DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	1	126
				(2)	UPRR & PINE ST. STR. & APPRS. (DONALDSON) (S)			

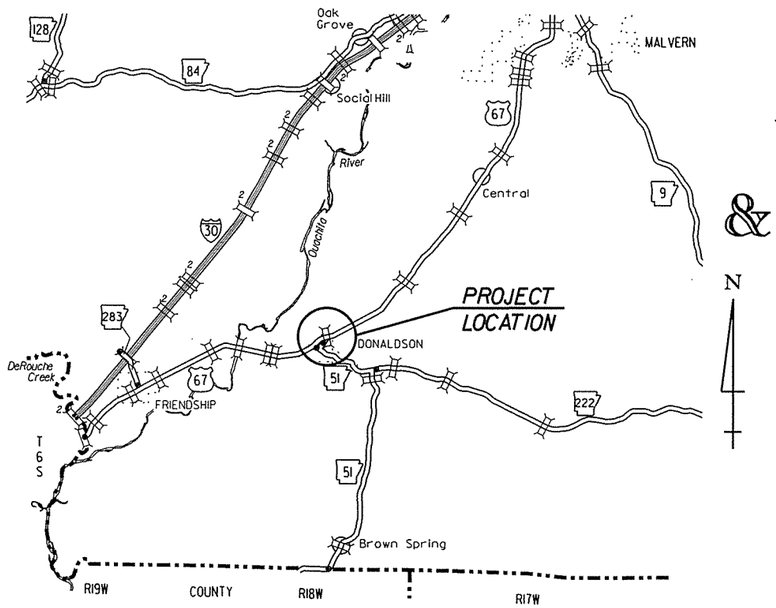
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

UPRR & PINE ST. STR. & APPRS. (DONALDSON) (S)

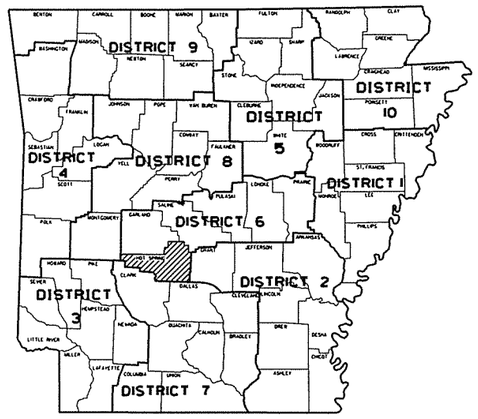
HOT SPRING COUNTY
ROUTE 67 SECTION 7

JOB 061084

FED. AID PROJ. STPF-0030(16)



VICINITY MAP

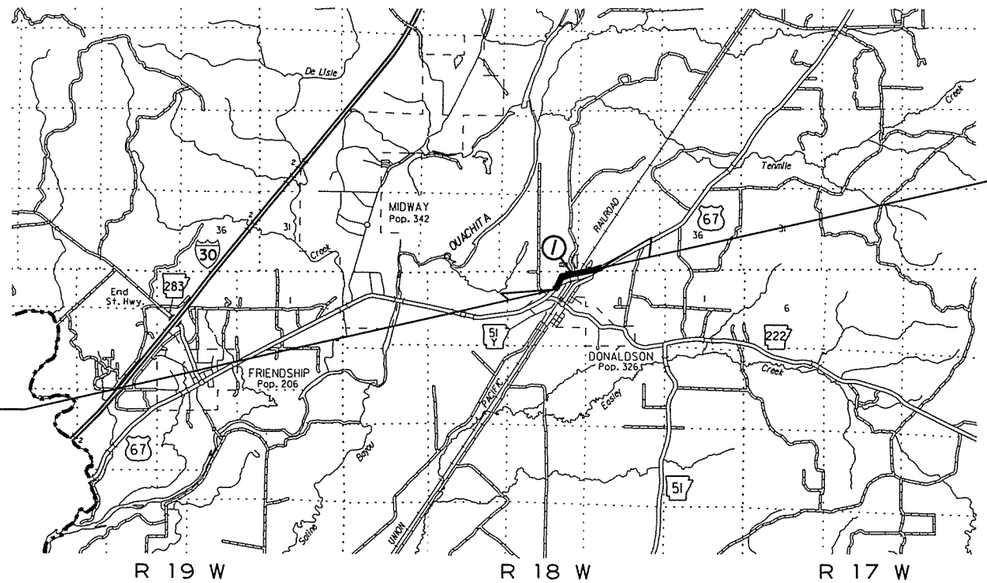


ARK. HWY. DIST. NO. 6

NOT TO SCALE

BRIDGE CONSTRUCTION DATA

① STA. 224+12.93 BRIDGE END
BRIDGE NO. 07319
240'-0" CONT. COMP. PLATE GIRDER UNIT (120'-120')
380'-0" CONT. COMP. PLATE GIRDER UNIT (114'-152'-114')
140'-0" CONT. COMP. W-BEAM UNIT (70'-70')
40'-0" CLEAR ROADWAY
762'-1¾" TOTAL BRIDGE LENGTH
STA. 231+75.07 BRIDGE END



STA. 210+50.00
BEGIN JOB 061084
LOG MILE 6.68

STA. 241+64.00
END JOB 061084

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2035
2015 ADT	1400
2035 ADT	1700
2035 DHV	187
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	8%
DESIGN SPEED	50 MPH

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 34°14'20"	N 34°14'28"	N 34°14'33"
LONGITUDE	W 92°55'30"	W 92°55'14"	W 92°54'55"

GROSS LENGTH OF PROJECT	3114.00	FEET	OR	0.590	MILES	
NET " " ROADWAY	2351.86	"	"	0.446	"	
NET " " BRIDGES	762.14	"	"	0.144	"	
NET " " PROJECT	3114.00	"	"	0.590	"	

P.E. 061084

APPROVED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7836
M.E. BANKS

11-13-15
DEPUTY DIRECTOR
AND CHIEF ENGINEER

7-22-2015

061084.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	2	126

(2) INDEX OF SHEETS, GOV.SPECS., & GEN.NOTES

INDEX OF SHEETS

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
11-10-15

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
108-1	LIQUIDATED DAMAGES
400-1	TACK COATS
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
620-1	MULCH COVER
JOB 061084	BIDDING REQUIREMENTS AND CONDITIONS
JOB 061084	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 061084	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 061084	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 061084	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 061084	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 061084	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 061084	HIGH PERFORMANCE PAVEMENT MARKING
JOB 061084	INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY (UPRR)
JOB 061084	MANDATORY ELECTRONIC CONTRACT
JOB 061084	NESTING SITES OF MIGRATORY BIRDS
JOB 061084	OFF-SITE RESTRAINING CONDITIONS FOR BATS
JOB 061084	PARTNERING REQUIREMENTS
JOB 061084	PLASTIC PIPE
JOB 061084	SHORING FOR CULVERTS
JOB 061084	SOIL STABILIZATION
JOB 061084	SPECIAL SAFETY REQUIREMENTS FOR BRIDGES
JOB 061084	STORM WATER POLLUTION PREVENTION PLAN
JOB 061084	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 061084	UTILITY ADJUSTMENTS
JOB 061084	VALUE ENGINEERING
JOB 061084	WARM MIX ASPHALT

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.
9. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
10. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

9/22/2015

R061084.DGN

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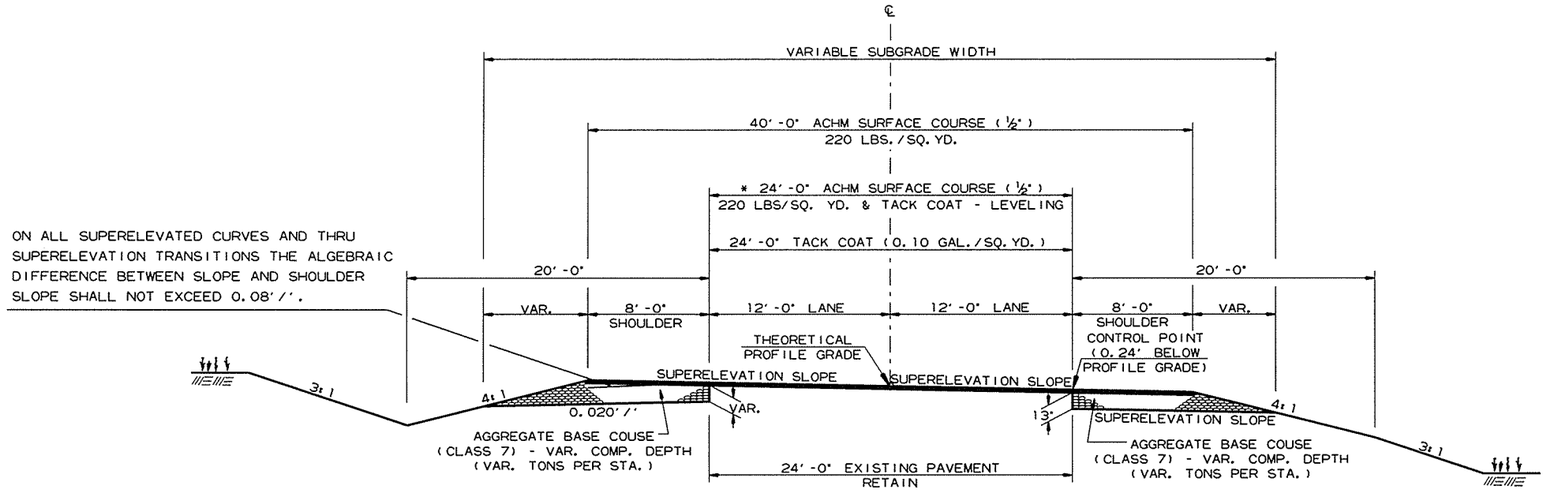
				6	ARK.			
				JOB NO.		061084	3	126

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-14-15



* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

TYPICAL SECTION OF IMPROVEMENT
HWY. 67 - SUPERELEVATION - NOTCH & WIDENING

STA. 210+50.00 - STA. 215+50.00
STA. 240+00.00 - STA. 241+64.00

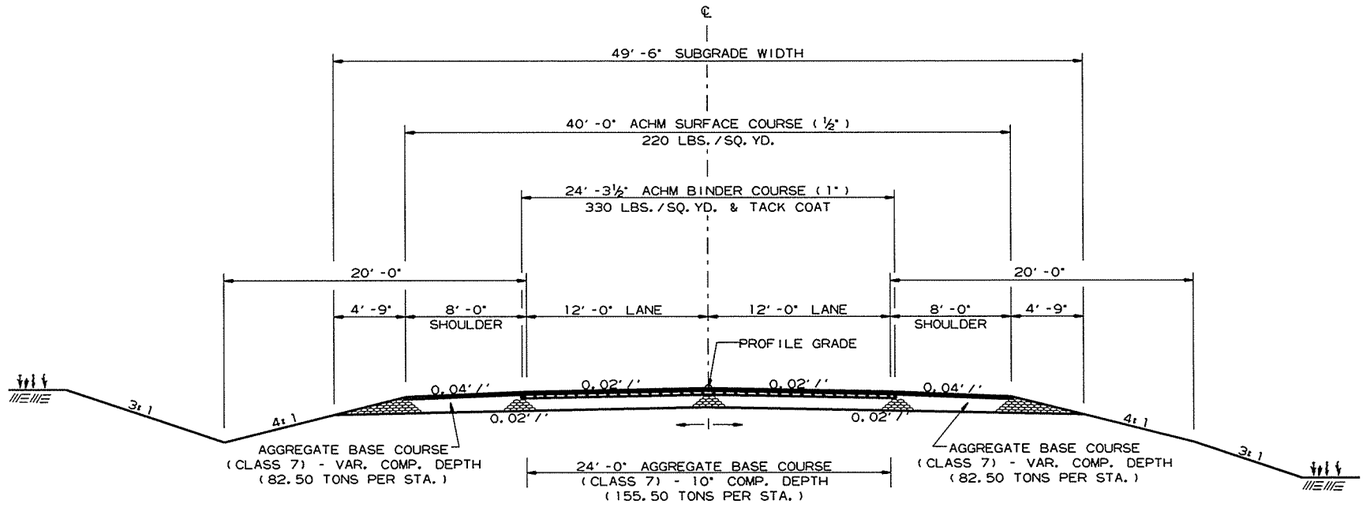
NOTES:
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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

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

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

WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.



TYPICAL SECTION OF IMPROVEMENT
HWY. 67 - NORMAL CROWN - FULL DEPTH

STA. 224+00.00 - STA. 224+12.93
STA. 231+75.07 - STA. 233+84.09

7/6/2015

R061084.DGN

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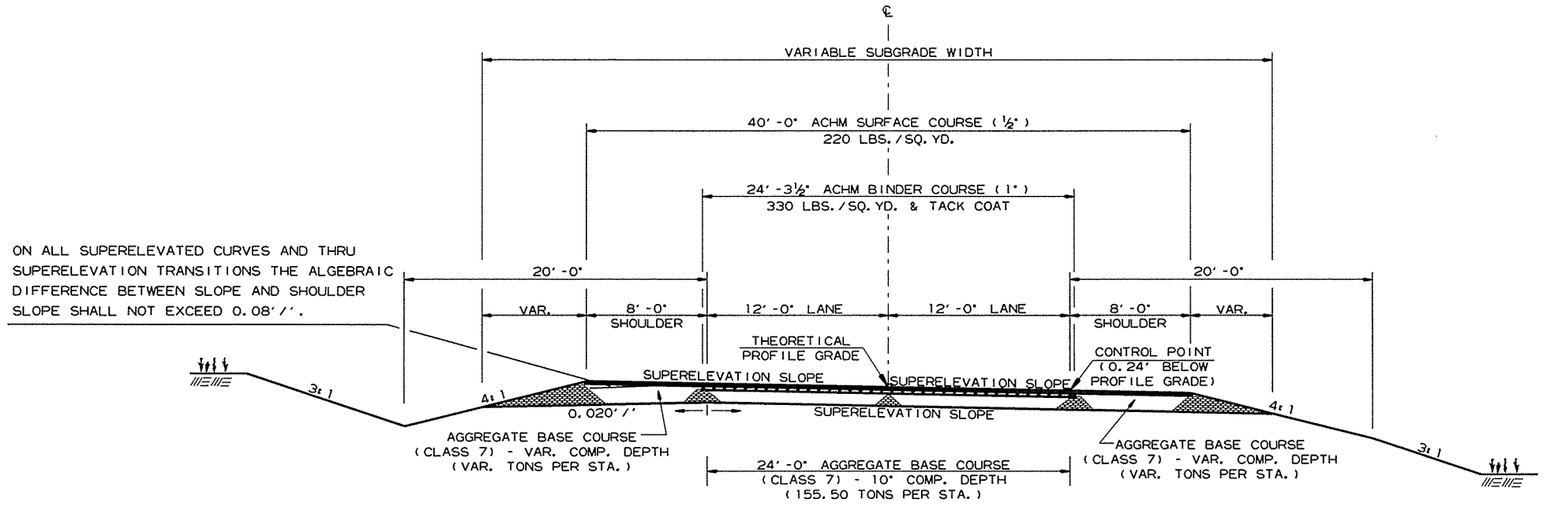
				JOB NO.		061084	4	126

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-14-15



TYPICAL SECTION OF IMPROVEMENT
HWY. 67 - SUPERELEVATION - FULL DEPTH

STA. 215+50.00 - STA. 224+00.00
STA. 233+84.09 - STA. 240+00.00

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

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

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

7/6/2015

R061084.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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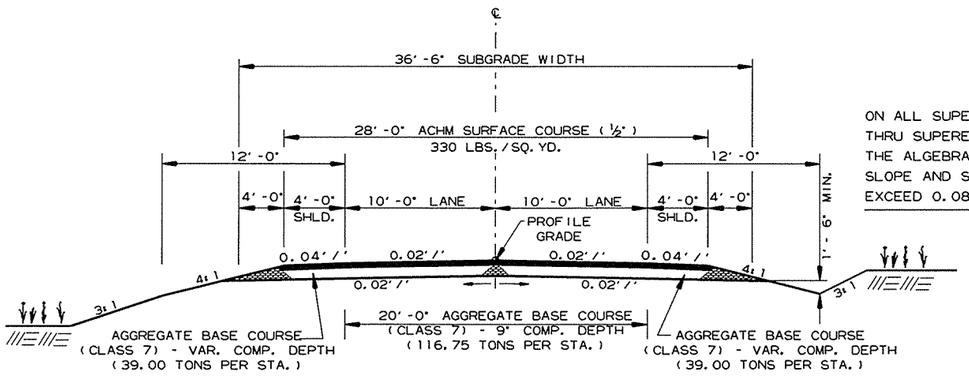
(2) TYPICAL SECTIONS OF IMPROVEMENT

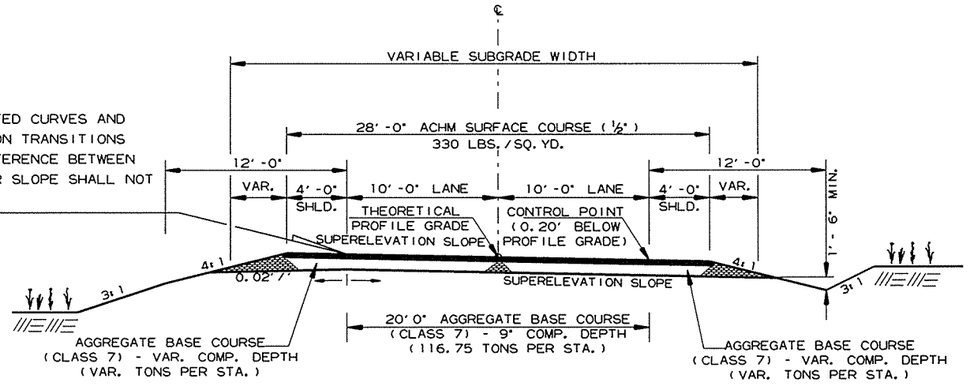
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-14-15



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

TYPICAL SECTION OF IMPROVEMENT
HWY. 51 - NORMAL CROWN

STA. 502+07.40 - STA. 502+87.33
STA. 505+00.00 - STA. 505+14.50



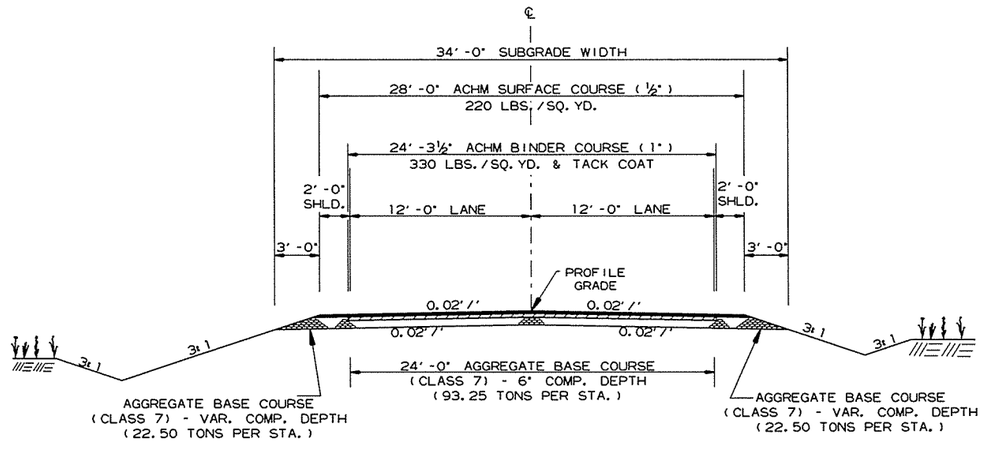
TYPICAL SECTION OF IMPROVEMENT
HWY. 51 - SUPERELEVATION

STA. 500+00.00 - STA. 502+07.40
STA. 502+87.33 - STA. 505+00.00

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

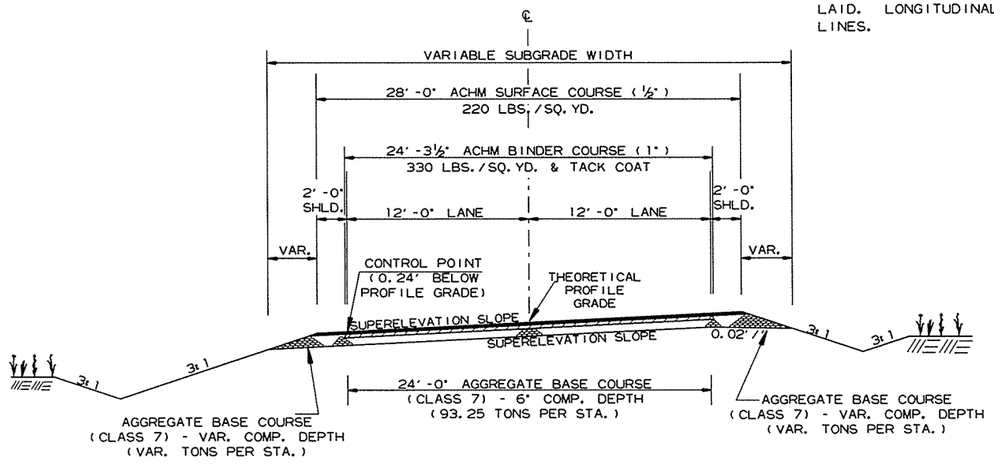
REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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



TYPICAL SECTION OF IMPROVEMENT
DETOUR - NORMAL CROWN

STA. 400+00.00 - STA. 401+56.92
STA. 407+16.98 - STA. 408+06.49



TYPICAL SECTION OF IMPROVEMENT
DETOUR - SUPERELEVATION

STA. 401+56.92 - STA. 407+16.98

7/6/2015
R061084.DGN

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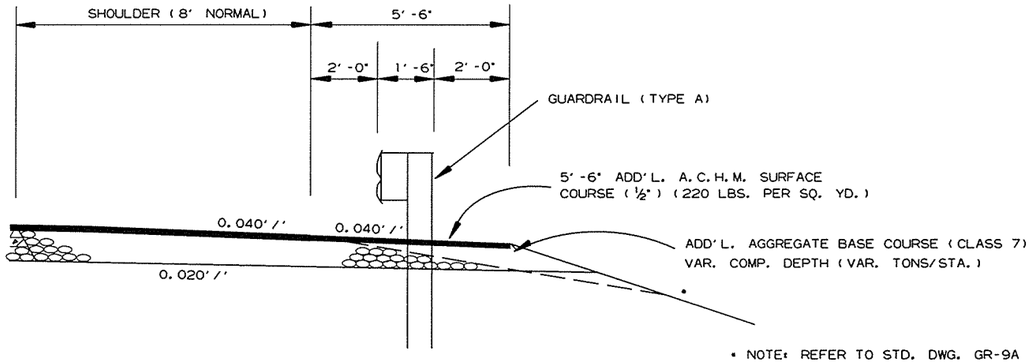
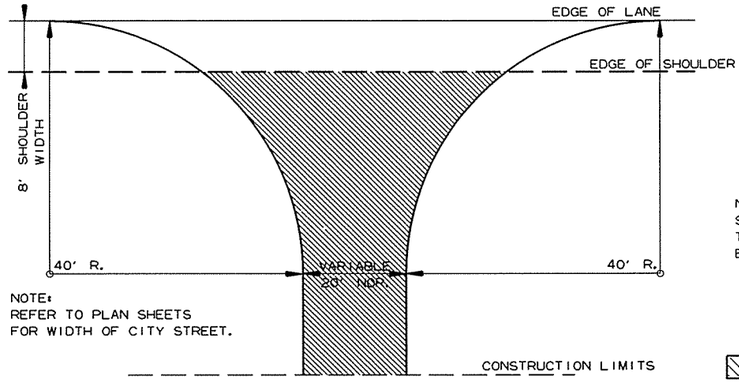
				6	ARK.			
				JOB NO.		061084	6	126

(2) SPECIAL DETAILS



WIDENING FOR GUARDRAIL



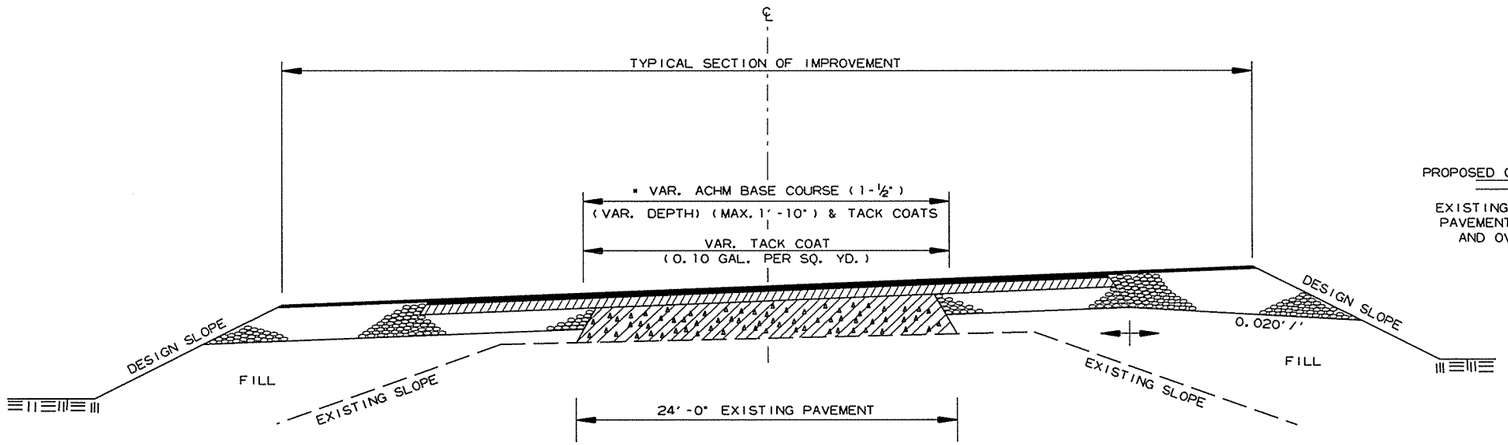
NOTE:
REFER TO PLAN SHEETS
FOR WIDTH OF CITY STREET.

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

A.C.H.M SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH.

DETAIL FOR CO. RD. TURNOUT OPEN SHOULDER SECTION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-14-15



• 10" AGGREGATE BASE COURSE (CLASS 7) TO BE REPLACED WITH A.C.H.M. BASE COURSE (1-½")

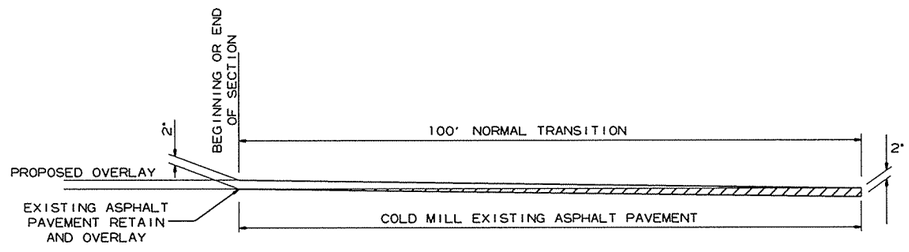
METHOD OF RAISING GRADE

NOTES:

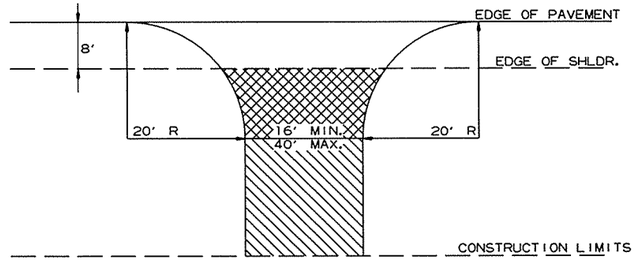
(1) THIS DETAIL TO BE USED ONLY IF AND WHERE DIRECTED BY THE ENGINEER.

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

(3) IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN ONE FOOT, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09, OF THE STANDARD SPECIFICATIONS, EDITION OF 2014.



DETAIL FOR TRANSITIONS



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)

SPECIAL DETAILS

7/6/2015

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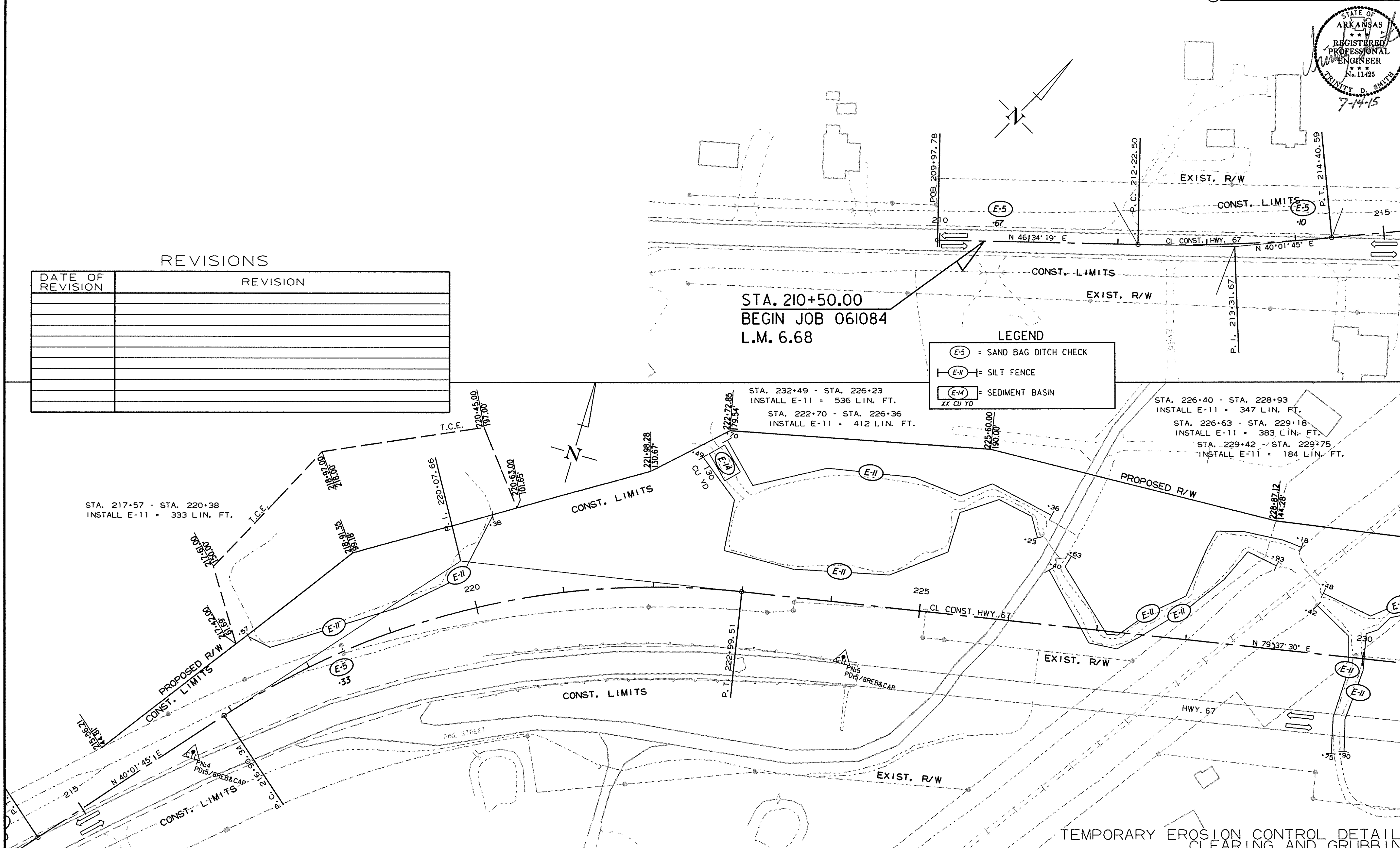
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 7-14-15

REVISIONS

DATE OF REVISION	REVISION



N
POB 209+97.78
P.C. 212+22.50
P.T. 214+40.59
P.I. 213+31.67
EXIST. R/W
CONST. LIMITS
E-5 .67
E-5 .10
210
215
N 46°34' 19" E
CL CONST. HWY. 67
N 40°01' 45" E
STA. 210+50.00
BEGIN JOB 061084
L.M. 6.68
LEGEND
E-5 = SAND BAG DITCH CHECK
E-11 = SILT FENCE
E-14 XX CU YD = SEDIMENT BASIN
STA. 232+49 - STA. 226+23
INSTALL E-11 = 536 LIN. FT.
STA. 222+70 - STA. 226+36
INSTALL E-11 = 412 LIN. FT.
STA. 226+40 - STA. 228+93
INSTALL E-11 = 347 LIN. FT.
STA. 226+63 - STA. 229+18
INSTALL E-11 = 383 LIN. FT.
STA. 229+42 - STA. 229+75
INSTALL E-11 = 184 LIN. FT.
STA. 217+57 - STA. 220+38
INSTALL E-11 = 333 LIN. FT.
T.C.E.
220+45.00 197.00'
218+92.00 218.00'
220+63.00 101.65'
221+98.28 130.67'
222+72.85 179.54'
225+60.00 190.00'
228+87.12 144.28'
218+91.35 99.18'
217+61.00 150.00'
217+42.00 69.69'
215+96.21 44.81'
P.I. 220+07.66
P.T. 222+99.51
P.C. 216+90.34
E-14 30 CU YD
E-11
E-5 .33
PROPOSED R/W
CONST. LIMITS
220
225
230
CL CONST. HWY. 67
N 79°37' 30" E
N 40°01' 45" E
EXIST. R/W
PN:4 PD:5/8REB&CAP
PN:5 PD:5/8REB&CAP
PINE STREET
HWY. 67

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

7/6/2015

R061084.DGN

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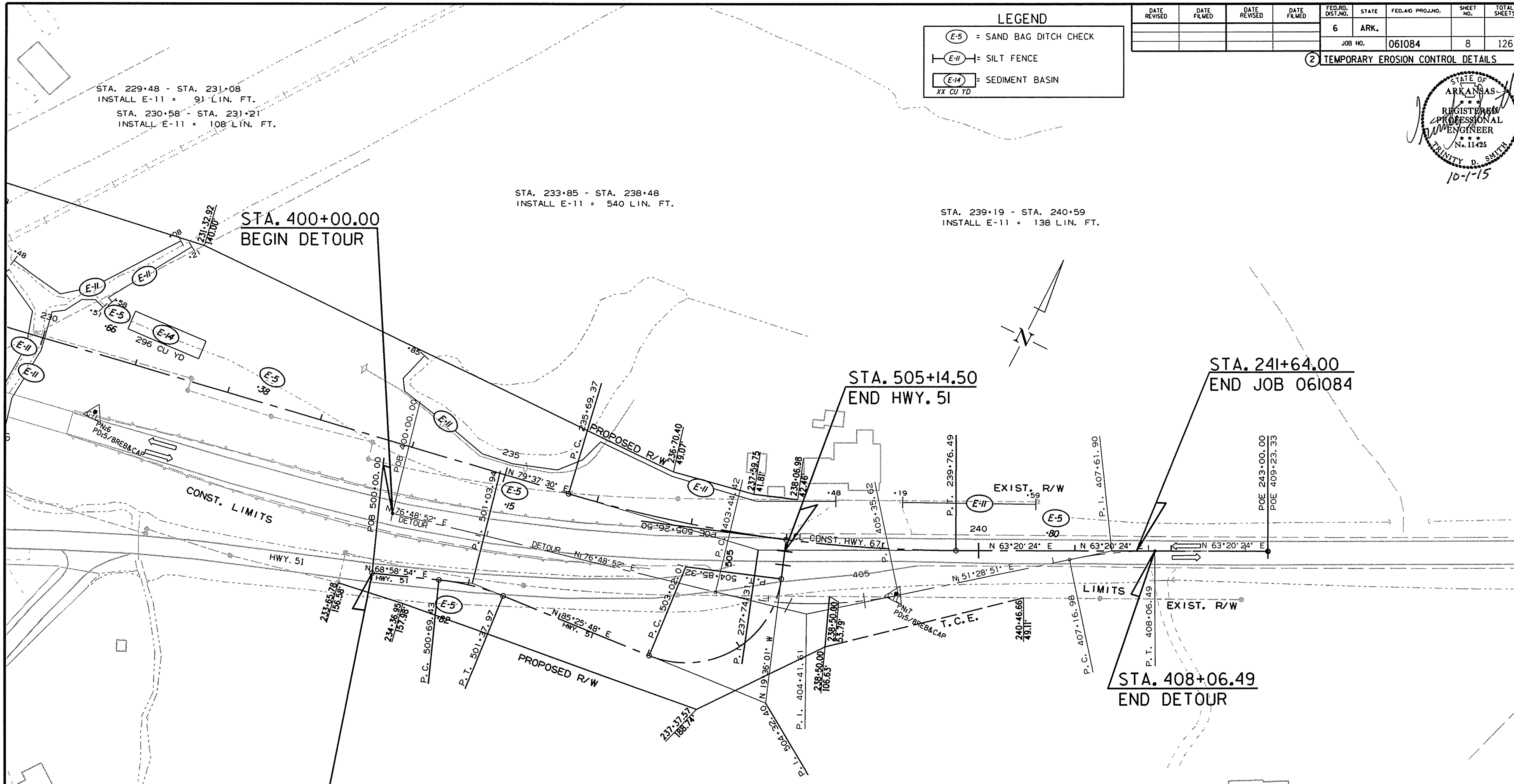
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH

10-1-15

LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) XX CU YD = SEDIMENT BASIN



REVISIONS

DATE OF REVISION	REVISION

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

7/22/2015

R061084.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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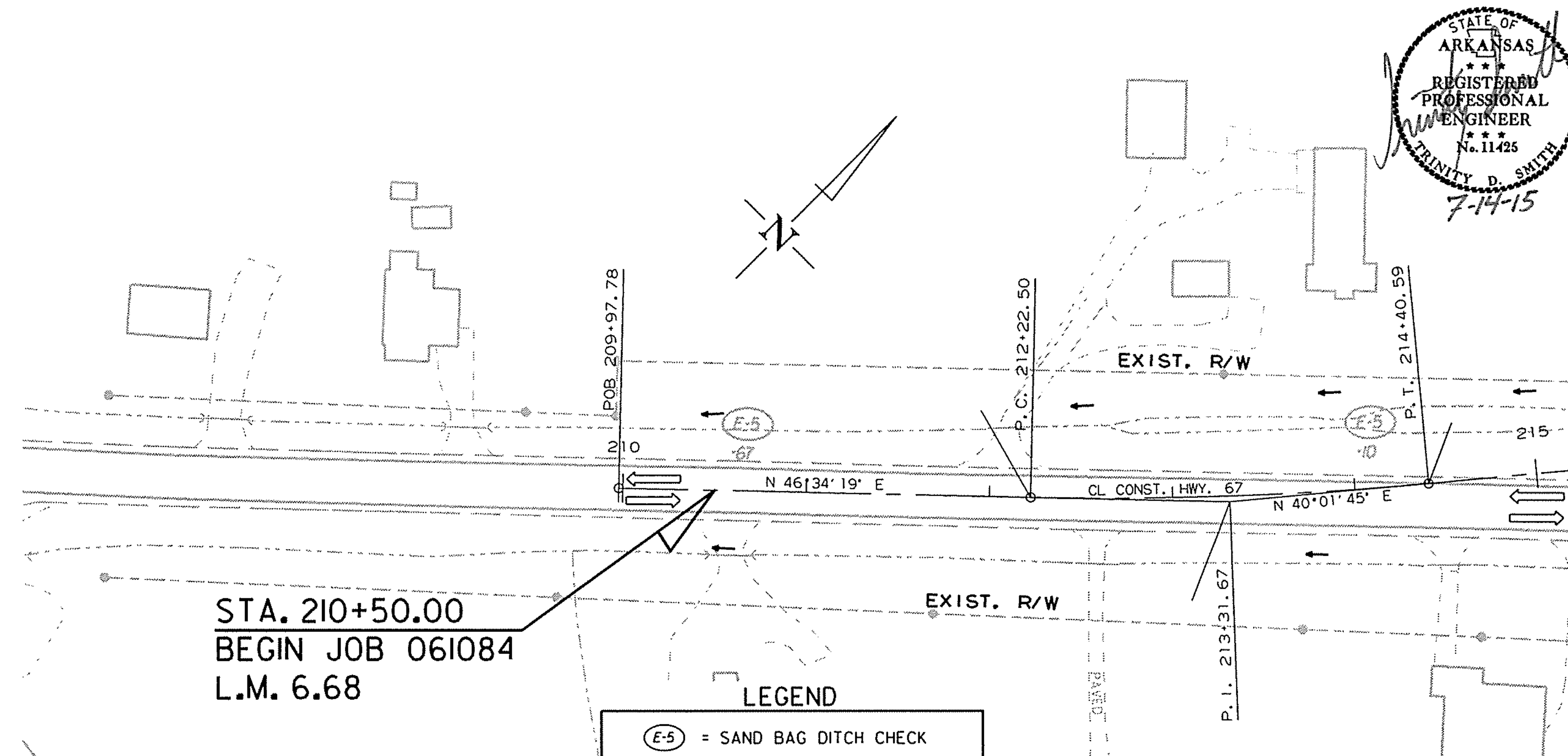
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 7-14-15

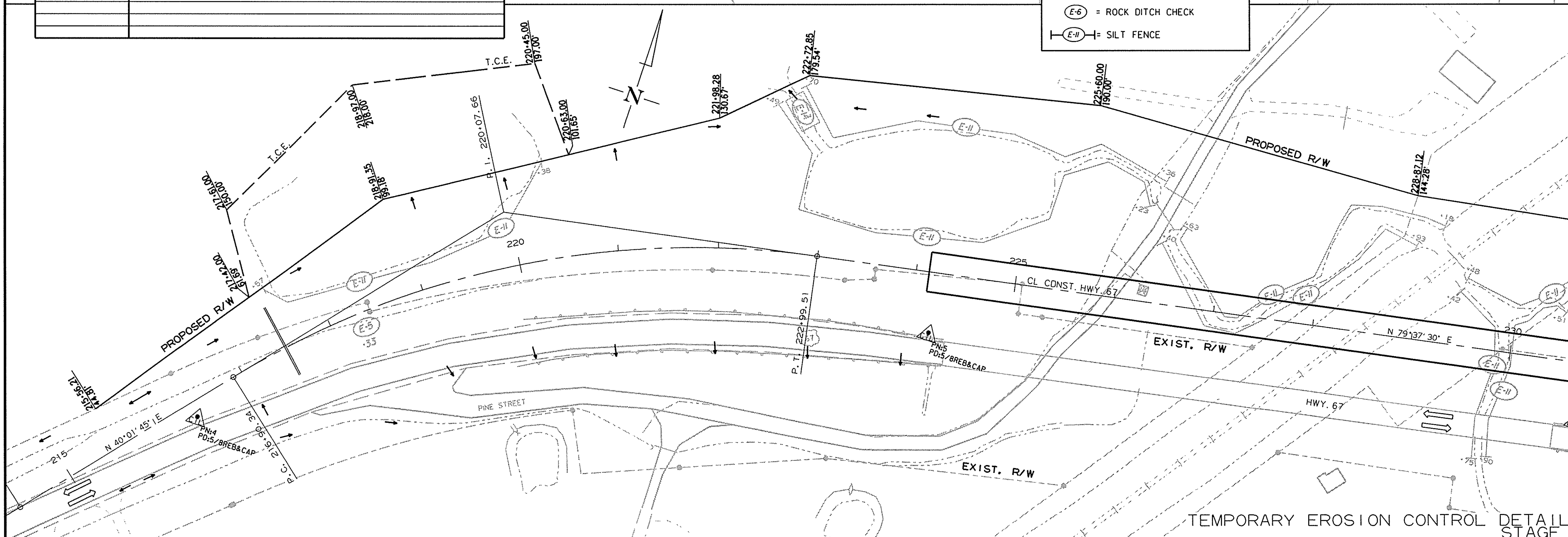
REVISIONS

DATE OF REVISION	REVISION



LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE



TEMPORARY EROSION CONTROL DETAILS
STAGE 1

R061084.DGN 7/6/2015

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.		061084	10	126

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

(E-5) = SAND BAG DITCH CHECK

(E-6) = ROCK DITCH CHECK

(E-11) = SILT FENCE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15

STA. 400+00.00
BEGIN DETOUR

STA. 500+00.00
BEGIN HWY. 51

STA. 505+14.50
END HWY. 51

STA. 241+64.00
END JOB 061084

STA. 408+06.49
END DETOUR

PROPOSED R/W

EXIST. R/W

CONST. HWY. 67

HWY. 51

DETOUR

T.C.E.

PLANT PDIS/BREB&CAP

REVISIONS

DATE OF REVISION	REVISION

7/22/2015

R061084.DGN

TEMPORARY EROSION CONTROL DETAILS
STAGE 1

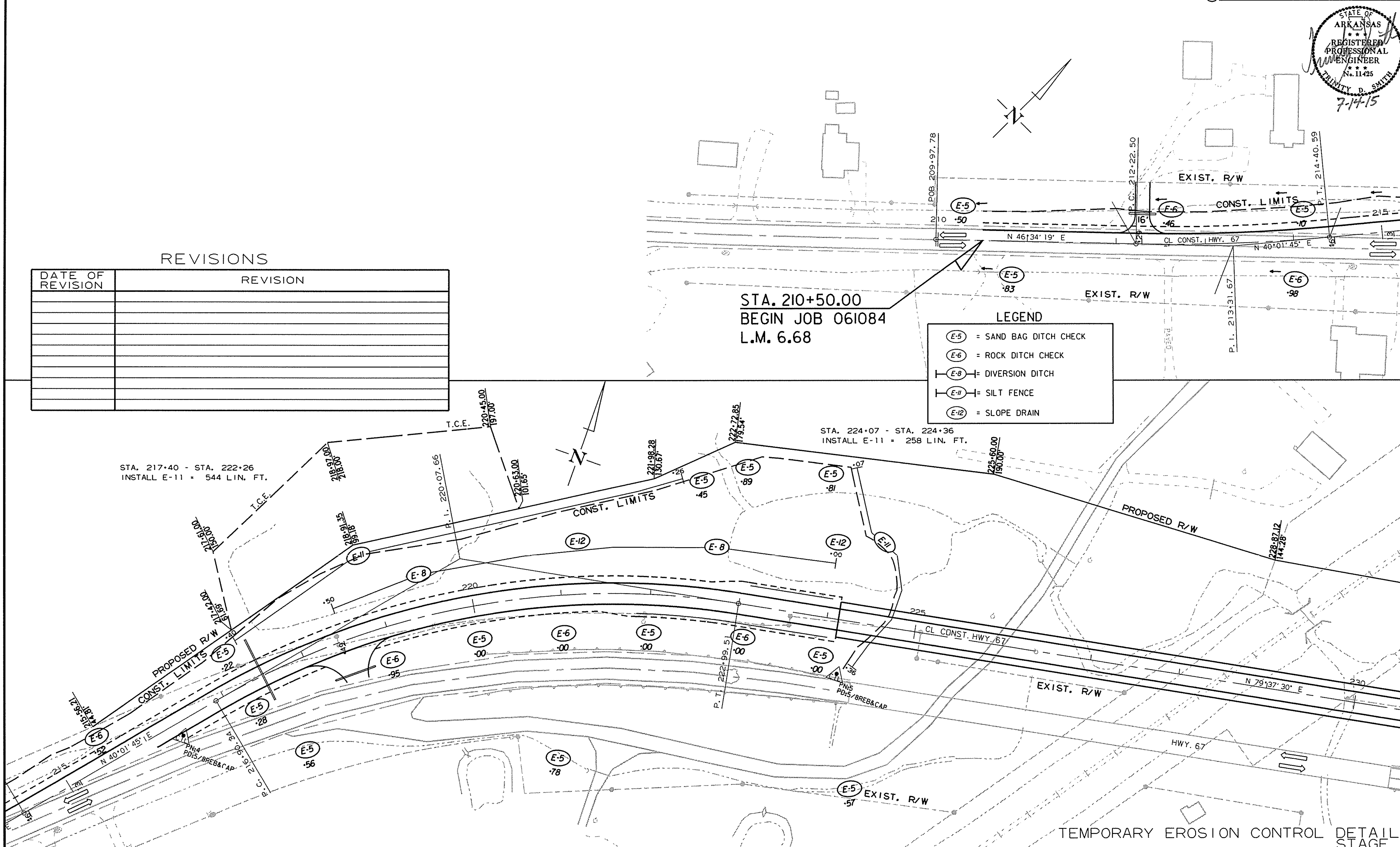
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	11	126

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 7-14-15

REVISIONS

DATE OF REVISION	REVISION



STA. 210+50.00
BEGIN JOB 061084
L.M. 6.68
LEGEND
E-5 = SAND BAG DITCH CHECK
E-6 = ROCK DITCH CHECK
E-8 = DIVERSION DITCH
E-11 = SILT FENCE
E-12 = SLOPE DRAIN
STA. 217+40 - STA. 222+26
INSTALL E-11 = 544 LIN. FT.
STA. 224+07 - STA. 224+36
INSTALL E-11 = 258 LIN. FT.
EXIST. R/W
CONST. LIMITS
PROPOSED R/W
T.C.E.
CL CONST. HWY. 67
N 46°34' 19" E
N 40°01' 45" E
N 79°37' 30" E
HWY. 67
POB 209+97.78
P.C. 212+22.50
P.T. 214+40.59
P.I. 213+31.67
P.I. 220+07.66
P.C. 216+90.34
P.T. 222+99.51
PN:4 PD:5/BREB&CAP
PN:5 PD:5/BREB&CAP

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

7/6/2015

R061084.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.		061084	12	126

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15

STA. 231+53 - STA. 231+68
INSTALL E-11 = 200 LIN. FT.

STA. 233+30 - STA. 236+10
INSTALL E-11 = 283 LIN. FT.

STA. 400+00.00
BEGIN DETOUR

STA. 500+00.00
BEGIN HWY. 51

STA. 505+14.50
END HWY. 51

STA. 241+64.00
END JOB 061084

STA. 408+06.49
END DETOUR

HWY. 67
HWY. 51
PROPOSED R/W
EXIST. R/W
CONST. LIMITS
T.C.E.
DETOUR
N 79°37'30" E
N 76°48'52" E
N 68°58'54" E
N 85°25'48" E
N 63°20'24" E
N 51°28'51" E
N 19°36'01" W
S 04°23'22" W

REVISIONS

DATE OF REVISION	REVISION

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

7/22/2015

R061084.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	13	126

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-14-15

REVISIONS

DATE OF REVISION	REVISION

STA. 210+50.00
BEGIN JOB 061084
L.M. 6.68

LEGEND
- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE

STA. 219+05 - STA. 224+66
INSTALL E-11 = 583 LIN. FT.

TEMPORARY EROSION CONTROL DETAILS
STAGE 3

7/6/2015

R061084.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.	061084	14	126

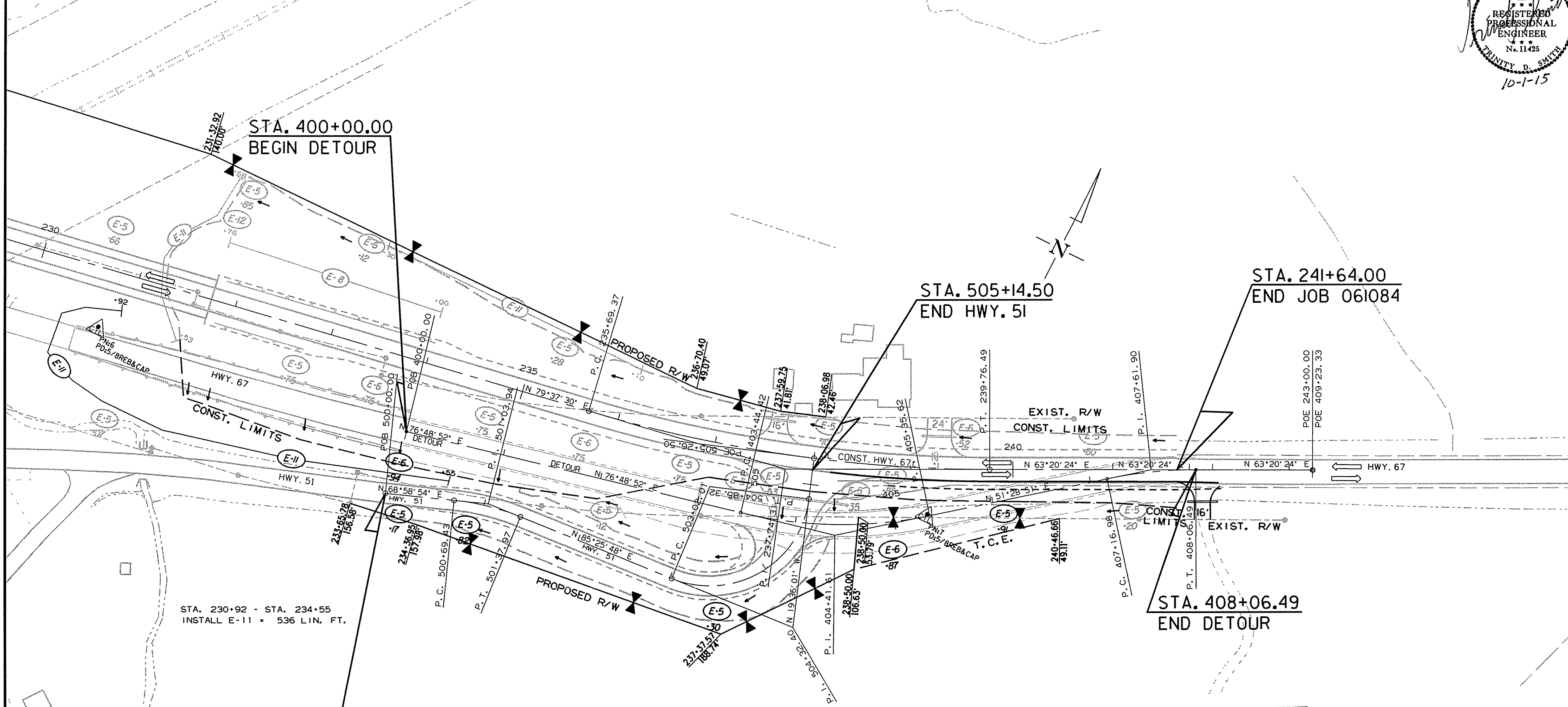
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH

10-1-15

LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE



REVISIONS

DATE OF REVISION	REVISION

TEMPORARY EROSION CONTROL DETAILS
STAGE 3

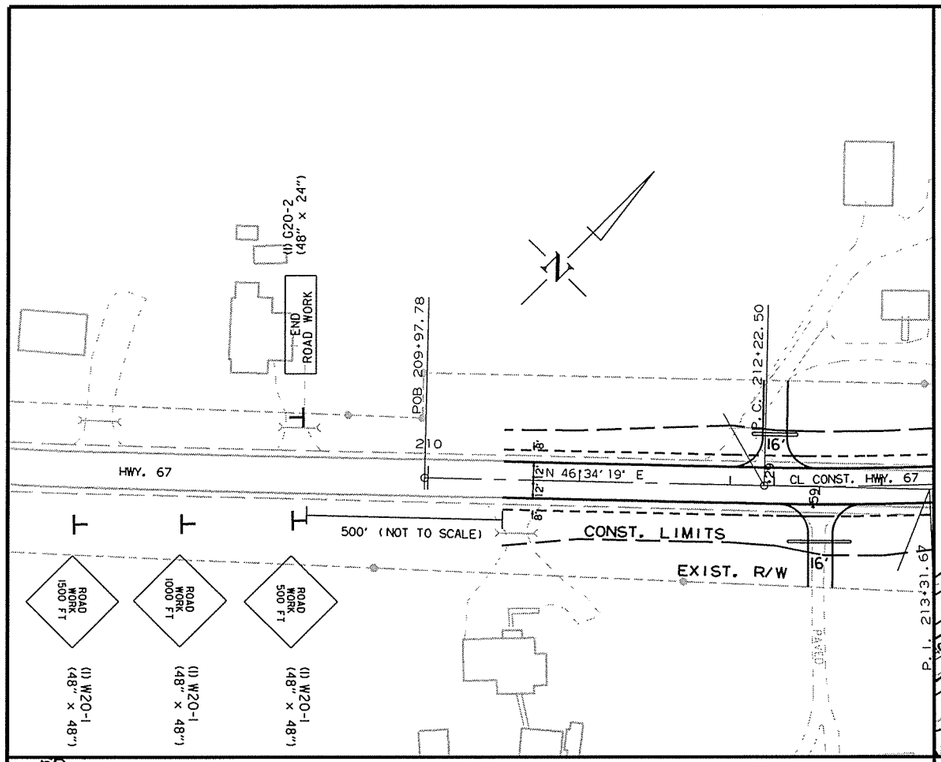
7/22/2015

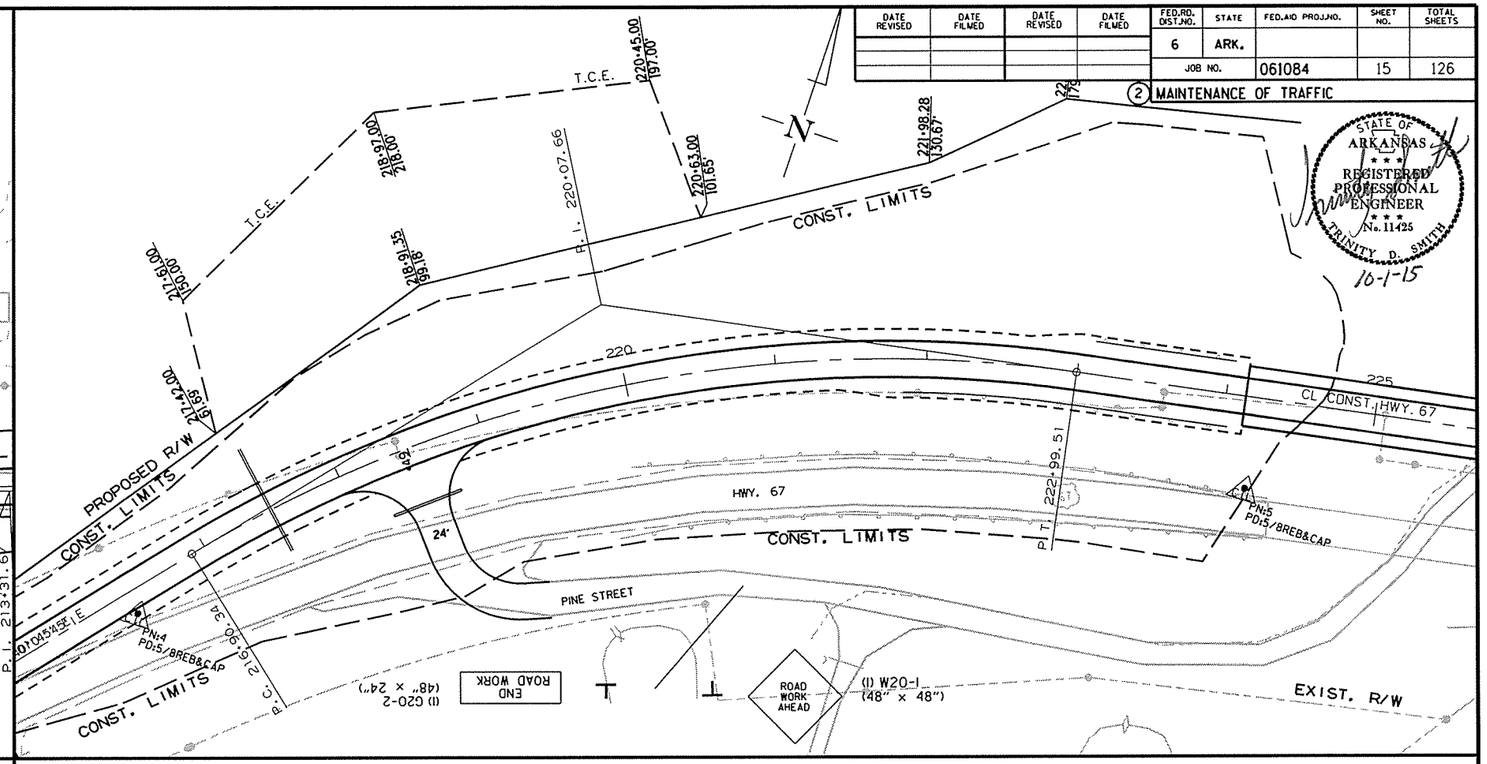
R061084.DGN

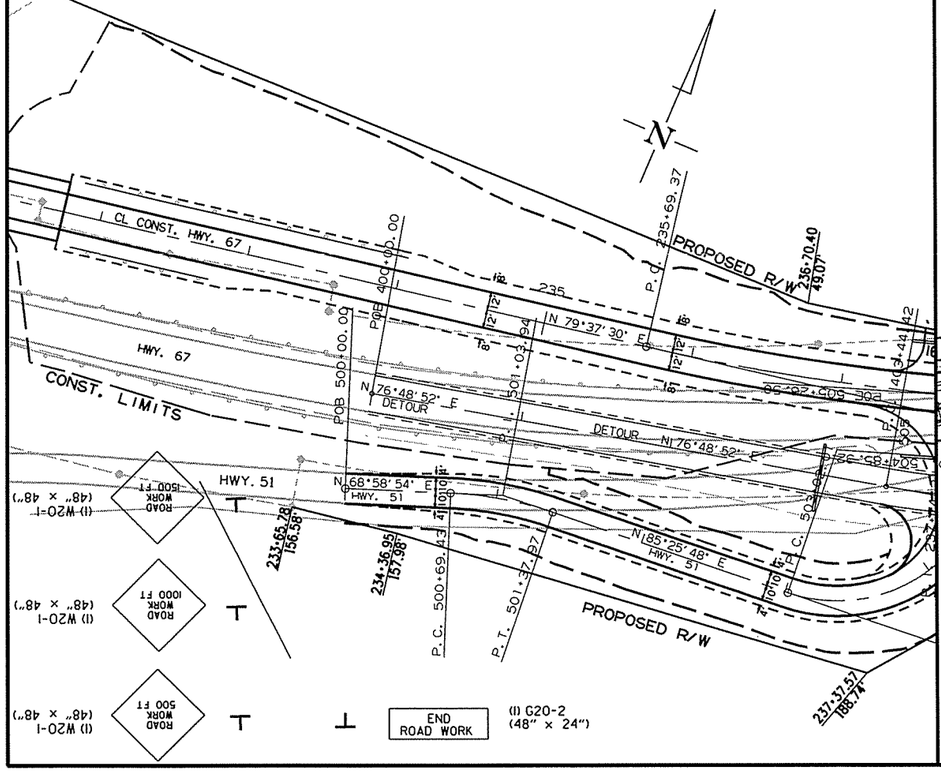
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	15	126

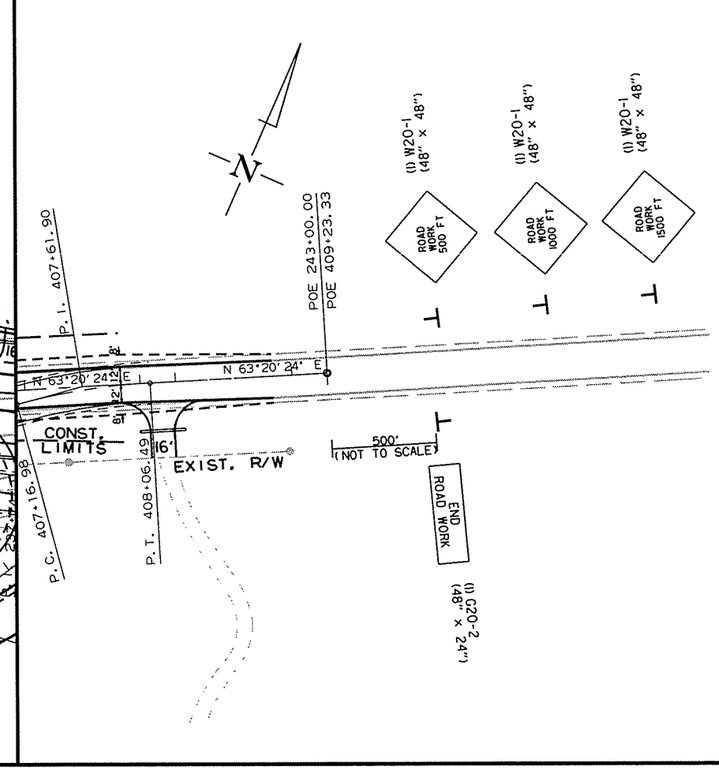
(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15









SEQUENCE OF CONSTRUCTION

STAGE 1A: MAINTAIN TRAFFIC ON EXISTING LANES.
BEGIN CONSTRUCTION ON BRIDGE OVER RAILROAD.
CONSTRUCT DETOUR FROM DETOUR STA. 403+45 TO DETOUR STA. 406+90.
CONSTRUCT HWY. 51 FROM HWY. 51 STA. 500+00 TO HWY. 51 STA. 505+04.

STAGE 1B: SHIFT HWY. 51 TRAFFIC ON TO LANES CONSTRUCTED IN STAGE 1A.
CONSTRUCT DETOUR FROM DETOUR STA. 400+00 TO STA. 403+45 AND DETOUR STA. 406+90 TO STA. 408+07.

STAGE 2: SHIFT TRAFFIC ON TO THE DETOUR CONSTRUCTED IN STAGE 1.
CONTINUE CONSTRUCTION ON BRIDGE OVER RAILROAD.
NOTCH AND WIDEN ON LEFT FROM STA. 210+50 TO STA. 213+00 AND STA. 240+00 TO STA. 241+64.

STAGE 3: SHIFT TRAFFIC ON TO THE LANES CONSTRUCTED IN STAGE 2.
REMOVE EXISTING BRIDGE.
REMOVE EXISTING LANES AND DETOUR LANES.
NOTCH & WIDEN TO RIGHT FROM STA. 210+50 TO STA. 215+50 AND STA. 240+00 - STA. 241+64.
PLACE FINAL STRIPING.

SHOULDER DROP OFF — (2) W8-9a (36" X 36")

SHOULDER CLOSED — (2) RSP-1 (48" X 30")

DO NOT PASS — (2) R4-1 (24" X 30")

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

MAINTENANCE OF TRAFFIC ALL STAGES

7/22/2015

R061084.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.		061084	16	126

(2) MAINTENANCE OF TRAFFIC

SEQUENCE OF CONSTRUCTION

STAGE 1A: MAINTAIN TRAFFIC ON EXISTING LANES.
BEGIN CONSTRUCTION ON BRIDGE OVER RAILROAD.
CONSTRUCT DETOUR FROM DETOUR STA. 403+45 TO DETOUR STA. 406+90.
CONSTRUCT HWY. 51 FROM HWY. 51 STA. 500+00 TO HWY. 51 STA. 505+04.

STAGE 1B: SHIFT HWY. 51 TRAFFIC ON TO LANES CONSTRUCTED IN STAGE 1A.
CONSTRUCT DETOUR FROM DETOUR STA. 400+00 TO STA. 403+45 AND DETOUR STA. 406+90 TO STA. 408+07.

STAGE 2: SHIFT TRAFFIC ON TO THE DETOUR CONSTRUCTED IN STAGE 1.
CONTINUE CONSTRUCTION ON BRIDGE OVER RAILROAD.
NOTCH AND WIDEN ON LEFT FROM STA. 210+50 TO STA. 213+00 AND STA. 240+00 TO STA. 241+64.

STAGE 3: SHIFT TRAFFIC ON TO THE LANES CONSTRUCTED IN STAGE 2.
REMOVE EXISTING BRIDGE.
REMOVE EXISTING LANES AND DETOUR LANES.
NOTCH & WIDEN TO RIGHT FROM STA. 210+50 TO STA. 215+50 AND STA. 240+00 - STA. 241+64.
PLACE FINAL STRIPING.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15

CL CONST. HWY. 67
PI = 237+74.31
Δ = 16°17'06"LT.
D = 4°00'00"
T = 204.94'
L = 407.12'
PC = 235+69.37
PT = 239+76.49
e = 0.072'/'
Ls = 250'

DETOUR
PI = 404+41.61
Δ = 25°20'01"LT.
D = 13°15'00"
T = 97.19'
L = 191.20'
PC = 403+44.42
PT = 405+35.62
e = 0.100'/'
Ls = 250'

HWY. 51
PI = 504+32.40
Δ = 105°01'50"LT.
D = 57°17'45"
T = 130.39'
L = 183.31'
PC = 503+02.01
PT = 504+85.32
e = R.C.
Ls = 250'

STA. 400+00.00
BEGIN DETOUR

STA. 505+14.50
END HWY. 51

STA. 241+64.00
END JOB 061084

STA. 500+00.00
BEGIN HWY. 51

STA. 408+06.49
END DETOUR

HWY. 51
PI = 501+03.94
Δ = 16°26'54"RT.
D = 24°00'00"
T = 34.50'
L = 68.53'
PC = 500+69.43
PT = 501+37.97
e = 0.100'/'
Ls = 250'

DETOUR
PI = 407+61.90
Δ = 11°15'33"RT.
D = 13°15'00"
T = 44.91'
L = 89.50'
PC = 407+16.98
PT = 408+06.49

HWY. 51
STA. 504+84 CONSTRUCT 18' X 82' TEMPORARY PIPE CULVERT CROSS DRAIN FILL AND ABANDON USING 16 CU. YD. FLOWABLE SELECT MATERIAL

TRAFFIC DRUMS AT 50' O.C.

TRAFFIC DRUMS AT 50' O.C.

ROAD CLOSED
(1) RII-2 (48" X 30")
(1) WI-6 (48" X 24")
24' BARR. TYP. III RT.

ROAD CLOSED
(2) RII-2 (48" X 30")
16' BARR. TYP. III RT.
16' BARR. TYP. III LT.

(1) RII-2 (48" X 30")
(1) WI-6 (48" X 24")
24' BARR. TYP. III LT.

ROAD CLOSED

PROPOSED R/W

EXIST. R/W

T.C.E.

7/22/2015

R061084.DGN

MAINTENANCE OF TRAFFIC
STAGE 1A

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.	061084	17	126

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15

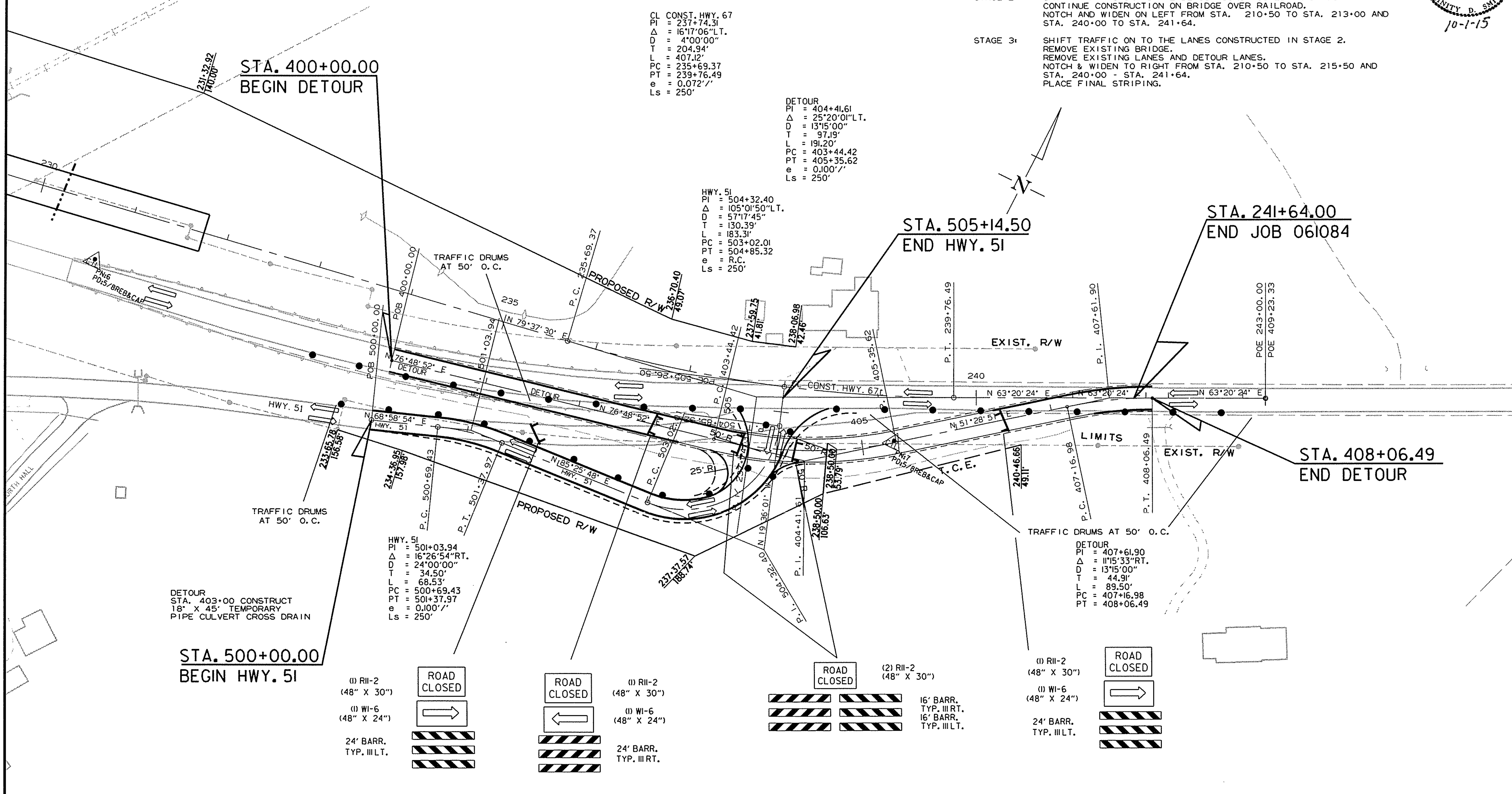
SEQUENCE OF CONSTRUCTION

STAGE 1A: MAINTAIN TRAFFIC ON EXISTING LANES.
BEGIN CONSTRUCTION ON BRIDGE OVER RAILROAD.
CONSTRUCT DETOUR FROM DETOUR STA. 403+45 TO DETOUR STA. 406+90.
CONSTRUCT HWY. 51 FROM HWY. 51 STA. 500+00 TO HWY. 51 STA. 505+04.

STAGE 1B: SHIFT HWY. 51 TRAFFIC ON TO LANES CONSTRUCTED IN STAGE 1A.
CONSTRUCT DETOUR FROM DETOUR STA. 400+00 TO STA. 403+45 AND DETOUR STA. 406+90 TO STA. 408+07.

STAGE 2: SHIFT TRAFFIC ON TO THE DETOUR CONSTRUCTED IN STAGE 1.
CONTINUE CONSTRUCTION ON BRIDGE OVER RAILROAD.
NOTCH AND WIDEN ON LEFT FROM STA. 210+50 TO STA. 213+00 AND STA. 240+00 TO STA. 241+64.

STAGE 3: SHIFT TRAFFIC ON TO THE LANES CONSTRUCTED IN STAGE 2.
REMOVE EXISTING BRIDGE.
REMOVE EXISTING LANES AND DETOUR LANES.
NOTCH & WIDEN TO RIGHT FROM STA. 210+50 TO STA. 215+50 AND STA. 240+00 - STA. 241+64.
PLACE FINAL STRIPING.



MAINTENANCE OF TRAFFIC
STAGE 1B

7/22/2015

R061084.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.		061084	18	126

(2) MAINTENANCE OF TRAFFIC

SEQUENCE OF CONSTRUCTION

STAGE 1A: MAINTAIN TRAFFIC ON EXISTING LANES.
BEGIN CONSTRUCTION ON BRIDGE OVER RAILROAD.
CONSTRUCT DETOUR FROM DETOUR STA. 403+45 TO DETOUR STA. 406+90.
CONSTRUCT HWY. 51 FROM HWY. 51 STA. 500+00 TO HWY. 51 STA. 505+04.

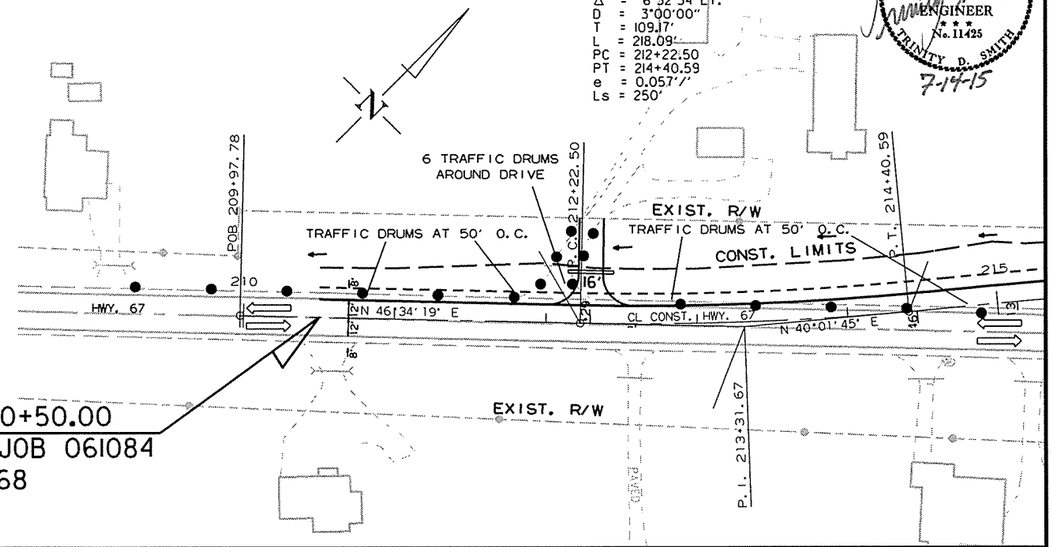
STAGE 1B: SHIFT HWY. 51 TRAFFIC ON TO LANES CONSTRUCTED IN STAGE 1A.
CONSTRUCT DETOUR FROM DETOUR STA. 400+00 TO STA. 403+45 AND DETOUR STA. 406+90 TO STA. 408+07.

STAGE 2: SHIFT TRAFFIC ON TO THE DETOUR CONSTRUCTED IN STAGE 1.
CONTINUE CONSTRUCTION ON BRIDGE OVER RAILROAD.
NOTCH AND WIDEN ON LEFT FROM STA. 210+50 TO STA. 213+00 AND STA. 240+00 TO STA. 241+64.

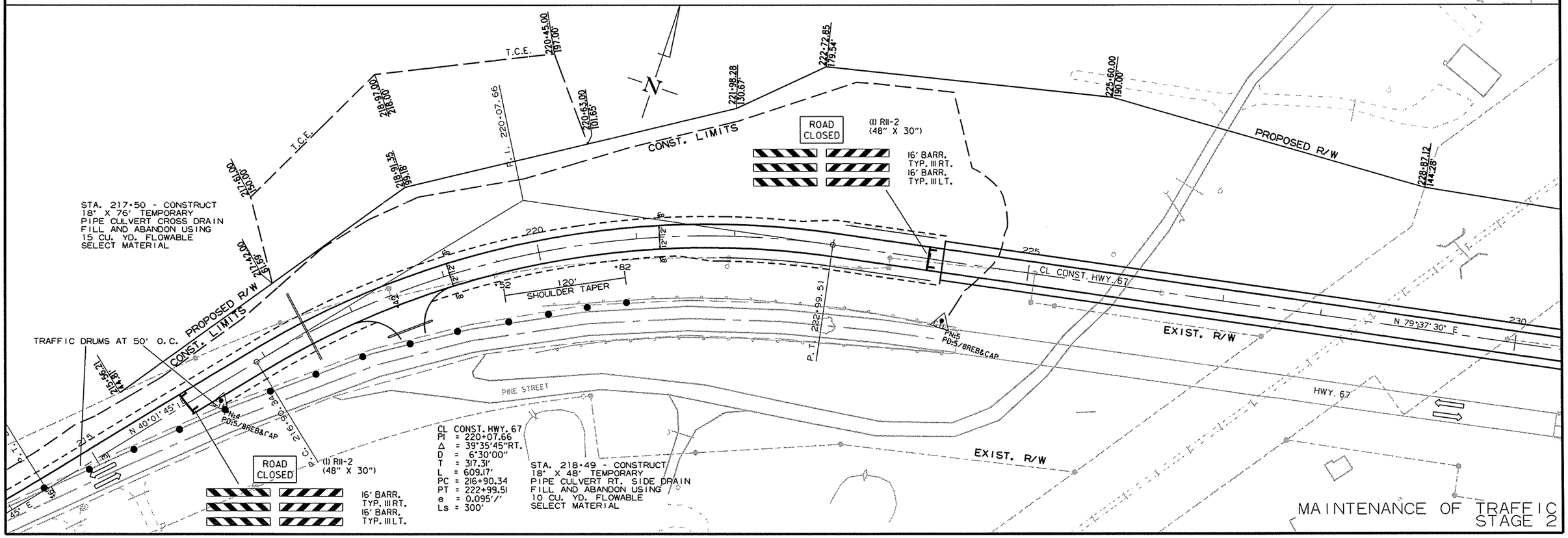
STAGE 3: SHIFT TRAFFIC ON TO THE LANES CONSTRUCTED IN STAGE 2.
REMOVE EXISTING BRIDGE.
REMOVE EXISTING LANES AND DETOUR LANES.
NOTCH & WIDEN TO RIGHT FROM STA. 210+50 TO STA. 215+50 AND STA. 240+00 - STA. 241+64.
PLACE FINAL STRIPING.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-14-15

CL CONST. HWY. 67
PI = 213+31.67
Δ = 6°32'34"LT.
D = 3°00'00"
T = 109.17'
L = 218.09'
PC = 212+22.50
PT = 214+40.59
e = 0.057'/'
Ls = 250'



STA. 210+50.00
BEGIN JOB 061084
L.M. 6.68



MAINTENANCE OF TRAFFIC
STAGE 2

7/6/2015

R061084.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.		061084	19	126

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
TRINITY D. SMITH
REGISTERED PROFESSIONAL ENGINEER
No. 11425
10-1-15

ROAD CLOSED
(1) RII-2 (48" X 30")
16' BARR. TYP. III RT.
16' BARR. TYP. III LT.

STA. 400+00.00
BEGIN DETOUR

CL CONST. HWY. 67
PI = 237+74.31
Δ = 16°17'06"LT.
D = 4°00'00"
T = 204.94'
L = 407.12'
PC = 235+69.37
PT = 239+76.49
e = 0.072'/'
Ls = 250'

DETOUR
PI = 404+41.61
Δ = 25°20'01"LT.
D = 13°15'00"
T = 97.19'
L = 191.20'
PC = 403+44.42
PT = 405+35.62
e = 0.100'/'
Ls = 250'

ROAD CLOSED
(1) RII-2 (48" X 30")
(1) WI-6 (48" X 24")
24' BARR. TYP. III RT.

HWY. 51
PI = 504+32.40
Δ = 105°01'50"LT.
D = 57°17'45"
T = 130.39'
L = 183.31'
PC = 503+02.01
PT = 504+85.32
e = R.C.
Ls = 250'

STA. 505+14.50
END HWY. 51

TRAFFIC DRUMS AT 50' O.C.

STA. 241+64.00
END JOB 061084

+68 100' SHOULDER TAPER +68

HWY. 51
PI = 501+03.94
Δ = 16°26'54"RT.
D = 24°00'00"
T = 34.50'
L = 68.53'
PC = 500+69.43
PT = 501+37.97
e = 0.100'/'
Ls = 250'

STA. 500+00.00
BEGIN HWY. 51

ROAD CLOSED
(1) RII-2 (48" X 30")
16' BARR. TYP. III RT.
16' BARR. TYP. III LT.

(1) RII-2 (48" X 30")
(1) WI-6 (48" X 24")
24' BARR. TYP. III LT.

STA. 408+06.49
END DETOUR

DETOUR
PI = 407+61.90
Δ = 11°15'33"RT.
D = 13°15'00"
T = 44.91'
L = 89.50'
PC = 407+16.98
PT = 408+06.49

SEQUENCE OF CONSTRUCTION

STAGE 1A: MAINTAIN TRAFFIC ON EXISTING LANES.
BEGIN CONSTRUCTION ON BRIDGE OVER RAILROAD.
CONSTRUCT DETOUR FROM DETOUR STA. 403+45 TO DETOUR STA. 406+90.
CONSTRUCT HWY. 51 FROM HWY. 51 STA. 500+00 TO HWY. 51 STA. 505+04.

STAGE 1B: SHIFT HWY. 51 TRAFFIC ON TO LANES CONSTRUCTED IN STAGE 1A.
CONSTRUCT DETOUR FROM DETOUR STA. 400+00 TO STA. 403+45 AND DETOUR STA. 406+90 TO STA. 408+07.

STAGE 2: SHIFT TRAFFIC ON TO THE DETOUR CONSTRUCTED IN STAGE 1.
CONTINUE CONSTRUCTION ON BRIDGE OVER RAILROAD.
NOTCH AND WIDEN ON LEFT FROM STA. 210+50 TO STA. 213+00 AND STA. 240+00 TO STA. 241+64.

STAGE 3: SHIFT TRAFFIC ON TO THE LANES CONSTRUCTED IN STAGE 2.
REMOVE EXISTING BRIDGE.
REMOVE EXISTING LANES AND DETOUR LANES.
NOTCH & WIDEN TO RIGHT FROM STA. 210+50 TO STA. 215+50 AND STA. 240+00 - STA. 241+64.
PLACE FINAL STRIPING.

MAINTENANCE OF TRAFFIC
STAGE 2

7/22/2015
R061084.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.		061084	20	126

(2) MAINTENANCE OF TRAFFIC

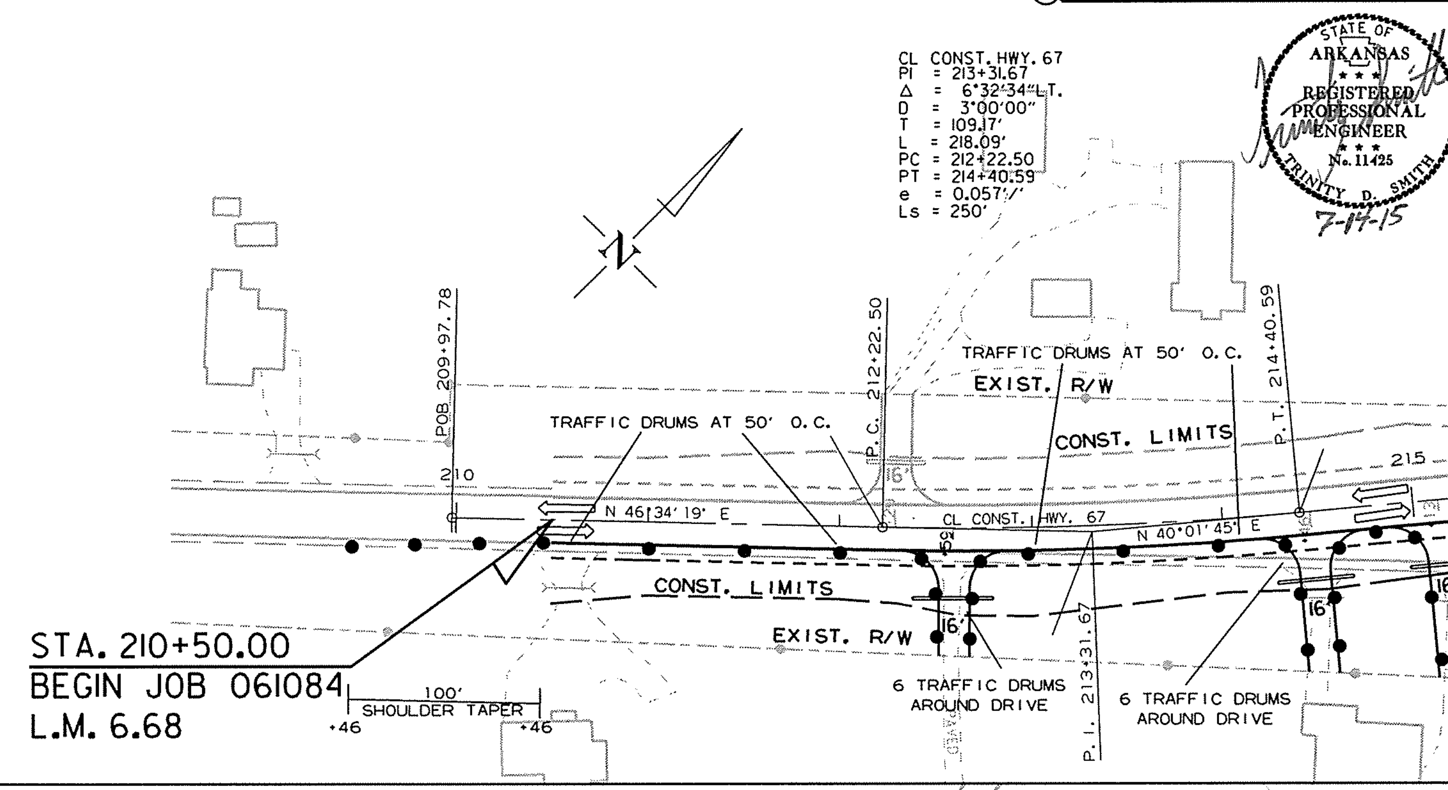
SEQUENCE OF CONSTRUCTION

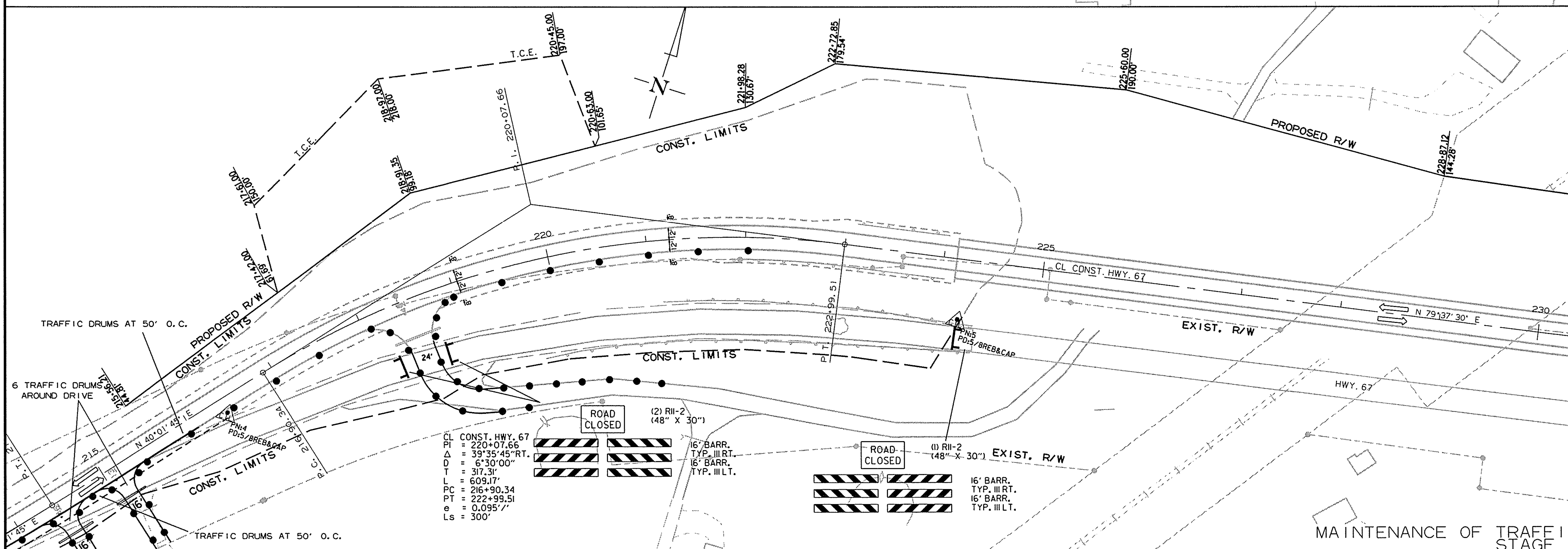
STAGE 1A: MAINTAIN TRAFFIC ON EXISTING LANES.
BEGIN CONSTRUCTION ON BRIDGE OVER RAILROAD.
CONSTRUCT DETOUR FROM DETOUR STA. 403+45 TO DETOUR STA. 406+90.
CONSTRUCT HWY. 51 FROM HWY. 51 STA. 500+00 TO HWY. 51 STA. 505+04.

STAGE 1B: SHIFT HWY. 51 TRAFFIC ON TO LANES CONSTRUCTED IN STAGE 1A.
CONSTRUCT DETOUR FROM DETOUR STA. 400+00 TO STA. 403+45 AND DETOUR STA. 406+90 TO STA. 408+07.

STAGE 2: SHIFT TRAFFIC ON TO THE DETOUR CONSTRUCTED IN STAGE 1.
CONTINUE CONSTRUCTION ON BRIDGE OVER RAILROAD.
NOTCH AND WIDEN ON LEFT FROM STA. 210+50 TO STA. 213+00 AND STA. 240+00 TO STA. 241+64.

STAGE 3: SHIFT TRAFFIC ON TO THE LANES CONSTRUCTED IN STAGE 2.
REMOVE EXISTING BRIDGE.
REMOVE EXISTING LANES AND DETOUR LANES.
NOTCH & WIDEN TO RIGHT FROM STA. 210+50 TO STA. 215+50 AND STA. 240+00 - STA. 241+64.
PLACE FINAL STRIPING.





MAINTENANCE OF TRAFFIC
STAGE 3

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				6	ARK.			
				JOB NO.		061084	21	126

(2) MAINTENANCE OF TRAFFIC

SEQUENCE OF CONSTRUCTION

STAGE 1A: MAINTAIN TRAFFIC ON EXISTING LANES.
BEGIN CONSTRUCTION ON BRIDGE OVER RAILROAD.
CONSTRUCT DETOUR FROM DETOUR STA. 403+45 TO DETOUR STA. 406+90.
CONSTRUCT HWY. 51 FROM HWY. 51 STA. 500+00 TO HWY. 51 STA. 505+04.

STAGE 1B: SHIFT HWY. 51 TRAFFIC ON TO LANES CONSTRUCTED IN STAGE 1A.
CONSTRUCT DETOUR FROM DETOUR STA. 400+00 TO STA. 403+45 AND DETOUR STA. 406+90 TO STA. 408+07.

STAGE 2: SHIFT TRAFFIC ON TO THE DETOUR CONSTRUCTED IN STAGE 1.
CONTINUE CONSTRUCTION ON BRIDGE OVER RAILROAD.
NOTCH AND WIDEN ON LEFT FROM STA. 210+50 TO STA. 213+00 AND STA. 240+00 TO STA. 241+64.

STAGE 3: SHIFT TRAFFIC ON TO THE LANES CONSTRUCTED IN STAGE 2.
REMOVE EXISTING BRIDGE.
REMOVE EXISTING LANES AND DETOUR LANES.
NOTCH & WIDEN TO RIGHT FROM STA. 210+50 TO STA. 215+50 AND STA. 240+00 - STA. 241+64.
PLACE FINAL STRIPING.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15

CL CONST. HWY. 67
PI = 237+74.31
Δ = 16°17'06"LT.
D = 4°00'00"
T = 204.94'
L = 407.12'
PC = 235+69.37
PT = 239+76.49
e = 0.072'/'
Ls = 250'

DETOUR
PI = 404+41.61
Δ = 25°20'01"LT.
D = 13°15'00"
T = 97.19'
L = 191.20'
PC = 403+44.42
PT = 405+35.62
e = 0.100'/'
Ls = 250'

HWY. 51
PI = 504+32.40
Δ = 105°01'50"LT.
D = 57°17'45"
T = 130.39'
L = 183.31'
PC = 503+02.01
PT = 504+85.32
e = R.C.
Ls = 250'

HWY. 51
PI = 501+03.94
Δ = 16°26'54"RT.
D = 24°00'00"
T = 34.50'
L = 68.53'
PC = 500+69.43
PT = 501+37.97
e = 0.100'/'
Ls = 250'

DETOUR
PI = 407+61.90
Δ = 11°15'33"RT.
D = 13°15'00"
T = 44.91'
L = 89.50'
PC = 407+16.98
PT = 408+06.49

STA. 400+00.00
BEGIN DETOUR

STA. 500+00.00
BEGIN HWY. 51

STA. 505+14.50
END HWY. 51

STA. 241+64.00
END JOB 061084

STA. 408+06.49
END DETOUR

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

ROAD CLOSED
(1) R11-2 (48" X 30")
16' BARR. TYP. III RT.
16' BARR. TYP. III LT.

TRAFFIC DRUMS AT 50' O.C.

TRAFFIC DRUMS AT 50' O.C.

PROPOSED R/W

EXIST. R/W
CONST. LIMITS

T.C.E.

HWY. 67

HWY. 51

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MAINTENANCE OF TRAFFIC
STAGE 3

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				6	ARK.			
				JOB NO.		061084	22	126

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-14-15

PERMANENT PAVEMENT MARKING QUANTITIES

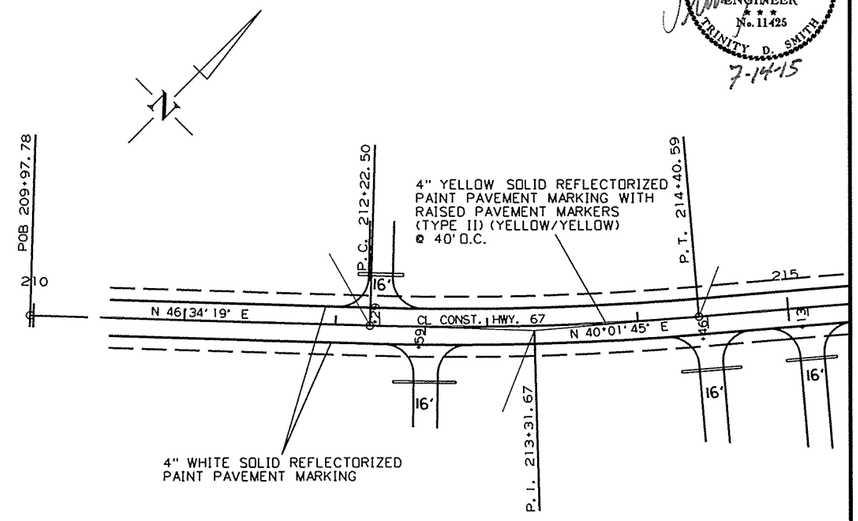
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4") - 7252 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4") - 5917 LIN. FT.
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4") - 1524 LIN. FT.
RAISED PAVEMENT MARKER (TYPE II) (YELLOW/YELLOW) - 78 EACH

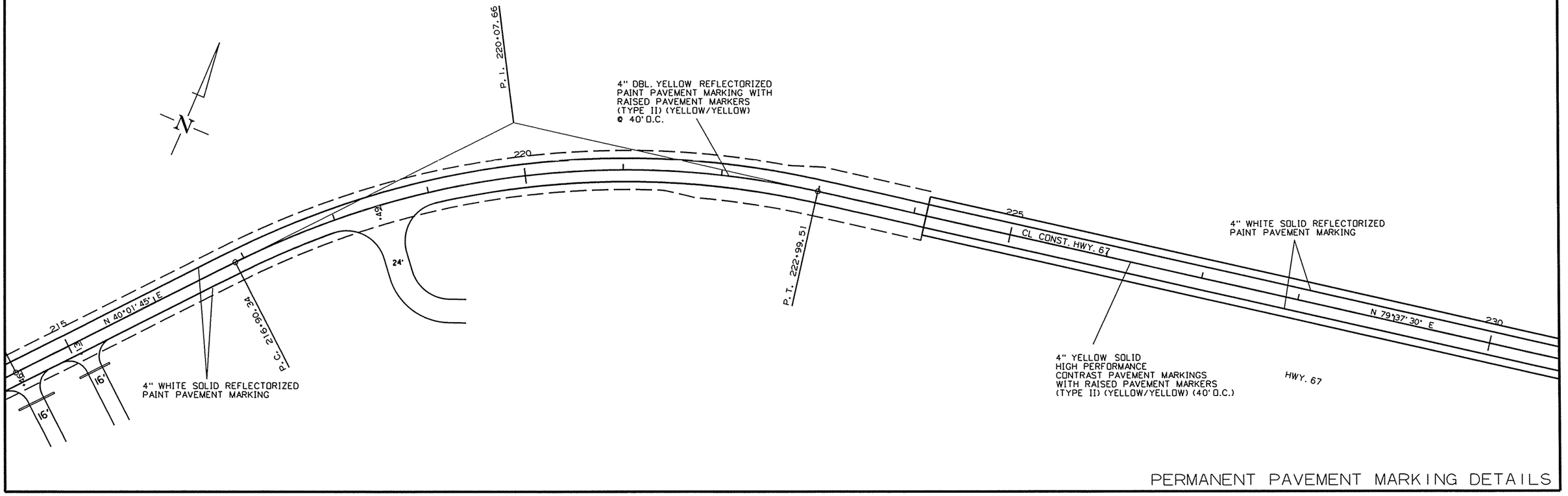
NOTES

THE 4" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW) ARE TO BE PLACED ON THE CENTERLINE AT 40' INTERVALS.

REFER TO THE PERMANENT PAVEMENT MARKING DETAILS, STD. DRWG. PM-1, AND THE LATEST EDITION OF THE MUTCD FOR ADDITIONAL PAVEMENT MARKING DETAILS.





PERMANENT PAVEMENT MARKING DETAILS

7/6/2015

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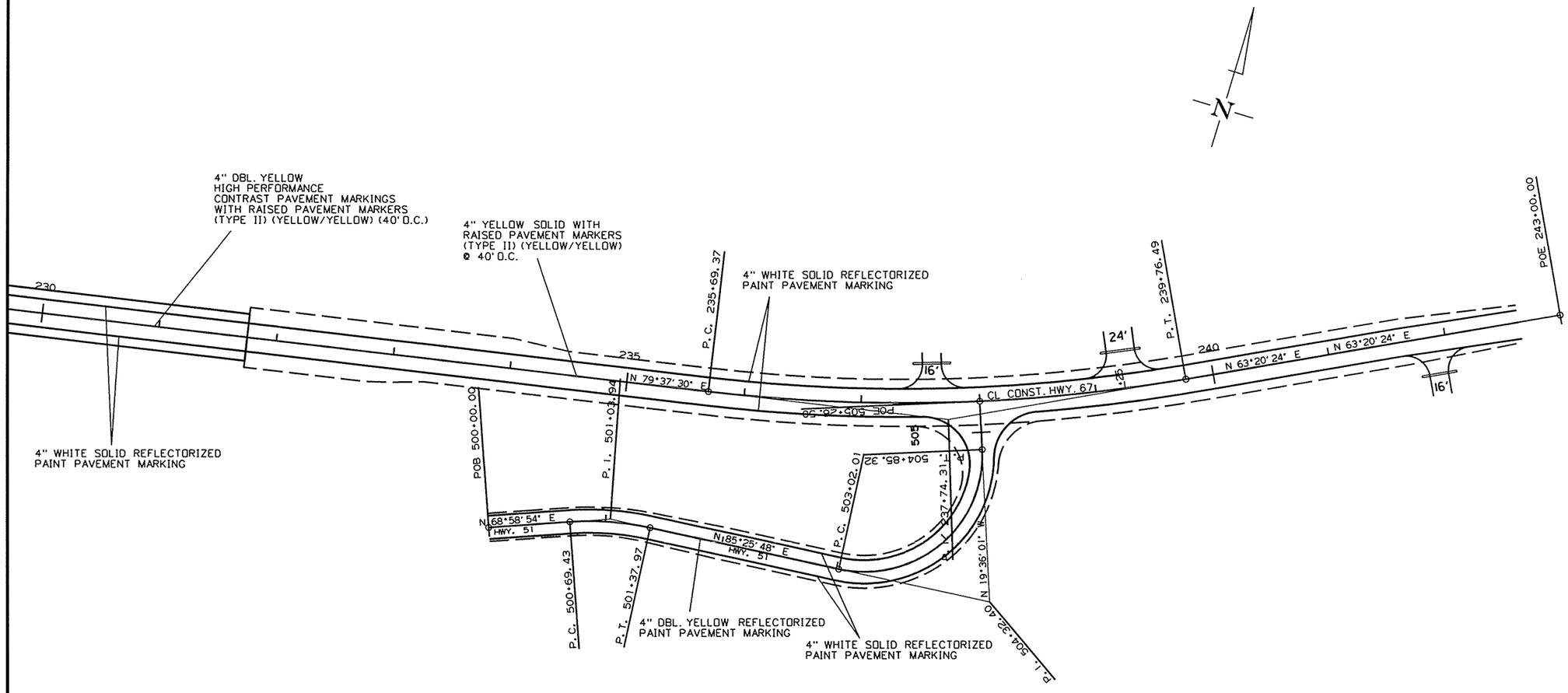
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	23	126

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15



NOTES

THE 4" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW) ARE TO BE PLACED ON THE CENTERLINE AT 40' INTERVALS.

REFER TO THE PERMANENT PAVEMENT MARKING DETAILS, STD. DRWG. PM-1, AND THE LATEST EDITION OF THE MUTCD FOR ADDITIONAL PAVEMENT MARKING DETAILS.

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PERMANENT PAVEMENT MARKING DETAILS

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.		061084	24	126

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-14-15

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
215+00	238+00	HWY. 67	23	23
240+00	242+00	HWY. 67	2	2
TOTALS:			25	25

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
224+12.93	RT. BRIDGE	1
TOTAL:		1

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

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES (TYPE III)	
										RIGHT	LEFT
			LIN. FT. - EACH				NO.	SQ. FT.	EACH	LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	3	3	3	3	3	48.0			
W20-1	ROAD WORK 1000 FT.	48"x48"	3	3	3	3	3	48.0			
W20-1	ROAD WORK 500 FT.	48"x48"	3	3	3	3	3	48.0			
W20-1	ROAD WORK AHEAD	48"x48"	1	1	1	1	1	16.0			
G20-2	END ROAD WORK	48"x24"	4	4	4	4	4	32.0			
R11-2	ROAD CLOSED	48"x30"	5	4	6	6	6	60.0			
W1-6	LARGE ARROW	48"x24"	3	2		3	3	24.0			
R4-1	DO NOT PASS	24"x30"	2	2	2	2	2	10.0			
RSP-1	SHOULDER CLOSED	48"x30"	2	2	2	2	2	20.0			
W8-9a	SHOULDER DROP OFF	36"X36"	2	2	2	2	2	18.0			
	TRAFFIC DRUMS		32	51	112	112			112		
	TYPE III BARRICADE-RT. (8')				1	1				8	
	TYPE III BARRICADE-LT. (8')				1	1					8
	TYPE III BARRICADE-RT. (16')		2	4	5	5				80	
	TYPE III BARRICADE-LT. (16')		2	4	5	5					80
	TYPE III BARRICADE-RT. (24')		1	1		1				24	
	TYPE III BARRICADE-LT. (24')		2	1		2					48
TOTALS:							324.0		112	112	136

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	STAGE 2	END OF JOB	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING		HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
					TYPE II	4"		4"
					(YEL/YEL)	WHITE	YELLOW	YELLOW
	LIN. FT. - EACH			LIN. FT.	EACH	LIN. FT.		LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS	3226	12456		15682				
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)			78		78			
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")			7252			7252		
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")			5917				5917	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")			1524					1524
TOTALS:				15682	78	7252	5917	1524

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

NOTE: THE 4" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT.
THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING.
CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

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				6	ARK.			
				JOB NO.		061084	25	126

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CONCRETE DRIVEWAYS	GUARDRAIL
			SQ. YD.	LIN. FT.
214+46		RT. HWY. 67	38	
219+73	224+37	RT. HWY. 67		426
219+92	224+36	LT. HWY. 67		423
230+52	236+74	LT. HWY. 67		627
230+53	236+70	RT. HWY. 67		623
TOTALS:			38	2099

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
ENTIRE	PROJECT	TO BE USED IF AND WHERE	780.00	520.00
		DIRECTED BY THE ENGINEER.		
TOTAL:				520.00

NOTE: AVERAGE WIDTH = 6'-0"

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
215+63	217+68	LT. HWY. 67	227
230+42	237+80	LT. HWY. 67	860
234+13	240+40	RT. HWY. 67	655
TOTALS:			1742

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	
ENTIRE PROJECT	3	3
TOTALS:	3	3

FLOWABLE SELECT MATERIAL

STATION	LOCATION	CU. YD.
217+50	HWY. 67	15
218+49	HWY. 67 SIDE DRAIN	10
504+84	HWY. 51	16
TOTAL:		41

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
212+10	36" X 18" X 24' ARCH C.M. PIPE CULVERT	1
212+59	18" X 24' R.C. PIPE CULVERT	1
214+48	20" X 12" X 25' ARCH C.M. PIPE CULVERT	1
215+18	20" X 12" X 25' ARCH C.M. PIPE CULVERT	1
TOTAL:		4

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

SELECTED PIPE BEDDING

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

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

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	TERMINAL ANCHOR POST (TYPE 1)
			LIN. FT.	EACH	
221+84.78	224+03.53	RT. SIDE	200	1	1
223+09.78	224+03.53	LT. SIDE	75	1	1
231+84.47	232+78.22	RT. SIDE	75	1	1
231+84.47	234+03.22	LT. SIDE	200	1	1
TOTALS:			550	4	4

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
		FEET				
211+18	5'RT	0-5	ND	NP	A-4 (0)	BROWN
219+30	67'RT	0-5	15	1	A-4 (0)	BROWN
234+63	71'RT	0-5	16	1	A-4 (0)	BR/GR
242+52	4'LT	0-5	ND	NP	A-4 (0)	BR/GR
242+52	9'LT	0-5	24	4	A-4 (0)	BROWN

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

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE D)	* 4' CHAIN LINK FENCE	* 16'-0" GATES
			LIN. FT.		EACH
215+63	217+68	LT. HWY. 67	211		
231+31	237+80	LT. HWY. 67		650	1
234+13	240+40	RT. HWY. 67	733		
TOTALS:			944	650	1

* DENOTES ALTERNATE BID ITEM.

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				6	ARK.			
				JOB NO.		061084	26	126

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15

APPROACH GUTTERS

STATION	STATION	LOCATION	APPROACH GUTTERS (TYPE A)	REINFORCING STEEL-RDWY. (GR. 60)
			CU.YD.	POUND
223+82.93	224+12.93	LT. SIDE	7.55	665
223+82.93	224+12.93	RT. SIDE	7.55	665
231+75.07	232+05.07	LT. SIDE	7.55	665
231+75.07	232+05.07	RT. SIDE	7.55	665
TOTALS:			30.20	2660

NOTE: USE T =15" FOR 8' SHOULDER.

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
210+50.00	211+50.00	MAIN LANES	24.00	266.67
241+64.00	242+64.00	MAIN LANES	24.00	266.67
400+00.00	401+00.00	MAIN LANES - FOR DETOUR	24.00	266.67
407+06.49	408+06.49	MAIN LANES - FOR DETOUR	24.00	266.67
500+00.00	501+00.00	HWY. 51	20.00	222.22
TOTAL:				1288.90

NOTE: AVERAGE MILLING DEPTH 1".

STRUCTURES

STATION	DESCRIPTION	TEMPORARY CULVERT
		18"
		LIN. FT.
217+00	18" X 62' TEMPORARY CULVERT	62
218+49	18" X 48' TEMPORARY CULVERT	48
236+94	18" X 45' TEMPORARY CULVERT	45
238+00	18" X 38' TEMPORARY CULVERT	38
TOTAL:		193

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.

EARTHWORK

	STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
				CU. YD.		TON
	ENTIRE	PROJECT	STAGE 1-MAIN LANES HWY. 67	222	1364	
	ENTIRE	PROJECT	STAGE 2-MAIN LANES HWY. 67	1401	85762	
	ENTIRE	PROJECT	STAGE 3-MAIN LANES HWY. 67	7164	478	
	ENTIRE	PROJECT	APPROACHES	5	655	
			HWY. 51	1056	319	
*	ENTIRE	PROJECT	TO BE USED IF AND WHERE			100
			DIRECTED BY THE ENGINEER			
	TOTALS:			9848	88578	100

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL											
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS	ROCK DITCH CHECKS	SILT FENCE	DIVERSION DITCH	SLOPE DRAIN (E-12) PIPE FOR SLOPE DRAINS	SLOPE DRAIN (E-12) DUMPED RIPRAP	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
											(E-5)	(E-6)	(E-11)	(E-8)					
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING									154		3072				426	426	547
ENTIRE	PROJECT	STAGE 1	0.30	0.60	0.30	30.6	0.30	1.03	1.03	21.0	154	6							9
ENTIRE	PROJECT	STAGE 2	3.01	6.02	3.01	307.0	3.01	8.90	8.90	181.6	418	30	1285	800	225	9			77
ENTIRE	PROJECT	STAGE 3	2.85	5.70	2.85	290.7	2.85	7.04	7.04	143.6	154	9	1119						51
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			1.54	3.08	1.54	157.1	1.54	4.24	4.24	86.5	220	11	1369	200	56	2	107	107	178
TOTALS:			7.70	15.40	7.70	785.4	7.70	21.21	21.21	432.7	1100	56	6845	1000	281	11	533	533	862

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
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.

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

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				6	ARK.			
				JOB NO.		061084	27	126

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS	
							18"	24"
			FEET	SQ. YD.	TON	TON	LIN. FT.	
212+29	LT.	HWY. 67	16	24.73	2.72	45.27		30
212+59	RT.	HWY. 67	16	24.73	2.72	43.31	42	
214+46	RT.	HWY. 67	16	24.73	2.72	59.32	40	
215+13	RT.	HWY. 67	16	24.73	2.72	67.82	34	
218+49	RT.	PINE ST.	24	393.87	43.33	206.78	42	
237+60	LT.	HWY. 67	16	24.73	2.72	19.53	32	
239+25	LT.	HWY. 67	24	35.38	3.89	40.07	34	
241+90	RT.	HWY. 67	16	24.73	2.72	26.20	30	
* ENTIRE PROJECT TEMPORARY DRIVES						50.00		
TOTALS:				577.63	63.54	558.30	254	30

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

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

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	15	30
DIRECTED BY THE ENGINEER		
TOTALS:	15	30

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

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON
MAIN LANES - HWY. 67																					
210+50.00	213+00.00	NOTCH & WIDEN ON LT. & RT.	250.00	165.00	412.50	24.00	666.67	0.10	66.67									40.00	1111.11	220.00	122.22
213+00.00	215+50.00	NOTCH & WIDEN ON LT. & GRADE RAISE ON RT.	250.00	123.75	309.38	24.00	666.67	0.03	20.00					12.00	333.33	330.00	55.00	40.00	1111.11	220.00	122.22
215+50.00	224+12.93	FULL DEPTH	862.93	320.50	2765.69	24.29	2328.95	0.03	69.87					24.29	2328.95	330.00	384.28	40.00	3835.24	220.00	421.88
231+75.07	240+00.00	FULL DEPTH	824.93	320.50	2643.90	24.29	2226.39	0.03	66.79					24.29	2226.39	330.00	367.35	40.00	3666.36	220.00	403.30
240+00.00	241+64.00	NOTCH & WIDEN ON LT. & RT.	164.00	165.00	270.60	24.00	437.33	0.03	13.12									40.00	728.89	220.00	80.18
241+64.00	242+64.00	TRANSITION	100.00			24.00	266.67	0.10	26.67									36.00	400.00	220.00	44.00
HWY. 51																					
500+00.00	501+00.00	TRANSITION	100.00	40.25	40.25	20.00	222.22	0.03	6.67									24.00	266.67	330.00	44.00
501+00.00	501+75.00	GRADE RAISE ON LT. AND NOTCH & WIDEN ON RT.	75.00	60.38	45.29	48.00	400.00	0.03	12.00									28.00	233.33	330.00	38.50
502+00.00	504+12.00	FULL DEPTH	212.00	194.75	412.87	28.00	659.56	0.03	19.79									28.00	659.56	330.00	108.83
504+12.00	505+14.50	TURN OUT	102.50	VAR.	303.27	VAR.	577.66	0.03	17.33									VAR.	577.66	330.00	95.31
DETOUR																					
400+00.00	401+00.00	TRANSITION	100.00															28.00	311.11	220.00	34.22
401+00.00	403+00.00	NOTCH & WIDEN ON LT.	200.00	33.38	66.76	24.00	533.33	0.03	16.00					24.00	533.33	330.00	88.00	28.00	622.22	220.00	68.44
403+00.00	408+06.49	FULL DEPTH	506.49	138.25	700.22	24.29	1366.96	0.03	41.01					24.29	1366.96	330.00	225.55	28.00	1575.75	220.00	173.33
ADDITIONAL FOR GRADE RAISE AND LEVELING																					
211+50.00	214+00.00	LEVELING	250.00											24.00	666.67	990.00	330.00	24.00	666.67	220.00	73.33
214+00.00	215+22.00	GRADE RAISE	122.00							9.00	122.00	1870.00	114.07								
240+00.00	241+64.00	LEVELING	164.00											24.00	437.33	440.00	96.21	24.00	437.33	220.00	48.11
ADDITIONAL FOR SUPERELEVATION - HWY. 67																					
210+50.00	213+00.00	SUPER TRANSITION (N.C. TO 0.057 '/')	250.00	33.64	84.10																
213+00.00	213+35.00	SUPER (0.057 '/')	35.00	67.27	23.54																
213+35.00	215+85.00	SUPER TRANSITION (0.057 '/' TO N.C.)	250.00	33.64	84.10																
215+85.00	218+85.00	SUPER TRANSITION (N.C. TO 0.095 '/')	300.00	52.60	157.80																
218+85.00	221+00.00	SUPER (0.095 '/')	215.00	105.19	226.16																
221+00.00	224+00.00	SUPER TRANSITION (0.095 '/' TO N.C.)	300.00	52.60	157.80																
233+84.09	236+34.09	SUPER TRANSITION (N.C. TO 0.072 '/')	250.00	40.74	101.85																
236+34.09	239+13.00	SUPER (0.072'/')	278.91	81.47	227.23																
239+13.00	241+63.00	SUPER TRANSITION (0.072 '/' TO N.C.)	250.00	40.74	101.85																
ADDITIONAL FOR SUPERELEVATION - HWY. 51																					
500+00.00	501+03.70	SUPER TRANSITION (N.C. TO 0.041 '/')	103.70	3.48	3.61																
501+03.70	502+07.40	SUPER TRANSITION (0.041 '/' TO N.C.)	103.70	3.48	3.61																
502+87.33	503+93.67	SUPER TRANSITION (N.C. TO R.C.)	106.34	0.27	0.29																
503+93.67	505+00.00	SUPER TRANSITION (R.C. TO N.C.)	106.33	0.27	0.29																
ADDITIONAL FOR SUPERELEVATION - DETOUR																					
401+56.92	404+06.92	SUPER TRANSITION (N.C. TO 0.100 '/')	250.00	2.39	5.98																
404+06.92	404+66.98	SUPER (0.100 '/')	60.06	4.77	2.86																
404+66.98	407+16.98	SUPER TRANSITION (0.100'/' TO N.C.)	250.00	2.39	5.98																
TOTALS:					9157.78		10352.41		375.92		122.00		114.07		7892.96		1546.39		16203.01		1877.87

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.4% MIN. AGGR.....5.6% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.2% MIN. AGGR.....4.8% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....95.8% MIN. AGGR.....4.2% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

7/22/2015

R061084.DGN

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.		061084	28	120
① 07319 - QUANTITIES - 56291				

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 061084

BRIDGE NO. 07319
CODE NO. X571
NAME PLATE TITLE: UPRR & PINE STREET

UNIT OF STRUCTURE	ITEM NO.	205	619	801	802	802	803	804	804	805	805	SP & 807	SP & 807	808	809	812	816	816
	ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	7' STEEL CHAIN LINK FENCE	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	①CONCRETE PILING (18" SQ.)	①TEST PILE (18" SQ.)	STRUCTURAL STEEL IN BEAM SPANS (M270, GR. 50W)	STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, GR. 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP
	UNIT	LUMP SUM	LIN. FT.	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LB.	LB.	CU. IN.	LIN. FT.	EACH	SQ. YD.	CU. YD.
BENT NO. 1					38.40		0.3	4,238		240	65	765		2,610.0	43		1,080	565
BENT NO. 2				182	143.70			20,755		1,035	50			3,412.5				
BENT NO. 3				146	122.40			19,860		720				5,220.0				
BENT NO. 4				216	328.70			35,513		1,170	50			3,900.0				
BENT NO. 5				242	192.20			29,725		1,040	45			3,900.0				
BENT NO. 6				165	121.80			19,328		765	50			3,670.3				
BENT NO. 7				164	112.50			18,036		900				2,030.0			840	440
BENT NO. 8					31.00		0.3	3,525		240	65	765		1,060.2	43			
240' CONT. COMPOSITE PLATE GIRDER UNIT						314.55	24.9		70,375				343,810			1		
380' CONT. COMPOSITE PLATE GIRDER UNIT			440			496.45	39.3		115,740				629,300					
140' CONT. COMPOSITE W-BEAM UNIT						183.00	14.5		40,865			160,470						
EXISTING BRIDGE NO. 01465		1																
TOTALS FOR JOB NO. 061084		1	440	1,115	1,090.70	994.00	79.3	150,980	226,980	6,110	325	162,000	973,110	25,803.0	86	1	1,920	1,005

① All concrete piling shall be prestressed conforming to Std. Dwg. No. 55022.

JIM TRIBO
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
UPRR & PINE ST. STR. & APPRS.
(DONALDSON) (S)
HOT SPRING COUNTY
ROUTE 67 SEC. 7
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 8/27/2014 FILENAME: b061084_ql.dgn
CHECKED BY: JCT DATE: 12/3/14 SCALE: NONE
DESIGNED BY: — DATE: —
BRIDGE NO. 07319 DRAWING NO. 56291

PRINT DATE: 12/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
12-21-15				6	ARK.			
				JOB NO.		061084	29	126

(2) SUMMARY OF QUANTITIES & REVISIONS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-21-15

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		25	STATION
201	GRUBBING		25	STATION
202	REMOVAL AND DISPOSAL OF FENCE		1742	LIN. FT.
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS		38	SQ. YD.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		4	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL		2099	LIN. FT.
206	FLOWABLE SELECT MATERIAL		41	CU. YD.
210	UNCLASSIFIED EXCAVATION		9848	CU. YD.
210	COMPACTED EMBANKMENT		88578	CU. YD.
SP & 210	SOIL STABILIZATION		100	TON
303	AGGREGATE BASE COURSE (CLASS 7)		9716	TON
SS & 401	TACK COAT		406	GAL.
SP & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")		109	TON
SP & 405	ASPHALT BINDER (PG 64-22) IN ACHM BASE COURSE (1 1/2")		5	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		1472	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		74	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		1832	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		109	TON
412	COLD MILLING ASPHALT PAVEMENT		1289	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		15	TON
504	APPROACH GUTTERS		30.20	CU. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
603	18" TEMPORARY CULVERT		193	LIN. FT.
SS & 604	SIGNS		324	SQ. FT.
SS & 604	BARRICADES		248	LIN. FT.
SS & 604	TRAFFIC DRUMS		112	EACH
604	CONSTRUCTION PAVEMENT MARKINGS		15682	LIN. FT.
SP, SS, & 606	18" SIDE DRAIN		254	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN		30	LIN. FT.
606	SELECTED PIPE BEDDING		50	CU. YD.
617	GUARDRAIL (TYPE A)		550	LIN. FT.
617	TERMINAL ANCHOR POSTS (TYPE 1)		4	EACH
617	THRIE BEAM GUARDRAIL TERMINAL		4	EACH
619	WIRE FENCE (TYPE D)		944	LIN. FT.
* 619	4' STEEL CHAIN LINK FENCE	(ALTERNATE NO. 1)	650	LIN. FT.
* 619	4' ALUMINUM CHAIN LINK FENCE	(ALTERNATE NO. 2)	650	LIN. FT.
* 619	16' STEEL GATES	(ALTERNATE NO. 1)	1	EACH
* 619	16' ALUMINUM GATES	(ALTERNATE NO. 2)	1	EACH
620	LIME		15	TON
620	SEEDING		7.70	ACRE
SS & 620	MULCH COVER		28.91	ACRE
620	WATER		1218.1	M.GAL.
621	TEMPORARY SEEDING		21.21	ACRE
621	SILT FENCE		6845	LIN. FT.
621	SAND BAG DITCH CHECKS		1100	BAG
621	DIVERSION DITCH		1000	LIN. FT.
621	SEDIMENT BASIN		533	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		533	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		862	CU. YD.
621	PIPE FOR SLOPE DRAINS		281	LIN. FT.
621	ROCK DITCH CHECKS		56	CU. YD.
623	SECOND SEEDING APPLICATION		7.70	ACRE
626	EROSION CONTROL MATTING (CLASS 3)		520	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
637	MAILBOXES		3	EACH
637	MAILBOX SUPPORTS (SINGLE)		3	EACH
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")		7252	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")		5917	LIN. FT.
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	(ALTERNATE NO. 1)	1524	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	(ALTERNATE NO. 2)	1524	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)		78	EACH
804	REINFORCING STEEL-ROADWAY (GRADE 60)		2660	POUND
816	DUMPED RIPRAP		11	CU. YD.
	STRUCTURES OVER 20' SPAN			
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)		1.00	LUMP SUM
619	7' STEEL CHAIN LINK FENCE		440	LIN. FT.
636	BRIDGE CONSTRUCTION CONTROL		1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE		1115	CU. YD.
802	CLASS S CONCRETE-BRIDGE		1090.70	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE		994.00	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT		79.3	GAL.
804	REINFORCING STEEL-BRIDGE (GRADE 60)		150980	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)		226980	POUND
805	CONCRETE PILING (18" SQUARE)		6110	LIN. FT.
805	TEST PILE (18" SQUARE)		325	LIN. FT.
SP & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)		162000	POUND
SP & 807	STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270-GR50W)		973110	POUND
808	ELASTOMERIC BEARINGS		25803.0	CU. IN.
809	SILICONE JOINT SEALANT		86	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)		1	EACH
816	FILTER BLANKET		1920	SQ. YD.
816	DUMPED RIPRAP		1005	CU. YD.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
12/21/2015	REVISED HIGH PERFORMANCE PAVEMENT MARKING SPECIAL PROVISION	29

7/22/2015

R061084.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.		061084	30	126

(2) SURVEY CONTROL DETAILS

CTLRVEY CONTROL COORDINATES

Project Name: s061084.alg
Date: 1/12/2012
Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL,
PROJECTED TO GROUND.
Units: U.S. CTLRVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	1884650.9334	1030780.0946	222.311	CTL	5/8" Rebar with 2" Aluminum Cap
2	1885494.6678	1032459.8696	221.317	CTL	5/8" Rebar with 2" Aluminum Cap
3	1885218.3905	1033307.1203	228.523	CTL	5/8" Rebar with 2" Aluminum Cap
4	1886318.3606	1033278.6957	225.187	CTL	5/8" Rebar with 2" Aluminum Cap
5	1886629.4238	1033946.1472	245.342	CTL	5/8" Rebar with 2" Aluminum Cap
6	1886749.3610	1034588.7240	245.146	CTL	5/8" Rebar with 2" Aluminum Cap
7	1886956.8340	1035414.8262	224.649	CTL	5/8" Rebar with 2" Aluminum Cap
8	1887290.2284	1036020.4008	230.926	CTL	5/8" Rebar with 2" Aluminum Cap
9	1886394.3738	1034210.7781	224.316	CTL	CPS
100	1884529.5879	1029904.1461	219.770	CTL	GPS MON. 300006
101	1884285.9519	1028163.0054	219.350	CTL	GPS MON 300006A
900	1885869.1891	1033809.9100	225.704	BM	PP
901	1885391.5620	1032831.4599	223.588	BM	WOOD
902	1885104.4603	1031615.3953	222.491	BM	ASPH HWY
903	1884554.4900	1030290.0293	222.040	BM	W. SIDE W. LANE HWY 67
904	1884422.6277	1029024.5845	222.475	BM	ASPH SHDLR
905	1888031.2000	1035399.5997	223.576	BM	24IN. PINE
980	1885262.1369	1033198.8575	229.610	BM	NGS POINT BM
981	1885562.1627	1022367.9260	237.000	BM	NGS POINT D 152 RESET
982	1877421.4626	1027838.3965	216.400	BM	NGS POINT M 152
983	1897758.2116	1026263.2610	315.940	BM	NGS POINT A 152
984	1892342.7458	1021427.8451	264.950	BM	NGS POINT B 152
990	1886762.2659	1034468.9667	224.720	BM	NGS POINT K 152
1000	1885513.5028	1032392.5922	220.222	CTL	5/8" Rebar with 2" Aluminum Cap
1001	1884632.0500	1030742.4197	222.220	CTL	5/8" Rebar with 2" Aluminum Cap

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT
A PROJECT CAF OF 0.9999139977 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. s061084gi.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 - 0302-SOUTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 300006 - 300006A
CONVERGENCE ANGLE: 00-30-52.01 LEFT AT LT: 34-14-27.64136N LG: 092-55-08.99042W
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

CL CONST HWY. 67

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	209+97.78	1885862.8758	1032826.6945
8002	PC	212+22.50	1886017.3587	1032989.8956
8004	PT	214+40.59	1886175.9933	1033139.3882
8005	PC	216+90.34	1886367.2315	1033300.0220
8007	PT	222+99.51	1886667.3489	1033816.2355
8008	PC	235+69.37	1886896.0399	1035065.3322
8010	PT	239+76.49	1887024.9050	1035450.0780
8001	POE	243+00.00	1887170.0617	1035739.1930

DETOUR

POINT NO.	TYPE	STATION	NORTHING	EASTING
8011	POB	400+00.00	1886795.3066	1034911.5906
8012	PC	403+44.42	1886873.8708	1035246.9343
8014	PT	405+35.62	1886956.5657	1035417.5992
8015	PC	407+16.98	1887069.5132	1035559.4963
8017	PT	408+06.49	1887117.6351	1035634.7727
8001	POE	409+23.33	1887170.0617	1035739.1930

HWY. 51

POINT NO.	TYPE	STATION	NORTHING	EASTING
8018	POB	500+00.00	1886730.5019	1034920.5132
8019	PC	500+69.43	1886755.4056	1034985.3280
8021	PT	501+37.97	1886770.5304	1035051.9320
8022	PC	503+02.01	1886783.6004	1035215.4519
8024	PT	504+85.32	1886916.8282	1035301.6899
8025	POE	505+26.50	1886955.6194	1035287.8767

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-14-15

7/6/2015
R061084.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.		061084	31	126

(2) SURVEY CONTROL DETAILS

CL CONST. HWY. 67
PI = 213+31.67
Δ = 6°32'34"LT.
D = 3°00'00"
T = 109.17'
L = 218.09'
PC = 212+22.50
PT = 214+40.59

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-14-15

PN1000 PD:5/8REB.W

PN2 PD:5/8REB.W CAP

SURVEY BASELINE

SURVEY BASELINE N 44°49'49" E
1161.44'

POB 209+97.78

210

8000

CL CONST. HWY. 67

N 46°34' 19" E
224.72'

P.C. 212+22.50

8002

N 40°01' 45" E
249.75'

P.T. 214+40.59

8004

215

P.I. 213+31.67

STA. 210+50.00
BEGIN JOB 061084
L.M. 6.68

P.I. 220+07.66

220

8007

8005

N 40°01' 45" E
249.75'

215

8004

PN4 PD:5/8REB&CAP

P.C. 216+90.34

SURVEY BASELINE N 65°00'44" E
736.38'

SURVEY BASELINE

P.T. 222+99.51

PN5 PD:5/8REB&CAP

225

CL CONST. HWY. 67

N 79°37' 30" E
1269.86'

230

SURVEY BASELINE N 79°25'39" E
653.67'

BM PN990 PD:NAIL POINT K 152

CL CONST. HWY. 67
PI = 220+07.66
Δ = 39°35'45"RT.
D = 6°30'00"
T = 317.31'
L = 609.17'
PC = 216+90.34
PT = 222+99.51

7/6/2015

R061084.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	32	126

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-14-15

N

CL CONST. HWY. 67
PI = 237+74.31
Δ = 16°17'06"LT.
D = 4°00'00"
T = 204.94'
L = 407.12'
PC = 235+69.37
PT = 239+76.49

DETOUR
PI = 404+41.61
Δ = 25°20'01"LT.
D = 13°15'00"
T = 97.19'
L = 191.20'
PC = 403+44.42
PT = 405+35.62

HWY. 51
PI = 504+32.40
Δ = 105°01'50"LT.
D = 57°17'45"
T = 130.39'
L = 183.31'
PC = 503+02.01
PT = 504+85.32

HWY. 51
PI = 501+03.94
Δ = 16°26'54"RT.
D = 24°00'00"
T = 34.50'
L = 68.53'
PC = 500+69.43
PT = 501+37.97

DETOUR
PI = 407+61.90
Δ = 11°15'33"RT.
D = 13°15'00"
T = 44.91'
L = 89.50'
PC = 407+16.98
PT = 408+06.49

STA. 241+64.00
END JOB 061084

STA. 238+00.00 CL CONST. HWY. 67 =
STA. 505+26.50 HWY. 51 CL
Δ = 90°00'00"

7/6/2015

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SURVEY CONTROL DETAILS

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.		061084	33	126

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
7-16-15

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
215+63	217+68	LT.	D	211

PI = 213+31.67
Δ = 6°32'34"LT.
D = 3°00'00"
T = 109.17'
L = 218.09'
PC = 212+22.50
PT = 214+40.59
e = 0.057'/'
Ls = 250'

STA. 212+10 IN PLACE
36" X 18" X 24" ARCH C.M.
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL ø+29
24" X 30" PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 55 CU. YDS.

SPECIAL FLOOD HAZARD AREA

STA. 217+50 - CONSTRUCT
18" X 76' TEMPORARY
PIPE CULVERT CROSS DRAIN
FILL AND ABANDON USING
15 CU. YD. FLOWABLE
SELECT MATERIAL

POB 209+97.78
P.C. 212+22.50
P.I. 213+31.67
P.T. 214+40.59
215+56.21 44.81'
217+42.00 61.69'
217+61.00 150.00'
218+97.00 218.00'
218+91.35 99.18'
P.I. 220+07.66
220+61.66

EXIST. R/W
CONST. LIMITS
PROPOSED R/W
CONST. LIMITS
T.C.E.
POND
N 46°34' 19" E
CL CONST. HWY. 67
N 40°01'45" E
N 79°37'30" E
CONST. LIMITS
EXIST. R/W
CONST. LIMITS
16'
215'
220'
40' R
24'
PINE STREET

STA. 210+50.00
BEGIN JOB 061084
L.M. 6.68

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

SPECIAL FLOOD HAZARD AREA
+50 100' TRANSITION +50

STA. 212+59 IN PLACE
18" X 24" C.M.
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 42' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 95 CU. YDS.

STA. 214+48 IN PLACE
20" X 12" X 25' ARCH C.M.
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL ø+46
18" X 40' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 125 CU. YDS.

STA. 218+49 - CONSTRUCT
18" X 48' TEMPORARY
PIPE CULVERT RT. SIDE DRAIN
FILL AND ABANDON USING
10 CU. YD. FLOWABLE
SELECT MATERIAL

PI = 220+07.66
Δ = 39°35'45"RT.
D = 6°30'00"
T = 317.31'
L = 609.17'
PC = 216+90.34
PT = 222+99.51
e = 0.095'/'
Ls = 300'

STA. 218+49 CONSTRUCT
APPROACH ON RT. = 195 CU. YDS.
UNCLASSIFIED EXCAVATION = 5 CU. YDS.

HWY. 67

FLOODPLAIN LIMITS +50 +00

STA. 210+50.00 BEGIN SUPERELEVATION
STA. 213+00.00 MAX. SUPERELEVATION (0.057 FT./FT.)
STA. 213+35.00 MAX. SUPERELEVATION (0.057 FT./FT.)
STA. 215+85.00 END SUPERELEVATION

STA. 215+18 IN PLACE
20" X 12" X 24" ARCH C.M.
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL ø+13
18" X 34' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 110 CU. YDS.

STA. 215+85.00 BEGIN SUPERELEVATION
STA. 218+85.00 MAX. SUPERELEVATION (0.095 FT./FT.)
STA. 221+00.00 MAX. SUPERELEVATION (0.095 FT./FT.)
STA. 224+00.00 END SUPERELEVATION

P.V.I. 210+00.00
ELEV. 222.82
P.V.C. 215+73.28
ELEV. 226.36
P.V.T. 218+33.28
ELEV. 231.45
K = 96.88
VC=260'
e=0.87'
3.30%
0.62%
RT. DITCH GRADE 0.55%
RT. DITCH GRADE 0.63%
LT. DITCH GRADE 0.21%
TEMP. INLET F.L. = 224.42
TEMP. OUTLET F.L. = 221.31

210+50.00 219.58 LT.
210+50.00 219.75 RT.
213+00.00 221.12 RT.
215+50.00 220.64 LT.
216+00.00 223.01 RT.
217+03.28 P.V.I. ELEV. 227.16

290 280 270 260 250 240 230 220 210 200

205+00 206+00 207+00 208+00 209+00 210+00 211+00 212+00 213+00 214+00 215+00 216+00 217+00 218+00 219+00 220+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	34	126

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15

4' CHAIN LINK FENCE

STA.	STA.	SIDE	LIN. FT.	16' GATE EA.
231+31	237+80	LT.	650	1

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
234+13	240+40	RT.	D	733

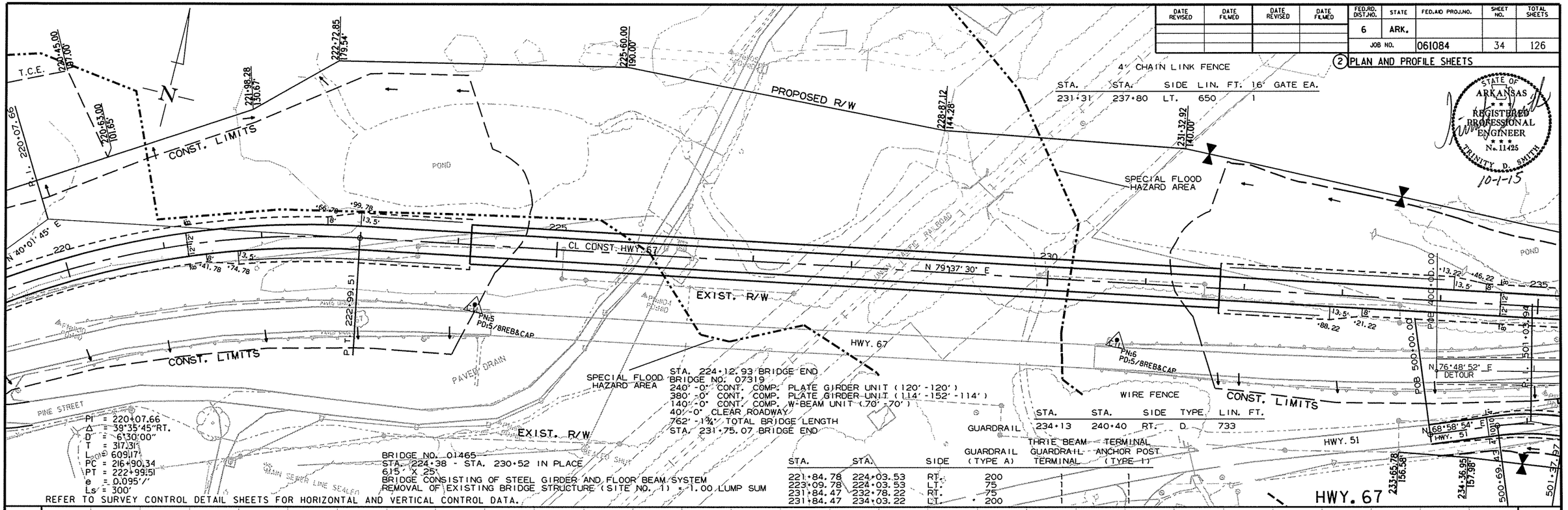
PI = 220+07.66
Δ = 38°35'45"RT.
D = 6°30'00"
T = 317.31'
L (ARC) = 609.17'
PC = 216+90.34
PT = 222+99.51
e = 0.095'/'
Ls = 300'

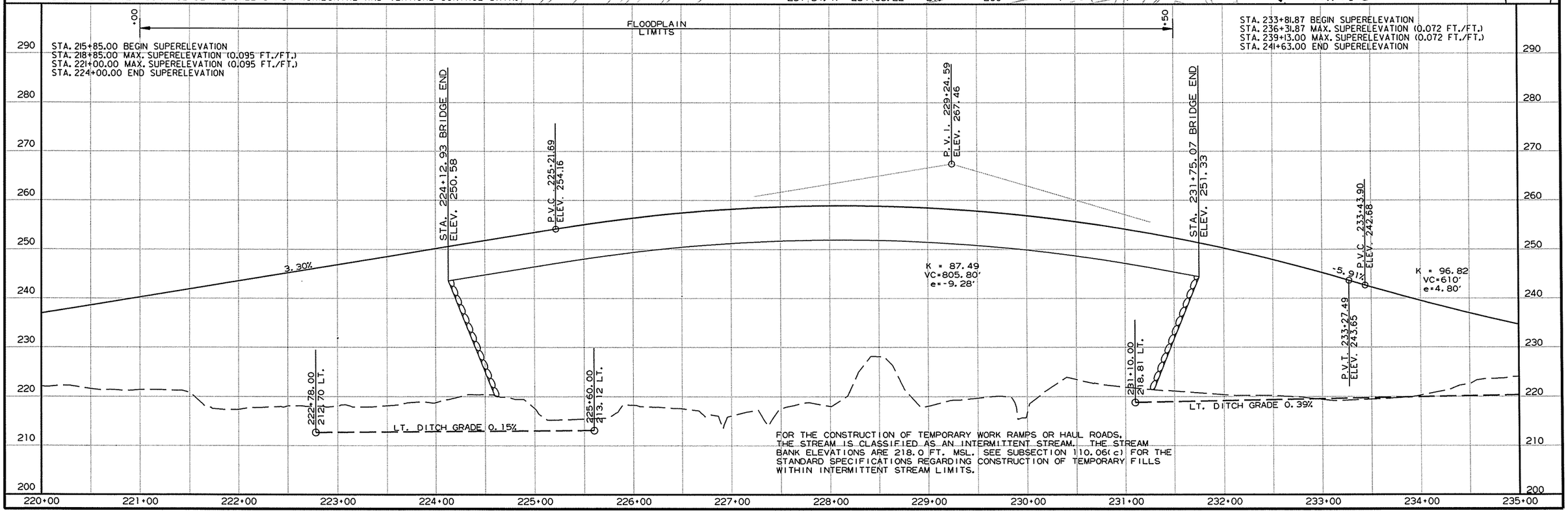
REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

BRIDGE NO. 01465
STA. 224+38 - STA. 230+52 IN PLACE
6.15' X 25'
BRIDGE CONSISTING OF STEEL GIRDER AND FLOOR BEAM SYSTEM
REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1) - 1.00 LUMP SUM

STA. 224+12.93 BRIDGE END
BRIDGE NO. 07319
240'-0" CONT. COMP. PLATE GIRDER UNIT (120'-120')
380'-0" CONT. COMP. PLATE GIRDER UNIT (114'-152'-114')
140'-0" CONT. COMP. W-BEAM UNIT (70'-70')
40'-0" CLEAR ROADWAY
762'-1¾" TOTAL BRIDGE LENGTH
STA. 231+75.07 BRIDGE END

	STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	TERMINAL ANCHOR POST (TYPE 1)
GUARDRAIL	221+84.78	224+03.53	RT.	200	1	1
	223+09.78	224+03.53	LT.	75	1	1
	231+84.47	232+78.22	RT.	75	1	1
	231+84.47	234+03.22	LT.	200	1	1





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				6	ARK.			
				JOB NO.		061084	35	126

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15

4' CHAIN LINK FENCE

STA.	STA.	SIDE	LIN. FT.	16' GATE EA.
231+31	237+80	LT.	650	1

STA. 237+60 INSTALL
18" X 32' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YDS.

PI = 237+74.31
Δ = 16°17'06"LT.
D = 4°00'00"
T = 204.94'
L = 407.12'
PC = 235+69.37
PT = 239+76.49
e = 0.072'/'
Ls = 250'

STA. 239+25 INSTALL
18" X 34' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YDS.

+64 100' TRANSITION +64

POND
PROPOSED R/W
P.C. 235+69.37
235+70.40 49.07'
237+59.73 41.81'
238+06.98 47.46'
EXIST. R/W
CONST. LIMITS
24'
16'
CL CONST. HWY. 67
P.T. 239+76.49
P.I. 407+61.90
POE 243+00.00
POE 409+23.33
N 79°37'30" E
N 63°20'24" E
DETOUR
N 76°48'52" E
N 51°26'51" E
60' R/W
54' R/W
25' R/W
HWY. 51
N 85°25'48" E
P.C. 503+00.32
P.I. 504+32.40
P.I. 404+41.61
P.C. 407+16.98
P.T. 408+06.49
238+50.00 53.79'
238+50.00 106.63'
237+37.51 180.74'
T.C.E.
PNB PDIS/BREB&CAP
EXIST. R/W
CONST. LIMITS
16'
HWY. 51
STA. 504+84 CONSTRUCT
18" X 82' TEMPORARY
PIPE CULVERT CROSS DRAIN
FILL AND ABANDON USING
16 CU. YD. FLOWABLE
SELECT MATERIAL
240+46.66 49.11'

STA. 238+00.00 CL CONST. HWY. 67 =
STA. 505+26.50 HWY. 51 CL
Δ = 90°00'00"

DETOUR
STA. 403+00 CONSTRUCT
18" X 45' TEMPORARY
PIPE CULVERT CROSS DRAIN

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

STA. 241+64.00
END JOB 061084

STA. 241+90 IN PLACE
15" X 24' C.M.
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND INSTALL
18" X 30' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 25 CU. YDS.

PAVED PARKING
CONCRETE
PARKING
PNB PDIS/BREB&CAP

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
234+13	240+40	RT.	D	733

HWY. 67

STA. 233+81.87 BEGIN SUPERELEVATION
STA. 236+31.87 MAX. SUPERELEVATION (0.072 FT./FT.)
STA. 239+13.00 MAX. SUPERELEVATION (0.072 FT./FT.)
STA. 241+63.00 END SUPERELEVATION

K = 96.82
VC=610'
e=4.80'

P.V.T. 239+53.90
ELEV. 225.84

0.39%
LT. D.G. 0.39%
LT. DITCH GRADE 0.01%

235+50.00 220.52 LT.
235+59.00 221.93 LT.
P.V.T. 236+48.00
ELEV. 224.65
239+00.00 221.96 LT.

270 260 250 240 230 220 210 200 190 180

235+00 236+00 237+00 238+00 239+00 240+00 241+00 242+00 243+00 244+00 245+00 246+00 247+00 248+00 249+00 250+00

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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.	061084		36	126

(2) PLAN AND PROFILE SHEETS - HWY. 51

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15

STA. 238+00.00 CL CONST. HWY. 67 =
STA. 505+26.50 HWY. 51 CL
Δ = 90°00'00"

PI = 504+32.40
Δ = 105°01'50"LT.
D = 57°17'45"
T = 130.39'
L = 183.31'
PC = 503+02.01
PT = 504+85.32
e = R.C.
Ls = 250'

PI = 501+03.94
Δ = 16°26'54"RT.
D = 24°00'00"
T = 34.50'
L = 68.53'
PC = 500+69.43
PT = 501+37.97
e = 0.100'/'
Ls = 250'

HWY. 51
STA. 504+84 CONSTRUCT
18" X 82' TEMPORARY
PIPE CULVERT CROSS DRAIN
FILL AND ABANDON USING
16 CU. YD. FLOWABLE
SELECT MATERIAL

STA. 500+00.00
BEGIN HWY. 51

STA. 505+14.50
END HWY. 51

HWY. 51

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

STA. 500+00.00 BEGIN SUPERELEVATION
STA. 501+03.70 MAX. SUPERELEVATION (0.041FT./FT.)
STA. 501+03.70 MAX. SUPERELEVATION (0.041FT./FT.)
STA. 502+07.40 END SUPERELEVATION

STA. 502+87.33 BEGIN SUPERELEVATION
STA. 503+93.67 MAX. SUPERELEVATION (0.020 FT./FT.)
STA. 503+93.67 MAX. SUPERELEVATION (0.020 FT./FT.)
STA. 505+00.00 END SUPERELEVATION

P.V.I. 500+00.00 ELEV. 223.32
P.V.C. 500+25.06 ELEV. 223.29
-0.12%
K = 127.48 VC-150' e-0.22'
501+00.00 220.70 RT. P.V.I. 501+00.00 ELEV. 223.20
RT. D.G. 0.34%
P.V.T. 501+74.94 ELEV. 223.99
1.06%
502+00.00 221.04 RT.
P.V.C. 502+13.43 ELEV. 224.40
P.V.I. 502+70.50 ELEV. 225.00
K = 64.95 VC-114' e-0.25'
P.V.T. 503+27.57 ELEV. 226.61
2.81%
P.V.C. 503+94.95 ELEV. 228.50
RT. DITCH GRADE 1.20%
P.V.I. 504+45.53 ELEV. 229.92
K = 17.83 VC-101' e=-0.72'
504+63.00 224.20 RT.
-2.86%
P.V.T. 504+96.11 ELEV. 228.48
P.V.I. 505+14.50 ELEV. 227.95

270 260 250 240 230 220 210 200 190 180

495+00 496+00 497+00 498+00 499+00 500+00 501+00 502+00 503+00 504+00 505+00 506+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	37	126

(2) PLAN AND PROFILE SHEETS - DETOUR

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-1-15

PI = 404+41.61
Δ = 25°20'01"LT.
D = 13°15'00"
T = 97.19'
L = 191.20'
PC = 403+44.42
PT = 405+35.62
e = 0.100'/'
Ls = 250'

PI = 407+61.90
Δ = 11°51'33"RT.
D = 13°15'00"
T = 44.91'
L = 89.50'
PC = 407+16.98
PT = 408+06.49
NO SUPER

STA. 400+00.00
BEGIN DETOUR

STA. 408+06.49
END DETOUR

DETOUR
STA. 403+00 CONSTRUCT
18" X 45' TEMPORARY
PIPE CULVERT CROSS DRAIN

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

DETOUR

STA. 400+00 MATCH EXIST. (0.050 FT./FT.)
STA. 401+56.92 BEGIN SUPERELEVATION (NORMAL CROWN)
STA. 404+06.92 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 404+66.98 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 407+16.98 END SUPERELEVATION

P.V.I. 400+00.00 ELEV. 231.94
-2.22%
P.V.C. 401+39.57 ELEV. 228.84
K = 64.00 VC=121' e=0.29'
P.V.I. 402+00.00 ELEV. 227.50
P.V.T. 402+60.43 ELEV. 227.30
-0.33%
402+99.00 LT. 223.20
LT. DITCH GRADE 0.16%
INLET F.L. 224.16
OUTLET F.L. 223.13
P.V.C. 404+50.00 ELEV. 226.67
K = 146.34 VC=100' e=0.09'
404+89.00 LT. 223.50
P.V.I. 405+00.00 ELEV. 226.50
P.V.T. 405+50.00 ELEV. 226.68
0.35%
P.V.C. 406+50.00 ELEV. 227.03
K = 178.89 VC=100' e=0.07'
P.V.I. 407+00.00 ELEV. 227.20
P.V.T. 407+50.00 ELEV. 227.65
0.91%
P.V.I. 408+06.49 ELEV. 228.17

270 260 250 240 230 220 210 200 190 180
400+00 401+00 402+00 403+00 404+00 405+00 406+00 407+00 408+00 409+00 410+00

7/22/2015
R061084.DGN

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.		061084	1256	1260
				(1)		07319 - LAYOUT - 56292		

For R/W Data, see Roadway Plans.

1'-6" Dumped Riprap placed on top of Filter Blanket. See Std. Dwg. No. 1891F. Top of Riprap Elev. = 243.00

Use Type A Approach Gutters (w=8'-0") For details, see Std. Dwg. 55030A.

POND

Water Line

Sanitary Sewer Line

Toe of Fill

10'-0" (Typ.)

1V:3H

1V:2H

8'-0" Shldr.

40'-0" Finished Crown

24'-0" Pvmt.

PT Sta. 222+99.51

223+00

224+00

225+00

226+00

227+00

0.35 Miles to Jct. SH 51

Tangent Dist. = 113.42'

C.L. Bridge & C.L. Const.

43'-2" Out to Out

40'-0" Cir. Rdwy.

1'-5" Parapet

37'-2"

Match Line

N 79° 37' 30" E

2.0% Slope

Pump Station

33'-6" Min. Clr.

75'-0"±

Existing Chain Link Fence

C.L. Exist. Bridge

Existing Bridge No. 01465

C.L. Proposed Future Track

C.L. Union Pacific RR Main Track

50'-0"

20'-0"

30'-0"

Union Pacific RR R.O.W.

Test Hole (Typ.)

Underground TV Cable

PINE STREET

Sanitary Sewer Line

HORIZONTAL CURVE DATA
P.I. Sta. = 220+07.66
Delta = 39°35'45" Rt.
D = 6°30'00"
L = 609.17'
T = 317.31'
P.C. Sta. = 216+90.34
P.T. Sta = 222+99.51
Ls = 300'
e = .095'/'

PLAN

P.V.C. Sta. 225+21.69
ELEV. 254.15

3.30%

P.V.I. Sta. 229+24.59
ELEV. 267.46

-5.91%

P.V.T. Sta. 233+27.49
ELEV. 243.65

Vertical Curve Length = 805.80'

VERTICAL CURVE DATA
Along C.L. Construction
No Scale

NOTE: Stations and Elevations shown are along C.L. Construction and C.L. Bridge. Elevations shown are at Working Point.

Total Length of Bridge = 762'-1¾"

1'-0⅞"

240'-0" Cont. Comp. PL Girder Unit 1 (120'-120')

C.L. 1¾" Poured Silicone Joint

(1) See Dwg. No. 56293 for "Table of C.L. Deck at C.L. Bent to Low Seat of Cap Dimensions".

C.L. 5" Finger Joint

Slope Intercept Sta. 224+02.00

Begin Bridge Sta. 224+12.93 Elev. 250.58

Sta. 225+34.00 Elev. 254.56

Sta. 226+54.00 Elev. 257.53

Concrete Parapet Rail

Proposed Grade Line @ C.L. Construction

Guardrail (Typ.) See Rdwy. Plans

Exist. Ground Line @ C.L. Construction

Exp.

Fix.

Exp.

Exp.

40'-0"

Over 30' Vert. Clearance

C.L. Pine St.

41'-6"

60' Piles

45' Piles

40' Piles

Elev. 208.34

Elev. 209.77

BENT NO. 1 2 3

ELEVATION

GENERAL NOTES

BENCH MARK: BM 990 NGS Point KI52 @ Power Pole, 24.19' Rt. Sta. 229+58.66, Elev. 224.72.

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 on the plans, Section and Subsection refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012), with 2013 interims.

LIVE LOADING: HL-93

SEISMIC ZONE: 1

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (Grade 60, AASHTO M31 or M322, Type A)	fy = 60,000 psi
Structural Steel (AASHTO M270, Gr. 50W)	Fy = 50,000 psi
Structural Steel (AASHTO M270, Gr. 36)	Fy = 36,000 psi

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

CONCRETE PILING: Piles for Bents 1-8 shall be 18" square prestressed concrete and shall be driven to a minimum ultimate bearing capacity of 200 tons per pile. All piling shall be driven with an approved air, steam, or diesel hammer. Piling in end bents shall be driven after embankment to bottom of cap is in place. Lengths of piling shown are assumed for estimating quantities only. Actual lengths to be determined in the field. Drive one 65' test pile in Bent Nos. 1 & 8, one 45' test pile in Bent No. 5 and one 50' test pile in Bent Nos. 2, 4 & 6.

PREBORING: Preboring or other methods approved by the Engineer may be required to achieve minimum penetration requirements. The Contractor shall be responsible for keeping prebored holes free of debris which may require the use of temporary casings or other methods. Preboring and the method used to keep the prebored hole free from debris will not be paid for directly but will be considered subsidiary to the item "Concrete Piling".

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

FOOTINGS: Top of footings shall be set a minimum of two feet below natural ground line. Foundations for footings shall be prepared in accordance with Subsection 801.04.

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.

DETAIL DRAWINGS:	DRAWING NO.
Bents 1 & 8	56297, 56298, 56312, 56313
Bents 2 - 7	56299-56311
240'-0" Cont. Comp. Plate Girder Unit 1	56315-56320
380'-0" Cont. Comp. Plate Girder Unit 2	56321-56328
140'-0" Cont. Comp. W-Beam Unit 3	56329-56333
Elastomeric Bearings	56314
Concrete Piling	55022
Chain Link Fence	56328
Type A Approach Gutters	55030A

EXISTING BRIDGE: Existing Bridge No. 01465 is 27' wide and 615' long and consists of concrete approach spans and steel girder main span supported by concrete column bents with spread footings.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, existing bridge No. 01465 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-9-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER UPRR & PINE ST.
UPRR & PINE ST. STR. & APPRS.
(DONALDSON) (S)
HOT SPRING COUNTY
ROUTE 67 SEC. 7

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 12/05/13
CHECKED BY: JMG DATE: 7/8/15
DESIGNED BY: DATE: 11/13
FILENAME: b061084x1_11.dgn
SCALE: 1" = 30'-0"

BRIDGE NO. 07319 DRAWING NO. 56292

PRINT DATE: 7/8/2015

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.		061084	39	120
				①		07319 - LAYOUT - 56293		

For R/W Data, see Roadway Plans

C.L. Const. Sta 228+45.46
C.L. U.P. RR Tracks
Mile Pole 399.68

C.L. Proposed Future Track

Point of Minimum Vertical Clearance

Match Line

1'-5" Parapet

227+00

228+00

229+00

230+00

231+00

232+00

233+00

43'-2" Out to Out

40'-0" Cr. Rdwy.

Pump Station

Existing Chain Link Fence

Union Pacific RR R.O.W.

C.L. Union Pacific RR Main Track

C.L. Bridge & C.L. Const.

2.0% Slope

N 79° 37' 30" E

Toe of Fill

Use Type A Approach Gutters (w=8'-0")
For details, see Std. Dwg. 55030A.

0.12 Miles to Jct. S.H. 51

8'-0" Shldr.

40'-0" Finished Crown

24'-0" Pvmt.

10'-0" (Typ.)

Tangent Dist. = 394.3'

1V:3H

1V:2H

45°

100'-0"

50'-6"

31'-0"

32'-0"

15'-0"

C.L. Exist. Bridge

Union Pacific RR R.O.W.

Existing Bridge No. 01465

C.L. Exist. Bridge
Sta 227+65.35
C.L. U.P. RR Tracks
Mile Pole 399.70

Test Hole (Typ.)

50'-0"

Union Pacific RR R.O.W.

② To Face of Crash Wall

NORTH FRONT STREET

NOTE: Stations and Elevations shown are along C.L. Construction and C.L. Bridge. Elevations shown are at Working Point.

PLAN

① See "Table of C.L. Deck at C.L. Bent to Low Seat of Cap Dimensions".

TABLE OF C.L. DECK AT C.L. BENT TO LOW SEAT OF CAP DIMENSIONS

BENT 2	6'-2⅝"
BENT 3	6'-3⅛"
BENT 4	6'-3⅝"
BENT 5	6'-5⅝"
BENT 6	6'-3⅛"
BENT 7	4'-7⅛"

Total Length of Bridge = 762'-1¾"

380'-0" Cont. Comp. PL Girder Unit 2 (114'-152'-114')

140'-0" Cont. Comp. W-Beam Unit 3 (70'-70')

1'-0⅞"

C.L. 5" Finger Joint

C.L. 5" Finger Joint

C.L. 1¾" Poured Silicone Joint

Slope Intercept Sta. 231+83.00

Guard Rail (Typ.) See Rdwy. Plans

Sta. 226+54.00 Elev. 257.53

Concrete Parapet Rail

Sta. 227+68.00 Elev. 258.83

C.L. Deck to Low Steel 5'-10¼"

Sta. 229+20.00 Elev. 258.24

7'-0" Chain Link Fence (Both Sides)

Sta. 230+34.00 Elev. 256.07

Sta. 231+04.00 Elev. 254.00

End Bridge Sta. 231+75.07 Elev. 251.33

Exp. Exp. Fix. Exp. Exp. Fix. Exp.

41'-6"

40'-6"

C.L. Main Line Track

Top of Rail

23'-9" Vert. Clr.

Crash Wall

35'-0"

35'-6"

Proposed Grade Line @ C.L. Construction

Existing Ground Line @ C.L. Construction

60' Piles

Elev. 209.77

Elev. 212.00

Elev. 211.27

Elev. 214.81

Elev. 213.86

40' Piles

45' Piles

40' Piles

45' Piles

50' Piles

3 4 5 6 7 8 BENT NO.

ELEVATION

PRINT DATE: 12/5/2014

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER UPRR & PINE ST.
UPRR & PINE ST. STR. & APPRS.
(DONALDSON) (S)
HOT SPRING COUNTY
ROUTE 67 SEC. 7

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 12/05/13
CHECKED BY: TMG DATE: 12/5/14
DESIGNED BY: SWP DATE: 11/13
FILENAME: b061084xl_II.dgn
SCALE: 1" = 30'-0"

BRIDGE NO. 07319 DRAWING NO. 56293

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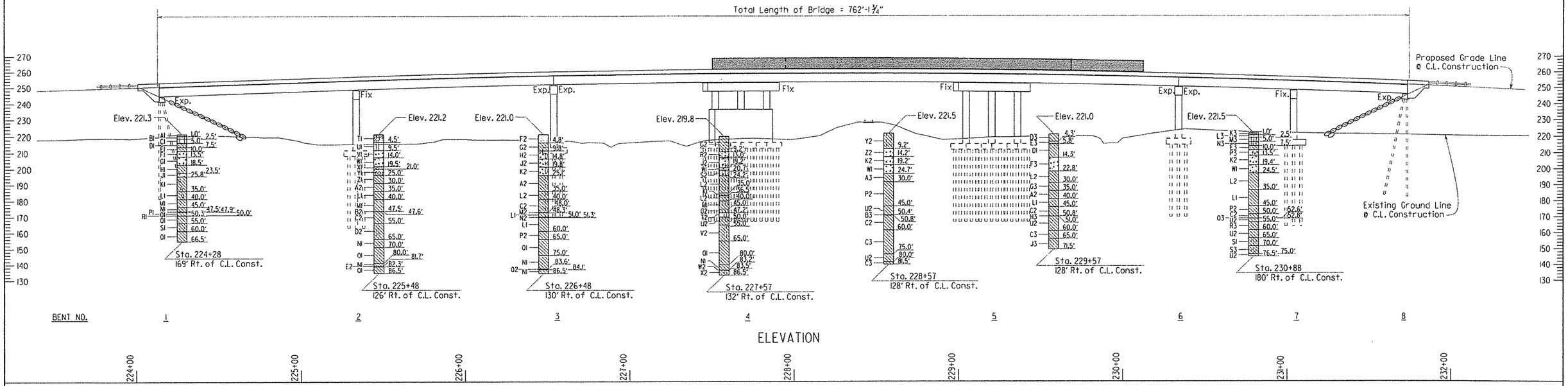
				JOB NO.		061084	40	1110
				(1)		07319 - SOIL BORINGS - 56294		



ELEVATION

BORING LEGEND

AI-Moist, Medium Dense, Brown Sandy Silt with Traces of Gravel
BI-Moist, Medium Dense, Brown Sandy Silt
CI-Moist, Loose, Brown Sandy Silt
DI-Moist, Stiff, Brown and Gray Clay with Sand and Traces of Gravel
EI-Moist, Stiff, Reddish Brown and Gray Clay with Sand and Traces of Gravel
FI-Moist, Dense, Brown and Gray Gravel with Sand and some Clay
GI-Moist to Wet, Medium Dense, Brown Sand with Gravel *
HI-Wet, Medium Stiff, Gray and Brown Clay
JI-Wet, Medium Dense, Brown and Gray Gravel with Sand
KI-Moist, Very Stiff, Dark Gray Clay with Traces of Gravel
LI-Moist, Very Stiff, Dark Gray Calcareous Clay with some Silt Lenses
MI-Moist, Very Stiff, Dark Gray Calcareous Clay with some Shells
NI-Moist, Hard, Dark Gray Calcareous Clay with some Shells
PI-Hard, Gray Cemented Silt (47.5' to 47.9')
QI-Moist, Hard, Dark Gray Calcareous Clay
RI-Hard, Gray Siltstone (50.0' to 50.3')
SI-Moist, Hard, Dark Gray Calcareous Clay with Silt Lenses
TI-Moist, Medium Dense, Brown Sandy Silt with Gravel and Cobbles
UI-Moist, Medium Dense, Brown Sandy Silt with some Clay and Traces of Gravel
VI-Moist, Medium Dense, Brown Sand with Gravel and some Clay
WI-Wet, Medium Dense, Brown Gravel with Sand
XI-Wet, Very Stiff, Brown and Gray Silty Clay with Sand Seams and some Gravel
YI-Wet, Medium Dense, Brown Sand with Gravel and Cobbles
ZI-Moist, Stiff, Gray Clay
A2-Moist, Very Stiff, Dark Gray Clay with some Silt Lenses
B2-Hard, Gray Cemented Silt (47.5' to 47.6')
C2-Moist, Very Stiff, Dark Gray Calcareous Clay with Shells
D2-Moist, Very Stiff, Dark Gray Calcareous Clay with Silt Lenses
E2-Hard, Gray Cemented Silt (81.7' to 82.3')
F2-Moist, Medium Dense, Brown Sand with Traces of Gravel
G2-Moist, Very Stiff, Brown and Gray Clay with Sand
H2-Moist to Wet, Dense, Brown Sand with Gravel *
J2-Wet, Medium Dense, Brown Sand with Gravel
K2-Wet, Dense, Brown Sand with Gravel
L2-Moist, Very Stiff, Dark Gray Clay
M2-Hard, Gray Cemented Silt (48.0' to 48.3')
N2-Hard, Gray Cemented Silt (51.0' to 51.3')
P2-Moist, Very Stiff, Dark Gray Calcareous Clay
Q2-Hard, Gray Cemented Silt (83.6' to 84.1')
R2-Moist, Medium Dense, Brown and Gray Sand with Clay Seams and Gravel
S2-Wet, Medium Dense, Brown Gravel with Sand and some Clay
T2-Moist, Very Stiff, Dark Gray Calcareous Clay with Thin Cemented Silt Seams
U2-Moist, Hard, Dark Gray Calcareous Clay with Shells
V2-Moist, Very Stiff to Hard, Dark Gray Calcareous Clay with Silt Lenses
W2-Hard, Gray Cemented Sand (83.2' to 83.5')
X2-Moist, Hard, Dark Gray Calcareous Clay with Silt Lenses and some Shells
Y2-Moist, Very Stiff, Brown and Gray Silty Clay
Z2-Moist, Very Dense, Brown and Gray Sand with Gravel
A3-Moist, Stiff, Dark Gray Clay
B3-Hard, Gray Limestone (50.4' to 50.8')
C3-Moist, Hard, Dark Gray Calcareous Clay with some Silt Lenses
D3-Moist, Stiff, Brown Clay with Traces of Gravel
E3-Moist, Stiff, Brown and Gray Clay with Sand
F3-Wet, Dense to Medium Dense, Brown Gravel with Sand
G3-Moist, Very Stiff, Dark Gray Clay with some Silt Lenses and Traces of Shells
H3-Hard, Gray Limestone (50.8' to 51.0')
J3-Moist, Hard, Dark Gray Calcareous Clay with some Silt Lenses and Shells
K3-Moist, Medium Dense, Brown Silty Sand with Gravel
L3-Moist, Medium Dense, Brown Silty Sand with Traces of Gravel
M3-Moist, Medium Dense, Brown Silt with Sand
N3-Moist, Loose, Brown Clayey, Sandy Silt
P3-Wet, Medium Dense, Brown and Gray Sand with Gravel and Clay Seams
Q3-Hard, Gray Cemented Silt with some Clay (52.6' to 52.8')
R3-Moist, Hard, Dark Gray Calcareous Clay with Shells and Traces of Gravel
S3-Moist, Hard, Dark Gray Calcareous Clay with Silt Lenses and Shells

* A water stratum encountered at 13.5'. Water level was 8.0' upon completion of drilling.

"N" VALUES

Sta. 224+28 - 169' Rt. of C.L. Const.
1.5- 2.5, N=14
3.0- 4.0, N=7
5.5- 6.5, N=13
8.0- 9.0, N=12
10.5- 11.5, N=49
14.0- 15.0, N=22
19.0- 20.0, N=6
24.0- 25.0, N=15
29.0- 30.0, N=25
35.5- 36.5, N=27
40.5- 41.5, N=29
45.5- 46.5, N=32
50.0- 50.2, N=60(3")
55.5- 56.5, N=31
60.5- 61.5, N=34
65.5- 66.5, N=35

Sta. 225+48 - 126' Rt. of C.L. Const.
5.0- 6.0, N=11
10.0- 11.0, N=24
15.0- 16.0, N=22
20.0- 21.0, N=22
25.0- 26.0, N=10
30.5- 31.5, N=22
35.5- 36.5, N=23
40.5- 41.5, N=30
45.5- 46.5, N=30
50.5- 51.5, N=27
55.5- 56.5, N=29
60.5- 61.5, N=30
65.5- 66.5, N=33
70.5- 71.5, N=34
75.5- 76.5, N=37
80.5- 81.5, N=39
85.5- 86.5, N=37

Sta. 226+48 - 130' Rt. of C.L. Const.
5.3- 6.3, N=21
10.3- 11.3, N=46
15.3- 16.3, N=17
20.3- 21.3, N=44
25.3- 26.3, N=22
30.5- 31.5, N=24
35.5- 36.5, N=26
40.5- 41.5, N=22
45.5- 46.5, N=25
50.5- 51.3, N=71(4")
55.5- 56.5, N=24
60.5- 61.5, N=29
65.5- 66.5, N=31
70.5- 71.5, N=33
75.5- 76.5, N=32
80.5- 81.5, N=35
85.5- 86.5, N=37

Sta. 227+57 - 132' Rt. of C.L. Const.
4.7- 5.7, N=22
9.7- 10.7, N=17
14.7- 15.7, N=26
19.7- 20.7, N=23
24.7- 25.7, N=25
29.7- 30.7, N=23
35.5- 36.5, N=17
40.5- 41.5, N=28
45.5- 46.5, N=30
50.5- 51.5, N=31
55.5- 56.5, N=29
60.5- 61.5, N=31
65.5- 66.5, N=37
70.5- 71.5, N=36
75.5- 76.5, N=38
80.5- 81.5, N=39
85.5- 86.5, N=38

Sta. 228+57 - 128' Rt. of C.L. Const.
4.7- 5.7, N=27
9.7- 10.7, N=54
14.7- 15.7, N=35
19.7- 20.7, N=19
24.7- 25.7, N=13
30.5- 31.5, N=24
35.5- 36.5, N=23
40.5- 41.5, N=27
45.5- 46.5, N=32
50.5- 50.5, N=60(5.5')
55.5- 56.5, N=27
60.5- 61.5, N=32
65.5- 66.5, N=32
70.5- 71.5, N=36
75.5- 76.5, N=35
80.5- 81.5, N=36

Sta. 229+57 - 128' Rt. of C.L. Const.
4.8- 5.8, N=9
9.8- 10.8, N=15
14.8- 15.8, N=36
19.8- 20.8, N=24
24.8- 25.8, N=17
30.5- 31.5, N=24
35.5- 36.5, N=21
40.5- 41.5, N=26
45.5- 46.5, N=23
50.5- 51.5, N=62
55.5- 56.5, N=31
60.5- 61.5, N=31
65.5- 66.5, N=32
70.5- 71.5, N=34

Sta. 230+88 - 180' Rt. of C.L. Const.
1.5- 2.5, N=11
3.0- 4.0, N=13
5.5- 6.5, N=8
8.0- 9.0, N=11
10.5- 11.5, N=17
14.0- 15.0, N=34
19.9- 20.9, N=17
24.9- 25.9, N=16
30.5- 31.5, N=24
35.5- 36.5, N=26
40.5- 41.5, N=27
45.5- 46.5, N=28
50.5- 51.5, N=27
55.5- 56.5, N=31
60.5- 61.5, N=32
65.5- 66.5, N=31
70.5- 71.5, N=33
75.5- 76.5, N=33

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-1-14
CHARLES R. ELLIS
BRIDGE ENGINEER

SOIL BORINGS
UPRR & PINE ST. STR. & APPRS.
(DONALDSON) (S)
HOT SPRING COUNTY

ROUTE 67 SEC. 7

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 12/05/13
CHECKED BY: TMG DATE: 12/5/14
DESIGNED BY: SWP DATE: 11/13
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SCALE: 1" = 30'-0"

BRIDGE NO. 07319 DRAWING NO. 56294

PRINT DATE: 12/5/2014

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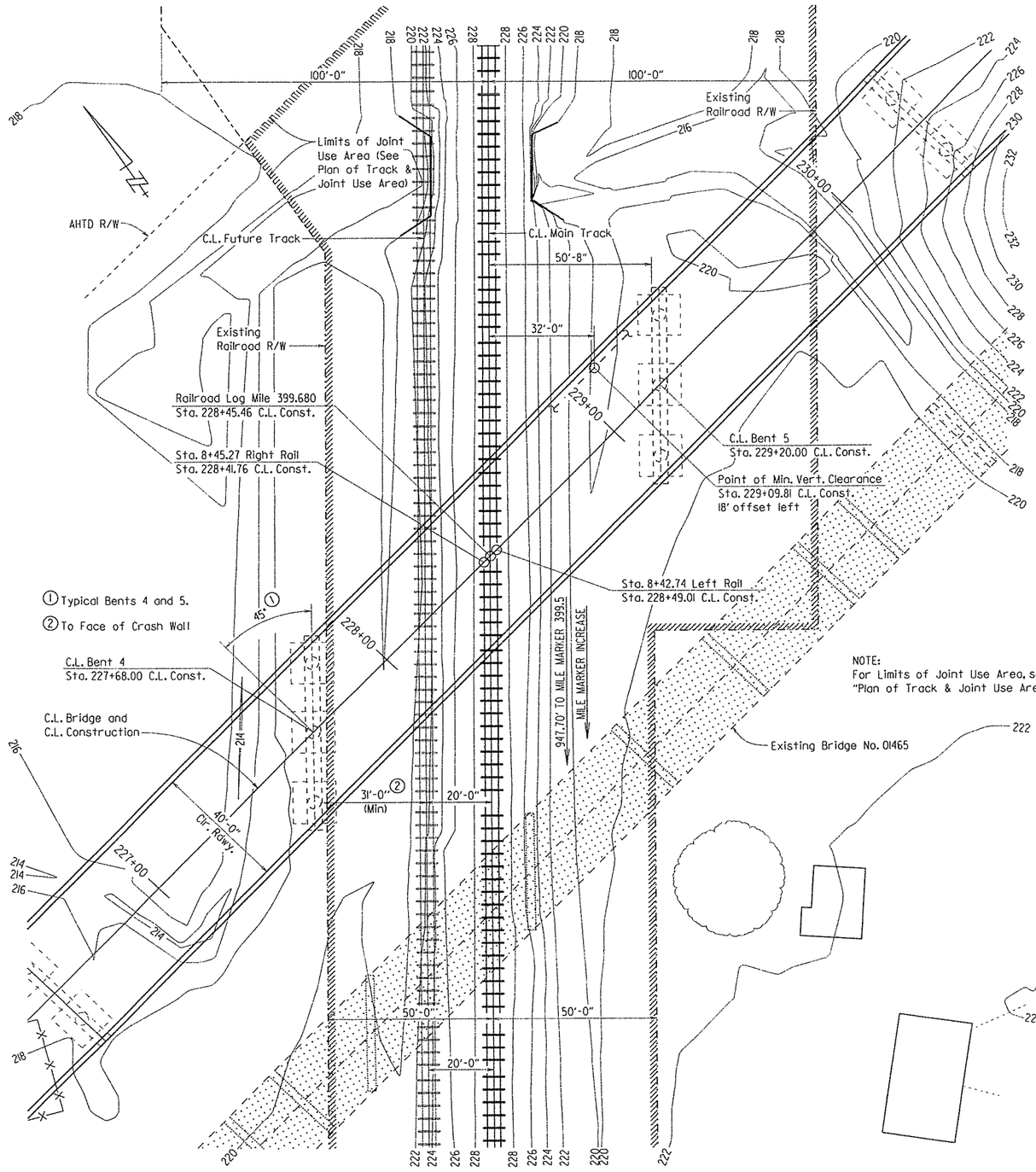
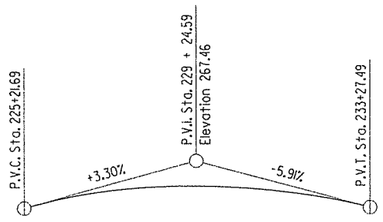
				JOB NO.		061084	41	120
				(1)	07319 - EXHIBIT A - 56295			



① Typical Bents 4 and 5.

② To Face of Crash Wall

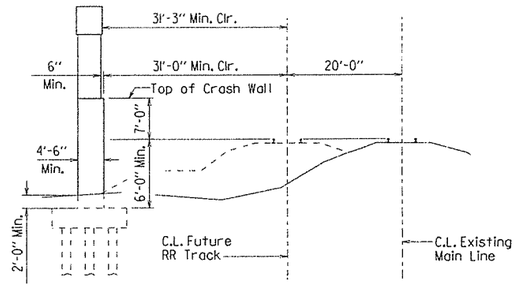
PLAN



L.V.C. = 805.80'

VERTICAL CURVE DATA

Along C.L. Const.
No Scale

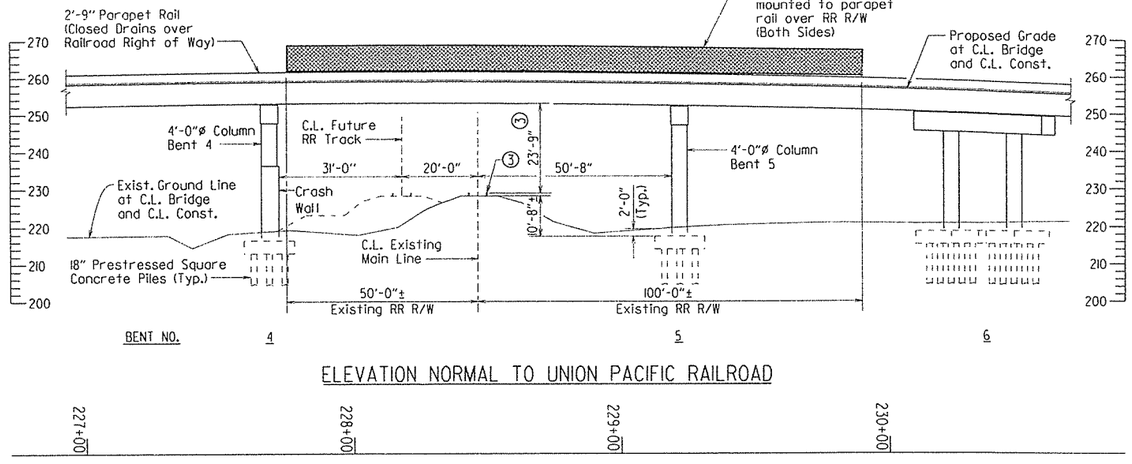


PIER PROTECTION DETAILS

Bent 4 Only
No Scale

Note: Crashwall designed according to AREMA Chapter 8, part 2.1.5.1.

③ Top of Main Line Rail Elev. = 228.68 at the point of Min. Vertical Clearance.



ELEVATION NORMAL TO UNION PACIFIC RAILROAD

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
EXHIBIT A
UNION PACIFIC RAILROAD
UPRR & PINE ST. STR. & APPRS.
(DONALDSON) (S)
HOT SPRING COUNTY
ROUTE 67 SEC. 7
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 12/05/13 FILENAME: b061084.dgn
CHECKED BY: TMG DATE: 12/5/14 SCALE: 1" = 20'-0"
DESIGNED BY: SWP DATE: 11/13

BRIDGE NO. 07319 DRAWING NO. 56295

PRINT DATE: 05-DEC-2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		061084	42	126
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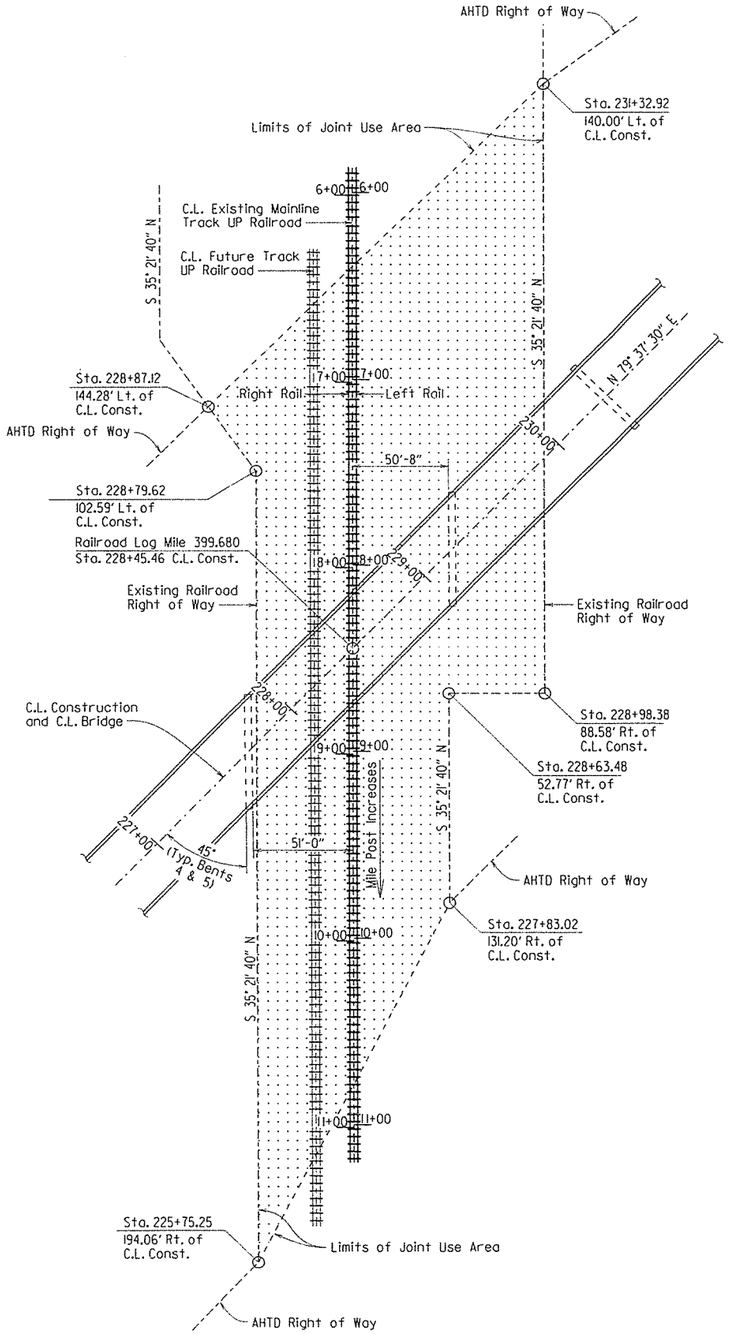


PLAN OF TRACK & JOINT USE AREA
1" = 40'-0"

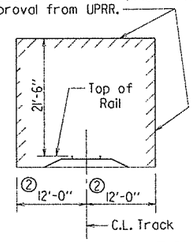
TOP OF RAIL ELEVATIONS

LEFT MAIN TRACK RAIL		RIGHT MAIN TRACK RAIL	
Station	Elevation	Station	Elevation
0+00.00	228.43	0+00.00	228.39
0+70.12	228.45	0+70.11	228.45
1+87.03	228.52	1+85.93	228.51
2+70.91	228.57	2+75.72	228.56
4+38.49	228.62	4+38.62	228.63
5+27.62	228.56	5+26.80	228.60
6+53.91	228.70	6+36.49	228.71
7+73.08	228.68	7+71.19	228.63
8+61.39	228.73	8+58.63	228.72
9+75.43	228.81	9+73.45	228.79
10+85.88	229.07	10+83.37	229.07
11+88.47	229.29	11+85.15	229.29
12+94.98	229.52	12+93.10	229.51
13+93.70	229.79	13+91.54	229.78
14+98.78	229.99	14+96.37	230.00
16+01.49	230.37	15+99.82	230.35
17+04.83	230.61	17+02.45	230.62
18+06.16	230.89	18+04.05	230.91
19+08.45	231.21	19+05.95	231.22
20+12.45	231.51	20+10.35	231.52

The elevations of the existing top-of-rail profile shall be verified by the Contractor prior to beginning construction. Any discrepancies that will decrease the vertical clearance shown in the Elevation Section shall be brought to the attention of the railroad prior to construction.

① NOTE: No excavation permitted within 12' of C.L. track.

No construction activities or other obstructions may be placed within these limits without prior written approval from UPRR.



MINIMUM CONSTRUCTION CLEARANCES
SKETCH NORMAL TO TRACK
No Scale

① Removal of existing bents adjacent to tracks will require excavation within 9 feet of C.L. track. These existing bents shall be removed to a depth of 6 feet below base of rail.

② Measured normal to track.

GENERAL NOTES

All demolitions within the Railroad's right-of-way and/or demolitions that may impact the Railroad's tracks or operations shall comply with the Railroad's demolition requirements.

Erection over the Railroad's right-of-way shall be designed to cause no interruption to the Railroad's operation. Erection over the Railroad's track shall be developed such that it enables the track(s) to remain open to traffic per the Railroad's requirements.

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.

Railroad requirements do not allow work within 50 feet of track centerline when a train passes the work site and all personnel must clear the area within 25 feet of the track centerline and secure all equipment when trains are present.

The following statement is in the "State Rail Agreement": 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.

Shoring shall comply with the Union Pacific Railroad requirements. Construction shall comply with the requirements of SP Job 061084 "Insurance, Construction, and Flagging Requirements on Railroad Property (UPRR)." Railroad review and approval of Shoring, Erection, and Falsework is required. Allow a minimum of four weeks for the review and approval of each submittal.

Currently there are no known utilities on the Railroad right-of-way other than shown.

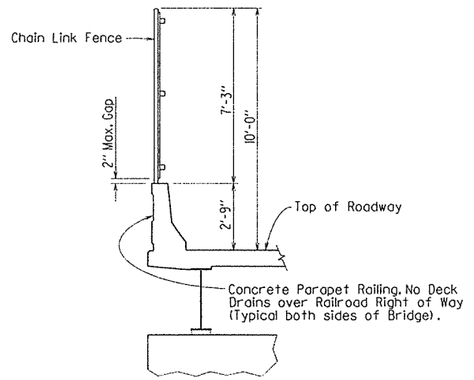
A Chain Link Fence is required on both sides of the Bridge. The Fence is to be mounted on top of the concrete parapet rail and shall extend the full width of the Railroad R/W.

The proposed bridge construction will not change the quantity and/or characteristics of the flow within the Railroad right-of-way.

The bridge shall have Closed Parapet Rail without openings or deck drains on both sides over Railroad right-of-way.

All permanent clearances shall be verified before project closing.

For Railroad coordination refer to the Railroad Minimum Requirements of SP Job 061084 "Insurance, Construction, and Flagging Requirements on Railroad Property (UPRR)".



TYPICAL SECTION SHOWING CHAIN LINK FENCE
No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

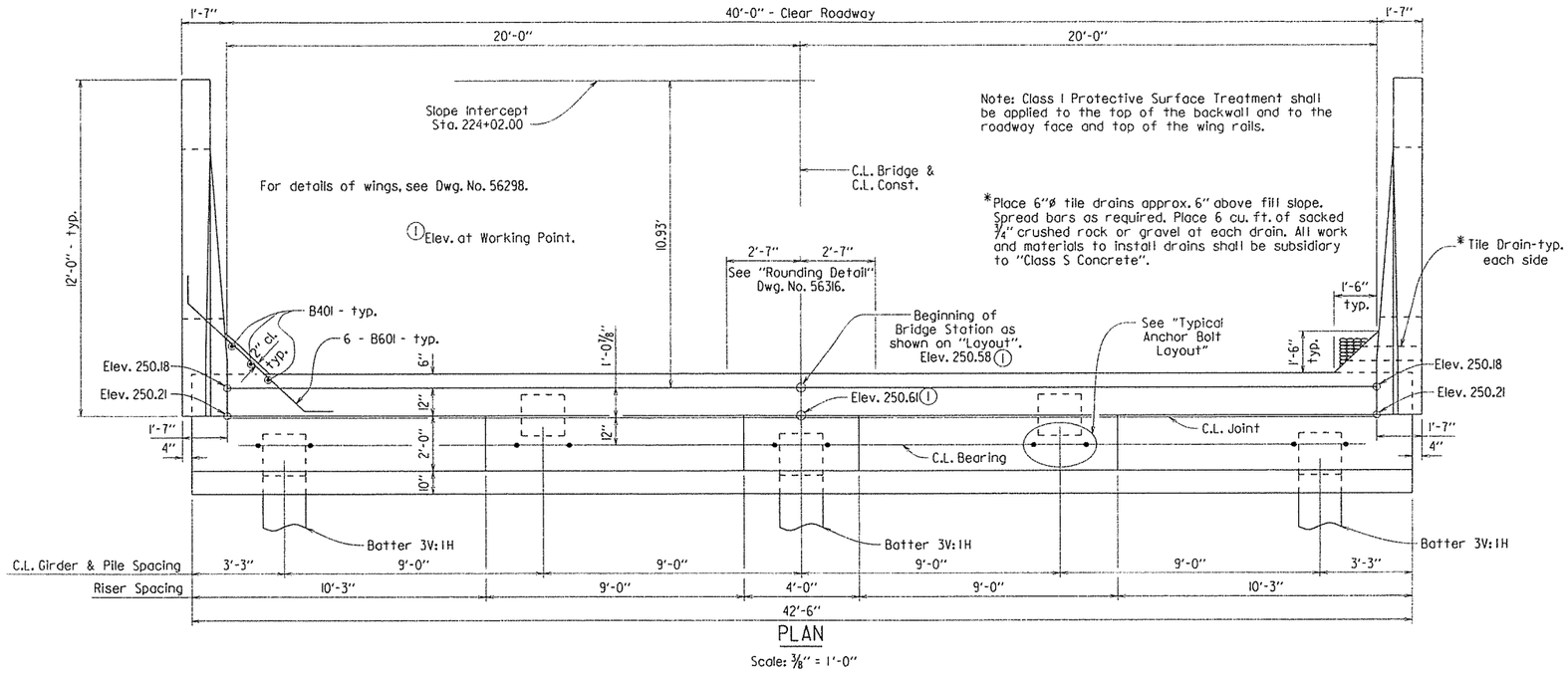
SHEET 2 OF 2
EXHIBIT A
UNION PACIFIC RAILROAD
UPRR & PINE ST. STR. & APPRS.
(DONALDSON) (S)
HOT SPRING COUNTY
ROUTE 67 SEC. 7
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 12/05/13 FILENAME: b061084x1_11.dgn
CHECKED BY: TMG DATE: 12/5/14 SCALE: 1" = 40'-0" or as shown
DESIGNED BY: S.W.P DATE: 11.13

BRIDGE NO. 07319 DRAWING NO. 56296

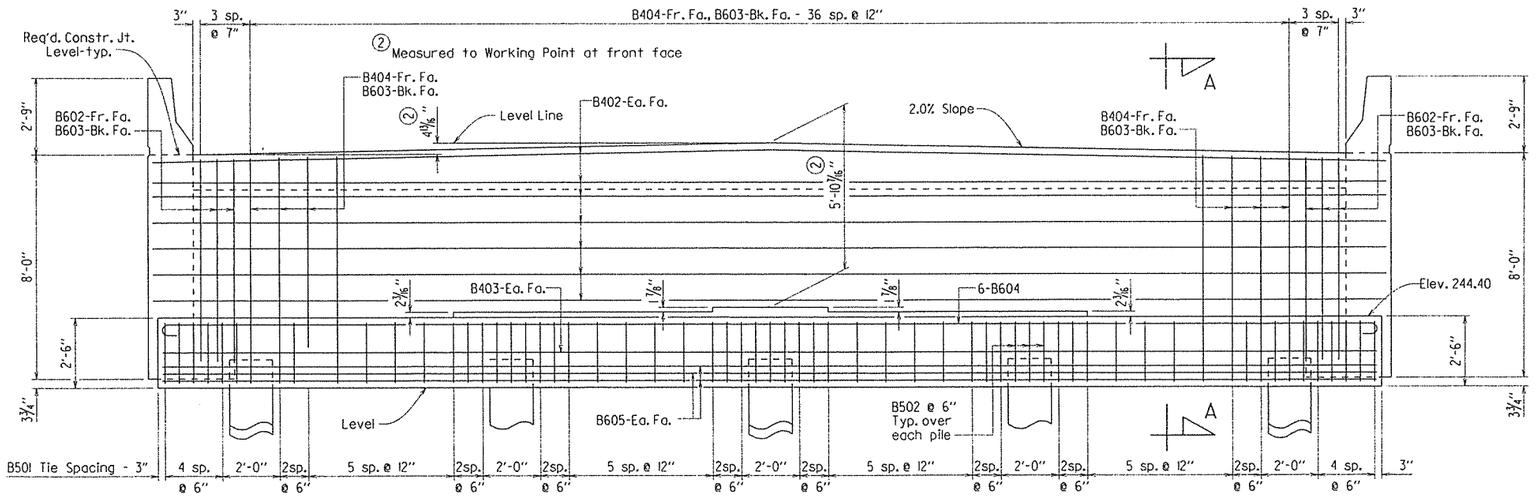
PRINT DATE: 05-DEC-2014

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.		061084	43	126
				(1) 07319 - BENT 1 - 56297				



PLAN

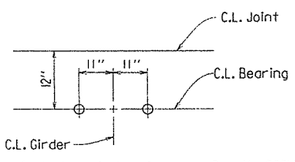
Scale: ⅜" = 1'-0"



ELEVATION

Looking Back

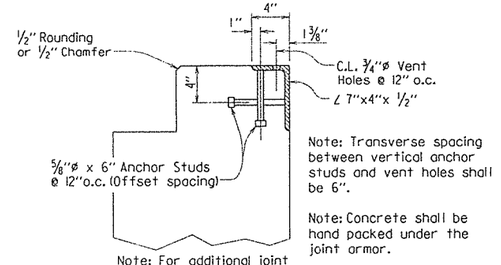
Scale: ⅜" = 1'-0"



For details of elastomeric bearings, see Dwg. No. 56314.

TYPICAL ANCHOR BOLT LAYOUT

No Scale



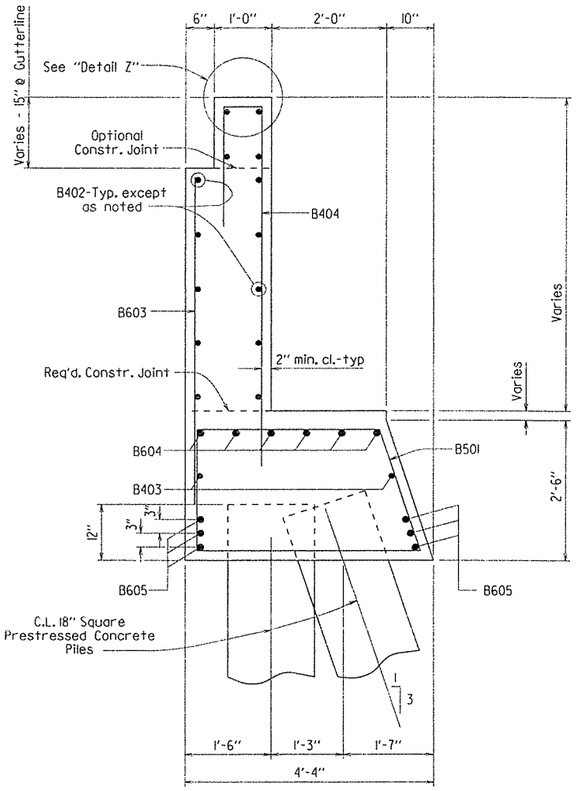
Note: Transverse spacing between vertical anchor studs and vent holes shall be 6".

Note: Concrete shall be hand packed under the joint armor.

Note: For additional joint details, see Dwg. No. 56336.

DETAIL Z

No Scale



SECTION A-A

Scale: ¾" = 1'-0"

GENERAL NOTES

All concrete shall be Class "S" and shall be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

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

No portion of the backwall shall be poured until the girders are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 56336.

Structural steel in end bents shall be AASHTO M270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)".

If anchor bolts are drilled into cap, top reinforcing bars shall be placed to avoid damage.

For additional information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 1

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-13-14 FILENAME: b061084_b1.dgn

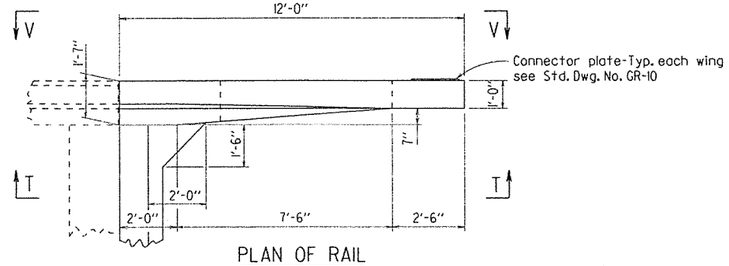
CHECKED BY: KWF DATE: 12/10/14 SCALE: AS NOTED

DESIGNED BY: KWF DATE: 9/14

BRIDGE NO. 07319 DRAWING NO. 56297

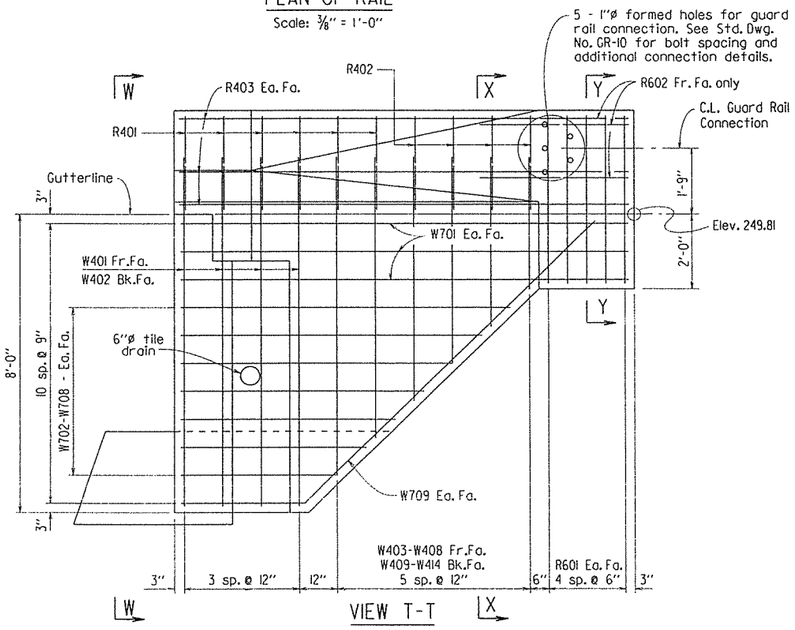
PRINT DATE: 12/5/2014

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.		061084	44	120
				①		07319 - BENT 1 - 56298		



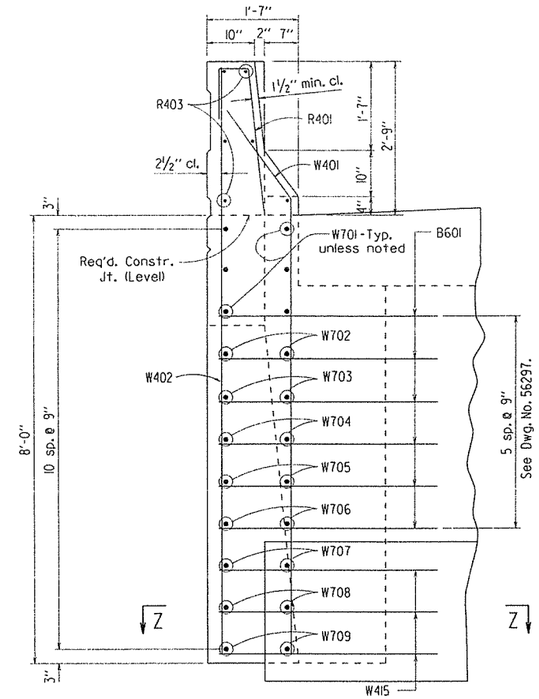
PLAN OF RAIL

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



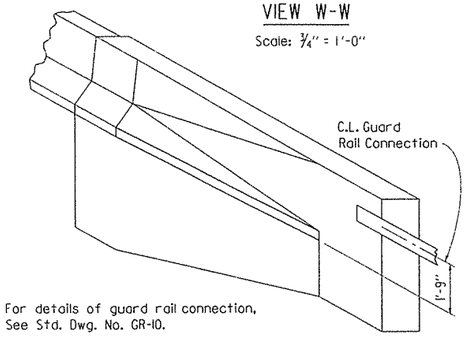
VIEW T-T

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



VIEW W-W

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



For details of guard rail connection, See Std. Dwg. No. GR-10.

THREE DIMENSIONAL VIEW OF RAIL

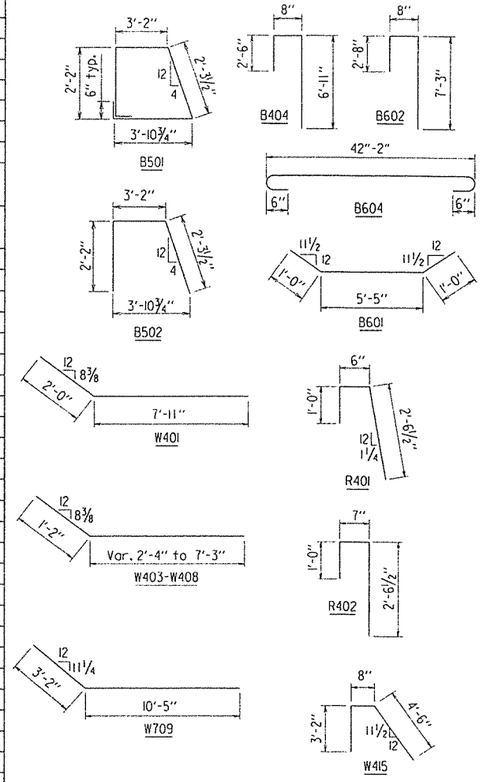
No Scale

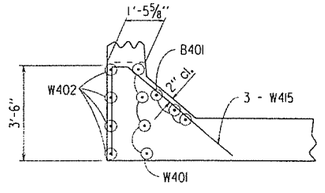
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
B401	6	6'-5"	Str.
B402	14	42'-10"	Str.
B403	2	42'-2"	Str.
B404	37	9'-11"	2"
R401	12	3'-11"	2"
R402	8	4'-0"	2"
R403	12	11'-8"	Str.
W401	8	9'-11"	2"
W402	8	10'-5"	Str.
W403-W408	2 each	Var. 3'-6" to 8'-5"	2"
W409-W414	2 each	Var. 4'-8" to 9'-7"	Str.
W415	6	8'-2"	2"
B501	50	12'-1"	2½"
B502	15	7'-5"	2½"
B601	12	7'-5"	4½"
B602	6	10'-3"	4½"
B603	43	6'-7"	Str.
B604	6	43'-6"	4½"
B605	6	42'-2"	Str.
R601	20	4'-5"	Str.
R602	6	5'-0"	Str.
W701	12	11'-8"	Str.
W702	4	8'-11"	Str.
W703	4	8'-2"	Str.
W704	4	7'-4"	Str.
W705	4	6'-6"	Str.
W706	4	5'-9"	Str.
W707	4	4'-11"	Str.
W708	4	4'-1"	Str.
W709	4	13'-7"	5¼"

BENDING DIAGRAMS

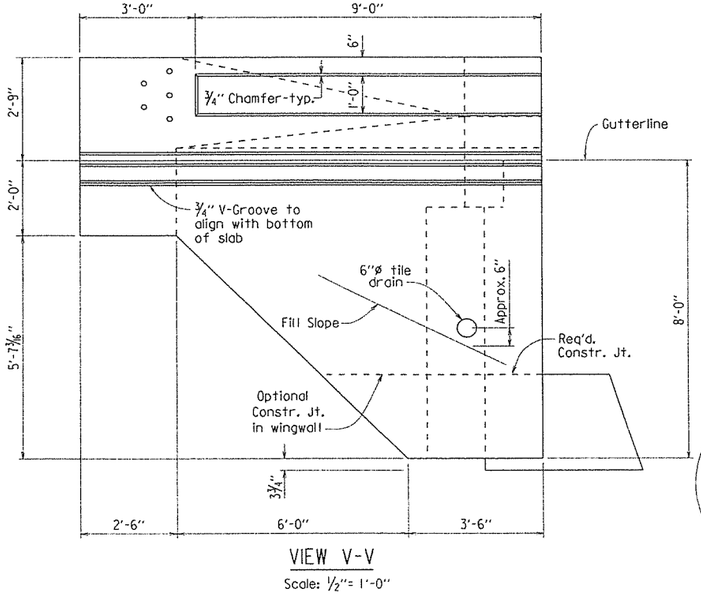
Dimensions are out to out of bars.





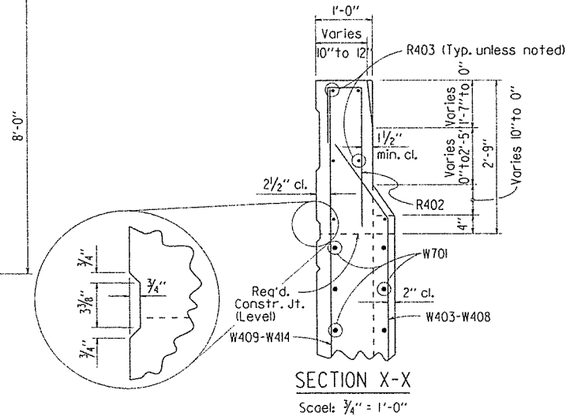
SECTION Z-Z

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



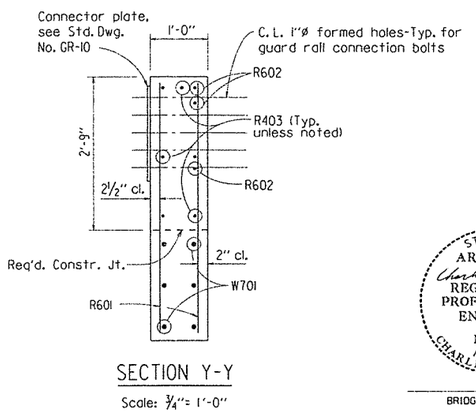
VIEW V-V

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



SECTION X-X

Scael: 3/4" = 1'-0"



SECTION Y-Y

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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 1

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-13-14 FILENAME: b061084_bl.dgn

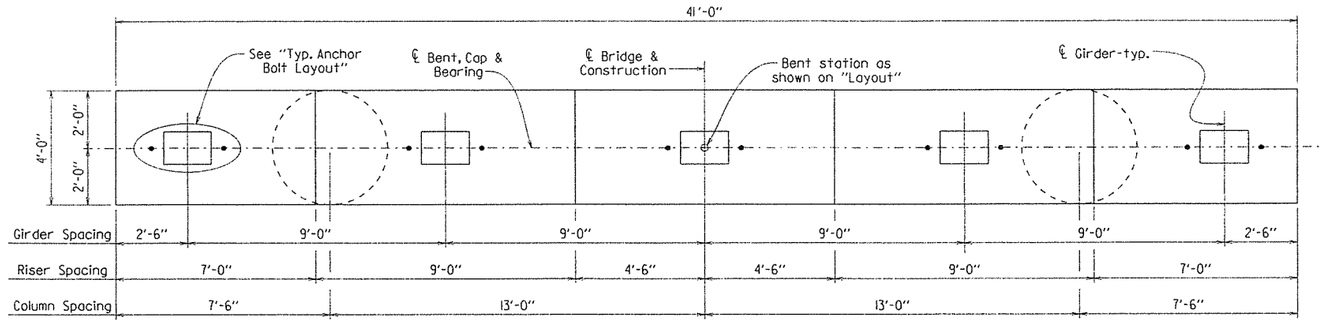
CHECKED BY: [illegible] DATE: 12/10/14 SCALE: AS NOTED

DESIGNED BY: [illegible] DATE: 9/14

BRIDGE NO. 07319 DRAWING NO. 56298

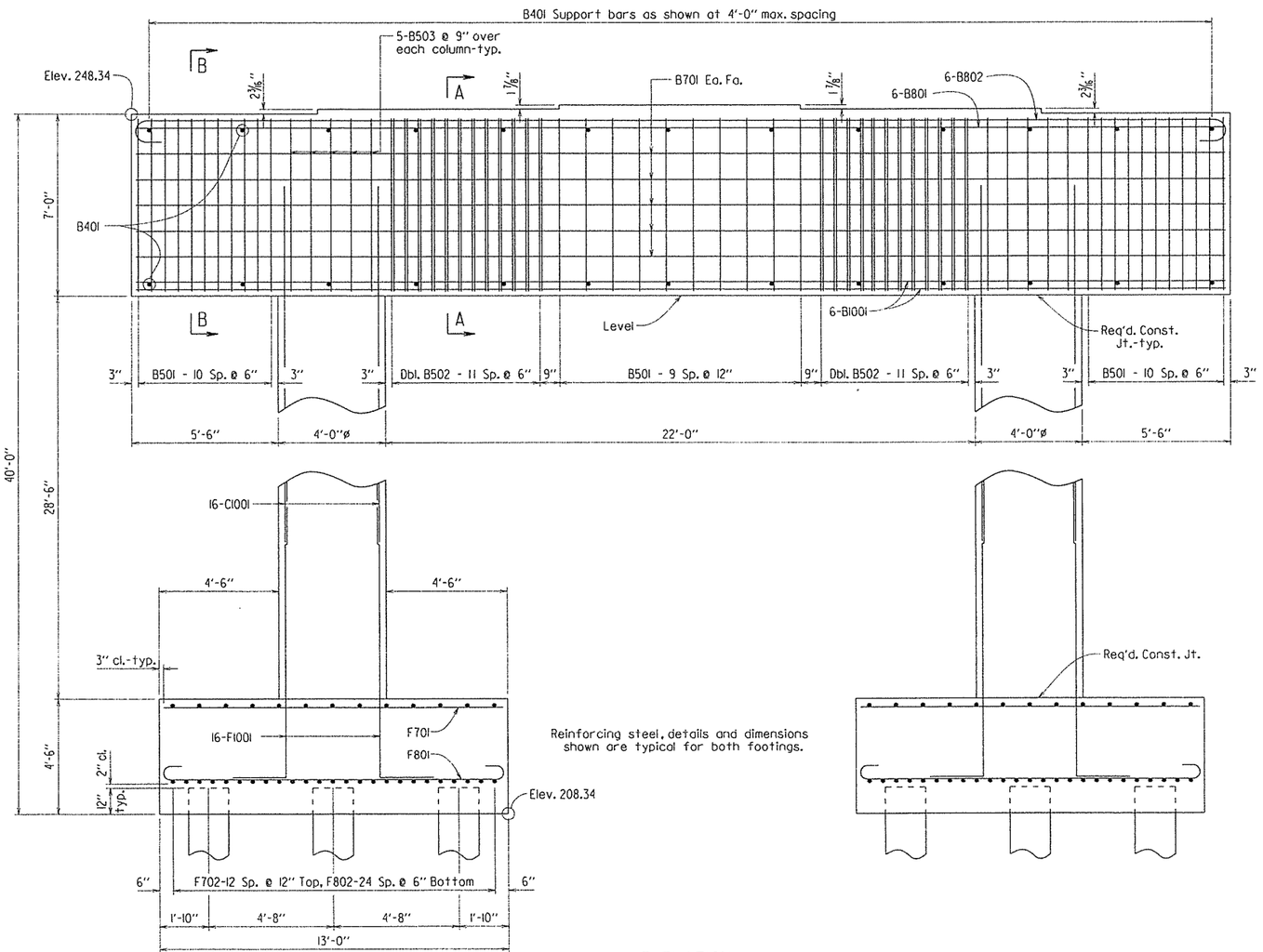
PRINT DATE: 12/5/2014

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.		061084	45	122
				(1)	07319 -	BENT 2	- 56299	



PLAN

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

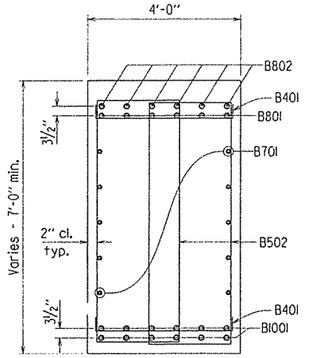


Reinforcing steel, details and dimensions shown are typical for both footings.

ELEVATION

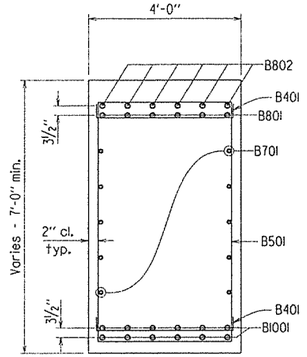
Looking Ahead

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



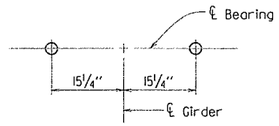
SECTION A-A

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



SECTION B-B

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



For details of elastomeric bearings, see Dwg. No. 56314.

TYP. ANCHOR BOLT LAYOUT

No Scale

GENERAL NOTES

All concrete shall be Class "S" and be poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.

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

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information, See layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-12-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2

DETAILS OF BENT 2

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-4-14

CHECKED BY: LWY DATE: 12/10/14

DESIGNED BY: LJB DATE: 6/14

FILENAME: b061084_b2.dgn

SCALE: AS NOTED

BRIDGE NO. 07319 DRAWING NO. 56299

PRINT DATE: 12/5/2014

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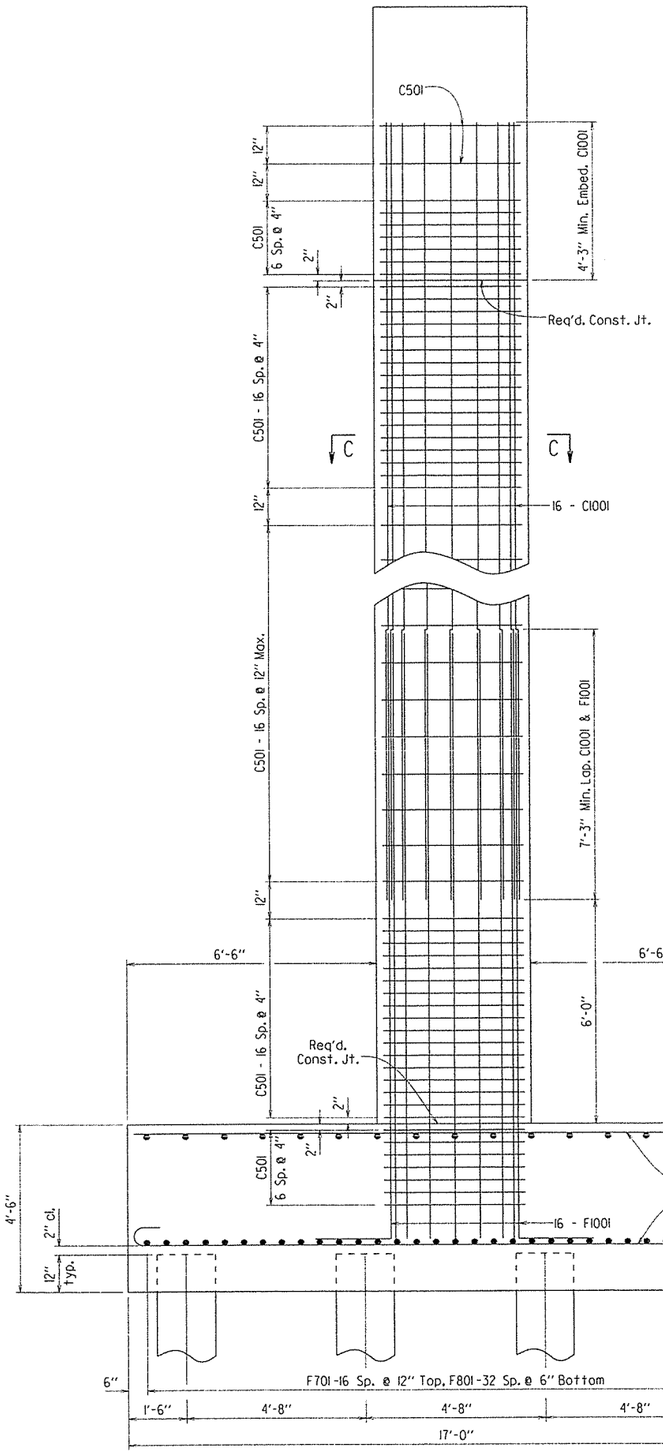
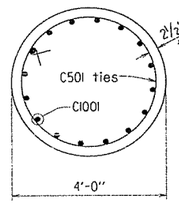


SIDE VIEW

Scale: ½" = 1'-0"

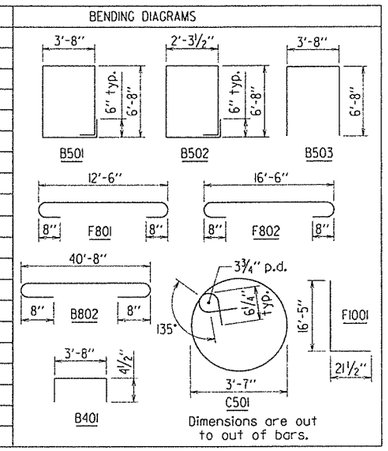


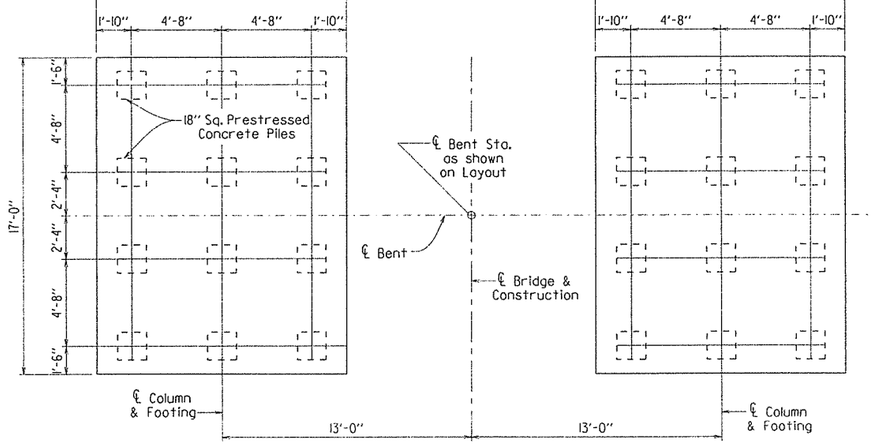
SECTION C-C

Scale: ½" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B401	26	4'-3"	2"	
B501	32	21'-2"	2½"	
B502	48	18'-5"	2½"	
B503	10	16'-10"	2½"	
C501	134	12'-8"	-	
B701	10	40'-8"	Str.	
F701	34	12'-6"	Str.	
F702	26	16'-6"	Str.	
B801	6	40'-8"	Str.	
B802	6	42'-6"	6"	
F801	66	14'-3"	6"	
F802	50	18'-3"	6"	
B1001	12	40'-8"	Str.	
C1001	32	26'-9"	Str.	
F1001	32	17'-11"	10"	





PLAN OF FOOTINGS

¼" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9255
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 2

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-4-14
CHECKED BY: [illegible] DATE: 12/10/14
DESIGNED BY: LDB DATE: 6-7-14
FILENAME: b061084_b2.dgn
SCALE: AS NOTED

BRIDGE NO. 07319 DRAWING NO. 56300

PRINT DATE: 12/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		061084	47	126
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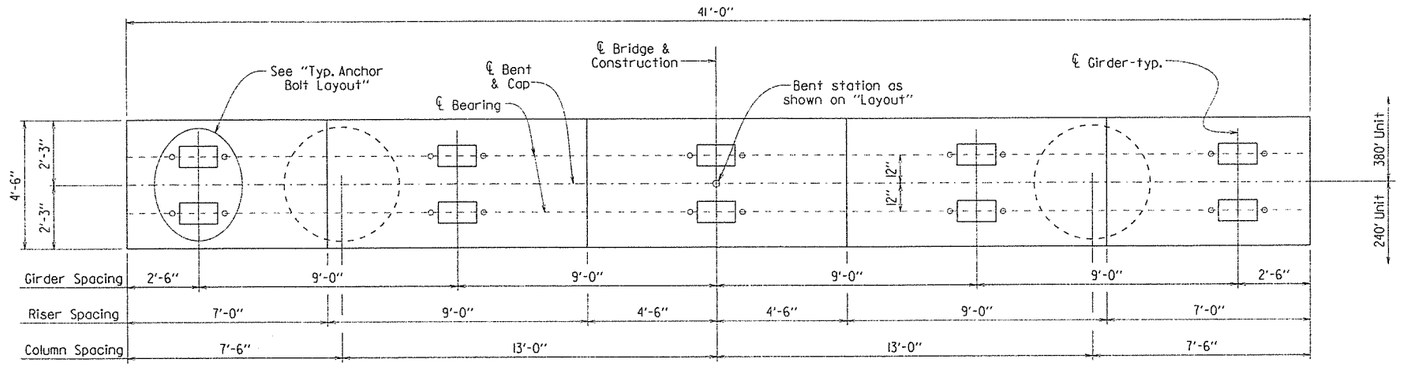
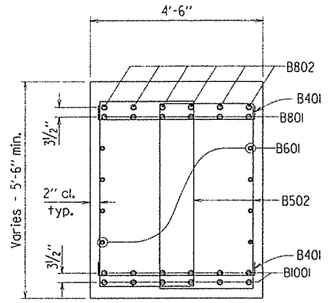


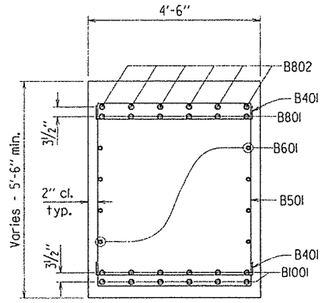
PLAN

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



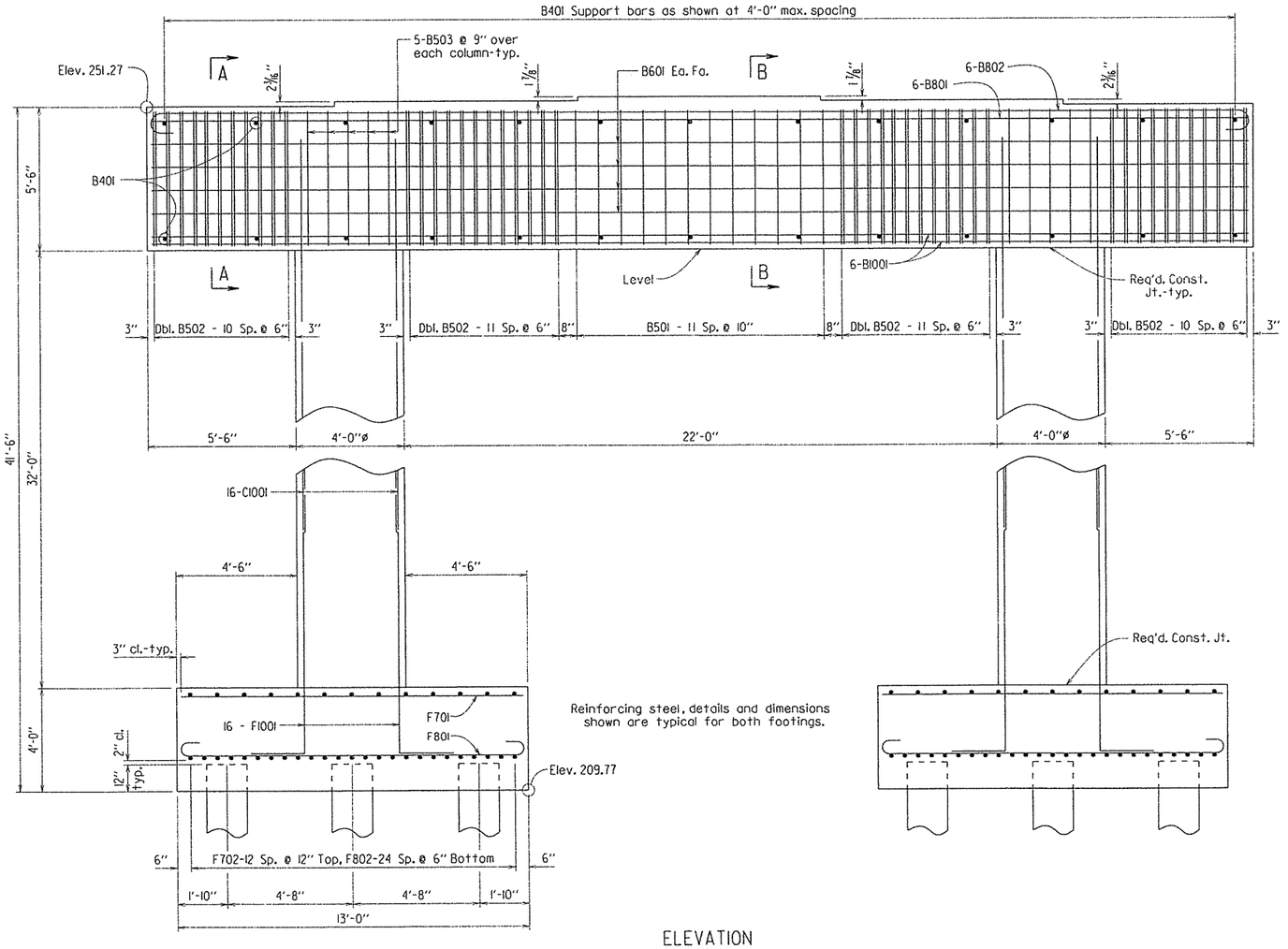
SECTION A-A

Scale: ½" = 1'-0"



SECTION B-B

Scale: ½" = 1'-0"

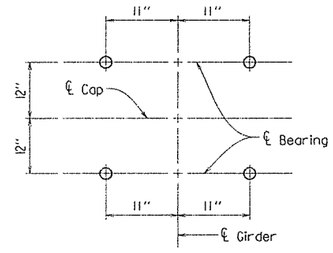


Reinforcing steel, details and dimensions shown are typical for both footings.

ELEVATION

Looking Ahead

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



For details of elastomeric bearings, see Dwg. No. 56314.

TYP. ANCHOR BOLT LAYOUT

No Scale

GENERAL NOTES

All concrete shall be Class "S" and be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

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

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information, See layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 3

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

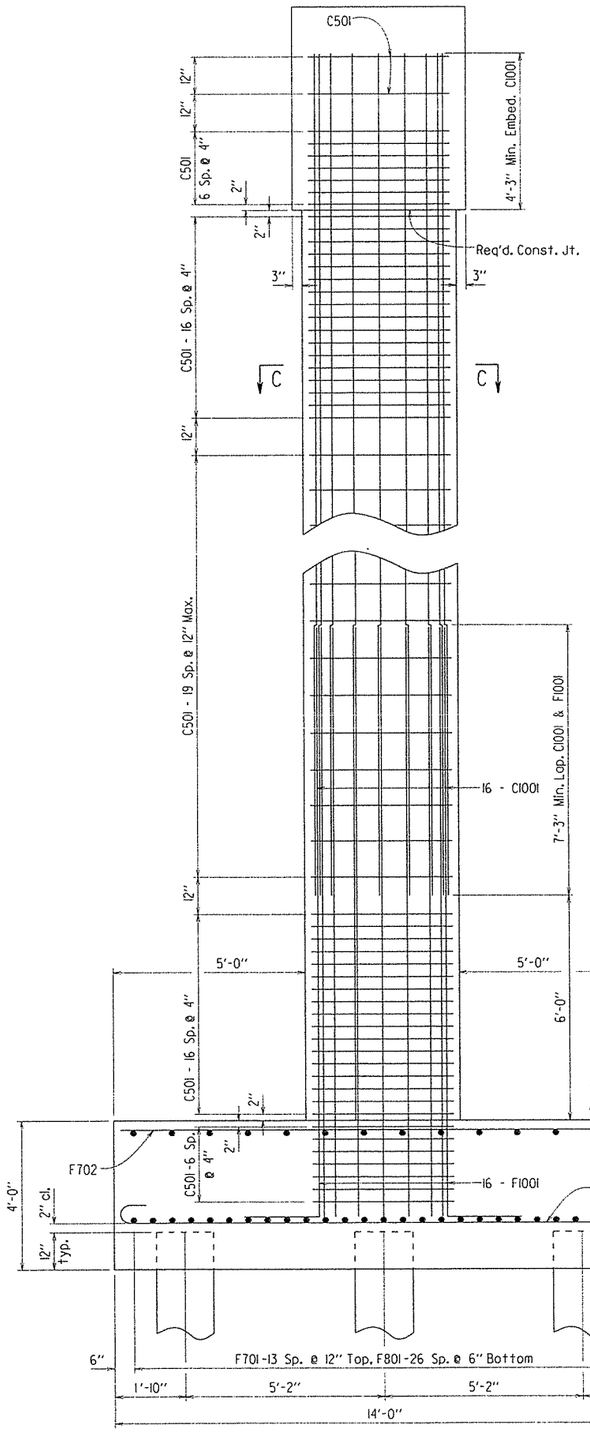
DRAWN BY: KDH DATE: 8-5-14
CHECKED BY: KWY DATE: 12/10/14
DESIGNED BY: LJB DATE: 6/14

FILENAME: b061084_b3.dgn
SCALE: AS NOTED

BRIDGE NO. 07319 DRAWING NO. 56301

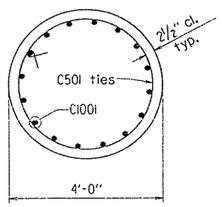
PRINT DATE: 12/5/2014

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.		061084	48	120
				(1)	07319 -	BENT 3	- 56302	



SIDE VIEW

Scale: ½" = 1'-0"



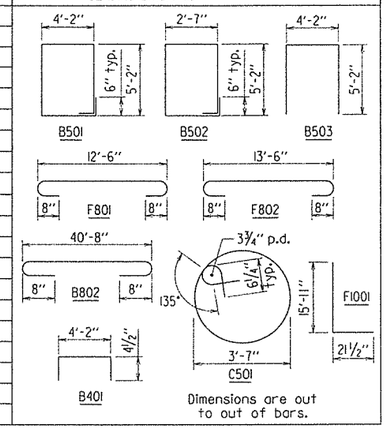
SECTION C-C

Scale: ½" = 1'-0"

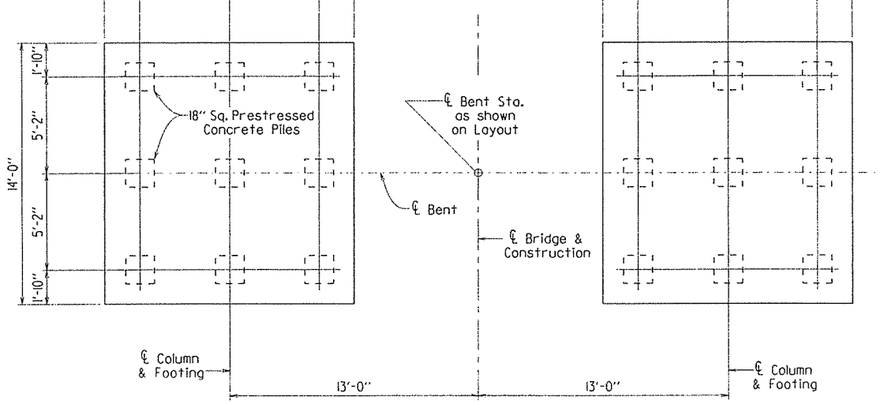
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
B401	26	4'-9"	2"
B501	12	19'-2"	2½"
B502	92	16'-0"	2½"
B503	10	14'-4"	2½"
C501	140	12'-8"	-
B601	8	40'-8"	Str.
F701	28	12'-6"	Str.
F702	26	13'-6"	Str.
B801	6	40'-8"	Str.
B802	6	42'-3"	6"
F801	54	14'-3"	6"
F802	50	15'-3"	6"
B1001	12	40'-8"	Str.
C1001	32	30'-3"	Str.
F1001	32	17'-5"	10"

BENDING DIAGRAMS



Dimensions are out to out of bars.



PLAN OF FOOTINGS

¼" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

PRINT DATE: 12/5/2014

SHEET 2 OF 2
DETAILS OF BENT 3

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

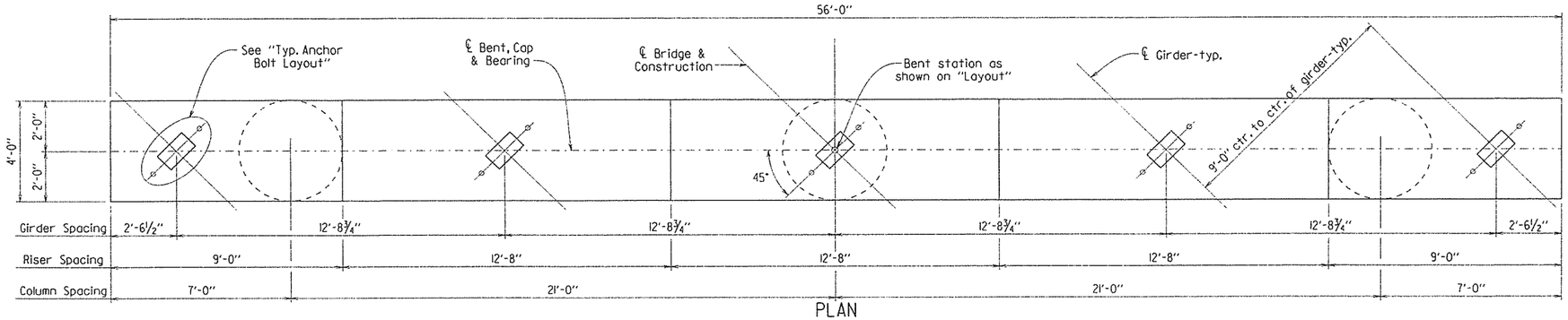
DRAWN BY: KDH DATE: 8-5-14 FILENAME: b061084_b3.dgn

CHECKED BY: [illegible] DATE: 11/10/14 SCALE: AS NOTED

DESIGNED BY: LDB DATE: 6/14

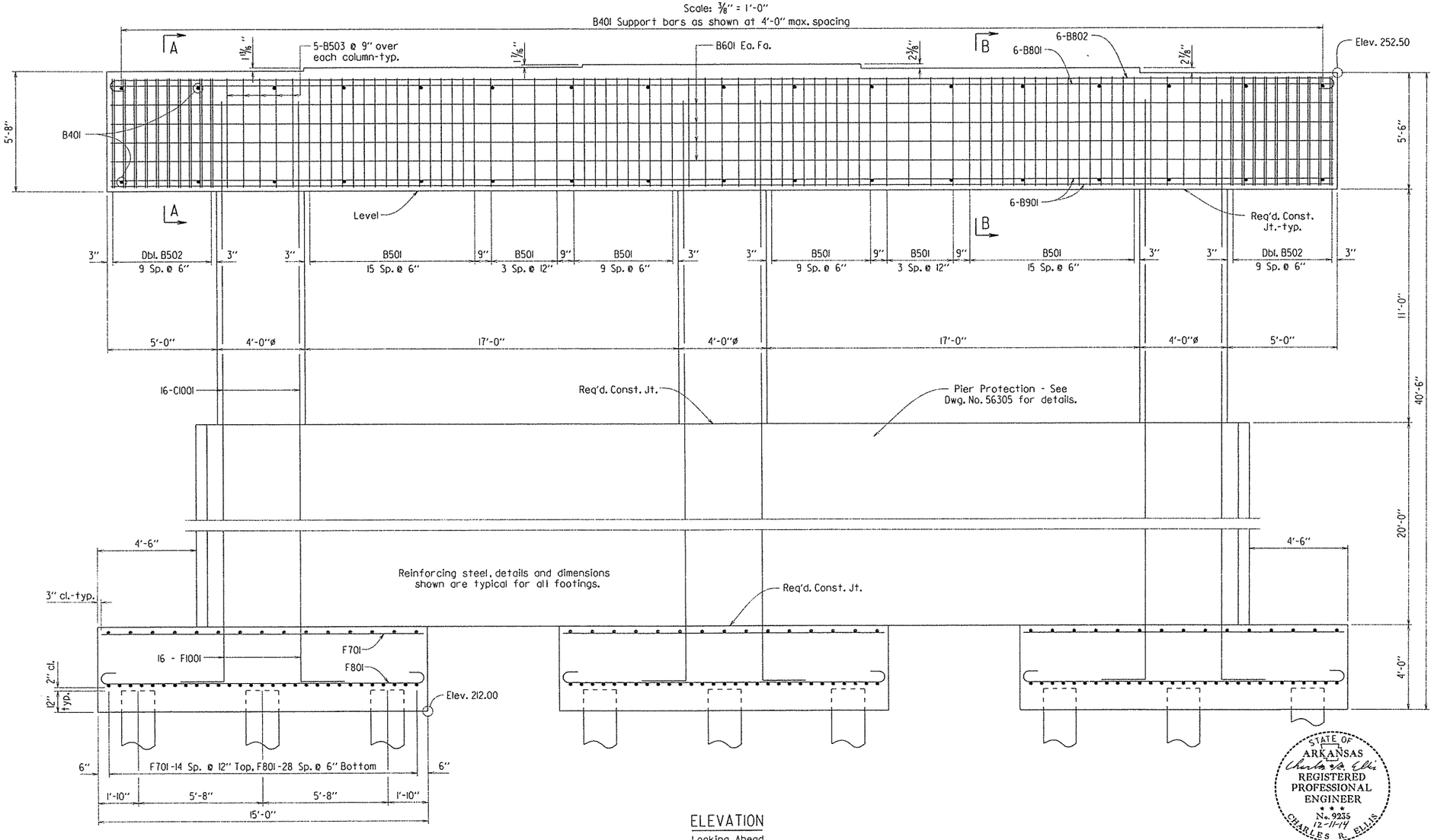
BRIDGE NO. 07319 DRAWING NO. 56302

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.		061084	49	120
				(1) 07319 -		BENT 4		- 56303



PLAN

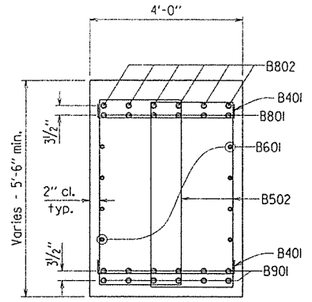
Scale: 3/16" = 1'-0"



ELEVATION

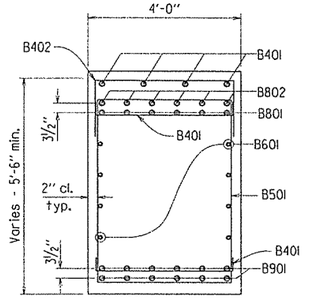
Looking Ahead

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



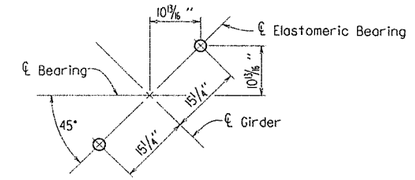
SECTION A-A

Scale: ½" = 1'-0"



SECTION B-B

Scale: ½" = 1'-0"



For details of elastomeric bearings, see Dwg. No. 56314.

TYP. ANCHOR BOLT LAYOUT

No Scale

GENERAL NOTES

All concrete shall be Class "S" and be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

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

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information, See layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 3

DETAILS OF BENT 4

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

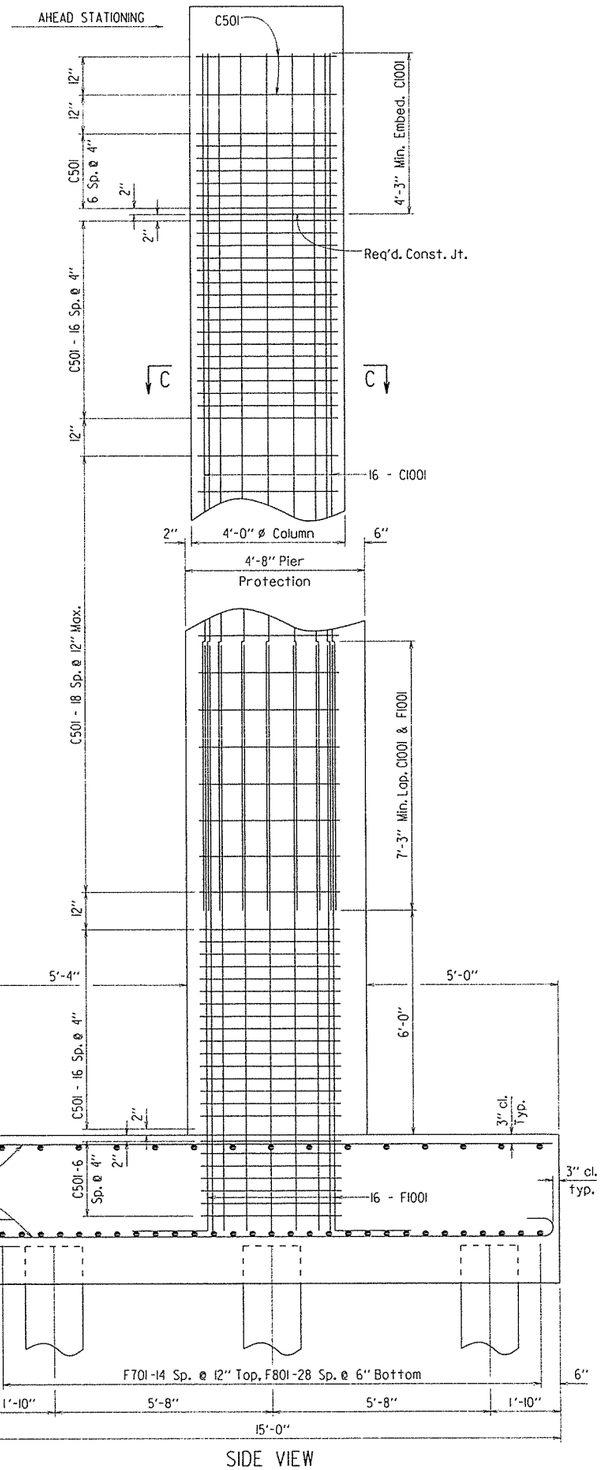
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-7-14
CHECKED BY: KWW DATE: 12/10/14
DESIGNED BY: LJB DATE: 6/14
FILENAME: b061084_b4.dgn
SCALE: AS NOTED

BRIDGE NO. 07319 DRAWING NO. 56303

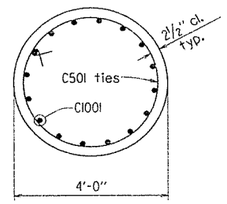
PRINT DATE: 12/5/2014

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.		061084	50	VLP
				①	07319 -	BENT 4	- 56304	



SIDE VIEW

Scale: ½" = 1'-0"

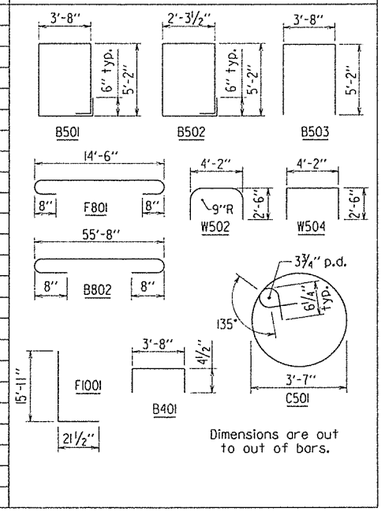


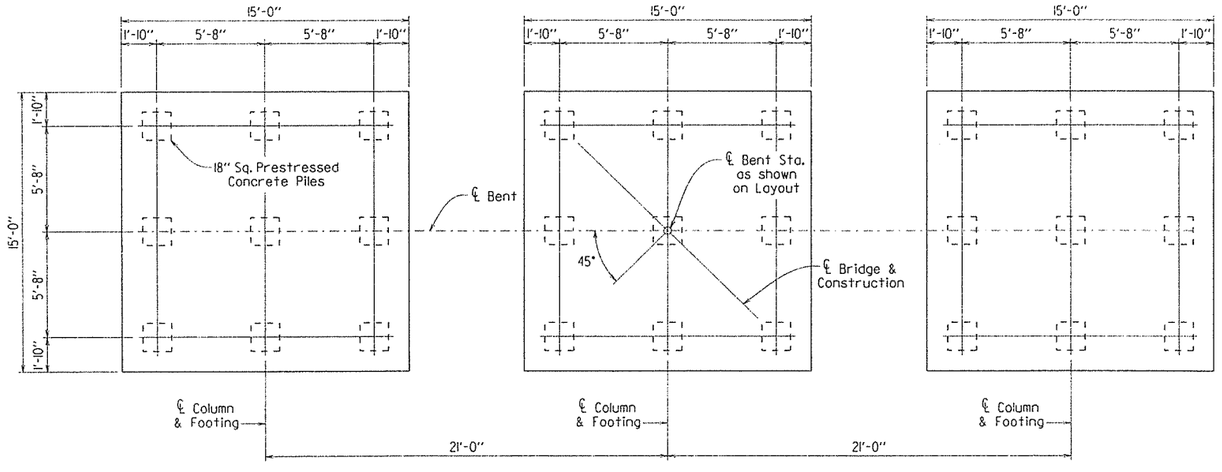
SECTION C-C

Scale: ½" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B401	34	4'-3"	2"	
B501	60	18'-2"	2½"	
B502	40	15'-5"	2½"	
B503	15	13'-10"	2½"	
C501	207	12'-8"	-	
W501	38	46'-10"	Str.	
W502	38	8'-6"	18"	
W503	104	19'-6"	Str.	
W504	76	9'-0"	2½"	
B601	8	55'-8"	Str.	
F701	90	14'-6"	Str.	
W701	8	46'-10"	Str.	
W702	12	10'-2"	Str.	
B801	6	55'-8"	Str.	
B802	6	57'-6"	6"	
F801	174	16'-4"	6"	
B901	12	55'-8"	Str.	
C1001	48	29'-3"	Str.	
F1001	48	17'-5"	10"	





STATE OF ARKANSAS
Charles R. Ellis
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No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF BENT 4

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

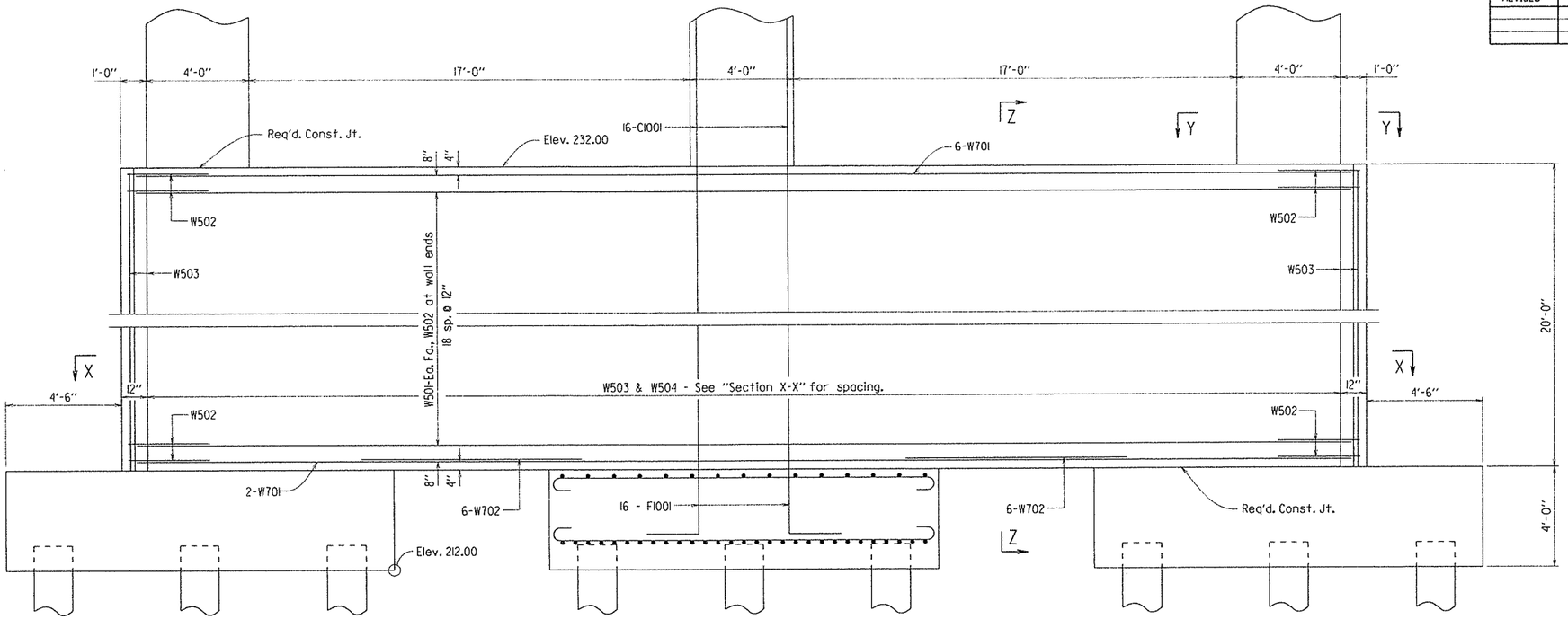
DRAWN BY: KDH DATE: 8-7-14
CHECKED BY: CWE DATE: 12/10/14
DESIGNED BY: LDB DATE: 6/14

FILENAME: b061084_b4.dgn
SCALE: AS NOTED

BRIDGE NO. 07319 DRAWING NO. 56304

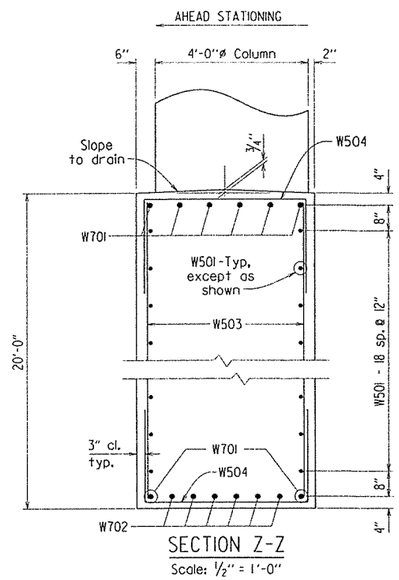
PRINT DATE: 12/5/2014

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.		061084	51	126
				(1) 07319 -		BENT 4		- 56305

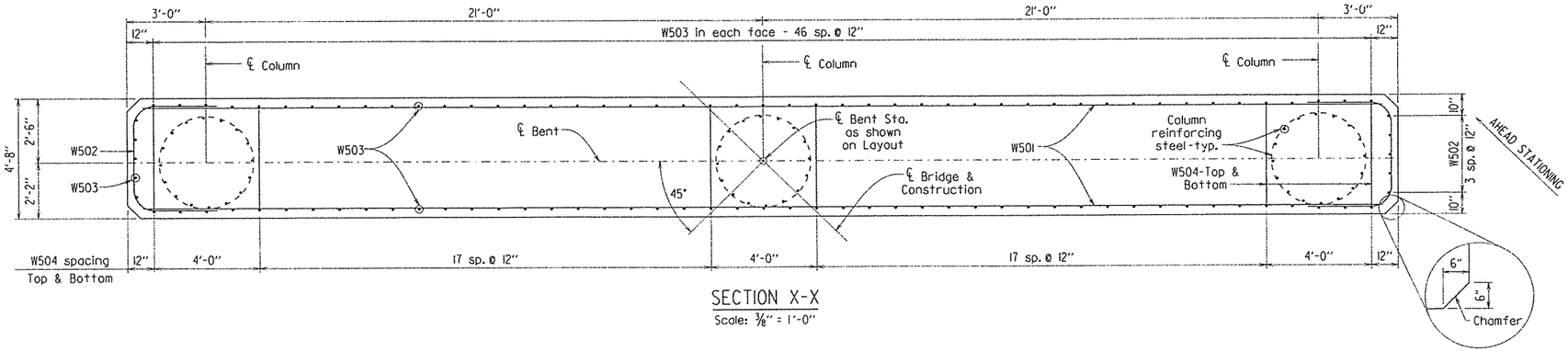


PIER PROTECTION DETAILS

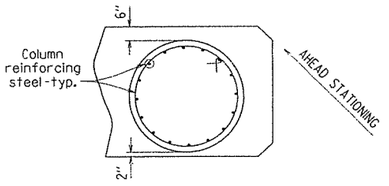
Looking Ahead
Scale: 3/8" = 1'-0"



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



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



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

STATE OF ARKANSAS
Charles R. Ellis
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No. 9235
12-11-14
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF BENT 4

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

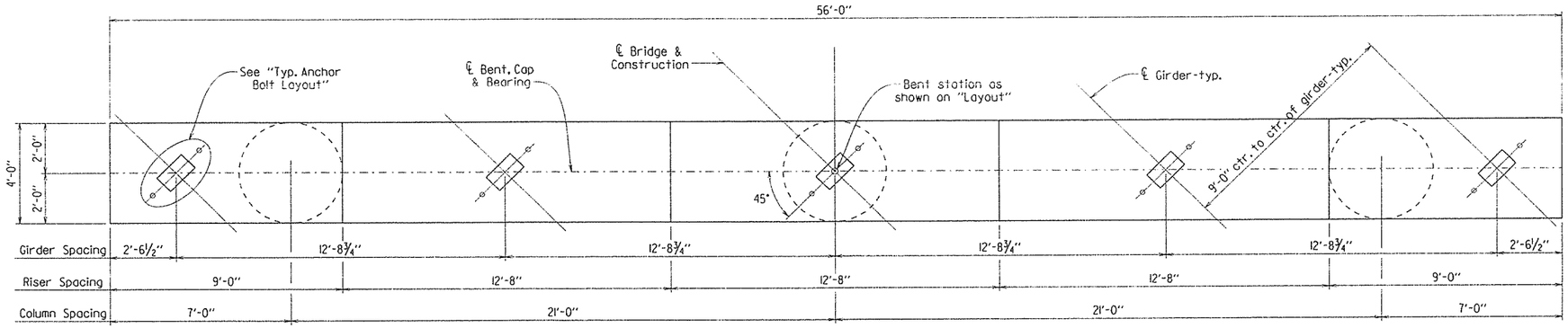
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-7-14
CHECKED BY: [illegible] DATE: [illegible]
DESIGNED BY: LJB DATE: 6/14
FILENAME: b061084_b4.dgn
SCALE: AS NOTED

BRIDGE NO. 07319 DRAWING NO. 56305

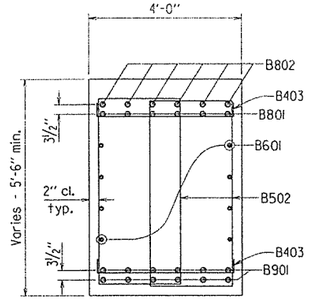
PRINT DATE: 12/5/2014

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.		061084	52	1126
				(1)	07319 -	BENT 5	- 56306	



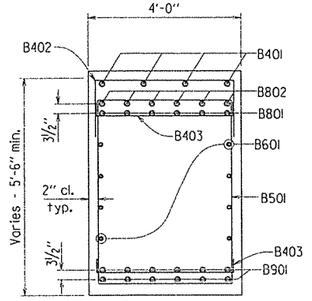
PLAN

Scale: ⅜" = 1'-0"



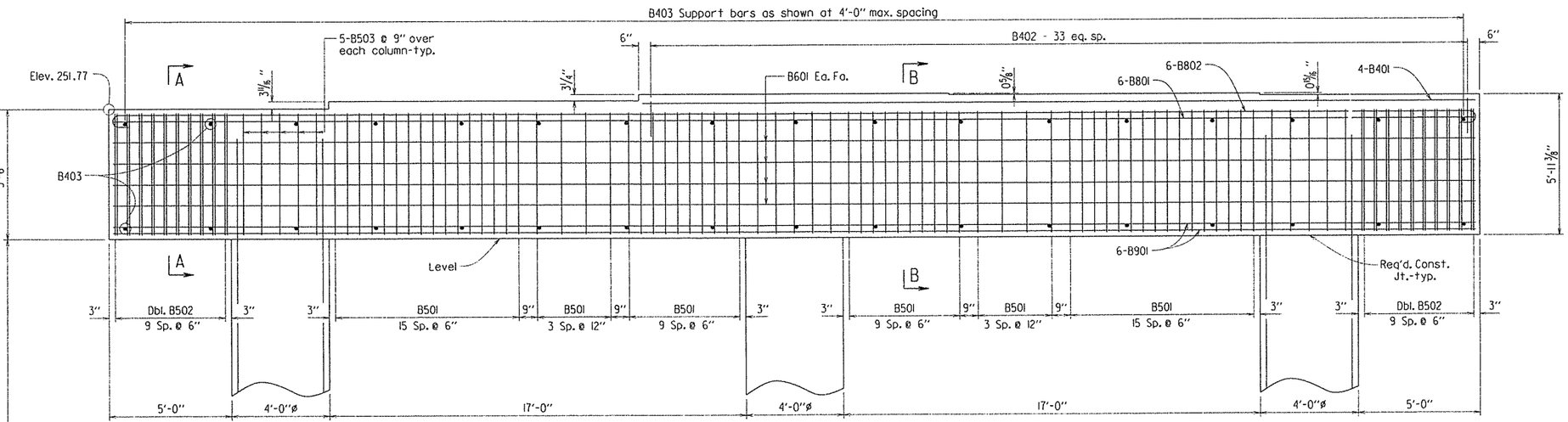
SECTION A-A

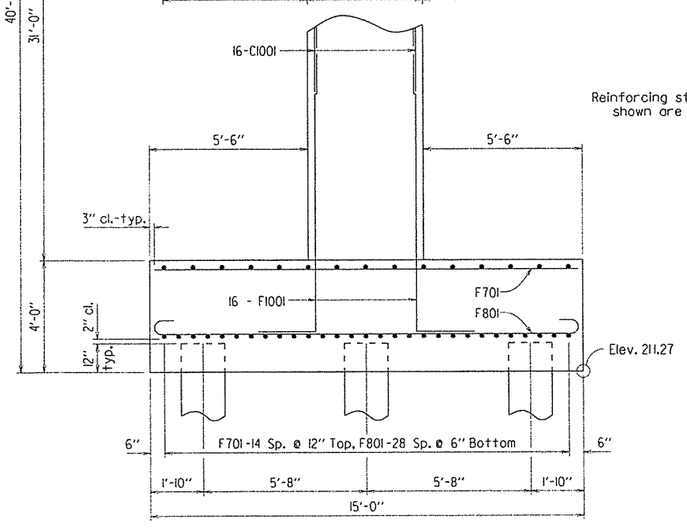
Scale: ½" = 1'-0"



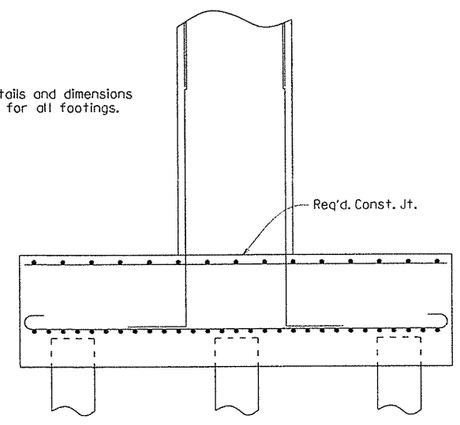
SECTION B-B

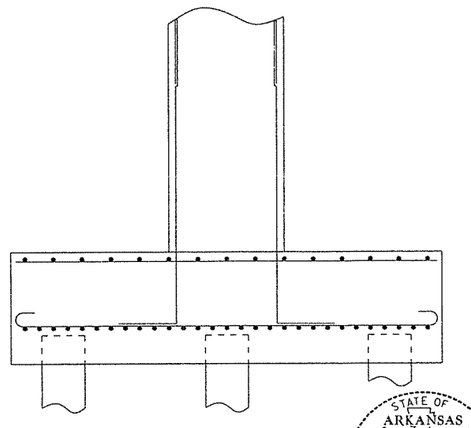
Scale: ½" = 1'-0"





Reinforcing steel, details and dimensions shown are typical for all footings.

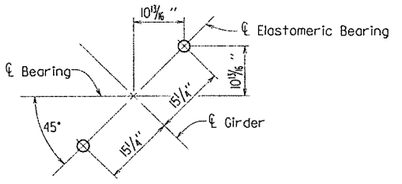




ELEVATION

Looking Ahead

Scale: ⅜" = 1'-0"



For details of elastomeric bearings, see Dwg. No. 56314.

TYP. ANCHOR BOLT LAYOUT

No Scale

GENERAL NOTES

All concrete shall be Class "S" and be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

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

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information, See layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2

DETAILS OF BENT 5

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-6-14 FILENAME: b061084_b5.dgn

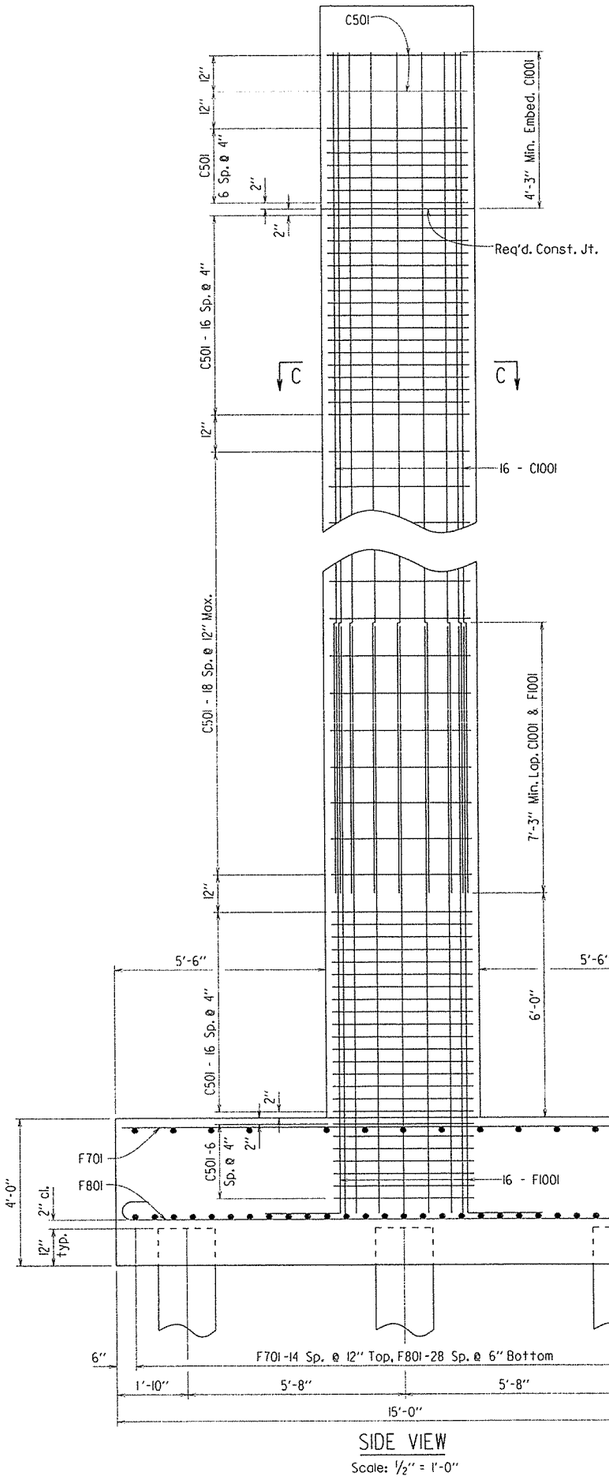
CHECKED BY: [illegible] DATE: 11/14/14 SCALE: AS NOTED

DESIGNED BY: LJB DATE: 6/14

BRIDGE NO. 07319 DRAWING NO. 56306

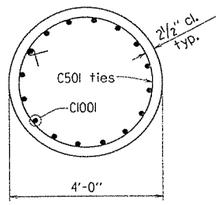
PRINT DATE: 12/5/2014

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.		061084	53	1710
				(1) 07319 -		BENT 5		- 56307



SIDE VIEW

Scale: ½" = 1'-0"



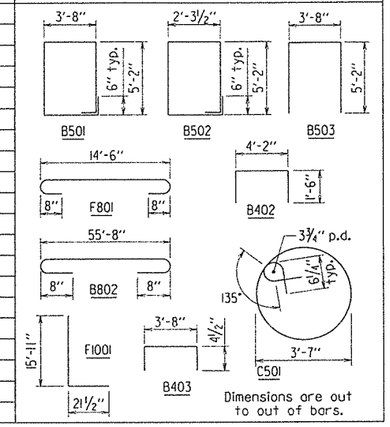
SECTION C-C

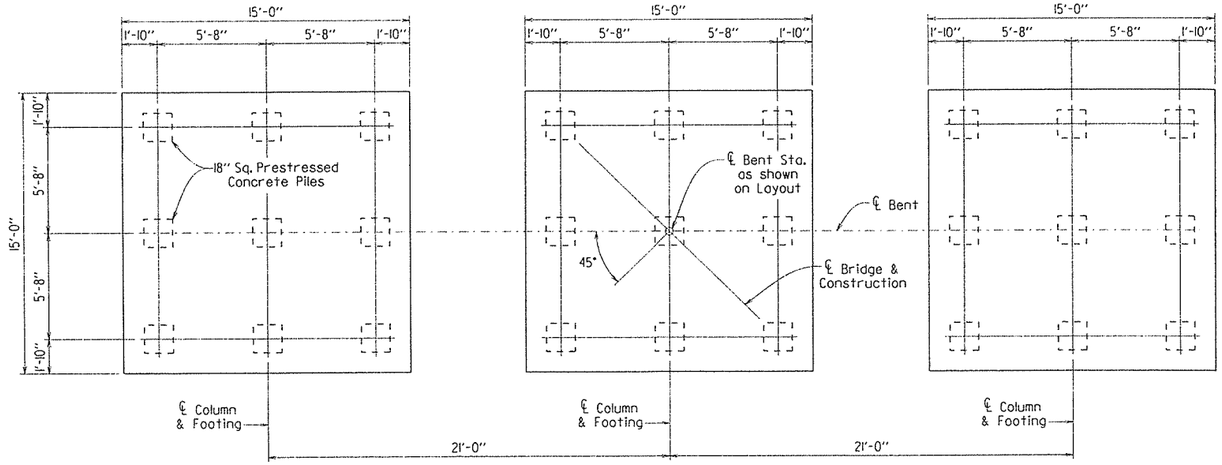
Scale: ½" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
B401	4	34'-0"	Str.
B402	34	7'-0"	2"
B403	34	4'-3"	2"
B501	60	18'-2"	2½"
B502	40	15'-5"	2½"
B503	15	13'-10"	2½"
C501	207	12'-8"	-
B601	8	55'-8"	Str.
F701	90	14'-6"	Str.
B801	6	55'-8"	Str.
B802	6	57'-6"	6"
F801	174	16'-4"	6"
B901	12	55'-8"	Str.
C1001	48	29'-3"	Str.
F1001	48	17'-5"	10"

BENDING DIAGRAMS





STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 5

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-6-14 FILENAME: b061084_b5.dgn

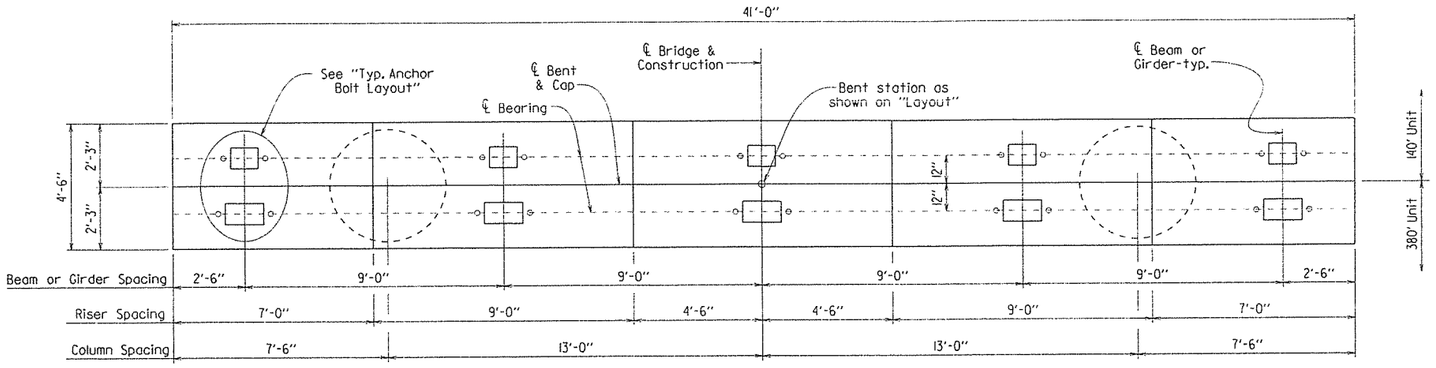
CHECKED BY: VWW DATE: 12/10/14 SCALE: AS NOTED

DESIGNED BY: EJB DATE: 6/14

BRIDGE NO. 07319 DRAWING NO. 56307

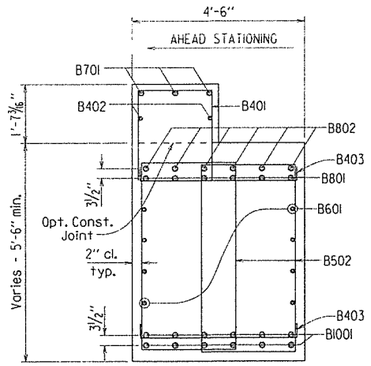
PRINT DATE: 12/5/2014

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.		061084	54	120
				1	07319 -	BENT 6	- 56308	



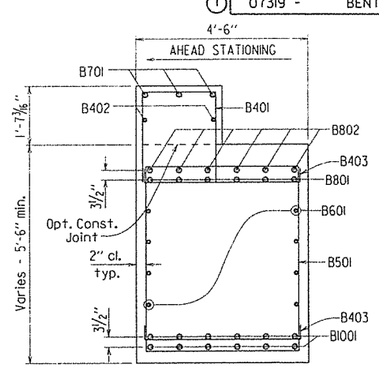
PLAN

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



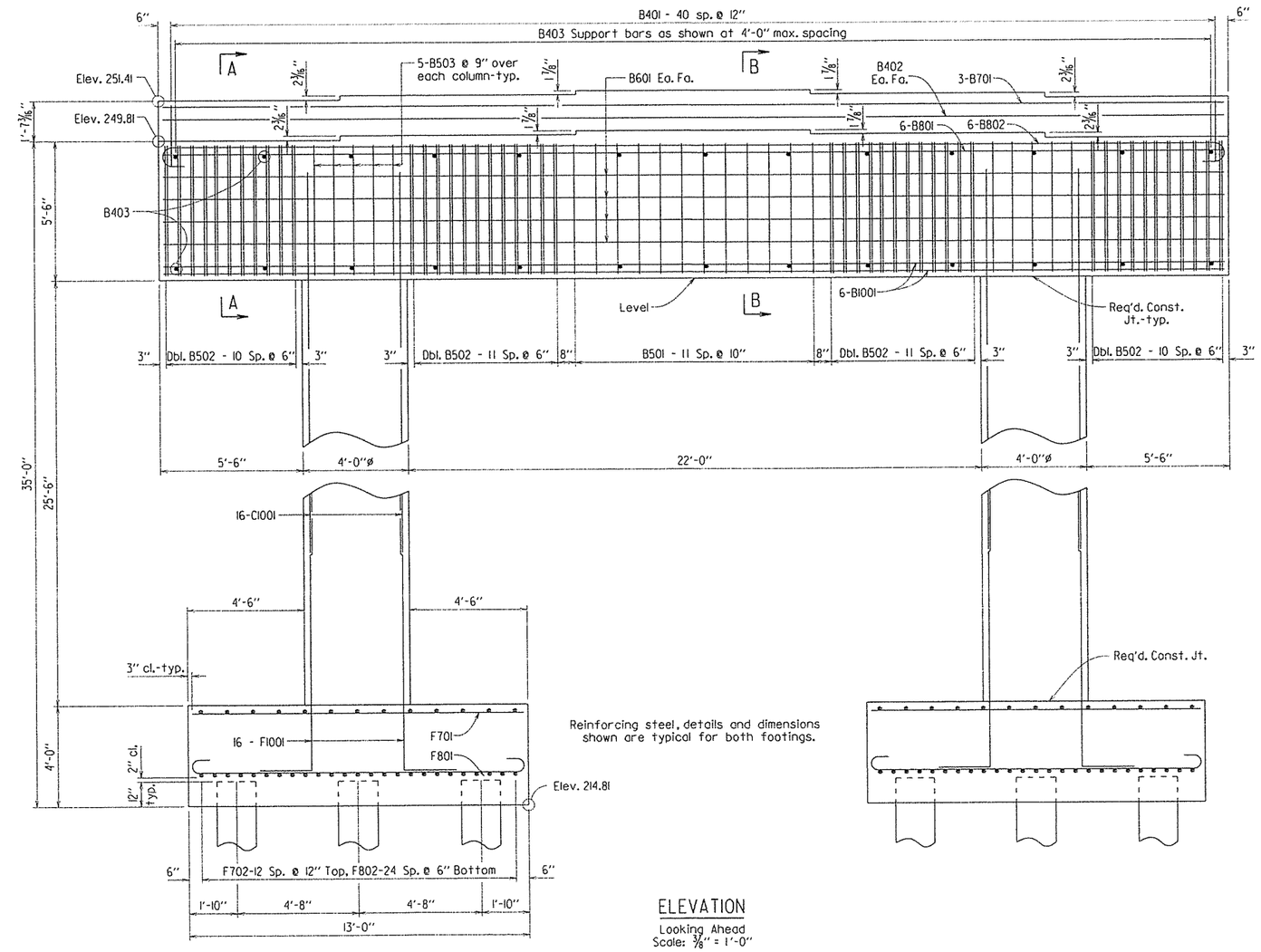
SECTION A-A

Scale: ½" = 1'-0"



SECTION B-B

Scale: ½" = 1'-0"

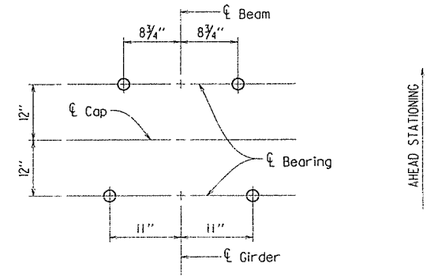


Reinforcing steel, details and dimensions shown are typical for both footings.

ELEVATION

Looking Ahead

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



For details of elastomeric bearings, see Dwg. No. 56314.

TYP. ANCHOR BOLT LAYOUT

No Scale

GENERAL NOTES

All concrete shall be Class "S" and be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

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

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information, See layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2

DETAILS OF BENT 6

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-7-14

CHECKED BY: [illegible] DATE: 12/12/14

DESIGNED BY: LDB DATE: 8/14

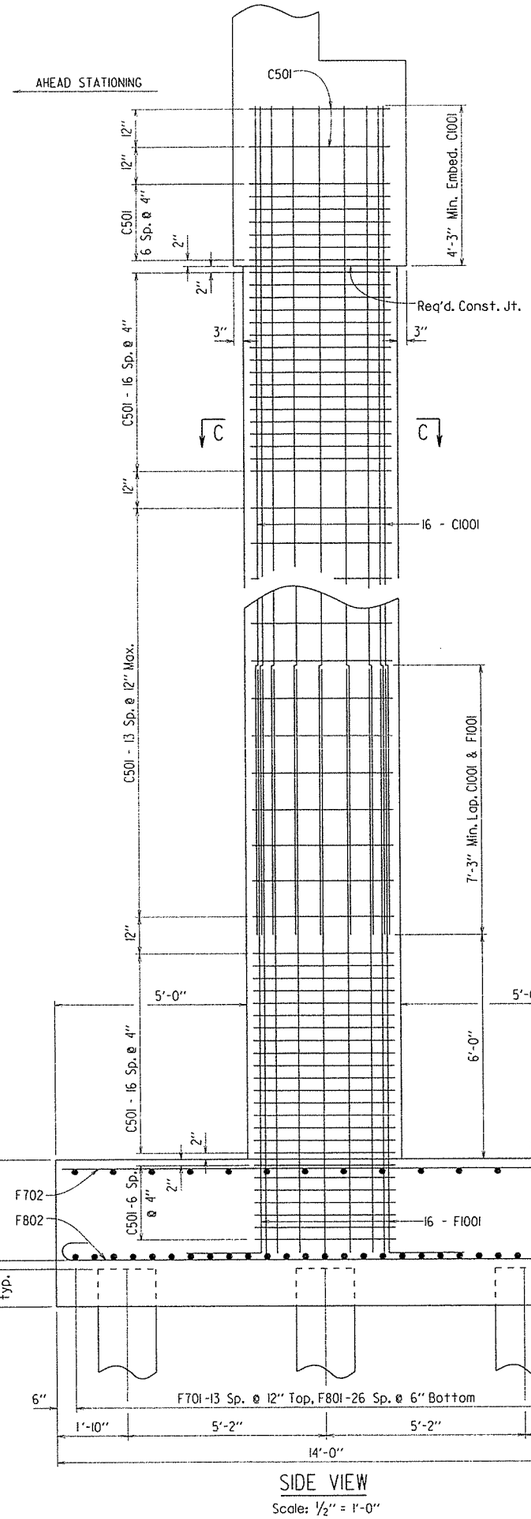
FILENAME: b061084_b6.dgn

SCALE: AS NOTED

BRIDGE NO. 07319 DRAWING NO. 56308

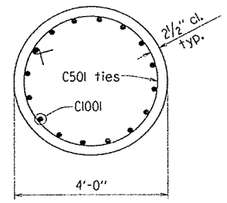
PRINT DATE: 12/5/2014

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.		061084	55	176
				07319 -		BENT 6		- 56309



SIDE VIEW

Scale: ½" = 1'-0"



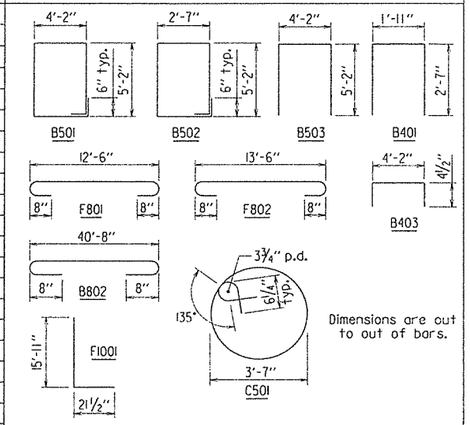
SECTION C-C

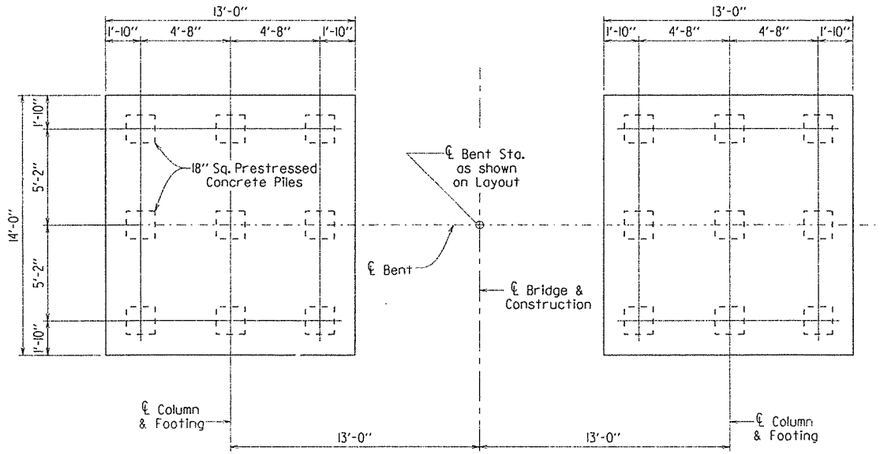
Scale: ½" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
B401	41	6'-11"	2"
B402	2	40'-8"	Str.
B403	26	4'-9"	2"
B501	12	19'-2"	2½"
B502	92	16'-0"	2½"
B503	10	14'-4"	2½"
C501	128	12'-8"	-
B601	8	40'-8"	Str.
B701	3	40'-8"	Str.
F701	28	12'-6"	Str.
F702	26	13'-6"	Str.
B801	6	40'-8"	Str.
B802	6	42'-6"	6"
F801	54	14'-4"	6"
F802	50	15'-4"	6"
B1001	12	40'-8"	Str.
C1001	32	23'-9"	Str.
F1001	32	17'-5"	10"

BENDING DIAGRAMS





PLAN OF FOOTINGS

¼" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 6

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

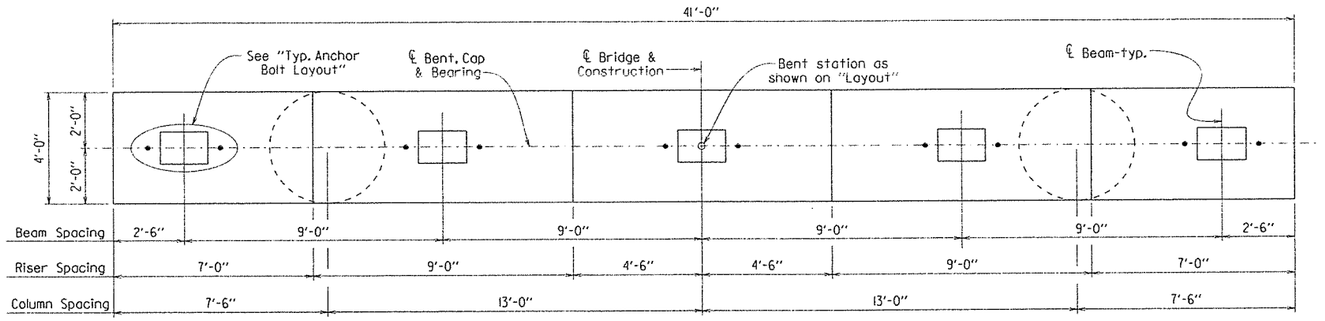
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-7-14
CHECKED BY: [illegible] DATE: 12/10/14
DESIGNED BY: LJB DATE: 6/14
FILENAME: b061084_b6.dgn
SCALE: AS NOTED

BRIDGE NO. 07319 DRAWING NO. 56309

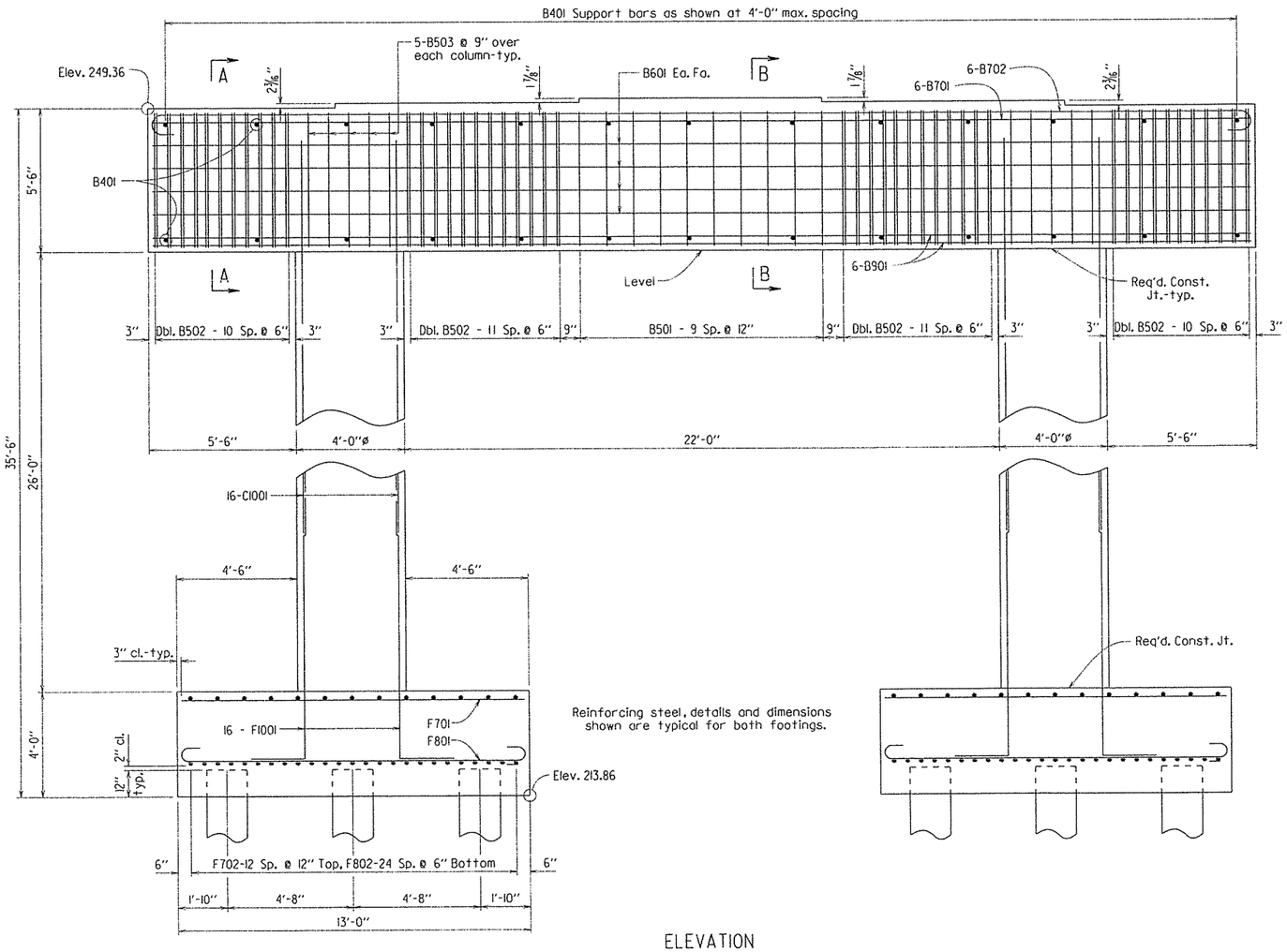
PRINT DATE: 12/5/2014

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.		061084	56	126
				(1) 07319 -		BENT 7	- 56310	



PLAN

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

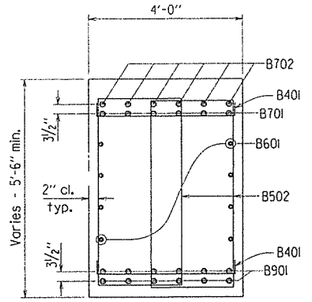


Reinforcing steel, details and dimensions shown are typical for both footings.

ELEVATION

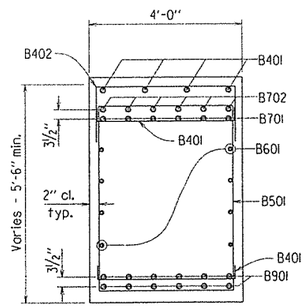
Looking Ahead

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



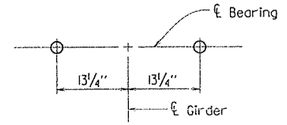
SECTION A-A

Scale: ½" = 1'-0"



SECTION B-B

Scale: ½" = 1'-0"



For details of elastomeric bearings, see Dwg. No. 56314.

TYP. ANCHOR BOLT LAYOUT

No Scale

GENERAL NOTES

All concrete shall be Class "S" and be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

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

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information, See layout.

STATE OF ARKANSAS
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12-1-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 7

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

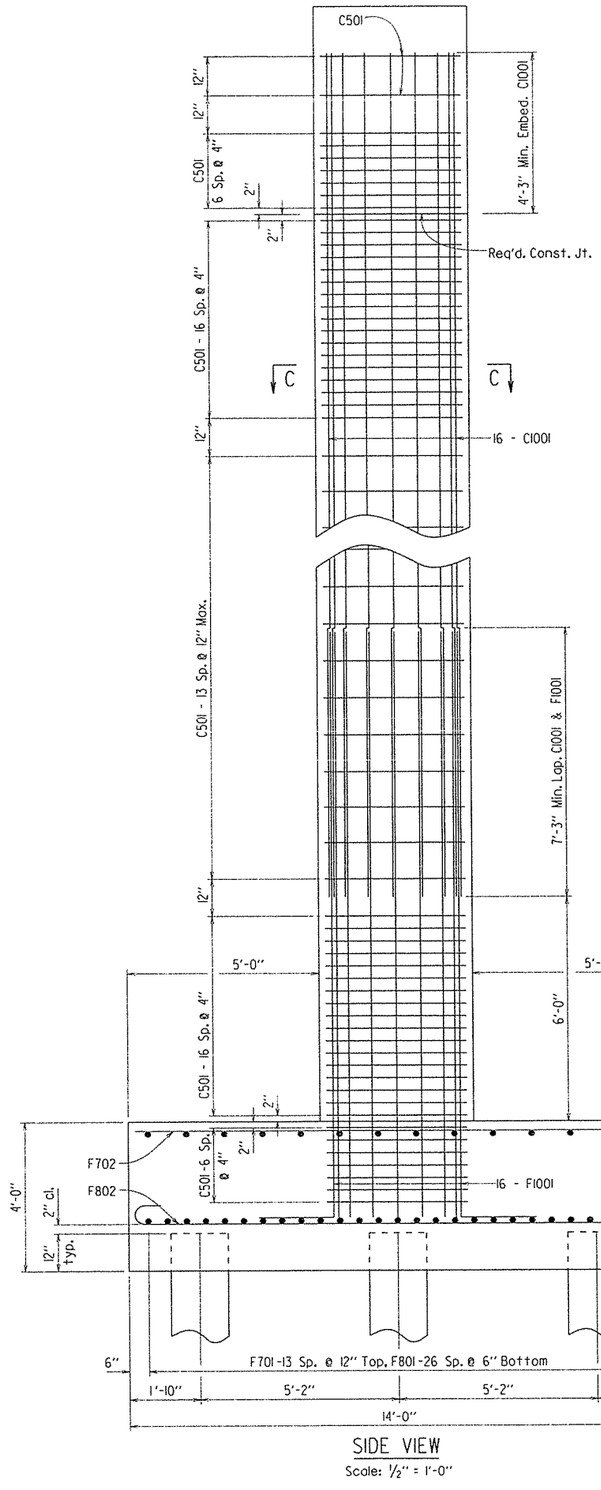
DRAWN BY: KDH DATE: 8-11-14
CHECKED BY: [illegible] DATE: 12/10/14
DESIGNED BY: LDB DATE: 6/14

FILENAME: b061084_b7.dgn
SCALE: AS NOTED

BRIDGE NO. 07319 DRAWING NO. 56310

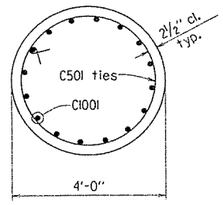
PRINT DATE: 12/5/2014

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.		061084	57	1716
				(1) 07319 -		BENT 7	- 56311	



SIDE VIEW

Scale: ½" = 1'-0"

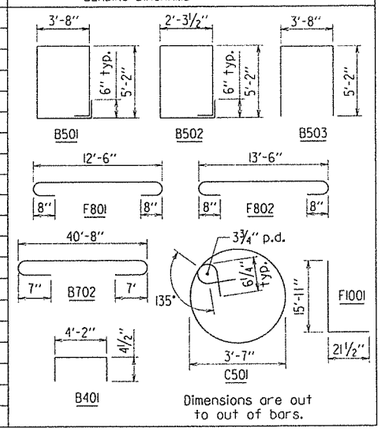


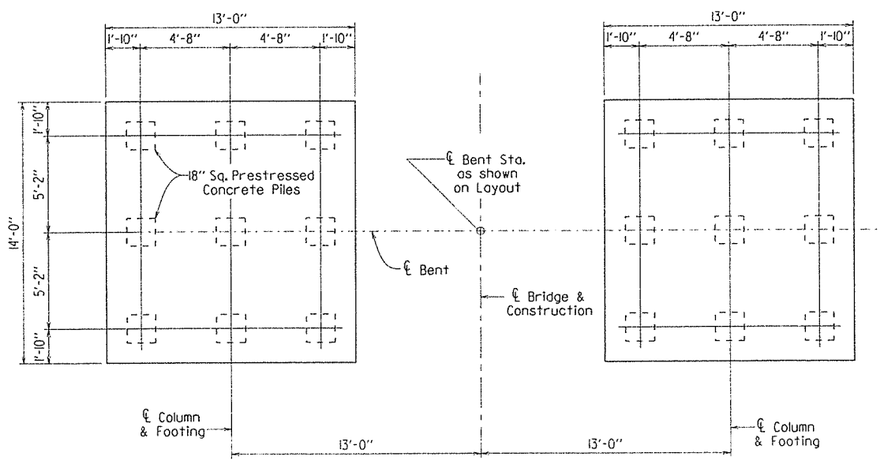
SECTION C-C

Scale: ½" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B401	26	4'-9"	2"	
B501	10	18'-2"	2½"	
B502	92	15'-5"	2½"	
B503	10	13'-10"	2½"	
C501	128	12'-8"	-	
B601	8	40'-8"	Str.	
B701	6	40'-8"	Str.	
B702	6	42'-4"	5¼"	
F701	28	12'-6"	Str.	
F702	26	13'-6"	Str.	
F801	54	14'-4"	6"	
F802	50	15'-4"	6"	
B901	12	40'-8"	Str.	
C1001	32	24'-3"	Str.	
F1001	32	17'-5"	10"	





PLAN OF FOOTINGS

¼" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9233
12-11-14
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 7

ROUTE SEC.

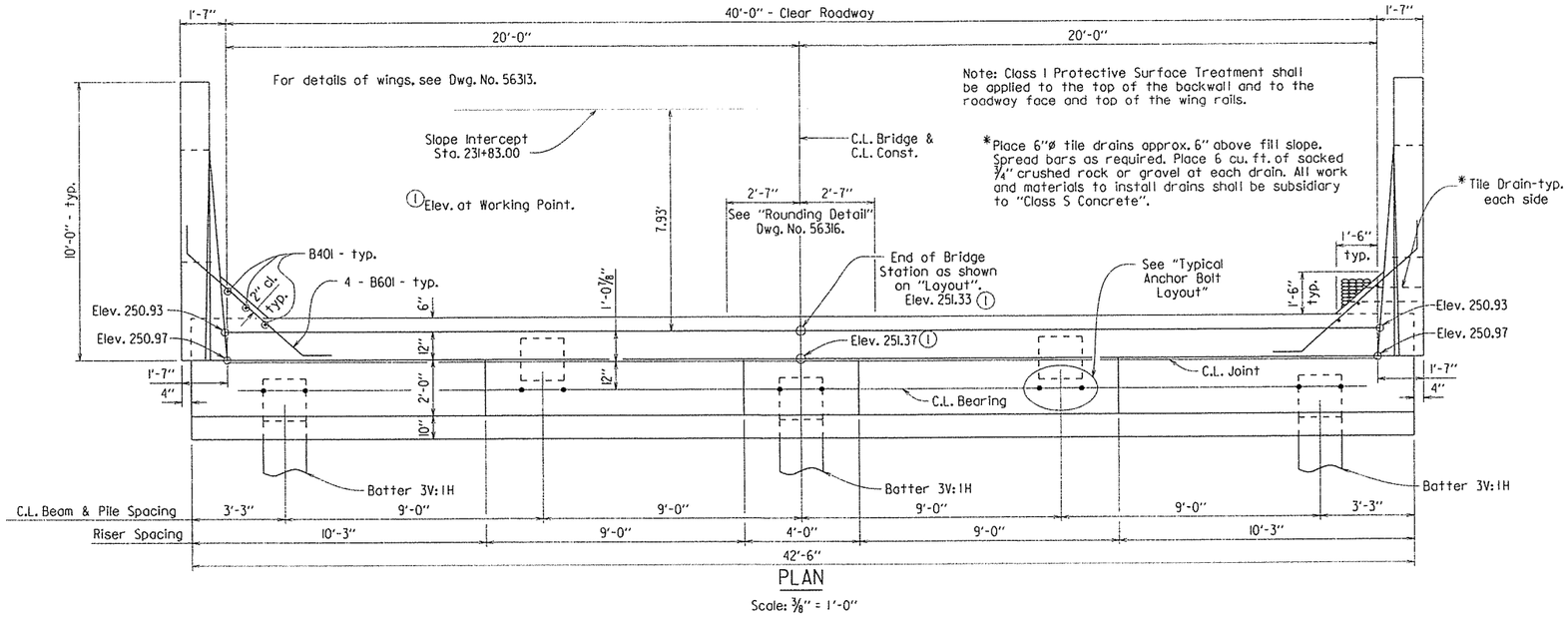
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-11-14 FILENAME: b061084_b7.dgn
CHECKED BY: Lewis DATE: 12/10/14 SCALE: AS NOTED
DESIGNED BY: LJB DATE: 6/14

BRIDGE NO. 07319 DRAWING NO. 56311

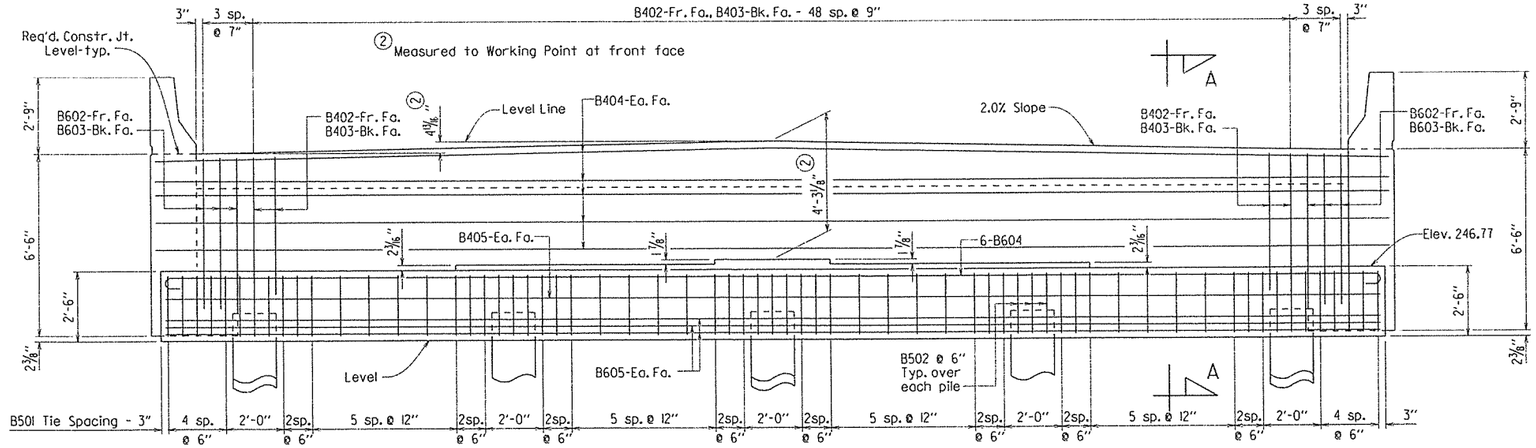
PRINT DATE: 12/5/2014

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.		061084	56	126
				(1) 07319 -		BENT 8	- 56312	



PLAN

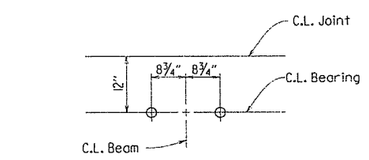
Scale: 3/8" = 1'-0"



ELEVATION

Looking Ahead

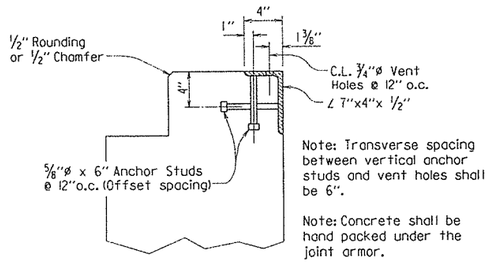
Scale: 3/8" = 1'-0"



For details of elastomeric bearings, see Dwg. No. 56314.

TYPICAL ANCHOR BOLT LAYOUT

No Scale



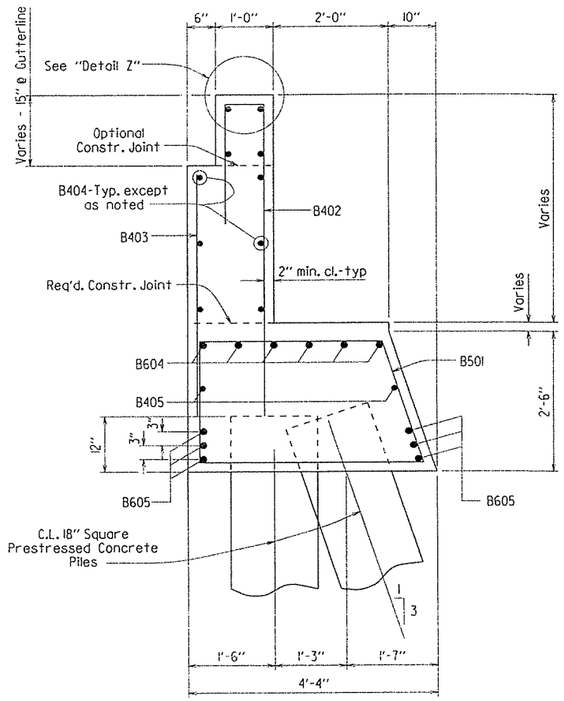
Note: Transverse spacing between vertical anchor studs and vent holes shall be 6".

Note: Concrete shall be hand packed under the joint armor.

Note: For additional joint details, see Dwg. No. 56336.

DETAIL Z

No Scale



SECTION A-A

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

GENERAL NOTES

All concrete shall be Class "S" and shall be poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.

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

No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 56336.

Structural steel in end bents shall be AASHTO M270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)".

If anchor bolts are drilled into cap, top reinforcing bars shall be placed to avoid damage.

For additional information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
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SHEET 1 OF 2
DETAILS OF BENT 8

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

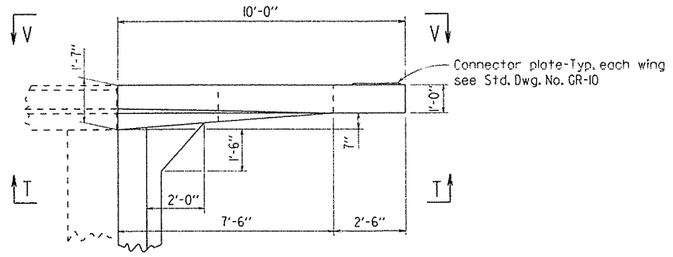
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-14-14 FILENAME: b061084_b8.dgn
CHECKED BY: [illegible] DATE: [illegible] SCALE: AS NOTED
DESIGNED BY: [illegible] DATE: [illegible]

BRIDGE NO. 07319 DRAWING NO. 56312

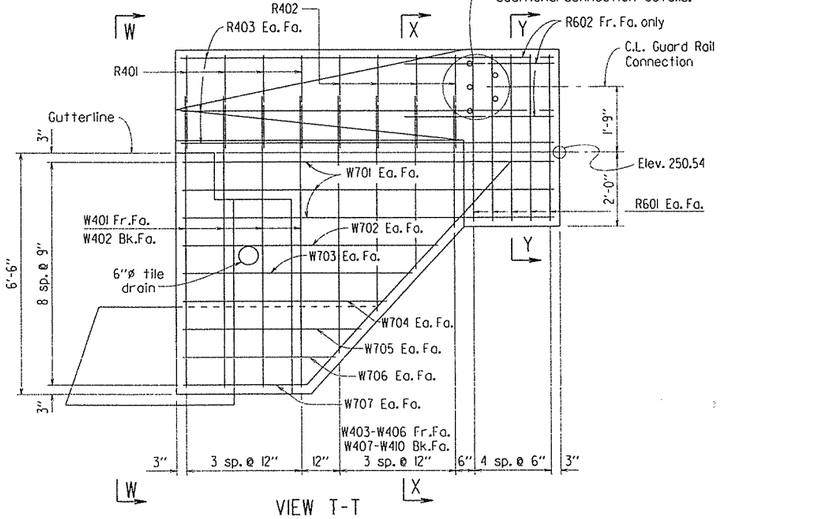
PRINT DATE: 12/5/2014

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.		061084	56	1116
				(1) 07319 -		BENT 8	- 56313	



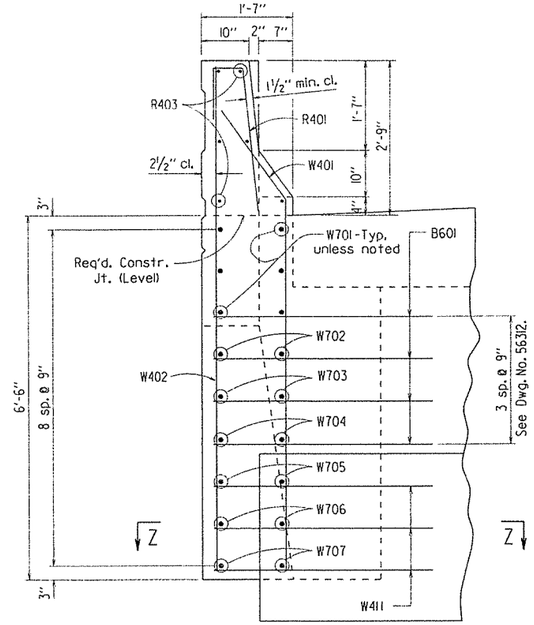
PLAN OF RAIL

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



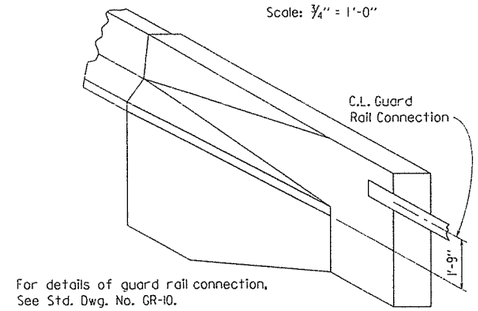
VIEW T-T

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



VIEW W-W

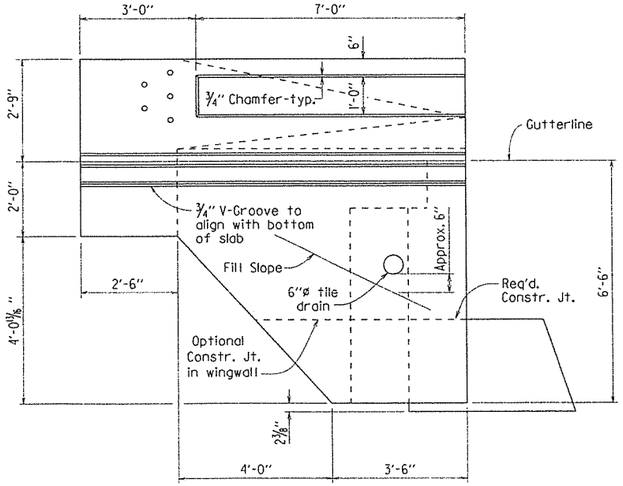
Scale: 3/4" = 1'-0"



For details of guard rail connection, See Std. Dwg. No. GR-10.

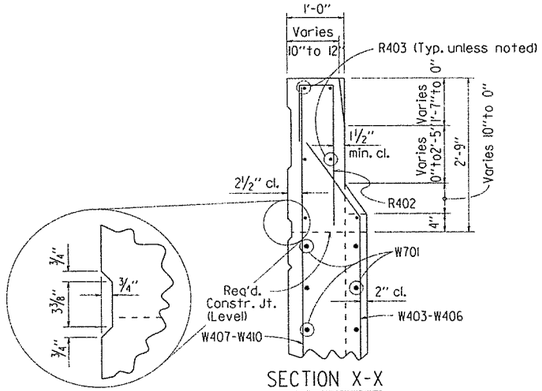
THREE DIMENSIONAL VIEW OF RAIL

No Scale



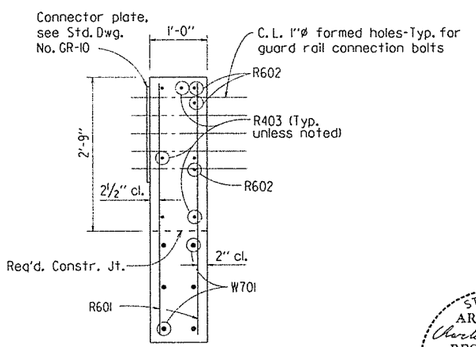
VIEW V-V

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



SECTION X-X

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



SECTION Y-Y

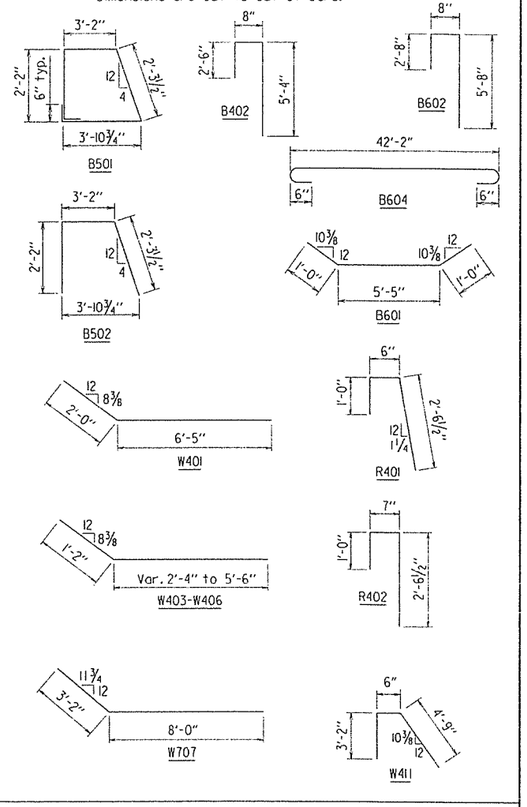
Scale: 3/4"= 1'-0"

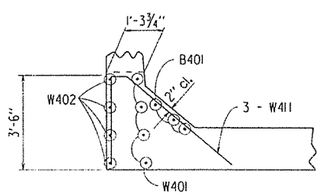
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
B401	6	4'-11"	Str.
B402	49	8'-4"	2"
B403	49	3'-11"	Str.
B404	10	42'-10"	Str.
B405	2	42'-2"	Str.
R401	8	3'-11"	2"
R402	8	4'-0"	2"
R403	12	9'-8"	Str.
W401	8	8'-5"	2"
W402	8	8'-9"	Str.
W403-W406	2 each	Var. 3'-6" to 6'-8"	2"
W407-W410	2 each	Var. 4'-8" to 7'-10"	Str.
W411	6	8'-3"	2"
B501	50	12'-1"	2½"
B502	15	7'-5"	2½"
B601	8	7'-5"	4½"
B602	6	8'-8"	4½"
B603	6	4'-9"	Str.
B604	6	43'-6"	4½"
B605	6	42'-2"	Str.
R601	20	4'-5"	Str.
R602	6	5'-0"	Str.
W701	12	9'-8"	Str.
W702	4	6'-10"	Str.
W703	4	6'-3"	Str.
W704	4	5'-6"	Str.
W705	4	4'-9"	Str.
W706	4	4'-0"	Str.
W707	4	11'-2"	5¼"

BENDING DIAGRAMS

Dimensions are out to out of bars.





SECTION Z-Z

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

STATE OF ARKANSAS
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REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

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SHEET 2 OF 2
DETAILS OF BENT 8

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-14-14 FILENAME: b061084_b8.dgn

CHECKED BY: KWY DATE: 8/14/14 SCALE: AS NOTED

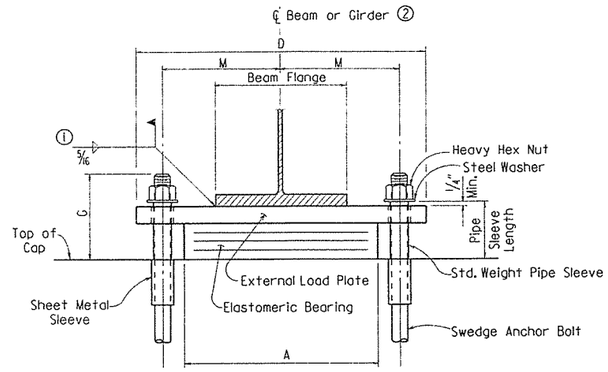
DESIGNED BY: KWY DATE: 8/14

BRIDGE NO. 07319 DRAWING NO. 56313

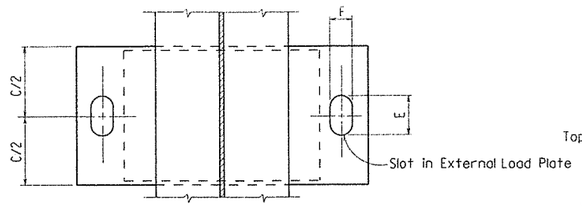
PRINT DATE: 12/5/2014

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.		061084	100	126

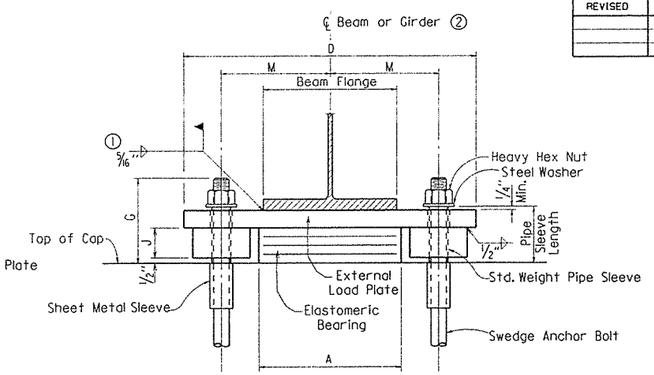
① 07319 - ELASTOMERIC BEARINGS - 56314



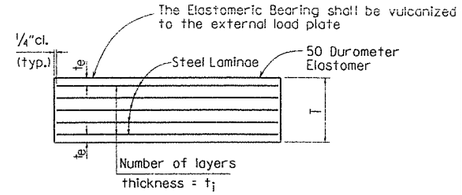
FRONT VIEW - AT EXPANSION BEARINGS



PLAN VIEW - AT EXPANSION BEARINGS

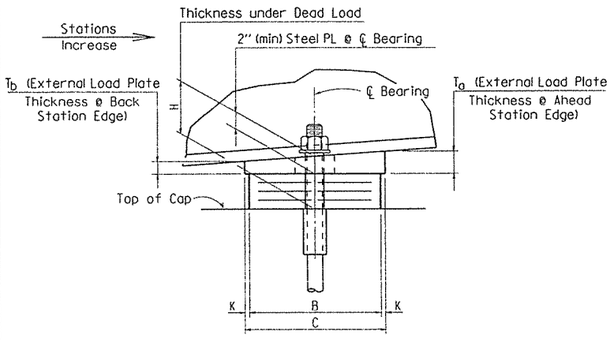


FRONT VIEW - AT FIXED BEARINGS

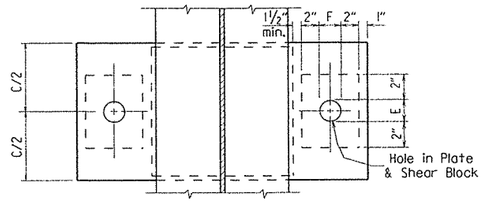


t_e = thickness of elastomer cover on top and bottom of pad
t_i = thickness of elastomer between steel laminae
N = number of elastomer layers of thickness t_i

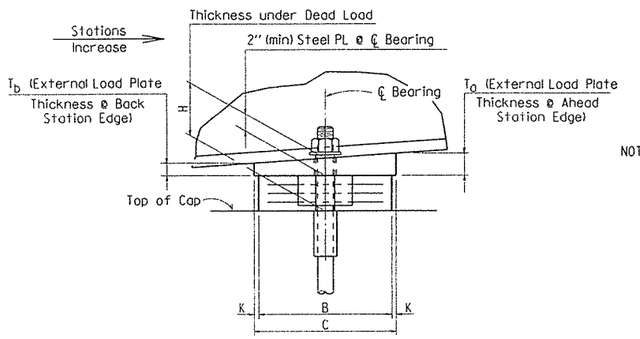
ELASTOMERIC BEARING



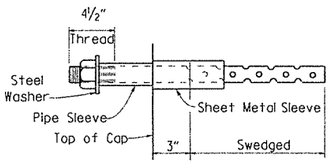
SIDE VIEW - AT EXPANSION BEARINGS



PLAN VIEW - AT FIXED BEARINGS



SIDE VIEW - AT FIXED BEARINGS



ANCHOR BOLT DETAIL

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

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M270, Gr. 50W)" or "Structural Steel in Beam Spans (M270, Gr. 50W)."

① 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.

② Centerline Beam or Girder shall align with centerline bearing.

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

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION: BENT NO(S).	LOCATION: UNIT	LOCATION: GIRDER NO.	BEARING TYPE	NO. of BEARINGS	*MAXIMUM DESIGN LOAD (KIPS)	ELASTOMERIC PAD: G	ELASTOMERIC PAD: H	ELASTOMERIC PAD: A	ELASTOMERIC PAD: B	ELASTOMERIC PAD: N	ELASTOMERIC PAD: t_i	ELASTOMERIC PAD: t_e	ELASTOMERIC PAD: NO. & THICKNESS OF STEEL LAMINAE	ELASTOMERIC PAD: T	EXTERNAL LOAD PLATE: C	EXTERNAL LOAD PLATE: D	EXTERNAL LOAD PLATE: E	EXTERNAL LOAD PLATE: F	EXTERNAL LOAD PLATE: J	EXTERNAL LOAD PLATE: K	EXTERNAL LOAD PLATE: M	EXTERNAL LOAD PLATE: T_a	EXTERNAL LOAD PLATE: T_b	ANCHOR BOLT: ANCHOR BOLT (ø x L)	ANCHOR BOLT: GRADE	ANCHOR BOLT: PIPE SLEEVE SIZE (ø x L)	ANCHOR BOLT: SHEET METAL SLEEVE SIZE (ø x L)	ANCHOR BOLT: STEEL WASHER SIZE (O.D.)
07319	1	240'	All	Exp	5	158	9"	5 9/16"	16"	9"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"	10"	28 1/2"	5 1/4"	3 1/8"	NA	1/2"	11"	2.16	1.84	2"ø x 31"	55	2 1/2"ø x 6"	4"ø x 7"	3 3/4"
	2	240'	All	Fix	5	439	8"	4 3/8"	20"	14"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	15"	39 3/4"	5 1/4"	3 1/8"	1 7/8"	1/2"	15 1/4"	2.24	1.76	2 1/4"ø x 33"	55	2 1/2"ø x 4 3/4"	4"ø x 10"	4"
	3	240'	All	Exp	5	158	9"	5 9/16"	16"	9"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"	10"	28 1/2"	5 1/4"	3 1/8"	NA	1/2"	11"	2.09	1.91	2"ø x 31"	55	2 1/2"ø x 6"	4"ø x 10"	3 3/4"
	3	380'	All	Exp	5	148	9 1/4"	5 9/16"	16"	9"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"	10"	28 1/2"	6 1/4"	3 1/8"	NA	1/2"	11"	2.09	1.91	2 1/4"ø x 34"	55	2 1/2"ø x 6"	4"ø x 10"	4"
	4	380'	1	Fix	1	321	8"	4 3/8"	20"	16"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	17"	39 3/4"	3 1/8"	3 1/8"	1 7/8"	1/2"	15 1/4"	2.06	1.94	2 1/4"ø x 33"	55	2 1/2"ø x 4 3/4"	4"ø x 12"	4"
	4	380'	2	Fix	1	471	8"	4 3/8"	20"	16"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	17"	39 3/4"	3 1/8"	3 1/8"	1 7/8"	1/2"	15 1/4"	2.05	1.95	2 1/4"ø x 33"	55	2 1/2"ø x 4 3/4"	4"ø x 12"	4"
	4	380'	3	Fix	1	372	8"	4 3/8"	20"	16"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	17"	39 3/4"	3 1/8"	3 1/8"	1 7/8"	1/2"	15 1/4"	2.04	1.96	2 1/4"ø x 33"	55	2 1/2"ø x 4 3/4"	4"ø x 12"	4"
	4	380'	4	Fix	1	473	8"	4 3/8"	20"	16"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	17"	39 3/4"	3 1/8"	3 1/8"	1 7/8"	1/2"	15 1/4"	2.03	1.97	2 1/4"ø x 33"	55	2 1/2"ø x 4 3/4"	4"ø x 12"	4"
	4	380'	5	Fix	1	391	8"	4 3/8"	20"	16"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	17"	39 3/4"	3 1/8"	3 1/8"	1 7/8"	1/2"	15 1/4"	2.02	1.98	2 1/4"ø x 33"	55	2 1/2"ø x 4 3/4"	4"ø x 12"	4"
	5	380'	1	Fix	1	390	8"	4 3/8"	20"	16"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	17"	39 3/4"	3 1/8"	3 1/8"	1 7/8"	1/2"	15 1/4"	1.91	2.09	2 1/4"ø x 33"	55	2 1/2"ø x 4 3/4"	4"ø x 12"	4"
	5	380'	2	Fix	1	477	8"	4 3/8"	20"	16"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	17"	39 3/4"	3 1/8"	3 1/8"	1 7/8"	1/2"	15 1/4"	1.90	2.10	2 1/4"ø x 33"	55	2 1/2"ø x 4 3/4"	4"ø x 12"	4"
	5	380'	3	Fix	1	371	8"	4 3/8"	20"	16"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	17"	39 3/4"	3 1/8"	3 1/8"	1 7/8"	1/2"	15 1/4"	1.89	2.11	2 1/4"ø x 33"	55	2 1/2"ø x 4 3/4"	4"ø x 12"	4"
	5	380'	4	Fix	1	468	8"	4 3/8"	20"	16"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	17"	39 3/4"	3 1/8"	3 1/8"	1 7/8"	1/2"	15 1/4"	1.88	2.12	2 1/4"ø x 33"	55	2 1/2"ø x 4 3/4"	4"ø x 12"	4"
	5	380'	5	Fix	1	320	8"	4 3/8"	20"	16"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	17"	39 3/4"	3 1/8"	3 1/8"	1 7/8"	1/2"	15 1/4"	1.88	2.12	2 1/4"ø x 33"	55	2 1/2"ø x 4 3/4"	4"ø x 12"	4"
	6	380'	All	Exp	5	148	9 1/4"	5 9/16"	16"	9"	5	1/2"	1/4"	6 @ 12 Ga.	3 5/8"	10"	28 1/2"	6 1/4"	3 1/8"	NA	1/2"	11"	1.87	2.13	2 1/4"ø x 34"	55	2 1/2"ø x 6"	4"ø x 10"	4"
	6	140'	All	Exp	5	112	6 3/4"	3 15/16"	13"	9"	2	1/2"	1/4"	3 @ 12 Ga.	1 13/16"	10"	23"	3 1/2"	2 1/4"	NA	1/2"	8 3/4"	1.87	2.13	1 1/2"ø x 24"	55	1 1/2"ø x 3 3/4"	3"ø x 6"	3"
	7	140'	All	Fix	5	247	7 1/4"	3 15/16"	16"	14"	2	1/2"	1/4"	3 @ 12 Ga.	1 13/16"	15"	35 3/4"	3 1/8"	3 1/8"	1 5/16"	1/2"	13 1/4"	1.75	2.25	2"ø x 29"	55	2 1/2"ø x 4 1/4"	4"ø x 10"	3 3/4"
	8	140'	All	Exp	5	112	6 3/4"	3 15/16"	13"	9"	2	1/2"	1/4"	3 @ 12 Ga.	1 13/16"	10"	23"	3 1/2"	2 1/4"	NA	1/2"	8 3/4"	1.79	2.21	1 1/2"ø x 24"	55	1 1/2"ø x 3 3/4"	3"ø x 7"	3"

* Maximum Design Load = Service I Limit State

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 AASHTO M270, Grade 50W. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M232, Class C or ASTM B695, Class 50.

External load plates and external load plates with shear blocks shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. Surfaces 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(e) for unpainted weathering steel.

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

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Plate Girder Spans (M270, Gr. 50W)" or "Structural Steel in Beam Spans (M270, Gr. 50W)". External load plates and shear blocks will not be measured or paid for seperately, but will be considered included in the unit bid price for "Elastomeric Bearings."

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 5/27/2014 FILENAME: b050521_el.dgn
CHECKED BY: KWT DATE: 12/10/14 SCALE: No Scale
DESIGNED BY: Std. DATE:

BRIDGE NO. 07319 DRAWING NO. 56314

PRINT DATE: 12/5/2014

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.		061084	61	126
				①		07319 - 240 FT. UNIT - 56315		

SLAB REINFORCING

Longitudinal: S401E as shown
S601E placed as shown over interior supports. See "REINFORCING PLAN" Dwg. No. 56318

Transverse: S502E @ 12" o.c. bent up over beams — Alternate
S501E @ 12" o.c. in top, S402E @ 12" o.c. in bottom
S503E @ 6" o.c. in top of overhangs (bundled with #5 bars)

① See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE", Dwg. No. 56316

② Tolerance: Minus = 1/4"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance - See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE", Dwg. No. 56316

③ Working Point to Gutter Line

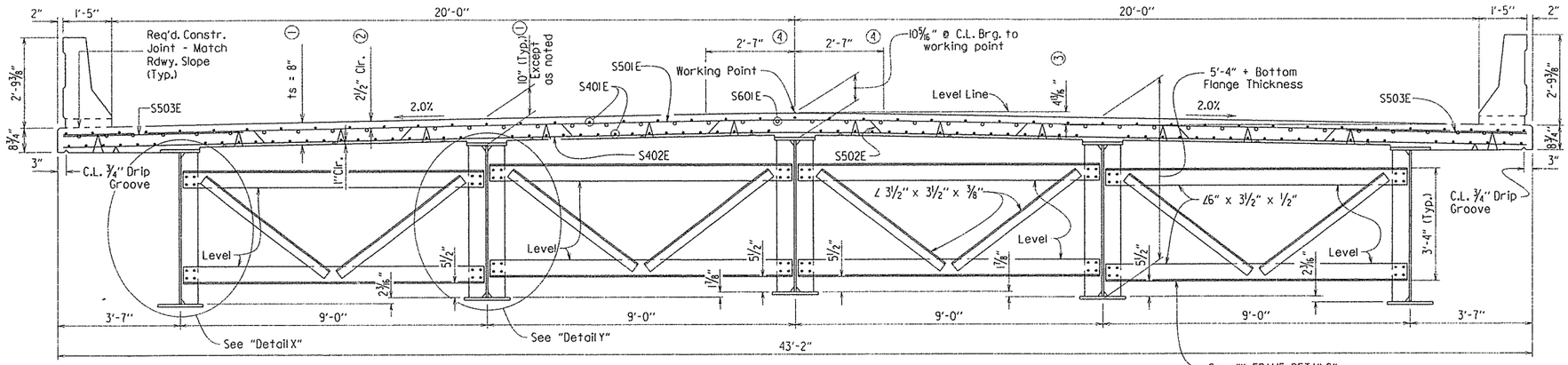
④ See "ROUNDING DETAIL", Dwg. No. 56316

The superstructure details shown are for use when Removable Deck Forming is used and are the basis for measurement of Class S(AE) Concrete.

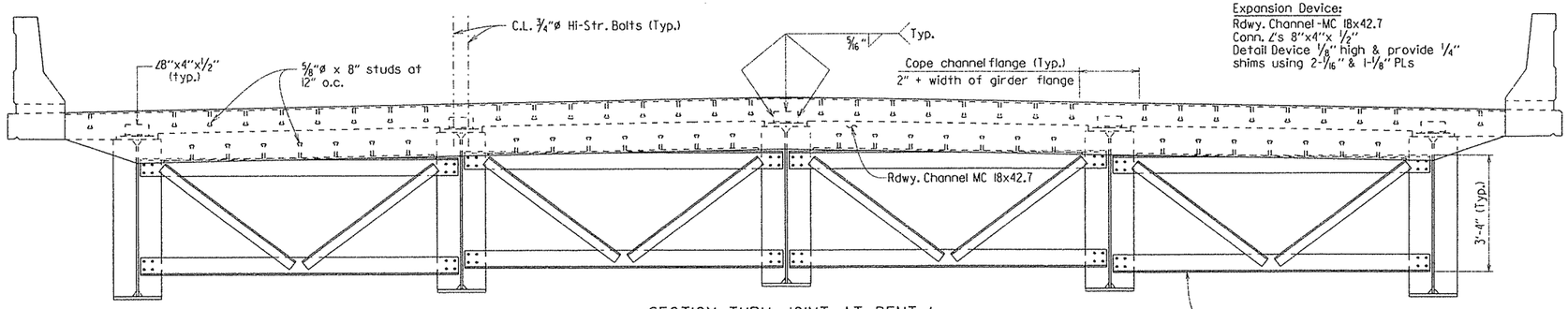
At the contractor's option, two epoxy coated straight #5 bars may be substituted for bar S502E. Payment will be based on weight of S502E.

Class I Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Parapet Rail.

Bar positions and clearances shall be maintained by means of stays, ties, hangers or other approved devices sufficient in size and number to prevent displacement during construction. See Subsection 804.06.

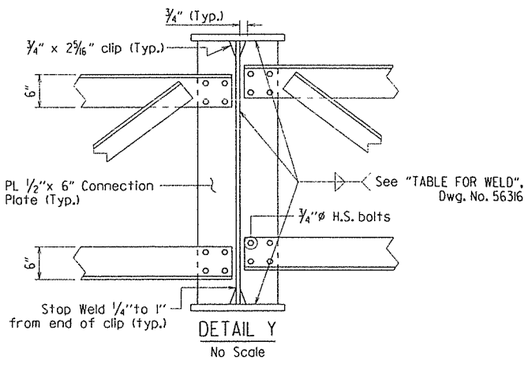


TYPICAL ROADWAY SECTION
Scale: 1/2" = 1'-0"



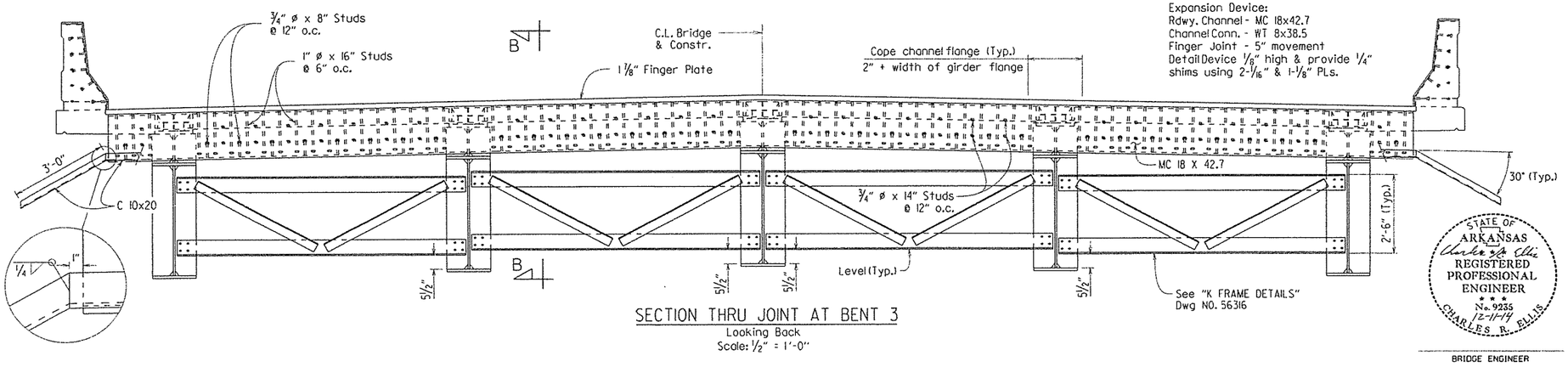
SECTION THRU JOINT AT BENT 1
Looking Ahead
Scale: 1/2" = 1'-0"

Expansion Device:
Rdwy. Channel - MC 18x42.7
Conn. ∠'s 8"x4"x 1/2"
Detail Device 1/8" high & provide 1/4" shims using 2-1/16" & 1-1/8" PLs



DETAIL X
No Scale

DETAIL Y
No Scale



SECTION THRU JOINT AT BENT 3
Looking Back
Scale: 1/2" = 1'-0"

Expansion Device:
Rdwy. Channel - MC 18x42.7
Channel Conn. - WT 8x38.5
Finger Joint - 5" movement
Detail Device 1/8" high & provide 1/4" shims using 2-1/16" & 1-1/8" PLs.

For "SECTION B-B" see Dwg. No. 56316

For details of poured silicone joint, see Dwg. No. 56336

For details of finger joint, see Dwg. No. 56335

For Superstructure General Notes, See Dwg. No 56334.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS
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SHEET 1 OF 6
DETAILS OF 240'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 5/1/14 FILENAME: b061084_sl.dgn
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BRIDGE NO. 07319 DRAWING NO. 56315

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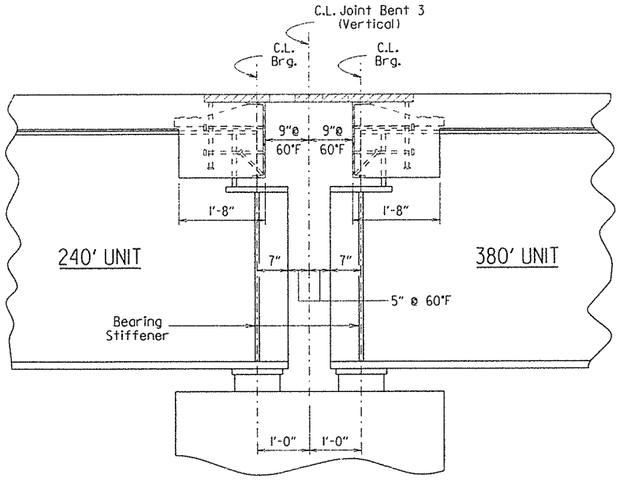
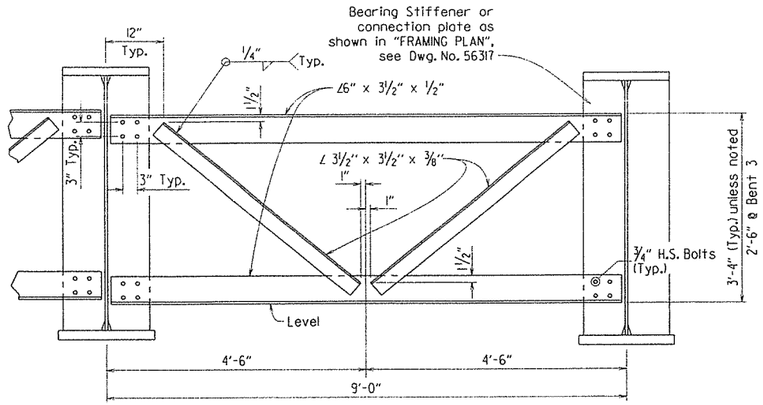
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	02	12
				07319 - 240 FT. UNIT - 56316				



SECTION B-B

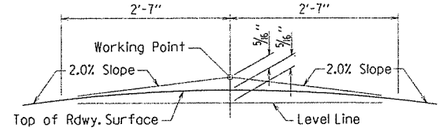
No Scale



K-FRAME DETAILS

3/4" = 1'-0"

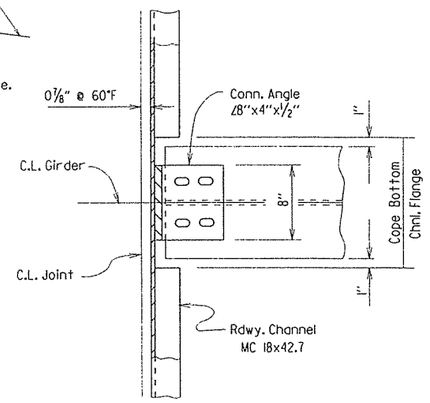
NOTE: Bolts in K-frame connections shall be properly installed and tightened in accordance with Subsection 807.71.



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

No Scale



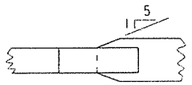
CHANNEL CONNECTION DETAIL - BENT 1

No Scale

TABLE FOR WELD

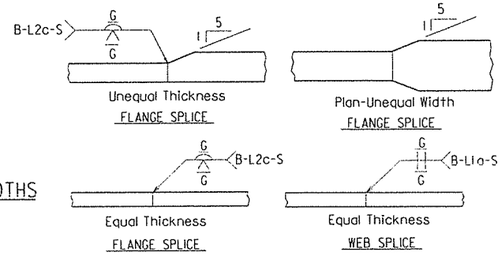
Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To 3/4" Inclusive	1/4"	
Over 3/4"	5/16"	

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



FIELD SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS

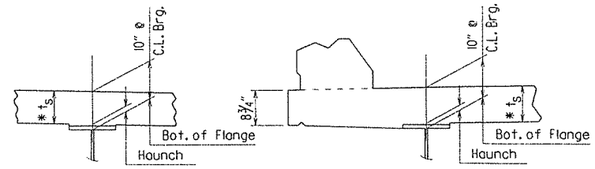
No Scale



DETAILS OF WELDED SPLICES

No Scale

t_S = slab thickness as shown in "TYPICAL ROADWAY SECTION", Dwg. No. 56315



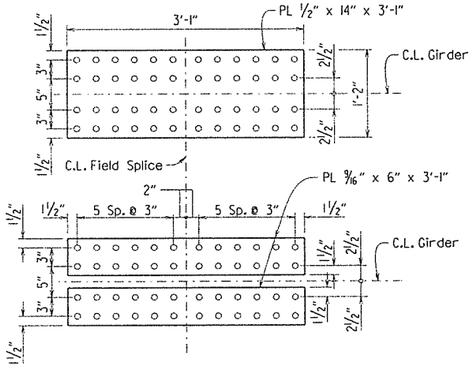
*Tolerance when removable deck forming is used is + 1/2", - 1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

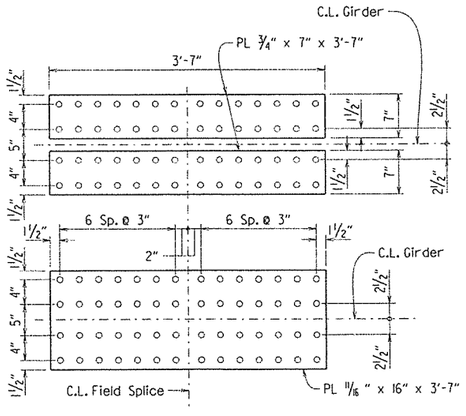
NOTES:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1 3/4". No increase in concrete and structural steel quantities will be made to maintain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



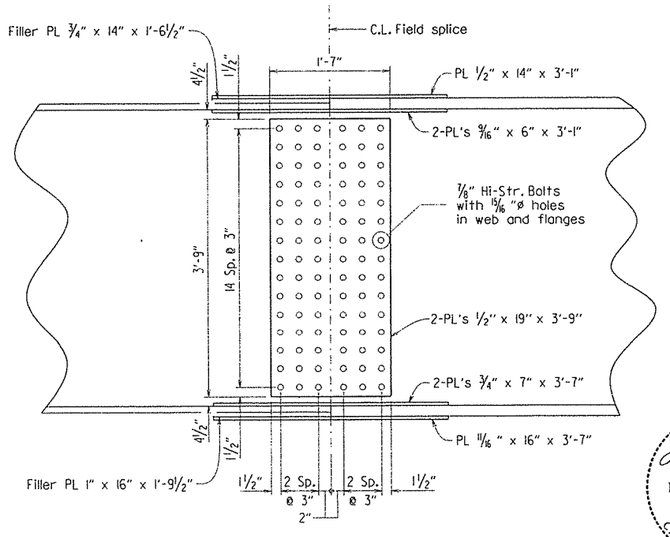
TOP FLANGE SPLICE

No Scale



BOTTOM FLANGE SPLICE

No Scale



WEB SPLICE

No Scale

NOTE: All Field Splice plates to be AASHTO M270, Gr. 50W.

STATE OF ARKANSAS
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CHARLES R. ELLIS

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SHEET 2 OF 6
DETAILS OF 240'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 5/1/14 FILENAME: b061084_sl.dgn
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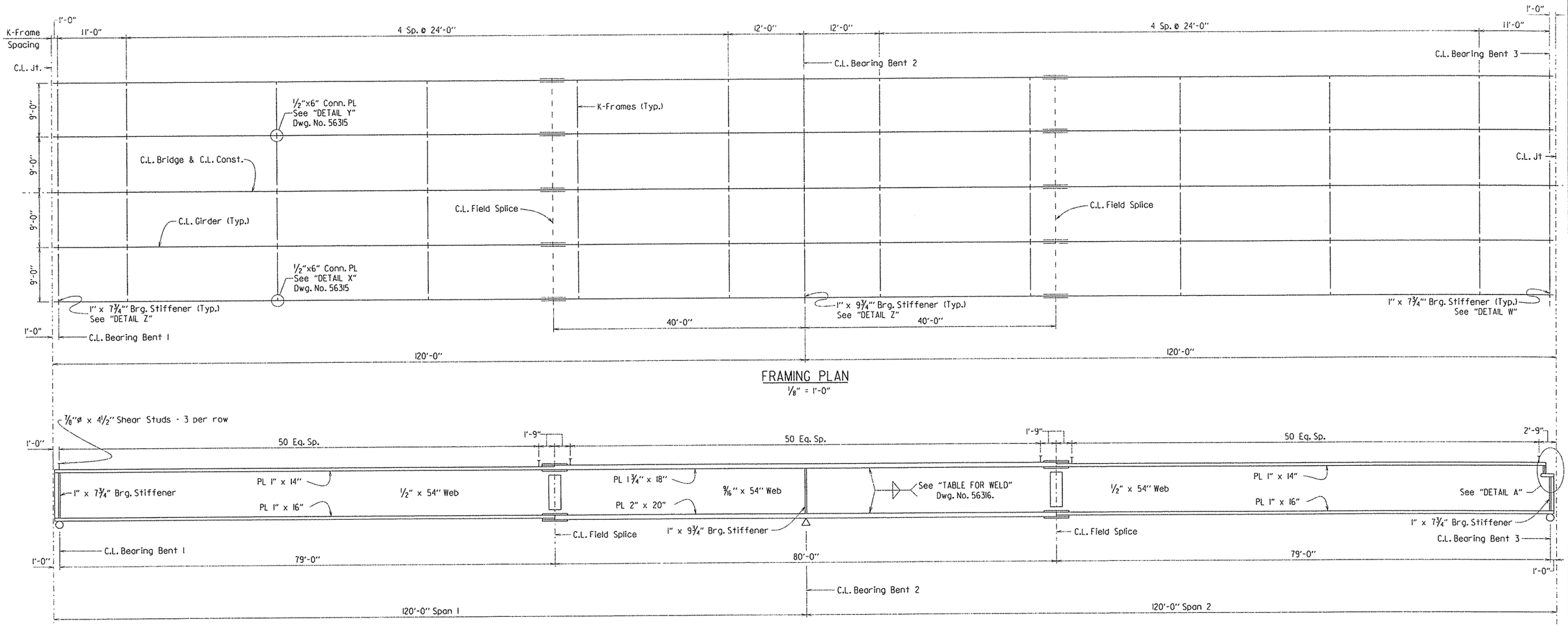
BRIDGE NO. 07319 DRAWING NO. 56316

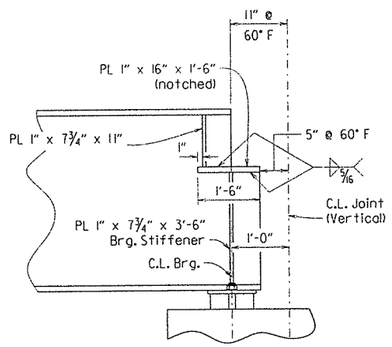
PRINT DATE: 12/5/2014

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.		061084	103	120
				(1)		07319 - 240 FT. UNIT - 56317		

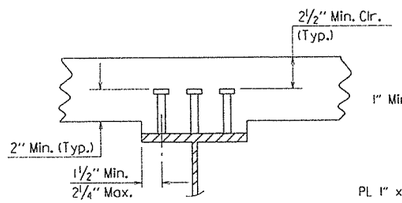


FRAMING PLAN
1/8" = 1'-0"

TYPICAL BEAM ELEVATION
No Scale

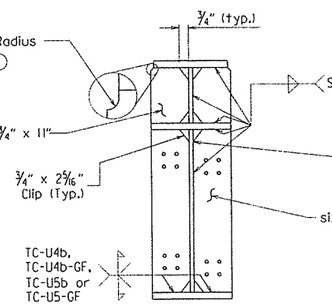


DETAIL A
No Scale

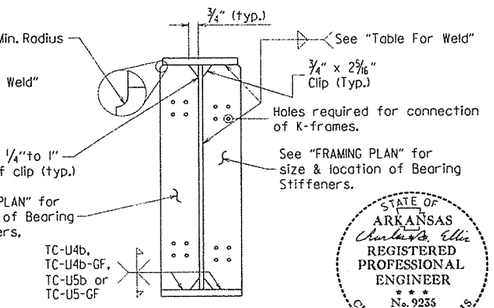


SHEAR CONNECTOR DETAILS
No Scale

Stud Shear Connectors shown shall be 7/8"ø x 4 1/2" long, granular flux filled, solid fluxed or equal, and automatically end welded to the girder flange in accordance with the recommendations of the Manufacturer. 3/4"ø studs may be used in place of the 7/8"ø studs shown, at the ratio of 1.361 - 3/4"ø studs in place of one 7/8"ø stud. 7/8"ø studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".



DETAIL W
No Scale



DETAIL Z
No Scale

(1) If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accomodate the deck form supports.

NOTES:

All web and flange plates shall be AASHTO M270, Grade 50W, steel.

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

Bearing stiffeners to be fabricated so as to be vertical in their final position.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9233
12-11-14
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF 240'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 5/12/2014 FILENAME: b061084_sl.dgn
CHECKED BY: KWS DATE: 12/10/14 SCALE: as shown
DESIGNED BY: LJB DATE: 11/14

BRIDGE NO. 07319 DRAWING NO. 56317

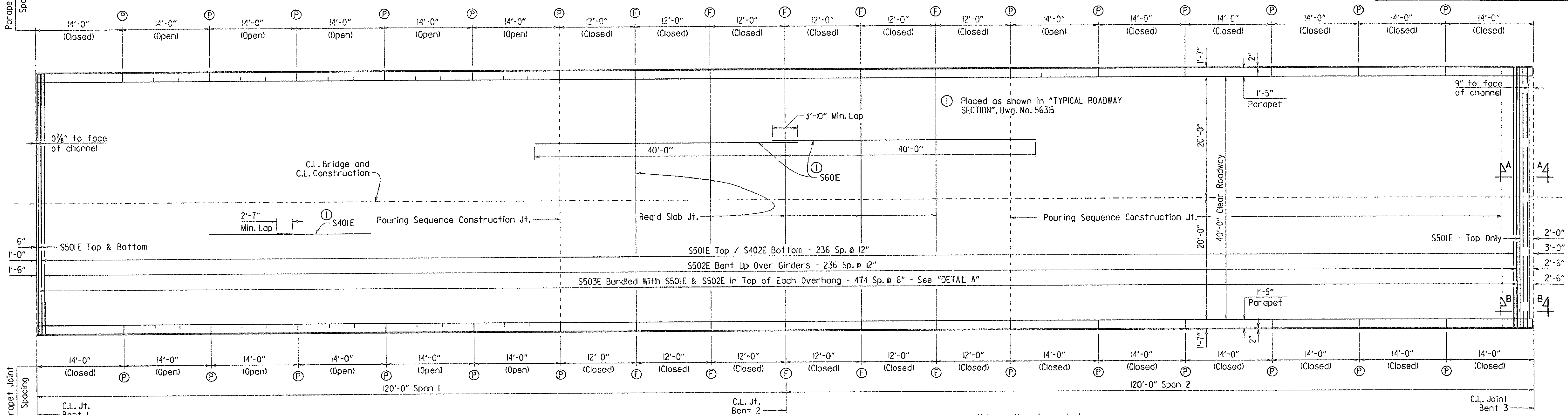
PRINT DATE: 12/5/2014

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.		061084	64	126

(1) 07319 - 240 FT. UNIT - 56318

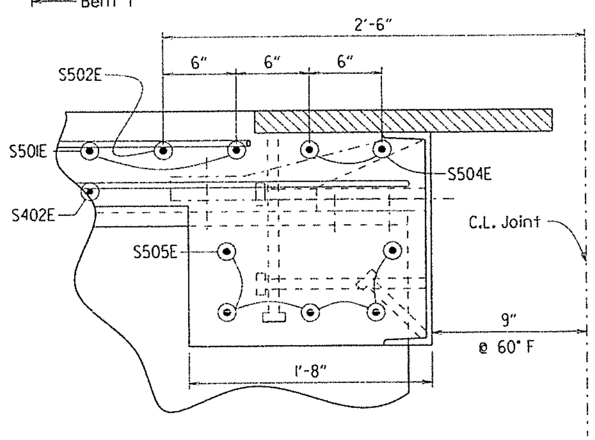
(F) C.L. Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab.

(P) C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab.



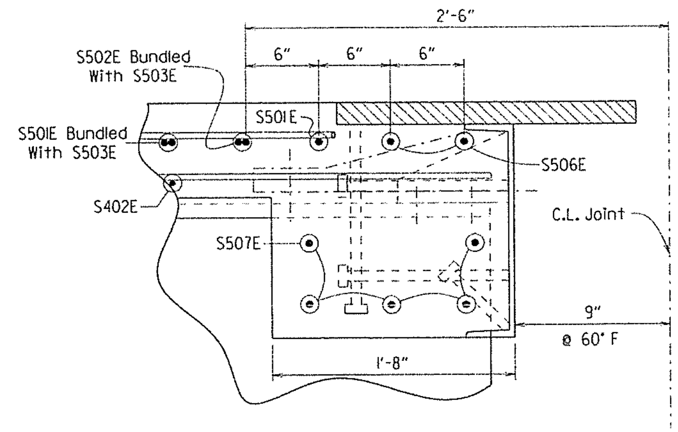
REINFORCING PLAN

Unless otherwise noted:
Min. Lap for #4 Epoxy Coated bars = 2'-7"
Min. Lap for #5 Epoxy Coated bars = 3'-3"
Min. Lap for #6 Epoxy Coated bars = 3'-10"



SECTION A-A

No Scale

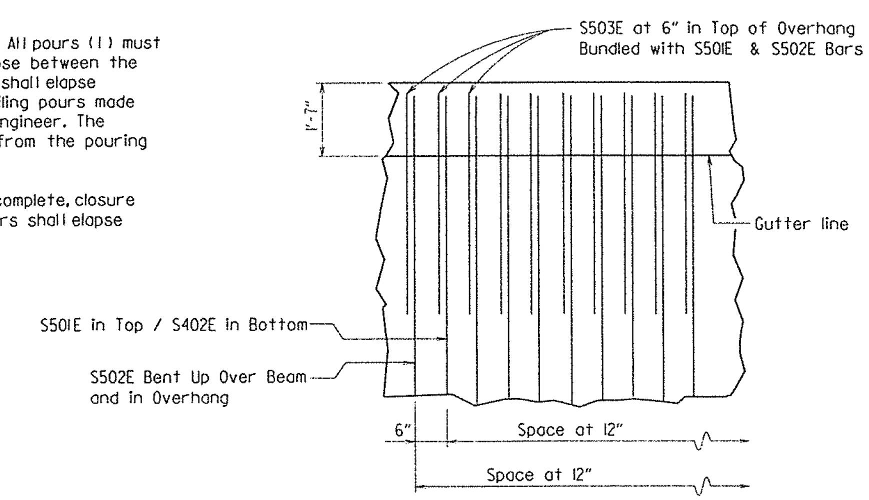


SECTION B-B

No Scale

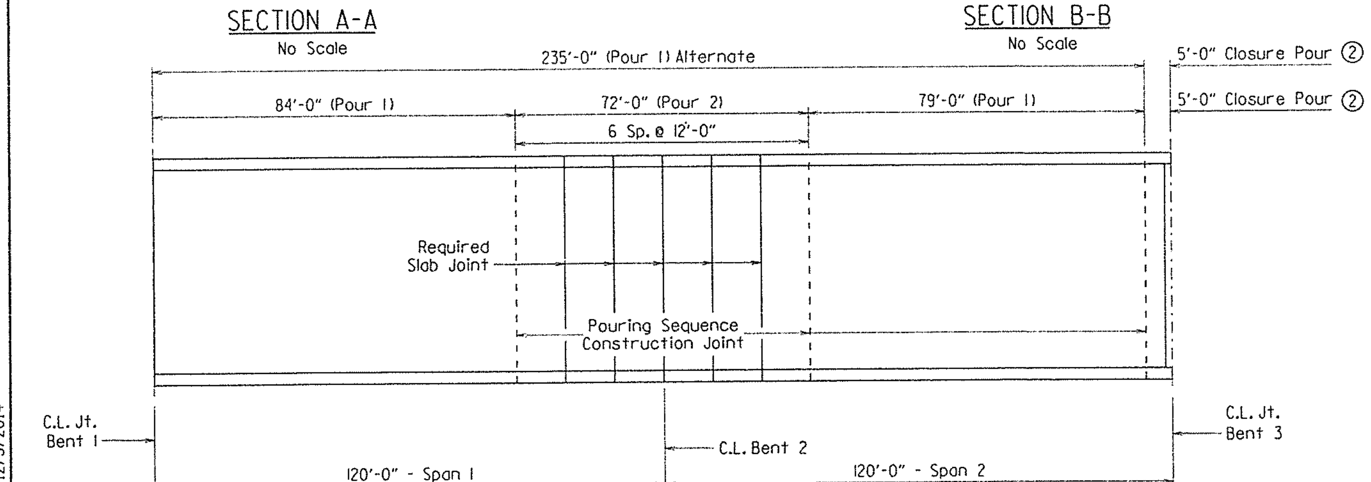
Pours with the same number may be placed simultaneously or seperately. All pours (1) must be placed before pour (2) can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between the end of a pour and the start of an adjacent pour. Any rolling 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 sequences shown.

(2) After all incremental pours on both Units adjacent to Finger Joint are complete, closure pours on each side of finger joint shall be poured. A minimum of 48 hours shall elapse between the last incremental pour and the closure pour.



DETAIL A

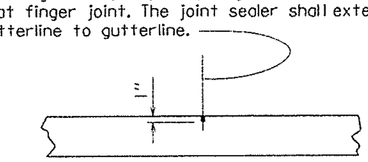
No Scale



DECK POURING SEQUENCE

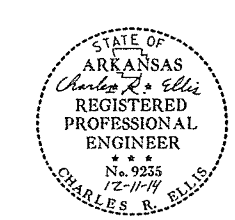
No Scale

1/2" 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. Slab joints shall extend to the outside edge of the deck slab. Slab joint shall be installed before the parapet rail is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. Slab joints shall align with parapet open joints except at the 5'-0" closure pour at finger joint. The joint sealer shall extend across the deck from gutterline to gutterline.



SLAB JOINT DETAIL

No Scale



BRIDGE ENGINEER

SHEET 4 OF 6
DETAILS OF 240'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 05/13/14 FILENAME: b061084_sl.dgn
CHECKED BY: LWY DATE: 11/10/14 SCALE: 1/8" = 1'-0" or as shown
DESIGNED BY: LJB DATE: 4/14

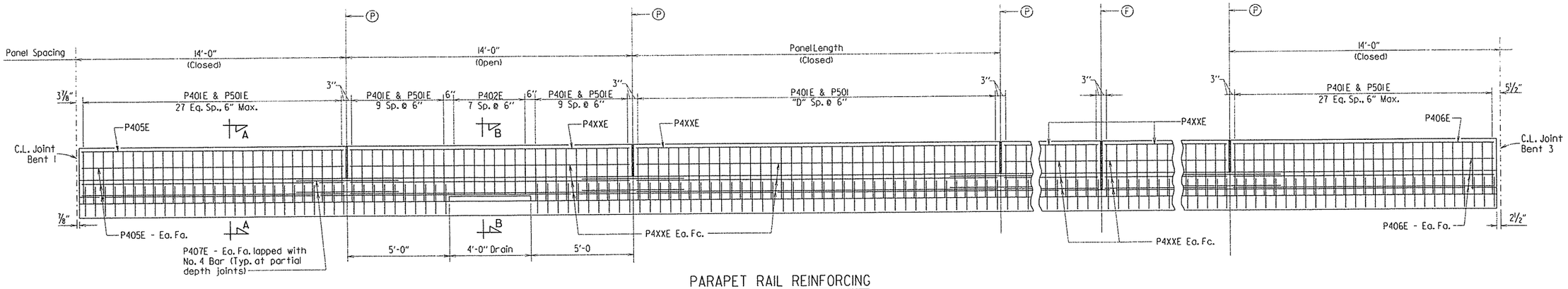
BRIDGE NO. 07319 DRAWING NO. 56318

PRINT DATE: 12/5/2014

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.		061084	5	12
				(1)		07319 - 240 FT. UNIT - 56319		

(F) C.L. Full-Depth Parapet Joint (1/4" to 1" max.) as shown in "REINFORCING PLAN", Dwg. No. 56318. Stop 4" from top of slab.

(P) C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) as shown in "REINFORCING PLAN", Dwg. No. 56318. Stop 1'-2" from top of slab.



PARAPET RAIL REINFORCING

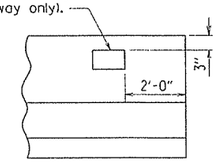
3/8" = 1'-0"

TABLE OF VARIABLES

Panel Length	Panel Type	Span	"D"	"P4XXE"
12'-0"	Closed	1 & 2	23	P403E
14'-0"	Closed	1 & 2	27	P404E
14'-0"	Open	1 & 2	-	P404E
14'-0"	Closed	1	-	P405E
14'-0"	Closed	2	-	P406E

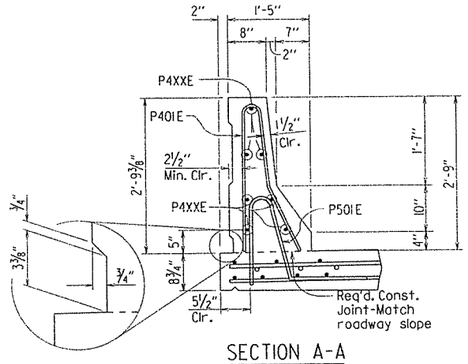
For location of panels, see "REINFORCING PLAN" Dwg. No. 56318

Place Type D Bridge Name Plate on front face of span rail approx. 2'-0" from beginning of bridge (Right side of roadway only).



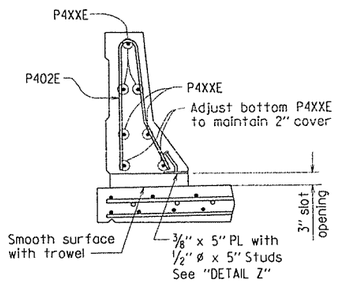
NAME PLATE DETAIL

No Scale



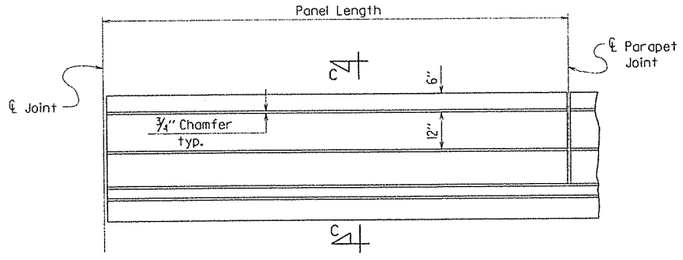
SECTION A-A

3/4" = 1'-0"



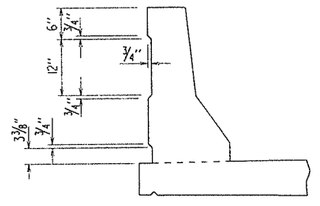
SECTION B-B

3/4" = 1'-0"



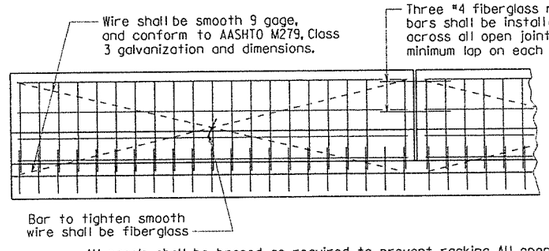
DETAILS OF PARAPET ENHANCEMENT

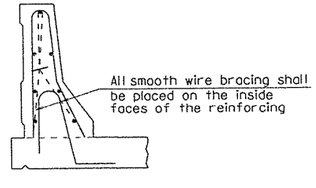
No Scale



SECTION C-C

No Scale



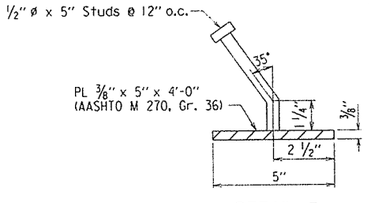


All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet 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. Exposed surface may be given a light brush finish or a class 3 Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale



DETAIL Z

No Scale

NOTE:
The surfaces of the 3/8" plates which will not be in contact with concrete shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Plate Girder Spans (M270, Gr. 50W)."

Parapet studs shall be 5" long., granular flux filled, solid fluxed or equal, and automatically end welded to the plate. Studs and plates shall meet the requirements of Section 807 and shall be measured and paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)."

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
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BRIDGE ENGINEER

SHEET 5 OF 6
DETAILS OF 240'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 05/16/14 FILENAME: b061084_sl.dgn
CHECKED BY: [illegible] DATE: 12/10/14 SCALE: as shown
DESIGNED BY: LDB DATE: 4/14

BRIDGE NO. 07319 DRAWING NO. 56319

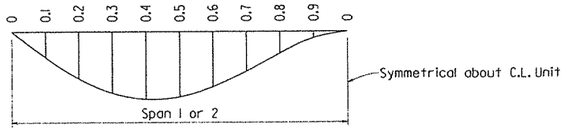
PRINT DATE: 12/5/2014

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.		061084	6	12
				①	07319 - 240 FT. UNIT - 56320			

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Ext. Girder	Int. Girder	Ext. Girder	Int. Girder	Ext. Girder	Int. Girder
1 or 2	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.148	0.155	0.750	0.850	0.826	0.899
	0.2	0.271	0.284	1.369	1.552	1.509	1.642
	0.3	0.352	0.368	1.767	2.002	1.948	2.119
	0.4	0.381	0.399	1.900	2.153	2.096	2.280
	0.5	0.359	0.376	1.771	2.007	1.955	2.126
	0.6	0.293	0.307	1.428	1.618	1.578	1.715
	0.7	0.201	0.210	0.967	1.094	1.069	1.160
	0.8	0.107	0.112	0.509	0.576	0.563	0.611
	0.9	0.032	0.033	0.149	0.168	0.165	0.178
	0	0.000	0.000	0.000	0.000	0.000	0.000

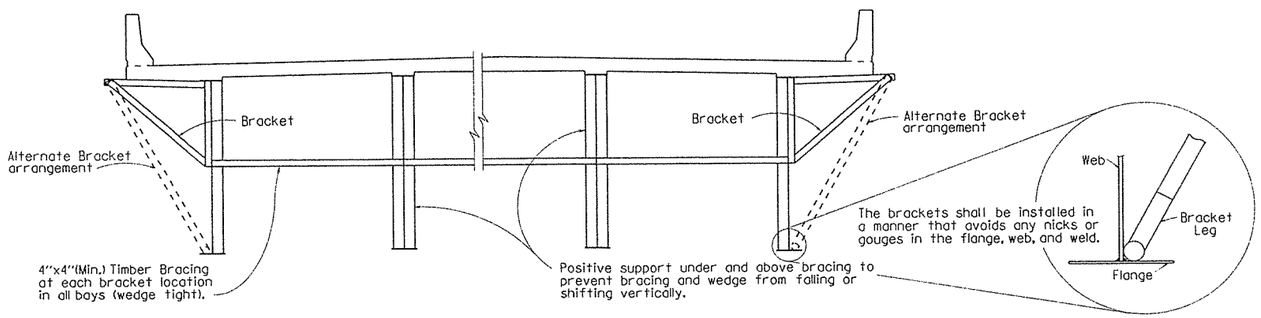
Symmetrical about C.L. Unit



DEAD LOAD DEFLECTION DIAGRAM

No Scale

NOTE:
Camber for Dead Load Deflection plus Vertical curve +/- ¼" tolerance.
Deflections shown are along a chord from C.L. Bearing to C.L. Bearing.
Vertical curve corrections not included.



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 ½" x 6" web stiffeners 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 K-Frame connection plates shown on drawing No. 56315. 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 (M270, Gr. 50W)."

SCREED RAIL SUPPORT

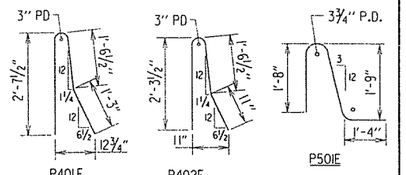
No Scale

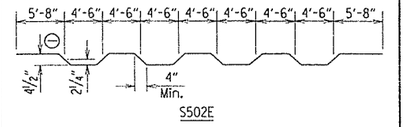
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
P401E	872	5'-6"	2"
P402E	88	4'-10"	2"
P403E	84	11'-7"	Str.
P404E	140	13'-7"	Str.
P405E	14	13'-6"	Str.
P406E	14	13'-4"	Str.
P407E	96	5'-0"	Str.
P501E	872	4'-10"	3¾"
S401E	847	36'-5"	Str.
S402E	237	42'-10"	Str.
S501E	240	42'-10"	Str.
S502E	237	43'-8"	3"
S503E	950	5'-4"	Str.
S504E	8	8'-0"	Str.
S505E	20	8'-7"	Str.
S506E	4	2'-11"	Str.
S507E	10	1'-8"	Str.
S601E	88	41'-11"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.





① ½" Over tolerance
No Under tolerance

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

STATE OF ARKANSAS
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SHEET 6 OF 6
DETAILS OF 240'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 5/16/14 FILENAME: b061084_sl.dgn
CHECKED BY: KW DATE: 12/10/14 SCALE: as shown
DESIGNED BY: LJB DATE: 9-14

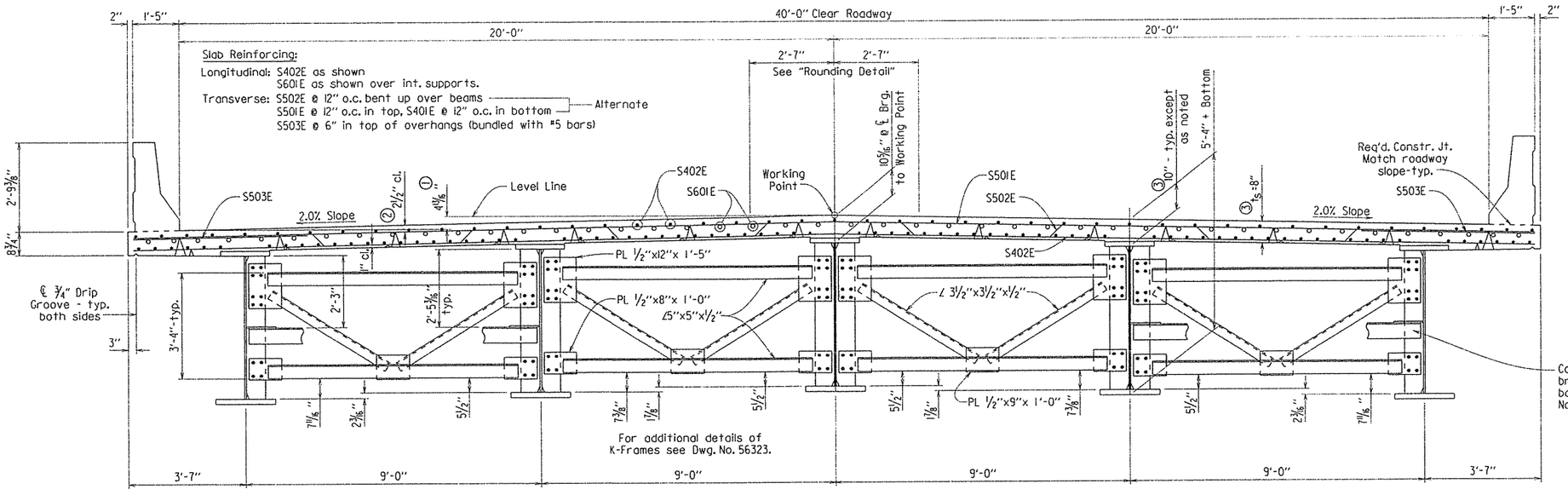
BRIDGE NO. 07319 DRAWING NO. 56320

PRINT DATE: 12/5/2014

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.		061084	1 of 7	116
				(1) 07319 -		380 FT. UNIT	- 56321	

NOTE: Class I Protective Surface Treatment shall be applied to the Roadway Surface and to the Face & Top of the Concrete Parapet Rail.

NOTE: At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.



TYPICAL ROADWAY SECTION

Scale: ½" = 1'-0"

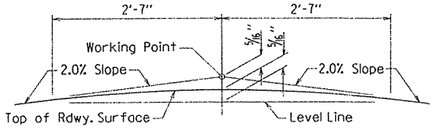
(1) Working point to gutterline.

(2) Tolerance: Minus = ¼"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".

(3) See "Adjustment for Slab Thickness Tolerance".

Bar positions and clearances shall be maintained by means of stays, ties, hangers or other approved devices sufficient in size and number to prevent displacement during construction. See Subsection 804.06.

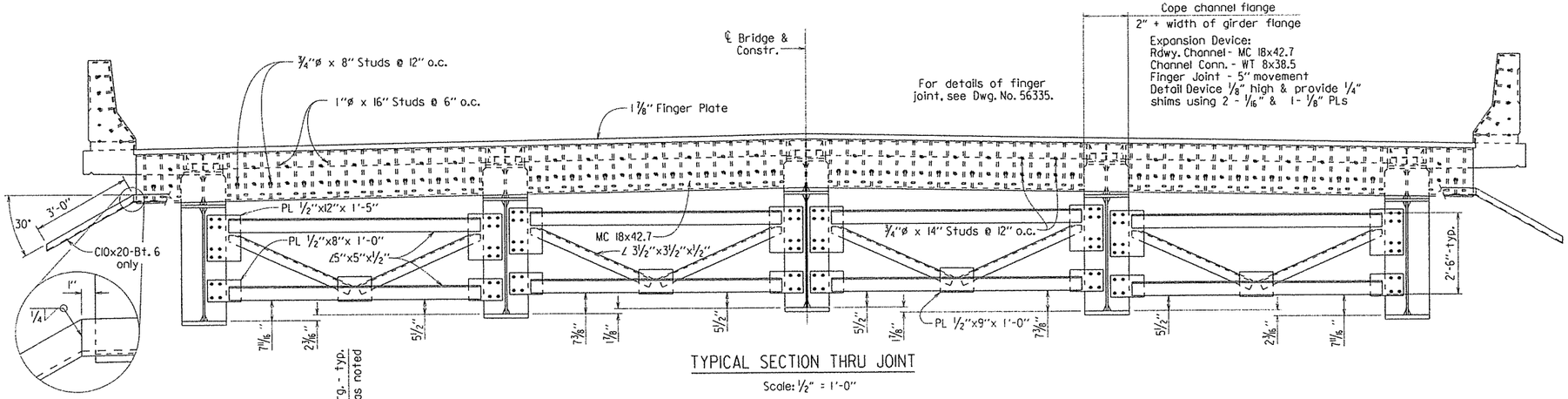
The superstructure details shown are for use when Removable Deck Forming is used and are the basis of measurement for Class S(AE) Concrete.



NOTE: Working Point matches Theoretical Roadway Grade.

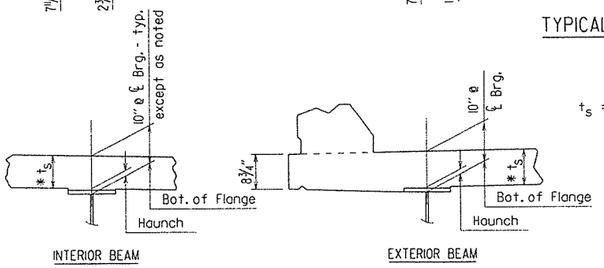
ROUNDING DETAIL

No Scale



TYPICAL SECTION THRU JOINT

Scale: ½" = 1'-0"



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

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

t_s = slab thickness as shown in "Typ. Roadway Section"

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". 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. 55055 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

For Superstructure General Notes, see Dwg. No. 56334.

STATE OF ARKANSAS
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SHEET 1 OF 8
DETAILS OF 380'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 5-8-14 FILENAME: b061084x1_s2.dgn

CHECKED BY: [illegible] DATE: [illegible] SCALE: AS NOTED

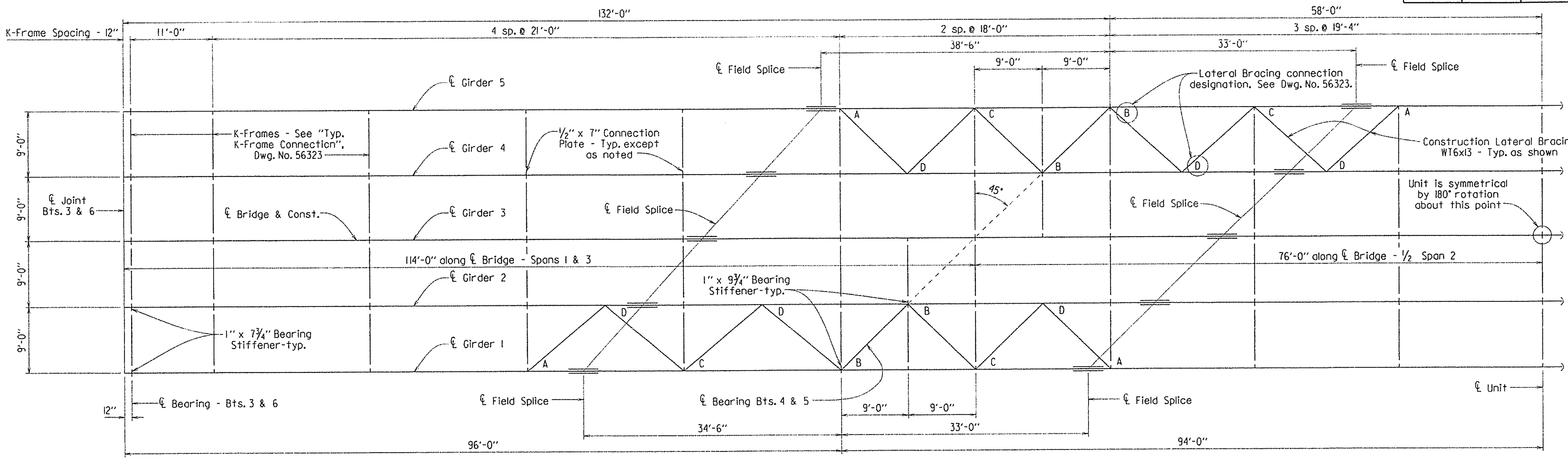
DESIGNED BY: LJB DATE: [illegible]

BRIDGE NO. 07319 DRAWING NO. 56321

PRINT DATE: 12/5/2014

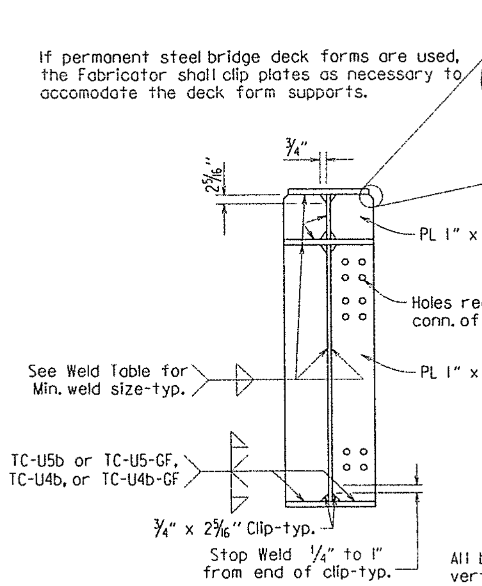
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	68	126

(1) 07319 - 380 FT. UNIT - 56322



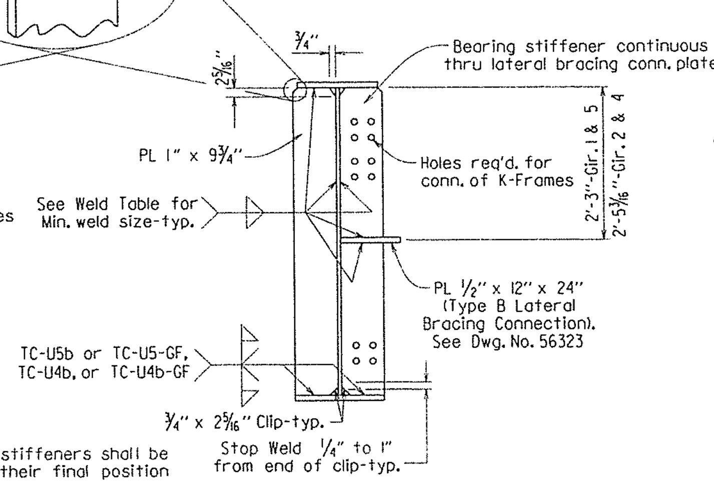
HALF-FRAMING PLAN

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



END BEARING STIFFENER DETAIL

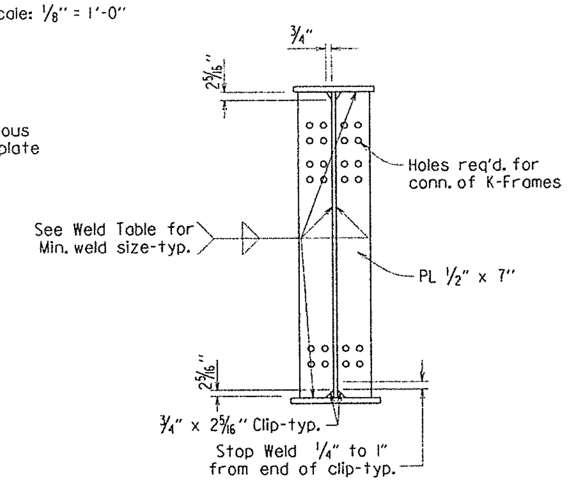
No Scale



All bearing stiffeners shall be vertical in their final position

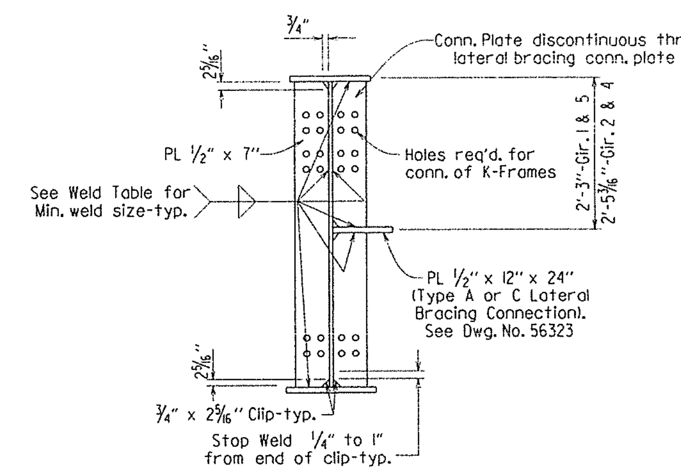
INT. BEARING STIFFENER DETAIL

No Scale



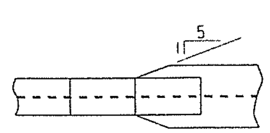
K-FRAME CONNECTION DETAIL

Without Lateral Bracing
No Scale



K-FRAME CONNECTION DETAIL

With Lateral Bracing
No Scale



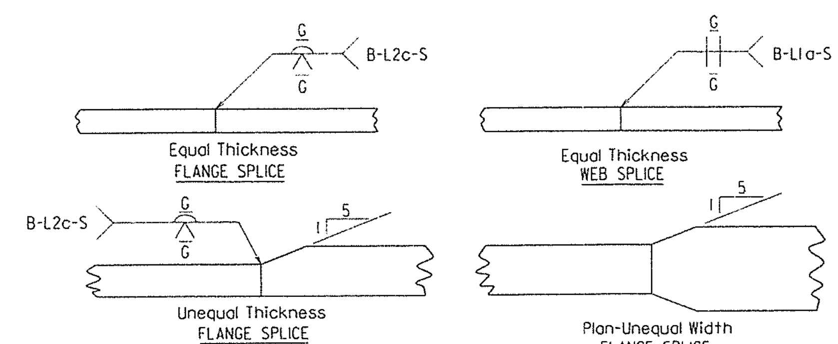
FIELD SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS

No Scale

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To 3/4" Inclusive	1/4"	
Over 3/4"	5/16"	

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



DETAILS OF WELDED SPLICES

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 8

DETAILS OF 380'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

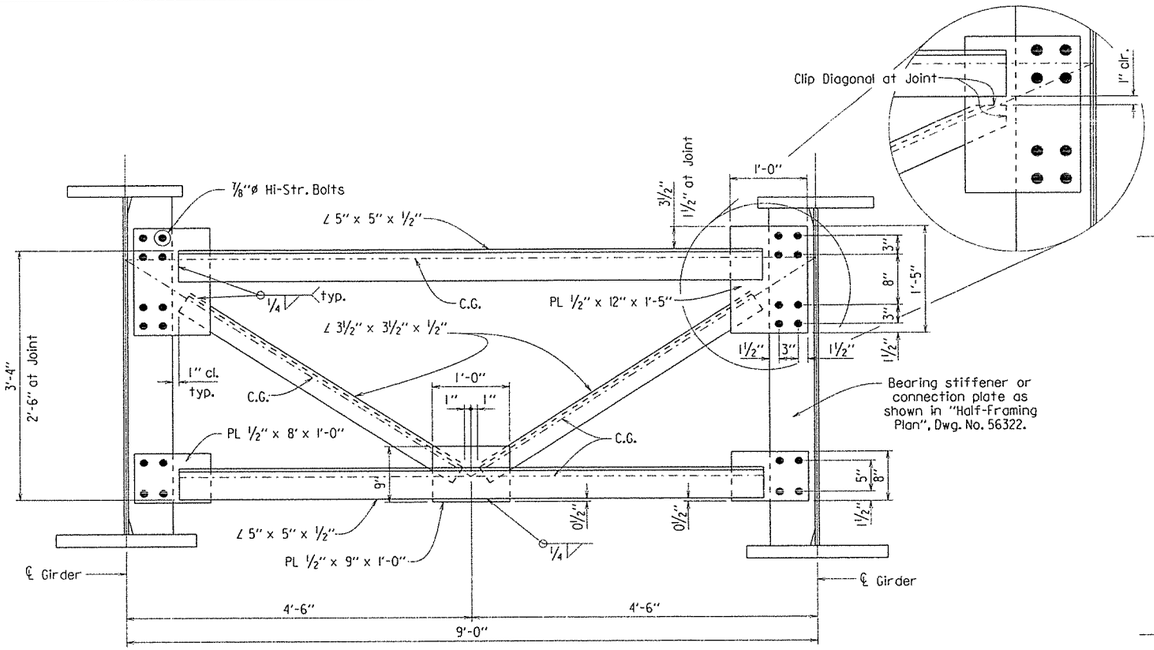
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 5-9-14 FILENAME: b061084xl_s2.dgn
CHECKED BY: LWY DATE: 12/2/14 SCALE: AS NOTED
DESIGNED BY: LJD DATE: 4/14

BRIDGE NO. 07319 DRAWING NO. 56322

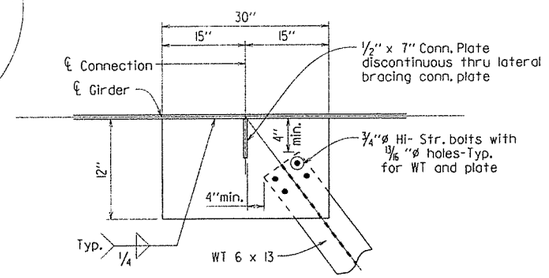
PRINT DATE: 12/5/2014

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.		061084		
				(1)	07319 -	380 FT. UNIT	- 56323	



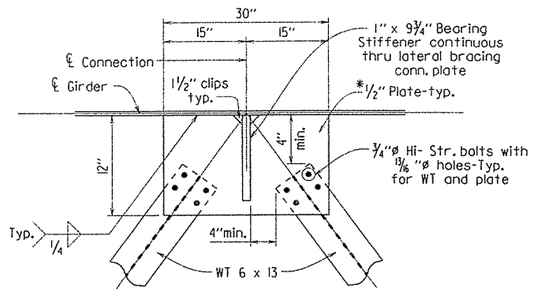
TYP. K-FRAME CONNECTION

Scale: 1" = 1'-0"



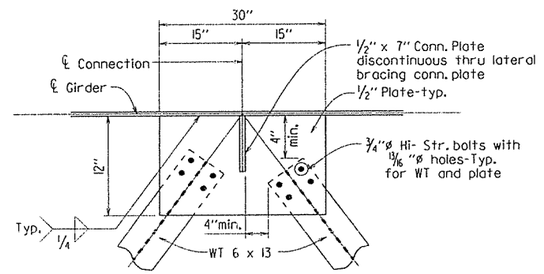
LATERAL BRACING CONNECTION A

No Scale



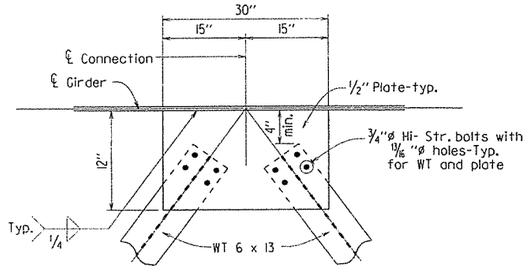
LATERAL BRACING CONNECTION B

Scale: 1" = 1'-0"



LATERAL BRACING CONNECTION C

Scale: 1" = 1'-0"

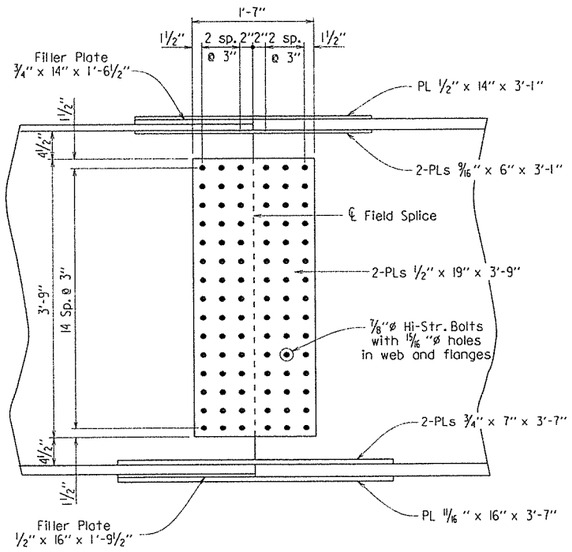


LATERAL BRACING CONNECTION D

Scale: 1" = 1'-0"

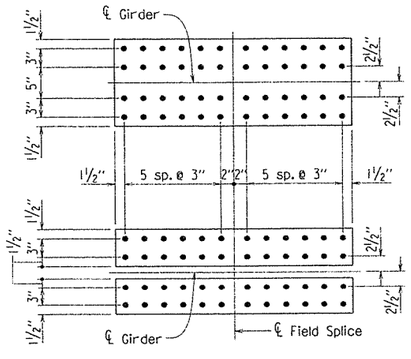
Ends of lateral bracing members shall be kept a minimum of 4" from the web and any stiffener or conn. plate.

*See "Half-Framing Plan" for location of construction lateral bracing, Dwg. No. 56322.

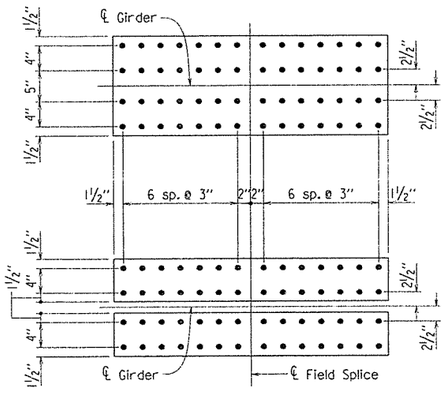


WEB SPLICE

All field splice plates to be AASHTO M270, Gr. 50W.



TOP FLANGE SPLICE



BOTTOM FLANGE SPLICE

FIELD SPLICE DETAILS

Scale: 1" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 8
DETAILS OF 380'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

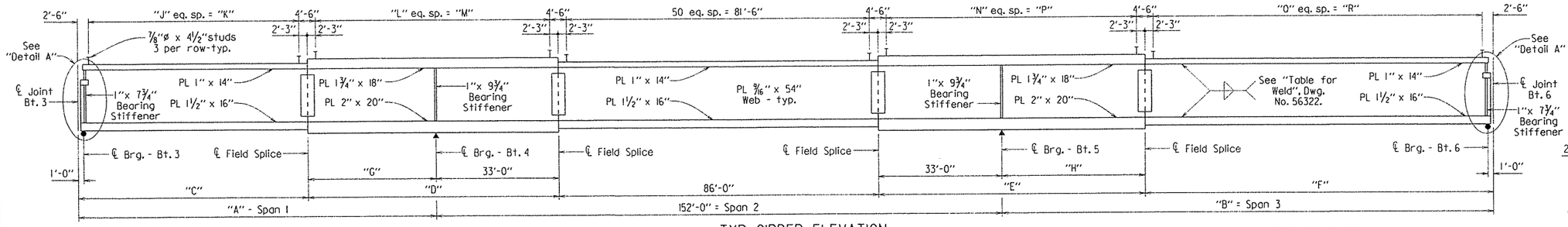
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 5-13-14
CHECKED BY: KWY DATE:
DESIGNED BY: LJB DATE: 4/14
FILENAME: b061084xl_s2.dgn
SCALE: AS NOTED

BRIDGE NO. 07319 DRAWING NO. 56323

PRINT DATE: 12/5/2014

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.		061084	70	126
				(1) 07319 -		380 FT. UNIT	- 56324	

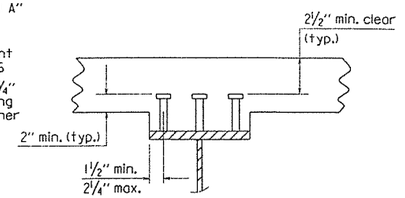


TYP. GIRDER ELEVATION

No Scale

All web and flange plates shall be AASHTO M270, Gr. 50W.

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



Stud Shear Connectors shown shall be 7/8"ø x 4 1/2" long, granular flux filled, solid fluxed or equal, and automatically end welded to the girder flange in accordance with the recommendations of the Manufacturer. 3/4"ø studs may be used in place of the 7/8"ø studs shown, at the ratio of 1.361 - 3/4"ø studs in place of one 7/8"ø stud. 7/8"ø studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

SHEAR CONNECTOR DETAIL

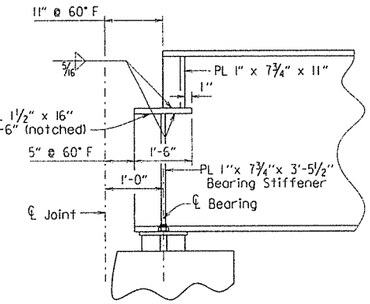
No Scale

TABLE OF GIRDER VARIABLES

Girder No.	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"	"M"	"N"	"P"	"O"	"R"
1	96'-0"	132'-0"	61'-6"	67'-6"	71'-6"	93'-6"	34'-6"	38'-6"	48	56'-9"	47	63'-0"	45	67'-0"	60	88'-9"
2	105'-0"	123'-0"	69'-6"	68'-6"	70'-6"	85'-6"	35'-6"	37'-6"	56	64'-9"	48	64'-0"	44	66'-0"	54	80'-9"
3	114'-0"	114'-0"	77'-6"	69'-6"	69'-6"	77'-6"	36'-6"	36'-6"	56	72'-9"	45	65'-0"	45	65'-0"	56	72'-9"
4	123'-0"	105'-0"	85'-6"	70'-6"	68'-6"	69'-6"	37'-6"	35'-6"	54	80'-9"	44	66'-0"	48	64'-0"	56	64'-9"
5	132'-0"	96'-0"	93'-6"	71'-6"	67'-6"	61'-6"	38'-6"	34'-6"	60	88'-9"	45	67'-0"	47	63'-0"	48	56'-9"

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel					Structural Steel + Slab					Structural Steel + Slab + Parapet				
		Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0.039	0.079	0.122	0.166	0.212	0.188	0.382	0.587	0.792	1.000	0.206	0.407	0.622	0.844	1.075
	0.2	0.069	0.144	0.223	0.304	0.383	0.331	0.694	1.070	1.448	1.812	0.364	0.739	1.135	1.545	1.950
	0.3	0.084	0.184	0.287	0.392	0.501	0.404	0.886	1.377	1.867	2.366	0.446	0.944	1.462	1.993	2.546
	0.4	0.083	0.195	0.308	0.422	0.538	0.399	0.939	1.475	2.007	2.541	0.443	1.001	1.566	2.144	2.735
	0.5	0.066	0.177	0.286	0.394	0.501	0.319	0.853	1.367	1.870	2.363	0.358	0.910	1.452	1.998	2.544
	0.6	0.039	0.135	0.227	0.317	0.404	0.193	0.653	1.082	1.500	1.907	0.222	0.696	1.149	1.604	2.054
	0.7	0.009	0.083	0.150	0.213	0.272	0.054	0.405	0.716	1.006	1.284	0.070	0.432	0.761	1.076	1.383
	0.8	-0.014	0.032	0.074	0.109	0.134	-0.051	0.165	0.357	0.518	0.640	-0.047	0.175	0.379	0.554	0.690
	0.9	-0.021	-0.001	0.014	0.028	0.034	-0.087	0.006	0.073	0.138	0.172	-0.090	0.006	0.077	0.148	0.186
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0.1	0.106	0.091	0.078	0.071	0.071	0.452	0.386	0.332	0.299	0.291	0.485	0.414	0.355	0.320	0.317
	0.2	0.265	0.239	0.219	0.217	0.224	1.144	1.037	0.952	0.940	0.954	1.229	1.111	1.016	1.006	1.035
	0.3	0.427	0.395	0.378	0.373	0.387	1.863	1.733	1.670	1.640	1.678	2.005	1.856	1.781	1.755	1.815
	0.4	0.542	0.505	0.495	0.493	0.520	2.377	2.234	2.200	2.184	2.279	2.561	2.391	2.346	2.336	2.461
	0.5	0.578	0.548	0.539	0.548	0.577	2.542	2.431	2.404	2.432	2.537	2.741	2.601	2.563	2.602	2.736
	0.6	0.522	0.500	0.497	0.511	0.544	2.289	2.215	2.211	2.263	2.388	2.472	2.370	2.357	2.422	2.573
	0.7	0.395	0.378	0.379	0.396	0.427	1.716	1.662	1.673	1.741	1.864	1.856	1.778	1.785	1.864	2.006
	0.8	0.223	0.221	0.226	0.245	0.265	0.952	0.961	0.986	1.063	1.147	1.033	1.028	1.052	1.139	1.232
	0.9	0.077	0.081	0.080	0.092	0.107	0.318	0.345	0.340	0.391	0.456	0.346	0.369	0.363	0.419	0.489
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0.1	0.033	0.026	0.012	-0.002	-0.020	0.167	0.131	0.066	0.001	-0.085	0.180	0.140	0.070	0	-0.088
	0.2	0.134	0.108	0.068	0.032	-0.014	0.639	0.513	0.328	0.165	-0.054	0.689	0.549	0.348	0.175	-0.050
	0.3	0.266	0.213	0.143	0.082	0.009	1.256	1.006	0.685	0.401	0.054	1.353	1.076	0.728	0.427	0.070
	0.4	0.396	0.316	0.227	0.135	0.037	1.870	1.496	1.081	0.653	0.185	2.014	1.599	1.148	0.696	0.213
	0.5	0.501	0.394	0.284	0.177	0.066	2.363	1.869	1.357	0.851	0.319	2.544	1.997	1.441	0.907	0.358
	0.6	0.538	0.422	0.308	0.195	0.083	2.540	2.006	1.474	0.938	0.399	2.734	2.143	1.565	1.000	0.443
	0.7	0.501	0.392	0.287	0.184	0.085	2.365	1.866	1.377	0.886	0.406	2.545	1.992	1.462	0.944	0.449
	0.8	0.390	0.304	0.223	0.144	0.069	1.842	1.448	1.070	0.693	0.331	1.982	1.545	1.135	0.738	0.364
	0.9	0.214	0.167	0.122	0.079	0.039	1.013	0.796	0.587	0.382	0.188	1.090	0.849	0.622	0.407	0.206
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



DETAIL A

No Scale

For dead load deflection diagrams, see Dwg. No. 56325

STATE OF ARKANSAS
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12-11-14
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SHEET 4 OF 8
DETAILS OF 380'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

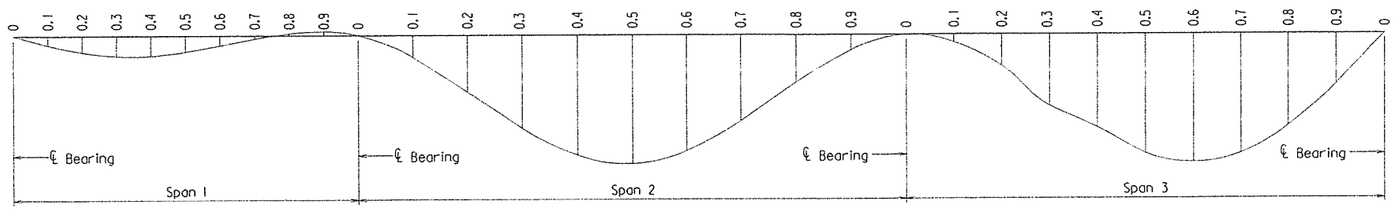
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 5-14-14 FILENAME: b061084xl_s2.dgn
CHECKED BY: [illegible] DATE: 12/12/14 SCALE: AS NOTED
DESIGNED BY: LJB DATE: 4/14

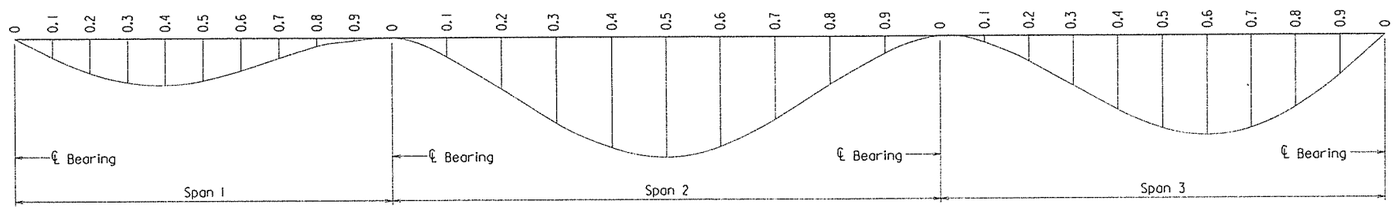
BRIDGE NO. 07319 DRAWING NO. 56324

PRINT DATE: 12/5/2014

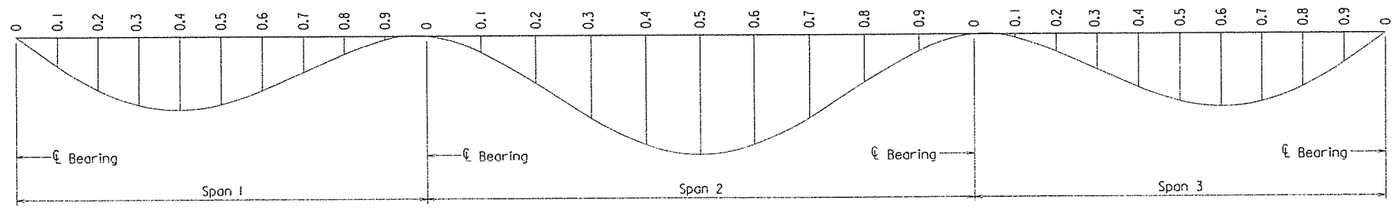
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	71	172
				(1)	07319 -	380 FT. UNIT	- 56325	



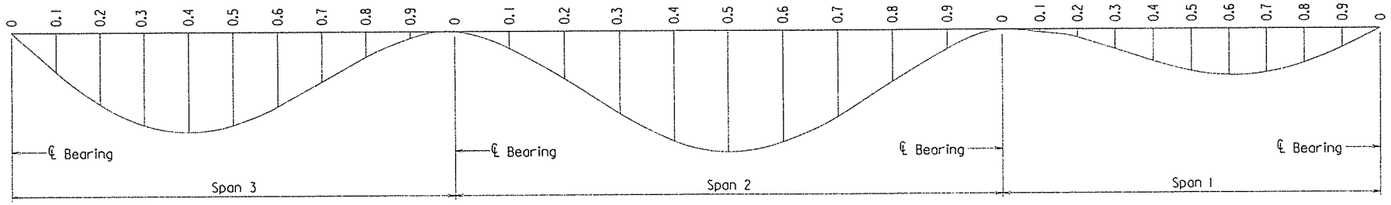
DEAD LOAD DEFLECTION DIAGRAM - GIRDER 1



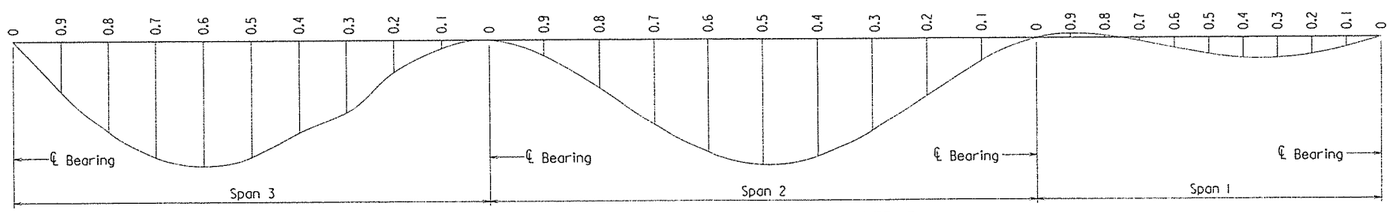
DEAD LOAD DEFLECTION DIAGRAM - GIRDER 2



DEAD LOAD DEFLECTION DIAGRAM - GIRDER 3



DEAD LOAD DEFLECTION DIAGRAM - GIRDER 4



DEAD LOAD DEFLECTION DIAGRAM - GIRDER 5

Note:
Camber for Dead Load Deflection plus Vertical curve ± 1/4" tolerance.
Deflections shown are from a chord from ℄ Bearing to ℄ Bearing.
Vertical curve corrections not included. Negative sign (-) indicates point above chord.

For Table of Dead Load Deflections, see Dwg. No. 56324.

STATE OF ARKANSAS
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SHEET 5 OF 8
DETAILS OF 380'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 5-15-14 FILENAME: b061084x1_s2.dgn
CHECKED BY: [illegible] DATE: 12/10/14 SCALE: AS NOTED
DESIGNED BY: LJB DATE: 4/14

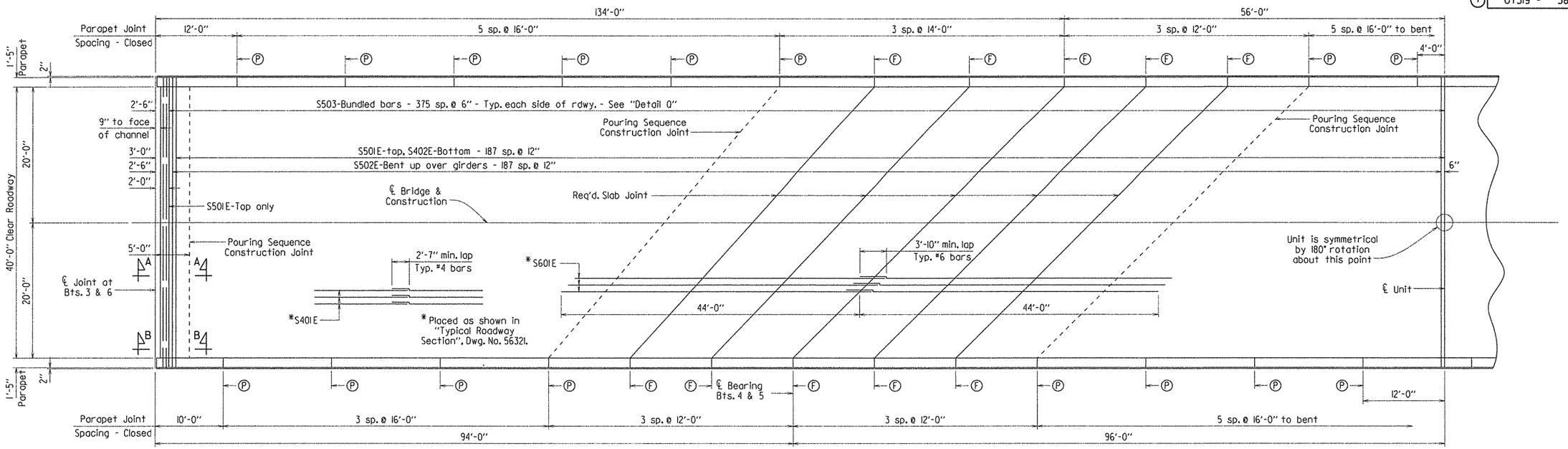
BRIDGE NO. 07319 DRAWING NO. 56325

PRINT DATE: 12/5/2014

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.		061084	72	126
				(1) 07319 -		380 FT. UNIT	- 56326	

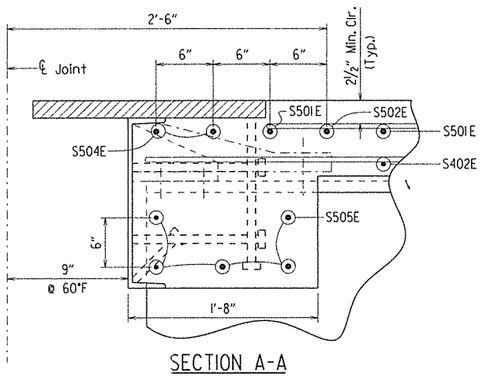
Ⓕ ℄ Full Depth Parapet Joint (1/4" - 1" max.) Stop 4" from top of slab.

Ⓟ ℄ Partial Depth Parapet Joint (1/4" - 1" max.) Stop 1'-2" from top of slab.



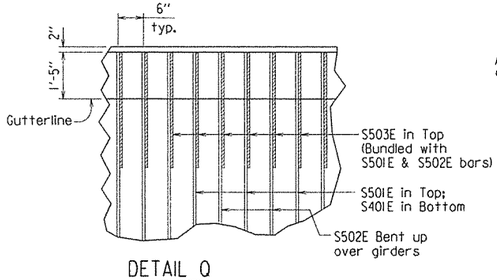
REINFORCING PLAN

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



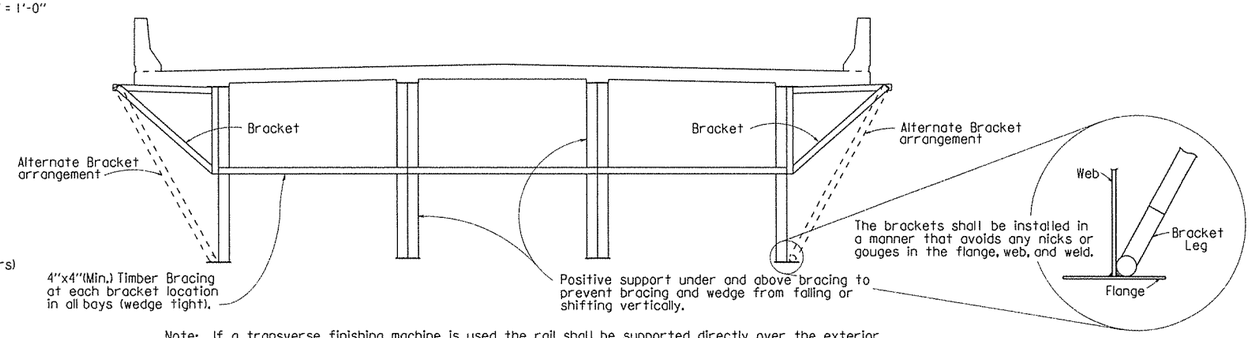
SECTION A-A

No Scale



DETAIL Q

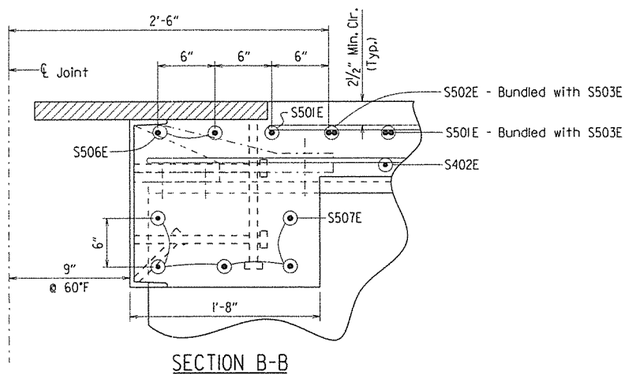
No Scale



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 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 shown on "K-Frame Connection Detail", See Dwg. No. 56322. 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 (M270. Gr. 50W)."

SCREED RAIL SUPPORT

No Scale



SECTION B-B

No Scale

Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h)(2) 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. Slab joints shall be installed before the parapet rail is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck slab (gutterline to gutterline). Slab joints shall align with parapet open joints except for slab joint at 5'-0" closure pour at finger joints.

SLAB JOINT DETAIL

No Scale

STATE OF ARKANSAS
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SHEET 6 OF 8
DETAILS OF 380'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 5-19-14
CHECKED BY: KWY DATE: 7/13/15
DESIGNED BY: LJB DATE: 4114

FILENAME: b061084x1_s2.dgn
SCALE: AS NOTED

BRIDGE NO. 07319 DRAWING NO. 56326

PRINT DATE: 7/13/2015

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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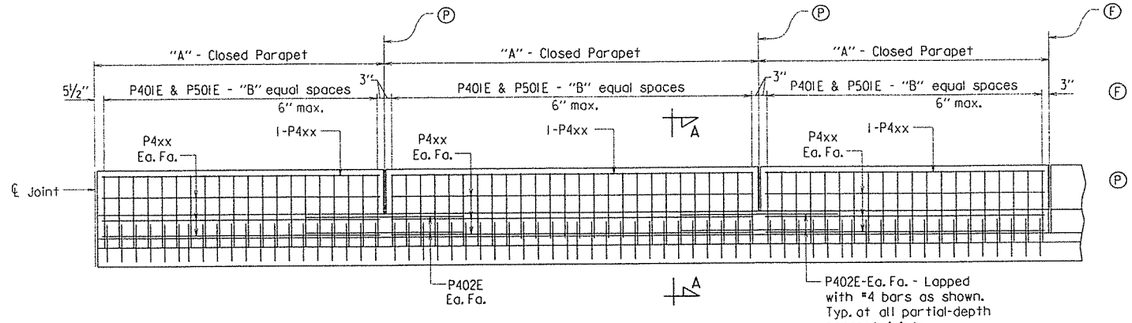
				JOB NO.		061084	73	1210
				①	07319 -	380 FT. UNIT	- 56327	



DETAILS OF PARAPET RAIL

No Scale

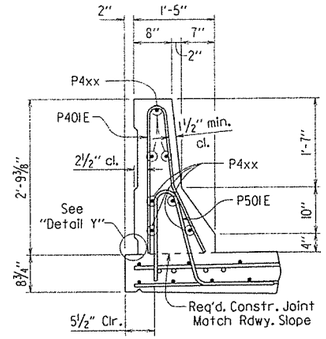
Ⓕ ℄ Full-Depth Parapet Joint (¼" to 1" max.) as shown in "Reinforcing Plan", Dwg. No. 56326. Stop 4" from top of slab.

Ⓟ ℄ Partial-Depth Parapet Joint (¼" to 1" max.) as shown in "Reinforcing Plan", Dwg. No. 56326. Stop 1'-2" from top of slab.

TABLE OF PARAPET RAIL VARIABLES

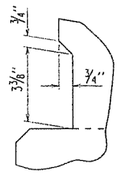
"A" Closed Parapet	"B"	P4xx Bar
12'-0"	23	P403E
16'-0"	31	P404E
14'-0"	27	P405E
10'-0"	19	P406E
③ 12'-0"	23	P407E

③ Panel at finger joint



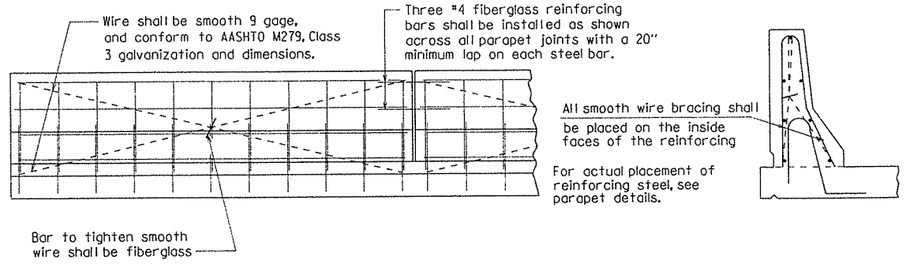
SECTION A-A

Scale: ¾" = 1'-0"



DETAIL Y

No Scale

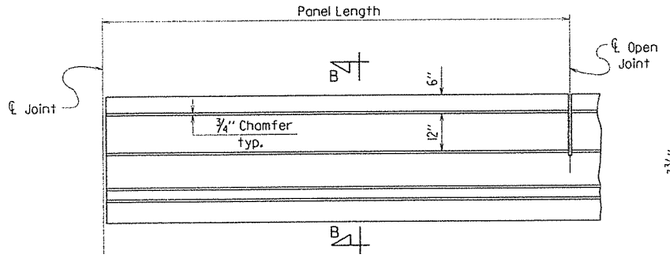


All panels shall be braced as required to prevent racking. All parapet joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet 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. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

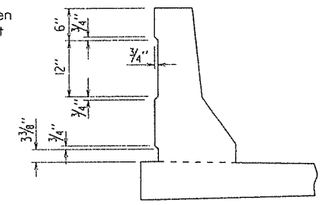
DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale



DETAILS OF PARAPET ENHANCEMENT

No Scale

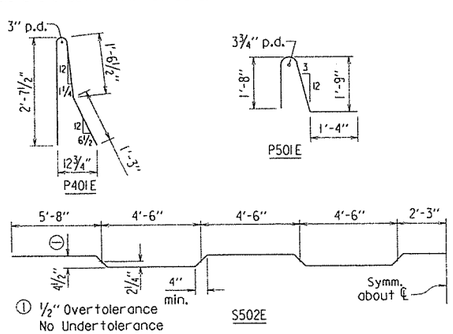


SECTION B-B

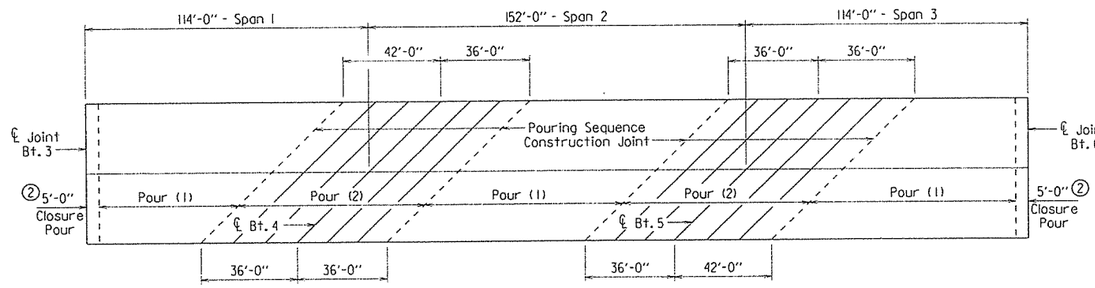
No Scale

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
S401E	1331	36'-11"	Str.	Dimensions are out to out of bars.
S402E	375	42'-10"	Str.	
P401E	1520	5'-6"	2"	
P402E	128	5'-6"	Str.	
P403E	126	11'-7"	Str.	
P404E	182	15'-7"	Str.	
P405E	42	13'-7"	Str.	
P406E	14	9'-5"	Str.	
P407E	14	11'-5"	Str.	
S501E	377	42'-10"	Str.	
S502E	376	43'-8"	3"	
S503E	1504	5'-4"	Str.	
S504E	16	8'-0"	Str.	
S505E	40	8'-7"	Str.	
S506E	8	2'-11"	Str.	
S507E	20	1'-8"	Str.	
P501E	1520	4'-10"	3¾"	
S601E	176	45'-11"	Str.	



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

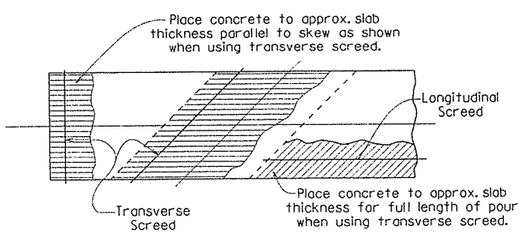


DECK POURING SEQUENCE

No Scale

Pours must be placed in sequence shown. No deviations allowed. Deflections based on pouring sequence. Pours with the same number may be poured simultaneously or separately. All Pours (1) must be placed before Pours (2) are placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between the end of a pour and the start of an adjacent pour. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer.

② After all incremental pours on both Units adjacent to Finger Joint are complete, closure pours on each side of finger joint shall be poured simultaneously. A minimum of 48 hours shall elapse between the last incremental pour and the closure pours.



CONCRETE PLACEMENT PROCEDURE

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 7 OF 8
DETAILS OF 380'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 5-19-14 FILENAME: b061084xl_s2.dgn
CHECKED BY: [illegible] DATE: [illegible] SCALE: AS NOTED
DESIGNED BY: LJB DATE: 4/14

BRIDGE NO. 07319 DRAWING NO. 56327

PRINT DATE: 05-DEC-2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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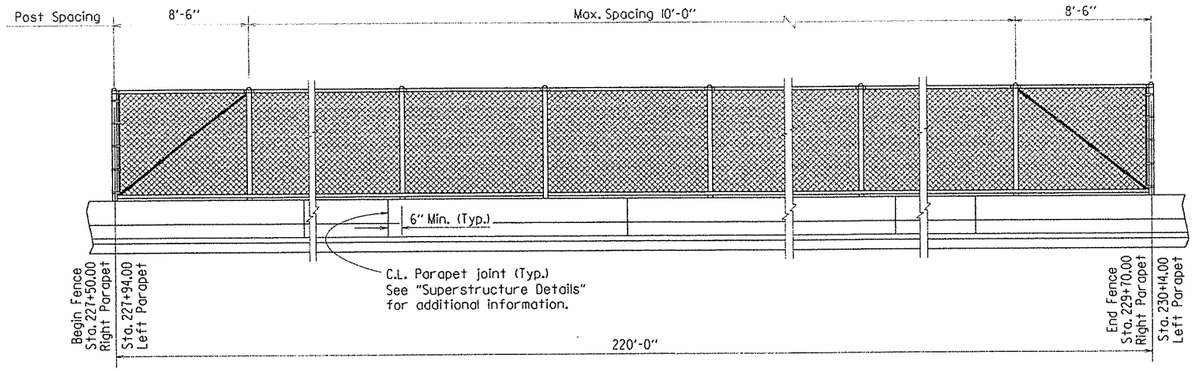
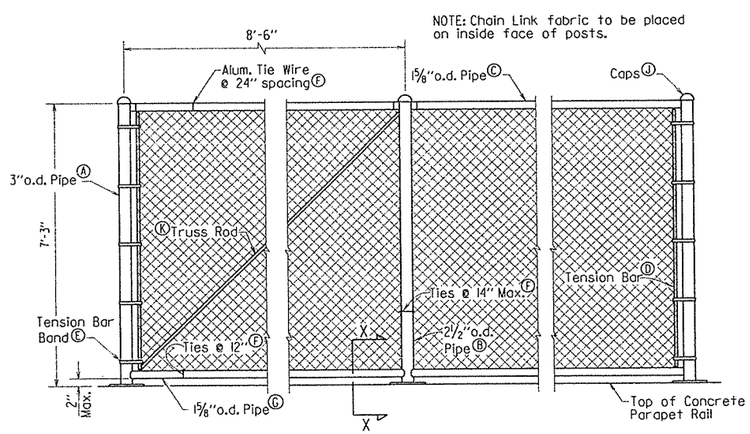
				JOB NO.		061084	74	176
				(1)	07319 -	380 FT. UNIT	- 56328	



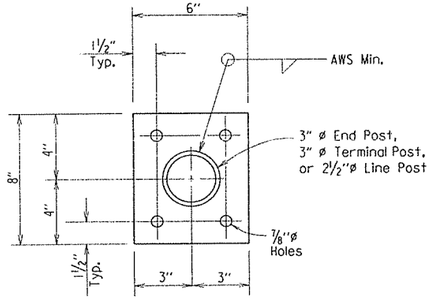
LONGITUDINAL VIEW OF CHAIN LINK FENCE



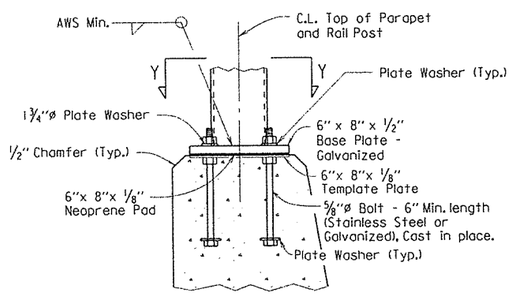
DETAIL OF CHAIN LINK FENCE

(A) END POST: 3" O.D.
(B) LINE POST: 2½" O.D.
(C) TOP RAIL: 1⅝" O.D.
(D) TENSION BAR: 3/16" x ¾" Bar
(E) TENSION BAR BAND: ¾"x .074 w/⅝"ø x 1¼" Bolt (1 Band Top and Bottom w/15" Max. spaces)
(F) TIE WIRE: 9 Ga. Aluminum
(G) BOTTOM RAIL: 1⅝" O.D.
(H) FABRIC: 9 Ga. 2" Mesh w/Knocklug or Twisting Selvage
(J) CAPS: All Posts shall be Capped and Shall Conform to ASTM F626-84
(K) TRUSS ROD: Min. of 5/16" Round with Tighteners and Fittings

NOTE : Chain Link Fence attached to Bridge and including tapered panel section shall be paid for as "7' Steel Chain Link Fence". For additional details of Chain Link Fence, See Standard Drawing WF-3.



SECTION Y-Y



SECTION X-X

DETAILS OF POST ANCHOR SYSTEM

NOTES:

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

Cast in place anchor bolts shall be of stainless steel or high strength steel. Stainless steel anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength of 80,000 psi. High strength steel anchor bolts shall conform to AASHTO M164 or ASTM A354-Grade BC galvanized in accordance with AASHTO M232, or M298, Class 40 or 50.

Nuts: Nuts shall conform to AASHTO M292, Gr. 8A (stainless steel) or galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.

Threads: Threads on bolts, screws, and nuts shall conform to American Standard Course Series, Class 2 Fit, ASA Specification B1.1.

Washers: Washers shall be stainless steel and conform to the requirements of ASTM A276 or A167-Type 302 with dimensions meeting ASTM F436, or high strength steel conforming to AASHTO M293 and galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.

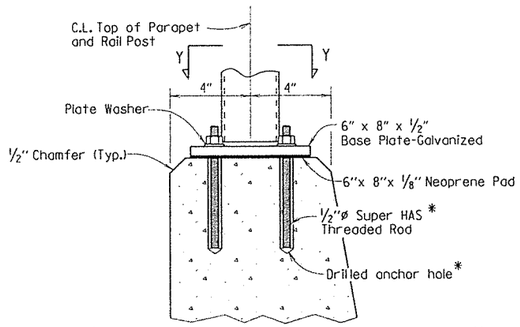
Base plates shall not be placed upon areas that are improperly finished, deformed, or irregular.

Plate Washers shall be stainless steel and conform to the requirements of ASTM A167-Type 302 or AASHTO M270, Gr. 36, galvanized in accordance with AASHTO M232 or M298, Class 40 or 50. Plate Washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series).

Chain Link Fence attached to Bridge and including tapered panel section shall be paid for as "7' Steel Chain Link Fence". For additional details of Chain Link Fence, See Standard Drawing WF-3.

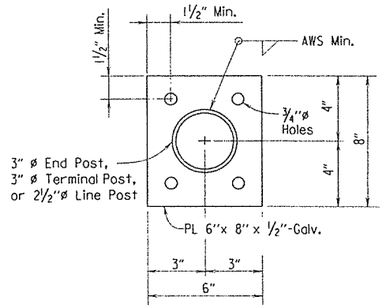
Neoprene pad and template plates shall not be paid for directly, but shall be considered incidental to the unit price bid for item "7' Steel Chain Link Fence".

Mixing of stainless steel and galvanized fasteners will not be permitted.



*HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4 ½" embedment or approved equal.
The HILTI Adhesive Anchor System shall be installed in accordance with Manufacturer's recommendations.

SECTION X-X



SECTION Y-Y

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 8 OF 8
DETAILS OF 380'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 5-20-14
CHECKED BY: [illegible] DATE: 12/10/14
DESIGNED BY: LJB DATE: 4/14

FILENAME: b061084xl_s2.dgn
SCALE: AS NOTED

BRIDGE NO. 07319 DRAWING NO. 56328

PRINT DATE: 05-DEC-2014

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.		061084	75	126
				07319 - 140 FT. UNIT - 56329				

SLAB REINFORCING

Longitudinal: S401E as shown
S601E placed as shown over interior supports. See "REINFORCING PLAN" Dwg. No. 56332

Transverse: S502E @ 12" o.c. bent up over beams — Alternate
S501E @ 12" o.c. in top, S402E @ 12" o.c. in bottom
S503E @ 6" o.c. in top of overhangs (bundled with #5 bars)

① See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" Dwg. No. 56330

② Tolerance: Minus = 1/4"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance- See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" Dwg. No. 56330

③ Working Point to Gutter Line

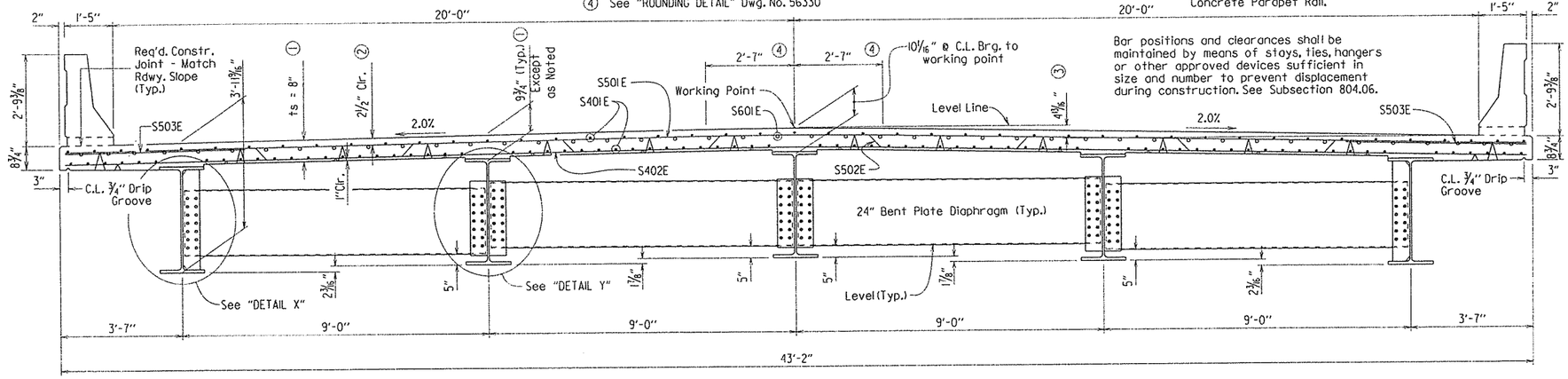
④ See "ROUNDING DETAIL" Dwg. No. 56330

The superstructure details shown are for use when Removable Deck Forming is used and are the basis for measurement of Class SIAE) Concrete.

At the contractor's option, two epoxy coated straight #5 bars may be substituted for bar S502E. Payment will be based on weight of S502E.

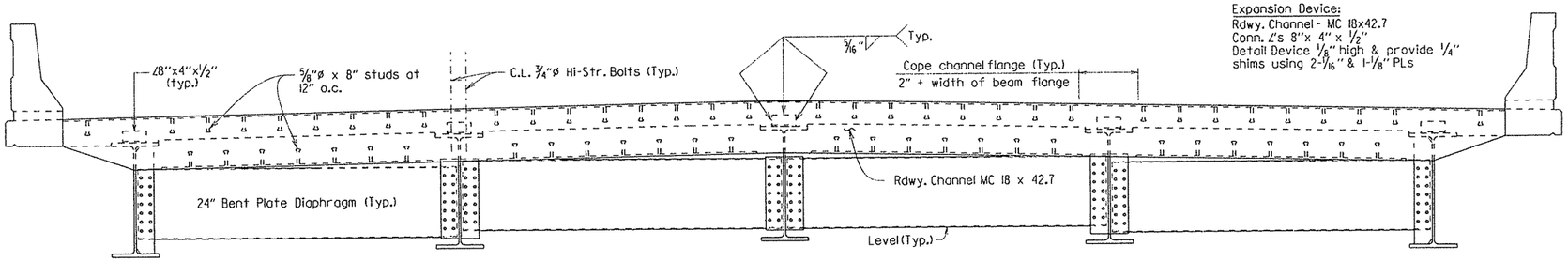
Class I Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Parapet Rail.

Bar positions and clearances shall be maintained by means of stays, ties, hangers or other approved devices sufficient in size and number to prevent displacement during construction. See Subsection 804.06.



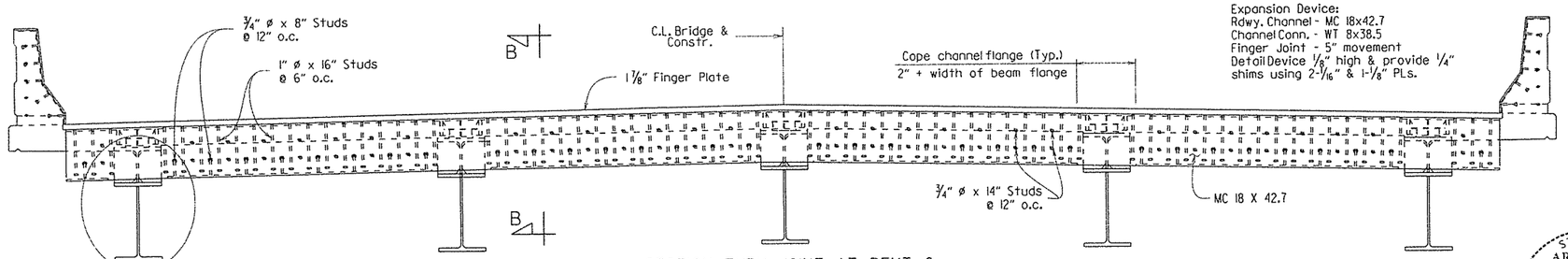
TYPICAL ROADWAY SECTION

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



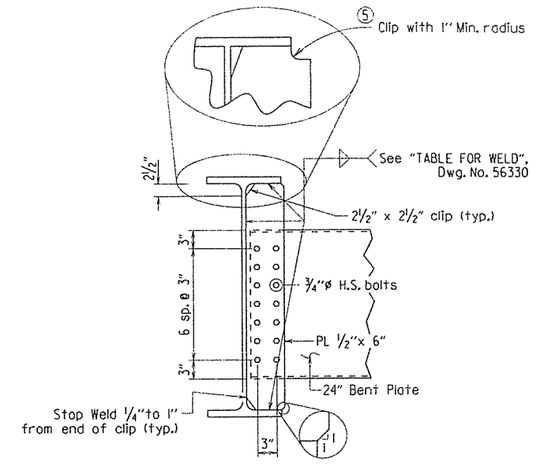
SECTION THRU JOINT AT BENT 8

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



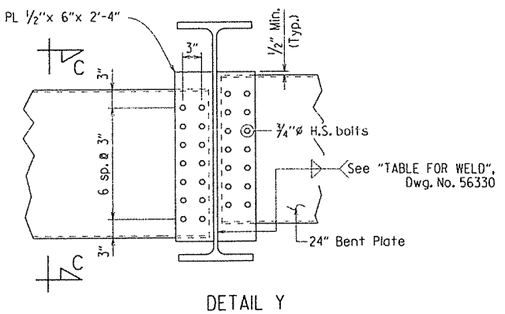
SECTION THRU JOINT AT BENT 6

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



DETAIL X

No Scale



DETAIL Y

No Scale

⑤ If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accommodate the deck form supports.

For "SECTION B-B" and "SECTION C-C", see Dwg. No. 56330.

For details of poured silicone joint, see Dwg. No. 56336.

For details of finger joint, see Dwg. No. 56335.

For Superstructure General Notes, See Dwg. No. 56334.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF 140'-0" CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

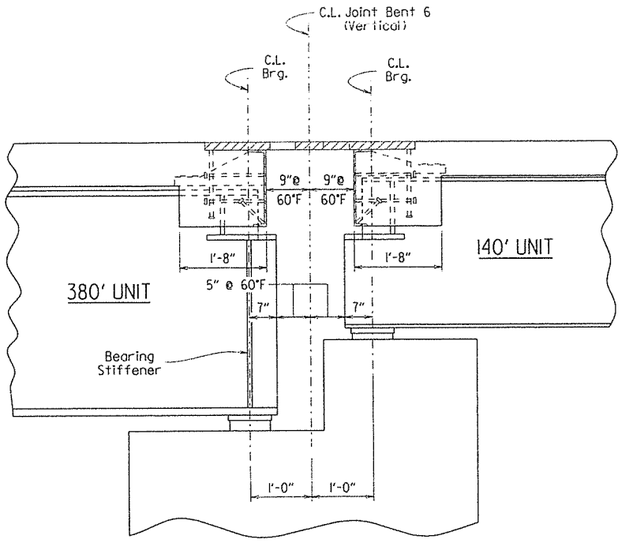
LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 5/1/14 FILENAME: b061084_s3.dgn
CHECKED BY: [illegible] DATE: 12/11/14 SCALE: as shown
DESIGNED BY: LJB DATE: 4/14

BRIDGE NO. 07319 DRAWING NO. 56329

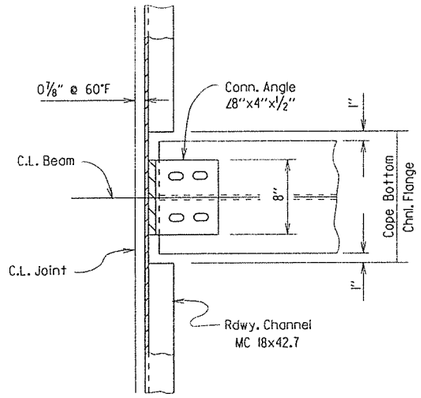
PRINT DATE: 12/5/2014

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.		061084	74	126
				(1)		07319 - 140 FT. UNIT - 56330		



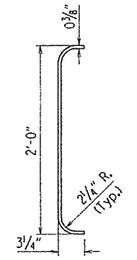
SECTION B-B

No Scale



CHANNEL CONNECTION DETAIL - BENT 8

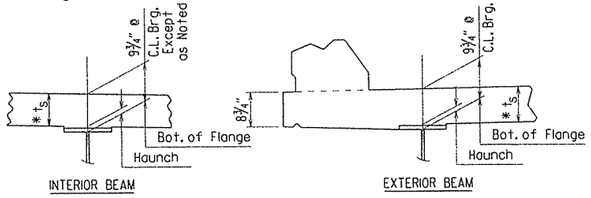
No Scale



SECTION C-C

No Scale

t_s = slab thickness as shown in "TYPICAL ROADWAY SECTION", Dwg. No. 56329



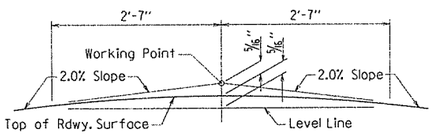
*Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

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". 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.



NOTE: Working Point matches Theoretical Roadway Grade.

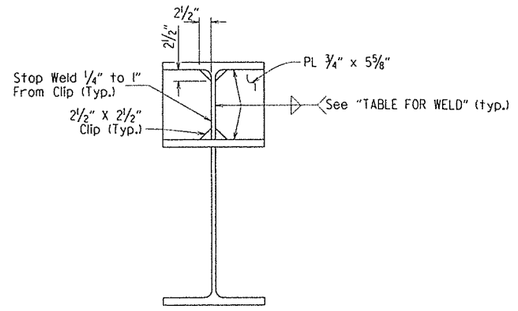
ROUNDING DETAIL

No Scale

TABLE FOR WELD

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.



DETAIL Z

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF 140'-0" CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 5/1/14 FILENAME: b061084_s3.dgn
CHECKED BY: V.w.Y DATE: 12/10/14 SCALE: as shown
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PRINT DATE: 12/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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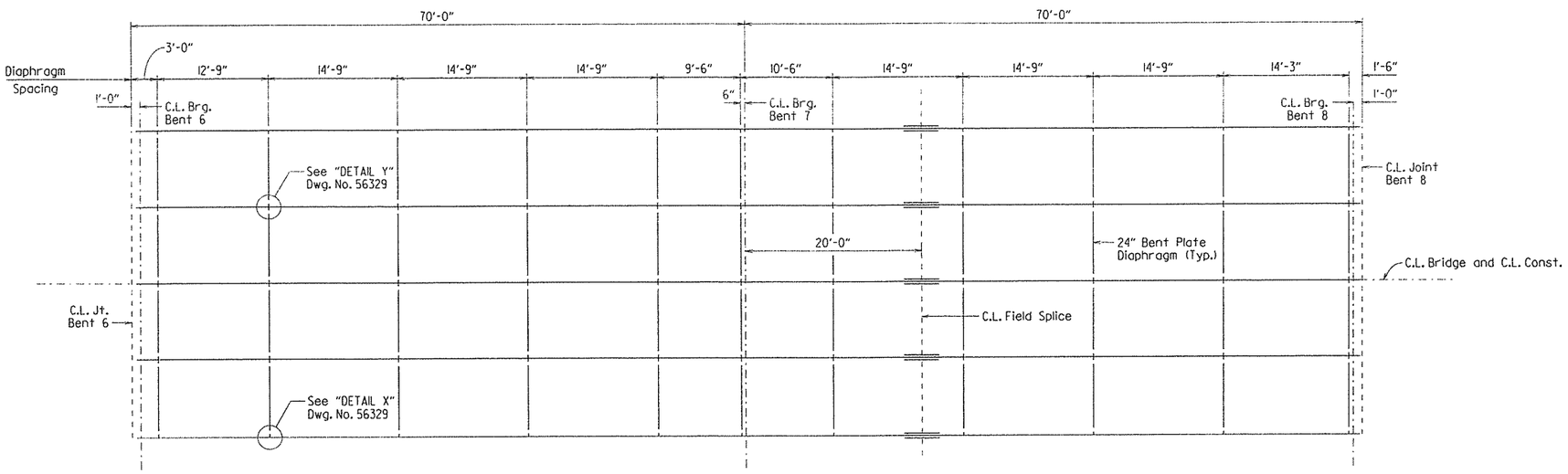
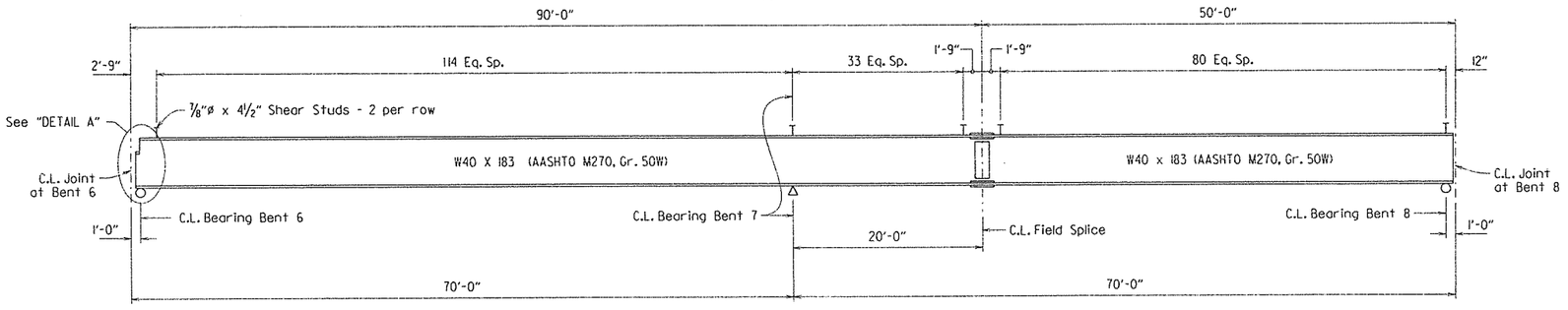
				JOB NO.		061084	77	126
				(1)		07319 - 140 FT. UNIT - 56331		



FRAMING PLAN

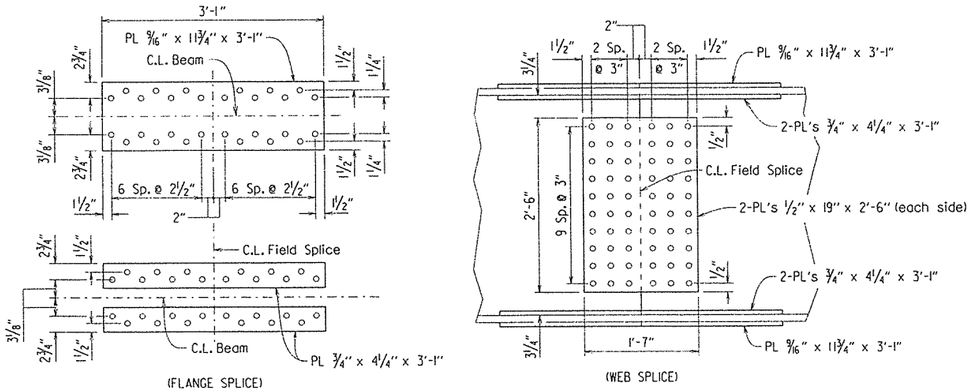
1/8" = 1'-0"



TYPICAL BEAM ELEVATION

No Scale

NOTE: Bolted Field Splices may be eliminated or shop welded splices substituted with the approval of the Engineer. Payment will be made on the basis of the plan quantities.



DETAILS OF FIELD SPLICE

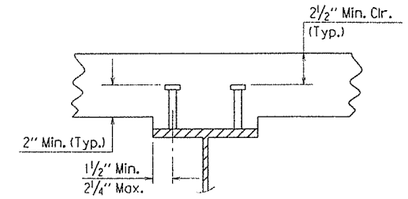
No Scale

NOTES: 1. All Field Splice Bolts to be 7/8" ø H.S. Bolts.
2. All Field Splice plates to be AASHTO M270, Gr. 50W.
3. All holes for splice bolts to be 15/16 "ø.

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Ext. Beam	Int. Beam	Ext. Beam	Int. Beam	Ext. Beam	Int. Beam
1	0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.041	0.044	0.229	0.258	0.251	0.272
	0.2	0.076	0.082	0.423	0.477	0.463	0.503
	0.3	0.099	0.107	0.555	0.626	0.607	0.660
	0.4	0.109	0.118	0.611	0.690	0.668	0.727
	0.5	0.105	0.114	0.589	0.665	0.644	0.701
	0.6	0.089	0.096	0.498	0.562	0.545	0.592
	0.7	0.064	0.069	0.357	0.402	0.390	0.424
	0.8	0.035	0.038	0.196	0.221	0.214	0.233
	0.9	0.011	0.011	0.060	0.067	0.066	0.071
	0	0.000	0.000	0.000	0.000	0.000	0.000

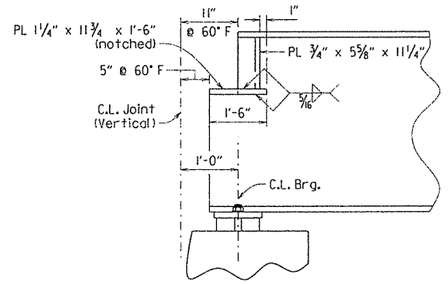
Symmetrical about C.L. Unit



SHEAR CONNECTOR DETAILS

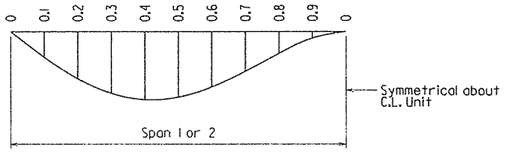
No Scale

Stud Shear Connectors shown shall be 7/8"ø x 4 1/2" long, granular flux filled, solid fluxed or equal, and automatically end welded to the girder flange in accordance with the recommendations of the Manufacturer. 3/4"ø studs may be used in place of the 7/8"ø studs shown, at the ratio of 1.361 -3/4"ø studs in place of one 7/8"ø stud. 7/8"ø studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".



DETAIL A

No Scale



DEAD LOAD DEFLECTION DIAGRAM

No Scale

NOTE:
Camber for Dead Load Deflection plus Vertical curve +/- 1/4" tolerance.
Deflections shown are along a chord from C.L. Bearing to C.L. Bearing.
Vertical curve corrections not included.

STATE OF ARKANSAS
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REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
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SHEET 3 OF 5
DETAILS OF 140'-0" CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

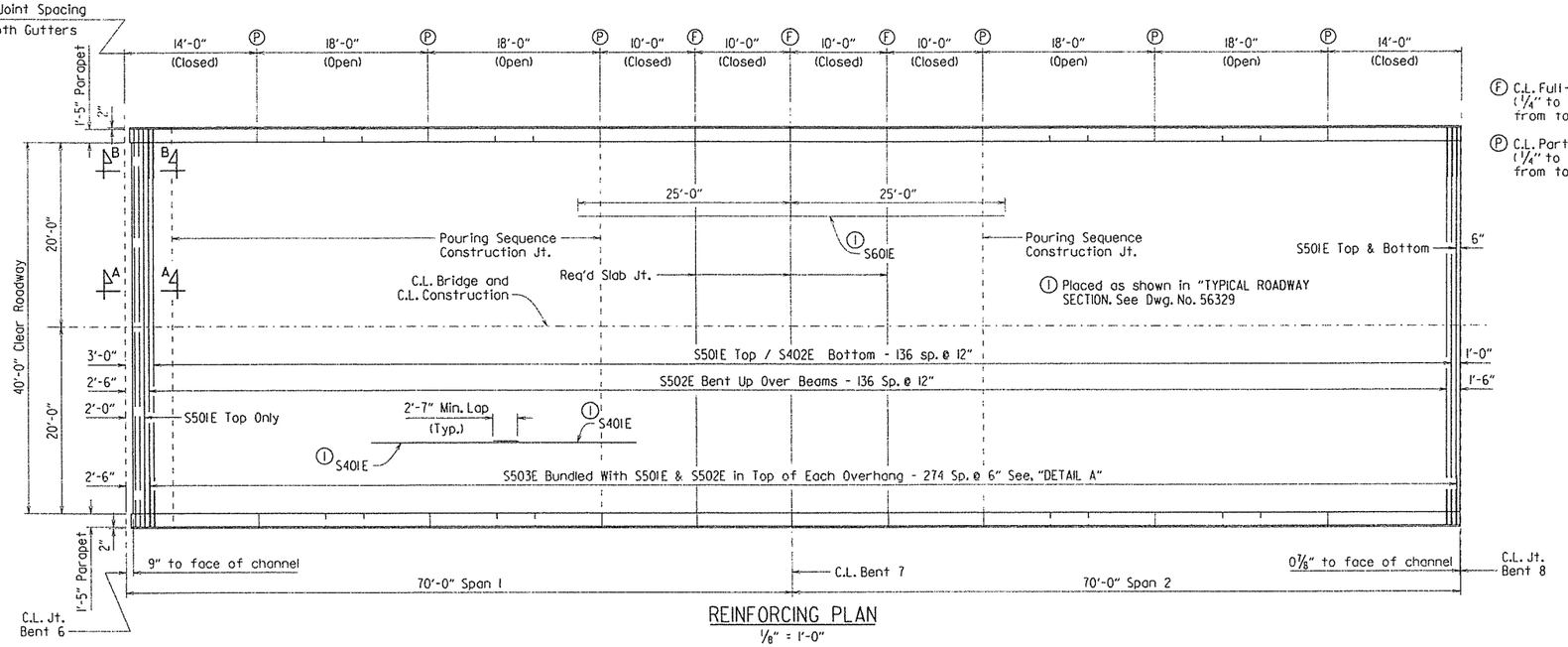
DRAWN BY: BHS DATE: 4/29/14 FILENAME: b061084_s3.dgn
CHECKED BY: [illegible] DATE: 12/10/14 SCALE: as shown
DESIGNED BY: LJD DATE: 4/14

BRIDGE NO. 07319 DRAWING NO. 56331

PRINT DATE: 12/5/2014

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.		061084	76	120
				(1)		07319 - 140 FT. UNIT - 56332		

Parapet Joint Spacing
Along Both Gutters



REINFORCING PLAN
1/8" = 1'-0"

Ⓕ C.L. Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab.

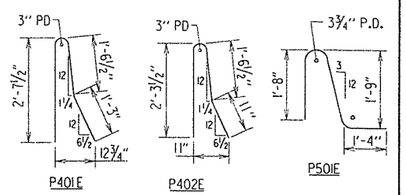
Ⓟ C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab.

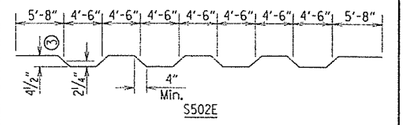
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
P401E	496	5'-6"	2"
P402E	64	4'-10"	2"
P403E	14	13'-4"	Str.
P404E	56	17'-7"	Str.
P405E	56	9'-7"	Str.
P406E	14	13'-6"	Str.
P407E	48	5'-0"	Str.
P501E	496	4'-10"	3 3/4"
S401E	484	36'-8"	Str.
S402E	137	42'-10"	Str.
S501E	140	42'-10"	Str.
S502E	137	43'-8"	3"
S503E	550	5'-4"	Str.
S504E	8	8'-0"	Str.
S505E	20	8'-7"	Str.
S506E	4	2'-11"	Str.
S507E	10	1'-8"	Str.
S601E	44	50'-0"	Str.

BENDING DIAGRAMS

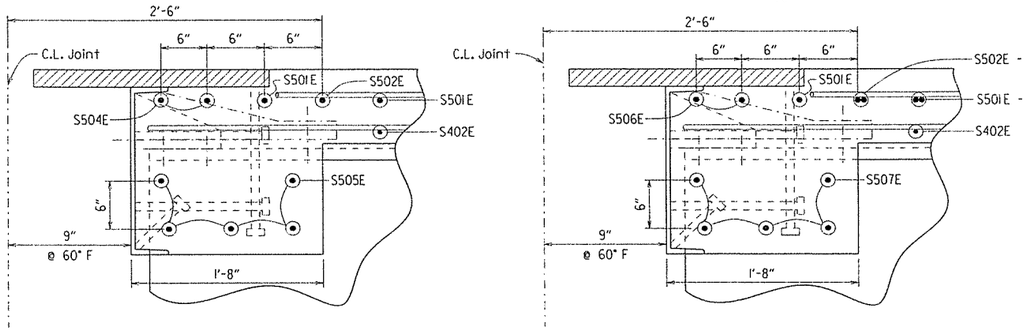
Dimensions are out to out of bars.





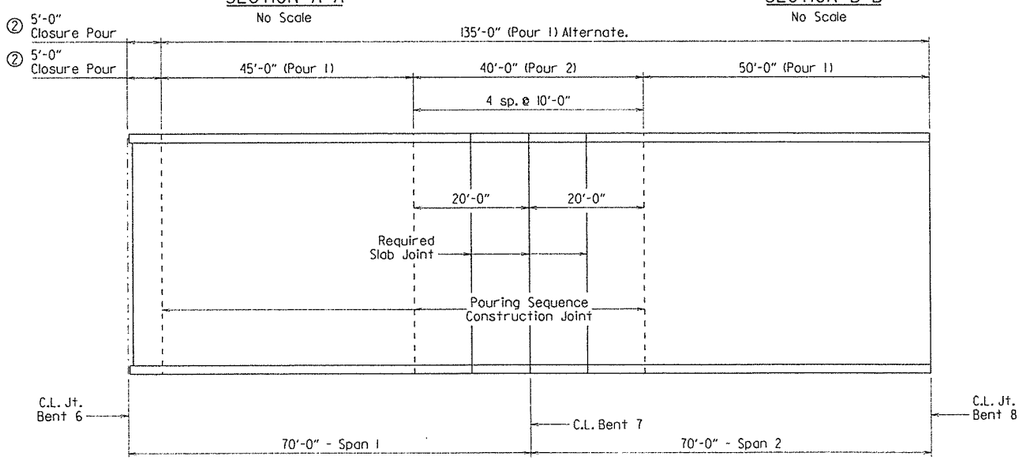
③ 1/2" Over tolerance
No Under tolerance

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



SECTION A-A
No Scale

SECTION B-B
No Scale



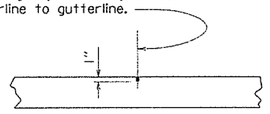
DECK POURING SEQUENCE
No Scale

Unless otherwise noted:
Min. Lap for #4 Epoxy Coated bars = 2'-7"
Min. Lap for #5 Epoxy Coated bars = 3'-3"
Min. Lap for #6 Epoxy Coated bars = 3'-10"

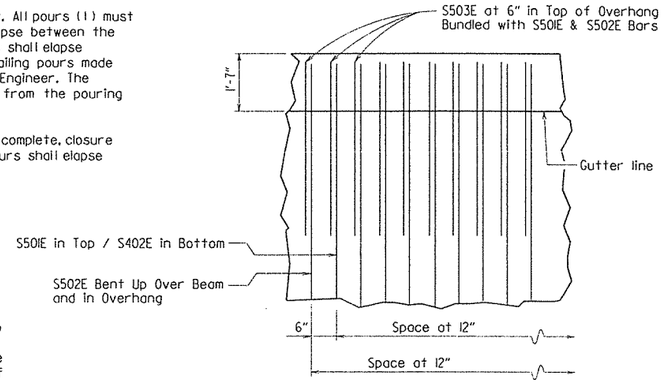
Pours with the same number may be placed simultaneously or seperately. All pours (1) must be placed before pour (2) can be placed. A minimum of 48 hours shall elapse between the end of a pour and the start of the next pour. A minimum of 72 hours shall elapse between the end of a pour and the start of an adjacent pour. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequences shown.

② After all incremental pours on both Units adjacent to Finger Joint are complete, closure pours on each side of finger joint shall be poured. A minimum of 48 hours shall elapse between the last incremental pour and the closure pour.

1/2" 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. Slab joints shall extend to the outside edge of the deck slab. Slab joint shall be installed before the parapet rail is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. Slab joints shall align with parapet open joints except at the 5'-0" closure pour at finger joint. The joint sealer shall extend across the deck from gutterline to gutterline.



SLAB JOINT DETAIL
No Scale



DETAIL A
No Scale

STATE OF ARKANSAS
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No. 9235
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BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF 140'-0" CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 4/29/14 FILENAME: b061084_s3.dgn
CHECKED BY: [illegible] DATE: 12/10/14 SCALE: as shown
DESIGNED BY: LJB DATE: 9/14

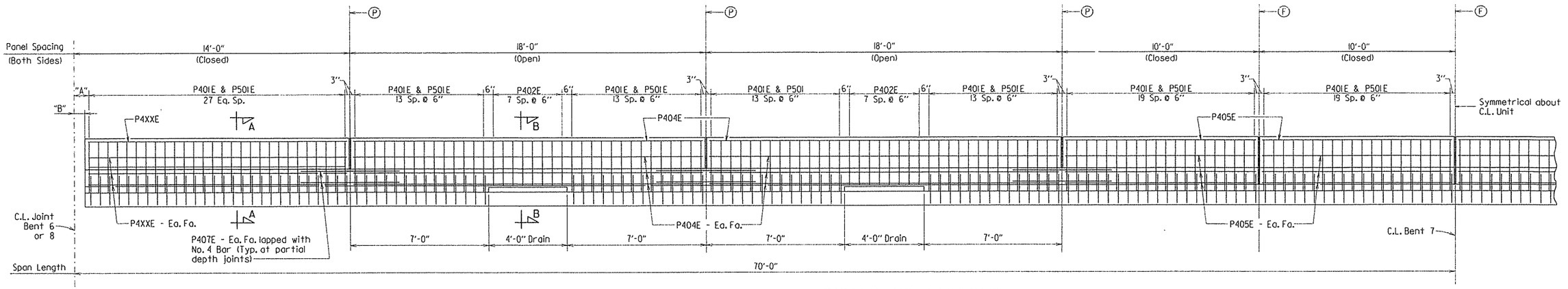
BRIDGE NO. 07319 DRAWING NO. 56332

PRINT DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	5	12
				(1)		07319 - 140 FT. UNIT - 56333		

(F) C.L. Full-Depth Parapet Joint (1/4" to 1" max.) as shown in "REINFORCING PLAN", Dwg. No. 56332. Stop 4" from top of slab.

(P) C.L. Partial-Depth Parapet Joint (1/4" to 1" max.) as shown in "REINFORCING PLAN", Dwg. No. 56332. Stop 1'-2" from top of slab.



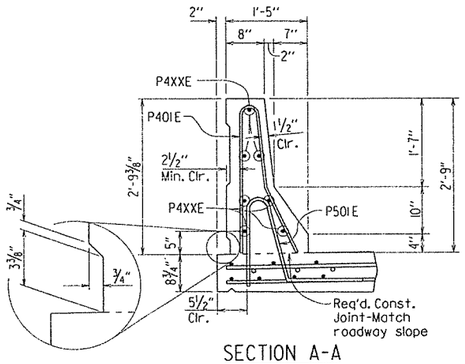
PARAPET RAIL REINFORCING

3/8" = 1'-0"

TABLE OF VARIABLES

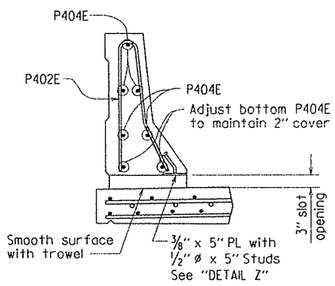
Panel Length	Panel Type	Span	"A"	"B"	"P4XXE"
14'-0"	Closed	1	5 1/2"	2 1/2"	P403E
14'-0"	Closed	2	3 7/8"	0 7/8"	P406E
10'-0"	Closed	1 & 2	-	-	P405E
18'-0"	Open	1 & 2	-	-	P404E

For location of panels, see "REINFORCING PLAN" Dwg. No. 56332.



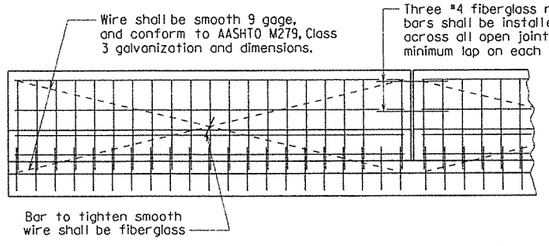
SECTION A-A

3/4" = 1'-0"

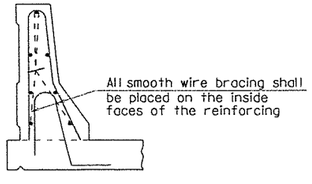


SECTION B-B

3/4" = 1'-0"



For actual placement of reinforcing steel, see parapet details.

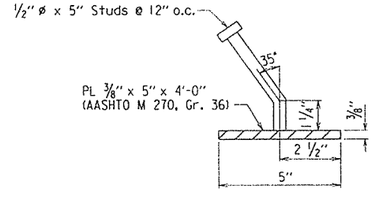


All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

The extruded parapet 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.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale



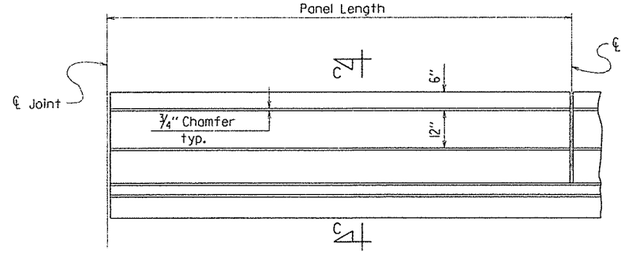
DETAIL Z

No Scale

NOTE:

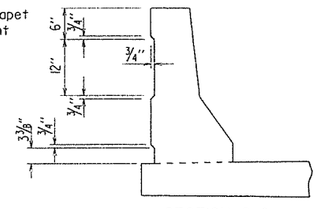
The surfaces of the 3/8" plates which will not be in contact with concrete shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M270, Gr. 50W)."

Parapet studs shall be 5" long., granular flux filled, solid fluxed or equal, and automatically end welded to the plate. Studs and plates shall meet the requirements of Section 807 and shall be measured and paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)."



DETAILS OF PARAPET ENHANCEMENT

No Scale



SECTION C-C

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF 140'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 05/06/14 FILENAME: b061084_s3.dgn
CHECKED BY: KWY DATE: 12/10/14 SCALE: as shown
DESIGNED BY: LJB DATE: 4/14

BRIDGE NO. 07319 DRAWING NO. 56333

PRINT DATE: 12/5/2014

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.		061084	80	126
				(1)		07319 - GENERAL NOTES - 56334		

GENERAL NOTES

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications 6th Edition (2012), with 2013 Interims.

LIVE LOADING: HL-93

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c	= 4,000 psi
Reinforcing Steel (Grade 60 AASHTO M31 or M322, Type A)	fy	= 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50W)	Fy	= 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy	= 36,000 psi

STRUCTURAL STEEL:
All Structural Steel shall be AASHTO M270, Gr. 50W unless otherwise noted. All structural steel shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)" or "Structural Steel in Beam Spans (M270, Gr. 50W)". Structural Steel completely embedded in concrete may be AASHTO M270, Gr. 36 or Gr 50. All exposed surfaces shall be cleaned in accordance with Subsection 807.84 (e) unless noted otherwise.

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.

Beams and Girders, including all field splice plates, 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 (M270, Gr. 50W)" or "Structural Steel in Beam Spans (M270, Gr. 50W)".

Steel 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.

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted and approval secured before fabrication is begun. Girder webs may be made by shop splicing with minimum lengths of 25'-0" for sections. Flange plates longer than 50'-0" may be made by shop splicing with minimum lengths of 25'-0" for sections. Material specifications and location of shop-welded splices, if any, shall be shown on the shop drawings. No additional payment for welds for these splices will be made.

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

All Girders and Beams shall be blocked in their true position in the shop as specified in Subsection 807.54(b)(2). The camber, length of sections, distance between bearings, and opening of joints shall be measured with the beams or girders in their true position and this information shall become part of the permanent record of this job. Match marks shall be placed on the component parts in this assembly and shown on the erection diagram. All beam or girder dimensions are based on a temperature of 60°F. A tolerance of +/- 1/4" is allowed for camber.

Field connections shall be bolted with high-strength bolts. Bolts shall be 3/4" diameter, except as noted, and open holes shall be 11/16", unless noted otherwise. Holes for 3/4" diameter bolts may be 15/16" diameter if a washer is supplied for use under both the nut and head of the bolt. Bolt spacing shall be 2 1/2" for 3/4" diameter bolts unless otherwise noted. For Field Splices, bolts shall be 7/8" diameter bolts unless otherwise noted. Open holes shall be 15/16" unless noted otherwise. Bolt spacing shall be 3" for 7/8" diameter bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder web and on the bottom of the beam or girder flanges.

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.

Groove welds in main plate girder members shall be Quality Control (Q.C.) tested by nondestructive testing, as required by the Standard Specifications. Fillet welds at flange to web plate shall be Q.C. tested by the magnetic particle method. All Quality Control (Q.C.) testing is at the contractor's expense.

K-Frames and diaphragms shall be installed as girders and beams are erected. All bolts in K-Frames diaphragms, and field splices shall be installed and tightened in accordance with Subsection 807.71.

All Bearings shall be seated in accordance with Subsection 808.08. This work and material will not be paid for directly but will be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M270, Gr. 50W)" or "Structural Steel in Beam Spans (M270, Gr. 50W)".

REINFORCING STEEL:
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports. The reinforcing steel shall 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 of "Epoxy Coated Reinforcing Steel (Grade 60)".

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 are to be chamfered 3/4" unless otherwise noted.

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

The concrete deck shall be given a Tine Finish in accordance with Subsection 802.19 for Class 5, Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam or girder. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the parapet railing.

PRINT DATE: 12/5/2014

STATE OF ARKANSAS
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12-11-14
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BRIDGE ENGINEER

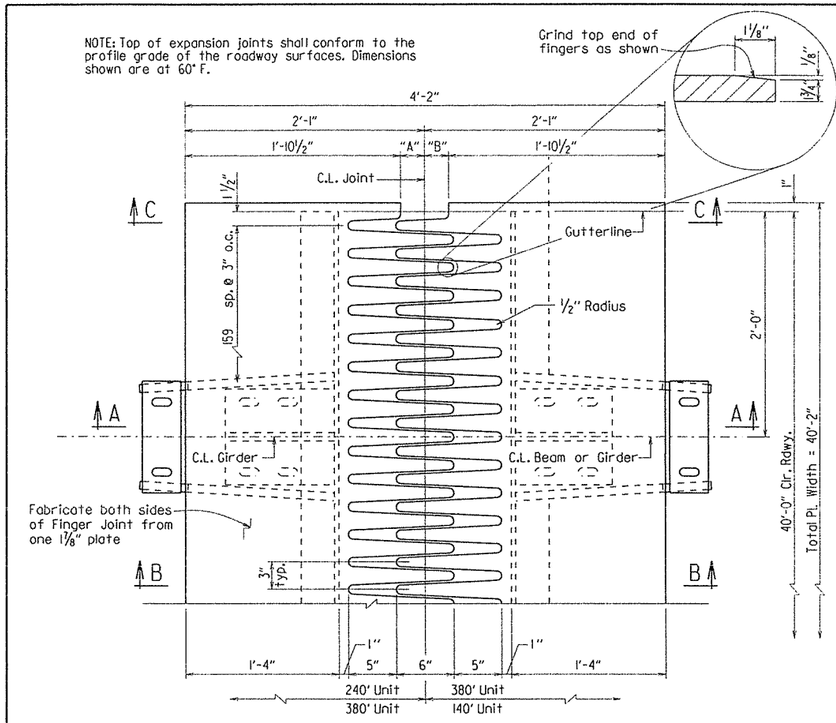
SUPERSTRUCTURE GENERAL NOTES
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 05/27/14 FILENAME: b061084_gn.dgn
CHECKED BY: KWJ DATE: 12/10/14 SCALE: No Scale
DESIGNED BY: LDD DATE: 4/14

BRIDGE NO. 07319 DRAWING NO. 56334

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.		061084	61	120
				07319 - FINGER JOINT - 56335				

NOTE: Top of expansion joints shall conform to the profile grade of the roadway surfaces. Dimensions shown are at 60° F.



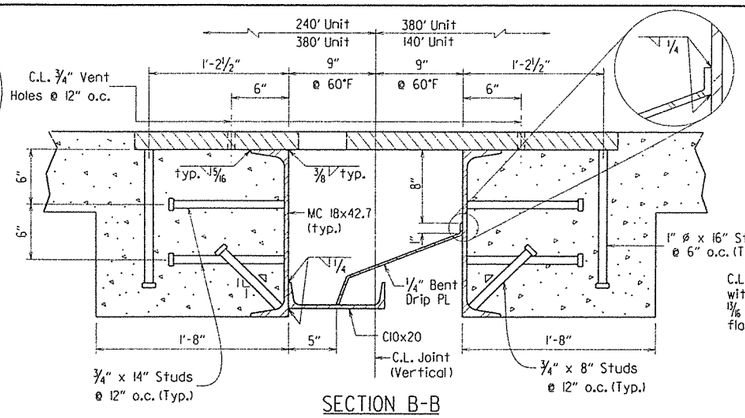
EXPANSION PLATE DETAIL

1½" = 1'-0"

Bent 3	240' Unit	380' Unit
Temp.	"A"	"B"
40°F	2 11/16"	2 11/16"
60°F	2½"	2½"
80°F	2 5/16"	2 3/16"

Bent 6	380' Unit	140' Unit
Temp.	"A"	"B"
40°F	2 5/16"	2 5/8"
60°F	2½"	2½"
80°F	2 3/16"	2 3/8"

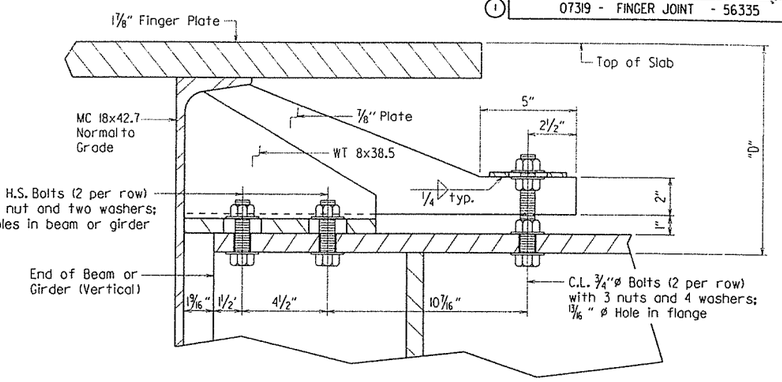
Table of Variables				
Span	PL "C"	"D"	PL "E"	"F"
240' PL. Gdr.	1" x 16" x 1'-6"	10"	1" x 7¾"	11"
380' Pl. Gdr.	1½" x 16" x 1'-6"	10"	1" x 7¾"	11"
140' W-Beam	1¼" x 11¾" x 1'-6"	9¾"	¾" x 5⅝"	11¼"



SECTION B-B

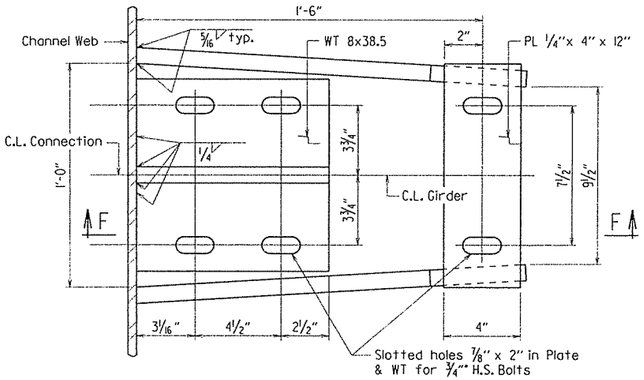
1½" = 1'-0"

NOTE: The Studs shown shall be granular flux filled, solid fluxed, or equal, and automatically end welded to the channel in accordance with the recommendations of the manufacturer.



SECTION F-F

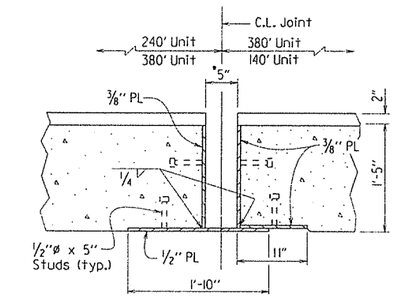
3" = 1'-0"



Detail device ⅛" high and provide ¼" shims for WT using 1- ⅛" PL and 2 - 1/16" PL's.

PLAN OF CONNECTION TO GIRDER

3" = 1'-0"



The ½"ø studs shall be granular flux filled, solid fluxed, or equal and automatically end welded to the PL's in accordance with the recommendations of the manufacturer.

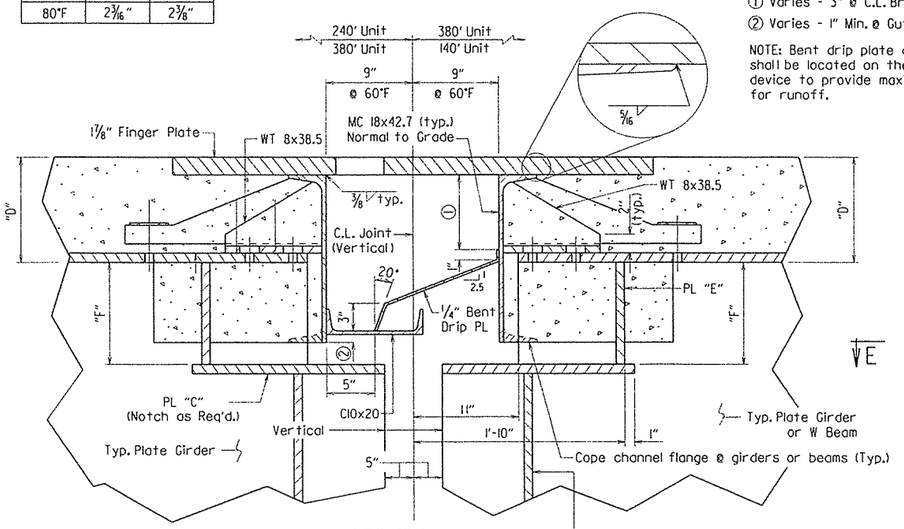
SECTION E-E

1" = 1'-0"

① Varies - 3" @ C.L. Bridge

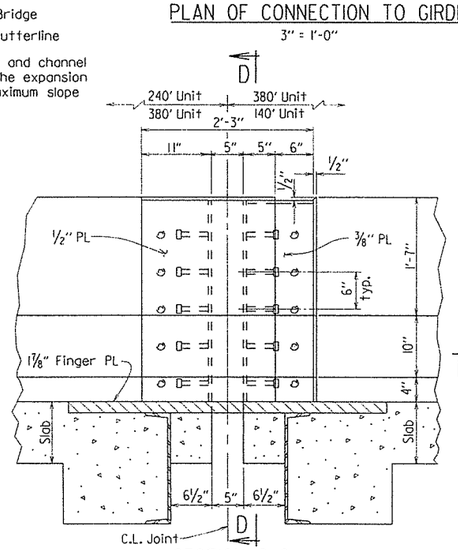
② Varies - 1" Min. @ Gutterline

NOTE: Bent drip plate and channel shall be located on the expansion device to provide maximum slope for runoff.



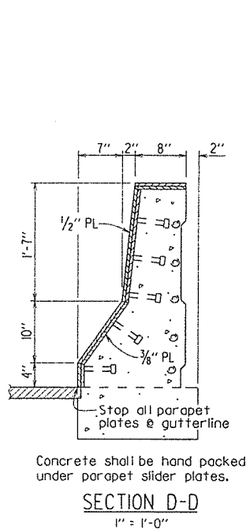
SECTION A-A

1½" = 1'-0"



SECTION C-C

1" = 1'-0"



Concrete shall be hand packed under parapet slider plates.

SECTION D-D

1" = 1'-0"

NOTES:
The finger joint shall be set and adjusted for grade before closure pours are made.

Concrete shall be hand packed under finger plates.

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

All structural steel in Finger Joints, except parapet slider plates, shall be AASHTO M270, Gr. 50W. Parapet slider plates shall be AASHTO M270, Gr. 36. Surfaces of the parapet slider plates which will not be in contact with the concrete shall be cleaned and painted in accordance with Section 638. Only one coat is required and shall be applied in the shop. All structural steel shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W), except as noted, which price shall include painting.

For Drain Details, See Dwg. Nos. 56315 and 56321.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF FINGER JOINTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

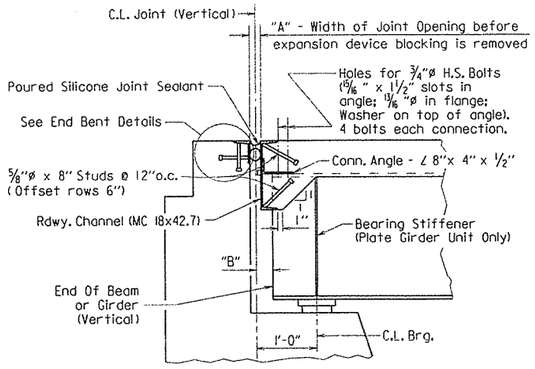
LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 5/15/14
CHECKED BY: KWY DATE: 12/10/14
DESIGNED BY: KWY DATE: 12/10/14
FILENAME: b061084_jt.dgn
SCALE: as shown

BRIDGE NO. 07319 DRAWING NO. 56335

PRINT DATE: 12/5/2014

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.		061084	82	120
				①		07319 - SILICONE JOINT - 56336		

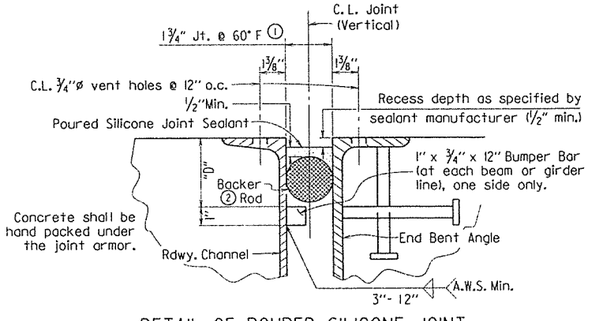


SECTION THRU JOINT AT END BENTS
No Scale

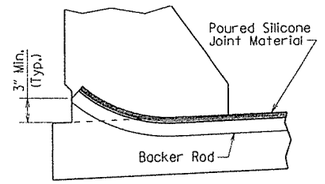
NOTE: Concrete shall be hand packed under the joint armor in the backwall and in the span.

① Installation is limited to 40° F Min. and 80° F max. See Table for installation temperatures other than 60° F

② Silicone Joint materials and installation shall be in accordance with Subsection 809.03(c).



DETAIL OF POURED SILICONE JOINT
No Scale



DETAIL OF POURED SILICONE JOINT AT GUTTERS
No Scale

SILICONE JOINT DATA

"A" Width Perpendicular to Joint at 24 Hour Average Temperature* Of:				"B" Perpendicular to Joint at 60°F	"D"	Bumper Plate Size
BENT	40°F	60°F	80°F			
1	1 15/16"	1 3/4"	1 9/16"	2" +/-	4"	1" X ¾"
8	1⅞"	1¾"	1⅝"	2" +/-	4"	1" X ¾"

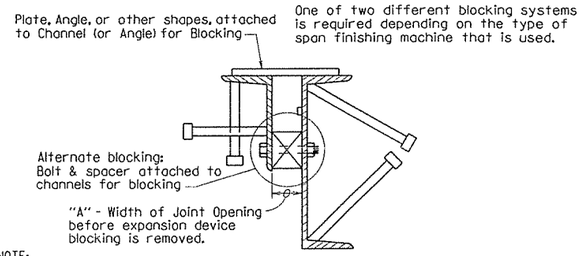
* The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary

NOTES: The temperature limitations recommended by the sealant manufacturer shall be observed. The sealant shall be installed only when the average 24 hour 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.

Except as 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.



NOTE:
Each expansion joint device shall be blocked in the shop by the Fabricator to the dimension 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
No Scale

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 the expansion device shall be placed before the end bent backwall concrete is placed. The joint assembly shall be installed on the beams or girders, adjusted for grade, and the bolts fully tightened prior to placing the adjacent span concrete pour. Immediately prior to pouring the backwall concrete supporting the expansion device, the blocking shall be removed, the joint opening shall be adjusted for temperature, and the backwall constructed.

2) No portion of the backwall shall be poured before beams or girders are in place. The portion of the backwall above the optional construction joint shall not be placed until the adjacent deck pour has been made. The 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, the joint opening shall be adjusted for temperature, and the remainder of the backwall constructed.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
12-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF POURED SILICONE JOINTS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BHS DATE: 05/07/14 FILENAME: b061084_jt.dgn
CHECKED BY: [illegible] DATE: [illegible] SCALE: No Scale
DESIGNED BY: LJB DATE: [illegible]

BRIDGE NO. 07319 DRAWING NO. 56336

PRINT DATE: 12/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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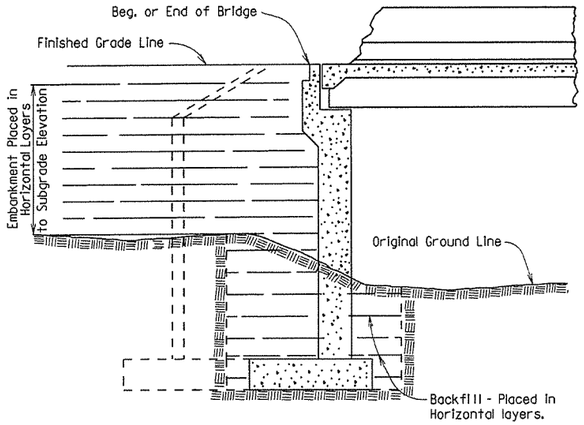
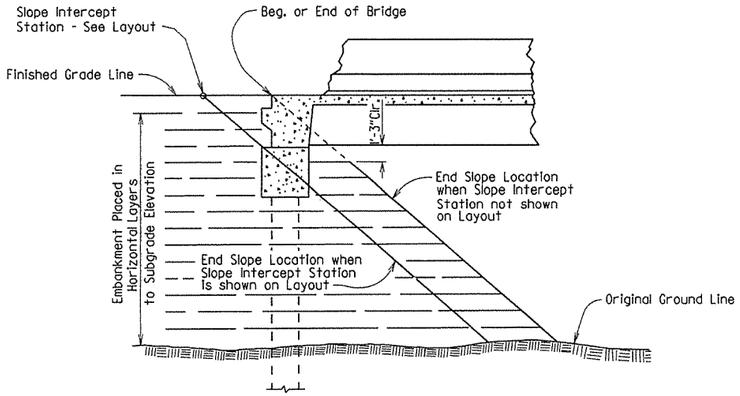
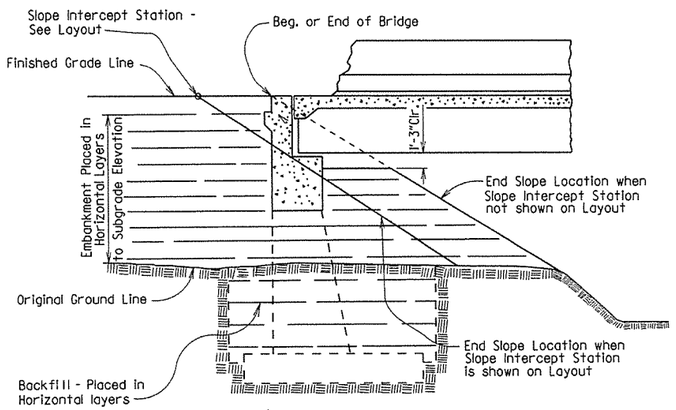
				JOB NO.				
				①	EMBANKMENT & BACKFILL		55000	



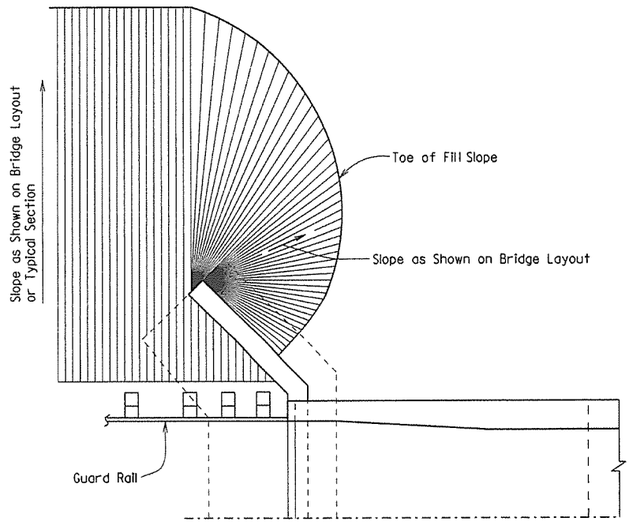
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



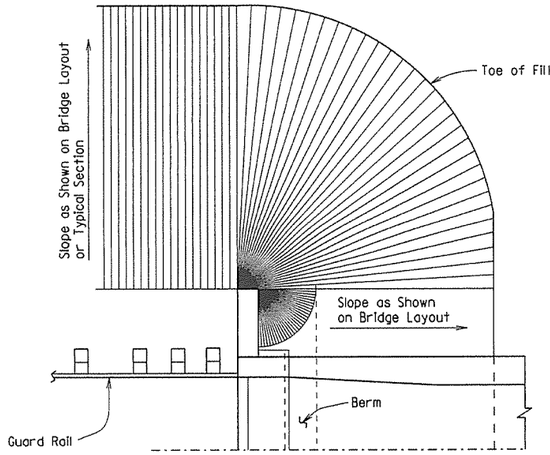
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



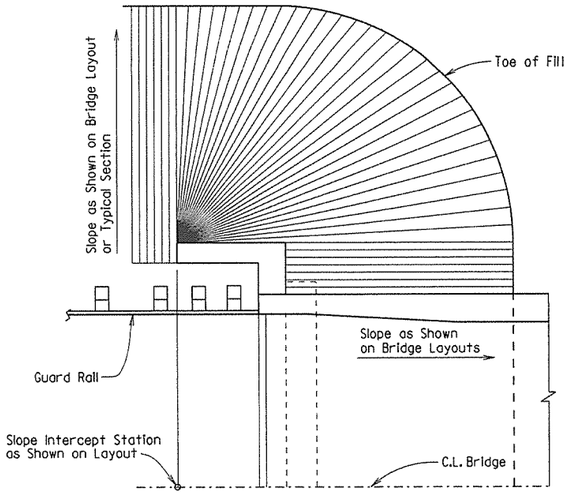
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



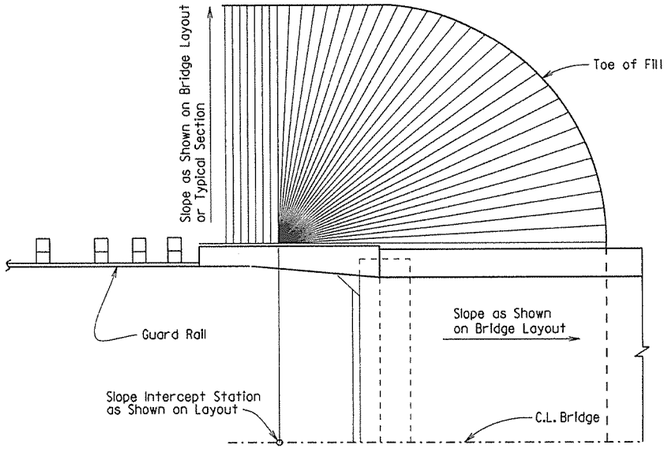
VERTICAL WALL ABUTMENTS



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
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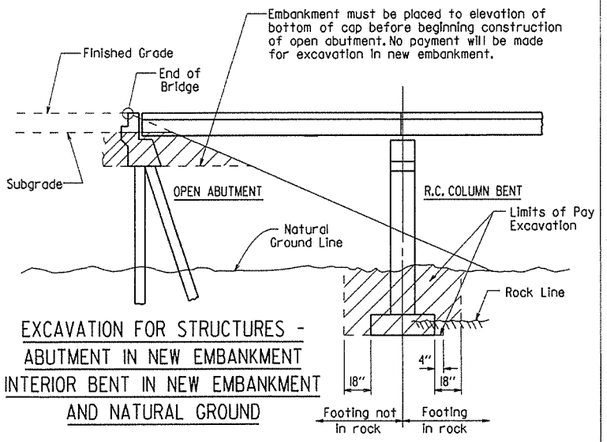
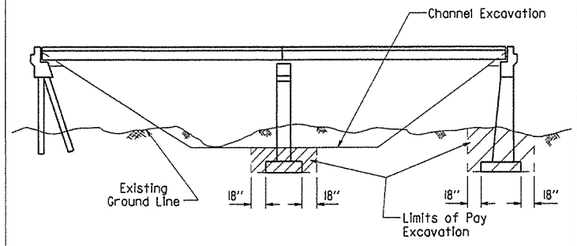
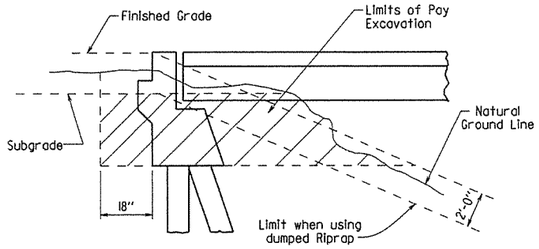
				JOB NO.				
				①	RIPRAP & EXCAV. 55001			



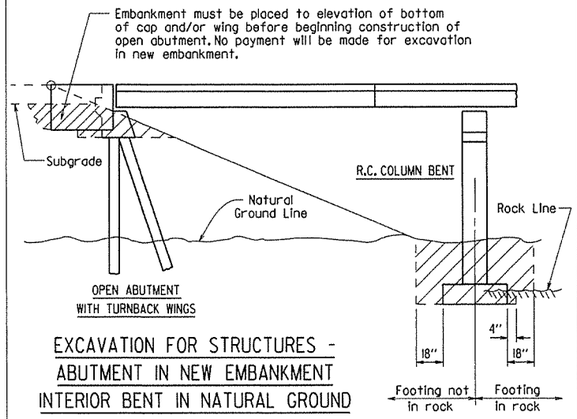
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



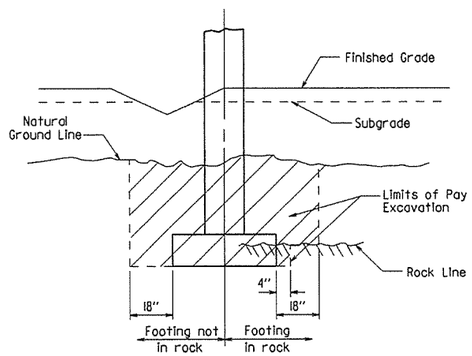
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



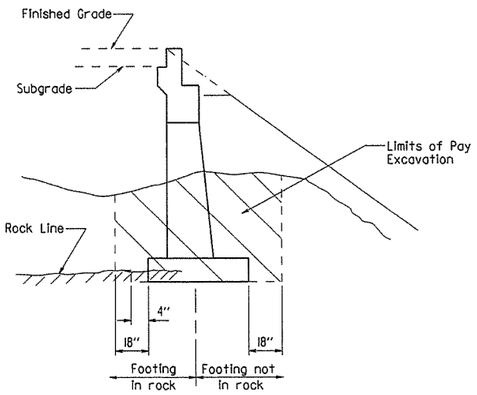
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



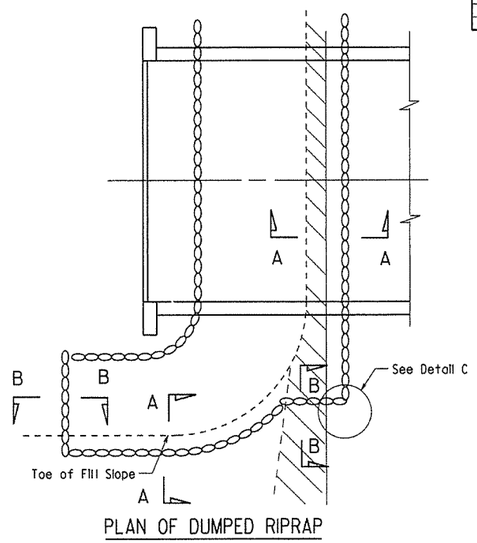
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



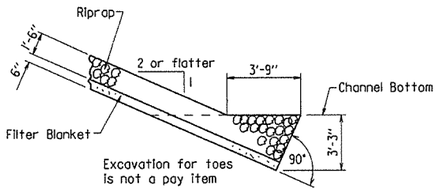
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



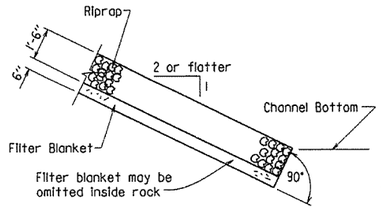
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



PLAN OF DUMPED RIPRAP



SECTION A-A
(Toe Excavation in Soil)

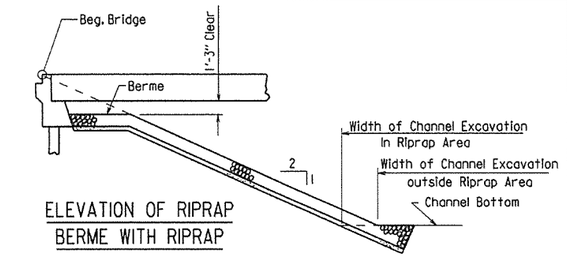


SECTION A-A
(Toe Excavation in Rock)

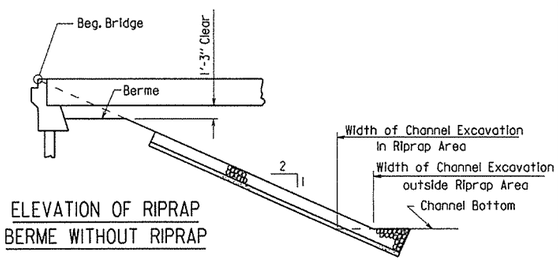
Note : Use this type of toe when rock is encountered which is in a stable condition.

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

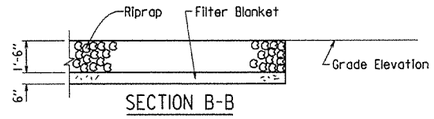
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



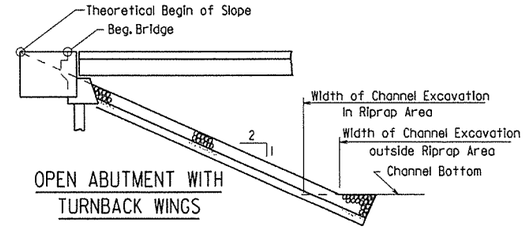
ELEVATION OF RIPRAP BERME WITH RIPRAP



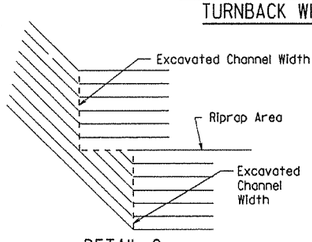
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE:

DRAWING NO. 55001

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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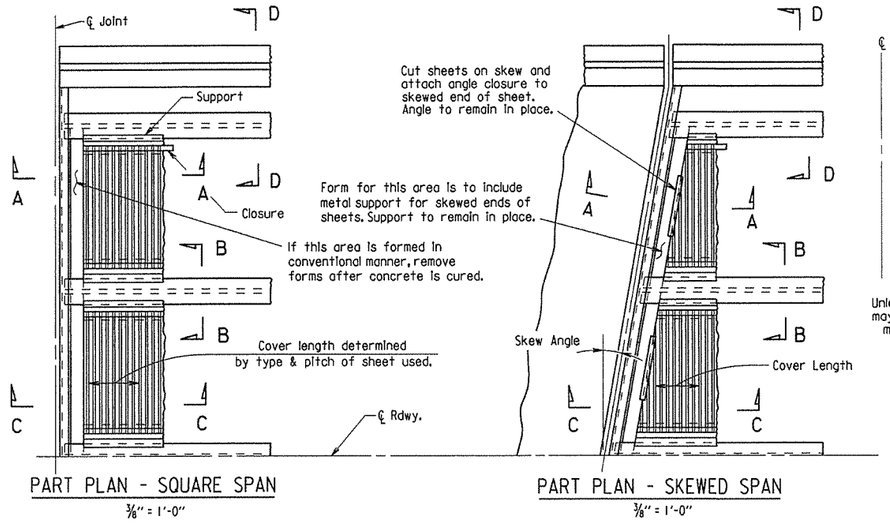
				JOB NO.				
				① BRIDGE DECK FORMS			55005	

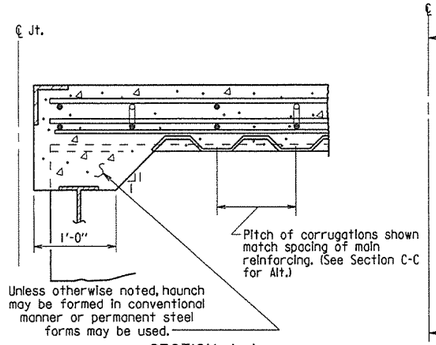


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

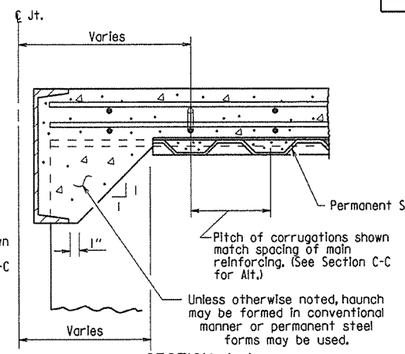
3/8" = 1'-0"



SECTION A-A

N.T.S.

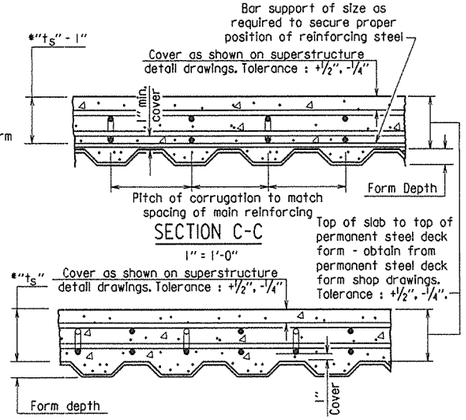
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



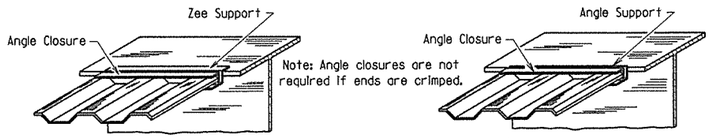
SECTION C-C

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.

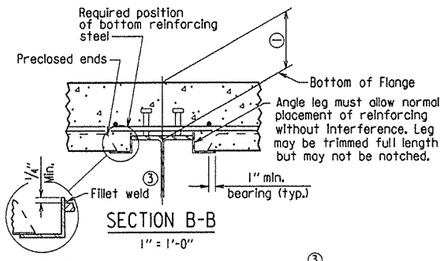
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

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.

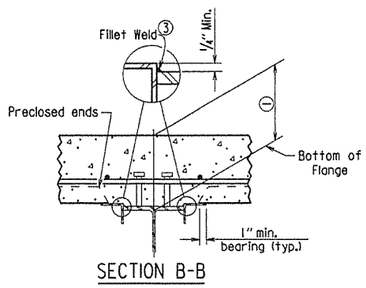
Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions.



SECTION B-B

1" = 1'-0"

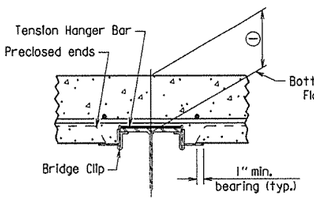
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)



SECTION B-B

1" = 1'-0"

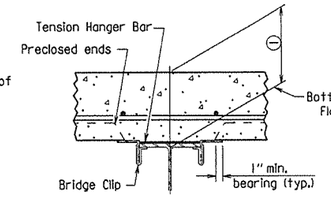
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

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

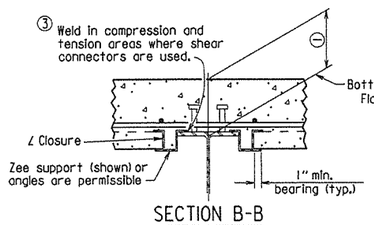


SECTION B-B

1" = 1'-0"

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

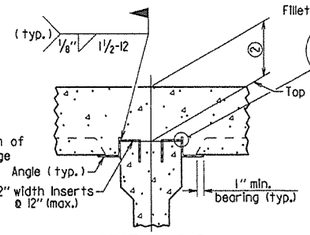
③ Minimum weld: 1/8" x 1' @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

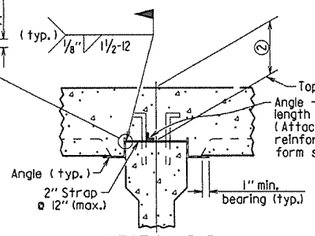


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Insert cast in girder)

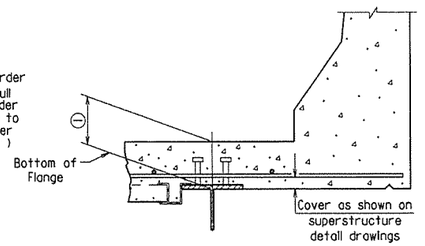


SECTION B-B

(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.

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

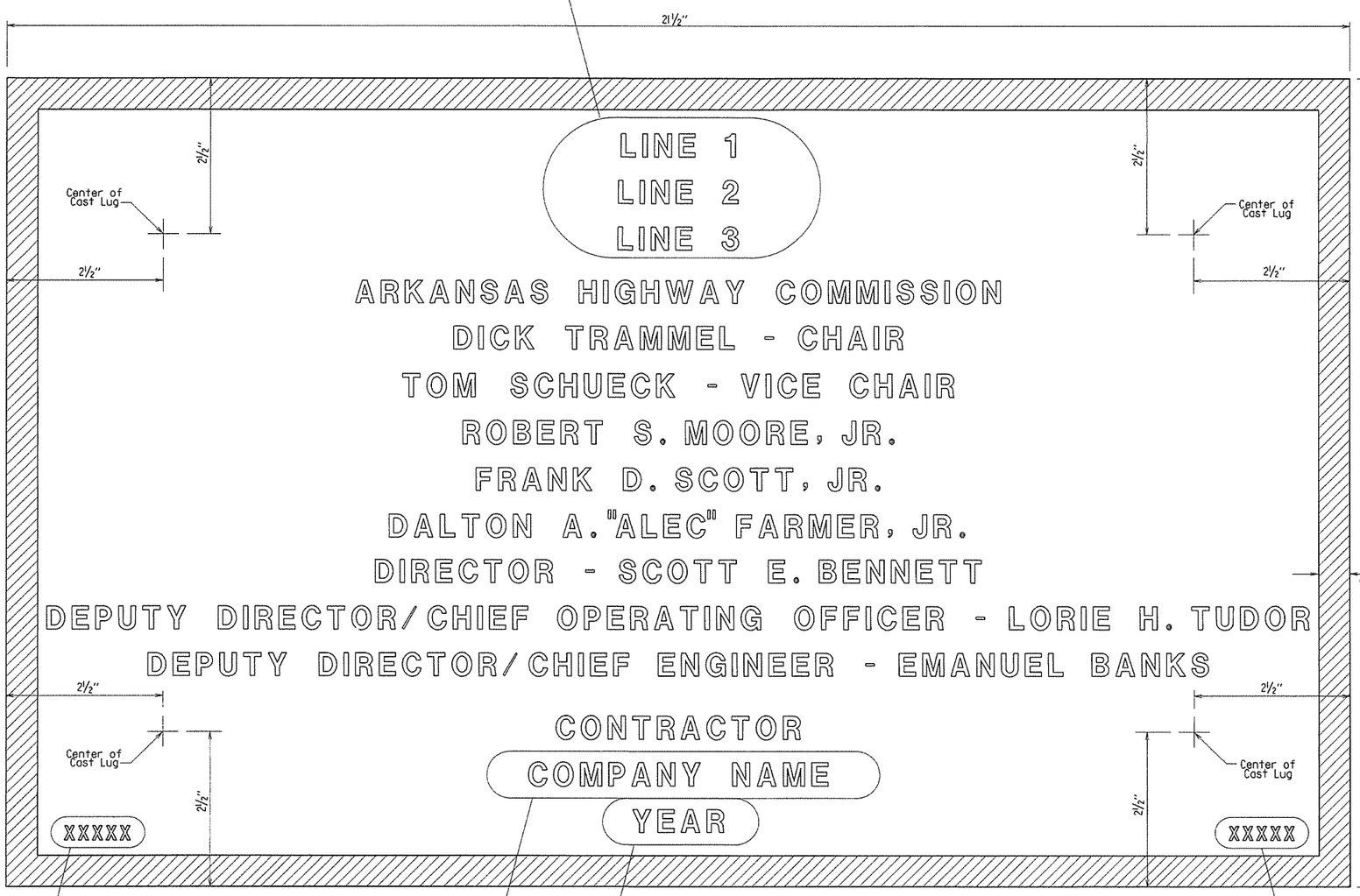
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
12-1-14			
1-14-15			

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		86	
JOB NO.				

① TYPE D NAME PLATE 55010

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

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



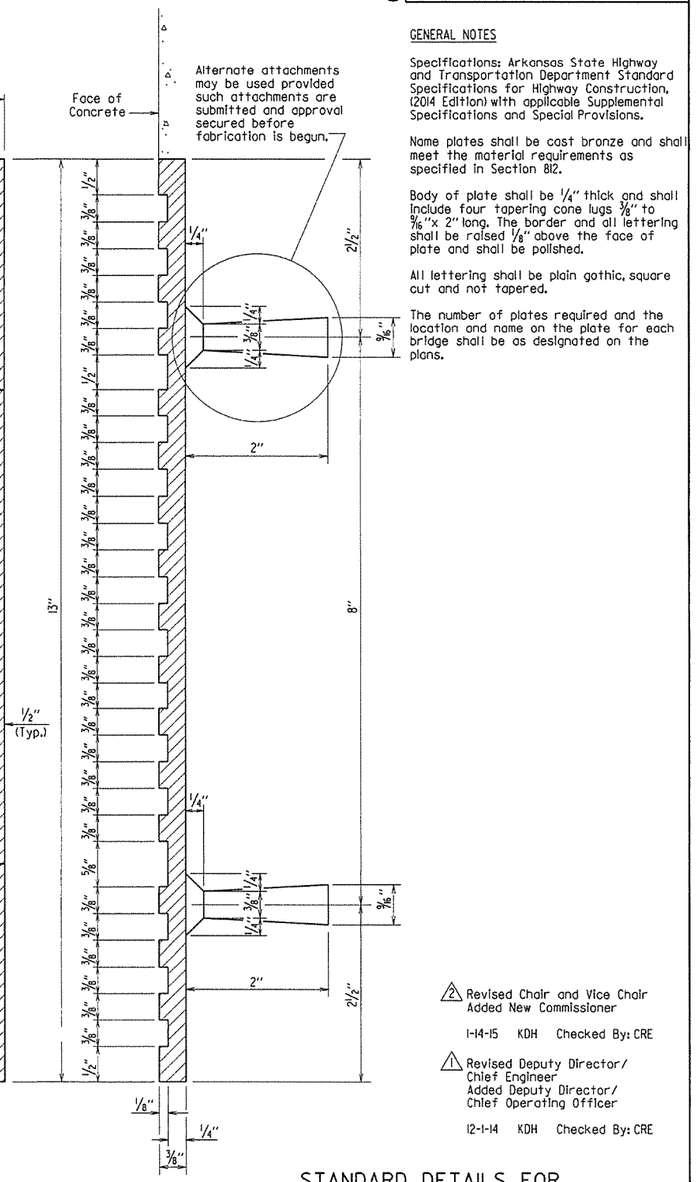
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20
HL-93

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

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

Place the Bridge number here using 1/8" raised letters and numerals 1/4" 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 1/4" thick and shall include four tapering cone lugs 3/8" to 9/16"x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

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

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

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

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

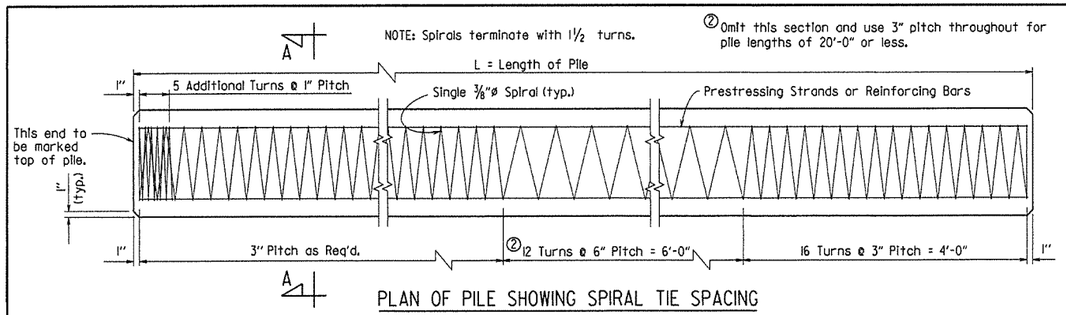
STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

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

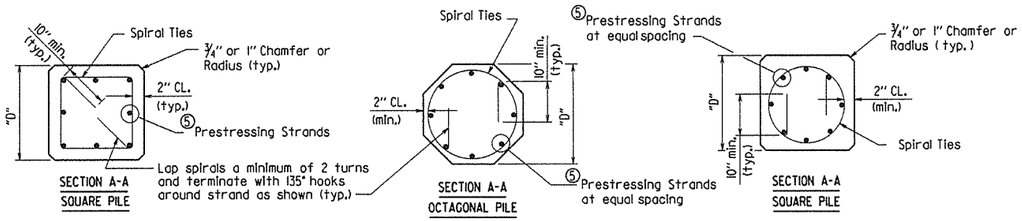
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		47	
				JOB NO.				
				①	CONC. PILES	55022		



PLAN OF PILE SHOWING SPIRAL TIE SPACING

For anchorage of pile to bent, see Bent Details.

NOTE: Strand location shall be symmetrical about the axis of the pile with no more than one strand difference between any two adjacent sides. Circular spiral ties are required for odd number of strands.



PRESTRESSED CONCRETE PILES

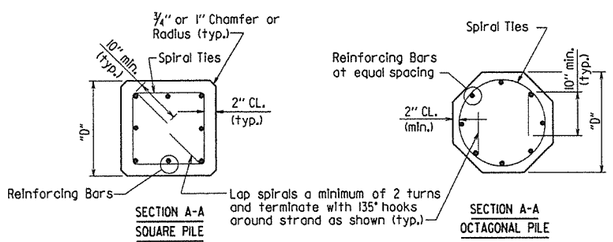
① Number based on initial pre-stress force of "B" x Ultimate Tensile Stress, Prestress Losses and min. 700 psi Unit Prestress on concrete after Losses.

"B" — 0.75 Low Relaxation; 0.70 Stress-Relieved

⑤ See table "Prestressed Concrete Pile Properties" for actual number of strands per pile size.

PRESTRESSED CONCRETE PILE PROPERTIES

	Grade	Strand Diameter	① Number of Strands per Size "D" 16" Oct.	18" Oct.	④ 14" Sq.	16" Sq.	18" Sq.	Minimum Ultimate Tensile Strength Per Strand (Lbs.)	Initial Prestressing Force Per Strand (Lbs.)
Stress-Relieved	250	7/16"	11	13	10	13	16	27,000	18,900
		½"	8	10	8	10	12	36,000	25,200
	270	7/16"	9	11	8	12	14	31,000	21,700
		½"	7	9	6	8	10	41,300	28,900
Low Relaxation	250	7/16"	9	11	8	11	14	27,000	20,200
		½"	7	9	6	8	10	36,000	27,000
	270	7/16"	8	10	7	9	12	31,000	23,300
		½"	6	8	6	7	9	41,300	31,000

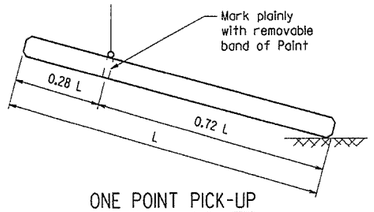


NON-PRESTRESSED PILE REINFORCING

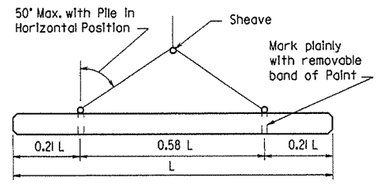
Pile Size	No. Req'd.	Bar Size
16" Oct.	8	# 7
18" Oct.	8	# 7
④ 14" Sq.	8	# 7
16" Sq.	8	# 7
18" Sq.	8	# 8

④ 14" sq. piles to be used in Seismic Performance Zone I only.

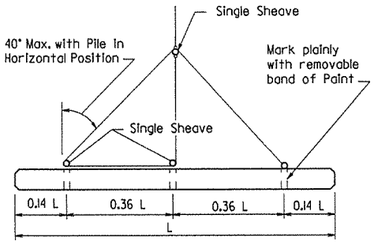
NON-PRESTRESSED CONCRETE PILES



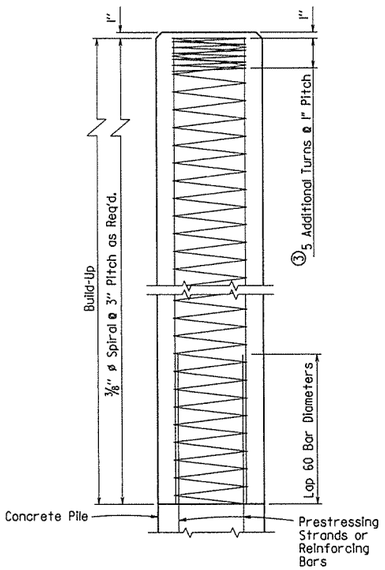
ONE POINT PICK-UP



TWO POINT PICK-UP



THREE POINT PICK-UP



BUILD-UP

③ The five additional turns of spiral reinforcing may be omitted for build-up without additional driving.

MAXIMUM PICKUP LENGTHS "L"

Type of Pick-Up	Prestressed		Non-Prestressed	Prestressed			Non-Prestressed		
	16" Oct.	18" Oct.	16" or 18" Oct.	④ 14" Sq.	16" Sq.	18" Sq.	④ 14" Sq.	16" Sq.	18" Sq.
One Point	52'	55'	46'	55'	59'	63'	52'	51'	55'
Two Point	75'	80'	67'	79'	84'	90'	75'	74'	79'
Three Point	105'	112'	93'	110'	117'	126'	104'	103'	111'

GENERAL NOTES:

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, current Edition with Interim Specifications.

SEISMIC PERFORMANCE ZONES: 1 & 2

Unless otherwise noted, the Contractor may use prestressed piles or non-prestressed piles. Either type will be measured and paid for at the contract unit price bid for "Concrete Piling".

SPIRAL REINFORCING: Spiral reinforcing shall be steel wire meeting the requirements of AASHTO M 32 or M 225 or shall be plain round steel bars meeting the requirements of Grade 60, AASHTO M31 or M322, Type A.

MANUFACTURE, TRANSPORTATION AND STORAGE: Shipment of piles from the plant site or pile driving will not be permitted until the required minimum compressive strength is reached, and in no case less than 10 days after pouring the concrete. Prestressed piles may be removed from the casting bed to nearby storage any time after transfer of stress. See Section 802 "Concrete for Structures" for additional information.

Unless otherwise approved by the Engineer, all protruding or exposed pile lifting or transporting devices above the finished ground shall be removed after pile driving is complete. Removal shall be a minimum of 1" below the surface of the pile and the cavity shall be filled with a non-shrink grout listed on the Department's QPL.

FORMS: For forming exterior of piles, the use of steel forms on concrete-founded casting beds is required unless otherwise approved by the Engineer. Side forms may have a maximum drift on each side not exceeding ¼" per foot.

TOLERANCES: Pile ends shall be plane surfaces perpendicular to the longitudinal axis of pile with a maximum tolerance of ⅛" per foot transversely.

The maximum sweep (deviation from straightness measured from end to end of the pile, while not subject to bending forces) shall not exceed ⅛" in 10 feet.

BUILD-UPS: To provide for build-ups of piles where authorized by the Engineer, concrete shall be cut back to expose the reinforcing steel for a distance sufficient to provide a lap of 60 diameters of the reinforcing bars required for build-up. Reinforcing for build-ups shall be the reinforcing shown for non-prestressed piles.

INSTALLATION, MEASUREMENT AND PAYMENT: See Section 805 "Piling".

ADDITIONAL NOTES FOR PRESTRESSED PILES ONLY:

CONCRETE: Concrete in prestressed piles shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 5,000 psi at 28 days. Compressive strength at transfer of the prestressing force shall be not less than 4,000 psi. Concrete in build-ups shall have a minimum compressive strength of 4,000 psi and shall be cured for a minimum of 10 days.

PRESTRESSING REINFORCING: Seven-wire stress-relieved or low relaxation strands shall conform to the general requirements of AASHTO M 203. Broken wires within individual strands will be permitted up to 2% of the total number of wires in each pile, providing that there is not more than one broken wire per strand. Two or more broken wires per strand will be cause for replacement of the strand, even though the two broken wires are within the 2% limitation.

ADDITIONAL NOTES FOR NON-PRESTRESSED PILES ONLY:

All concrete shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 4,000 psi at 28 days.

All longitudinal reinforcing bars shall be deformed bars and shall conform to the requirements of Grade 60, AASHTO M31 or M322, Type A.

This document was originally issued and sealed by Carl J. Fuselier, PE No. 7510, on February 27, 2014. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

STANDARD DETAILS FOR CONCRETE PILES

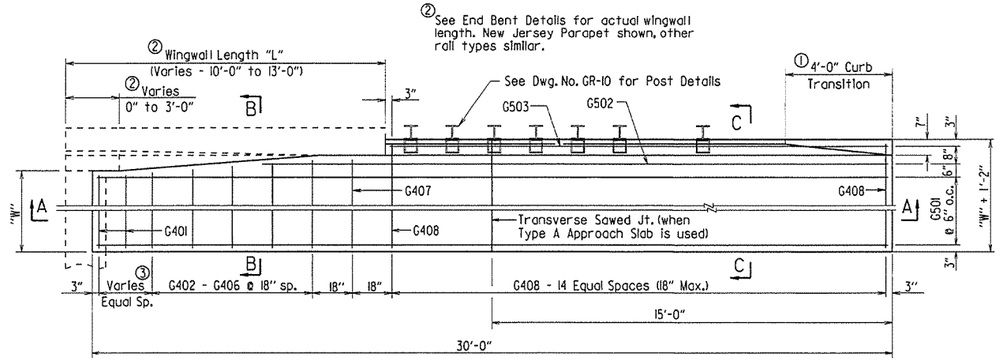
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55022.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: ——

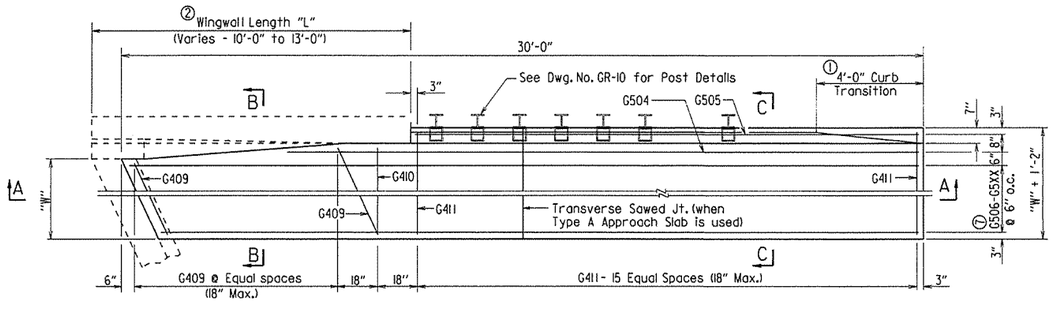
DRAWING NO. 55022

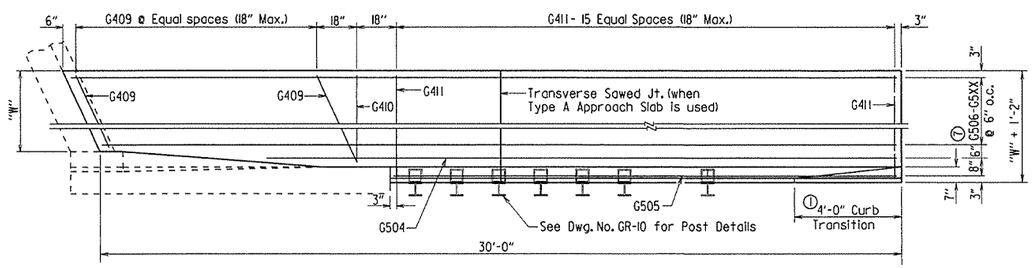
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9/2/15				6	ARK.		58	
				JOB NO.				
				①	TYPE A GUTTERS		55030A	



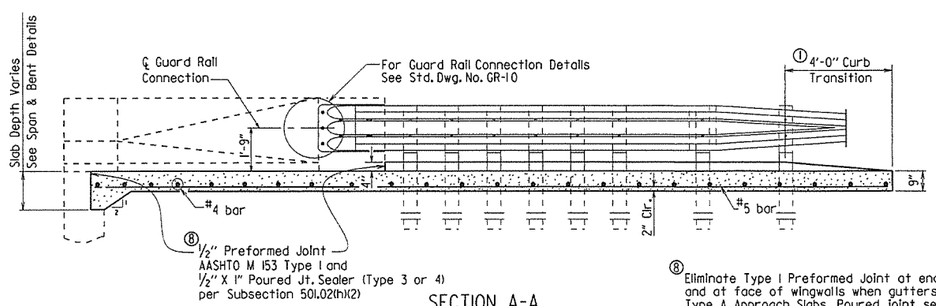
③ Number of G401 bars vary with wingwall length - See Bar List

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





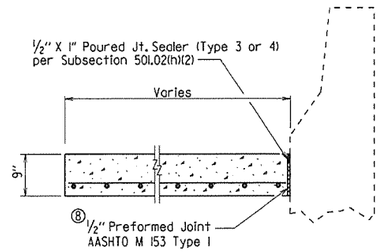
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



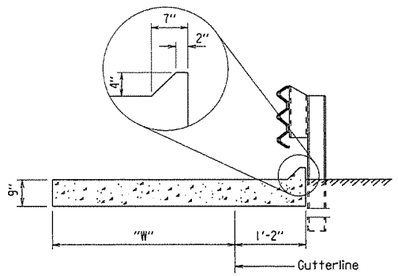
SECTION A-A

① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

Note:
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.

⑧ Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type A Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

BAR LIST FOR ONE TYPE A GUTTER

	Mark	No. Req'd. for Width "W" ⚠ 2'-0"	3'-0"	4'-0"	6'-0"	8'-0"	Length
Square Bridge	G401	④	④	④	④	④	"W"- 4"
	G402-G406	1 each	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	1	"W"+3"
	G408	15	15	15	15	15	"W"+ 10"
	G501	4	6	8	12	16	29'-8"
	G502	1	1	1	1	1	(35'-5") - "L"
	G503	1	1	1	1	1	30'-8"-"L"
Skewed Bridge	G409	⑥	⑥	⑥	⑥	⑥	⑤
	G410	1	1	1	1	1	"W"+3"
	G411	16	16	16	16	16	"W"+ 10"
	G504	1	1	1	1	1	⑤
	G505	1	1	1	1	1	⑤
	G506 - G5XX ⑦	1 each	1 each	1 each	1 each	1 each	⑤

④ 0 for "L" = 10'
1 for "L" = 11'
2 for "L" = 12'
2 for "L" = 13'

⑦ G509 for "W" = 2' ⚠
G511 for "W" = 3'
G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'

⑤ Bar Lengths vary with Skew and Wingwall Length.

⑥ No. Req'd. varies with Skew and Wingwall length.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

⚠	"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
⚠	2	210	2.55
	3	285	3.40
	4	360	4.25
	6	515	5.90
	8	665	7.55

Quantities are based on "L" = 10'-0".

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

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

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

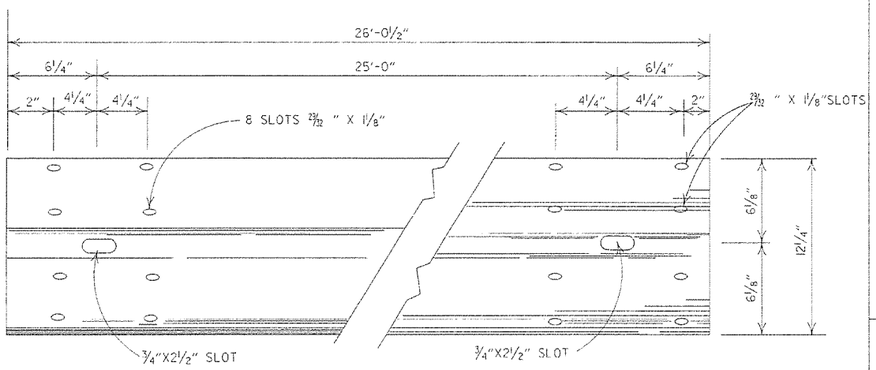
⚠ Revised to add "W" = 2'-0"; By LJB
Checked By: KWY 9/2/15

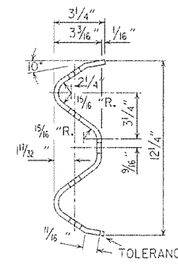
STANDARD DETAILS FOR TYPE A APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030a.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: 3/8" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

DRAWING NO. 55030A

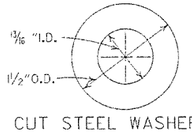




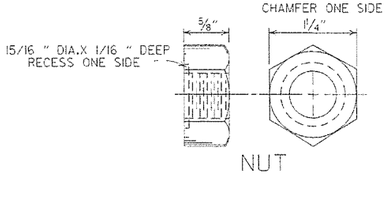
DETAILS OF
W-BEAM GUARD RAIL

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

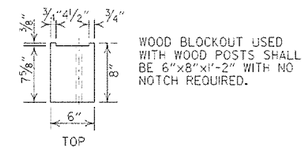
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



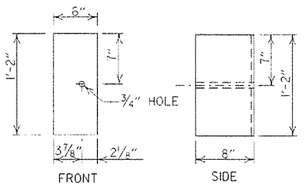
CUT STEEL WASHER



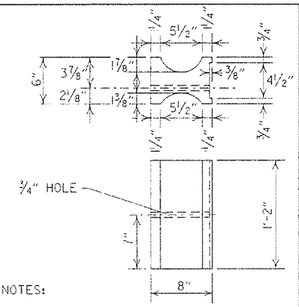
NUT



WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.



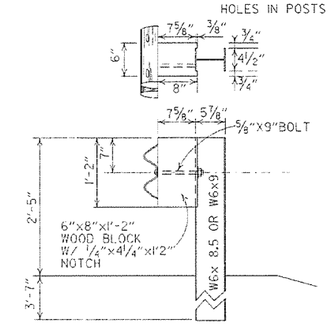
WOOD BLOCKOUT
(W-BEAM)



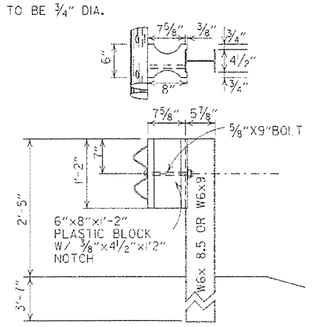
NOTES:
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT
(W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.

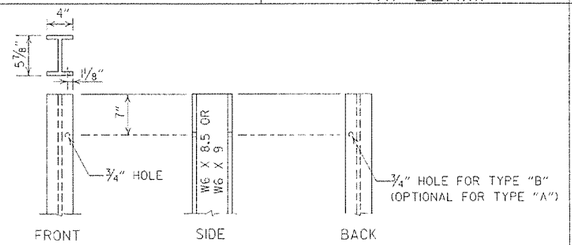


WOOD BLOCKOUT CONNECTIONS

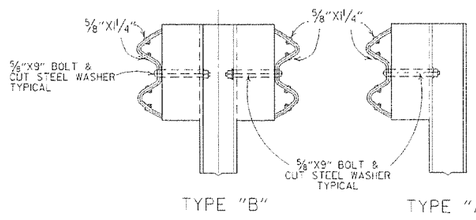


PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS
(W-BEAM)



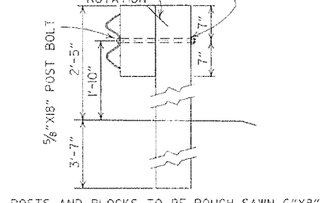
STEEL POST



TYPE "B" TYPE "A"

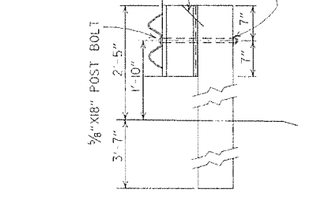
DETAILS OF STEEL LINE POST CONNECTIONS
(W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.



POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - ¼".

WOOD BLOCKOUT CONNECTIONS



PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS
(W-BEAM)

-GENERAL NOTES-

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

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

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

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

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

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

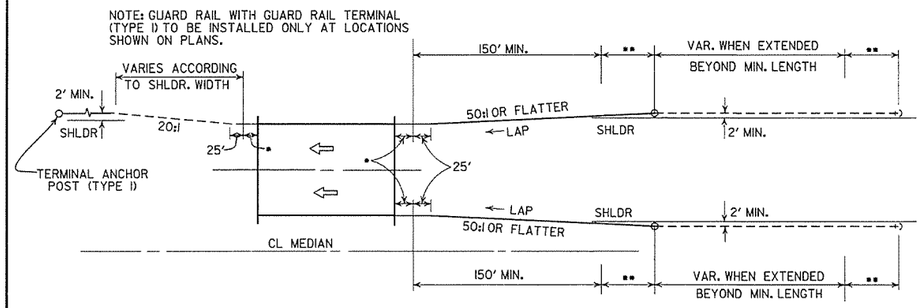
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
9-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
1-12-00	ADDED PLASTIC BLOCKOUT	
8-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
4-3-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
6-2-94	ADDED ALT. STEEL POST SIZE	
8-5-93	REVISED STEEL POST SIZE	8-5-93
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED WASHER NOTE	8-15-91
8-2-90	REV. GEN. NOTE & DEPHT OF ANC. POST IN ROCK	8-2-90
7-15-88	REVISED SECTION 3 & GENERAL NOTES	
3-4-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-9-87	REDRAWN & REVISED	802-10-9-87

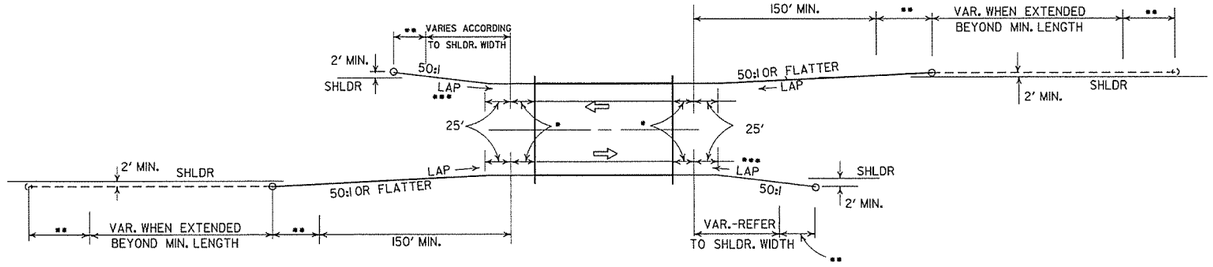
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8



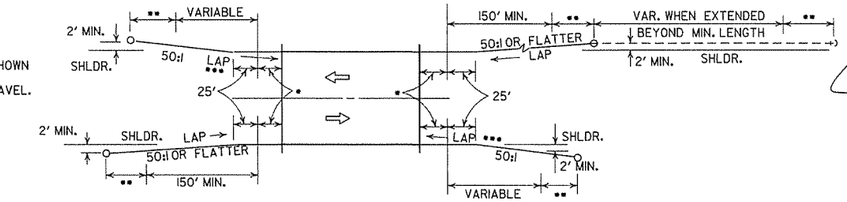
ONE-WAY TRAFFIC



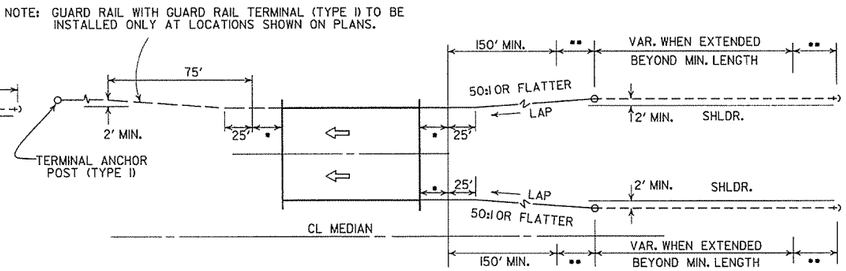
TWO-WAY TRAFFIC

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

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



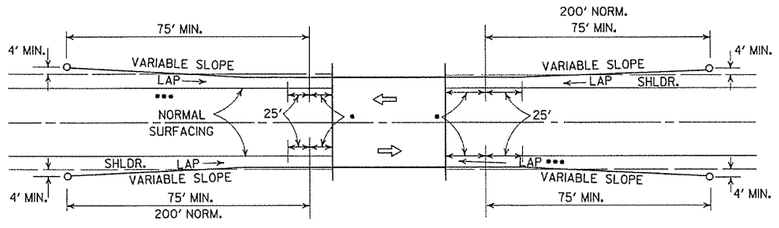
TWO-WAY TRAFFIC



ONE-WAY TRAFFIC

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

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



LEGEND

▪ THRIE BEAM GUARD RAIL TERMINAL
▪▪ GUARD RAIL TERMINAL (TYPE 2)

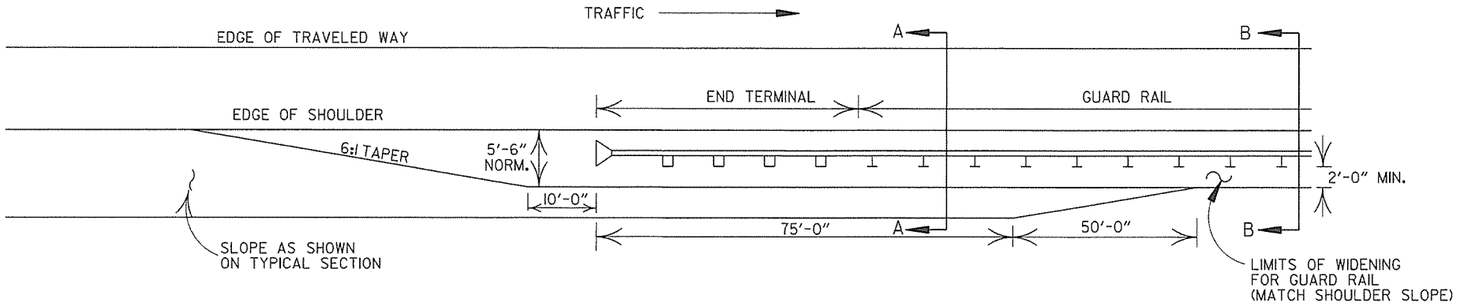
METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

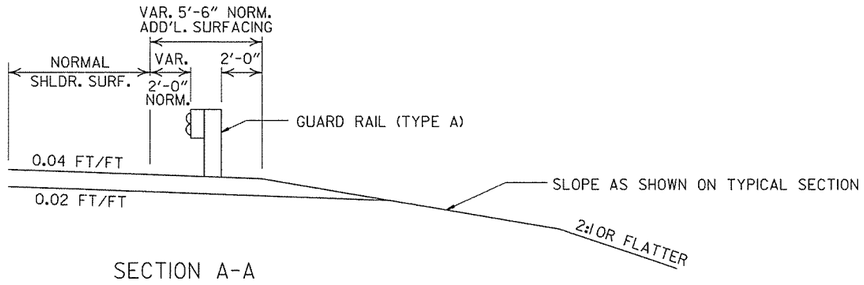
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87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

ARKANSAS STATE HIGHWAY COMMISSION

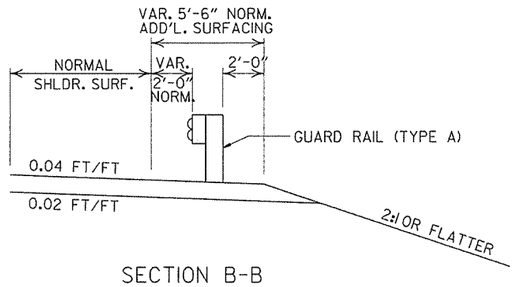
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





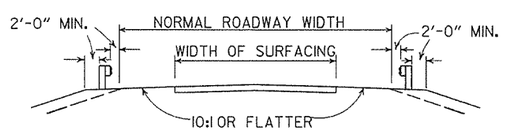
SECTION A-A



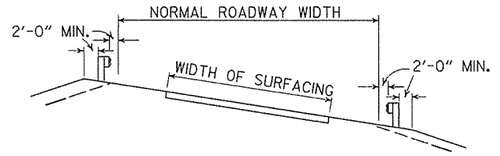
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

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

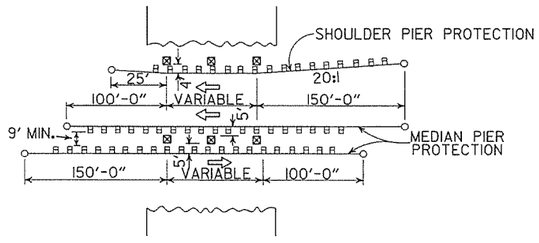


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



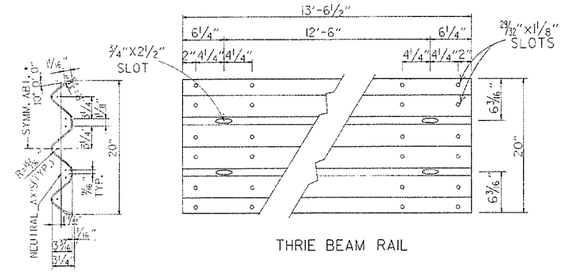
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

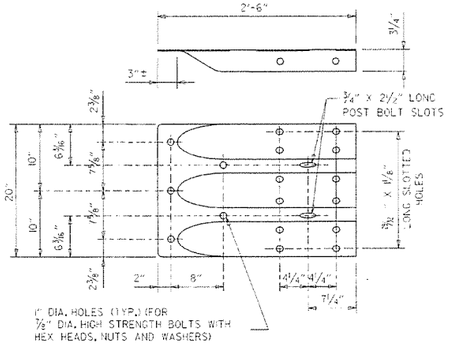
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A



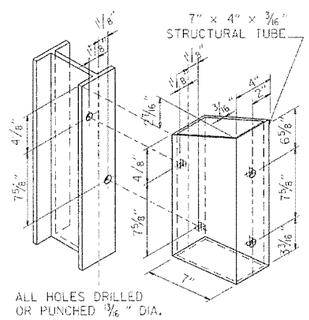
THRIE BEAM RAIL

SECTION THRU THRIE BEAM RAIL



1" DIA. HOLES (TYP.) FOR ⅞" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS)

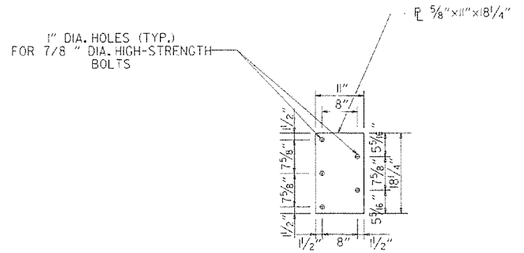
SPECIAL END SHOE



ALL HOLES DRILLED OR PUNCHED ⅜" DIA.

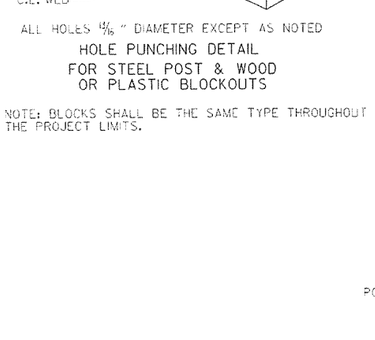
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL

ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.



CONNECTOR PLATE

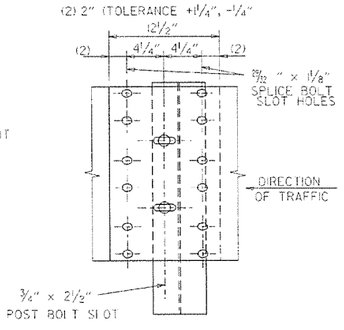
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



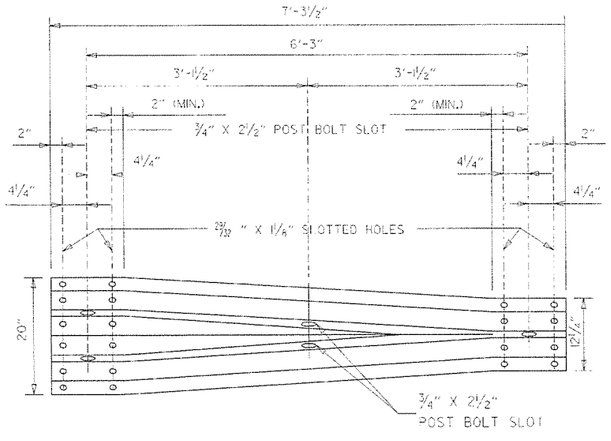
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

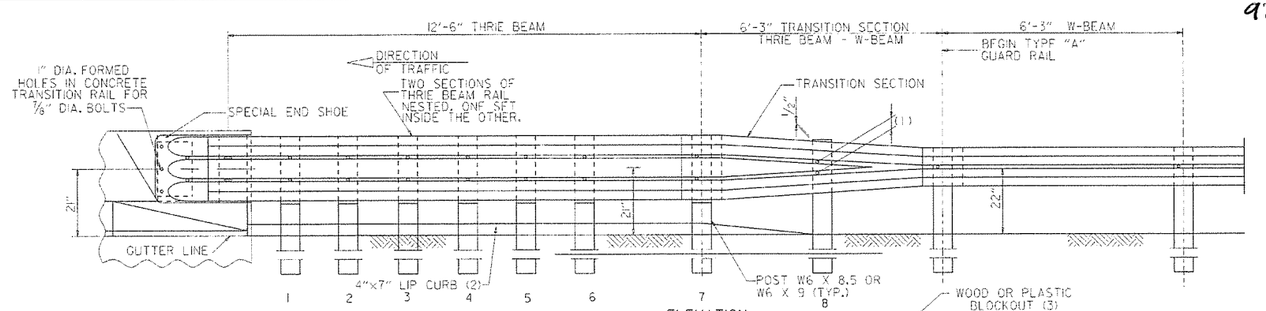
NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



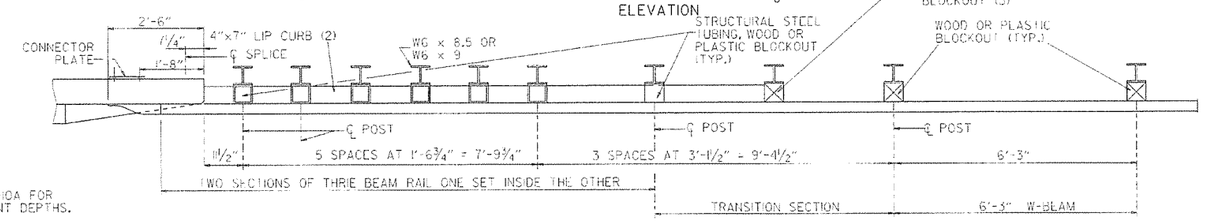
THRIE BEAM RAIL SPLICE AT POST



TRANSITION SECTION

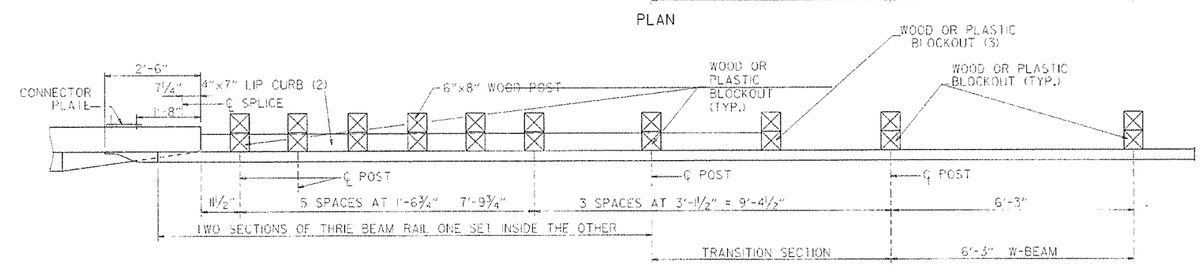


ELEVATION



PLAN

NOTE:
SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.



PLAN

(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I.

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

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

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-11.

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

REFER TO STD. DRWG. GR-10A FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

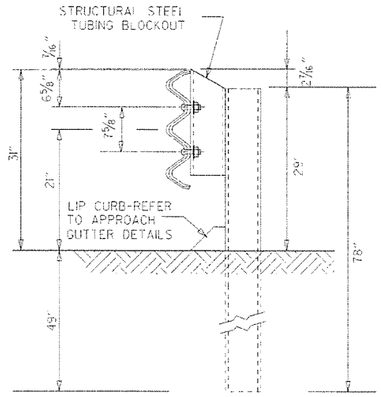
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W BEAM POSTS FOR ENTIRE JOB.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-18-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED NOTE (2)	
6-29-00	MOVED DIMENSION LINES	
5-18-00	ADDED NOTE	
3-30-00	DRAWN & ISSUED	

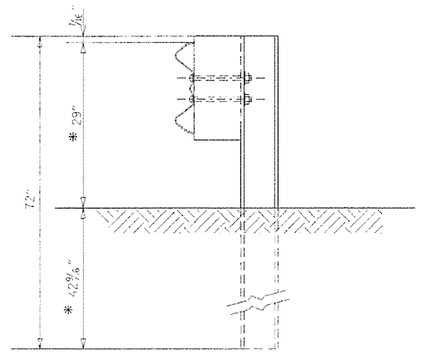
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

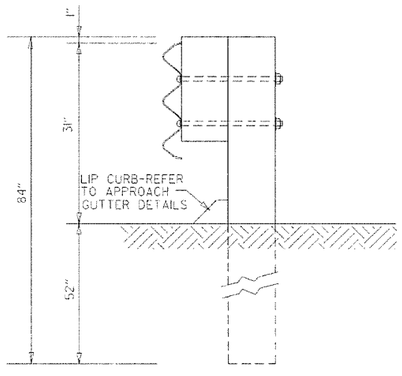


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

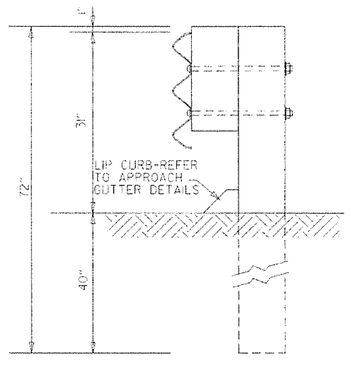


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

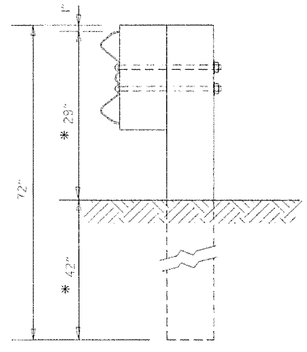
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7



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

GENERAL NOTES:

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

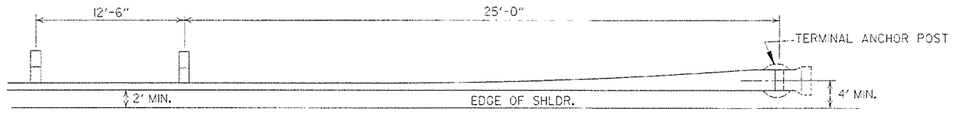
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 (1350 f) SOUTHERN PINE.

DATE	REVISION	DATE FILM
7-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
8-22-02	REVISED LIP CURB NOTE	
3-30-00	DRAWN & ISSUED	

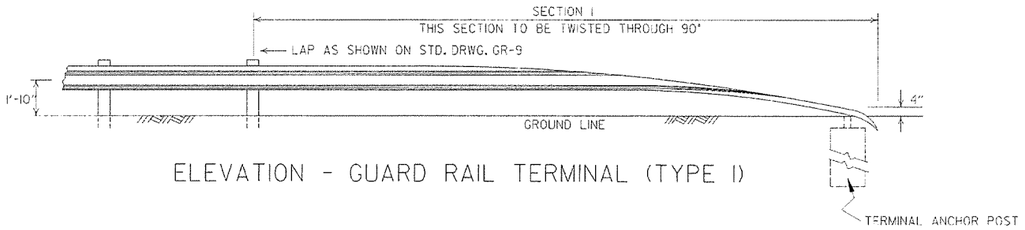
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

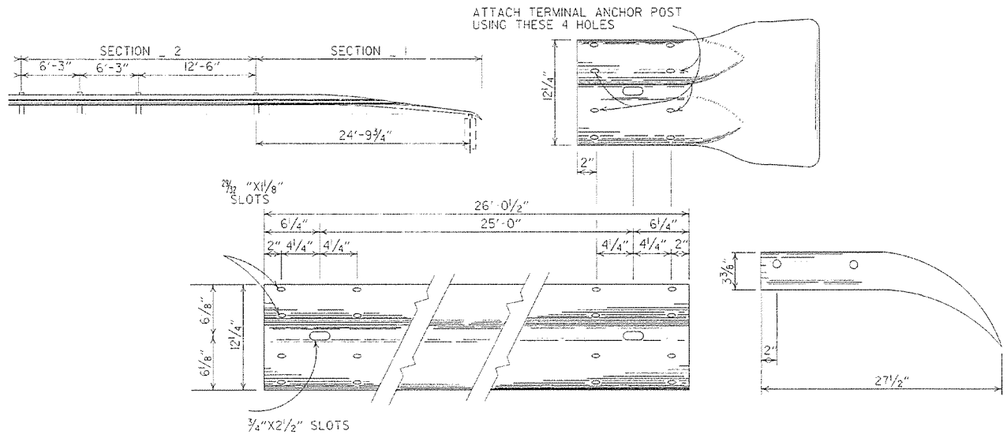


PLAN - GUARD RAIL TERMINAL (TYPE I)



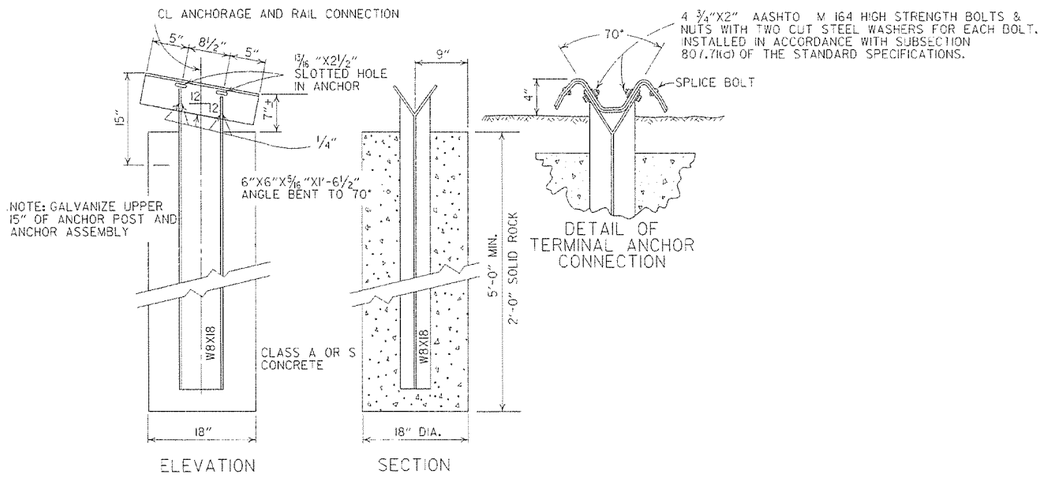
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

NOTE:
SECTIONS 1 AND 2 OF GUARD RAIL TERMINAL SHALL BE PAID FOR AT THE PRICE BID PER LINEAR FOOT OF THE TYPE OF GUARD RAIL SPECIFIED.



SECTION 1

TERMINAL SECTION



NOTE: RAIL MEMBERS MAY BE BOLTED TO ANGLE AT TERMINAL ANCHOR AND THE TWO ASSEMBLIES POSITIONED TO PROPER ALIGNMENT PRIOR TO PLACING CONCRETE AROUND 8 WF 17 POST IF CONTRACTOR SO DESIRES.

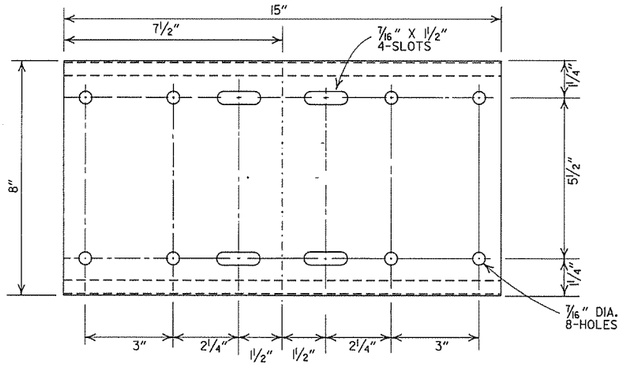
DETAIL OF TERMINAL ANCHOR POST (TYPE I)

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
6-26-97	REVISED LAP NOTE	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-3-94	DIMENSION TERMINAL DETAIL	
11-11-92	ADDED NOTE FOR PAYMENT	11-11-92
10-1-92	DRAWN & ISSUED	10-1-92

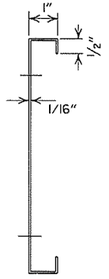
ARKANSAS STATE HIGHWAY COMMISSION

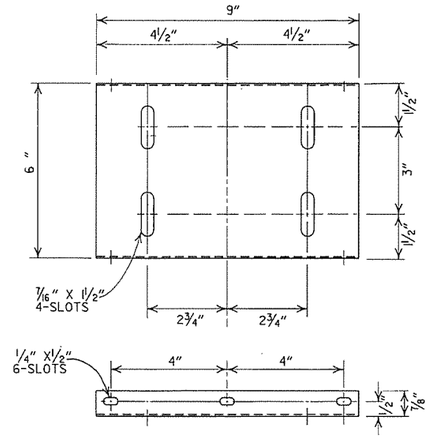
GUARD RAIL DETAILS

STANDARD DRAWING GRT-1

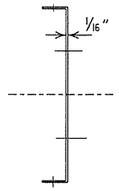


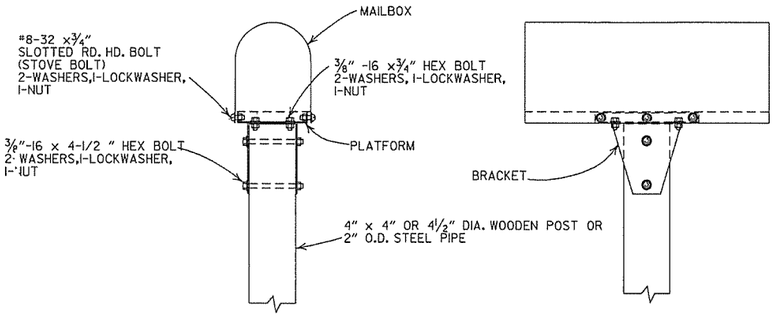
SHELF



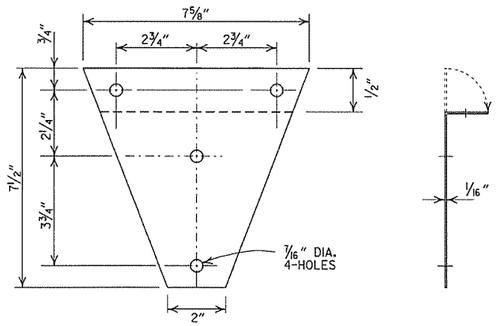


PLATFORM





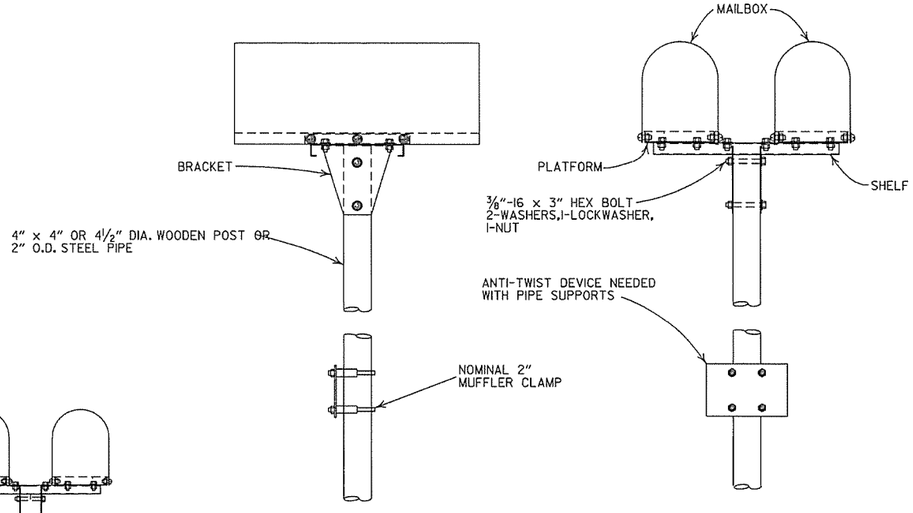
SINGLE INSTALLATION



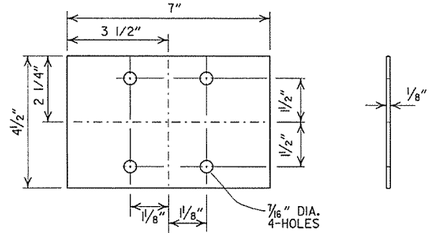
BRACKET

GENERAL NOTES

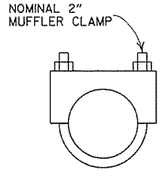
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED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



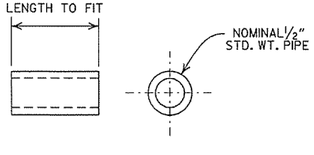
DOUBLE INSTALLATION



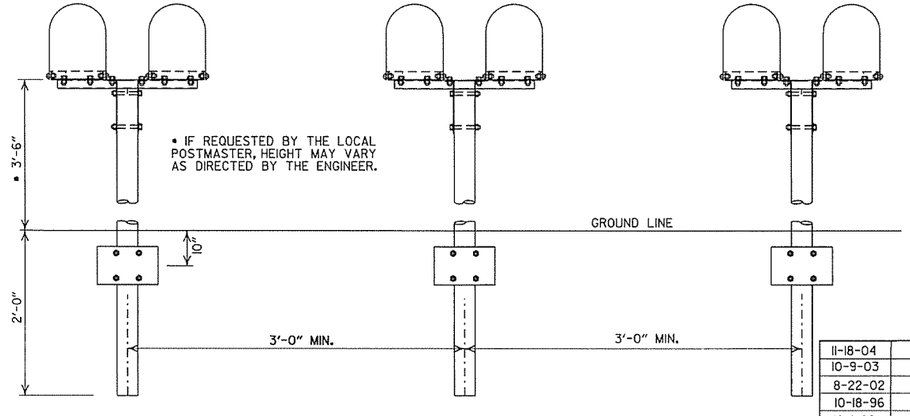
ANTI-TWIST PLATE



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	AHTD NOMINAL	AASHTO M 206	AHTD 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.

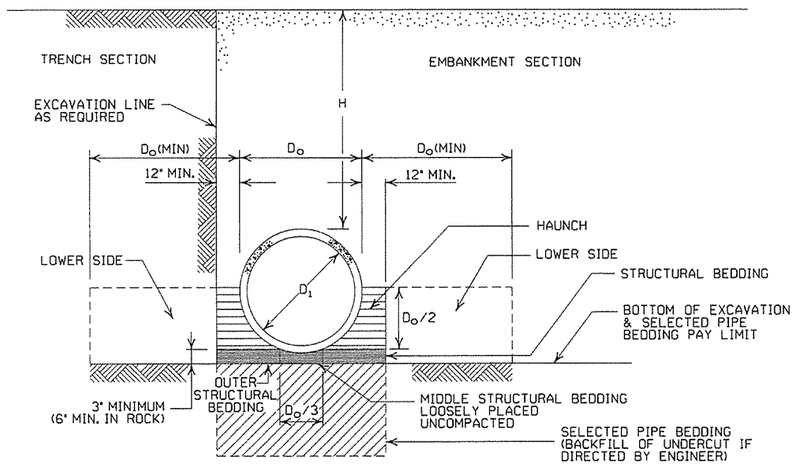
- LEGEND -

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

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

*SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

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

CONSTRUCTION SEQUENCE

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

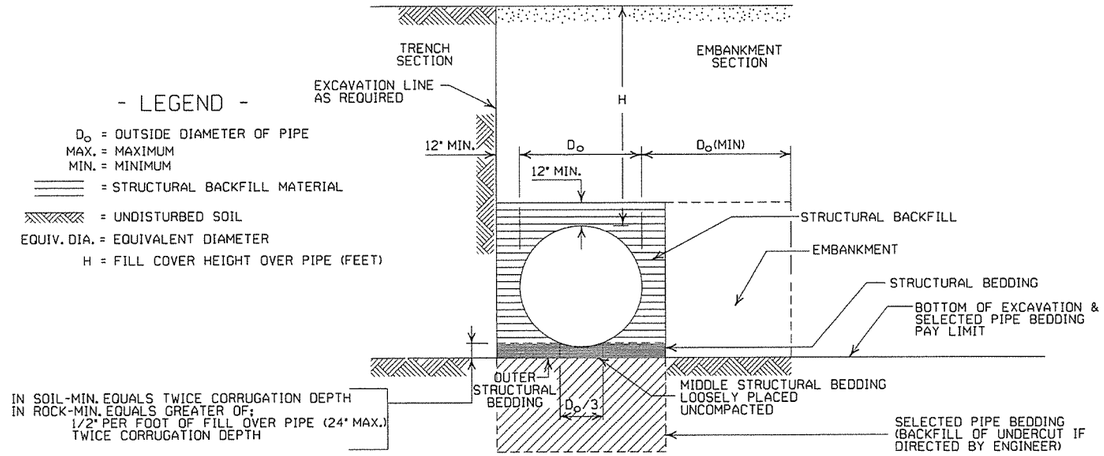
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

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

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

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

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

  SM3 WILL NOT BE ALLOWED.

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

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

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"	TRENCH WIDTH (FEET) "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"

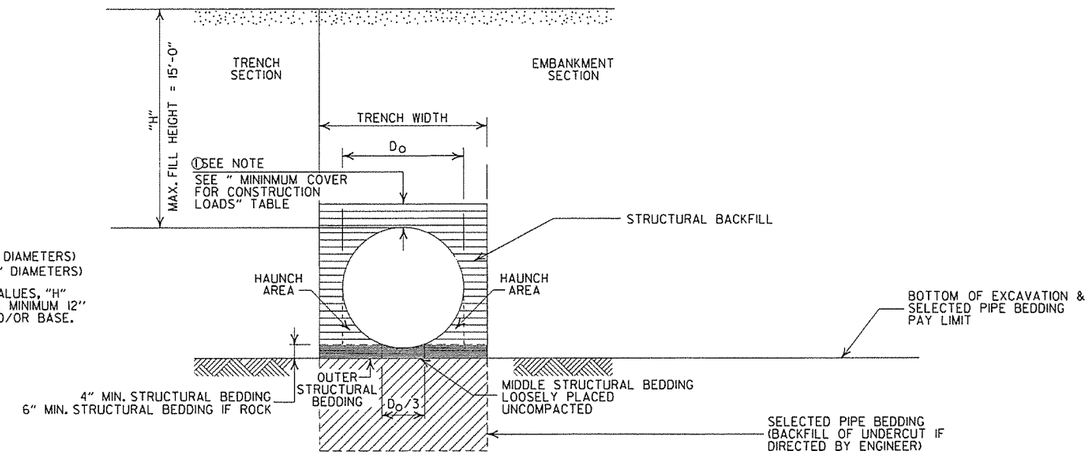
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

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

MULTIPLE INSTALLATION OF PVC PIPES

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

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

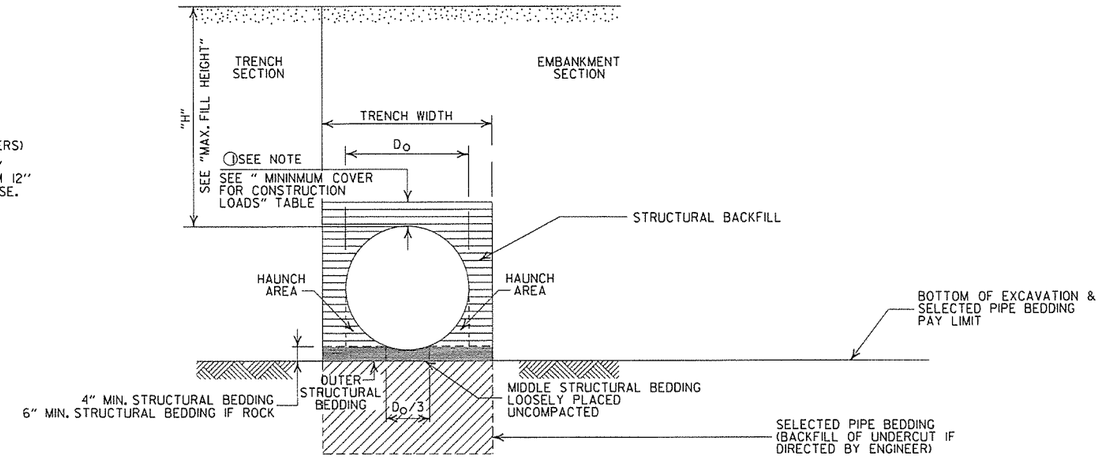
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

MINIMUM COVER FOR CONSTRUCTION LOADS

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

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



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

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

CONSTRUCTION SEQUENCE

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

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFROM 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. 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	

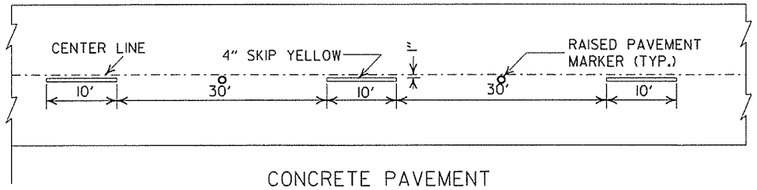
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

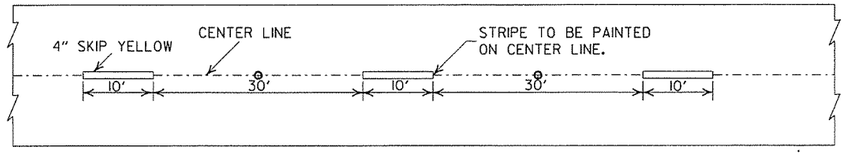
STANDARD DRAWING PCP-2

NOTES:

1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.

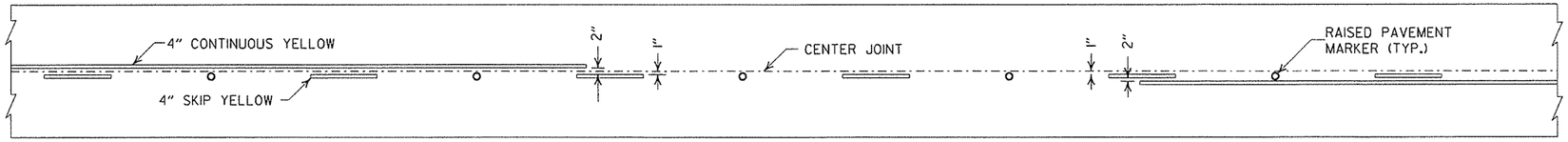


CONCRETE PAVEMENT

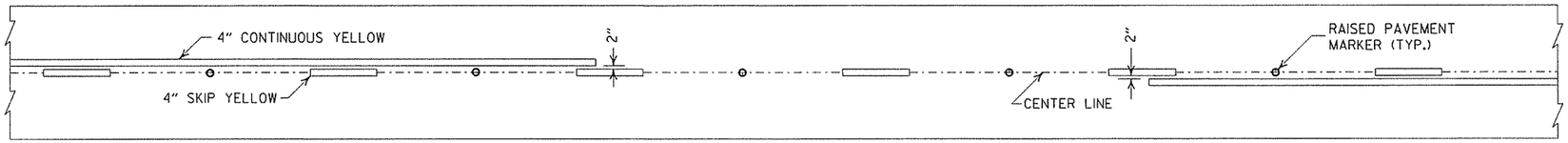


ASPHALT PAVEMENT

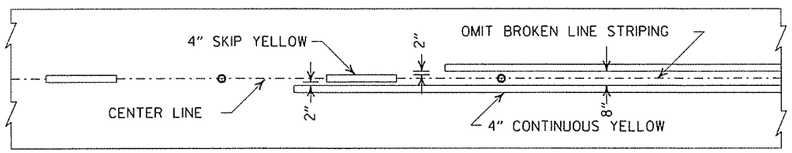
BROKEN LINE STRIPING



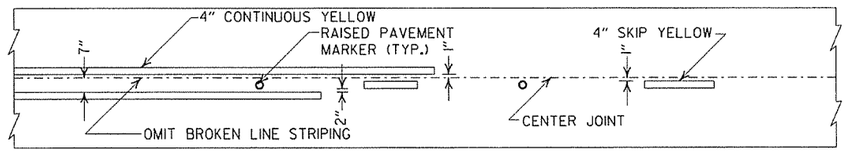
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT



ASPHALT PAVEMENT



CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

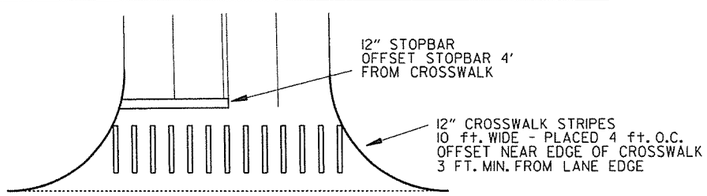
GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

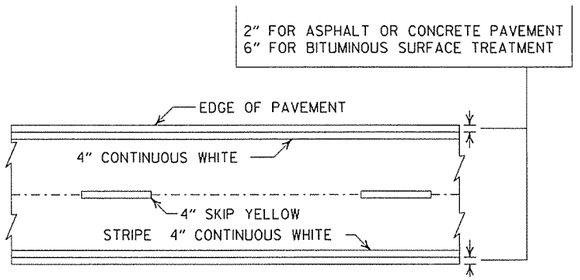
THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

NOTE:

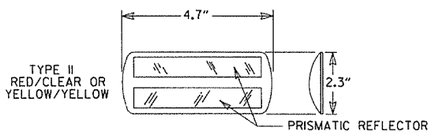
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.



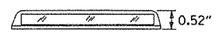
CROSSWALK AND STOPBAR DETAILS



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

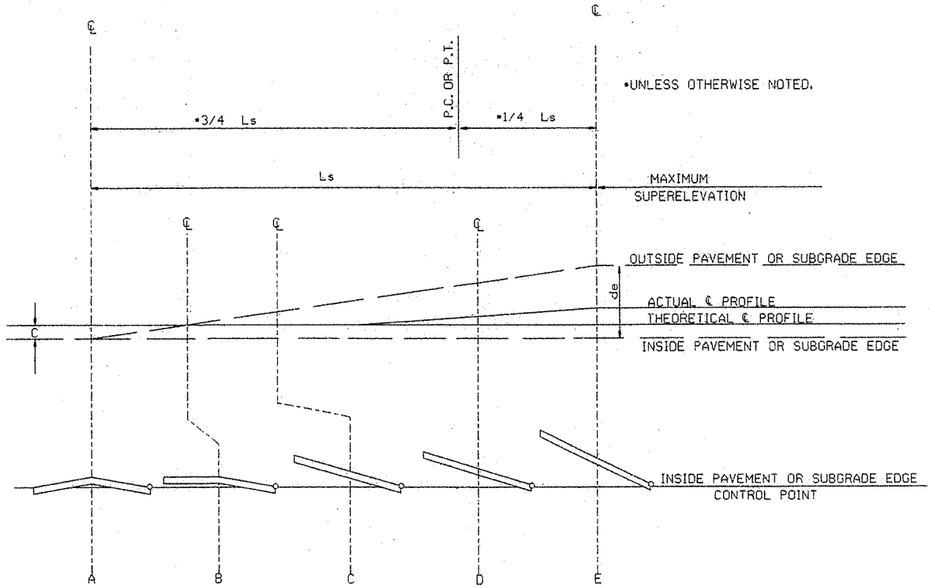
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45′	N.C.			N.C.			R.C.			0.022			0.023			0.028		
1° 00′	N.C.			N.C.			0.021			0.026			0.030			0.037	275	300
1° 15′	N.C.			R.C.			0.026			0.032			0.037	250	300	0.046		
1° 30′	N.C.			0.021			0.031	200		0.037	225		0.043			0.054		
1° 45′	N.C.			0.025	175		0.036			0.043		300	0.049			0.062		
2° 00′	R.C.			0.028			0.040			0.048			0.055			0.070		
2° 15′	R.C.			0.031			0.045		250	0.053			0.061			0.078	300	350
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085	315	
2° 45′	0.023			0.037		200	0.053			0.063			0.072			0.091	335	
3° 00′	0.025			0.040			0.057			0.067	230		0.077	260		0.096	350	400
3° 15′	0.027	150		0.043			0.061			0.072	245		0.082	275		0.098	360	
3° 30′	0.029			0.046			0.065	205		0.076	255		0.086	285		0.100	360	
3° 45′	0.031		200	0.049			0.069	215		0.080	265		0.090	295	350	D MAX = 3° 30′		
4° 00′	0.033			0.051			0.072	225		0.083	270		0.093	305				
4° 30′	0.037			0.056			0.078	240		0.087	280		0.096	315				
5° 00′	0.040			0.061			0.083	250		0.091	295	350	0.098	320				
5° 30′	0.043			0.066	185		0.088	260		0.094	300		D MAX = 5° 15′					
6° 00′	0.046			0.070	190		0.092	270		0.096	305							
6° 30′	0.050			0.074	200		0.095	280	300	0.100	315							
7° 00′	0.053			0.078	210		0.098	285		D MAX = 6° 30′								
7° 30′	0.056			0.081	215		0.099	290										
8° 00′	0.058			0.084	220		0.100	290										
8° 30′	0.061			0.087	225	250	D MAX = 8° 15′											
9° 00′	0.063			0.089	230													
10° 00′	0.068	160		0.094	235													
11° 00′	0.072	170		0.097	250													
12° 00′	0.076	175		0.099	250													
13° 00′	0.080	180		0.100	250													
14° 00′	0.083	190		D MAX = 13° 15′														
15° 00′	0.086	195																
16° 00′	0.089	200																
17° 00′	0.091	200																
18° 00′	0.093	205																
19° 00′	0.095	210																
20° 00′	0.097	215	250															
21° 00′	0.098	215																
22° 00′	0.099	215																
23° 00′	0.099	215																
24° 00′	0.100	220																

D MAX = 24° 45′

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.

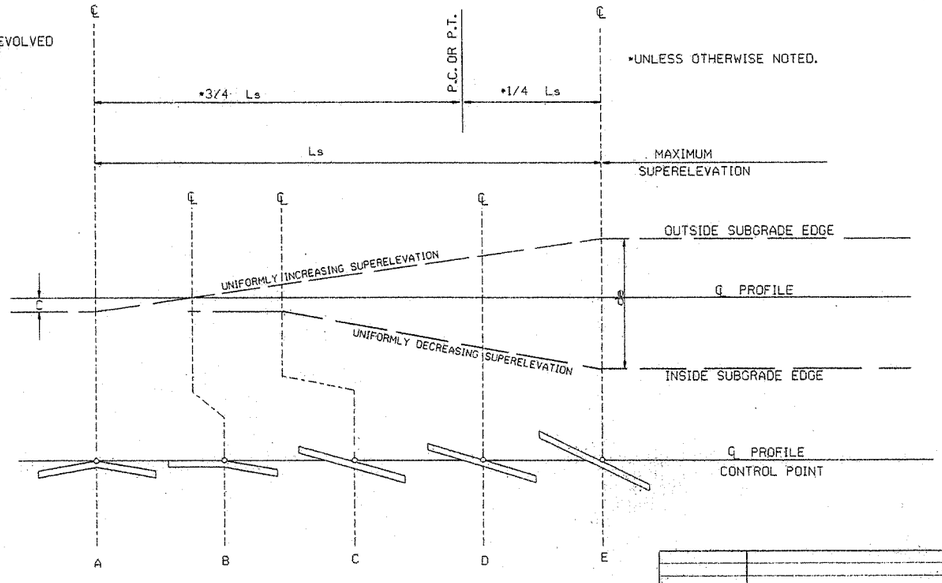
GENERAL NOTES

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

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

DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

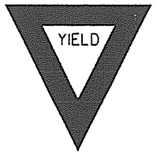
STANDARD DRAWING SE-2

FILE STDSE2.DGN

R1-1

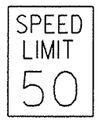
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

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"

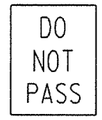
W3-5

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"

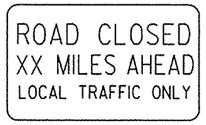
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2

48"X30"

RII-3A



60"X30"

RII-4

60"X30"

RSP-1

48"X30"

WI-1

STD. 36"X36"
FWY. 48"X48"

WI-2

STD. 36"X36"
FWY. 48"X48"

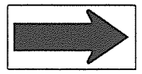
WI-3

STD. 48"X48"

WI-4

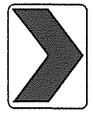
STD. 48"X48"

WI-6



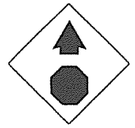
STD. 48"X24"
SPECIAL 60"X30"

WI-8



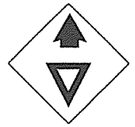
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



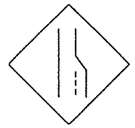
STD. 36"X36"
SPECIAL 48"X48"

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"

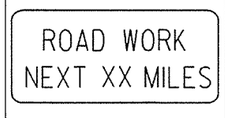
W8-11

STD. 36"X36"
FWY. 48"X48"

W8-9

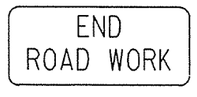
STD. 36"X36"
FWY. 48"X48"

G20-1



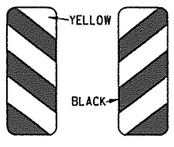
60"X24"

G20-2



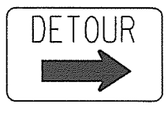
48"X24"

OM-3L OM-3R



12"X36"

M4-9

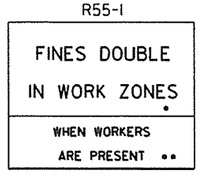


STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

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.

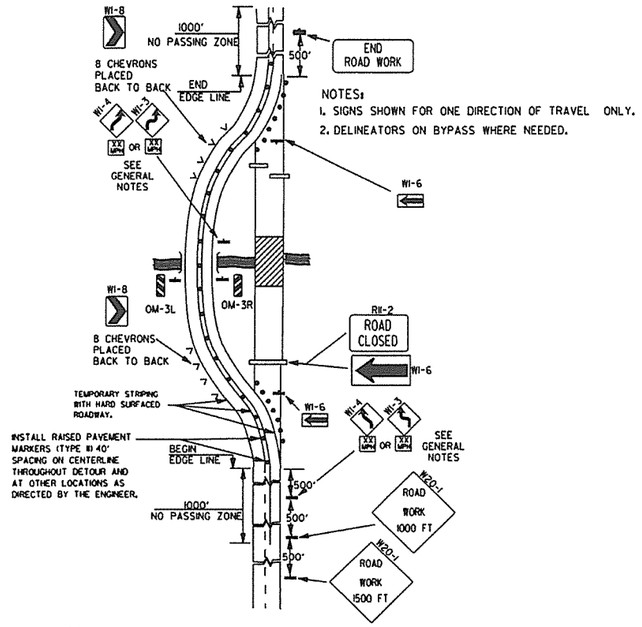
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

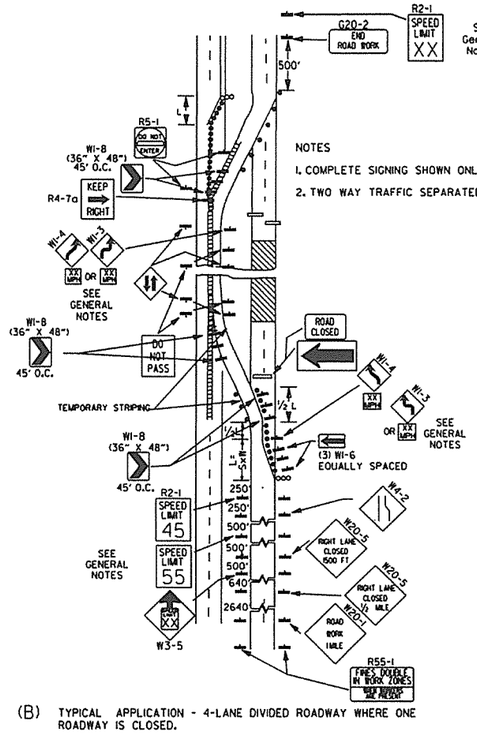
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



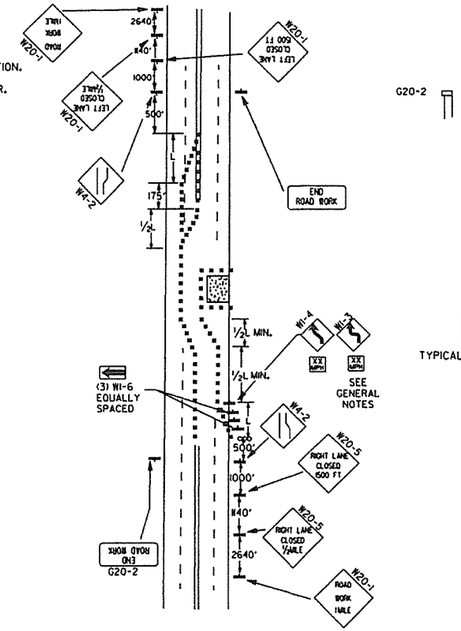
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

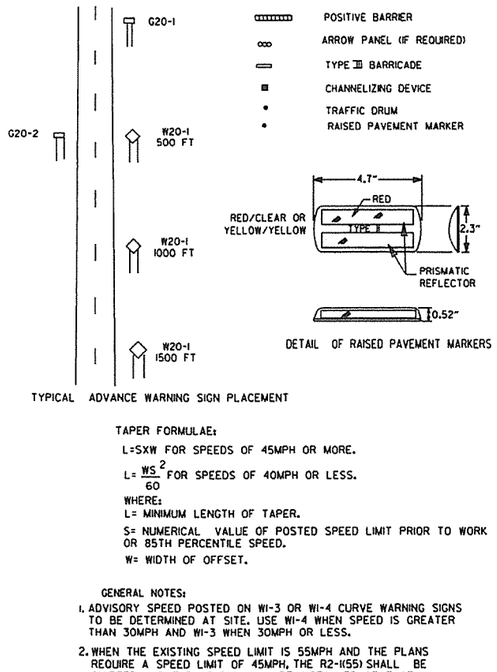


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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



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



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

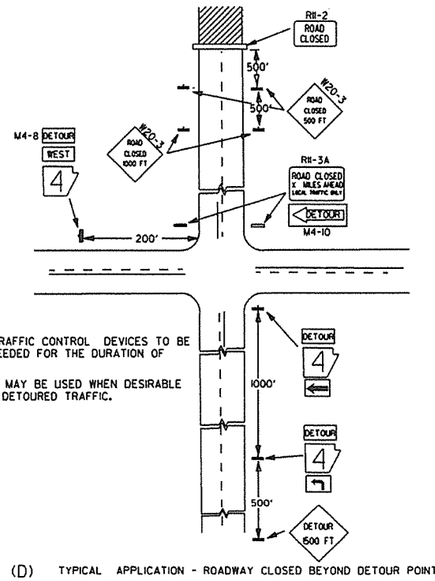
L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

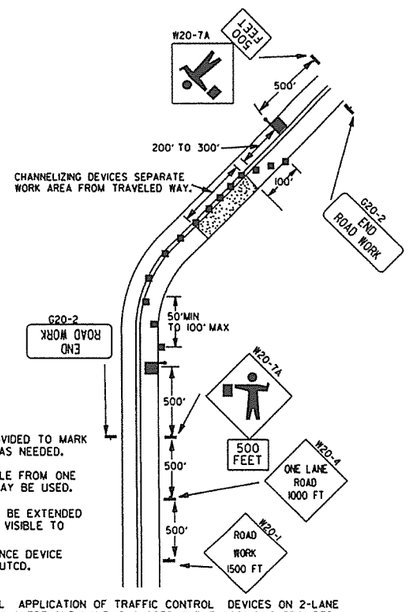
GENERAL NOTES:

1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
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 AHTD QUALIFIED PRODUCTS LIST.



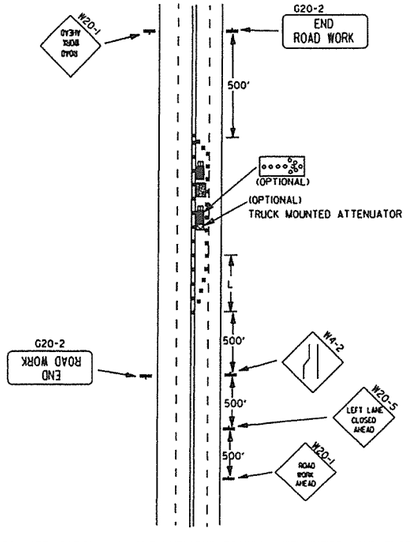
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

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



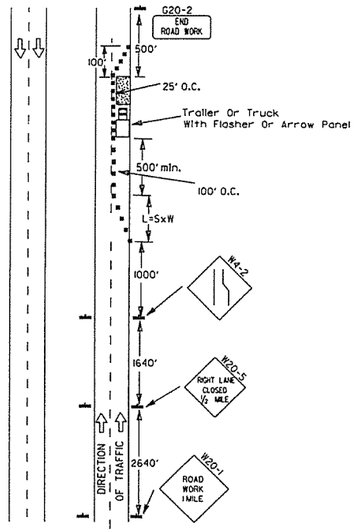
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
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	
3-8-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

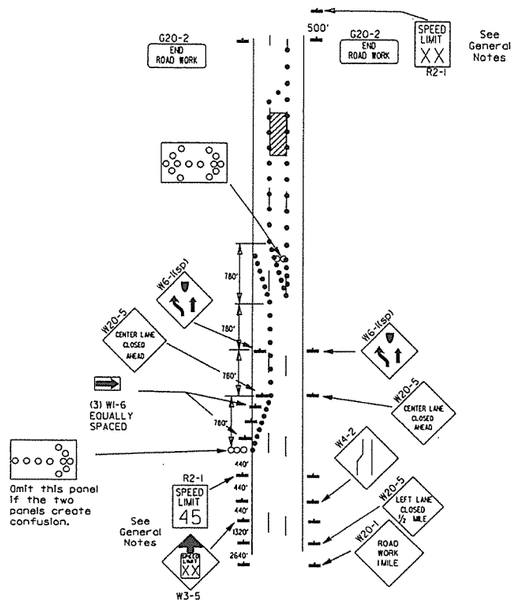
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

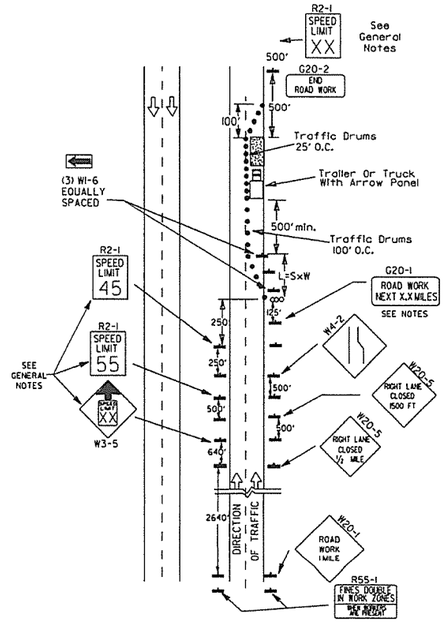
STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



(B) Typical application - 3-lane oneway roadway where center lane is closed.



(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

KEY:

ooo Arrow Panel (If Required)

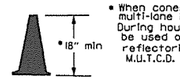
■ Channelizing Device

● Traffic drum

GENERAL NOTES:

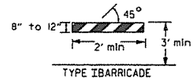
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or 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.

Channelizing devices



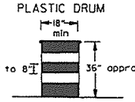
• When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

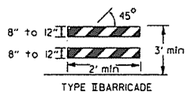
CONES



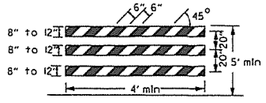
TYPE I BARRICADE

PLASTIC DRUM



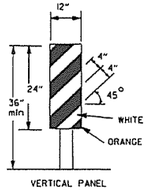


TYPE II BARRICADE



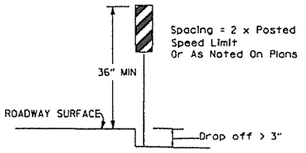
TYPE III BARRICADE

NOTE: For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



VERTICAL PANEL
VP-1R

VERTICAL PANEL PLACEMENT



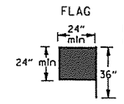
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	•RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	•Vertical panels, drums or concrete barrier

• When shown on the plans concrete barrier will be used.

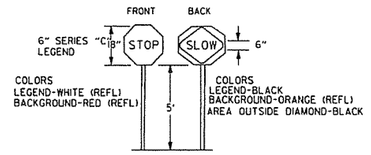
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

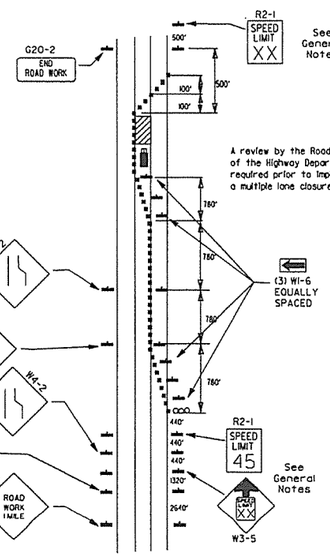
FLAG



Flag shall be of good grade red material

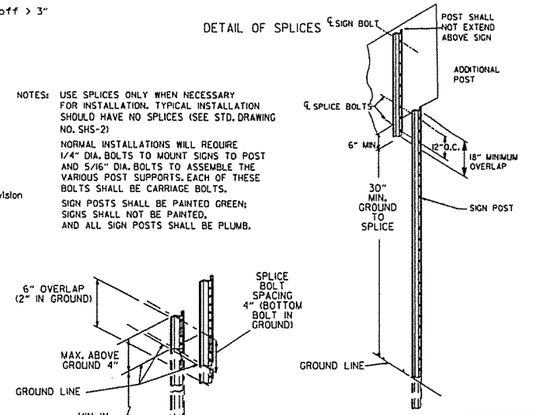
STOP SLOW PADDLE





(D) Typical application - closing multiple lanes of a multilane highway.

DETAIL OF SPLICES



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

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

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

DATE	REVISION	FILMED
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	
8-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R5S-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

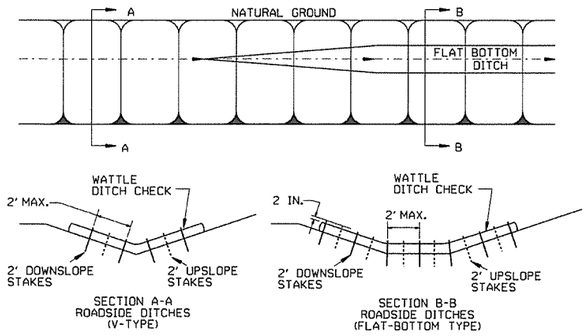
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

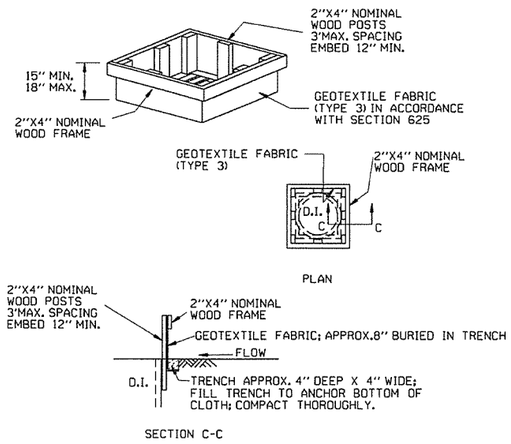
STANDARD DRAWING TC-3

GENERAL NOTES

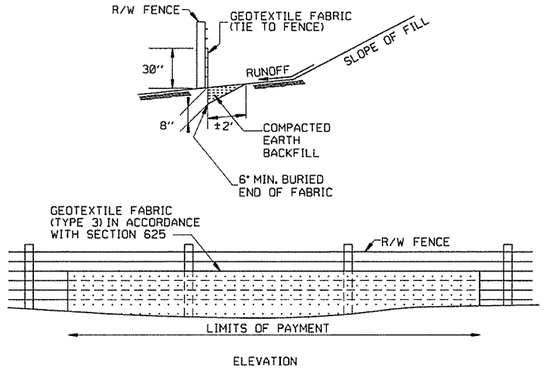
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

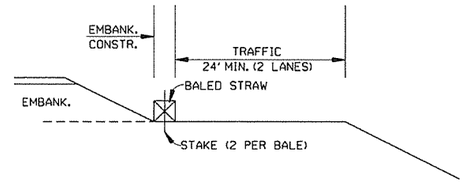
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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.

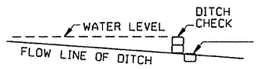
2. NO GAPS SHALL BE LEFT BETWEEN BALES.

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.

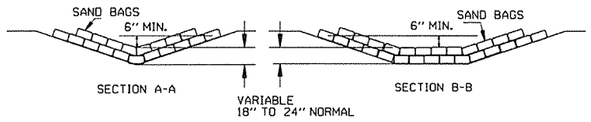


BALED STRAW FILTER BARRIER (E-2)

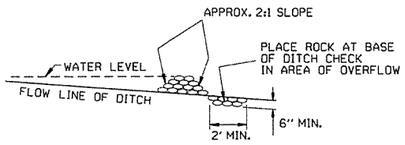
NUMBER OF SAND BAGS AND ARRANGEMENT VARIABLE WITH ON-SITE CONDITIONS.

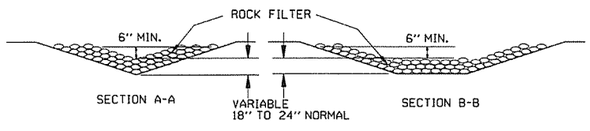


PLACE SAND BAGS AT BASE OF DITCH CHECK IN AREA OF OVERFLOW

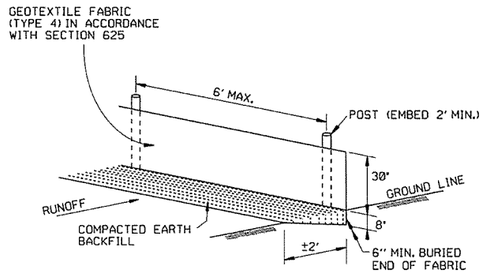


SAND BAG DITCH CHECK (E-5)





ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

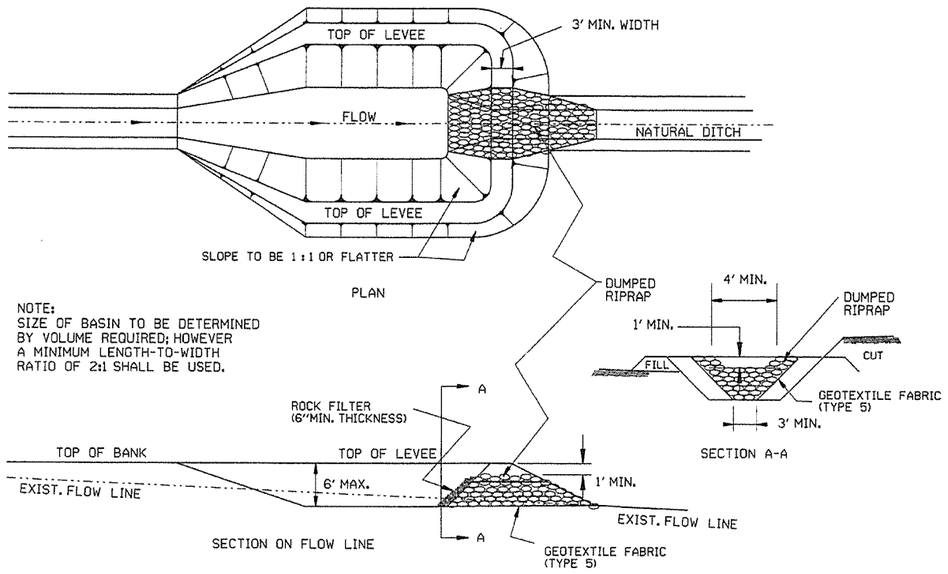
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

DATE	REVISION	FILMED
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
6-2-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
4-1-93	REDRAWN	
10-1-92	REDRAWN	
8-2-76	ISSUED R.D.M.	298-7-28-76

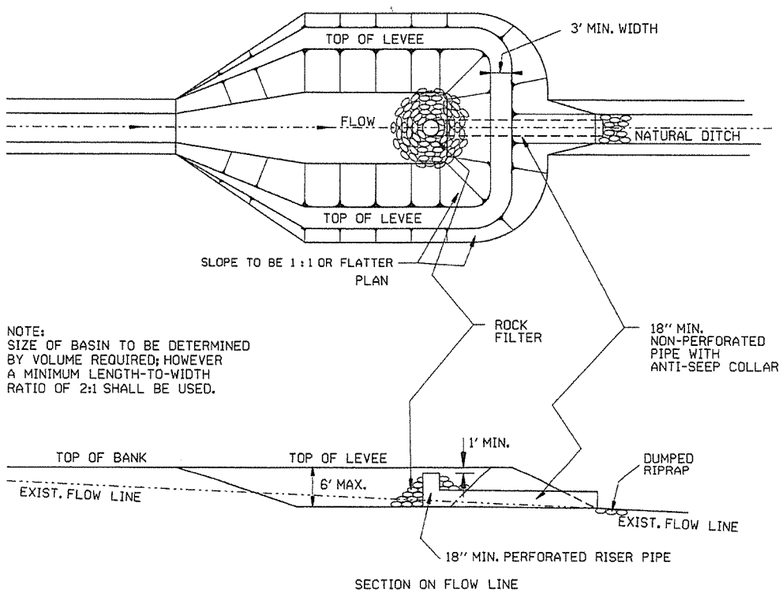
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

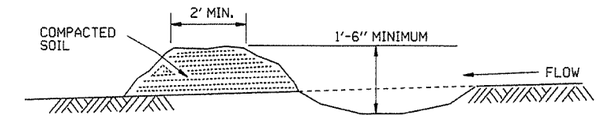
STANDARD DRAWING TEC-1



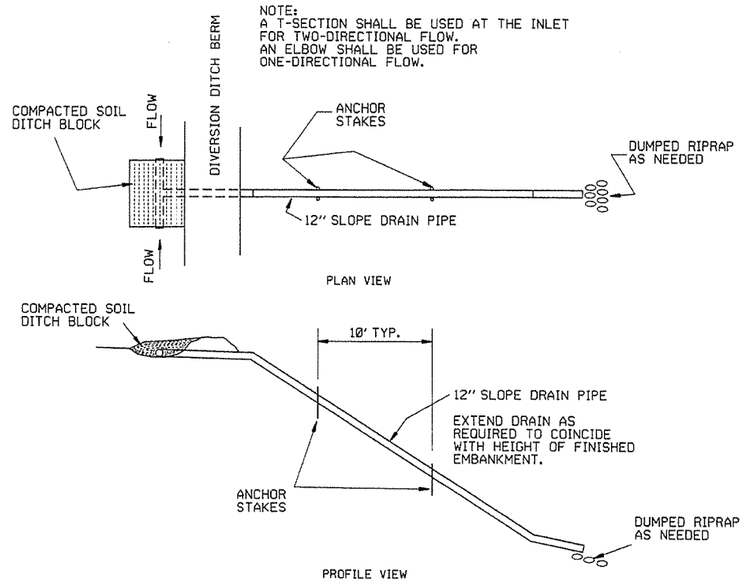
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



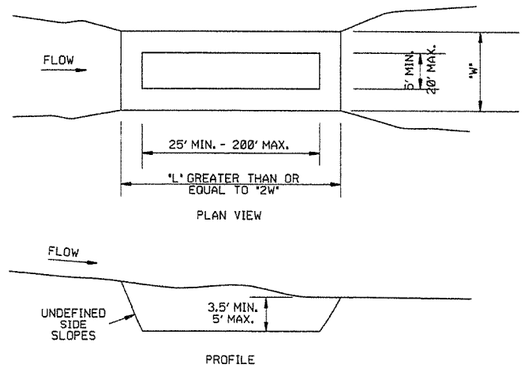
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

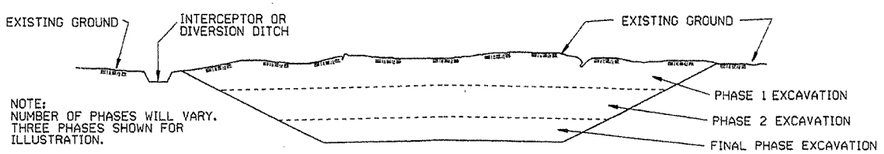
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



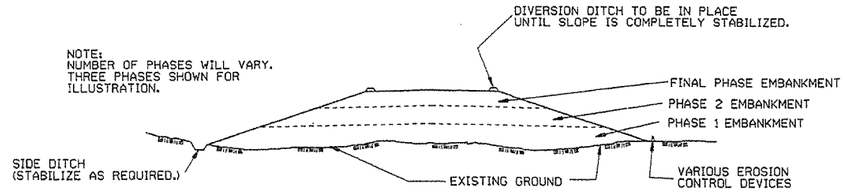
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

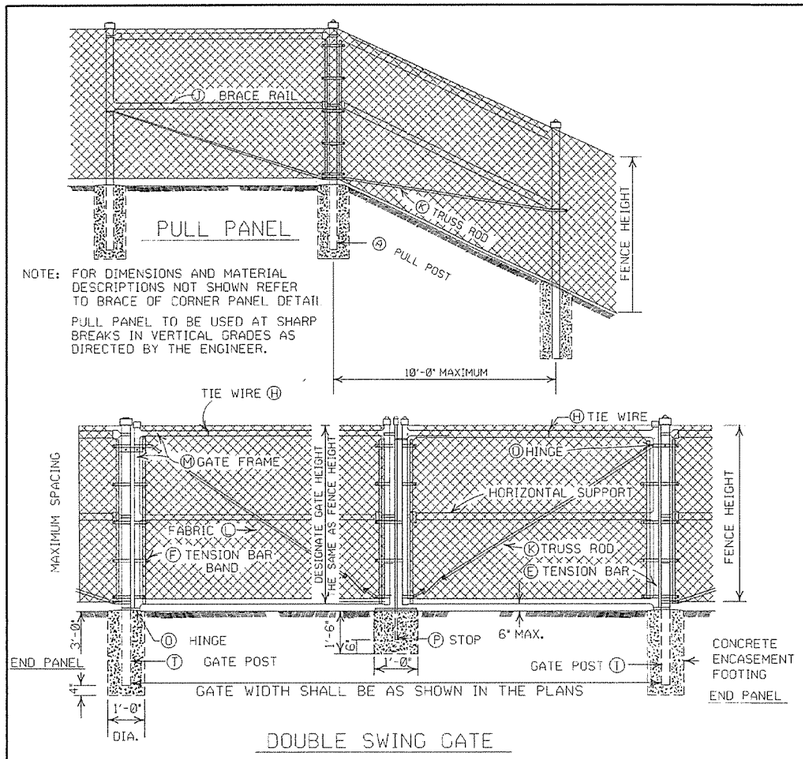
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD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

DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3

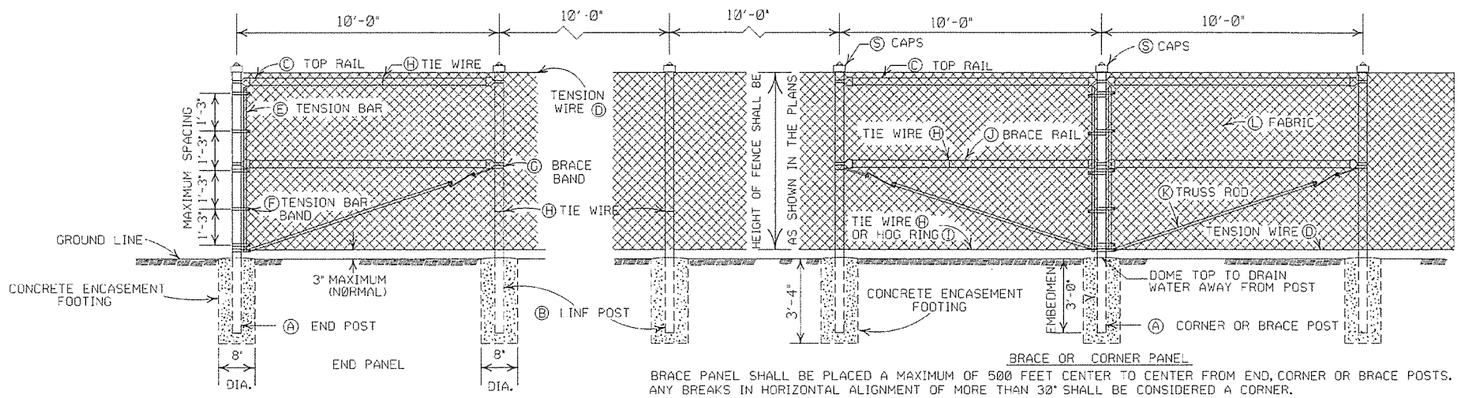


DOUBLE SWING GATE

NOTE: FOR DIMENSIONS AND MATERIAL DESCRIPTIONS NOT SHOWN REFER TO BRACE OF CORNER PANEL DETAIL.

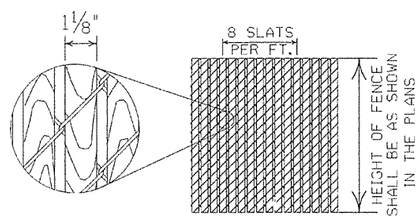
PULL PANEL TO BE USED AT SHARP BREAKS IN VERTICAL GRADES AS DIRECTED BY THE ENGINEER.

POST SPACING DETAIL



BRACE OR CORNER PANEL

BRACE PANEL SHALL BE PLACED A MAXIMUM OF 500 FEET CENTER TO CENTER FROM END, CORNER OR BRACE POSTS. ANY BREAKS IN HORIZONTAL ALIGNMENT OF MORE THAN 30° SHALL BE CONSIDERED A CORNER.



1⅛" X ¼" REDWOOD SLATS(LENGTH TO MATCH HEIGHT OF FENCE)

DETAIL OF REDWOOD SLAT INSTALLATION

(WHERE APPLICABLE)

GENERAL NOTES:

(C) CHAIN LINK FENCE BEING PLACED ON PRIVATE PROPERTY SHALL INCLUDE A TOP RAIL. ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LIN. FT. OF CHAIN LINK FENCE.

(D) TENSION WIRE: SHALL BE SECURED TO ALL TERMINAL, PULL, BRACE OR CORNER POSTS WITH TENSION BAR BANDS.

(J) BRACE RAIL: BRACE RAILS SHALL BE PROVIDED AT ALL TERMINAL, PULL, BRACE OR CORNER POSTS HALFWAY BETWEEN THE TOP RAIL AND GROUND LEVEL WHEN TOPRAIL IS SPECIFIED AND TWELVE INCHES (12") DOWN FROM TOP OF FABRIC WHEN TOP TENSION WIRE IS SPECIFIED. BRACE RAIL SHALL EXTEND FROM SUCH POST TO THE FIRST ADJACENT LINE POST.

(L) FABRIC: SHALL CONFORM TO THE SPECIFICATIONS.

(M) GATE FRAMES: SHALL BE CONSTRUCTED OF TUBULAR MEMBERS ASSEMBLED BY USE OF HEAVY PRESSED STEEL, MALLEABLE FITTINGS OR BY WELDING. ALL GATES SHALL HAVE ONE HORIZONTAL SUPPORT EXTENDING THE WIDTH OF THE GATE AT THE MIDPOINTS OF VERTICAL FRAME MEMBERS. THE COMPLETE FRAME SHALL BE RIGID AND HAVE AMPLE STRENGTH TO BE FREE FROM SAG AND TWIST.

(O) HINGES: SHALL BE OF HEAVY PATTERN, OF ADEQUATE STRENGTH FOR GATE, AND WITH LARGE BEARING SURFACES FOR CLAMPING IN POSITION. THE HINGE SHALL BE OF THE PROPER TYPE TO ALLOW FOR THE DESIGNATED DEGREE OF SWING. THE HINGE SHALL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON.

(P) LATCHES AND STOPS: SHALL BE PROVIDED FOR ALL GATES. GATES SHALL HAVE A DROP BAR LATCH. LATCHES SHALL BE ARRANGED FOR LOCKING. THE STOP FOR DROP BAR LATCHES SHALL BE SET IN CONCRETE AND ENGAGE THE PLUNGER OF THE BAR LATCH.

(S) CAPS: ALL POSTS, EXCEPT ROLL FORMED POSTS AND "T" POSTS SHALL BE CAPPED OVER THE EXTERIOR OF THE POST, AND SHALL CONFORM TO ASTM F626.

CONCRETE REQUIRED FOR THE EMBEDMENT OF ALL POSTS SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR CHAIN LINK FENCE.

POSTS SHALL BE SPACED EQUIDISTANT ON A MAXIMUM OF 10' CENTERS.

EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

HEIGHT OF FENCE FABRIC	(A) END, PULL CORNER OR BRACE POST	(B) LINE POSTS SIZE	(B) LINE POSTS TIE SPACING	(C) TOP RAIL SIZE	(C) TOP RAIL TIE SPACING	(C) TOP RAIL MIN. LENGTH	(D) TENSION WIRE SIZE	(D) TENSION WIRE TIE SPACING	(E) TENSION BAR SIZE	(E) TENSION BAR LENGTH
6' AND LESS	2½" O.D.	2" O.D.	1 TIE EVERY 1'-2" OF FABRIC HEIGHT	1⅝" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	MIN. OF ⅜" X ¾"	MIN. OF 2" LESS THAN FABRIC HEIGHT
OVER 6' TO 12' INCL.	3 " O.D.	2½" O.D.								

HEIGHT OF FENCE FABRIC	(F) TENSION BAR BAND SIZE	(F) BOLT SIZE	(F) SPACING	(G) BRACE BAND SIZE	(G) BOLT SIZE
6' AND LESS	MIN. OF ¾" X 0.074	⅝" X 1¼"	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	MIN. OF ¾" X 0.105	⅝" X 1¼"
OVER 6' TO 12' INCL.					

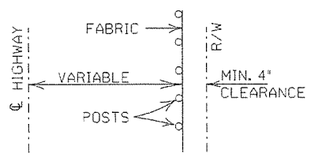
HEIGHT OF FENCE FABRIC	(H) TIE WIRE	(I) HOG RING	(J) BRACE RAIL SIZE	(J) BRACE RAIL TIE SPACING	(K) TRUSS ROD	(L) FABRIC SIZE	(L) FABRIC MESH	(L) FABRIC SELVAGE
6' AND LESS	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1⅝" O.D.	1 TIE EVERY 2'-0"	MIN. OF ⅝" ROUND WITH TIGHTNERS AND FITTINGS	9 GA.	2"	KNUCK -ING AND/OR TWIST -ING
OVER 6' TO 12' INCL.								

HEIGHT OF FENCE FABRIC	(M) GATE FRAME SIZE	(M) GATE FRAME TIE SPACING	(N) HORIZONTAL SUPPORT SIZE	(N) HORIZONTAL SUPPORT TIE SPACING	(O) HINGE TYPE 180° SWING	(T) GATE POST GATE WIDTH 12' AND LESS	(T) GATE POST GATE WIDTH OVER 12' TO 24' INCL.
6' AND LESS	2" O.D.	1 TIE EVERY 1'-0"	2" O.D.	1 TIE EVERY 1'-0"	OFFSET	3' O.D.	4" O.D.
OVER 6' TO 12' INCL.						4" O.D.	

NOTE: POST SIZES SHOWN ARE FOR STEEL. WHERE ALUMINUM IS PROVIDED, LINE POSTS SHALL HAVE AN OUT SIDE DIAMETER OF 2½" FOR FENCE HEIGHT OF 6' AND LESS, AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' TO 12'. END, PULL, CORNER OR BRACE POSTS SHALL HAVE AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' AND LESS; AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHTS OF 6' TO 12'. GATE POSTS WHERE GATE WIDTH IS 12' AND LESS SHALL HAVE AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHT OF 6' AND LESS. ALUMINUM TENSION WIRE SHALL BE 0.192" IN DIAMETER. MINIMUM THICKNESS OF MATERIAL FROM WHICH EXPANSION SLEEVES SHALL BE MADE WILL BE 0.078". POSTS AND RAILS MAY HAVE ANY CROSS-SECTIONAL SHAPE THAT WILL MEET THE SPECIFICATIONS.

OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

ALL MISCELLANEOUS FITTINGS AND HARDWARE SHALL MEET THE REQUIREMENTS AND PRODUCTION TOLERANCES AS SET FORTH IN THE SPECIFICATIONS. 9 GAUGE ALUMINUM WIRE SHALL BE ACCEPTABLE FOR TIEING FABRIC TO TUBULAR AND ROLL FORMED MEMBERS OF STEEL FENCE.



INSTALLATION MAY BE MODIFIED AS SHOWN IN THE PLANS

TYPICAL INSTALLATION DIAGRAM

POSTS AND RAILS

SIZE O.D.	GRADE 1 AND ALUMINUM ALLOY O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT. STEEL	LBS. PER LINEAR FT. ALUMINUM	GRADE 2 O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.
1⅝	1.660	0.140	2.27	0.786	1.660	0.111	1.84
2	1.900	0.145	2.72	0.940	1.900	0.120	2.28
2½	2.375	0.154	3.65	1.264	2.375	0.130	3.11
3	2.875	0.203	5.79	2.004	2.875	0.160	4.64
3½	3.500	0.216	7.58	2.621	3.500	0.160	5.71
4	4.000	0.226	9.11	3.151	4.000	0.160	6.56

TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181

DATE	REVISION	FILMED
11-17-10	REVISED TRUSS ROD	
12-10-09	REVISED POSTS & RAILS TABLE	
5-21-09	ADDED TABLE & GEN. NOTE (C)	
8-22-02	REVISED NOTES, REMOVED TABLE, & REMOVED FENCE ALTERNATE	
4-3-97	REVISED BRACE RAIL NOTE	
10-18-96	REVISED AASHTO & ASTM REF.	
11-3-94	REVISED NOTE (L)	
10-1-92	DELETED ALTERNATE POST	10-1-92
8-15-91	DELETED ROLL FORMED POST DETAIL & ADDED NOTE	8-15-91 8-15-91
11-30-89	DELETED CLASS CONCRETE	11 30 89
11-17-88	REVISED O.D. SIZES	668-11-17-88
10-30-87	GENERAL REVISIONS	548-10-30-87
4-20-79	REVISED TOP RAIL & TENSION WIRE	695-4-20-79
10-2-72	REVISED AND REDRAWN	530-10-2-72

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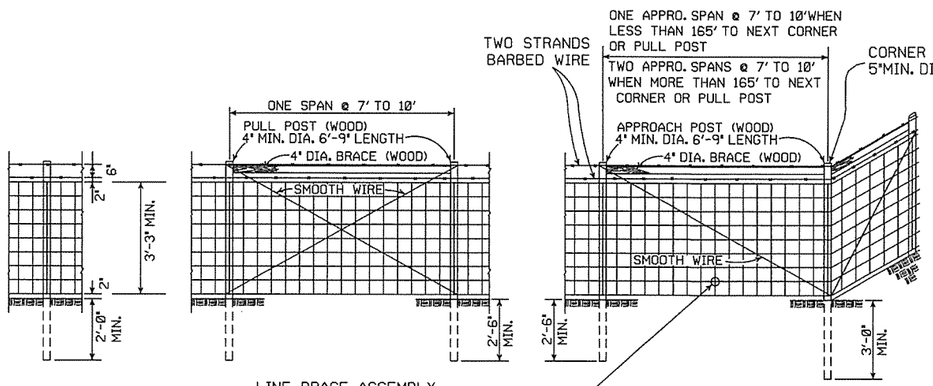
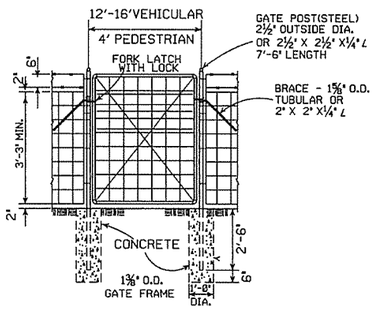
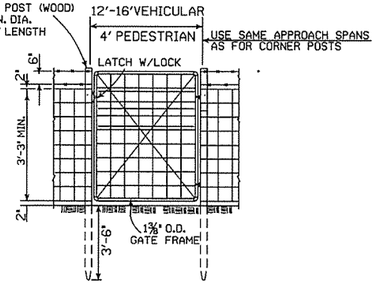
CHAIN LINK FENCE

STANDARD DRAWING WF-3







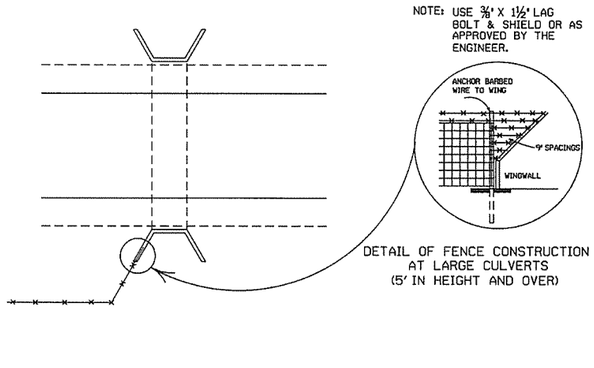
GENERAL NOTES:

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.



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

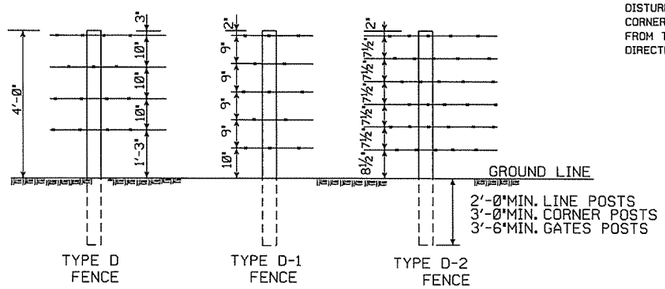
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE 'EYE METHOD' AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF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

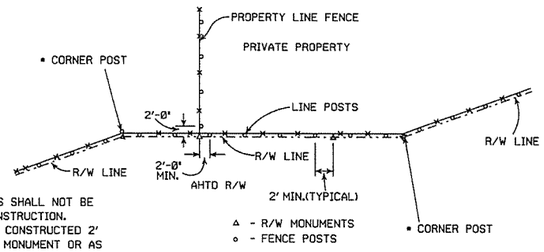
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

4 STRANDS BARBED WIRE (D)
5 STRANDS BARBED WIRE (D-1)
6 STRANDS BARBED WIRE (D-2)

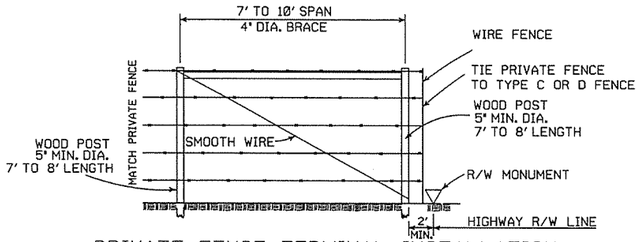


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

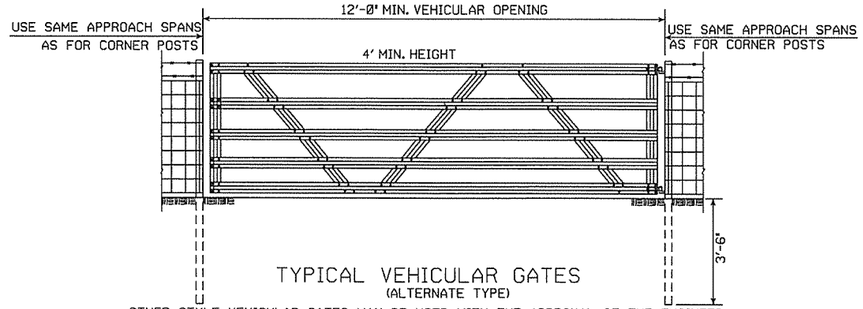


• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

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

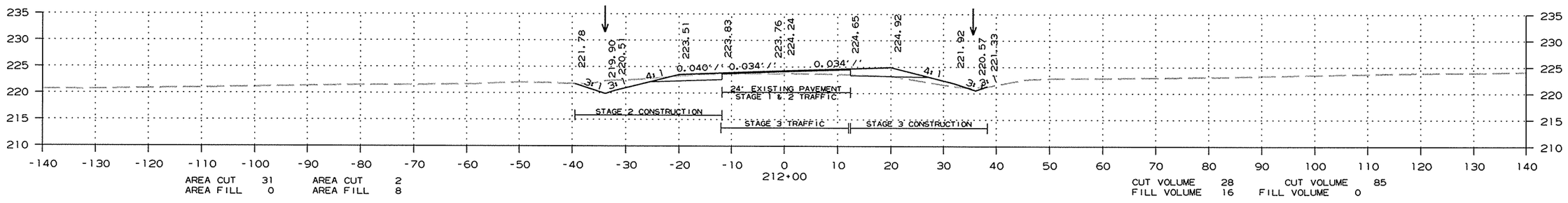
STANDARD DRAWING WF-4

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.		061084	110	126

(2) CROSS SECTIONS

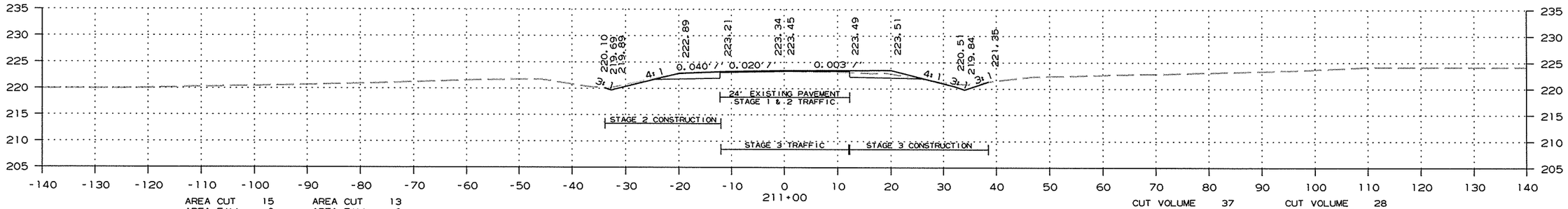
STAGE 2 STAGE 3

STAGE 3 STAGE 2



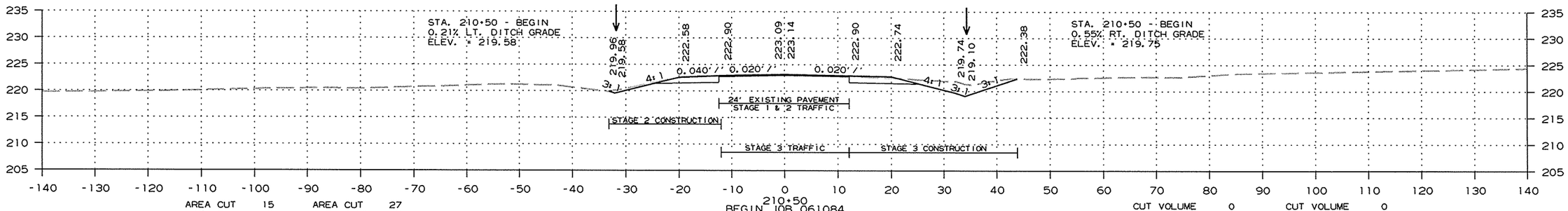
AREA CUT 31 AREA CUT 2
AREA FILL 0 AREA FILL 8

CUT VOLUME 28 CUT VOLUME 85
FILL VOLUME 16 FILL VOLUME 0



AREA CUT 15 AREA CUT 13
AREA FILL 0 AREA FILL 0

CUT VOLUME 37 CUT VOLUME 28
FILL VOLUME 0 FILL VOLUME 0



AREA CUT 15 AREA CUT 27
AREA FILL 0 AREA FILL 0

CUT VOLUME 0 CUT VOLUME 0
FILL VOLUME 0 FILL VOLUME 0

7/6/2015

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HWY. 67

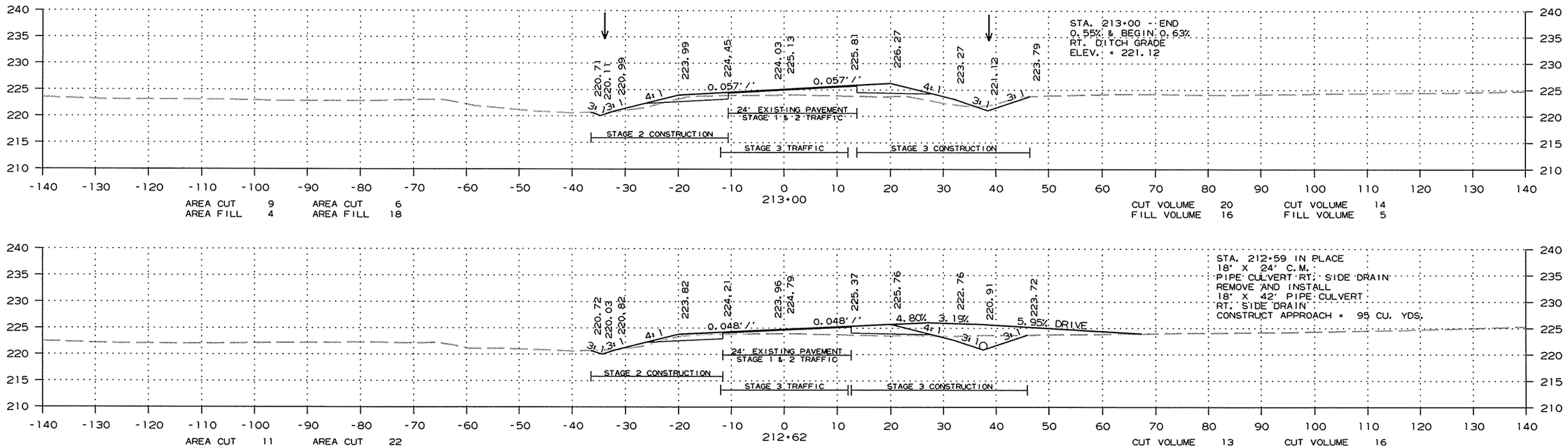
CROSS SECTION STA. 210+50 TO STA. 212+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	111	126

(2) CROSS SECTIONS

STAGE 2 STAGE 3

STAGE 3 STAGE 2



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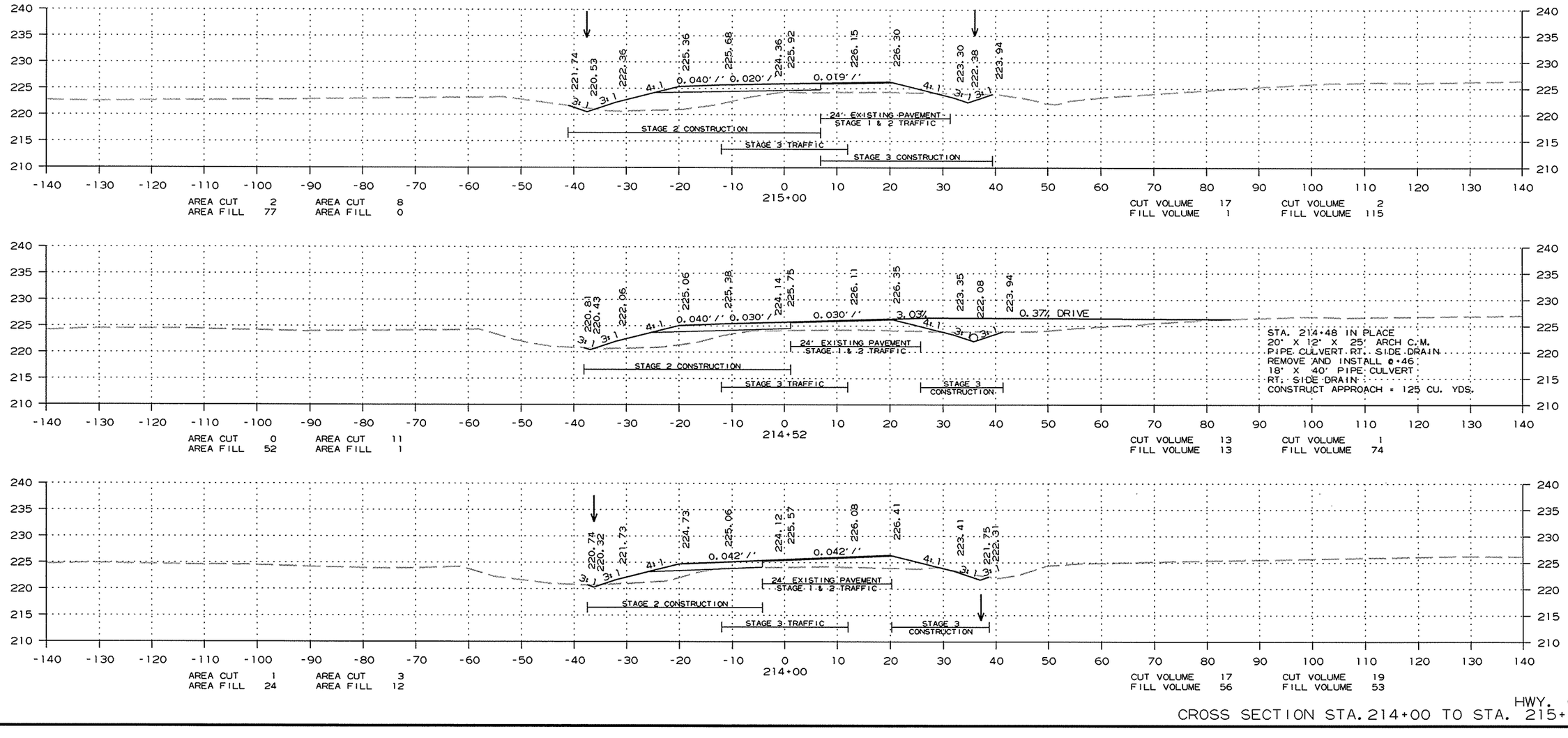
HWY. 67
CROSS SECTION STA. 212+31 TO STA. 213+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	112	126

(2) CROSS SECTIONS

STAGE 2 STAGE 3

STAGE 3 STAGE 2



7/6/2015

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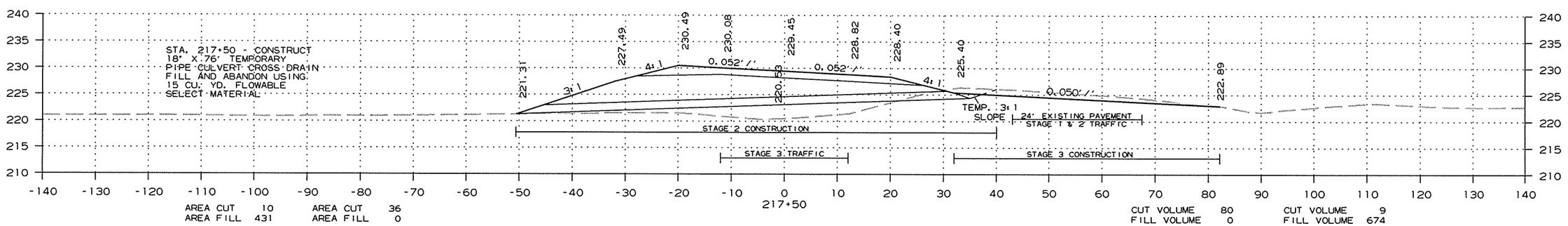
HWY. 67

CROSS SECTION STA. 214+00 TO STA. 215+00

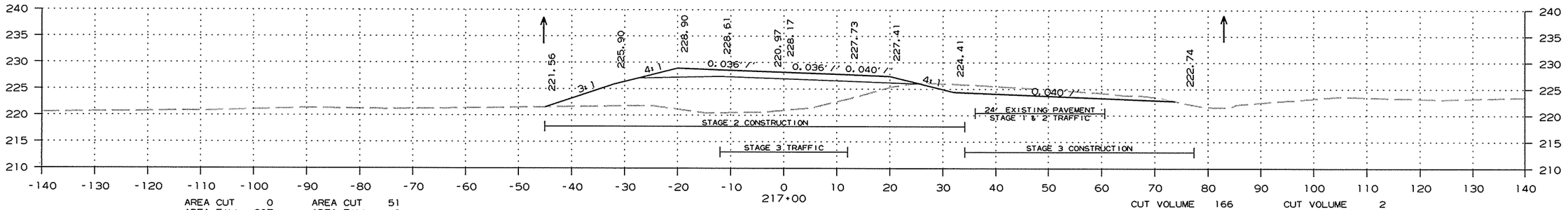
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	113	126

(2) CROSS SECTIONS

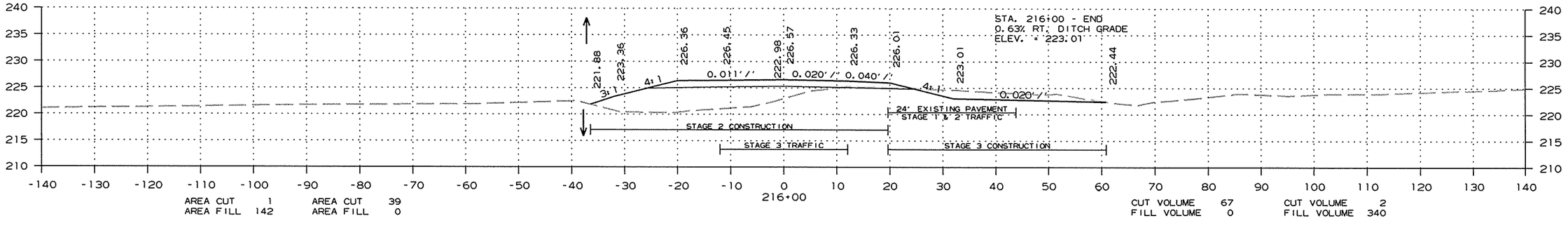
STAGE 2 STAGE 3



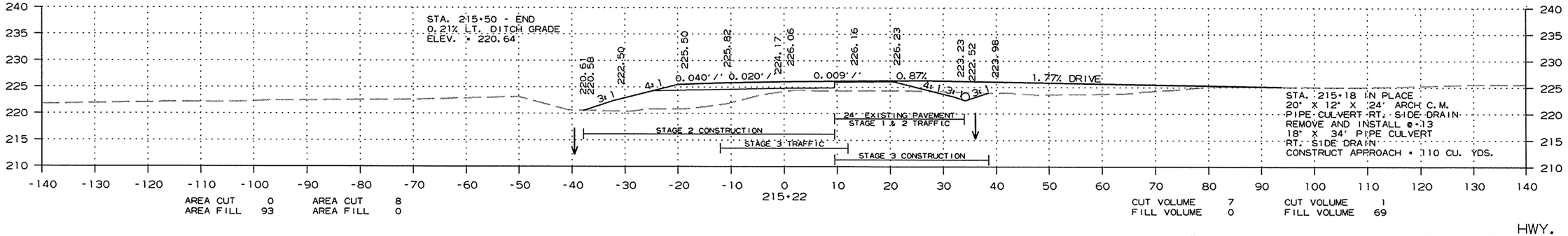
AREA CUT 10 AREA FILL 431 | AREA CUT 36 AREA FILL 0 | CUT VOLUME 80 FILL VOLUME 0 | CUT VOLUME 9 FILL VOLUME 674



AREA CUT 0 AREA FILL 297 | AREA CUT 51 AREA FILL 0 | CUT VOLUME 166 FILL VOLUME 0 | CUT VOLUME 2 FILL VOLUME 814



AREA CUT 1 AREA FILL 142 | AREA CUT 39 AREA FILL 0 | CUT VOLUME 67 FILL VOLUME 0 | CUT VOLUME 2 FILL VOLUME 340



AREA CUT 0 AREA FILL 93 | AREA CUT 8 AREA FILL 0 | CUT VOLUME 7 FILL VOLUME 0 | CUT VOLUME 1 FILL VOLUME 69

7/6/2015

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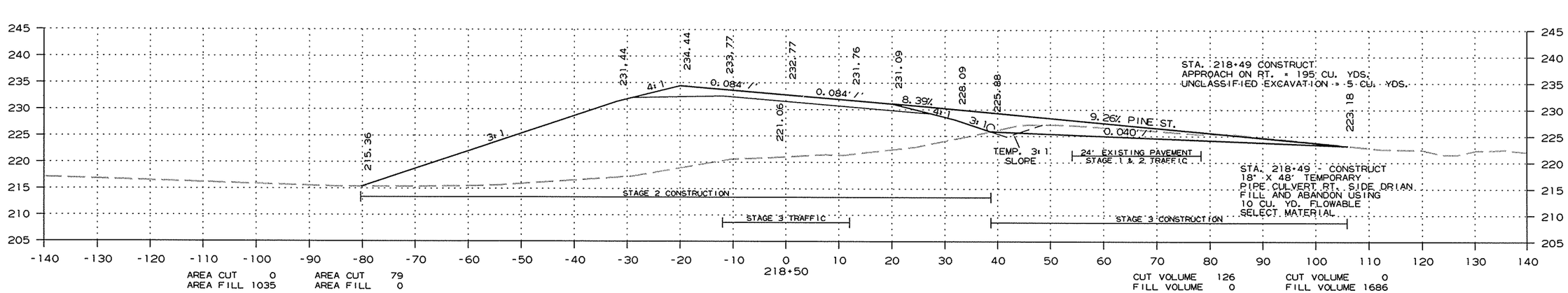
HWY. 67
CROSS SECTION STA. 215+22 TO STA. 217+50

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.		061084	114	126

(2) CROSS SECTIONS

STAGE 2 STAGE 3

STAGE 3 STAGE 2



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HWY. 67

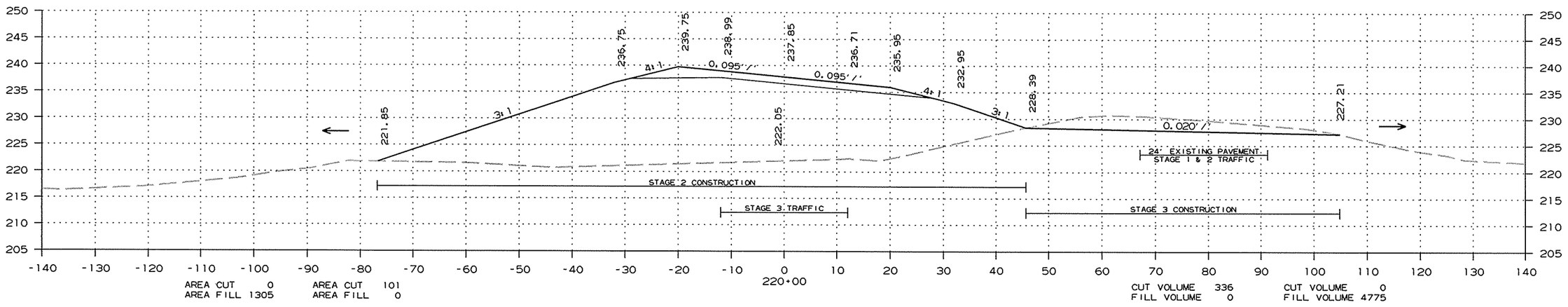
CROSS SECTION STA. 218+00 TO STA. 218+50

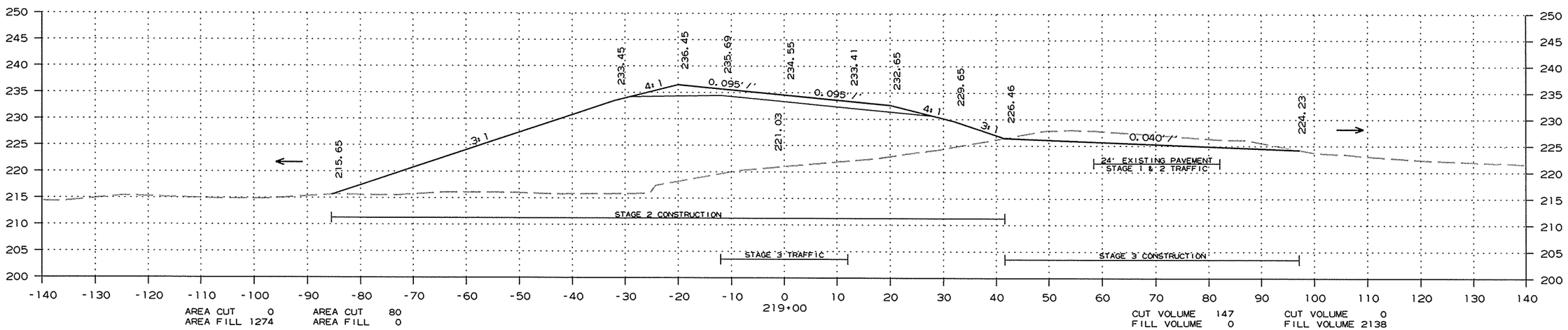
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	115	126

(2) CROSS SECTIONS

STAGE 2 STAGE 3

STAGE 3 STAGE 2





HWY. 67
CROSS SECTION STA. 219+00 TO STA. 220+00

7/6/2015

R061084.DGN

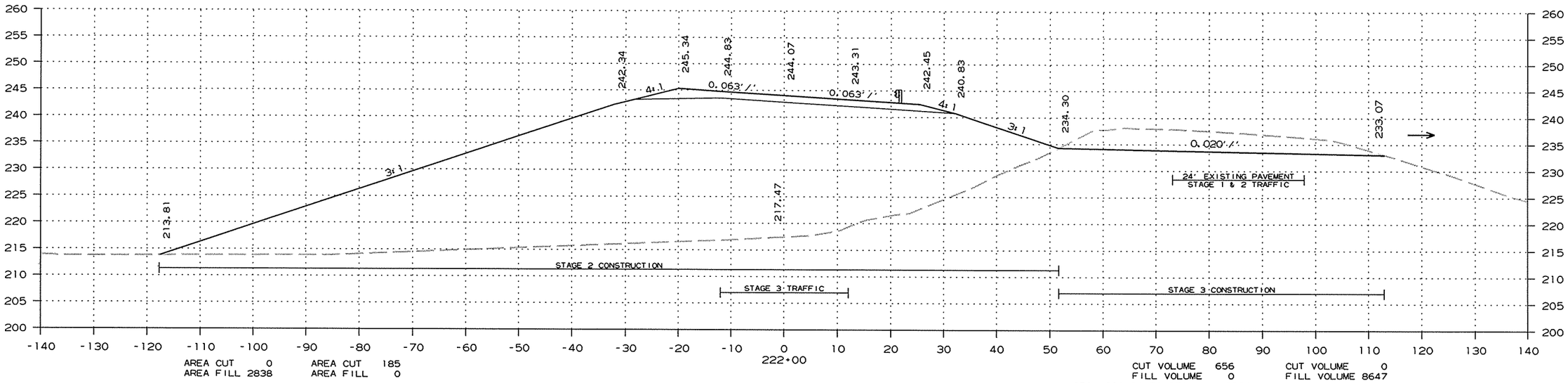
STAGE 2 STAGE 3

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.		061084	116	126

(2) CROSS SECTIONS

STAGE 3 STAGE 2

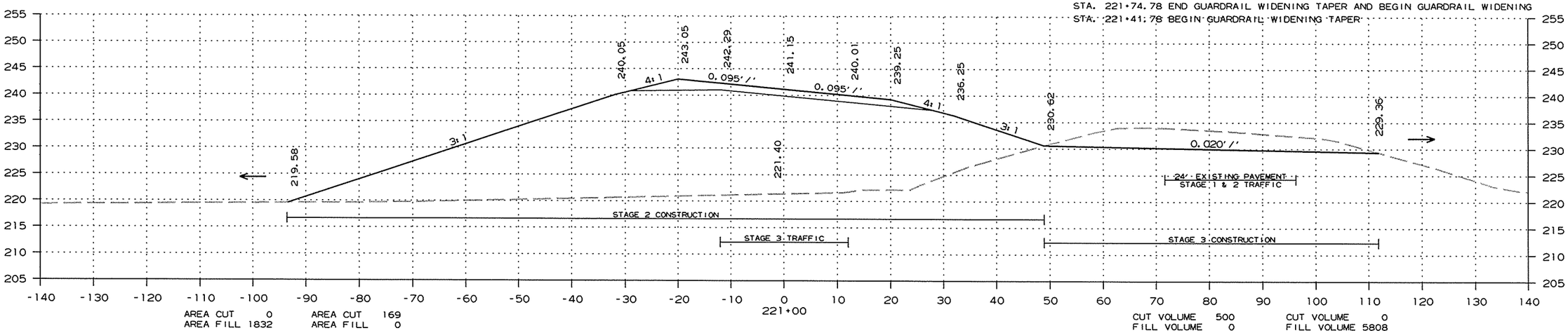
STA. 222+99.78 END GUARDRAIL WIDENING TAPER AND BEGIN GUARDRAIL WIDENING
STA. 222+66.78 BEGIN GUARDRAIL WIDENING TAPER



AREA CUT 0 AREA CUT 185
AREA FILL 2838 AREA FILL 0

CUT VOLUME 656 CUT VOLUME 0
FILL VOLUME 0 FILL VOLUME 8647

STA. 221+84.78 BEGIN GUARDRAIL
STA. 221+74.78 END GUARDRAIL WIDENING TAPER AND BEGIN GUARDRAIL WIDENING
STA. 221+41.78 BEGIN GUARDRAIL WIDENING TAPER



AREA CUT 0 AREA CUT 169
AREA FILL 1832 AREA FILL 0

CUT VOLUME 500 CUT VOLUME 0
FILL VOLUME 0 FILL VOLUME 5808

HWY. 67
CROSS SECTION STA. 221+00 TO STA. 222+00

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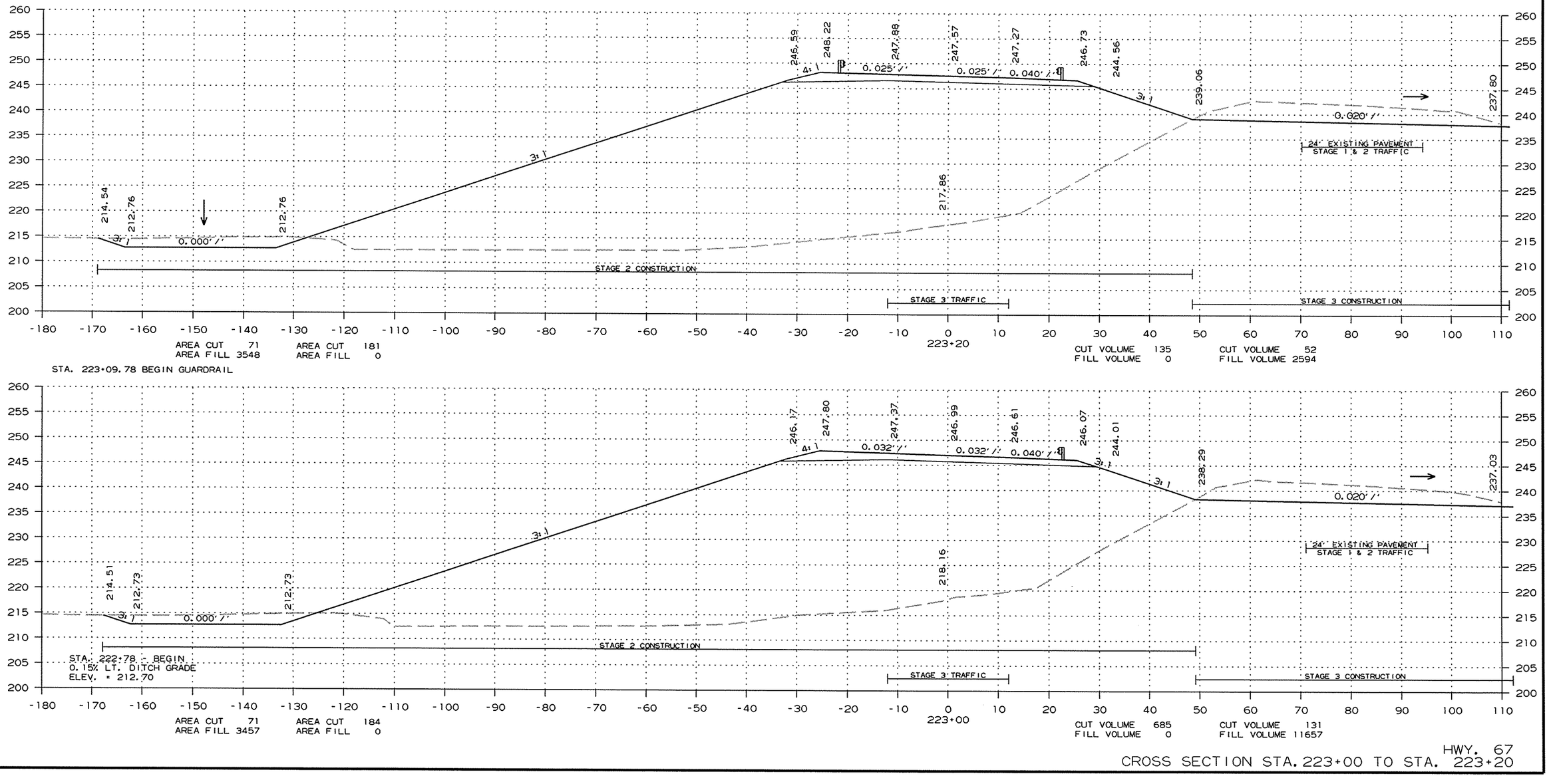
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	117	126

(2) CROSS SECTIONS

STAGE 2 STAGE 3

STAGE 3 STAGE 2



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HWY. 67
CROSS SECTION STA. 223+00 TO STA. 223+20

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	118	126

(2) CROSS SECTIONS

STAGE 2 STAGE 3

STAGE 3 STAGE 2

STA. 231+75.07 BRIDGE END

AREA CUT 0 AREA CUT 0
AREA FILL 0 AREA FILL 0

STA. 231+28.39 TOE OF SLOPE

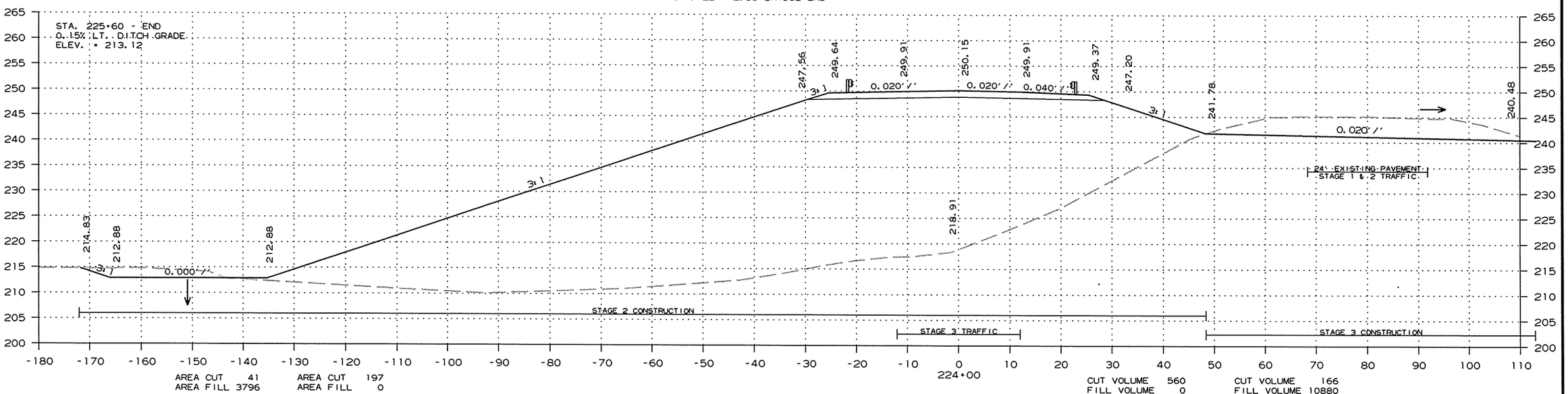
CUT VOLUME 0 CUT VOLUME 0
FILL VOLUME 0 FILL VOLUME 0

AREA CUT 0 AREA CUT 0
AREA FILL 0 AREA FILL 0

STA. 224+61.16 TOE OF SLOPE

CUT VOLUME 223 CUT VOLUME 47
FILL VOLUME 0 FILL VOLUME 4299

STA. 224+12.93 BRIDGE END



AREA CUT 41 AREA CUT 197
AREA FILL 3796 AREA FILL 0

CUT VOLUME 560 CUT VOLUME 166
FILL VOLUME 0 FILL VOLUME 10880

HWY. 67
CROSS SECTION STA. 224+00 TO STA. 224+00

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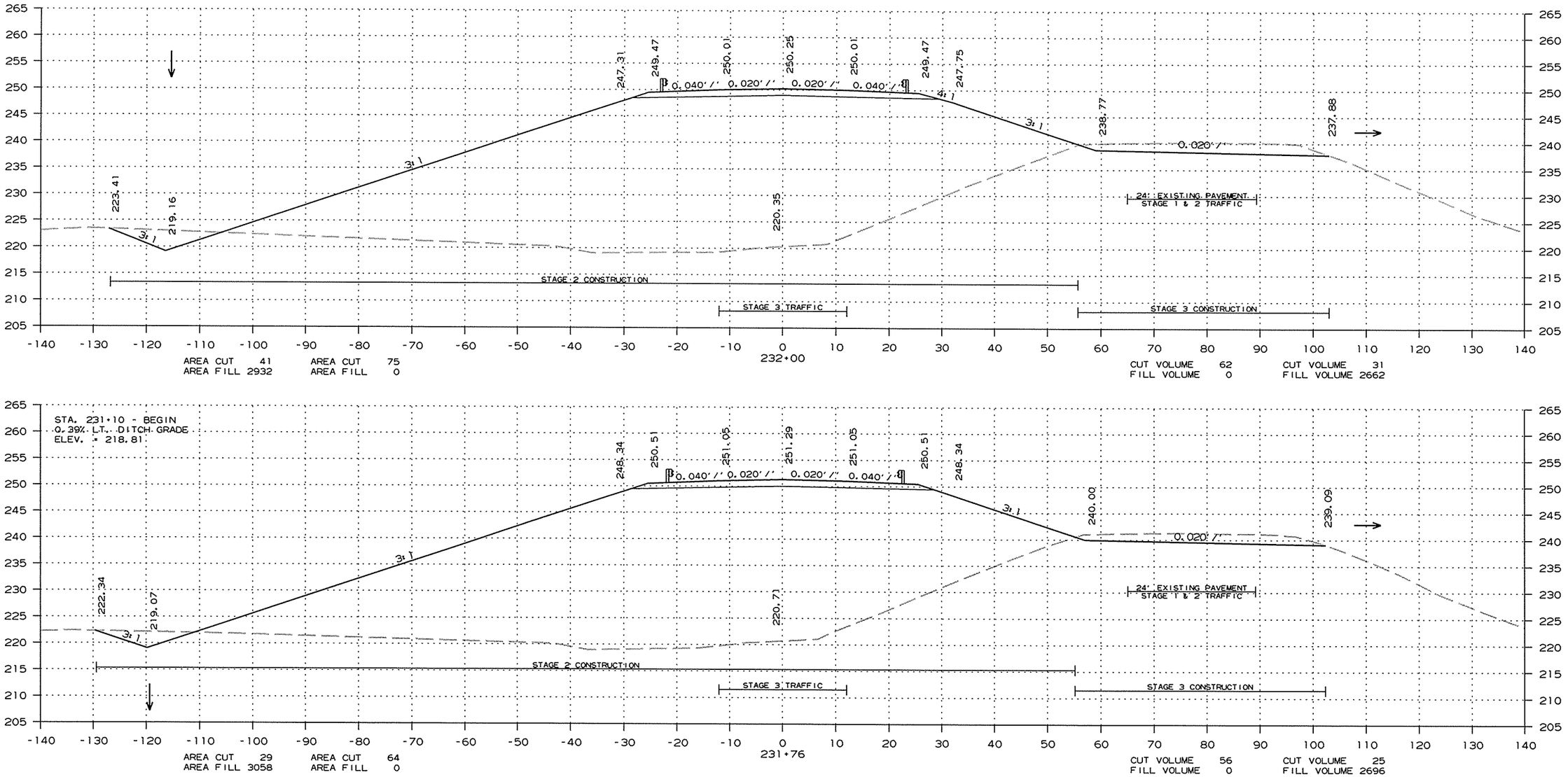
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	119	126

(2) CROSS SECTIONS

STAGE 2 STAGE 3

STAGE 3 STAGE 2

STA. 232+88.22 END GUARDRAIL WIDENING AND BEGIN GUARDRAIL WIDENING TAPER
STA. 232+78.22 END GUARDRAIL



HWY. 67
CROSS SECTION STA. 231+76 TO STA. 232+00

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R061084.DGN

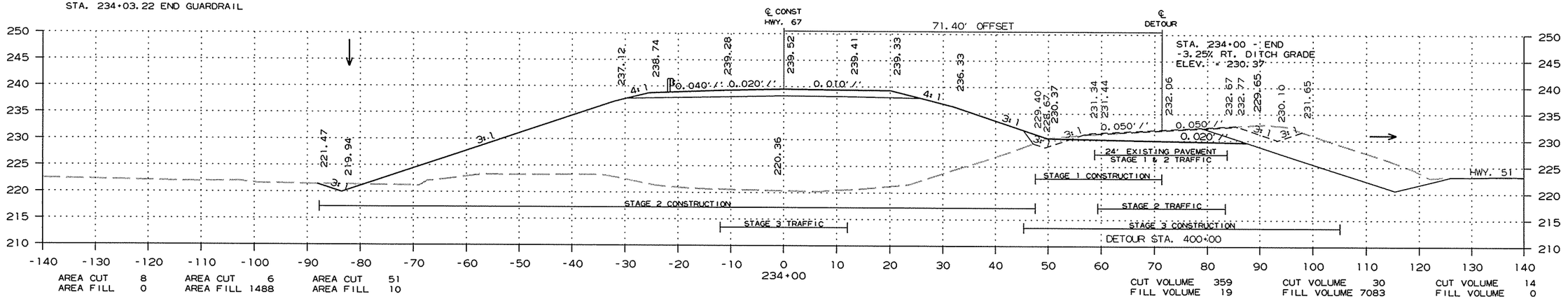
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	120	126

(2) CROSS SECTIONS

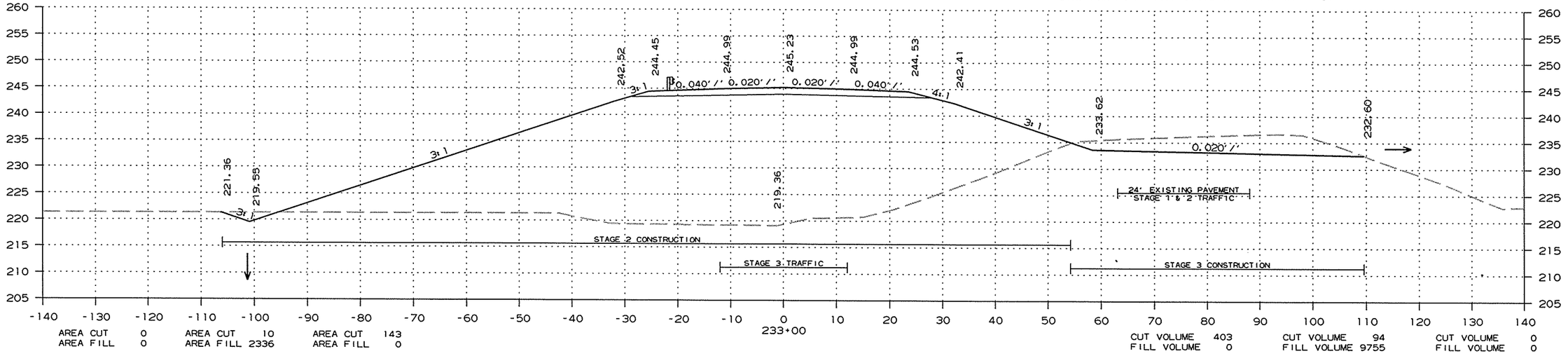
STAGE 1 (DETOUR) STAGE 2 STAGE 3

STAGE 3 STAGE 2 STAGE 1 (DETOUR)

STA. 234+46.22 END GUARDRAIL WIDENING TAPER
STA. 234+13.22 END GUARDRAIL WIDENING AND BEGIN GUARDRAIL WIDENING TAPER
STA. 234+03.22 END GUARDRAIL



STA. 233+21.22 END GUARDRAIL WIDENING TAPER



HWY. 67
CROSS SECTION STA. 233+00 TO STA. 234+00

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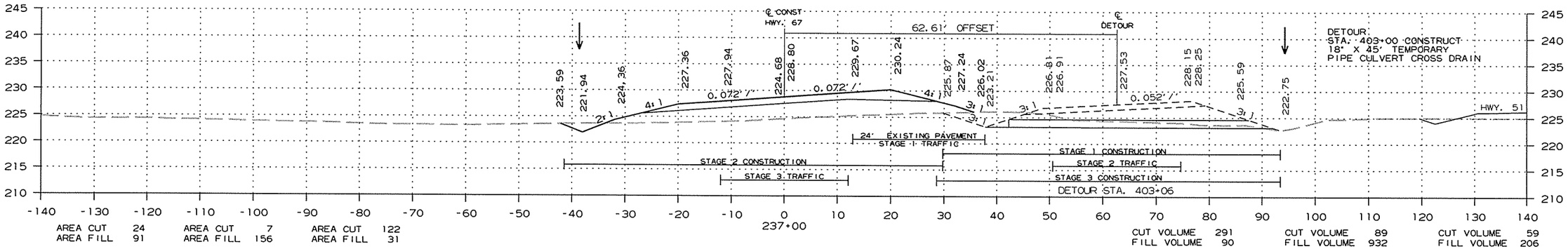
R061084.DGN

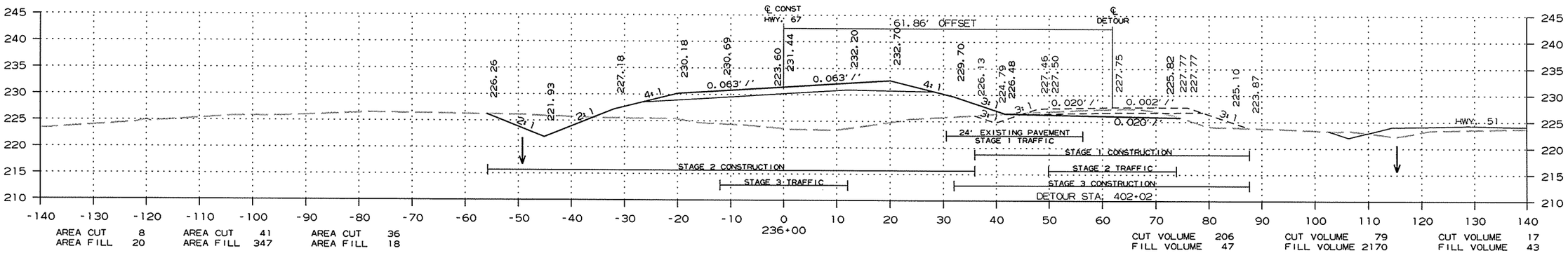
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	121	126

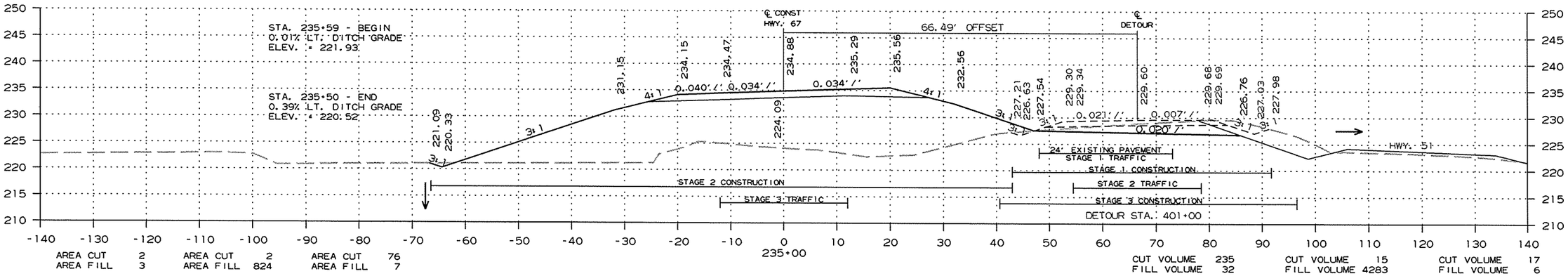
(2) CROSS SECTIONS

STAGE 1 (DETOUR) STAGE 2 STAGE 3

STAGE 3 STAGE 2 STAGE 1 (DETOUR)







HWY. 67
CROSS SECTION STA. 235+00 TO STA. 237+00

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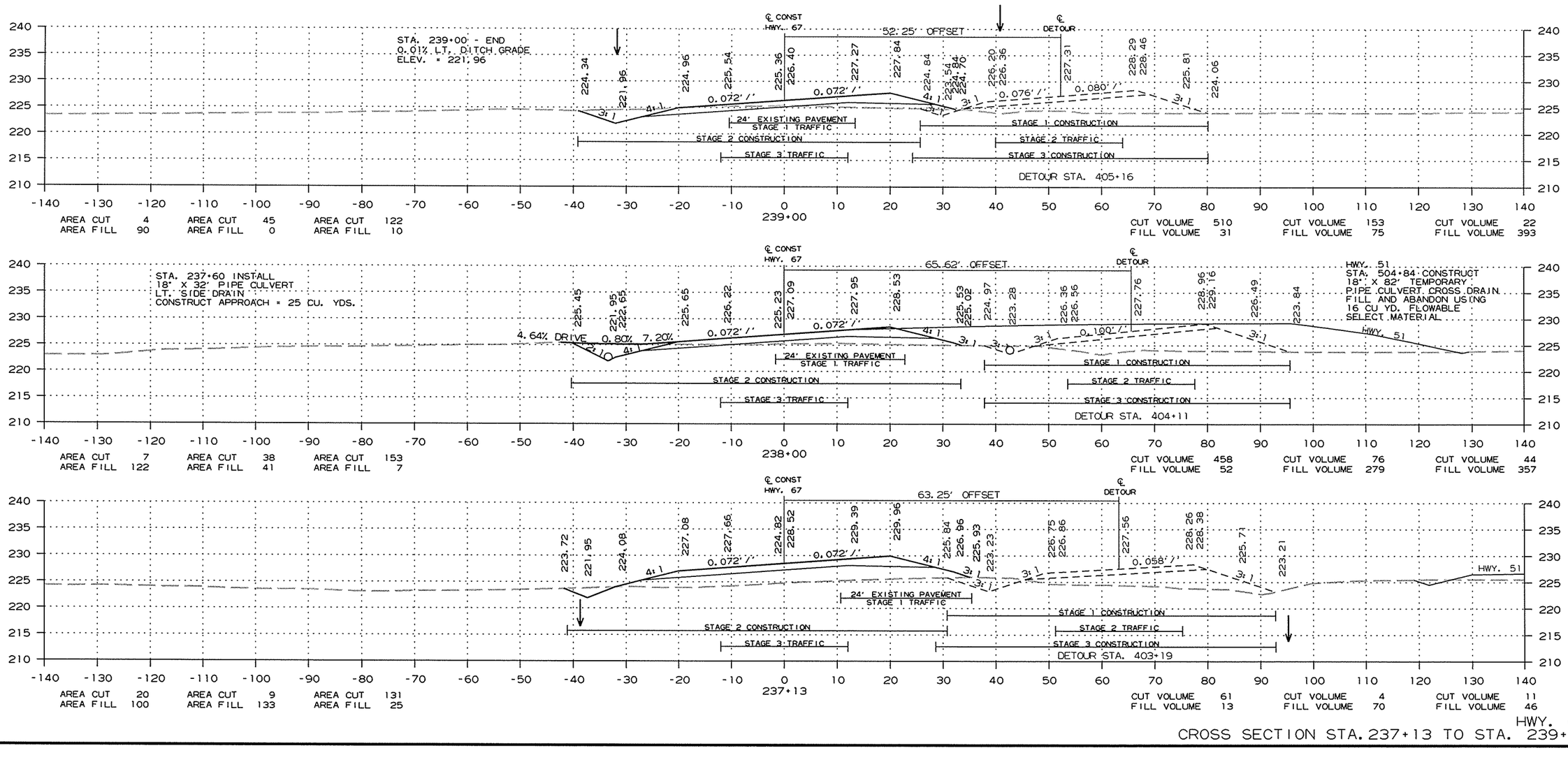
R061084.DGN

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.		061084	122	126

(2) CROSS SECTIONS

STAGE 1 (DETOUR) STAGE 2 STAGE 3

STAGE 3 STAGE 2 STAGE 1 (DETOUR)



HWY. 67
CROSS SECTION STA. 237+13 TO STA. 239+00

7/22/2015

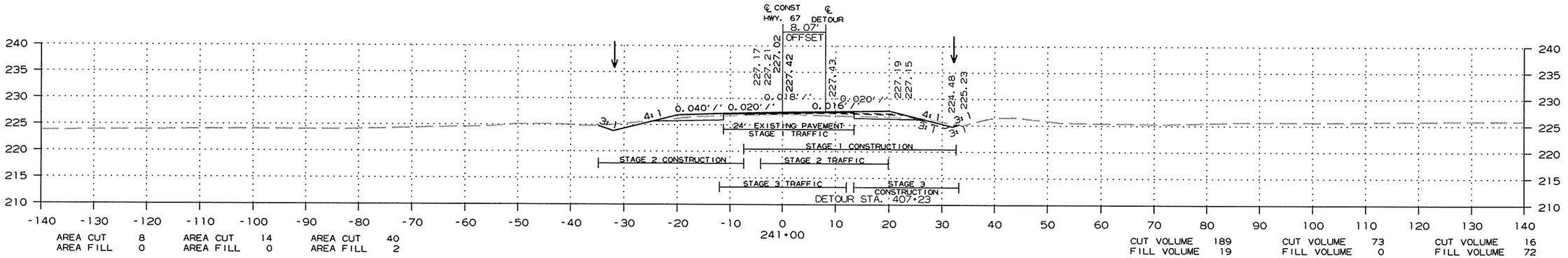
R061084.DGN

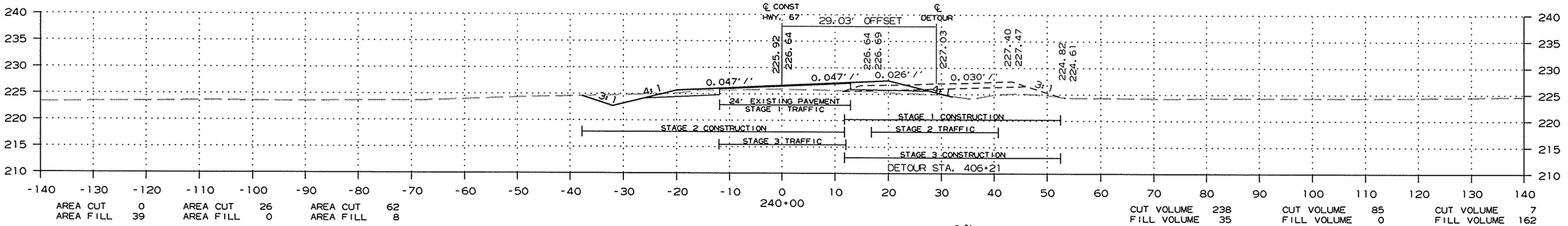
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	123	126

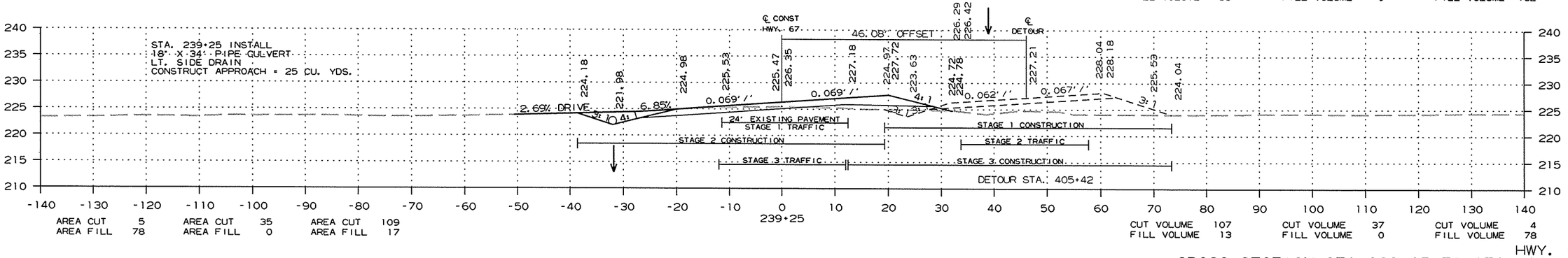
(2) CROSS SECTIONS

STAGE 1 (DETOUR) STAGE 2 STAGE 3

STAGE 3 STAGE 2 STAGE 1 (DETOUR)







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HWY. 67
CROSS SECTION STA. 239+25 TO STA. 241+00

STAGE 1
(DETOUR)

STAGE 2

STAGE 3

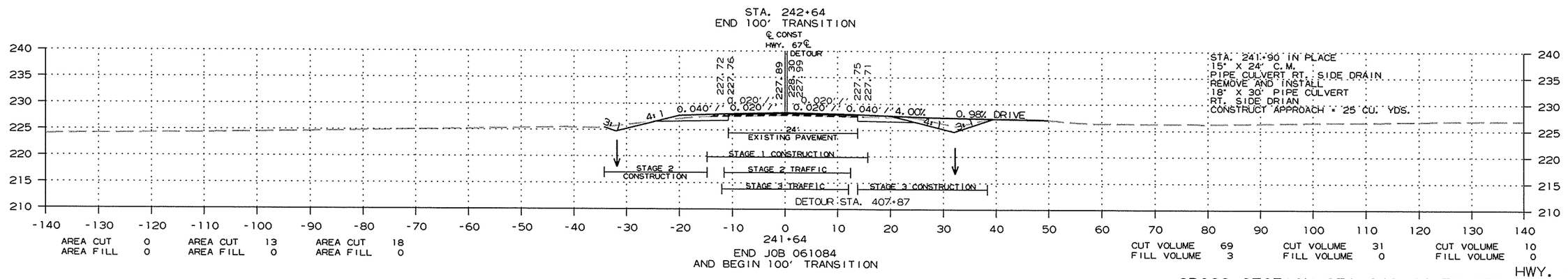
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	124	126

(2) CROSS SECTIONS

STAGE 3

STAGE 2

STAGE 1
(DETOUR)



HWY. 67

CROSS SECTION STA. 241+64 TO STA. 241+64

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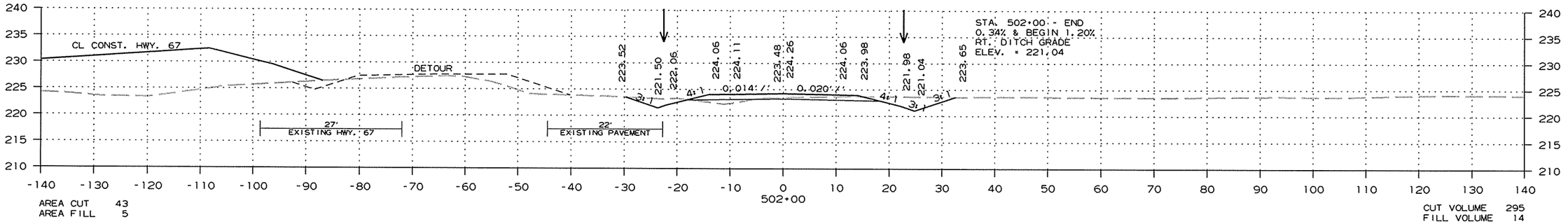
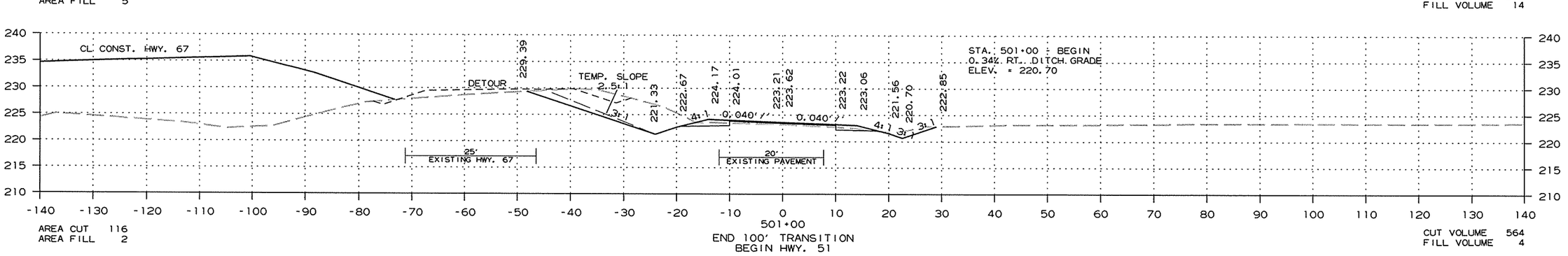
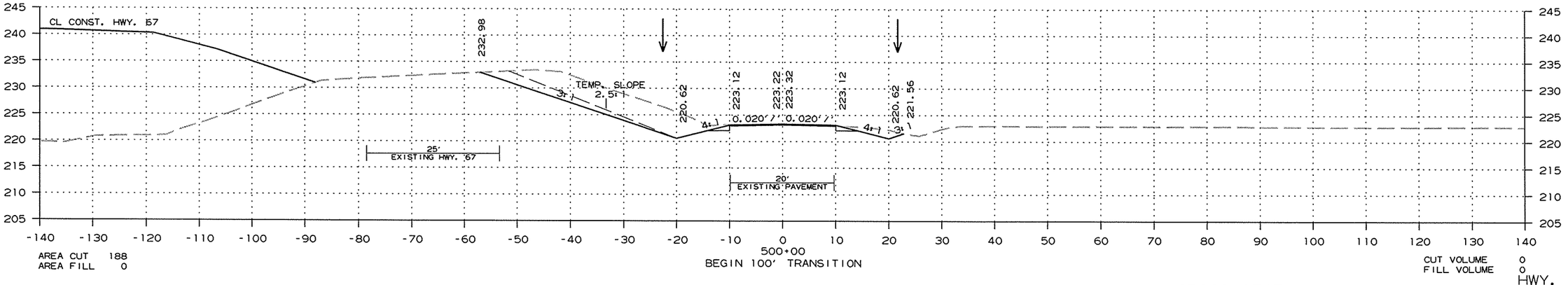
R061084.DGN

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.		061084	125	126

(2) CROSS SECTIONS - HWY. 51







HWY. 51

CROSS SECTION STA. 500+00 TO STA. 502+00

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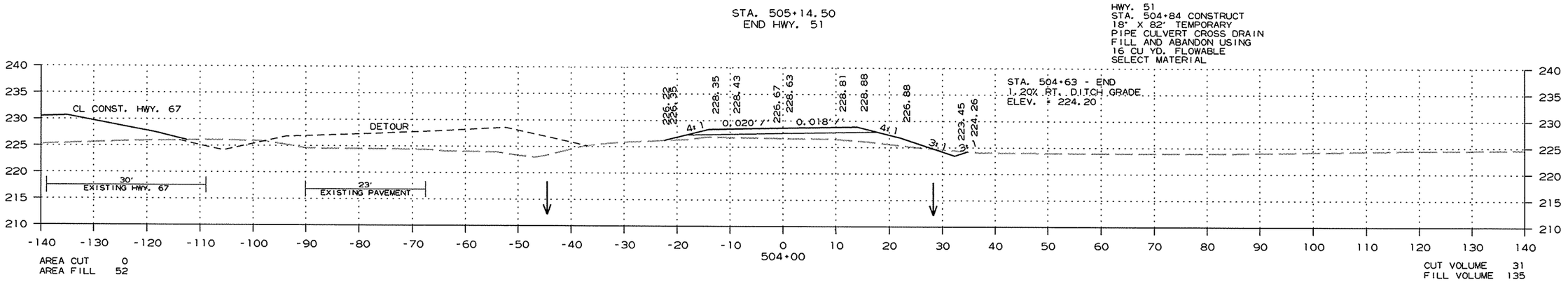
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		061084	126	126

(2) CROSS SECTIONS - HWY. 51



HWY. 51
CROSS SECTION STA. 503+00 TO STA. 505+00

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