DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	1	60

MISSOURI & NORTHERN ARKANSAS RR STR. & APPRS. (SUMMIT) (S)

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

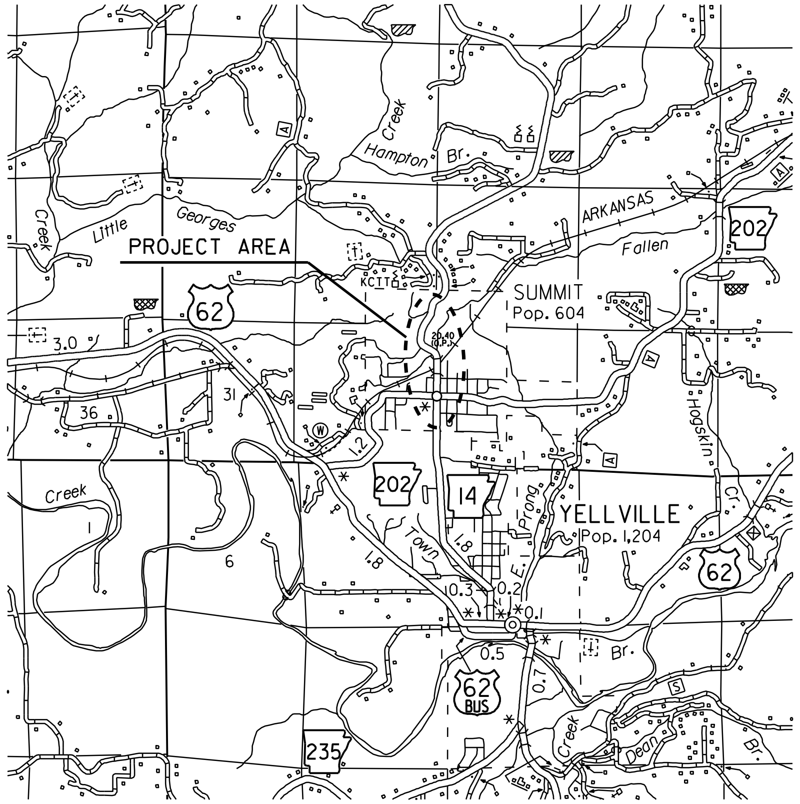
MISSOURI & NORTHERN ARKANSAS RR STR. & APPRS. (SUMMIT) (S)

MARION COUNTY

ROUTE 14 SECTION 2

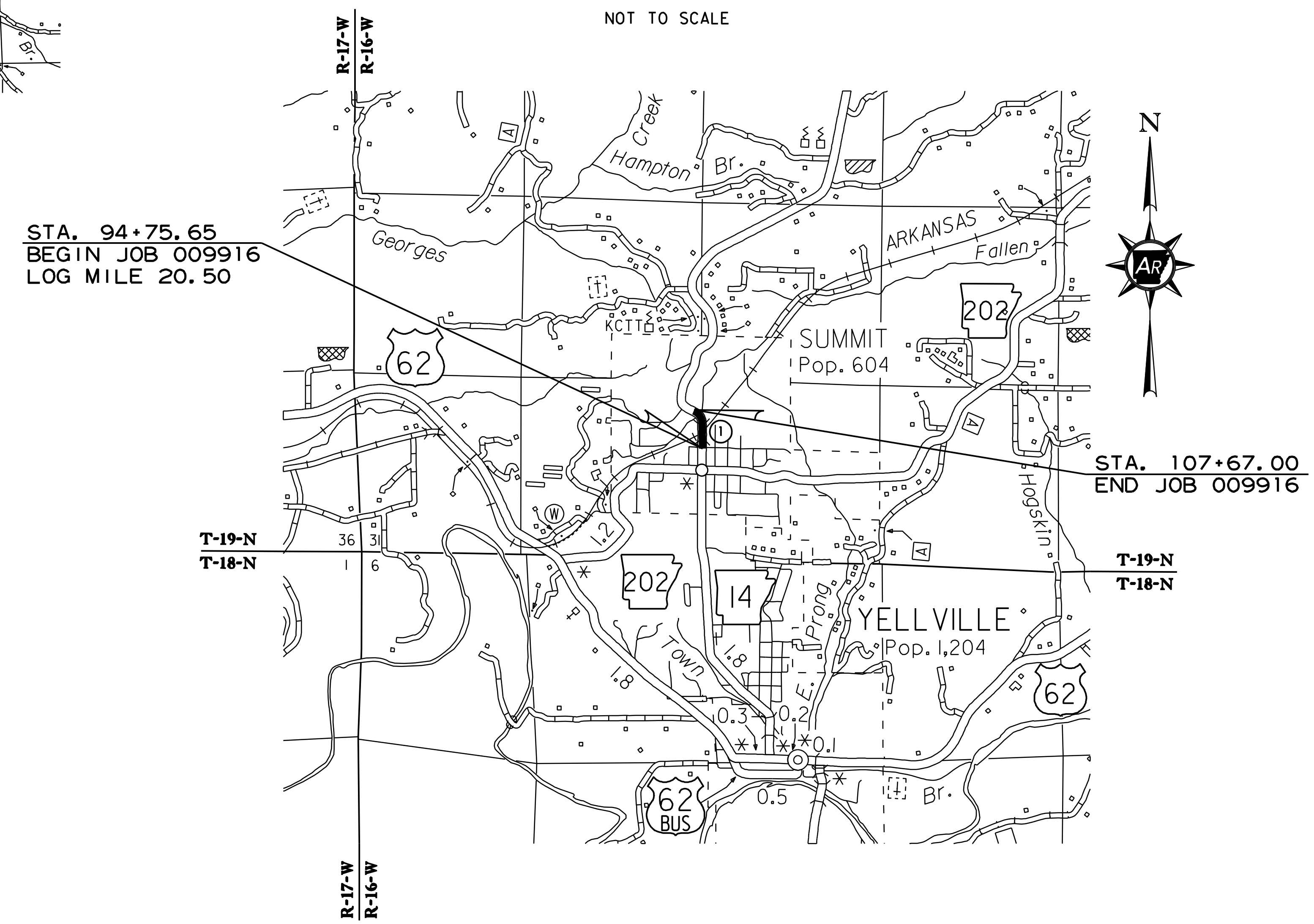
FEDERAL AID PROJ. NHPP-0045(34)

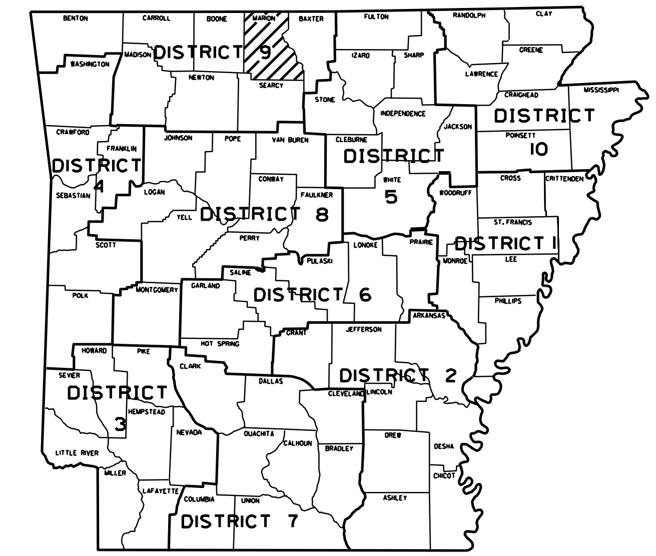
JOB 009916



VICINITY MAP

NOT TO SCALE





ARK. HWY. DIST. NO. 9

BRIDGE CONSTRUCTION DATA

(1) STA. 98+94.47 BRIDGE END
BRIDGE NO. 07529
208'-0" CONTINUOUS W-BEAM UNIT (64'-80'-64')
30'-0" CLEAR ROADWAY
45° RT. FORWARD SKEW
211'-0¾" BRIDGE LENGTH
STA. 101+05.53 BRIDGE END

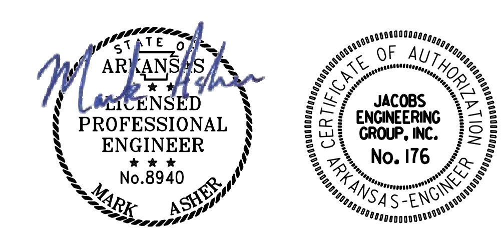
DESIGN TRAFFIC DATA - HWY. 14

DESIGN YEAR 2043
2023 ADT 1,800
2043 ADT 2,100
2043 DHV 231
DIRECTIONAL DISTRIBUTION 0.60
TRUCKS 4%
DESIGN SPEED .... 35 MPH

LENGTH OF PROJECT CALCULATED ALONG C.L. CONSTRUCTION & IS SHOWN FOR INFORMATION ONLY

GROSS LENGTH OF PROJECT	1291.35	FEET	0.245	MILES
NET LENGTH OF ROADWAY	1080.29	FEET	0.205	MILES
NET LENGTH OF BRIDGES	211.06	FEET	0.040	MILES
NET LENGTH OF PROJECT	1291.35	FEET	0.245	MILES

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 36°15'05"	N 36°15'11"	N 36°15'16"
LONGITUDE	W 92°41'27"	W 92°41'26"	W 92°41'31"



08/28/2023

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INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.
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4 - 6	TYPICAL SECTIONS OF IMPROVEMENT		
7 - 10	SPECIAL DETAILS		
11 - 13	TEMPORARY EROSION CONTROL DETAILS		
14 - 16	MAINTENANCE OF TRAFFIC DETAILS		
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29	LAYOUT OF BRIDGE HIGHWAY 14 OVER MISSOURI & NORTHERN ARKANSAS RAILROAD (SHEET 1 OF 2)	07529	65397
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32	RAILROAD EXHIBIT A (SHEET 2 OF 2)	07529	65400
33	DETAILS OF END BENTS (SHEET 1 OF 4)	07529	65401
34	DETAILS OF END BENTS (SHEET 2 OF 4)	07529	65402
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38	DETAILS OF INTERMEDIATE BENTS (SHEET 2 OF 4)	07529	65406
39	DETAILS OF INTERMEDIATE BENTS (SHEET 3 OF 4)	07529	65407
40	DETAILS OF INTERMEDIATE BENTS (SHEET 4 OF 4)	07529	65408
41	DETAILS OF ELASTOMERIC BEARINGS	07529	65409
42	DETAILS OF 208'-0" CONTINUOUS W-BEAM UNIT (SHEET 1 OF 5)	07529	65410
43	DETAILS OF 208'-0" CONTINUOUS W-BEAM UNIT (SHEET 2 OF 5)	07529	65411
44	DETAILS OF 208'-0" CONTINUOUS W-BEAM UNIT (SHEET 3 OF 5)	07529	65412
45	DETAILS OF 208'-0" CONTINUOUS W-BEAM UNIT (SHEET 4 OF 5)	07529	65413
46	DETAILS OF 208'-0" CONTINUOUS W-BEAM UNIT (SHEET 5 OF 5)	07529	65414
47	APPROACH SLAB	07529	65415
48 - 60	CROSS SECTIONS		

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

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55002	STANDARD DETAILS FOR CONCRETE RIPRAP	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
55013A	STANDARD DETAILS FOR TRANSITIONAL APPROACH RAILING TYPE SSTR36	04-08-21
55015	STANDARD DETAILS FOR TYPE H2 RAILING	06-25-20
55019	STANDARD DETAILS FOR CURVED CHAIN LINK FENCE	04-08-21
55020	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS	03-24-16

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
CG-1	CURBING DETAILS	11-29-07
DR-1	DETAILS OF DRIVEWAYS & ISLANDS	05-19-22
DR-2	DETAILS OF DRIVEWAYS & STREET TURNOUTS	05-19-22
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
FPC-9E	DETAILS OF DROP INLETS (TYPE C)	08-22-02
MB-1	MAILBOX DETAILS	11-18-04
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PCP-3	PLASTIC PIPE CULVERT (POLYPROPYLENE)	02-27-20
PM-1	PAVEMENT MARKING DETAILS	02-27-20
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
SE-3	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC (4% MAXIMUM)	11-07-19
SI-1	DETAILS OF SPECIAL ITEMS	10-25-18
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	05-20-21
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	08-12-21
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	11-07-19
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
WF-4	WIRE FENCE TYPE C AND D	08-22-02
WR-1	WHEELCHAIR RAMPS NEW CONSTRUCTION AND ALTERATIONS	11-10-05

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 8940
MARK ASHER
08/28/2023

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
04/29/24		6	ARK.	009916	3	60
06/06/24		GOVERNING SPECIFICATIONS & GENERAL NOTES				

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-3	CONTRACTOR'S LICENSE
100-4	DEPARTMENT NAME CHANGE
102-2	ISSUANCE OF PROPOSALS
102-3	PREQUALIFICATION OF BIDDERS
103-2	CONTACT INFORMATION FOR MOTORIST DAMAGE CLAIMS
105-4	MAINTENANCE DURING CONSTRUCTION
107-2	RESTRAINING CONDITIONS
108-1	LIQUIDATED DAMAGES
108-2	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
210-1	UNCLASSIFIED EXCAVATION
303-1	AGGREGATE BASE COURSE
306-1	QUALITY CONTROL AND ACCEPTANCE
307-1	CEMENT
308-1	CEMENT
400-1	TACK COATS
400-4	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5	PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6	LIQUID ANTI-STRIP ADDITIVE
400-7	TRACKLESS TACK
404-3	DESIGN OF ASPHALT MIXTURES
409-2	ASPHALT LABORATORY FACILITY
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2	DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
410-4	EVALUATION OF ACHM SUBLOT REPLACEMENT MATERIAL
416-1	RECYCLED ASPHALT PAVEMANT
501-2	CEMENT
502-1	WELDED WIRE REINFORCEMENT
600-2	INCIDENTAL CONSTRUCTION
603-1	LANE CLOSURE NOTIFICATION
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
605-1	CONCRETE DITCH PAVING
620-1	MULCH COVER
633-1	CONCRETE WALKS, CONCRETE STEPS, AND HAND RAILING
634-1	CURBING
800-1	STRUCTURES
802-3	CONCRETE FOR STRUCTURES
802-4	CEMENT
804-2	REINFORCING STEEL FOR STRUCTURES
807-2	STEEL STRUCTURES
808-1	INSTALLATION OF ELASTOMERIC BEARINGS
808-2	ELASTOMERIC BEARINGS
JOB 009916	BIDDING REQUIREMENTS AND CONDITIONS
JOB 009916	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 009916	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 009916	BUY AMERICA - CONSTRUCTION MATERIALS
JOB 009916	CARGO PREFERENCE ACT REQUIREMENTS
JOB 009916	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 009916	COLD MILLING – COUNTY PROPERTY
JOB 009916	CONCRETE BRIDGE DECK CURING AND SURFACE TREATMENT RESTRICTIONS
JOB 009916	CULVERT CLEAN OUT
JOB 009916	DESIGN AND QUALITY CONTROL ASPHALT MIXTURES
JOB 009916	DESIGN OF ASPHALT MIXTURES - AGGREGATES
JOB 009916	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 009916	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 009916	FLEXIBLE BEGINNING OF WORK - CALENDAR DAY CONTRACT
JOB 009916	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 009916	INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY (G&W)
JOB 009916	LIQUIDATED DAMAGES PROCEDURE FOR BID LETTINGS
JOB 009916	MANDATORY ELECTRONIC CONTRACT
JOB 009916	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 009916	NESTING SITES OF MIGRATORY BIRDS
JOB 009916	OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB 009916	PARTNERING REQUIREMENTS
JOB 009916	PERCENT AIR VOIDS AND NDESIGN FOR ACHM SURFACE MIX DESIGNS
JOB 009916	PLASTIC PIPE
JOB 009916	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 009916	PRICE ADJUSTMENT FOR FUEL
JOB 009916	PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 009916	SHORING FOR CULVERTS
JOB 009916	SOIL STABILIZATION
JOB 009916	SPECIAL CLEARING PUP SEASON REQUIREMENTS
JOB 009916	SPECIAL SAFETY REQUIREMENTS FOR BRIDGES
JOB 009916	STORM WATER POLLUTION PREVENTION PLAN
JOB 009916	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 009916	UNPAINTED WEATHERING STRUCTURAL STEEL
JOB 009916	UTILITY ADJUSTMENTS
JOB 009916	VALUE ENGINEERING
JOB 009916	WARM MIX ASPHALT
JOB 009916	WELLHEAD PROTECTION

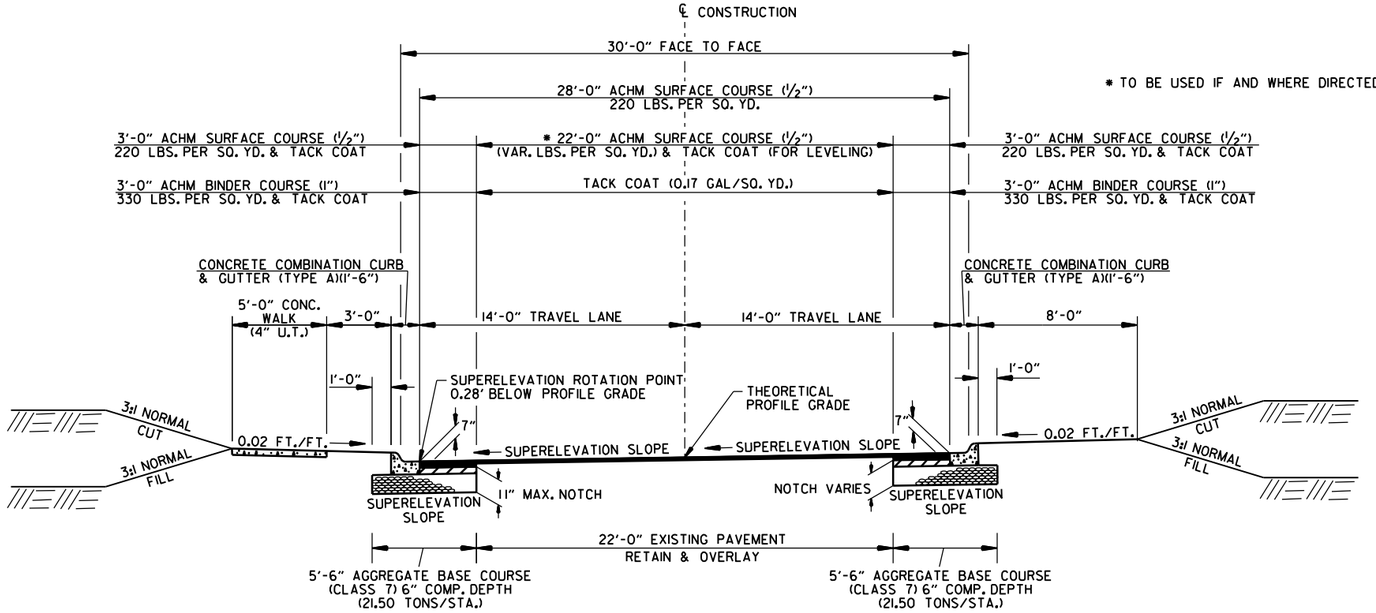
GENERAL NOTES

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

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 8940 MARK ASHER

06/11/2024

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	4	60
		TYPICAL SECTIONS OF IMPROVEMENT				



HWY. 14 NOTCH AND WIDEN (SUPERELEVATED)
STA. 104+50.00 - STA. 106+71.62

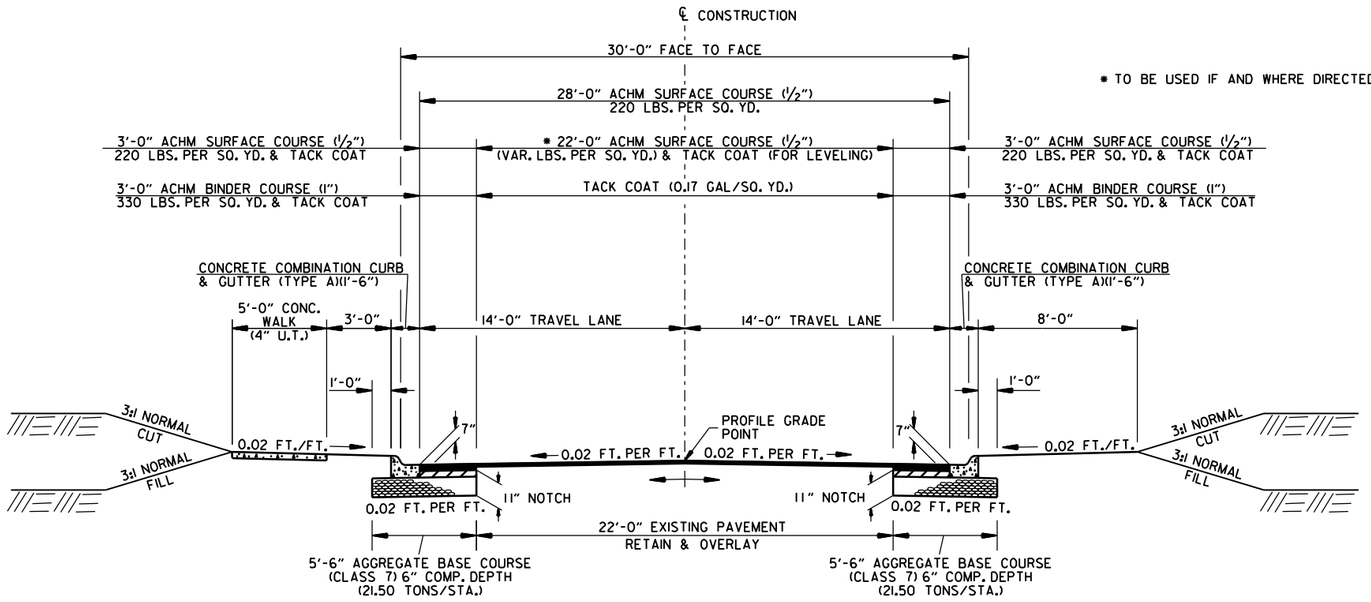
* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

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

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

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

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED UNDER ROADWAY CONSTRUCTION CONTROL BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS PAY ITEMS.



HWY. 14 NOTCH AND WIDEN
STA. 94+75.65 - STA. 97+00.00

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

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 8940
MARK ASHER
08/28/2023

TYPICAL SECTIONS OF IMPROVEMENT

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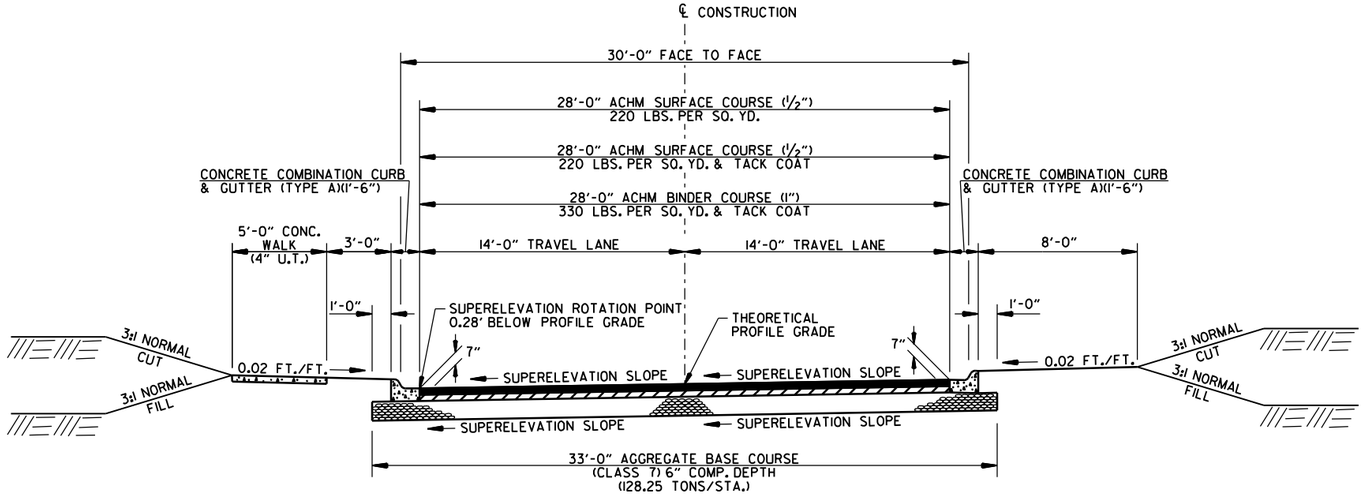
		TYPICAL SECTIONS OF IMPROVEMENT				



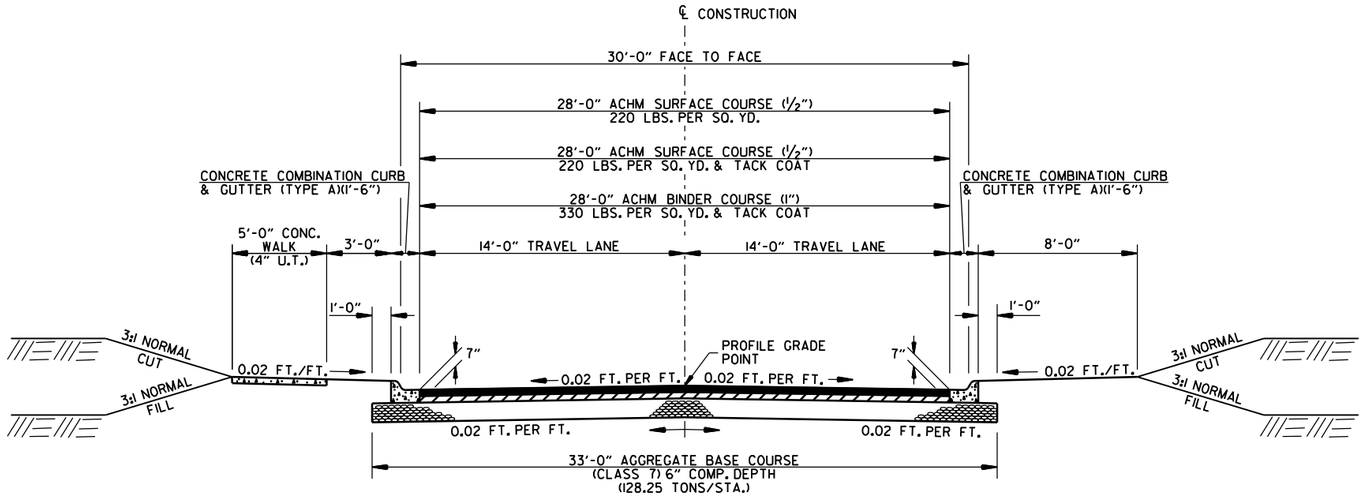
HWY. 14 SUPERELEVATED SECTION - FULL DEPTH
STA. 101+54.61 - STA. 104+50.00

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

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

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

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



HWY. 14 TANGENT SECTION - FULL DEPTH
STA. 97+00.00 - STA. 98+43.29
*STA. 106+71.62 - STA. 107+67.00

* NOTE: SEE SPECIAL DETAILS FOR SHOULDER TRANSITIONS FROM STA. 106+71.62 TO STA. 107+92.00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 8940
MARK ASHER
08/28/2023

TYPICAL SECTIONS OF IMPROVEMENT

#DATE# 12:14:05 PM ...\3-Typical Sections of Improvement.dgn #FILE#

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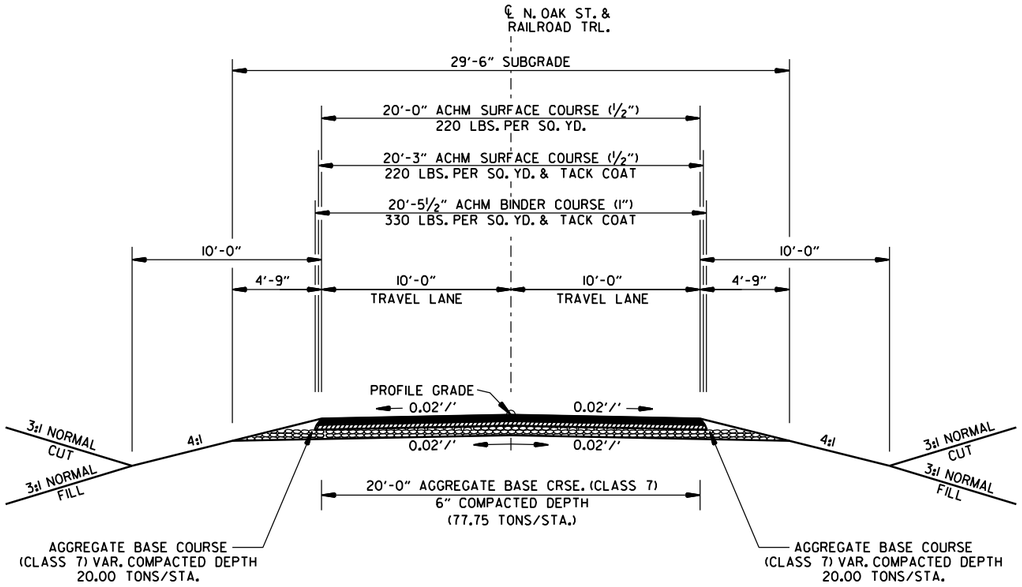
		TYPICAL SECTIONS OF IMPROVEMENT				



N. OAK ST. & RAILROAD TRL. - FULL DEPTH
STA. 8+06.95 - STA. 9+86.00
STA. 10+14.00 - STA. 12+46.00

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

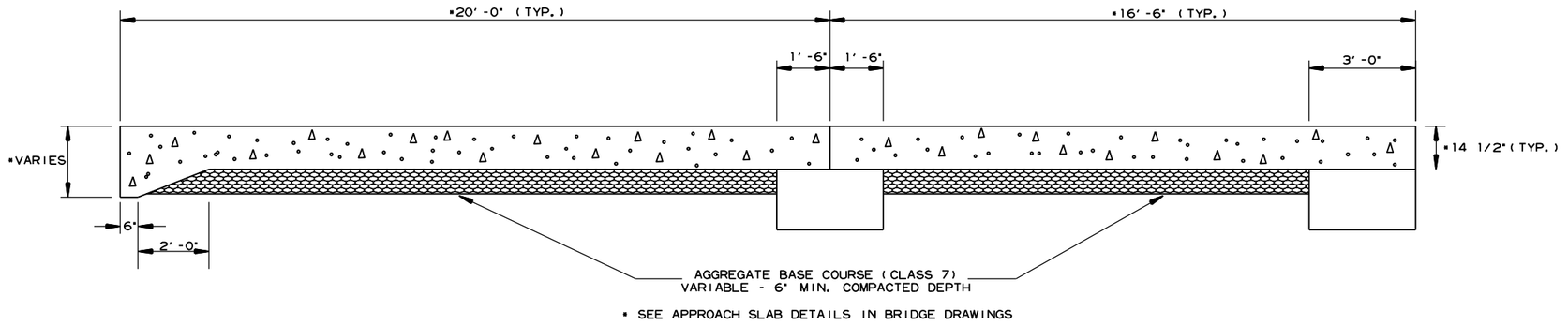
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICTED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 8940
MARK ASHER
08/28/2023

TYPICAL SECTIONS OF IMPROVEMENT

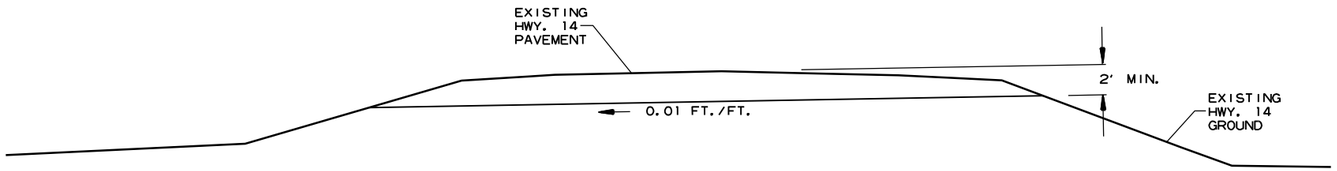
$DATE$ 12:14:05 PM ...\3-Typical Sections of Improvement.dgn $FILE$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	7	60
		SPECIAL DETAILS				



* SEE APPROACH SLAB DETAILS IN BRIDGE DRAWINGS

SECTION OF APPROACH SLAB



REMOVAL OF EXISTING PAVEMENT

STATE OF ARKANSAS
REGISTERED
PROFESSIONAL
ENGINEER
No. 8940
MARK ASHER

08/28/2023

SPECIAL DETAILS

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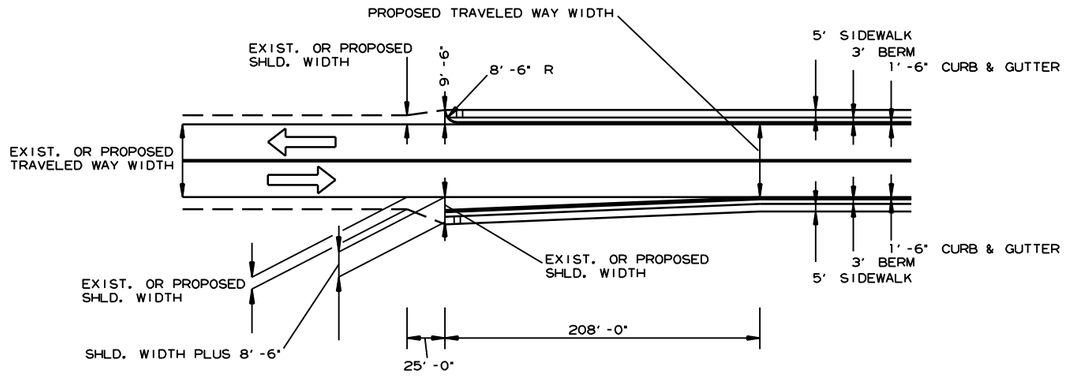
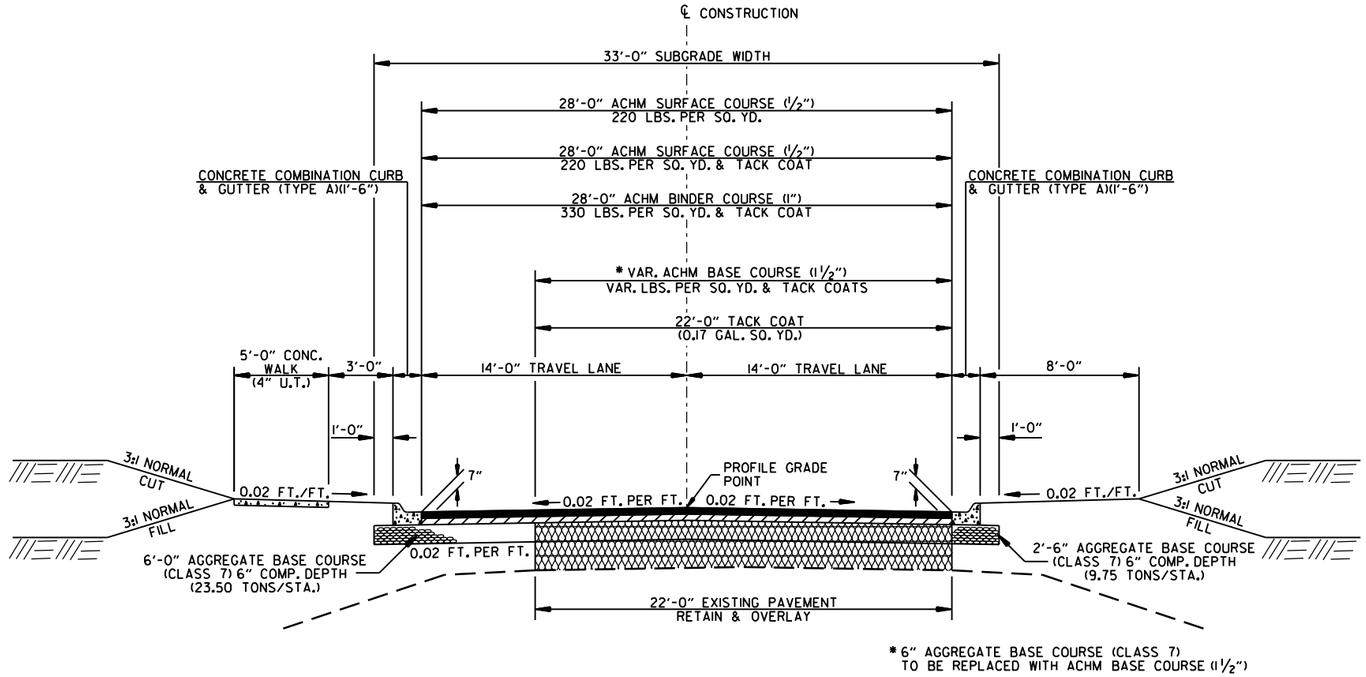
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	8	60
		SPECIAL DETAILS				



TRANSITION FROM OPEN SHOULDER TO CURB & GUTTER SECTION



METHOD OF RAISING GRADE

STA. 95+30.00 TO STA. 96+60.00 &
STA. 105+00.00 TO STA. 108+40.00

NOTES:

1. THIS DETAIL TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.
2. QUANTITIES FOR METHOD OF RAISING GRADE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS 1.00 FEET OR LESS.
3. IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN 1.00 FEET, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09, OF THE STANDARD SPECIFICATIONS, EDITION 2014.

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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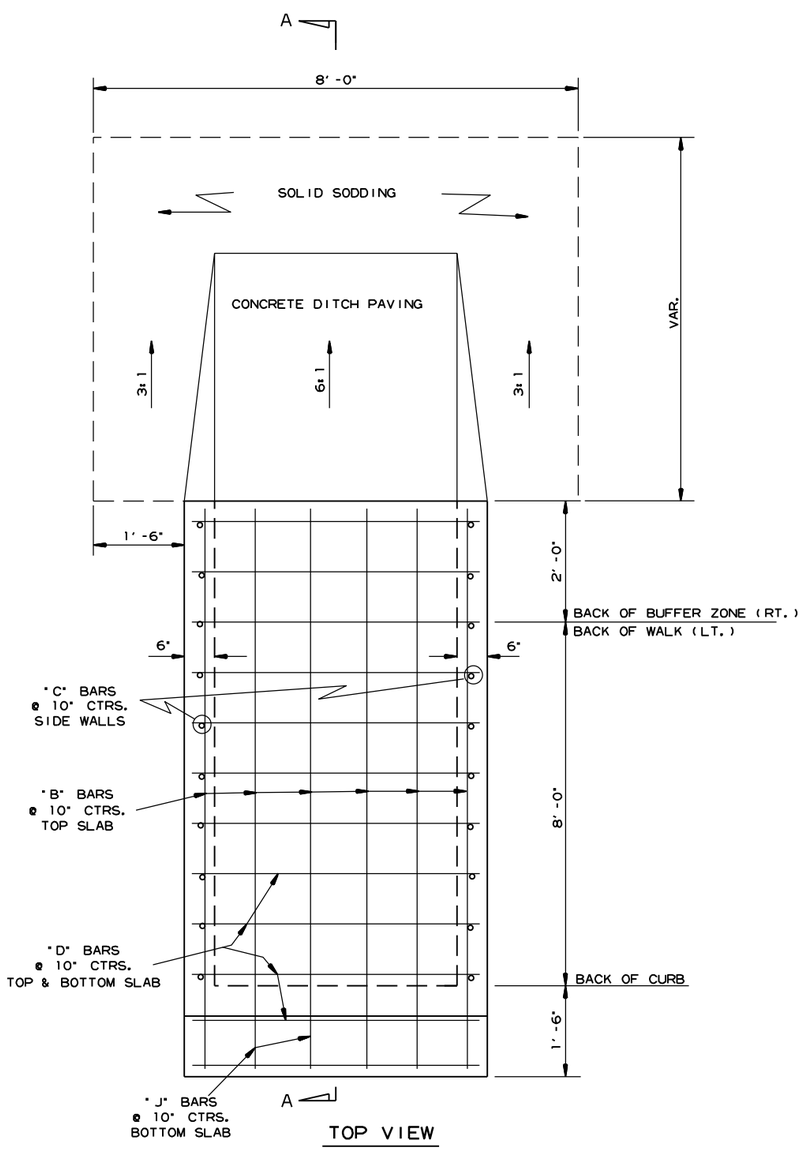
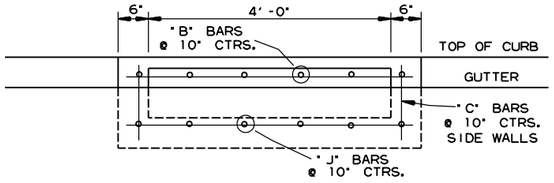
		SPECIAL DETAILS				



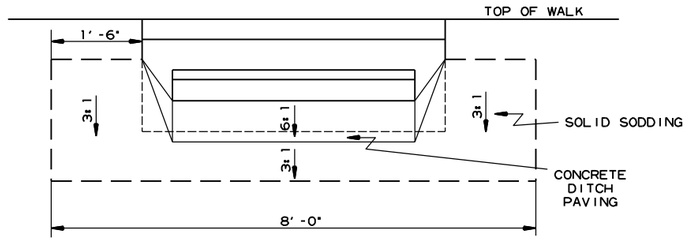
TOP VIEW



FRONT VIEW

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
2. ALL REINF. BARS SHALL BE #4 AND HAVE 1 1/2" COVER.
3. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
4. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET IF AND WHERE APPROVED BY THE ENGINEER.
5. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
6. PAYMENT FOR CONCRETE DITCH PAVING & SOLID SODDING SHALL BE PAID FOR SEPARATELY.
7. SEE STANDARD DRAWING FPC-9E FOR EXTENSIONS.

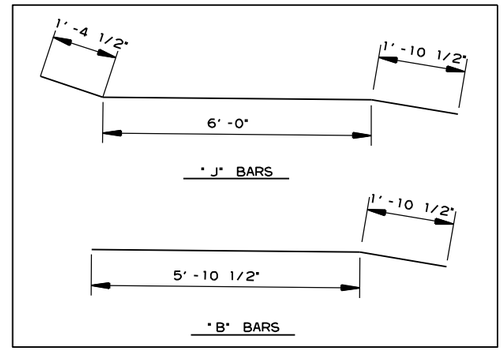


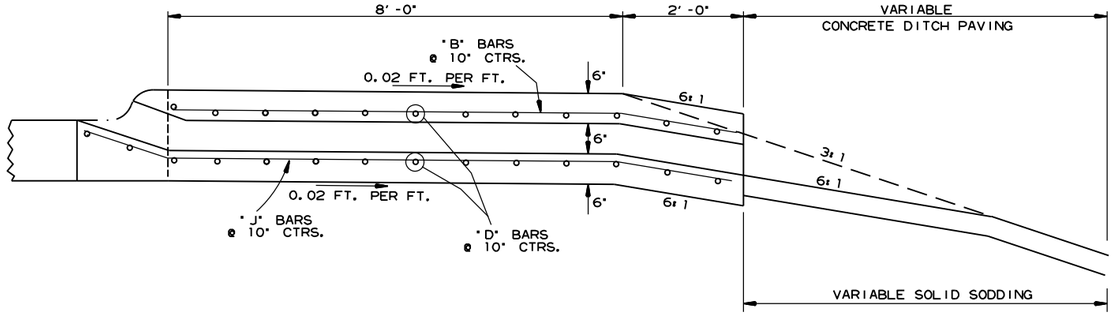
BACK VIEW

CLASS A CONC.	REINF. STEEL-RDWY GRADE 60
CU. YDS.	POUND
1.90	155

QUANTITIES FOR INFORMATION ONLY.

BAR DIAGRAM





SECTION A-A

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 8940 MARK ASHER

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DROP INLET (TYPE SPECIAL)

SPECIAL DETAILS

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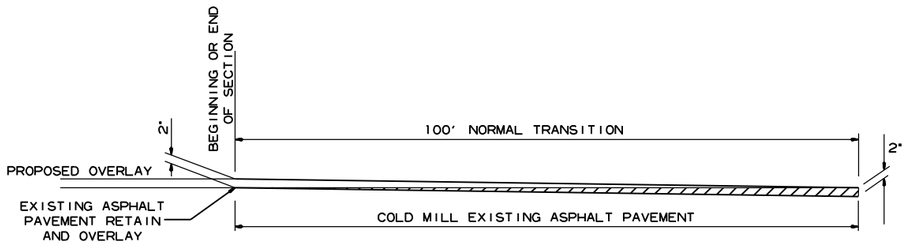
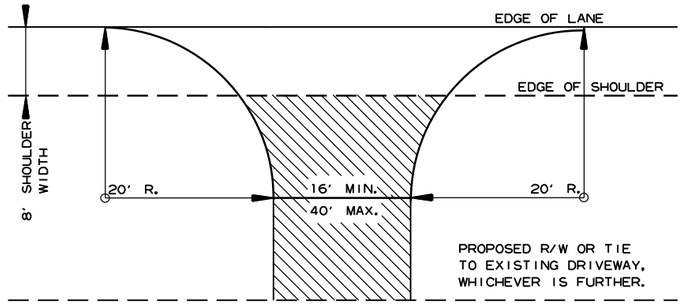
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	10	60
		SPECIAL DETAILS				



DETAIL FOR TRANSITIONS

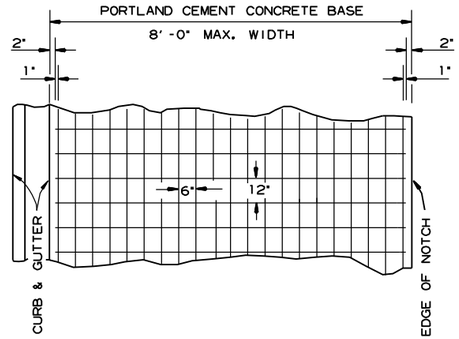
HWY. 14
STA. 93+75.65 TO STA. 94+75.65
STA. 107+92.00 TO STA 108+92.00



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

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

DETAIL FOR DRIVEWAY TURNOUTS OPEN SHOULDER SECTION

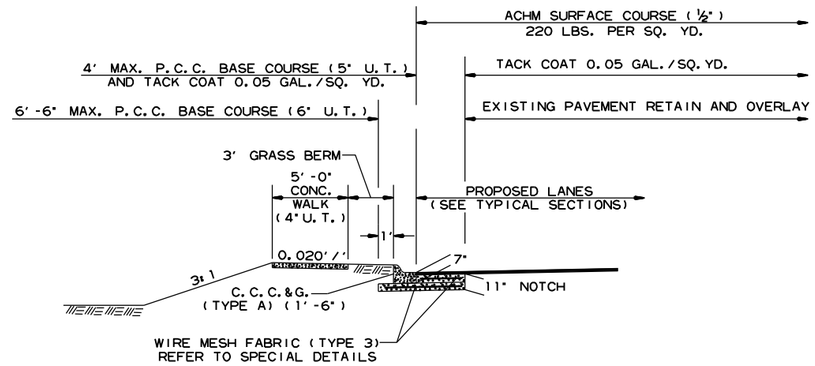


6" X 12" MESH FABRIC (TYPE 3) (W5.5 X W2.9) = 4.26 LBS./SQ.YD.

NOTES:

1. LAP MESH FABRIC MIN. 12" LONGITUDINALLY AND MIN. 6" TRANSVERSELY.
2. MESH FABRIC IS NOT REQUIRED WHEN WIDTH OF PORTLAND CEMENT CONCRETE BASE IS LESS THAN 12".
3. MESH FABRIC (TYPE 3) WILL NOT BE PAID FOR DIRECTLY, BUT FULL COMPENSATION THEREFORE WILL BE CONSIDERED INCLUDED IN THE CONTRACT PRICE BID PER SQ. YD. FOR PORTLAND CEMENT CONCRETE BASE (5" U.T. & 6" U.T.)

DETAIL OF REINFORCING STEEL FOR PAVEMENT (MESH FABRIC TYPE 3)



P.C.C. BASE WIDENING DETAIL

P.C.C. BASE WIDENING TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

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SPECIAL DETAILS

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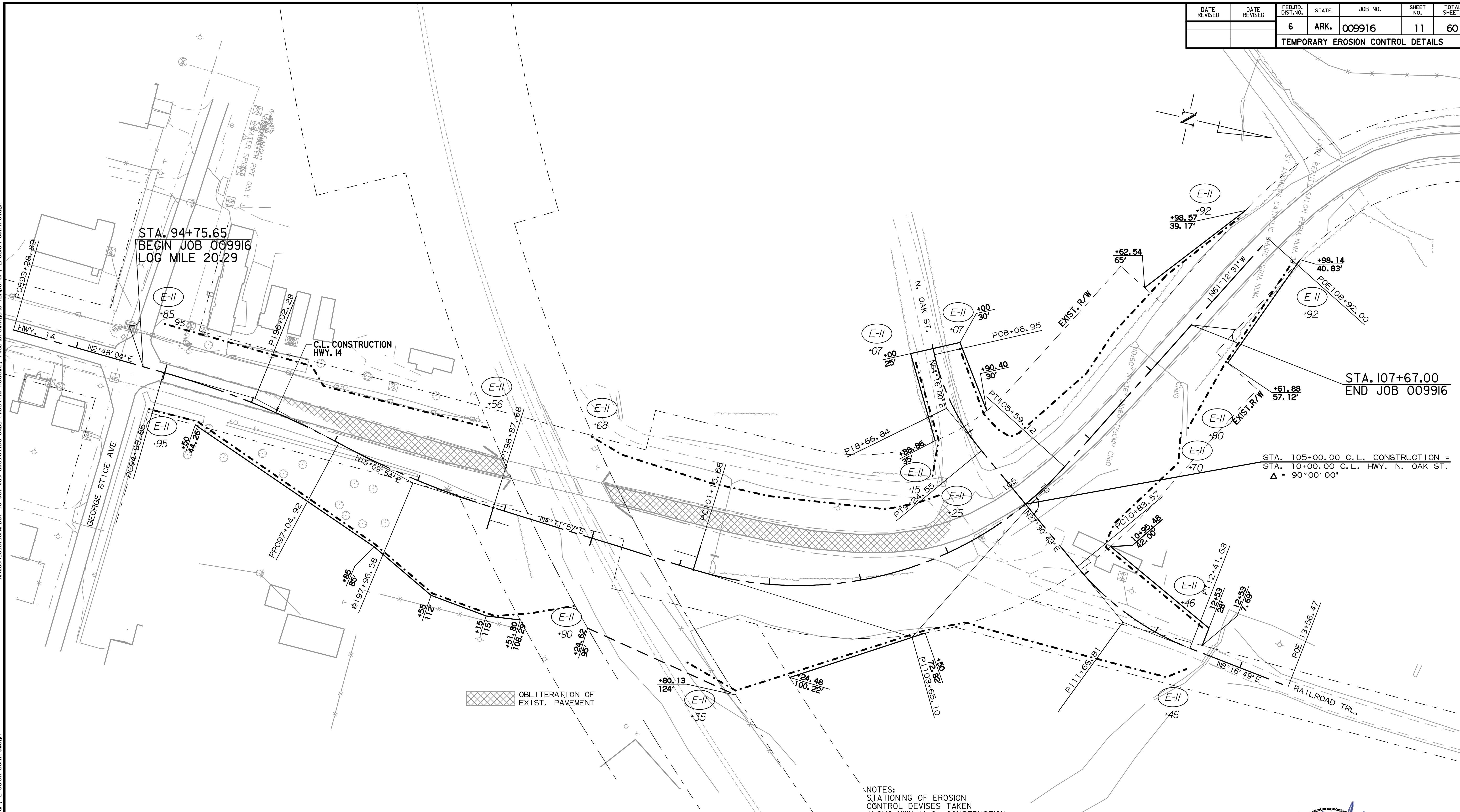
		TEMPORARY EROSION CONTROL DETAILS				



NOTES:
STATIONING OF EROSION CONTROL DEVISES TAKEN ALONG HWY.14 CL CONSTRUCTION

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

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

REVISIONS

DATE	REVISION

LEGEND

E-II = SILT FENCE

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 8940 MARK ASHER

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TEMPORARY EROSION CONTROL DETAILS PRIOR TO CONSTRUCTION/CLEARING & GRUBBING

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...\5-Temporary Erosion Control.dgn

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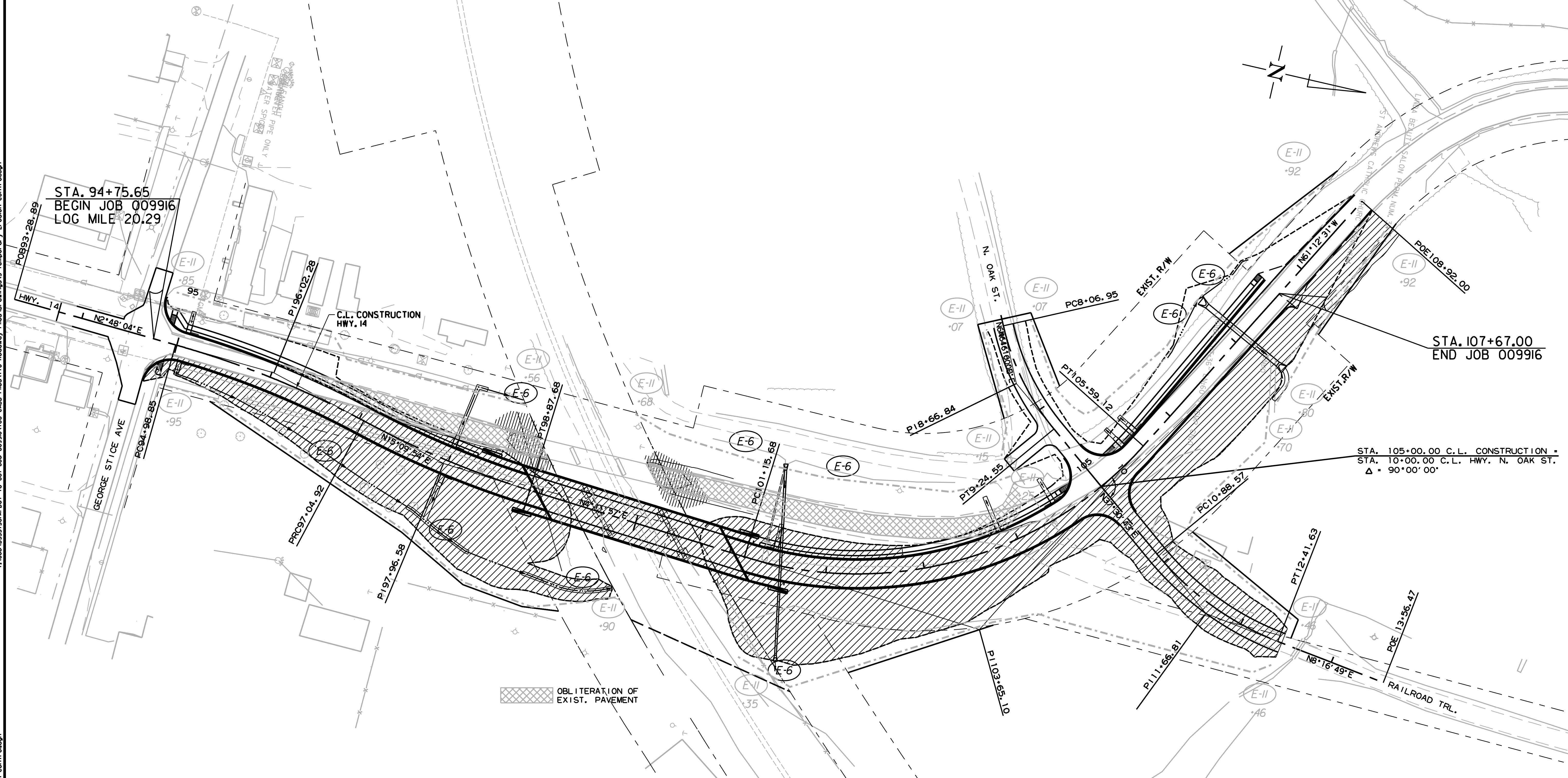
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	12	60
		TEMPORARY EROSION CONTROL DETAILS				



NOTES:
STATIONING OF EROSION CONTROL DEVISES TAKEN ALONG HWY. 14 CL CONSTRUCTION

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

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

LEGEND

E-6 = ROCK DITCH CHECK

E-11 = SILT FENCE

REVISIONS

DATE	REVISION

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 8940 MARK ASHER 08/28/2023

TEMPORARY EROSION CONTROL DETAILS STAGE I

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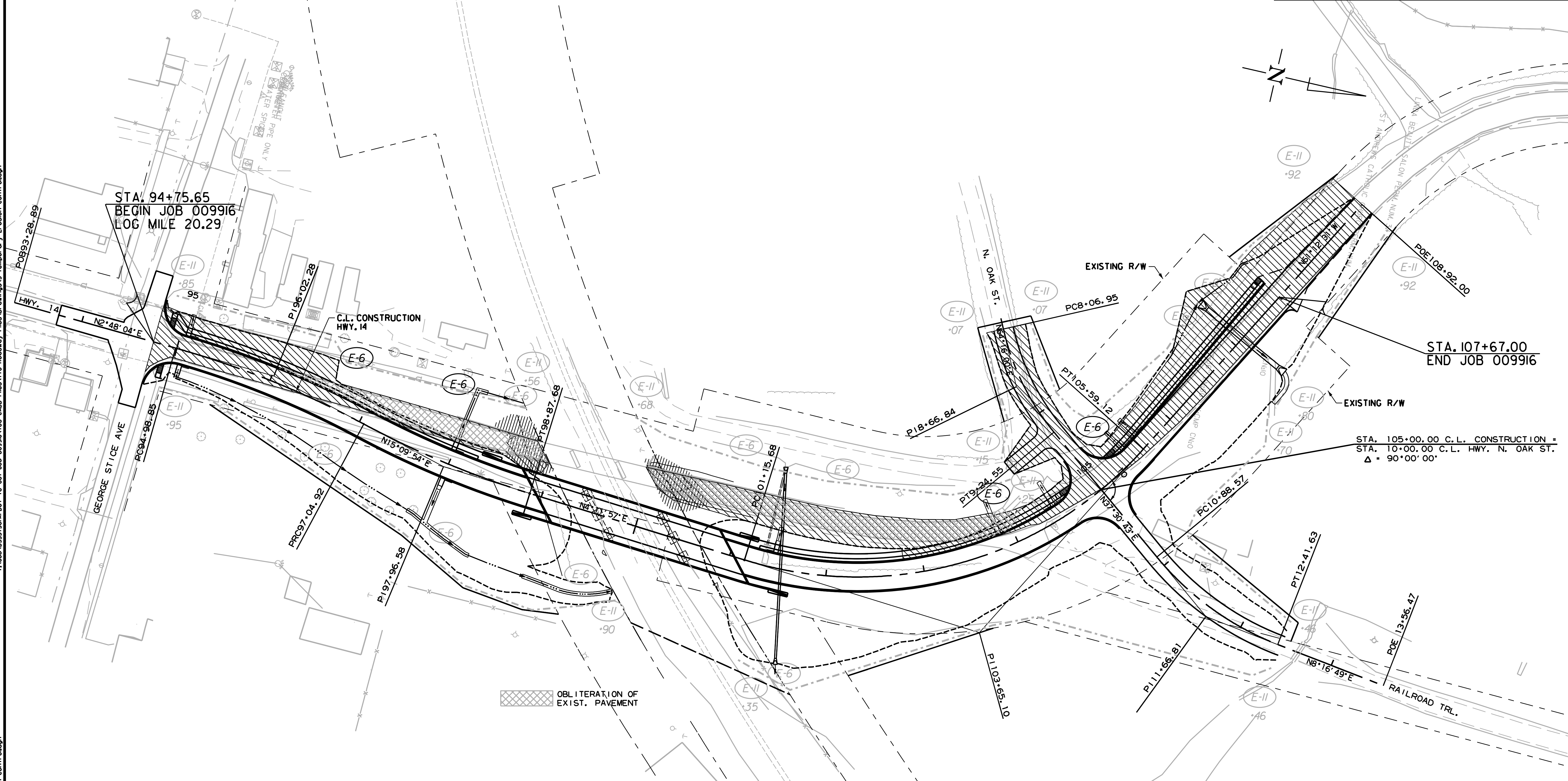
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	13	60
		TEMPORARY EROSION CONTROL DETAILS				



NOTES:
STATIONING OF EROSION CONTROL DEVISES TAKEN ALONG HWY. 14 CL CONSTRUCTION

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

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

REVISIONS

DATE	REVISION

LEGEND

E-6 = ROCK DITCH CHECK
E-11 = SILT FENCE

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 8940 MARK ASHER
08/28/2023

TEMPORARY EROSION CONTROL DETAILS STAGE 2

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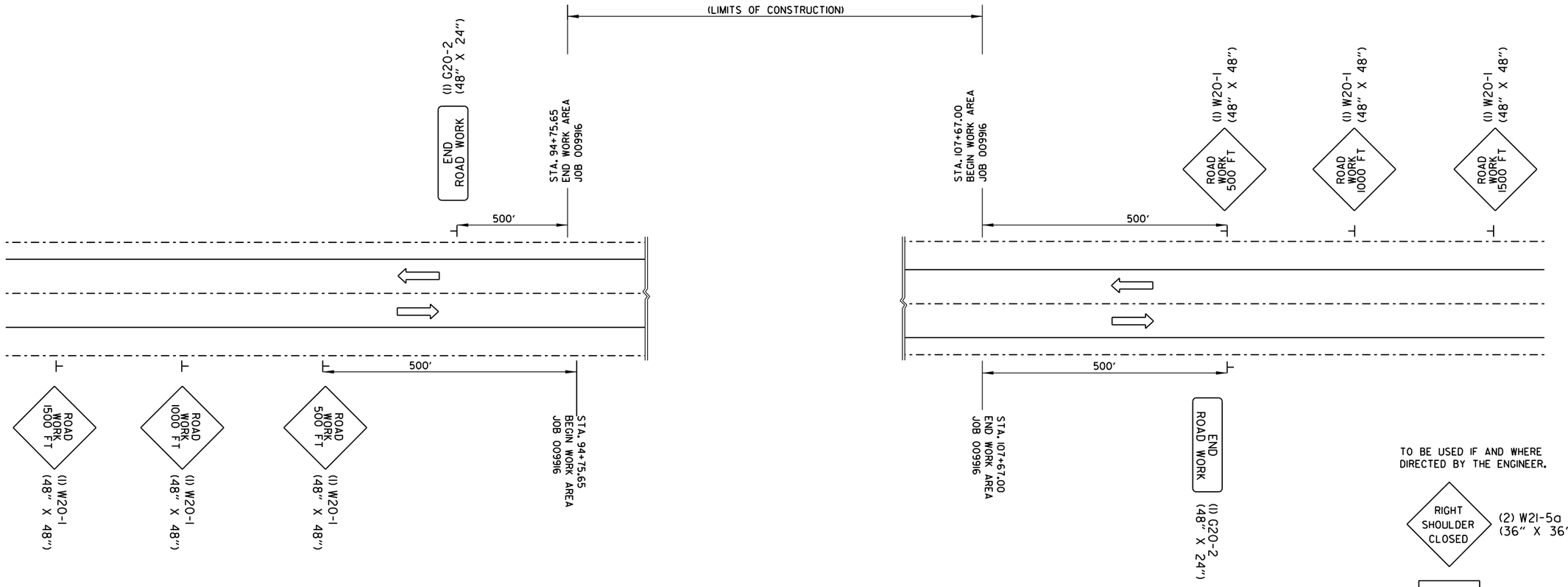
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	14	60
		MAINTENANCE OF TRAFFIC DETAILS				

NOTE: THESE SIGNS
MAY BE TEMPORARILY REPLACED BY
SOME OF THE ADVANCE SIGNS FOR LANE CLOSURES
WHILE WORK IS UNDERWAY IN THESE AREAS.



NOTE: SEE MAINTENANCE OF TRAFFIC DETAIL SHEETS
FOR ADVANCE WARNING SIGNS FOR SIDEROADS.

NOTE: THESE SIGNS
MAY BE TEMPORARILY REPLACED BY
SOME OF THE ADVANCE SIGNS FOR LANE CLOSURES
WHILE WORK IS UNDERWAY IN THESE AREAS.

ADVANCE SIGNS AT BEGINNING AND END OF JOB 009916
ALL STAGES

TO BE USED IF AND WHERE
DIRECTED BY THE ENGINEER.

RIGHT SHOULDER CLOSED — (2) W21-5a (36" X 36")

DO NOT PASS — (2) R4-1 (24" X 30")

BUMP — (2) W8-1 (30" X 30")

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MAINTENANCE OF TRAFFIC DETAILS
ADVANCE WARNING SIGNS

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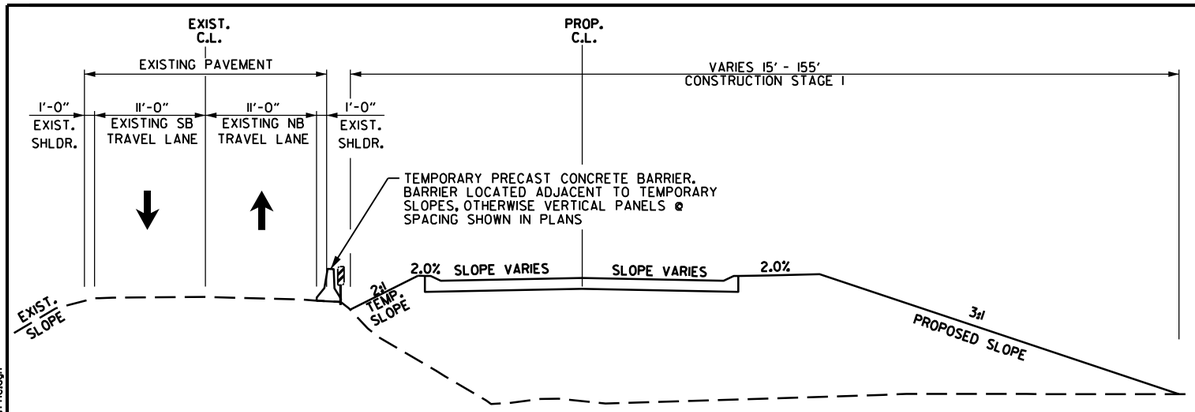
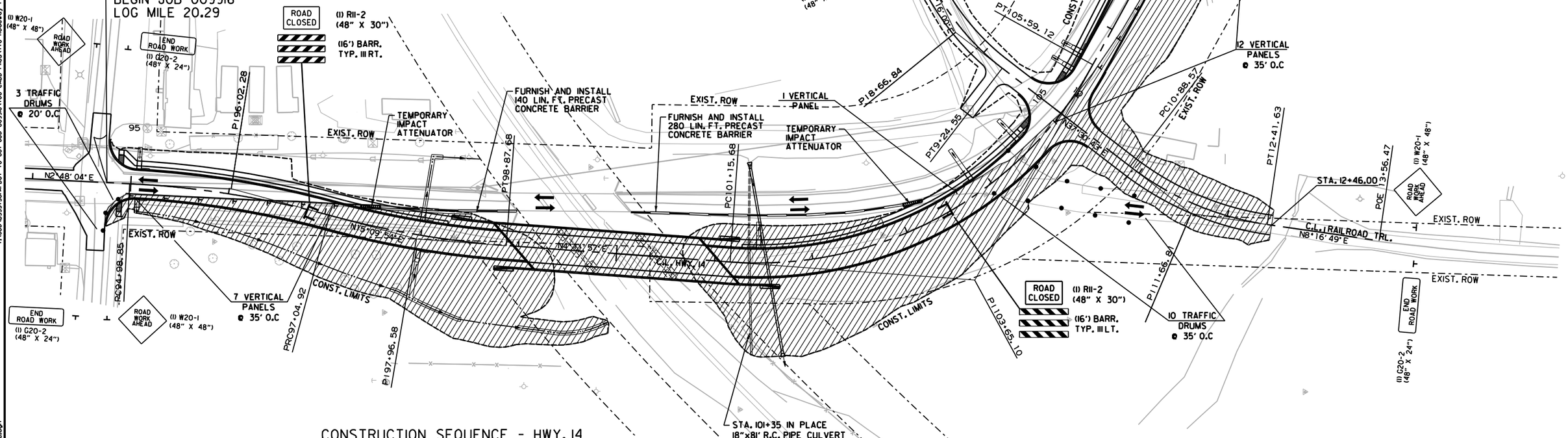
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	15	60
		MAINTENANCE OF TRAFFIC DETAILS				



HWY. 14 - STAGE 1 TYPICAL SECTION



CONSTRUCTION SEQUENCE - HWY. 14

STAGE 1:

MAINTAIN TRAFFIC ON EXISTING LANES AND BRIDGE.

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT PORTIONS OF PROPOSED ROADWAY, DRAINAGE AND BRIDGE SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BRIDGE AND OBLITERATE EXISTING PAVEMENT.

CONSTRUCT REMAINDER OF ROADWAY TIES AND DRAINAGE FOR PROJECT AS SHOWN IN STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

STA. 101+35 IN PLACE
18"x81' R.C. PIPE CULVERT
EXTEND WITH 18" X 116' TEMPORARY PIPE CULVERT
TOTAL LENGTH = 197 L.F.
18" TEMPORARY PIPE CULVERT = 116 LIN. FT.

VERTICAL PANELS = 19 EACH
FURNISH AND INSTALL PRECAST CONCRETE BARRIER = 420 LIN. FT.
TRAFFIC DRUMS = 13 EACH

CONSTRUCTION PAVEMENT MARKINGS
STA. 94+98.85 TO STA. 106+75.00

6" YELLOW CONTINUOUS	2352 L.F.
6" WHITE CONTINUOUS	575 L.F.
RAISED PAVEMENT MARKINGS 80' ON CENTER	19 EA.

PERMANENT PAVEMENT MARKING REMOVAL
STA. 95+00.00 TO STA. 106+75.00

6" YELLOW CONTINUOUS	1150 L.F.
6" WHITE CONTINUOUS	1150 L.F.

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STAGE 1 MAINTENANCE OF TRAFFIC DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
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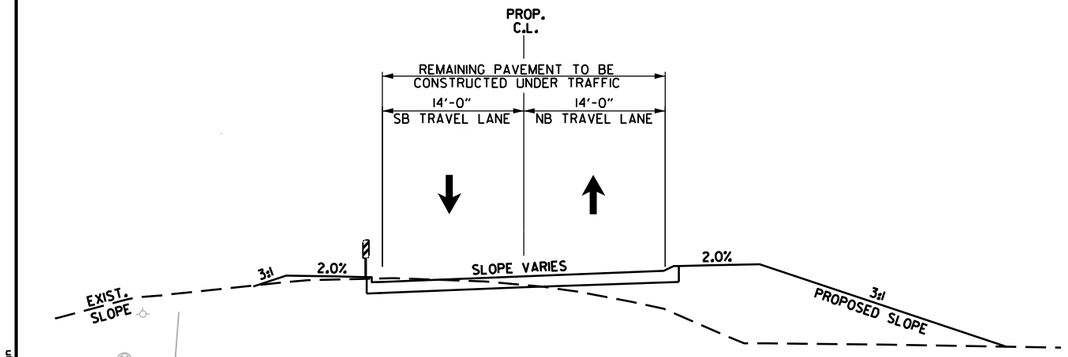
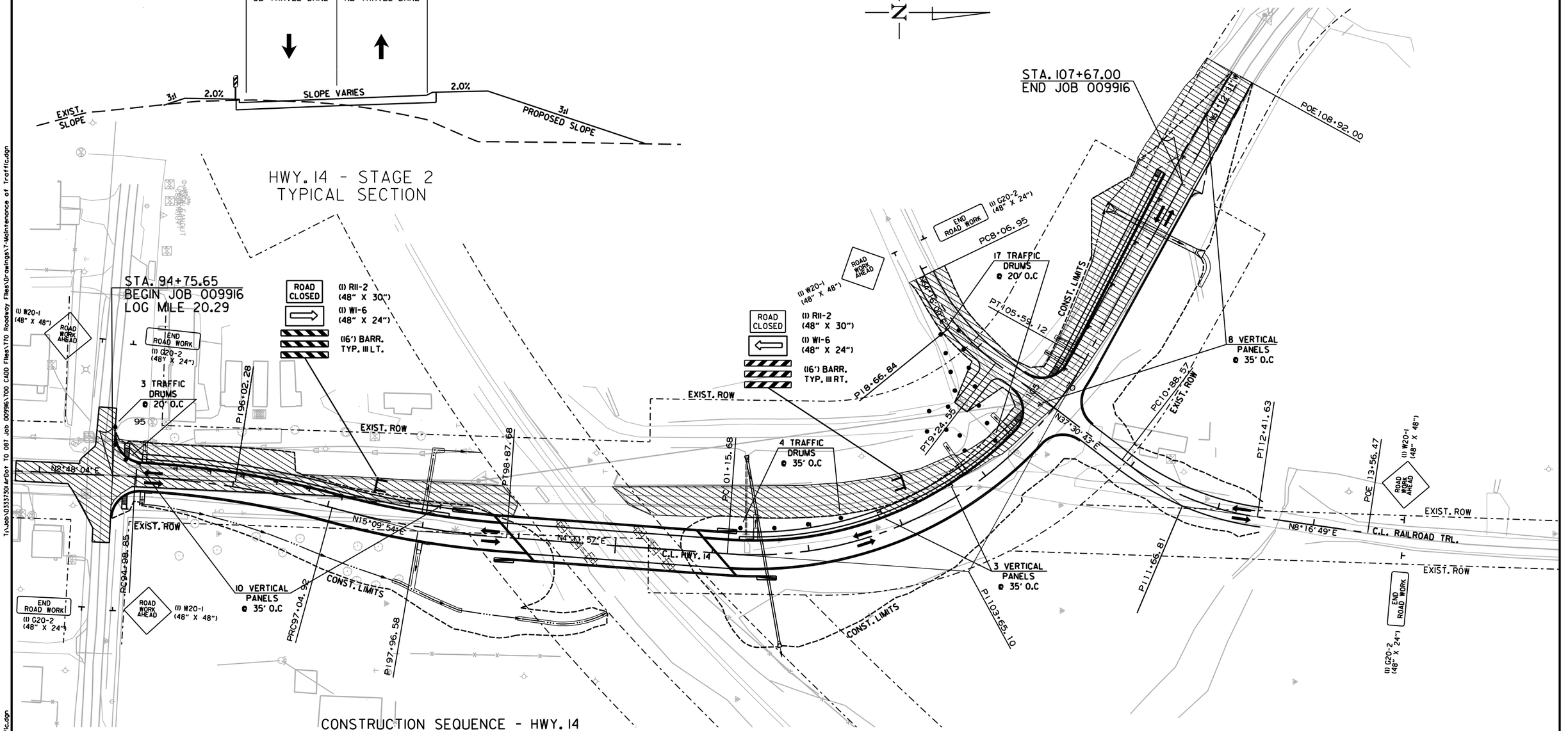
		MAINTENANCE OF TRAFFIC DETAILS				



HWY. 14 - STAGE 2
TYPICAL SECTION



CONSTRUCTION SEQUENCE - HWY. 14

STAGE 1:

MAINTAIN TRAFFIC ON EXISTING LANES AND BRIDGE.

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.

CLEARING AND GRUBBING OPERATIONS MAY BEGIN IF AND WHERE DIRECTED BY THE ENGINEER.

CONSTRUCT PORTIONS OF PROPOSED ROADWAY, DRAINAGE AND BRIDGE SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

STAGE 2:

SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY AND BRIDGE AND OBLITERATE EXISTING PAVEMENT.

CONSTRUCT REMAINDER OF ROADWAY TIES AND DRAINAGE FOR PROJECT AS SHOWN IN STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

VERTICAL PANELS = 21 EACH
TRAFFIC DRUMS = 24 EACH

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STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

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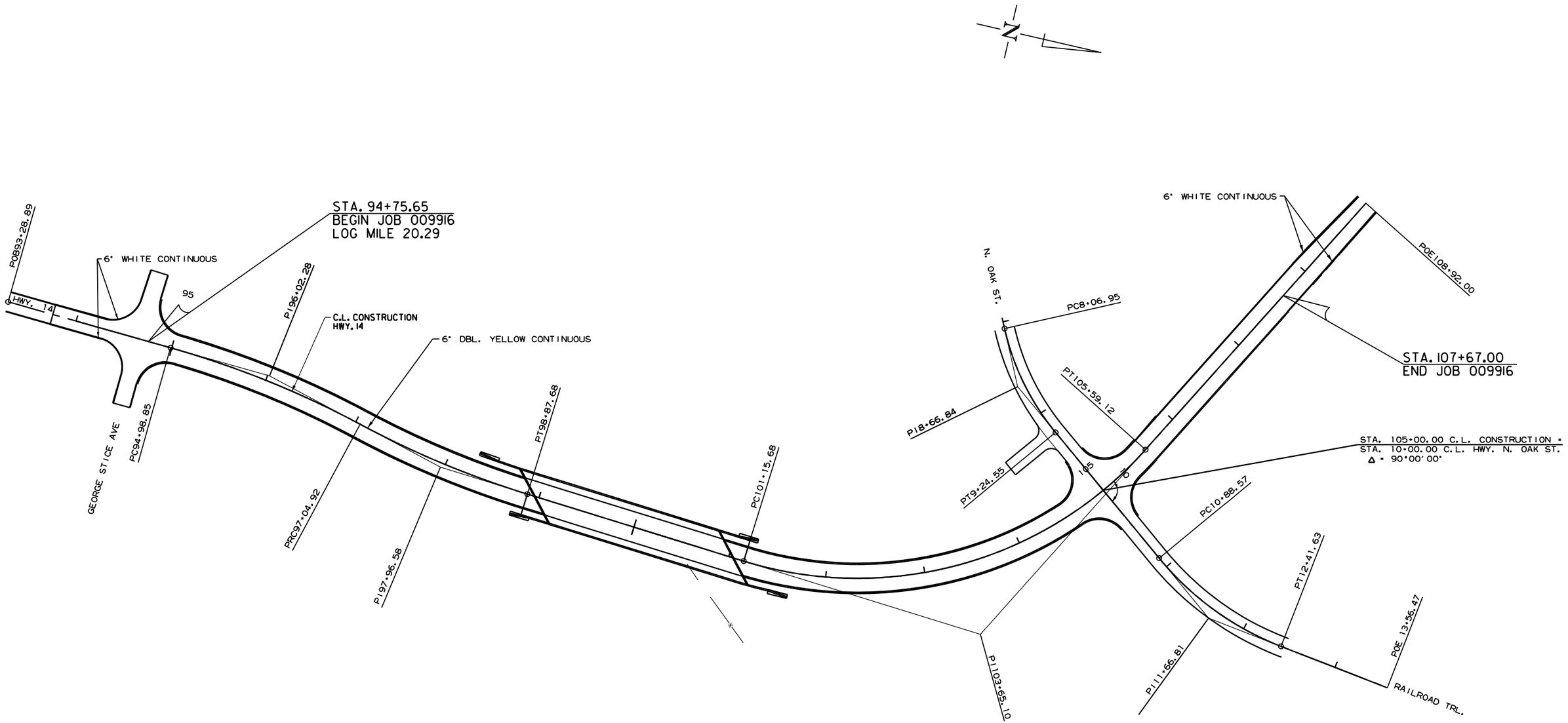
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	17	60
		PERMANENT PAVEMENT MARKING DETAILS				



NOTES:
1. FOR TYPICAL STRIPING DIMENSIONS, REFER TO STD. DWG. PM-1.
2. CROSSWALK STRIPES ARE 10' IN LENGTH, 12" WIDE SPACED 4'-0" O.C.
3. YIELD BAR PAVEMENT MARKING TO BE PAID FOR AS THERMOPLASTIC PAVEMENT MARKING WHITE (12")
4. FOR RAISED PAVEMENT MARKERS, REFER TO STANDARD DRAWING PM-1

REFLECTORIZED PAINT PAVEMENT MARKINGS
HWY. 14
STA. 93+75.65.00 TO STA. 108+92.00

6" YELLOW CONTINUOUS	3033 L.F.
6" WHITE CONTINUOUS	868 L.F.
RAISED PAVEMENT MARKINGS 80' ON CENTER	18 EA.

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PERMANENT PAVEMENT MARKING DETAILS

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	18	60
		QUANTITIES				

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)
										RIGHT	LEFT			
			LIN. FT. - EACH			NO.	SQ. FT.	EACH		LIN. FT.			EACH	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	32.0							
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	32.0							
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	32.0							
W20-1	ROAD WORK AHEAD	48"x48"	4	4	4	4	64.0							
G20-2	END ROAD WORK	48"x24"	6	6	6	6	48.0							
R11-2	ROAD CLOSED	48"x30"	2	2	2	2	20.0							
W1-6	LARGE ARROW	48"x24"		2	2	2	16.0							
R4-1	DO NOT PASS	24"x30"	2	2	2	2	10.0							
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	2	2	2	2	18.0							
W8-1	BUMP	30"x30"		2	2	2	12.5							
	VERTICAL PANELS		19	21	21			21						
	TRAFFIC DRUMS		13	24	24				24					
	TYPE III BARRICADE-RT. (16')		1	1	1					16				
	TYPE III BARRICADE-LT. (16')		1	1	1						16			
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		420		420							420		
	TEMPORARY IMPACT ATTENUATION BARRIER		2		2								2	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		1		1									1
TOTALS:							**284.5**	**21**	**24**	**16**	**16**	**420**	**2**	**1**

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING	
					TYPE II	6"	
					(YELLOW/YELLOW)	WHITE	YELLOW
	LIN. FT. - EACH		LIN. FT.		EACH	LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	2300		2300				
CONSTRUCTION PAVEMENT MARKINGS	2927			2927			
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)	19	19			38		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")		1570				1570	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")		3855					3855
TOTALS:			**2300**	**2927**	**38**	**1570**	**3855**

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 STRPING.
CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

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REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	WALKS	GUARDRAIL
			SQ. YD.	LIN. FT.
95+83	97+98	C.L. HWY. 14 RIGHT	87	
96+88	98+94	C.L. HWY. 14 RIGHT		206
97+87	98+70	C.L. HWY. 14 LEFT		83
99+96	102+13	C.L. HWY. 14 LEFT		217
100+15	100+95	C.L. HWY. 14 RIGHT		80
TOTALS:			87	586

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.

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
96+00	108+00	HWY. 14	13	13
8+00	9+60	N. OAK ST.	2	2
TOTALS:			15	15

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
101+00	102+00	RIGHT	100
TOTAL:			100

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
101+35	18" R.C. PIPE CULVERT	1
107+10	59" x 36" R.C. PIPE CULVERT	1
TOTAL:		2

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

EARTHWORK

	STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
				CU. YD.		TON
	94+76	108+92	STAGE 1 - HWY. 14	961	18587	
	94+76	108+92	STAGE 2 - HWY. 14	181	1592	
	8+07	9+86	N. OAK ST.	47	3	
**			EXCAVATE THE EXISTING BRIDGE ABUTMENTS	729		
	10+14	12+46	RAILROAD TRL.	126	224	
			OBLITERATION OF EXISTING PAVEMENT	855		
			DRIVEWAYS - ENTIRE PROJECT		35	
*	ENTIRE PROJECT		TO BE USED IF AND WHERE			50
			DIRECTED BY THE ENGINEER			
	TOTALS:			2899	20441	50

* QUANTITY ESTIMATED.

** REFER TO BRIDGE DRAWINGS FOR ADDITIONAL INFORMATION SEE SECTION 104.03 OF THE STD. SPECS.

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

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
95+08.00	95+08.00	LEFT - C.L. HWY. 14	10.00	4.00	4.44	4.44	0.06
97+80.00	98+50.00	RIGHT - C.L. HWY. 14	122.00	4.00	54.22	54.22	0.68
98+00.00	98+10.00	LEFT - C.L. HWY. 14	65.00	4.00	28.39	28.89	0.36
99+05.00	99+95.00	RIGHT - C.L. HWY. 14	95.00	4.00	42.22	42.22	0.53
101+45.00	101+45.00	LEFT - C.L. HWY. 14	14.00	4.00	6.22	6.22	0.08
103+85.00	103+85.00	LEFT - C.L. HWY. 14	25.00	4.00	11.11	11.11	0.14
104+50.00	104+50.00	LEFT - C.L. HWY. 14	15.00	4.00	6.67	6.67	0.08
106+80.00	107+10.00	RIGHT - C.L. HWY. 14	37.00	4.00	16.44	16.44	0.21
105+45.00	105+45.00	LEFT - C.L. HWY. 14	13.00	4.00	5.78	5.78	0.07
105+65.00	105+65.00	LEFT - C.L. HWY. 14	10.00	4.00	4.44	4.44	0.06
TOTALS:					180.43	180.43	2.27

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

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DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	20	60
		QUANTITIES				

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL						TEMPORARY EROSION CONTROL								
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	SOLID SODDING	TEMPORARY SEEDING	MULCH COVER	WATER	WATTLE (20") DITCH CHECKS (E-1)	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	SQ.YD.	ACRE	ACRE	M.GAL.	LIN. FT.	BAG	CU.YD.	LIN. FT.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING							4.30	4.30	87.7				2985	111
ENTIRE	PROJECT	STAGE 1	1.30	2.60	1.30	134.0	1.30	115	0.10	0.10	2.0	81		27		9
ENTIRE	PROJECT	STAGE 2	0.40	0.80	0.40	43.3	0.40	201				36		12		4
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			0.34	0.68	0.34	34.7	0.34		2.15	2.15	43.9	100	22			4
TOTALS:			**2.04**	**4.08**	**2.04**	**212.0**	**2.04**	**316**	**6.55**	**6.55**	**133.6**	**217**	**22**	**39**	**2985**	**128**

BASIS OF ESTIMATE:

LIME ....2 TONS / ACRE OF SEEDING
WATER...102.0 M.G. / ACRE OF SEEDING
WATER...20.4 M.G. / ACRE OF TEMPORARY SEEDING
WATER...12.6 GAL. / SQ. YD. OF SOLID SODDING
WATTLE DITCH CHECKS..............9 LIN. FT. / LOCATION
SAND BAG DITCH CHECKS..........22 BAGS / LOCATION
ROCK DITCH CHECKS.................3 CU.YD./LOCATION

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

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
98+45.00	99+05.00	HWY. 14 - RT.	60.00	53.33
102+00.00	104+00.00	HWY. 14 - RT.	200.00	177.78
105+65.00	106+80.00	HWY. 14 - RT.	115.00	102.22
101+05.53	101+53.00	HWY. 14 - LT.	47.47	42.20
103+00.00	103+85.00	HWY. 14 - LT.	85.00	75.56
105+45.00	108+00.00	HWY. 14 - LT.	255.00	226.67
08+06.95	09+00.00	N. OAK ST. - RT.	93.05	82.71
08+06.95	09+00.00	N. OAK ST. - LT.	93.05	82.71
11+00.00	12+46.00	RAILROAD TRL. - LT.	146.00	129.78
11+35.00	12+25.00	RAILROAD TRL. - RT.	90.00	80.00
TOTAL:				**1052.96**

NOTE: AVERAGE WIDTH = 8'-0"

DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YD.	SQ. YD.
	TO BE USED IF AND WHERE	5	10
	DIRECTED BY THE ENGINEER		
TOTALS:		**5**	**10**

*NOTE: QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS

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

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BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
98+94	END OF BRIDGE	1
TOTAL:		1

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

CONCRETE WALKS

STATION	STATION	LOCATION	LENGTH	CONCRETE WALKS
			LIN. FT.	SQ.YD.
94+85	98+79	HWY. 14 - LT.	394	219
100+91	104+65	HWY. 14 - LT.	374	208
105+35	107+60	HWY. 14 - LT.	225	125
TOTAL:				552

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1' 6")
			LIN. FT.
94+76	99+09	HWY. 14 - RT.	451
94+76	98+79	HWY. 14 - LT.	490
100+91	104+89	HWY. 14 - LT.	404
101+21	104+91	HWY. 14 - RT.	403
105+09	107+67	HWY. 14 - RT.	283
105+11	107+67	HWY. 14 - LT.	272
TOTAL:			2303

WHEELCHAIR RAMPS

STATION	LOCATION	TYPE 3
		SQ.YD.
94+90	HWY. 14 - LT.	8.0
94+90	HWY. 14 - RT.	8.0
104+65	HWY. 14 - LT.	8.0
105+35	HWY. 14 - LT.	8.0
107+55	HWY. 14 - LT.	8.0
TOTAL:		40.0

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
104+00	107+00		300	3
* ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			200	2
TOTALS:			500	5

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

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	
STA. 105+35 HWY. 14 - RT.	1	1
TOTALS:	1	1

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE D-2)
			LIN. FT.
102+25	103+50	RIGHT	155
TOTAL:			155

CULVERT CLEAN OUT

STATION	LOCATION	EACH
12+64	RAILROAD TRL.	1
TOTAL:		1

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APPROACH SLABS

STATION	STATION	LOCATION	APPROACH SLABS	REINFORCING STEEL-RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	POUND	TON
98+43.97	98+94.47	HWY. 14	80.40	9790	47.55
101+05.53	101+56.03	HWY. 14	80.40	9790	47.55
TOTALS:			160.80	19580	95.10

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	30
TOTAL:	30

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

STRUCTURES

STATION	DESCRIPTION	PIPE CULVERT ALTERNATES: ALT. 1 (CLASS III) 48"	ALT. 2, 3, 4, 5, AND 6 (WITH CLASS III ALT. 1) 48"	ALT. 1 (CLASS IV) 24"	ALT. 2, 3, 4, 5, 6, AND 7 (WITH CLASS IV ALT. 1) 24"	FLARED END SECTION ALTERNATES FOR PIPE CULVERT ALTERNATES 24"	FLARED END SECTION ALTERNATES 48"	TEMPORARY CULVERTS 18"	DROP INLETS TYPE SPECIAL	DROP INLETS EXT. 4'	DROP INLETS EXT. 8'	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	LIN. FT.	EACH	EACH	EACH	SQ.YD.	M.GAL.	
95+08	DROP INLET ON LT.								1		1			FPC-9E, SPECIAL DETAILS
95+08	DROP INLET ON RT.								1		1			FPC-9E, SPECIAL DETAILS
98+00	DROP INLET ON LT.								1		1			FPC-9E, SPECIAL DETAILS
98+00	DROP INLET ON RT.								1		1			FPC-9E, SPECIAL DETAILS
101+35	TEMP. PIPE CULVERT							116						PCC-1, PCM-1
101+45	DROP INLET ON LT.								1		1			FPC-9E, SPECIAL DETAILS
101+53	PIPE CULVERT WITH FES			188	192	2						16	0.20	FES-1, FES-2, PCC-1, PCM-1, PCP-1, PCP-2, PCP-3
103+85	DROP INLET ON LT.								1		1			FPC-9E, SPECIAL DETAILS
104+50	DROP INLET ON LT.								1	2				FPC-9E, SPECIAL DETAILS
105+45	DROP INLET ON LT.								1		1			FPC-9E, SPECIAL DETAILS
105+65	DROP INLET ON LT.								1	2				FPC-9E, SPECIAL DETAILS
107+10	PIPE CULVERT WITH FES	92	96				2					58	0.73	FES-1, FES-2, PCC-1, PCM-1, PCP-1, PCP-3
TOTALS:		92	96	188	192	2	2	116	9	4	7	74	0.93	

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

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

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

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	AGGREGATE BASE COURSE (CLASS 7)
			FEET	TON
9+24	RIGHT	N. OAK ST.	16	47.57
* ENTIRE PROJECT TEMPORARY DRIVES				30.00
TOTALS:				77.57

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

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	LOCATION	WIDTH	LENGTH	CU.YD.
		FEET	FEET	
107+10	C.L. HWY 14	10.83	24	7.2
TOTAL:				7.2

AVG. DEPTH = 9"

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
93+75.65	94+75.65	MAIN LANES	VAR.	559.11
107+92.00	108+92.00	MAIN LANES	22.00	305.56
TOTAL:				864.67

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	6	12
TOTALS:	6	12

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

ACHM PATCHING OF EXISTING ROADWAY

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

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

FLOWABLE SELECT MATERIAL

STATION	LOCATION	CU. YD.
101+35	FILL TEMP. PIPE	12
TOTAL:		12

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BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT (0.05 GAL. PER SQ. YD.)			TACK COAT (0.17 GAL. PER SQ. YD.)			TOTAL GALLONS	ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
			FEET	TON / STATION	TON	TOTAL WID. FEET	SQ.YD.	GALLON	TOTAL WID. FEET	SQ.YD.	GALLON		AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	TOTAL PG 70-22 TON
MAIN LANES																													
93+75.65	94+75.65	TRANSITION	100.00						VAR.	559.11	95.05	95.05													VAR.	559.11	220.00	61.50	61.50
94+75.65	95+19.63	NOTCH AND WIDEN WITH PCCB LT. & RT.	43.98			VAR.	180.89	9.04				9.04													VAR.	180.89	220.00	19.90	19.90
95+19.63	95+89.18	NOTCH AND WIDEN WITH PCCB LT.	69.55	VAR.	21.57	28.00	216.38	10.82				10.82					VAR.	42.61	330.00	7.03	VAR.	42.61	220.00	4.69	28.00	216.38	220.00	23.80	28.49
95+89.18	97+00.00	NOTCH AND WIDEN	110.82	VAR.	78.01	VAR.	541.81	27.09				27.09					VAR.	197.04	330.00	32.51	VAR.	197.04	220.00	21.67	28.00	344.77	220.00	37.92	59.59
97+00.00	98+43.97	FULL DEPTH	143.97	128.25	184.64	56.00	895.81	44.79				44.79					28.00	447.91	330.00	73.91	28.00	447.91	220.00	49.27	28.00	447.91	220.00	49.27	98.54
101+56.03	104+50.00	FULL DEPTH	293.97	128.25	377.02	56.00	1829.15	91.46				91.46					28.00	914.57	330.00	150.90	28.00	914.57	220.00	100.60	28.00	914.57	220.00	100.60	201.20
104+50.00	105+84.20	NOTCH AND WIDEN	134.20	VAR.	84.70	VAR.	621.78	31.09				31.09					VAR.	203.56	330.00	33.59	VAR.	203.56	220.00	22.39	VAR.	418.22	220.00	46.00	68.39
105+84.20	106+36.52	NOTCH AND WIDEN WITH PCCB LT.	52.32	VAR.	15.21	VAR.	200.22	10.01				10.01					VAR.	28.89	330.00	4.77	VAR.	28.89	220.00	3.18	VAR.	171.33	220.00	18.85	22.03
106+36.52	106+71.62	NOTCH AND WIDEN WITH PCCB RT.	35.10	VAR.	10.23	VAR.	139.33	6.97				6.97					VAR.	19.44	330.00	3.21	VAR.	19.44	220.00	2.14	VAR.	119.89	220.00	13.19	15.33
106+71.62	107+67.00	FULL DEPTH	95.38	VAR.	121.02	VAR.	691.56	34.58				34.58					VAR.	345.78	330.00	57.05	VAR.	345.78	220.00	38.04		345.78	220.00	38.04	76.08
107+67.00	108+92.00	TRANSITION	125.00						22.00	305.56	51.95	51.95													VAR.	419.56	220.00	46.15	46.15
8+06.95	9+86.00	N. OAK ST.	179.05	117.75	210.83	40.71	809.90	40.50				40.50					20.46	407.04	330.00	67.16	20.25	402.86	220.00	44.31	20.00	397.89	220.00	43.77	88.08
		N. OAK ST. RADIUS RETURN	VAR.	VAR.	18.30	VAR.	104.56	5.23				5.23					VAR.	52.28	330.00	8.63	VAR.	52.28	220.00	5.75	VAR.	52.28	220.00	5.75	11.50
10+14.00	12+46.00	RAILROAD TRL.	232.00	117.75	273.18	40.71	1049.41	52.47				52.47					20.46	527.41	330.00	87.02	20.25	522.00	220.00	57.42	20.00	515.56	220.00	56.71	114.13
		RAILROAD TRL. RADIUS RETURN	VAR.	VAR.	12.72	VAR.	72.66	3.63				3.63					VAR.	36.33	330.00	5.99	VAR.	36.33	220.00	4.00	VAR.	36.33	220.00	4.00	8.00
ADDITIONAL FOR LEVELING																													
94+75.65	95+19.63	NOTCH AND WIDEN WITH PCCB LT. & RT.	43.98						VAR.	134.44	22.85	22.85									VAR.	134.44	220.00	14.79					14.79
95+19.63	95+89.18	NOTCH AND WIDEN WITH PCCB LT.	69.55						VAR.	154.33	26.24	26.24									VAR.	154.33	220.00	16.98					16.98
95+89.18	97+00.00	NOTCH AND WIDEN	110.82						VAR.	152.22	25.88	25.88									VAR.	152.22	220.00	16.74					16.74
104+50.00	105+84.20	NOTCH AND WIDEN	134.20						VAR.	215.00	36.55	36.55									VAR.	215.00	220.00	23.65					23.65
105+84.20	106+36.52	NOTCH AND WIDEN WITH PCCB LT.	52.32						VAR.	129.00	21.93	21.93									VAR.	129.00	220.00	14.19					14.19
106+36.52	106+71.62	NOTCH AND WIDEN WITH PCCB RT.	35.10						VAR.	87.22	14.83	14.83																	
ADDITIONAL FOR GRADE RAISE																													
95+30.00	96+60.00		130.00			VAR.	135.00	6.75				6.75	VAR.	27.00	440.00	5.94	VAR.	108.00	330.00	17.82									
105+00.00	108+40.00		340.00			VAR.	2154.10	107.71				107.71	VAR.	747.05	880.00	328.70	VAR.	660.00	330.00	108.90									
TOTALS:					**1407.43**		**9642.56**	**482.14**		**1736.88**	**295.28**	**777.42**		**774.05**		**334.64**		**3990.86**		**658.49**		**3998.26**		**439.81**		**5140.47**		**565.45**	**1005.26**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2")....................94.2% MIN. AGGR.................5.8% ASPHALT BINDER
ACHM BINDER COURSE (1")...........................95.6% MIN. AGGR.................4.4% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").........................96.0% MIN. AGGR.................4.0% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

CONCRETE BASE

STATION	STATION	LOCATION	LENGTH	PORTLAND CEMENT CONCRETE BASE			
			FEET	AVG. WID. FEET	5" U.T. SQ. YD.	AVG. WID. FEET	6" U.T. SQ. YD.
94+75.65	95+19.63	LT. & RT. NOTCH MAIN LANES	43.98	VAR.	46.09	VAR.	78.76
95+19.63	95+89.18	LT. NOTCH MAIN LANES	69.55	VAR.	19.44	VAR.	39.11
105+84.20	106+36.52	LT. NOTCH MAIN LANES	52.32	VAR.	13.44	VAR.	28.00
106+36.52	106+71.62	RT. NOTCH MAIN LANES	35.10	VAR.	13.22	VAR.	23.00
TOTALS:					**92.19**		**168.87**

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 8940
MARK ASHER
05/07/2024

5/6/2024 2:02:23 PM T:\Job\0333730\ArDot TO 087 Job 009916\700 CADD Files\770 Roadway Files\Drawings\9-Quantities.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		009916	24	60

(1) 009916 QUANTITIES 65396

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 009916

BRIDGE NUMBER	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NUMBER	205	SS & 619	801	801	SP, SS & 802	SP, SS & 802	SP & 803	SS & 804	SS & 804	SS & 805	SS & 805	SS & 806	SS & 806	SP, SS, & 807	SS & 807	SS & 808	SS & 809	812	SS & 816
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. _)	5' CHAIN LINK FENCE	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	ROCK EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL PILING (HP 12X53)	PREBORING	METAL BRIDGE RAILING (TYPE H2)	TRANSITIONAL APPROACH RAILING	STRUCTURAL STEEL IN BEAM SPANS (A709-GR.50W)	PAINTING STRUCTURAL STEEL	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	CONCRETE RIPRAP
			UNIT	LUMP SUM	LIN. FT	CU. YD.	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	POUND	POUND	LIN. FT.	LIN. FT.	LIN. FT.	EACH	POUND	TON	CU. IN.	LIN. FT.	EACH	CU. YD.
07529	MISSOURI & NORTHERN ARKANSAS RR	END BENT NO. 1						79.40		10.6	12,060	24	294	268			1,618		3,047.4	64		137
		INTERMEDIATE BENT NO. 2				201		204.00			24,390								3,869.6			
		INTERMEDIATE BENT NO. 3				547	99	204.00			26,790		216	216					3,869.6			
		END BENT NO. 4						79.40		10.6	12,060	24	539	514			1,618		3,047.4	64		231
		208'-0" CONTINUOUS W-BEAM UNIT			320				312.00	1,552.6		96,282			320	4	274,864	99			1	
		SITE NO. 1 (EXISTING BR. NO. 01483)		1																		
TOTALS FOR JOB NO. 009916					320	748	99	566.80	312.00	1,573.8	75,300	96,330	1,049	998	320	4	278,100	99	13,834.0	128	1	368

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 19427
JAY R. SCHROEDER

BRIDGE ENGINEER
PRINT DATE: 8/18/2023

SCHEDULE OF BRIDGE QUANTITIES
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS
08/28/2023

DRAWN BY: MSM DATE: 07/2022
CHECKED BY: MAA DATE: 08/2022
DESIGNED BY: JRS DATE: 07/2022
BRIDGE NO. 07529
FILENAME: b009916_q1.dgn
SCALE: No Scale
DRAWING NO. 65396

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		15	STATION
201	GRUBBING		15	STATION
202	REMOVAL AND DISPOSAL OF FENCE		100	LIN. FT.
202	REMOVAL AND DISPOSAL OF WALKS		87	SQ. YD.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		2	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL		586	LIN. FT.
SS & 206	FLOWABLE SELECT MATERIAL		12	CU. YD.
SP, SS, & 210	UNCLASSIFIED EXCAVATION		2899	CU. YD.
SP & 210	COMPACTED EMBANKMENT		20441	CU. YD.
SP & 210	SOIL STABILIZATION		50	TON
SP, SS, & 303	AGGREGATE BASE COURSE (CLASS 7)		1580	TON
SP, SS, & 309	PORTLAND CEMENT CONCRETE BASE (5" UNIFORM THICKNESS)		92	SQ. YD.
SP, SS, & 309	PORTLAND CEMENT CONCRETE BASE (6" UNIFORM THICKNESS)		169	SQ. YD.
SS & 401	TACK COAT		789	GAL.
SP, SS, & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")		322	TON
SP, SS, & 405	ASPHALT BINDER (PG 64-22) IN ACHM BASE COURSE (1 1/2")		13	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		629	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		29	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		947	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")		58	TON
SP & 412	COLD MILLING ASPHALT PAVEMENT		865	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		6	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY		25	TON
SP, SS, & 504	APPROACH SLABS		160.80	CU. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
SS & 603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
603	18" TEMPORARY CULVERT		116	LIN. FT.
SS & 604	SIGNS		285	SQ. FT.
SS & 604	BARRICADES		32	LIN. FT.
SS & 604	TRAFFIC DRUMS		24	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		420	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS		2927	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		2300	LIN. FT.
SS & 604	VERTICAL PANELS		21	EACH
SP, SS, & 605	CONCRETE DITCH PAVING (TYPE B)		180	SQ. YD.
* SS & 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	188	LIN. FT.
* SS & 606	24" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 2)	192	LIN. FT.
* SS & 606	24" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 3)	192	LIN. FT.
* SS & 606	24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 4)	192	LIN. FT.
* SP, SS, & 606	24" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	192	LIN. FT.
* SP, SS, & 606	24" PVC PIPE	(ALTERNATE NO. 6)	192	LIN. FT.
* SP, SS, & 606	24" POLYPROPYLENE PIPE	(ALTERNATE NO. 7)	192	LIN. FT.
* SS & 606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	92	LIN. FT.
* SS & 606	48" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	96	LIN. FT.
* SS & 606	48" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	96	LIN. FT.
* SS & 606	48" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	96	LIN. FT.
* SP, SS, & 606	48" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	96	LIN. FT.
* SP, SS, & 606	48" POLYPROPYLENE PIPE	(ALTERNATE NO. 6)	96	LIN. FT.
SP	CULVERT CLEAN OUT		1	EACH
* SS & 606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	2	EACH
* SS & 606	24" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	2	EACH
* SS & 606	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	2	EACH
* SS & 606	48" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	2	EACH
SS & 606	SELECTED PIPE BEDDING		30	CU. YD.
SS & 609	DROP INLETS (TYPE SPECIAL)		9	EACH
SS & 609	DROP INLET EXTENSIONS (4')		4	EACH
SS & 609	DROP INLET EXTENSIONS (8')		7	EACH
SS & 611	4" PIPE UNDERDRAINS		500	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS		5	EACH
SS & 615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)		7.2	CU. YD.
SS & 619	WIRE FENCE (TYPE D-2)		155	LIN. FT.
620	LIME		4	TON
620	SEEDING		2.04	ACRE
SS & 620	MULCH COVER		8.59	ACRE
620	WATER		348.8	M. GAL.
621	TEMPORARY SEEDING		6.55	ACRE
621	SILT FENCE		2985	LIN. FT.
621	SAND BAG DITCH CHECKS		22	BAG
621	SEDIMENT REMOVAL AND DISPOSAL		128	CU. YD.
621	ROCK DITCH CHECKS		39	CU. YD.
621	WATTLE (20")		217	LIN. FT.
623	SECOND SEEDING APPLICATION		2.04	ACRE
624	SOLID SODDING		570	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)		1053	SQ. YD.
SP, SS, & 633	CONCRETE WALKS		552	SQ. YD.
SS & 634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")		2303	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
637	MAILBOXES		1	EACH
637	MAILBOX SUPPORTS (SINGLE)		1	EACH
SP, SS, & 641	WHEELCHAIR RAMPS (TYPE 3)		40	SQ. YD.
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")		1570	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")		3855	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)		38	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER		2	EACH
SS & 731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		1	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)		19580	POUND
SS & 816	FILTER BLANKET		10	SQ. YD.
SS & 816	DUMPED RIPRAP		5	CU. YD.
	STRUCTURES OVER 20' SPAN			
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)		1.00	LUMP SUM
SS & 619	5' STEEL CHAIN LINK FENCE		320	LIN. FT.
636	BRIDGE CONSTRUCTION CONTROL		1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE		748	CU. YD.
801	ROCK EXCAVATION FOR STRUCTURES-BRIDGE		99	CU. YD.
SP, SS, & 802	CLASS S CONCRETE-BRIDGE		566.80	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE		312.00	CU. YD.
SP & 803	CLASS 2 PROTECTIVE SURFACE TREATMENT		1573.8	SQ. YD.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)		75300	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)		96330	POUND
SS & 805	STEEL PILING (HP 12X53)		1049	LIN. FT.
SS & 805	PREBORING		998	LIN. FT.
SS & 806	METAL BRIDGE RAILING (TYPE H2)		320	LIN. FT.
SS & 806	TRANSITIONAL APPROACH RAILING		4	EACH
SP, SS, & 807	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)		278100	POUND
SS & 807	PAINTING STRUCTURAL STEEL		9.9	TON
SS & 808	ELASTOMERIC BEARINGS		13834.0	CU. IN.
SS & 809	SILICONE JOINT SEALANT		128	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)		1	EACH
SS & 816	CONCRETE RIPRAP		368	CU. YD.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
4/29/2024	ADDED SS 103-2 AND ADDED SPECIAL PROVISIONS "FLEXIBLE BEGINNING OF WORK - CALENDAR DAY CONTRACT" & "PERCENT AIR VOIDS AND NDESIGN FOR ACHM SURFACE MIX DESIGNS" AND REMOVED SPECIAL PROVISIONS "ESTABLISHING CONTRACT TIME - WORKING DAY CONTRACT", "FLEXIBLE BEGINNING OF WORK", AND "TOTAL SOLAR ECLIPSE"; REVISED THE ASPHALT MIX	3, 23, & 25
6/6/2024	ADDED SS 102-3	3 & 25

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 8940 MARK ASPER

06/11/2024

SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE REVISED	DATE REVISED
04/29/24		
06/06/24		

FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	009916	25	60

SUMMARY OF QUANTITIES AND REVISIONS

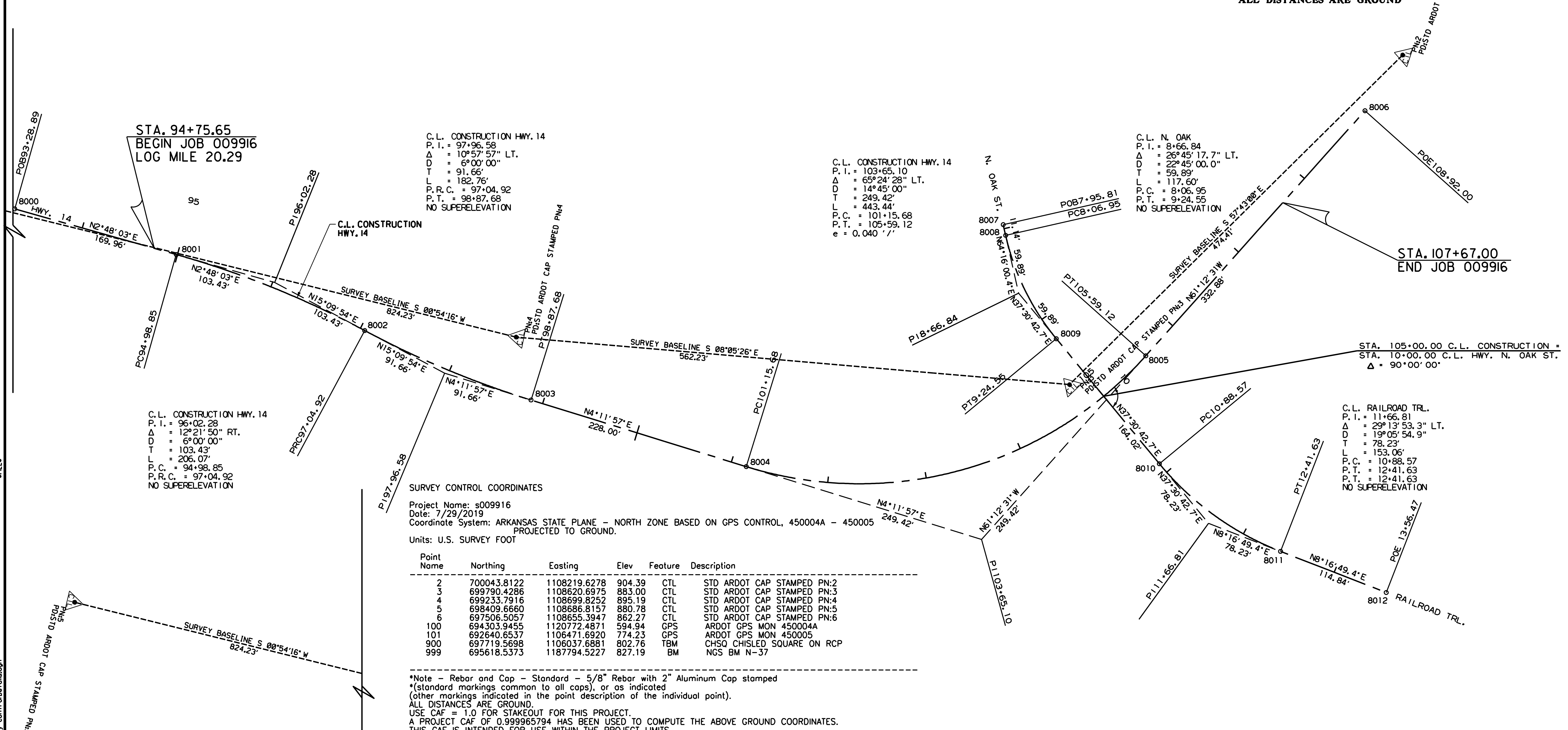
C.L. CONSTRUCTION HWY. 14

POINT NAME	DESCRIPTION	STATION	NORTHING	EASTING
8000	POB	93+28.89	698710.0380	1108687.4040
8001	PC	94+98.85	698879.7998	1108695.7096
8002	PRC	97+04.92	699082.9434	1108727.8224
8003	PT	98+87.68	699262.8297	1108758.5126
8004	PC	101+15.68	699490.2176	1108775.2072
8005	PT	105+59.12	699859.0866	1108574.8874
8006	POE	108+92.00	700019.4073	1108283.1603

C.L. CONSTRUCTION N. OAK ST./RAILROAD TRL.

POINT NAME	DESCRIPTION	STATION	NORTHING	EASTING
8007	POB	7+95.81	699688.5888	1108477.9393
8008	PC	8+06.95	699693.4237	1108487.9705
8009	PT	9+24.55	699766.9385	1108578.3961
8010	PC	10+88.58	699897.0469	1108678.2745
8011	PT	12+41.63	700036.5194	1108737.1788
8012	POE	13+56.47	700150.1618	1108753.7177

ALL BEARINGS ARE GRID
BASED ON GPS
ALL DISTANCES ARE GROUND



SURVEY CONTROL COORDINATES

Project Name: s009916
Date: 7/29/2019
Coordinate System: ARKANSAS STATE PLANE – NORTH ZONE BASED ON GPS CONTROL, 450004A – 450005 PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
2	700043.8122	1108219.6278	904.39	CTL	STD ARDOT CAP STAMPED PN:2
3	699790.4286	1108620.6975	883.00	CTL	STD ARDOT CAP STAMPED PN:3
4	699233.7916	1108699.8252	895.19	CTL	STD ARDOT CAP STAMPED PN:4
5	698409.6660	1108686.8157	880.78	CTL	STD ARDOT CAP STAMPED PN:5
6	697506.5057	1108655.3947	862.27	CTL	STD ARDOT CAP STAMPED PN:6
100	694303.9455	1120772.4871	594.94	GPS	ARDOT GPS MON 450004A
101	692640.6537	1106471.6920	774.23	GPS	ARDOT GPS MON 450005
900	697719.5698	1106037.6881	802.76	TBM	CHSQ CHISLED SQUARE ON RCP
999	695618.5373	1187794.5227	827.19	BM	NGS BM N-37

*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 0.999965794 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 s009916gi.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS – 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 450004A – 450005
CONVERGENCE ANGLE: 02-24-07 LEFT AT PN:4 LT:N 36-15-08 LG:W 092-41-26
GRID AZIMUTH = ASTRONOMICAL AZIMUTH – CONVERGENCE ANGLE.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 8940 MARK ASHER
08/28/2023

SURVEY CONTROL DETAILS

$DATE$ 12:16:57 PM ...\0-Survey ControlDetails.dgn $FILE$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	27	60
		PLAN AND PROFILE SHEETS				

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8940
MARK ASHER
08/28/2023

STA. 94+75.65
BEGIN JOB 009916
LOG MILE 20.50

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	LOCATION	LN. FT.
96+88	98+94	HWY. 14-RT.	206'
97+87	98+70	HWY. 14-LT.	83'
99+96	102+13	HWY. 14-LT.	217'
100+15	100+95	HWY. 14-RT.	80'

STA. 95+08 - LT. CONSTRUCT
TYPE SPECIAL DROP INLET 16.50' LT. OF C.L.
TOP D.I. 886.11 WITH 8' EXTENSION

STA. 98+00 - LT. CONSTRUCT
TYPE SPECIAL DROP INLET 16.50' LT. OF C.L.
TOP D.I. 896.14 WITH 8' EXTENSION

STA. 101+45 - LT. CONSTRUCT
TYPE SPECIAL DROP INLET 16.50' LT. OF C.L.
TOP D.I. 894.39 WITH 8' EXTENSION

STA. 103+85 - LT. CONSTRUCT
TYPE SPECIAL DROP INLET 16.50' LT. OF C.L.
TOP D.I. 887.43 WITH 8' EXTENSION

STA. 104+65 - LT. CONSTRUCT
WHEELCHAIR RAMP (TYPE 3) = 8.0 S.Y.

STA. 104+50 - LT. CONSTRUCT
TYPE SPECIAL DROP INLET 16.50' LT. OF C.L.
TOP D.I. 886.01 WITH 2-4' EXTENSIONS

STA. 105+35 - LT. CONSTRUCT
WHEELCHAIR RAMP (TYPE 3) = 8.0 S.Y.

STA. 105+45 - LT. CONSTRUCT
TYPE SPECIAL DROP INLET 16.50' LT. OF C.L.
TOP D.I. 885.50 WITH 8' EXTENSION

STA. 105+65 - LT. CONSTRUCT
TYPE SPECIAL DROP INLET 16.67' LT. OF C.L.
TOP D.I. 885.62 WITH 2-4' EXTENSIONS

STA. 98+85 TO 100+03 - IN PLACE
EXISTING BRIDGE NO. 01483
117.8' X 28.5' REINFORCED CONCRETE DECK GIRDER SPANS (35.0'-47.8'-35.0')
SUPPORTED BY SUBSTRUCTURE COMPOSED OF VERTICAL WALL ABUTMENTS
AND WEBWALL PIERS ON SPREAD FOOTINGS
REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1) = 1.00 LUMP SUM

C.L. CONSTRUCTION HWY. 14
P.I. = 97+96.58
Δ = 10°57'57" LT.
D = 6°00'00"
T = 91.66'
L = 182.76'
P.R.C. = 97+04.92
P.T. = 98+87.68
NO SUPERELEVATION

MAIN LANES
STA. 101+35 IN PLACE
18'x81' R.C. PIPE CULVERT
REMOVE 15', PLUG AND ABANDON

MAIN LANES
STA. 101+53 CONSTRUCT
24" PIPE CULVERT ON 8°30' RT. FWD. SKEW
24" F.E.S. LT. & RT. = 2 EACH
24" C.M. PIPE (TYPE 2 BEDDING) = 192 LIN. FT.
24" R.C. PIPE (CLASS IV)(TYPE 3 BEDDING) = 188 LIN. FT.
Q25=10.2 CFS, D.A.=3.2 AC.

C.L. CONSTRUCTION HWY. 14
P.I. = 103+65.10
Δ = 65°24'28" LT.
D = 14°45'00"
T = 249.42'
L = 443.44'
P.C. = 101+15.68
P.T. = 105+59.12
e = 0.040 '/'
Ls= 150'

MNA RAILROAD
ROADWAY DESIGN
STA. 100+00.00
HWY 14 NORTH
DOT# 434962N
RR MP: 392.17

PROPOSED
BR. END
STA. 101+05.53

WIRE FENCE - INSTALLATION

STA.	STA.	SIDE	TYPE	LIN. FT.
102+25	103+50	RIGHT	D-2	155

C.L. CONSTRUCTION HWY. 14
P.I. = 96+02.28
Δ = 12°21'50" RT.
D = 6°00'00"
T = 103.43'
L = 206.07'
P.C. = 94+98.85
P.R.C. = 97+04.92
NO SUPERELEVATION

STA. 95+08 - RT. CONSTRUCT
TYPE SPECIAL DROP INLET 16.50' RT. OF C.L.
TOP D.I. 886.11 WITH 8' EXTENSION

STA. 98+94.47 BRIDGE END
BRIDGE NO. 07529
208'-0" CONTINUOUS W-BEAM UNIT (64'-80'-64')
30'-0" CLEAR ROADWAY
45° RT. FORWARD SKEW
211'-0¾" BRIDGE LENGTH
STA. 101+05.53 BRIDGE END

STA. 94+90 - LT. CONSTRUCT
WHEELCHAIR RAMP (TYPE 3) = 8.0 S.Y.

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

PROPOSED
BR. END
STA. 98+94.47

OBLITERATION OF EXIST. PAVEMENT

STA. 98+00 - RT. CONSTRUCT
TYPE SPECIAL DROP INLET 16.50' RT. OF C.L.
TOP D.I. 896.14 WITH 8' EXTENSION

STA. 100+03.18 BEGIN SUPERELEVATION
STA. 101+53.18 MAX. SUPERELEVATION (0.040'/')
STA. 105+21.62 MAX. SUPERELEVATION (0.040'/')
STA. 106+71.62 END SUPERELEVATION

STA. 105+00.00 C.L. CONSTRUCTION =
STA. 10+00.00 C.L. HWY. N. OAK ST.
Δ = 90°00'00"

MAIN LANES
STA. 107+10 CONSTRUCT
48" PIPE CULVERT
48" F.E.S. LT. & RT. = 2 EACH
48" C.M. PIPE (TYPE 2 BEDDING) = 96 LIN. FT.
48" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 92 LIN. FT.
Q25=133 CFS, D.A.=30.1 AC.

REMOVAL AND DISPOSAL OF FENCE
STA. 101+00 TO 102+00 RT. = 100 LIN. FT.

STA. 107+55 - LT. CONSTRUCT
WHEELCHAIR RAMP (TYPE 3) = 8.0 S.Y.

MAIN LANES
STA. 107+10 IN PLACE
59"X36"X60' R.C. PIPE CULVERT
REMOVE

REFER TO SPECIAL
DETAILS FOR CURB
AND GUTTER TRANSITIONS.

STA. 107+67.00
END JOB 009916

HWY. 14 MAIN LANES

STA. 94+75.65
BEGIN JOB 009916
LOG MILE 20.29

STA. 107+92.00
END JOB 009916

PROFILE GRADE
EXISTING GROUND

+08 LT.& RT.
TOP D.I. 886.11
F.L. OUT = 884.91

+00 LT.& RT.
TOP D.I. 896.14
F.L. OUT = 894.19

+45 LT.
TOP D.I. 894.39
F.L. OUT = 893.19

+50 LT.
TOP D.I. 886.01
F.L. OUT = 884.81

+85 LT.
TOP D.I. 887.43
F.L. OUT = 886.23

+65 LT.
TOP D.I. 885.62
F.L. OUT = 884.42

+45 LT.
TOP D.I. 885.50
F.L. OUT = 884.30

101+35 C.L.
MAIN LANES
FL INLET LT = 877.00
FL OUTLET RT = 869.88

107+10 C.L.
MAIN LANES
PROP. FL INLET LT = 878.38
PROP. FL OUTLET RT = 877.00

$FILE$
$FILEABBREV$
$TIME$
$DATE$

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	28	60
		PLAN AND PROFILE SHEETS				

REFER TO SPECIAL DETAILS FOR CURB AND GUTTER TRANSITIONS.

C.L. N. OAK
P.I. = 8+66.84
Δ = 26°45'17.7" LT.
D = 22°45'00.0"
T = 59.89'
L = 117.60'
P.C. = 8+06.95
P.T. = 9+24.55
NO SUPERELEVATION

STA. 105+00.00 C.L. CONSTRUCTION = STA. 10+00.00 C.L. HWY. N. OAK ST.
Δ = 90°00'00"

C.L. RAILROAD TRL.
P.I. = 11+66.81
Δ = 29°13'53.3" LT.
D = 19°05'54.9"
T = 78.23'
L = 153.06'
P.C. = 10+88.57
P.T. = 12+41.63
NO SUPERELEVATION

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.8940 MARK ASHER

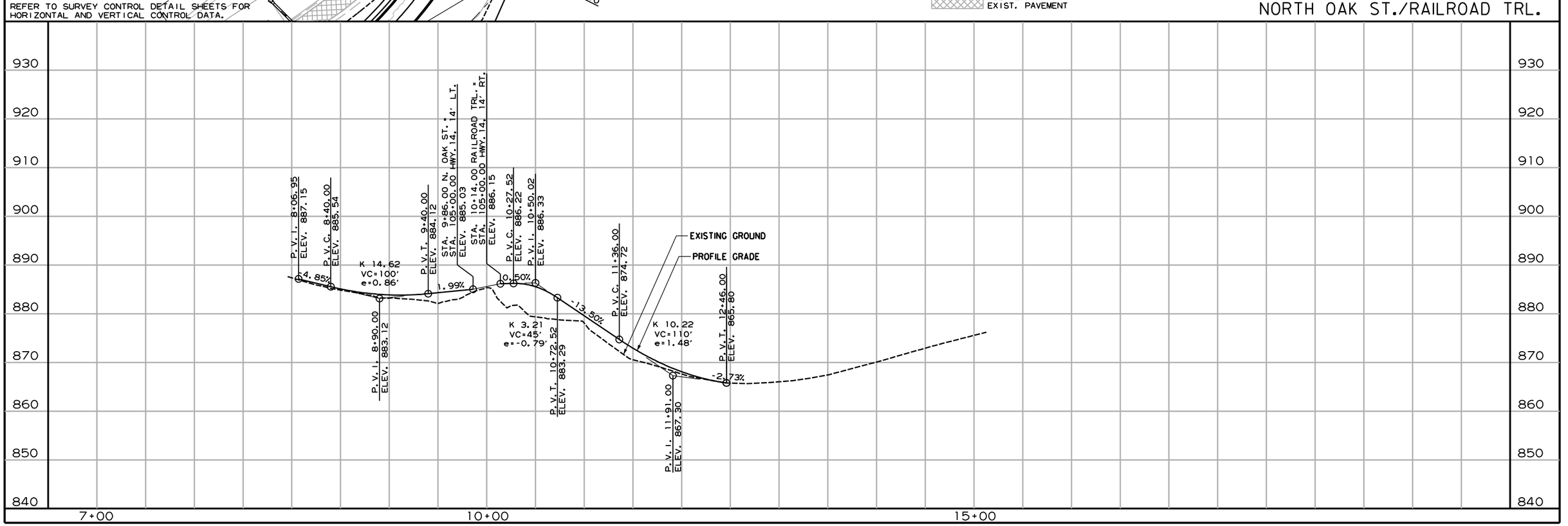
08/28/2023

N

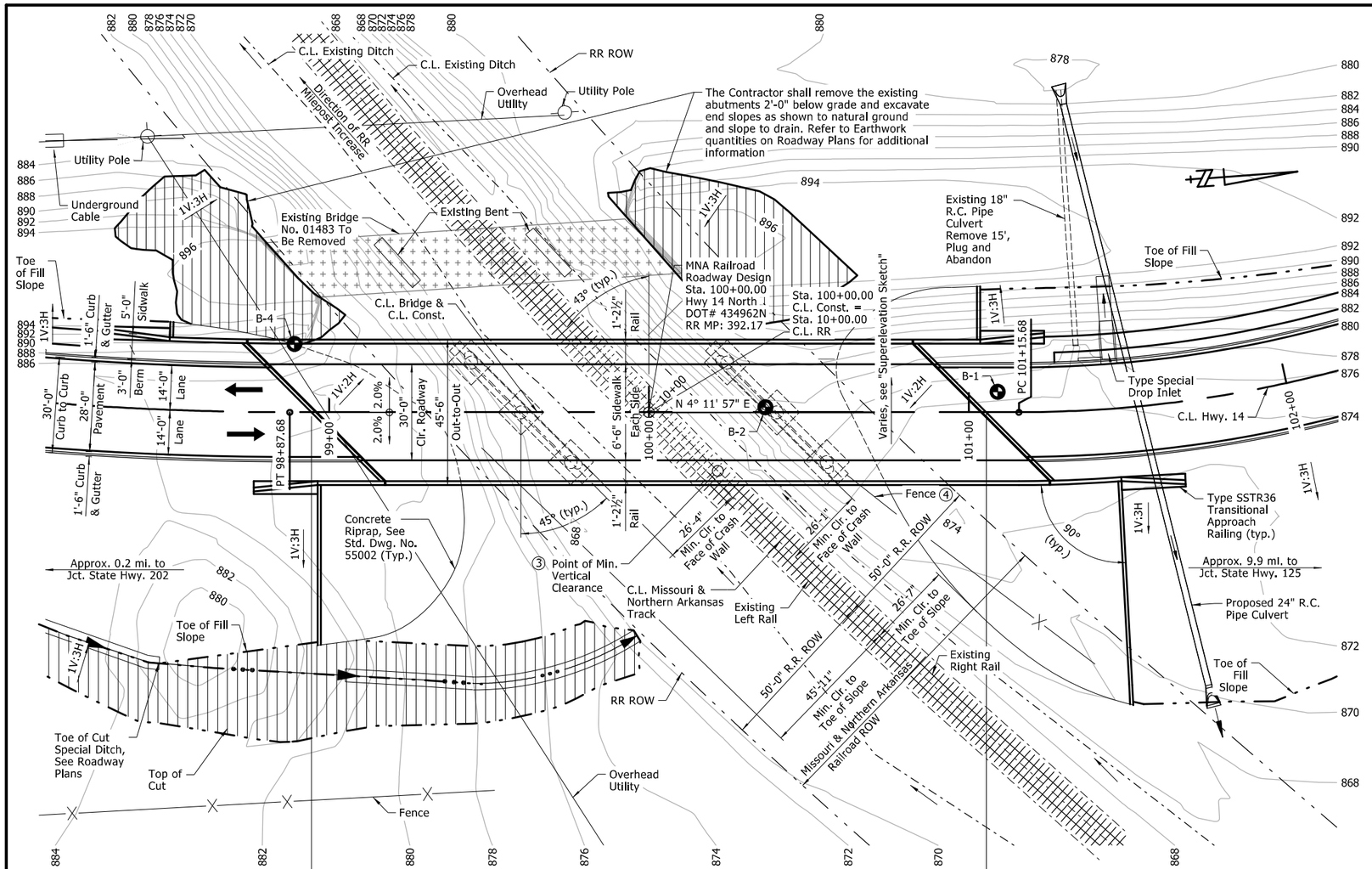
N. OAK ST.
EXISTING R/W
N61°12'31"W
PC8+05.95
PTI 05+59.12
PROPOSED R/W
CONST. LIMITS
N64°16'00"E
N37°30'43"E
30'R
10'R TYP.
PT9+24.55
P18+66.84
STA. 9+24 RT.
CONSTRUCT APPROACH = 35 CU. YDS
HWY. 14
C.L. CONSTRUCTION
PC10+88.57
PI 12+41.63
N8°16'49"E
RAILROAD TRL.
EXISTING R/W
PI 11+66.81
RAILROAD TRL.
STA. 12+64 IN PLACE
30" x 25' C.M. PIPE CULVERT
RETAIN
PI 103+65.10
OBLITERATION OF EXIST. PAVEMENT

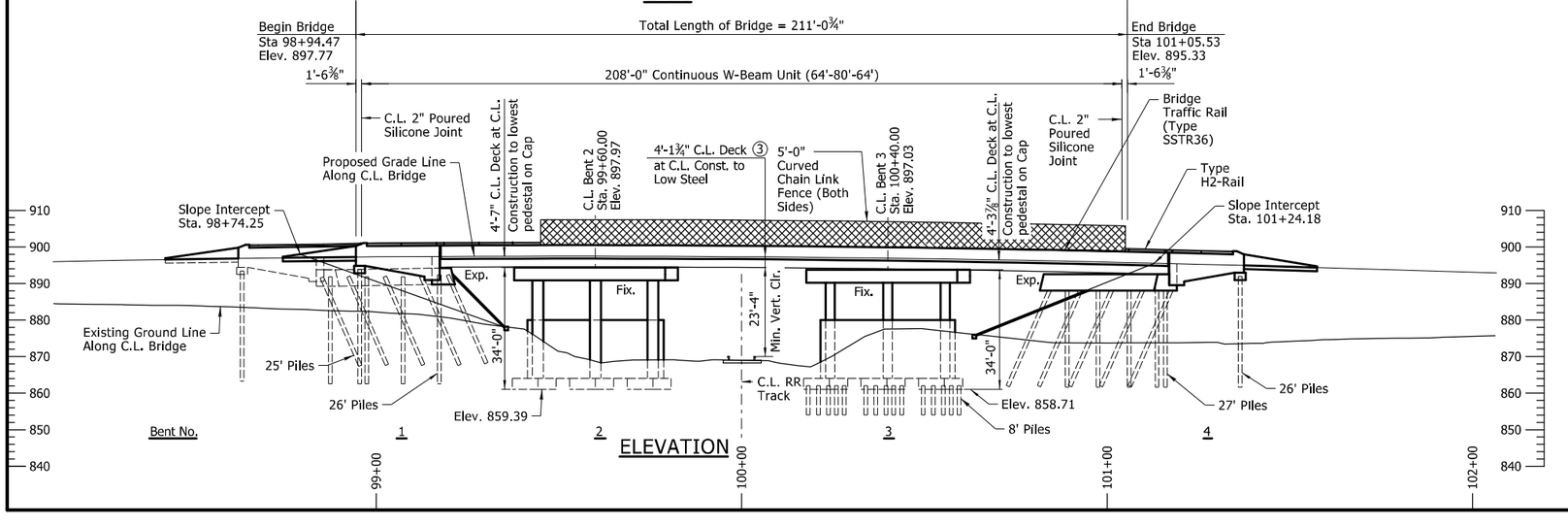
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

NORTH OAK ST./RAILROAD TRL.



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	29	60
				(1) 009916		- LAYOUT -		65397

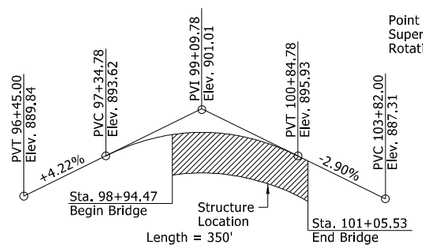




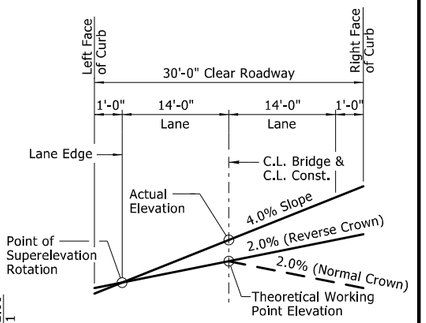
Curve 1
P.I.= 97+96.58
Δ = 10°57' 57" Lt.
D = 6°00' 00"
T = 91.66'
L = 182.76'
e = N.C.
R = 954.93'

Curve 2
P.I.= 103+65.10
Δ = 65°24' 28" Lt.
D = 14°45' 00"
T = 249.42'
L = 443.44'
e = 0.040'/'
R = 388.45'

HORIZONTAL CURVE DATA
Along C.L. Construction



VERTICAL CURVE DATA
Theoretical Grade Along CL Const.



End Normal Crown (0.020'/') - Sta. 100+03.18
Reverse Crown (0.020'/') - Sta. 100+78.18
Begin Full Superelevation (0.040'/') - Sta. 101+53.18
End Full Superelevation (0.040'/') - Sta. 105+21.62

SUPERELEVATION SKETCH
Looking Ahead

(1) Chain Link Fence from Hwy. 14 C.L. Sta. 99+05.00 to Sta. 100+65.00 on Left side of bridge and from Sta. 99+45.00 to Sta. 101+05.00 on right side of bridge.

(2) Shoring is required at bridge ends for construction. See job Special Provision "Shoring". Actual location of shoring to be determined by Contractor.

(3) Low Steel to top of Rail at point of Minimum Vertical Clearance at Sta. 100+15.76, 19.5' RT.

(4) To be removed and replaced. See roadway plans.

Notes:
Stations shown are along C.L. Construction. Elevations shown up to Station 100+78.18 are theoretical working point elevations. See ROUNDING DETAIL, Dwg. No. 65398 and SUPERELEVATION SKETCH.

For Soil Boring Information, see Dwg. No. 65398.

Use Type Special Approach Slab at Bridge Ends (typ.).

For R/W data, see Roadway Plans.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 19427
JAY R. SCHROEDER
08/28/2023

BRIDGE ENGINEER
PRINT DATE: 8/18/2023

SHEET 1 OF 2
LAYOUT OF BRIDGE
HIGHWAY 14 OVER MISSOURI & NORTHERN ARKANSAS RAILROAD
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)

ROUTE 14 SECTION 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	NJH	DATE:	01/2021	FILENAME:	b009916_l1.dgn
CHECKED BY:	BSK	DATE:	01/2021		
DESIGNED BY:	NJH	DATE:	01/2021	SCALE:	1" = 20'
BRIDGE NO.	07529			DRAWING NO.	65397

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	30	60
				(1) 009916		- LAYOUT -		65398

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, Eighth Edition (2017).

LIVE LOADING: HL-93

SEISMIC ZONE: 1 S_{D1} = 0.062 SITE CLASS = A

SEISMIC OPERATION CLASSIFICATION: Other

MATERIALS AND STRENGTHS:

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

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

STEEL PILING: All piling shall be HP 12x53 (Grade 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 95 tons per pile and into material designated as competent Dolomite on the boring legend. Minimum penetration shall be 10' below natural ground for all piles in Bents 1 and 4. Minimum penetration for piles in Bent 3 shall be 8' below bottom of footing. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Section 805. Actual lengths are to be determined in the field. The Contractor shall use approved steel H-pile driving points on all piles. Piles driven within 25 feet of the centerline of railroad track shall be subject to vibration monitoring. Refer to Job 009916 Special Provision "PILE VIBRATION MONITORING" for requirements.

PREBORING: Preboring is required for all piles in Bents 1, 3, and 4. The depth of preboring shall be to a depth sufficient to provide the specified minimum penetration and to a minimum 3' depth into material designation as competent dolomite on the boring legend, whichever is lower. The actual size and depth of preboring shall be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free of debris prior to driving piles and backfilling which may require the use of temporary casings or other approved methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of the rock and the remaining length backfilled in accordance with Subsection 805.08(a). Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring".

SPREAD FOOTINGS: Footings shall be set a minmum of 2'-0' into material designated as competent Dolomite on the boring legend. The top of the footings at Bent 2 shall be set 6' below top of rail or to the elevations shown in the plans, whichever is lower. Foundations for footings shall be preparted in accordance with Subsection 801.04. Excavations shall be backfilled and compacted to the level of the finished ground surface in accordance with Subsection 801.08. Rock excavations shall be made to neat lines of concrete footings. Care shall be exercised to avoid shattering of rock faces by excessive blasting. Concrete in footings shall be poured directly against excavated surfaces of rock.

PILE FOOTINGS: The top of the footings at Bent 3 shall be set a minimum of 6' below top of rail or at the elevations shown on the plans, whichever is lower. Foundations for footings shall be prepared in accordance with Subsection 801.04. Foundation piles shall not be driven until after the excavation to bottom of footing is complete. Excavations shall be backfilled and compacted to the level of the existing ground in accordance with Subsection 801.08.

PAINTING: All Grade 50W structural steel, except galvanized members, surfaces in contact with concrete, and the expansion device, within members surfaces in contact with concrete and the expansion device, within five feet of bridge deck expansion joints shall be painted as specified in Subsection 807.75. The color of the paint shall be Brown equal or close to Federal Std. 595B, 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 occuring during transport or installation shall be corrected according to the manufacturer's recommendations at no cost to the Department. ASTM F3125, Grade A325 Type 3 bolts shall be used within these painted zones and shall be painted.

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. Sidewalks shall be given a Class 6 Broomed Finish.

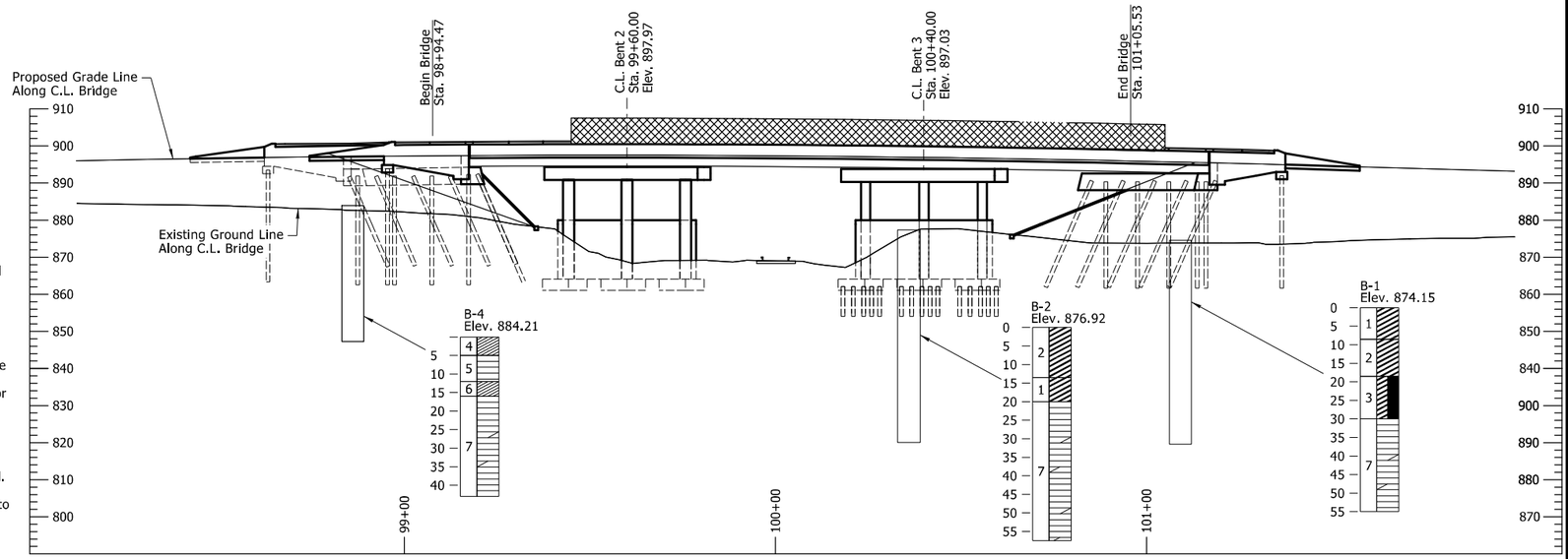
PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface, sidewalk and curb surface, and to the roadway face and top of the concrete traffic rails in accordance with Section 803.

DETAIL DRAWINGS:	DRAWING NO(S).
End Bents	65401 - 65404
Intermediate Bents	65405 - 65408
Elastomeric Bearings	65409
208'-0" Continuous W-Beam Unit	65410 - 65414
Type Special Approach Slab	65415
Embankment Construction and Backfill at Bridge Ends	55000
Dumped Riprap And Filter Blanket And Computing Excavation For Structures	55001
Concrete Riprap	55002
Permanent Steel Bridge Deck Forms For Steel & Concrete Girder Spans	55005
General Notes For Steel Bridge Structures	55006
Details For Steel Bridge Structures	55007
Poured Silicone Joints	55008
Type D Bridge Name Plate	55010
Transitional Approach Railing	55013A
Type H-2 Railing	55015
Details for Curved Chain Link Fence	55019
Steel H-Piles And Pile Encasements	55020

EXISTING BRIDGE: Existing Bridge No. 01483 (Log Mile 20.42) is 28.5' wide (24.0' clear roadway) and 117.8' long and consists of reinforced concrete deck girder spans (3 spans total) supported by reinforced concrete vertical wall abutments and web wall piers on spread footings. The existing bridge is located approximately 35' west from the proposed new bridge. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Development Section of the Program Management Division.

REMOVAL AND SALVAGE: After the construction of the new bridge is complete and open to traffic, the Contractor shall remove existing Bridge No. 01483 in accordance with Section 205. All material removed from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.



ELEVATION OF SOIL BORINGS

"N" VALUES

Boring No. B-1
Sta. 101+09
6.4' Left of C.L. Construction
0.5-2, N=12
2-3.5, N=25
3.5-5, N=31
5-6.5, N=61
8.5-10, N=20
13.5-15, N=44
18.5-20, N=17
23.5-25, N=7
28.5-30, N=14

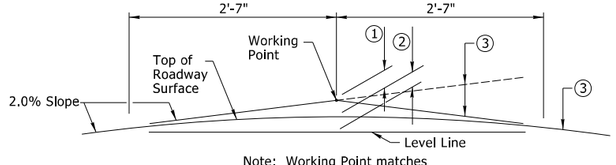
Boring No. B-2
Sta. 100+36
1.6' Left of C.L. Construction
0.5-2, N=20
2-3.5, N=16
3.5-5, N=20
5-6.5, N=21
8.5-10, N=61
13.5-15, N=19
18.5-20, N=30
23.5-25, N=7
28.5-30, N=14

Boring No. B-4
Sta. 98+89
21.4' Left of C.L. Construction
0.5-2, N=13
2-3.5, N=30
3.5-5, N=15
5-5.5, N=50 (4")

BORING LEGEND

Sandy Fat Clay
Fat Clay
Fat Clay with Sand
Dolomite
Sandy Lean Clay
Lean Clay

Item Key	Description
1	Sandy fat clay with chert gravel
2	Fat clay with chert gravel
3	Fat clay with sand with chert gravel
4	sandy lean clay with chert gravel
5	Highly weathered dolomite
6	Apparent clay seam within highly weathered dolomite
7	Competent dolomite bedrock



Note: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

No Scale

(1) Varies: 5/16" at and before Normal Crown Sta. 100+03.18 to 0" at Reverse Crown Sta. 100+78.18

(2) Varies: 5/16" at and before Normal Crown Sta. 100+03.18 to 5/8" at Reverse Crown Sta. 100+78.18

(3) Varies: -2.0% at and before Normal Crown Sta. 100+03.18 to +2.0% at Reverse Crown Sta. 100+78.18

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 19427
JAY R. SCHROEDER

BRIDGE ENGINEER
PRINT DATE: 8/18/2023

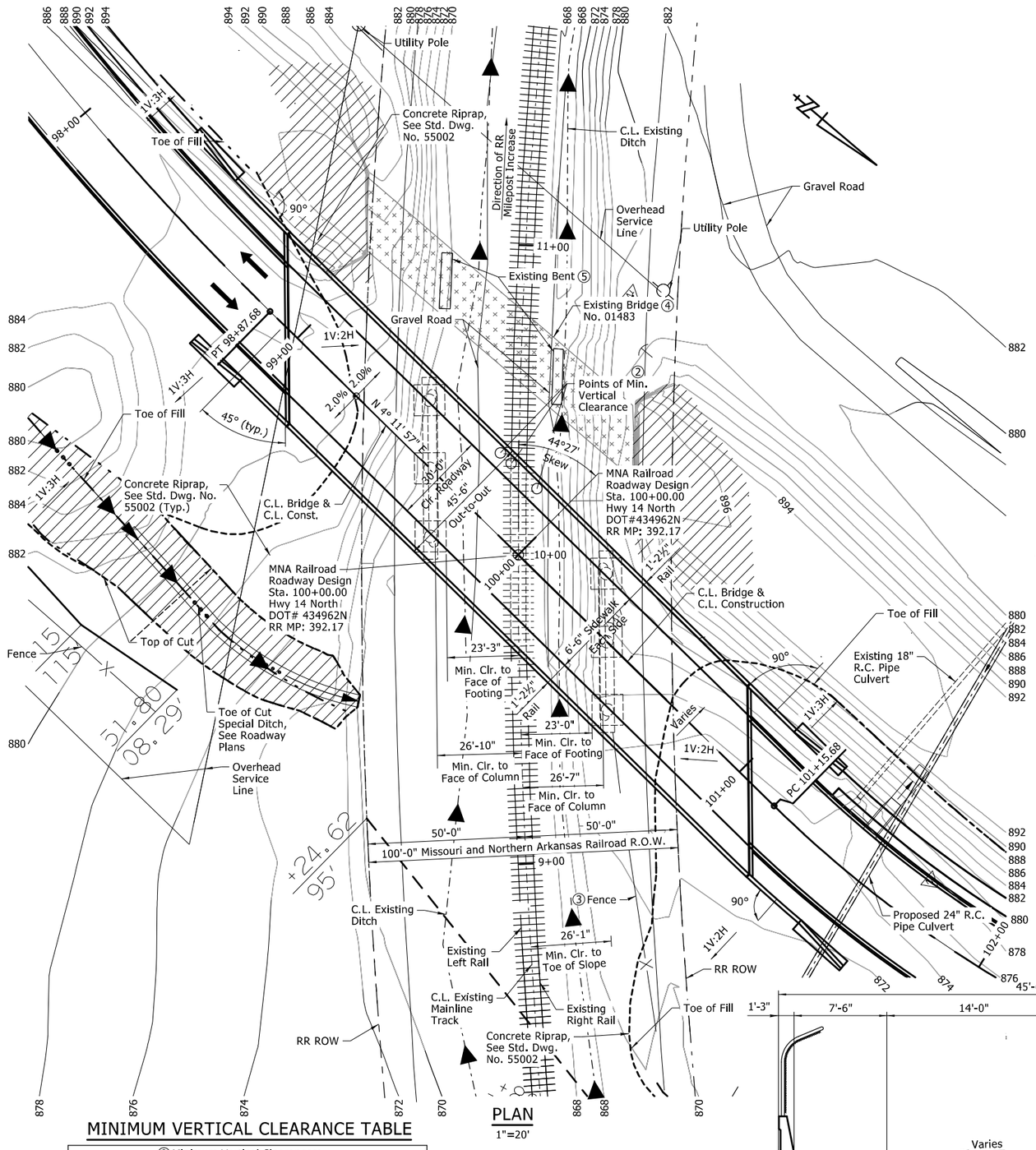
SHEET 2 OF 2
LAYOUT OF BRIDGE
HIGHWAY 14 OVER MISSOURI & NORTHERN ARKANSAS RAILROAD
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)

ROUTE 14 SECTION 2

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

08/28/2023

DRAWN BY: NJH DATE: 01/2021 FILENAME: b009916_l2.dgn
CHECKED BY: BSK DATE: 01/2021
DESIGNED BY: NJH DATE: 01/2021 SCALE: As Shown
BRIDGE NO. 07529 DRAWING NO. 65398



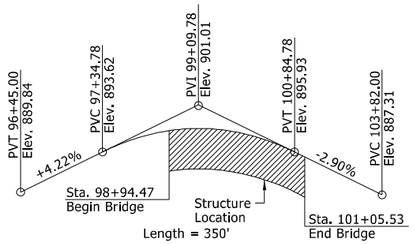
PLAN

1"=20'

MINIMUM VERTICAL CLEARANCE TABLE

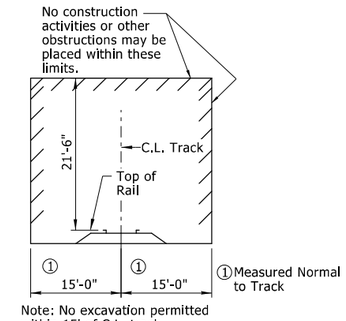
② Minimum Vertical Clearances:		
6' LT. of C.L. Existing Track	At Left Rail - Existing Track	6' RT. of C.L. Existing Track
23'-5"	23'-4"	23'-6"

Note: Railroad guidelines require 23'-0" minimum vertical clearance to the highest top of rail elevation beneath the proposed structure offset 6' to each side from the CL of track. Minimum vertical clearances shown are after all permanent dead loads are applied to the structure and are measured to the lowest steel girder element at the location indicated, including field splice elements where applicable.



VERTICAL CURVE DATA

Theoretical Grade Along CL Const.



Note: No excavation permitted within 15' of C.L. track.

MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

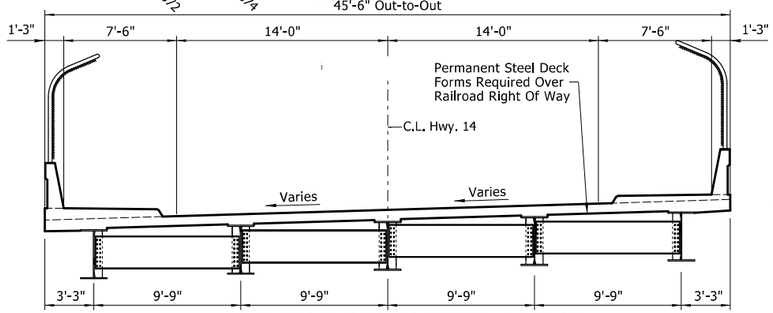
No Scale

NOTE: For existing and proposed ARDOT right of way, see "Limits of Joint Use Agreement Area" on Sheet 2 of 2.

③ To be removed and replaced, see Roadway Plans.

④ The existing bridge will remain open to traffic while the proposed new bridge is constructed in its entirety. Once the proposed new bridge is open to traffic, the existing bridge will be removed.

⑤ Existing bents within the Railroad ROW shall be removed to at least 3 feet below grade or at least 2 feet below base of rail, whichever is lower, unless otherwise specified by the Railroad.



TYPICAL SECTION THRU BRIDGE

No Scale

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	31	60
				① 009916		- EXHIBIT A -		65399

GENERAL NOTES

1. Site shall be accessed without crossing tracks except at existing road crossings, unless explicit approvals have been obtained from Missouri & Northern Arkansas RR.
2. The elevation of the existing top-of-rail profile shall be verified before beginning construction. All discrepancies shall be brought to the attention of the Railroad prior to construction.
3. Currently there are no known utilities on the Railroad right-of-way other than shown. Prior to entering into, or working within, above, below, adjacent to, or within reach or potential to foul (Equipment with extendable, or fixed boom lengths that by distance from the ROW could enter into) the Railway's right-of-way, the roadway Contractor will need to contact 1-800-552-7001 for utility locates, as the roadway Contractor(s) will be working around live fiber-optic cables at this location. The Railway's signal cables are not listed with Call 811 and require a separate locate. Call 843-617-5501 to schedule a signal cable locate.
4. Construction shall comply with requirements noted in Special Provision "Insurance, Construction, and Flagging Requirements on Railroad Property", including the use of permanent steel deck pans over the railroad right-of-way.
5. The proposed grade separation project shall not change the quantity and/or characteristics of the flow in the Railroad ditches and/or drainage structures. Existing drainage patterns will be maintained. Closed parapet railing (no deck drains) are typical on both sides of the bridge deck over the Railroad right-of-way.
6. The Contractor must submit a proposed method of erosion and sediment control and have the method approved by the Railroad prior to beginning any grading on the project site.
7. Temporary construction clearances, including falsework clearances, shall comply with the details shown in "Minimum Construction Clearance Envelope". All equipment, materials, and personnel shall remain outside this envelope, except during designated track windows.
8. All shoring systems that impact the Railroad's operations and/or supports the Railroad's embankment shall be designed and constructed per the Railroad temporary shoring requirements.
9. Erection over the Railroad right-of-way shall be designed to cause no interruption to all Railroad operations. Falsework will not be allowed in the Railroad right-of-way without Railroad approval.
10. All personnel must clear the area within 25 feet of track and secure all equipment during the approach and passage of a train. All work within 50 feet of track must cease during the approach and passage of a train in accordance with Job 009916 Special Provision "INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY (G & W)"
    MNA - Roadmaster
    Cene Cooley
    417-358-8800
    cene.cooley@gwrr.com
11. All permanent clearances shall be verified before project closeout.
12. All demolition within the Railroad right-of-way and/or demolition that may impact the Railroad tracks or operations shall comply with the Railroad demolition requirements.
13. "The State shall not plow ice, snow, or sleet over the sides of the structure. In consideration of this practice, the Carrier waives its request for the State to attach splash boards to sides of the structure." This statement is in the State-Railroad Agreement.
14. Piles driven within 25 feet of the centerline of railroad track shall be subject to vibration monitoring. Refer to Job 009916 Special Provision "PILE VIBRATION MONITORING" for requirements.

STATE OF ARKANSAS
JAY R. SCHROEDER
REGISTERED PROFESSIONAL ENGINEER
No. 19427

BRIDGE ENGINEER
PRINT DATE: 8/18/2023

08/28/2023

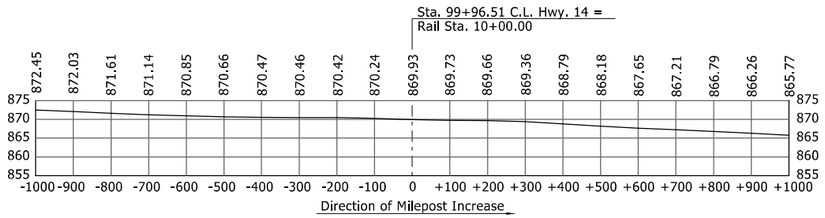
SHEET 1 OF 2
RAILROAD EXHIBIT A
HIGHWAY 14 OVER MISSOURI & NORTHERN ARKANSAS RAILROAD
COTTER SUBDIVISION - M.P. 392.25
LATITUDE: 36.25277°N LONGITUDE: 92.69037°W
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)

ROUTE 14 SECTION 2

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

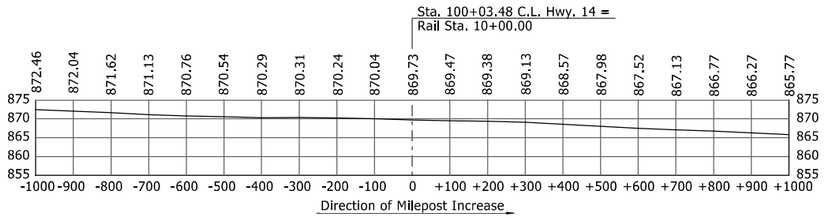
DRAWN BY:	NJH	DATE:	01/2021	FILENAME:	b009916_ea1.dgn
CHECKED BY:	BSK	DATE:	01/2021		
DESIGNED BY:	NJH	DATE:	01/2021	SCALE:	As Shown
BRIDGE NO.	07529			DRAWING NO.	65399

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	32	60
				(1) 009916		- EXHIBIT A -		65400



PROFILE ALONG TOP OF LEFT RAIL

No Scale



PROFILE ALONG TOP OF RIGHT RAIL

No Scale

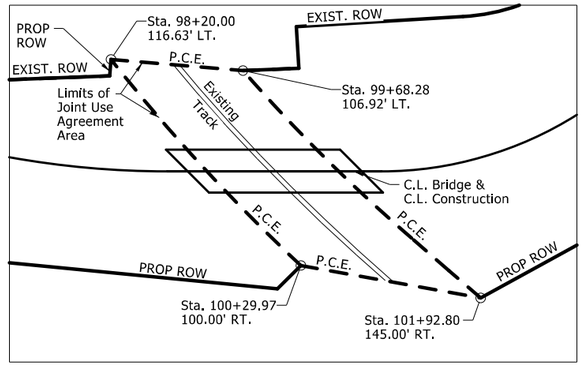
TOP OF RAIL ELEVATIONS

(Stations increase with Milepost increase)
(Looking in Direction of Milepost increase)

Left Rail		Right Rail	
Station	Elevation	Station	Elevation
0+00	872.45	0+00	872.46
1+00	872.03	1+00	872.04
2+00	871.61	2+00	871.62
3+00	871.14	3+00	871.13
4+00	870.85	4+00	870.76
5+00	870.66	5+00	870.54
6+00	870.47	6+00	870.29
7+00	870.46	7+00	870.31
8+00	870.42	8+00	870.24
9+00	870.24	9+00	870.04
10+00①	869.93	10+00②	869.73
11+00	869.73	11+00	869.47
12+00	869.66	12+00	869.38
13+00	869.36	13+00	869.13
14+00	868.79	14+00	868.57
15+00	868.18	15+00	867.98
16+00	867.65	16+00	867.52
17+00	867.21	17+00	867.13
18+00	866.79	18+00	866.77
19+00	866.26	19+00	866.27
20+00	865.77	20+00	865.77

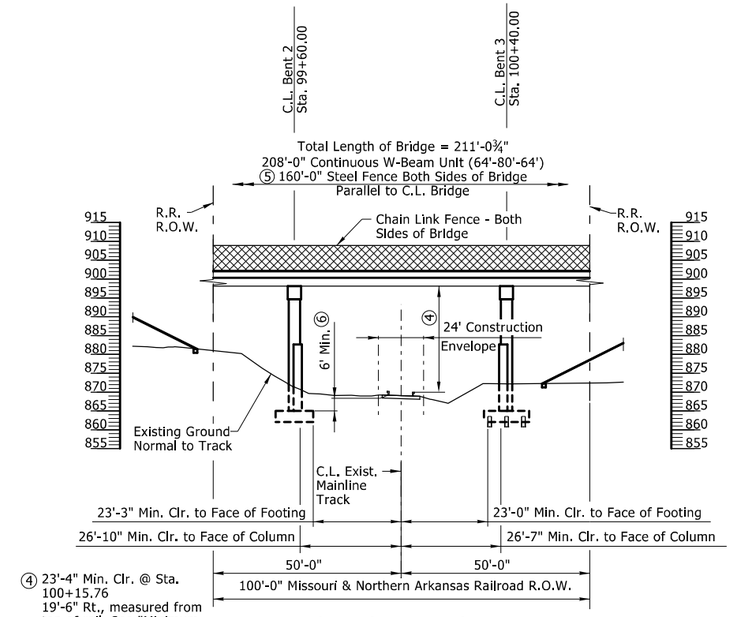
① Intersection at C.L. Construction Sta. 99+96.51 Mile Post 392.25

② Intersection at C.L. Construction Sta. 100+03.48 Mile Post 392.25



LIMITS OF JOINT USE AGREEMENT AREA

No Scale



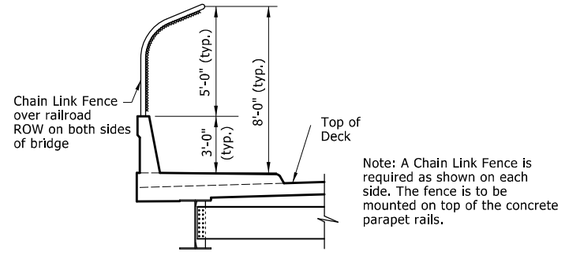
SECTION NORMAL TO TRACK

Looking in Direction of Milepost Increase
1"=20'

④ 23'-4" Min. Clr. @ Sta. 100+15.76
19'-6" Rt., measured from top of rail. See "Minimum Vertical Clearance Table" on Sheet 1 of 2 for additional information.

⑤ Chain Link Fence from Hwy. 14 C.L. Sta. 99+05.00 to Sta. 100+65.00 on Left side of bridge and from Sta. 99+45.00 to Sta. 101+05.00 on right side of bridge.

⑥ Measured from base of rail to top of footing.



Note: A Chain Link Fence is required as shown on each side. The fence is to be mounted on top of the concrete parapet rails.

TYPICAL SECTION THRU PARAPET

No Scale

SHEET 2 OF 2
RAILROAD EXHIBIT A
HIGHWAY 14 OVER MISSOURI & NORTHERN ARKANSAS RAILROAD
COTTER SUBDIVISION - M.P. 392.25
LATITUDE: 36.25277°N LONGITUDE: 92.69037°W
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)
ROUTE 14 SECTION 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

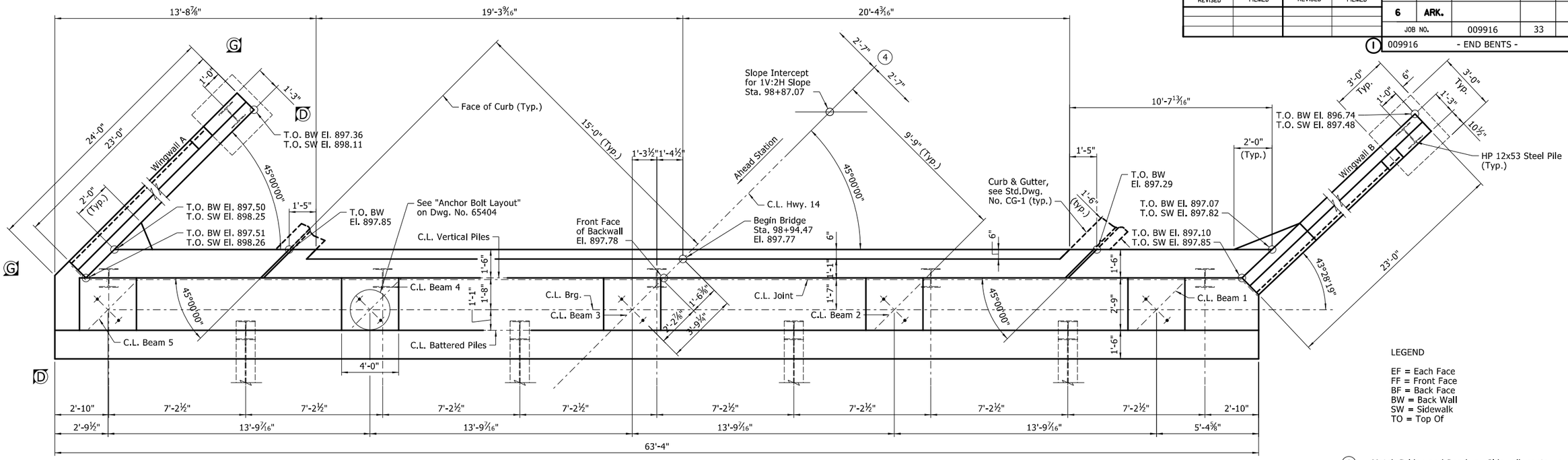
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 19427
JAY R. SCHROEDER
08/28/2023

BRIDGE ENGINEER
PRINT DATE: 8/18/2023

DRAWN BY: NJH DATE: 01/2021
CHECKED BY: BSK DATE: 01/2021
DESIGNED BY: NJH DATE: 01/2021
BRIDGE NO. 07529
FILENAME: b009916_ea2.dgn
SCALE: As Shown
DRAWING NO. 65400

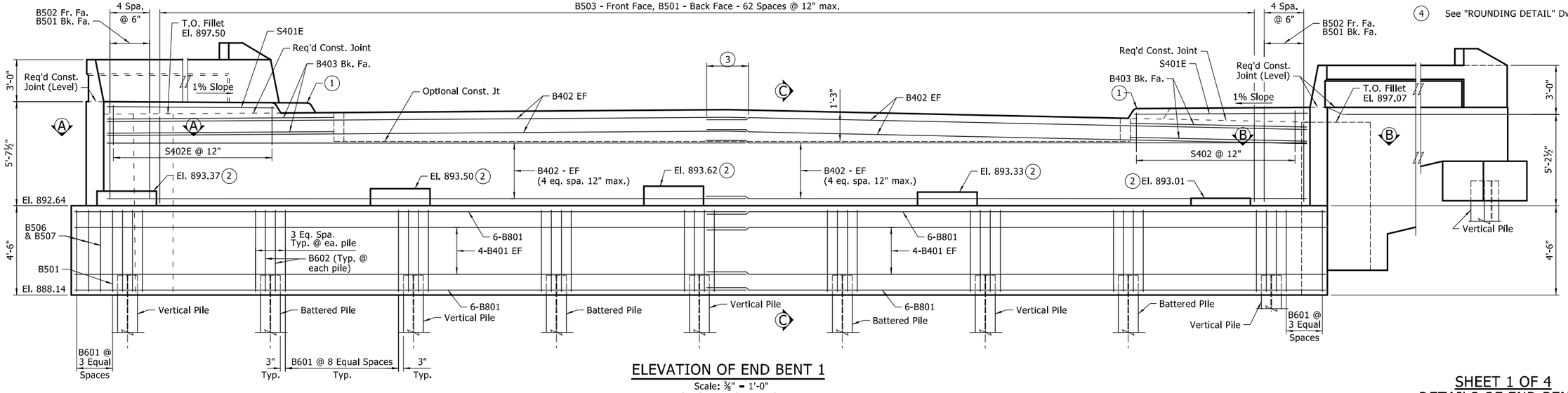
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	33	60

I 009916 - END BENTS - 65401



PLAN OF END BENT 1

Scale: ⅜" = 1'-0"



ELEVATION OF END BENT 1

Scale: ⅜" = 1'-0"
(Looking Back Station)

LEGEND

EF = Each Face
FF = Front Face
BF = Back Face
BW = Back Wall
SW = Sidewalk
TO = Top Of

1. Match Bridge and Roadway Sidewalk contours. For reinforcing details see Dwg. No. 65410.
2. See Pedestal Details on Dwg. No. 65404.
3. 4'-6" Lap - #8 Bars
   2'-0" Lap - #4 Bars
4. See "ROUNDING DETAIL" Dwg. No. 65398.

GENERAL NOTES:

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

Structural Steel in end bents shall be ASTM A709, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (A709, Gr. 50W)".

Class 2 Protective Surface Treatmant shall be applied to the top of the backwall, sidewalk surface (including curbing), the roadway face and top of concrete traffic rails.

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. Refer to the "EXPANSION DEVICE INSTALLATION AT THE END BENTS" note on Std. Dwg. No. 55008. No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacent span has been completed.

For additional information, see Layout.

For details of Wing & Rail, see Dwg. Nos. 65403

For details of Elastomeric Bearing Pads, see Dwg. Nos. 65409.

For Bar List & Bar Bending Diagram, see Dwg. No. 65404.

For Sections A-A, B-B, D-D, & G-G, see Dwg. Nos. 65403 and 65404.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 19427
JAY R. SCHROEDER

BRIDGE ENGINEER
PRINT DATE: 8/18/2023

08/28/2023

SHEET 1 OF 4
DETAILS OF END BENTS
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)

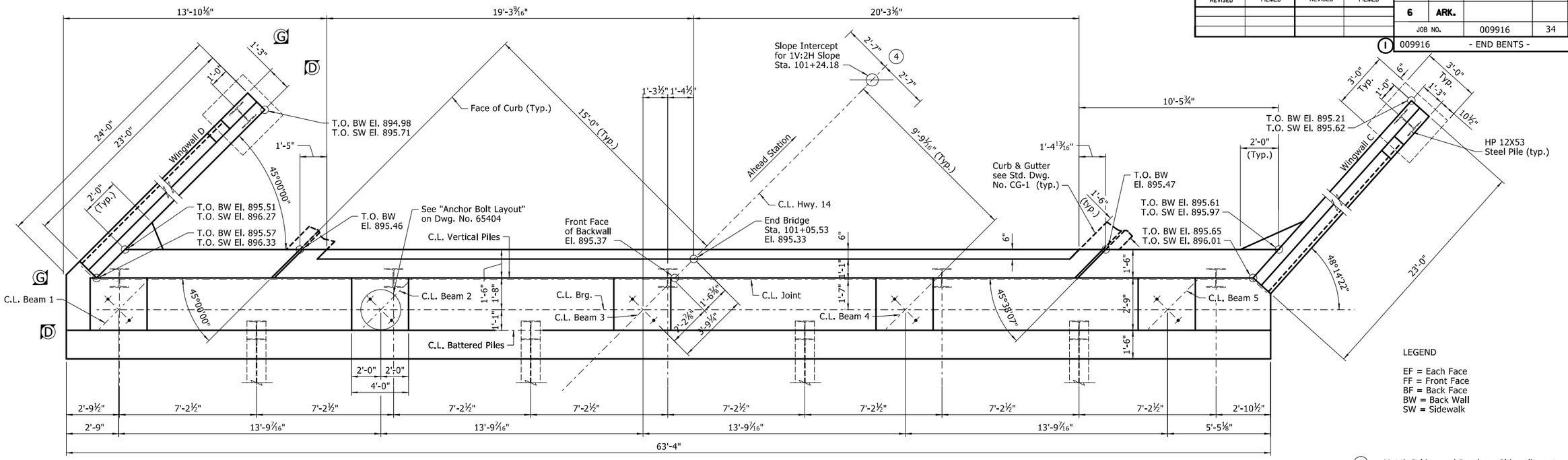
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	MAK	DATE:	06/2022	FILENAME:	b009916_b11.dgn
CHECKED BY:	MAA	DATE:	08/2022		
DESIGNED BY:	JRS	DATE:	07/2022	SCALE:	AS NOTED
BRIDGE NO.	07529			DRAWING NO.	65401

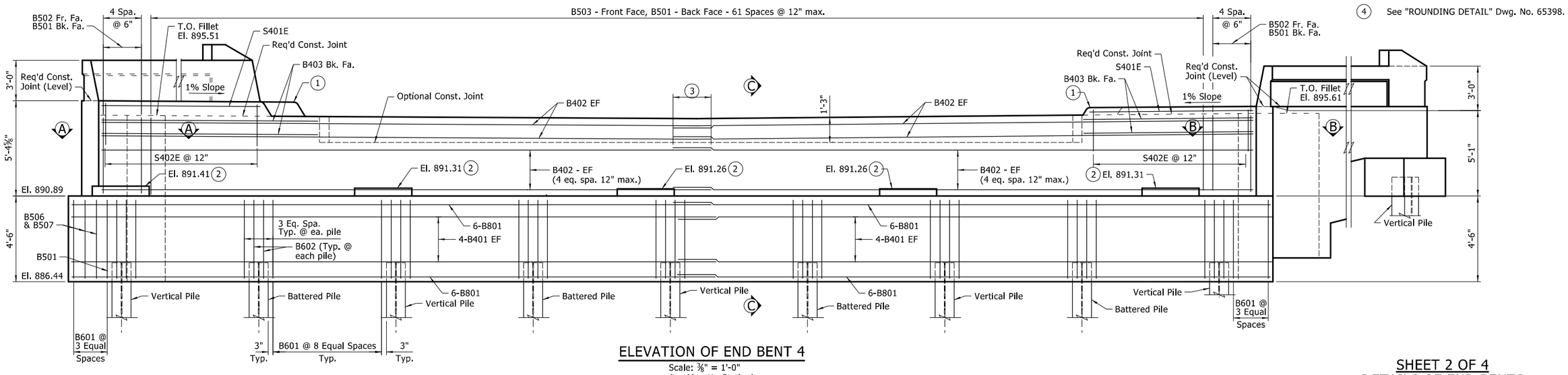
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	34	60

(1) 009916 - END BENTS - 65402



PLAN OF END BENT 4

Scale: ⅜" = 1'-0"



ELEVATION OF END BENT 4

Scale: ⅜" = 1'-0"
(Looking Up Station)

LEGEND

EF = Each Face
FF = Front Face
BF = Back Face
BW = Back Wall
SW = Sidewalk

(1) Match Bridge and Roadway Sidewalk contours. For reinforcing details see Dwg. No. 65410.

(2) See Pedestal Details on Dwg. No. 65404.

(3) 4'-6" Lap - #8 Bars
2'-0" Lap - #4 Bars

(4) See "ROUNDING DETAIL" Dwg. No. 65398.

NOTES:

For General Notes, see Dwg. No. 65401.

For details of Wing & Rail, see Dwg. No. 65404.

For details of Elastomeric Bearing Pads, see Dwg. No. 65409.

For Bar List & Bar Bending Diagram, see Dwg. No. 65404.

For Sections A-A, B-B, D-D, & G-G, see Dwg. Nos. 65403 and 65404.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 19427
JAY R. SCHROEDER

BRIDGE ENGINEER
PRINT DATE: 8/18/2023

08/28/2023

SHEET 2 OF 4
DETAILS OF END BENTS
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

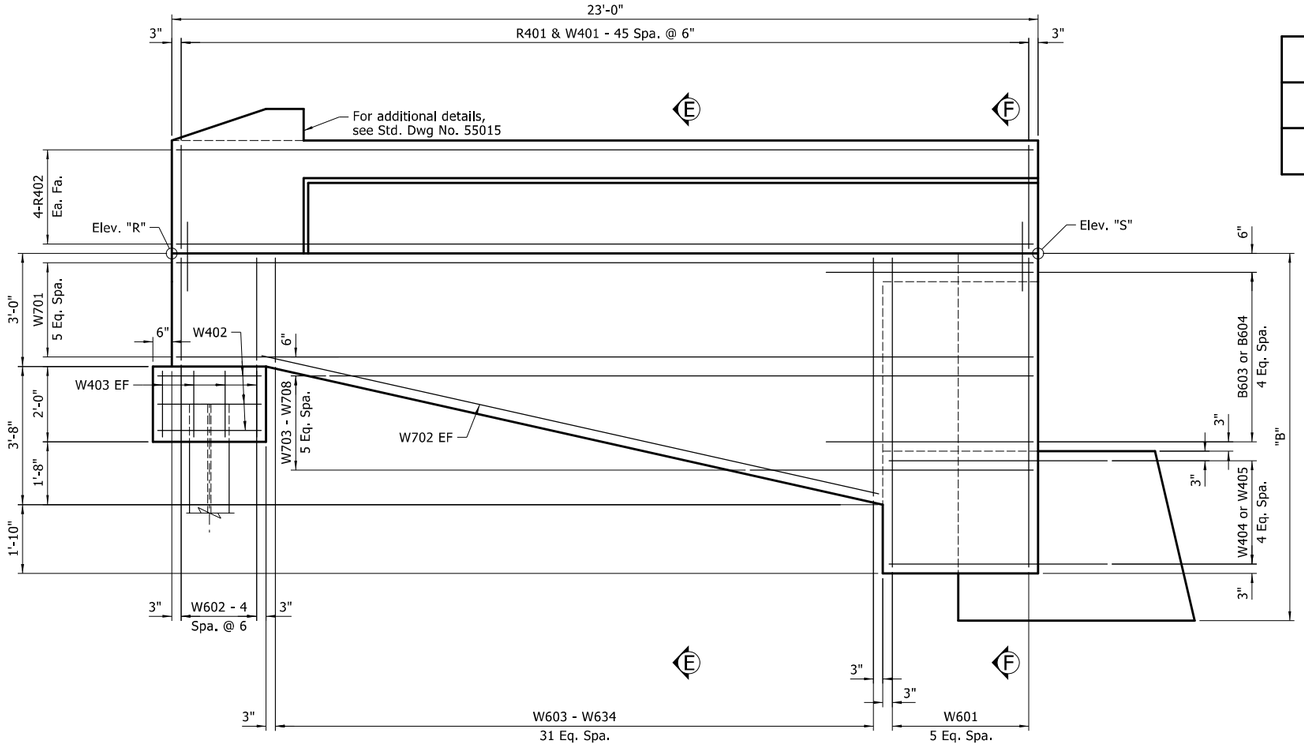
DRAWN BY:	MAK	DATE:	06/2022	FILENAME:	b009916_b41.dgn
CHECKED BY:	MAA	DATE:	08/2022		
DESIGNED BY:	JRS	DATE:	07/2022	SCALE:	AS NOTED
BRIDGE NO.	07529			DRAWING NO.	65402

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	35	60

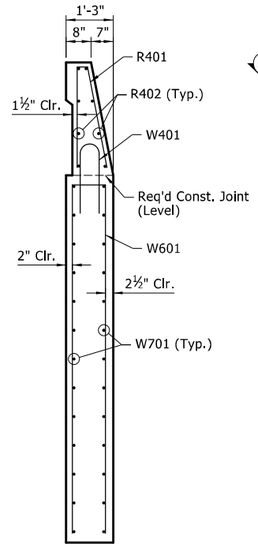
(I) 009916 - END BENTS - 65403

TABLE OF VARIABLES

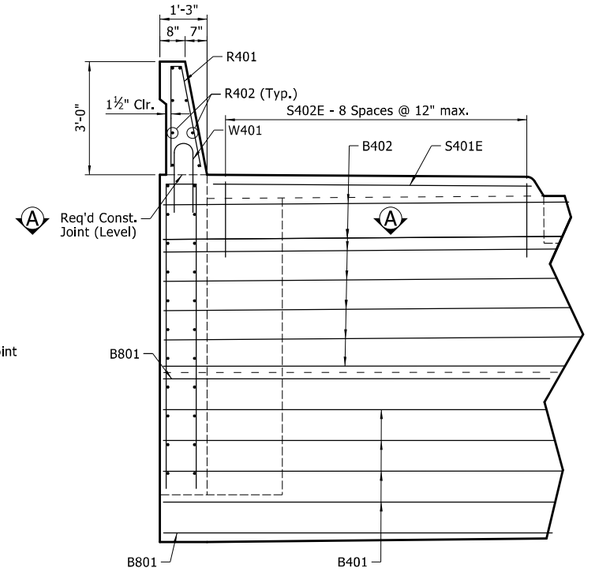
		"B"	Elev "S"	Elev "R"
Bent 1	Wing A	9'-4½"	897.51	897.36
	Wing B	8'-11⅝"	897.10	896.74
Bent 4	Wing C	9'-2¼"	895.57	894.98
	Wing D	9'-3⅜"	895.65	895.21



SECTION D-D
Scale: ½" = 1'-0"



SECTION E-E
Scale: ½" = 1'-0"



SECTION F-F
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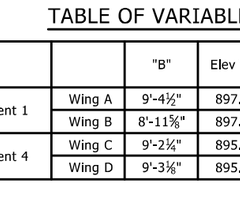
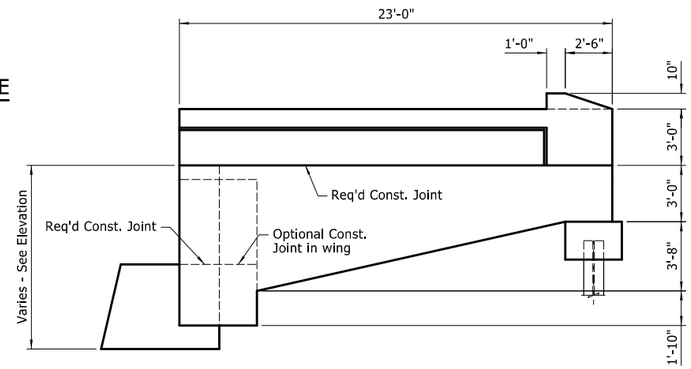
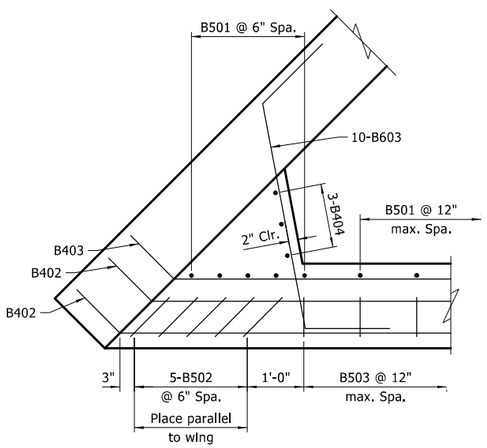


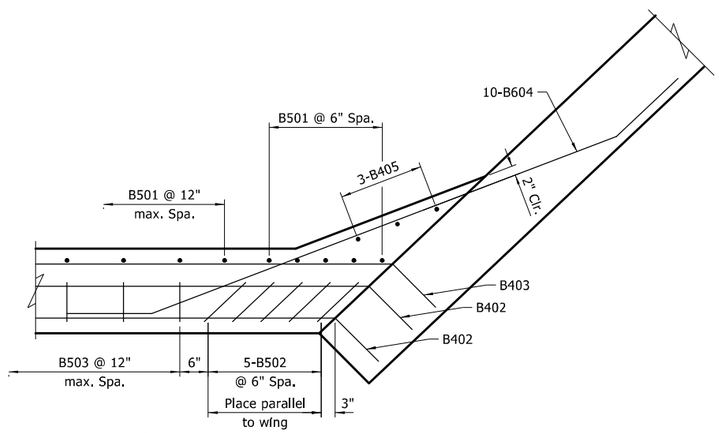
BACK OF RAIL OFFSET
Scale: ½" = 1'-0"



SECTION G-G
Scale: ¼" = 1'-0"



SECTION A-A
Scale: ¾" = 1'-0"



SECTION B-B
Scale: ¾" = 1'-0"

STATE OF ARKANSAS
Jay R. Schroeder
REGISTERED PROFESSIONAL ENGINEER
No. 19427
JAY R. SCHROEDER

BRIDGE ENGINEER
PRINT DATE: 8/18/2023

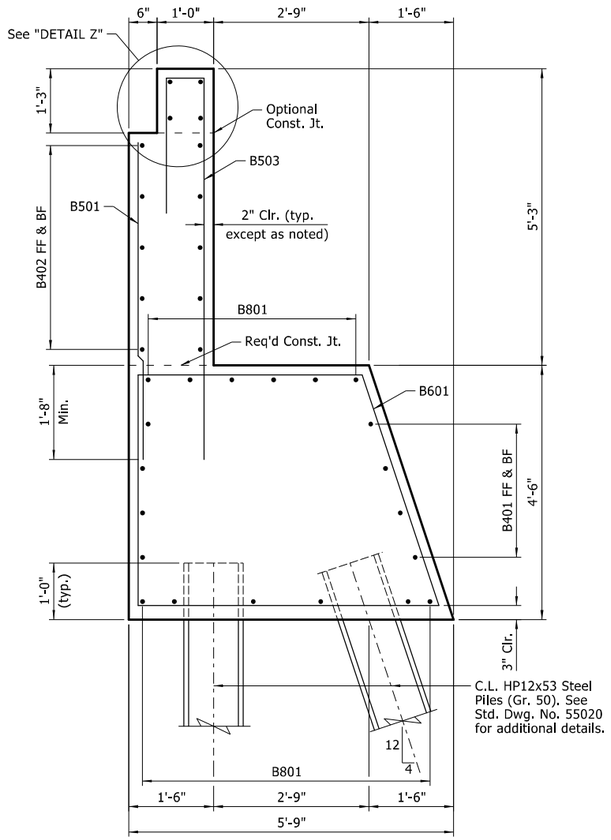
08/28/2023

SHEET 3 OF 4
DETAILS OF END BENTS
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MAK DATE: 06/2022 FILENAME: b009916_b12.dgn
CHECKED BY: MAA DATE: 08/2022
DESIGNED BY: JRS DATE: 07/2022 SCALE: AS NOTED
BRIDGE NO. 07529 DRAWING NO. 65403

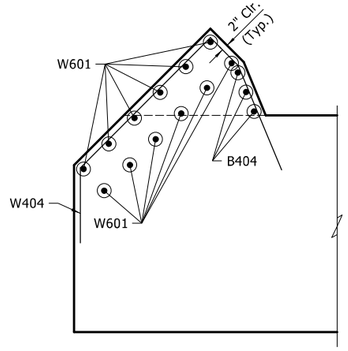
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	36	60

(1) 009916 - END BENTS - 65404



SECTION C-C

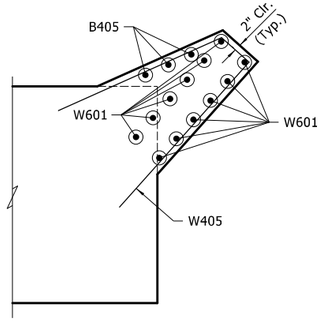
Scale: ¾" = 1'-0"



(Wings A or D)

SECTION G-G

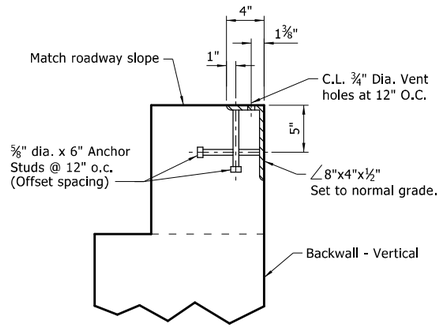
Scale: ½" = 1'-0"



(Wings B or C)

SECTION H-H

Scale: ½" = 1'-0"



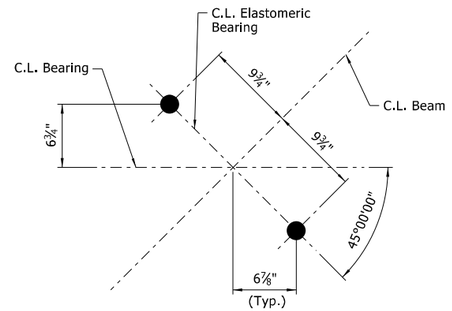
DETAIL Z

No Scale

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

Concrete shall be hand packed under the joint armor in the backwall.

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

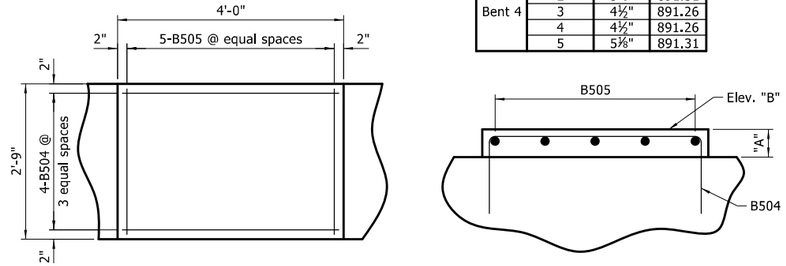


TYPICAL ANCHOR BOLT LAYOUT

No Scale

PEDESTAL HEIGHTS

	Beam No.	"A"	"B"
Bent 1	1	4½"	893.01
	2	8⅜"	893.33
	3	11⅞"	893.62
	4	10⅜"	893.50
	5	8⅛"	893.37
Bent 4	1	6¼"	891.41
	2	5⅛"	891.31
	3	4½"	891.26
	4	4½"	891.26
	5	5⅛"	891.31



PLAN

ELEVATION

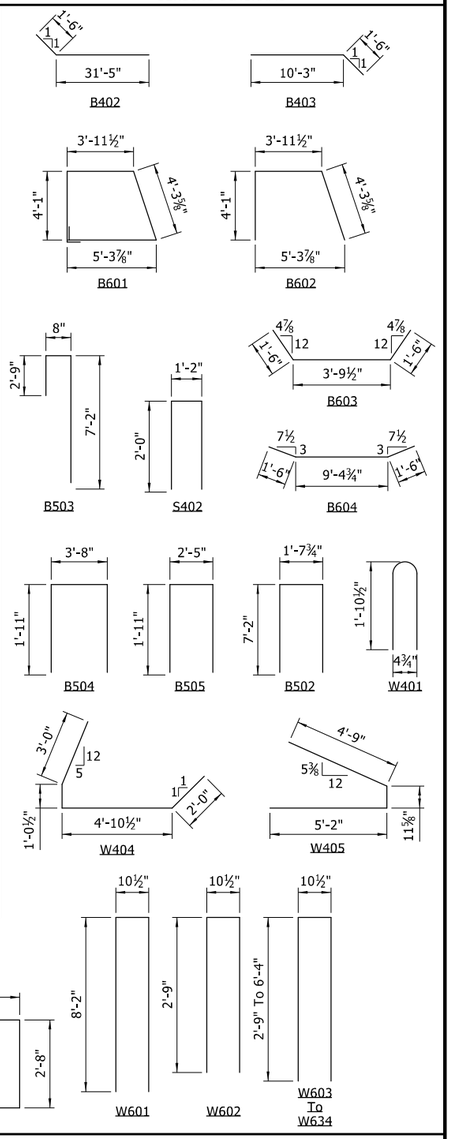
PEDESTAL DETAILS

Scale: ¾" = 1'-0"

BAR LIST-PER BENT

MARK	NO. REQ'D	LENGTH	P.D.
B401	16	32'-6"	Str.
B402	48	32'-10⅜"	3"
B403	4	11'-8⅜"	3"
B404	3	8'-8"	Str.
B405	3	8'-3"	Str.
B501	72	6'-1"	Str.
B502	10	15'- 4½"	2½"
B503	62	10'-4½"	2½"
B504	16	7'-3½"	2½"
B505	20	6'-0½"	2½"
B601	80	18'-10"	4½"
B602	36	12'- 0⅛"	4½"
B603	10	6'-6"	4½"
B604	10	12'-3"	4½"
B801	24	33'-10"	Str.
S401E	2	8'-8"	Str.
S402E	18	5'-0"	2"
R401	92	5'-10⅝"	2"
R402	16	22'-8"	Str.
W401	92	3'-11"	3"
W402	6	11'-0"	2"
W403	24	1'-8"	Str.
W404	5	10'-11"	3"
W405	5	10'-11"	2"
W601	12	16'-10½"	4½"
W602	10	6'-0"	4½"
W603 To W634	2 Ea.	6'-9" To 13'-11"	4½"
W701	24	22'-8"	Str.
W702	4	16'-10"	Str.
W703 To W708	4 Ea.	7'-6" To 18'-8"	Str.

BENDING DIAGRAMS



SHEET 4 OF 4

DETAILS OF END BENTS

MISSOURI & NORTHERN ARKANSAS RR

STR. & APPRS. (SUMMIT) (S)

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 19427 JAY R. SCHROEDER

08/28/2023

BRIDGE ENGINEER

PRINT DATE: 8/18/2023

DRAWN BY: MAK DATE: 06/2022 FILENAME: b009916_b13.dgn

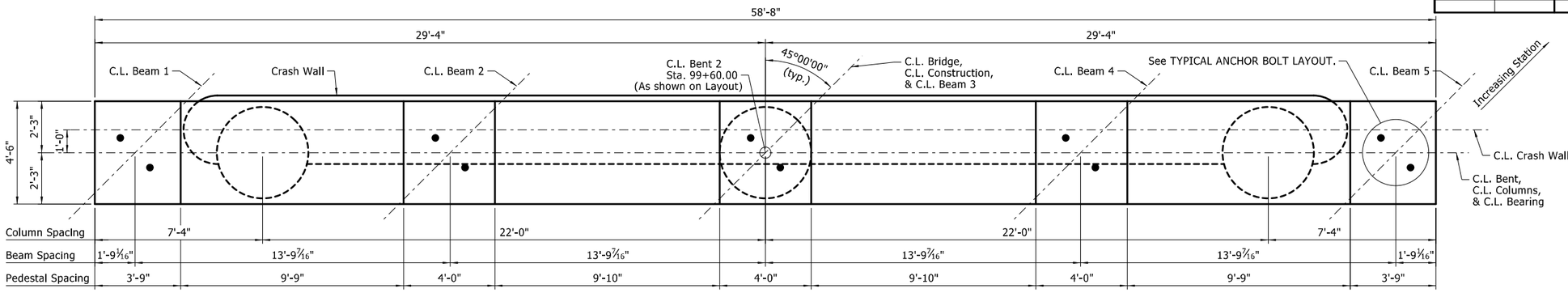
CHECKED BY: MAA DATE: 08/2022

DESIGNED BY: JRS DATE: 07/2022 SCALE: AS NOTED

BRIDGE NO. 07529 DRAWING NO. 65404

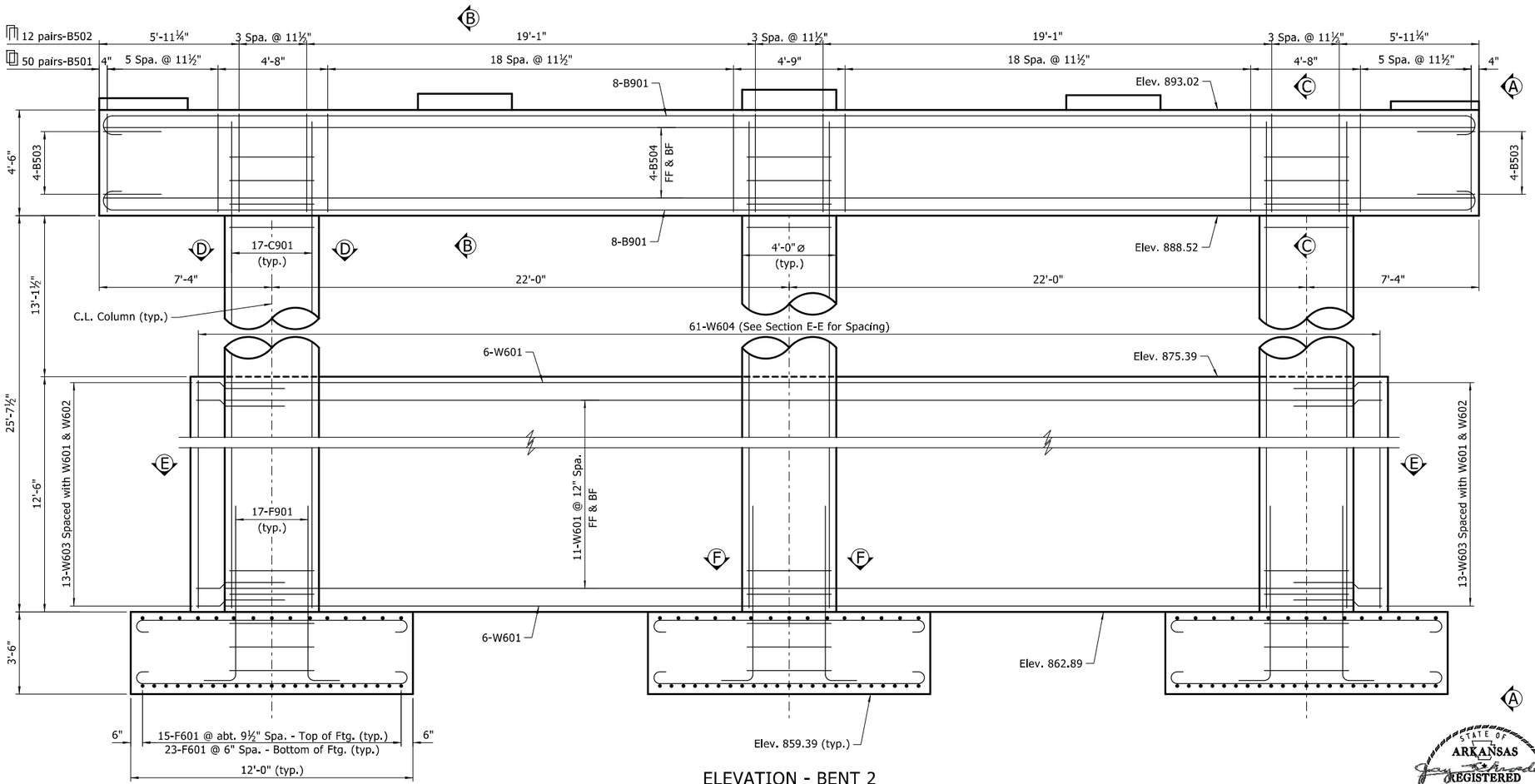
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	37	60

I 009916 - INTERMEDIATE BENTS - 65405



PLAN - BENT 2

Scale: 3/8" = 1'-0"



ELEVATION - BENT 2

Scale: 3/8" = 1'-0"
(Looking Up Station)

General Notes:

For Pedestal Details, see Sheet 65406.

For Bearing Details, see Sheet 65409.

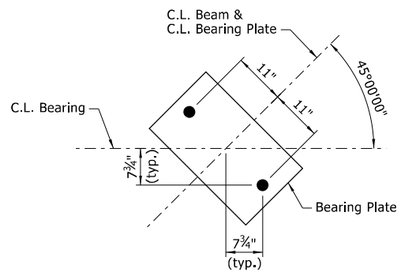
For General Notes, see Std. Dwg. No. 55006.

For additional Information, see Layout.

Legend:

FF = Front Face

BF = Back Face



TYPICAL ANCHOR BOLT LAYOUT

Scale: ¾" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 19427
JAY R. SCHROEDER

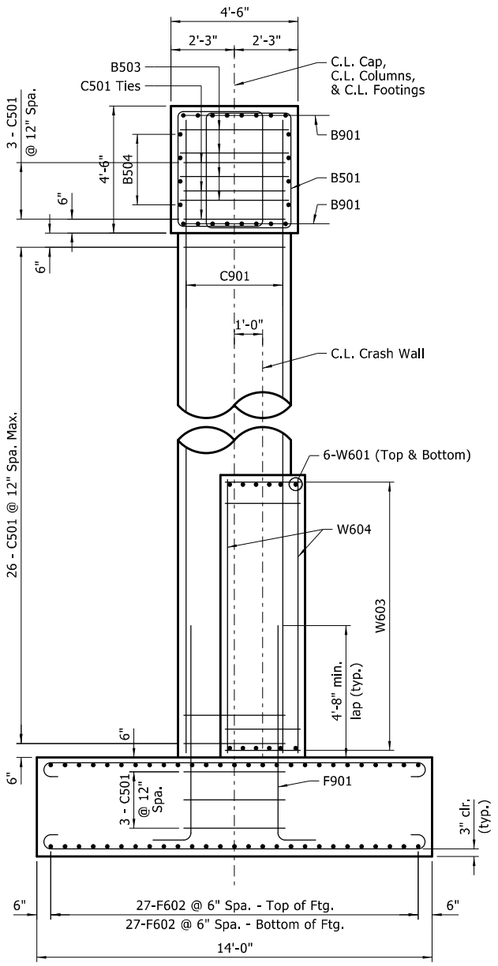
BRIDGE ENGINEER
PRINT DATE: 8/18/2023

SHEET 1 OF 4
DETAILS OF INTERMEDIATE BENTS
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
08/28/2023 LITTLE ROCK, ARKANSAS

DRAWN BY:	MSM	DATE:	05/2022	FILENAME:	b009916_b21.dgn
CHECKED BY:	MAA	DATE:	08/2022		
DESIGNED BY:	JRS	DATE:	07/2022	SCALE:	AS NOTED
BRIDGE NO.	07529			DRAWING NO.	65405

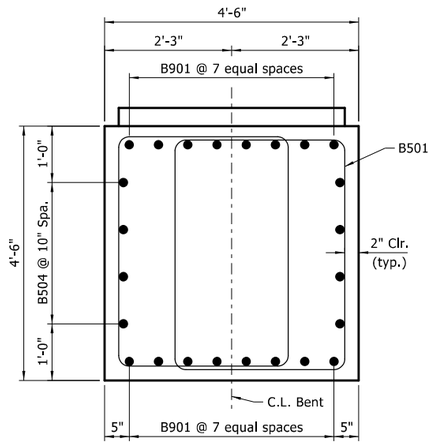
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	38	60

(1) 009916 - INTERMEDIATE BENTS - 65406



VIEW A-A

Scale: ⅜" = 1'-0"



SECTION B-B

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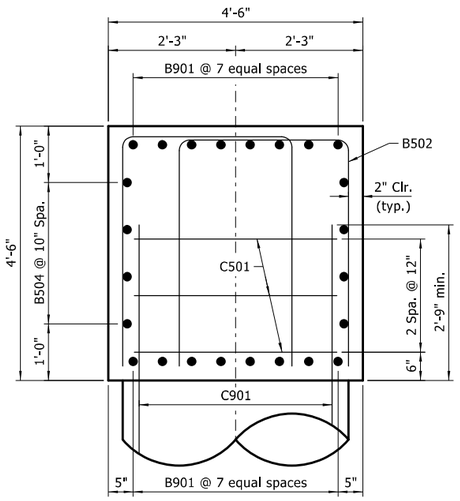

SECTION C-C

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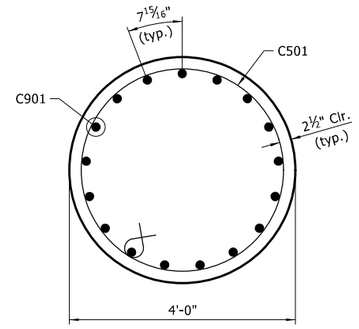
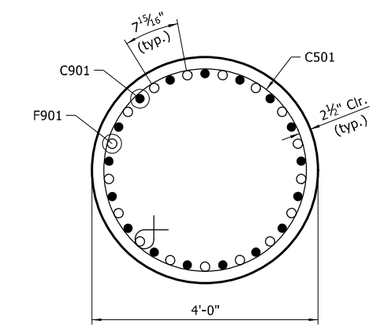


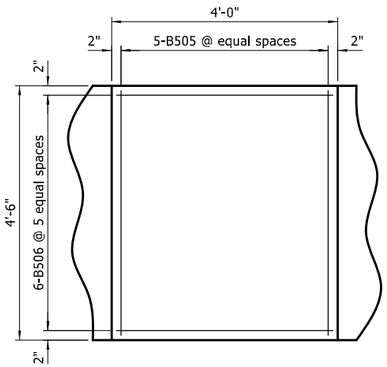
SECTION D-D

Scale: ¾" = 1'-0"

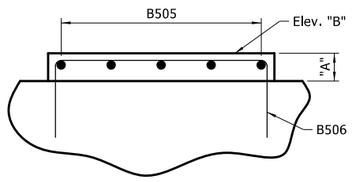


SECTION F-F

Scale: ¾" = 1'-0"



PLAN



ELEVATION

PEDESTAL DETAILS

Scale: ¾" = 1'-0"

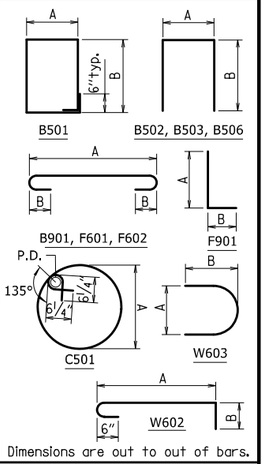
PEDESTAL HEIGHTS

	Beam No.	"A"	"B"
Bent 2	1	6 1/16"	893.52
	2	8 1/4"	894.71
	3	10⅜"	894.88
	4	7½"	894.64
	5	4½"	893.39
Bent 3	1	6¾"	892.90
	2	7⅛"	893.93
	3	7¼"	893.94
	4	5⅝"	893.79
	5	4½"	892.71

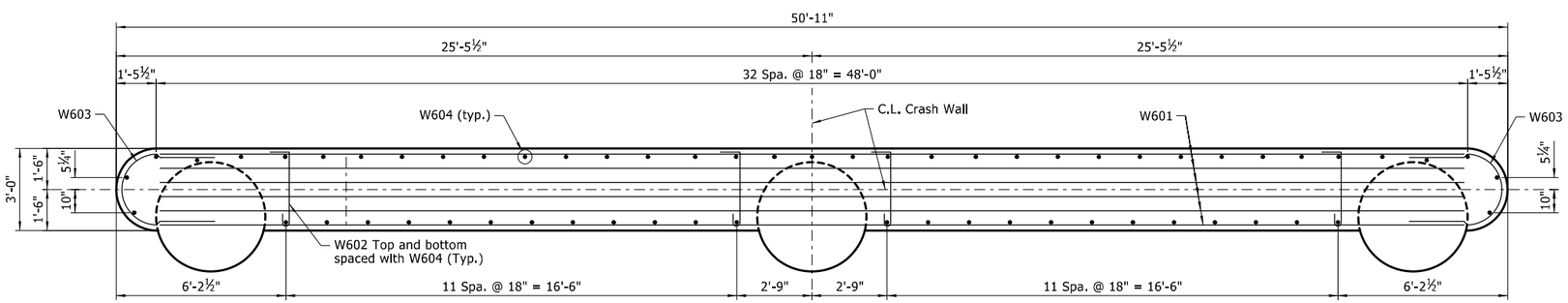
BAR LIST-BENT 2

MARK	NO. REQ'D.	LENGTH	'A'	'B'	P.D.
B501	100	15'-2"	3'-2"	4'-2"	2½"
B502	24	11'-4"	3'-2"	4'-2"	2½"
B503	8	9'-10"	4'-0¾"	3'-0"	2'- 2½"
B504	8	58'-0"			Str.
B505	20	4'-2"			Str.
B506	24	7'-5"	3'-8"	2'-2 '	2'-2½"
B901	16	60'-10"	58'-4"	10"	9"
C501	96	10'-10"	3'-7"		3¾"
C901	51	29'-0"			Str.
F601	114	14'-10"	13'-6"	6"	4½"
F602	162	12'-10"	11'-6"	6"	4½"
F901	51	11'-3"	9'-11"	1'-7 ¼"	9"
W601	38	48'-0"			Str.
W602	48	4'-2"	2'-2"	1'-0"	4½"
W603	26	12'-8"	2'-8"	6'-2"	4½"
W604	61	12'-2"			Str.

BENDING DIAGRAMS



Dimensions are out to out of bars.



SECTION E-E

Scale: ⅜" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 19427
JAY R. SCHROEDER

BRIDGE ENGINEER
PRINT DATE: 8/18/2023

SHEET 2 OF 4
DETAILS OF INTERMEDIATE BENTS
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

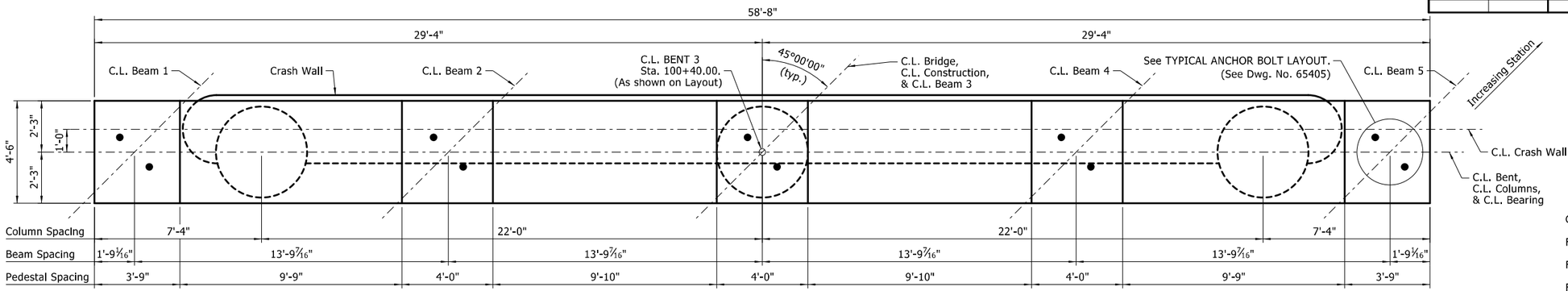
LITTLE ROCK, ARKANSAS

08/28/2023

DRAWN BY: MSM DATE: 05/2022 FILENAME: b009916_b22.dgn
CHECKED BY: MAA DATE: 08/2022
DESIGNED BY: JRS DATE: 07/2022 SCALE: AS NOTED
BRIDGE NO. 07529 DRAWING NO. 65406

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	39	60

(1) 009916 - INTERMEDIATE BENTS - 65407



PLAN - BENT 3

Scale: 3/8" = 1'-0"

General Notes:

For Footing Details, see Sheet 65408.

For Pedestal Details, see Sheet 65406.

For Bearing Details, see Sheet 65407.

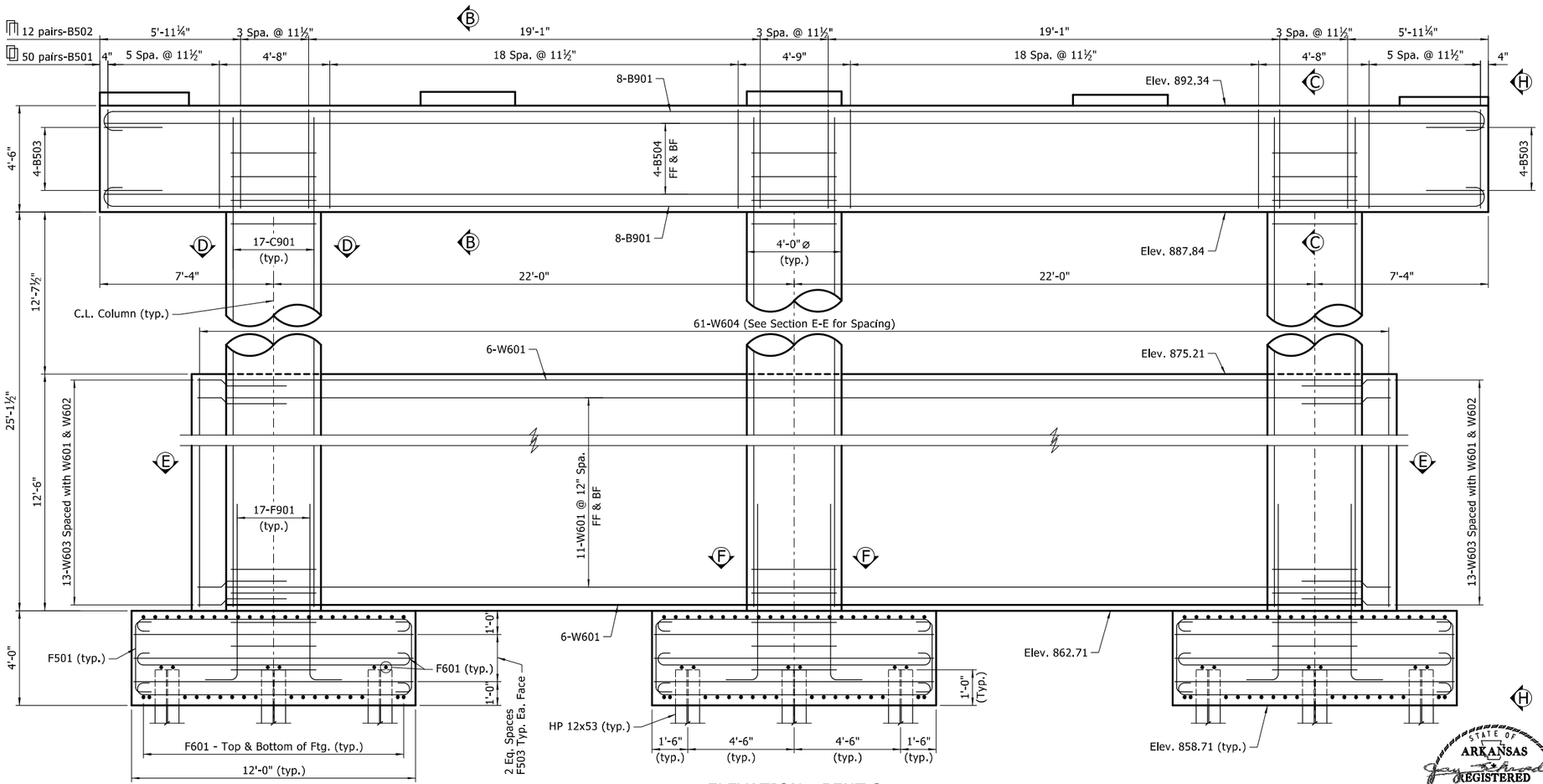
For General Notes, see Std. Dwg. No. 55006.

For additional information, see Layout.

Legend:

FF = Front Face

BF = Back Face



ELEVATION - BENT 3

Scale: 3/8" = 1'-0"
(Looking Up Station)

SHEET 3 OF 4
DETAILS OF INTERMEDIATE BENTS
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

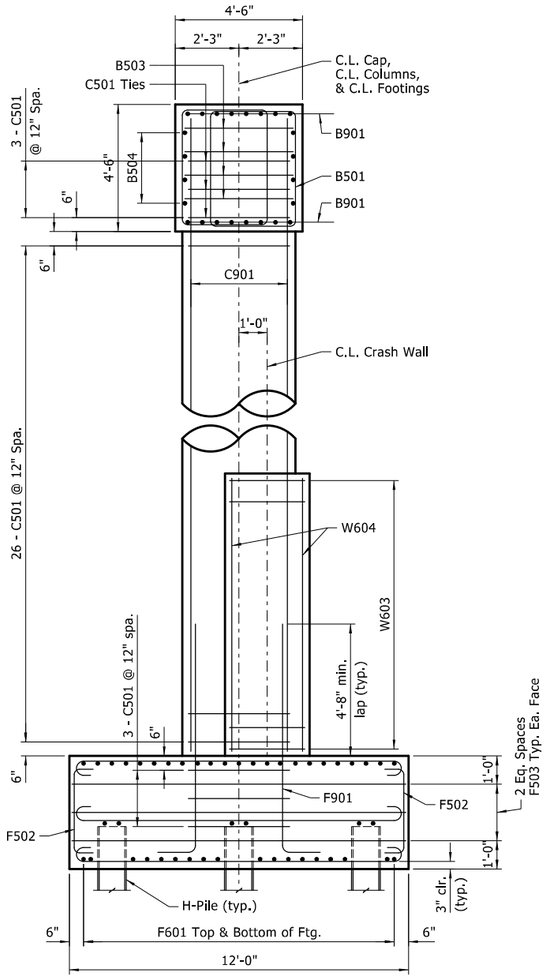
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 19427
JAY R. SCHROEDER
08/28/2023

BRIDGE ENGINEER
PRINT DATE: 8/18/2023

DRAWN BY: MSM DATE: 05/2022 FILENAME: b009916_b31.dgn
CHECKED BY: MAA DATE: 08/2022
DESIGNED BY: JRS DATE: 07/2022 SCALE: AS NOTED
BRIDGE NO. 07529 DRAWING NO. 65407

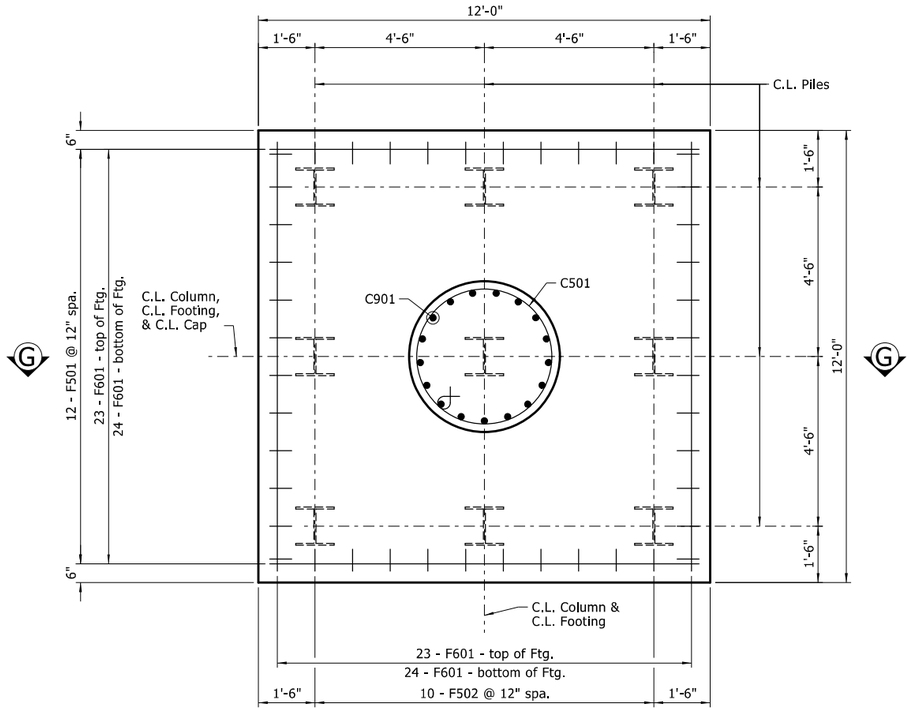
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	40	60

(1) 009916 - INTERMEDIATE BENTS - 65408



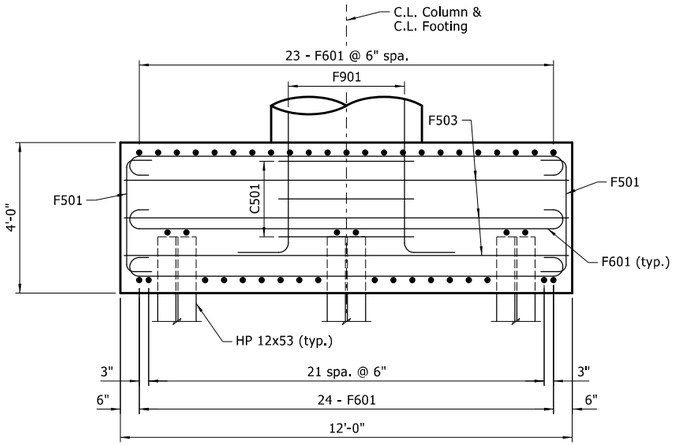
VIEW H-H

Scale: ⅜" = 1'-0"



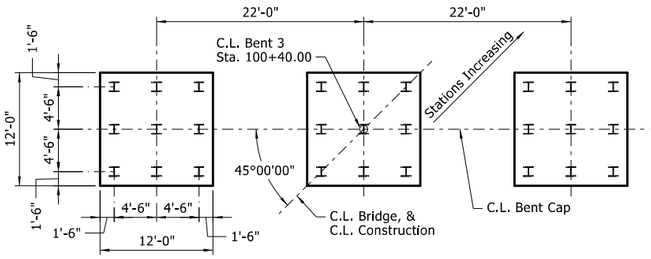
PLAN OF FOOTING

Scale: ½" = 1'-0"
Typical for each footing



SECTION G-G

Scale: ½" = 1'-0"

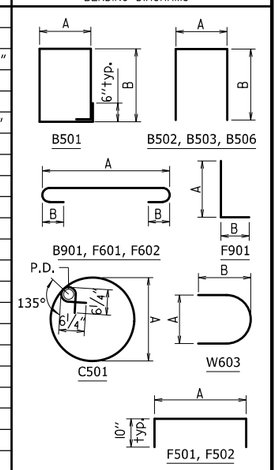


PLAN OF FOOTINGS

Scale: ⅛" = 1'-0"

BAR LIST-BENT 3

MARK	NO. REQ'D.	LENGTH	'A'	'B'	P.D.	BENDING DIAGRAMS
B501	100	15'-2"	3'-2"	4'-2"	2½"	
B502	24	11'-4"	3'-2"	4'-2"	2½"	
B503	8	9'-10"	4'-0¾"	3'-0"	2'- 2½"	
B504	8	58'-0"	58'-0"		Str.	
B505	20	4'-2"	4'-2"		Str.	
B506	24	7'-0"	3'-8"	1'-9"	2'-2½"	
B901	16	60'-10"	58'-4"	10"	9"	
C501	96	10'-10"	3'-7"		3¾"	
C901	51	28'-9"	28'-9"		Str.	
F501	60	3'-8"			2½"	
F502	72	3'-6"			2½"	
F503	36	11'-6"			Str.	
F601	282	12'-6"	11'-6"	6"	4½"	
F901	51	9'-3"	7'-11"	1'-7 ¼"	9"	
W601	26	48'-0"	48'-0"		Str.	
W602	4	48'-0"	48'-0"		Str.	
W603	26	12'-8"	2'-8"	6'-2"	4½"	
W604	61	12'-2"	12'-2"		Str.	



Dimensions are out to out of bars.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 19427 JAY R. SCHROEDER

BRIDGE ENGINEER
PRINT DATE: 8/18/2023

SHEET 4 OF 4
DETAILS OF INTERMEDIATE BENTS
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)

ROUTE SECTION

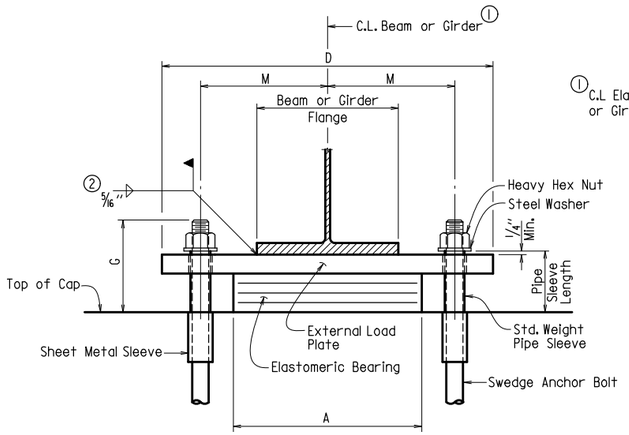
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

08/28/2023

DRAWN BY: MSM DATE: 05/2022 FILENAME: b009916_b32.dgn
CHECKED BY: MAA DATE: 08/2022
DESIGNED BY: JRS DATE: 07/2022 SCALE: AS NOTED
BRIDGE NO. 07529 DRAWING NO. 65408

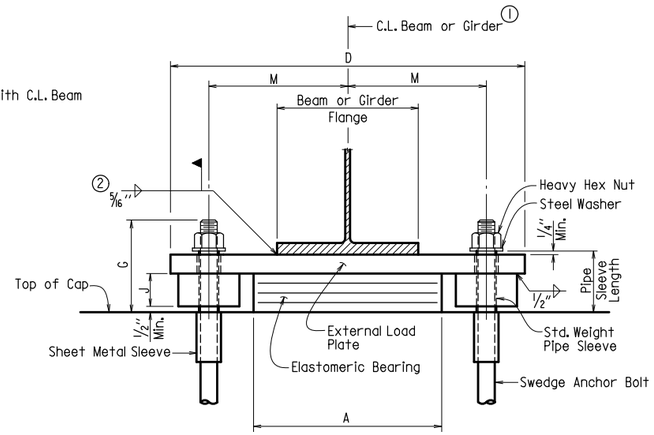
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	41	60

① 009916 - ELASTO. BEARINGS - 65409

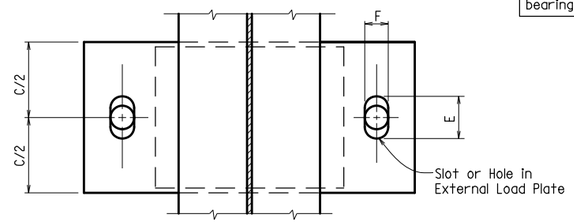


FRONT VIEW - AT BENT NOS. 1 & 4

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

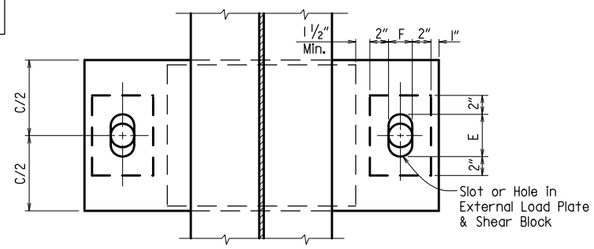


FRONT VIEW - AT BENT NOS. 2 & 3

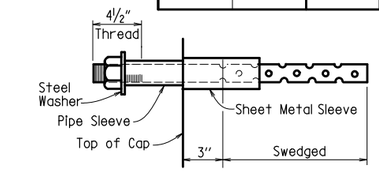


PLAN VIEW - AT BENT NOS. 1 & 4

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



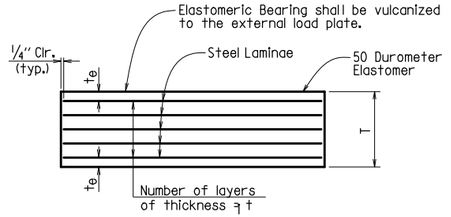
PLAN VIEW - AT BENT NOS. 2 & 3



ANCHOR BOLT DETAIL

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

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



t_e = Thickness of elastomer cover on top and bottom of pad

t_1 = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t

ELASTOMERIC BEARING

GENERAL NOTES

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

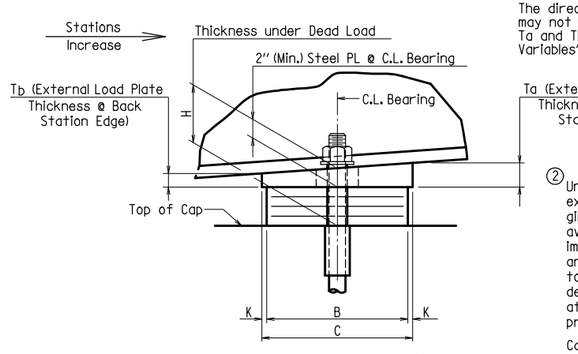
External load plates and shear blocks shall conform to ASTM A709, Gr. 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

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

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

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

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

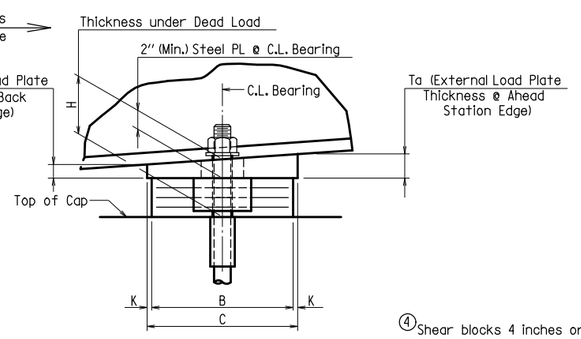


SIDE VIEW - AT BENT NOS. 1 & 4

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

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

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



SIDE VIEW - AT BENT NOS. 2 & 3

④ Shear blocks 4 inches or thicker may be fabricated from built-up plates with a 5/16" groove weld on all sides. No plate shall be less than 2" nominal thickness.

TABLE OF FABRICATOR VARIABLES

③ Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION: BENT NO(S).	LOCATION: BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	③ MAXIMUM DESIGN LOAD (KIPS)	ELASTOMERIC PAD: G	H	A	B	N	t_1	t_e	NO. & THICKNESS OF STEEL LAMINAE	T
	B1	All	Exp	5	147	8 7/8"	5 9/16"	14"	12"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"
	B2	All	Fix	5	292	8 3/4"	4 15/16"	16"	16"	4	1/2"	1/4"	5 @ 12 Ga.	3"
	B3	All	Fix	5	298	8 3/4"	4 15/16"	16"	16"	4	1/2"	1/4"	5 @ 12 Ga.	3"
	B4	All	Exp	5	146	8 7/8"	5 9/16"	14"	12"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"

BRIDGE NO.	EXTERNAL LOAD PLATE: C	D	E	F	④ J	K	M	T_a	T_b	ANCHOR BOLT: (Dia. x L)	GRADE	PIPE SLEEVE SIZE (Dia. x L)	SHEET METAL SLEEVE SIZE (Dia. x L)	STEEL WASHER SIZE (O.D.)
	13"	26"	4 5/8"	3 1/8"	--	1/2"	9 3/4"	2"	2"	2" x 32"	55	2 1/2" x 5 7/8"	4" x 10"	3 3/8"
	17"	29"	3 3/4"	3 3/4"	--	1/2"	11"	2"	2"	2 1/2" x 37"	55	3" x 5 1/4"	4" x 10"	4 1/2"
	17"	29"	3 3/4"	3 3/4"	--	1/2"	11"	2"	2"	2 1/2" x 37"	55	3" x 5 1/4"	4" x 10"	4 1/2"
	13"	26"	4 5/8"	3 1/8"	--	1/2"	9 3/4"	2"	2"	2" x 32"	55	2 1/2" x 5 7/8"	4" x 10"	3 3/8"

STATE OF ARKANSAS — Jay R. Schroeder — REGISTERED PROFESSIONAL ENGINEER — No. 19427

BRIDGE ENGINEER

PRINT DATE: 8/18/2023

DETAILS OF ELASTOMERIC BEARINGS MISSOURI & NORTHERN ARKANSAS RR STR. & APPRS. (SUMMIT) (S)

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

08/28/2023 LITTLE ROCK, ARKANSAS

DRAWN BY: MSM DATE: 06/2022 FILENAME: b009916_e.dgn

CHECKED BY: MAA DATE: 06/2022

DESIGNED BY: JRS DATE: 06/2022 SCALE: AS SHOWN

BRIDGE NO. 07529 DRAWING NO. 65409

$FILE$ $FILEABBREV$ $TIME$ $DATE$

Slab Reinforcing:

Longitudinal: S401E placed as shown in top (place as shown)
S503E placed as shown in bottom (place as shown)

Transverse: S601E In Top & S501E In Bottom @ 12" o.c. — Alternate
S602E @ 12" o.c. bent up over beams
S502E @ 6" o.c. bundled with #6 bars in top of overhangs both sides

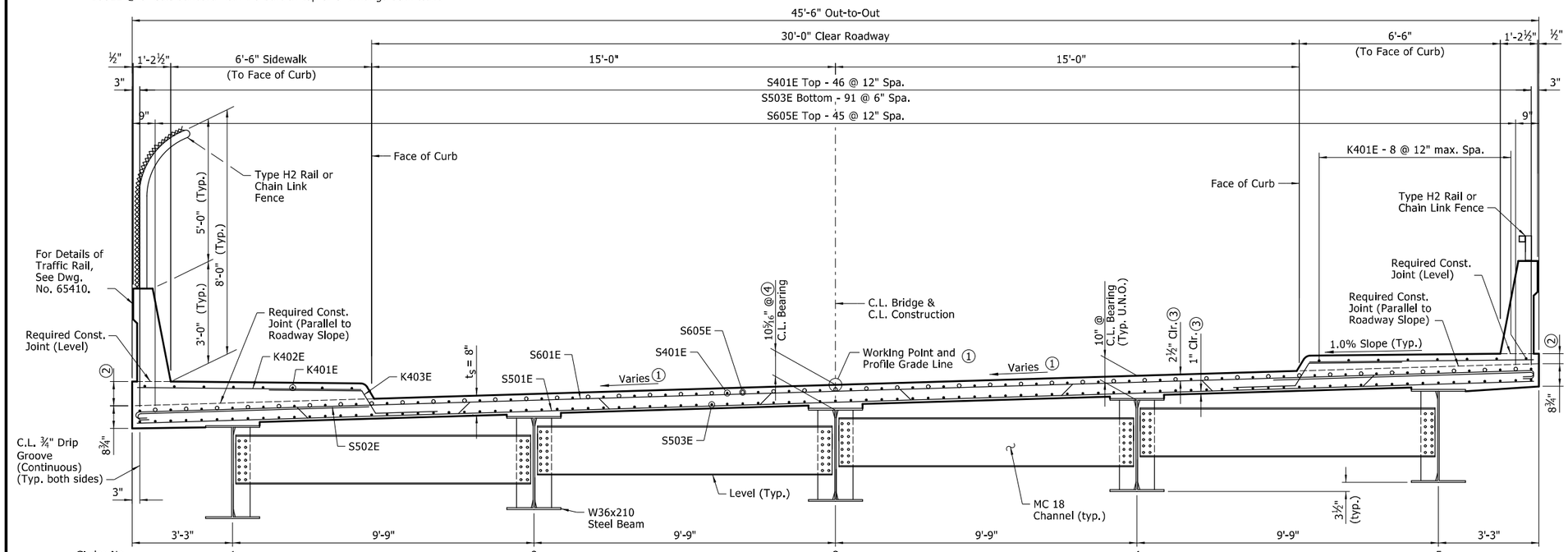
Sidewalk Reinforcing:

Longitudinal: K401E in top (place as shown)

Transverse: K402E & K403E @ 12" o.c.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	42	60

(1) 009916 - SPAN DETAILS - 65410



Notes:
For Standard General Notes and Details, see Std. Dwg. Nos. 55006 and 55007.

For additional sidewalk details, See "SIDEWALK DETAIL" on Dwg. No. 65410.

Class 2 Protective Surface Treatment shall be applied to the Roadway and Sidewalk Surfaces (including curbing), and the Roadway Face and Top of Concrete Traffic Rail.

Bar positions and clearances from the forms shall be maintained by means of stays, tie 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.

At the Contractor's option, two straight epoxy coated #5 bars may be substituted for Bar S501E. Payment for reinforcing will be based on the weight of Bar S501E.

The Superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) concrete.

All bars with an "E" suffix shall be Epoxy Coated.

(1) See "SUPERELEVATION SKETCH" and "ROUNDING DETAIL" on Layout.

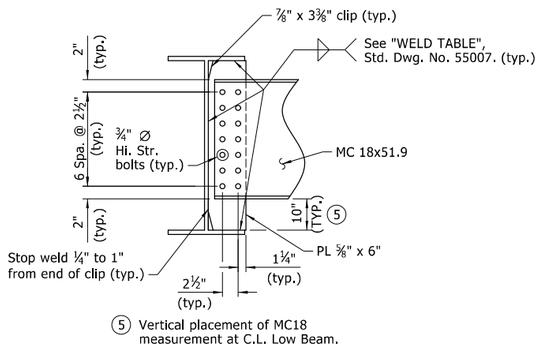
(2) Varies - 8 9/16" at and before Normal Crown Sta. 96+45.00 to 3⅜" at Sta. 101+53.18.

(3) See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE", Std. Dwg. No. 55007.

(4) Tolerance: Minus = ¼"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance- See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE", See Std. Dwg. No. 55008.

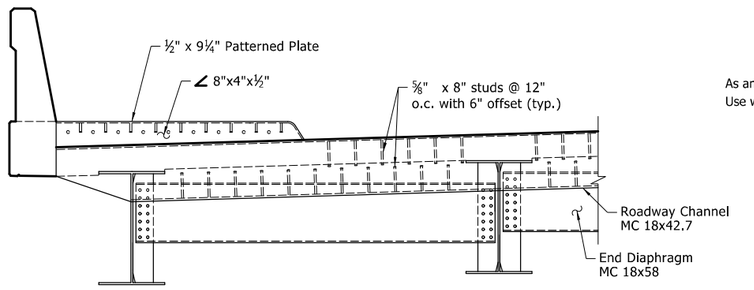
TYPICAL SECTION NEAR INTERMEDIATE BENT

Scale: ½" = 1'-0"



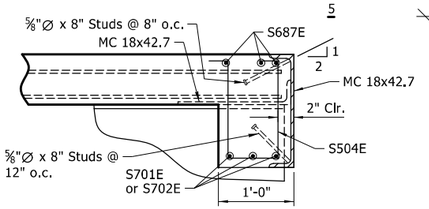
INT. DIA. CONNECTION PLATE DETAIL

No Scale



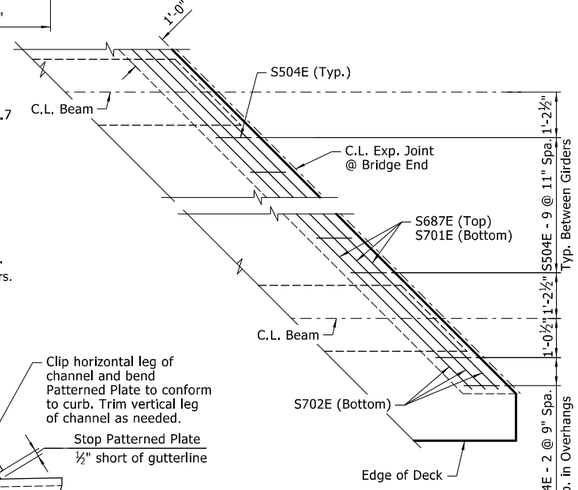
TYPICAL ROADWAY SECTION NEAR JOINT

Looking Ahead Bent 1
1½" = 1'-0"



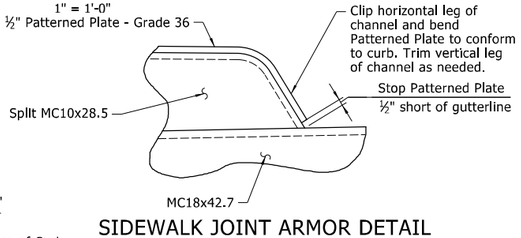
As an alternate to ⅝"Ø studs, ½"Ø x 8" studs spaced as shown may be used. Use weight of ⅝"Ø stud as basis of measurement of structural steel in anchors.

SECTION THROUGH DOWNTURN AT BRIDGE ENDS



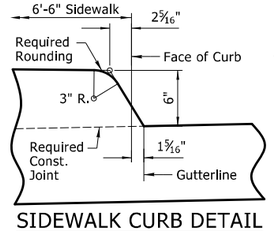
PLAN OF TURNDOWN AT BRIDGE ENDS

1½" = 1'-0"



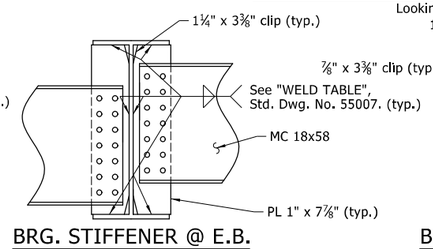
SIDEWALK JOINT ARMOR DETAIL

No Scale



SIDEWALK CURB DETAIL

Perpendicular to C.L. Bridge
1½" = 1'-0"

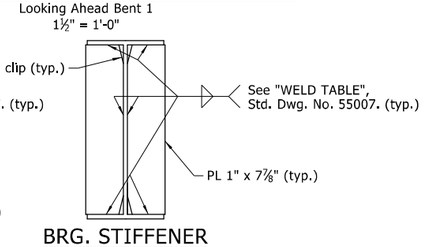


BRG. STIFFENER @ E.B. DIA. EXT. GIRDER DETAIL

No Scale

BRG. STIFFENER @ E.B. DIA. INT. GIRDER DETAIL

No Scale



BRG. STIFFENER AT INT. BENT DETAIL

No Scale

STATE OF ARKANSAS
Jay R. Schroeder
REGISTERED PROFESSIONAL ENGINEER
No. 19427
JAY R. SCHROEDER

08/28/2023

BRIDGE ENGINEER
PRINT DATE: 8/18/2023

SHEET 1 OF 5
DETAILS OF 208'-0" CONTINUOUS W-BEAM UNIT
MISSOURI & NORTHERN ARKANSAS RR STR. & APPRS. (SUMMIT) (S)

ROUTE SECTION

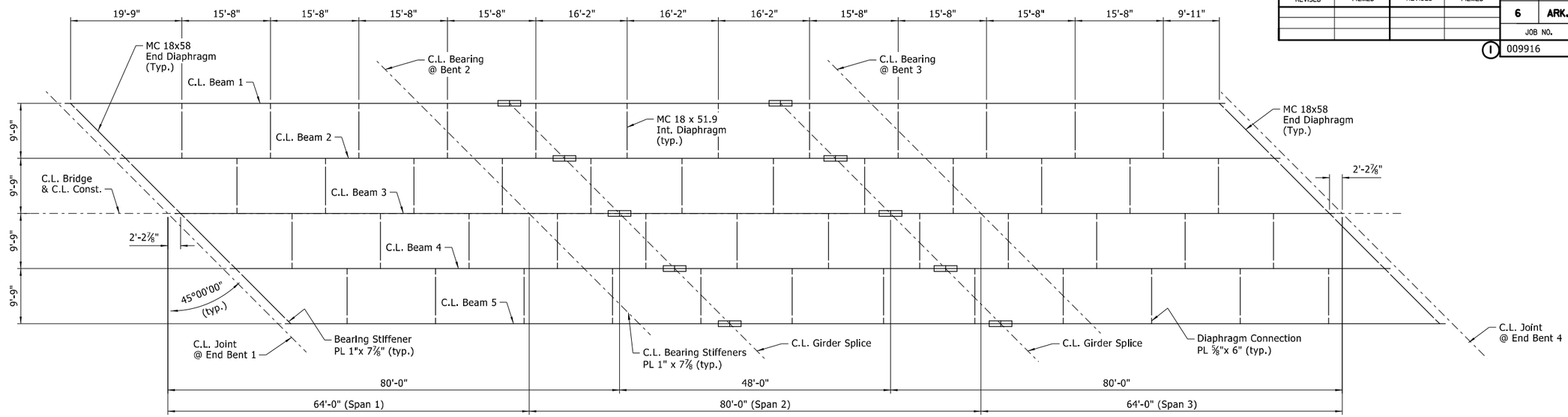
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

DRAWN BY:	MSM	DATE:	05/2022	FILENAME:	b009916_s1.dgn
CHECKED BY:	MAA	DATE:	08/2022		
DESIGNED BY:	JRS	DATE:	07/2022	SCALE:	AS NOTED
BRIDGE NO.	07529			DRAWING NO.	65410

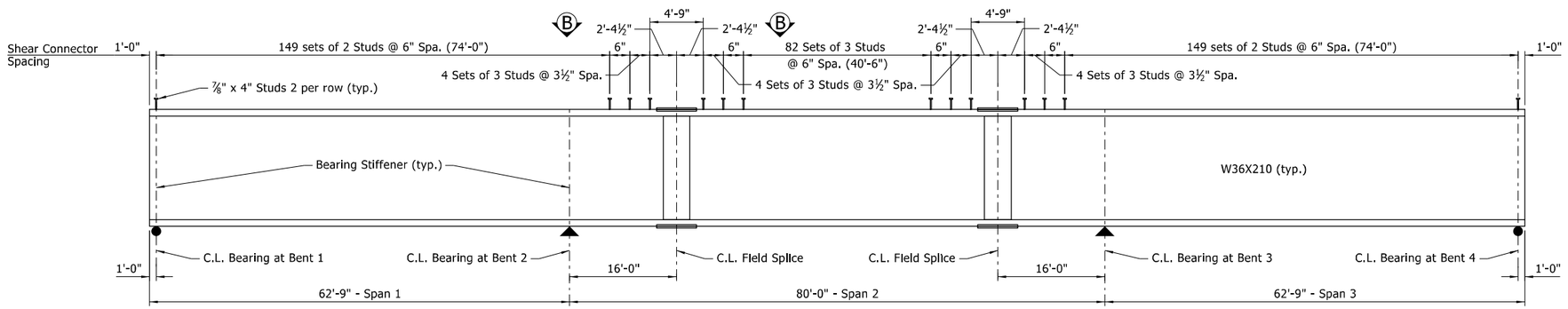
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	43	60

(1) 009916 - SPAN DETAILS - 65411



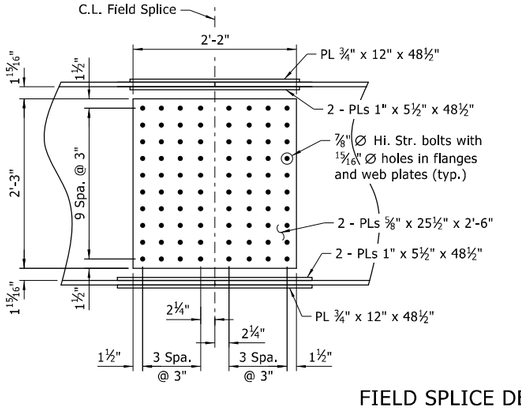
FRAMING PLAN

Scale: 1" = 10'-0"



BEAM ELEVATION

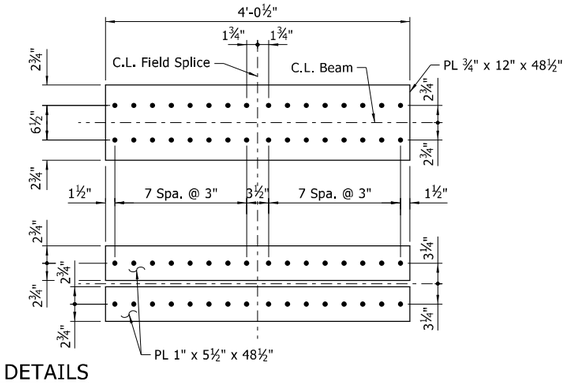
NO SCALE

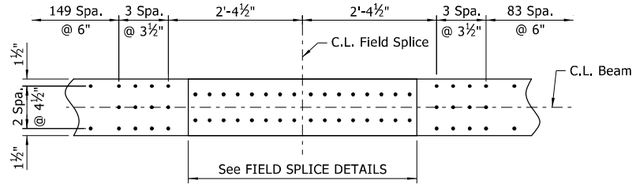


FIELD SPLICE DETAILS

Scale: 1" = 1'-0"

Typical for all field splices.





SECTION B-B

Scale: ¾" = 1'-0"

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

All Grade 50W structural steel, except galvanized members, surfaces in contact with concrete, and the expansion device, within five feet of bridge deck expansion joints shall be painted as specified in Subsection 807.75. The color of paint shall be Brown equal or close to Federal Std. 595B, 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 occuring during transport or installation shall be corrected according to the manufacturer's recommendations at no cost to the Department. ASTM F3125, Grade A325 Type 3 bolts shall be used within these painted zones and shall be painted.

For additional Information, see Layout.

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

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

STATE OF ARKANSAS
Jay R. Schroeder
REGISTERED PROFESSIONAL ENGINEER
No. 19427
JAY R. SCHROEDER

BRIDGE ENGINEER
PRINT DATE: 8/18/2023

SHEET 2 OF 5
DETAILS OF 208'-0" CONTINUOUS W-BEAM UNIT
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)
ROUTE SECTION

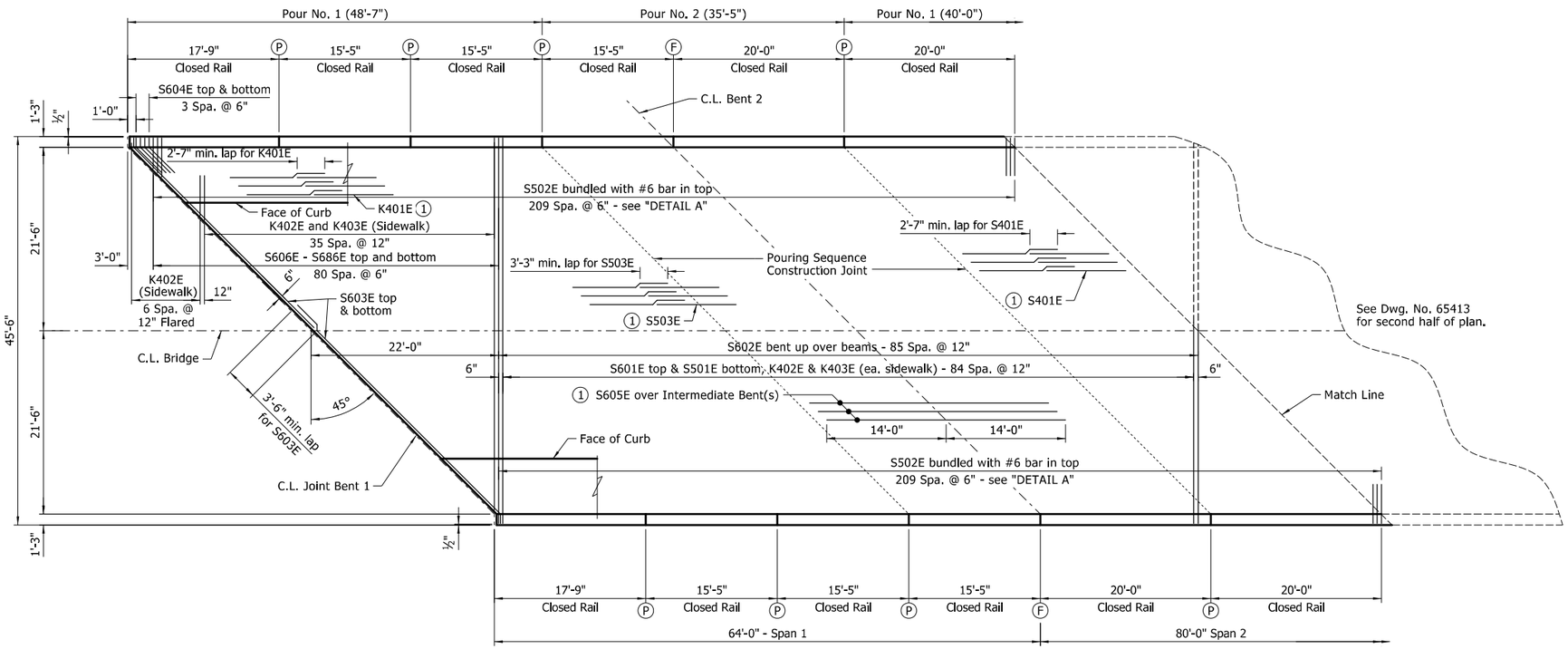
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

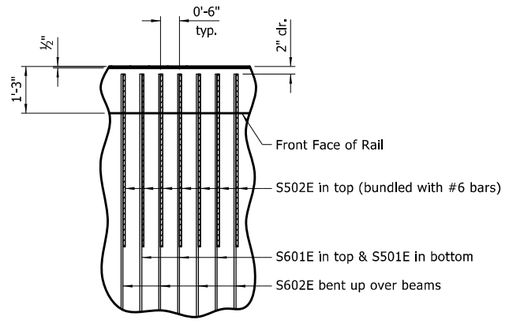
08/28/2023

DRAWN BY: MSM DATE: 05/2022 FILENAME: b009916_s2.dgn
CHECKED BY: MAA DATE: 08/2022
DESIGNED BY: JRS DATE: 07/2022 SCALE: AS NOTED
BRIDGE NO. 07529 DRAWING NO. 65411

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	44	60

(1) 009916 - SPAN DETAILS - 65412





DETAIL A

No Scale

HALF REINFORCING PLAN AND POURING SEQUENCE

Scale: ⅛" = 1'-0"

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

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

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

(F) C.L. Full-Depth Rail Joint (¼" to 1" max.). Stop 6" from top of slab.

(P) C.L. Partial-Depth Rail Joint (¼" to 1" max.). Stop 12" from top of slab.

(1) Placed as shown in "TYPICAL ROADWAY SECTION NEAR INT. BENT", see Dwg. No. 65410.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 19427
JAY R. SCHROEDER

BRIDGE ENGINEER
PRINT DATE: 8/18/2023

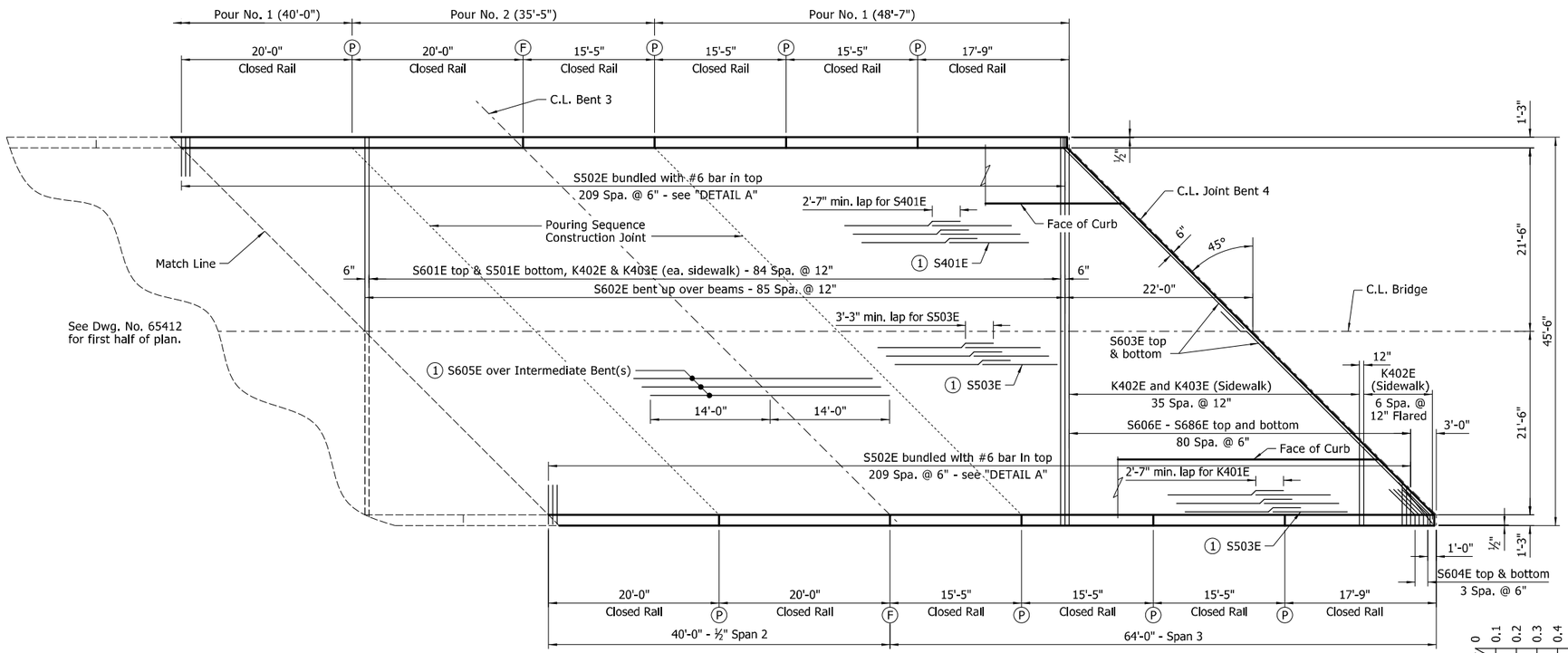
08/28/2023

SHEET 3 OF 5
DETAILS OF 208'-0" CONTINUOUS W-BEAM UNIT
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)
ROUTE SECTION
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: MSM DATE: 05/2022
CHECKED BY: MAA DATE: 08/2022
DESIGNED BY: JRS DATE: 07/2022
BRIDGE NO. 07529
FILENAME: b009916_s3.dgn
SCALE: AS NOTED
DRAWING NO. 65412

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	45	60

(I) 009916 - SPAN DETAILS - 65413



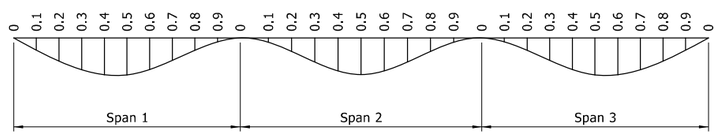
HALF REINFORCING PLAN AND POURING SEQUENCE

Scale: ⅛" = 1'-0"

Ⓕ C.L. Full-Depth Rail Joint (¼" to 1" max.). Stop 6" from top of slab.

Ⓟ C.L. Partial-Depth Rail Joint (¼" to 1" max.). Stop 12" from top of slab.

(1) Placed as shown in "TYPICAL ROADWAY SECTION NEAR INT. BENT", see Dwg. No. 65410.



DEAD LOAD DEFLECTION DIAMOND

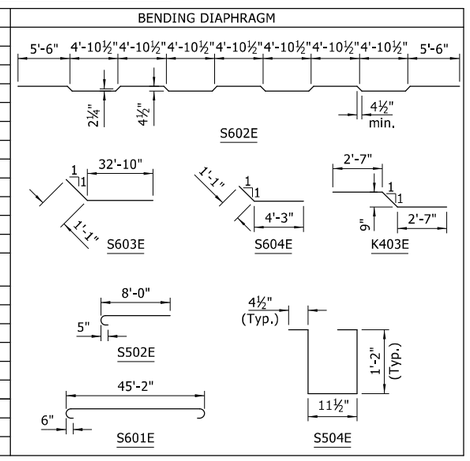
NO SCALE

Span	Point of Deflection	Structural Steel					Structural Steel + Slab					Structural Steel + Slab + Rail + Sidewalk				
		Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5
Span 1	Support	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0.028	0.031	0.031	0.031	0.028	0.146	0.168	0.167	0.167	0.146	0.196	0.217	0.216	0.216	0.196
	0.2	0.053	0.056	0.056	0.056	0.053	0.268	0.307	0.305	0.305	0.268	0.360	0.397	0.395	0.395	0.360
	0.3	0.069	0.073	0.073	0.073	0.069	0.350	0.400	0.399	0.399	0.350	0.469	0.518	0.517	0.517	0.469
	0.4	0.075	0.079	0.079	0.079	0.075	0.379	0.435	0.433	0.433	0.379	0.508	0.563	0.561	0.561	0.508
	0.5	0.071	0.076	0.076	0.076	0.071	0.359	0.415	0.413	0.413	0.359	0.480	0.536	0.534	0.534	0.480
	0.6	0.058	0.063	0.063	0.063	0.058	0.295	0.342	0.340	0.340	0.295	0.395	0.442	0.440	0.440	0.395
	0.7	0.040	0.043	0.043	0.043	0.040	0.203	0.234	0.233	0.233	0.203	0.272	0.303	0.301	0.301	0.272
	0.8	0.021	0.022	0.022	0.022	0.021	0.104	0.119	0.119	0.119	0.104	0.139	0.154	0.153	0.153	0.139
	0.9	0.004	0.005	0.005	0.005	0.004	0.022	0.026	0.026	0.026	0.022	0.030	0.034	0.034	0.034	0.030
	Support	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Span 2	0.1	0.022	0.023	0.023	0.023	0.022	0.112	0.125	0.124	0.124	0.112	0.149	0.162	0.161	0.161	0.149
	0.2	0.058	0.062	0.062	0.062	0.058	0.296	0.338	0.336	0.336	0.296	0.396	0.438	0.436	0.436	0.396
	0.3	0.094	0.101	0.101	0.101	0.094	0.479	0.552	0.549	0.549	0.479	0.641	0.715	0.712	0.712	0.641
	0.4	0.119	0.130	0.128	0.130	0.119	0.612	0.705	0.699	0.699	0.612	0.819	0.913	0.907	0.907	0.819
	0.5	0.129	0.140	0.140	0.140	0.129	0.663	0.761	0.756	0.756	0.663	0.888	0.985	0.980	0.980	0.888
	0.6	0.120	0.129	0.128	0.129	0.120	0.613	0.704	0.699	0.699	0.613	0.820	0.912	0.907	0.907	0.820
	0.7	0.094	0.101	0.101	0.101	0.094	0.478	0.552	0.547	0.547	0.478	0.640	0.715	0.710	0.710	0.640
	0.8	0.058	0.062	0.062	0.062	0.058	0.295	0.338	0.335	0.335	0.295	0.394	0.438	0.435	0.435	0.394
	0.9	0.022	0.023	0.023	0.023	0.022	0.110	0.125	0.124	0.124	0.110	0.147	0.162	0.161	0.161	0.147
	Support	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Span 3	0.1	0.004	0.005	0.005	0.005	0.004	0.024	0.026	0.027	0.027	0.024	0.032	0.034	0.035	0.035	0.032
	0.2	0.020	0.022	0.022	0.022	0.020	0.104	0.119	0.120	0.120	0.104	0.140	0.154	0.155	0.155	0.140
	0.3	0.040	0.044	0.044	0.044	0.040	0.206	0.235	0.235	0.235	0.206	0.277	0.304	0.304	0.304	0.277
	0.4	0.059	0.063	0.063	0.063	0.059	0.299	0.342	0.342	0.342	0.299	0.401	0.442	0.442	0.442	0.401
	0.5	0.070	0.076	0.076	0.076	0.070	0.360	0.415	0.414	0.414	0.360	0.483	0.536	0.537	0.537	0.483
	0.6	0.075	0.080	0.079	0.080	0.075	0.382	0.436	0.434	0.434	0.382	0.513	0.564	0.563	0.563	0.513
	0.7	0.068	0.073	0.073	0.073	0.068	0.350	0.400	0.400	0.400	0.350	0.470	0.518	0.518	0.518	0.470
	0.8	0.052	0.056	0.056	0.056	0.052	0.269	0.306	0.306	0.306	0.269	0.361	0.396	0.397	0.397	0.361
	0.9	0.029	0.031	0.031	0.031	0.029	0.148	0.168	0.168	0.168	0.148	0.198	0.218	0.218	0.218	0.198
	Support	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note:
Camber for dead load deflections plus vertical curve +/- ¼" tolerance. Deflections shown are along C.L. Beam from the Plane Perpendicular to the web extending from C.L. Bearing. Negative sign (-) indicates point above plane. Vertical curve corrections not included.

DECK SLAB BAR LIST

MARK	NO. REQ'D	LENGTH	P.D.	BENDING DIAPHRAGM
S401E	230	44'-0"	Str.	
S501E	168	45'-2"	Str.	
S502E	836	8'-7"	3¾"	
S503E	364	54'-6"	Str.	
S504E	136	3'-7½"	2½"	
S601E	168	46'-6"	4½"	
S602E	170	45'-11½"	4½"	
S603E	8	33'-10⅛"	4½"	
S604E	16	5'-4⅛"	4½"	
S605E	90	28'-0"	Str.	
S606E-S686E	4 ea	3'-10" to 43'-4"	Str.	
S687E	12	32'-10"	Str.	
S701E	24	13'-3"	Str.	
S702E	12	2'-4"	Str.	
K401E	80	44'-0"	Str.	
K402E	426	7'-3"	Str.	
K403E	412	6'-0¼"	3"	



Note:
Dimensions are out to out of bars.

Bars designated with an "E" suffix to be Epoxy Coated.

For Traffic Rail reinforcing bars, see Dwg. No. 65414.

(2) ½" Overtolerance - No Undertolerance

STATE OF ARKANSAS
Jay R. Schroeder
REGISTERED PROFESSIONAL ENGINEER
No. 19427
08/28/2023

BRIDGE ENGINEER
PRINT DATE: 8/18/2023

SHEET 4 OF 5
DETAILS OF 208'-0" CONTINUOUS W-BEAM UNIT
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)

ROUTE SECTION

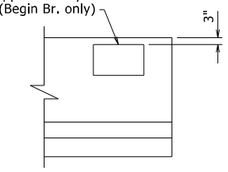
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	MSM	DATE:	05/2022	FILENAME:	b009916_s4.dgn
CHECKED BY:	MAA	DATE:	08/2022		
DESIGNED BY:	JRS	DATE:	07/2022	SCALE:	AS NOTED
BRIDGE NO.	07529			DRAWING NO.	65413

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	46	60

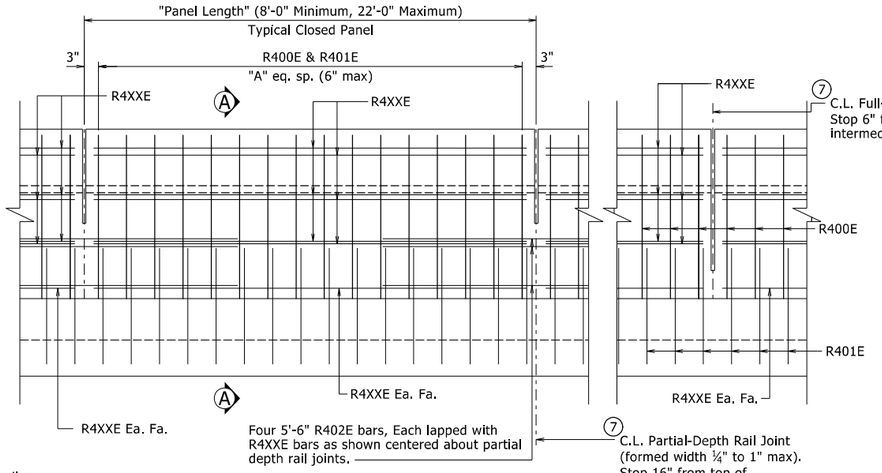
(1) 009916 - SPAN DETAILS - 65414

Place Type D Bridge Name Plate on right Traffic Rail approximately 1'-0" from C.L. joint (Begin Br. only)



NAME PLATE DETAIL

No Scale



(1) ELEVATION - SINGLE SLOPE PARAPET RAIL

¾" = 1'-0"

TABLE OF VARIABLES

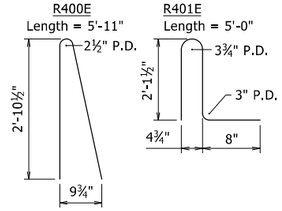
Closed Rail Panels		
Panel Length	A	R4XXE
14'-7"	29	R402E
15'-0"	29	R403E
15'-5"	30	R404E
18'-6"	36	R405E
20"-0"	39	R406E

(1) All measurements shown are along sidewalk at base of rail.

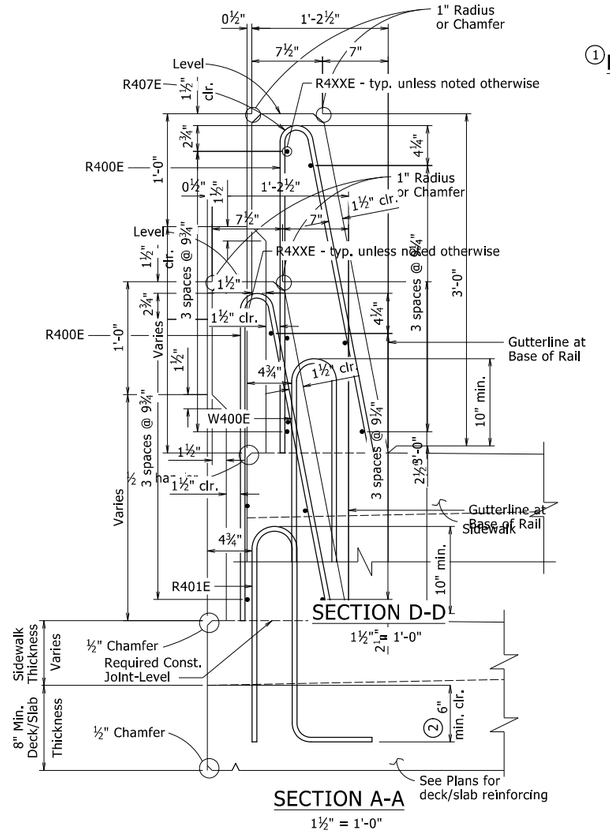
(2) Minimum embedment into deck/slab.

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

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAM
R400E	832	5'-11"	2½"	
R401E	832	5'-0"	3¾"	
R402E	32	14'-3"	Str.	
R403E	32	14'-8"	Str.	
R404E	32	15'-1"	Str.	
R405E	32	18'-2"	Str.	
R406E	64	19'-8"	Str.	



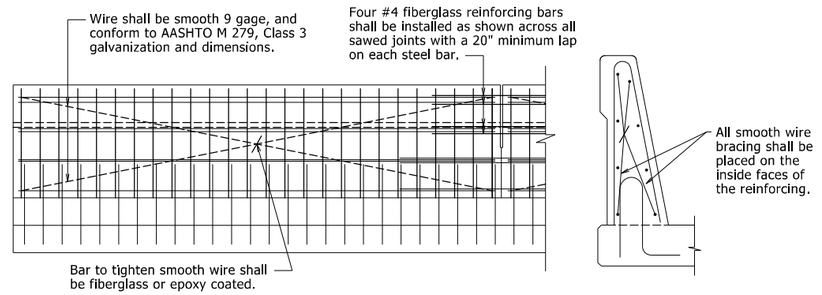
NOTE: Bar dimensions are out-to-out. Bars with an "E" suffix are to be epoxy coated. The first bar designation number indicates the reinforcing bar size.



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.



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

All panels shall be braced as required to prevent racking.

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

DETAILS OF OPTIONAL SLIP FORMING OF BRIDGE TRAFFIC RAIL

No Scale

SHEET 5 OF 5

DETAILS OF 208'-0" CONTINUOUS W-BEAM UNIT

MISSOURI & NORTHERN ARKANSAS RR

STR. & APPRS. (SUMMIT) (S)

ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS — JAY R. SCHROEDER — REGISTERED PROFESSIONAL ENGINEER — No. 19427

08/28/2023

BRIDGE ENGINEER

PRINT DATE: 8/18/2023

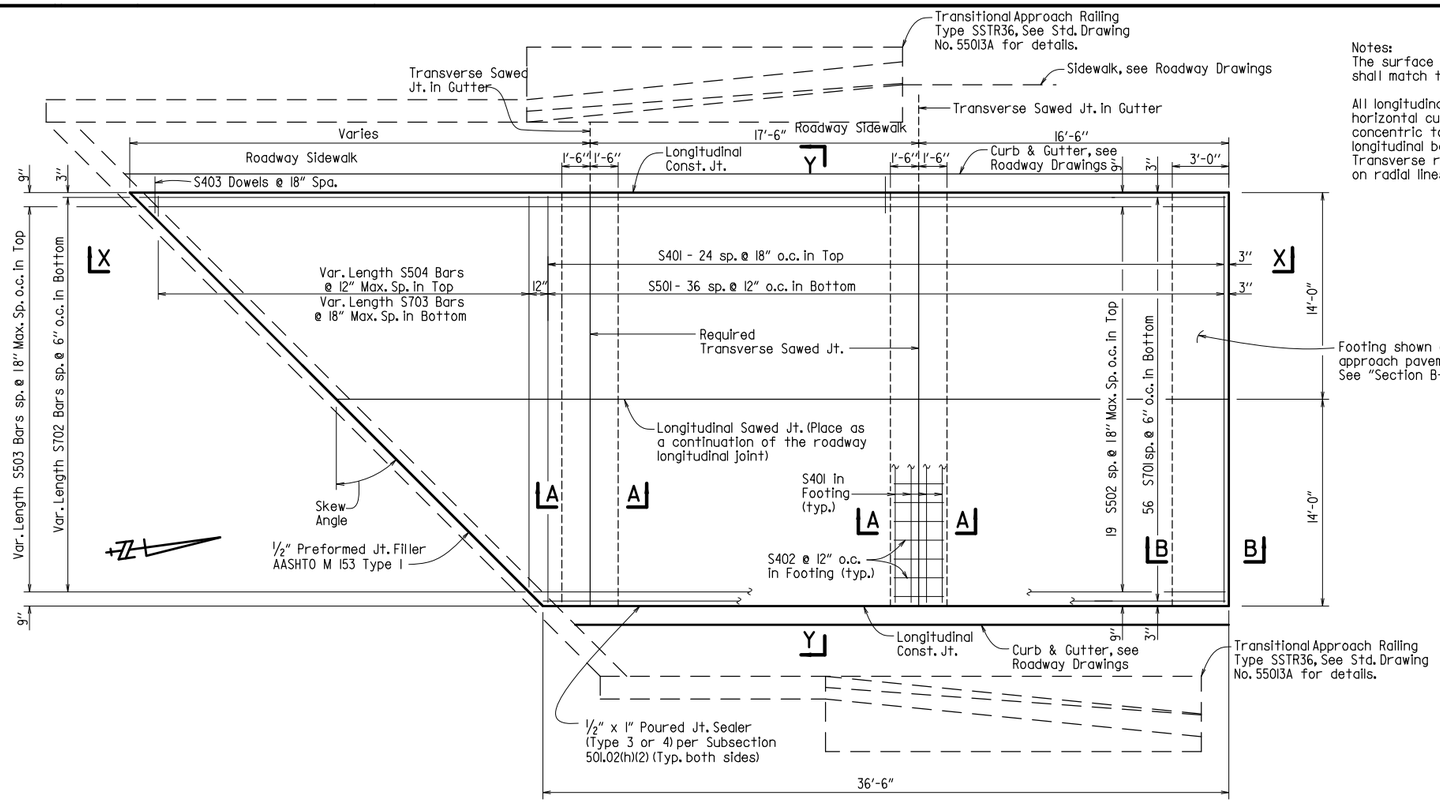
DRAWN BY: MAK DATE: 06/2022 FILENAME: b009916_s5.dgn

CHECKED BY: MAA DATE: 08/2022

DESIGNED BY: JRS DATE: 07/2022 SCALE: AS NOTED

BRIDGE NO. 07529 DRAWING NO. 65414

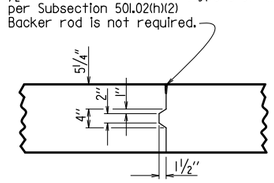
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		009916	47	60
				(1) 009916	- APPROACH SLAB -			65415



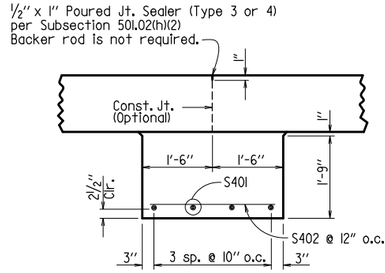
PLAN
N.T.S.
Approach Slab at End Bridge shown, Approach Slab at Begin Bridge similar.

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

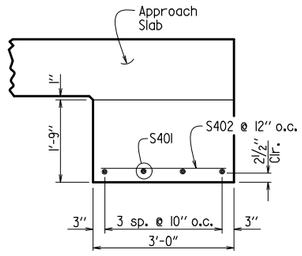
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.



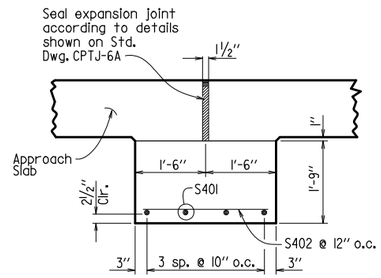
DETAILS OF LONGITUDINAL CONSTRUCTION JOINT
¾" = 1'-0"



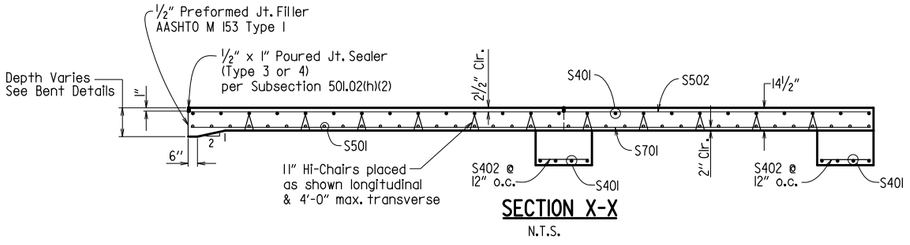
SECTION A-A
N.T.S.



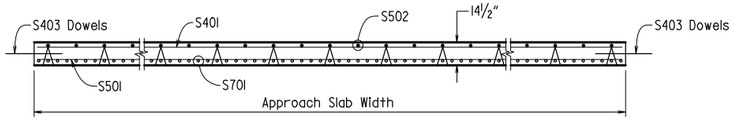
SECTION B-B
AT ASPHALT APPROACH PAVEMENT
N.T.S.



SECTION B-B
AT CONCRETE APPROACH PAVEMENT
N.T.S.



SECTION X-X
N.T.S.



SECTION Y-Y
N.T.S.

BAR LIST
(For One Approach Slab)

Mark	No. Req'd.	Length
S401	37	27'-8"
S402	84	2'-8"
S403	26	3'-0"
S501	37	27'-8"
S502	19	36'-3"
S503	19	3'-4" to 28'-11"
S504	25	2'-8" to 26'-8"
S701	56	36'-3"
S702	54	2'-10" to 29'-4"
S703	16	3'-8" to 26'-2"

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

Slab Width	Reinforcing Steel	Concrete
	(Lbs.)	(Cu. Yds.)
28'-0"	9838	80.4

GENERAL NOTES

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

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

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 19427
JAY R. SCHROEDER
08/28/2023

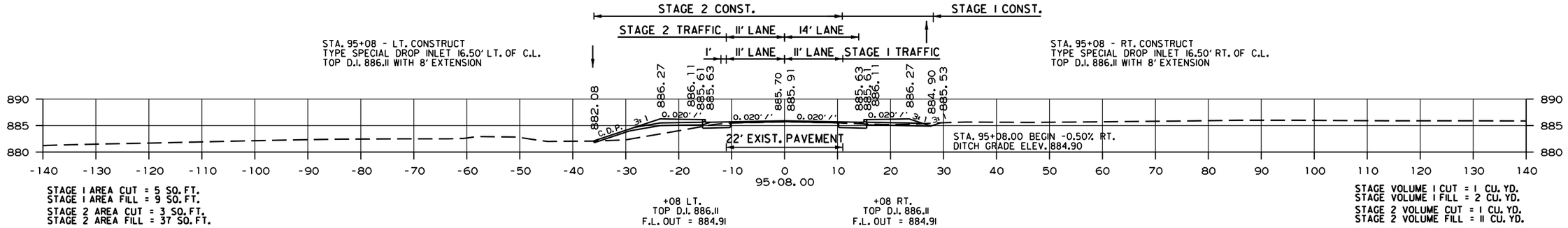
BRIDGE ENGINEER
PRINT DATE: 8/18/2023

APPROACH SLAB
MISSOURI & NORTHERN ARKANSAS RR
STR. & APPRS. (SUMMIT) (S)
ROUTE SECTION

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

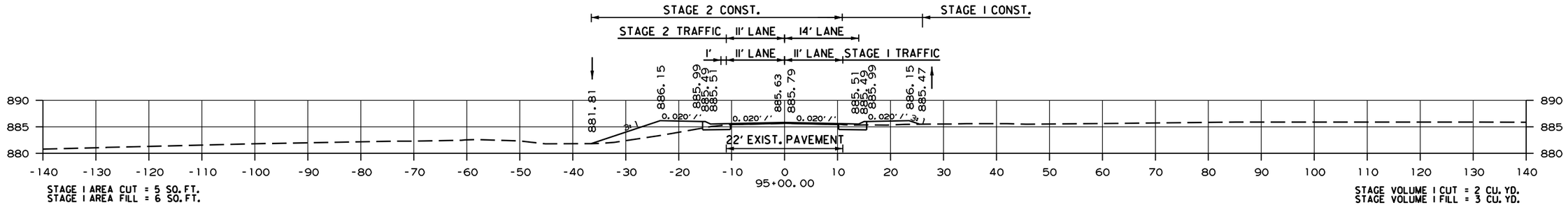
DRAWN BY:	MAK	DATE:	06/2022	FILENAME:	b009916_as.dgn
CHECKED BY:	MAA	DATE:	06/2022		
DESIGNED BY:	JRS	DATE:	06/2022	SCALE:	AS SHOWN
BRIDGE NO.	07529			DRAWING NO.	65415

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	48	60
		CROSS SECTIONS				



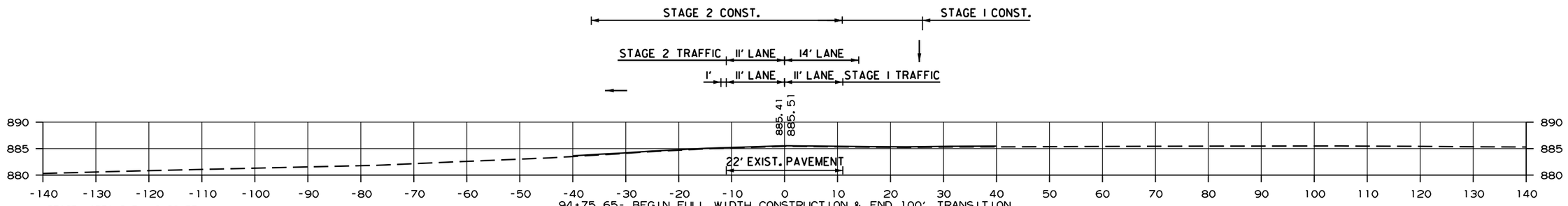
STAGE 1 AREA CUT = 5 SQ. FT.
STAGE 1 AREA FILL = 9 SQ. FT.
STAGE 2 AREA CUT = 3 SQ. FT.
STAGE 2 AREA FILL = 37 SQ. FT.

STAGE VOLUME 1 CUT = 1 CU. YD.
STAGE VOLUME 1 FILL = 2 CU. YD.
STAGE 2 VOLUME CUT = 1 CU. YD.
STAGE 2 VOLUME FILL = 11 CU. YD.



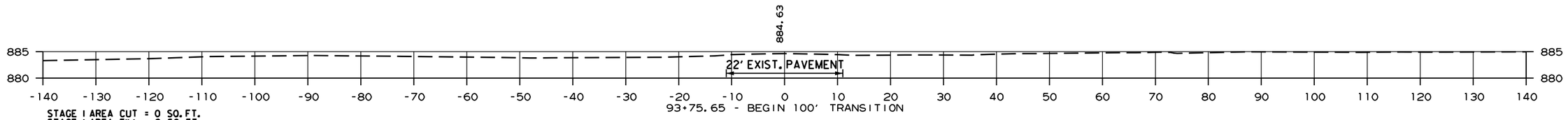
STAGE 1 AREA CUT = 5 SQ. FT.
STAGE 1 AREA FILL = 6 SQ. FT.
STAGE 2 AREA CUT = 4 SQ. FT.
STAGE 2 AREA FILL = 37 SQ. FT.

STAGE VOLUME 1 CUT = 2 CU. YD.
STAGE VOLUME 1 FILL = 3 CU. YD.
STAGE 2 VOLUME CUT = 2 CU. YD.
STAGE 2 VOLUME FILL = 17 CU. YD.



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

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



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

HWY. 14

CROSS SECTION STA. 93+75.65 TO STA. 95+08

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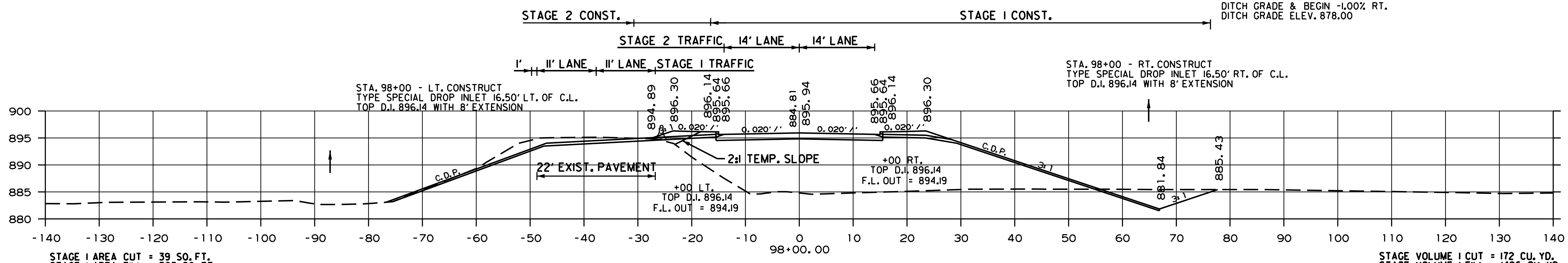
		CROSS SECTIONS				

STA. 98+45.00 END -8.52% RT. DITCH GRADE & BEGIN -1.00% RT. DITCH GRADE ELEV. 878.00

STA. 98+00 - LT. CONSTRUCT TYPE SPECIAL DROP INLET 16.50' LT. OF C.L. TOP D.I. 896.14 WITH 8' EXTENSION

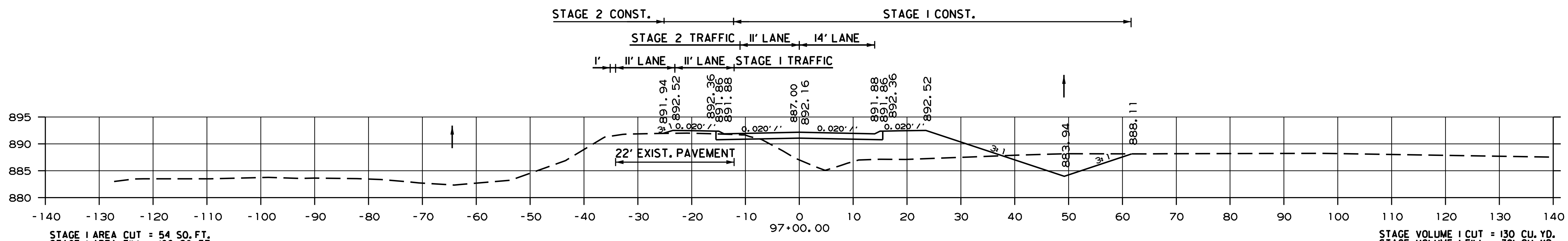
STA. 98+00 - RT. CONSTRUCT TYPE SPECIAL DROP INLET 16.50' RT. OF C.L. TOP D.I. 896.14 WITH 8' EXTENSION



STAGE 1 AREA CUT = 39 SQ. FT.
STAGE 1 AREA FILL = 593 SQ. FT.
STAGE 2 AREA CUT = 0 SQ. FT.
STAGE 2 AREA FILL = 11 SQ. FT.

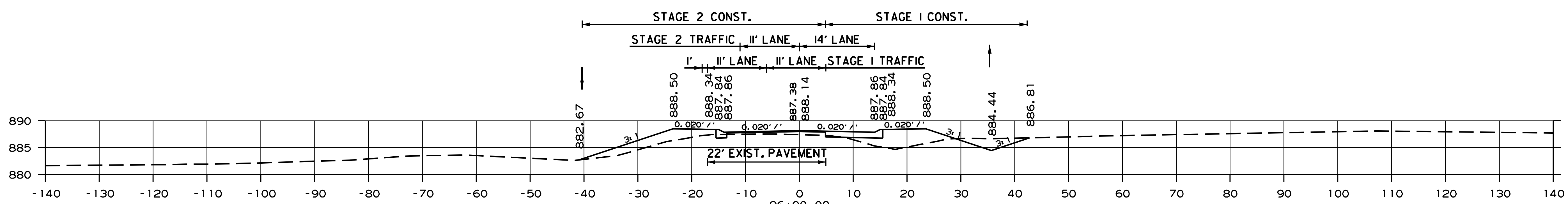
STA. 97+80.00 END -0.50% RT. DITCH GRADE & BEGIN -8.52% RT. DITCH GRADE ELEV. 883.54

STAGE VOLUME 1 CUT = 172 CU. YD.
STAGE VOLUME 1 FILL = 1406 CU. YD.
STAGE 2 VOLUME CUT = 6 CU. YD.
STAGE 2 VOLUME FILL = 28 CU. YD.



STAGE 1 AREA CUT = 54 SQ. FT.
STAGE 1 AREA FILL = 166 SQ. FT.
STAGE 2 AREA CUT = 3 SQ. FT.
STAGE 2 AREA FILL = 4 SQ. FT.

STAGE VOLUME 1 CUT = 130 CU. YD.
STAGE VOLUME 1 FILL = 381 CU. YD.
STAGE 2 VOLUME CUT = 7 CU. YD.
STAGE 2 VOLUME FILL = 74 CU. YD.



STAGE 1 AREA CUT = 16 SQ. FT.
STAGE 1 AREA FILL = 40 SQ. FT.
STAGE 2 AREA CUT = 1 SQ. FT.
STAGE 2 AREA FILL = 36 SQ. FT.

STAGE VOLUME 1 CUT = 36 CU. YD.
STAGE VOLUME 1 FILL = 83 CU. YD.
STAGE 2 VOLUME CUT = 7 CU. YD.
STAGE 2 VOLUME FILL = 124 CU. YD.

HWY. 14

CROSS SECTION STA. 96+00 TO STA. 98+00

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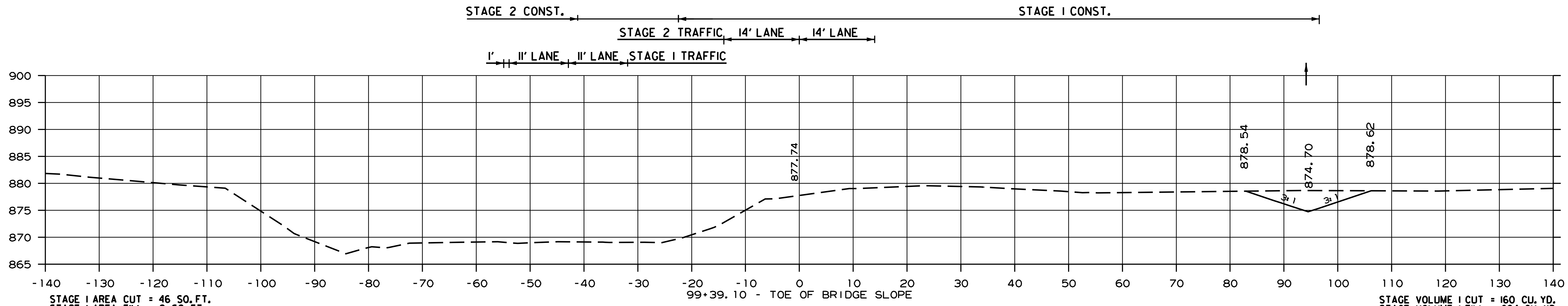
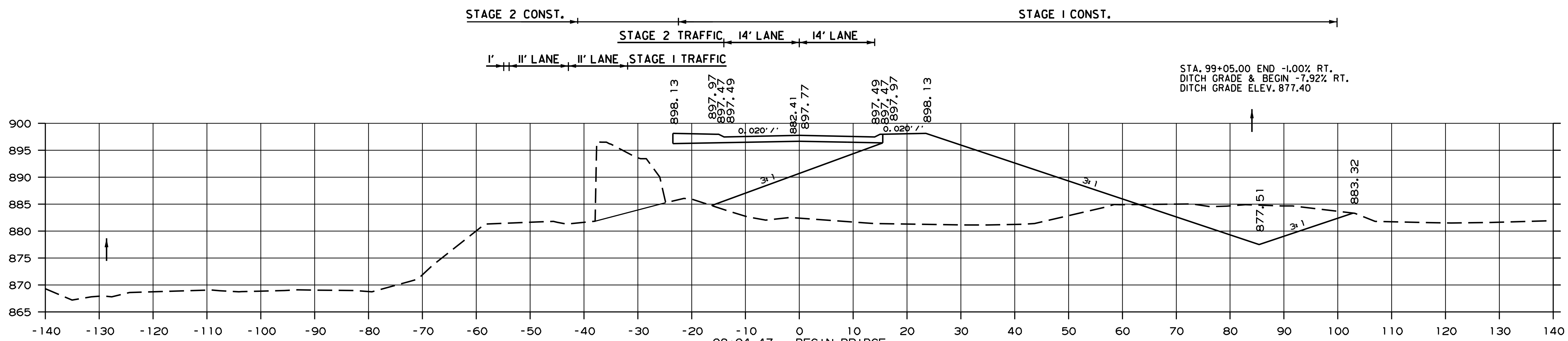
		CROSS SECTIONS				



STAGE I AREA CUT = 46 SQ.FT.
STAGE I AREA FILL = 0 SQ.FT.
STAGE 2 AREA CUT = 0 SQ.FT.
STAGE 2 AREA FILL = 0 SQ.FT.

STAGE VOLUME I CUT = 160 CU.YD.
STAGE VOLUME I FILL = 624 CU.YD.
STAGE 2 VOLUME CUT = 0 CU.YD.
STAGE 2 VOLUME FILL = 0 CU.YD.



STAGE I AREA CUT = 148 SQ.FT.
STAGE I AREA FILL = 755 SQ.FT.
STAGE 2 AREA CUT = 0 SQ.FT.
STAGE 2 AREA FILL = 0 SQ.FT.

STAGE VOLUME I CUT = 327 CU.YD.
STAGE VOLUME I FILL = 2358 CU.YD.
STAGE 2 VOLUME CUT = 0 CU.YD.
STAGE 2 VOLUME FILL = 19 CU.YD.

HWY. 14

CROSS SECTION STA. 98+87.07 TO STA. 98+94.47

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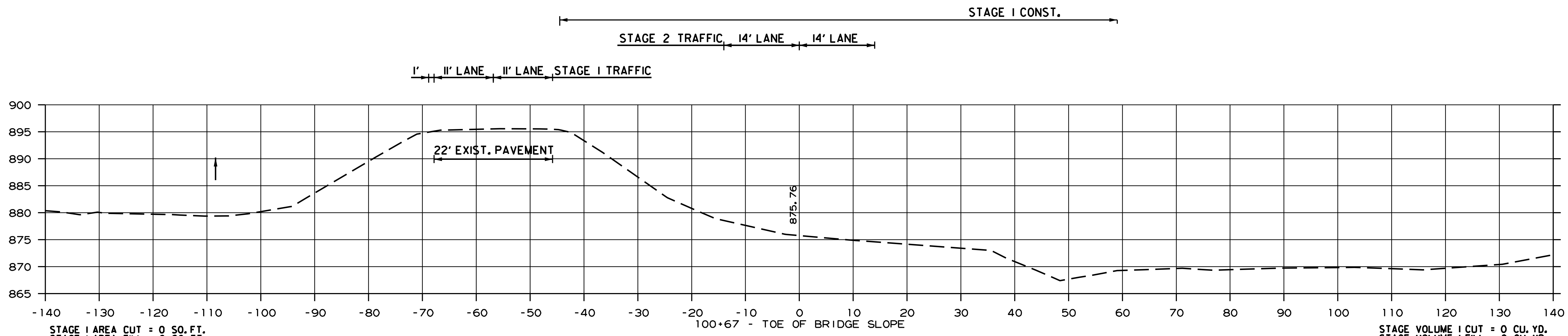
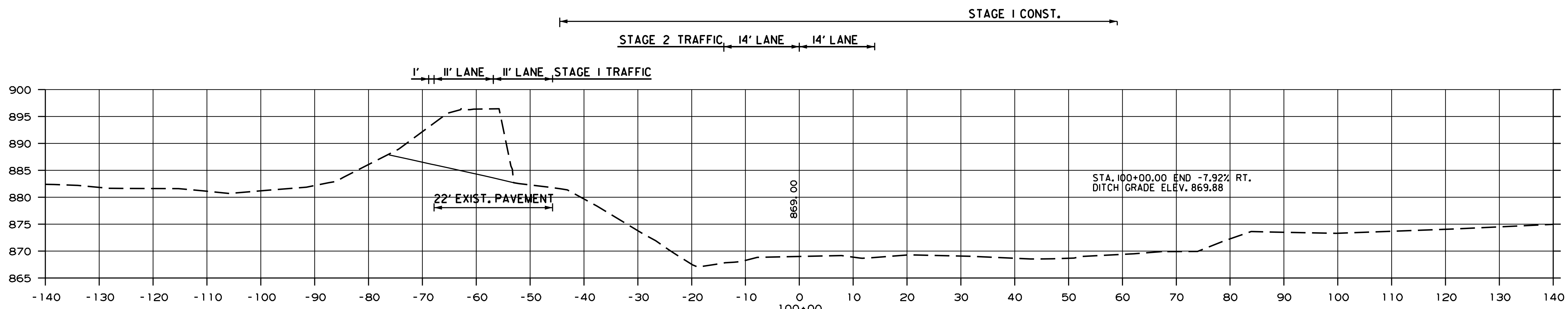
DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	51	60
		CROSS SECTIONS				



STAGE I AREA CUT = 0 SQ.FT.
STAGE I AREA FILL = 0 SQ.FT.
STAGE 2 AREA CUT = 0 SQ.FT.
STAGE 2 AREA FILL = 0 SQ.FT.

STAGE VOLUME I CUT = 0 CU.YD.
STAGE VOLUME I FILL = 0 CU.YD.
STAGE 2 VOLUME CUT = 0 CU.YD.
STAGE 2 VOLUME FILL = 0 CU.YD.



STAGE I AREA CUT = 0 SQ.FT.
STAGE I AREA FILL = 0 SQ.FT.
STAGE 2 AREA CUT = 0 SQ.FT.
STAGE 2 AREA FILL = 0 SQ.FT.

STAGE VOLUME I CUT = 52 CU.YD.
STAGE VOLUME I FILL = 0 CU.YD.
STAGE 2 VOLUME CUT = 0 CU.YD.
STAGE 2 VOLUME FILL = 0 CU.YD.

HWY. 14

CROSS SECTION STA. 99+33 TO STA. 100+64

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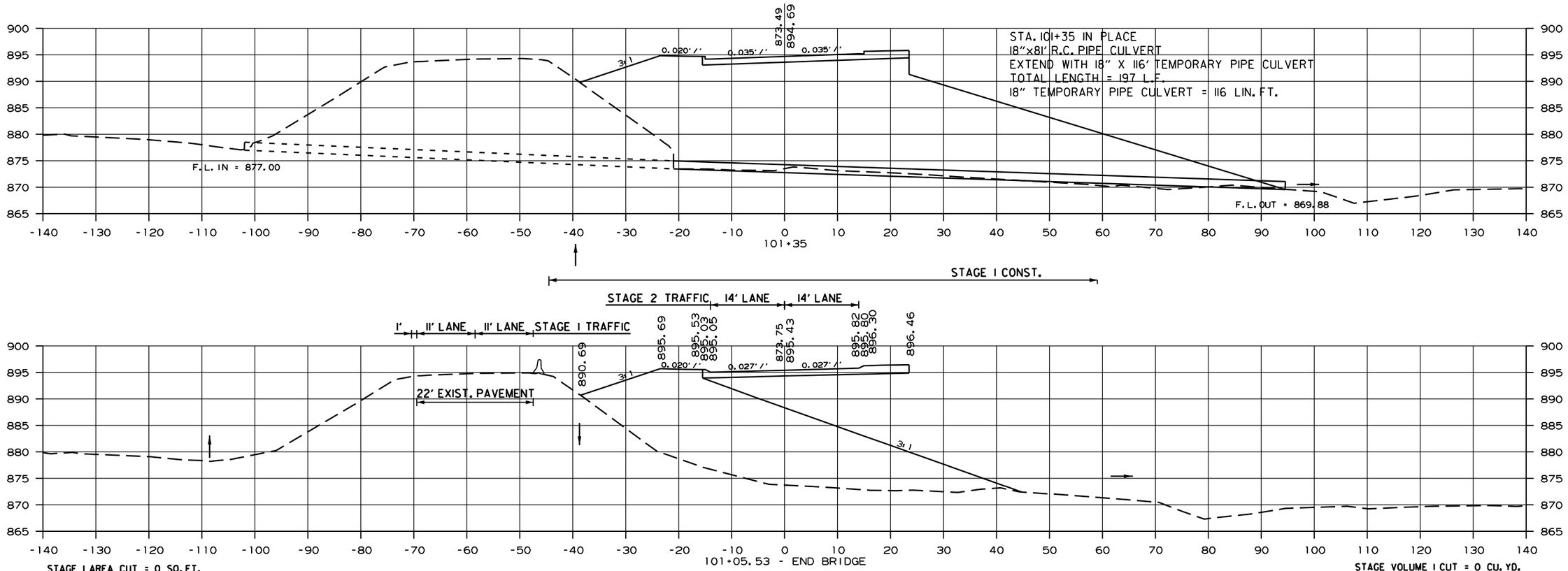
		CROSS SECTIONS				



HWY. 14

CROSS SECTION STA. 101+05.53 TO STA. 101+35.00

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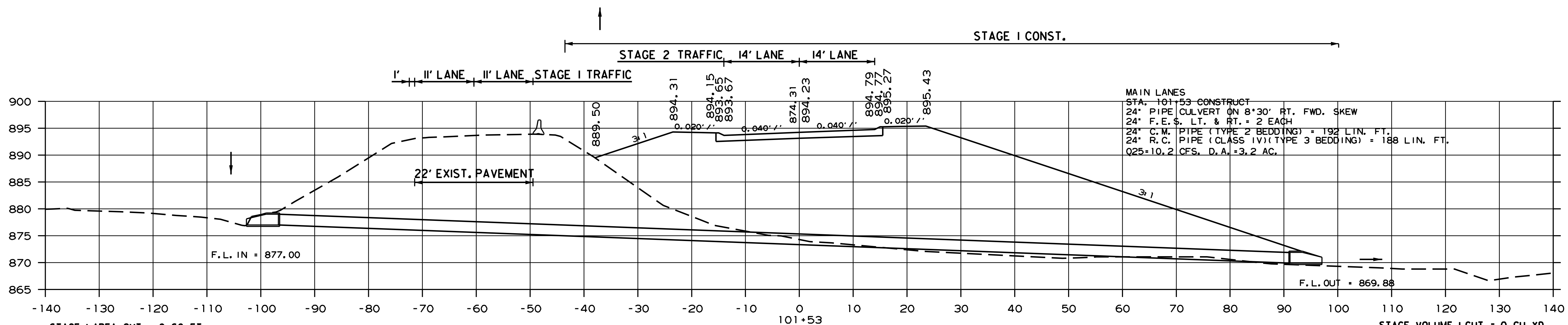
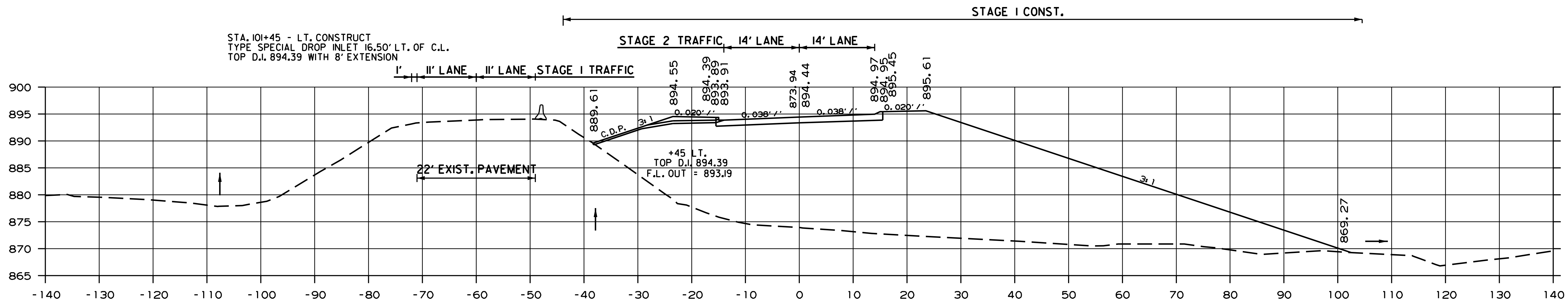
		CROSS SECTIONS				



STAGE I AREA CUT = 0 SQ.FT.
STAGE I AREA FILL = 1898 SQ.FT.
STAGE 2 AREA CUT = 0 SQ.FT.
STAGE 2 AREA FILL = 0 SQ.FT.

STAGE VOLUME I CUT = 0 CU.YD.
STAGE VOLUME I FILL = 595 CU.YD.
STAGE 2 VOLUME CUT = 0 CU.YD.
STAGE 2 VOLUME FILL = 0 CU.YD.



STAGE I AREA CUT = 0 SQ.FT.
STAGE I AREA FILL = 1971 SQ.FT.
STAGE 2 AREA CUT = 0 SQ.FT.
STAGE 2 AREA FILL = 0 SQ.FT.

HWY. 14

STAGE VOLUME I CUT = 0 CU.YD.
STAGE VOLUME I FILL = 2052 CU.YD.
STAGE 2 VOLUME CUT = 0 CU.YD.
STAGE 2 VOLUME FILL = 0 CU.YD.

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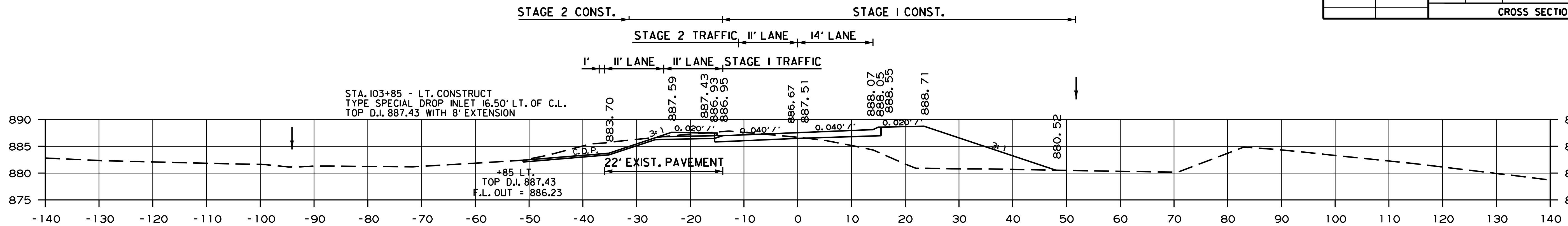
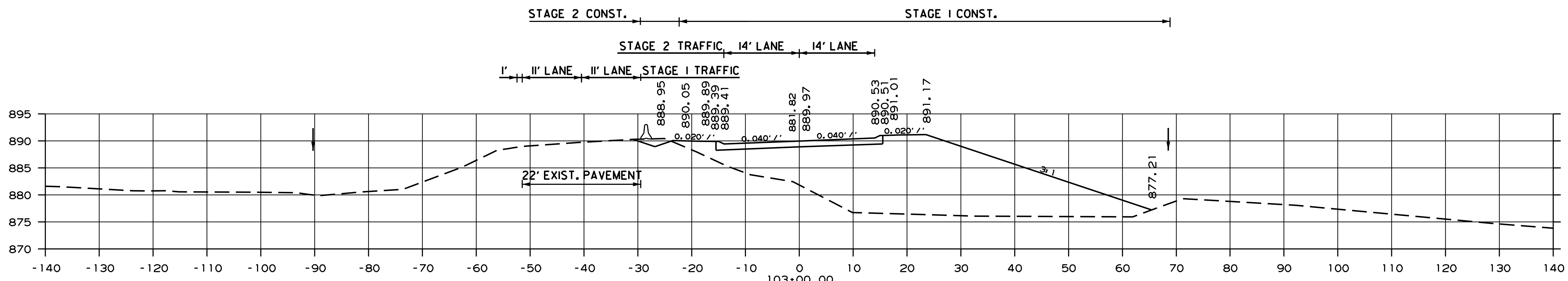
CROSS SECTION STA. 101+45 TO STA. 101+53.30

DATE REVISED	DATE REVISED	FED.RD. DIST.NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	54	60
		CROSS SECTIONS				



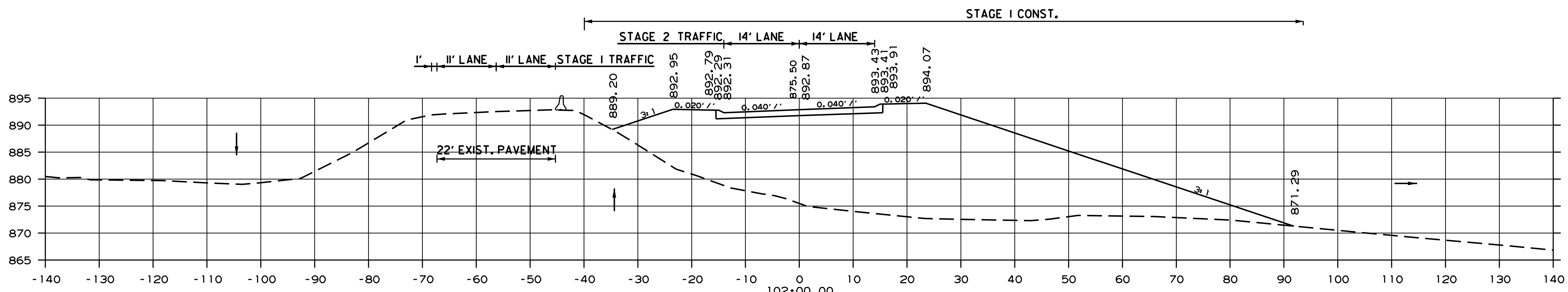
STAGE 1 AREA CUT = 20 SQ.FT.
STAGE 1 AREA FILL = 168 SQ.FT.
STAGE 2 AREA CUT = 27 SQ.FT.
STAGE 2 AREA FILL = 3 SQ.FT.

STAGE VOLUME 1 CUT = 31 CU.YD.
STAGE VOLUME 1 FILL = 1388 CU.YD.
STAGE 2 VOLUME CUT = 52 CU.YD.
STAGE 2 VOLUME FILL = 5 CU.YD.



STAGE 1 AREA CUT = 0 SQ.FT.
STAGE 1 AREA FILL = 714 SQ.FT.
STAGE 2 AREA CUT = 6 SQ.FT.
STAGE 2 AREA FILL = 0 SQ.FT.

STAGE VOLUME 1 CUT = 0 CU.YD.
STAGE VOLUME 1 FILL = 4111 CU.YD.
STAGE 2 VOLUME CUT = 11 CU.YD.
STAGE 2 VOLUME FILL = 0 CU.YD.



STAGE 1 AREA CUT = 0 SQ.FT.
STAGE 1 AREA FILL = 1506 SQ.FT.
STAGE 2 AREA CUT = 0 SQ.FT.
STAGE 2 AREA FILL = 0 SQ.FT.

HWY. 14

STAGE VOLUME 1 CUT = 0 CU.YD.
STAGE VOLUME 1 FILL = 2944 CU.YD.
STAGE 2 VOLUME CUT = 0 CU.YD.
STAGE 2 VOLUME FILL = 0 CU.YD.

CROSS SECTION STA. 102+00 TO STA. 103+85

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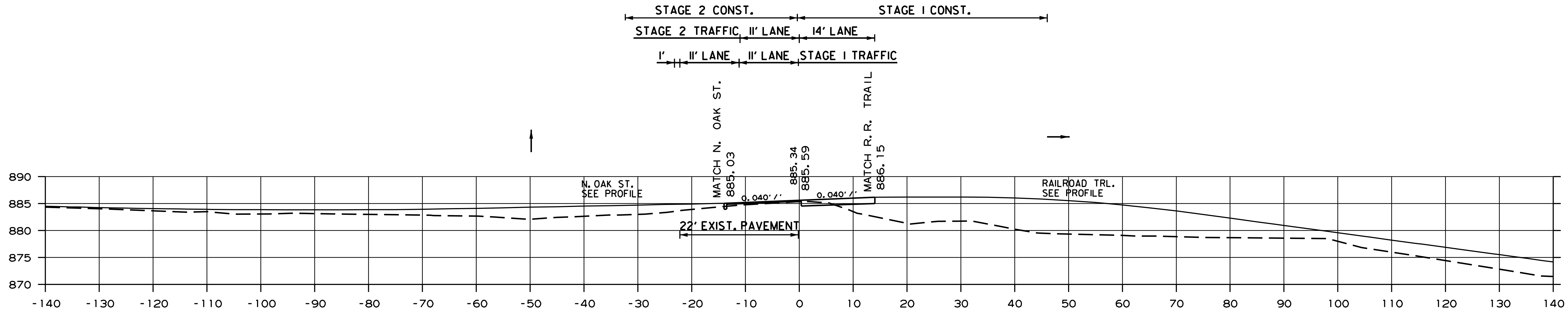
DATE REVISED	DATE REVISED	FED. RD. DIST. NO.	STATE	JOB NO.	SHEET NO.	TOTAL SHEETS
		6	ARK.	009916	55	60
		CROSS SECTIONS				

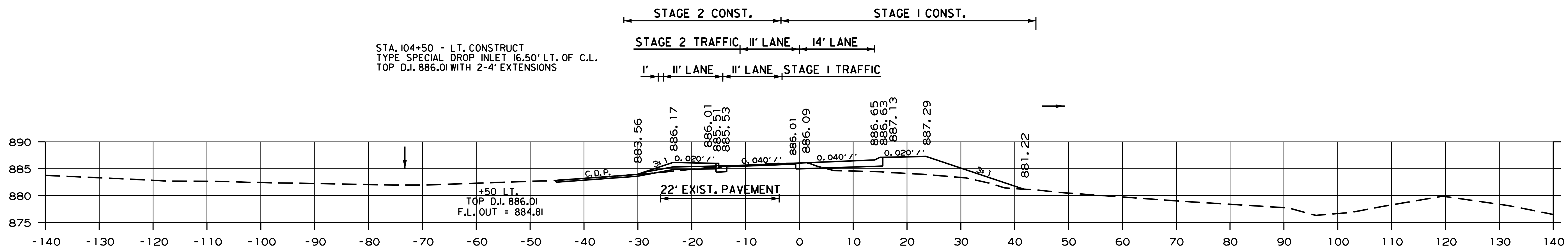


105+00.00 - N. OAK ST. LT.; R.R. TRL. RT.

STAGE 1 AREA CUT = 5 SQ. FT.
STAGE 1 AREA FILL = 10 SQ. FT.
STAGE 2 AREA CUT = 0 SQ. FT.
STAGE 2 AREA FILL = 0 SQ. FT.

STAGE VOLUME 1 CUT = 13 CU. YD.
STAGE VOLUME 1 FILL = 66 CU. YD.
STAGE 2 VOLUME CUT = 2 CU. YD.
STAGE 2 VOLUME FILL = 14 CU. YD.

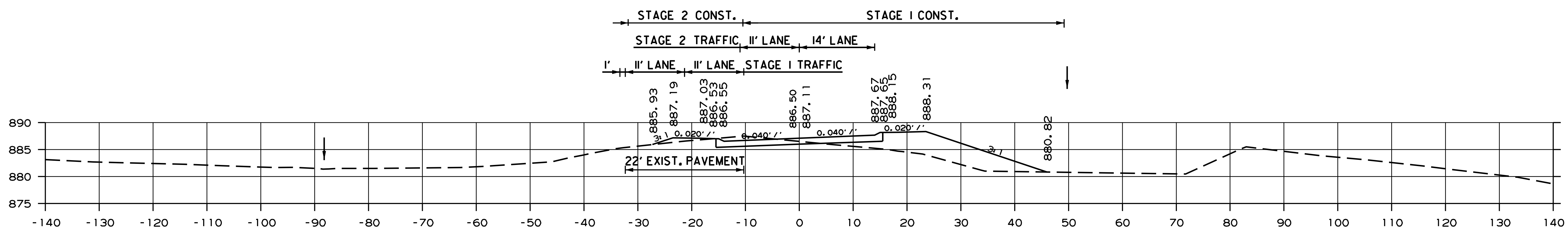
STA. 104+50 - LT. CONSTRUCT
TYPE SPECIAL DROP INLET 16.50' LT. OF C.L.
TOP D.I. 886.01 WITH 2-4' EXTENSIONS



104+50.00

STAGE 1 AREA CUT = 9 SQ. FT.
STAGE 1 AREA FILL = 61 SQ. FT.
STAGE 2 AREA CUT = 2 SQ. FT.
STAGE 2 AREA FILL = 15 SQ. FT.

STAGE VOLUME 1 CUT = 20 CU. YD.
STAGE VOLUME 1 FILL = 152 CU. YD.
STAGE 2 VOLUME CUT = 10 CU. YD.
STAGE 2 VOLUME FILL = 19 CU. YD.



104+00.00

STAGE 1 AREA CUT = 13 SQ. FT.
STAGE 1 AREA FILL = 103 SQ. FT.
STAGE 2 AREA CUT = 9 SQ. FT.
STAGE 2 AREA FILL = 5 SQ. FT.

HWY. 14

STAGE VOLUME 1 CUT = 9 CU. YD.
STAGE VOLUME 1 FILL = 75 CU. YD.
STAGE 2 VOLUME CUT = 10 CU. YD.
STAGE 2 VOLUME FILL = 2 CU. YD.

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

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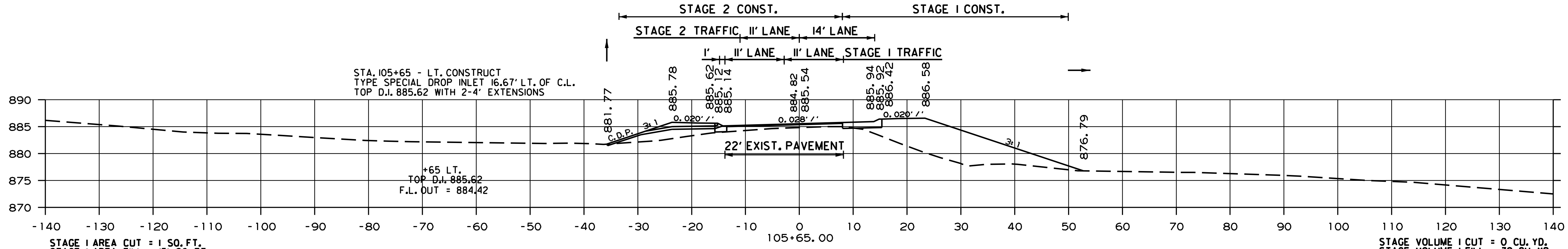
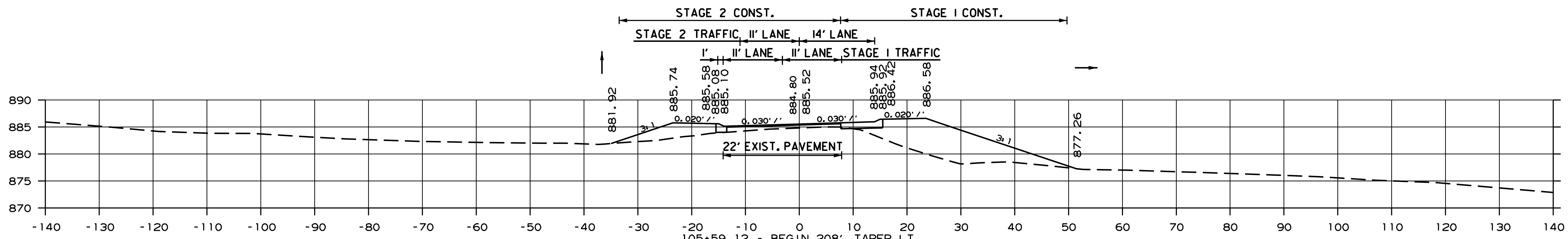
		CROSS SECTIONS				



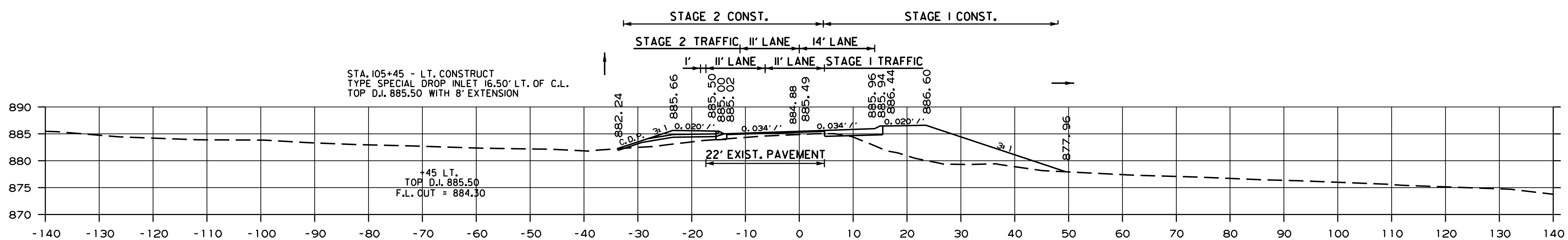
STAGE 1 AREA CUT = 1 SQ. FT.
STAGE 1 AREA FILL = 151 SQ. FT.
STAGE 2 AREA CUT = 0 SQ. FT.
STAGE 2 AREA FILL = 38 SQ. FT.

STAGE VOLUME 1 CUT = 0 CU. YD.
STAGE VOLUME 1 FILL = 32 CU. YD.
STAGE 2 VOLUME CUT = 0 CU. YD.
STAGE 2 VOLUME FILL = 8 CU. YD.



STAGE 1 AREA CUT = 2 SQ. FT.
STAGE 1 AREA FILL = 147 SQ. FT.
STAGE 2 AREA CUT = 0 SQ. FT.
STAGE 2 AREA FILL = 35 SQ. FT.

STAGE VOLUME 1 CUT = 1 CU. YD.
STAGE VOLUME 1 FILL = 74 CU. YD.
STAGE 2 VOLUME CUT = 0 CU. YD.
STAGE 2 VOLUME FILL = 17 CU. YD.



STAGE 1 AREA CUT = 2 SQ. FT.
STAGE 1 AREA FILL = 137 SQ. FT.
STAGE 2 AREA CUT = 0 SQ. FT.
STAGE 2 AREA FILL = 30 SQ. FT.

STAGE VOLUME 1 CUT = 6 CU. YD.
STAGE VOLUME 1 FILL = 123 CU. YD.
STAGE 2 VOLUME CUT = 0 CU. YD.
STAGE 2 VOLUME FILL = 25 CU. YD.

HWY. 14

CROSS SECTION STA. 105+45 TO STA. 105+65

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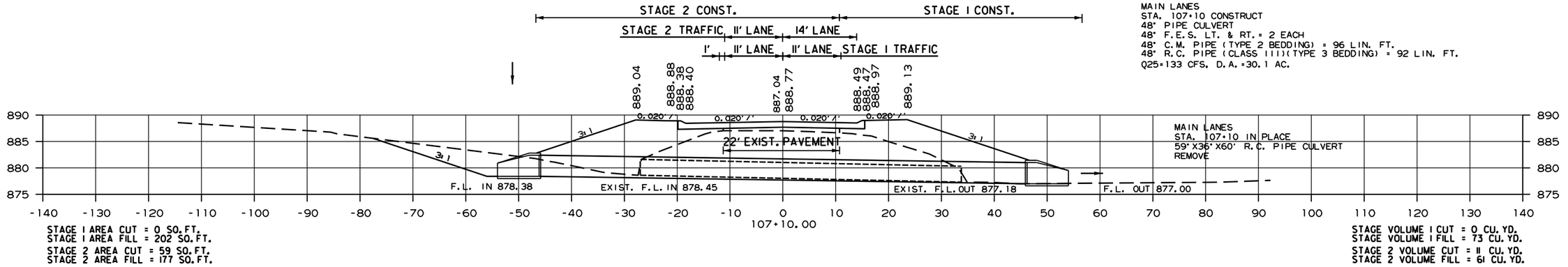
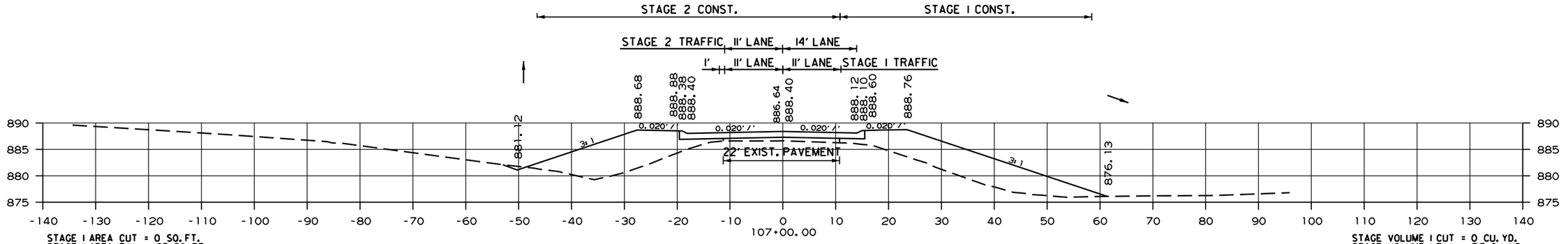


MAIN LANES
STA. 107+10 CONSTRUCT
48" PIPE CULVERT
48" F.E.S. LT. & RT. = 2 EACH
48" C.M. PIPE (TYPE 2 BEDDING) = 96 LIN. FT.
48" R.C. PIPE (CLASS III)(TYPE 3 BEDDING) = 92 LIN. FT.
Q25=133 CFS, D.A.=30.1 AC.

MAIN LANES
STA. 107+10 IN PLACE
59" X36" X60" R.C. PIPE CULVERT
REMOVE

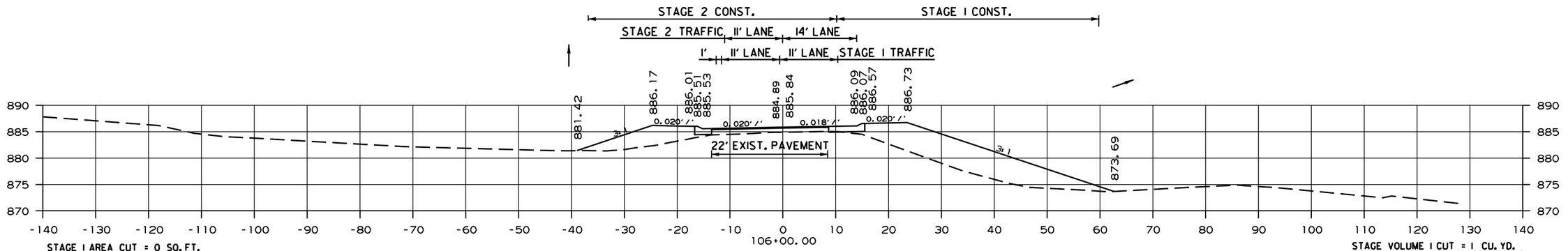
STAGE I AREA CUT = 0 SQ.FT.
STAGE I AREA FILL = 202 SQ.FT.
STAGE 2 AREA CUT = 59 SQ.FT.
STAGE 2 AREA FILL = 177 SQ.FT.

STAGE VOLUME I CUT = 0 CU.YD.
STAGE VOLUME I FILL = 73 CU.YD.
STAGE 2 VOLUME CUT = 11 CU.YD.
STAGE 2 VOLUME FILL = 61 CU.YD.



STAGE I AREA CUT = 0 SQ.FT.
STAGE I AREA FILL = 193 SQ.FT.
STAGE 2 AREA CUT = 0 SQ.FT.
STAGE 2 AREA FILL = 155 SQ.FT.

STAGE VOLUME I CUT = 0 CU.YD.
STAGE VOLUME I FILL = 713 CU.YD.
STAGE 2 VOLUME CUT = 0 CU.YD.
STAGE 2 VOLUME FILL = 391 CU.YD.



STAGE I AREA CUT = 0 SQ.FT.
STAGE I AREA FILL = 192 SQ.FT.
STAGE 2 AREA CUT = 0 SQ.FT.
STAGE 2 AREA FILL = 56 SQ.FT.

STAGE VOLUME I CUT = 1 CU.YD.
STAGE VOLUME I FILL = 222 CU.YD.
STAGE 2 VOLUME CUT = 0 CU.YD.
STAGE 2 VOLUME FILL = 61 CU.YD.

HWY. 14

CROSS SECTION STA. 106+00 TO STA. 107+10

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8/18/2023 12:11:45 PM ...\References\MOT-XSECTIONS.dgn

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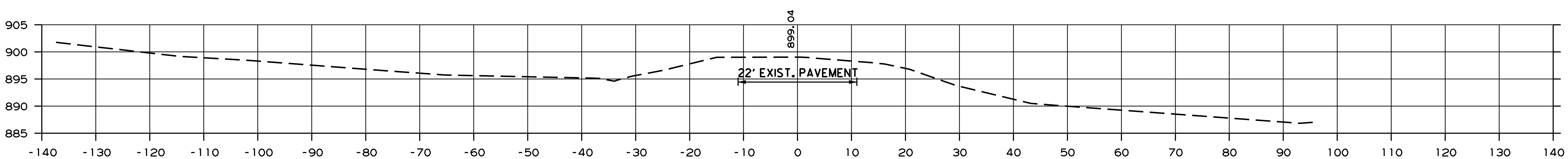
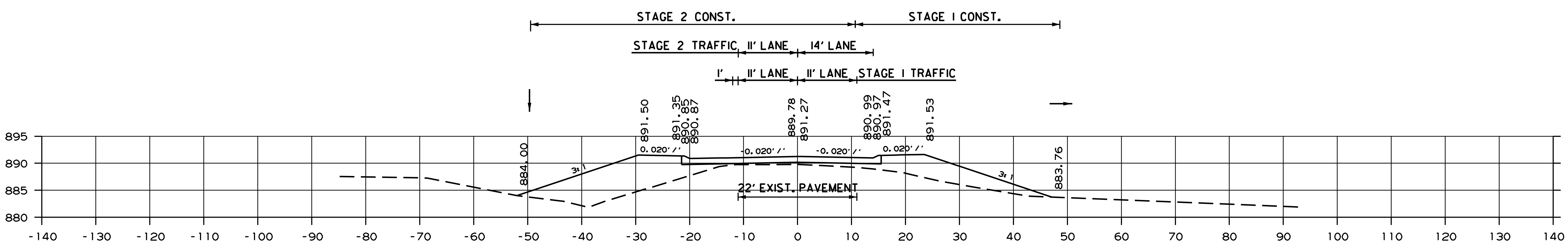


108+92.00 - END 125' TRANSITION

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

STAGE VOLUME 1 CUT = 0 CU.YD.
STAGE VOLUME 1 FILL = 206 CU.YD.
STAGE 2 VOLUME CUT = 0 CU.YD.
STAGE 2 VOLUME FILL = 363 CU.YD.



107+67 - END JOB & BEGIN 125' TRANSITION

STAGE 1 AREA CUT = 0 SQ.FT.
STAGE 1 AREA FILL = 89 SQ.FT.
STAGE 2 AREA CUT = 0 SQ.FT.
STAGE 2 AREA FILL = 157 SQ.FT.

STAGE VOLUME 1 CUT = 0 CU.YD.
STAGE VOLUME 1 FILL = 307 CU.YD.
STAGE 2 VOLUME CUT = 62 CU.YD.
STAGE 2 VOLUME FILL = 353 CU.YD.

HWY. 14

CROSS SECTION STA. 107+92 TO STA. 108+92

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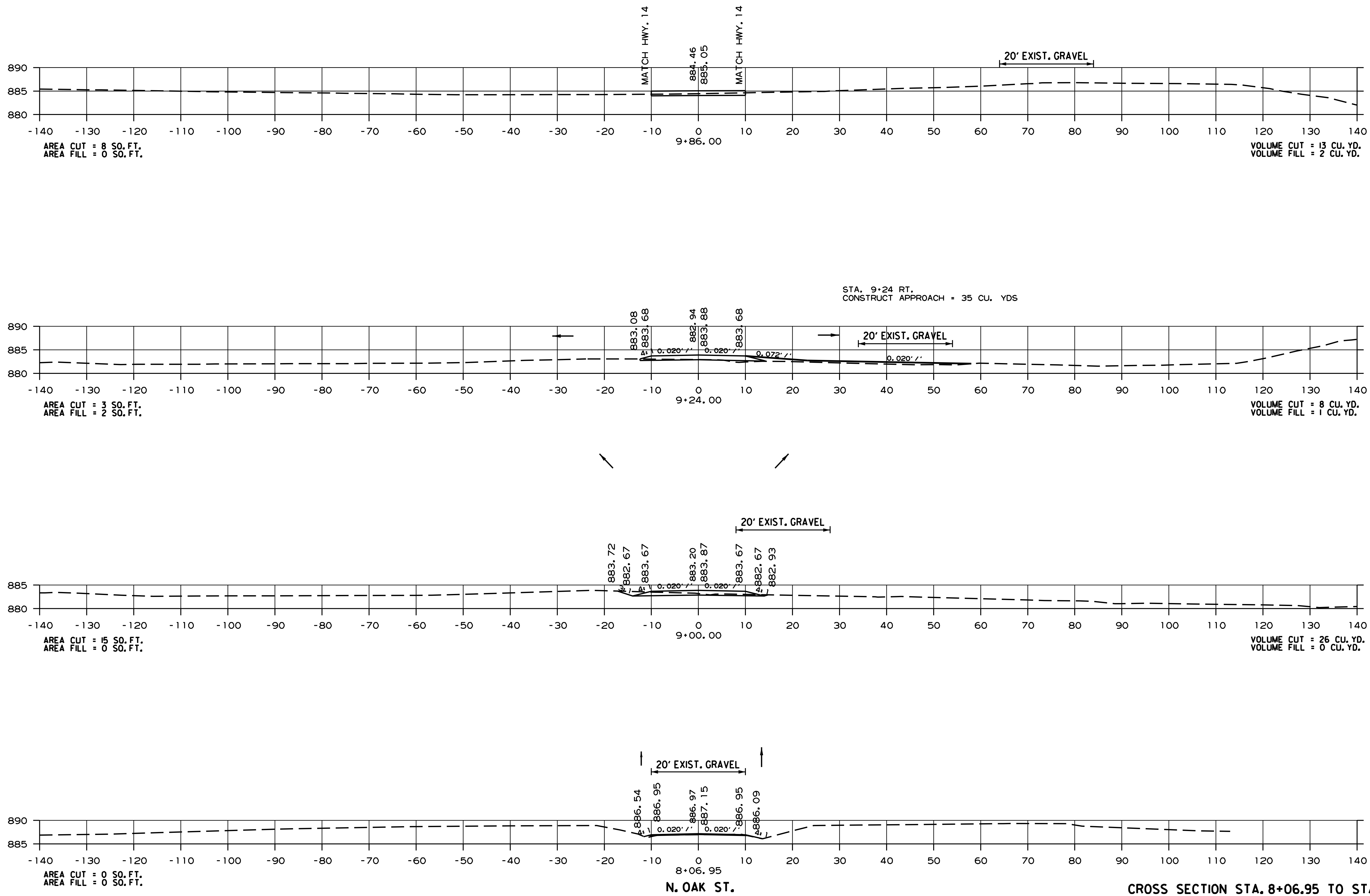

CROSS SECTION STA. 8+06.95 TO STA. 9+86.00

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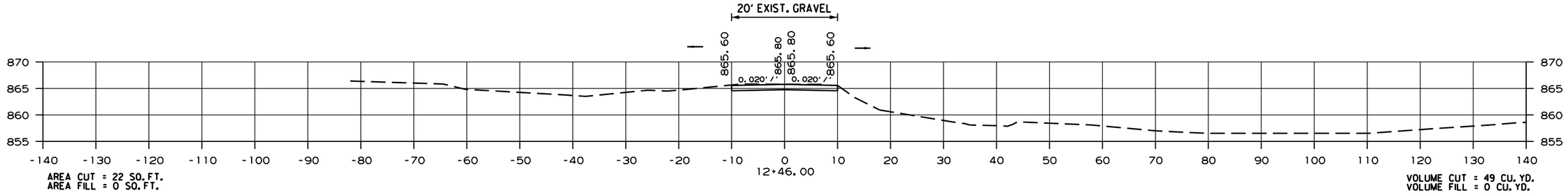
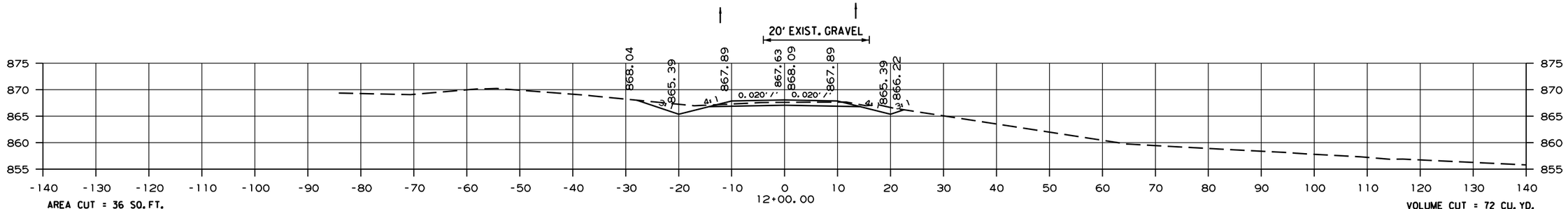


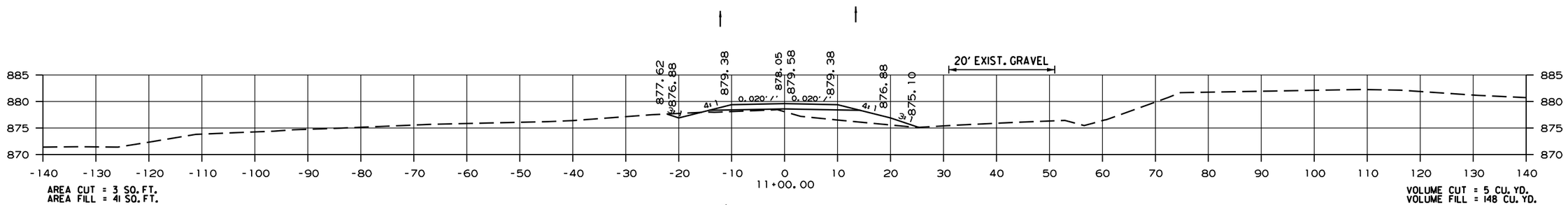
AREA CUT = 22 SQ.FT.
AREA FILL = 0 SQ.FT.

VOLUME CUT = 49 CU. YD.
VOLUME FILL = 0 CU. YD.



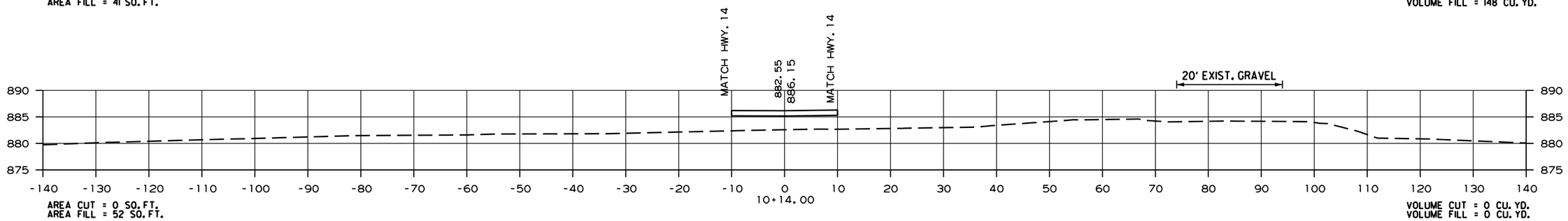
AREA CUT = 36 SQ.FT.
AREA FILL = 0 SQ.FT.

VOLUME CUT = 72 CU. YD.
VOLUME FILL = 76 CU. YD.



AREA CUT = 3 SQ.FT.
AREA FILL = 41 SQ.FT.

VOLUME CUT = 5 CU. YD.
VOLUME FILL = 148 CU. YD.



AREA CUT = 0 SQ.FT.
AREA FILL = 52 SQ.FT.

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

RAILROAD TRL.

CROSS SECTION STA. 10+14.00 TO STA. 12+46

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...\References\MOT-XSECTIONS.dgn
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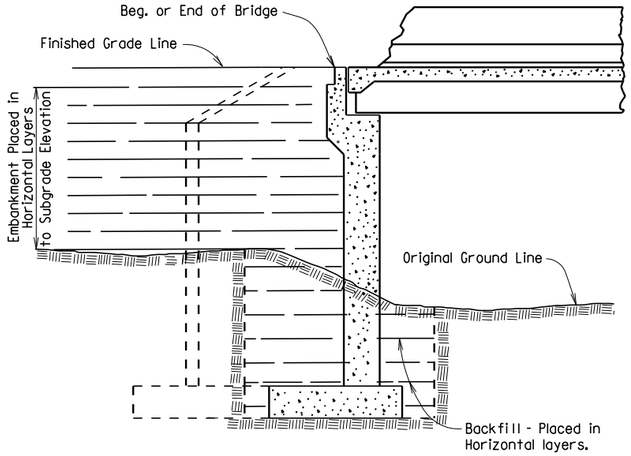
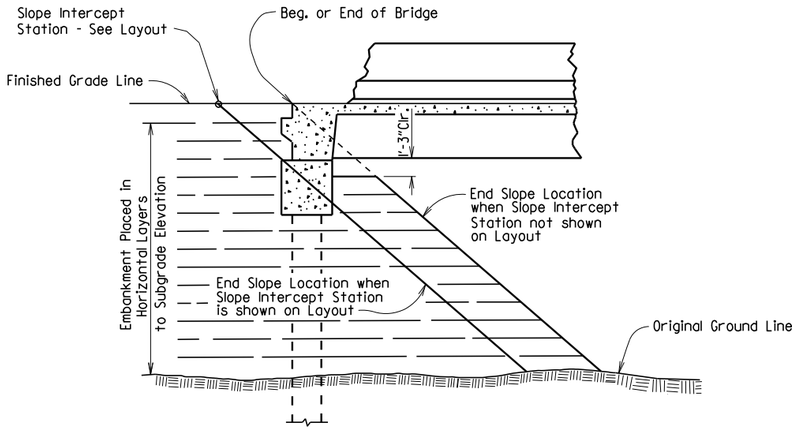
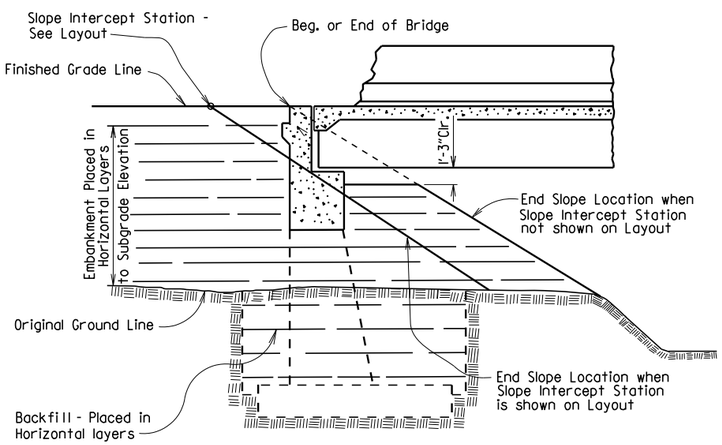
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	EMBANKMENT & BACKFILL		55000	



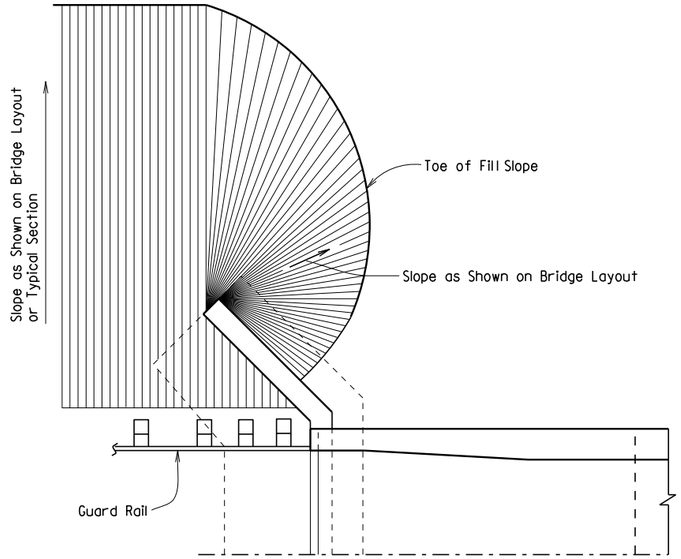
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



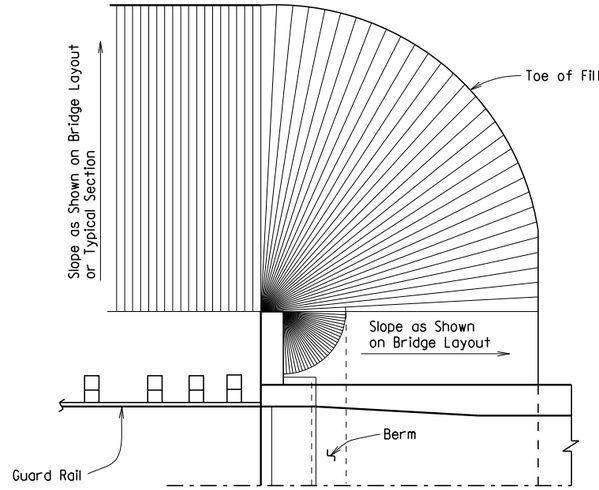
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



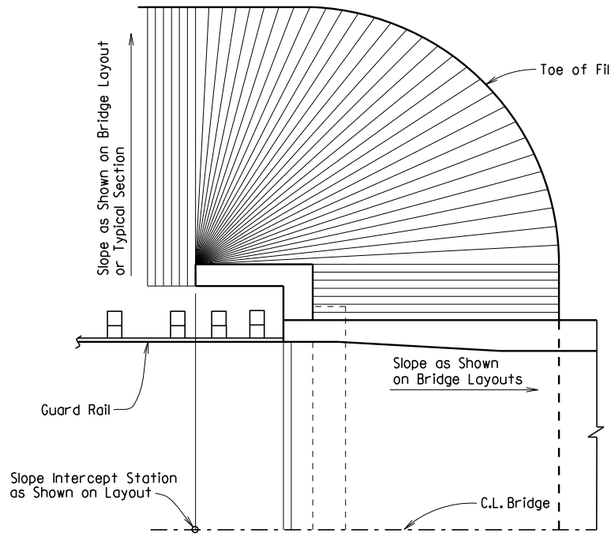
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



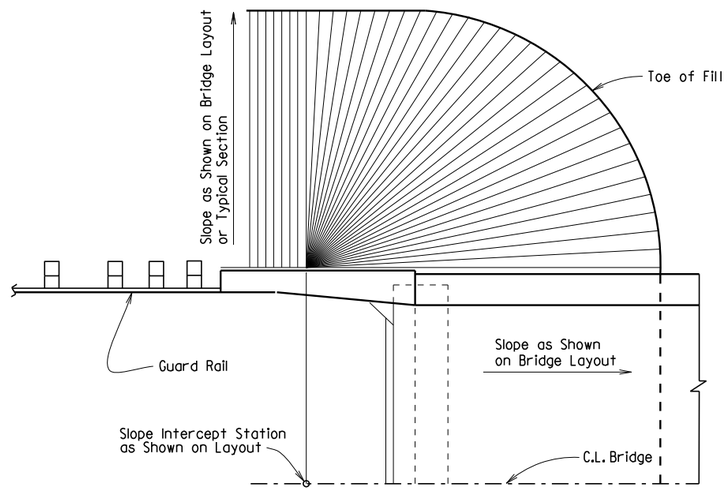
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

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

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

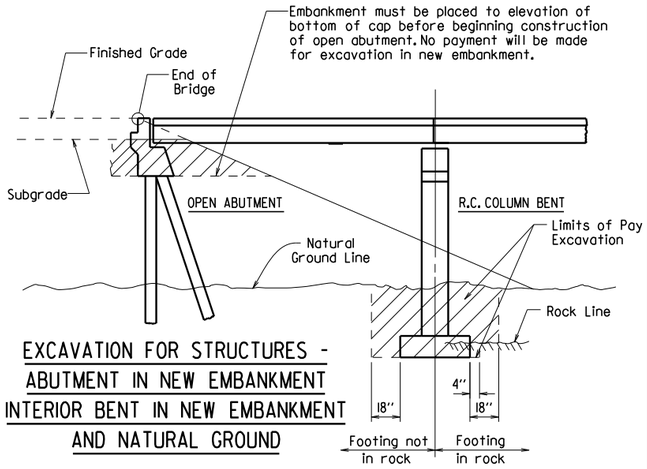
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: -

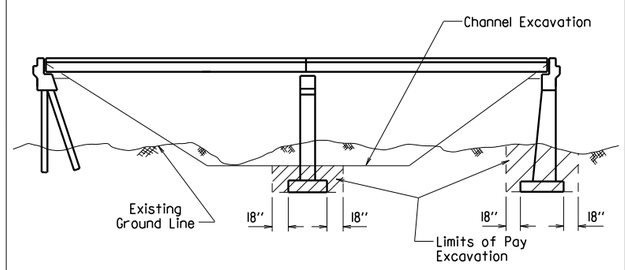
DRAWING NO. 55000

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

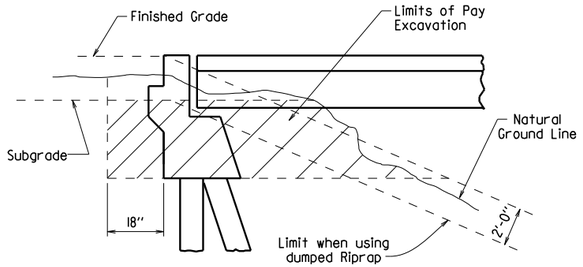
1 RIPRAP & EXCAV. 55001



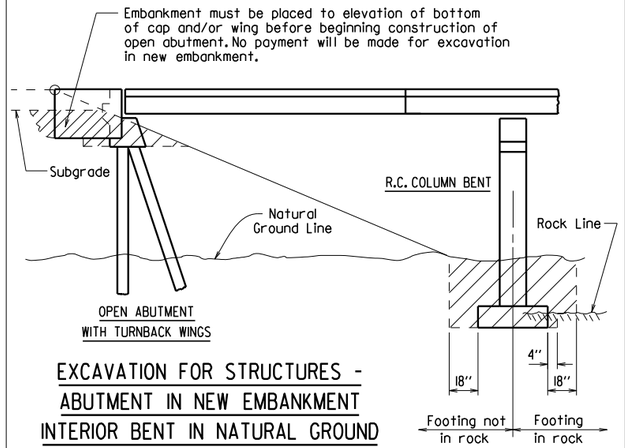
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



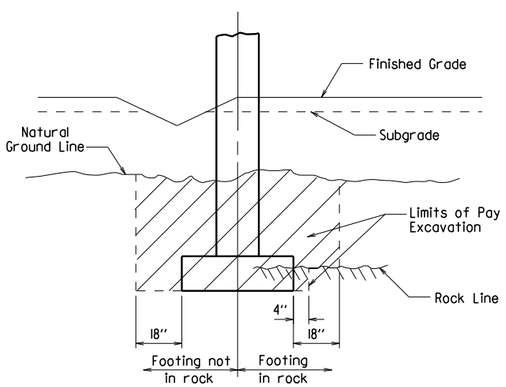
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



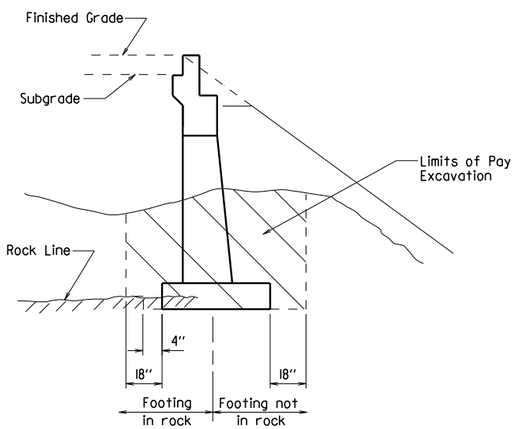
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



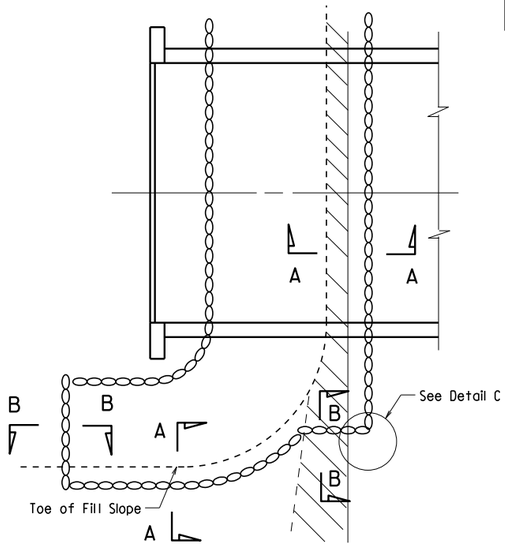
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



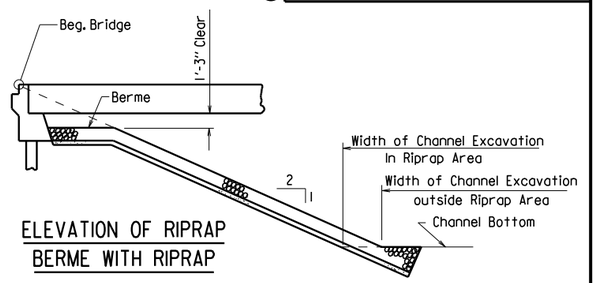
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



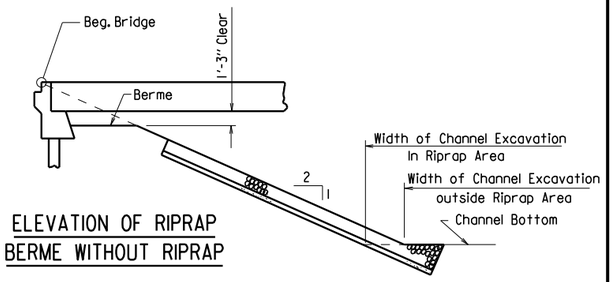
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



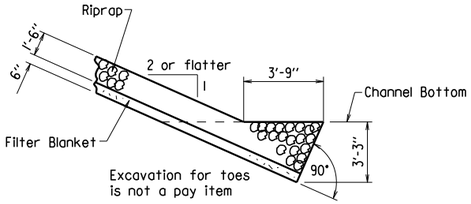
PLAN OF DUMPED RIPRAP



ELEVATION OF RIPRAP BERME WITH RIPRAP

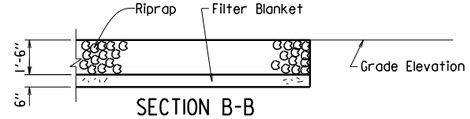


ELEVATION OF RIPRAP BERME WITHOUT RIPRAP

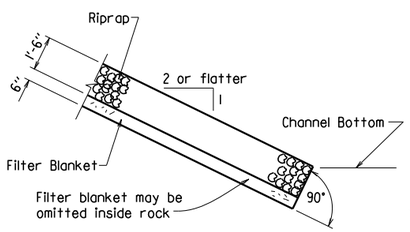


SECTION A-A

(Toe Excavation in Soil)



SECTION B-B



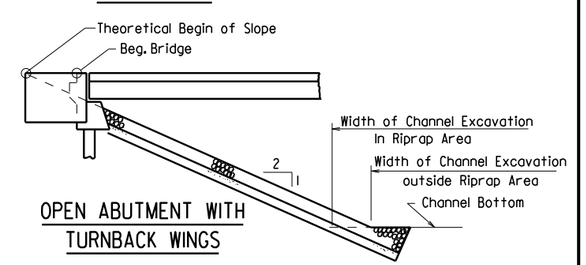
SECTION A-A

(Toe Excavation in Rock)

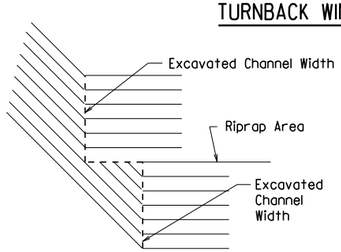
Note : Use this type of toe when rock is encountered which is in a stable condition.

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.



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

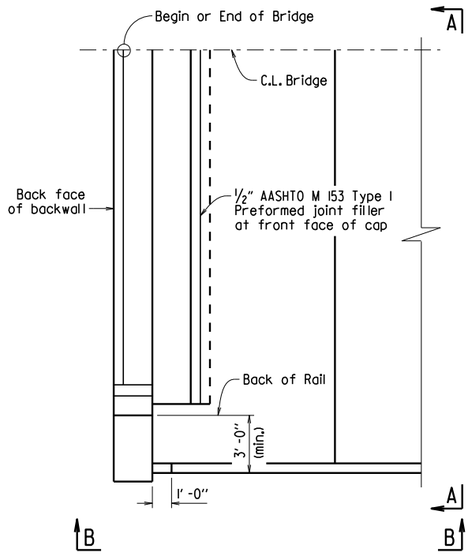
DESIGNED BY: STD. DATE:

DRAWING NO. 55001

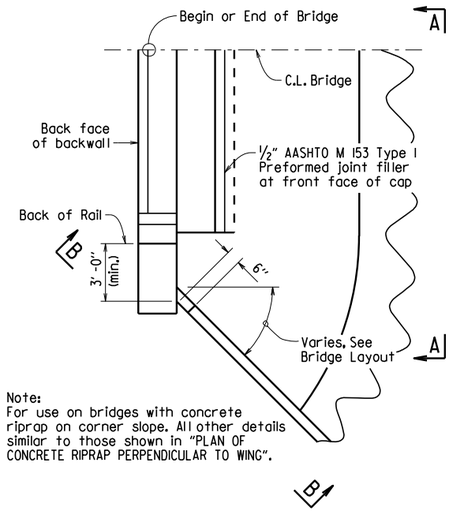
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

1 CONCRETE RIPRAP 55002

Note:
Sloped surfaces of concrete riprap to be marked off into blocks (construction joints optional) with an approved grooving tool, spacing the grooved lines about 5' apart.



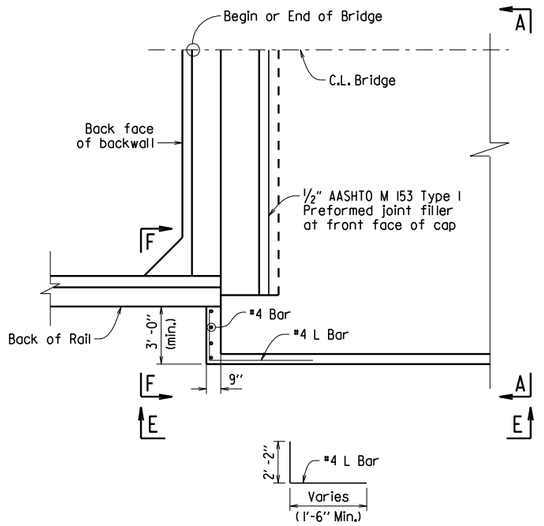
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO WING
¼" = 1'-0"



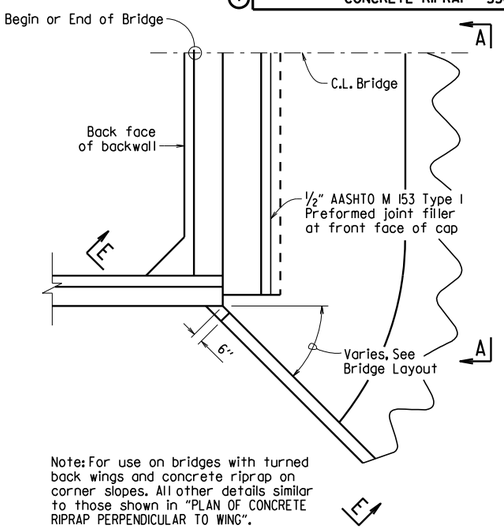
Note:
For use on bridges with concrete riprap on corner slope. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

PLAN OF CONCRETE RIPRAP
AT ANGLE TO WING
¼" = 1'-0"

Note:
For use on bridges with turned back wings. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".



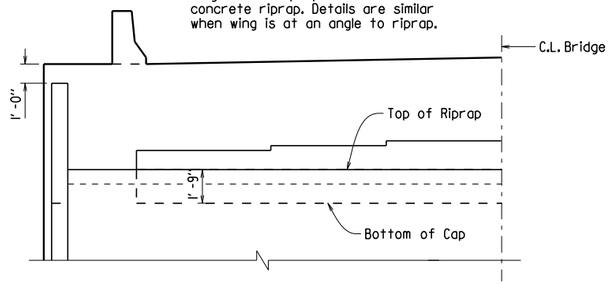
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO TURNED BACK WING
¼" = 1'-0"



Note: For use on bridges with turned back wings and concrete riprap on corner slopes. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

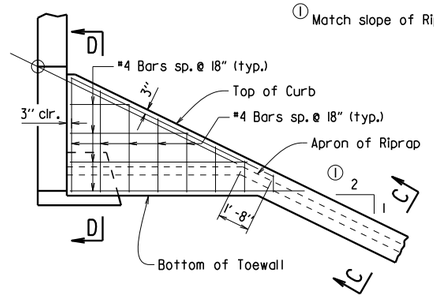
PLAN OF CONCRETE RIPRAP
AT ANGLE FROM TURNED BACK WING
¼" = 1'-0"

Note:
Wing is shown perpendicular to concrete riprap. Details are similar when wing is at an angle to riprap.

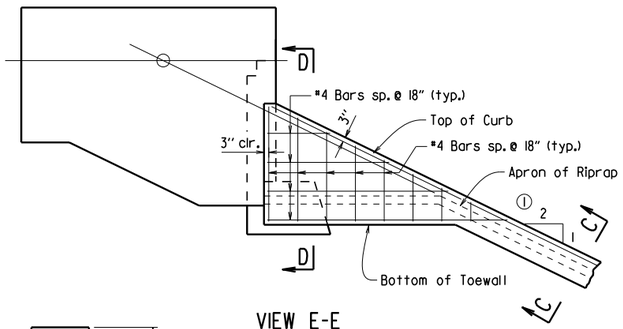


VIEW A-A
¼" = 1'-0"

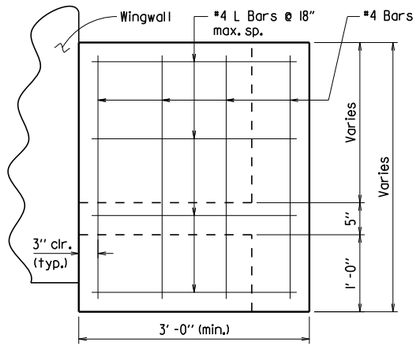
① Match slope of Riprap Apron.



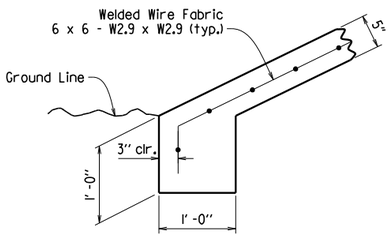
VIEW B-B
¼" = 1'-0"



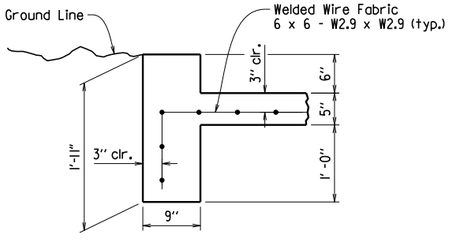
VIEW E-E
¼" = 1'-0"



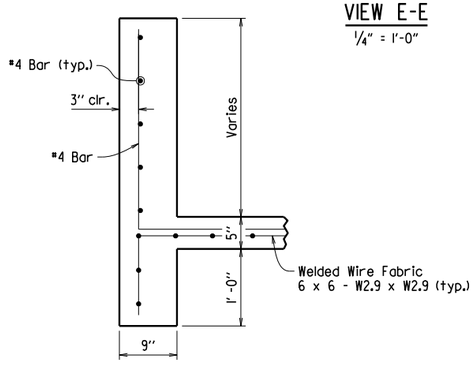
VIEW F-F
1" = 1'-0"



TOE OF CONCRETE RIPRAP
1" = 1'-0"



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



SECTION D-D
1" = 1'-0"

GENERAL NOTES

All concrete shall be Class A with a minimum compressive strength, f'c = 2,100 psi.

Welded wire fabric shall conform to AASHTO M55 or M221.

STANDARD DETAILS FOR CONCRETE RIPRAP

ARKANSAS STATE HIGHWAY COMMISSION

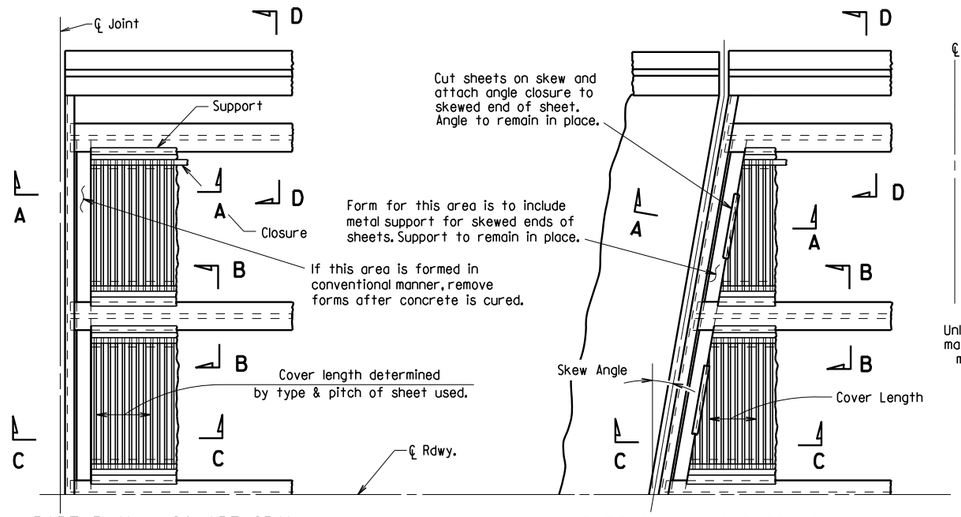
LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 2/27/2014
CHECKED BY: BEF DATE: 2/27/2014
DESIGNED BY: Std. DATE: ---
FILENAME: b55002.dgn
SCALE: AS SHOWN

DRAWING NO. 55002

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

① BRIDGE DECK FORMS 55005

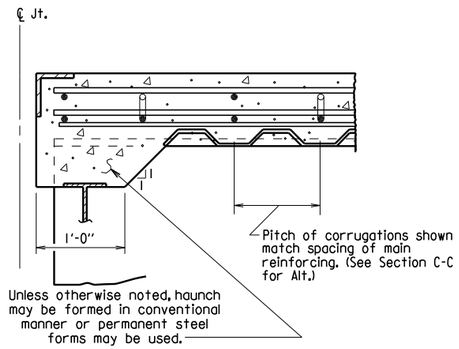


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

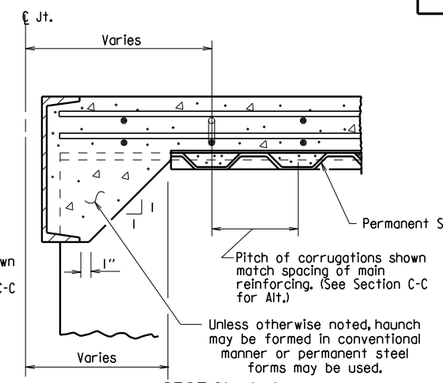
3/8" = 1'-0"



SECTION A-A

N.T.S.

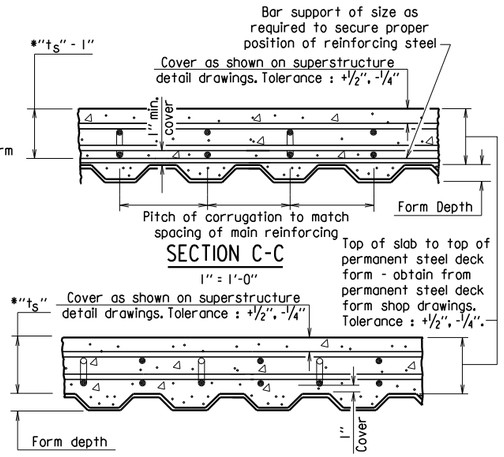
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



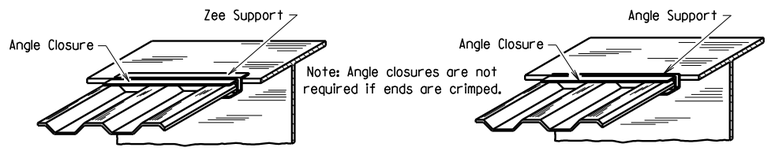
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

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



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

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

GENERAL NOTES

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

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

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

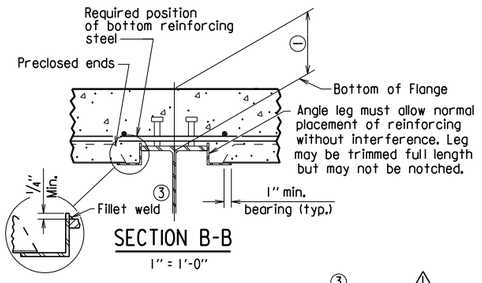
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

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

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

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

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

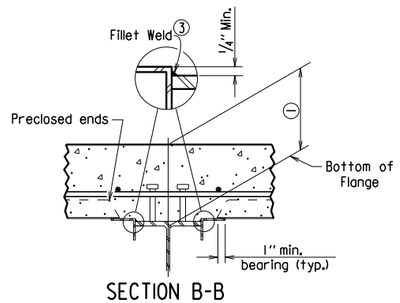


SECTION B-B

1" = 1'-0"

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

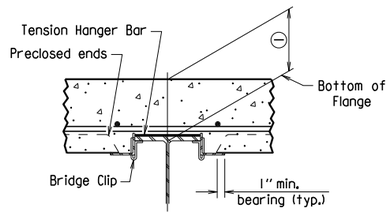
③ ⚠ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

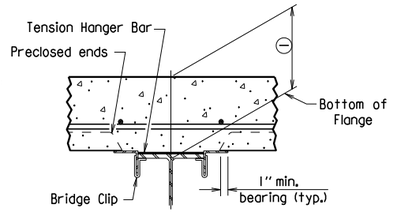
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

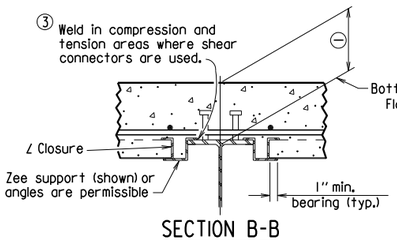
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

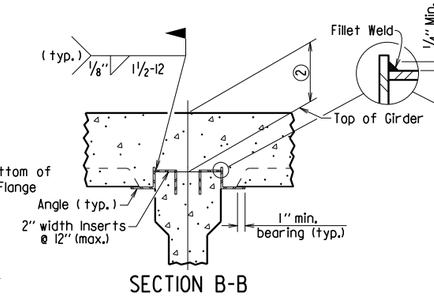
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

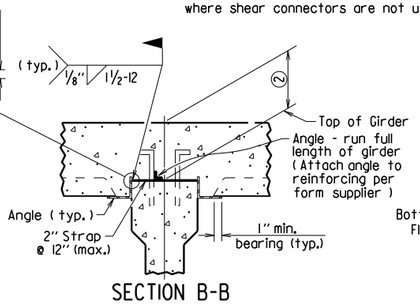


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Insert cast in girder)

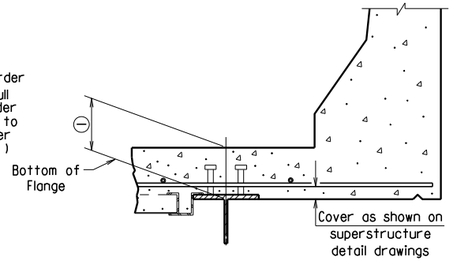


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

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

DESIGNED BY: STD. DATE: —

DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①		GENERAL NOTES		55006

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

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

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

CONCRETE:

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

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

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

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

REINFORCING STEEL:

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

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

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

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

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

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

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

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

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

STRUCTURAL STEEL (W-BEAMS):

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

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

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

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

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

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

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

STRUCTURAL STEEL (PLATE GIRDERS):

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

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

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

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

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

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

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

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

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

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

SUBSTRUCTURE NOTES:

CONCRETE:

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

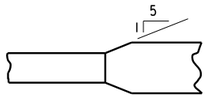
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

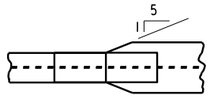
PRINT DATE: 11/7/2019

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			

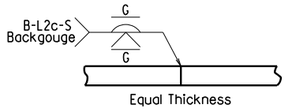


Plan-Unequal Width (Flg.)

FLANGE SPLICE

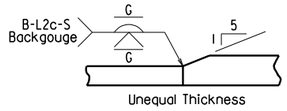


FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



Equal Thickness

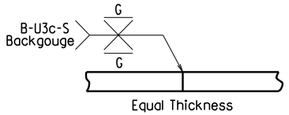
WEB & FLANGE SPLICE



Unequal Thickness

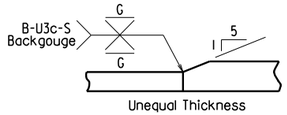
FLANGE SPLICE

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



Equal Thickness

WEB & FLANGE SPLICE

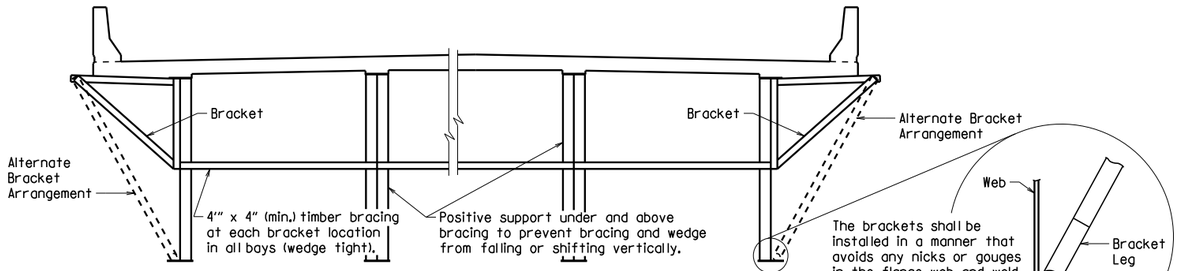


Unequal Thickness

FLANGE SPLICE

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

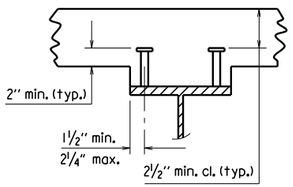
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



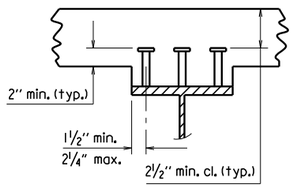
Note:
If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if web stiffeners matching the size of the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



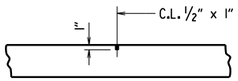
2 STUDS PER ROW



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.

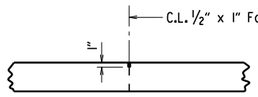
SHEAR CONNECTOR DETAIL



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.

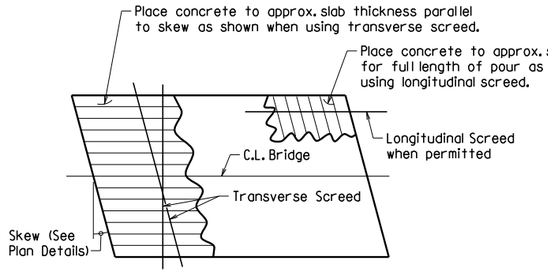
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab Joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck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



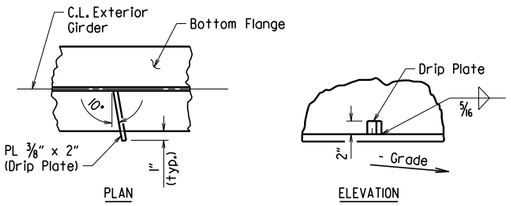
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

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



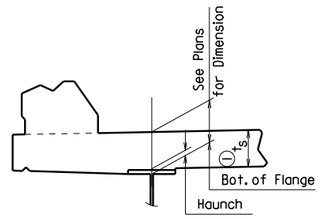
Drip Plate to be welded to the outer side of the bottom flange of the exterior girders.

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

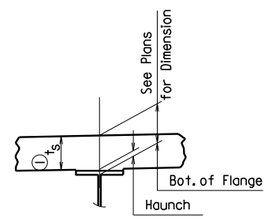
BOTTOM FLANGE DRIP PLATE

(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



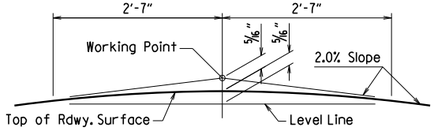
INTERIOR BEAM OR GIRDER

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"	5/16"	

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

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

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

STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

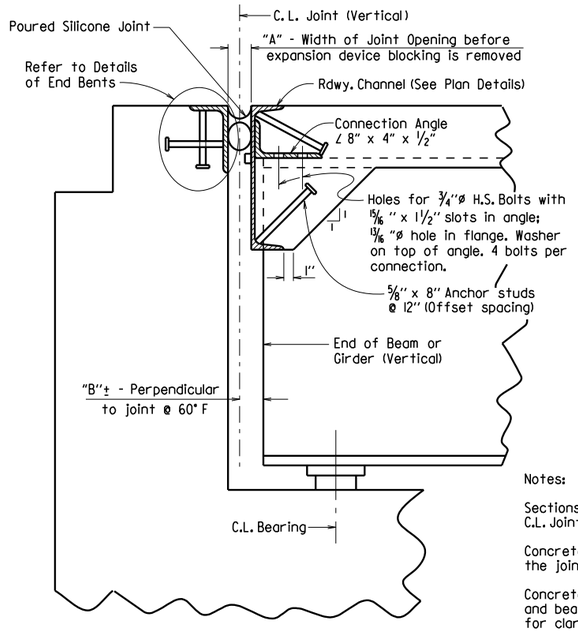
LITTLE ROCK, ARK.

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

DRAWING NO. 55007

DATE REVISED	DATE 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



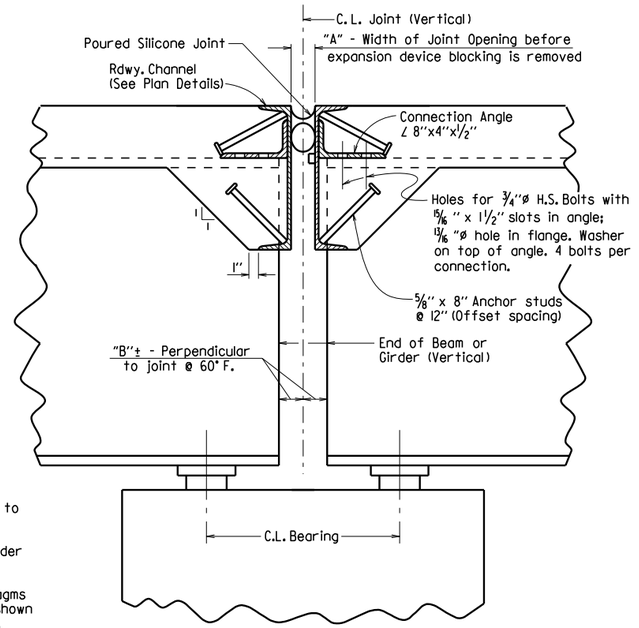
SECTION THRU JOINT AT END BENT

Notes:

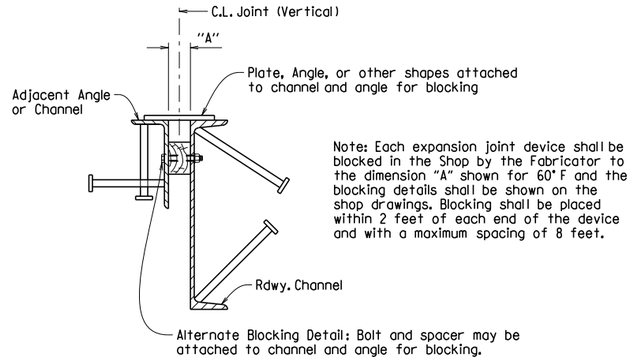
Sections are taken perpendicular to C.L. Joint.

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:

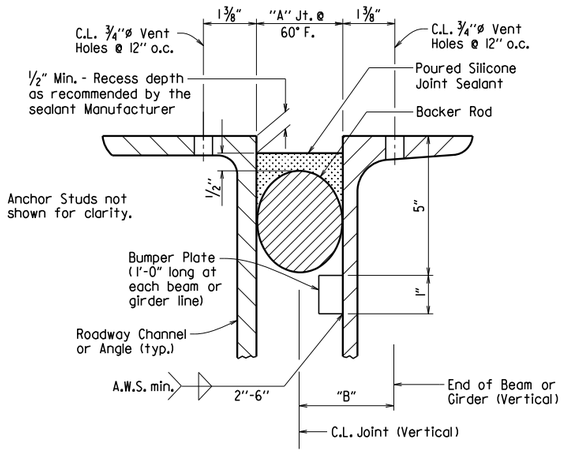
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior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



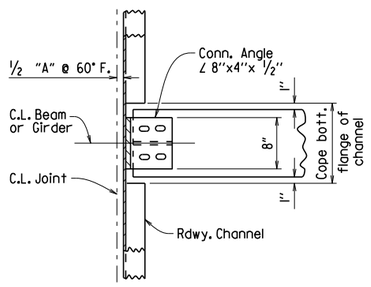
DETAIL OF POURED SILICONE JOINT

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.

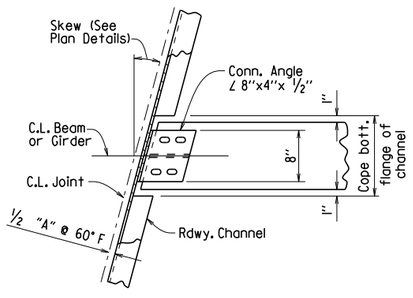
The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.

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.



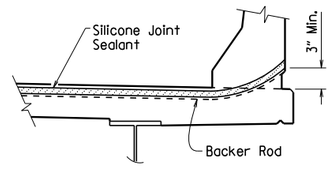
CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW

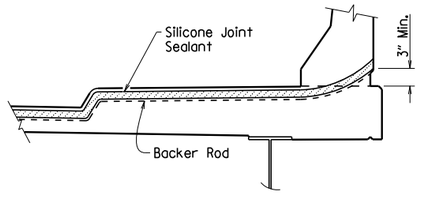


CHANNEL CONNECTION DETAIL

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

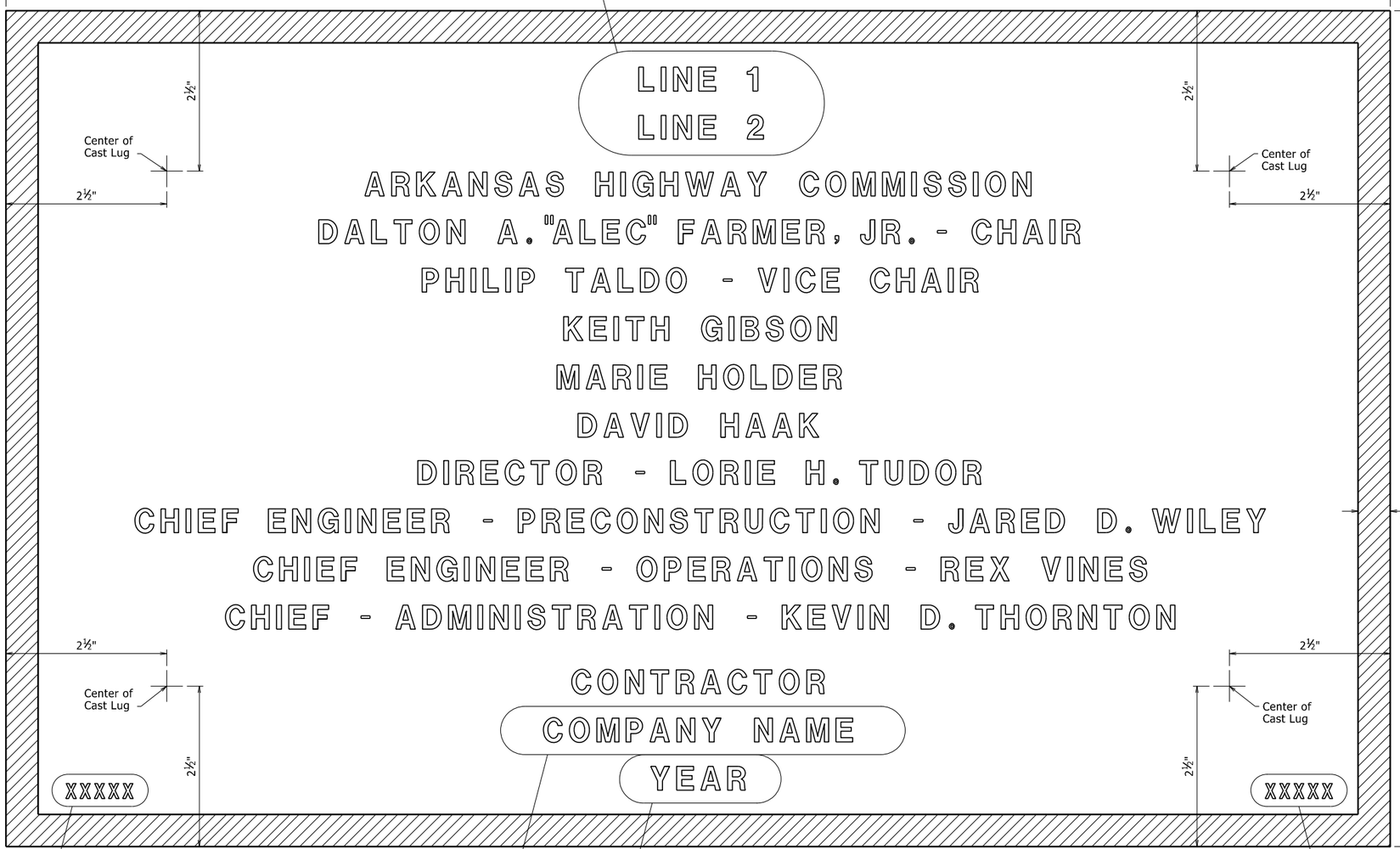
DESIGNED BY: STD. DATE: —

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	



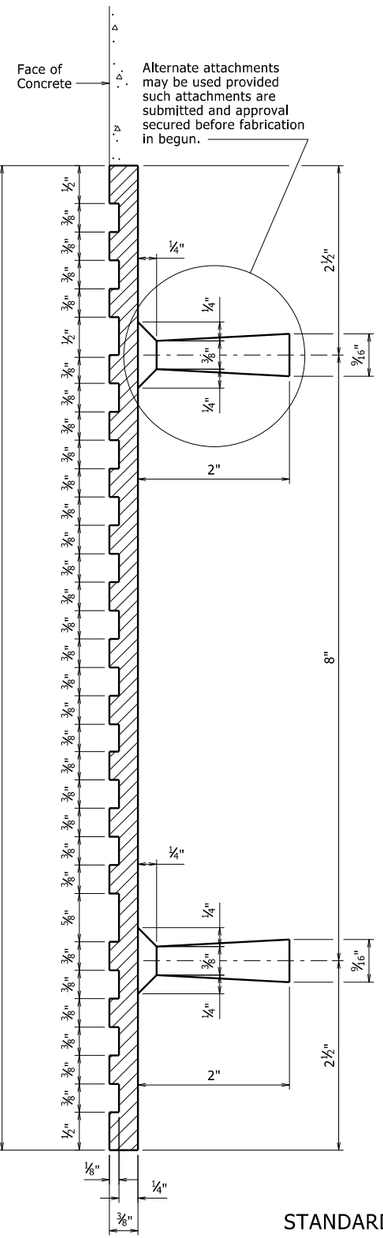
Place the design live loading here using ⅛" raised letters and numerals ¼" high. Examples: HS20, HL-93

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.

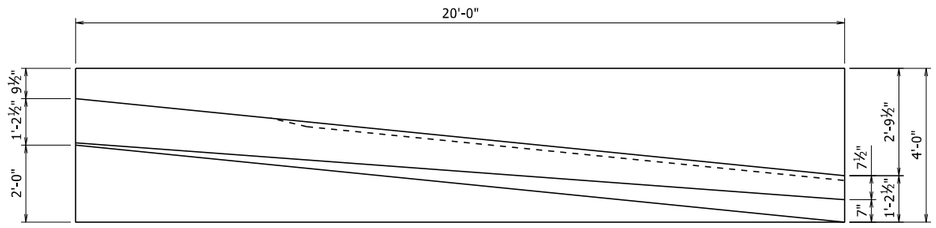
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

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
				6	ARK.			
				JOB NO.				

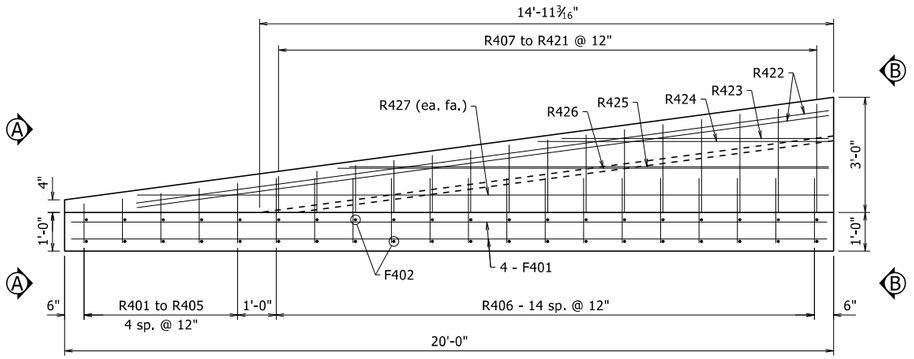
(1) TRANSITIONAL RAIL - 55013A



PLAN OF TRANSITIONAL APPROACH RAILING

Railings on each side of roadway are opposite hand to each other

½" = 1'-0"

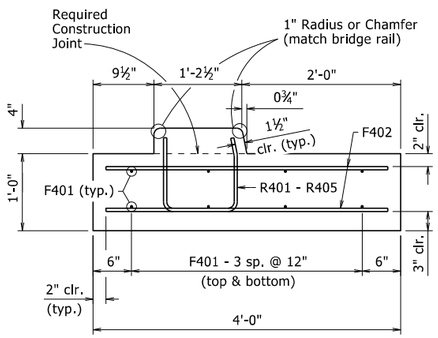


ELEVATION OF TRANSITIONAL APPROACH RAILING

½" = 1'-0"

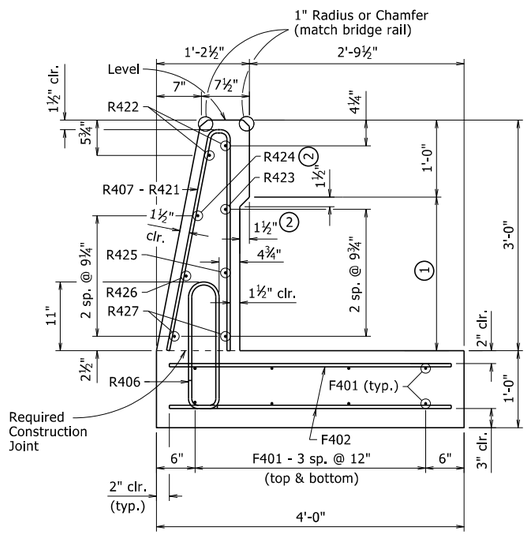
(1) Recess height varies as shown from 2'-0" to 0".

(2) Eliminate recess when formliner with architectural finish is used. See Plans for additional information.



VIEW A-A

1" = 1'-0"



VIEW B-B

1" = 1'-0"

GENERAL NOTES

Transitional Approach Railing Type SSTR36 shall be placed at locations shown in plans.

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi and shall be poured in the dry. All exposed corners to be chamfered 1" unless otherwise noted.

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

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

Unless otherwise required in the plans, curing and finishing shall be in accordance with Subsection 806.05(c) and the surface finish type and areas of application shall match that used on the adjacent bridge railing or barrier wall. See Subsection 802.19(3) for Class 3 Textured Coating Finish or Subsection 803.03(a) or 803.03(b) for Class 1 or 2 Protective Surface Treatment, respectively. Surface finishes shall not be paid for directly, but shall be considered incidental to the unit price bid for "Transitional Approach Railing."

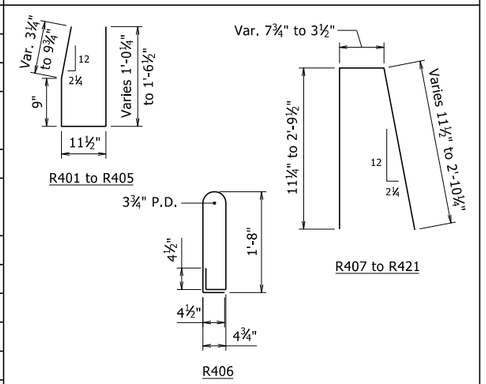
When alternate surface and/or architectural finishes are specified in the plans, no direct payment will be made, and the alternate finish shall be considered incidental to the unit price bid for "Transitional Approach Railing". See plan details for additional information when architectural finishes are specified.

Transitional Approach Railing Type SSTR36 shall be paid for at the contract unit price bid for "Transitional Approach Railing". See Section 806 for additional information.

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

BAR LIST - ONE TRANSITIONAL APPROACH RAILING

MARK	NO. REQ'D	LENGTH	P.D.	BENDING DIAGRAMS
F401	8	19'-8"	Str.	
F402	40	3'-8"	Str.	
R401 to R405	1 ea.	2'-10" - 3'-11"	2"	
R406	15	4'-5"	2"	
R407 to R421	1 ea.	2'-5" - 5'-9"	2"	
R422	2	18'-2"	Str.	
R423	1	6'-11"	Str.	
R424	1	7'-6"	Str.	
R425	1	12'-6"	Str.	
R426	1	12'-9"	Str.	
R427	2	17'-11"	Str.	

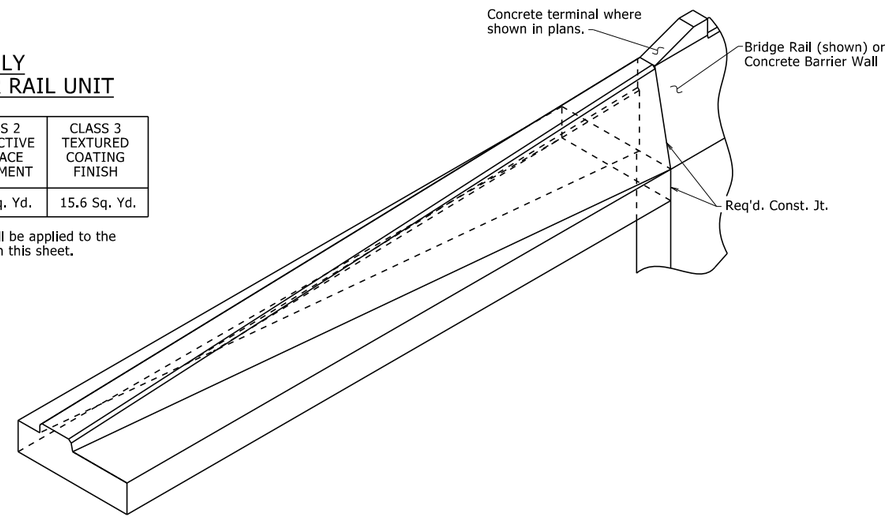


Dimensions are out to out of bars.

FOR INFORMATION ONLY
SCHEDULE OF QUANTITIES PER RAIL UNIT

CLASS "S" CONCRETE	REINFORCING STEEL (GRADE 60)	CLASS 1 PROTECTIVE SURFACE TREATMENT	CLASS 2 PROTECTIVE SURFACE TREATMENT	CLASS 3 TEXTURED COATING FINISH
4.1 Cu. Yds.	374 Lbs.	0.2 Gal.	8.1 Sq. Yd.	15.6 Sq. Yd.

Only one of the above three surface treatments shall be applied to the transitional approach railing. See "General Notes" on this sheet.



PICTORIAL OF TRANSITIONAL APPROACH RAILING

Sidewalk not shown for clarity

No Scale

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 TRANSITIONAL APPROACH RAILING TYPE SSTR36

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 4/8/2021 FILENAME: b55013a.dgn

CHECKED BY: BHS DATE: 4/8/2021 SCALE: As Shown

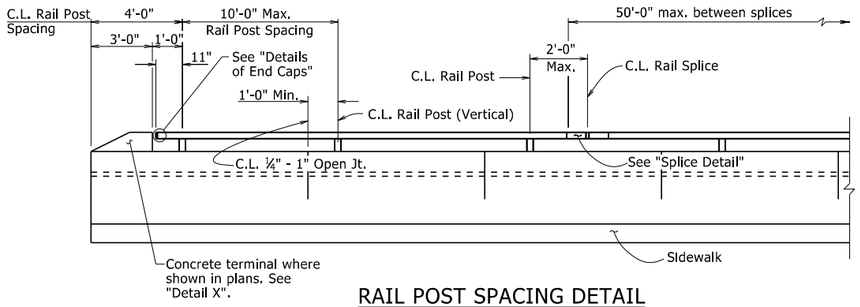
DESIGNED BY: STD. DATE: --

DRAWING NO. 55013A

PRINT DATE: 4/9/2021

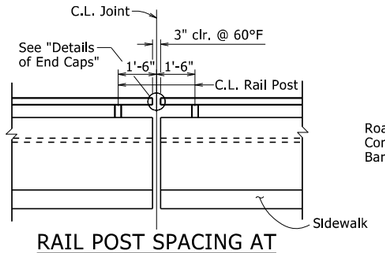
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

(1) TYPE H2 RAILING - 55015

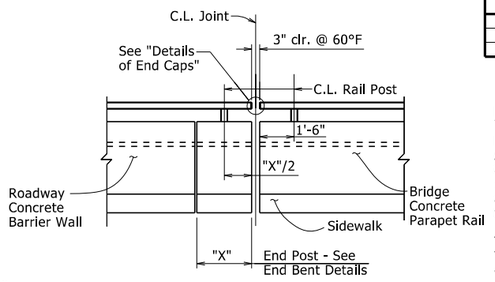


RAIL POST SPACING DETAIL

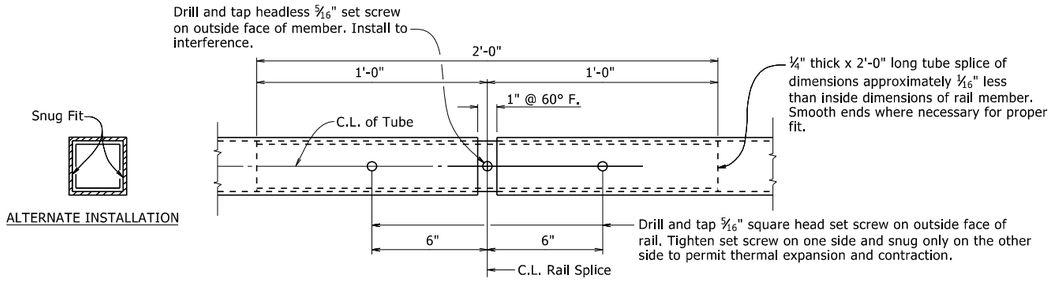
(Horizontal dimensions are along face of rail)



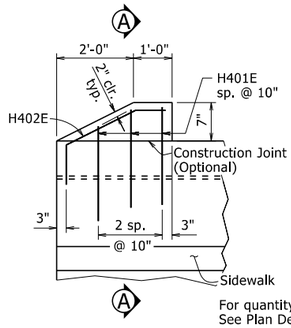
RAIL POST SPACING AT EXPANSION JOINTS



RAIL POST SPACING AT BRIDGE ENDS WITH CONCRETE BARRIER WALL

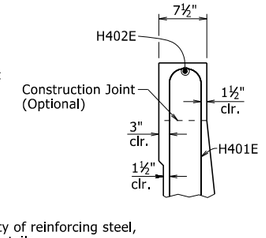


SPLICE DETAIL

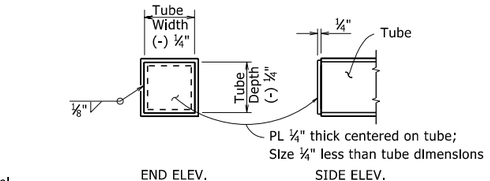


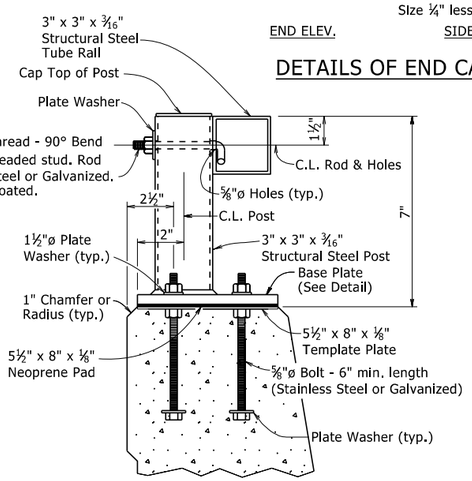
For quantity of reinforcing steel, See Plan Details.

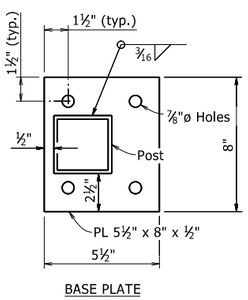
DETAIL X



SECTION A-A



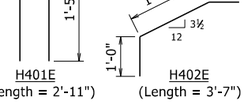




BASE PLATE

DETAILS OF POST ANCHOR SYSTEM

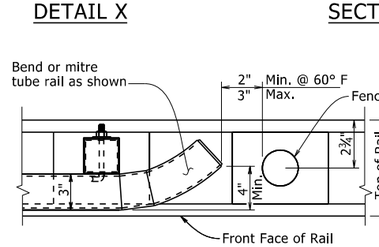
(Cast-in-Place Bolts)



Pin diameter for bending is 2". Bars shall be epoxy coated.

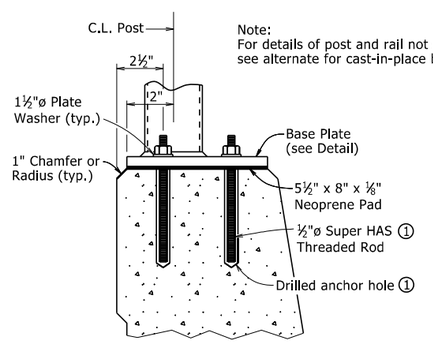
BENDING DIAGRAMS

(Dimensions are Out-to-Out of Bars)

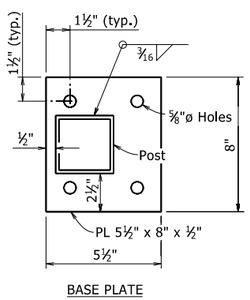


DETAILS OF RAIL TERMINUS AT FENCE POST

(When Chain Link Fence is Required)



Note:
For details of post and rail not shown, see alternate for cast-in-place bolts.



BASE PLATE

① HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4½" embedment or approved equal.

The Hilti Epoxy Adhesive Anchor System (or approved equal) shall be installed in accordance with Manufacturer's recommendations.

DETAILS OF ALTERNATE POST ANCHOR SYSTEM

(Epoxy Adhesive Anchors)

MATERIALS:

Rail tubing, posts, end caps, and base plates shall conform to ASTM A709, Grade 36 or ASTM A500-Grade B, and shall be galvanized after fabrication in accordance with Subsection 806.02(c). When required elsewhere in the plans, steel rail members shall receive a powder coating process after galvanizing. Galvanized surfaces shall be prepared in accordance with Subsection 807.87 and the manufacturer's recommendations prior to application of the powder coating process.

The powder coating process shall be a two coat system applied using electrostatic spray. The base coat shall be a thermosetting epoxy powder with a minimum thickness of 2 to 4 mils. The top coat shall be tough polyester powder with a minimum thickness of 2 to 4 mils. The color shall be as shown in the plans. Coated galvanized framework shall have a salt spray resistance of 3,000 hours using ASTM B117 without loss of adhesion. The powder coating process shall be in accordance with manufacturer's recommendations. Any damage to the powder coated finish shall be repaired with a compatible touch-up system in accordance with the manufacturer's recommendations and to the satisfaction of the Engineer at the Contractor's expense.

Cast-in-place anchor bolts, nuts, washers, and set screws shall be galvanized high-strength steel or stainless steel. Mixing of galvanized and stainless steel fasteners will not be permitted.

High-Strength Steel:
Cast-in-place anchor bolts shall conform to ASTM F3125, Grade A325, Type 1.
Nuts shall conform to ASTM A563, Grade DH or AASHTO M 292, Grade 2H.
Washers shall conform to ASTM F436.
Plate Washers shall conform to ASTM A709, Grade 36.
Template Plates shall conform to ASTM A709, Grade 36.
Splice Set Screws shall conform to ASTM A307, Grade A.
Anchor bolts, nuts, washers, plate washers, and set screws shall be galvanized in accordance with AASHTO M 232, Class C or ASTM B695, Class 50.

Stainless Steel:
Cast-in-place anchor bolts shall conform to ASTM A193, Grade B8, Class 2 or A320, Grade B8, Class 2 with a minimum yield strength of 80,000 psi.
Nuts shall conform to ASTM A194, Grade 8.
Washers shall conform to ASTM A240, Type 302.
Plate Washers shall conform to ASTM A240, Type 302.
Template Plates shall conform to ASTM A240, Type 302.
Splice Set Screws shall conform to ASTM A193, Grade B8, Class 1 or A320, Grade B8, Class 1.

Threads on bolts, screws, and nuts shall conform to American Standard Coarse Series, Class 2 FIT, ASA Specification B1.1. Plate washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series) unless otherwise noted. Neoprene pads shall conform to the requirements of Subsection 807.15(b).

GENERAL NOTES FOR BRIDGE RAILING:

Rail layout shall conform to vertical and horizontal alignment of bridge. All posts shall be vertical. Rail sections shall be fabricated to attach to at least three posts.

Base plates shall not be placed upon areas that are improperly finished, deformed or irregular.

Bridge railing, including posts, templates, and base plates, fasteners, and neoprene pads shall be paid for at the contract unit price bid per linear foot for "Metal Bridge Railing (Type H2)". When required elsewhere in the plans, powdered coating finish and repair of powdered coating finish shall be considered subsidiary to the item "Metal Bridge Railing (Type H2)".

Shop drawings showing details of railing shall be submitted and approval secured prior to fabrication.

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 TYPE H2 RAILING

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

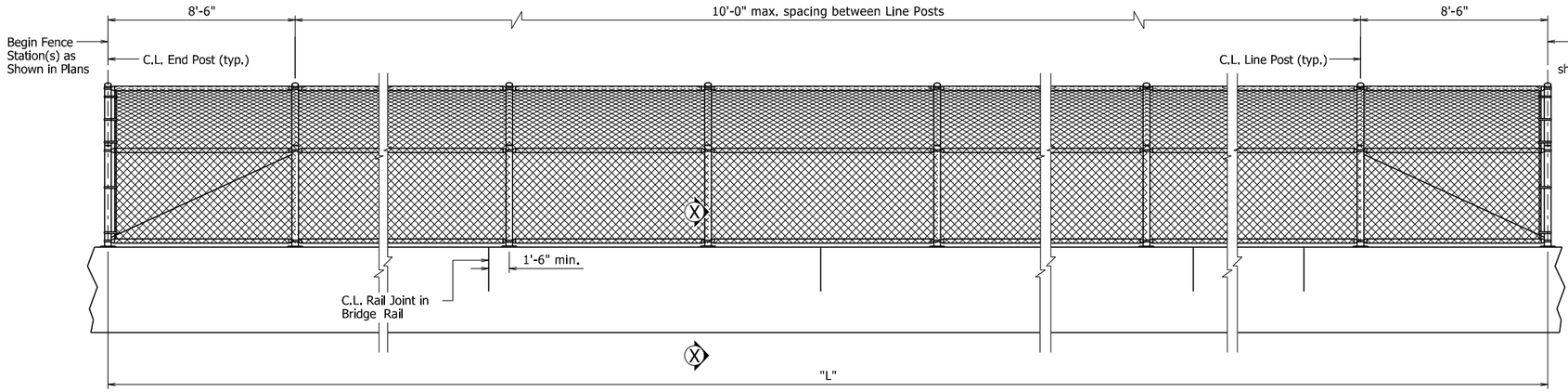
DRAWN BY:	KJT	DATE:	6/25/2020	FILENAME:	b55015.dgn
CHECKED BY:	KWY	DATE:	6/25/2020	SCALE:	No Scale
DESIGNED BY:	STD.	DATE:	-		

DRAWING NO. 55015

PRINT DATE: 4/6/2021

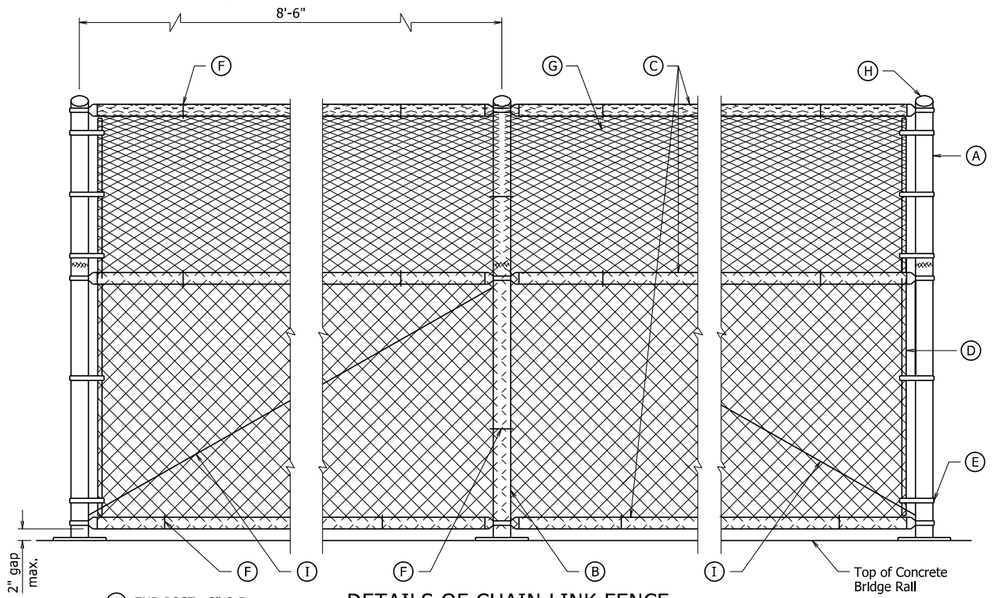
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				

(1) CURVED CHAIN LINK FENCE - 55019



LONGITUDINAL VIEW OF CHAIN LINK FENCE

NOTE: The fence location, total length, and bridge rail panel spacing shall be as specified in the plans.



DETAILS OF CHAIN LINK FENCE

(A) END POST: 3" O.D.

(B) LINE POST: 2½" O.D.

(C) HORIZONTAL RAIL: 1⅝" O.D.

(D) TENSION BAR: 3/16" x ¾" Bar

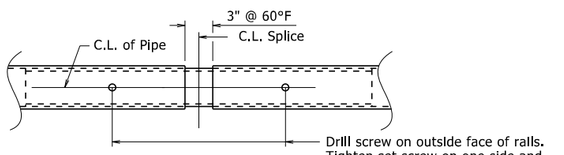
(E) TENSION BAR BAND: ¾" x 0.074 with 5/16"Ø x 1¼" Bolt
One Band Top and Bottom with 1'-3" max. spacing placed as shown.
Bend tensions rods to conform to curve geometry shown.

(F) TIE WIRE: 9 Ga. Aluminum @ 12" max.

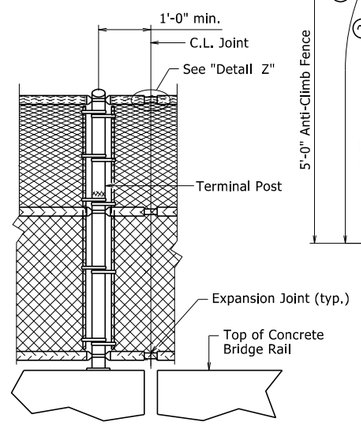
(G) FABRIC: 9 Ga. 2" Mesh w/Knucklug or Twisting Selvage. Chain link fabric to be placed on outside face of rails.

(H) CAPS: All post shall be capped and shall conform to ASTM F626.

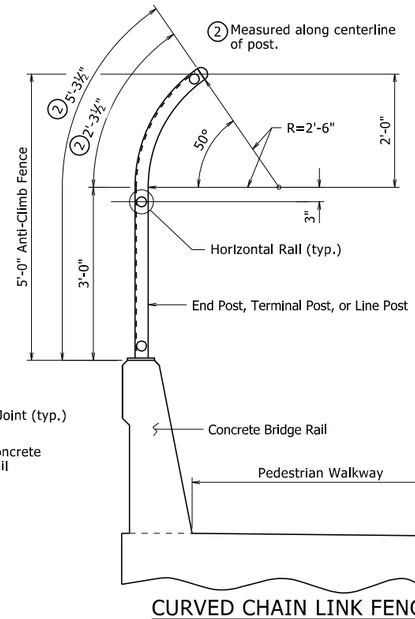
(I) TRUSS ROD: Min. of 5/16" round with Tighteners and Fittings



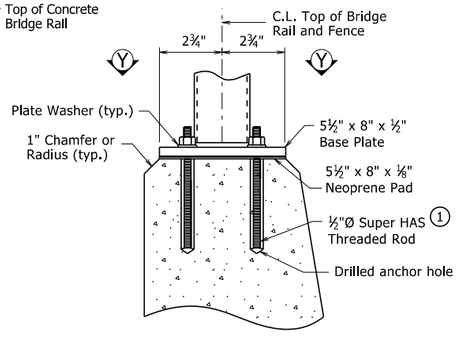
DETAIL Z



DETAILS AT BRIDGE DECK EXPANSION JOINTS



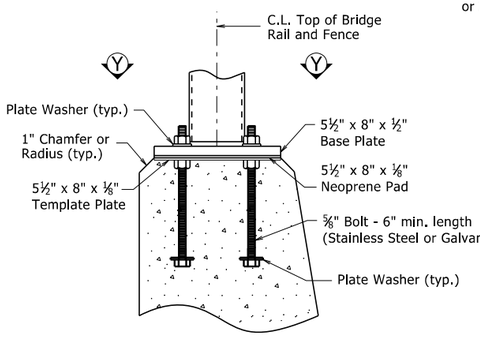
CURVED CHAIN LINK FENCE



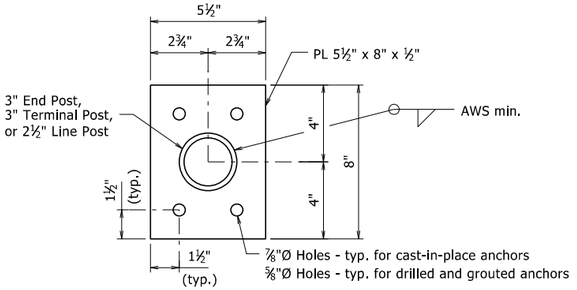
(1) HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4½" embedment or approved equal.

The HILTI Adhesive Anchor System shall be installed in accordance with Manufacturer's recommendations.

SECTION X-X
DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(Epoxy Adhesive Anchors)



SECTION X-X
DETAILS OF POST ANCHOR SYSTEM
(Cast In-Place Bolts)



VIEW Y-Y

MATERIALS:

Chain link fence attached to the bridge shall be paid for as "5' Steel Chain Link Fence". Material for chain link fence shall comply with AASHTO M 181 Type I, Class D; Type II; or Type III. Steel members for posts, rails, and expansion sleeves may be either Grade 1 or Grade 2. Hardware and fittings shall comply with ASTM F626. Any miscellaneous hardware or fittings not mentioned shall be galvanized according to AASHTO M 111 or M 232. When required elsewhere in the plans, steel fence members shall receive a powder coating process after galvanizing. Galvanized surfaces shall be prepared in accordance with Subsection 807.87 and the manufacturer's recommendations prior to application of the powder coating system.

The powder coating process shall be a two coat system applied using electrostatic spray. The base coat shall be a thermosetting epoxy powder with a minimum thickness of 2 to 4 mils. The top coat shall be tough polyester powder with a minimum thickness of 2 to 4 mils. The color shall be as shown in the plans. Coated galvanized framework shall have a salt spray resistance of 3,000 hours using ASTM B117 without loss of adhesion. The powder coating process shall be in accordance with manufacturer's recommendations. Any damage to the powder coated finish shall be repaired with a compatible touch-up system in accordance with the manufacturer's recommendations and to the satisfaction of the Engineer at the Contractor's expense.

Cast-in-place anchor bolts, nuts, washers, and set screws shall be galvanized high-strength steel or stainless steel. Mixing of galvanized and stainless steel fasteners will not be permitted.

High-Strength Steel:
Cast-in-place anchor bolts shall conform to ASTM F3125, Grade A325, Type 1.
Nuts shall conform to ASTM A563, Grade DH or AASHTO M 292, Grade 2H.
Washers shall conform to ASTM F436.
Plate Washers shall conform to ASTM A709, Grade 36.
Template Plates shall conform to ASTM A709, Grade 36.
Splice Set Screws shall conform to ASTM A307, Grade A.
Anchor bolts, nuts, washers, plate washers, and set screws shall be galvanized in accordance with AASHTO M 232, Class C or ASTM B695, Class 50.

Stainless Steel:
Cast-in-place anchor bolts shall conform to ASTM A193, Grade B8, Class 2 or A320, Grade B8, Class 2 with a minimum yield strength of 80,000 psi.
Nuts shall conform to ASTM A194, Grade 8.
Washers shall conform to ASTM A240, Type 302.
Plate Washers shall conform to ASTM A240, Type 302.
Template Plates shall conform to ASTM A240, Type 302.
Splice Set Screws shall conform to ASTM A193, Grade B8, Class 1 or A320, Grade B8, Class 1.

Threads on bolts, screws, and nuts shall conform to American Standard Coarse Series, Class 2 FIT, ASA Specification B1.1. Plate washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series) unless otherwise noted. Neoprene pads shall conform to the requirements of Subsection 807.15(b).

GENERAL NOTES FOR CHAIN LINK FENCE:

Fence layout shall conform to vertical and horizontal alignment of bridge. Fence posts shall be set plumb (true vertical position). Bridge rail concrete shall be at least 7 days old before stretching and securing fabric to posts.

Base plates shall not be placed upon areas that are improperly finished, deformed, or irregular.

For additional details of chain link fence, see Standard Drawing WF-3 and Section 619. Neoprene pad, template plates, and anchor systems shall not be paid for directly, but shall be considered incidental to the unit price bid for the item "5' Steel Chain Link Fence".

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 CURVED CHAIN LINK FENCE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 4/8/2021 FILENAME: b55019.dgn
CHECKED BY: TMG DATE: 4/8/2021 SCALE: No Scale
DESIGNED BY: STD. DATE: -

DRAWING NO. 55019

PRINT DATE: 4/12/2021

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				①		STEEL H-PILES		55020

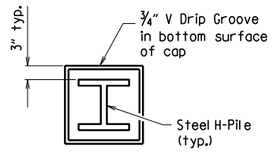
GENERAL NOTES FOR STEEL H-PILES:

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

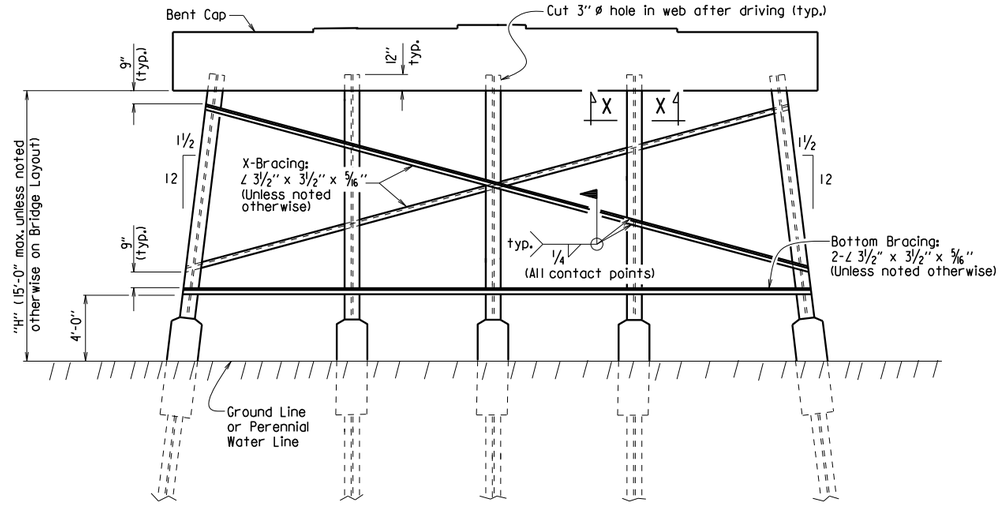
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

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

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



VIEW X-X



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

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

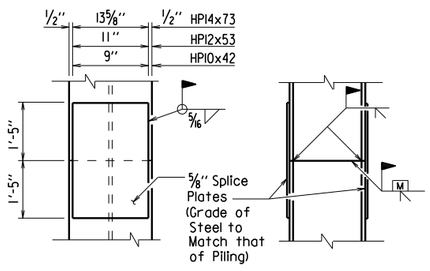
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

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

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

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)



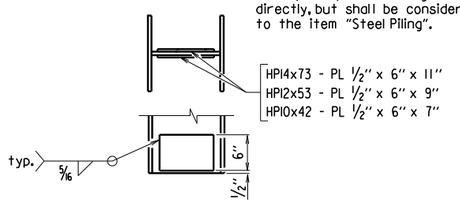
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

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

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

Steel pile tip reinforcing shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

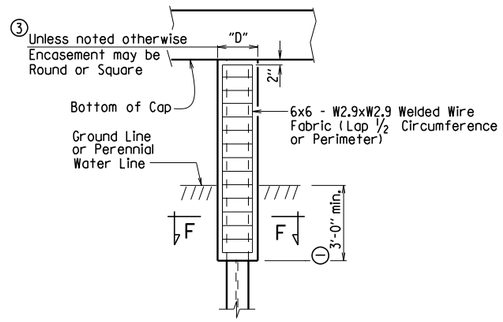
⚠ See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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

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

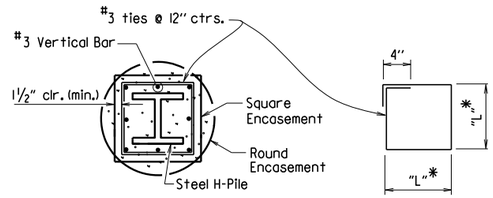
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

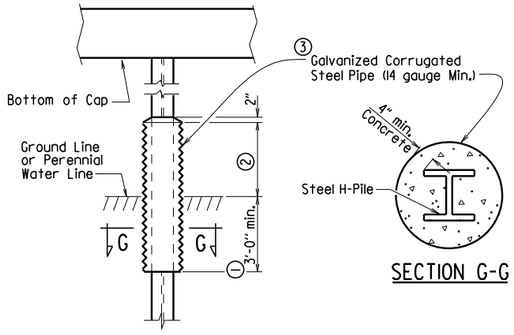


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D" Square Encsmt.	"D" Round Encsmt.	"L"*
HP10x42	1'-7"	2'-0"	1'-4"
HP12x53	1'-8"	2'-2"	1'-5"
HP14x73	1'-11"	2'-6"	1'-8"



SECTION G-G

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1½" and a minimum clearance of 1¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

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

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

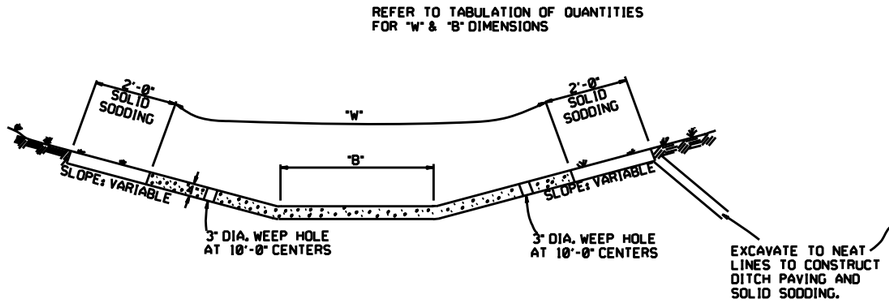
STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

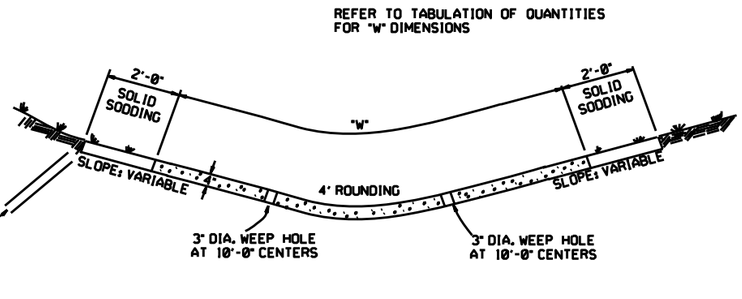
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55020

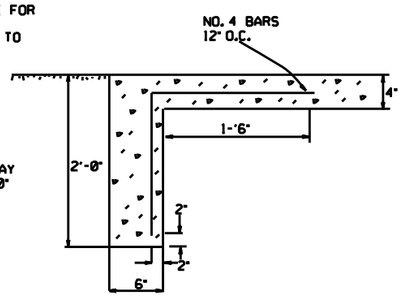


TYPE A



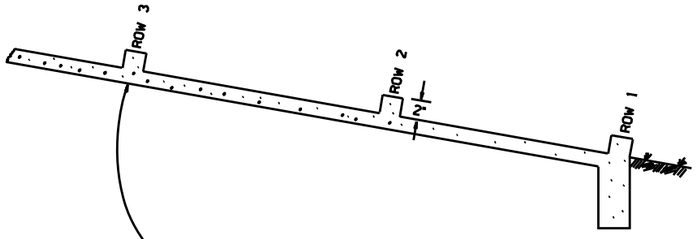
TYPE B

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

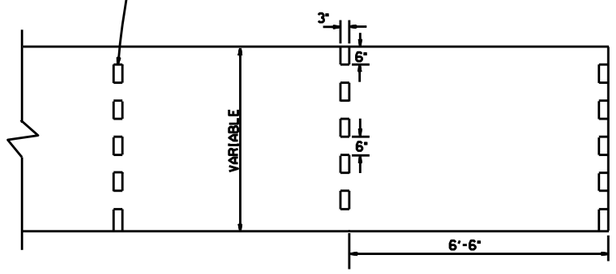


TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



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



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

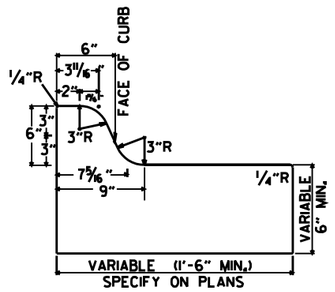
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	595-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPES A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

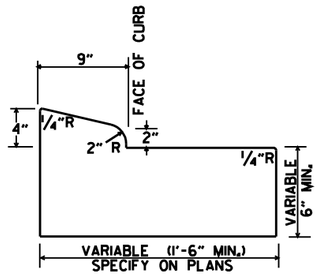
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

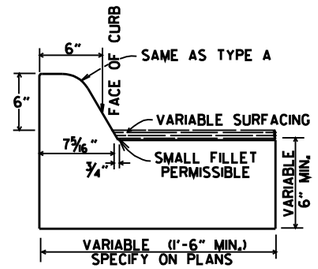
STANDARD DRAWING CDP-1



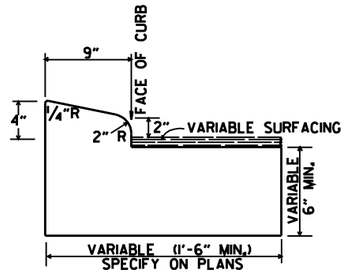
TYPE A



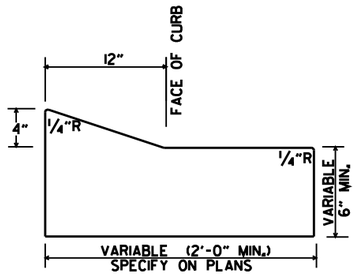
TYPE B-1



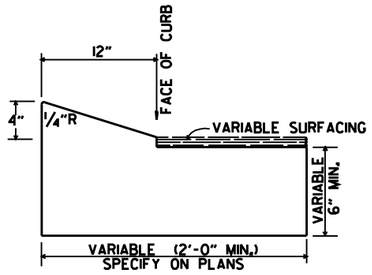
TYPE C



TYPE B-2

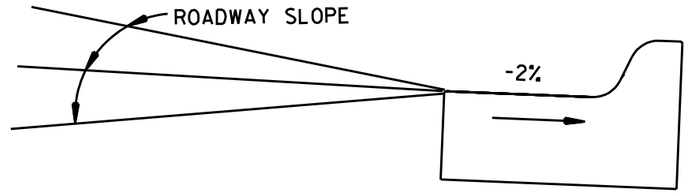


TYPE E-1



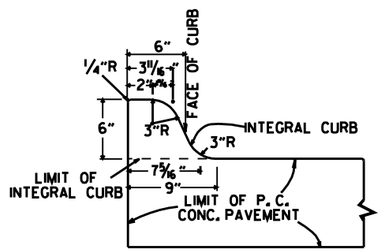
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

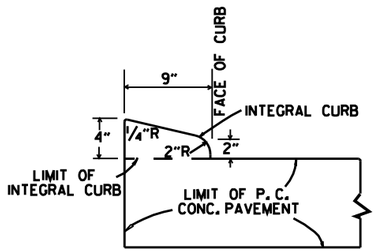


DETAIL OF GUTTER SLOPE

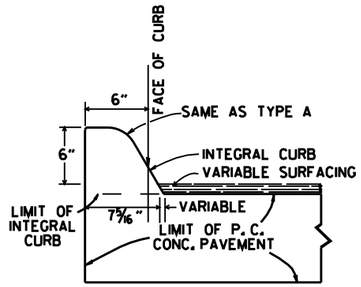
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

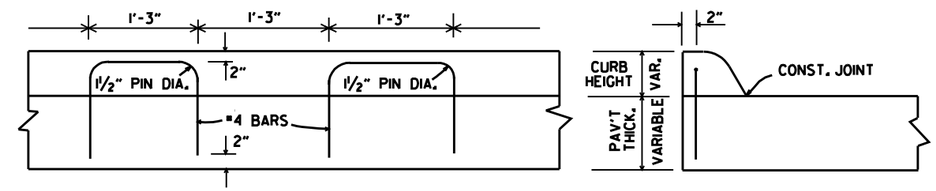


TYPE B

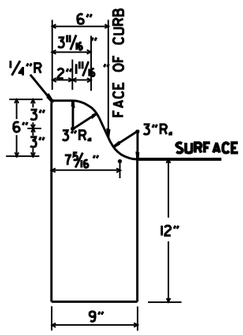


TYPE C

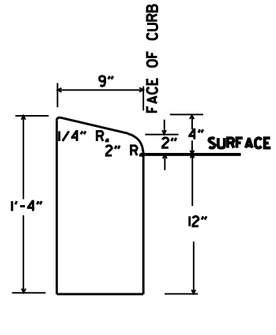
INTEGRAL CURB



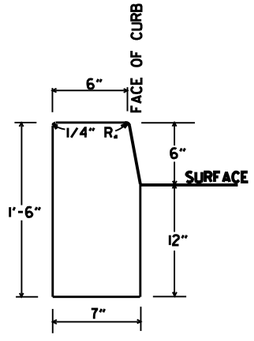
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



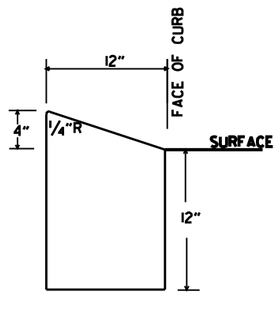
TYPE A



TYPE B

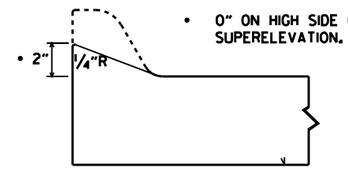


TYPE D



TYPE E

CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

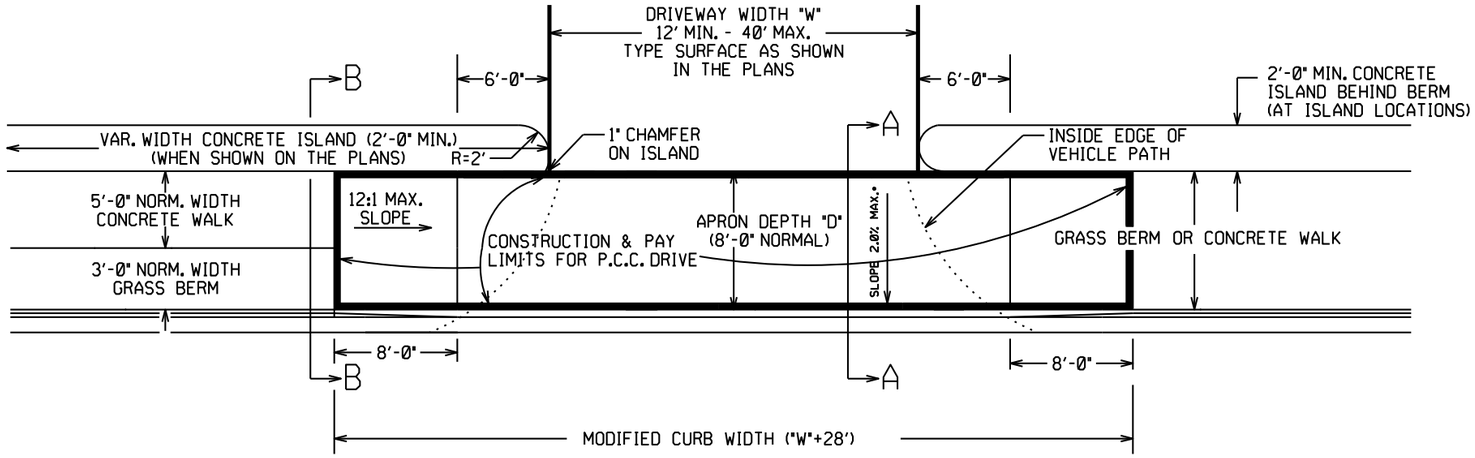
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B I	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	52-10-2-72

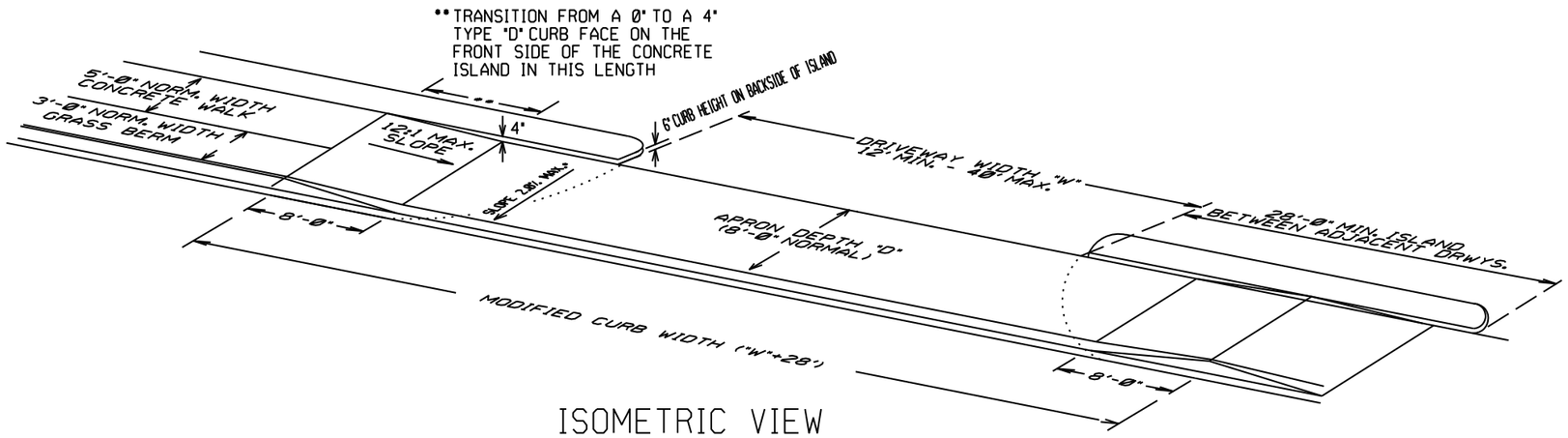
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

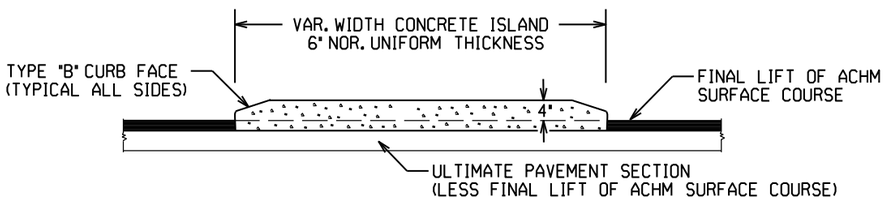
STANDARD DRAWING CG-1



PLAN VIEW



ISOMETRIC VIEW

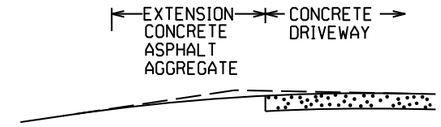


CURBED ISLANDS FOR CHANNELIZATION

CONCRETE ISLAND NOTES:

1. REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".

2. TRANSVERSE EXPANSION JOINTS, NOT LESS THAN 1/2" WIDE, SHALL BE PLACED AT MINIMUM INTERVAL OF 45'. TRANSVERSE JOINT SHALL BE CONSTRUCTED USING A JOINT FILLER COMPLYING WITH AASHTO M213.



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

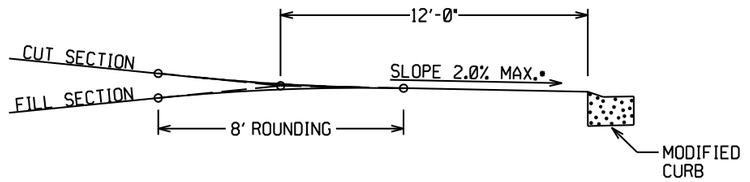
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE (1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

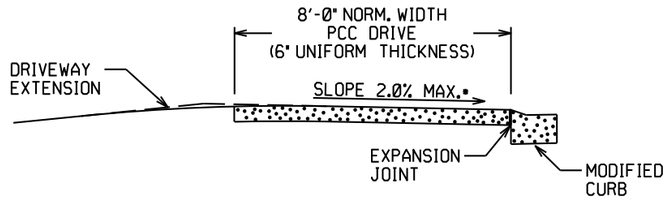
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

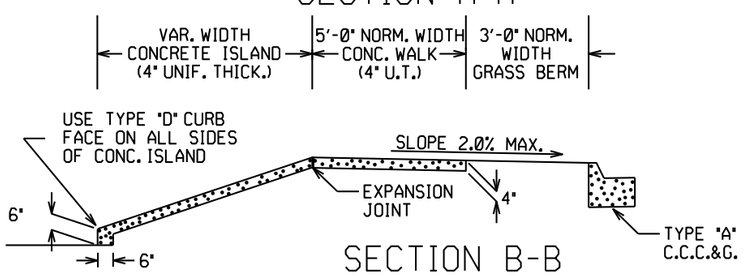


DRIVEWAY VERTICAL ALIGNMENT DETAILS

• NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



SECTION A-A



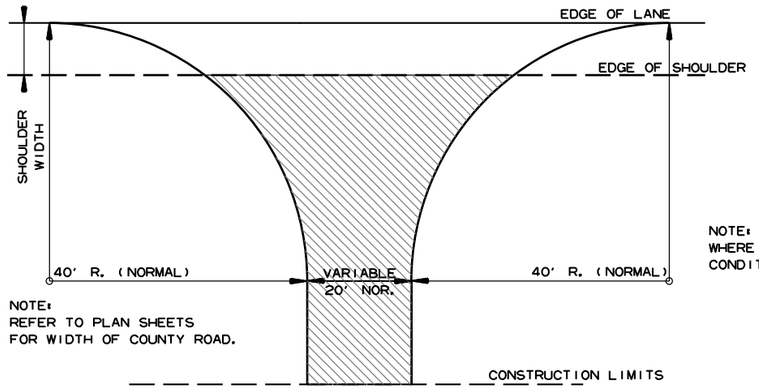
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
5-19-22		REVISED ISLAND NOTES
11-07-19		REVISED WALK DETAILS
2-27-14		REVISED PLAN & ISOMETRIC VIEW
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & ISLANDS

STANDARD DRAWING DR-1

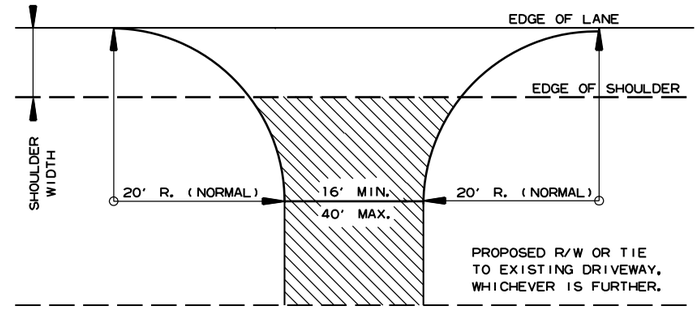


NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF COUNTY ROAD.

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

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

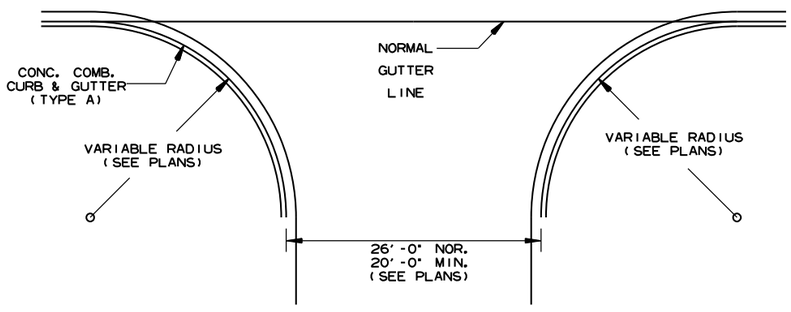
DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION



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

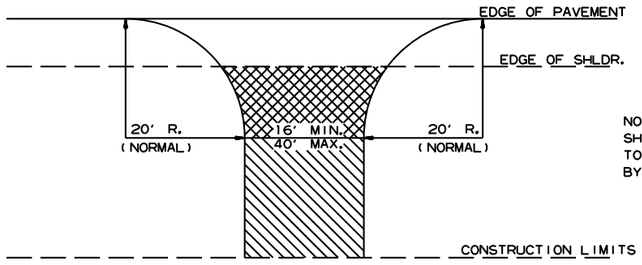
ACHM SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT OR GRAVEL DRIVE EXISTING, OR 6" CONCRETE IF CONCRETE DRIVE EXISTING.

DETAIL FOR DRIVEWAY TURNOUTS OPEN SHOULDER SECTION (ARTERIALS)



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

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



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

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

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

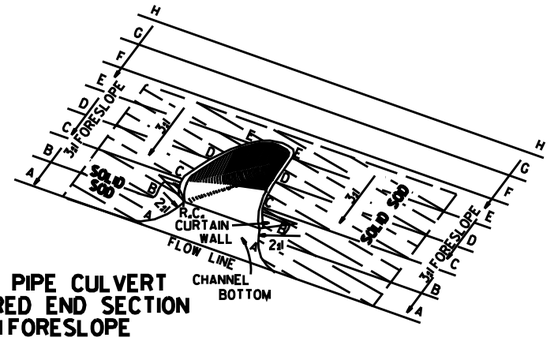
DETAIL FOR DRIVEWAY TURNOUTS (COLLECTORS)

DATE REV	DATE FILMED	DESCRIPTION
5-19-22		ISSUED

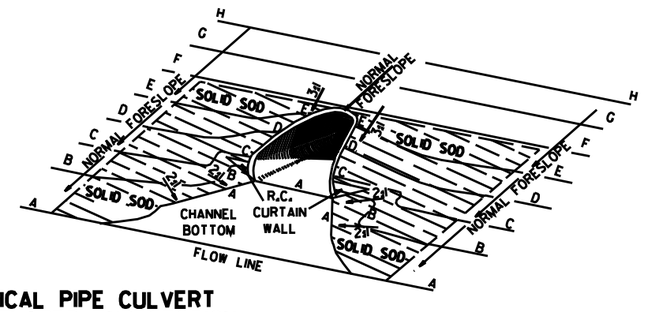
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & STREET TURNOUTS

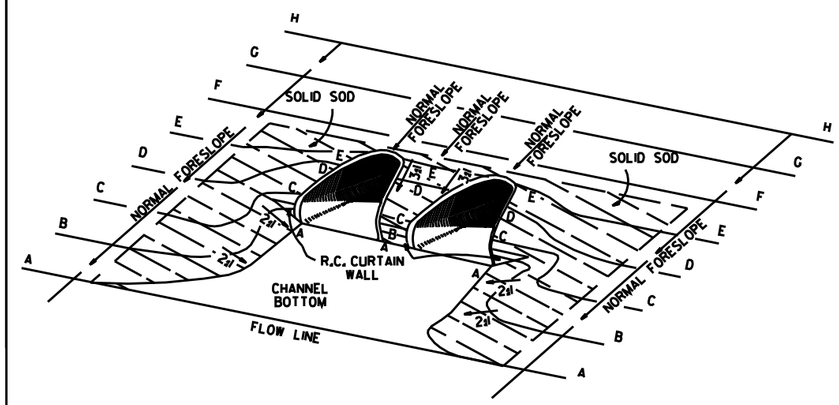
STANDARD DRAWING DR-2



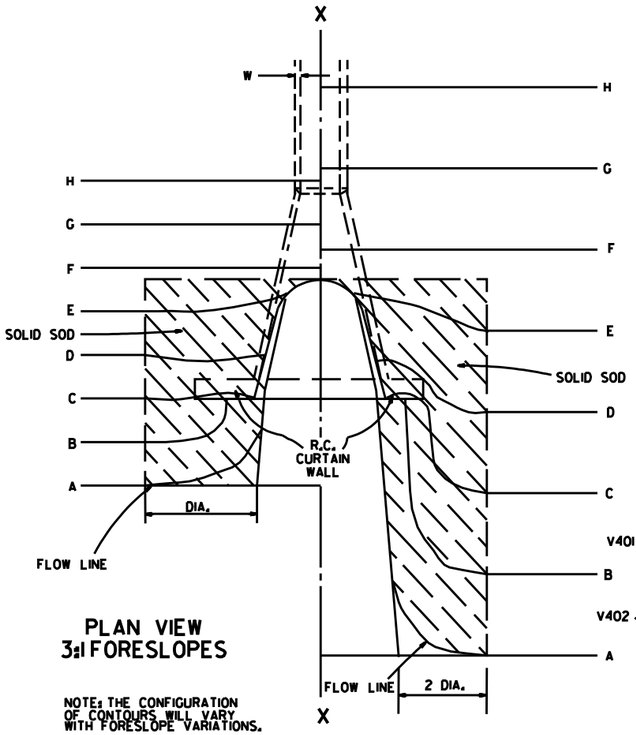
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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



PLAN VIEW
3:1 FORESLOPES

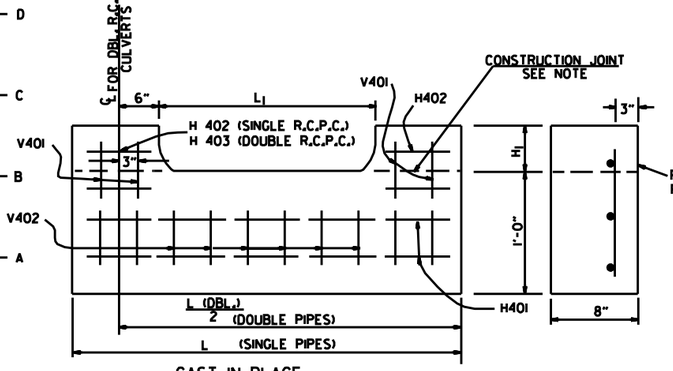
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

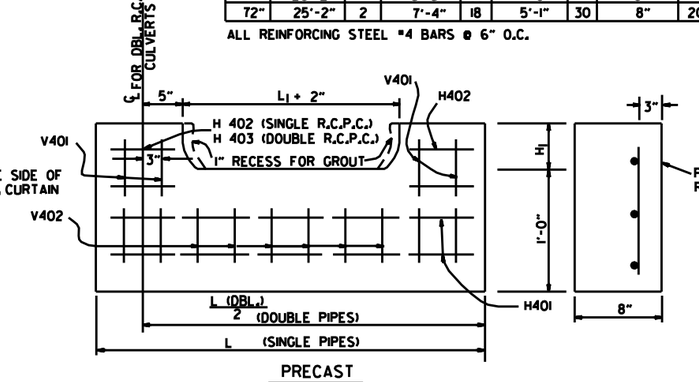
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

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



CAST-IN-PLACE

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



PRECAST

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

R.C. CURTAIN WALL DETAILS

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT								DOUBLE R.C. PIPE CULVERT									
	H401		H402		V401		V402		H401		H402		H403		V401		V402	
	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

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

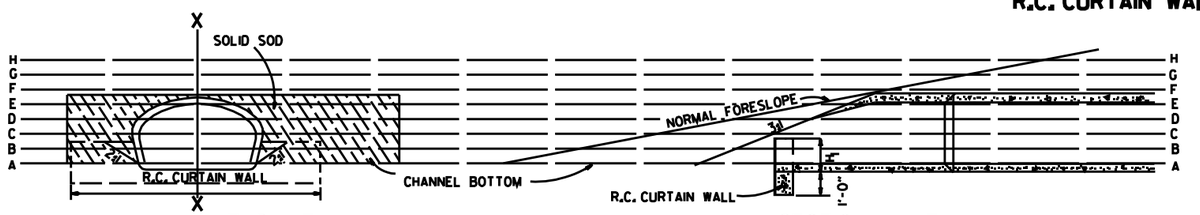
SOLID SODDING

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

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

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

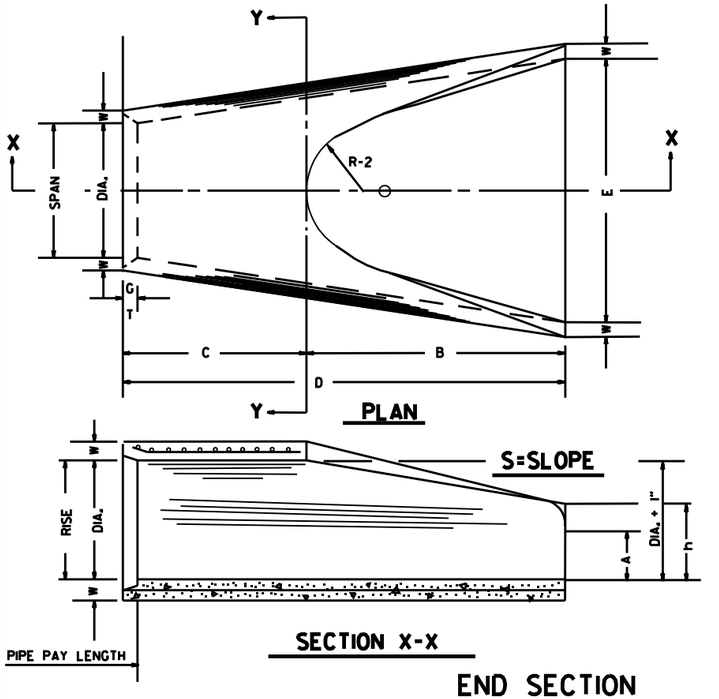
SECTIONAL VIEW "X-X"

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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1



END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

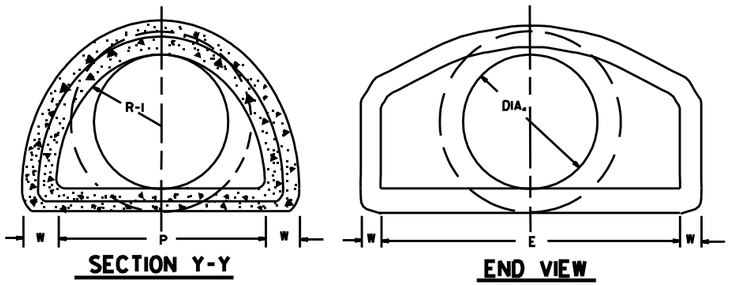
TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3sl	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3sl	25"	33 3/16"	16 1/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3sl	31"	37"	18½"	15"	3¼"	1940	1'-4 5/16"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3sl	37"	47 1/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3sl	43"	53 1/16"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3sl	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3sl	55"	65½"	33 1/16"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3sl	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3sl	73"	77 1/16"	38 5/16"	24"	5"	13250	4'-6"

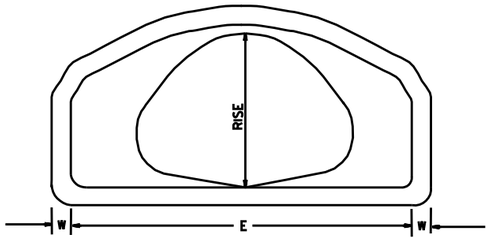
ARCH PIPE

EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½sl
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32 1/8"	13"	2½"	2½sl
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34 1/8"	14"	2½"	2½sl
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 5/16"	15"	2½"	2½sl
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 1/16"	20"	3"	2½sl
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54 5/16"	22"	3½"	2½sl
42	51⅛	51	31⅝	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½sl
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 3/16"	24"	4¼"	2½sl
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2½sl
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 1/16"	24"	5"	2½sl

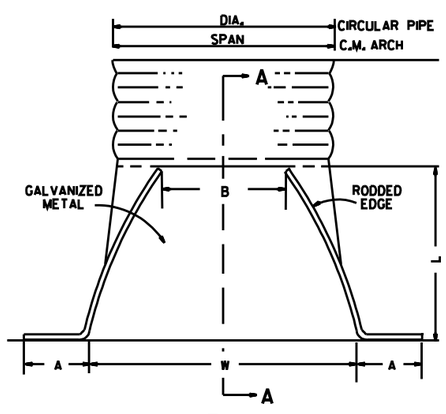
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.

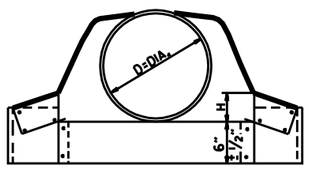


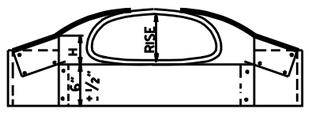
NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION



END VIEW
CONCRETE ARCH PIPE







CIRCULAR PIPE

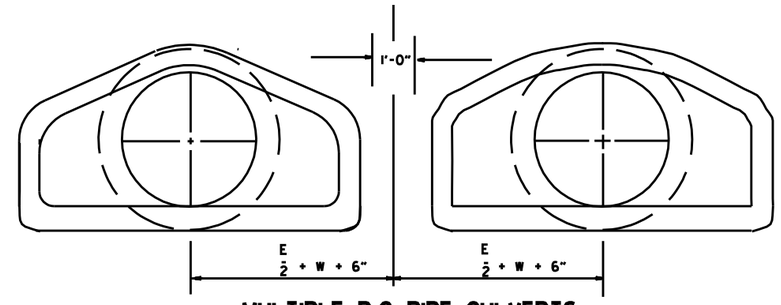
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½sl
15	16	7	8	6	26	30	2½sl
18	16	8	10	6	31	36	2½sl
21	16	9	12	6	36	42	2½sl
24	16	10	13	6	41	48	2½sl
30	14	12	16	8	51	60	2½sl
36	14	14	19	9	60	72	2½sl
42	12	16	22	11	69	84	2½sl
48	12	18	27	12	78	90	2½sl
54	12	18	30	12	84	102	2sl
60	12	18	33	12	87	114	1½sl
66	12	18	36	12	87	120	1½sl
72	12	18	39	12	87	126	1 1/3sl

C.M. ARCH PIPE

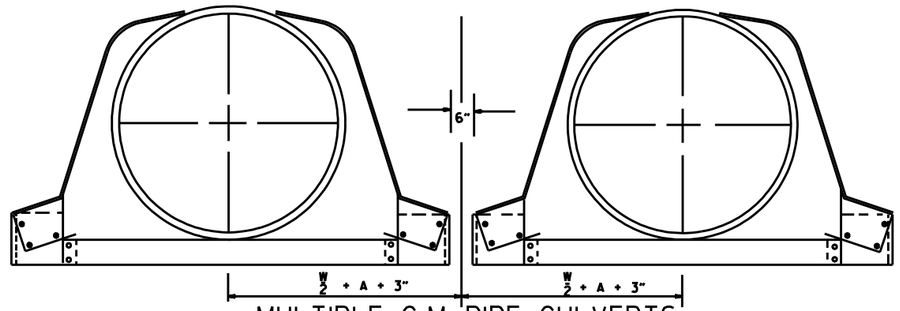
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½sl	16
18"	21	15	7	10	6	23	36	2½sl	16
21"	24	18	8	12	6	28	42	2½sl	16
24"	28	20	9	14	6	32	48	2½sl	16
30"	35	24	10	16	6	39	60	2½sl	14
36"	42	29	12	18	8	46	75	2½sl	14
42"	49	33	13	21	9	53	85	2½sl	12
48"	57	38	18	26	12	63	90	2½sl	12
54"	64	43	18	30	12	70	102	2½sl	12
60"	71	47	18	33	12	77	114	2½sl	12

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



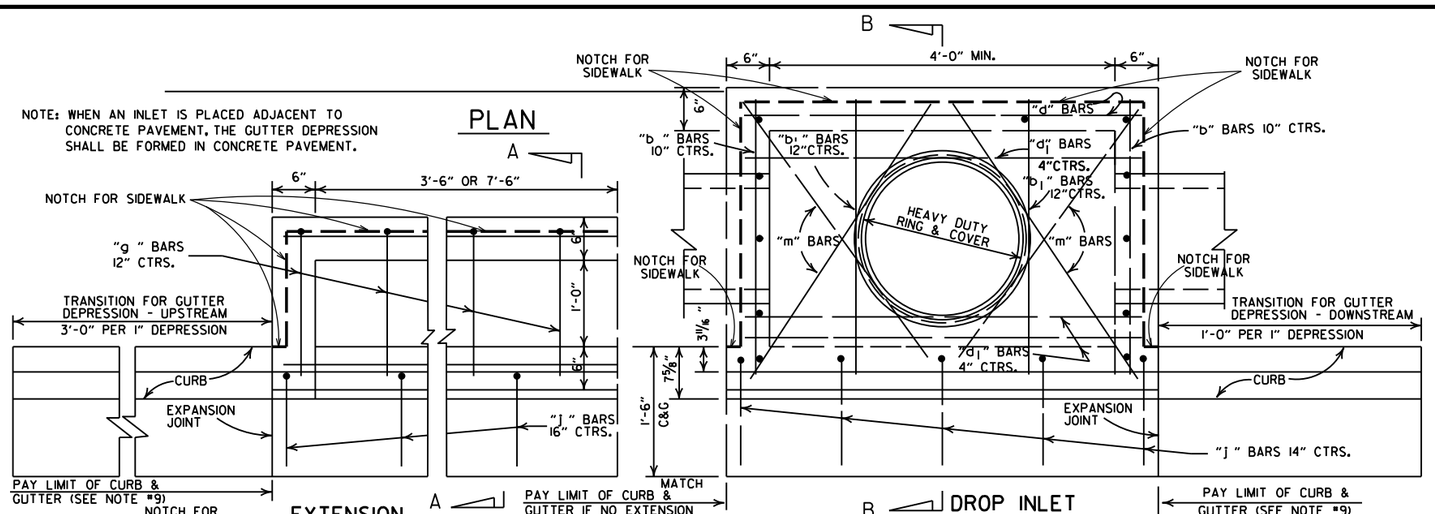
MULTIPLE C.M. PIPE CULVERTS

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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-2



4'-0" LENGTH DROP INLET

DROP INLET EXTENSION

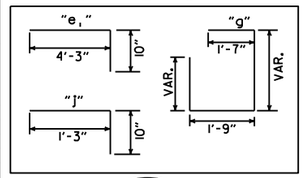
PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0" CLASS A CONC. CU. YDS.	HEIGHT 5'-0" REINF. STEEL POUNDS	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC. CU. YDS.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL POUNDS	4'-0" CLASS A CONC. CU. YDS.	4'-0" REINF. STEEL POUNDS	8'-0" CLASS A CONC. CU. YDS.	8'-0" REINF. STEEL POUNDS
18"	2'-6"	1.77	156	0.28	22	0.58	38	0.87	72
24"	2'-6"	1.79	156	0.28	22				
30"	3'-2"	2.39	205	0.30	26				
36"	3'-8"	2.63	236	0.32	28				
42"	4'-4"	2.95	250	0.34	30	DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.			
48"	4'-10"	3.21	265	0.36	32				
						0.04	3		

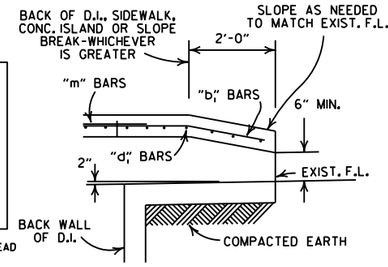
NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET

INSIDE DIA. PIPE	CLASS A CONC.	REINF. STEEL
INCHES	CU. YDS.	POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8

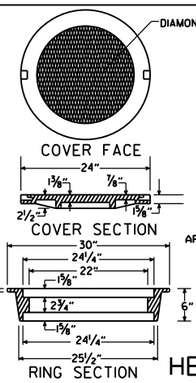
BAR DIAMETER





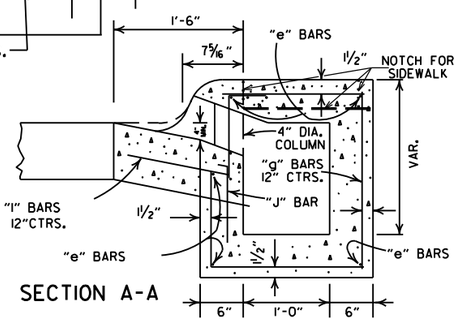
BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).



APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



SECTION A-A

GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE #4 AND HAVE 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
6. WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (FPC-9D).
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
9. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
10. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
11. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

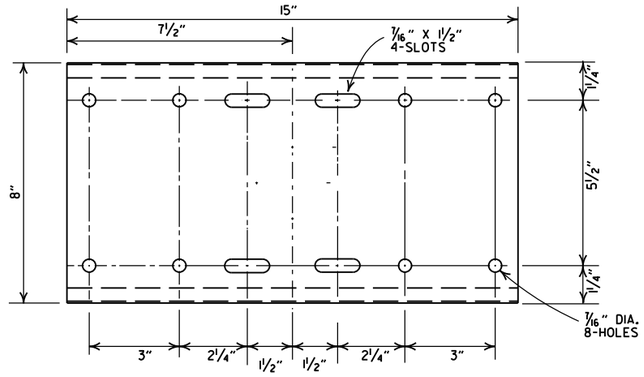
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER ADDED NOTES 9,10,&11	
10-18-96	CORRECTED SPELLING	
4-26-96	ADDED NOTE 8 & REVISED (4')(8') EXTENSION TITLES	10-18-96
4-1-93	REVISED BACK OPENING & NOTE	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

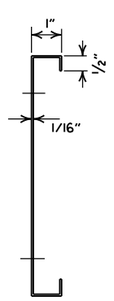
DETAILS OF DROP INLETS

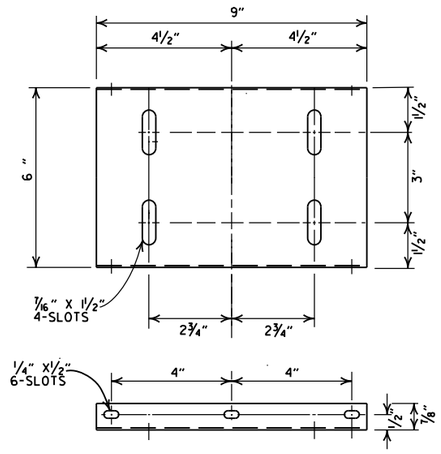
(TYPE C)

STANDARD DRAWING FPC-9E

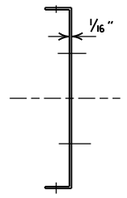


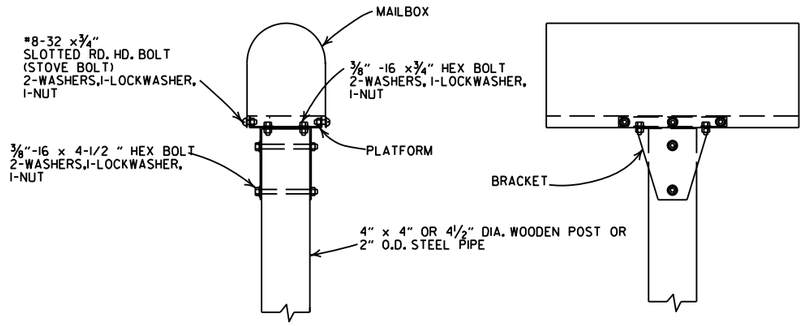
SHELF



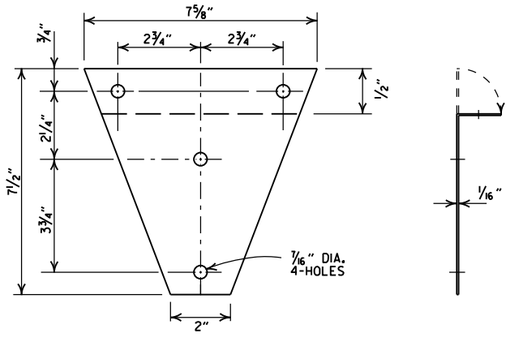


PLATFORM





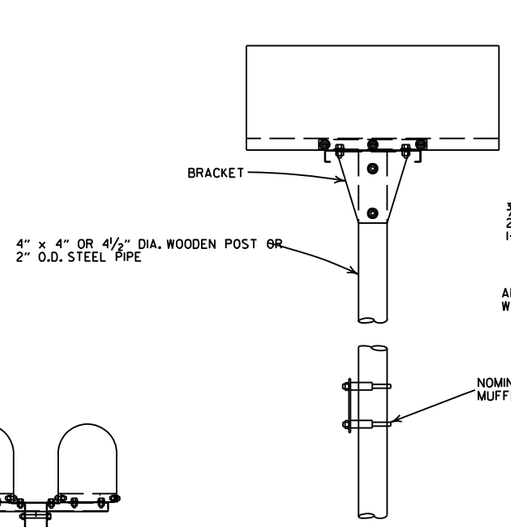
SINGLE INSTALLATION



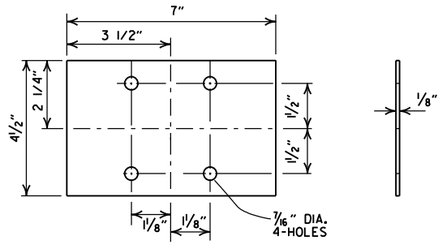
BRACKET

GENERAL NOTES

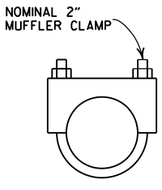
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED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



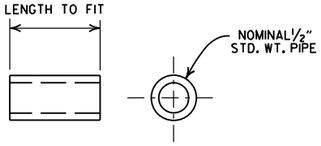
DOUBLE INSTALLATION



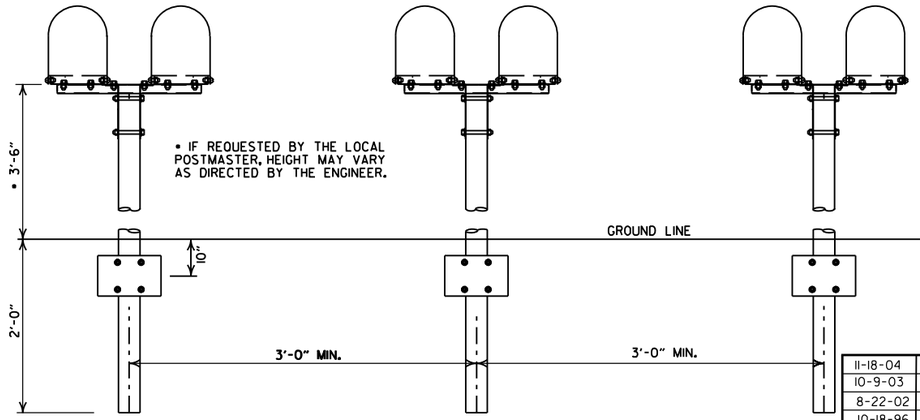
ANTI-TWIST PLATE



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

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	31⅝	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	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.

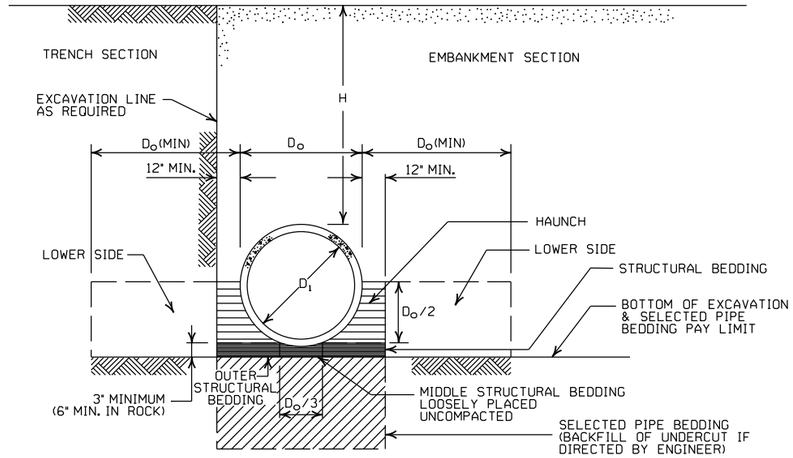
- LEGEND -

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.

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.

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."

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CONSTRUCTION SEQUENCE

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

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

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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

CORRUGATED METAL PIPE ARCHES

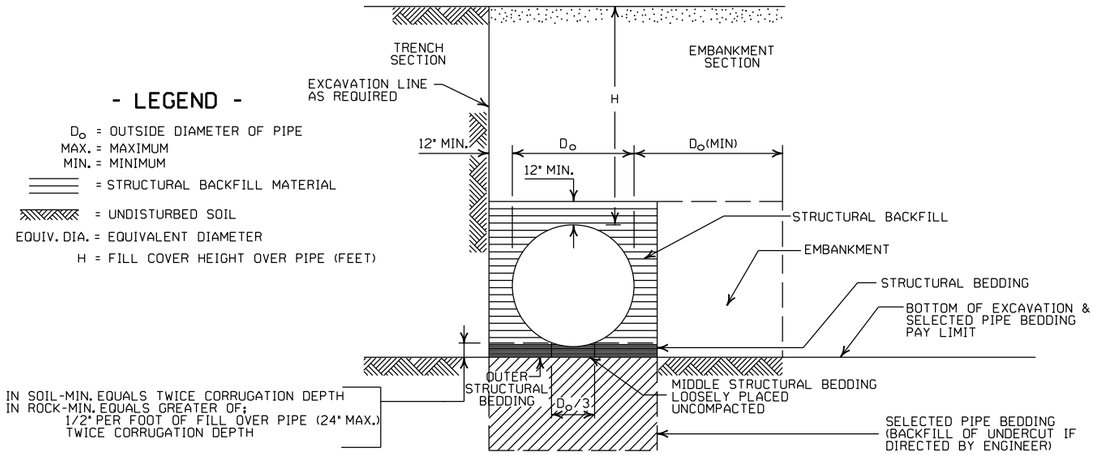
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)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

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

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

- LEGEND -

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

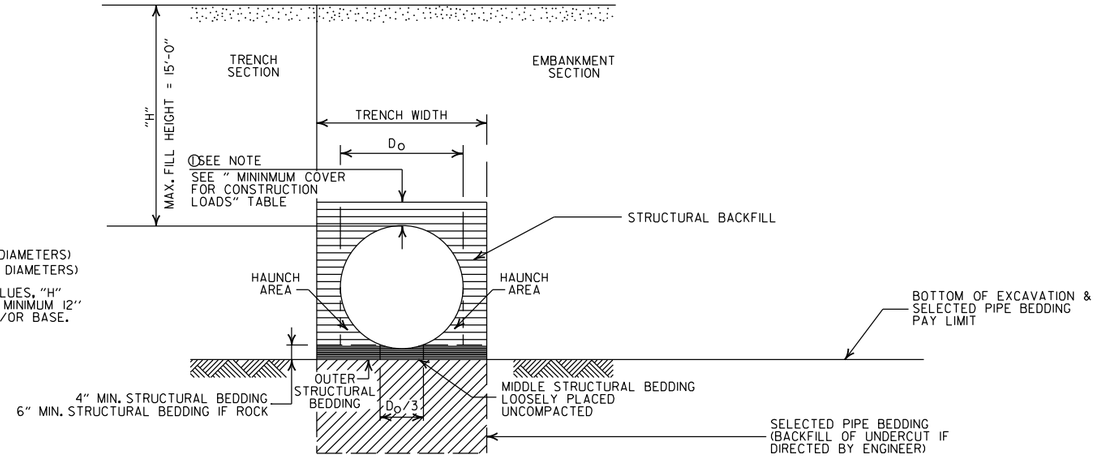
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

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

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

SM3 WILL NOT BE ALLOWED.

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

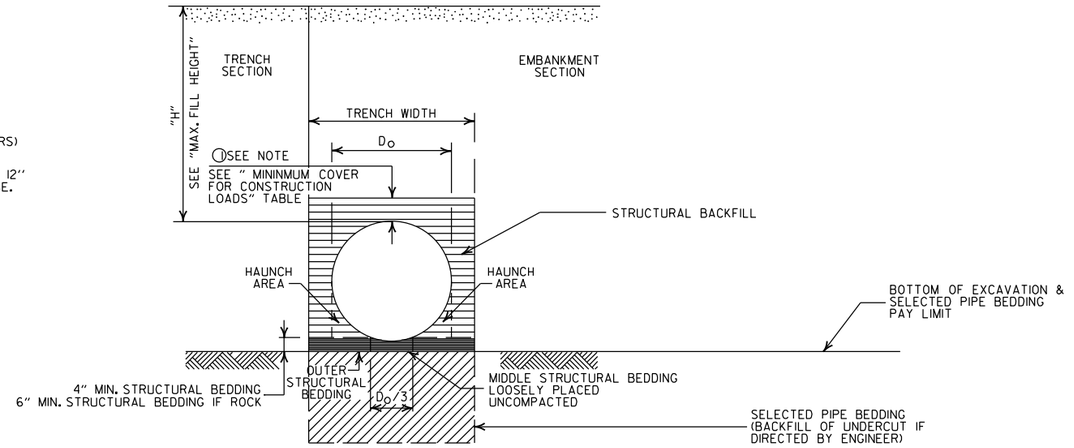
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

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

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

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

*SM3 WILL NOT BE ALLOWED.

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

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

MULTIPLE INSTALLATION OF POLYPROPYLENE PIPES

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

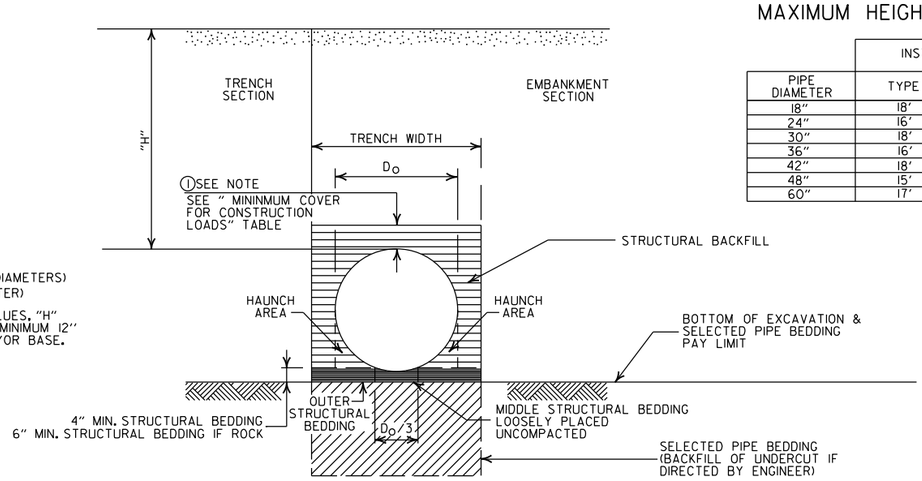
①NOTE:
12" MIN. (18" - 42" DIAMETERS)
24" MIN. (60" DIAMETER)

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



MAXIMUM HEIGHT OF FILL "H"

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

EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

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

- LEGEND -

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

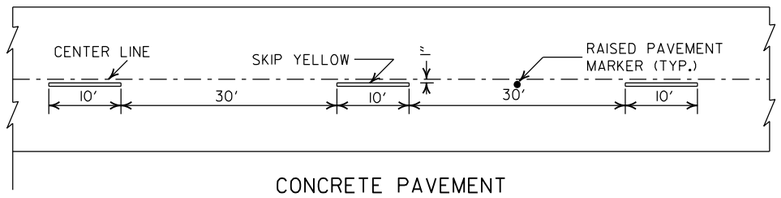
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL

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

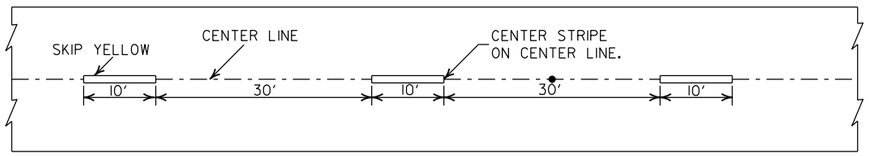
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (POLYPROPYLENE)

STANDARD DRAWING PCP-3

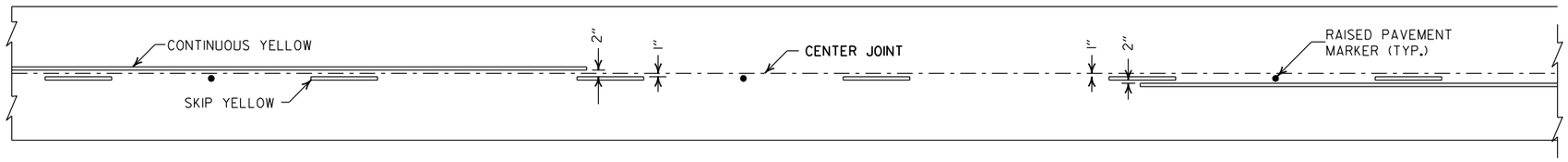


CONCRETE PAVEMENT

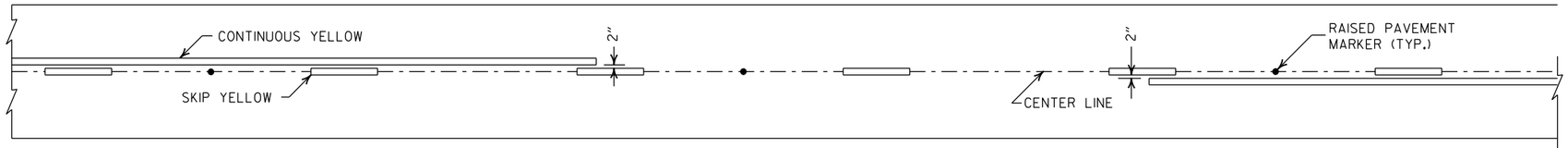


ASPHALT PAVEMENT

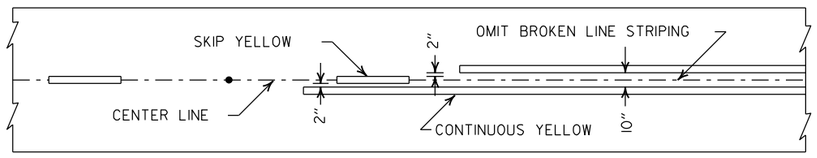
BROKEN LINE STRIPING



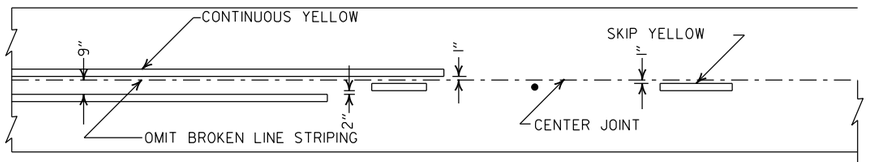
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

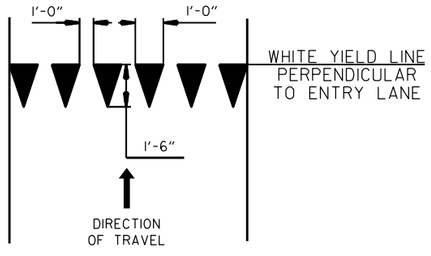


ASPHALT PAVEMENT

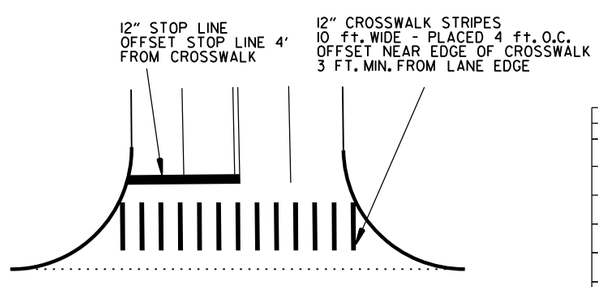


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES



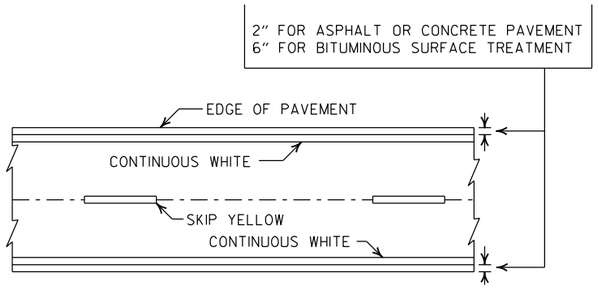
YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

NOTES:

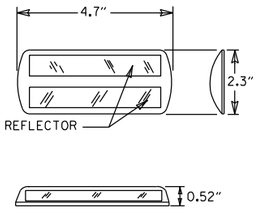
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.



PAVEMENT EDGE LINE MARKING

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

TYPE II
RED/CLEAR OR YELLOW/YELLOW



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

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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

ARKANSAS STATE HIGHWAY COMMISSION

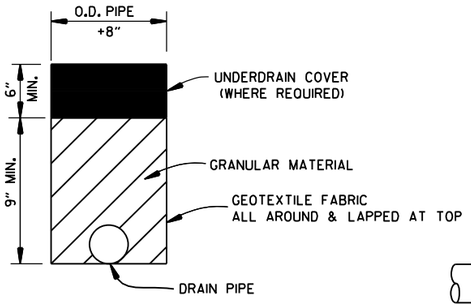
PAVEMENT MARKING DETAILS

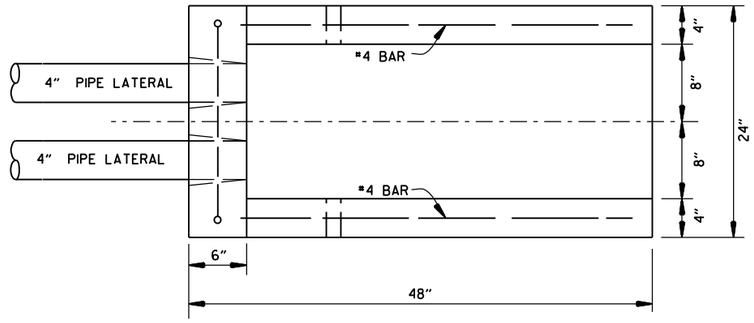
STANDARD DRAWING PM-1

NOTE:

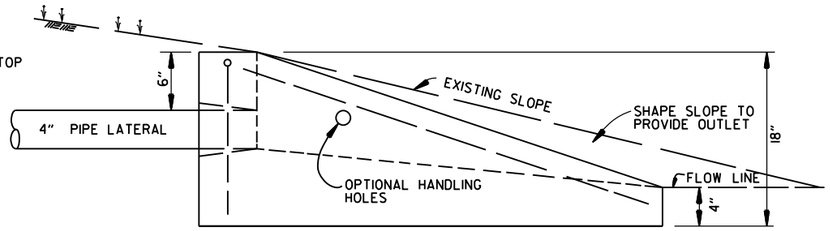
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

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

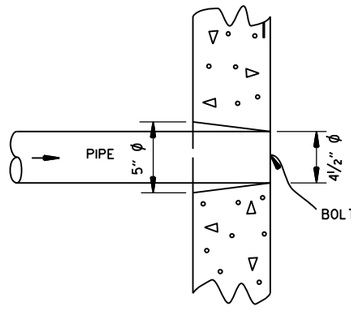




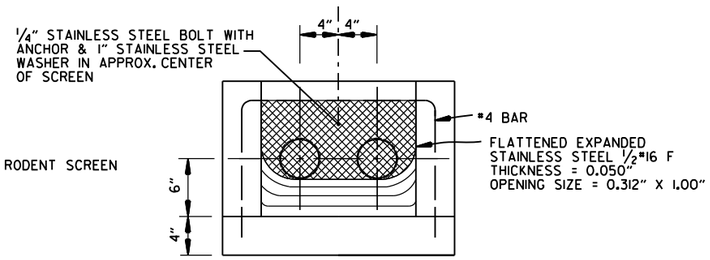
PLAN VIEW



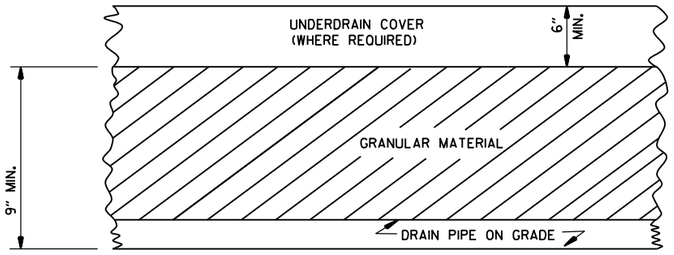
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE

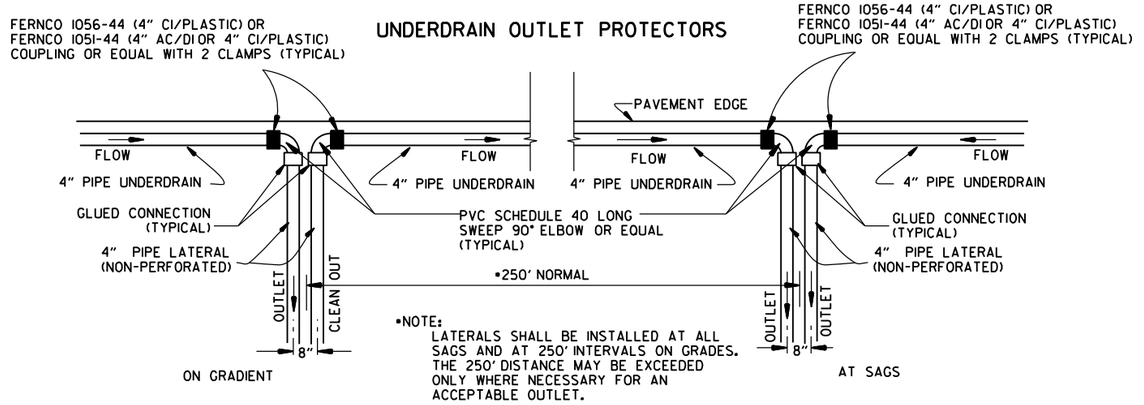


FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

NOTES FOR PIPE UNDERDRAINS

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC (4% MAXIMUM)

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE
0° 15'	NC		
0° 30'			
0° 45'			
1° 00'			
1° 15'			
1° 30'			
1° 45'			
2° 00'			
2° 15'	RC	72	100
2° 30'			
2° 45'			
3° 00'			
3° 15'	0.022	75	
3° 30'			
3° 45'	0.024	79	
4° 00'			
4° 15'			
4° 30'			
4° 45'	0.026	83	
5° 00'			
5° 30'			
6° 00'	0.028	86	125
6° 30'			
7° 00'			
7° 30'	0.030	90	
8° 00'			
8° 30'	0.032	93	
9° 00'			
9° 30'			
10° 00'	0.034	97	
10° 30'			
11° 00'			
11° 30'			
12° 00'	0.036	100	
12° 30'			
13° 00'			
13° 30'			
14° 00'	0.038	104	
14° 30'			
15° 00'			
15° 30'			
16° 00'			
16° 30'	0.040	108	150

D MAX = 22° 45'

DEGREE OF CURVE	35 MPH e	35 MPH Ls (FT) MINIMUM	35 MPH Ls (FT) DESIRABLE
0° 15'	NC		
0° 30'			
0° 45'			
1° 00'			
1° 15'			
1° 30'			
1° 45'	RC	78	100
2° 00'			
2° 15'			
2° 30'	0.022	82	
2° 45'	0.024	86	
3° 00'			
3° 15'			
3° 30'	0.026	90	
3° 45'			
4° 00'			
4° 15'	0.028	94	125
4° 30'			
4° 45'			
5° 00'	0.030	98	
5° 30'			
6° 00'	0.032	101	
6° 30'			
7° 00'	0.034	105	
7° 30'			
8° 00'			
8° 30'	0.036	109	150
9° 00'			
9° 30'	0.038	113	
10° 00'			
10° 30'			
11° 00'			
11° 30'	0.040	117	

D MAX = 15° 15'

DEGREE OF CURVE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE
0° 15'	NC		
0° 30'			
0° 45'			
1° 00'			
1° 15'	RC	84	100
1° 30'			
1° 45'			
2° 00'	0.022	88	
2° 15'	0.024	92	
2° 30'	0.026	97	
2° 45'			
3° 00'	0.028	101	125
3° 15'			
3° 30'			
3° 45'	0.030	105	
4° 00'			
4° 15'	0.032	109	
4° 30'			
4° 45'			
5° 00'	0.034	113	
5° 30'			150
6° 00'	0.036	118	
6° 30'			
7° 00'	0.038	122	
7° 30'			
8° 00'	0.040	126	

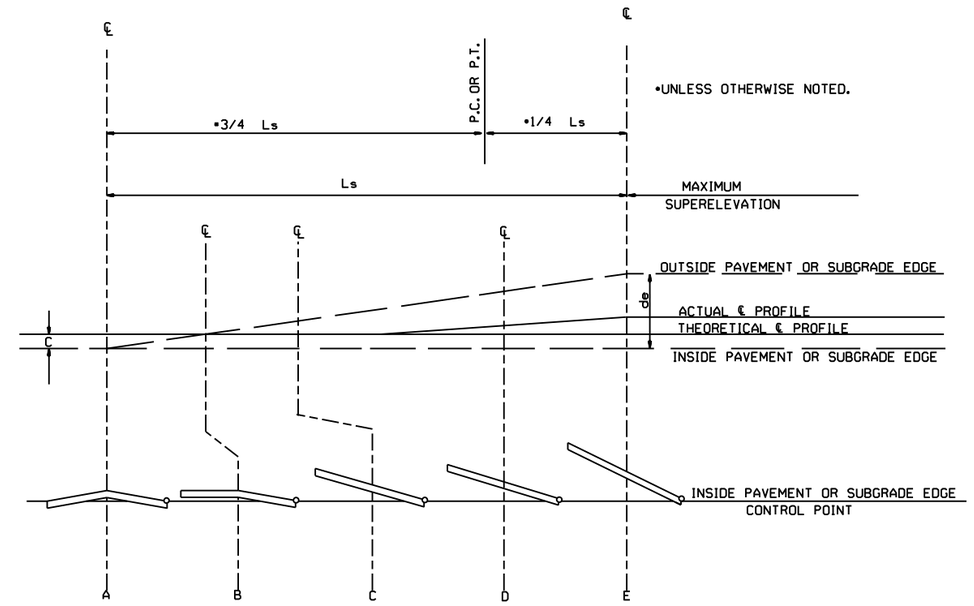
D MAX = 10° 30'

DEGREE OF CURVE	45 MPH e	45 MPH Ls (FT) MINIMUM	45 MPH Ls (FT) DESIRABLE
0° 15'	NC		
0° 30'			
0° 45'			
1° 00'	RC	90	125
1° 15'			
1° 30'	0.022	95	
1° 45'	0.024	99	
2° 00'	0.026	104	
2° 15'			
2° 30'	0.028	108	
2° 45'	0.030	113	
3° 00'			
3° 15'	0.032	117	
3° 30'			
3° 45'	0.034	122	150
4° 00'			
4° 15'	0.036	126	
4° 30'			
4° 45'	0.038	131	
5° 00'			
5° 30'	0.040	135	
6° 00'			

D MAX = 8° 00'

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 INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

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

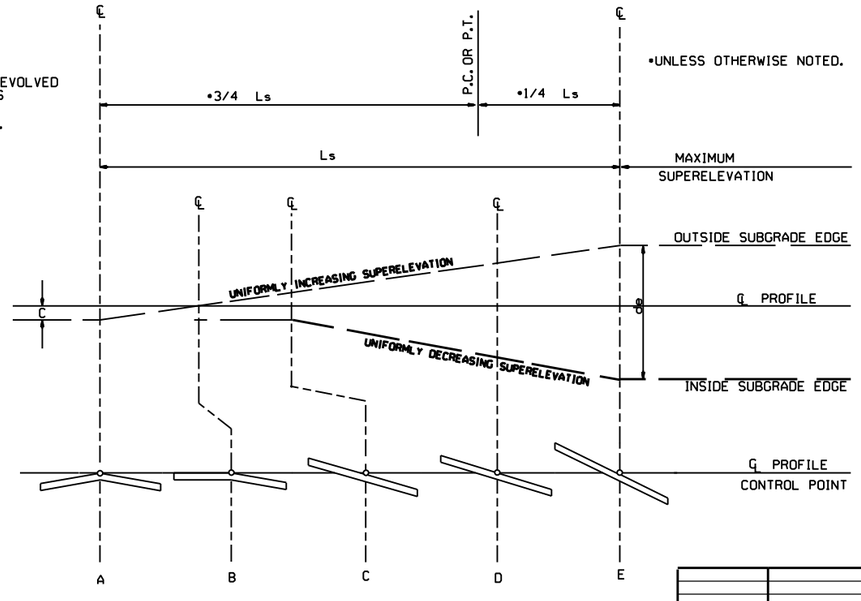
GENERAL NOTES

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.



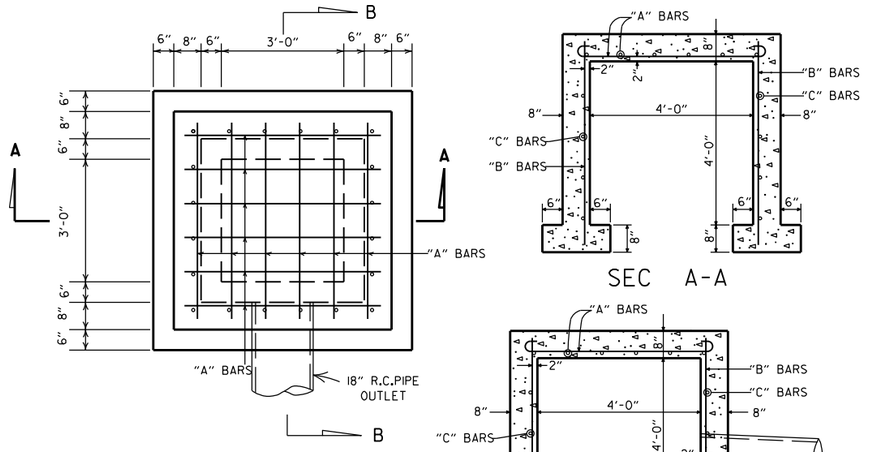
STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

DATE	REVISION	DATE FILMED
11-07-19	ISSUED	

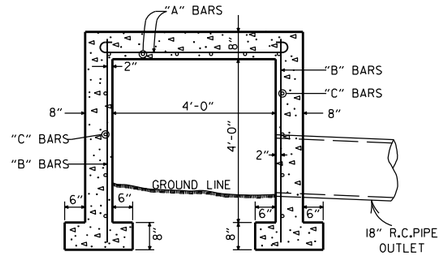
ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC (4% MAXIMUM)

STANDARD DRAWING SE-3



SEC A-A



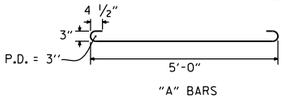
SEC B-B

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

STEEL SCHEDULE

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

ALL STEEL TO BE #4 BARS



"A" BARS

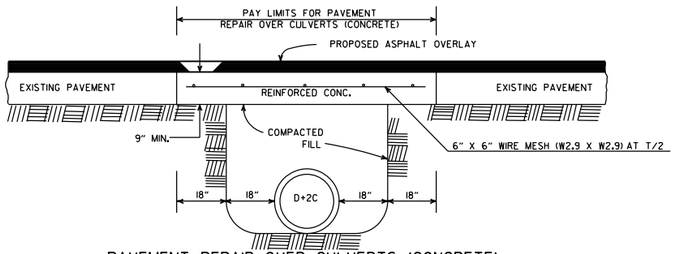
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

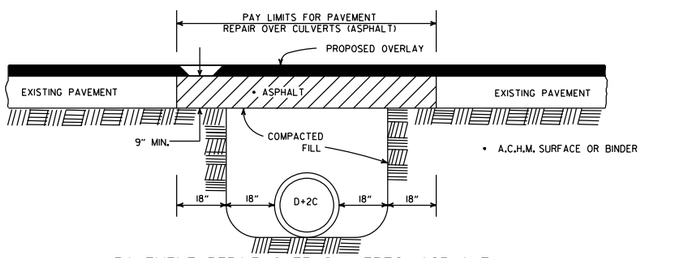
GENERAL NOTE:

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

REINFORCED CONCRETE SPRING BOX



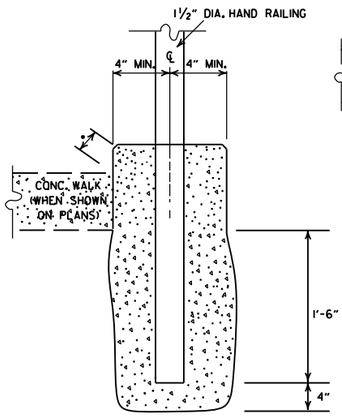
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



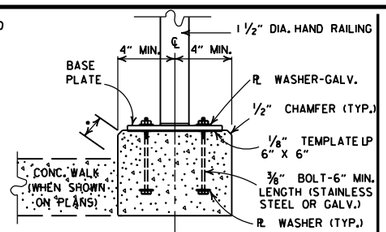
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

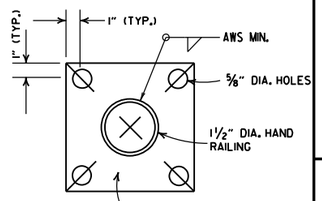
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

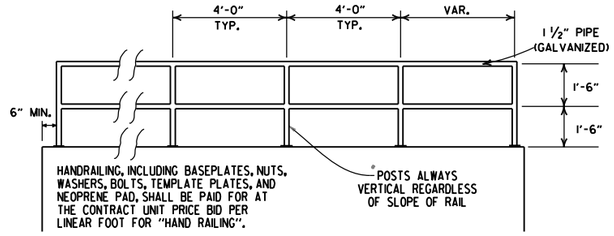


POST CONNECTION TO WALL

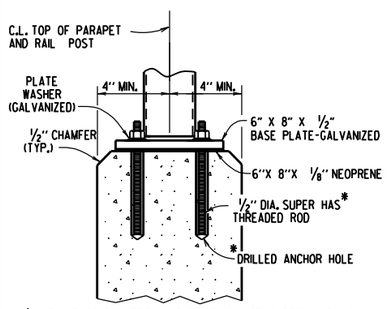


BASE PLATE

POST CONNECTION DETAILS



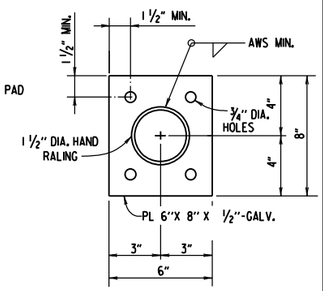
HAND RAILING SHALL CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 1/2" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

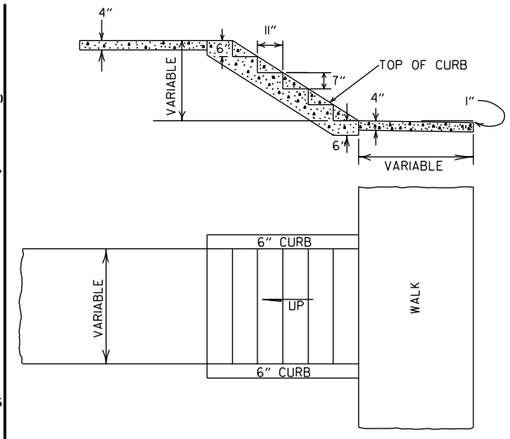
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



DETAILS OF CONCRETE STEPS & WALKS

GENERAL NOTES

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

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

ARKANSAS STATE HIGHWAY COMMISSION

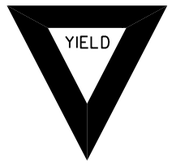
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1

R1-1

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

R1-2



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

R2-1

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

W3-5

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

W3-5a

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

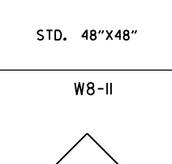
R4-1

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

R4-2

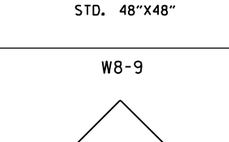
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



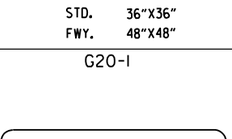
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2



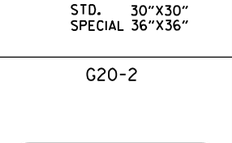
48"X30"

RII-3A



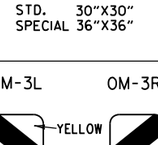
60"X30"

RII-4



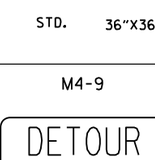
60"X30"

W21-5a



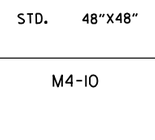
STD. 36"X36"
FWY. 48"X48"

WI-1



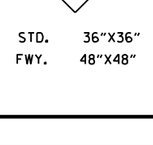
STD. 36"X36"
FWY. 48"X48"

WI-2



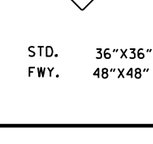
STD. 36"X36"
FWY. 48"X48"

WI-3



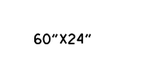
STD. 48"X48"

WI-4



STD. 48"X48"

WI-6

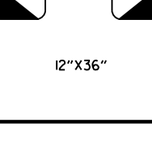


STD. 48"X24"
SPECIAL 60"X30"

WI-8

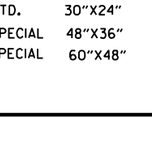
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



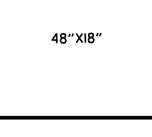
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

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

W9-2

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

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

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

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

W8-11

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

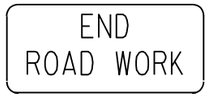
W8-9

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

G20-1

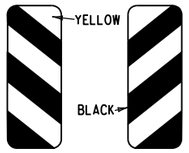
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

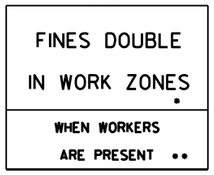
M4-9

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

M4-10

48"X18"

R55-1



36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

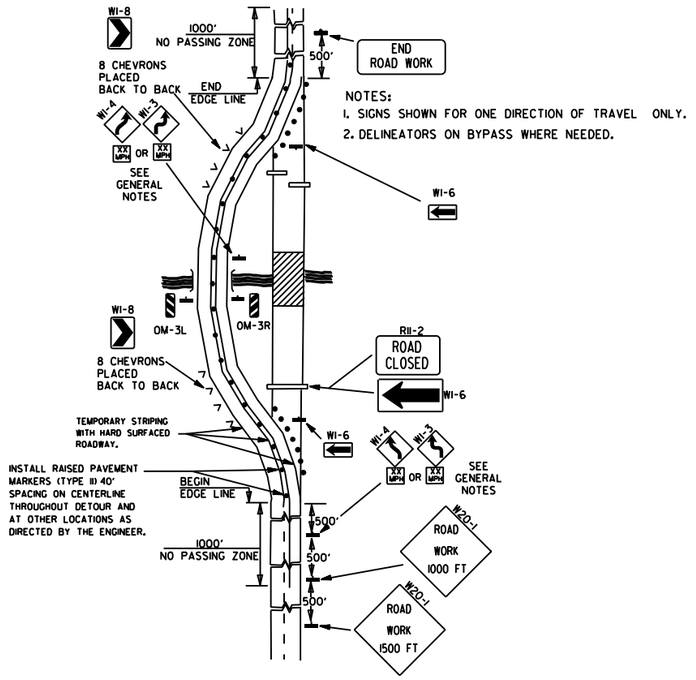
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

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

ARKANSAS STATE HIGHWAY COMMISSION

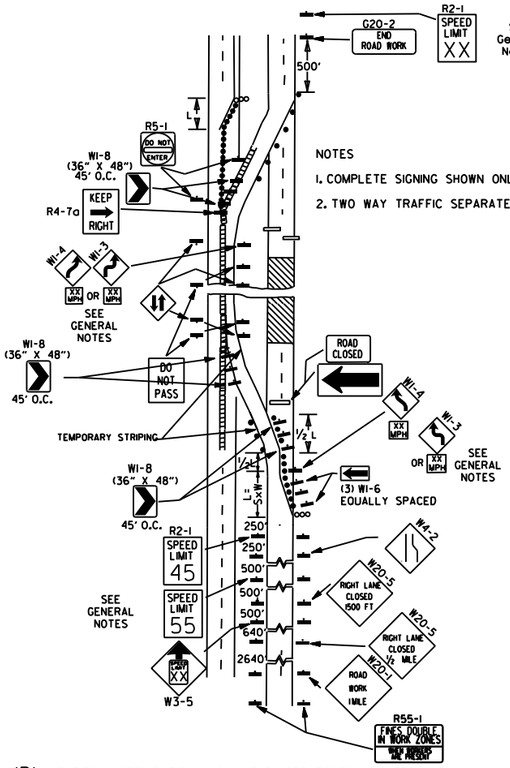
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



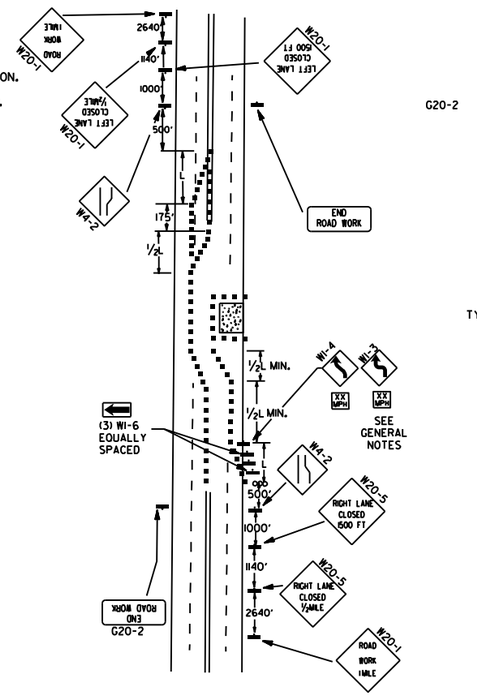
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

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

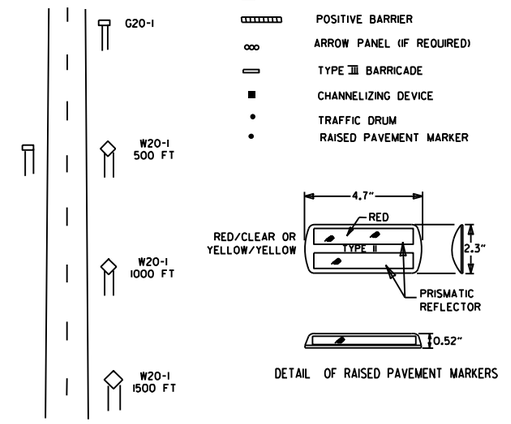


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

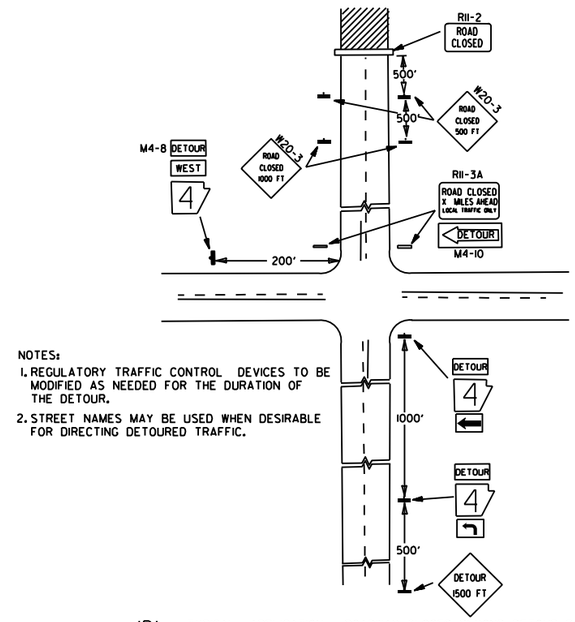
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



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

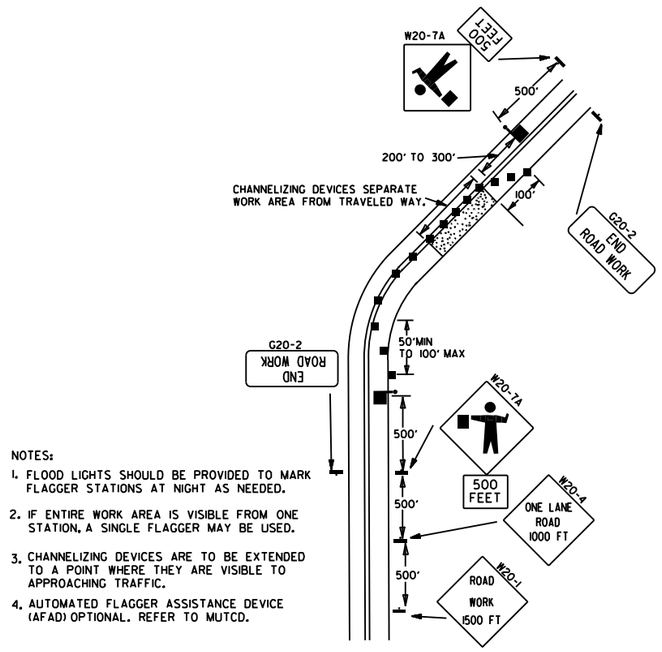


DETAIL OF RAISED PAVEMENT MARKERS



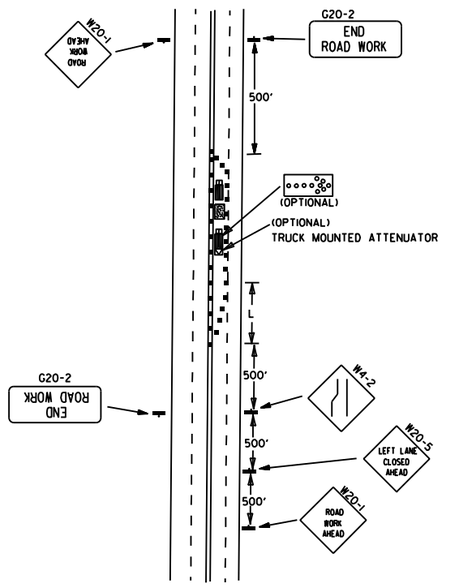
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

GENERAL NOTES:

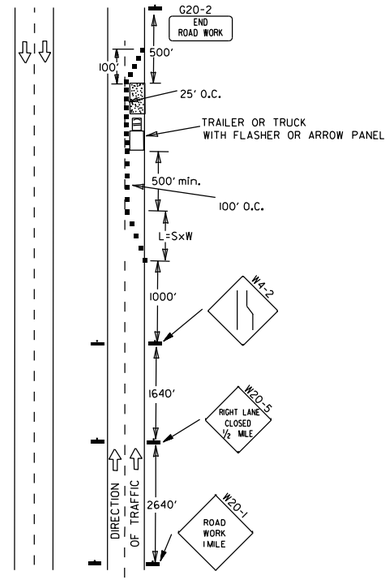
1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON WI-3 OR WI-4 CURVE WARNING SIGNS. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-3 WHEN 30MPH OR LESS
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 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).

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 WI-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

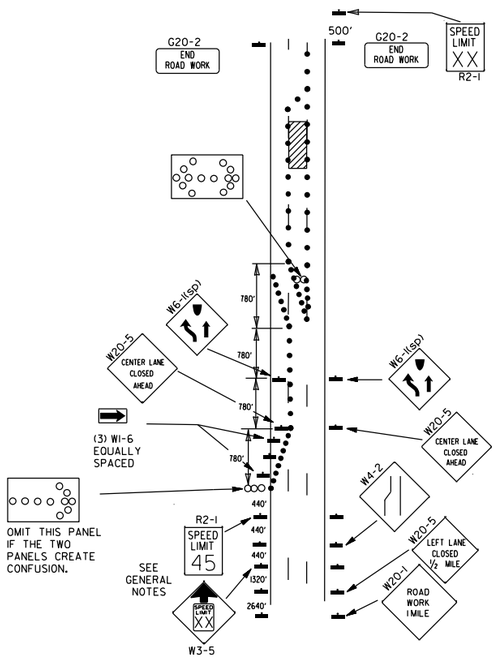
ARKANSAS STATE HIGHWAY COMMISSION

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.



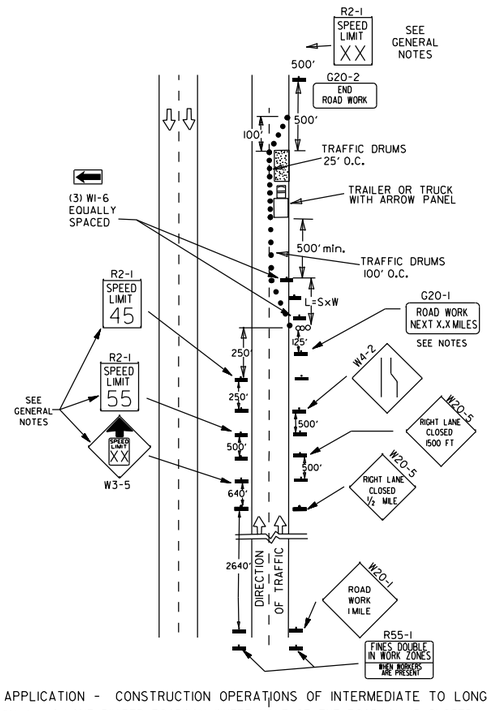
(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.

KEY:

- ooo ARROW PANEL (IF REQUIRED)
- ■ CHANNELIZING DEVICE
- ● TRAFFIC DRUM

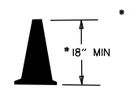
GENERAL NOTES:

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 R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. 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(1MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
8. FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
10. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE. PAYMENT FOR TRAFFIC DRUMS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR VARIOUS TRAILER MOUNTED DEVICES.
11. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



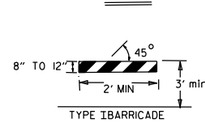
(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

CHANNELIZING DEVICES

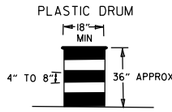


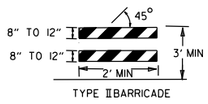
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

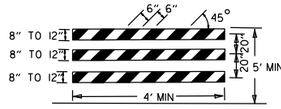
CONES



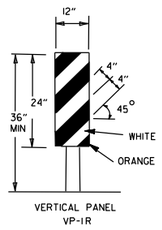
PLASTIC DRUM



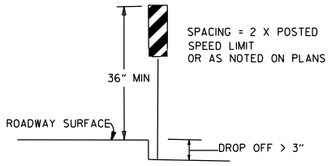




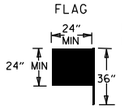
NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.



VERTICAL PANEL PLACEMENT



FLAG



FLAG SHALL BE OF GOOD GRADE RED MATERIAL

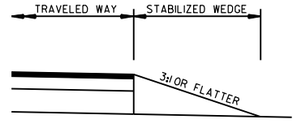
TRAFFIC CONTROL DEVICES — NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 1"	CENTERLINE	W8-11	W8-11
> 1" ≤ 3"	CENTERLINE	W8-11 AND CENTERLINE LANE STRIPING	W8-11 AND CENTERLINE LANE STRIPING
> 3"	CENTERLINE	STANDARD LANE CLOSURE(6)	STANDARD LANE CLOSURE(6)
≤ 3"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

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

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

GENERAL NOTES:

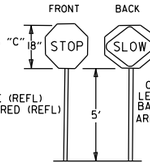
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL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

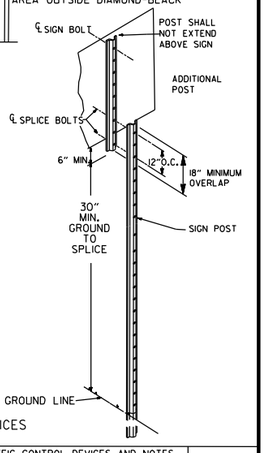


STABILIZED WEDGE

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

STOP SLOW PADDLE

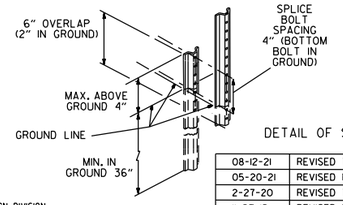




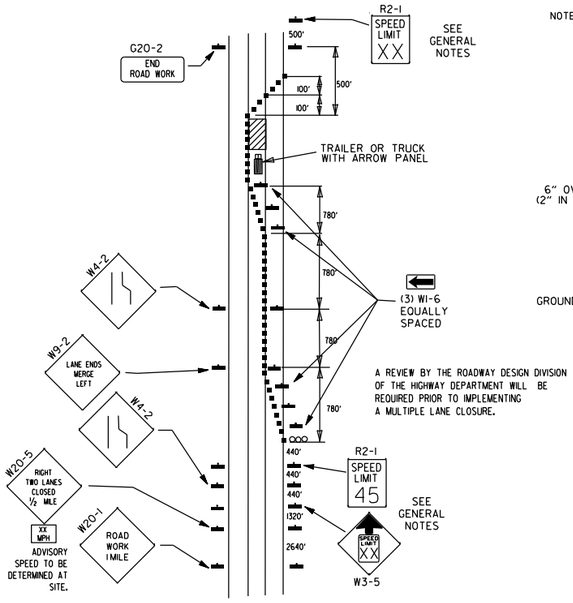
NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

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

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



DETAIL OF SPLICES



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

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

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

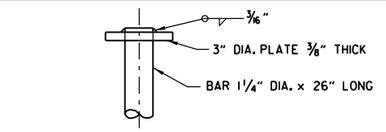
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

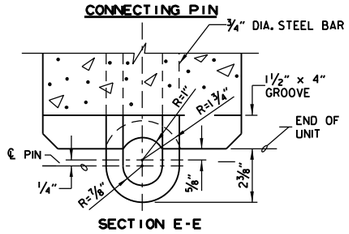
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT

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

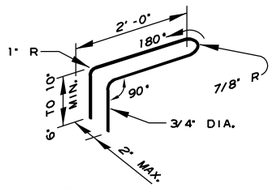


CONNECTING PIN

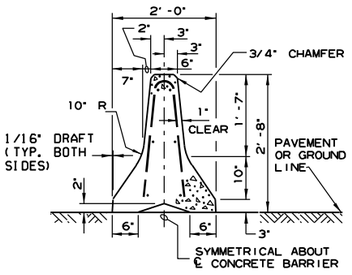


SECTION E-E

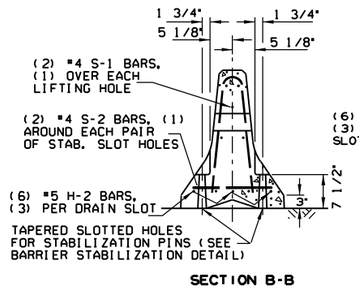
CONNECTION DETAILS



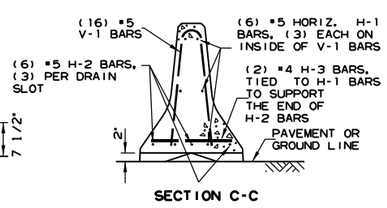
CONNECTION LOOP



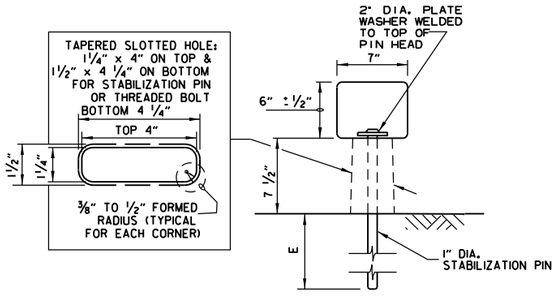
SECTION A-A



SECTION B-B



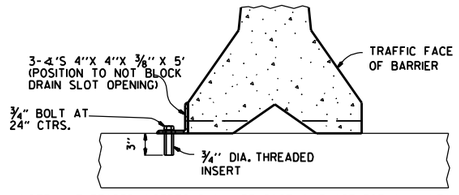
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

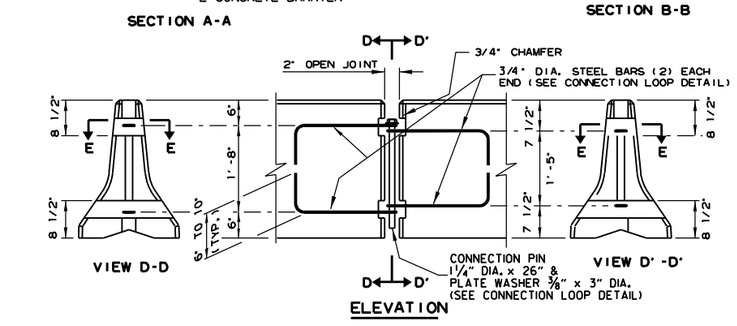
(E) 4" - CONCRETE PAVEMENT
8" - ASPHALT PAVEMENT
12" - SHOULDER AREAS



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

BARRIER STABILIZATION DETAIL

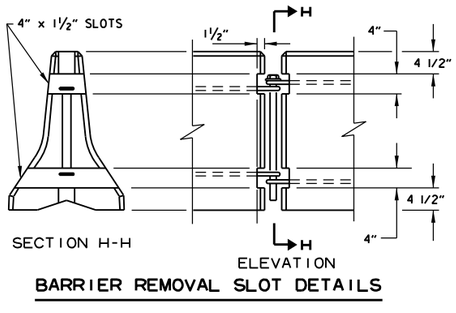
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

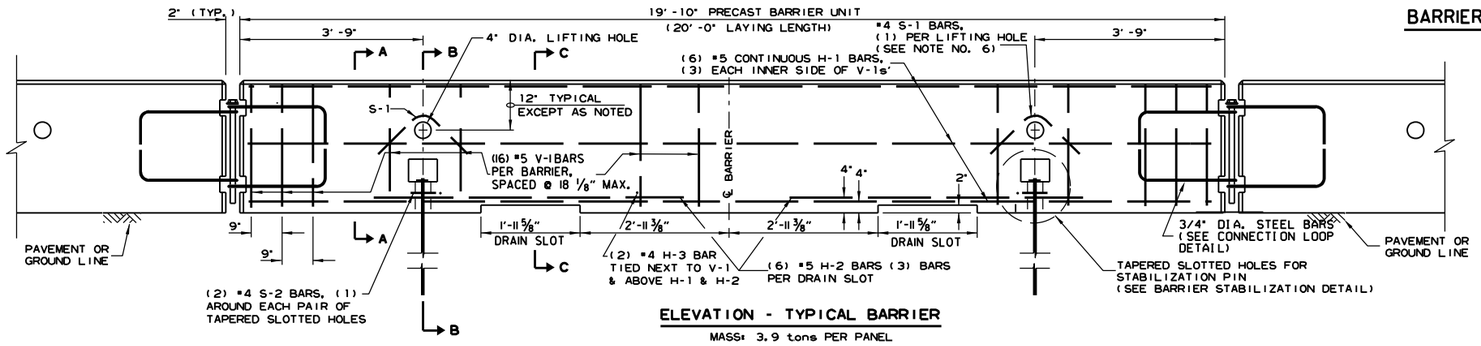
ELEVATION



SECTION H-H

ELEVATION

BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

GENERAL NOTES

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

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

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

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

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

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

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

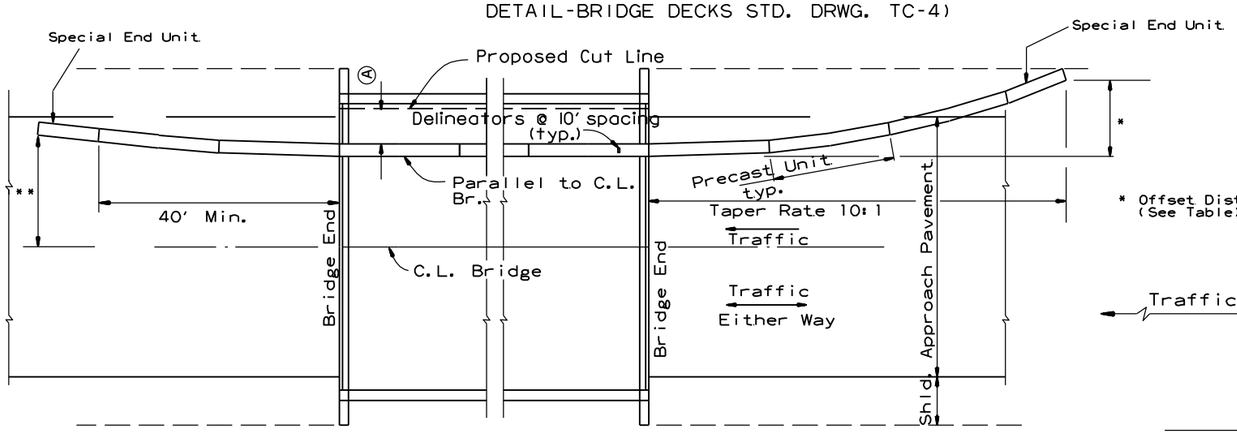
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 3	
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED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

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

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

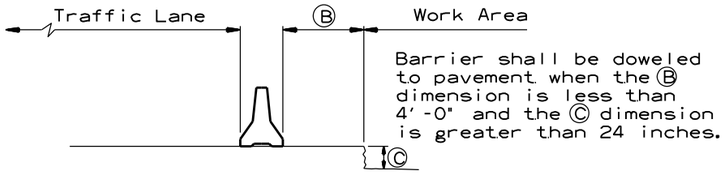


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

* Offset Distance (See Table)

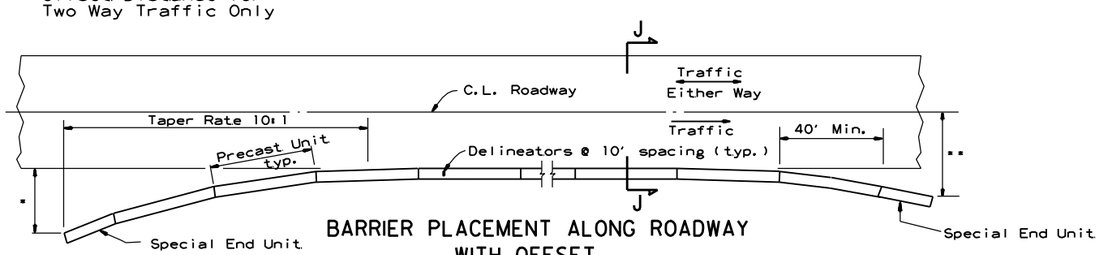
** Offset Distance for Two Way Traffic Only



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

SECTION J-J

No Scale



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

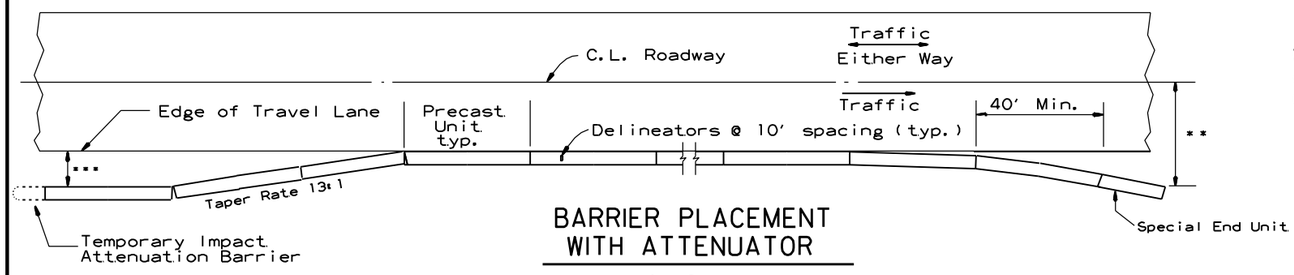
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

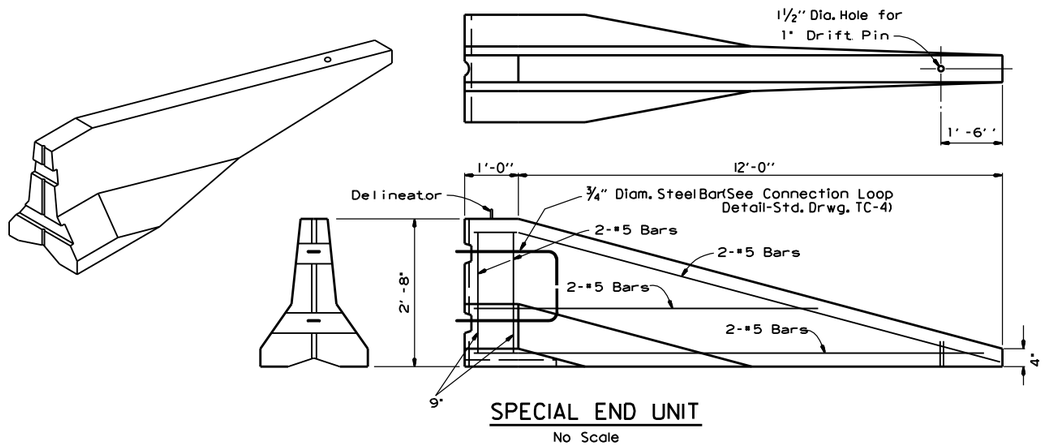


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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



SPECIAL END UNIT

No Scale

General Notes

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

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

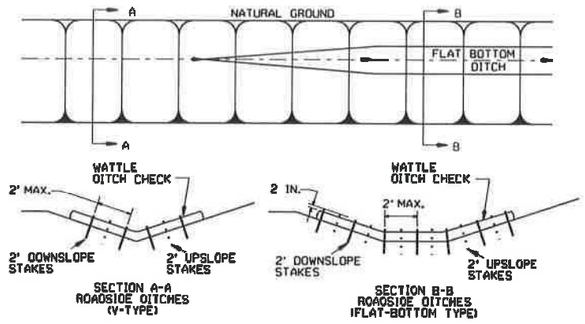
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

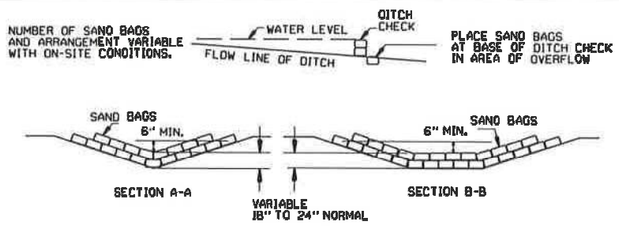
STANDARD DRAWING TC-5

GENERAL NOTES

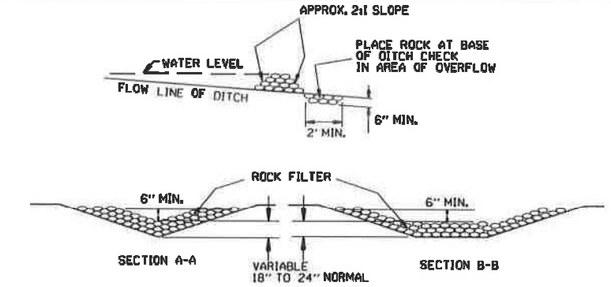
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

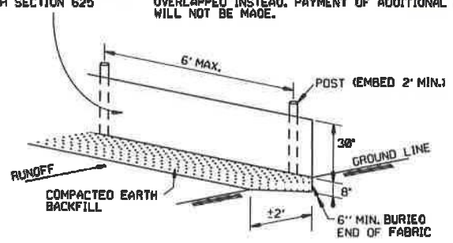


ROCK DITCH CHECK (E-6)

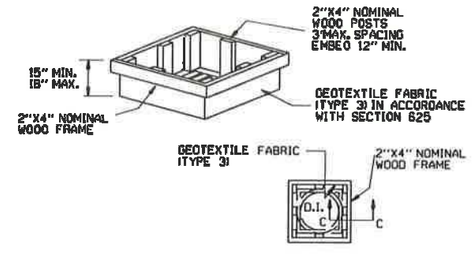
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

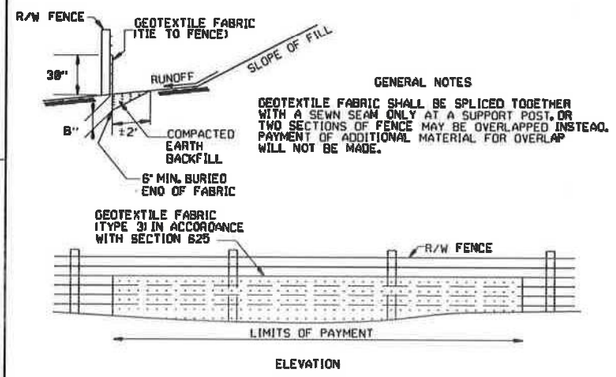
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)



DROP INLET SILT FENCE (E-7)



GENERAL NOTES

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

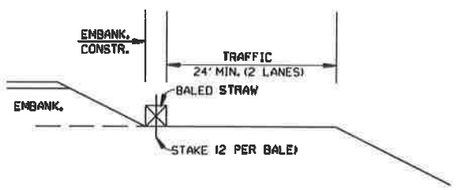
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

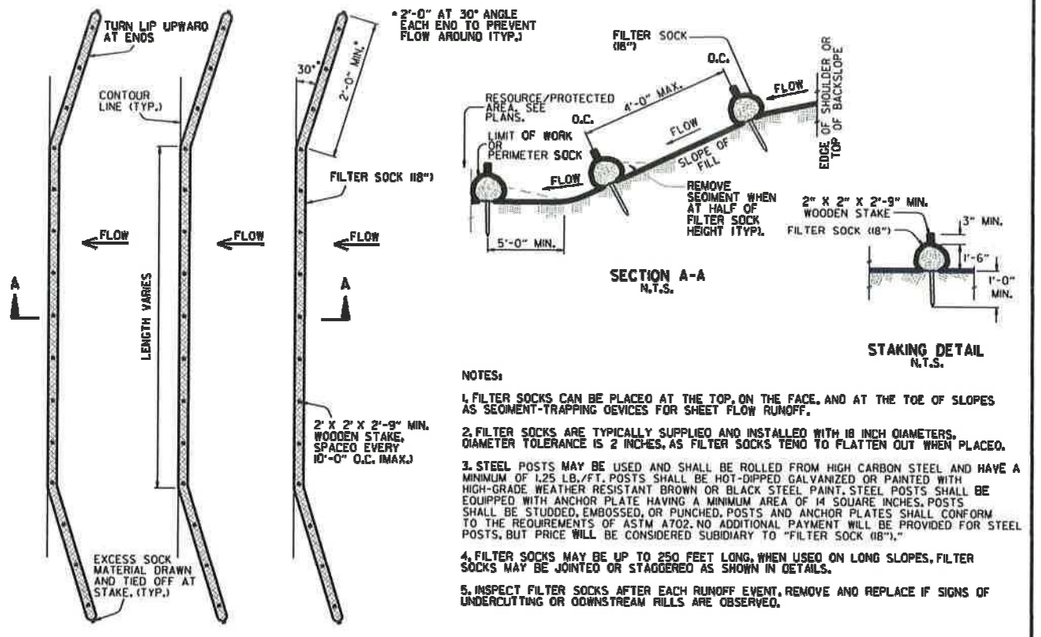
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

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



BALED STRAW FILTER BARRIER (E-2)



NOTES:

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

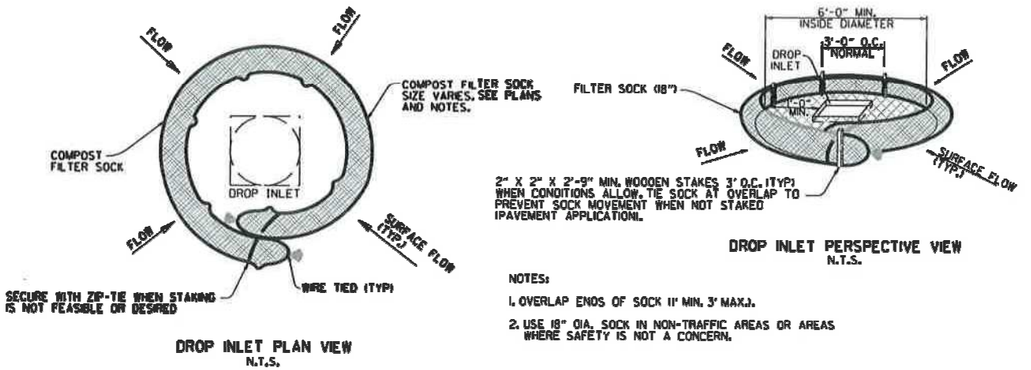
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

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

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

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

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

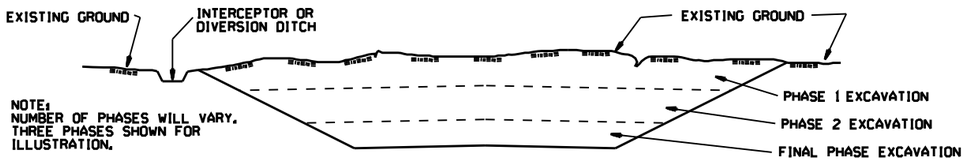
STANDARD DRAWING TEC-1

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



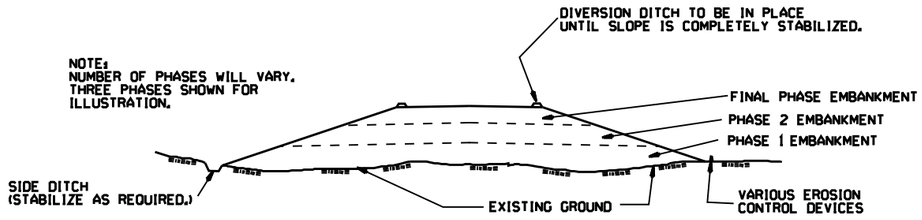
GENERAL NOTE

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

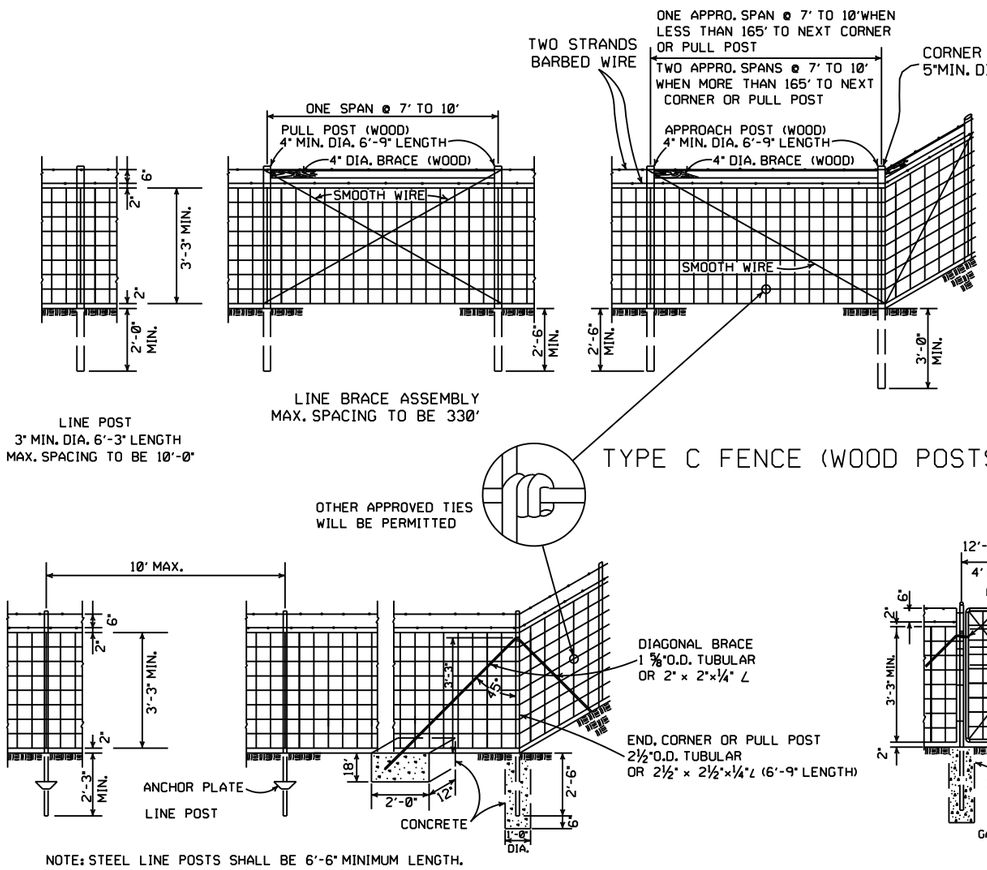
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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.

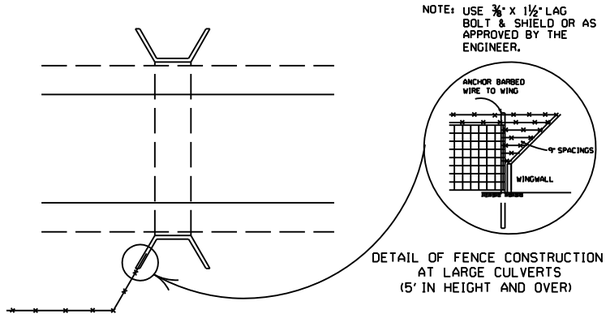
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3





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

GENERAL NOTES:

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

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

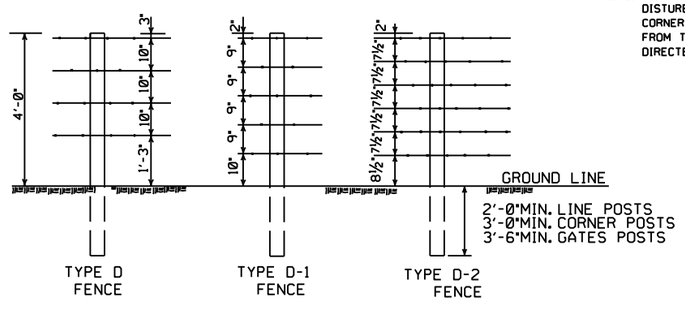
DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED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

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

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

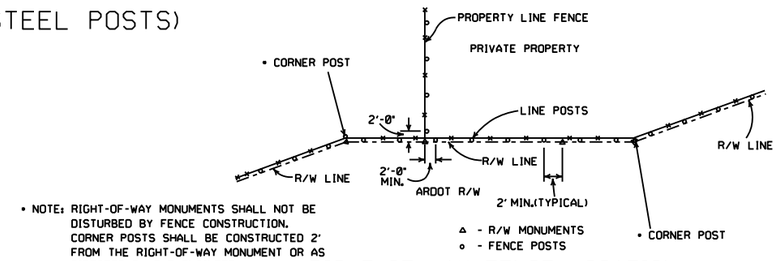
SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

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



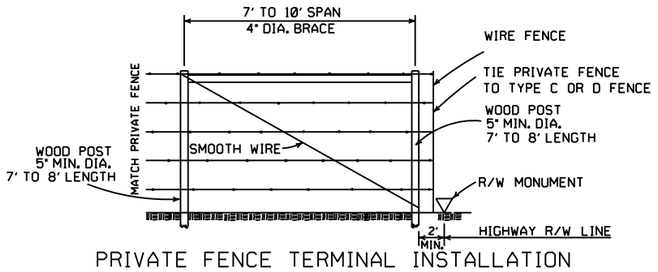
NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

TYPE C FENCE (STEEL POSTS)



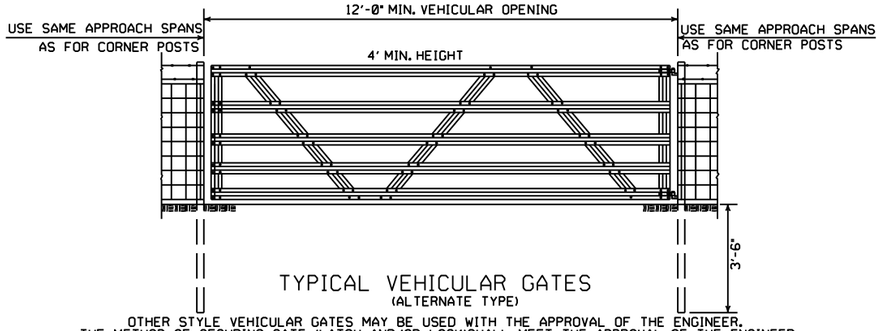
• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION

WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.



TYPICAL VEHICULAR GATES

(ALTERNATE TYPE)

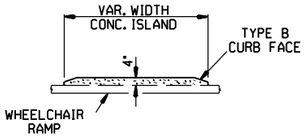
OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

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

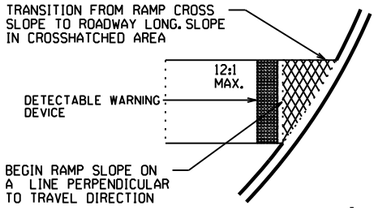
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

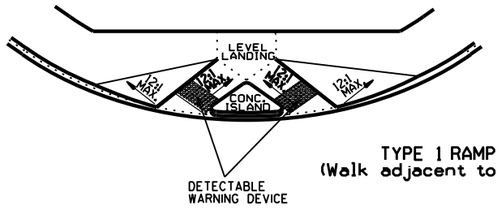
STANDARD DRAWING WF-4



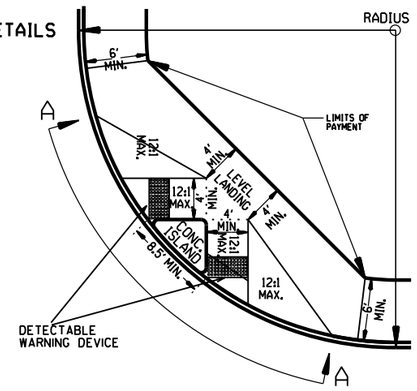
CONCRETE ISLAND DETAIL



SLOPE TRANSITION DETAILS



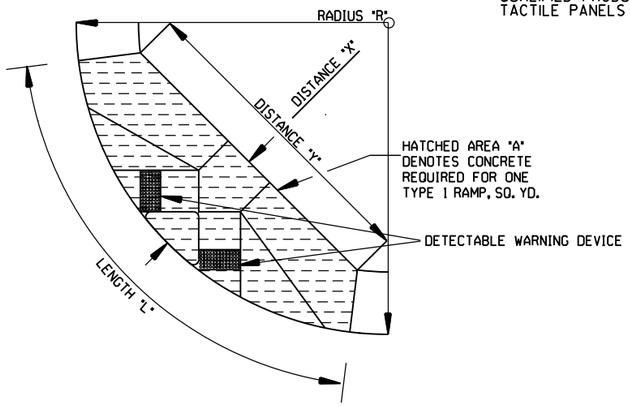
TYPE 1 RAMP
(Walk adjacent to curb)



SECTION A-A

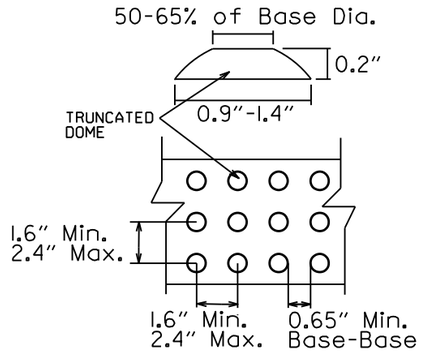
TYPE 1 RAMP DIMENSIONS AND QUANTITIES

RADIUS "R" FEET	DISTANCE "X" FEET	DISTANCE "Y" FEET	LENGTH "L" FEET	RAMP AREA "A" SQ. YD.
15	11.67	18.82	32.18	26.21
20	11.52	22.28	35.46	30.07
25	11.43	26.60	38.77	33.80
30	11.37	30.26	40.93	36.90
35	11.33	33.51	43.11	39.77
40	11.30	36.45	45.26	42.45
45	11.27	39.16	47.34	44.97
50	11.25	41.69	49.36	47.35
55	11.24	44.07	51.31	49.63
60	11.22	46.33	53.21	51.80



GENERAL NOTES FOR DETECTABLE WARNING DEVICES

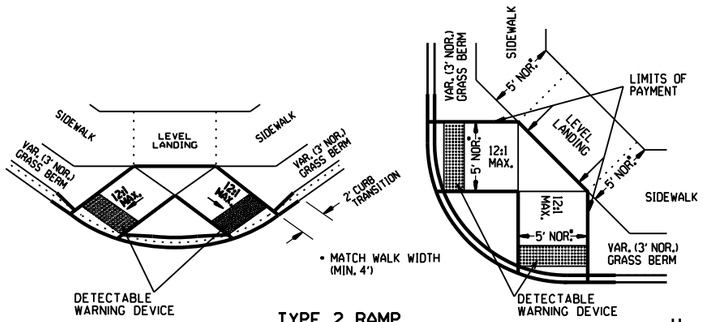
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE.
DETECTABLE WARNING DEVICE SHALL BE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).



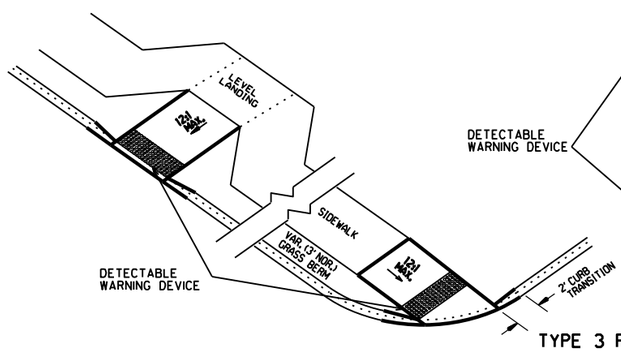
DETECTABLE WARNING DEVICE DETAIL

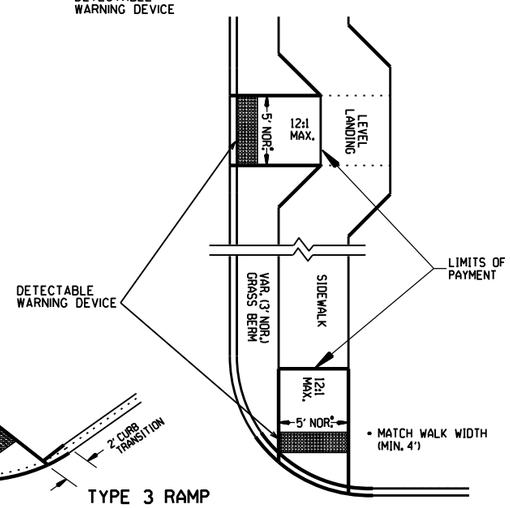
GENERAL NOTES:

IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.
IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK LOCATIONS.
THE LENGTH OF THE RAMP SHALL BE SUCH THAT THE SLOPE DOES NOT EXCEED 12:1. THE SURFACE TEXTURE OF THE RAMP SHALL CONFORM TO A CLASS 6 FINISH ACCORDING TO SECTION 802.19.
THE NORMAL GUTTER GRADE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.
ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
THE MINIMUM THICKNESS OF THE RAMP, WALK, & LANDING SHALL BE 4".
THE MINIMUM WIDTH OF THE RAMPS SHALL BE THE WALK WIDTH OR 36", WHICHEVER IS GREATER.
RAMPS SHALL BE MODIFIED AS NECESSARY TO INSURE THAT THEY ARE PARALLEL TO A LINE DRAWN FROM THE CENTER OF ONE RAMP TO THE CENTER OF THE RAMP ON THE OPPOSITE SIDE OF THE INTERSECTION.
THE DIMENSIONS AND QUANTITIES SHOWN ON THIS DRAWING ARE FOR A 90° INTERSECTION ONLY. DIMENSIONS AND QUANTITIES FOR SKEWED INTERSECTIONS WILL VARY, AND ARE TO BE DETERMINED BY THE ENGINEER.



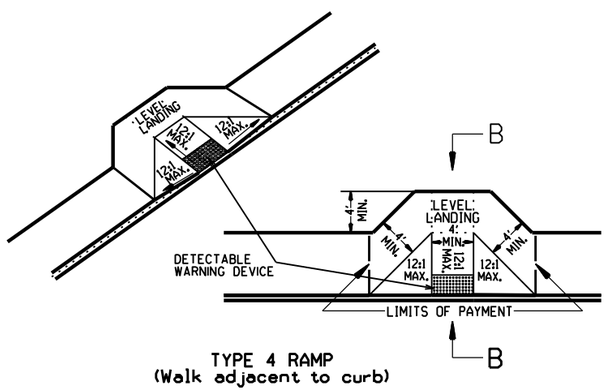
TYPE 2 RAMP



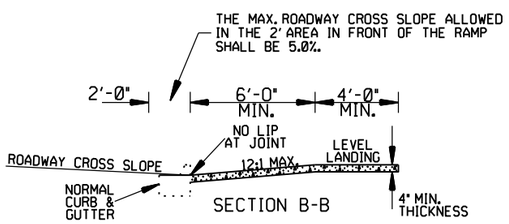


TYPE 3 RAMP

NOTE:
THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGTITUDINAL GRADE.



TYPE 4 RAMP
(Walk adjacent to curb)



RAMP SELECTION CRITERIA

FIRST CHOICE	TYPE 1	CORNER LOCATIONS WITH THE WALK ADJACENT TO THE CURB (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 2	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE INSUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 3	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE SUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 4	TANGENT LOCATIONS (BOTH NEW CONSTRUCTION AND ALTERATIONS).
SECOND CHOICE	TYPE 5	TANGENT LOCATIONS (ALTERATIONS ONLY).
THIRD CHOICE	TYPE 6	CORNER LOCATIONS (ALTERATIONS ONLY). THIS RAMP MAY BE USED ONLY IF THE TYPE 5 RAMPS CANNOT BE PLACED AT THE ENDS OF THE RADIUS.
FOURTH CHOICE		IF SITE CONSTRAINTS PREVENT THE CONSTRUCTION OF ANY OF THE TYPES LISTED, THEN AND ONLY THEN CAN THE 12:1 MAX. SLOPE ON THE RAMP BE EXCEEDED TO PROVIDE ACCESS TO THE STREET LEVEL (ALTERATIONS ONLY). THE SLOPE CAN BE STEEPENED TO A 10:1 MAX. FOR A MAX. LENGTH OF 5' OR A 8:1 MAX. FOR A MAX. LENGTH OF 2'. SLOPES STEEPER THAN 8:1 ARE NOT ALLOWED UNDER ANY CIRCUMSTANCES.

NOTE: IN ALTERATIONS, THE SELECTION OF THE TYPE OF WHEELCHAIR RAMP TO BE CONSTRUCTED SHALL BE BASED ON THE AMOUNT OF RIGHT-OF-WAY AVAILABLE, AND ON THE PRESENCE OF OTHER SITE CONSTRAINTS (UTILITIES, BUILDINGS, ETC.). THE TABLE ABOVE LISTS THE ORDER IN WHICH THE RAMPS ARE TO BE CONSIDERED.

AN ALTERATION IS DEFINED AS A PROJECT THAT CHANGES OR AFFECTS THE USE OF A PEDESTRIAN PATHWAY (OVERLAYS, SIGNALIZATION PROJECTS, ETC.) BUT DOES NOT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY. ALL PROJECTS THAT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY WILL USUALLY BE CONSIDERED NEW CONSTRUCTION FOR THE PURPOSES OF THE CHART ABOVE.

DATE	REVISION	DATE FILM
11-10-05	REVISED TO NEW SIDEWALK POLICY	
10-9-03	REVISED GEN. NOTES & ADDED NOTE	
4-10-03	REV. DETECTABLE WARNING DEVICES	
8-22-02	ADD DETECTABLE WARNING DEVICES	
3-30-00	ADD. SLOPE TRANS. & REV. ISL. DIMS.	
11-18-98	REVISED NOTES	
8-12-98	REVISED TEXTURE	
7-02-98	REDRAWN & REISSUED	
10-18-96	CORRECTED DIMENSIONS	10-18-96
5-24-90	FROM8#TO12#MAX.SLOPES	5-24-90
7-15-88	ADJUSTED MAX. SLOPE	652-7-15-88
7-14-88	INCLUD."CONC. ISLD."IN PAY ITEM	------
6-02-76	ISSUED-P.M.D.	299-7-28-76

ARKANSAS STATE HIGHWAY COMMISSION

WHEELCHAIR RAMPS
NEW CONSTRUCTION
AND ALTERATIONS

STANDARD DRAWING WR-1