DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	1	70
		CACHE RIVER STR. & APPRS. (S. OF EGYPT) (S)				

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS

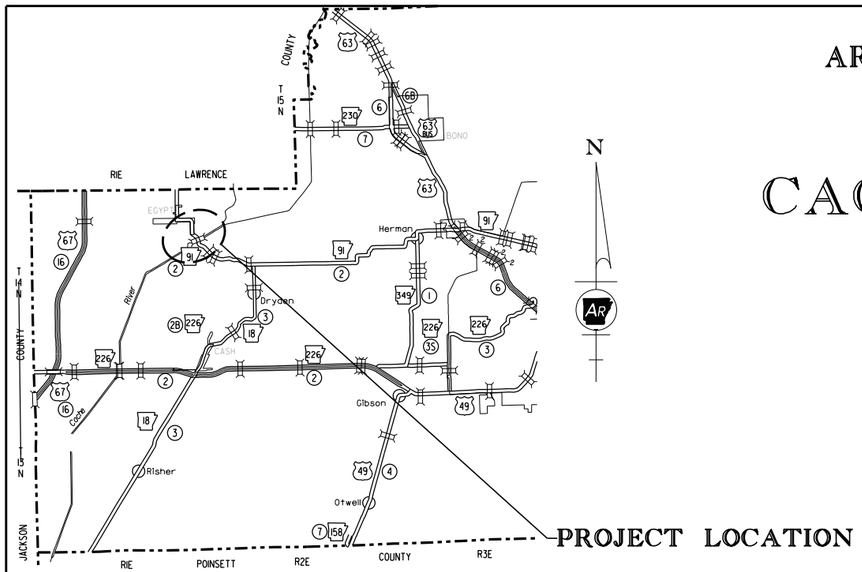
CACHE RIVER STR. & APPRS.
(S. OF EGYPT) (S)

CRAIGHEAD COUNTY

ROUTE 91 SECTION 2

JOB 100995

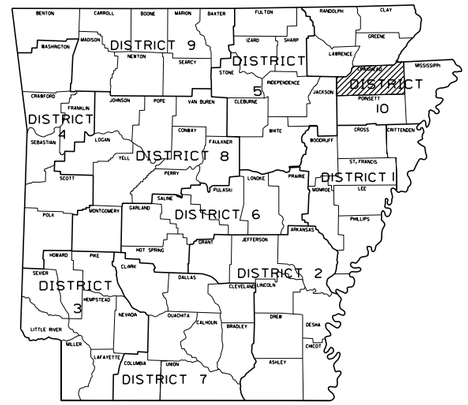
FED. AID PROJ. BFP-NHPP-0016(80)



PROJECT LOCATION

VICINITY MAP

NOT TO SCALE



ARKANSAS HIGHWAY DISTRICT 10

BRIDGE CONSTRUCTION DATA

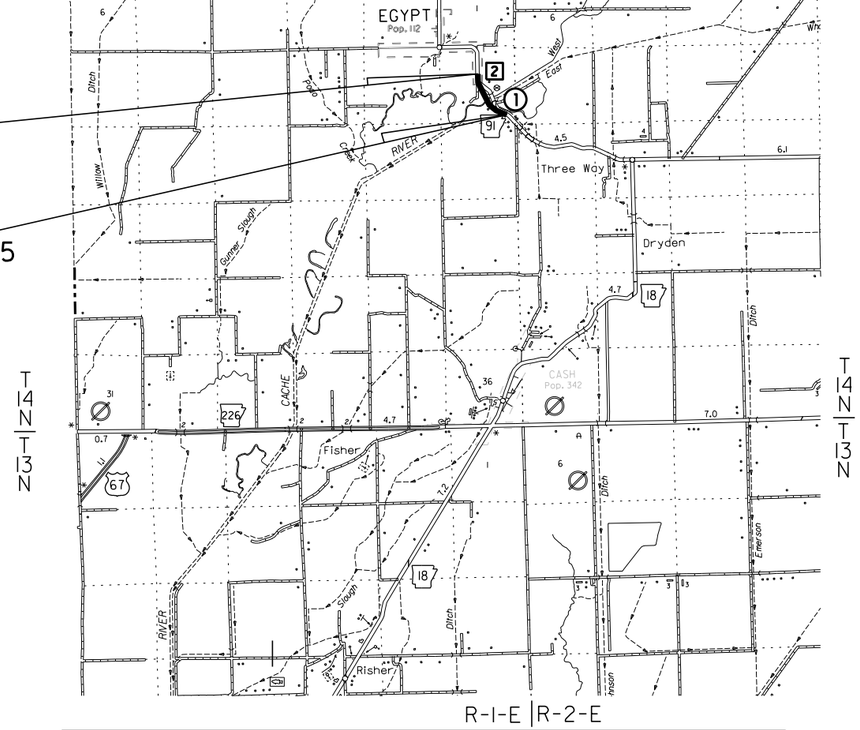
(1) STA. 199+12.92 BRIDGE END
BRIDGE NO. 07576 OVER CACHE RIVER
280'-0" CONTINUOUS PLATE GIRDER UNIT
(86'-108'-86')
30'-0" CLEAR ROADWAY
282'-2" BRIDGE LENGTH
STA. 201+95.08 BRIDGE END

STRUCTURES OVER 20'-0" SPAN

[2] STA. 212+80.00 CONSTRUCT
TRI. 6' X 5' X 75' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
Q50 = 569 CFS D.A. = 2.19 SQ. MI.
SPAN = 20.33'

STA. 219+00.00
END JOB 100995

STA. 183+81.00
BEGIN JOB 100995
LOG MILE 2.58



. DESIGN TRAFFIC DATA .

DESIGN YEAR	2045
2025 ADT	560
2045 ADT	690
2045 DHV	76
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	11%
DESIGN SPEED	60 MPH

	BEGIN OF PROJECT	MID-POINT OF PROJECT	END OF PROJECT
LATITUDE	N 35°51'16"	N 35°51'31"	N 35°51'44"
LONGITUDE	W 90°55'49"	W 90°56'01"	W 90°56'12"

LENGTH COMPUTED ALONG C.L. HWY. 91		
GROSS LENGTH OF PROJECT	3519.00 FEET	0.666 MILES
NET LENGTH OF ROADWAY	3216.50 FEET	0.609 MILES
NET LENGTH OF BRIDGES	302.50 FEET	0.057 MILES
NET LENGTH OF PROJECT	3519.00 FEET	0.666 MILES

CERTIFICATE OF AUTHORIZATION
MICHAEL BAKER INTERNATIONAL INC
No. 1126
ARKANSAS - ENGINEER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 10887
SCOTT P. THORNSBERRY
12-9-2024

Scott.Thornsberr@9/9/2024 2:15:29 PM
WORKSPACE: scott.thornsberry
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	2	70
		INDEX OF SHEETS AND STANDARD DRAWINGS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
11-20-2024

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.
1	TITLE SHEET		
2	INDEX OF SHEETS AND STANDARD DRAWINGS		
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES		
4 - 5	TYPICAL SECTIONS OF IMPROVEMENT		
6 - 13	SPECIAL DETAILS		
14 - 21	TEMPORARY EROSION CONTROL DETAILS		
22 - 31	MAINTENANCE OF TRAFFIC DETAILS		
32 - 33	PERMANENT PAVEMENT MARKING DETAILS		
34 - 36	QUANTITIES		
37	SCHEDULE OF BRIDGE QUANTITIES	07576	64968
38	SUMMARY OF QUANTITIES AND REVISION BOX		
39 - 41	SURVEY CONTROL DETAILS		
42 - 45	PLAN AND PROFILE SHEETS		
46	LAYOUT OF BRIDGE HWY. 91 OVER CACHE RIVER (SHEET 1 OF 2)	07576	64969
47	LAYOUT OF BRIDGE HWY. 91 OVER CACHE RIVER (SHEET 2 OF 2)	07576	64970
48	DETAILS OF END BENTS (SHEET 1 OF 3)	07576	64971
49	DETAILS OF END BENTS (SHEET 2 OF 3)	07576	64972
50	DETAILS OF END BENTS (SHEET 3 OF 3)	07576	64973
51	DETAILS OF INTERMEDIATE BENTS	07576	64974
52	DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS	07576	64975
53	DETAILS OF BEARINGS	07576	64976
54	DETAILS OF 280'-0" CONTINUOUS PLATE GIRDER UNIT (SHEET 1 OF 5)	07576	64977
55	DETAILS OF 280'-0" CONTINUOUS PLATE GIRDER UNIT (SHEET 2 OF 5)	07576	64978
56	DETAILS OF 280'-0" CONTINUOUS PLATE GIRDER UNIT (SHEET 3 OF 5)	07576	64979
57	DETAILS OF 280'-0" CONTINUOUS PLATE GIRDER UNIT (SHEET 4 OF 5)	07576	64980
58	DETAILS OF 280'-0" CONTINUOUS PLATE GIRDER UNIT (SHEET 5 OF 5)	07576	64981
59 - 70	CROSS SECTIONS		

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-16
55006	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES	09-02-15
55007	STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES	02-11-16
55008	STANDARD DETAILS FOR POURED SILICONE JOINTS	02-11-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	04-14-23
55021	STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS	03-24-16
55030F	STANDARD DETAILS FOR TYPE F APPROACH GUTTERS	09-07-23
55040F1	STANDARD DETAILS FOR TYPE F APPROACH SLABS	09-07-23
55070	STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36	09-27-22

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
DR-2	DETAILS OF DRIVEWWAYS & STREET TURNOUTS	05-19-22
GR-5	GUARDRAIL DETAILS (TYPE C) STREET/ROAD BARRICADE OR TEMPORARY INSTALLLATION	11-07-19
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
PBC-1	PRECAST CONCRETE BOX CULVERTS	01-28-15
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
PM-1	PAVEMENT MARKING DETAILS	02-27-20
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	07-26-12
RCB-2	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
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
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

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	3	70
		GOVERNING SPECIFICATIONS AND GENERAL NOTES				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-9-2024

GOVERNING SPECIFICATIONS

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

NUMBER TITLE

ERRATA_____ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273___REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273___SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273___SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273___SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273___SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273___SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273___SUPPLEMENT - WAGE RATE DETERMINATION
100-3_____CONTRACTOR'S LICENSE
100-4_____DEPARTMENT NAME CHANGE
102-2_____ISSUANCE OF PROPOSALS
102-3_____PREQUALIFICATION OF BIDDERS
103-2_____CONTACT INFORMATION FOR MOTORIST DAMAGE CLAIMS
105-4_____MAINTENANCE DURING CONSTRUCTION
107-2_____RESTRAINING CONDITIONS
108-1_____LIQUIDATED DAMAGES
108-2_____WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1_____PROTECTION OF WATER QUALITY AND WETLANDS
210-1_____UNCLASSIFIED EXCAVATION
303-1_____AGGREGATE BASE COURSE
306-1_____QUALITY CONTROL AND ACCEPTANCE
307-2_____CEMENT TREATED BASE COURSE
308-2_____CEMENT STABILIZED CRUSHED STONE BASE COURSE
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
501-3_____PORTLAND CEMENT CONCRETE PAVEMENT
600-2_____INCIDENTAL CONSTRUCTION
603-1_____LANE CLOSURE NOTIFICATION
604-1_____RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3_____TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
606-1_____PIPE CULVERTS FOR SIDE DRAINS
617-1_____GUARDRAIL TERMINAL (TYPE 2)
617-2_____GUARDRAIL DELINEATORS
620-1_____MULCH COVER
637-1_____MAILBOXES
800-1_____STRUCTURES
802-3_____CONCRETE FOR STRUCTURES
802-5_____CONCRETE FOR STRUCTURES
804-2_____REINFORCING STEEL FOR STRUCTURES
807-2_____STEEL STRUCTURES
808-1_____INSTALLATION OF ELASTOMERIC BEARINGS
808-2_____ELASTOMERIC BEARINGS
JOB100995___BIDDING REQUIREMENTS AND CONDITIONS
JOB100995___BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB100995___BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB100995___BUY AMERICA - CONSTRUCTION MATERIALS
JOB100995___CARGO PREFERENCE ACT REQUIREMENTS
JOB100995___CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB100995___COLD MILLING - COUNTY PROPERTY
JOB100995___CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS
JOB100995___CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB100995___DESIGN AND QUALITY CONTROL ASPHALT MIXTURES
JOB100995___DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB100995___DISADVANTAGED ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB100995___FLEXIBLE BEGINNING OF WORK - CALENDER DAY CONTRACT
JOB100995___GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB100995___LIQUIDATED DAMAGES PROCEDURE FOR BID LETTING
JOB100995___MANDATORY ELECTRONIC CONTRACT
JOB100995___MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB100995___NESTING SITES OF MIGRATORY BIRDS
JOB100995___OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB100995___PARTNERING REQUIREMENTS
JOB100995___PERCENT AIR VOIDS AND NDESIGN FOR ACHM SURFACE MIX DESIGNS
JOB100995___PLASTIC PIPE
JOB100995___PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB100995___PRICE ADJUSTMENT FOR FUEL
JOB100995___PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB100995___SECTION 404 NATIONWIDE 23 PERMIT REQUIREMENTS
JOB100995___SHORING FOR CULVERTS
JOB100995___SOIL STABILIZATION
JOB100995___STORM WATER POLLUTION PREVENTION PLAN
JOB100995___SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB100995___UTILITY ADJUSTMENTS
JOB100995___VALUE ENGINEERING
JOB100995___WARM MIX ASPHALT

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR, AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
9. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
10. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
11. MATERIAL FROM THE EXISTING HIGHWAY 91 TYPICAL SECTION OBLITERATION SHALL BE REMOVED BY THE CONTRACTOR AND NOT BURIED WITHIN THE EXISTING OR PROPOSED RIGHT OF WAY OF THE PROJECT. OBLITERATION DEPTH AND THE FINISHED GRADE WILL BE IF AND WHERE DIRECTED BY THE ENGINEER.

Scott.Thornsberry 12/9/2024 2:15:30 PM
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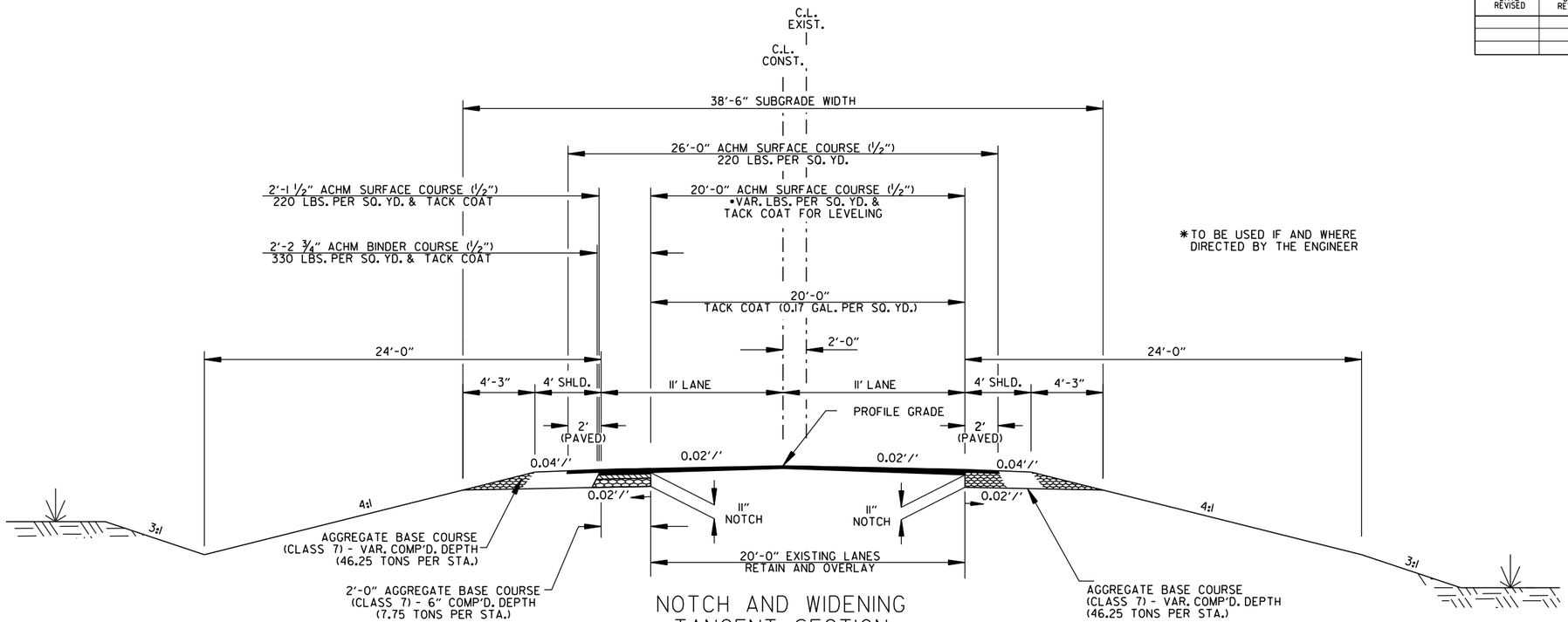
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	4	70
		TYPICAL SECTIONS OF IMPROVEMENT				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-9-2023



*TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

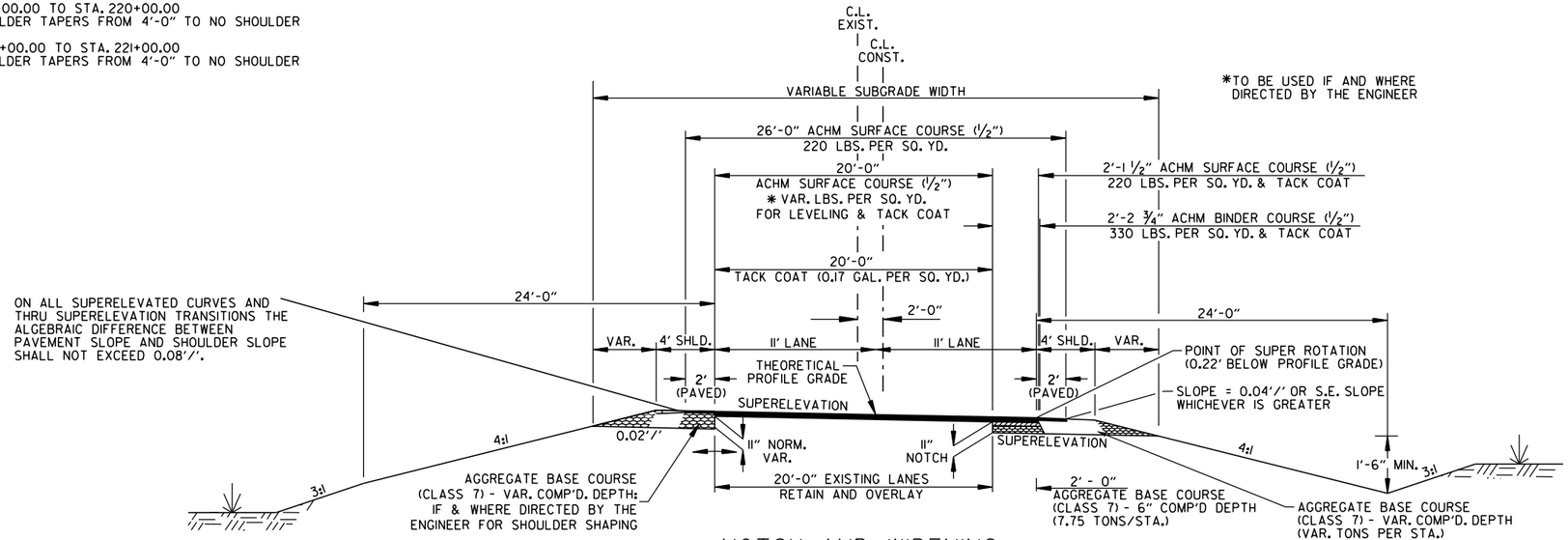
NOTCH AND WIDENING TANGENT SECTION

STA. 183+81.00 TO STA. 188+70.66
STA. 193+11.00 TO STA. 194+11.00
STA. 214+36.73 TO STA. 219+00.00

NOTES:

(1) STA. 219+00.00 TO STA. 220+00.00
RT. SHOULDER TAPERS FROM 4'-0" TO NO SHOULDER

(2) STA. 220+00.00 TO STA. 221+00.00
LT. SHOULDER TAPERS FROM 4'-0" TO NO SHOULDER



*TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTCH AND WIDENING SUPERELEVATION SECTION

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

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

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

TYPICAL SECTIONS OF IMPROVEMENT

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	5	70
		TYPICAL SECTIONS OF IMPROVEMENT				

STATE OF ARKANSAS
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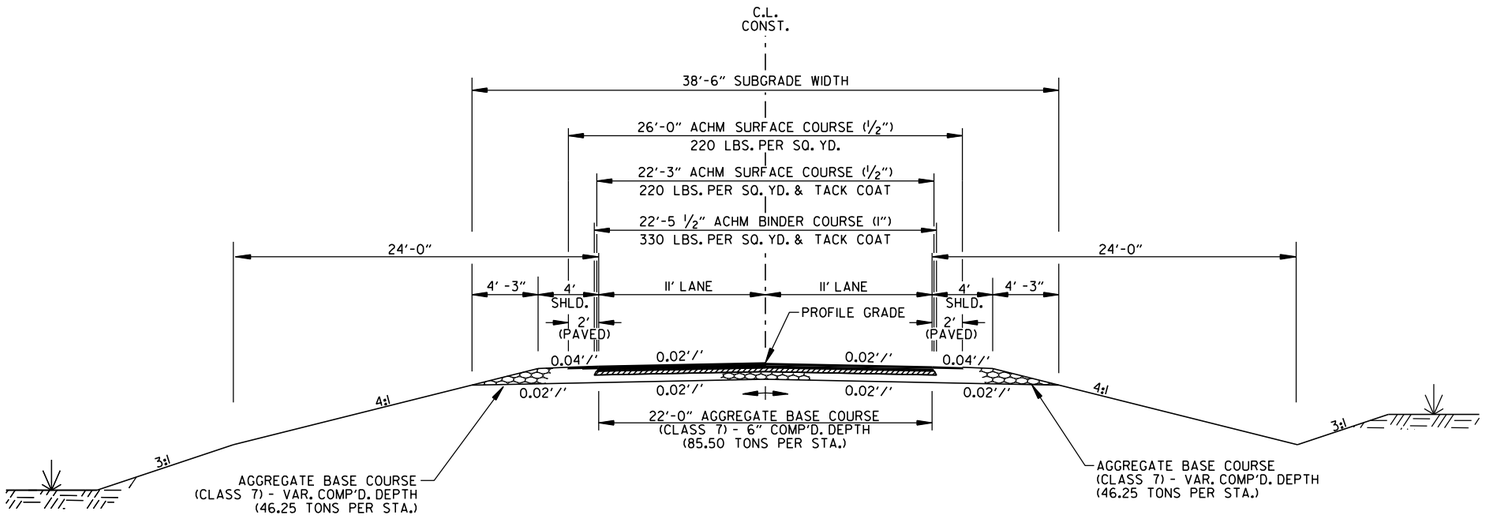


TANGENT SECTION

STA. 188+70.66 TO STA. 193+11.00
STA. 194+11.00 TO STA. 198+77.92
STA. 202+30.08 TO STA. 214+36.73

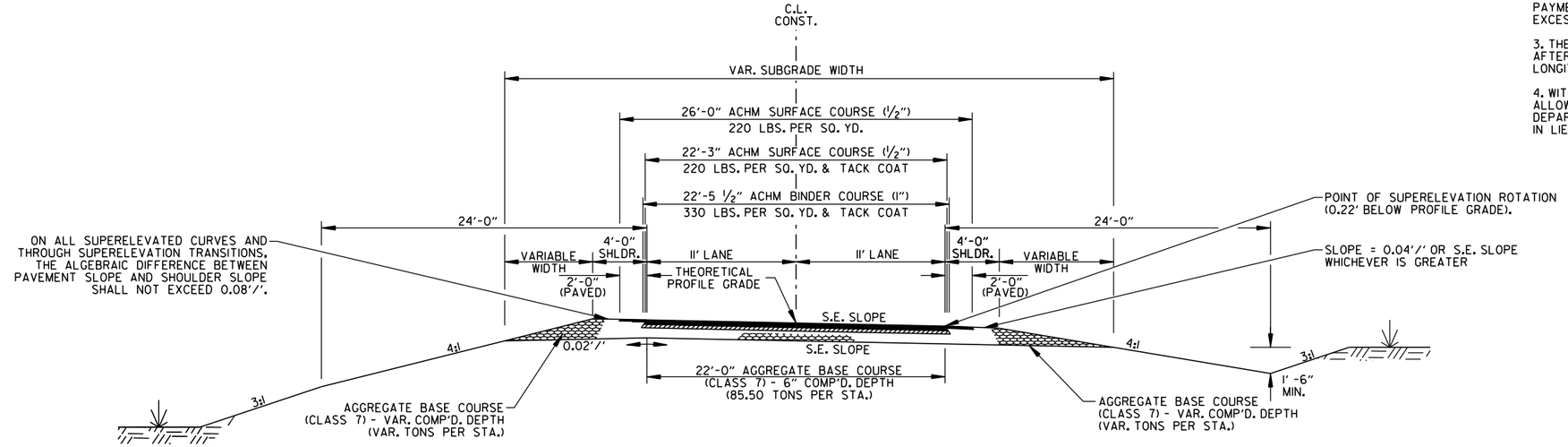
NOTES:

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

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



SUPERELEVATION SECTION

TYPICAL SECTIONS OF IMPROVEMENT

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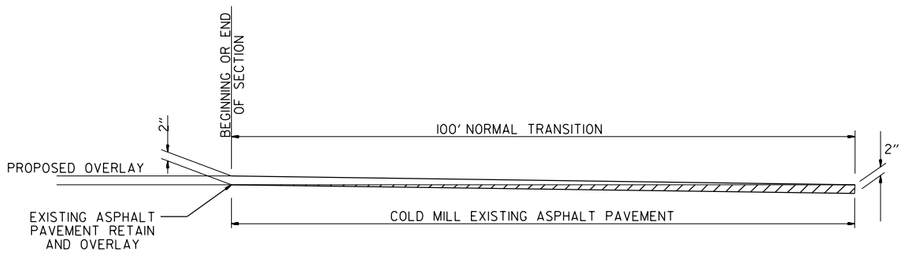
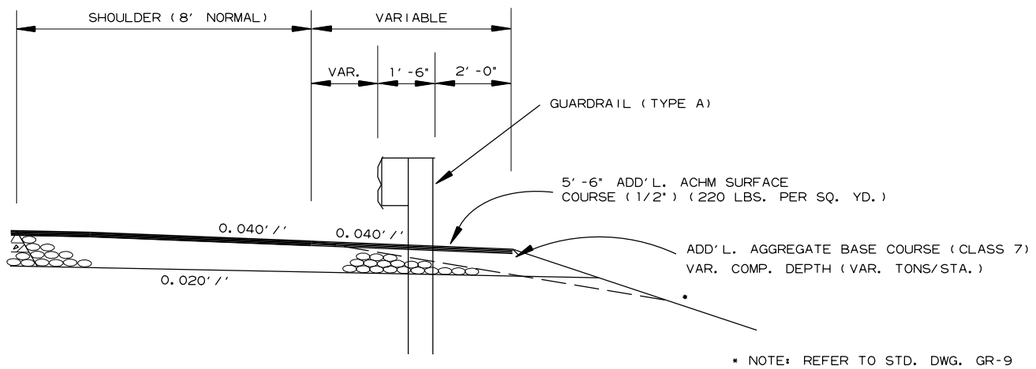
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	6	70
		SPECIAL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023



DETAIL FOR TRANSITIONS



WIDENING FOR GUARDRAIL

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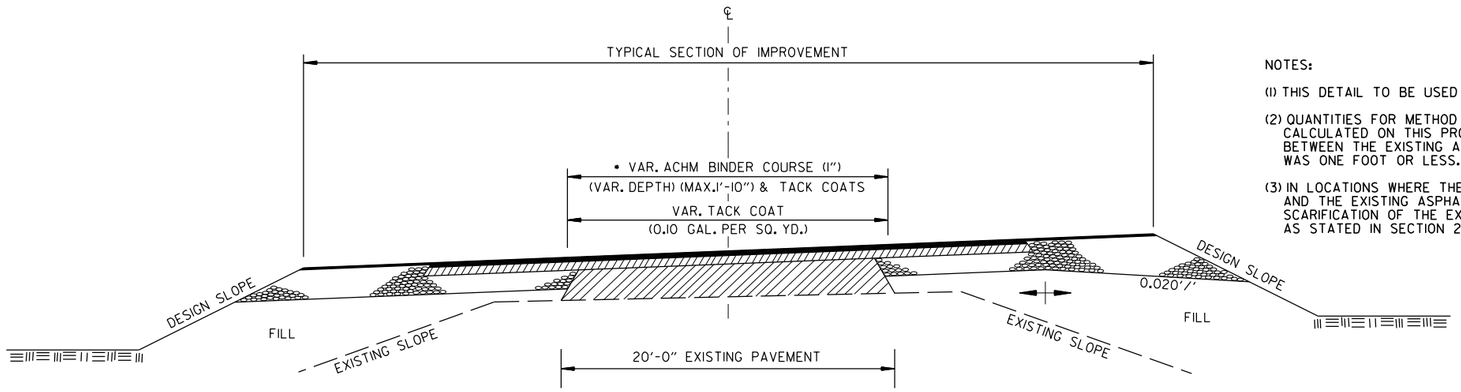
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	7	70
		SPECIAL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023



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

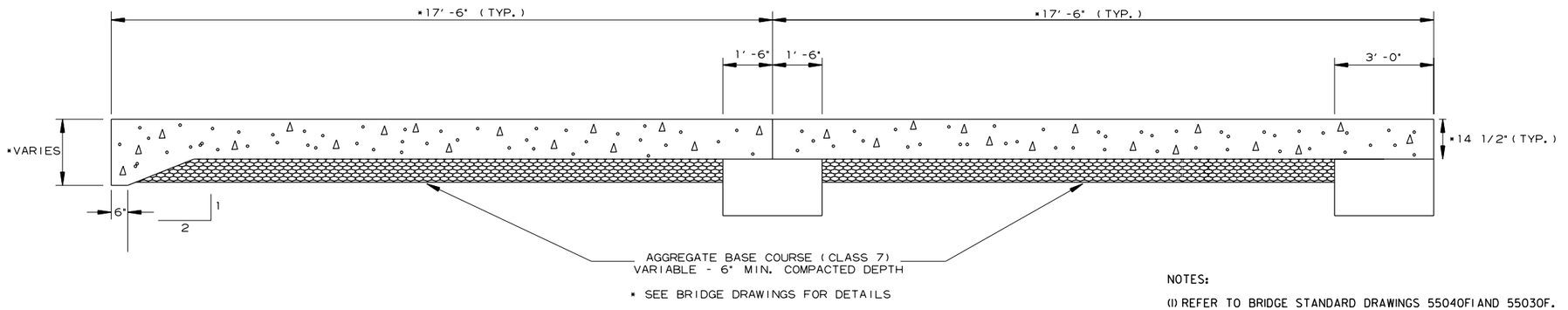
METHOD OF RAISING GRADE

NOTES:

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

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

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



* SEE BRIDGE DRAWINGS FOR DETAILS

SECTION OF APPROACH SLAB (TYPE F)
(FOR ASPHALT PAVEMENT)

NOTES:

(1) REFER TO BRIDGE STANDARD DRAWINGS 55040FI AND 55030F.

(2) APPROACH SLAB WIDTH IS 26' - 0"

(3) APPROACH GUTTER WIDTH IS 2' - 0"

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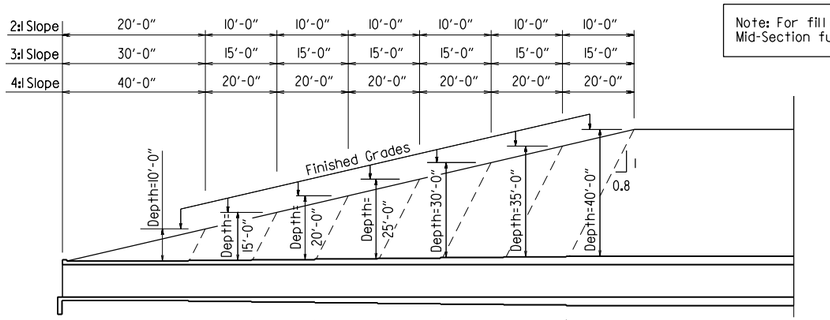


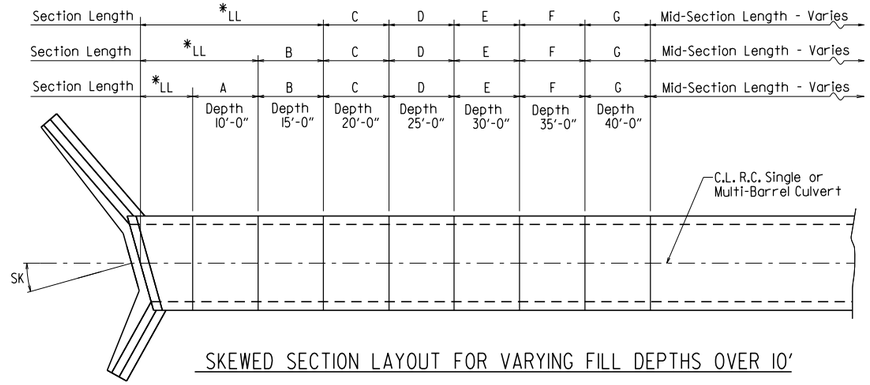
Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

*LL = Skewed End Section Length - See "Skewed End Section Details" Length LL varies with skew angle, overall box width and fill depth and may eliminate the need for some slope section lengths as shown.

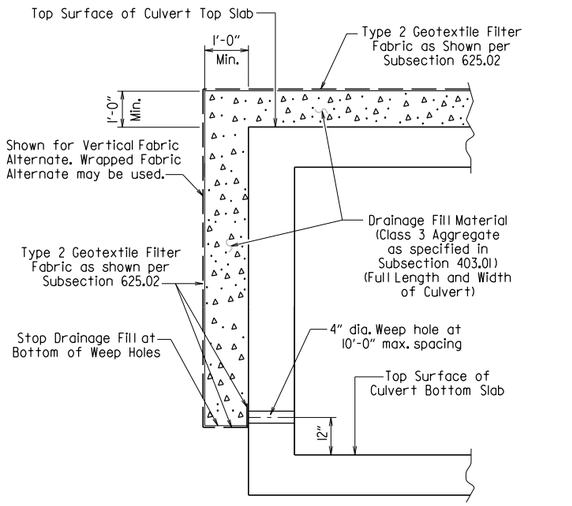
Slope Section Length @ 2:1 Slope	A=12'-0"	B=6'-0"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	G=6'-0"	Mid-Section Length - Varies
Slope Section Length @ 3:1 Slope	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	G=11'-0"	Mid-Section Length - Varies
Slope Section Length @ 4:1 Slope	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	G=16'-0"	Mid-Section Length - Varies

LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

Lengths for Non-Skewed Boxes

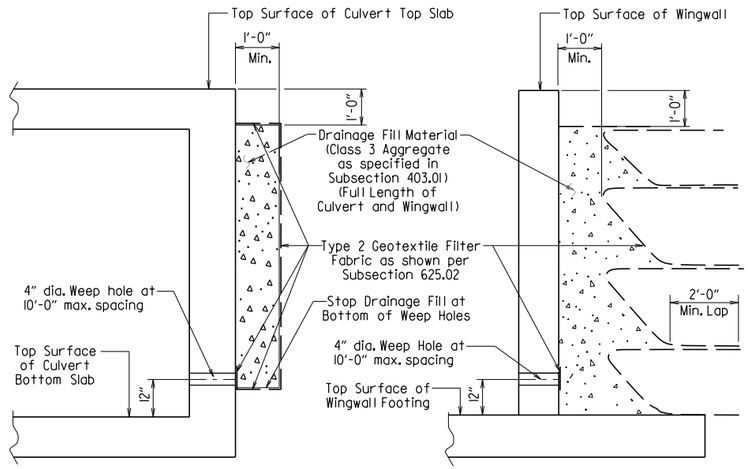


SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'



CULVERT DRAINAGE DETAIL FOR ROCK FILL

This detail shall be used when rock fill is specified for embankment construction.

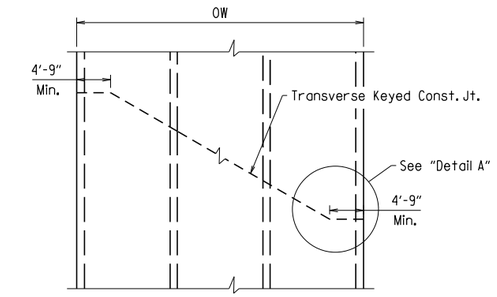


For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

VERTICAL FABRIC ALTERNATE
(Shown for Culvert, Similar for Wingwall)

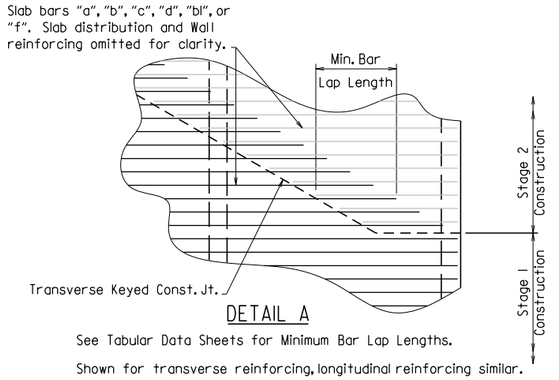
WRAPPED FABRIC ALTERNATE
(Shown for Wingwall, Similar for Culvert)

WINGWALL & CULVERT DRAINAGE DETAIL



SKEWED TRANSVERSE JOINT DETAIL

This detail shall be used to construct a skewed transverse joint only for Multi-Barrel Culverts and only when required by the Maintenance of Traffic Plans. Otherwise, transverse joints should be made normal to the centerline of the barrel.



DETAIL A

See Tabular Data Sheets for Minimum Bar Lap Lengths.

Shown for transverse reinforcing, longitudinal reinforcing similar.

GENERAL NOTES:

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, Fifth Edition (2010) with 2010 interim revisions.

LIVE LOADING: HL-93

All concrete shall be Class S with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have ¾" chamfers.

Reinforcing Steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Reinforcing Steel Tolerances: The tolerances for reinforcing steel shall meet those listed in 'Manual of Standard Practice' published by Concrete Reinforcing Steel Institute (CRSI) except that the tolerance for truss bars such as Figure 3 on page 7-4 of the CRSI Manual shall be minus zero to plus 1/2 inch.

Excavation and backfilling shall be in accordance with the requirements of Section 801.

Membrane Waterproofing shall conform to the requirements of Section 815. Membrane Waterproofing shall be Type C and as directed by the Engineer applied to all construction joints in the top slab and the sidewalls of R.C. Box culverts and to the construction joint between wingwalls and R.C. Box culvert walls.

Weep Holes in box culvert walls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. The drain opening shall be 4" diameter and shall be placed 12" above the top of the bottom slab.

Weep Holes in wingwalls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. There shall be a minimum of two (2) weep holes in each wingwall. The drain opening shall be 4" diameter and shall be placed 12" above the top of the wingwall footing.

The barrel components of the culvert may be constructed using continuous pours. For longer culvert construction, the Contractor may use multiple pours with transverse construction joints spaced a minimum of 50 feet apart unless superseded by stage construction or site constraints as approved by the Engineer. Construction joints between footings and walls shall be made only where shown in the Plans. Joints shall be keyed and shall be normal to the centerline of barrel except as noted. Reinforcing shall be continuous through joints unless noted otherwise. Reinforcing through stage construction joints shall provide the minimum bar lap length shown on the Tabular Data Sheets. All longitudinal construction joints shall be submitted to the Engineer for approval.

Membrane Waterproofing, Weep Holes, Geotextile Filter Fabric, and Drainage Fill Material will not be paid for directly but shall be considered subsidiary to Class S Concrete.

When the top slab of the box culvert serves as finished roadway surface, curing and finishing shall be in accordance with subsections 802.17 and 802.20 for bridge roadway surface and a tine finish shall be applied in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Curing and finishing shall not be paid for directly, but shall be considered incidental to the item "Class S Concrete-Roadway". Class 1 Protective Surface Treatment shall be applied to the roadway surface and this work shall be paid for under the unit price bid for "Class 1 Protective Surface Treatment".

When precast reinforced concrete box culverts are substituted for cast in place box culverts, they shall be manufactured according to ASTM C 1577 and meet the requirements of Section 607. When the top slab of the box culvert serves as the finished roadway surface, a precast reinforced concrete box culvert substitution is not allowed.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

Hussam Saleem
10-18-2023

SHEET 1 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE

SPECIAL DETAILS

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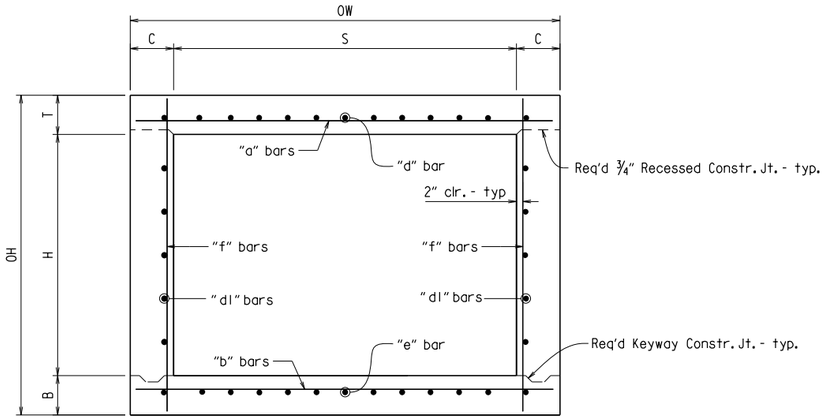
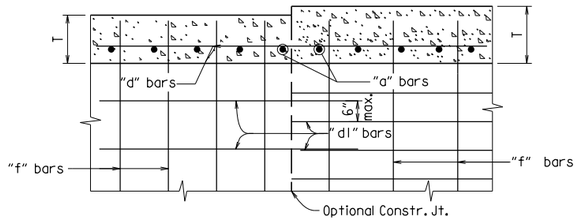
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	9	70
		SPECIAL DETAILS				

Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



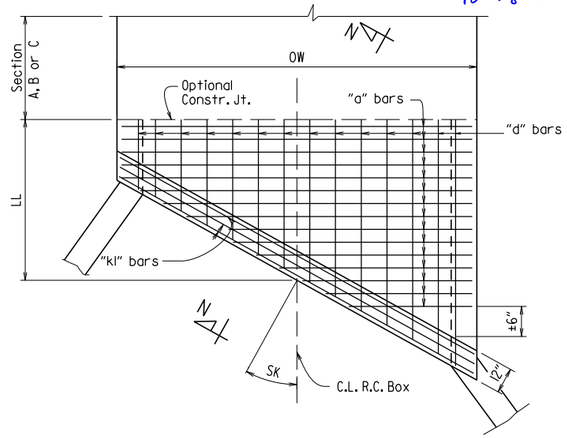
TYPICAL SECTION M-M



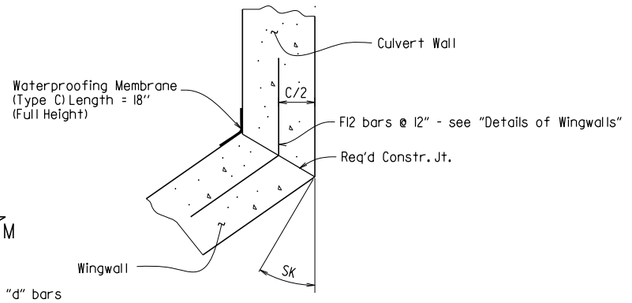
Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

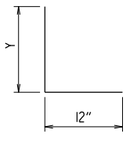


TOP SLAB REINFORCEMENT

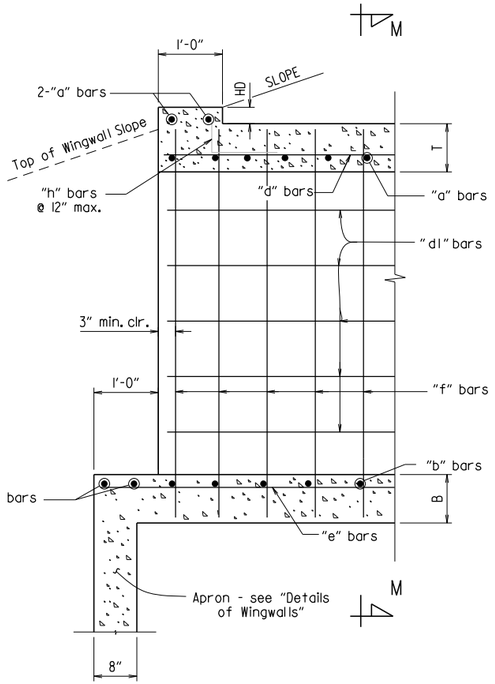


WINGWALL ATTACHMENT

See "Details of Wingwalls" for additional information and wingwall details.

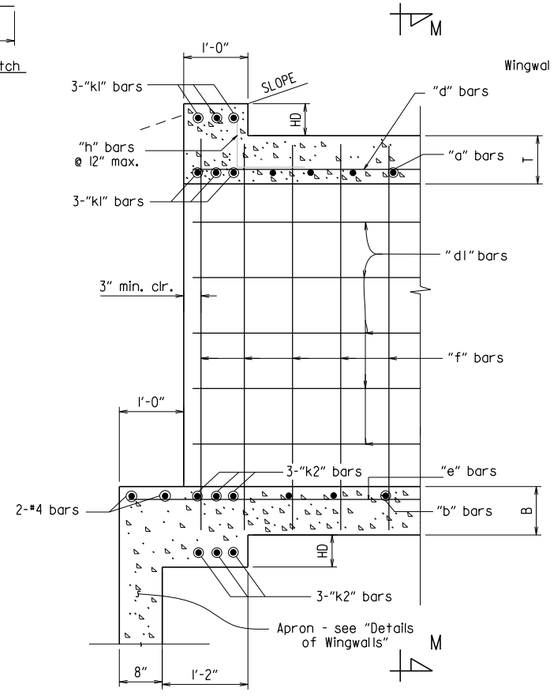


"h" bars sketch



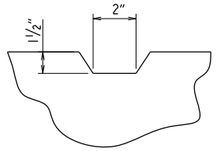
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



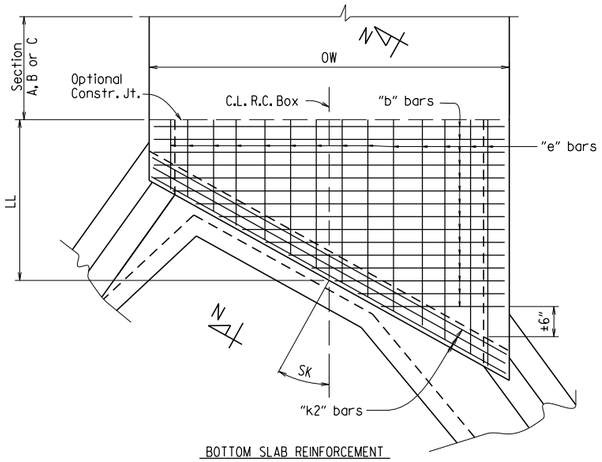
PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)



BOTTOM SLAB REINFORCEMENT

SKEWED END SECTION DETAILS

SHEET 2 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF SINGLE BARREL R.C. BOX CULVERT

SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 18919
HUSSAM S. SALEEM

Hussam Saleem
10-18-2023

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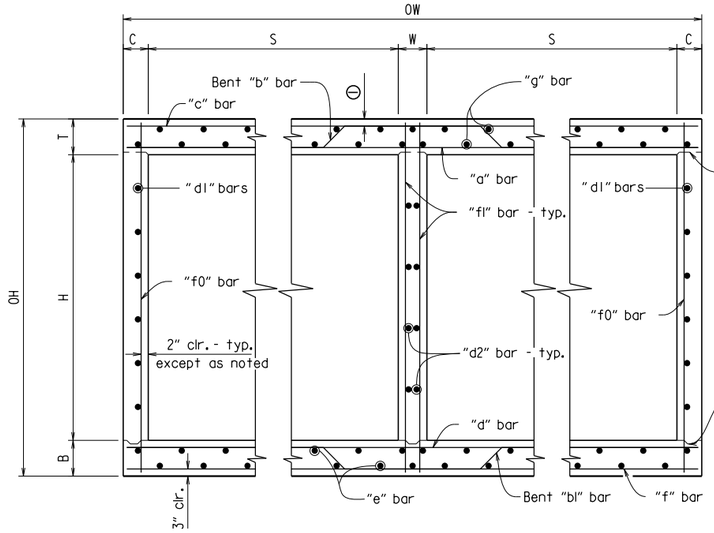
		6	ARK.	100995	10	70
		SPECIAL DETAILS				

① 2" clr. for fill depth (D) greater than 2 ft.
2½" clr. for fill depth (D) equal to or less than 2 ft.

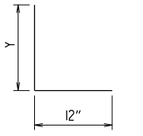
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



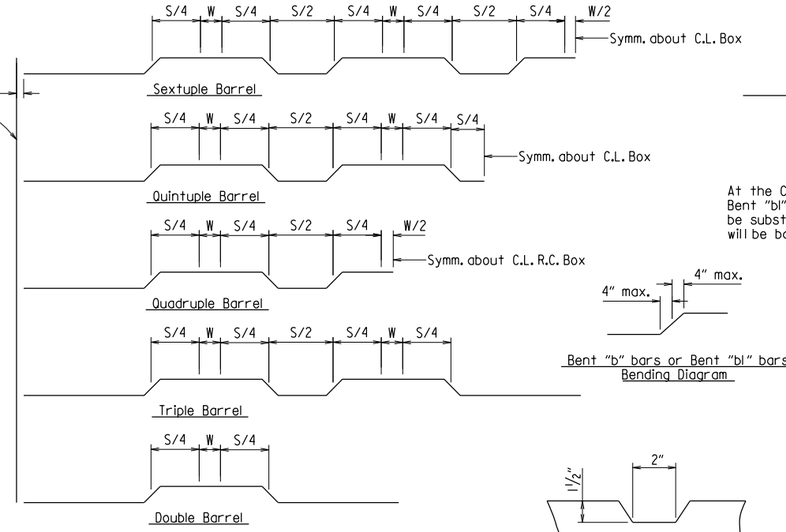
TYPICAL SECTION M-M

Top Slab
Straight "c" bars shall alternate with Bent "b" bars in top.
Straight "a" bars shall alternate with Bent "b" bars in bottom.

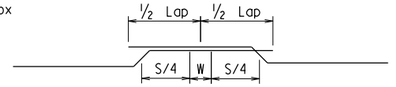
Bottom Slab
Straight "d" bars shall alternate with Bent "bl" bars in top.
Straight "f" bars shall alternate with Bent "bl" bars in bottom.



"h" bars sketch



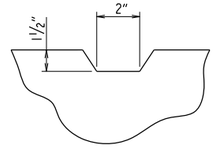
Bent "b" bars or Bent "bl" bars sketch



Lap Detail
For Bent "b" bars and Bent "bl" bars

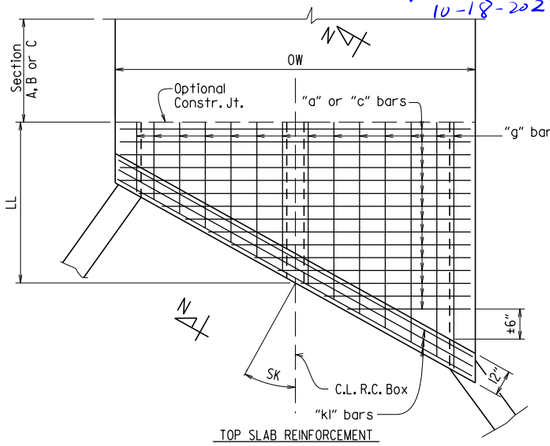
At the Contractor's option in lieu of providing Bent "b" or Bent "bl" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "bl" bar.

Bent "b" bars or Bent "bl" bars Bending Diagram

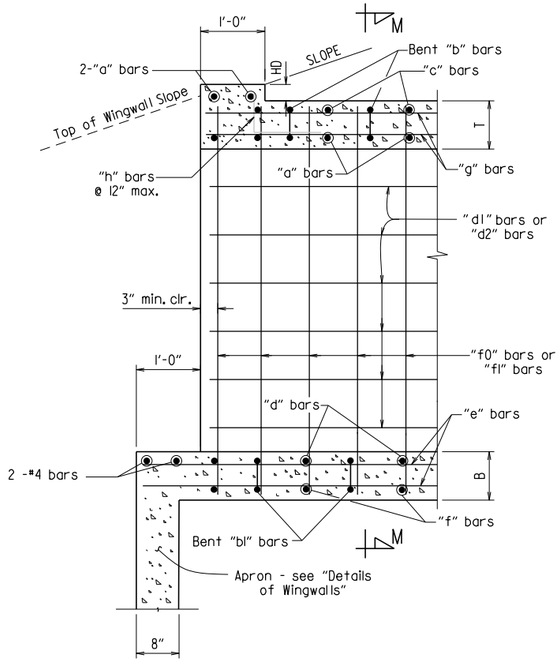


TYPICAL KEYWAY DETAIL

(All Construction Joints)

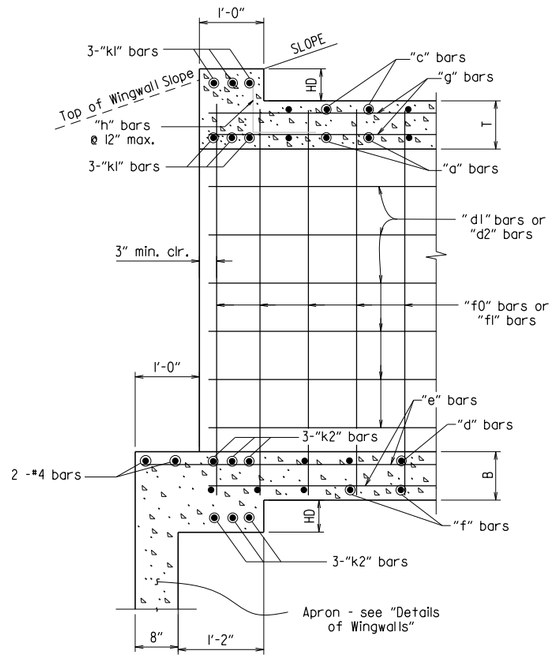


TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



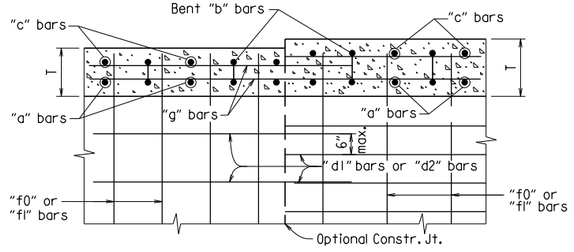
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

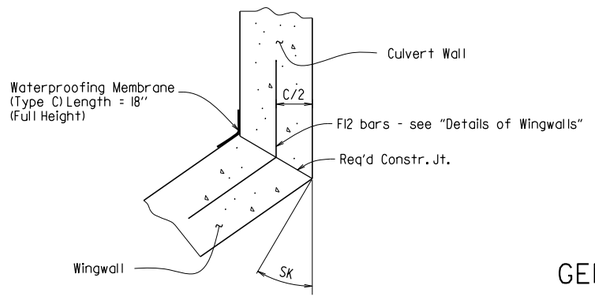
(Skewed Ends)



Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

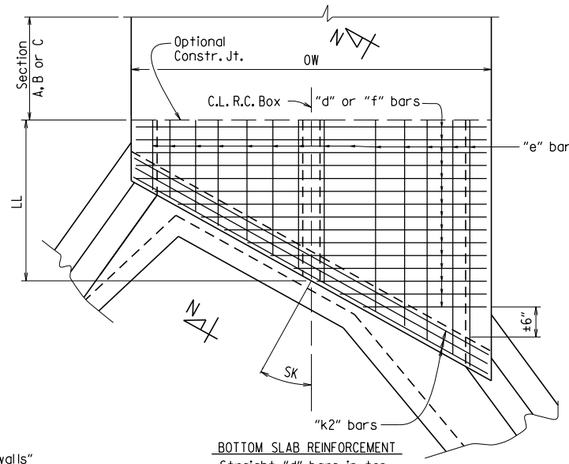
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



WINGWALL ATTACHMENT

See "Details of Wingwalls" for additional information and wingwall details.



BOTTOM SLAB REINFORCEMENT
Straight "d" bars in top.
Straight "f" bars in bottom.

SKEWED END SECTION DETAILS

SHEET 3 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF MULTI-BARREL
R.C. BOX CULVERT

SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 18919
HUSSAM S. SALEEM
10-18-2023

Stephane.Bossio 10/17/2023 4:47:01PM
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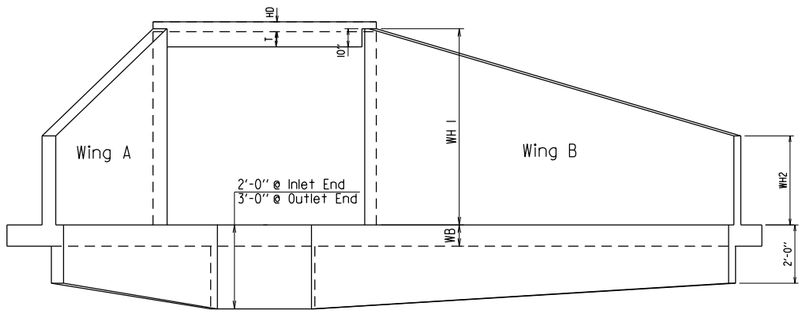
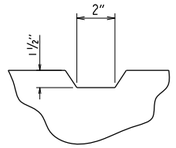


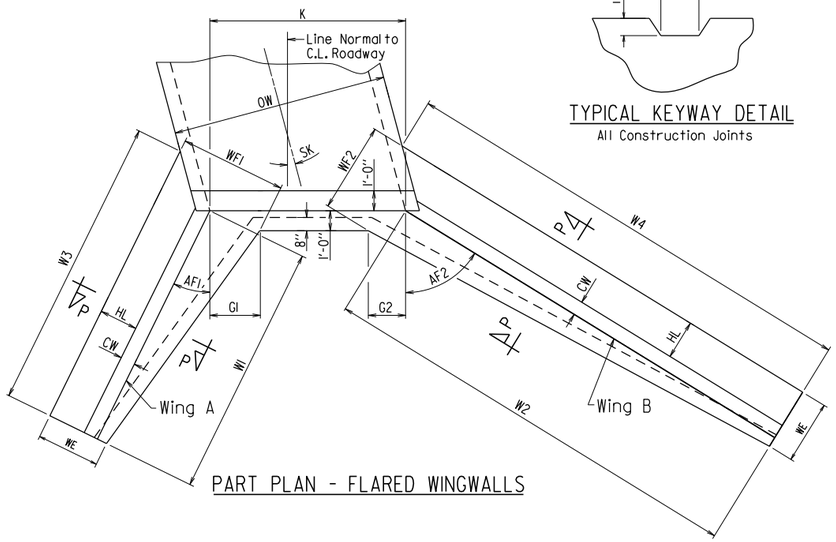
END ELEVATION

Flared Wingwalls Shown



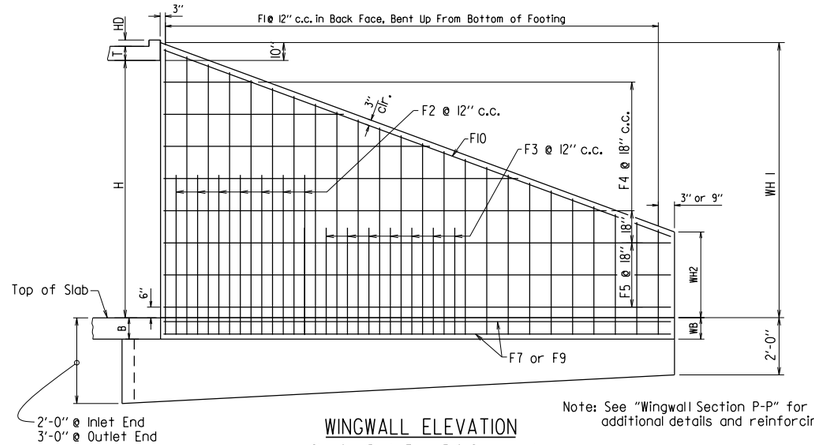
TYPICAL KEYWAY DETAIL

All Construction Joints



PART PLAN - FLARED WINGWALLS

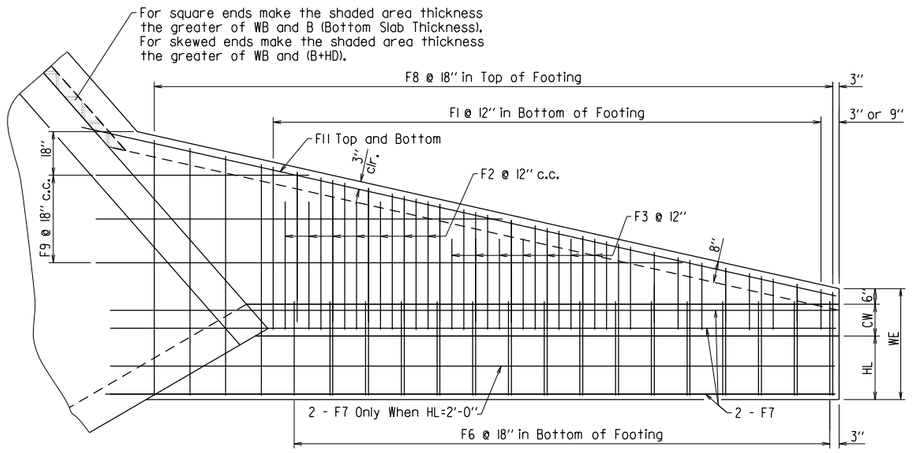
PART PLAN - PARALLEL WINGWALLS



WINGWALL ELEVATION

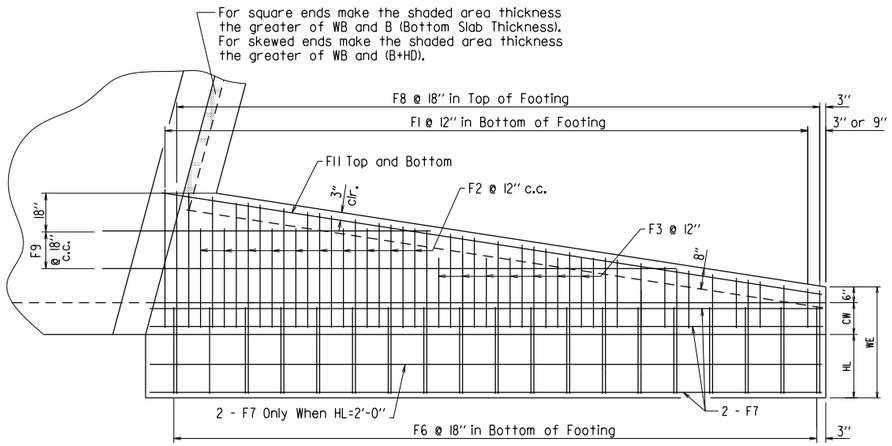
Showing Back Face Reinforcement

Note: See "Wingwall Section P-P" for additional details and reinforcing.



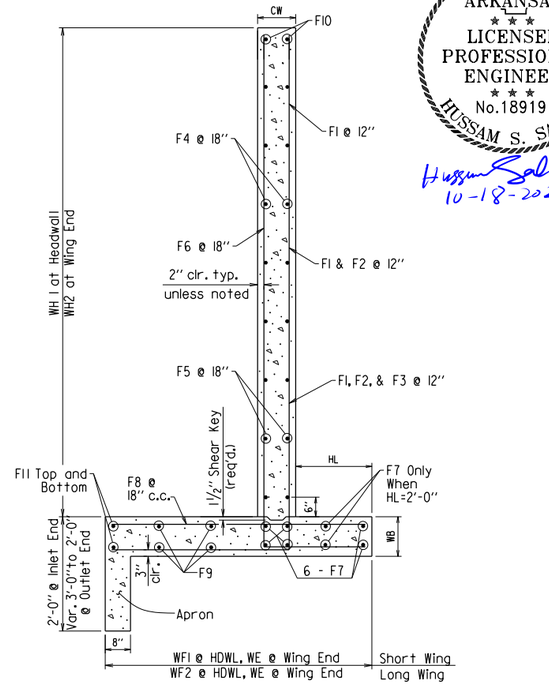
PLAN - FLARED WINGWALLS

Showing Footing Reinforcement

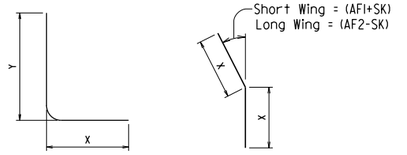


PLAN - PARALLEL WINGWALLS

Showing Footing Reinforcement



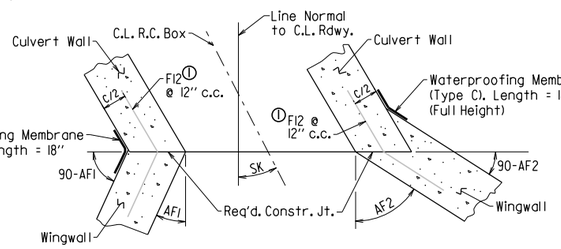
WINGWALL SECTION P-P



F1, F2, F3, & F6 BARS

ⓘF12 BAR

ⓘF12 is a straight bar for parallel wingwalls



CONSTRUCTION JOINTS

Flared Wingwalls Shown

SHEET 4 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF WINGWALLS
SPECIAL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM
Hussam Saleem
10-18-2023

LRFD

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WORKSPACE: ARDOT
Y:\Projects\ARDOT_176208_100995_Cache River Strs & Apprs S of Egypt\Design\CIVIL\Drawings\R100995_05_SD_004_Culvert+General.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	12	70
		SPECIAL DETAILS				

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B	CLASS "S" CONCRETE (Includes apron) INLET	REINFORCING STEEL (Includes apron and laps if required) INLET
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.
20'-6"	5'-0"	0'-9"	0'-8"	0	3:1	19'-4"	1'-0"	5'-10"	1'-8"	30	30	2'-2"	2'-11 3/4"	2'-11 3/4"	0'-11 1/4"	0'-11 1/4"	14'-0"	14'-0"	15'-8 5/8"	15'-8 5/8"	6.52	614

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	14	L Min	2'-10"				L -				L -	4	18	6	Min	4	18	2	13'-8"	4	18	10	L Min	3'-3"	4	6	16'-7"	6	18	10	Min				Min	4	2	14'-2"	4	2	15'-8"	6	12	5	L	3'-4"	307
				L Max	7'-6"												2'-1"								Max 7'-3"							1'-8"				-										
				X Min	0'-9"				X -				X -												X Min 1'-4"											Max									X	1'-8"	
				X Max	1'-7"												Max								Max 1'-4"							2'-6"														
				Y Min	2'-2"				Y -				Y -												Y Min 2'-0"											-										
				Y Max	6'-0"																				Max 6'-0"																						
WING B	4	12	14	L Min	2'-10"				L -				L -	4	18	6	Min	4	18	2	13'-8"	4	18	10	L Min	3'-3"	4	6	16'-7"	6	18	10	Min				Min	4	2	14'-2"	4	2	15'-8"	6	12	5	L	3'-4"	307
				L Max	7'-6"												2'-1"								Max 7'-3"							1'-8"				-										
				X Min	0'-9"				X -				X -												X Min 1'-4"											Max									X	1'-8"	
				X Max	1'-7"												Max								Max 1'-4"							2'-6"														
				Y Min	2'-2"				Y -				Y -												Y Min 2'-0"											-										
				Y Max	6'-0"																				Max 6'-0"																						

MID-SECTION

BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.

For additional information and outlet sections, see Sheet 2 of 2.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

Hussam Saleem
10-18-2023

TABULAR DATA BY: MKL DATE: 10/10/2023
CHECKED BY: HSS DATE: 10/12/2023

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINFORCING STEEL "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINFORCING STEEL "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINFORCING STEEL "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH																																													
															Max						Max						Max																														
															Min						Min						Min																														

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D	"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D	"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO. REQ'D

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	REINFORCING STEEL (GR 60) (Includes HDWL) LBS.

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

INLET SLOPE SECTIONS)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL																																											

HDWL DEPTH HD	ADDITIONAL REINF. FOR HDWL LBS.	"h" HDWL BARS SIZE	"h" HDWL BARS Y	"h" HDWL BARS LENGTH	"h" HDWL BARS NO. REQ'D
3"	27	4	0'-7"	1'-7"	22

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
0.19	50
TOTAL	
0.19	50

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL																																											
A	5	6	5	8	9	7	8	20'-6"	6'-5"	75	4	20'-2"	7	20'-6"	8	20'-2"	17	52	4	20'-2"	4	20'-6"	4	26'-2"	14	64	4	6	300	6'-1"	4	12	300	6'-1"	4	12	41	4	12	41	4	12	10	4	12	20

CLASS "S" CONCRETE CU. YDS.	REINFORCING STEEL (GR. 60) LBS.
186.38	18052

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
Sta. 212+80

SPECIAL DETAILS

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WORKSPACE: ARDOT
Y:\Projects\ARDOT_I76208_100995_Cache River Strs & Apprs S of Egypt\Design\CIVIL\Drawings\R100995_05_SD_005_Tri.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	13	70
		SPECIAL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM
10-18-2023

TABULAR DATA BY: MKL DATE: 10/10/2023
CHECKED BY: HSS DATE: 10/12/2023

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
20'-6"	5'-0"	0'-9"	0'-8"	0	3:1	19'-4"	1'-0"	5'-10"	1'-8"	30	30	2'-2"	2'-11 3/4"	2'-11 3/4"	0'-11 1/4"	0'-11 1/4"	14'-0"	14'-0"	15'-8 5/8"	15'-8 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
7.29	614

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY		F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS
WING A	4	12	14	L	Min	2'-10"				L -				L -	4	18	6	Min	4	18	2	13'-8"
					Max	7'-6"												2'-1"				
				X	Min	0'-9"	-	-	-	X -	-	-	-	X -				Max				
					Max	1'-7"												12'-2"				
				Y	Min	2'-2"				Y -				Y -								
					Max	6'-0"																
WING B	4	12	14	L	Min	2'-10"				L -				L -	4	18	6	Min	4	18	2	13'-8"
					Max	7'-6"												2'-1"				
				X	Min	0'-9"	-	-	-	X -	-	-	-	X -				Max				
					Max	1'-7"												12'-2"				
				Y	Min	2'-2"				Y -				Y -								
					Max	6'-0"																

WING	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY		F6 LENGTHS	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	10	L	Min	3'-3"	4	6	16'-7"	6	18	10	Min	-	-	-	Min	4	2	14'-2"	4	2	15'-8"	6	12	5	L	3'-4"	307
					Max	7'-3"							1'-8"				-												
				X	Min	1'-4"							Max				Max											X	1'-8"	
					Max	1'-4"							2'-6"				-												
				Y	Min	2'-0"																							
					Max	6'-0"																							
WING B	4	18	10	L	Min	3'-3"	4	6	16'-7"	6	18	10	Min	-	-	-	Min	4	2	14'-2"	4	2	15'-8"	6	12	5	L	3'-4"	307
					Max	7'-3"							1'-8"				-												
				X	Min	1'-4"							Max				Max											X	1'-8"	
					Max	1'-4"							2'-6"				-												
				Y	Min	2'-0"																							
					Max	6'-0"																							

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Grade 60)."

OUTLET SKEWED END SECTION

| SKEW (DEGREE) | SLOPE | DESIGN FILL DEPTH (FT.) | CLEAR SPAN (FT.) | CLEAR HEIGHT (FT.) | SECTION LENGTH | TOP SLAB THK. | HDWL DEPTH | BOTTOM SLAB THK. | SIDE WALL THK. | INTERIOR WALL THK. | OVER ALL WIDTH | OVER ALL HEIGHT | TOP SLAB REINFORCING STEEL "a" SIZE | "a" SPACING | "a" LENGTHS VARY | "a" NO. REQ'D | "c" SIZE | "c" SPACING | "c" LENGTHS VARY | "c" NO. REQ'D | BOTTOM SLAB REINFORCING STEEL "d" SIZE | "d" SPACING | "d" LENGTHS VARY | "d" NO. REQ'D | "f" SIZE | "f" SPACING | "f" LENGTHS VARY | "f" NO. REQ'D | SIDE WALL REINFORCING STEEL "f0" SIZE | "f0" SPACING | "f0" NO. REQ'D | "f0" LENGTH | INTERIOR WALL REINFORCING STEEL "f1" SIZE | "f1" SPACING | "f1" NO. REQ'D | "f1" LENGTH | TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE | "g" SPACING | "g" NO. REQ'D | "g" LENGTHS VARY | BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE | "e" SPACING | "e" NO. REQ'D | "e" LENGTHS VARY | SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE | "d1" SPACING | "d1" NO. REQ'D | "d1" LENGTH | INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE | "d2" SPACING | "d2" NO. REQ'D | "d2" LENGTH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	14	70
		TEMPORARY EROSION CONTROL DETAILS				

TEMPORARY EROSION CONTROL GENERAL NOTES:

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

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

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

EROSION CONTROL MEASURES INSTALLED IN CLEARING AND GRUBBING SHALL REMAIN IN PLACE THOUGHOUT STAGE 1 AND STAGE 2 OR UNTIL FINAL STABILIZATION.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
11-4-2023

LEGEND

(E-6) = ROCK DITCH CHECK

(E-11) = SILT FENCE

STA. 183+81.00
BEGIN JOB 100995
LOG MILE 2.58

REVISIONS

DATE OF REVISION	REVISION

SILT FENCE	(E-11)	LIN. FT.
STA. 182+81 TO 192+91	RT.	977
STA. 183+32 TO 192+98	LT.	1010
STA. 193+15 TO 193+67	LT.	85
STA. 193+39 TO 194+30	RT.	91
STA. 193+93 TO 200+05	LT.	765
STA. 195+68 TO 200+05	RT.	506
STA. 201+60 TO 212+46	LT.	1223
STA. 201+60 TO 209+56	RT.	1149

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 183+20 TO 186+27	LT.	2
STA. 193+20	RT.	1
STA. 193+42	LT.	1

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

50' BUFFER REFER TO SPECIAL PROVISION "STORM WATER POLLUTION PREVENTION PLAN."

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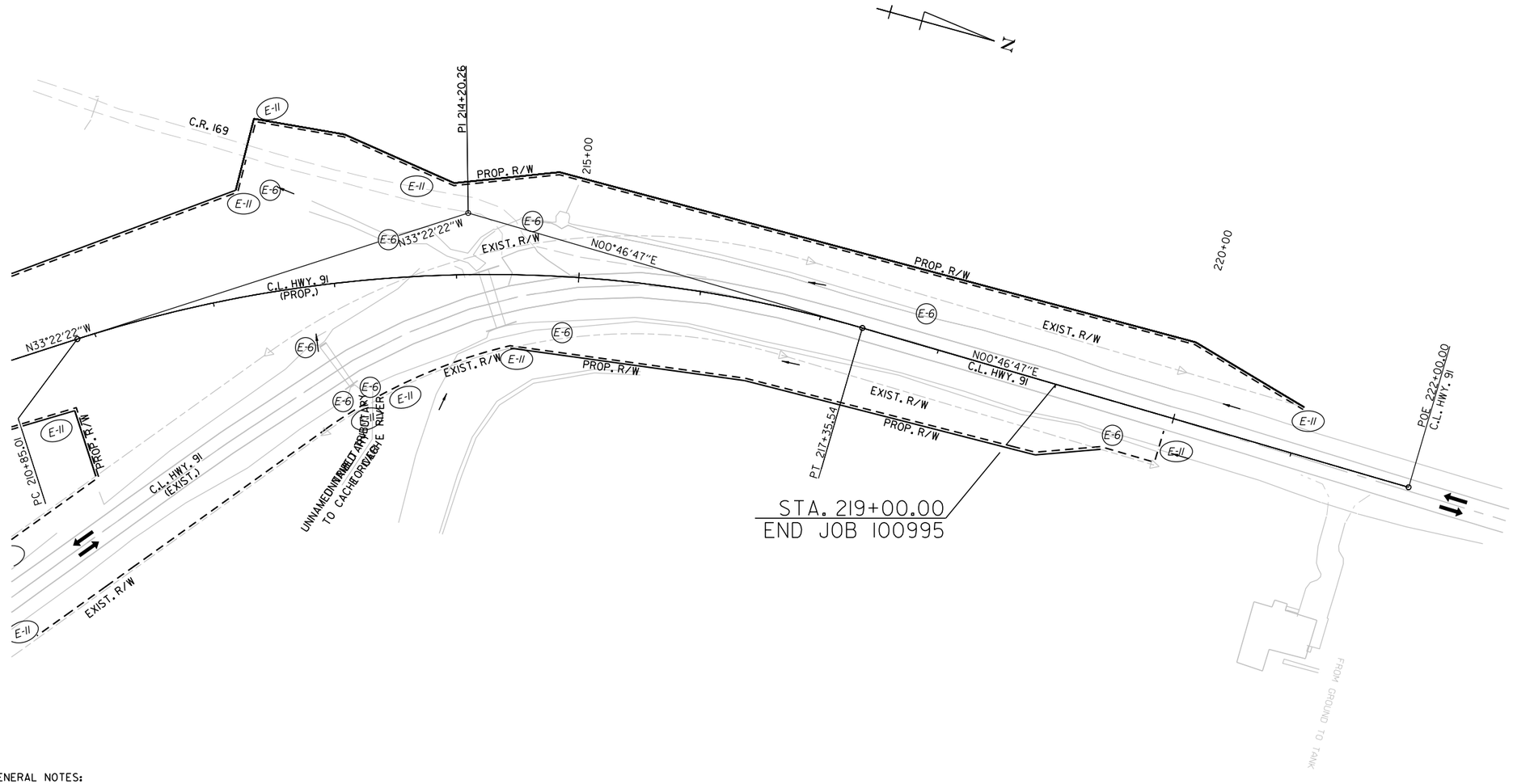
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	15	70
		TEMPORARY EROSION CONTROL DETAILS				

SILT FENCE	(E-11)	LIN. FT.
STA. 209+79 TO 213+17	RT.	330
STA. 212+54 TO 221+00	LT.	908
STA. 213+29 TO 219+95	RT.	679

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 212+60	LT.	1
STA. 212+70	RT.	1
STA. 212+98 TO 213+24	RT.	2
STA. 213+47	LT.	1
STA. 214+61 TO 217+82	LT.	2
STA. 214+89 TO 219+56	RT.	2

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No. 10887
12-9-2023



LEGEND

(E-6) = ROCK DITCH CHECK

(E-11) = SILT FENCE

TEMPORARY EROSION CONTROL GENERAL NOTES:

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REVISIONS

DATE OF REVISION	REVISION

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	16	70
		TEMPORARY EROSION CONTROL DETAILS				

TEMPORARY EROSION CONTROL GENERAL NOTES:

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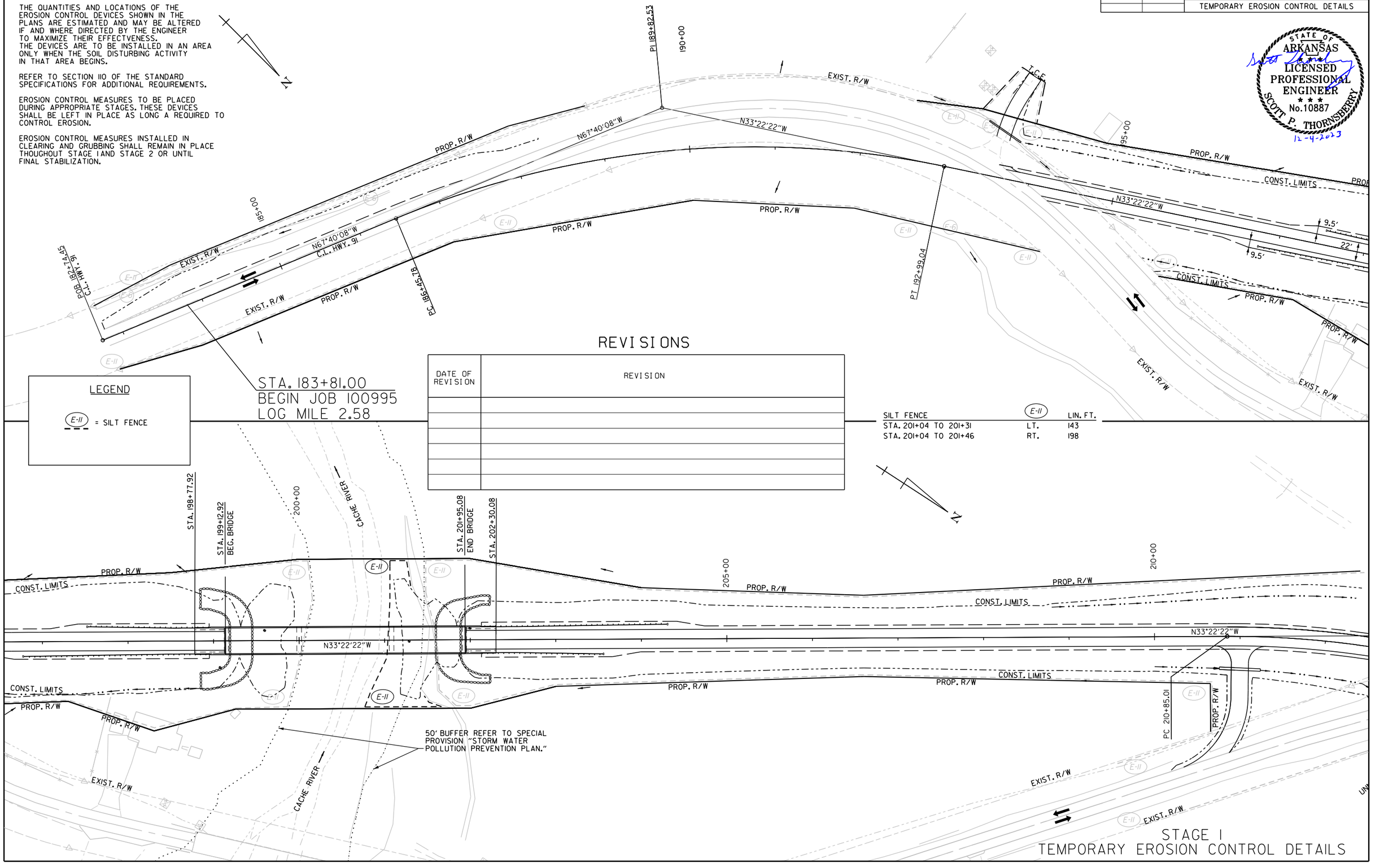
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
12-4-2023



LEGEND

E-II = SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

SILT FENCE	E-II	LIN. FT.
STA. 201+04 TO 201+31	LT.	143
STA. 201+04 TO 201+46	RT.	198

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

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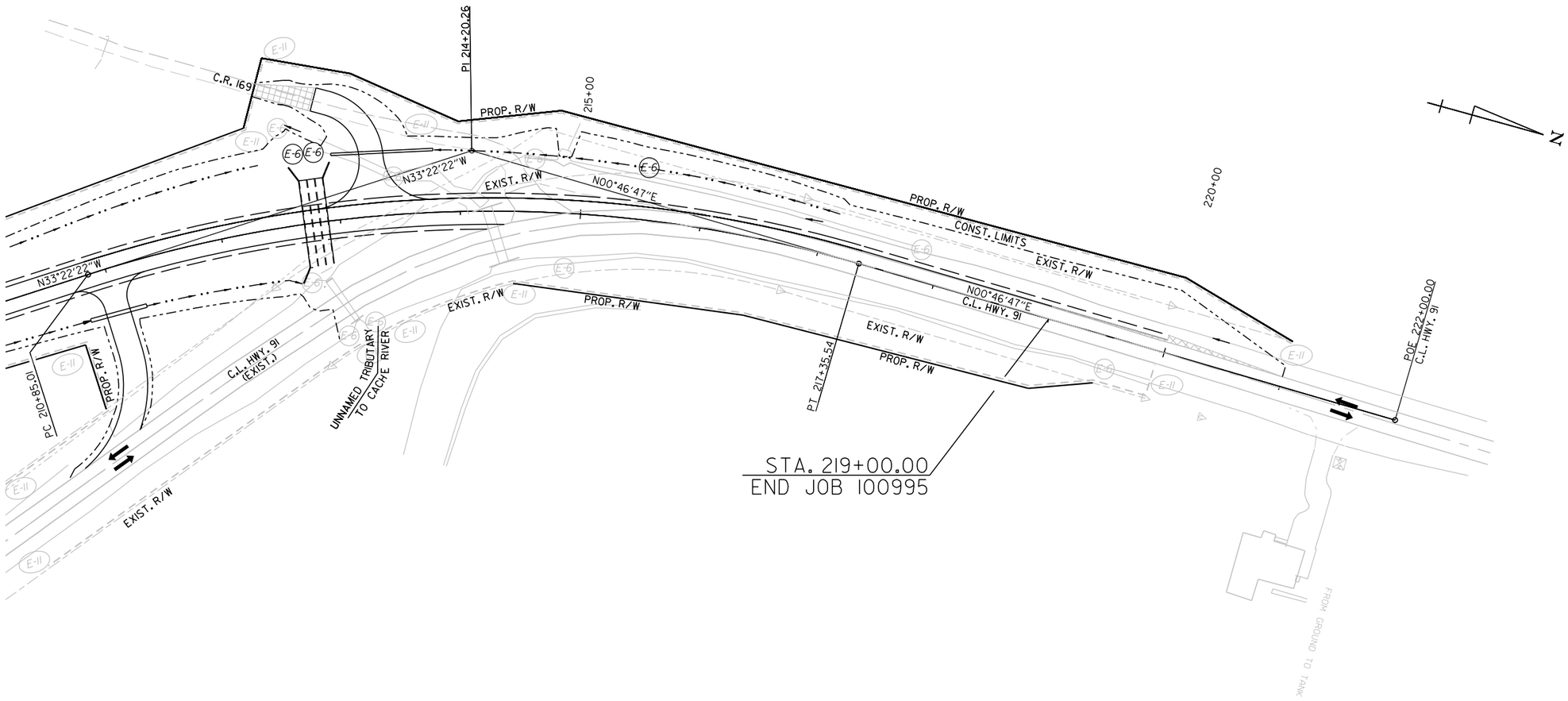
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	17	70
		TEMPORARY EROSION CONTROL DETAILS				

ROCK DITCH CHECKS	(E-6)	INSTALLATION
STA. 212+69 TO 212+85	LT.	2
STA. 215+52	LT.	1



LEGEND

(E-6) = ROCK DITCH CHECK

TEMPORARY EROSION CONTROL GENERAL NOTES:

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REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	18	70
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-1023

N

PI 182+82.53

190+00

EXIST. R/W

T.C.E.

N67°40'08"W

N33°22'22"W

PROP. R/W

185+00

CONST. LIMITS

EXIST. R/W

N67°40'08"W
C.L. HWY. 91

PROP. R/W

POB 182+14.45

PC 186+45.78

PT 192+99.04

195+00

CONST. LIMITS

N33°22'22"W

EXIST. R/W

CONST. LIMITS

PROP. R/W

EXIST. R/W

STA. 183+81.00
BEGIN JOB 100995
LOG MILE 2.58

LEGEND

= PAVEMENT TRANSITION

REVISIONS

DATE OF REVISION	REVISION

TEMPORARY EROSION CONTROL GENERAL NOTES:

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

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STA. 198+77.92

STA. 199+12.92
BEG. BRIDGE

200+00

STA. 201+95.08
END BRIDGE

STA. 202+30.08

205+00

210+00

PROP. R/W

CONST. LIMITS

N33°22'22"W

PROP. R/W

CONST. LIMITS

PROP. R/W

PC 210+85.01

PROP. R/W

PROP. R/W

PROP. R/W

50' BUFFER REFER TO SPECIAL PROVISION "STORM WATER POLLUTION PREVENTION PLAN."

CACHE RIVER

EXIST. R/W

EXIST. R/W

EXIST. R/W

EXIST. R/W

N

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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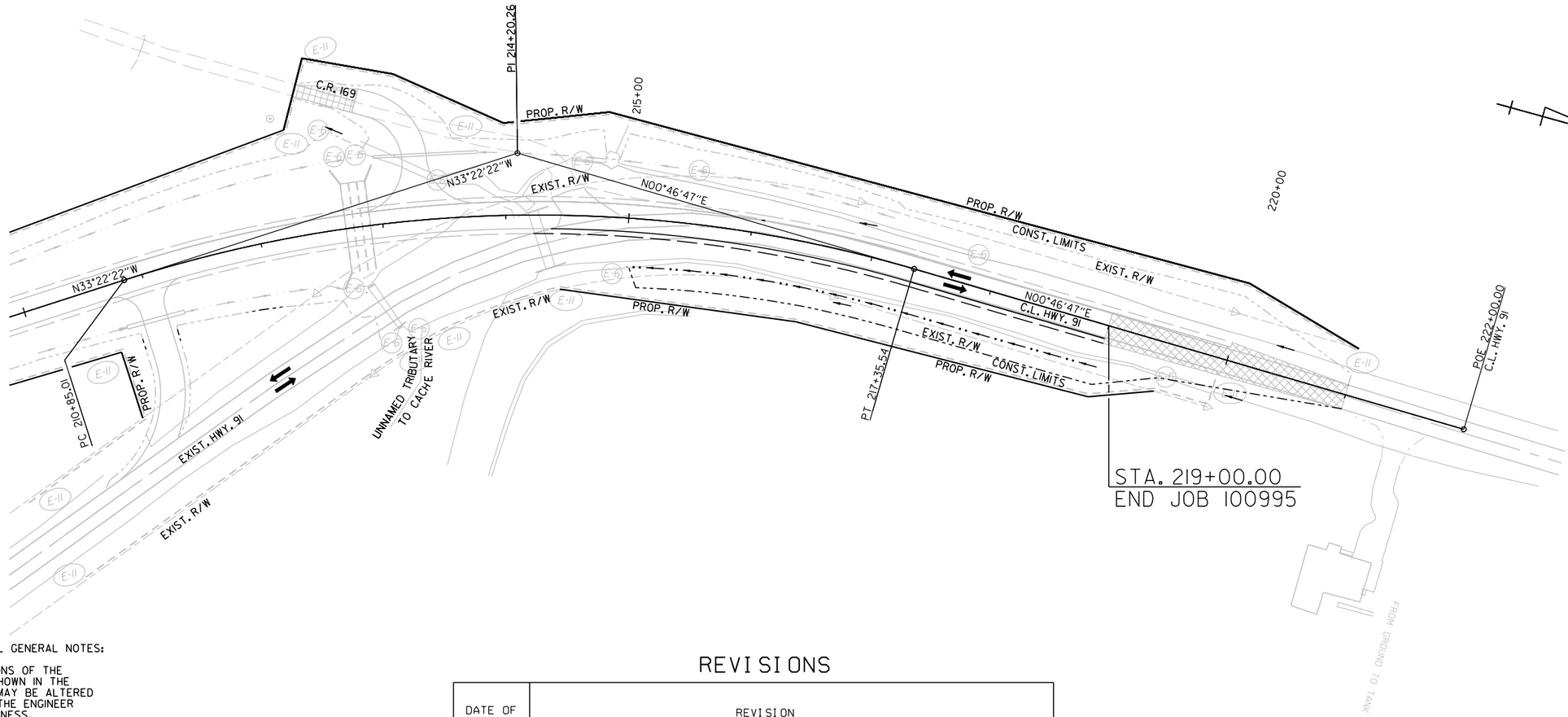
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	19	70
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023



LEGEND

= PAVEMENT TRANSITION

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REVISIONS

DATE OF REVISION	REVISION

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	20	70
		TEMPORARY EROSION CONTROL DETAILS				

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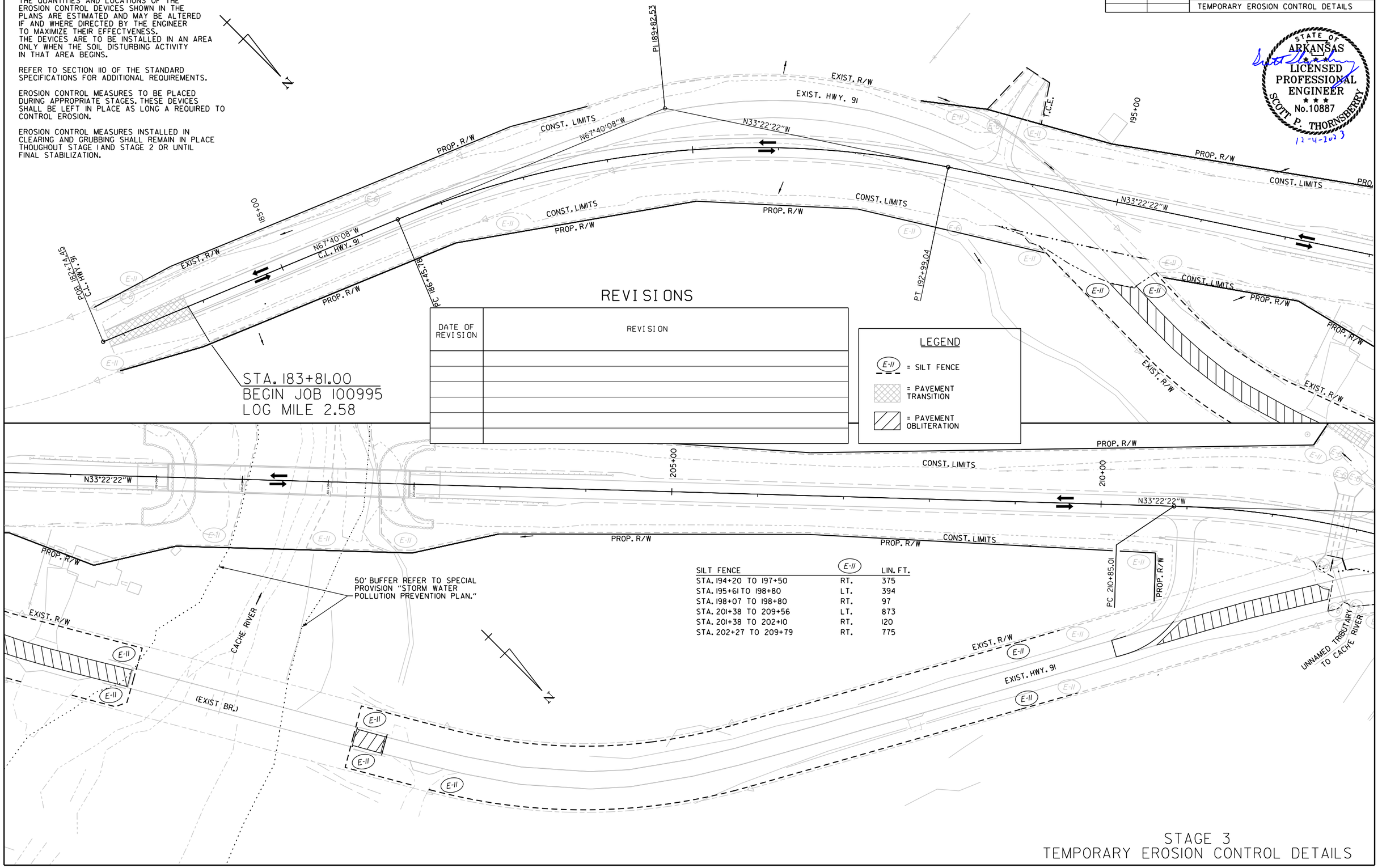

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-11 = SILT FENCE

= PAVEMENT TRANSITION

= PAVEMENT OBLITERATION

SILT FENCE	E-11	LIN. FT.
STA. 194+20 TO 197+50	RT.	375
STA. 195+61 TO 198+80	LT.	394
STA. 198+07 TO 198+80	RT.	97
STA. 201+38 TO 209+56	LT.	873
STA. 201+38 TO 202+10	RT.	120
STA. 202+27 TO 209+79	RT.	775

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023

STAGE 3
TEMPORARY EROSION CONTROL DETAILS

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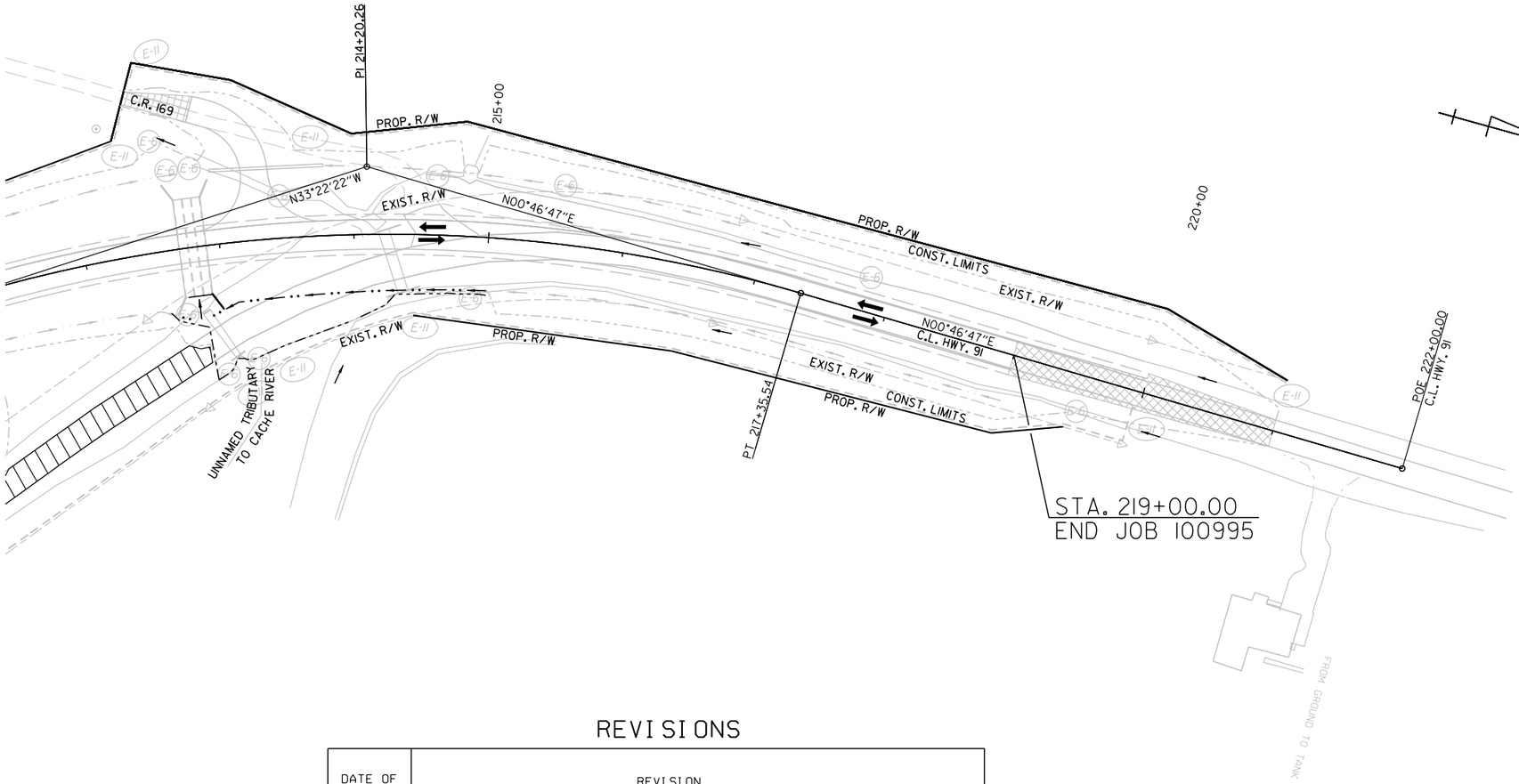
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	21	70
		TEMPORARY EROSION CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023



LEGEND

= PAVEMENT TRANSITION

= PAVEMENT OBLITERATION

TEMPORARY EROSION CONTROL GENERAL NOTES:

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REVISIONS

DATE OF REVISION	REVISION

STAGE 3
TEMPORARY EROSION CONTROL DETAILS

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REVISED DATE: $$REVDATE$$

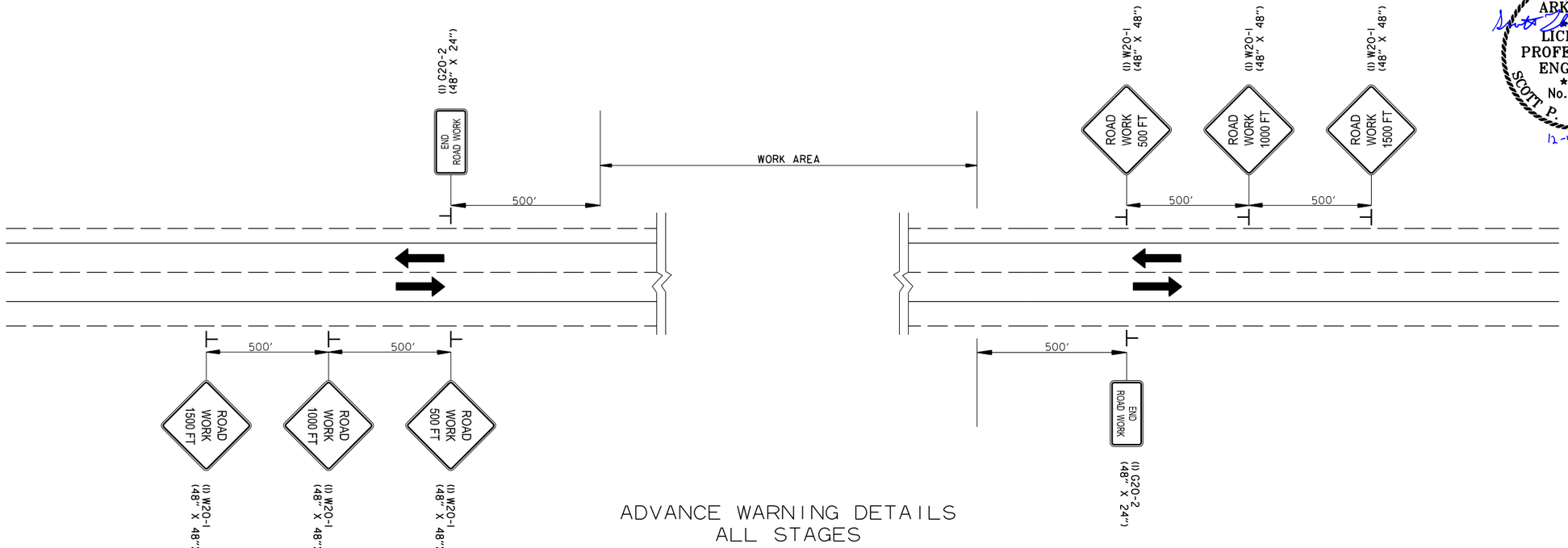
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	22	70
		MAINTENANCE OF TRAFFIC DETAILS				

LEGEND

TRAFFIC FLOW ARROWS

TEMP. SIGNS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
12-4-2023



ADVANCE WARNING DETAILS
ALL STAGES

CONSTRUCTION SEQUENCE

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS SHOWN ON THE ADVANCE WARNING DETAILS.
CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.
INSTALL MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY. (STA. 194+91 TO STA. 214+00 IS ON NEW LOCATION). CONSTRUCT ROADWAY, EMBANKMENT, BRIDGE, AND DRAINAGE FOR PROJECT AS SHOWN IN STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY.
CONSTRUCT ROADWAY EMBANKMENT AND PAVEMENT FOR PROPOSED LANES AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT REMAINING MILL AND INLAY AREAS, AND BUILD UP ASPHALT UNDER TRAFFIC TO PREPARE TO SHIFT TRAFFIC TO STAGE 3 PATTERNS.
STA. 183+81.00 TO STA. 186+50 HAS NOTCH & WIDEN ON BOTH SHOULDERS. THE CONTRACTOR MAY CLOSE ONLY ONE SHOULDER AT A TIME TO MAINTAIN TRAFFIC.

STAGE 3:

INSTALL STAGE 3 MAINTENANCE OF TRAFFIC DEVICES, SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BRIDGE.
INSTALL REMAINING ROADWAY TIES, DRAINAGE, FINAL GRADING AND EMBANKMENT.
REMOVE EXISTING BRIDGE AND OBLITERATE EXISTING PAVEMENT AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.
INSTALL PERMANENT PAVEMENT MARKINGS.

* (3) W21-5a (36" X 36")

* (3) R4-1 (24" X 30")

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

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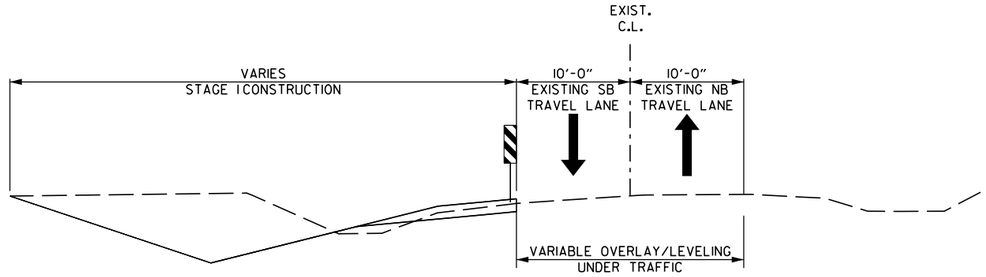
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	23	70
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023



STA. 193+67.00 TO STA. 194+91.00
STA. 212+90.00 TO STA. 220+00.00

CONSTRUCTION SEQUENCE

STAGE I:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS SHOWN ON THE ADVANCE WARNING DETAILS.
CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.
INSTALL MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY. (STA. 194+91 TO STA. 214+00 IS ON NEW LOCATION). CONSTRUCT ROADWAY, EMBANKMENT, BRIDGE, AND DRAINAGE FOR PROJECT AS SHOWN IN STAGE I MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY.
CONSTRUCT ROADWAY EMBANKMENT AND PAVEMENT FOR PROPOSED LANES AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.
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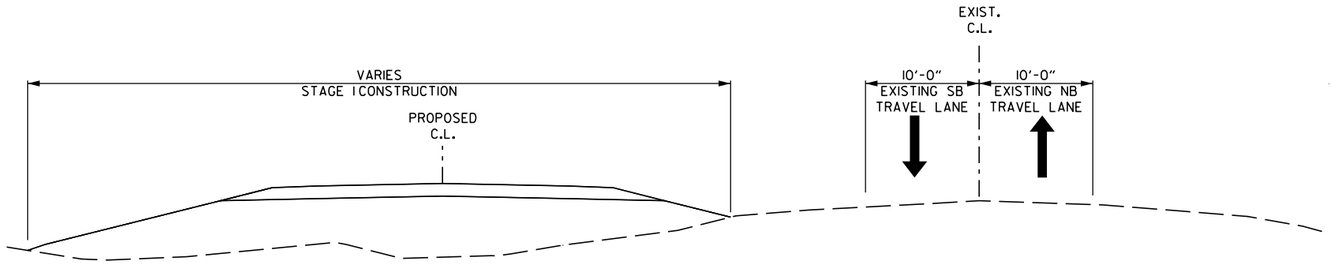
REMOVE EXISTING BRIDGE AND OBLITERATE EXISTING PAVEMENT AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.
INSTALL PERMANENT PAVEMENT MARKINGS.



STA. 194+91.00 TO STA. 212+90.00

STAGE I- TYPICAL SECTIONS

STAGE I
TYPICAL SECTION
MAINTENANCE OF TRAFFIC DETAILS

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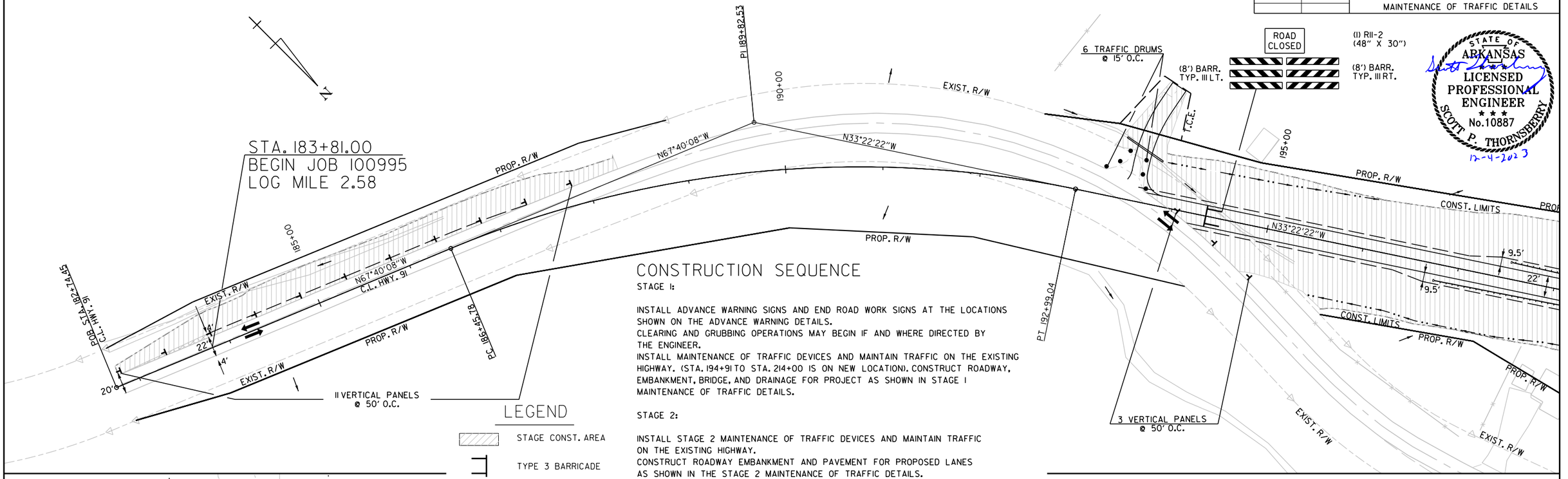
REVISED DATE: $$PREVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	24	70
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
SCOTT P. THORNSBERRY
No.10887
12-4-2023



CONSTRUCTION SEQUENCE

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS SHOWN ON THE ADVANCE WARNING DETAILS.
CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.
INSTALL MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY. (STA. 194+91 TO STA. 214+00 IS ON NEW LOCATION). CONSTRUCT ROADWAY, EMBANKMENT, BRIDGE, AND DRAINAGE FOR PROJECT AS SHOWN IN STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

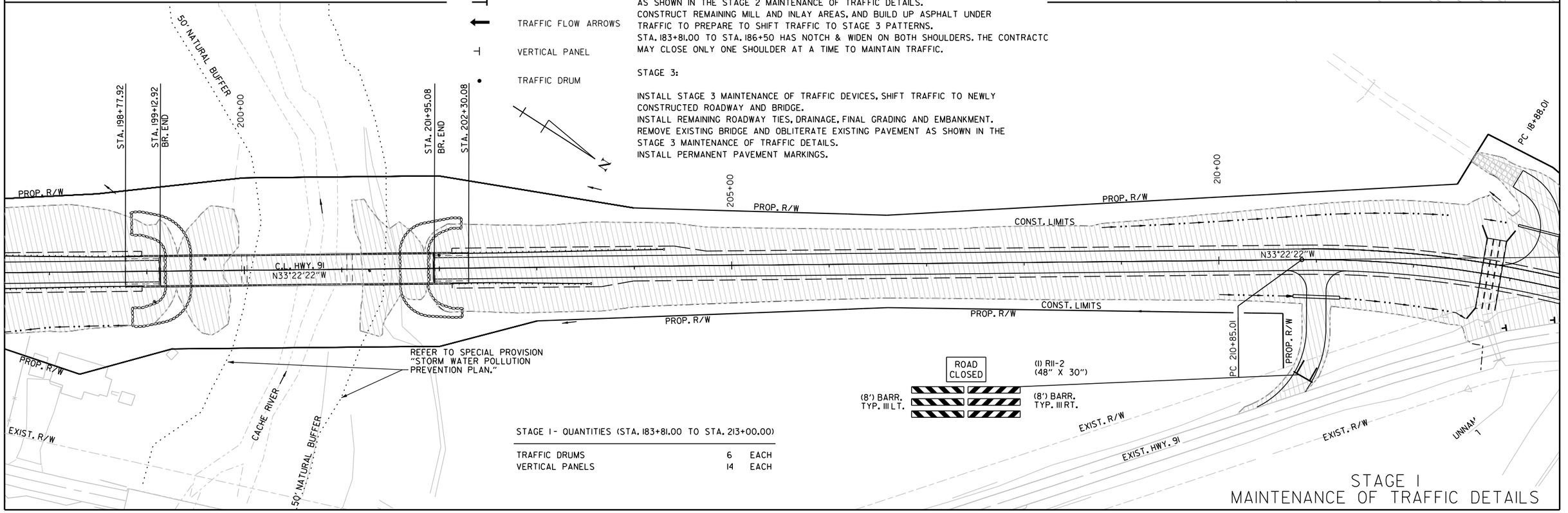
INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY.
CONSTRUCT ROADWAY EMBANKMENT AND PAVEMENT FOR PROPOSED LANES AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT REMAINING MILL AND INLAY AREAS, AND BUILD UP ASPHALT UNDER TRAFFIC TO PREPARE TO SHIFT TRAFFIC TO STAGE 3 PATTERNS.
STA. 183+81.00 TO STA. 186+50 HAS NOTCH & WIDEN ON BOTH SHOULDERS. THE CONTRACTC MAY CLOSE ONLY ONE SHOULDER AT A TIME TO MAINTAIN TRAFFIC.

STAGE 3:

INSTALL STAGE 3 MAINTENANCE OF TRAFFIC DEVICES, SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BRIDGE.
INSTALL REMAINING ROADWAY TIES, DRAINAGE, FINAL GRADING AND EMBANKMENT.
REMOVE EXISTING BRIDGE AND OBLITERATE EXISTING PAVEMENT AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.
INSTALL PERMANENT PAVEMENT MARKINGS.

LEGEND

- STAGE CONST. AREA
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS
- VERTICAL PANEL
- TRAFFIC DRUM



STAGE 1- QUANTITIES (STA. 183+81.00 TO STA. 213+00.00)		
TRAFFIC DRUMS	6	EACH
VERTICAL PANELS	14	EACH

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

Stephane.Bossio 10/17/2023 4:47:29 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_176208_100995_Cache River Strs & Apprs S of Egypt\Design\CIVIL\Drawings\R100995_06_MOT1_003.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	25	70
		MAINTENANCE OF TRAFFIC DETAILS				

LEGEND

- STAGE CONST. AREA
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS
- VERTICAL PANEL
- TRAFFIC DRUM

CONSTRUCTION SEQUENCE

STAGE I:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS SHOWN ON THE ADVANCE WARNING DETAILS.
CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.
INSTALL MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY. (STA. 194+91 TO STA. 214+00 IS ON NEW LOCATION). CONSTRUCT ROADWAY, EMBANKMENT, BRIDGE, AND DRAINAGE FOR PROJECT AS SHOWN IN STAGE I MAINTENANCE OF TRAFFIC DETAILS.

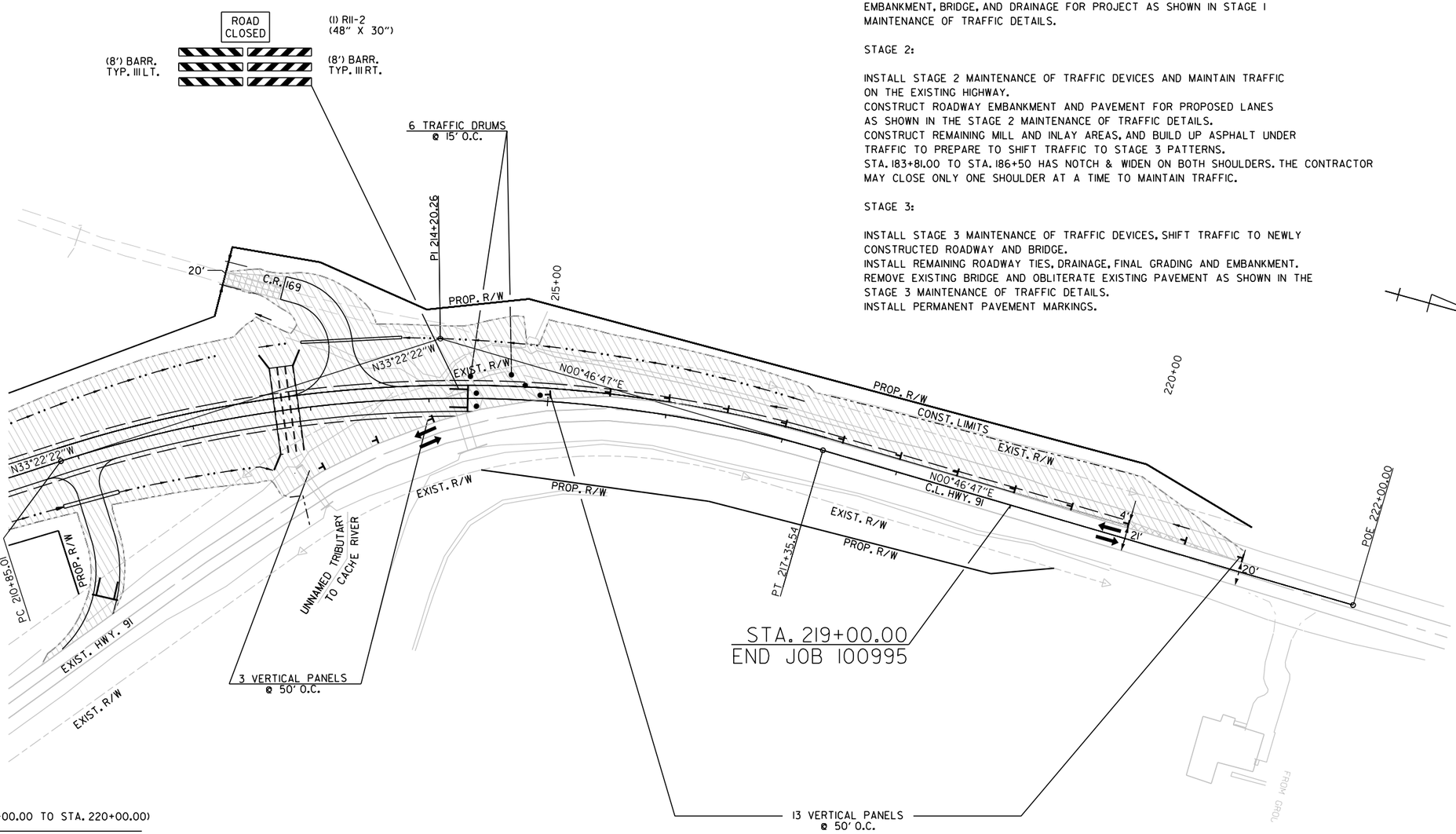
STAGE 2:

INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY.
CONSTRUCT ROADWAY EMBANKMENT AND PAVEMENT FOR PROPOSED LANES AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT REMAINING MILL AND INLAY AREAS, AND BUILD UP ASPHALT UNDER TRAFFIC TO PREPARE TO SHIFT TRAFFIC TO STAGE 3 PATTERNS.
STA. 183+81.00 TO STA. 186+50 HAS NOTCH & WIDEN ON BOTH SHOULDERS. THE CONTRACTOR MAY CLOSE ONLY ONE SHOULDER AT A TIME TO MAINTAIN TRAFFIC.

STAGE 3:

INSTALL STAGE 3 MAINTENANCE OF TRAFFIC DEVICES, SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BRIDGE.
INSTALL REMAINING ROADWAY TIES, DRAINAGE, FINAL GRADING AND EMBANKMENT.
REMOVE EXISTING BRIDGE AND OBLITERATE EXISTING PAVEMENT AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.
INSTALL PERMANENT PAVEMENT MARKINGS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023



STAGE I - QUANTITIES (STA. 213+00.00 TO STA. 220+00.00)

TRAFFIC DRUMS	6	EACH
VERTICAL PANELS	16	EACH

STAGE I
MAINTENANCE OF TRAFFIC DETAILS

Stephane.Bossio 10/17/2023 4:47:30 PM
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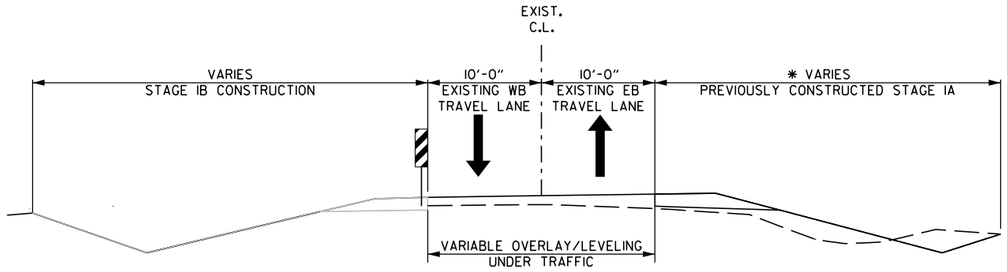
REVISED DATE: $$REVDATE$$

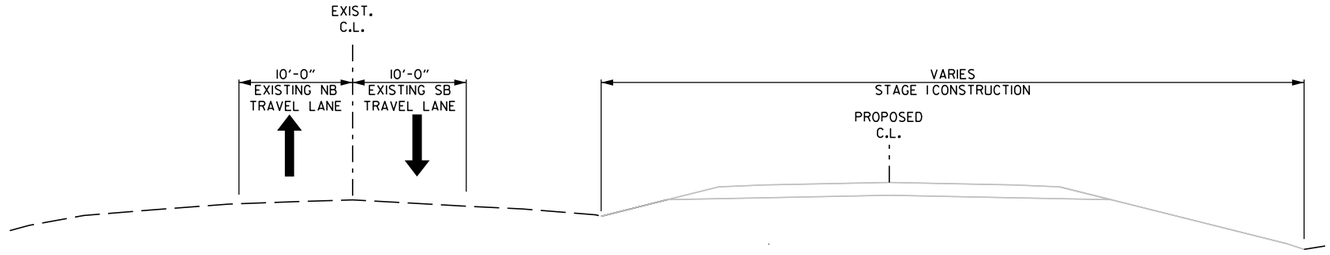
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	26	70
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023



* IF AND WHERE DIRECTED BY THE ENGINEER

STA. 183+81.00 TO STA. 189+00.00
STA. 192+86.00 TO STA. 194+24.00
STA. 214+22.00 TO STA. 220+00.00



STA. 194+24.00 TO STA. 214+22.00

CONSTRUCTION SEQUENCE

STAGE I:

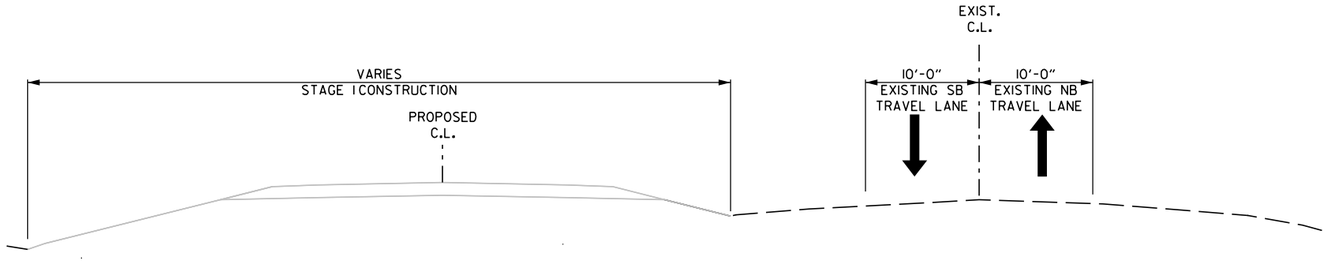
INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS SHOWN ON THE ADVANCE WARNING DETAILS.
CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.
INSTALL MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY. (STA. 194+91 TO STA. 214+00 IS ON NEW LOCATION). CONSTRUCT ROADWAY, EMBANKMENT, BRIDGE, AND DRAINAGE FOR PROJECT AS SHOWN IN STAGE I MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY.
CONSTRUCT ROADWAY EMBANKMENT AND PAVEMENT FOR PROPOSED LANES AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT REMAINING MILL AND INLAY AREAS, AND BUILD UP ASPHALT UNDER TRAFFIC TO PREPARE TO SHIFT TRAFFIC TO STAGE 3 PATTERNS.
STA. 183+81.00 TO STA. 186+50 HAS NOTCH & WIDEN ON BOTH SHOULDERS. THE CONTRACTOR MAY CLOSE ONLY ONE SHOULDER AT A TIME TO MAINTAIN TRAFFIC.

STAGE 3:

INSTALL STAGE 3 MAINTENANCE OF TRAFFIC DEVICES, SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BRIDGE.
INSTALL REMAINING ROADWAY TIES, DRAINAGE, FINAL GRADING AND EMBANKMENT.
REMOVE EXISTING BRIDGE AND OBLITERATE EXISTING PAVEMENT AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.
INSTALL PERMANENT PAVEMENT MARKINGS.



STA. 189+00.00 TO STA. 192+86.00

STAGE 2 - TYPICAL SECTIONS

STAGE 2
TYPICAL SECTION
MAINTENANCE OF TRAFFIC DETAILS

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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	27	70
		MAINTENANCE OF TRAFFIC DETAILS				

REMOVABLE CONST. PAVEMENT MARKING
WHITE SOLID EDGE LINE RT. - HWY. 91 (EXIST.)

STA. 186+45	TO	189+20	-	280 L.F.
STA. 192+61	TO	194+17	-	165 L.F.

REMOVABLE CONST. PAVEMENT MARKING
WHITE SOLID EDGE LINE LT. - HWY. 91 (EXIST.)

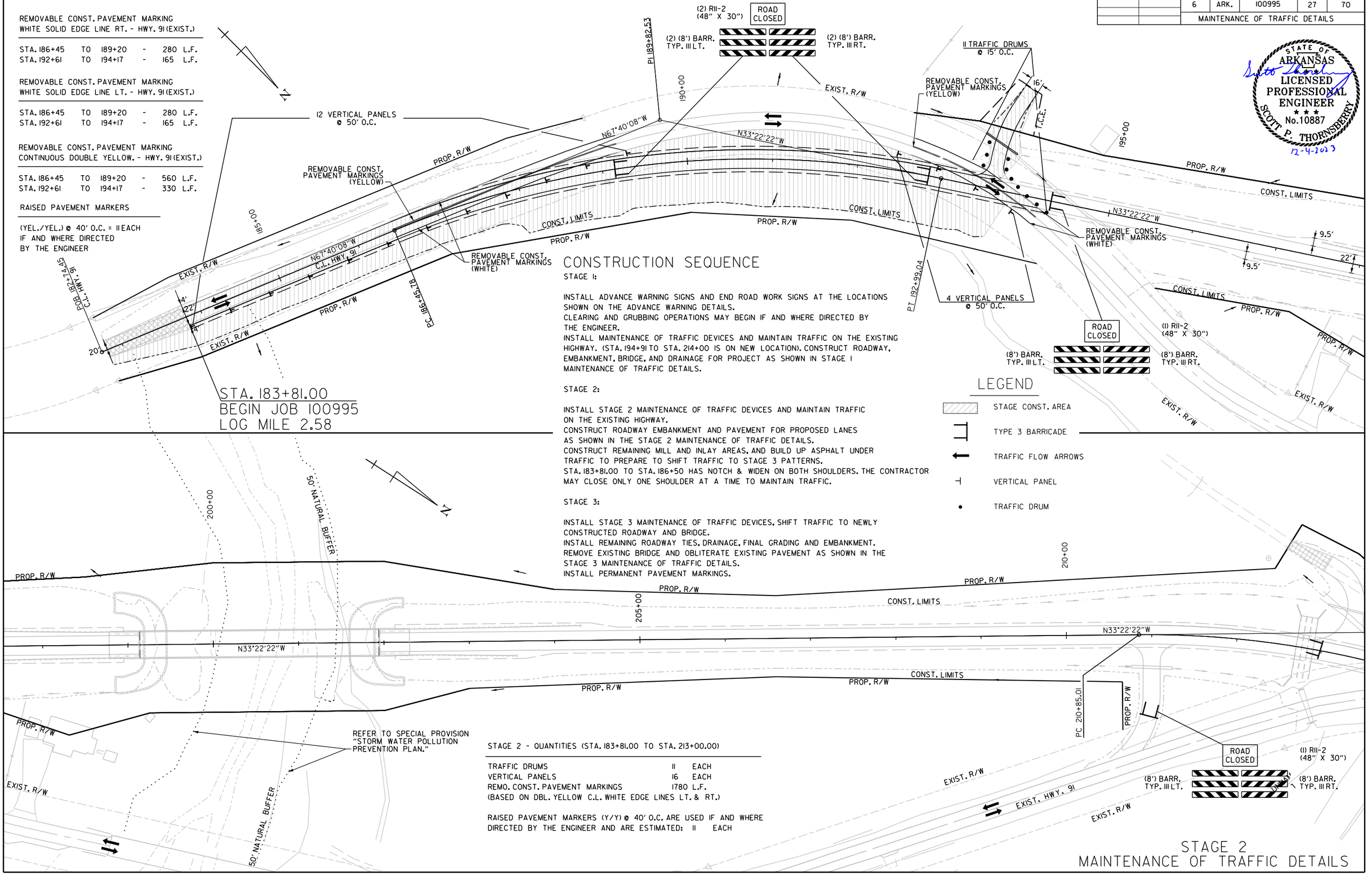
STA. 186+45	TO	189+20	-	280 L.F.
STA. 192+61	TO	194+17	-	165 L.F.

REMOVABLE CONST. PAVEMENT MARKING
CONTINUOUS DOUBLE YELLOW. - HWY. 91 (EXIST.)

STA. 186+45	TO	189+20	-	560 L.F.
STA. 192+61	TO	194+17	-	330 L.F.

RAISED PAVEMENT MARKERS

(YEL./YEL.) @ 40' O.C. = 11 EACH
IF AND WHERE DIRECTED
BY THE ENGINEER



CONSTRUCTION SEQUENCE

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS SHOWN ON THE ADVANCE WARNING DETAILS.
CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.
INSTALL MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY. (STA. 194+91 TO STA. 214+00 IS ON NEW LOCATION). CONSTRUCT ROADWAY, EMBANKMENT, BRIDGE, AND DRAINAGE FOR PROJECT AS SHOWN IN STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY.
CONSTRUCT ROADWAY EMBANKMENT AND PAVEMENT FOR PROPOSED LANES AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT REMAINING MILL AND INLAY AREAS, AND BUILD UP ASPHALT UNDER TRAFFIC TO PREPARE TO SHIFT TRAFFIC TO STAGE 3 PATTERNS.
STA. 183+81.00 TO STA. 186+50 HAS NOTCH & WIDEN ON BOTH SHOULDERS. THE CONTRACTOR MAY CLOSE ONLY ONE SHOULDER AT A TIME TO MAINTAIN TRAFFIC.

STAGE 3:

INSTALL STAGE 3 MAINTENANCE OF TRAFFIC DEVICES, SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BRIDGE.
INSTALL REMAINING ROADWAY TIES, DRAINAGE, FINAL GRADING AND EMBANKMENT.
REMOVE EXISTING BRIDGE AND OBLITERATE EXISTING PAVEMENT AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.
INSTALL PERMANENT PAVEMENT MARKINGS.

LEGEND

- STAGE CONST. AREA
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS
- VERTICAL PANEL
- TRAFFIC DRUM

STAGE 2 - QUANTITIES (STA. 183+81.00 TO STA. 213+00.00)

TRAFFIC DRUMS	11	EACH
VERTICAL PANELS	16	EACH
REMO. CONST. PAVEMENT MARKINGS (BASED ON DBL. YELLOW C.L. WHITE EDGE LINES LT. & RT.)	1780	L.F.

RAISED PAVEMENT MARKERS (Y/Y) @ 40' O.C. ARE USED IF AND WHERE DIRECTED BY THE ENGINEER AND ARE ESTIMATED: 11 EACH

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

Stephane.Bossio 10/17/2023 4:47:32 PM
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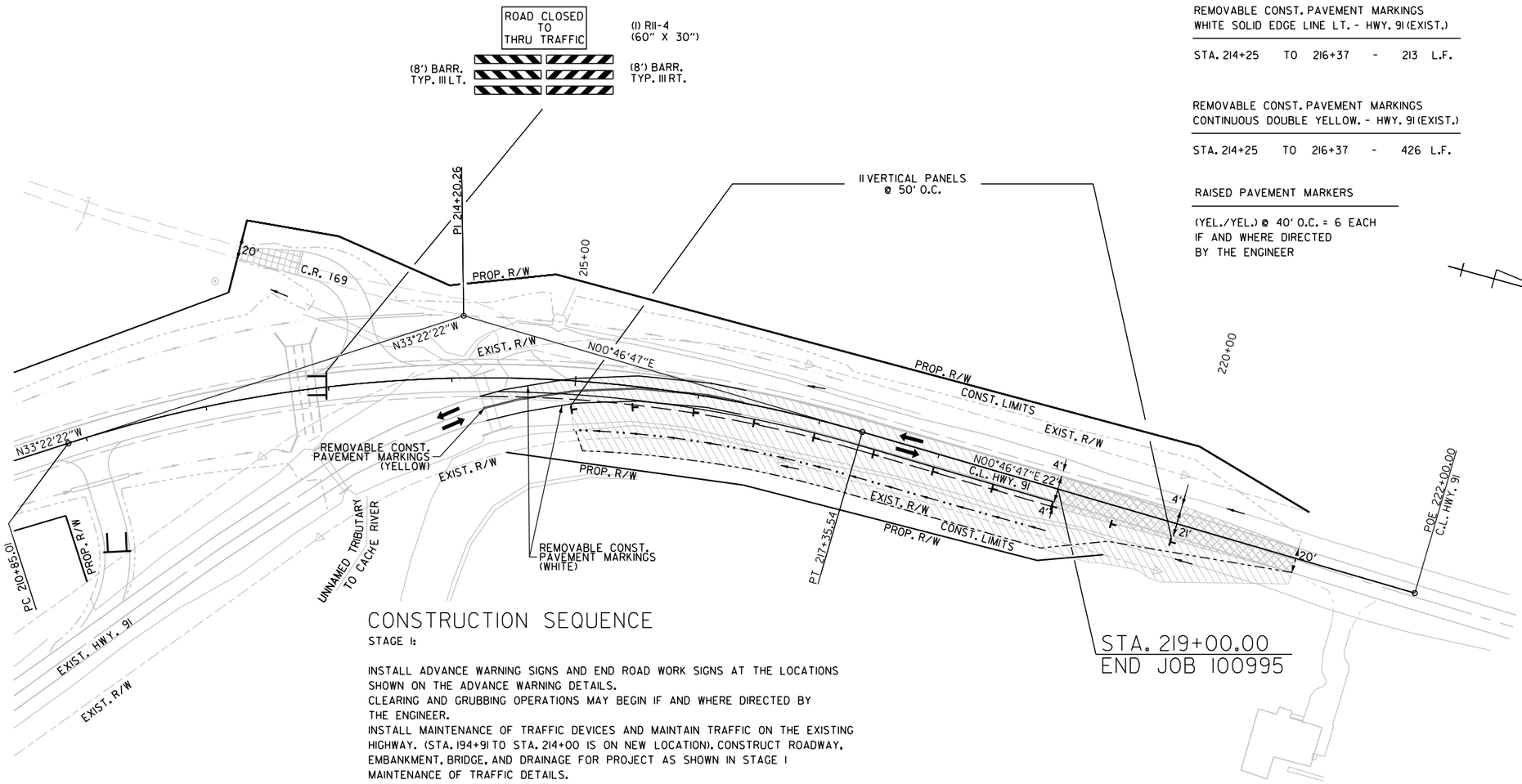
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	28	70
		MAINTENANCE OF TRAFFIC DETAILS				

LEGEND

- STAGE CONST. AREA
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS
- VERTICAL PANEL
- TRAFFIC DRUM



REMOVABLE CONST. PAVEMENT MARKINGS
WHITE SOLID EDGE LINE RT. - HWY. 91 (EXIST.)

STA. 214+25 TO 216+37 - 213 L.F.

REMOVABLE CONST. PAVEMENT MARKINGS
WHITE SOLID EDGE LINE LT. - HWY. 91 (EXIST.)

STA. 214+25 TO 216+37 - 213 L.F.

REMOVABLE CONST. PAVEMENT MARKINGS
CONTINUOUS DOUBLE YELLOW. - HWY. 91 (EXIST.)

STA. 214+25 TO 216+37 - 426 L.F.

RAISED PAVEMENT MARKERS

(YEL./YEL.) @ 40' O.C. = 6 EACH
IF AND WHERE DIRECTED
BY THE ENGINEER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023

STAGE 2 - QUANTITIES (STA. 213+00.00 TO STA. 220+00.00)

VERTICAL PANELS	11	EACH
REMO. CONST. PAVEMENT MARKINGS	852	L.F.
(BASED ON DBL. YELLOW C.L. WHITE EDGE LINES LT. & RT.)		

RAISED PAVEMENT MARKERS (Y/Y) @ 40' O.C. ARE USED IF AND WHERE DIRECTED BY THE ENGINEER AND ARE ESTIMATED: 6 EACH

CONSTRUCTION SEQUENCE

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS SHOWN ON THE ADVANCE WARNING DETAILS.
CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.
INSTALL MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY. (STA. 194+91 TO STA. 214+00 IS ON NEW LOCATION). CONSTRUCT ROADWAY, EMBANKMENT, BRIDGE, AND DRAINAGE FOR PROJECT AS SHOWN IN STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY.
CONSTRUCT ROADWAY EMBANKMENT AND PAVEMENT FOR PROPOSED LANES AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT REMAINING MILL AND INLAY AREAS, AND BUILD UP ASPHALT UNDER TRAFFIC TO PREPARE TO SHIFT TRAFFIC TO STAGE 3 PATTERNS.
STA. 183+81.00 TO STA. 186+50 HAS NOTCH & WIDEN ON BOTH SHOULDERS. THE CONTRACTOR MAY CLOSE ONLY ONE SHOULDER AT A TIME TO MAINTAIN TRAFFIC.

STAGE 3:

INSTALL STAGE 3 MAINTENANCE OF TRAFFIC DEVICES, SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BRIDGE.
INSTALL REMAINING ROADWAY TIES, DRAINAGE, FINAL GRADING AND EMBANKMENT.
REMOVE EXISTING BRIDGE AND OBLITERATE EXISTING PAVEMENT AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.
INSTALL PERMANENT PAVEMENT MARKINGS.

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

Stephane.Bossio 10/17/2023 4:47:33 PM
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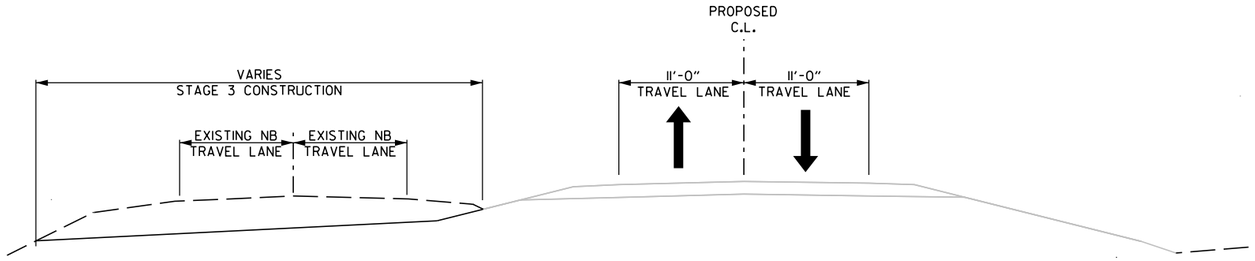
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	29	70
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023



STA. 193+70.00 TO STA. 194+90.00

CONSTRUCTION SEQUENCE

STAGE 1:

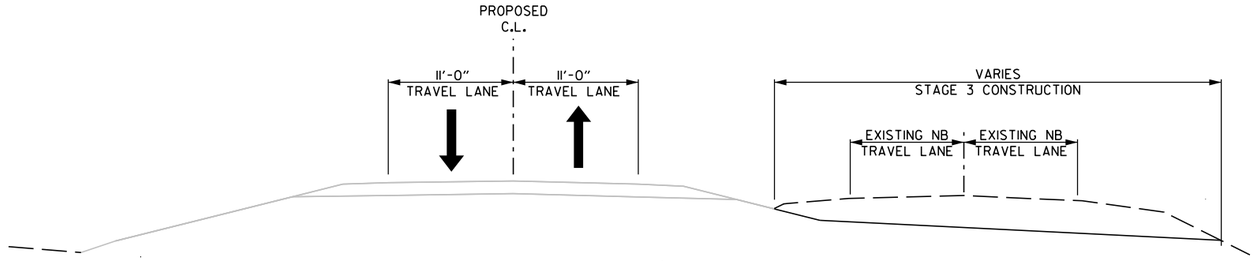
INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS SHOWN ON THE ADVANCE WARNING DETAILS.
CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.
INSTALL MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY. (STA. 194+91 TO STA. 214+00 IS ON NEW LOCATION). CONSTRUCT ROADWAY, EMBANKMENT, BRIDGE, AND DRAINAGE FOR PROJECT AS SHOWN IN STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

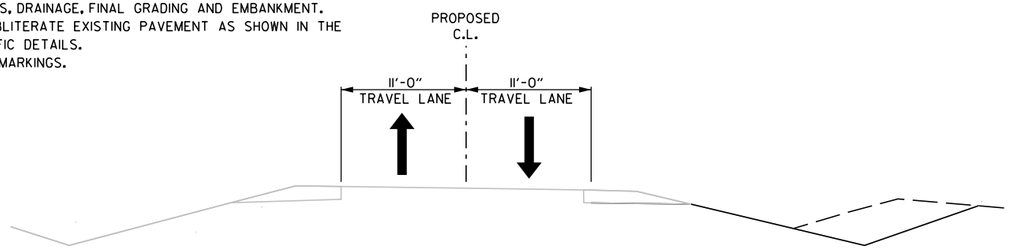
INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY.
CONSTRUCT ROADWAY EMBANKMENT AND PAVEMENT FOR PROPOSED LANES AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT REMAINING MILL AND INLAY AREAS, AND BUILD UP ASPHALT UNDER TRAFFIC TO PREPARE TO SHIFT TRAFFIC TO STAGE 3 PATTERNS.
STA. 183+81.00 TO STA. 186+50 HAS NOTCH & WIDEN ON BOTH SHOULDERS. THE CONTRACTOR MAY CLOSE ONLY ONE SHOULDER AT A TIME TO MAINTAIN TRAFFIC.

STAGE 3:

INSTALL STAGE 3 MAINTENANCE OF TRAFFIC DEVICES, SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BRIDGE.
INSTALL REMAINING ROADWAY TIES, DRAINAGE, FINAL GRADING AND EMBANKMENT.
REMOVE EXISTING BRIDGE AND OBLITERATE EXISTING PAVEMENT AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.
INSTALL PERMANENT PAVEMENT MARKINGS.



STA. 188+29.00 TO STA. 193+51.00



STA. 212+87.00 TO STA. 215+01.00

STAGE 3
TYPICAL SECTION
MAINTENANCE OF TRAFFIC DETAILS

Stephane.Bossio 10/17/2023 4:47:34 PM
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	30	70
		MAINTENANCE OF TRAFFIC DETAILS				

CONST. PAVEMENT MARKIN
WHITE SOLID EDGE LINE RT. - HWY. 91

STA. 182+81 TO 213+00 - 3019 L.F.

CONST. PAVEMENT MARKIN
WHITE SOLID EDGE LINE LT. - HWY. 91

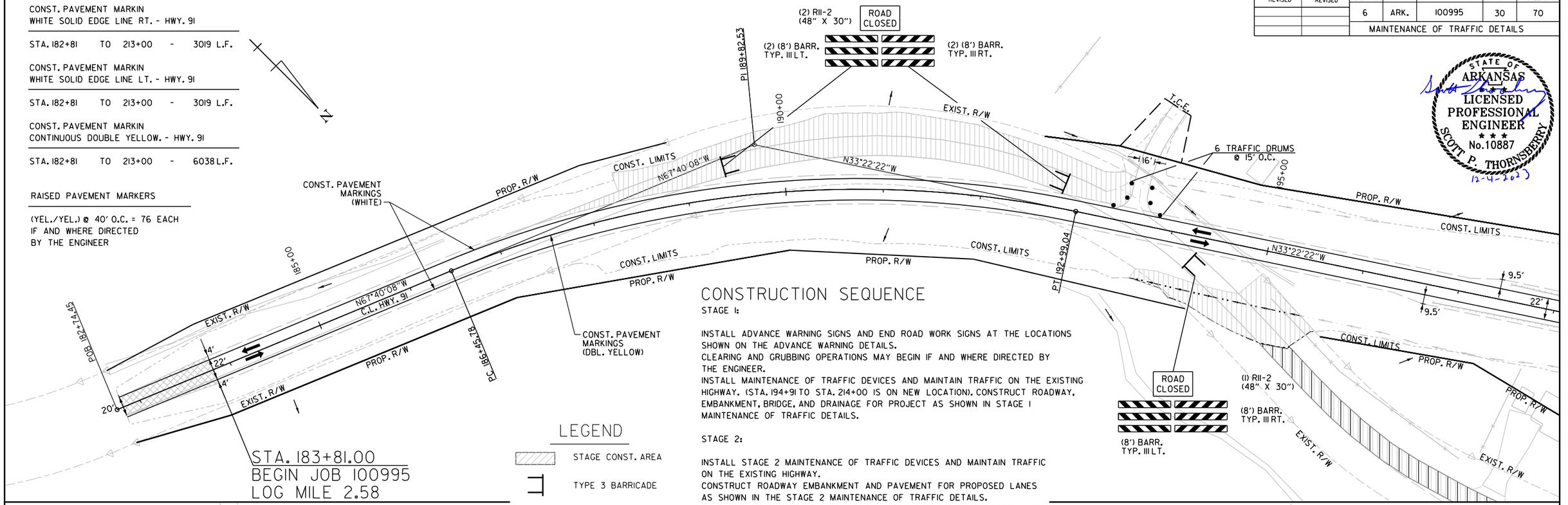
STA. 182+81 TO 213+00 - 3019 L.F.

CONST. PAVEMENT MARKIN
CONTINUOUS DOUBLE YELLOW. - HWY. 91

STA. 182+81 TO 213+00 - 6038 L.F.

RAISED PAVEMENT MARKERS

(YEL./YEL.) @ 40' O.C. = 76 EACH
IF AND WHERE DIRECTED
BY THE ENGINEER



STA. 183+81.00
BEGIN JOB 100995
LOG MILE 2.58

LEGEND

- STAGE CONST. AREA
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS
- PAVEMENT OBLITERATION

CONSTRUCTION SEQUENCE

STAGE 1:

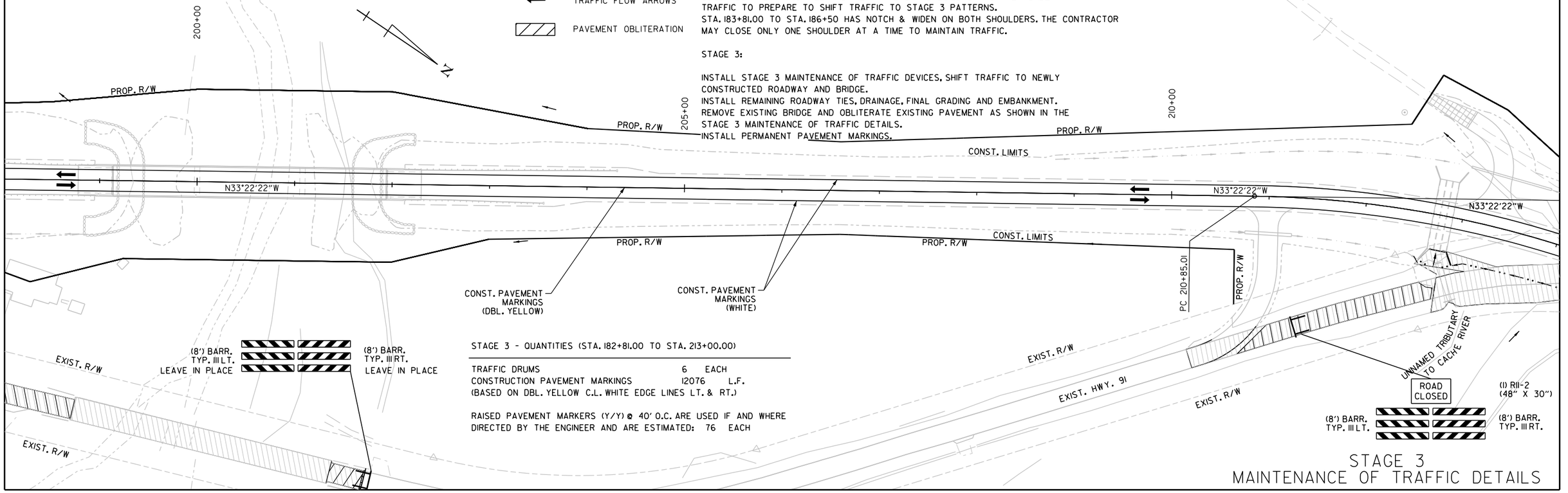
INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS SHOWN ON THE ADVANCE WARNING DETAILS.
CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.
INSTALL MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY. (STA. 194+91 TO STA. 214+00 IS ON NEW LOCATION). CONSTRUCT ROADWAY, EMBANKMENT, BRIDGE, AND DRAINAGE FOR PROJECT AS SHOWN IN STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY.
CONSTRUCT ROADWAY EMBANKMENT AND PAVEMENT FOR PROPOSED LANES AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT REMAINING MILL AND INLAY AREAS, AND BUILD UP ASPHALT UNDER TRAFFIC TO PREPARE TO SHIFT TRAFFIC TO STAGE 3 PATTERNS.
STA. 183+81.00 TO STA. 186+50 HAS NOTCH & WIDEN ON BOTH SHOULDERS. THE CONTRACTOR MAY CLOSE ONLY ONE SHOULDER AT A TIME TO MAINTAIN TRAFFIC.

STAGE 3:

INSTALL STAGE 3 MAINTENANCE OF TRAFFIC DEVICES, SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BRIDGE.
INSTALL REMAINING ROADWAY TIES, DRAINAGE, FINAL GRADING AND EMBANKMENT.
REMOVE EXISTING BRIDGE AND OBLITERATE EXISTING PAVEMENT AS SHOWN IN THE STAGE 3 MAINTENANCE OF TRAFFIC DETAILS.
INSTALL PERMANENT PAVEMENT MARKINGS.



STAGE 3 - QUANTITIES (STA. 182+81.00 TO STA. 213+00.00)

TRAFFIC DRUMS	6	EACH
CONSTRUCTION PAVEMENT MARKINGS (BASED ON DBL. YELLOW C.L. WHITE EDGE LINES LT. & RT.)	12076	L.F.

RAISED PAVEMENT MARKERS (Y/Y) @ 40' O.C. ARE USED IF AND WHERE DIRECTED BY THE ENGINEER AND ARE ESTIMATED: 76 EACH

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023

STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

Stephane.Bosslo 10/17/2023 4:47:35 PM
WORKSPACE: ARDOT
Y:\Projects\ARDOT_176208.100995.Cache River Strs & Apprs S of Egypt\Design\CIVIL\Drawings\R100995.06.MOT3.002.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	31	70
		MAINTENANCE OF TRAFFIC DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023

LEGEND

- STAGE CONST. AREA
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROWS
- PAVEMENT OBLITERATION

CONST. PAVEMENT MARKINGS
WHITE SOLID EDGE LINE RT. - HWY. 91

STA. 213+00 TO 221+00 - 800 L.F.

CONST. PAVEMENT MARKINGS
WHITE SOLID EDGE LINE LT. - HWY. 91

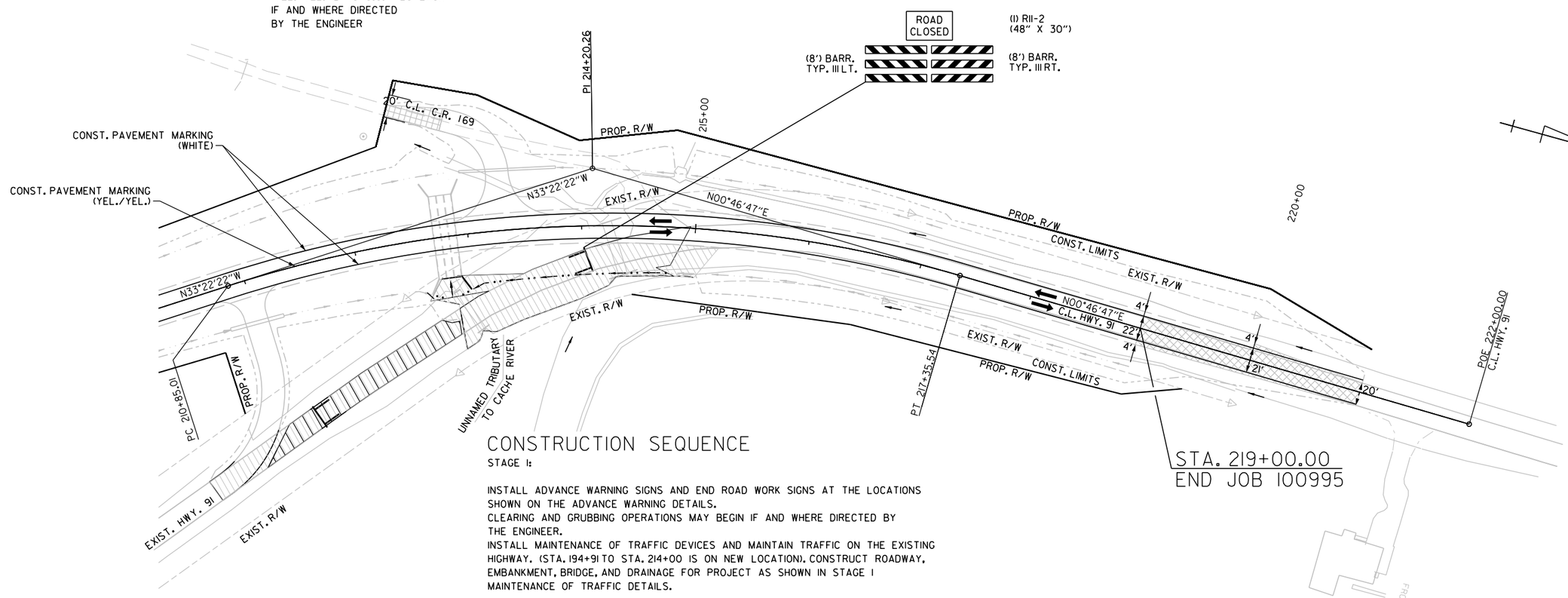
STA. 213+00 TO 221+00 - 800 L.F.

CONST. PAVEMENT MARKINGS
CONTINUOUS DOUBLE YELLOW. - HWY. 91

STA. 213+00 TO 221+00 - 1600 L.F.

RAISED PAVEMENT MARKERS

(YEL./YEL.) @ 40' O.C. = 20 EACH
IF AND WHERE DIRECTED
BY THE ENGINEER



CONSTRUCTION SEQUENCE

STAGE 1:

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS SHOWN ON THE ADVANCE WARNING DETAILS.
CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.
INSTALL MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY. (STA. 194+91 TO STA. 214+00 IS ON NEW LOCATION). CONSTRUCT ROADWAY, EMBANKMENT, BRIDGE, AND DRAINAGE FOR PROJECT AS SHOWN IN STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

INSTALL STAGE 2 MAINTENANCE OF TRAFFIC DEVICES AND MAINTAIN TRAFFIC ON THE EXISTING HIGHWAY.
CONSTRUCT ROADWAY EMBANKMENT AND PAVEMENT FOR PROPOSED LANES AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.
CONSTRUCT REMAINING MILL AND INLAY AREAS, AND BUILD UP ASPHALT UNDER TRAFFIC TO PREPARE TO SHIFT TRAFFIC TO STAGE 3 PATTERNS.
STA. 183+81.00 TO STA. 186+50 HAS NOTCH & WIDEN ON BOTH SHOULDERS. THE CONTRACTOR MAY CLOSE ONLY ONE SHOULDER AT A TIME TO MAINTAIN TRAFFIC.

STAGE 3:

INSTALL STAGE 3 MAINTENANCE OF TRAFFIC DEVICES, SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BRIDGE.
INSTALL REMAINING ROADWAY TIES, DRAINAGE, FINAL GRADING AND EMBANKMENT.

STAGE 3 - QUANTITIES (STA. 213+00.00 TO STA. 221+00.00)

CONSTRUCTION PAVEMENT MARKINGS 3200 L.F.
(BASED ON DBL. YELLOW C.L. WHITE EDGE LINES LT. & RT.)

RAISED PAVEMENT MARKERS (Y/Y) @ 40' O.C. ARE USED IF AND WHERE DIRECTED BY THE ENGINEER AND ARE ESTIMATED: 20 EACH

STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	32	70
		PERMANENT PAVEMENT MARKINGS DETAILS				

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 PROJECT.

STATE OF ARKANSAS
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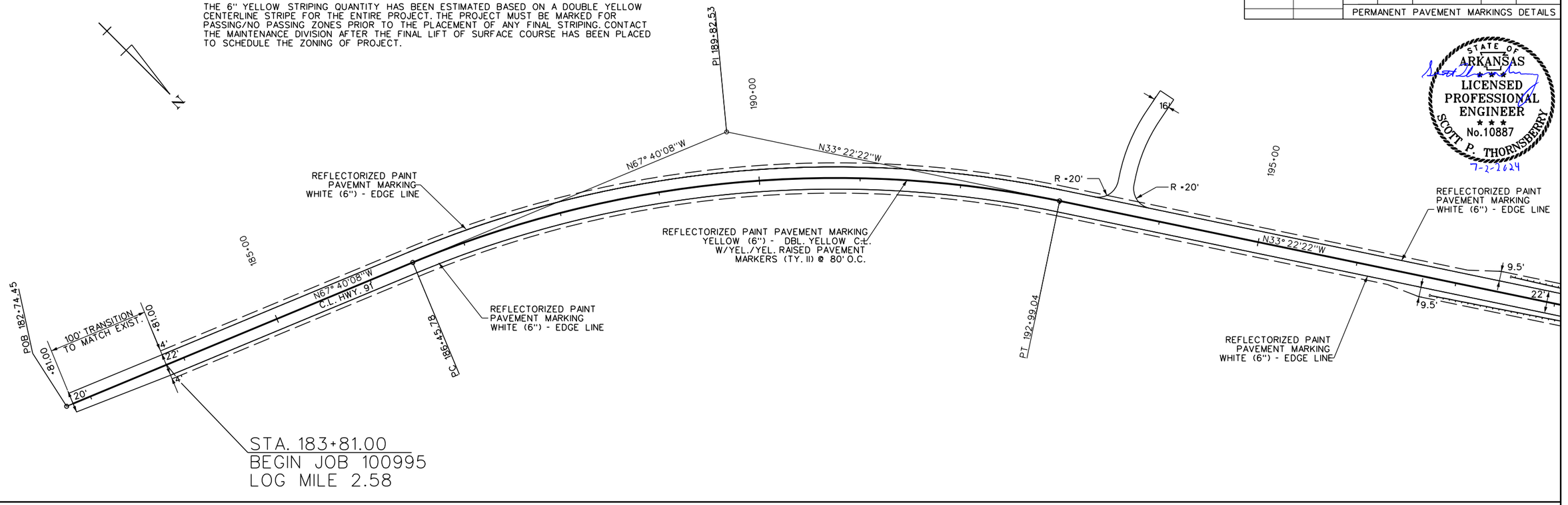
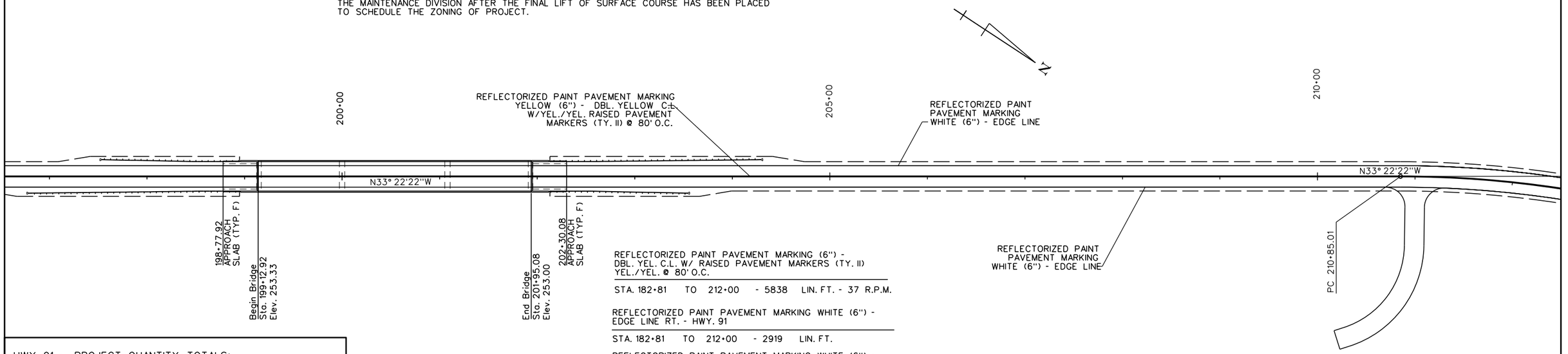
7-2-2024



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 PROJECT.



REFLECTORIZED PAINT PAVEMENT MARKING (6") - DBL. YEL. C.L. W/ RAISED PAVEMENT MARKERS (TY. II) YEL./YEL. @ 80' O.C.

STA. 182+81 TO 212+00 - 5838 LIN. FT. - 37 R.P.M.

REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") - EDGE LINE RT. - HWY. 91

STA. 182+81 TO 212+00 - 2919 LIN. FT.

REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") - EDGE LINE LT. - HWY. 91

STA. 182+81 TO 212+00 - 2919 LIN. FT.

HWY. 91 - PROJECT QUANTITY TOTALS:

REFLECTORIZED PAINT PAVEMENT MARKING
WHITE (6") - EDGE LINES = 7638 LIN. FT.
YELLOW (6") - DBL. C.L. = 7638 LIN. FT.
RAISED PAVEMENT MARKERS (TY. II) - YEL./YEL. = 49 EACH

PERMANENT PAVEMENT MARKINGS DETAILS

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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	33	70
		PERMANENT PAVEMENT MARKINGS DETAILS				

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 PROJECT.

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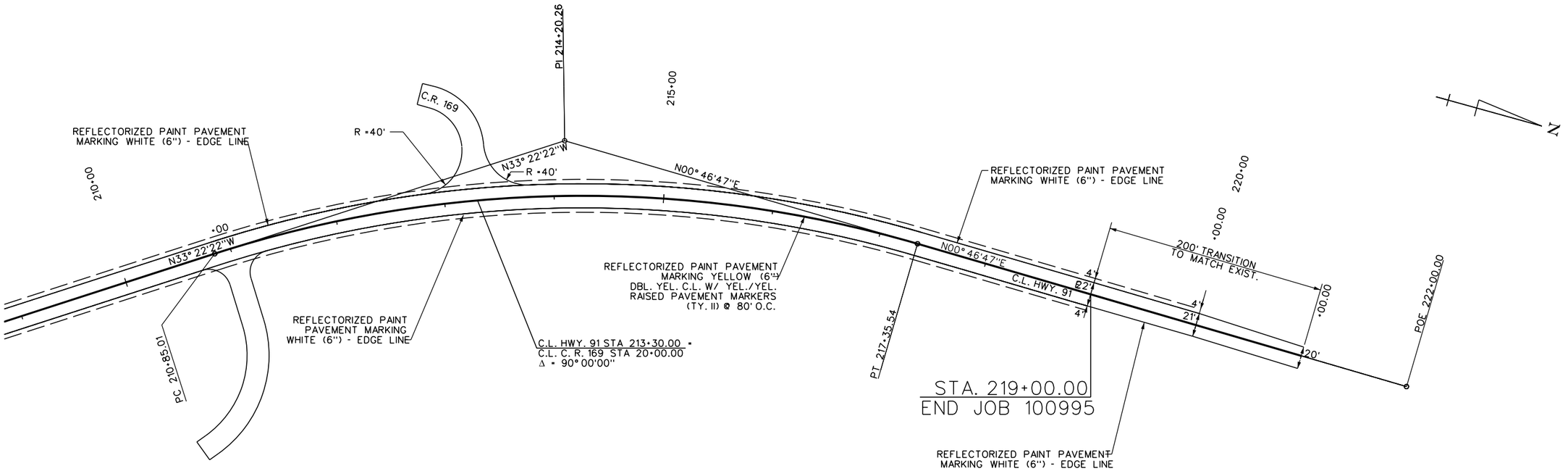

REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6") - DBL. YEL. C.L. W/ RAISED PAVEMENT MARKERS (TY. II) YEL./YEL. @ 80' O.C.

STA. 212+00 TO 221+00 - 1800 LIN. FT. - 12 R.P.M.

REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") - EDGE LINE RT. - HWY. 91

STA. 212+00 TO 221+00 - 900 LIN. FT.

REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") - EDGE LINE LT. - HWY. 91

STA. 212+00 TO 221+00 - 900 LIN. FT.

HWY. 91 - PROJECT QUANTITY TOTALS:

REFLECTORIZED PAINT PAVEMENT MARKING
WHITE (6") - EDGE LINES = 7638 LIN. FT.
YELLOW (6") - DBL. C.L. = 7638 LIN. FT.
RAISED PAVEMENT MARKERS (TY. II) - YEL./YEL. = 49 EACH

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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	34	70
		QUANTITY SHEETS				

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)	
												RIGHT	LEFT
			LIN. FT. - EACH					NO.	SQ. FT.	EACH		LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2		2	2	32.0				
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2		2	2	32.0				
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2		2	2	32.0				
G20-2	END ROAD WORK	48"x24"	2	2	2		2	2	16.0				
R11-2	ROAD CLOSED	48"x30"	3	4	5		5	5	50.0				
R11-4	ROAD CLOSED TO THRU TRAFFIC	60"X30"		1			1	1	12.5				
R4-1	DO NOT PASS	24"x30"	3	3	3		3	3	15.0				
* W21-5A	RIGHT SHOULDER CLOSED	36"x36"	3	3	3		3	3	27.0				
	VERTICAL PANELS		30	27			30			30			
	TRAFFIC DRUMS		12	11	6		12				12		
	TYPE III BARRICADE-RT. (8')		3	5	6	1	6					48	
	TYPE III BARRICADE-LT. (8')		3	5	6	1	6						48
TOTALS:									**216.5**	**30**	**12**	**48**	**48**

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

THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY. THIS IS THE MAXIMUM QUANTITY REQUIRED TO ALLOW THE CONTRACTOR TO NOTCH, BACKFILL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4" OR LESS, AND THEN NOTCH ANOTHER SECTION. THIS IS THE MAXIMUM NUMBER OF VERTICAL PANELS THAT WILL BE PAID FOR. REFER TO SECTION 603.02 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 2	STAGE 3	END OF JOB	CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING	
						TYPE II	6"	
						(YELLOW/YELLOW)	WHITE	YELLOW
	LIN. FT. - EACH			LIN. FT.	LIN. FT.	EACH	LIN. FT.	
CONSTRUCTION PAVEMENT MARKINGS		15276		15276				
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	2632				2632			
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)	17	96	49			162		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")			7638				7638	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")			7638					7638
TOTALS:				**15276**	**2632**	**162**	**7638**	**7638**

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

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL					
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	CU.YD.	LIN. FT.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING						10.65	10.65	217.3	39	7723	299
ENTIRE	PROJECT	STAGE 1	6.15	12.30	6.15	627.3	6.15	12.30	12.30	250.9	9	341	16
ENTIRE	PROJECT	STAGE 2	2.02	4.04	2.02	206.0	2.02	4.04	4.04	82.4			
ENTIRE	PROJECT	STAGE 3	1.19	2.38	1.19	121.4	1.19	2.38	2.38	48.6		2634	98
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			0.94	1.88	0.94	95.9	0.94	2.94	2.94	60.0	5	1070	41
TOTALS:			**10.30**	**20.60**	**10.30**	**1050.6**	**10.30**	**32.31**	**32.31**	**659.2**	**53**	**11768**	**454**

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
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.

REMOVAL AND DISPOSAL OF GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL
			LIN. FT.
198+44	198+71	RT. OF C.L. HWY. 91	27
198+49	198+77	RT. OF C.L. HWY. 91	28
201+38	201+66	RT. OF C.L. HWY. 91	28
201+43	201+76	RT. OF C.L. HWY. 91	33
TOTAL:			**116**

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

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			1150	5
TOTALS:			**1150**	**5**

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

SOIL LOG

SUMMARY SOIL CLASSIFICATION TEST RESULTS - CACHE RIVER

BORING NO.	APPROX. STATION	SAMPLE DEPTH (ft.)	WATER CONTENT (%)	ATTERBERG LIMITS			PERCENT PASSING #200	UNIFIED CLASS.	AASHTO CLASS.
				LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX			
B-1		2 - 3.5	22	NP	NP	NP	14	SM	A-2-4
B-1		8.5 - 10	26	24	15	9	54	CL	A-4
B-1		18.5 - 20	25	NP	NP	NP	24	SM	A-2-4
B-1		28.5 - 30	19	--	--	--	19	SP-SC	A-3
B-1		58.5 - 60	25	--	--	--	14	SC	A-2-6
B-1		78.5 - 80	21	--	--	--	7	SP-SC	A-2-4
B-1		88.5 - 90	17	--	--	--	17	SC	A-2-4
B-2		0.5 - 2	9	--	--	--	9	SP-SC	A-2-4
B-2		5 - 6.5	20	NP	NP	NP	16	SM	A-2-4
B-2		13.5 - 15	32	51	13	38	77	CH	A-7-6
B-2		23.5 - 25	--	NP	NP	NP	18	SM	A-2-4
B-2		33.5 - 35	15	--	--	--	5	SP-SC	A-2-4
B-2		43.5 - 45	23	--	--	--	11	SP-SC	A-2-4
B-2		68.5 - 70	21	--	--	--	18	SC	A-2-4
B-2		88.5 - 90	25	--	--	--	9	SP-SC	A-2-4
B-4		2 - 3.5	20	43	15	28	68	CL	A-7-6
B-4		8.5 - 10	15	--	--	--	39	SC	A-4
B-4		18.5 - 20	16	--	--	--	14	SC	A-2-4
B-4		28.5 - 30	19	--	--	--	6	SP-SC	A-2-4
B-4		38.5 - 40	19	--	--	--	8	SP-SC	A-2-4
B-4		48.5 - 50	23	--	--	--	7	SP-SC	A-2-4
B-4		68.5 - 70	33	--	--	--	22	SC	A-2-4
B-4		88.5 - 90	23	--	--	--	23	SP-SC	A-2-4
R-1		1 - 2.5	19	42	12	30	83	CL	A-7-6
R-2		0.5 - 2	--	NP	NP	NP	--	ML	A-4
R-2		5 - 6.5	20	--	--	--	75	CH	A-7-6
R-3		0.5 - 2	22	33	13	20	62	CL	A-6
R-4		1 - 2.5	18	36	13	23	69	CL	A-6

NOTE: 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 THE SAME DIFFERING FROM THE ABOVE TABULATIONS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
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No.10887
11-26-2024

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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	35	70
		QUANTITY SHEETS				

STATE OF ARKANSAS
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SCOTT P. THORNSBERRY
11-26-2024

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS		STANDARD DRAWINGS
							18"	24"	
			FEET	SQ. YD.	TON	TON	LIN. FT.		
193+60	LT.	C.L. HWY. 82	16	37.01	4.07	105.50	44		DR-2, PCC-1, PCM-1, PCP-1, PCP-2
211+00	RT.	C.L. HWY. 82	20	472.59	51.98	192.97	48		DR-2, PCC-1, PCM-1, PCP-1, PCP-2
213+30	LT.	C.L. HWY. 82 - CR 169	20	293.35	32.27	119.78		85	DR-2, PCC-1, PCM-1, PCP-1, PCP-2
* ENTIRE PROJECT TEMPORARY DRIVES						75.00			
TOTALS:				**802.95**	**88.32**	**493.25**	**92**	**85**	

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

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

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.	
ENTIRE	PROJECT	HWY. 91 - MAIN LANES	7418	34672
ENTIRE	PROJECT	ACCESS ROAD		184
ENTIRE	PROJECT	HWY. 91 (LT): C.R. 169		1280
ENTIRE	PROJECT	APPROACHES		2705
* ENTIRE	PROJECT	OBLITERATION OF EXIST. HWY. 91	475	
ENTIRE	PROJECT	BR. LAYOUT DRAWING NO. 64969	1250	
* ENTIRE	PROJECT	TO BE USED IF AND WHERE	1000	2000
		DIRECTED BY THE ENGINEER		
TOTALS:			**10143**	**40841**

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

EARTHWORK QUANTITIES SHOWN ABOVE SHALL BE PAID AS PLAN QUANTITIES

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
182+81.00	183+81.00	MAIN LANES	20.00	222.22
220+00.00	221+00.00	MAIN LANES	20.00	222.22
212+45.00	212+95.00	CO. RD. 169	14.75	81.94
TOTAL:				**526.38**

COLD MILLINGS TO BE STOCKPILED AT THE INTERSECTION OF
HWY. 91 AND C.R. 171 APPROXIMATELY .7 MILES NORTH OF PROJECT SITE

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	20
ENGINEER	
TOTAL:	**20**

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

SOIL STABILIZATION

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

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

REMOVAL AND DISPOSAL OF PIPE AND R.C. BOX CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS	BOX CULVERTS
		EACH	EACH
193+60	LT. OF C.L. OF HWY. 91: 18" x 24' SIDE DRAIN	1	
212+84	RT. OF C.L. OF HWY. 91: 3.5' X 3.5' X 6.5' R. C. BOX		1
212+94	RT. OF C.L. OF HWY. 91: 48" X 42' R.C. PIPE	1	
214+29	C.L. OF HWY. 91: DBL. 60" X 49' R.C. PIPE	2	
214+40	LT. OF C.L. OF HWY. 91:24" X 24' SIDE DRAIN	1	
TOTALS:		**5**	**1**

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

APPROACH GUTTERS (TYPE F) AND APPROACH SLABS (TYPE F)

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE F)	APPROACH SLABS	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
198+77.92	199+12.92	LT. SIDE	4.20		210	4.90
198+77.92	199+12.92	RT. SIDE	4.20		210	4.90
201+95.08	202+30.08	LT. SIDE	4.20		210	4.90
201+95.08	202+30.08	RT. SIDE	4.20		210	4.90
198+77.92	199+12.92	END BRIDGE APPROACH SLAB		51.30	6270	54.60
201+95.08	202+30.08	END BRIDGE APPROACH SLAB		51.30	6270	54.60
TOTALS:			**16.80**	**102.60**	**13380**	**128.80**

MAILBOXES

LOCATION	MAILBOX	MAILBOX SUPPORTS (SINGLE)
	EACH	
ENTIRE PROJECT	1	1
TOTAL:	**1**	**1**

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
199+13	BEGIN OF BRIDGE C.L. HWY. 91	1
212+80	HEAD WALL OF BOX CULVERT	1

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

ACHM PATCHING OF EXISTING ROADWAY

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

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

Brendon.Barns 11/20/2024 2:51:24 PM
WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	36	70
		QUANTITY SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
11-20-2024

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	GUARDRAIL (TYPE C)
			LIN. FT.	EACH		LIN. FT
196+76.75	198+95.52	RT OF C.L. HWY. 91	150	1	1	
197+51.74	198+95.52	LT OF C.L. HWY. 91	75	1	1	
202+12.48	203+56.26	RT OF C.L. HWY. 91	75	1	1	
202+12.48	204+31.25	LT OF C.L. HWY. 91	150	1	1	
201+74.00	201+74.00	RT OF C.L. HWY. 91				25
TOTALS:			**450**	**4**	**4**	**25**

PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

STATION	LOCATION	WIDTH	LENGTH	TON
		FEET		
214+29	RT. OF C.L. HWY. 91	22.00	49	59
TOTAL:				**59**

AVG. DEPTH = 9"

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	16	32
TOTALS:	**16**	**32**

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

STRUCTURES

STATION	DESCRIPTION	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE - ROADWAY	REINF. STEEL- ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.- ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
STRUCTURES OVER 20' - 0" SPAN										
212+80	HWY. 91 - TRI. R.C. BOX CULVERT	6	5	75	126.63	15240	66	21	0.26	RCB-1, RCB-2, SPECIAL DETAILS
TOTALS:					**126.63**	**15240**	**66**	**21**	**0.26**	

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
182+81	200+00	HWY. 91	18	18
201+10	221+00	HWY. 91	20	20
TOTALS:			**38**	**38**

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT							ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
						(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)																
				TON / STATION	TON	TOTAL WIDTH	SQ.YD.	GALLON	TOTAL WIDTH	SQ.YD.	GALLON	TOTAL GALLONS	AVG. WIDTH	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	TOTAL PG 64-22
			FEET			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																									
182+81.00	183+81.00	C.L. HWY. 91 - TRANSITION	100.00	46.25	46.25	2.36	26.22	1.31	20.00	222.22	37.78	39.09	1.23	13.67	330.00	2.26	1.13	12.56	220.00	1.38	23.00	255.56	220.00	28.11	29.49
183+81.00	183+83.28	C.L. HWY. 91 - NOTCH & WIDENING - TANGENT (2')	2.28	100.25	2.29	4.36	1.10	0.06				0.06	2.23	0.56	330.00	0.09	2.13	0.54	220.00	0.06	26.00	6.59	220.00	0.72	0.78
183+83.28	186+45.78	C.L. HWY. 91 - NOTCH & WIDENING - SUPERELEVATION (2')	262.50	100.25	263.16	4.36	127.17	6.36				6.36	2.23	65.04	330.00	10.73	2.13	62.13	220.00	6.83	26.00	758.33	220.00	83.42	90.25
186+45.78	188+70.66	C.L. HWY. 91 - NOTCH & WIDENING - SUPERELEVATION	224.88	128.75	289.53	19.02	475.25	23.76				23.76	9.56	238.87	330.00	39.41	9.46	236.37	220.00	26.00	26.00	649.65	220.00	71.46	97.46
188+70.66	193+11.00	C.L. HWY. 91 - MAIN LANE - SUPERELEVATION	440.34	178.00	783.81	44.71	2187.51	109.38				109.38	22.46	1098.89	330.00	181.32	22.25	1088.62	220.00	119.75	26.00	1272.09	220.00	139.93	259.68
193+11.00	194+11.00	C.L. HWY. 91 - NOTCH & WIDENING - SUPERELEVATION	100.00	137.00	137.00	23.22	258.00	12.90				12.90	11.66	129.56	330.00	21.38	11.56	128.44	220.00	14.13	26.00	288.89	220.00	31.78	45.91
194+11.00	195+61.54	C.L. HWY. 91 - MAIN LANE - SUPERELEVATION	150.54	178.00	267.96	44.71	747.85	37.39				37.39	22.46	375.68	330.00	61.99	22.25	372.17	220.00	40.94	26.00	434.89	220.00	47.84	88.78
195+61.54	198+77.92	C.L. WHY. 91 - MAIN LANE - TANGENT	316.38	178.00	563.16	44.71	1571.71	78.59				78.59	22.46	789.54	330.00	130.27	22.25	782.16	220.00	86.04	26.00	913.99	220.00	100.54	186.58
202+30.08	208+22.51	C.L. WHY. 91 - MAIN LANE - TANGENT	592.43	178.00	1054.53	44.71	2943.06	147.15				147.15	22.46	1478.44	330.00	243.94	22.25	1464.62	220.00	161.11	26.00	1711.46	220.00	188.26	349.37
208+22.51	214+36.73	C.L. HWY. 91 - MAIN LANE - SUPERELEVATION	614.22	178.00	1093.31	44.71	3051.31	152.57				152.57	22.46	1532.82	330.00	252.92	22.25	1518.49	220.00	167.03	26.00	1774.41	220.00	195.19	362.22
214+36.73	216+06.73	C.L. HWY. 91 - NOTCH & WIDENING - SUPERELEVATION	170.00	123.25	209.53	19.02	359.27	17.96				17.96	9.56	180.58	330.00	29.80	9.46	178.69	220.00	19.66	26.00	491.11	220.00	54.02	73.68
216+06.73	219+00.00	C.L. HWY. 91 - NOTCH & WIDENING - SUPERELEVATION (2')	293.27	100.25	294.00	4.36	142.07	7.10				7.10	2.23	72.67	330.00	11.99	2.13	69.41	220.00	7.64	26.00	847.22	220.00	93.19	100.83
219+00.00	220+00.00	C.L. HWY. 91 - NOTCH & WIDENING - RT. SHLDR. TRANSITION	100.00	77.25	77.25	4.36	48.44	2.42				2.42	2.23	24.78	330.00	4.09	2.13	23.67	220.00	2.60	25.00	277.78	220.00	30.56	33.16
220+00.00	221+00.00	C.L. HWY. 91 - TRANSITION	100.00	23.25	23.25				20.00	222.22	37.78	37.78									21.00	233.33	220.00	25.67	25.67
ADDITIONAL FOR GUARDRAIL WIDENING																									
196+33.75	196+66.75	C.L. HWY. 91 - GUARDRAIL WIDENING RT. (TAPER)	33.00	24.25	8.00																4.75	17.42	220.00	1.92	1.92
196+66.75	198+95.50	C.L. HWY. 91 - GUARDRAIL WIDENING RT.	228.75	50.25	114.95																7.50	190.63	220.00	20.97	20.97
202+12.48	203+66.23	C.L. HWY. 91 - GUARDRAIL WIDENING RT.	153.75	32.00	49.20																7.50	128.13	220.00	14.09	14.09
203+66.23	203+99.23	C.L. HWY. 91 - GUARDRAIL WIDENING RT. (TAPER)	33.00	24.25	8.00																4.75	17.42	220.00	1.92	1.92
197+08.75	197+41.75	C.L. HWY. 91 - GUARDRAIL WIDENING LT. (TAPER)	33.00	24.25	8.00																4.75	17.42	220.00	1.92	1.92
197+41.75	198+95.50	C.L. HWY. 91 - GUARDRAIL WIDENING LT.	153.75	32.00	49.20																7.50	128.13	220.00	14.09	14.09
202+12.48	204+41.23	C.L. HWY. 91 - GUARDRAIL WIDENING LT.	228.75	50.25	114.95																7.50	190.63	220.00	20.97	20.97
204+41.23	204+74.23	C.L. HWY. 91 - GUARDRAIL WIDENING LT. (TAPER)	33.00	24.25	8.00																4.75	17.42	220.00	1.92	1.92
ADDITIONAL FOR LEVELING & GRADE RAISE																									
183+81.00	184+00.00	C.L. HWY. 91 - NOTCH & WIDENING (2') - LEVELING	19.00			20.00	42.22	2.11				2.11					20.00	42.22	110.00	2.32					2.32
184+00.00	186+45.78	C.L. HWY. 91 - NOTCH & WIDENING (2') - MRG	245.78			20.00	546.18	27.31	20.00	546.18	92.85	120.16	20.00	546.18	550.00	150.20	20.00	546.18	220.00	60.08					60.08
186+45.78	188+70.66	C.L. HWY. 91 - NOTCH & WIDENING - MRG	224.88			12.67	316.58	15.83	12.67	316.58	53.82	69.65	12.67	316.58	770.00	172.28	12.67	316.58	220.00	34.82					34.82
193+11.00	194+11.00	C.L. HWY. 91 - NOTCH & WIDENING - MRG	100.00			10.57	117.44	5.87	10.57	117.44	19.96	25.83	10.57	117.44	440.00	38.84	10.57	117.44	220.00	12.92					12.92
214+36.73	216+06.73	C.L. HWY. 91 - NOTCH & WIDENING - MRG	170.00			12.67	239.32	11.97	12.67	239.32	40.68	52.65	12.67	239.32	1100.00	191.88	12.67	239.32	220.00	26.33					26.33
216+06.73	219+00.00	C.L. HWY. 91 - NOTCH & WIDENING (2') - MRG	293.27			20.00	651.71	32.59	20.00	651.71	110.79	143.38	20.00	651.71	770.00	250.91	20.00	651.71	220.00	71.69					71.69
219+00.00	220+00.00	C.L. HWY. 91 - NOTCH & WIDENING (2') - LEVELING	100.00			20.00	222.22	11.11				11.11					20.00	222.22	220.00	24.44					24.44
ADDITIONAL FOR SUPERELEVATION																									
183+83.28	187+33.28	C.L. HWY. 91 - SUPER TRANSITION	350.00	5.25	18.38																				
187+33.28	192+11.54	C.L. HWY. 91 - MAX SUPERELEVATION	478.26	5.50	26.30																				
192+11.54	195+61.54	C.L. HWY. 91 - SUPER TRANSITION	350.00	5.25	18.38																				
208+22.51	211+72.51	C.L. HWY. 91 - SUPER TRANSITION	350.00	5.25	18.38																				
211+72.51	216+48.03	C.L. HWY. 91 - MAX SUPERELEVATION	475.52	5.50	26.15																				
216+48.03	219+98.03	C.L. HWY. 91 - SUPER TRANSITION	350.00	5.25	18.38																				
TOTALS:					**5591.30**		**14074.63**	**703.74**		**2315.67**	**393.66**	**1097.40**		**7872.33**		**1794.30**		**8073.54**		**885.77**		**10622.50**		**1168.49**	**2054.26**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.4% MIN. AGGR.....5.6% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.8% MIN. AGGR.....4.2% ASPHALT BINDER
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

Brendan.Borns 11/20/2024 2:51:24 PM
WORKSPACE: ARDOT
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	37	70
		07576 - QUANTITIES - 64968				

SCHEDULE OF BRIDGE QUANTITIES - JOB 100995

BRIDGE NUMBER	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NUMBER	205	SP, SS, & 802	SP, SS, & 802	SP & 803	SS & 804	SS & 804	SS & 805	SS & 805	SS & 805	SP, SS, & 807	SS & 807	SS & 808	SS & 809	812	SS & 816	SS & 816
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. _)	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL SHELL PILING (18" DIAMETER)	STEEL SHELL PILING (24" DIAMETER)	PILE ENCASEMENT	STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50W)	① PAINTING STRUCTURAL STEEL	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	DUMPED RIPRAP	FILTER BLANKET
			UNIT	LUMP SUM	CU. YD.	CU. YD.	SQ. YD.	POUND	POUND	LIN. FT.	LIN. FT.	LIN. FT.	POUND	TON	CU. IN.	LIN. FT.	EACH	CU. YD.	SQ. YD.
07576	HIGHWAY 91 OVER CACHE RIVER	END BENT NO. 1			49.25			10,654	1,215	489			1,704	0.4	1,680.0	33		251	455
		INTERMEDIATE BENT NO. 2			19.65			5,756	1,924		360	64	1,076						
		INTERMEDIATE BENT NO. 3			19.65			5,756	1,924		400	64	1,076						
		END BENT NO. 4			49.25			10,654	1,215	514			1,704	0.4	1,680.0	33		215	383
		280'-0" CONT. PLATE GIRDER UNIT				329.00	1,174.4		86,362				232,910	35.7			1		
		EXISTING BRIDGE NO. 03258 (SITE NO. 1)		1															
		TOTALS FOR JOB NO. 100995			137.80	329.00	1,174.4	32,820	92,640	1,003	760	128	238,470	36.5	3,360.0	66	1	466	838

① PAINTING: The following weathering steel surfaces shall be painted as specified in Subsection 807.75:

- All steel surfaces within 8 feet of bridge deck expansion joints, including diaphragms, cross-frames, connection bolts, bearings, and bumper plates.
- All steel surfaces 3 feet each side of concrete diaphragms or integral intermediate bents, including the section encased in concrete.
- All steel surfaces exposed to the outside face of the bridge, including outside faces and bottom of the exterior beams or girders, splice plates and bolts, stiffeners, drip plates and bearings.

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

TABLE OF APPROACH SLAB QUANTITIES

(FOR INFORMATION ONLY)

BRIDGE NO.	ITEM	REINFORCING STEEL	CONCRETE
	UNIT	LBS.	CU. YDS.
07576	BEGIN BRIDGE	6,270	51.30
	END BRIDGE	6,270	51.30

Hussam Saleem
11-20-2024

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

BRIDGE ENGINEER
PRINT DATE:11/20/2024

SCHEDULE OF BRIDGE QUANTITIES
HWY. 91 OVER CACHE RIVER
CACHE RIVER STR. & APPRS. (S. OF EGYPT) (S)
CRAIGHEAD COUNTY
ROUTE 91 SECTION 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MKL DATE: 02/2022 FILENAME: B100995X1_QX1.dgn
CHECKED BY: HSS DATE: 03/2022
DESIGNED BY: -- DATE: -- SCALE: --
BRIDGE NO. 07576 DRAWING NO. 64968

Brendan.Barns 11/20/2024 3:30:09 PM
WORKSPACE: ARDOT
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REVISED DATE:

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	38	70
		SUMMARY OF QUANTITIES AND REVISIONS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-6-2024

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	38	STATION
201	GRUBBING	38	STATION
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	5	EACH
202	REMOVAL AND DISPOSAL OF BOX CULVERTS	1	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL	116	LIN. FT.
SP, SS, & 210	UNCLASSIFIED EXCAVATION	10143	CU. YD.
SP & 210	COMPACTED EMBANKMENT	40841	CU. YD.
SP & 210	SOIL STABILIZATION	250	TON
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)	6213	TON
SS & 401	TACK COAT	1129	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	1719	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	75	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	2023	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	120	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT	526	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	16	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	10	TON
SP, SS, & 504	APPROACH SLABS	102.60	CU. YD.
SP, SS, & 504	APPROACH GUTTERS	16.80	CU. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	217	SQ. FT.
SS & 604	BARRICADES	96	LIN. FT.
SS & 604	TRAFFIC DRUMS	12	EACH
604	CONSTRUCTION PAVEMENT MARKINGS	15276	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	2632	LIN. FT.
SS & 604	VERTICAL PANELS	30	EACH
SP, SS, & 606	18" SIDE DRAIN	92	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN	85	LIN. FT.
SS & 606	SELECTED PIPE BEDDING	20	CU. YD.
SS & 611	4" PIPE UNDERDRAINS	1150	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	5	EACH
SP, SS, & 615	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)	59	TON
SS & 617	GUARDRAIL (TYPE A)	450	LIN. FT.
SS & 617	GUARDRAIL (TYPE C)	25	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	4	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL	4	EACH
620	LIME	21	TON
620	SEEDING	10.30	ACRE
SS & 620	MULCH COVER	42.61	ACRE
620	WATER	1710.1	M. GAL.
621	TEMPORARY SEEDING	32.31	ACRE
621	SILT FENCE	11768	LIN. FT.
621	SEDIMENT REMOVAL AND DISPOSAL	454	CU. YD.
621	ROCK DITCH CHECKS	53	CU. YD.
623	SECOND SEEDING APPLICATION	10.30	ACRE
624	SOLID SODDING	21	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	1	EACH
SS & 637	MAILBOX SUPPORTS (SINGLE)	1	EACH
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	7638	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	7638	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	162	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	13380	POUND
	STRUCTURES OVER 20' SPAN		
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)	1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	66	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-ROADWAY	126.63	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-BRIDGE	137.80	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	329.00	CU. YD.
SP & 803	CLASS 2 PROTECTIVE SURFACE TREATMENT	1174.4	SQ. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	15240	POUND
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	32820	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	92640	POUND
SS & 805	STEEL SHELL PILING (18" DIAMETER)	1003	LIN. FT.
SS & 805	STEEL SHELL PILING (24" DIAMETER)	760	LIN. FT.
SS & 805	PILE ENCASEMENT	128	LIN. FT.
SP, SS, & 807	STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, GR. 50W)	238470	POUND
SS & 807	PAINTING STRUCTURAL STEEL	36.5	TON
SS & 808	ELASTOMERIC BEARINGS	3360	CU. IN.
SS & 809	SILICONE JOINT SEALANT	66	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
SS & 816	DUMPED RIPRAP	466	CU. YD.
SS & 816	FILTER BLANKET	838	SQ. YD.

REVISIONS

DATE	REVISION	SHEET NUMBER

LondonMiller 12/6/2024 10:57:29 AM
WORKSPACE: untitled
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	39	70
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023

SURVEY CONTROL COORDINATES

Project Name: s100995
Date: 10/30/2019
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, VT AND HZ BASED ON STATIC GPS PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	557804.6581	1627523.8802	247.02	CTL	STD ARDOT CAP STAMPED PN: 1
2	557289.6813	1628074.3764	244.68	CTL	STD ARDOT CAP STAMPED PN: 2
3	556855.5599	1628470.1372	250.24	CTL	STD ARDOT CAP STAMPED PN: 3
4	556531.2085	1628588.9083	250.13	CTL	STD ARDOT CAP STAMPED PN: 4
5	555843.9161	1628687.0702	246.87	CTL	STD ARDOT CAP STAMPED PN: 5
6	555555.9143	1629107.2205	246.65	CTL	STD ARDOT CAP STAMPED PN: 6
900	557774.6788	1627598.4777	246.79	TBM	SQUARE CUT CNTR E HW
901	556813.4235	1628455.7793	251.01	TBM	SQUARE CUT ON NW CRNR BR
902	556568.6984	1628576.8246	251.05	BM	US DEPT INTERIOR CAP
903	555650.8782	1628800.5151	244.55	TBM	SQUARE CUT ON BASE OF PP
999	553463.9185	1678678.2065	284.16	BM	T 330 STEEL ROD IN SLEEVE

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.999939825 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 s100995gi.CTL
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

STATE HIGHWAY 91
ALIGNMENT NAME: HWY. 91

POINT	STATION	TYPE	NORTHING	EASTING
8000	182+74.45	POB	555402.1550	1629523.0856
8001	186+45.78	PC	555543.2430	1629179.6089
8003	192+99.04	PT	555952.4127	1628682.8792
8004	210+85.01	PC	557443.8933	1627700.4485
8006	217+35.54	PT	558059.0799	1627520.5969
8007	222+00.00	POE	558523.5007	1627526.9185

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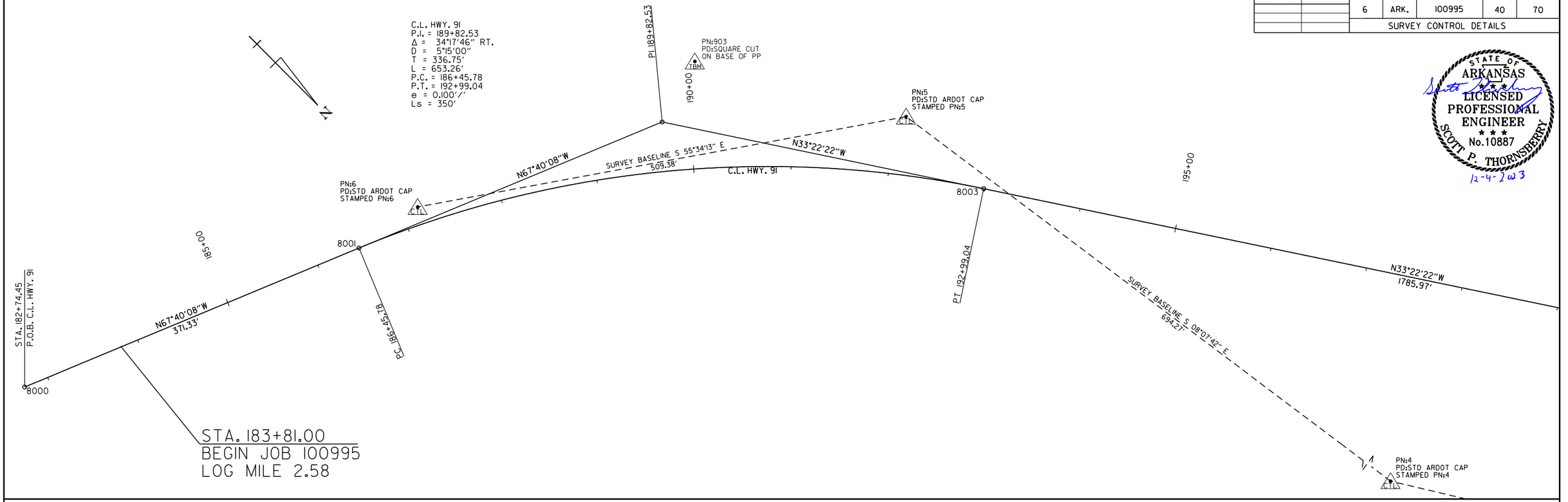
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	40	70
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023



SURVEY CONTROL DETAILS

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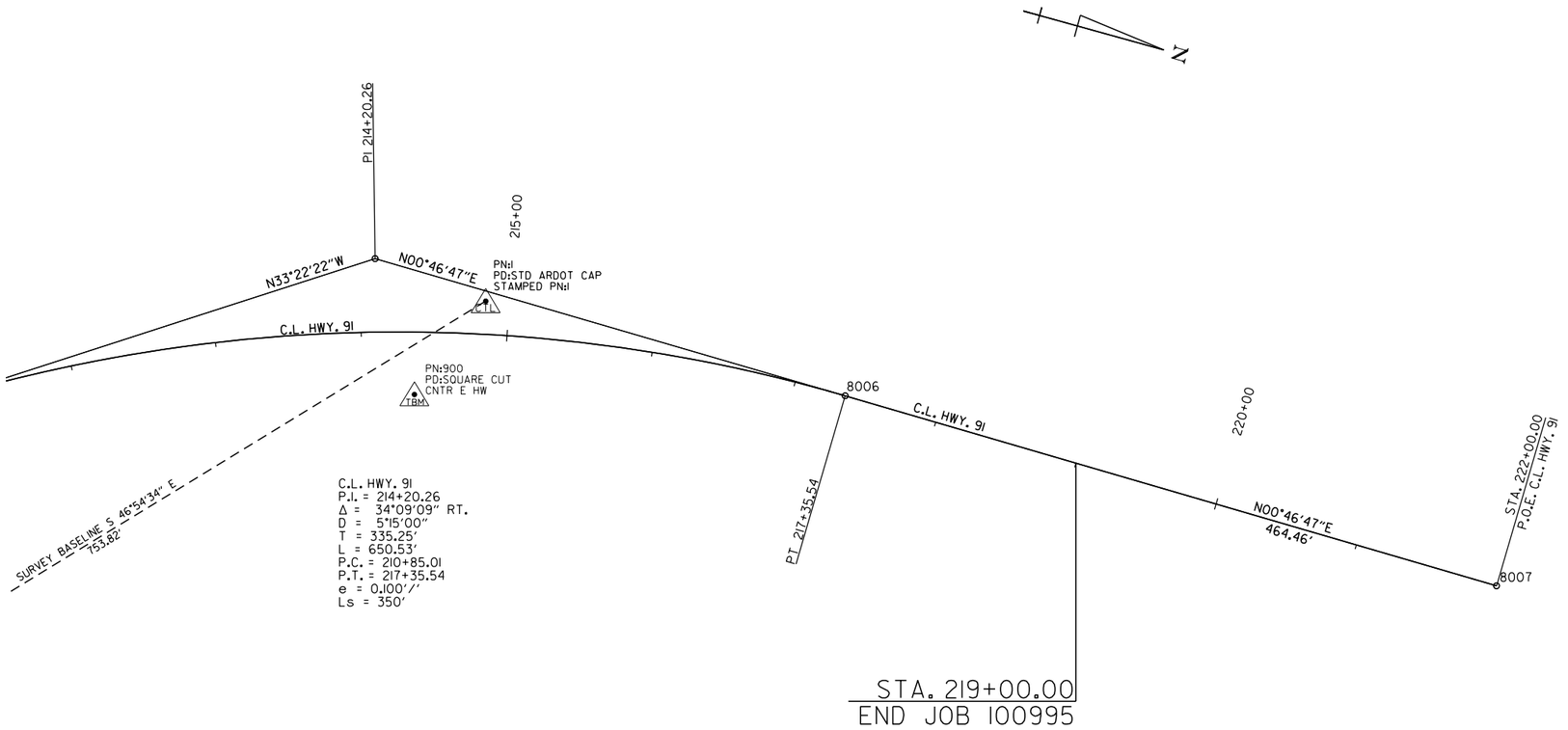
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	41	70
		SURVEY CONTROL DETAILS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023



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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	42	70
		PLAN AND PROFILE SHEETS				

LEGEND

PAVEMENT TRANSITION

OBLITERATION OF PAVEMENT

C.L. HWY. 91
P.I. = 189+82.53
Δ = 34°17'46" RT.
D = 5°15'00"
T = 336.75'
L = 653.26'
P.C. = 186+45.78
P.T. = 192+99.04
e = 0.100'/'
Ls = 350'

STA. 193+60.00 IN PLACE
18" X 24' PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 44' LT. SIDE DRAIN
CONST. APPROACH = 395 CU. YDS.

STATE OF ARKANSAS
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SCOTT P. THORNSBERRY
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N

EXIST. R/W
PROP. R/W
CONST. LIMITS
N67°40'08"W
N33°22'22"W
C.L. HWY. 91
100' TRANSITION TO MATCH EXIST.
POB 182+74.45
PC 186+45.78
PI 189+82.53
PT 192+99.04
R =20'
T.C.E.
+87.57 64.41'
+55.20 70'
+30 75'
+65 132'
+95 120'
+95 70.67'
+80 65'
+60
+29.09 75'
+70.33 75'
+30 70'
9.5'
4'
22'
20'
4'
+79.58 40.15'
+79.58 39.87'

STA. 183+81.00
BEGIN JOB 100995
LOG MILE 2.58

NOTE: QUANTITY FOR REMOVAL OF EXISTING HWY. 91 IS NOTED IN EARTHWORK BOX.

HWY. 91

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROLS

STA. 183+83.28 BEGIN SUPERELEVATION
STA. 187+33.28 MAX SUPERELEVATION (0.100'/')
STA. 192+11.54 MAX SUPERELEVATION (0.100'/')
STA. 195+61.54 END SUPER ELEVATION

VC=100.00'
K=200.00
e=-0.06'

VC=250.00'
K=1923.08
e=-0.04'

VC=300.00'
K=144.23
e=0.78'

VC=200.00'
K=158.73
e=-0.31'

VC=200.00'
K=666.67
e=0.08'

PVI 183+81.00 ELEV. 247.47
PVI 185+00.00 ELEV. 247.84
PVI 187+50.00 ELEV. 247.36
PVC 190+50.00 ELEV. 246.40
PVI 192+00.00 ELEV. 245.92
PVI 194+50.00 ELEV. 250.32
PVRC 195+50.00 ELEV. 250.82
ELEV. 251.77

PVC 184+50.00 ELEV. 247.68
PVT 185+50.00 ELEV. 247.74
PVC 186+25.00 ELEV. 247.60
PVT 188+75.00 ELEV. 246.96
PVRC 193+50.00 ELEV. 248.56
+61.00 RT. 236.69
+81.00 LT. 241.27
+11.00 LT. 239.70
PVI 196+50.00 ELEV. 251.32

100' TRANSITION TO MATCH EXIST.
0.31%
0.31%
-0.19%
-0.19%
-0.19%
-0.32%
-0.32%
-0.32%
1.76%
1.76%
0.50%
0.50%
0.80%
PROFILE GRADE
EXISTING GROUND
EXISTING GROUND
-0.69% LT. DT. GR.
0.57% RT. DT. GR.

200 210 220 230 240 250 260 270 280 290

182+00 183+00 184+00 185+00 186+00 187+00 188+00 189+00 190+00 191+00 192+00 193+00 194+00 195+00 196+00 197+00

HWY. 91

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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	43	70
		PLAN AND PROFILE SHEETS				

LEGEND

OBLITERATION OF PAVEMENT

STA. 199+12.92 BRIDGE END
BRIDGE NO. 07576 CACHE RIVER
280'-0" CONTINUOUS PLATE GIRDER UNIT
(86'-108'-86')
30'-0" CLEAR ROADWAY
282'-2" BRIDGE LENGTH
STA. 201+95.08 BRIDGE END

APPROACH SLAB AND GUTTERS

STA.	198+77.92	TO	STA.	199+12.92
STA.	201+95.08	TO	STA.	202+30.08

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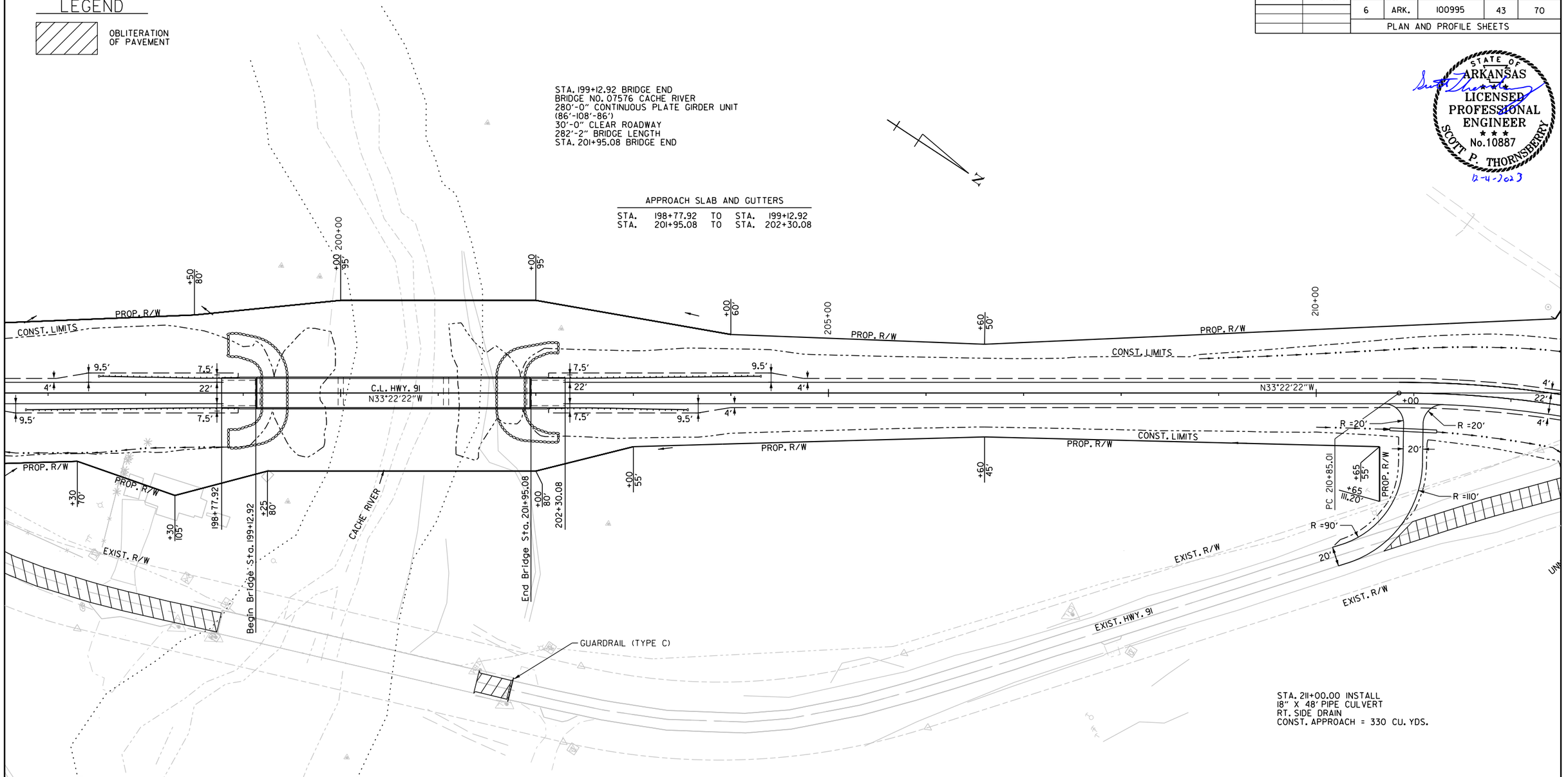
SCOTT P. THORNSBERRY
12-4-2023



STA. 211+00.00 INSTALL
18" X 48' PIPE CULVERT
RT. SIDE DRAIN
CONST. APPROACH = 330 CU. YDS.

REMOVAL & DISPOSAL OF GUARDRAIL

STA. 198+44.00 TO	STA. 198+71.00	RT. OF C.L. OF HWY. 91 =	27 LIN. FT.
STA. 198+49.00 TO	STA. 198+77.00	RT. OF C.L. OF HWY. 91 =	28 LIN. FT.
STA. 201+38.00 TO	STA. 201+66.00	RT. OF C.L. OF HWY. 91 =	28 LIN. FT.
STA. 201+43.00 TO	STA. 201+76.00	RT. OF C.L. OF HWY. 91 =	33 LIN. FT.

STA.	LOCATION	GUARDRAIL (TYPE C)
201+74.00	C.L. HWY. 91 (EXIST.)=	25 LIN. FT.

STA.	STA.	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
196+76.75	198+95.52	RT. OF C.L. HWY. 91 =	150 LIN. FT.	1 EACH	1 EACH
197+51.74	198+95.52	LT. OF C.L. HWY. 91 =	75 LIN. FT.	1 EACH	1 EACH
202+12.48	203+56.26	RT. OF C.L. HWY. 91 =	75 LIN. FT.	1 EACH	1 EACH
202+12.48	204+31.25	LT. OF C.L. HWY. 91 =	150 LIN. FT.	1 EACH	1 EACH

EXIST. BRIDGE NO. 03258 (L.M. 2.22)
270'-0" I-BEAM SPANS (6 SPANS TOTAL)
SUPPORTED BY CONCRETE PILE BENTS
24' CLEAR ROADWAY
272.1' BRIDGE LENGTH
REMOVAL OF EXISTING BRIDGE STRUCTURE
(SITE NO. 1) = 1.00 LUMP SUM

NOTE: QUANTITY FOR REMOVAL OF EXISTING HWY. 91 IS NOTED IN EARTHWORK BOX.

NOTE:
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROLS

HWY. 91 PLAN SHEET

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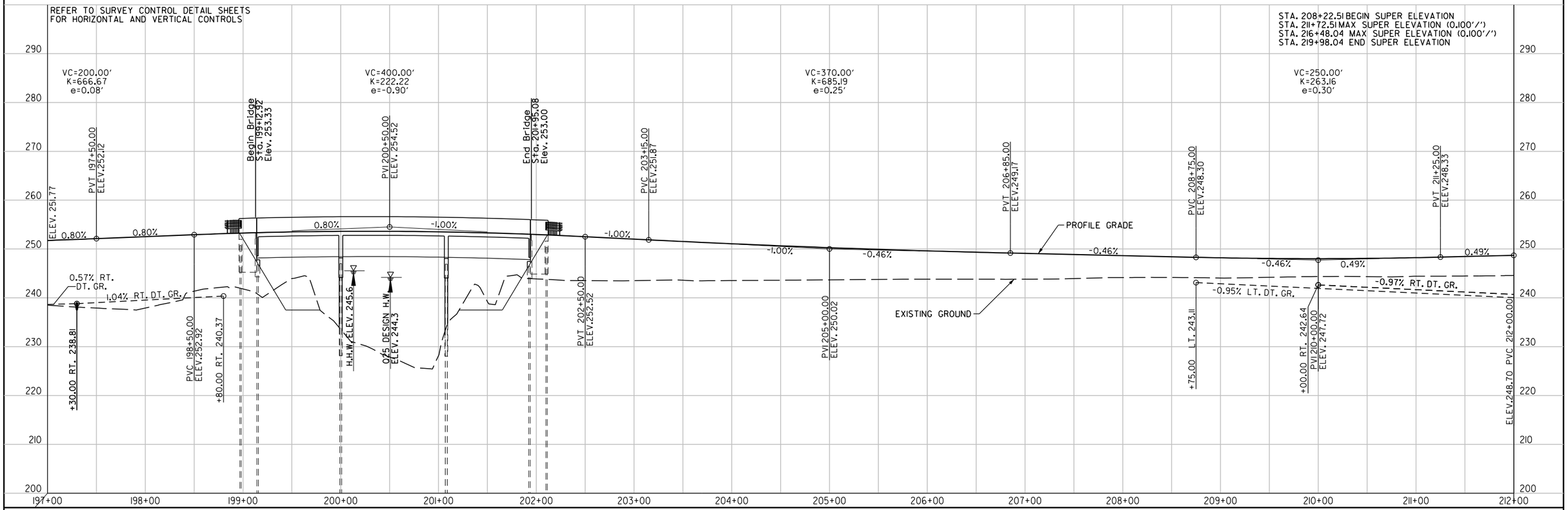
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	44	70
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.10887
SCOTT P. THORNSBERRY
12-4-2023

REFER TO SURVEY CONTROL DETAIL SHEETS
FOR HORIZONTAL AND VERTICAL CONTROLS

STA. 208+22.51 BEGIN SUPER ELEVATION
STA. 211+72.51 MAX SUPER ELEVATION (0.100'/')
STA. 216+48.04 MAX SUPER ELEVATION (0.100'/')
STA. 219+98.04 END SUPER ELEVATION



HWY. 91 PROFILE SHEET

Stephanie.Bossio 10/17/2023 4:47:49 PM
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REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	45	70
		PLAN AND PROFILE SHEETS				

STA. 213+30.00 INSTALL
24" X 85' PIPE CULVERT
LT. SIDE DRAIN
CONST. APPROACH = 1980 CU. YDS.

STA. 214+40.00 - IN PLACE
24" X 24' PIPE CULVERT
LT. SIDE DRAIN
REMOVE

NOTE: STOCKPILE LOCATION FOR MILLINGS SHALL BE AT THE INTERSECTION OF COUNTY RD. 171 AND HWY. 91 0.7 MILES NORTH OF PROJECT SITE

N

STATE OF ARKANSAS
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50' TRANSITION TO MATCH EXIST.
R =60'
PI 214+20.26
C.R. 169
PROP. R/W
PC 210+85.01
R =40'
N33°22'22"W
EXIST. R/W
N00°46'47"E
CONST. LIMITS
C.L. HWY. 91
200' TRANSITION TO MATCH EXIST.
TIE TO EXIST. +00.00
POE 222+00.00
R =20'
R =110'
UNNAMED TRIBUTARY TO CACHE RIVER
PT 217+35.54
R =90'
EXIST. R/W
STA. 219+00.00
END JOB 100995

C.L. HWY. 91
P.I. = 214+20.26
Δ = 34°09'09" RT.
D = 5°15'00"
T = 335.25'
L = 650.53'
P.C. = 210+85.01
P.T. = 217+35.54
e = 0.100'/'
Ls = 350'

STA. 212+80.00 CONSTRUCT
TRI. 6' X 5' X 75' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
Q50 = 569 CFS D.A. = 2.19 SQ. MI.
SPAN = 20.33'

STA. 212+84.00 - IN PLACE
3.5' X 3.5' X 6.5' R.C. BOX CULVERT
REMOVE

STA. 212+94.48 - IN PLACE
48" X 42' R.C. PIPE CULVERT
CROSS DRAIN
REMOVE

STA. 214+29.26 - IN PLACE
DBL. 60" X 49' R.C. PIPE CULVERT
CROSS DRAIN
REMOVE

FOR INFORMATION ONLY: ROW AND RT. SHOULDER WERE MODIFIED TO AVOID EXISTING SCEPTIC TANK AT STA. 219+70.00

NOTE: QUANTITY FOR REMOVAL OF EXISTING HWY. 91 IS NOTED IN EARTHWORK BOX.

HWY. 91

LEGEND
PAVEMENT TRANSITION
OBLITERATION OF PAVEMENT

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROLS

STA. 208+22.51 BEING SUPER ELEVATION
STA. 211+72.51 MAX SUPER ELEVATION (0.100'/')
STA. 216+48.04 MAX SUPER ELEVATION (0.100'/')
STA. 219+98.04 END SUPER ELEVATION

VC=200.00'
K=161.29
e=-0.31'

VC=150.00'
K=166.67
e=0.17'

VC=150.00'
K=500.00
e=-0.06'

PVI 213+00.00 ELEV. 249.19
PVC 215+25.00 ELEV. 247.50
PVI 217+50.00 ELEV. 247.17
PVI 220+00.00 ELEV. 246.19
PROFILE GRADE
200' TRANSITION
EXISTING GROUND
0.49%
-0.75%
-0.75%
-0.75%
0.15%
0.15%
-0.15%
-0.15%
-0.15% (EXIST.)
+80
EXCAVATION LIMITS
-0.97% RT. DT. GR.
-0.95% LT. DT. GR.
0.96% LT. DT. GR.
0.25% RT. DT. GR.
PVC 212+00.00 ELEV. 248.70
+66.00 RT. 240.06
+65.00 LT. 239.41
+94.00 RT. 240.06
+94.00 LT. 239.41
PVT 214+00.00 ELEV. 248.44
PVI 216+00.00 ELEV. 246.94
PVRC 216+75.00 ELEV. 247.05
+11.00 LT. 243.40
PVT 218+25.00 ELEV. 247.05
+00.00 RT. 241.56
F.L. IN (RT.) = 240.06
F.L. OUT (LT.) = 239.41

HWY. 91

212+00 213+00 214+00 215+00 216+00 217+00 218+00 219+00 220+00 221+00 222+00 223+00 224+00 225+00 226+00 227+00

200 210 220 230 240 250 260 270 280 290

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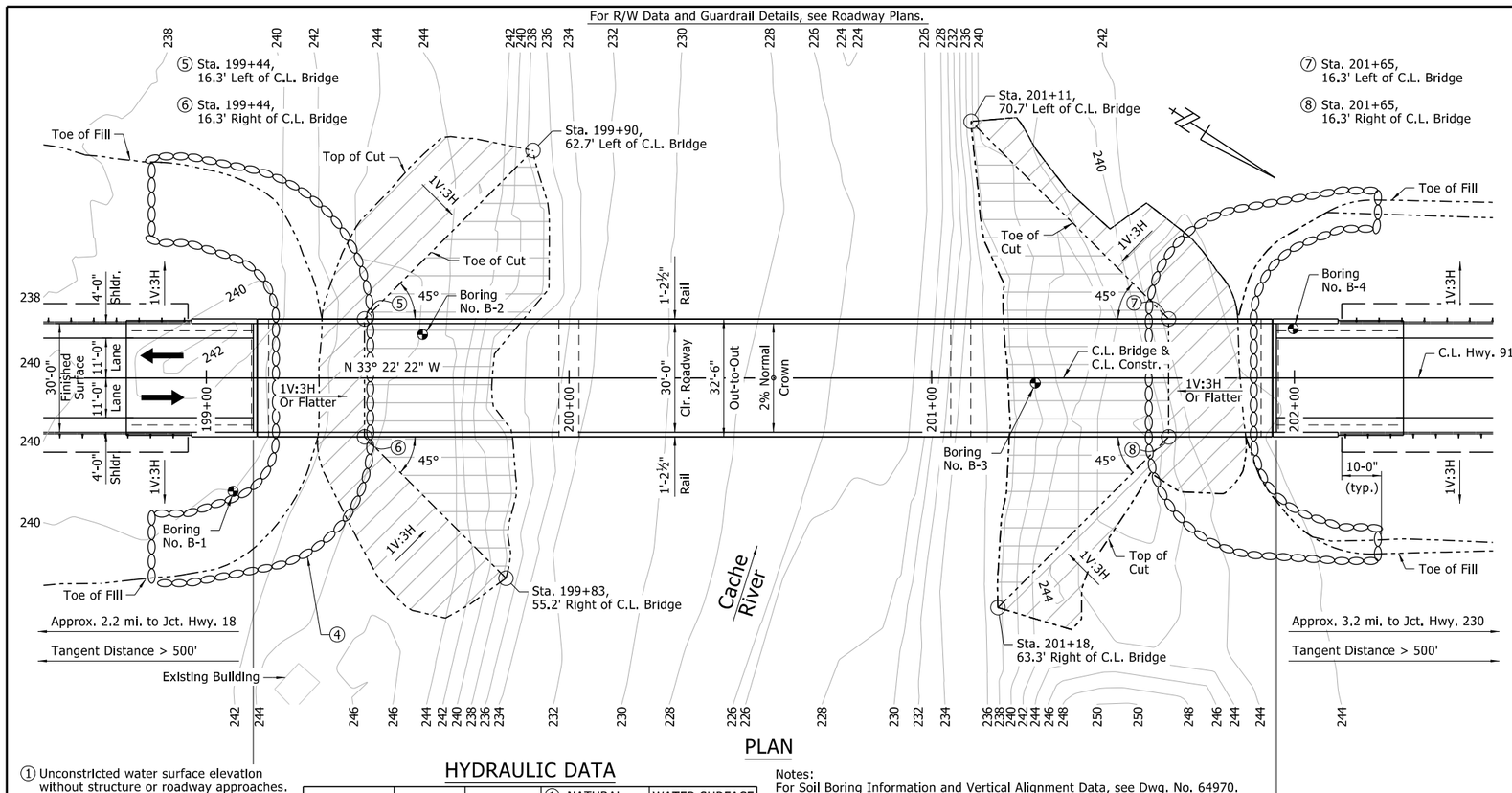
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	46	70
		07576 - LAYOUT - 64969				

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



PLAN

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	① NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	25	7,814	244.0	244.3
Base	100	9,480	244.3	244.7
Extreme	500	11,500	244.5	245.0
Overtopping	>500	--	--	--

① Unconstricted water surface elevation without structure or roadway approaches.

Q100 backwater elevation for existing structure = 244.84 feet.

② Proposed Low Bridge Chord Elevation = 247.83 feet and occurs at Sta. 201+90.83

Drainage area = 691 square miles.

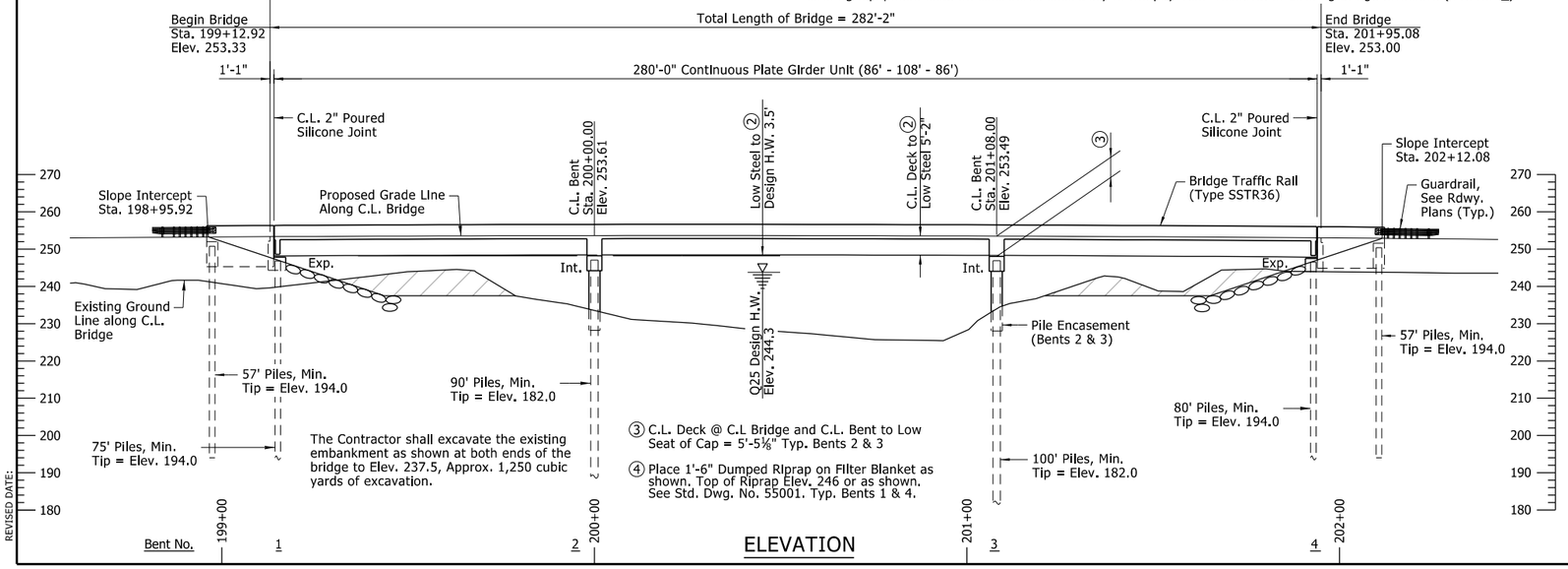
Historical H.W Elevation = 245.6 (from construction plans, not dated)

Notes:
For Soil Boring Information and Vertical Alignment Data, see Dwg. No. 64970.

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

Use Type F Approach Slab (w = 26'-0") and Type F Approach Gutters at both ends of bridge, See Std. Dwg. No. 55040F1 and Std. Dwg. No. 55030F respectively.

United States Geological Survey (USGS) Gage 07077380 is located at southeast corner of existing Bridge No. 03258. USGS gage and associated equipment are to be carefully removed under the oversight of USGS personnel. The Contractor shall notify the following USGS contacts a minimum of 30 days prior to the removal of the existing bridge: Tyler Mays (jmays@usgs.gov) or Adam Jones (awjones@usgs.gov) at 501-553-1471. Costs associated with carefully dismantling the existing equipment shall be considered subsidiary to the pay item "Removal of Existing Bridge Structure (Site No. _)".



The Contractor shall excavate the existing embankment as shown at both ends of the bridge to Elev. 237.5, Approx. 1,250 cubic yards of excavation.

③ C.L. Deck @ C.L Bridge and C.L. Bent to Low Seat of Cap = 5'-5⅛" Typ. Bents 2 & 3

④ Place 1'-6" Dumped Riprap on Filter Blanket as shown. Top of Riprap Elev. 246 or as shown. See Std. Dwg. No. 55001. Typ. Bents 1 & 4.

ELEVATION

GENERAL NOTES

BENCH MARK: Vertical Control Data are shown on the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, 8th Edition.

LIVE LOADING: HL-93

SEISMIC ZONE: 4 S_{D1} = 0.651 SITE CLASS = E

SEISMIC OPERATIONAL CLASSIFICATION: Other

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M 31 or M 322, Type A, Gr. 60)	fy = 60,000 psi
Structural Steel (ASTM A709, Gr. 50)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 50W)	Fy = 50,000 psi
Structural Steel (ASTM A709, Gr. 36)	Fy = 36,000 psi
Pipe Pile (ASTM A252, Grade 3)	Fy = 45,000 psi

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

STEEL SHELL PILING: Piling in Bents 1 and 4 shall be 18" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 190 tons per pile. Piling in Bents 2 and 3 shall be 24" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 510 tons per pile. All piling shall be driven with an approved air, steam or diesel hammer to the minimum tip elevation shown on this drawing. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. No additional payment will be made for cut-off or build up. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g).

Water Jetting or other methods as approved by the Engineer may be required to achieve minimum penetration. This work shall not be paid for directly, but shall be considered incidental to the Items "Steel Shell Piling (18" Dia.)" and "Steel Shell Piling (24" Dia.)"

PILE ENCASEMENT: Pile encasement for Bents 2 and 3 shall extend from bottom of cap to 3' below natural ground. Corrugated steel pipe shall not be used for the pile encasement. See Dwg. No. 64975 for additional information.

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b), "Method B - Wave Equation Analysis (WEAP)". It is estimated that the minimum hammer energy required to obtain the ultimate bearing capacity for 18" and 24" piles will be 37,000 and 92,200 foot pounds per blow respectively.

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

- All steel surfaces within 8 feet of bridge deck expansion joints, including diaphragms, cross-frames, connection bolts, bearings, and bumper plates.
- All steel surfaces 3 feet each side of concrete diaphragms or integral intermediate bents, including the section encased in concrete.
- All steel surfaces exposed to the outside face of the bridge, including outside faces and bottom of the exterior beams or girders, splice plates and bolts, stiffeners, drip plates and bearings.

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

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

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

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	64971 - 64973
Intermediate Bents	64974
Concrete Filled Steel Shell Piling	64975
Bearings	64976
280'-0" Continuous Plate Girder Unit	64977- 64981
General Notes For Steel Bridge Structures	55006
Details For Steel Bridge Structures	55007
Details for Poured Silicone Joints	55008
Details of Concrete Filled Steel Shell Piles and Pile Encasements	55021
Details for Type F Approach Gutters	55030F
Details for Type F Approach Slab	55040F1
Details for Bridge Traffic Rail Type SSTR36	55070

EXISTING BRIDGE: Existing Bridge No. 03258 (Log Mile 2.22) is 28.5' wide (24.0' clear roadway) and 272.1' long and consists of I-Beam spans (6 spans total) supported by concrete pile bents. The existing bridge is located approximately 275' upstream from the proposed new bridge. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Development Section of the Program Management Division.

General Notes continued on Dwg. No. 64970.

Hussam Saleem 11-20-2024

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.18919 HUSSAM S. SALEEM

BRIDGE ENGINEER
PRINT DATE:11/20/2024

SHEET 1 OF 2
LAYOUT OF BRIDGE
HWY. 91 OVER CACHE RIVER
CACHE RIVER STR. & APPRS. (S. OF EGYPT) (S)
CRAIGHEAD COUNTY
ROUTE 91 SECTION 2

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	JPC	DATE:	02/2020	FILENAME: B100995X1_LX1.dgn
CHECKED BY:	HSS	DATE:	03/2022	
DESIGNED BY:	JPC	DATE:	02/2020	SCALE: 1" = 20'
BRIDGE NO.	07576			DRAWING NO. 64969

Brendan.Barns 11/20/2024 3:40:05 PM
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REVISED DATE:

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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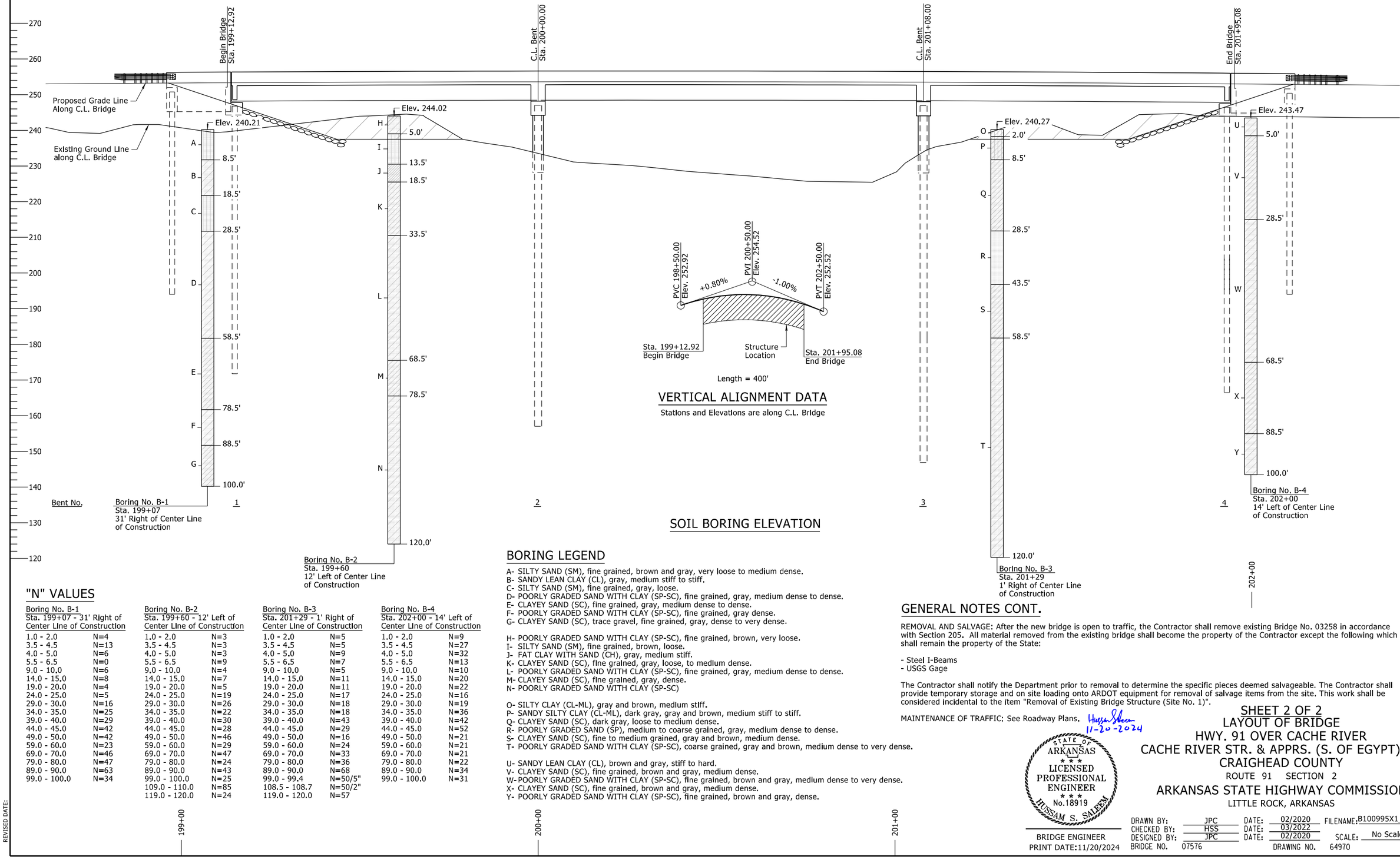
		07576 - LAYOUT - 64970				



Length = 400'

VERTICAL ALIGNMENT DATA

Stations and Elevations are along C.L. Bridge

SOIL BORING ELEVATION

"N" VALUES

Boring No. B-1
Sta. 199+07 - 31' Right of Center Line of Construction

1.0 - 2.0	N=4
3.5 - 4.5	N=13
4.0 - 5.0	N=6
5.5 - 6.5	N=0
9.0 - 10.0	N=6
14.0 - 15.0	N=8
19.0 - 20.0	N=4
24.0 - 25.0	N=5
29.0 - 30.0	N=16
34.0 - 35.0	N=25
39.0 - 40.0	N=29
44.0 - 45.0	N=42
49.0 - 50.0	N=42
59.0 - 60.0	N=23
69.0 - 70.0	N=46
79.0 - 80.0	N=47
89.0 - 90.0	N=63
99.0 - 100.0	N=34

Boring No. B-2
Sta. 199+60 - 12' Left of Center Line of Construction

1.0 - 2.0	N=3
3.5 - 4.5	N=3
4.0 - 5.0	N=3
5.5 - 6.5	N=9
9.0 - 10.0	N=4
14.0 - 15.0	N=7
19.0 - 20.0	N=5
24.0 - 25.0	N=19
29.0 - 30.0	N=26
34.0 - 35.0	N=22
39.0 - 40.0	N=30
44.0 - 45.0	N=28
49.0 - 50.0	N=46
59.0 - 60.0	N=29
69.0 - 70.0	N=47
79.0 - 80.0	N=24
89.0 - 90.0	N=43
99.0 - 100.0	N=25
109.0 - 110.0	N=85
119.0 - 120.0	N=24

Boring No. B-3
Sta. 201+29 - 1' Right of Center Line of Construction

1.0 - 2.0	N=5
3.5 - 4.5	N=5
4.0 - 5.0	N=9
5.5 - 6.5	N=7
9.0 - 10.0	N=5
14.0 - 15.0	N=11
19.0 - 20.0	N=11
24.0 - 25.0	N=17
29.0 - 30.0	N=18
34.0 - 35.0	N=18
39.0 - 40.0	N=43
44.0 - 45.0	N=29
49.0 - 50.0	N=16
59.0 - 60.0	N=24
69.0 - 70.0	N=33
79.0 - 80.0	N=36
89.0 - 90.0	N=68
99.0 - 99.4	N=50/5"
108.5 - 108.7	N=50/2"
119.0 - 120.0	N=57

Boring No. B-4
Sta. 202+00 - 14' Left of Center Line of Construction

1.0 - 2.0	N=9
3.5 - 4.5	N=27
4.0 - 5.0	N=32
5.5 - 6.5	N=13
9.0 - 10.0	N=10
14.0 - 15.0	N=20
19.0 - 20.0	N=22
24.0 - 25.0	N=16
29.0 - 30.0	N=19
34.0 - 35.0	N=36
39.0 - 40.0	N=42
44.0 - 45.0	N=52
49.0 - 50.0	N=21
59.0 - 60.0	N=21
69.0 - 70.0	N=21
79.0 - 80.0	N=22
89.0 - 90.0	N=34
99.0 - 100.0	N=31

BORING LEGEND

A- SILTY SAND (SM), fine grained, brown and gray, very loose to medium dense.
B- SANDY LEAN CLAY (CL), gray, medium stiff to stiff.
C- SILTY SAND (SM), fine grained, gray, loose.
D- POORLY GRADED SAND WITH CLAY (SP-SC), fine grained, gray, medium dense to dense.
E- CLAYEY SAND (SC), fine grained, gray, medium dense to dense.
F- POORLY GRADED SAND WITH CLAY (SP-SC), fine grained, gray dense.
G- CLAYEY SAND (SC), trace gravel, fine grained, gray, dense to very dense.

H- POORLY GRADED SAND WITH CLAY (SP-SC), fine grained, brown, very loose.
I- SILTY SAND (SM), fine grained, brown, loose.
J- FAT CLAY WITH SAND (CH), gray, medium stiff.
K- CLAYEY SAND (SC), fine grained, gray, loose, to medium dense.
L- POORLY GRADED SAND WITH CLAY (SP-SC), fine grained, gray, medium dense to dense.
M- CLAYEY SAND (SC), fine grained, gray, dense.
N- POORLY GRADED SAND WITH CLAY (SP-SC)

O- SILTY CLAY (CL-ML), gray and brown, medium stiff.
P- SANDY SILTY CLAY (CL-ML), dark gray, gray and brown, medium stiff to stiff.
Q- CLAYEY SAND (SC), dark gray, loose to medium dense.
R- POORLY GRADED SAND (SP), medium to coarse grained, gray, medium dense to dense.
S- CLAYEY SAND (SC), fine to medium grained, gray and brown, medium dense.
T- POORLY GRADED SAND WITH CLAY (SP-SC), coarse grained, gray and brown, medium dense to very dense.

U- SANDY LEAN CLAY (CL), brown and gray, stiff to hard.
V- CLAYEY SAND (SC), fine grained, brown and gray, medium dense.
W- POORLY GRADED SAND WITH CLAY (SP-SC), fine grained, brown and gray, medium dense to very dense.
X- CLAYEY SAND (SC), fine grained, brown and gray, medium dense.
Y- POORLY GRADED SAND WITH CLAY (SP-SC), fine grained, brown and gray, dense.

GENERAL NOTES CONT.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, the Contractor shall remove existing Bridge No. 03258 in accordance with Section 205. All material removed from the existing bridge shall become the property of the Contractor except the following which shall remain the property of the State:

- Steel I-Beams
- USGS Gage

The Contractor shall notify the Department prior to removal to determine the specific pieces deemed salvageable. The Contractor shall provide temporary storage and on site loading onto ARDOT equipment for removal of salvage items from the site. This work shall be considered incidental to the item "Removal of Existing Bridge Structure (Site No. 1)".

MAINTENANCE OF TRAFFIC: See Roadway Plans. Hussam Saleem 11-20-2024

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

BRIDGE ENGINEER
PRINT DATE:11/20/2024

SHEET 2 OF 2
LAYOUT OF BRIDGE
HWY. 91 OVER CACHE RIVER
CACHE RIVER STR. & APPRS. (S. OF EGYPT) (S)
CRAIGHEAD COUNTY
ROUTE 91 SECTION 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	JPC	DATE:	02/2020	FILENAME:	B100995X1_LX2.dgn
CHECKED BY:	HSS	DATE:	03/2022		
DESIGNED BY:	JPC	DATE:	02/2020	SCALE:	No Scale
BRIDGE NO.	07576			DRAWING NO.	64970

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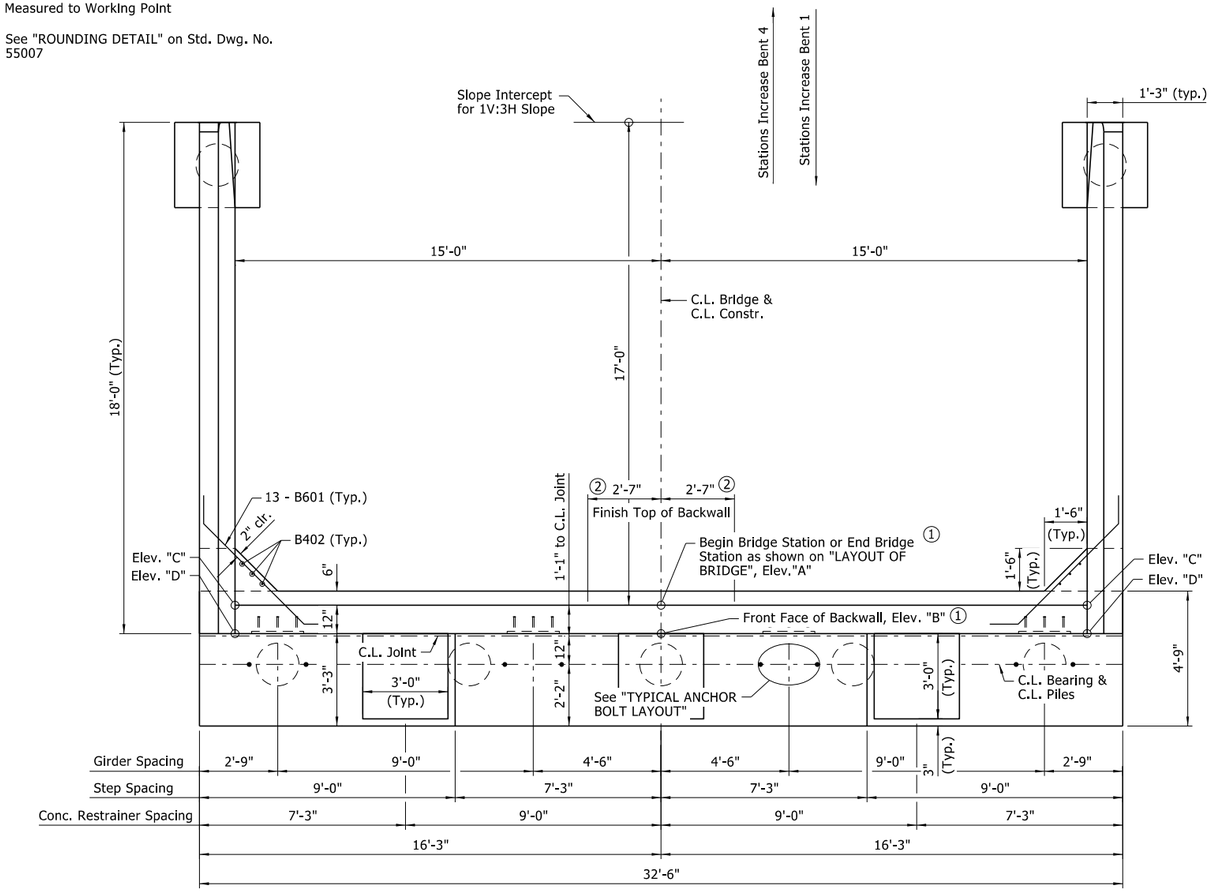
REVISED DATE:

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	48	70
		07576 - END BENTS - 64971				

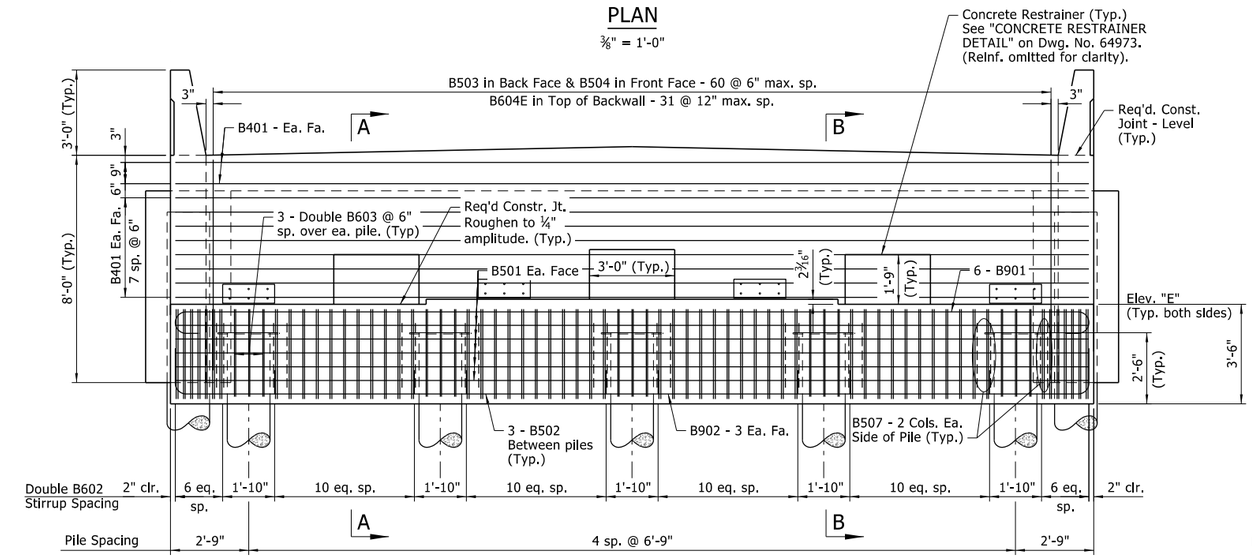
① Measured to Working Point

② See "ROUNDING DETAIL" on Std. Dwg. No. 55007



PLAN

⅜" = 1'-0"



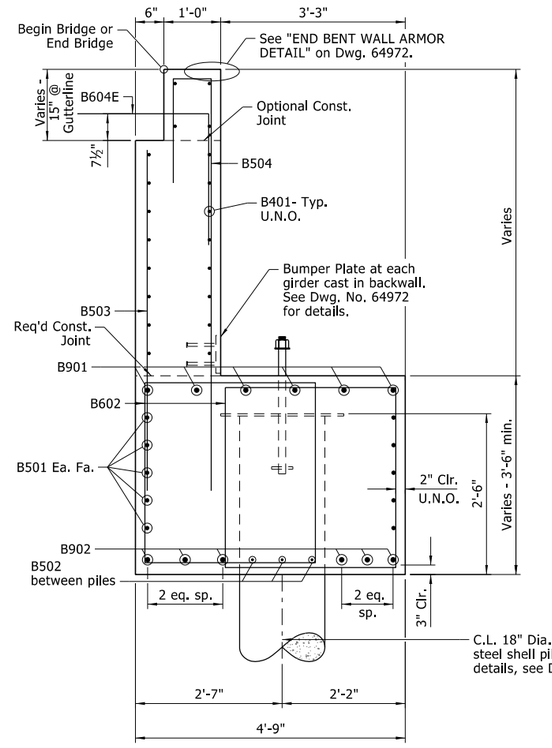
ELEVATION

Looking Back - Bent 1
Looking Ahead - Bent 4

⅜" = 1'-0"

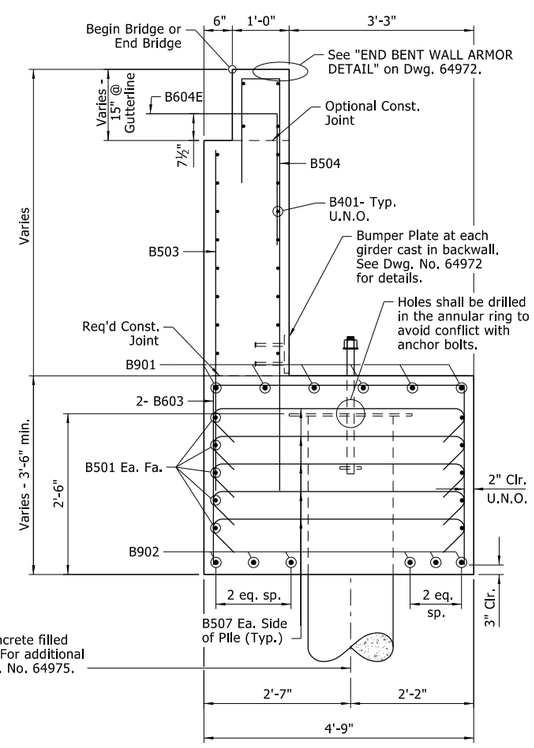
TABLE OF VARIABLES

	Bent 1	Bent 4
A	253.33	253.00
B	253.34	253.01
C	253.03	252.70
D	253.04	252.71
E	247.79	247.46



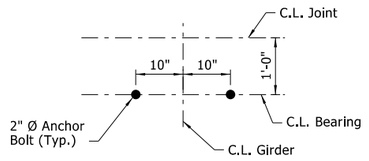
SECTION A-A

¾" = 1'-0"



SECTION B-B

¾" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT

No Scale

GENERAL NOTES

See Std. Dwg. 55006 for GENERAL NOTES.

No portion of the backwall shall be poured before girders are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the adjacent deck pour has been made. No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacent span has been completed.

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

For Concrete Filled Steel Shell Piles, see Std. Dwg. 55021 for wingwall piles and Dwg. No. 64975 for end bent piles.

Note:
Class 2 Protective Surface Treatment shall be applied to the top of the backwall.

Hussam Saleem 11-20-2024

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

BRIDGE ENGINEER
PRINT DATE:11/20/2024

SHEET 1 OF 3
DETAILS OF END BENTS
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MKL DATE: 02/2022 FILENAME: B100995X1_B11.dgn
CHECKED BY: HSS DATE: 03/2022
DESIGNED BY: HSS DATE: 12/2021 SCALE: As Shown
BRIDGE NO. 07576 DRAWING NO. 64971

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REVISED DATE:

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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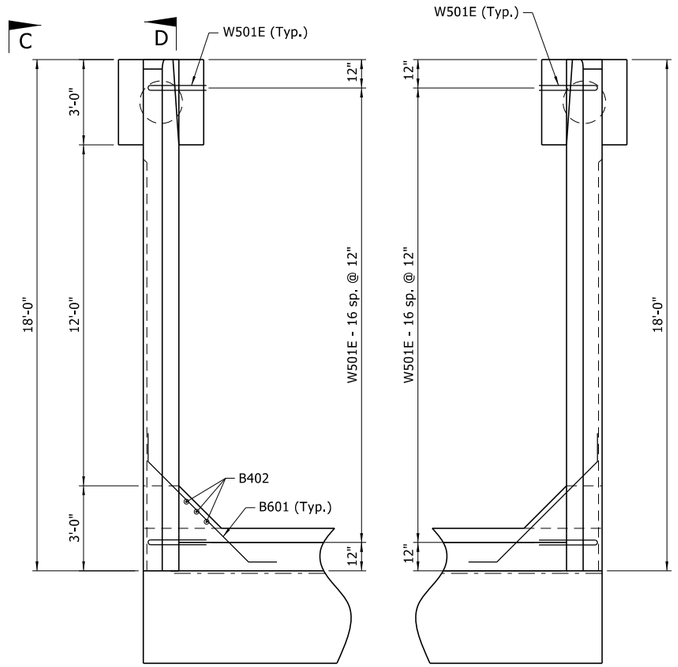
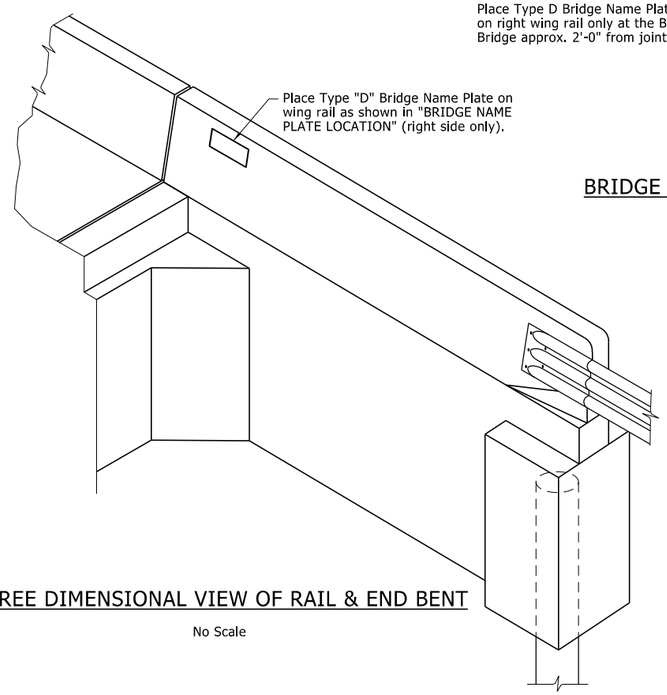
		07576 - END BENTS - 64972				



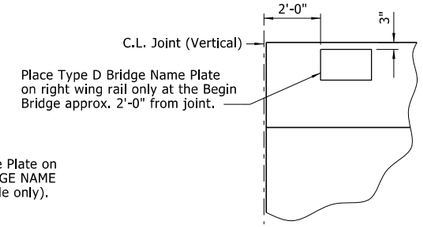
PLAN OF RAILS

3/8" = 1'-0"



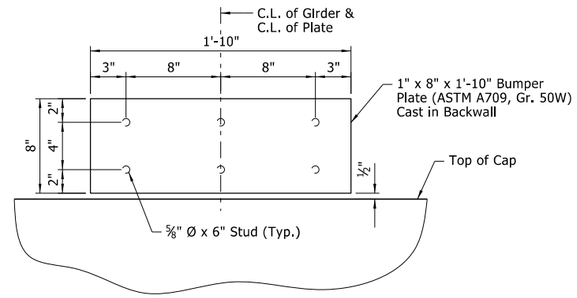
THREE DIMENSIONAL VIEW OF RAIL & END BENT

No Scale



BRIDGE NAME PLATE LOCATION

No Scale



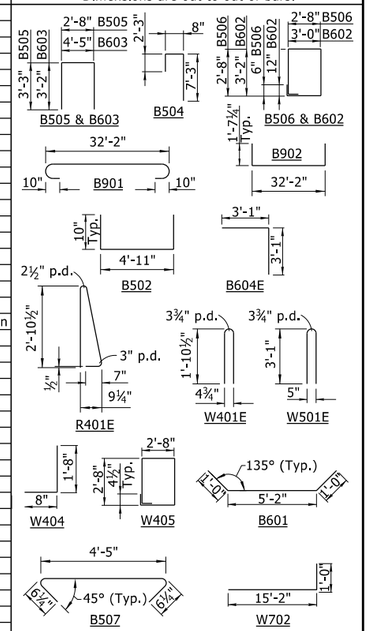
BUMPER PLATE DETAIL

No Scale

BAR LIST - PER BENT

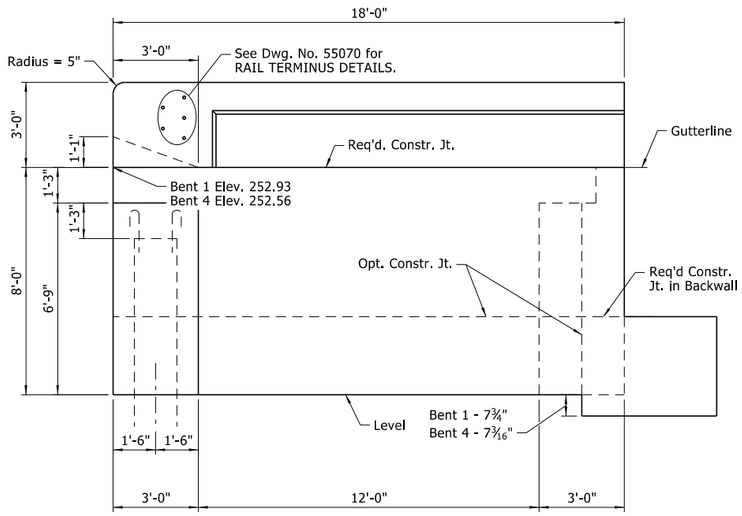
MARK	NO. REQ'D.	LENGTH	PIN DIA.
B401	20	32'-2"	Str.
B402	6	6'-5"	Str.
B501	10	32'-2"	Str.
B502	12	6'-4"	3¾"
B503	60	6'-0"	Str.
B504	60	10'-0"	2½"
B505	48	8'-11"	2½"
B506	15	11'-2"	2½"
B507	100	5'-6"	3¾"
B601	26	7'-2"	4½"
B602	116	13'-6"	4½"
B603	30	10'-5"	4½"
B604E	31	6'-0"	4½"
B901	6	34'-8"	9"
B902	6	34'-10"	9"
R401E	72	6'-4"	As Shown
R402E	8	5'-6"	Str.
R408E	16	17'-8"	Str.
W401E	72	3'-11"	3¾"
W402	128	7'-8"	Str.
W403	32	6'-5"	Str.
W404	16	2'-3"	3"
W405	14	11'-0"	2"
W501E	34	6'-4"	3¾"
W701	16	17'-8"	Str.
W702	48	16'-0"	5¼"

BENDING DIAGRAMS
Dimensions are out to out of bars.



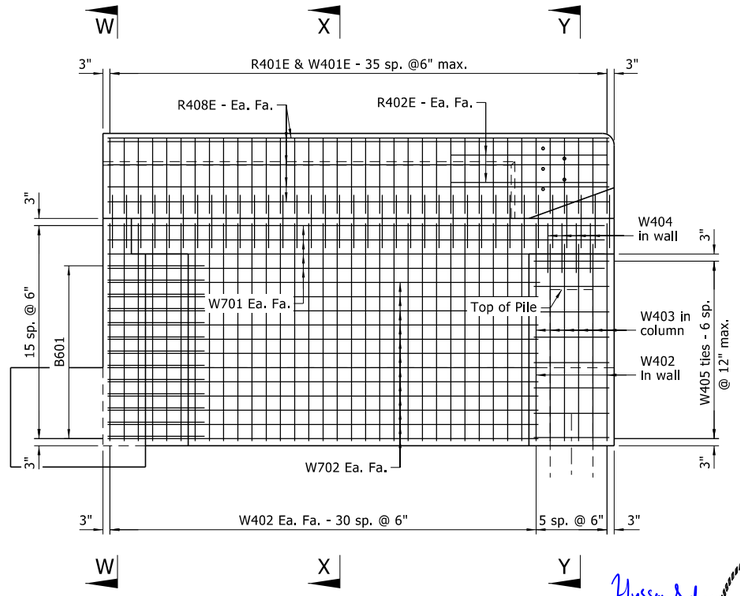
All bars designated with an "E" suffix are to be epoxy coated.

For additional details of rail reinforcement, see Std. Dwg. No. 55070.



VIEW C-C

3/8" = 1'-0"



SECTION D-D

3/8" = 1'-0"

For Sections W-W, X-X, & Y-Y see Dwg. No. 64973.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

11-20-2024

BRIDGE ENGINEER
PRINT DATE:11/20/2024

SHEET 2 OF 3
DETAILS OF END BENTS

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

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REVISED DATE:

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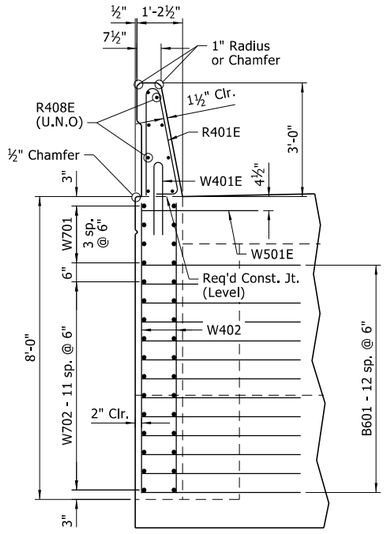
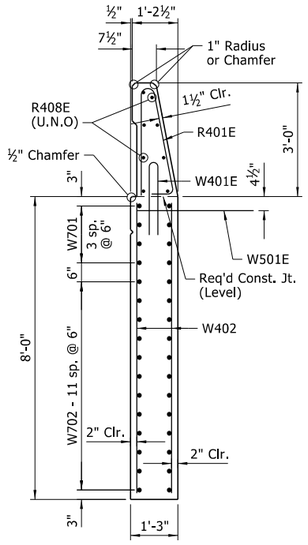
		07576 - END BENTS - 64973				

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



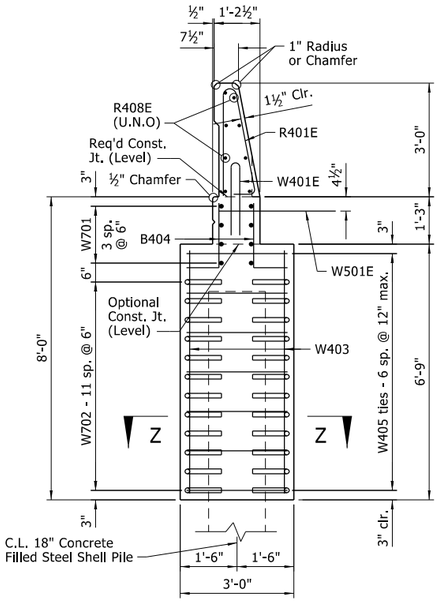
SECTION W-W

½" = 1'-0"



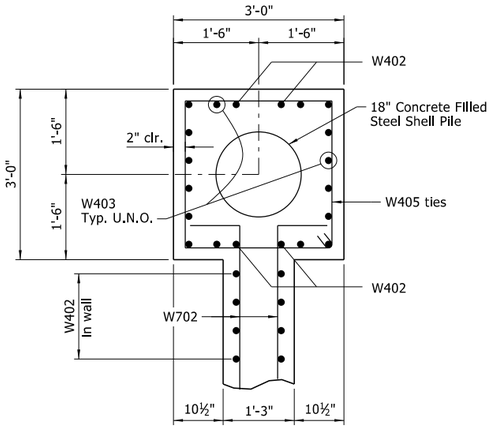
SECTION X-X

½" = 1'-0"



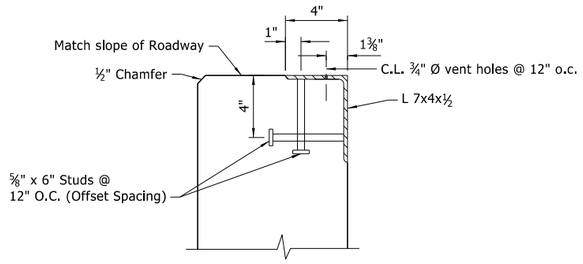
SECTION Y-Y

½" = 1'-0"



SECTION Z-Z

¾" = 1'-0"



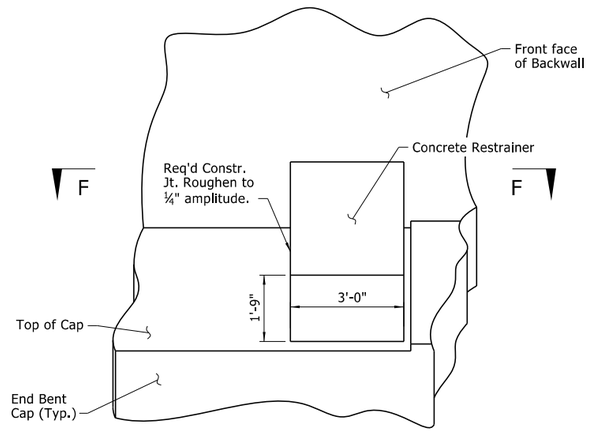
END BENT WALL ARMOR DETAIL

No Scale

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

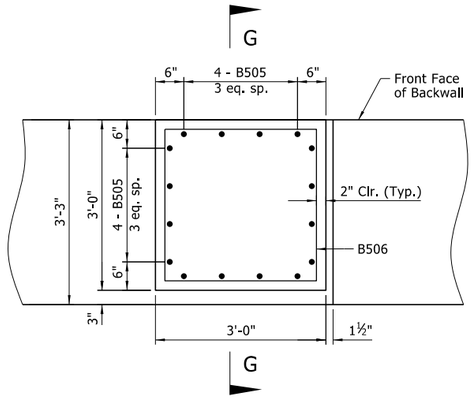
Concrete to be hand packed under the joint armor.

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



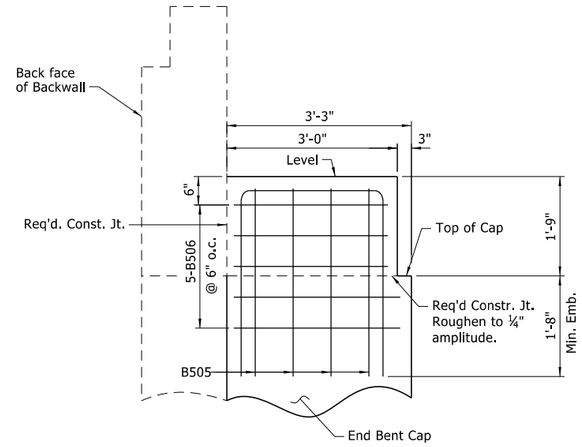
CONCRETE RESTRAINER DETAIL

No Scale



VIEW F-F

¾" = 1'-0"



SECTION G-G

¾" = 1'-0"

Hussam Saleem
11-20-2024

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

BRIDGE ENGINEER
PRINT DATE:11/20/2024

SHEET 3 OF 3
DETAILS OF END BENTS
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MKL DATE: 02/2022 FILENAME:B100995X1_B13.dgn
CHECKED BY: HSS DATE: 03/2022
DESIGNED BY: HSS DATE: 12/2021 SCALE: As Shown
BRIDGE NO. 07576 DRAWING NO. 64973

Brendan.Barns 11/20/2024 3:40:08 PM
WORKSPACE: ARDOT
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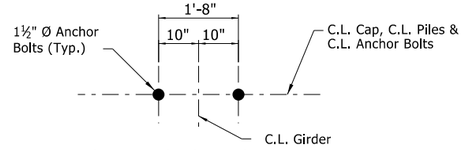
REVISED DATE:

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	51	70
		07576 - INTERMEDIATE BENTS - 64974				

Note:
See Std. Dwg. 55006 for GENERAL NOTES.



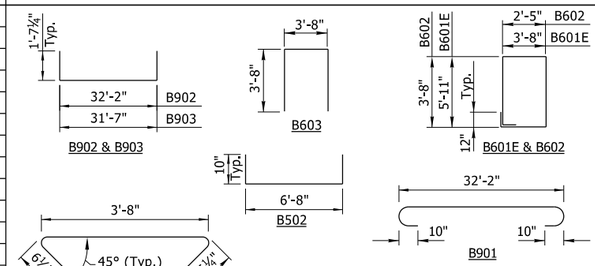
TYPICAL ANCHOR BOLT LAYOUT

No Scale

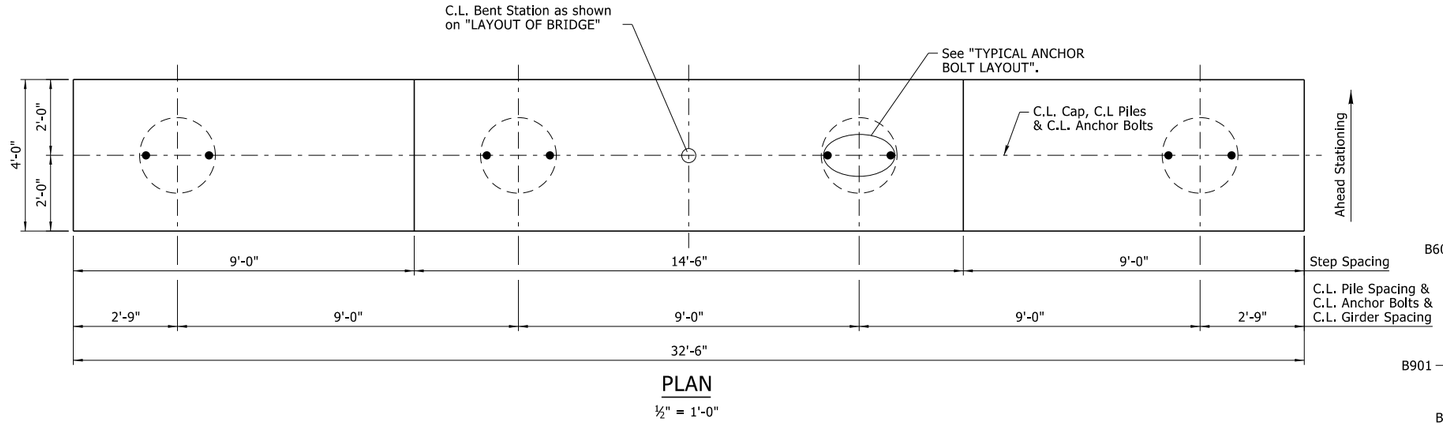
BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	PIN DIA.
B501	10	32'-2"	Str.
B502	12	8'-1"	3¾"
B503	80	4'-9"	2½"
B601E	63	20'-4"	4½"
B602	126	13'-4"	4½"
B603	32	10'-8"	4½"
B901	8	34'-8"	9"
B902	6	34'-10"	9"
B903	2	34'-3"	9"

BENDING DIAGRAMS
Dimensions are out to out of bars.

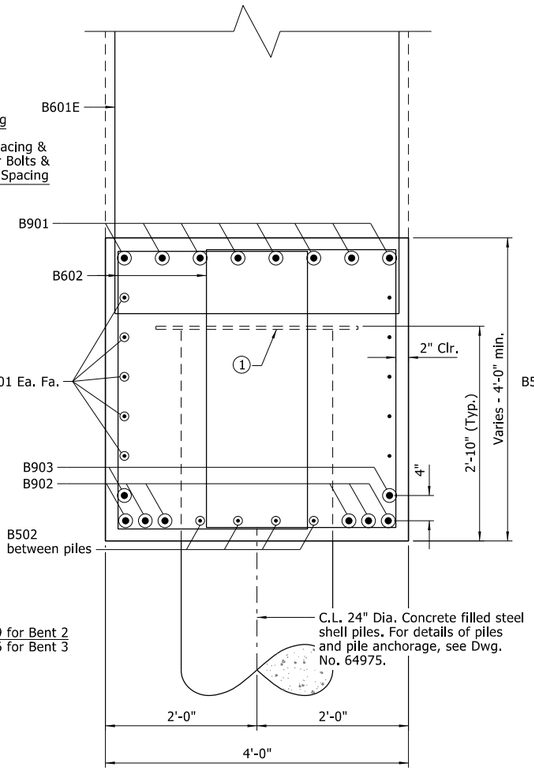


All bars designated with an "E" suffix are to be epoxy coated.



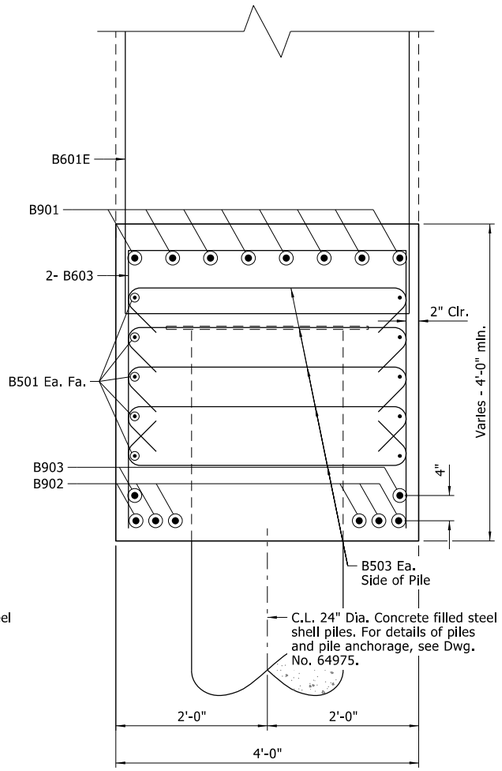
PLAN

½" = 1'-0"



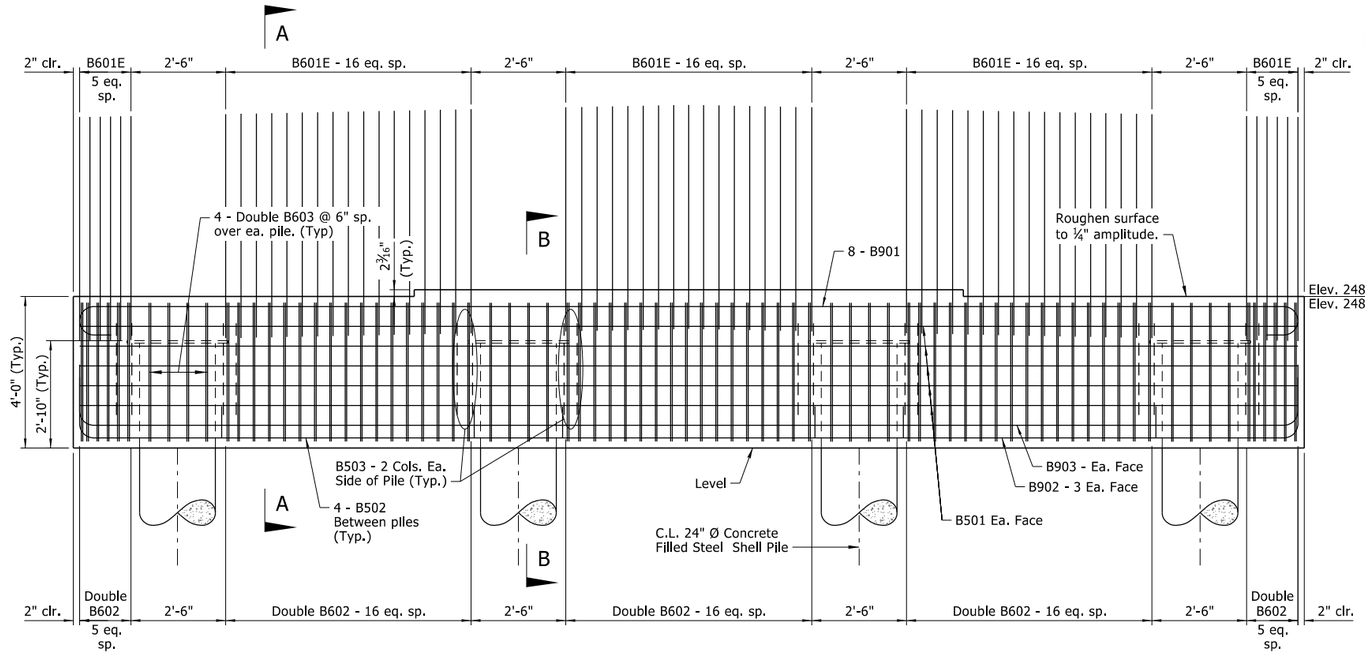
SECTION A-A

1" = 1'-0"



SECTION B-B

1" = 1'-0"



ELEVATION

½" = 1'-0"

① Holes shall be drilled in the annular ring to avoid conflict with anchor bolts.

Hussam Saleem
11-20-2024

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

BRIDGE ENGINEER
PRINT DATE: 11/20/2024

DETAILS OF INTERMEDIATE BENTS

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	MKL	DATE:	02/2022	FILENAME:	B100995X1_B21.dgn
CHECKED BY:	HSS	DATE:	03/2022		
DESIGNED BY:	HSS	DATE:	12/2021	SCALE:	As Shown
BRIDGE NO.	07576			DRAWING NO.	64974

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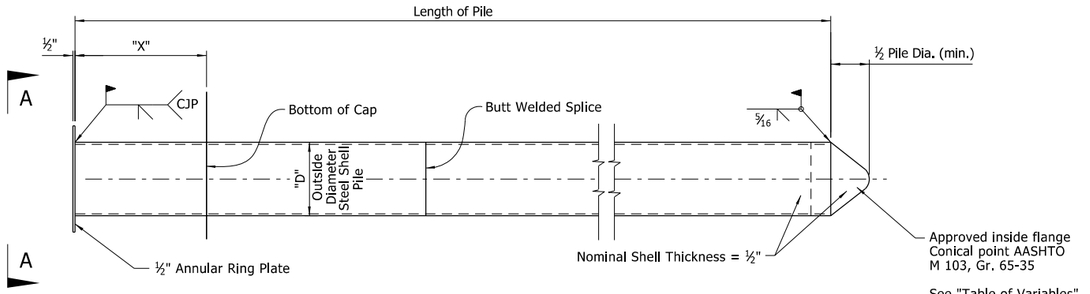
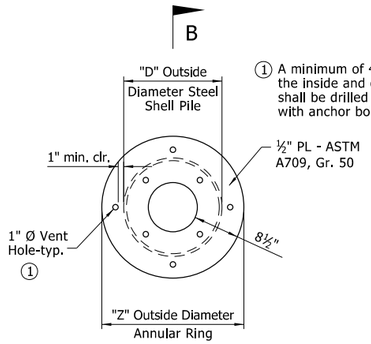
REVISED DATE:

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	52	70
		07576 - STEEL SHELL PILES - 64975				

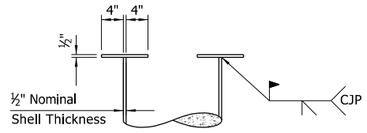


CONCRETE FILLED STEEL SHELL PILE

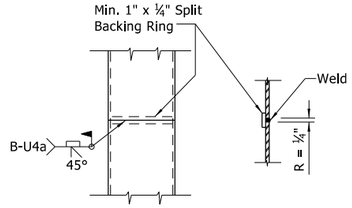


VIEW A-A

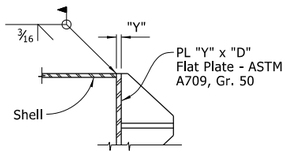
① A minimum of 4 holes shall be equally spaced along the inside and outside of the ring as shown. Holes shall be drilled in the annular ring to avoid conflict with anchor bolts.



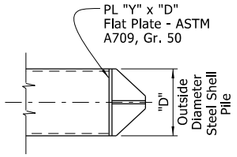
SECTION B-B



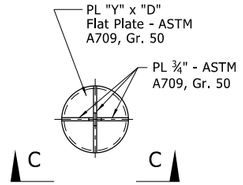
TYPICAL SPLICE DETAILS

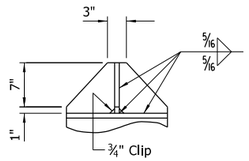


PART SECTION



ELEVATION





VIEW C-C

ALTERNATE VANED TIP DETAIL

TABLE OF VARIABLES

OUTSIDE DIAMETER STEEL SHELL PILE "D"	PILE EMBEDMENT "X"	PLATE THICKNESS "Y"	OUTSIDE DIAMETER ANNULAR RING "Z"	MINIMUM CONICAL TIP DESIGN LOAD (KIPS)
18"	2'-6"	1½"	26"	1,114
24"	2'-10"	1¾"	32"	1,495

GENERAL NOTES FOR CONCRETE FILLED STEEL SHELL PILES

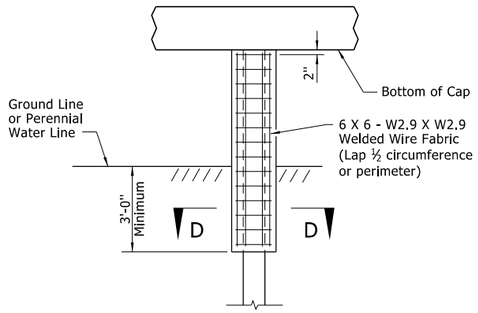
Steel shells shall conform ASTM A252, Grade 3 (Fy = 45,000 psi.)

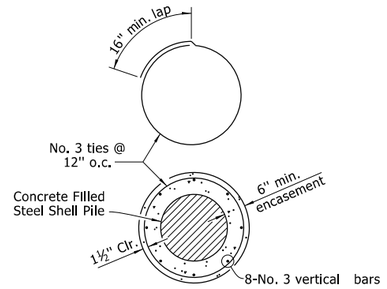
Concrete used for filling of steel shell shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. and shall be poured in the dry.

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

Concrete and structural steel shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling (18" Dia.)" or "Steel Shell Piling (24" Dia.)".

Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling (18" Dia.)" or "Steel Shell Piling (24" Dia.)".





SECTION D-D (REINFORCING ALT.)

PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

GENERAL NOTES FOR PILE ENCASEMENTS

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

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

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

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

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

Hussam Saleem
10-18-2023

BRIDGE ENGINEER
PRINT DATE: 10/17/2023

DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY:	MKL	DATE:	02/2022	FILENAME: B100995X1_B22.dgn
CHECKED BY:	HSS	DATE:	03/2022	
DESIGNED BY:	HSS	DATE:	12/2021	SCALE: No Scale
BRIDGE NO.	07576			DRAWING NO. 64975

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WORKSPACE: ARDOT
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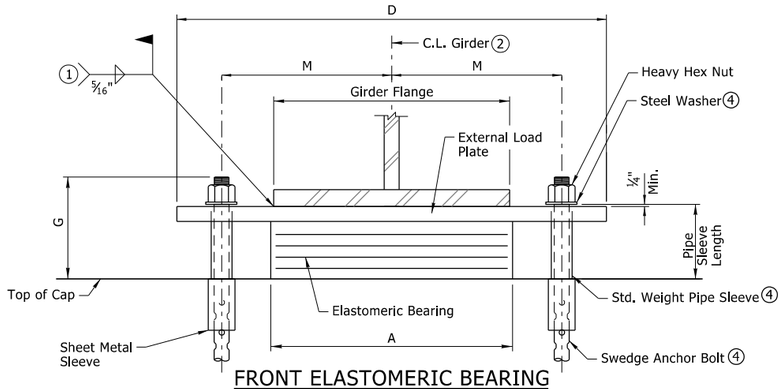
REVISED DATE:

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	53	70
		07576 - BEARINGS - 64976				

TABLE OF FABRICATOR VARIABLES

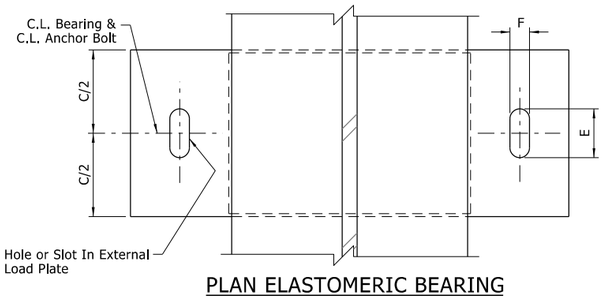
LOCATION		BEARING TYPE	NO. OF BEARINGS EACH BENT	MAXIMUM DESIGN LOAD (kips) ③	G	H	A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	J	F	K	M	T_a	T_b	ANCHOR BOLT		PIPE SLEEVE SIZE (Ø x L)	SHEET METAL SLEEVE SIZE (Ø x L)	STEEL WASHER SIZE (O.D.)
BENT NO(S).	BEAM OR GIRDER NO.																						(Ø x L)	GRADE			
Bent 1	All	Exp.	4	139.1	8¼"	5"	14"	10"	4	½"	¼"	5 @ 12ga.	3"	11"	26½"	5⅝"	-	3⅛"	½"	10"	2.03"	1.97"	2" x 29"	55	2½" x 5¼"	-	3¾"
Bent 2	All	Int.	4	350.5	5¾"	3⅛"	-	10"	-	-	-	-	-	12"	26½"	3"	-	2"	1"	10"	-	-	1½" x 17¾"	55	-	3" x 6"	3"
Bent 3	All	Int.	4	350.5	5¾"	3⅛"	-	10"	-	-	-	-	-	12"	26½"	3"	-	2"	1"	10"	-	-	1½" x 17¾"	55	-	3" x 6"	3"
Bent 4	All	Exp.	4	139.1	8¼"	5"	14"	10"	4	½"	¼"	5 @ 12ga.	3"	11"	26½"	5⅝"	-	3⅛"	½"	10"	1.96"	2.04"	2" x 29"	55	2½" x 5¼"	-	3¾"

Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40°F and 80°F; 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.



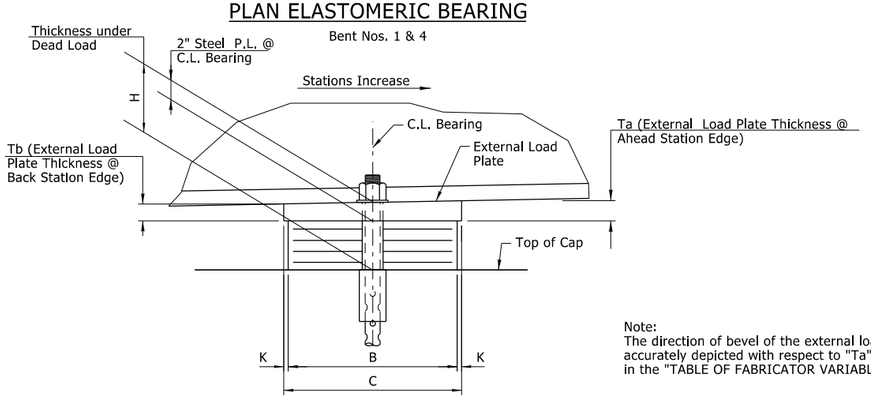
FRONT ELASTOMERIC BEARING

Bent Nos. 1 & 4



PLAN ELASTOMERIC BEARING

Bent Nos. 1 & 4



SIDE ELASTOMERIC BEARING

Bent Nos. 1 & 4

① Care shall be taken to ensure that the external load plate is in full and complete contact with the girder flange before welding begins.

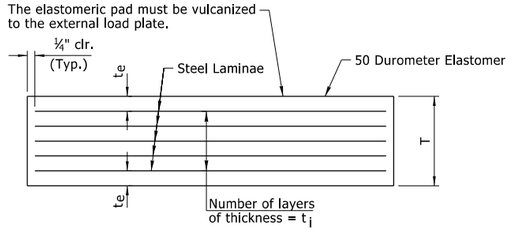
② C.L. Elastomeric Bearing shall be aligned with C.L. Beam or Girder.

③ Maximum Design Load = LRFD Service I Limit State

④ See "TABLE OF FABRICATOR VARIABLES" for additional details.

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

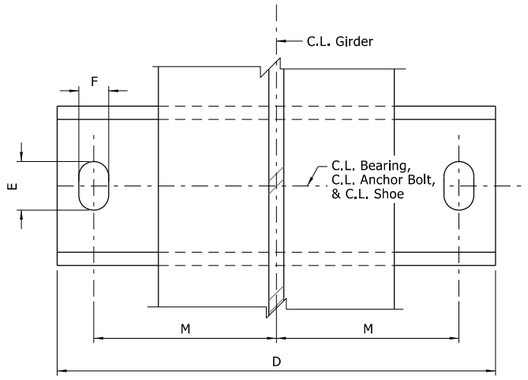
Prior to erection of the beams, the Contractor shall verify the orientation of the bearings with respect to Ta and Tb.



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

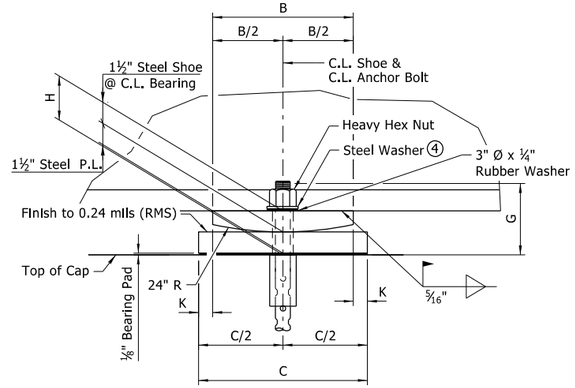
ELASTOMERIC BEARING

Bent Nos. 1 & 4



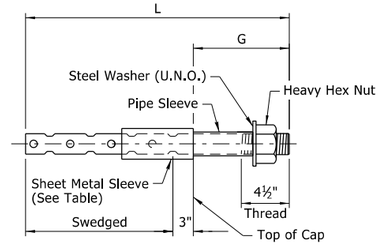
PLAN TYPE "B" SPECIAL SHOE

Bent Nos. 2 & 3



SIDE TYPE "B" SPECIAL SHOE

Bent Nos. 2 & 3



ANCHOR BOLT DETAIL

Note:
Bents 1 and 4 Anchor Bolts shall only be cast in place. Bents 2 and 3 Anchor Bolts may be cast in place or drilled and grouted into place. Where 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 will not be paid for directly, but will be considered subsidiary to the item "STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709, Gr. 50W)".

GENERAL NOTES

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

External load plates shall conform to ASTM A709, Gr. 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 PLATE GIRDER SPANS (A709, Gr. 50W)". External load plates will not be measured or paid for separately, but will be considered incidental to the unit price bid for "ELASTOMERIC BEARINGS".

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

Plates for Type "B" Special Shoe shall be ASTM A709 Gr. 50W and shall be paid for at the unit price bid for STRUCTURAL STEEL IN PLATE GIRDER SPANS (A709 Gr 50W).

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

Hussam Saleem 10-18-2023

BRIDGE ENGINEER
PRINT DATE: 10/17/2023

DETAILS OF BEARINGS

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY:	MKL	DATE:	11/2020	FILENAME:	B100995x1_EX1.dgn
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REVISED DATE:

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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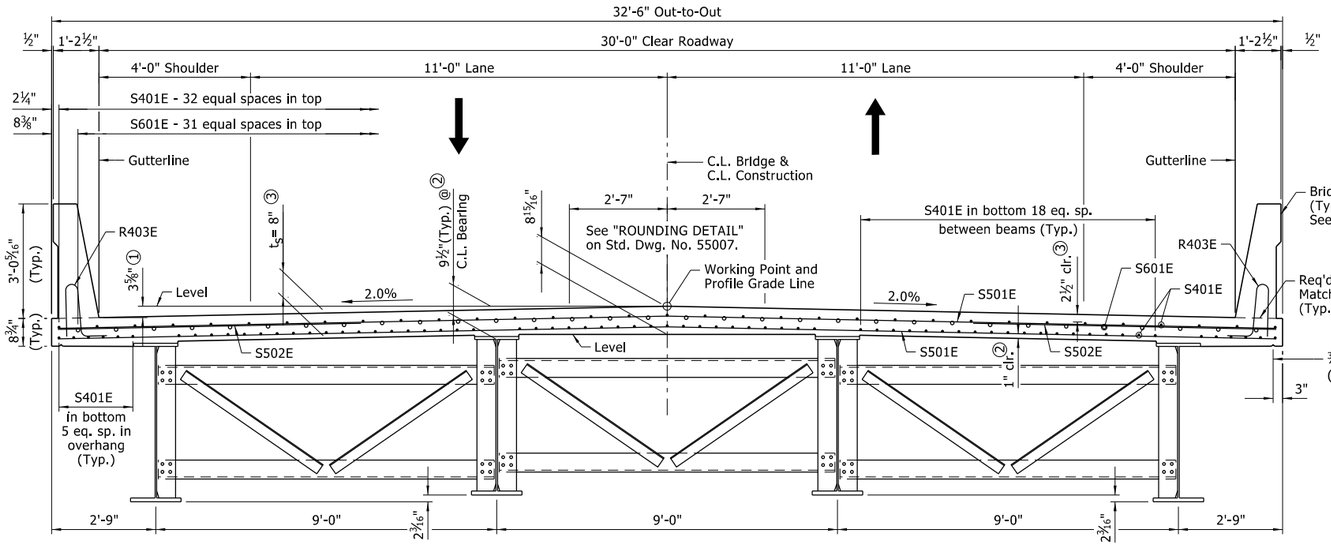
		07576 - 280'-0" CONT. UNIT - 64977				



TYPICAL SECTION
(Looking Ahead)

① Working Point to Gutterline
② See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. 55007.
③ Tolerance: Minus = ¼"; 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.
④ Omit studs on outside of Exterior Girders

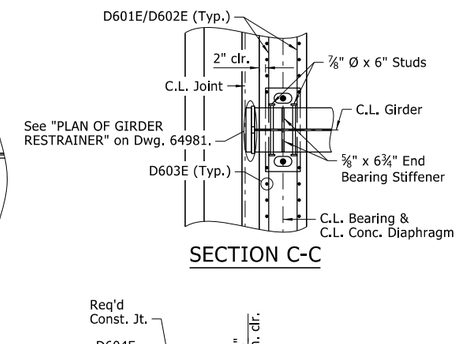
Note:
Class 2 Protective Surface Treatment shall be applied to the Roadway Surface and the roadway face and top of Bridge Traffic Rail.

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

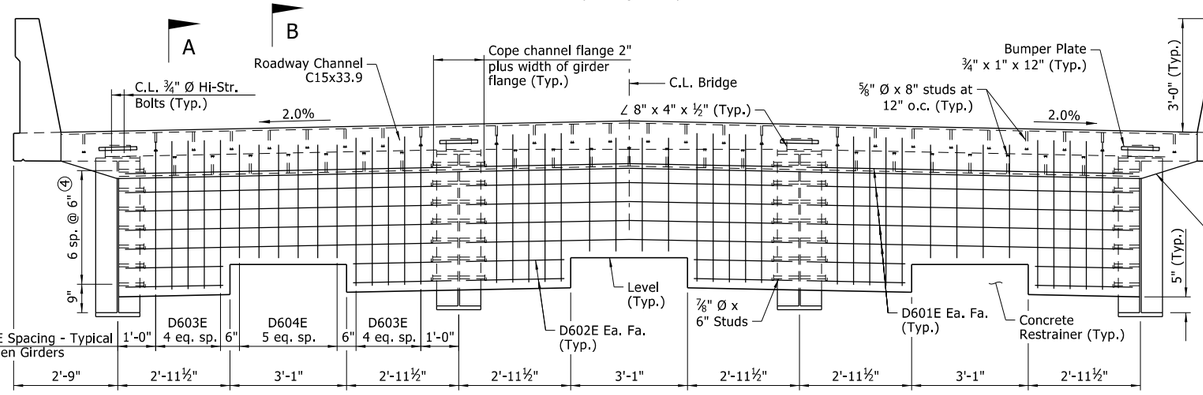
Slab Reinforcing:

Transverse: S501E @ 6" o.c. in top and bottom
S502E @ 6" o.c. In top of overhangs (bundled with top S501E bars)
R403E spaced as shown In Std. Dwg. 55070.

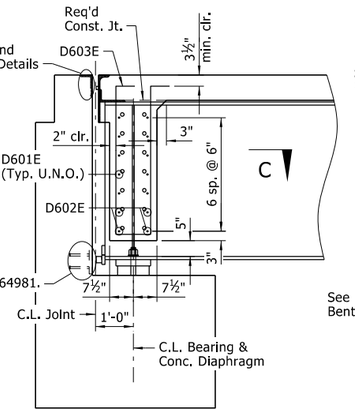
Longitudinal: S401E In top and bottom (Placed as shown)
S601E placed as shown over Interior supports (See "REINFORCING PLAN AND POURING SEQUENCE", Dwg. No. 64980)



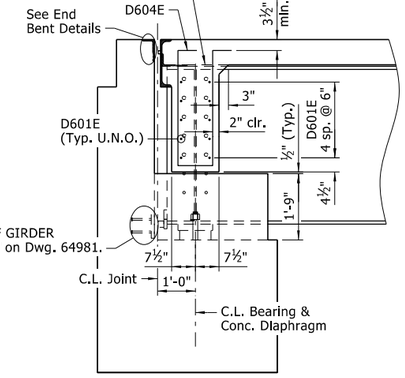
SECTION C-C



TYPICAL SECTION THRU JOINT
(Looking Ahead- Bent 1)
(Looking Back - Bent 4)



SECTION A-A



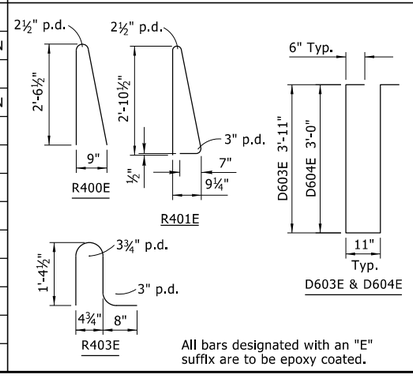
SECTION B-B

Expansion Device
Rdwy. Channel C15x33.9
Conn. ∠'s 8" x 4" x ½"
Bumper Plate ¾" x 1" x 12"
Detail Device ⅛" high and provide ¼" shims using 2 - 1⁄16" PL's and 1 - ⅛" PL

BAR LIST

MARK	NO. REQ'D	LENGTH	P.D.	MARK	NO. REQ'D	LENGTH	P.D.
S401E	816	36'-11"	STR.	R400E	144	5'-3"	2½"
				R401E	1,084	6'-4"	AS SHOWN
S501E	1118	32'-2"	STR.	R402E	64	5'-6"	STR.
S502E	1118	8'-0"	STR.	R403E	1,084	3'-6"	AS SHOWN
				R404E	32	10'-8"	STR.
S601E	64	59'-4"	STR.	R405E	128	11'-8"	STR.
				R406E	96	16'-8"	STR.
D401E	40	32'-2"	STR.	R407E	48	19'-8"	STR.
D601E	60	8'-8"	STR.				
D602E	48	2'-8"	STR.				
D603E	60	9'-1"	4½"				
D604E	36	7'-3"	4½"				

BENDING DIAGRAM



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

POURED SILICONE JOINT

Bent Nos.	Movement Rating	"A" width perpendicular to joint at 24 hour average temperature of: 40°F	60°F	80°F	Bumper Plate Size	"B" Dimension
1 & 4	4"	2 3⁄16"	2"	1 13⁄16"	¾" x 1" x 12"	3"

Note:
The temperature used to set the joint opening shall be the approximate average air temperature during the preceding 24 hour period. The Engineer shall establish the temperature. Interpolation of the table may be necessary. Installation is limited to 40°F min. and 80°F max. For additional information of poured silicone joint, see Std. Dwg. No. 55008.

Hussam Saleem
11-20-2024

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

BRIDGE ENGINEER
PRINT DATE:11/20/2024

SHEET 1 OF 5
DETAILS OF 280'-0" CONTINUOUS PLATE GIRDER UNIT
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MKL DATE: 11/2020
CHECKED BY: HSS DATE: 03/2022
DESIGNED BY: MKL DATE: 10/2020
BRIDGE NO. 07576
DRAWING NO. 64977
FILENAME: B100995X1_SX1.dgn
SCALE: ½" = 1'-0"

Brendan.Barns 11/20/2024 3:40:10 PM
WORKSPACE: ARDOT
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REVISED DATE:

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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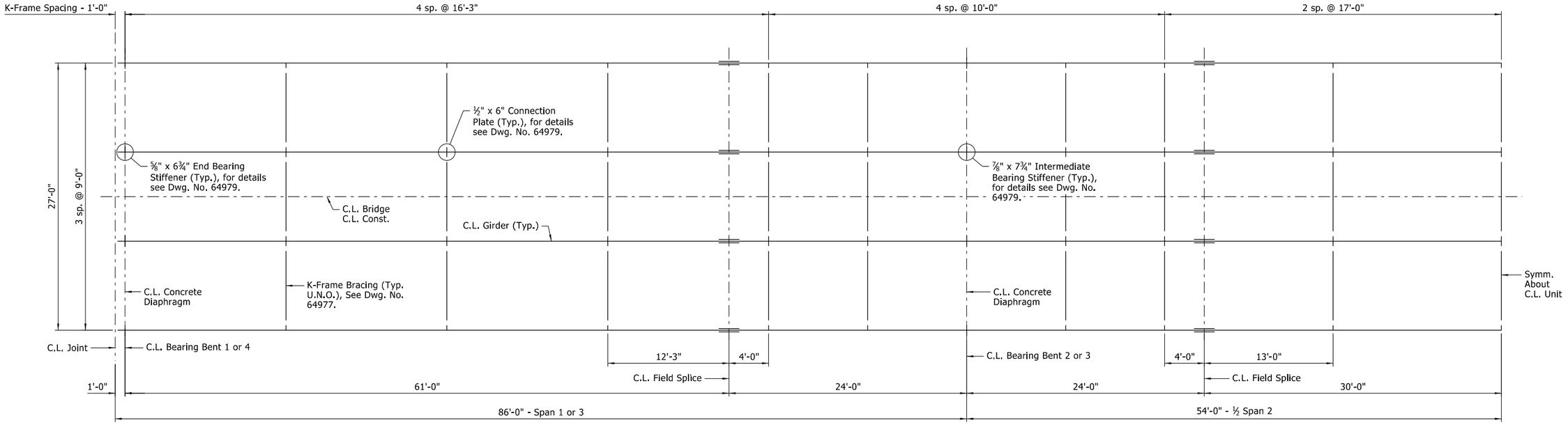
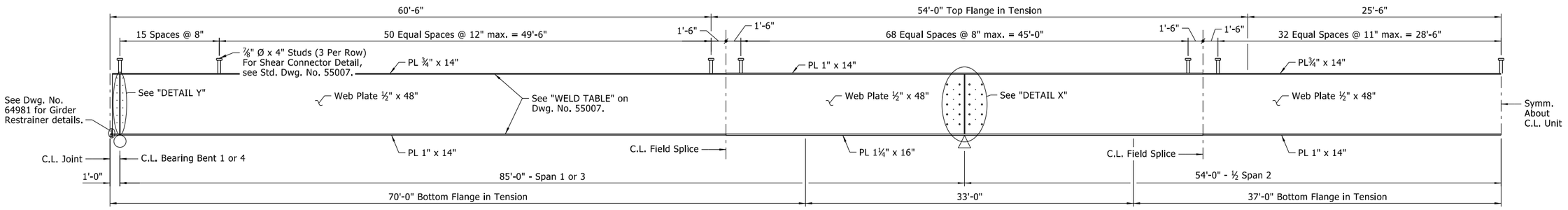
		07576 - 280'-0" CONT. UNIT - 64978				



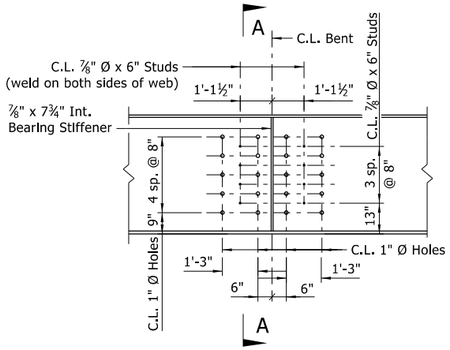
HALF - FRAMING PLAN

3/16" = 1'-0"



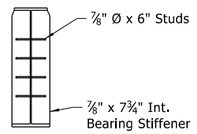
HALF - GIRDER ELEVATION

No Scale



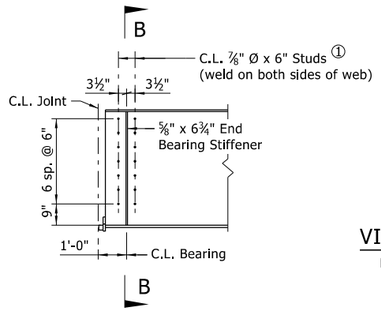
DETAIL X

No Scale



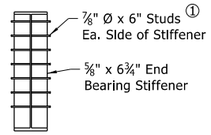
VIEW A-A

No Scale



DETAIL Y

No Scale



VIEW B-B

No Scale

①Omit studs on outside face of Exterior Girders.

Notes:
All Structural Steel shall be ASTM A709, Grade 50W unless otherwise noted, and shall be paid for as "Structural Steel in Plate Girder Spans (A709, Gr. 50W)."

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

The Contractor shall ensure that girders are stable throughout the erection process. The Contractor will be responsible for providing temporary bracing or stiffening devices to accommodate handling stresses in individual members or segments of the structure during erection.

For additional information, See "LAYOUT OF BRIDGE"

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

For additional details, See Std. Dwg. No. 55007.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

BRIDGE ENGINEER
PRINT DATE:11/20/2024

SHEET 2 OF 5
DETAILS OF 280'-0" CONTINUOUS PLATE GIRDER UNIT

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY:	MKL	DATE:	11/2020	FILENAME: B100995x1_Sx2.dgn
CHECKED BY:	HSS	DATE:	03/2022	
DESIGNED BY:	MKL	DATE:	10/2020	SCALE: As Shown
BRIDGE NO.	07576		DRAWING NO.	64978

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REVISED DATE:

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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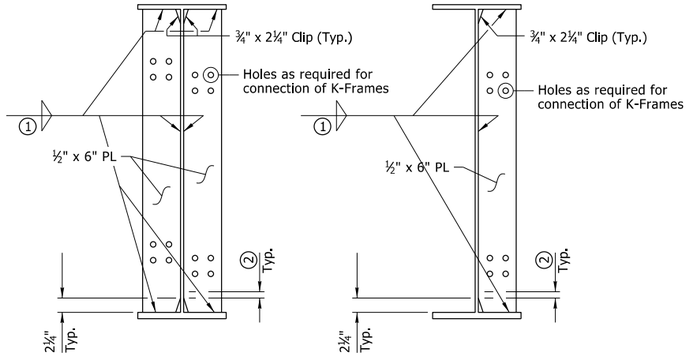
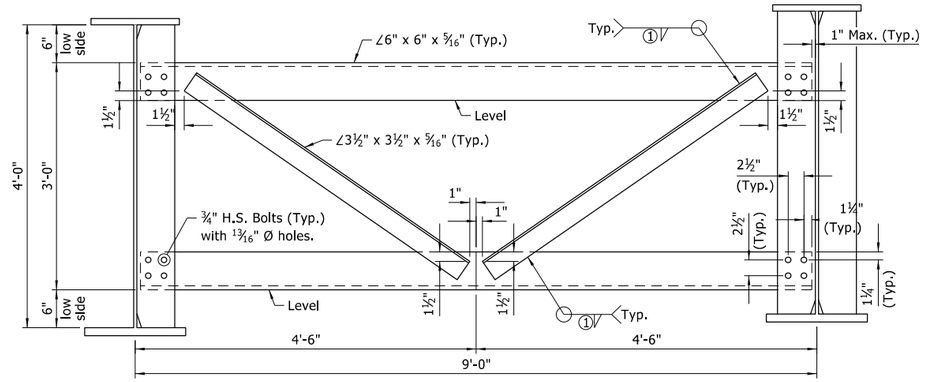
		07576 - 280'-0" CONT. UNIT - 64979				



K-FRAME CONNECTION PLATE DETAIL

1" = 1'-0"

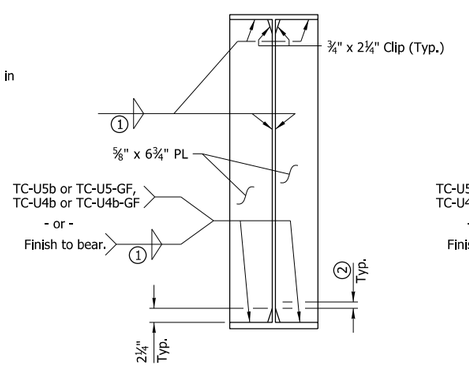


DETAILS OF K-FRAME

1" = 1'-0"

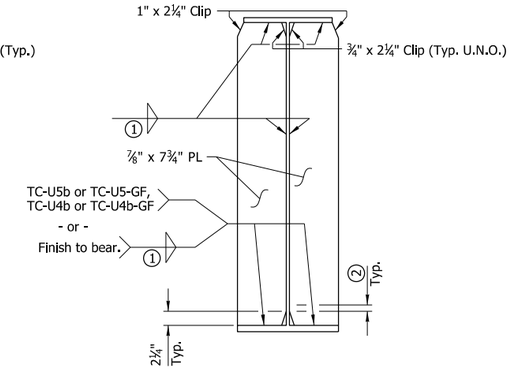
Note:
All bearing stiffeners shall be vertical in their final position.

① See "WELD TABLE" on Std. Dwg. No. 55007.
② Stop Weld ¼" to 1" from end of clip.



END BEARING STIFFENER DETAIL

1" = 1'-0"



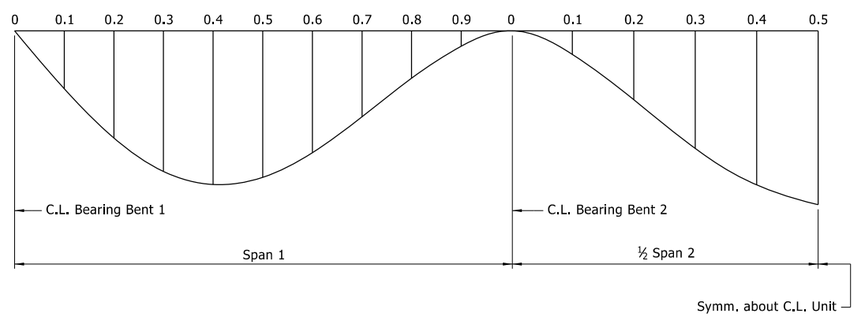
INT. BEARING STIFFENER DETAIL

1" = 1'-0"

TABLE OF DEAD LOAD DEFLECTIONS - INCHES

	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Rail	
		Ext.	Int.	Ext.	Int.	Ext.	Int.
Span 1	0	0	0	0	0	0	0
	0.1	0.061	0.064	0.304	0.379	0.336	0.409
	0.2	0.113	0.118	0.560	0.697	0.618	0.751
	0.3	0.148	0.154	0.732	0.910	0.806	0.981
	0.4	0.161	0.168	0.800	0.995	0.882	1.072
	0.5	0.154	0.161	0.763	0.950	0.842	1.023
	0.6	0.128	0.134	0.635	0.791	0.701	0.852
	0.7	0.090	0.094	0.446	0.555	0.492	0.598
	0.8	0.049	0.051	0.241	0.300	0.266	0.323
	0.9	0.014	0.015	0.071	0.089	0.079	0.096
½ Span 2	0	0	0	0	0	0	0
	0.1	0.024	0.025	0.117	0.145	0.129	0.157
	0.2	0.078	0.081	0.376	0.467	0.415	0.504
	0.3	0.136	0.142	0.659	0.820	0.728	0.884
	0.4	0.180	0.188	0.872	1.084	0.963	1.169
	0.5	0.196	0.205	0.950	1.182	1.049	1.274

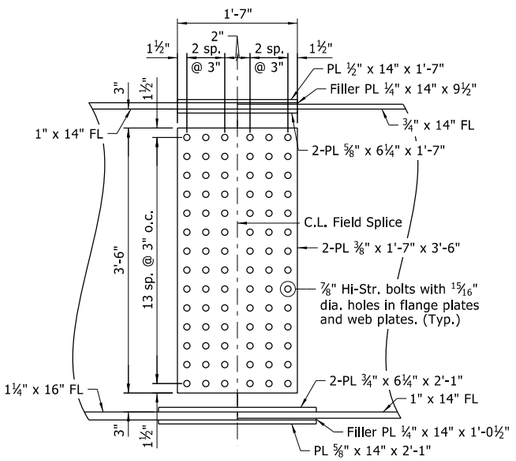
Table is symm. about C.L. Unit



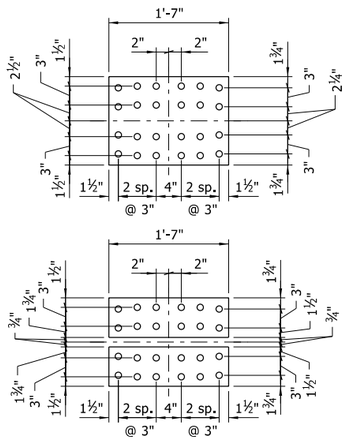
HALF - DEAD LOAD DEFLECTION DIAGRAM

No Scale

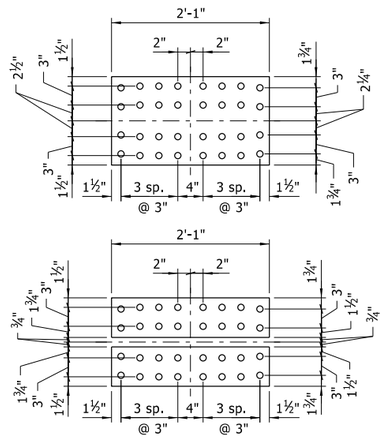
Note:
Camber for Dead Load Deflection plus Vertical Curve + or - ¼" tolerance. Deflections shown are along C.L. Girder from a chord from C.L. Bearing to C.L. Bearing. Vertical curve corrections not included. Negative sign (-) indicates point above chord.



WEB SPLICE



TOP FLANGE SPLICE



BOTTOM FLANGE SPLICE

DETAILS OF FIELD SPLICE

1" = 1'-0"

HUSSAM S. SALEEM 11-20-2024

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

BRIDGE ENGINEER
PRINT DATE: 11/20/2024

SHEET 3 OF 5
DETAILS OF 280'-0" CONTINUOUS PLATE GIRDER UNIT

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	MKL	DATE:	11/2020	FILENAME:	B100995x1_Sx3.dgn
CHECKED BY:	HSS	DATE:	03/2022		
DESIGNED BY:	MKL	DATE:	10/2020	SCALE:	As Shown
BRIDGE NO.	07576			DRAWING NO.	64979

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REVISED DATE:

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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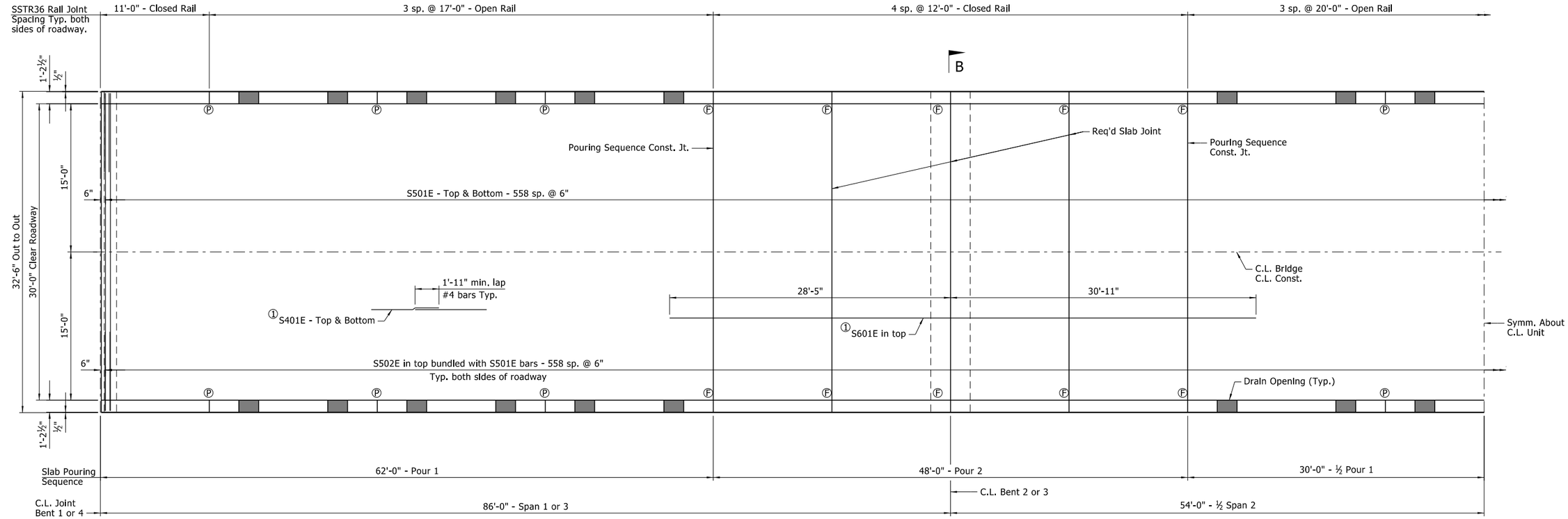
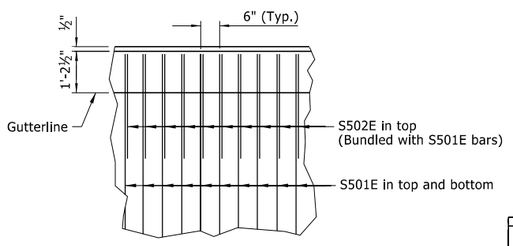
		07576 - 280'-0" CONT. UNIT - 64980				



HALF - REINFORCING PLAN AND SLAB POURING SEQUENCE

3/16" = 1'-0"

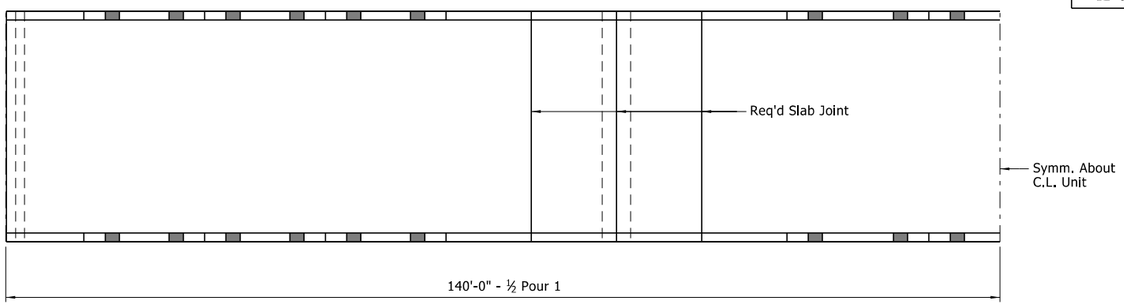
①Placed as shown in "TYPICAL SECTION" on Dwg. No. 64977.
ⓅPartial depth parapet joint at this location. (Stop 1'-4" above top of slab)
ⒻFull depth parapet joint at this location. (Stop 6" above top of slab)



REINFORCING DETAIL

No Scale

Note:
Pours with the same number may be placed simultaneously or separately. Concrete diaphragms at Bents 1 - 4 shall be poured prior to pouring any slab concrete. Pour (1) must be placed before pours (2) can be placed. 48 hours shall elapse before the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 72 hours shall elapse between the completion of the entire deck and the pouring of the parapet. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.



HALF - ALTERNATE POURING SEQUENCE

3/32" = 1'-0"

TABLE OF VARIABLES

See Std. Dwg. No. 55070

Closed Rail Panels			Open Rail Panels					
Panel Length	A	R4XXE	Panel Length	B	C	D	E	R4XXE
11'-0"	21	R404E	17'-0"	8	3'-0"	13	7'-0"	R406E
12'-0"	23	R405E	20'-0"	8	3'-0"	19	10'-0"	R407E

Hussam Saleem
11-20-2024

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

BRIDGE ENGINEER
PRINT DATE:11/20/2024

SHEET 4 OF 5
DETAILS OF 280'-0" CONTINUOUS PLATE GIRDER UNIT
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MKL DATE: 11/2020 FILENAME:B100995x1_Sx4.dgn
CHECKED BY: HSS DATE: 03/2022
DESIGNED BY: MKL DATE: 10/2020 SCALE: As Shown
BRIDGE NO. 07576 DRAWING NO. 64980

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REVISED DATE:

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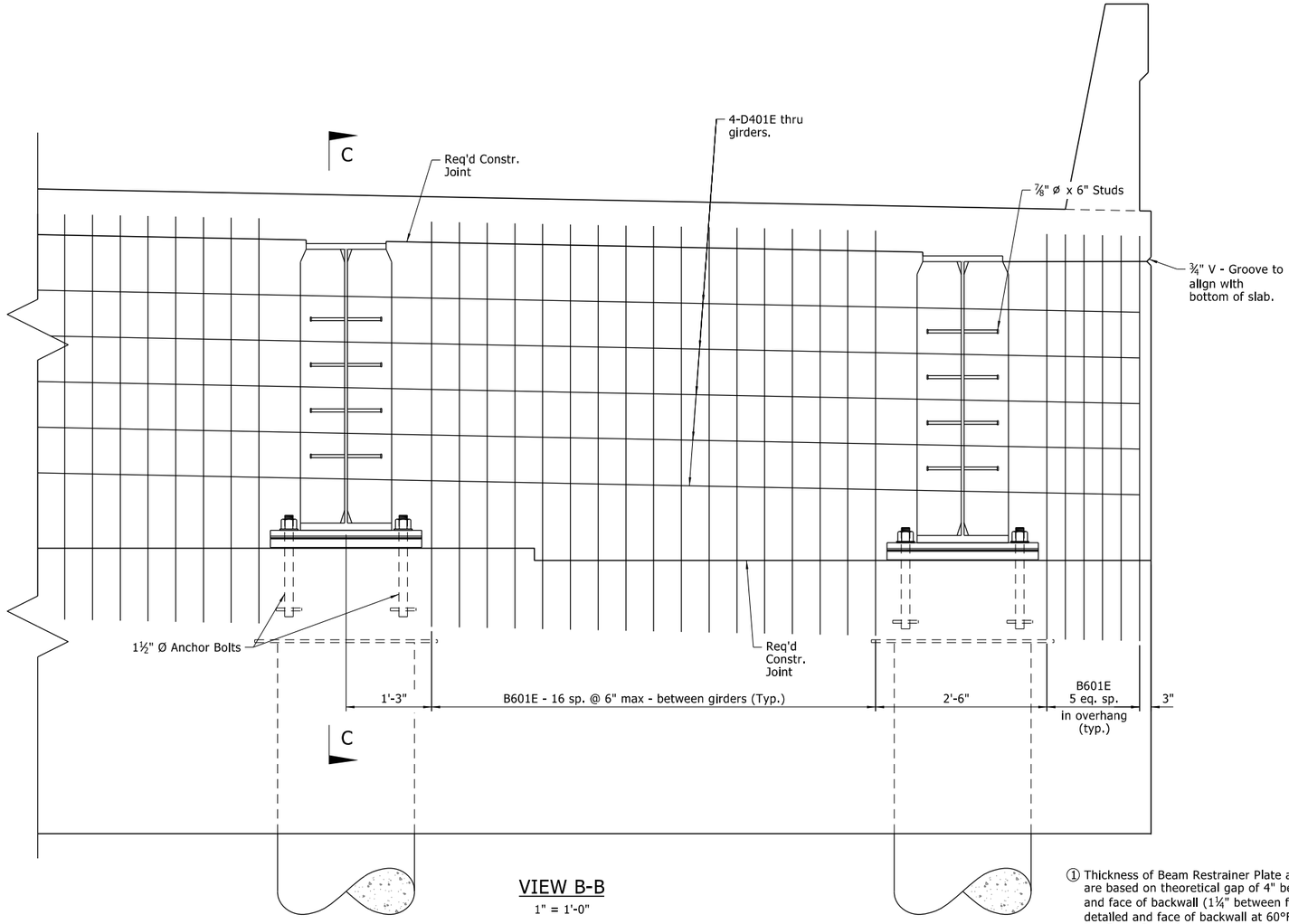
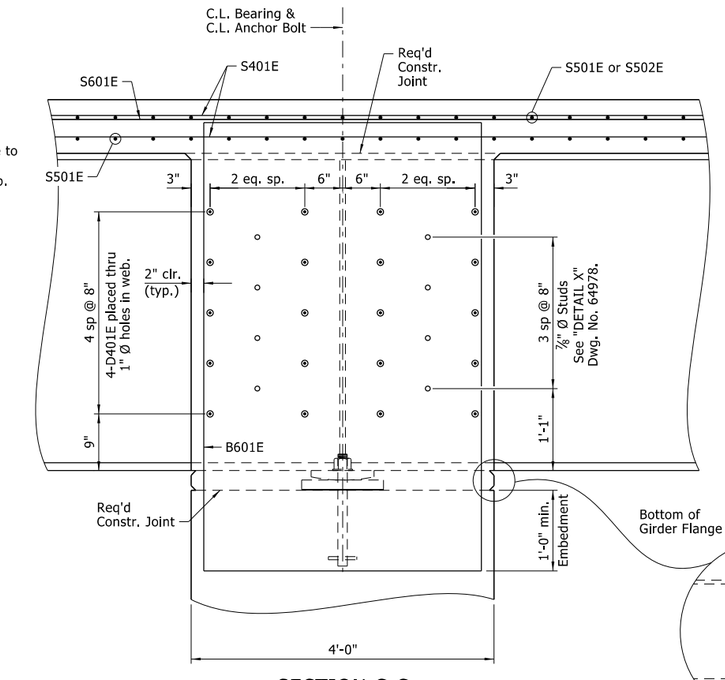
		07576 - 280'-0" CONT. UNIT - 64981				



VIEW B-B

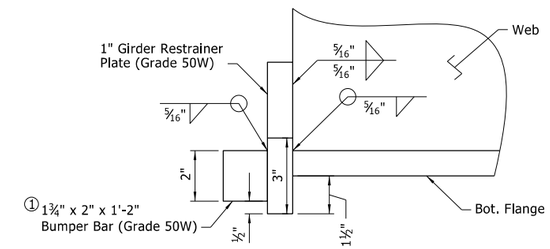
1" = 1'-0"



SECTION C-C

1" = 1'-0"

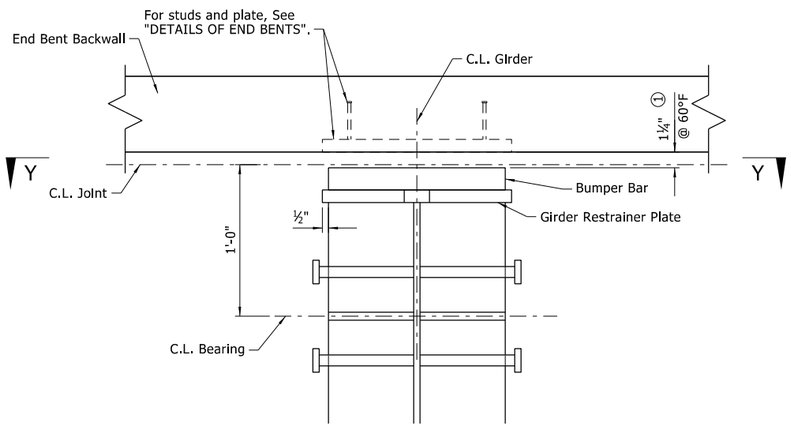
① Thickness of Beam Restrainer Plate and Bumper Bar shown are based on theoretical gap of 4" between end of girder and face of backwall (1¼" between face of bumper bar as detailed and face of backwall at 60°F). Prior to installing the Beam Restrainer assembly, the actual gap shall be field measured and final plate dimensions submitted for review. In no case shall the actual plate thickness used in the assembly be less than ½".



BUMPER CONNECTION DETAIL

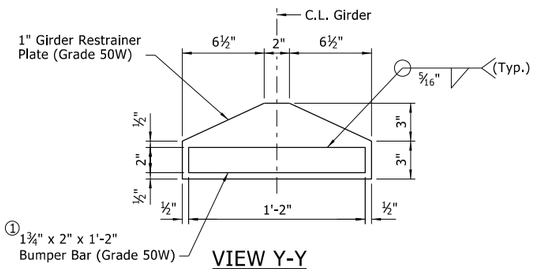
No Scale

Bumpers shall be centered horizontally on each Girder line.



PLAN OF GIRDER RESTRAINER

No Scale



VIEW Y-Y

No Scale

View taken along girder. Girder restrainer plate shall be centered on each girder line.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.18919
HUSSAM S. SALEEM

Hussam Saleem 10-18-2023

BRIDGE ENGINEER
PRINT DATE: 10/17/2023

SHEET 5 OF 5
DETAILS OF 280'-0" CONTINUOUS PLATE GIRDER UNIT

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY:	MKL	DATE:	02/2022	FILENAME:	B100995x1_Sx5.dgn
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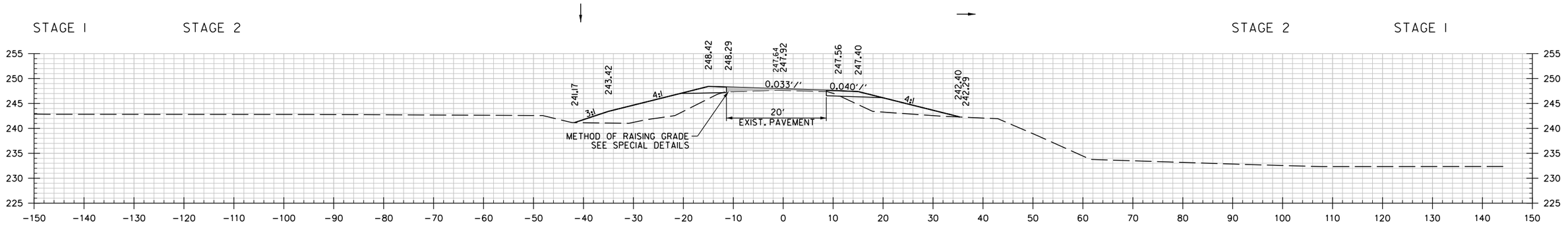
REVISED DATE:

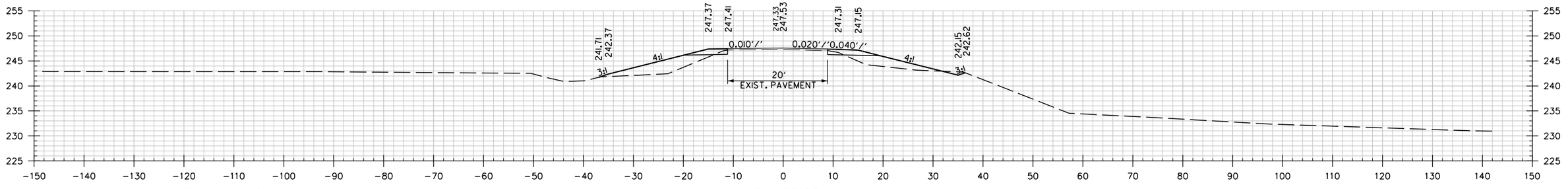
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	59	70
		CROSS SECTIONS				



CUT AREA 150 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 38 SQ. FT. FILL AREA 83 SQ. FT.

185+00.00

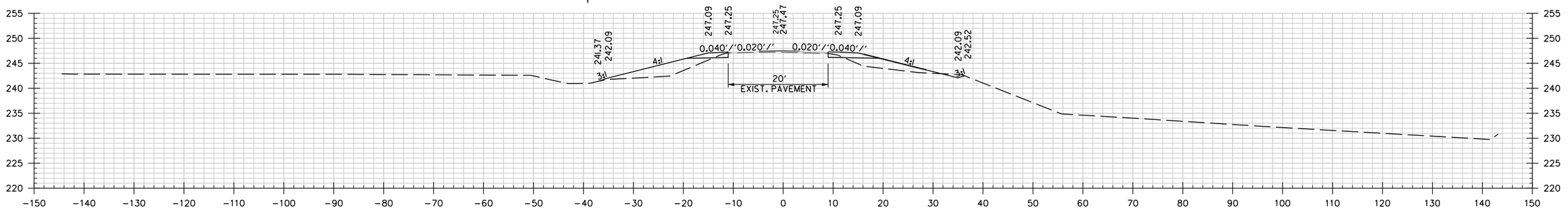
CUT VOLUME 3 CU. YD. CUT VOLUME 8 CU. YD.
FILL VOLUME 230 CU. YD. FILL VOLUME 115 CU. YD.



CUT AREA 3 SQ. FT. CUT AREA 1 SQ. FT.
FILL AREA 24 SQ. FT. FILL AREA 41 SQ. FT.

184+00.00

CUT VOLUME 1 CU. YD. CUT VOLUME 2 CU. YD.
FILL VOLUME 27 CU. YD. FILL VOLUME 16 CU. YD.



CUT AREA 3 SQ. FT. CUT AREA 2 SQ. FT.
FILL AREA 23 SQ. FT. FILL AREA 35 SQ. FT.

183+81.00
END 100' TRANSITION
BEGIN JOB 100995

CUT VOLUME 3 CU. YD. CUT VOLUME 6 CU. YD.
FILL VOLUME 64 CU. YD. FILL VOLUME 42 CU. YD.

CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

182+81.00
BEGIN 100' TRANSITION

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 0 CU. YD.

STA. 182+81 TO STA. 185+00

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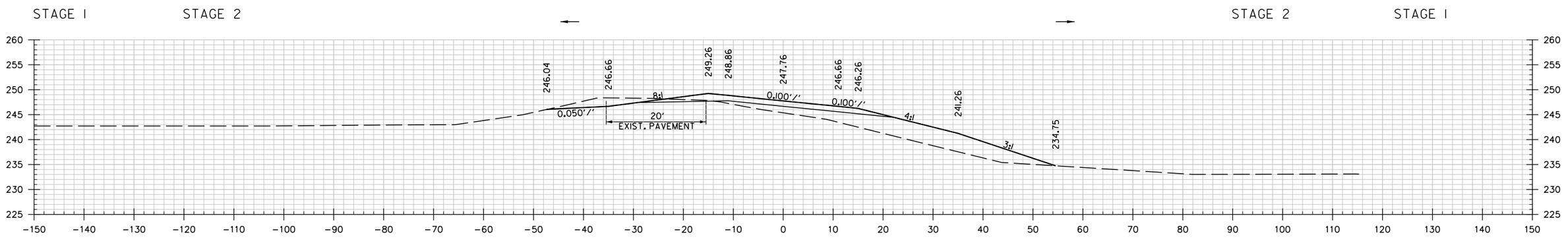
WORKSPACE: ARDOT
Y:\Projects\ARDOT_176208.100995.Cache River Strs & Apprs S of Egypt\Design\CIVIL\Drawings\R100995.21.CX.00.dgn
REVISED DATE: $$REVDATE$$

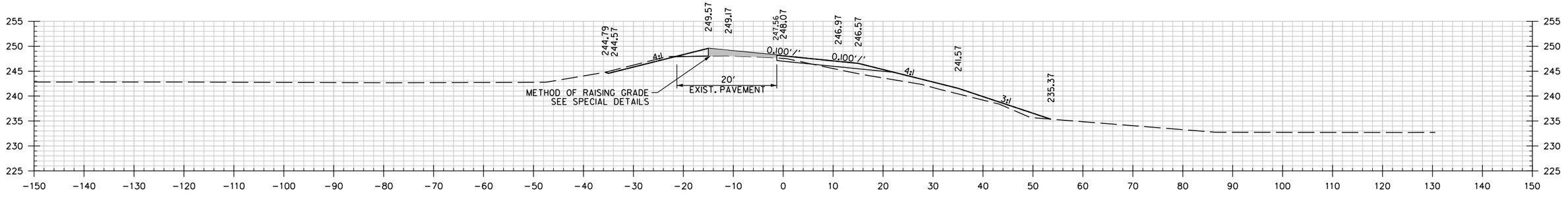
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	60	70
		CROSS SECTIONS				



CUT AREA 0 SQ. FT. CUT AREA 28 SQ. FT.
FILL AREA 155 SQ. FT. FILL AREA 0 SQ. FT.

189+00.00

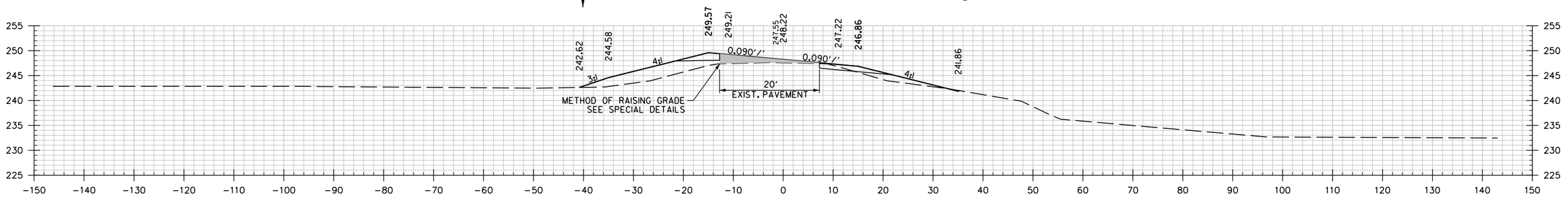
CUT VOLUME 63 CU. YD. CUT VOLUME 5 CU. YD.
FILL VOLUME 24 CU. YD. FILL VOLUME 364 CU. YD.



CUT AREA 3 SQ. FT. CUT AREA 6 SQ. FT.
FILL AREA 42 SQ. FT. FILL AREA 13 SQ. FT.

188+00.00

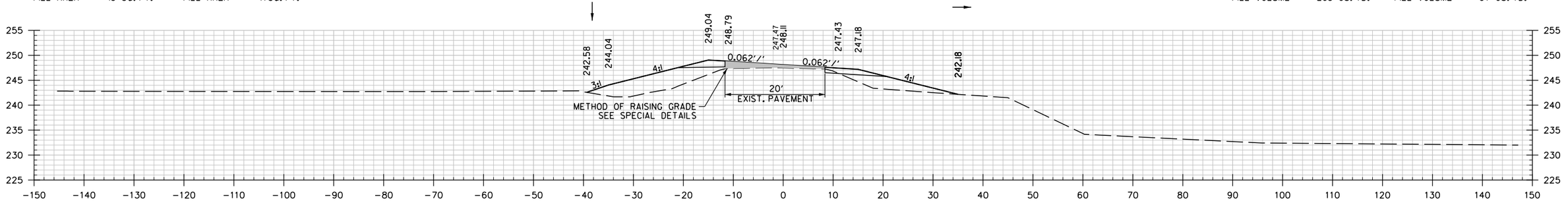
CUT VOLUME 10 CU. YD. CUT VOLUME 13 CU. YD.
FILL VOLUME 156 CU. YD. FILL VOLUME 101 CU. YD.



CUT AREA 5 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 13 SQ. FT. FILL AREA 71SQ. FT.

187+00.00

CUT VOLUME 0 CU. YD. CUT VOLUME 11 CU. YD.
FILL VOLUME 293 CU. YD. FILL VOLUME 87 CU. YD.



CUT AREA 1 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 34 SQ. FT. FILL AREA 87 SQ. FT.

186+00.00

CUT VOLUME 0 CU. YD. CUT VOLUME 5 CU. YD.
FILL VOLUME 315 CU. YD. FILL VOLUME 133 CU. YD.

STA. 186+00 TO STA. 189+00

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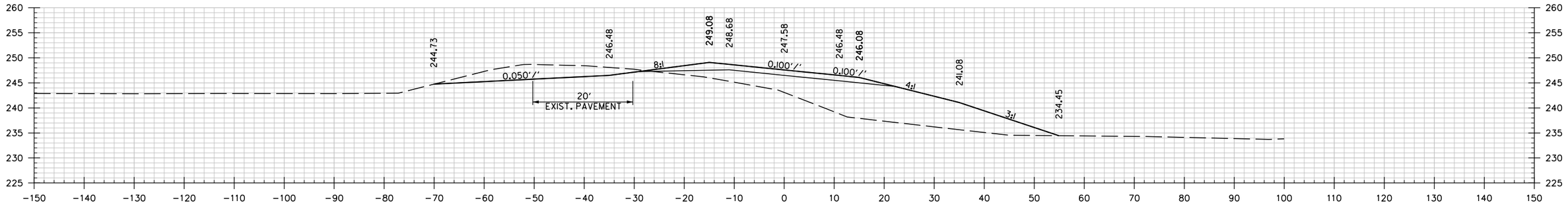
WORKSPACE: ARDOT
Y:\Projects\ARDOT_176208_100995_Cache River Strs & Apprs S of Egypt\Design\CIVIL\Drawings\R100995.21.CX.001.dgn
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	61	70
		CROSS SECTIONS				

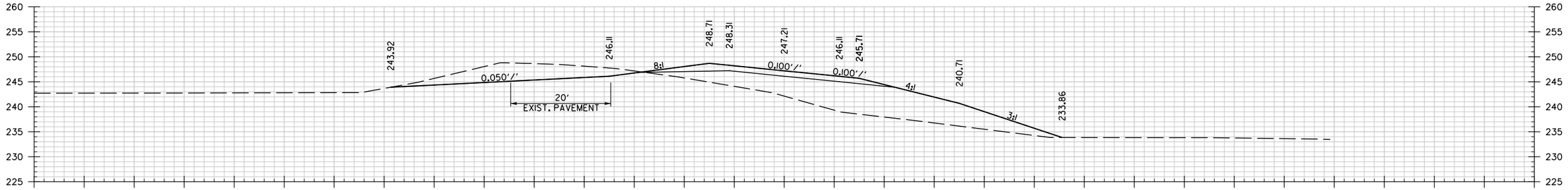
STAGE 1 STAGE 2 STAGE 2 STAGE 1



CUT AREA 0 SQ. FT. CUT AREA 79 SQ. FT.
FILL AREA 312 SQ. FT. FILL AREA 8 SQ. FT.

192+00.00

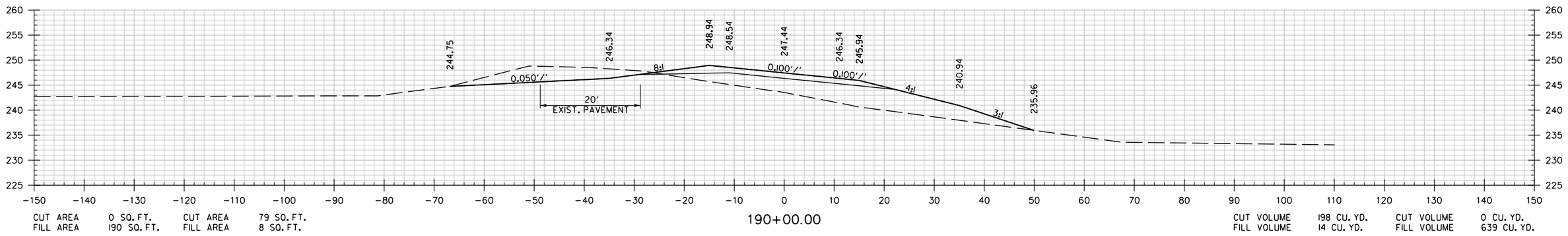
CUT VOLUME 345 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 38 CU. YD. FILL VOLUME 1117 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 107 SQ. FT.
FILL AREA 291 SQ. FT. FILL AREA 12 SQ. FT.

191+00.00

CUT VOLUME 345 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 37 CU. YD. FILL VOLUME 891 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 79 SQ. FT.
FILL AREA 190 SQ. FT. FILL AREA 8 SQ. FT.

190+00.00

CUT VOLUME 198 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 14 CU. YD. FILL VOLUME 639 CU. YD.

STA. 190+00 TO STA. 192+00

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WORKSPACE: ARDOT
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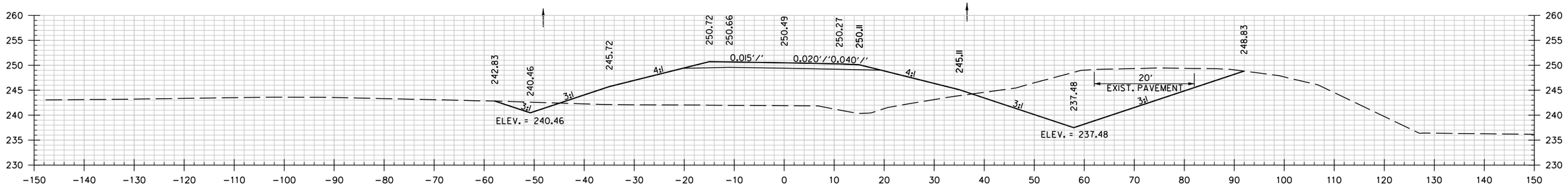
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	62	70
		CROSS SECTIONS				

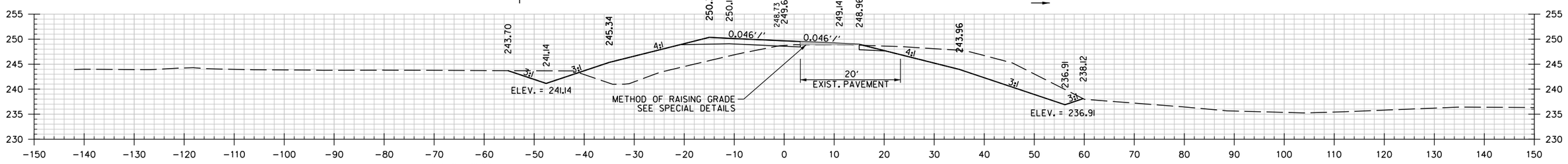
STAGE 1 STAGE 2 STAGE 2 STAGE 1



CUT AREA 14 SQ. FT. CUT AREA 316 SQ. FT.
FILL AREA 477 SQ. FT. FILL AREA 0 SQ. FT.

195+00.00

CUT VOLUME 834 CU. YD. CUT VOLUME 63 CU. YD.
FILL VOLUME 8 CU. YD. FILL VOLUME 1116 CU. YD.



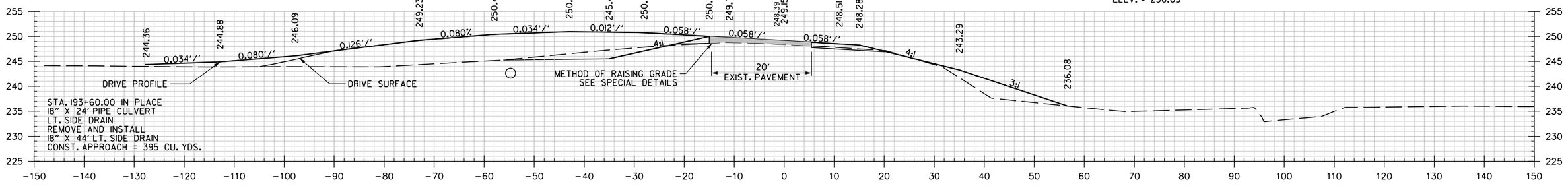
CUT AREA 20 SQ. FT. CUT AREA 134 SQ. FT.
FILL AREA 126 SQ. FT. FILL AREA 4 SQ. FT.

194+00.00

CUT VOLUME 103 CU. YD. CUT VOLUME 23 CU. YD.
FILL VOLUME 52 CU. YD. FILL VOLUME 94 CU. YD.

STA. 193+81.00
BEGIN SP. DITCH LT. -0.69%
ELEV. = 241.27

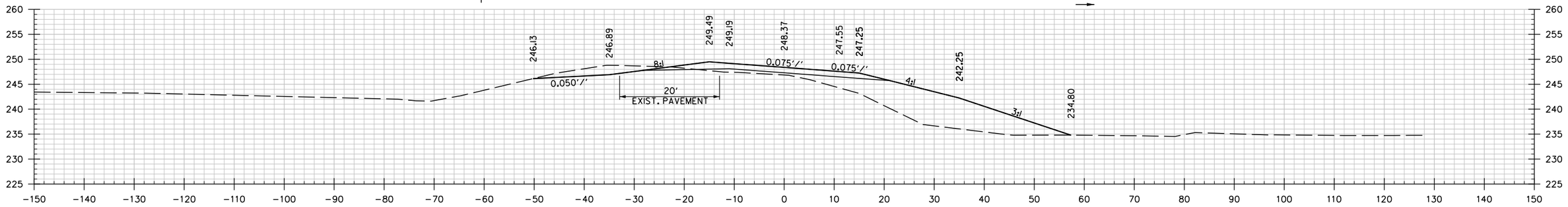
STA. 193+61
BEGIN SP. DITCH RT. 0.57%
ELEV. = 236.69



CUT AREA 11 SQ. FT. CUT AREA 5 SQ. FT.
FILL AREA 1 SQ. FT. FILL AREA 66 SQ. FT.

193+60.00

CUT VOLUME 41 CU. YD. CUT VOLUME 12 CU. YD.
FILL VOLUME 74 CU. YD. FILL VOLUME 251 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 32 SQ. FT.
FILL AREA 225 SQ. FT. FILL AREA 1 SQ. FT.

193+00.00

CUT VOLUME 206 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 17 CU. YD. FILL VOLUME 995 CU. YD.

STA. 193+00 TO STA. 195+00

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WORKSPACE: ARDOT
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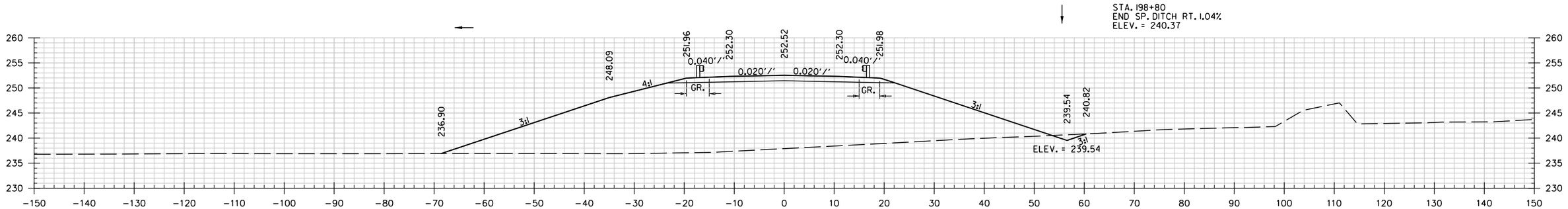
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	63	70
		CROSS SECTIONS				

STAGE 1 STAGE 2 STAGE 2 STAGE 1

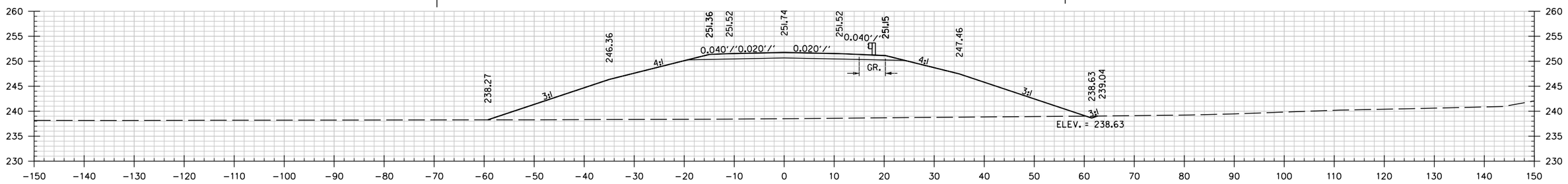


CUT AREA 4 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 1127 SQ. FT. FILL AREA 0 SQ. FT.

198+00.00

STA. 197+30.00
END SP. DITCH RT. 0.57%
BEGIN SP. DITCH RT. 1.04%
ELEV. = 238.81

CUT VOLUME 0 CU. YD. CUT VOLUME 5 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 2881 CU. YD.

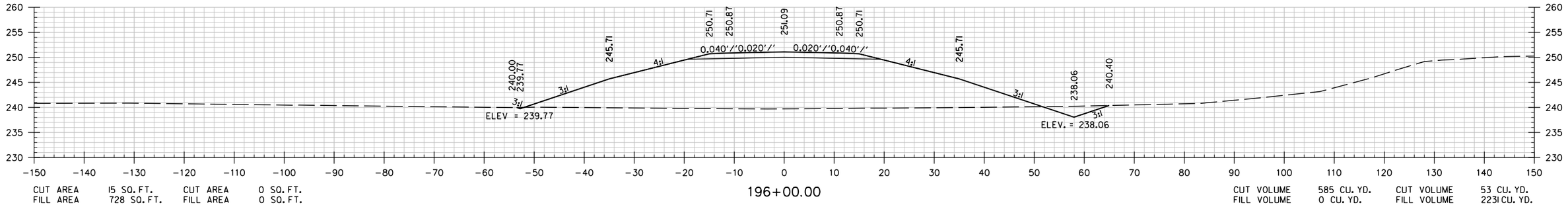


CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 990 SQ. FT. FILL AREA 0 SQ. FT.

197+00.00

CUT VOLUME 0 CU. YD. CUT VOLUME 28 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 318 CU. YD.

STA. 196+11.00
END SP. DITCH LT. -0.69%
ELEV. = 239.70



CUT AREA 15 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 728 SQ. FT. FILL AREA 0 SQ. FT.

196+00.00

CUT VOLUME 585 CU. YD. CUT VOLUME 53 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 2231 CU. YD.

STA. 196+00 TO STA. 198+00

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WORKSPACE: ARDOT
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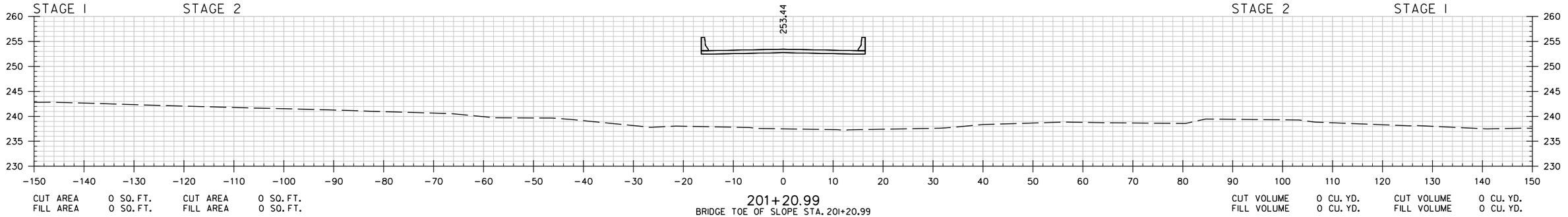
REVISED DATE: $$REVDATE$$

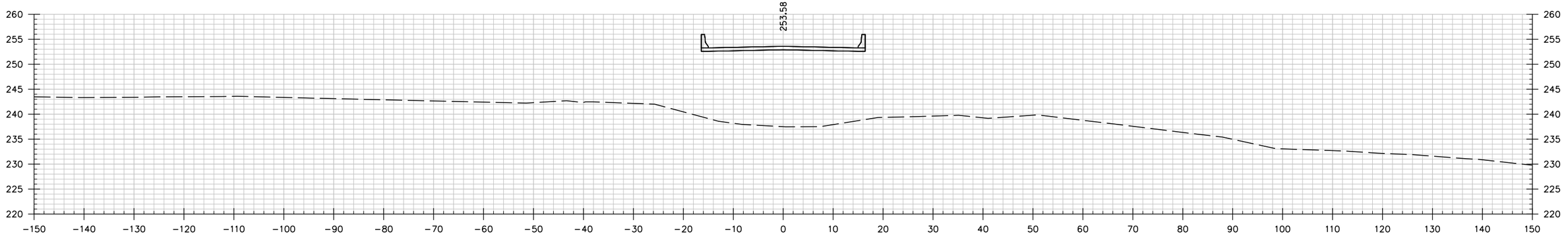
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	64	70
		CROSS SECTIONS				



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 0 CU. YD.

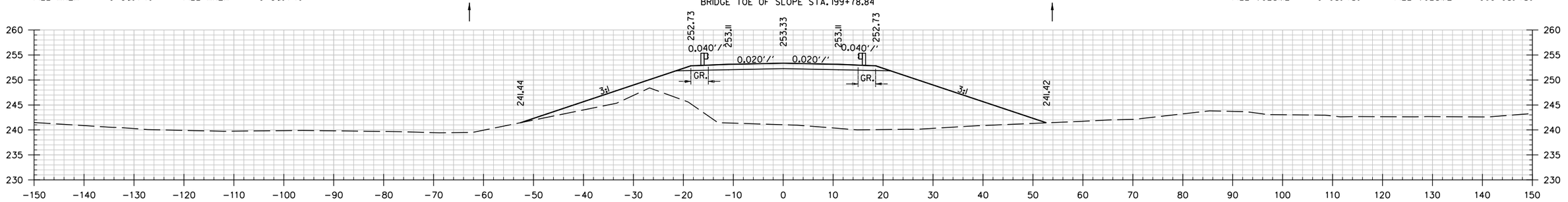
201+20.99
BRIDGE TOE OF SLOPE STA. 201+20.99



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 12 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 863 CU. YD.

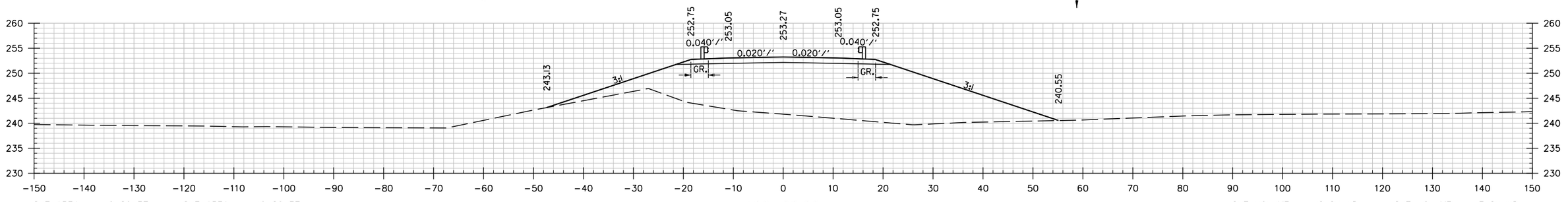
199+78.84
BRIDGE TOE OF SLOPE STA. 199+78.84



CUT AREA 0 SQ. FT. CUT AREA 10 SQ. FT.
FILL AREA 707 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 5 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 336 CU. YD.

199+12.92
BRIDGE BEGIN



CUT AREA 0 SQ. FT. CUT AREA 10 SQ. FT.
FILL AREA 698 SQ. FT. FILL AREA 0 SQ. FT.

CUT VOLUME 18 CU. YD. CUT VOLUME 7 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 3380 CU. YD.

199+00.00

STA. 199+00 TO STA. 201+21

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WORKSPACE: ARDOT
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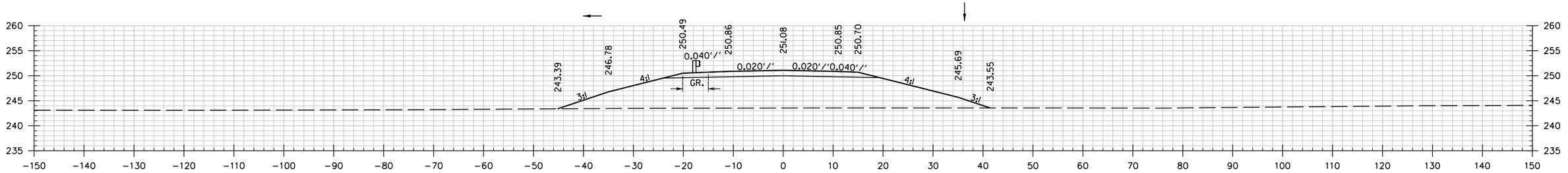
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	65	70
		CROSS SECTIONS				

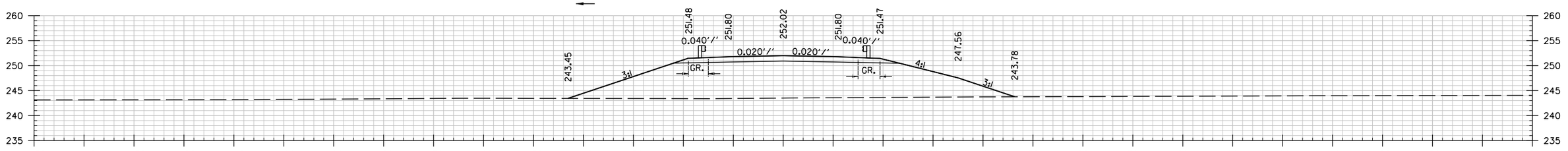
STAGE 1 STAGE 2 STAGE 2 STAGE 1



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 410 SQ. FT. FILL AREA 0 SQ. FT.

204+00.00

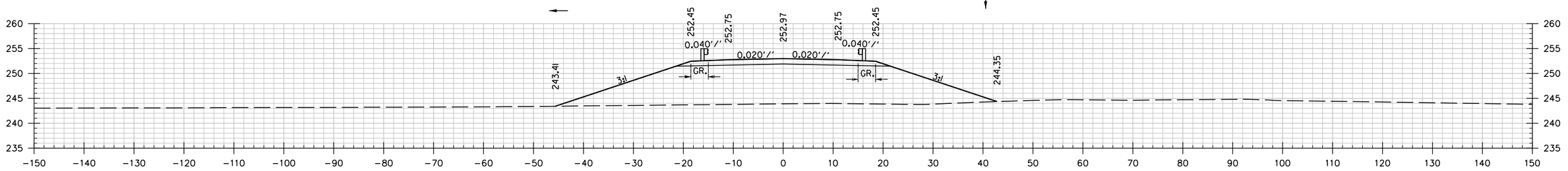
CUT VOLUME 9 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 1666 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 5 SQ. FT.
FILL AREA 489 SQ. FT. FILL AREA 0 SQ. FT.

203+00.00

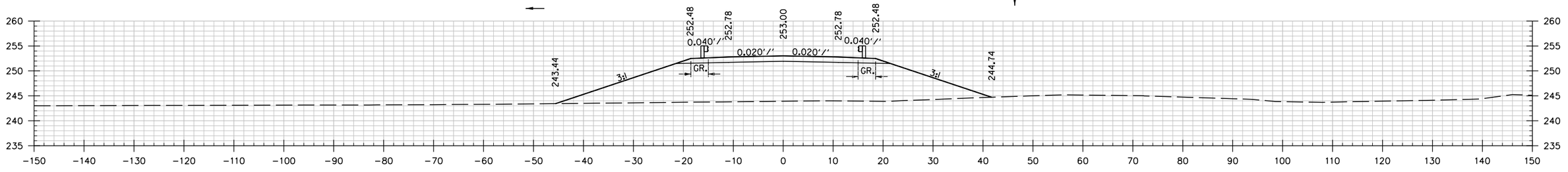
CUT VOLUME 27 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 1876 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 10 SQ. FT.
FILL AREA 523 SQ. FT. FILL AREA 0 SQ. FT.

202+00.00

CUT VOLUME 2 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 95 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 10 SQ. FT.
FILL AREA 516 SQ. FT. FILL AREA 0 SQ. FT.

201+95.08
BRIDGE END

CUT VOLUME 13 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 707 CU. YD.

STA. 201+95 TO STA. 204+00

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WORKSPACE: ARDOT
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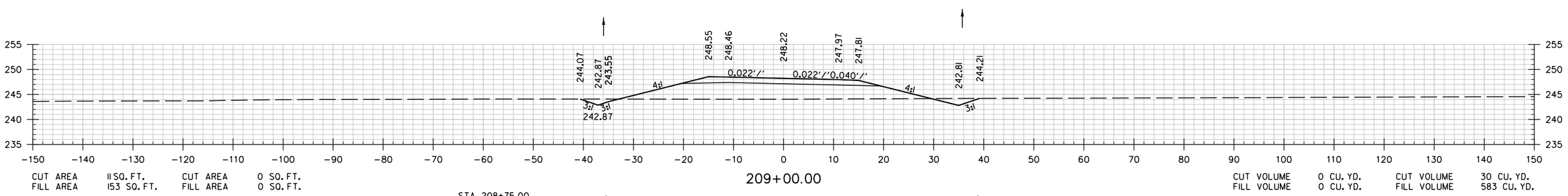
REVISED DATE: $$REVDATE$$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	66	70
		CROSS SECTIONS				

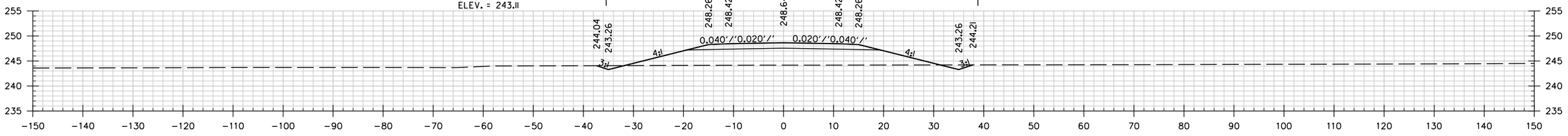


CUT AREA 11 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 153 SQ. FT. FILL AREA 0 SQ. FT.

209+00.00

CUT VOLUME 0 CU. YD. CUT VOLUME 30 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 583 CU. YD.

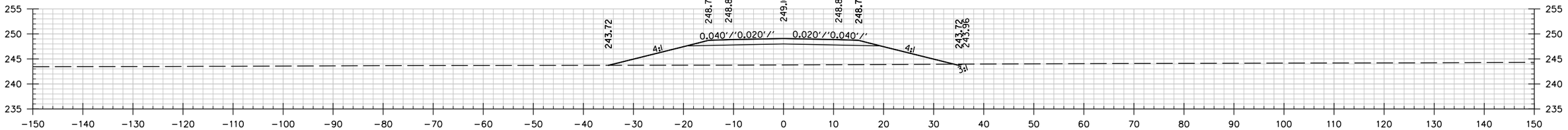
STA. 208+75.00
BEGIN SP. DITCH LT. -0.95%
ELEV. = 243.11



CUT AREA 5 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 161 SQ. FT. FILL AREA 0 SQ. FT.

208+00.00

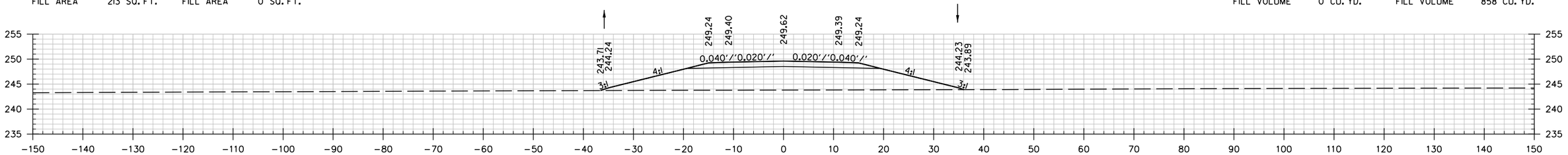
CUT VOLUME 0 CU. YD. CUT VOLUME 10 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 693 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 213 SQ. FT. FILL AREA 0 SQ. FT.

207+00.00

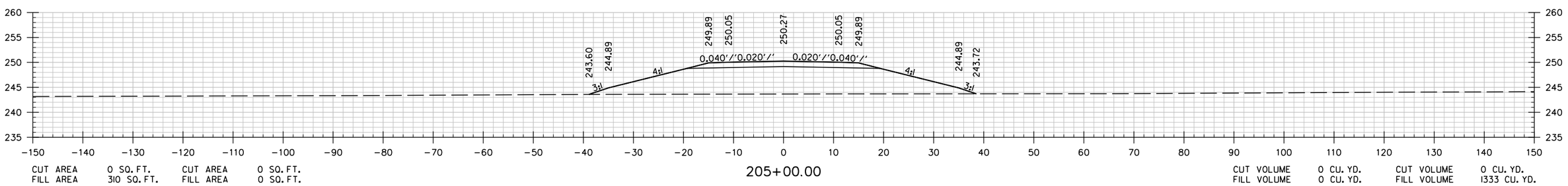
CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 858 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 251 SQ. FT. FILL AREA 0 SQ. FT.

206+00.00

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 1037 CU. YD.



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 310 SQ. FT. FILL AREA 0 SQ. FT.

205+00.00

CUT VOLUME 0 CU. YD. CUT VOLUME 0 CU. YD.
FILL VOLUME 0 CU. YD. FILL VOLUME 1333 CU. YD.

STA. 205+00 TO STA. 209+00

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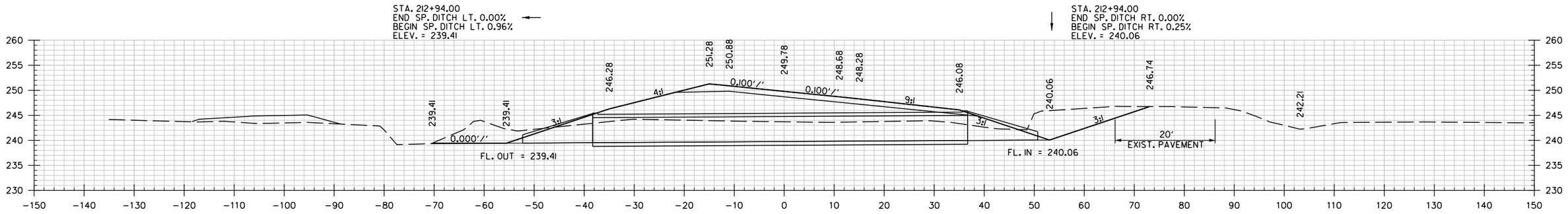
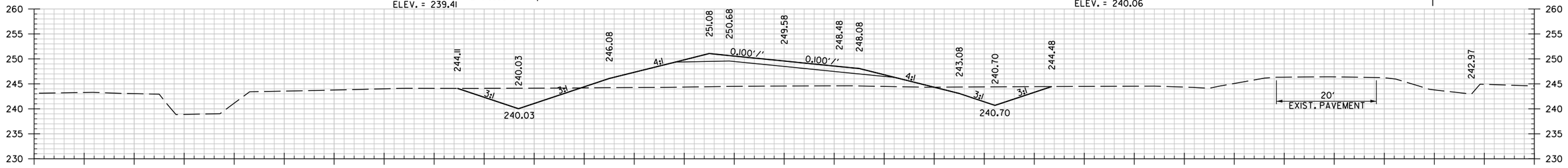
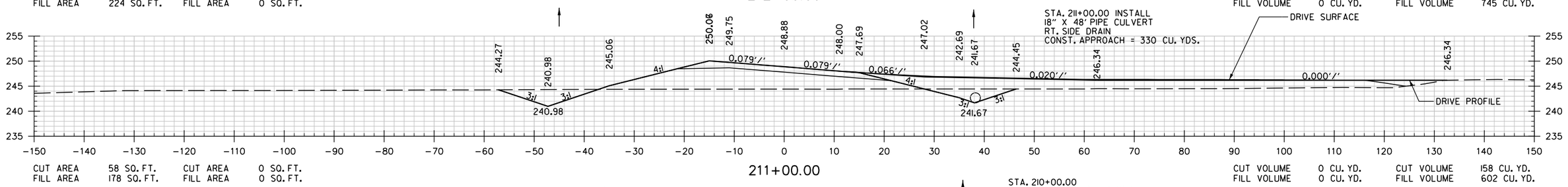
REVISED DATE: $$REVDATE$$

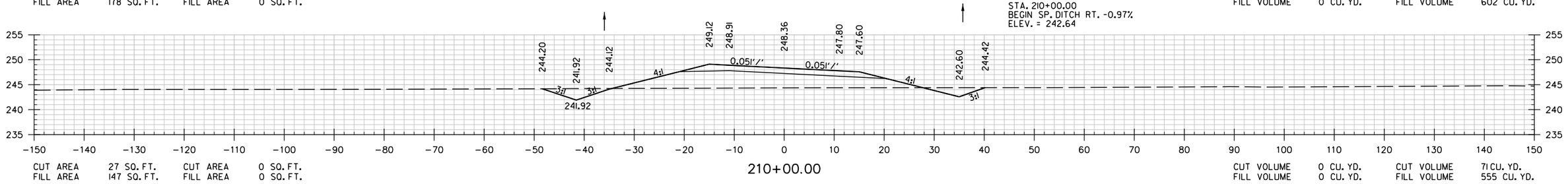
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	100995	67	70
		CROSS SECTIONS				

STAGE 1 STAGE 2 STAGE 2 STAGE 1









STA. 210+00 TO STA. 212+80

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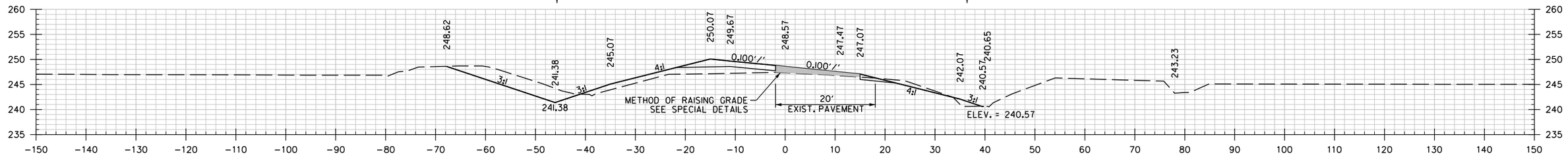
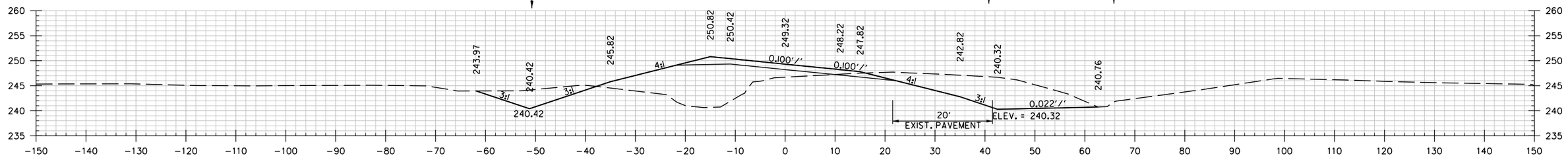
		CROSS SECTIONS				

STAGE 1 STAGE 2 STAGE 2 STAGE 1



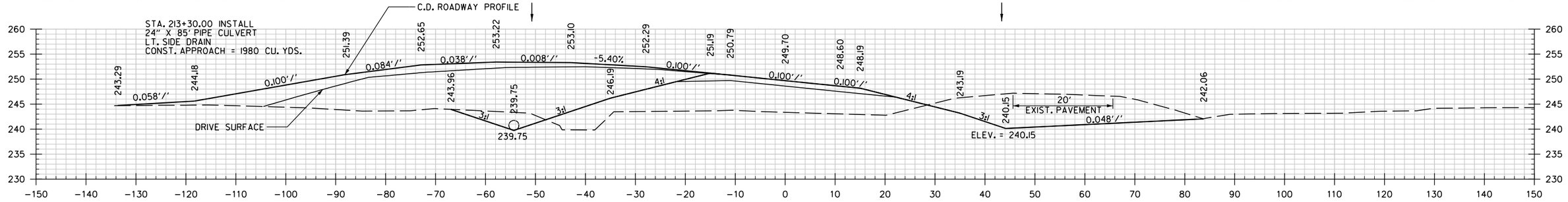
CUT AREA 56 SQ. FT. CUT AREA 10 SQ. FT. CUT VOLUME 323 CU. YD. CUT VOLUME 193 CU. YD.
FILL AREA 418 SQ. FT. FILL AREA 20 SQ. FT. FILL VOLUME 36 CU. YD. FILL VOLUME 425 CU. YD.

215+00.00



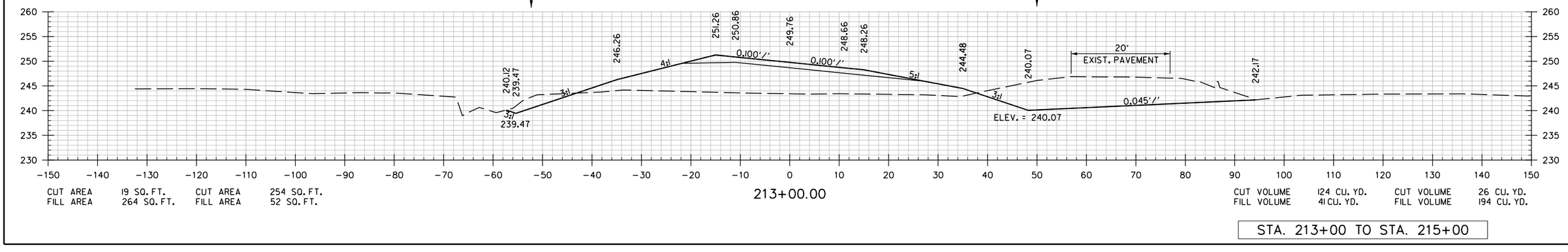
CUT AREA 48 SQ. FT. CUT AREA 164 SQ. FT. CUT VOLUME 532 CU. YD. CUT VOLUME 109 CU. YD.
FILL AREA 189 SQ. FT. FILL AREA 0 SQ. FT. FILL VOLUME 34 CU. YD. FILL VOLUME 648 CU. YD.

214+00.00



CUT AREA 36 SQ. FT. CUT AREA 246 SQ. FT. CUT VOLUME 278 CU. YD. CUT VOLUME 31 CU. YD.
FILL AREA 311 SQ. FT. FILL AREA 26 SQ. FT. FILL VOLUME 43 CU. YD. FILL VOLUME 320 CU. YD.

213+30.00



CUT AREA 19 SQ. FT. CUT AREA 254 SQ. FT. CUT VOLUME 124 CU. YD. CUT VOLUME 26 CU. YD.
FILL AREA 264 SQ. FT. FILL AREA 52 SQ. FT. FILL VOLUME 411 CU. YD. FILL VOLUME 194 CU. YD.

213+00.00

STA. 213+00 TO STA. 215+00

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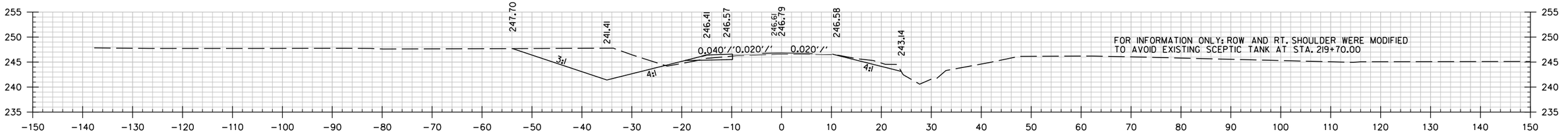
		6	ARK.	100995	69	70
		CROSS SECTIONS				

STAGE 1 STAGE 2 STAGE 2 STAGE 1

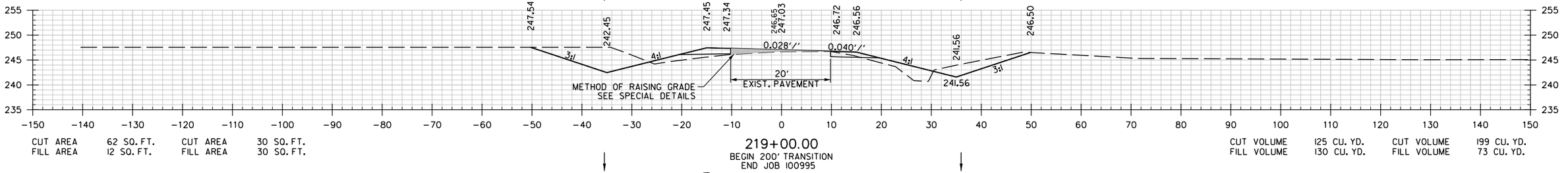


CUT AREA 102 SQ. FT. CUT AREA 26 SQ. FT.
FILL AREA 2 SQ. FT. FILL AREA 16 SQ. FT.

220+00.00

STA. 219+00.00
END SP. DITCH RT. 0.25%
ELEV. = 241.56

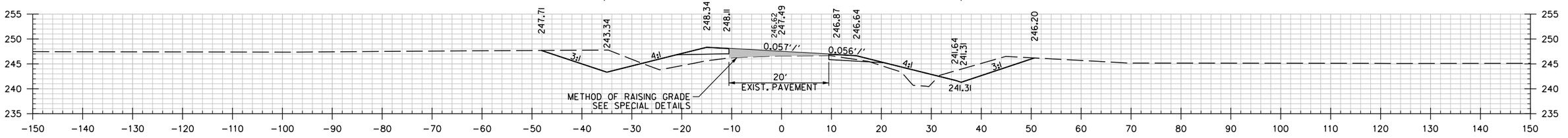
CUT VOLUME 104 CU. YD. CUT VOLUME 303 CU. YD.
FILL VOLUME 86 CU. YD. FILL VOLUME 25 CU. YD.



CUT AREA 62 SQ. FT. CUT AREA 30 SQ. FT.
FILL AREA 12 SQ. FT. FILL AREA 30 SQ. FT.

219+00.00
BEGIN 200′ TRANSITION
END JOB 100995

CUT VOLUME 125 CU. YD. CUT VOLUME 199 CU. YD.
FILL VOLUME 130 CU. YD. FILL VOLUME 73 CU. YD.

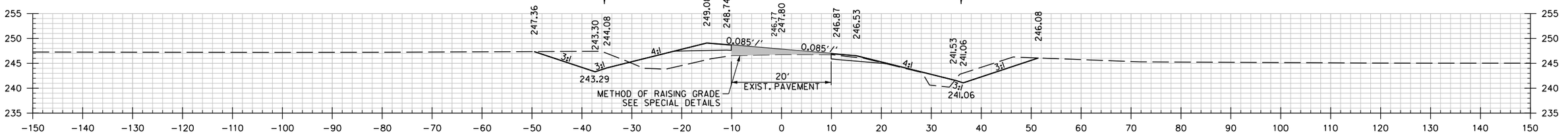


CUT AREA 45 SQ. FT. CUT AREA 38 SQ. FT.
FILL AREA 28 SQ. FT. FILL AREA 40 SQ. FT.

218+00.00

STA. 217+11.00
END SP. DITCH LT. 0.96%
ELEV. = 243.40

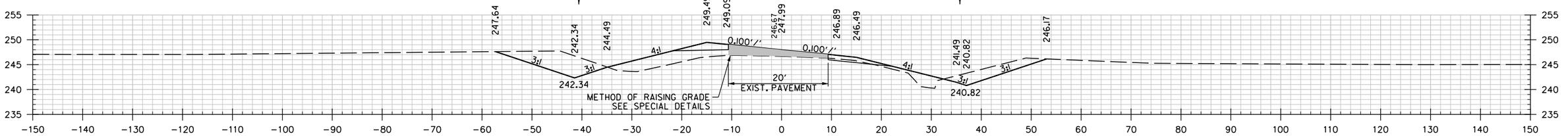
CUT VOLUME 130 CU. YD. CUT VOLUME 159 CU. YD.
FILL VOLUME 134 CU. YD. FILL VOLUME 134 CU. YD.



CUT AREA 40 SQ. FT. CUT AREA 32 SQ. FT.
FILL AREA 44 SQ. FT. FILL AREA 32 SQ. FT.

217+00.00

CUT VOLUME 126 CU. YD. CUT VOLUME 179 CU. YD.
FILL VOLUME 138 CU. YD. FILL VOLUME 167 CU. YD.



CUT AREA 56 SQ. FT. CUT AREA 35 SQ. FT.
FILL AREA 46 SQ. FT. FILL AREA 42 SQ. FT.

216+00.00

CUT VOLUME 84 CU. YD. CUT VOLUME 209 CU. YD.
FILL VOLUME 115 CU. YD. FILL VOLUME 161 CU. YD.

STA. 216+00 TO STA. 220+00

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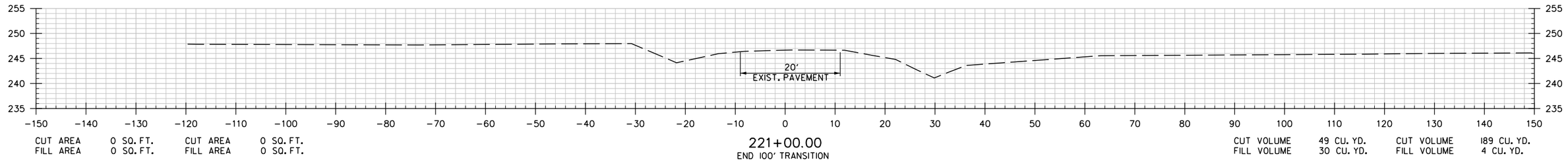
		CROSS SECTIONS				

STAGE 1 STAGE 2 STAGE 2 STAGE 1



CUT AREA 0 SQ. FT. CUT AREA 0 SQ. FT.
FILL AREA 0 SQ. FT. FILL AREA 0 SQ. FT.

221+00.00
END 100' TRANSITION

CUT VOLUME 49 CU. YD. CUT VOLUME 189 CU. YD.
FILL VOLUME 30 CU. YD. FILL VOLUME 4 CU. YD.

STA. 221+00 TO STA. 221+00

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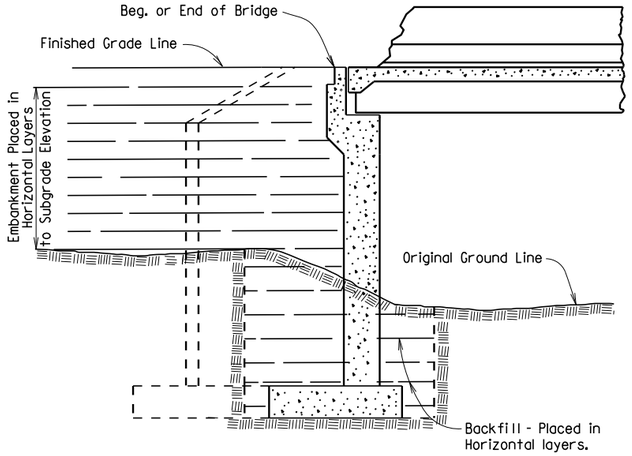
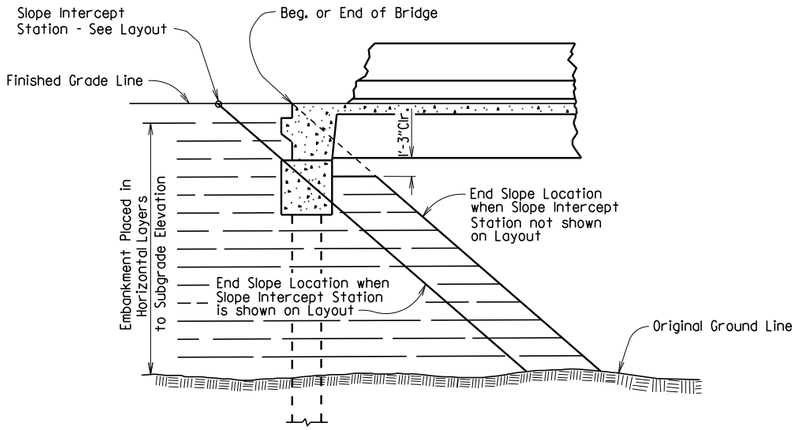
				6	ARK.			
				JOB NO.				

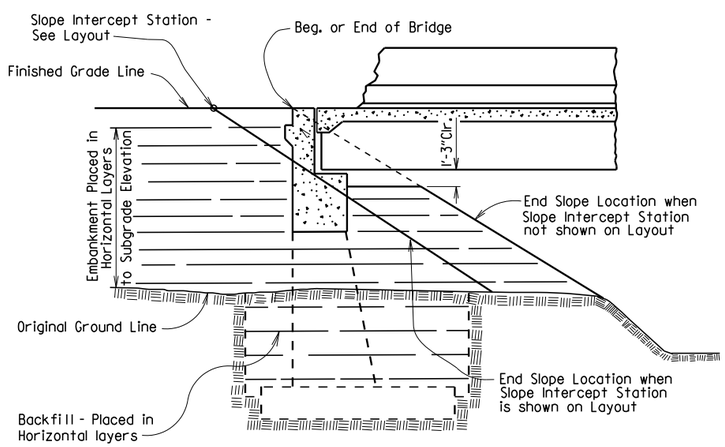
1 EMBANKMENT & BACKFILL 55000



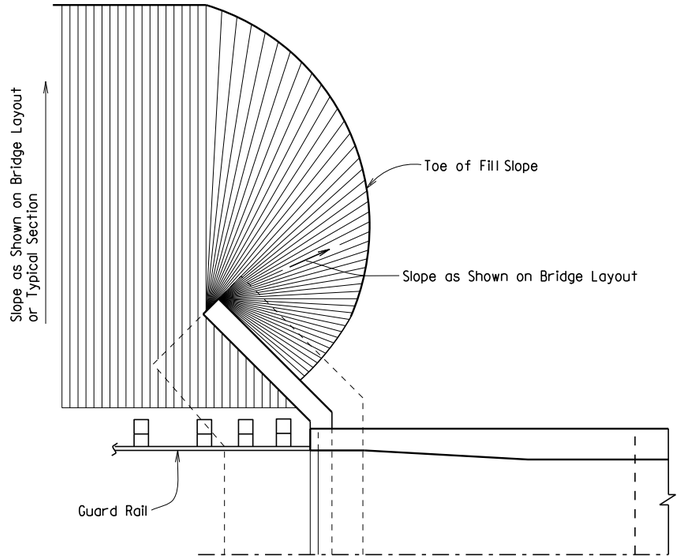
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



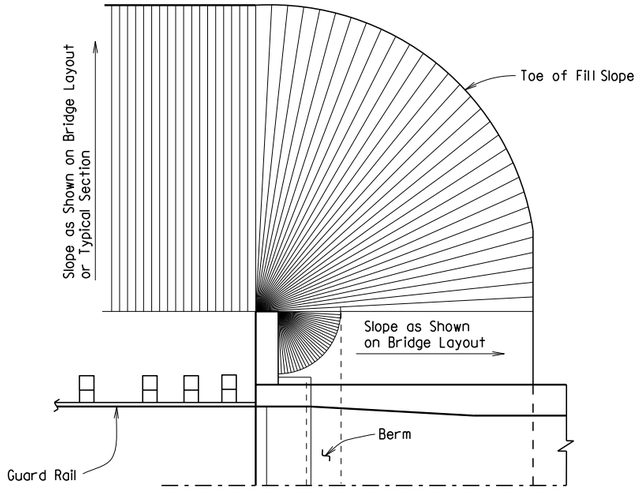
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



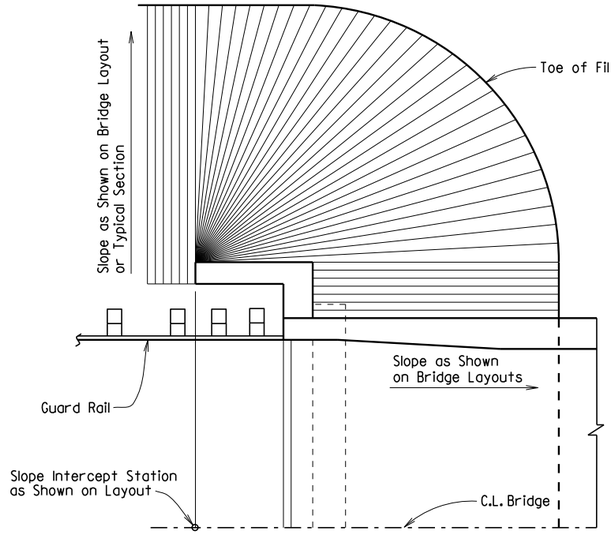
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



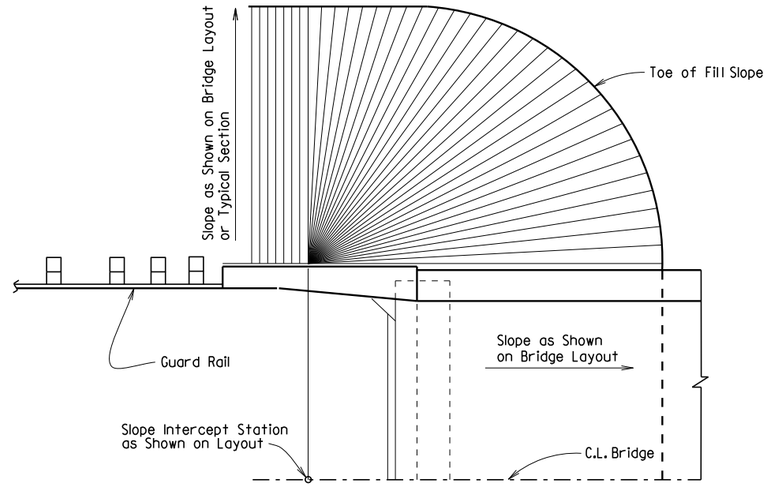
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

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

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

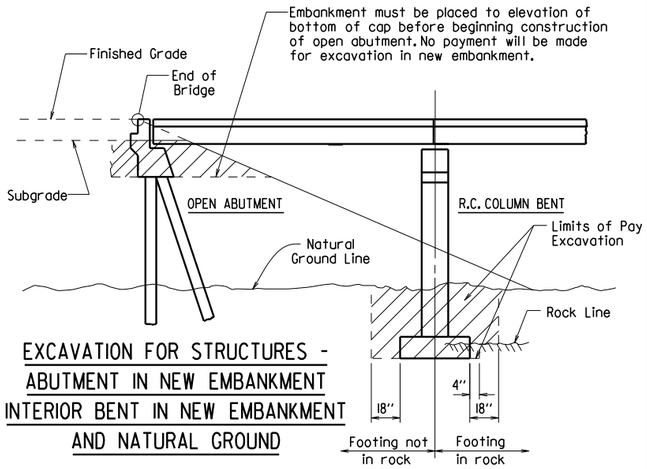
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: -

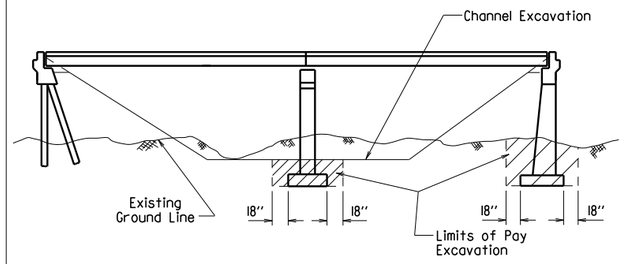
DRAWING NO. 55000

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

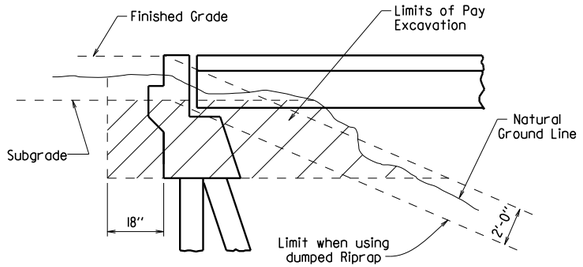
1 RIPRAP & EXCAV. 55001



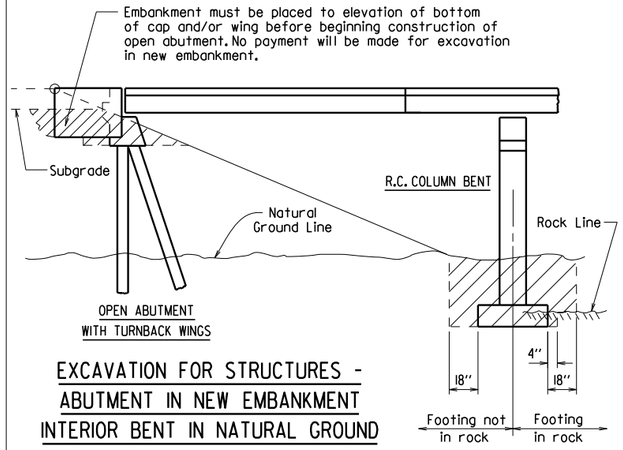
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



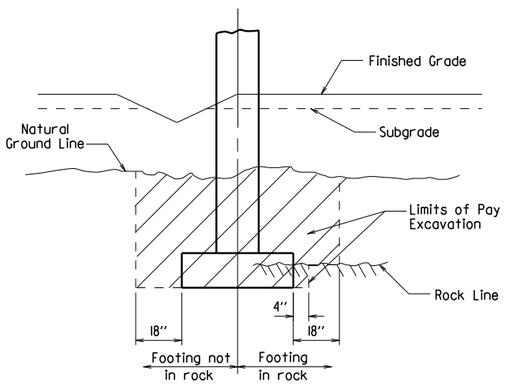
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



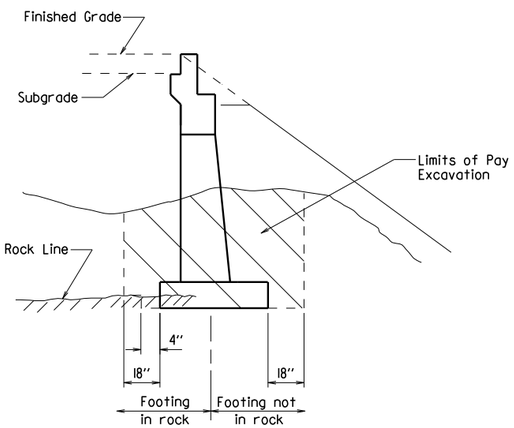
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



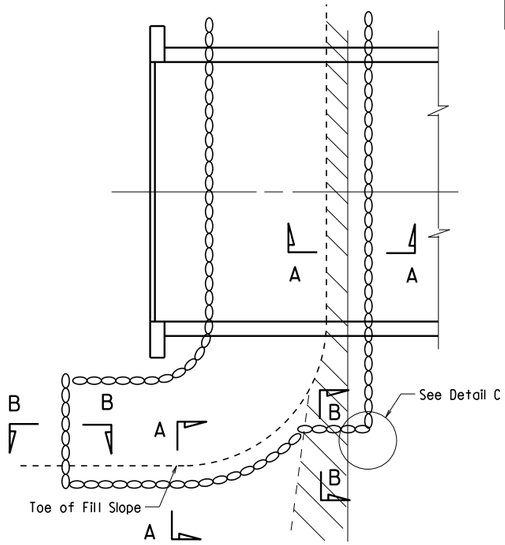
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



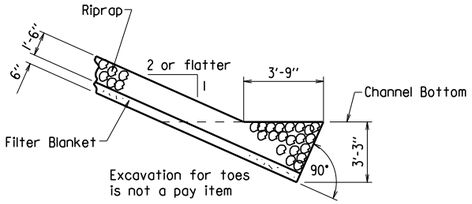
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

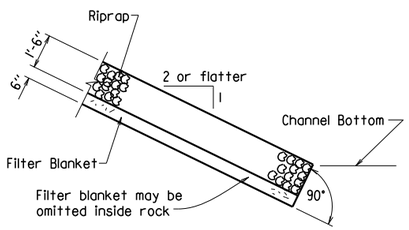


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



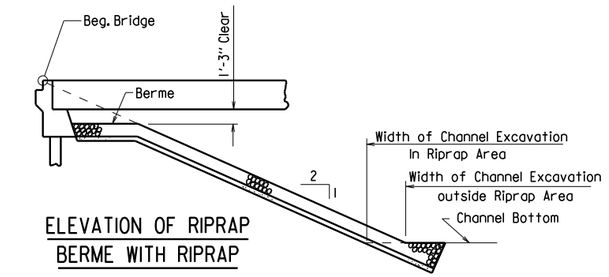
SECTION A-A

(Toe Excavation in Rock)

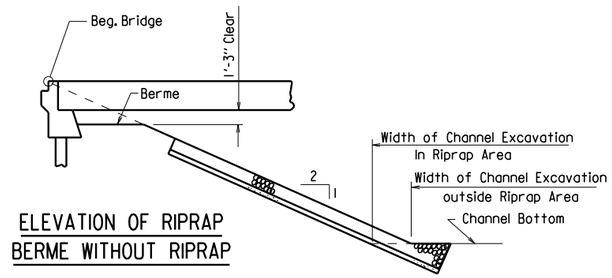
Note : Use this type of toe when rock is encountered which is in a stable condition.

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

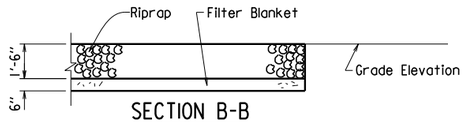
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



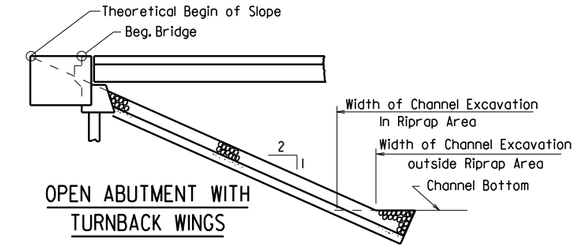
ELEVATION OF RIPRAP BERME WITH RIPRAP



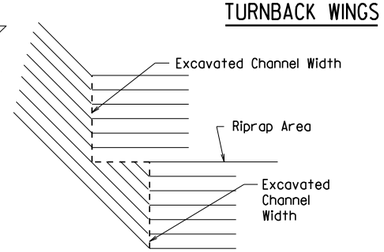
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

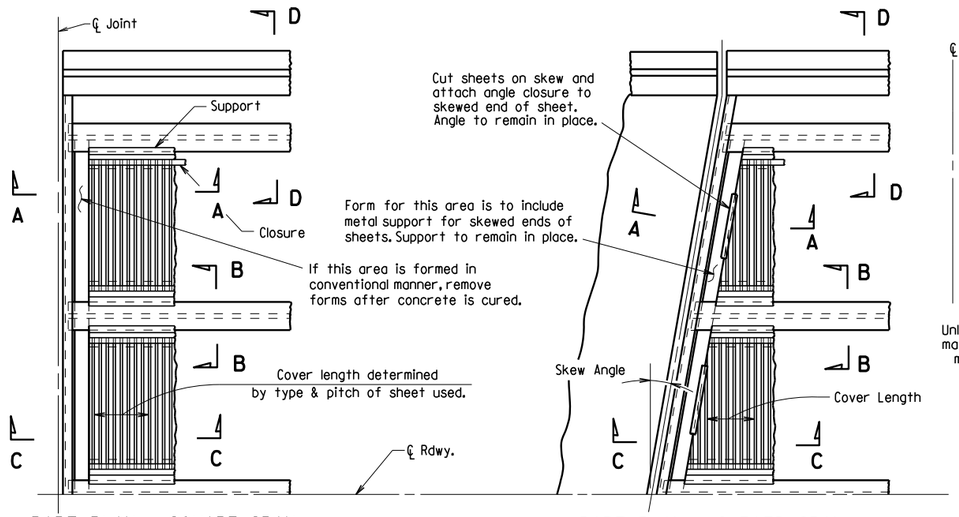
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

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

① BRIDGE DECK FORMS 55005

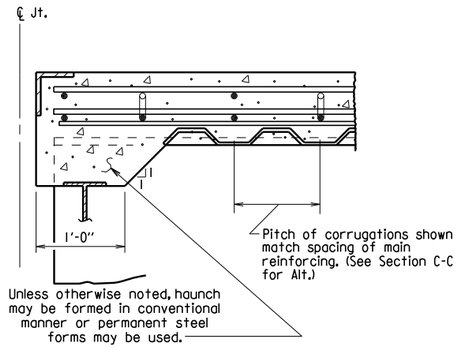


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

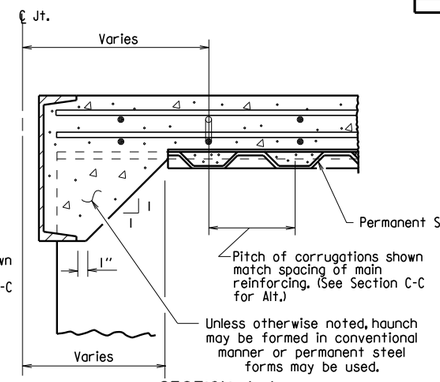
3/8" = 1'-0"



SECTION A-A

N.T.S.

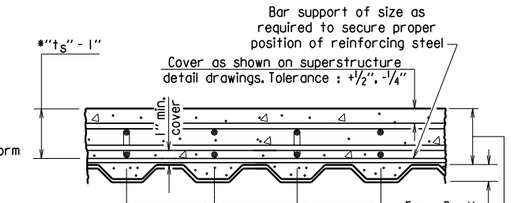
(Angle at end of span)



SECTION A-A

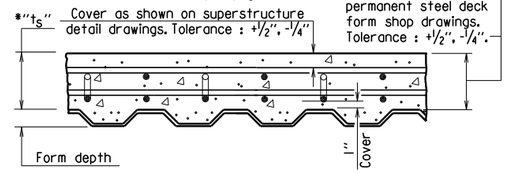
N.T.S.

(Channel at end of span)



SECTION C-C

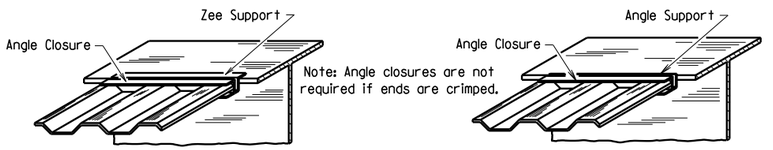
1" = 1'-0"



SECTION C-C - ALTERNATE

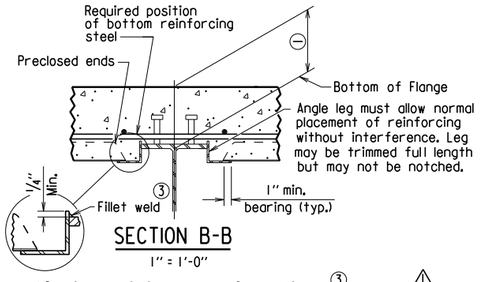
1" = 1'-0"

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



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

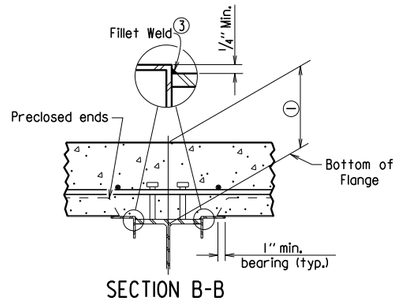


SECTION B-B

1" = 1'-0"

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

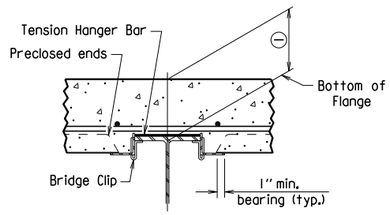
③ ⚠ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

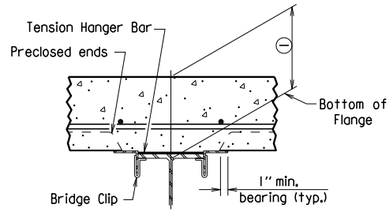
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

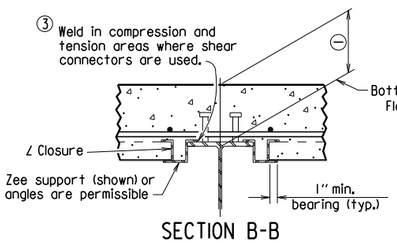
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

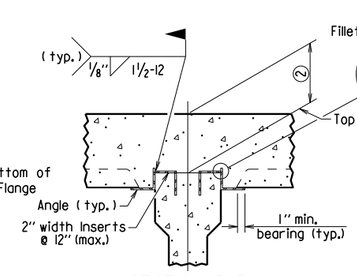
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

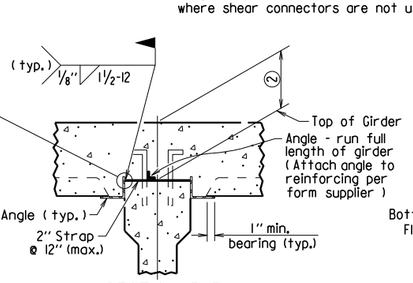


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Insert cast in girder)

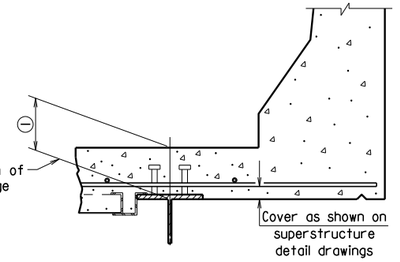


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

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

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

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

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55005.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NONE

DESIGNED BY: STD. DATE: —

DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
						GENERAL NOTES		55006

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

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

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

CONCRETE:

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

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

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

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

REINFORCING STEEL:

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

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

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

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

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

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

Unless otherwise noted, field connections shall be bolted with ¾" ø high-strength bolts using 13/16 " ø open holes. Holes for ¾" ø high-strength bolts may be 15/16 " ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

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

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

STRUCTURAL STEEL (W-BEAMS):

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

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

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

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

All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

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

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

STRUCTURAL STEEL (PLATE GIRDERS):

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

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

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

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

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

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

All girder dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

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

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

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

SUBSTRUCTURE NOTES:

CONCRETE:

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

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

All exposed corners shall be chamfered ¾" unless otherwise noted.

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

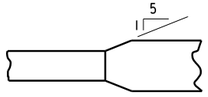
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

DRAWING NO. 55006

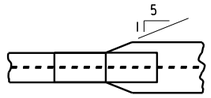
PRINT DATE: 11/7/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	STEEL BRIDGE STRUCTURES 55007			

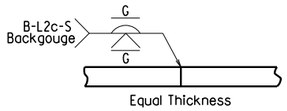


Plan-Unequal Width (Flg.)

FLANGE SPLICE

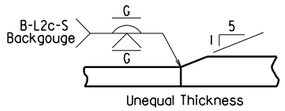


FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



Equal Thickness

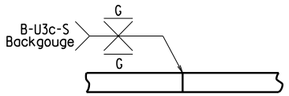
WEB & FLANGE SPLICE



Unequal Thickness

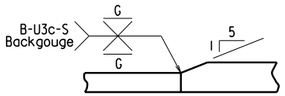
FLANGE SPLICE

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



Equal Thickness

WEB & FLANGE SPLICE

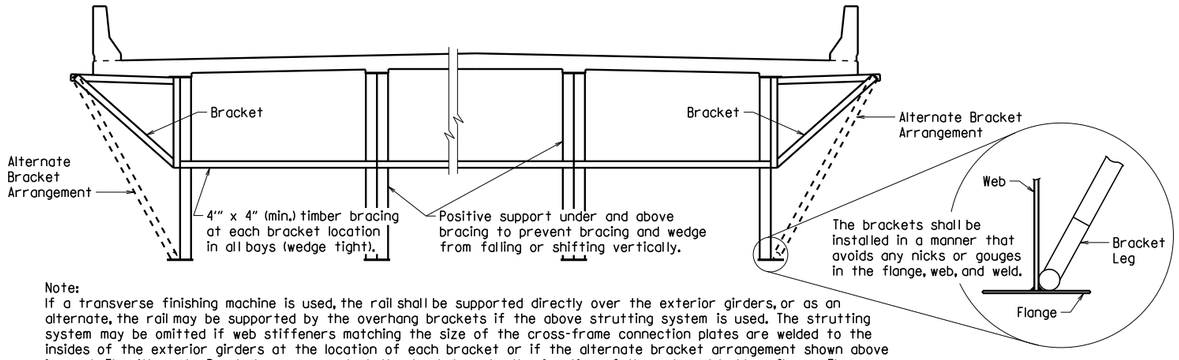


Unequal Thickness

FLANGE SPLICE

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

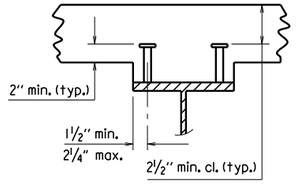
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



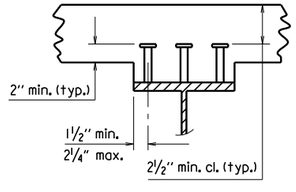
Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the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

SCREED RAIL SUPPORT FOR PLATE GIRDERS

(USE WHEN WEB DEPTHS ARE 48" OR GREATER)



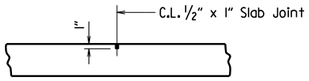
2 STUDS PER ROW



3 STUDS PER ROW

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

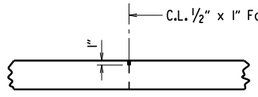
SHEAR CONNECTOR DETAIL



Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of the parapet. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck from gutterline to gutterline.

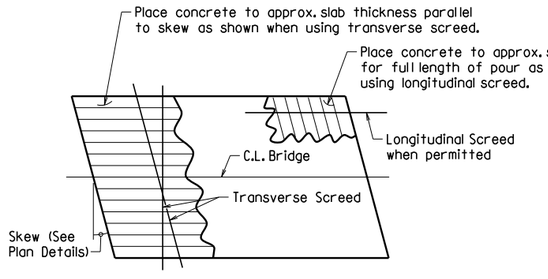
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck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

TRANSVERSE SLAB JOINT DETAIL



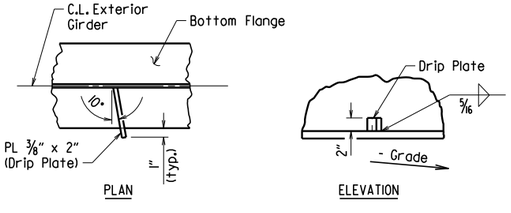
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT



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

CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW



PLAN

ELEVATION

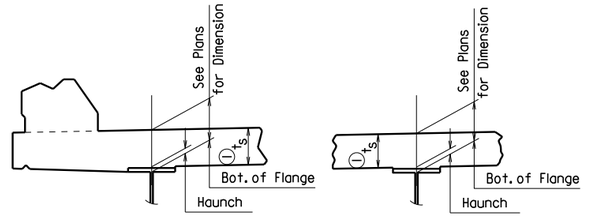
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

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

BOTTOM FLANGE DRIP PLATE

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

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



EXTERIOR BEAM OR GIRDER

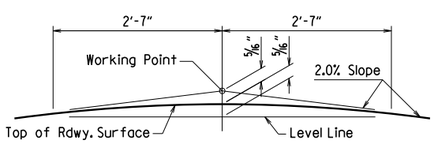
INTERIOR BEAM OR GIRDER

① Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

NOTES:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1¾" unless otherwise noted in the plans. No increase in concrete and structural steel quantities will be made to maintain tolerances.

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

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

BRIDGES IN NORMAL CROWN

WELD TABLE

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	⅝"	

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

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

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

STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

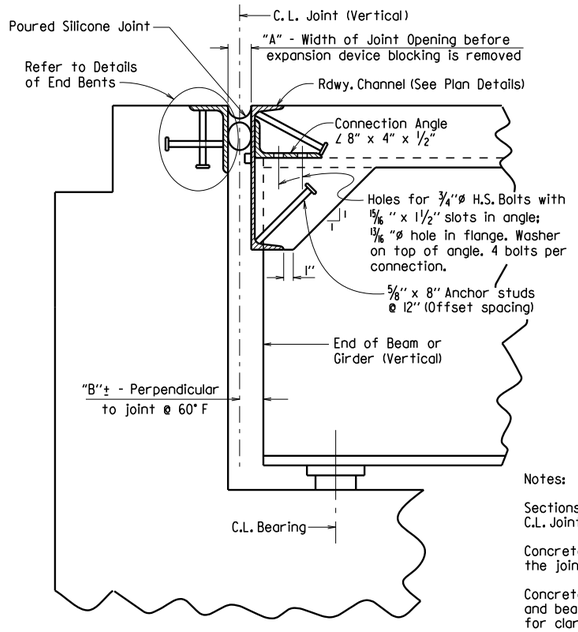
DRAWN BY: JYP DATE: 2/11/2016 FILENAME: b55007.dgn

CHECKED BY: AMS DATE: 2/11/2016 SCALE: No Scale

DESIGNED BY: STD. DATE: —

DRAWING NO. 55007

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①		POURED SILICONE JOINT		55008



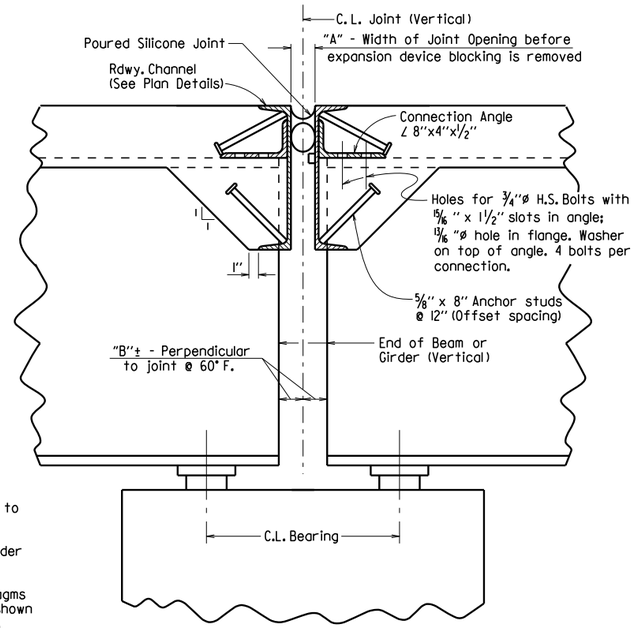
SECTION THRU JOINT AT END BENT

Notes:

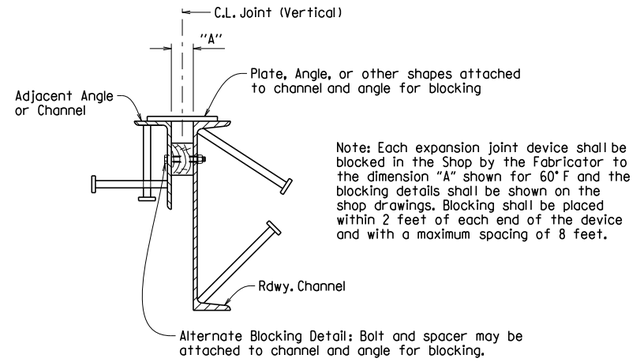
Sections are taken perpendicular to C.L. Joint.

Concrete shall be hand packed under the joint armor.

Concrete diaphragms, steel diaphragms and bearing stiffeners are not shown for clarity. See plans for details.



SECTION THRU JOINT AT INTERMEDIATE BENT



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

The Contractor may elect to install the expansion device using one of the following two alternatives:

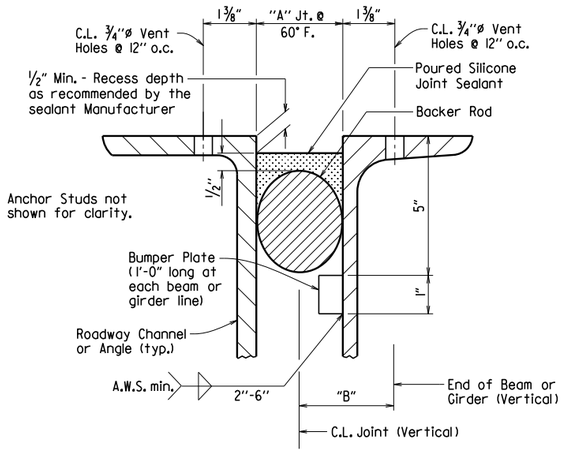
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, and the opening adjusted for temperature and grade.

2) The backwall shall be poured to the optional construction joint after beams or girders are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature and grade.

EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:

After all beams or girders on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.

Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.



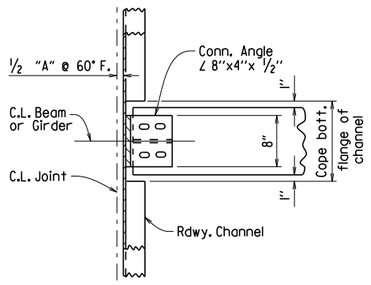
DETAIL OF POURED SILICONE JOINT

Silicone joint material and installation shall conform to Section 809. The temperature limitations recommended by the sealant Manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80° F.

Use an appropriately sized backer rod at the depth shown in the Manufacturer's literature based on the joint width at the time of sealing. Unless otherwise noted, do not install more backer rod than can be sealed in the same day.

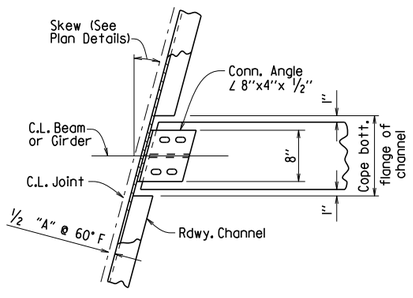
The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.

When bridge deck is constructed in stages, backer rods shall be extended beyond length of poured joint in initial construction stage so that the two pieces can be properly spliced together prior to installing sealant in subsequent stages. Manufacturer's recommendations shall be followed to prevent sealant from "running out of joint" during stage construction.



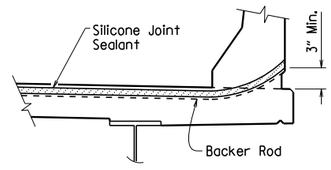
CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW

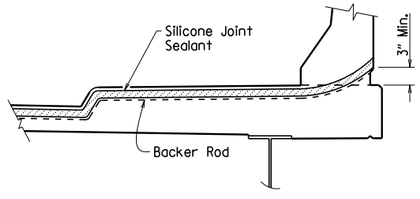


CHANNEL CONNECTION DETAIL

BENTS WITH SKEW



JOINT SEAL PLACEMENT AT RAIL



JOINT SEAL PLACEMENT AT SIDEWALK

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

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

STANDARD DETAILS FOR POURED SILICONE JOINTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.C.P. DATE: 2/11/2016 FILENAME: b55008.dgn

CHECKED BY: A.M.S. DATE: 2/11/2016 SCALE: No Scale

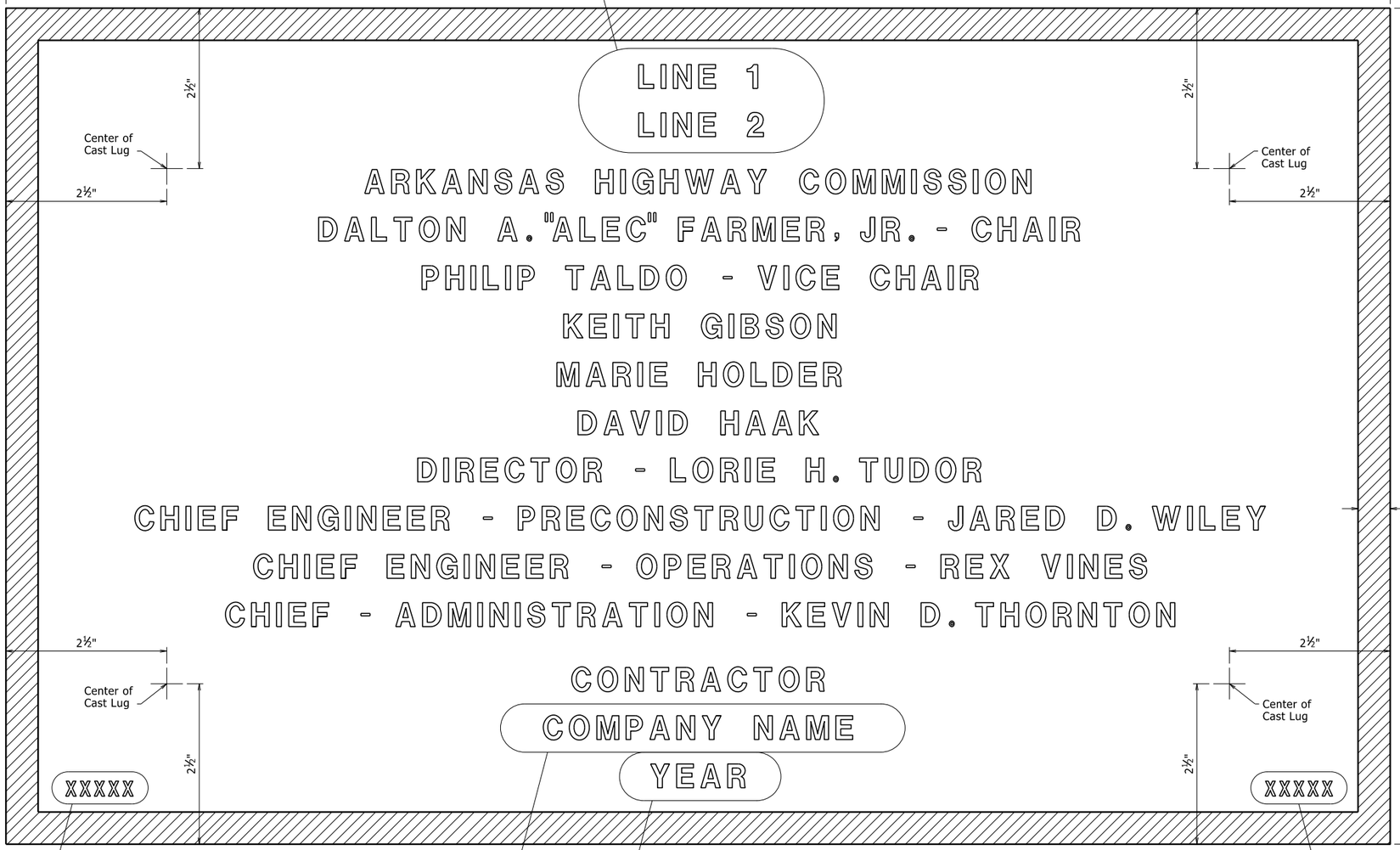
DESIGNED BY: STD. DATE: —

DRAWING NO. 55008

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

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

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



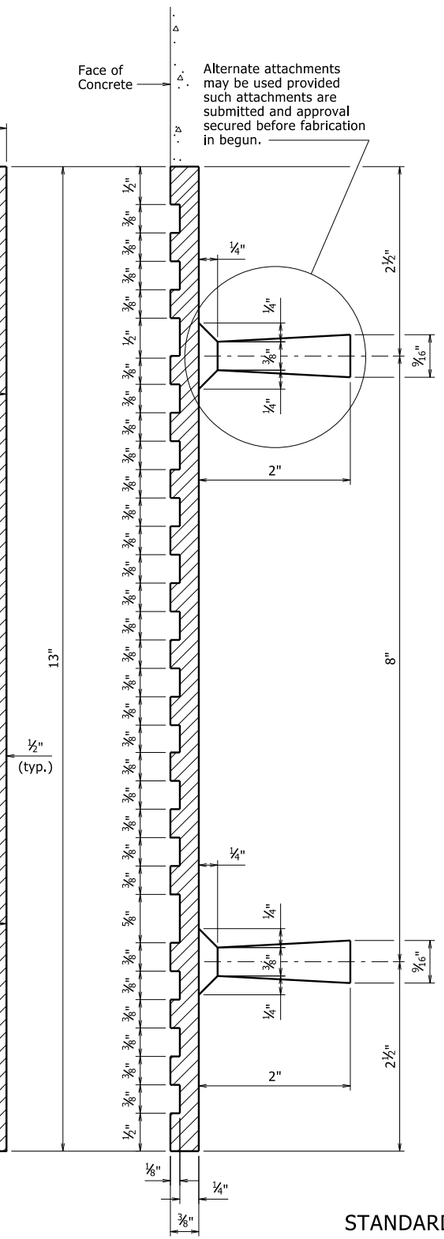
Place the design live loading here using ⅛" raised letters and numerals ¼" high. Examples: HS20, HL-93

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

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

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

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

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

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

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

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

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

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

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

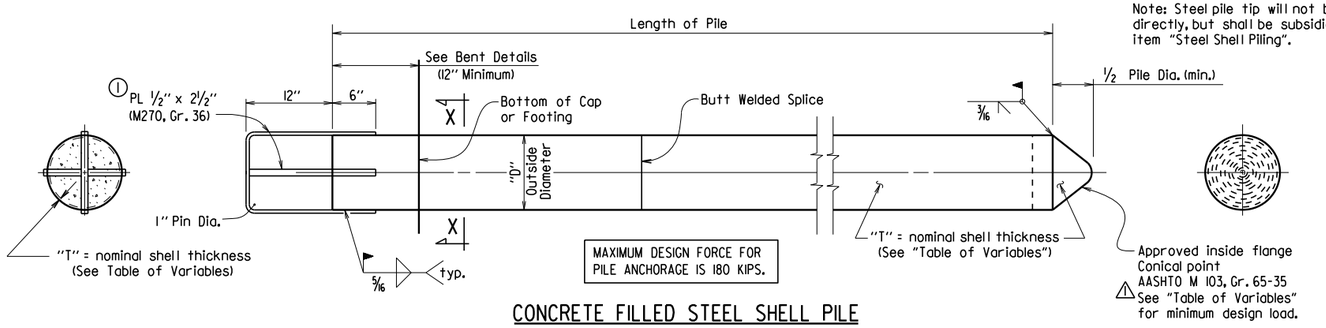
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 55010

PRINT DATE: 4/20/2023

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

(1) STEEL SHELL PILES 55021

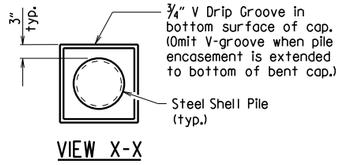


Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

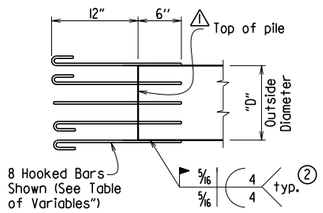
CONCRETE FILLED STEEL SHELL PILE

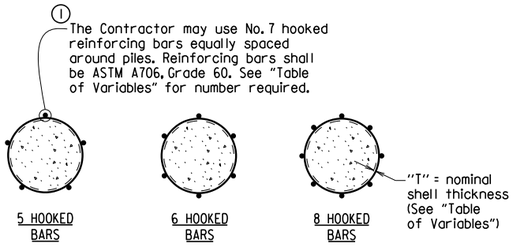
(1) Pile anchorage shall be placed to minimize interference with anchor bolts and reinforcing in cap or footing.

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



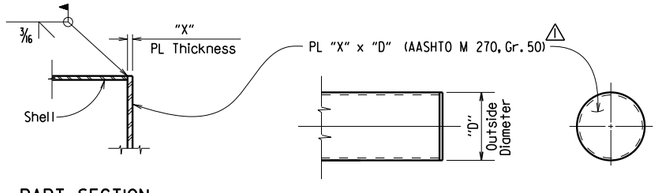
VIEW X-X





ALTERNATE PILE ANCHORAGE DETAIL

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

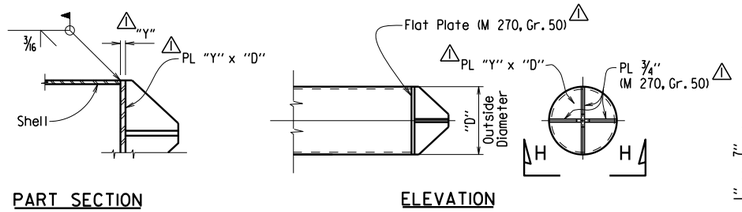


PART SECTION

ELEVATION

ALTERNATE FLAT TIP DETAIL

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



PART SECTION

ELEVATION

VIEW H-H

ALTERNATE VANED TIP DETAIL

GENERAL NOTES FOR CONCRETE FILLED STEEL SHEEL PILES:

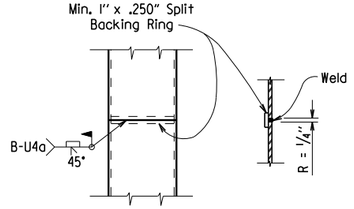
Steel shells shall conform ASTM A252, Grade 3 (Fy = 45,000 psi.)

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

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

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

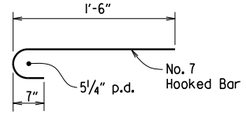
Concrete, structural steel, reinforcing steel (including welding), and painting shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling".



TYPICAL SPLICE DETAILS

TABLE OF VARIABLES

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



HOOKED BAR DETAIL

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

GENERAL NOTES FOR PILE ENCASEMENTS:

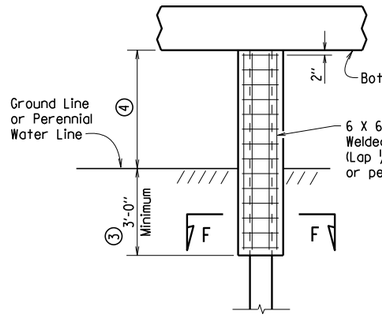
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

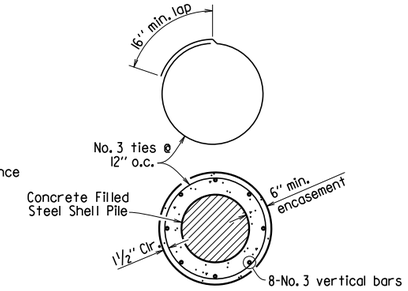
Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

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

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

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





SECTION F-F (REINF. ALTERNATE)

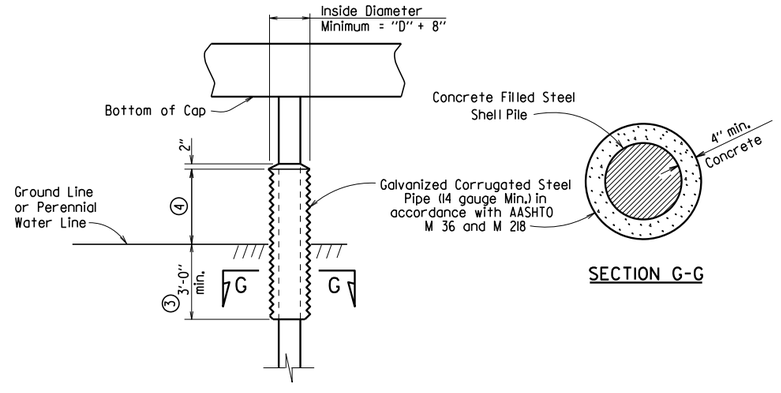
PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

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

(3) Unless otherwise noted on Bridge Layout.

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

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



SECTION G-G

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(Shown with Partial Height Encasement)

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

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

BRIDGE ENGINEER

STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

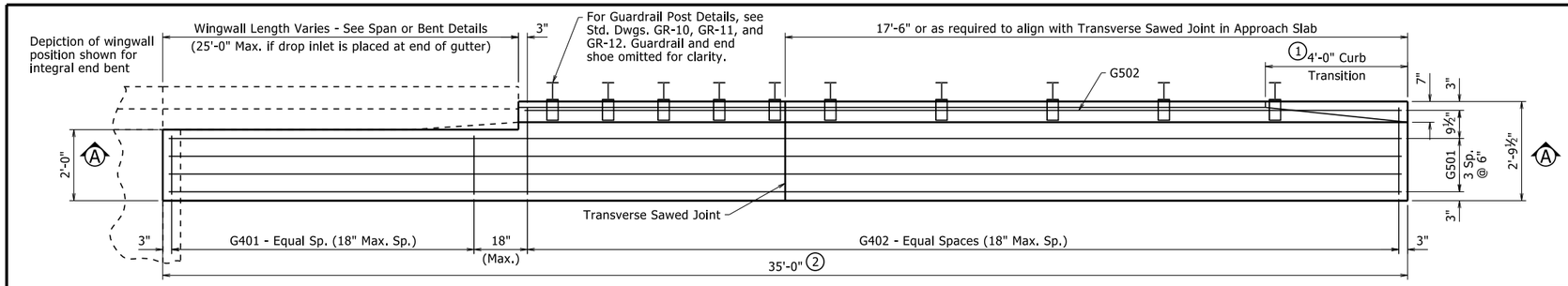
LITTLE ROCK, ARK.

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

DRAWING NO. 55021

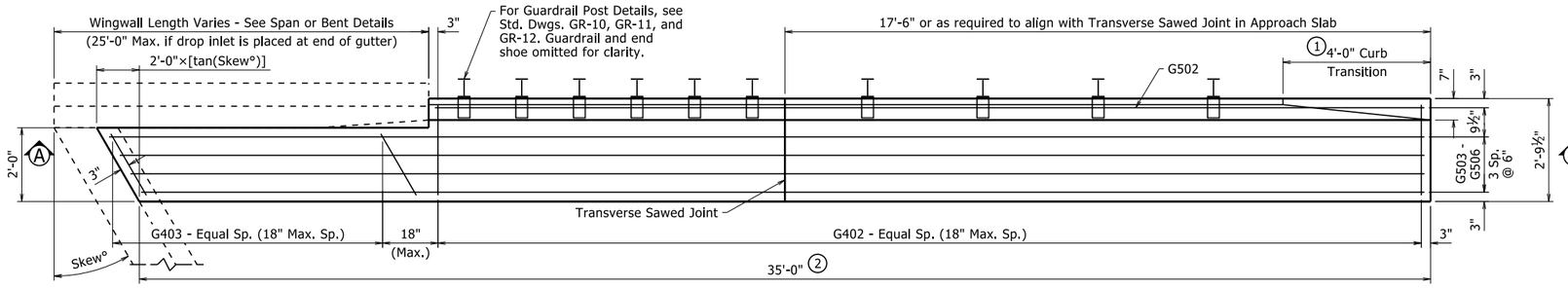
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

① Type F Approach Gutters - 55030F

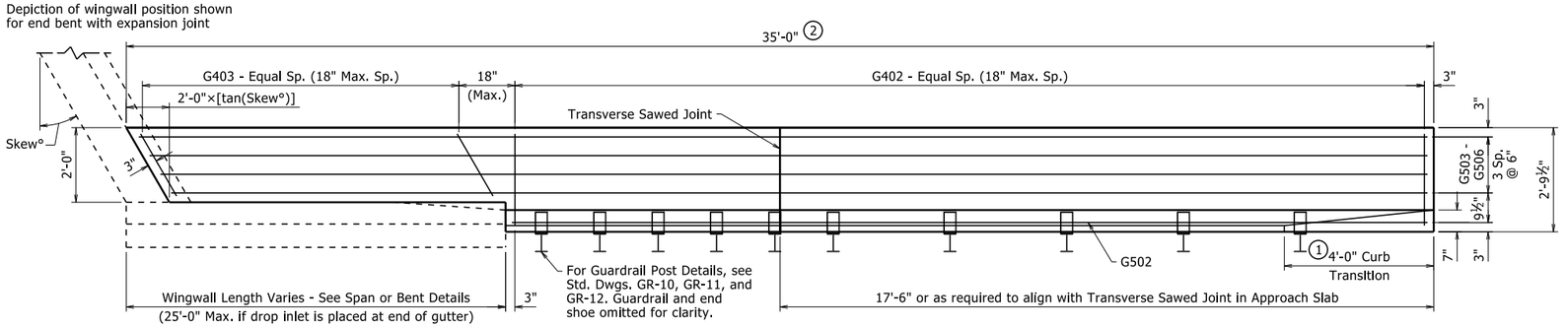


HALF PLAN OF APPROACH GUTTERS FOR SQUARE END BENT

½" = 1'-0"



Depiction of wingwall position shown for end bent with expansion joint



PLAN OF SKEWED APPROACH GUTTERS FOR SKEWED END BENT

½" = 1'-0"

QUANTITIES FOR ONE APPROACH GUTTER

(For Information Only)

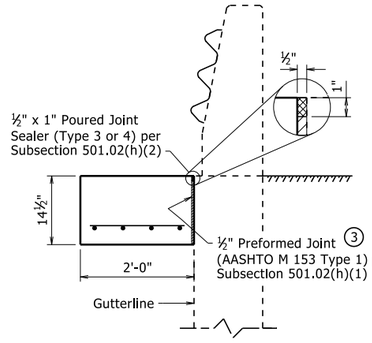
Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
210	4.20

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

BAR LIST FOR ONE APPROACH GUTTER

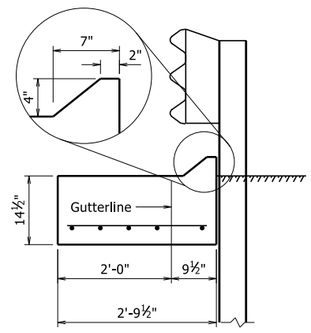
	Mark	No. Req'd.	Length
Square End Bent	G401	④	1'-8"
	G402	④	2'-5½"
	G501	4	34'-8"
	G502	1	④
Skewed End Bent	G402	④	2'-5½"
	G403	④	④
	G502	1	④
	G503 - G506	1 ea.	④

④ Varies with Skew and/or Wingwall Length



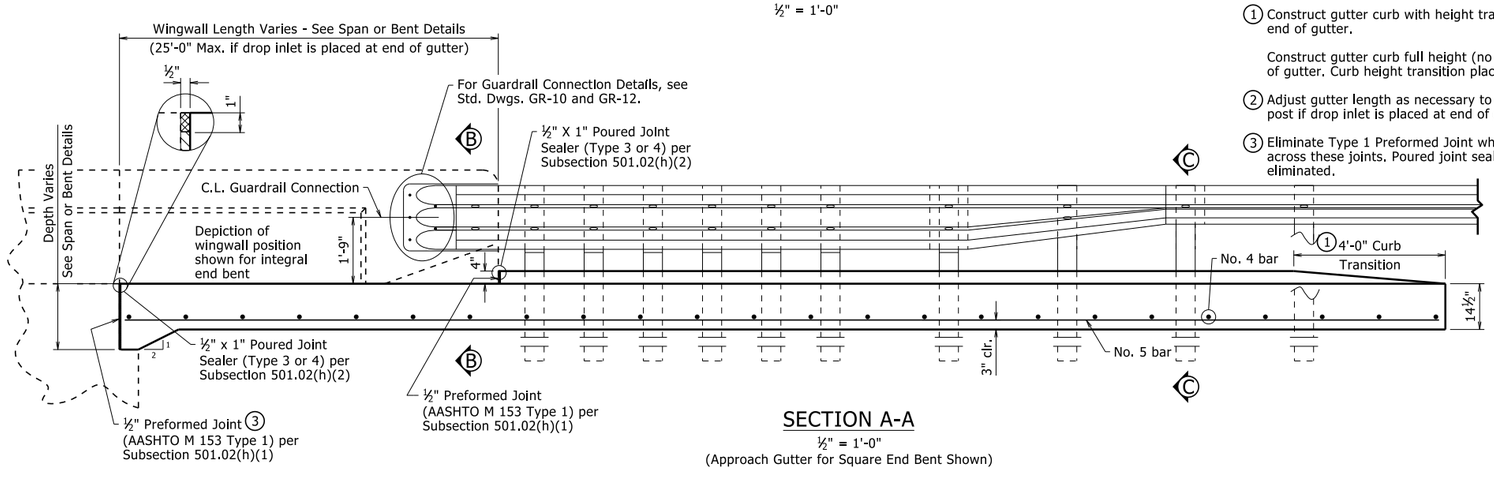
SECTION B-B

¾" = 1'-0"



SECTION C-C

¾" = 1'-0"



SECTION A-A

½" = 1'-0"

(Approach Gutter for Square End Bent Shown)

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

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

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

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

GENERAL NOTES

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

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

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

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

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

STANDARD DETAILS FOR TYPE F APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

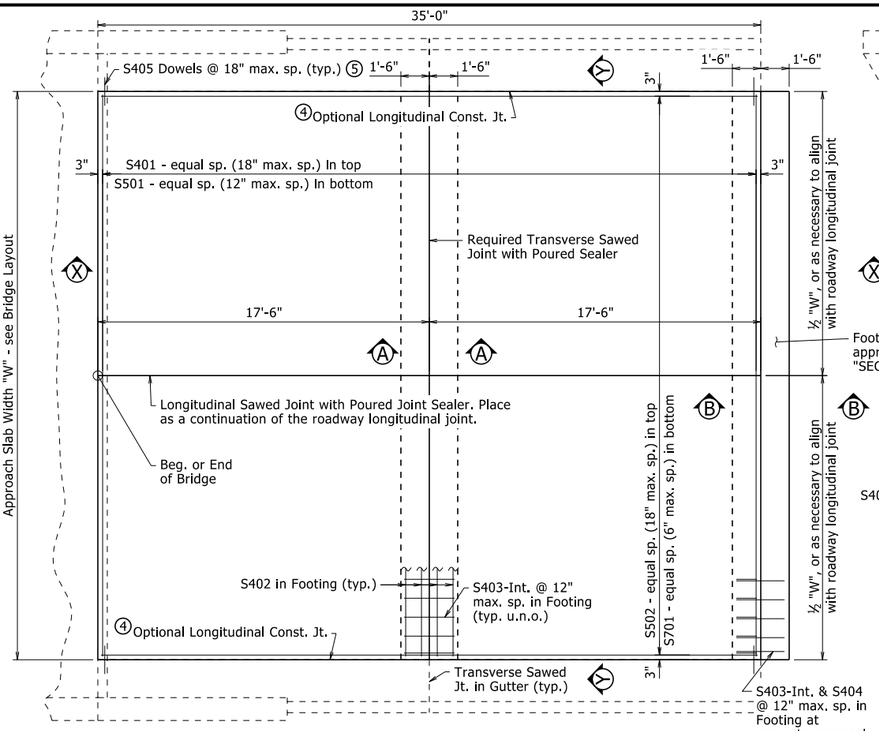
LITTLE ROCK, ARK.

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

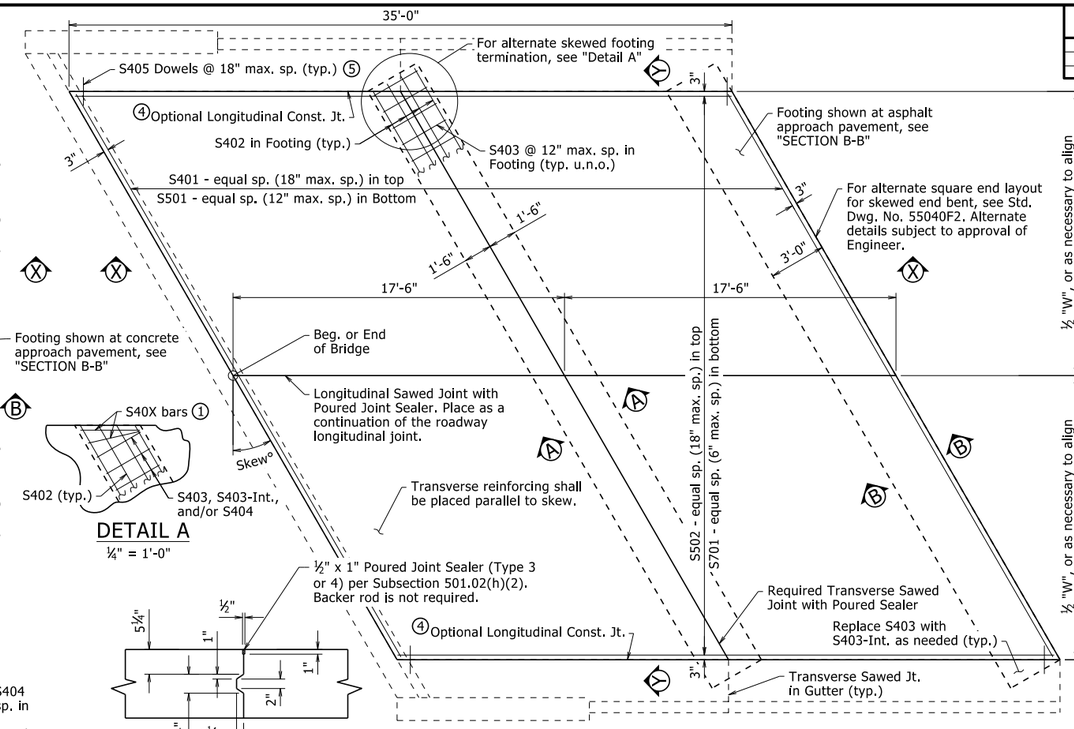
DRAWING NO. 55030F

PRINT DATE: 9/8/2023

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

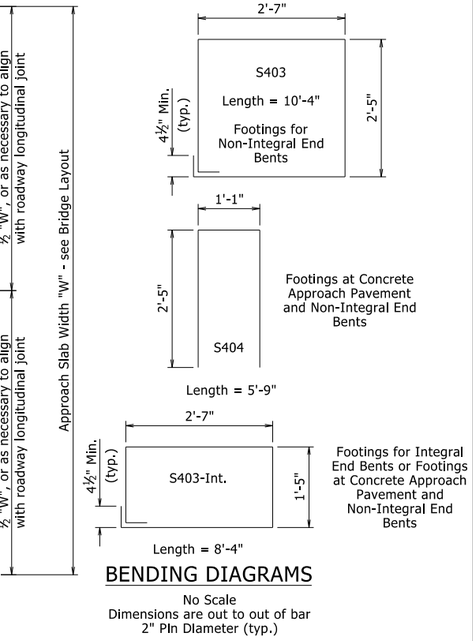


PLAN - APPROACH SLAB AT SQUARE END BENT



LONGITUDINAL CONSTRUCTION JOINT

½" = 1'-0"

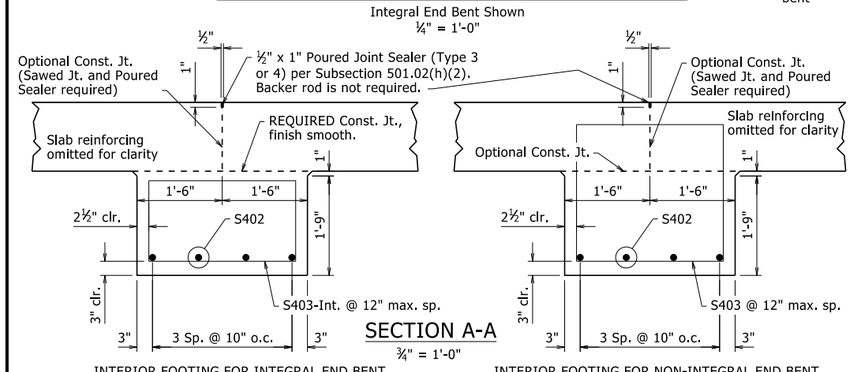


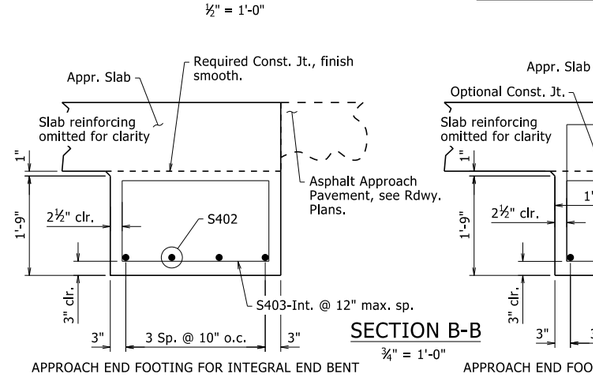
BENDING DIAGRAMS

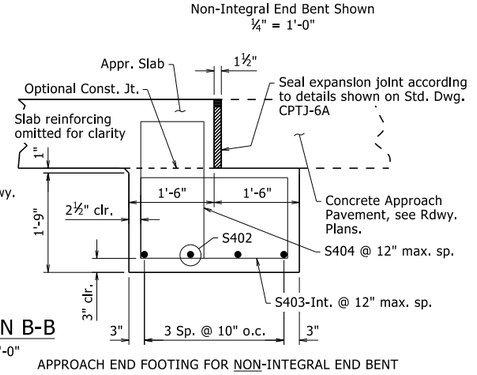
No Scale
Dimensions are out to out of bar
2" PIn Diameter (typ.)

PLAN - APPROACH SLAB AT SKEWED END BENT

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







BAR LIST - PER APPROACH SLAB

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

All bar lengths are in feet.

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

GENERAL NOTES

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

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

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

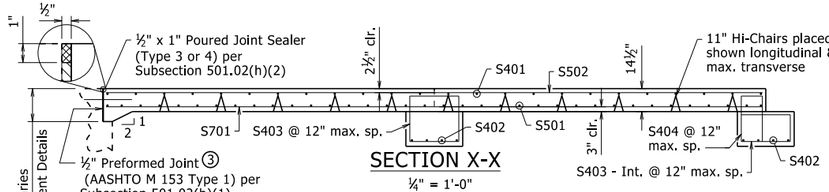
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

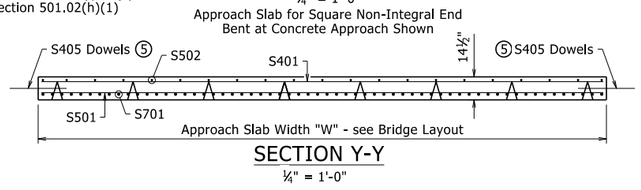
See Plans for actual Approach Slab Width, "W", end bent or span details, and approach pavement. Units of "W" are in Feet.

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

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

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





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

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

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

MINIMUM BAR LAP LENGTH

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

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

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

BRIDGE ENGINEER

STANDARD DETAILS FOR TYPE F APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

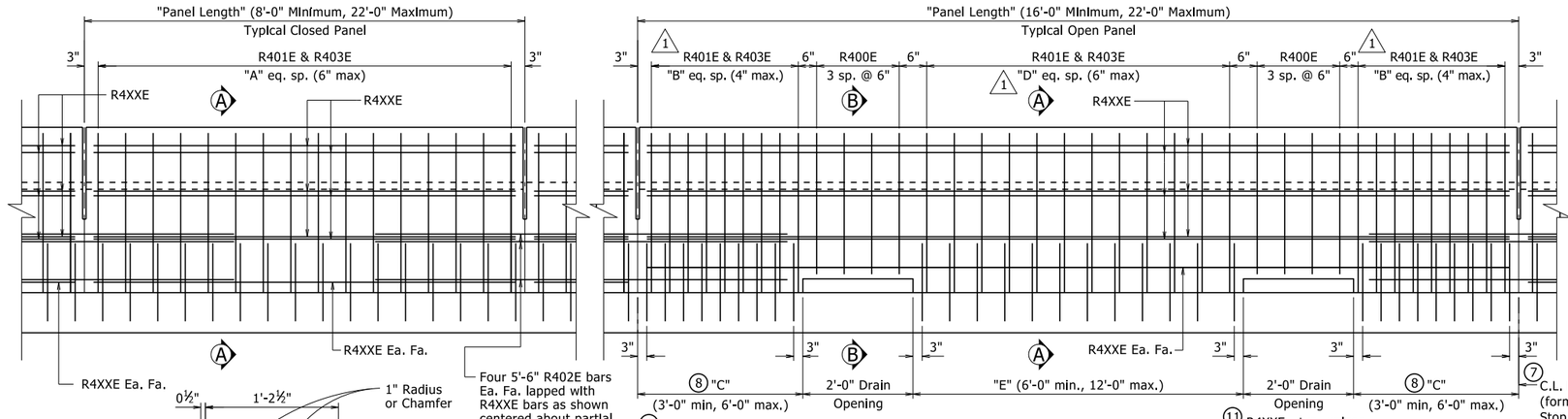
LITTLE ROCK, ARK.

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

DRAWING NO. 55040F1

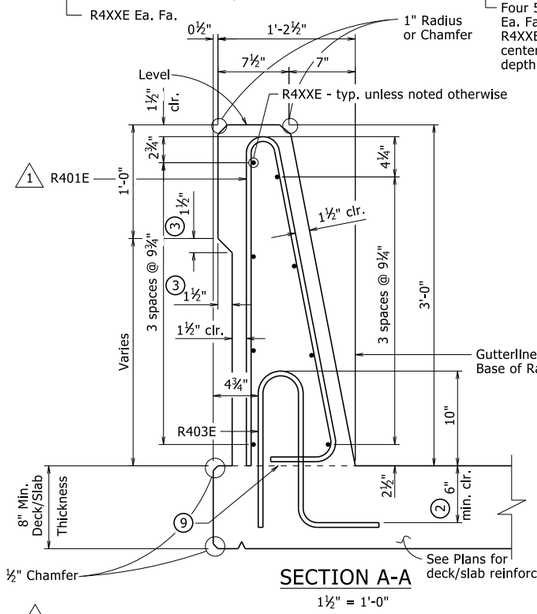
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
09/27/2022				6	ARK.			
				JOB NO.				

TYPE SSTR36 - 55070



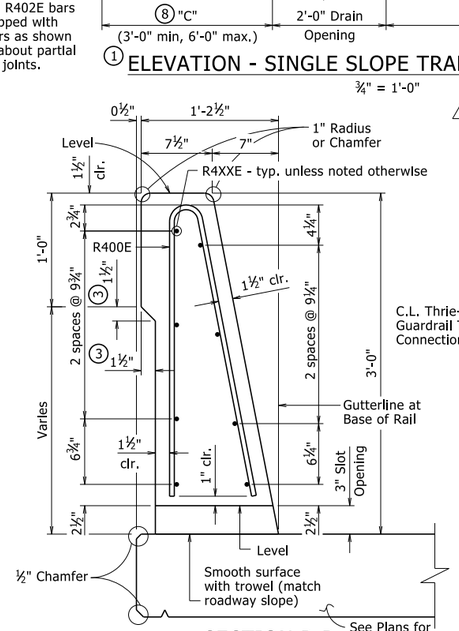
(1) ELEVATION - SINGLE SLOPE TRAFFIC RAIL

¾" = 1'-0"



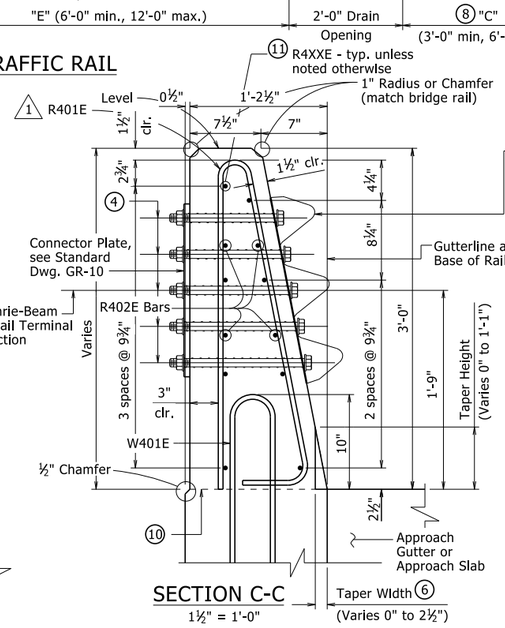
SECTION A-A

1½" = 1'-0"



SECTION B-B

1½" = 1'-0"



SECTION C-C

1½" = 1'-0"

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

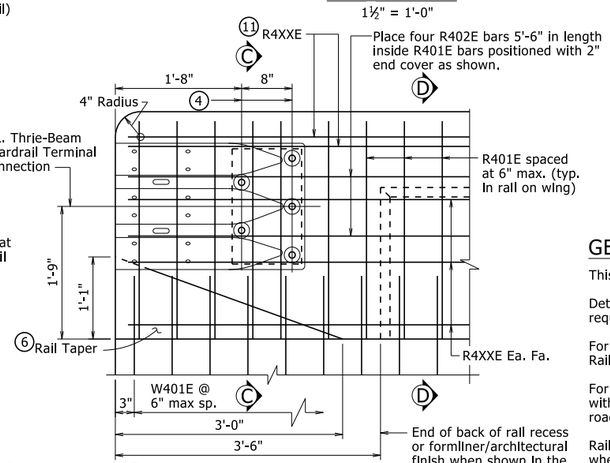
(10) Top of Abutment Wing & Required Construction Joint (match bridge deck/slab construction joint slope). See Plans for Wing reinforcing.

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

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

SECTION D-D

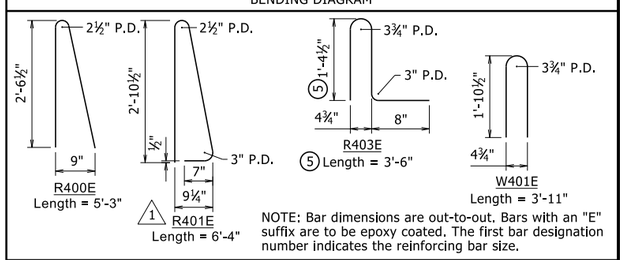
1½" = 1'-0"



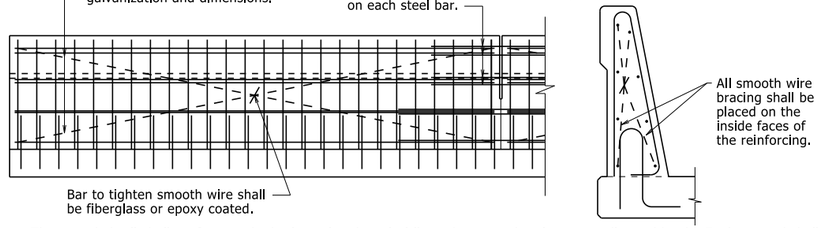
(1) RAIL TERMINUS DETAILS

1" = 1'-0"

BENDING DIAGRAM



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



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

All panels shall be braced as required to prevent racking.

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

TABLE OF VARIABLES

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

See Plans for table with values.

GENERAL NOTES

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

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

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

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

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

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

(1) Modified bending diagram and spacing for R401E bar.

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

No Scale

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

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

BRIDGE ENGINEER

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

STANDARD DETAILS FOR BRIDGE TRAFFIC RAIL TYPE SSTR36

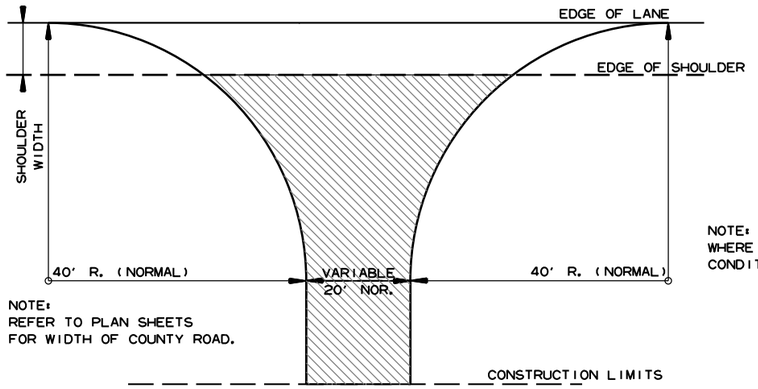
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

DRAWING NO. 55070

PRINT DATE: 10/6/2022

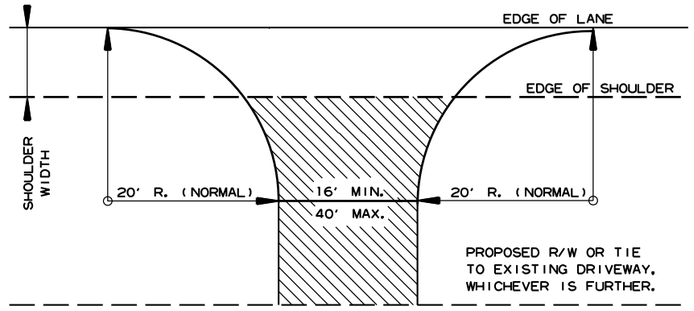


NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

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

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

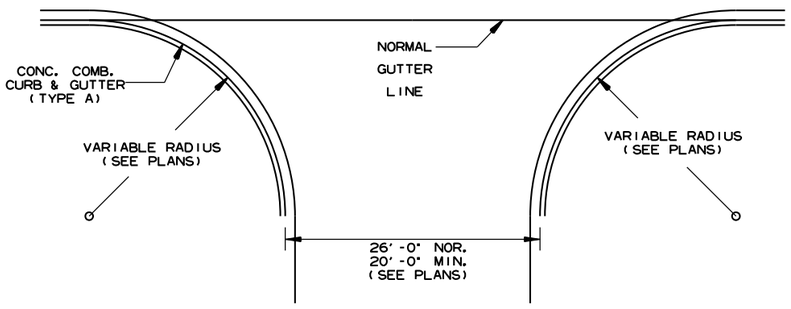
DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION



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

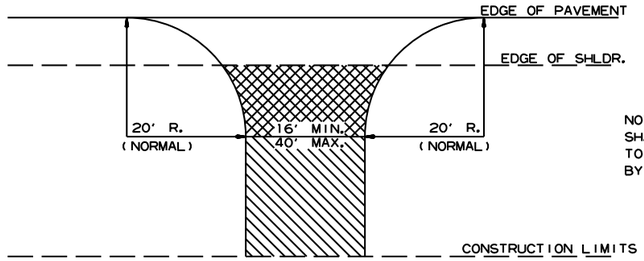
ACHM SURFACE COURSE (1/2")
(220 LBS. PER SQ. YD.) AND
AGGREGATE BASE COURSE (CLASS 7)
7" COMP. DEPTH IF ASPHALT OR
GRAVEL DRIVE EXISTING; OR 6"
CONCRETE IF CONCRETE DRIVE
EXISTING.

DETAIL FOR DRIVEWAY TURNOUTS OPEN SHOULDER SECTION (ARTERIALS)



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

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



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

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

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

DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)

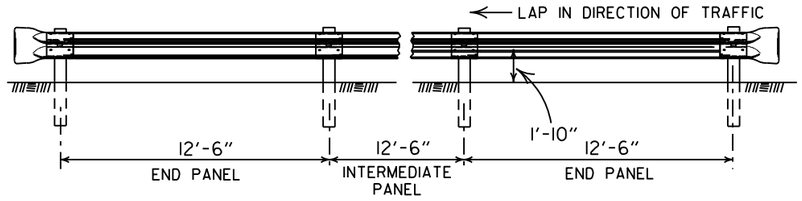
DATE REV	DATE FILMED	DESCRIPTION
5-19-22		ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

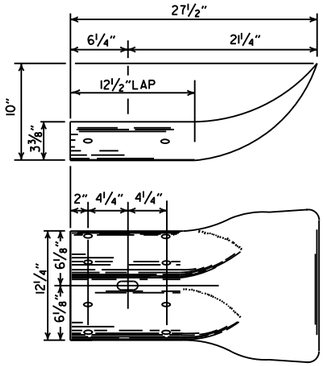
DETAILS OF DRIVEWAYS & STREET TURNOUTS

STANDARD DRAWING DR-2

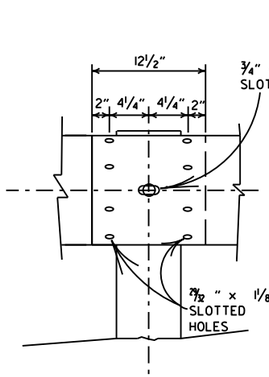
PLAN



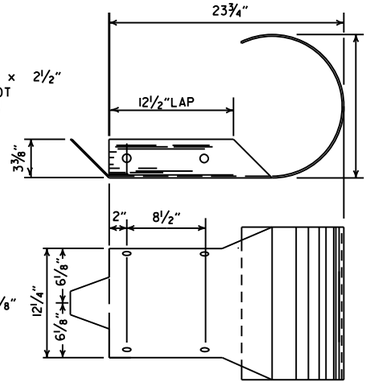
ELEVATION



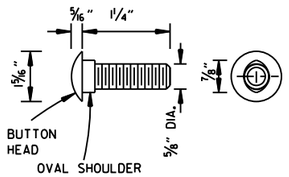
TERMINAL SECTION



RAIL SPLICE

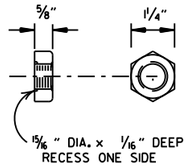


TERMINAL SECTION

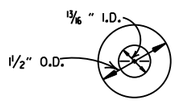


SPLICE BOLT

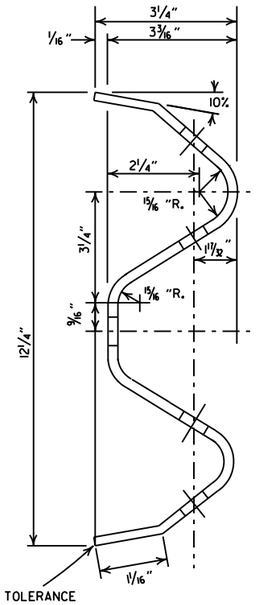
NOTE: POST BOLT SAME EXCEPT LENGTH.



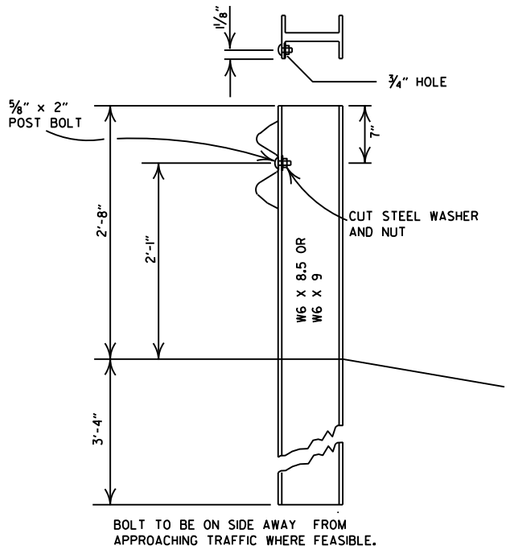
NUT



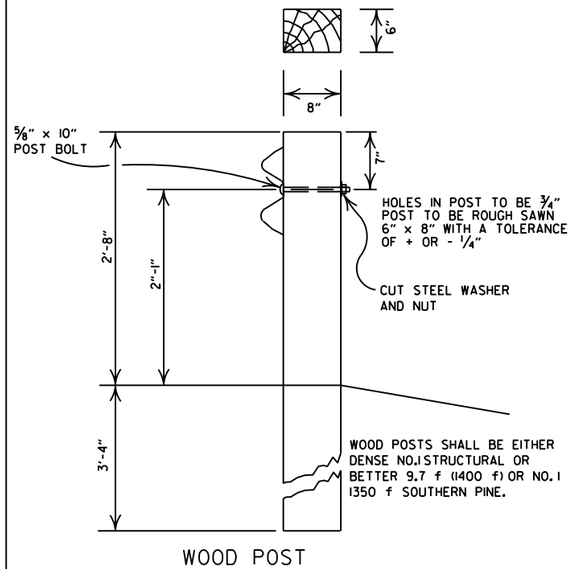
CUT STEEL WASHER



SECTION THRU RAIL



STEEL POST



WOOD POST

DETAILS OF POST CONNECTIONS

DATE	REVISION	FILMED
11-07-19	RENUMBERED AND RENAMED	
11-16-17	REVISED GUARDRAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
08-22-02	REVISED DIMENSION ON STEEL POST	
11-16-01	REVISED STEEL AND WOOD POST	
08-12-98	REMOVED CONCRETE POST	
10-18-96	CHANGED WOOD POST NOTE	10-18-96
06-02-94	ADDED ALTERNATE STEEL POST SIZE	
08-05-93	REVISED STEEL POSTS SIZE	8-5-93
08-15-91	DELETE STEEL PLATE WASHER & ADDED TYPE C TO TITLE	8-15-91
10-30-87	REMOVED DET. PLCMNT. ON HWY.	555-11-20-87
01-04-83	GRADE FOR WOOD POSTS	679-1-4-83
10-01-77	HARDENED WASHER	922-10-1-72
10-02-72	REVISED & REDRAWN	521-10-2-72

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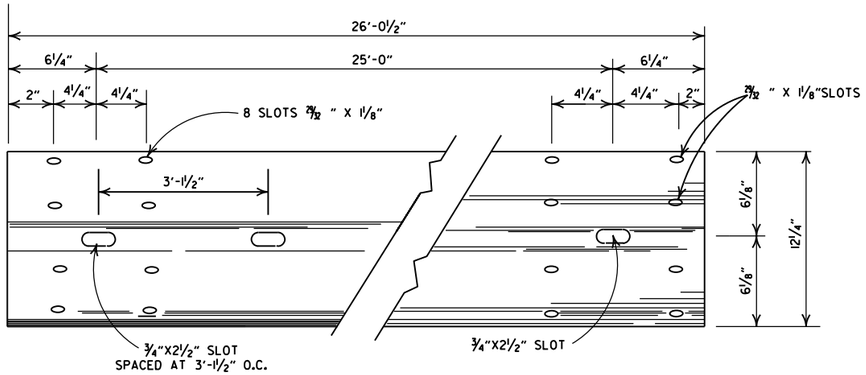
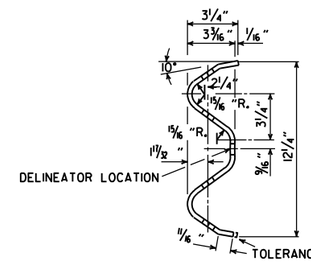
GUARDRAIL DETAILS (TYPE C) STREET / ROAD BARRICADE OR TEMPORARY INSTALLATION

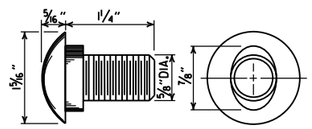
STANDARD DRAWING GR-5



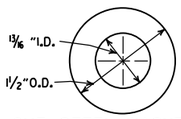


DETAILS OF W-BEAM GUARDRAIL

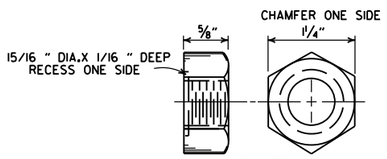
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



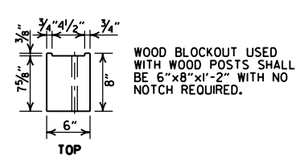
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

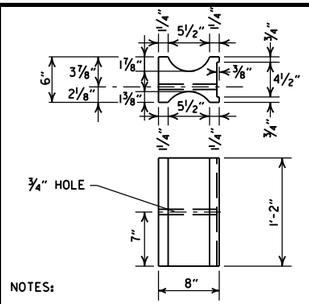


NUT



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

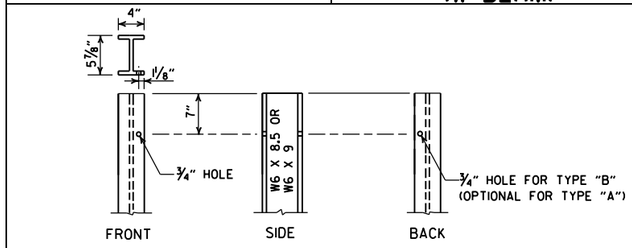
WOOD BLOCKOUT (W-BEAM)



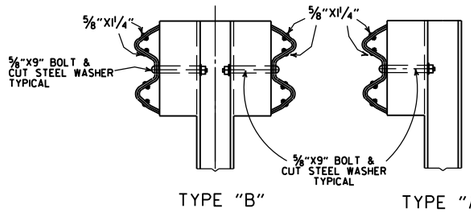
NOTES:

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

PLASTIC BLOCKOUT (W-BEAM)



STEEL POST



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

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

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

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

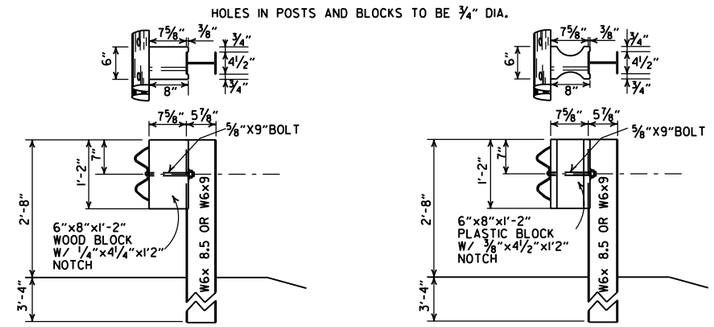
USE W-BEAM GUARDRAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARDRAIL, W-BEAM GUARDRAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

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

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

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

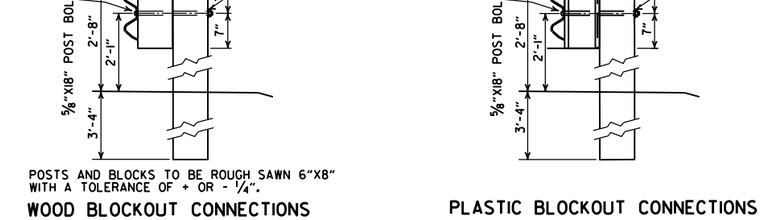
DELINEATORS SHALL BE MOUNTED AT 37.5' SPACING ON THE FRONT FACE OF THE GUARDRAIL. SPACING MAY BE REDUCED IN CURVES, AS DIRECTED BY THE ENGINEER. COLOR SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR DELINEATORS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID PER LIN.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



WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



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

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

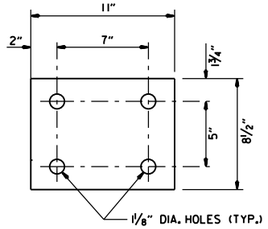
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

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

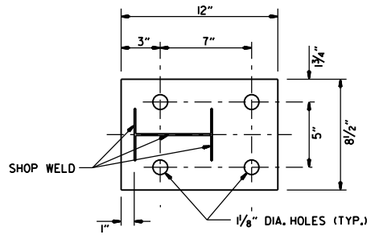
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

STANDARD DRAWING GR-6

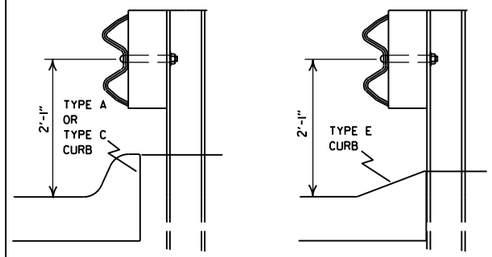


WASHER PLATE



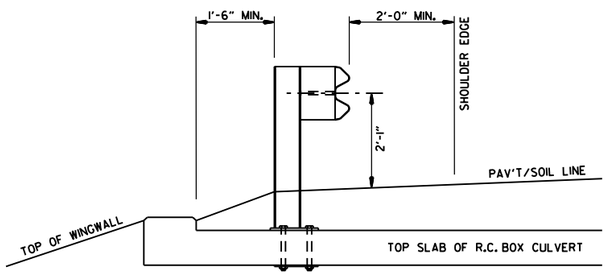
BASE PLATE

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

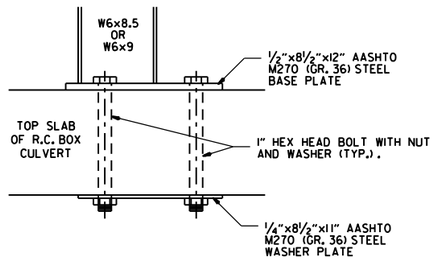


DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB (W-BEAM)

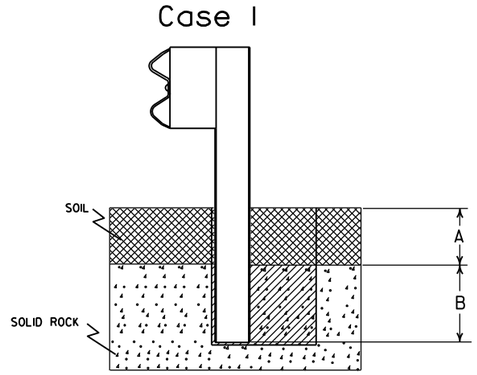
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.

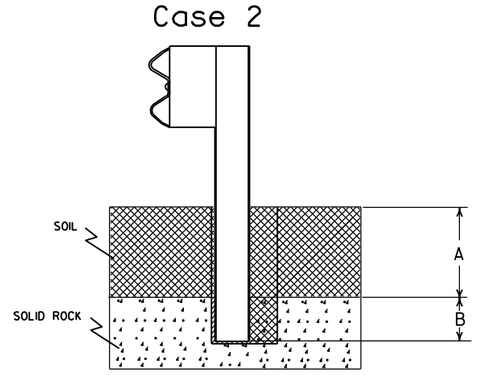


SECTION A-A



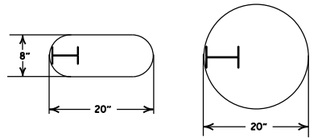
DETAIL OF CONNECTION

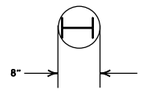




Plan View Steel Posts

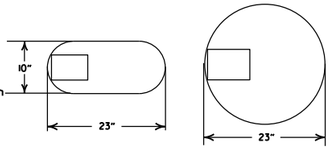
Either hole configuration acceptable

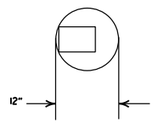




Plan View Wood Posts

Either hole configuration acceptable





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

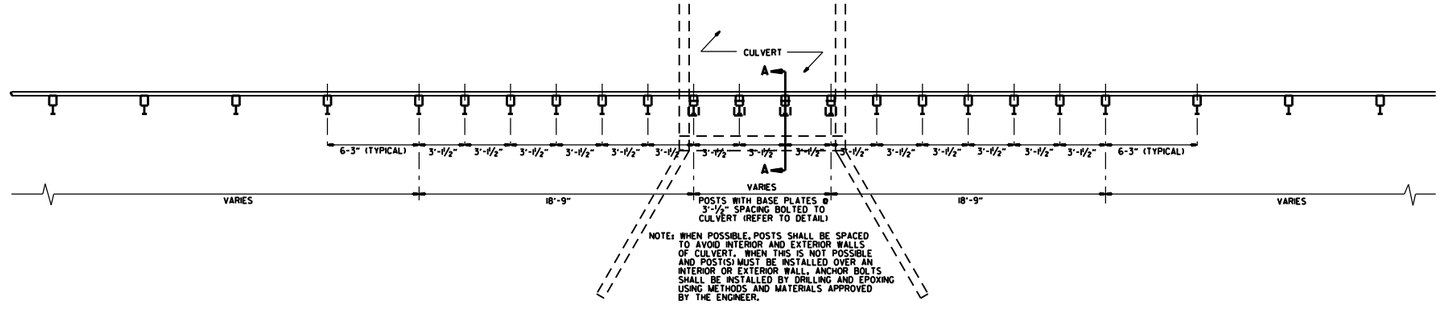
Zone A:
Backfill according to Section 617.03(a).

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

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

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

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



PLAN LAYOUT OF TYPE A GUARDRAIL AT LOW-FILL CULVERTS

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

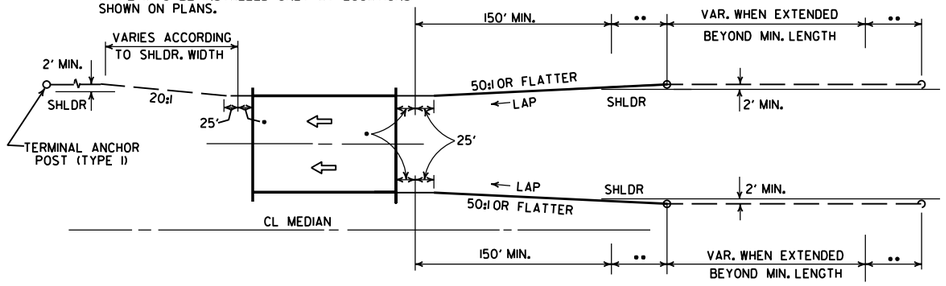
DATE	REVISION	FILMED
11-07-19	RENUMBERED, RENAMED, REVISED REFERENCE	
11-16-17	REVISED GUARDRAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
04-12-07	REVISED DETAIL OF GUARDRAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARDRAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST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

ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

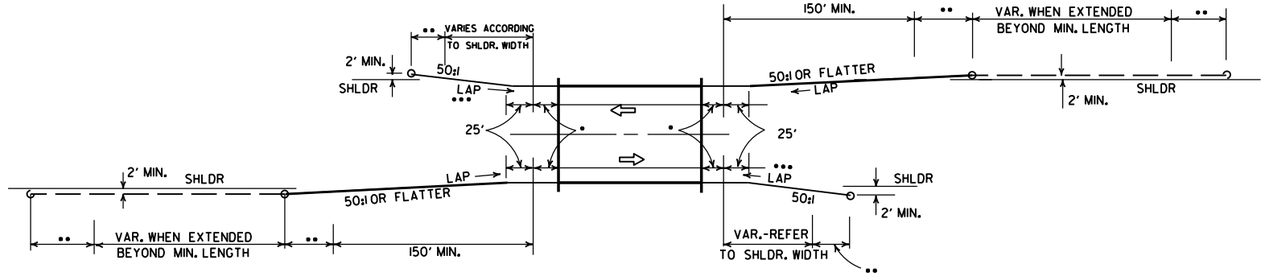
STANDARD DRAWING GR-7

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



ONE-WAY TRAFFIC

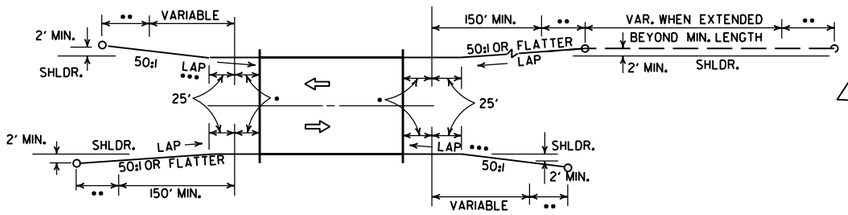
••• LAP OF GUARDRAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200'. CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

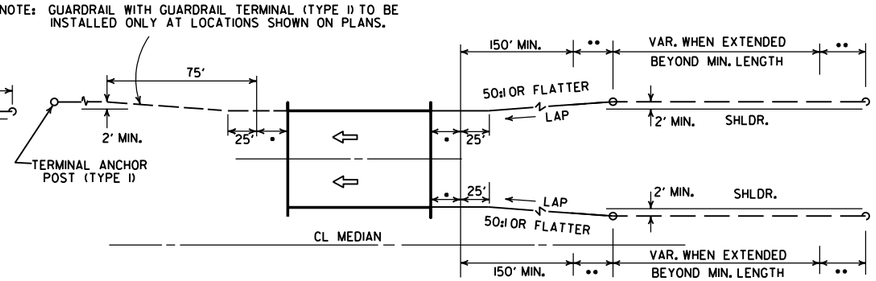
METHODS OF INSTALLATION OF GUARDRAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARDRAIL TERMINAL (TYPE 2)

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



TWO-WAY TRAFFIC

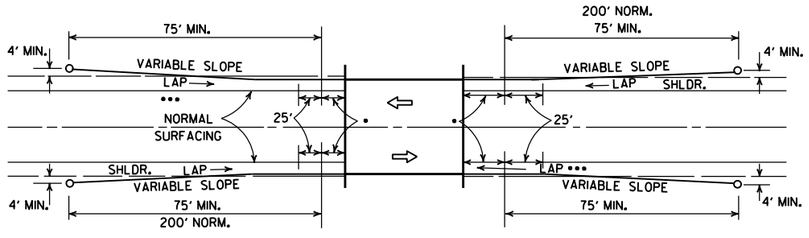
NOTE: GUARDRAIL WITH GUARDRAIL TERMINAL (TYPE 1) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

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

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



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

LEGEND

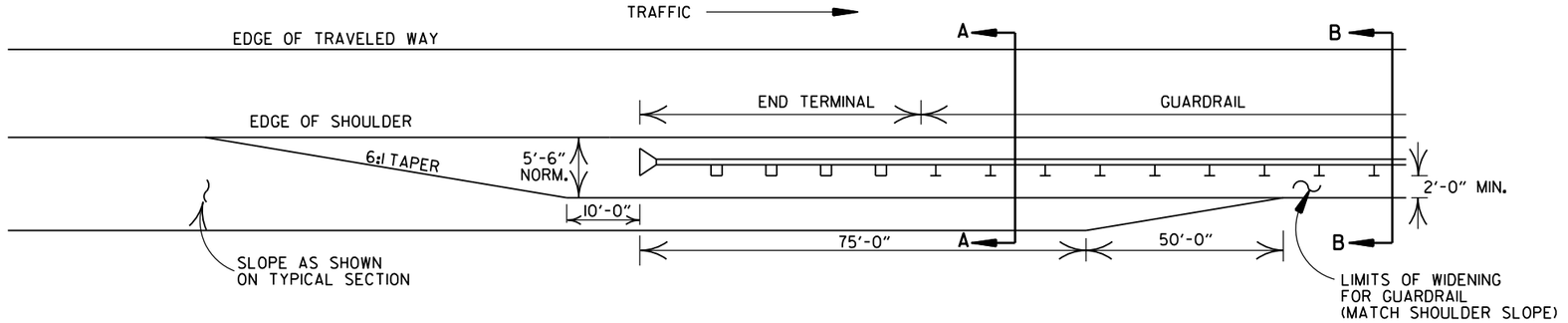
- • THRIE BEAM GUARDRAIL TERMINAL
- •• GUARDRAIL TERMINAL (TYPE 2)

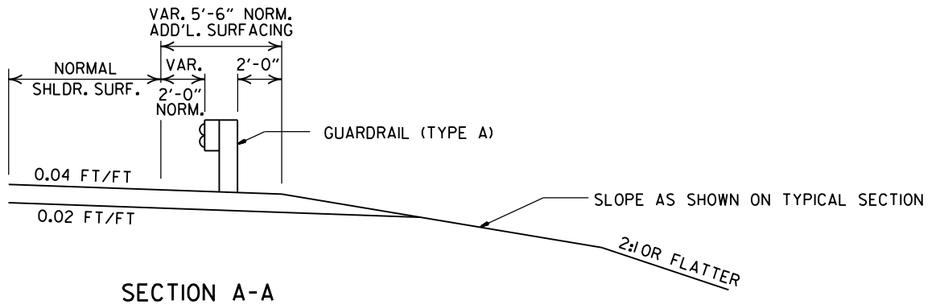
DATE	REVISION	DATE FILM
11-07-19	RENUMBERED AND RENAMED	
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARDRAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARDRAIL USING GUARDRAIL TERM. (TY. 1)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED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

ARKANSAS STATE HIGHWAY COMMISSION

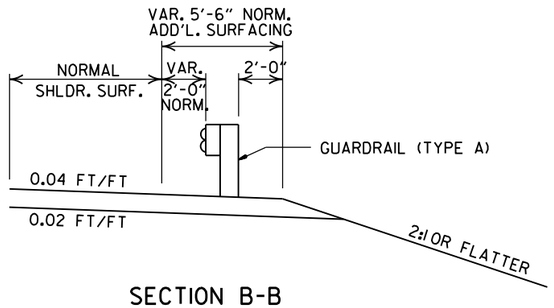
GUARDRAIL DETAILS

STANDARD DRAWING GR-8



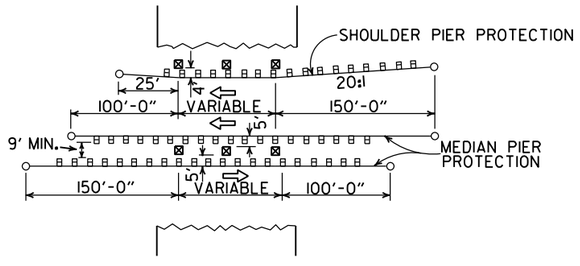


SECTION A-A



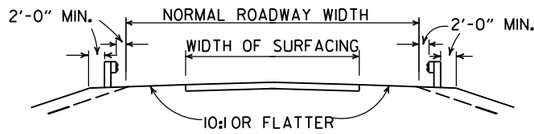
SECTION B-B

DETAILS OF WIDENING FOR GUARDRAIL

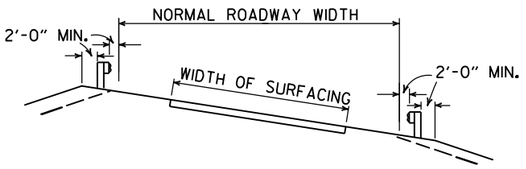


METHOD OF INSTALLATION OF GUARDRAIL AT FIXED OBSTACLE

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



SECTION ON TANGENT



SECTION ON CURVE

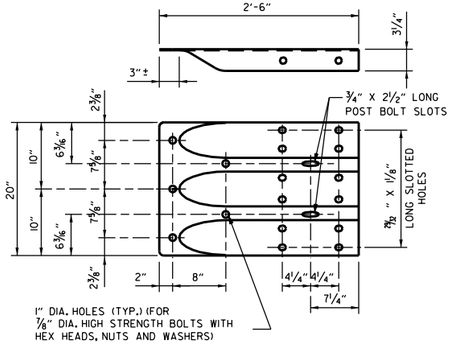
DETAILS SHOWING POSITION OF GUARDRAIL ON HIGHWAY

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

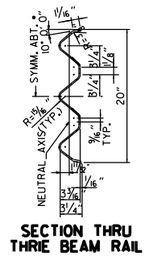
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

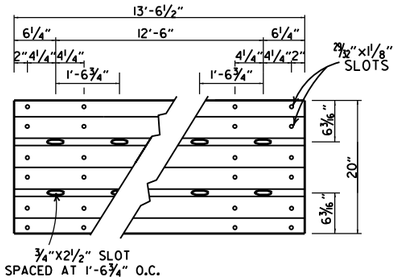
STANDARD DRAWING GR-9



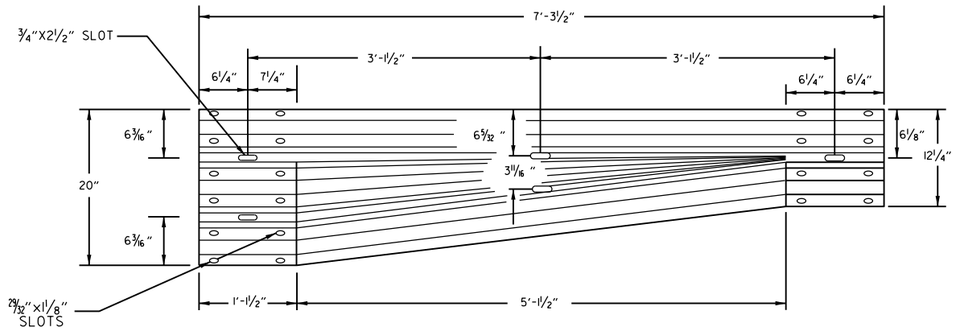
SPECIAL END SHOE



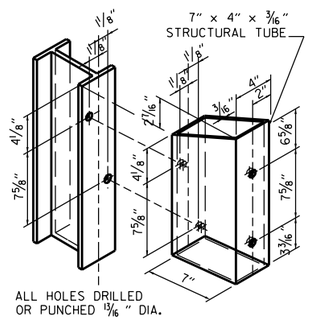
SECTION THRU THRIE BEAM RAIL



THRIE BEAM RAIL

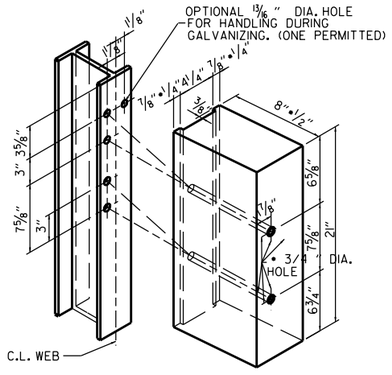


TRANSITION SECTION



ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

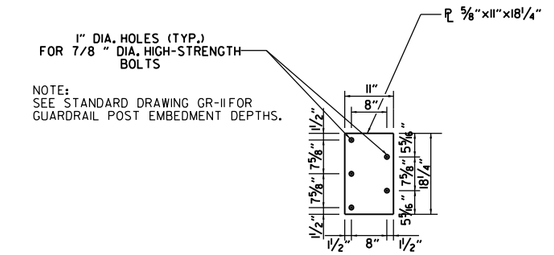
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

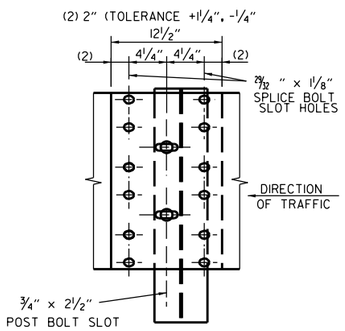
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



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

CONNECTOR PLATE

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



THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

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

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

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

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

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

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

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

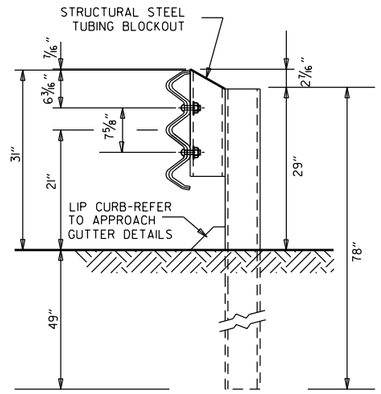
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

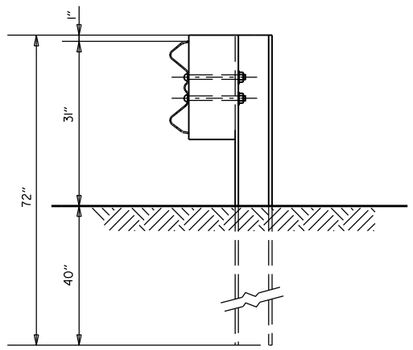
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

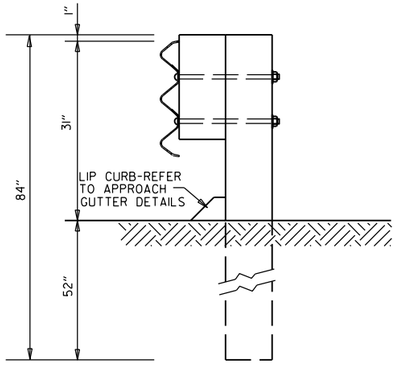
STANDARD DRAWING GR-10



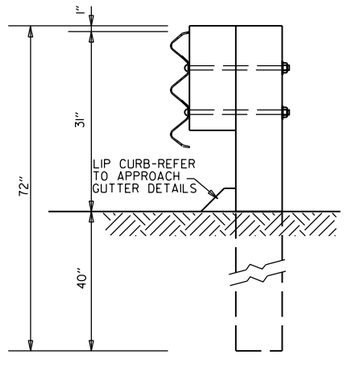
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



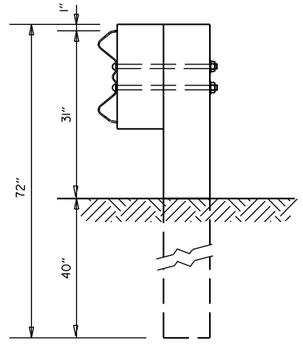
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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



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



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

GENERAL NOTES:

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

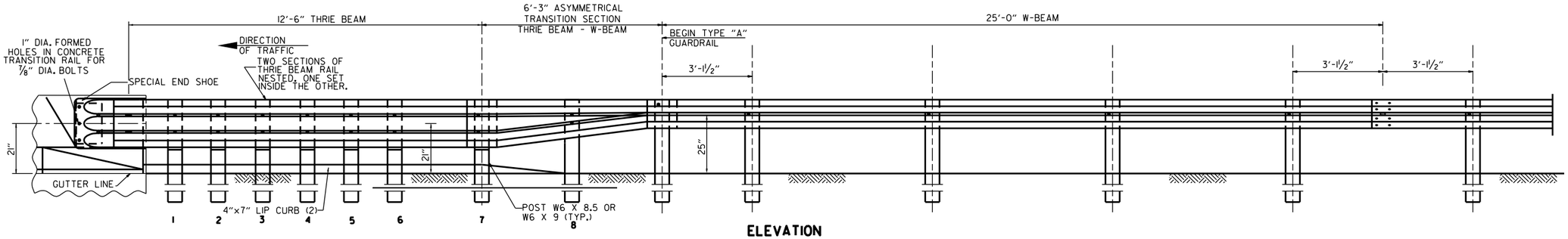
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

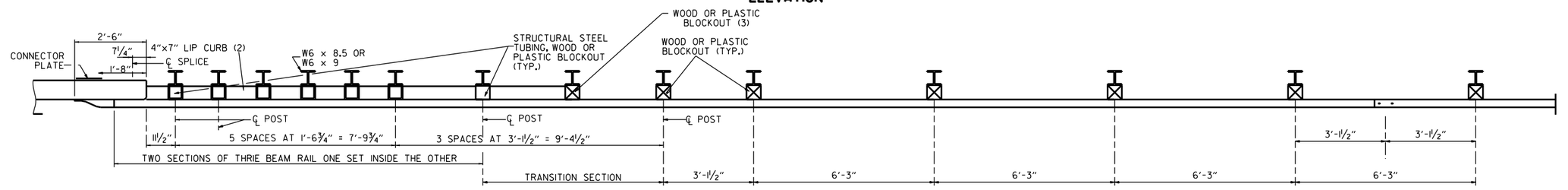
ARKANSAS STATE HIGHWAY COMMISSION

GUARDRAIL DETAILS

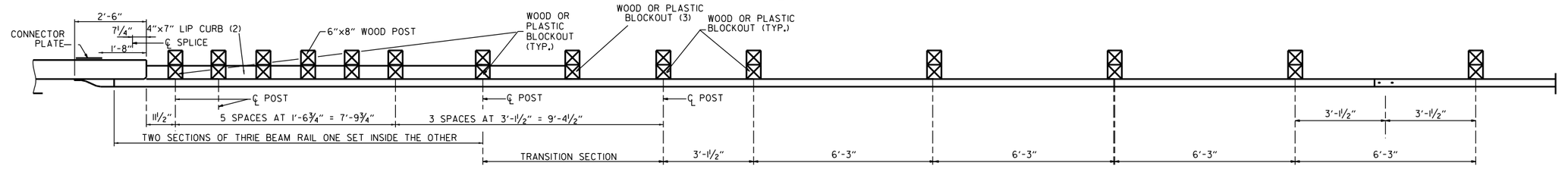
STANDARD DRAWING GR-11



ELEVATION



PLAN



PLAN

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

THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

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

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

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

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

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

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

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

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

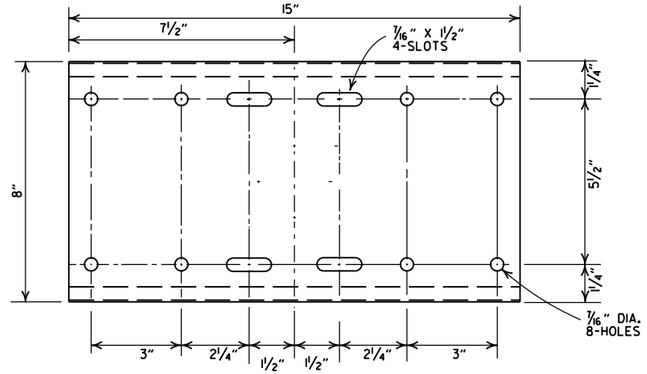
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

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

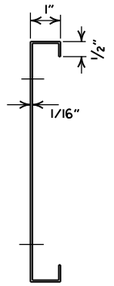
ARKANSAS STATE HIGHWAY COMMISSION

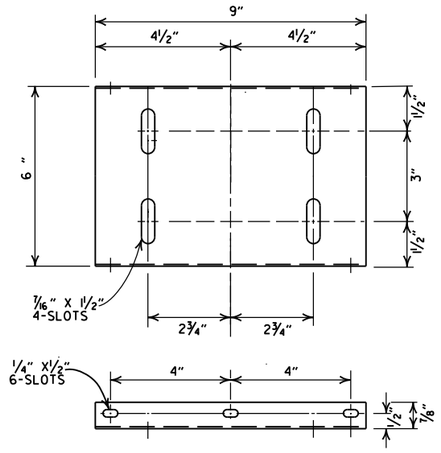
GUARDRAIL DETAILS

STANDARD DRAWING GR-12

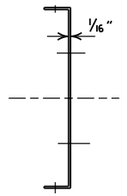


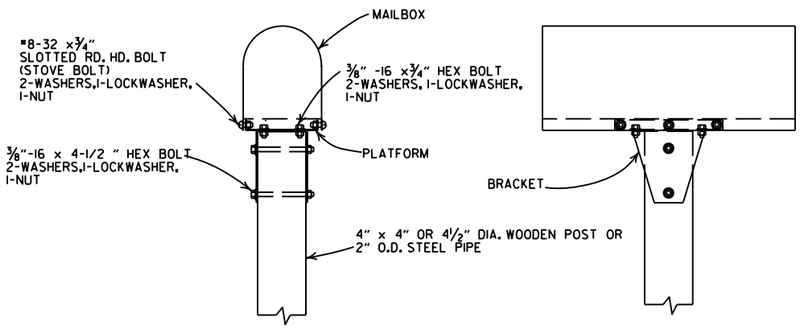
SHELF



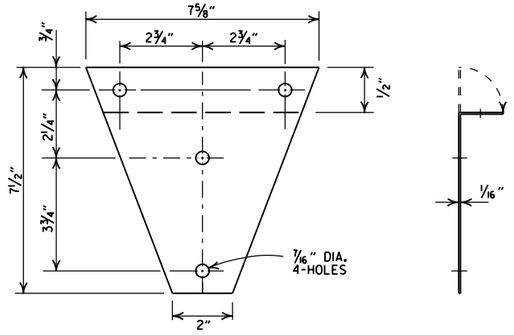


PLATFORM





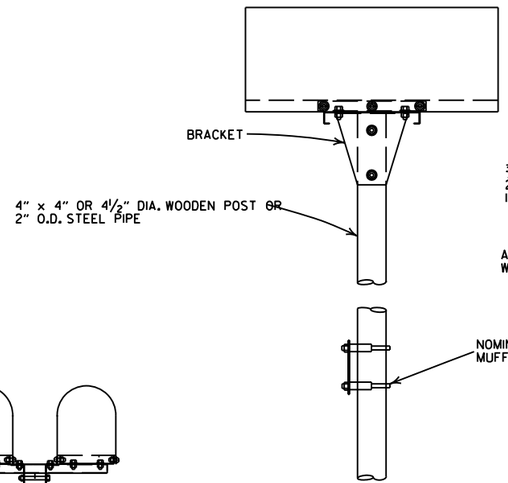
SINGLE INSTALLATION



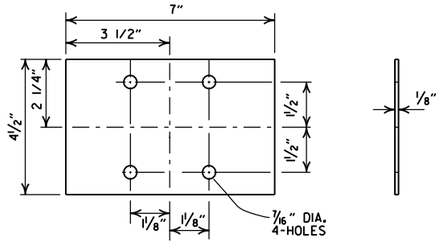
BRACKET

GENERAL NOTES

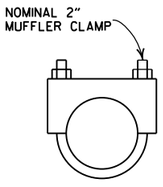
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



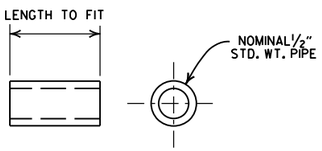
DOUBLE INSTALLATION



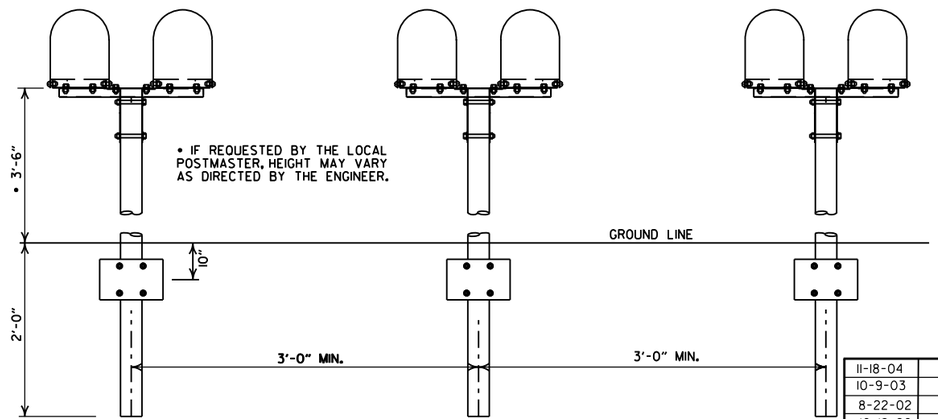
ANTI-TWIST PLATE



CLAMP



SPACER



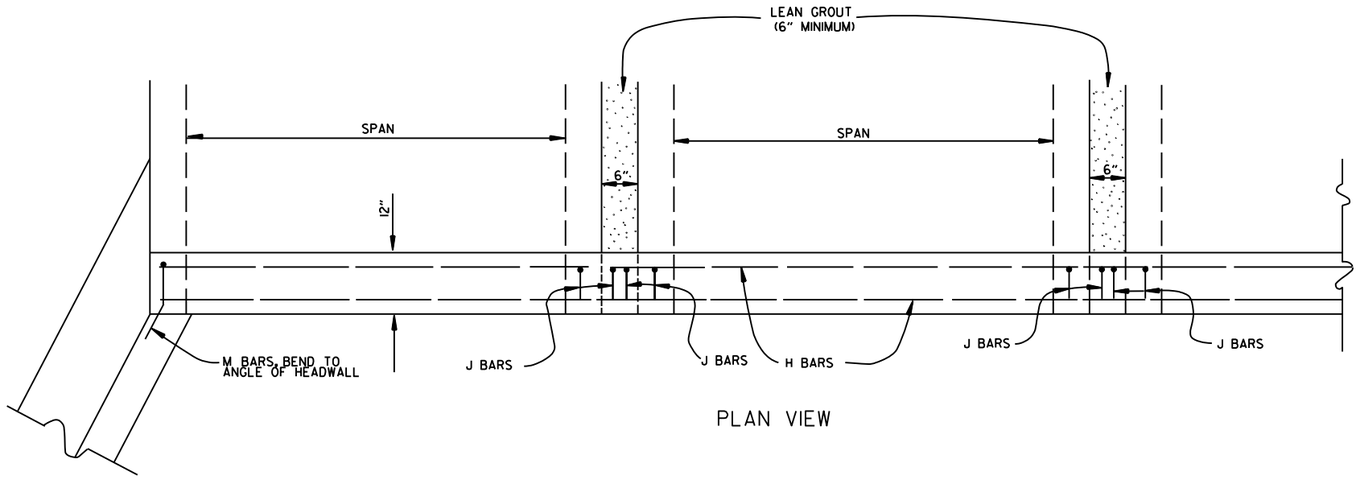
SPACING FOR MULTIPLE POST INSTALLATION

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

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

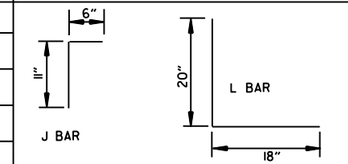
STANDARD DRAWING MB-1



PLAN VIEW

BAR LIST

BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	



• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING. STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS:
PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85.
SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS.
THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE.
THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

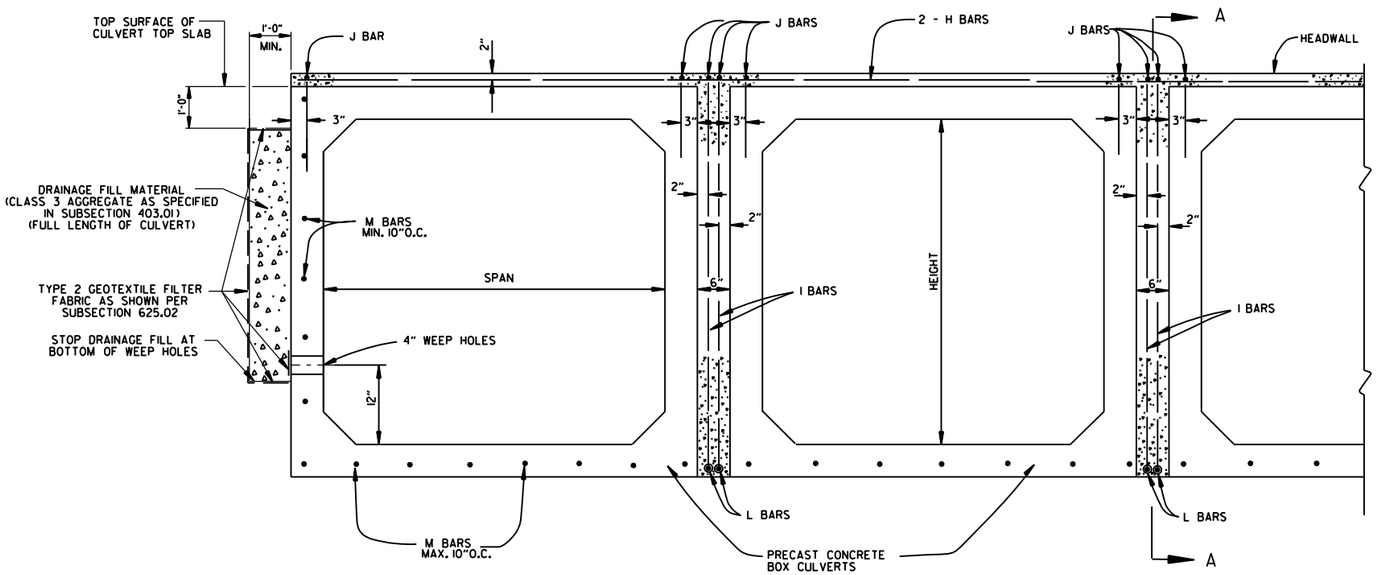
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

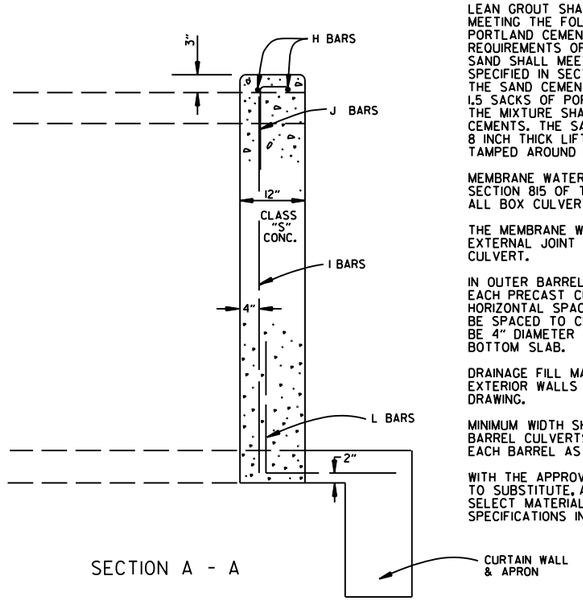
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.



END VIEW



SECTION A - A

DATE	REVISION	DATE FILMED
1-28-15	REVISED GEOTEXTILE FABRIC PLACEMENT	
12-15-11	ADDED NOTE & DTLS FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED; JABE	

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-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	43⅜	44	26⅝	27
42	51⅛	51	31⅜	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

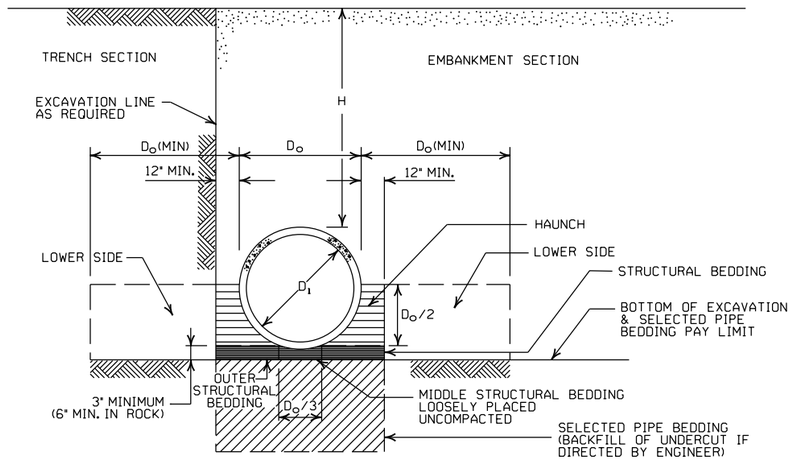
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CONSTRUCTION SEQUENCE

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

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

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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

CORRUGATED METAL PIPE ARCHES

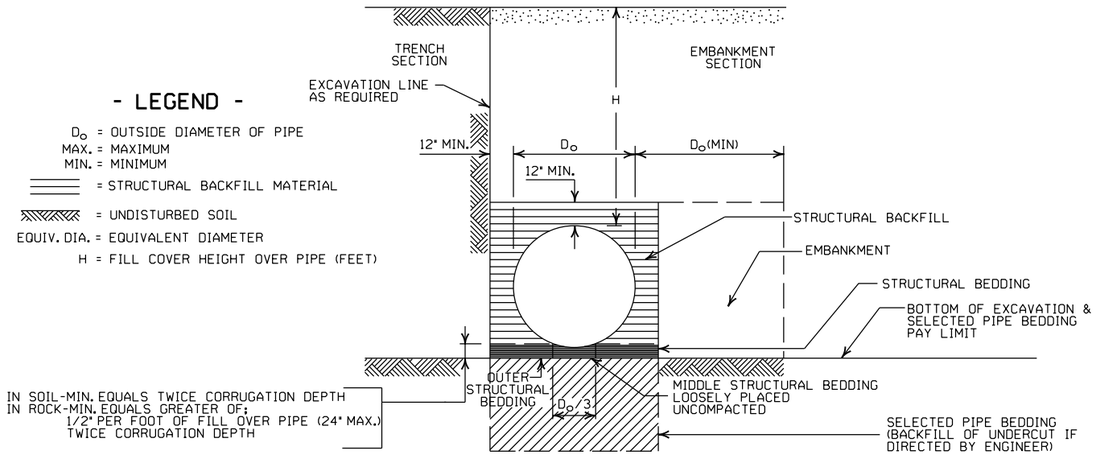
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL			ALUMINUM		
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)
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

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

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

- LEGEND -

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

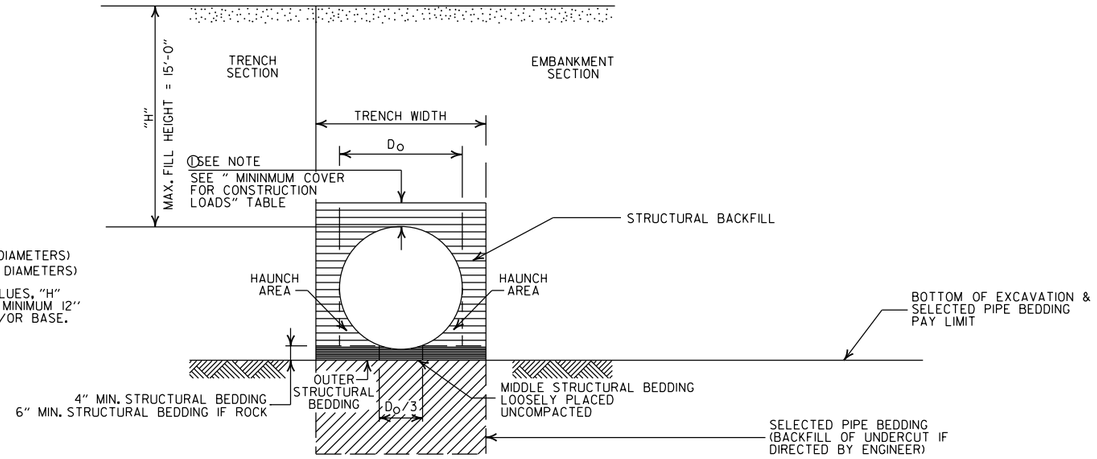
PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)
MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

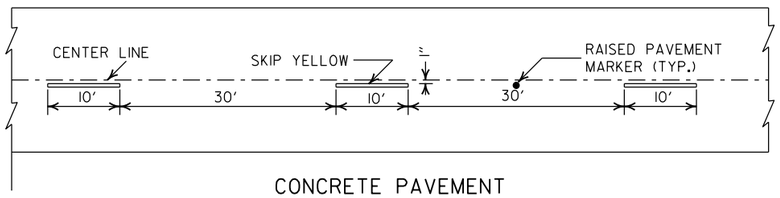
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

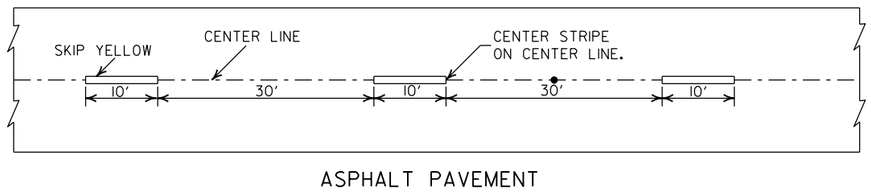
PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

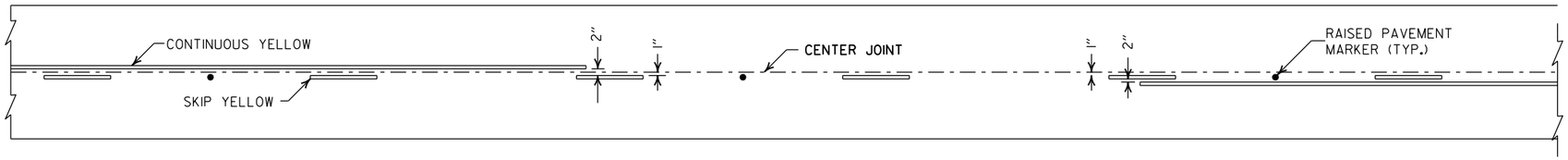


CONCRETE PAVEMENT

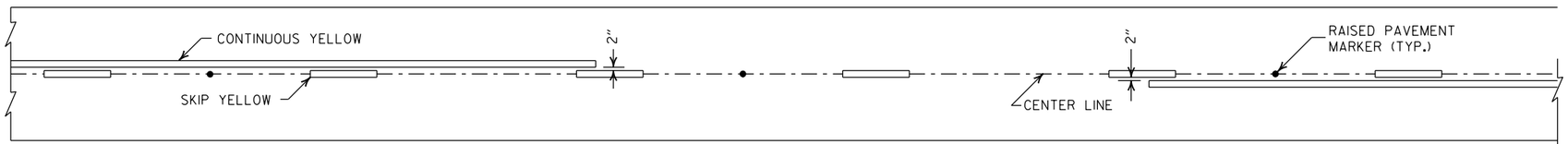


ASPHALT PAVEMENT

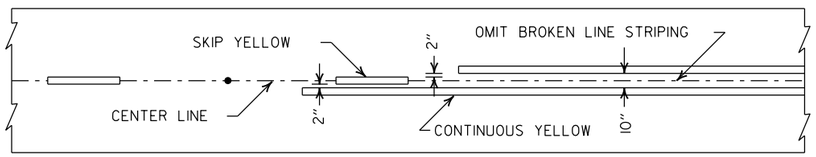
BROKEN LINE STRIPING



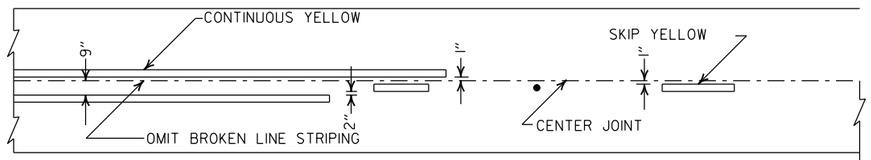
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

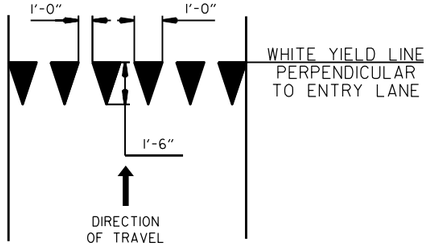


ASPHALT PAVEMENT

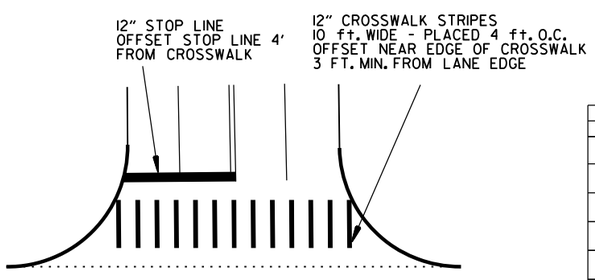


CONCRETE PAVEMENT

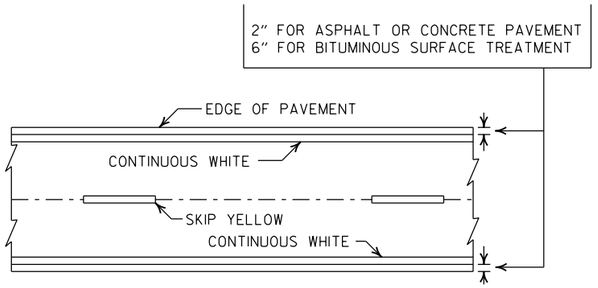
STRIPING AT ADJACENT NO PASSING LANES



YIELD LINE DETAIL



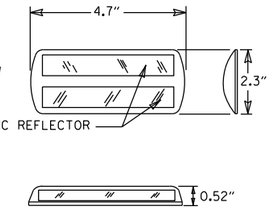
CROSSWALK AND STOP LINE DETAILS



PAVEMENT EDGE LINE MARKING

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

TYPE II
RED/CLEAR OR YELLOW/YELLOW



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

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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

ARKANSAS STATE HIGHWAY COMMISSION

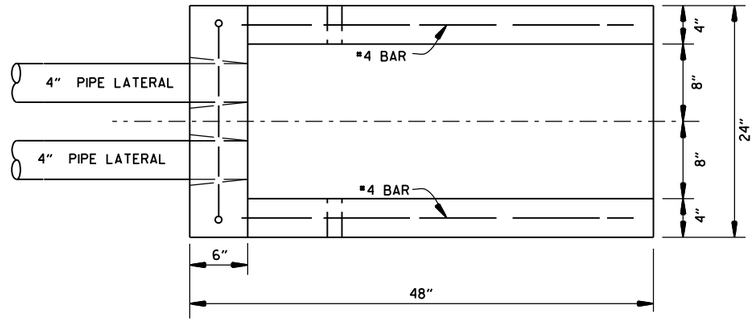
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

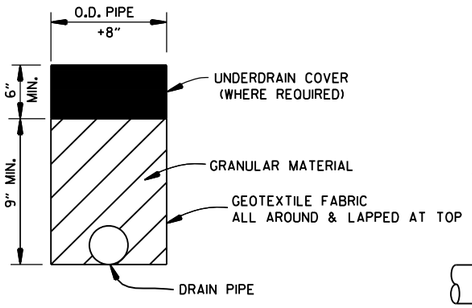
NOTE:

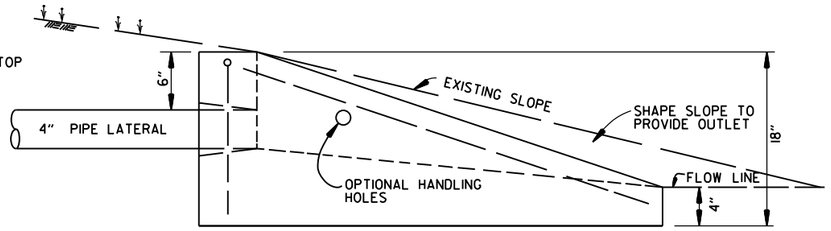
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

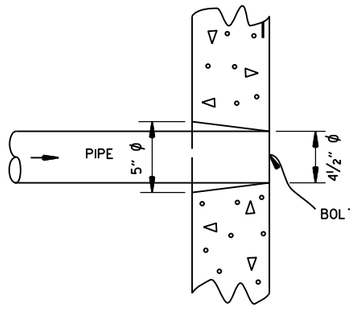


PLAN VIEW

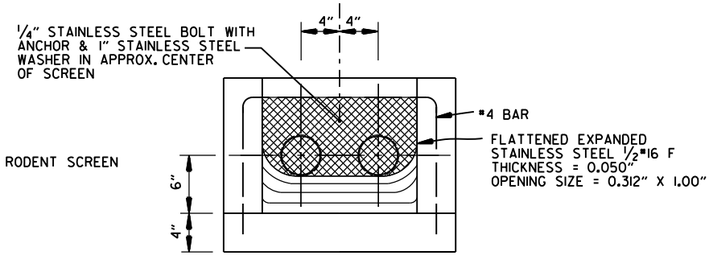




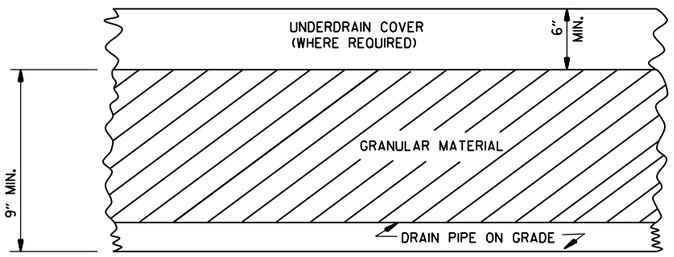
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE

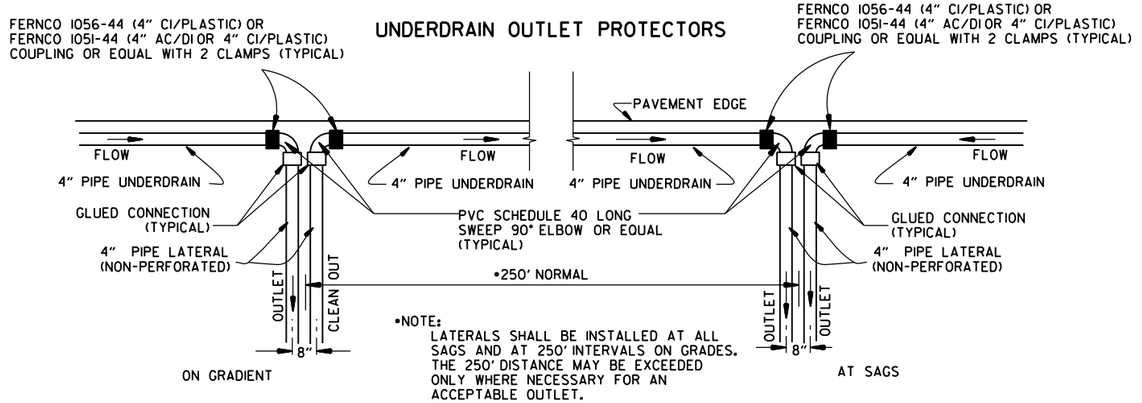


FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE 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.

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

ARKANSAS STATE HIGHWAY COMMISSION

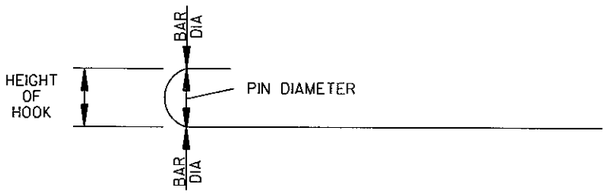
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

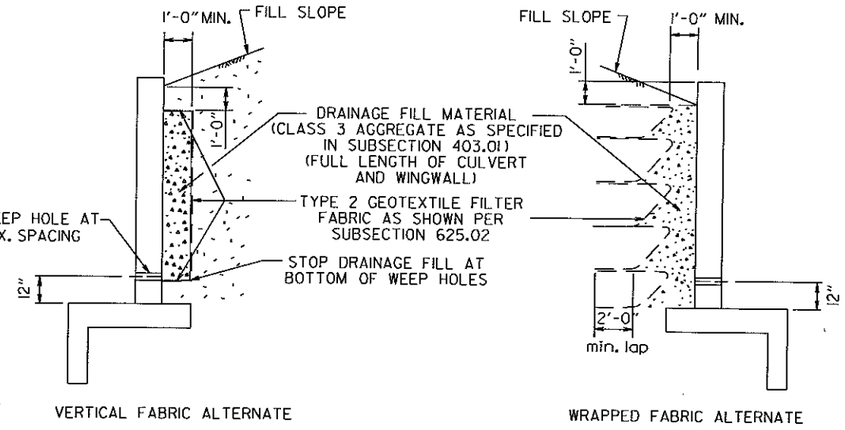
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

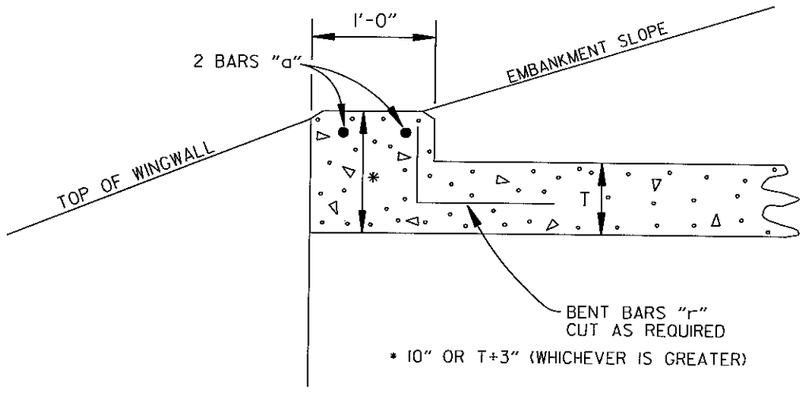
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

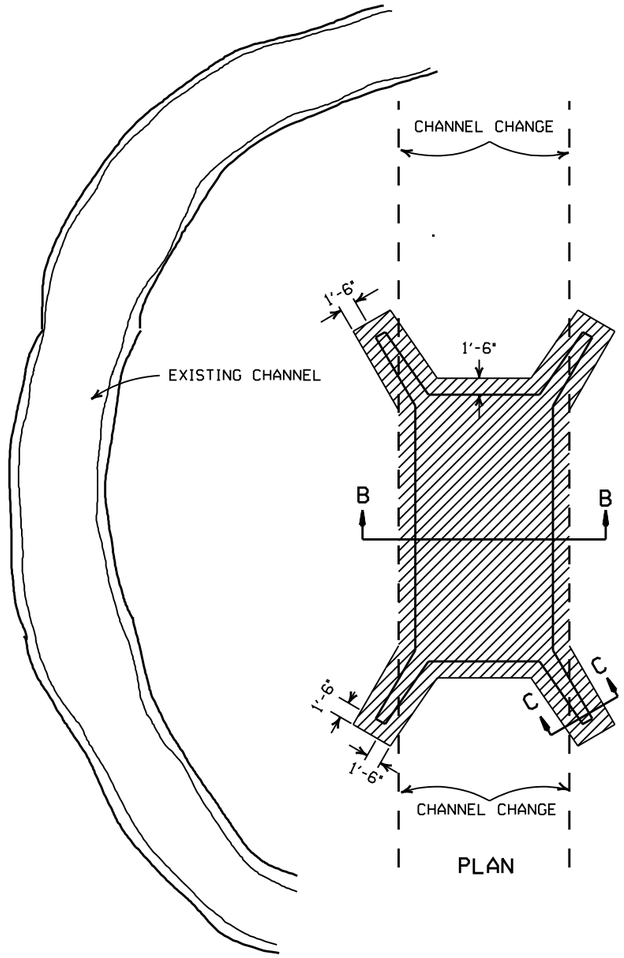
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

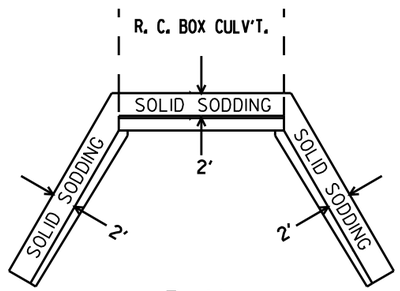
ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



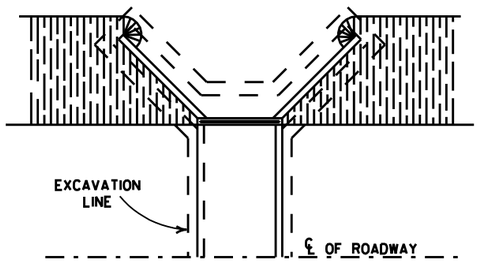
PLAN



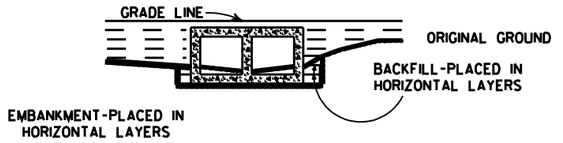
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

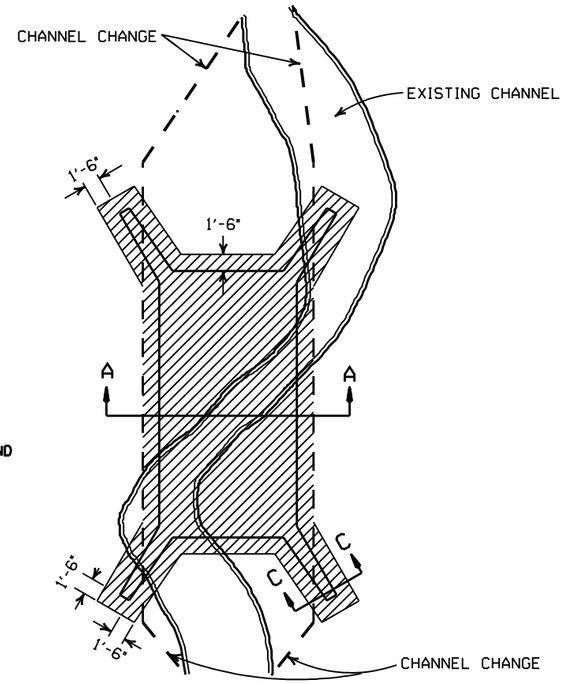


PLAN

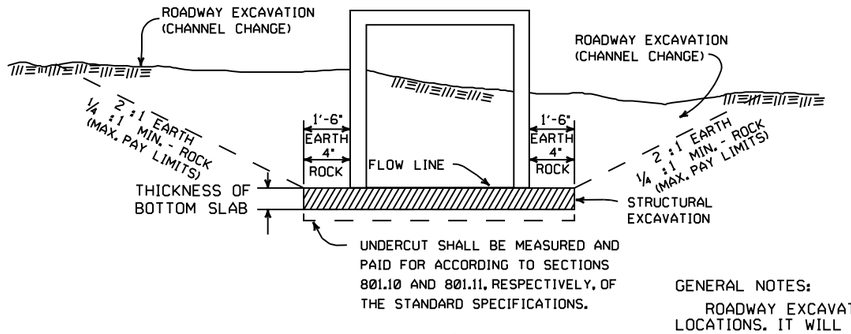


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

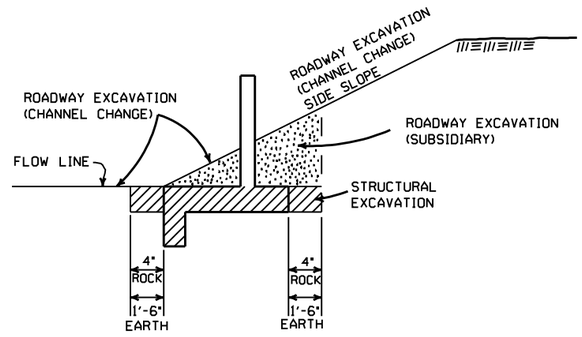


PLAN

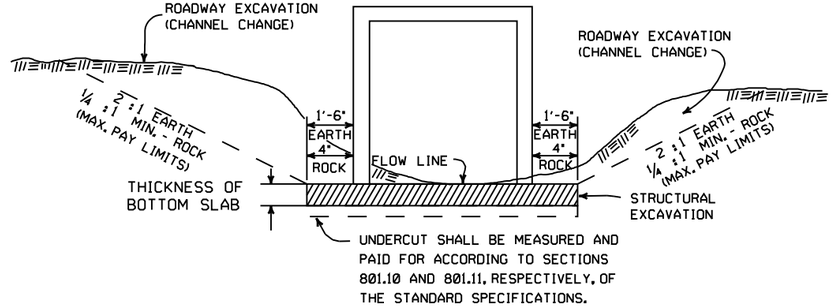


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES	674-1-4-83
	AND ADDED MAXIMUM PAY	
	LIMIT NOTES.	
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			35 MPH			40 MPH			45 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH			75 MPH		
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)	
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
0° 30'	NC			NC			NC			NC			NC			NC			RC	96		RC	96		RC	96		0.022	101	
0° 45'	NC			NC			NC			NC			RC	96		RC	96		0.024	106		0.026	110		0.030	120		0.032	125	
1° 00'	NC			NC			NC			RC	90		0.022	101		0.026	110		0.030	120		0.034	130		0.038	139	300	0.042	149	300
1° 15'	NC			NC			RC	84		0.022	95		0.028	115		0.032	125		0.038	139		0.042	149		0.046	158		0.052	173	
1° 30'	NC			RC	78		0.022	88		0.028	108		0.032	125		0.038	139		0.044	154		0.050	168	300	0.056	182		0.062	197	
1° 45'	RC	72		RC	78		0.026	97		0.030	113		0.036	134		0.044	154		0.050	168	300	0.056	182		0.064	202		0.070	216	
2° 00'	RC	72		0.024	86		0.028	101		0.034	122		0.042	149		0.048	163		0.056	182		0.064	202		0.070	216		0.080	240	
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178	300	0.062	197		0.070	216		0.078	235	350	0.088	259	350
2° 30'	0.022	75		0.028	94		0.034	113		0.042	140		0.050	168		0.058	187		0.068	211		0.076	230		0.086	254		0.096	278	
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149	200	0.054	178		0.064	202		0.072	221		0.082	245		0.092	269		0.100	288	400
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187	250	0.068	211		0.078	235		0.088	259		0.098	283	400	D MAX = 2° 45'		
3° 15'	0.028	86		0.036	109		0.044	134		0.052	162		0.062	197		0.072	221		0.082	245		0.092	269		0.100	288				
3° 30'	0.030	90		0.038	113		0.046	139	200	0.056	171		0.066	206		0.076	230		0.086	254		0.096	278	350	D MAX = 3° 30'					
3° 45'	0.032	93		0.040	117		0.050	147		0.058	176		0.070	216		0.080	240		0.090	264		0.098	283							
4° 00'	0.034	97		0.042	121	200	0.052	151		0.062	185		0.072	221		0.084	250		0.094	274	350	0.100	288							
4° 15'	0.036	100		0.044	125		0.054	155		0.064	189		0.076	230		0.086	254	350	0.096	278		D MAX = 4° 15'								
4° 30'	0.036	100	200	0.046	129		0.056	160		0.068	198		0.078	235		0.090	264		0.098	283										
4° 45'	0.038	104		0.048	133		0.060	168		0.070	203		0.082	245		0.092	269		0.100	288										
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274		D MAX = 5° 15'										
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221	250	0.088	259	300	0.098	283												
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288												
6° 30'	0.050	126		0.062	160		0.074	198	250	0.086	239		0.096	278		D MAX = 6° 30'														
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283																
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252	300	0.100	288																
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257		D MAX = 8° 25'																	
8° 30'	0.060	144		0.072	179		0.086	223	250	0.096	261																			
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266																			
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270																			
10° 00'	0.066	155		0.080	195		0.094	240		D MAX = 10° 30'																				
11° 00'	0.070	162		0.084	203		0.096	244																						
12° 00'	0.074	169		0.088	211	250	0.098	248																						
13° 00'	0.076	173		0.090	215		0.100	252	300																					
14° 00'	0.080	180		0.094	222		D MAX = 13° 45'																							
15° 00'	0.082	184		0.096	226																									
16° 00'	0.086	191		0.098	230																									
17° 00'	0.088	194		0.100	234																									
18° 00'	0.090	198	250	D MAX = 19° 30'																										
19° 00'	0.092	202																												
20° 00'	0.094	205																												
21° 00'	0.096	209																												
22° 00'	0.096	209																												
23° 00'	0.098	212																												
24° 00'	0.098	212																												
25° 00'	0.100	216																												

D MAX = 28° 30'

GENERAL NOTES

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

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

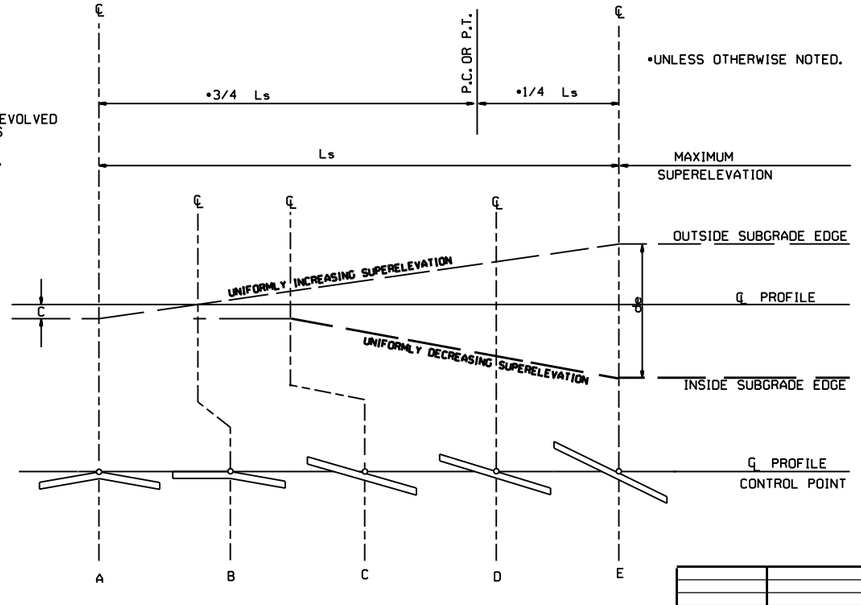
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.

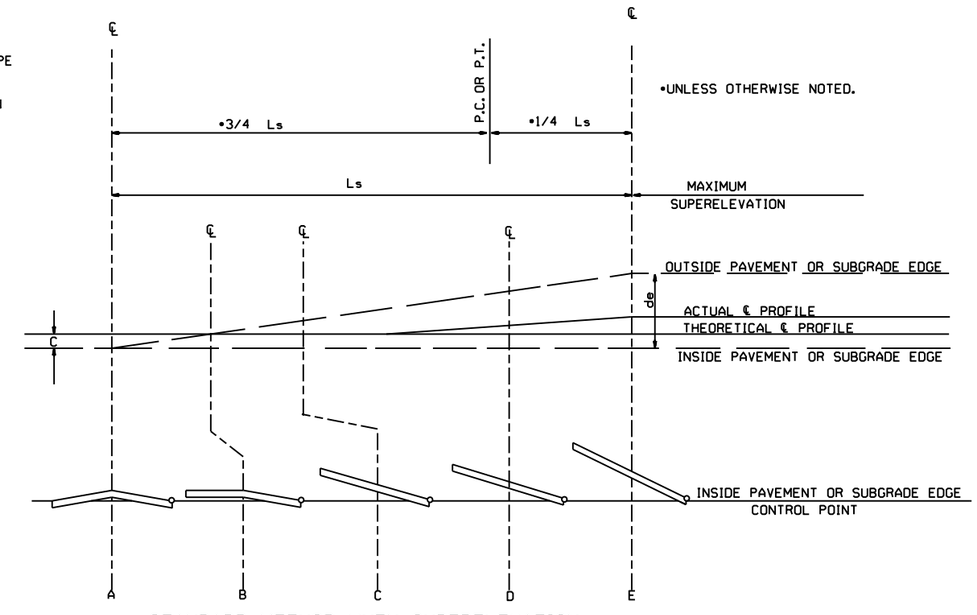
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

ABBREVIATIONS

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



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

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

DATE	REVISION	DATE FILMED
11-07-19	REVISED SUPERELEVATION TABLE	
10-18-96	ADDED FORMULA	
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

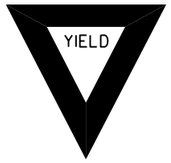
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

R1-1

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

R1-2



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

R2-1

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

W3-5

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

W3-5a

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

R4-1

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

R4-2

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

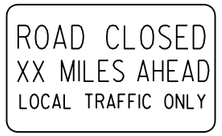
R5-1

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

RII-2

48"X30"

RII-3A



60"X30"

RII-4

60"X30"

W21-5a

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

WI-1

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

WI-2

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

WI-3

STD. 48"X48"

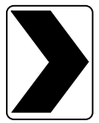
WI-4

STD. 48"X48"

WI-6

STD. 48"X24"
SPECIAL 60"X30"

WI-8



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

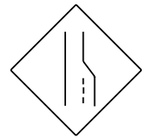
W3-1

STD. 36"X36"
SPECIAL 48"X48"

W3-2

STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

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

W9-2

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

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

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

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

W8-11

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

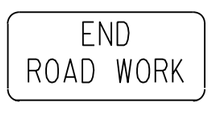
W8-9

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

G20-1

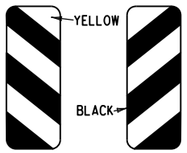
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

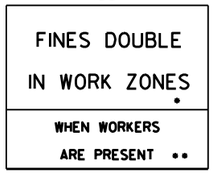
M4-9

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

M4-10

48"X18"

R55-1



36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

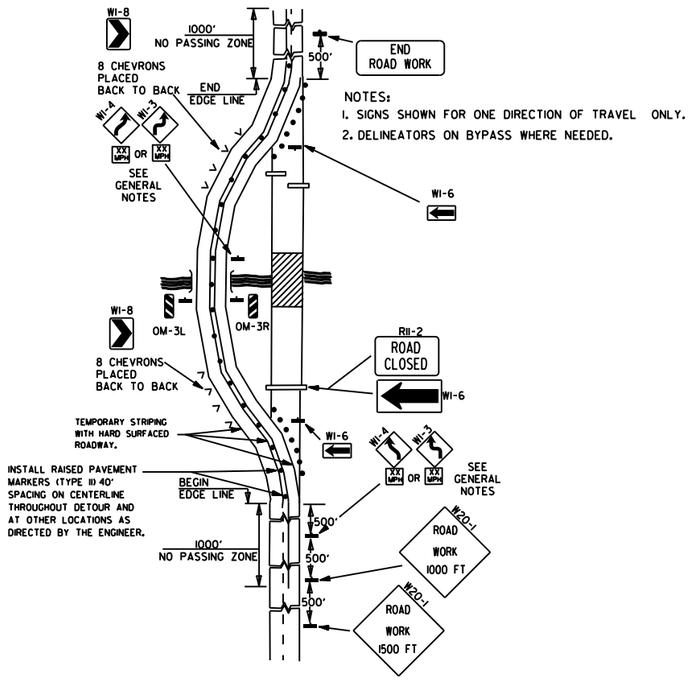
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

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

ARKANSAS STATE HIGHWAY COMMISSION

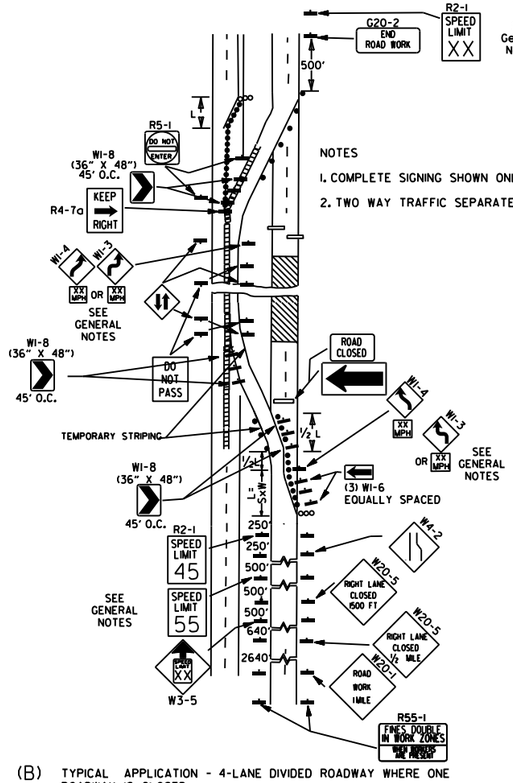
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



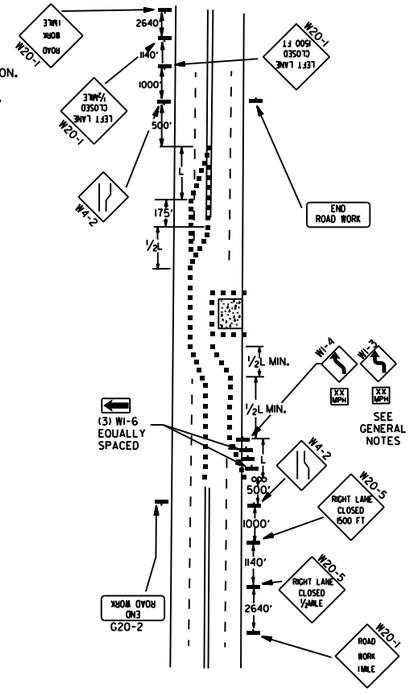
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

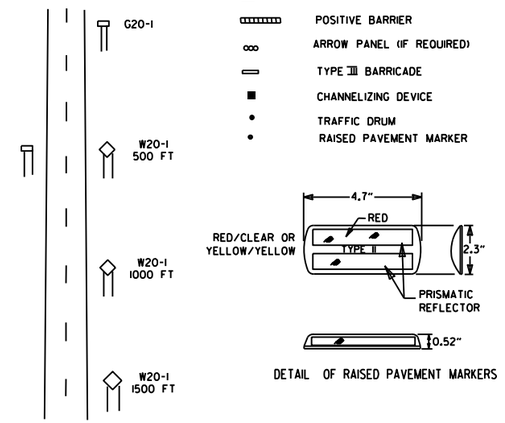


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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



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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

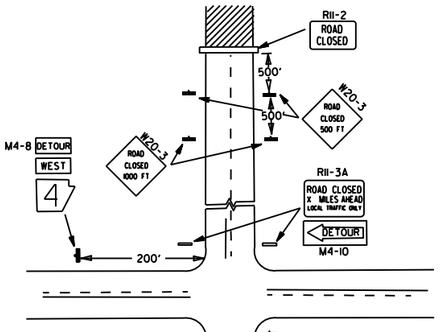
L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

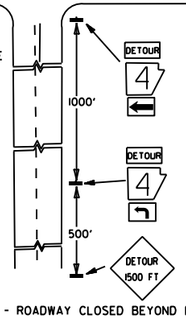
WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

GENERAL NOTES:

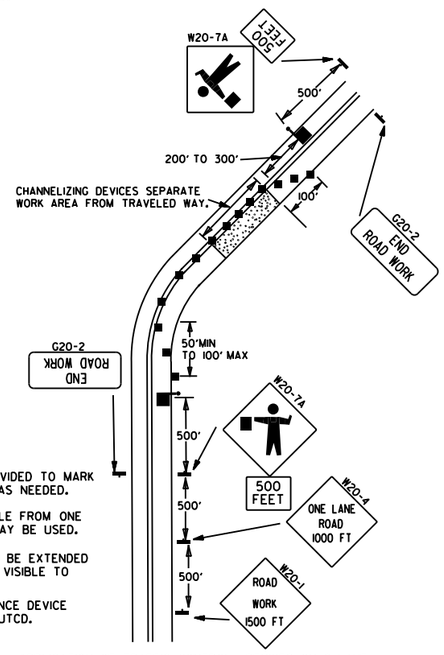
1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS
2. WHEN THE EXISTING SPEED LIMIT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



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

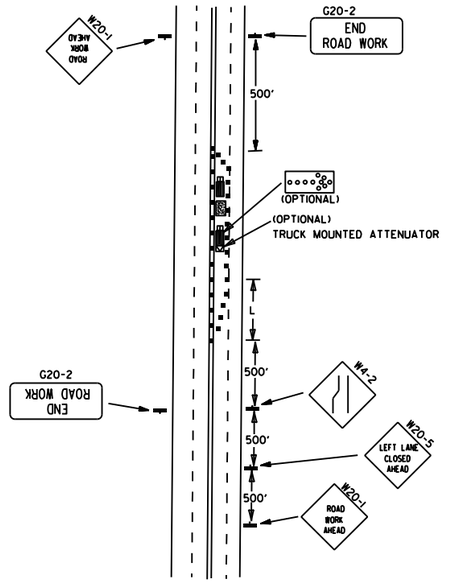


(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



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

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



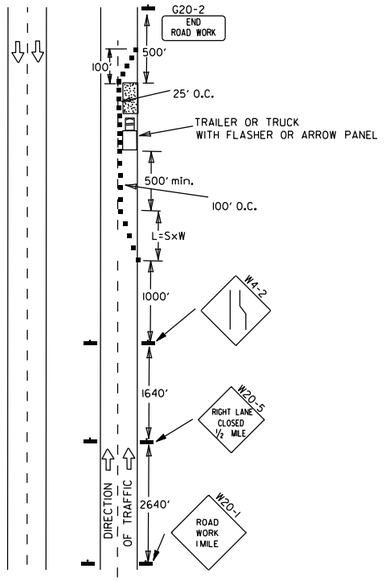
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

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

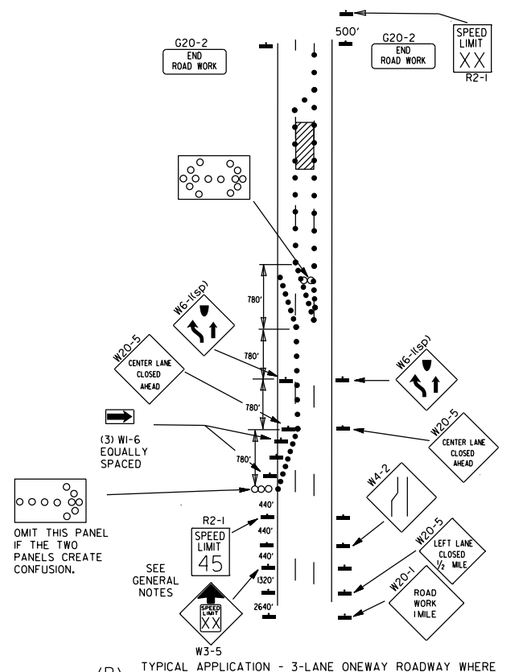
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-2



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



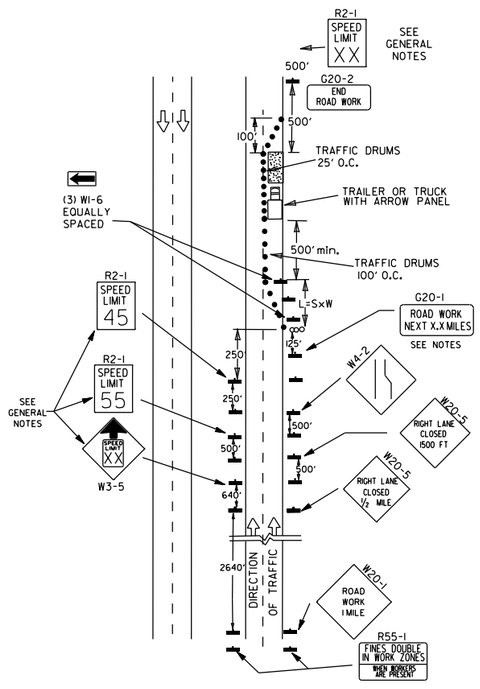
(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.

KEY:

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

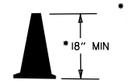
GENERAL NOTES:

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



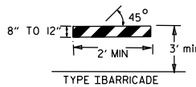
(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

CHANNELIZING DEVICES



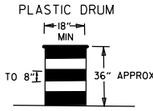
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

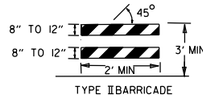
CONES



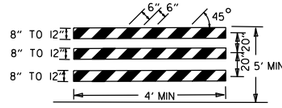
TYPE I BARRICADE

PLASTIC DRUM



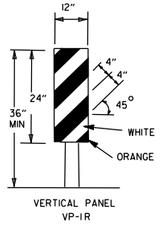


TYPE II BARRICADE



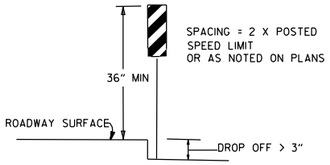
TYPE III BARRICADE

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

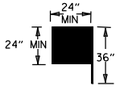


VERTICAL PANEL VP-1R

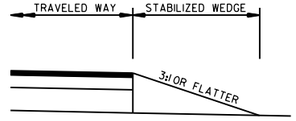
VERTICAL PANEL PLACEMENT



FLAG



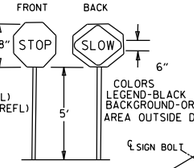
FLAG SHALL BE OF GOOD GRADE RED MATERIAL

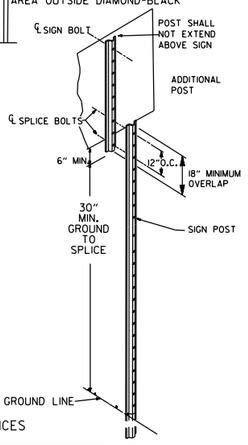


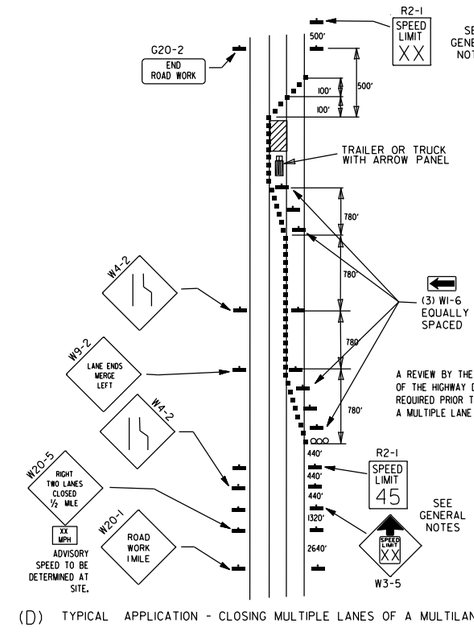
STABILIZED WEDGE

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

STOP SLOW PADDLE







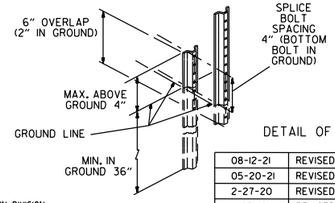
A REVIEW BY THE ROADWAY DESIGN DIVISION OF THE HIGHWAY DEPARTMENT WILL BE REQUIRED PRIOR TO IMPLEMENTING A MULTIPLE LANE CLOSURE.

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

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

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

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



DETAIL OF SPLICES

TRAFFIC CONTROL DEVICES

NON-INTERSTATE

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

INTERSTATE

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

INTERSTATE AND NON-INTERSTATE

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

GENERAL NOTES:

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

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

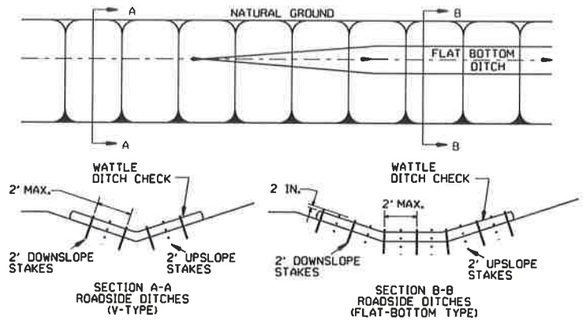
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

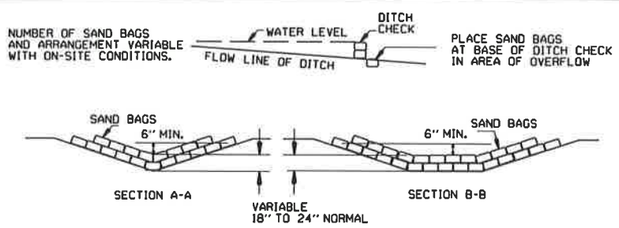
STANDARD DRAWING TC-3

GENERAL NOTES

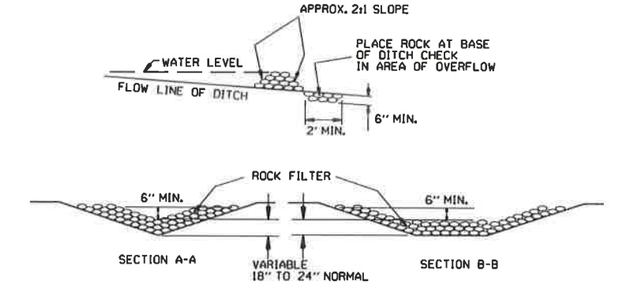
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

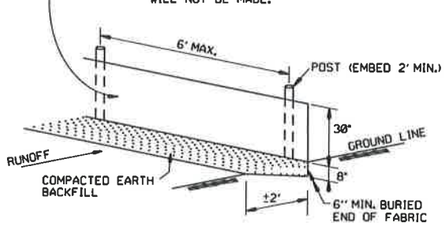


ROCK DITCH CHECK (E-6)

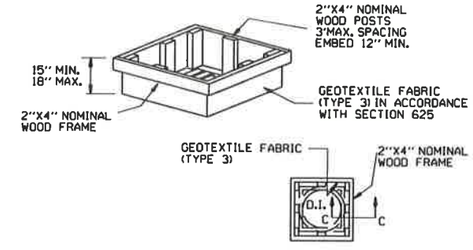
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

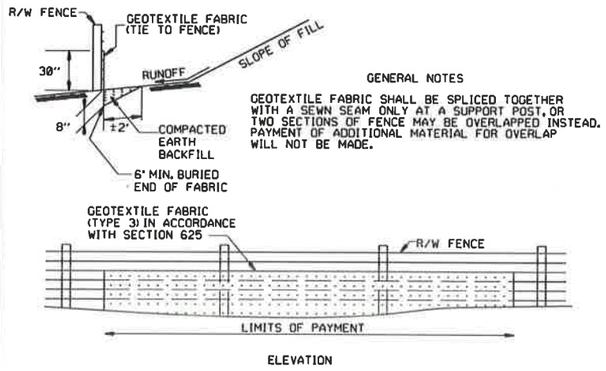
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)



DROP INLET SILT FENCE (E-7)



GENERAL NOTES

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

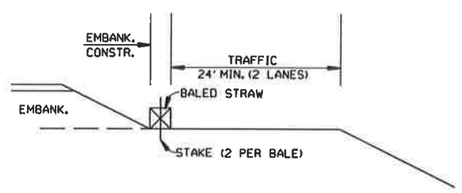
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

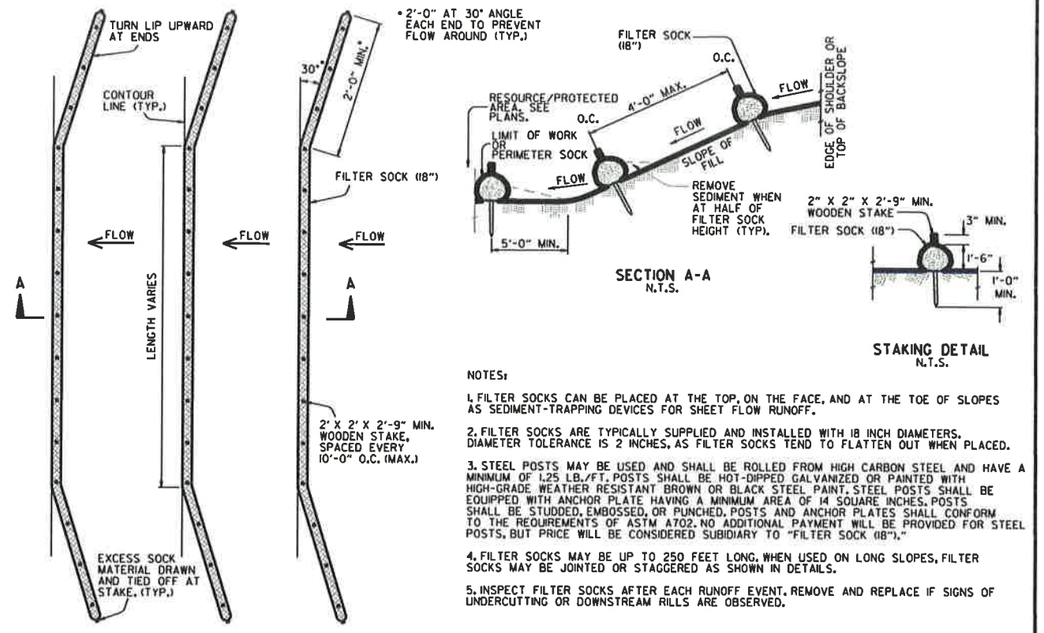
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

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



BALED STRAW FILTER BARRIER (E-2)



NOTES:

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

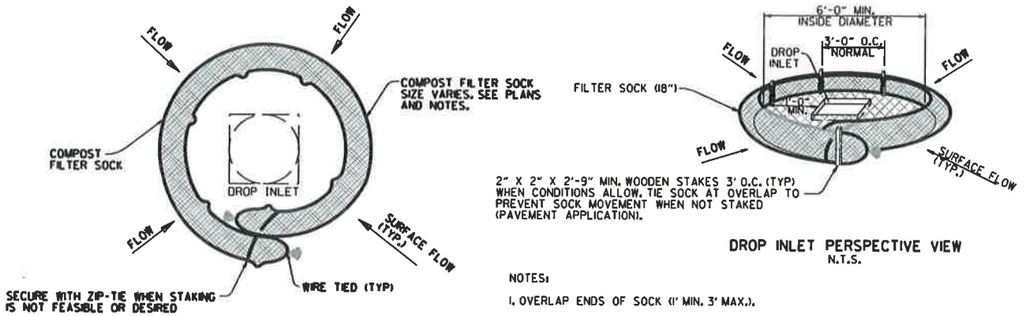
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

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

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

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

FILTER SOCK ALONG SLOPE (E-3)



NOTES:

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

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

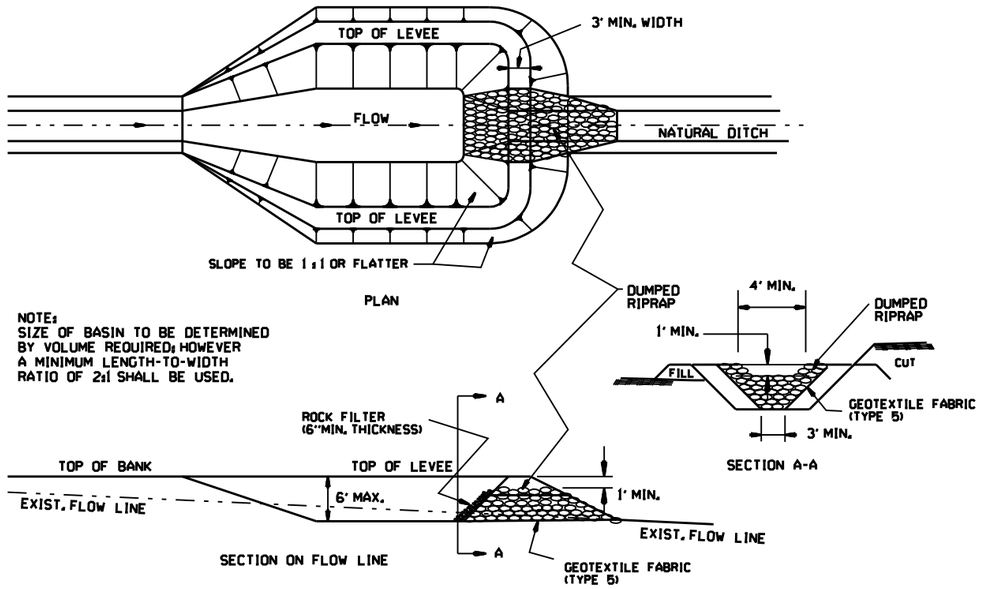
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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

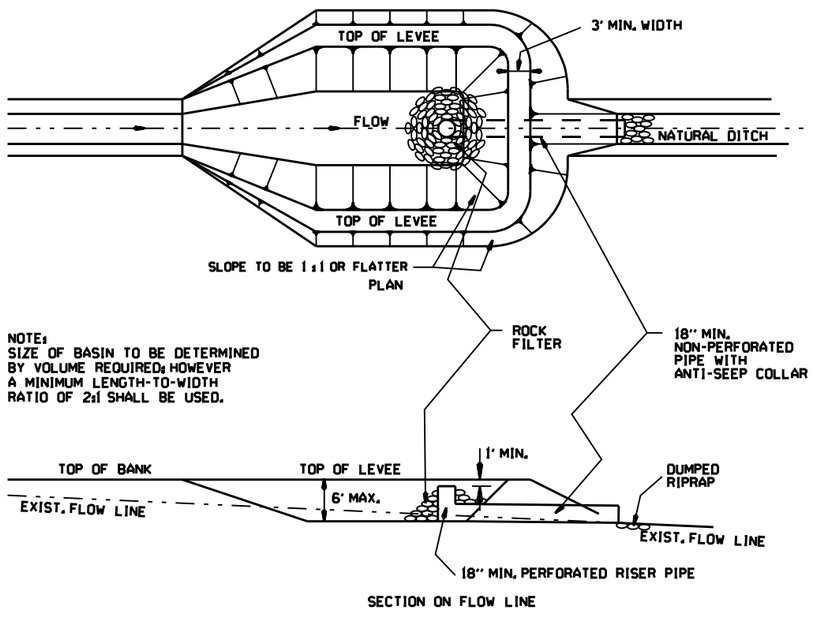
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

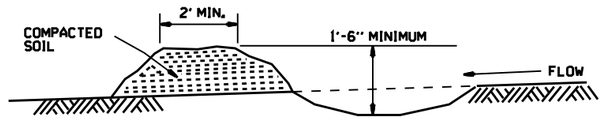
STANDARD DRAWING TEC-1



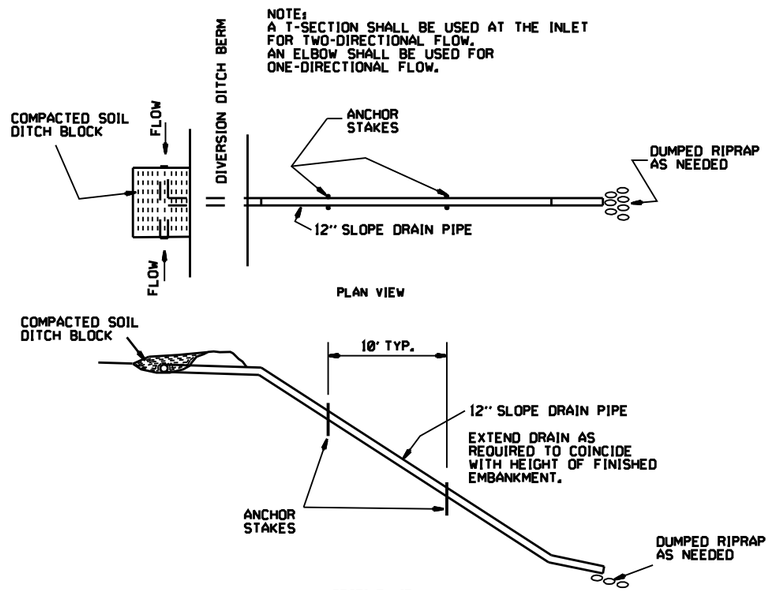
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



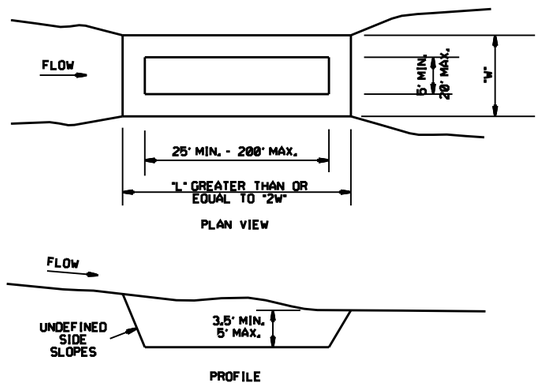
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

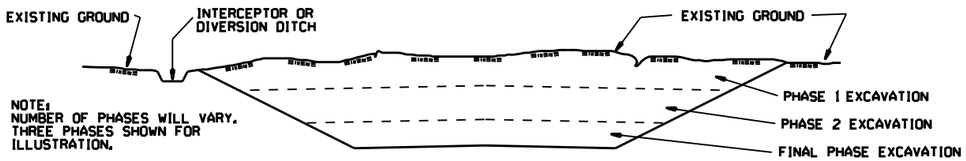
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



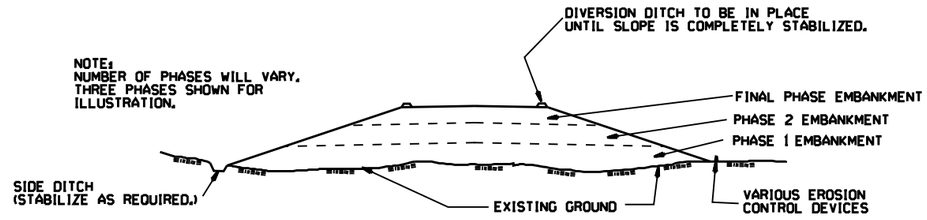
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3