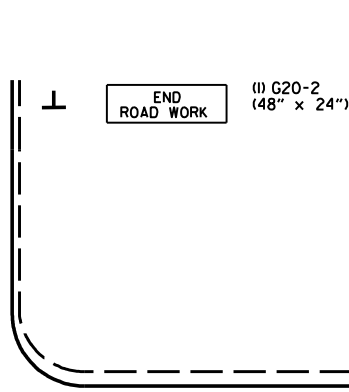
USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

CONSTRUCT HWY. 16 RT. AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS. REMOVE EXISTING BRIDGE STRUCTURE.

APPLY FINAL 2" LIFT OF ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.



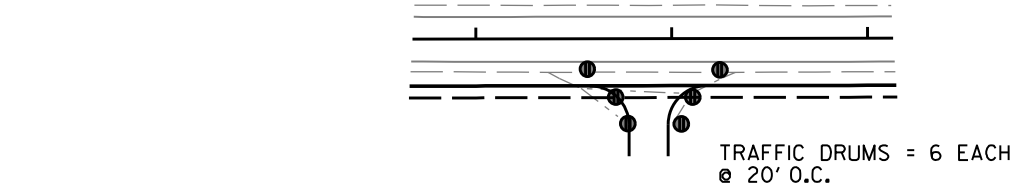
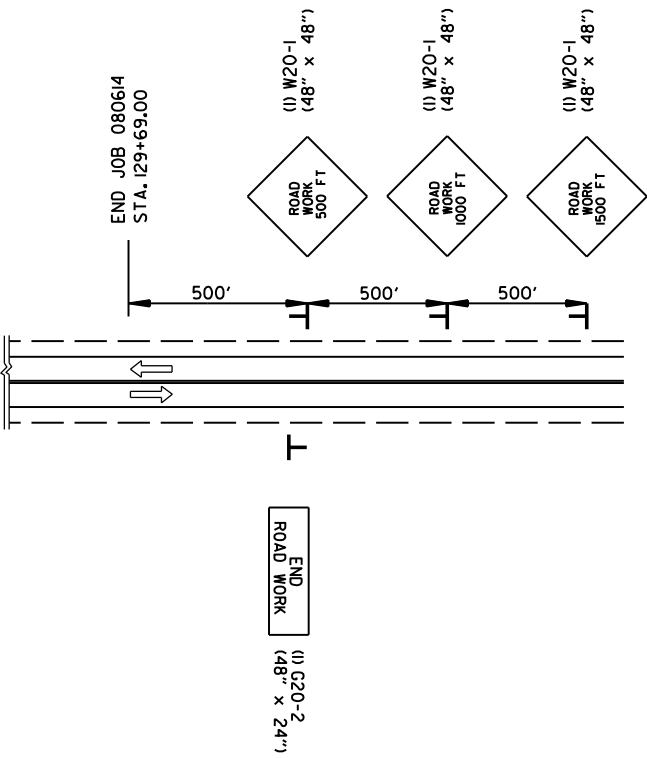
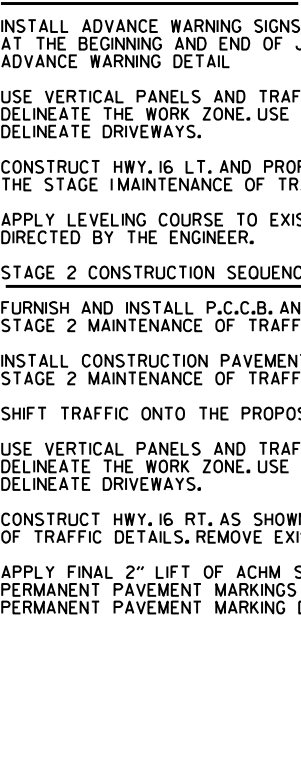
DRIVEWAY/TRAFFIC DRUM DETAIL



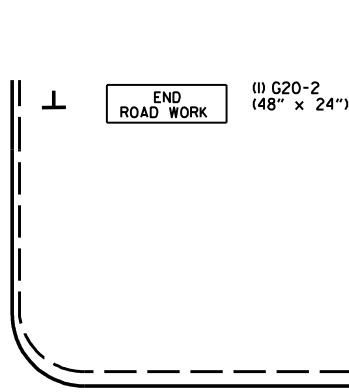
ADVANCE WARNING SIGNS

CO. RD. 93

ADVANCE WARNING SIGNS
MAINTENANCE OF TRAFFIC DETAILS



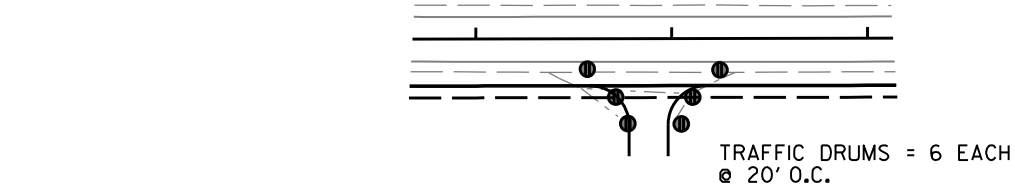
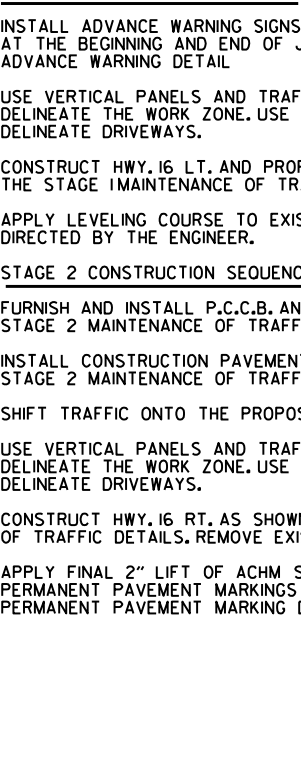
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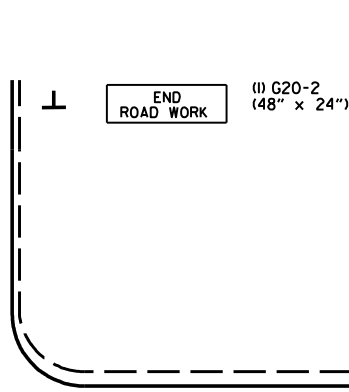
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END JOB 080614 STA. 101+00.00

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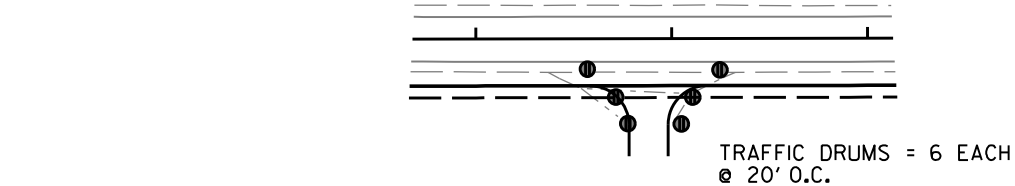
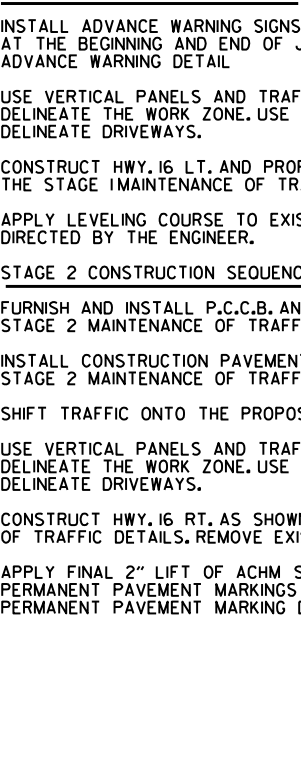
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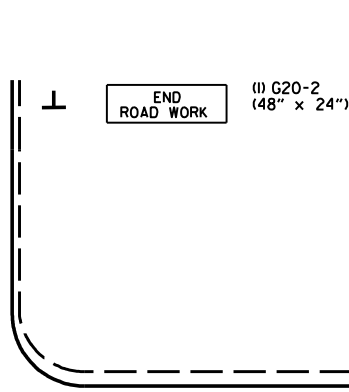
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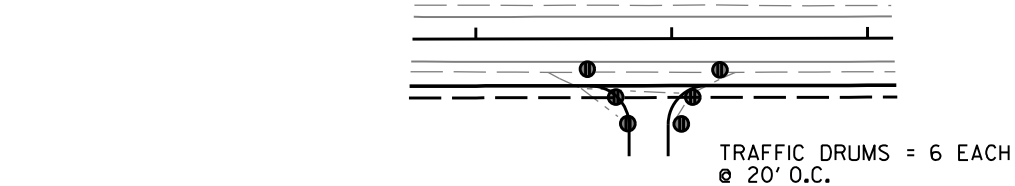
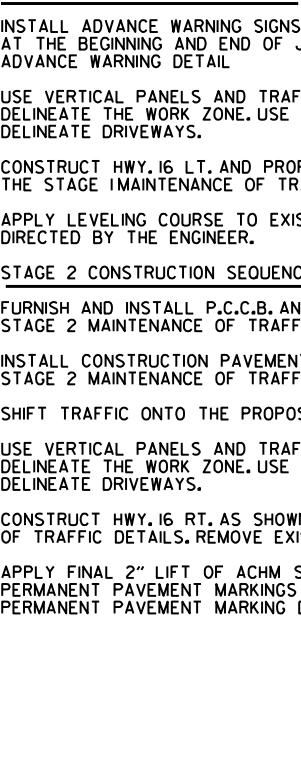
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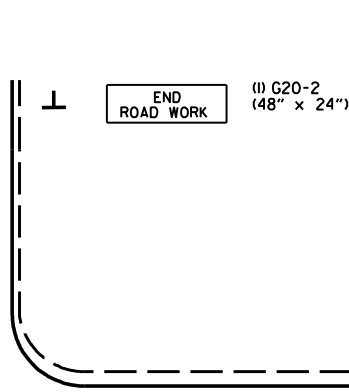
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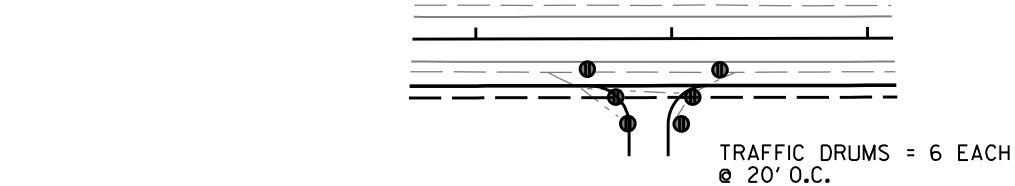
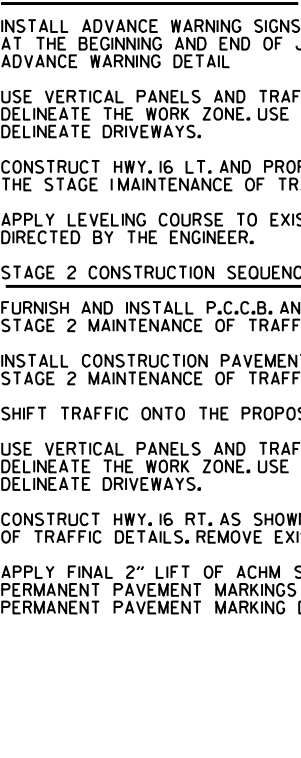
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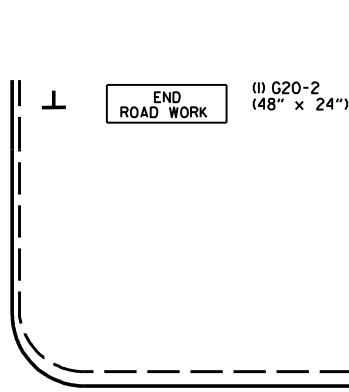
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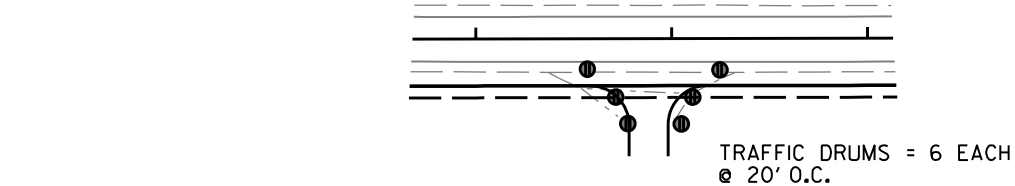
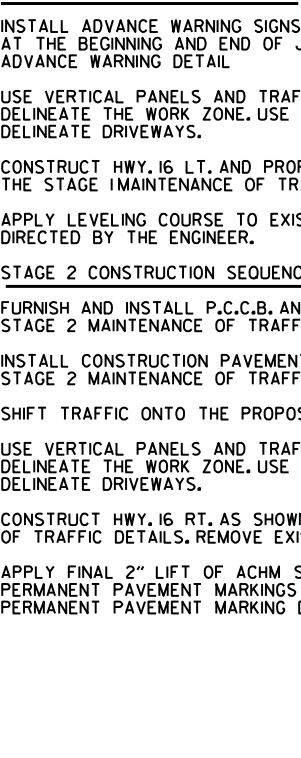
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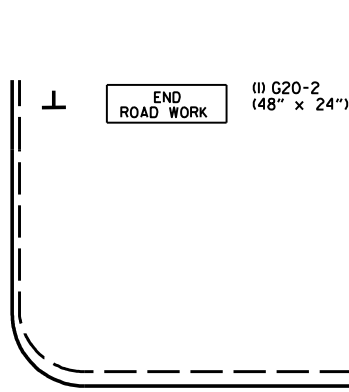
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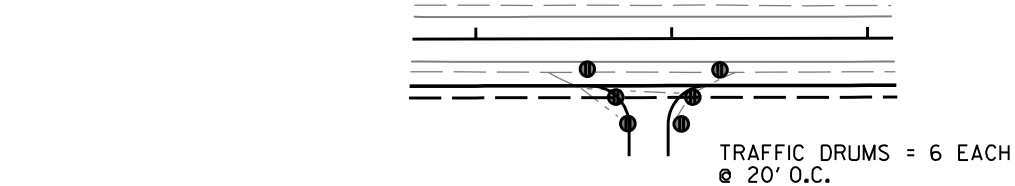
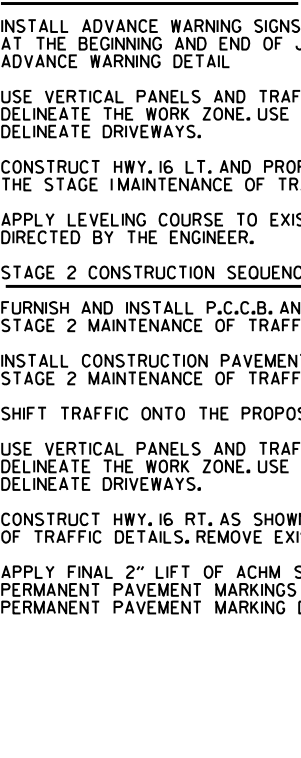
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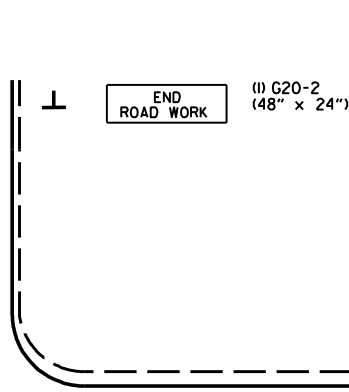
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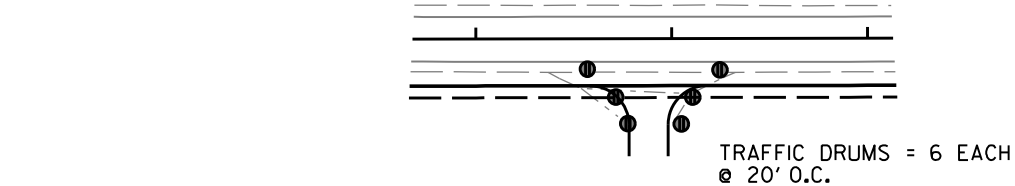
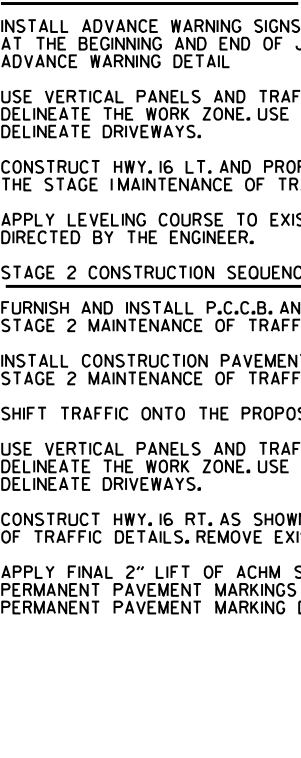
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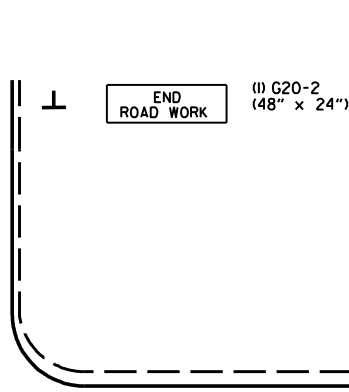
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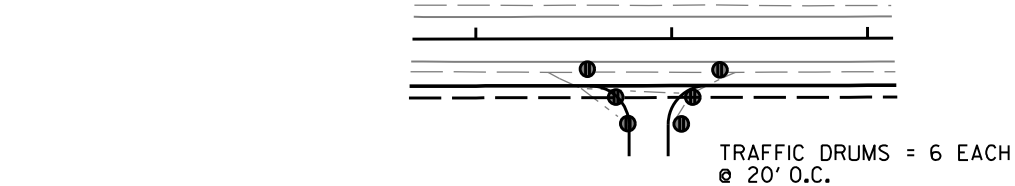
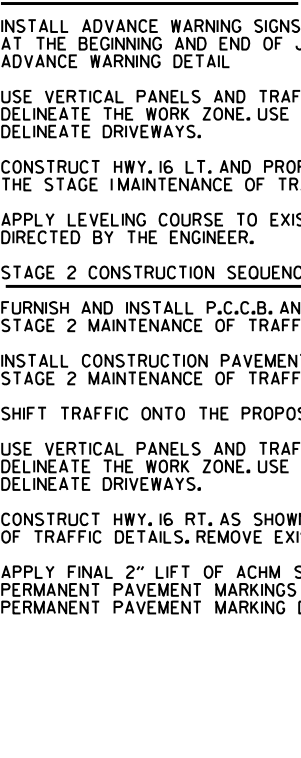
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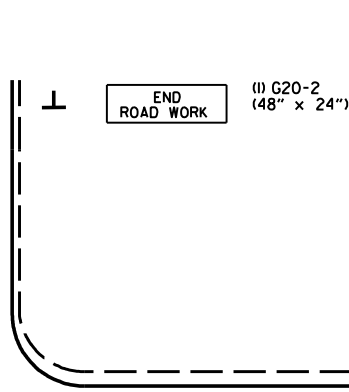
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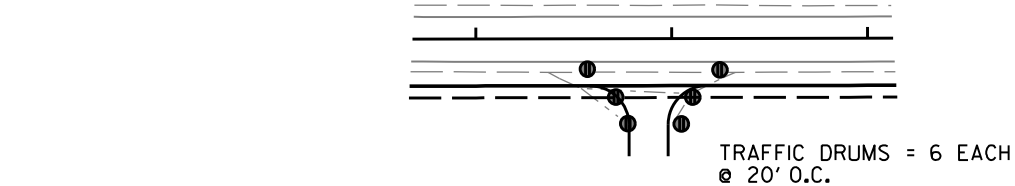
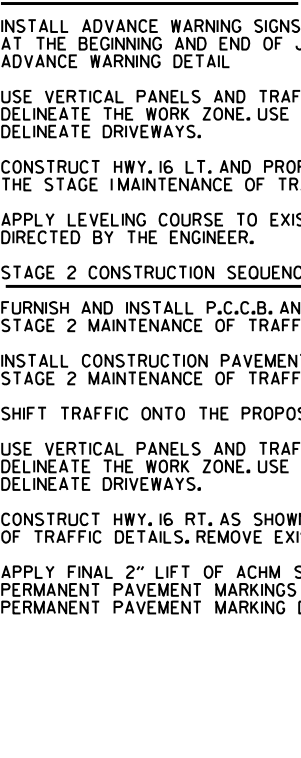
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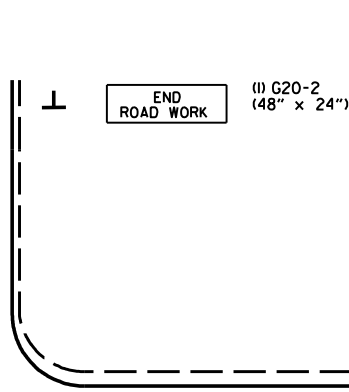
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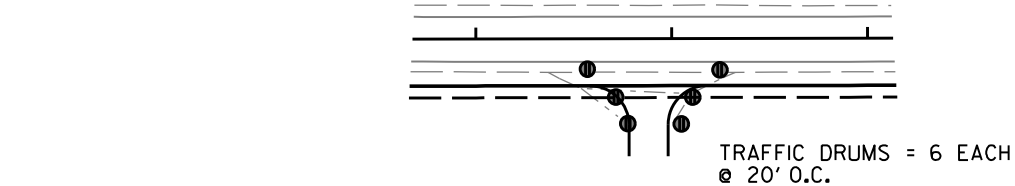
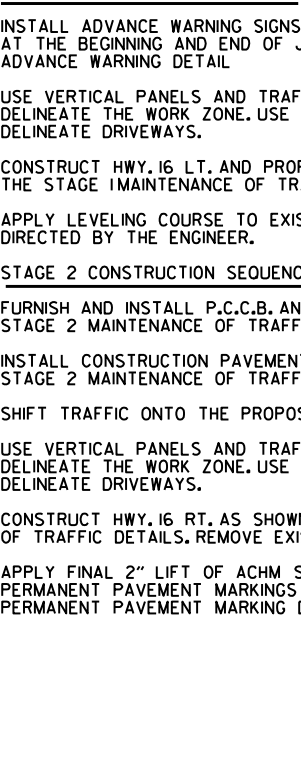
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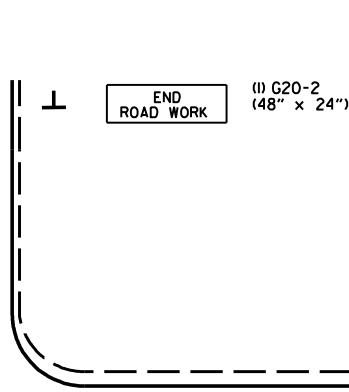
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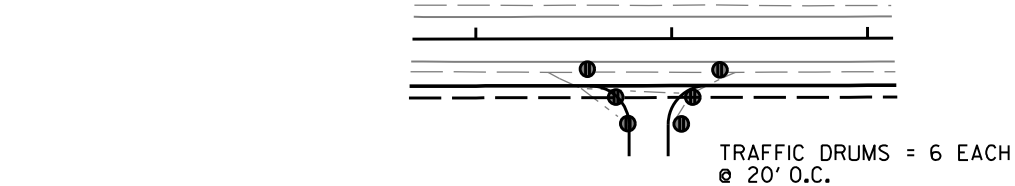
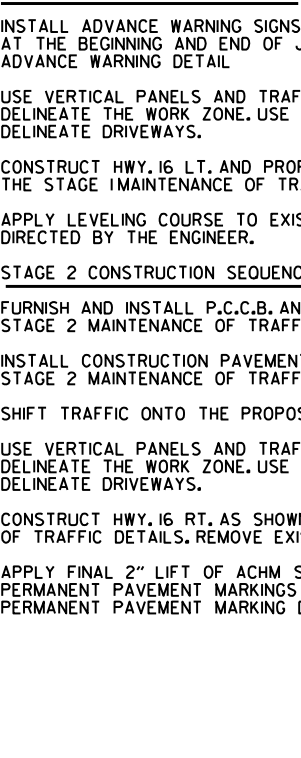
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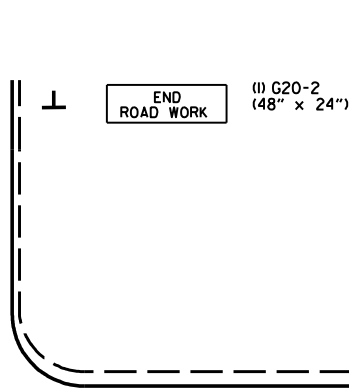
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END JOB 080614 STA. 101+00.00



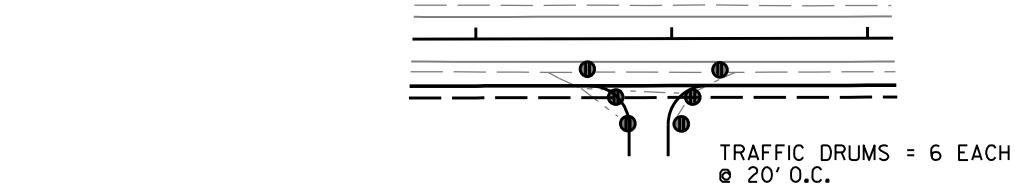
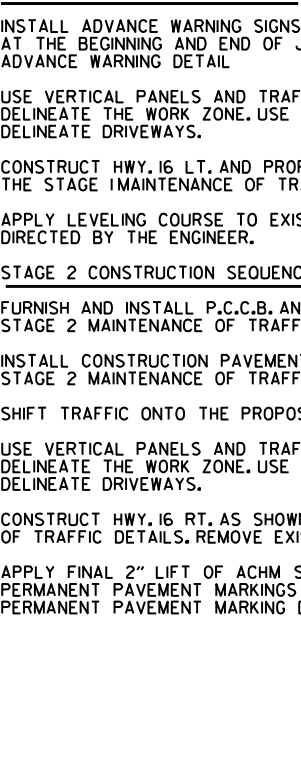
ADVANCE WARNING (ALL STAGES)



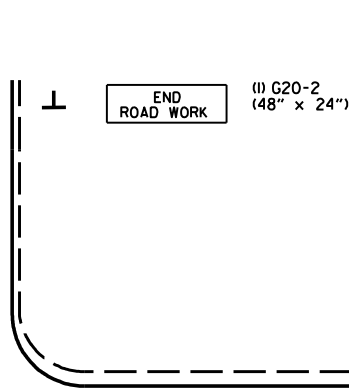
END JOB 080614 STA. 129+69.00

END JOB 080614 STA. 101+00.00

END JOB 080614 STA. 101+00.00



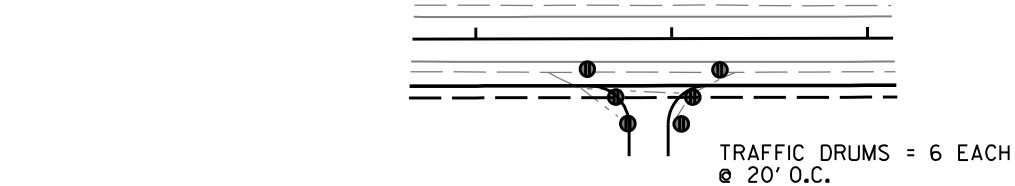
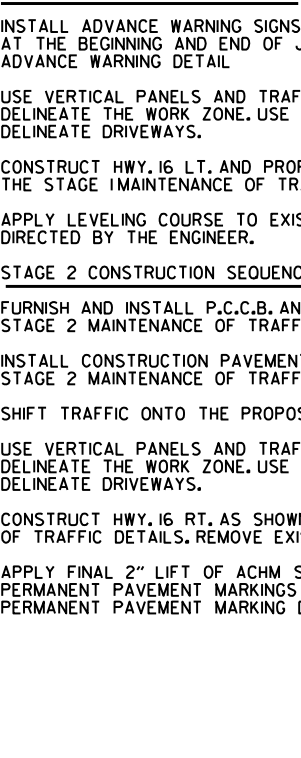
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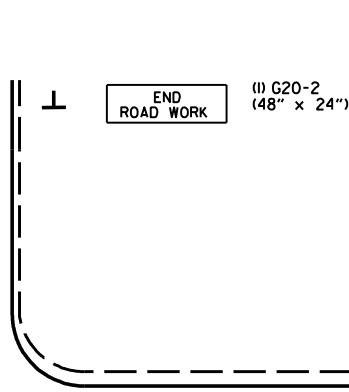
END JOB 080614 STA. 129+69.00

END JOB 080614 STA. 101+00.00

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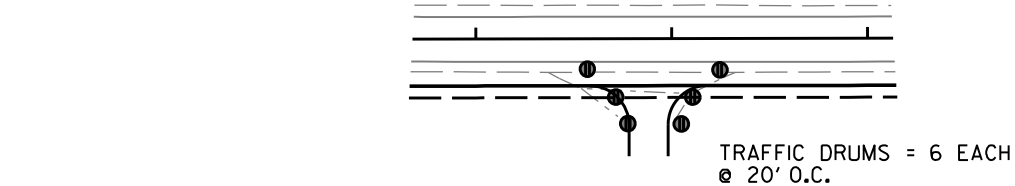
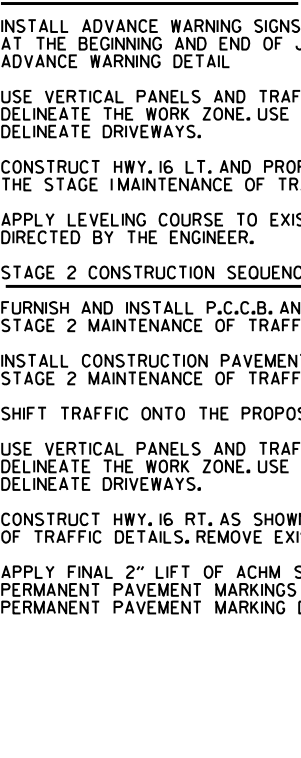
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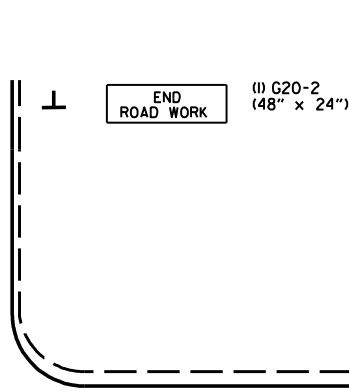
END JOB 080614 STA. 129+69.00

END JOB 080614 STA. 101+00.00

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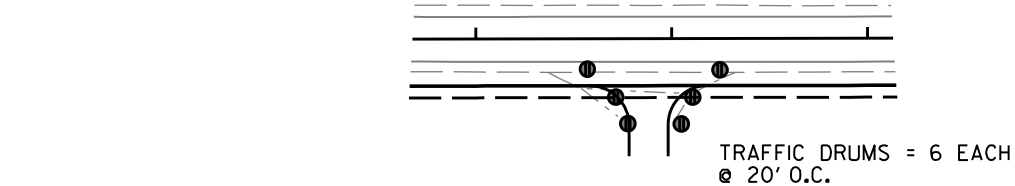
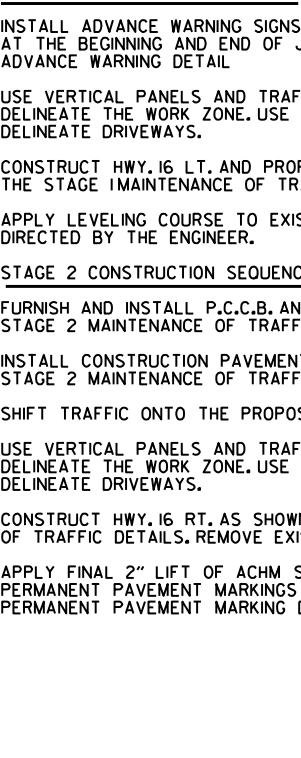
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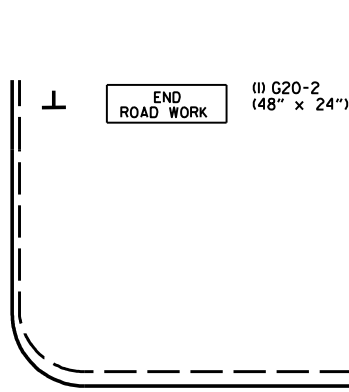
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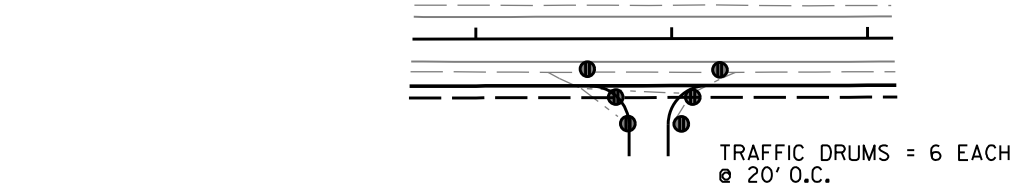
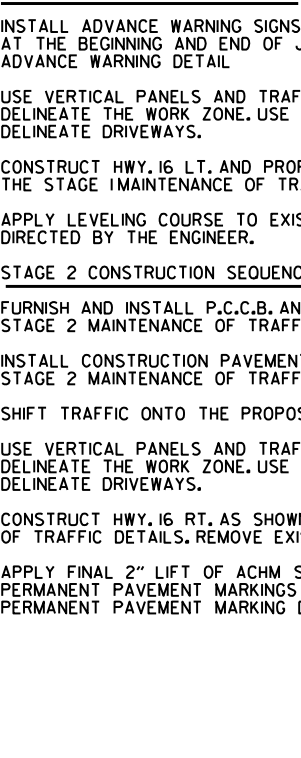
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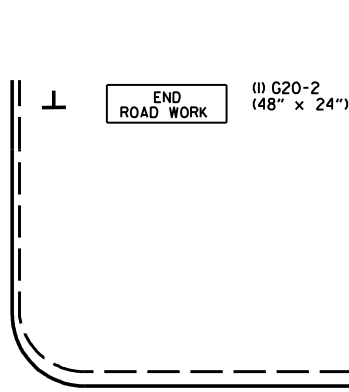
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END JOB 080614 STA. 101+00.00

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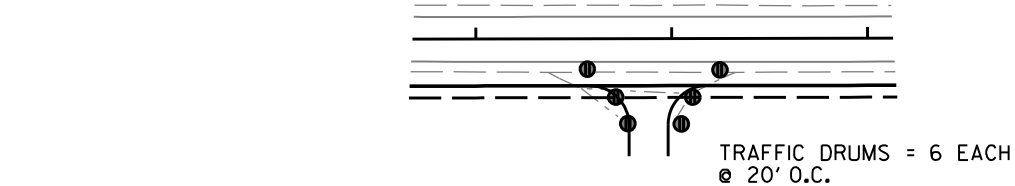
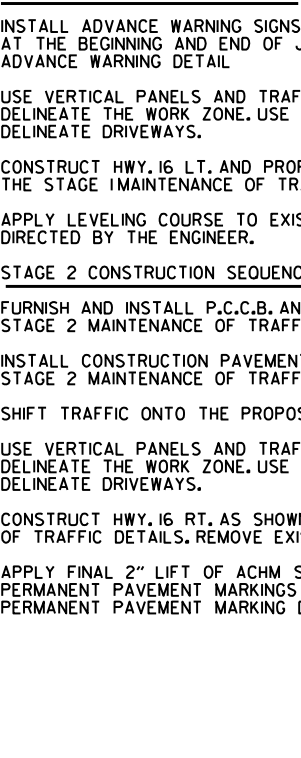
ADVANCE WARNING (ALL STAGES)



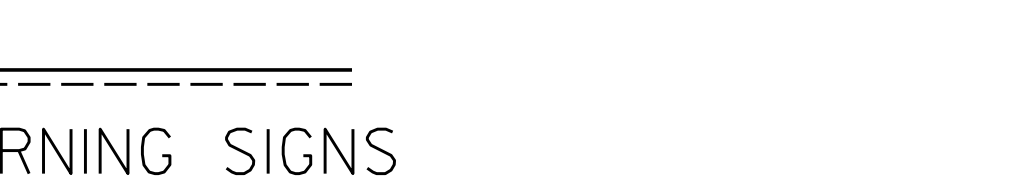
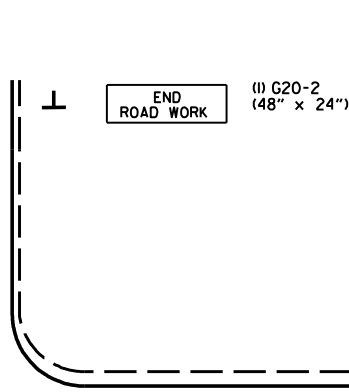
END JOB 080614 STA. 129+69.00

END JOB 080614 STA. 101+00.00

END JOB 080614 STA. 101+00.00



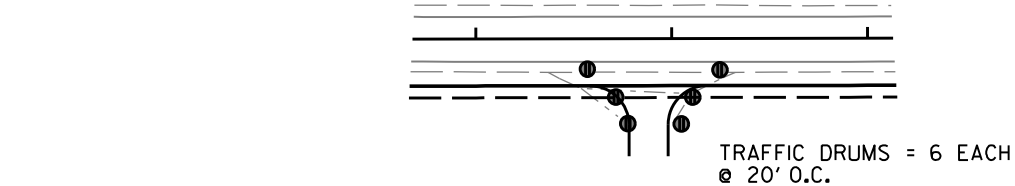
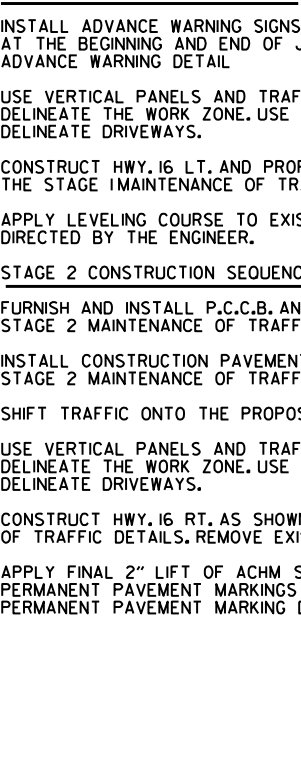
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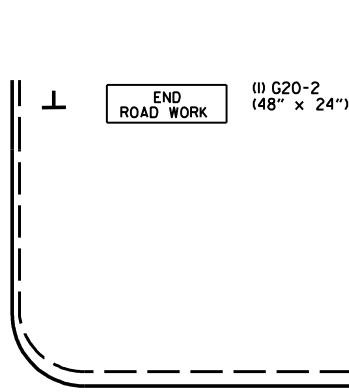
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END JOB 080614 STA. 101+00.00

END JOB 080614 STA. 101+00.00



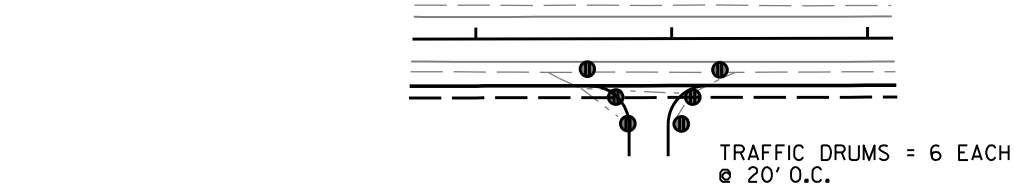
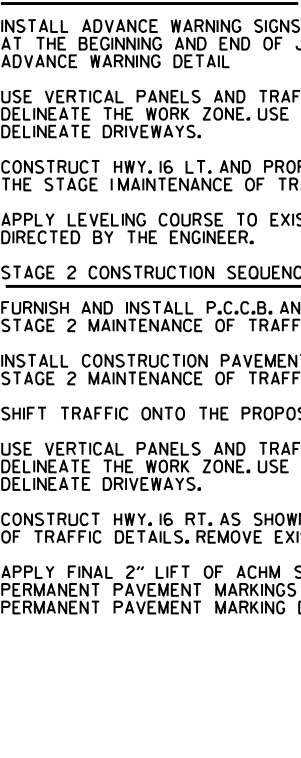
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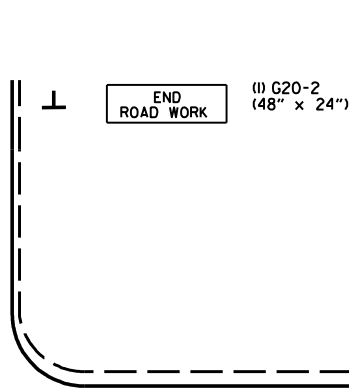
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END JOB 080614 STA. 101+00.00

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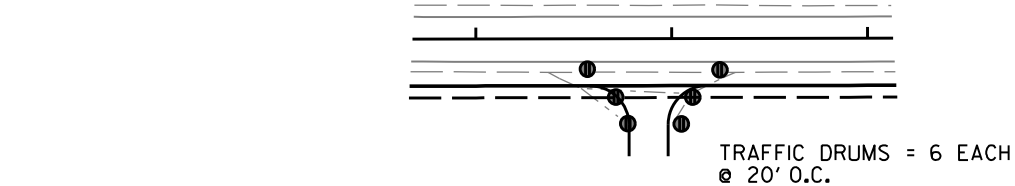
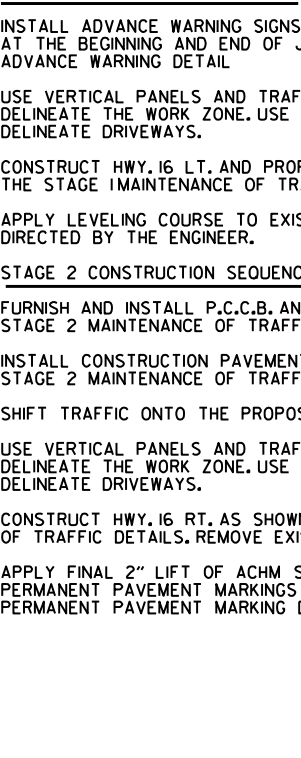
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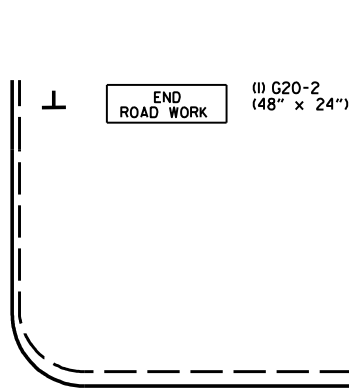
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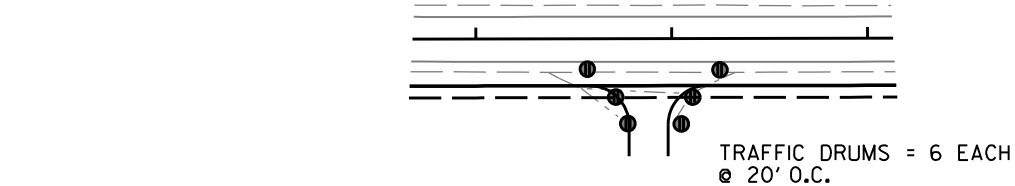
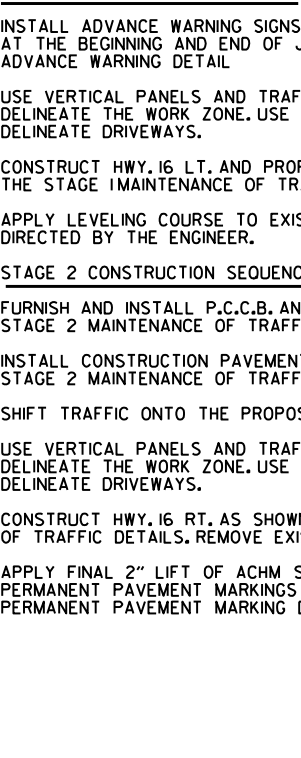
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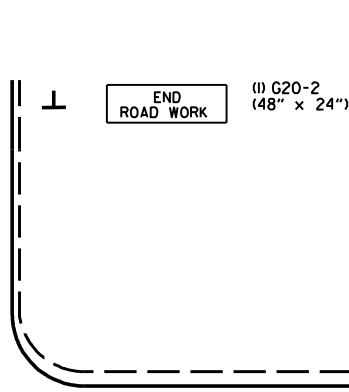
END JOB 080614 STA. 129+69.00

END JOB 080614 STA. 101+00.00

END JOB 080614 STA. 101+00.00



ADVANCE WARNING (ALL STAGES)



END JOB 080614 STA. 1

STAGE I CONSTRUCTION SEQUENCE

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE BEGINNING AND END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAIL

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

CONSTRUCT HWY. 16 LT. AND PROPOSED BRIDGE AS SHOWN IN THE STAGE I MAINTENANCE OF TRAFFIC DETAILS.

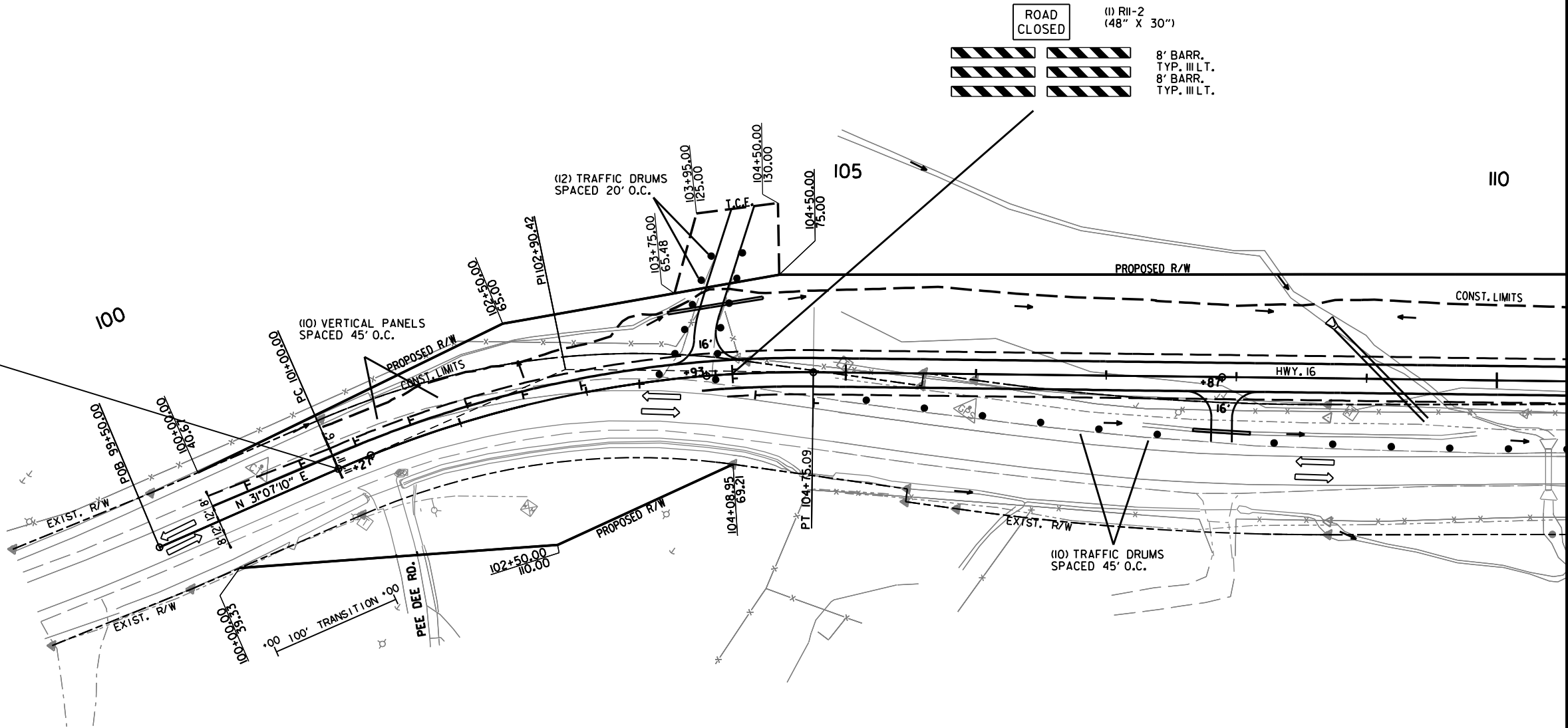
APPLY LEVELING COURSE TO EXISTING LANES IF AND WHERE DIRECTED BY THE ENGINEER.

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	22	82
MAINTENANCE OF TRAFFIC DETAILS						



12-11-2023

STA. 101+00.00
BEGIN JOB 080614
LOG MILE 2.27



STAGE I CONSTRUCTION SEQUENCE

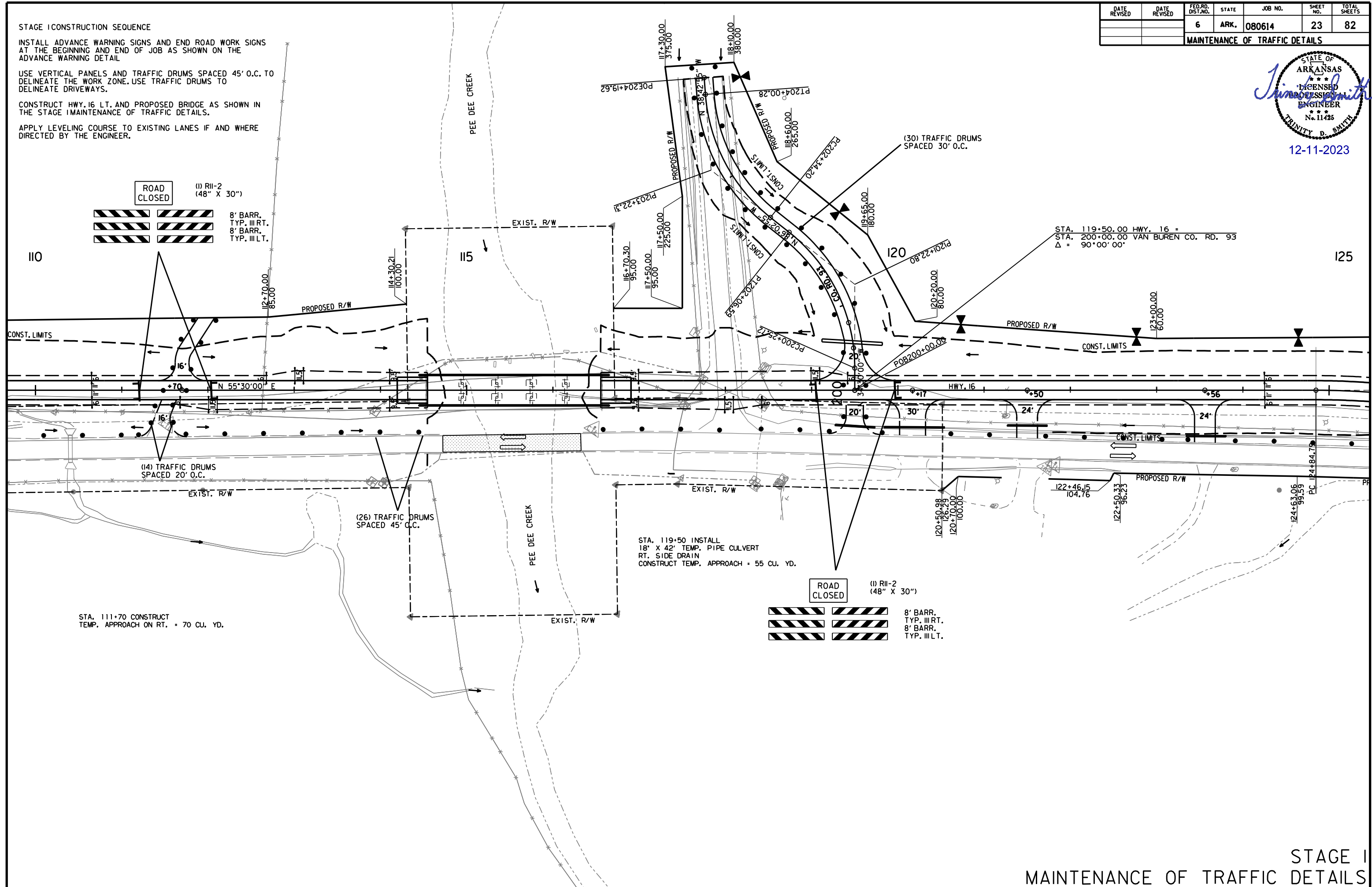
INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE BEGINNING AND END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAIL

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

CONSTRUCT HWY. 16 LT. AND PROPOSED BRIDGE AS SHOWN IN THE STAGE I MAINTENANCE OF TRAFFIC DETAILS.

APPLY LEVELING COURSE TO EXISTING LANES IF AND WHERE DIRECTED BY THE ENGINEER.

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	23	82
MAINTENANCE OF TRAFFIC DETAILS						



DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	25	82
MAINTENANCE OF TRAFFIC DETAILS						



12-11-2023

STAGE 2 CONSTRUCTION SEQUENCE

FURNISH AND INSTALL P.C.C.B. AND T.I.A.B. AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

INSTALL CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

SHIFT TRAFFIC ONTO THE PROPOSED HWY. 16 LANES.

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

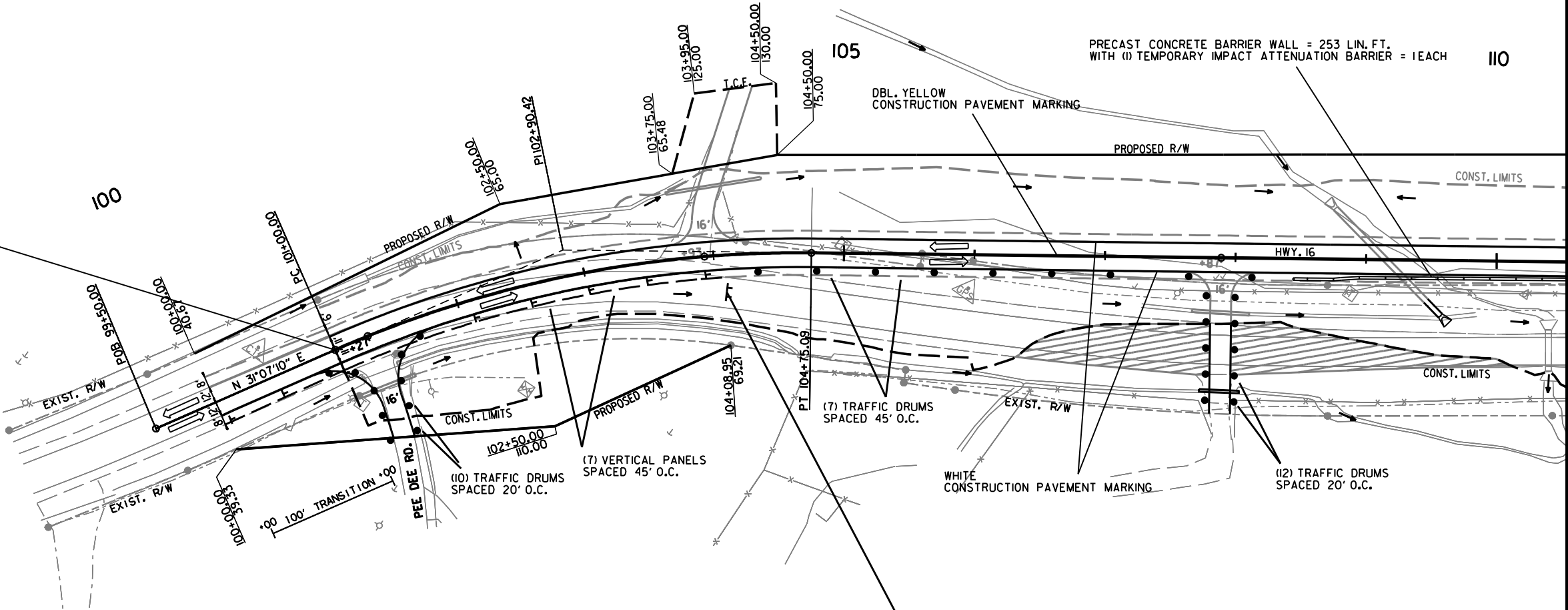
CONSTRUCT HWY. 16 RT. AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS. REMOVE EXISTING BRIDGE STRUCTURE.

APPLY FINAL 2" LIFT OF ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.

OBLITERATION OF
EXISTING PAVEMENT



STA. 101+00.00
BEGIN JOB 080614
LOG MILE 2.27



ROAD
CLOSED

(1) RII-2
(48" X 30")
(1) W1-6
(48" X 24")



8' BARR.
TYP. III RT.
8' BARR.
TYP. III RT.

STAGE 2 CONSTRUCTION SEQUENCE

FURNISH AND INSTALL P.C.C.B. AND T.I.A.B. AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

INSTALL CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

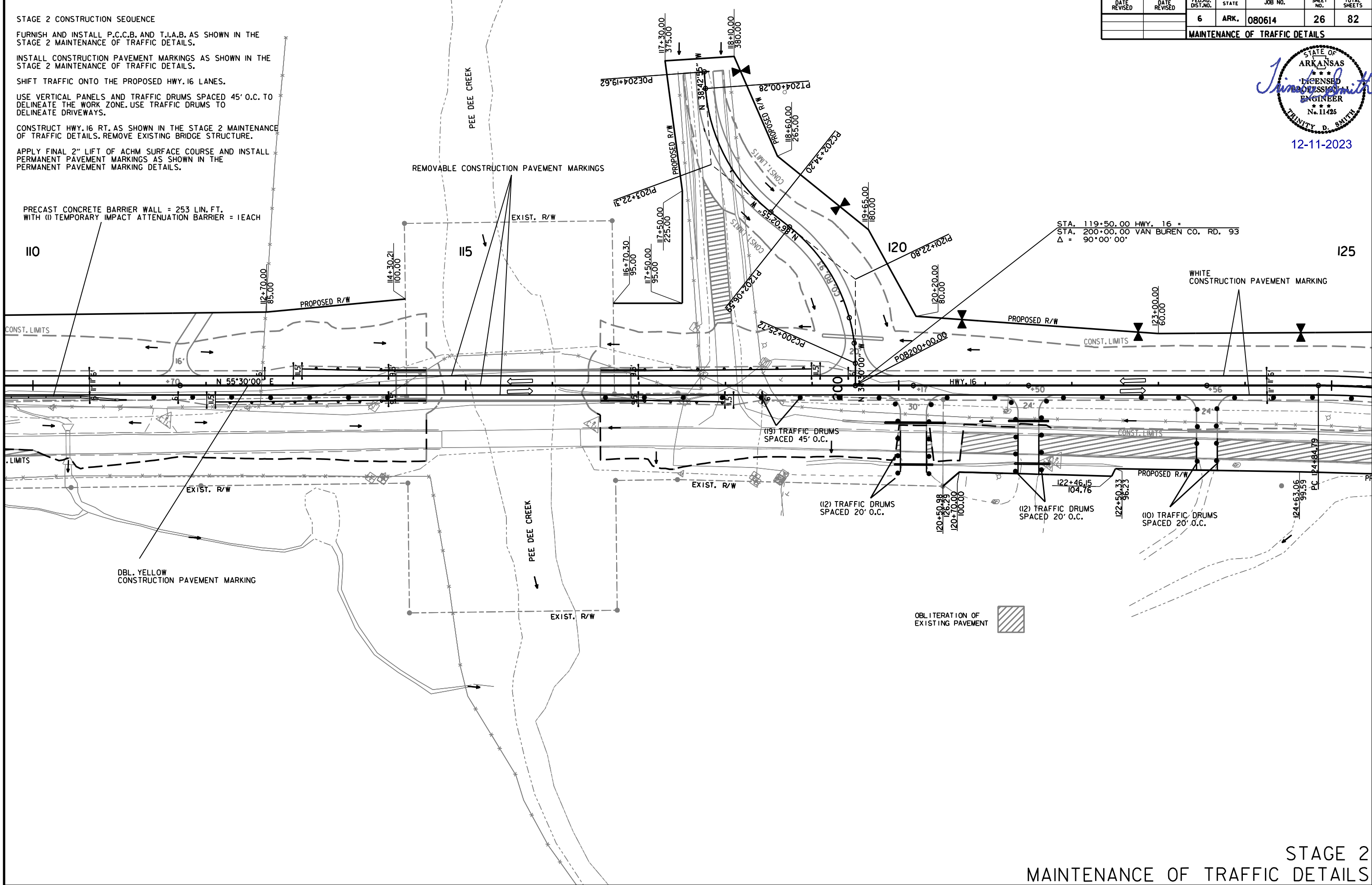
SHIFT TRAFFIC ONTO THE PROPOSED HWY. 16 LANES.

USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 45' O.C. TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

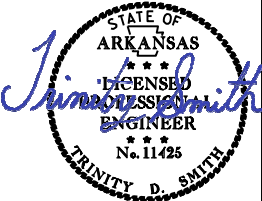
CONSTRUCT HWY. 16 RT. AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS. REMOVE EXISTING BRIDGE STRUCTURE.

APPLY FINAL 2" LIFT OF ACHM SURFACE COURSE AND INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKING DETAILS.

PRECAST CONCRETE BARRIER WALL = 253 LIN. FT.
WITH (1) TEMPORARY IMPACT ATTENUATION BARRIER = 1 EACH



DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	26	82
MAINTENANCE OF TRAFFIC DETAILS						



12-11-2023

STA. 119+50.00 HWY. 16 =
STA. 200+00.00 VAN BUREN CO. RD. 93
Δ = 90°00'00"



PERMANENT PAVEMENT MARKINGS

THERMOPLASTIC PAVEMENT MARKINGS WHITE (6") = 6138 LIN. FT.
THERMOPLASTIC PAVEMENT MARKINGS YELLOW (6") = 6138 LIN. FT.

REFLECTORIZED PAINT PAVEMENT MARKINGS YELLOW (6") = 820 LIN. FT.

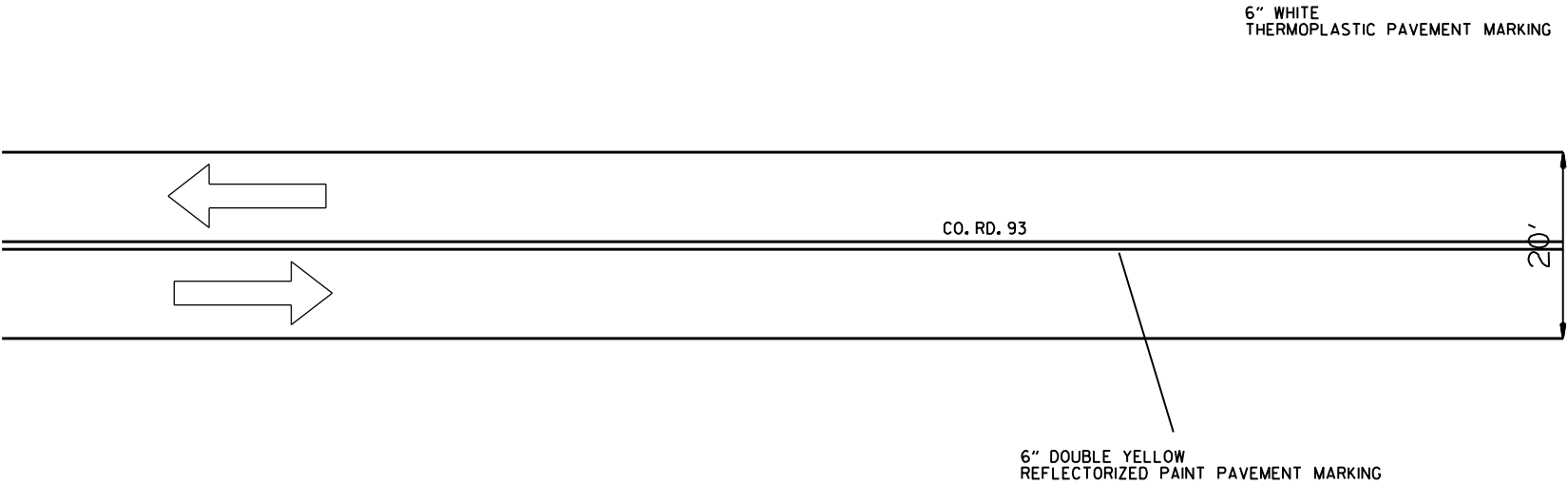
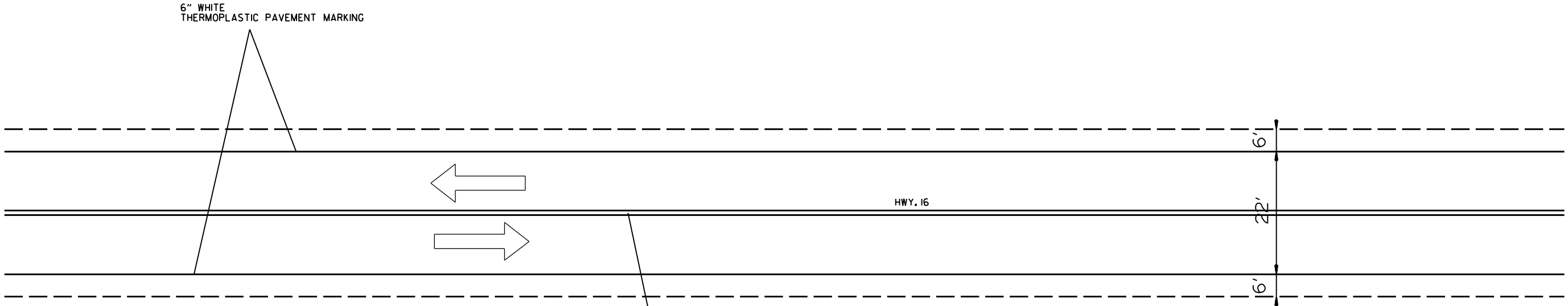
RAISED PAVEMENT MARKERS (TYPE III)(YELLOW/YELLOW)(80' O.C.) = 39 EACH

- 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.

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	28	82
PERMANENT PAVEMENT MARKING DETAILS						



12-11-2023





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)
										RIGHT	LEFT			
			LIN. FT. - EACH	NO.		SQ. FT.	EACH			LIN. FT.	EACH			
W20-1	ROAD WORK 1500 FT.	48"x48"	3	3	3	3	48.0							
W20-1	ROAD WORK 1000 FT.	48"x48"	3	3	3	3	48.0							
W20-1	ROAD WORK 500 FT.	48"x48"	3	3	3	3	48.0							
W20-1	ROAD WORK AHEAD	48"x48"	3	3	3	3	48.0							
W1-6	ARROW	48"x24"		2	2	2	16.0							
G20-2	END ROAD WORK	48"x24"	3	3	3	3	24.0							
R11-2	ROAD CLOSED	48"x30"	6	2	6	6	60.0							
R2-1	SPEED LIMIT 45 MPH	24"x30"	2	2	2	2	10.0							
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							
SPECIAL	WORK WITH US SIGN (USE CAUTION, SLOW DOWN)	120"x60"	2	2	2	2	100.0							
	VERTICAL PANELS		13	12	13			13						
	TRAFFIC DRUMS		106	89	106				106					
	TYPE III BARRICADE-RT. (8')		6	2	6					48				
	TYPE III BARRICADE-LT. (8')		6	2	6						48			
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			253	253							253		
	TEMPORARY IMPACT ATTENUATION BARRIER			1	1								1	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			1	1									1
TOTALS:							442.5	13	106	48	48	253	1	1
NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.														

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS								
DESCRIPTION	STAGE 2	END OF JOB	CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKING		REFLECTORIZED PAINT PAVEMENT MARKING
					TYPE II	6"		6"
	(YELLOW/YELLOW)	WHITE	YELLOW	YELLOW				
		LIN. FT. - EACH		LIN. FT.	LIN. FT.	EACH	LIN. FT.	
CONSTRUCTION PAVEMENT MARKINGS	11192		11192					
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	1084			1084				
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)		39			39			
THERMOPLASTIC PAVEMENT MARKING WHITE (6")		6138				6138		
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")		6138					6138	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")		820						820
TOTALS:			11192	1084	39	6138	6138	820

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

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

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	30	82
QUANTITIES						



12-11-2023

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
101+00	130+69	HWY. 16	30	30
TOTALS:			30	30

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
105+28	114+27	HWY. 16 LT.	899
112+64	112+69	HWY. 16 RT.	5
114+27	117+31	HWY. 16 RT.	304
117+31	117+72	HWY. 16 RT.	41
200+00	202+36	CO. RD. 293 LT.	236
200+00	202+84	CO. RD. 293 LT.	284
202+84	204+20	CO. RD. 293 RT.	136
TOTAL:			1905

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS	BOX CULVERTS
		EACH	EACH
101+27	HWY. 16 RT.	1	
101+41	HWY. 16 RT.	1	
107+87	HWY. 16 RT.	1	
110+40	HWY. 16 RT.		1
118+03	HWY. 16 LT.	1	
120+17	HWY. 16 RT.	1	
121+50	HWY. 16 RT.	1	
TOTAL:		6	1

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

SOIL STABILIZATION

STATION	STATION	LOCATION / DESCRIPTION	SOIL STABILIZATION
			TON
ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	100
TOTAL:			100

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
ENTIRE	PROJECT	STAGE 1-MAIN LANES	4080	27247
ENTIRE	PROJECT	STAGE 2-MAIN LANES	4572	263
ENTIRE	PROJECT	APPROACHES	50	2635
200+11.00	204+20.00	CO. RD. 93	464	2133
ENTIRE	PROJECT	ADD'L FOR BRIDGE EXCAVATION	760	
ENITRE	PROJECT	OBLITERATION OF EXIST. PAVEMENT	1426	
TOTALS:			11352	32278

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
104+00.00	105+71.75	HWY. 16 LT.	171.75	152.67
108+00.00	108+72.00	HWY. 16 LT.	72.00	64.00
111+70.00	114+54.50	HWY. 16 LT.	284.50	252.89
128+55.00	129+69.00	HWY. 16 LT.	114.00	101.33
TOTAL:				570.89

NOTE: AVERAGE WIDTH = 8'-0"

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN. FT.		
113+11.35	114+55.10	LT. SIDE	75	1	1
112+10.75	114+55.10	RT. SIDE	150	1	1
116+54.90	118+99.05	LT. SIDE	150	1	1
116+54.90	117+98.65	RT. SIDE	75	1	1
TOTALS:			450	4	4

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	1500	6
TOTALS:			1500	6

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

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
101+00	35	36	8.90	92	25	17.50	HWY. 16 6' RT.					BROWN
101+00	35	36	8.90	92	25	17.50	HWY. 16 22' RT.	0.5	23	9	A-2-4(0)	BROWN
117+00	35	36	18.70	92	25	1.30	HWY. 16 80' LT.	0.5	ND	NP	A-2-4(0)	BROWN
131+00	35	36	24.40	92	24	46.80	HWY. 16 30' RT.	0.5	ND	NP	A-1-2	BROWN

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

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	31	82
QUANTITIES						



12-11-2023

FENCING

STATION	STATION	LOCATION	WIRE FENCE
			(TYPE D-1)
			LIN. FT.
120+20	130+15	HWY. 16 LT	1033
200+65	204+20	CO. RD. 93 RT.	375
TOTALS:			1408

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
100+00.00	101+00.00	MAIN LANES	37.00	411.11
129+69.00	130+69.00	MAIN LANES	21.00	233.33
TOTAL:				644.44

NOTE: COLD MILLING STOCKPILE LOCATION
VAN BUREN COUNTY SHOP, 438 OLD HWY. 9, CLINTON, AR 72031

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE F)	APPROACH SLABS (TYPE SPECIAL)	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
114+19.50	114+54.50	HWY. 16 LT. SIDE	4.20		210	
114+19.50	114+54.50	HWY. 16 RT. SIDE	4.20		210	
114+19.50	114+54.50	HWY. 16		59.30	7140	19.60
116+55.50	116+90.50	HWY. 16 LT. SIDE	4.20		210	
116+55.50	116+90.50	HWY. 16 RT. SIDE	4.20		210	
116+55.50	116+90.50	HWY. 16		59.30	7140	19.60
TOTALS:			16.80	118.60	15120	39.20

NOTE: USE T =14" FOR 6" SHOULDER.

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
114+55	LT SIDE OF BRIDGE	1
TOTAL:		1

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

MALBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS	
		(SINGLE)	(DOUBLE)
	EACH		
ENTIRE PROJECT	4	2	1
TOTALS:	4	2	1

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)			AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS				STANDARD DRAWINGS
			FEET		SQ. YD.	SQ. YD.	TON		18"	24"	36"	42"	
101+27	RT	HWY. 16 - PEE DEE RD.	16			165.73	18.23	67.67			42		PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
103+93	LT	HWY. 16	16			30.43	3.35	93.67		74			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
107+87	RT	HWY. 16	16			30.43	3.35	76.03		42			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
107+87	RT	HWY. 16	16							28			PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
111+70	LT	HWY. 16	16			30.43	3.35	75.10					
111+70	RT	HWY. 16 - TEMP. ACCESS	16					30.80					
119+50	LT	HWY. 16 - CO. RD. 93	20			938.04	108.18	383.03				70	PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
119+50	RT	HWY. 16 - TEMP. ACCESS	20					16.80	46				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
120+17	RT	HWY. 16	30			52.21	5.74	150.98	70				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
120+17	RT	HWY. 16	30						44				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
121+50	RT	HWY. 16	24			299.18	32.91	122.17	46				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
121+50	RT	HWY. 16	24						42				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
123+56	RT	HWY. 16	24	220.80					46				PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
130+50	LT	HWY. 16	20			36.65	4.03	20.80					
* ENTIRE PROJECT TEMPORARY DRIVES								100.00					
TOTALS:					220.80	1583.10	179.14	1137.05	294	144	42	70	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.4% MIN. AGGR.....5.6% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	15
TOTAL:	15

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	15	30
TOTALS:	15	30

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

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

QUANTITIES

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	32	82
QUANTITIES						



12-11-2023

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
103+30.00	104+00.00	HWY. 16 LT.	70.00	6.32	49.16	31.11	0.39
108+35.00	109+57.00	HWY. 16 RT.	122.00	6.32	85.67	54.22	0.68
110+40.00	111+70.00	HWY. 16 RT.	130.00	6.32	91.29	57.78	0.73
116+50.00	117+00.00	HWY. 16 RT.	50.00	6.32	35.11	22.22	0.28
TOTALS:					261.23	165.33	2.08

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

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
101+00	114+20	RIGHT OF MAIN LANES	1320
116+91	129+69	RIGHT OF MAIN LANES	1278
101+00	114+20	LEFT OF MAIN LANES	1320
116+91	129+69	LEFT OF MAIN LANES	1278
TOTAL:			5196

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

STRUCTURES

STATION	DESCRIPTION	PIPE CULVERT ALTERNATES		FLARED END SECTION ALTERNATES FOR PIPE CULVERT ALTERNATES	SOLID SODDING	WATER	STD. DWG. NOS.
		ALT. 1 (CLASS V) 48"	ALT. 2, 3, 4, 5, 6, AND 7 (WITH CLASS V ALT. 1) 48"				
		LIN. FT.		48"			
109+15	CONST. 48" x 120' PIPE CULVERT	110	114	2	29	0.37	FES-1, FES-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
TOTALS:		110	114	2	29	0.37	

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

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

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

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	50
TOTAL:	50

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL								
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS	ROCK DITCH CHECKS	SILT FENCE	SEDIMENT BASIN	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
											(E-5)	(E-6)	(E-11)	(E-14)		
ENTIRE	PROJECT	CLEARING AND GRUBBING						10.63	10.63	216.9	308	51	4050			181
ENTIRE	PROJECT	STAGE 1						6.39	6.39	130.4	330	69				38
ENTIRE	PROJECT	STAGE 2	5.23	10.46	5.23	533.5	5.23	4.24	4.24	86.5	66	27	1435			65
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			2.62	5.24	2.62	267.2	2.62	5.32	5.32	108.5	176	37	1371	300	300	351
TOTALS:			7.85	15.70	7.85	800.7	7.85	26.58	26.58	542.3	880	184	6856	300	300	635

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
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.

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	33	82
QUANTITIES						



12-11-2023

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT						ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (3/8")										
				TON / STATION	TON	(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)			TOTAL GALLONS	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	TOTAL PG 64-22 TON	
						TOTAL WID. FEET	SQ.YD.	GALLON	TOTAL WID. FEET	SQ.YD.	GALLON															
MAIN LANES																										
100+00.00	101+00.00	HWY. 16 TRANSITION	100.00																							
101+00.00	103+74.62	HWY. 16 NOTCH AND WIDEN	274.62	VAR.	416.35	VAR.	429.04	2' 45	37.00	411.11	69.89	69.89	21.45	VAR.	216.43	440.00	47.61	VAR.	212.61	220.00	23.39	34.00	1037.45	220.00	114.12	137.51
103+74.62	114+19.50	HWY. 16 FULL DEPTH	1044.88	210.50	2199.47	44.75	5195.38	259.77				259.77	22.50	2612.20	440.00	574.68	22.25	2583.18	220.00	284.15	34.00	3947.32	220.00	434.21	718.36	
116+90.50	128+82.12	HWY. 16 FULL DEPTH	1161.62	210.50	2508.36	44.75	5925.00	293.25				296.25	22.50	2979.05	440.00	655.39	22.25	2945.95	220.00	324.05	34.00	4501.68	220.00	495.18	819.23	
128+82.12	129+69.00	HWY. 16 NOTCH AND WIDEN	86.88	VAR.	156.94	VAR.	279.86	13.99				13.99	VAR.	140.53	440.00	30.92	VAR.	139.33	220.00	15.33	34.00	328.21	220.00	36.10	51.43	
129+69.00	130+69.00	HWY. 16 TRANSITION	100.00	VAR.	133.80	VAR.	54.43	272	21.00	233.33	39.67	42.39	VAR.	27.91	440.00	6.14	VAR.	26.52	220.00	2.92	29.50	327.78	220.00	36.06	38.98	
ADDITIONAL FOR LEVELING																										
101+00.00	103+74.62	HWY. 16	274.62			48.00	1464.64	73.23	24.00	732.32	124.49	197.72	24.00	732.32	VAR.	161.11					24.00	732.32	VAR.	80.56	80.56	
103+74.62	104+94.62	HWY. 16	120.00			48.00	640.00	32.00	24.00	320.00	54.40	86.40	24.00	320.00	VAR.	70.40					24.00	320.00	VAR.	35.20	35.20	
128+02.12	128+82.12	HWY. 16	80.00			42.00	373.34	18.67	21.00	186.67	31.73	50.40					21.00	186.67	VAR.	20.53	21.00	186.67	VAR.	20.56	41.09	
128+82.12	129+69.00	HWY. 16	86.88			42.00	405.44	20.27	21.00	202.72	34.46	54.73					21.00	202.72	VAR.	22.30	21.00	202.72	VAR.	22.30	44.60	
ADDITIONAL FOR GUARDRAIL WIDENING																										
111+67.75	112+00.75	HWY. 16 WIDENING TAPER RT.	33.00	15.75	5.20																2.75	10.08	220.00	1.11	1.11	
112+00.75	112+10.75	HWY. 16 WIDENING RT.	10.00	31.50	3.15																5.50	6.11	220.00	0.67	0.67	
112+10.75	114+10.75	HWY. 16 WIDENING RT.	200.00	26.25	52.50																4.50	100.00	220.00	11.00	11.00	
114+10.75	114+54.50	HWY. 16 WIDENING RT.	43.75	21.00	9.19																3.50	17.01	220.00	1.87	1.87	
112+67.75	113+00.75	HWY. 16 WIDENING LT.	33.00	15.75	5.20																2.75	10.08	220.00	1.11	1.11	
113+00.75	113+10.75	HWY. 16 WIDENING LT.	10.00	31.50	3.15																5.50	6.11	220.00	0.67	0.67	
113+10.75	114+10.75	HWY. 16 WIDENING LT.	100.00	26.25	26.25																4.50	50.00	220.00	5.50	5.50	
114+10.75	114+54.50	HWY. 16 WIDENING TAPER LT.	43.75	21.00	9.19																3.50	17.01	220.00	1.87	1.87	
116+55.50	116+99.25	HWY. 16 WIDENING TAPER RT.	43.75	21.00	9.19																3.50	17.01	220.00	1.87	1.87	
116+99.25	117+99.25	HWY. 16 WIDENING RT.	100.00	26.25	26.25																4.50	50.00	220.00	5.50	5.50	
117+99.25	118+09.25	HWY. 16 WIDENING RT.	10.00	31.50	3.15																5.50	6.11	220.00	0.67	0.67	
118+09.25	118+42.25	HWY. 16 WIDENING RT.	33.00	15.75	5.20																2.75	10.08	220.00	1.11	1.11	
116+55.50	116+99.25	HWY. 16 WIDENING LT.	43.75	21.00	9.19																3.50	17.01	220.00	1.87	1.87	
116+99.25	118+99.25	HWY. 16 WIDENING LT.	200.00	26.25	52.50																4.50	100.00	220.00	11.00	11.00	
118+99.25	119+09.25	HWY. 16 WIDENING LT.	100.00	31.50	3.15																5.50	6.11	220.00	0.67	0.67	
119+09.25	119+42.25	HWY. 16 WIDENING TAPER LT.	33.00	15.75	5.20																2.75	10.08	220.00	1.11	1.11	
ADDITIONAL FOR SUPERELEVATION																										
101+00.00	102+87.54	HWY. 16	187.54	30.50	57.20																					
102+87.54	104+68.09	HWY. 16	180.55	64.00	115.55																					
104+68.09	107+37.59	HWY. 16	269.50	32.00	86.24																					
122+22.29	125+72.29	HWY. 16	350.00	40.75	142.63																					
125+72.29	127+34.50	HWY. 16	162.21	81.50	132.20																					
127+34.50	129+69.00	HWY. 16	234.50	38.75	90.87																					
TOTALS:					6267.27		14767.13	738.35		2086.15	354.64	1092.99		7028.44		1546.25		6296.98		692.67		12428.06		1367.11	2059.78	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.4% MIN. AGGR.....5.6% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.5% MIN. AGGR.....4.5% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

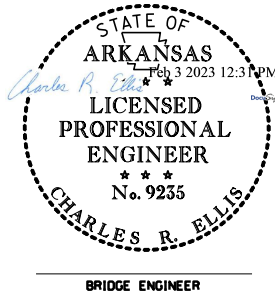
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	34	82
07565 - QUANTITIES - 64431						

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 080614

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	SP, SS, & 802	SP, SS, & 802	SP & 803	SS & 804	SS & 804	SS & 805	SS & 805	SP, SS, & 807	SS & 807	SS & 808	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)	② STEEL PILING (HP 14X73)	PREBORING	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	PAINTING STRUCTURAL STEEL	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	FOUNDATION PROTECTION RIPRAP
			UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	LB.	LB.	LIN. FT.	LIN. FT.	LB.	TON	CU. IN.	EACH	SQ. YD.	TON
07565	HIGHWAY 16 OVER PEE DEE CREEK																	
		BENT NO. 1			24.12			2,595	384	92	40					550	2,096	
		BENT NO. 2		101	32.33			5,782						1,178.2				
		BENT NO. 3		104	37.89			6,308						1,178.3				
		BENT NO. 4		111	38.26			6,361						1,178.3				
		BENT NO. 5		97	31.98			5,729						1,178.2				
		BENT NO. 6			24.12			2,595	384	104	40					641	2,509	
		200'-0" INTEGRAL CONTINUOUS W-BEAM UNIT				230.50	941.0		66,712			125,930	2.1		1			
SITE NO. 1 (EXISTING BR. NO. 02173)	1																	
TOTALS FOR JOB NO. 080614				① 413	188.70	230.50	941.0	29,370	67,480	196	80	125,930	2.1	4,713	1	1,191	4,605	

- ① Includes approximately 92 cu. yds. of rock excavation.
- ② All steel piling shall be Grade 50 and are required to have approved driving points which will not be paid for directly, but will be considered subsidiary to the item "Steel Piling (HP 14x73)". All piles shall conform to Standard Drawing No. 55020.

JIM POOL
DESIGN SECTION SUPERVISOR



SCHEDULE OF BRIDGE QUANTITIES
PEE DEE CREEK STR. & APPRS. (CLINTON) (S)
VAN BUREN COUNTY

ROUTE 16 SEC. 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JCG DATE: 11/2/2021 FILENAME: b080614_q1.dgn
CHECKED BY: DKS DATE: 12/9/2021 SCALE: No Scale
DESIGNED BY: - DATE: -
BRIDGE NO. 07565 DRAWING NO. 6443I

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
02/01/24		6	ARK.	080614	35	82
SUMMARY OF QUANTITIES & REVISIONS						



SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	30	STATION
201	GRUBBING	30	STATION
202	REMOVAL AND DISPOSAL OF FENCE	1905	LIN. FT.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	6	EACH
202	REMOVAL AND DISPOSAL OF BOX CULVERTS	1	EACH
SP, SS, & 210	UNCLASSIFIED EXCAVATION	11352	CU. YD.
SP & 210	COMPACTED EMBANKMENT	32278	CU. YD.
SP & 210	SOIL STABILIZATION	100	TON
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)	7444	TON
SS & 401	TACK COAT	1123	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	1476	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	70	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	2114	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	125	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	644	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	15	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	15	TON
SP, SS, & 504	APPROACH SLABS	118.60	CU. YD.
SP, SS, & 504	APPROACH GUTTERS	16.80	CU. YD.
SP, SS, & 505	PORTLAND CEMENT CONCRETE DRIVEWAY	220.80	SQ. 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	443	SQ. FT.
SS & 604	BARRICADES	96	LIN. FT.
SS & 604	TRAFFIC DRUMS	106	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER	253	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS	11192	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	1084	LIN. FT.
SS & 604	VERTICAL PANELS	13	EACH
SP, SS, & 605	CONCRETE DITCH PAVING (TYPE B)	261	SQ. YD.
* SS & 606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	(ALTERNATE NO. 1) 110	LIN. FT.
* SS & 606	48" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2) 114	LIN. FT.
* SS & 606	48" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3) 114	LIN. FT.
* SS & 606	48" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4) 114	LIN. FT.
* SP, SS, & 606	48" POLYPROPYLENE PIPE	(ALTERNATE NO. 5) 114	LIN. FT.
* SP, SS, & 606	48" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 6) 114	LIN. FT.
* SP, SS, & 606	48" PVC PIPE	(ALTERNATE NO. 7) 114	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN	294	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	144	LIN. FT.
SP, SS, & 606	36" SIDE DRAIN	42	LIN. FT.
SP, SS, & 606	42" SIDE DRAIN	70	LIN. FT.
* SS & 606	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1) 2	EACH
* SS & 606	48" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2) 2	EACH
SS & 606	SELECTED PIPE BEDDING	50	CU. YD.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	6	EACH
SS & 611	4" PIPE UNDERDRAINS	1500	LIN. FT.
SS & 617	GUARDRAIL (TYPE A)	450	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	4	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL	4	EACH
SS & 619	WIRE FENCE (TYPE D-1)	1408	LIN. FT.
620	LIME	16	TON
620	SEEDING	7.85	ACRE
SS & 620	MULCH COVER	34.43	ACRE
620	WATER	1345.5	M. GAL.
621	TEMPORARY SEEDING	26.58	ACRE
621	SILT FENCE	6856	LIN. FT.
621	SAND BAG DITCH CHECKS	880	BAG
621	SEDIMENT BASIN	300	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	300	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	635	CU. YD.
621	ROCK DITCH CHECKS	184	CU. YD.
623	SECOND SEEDING APPLICATION	7.85	ACRE
624	SOLID SODDING	194	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	571	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	4	EACH
637	MAILBOX SUPPORTS (SINGLE)	2	EACH
637	MAILBOX SUPPORTS (DOUBLE)	1	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	5196	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	820	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	6138	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	6138	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	39	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER	1	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	1	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	15120	POUND

* DENOTES ALTERNATE BID ITEMS.

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	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	413	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-BRIDGE	188.70	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	230.50	CU. YD.
SP & 803	CLASS 2 PROTECTIVE SURFACE TREATMENT	941.0	SQ. YD.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	29370	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	67480	POUND
SS & 805	STEEL PILING (HP 14X73)	196	LIN. FT.
SS & 805	PREBORING	80	LIN. FT.
SP, SS, & 807	STRUCTURAL STEEL N BEAM SPANS (A709, GR. 50W)	125930	POUND
SS & 807	PAINTING STRUCTURAL STEEL	2.1	TON
SS & 808	ELASTOMERIC BEARINGS	4713	CU. IN.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
SS & 816	FILTER BLANKET	1191	SQ. YD.
SS & 816	FOUNDATION PROTECTION RIPRAP	4605	TON

REVISIONS

DATE	REVISION	SHEET NUMBER
2/1/2024	REMOVED THE FLEXIBLE BEGINNING OF WORK SPECIAL PROVISION	4 & 35

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	36	82
SURVEY CONTROL DETAILS						

SURVEY CONTROL COORDINATES

Project Name: s080614
Date: 5/21/2020
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL,
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	462222.7871	1187072.2368	526.567	CTL	ARDOT STD. MON. STAMPED PN: 1
2	462879.9275	1187958.2993	502.199	CTL	ARDOT STD. MON. STAMPED PN: 2
3	463155.4338	1188368.3183	504.143	CTL	ARDOT STD. MON. STAMPED PN: 3
4	463424.1902	1188832.1807	502.691	CTL	ARDOT STD. MON. STAMPED PN: 4
5	463804.8582	1189400.5136	511.998	CTL	ARDOT STD. MON. STAMPED PN: 5
6	463898.1885	1190072.0431	517.607	CTL	ARDOT STD. MON. STAMPED PN: 6
100	461568.0905	1186530.5120	596.283	GPS	ARDOT GPS #710020
101	462573.1055	1187490.6003	506.632	GPS	ARDOT GPS #710020A
900	463839.7904	1189635.3320	515.372	TBM	CHSQ, IN NW COR OF BR
901	463416.1186	1188826.0484	503.249	TBM	CHSQ, IN E CU HEADWALL 18.6' S OF C/L

*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 0.999915565550 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 s080614G1.CTL
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 710020 - 710020A
CONVERGENCE ANGLE: 00°14'34.31" LEFT AT LAT N35°36'17.91" LON W92°25'02.51"
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.



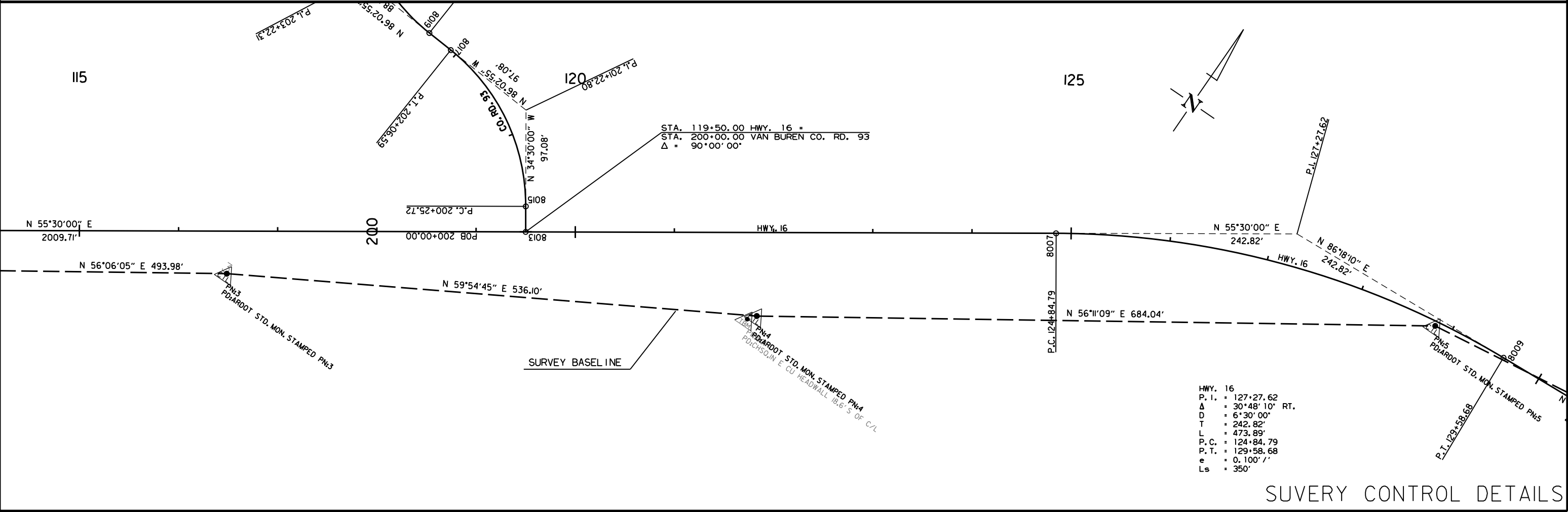
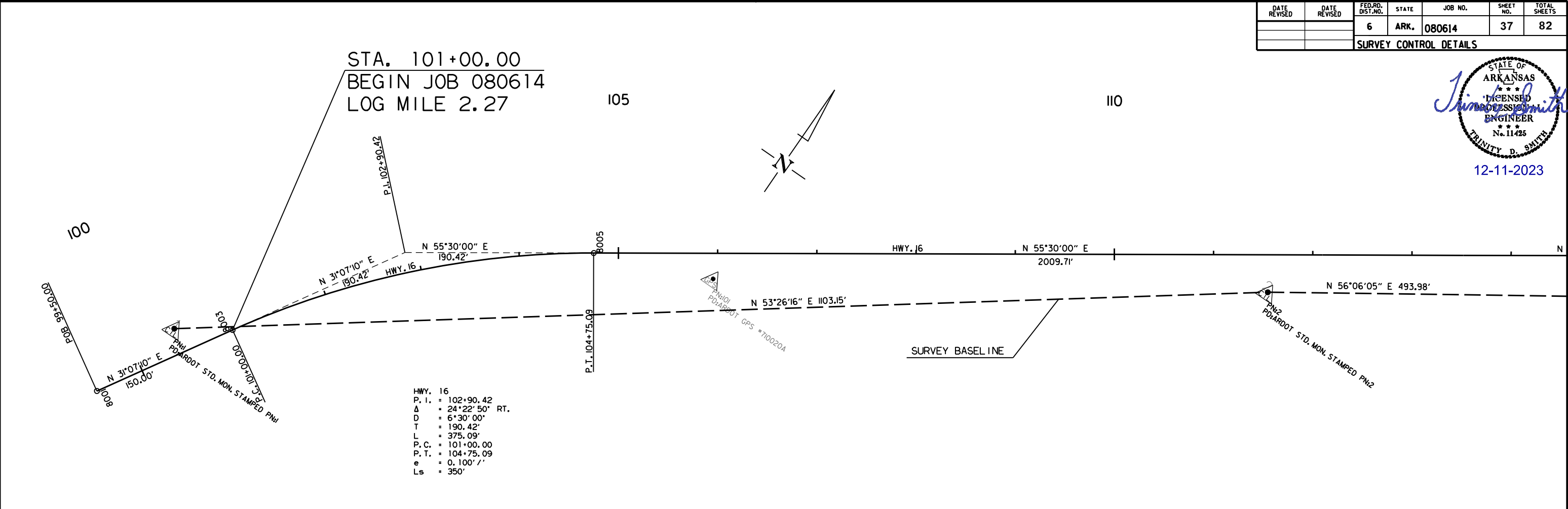
12-11-2023

HWY. 16					CO. RD. 93				
POINT NO.	TYPE	STATION	NORTHING	EASTING	POINT NO.	TYPE	STATION	NORTHING	EASTING
8001	POB	99+50.00	462126.7536	1187043.8589	8013	POB	200+00.00	463361.4471	1188592.2482
8003	PC	101+00.00	462255.1674	1187121.3825	8015	PC	200+25.72	463382.6448	1188577.6794
8005	PT	104+75.09	462526.0462	1187376.7326	8017	PT	202+06.59	463469.3357	1188425.8523
8007	PC	124+84.79	463664.3577	1189032.9860	8019	PC	202+34.20	463471.2379	1188398.3136
8009	PT	129+58.68	463817.5513	1189475.4173	8021	PT	204+00.28	463546.0583	1188255.3047
8011	POE	131+80.17	463831.8339	1189696.4483	8023	POE	204+19.62	463561.1475	1188243.2093

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	37	82
SURVEY CONTROL DETAILS						

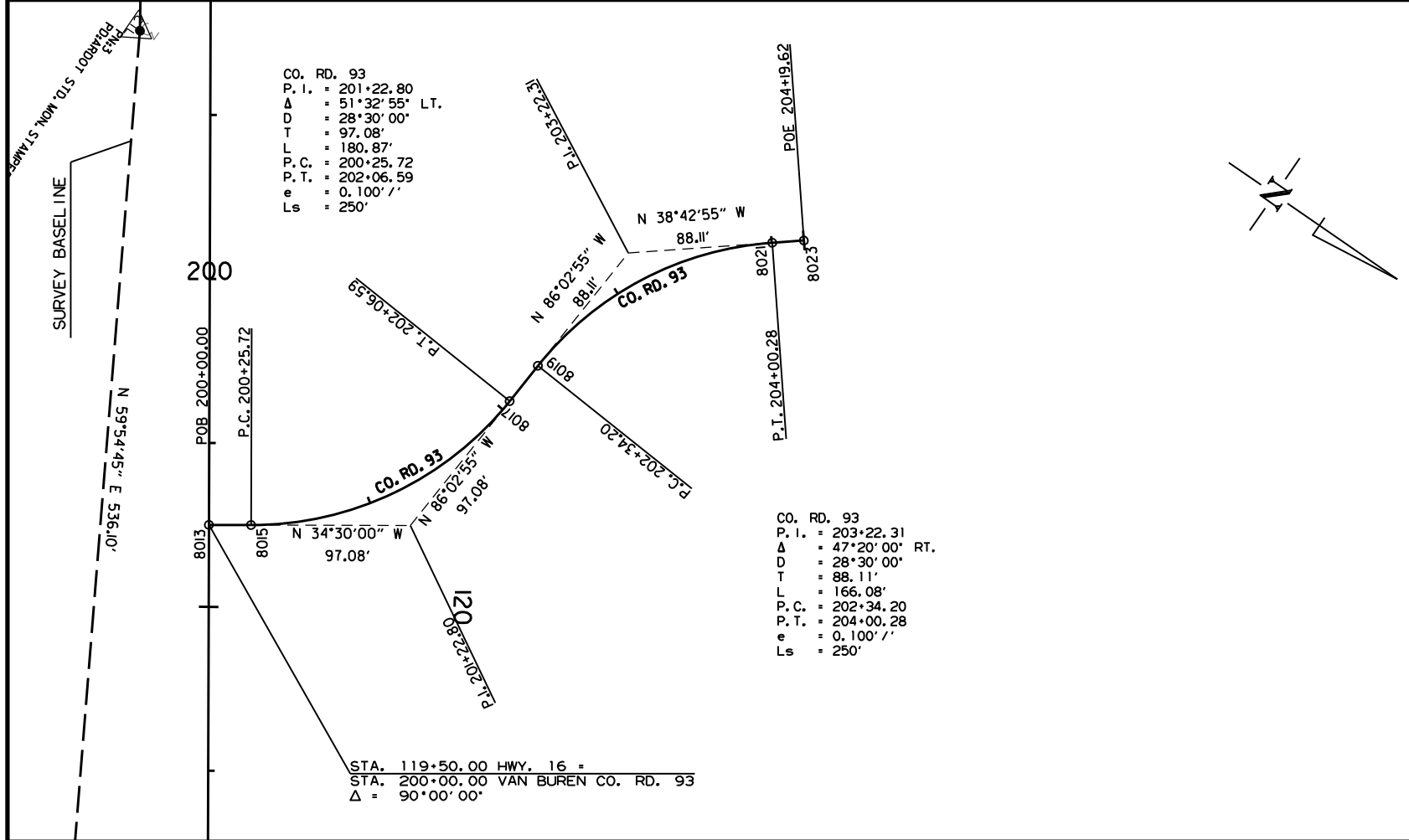
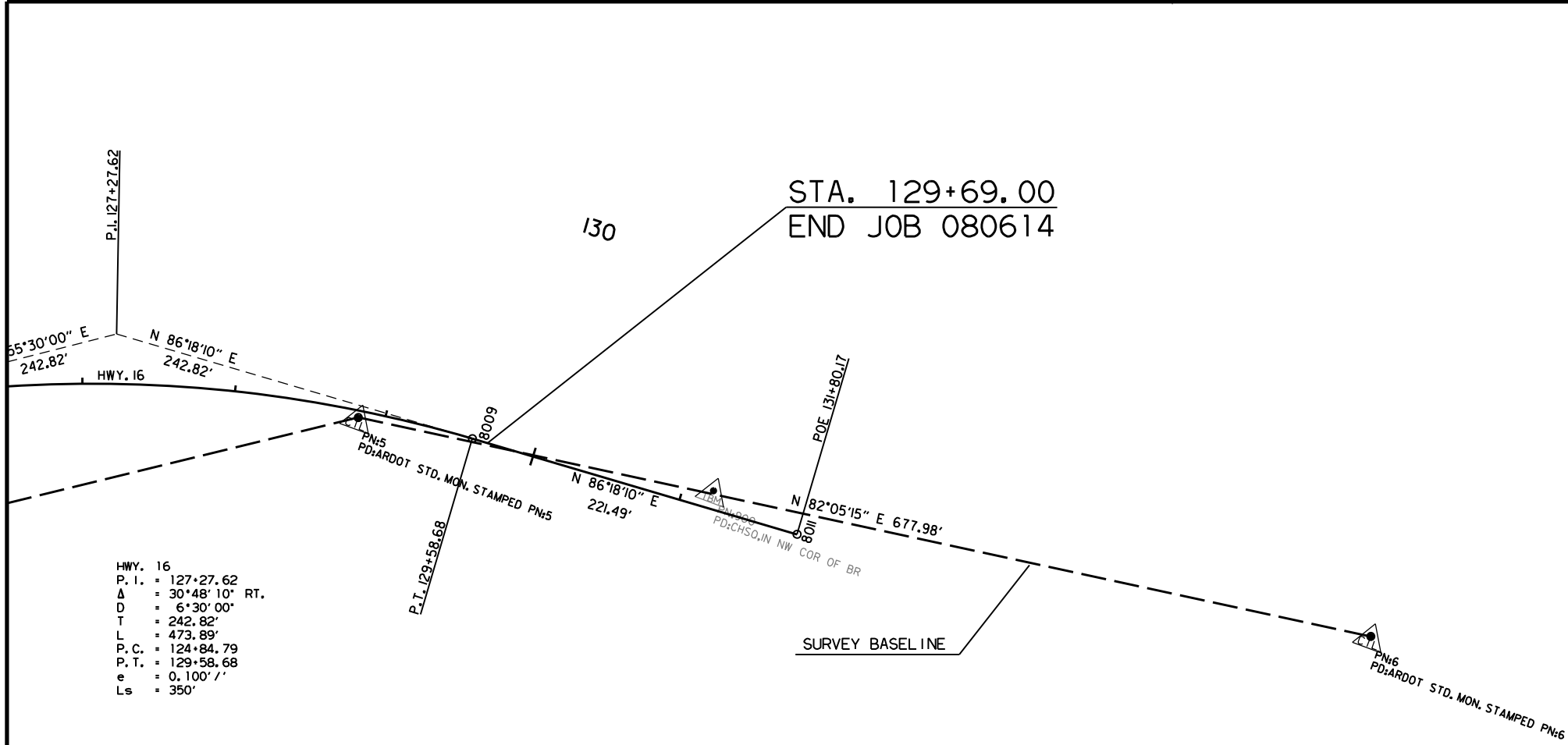


12-11-2023



SURVEY CONTROL DETAILS

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	38	82
SURVEY CONTROL DETAILS						



DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	39	82
PLAN AND PROFILE SHEETS						



12-11-2023

STA. 101+00.00
BEGIN JOB 080614
LOG MILE 2.27

STA. 103+30.00 TO STA. 104+00.00 ON LT.
CONC. DITCH PAVING (TYPE B) = 49.16 SQ. YD.

STA. 103+93 INSTALL
24" x 74" PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 715 CU. YD.

STA. 109+15 CONSTRUCT
48" x 110" PIPE CULVERT
ON A 45° RT. FWD. SKEW
WITH FES LT. & RT.
(CLASS V)(TYPE 2 BEDDING)
Q25 = 21.6 CFS D.A. = 12.8 AC
R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 110 LIN. FT.
C.M. PIPE (TYPE 3 BEDDING) = 114 LIN. FT.
ALUM. CSP PIPE (TYPE 2) = 114 LIN. FT.
POLYMER CSP PIPE (TYPE 2) = 114 LIN. FT.
HDPE PIPE (TYPE 2) = 114 LIN. FT.
PVC PIPE (TYPE 2) = 114 LIN. FT.
PLL PIPE (TYPE 2) = 114 LIN. FT.
48" FES = 2 EACH

STA. 101+27 IN PLACE
40" x 30" x 30" ELLIPTICAL PIPE CULVERT
RT. SIDE DRAIN
REMOVE & INSTALL
36" x 42" PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT TURNOUT = 155 CU. YD.
UNCLASSIFIED EXCAVATION = 50 CU. YD.

HWY. 16
P.I. = 102+90.42
Δ = 24°22'50" RT.
D = 6°30'00"
L = 190.42'
T = 375.09'
P.C. = 101+00.00
P.T. = 104+75.09
e = 0.100'/'
Ls = .350'

STA. 107+87 INSTALL
24" x 42" PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 135 CU. YD.

STA. 108+35.00 TO STA. 109+57.00 ON RT.
CONC. DITCH PAVING (TYPE B) = 85.67 SQ. YD.

STA. 107+87 IN PLACE
24" x 28" PIPE CULVERT
RT. SIDE DRAIN O/S 101.85'
REMOVE & INSTALL
24" x 28" PIPE CULVERT
RT. SIDE DRAIN

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

STA. 101+00.00 - MATCH EXIST. (0.024'/'')
STA. 102+87.54 - MAX. SUPERELEV. (0.077'/'')
STA. 104+68.09 - MAX. SUPERELEV. (0.077'/'')
STA. 107+37.59 - END SUPERELEV.

P.V.I. 101+00.00
525.26'

-3.29%

P.V.C. 103+75.00
516.21'

VC= 450'
e= 1.85'
K= 136.78

L.T. D.G. -10.86%

L.T. D.G. -2.61%

RT. D.G. -1.79%

108+35.00 RT.
502.34

RT. D.G. -0.42%

L.T. D.G. -3.32%

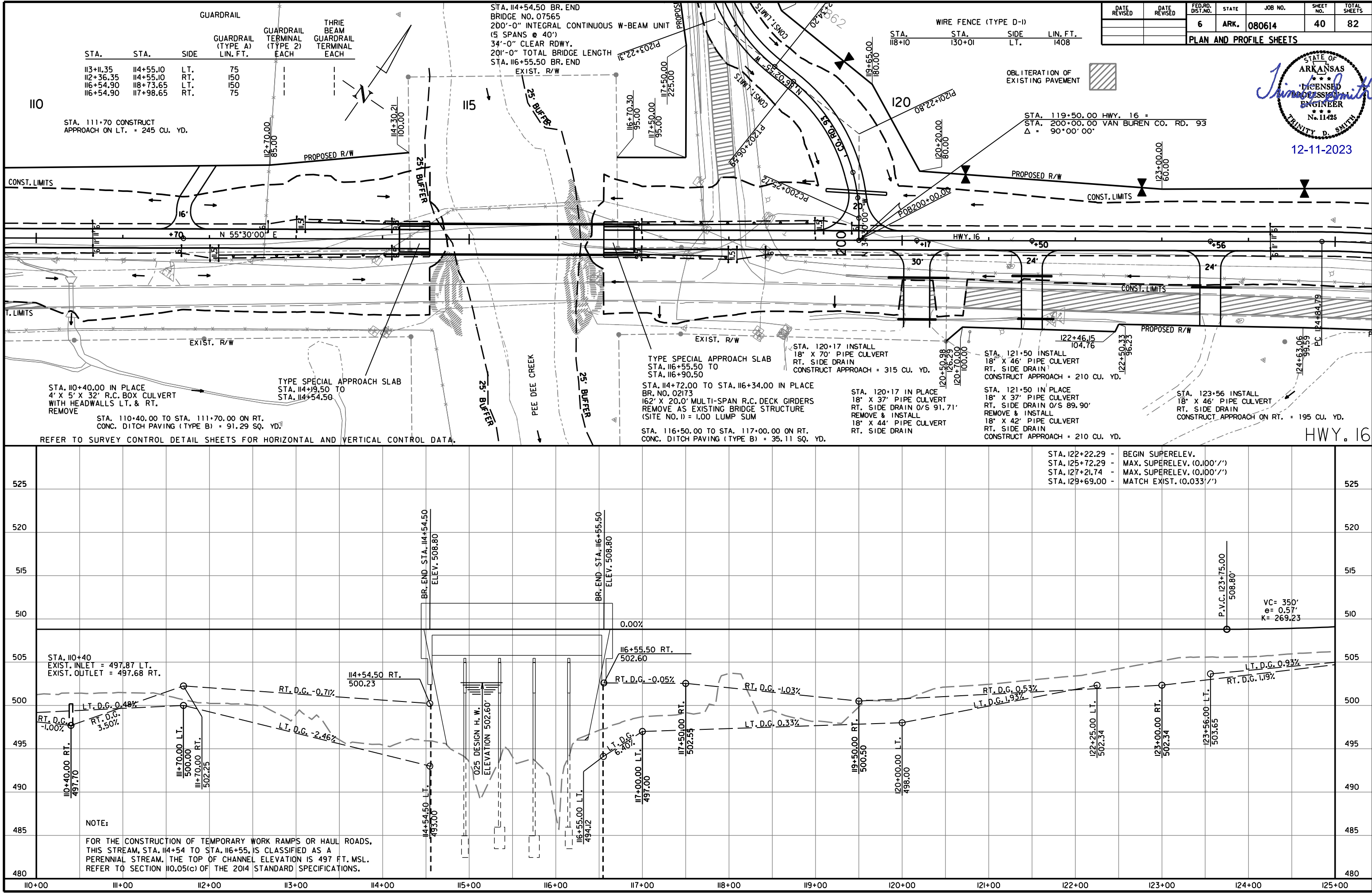
STA. 109+15
INLET = 498.56 LT.
OUTLET = 498.53 RT.

RT. D.G. -3.12%

L.T. D.G. 0.48%

RT. D.G. -1.00%

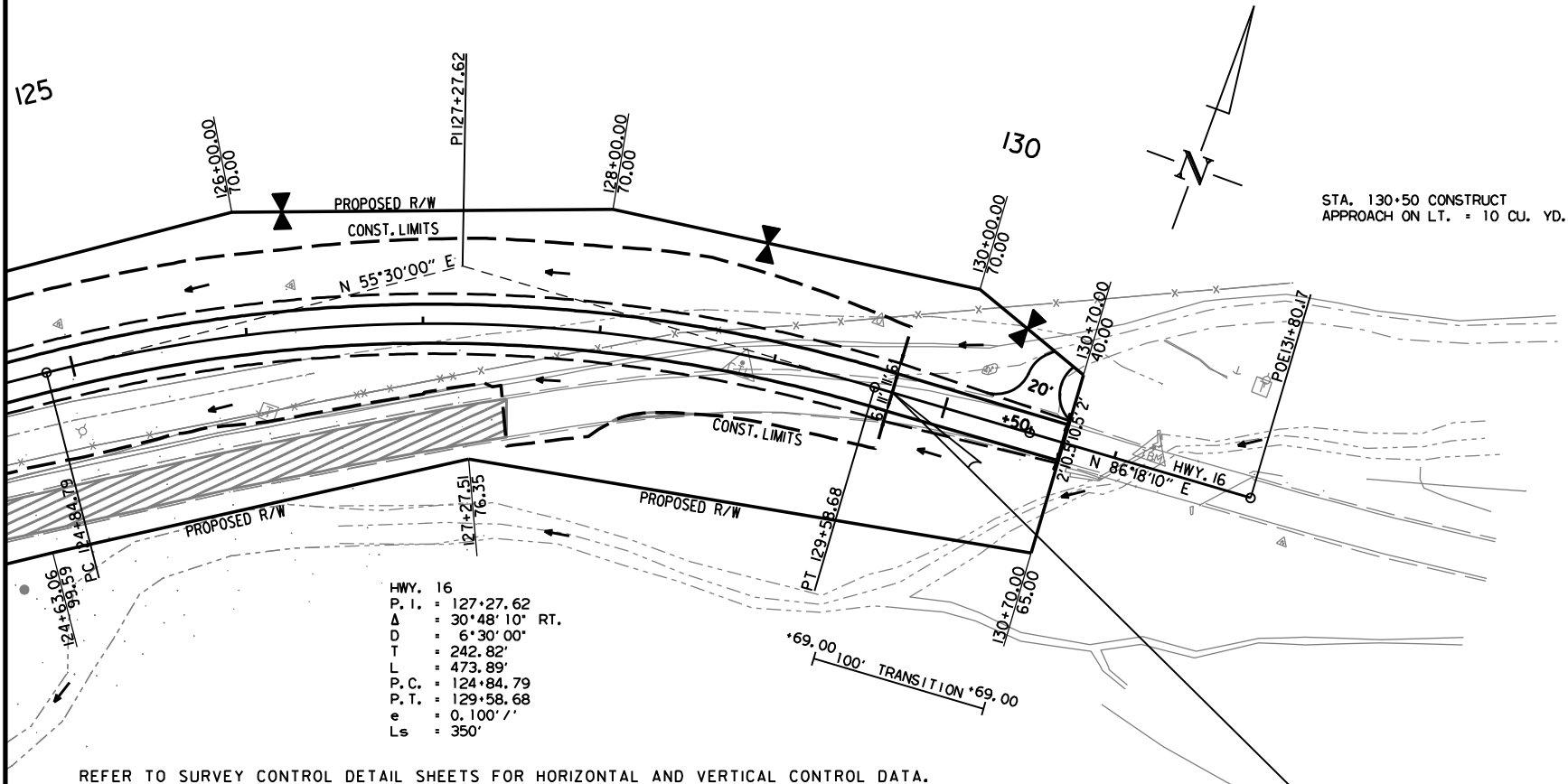
HWY. 16



STATE OF ARKANSAS
TRINITY D. SMITH
12-11-2023

STA.	STA.	SIDE	LIN. FT.
118+10	130+01	LT.	1408

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	41	82
PLAN AND PROFILE SHEETS						



STA. 131+07.00 - BRIDGE END
BRIDGE NO. M0443
24'-0" CLEAR RDWY.
59'-0" TOTAL BRIDGE LENGTH
STA. 131+66.00 - BRIDGE END
RETAIN



HWY. 16
P.I. = 127+27.62
Δ = 30°48'10" RT.
D = 6°30'00"
T = 242.82'
L = 473.89'
P.C. = 124+84.79
P.T. = 129+58.68
e = 0.100' /'
Ls = 350'

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



DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	43	82
07565 - LAYOUT - 64432						

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Eighth Edition (2017).

LIVE LOADING: HL-93

SEISMIC ZONE: 1

SD1: 0.096

SITE CLASS: B

SEISMIC OPERATIONAL CLASSIFICATION: Other

MATERIALS AND STRENGTHS:

Class 5(AE) Concrete (superstructure)
Class 5 Concrete (substructure)
Reinforcing Steel (AASHTO M 31 or M 322, Type A)
Structural Steel (ASTM A709, Gr. 50 or 50W)
Structural Steel (ASTM A709, Gr. 36)

f'c = 4,000 psi
f'c = 3,500 psi
fy = 60,000 psi
fy = 50,000 psi
fy = 36,000 psi

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

STEEL PILING: All piling shall be HP14x73 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 130 tons per pile and into the material designated as slightly weathered to unweathered shale with interbedded sandstone on the boring legend. Minimum penetration shall be 15' below bottom of cap. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. The Contractor shall use approved steel H-Pile driving points on all piles.

PREBORING: Preboring is required for all piling at Bents 1 and 6. Preboring shall be to a minimum depth of 5' into material designated as slightly weathered to unweathered shale with interbedded sandstone on the boring legend or to a minimum depth of 15' below the bottom of the cap, whichever is lower. Prebored holes shall have a diameter 9" greater than the diagonal of the pile for a depth of 10' below the bottom of the cap. The size and depth of the remaining preboring shall be determined in the field by the Engineer. After driving is completed, the prebored holes shall be backfilled with Class S Concrete to within 10' below the bottom of the cap, and the remaining 10' shall be backfilled with sand or pea gravel. The Contractor shall be responsible for keeping prebored holes free of debris prior to driving piles and backfilling which may require the use of temporary casing 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".

SPREAD FOOTINGS: Footings shall be set a minimum of 2' into material designated as unweathered shale or slightly weathered to unweathered shale with interbedded sandstone on the boring legend. Top of the footings at Bents 2 thru 4 shall be set a minimum 2' below the channel bottom as determined by the lowest channel elevation within the footprint of the footing. The top of footings at Bent 5 shall be set at or below Elevation 485.95. Foundations for footings shall be prepared in accordance with Subsection 801.04. Rock excavations shall be made to neat lines of the concrete footings. Care shall be exercised to avoid shattering of rock faces by excessive blasting. Concrete in footings shall be poured directly against excavated surfaces of rock. Excavations shall be backfilled and compacted to the level of the existing ground in accordance with Subsection 801.08.

PAINTING: The following weathering steel surfaces shall be painted as specified in Section 807:

All steel surfaces within 5 feet of the beam ends, including the section encased in concrete. All three coats in accordance with Subsection 807.76 will be required.

ASTM F3125, Grade A325 Type 3 bolts shall be used within these painted zones and shall be painted.

Galvanized members and surfaces in contact with concrete shall not be painted unless otherwise noted above. The color of paint shall be Brown equal or close to Fed. Std. 595 B, Color Chip No. 30070 and as approved by the Engineer. The finish system may be applied in the shop. Any damage to the paint system occurring during transport or installation shall be corrected according to the manufacturer's recommendations at no cost to the Department.

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

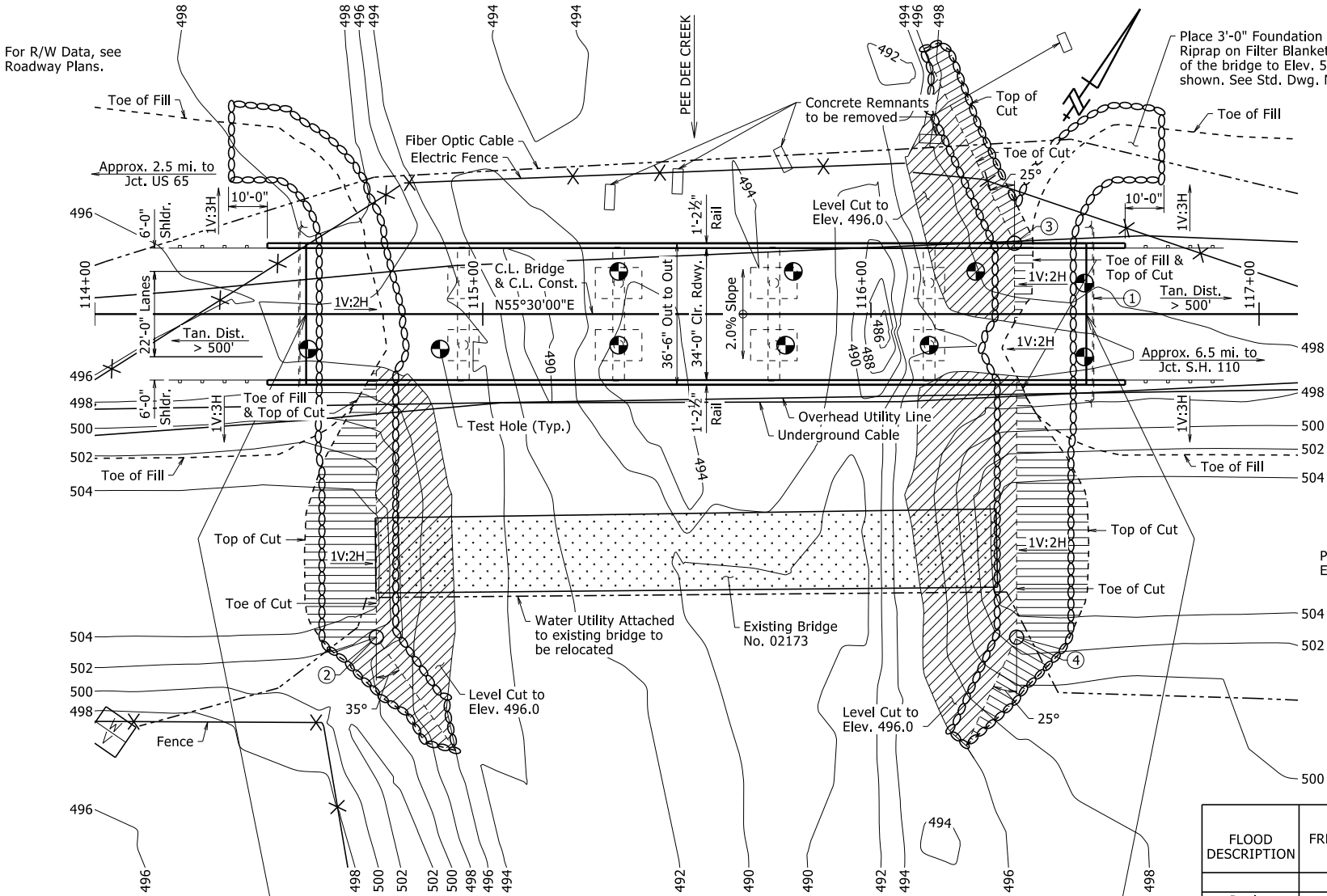
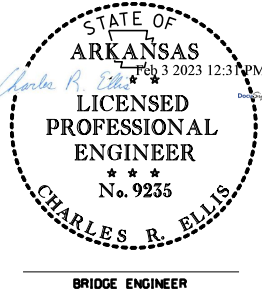
PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway face and top of the concrete bridge rails in accordance with Section 803.

See Dwg. No. 64433 for continued General Notes.

SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 16 OVER PEE DEE CREEK
PEE DEE CREEK STR. & APPRS. (CLINTON) (S)
VAN BUREN COUNTY

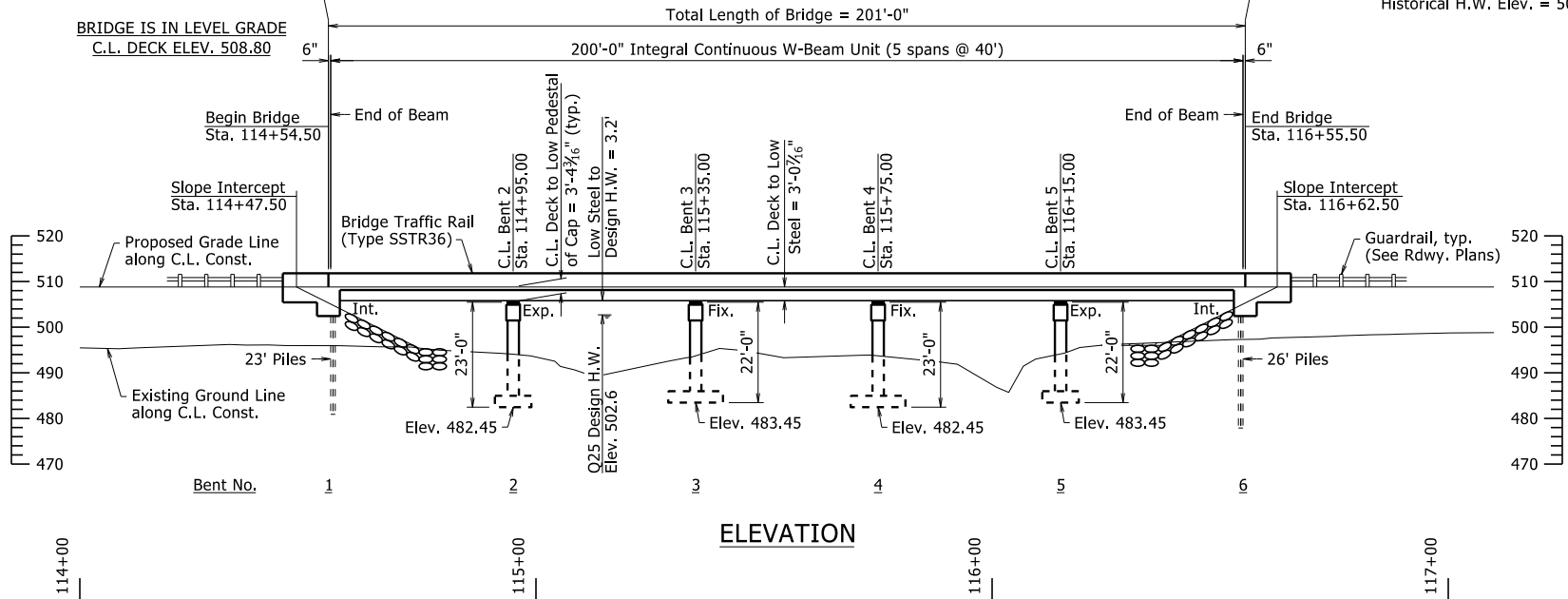
ROUTE 16 SEC. 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 4/5/2021 FILENAME: b080614_11.dgn
CHECKED BY: CTM DATE: 4/21/2021 SCALE: 1" = 20' or
DESIGNED BY: JYP DATE: 4/20/21 As noted
BRIDGE NO. 07565 DRAWING NO. 64432



PLAN

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 Standard Drawing Number 55007 for additional information.



ELEVATION

Place 3'-0" Foundation Protection Riprap on Filter Blanket at both ends of the bridge to Elev. 503.0 or as shown. See Std. Dwg. No. 55001.

Use Type F Approach Gutters and Type Special Approach Slab (width = 30'-0") at both ends of bridge. See Std. Dwg. No. 55030F and Dwg. No. 64442A, respectively.

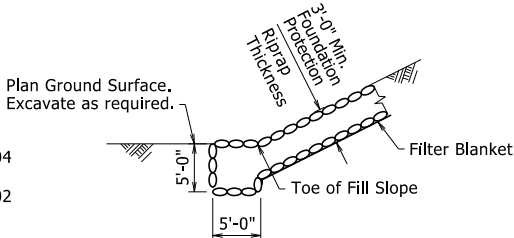
- Install 4"ø Pipe Underdrain with Outlet Protectors at both bridge ends in accordance with Section 611 and Std. Dwg. PU-1. For additional details, see Dwg. No. 64442. Pipe Underdrains will not be paid for directly but shall be considered subsidiary to "Unclassified Excavation".

② Sta. 114+73, 83' Rt.

③ Sta. 116+37, 18' Lt.

④ Sta. 116+37, 83' Rt.

The Contractor shall excavate the existing embankment at both ends as shown to Elev. 496.0. Approx. 760 cu. yds. of excavation.



EMBankMENT SECTION

No Scale

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	⑤ NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	25	10,983	500.2	502.6
Base	100	16,467	501.4	505.1
Extreme	500	23,703	502.7	509.3
Overtopping	200	20,420	502.4	508.3

- ⑤ Unconstricted water surface elevation without structure or roadway approaches. Q100 backwater elevation for existing structure = 504.8 ft. Proposed Low Bridge Chord elevation = 505.76 ft.

Drainage Area = 26.4 square miles
Historical H.W. Elev. = 504.0

GENERAL NOTES (CONT'D)

DETAIL DRAWINGS: DRAWING NO(S).
End Bents 64434
Intermediate Bents 64435-64436
Elastomeric Bearings 64437
200'-0" Integral Continuous W-Beam Unit 64438-64442
General Notes For Steel Bridge Structures 55006
Details For Steel Bridge Structures 55007
Steel H-Piling 55020
Bridge Traffic Rail 55070

EXISTING BRIDGE: Existing Bridge No. 02173 (Log Mile 2.53) is 25.4' wide (20.0' clear roadway) and 160.0' long and consists of a concrete deck on steel I-Beams (5 spans total) supported by two column concrete abutments on spread footings and two column intermediate bents on spread footings. The existing bridge is located approximately 60' downstream from the proposed new bridge. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Development Section of the Program Management Division.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, the Contractor shall remove existing Bridge No. 02173, including dumped riprap and concrete remnants, in accordance with Section 205. Removal of dumped riprap and concrete remnants will not be paid for directly but shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No. _)". All material from the existing bridge shall become the property of the Contractor except for the bridge name plate which shall remain property of the State. The bridge name plate shall be delivered to Bridge Division.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

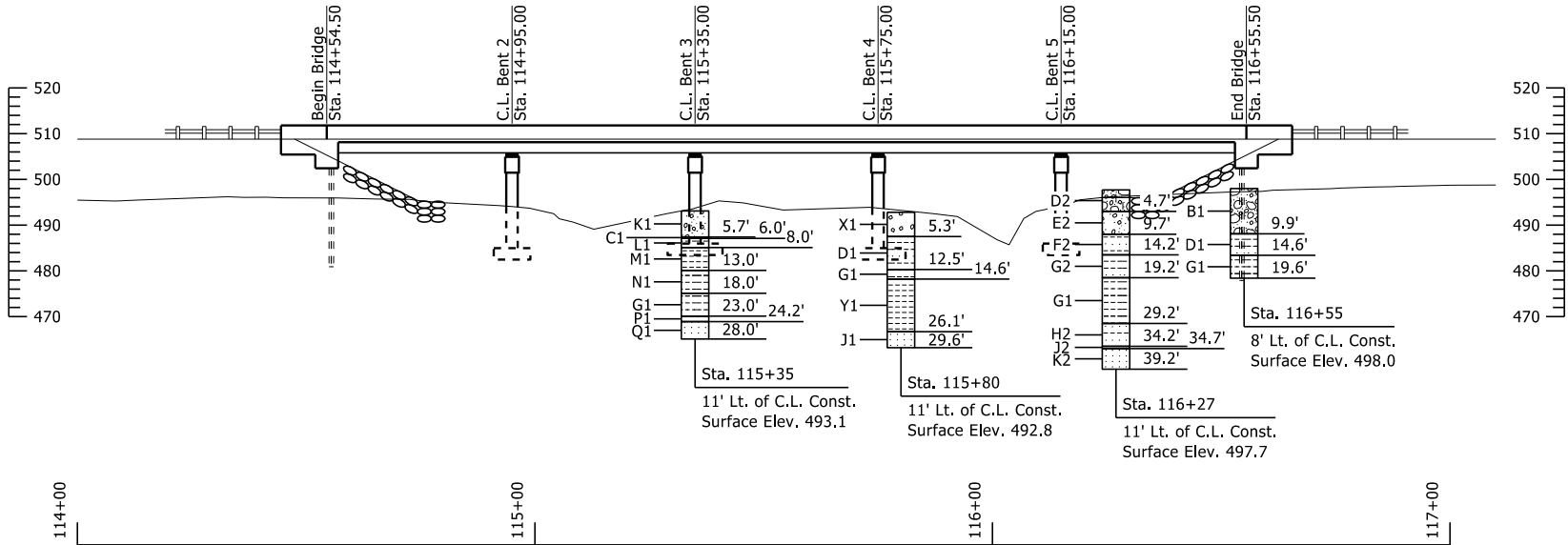
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	44	82
07565 - LAYOUT - 64433						

BORING LEGEND

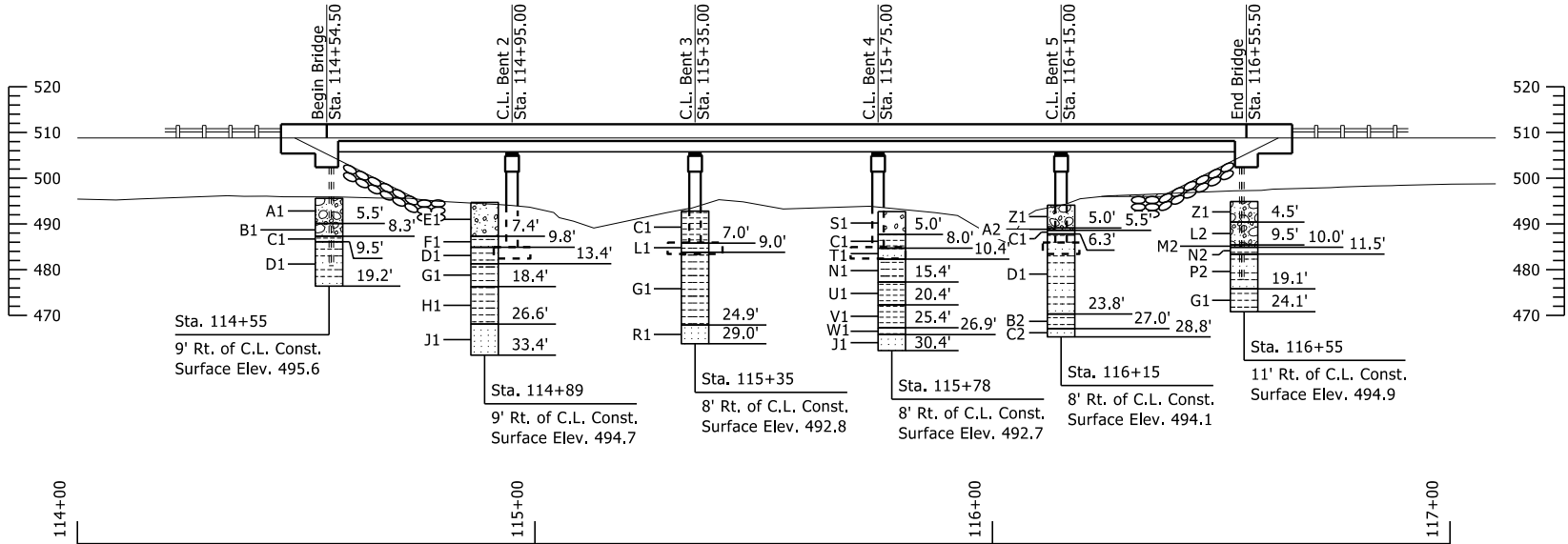
A1-Moist, Brown Sand with Gravel and Cobbles
B1-Moist, Medium Dense, Brown Sand with Gravel and Cobbles
C1-SHALE - Weathered, Medium Hard, Gray
D1-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Gray
E1-Wet, Dense, Brown Sand and Gravel
F1-SHALE WITH INTERBEDDED SANDSTONE- Weathered, Gray
G1-SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Gray
H1-SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Occasional to Frequent Slickensides, Gray
J1-SANDSTONE - Unweathered, Well Cemented, Gray
K1-Moist, Very Dense, Brown and Gray Sand with Gravel
L1-SHALE WITH INTERBEDDED SANDSTONE - Slightly Weathered, Medium Hard, Gray
M1-SHALE - Unweathered, Medium Hard, Gray
N1-SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Occasional Fractures, Gray
P1-SHALE - Unweathered, Medium Hard, Occasional Fractures, Gray
Q1-SANDSTONE - Unweathered, Well Cemented, Occasional Fractures, Light Gray
R1-SANDSTONE WITH OCCASIONAL SHALE PARTINGS AND SEAMS - Unweathered, Well Cemented, Gray
S1-Gravel
T1-SHALE WITH INTERBEDDED SANDSTONE -Unweathered, Medium Hard, Gray
U1-SHALE WITH OCCASIONAL SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Occasional Fractures, Gray
V1-SHALE WITH OCCASIONAL SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Occasional Fractures and Slickensides, Gray
W1-SHALE WITH OCCASIONAL SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Occasional Slickensides, Gray
X1-Moist, Very Dense, Brown Gravel (Sandstone Fragments)
Y1-SHALE WITH OCCASIONAL SANDSTONE PARTINGS AND SEAMS - Unweathered, Medium Hard, Gray
Z1-Sand with Gravel and Cobbles
A2-Wet, Very Dense, Brown Sand and Gravel
B2-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Gray
C2-SANDSTONE - Unweathered, Well Cemented, Occasional Shale Partings and Seams, Gray
D2-Dry, Brown Sand with Gravel, Cobbles, and Boulders
E2-Moist, Very Dense, Brown Sand with Gravel (Sandstone Fragments)
F2-SANDSTONE WITH INTERBEDDED SHALE - Unweathered, Cemented, Frequent Slickensides, Gray
G2-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Occasional Fractures, Gray
H2-SANDSTONE WITH INTERBEDDED SHALE - Unweathered, Well Cemented, Frequent Fractures, Light Gray
J2-SHALE - Unweathered, Medium Hard, Trace Coal, Gray
K2-SANDSTONE - Unweathered, Well Cemented, Light Gray
L2-Moist, Dense, Brown Sand with Gravel and Cobbles
M2-Moist, Very Dense, Brown Sand with Gravel and Cobbles
N2-SHALE WITH INTERBEDDED SANDSTONE - Weathered, Medium Hard, Gray
P2-SHALE WITH INTERBEDDED SANDSTONE - Unweathered, Medium Hard, Gray

"N" VALUES

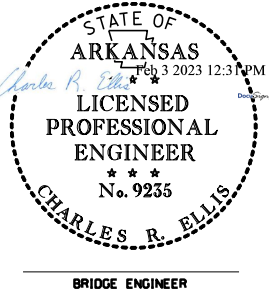
<u>Sta. 114+55 - 9' Right of C.L. Const.</u>	<u>Sta. 115+80 - 11' Left of C.L. Const.</u>
6.0-7.0 , N=13	5.0-5.3 , N=45 (4")
<u>Sta. 114+89 - 9' Right of C.L. Const.</u>	<u>Sta. 116+15 - 8' Right of C.L. Const.</u>
5.3-6.3 , N=34	5.5-5.7 , N=28 (4")
9.8-9.8 , N=36 (0")	
<u>Sta. 115+35 - 11' Left of C.L. Const.</u>	<u>Sta. 116+27 - 11' Left of C.L. Const.</u>
4.3-4.8 , N=25 (0")	5.2-6.1 , N=74 (11")
5.7-6.0 , N=85 (4")	9.7-10.1 , N=16 (5")
<u>Sta. 115+35 - 8' Right of C.L. Const.</u>	<u>Sta. 116+55 - 8' Left of C.L. Const.</u>
5.0-5.0 , N=60 (0")	5.0-6.0 , N=17
	9.9-9.9 , N=15 (0")
<u>Sta. 115+78 - 8' Right of C.L. Const.</u>	<u>Sta. 116+55 - 11' Right of C.L. Const.</u>
5.5-6.0 , N=60 (6")	5.0-6.0 , N=33
	10.0-10.0 , N=15 (0")



ELEVATION OF SOIL BORINGS - LEFT OF C.L. CONST.



ELEVATION OF SOIL BORINGS - RIGHT OF C.L. CONST.

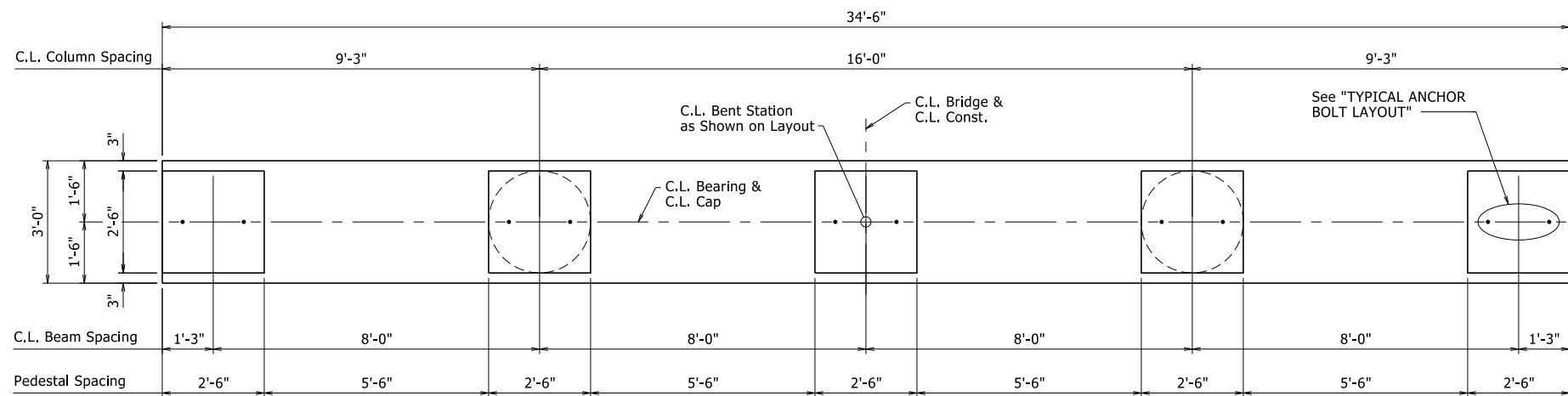
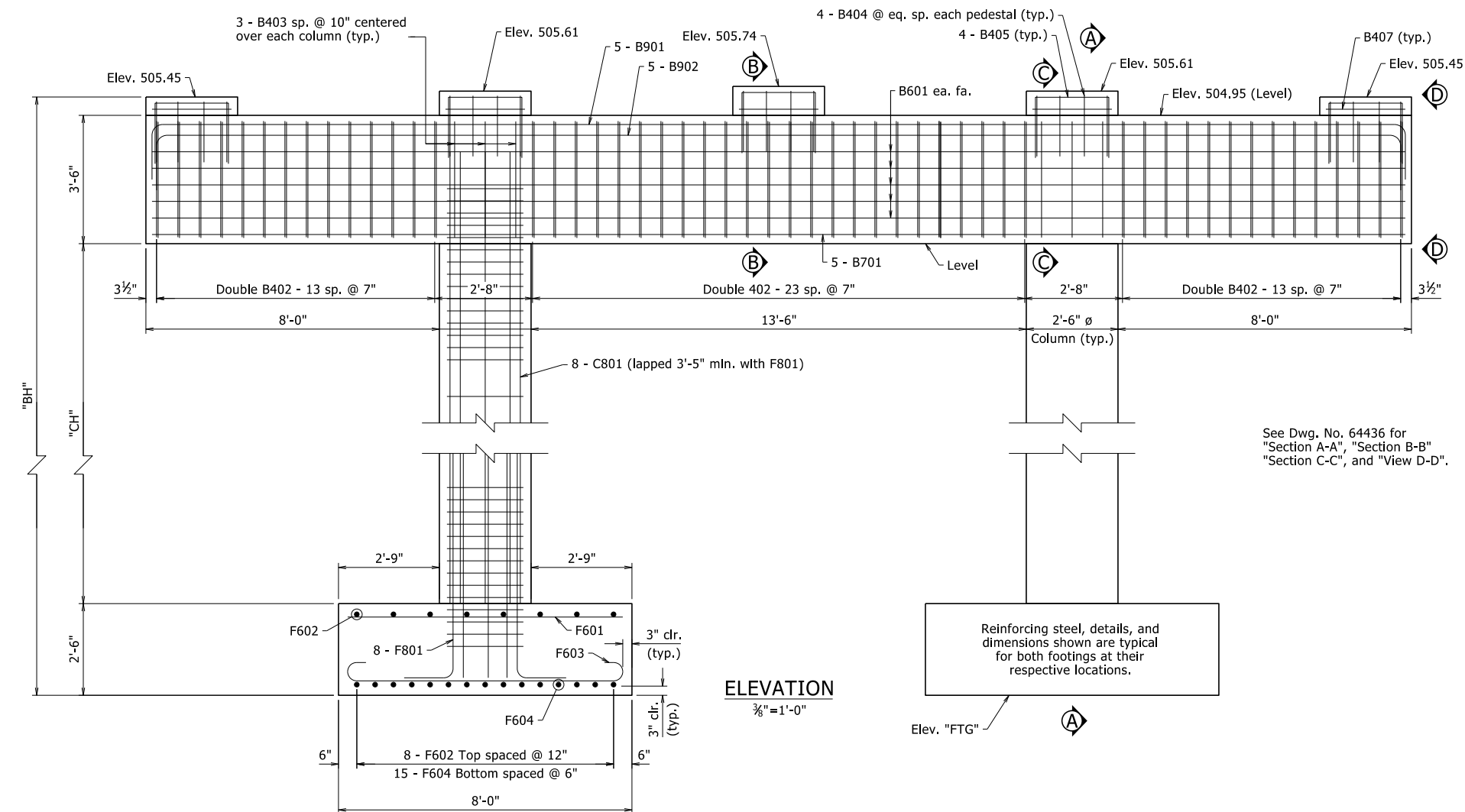


SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 16 OVER PEE DEE CREEK
PEE DEE CREEK STR. & APPRS. (CLINTON) (S)
VAN BUREN COUNTY

ROUTE 16 SEC. 10
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 4/5/2021 FILENAME: b080614_11.dgn
CHECKED BY: CTM DATE: 4/21/2021 SCALE: 1" = 20'
DESIGNED BY: JYP DATE: 4/2021
BRIDGE NO. 07565 DRAWING NO. 64433

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	46	82
		07565 - INTERMEDIATE BENTS - 64435				


$$\overline{\frac{3}{8}'' = 1'-0''}$$

$$\frac{3}{8}'' = 1'-0''$$

LOCATION	GEOMETRY					C401		C801	F501		F602	F603		F604	
Bent No.	"BH"	"CH"	"FL"	"LA"	Elev. "FTG"	"C"	"CT"	"CL"	"A"	"XA"	"XBL"	"B"	"XC"	"XDL"	"DLX"
2	23'-0"	16'-6"	8'-0"	2'-9"	482.45	11	80	19'-1"	8	16	7'-6"	15	30	8'-10"	7'-6"
3	22'-0"	15'-6"	12'-0"	4'-9"	483.45	10	78	18'-1"	12	24	11'-5"	23	46	12'-10"	11'-6"
4	23'-0"	16'-6"	12'-0"	4'-9"	482.45	11	80	19'-1"	12	24	11'-5"	23	46	12'-10"	11'-6"
5	22'-0"	15'-6"	8'-0"	2'-9"	483.45	10	78	18'-1"	8	16	7'-6"	15	30	8'-10"	7'-6"

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.	"X"
B401	6	3'-0"	Str.	-
B402	104	10'-2"	2"	-
B403	6	8'-10"	2"	-
B404	20	5'-11"	2"	2'-1"
B405	20	5'-10"	2"	2'-0"
B406	6	2'-6"	Str.	-
B407	5	9'-0"	2"	-
B601	10	34'-2"	Str.	-
B701	5	34'-2"	Str.	-
B901	5	36'-10"	9"	34'-2"
B902	5	36'-6"	9"	33'-10"
C401	"CT"	7'-8"	3"	-
C801	16	"CL"	Str.	-
F601	"XA"	7'-6"	Str.	-
F602	16	"XBL"	Str.	-
F603	"XC"	8'-10"	4½"	7'-6"
F604	30	"XDL"	4½"	"DLX"
F801	16	8'-11"	6"	-

BENDING DIAGRAMS

B401

B402

B403

B404 & B405

B406

B407

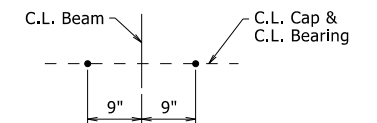
B901 & B902

C401

F603 & F604

F801

Dimensions are out-to-out of bars.



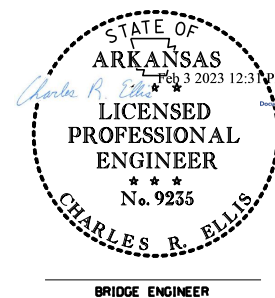
For Details of Elastomeric Bearings,
see Dwg. No. 64437

TYPICAL ANCHOR BOLT LAYOUT

No Scale

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS
ROUTE SEC.
KANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

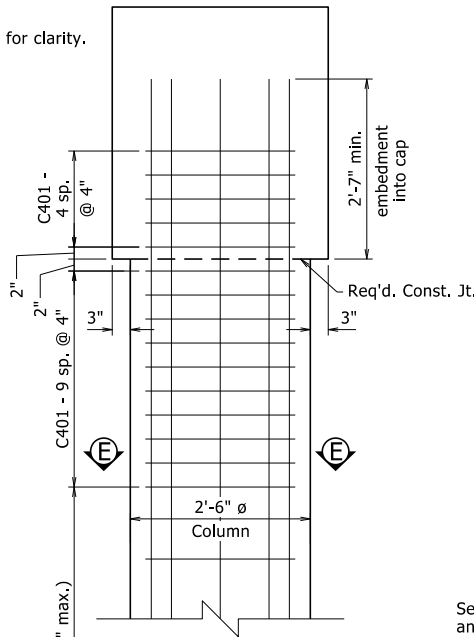
DRAWN BY:	<u>JCG</u>	DATE:	<u>7/2021</u>	FILENAME:	<u>b080614_b2.dgn</u>
CHECKED BY:	<u>DKS</u>	DATE:	<u>9/22/2021</u>	SCALE:	<u>As Shown</u>
DESIGNED BY:	<u>JCG</u>	DATE:	<u>7/2021</u>		
BRIDGE NO. 07565			DRAWING NO. 64435		



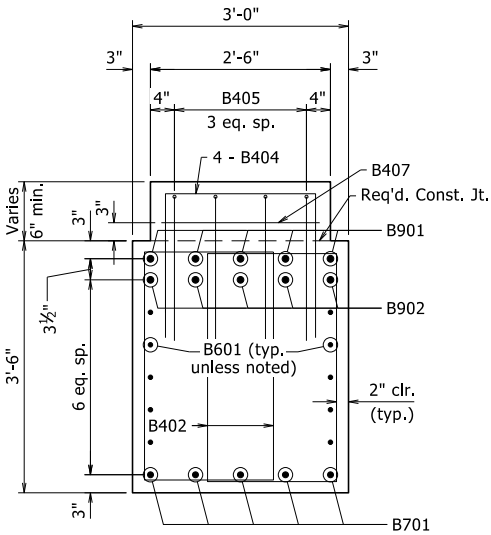
PRINT DATE: 2/3/2023

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	47	82
07565 - INTERMEDIATE BENTS - 64436						

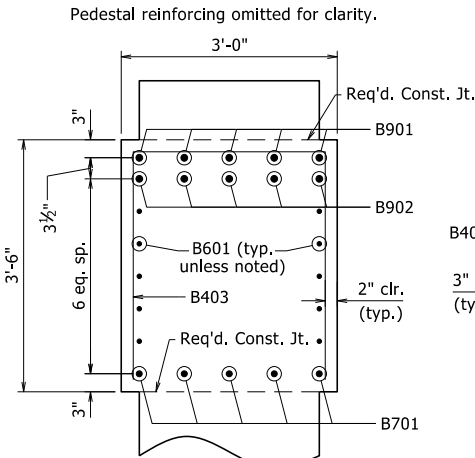
Cap reinforcement omitted for clarity.



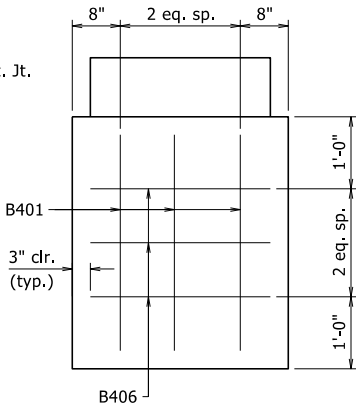
See Dwg. No. 64435 for "BAR LIST - PER BENT",
and "TABLE OF VARIABLES".



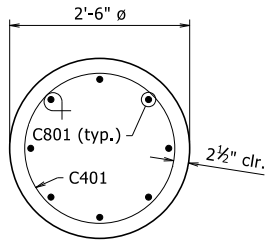
SECTION B-B
3/4" = 1'-0"



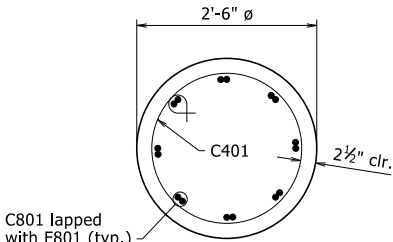
SECTION C-C
3/4" = 1'-0"



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

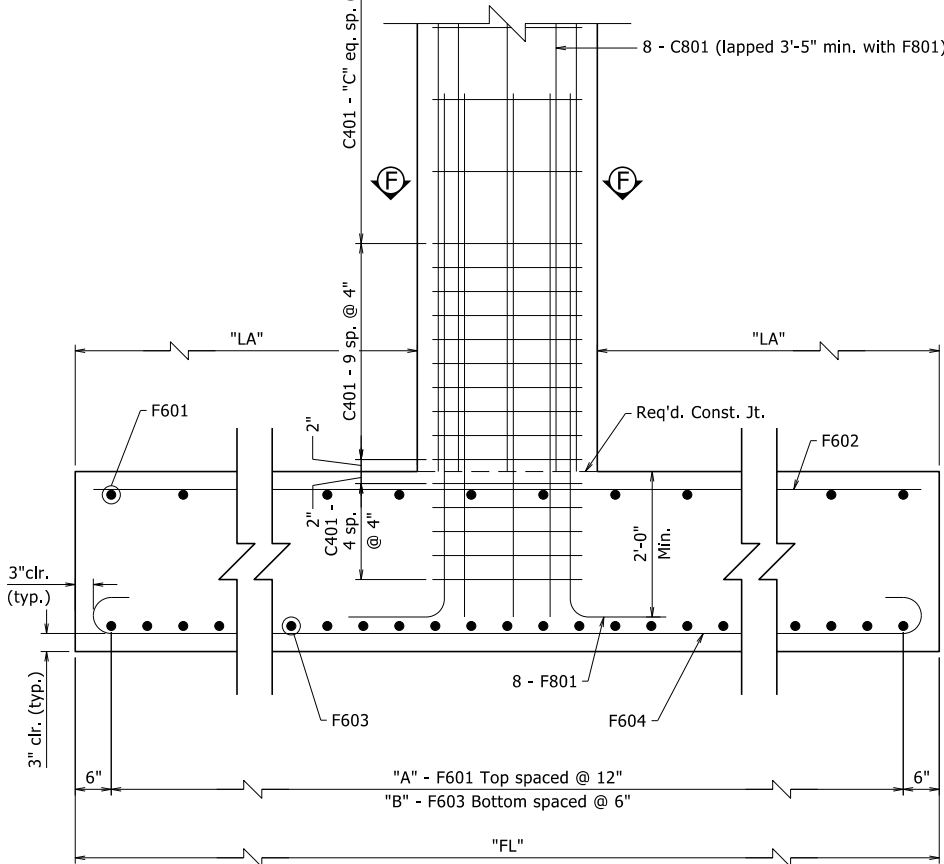


SECTION E-E
3/4" = 1'-0"



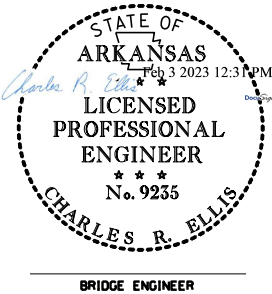
SECTION F-F
3/4" = 1'-0"

C801 lapped
with F801 (typ.)



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

F801 bars may rest on bottom
mat of footing reinforcing.

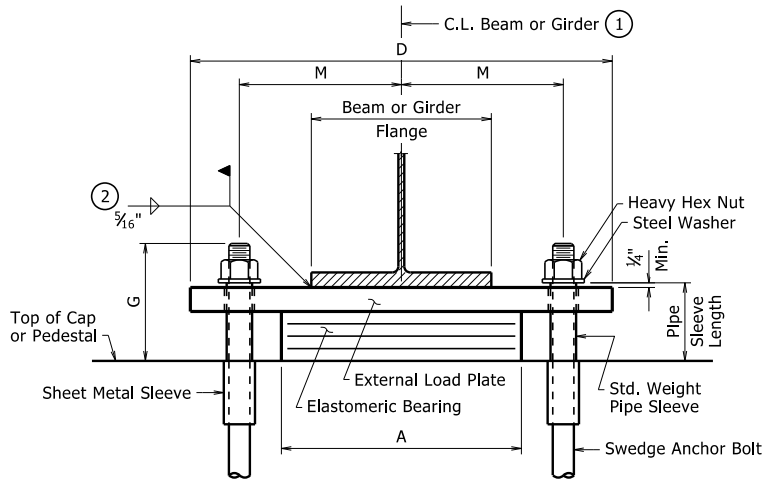


SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS

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

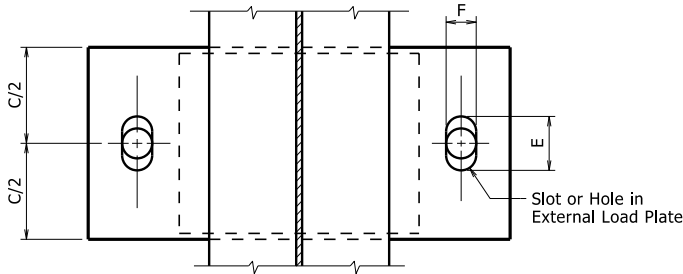
DRAWN BY: JCG DATE: 7/2021 FILENAME: b080614_b2.dgn
CHECKED BY: DKS DATE: 9/22/2021 SCALE: As Shown
DESIGNED BY: JCG DATE: 7/2021
BRIDGE NO. 07565 DRAWING NO. 64436

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	48	82
07565 - ELASTO. BRGS. - 64437						

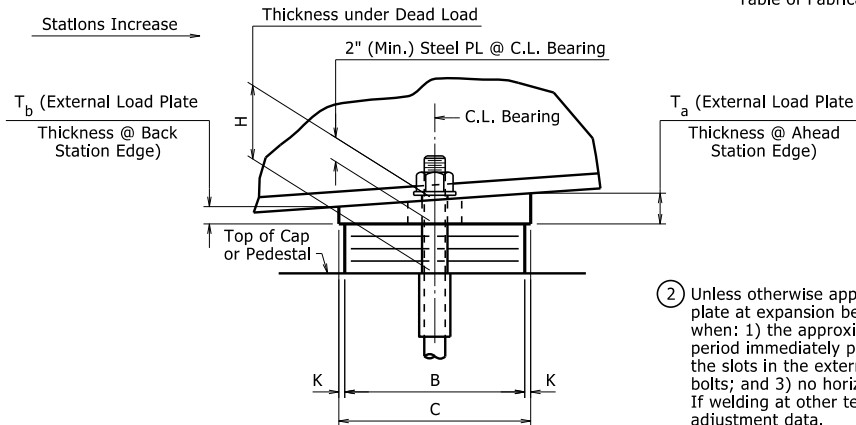


FRONT VIEW

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



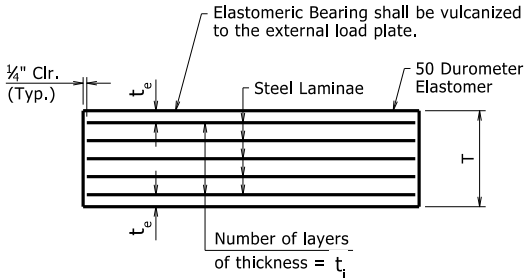
PLAN VIEW



SIDE VIEW

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.

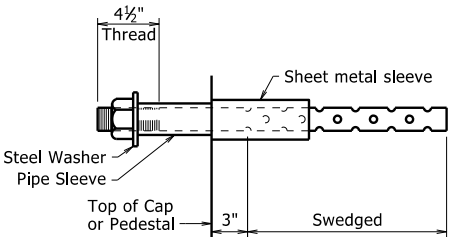
Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.



t_e = Thickness of elastomer cover on top and bottom of pad
 t_i = Thickness of elastomer between steel laminae
 N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

Prior to erection of the beams or girders, the Contractor shall verify the orientation of the bearings with respect to T_a and T_b .



ANCHOR BOLT DETAIL

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

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam, or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a QPL-approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves shall meet the requirements of ASTM A653, CS Type B or approved equivalent, be of minimum 16 gauge 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 Beam 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 A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, 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 shall be circular with rounded bottoms and staggered as shown in the details.

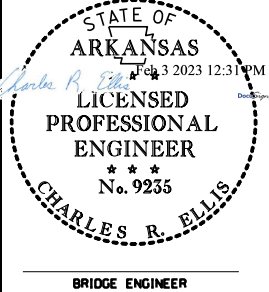
Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (A709, Gr. 50W)." External load plates will not be measured and paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings."

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.

TABLE OF FABRICATOR VARIABLES

③ Maximum Design Load = Service 1 Limit State

③ Maximum Design Load = Service 1 Limit State								ELASTOMERIC PAD						EXTERNAL LOAD PLATE								ANCHOR BOLT					
BRIDGE NO.	LOCATION		BEARING TYPE	NO. of BEARINGS EACH BENT	③ MAXIMUM DESIGN LOAD (KIPS)	G	H	A	B	N	t _i	t _e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T _a	T _b	ANCHOR BOLT		PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
	BENT NO (S).	BEAM OR GIRDER NO.																					(ø x L)	GRADE			
07565	2 & 5	ALL	EXP	5	137	6 3/4"	3 3/4"	13"	10"	2	1/2"	1/4"	3 @ 12 ga.	1 13/16"	11"	24"	3 3/4"	2 5/8"	1/2"	9"	2.00"	2.00"	1 3/4" x 28"	55	2" x 4"	4" x 12"	3 3/8"
	3 & 4	ALL	FIX	5	128	6 7/8"	3 13/16"	13"	10"	2	1/2"	1/4"	3 @ 12 ga.	1 13/16"	11"	24"	2 5/8"	2 5/8"	1/2"	9"	2.00"	2.00"	1 3/4" x 28"	55	2" x 4 1/8"	4" x 12"	3 3/8"

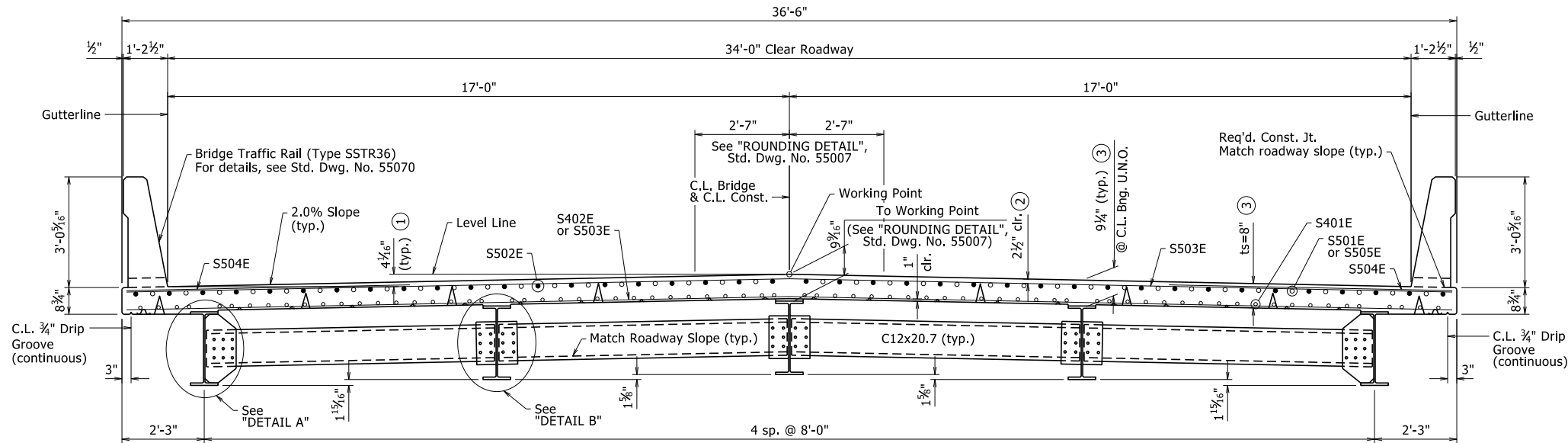


DETAILS OF ELASTOMERIC BEARINGS

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

DRAWN BY: JCG DATE: 9/23/2021 FILENAME: b080614_e1.dgn
 CHECKED BY: DKS DATE: 9/24/2021 SCALE: None
 DESIGNED BY: JCG DATE: 9/23/2021
 BRIDGE NO. 07565 DRAWING NO. 64437

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	49	82
07565 - 200'-0" UNIT - 64438						



TYPICAL ROADWAY SECTION

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

- ① Working Point to Gutterline
- ② Tolerance: Minus = 1/4";
Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.
- ③ See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007.
- ④ If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accommodate the deck form supports.

Slab Reinforcing:

Longitudinal: S401E (Bottom) and S502E (Top) placed as shown
S505E placed as shown over end supports and S501E placed as shown over intermediate supports, see "HALF-REINFORCING PLAN AND SLAB POURING SEQUENCE", Dwg. No. 64441.

Transverse: S503E @ 6" o.c. in top,
Alternate S402E & S503E @ 6" o.c. in bottom
S504E @ 6" in top of overhang (bundled with S503E)

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.

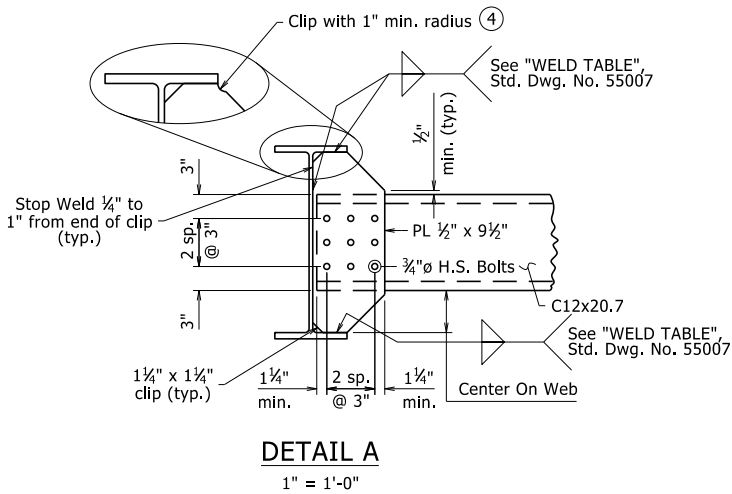
Class 2 Protective Surface Treatment shall be applied to the Roadway Surface and the Roadway Face and Top of Concrete Bridge Rail in accordance with Section 803.

BAR LIST

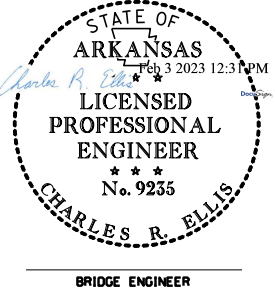
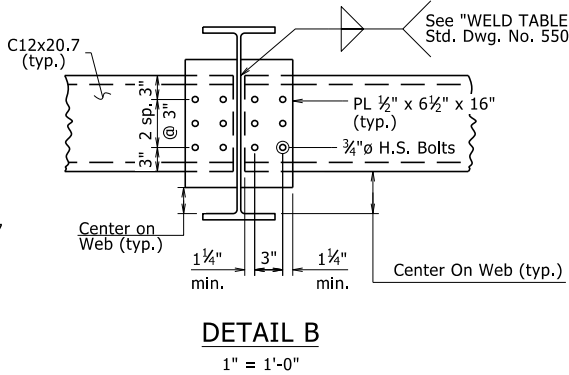
MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS	
S401E	360	41'-9"	Str.		
S402E	211	36'-2"	Str.		
S403E	84	7'-0"	2"		
S501E	152	24'-0"	Str.		
S502E	160	52'-0"	Str.		
S503E	597	36'-2"	Str.		
S504E	786	7'-9"	Str.		
S505E	76	8'-9"	Str.		
S506E	66	5'-0"	3 3/4"		
S601E	12	8'-0"	4 1/2"		
R400E	80	5'-3"	2 1/2"		
R401E	724	5'-11"	2 1/2"		
R402E	96	5'-6"	Str.		
R403E	804	3'-6"	3", 3 3/4"		
R404E	160	9'-8"	Str.		
R405E	32	10'-2"	Str.		
R406E	80	19'-8"	Str.		
R407E	32	4'-0"	Str.		
W401E	80	3'-11"	3 3/4"		
W402E	60	6'-1"	2"		
W501E	32	7'-1"	3 3/4"		
W701E	40	12'-2"	Str.		

⑤ See Std. Dwg. No. 55070 for additional details.

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



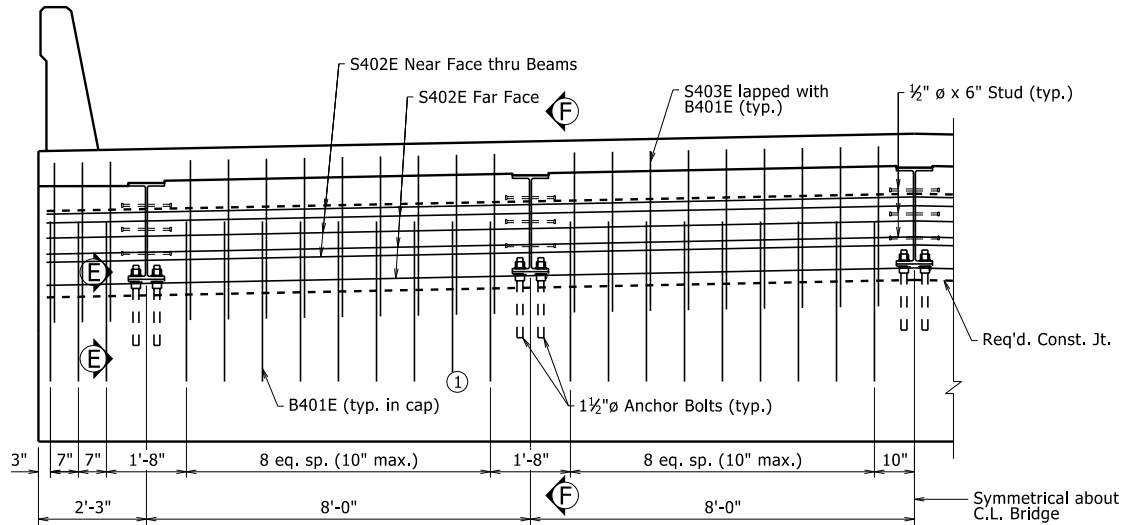
Bolts in diaphragm connections shall be properly installed and tightened in accordance with Subsection 807.71.



SHEET 1 OF 5
DETAILS OF 200'-0"
INTEGRAL CONTINUOUS W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: JCG DATE: 6/17/2021 FILENAME: b080614_s1.dgn
CHECKED BY: DKS DATE: 8/23/2021 SCALE: As Shown
DESIGNED BY: JCG DATE: 6/2021
BRIDGE NO. 07565 DRAWING NO. 64438

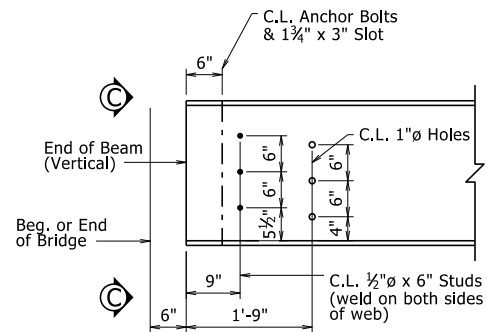
All field splice bolts shall be $\frac{7}{8}$ " \emptyset H.S. bolts.
All holes for splice bolts shall be $\frac{15}{16}$ " \emptyset .

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	51	82
07565 - 200'-0" UNIT - 64440						



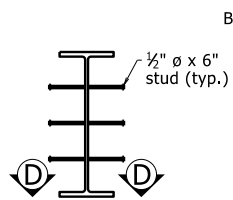
TYPICAL SECTION AT CONCRETE END BENT DIAPHRAGMS

Looking Back Bent 1
Looking Ahead Bent 6
1/2" = 1'-0"



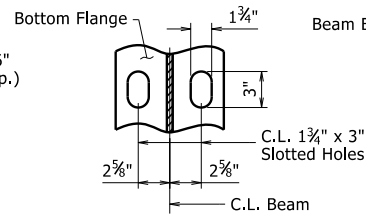
DETAIL OF BEAM END

3/4" = 1'-0"



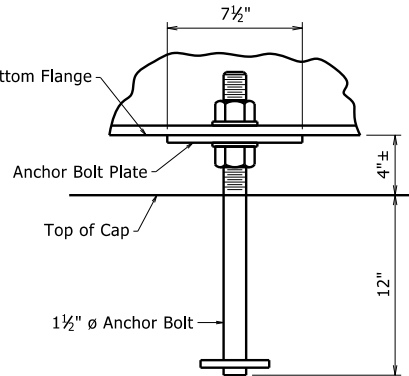
VIEW C-C

3/4" = 1'-0"



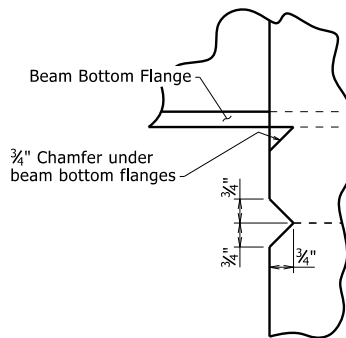
SECTION D-D

1 1/2" = 1'-0"



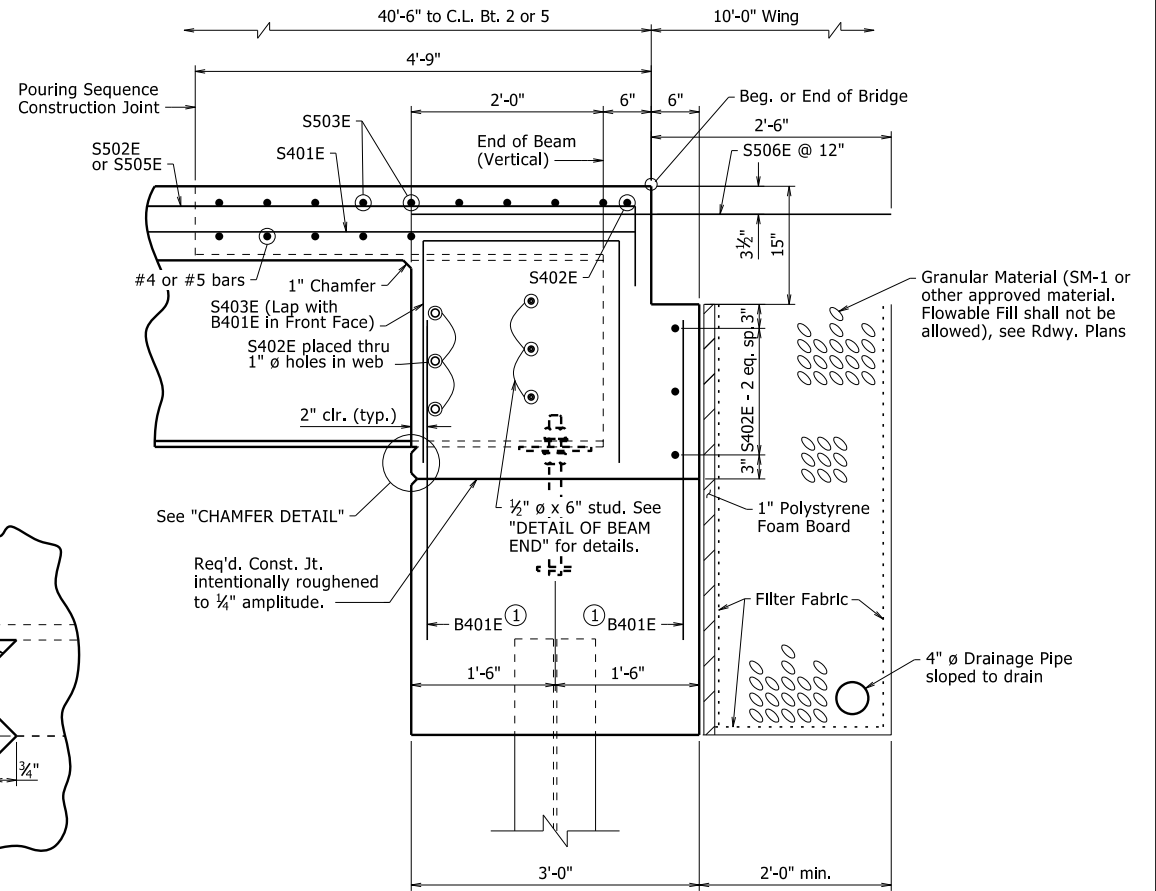
VIEW E-E

No Scale



CHAMFER DETAIL

No Scale



SECTION F-F

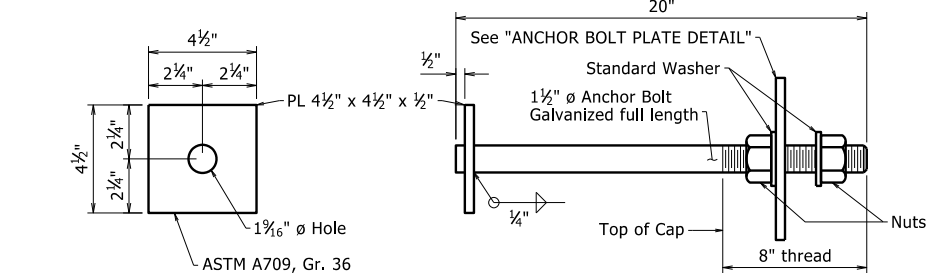
1" = 1'-0"

Limits of the concrete end diaphragm shall match plan dimension of End Bent Cap.

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

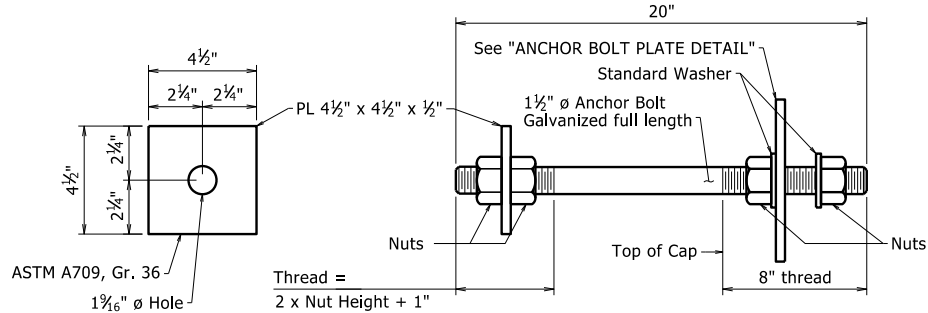
1" Polystyrene Foam Board, Filter Fabric and Granular Material shall not be paid for directly, but shall be considered subsidiary to the various bid items.

① See Dwg. No. 64434 for bent reinforcing details and placement.



ANCHOR BOLT DETAIL

No Scale



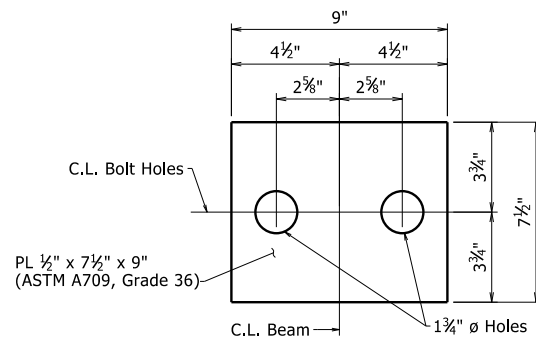
ALTERNATE ANCHOR BOLT DETAIL

No Scale

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.

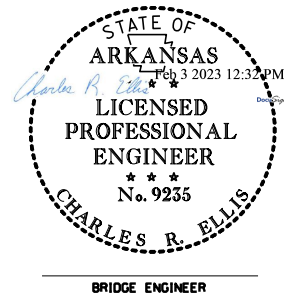
Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.

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



ANCHOR BOLT PLATE DETAIL

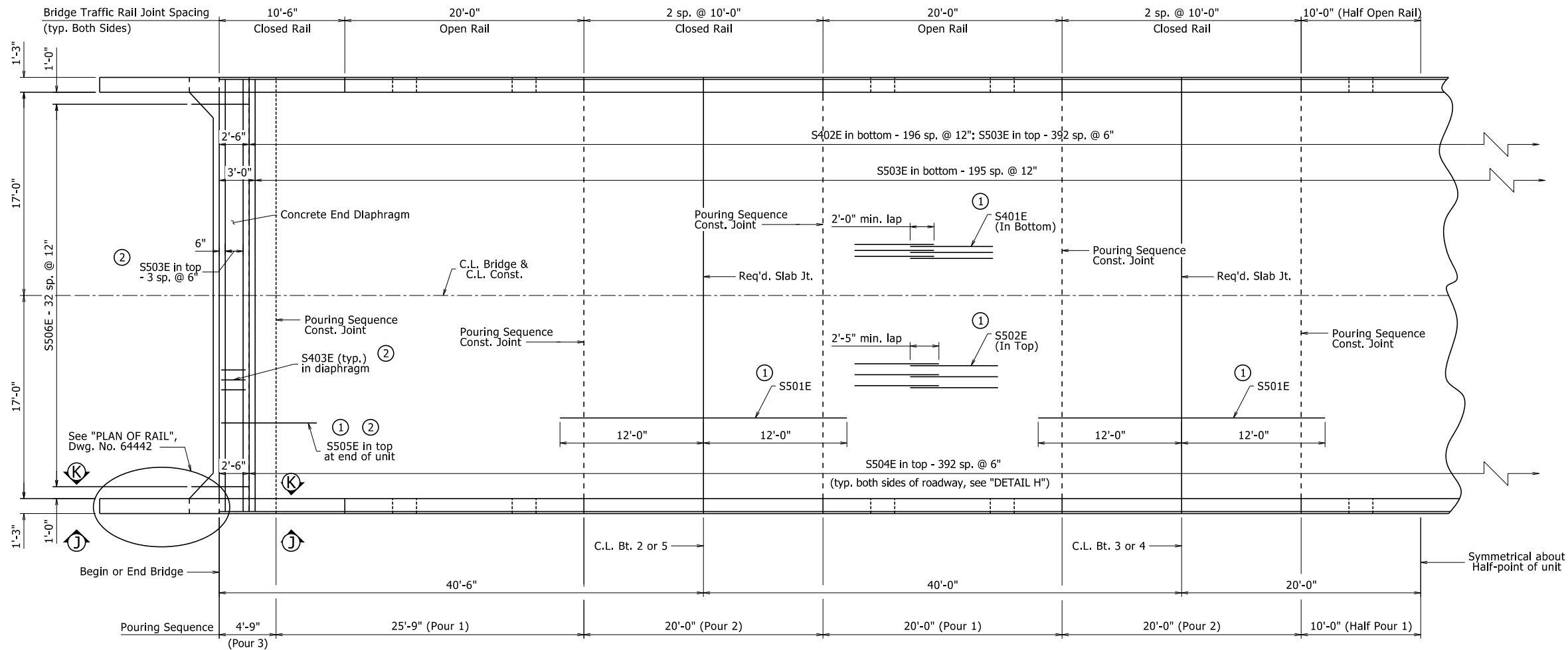
3" = 1'-0"



SHEET 3 OF 5
DETAILS OF 200'-0"
INTEGRAL CONTINUOUS W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

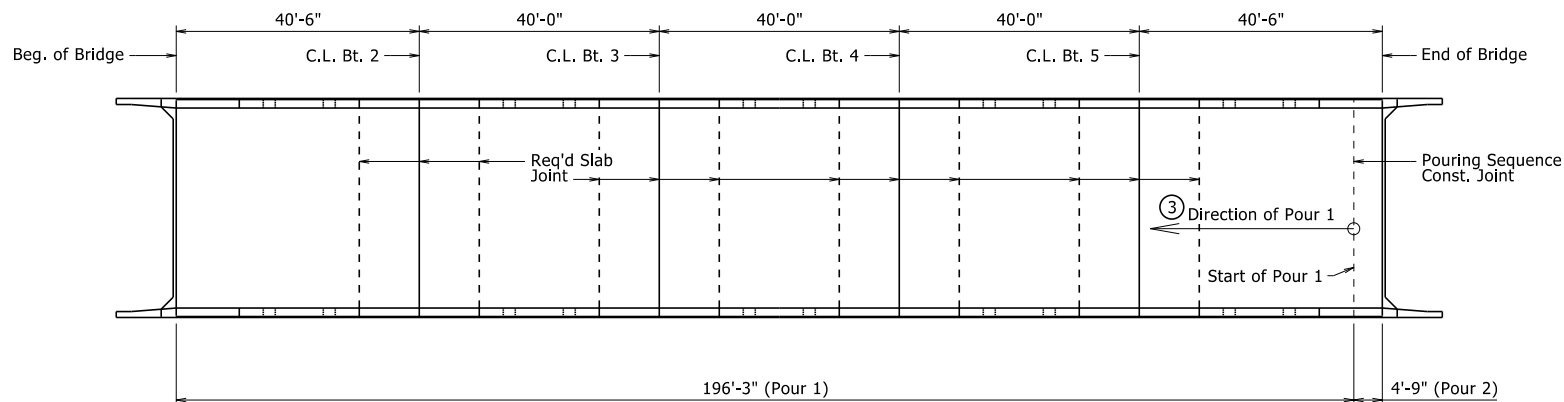
DRAWN BY: JCG DATE: 6/17/2021 FILENAME: b080614_s1.dgn
CHECKED BY: DKS DATE: 8/23/2021 SCALE: As Shown
DESIGNED BY: JCG DATE: 6/2021
BRIDGE NO. 07565 DRAWING NO. 64440

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	52	82
07565 - 200'-0" UNIT - 64441						



HALF-REINFORCING PLAN AND SLAB POURING SEQUENCE

- ① Placed as shown in "TYPICAL ROADWAY SECTION," Dwg. No. 64438 $\frac{3}{16}" = 1'-0"$
- ② See Dwg. No. 64440 for more details of reinforcing in concrete end diaphragm.



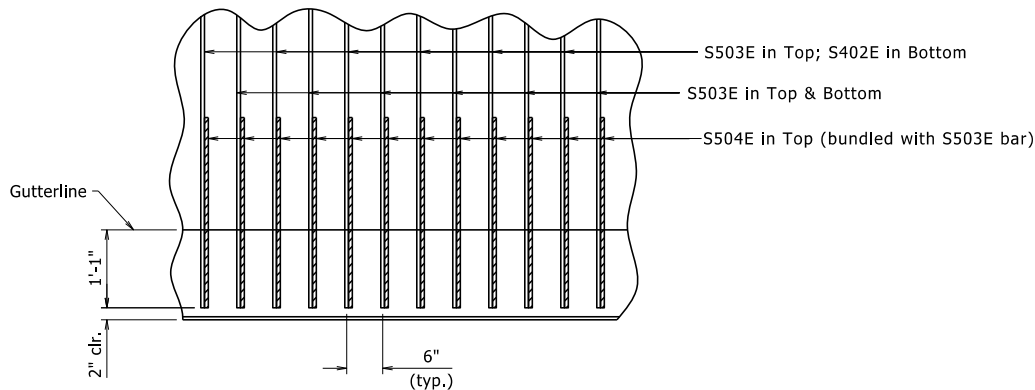
ALTERNATE POURING SEQUENCE

$\frac{1}{16}" = 1'-0"$

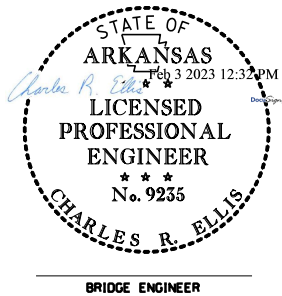
- ③ Direction of pour shall be from near Bent 6 progressing to Bent 1. If stay-in-place forms are used and installed in a manner that requires pouring of the slab in the opposite direction, this Alternate Pouring Sequence shall be modified accordingly to where Closure Pour (2) is at Bent 1 and Pour (1) progresses from near Bent 1 to Bent 6.

TABLE OF VARIABLES BRIDGE TRAFFIC RAILING (TYPE SSTR36)

Closed Rail Panels			Open Rail Panels						
Panel Length	"A"	R4XXE Bar	Panel Length	"B"	"C"	"D"	"E"	"F"	R4XXE Bar
10'-0"	19	R404E	20'-0"	7	11	4'-0"	15	8'-0"	R406E
10'-6"	20	R405E							



DETAIL H
No Scale



SHEET 4 OF 5
DETAILS OF 200'-0"
INTEGRAL CONTINUOUS W-BEAM UNIT

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

DRAWN BY: JCG DATE: 6/17/2021 FILENAME: b080614_s1.dgn
CHECKED BY: DKS DATE: 8/23/2021 SCALE: As Shown
DESIGNED BY: JCG DATE: 6/2021
BRIDGE NO. 07565 DRAWING NO. 64441

Bridge traffic rail joint spacing and depth shown is typical for both sides of roadway. For additional details, see Std. Dwg. No. 55070.

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

For Bar List, see Dwg. No. 64438.

For Views "J-J" and "K-K", see Dwg. No. 64442.

Slab Pouring Sequence Notes:
Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2), & all Pours (2) must be placed before Pours (3). 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between adjacent pours.

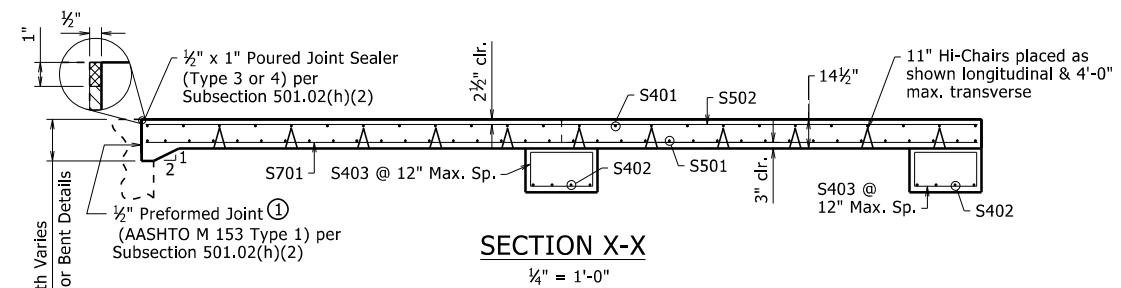
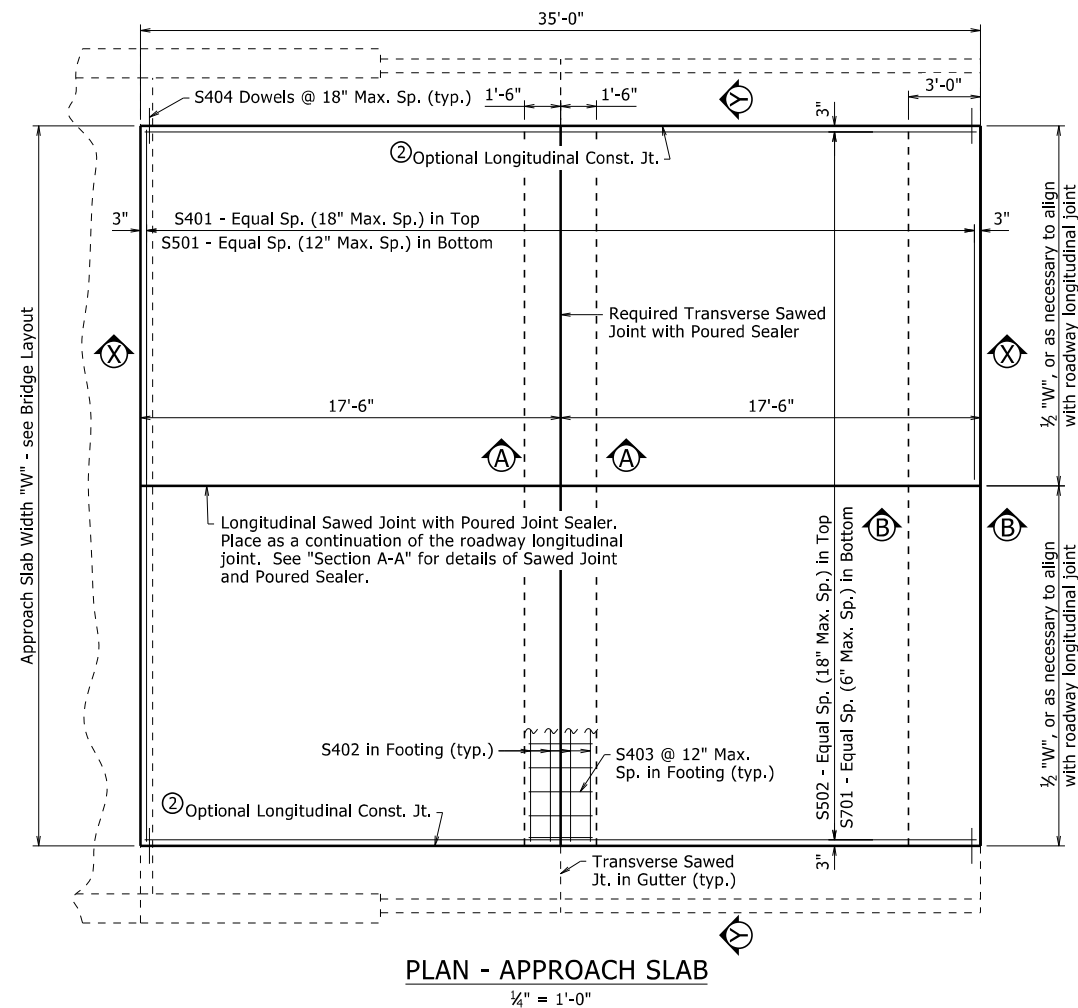
Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

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

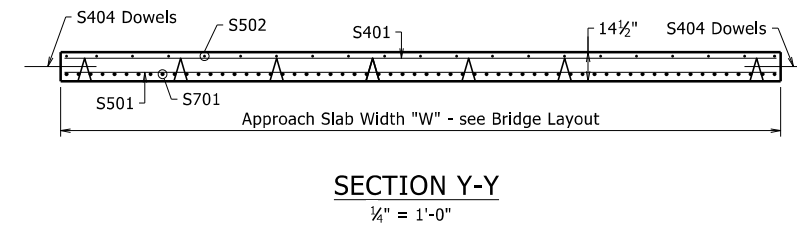
Unless otherwise noted, required slab joints and pouring sequence construction joints shall align with bridge traffic rail joints at the gutterline.

Concrete diaphragms at end bents shall be poured monolithically with the deck.

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	54	82
		07565 - APPR. SLAB - 64442A				



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



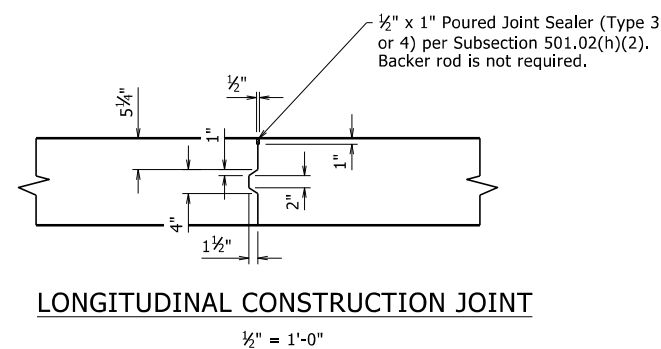
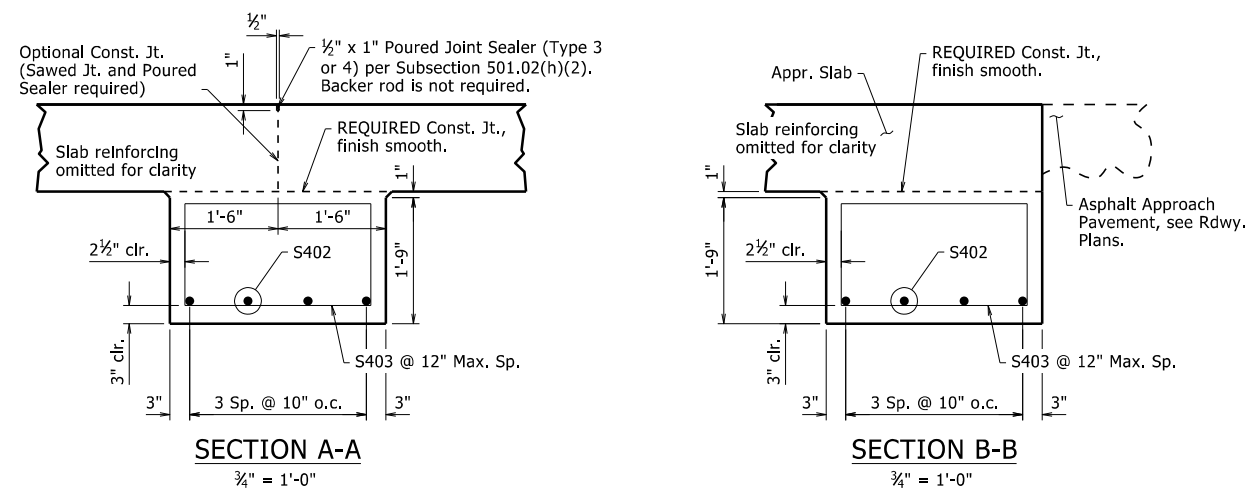
QUANTITIES FOR ONE
TYPE SPECIAL APPROACH SLAB
(FOR INFORMATION ONLY)

"W"	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
30'-0"	7,140	59.30

BAR LIST FOR ONE
TYPE SPECIAL APPROACH SLAB

Mark	No. Req'd.	Length	Bending Diagram
S401	24	29'-8"	
S402	8	29'-8"	
S403	60	8'-4"	
S404	48	1'-6"	
S501	36	29'-8"	
S502	21	34'-8"	
S701	60	34'-8"	

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.

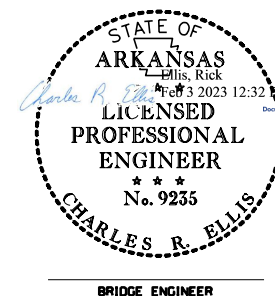
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

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

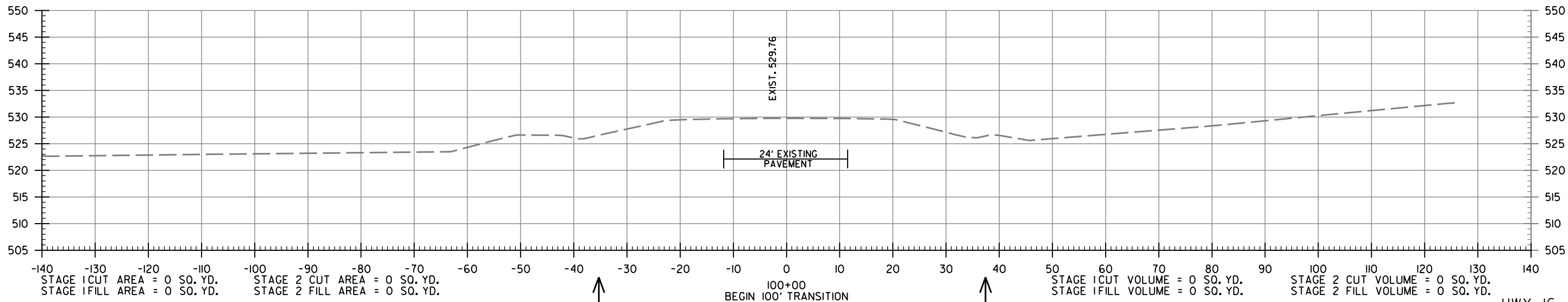
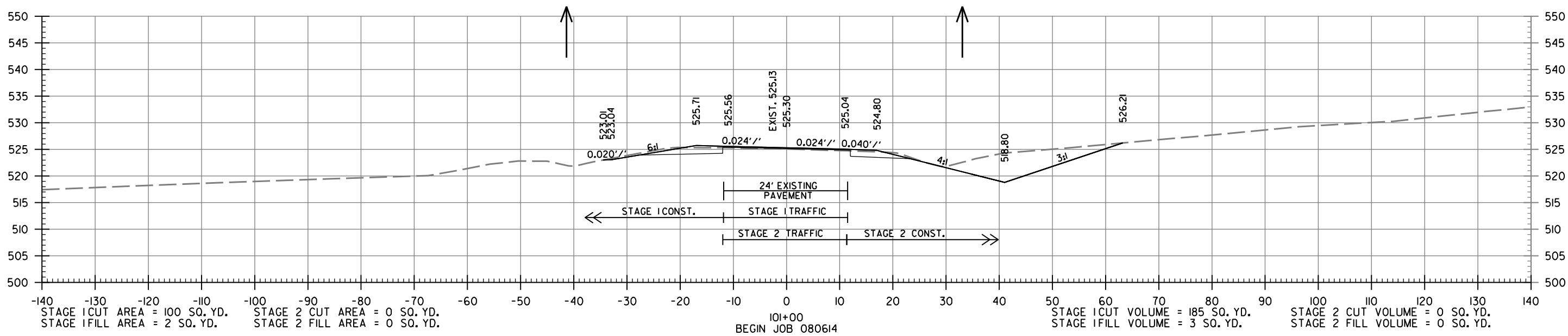
Approach Slabs will be measured and paid for in accordance with Section 504.

DETAILS OF TYPE SPECIAL APPROACH SLAB

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: JYP DATE: 2-1-2023 FILENAME: b080614_as.dgn
CHECKED BY: DKS DATE: 2-2-2023 SCALE: As Noted
DESIGNED BY: STD DATE: -
BRIDGE NO. 075665 DRAWING NO. 64442A

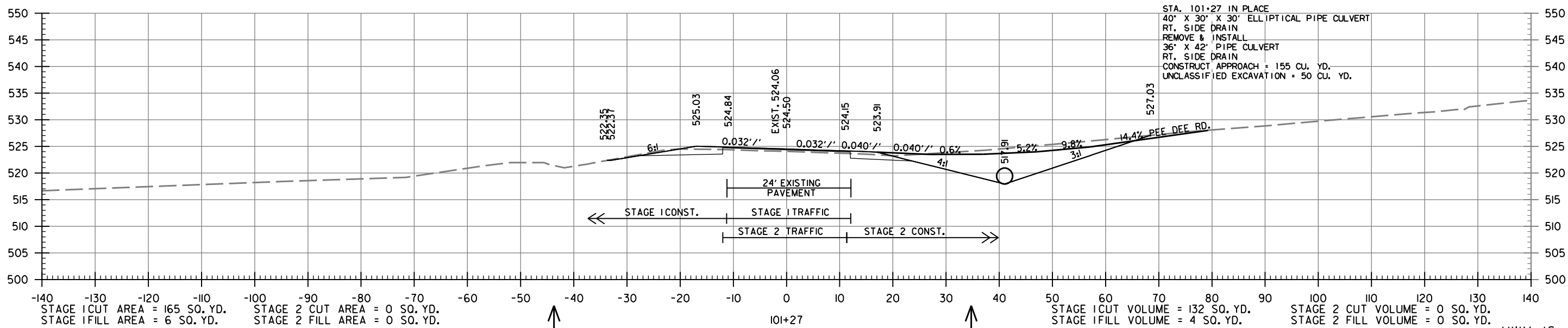
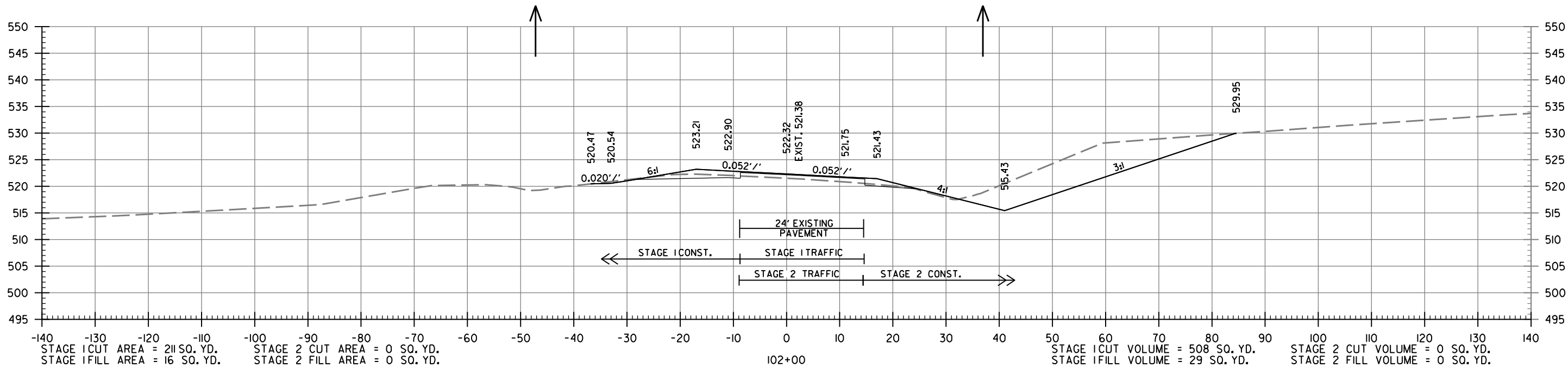


DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	55	82
CROSS SECTIONS						



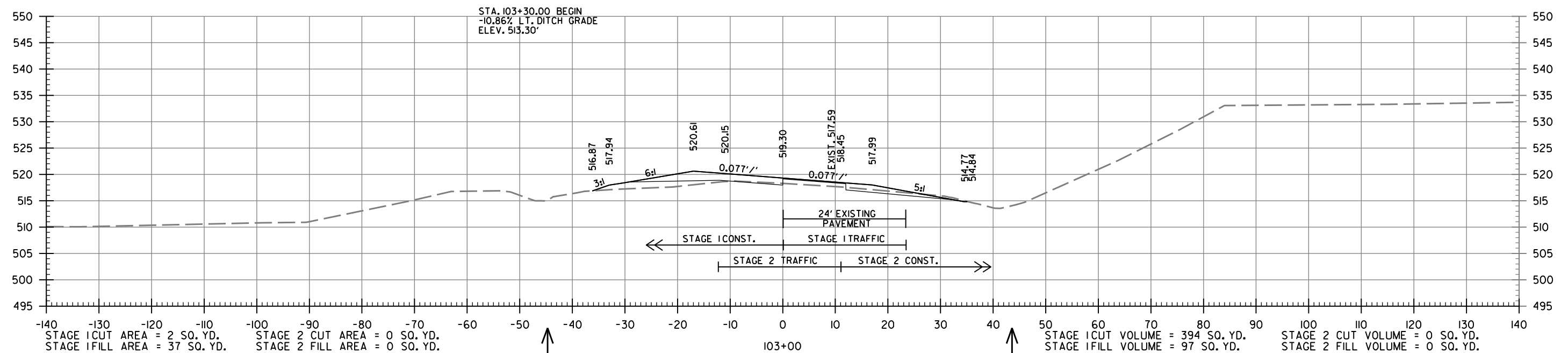
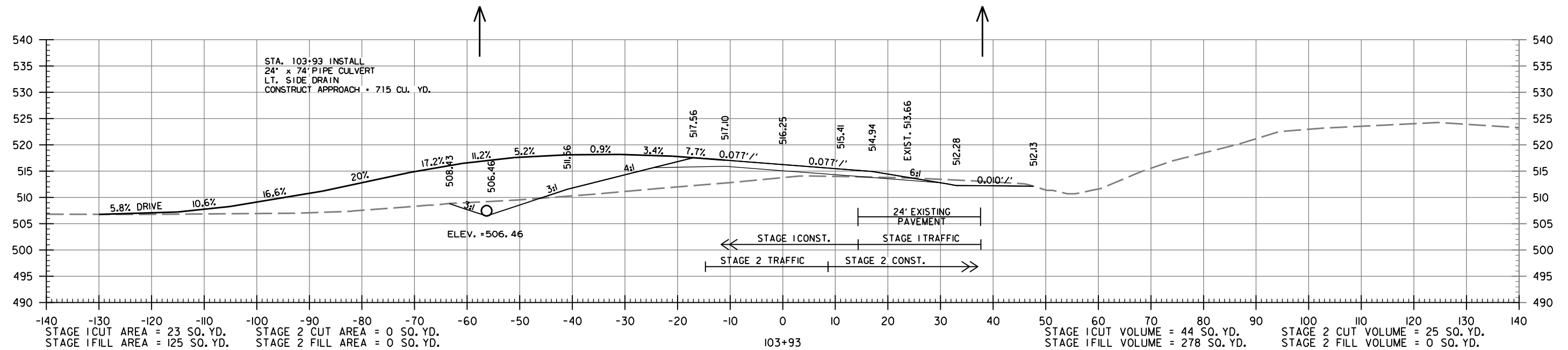
HWY. 16
CROSS SECTION STA. 100+00 TO STA. 101+00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	56	82
CROSS SECTIONS						



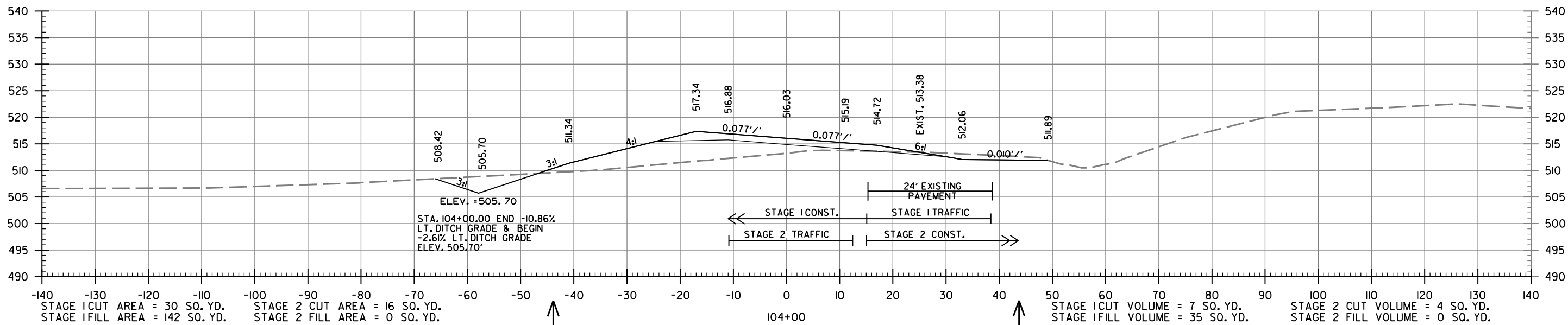
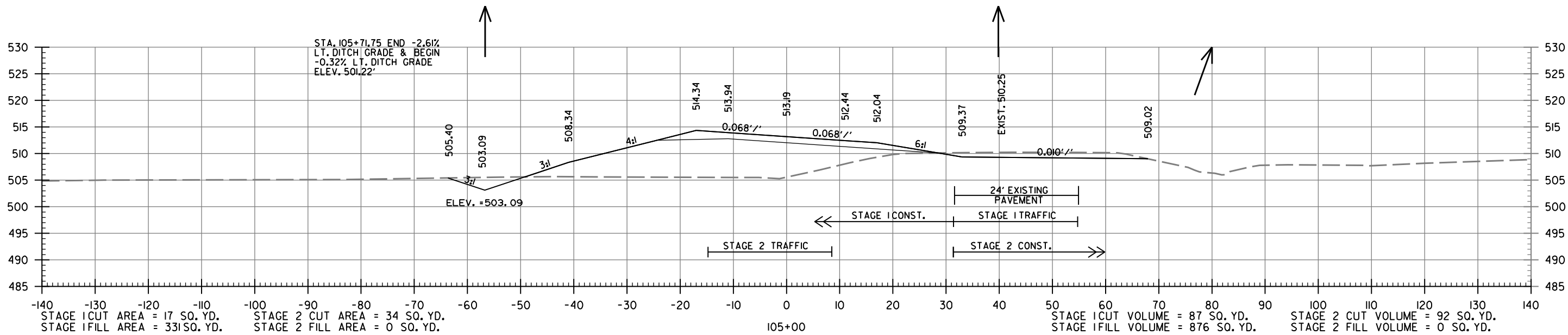
HWY. 16
CROSS SECTION STA. 101+27 TO STA. 102+00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	57	82
CROSS SECTIONS						



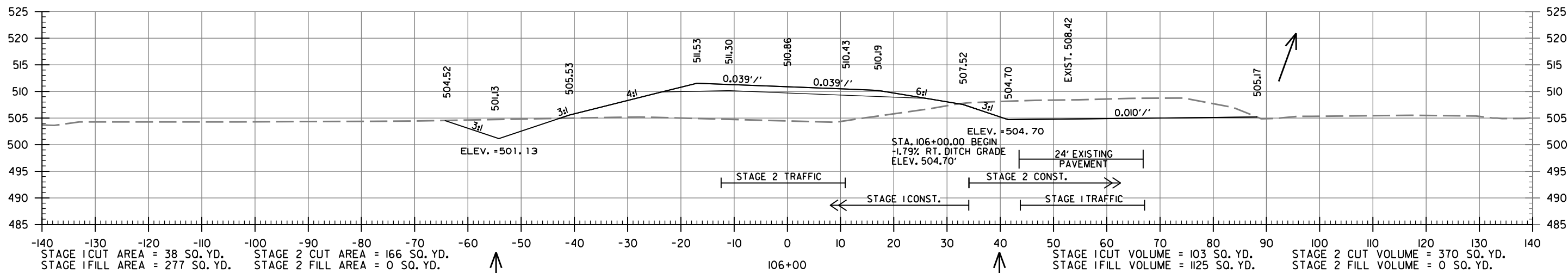
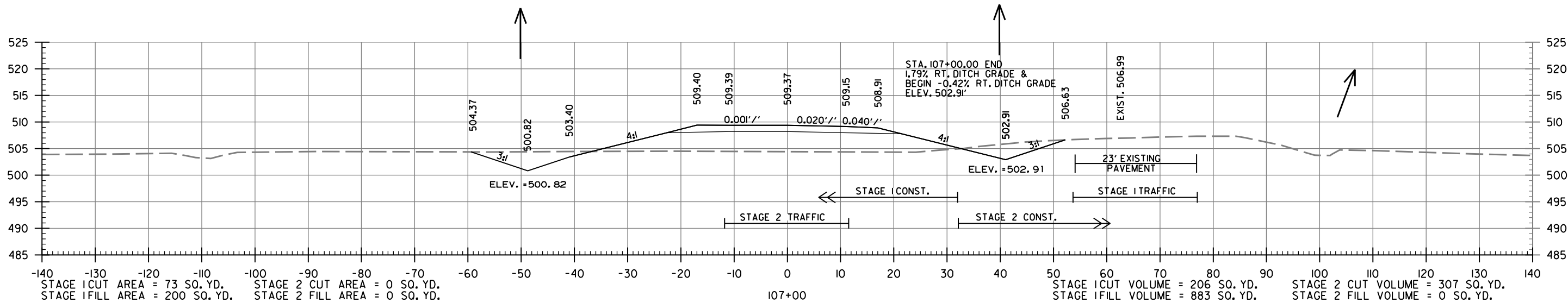
HWY. 16
CROSS SECTION STA. 103+00 TO STA. 103+93

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	58	82
CROSS SECTIONS						



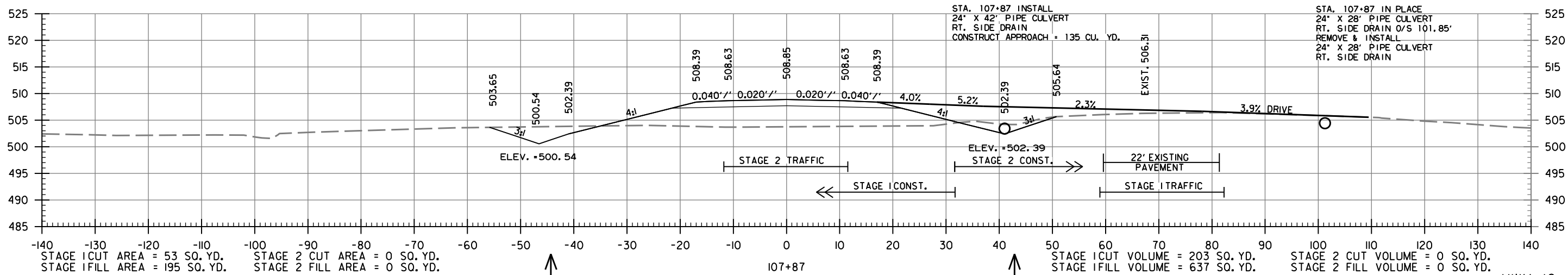
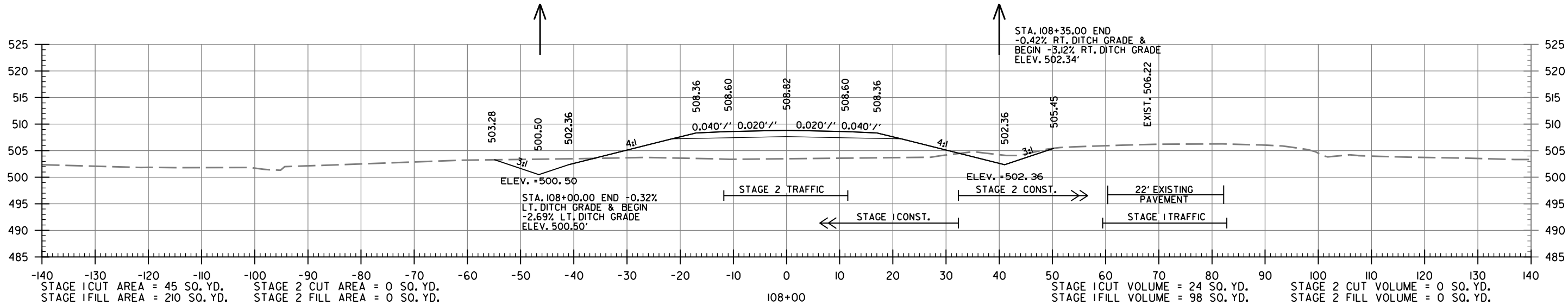
HWY. 16
CROSS SECTION STA. 104+00 TO STA. 105+00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	59	82
CROSS SECTIONS						



CROSS SECTION STA. 106+00 TO STA. 107+00 HWY. 16

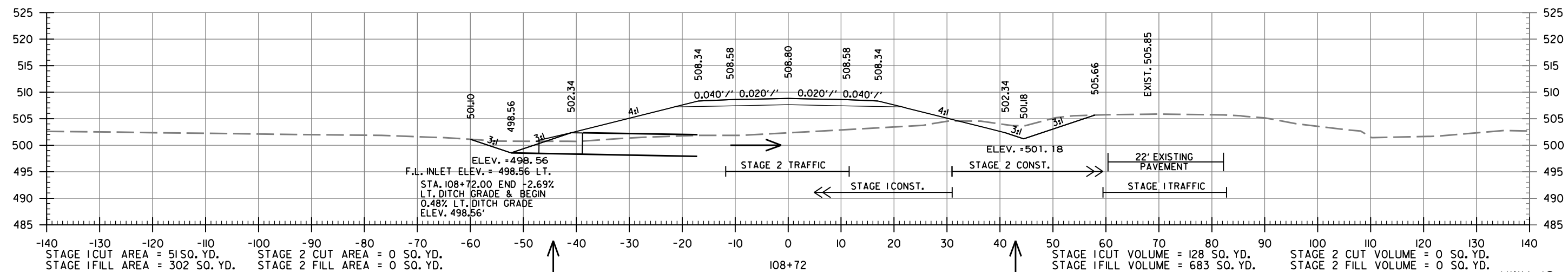
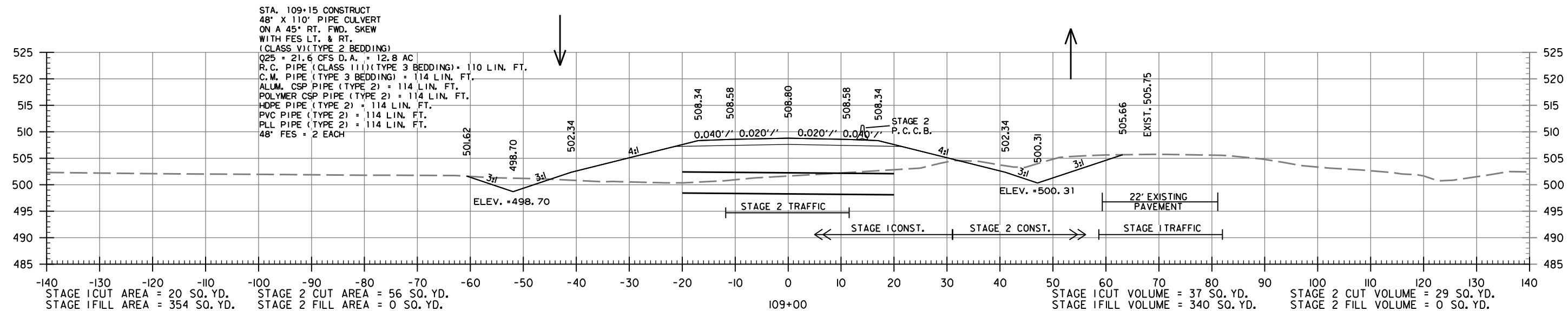
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	60	82
CROSS SECTIONS						



CROSS SECTION STA. 107+87 TO STA. 108+00

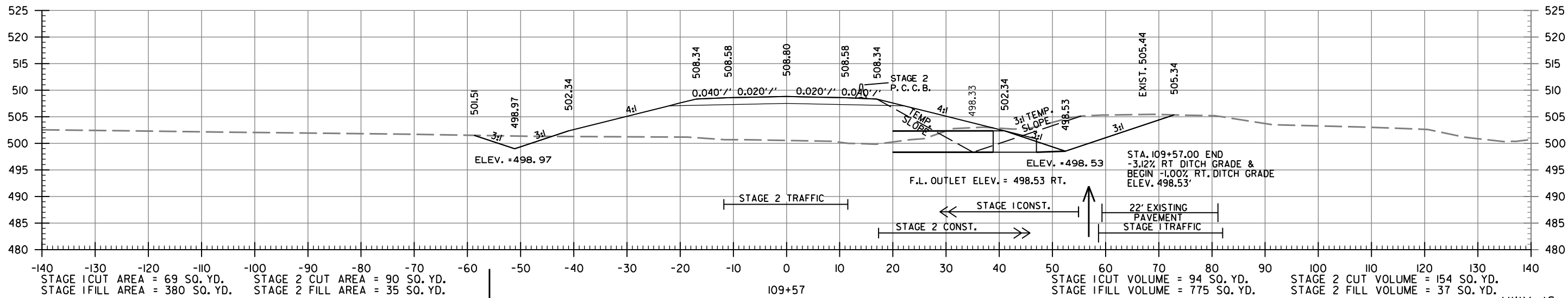
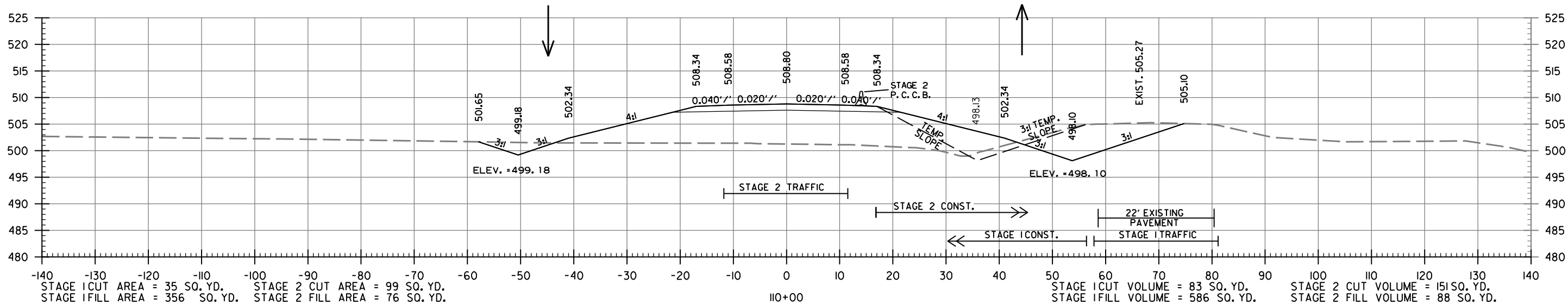
HWY. 16

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	61	82
CROSS SECTIONS						



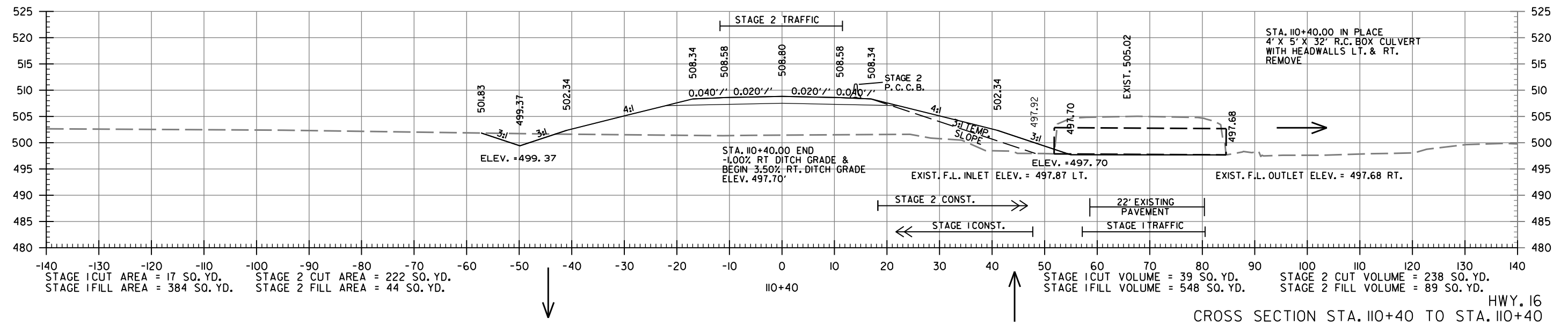
HWY. 16
CROSS SECTION STA. 108+72 TO STA. 109+00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	62	82
CROSS SECTIONS						

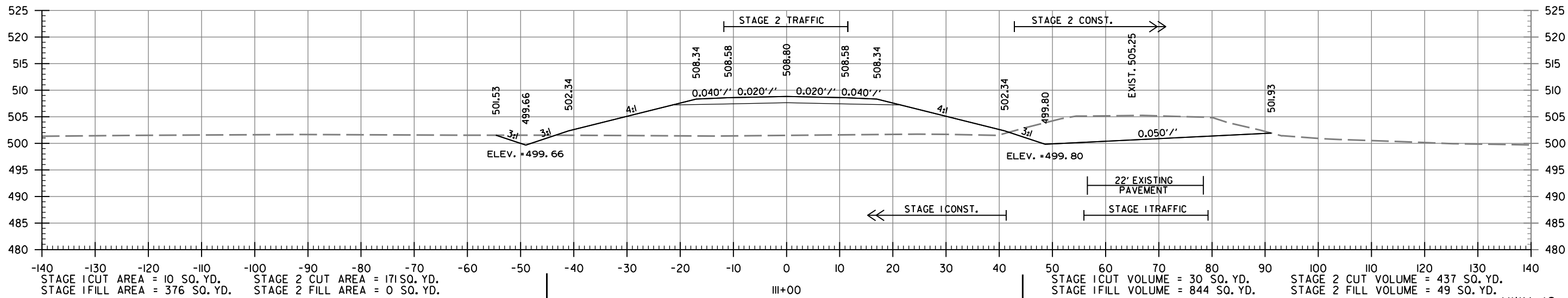
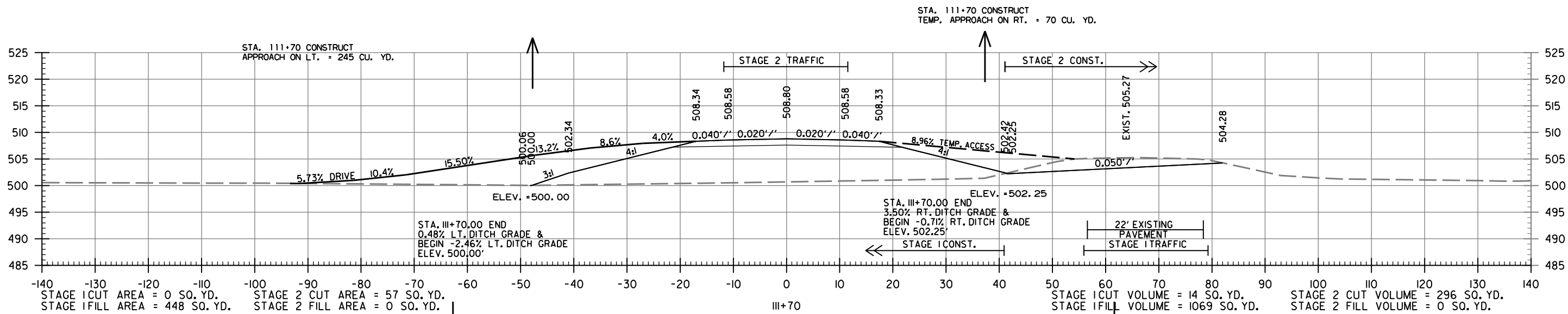


HWY. 16
CROSS SECTION STA. 109+57 TO STA. 110+00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	63	82
		CROSS SECTIONS				

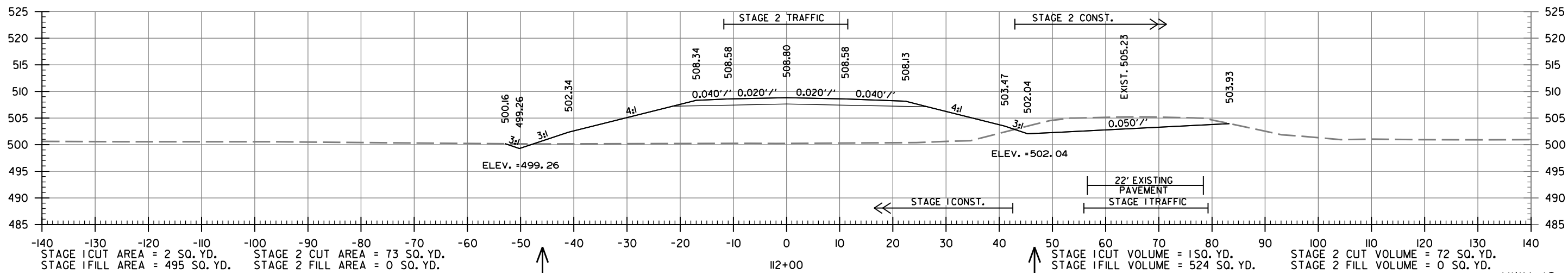
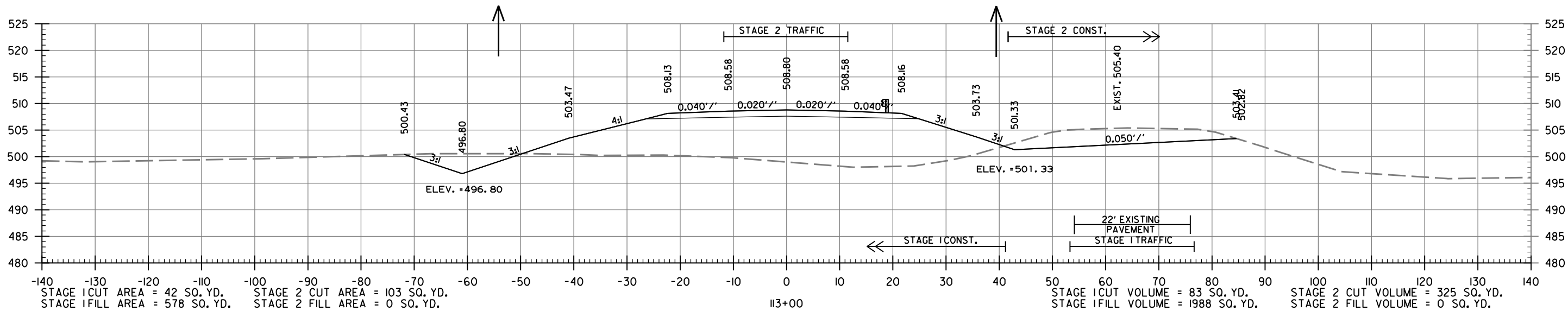


DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	64	82
CROSS SECTIONS						



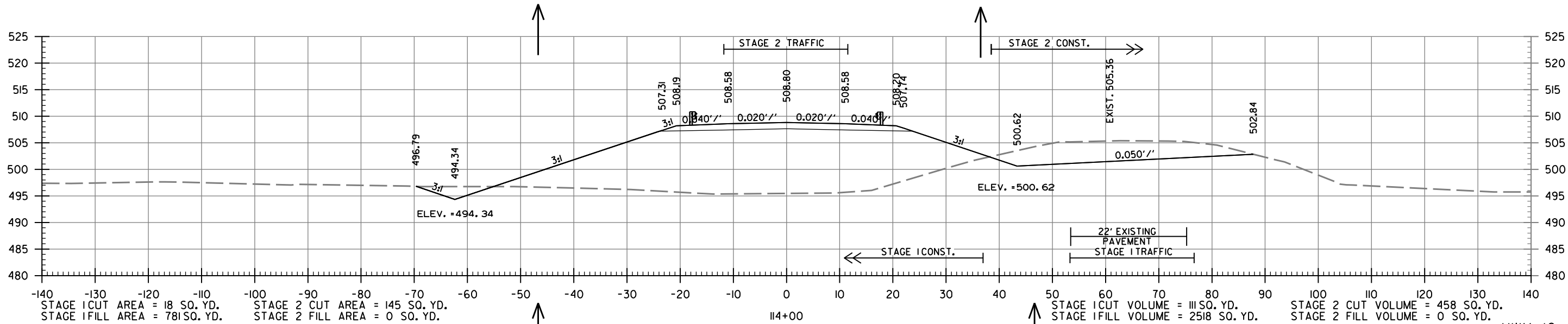
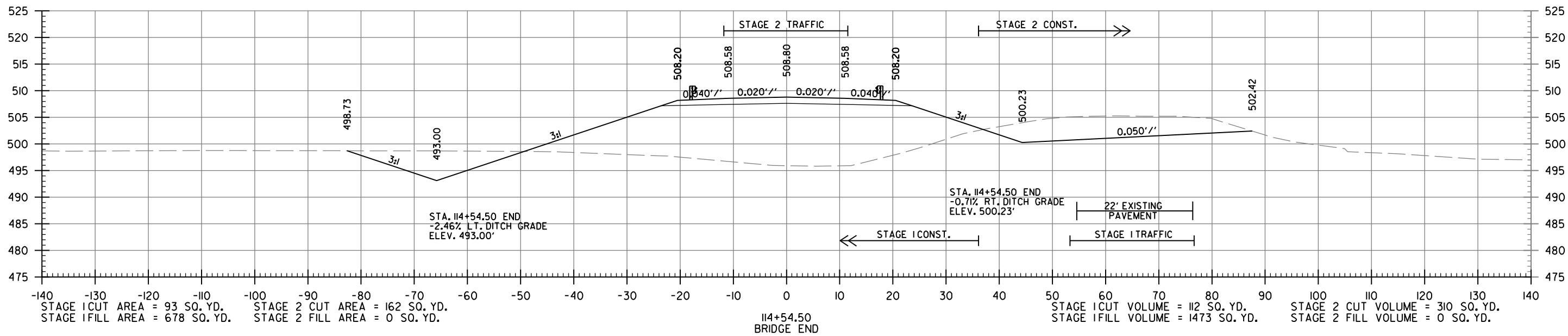
HWY. 16
CROSS SECTION STA. III+00 TO STA. III+70

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	65	82
CROSS SECTIONS						



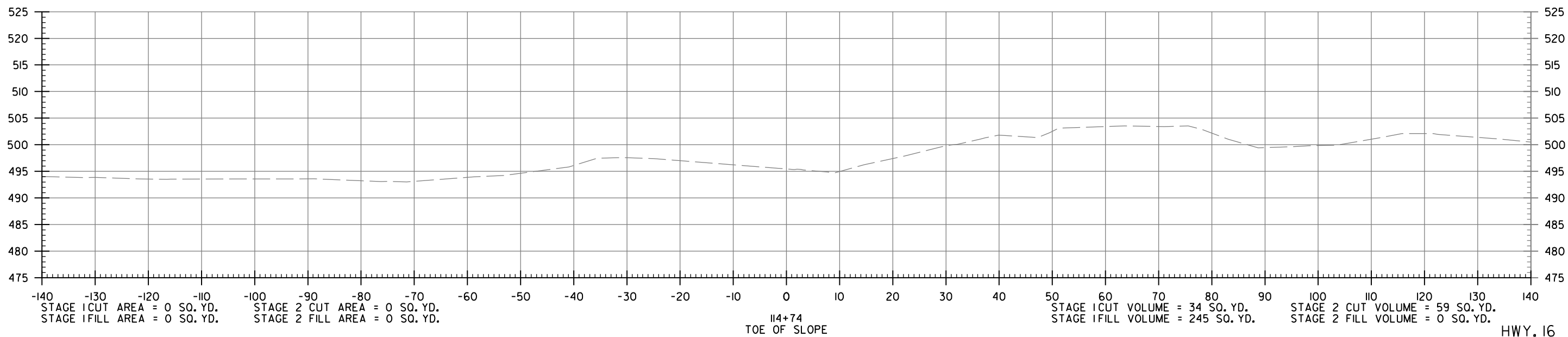
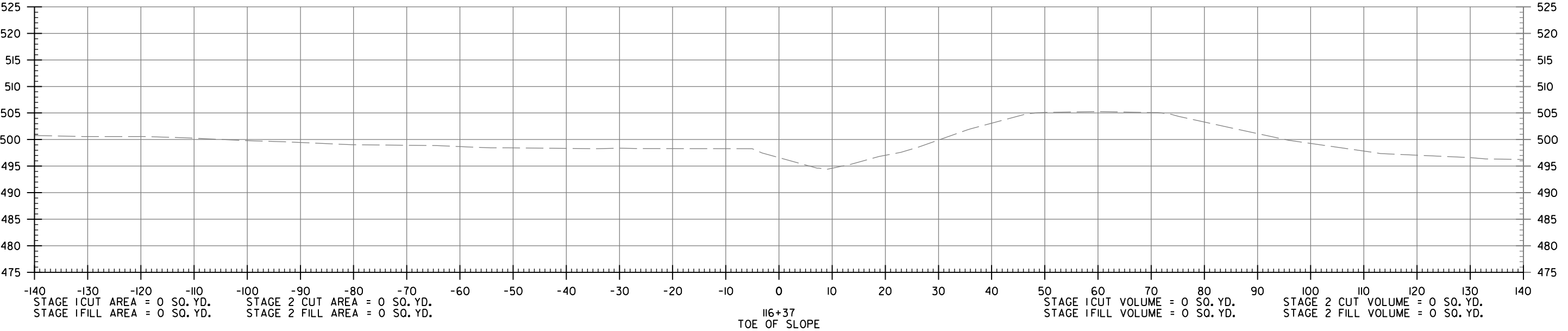
HWY. 16
CROSS SECTION STA. 112+00 TO STA. 113+00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	66	82
CROSS SECTIONS						



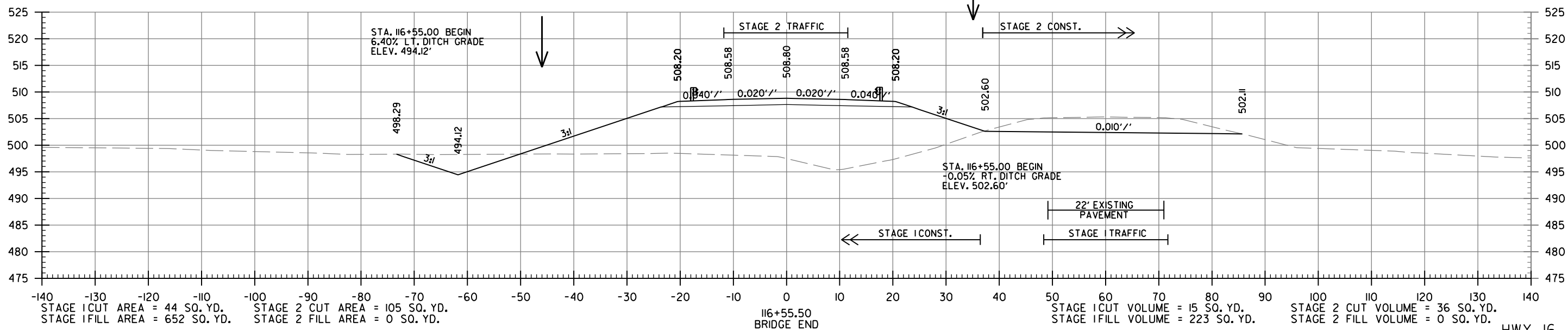
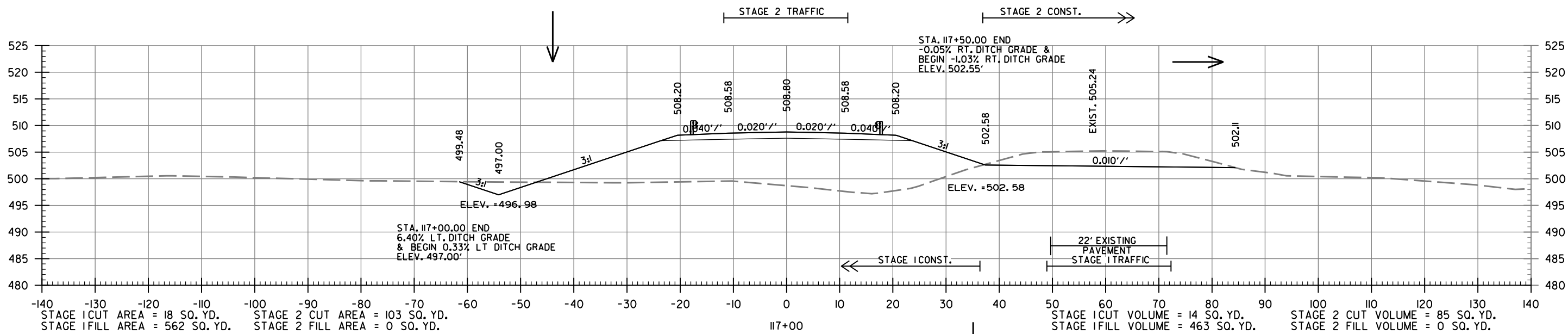
HWY. 16
CROSS SECTION STA. 114+00 TO STA. 114+54.50

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	67	82
CROSS SECTIONS						



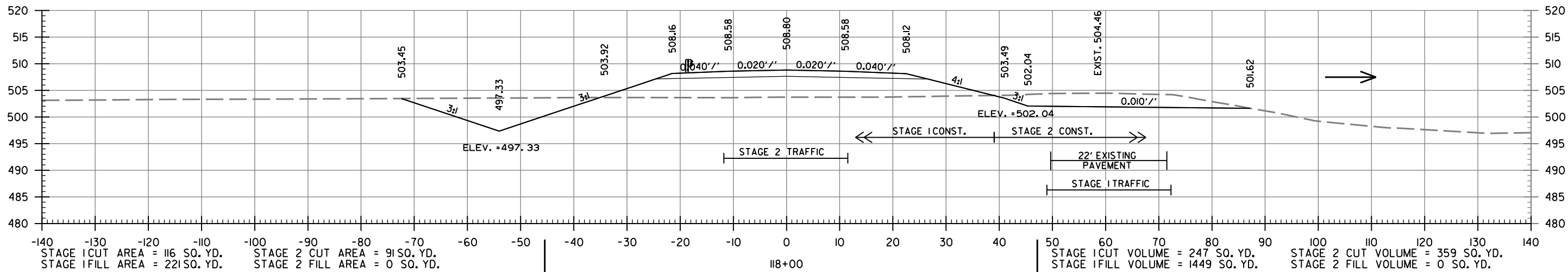
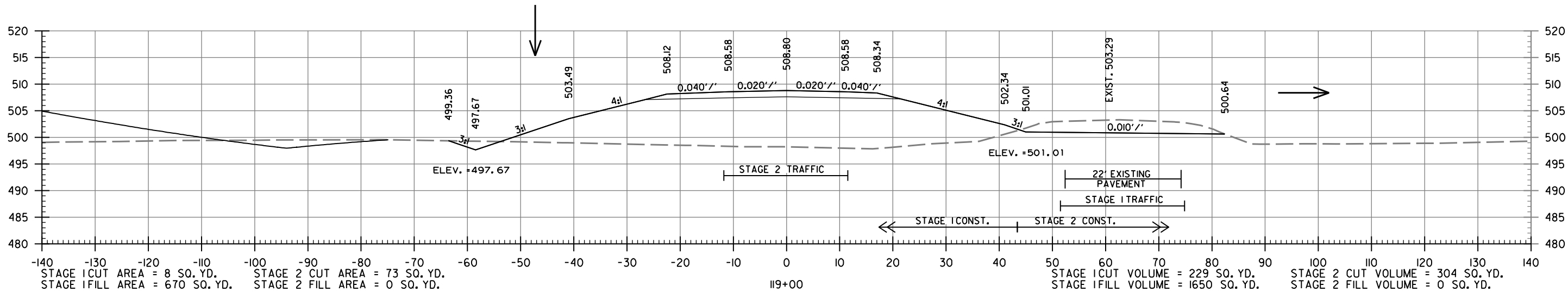
HWY. 16
CROSS SECTION STA. 114+74 TO STA. 116+37

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	68	82
CROSS SECTIONS						



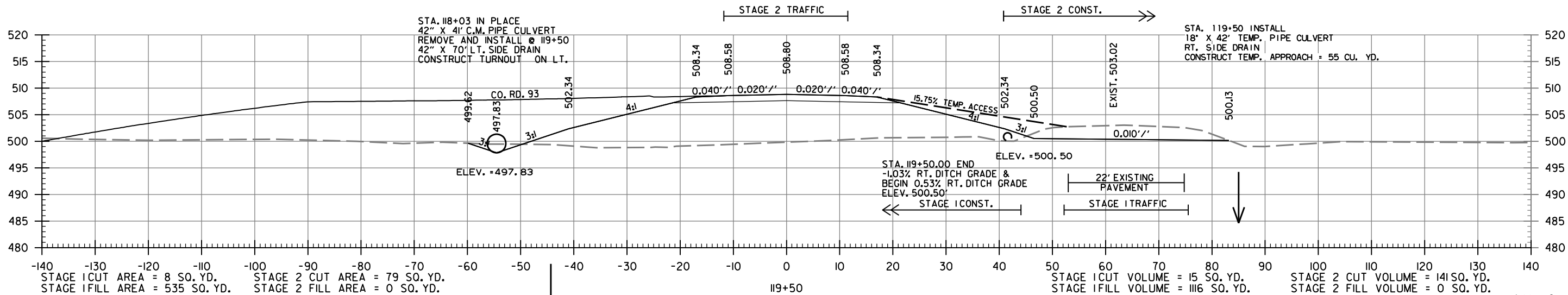
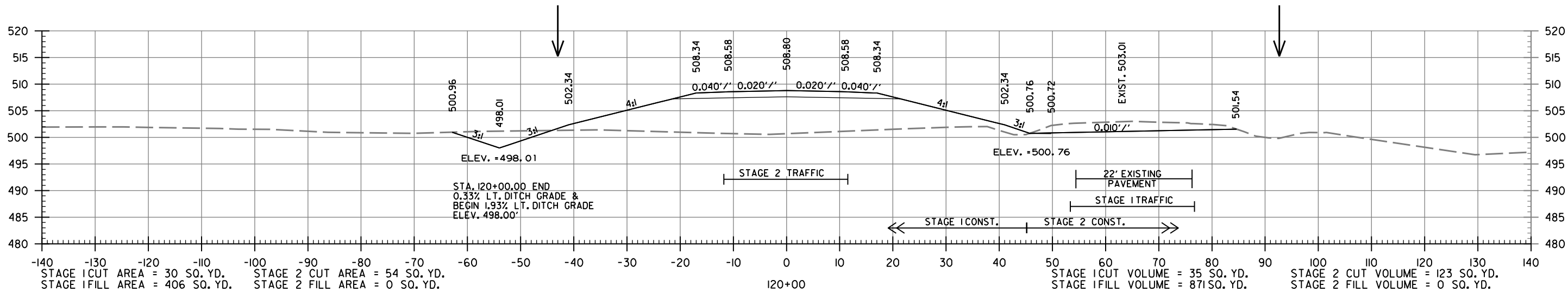
HWY. 16
CROSS SECTION STA. 116+55.50 TO STA. 117+00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	69	82
CROSS SECTIONS						



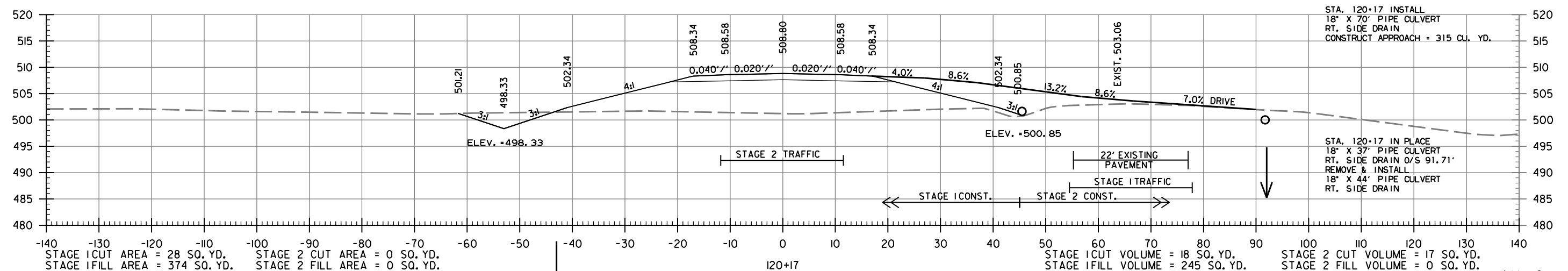
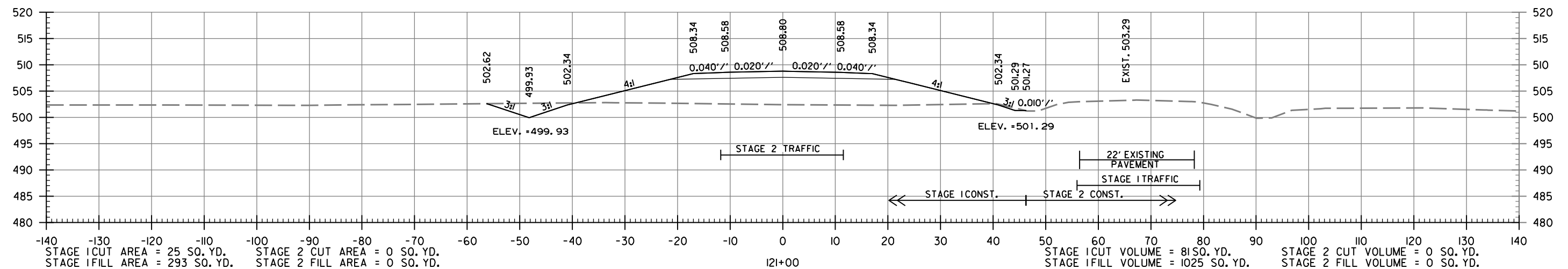
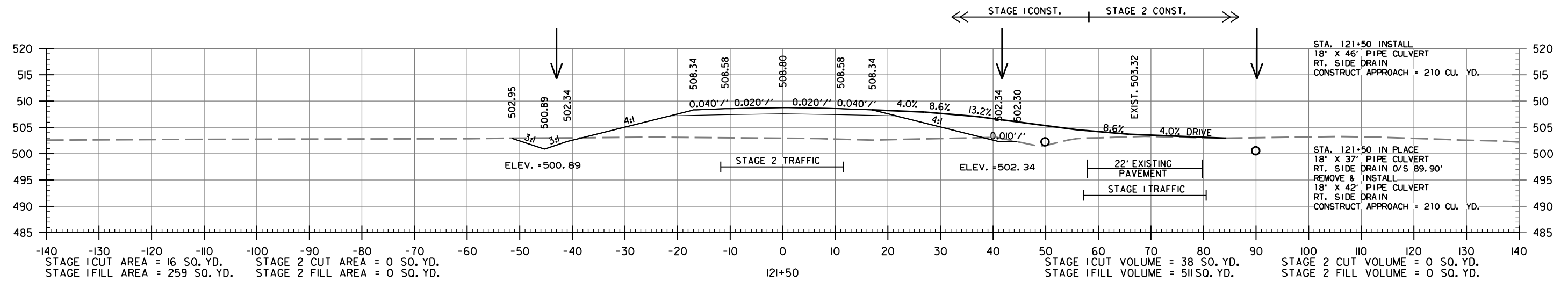
HWY. 16
CROSS SECTION STA. I18+00 TO STA. I19+00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	70	82
CROSS SECTIONS						



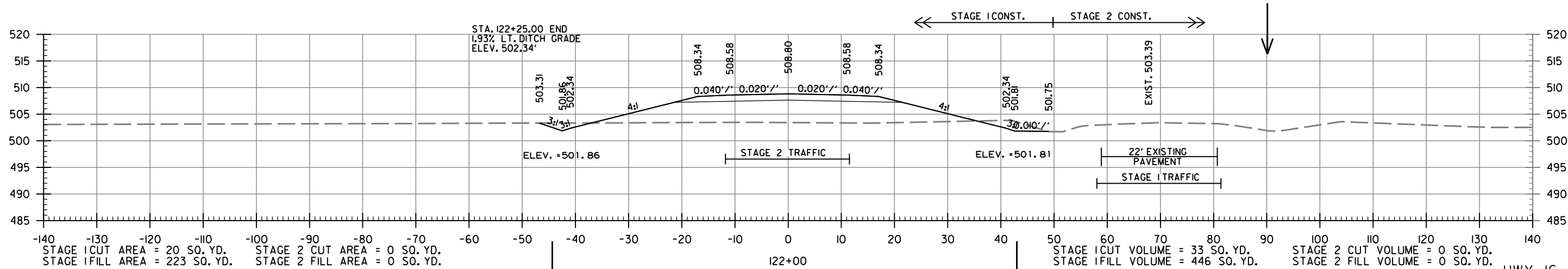
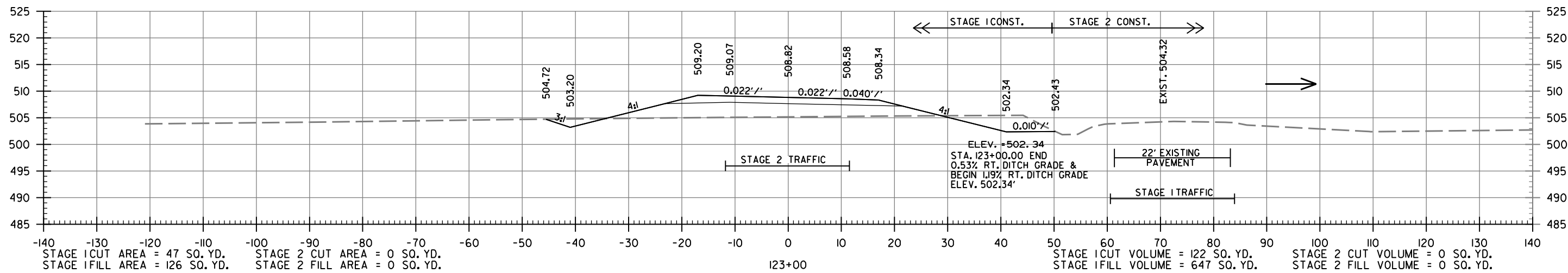
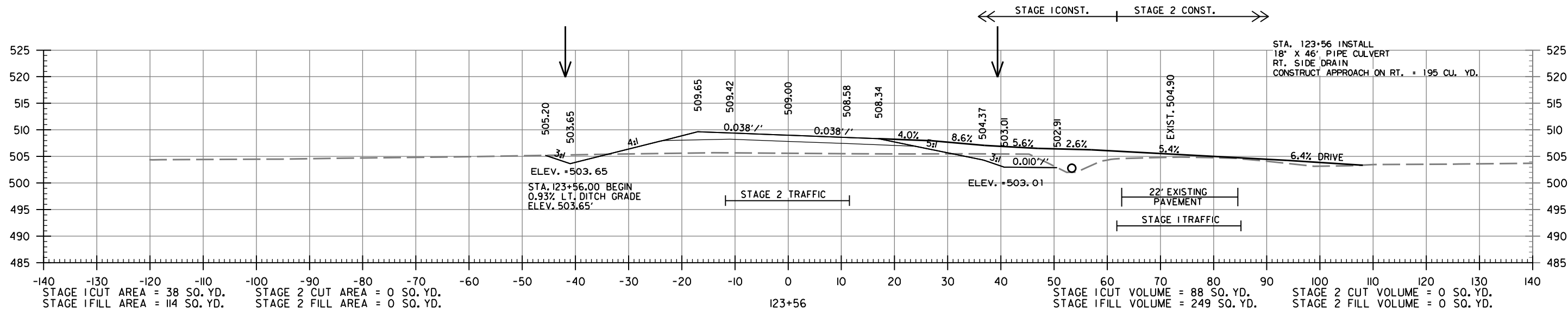
HWY. 16
CROSS SECTION STA. 119+50 TO STA. 120+00

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	080614	71	82
		CROSS SECTIONS				



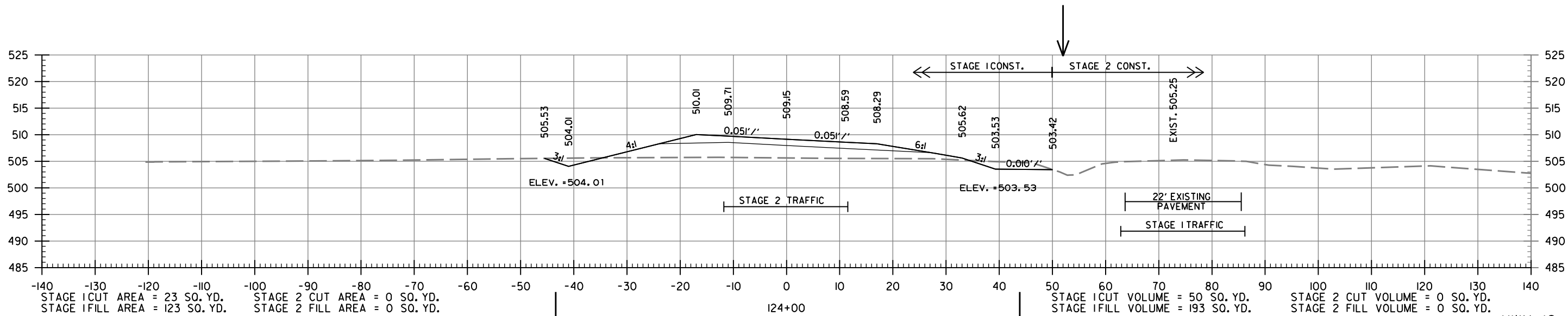
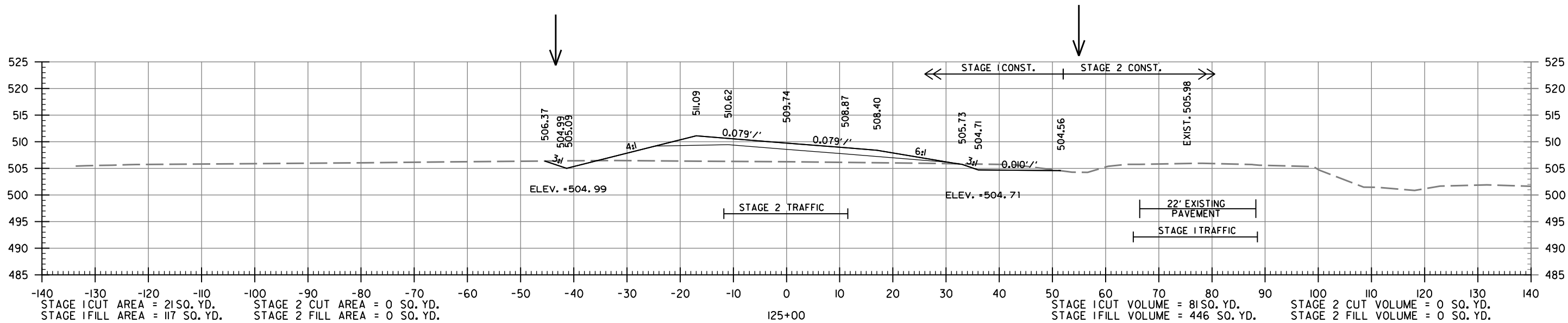
245 SQ. YD. STAGE 2 FILL VOLUME = 0 SQ. YD. HWY. 16
CROSS SECTION STA. 120+17 TO STA. 121+50

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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CROSS SECTIONS						



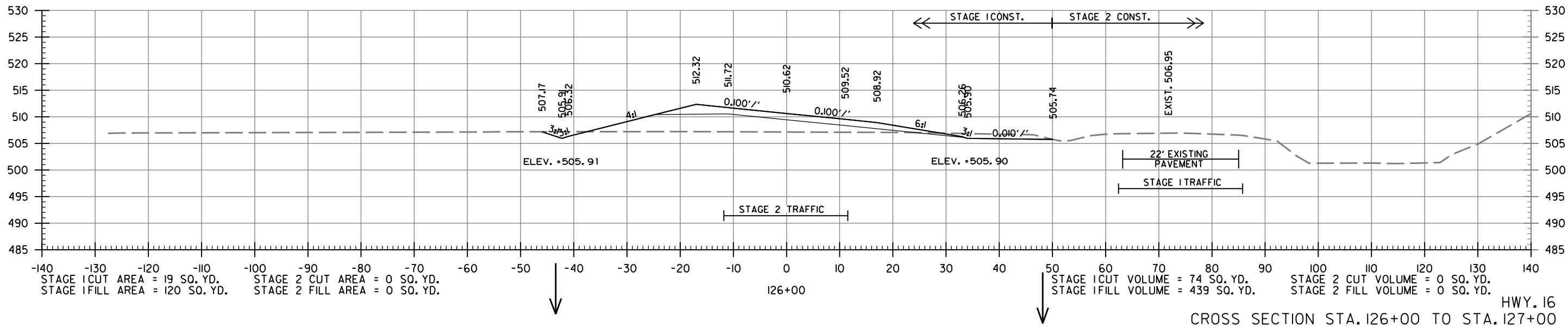
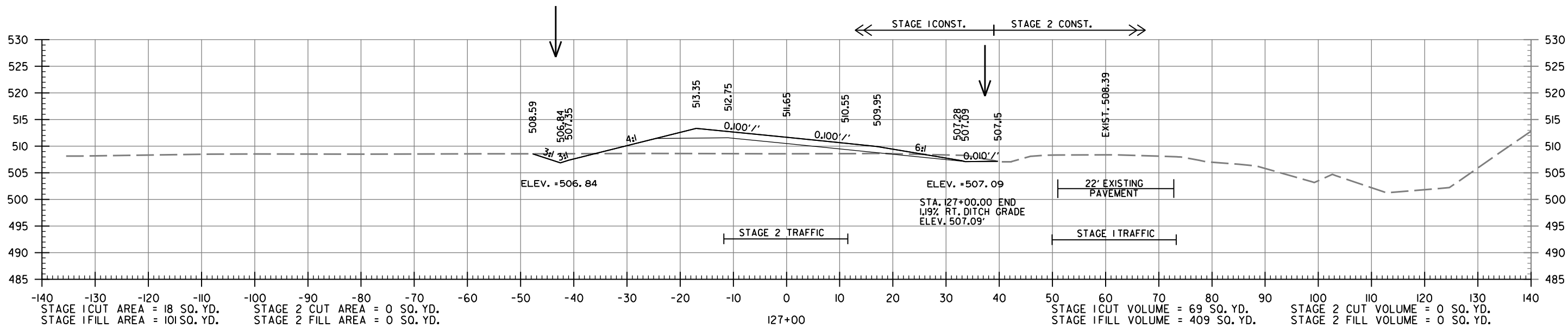
HWY. 16
CROSS SECTION STA. 122+00 TO STA. 123+56

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CROSS SECTIONS						

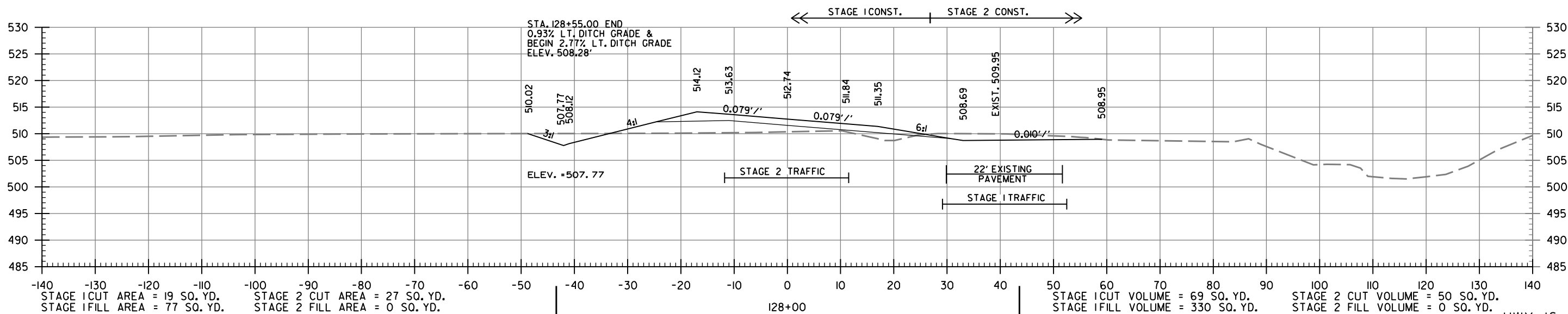
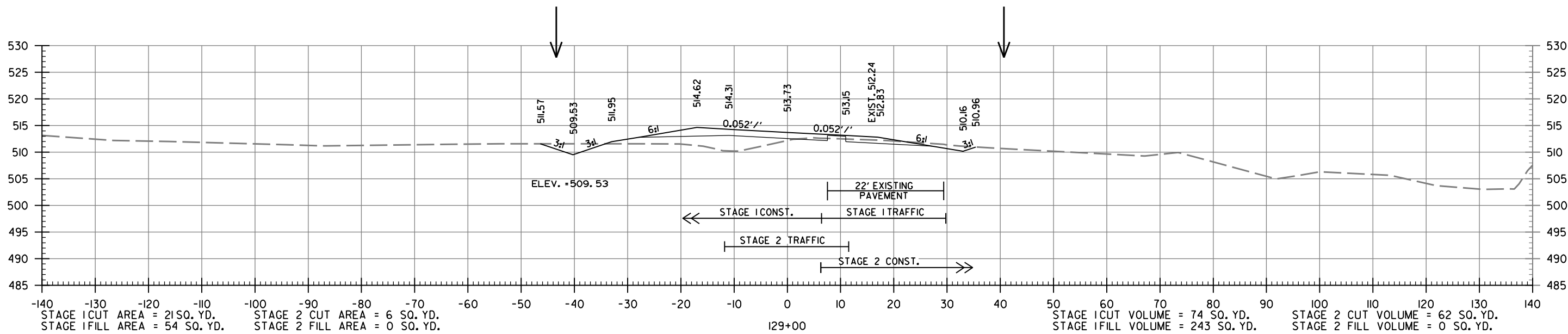


CROSS SECTION STA. 124+00 TO STA. 125+00
HWY. 16

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CROSS SECTIONS						

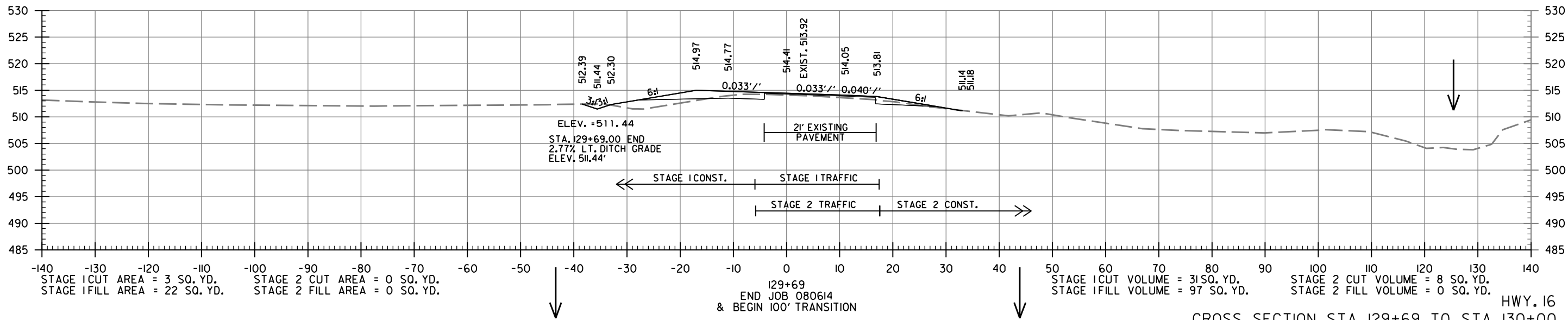
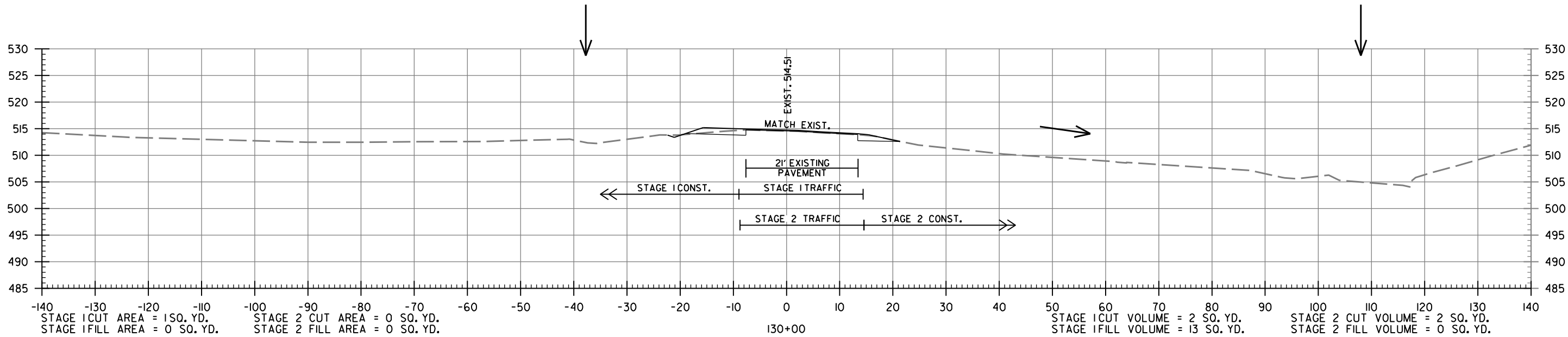


DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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CROSS SECTIONS						

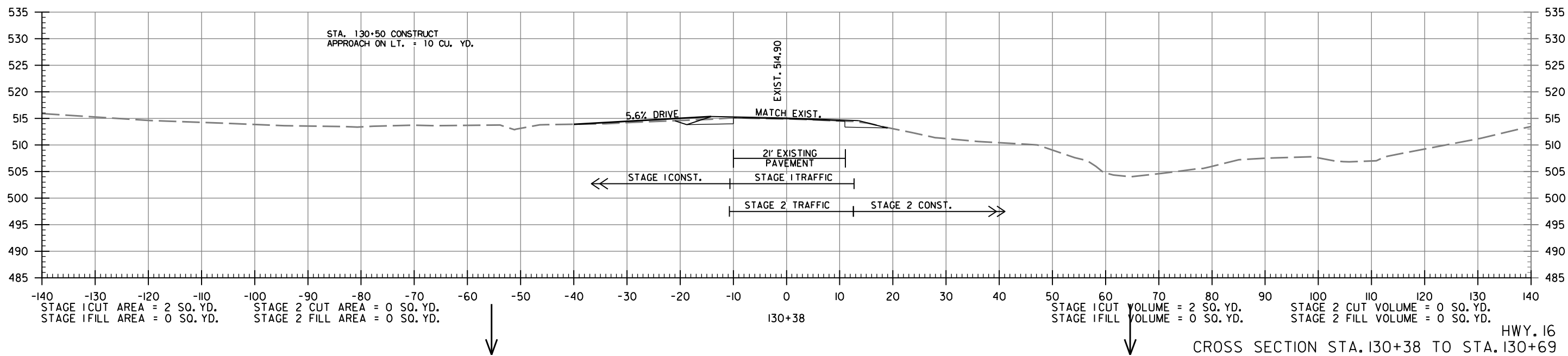
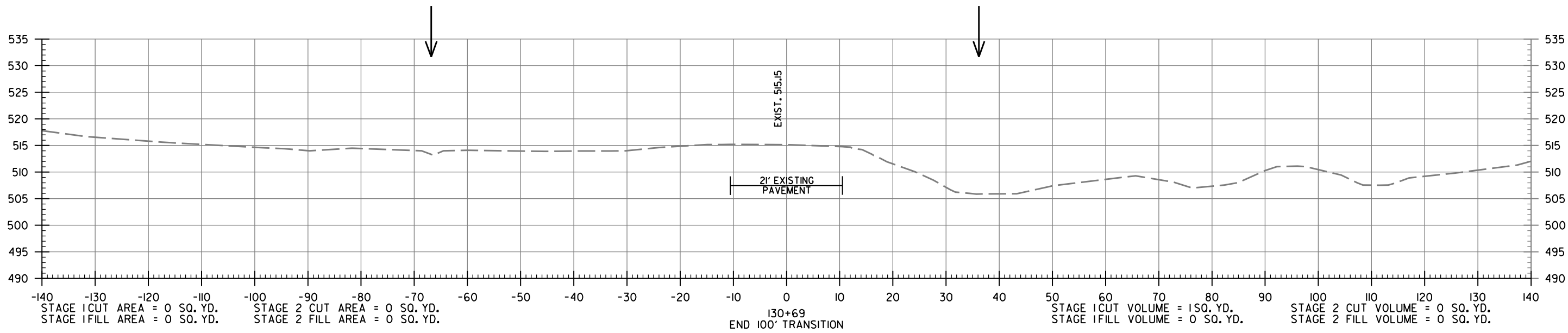


HWY. 16
CROSS SECTION STA. 128+00 TO STA. 129+00

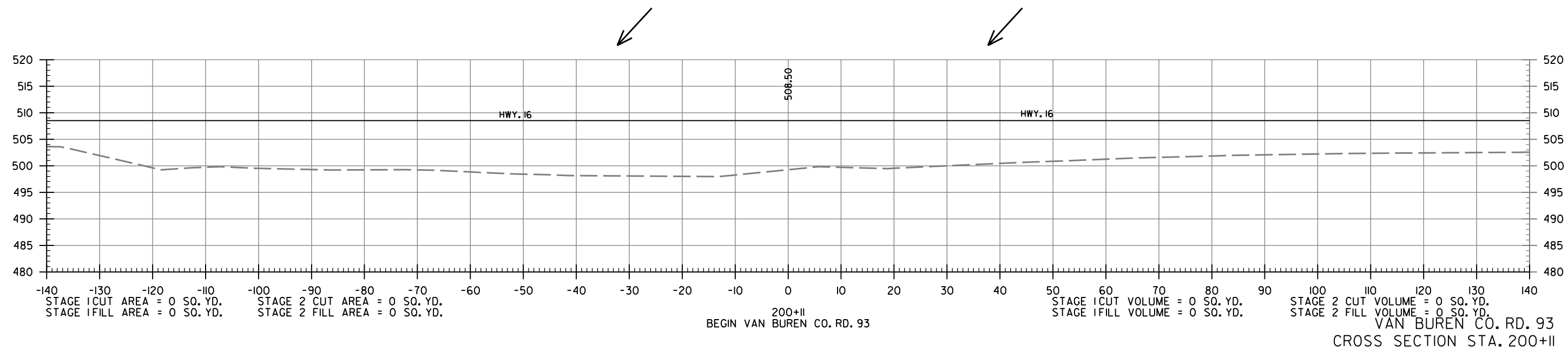
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CROSS SECTIONS						



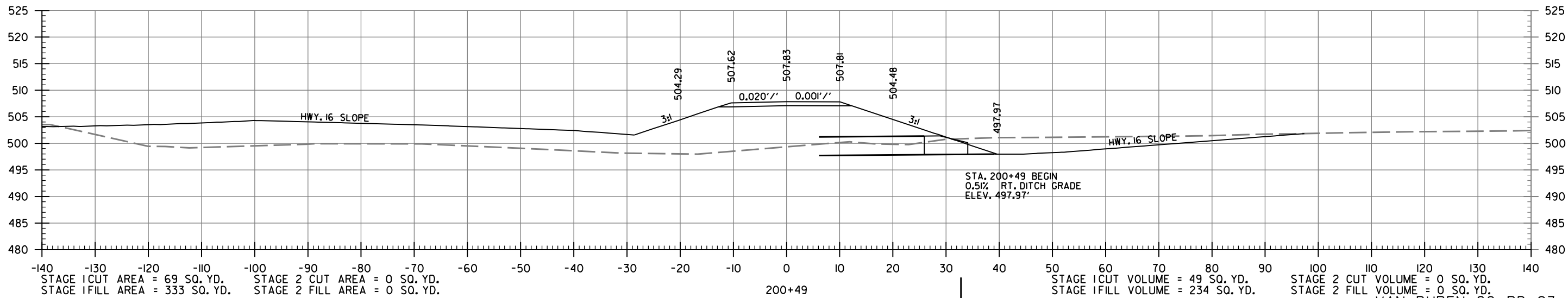
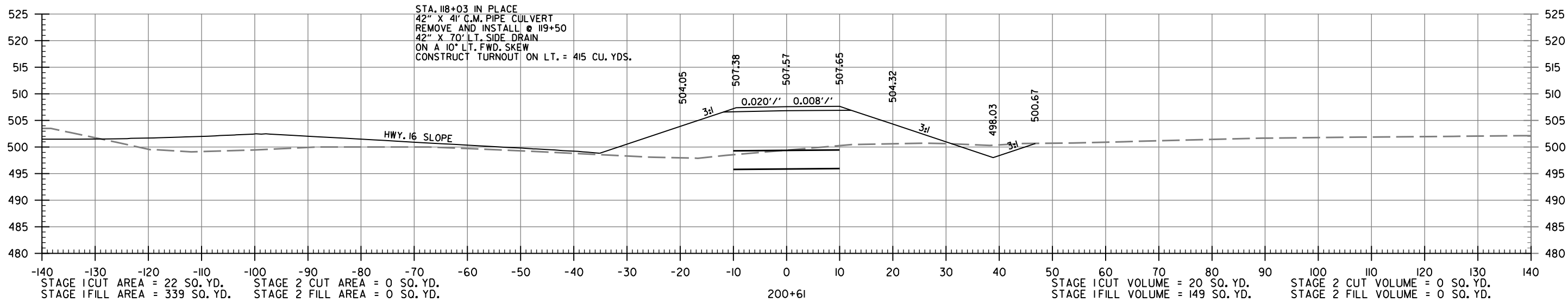
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CROSS SECTIONS						



DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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CROSS SECTIONS						

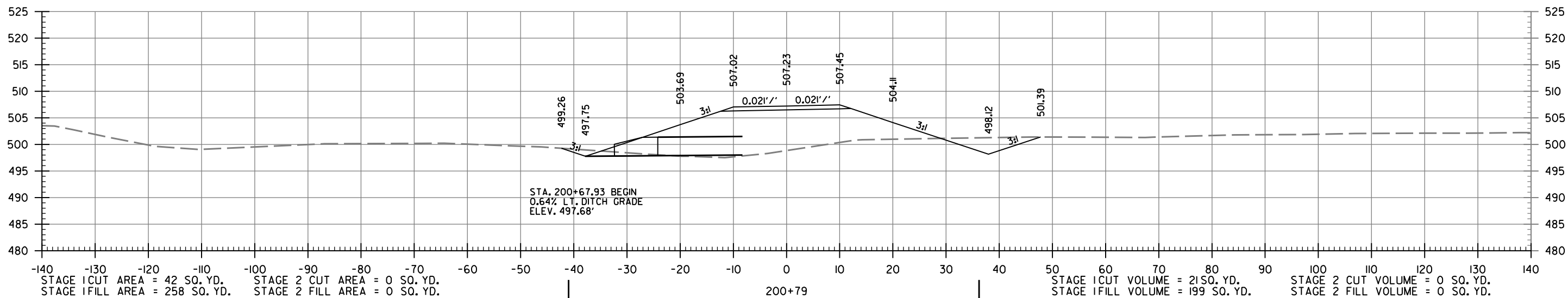
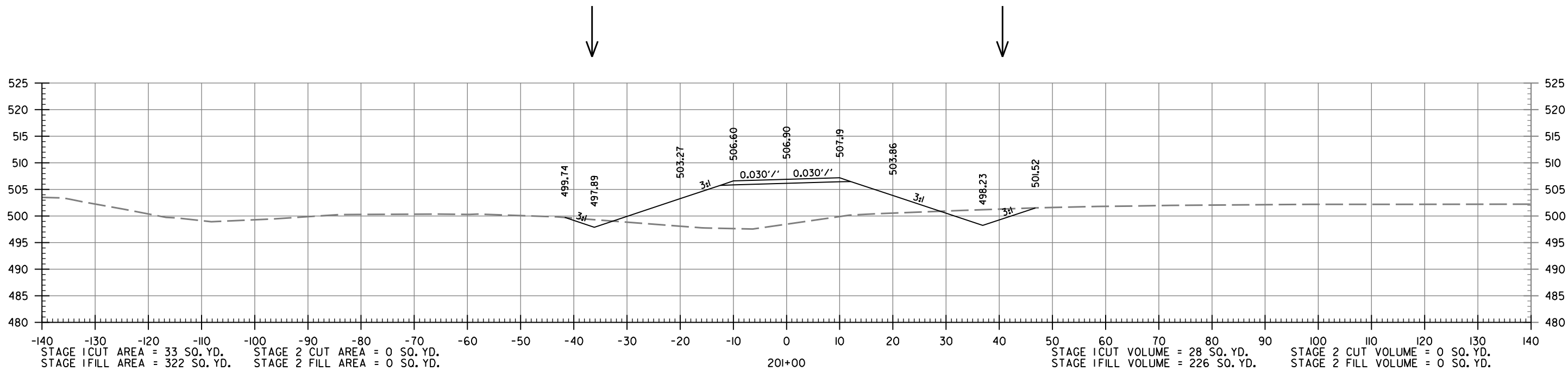


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CROSS SECTIONS						



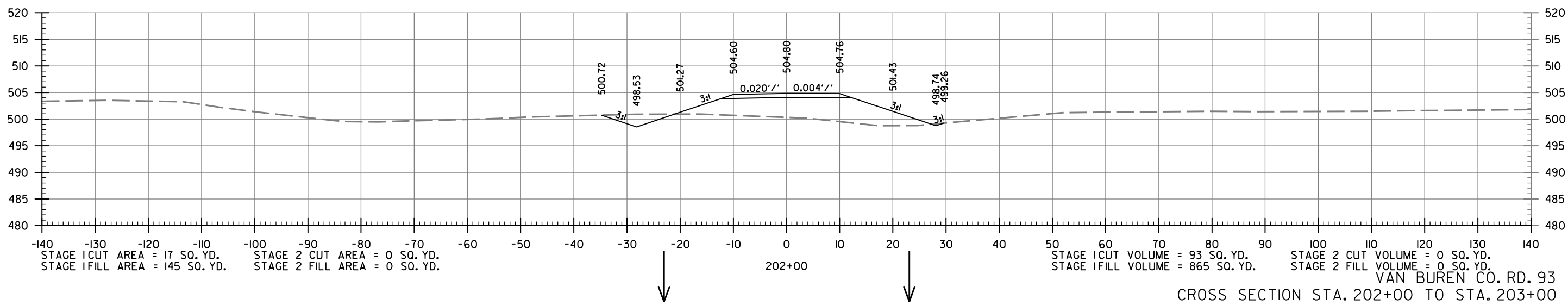
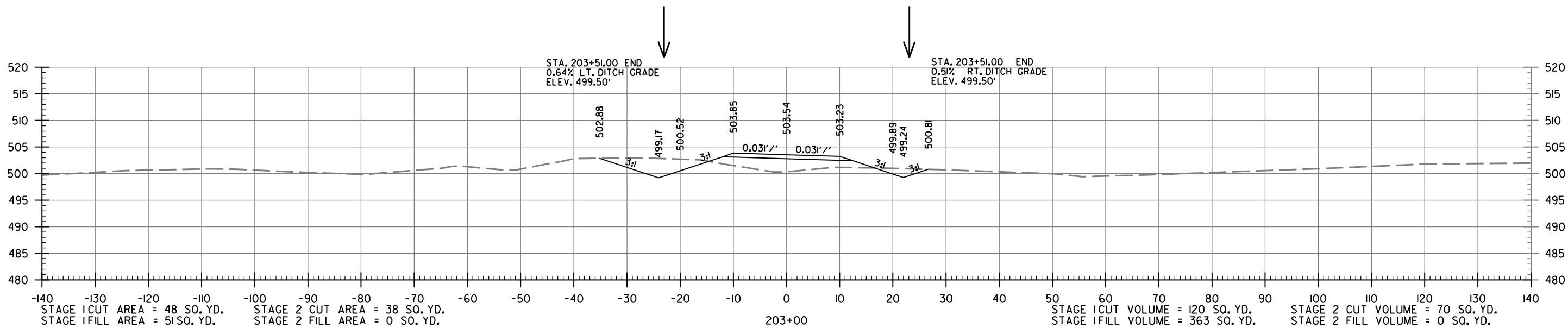
CROSS SECTION STA. 200+49 TO STA. 200+61
VAN BUREN CO. RD. 93

DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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CROSS SECTIONS						

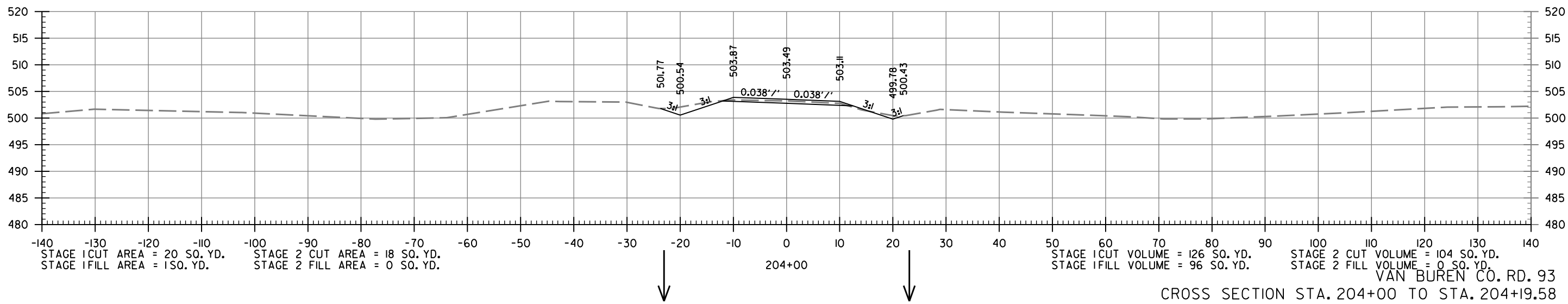
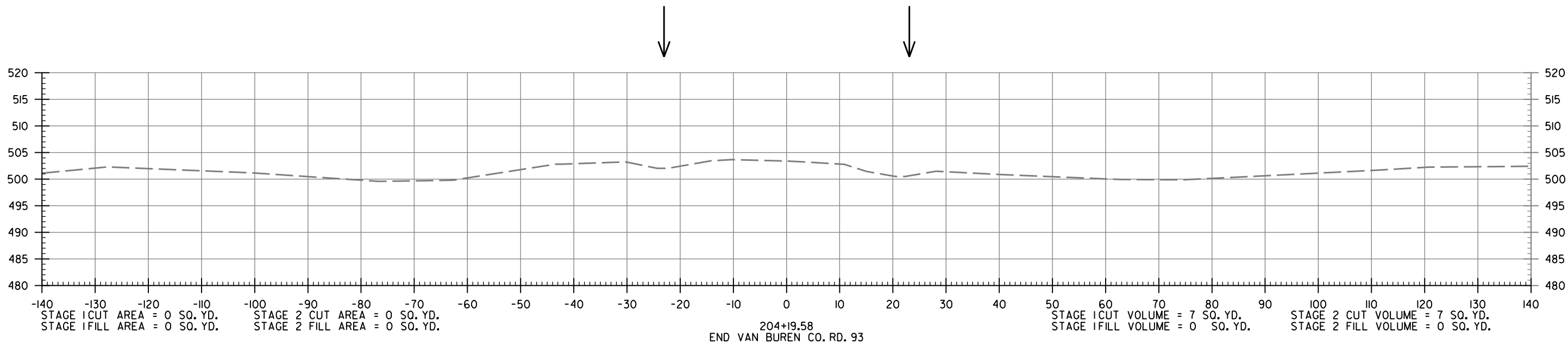


VAN BUREN CO. RD. 93
CROSS SECTION STA. 200+79 TO STA. 201+00

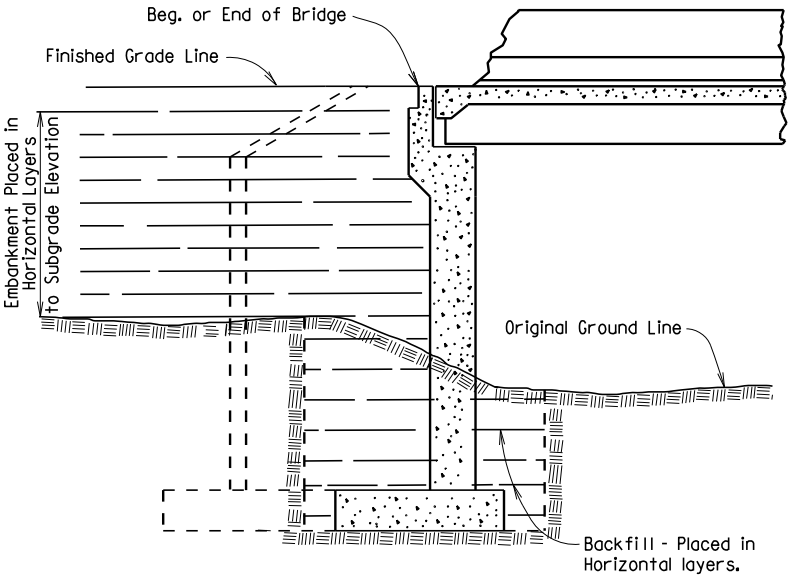
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CROSS SECTIONS						



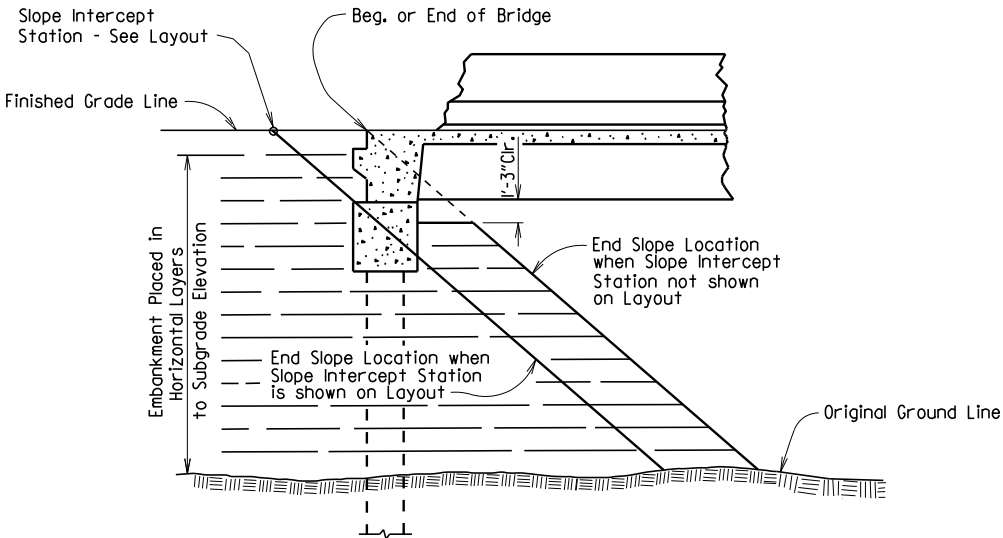
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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CROSS SECTIONS						



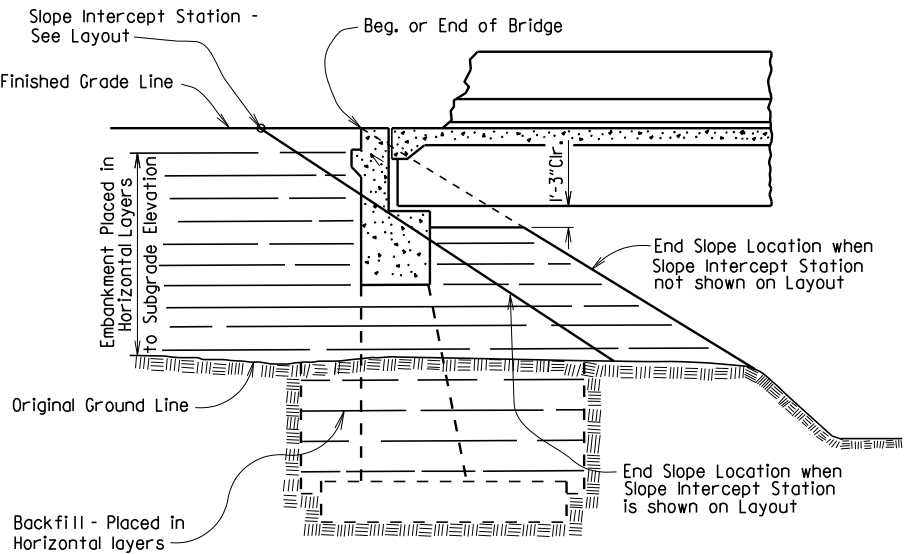
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				6	ARK.			
				JOB NO.				
				EMBANKMENT & BACKFILL			55000	



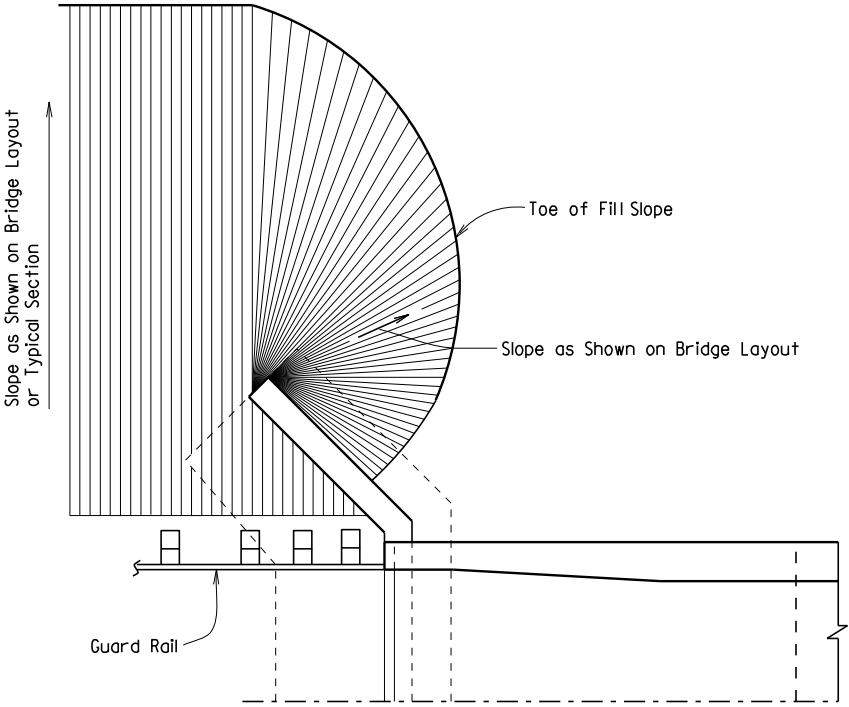
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL
AT VERTICAL WALL ABUTMENTS



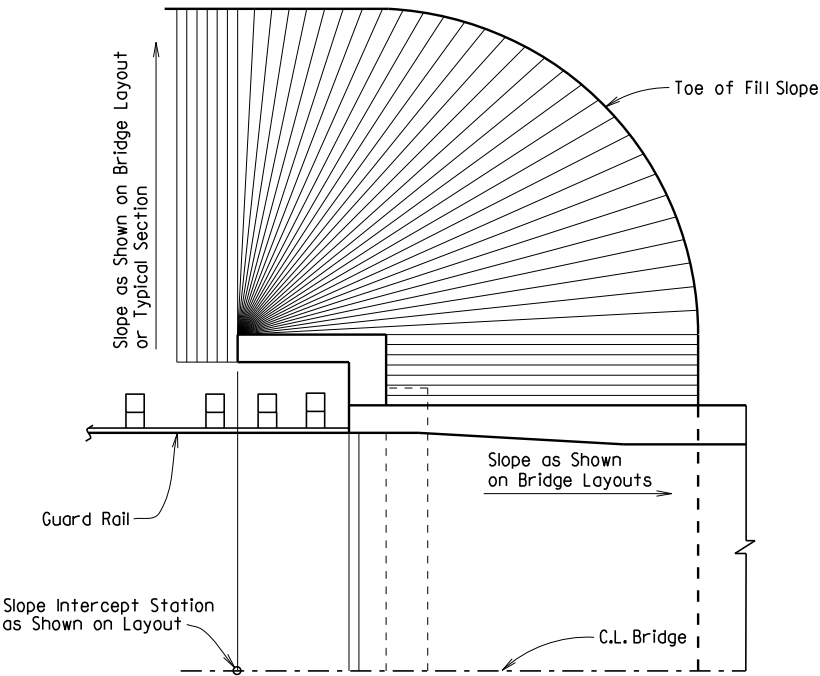
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH
PILE END BENTS



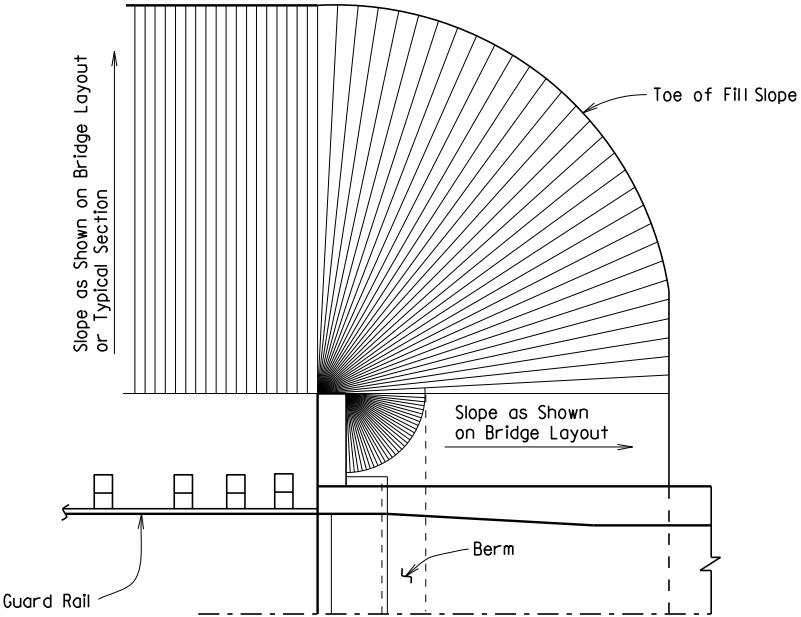
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL
AT SPILL-THROUGH END BENTS



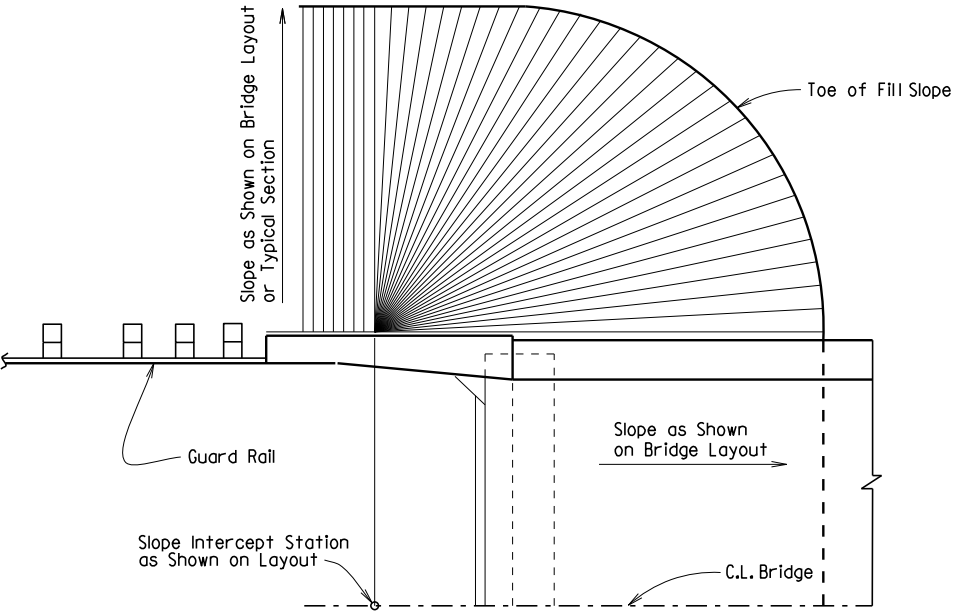
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH STUB 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

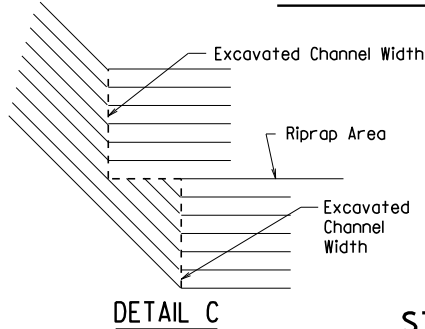
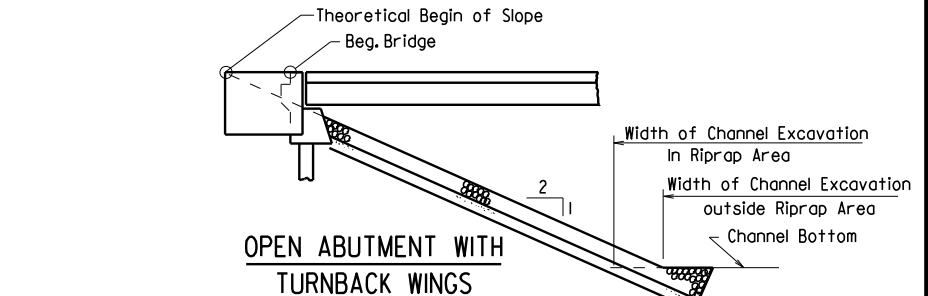
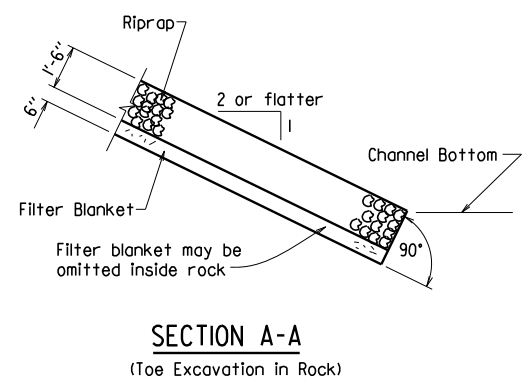
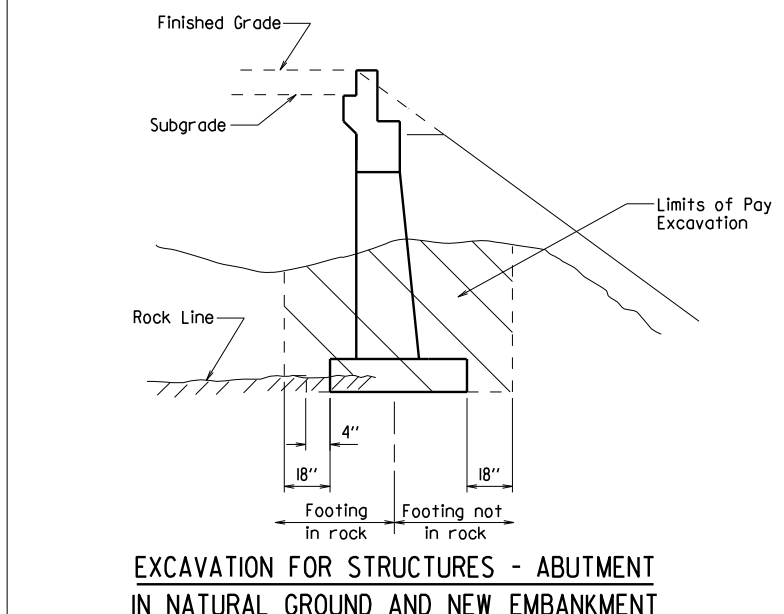
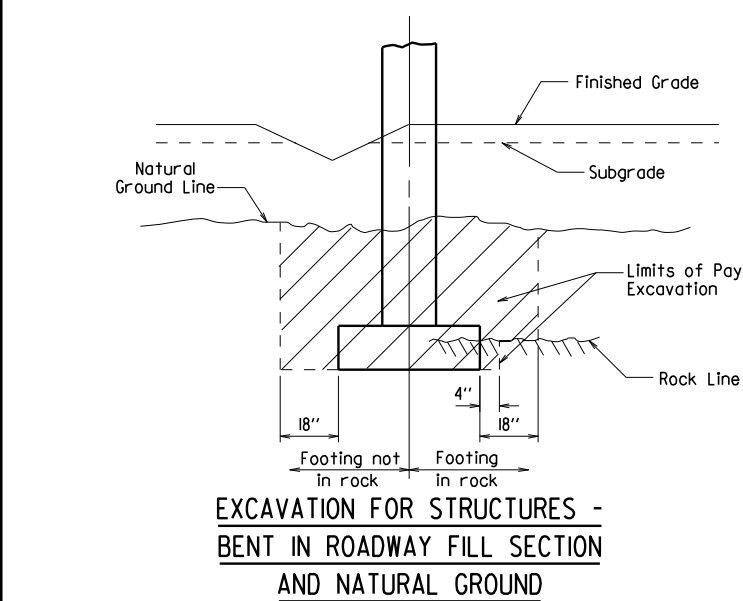
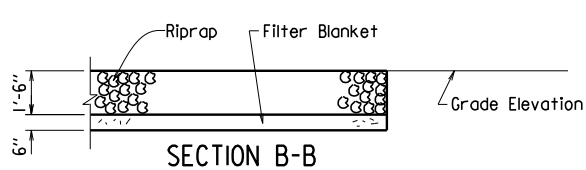
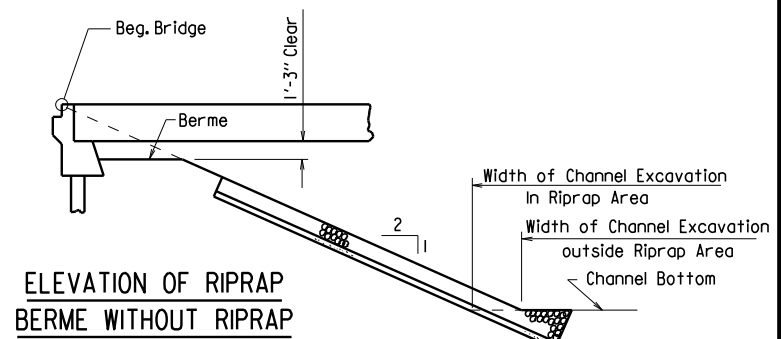
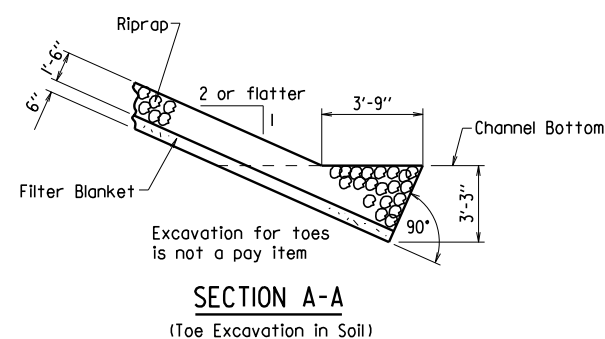
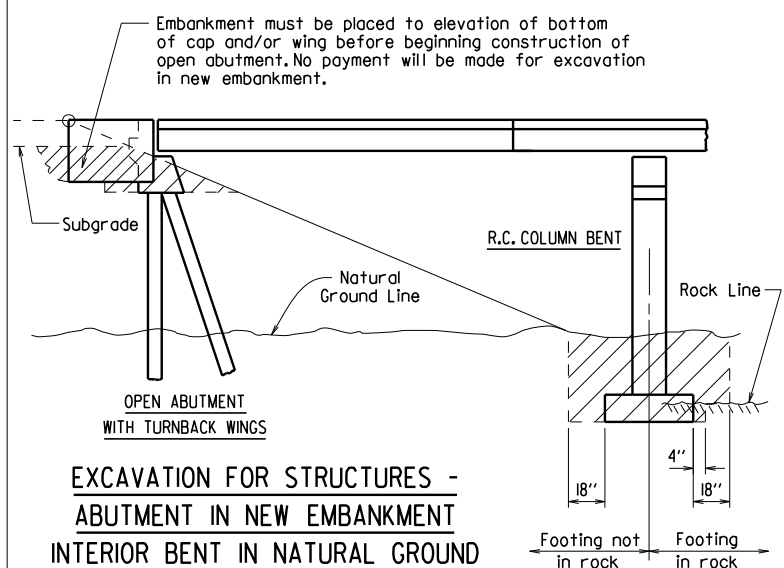
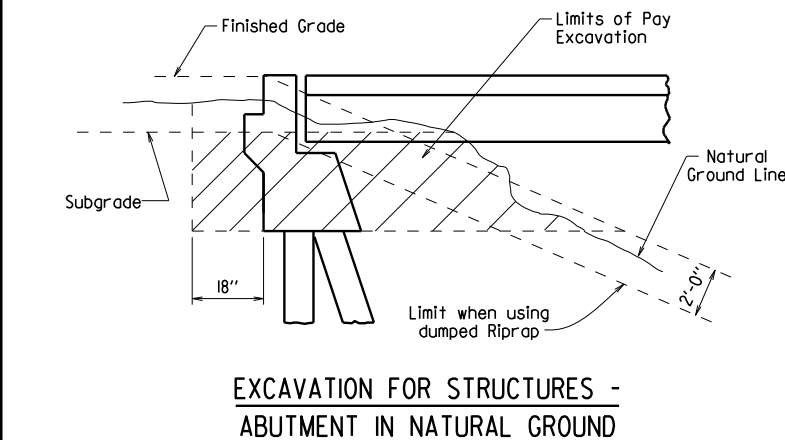
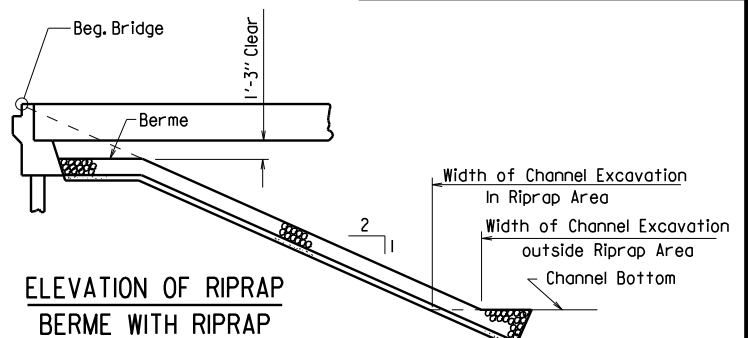
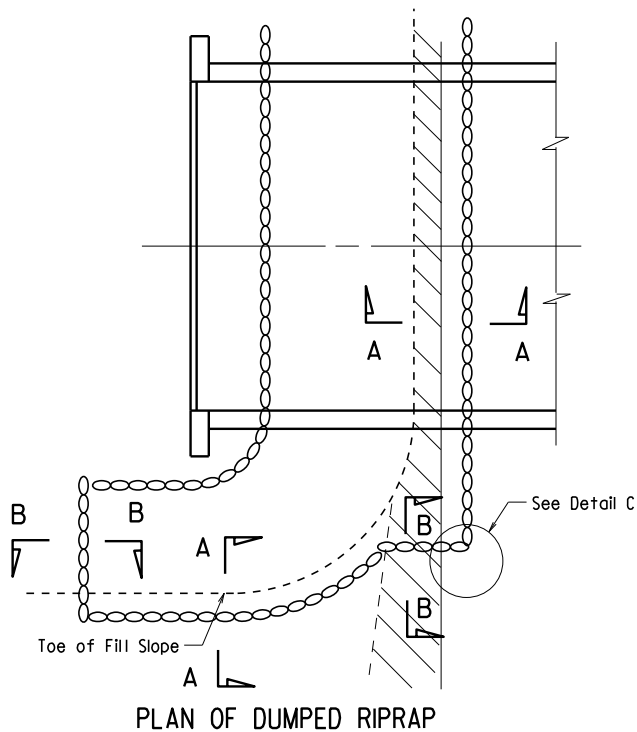
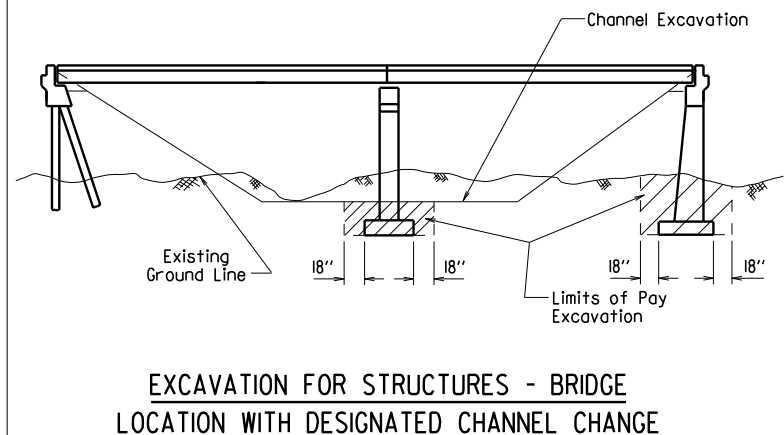
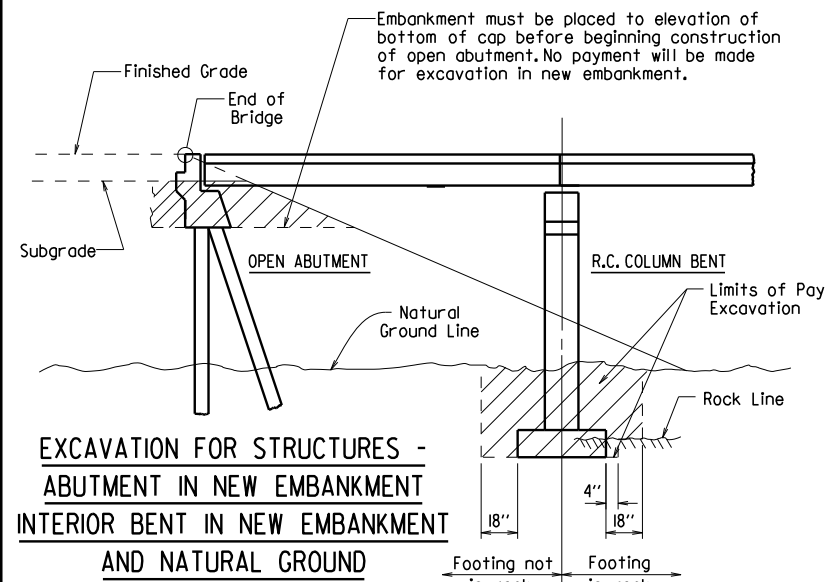
ARKANSAS STATE HIGHWAY COMMISSION

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. 5500I			



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

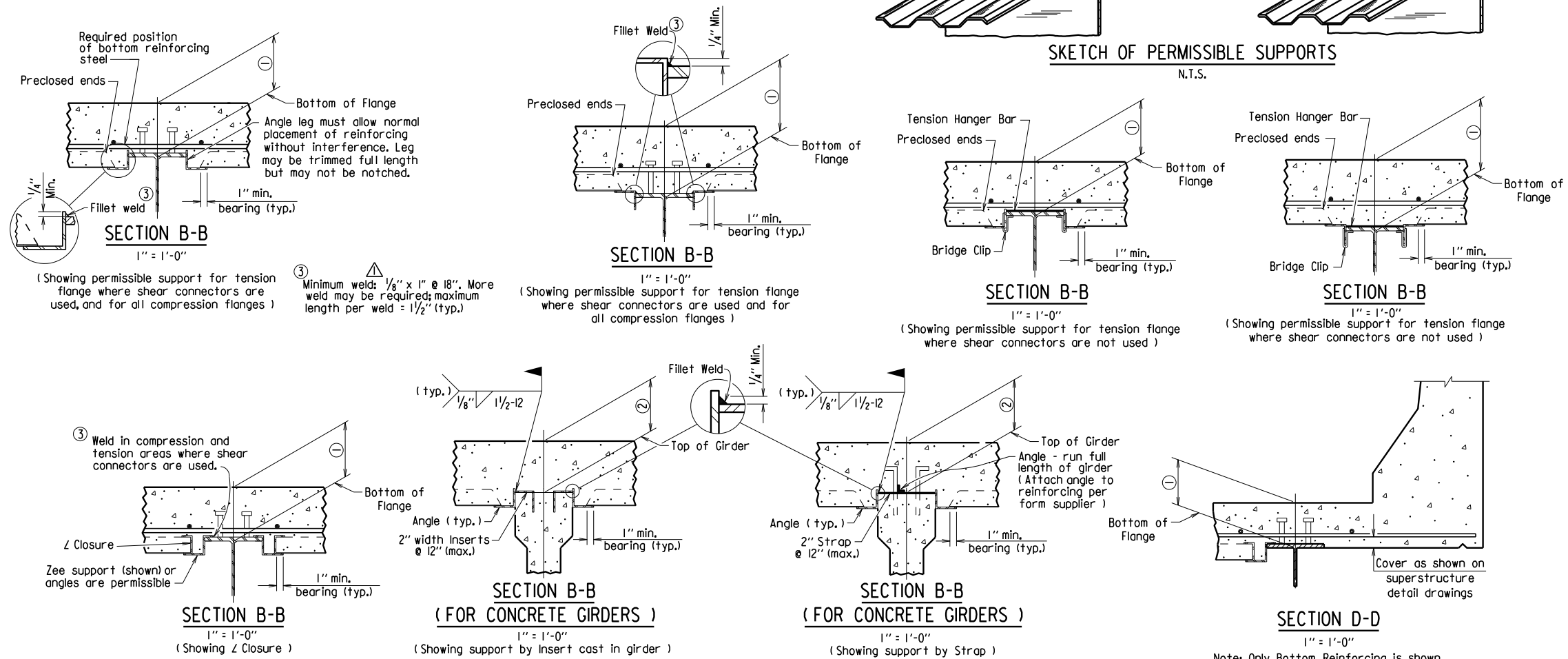
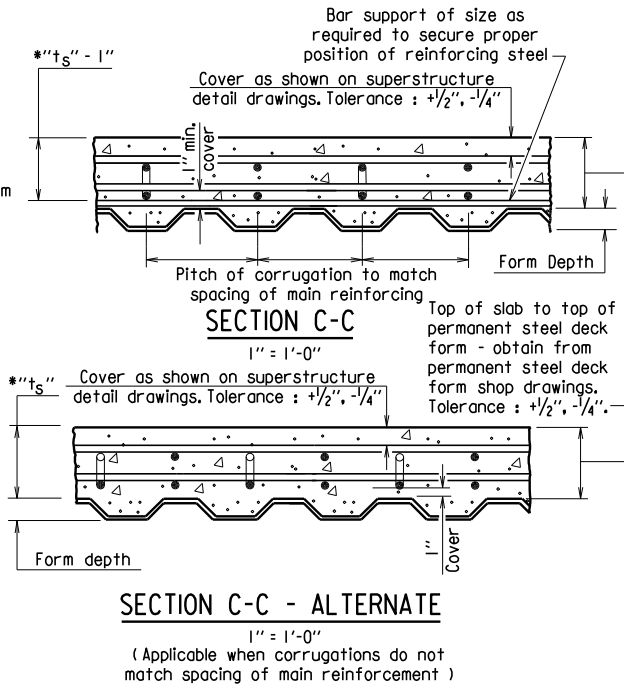
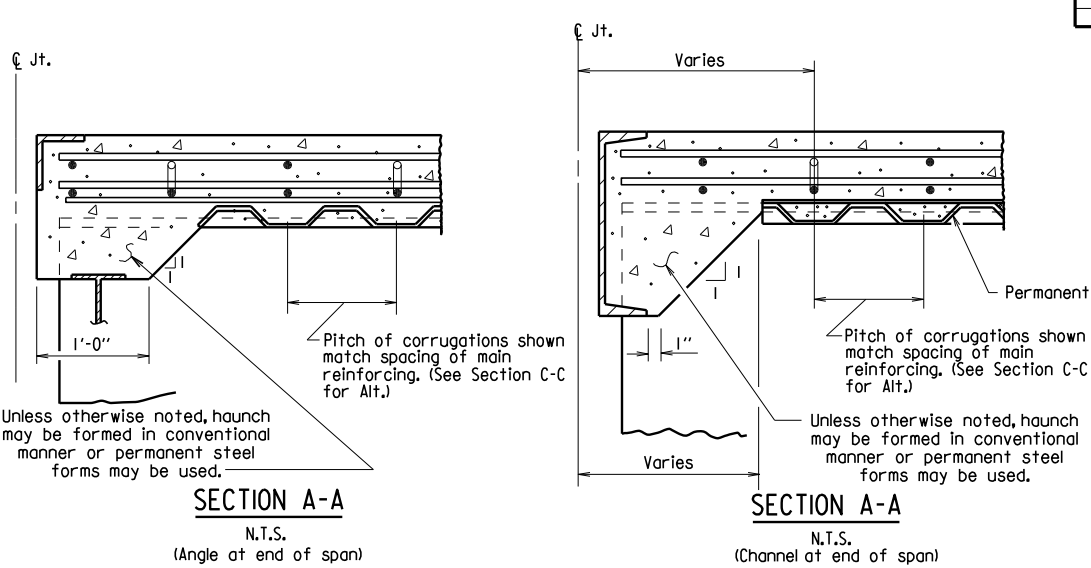
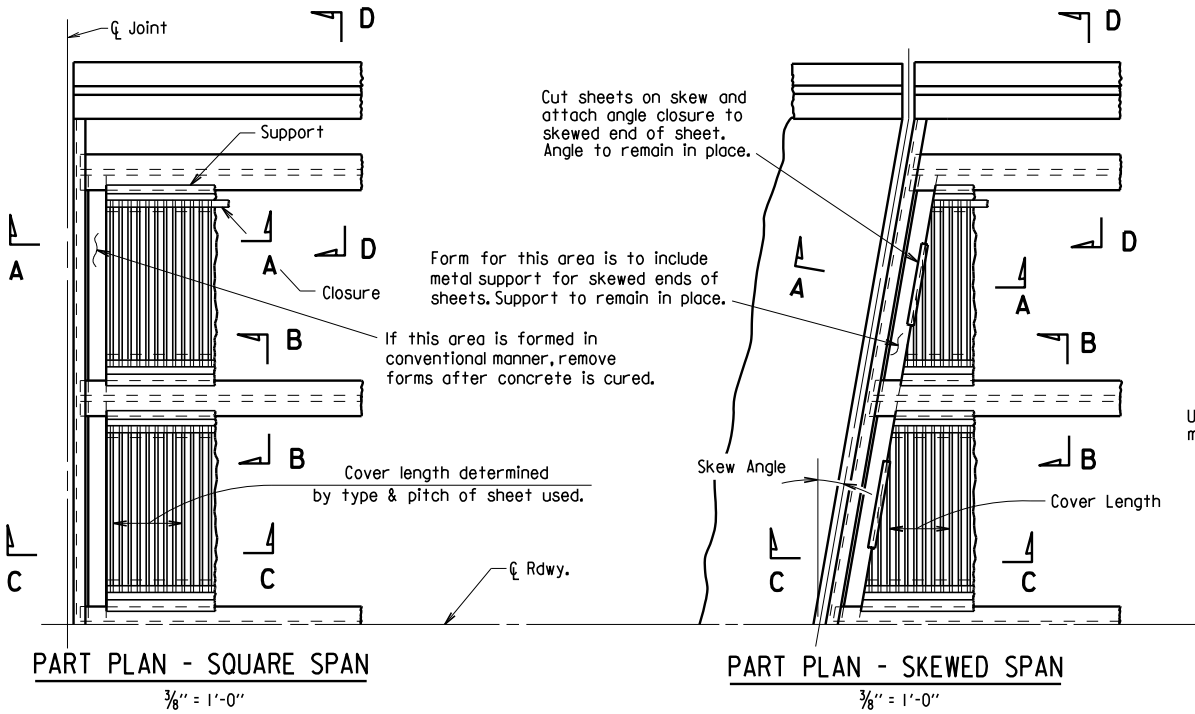
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b5500I.dgn
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 DESIGNED BY: STD. DATE:

DRAWING NO. 5500I

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



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

REINFORCING STEEL:

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

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

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

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

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

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

Unless otherwise noted, field connections shall be bolted with 3/4" Ø high-strength bolts using 15/16" Ø open holes. Holes for 3/4" Ø high-strength bolts may be 15/16" Ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

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

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

STRUCTURAL STEEL (W-BEAMS):

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

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

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

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

All beam dimensions are based on a temperature of 60 degrees F. A tolerance of 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.

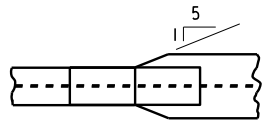
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DESIGNED BY:	STD.	DATE:			

DRAWING NO. 55006

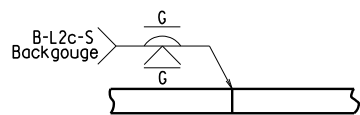


Plan-Unequal Width (Fig.)

FLANGE SPLICE

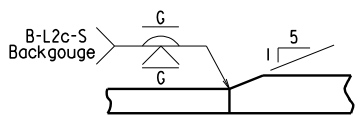


FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



Equal Thickness

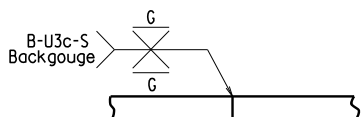
WEB & FLANGE SPLICE



Unequal Thickness

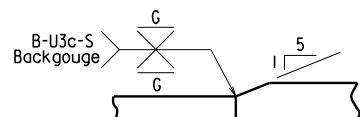
FLANGE SPLICE

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



Equal Thickness

WEB & FLANGE SPLICE

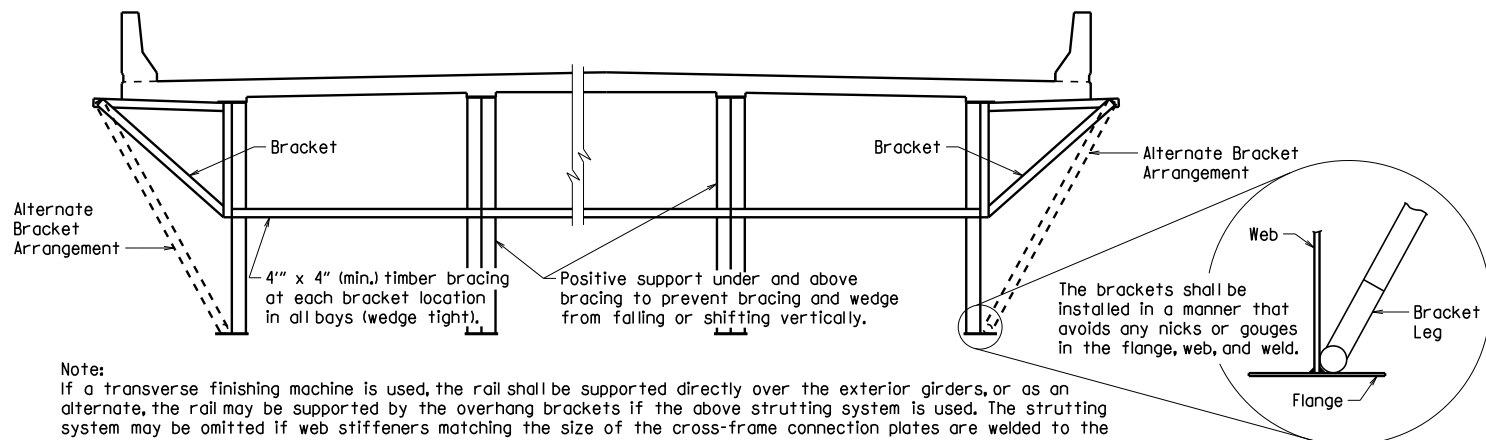


Unequal Thickness

FLANGE SPLICE

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

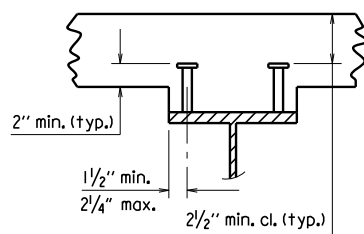
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



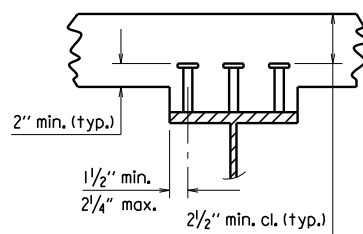
Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the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

SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)



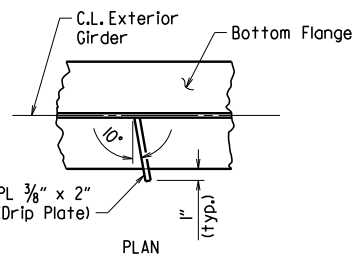
2 STUDS PER ROW



3 STUDS PER ROW

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

SHEAR CONNECTOR DETAIL

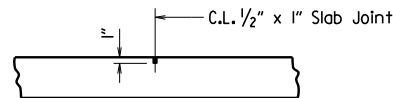


Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

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

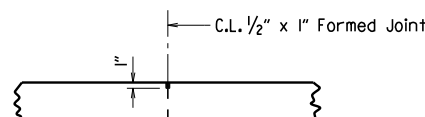
(USE WHEN WEB DEPTHS ARE 54" OR GREATER AND UNIT OR SPAN IS NOT IN LEVEL GRADE)



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.

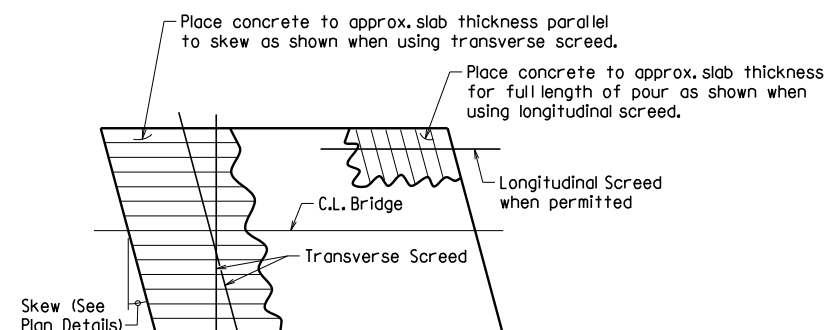
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck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

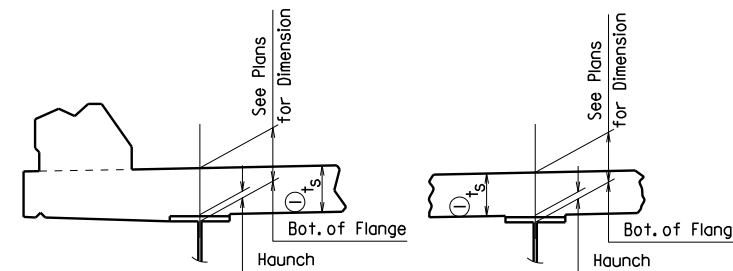
LONGITUDINAL CONSTRUCTION JOINT



CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW

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.				
STEEL BRIDGE STRUCTURES								55007

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



EXTERIOR BEAM OR GIRDER

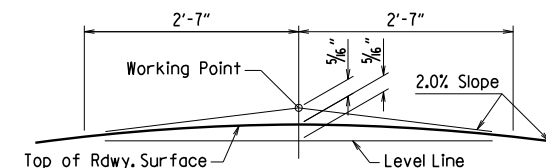
INTERIOR BEAM OR GIRDER

① Tolerance when removable deck forming is used is + 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"	
Over 3/4"	5/16"	

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

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

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

STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

DRAWING NO. 55007

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

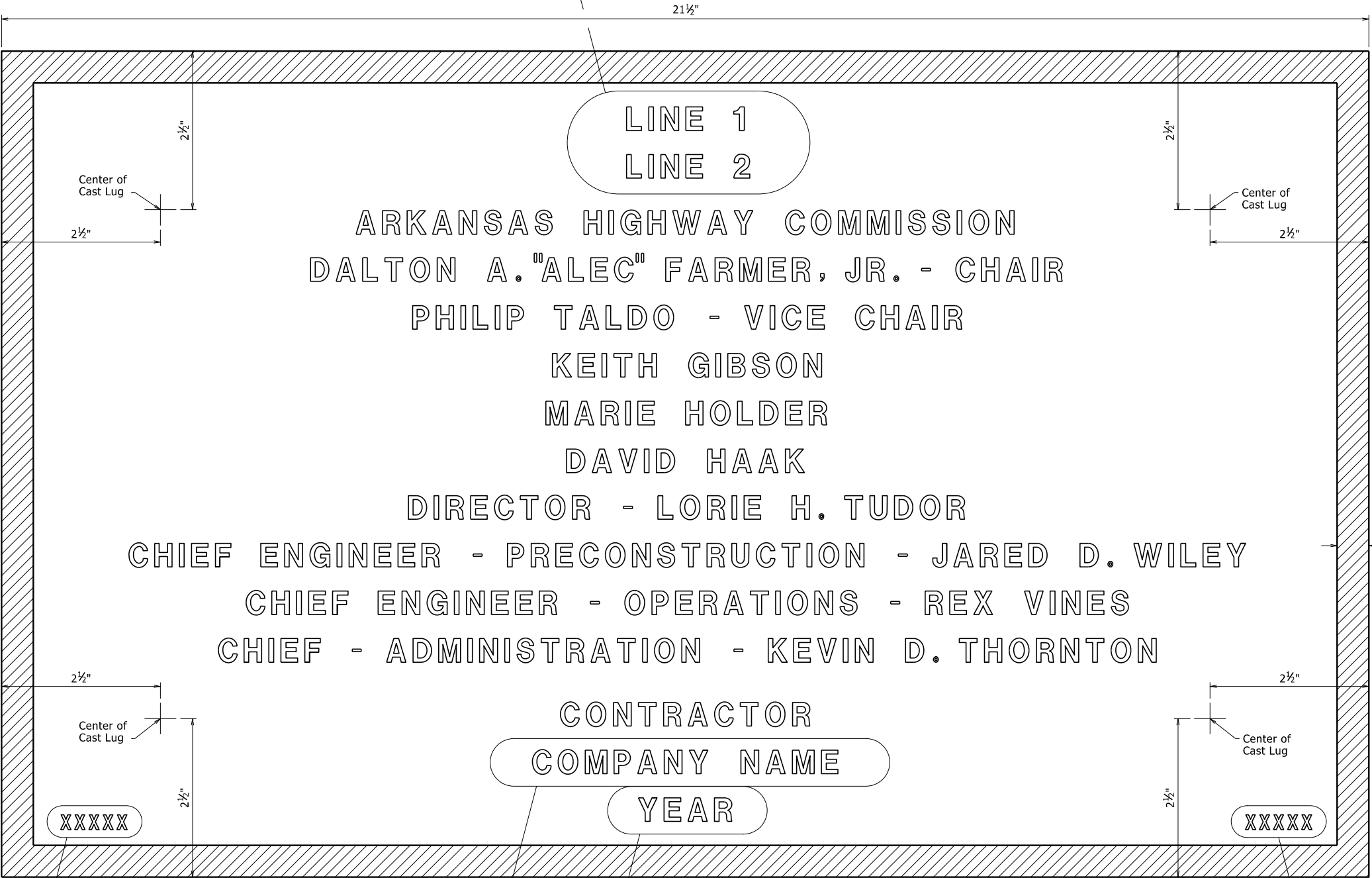
The name of the bridge as shown on the plans shall be placed on Lines 1 & 2 using $\frac{1}{8}$ " raised letters and numerals $\frac{3}{8}$ " high.

Example 1
Line 1 RED RIVER
Line 2 RELIEF

Example 2
SOUTHERN RAILROAD
OVERPASS

Example 3
SALINE RIVER
RELIEF

Example 4
HIGHWAY 5



GENERAL NOTES

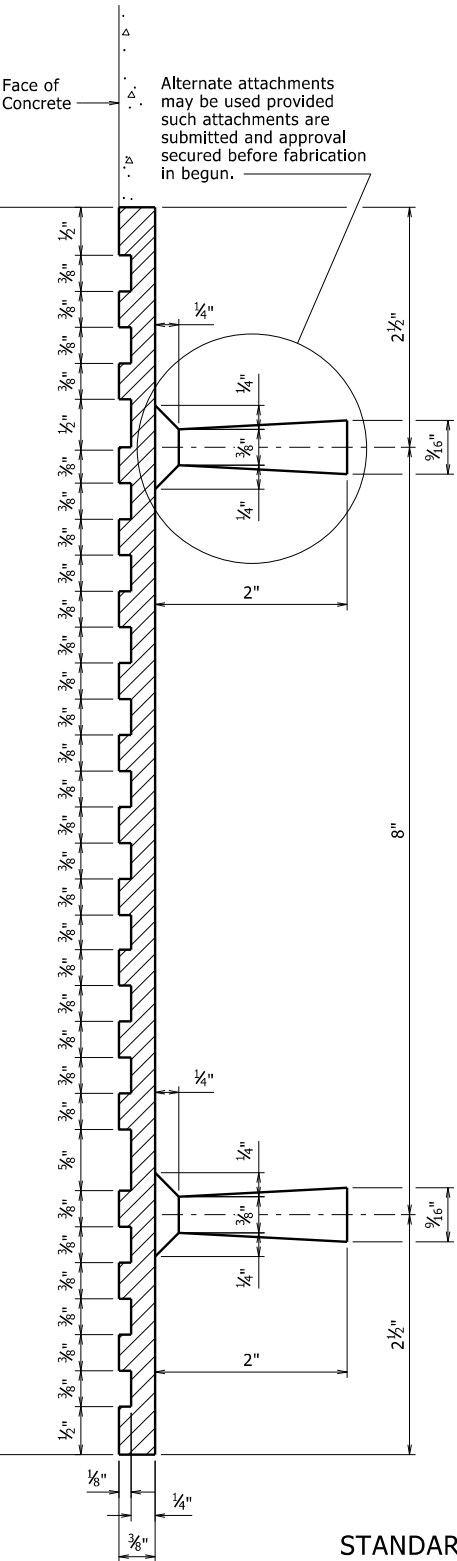
Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

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

Body of plate shall be $\frac{1}{4}$ " thick and shall include four tapering cone lugs $\frac{3}{8}$ " to $\frac{1}{16}$ " x 2" long. The border and all lettering shall be raised $\frac{1}{8}$ " 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

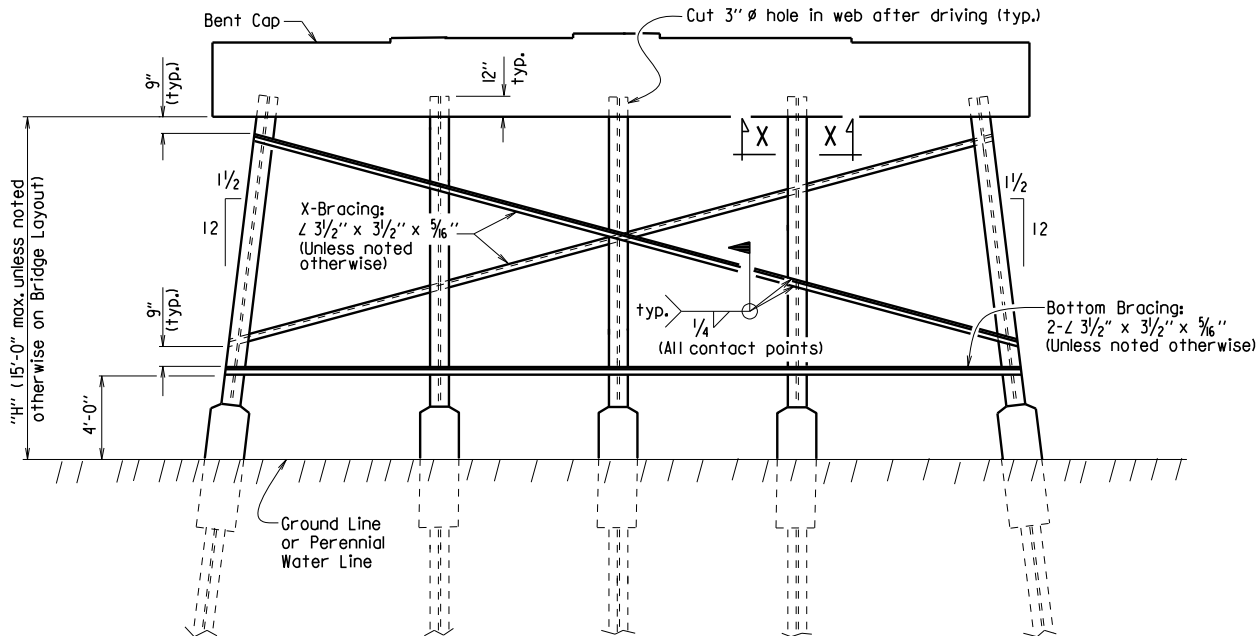
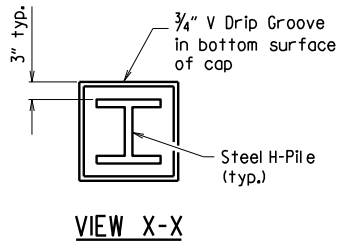
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.

Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



Notes:

All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.

Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.

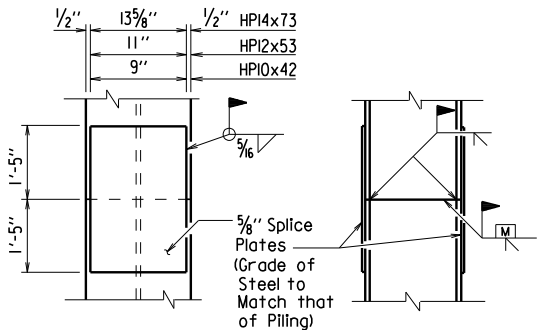
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.

Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

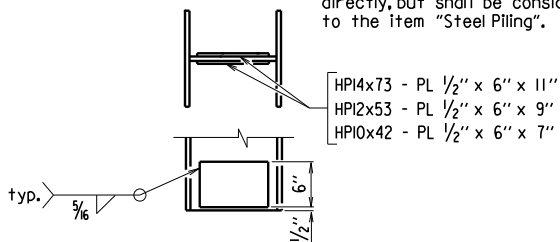
(Shown with Partial Height Encasement)



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

TYPICAL SPLICE DETAILS

H-pile splicers manufactured by Associated Pile and Fitting Corporation, LB Foster Piling, Skyline Steel or equivalent may be used in lieu of the "Typical Splice Details" shown. H-pile splicers shall match the same grade of steel specified for the piling and shall be welded to the pile with a 5/16 inch fillet weld around the entire perimeter of the splice. Flanges shall be welded with a complete penetration groove weld complying with AASHTO/AWS Joint Designation B-U4a or B-U4b. All welding shall conform to Subsection 807.26 of the AHTD Standard Specifications for Highway Construction (2014 Edition).



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

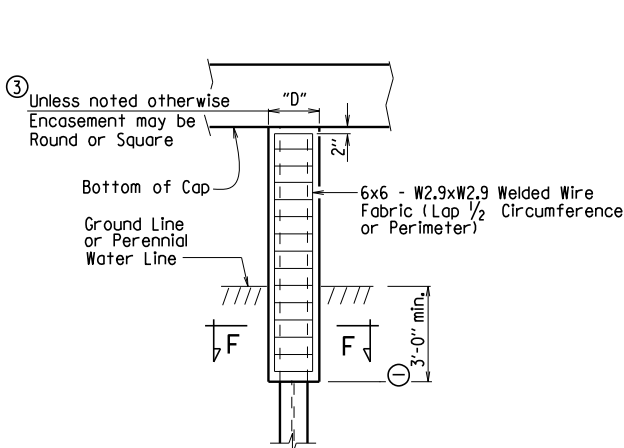
See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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

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

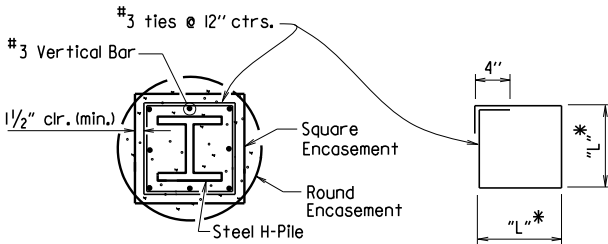
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Encasement to Bottom of Cap)

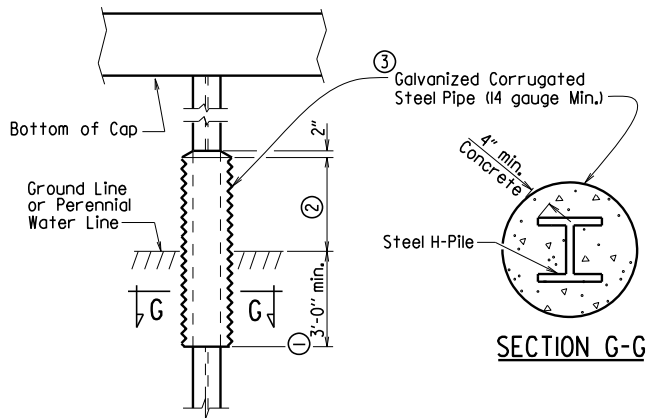


SECTION F-F

* Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

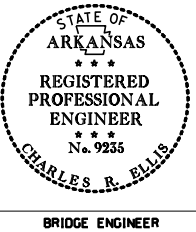
Pile Size	"D"		"L"*
	Square Encsmt.	Round Encsmt.	
HPI0x42	1'-7"	2'-0"	1'-4"
HPI2x53	1'-8"	2'-2"	1'-5"
HPI4x73	1'-11"	2'-6"	1'-8"



ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

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



STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

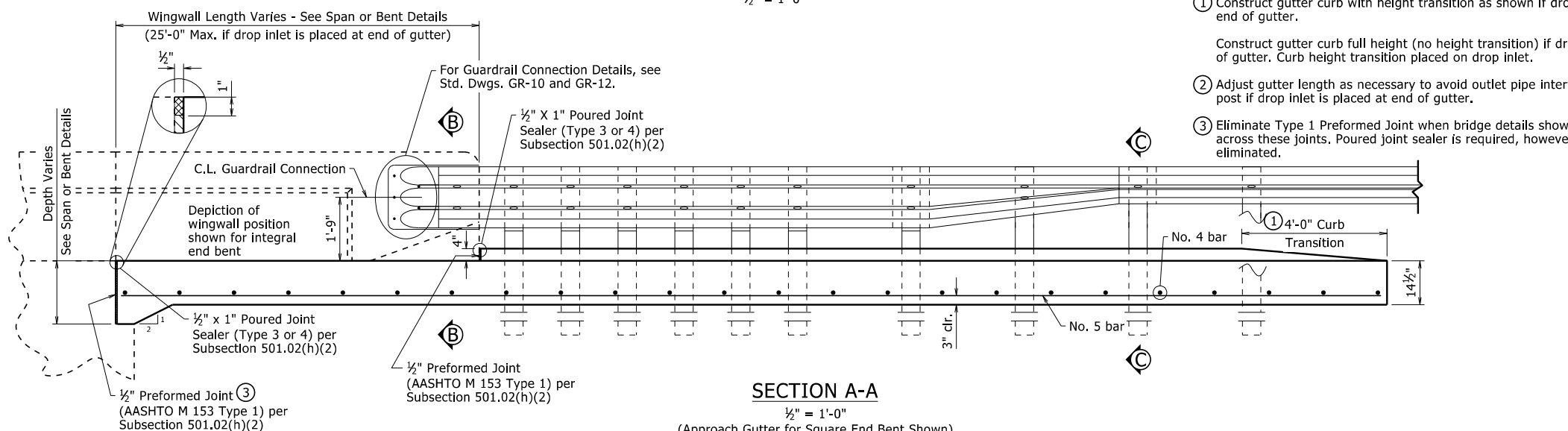
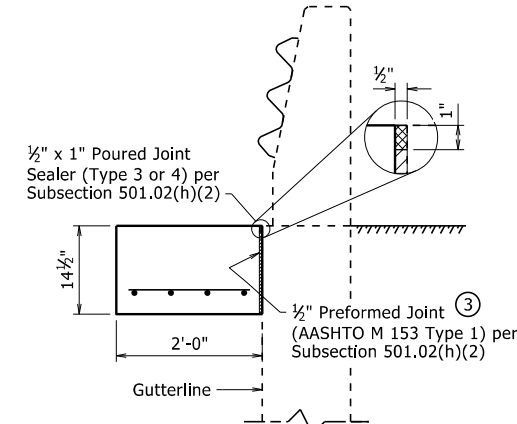
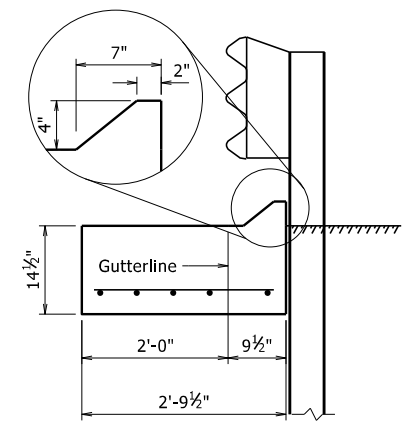
DRAWING NO. 55020

BRIDGE ENGINEER

④ Varies with Skew and/or Wingwall Length

(For Information Only)

Quantities are based on one gutter for a square

$$\frac{1}{2}'' = 1'-0''$$

$$\frac{1}{2}'' = 1'-0''$$
$$\frac{3}{4}'' = 1'-0$$

$$\frac{3}{4}'' = 1'-0''$$


All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi)

Approach Gutters will be measured and paid for in accordance with

All longitudinal lines within the limits of horizontal curves shall be on

Scales shown are for 22"x34" drawings. When using 11"x17"

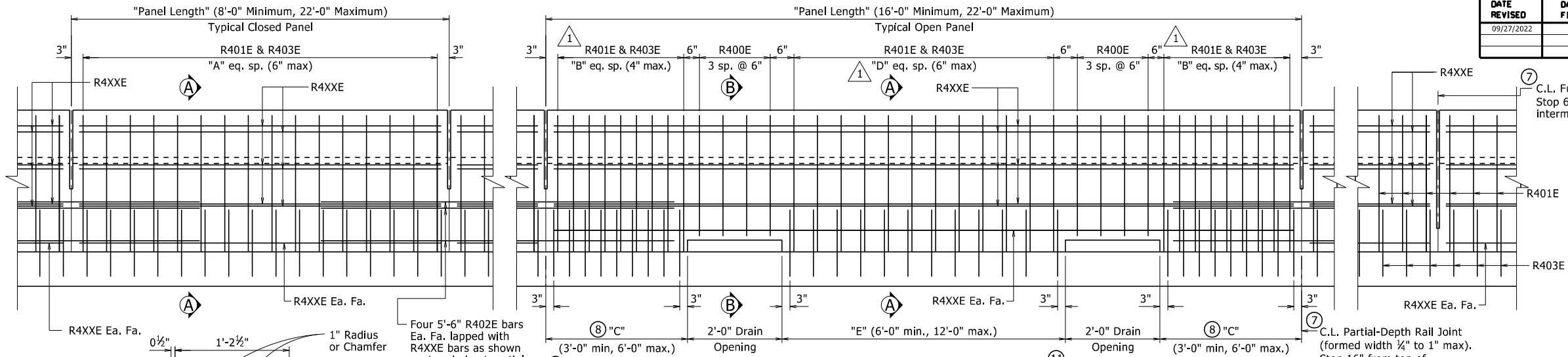
LITTLE ROCK, ARK.

DRAWING NO. 55030F

PRINT DATE: 4/9/2021

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09/27/2022				6	ARK.			
				JOB NO.				

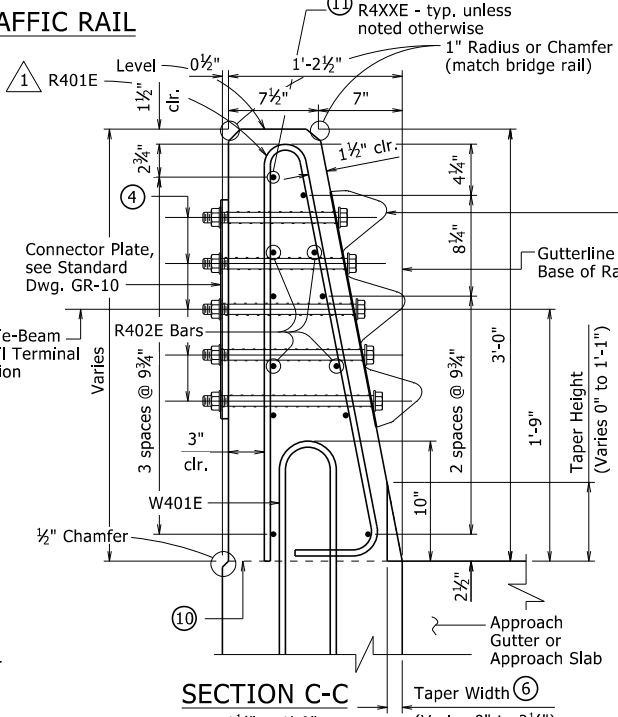
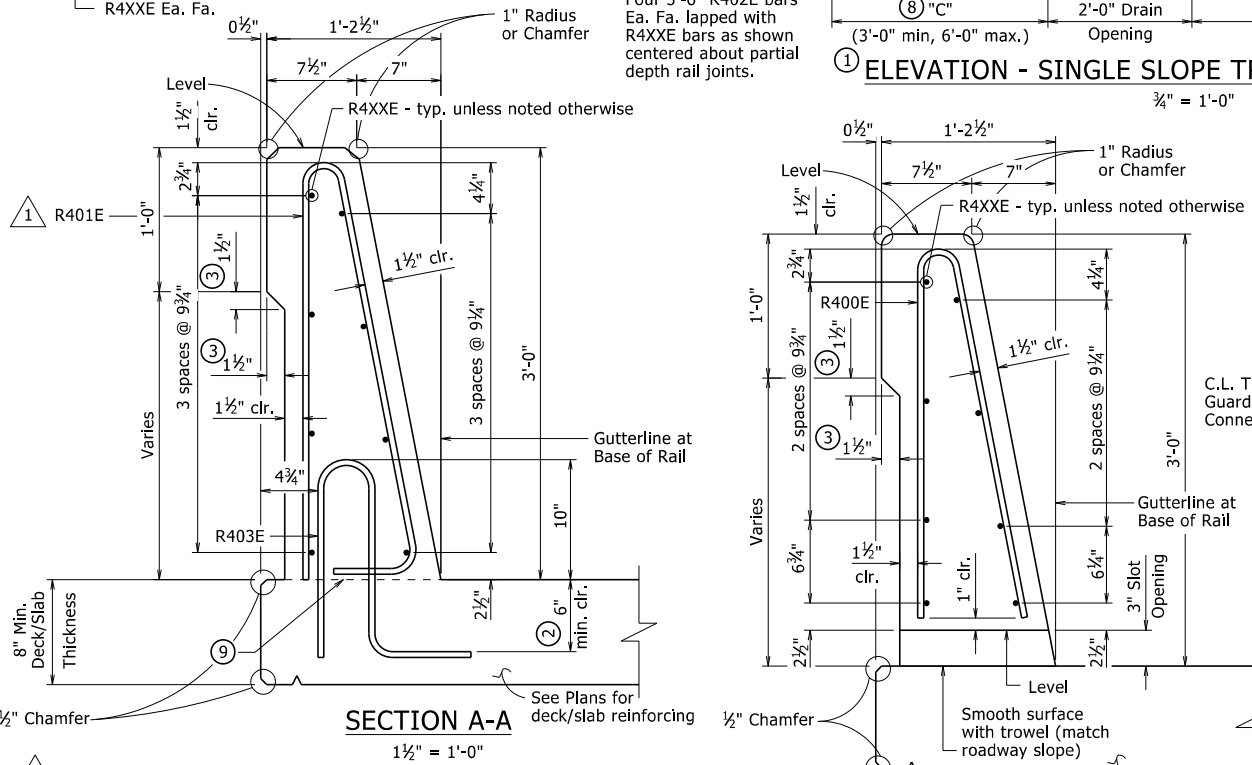
TYPE SSTR36 - 55070



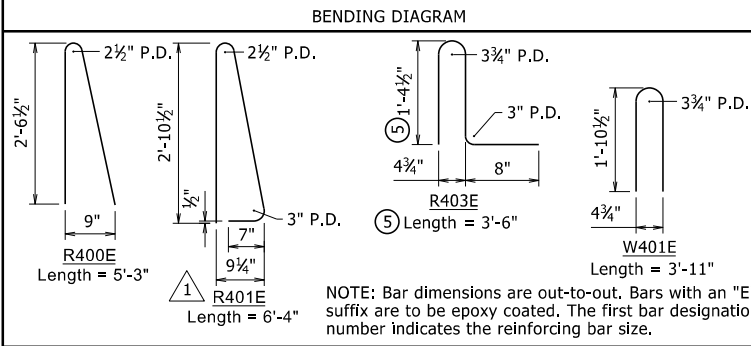
C.L. Full-Depth Rail Joint (formed width 1/4" to 1" max).
Stop 6" from top of deck/slab or sidewalk. Place at all intermediate bents locations where rail is continuous.

- 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.

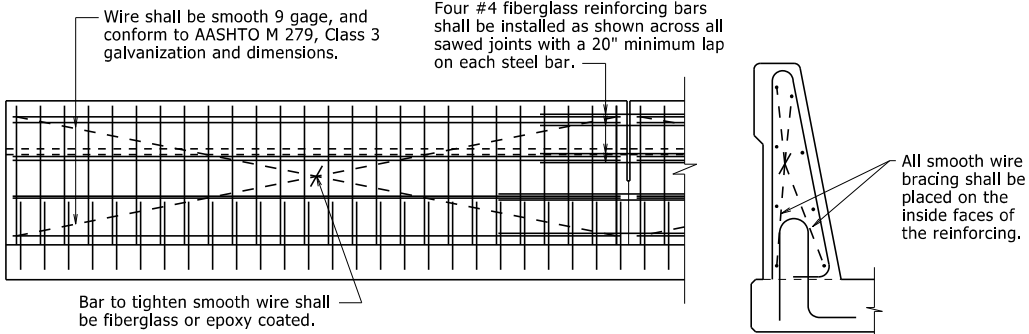
ELEVATION - SINGLE SLOPE TRAFFIC RAIL



Bolt Special End Shoe to face of rail as shown. Tapered washers are not required between the head of the bolts and the sloped face of the rail. Tighten the five terminal connection bolts in a well distributed pattern to prevent damage or distortion of the thrie-beam connection. Cut bolts off after installation so as to extend no more than 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.



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



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

All panels shall be braced as required to prevent racking.

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

DETAILS OF OPTIONAL SLIP FORMING OF BRIDGE TRAFFIC RAIL

Modified bending diagram and spacing for R401E bar.

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

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.

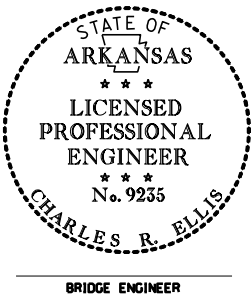
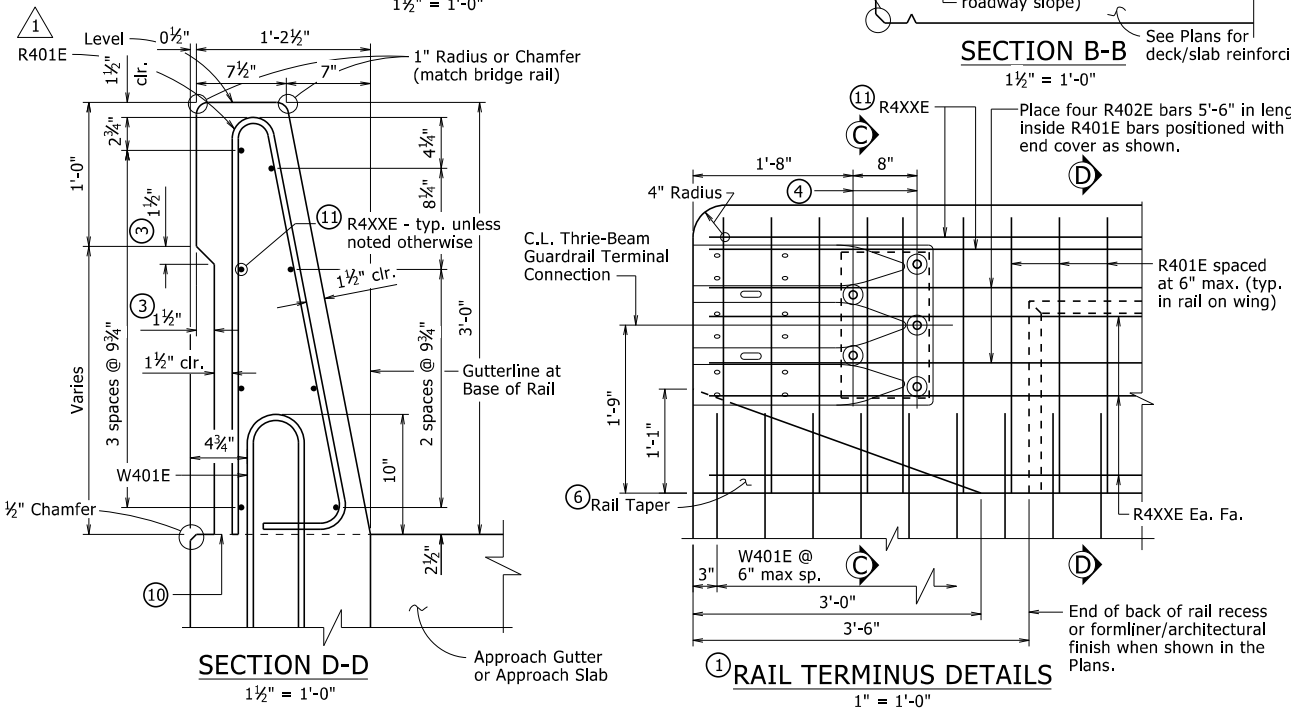
Rail Terminus details, including Rail Taper, are not applicable for bridges with sidewalks or when bridge railing is continuous with roadway railing.

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

TABLE OF VARIABLES

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

See Plans for table with values.



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

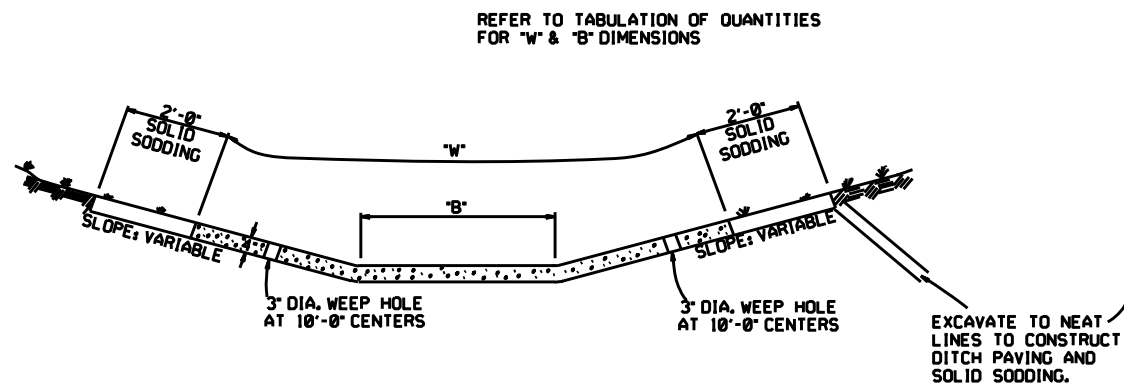
STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36

ARKANSAS STATE HIGHWAY COMMISSION

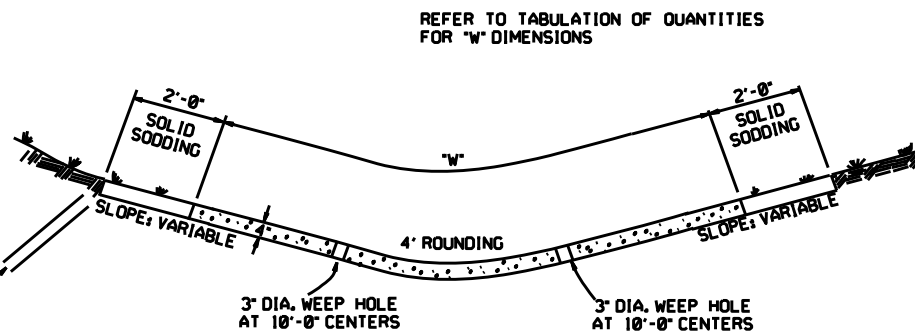
LITTLE ROCK, ARK.

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

DRAWING NO. 55070

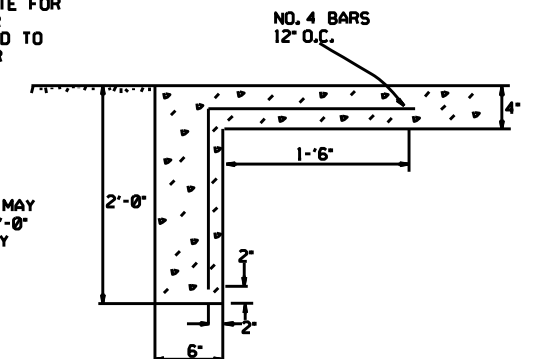


TYPE A



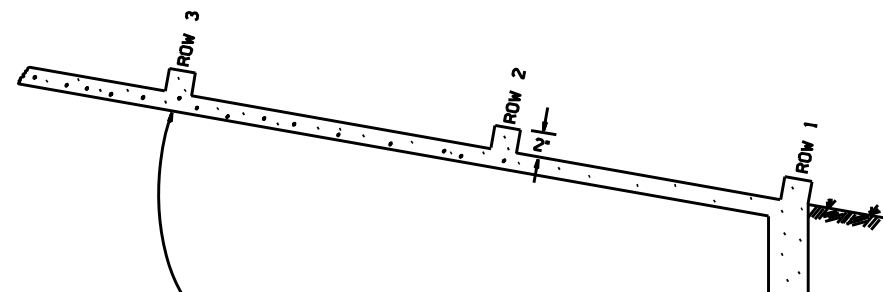
TYPE B

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



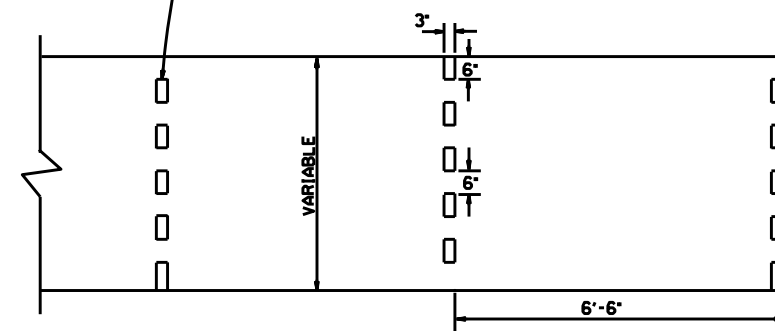
TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

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



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

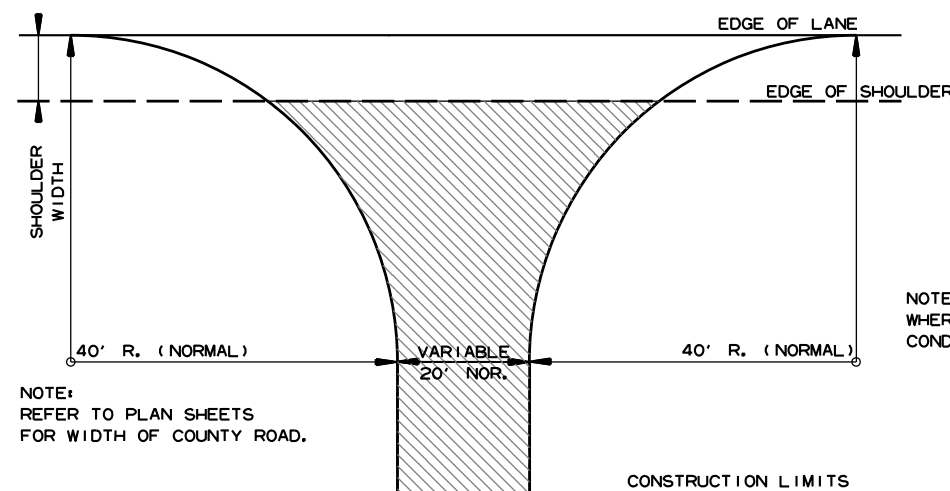
1' WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE	FIRM
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE		
11-17-10	ADDED GENERAL NOTE		
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING		
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89	
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88	
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87	
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87	
11-3-86	ADDED NOTE TO ENERGY DISS.	544-12-1-86	
11-1-84	ENERGY DISSIPATOR DETAILS	508-11-1-84	
11-1-84	ADDED		
11-1-84	EXCAVATION DETAILS ADDED		
10-2-72	TYPED A & B	508-10-2-72	
	REVISED AND REDRAWN		
	DATE	REVISION	DATE FIRM

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

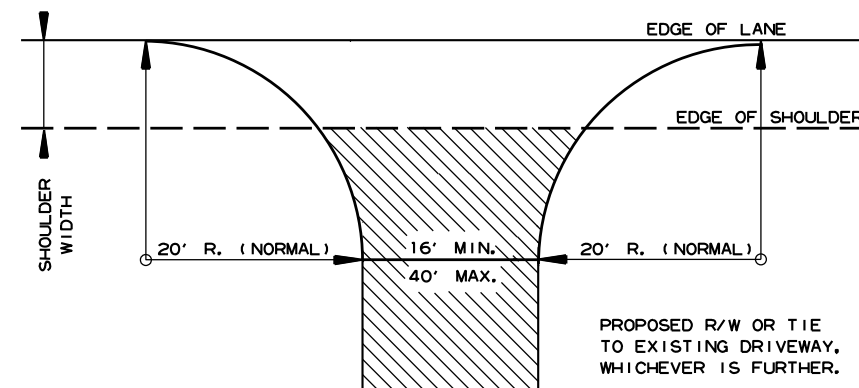
STANDARD DRAWING CDP-1



DETAIL FOR COUNTY ROAD TURNOUTS
OPEN SHOULDER SECTION

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

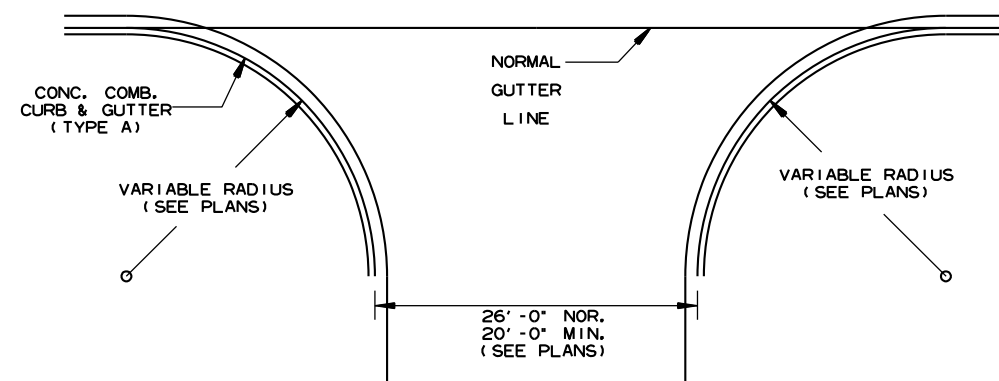
ACHM SURFACE COURSE (1 1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH, UNLESS OTHERWISE SPECIFIED IN PLANS.



DETAIL FOR DRIVEWAY TURNOUTS
OPEN SHOULDER SECTION
(ARTERIALS)

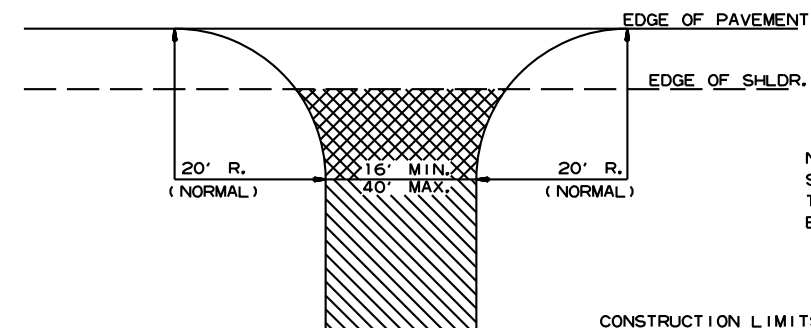
NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

ACHM SURFACE COURSE (1 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 OF TURNOUTS, ASPHALT STREETS,
COUNTY ROADS & STATE HIGHWAYS
CURB & GUTTER SECTION

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



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.

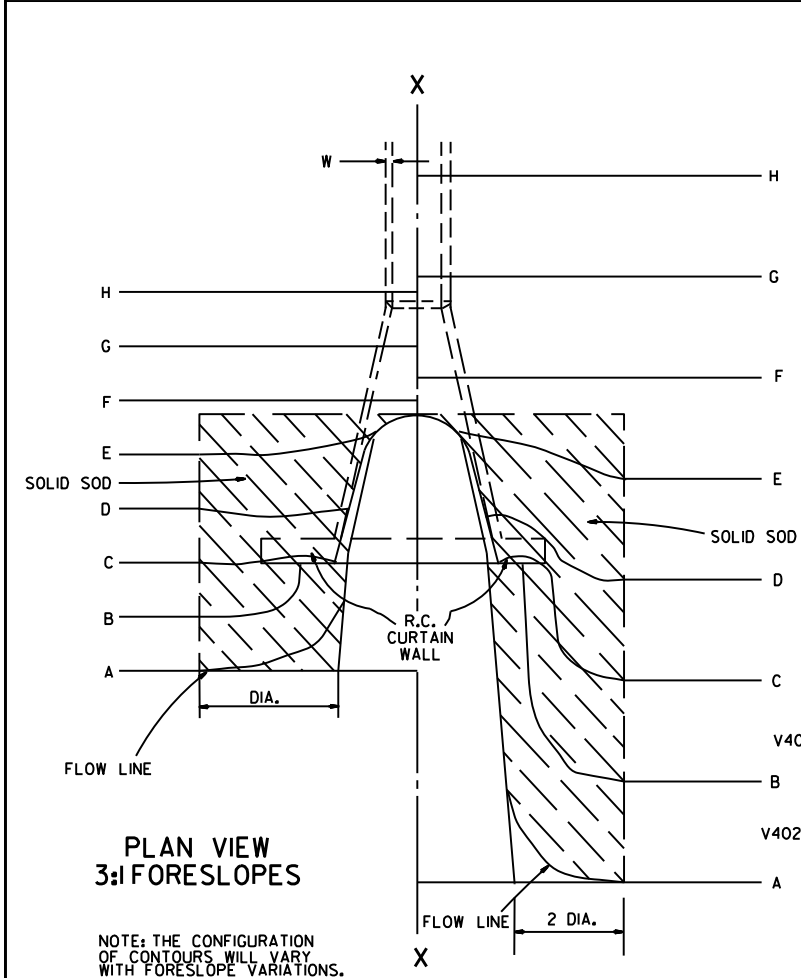
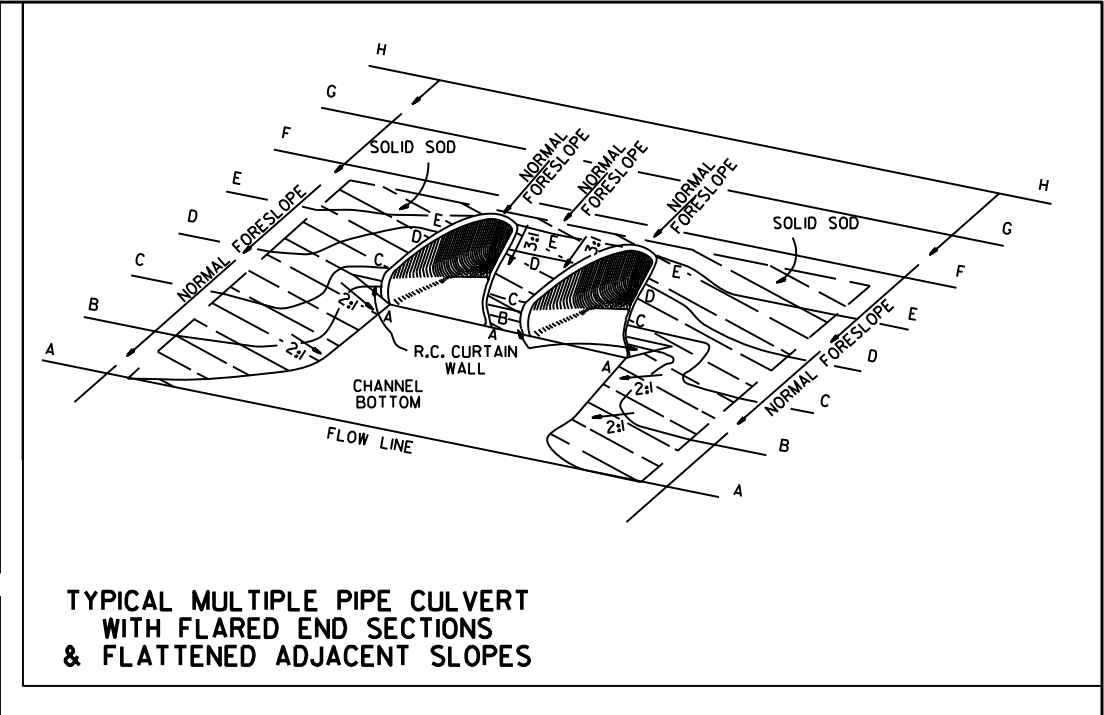
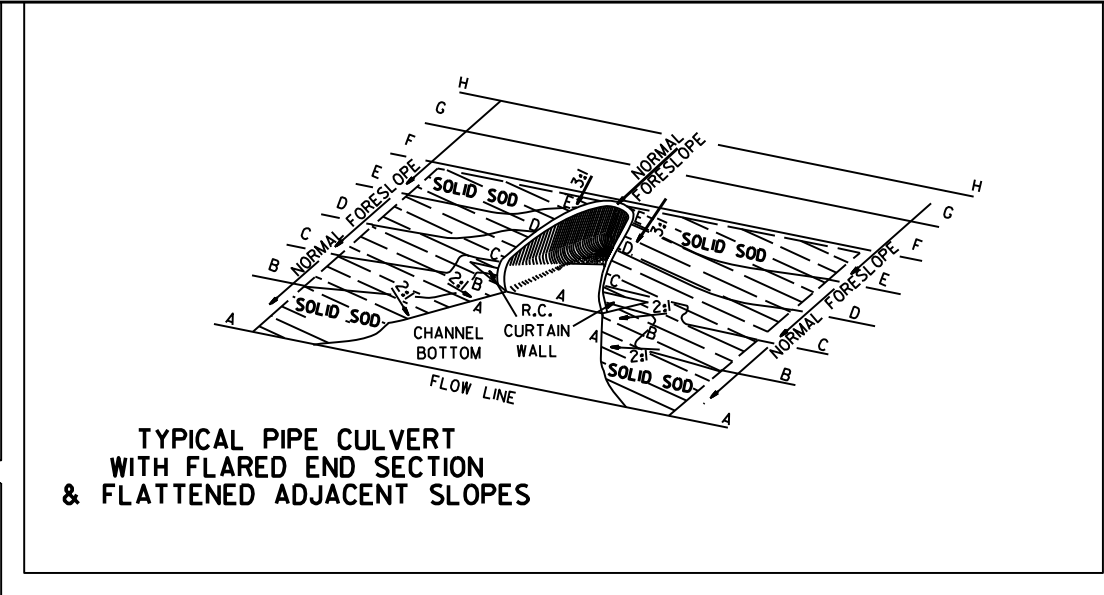
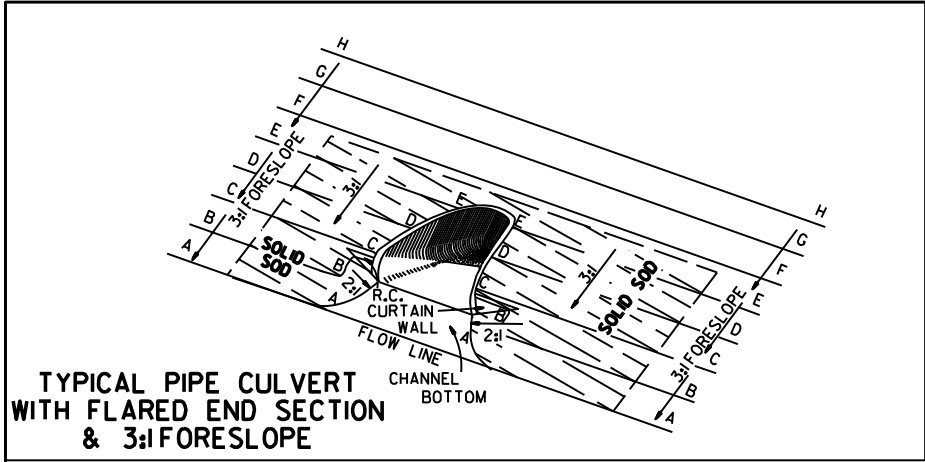
AGGREGATE BASE COURSE (CLASS 7) 9" COMP. DEPTH OR CONFORM TO EXISTING DRIVEWAY

DETAIL FOR DRIVEWAY TURNOUTS
(COLLECTORS)

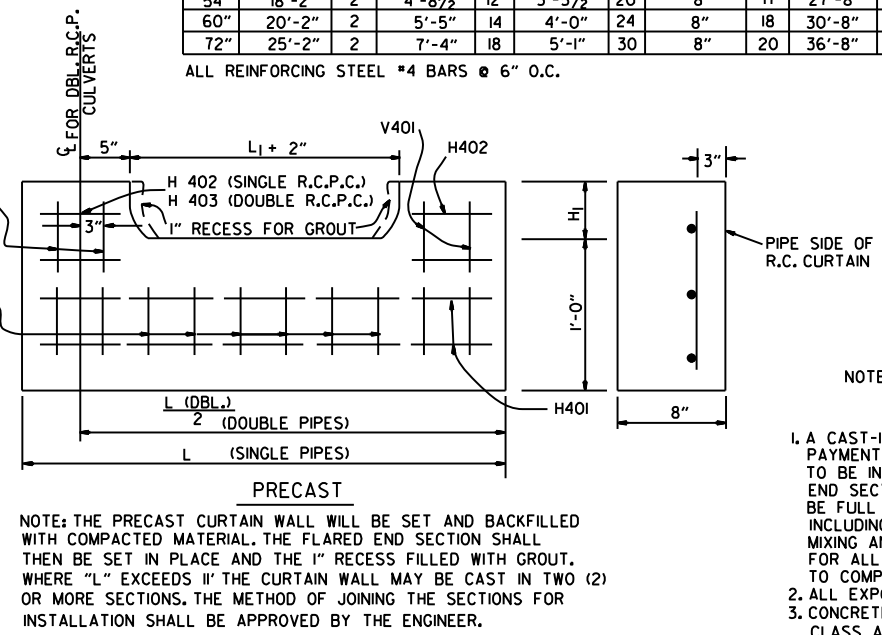
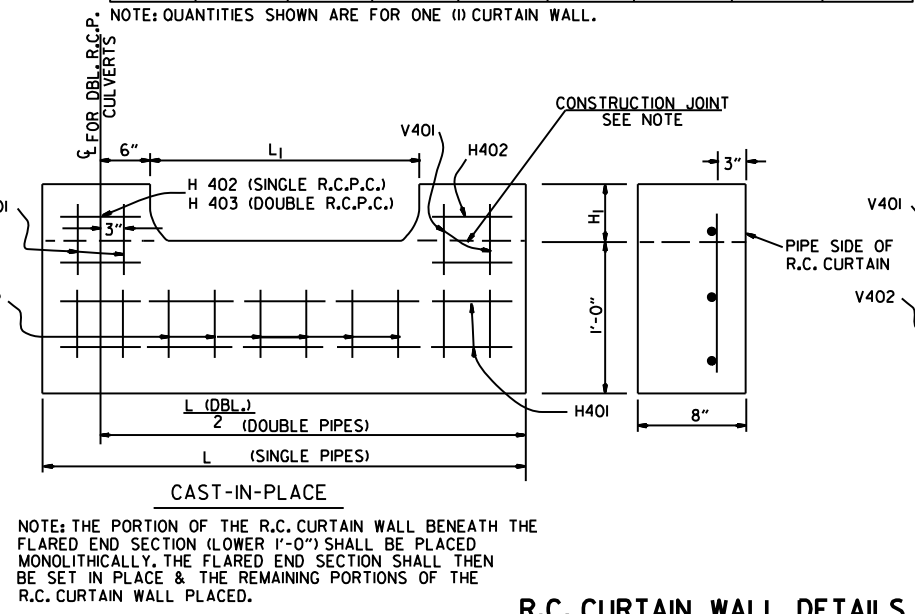
NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

5-19-22	ISSUED	
DATE REV	DATE FILMED	DESCRIPTION

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

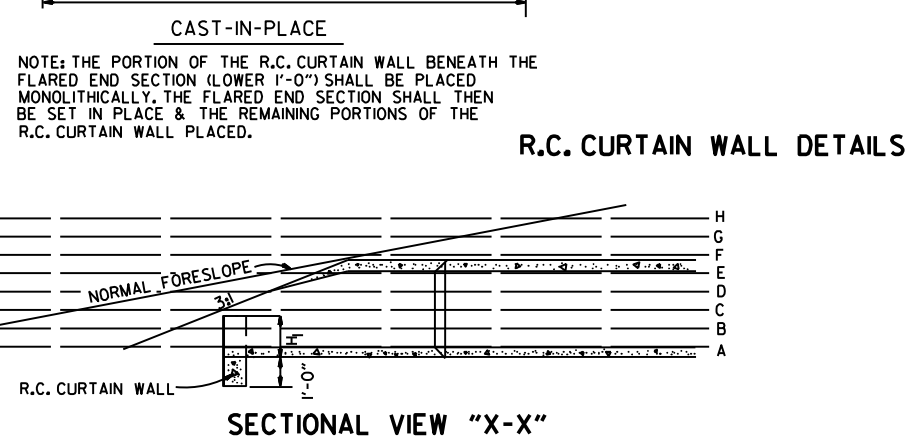
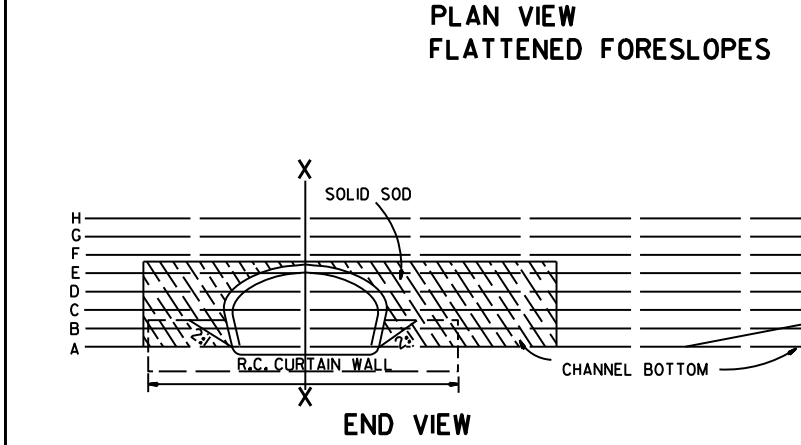


R.C. CURTAIN WALL DIMENSIONS & QUANTITIES								
PIPE DIA.	H ₁	L ₁	L	L (DBL.) 2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11 1/2"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0 1/2"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3 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

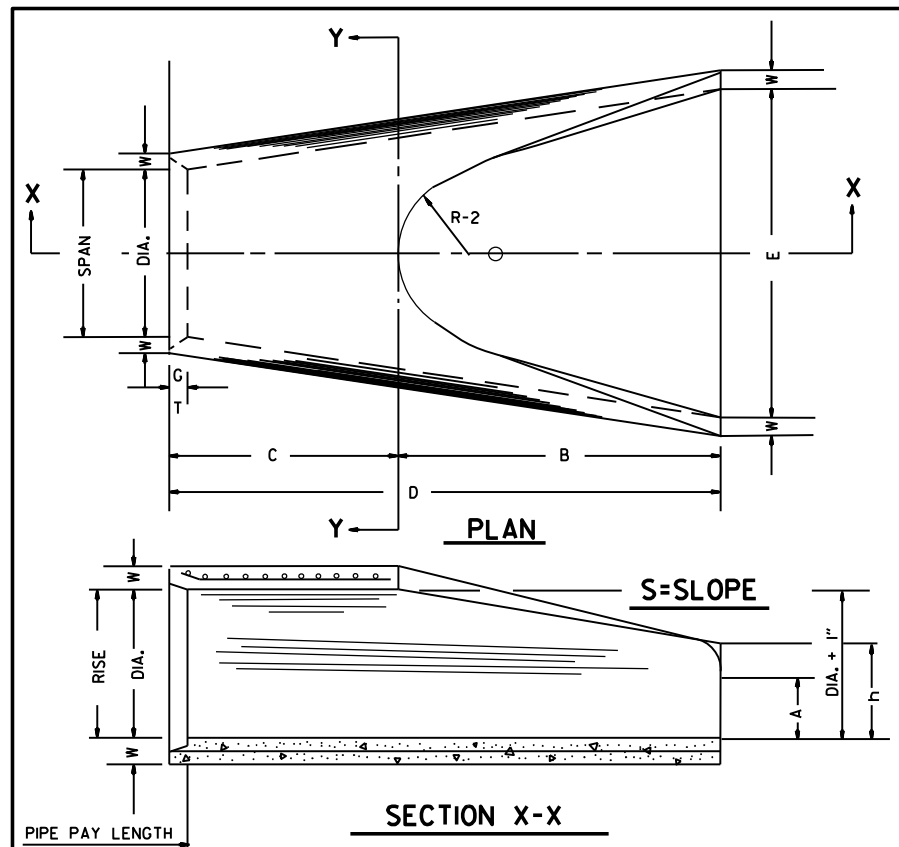


REINFORCING STEEL SCHEDULE																
PIPE DIA.	SINGLE R.C. PIPE CULVERT								DOUBLE R.C. PIPE CULVERT							
	H401		H402		V401		V402		H401		H402		H403		V401	
	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.
18"	7'-8"	2	1'-11 1/2"	4	1'-7 1/2"	8	8"	8	12'-2"	2	1'-11 1/2"	4	8"	2	1'-7 1/2"	10
24"	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
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
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14
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
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20
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
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33

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

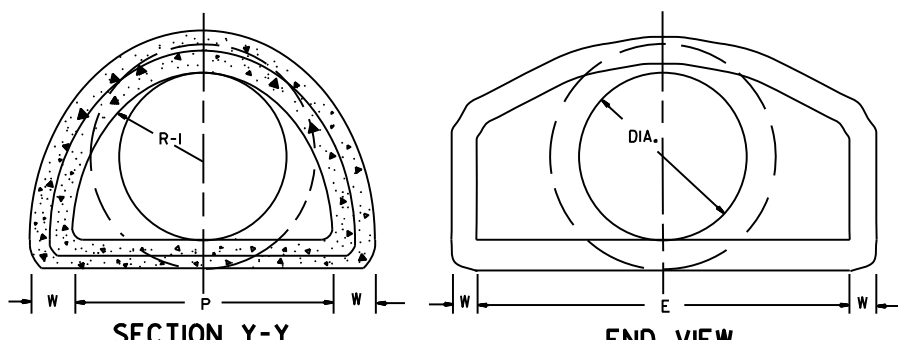


10-18-96	ADDED NOTE TO SOLID SODDING			ARKANSAS STATE HIGHWAY COMMISSION
10-12-95	CORRECTED SPELLING			
11-3-94	ADDED GENERAL NOTE NO. 4			
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.			
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES			
5-15-80	ADDED PRECAST WALL & GENERAL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



END SECTION
FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS														
DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3 1/4"	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 1/4"	25"	33 3/8"	16 3/8"	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 1/4"	31"	37"	18 1/2"	15"	3 1/4"	1940	1'-4 3/8"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"	3 1/4"	37"	47 1/8"	24 1/8"	20"	3 1/2"	4100	1'-8"
42"	4 1/2"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3 1/4"	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 1/4"	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 1/4"	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 1/4"	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 1/4"	73"	77 3/8"	38 3/8"	24"	5"	13250	4'-6"

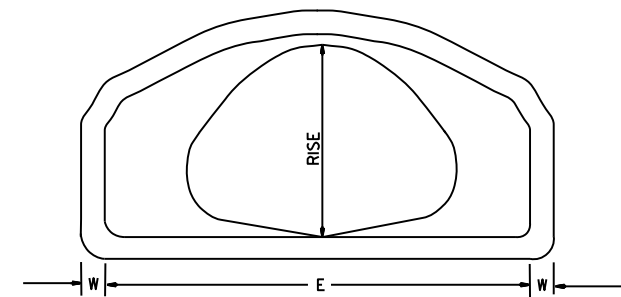


SECTION Y-Y
END VIEW

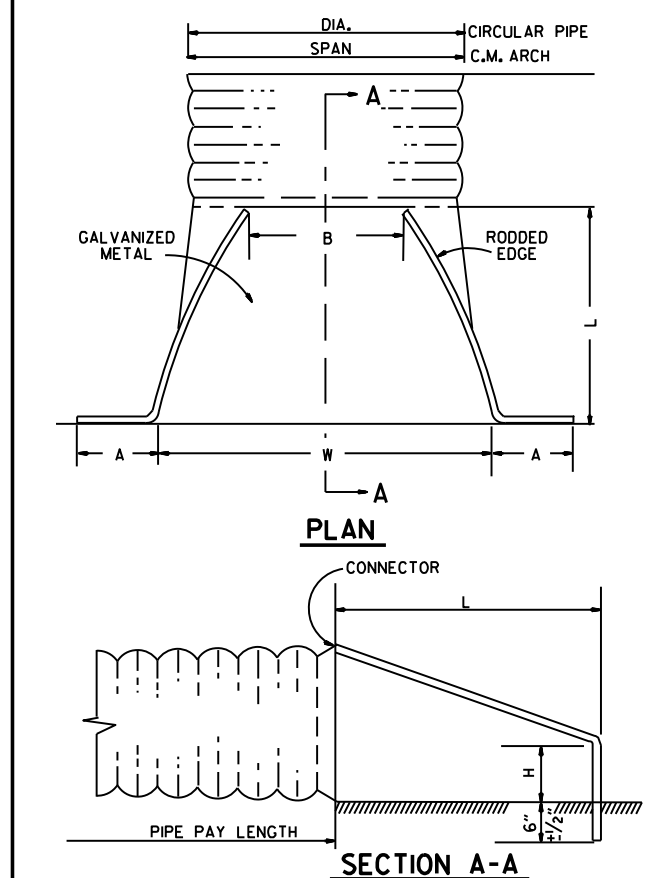
NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

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										
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1 1/2"	2 1/2 1/4"
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 1/4"
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 1/4"
24	28 1/2	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 1/8"	15"	2 1/2"	2 1/2 1/4"
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 1/4"
36	43 3/4	44	26 3/8	27	4"	10 1/2"	4'-0"	2'-1 1/2"	6'-1 1/2"	6'-6"	54 1/8"	22"	3 1/2"	2 1/2 1/4"
42	51 1/8	51	31 1/8	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 1/4"
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 1/4"
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 1/4 1/4"
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 1/8"	24"	5"	2 1/4 1/4"

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



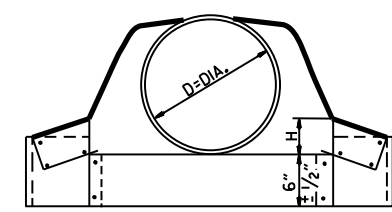
END VIEW
CONCRETE ARCH PIPE



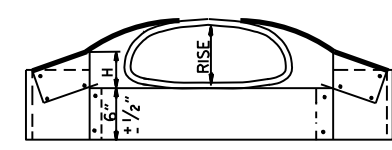
SECTION A-A

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



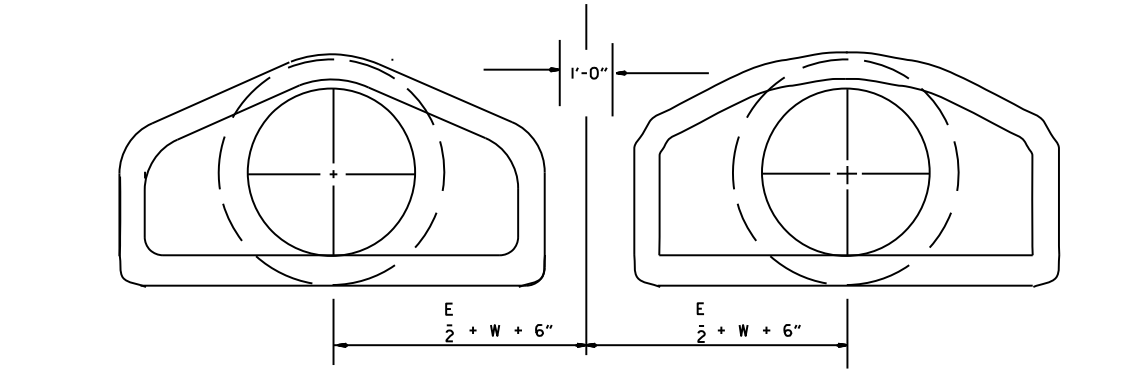
CIRCULAR PIPE



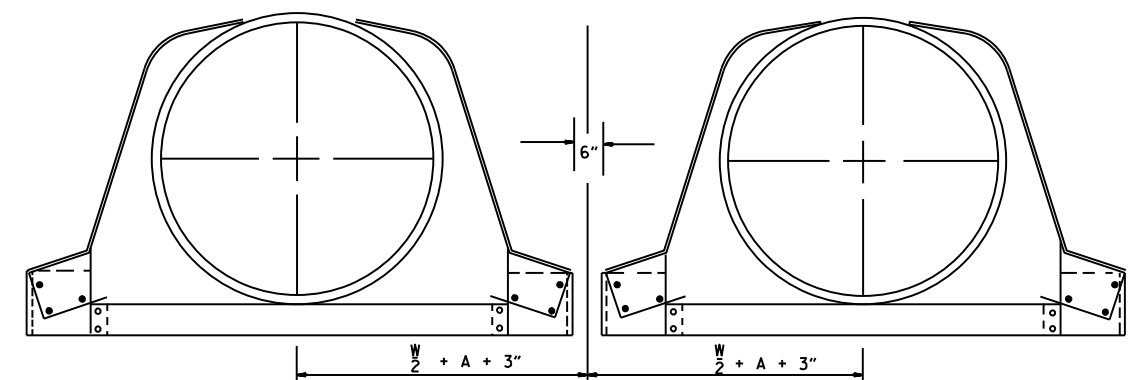
C.M. ARCH PIPE

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

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



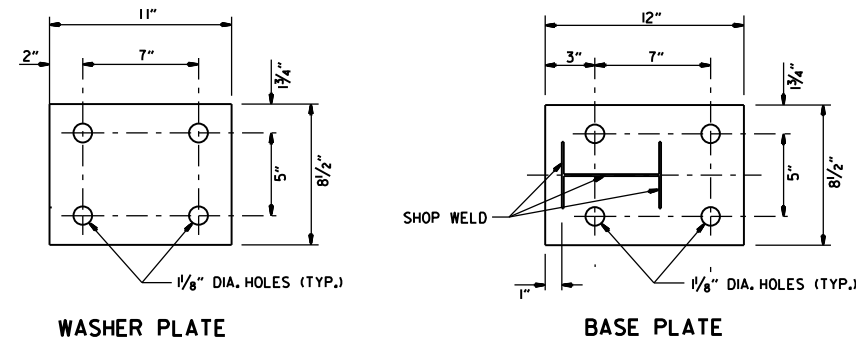
MULTIPLE R.C. PIPE CULVERTS



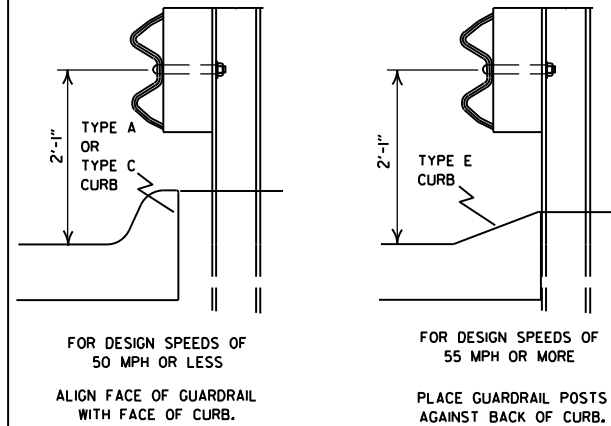
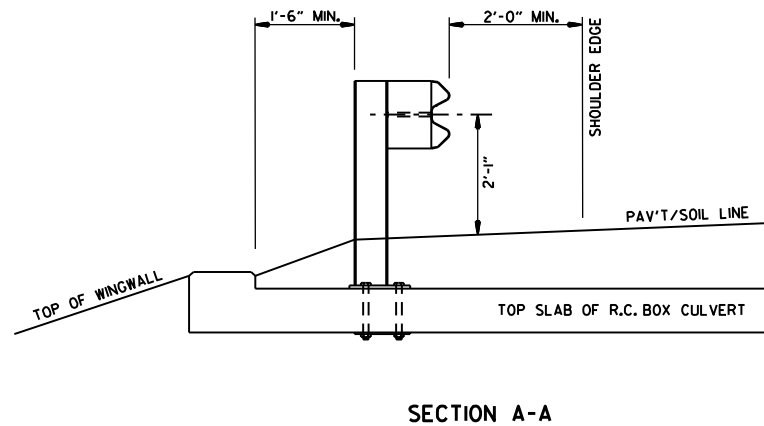
MULTIPLE C.M. PIPE CULVERTS

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

ARKANSAS STATE HIGHWAY COMMISSION	
GUARDRAIL DETAILS	
7	STANDARD DRAWING GR-6

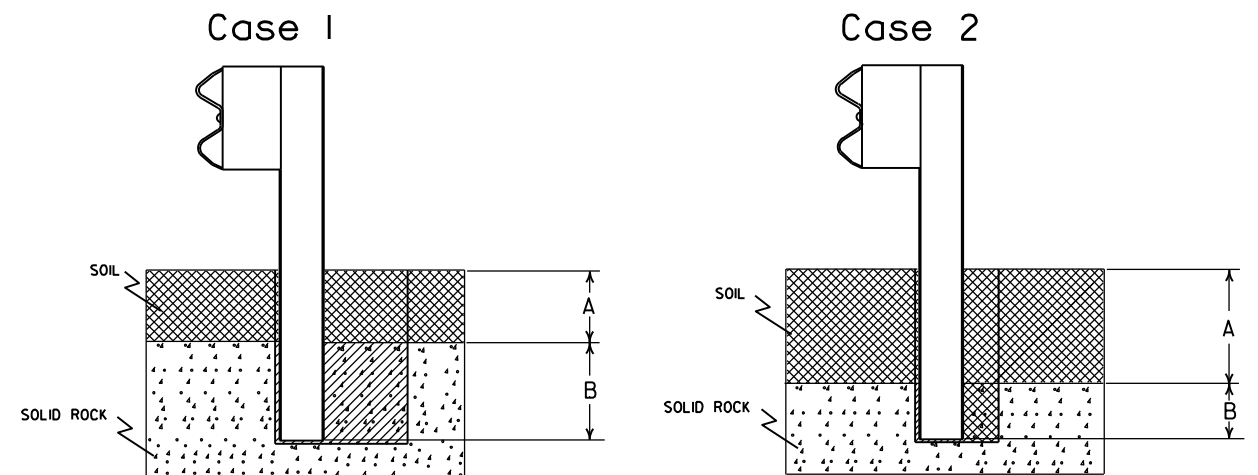
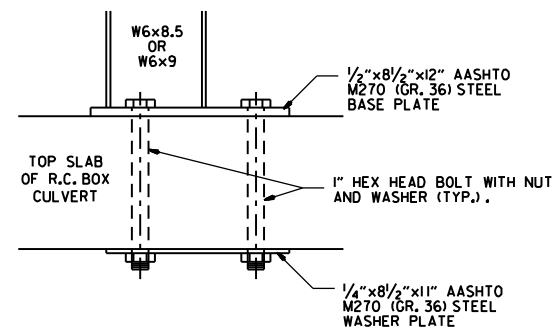


Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.



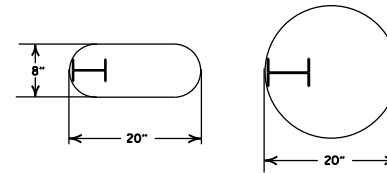
DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB (W-BEAM)

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



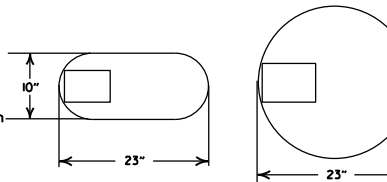
Plan View Steel Posts

Either hole configuration acceptable



Plan View Wood Posts

Either hole configuration acceptable



Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

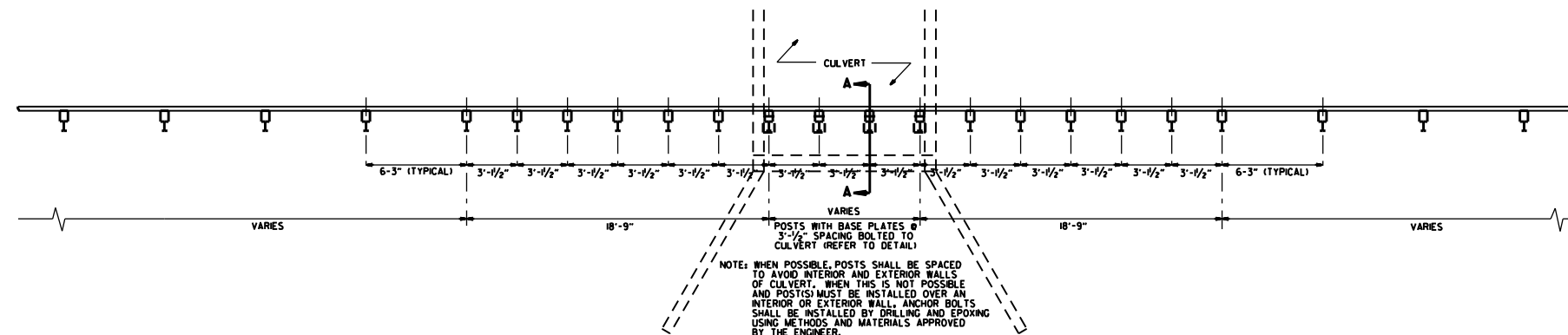
Zone A:
Backfill according to Section 617.03(a).

Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.

DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)

Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

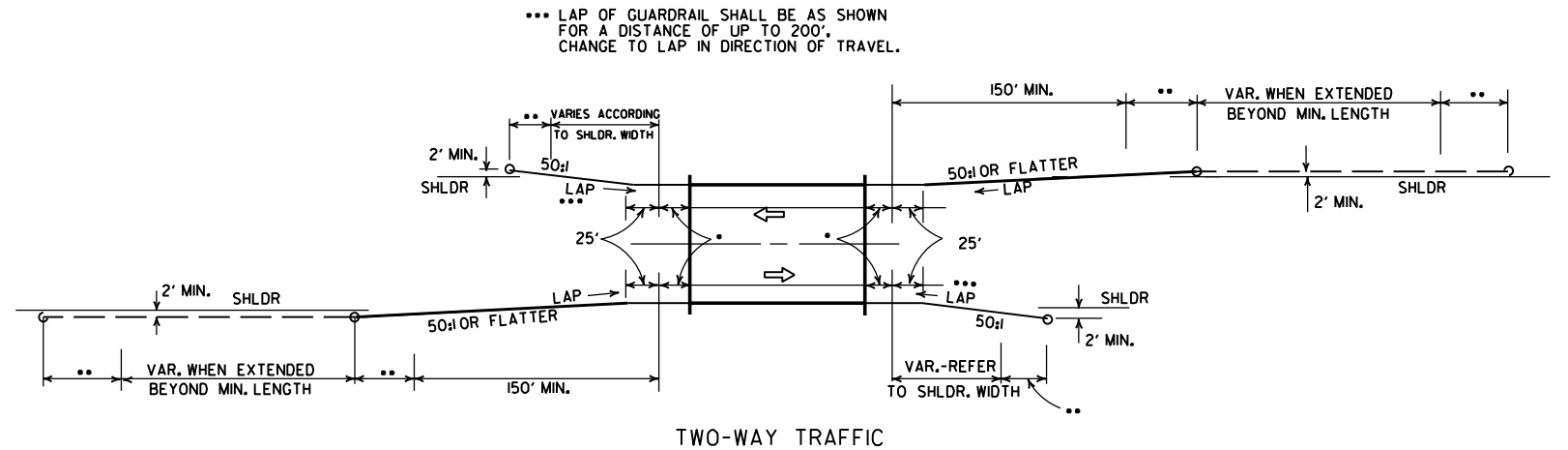
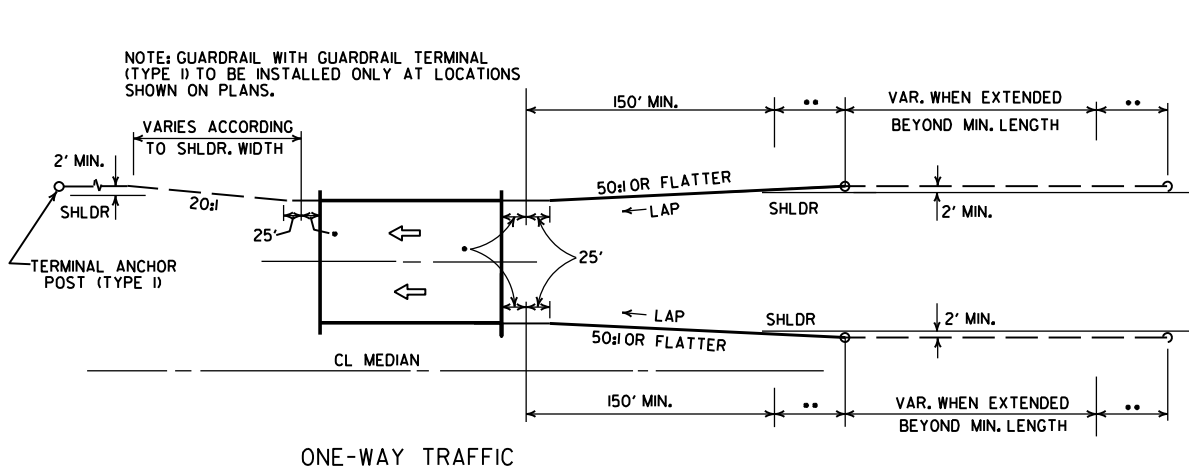
Zone A & B:
Backfill according to Section 617.03(a).



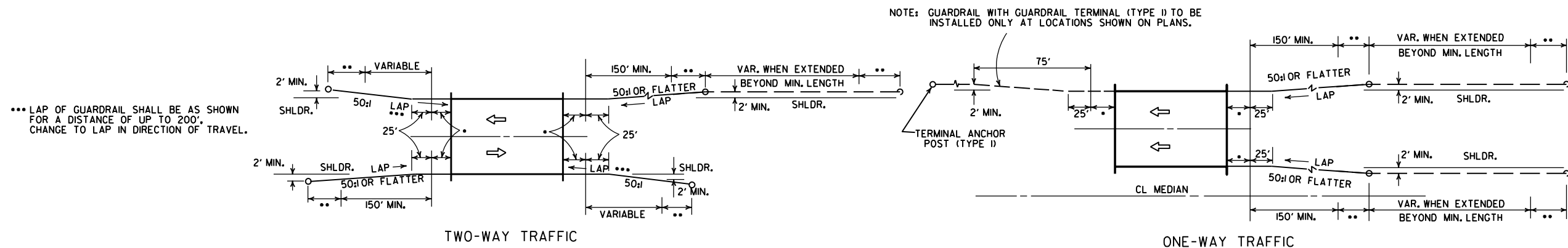
NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARDRAIL POSTS AS SHOWN ON STD. DRWG. GR-6.

11-07-19	RENUMBERED, RENAMED, REVISED REFERENCE	
11-16-17	REVISED GUARDRAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
04-12-07	REVISED DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARDRAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS, ADDED DETAIL FOR GUARDRAIL PLACEMENT AT LOW-FILL CULVERTS	
03-30-00	REMOVED CONCRETE INSERT ANCHOR	
08-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADDED DET. OF GUARDRAIL CONNECTION TO R.C. BOX CULV'T., DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARDRAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
04-03-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
06-02-94	REVISED ALTERNATE POST SIZE	
08-05-93	REVISED STEEL POST SIZE	
10-01-92	REDRAWN & REVISED	10-1-92
08-02-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
07-15-88	CONFORMED TO 1988 SPECS	
03-04-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-09-87	REDRAWN & REVISED	803-10-9-87
DATE	REVISION	FILMED

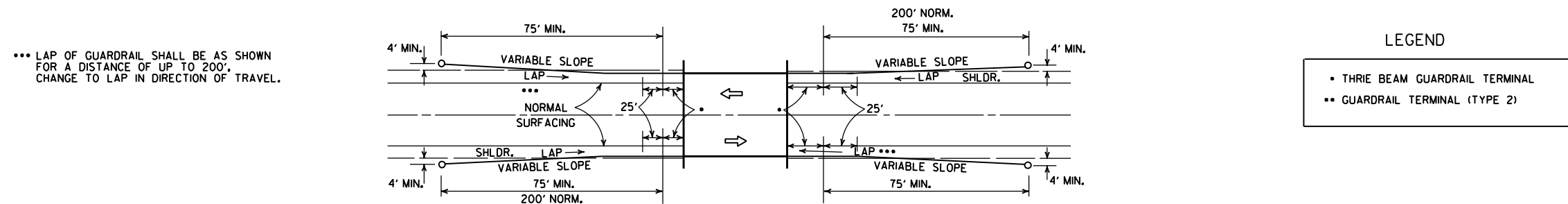
ARKANSAS STATE HIGHWAY COMMISSION
GUARDRAIL DETAILS
STANDARD DRAWING GR-7



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

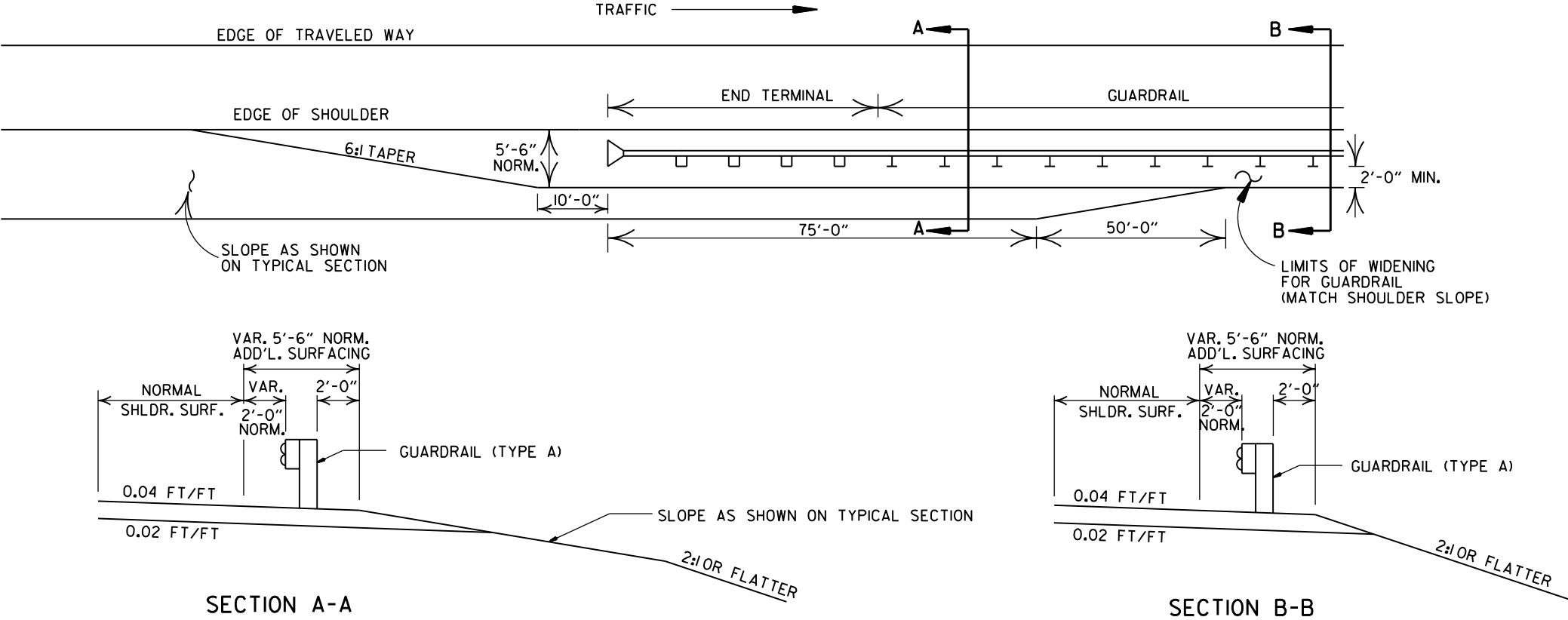


METHOD OF INSTALLATION OF GUARDRAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

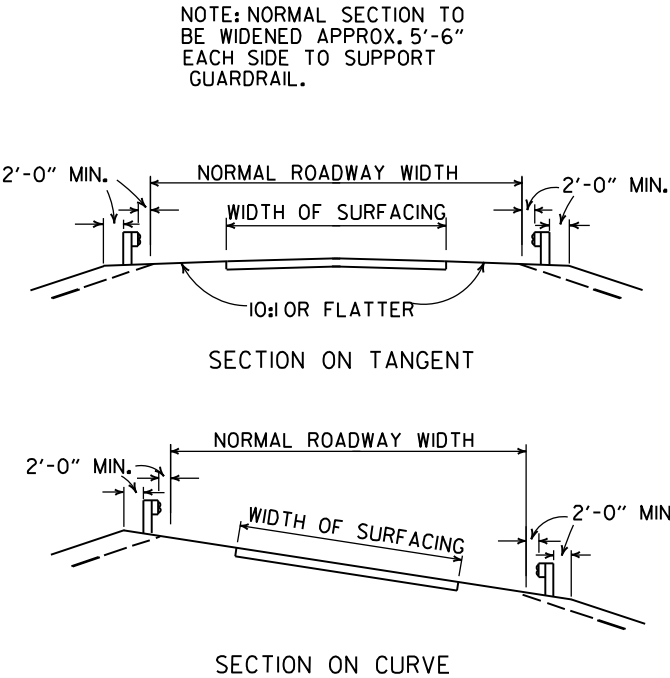


METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

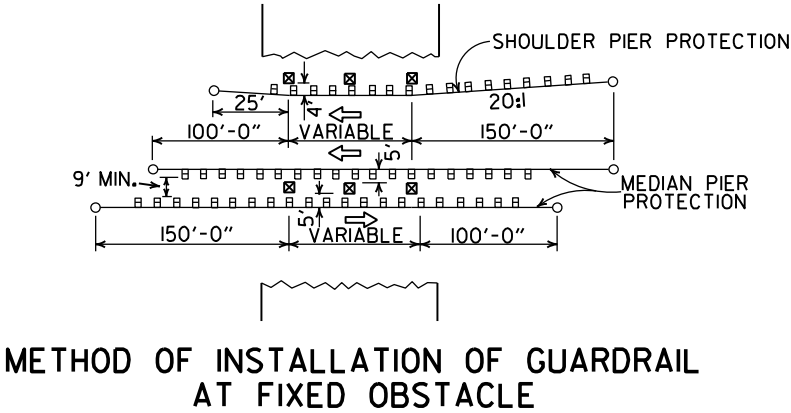
			ARKANSAS STATE HIGHWAY COMMISSION
11-07-19	RENUMBERED AND RENAMED		GUARDRAIL DETAILS
4-17-08	REVISED LAYOUTS		
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS		
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1)		
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00	STANDARD DRAWING GR-8
6-26-97	REVISED LAYOUT		
10-1-92	REDRAWN & REVISED	10-1-92	
10-9-87	REDRAWN & REVISED		
DATE	REVISION	DATE	FILM



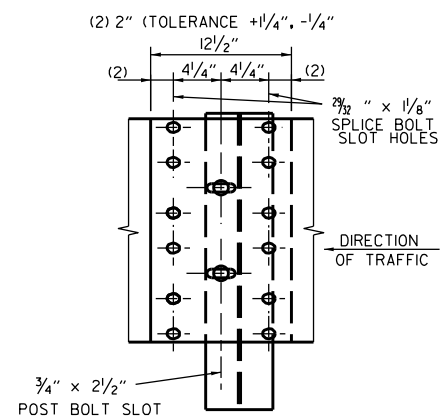
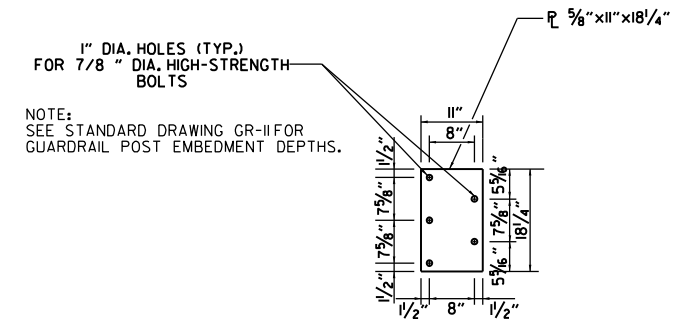
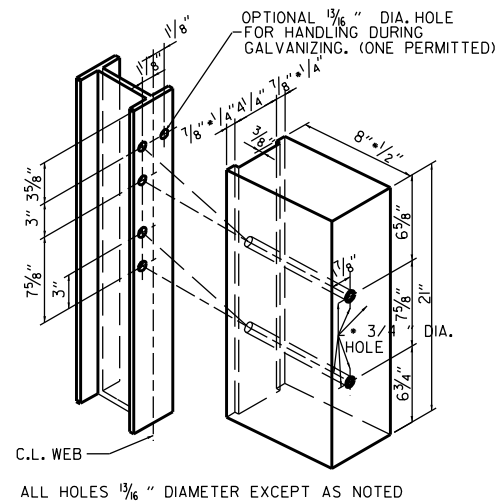
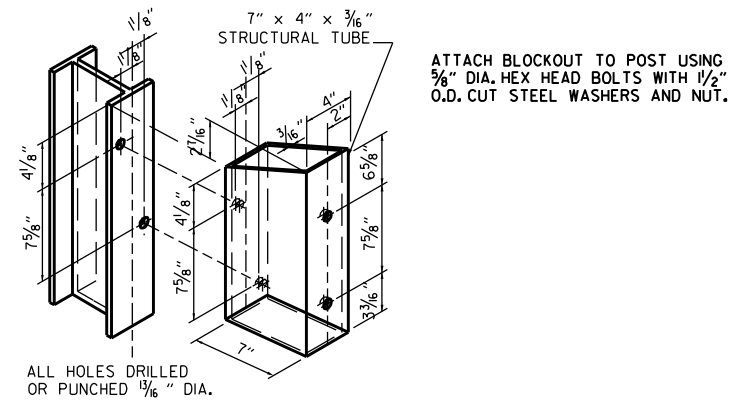
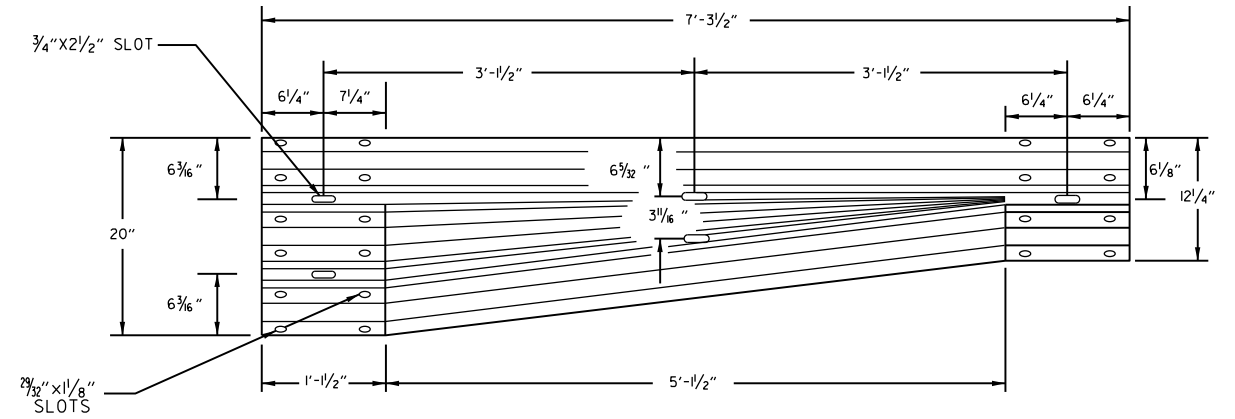
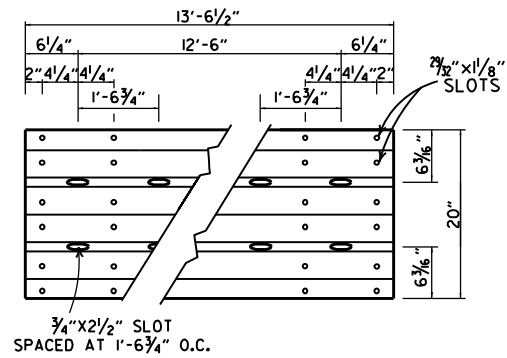
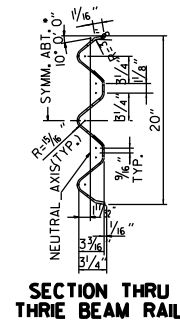
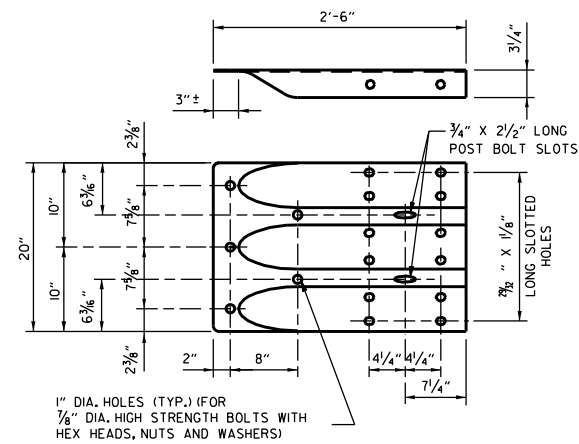
DETAILS OF WIDENING FOR GUARDRAIL



DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY



			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 FILED	



GENERAL NOTES:

THE THREE 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.

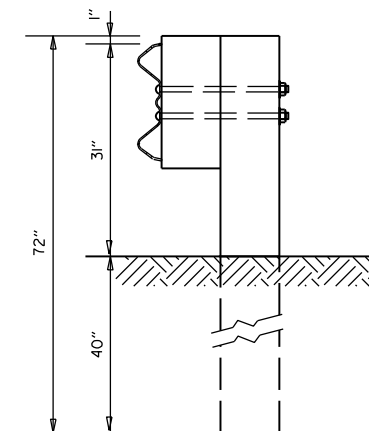
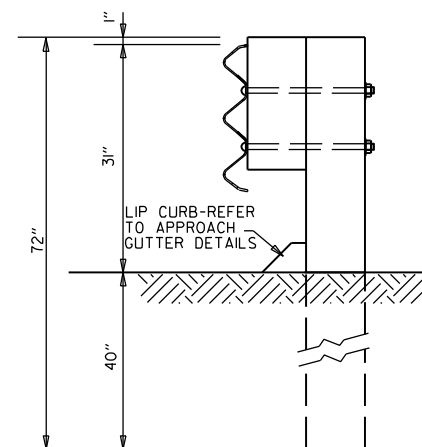
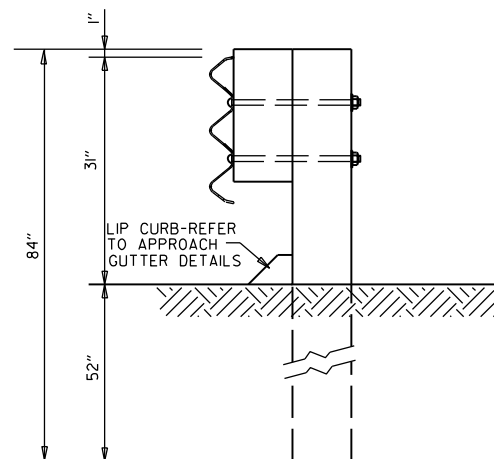
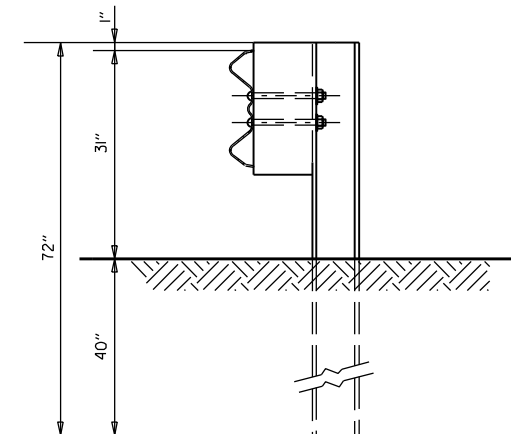
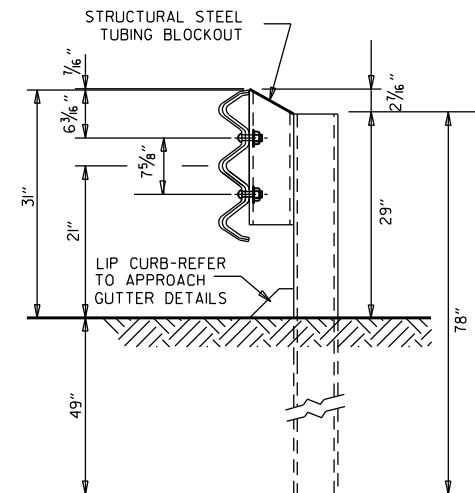
REFER TO STD. DRWG. GR-II FOR POST DETAILS.

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

THREE 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 BRIDGES 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		ARKANSAS STATE HIGHWAY COMMISSION
II-18-04	REVISED GENERAL NOTES		GUARDRAIL DETAILS
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	STANDARD DRAWING GR-10

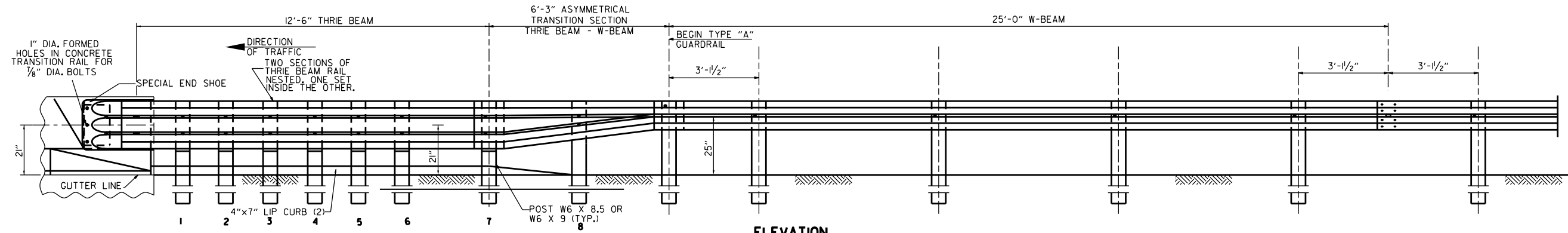


GENERAL NOTES:

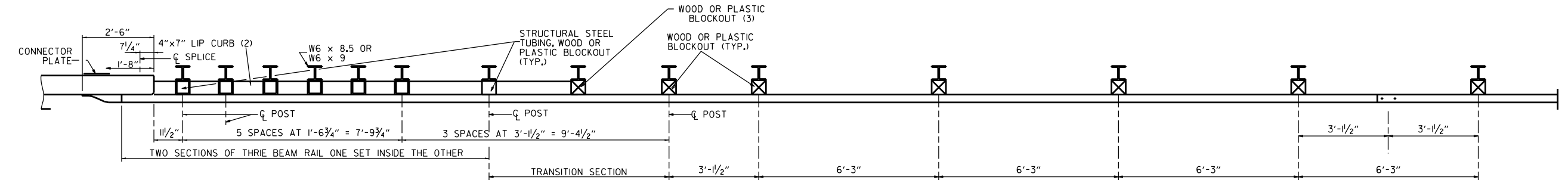
RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

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

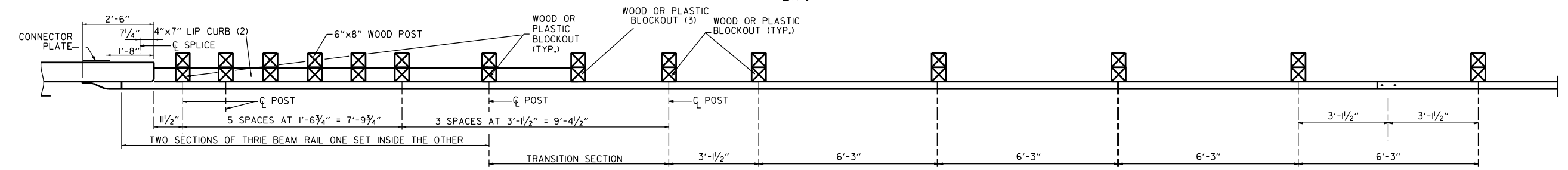
			ARKANSAS STATE HIGHWAY COMMISSION
II-07-19	RENAMED		GUARDRAIL DETAILS
II-16-17	REVISED GUARDRAIL HEIGHT, CHANGED STD. DWG. NUMBER FROM GR-10A TO GR-II		
07-14-10	REVISED POST & DIMENSIONS		
II-29-07	ADDED PLASTIC BLOCKOUTS		
08-22-02	REVISED LIP CURB NOTE		
03-30-00	DRAWN & ISSUED		
DATE	REVISION	FILMED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



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

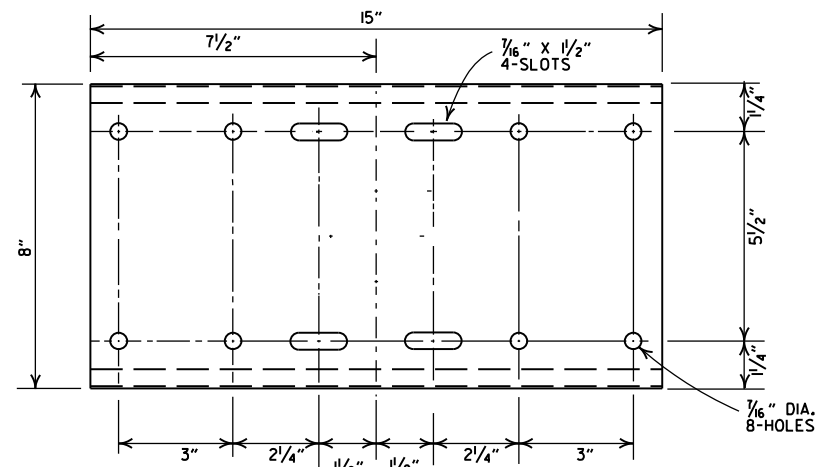
GENERAL NOTES:

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 1.

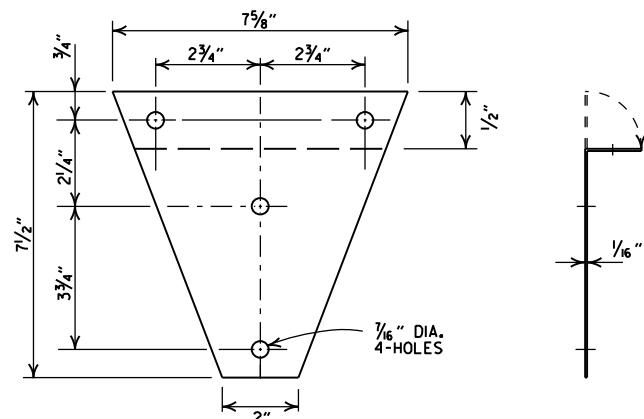
RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

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

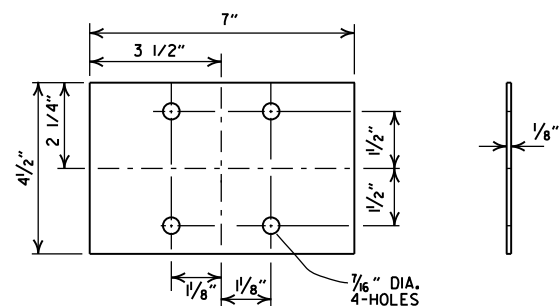
			ARKANSAS STATE HIGHWAY COMMISSION
			GUARDRAIL DETAILS
05-14-20	REVISED NOTES		
11-07-19	RENAMED & REVISED REFERENCES		
11-16-17	RE-DRAWN FROM STD. DWG. GR-10 & ISSUED		STANDARD DRAWING GR-12
DATE	REVISION	FILMED	



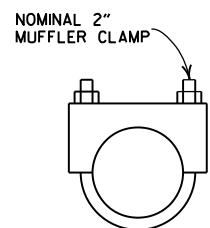
SHELF



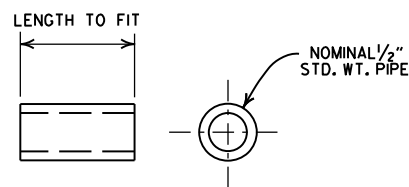
BRACKET



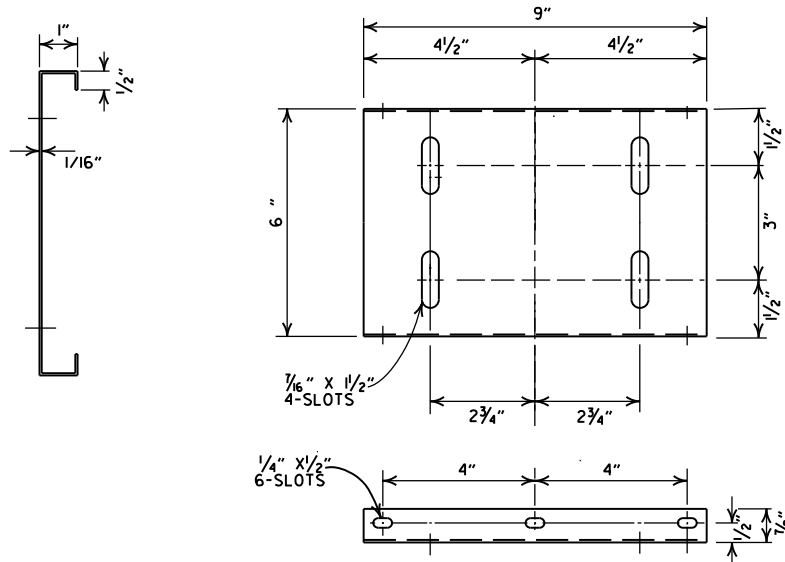
ANTI-TWIST PLATE



CLAMP



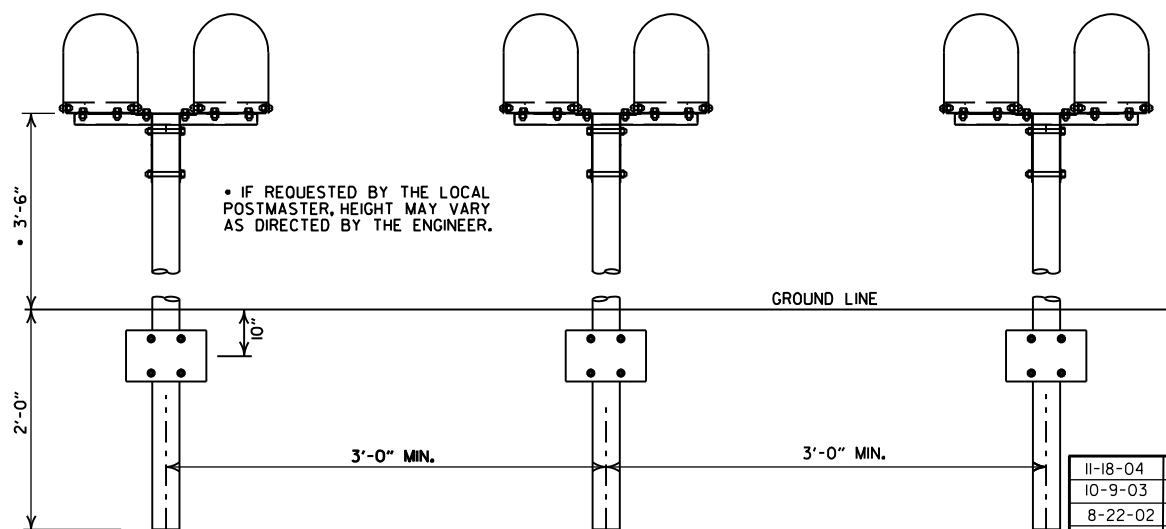
SPACER



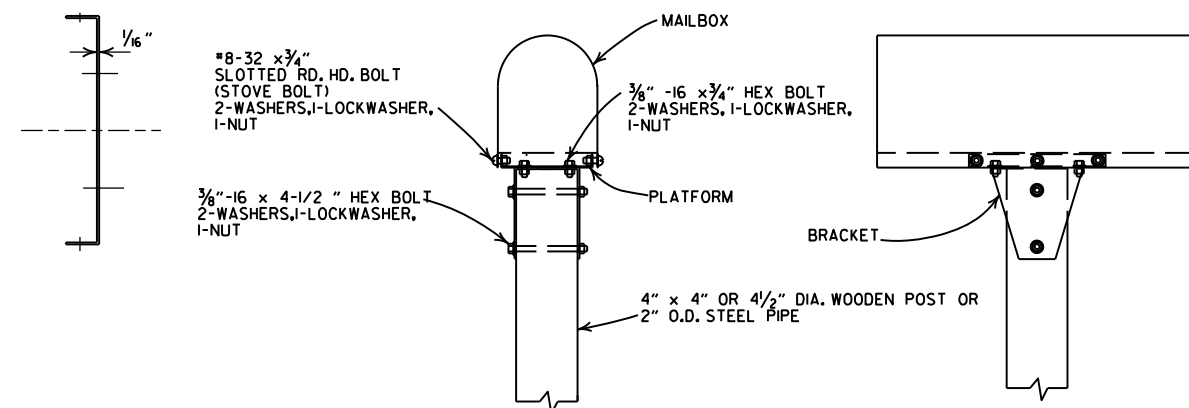
PLATFORM

GENERAL NOTES

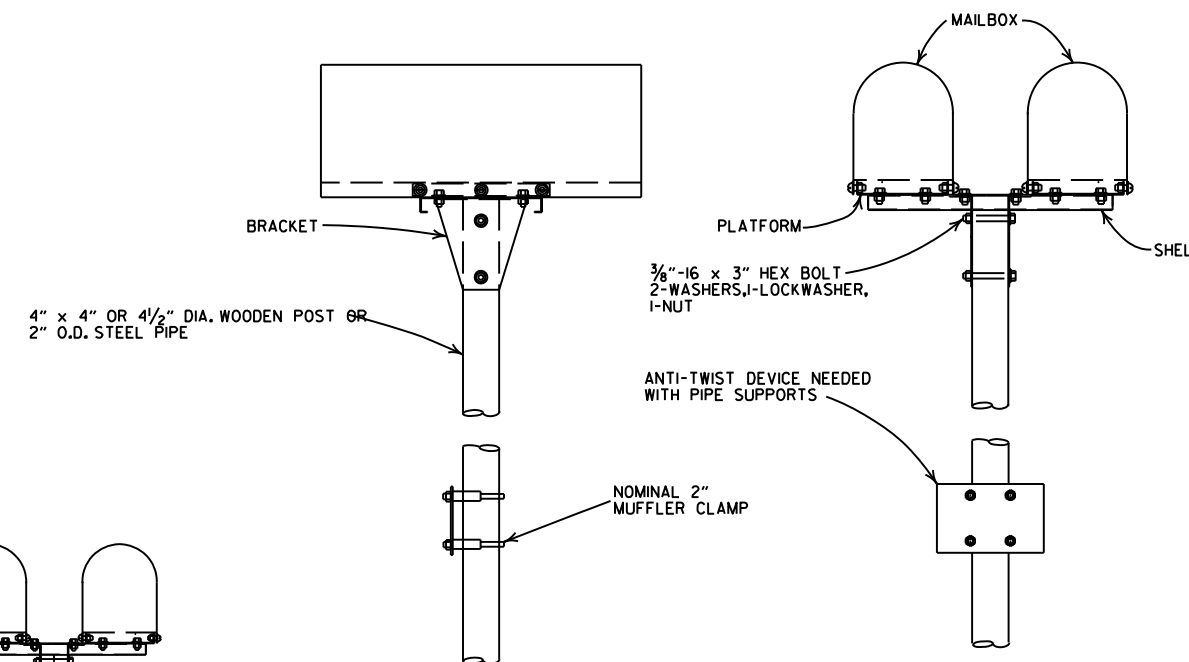
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED 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.



SPACING FOR MULTIPLE POST INSTALLATION



SINGLE INSTALLATION



DOUBLE INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	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	ARDOT NOMINAL	AASHTO M 206	ARDOT NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43¾	44	26¾	27
42	51⅝	51	31⅝	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅝	87
120	154	154	96⅝	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE
HORIZONTAL ELLIPTICAL
PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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.

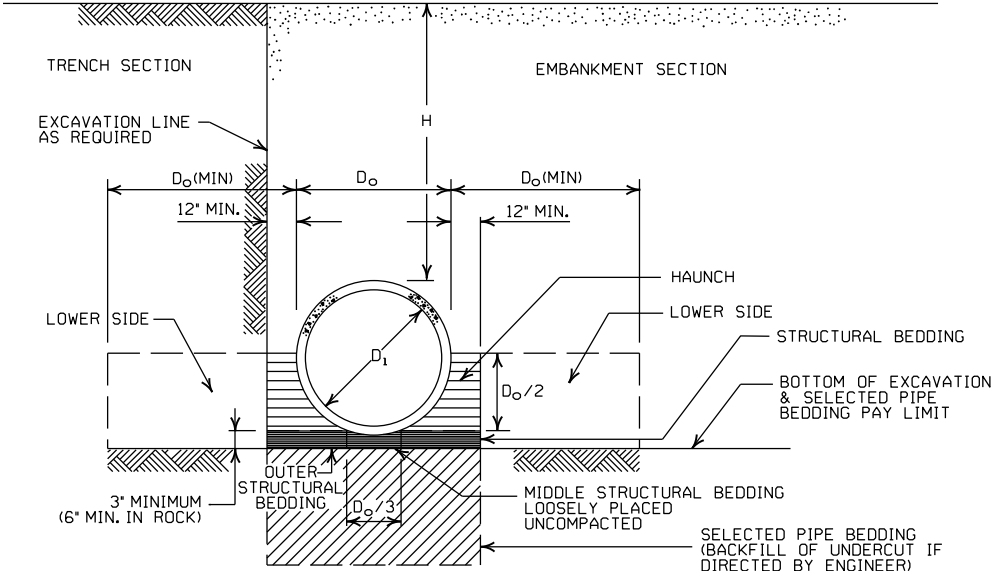
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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 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.

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.

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	
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1



CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① 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	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① 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	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINIMUM CORNER RADIUS (INCHES)	STEEL			ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	
				INSTALLATION	INSTALLATION		INSTALLATION	INSTALLATION	
				TYPE 1	TYPE 1		TYPE 1	TYPE 1	
			2 5/8 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2 5/8 INCH BY 1/2 INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM			
15	17x13	3	0.064	2	15	0.060	2	15	
18	21x15	3	0.064	2	15	0.060	2	15	
21	24x18	3	0.064	2,25	15	0.060	2,25	15	
24	28x20	3	0.064	2,5	15	0.075	2,5	15	
30	35x24	3	0.079	3	12	0.075	3	12	
36	42x29	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	0.164	3	15	
66	77x52	8	0.168	3	15				
72	83x57	9	0.168	3	15				
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			① FOR MINIMUM COVER VALUES, "H" SHALL ② WHERE THE STANDARD 2 2/3" x 1/2" COR WITH A 3' x 1' OR 5' x 1' CORRUGATION OR GREATER THAN THE MAXIMUM FILL			
			INSTALLATION		INSTALLATION				
			TYPE 2	TYPE 1	TYPE 2				TYPE 1
36	40x31	5	0.079	3	2				12
42	46x36	6	0.079	3	2	13	15		
48	53x41	7	0.079	3	2	13	15		
54	60x46	8	0.079	3	2	13	15		
60	66x51	9	0.079	3	2	13	15		
66	73x55	12	0.079	3	2	15	15		
72	81x59	14	0.079	3	2	15	15		
78	87x63	14	0.079	3	2	15	15		
84	95x67	16	0.109	3	2	15	15		
90	103x71	16	0.109	3	2	15	15		
96	112x75	18	0.109	3	2	15	15		
102	117x79	18	0.109	3	2	15	15		
108	128x83	18	0.138	3	2	15	15		

CONSTRUCTION SEQUENCE

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

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

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

③ SM-3 WILL NOT BE ALLOWED.

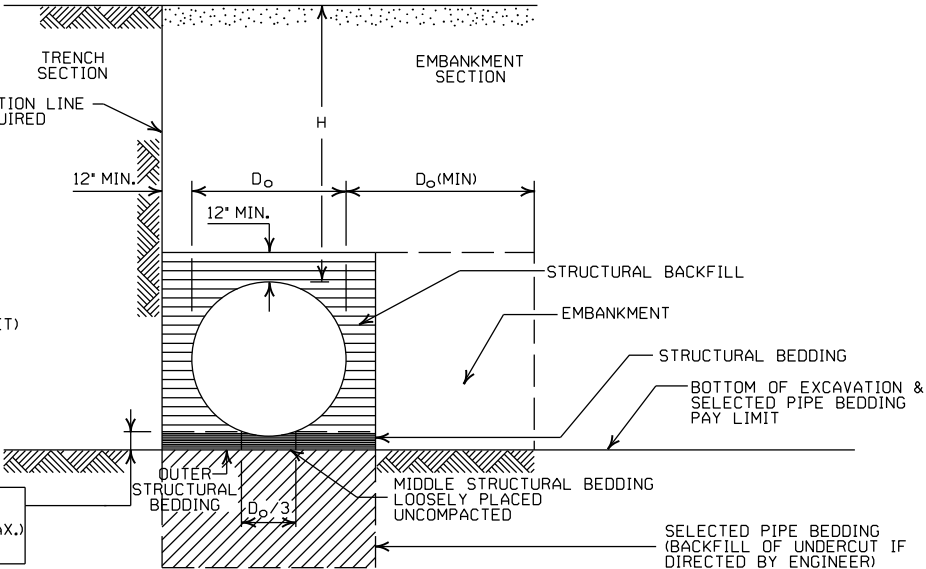
EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL		ALUMINUM	
ZINC COATED	UNCOATED		
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

- LEGEND -

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

IN SOIL-MIN. EQUALS TWICE CORRUGATION DEPTH
IN ROCK-MIN. EQUALS GREATER OF:
1/2" PER FOOT OF FILL OVER PIPE (24" MAX.)
TWICE CORRUGATION DEPTH



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."

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.

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

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"

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

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

MINIMUM COVER FOR
CONSTRUCTION LOADS

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

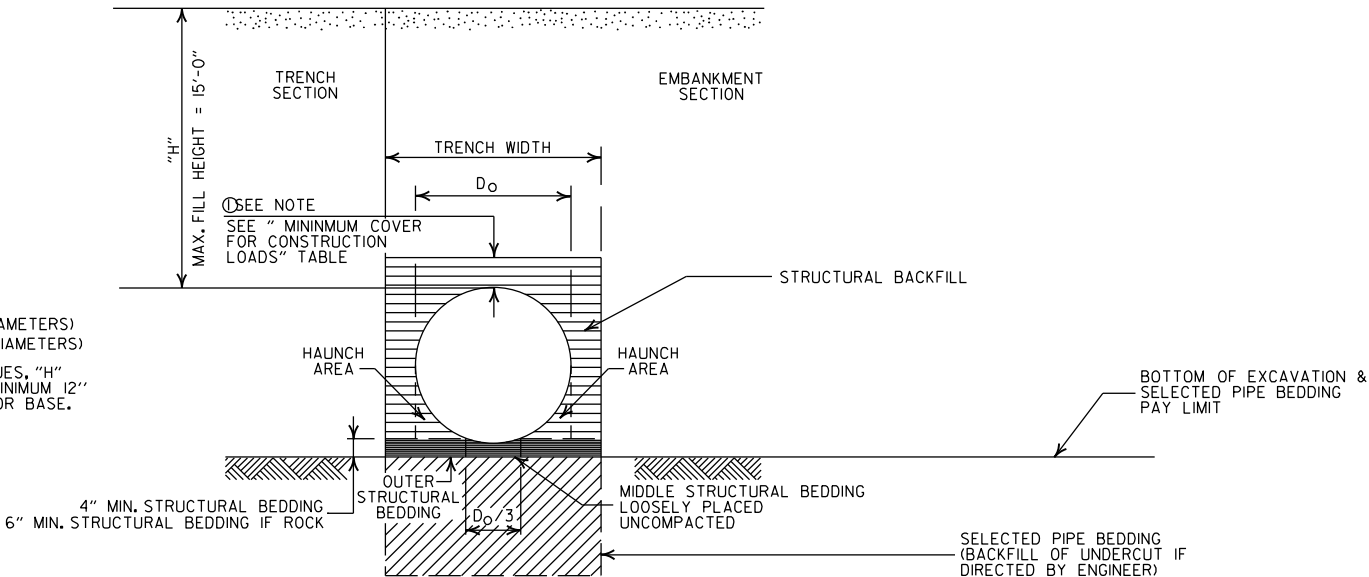
②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.

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"

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.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

- LEGEND -

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

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

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"

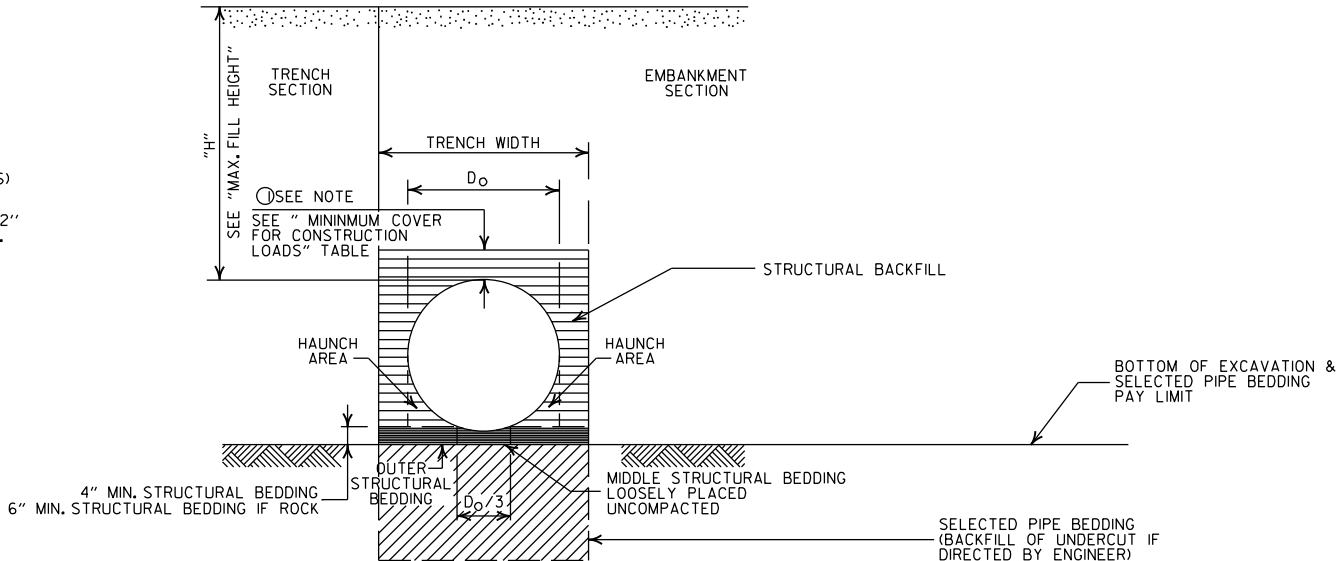
MULTIPLE INSTALLATION OF PVC PIPES

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

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

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.

MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

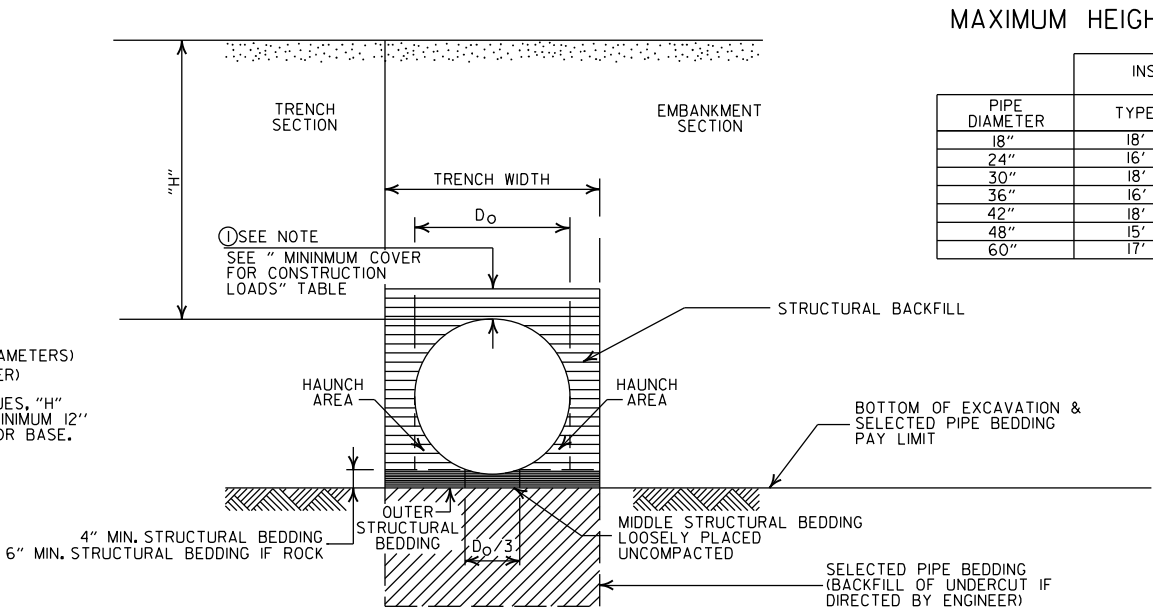
①NOTE:
12" MIN. (18" - 42" DIAMETERS)
24" MIN. (60" DIAMETER)

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

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.



MAXIMUM HEIGHT OF FILL "H"

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

EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

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

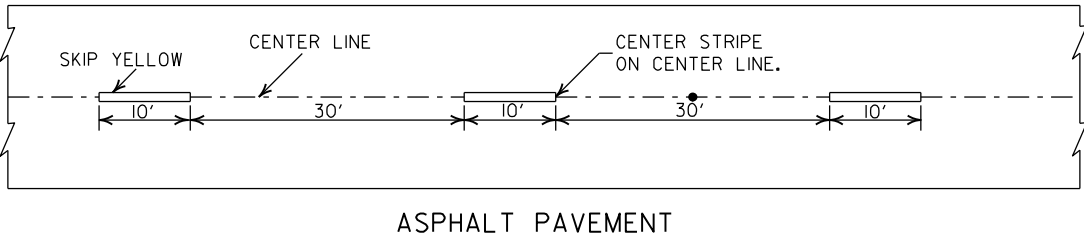
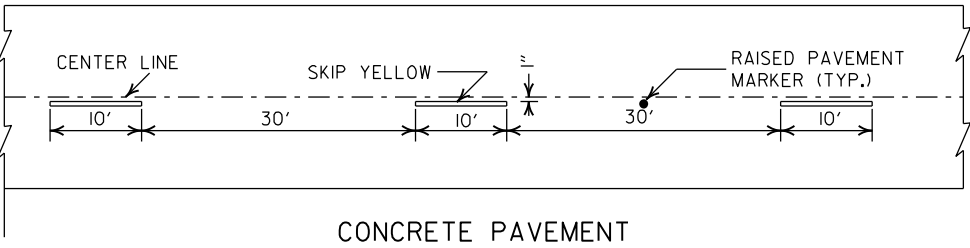
02-27-20	REVISED	
11-07-19	ISSUED	
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

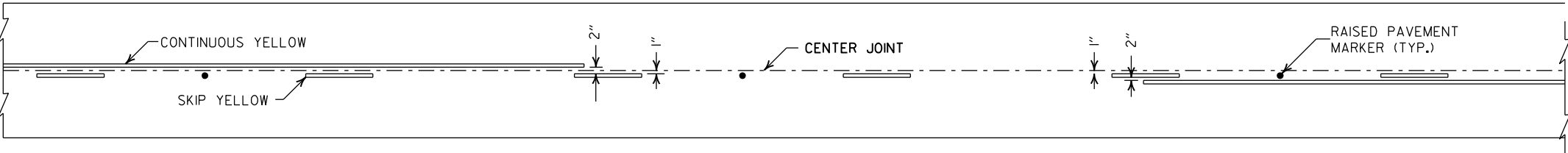
PLASTIC PIPE CULVERT
(POLYPROPYLENE)

STANDARD DRAWING PCP-3

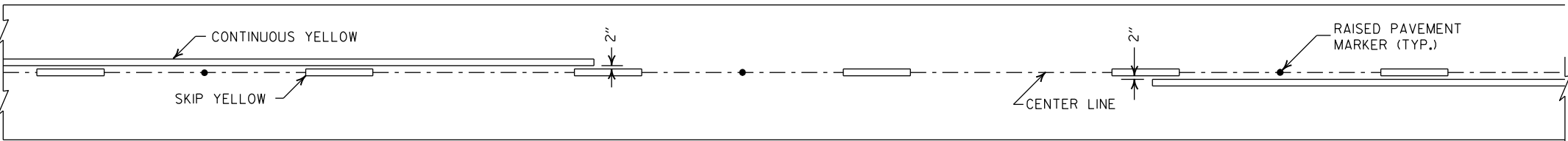




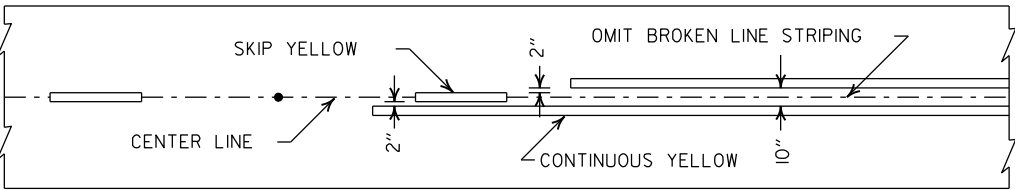
BROKEN LINE STRIPING



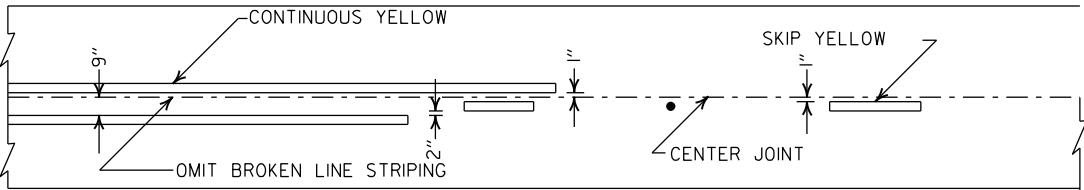
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

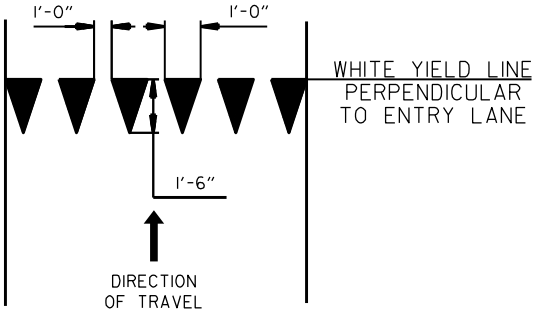


ASPHALT PAVEMENT

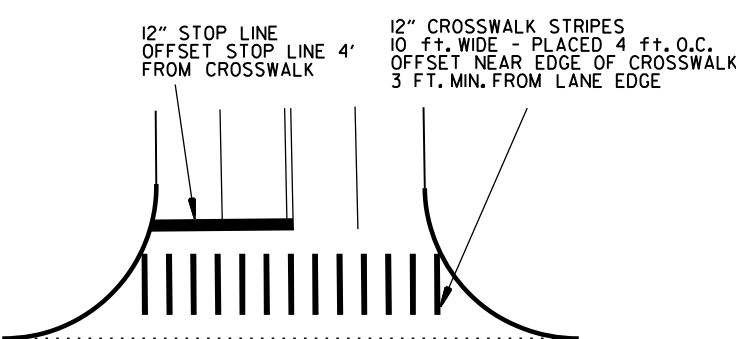


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

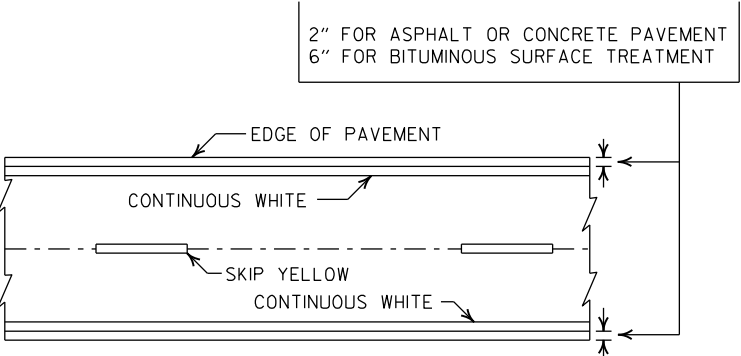


YIELD LINE DETAIL



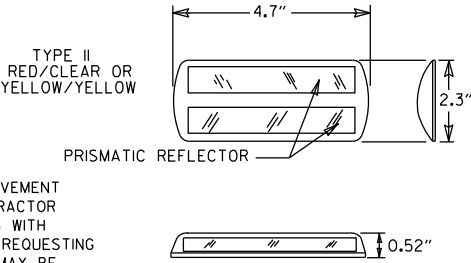
CROSSWALK AND STOP LINE DETAILS

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



PAVEMENT EDGE LINE MARKING

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



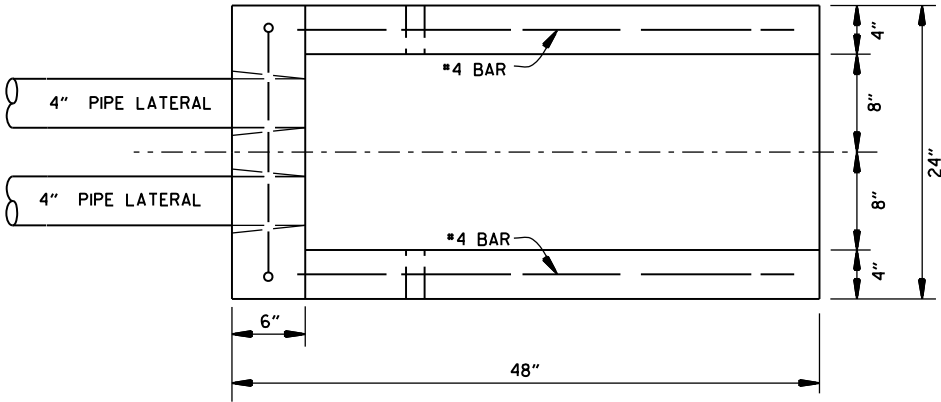
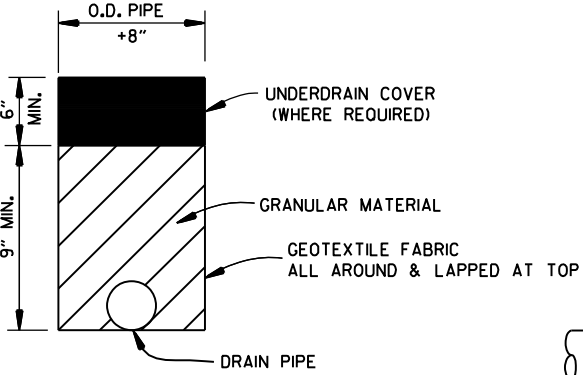
NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE ARDOT QUALIFIED PRODUCTS LIST.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

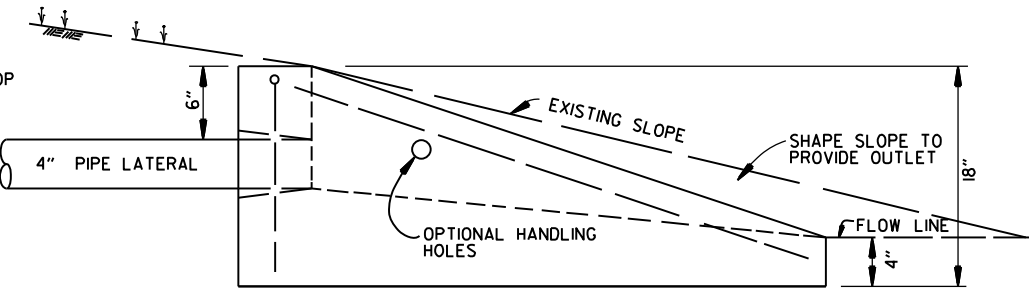
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK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

ARKANSAS STATE HIGHWAY COMMISSION
PAVEMENT MARKING DETAILS
STANDARD DRAWING PM-1

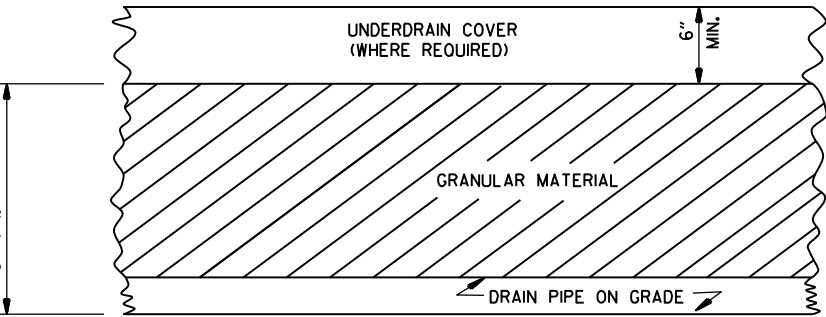
NOTE:
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC, LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



PLAN VIEW



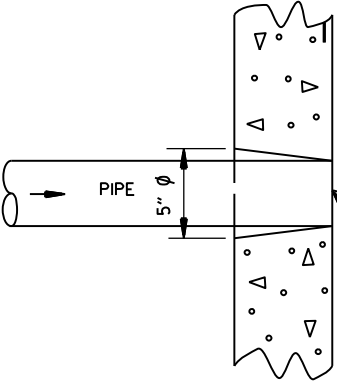
SIDE VIEW



DETAILS OF PIPE UNDERDRAIN

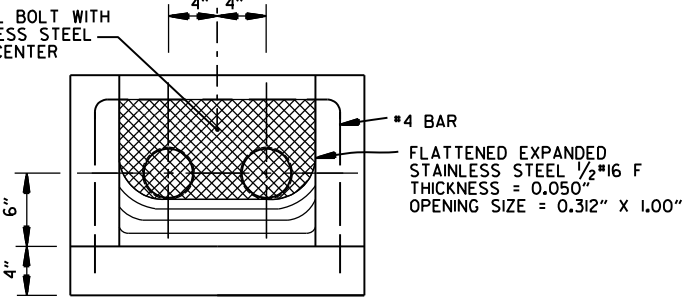
NOTES FOR PIPE UNDERDRAINS

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



DETAIL OF HOLE FOR 4" PIPE

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

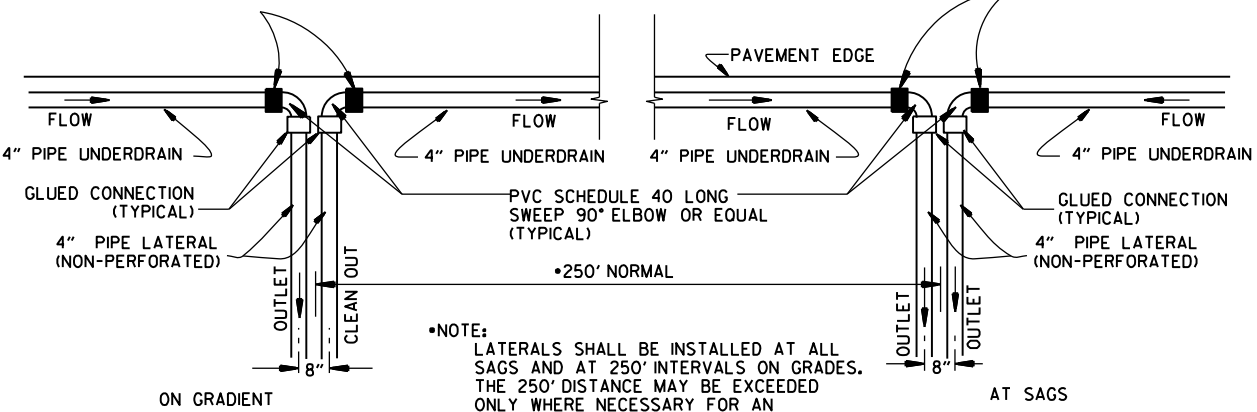


FRONT VIEW (DETAIL OF RODENT SCREEN)

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

UNDERDRAIN OUTLET PROTECTORS

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



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

DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

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

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			35 MPH			40 MPH			45 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH			75 MPH		
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)	
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
0° 30'	NC			NC			NC			NC			NC			NC			RC	96		RC	96		RC	96		RC	96	
0° 45'	NC			NC			NC			NC			RC	96		RC	96		0.024	106		0.026	110		0.030	120		0.032	125	
1° 00'	NC			NC			NC			RC	90		0.022	101		0.026	110		0.030	120		0.034	130		0.038	139		0.042	149	
1° 15'	NC			NC			RC	84		0.022	95		0.028	115		0.032	125		0.038	139		0.042	149		0.046	158		0.052	173	
1° 30'	NC			RC	78		0.022	88		0.028	108		0.032	125		0.038	139		0.044	154		0.050	168		0.056	182		0.062	197	
1° 45'	RC	72		RC	78		0.026	97		0.030	113		0.036	134		0.044	154		0.050	168		0.056	182		0.064	202		0.070	216	
2° 00'	RC	72		0.024	86		0.028	101		0.034	122		0.042	149		0.048	163		0.056	182		0.064	202		0.070	216		0.078	235	
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178		0.062	197		0.070	216		0.078	235		0.086	254	
2° 30'	0.022	75		0.028	94		0.034	113		0.042	140		0.050	168		0.058	187		0.068	211		0.076	230		0.086	254		0.092	269	
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149		0.054	178		0.064	202		0.072	221		0.082	245		0.092	269		0.100	288	
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187		0.068	211		0.078	235		0.088	259		0.098	283		0.100	288	
3° 15'	0.028	86		0.036	109		0.044	134		0.052	162		0.062	185		0.072	221		0.082	245		0.092	269		0.100	288		0.100	288	
3° 30'	0.030	90		0.038	113		0.046	139	200	0.056	171		0.066	206		0.076	230		0.086	254		0.096	278		0.100	288		0.100	288	
3° 45'	0.032	93		0.040	117		0.050	147		0.058	176		0.070	203		0.082	230		0.092	269		0.100	288		0.100	288		0.100	288	
4° 00'	0.034	97		0.042	121		0.052	151		0.062	185		0.072	221		0.082	245		0.092	269		0.100	288		0.100	288		0.100	288	
4° 15'	0.036	100		0.044	125		0.054	155		0.064	189		0.076	230		0.086	254		0.096	278		0.100	288		0.100	288		0.100	288	
4° 30'	0.036	100		0.046	129		0.056	160		0.068	198		0.078	221		0.088	259		0.098	283		0.100	288		0.100	288		0.100	288	
4° 45'	0.038	104		0.048	133		0.060	168		0.070	189		0.082	230		0.092	269		0.100	288		0.100	288		0.100	288		0.100	288	
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274		0.100	288		0.100	288		0.100	288		0.100	288	
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221		0.088	259		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288	
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
6° 30'	0.050	126		0.062	160		0.074	198		0.086	239		0.096	278		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
8° 30'	0.060	144		0.072	179		0.086	223		0.096	261		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
9° 30'	0.064	151		0.078	191		0.092	235		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
10° 00'	0.066	155		0.080	195		0.094	240		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
11° 00'	0.070	162		0.084	203		0.096	244		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
12° 00'	0.074	169		0.088	211		0.098	248		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
13° 00'	0.076	173		0.090	215		0.098	248		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
14° 00'	0.080	180		0.094	222		0.098	248		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
15° 00'	0.082	184		0.096	226		0.098	248		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
16° 00'	0.086	191		0.098	230		0.098	248		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
17° 00'	0.088	194		0.100	234		0.098	248		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
18° 00'	0.090	198		0.100	238		0.098	248		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
19° 00'	0.092	202		0.100	242		0.098	248		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
20° 00'	0.094	205		0.100	246		0.098	248		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
21° 00'	0.096	209		0.100	250		0.098	248		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
22° 00'	0.096	209		0.100	250		0.098	248		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
23° 00'	0.098	212		0.100	254		0.098	248		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
24° 00'	0.098	212		0.100	254		0.098	248		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	
25° 00'	0.100	216		0.100	258		0.098	248		0.098	266		0.098	283		0.100	288		0.100	288		0.100	288		0.100	288		0.100	288	

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
e - RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
C - NORMAL CROWN (FT.)

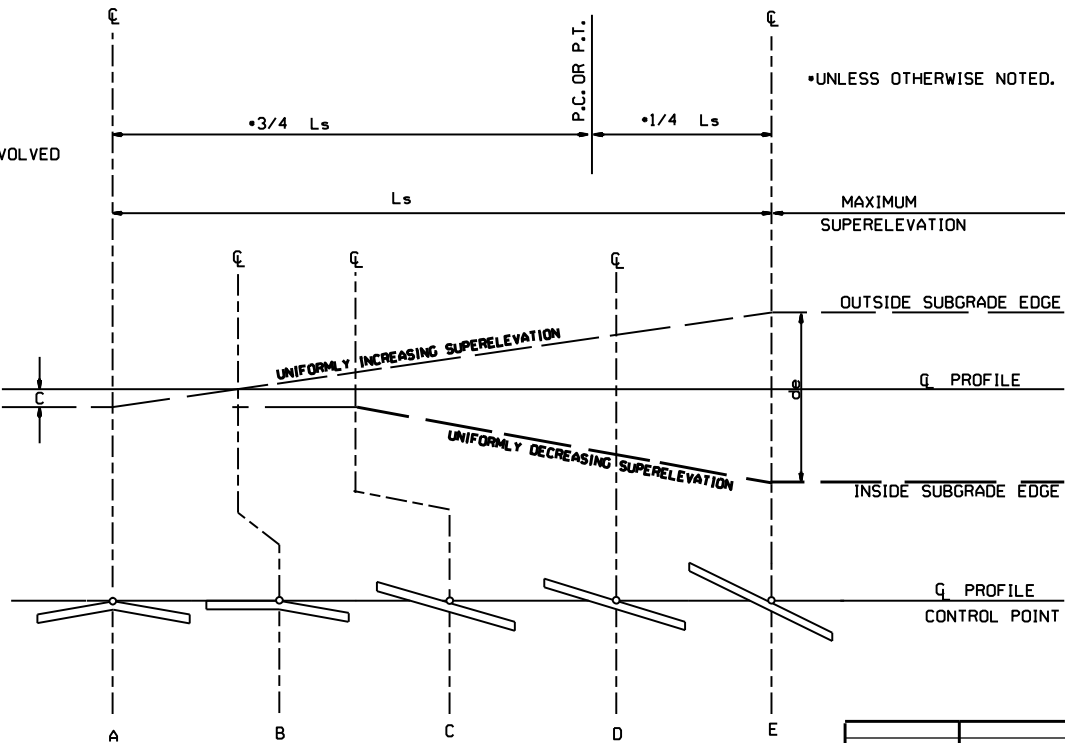
ABBREVIATIONS

- GENERAL NOTES
- ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
 - SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
 - LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
 - PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

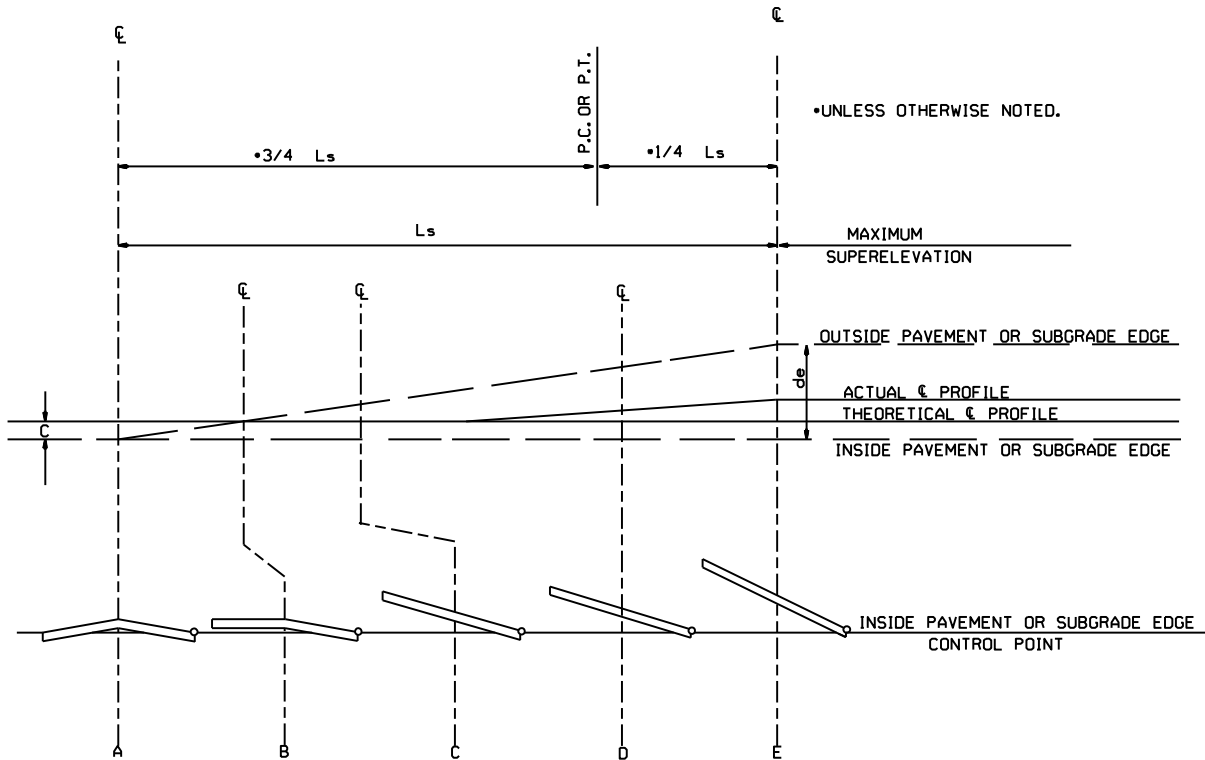
3 LANE UNDIVIDED - - - - +20%
4 LANE UNDIVIDED - - - - +50%
5 LANE UNDIVIDED - - - - +80%
6 LANE UNDIVIDED - - - - +100%

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.
RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.


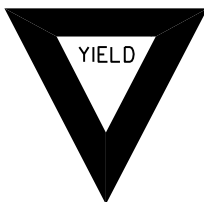



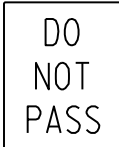



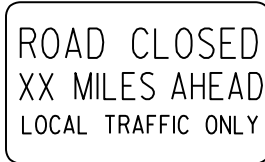


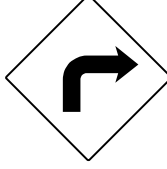





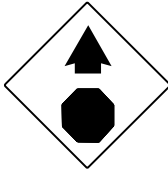
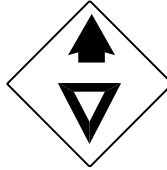
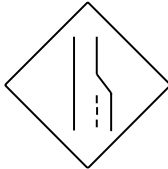

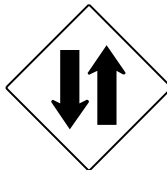

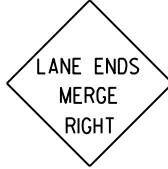


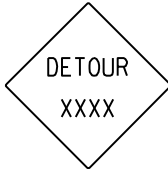






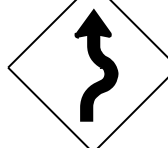



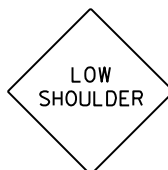

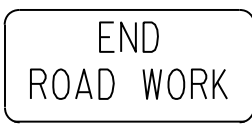
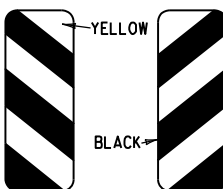


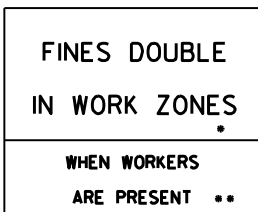
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

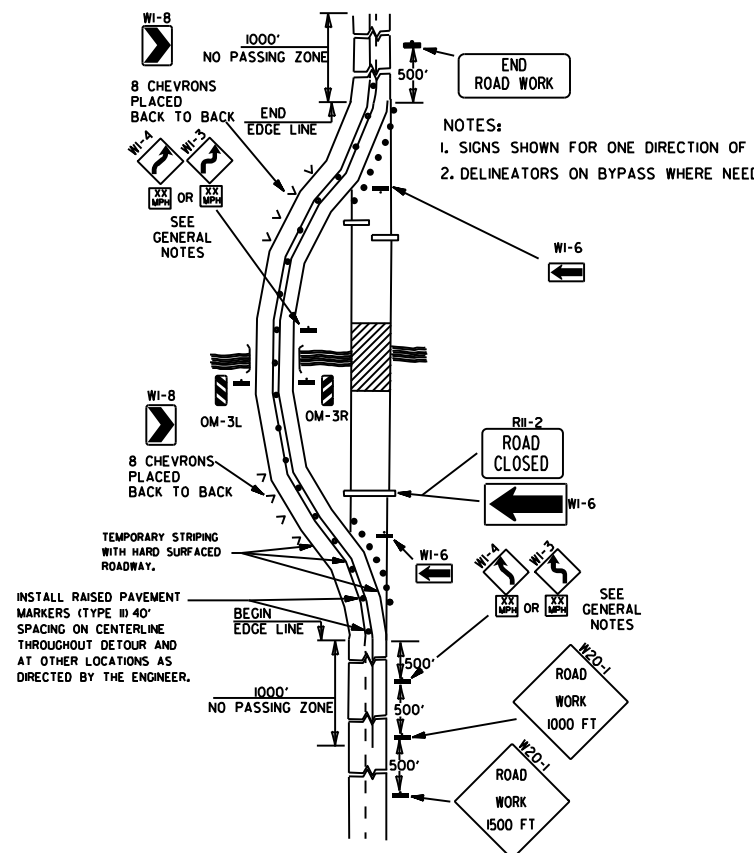


STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

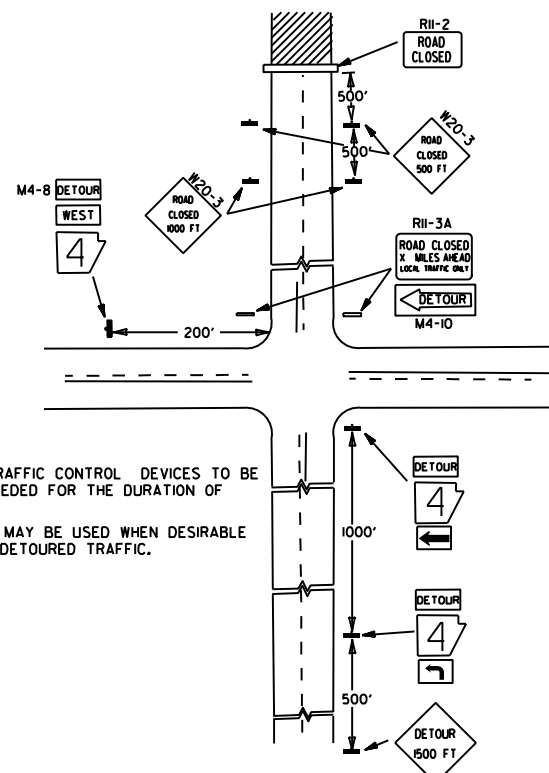


STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

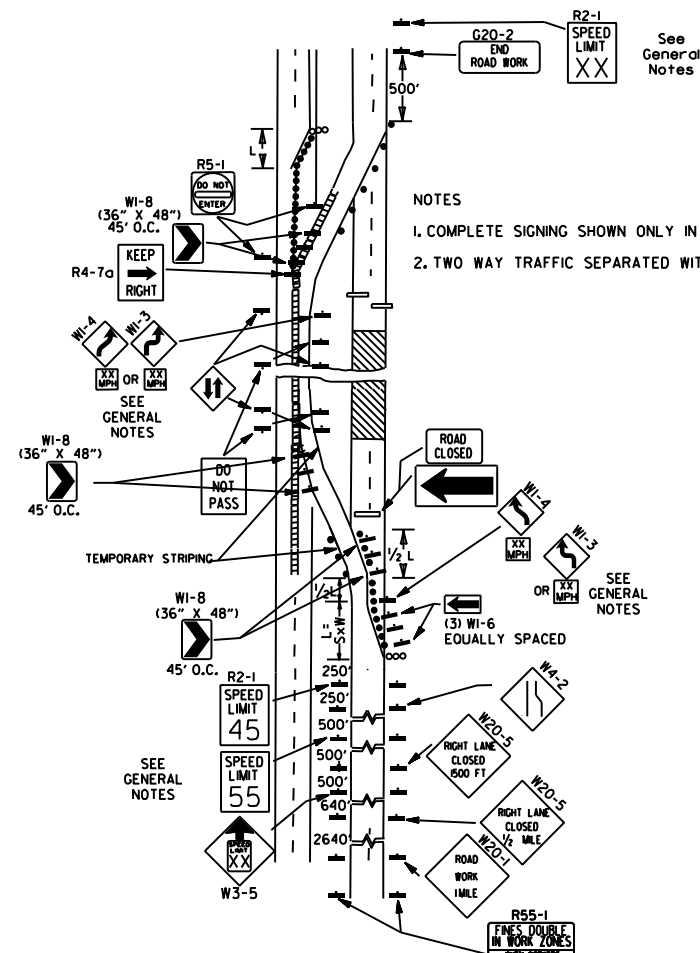
<div>RI-1</div> <div></div> <div>STANDARD 30"X30" EXPRESSWAY 36"X36" SPECIAL 48"X48"</div>	<div>RI-2</div> <div></div> <div>STD. 36"X36"X36" EXPWY. 48"X48"X48" FWY. 60"X60"X60"</div>	<div>R2-1</div> <div></div> <div>STD. 24"X30" EXPWY. 36"X48" FWY. 48"X60"</div>	<div>W3-5</div> <div></div> <div>STD. 36"X36" EXPWY. 48"X48" FWY. 48"X48"</div>	<div>W3-5a</div> <div></div> <div>STD. 36"X36" EXPWY. 48"X48" FWY. 48"X48"</div>	<div>R4-1</div> <div></div> <div>STD. 24"X30" EXPWY. 36"X48" FWY. 48"X60"</div>	<div>R4-2</div> <div></div> <div>STD. 24"X30" EXPWY. 36"X48" FWY. 48"X60"</div>	<div>ADVANCE DISTANCES (XXXX)</div> <div>500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD</div> <div>GENERAL NOTES: 1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION. 2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER. 3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED. 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 50. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE. 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3. 6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE. 7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS. 8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS. 9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT. 10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN. • NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.</div>
<div>R5-1</div> <div></div> <div>STD. 30"X30" EXPWY. 36"X36" SPECIAL 48"X48"</div>	<div>R11-2</div> <div></div> <div>48"X30"</div>	<div>R11-3A</div> <div></div> <div>60"X30"</div>	<div>R11-4</div> <div></div> <div>60"X30"</div>	<div>W21-5a</div> <div></div> <div>STD. 36"X36" FWY. 48"X48"</div>	<div>W1-1</div> <div></div> <div>STD. 36"X36" FWY. 48"X48"</div>	<div>W1-2</div> <div></div> <div>STD. 36"X36" FWY. 48"X48"</div>	
<div>W1-3</div> <div></div> <div>STD. 48"X48"</div>	<div>W1-4</div> <div></div> <div>STD. 48"X48"</div>	<div>W1-6</div> <div></div> <div>STD. 48"X24" SPECIAL 60"X30"</div>	<div>W1-8</div> <div></div> <div>STD. 18"X24" SPECIAL 24"X30" EXPWY. 30"X36" FWY. 36"X48"</div>	<div>W3-1</div> <div></div> <div>STD. 36"X36" SPECIAL 48"X48"</div>	<div>W3-2</div> <div></div> <div>STD. 36"X36" SPECIAL 48"X48"</div>	<div>W4-2</div> <div></div> <div>STD. 36"X36" FWY. 48"X48"</div>	
<div>W5-1</div> <div></div> <div>STD. 36"X36" SPECIAL 48"X48"</div>	<div>W6-3</div> <div></div> <div>EXPWY. 36"X36" SPECIAL 48"X48"</div>	<div>W8-7</div> <div></div> <div>EXPWY. 36"X36" FWY. 48"X48"</div>	<div>W9-2</div> <div></div> <div>STD. 36"X36" FWY. 48"X48"</div>	<div>W13-1</div> <div></div> <div>STD. 24"X24"</div>	<div>W20-1</div> <div></div> <div>STD. 48"X48"</div>	<div>W20-2</div> <div></div> <div>STD. 48"X48"</div>	<div>W20-3</div> <div></div> <div>STD. 48"X48"</div>
<div>W20-4</div> <div></div> <div>STD. 48"X48"</div>	<div>W20-5</div> <div></div> <div>STD. 48"X48"</div>	<div>W20-7a</div> <div><div>18" 500 FEET 24" W16-2</div></div> <div>STD. 36"X36" FWY. 48"X48"</div>	<div>W21-2</div> <div></div> <div>STD. 30"X30" SPECIAL 36"X36"</div>	<div>W21-5</div> <div></div> <div>STD. 30"X30" SPECIAL 36"X36"</div>	<div>W24-1</div> <div></div> <div>STD. 36"X36"</div>	<div>W1-4b</div> <div></div> <div>STD. 48"X48"</div>	<div>R56-1</div> <div></div> <div>STD. 18"X18"</div>
<div>W8-11</div> <div></div> <div>STD. 36"X36" FWY. 48"X48"</div>	<div>W8-9</div> <div></div> <div>STD. 36"X36" FWY. 48"X48"</div>	<div>G20-1</div> <div></div> <div>60"X24"</div>	<div>G20-2</div> <div></div> <div>48"X24"</div>	<div>OM-3L OM-3R</div> <div></div> <div>12"X36"</div>	<div>M4-9</div> <div></div> <div>STD. 30"X24" SPECIAL 48"X36" SPECIAL 60"X48"</div>	<div>M4-10</div> <div></div> <div>48"X18"</div>	<div>R55-1</div> <div></div> <div>36"X60" • USE 6" C LETTERS •• USE 4" D LETTERS</div>



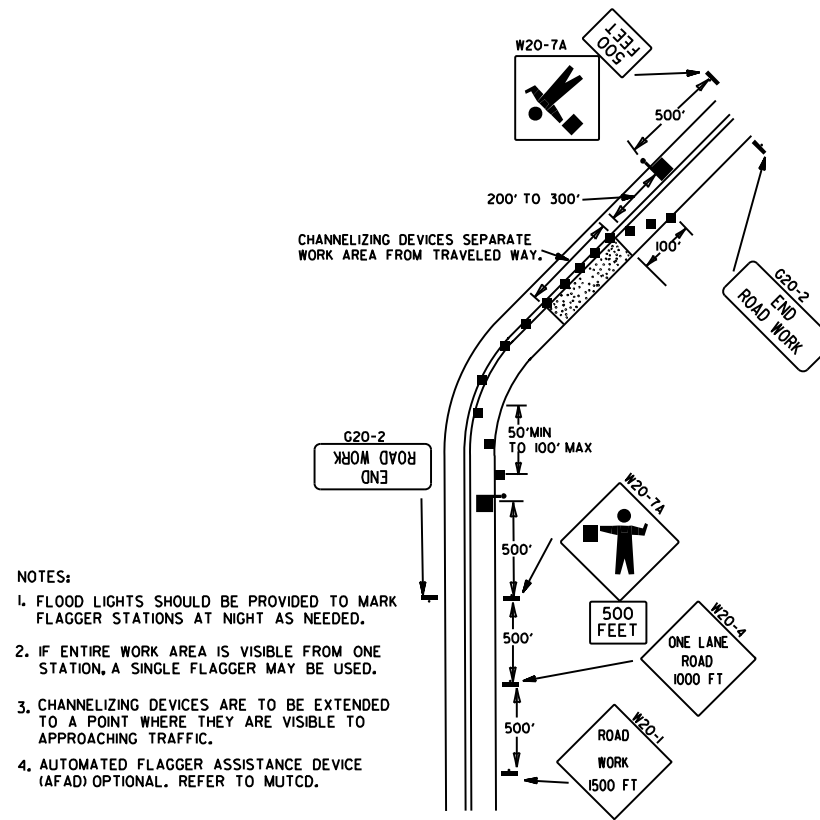
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



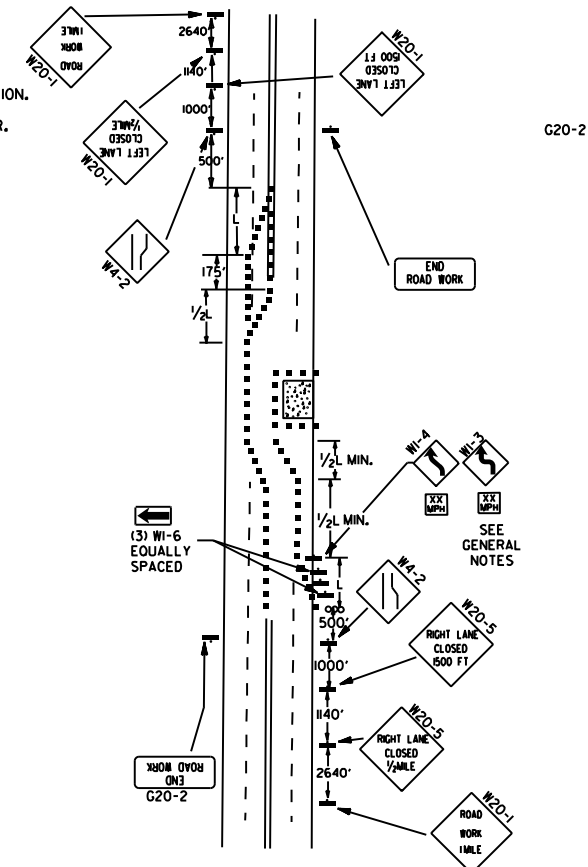
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



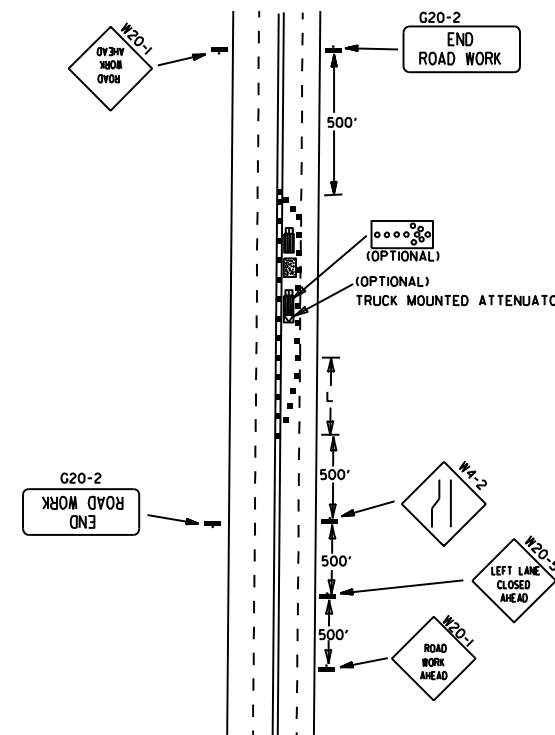
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



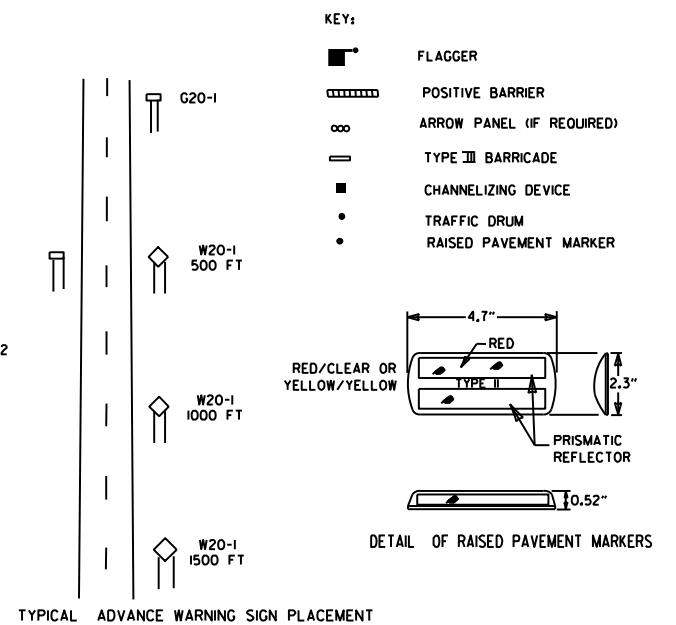
(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



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



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



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

DATE	REVISION	FILMED
05-20-21	REVISED NOTE 7	
11-07-19	REVISED NOTE 4, 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.

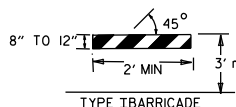
(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

(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.

CONES

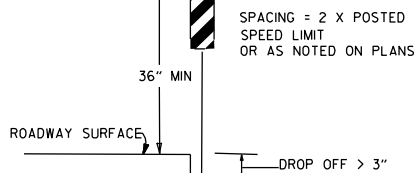


PLASTIC DRUM

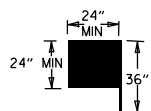


TYPE III BARRICADE

VERTICAL PANEL PLACEMENT



FLAG



FLAG SHALL BE OF GOOD GRADE RED MATERIAL

KEY:

- ARROW PANEL (IF REQUIRED)
- CHANNELIZING DEVICE
- TRAFFIC DRUM

GENERAL NOTES:

- A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
- WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(45) 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 1/4 MILE 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(45) SHALL BE OMITTED. ADDITIONAL R2-1(55)MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/4 MILE 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.
- 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(1/4 MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
- FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
- ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
- 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.
- ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

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

TRAFFIC CONTROL DEVICES

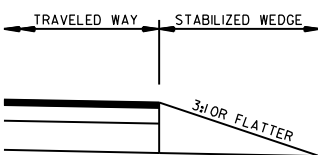
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		NON-INTERSTATE	
		≤ 45 MPH	> 45 MPH
≤ 1"	CENTERLINE	W6-11	W8-11
> 1"	CENTERLINE	W8-11 AND CENTERLINE LANE STRIPING	W8-11 AND CENTERLINE LANE STRIPING
≤ 3"	CENTERLINE	STANDARD LANE CLOSURE ⁽⁶⁾	STANDARD LANE CLOSURE ⁽⁶⁾
> 3"	EDGE OF TRAVELED LANE OR EDGE 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 ⁽⁵⁾
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER ⁽⁴⁾ & EDGE LINES	PRECAST CONCRETE BARRIER ⁽⁴⁾ & EDGE LINES

GENERAL NOTES:

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

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

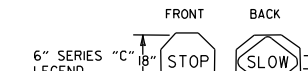
INTERSTATE AND NON-INTERSTATE		
FORESLOPE	HEIGHT	TRAFFIC CONTROL
1:1	> 2 FT	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS



STABILIZED WEDGE

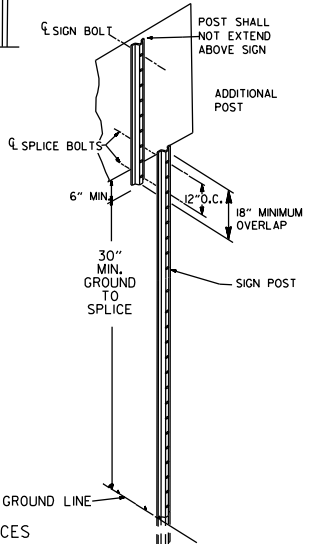
NOTE: MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.

STOP SLOW PADDLE

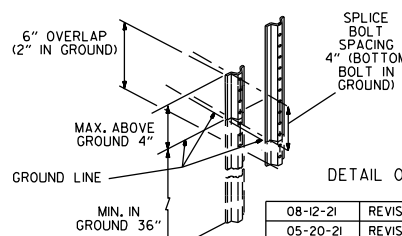


6" SERIES "C" LEGEND
COLORS
LEGEND-WHITE (REFL)
BACKGROUND-RED (REFL)

6" SERIES "C" LEGEND
COLORS
LEGEND-BLACK
BACKGROUND-ORANGE (REFL)
AREA OUTSIDE DIAMOND-BLACK



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



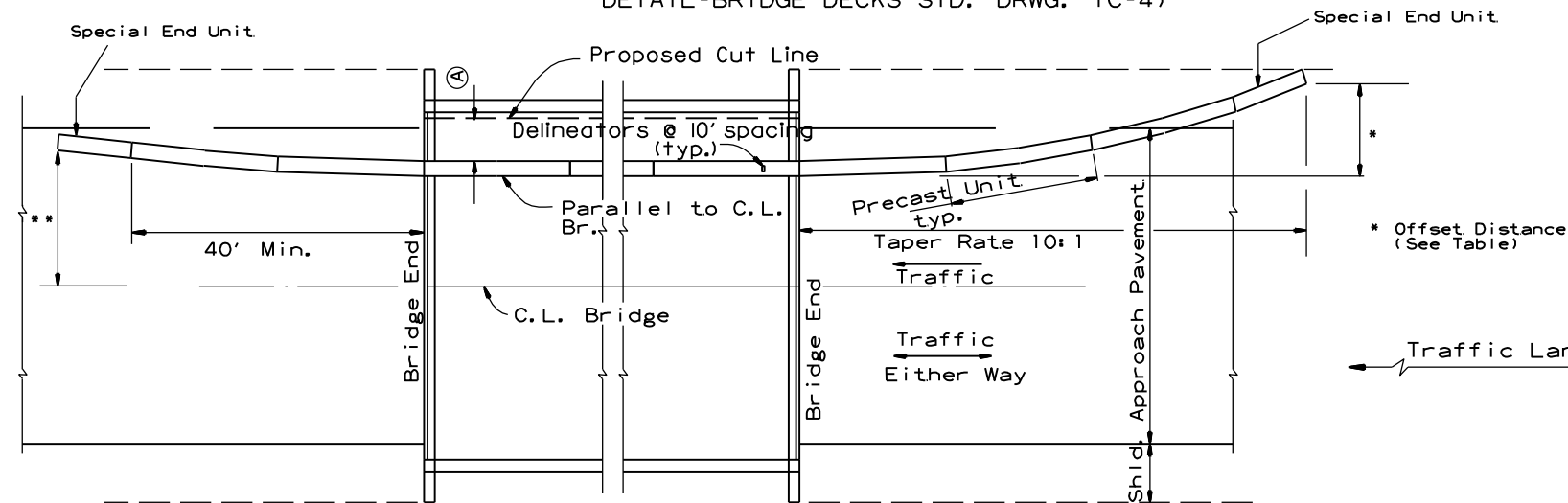
DETAIL OF SPLICES

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

ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

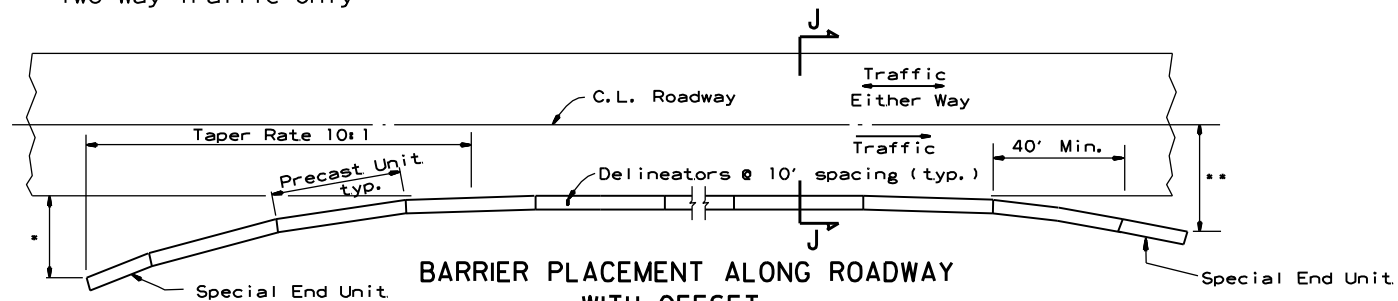
- (A) 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

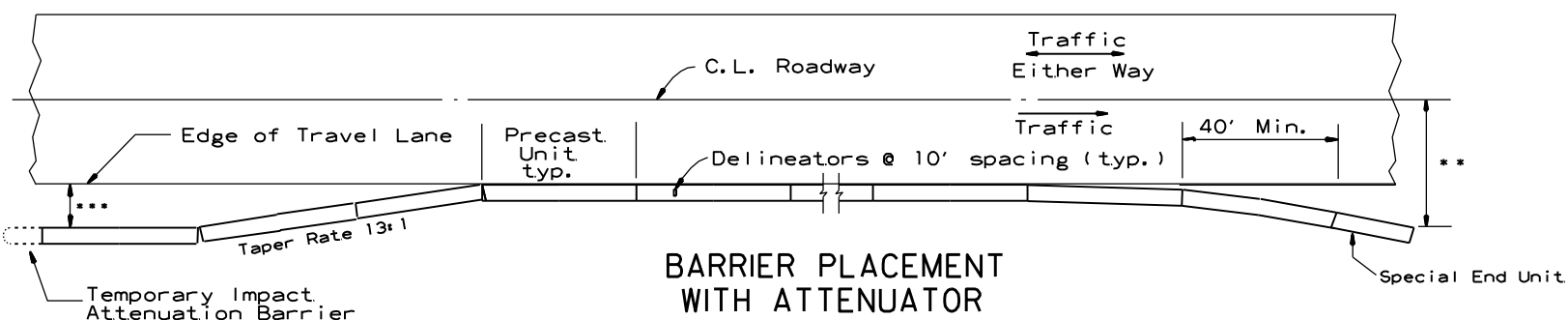
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

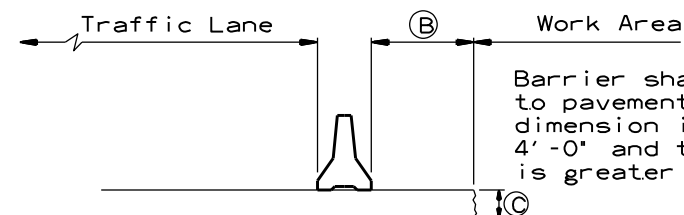


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

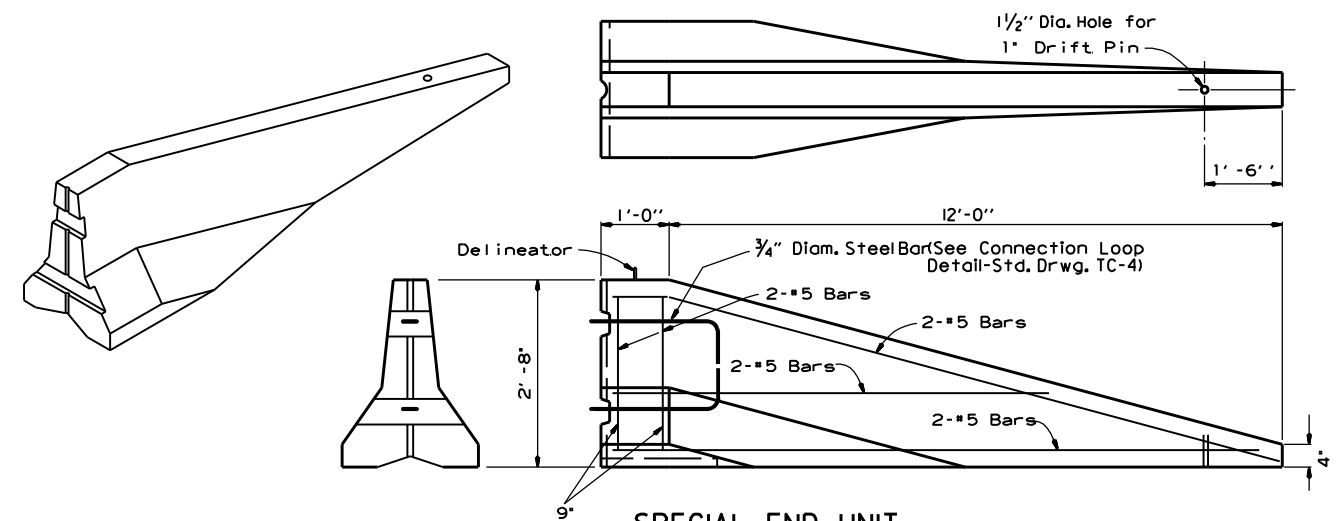
** Offset Distance For Two Way Traffic Only

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



SECTION J-J

No Scale



SPECIAL END UNIT

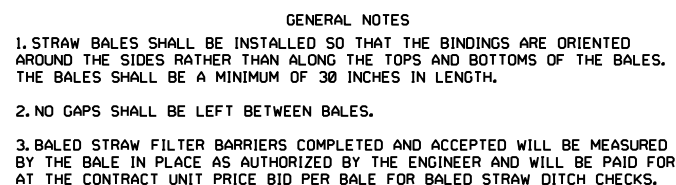
No Scale

General Notes

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

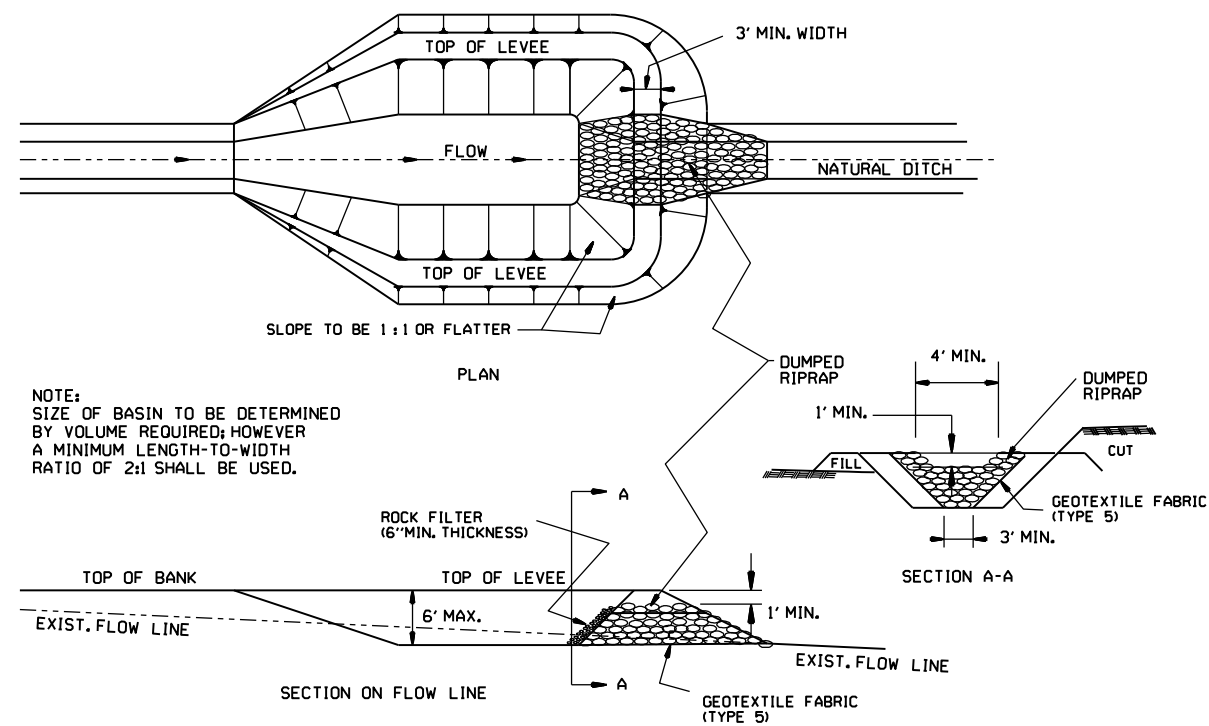
ARKANSAS STATE HIGHWAY COMMISSION		
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER		
STANDARD DRAWING TC-5		
11-07-19	REVISED NOTE	
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	
DATE	REVISION	FILMED

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

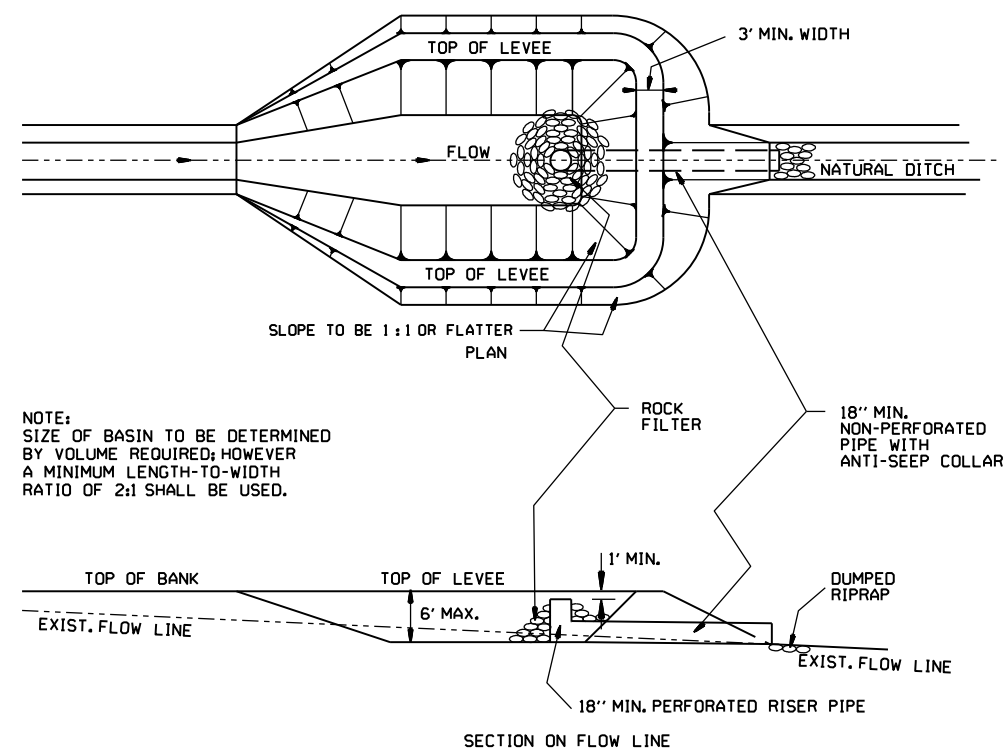


11-16-17	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
07-20-95	REVISED SILT FENCE 4 AND E-II	7-20-95
07-15-94	REV. E-4 & E-11MIN.13" BURIED END OF FABRIC	
06-02-94	REVISED E-1,4,7 & 11; DELETED E-2 & 5	6-2-94
04-01-93	REDRAWN	
10-01-92	REDRAWN	
08-02-76	ISSUED R.D.M.	298-T-28-76
DATE	REVISION	FILMED

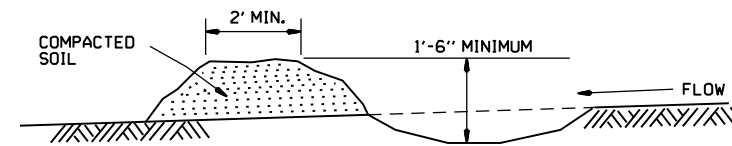
ARKANSAS STATE HIGHWAY COMMISSION
TEMPORARY EROSION CONTROL DEVICES
STANDARD DRAWING TEC-1



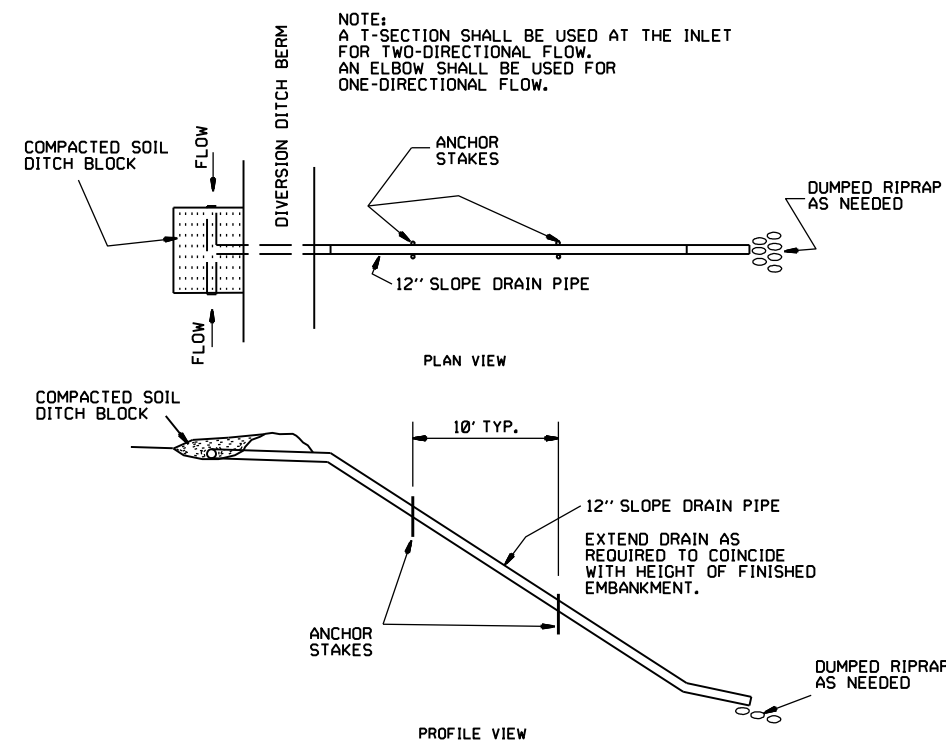
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



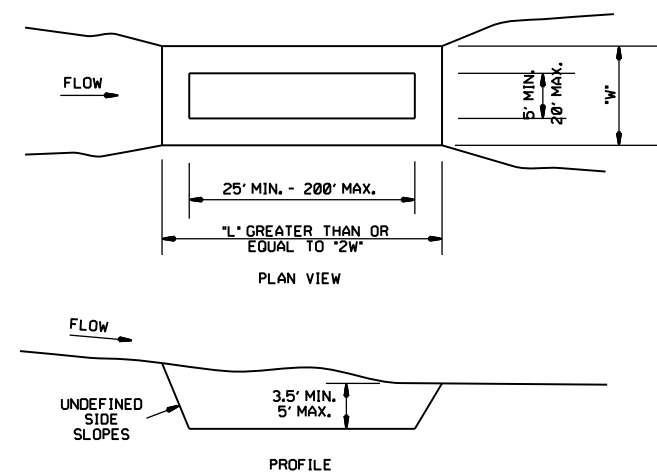
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



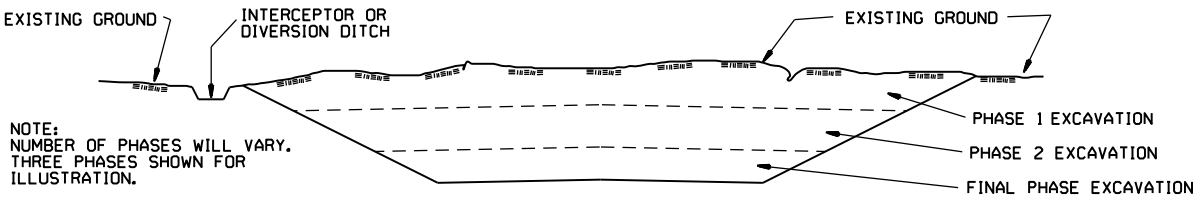
SEDIMENT BASIN (E-14)

ARKANSAS STATE HIGHWAY COMMISSION		
TEMPORARY EROSION CONTROL DEVICES		
STANDARD DRAWING TEC-2		
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13	
4-1-93	ISSUED	
DATE	REVISION	FILMED

CLEARING AND GRUBBING

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

EXCAVATION

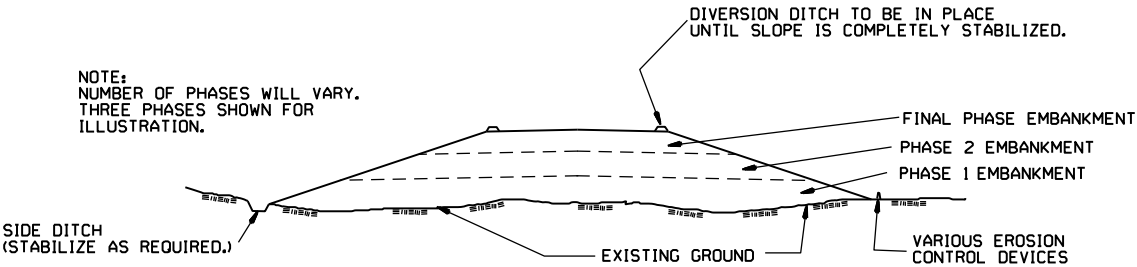


GENERAL NOTE

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

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

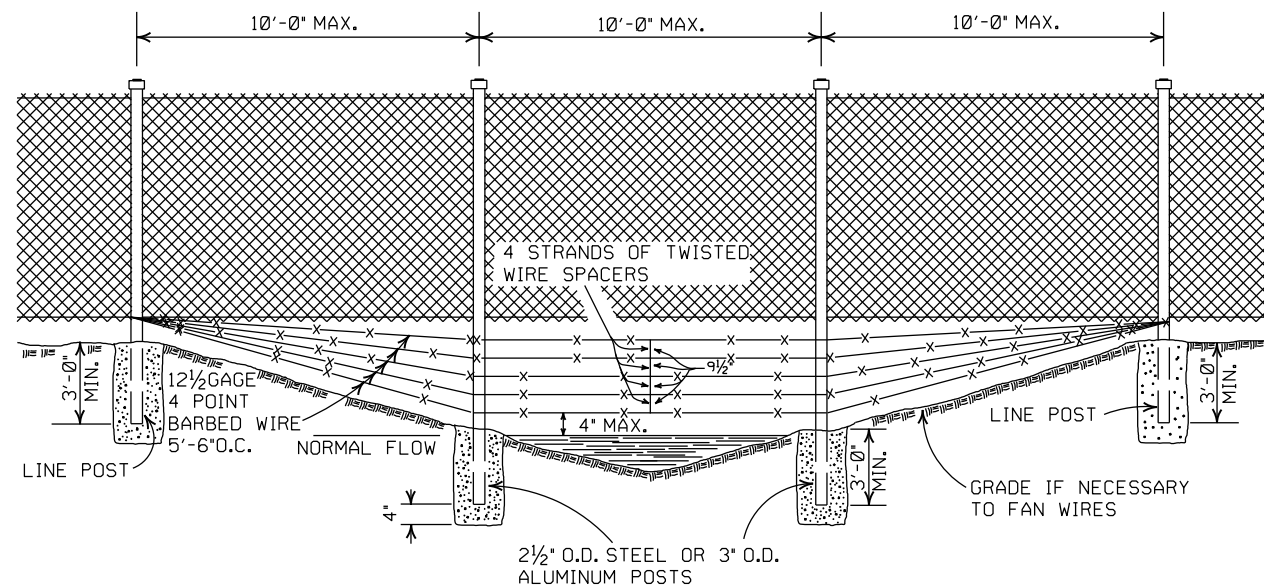
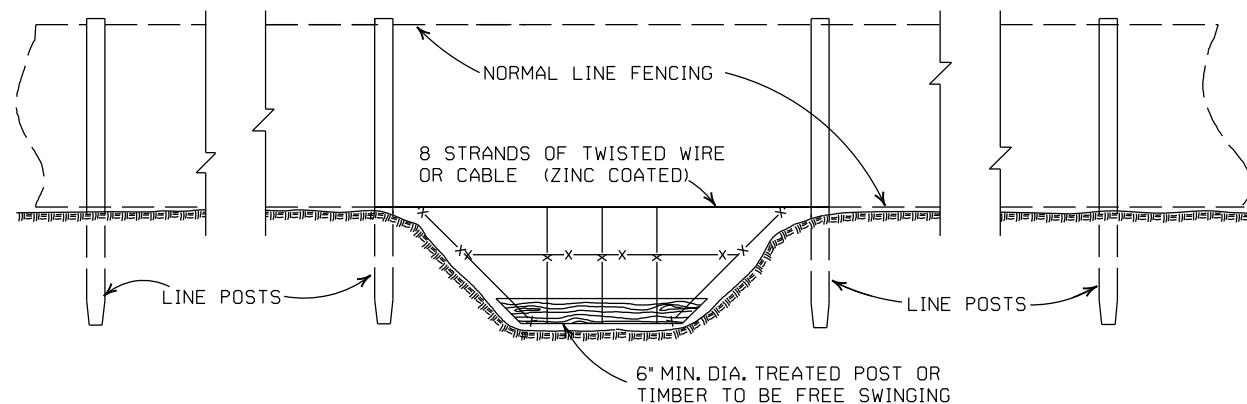
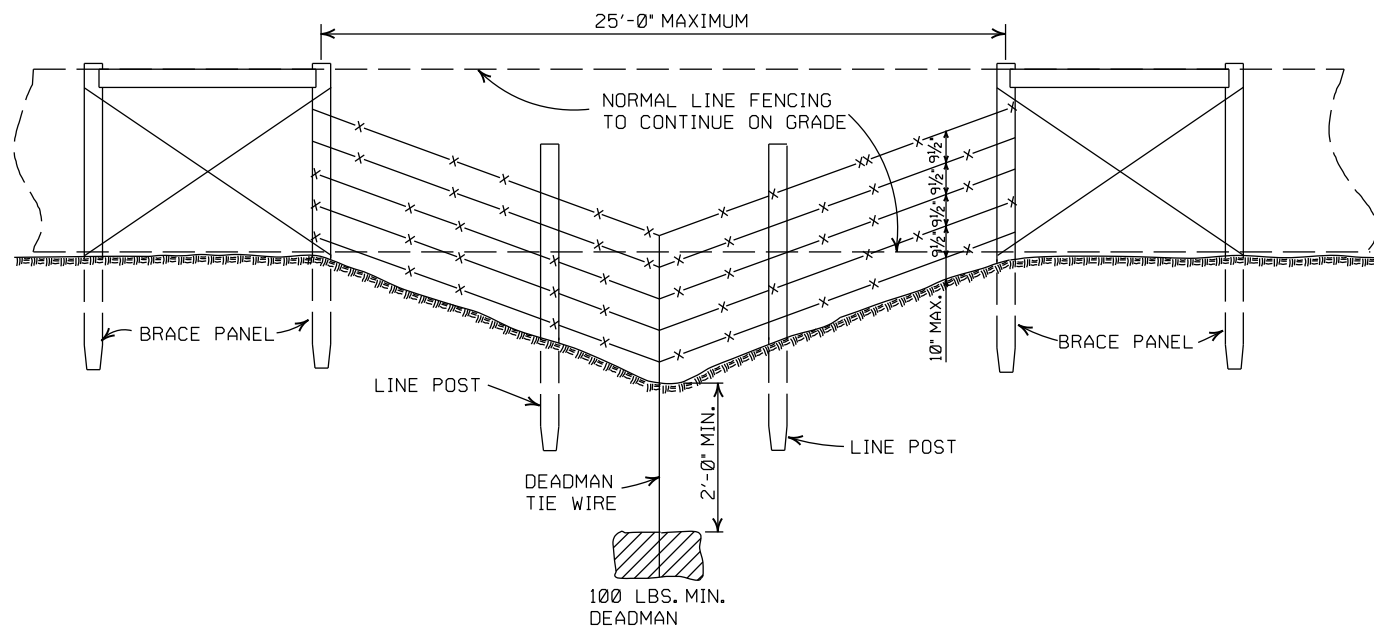
EMBANKMENT



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	6-2-94	
DATE	REVISION	FILMED	



GENERAL NOTES:

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

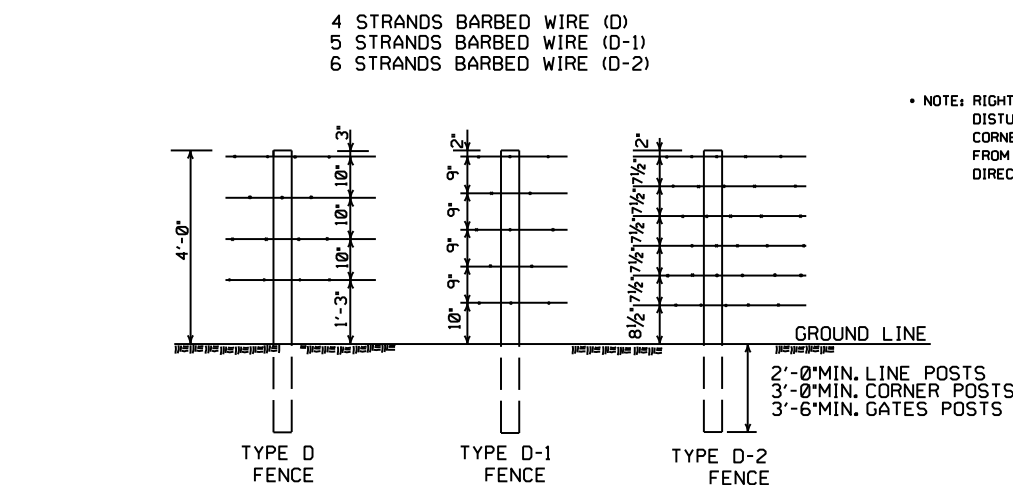
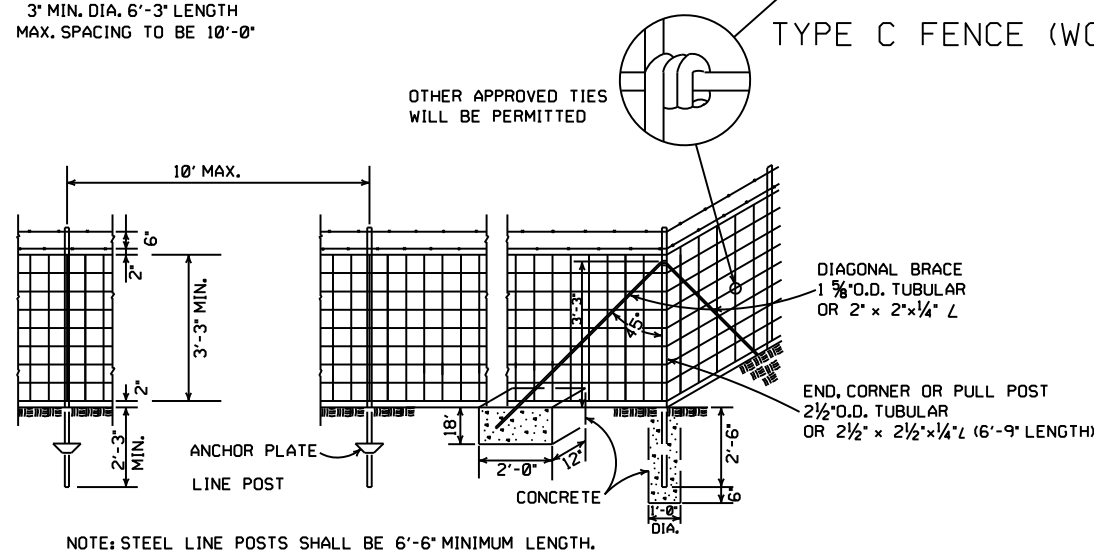
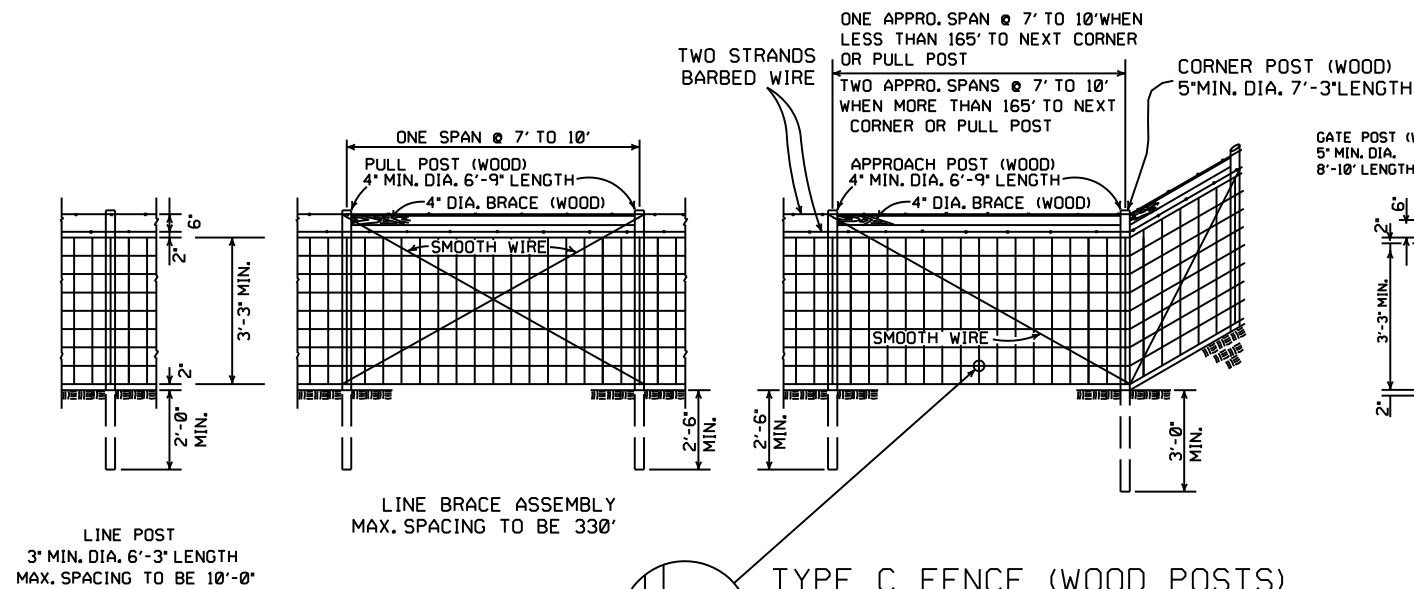
WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.

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

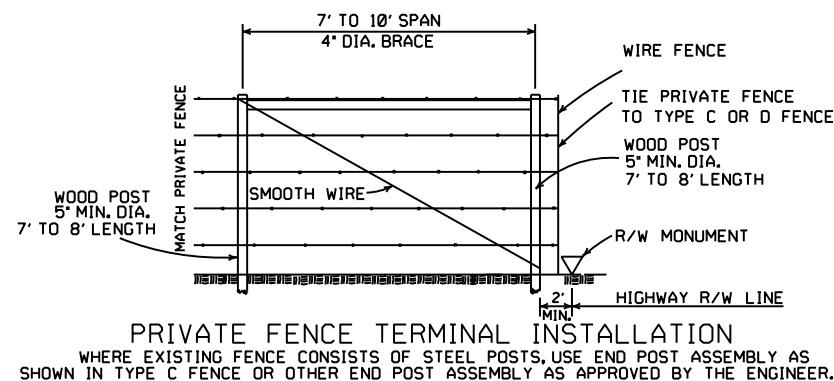
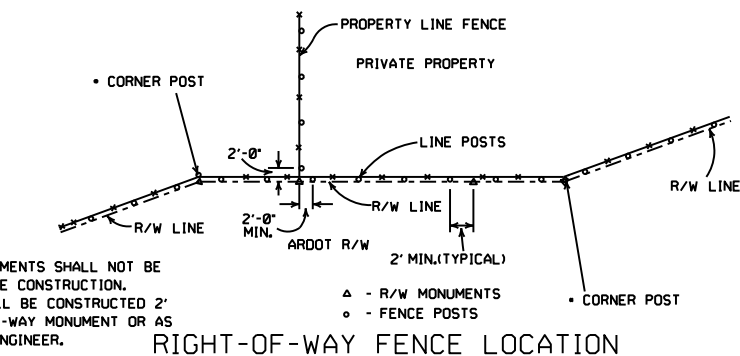
PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

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

ARKANSAS STATE HIGHWAY COMMISSION
WIRE FENCE WATER GAPS
STANDARD DRAWING WF-2



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



GENERAL NOTES:

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

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

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

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

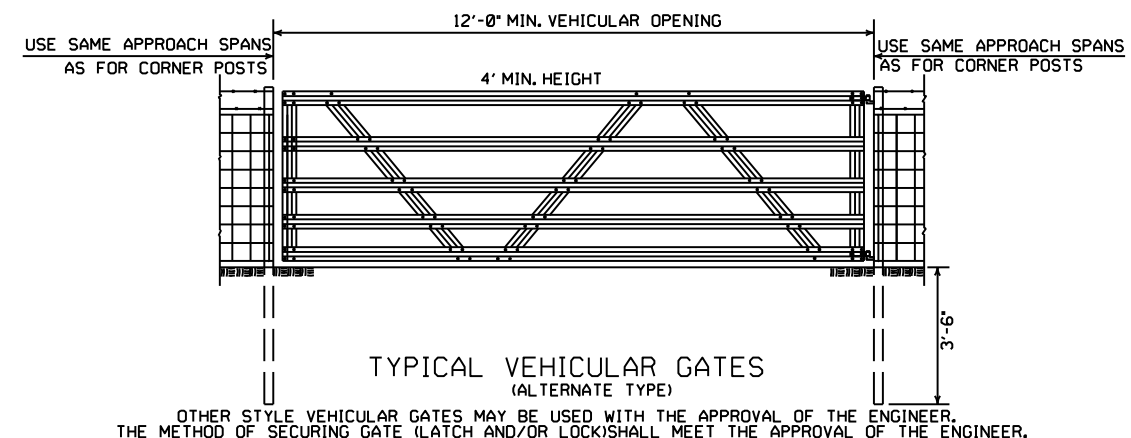
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE 'EYE METHOD' AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF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

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

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

NOTE: USE 3/8" X 1 1/2" LAG BOLT & SHIELD OR AS APPROVED BY THE ENGINEER.

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



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

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE C AND D

STANDARD DRAWING WF-4