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.		100760	1	133

(2) LEFT HAND CHUTE OF LITTLE RIVER STRS. & APPRS. (S)

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONSTRUCTION PLANS FOR STATE HIGHWAY

LEFT HAND CHUTE OF LITTLE RIVER STRS. & APPRS. (S)

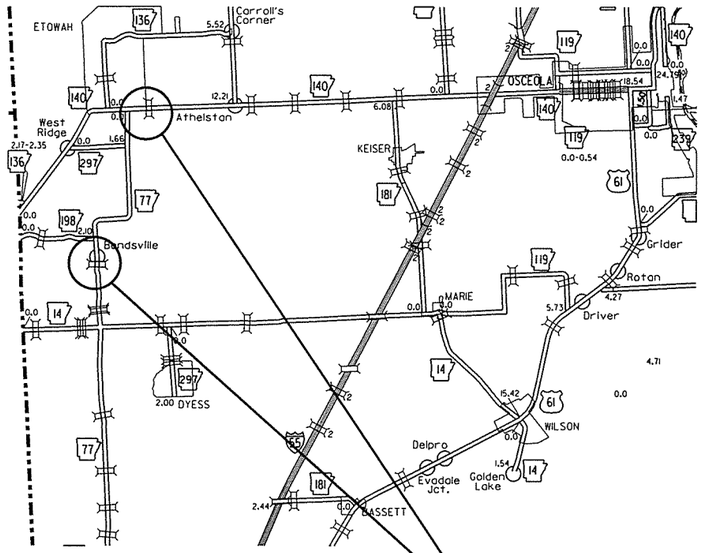
MISSISSIPPI COUNTY

ROUTES 77 & 140 SECTIONS 3 & 2

JOB 100760

FED. AID PROJ. STPF-0047(47)

NOT TO SCALE



VICINITY MAP

PROJECT LOCATIONS

BRIDGE DATA

(1) BR. END STA. 109+87.78
BRIDGE NO. 07354
30'-00" CLEAR ROADWAY
442'-5¼" TOTAL LENGTH
145'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (44', 57', 44')
295'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (50', 60' 75', 60', 50')
BR. END STA. 114+30.22

BR. END STA. 215+54.47
(2) BRIDGE NO. 07355
40'-00" CLEAR ROADWAY
148'-0-¾" TOTAL LENGTH
147'-0' INTEGRAL W-BEAM UNIT (45', 57', 45')
BR. END STA. 217+02.53

STA. 121+50.00

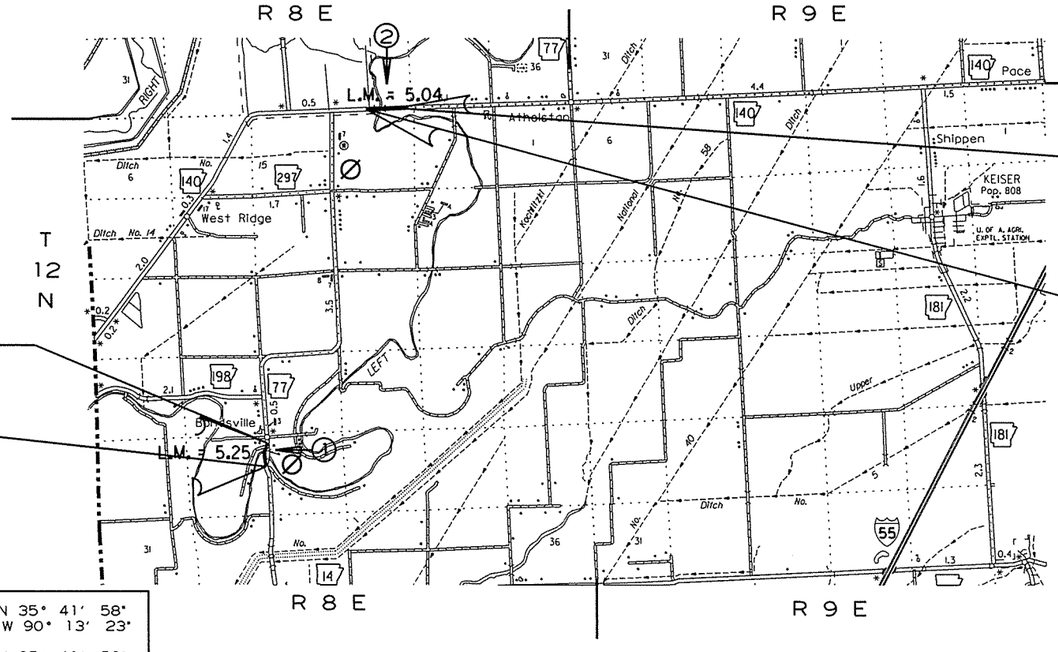
END SITE 1 (HWY. 77)

STA. 101+00.00

BEGIN JOB 100760 &

BEGIN SITE 1 (HWY. 77)

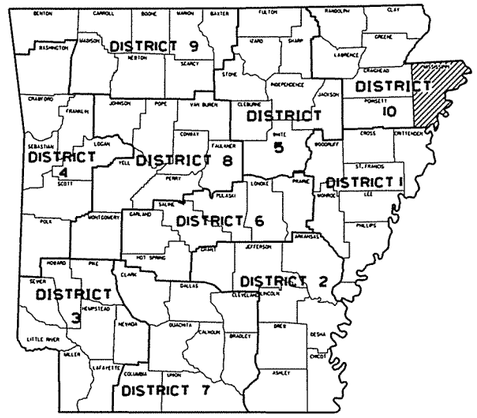
L. M. 5.07



SITE 1		SITE 2	
BEGINNING:	LAT: N 35° 38' 04" LONG: W 90° 14' 56"	BEGINNING:	LAT: N 35° 41' 58" LONG: W 90° 13' 23"
MID POINT:	LAT: N 35° 38' 16" LONG: W 90° 14' 57"	MID POINT:	LAT: N 35° 41' 58" LONG: W 90° 13' 13"
ENDING:	LAT: N 35° 38' 26" LONG: W 90° 14' 56"	ENDING:	LAT: N 35° 41' 57" LONG: W 90° 13' 05"

GROSS LENGTH OF	PROJECT	2990.00	FEET OR	0.566	MILES
NET " "	ROADWAY	2399.50	" "	0.454	"
NET " "	BRIDGES	590.50	" "	0.112	"
NET " "	PROJECT	2990.00	" "	0.566	"

P.E. 100760



ARK. HWY. DIST. NO. 10

• DESIGN TRAFFIC DATA •	SITE 1 HWY. 77	SITE 2 HWY. 140
DESIGN YEAR	2035	2035
2015 ADT	400	2300
2035 ADT	500	3000
2035 DHV	55	330
DIRECTIONAL DISTRIBUTION	60%	60%
TRUCKS	5%	12%
DESIGN SPEED	55 MPH	55 MPH

STA. 222+20.00

END SITE 2 (HWY. 140) &

END JOB 100760

STA. 212+80.00

BEGIN SITE 2 (HWY. 140)

L. M. 4.99

T 12 N

APPROVED

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

11-13-15

DEPUTY DIRECTOR AND CHIEF ENGINEER

11/9/2015

R100760.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.		100760	2	133

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

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.	DATE
1	TITLE SHEET			
2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES			
3 - 7	TYPICAL SECTIONS OF IMPROVEMENT			
8 - 11	SPECIAL DETAILS			
12 - 23	TEMPORARY EROSION CONTROL DETAILS			
24 - 34	MAINTENANCE OF TRAFFIC DETAILS			
35 - 36	PERMANENT PAVEMENT MARKING DETAILS			
37 - 42	QUANTITIES			
43	SCHEDULE OF BRIDGE QUANTITIES	07354 & 07355	57303	
44	SUMMARY OF QUANTITIES AND REVISIONS			
45 - 47	SURVEY CONTROL DETAILS			
48 - 52	PLAN AND PROFILE SHEETS			
53	LAYOUT OF BRIDGE OVER LEFT HAND CHUTE OF LITTLE RIVER (SITE 1) (SHEET 1 OF 2)	07354	57304	
54	LAYOUT OF BRIDGE OVER LEFT HAND CHUTE OF LITTLE RIVER (SITE 1) (SHEET 2 OF 2)	07354	57305	
55	DETAILS OF END BENTS LEFT HAND CHUTE OF LITTLE RIVER (SITE 1) (SHEET 1 OF 3)	07354	57306	
56	DETAILS OF END BENTS LEFT HAND CHUTE OF LITTLE RIVER (SITE 1) (SHEET 2 OF 3)	07354	57307	
57	DETAILS OF END BENTS LEFT HAND CHUTE OF LITTLE RIVER (SITE 1) (SHEET 3 OF 3)	07354	57308	
58	DETAILS OF INTERMEDIATE BENT NOS. 2, 3, 5, 6, 7 AND 8 LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)	07354	57309	
59	DETAILS OF INTERMEDIATE BENT NO. 4 LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)	07354	57310	
60	DETAILS OF 145'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SITE 1) (SHEET 1 OF 5)	07354	57311	
61	DETAILS OF 145'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SITE 1) (SHEET 2 OF 5)	07354	57312	
62	DETAILS OF 145'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SITE 1) (SHEET 3 OF 5)	07354	57313	
63	DETAILS OF 145'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SITE 1) (SHEET 4 OF 5)	07354	57314	
64	DETAILS OF 145'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SITE 1) (SHEET 5 OF 5)	07354	57315	
65	DETAILS COMMON TO 145'-0" & 295'-0" CONTINUOUS COMPOSITE W-BEAM UNITS (SITE 1) (SHEET 1 OF 3)	07354	57316	
66	DETAILS COMMON TO 145'-0" & 295'-0" CONTINUOUS COMPOSITE W-BEAM UNITS (SITE 1) (SHEET 2 OF 3)	07354	57317	
67	DETAILS COMMON TO 145'-0" & 295'-0" CONTINUOUS COMPOSITE W-BEAM UNITS (SITE 1) (SHEET 3 OF 3)	07354	57318	
68	DETAILS OF 295'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SITE 1) (SHEET 1 OF 5)	07354	57319	
69	DETAILS OF 295'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SITE 1) (SHEET 2 OF 5)	07354	57320	
70	DETAILS OF 295'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SITE 1) (SHEET 3 OF 5)	07354	57321	
71	DETAILS OF 295'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SITE 1) (SHEET 4 OF 5)	07354	57322	
72	DETAILS OF 295'-0" CONTINUOUS COMPOSITE W-BEAM UNIT (SITE 1) (SHEET 5 OF 5)	07354	57323	
73	DETAILS OF JOINTS LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)	07354	57324	
74	DETAILS OF ELASTOMERIC BEARINGS LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)	07354	57325	
75	LAYOUT OF BRIDGE OVER LEFT HAND CHUTE OF LITTLE RIVER (SITE 2) (SHEET 1 OF 2)	07355	57326	
76	LAYOUT OF BRIDGE OVER LEFT HAND CHUTE OF LITTLE RIVER (SITE 2) (SHEET 2 OF 2)	07355	57327	
77	DETAILS OF END BENTS LEFT HAND CHUTE OF LITTLE RIVER (SITE 2)	07355	57328	
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79	DETAILS OF 147' INTEGRAL W-BEAM UNIT (SITE 2) (SHEET 1 OF 8)	07355	57330	
80	DETAILS OF 147' INTEGRAL W-BEAM UNIT (SITE 2) (SHEET 2 OF 8)	07355	57331	
81	DETAILS OF 147' INTEGRAL W-BEAM UNIT (SITE 2) (SHEET 3 OF 8)	07355	57332	
82	DETAILS OF 147' INTEGRAL W-BEAM UNIT (SITE 2) (SHEET 4 OF 8)	07355	57333	
83	DETAILS OF 147' INTEGRAL W-BEAM UNIT (SITE 2) (SHEET 5 OF 8)	07355	57334	
84	DETAILS OF 147' INTEGRAL W-BEAM UNIT (SITE 2) (SHEET 6 OF 8)	07355	57335	
85	DETAILS OF 147' INTEGRAL W-BEAM UNIT (SITE 2) (SHEET 7 OF 8)	07355	57336	
86	DETAILS OF 147' INTEGRAL W-BEAM UNIT (SITE 2) (SHEET 8 OF 8)	07355	57337	
87	LAYOUT OF TEMPORARY BRIDGE OVER LEFT HAND CHUTE OF LITTLE RIVER (SITE 2)	07355	57338	
88	DETAILS OF PILE BENTS (16" DIA. UNFILLED SHELL PILES) PRECAST CONCRETE SPANS - 24'-6" RDWY.	07355	57339	
89	DETAILS OF UNFILLED STEEL SHELL PILES FOR TEMPORARY BRIDGE STRUCTURE	07355	57340	
90	DETAILS OF STANDARD 31'-0" PRECAST CONCRETE SPANS 28'-0" & 24'-6" CLEAR ROADWAYS		15240	4-10-03
91	DETAILS OF STANDARD 25'-0" PRECAST CONCRETE SPANS 28'-0" & 24'-6" CLEAR ROADWAYS		15241	2-27-14
92	DETAILS OF STANDARD PRECAST PARAPET RAILS FOR 19'-0", 25'-0, & 31'-0" PRECAST END SPANS		15230	2-27-14
93	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS		55000	2-27-14
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95	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS		55005	2-27-14
96	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE		55010	1-14-15
97	STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS		55021	2-27-14
98	STANDARD DETAILS FOR TYPE A APPROACH GUTTERS		55030A	9-02-15
99	STANDARD DETAILS FOR TYPE C APPROACH GUTTERS		55030C	2-27-14
100	STANDARD DETAILS FOR TYPE A APPROACH SLAB		55040A	2-27-14
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102	STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE BRIDGE END PROTECTION SYSTEM		55054	4-17-14
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104	FLARED END SECTION		FES-2	10-18-96
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115	PAVEMENT MARKING DETAILS		PM-1	9-12-13
116	DETAILS OF PIPE UNDERDRAIN		PU-1	4-10-03
117	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC		SE-2	10-18-96
118	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-1	9-02-15
119	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-2	9-02-15
120	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-3	9-02-15
121	TEMPORARY EROSION CONTROL DEVICES		TEC-1	12-15-11
122	TEMPORARY EROSION CONTROL DEVICES		TEC-2	6-02-94
123	TEMPORARY EROSION CONTROL DEVICES		TEC-3	11-03-94
124 - 133	CROSS SECTIONS			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15

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 100760	BIDDING REQUIREMENTS AND CONDITIONS
JOB 100760	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 100760	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 100760	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 100760	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 100760	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 100760	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 100760	DISPOSAL OF ILLEGAL DUMP MATERIAL
JOB 100760	GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION
JOB 100760	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 100760	HIGH PERFORMANCE PAVEMENT MARKING
JOB 100760	MANDATORY ELECTRONIC CONTRACT
JOB 100760	NESTING SITES OF MIGRATORY BIRDS
JOB 100760	PARTNERING REQUIREMENTS
JOB 100760	PLASTIC PIPE
JOB 100760	SECTION 404 NATIONWIDE 23 PERMIT REQUIREMENTS
JOB 100760	SHORING FOR CULVERTS
JOB 100760	SOIL STABILIZATION
JOB 100760	STORM WATER POLLUTION PREVENTION PLAN
JOB 100760	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 100760	UTILITY ADJUSTMENTS
JOB 100760	VALUE ENGINEERING
JOB 100760	WARM MIX ASPHALT
JOB 100760	WELLHEAD PROTECTION

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
5. 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.
6. 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.
7. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
8. 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.

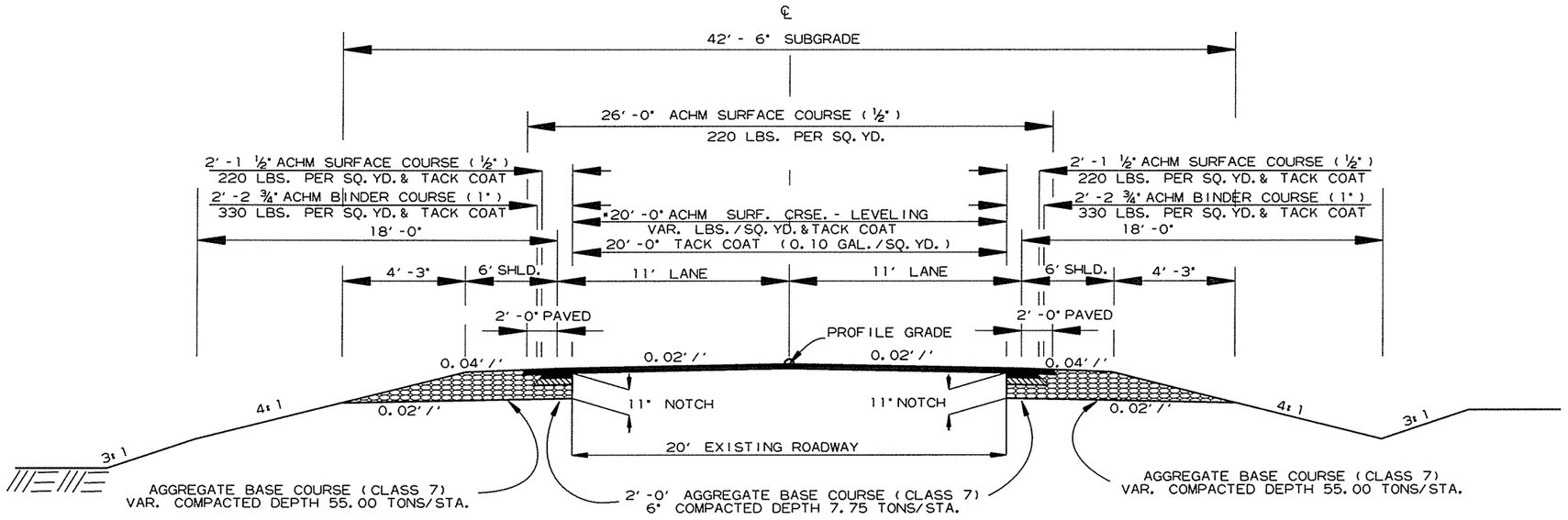
12/2/2015

R100760.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.		100760	3	133

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



TYPICAL SECTIONS OF IMPROVEMENT

SITE 1 (HWY. 77) - NOTCH & WIDENING

STA. 101+00.00 TO STA. 102+00.00
STA. 119+00.00 TO STA. 121+50.00

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

NOTES:

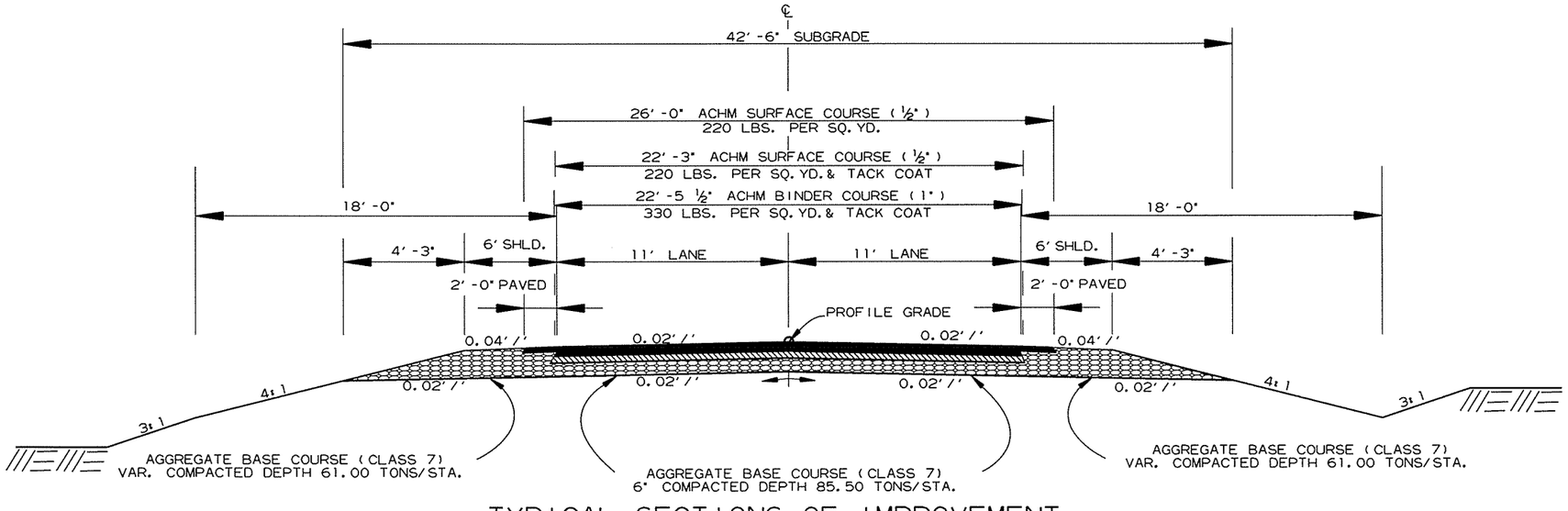
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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

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 WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS PAY ITEMS.

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

AFTER PLACING FINAL 2" OF SURFACE COURSE, THE EXISTING SLOPE SHALL BE REDRESSED AS DIRECTED BY THE ENGINEER PRIOR TO SEEDING IN ORDER TO MAINTAIN A UNIFORM SLOPE. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR VARIOUS CONTRACT ITEMS.



TYPICAL SECTIONS OF IMPROVEMENT

SITE 1 (HWY. 77) - FULL DEPTH

STA. 102+00.00 TO STA. 109+57.78
STA. 114+60.22 TO STA. 119+00.00

SITE 1
TYPICAL SECTIONS OF IMPROVEMENT

6/30/2015

R100760.DGN

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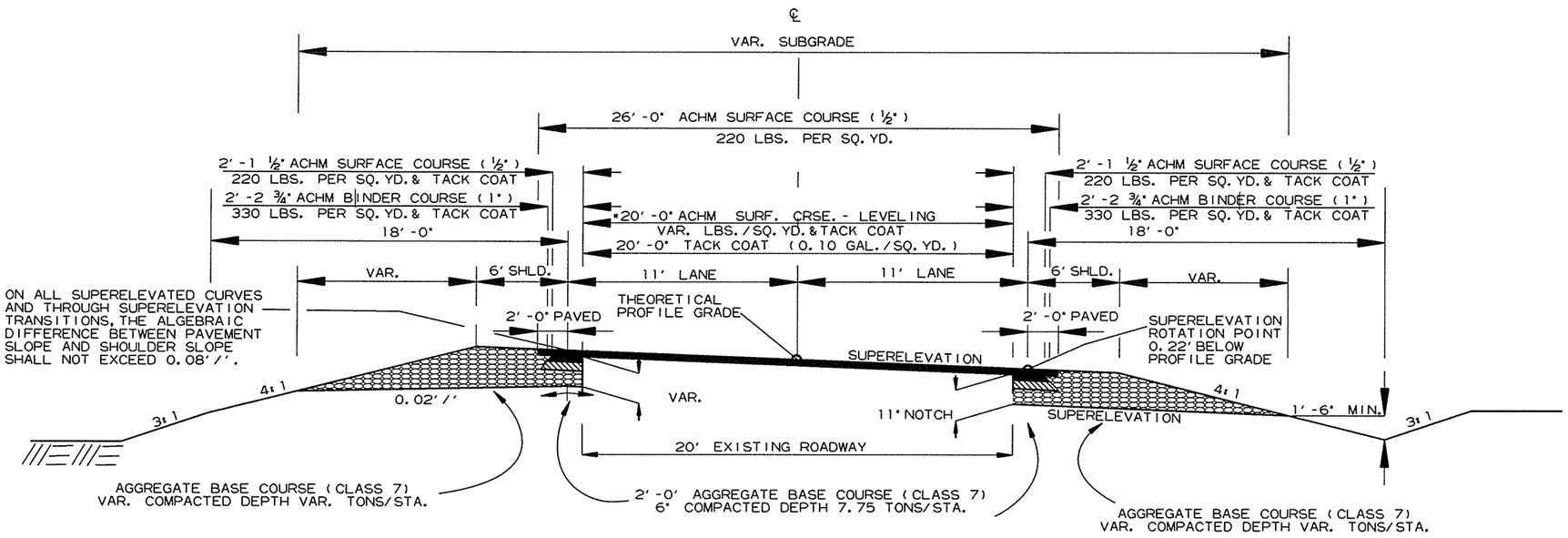
				JOB NO.		100760	4	133

(2) TYPICAL SECTIONS OF IMPROVEMENT



SITE 1 (HWY. 77)

TYPICAL SECTIONS OF IMPROVEMENT

SUPERELEVATION - NOTCH & WIDENING

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

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

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

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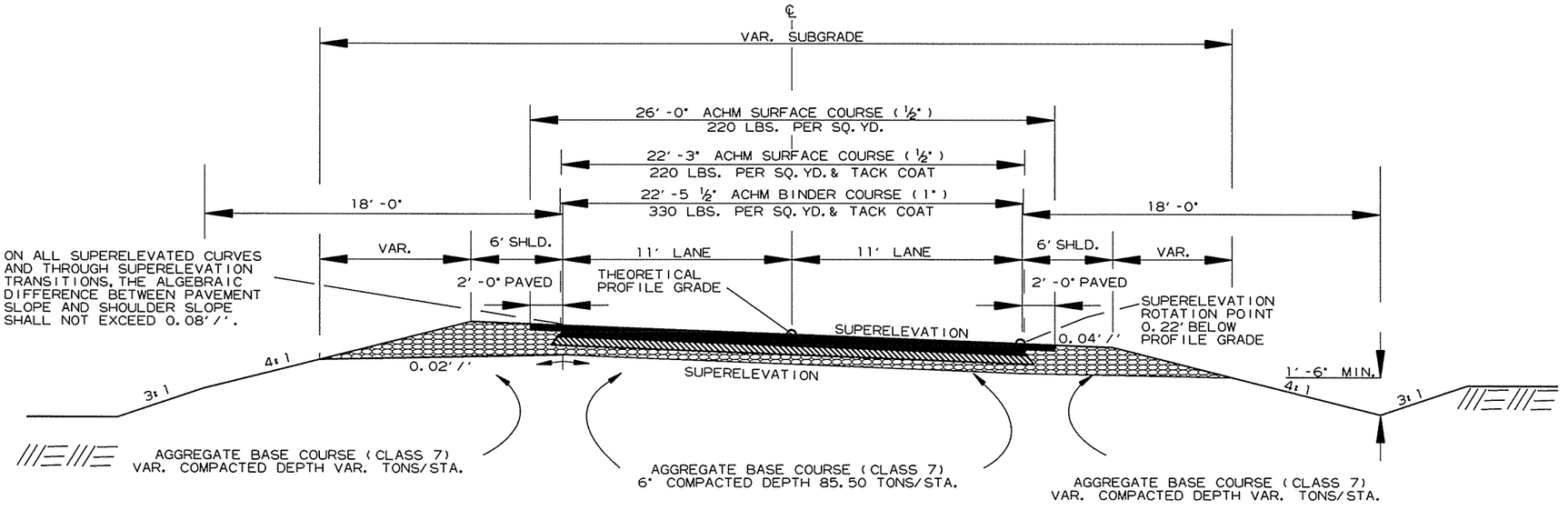
AFTER PLACING FINAL 2" OF SURFACE COURSE, THE EXISTING SLOPE SHALL BE REDRESSED AS DIRECTED BY THE ENGINEER PRIOR TO SEEDING IN ORDER TO MAINTAIN A UNIFORM SLOPE. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR VARIOUS CONTRACT ITEMS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



TYPICAL SECTIONS OF IMPROVEMENT
SITE 1- SUPERELEVATION

6/30/2015

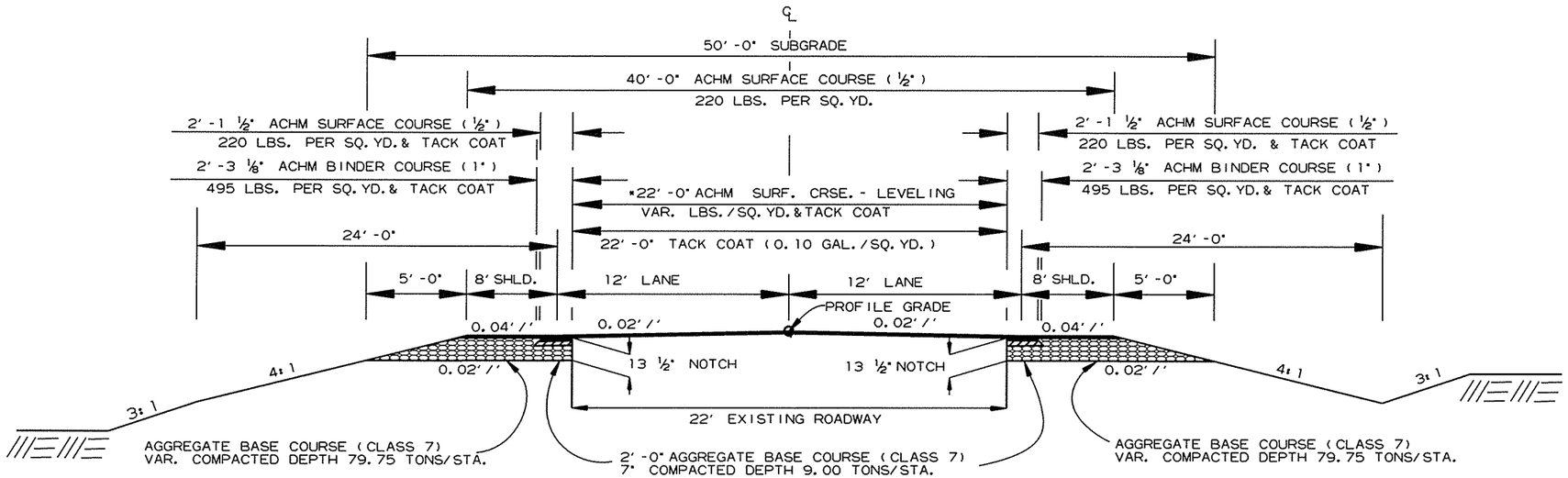
R100760.DGN

SITE 1
TYPICAL SECTIONS OF IMPROVEMENT

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.		100760	5	133

(2) TYPICAL SECTIONS OF IMPROVEMENT

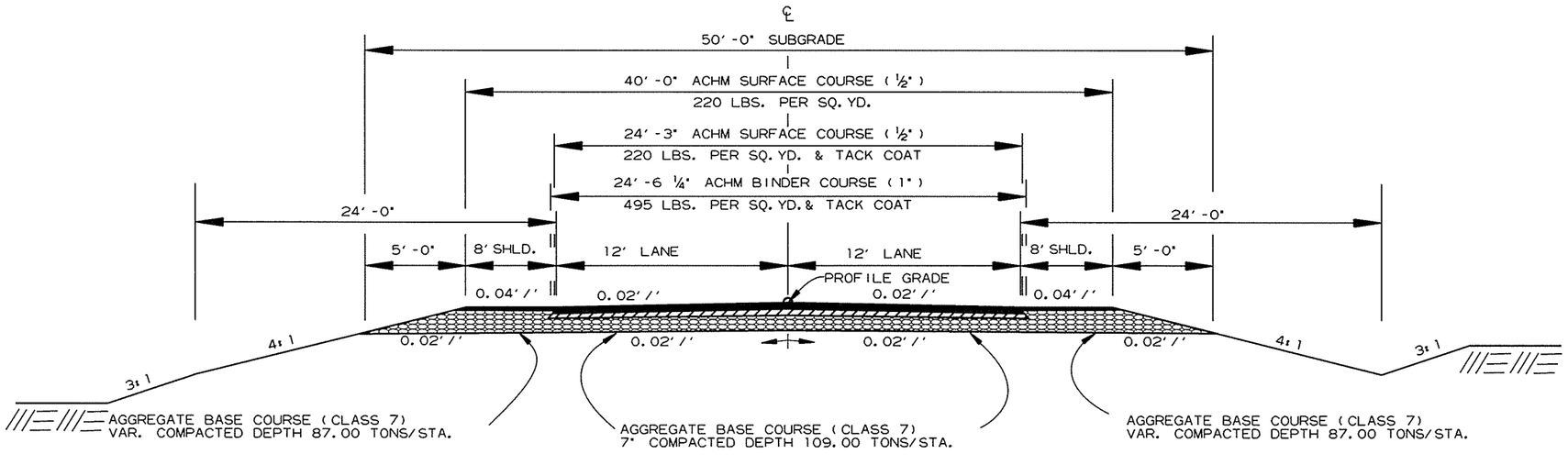
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



TYPICAL SECTION OF IMPROVEMENT
SITE 2 - NOTCH & WIDENING

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

STA. 212+80.00 TO STA. 214+00.00
STA. 218+00.00 TO STA. 222+19.86



TYPICAL SECTION OF IMPROVEMENT
SITE 2 - FULL DEPTH

STA. 214+00.00 TO STA. 215+17.97
STA. 217+39.03 TO STA. 218+00.00

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

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

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 WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS PAY ITEMS.

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

AFTER PLACING FINAL 2" OF SURFACE COURSE, THE EXISTING SLOPE SHALL BE REDRESSED AS DIRECTED BY THE ENGINEER PRIOR TO SEEDING IN ORDER TO MAINTAIN A UNIFORM SLOPE. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR VARIOUS CONTRACT ITEMS.

SITE 2
TYPICAL SECTION OF IMPROVEMENTS

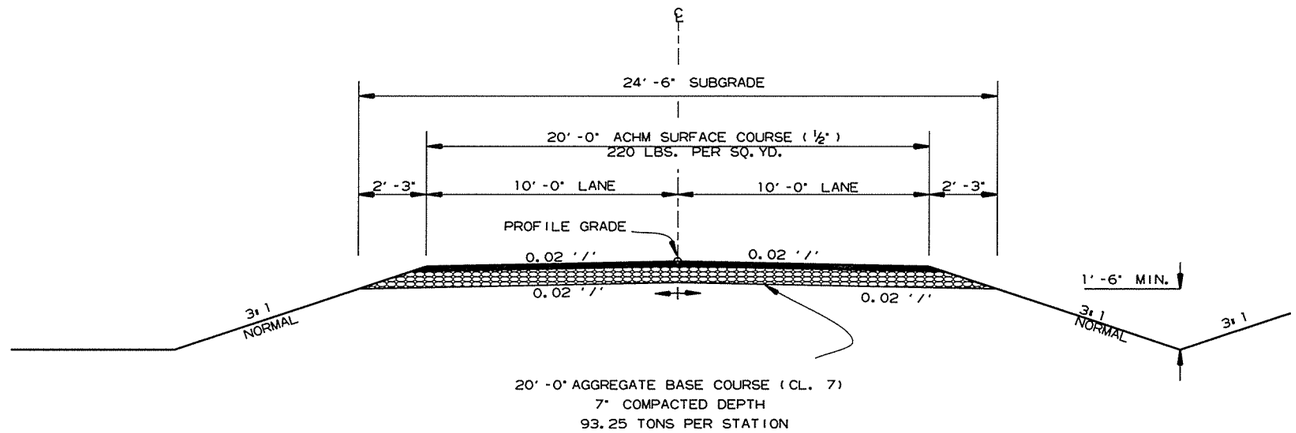
6/30/2015

R100760.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.		100760	6	133

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

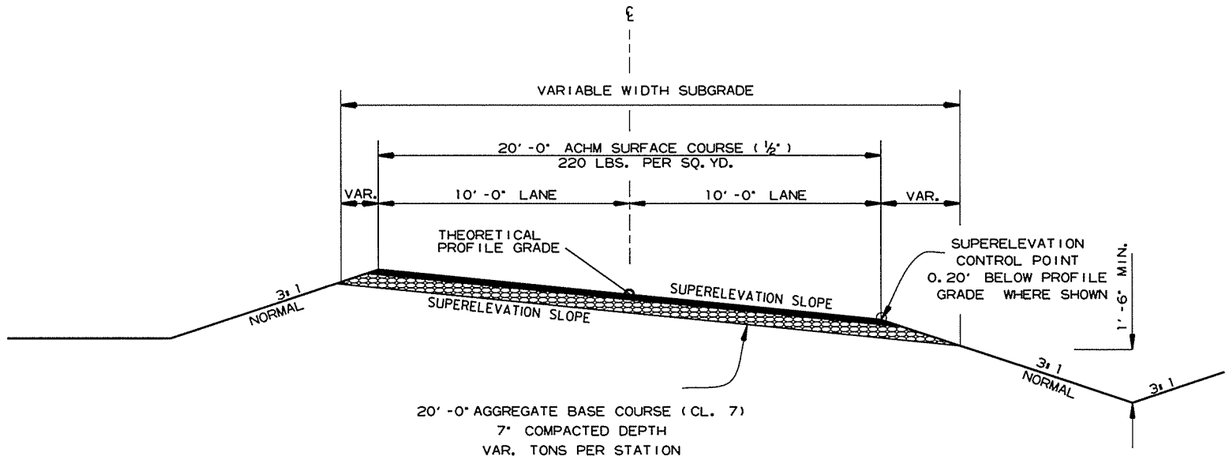


TYPICAL SECTION OF IMPROVEMENT - NORMAL
COUNTY RD. S 57

NOTES:

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

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



TYPICAL SECTION OF IMPROVEMENT - SUPERELEVATION
COUNTY RD. S 57

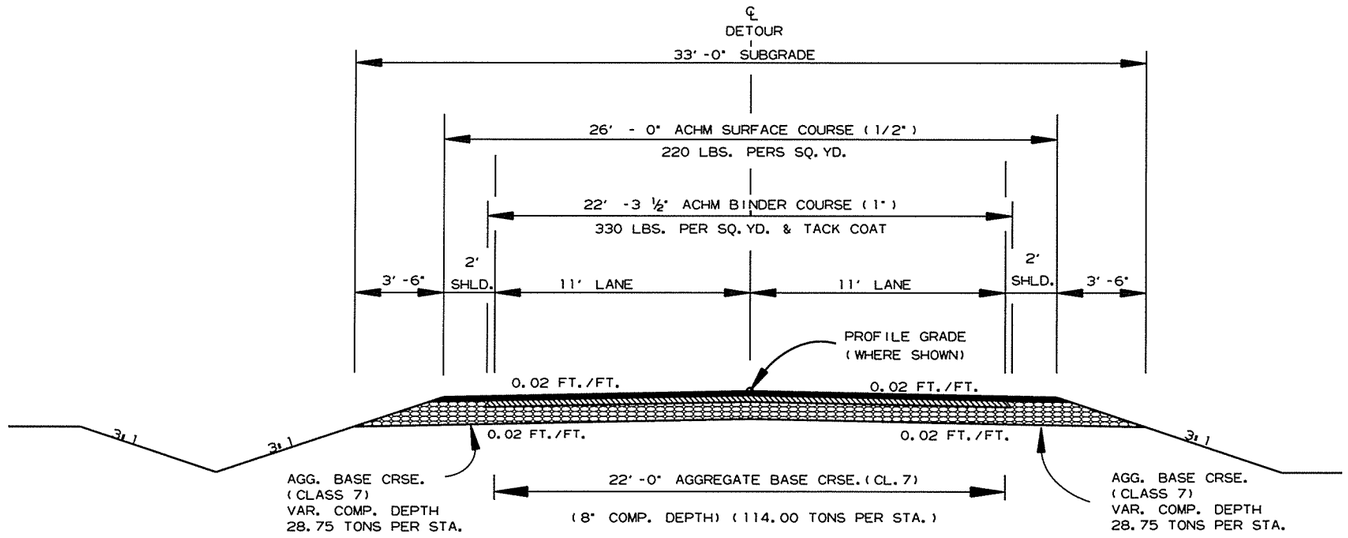
9/22/2015

R100760.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.		100760	7	133

(2) TYPICAL SECTIONS OF IMPROVEMENT

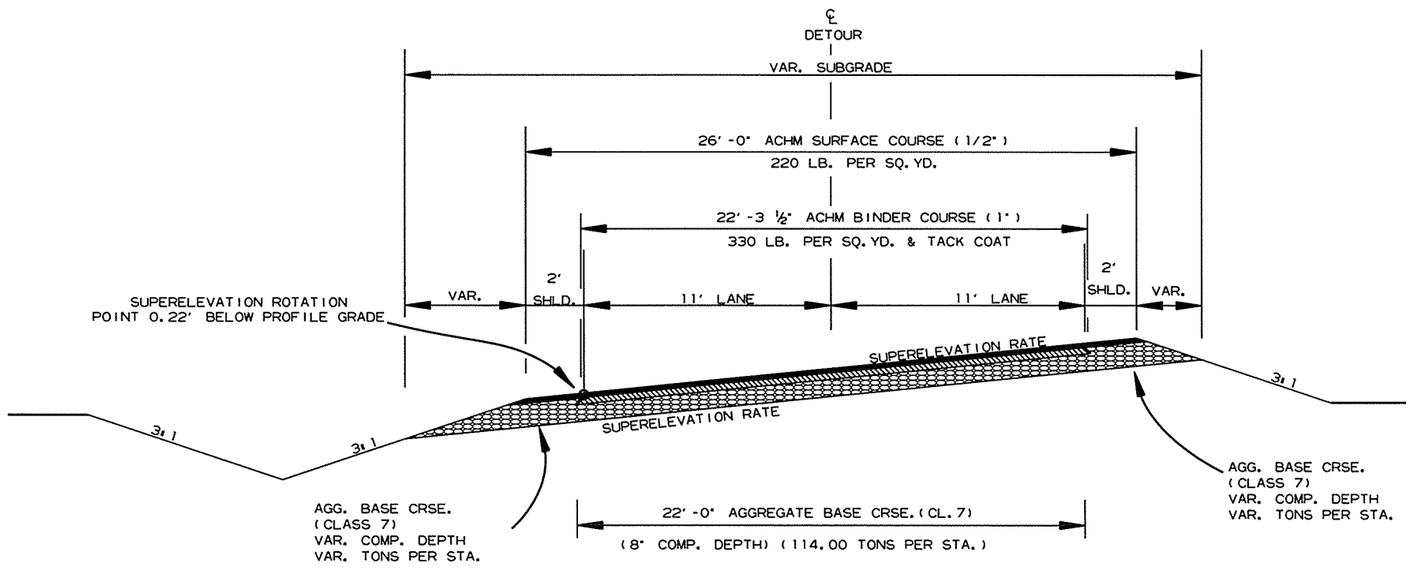
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



TYPICAL SECTIONS OF IMPROVEMENT
DETOUR ROAD - NORMAL CROWN

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

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



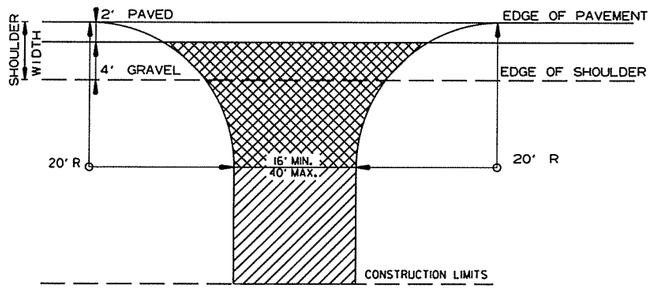
TYPICAL SECTIONS OF IMPROVEMENT
DETOUR ROAD - SUPERELEVATION

9/22/2015

R100760.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.		100760	8	133

(2) SPECIAL DETAILS

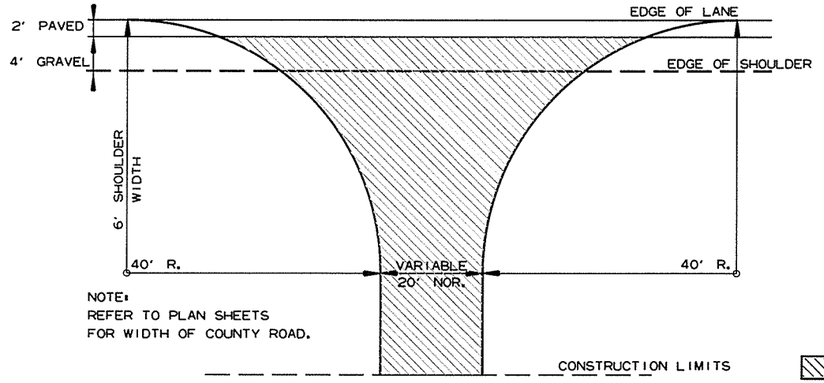


A.C.H.M. SURFACE COURSE (1/2") (220 LBS./SQ. YD.) & AGGREGATE BASE COURSE (CLASS 7) (7" COMPACTED DEPTH)

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

DETAIL FOR HWY. 77 DRIVEWAY TURNOUTS

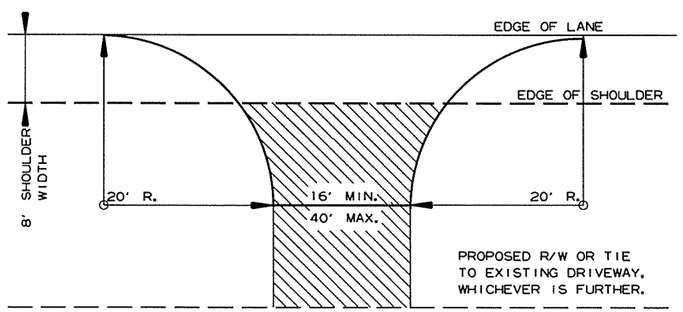
TURNOUTS SHALL BE MODIFIED AS NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.



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

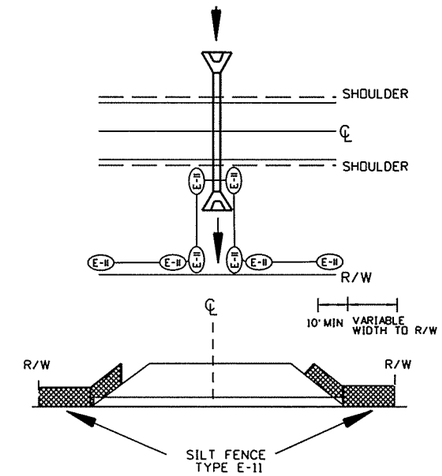
DETAIL FOR COUNTY ROAD TURNOUTS OPEN SHOULDER SECTION

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



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

DETAIL FOR HWY. 140 DRIVEWAY TURNOUTS



DETAIL OF SILT FENCE AT CROSS DRAINS

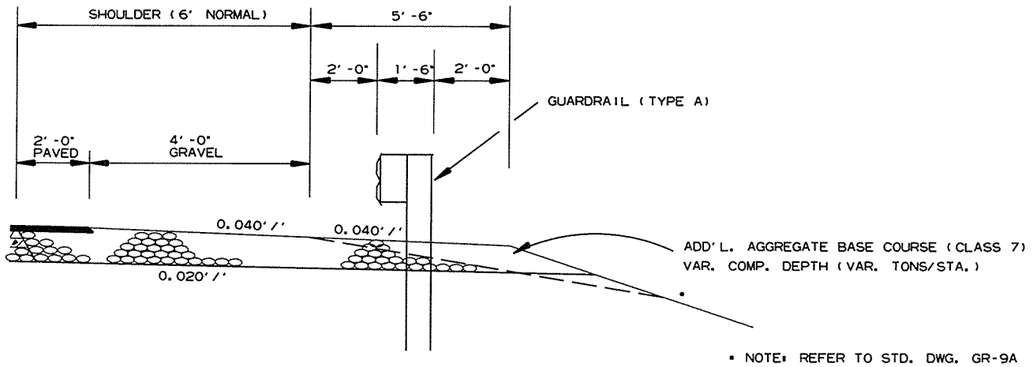
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

6/4/2015

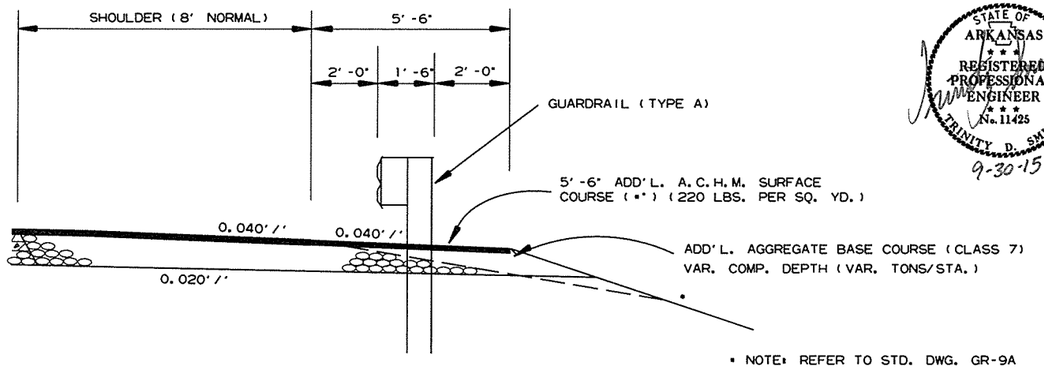
R100760.DGN

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.		100760	9	133

(2) SPECIAL DETAILS

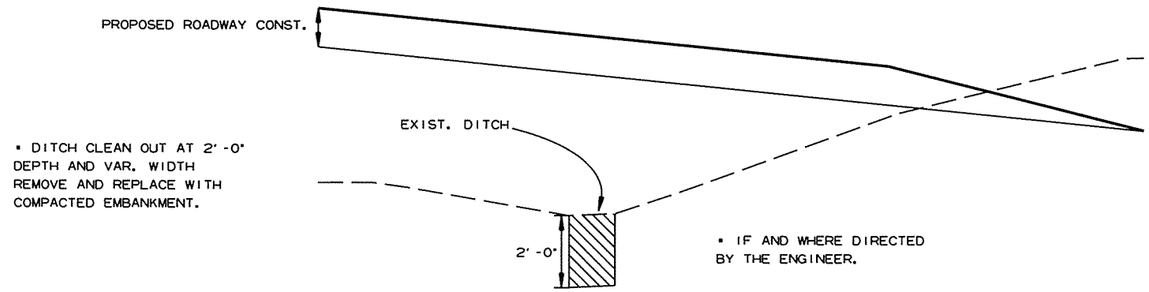


WIDENING FOR GUARDRAIL
(SITE 1 HWY. 77)

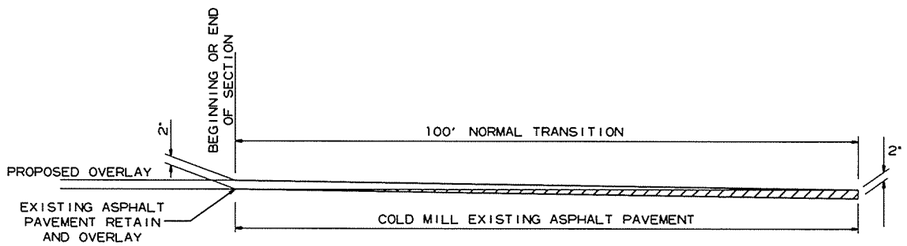


STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

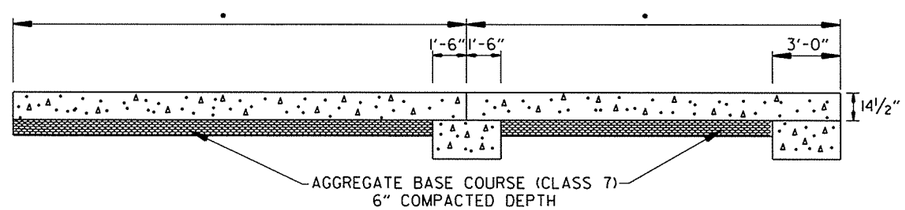
WIDENING FOR GUARDRAIL
(SITE 2 HWY. 140)



DITCH CLEAN OUT



DETAIL FOR TRANSITIONS



SPECIAL DETAIL OF APPROACH SLAB

• REFER TO BRIDGE DRAWINGS

7/8/2015

R110570.DGN

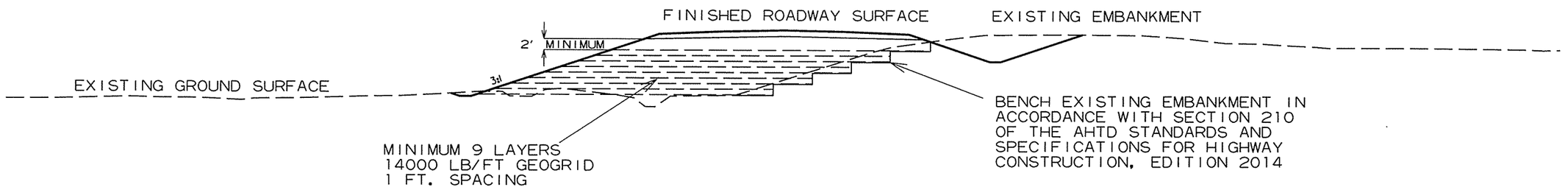
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100760	10	133

(2) SPECIAL DETAILS

NOTE:
GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION
(FOR FURTHER DETAILS SEE THE SPECIAL PROVISION AND CROSS SECTIONS)

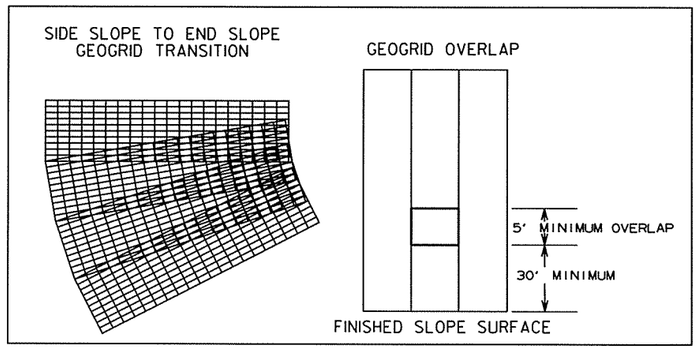
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

NEW EMBANKMENT



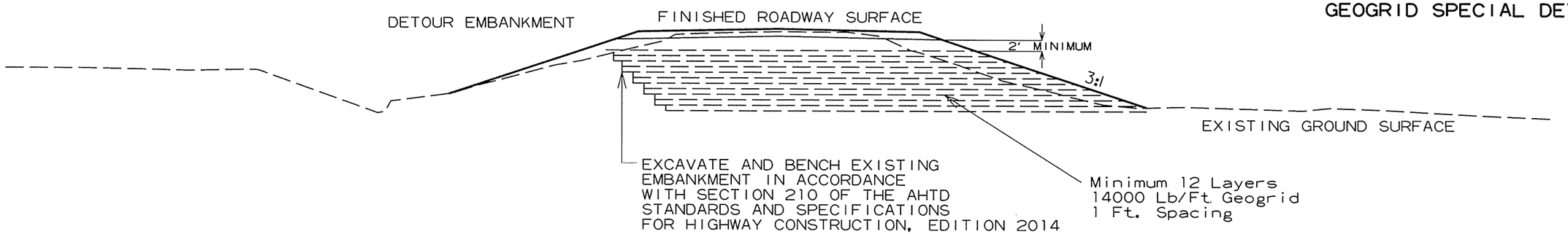
STA. 108+80 TO STA. 110+53
STA. 114+12 TO STA. 115+40

COMPACTED EMBANKMENT (SPECIAL)
BRIDGE NO. 07354



GEOGRID SPECIAL DETAILS

NEW EMBANKMENT



STA. 214+45 TO STA. 215+75
STA. 216+82 TO STA. 218+10

COMPACTED EMBANKMENT (SPECIAL)
BRIDGE NO. 07355

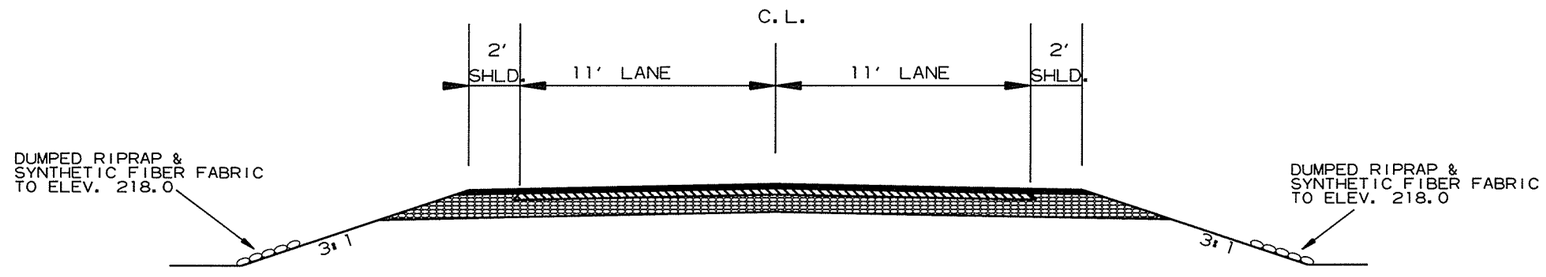
8/25/2015

R110570.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.		100760	11	133

(2) SPECIAL DETAILS

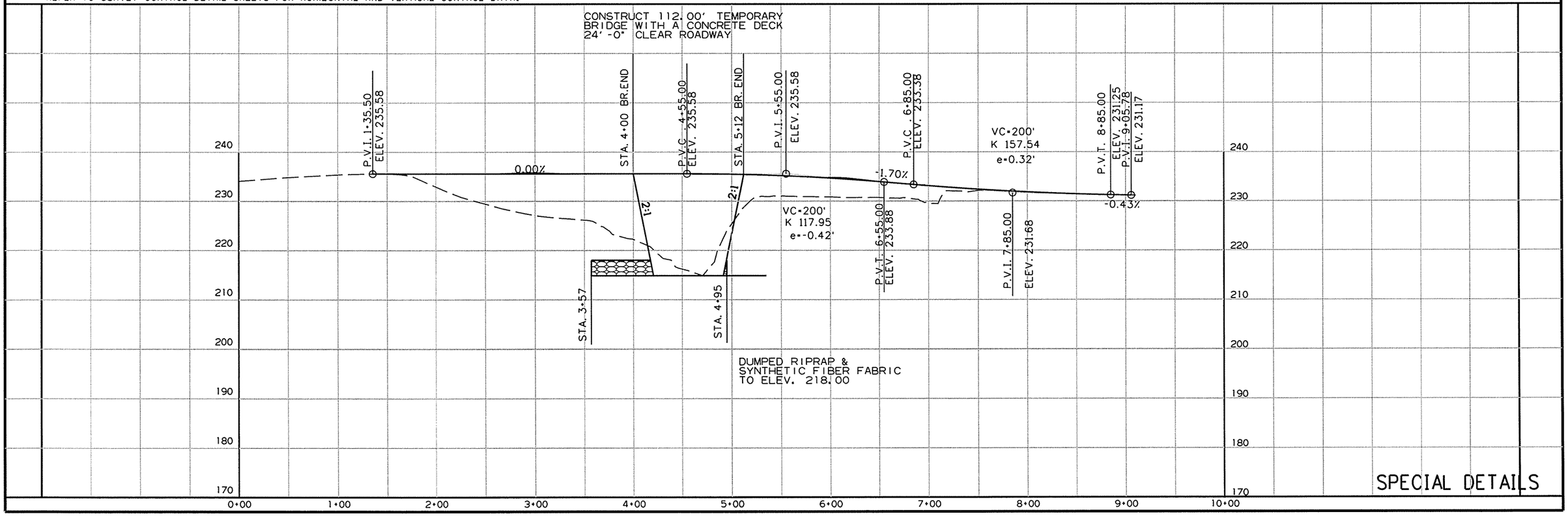
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE PERENNIAL STREAM BANK ELEVATION IS 226.0 FT. MSL.

TYPICAL SECTIONS OF IMPROVEMENT - DETOUR ROAD
STA. 3+57 - STA. 4+95

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



SPECIAL DETAILS

8/25/2015

R100760.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.		100760	12	133

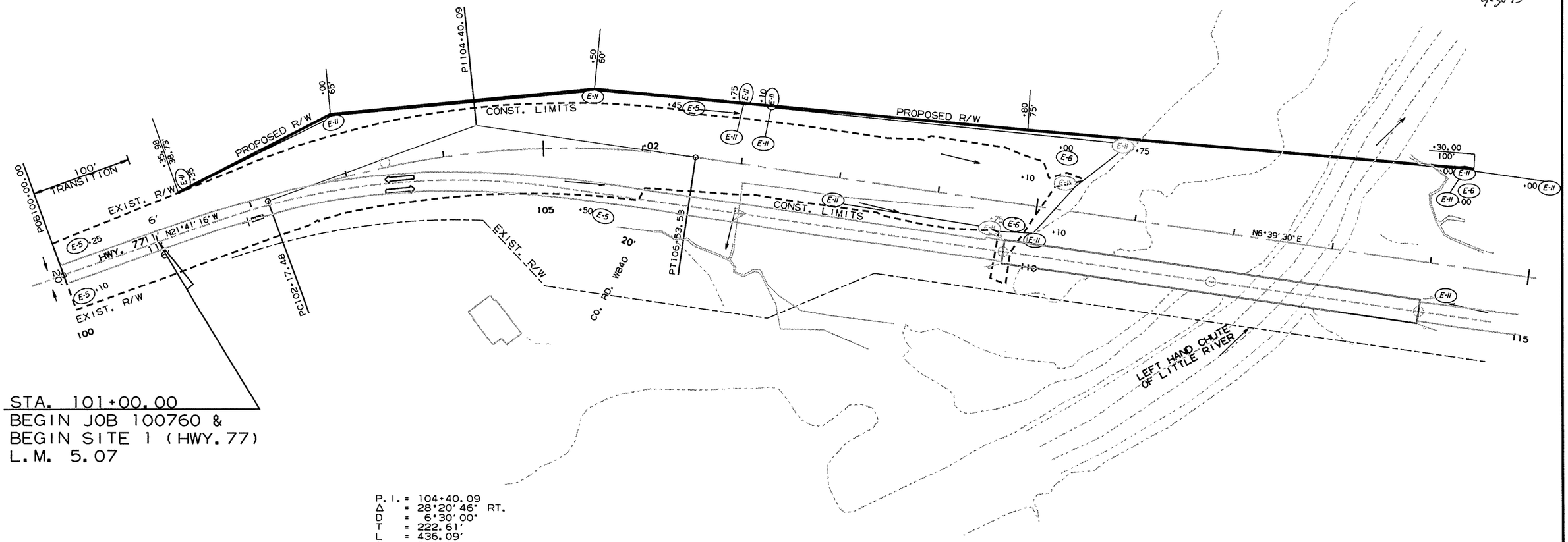
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

EROSION CONTROL GENERAL NOTES

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

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



P.I. = 104+40.09
Δ = 28°20' 46" RT.
D = 6°30' 00"
T = 222.61'
L = 436.09'
PC = 102+17.48
PT = 106+53.58
e = 0.100 '/'
Ls = 350'

REVISIONS

DATE OF REVISION	REVISION

9/17/2015

R100760.DGN

SAND BAG DITCH CHECKS (E-5)

STA. 100+10	RT.	1 INSTALLATION	22 BAGS
STA. 100+25	LT.	1 INSTALLATION	22 BAGS
STA. 105+50	RT.	1 INSTALLATION	22 BAGS
STA. 106+45	LT.	1 INSTALLATION	22 BAGS

ROCK DITCH CHECKS (E-6)

STA. 109+75	RT.	1 INSTALLATION	3 CU. YDS.
STA. 110+00	LT.	1 INSTALLATION	3 CU. YDS.
STA. 115+30	LT.	1 INSTALLATION	3 CU. YDS.

SILT FENCE (E-11)

STA. 101+35 -	STA. 106+75	LT.	615'
STA. 107+10 -	STA. 110+75	LT.	515'
STA. 108+00 -	STA. 110+00	RT.	55'
STA. 114+00 -	STA. 115+00	LT.	125'

LEGEND

E-5	= SAND BAG DITCH CHECK
E-6	= ROCK DITCH CHECK
E-11	= SILT FENCE
E-14	= SEDIMENT BASIN

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

SITE 1 - CLEARING AND GRUBBING TEMPORARY EROSION 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.		100760	13	133

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

CO. RD. CURVE DATA

PI = 4+30.54
Δ = 26°38' 46 RT.
D = 24°45' 00"
T = 54.82'
L = 107.66'
PC = 3+75.72
PT = 4+83.38
e = 0.100 '/'
Ls = 250'

SILT FENCE (E-11)

STA. 115+00 -	STA. 115+80	LT.	90'
STA. 115+20 -	STA. 117+40	LT.	320'
STA. 116+00 -	STA. 117+05	LT.	200'
STA. 117+20 -	STA. 117+50	LT.	60'
STA. 117+95 -	STA. 118+60	LT.	65'
STA. 118+00 -	STA. 118+30	RT.	65'
STA. 118+50 -	STA. 122+50	LT.	410'
STA. 118+00 -	STA. 118+30	LT.	90'
STA. 120+00 -	STA. 122+50	RT.	250'

EROSION CONTROL GENERAL NOTES

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

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

SILT FENCE (E-11) CO. RD. S 57

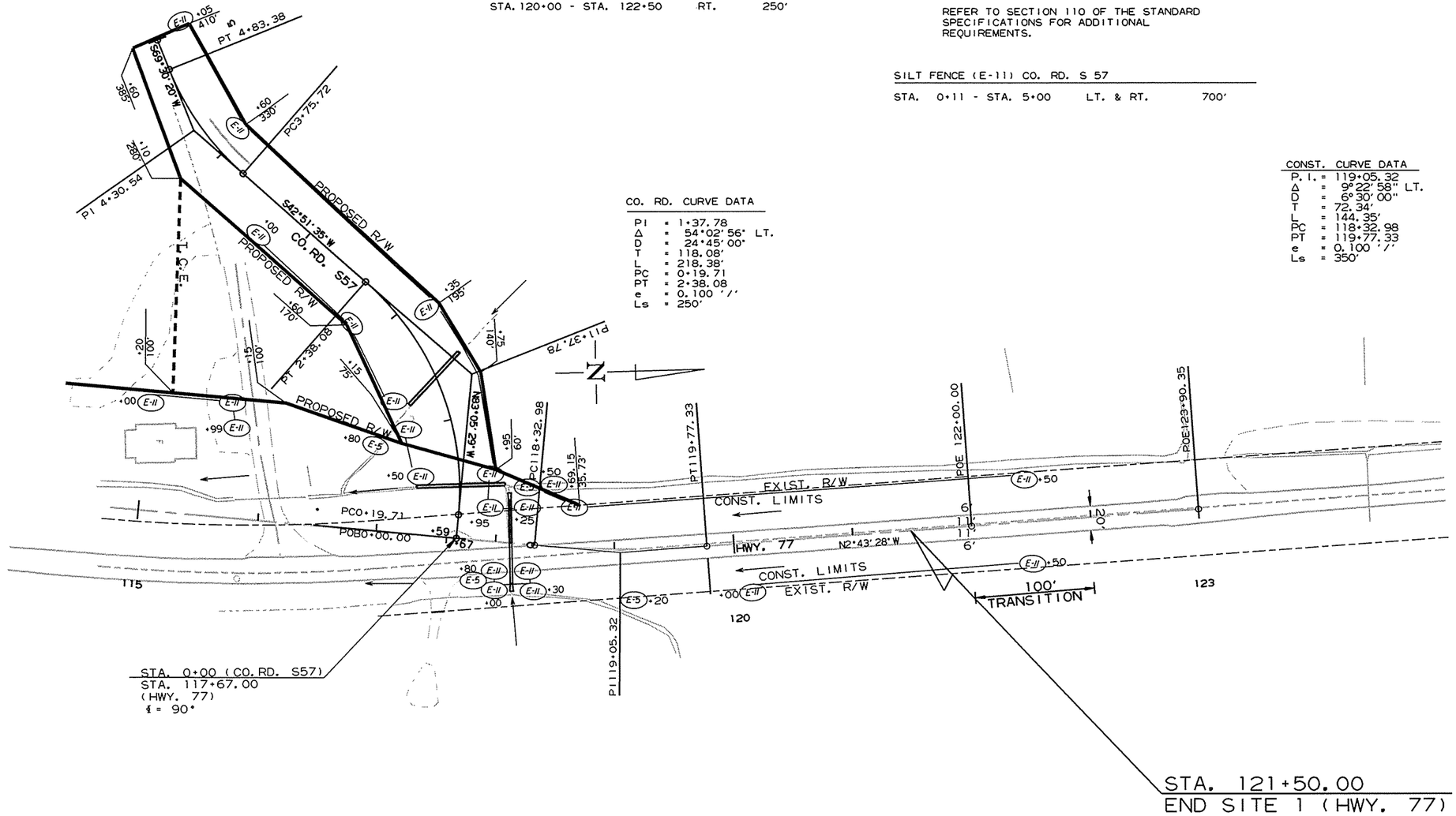
STA. 0+11 - STA. 5+00 LT. & RT. 700'

CONST. CURVE DATA

P. I. = 119+05.32
Δ = 9° 22' 58" LT.
D = 6° 30' 00"
T = 72.34'
L = 144.35'
PC = 118+32.98
PT = 119+77.33
e = 0.100 '/'
Ls = 350'

CO. RD. CURVE DATA

PI = 1+37.78
Δ = 54°02' 56" LT.
D = 24°45' 00"
T = 118.08'
L = 218.38'
PC = 0+19.71
PT = 2+38.08
e = 0.100 '/'
Ls = 250'



SITE 1

REVISIONS

DATE OF REVISION	REVISION

LEGEND

E-5	= SAND BAG DITCH CHECK
E-6	= ROCK DITCH CHECK
E-11	= SILT FENCE
E-14	= SEDIMENT BASIN

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

SITE 1 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

8/26/2015

R100760.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.		100760	14	133

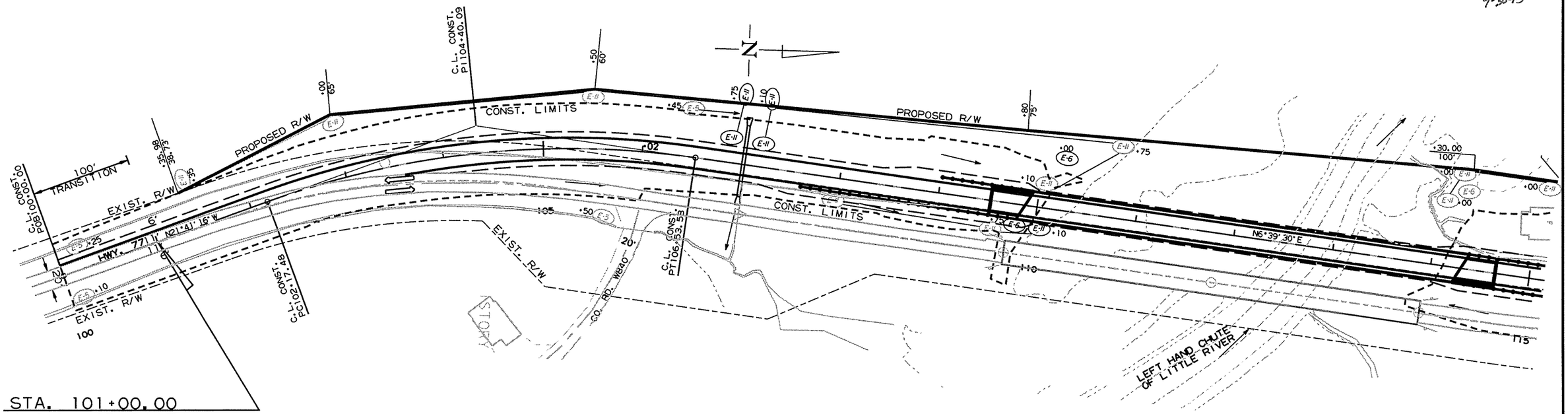
(2) TEMPORARY EROSION CONTROL DETAILS

EROSION CONTROL GENERAL NOTES

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

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



STA. 101+00.00
BEGIN JOB 100760 &
BEGIN SITE 1 (HWY. 77)
L.M. 5.07

P.I. = 104+40.09
Δ = 28°20'46" RT.
D = 6°30'00"
T = 222.61'
L = 436.09'
PC = 102+17.48
PT = 106+53.58
e = 0.100 '/'
Ls = 350'

SAND BAG DITCH CHECKS (E-5)

STA. 100+10	RT.	1	INSTALLATION	22 BAGS
STA. 100+25	LT.	1	INSTALLATION	22 BAGS
STA. 105+50	RT.	1	INSTALLATION	22 BAGS
STA. 106+45	LT.	1	INSTALLATION	22 BAGS

ROCK DITCH CHECKS (E-6)

STA. 109+75	RT.	1	INSTALLATION	3 CU. YDS.
STA. 110+00	LT.	1	INSTALLATION	3 CU. YDS.
STA. 115+30	LT.	1	INSTALLATION	3 CU. YDS.

SILT FENCE (E-11)

STA. 101+35 - STA. 106+75	LT.	615'
STA. 107+10 - STA. 110+75	LT.	515'
STA. 108+00 - STA. 110+00	RT.	55'
STA. 114+00 - STA. 115+00	LT.	125'

LEGEND

E-5	= SAND BAG DITCH CHECK
E-6	= ROCK DITCH CHECK
E-11	= SILT FENCE
E-14	= SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

8/25/2015

R100760.DGN

SITE 1 - STAGE 1
TEMPORARY EROSION 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.		100760	15	133

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

CO. RD. CURVE DATA

PI = 4+30.54
Δ = 26°38' 46 RT.
D = 24°45' 00"
T = 54.82'
L = 107.66'
PC = 3+75.72
PT = 4+83.38
e = 0.100 '/'
Ls = 250'

SAND BAG DITCH CHECKS (E-5)

STA. 117+00	LT.	1 INSTALLATION	22 BAGS
STA. 117+80	RT.	1 INSTALLATION	22 BAGS
STA. 118+15	LT.	1 INSTALLATION	22 BAGS
STA. 119+20	RT.	1 INSTALLATION	22 BAGS

EROSION CONTROL GENERAL NOTES

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

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

SILT FENCE (E-11)

STA. 115+00 - STA.	115+80	LT.	90'
STA. 115+20 - STA.	117+40	LT.	320'
STA. 116+00 - STA.	117+05	LT.	200'
STA. 117+20 - STA.	117+50	LT.	60'
STA. 117+95 - STA.	118+60	LT.	65'
STA. 118+00 - STA.	118+30	RT.	65'
STA. 118+50 - STA.	122+50	LT.	410'
STA. 118+00 - STA.	118+30	LT.	90'
STA. 120+00 - STA.	122+50	RT.	250'

SILT FENCE (E-11) CO. RD. S 57

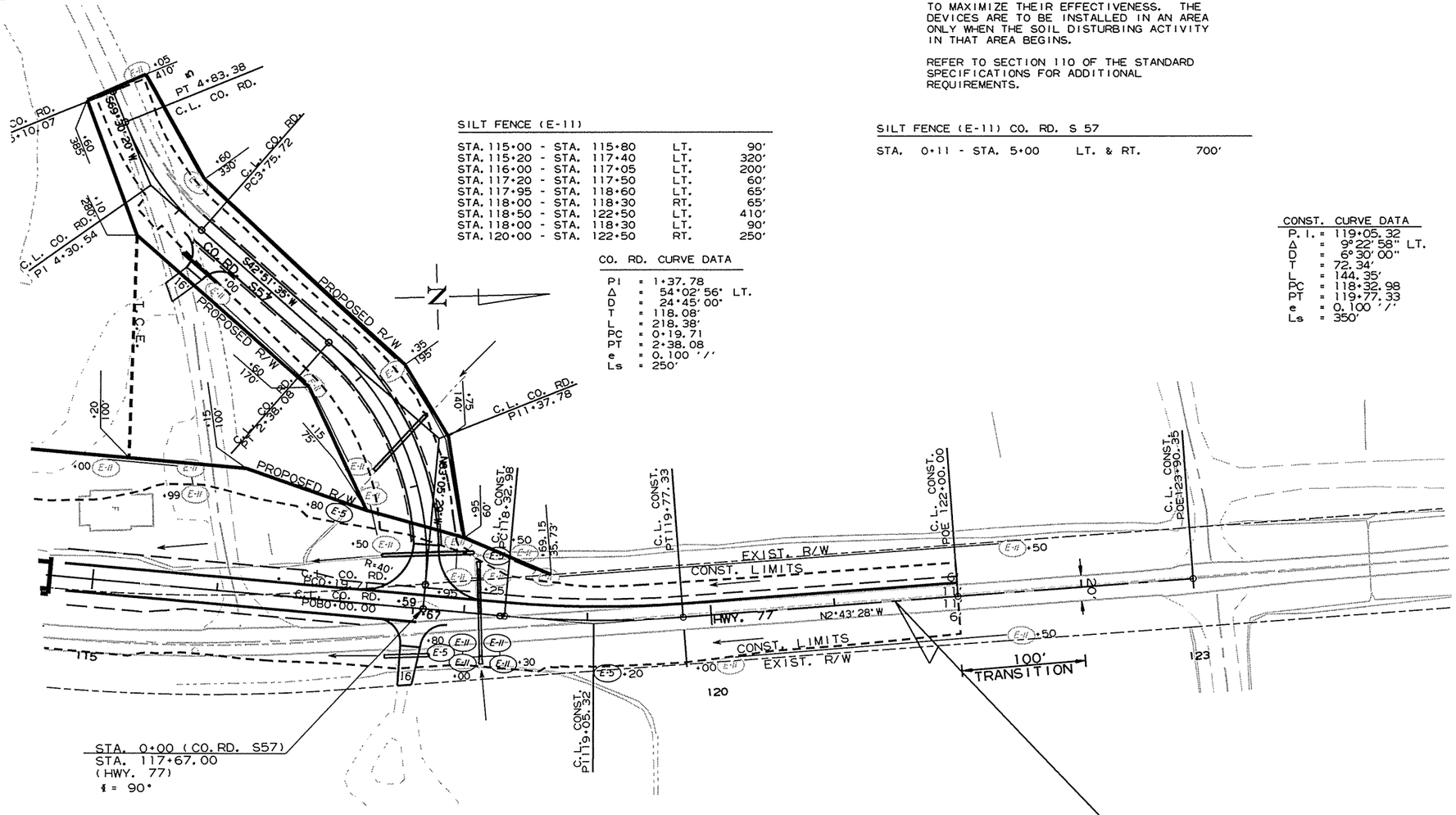
STA. 0+11 - STA. 5+00 LT. & RT. 700'

CO. RD. CURVE DATA

PI = 1+37.78
Δ = 54°02' 56" LT.
D = 24°45' 00"
T = 118.08'
L = 218.38'
PC = 0+19.71
PT = 2+38.08
e = 0.100 '/'
Ls = 250'

CONST. CURVE DATA

P.I. = 119+05.32
Δ = 9°22' 58" LT.
D = 6°30' 00"
T = 72.34'
L = 144.35'
PC = 118+32.98
PT = 119+77.33
e = 0.100 '/'
Ls = 350'



SITE 1

LEGEND

E-5	= SAND BAG DITCH CHECK
E-6	= ROCK DITCH CHECK
E-11	= SILT FENCE
E-14	= SEDIMENT BASIN

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

REVISIONS

DATE OF REVISION	REVISION

SITE 1 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

8/26/2015

R100760.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.		100760	16	133

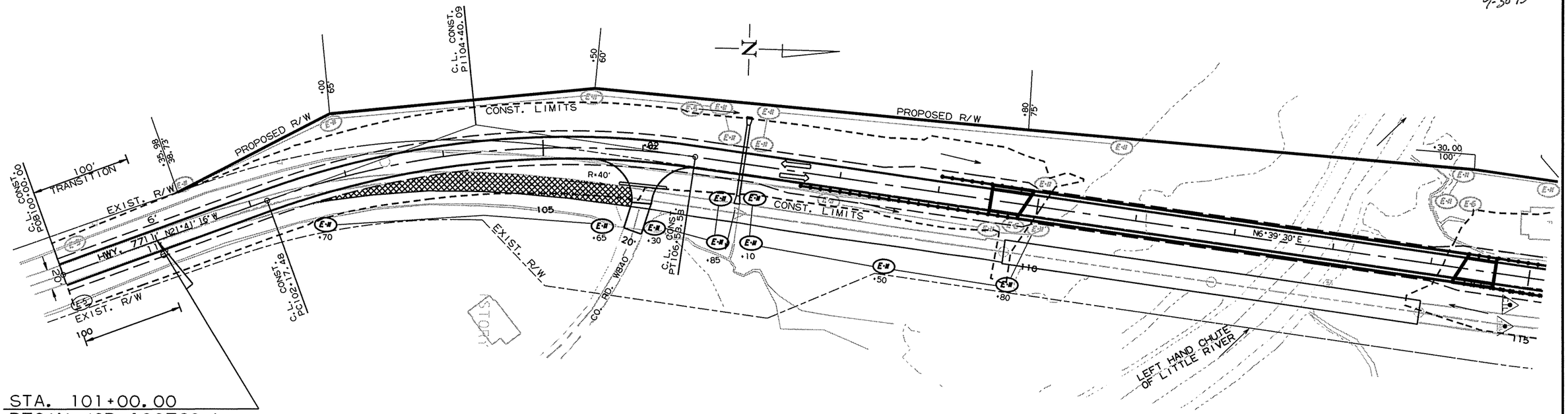
(2) TEMPORARY EROSION CONTROL DETAILS

EROSION CONTROL GENERAL NOTES

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

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



STA. 101+00.00
BEGIN JOB 100760 &
BEGIN SITE 1 (HWY. 77)
L.M. 5.07

P.I. = 104+40.09
Δ = 28°20' 46" RT.
D = 6°30' 00"
T = 222.61'
L = 436.09'
PC = 102+17.48
PT = 106+53.58
e = 0.100 '/'
Ls = 350'

REVISIONS

DATE OF REVISION	REVISION

SAND BAG DITCH CHECKS (E-5)

STA. 100+10	LT.	1 INSTALLATION	22 BAGS	RETAIN
STA. 100+25	LT.	1 INSTALLATION	22 BAGS	RETAIN
STA. 105+50	LT.	1 INSTALLATION	22 BAGS	RETAIN
STA. 106+45	LT.	1 INSTALLATION	22 BAGS	RETAIN

ROCK DITCH CHECKS (E-6)

STA. 109+75	RT.	1 INSTALLATION	3 CU. YDS.	RETAIN
STA. 110+00	LT.	1 INSTALLATION	3 CU. YDS.	RETAIN
STA. 115+30	LT.	1 INSTALLATION	3 CU. YDS.	RETAIN

SILT FENCE (E-11)

STA. 101+35 - STA. 106+75	LT.	615'	RETAIN	
STA. 102+70 - STA. 105+65	RT.	295'		
STA. 106+30 - STA. 106+85	RT.	115'		
STA. 107+10 - STA. 110+75	LT.	515'	RETAIN	
STA. 107+10 - STA. 109+80	RT.	315'		
STA. 108+00 - STA. 110+00	RT.	55'	RETAIN	
STA. 114+00 - STA. 115+00	LT.	125'	RETAIN	

LEGEND

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

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

SITE 1 - STAGE 2
TEMPORARY EROSION CONTROL DETAILS

8/24/2015

R100760.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.		100760	17	133

(2) TEMPORARY EROSION CONTROL DETAILS

CO. RD. CURVE DATA

PI = 4+30.54
Δ = 26°38'46 RT.
D = 24°45'00"
T = 54.82'
L = 107.66'
PC = 3+75.72
PT = 4+83.38
e = 0.100 '/'
Ls = 250'

SAND BAG DITCH CHECKS (E-5)

STA. 117+00	LT.	1 INSTALLATION	22 BAGS	
STA. 117+80	LT.	1 INSTALLATION	22 BAGS	
STA. 118+90	LT.	1 INSTALLATION	22 BAGS	
STA. 106+45	LT.	1 INSTALLATION	22 BAGS	

SILT FENCE (E-11)

STA. 115+00 - STA. 115+99	LT.	90'
STA. 117+95 - STA. 122+50	LT.	455'
STA. 118+50 - STA. 122+50	RT.	240'

CO. RD. CURVE DATA

PI = 1+37.78
Δ = 54°02'56" LT.
D = 24°45'00"
T = 118.08'
L = 218.38'
PC = 0+19.71
PT = 2+38.08
e = 0.100 '/'
Ls = 250'

CONST. CURVE DATA

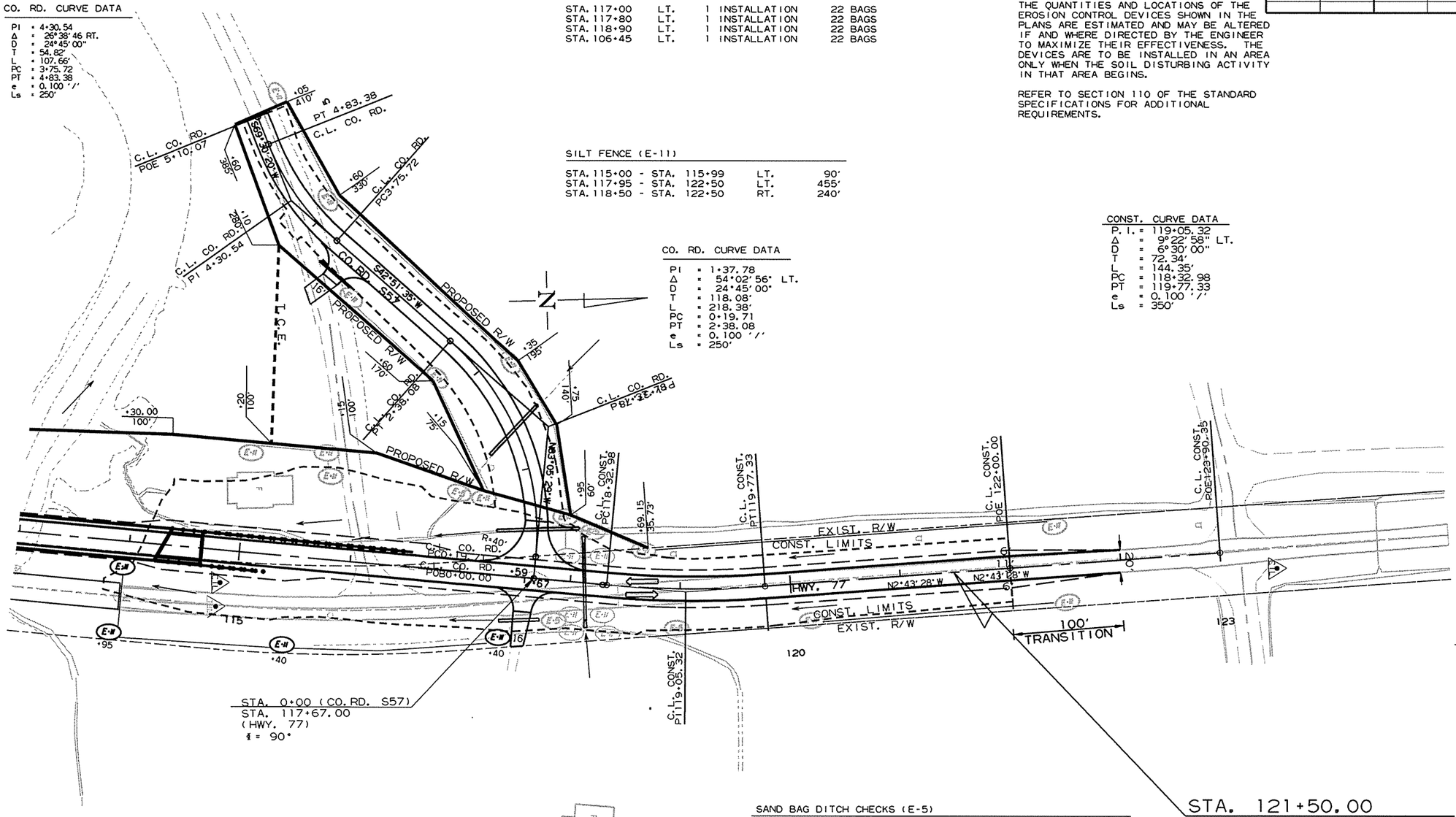
P.I. = 119+05.32
Δ = 9°22'58" LT.
D = 6°30'00"
T = 72.34'
L = 144.35'
PC = 118+32.98
PT = 119+77.33
e = 0.100 '/'
Ls = 350'

EROSION CONTROL GENERAL NOTES

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

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



SITE 1

STA. 0+00 (CO. RD. S57)
STA. 117+67.00
(HWY. 77)
∢ = 90°

STA. 121+50.00
END SITE 1 (HWY. 77)

SAND BAG DITCH CHECKS (E-5)

STA. 100+10	LT.	1 INSTALLATION	22 BAGS	RETAIN	
STA. 100+25	LT.	1 INSTALLATION	22 BAGS	RETAIN	
STA. 105+50	LT.	1 INSTALLATION	22 BAGS	RETAIN	
STA. 106+45	LT.	1 INSTALLATION	22 BAGS	RETAIN	

ROCK DITCH CHECKS (E-6)

STA. 109+75	RT.	1 INSTALLATION	3 CU. YDS.	RETAIN
STA. 110+00	LT.	1 INSTALLATION	3 CU. YDS.	RETAIN
STA. 115+30	LT.	1 INSTALLATION	3 CU. YDS.	RETAIN

SILT FENCE (E-11)

STA. 108+00 - STA. 110+00	RT.	55'	RETAIN
STA. 113+95 - STA. 117+40	RT.	415'	
STA. 114+00 - STA. 115+00	LT.	125'	RETAIN
STA. 119+70 - STA. 122+50	RT.	280'	

LEGEND

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

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

REVISIONS

DATE OF REVISION	REVISION

8/26/2015

R100760.DGN

SITE 1 - STAGE 2
TEMPORARY EROSION 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.		100760	18	133

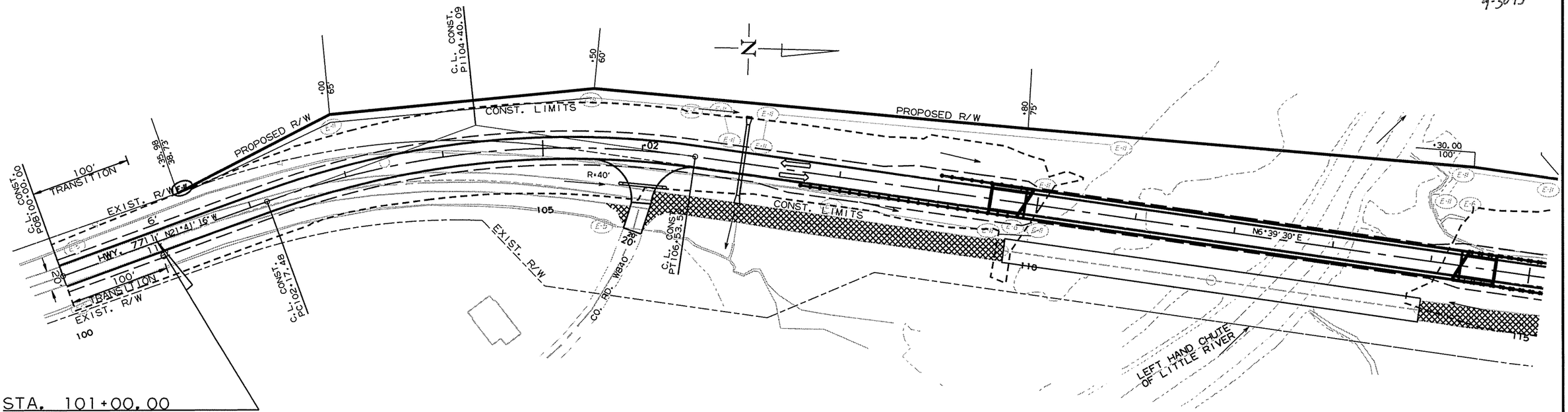
(2) TEMPORARY EROSION CONTROL DETAILS

EROSION CONTROL GENERAL NOTES

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

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-30-15



STA. 101+00.00
BEGIN JOB 100760 &
BEGIN SITE 1 (HWY. 77)
L.M. 5.07

P.I. = 104+40.09
Δ = 28°20'46" RT.
D = 6°30'00"
T = 222.61'
L = 436.09'
PC = 102+17.48
PT = 106+53.58
e = 0.100 '/'
Ls = 350'

SAND BAG DITCH CHECKS (E-5)

STA. 100+10	LT.	1 INSTALLATION	22 BAGS	RETAIN
STA. 100+25	LT.	1 INSTALLATION	22 BAGS	RETAIN
STA. 105+50	LT.	1 INSTALLATION	22 BAGS	RETAIN
STA. 106+45	LT.	1 INSTALLATION	22 BAGS	RETAIN

ROCK DITCH CHECKS (E-6)

STA. 109+75	RT.	1 INSTALLATION	3 CU. YDS.	RETAIN
STA. 110+00	LT.	1 INSTALLATION	3 CU. YDS.	RETAIN
STA. 115+30	LT.	1 INSTALLATION	3 CU. YDS.	RETAIN

SILT FENCE (E-11)

STA. 101+35 - STA. 106+75	LT.	615'	RETAIN
STA. 102+70 - STA. 105+65	RT.	295'	RETAIN
STA. 106+30 - STA. 106+85	RT.	115'	RETAIN
STA. 107+10 - STA. 110+75	LT.	515'	RETAIN
STA. 107+10 - STA. 109+80	RT.	315'	RETAIN
STA. 108+00 - STA. 110+00	RT.	55'	RETAIN
STA. 114+00 - STA. 115+00	LT.	125'	RETAIN

LEGEND

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

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

REVISIONS

DATE OF REVISION	REVISION

8/24/2015

R100760.DGN

SITE 1 - STAGE 3
TEMPORARY EROSION 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.		100760	19	133

(2) TEMPORARY EROSION CONTROL DETAILS

CO. RD. CURVE DATA

PI = 4+30.54
Δ = 26°38' 46 RT.
D = 24°45' 00"
T = 54.82'
L = 107.66'
PC = 3+75.72
PT = 4+83.38
e = 0.100 '/'
Ls = 250'

SAND BAG DITCH CHECKS (E-5)

STA. 117+00	LT.	1 INSTALLATION	22 BAGS RETAIN
STA. 117+80	LT.	1 INSTALLATION	22 BAGS RETAIN
STA. 118+90	LT.	1 INSTALLATION	22 BAGS RETAIN
STA. 106+45	LT.	1 INSTALLATION	22 BAGS RETAIN

SILT FENCE (E-11)

STA. 115+00 - STA. 115+99	LT.	90'	RETAIN
STA. 117+95 - STA. 122+50	LT.	455'	RETAIN
STA. 118+50 - STA. 122+50	RT.	240'	RETAIN

EROSION CONTROL GENERAL NOTES

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

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

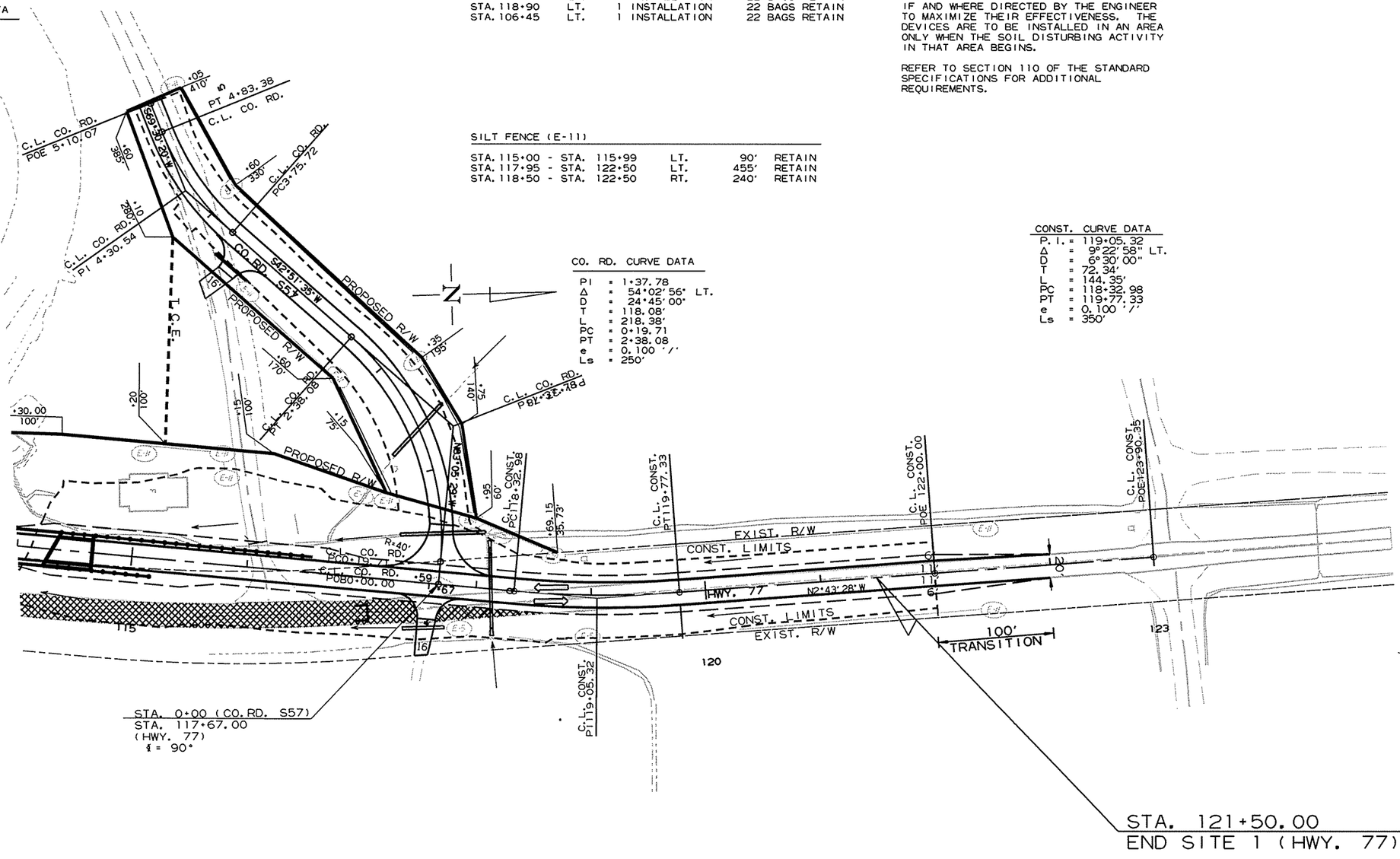
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-30-15

CO. RD. CURVE DATA

PI = 1+37.78
Δ = 54°02' 56" LT.
D = 24°45' 00"
T = 118.08'
L = 218.38'
PC = 0+19.71
PT = 2+38.08
e = 0.100 '/'
Ls = 250'

CONST. CURVE DATA

P. I. = 119+05.32
Δ = 9°22' 58" LT.
D = 6°30' 00"
T = 72.34'
L = 144.35'
PC = 118+32.98
PT = 119+77.33
e = 0.100 '/'
Ls = 350'



SITE 1

LEGEND

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

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

REVISIONS

DATE OF REVISION	REVISION

8/26/2015

R100760.DGN

SITE 1 - STAGE 3
TEMPORARY EROSION CONTROL DETAILS

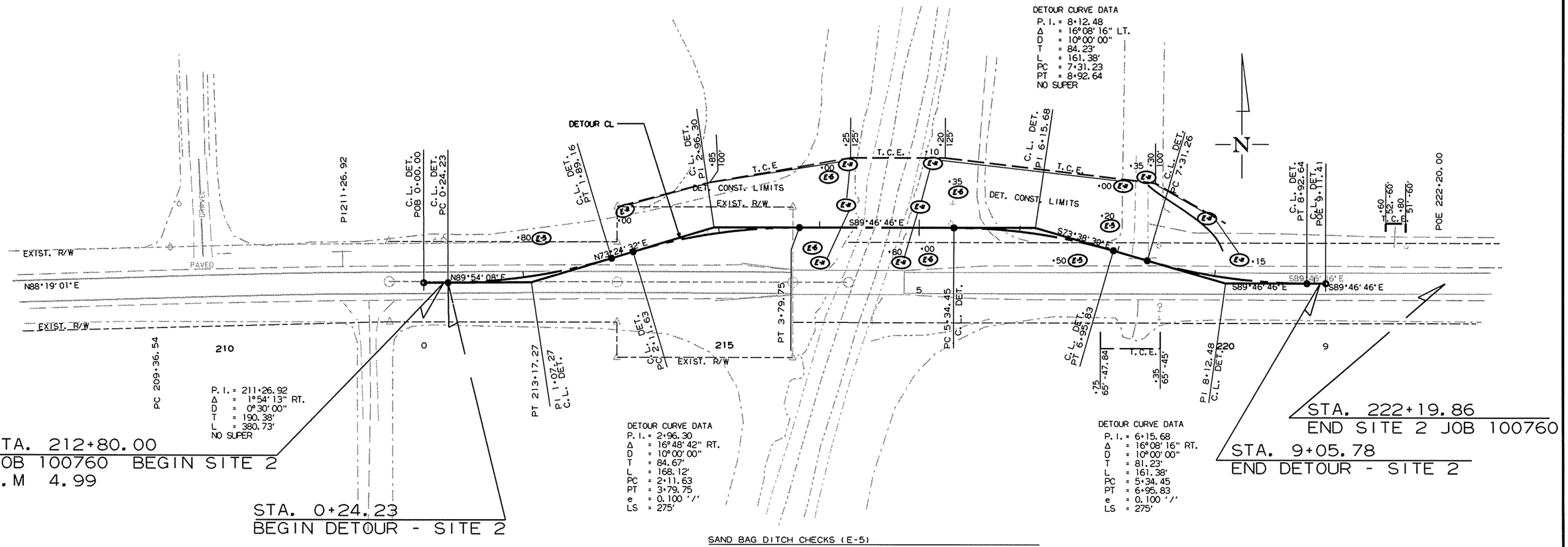
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100760	20	133

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
07-30-15

DETOUR CURVE DATA
P. I. = 1+07.27
Δ = 16°29' 37" LT.
D = 10°00' 00"
T = 83.04'
L = 164.93'
PC = 0+24.23
PT = 1+89.16
NO SUPER

DETOUR CURVE DATA
P. I. = 8+12.48
Δ = 16°08' 16" LT.
D = 10°00' 00"
T = 84.23'
L = 161.38'
PC = 7+31.23
PT = 8+92.64
NO SUPER



SAND BAG DITCH CHECKS (E-5)

STA. 210+90	LT. OF DET.	1 INSTALLATION	22 BAGS
STA. 213+15	LT. OF DET.	1 INSTALLATION	22 BAGS
STA. 218+50	LT.	1 INSTALLATION	22 BAGS
STA. 218+85	LT. OF DET.	1 INSTALLATION	22 BAGS

ROCK DITCH CHECKS (E-6)

STA. 215+90	LT.	1 INSTALLATION	3 CU. YDS.
STA. 216+05	LT.	1 INSTALLATION	3 CU. YDS.
STA. 217+00	LT.	1 INSTALLATION	3 CU. YDS.
STA. 217+35	LT.	1 INSTALLATION	3 CU. YDS

SILT FENCE (E-11)

STA. 214+00 - STA. 216+20	LT.	285'
STA. 215+85 - STA. 216+20	RT.	75'
STA. 216+75 - STA. 217+90	LT.	110'
STA. 217+90 - STA. 219+00	LT.	205'
STA. 219+35 - STA. 220+15	LT.	120'

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

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

8/26/2015

R100760.DGN

SITE 2 - CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

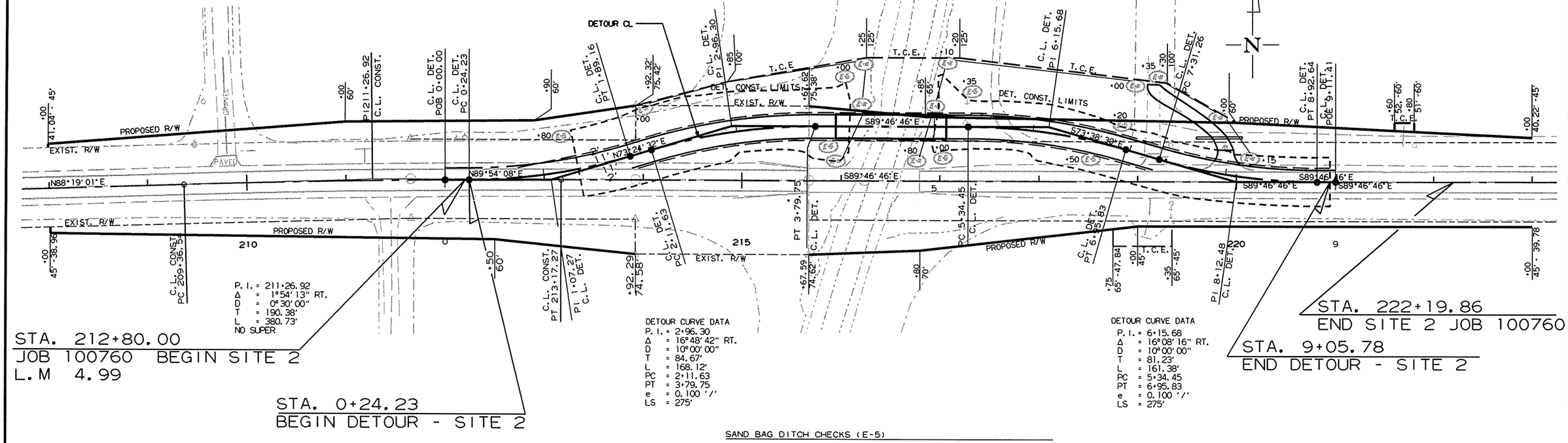
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100760	21	133

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
TRINITY D. SMITH
REGISTERED PROFESSIONAL ENGINEER
No. 11425
9-30-15

DETOUR CURVE DATA
P. I. = 1+07.27
Δ = 16°29' 37" LT.
D = 10°00' 00"
T = 83.04'
L = 164.93'
PC = 0+24.23
PT = 1+89.16
NO SUPER

DETOUR CURVE DATA
P. I. = 8+12.48
Δ = 16°08' 16" LT.
D = 10°00' 00"
T = 84.23'
L = 161.38'
PC = 7+31.23
PT = 8+92.64
NO SUPER



SAND BAG DITCH CHECKS (E-5)

STA. 210+90	LT. OF DET.	1 INSTALLATION	22 BAGS
STA. 213+15	LT. OF DET.	1 INSTALLATION	22 BAGS
STA. 218+50	LT.	1 INSTALLATION	22 BAGS
STA. 218+85	LT. OF DET.	1 INSTALLATION	22 BAGS

ROCK DITCH CHECKS (E-6)

STA. 215+90	LT.	1 INSTALLATION	3 CU. YDS.
STA. 216+05	LT.	1 INSTALLATION	3 CU. YDS.
STA. 217+00	LT.	1 INSTALLATION	3 CU. YDS.
STA. 217+35	LT.	1 INSTALLATION	3 CU. YDS

SILT FENCE (E-11)

STA. 214+00 - STA. 216+20	LT.	285'
STA. 215+85 - STA. 216+20	RT.	75'
STA. 216+75 - STA. 217+90	LT.	110'
STA. 217+90 - STA. 219+00	LT.	205'
STA. 219+35 - STA. 220+15	LT.	120'

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

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

SITE 2 - STAGE 1
TEMPORARY EROSION CONTROL DETAILS

8/26/2015
R100760.DGN

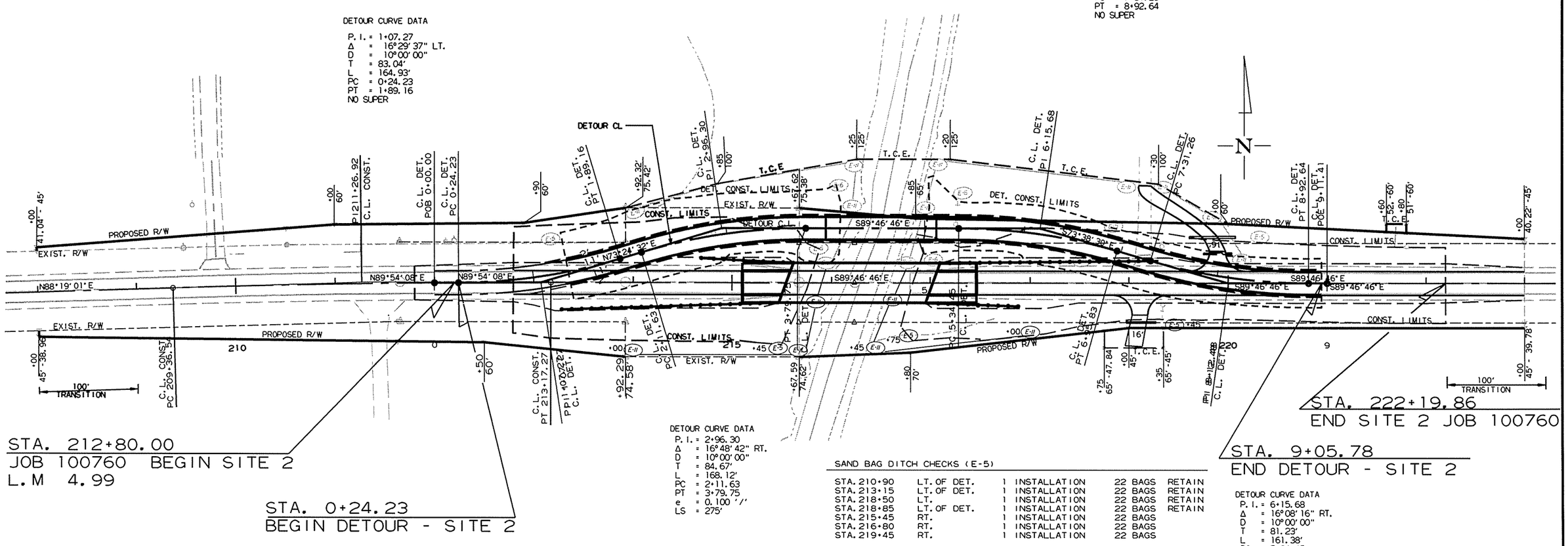
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100760	22	133

(2) TEMPORARY EROSOION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

DETOUR CURVE DATA
P. I. = 1+07.27
Δ = 16°29' 37" LT.
D = 10°00' 00"
T = 83.04'
L = 164.93'
PC = 0+24.23
PT = 1+89.16
NO SUPER

DETOUR CURVE DATA
P. I. = 8+12.48
Δ = 16°08' 16" LT.
D = 10°00' 00"
T = 84.23'
L = 161.38'
PC = 7+31.23
PT = 8+92.64
NO SUPER



DETOUR CURVE DATA
P. I. = 2+96.30
Δ = 16°48' 42" RT.
D = 10°00' 00"
T = 84.67'
L = 168.12'
PC = 2+11.63
PT = 3+79.75
e = 0.100 '/'
LS = 275'

P. I. = 211+26.92
Δ = 1°54' 13" RT.
D = 0°30' 00"
T = 190.38'
L = 380.73'
NO SUPER

SAND BAG DITCH CHECKS (E-5)

STA. 210+90	LT. OF DET.	1 INSTALLATION	22 BAGS	RETAIN
STA. 213+15	LT. OF DET.	1 INSTALLATION	22 BAGS	RETAIN
STA. 218+50	LT.	1 INSTALLATION	22 BAGS	RETAIN
STA. 218+85	LT. OF DET.	1 INSTALLATION	22 BAGS	RETAIN
STA. 215+45	RT.	1 INSTALLATION	22 BAGS	
STA. 216+80	RT.	1 INSTALLATION	22 BAGS	
STA. 219+45	RT.	1 INSTALLATION	22 BAGS	

ROCK DITCH CHECKS (E-6)

STA. 215+90	LT.	1 INSTALLATION	3 CU. YDS.	RETAIN
STA. 216+05	LT.	1 INSTALLATION	3 CU. YDS.	RETAIN
STA. 217+00	LT.	1 INSTALLATION	3 CU. YDS.	RETAIN
STA. 217+35	LT.	1 INSTALLATION	3 CU. YDS	RETAIN

SILT FENCE (E-11)

STA. 214+00 - STA. 216+20	LT.	285'	RETAIN
STA. 215+85 - STA. 216+20	RT.	75'	RETAIN
STA. 216+75 - STA. 217+90	LT.	110'	RETAIN
STA. 217+90 - STA. 219+00	LT.	205'	RETAIN
STA. 219+35 - STA. 220+15	LT.	120'	RETAIN
STA. 214+00 - STA. 215+85	RT.	230'	
STA. 216+45 - STA. 218+00	RT.	220'	

DETOUR CURVE DATA
P. I. = 6+15.68
Δ = 16°08' 16" RT.
D = 10°00' 00"
T = 81.23'
L = 161.38'
PC = 5+34.45
PT = 6+95.83
e = 0.100 '/'
LS = 275'

LEGEND

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

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

REVISIONS

DATE OF REVISION	REVISION

8/26/2015

R100760.DGN

SITE 2 - STAGE 2
TEMPORARY EROSION 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.		100760	23	133

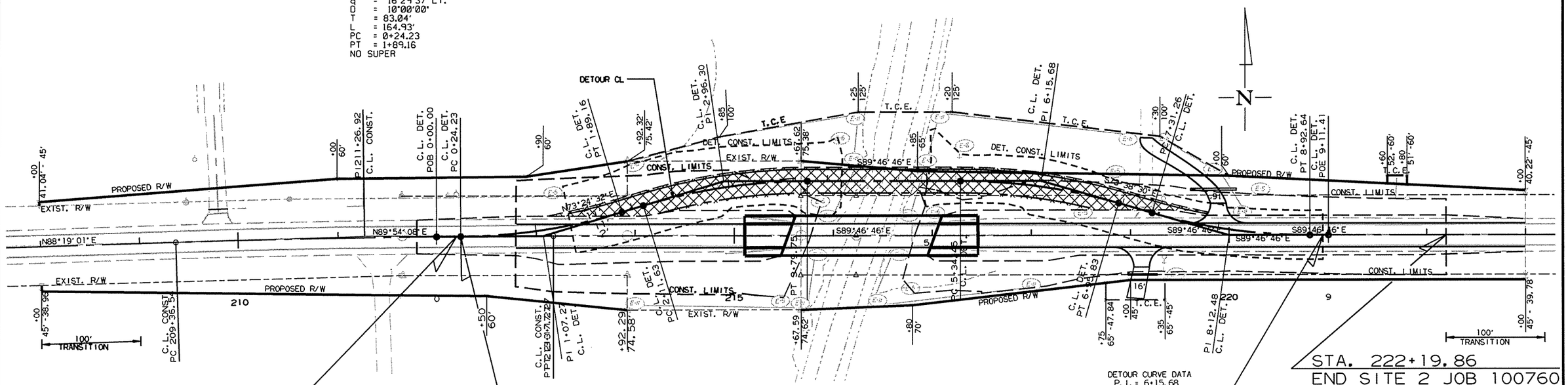
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

OBLITERATE ROADWAY

DETOUR CURVE DATA
P.I.= 1+07.27
Δ = 16°29'37" LT.
D = 10°00'00"
T = 83.04'
L = 164.93'
PC = 0+24.23
PT = 1+89.16
NO SUPER

DETOUR CURVE DATA
P.I.= 8+12.48
Δ = 16°08'16" LT.
D = 10°00'00"
T = 84.23'
L = 161.38'
PC = 7+31.23
PT = 8+92.64
NO SUPER



STA. 212+80.00
JOB 100760 BEGIN SITE 2
L.M 4.99

STA. 0+24.23
BEGIN DETOUR - SITE 2

DETOUR CURVE DATA
P.I.= 2+96.30
Δ = 16°48'42" RT.
D = 10°00'00"
T = 84.67'
L = 168.12'
PC = 2+11.63
PT = 3+79.75
e = 0.100 '/'
LS = 275'

DETOUR CURVE DATA
P.I.= 6+15.68
Δ = 16°08'16" RT.
D = 10°00'00"
T = 81.23'
L = 161.38'
PC = 5+34.45
PT = 6+95.83
e = 0.100 '/'
LS = 275'

STA. 222+19.86
END SITE 2 JOB 100760

STA. 9+05.78
END DETOUR - SITE 2

P.I.= 211+26.92
Δ = 1°54'13" RT.
D = 0°30'00"
T = 190.38'
L = 380.73'
NO SUPER

REVISIONS

DATE OF REVISION	REVISION

SAND BAG DITCH CHECKS (E-5)

STA. 210+90	LT. OF DET.	1 INSTALLATION	22 BAGS	RETAIN
STA. 213+15	LT. OF DET.	1 INSTALLATION	22 BAGS	RETAIN
STA. 218+50	LT.	1 INSTALLATION	22 BAGS	RETAIN
STA. 218+85	LT. OF DET.	1 INSTALLATION	22 BAGS	RETAIN
STA. 215+45	RT.	1 INSTALLATION	22 BAGS	RETAIN
STA. 216+80	RT.	1 INSTALLATION	22 BAGS	RETAIN
STA. 219+45	RT.	1 INSTALLATION	22 BAGS	RETAIN

ROCK DITCH CHECKS (E-6)

STA. 215+90	LT.	1 INSTALLATION	3 CU. YDS.	RETAIN
STA. 216+05	LT.	1 INSTALLATION	3 CU. YDS.	RETAIN
STA. 217+00	LT.	1 INSTALLATION	3 CU. YDS.	RETAIN
STA. 217+35	LT.	1 INSTALLATION	3 CU. YDS	RETAIN

SILT FENCE (E-11)

STA. 214+00 - STA. 216+20	LT.	285'	RETAIN
STA. 215+85 - STA. 216+20	RT.	75'	RETAIN
STA. 216+75 - STA. 217+90	LT.	110'	RETAIN
STA. 217+90 - STA. 219+00	LT.	205'	RETAIN
STA. 219+35 - STA. 220+15	LT.	120'	RETAIN
STA. 214+00 - STA. 215+85	RT.	230'	RETAIN
STA. 216+45 - STA. 218+00	RT.	220'	RETAIN

LEGEND

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

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

8/26/2015

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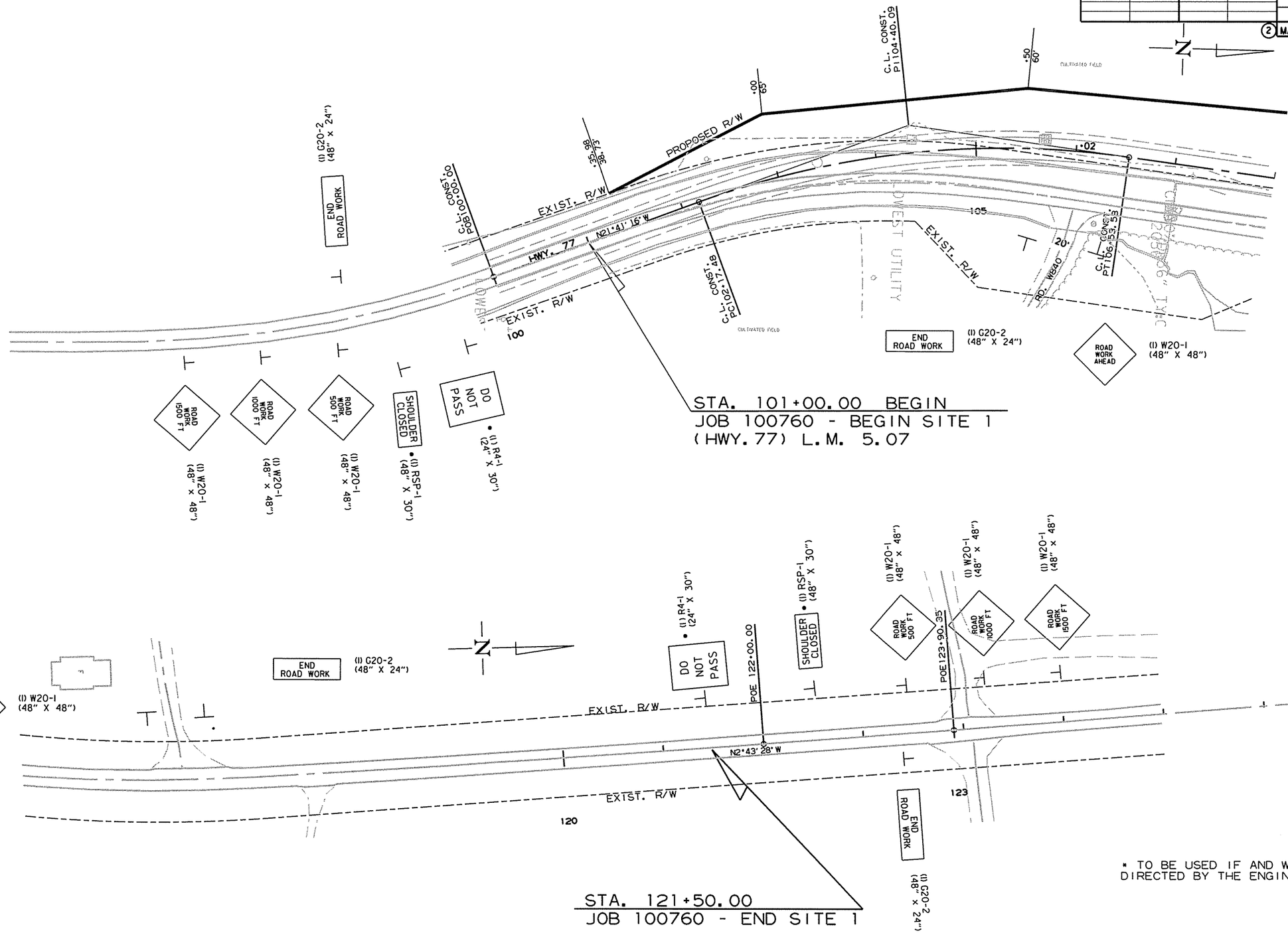
SITE 2 - STAGE 3
TEMPORARY EROSION CONTROL DETAILS

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.		100760	24	133

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



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

SITE 1 - ADVANCE WARNING SIGNS
MAINTENANCE OF TRAFFIC DETAILS

9/17/2015

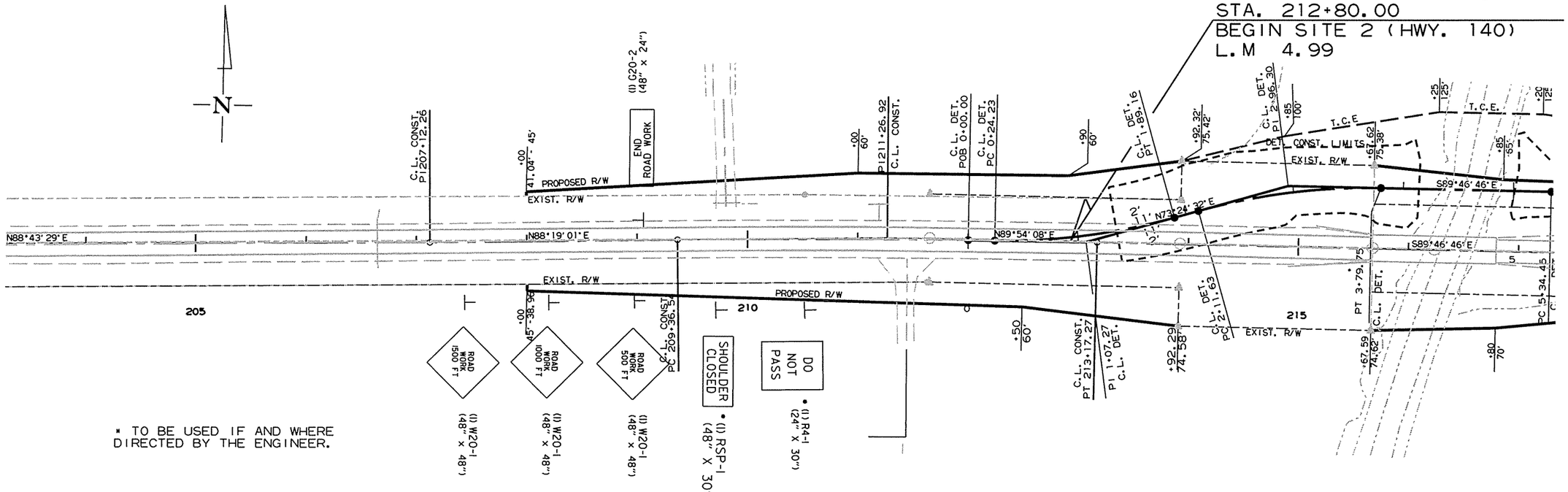
R100760.DGN

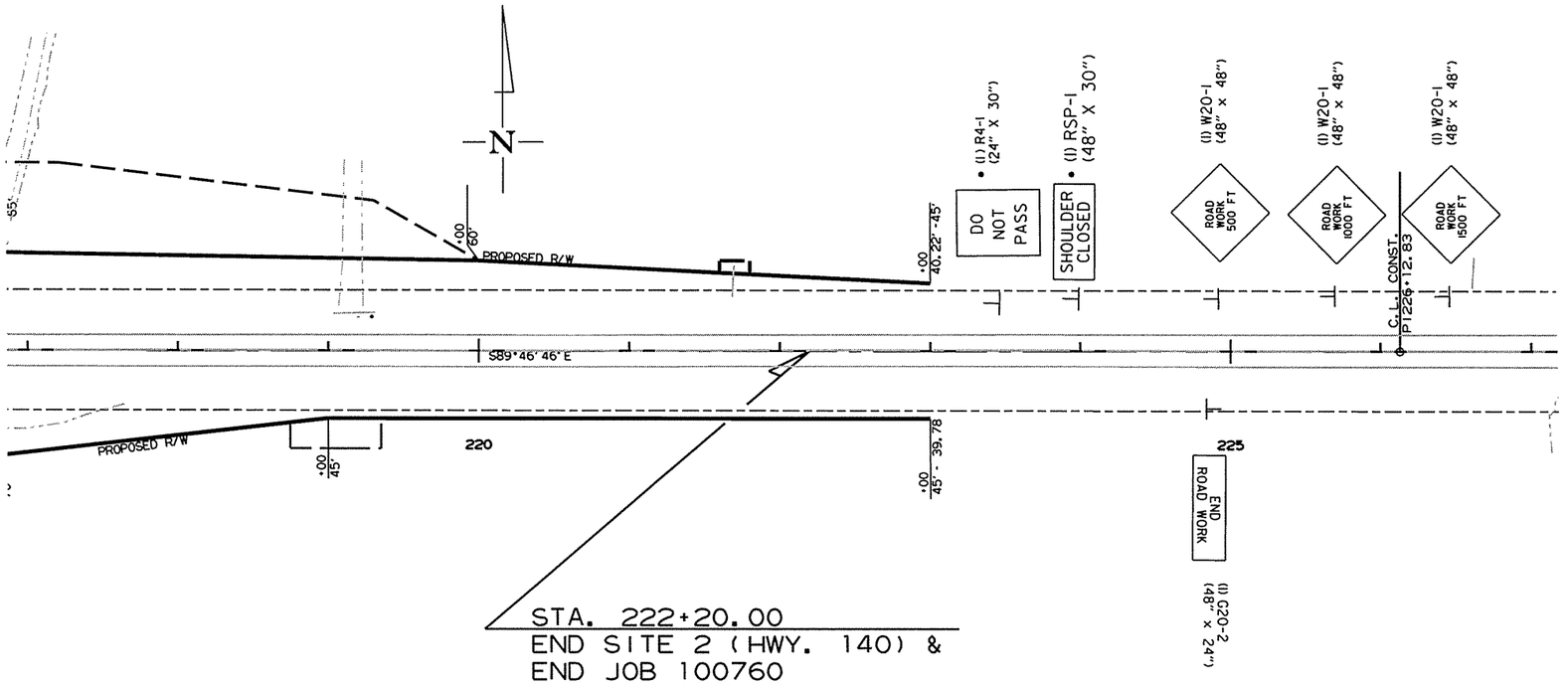
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100760	25	133

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

STA. 212+80.00
BEGIN SITE 2 (HWY. 140)
L.M 4.99





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

STA. 222+20.00
END SITE 2 (HWY. 140) &
END JOB 100760

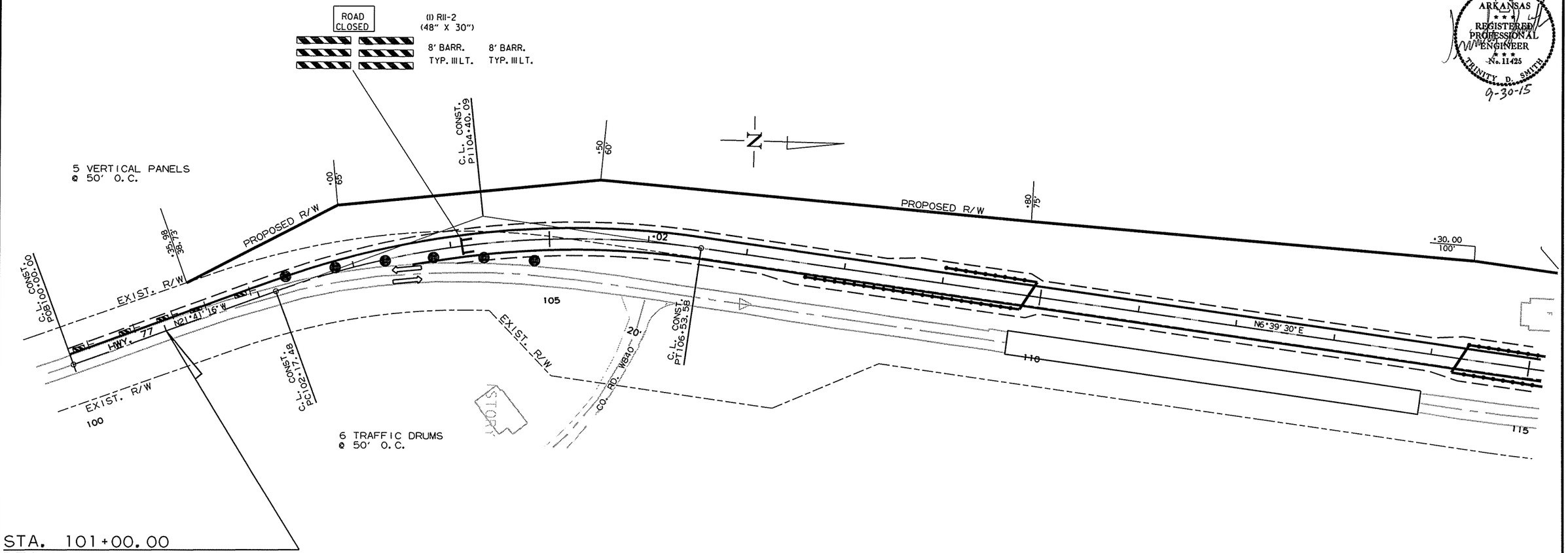
SITE 2 - ADVANCE WARNING SIGNS
MAINTENANCE OF TRAFFIC DETAILS

9/17/2015
R100760.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.		100760	26	133

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



STA. 101+00.00
BEGIN JOB 100760 &
BEGIN SITE 1 (HWY. 77)
L.M. 5.07

P.I. = 104+40.09
Δ = 28°20' 46" RT.
D = 6°30' 00"
T = 222.61'
L = 436.09'
PC = 102+17.48
PT = 106+53.58
e = 0.100 '/'
Ls = 350'

SEQUENCE - SITE 1 (HWY. 77)

STAGE 1 - MAINTAIN TRAFFIC ON EXISTING ROADWAY AND RELOCATE COUNTY ROAD S 57. SHIFT COUNTY ROAD TRAFFIC TO NEW ALIGNMENT, CONSTRUCT NEW BRIDGE AND HIGHWAY ALIGNMENT ON NEW LOCATION, CONSTRUCT DRIVEWAYS AND PERFORM NOTCH AND WIDEN.

STAGE 2 - SHIFT TRAFFIC TO NEW ROADWAY ALIGNMENT AND BRIDGE, COMPLETE NOTCH AND WIDEN AND TIE ENDS, COMPLETE PIPE CULVERTS AND FINAL SLOPE GRADES, PERFORM FINAL SURFACING AND FINAL STRIPING.

STAGE 3 - REMOVE EXISTING BRIDGE STRUCTURE, OBLITERATE OLD ROADWAY.

8/26/2015

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SITE 1 - STAGE 1
MAINTENANCE OF TRAFFIC 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.		100760	27	133

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

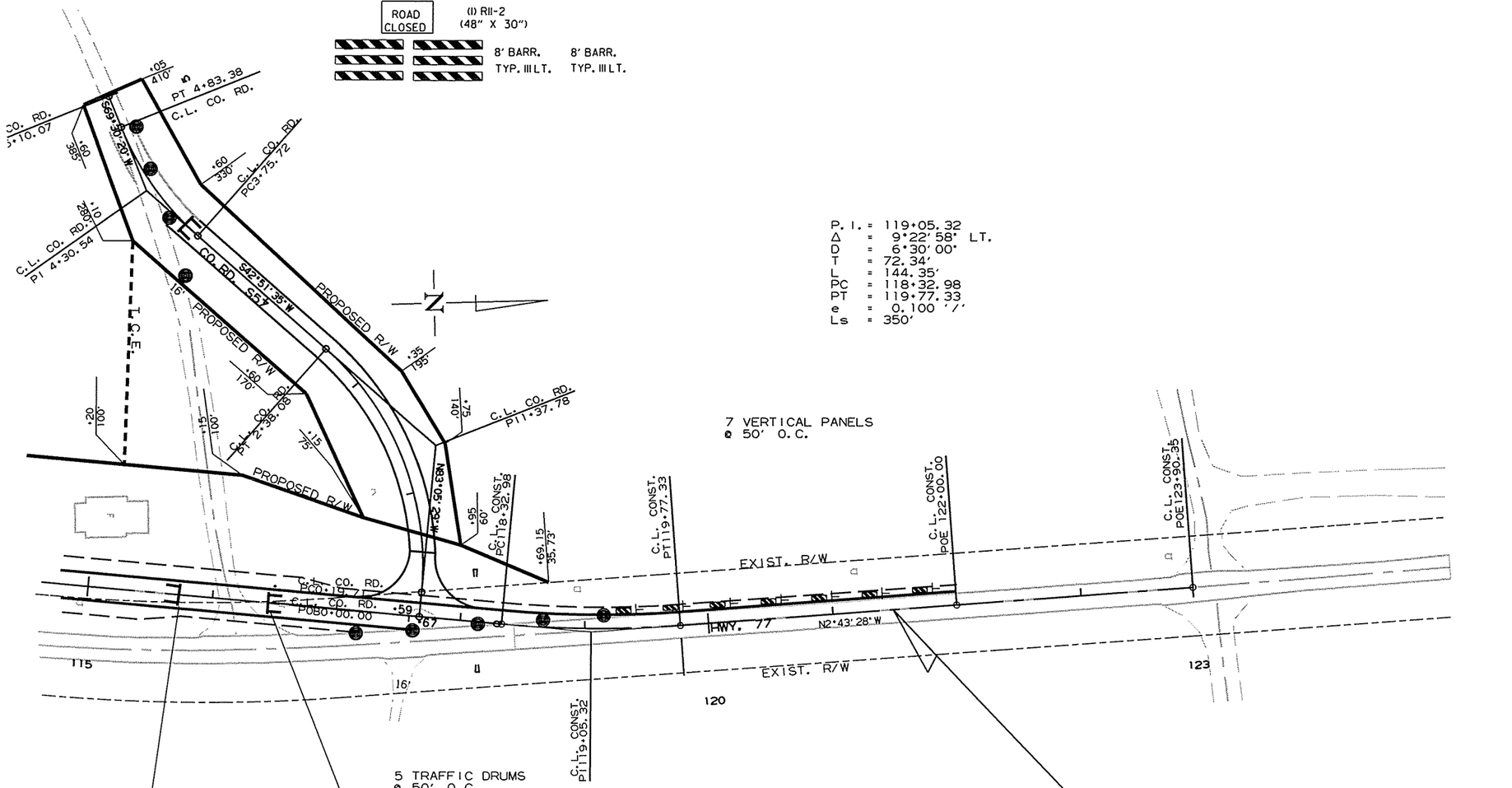
4 TRAFFIC DRUMS
@ 50' O.C.

ROAD CLOSED — (1) R11-2 (48" X 30")

8' BARR. TYP. III LT. — 8' BARR. TYP. III LT.

P. I. = 119+05.32
Δ = 9°22'58" LT.
D = 6°30'00"
T = 72.34'
L = 144.35'
PC = 118+32.98
PT = 119+77.33
e = 0.100 '/'
Ls = 350'

7 VERTICAL PANELS
@ 50' O.C.



5 TRAFFIC DRUMS
@ 50' O.C.

ROAD CLOSED — (1) R11-2 (48" X 30")

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

ROAD CLOSED — (1) R11-2 (48" X 30")

8' BARR. TYP. III LT. — 8' BARR. TYP. III LT.

STA. 121+50.00
END SITE 1 (HWY. 77)

SEQUENCE - SITE 1 (HWY. 77)

STAGE 1 - MAINTAIN TRAFFIC ON EXISTING ROADWAY AND RELOCATE COUNTY ROAD S 57. SHIFT COUNTY ROAD TRAFFIC TO NEW ALIGNMENT, CONSTRUCT NEW BRIDGE AND HIGHWAY ALIGNMENT ON NEW LOCATION, CONSTRUCT DRIVEWAYS AND PERFORM NOTCH AND WIDEN.

STAGE 2 - SHIFT TRAFFIC TO NEW ROADWAY ALIGNMENT AND BRIDGE, COMPLETE NOTCH AND WIDEN AND TIE ENDS, COMPLETE PIPE CULVERTS AND FINAL SLOPE GRADES, PERFORM FINAL SURFACING AND FINAL STRIPING.

STAGE 3 - REMOVE EXISTING BRIDGE STRUCTURE, OBLITERATE OLD ROADWAY.

SITE 1 - STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

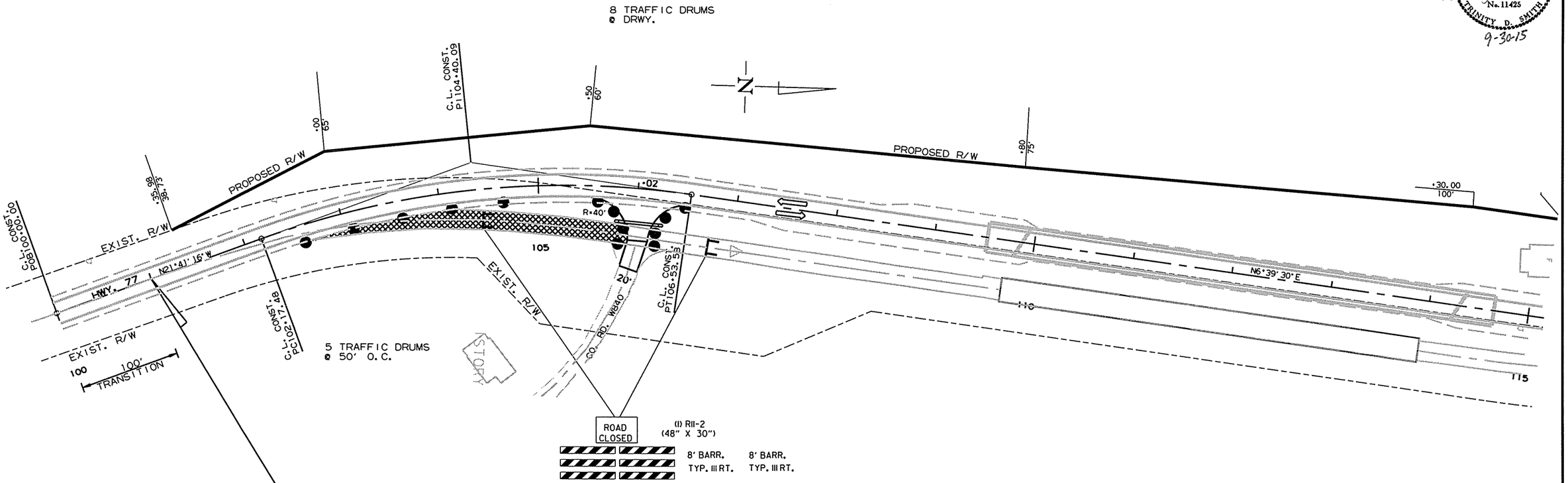
8/26/2015

R100760.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.		100760	28	133

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



STA. 101+00.00
BEGIN JOB 100760 &
BEGIN SITE 1 (HWY. 77)
L.M. 5.07

P.I. = 104+40.09
Δ = 28°20'46" RT.
D = 6°30'00"
T = 222.61'
L = 436.09'
PC = 102+17.48
PT = 106+53.58
e = 0.100 '/'
Ls = 350'

SEQUENCE - SITE 1 (HWY. 77)

STAGE 1 - MAINTAIN TRAFFIC ON EXISTING ROADWAY AND RELOCATE COUNTY ROAD S 57. SHIFT COUNTY ROAD TRAFFIC TO NEW ALIGNMENT, CONSTRUCT NEW BRIDGE AND HIGHWAY ALIGNMENT ON NEW LOCATION. CONSTRUCT DRIVEWAYS AND PERFORM NOTCH AND WIDEN.

STAGE 2 - SHIFT TRAFFIC TO NEW ROADWAY ALIGNMENT AND BRIDGE. COMPLETE NOTCH AND WIDEN AND TIE ENDS. COMPLETE PIPE CULVERTS AND FINAL SLOPE GRADES. PERFORM FINAL SURFACING AND FINAL STRIPING.

STAGE 3 - REMOVE EXISTING BRIDGE STRUCTURE. OBLITERATE OLD ROADWAY.

SITE 1 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

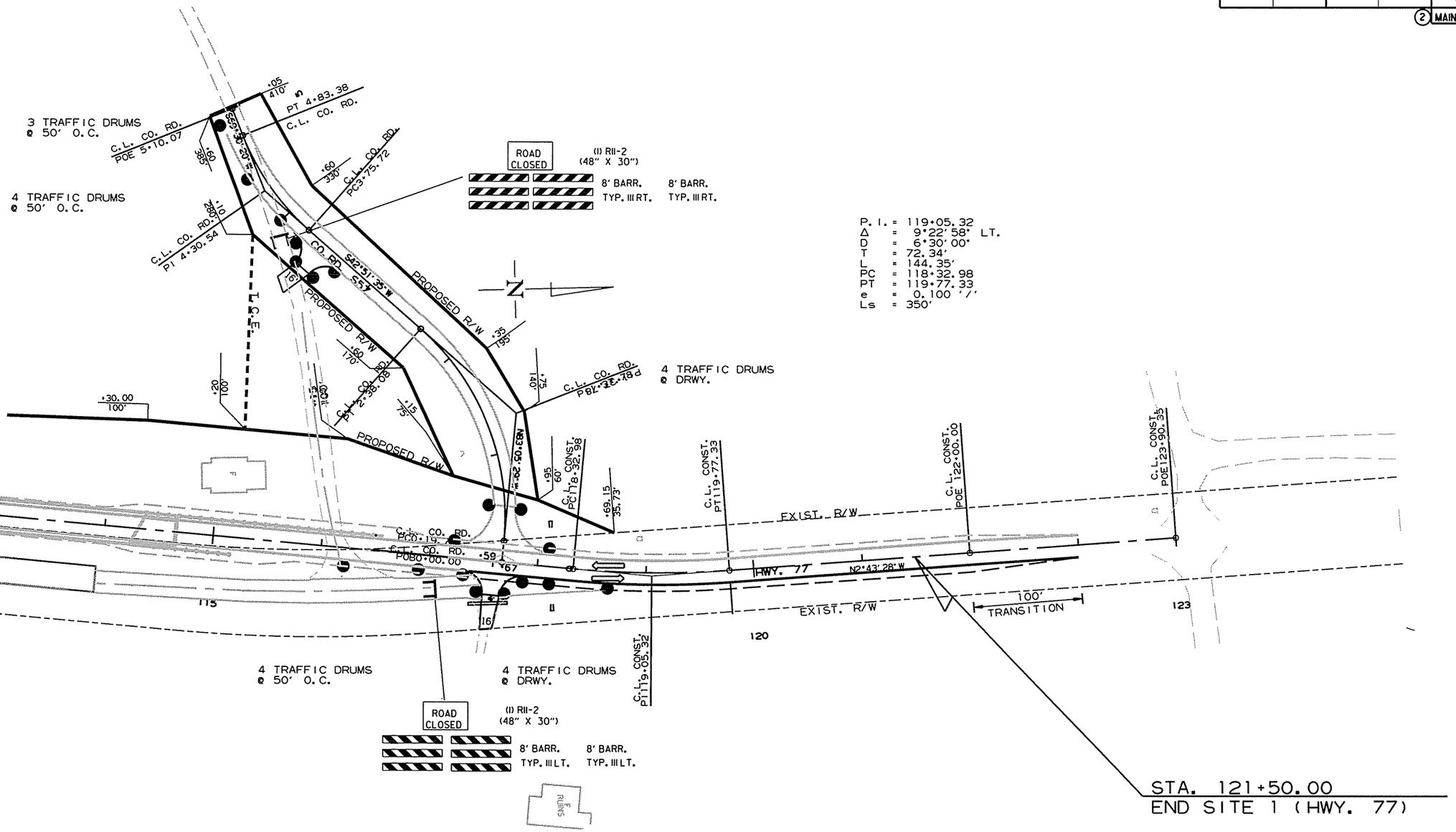
9/17/2015

R100760.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.		100760	29	133

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



SITE 1

P. I. = 119+05.32
Δ = 9°22'58" LT.
D = 6°30'00"
T = 72.34'
L = 144.35'
PC = 118+32.98
PT = 119+77.33
e = 0.100 '/'
Ls = 350'

SEQUENCE - SITE 1 (HWY. 77)

STAGE 1 - MAINTAIN TRAFFIC ON EXISTING ROADWAY AND RELOCATE COUNTY ROAD S 57. SHIFT COUNTY ROAD TRAFFIC TO NEW ALIGNMENT. CONSTRUCT NEW BRIDGE AND HIGHWAY ALIGNMENT ON NEW LOCATION. CONSTRUCT DRIVEWAYS AND PERFORM NOTCH AND WIDEN.

STAGE 2 - SHIFT TRAFFIC TO NEW ROADWAY ALIGNMENT AND BRIDGE. COMPLETE NOTCH AND WIDEN AND TIE ENDS. COMPLETE PIPE CULVERTS AND FINAL SLOPE GRADES. PERFORM FINAL SURFACING AND FINAL STRIPING.

STAGE 3 - REMOVE EXISTING BRIDGE STRUCTURE. OBLITERATE OLD ROADWAY.

SITE 1 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

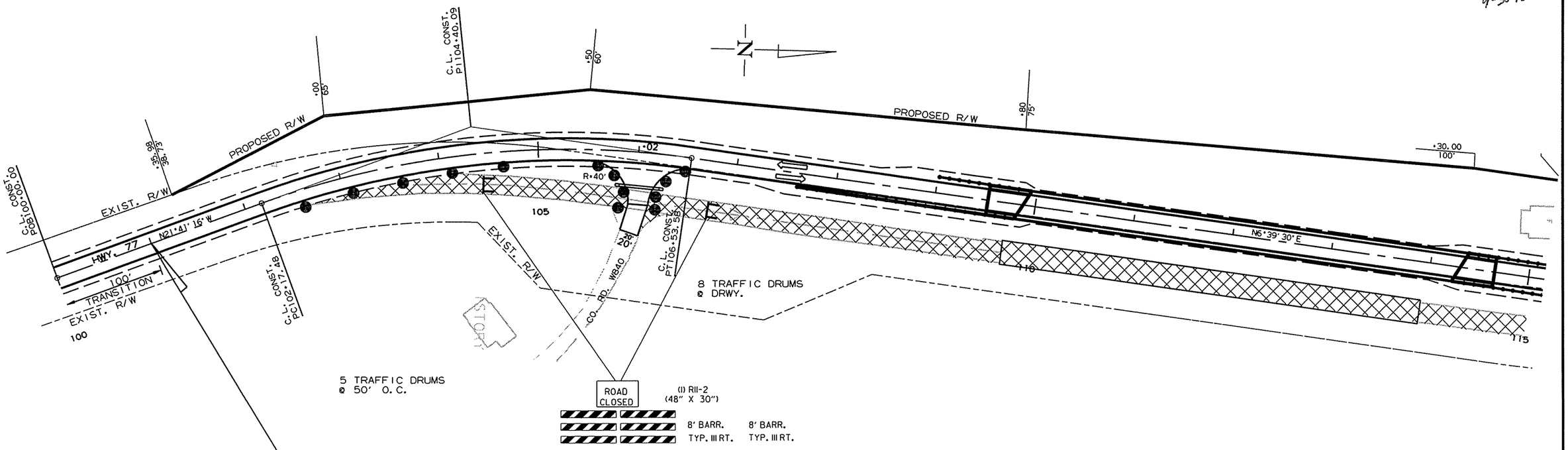
9/17/2015

R100760.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.		100760	30	133

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



STA. 101+00.00
BEGIN JOB 100760 &
BEGIN SITE 1 (HWY. 77)
L.M. 5.07

P.I. = 104+40.09
Δ = 28°20'46" RT.
D = 6°30'00"
T = 222.61'
L = 436.09'
PC = 102+17.48
PT = 106+53.58
e = 0.100 '/'
Ls = 350'

SEQUENCE - SITE 1 (HWY. 77)

STAGE 1 - MAINTAIN TRAFFIC ON EXISTING ROADWAY AND RELOCATE COUNTY ROAD S 57. SHIFT COUNTY ROAD TRAFFIC TO NEW ALIGNMENT, CONSTRUCT NEW BRIDGE AND HIGHWAY ALIGNMENT ON NEW LOCATION, CONSTRUCT DRIVEWAYS AND PERFORM NOTCH AND WIDEN.

STAGE 2 - SHIFT TRAFFIC TO NEW ROADWAY ALIGNMENT AND BRIDGE, COMPLETE NOTCH AND WIDEN AND TIE ENDS, COMPLETE PIPE CULVERTS AND FINAL SLOPE GRADES, PERFORM FINAL SURFACING AND FINAL STRIPING.

STAGE 3 - REMOVE EXISTING BRIDGE STRUCTURE, OBLITERATE OLD ROADWAY.

SITE 1 - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

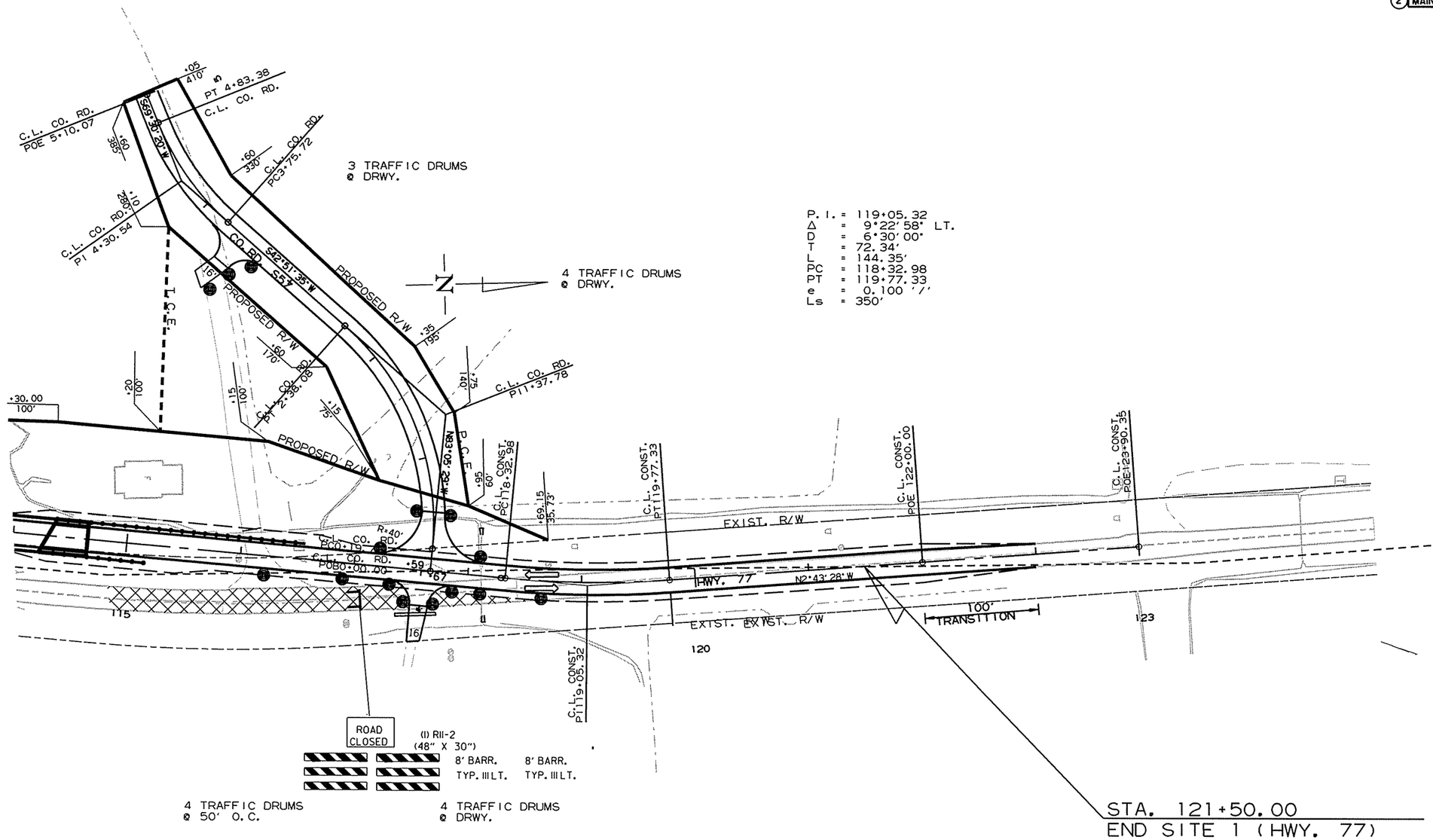
8/26/2015

R100760.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.		100760	31	133

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



P. I. = 119+05.32
Δ = 9°22'58" LT.
D = 6°30'00"
T = 72.34'
L = 144.35'
PC = 118+32.98
PT = 119+77.33
e = 0.100 '/'
Ls = 350'

SITE 1

SEQUENCE - SITE 1 (HWY. 77)

STAGE 1 - MAINTAIN TRAFFIC ON EXISTING ROADWAY AND RELOCATE COUNTY ROAD S 57. SHIFT COUNTY ROAD TRAFFIC TO NEW ALIGNMENT, CONSTRUCT NEW BRIDGE AND HIGHWAY ALIGNMENT ON NEW LOCATION, CONSTRUCT DRIVEWAYS AND PERFORM NOTCH AND WIDEN.

STAGE 2 - SHIFT TRAFFIC TO NEW ROADWAY ALIGNMENT AND BRIDGE, COMPLETE NOTCH AND WIDEN AND TIE ENDS, COMPLETE PIPE CULVERTS AND FINAL SLOPE GRADES, PERFORM FINAL SURFACING AND FINAL STRIPING.

STAGE 3 - REMOVE EXISTING BRIDGE STRUCTURE, OBLITERATE OLD ROADWAY.

SITE 1 - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

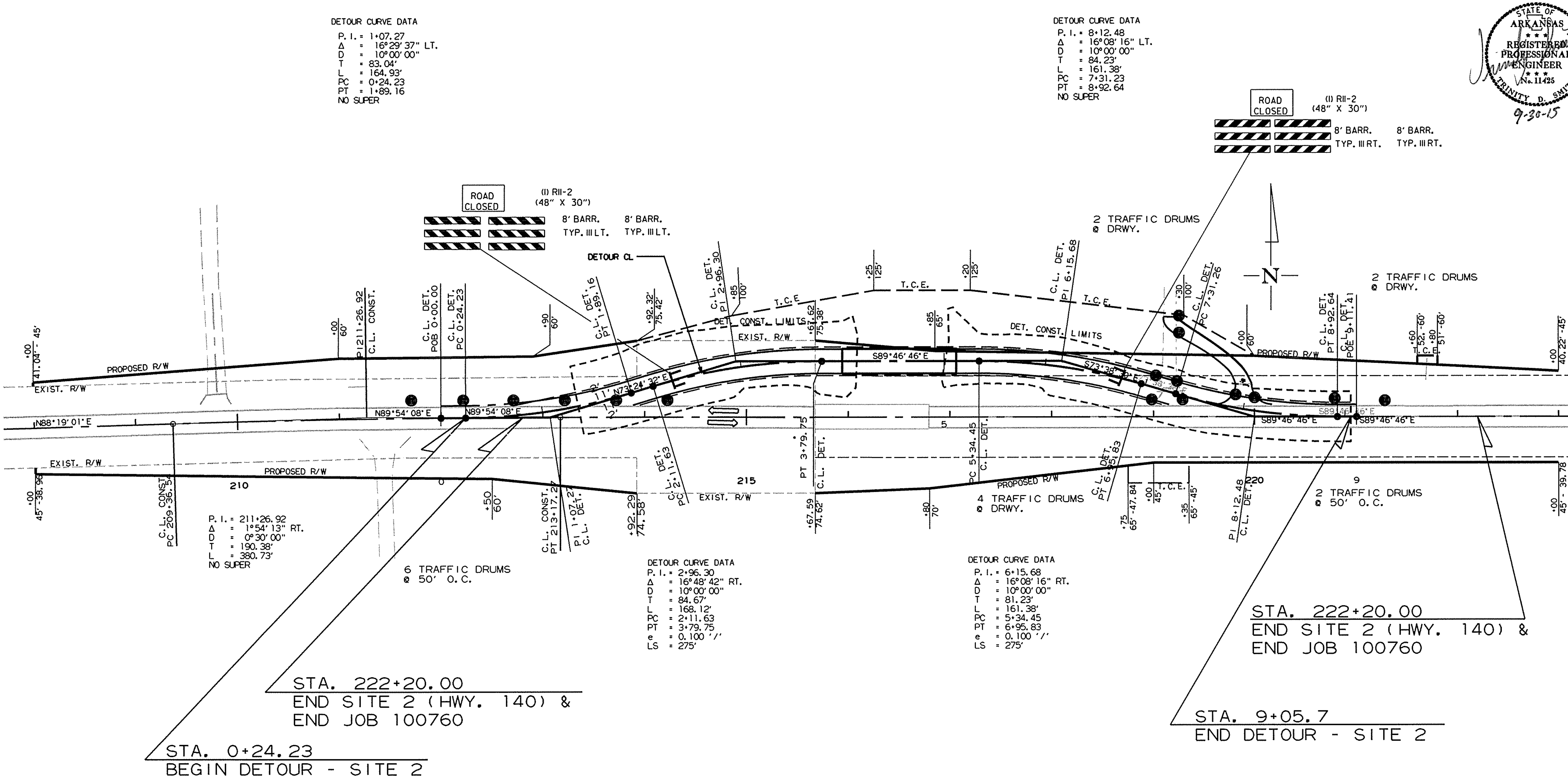
8/26/2015

R100760.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.		100760	32	133

(2) MAINTENANCE OF TRAFFIC DETAILS - SITE 2

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
9-30-15



DETOUR CURVE DATA
P.I. = 1+07.27
Δ = 16°29'37" LT.
D = 10°00'00"
T = 83.04'
L = 164.93'
PC = 0+24.23
PT = 1+89.16
NO SUPER
DETOUR CURVE DATA
P.I. = 8+12.48
Δ = 16°08'16" LT.
D = 10°00'00"
T = 84.23'
L = 161.38'
PC = 7+31.23
PT = 8+92.64
NO SUPER
ROAD CLOSED
(1) R11-2 (48" X 30")
8' BARR. TYP. III LT.
8' BARR. TYP. III RT.
DETOUR CL
2 TRAFFIC DRUMS @ DRWY.
N
T.C.E.
DET. CONST. LIMITS
EXIST. R/W
PROPOSED R/W
N88°19'01"E
N89°54'08"E
N73°24'32"E
S89°46'46"E
S73°38'
210
215
220
5
9
C.L. DET. POB 0+00.00
C.L. DET. PC 0+24.23
C.L. DET. PT 1+89.16
C.L. DET. PI 2+96.30
C.L. DET. PC 2+11.63
PT 3+79.75 C.L. DET.
PC 5+34.45 C.L. DET.
C.L. DET. PI 6+15.68
C.L. DET. PT 6+95.83
C.L. DET. PC 7+31.26
PI 8+12.48 C.L. DET.
C.L. DET. PT 8+92.64
C.L. DET. POE 9+05.7
P.I. 211+26.92 C.L. CONST.
C.L. CONST. PC 209+36.54
C.L. CONST. PT 213+17.2
PI 1+07.27 C.L. DET.
P.I. = 211+26.92
Δ = 1°54'13" RT.
D = 0°30'00"
T = 190.38'
L = 380.73'
NO SUPER
6 TRAFFIC DRUMS @ 50' O.C.
4 TRAFFIC DRUMS @ DRWY.
2 TRAFFIC DRUMS @ 50' O.C.
DETOUR CURVE DATA
P.I. = 2+96.30
Δ = 16°48'42" RT.
D = 10°00'00"
T = 84.67'
L = 168.12'
PC = 2+11.63
PT = 3+79.75
e = 0.100 '/'
LS = 275'
DETOUR CURVE DATA
P.I. = 6+15.68
Δ = 16°08'16" RT.
D = 10°00'00"
T = 81.23'
L = 161.38'
PC = 5+34.45
PT = 6+95.83
e = 0.100 '/'
LS = 275'
STA. 222+20.00
END SITE 2 (HWY. 140) &
END JOB 100760
STA. 0+24.23
BEGIN DETOUR - SITE 2
STA. 222+20.00
END SITE 2 (HWY. 140) &
END JOB 100760
STA. 9+05.7
END DETOUR - SITE 2

SEQUENCE - SITE 2 (HWY. 140)

STAGE 1 - MAINTAIN TRAFFIC ON EXISTING ROADWAY AND CONSTRUCT DETOUR ROADWAY AND TEMPORARY BRIDGE STRUCTURE.

STAGE 2 - SHIFT TRAFFIC TO DETOUR ALIGNMENT, REMOVE EXISTING BRIDGE STRUCTURE AND CONSTRUCT NEW BRIDGE ON EXISTING ROADWAY. INSTALL PIPE CULVERTS, DRIVEWAYS AND FINAL SLOPE GRADES.

STAGE 3 - SHIFT TRAFFIC TO EXISTING ROADWAY, OBLITERATE DETOUR ROADWAY AND PERFORM FINAL SURFACE AND FINAL STRIPING.

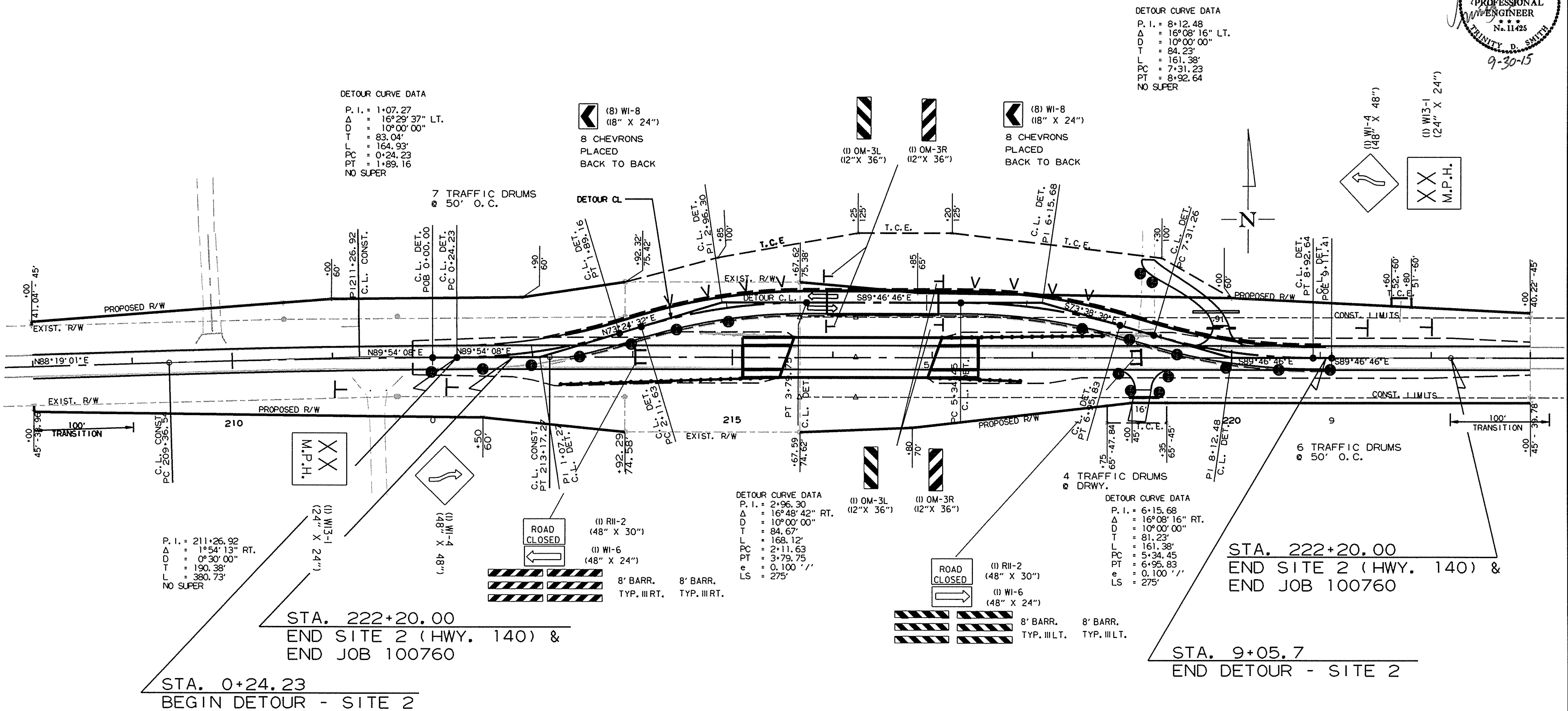
SITE 2 - STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

8/24/2015
R100760.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.		100760	33	133

(2) MAINTENANCE OF TRAFFIC DETAILS - SITE 2

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



DETOUR CURVE DATA
P. I. = 1+07.27
Δ = 16°29' 37" LT.
D = 10°00' 00"
T = 83.04'
L = 164.93'
PC = 0+24.23
PT = 1+89.16
NO SUPER
(8) WI-8 (18" X 24")
8 CHEVRONS PLACED BACK TO BACK
(1) OM-3L (12" X 36")
(1) OM-3R (12" X 36")
DETOUR CURVE DATA
P. I. = 8+12.48
Δ = 16°08' 16" LT.
D = 10°00' 00"
T = 84.23'
L = 161.38'
PC = 7+31.23
PT = 8+92.64
NO SUPER
(1) WI-4 (48" X 48")
(1) WI3-1 (24" X 24")
XX M.P.H.
7 TRAFFIC DRUMS @ 50' O.C.
DETOUR CL
T.C.E.
EXIST. R/W
PROPOSED R/W
DETOUR C.L.
S89°46' 46" E
S73°38' 30" E
N73°24' 32" E
N89°54' 08" E
N88°19' 01" E
CONST. LIMITS
100' TRANSITION
210
215
220
6 TRAFFIC DRUMS @ 50' O.C.
4 TRAFFIC DRUMS @ DRWY.
DETOUR CURVE DATA
P. I. = 2+96.30
Δ = 16°48' 42" RT.
D = 10°00' 00"
T = 84.67'
L = 168.12'
PC = 2+11.63
PT = 3+79.75
e = 0.100 '/'
LS = 275'
DETOUR CURVE DATA
P. I. = 6+15.68
Δ = 16°08' 16" RT.
D = 10°00' 00"
T = 81.23'
L = 161.38'
PC = 5+34.45
PT = 6+95.83
e = 0.100 '/'
LS = 275'
P. I. = 211+26.92
Δ = 1°54' 13" RT.
D = 0°30' 00"
T = 190.38'
L = 380.73'
NO SUPER
ROAD CLOSED
(1) RII-2 (48" X 30")
(1) WI-6 (48" X 24")
8' BARR. TYP. III RT.
8' BARR. TYP. III LT.
STA. 222+20.00
END SITE 2 (HWY. 140) &
END JOB 100760
STA. 0+24.23
BEGIN DETOUR - SITE 2
STA. 9+05.7
END DETOUR - SITE 2
N

SEQUENCE - SITE 2 (HWY. 140)

STAGE 1 - MAINTAIN TRAFFIC ON EXISTING ROADWAY AND CONSTRUCT DETOUR ROADWAY AND TEMPORARY BRIDGE STRUCTURE.

STAGE 2 - SHIFT TRAFFIC TO DETOUR ALIGNMENT, REMOVE EXISTING BRIDGE STRUCTURE AND CONSTRUCT NEW BRIDGE ON EXISTING ROADWAY. INSTALL PIPE CULVERTS, DRIVEWAYS AND FINAL SLOPE GRADES.

STAGE 3 - SHIFT TRAFFIC TO EXISTING ROADWAY, OBLITERATE DETOUR ROADWAY AND PERFORM FINAL SURFACE AND FINAL STRIPING.

SITE 2 - STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

8/24/2015

R100760.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.		100760	34	133

(2) MAINTENANCE OF TRAFFIC DETAILS - SITE 2

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

OBLITERATE ROADWAY

ROAD CLOSED

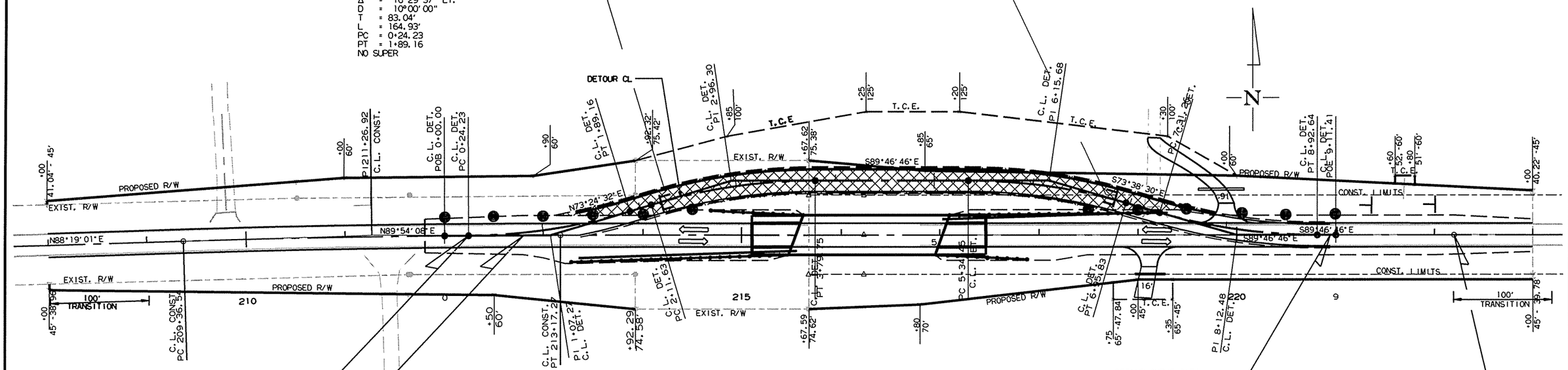
(1) RII-2 (48" X 30")
8' BARR. TYP. III LT.
8' BARR. TYP. III LT.

ROAD CLOSED

(1) RII-2 (48" X 30")
8' BARR. TYP. III RT.
8' BARR. TYP. III RT.

DETOUR CURVE DATA
P. I. = 8+12.48
Δ = 16°08' 16" LT.
D = 10°00' 00"
T = 84.23'
L = 161.38'
PC = 7+31.23
PT = 8+92.64
NO SUPER

DETOUR CURVE DATA
P. I. = 1+07.27
Δ = 16°29' 37" LT.
D = 10°00' 00"
T = 83.04'
L = 164.93'
PC = 0+24.23
PT = 1+89.16
NO SUPER



DETOUR CURVE DATA
P. I. = 2+96.30
Δ = 16°48' 42" RT.
D = 10°00' 00"
T = 84.67'
L = 168.12'
PC = 2+11.63
PT = 3+79.75
e = 0.100 '/'
LS = 275'

DETOUR CURVE DATA
P. I. = 6+15.68
Δ = 16°08' 16" RT.
D = 10°00' 00"
T = 81.23'
L = 161.38'
PC = 5+34.45
PT = 6+95.83
e = 0.100 '/'
LS = 275'

P. I. = 211+26.92
Δ = 1°54' 13" RT.
D = 0°30' 00"
T = 190.38'
L = 380.73'
NO SUPER

STA. 222+20.00
END SITE 2 (HWY. 140) &
END JOB 100760

STA. 0+24.23
BEGIN DETOUR - SITE 2

STA. 222+20.00
END SITE 2 (HWY. 140) &
END JOB 100760

STA. 9+05.7
END DETOUR - SITE 2

SEQUENCE - SITE 2 (HWY. 140)

STAGE 1 - MAINTAIN TRAFFIC ON EXISTING ROADWAY AND CONSTRUCT DETOUR ROADWAY AND TEMPORARY BRIDGE STRUCTURE.

STAGE 2 - SHIFT TRAFFIC TO DETOUR ALIGNMENT, REMOVE EXISTING BRIDGE STRUCTURE AND CONSTRUCT NEW BRIDGE ON EXISTING ROADWAY, INSTALL PIPE CULVERTS, DRIVEWAYS AND FINAL SLOPE GRADES.

STAGE 3 - SHIFT TRAFFIC TO EXISTING ROADWAY, OBLITERATE DETOUR ROADWAY AND PERFORM FINAL SURFACE AND FINAL STRIPING.

SITE 2 - STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

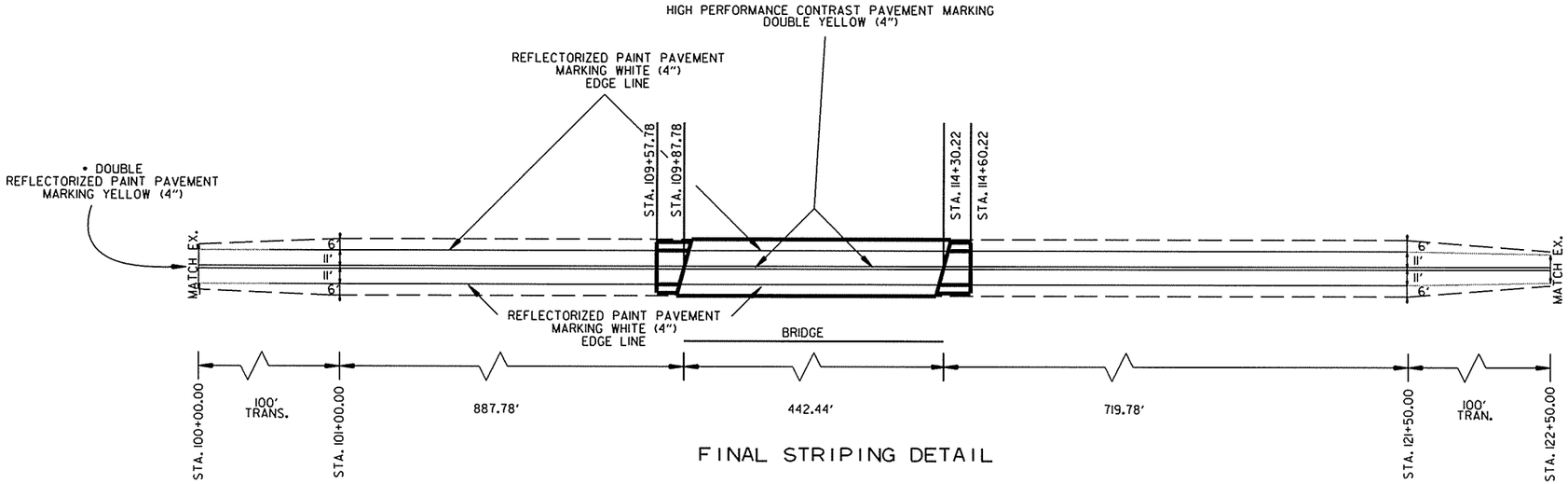
8/24/2015

R100760.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.		100760	35	133

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



FINAL STRIPING DETAIL

FINAL STRIPING: HWY. 77

REFLECTORIZED PAINT PAVEMENT MARKINGS

RT. AND LT. EDGE LINES WHITE (4") = 4420 LIN. FT.
DBL. CENTERLINE YELLOW (4") = 3495 LIN. FT.

HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS

DBL. CENTERLINE YELLOW (4") = 1005 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS = 4500 LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 1348 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 200 LIN. FT.

*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.

8/20/2015

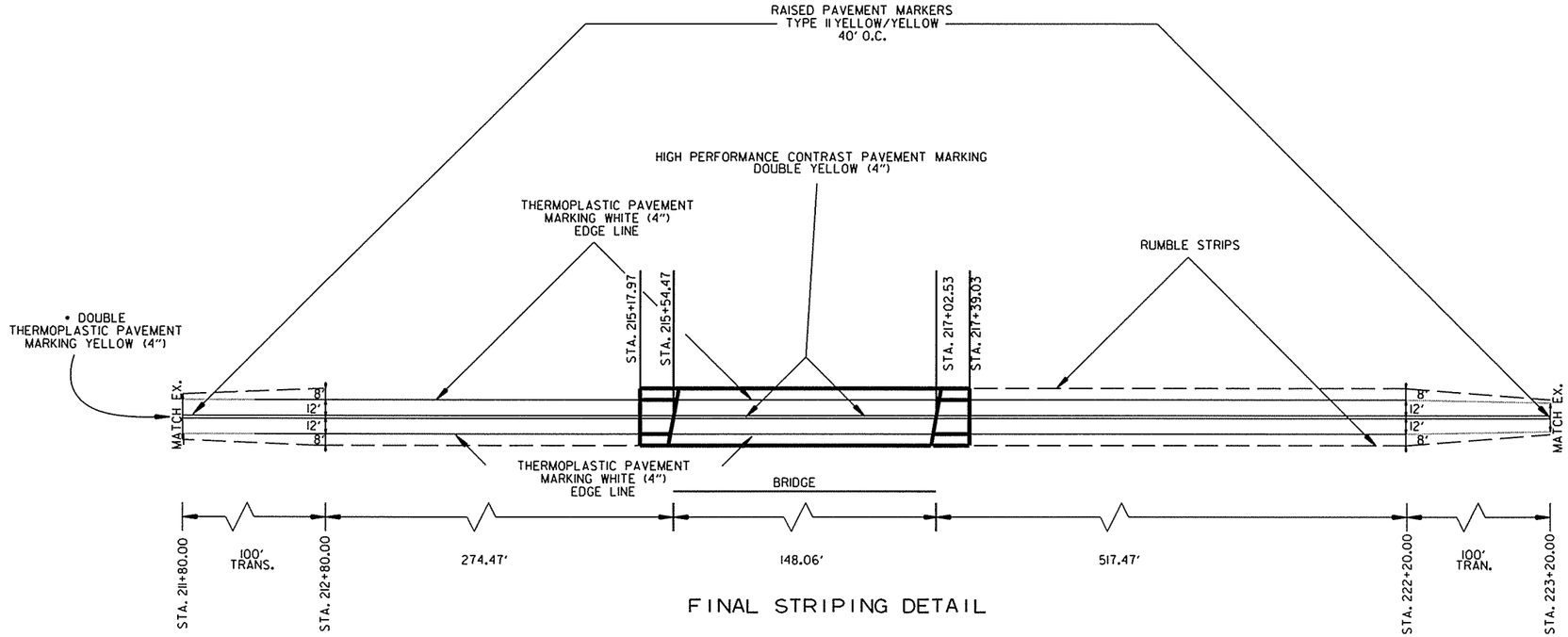
R110570.DGN

SITE 1 - (HWY. 77)
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.		100760	36	133

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15



FINAL STRIPING DETAIL

FINAL STRIPING: HWY. 140

THERMOPLASTIC PAVEMENT MARKING

RT. AND LT. EDGE LINES WHITE (4") = 2280 LIN. FT.
DBL. CENTERLINE YELLOW (4") = 1838 LIN. FT.

HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS

DBL. CENTERLINE YELLOW (4") = 442 LIN. FT.

CONSTRUCTION PAVEMENT MARKINGS = 2046 LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 3348 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 200 LIN. FT.

RUMBLE STRIPS = 1248 LIN. FT.
RAISED PAVEMENT MARKERS (TYPE II) YELLOW/YELLOW = 29 EACH

*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.

8/20/2015

R110570.DGN

SITE 2 - (HWY. 140)
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.		100760	37	133

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)	
												RIGHT	LEFT
			LIN. FT. - EACH					NO.	SQ. FT.	EACH		LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	4	4	4	4	4	4	64.0				
W20-1	ROAD WORK 1000 FT.	48"x48"	4	4	4	4	4	4	64.0				
W20-1	ROAD WORK 500 FT.	48"x48"	4	4	4	4	4	4	64.0				
W20-1	ROAD WORK AHEAD	48"x48"	2	2	2	2	2	2	32.0				
G20-2	END ROAD WORK	48"x24"	6	6	6	6	6	6	48.0				
W1-4AR	REVERSE CURVE RT.	48"x48"		2			2	2	32.0				
W1-4AL	REVERSE CURVE LT.	48"x48"		2			2	2	32.0				
W13-1	SPEED LIMIT (ADVISORY)	24"x24"		4			4	4	16.0				
R11-2	ROAD CLOSED	48"x30"	6	6	5	6	6	6	60.0				
OM-3L	OBJECT MARKER	12"x36"		2			2	2	6.0				
OM-3R	OBJECT MARKER	12"x36"		2			2	2	6.0				
W1-6	LARGE ARROW	48"x24"		2			2	2	16.0				
W1-8	CHEVRONS	18"x24"		16			16	16	48.0				
R4-1	DO NOT PASS	24"x30"	4	4	4	4	4	4	20.0				
RSP-1	SHOULDER CLOSED	48"x30"	4	4	4	4	4	4	40.0				
	VERTICAL PANELS		12				12			12			
	TRAFFIC DRUMS		31	51	40		51				51		
	TYPE III BARRICADE-RT. (8')		4	6	4		6					48	
	TYPE III BARRICADE-LT. (8')		8	4	4		8						64
TOTALS:									548.0	12	51	48	64

SITE 1-(HWY. 77)
NOTE: THIS IS A LOW TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
SITE 2-(HWY. 140)
NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKING		REFLECTORIZED PAINT PAVEMENT MARKING		HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
							TYPE II (YEL/YEL)	4"		4"		4"
								WHITE	YELLOW	WHITE	YELLOW	YELLOW
	LIN. FT. - EACH			LIN. FT.		LIN. FT.	EACH	LIN. FT.		LIN. FT.		LIN. FT.
SITE 1												
REMOVAL OF PERMANENT PAVEMENT MARKINGS	1348			1348								
CONSTRUCTION PAVEMENT MARKINGS		4500			4500							
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		200				200						
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")			4420							4420		
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")			3495								3495	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")			1005									1005
SITE 2												
REMOVAL OF PERMANENT PAVEMENT MARKINGS	3348			3348								
CONSTRUCTION PAVEMENT MARKINGS		2046			2046							
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		200				200						
RAISED PAVEMENT MARKERS(TYPE II) (YELLOW/YELLOW)			29				29					
THERMOPLASTIC PAVEMENT MARKING WHITE (4")			2280					2280				
THERMOPLASTIC PAVEMENT MARKING YELLOW (4")			1338						1338			
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")			442									442
TOTALS:				4696	6546	400	29	2280	1338	4420	3495	1447

NOTE: SITE 1 (HWY. 77) THIS IS A LOW TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
NOTE: SITE 2 (HWY. 140) THIS IS A HIGH 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.

6/16/2015

R100760.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100760	38	133

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
4-30-15

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	50
DIRECTED BY THE ENGINEER	
TOTAL:	50

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
114+30.22	BRIDGE END	1
217+02.53	BRIDGE END	1
TOTAL:		2

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
101+00	109+88	SITE -1	9	9
114+30	121+50	SITE -1	8	8
212+80	215+54	SITE -2	3	3
217+03	222+20	SITE -2	6	6
TOTALS:			26	26

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

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

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

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.

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
		FEET				
101+00	5' RT.	5	51	34	A-7-6(28)	BROWN
101+00	20' RT.	5	41	22	A-7-6(22)	BROWN
106+00	15' RT.	5	46	30	A-7-6(18)	BROWN
121+00	5' LT.	5	23	25	A-4(2)	BROWN
121+00	21' LT.	5	25	13	A-6(4)	BROWN
211+00	5' RT.	5	30	16	A-6(9)	BROWN
211+00	13' RT.	5	25	11	A-6(5)	BROWN
211+00	23' RT.	5	26	9	A-4(5)	BROWN
221+00	5' LT.	5	ND	NP	A-2-4(0)	BROWN
221+00	15' LT.	5	19	6	A-4(0)	BROWN
221+00	25' LT.	5	43	23	A-7-6(16)	BROWN
121+00	21' LT.	5	24	8	A-4(2)	BROWN
221+00	25' LT.	5	39	21	A-6(16)	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

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	SIGN FOUNDATIONS	WELL	BUILDINGS	SEPTIC SYSTEM	SIGNS	TIRES
			EACH	EACH	EACH	EACH	EACH	EACH
105+70		SITE 1 (HWY. 77) ON LT.		1				
111+00	111+64	SITE 1 (HWY. 77) ON LT.						6
114+82		SITE 1 (HWY. 77) ON LT.			1			
114+82		SITE 1 (HWY. 77) ON LT.				1		
114+90		SITE 1 (HWY. 77) ON LT.			1			
117+88		SITE 1 (HWY. 77) ON RT.	1				1	
TOTALS:			1	1	2	1	1	6

6/22/2015

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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.		100760	39	133

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	TERMINAL ANCHOR POSTS (TYPE 1)
			LIN. FT.	EACH	
107+52.64	109+52.64	RT. SIDE	200	1	1
108+91.62	109+66.62	LT. SIDE	75	1	1
114+65.36	116+65.36	LT. SIDE	200	1	1
114+51.38	115+26.38	RT. SIDE	75	1	1
213+19.04	215+19.04	RT. SIDE	200	1	1
214+58.60	215+33.60	LT. SIDE	75	1	1
217+37.96	219+37.96	LT. SIDE	200	1	1
217+23.40	217+98.40	RT. SIDE	75	1	1
TOTALS:			1100	8	8

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
100+00.00	101+00.00	MAIN LANES - SITE 1 (HWY. 77)	20.00	222
121+50.00	122+50.00	MAIN LANES - SITE 1 (HWY. 77)	20.00	222
211+80.00	212+80.00	MAIN LANES - SITE 2 (HWY. 140)	22.00	244
222+20.00	223+20.00	MAIN LANES - SITE 2 (HWY. 140)	22.00	244
TOTAL:				932

NOTE: AVERAGE MILLING DEPTH 1".

4" PIPE UNDERDRAIN

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

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL								
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	SITE 1 (HWY. 77) CLEARING & GRUBBING						2.16	2.16	44.1	176	9	2860			
ENTIRE	PROJECT	SITE 2 (HWY. 140) CLEARING & GRUBBING						0.74	0.74	15.1	88	12	1420			
ENTIRE	PROJECT	SITE 1 (HWY. 77) - STAGE 1	2.16	4.32	2.16	220.3	2.16	2.16	2.16	44.1	176	9	2860			
ENTIRE	PROJECT	SITE 1 (HWY. 77) - STAGE 2	0.45	0.90	0.45	45.9	0.45						1420			
ENTIRE	PROJECT	SITE 2 (HWY. 140) - STAGE 1						0.74	0.74	15.1	88	12	795			
ENTIRE	PROJECT	SITE 2 (HWY. 140) - STAGE 2	2.37	4.74	2.37	241.7	2.37				66		450			
ENTIRE	PROJECT	SITE 1 (CO. RD. S 57)	0.24	0.48	0.24	24.5	0.24						700			
ENTIRE	PROJECT	SITE 1 (EXIST. CO. RD. S 57)	0.01	0.02	0.01	1.0	0.01									
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			2.00	4.00	2.00	204.0	2.00	1.00	1.00	20.4				64	100	64
TOTALS:			7.23	14.46	7.23	737.4	7.23	6.80	6.80	138.8	594	42	10505	64	100	64

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
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.

9/17/2015

R100760.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.		100760	40	133

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
212+80	215+54	SITE 2 (HWY. 140) LT. & RT.	480
217+03	222+20	SITE 2 (HWY. 140) LT. & RT.	672
TOTAL:			1152

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

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
106+02	30" X 18" ARCH PIPE CULVERT	1
107+04	36" X 53' PIPE CULVERT	1
116+09	30" X 60' CM PIPE CULVERT	1
118+12	24" X 41' PIPE CULVERT	1
219+15	24" X 28' PIPE CULVERT	1
TOTAL:		5

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

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE A) W= 4'-0"	APPROACH SLABS (TYPE A) WIDTH=22'-0"	APPROACH GUTTER (TYPE C) W=8'-0"	APPROACH SLABS (TYPE C) WIDTH=24'-0"	REINFORCING STEEL- RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	CU.YD.	CU.YD.	POUND	TON
109+50.79	109+80.79	RT. SIDE	3.40				360	
109+64.77	109+94.77	LT. SIDE	3.40				360	
114+23.23	114+53.23	RT. SIDE	3.40				360	
114+37.21	114+67.21	LT. SIDE	3.40				360	
215+10.69	215+47.19	RT. SIDE			14.80		810	
215+25.25	215+61.75	LT. SIDE			14.80		810	
216+95.25	217+31.75	RT. SIDE			14.80		810	
217+09.81	217+46.31	LT. SIDE			14.80		810	
109+57.78	109+87.78	MAIN LANES		32.35			2110	30.1
114+30.22	114+60.22	MAIN LANES		32.35			2110	30.1
215+17.97	215+54.47	MAIN LANES				53.84	5980	38.2
217+02.53	217+39.03	MAIN LANES				53.84	5980	38.2
TOTALS:			13.60	64.70	59.20	107.68	20860	136.6

STRUCTURES

STATION	DESCRIPTION	R.C. PIPE CULVERT ALTERNATE #1 (CLASS III) 24"	R.C. PIPE CULVERT ALTERNATE #1 (CLASS IV) 36"	PIPE CULVERT ALTERNATE # 2, 3, 4, 5, & 6 24"	PIPE CULVERT ALTERNATE # 2, 3, 4, 5, & 6 36"	FLARED END SECTIONS 24"	FLARED END SECTIONS 36"	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.				EACH		SQ.YD.	M.GAL	
107+00	CONST. 36" CROSS DRAIN W/ F.E.S LT. & RT.		58		64		2	34	0.43	PCC-1, PCM-1, PCP-1, PCP-2, FES-1, FES-2
118+12	CONST. 24" CROSS DRAIN W/ F.E.S LT. & RT.	65		70		2		16	0.20	PCC-1, PCM-1, PCP-1, PCP-2, FES-1, FES-2
TOTALS:		65	58	70	64	2	2	50	0.63	

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.

7/9/2015

R100760.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100760	41	133

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	COMPACTED EMBANKMENT (SPECIAL)	* SOIL STABILIZATION
			CU. YD.			TON
101+00	108+80	SITE 1 MAIN LANES - STAGE 1	98	5867		
108+80	110+53	SITE 1 MAIN LANES GEOGRID REINFORCEMENT - STAGE 1	8		2170	
114+12	115+40	SITE 1 MAIN LANES GEOGRID REINFORCEMENT - STAGE 1	121		1731	
115+40	121+50	SITE 1 MAIN LANES - STAGE 1	983	1118		
101+00	121+50	SITE 1 MAIN LANES - STAGE 2	3593	425		
212+80	214+45	SITE 2 MAIN LANES - STAGE 2	408	393		
214+45	215+75	SITE 2 MAIN LANES GEOGRID REINFORCEMENT - STAGE 2	177		404	
216+82	218+10	SITE 2 MAIN LANES GEOGRID REINFORCEMENT -STAGE 2	396		363	
218+10	222+20	SITE 2 MAIN LANES - STAGE 2	826	373		
1+35	9+05	DETOUR CONSTRUCT - STAGE 1	90	3812		
1+35	9+05	DETOUR OBLITERATION - STAGE 3	4226	90		
ENTIRE	PROJECT	COUNTY RD. S 57	268	1785		
ENTIRE	PROJECT	SITE 1 BRIDGE EXCAVATION	350			
ENTIRE	PROJECT	SITE 2 BRIDGE EXCAVATION	780			
ENTIRE	PROJECT	DRIVEWAYS	270	195		
100+00	109+00	SITE 1 DITCH UNDERCUT	161	161		
114+30	117+00	SITE 1 DITCH UNDERCUT	18	18		
217+02	222+00	SITE 2 DITCH UNDERCUT	232	232		
* ENTIRE	PROJECT	TO BE USED IF AND WHERE				200
		DIRECTED BY THE ENGINEER				
TOTALS:			**13005**	**14469**	**4668**	**200**

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

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

REMOVAL AND DISPOSAL OF GUARDRAIL

STATION	STATION	SIDE	REMOVAL & DISPOSAL OF GUARDRAIL
			LIN. FT.
109+56	109+72	LT.	16
109+56	109+72	RT.	16
113+95	114+13	LT.	18
113+95	114+13	RT.	18
214+91	215+66	RT.	75
215+16	215+66	LT.	50
216+80	217+35	RT.	55
216+80	217+60	LT.	80
TOTAL:			**328**

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS			STANDARD DRAWINGS
							18"	24"	30"	
			FEET	SQ. YD.	TON	TON	LIN. FT.			
106+02	RT.	CO. RD. W 840	20	184.11	20.25	75.18			48	PCC-1, PCM-1, PCP-1, PCP-2
117+59	RT.	SIDE DRAIN	16	87.32	9.61	35.66			36	PCC-1, PCM-1, PCP-1, PCP-2
117+67	LT.	CO.RD. S 57 (CO. RD. STA. 0+45)	20	117.44	12.92	47.95			64	PCC-1, PCM-1, PCP-1, PCP-2
219+11	RT.	DRIVEWAY	16	81.62	8.98	33.33				
219+88	LT.	SIDE DRAIN	16	220.29	24.23	89.95		46		PCC-1, PCM-1, PCP-1, PCP-2
1+37	LT.	CO. S 57 SIDE DRAIN (STA. 117+38 HWY. 77)	20	20.00	2.20	8.17			62	PCC-1, PCM-1, PCP-1, PCP-2
3+57	LT.	CO. S 57 SIDE DRAIN	16	81.45	8.96	33.26	36			PCC-1, PCM-1, PCP-1, PCP-2
* ENTIRE PROJECT TEMPORARY DRIVES			20			18.67				
TOTALS:				**792.23**	**87.15**	**342.17**	**36**	**46**	**210**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.9% MIN. AGGR.....5.1% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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.

7/9/2015

R100760.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.		100760	42	133

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								TOTAL PG 64-22
			FEET	TON / STATION	TON	AVG. WID. FEET	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 64-22 TON	TON
MAIN LANES - SITE 1 (HWY. 77)																						
100+00.00	101+00.00	MAIN LANES TRANSITION	100.00	62.75	62.75	20.00	222.22	0.10	22.22									23.00	255.56	220.00	28.11	28.11
101+00.00	102+00.00	MAIN LANES NOTCH & WIDEN	100.00	125.50	125.50	28.71	319.00	0.03	9.57	4.46	49.56	330.00	8.18	4.25	47.22	220.00	5.19	26.00	288.89	220.00	31.78	36.97
102+00.00	109+57.78	MAIN LANES FULL DEPTH	757.78	207.50	1572.39	44.71	3764.48	0.03	112.93	22.46	1891.08	330.00	312.03	22.25	1873.40	220.00	206.07	26.00	2189.14	220.00	240.81	446.88
114+60.22	119+00.00	MAIN LANES FULL DEPTH	439.78	207.50	912.54	44.71	2184.73	0.03	65.54	22.46	1097.50	330.00	181.09	22.25	1087.23	220.00	119.60	26.00	1270.48	220.00	139.75	259.35
119+00.00	121+50.00	MAIN LANES NOTCH & WIDEN	250.00	125.50	313.75	28.71	797.50	0.03	23.93	4.46	123.89	330.00	20.44	4.25	118.06	220.00	12.99	26.00	722.22	220.00	79.44	92.43
121+50.00	122+50.00	MAIN LANES TRANSITION	100.00	62.75	62.75	20.00	222.22	0.10	22.22									23.00	255.56	220.00	28.11	28.11
107+09.64	107+42.64	ADD'L GUARDRAIL WIDENING TAPER RT.	33.00	25.00	8.25																	
107+42.64	109+80.79	ADD'L GUARDRAIL WIDENING RT.	238.15	50.00	119.08																	
108+48.62	108+81.62	ADD'L GUARDRAIL WIDENING TAPER LT.	33.00	25.00	8.25																	
108+81.62	109+94.77	ADD'L GUARDRAIL WIDENING LT.	113.15	50.00	56.58																	
114+23.23	115+36.38	ADD'L GUARDRAIL WIDENING RT.	113.15	50.00	56.58																	
115+36.38	115+69.38	ADD'L GUARDRAIL WIDENING TAPER RT.	33.00	25.00	8.25																	
114+37.21	116+75.36	ADD'L GUARDRAIL WIDENING LT.	238.15	50.00	119.08																	
116+75.36	117+08.36	ADD'L GUARDRAIL WIDENING TAPER LT.	33.00	25.00	8.25																	
MAIN LANES - SITE 2 (HWY. 140)																						
211+80.00	212+80.00	MAIN LANES TRANSITION	100.00	88.75	88.75	22.00	244.44	0.10	24.44									22.00	244.44	220.00	26.89	26.89
212+80.00	214+00.00	MAIN LANES NOTCH & WIDEN	120.00	177.50	213.00	30.77	410.27	0.03	12.31	4.52	60.27	495.00	14.92	4.25	56.67	220.00	6.23	40.00	533.33	220.00	58.67	64.90
214+00.00	215+17.97	MAIN LANES FULL DEPTH	117.97	283.00	333.86	48.77	639.27	0.03	19.18	24.52	321.40	495.00	79.55	24.25	317.86	220.00	34.96	40.00	524.31	220.00	57.67	92.63
217+39.03	218+00.00	MAIN LANES FULL DEPTH	60.97	283.00	172.55	48.77	330.39	0.03	9.91	24.52	166.11	495.00	41.11	24.25	164.28	220.00	18.07	40.00	270.98	220.00	29.81	47.88
218+00.00	222+20.00	MAIN LANES NOTCH & WIDEN	420.00	177.50	745.50	30.77	1435.93	0.03	43.08	4.52	210.93	495.00	52.21	4.25	198.33	220.00	21.82	40.00	1866.67	220.00	205.33	227.15
222+20.00	223+20.00	MAIN LANES TRANSITION	100.00	88.75	88.75	22.00	244.44	0.10	24.44									22.00	244.44	220.00	26.89	26.89
212+76.04	213+09.04	ADD'L GUARDRAIL WIDENING TAPER RT.	33.00	21.38	7.06													2.75	10.08	220.00	1.11	1.11
213+09.04	215+47.19	ADD'L GUARDRAIL WIDENING RT.	238.15	42.75	101.81													5.50	145.54	220.00	16.01	16.01
214+15.60	214+48.60	ADD'L GUARDRAIL WIDENING TAPER LT.	33.00	21.38	7.06													2.75	10.08	220.00	1.11	1.11
214+48.60	215+61.75	ADD'L GUARDRAIL WIDENING LT.	113.15	42.75	48.37													5.50	69.15	220.00	7.61	7.61
216+95.25	218+08.40	ADD'L GUARDRAIL WIDENING RT.	113.15	42.75	48.37													5.50	69.15	220.00	7.61	7.61
218+08.40	218+41.40	ADD'L GUARDRAIL WIDENING TAPER RT.	33.00	21.38	7.06													2.75	10.08	220.00	1.11	1.11
217+09.81	219+47.96	ADD'L GUARDRAIL WIDENING LT.	238.15	42.75	101.81													5.50	145.54	220.00	16.01	16.01
219+47.96	219+80.96	ADD'L GUARDRAIL WIDENING TAPER LT.	33.00	21.38	7.06													2.75	10.08	220.00	1.11	1.11
ADDITIONAL																						
0+11.00	5+10.07	SITE 1 - COUNTY RD. S 57	499.07	98.75	492.83													20.00	1109.04	220.00	121.99	121.99
1+35.50	8+12.48	DETOUR LANES SITE 2	676.98	171.50	1161.02	22.29	1676.65	0.03	50.30	22.29	1676.65	330.00	276.65					26.00	1955.72	220.00	215.13	215.13
ENTIRE	PROJECT	LEVELING - SITE 1	550.00			20.00	1222.22	0.10	122.22									20.00	1222.22	220.00	134.44	134.44
ENTIRE	PROJECT	LEVELING - SITE 2	740.00			22.00	1808.89	0.10	180.89									22.00	1808.89	220.00	198.98	198.98
ENTIRE	PROJECT	SUPERELEVATION			670.00																	
TOTALS:					**7728.86**		**15522.65**		**743.18**		**5597.39**		**986.18**		**3863.05**		**424.93**		**15231.59**		**1675.48**	**2100.41**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.9% MIN. AGGR.....5.1% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER

MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

7/6/2015

R100760.DGN

QUANTITIES

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.		100760	43	133
				① 07354 & 07355		- QUANTITIES -	57303	

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 100760

BRIDGE NO. / NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	603	801	802	802	803	804	804	805	805	805	805	SP & 807	808	809	812	816	816
		ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	TEMPORARY BRIDGE STRUCTURE (24' ROADWAY WIDTH)	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)	① STEEL SHELL PILING (18'' DIA.)	① STEEL SHELL PILING (24'' DIA.)	① PILE ENCASEMENT	PREBORING	STRUCTURAL STEEL IN BEAM SPANS (M270, GRADE 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.	LIN. FT.	LIN. FT.	LB.	CU. IN.	LIN. FT.	EACH	SQ. YD.	CU. YD.
07354 LEFT HAND CHUTE OF LITTLE RIVER	BENT 1				2	30.06		0.2	3,910	290	400								272	155
	BENT 2					17.39			1,290	165		400	41		635					
	BENT 3					17.39			1,290	165		360	41							
	BENT 4					18.14			1,520			360	41							
	BENT 5					17.39			1,290	165		360	41							
	BENT 6					17.39			1,290	165		360	41							
	BENT 7					17.39			1,290	165		300	41							
	BENT 8					17.39			1,290	165		320	41		635					
	BENT 9				6	30.06		0.2	3,910	290	270								264	144
	145'-0'' CONT. COMP. W-BM. UNIT						164.40	11.9		36,990					92,590	2,268.0	54	1		
	295'-0'' CONT. COMP. W-BM. UNIT						329.60	24.1		74,290					230,490	3,248.0	54			
EXIST. BR. NO. M1964 (SITE NO. 1)			1																	
TOTALS FOR BRIDGE NO. 07354					8	182.60	494.00	36.4	17,080	112,850	670	2,460	287		324,350	5,516.0	108	1	536	299
07355 LEFT HAND CHUTE OF LITTLE RIVER	BENT 1				29	18.07			1,790	1,380	325			50					284	159
	BENT 2					22.13			1,925	155		325	44							
	BENT 3					22.13			1,925	155		325	59							
	BENT 4				29	18.07			1,790	1,380	325			50					279	154
	147'-0'' INTEGRAL W-BM. UNIT			112			243.00	15.7		53,150					106,120			1		
EXIST. BR. NO. M1989 (SITE NO. 2)			1																	
TOTALS FOR BRIDGE NO. 07355				112	58	80.40	243.00	15.7	7,430	56,220	650	650	103	100	106,120			1	563	313
TOTALS FOR JOB NO. 100760				112	66	263.00	737.00	52.1	24,510	169,070	1,320	3,110	390	100	430,470	5,516.0	108	2	1,099	612

① PILES AND PILE ENCASEMENT SHALL CONFORM TO STD. DWG. NO. 55021, EXCEPT STEEL SHELL PILES IN END BENTS SHALL USE ONLY CONICAL OR VANED PILE TIPS. FLAT PILE TIPS MAY BE USED AT INT. BENTS.

STEVEN PEYTON
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
LEFT HAND CHUTE OF LITTLE RIVER
STRS. & APPRS. (S)
MISSISSIPPI COUNTY

ROUTE 77 & 140 SEC. 3 & 2
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: ADN DATE: 5-13-15 FILENAME: b100760_ql.dgn
CHECKED BY: SWP DATE: 8-21-15 SCALE: NONE
DESIGNED BY: -- DATE: --

BRIDGE NO. 07354 & 07355 DRAWING NO. 57303

PRINT DATE: 8/21/2015

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		26	STATION
201	GRUBBING		26	STATION
SP	REMOVAL AND DISPOSAL OF TIRES		6	EACH
202	REMOVAL AND DISPOSAL OF WELL		1	EACH
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS		1	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		5	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL		328	LIN. FT.
202	REMOVAL AND DISPOSAL OF BUILDINGS		2	EACH
202	REMOVAL AND DISPOSAL OF SEPTIC SYSTEM		1	EACH
202	REMOVAL AND DISPOSAL OF SIGNS		1	EACH
210	UNCLASSIFIED EXCAVATION		13005	CU. YD.
210	COMPACTED EMBANKMENT		14469	CU. YD.
SP & 210	COMPACTED EMBANKMENT (SPECIAL)		4668	CU. YD.
SP & 210	SOIL STABILIZATION		200	TON
303	AGGREGATE BASE COURSE (CLASS 7)		8208	TON
SS & 401	TACK COAT		783	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		946	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		40	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		2076	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		112	TON
412	COLD MILLING ASPHALT PAVEMENT		932	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		20	TON
SP & 415	ACHM PATCHING OF EXISTING ROADWAY		50	TON
504	APPROACH SLABS		172.38	CU. YD.
504	APPROACH GUTTERS		72.80	CU. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
SS & 604	SIGNS		548	SQ. FT.
SS & 604	BARRICADES		112	LIN. FT.
SS & 604	TRAFFIC DRUMS		51	EACH
604	CONSTRUCTION PAVEMENT MARKINGS		6546	LIN. FT.
604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		400	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		4696	LIN. FT.
SS & 604	VERTICAL PANELS		12	EACH
* 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	65	LIN. FT.
* 606	24" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 2)	70	LIN. FT.
* 606	24" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 3)	70	LIN. FT.
* 606	24" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERTS (16 GAUGE)	(ALTERNATE NO. 4)	70	LIN. FT.
* SP & 606	24" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	70	LIN. FT.
* SP & 606	24" PVC PIPE	(ALTERNATE NO. 6)	70	LIN. FT.
* 606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	(ALTERNATE NO. 1)	58	LIN. FT.
* 606	36" ASPHALT COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 2)	64	LIN. FT.
* 606	36" ALUMINUM COATED CORRUGATED STEEL PIPE CULVERTS (14 GAUGE)	(ALTERNATE NO. 3)	64	LIN. FT.
* 606	36" POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE CULVERT (14 GAUGE)	(ALTERNATE NO. 4)	64	LIN. FT.
* SP & 606	36" HIGH DENSITY POLYETHYLENE PIPE	(ALTERNATE NO. 5)	64	LIN. FT.
* SP & 606	36" PVC PIPE	(ALTERNATE NO. 6)	64	LIN. FT.
* 606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	2	EACH
* 606	24" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	2	EACH
* 606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	(ALTERNATE NO. 1)	2	EACH
* 606	36" FLARED END SECTIONS FOR CORRUGATED STEEL PIPE CULVERTS	(ALTERNATE NO. 2)	2	EACH
SP, SS, & 606	18" SIDE DRAIN		36	LIN. FT.
SP, SS, & 606	24" SIDE DRAIN		46	LIN. FT.
SP, SS, & 606	30" SIDE DRAIN		210	LIN. FT.
606	SELECTED PIPE BEDDING		50	CU. YD.
611	UNDERDRAIN OUTLET PROTECTORS		8	EACH
611	4" PIPE UNDERDRAINS		1000	LIN. FT.
617	GUARDRAIL (TYPE A)		1100	LIN. FT.
617	TERMINAL ANCHOR POSTS (TYPE 1)		8	EACH
617	THRIE BEAM GUARDRAIL TERMINAL		8	EACH
620	LIME		14	TON
620	SEEDING		7.23	ACRE
SS & 620	MULCH COVER		14.03	ACRE
620	WATER		876.8	M.GAL.
621	TEMPORARY SEEDING		6.80	ACRE
621	SILT FENCE		10505	LIN. FT.
621	SAND BAG DITCH CHECKS		594	BAG
621	SEDIMENT BASIN		64	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		100	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		64	CU. YD.
621	ROCK DITCH CHECKS		42	CU. YD.
623	SECOND SEEDING APPLICATION		7.23	ACRE
624	SOLID SODDING		50	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
642	RUMBLE STRIPS IN ASPHALT SHOULDERS		1152	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")		4420	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")		3495	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")		2280	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		1338	LIN. FT.
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	(ALTERNATE NO. 1)	1447	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	(ALTERNATE NO. 2)	1447	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)		29	EACH
804	REINFORCING STEEL-ROADWAY (GRADE 60)		20860	POUND
	STRUCTURES OVER 20' SPAN			
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)		1.00	LUMP SUM
603	TEMPORARY BRIDGE STRUCTURE (24' ROADWAY WIDTH)		112	LIN. FT.
636	BRIDGE CONSTRUCTION CONTROL		1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE		66	CU. YD.
802	CLASS S CONCRETE-BRIDGE		263.00	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE		737.00	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT		52.1	GAL.
804	REINFORCING STEEL-BRIDGE (GRADE 60)		24510	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)		169070	POUND
805	STEEL SHELL PILING (18" DIAMETER)		1320	LIN. FT.
805	STEEL SHELL PILING (24" DIAMETER)		3110	LIN. FT.
805	PREBORING		100	LIN. FT.
805	PILE ENCASEMENT		390	LIN. FT.
SP & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)		430470	POUND
808	ELASTOMERIC BEARINGS		5516.0	CU. IN.
809	SILICONE JOINT SEALANT		108	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)		2	EACH
816	FILTER BLANKET		1099	SQ. YD.
816	DUMPED RIPRAP		612	CU. YD.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
12/21/2015	REVISED HIGH PERFORMANCE PAVEMENT MARKING SPECIAL PROVISION	44

SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED 12/21/15	DATE FILED	DATE REVISED	DATE FILED

(2) SUMMARY OF QUANTITIES AND REVISIONS

FED.ROAD DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	100760	44	133

JOB NO.

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.		100760	45	133

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

MID POINT:
LAT: N 35-38-18.1
LON: W 090-14-56.3

SURVEY CONTROL COORDINATES

Project Name: s100760
Date: 5/17/2013
Coordinate System: ARKANSAS STATE PLANE - NORTH/SOUTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	477328.3313	1832824.2441	225.953	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 1
2	478192.4757	1832741.1560	227.047	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 2
3	479063.2636	1832674.0471	229.176	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 3
4	479661.6265	1832740.4350	228.759	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 4
5	480618.8807	1832752.2238	228.395	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 5
6	502005.8181	1838874.9381	230.184	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 6
7	502036.5034	1840689.6443	235.155	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 7
8	501994.6633	1841144.9767	232.398	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 8
9	502033.8472	1841994.8661	229.583	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 9
10	502029.5639	1842920.4880	230.531	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 10
11	502026.8917	1843715.3013	230.062	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 11
12	502024.4795	1844497.5347	230.536	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 12
13	501988.9169	1838026.2389	227.926	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 13
14	501977.2820	1837316.4538	228.849	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 14
15	481839.0813	1832690.9113	227.725	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 15
16	482573.3842	1832655.8738	228.401	CTL	5/8" Rebar with 2" Aluminum Cap stamped PN: 16
100	481183.0851	1832668.0007	226.076	GPS	AHTD GPS MON. *470021
101	480634.6216	1834274.1353	229.677	GPS	AHTD GPS MON. *470021A
102	503959.2515	1840145.2154	228.913	GPS	AHTD GPS MON. *470020
103	501957.0236	1839669.8875	229.519	GPS	AHTD GPS MON. *470020A
910	470358.6653	1833092.4007	224.646	TBM	CHISELED SQUARE IN CENTER OF HEADWALL, 10 FT. SOUTHWEST OF GATE POST
911	472984.3324	1832880.5327	232.081	TBM	CHISELED SQUARE IN NORTH END OF CURB, 21 FT. NORTH OF NORTHEAST BRIDGE CORNR
912	476322.1108	1832903.7329	226.787	TBM	AHTD STD.MON. STAMPED PN: 912, 15 FT. EAST OF CL HWY. 77
913	479656.9584	1832761.8515	230.379	TBM	CHISELED SQUARE IN NORTHEAST BRIDGE CORNR, 12 FT. EAST OF CL HWY. 77
914	482080.4383	1832553.6458	227.618	TBM	CHISELED SQUARE IN SOUTHEAST CORNR OF WELL HEAD SLAB, 79 FT. WEST OF CL HWY. 77
915	485418.2314	1832576.8390	227.788	TBM	AHTD STD.MON. STAMPED PN: 915, 50 FT. NORTHEAST OF CL COUNTY RD. S69
916	485978.1881	1835620.8506	228.792	TBM	AHTD STD.MON. STAMPED PN: 916, 17 FT. SOUTH OF CL HWY. 77
917	487533.1516	1837738.9612	227.459	TBM	AHTD STD.MON. STAMPED PN: 917, 16 FT. EAST OF CL HWY. 77
918	490667.2743	1837682.6685	228.665	TBM	AHTD STD.MON. STAMPED PN: 918, 16 FT. EAST OF CL HWY. 77
919	493902.5031	1837624.5599	231.147	TBM	AHTD STD.MON. STAMPED PN: 919, 15 FT. EAST OF CL HWY. 77
920	497036.6364	1837568.2670	230.857	TBM	AHTD STD.MON. STAMPED PN: 920, 17 FT. EAST OF CL HWY. 77
921	500375.9408	1837673.2880	228.513	TBM	*AHTD STD.MON. STAMPED PN: 921, 34 FT. NORTH OF CL OF GRAVEL DRIVE (ADDRESS 1828)
922	501880.6153	1836986.2920	226.829	TBM	CHISELED SQUARE IN CENTER OF HEADWALL, 21 FT. SOUTH OF CL OF HWY. 140
923	502039.6072	1840200.7393	229.176	TBM	CHISELED SQUARE IN CENTER OF HEADWALL, 11 FT. EAST OF CL OF JACKSON RD. (COUNTY RD. S121)
924	502057.4909	1841190.3569	229.693	TBM	*CHISELED SQUARE IN CENTER OF 18" RCP, 25 FT. NORTH OF CL OF HWY. 140
990	470125.2715	1830197.8484	229.974	BM	AHTD BM STATION *470003
991	470181.0816	1830494.1629	229.852	BM	AHTD BM STATION *470004

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999266181 HAS BEEN USED TO COMPUTE THE ABOVE LISTED GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GROUND COORDINATES ARE PROJECTED FROM AR. STATE PLANE GRID COORDINATES BY SCALING ALL X,Y COORDINATE VALUES WITH THE INVERSE (1/X) OF THE COMBINED AJUSTMENT FACTOR (CAF) ABOUT X=0, Y=0.

GRID COORDINATES ARE STORED UNDER FILE NAME. s100760gi.ctl
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 ELEVATIONS FOR POINTS 1-16, 100-103, AND 910-924 & 990-991 WERE ESTABLISHED BY 3-WIRE LEVEL TECHNIQUES FROM NGS BENCHMARKS.

POSITIONAL ACCURACY:

HORIZONTAL-GPS(POINTS 100-103): 1.0 CM 10 PPM, PRIMARY CONTROL(POINTS 1-16): 2.0 CM 20 PPM

VERTICAL-POSITIONAL ACCURACY IS THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS:
CONVERGENCE ANGLE: 01 01 08 RIGHT AT PN: 5
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

LT: N 35-38-15 LG: W 090-14-56

GRID NORTHING: 480583.6120 GRID EASTING: 1832617.7330

GROUND NORTHING: 480618.8807 GROUND EASTING: 1832752.2238

CONST 77

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	100+00.00	478209.0807	1832751.5705
8001	PC	102+17.48	478411.1696	1832671.1997
8003	PT	106+53.58	478839.1211	1832614.7470
8004	PC	118+32.98	480010.5711	1832751.4965
8006	PT	119+77.33	480154.6745	1832756.4454
8007	POE	123+90.35	480567.2259	1832736.8137

CONST 140

POINT NO.	TYPE	STATION	NORTHING	EASTING
8100	POB	200+00.00	501989.4869	1839247.0504
8101	PI	207+12.26	502005.3401	1839959.1303
8102	PC	209+36.54	502011.9278	1840183.3162
8103	PT	213+17.27	502016.7873	1840563.9998
8104	PI	226+12.83	502011.8017	1841859.5460
8105	POE	231+55.28	502010.1085	1842401.9940

CO. RD. S57 SITE 1

POINT NO.	TYPE	STATION	NORTHING	EASTING
8010	POB	0+00.00	479945.1479	1832743.8593
8011	PC	0+19.71	479947.5182	1832724.2969
8012	PT	2+38.08	479875.1671	1832526.7582
8013	PC	3+75.72	479774.2805	1832433.1408
8014	PT	4+83.38	479714.9008	1832344.4984
8015	POE	5+10.07	479705.5549	1832319.4940

DETOUR SITE 2

POINT NO.	TYPE	STATION	NORTHING	EASTING
8110	POB	0+00.00	502016.6385	1840446.7293
8111	PC	0+24.23	502016.6798	1840470.9583
8112	PT	1+89.16	502040.5331	1840633.5840
8113	PC	2+11.63	502046.9491	1840655.1180
8114	PT	3+79.75	502070.7990	1840820.9255
8115	PC	5+34.45	502070.2036	1840975.6296
8116	PT	6+95.83	502047.0140	1841134.7947
8117	PC	7+31.26	502037.0370	1841168.7849
8118	PT	8+92.64	502013.8474	1841327.9499
8119	POE	9+11.41	502013.7752	1841346.7229

8/24/2015

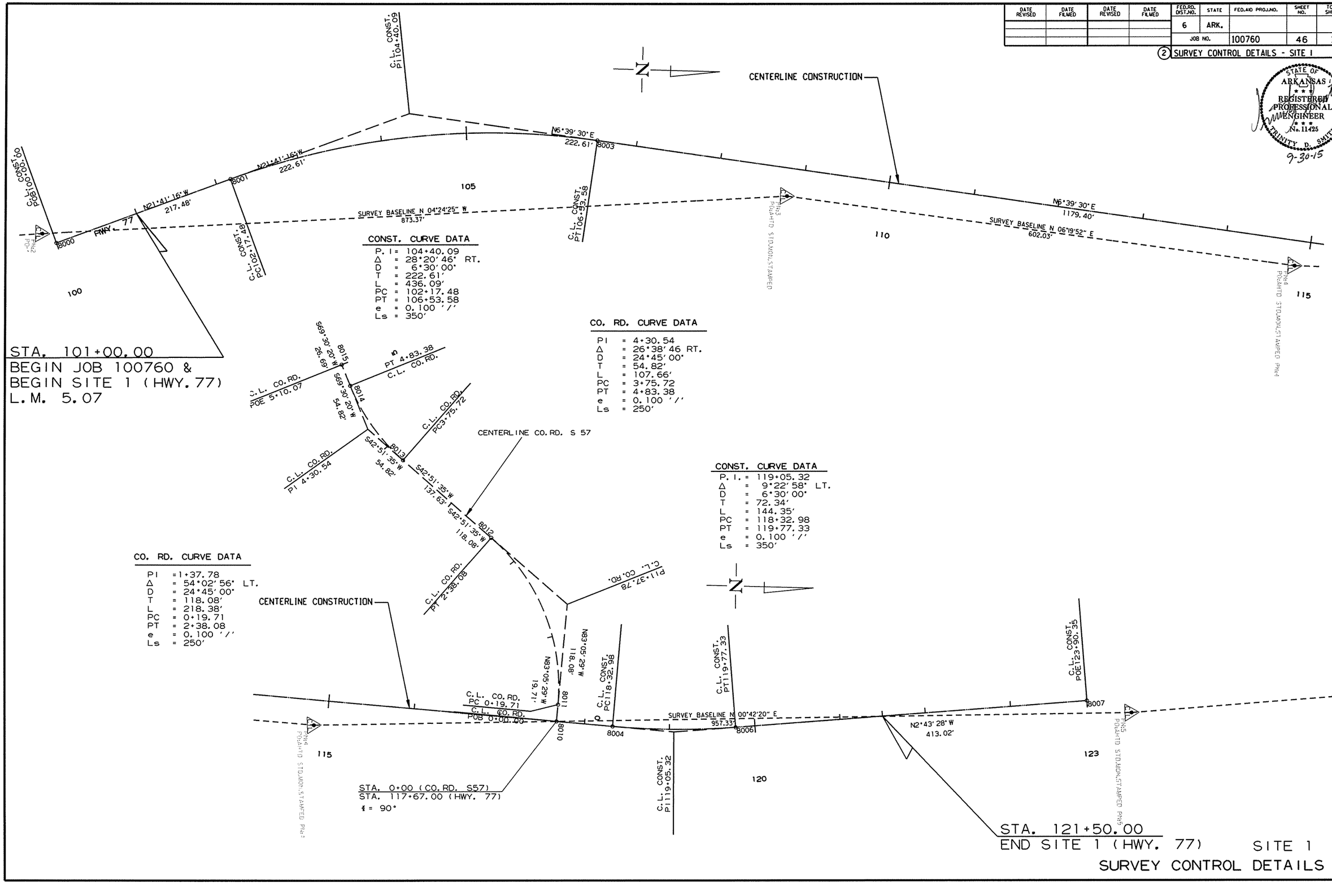
R100760.DGN

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.		100760	46	133

(2) SURVEY CONTROL DETAILS - SITE 1

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

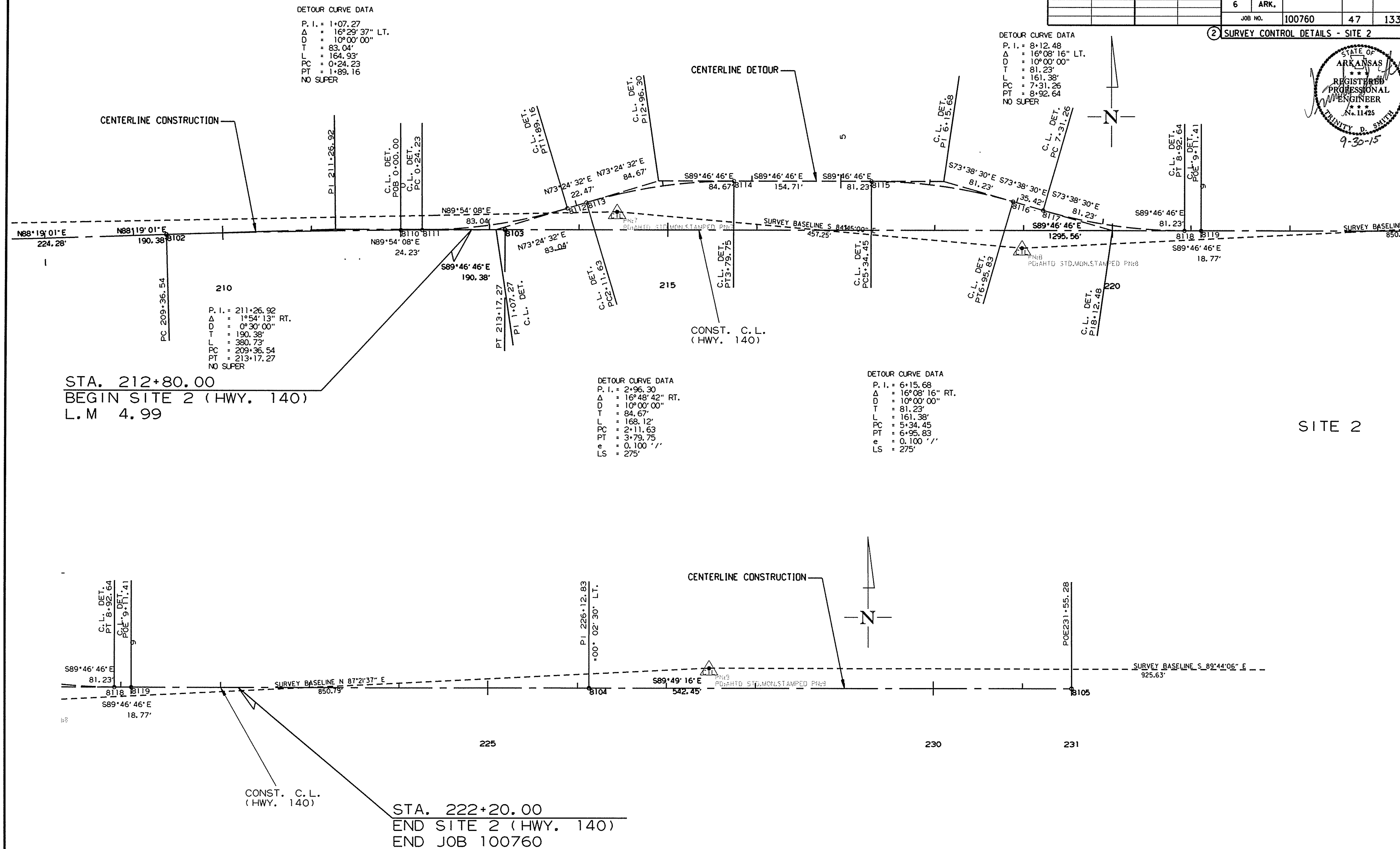


8/26/2015

R100760.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.		100760	47	133

(2) SURVEY CONTROL DETAILS - SITE 2



SITE 2

SURVEY CONTROL DETAILS

8/24/2015

R100760.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.		100760	48	133

(2) PLAN AND PROFILE-SITE 1

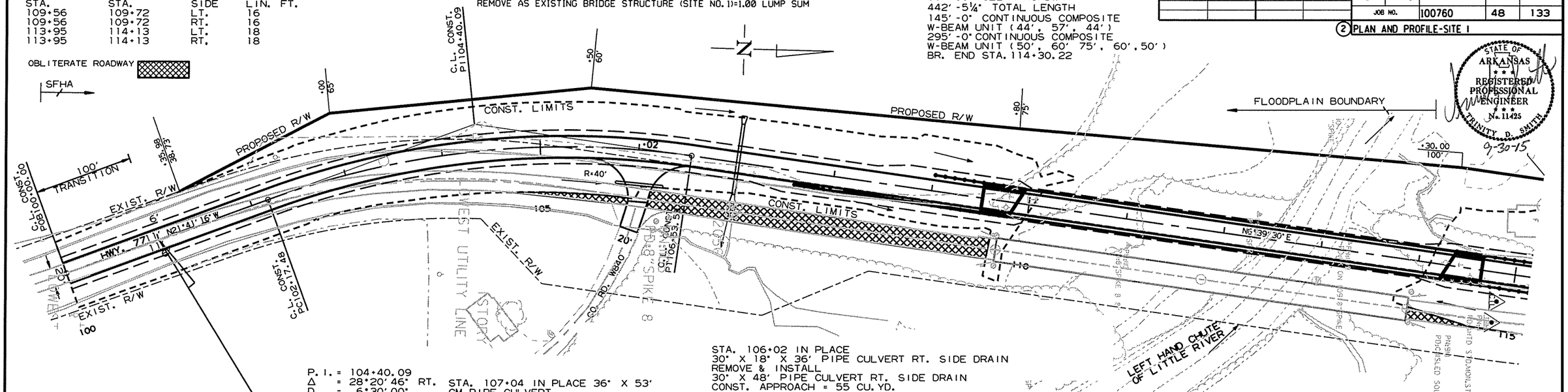
REMOVAL OF GUARDRAIL ITEMS

STA.	STA.	SIDE	LIN. FT.
109+56	109+72	LT.	16
109+56	109+72	RT.	16
113+95	114+13	LT.	18
113+95	114+13	RT.	18

OBLITERATE ROADWAY

STA. 109+72.71 - STA. 113+94.92
(422.21' X 23.95') BRIDGE M1964
CONSISTING OF 5-SPAN CONC. DECK W/STEEL TRUSS
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 1)=1.00 LUMP SUM

BR. END STA. 109+87.78
BRIDGE NO. 07354
30'-00" CLEAR ROADWAY
442'-5¼" TOTAL LENGTH
145'-0" CONTINUOUS COMPOSITE
W-BEAM UNIT (44', 57', 44')
295'-0" CONTINUOUS COMPOSITE
W-BEAM UNIT (50', 60' 75', 60', 50')
BR. END STA. 114+30.22



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

STA. 101+00.00
BEGIN SITE 1 (HWY. 77) &
BEGIN JOB 100760
L.M. 5.07

FLOODPLAIN BOUNDARY

P.I. = 104+40.09
Δ = 28°20' 46" RT.
D = 6°30' 00"
T = 222.61'
L = 436.09'
PC = 102+17.48
PT = 106+53.58
e = 0.100 '/'
Ls = 350'

STA. 107+04 IN PLACE 36" X 53' CM PIPE CULVERT
REMOVE & CONSTRUCT ©
STA. 107+00 36" X 64' PIPE CULVERT WITH F.E.S RT. & LT.
Q25= 17 CFS, DA= 3.28 ACRES
36" R.C. PIPE (CLASS IV), (TYPE 3 BEDDING) = 58 LIN.FT.
36" C.M. PIPE (TYPE 2 BEDDING) = 64 LIN.FT.
36" FES = 2 EACH

STA. 106+02 IN PLACE
30" X 18" X 36' PIPE CULVERT RT. SIDE DRAIN
REMOVE & INSTALL
30" X 48" PIPE CULVERT RT. SIDE DRAIN
CONST. APPROACH = 55 CU. YD.

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

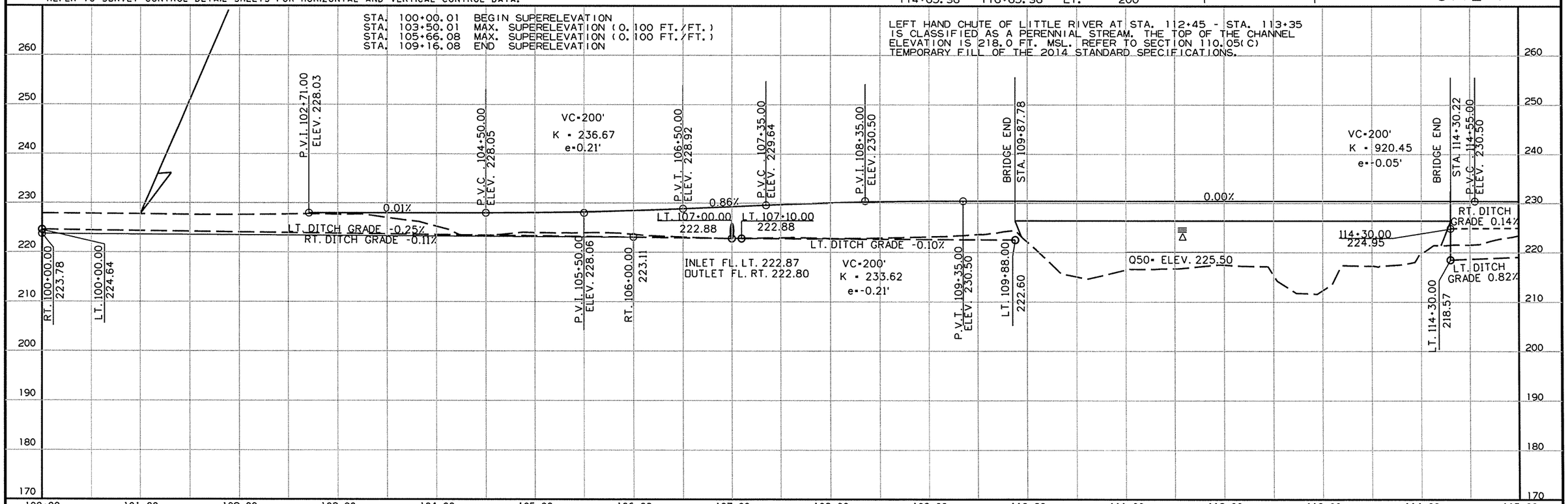
STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	TERMINAL ANCHOR POST (TYPE 1) EACH
108+91.62	109+66.62	LT.	75	1	1
107+52.64	109+52.64	RT.	200	1	1
114+51.38	115+26.38	RT.	75	1	1
114+65.36	116+65.36	LT.	200	1	1

SFHA

SITE 1

STA. 100+00.01 BEGIN SUPERELEVATION
STA. 103+50.01 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 105+66.08 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 109+16.08 END SUPERELEVATION

LEFT HAND CHUTE OF LITTLE RIVER AT STA. 112+45 - STA. 113+35 IS CLASSIFIED AS A PERENNIAL STREAM. THE TOP OF THE CHANNEL ELEVATION IS 218.0 FT. MSL. REFER TO SECTION 110.05(C) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.



9/22/2015

R100760.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.		100760	49	133

(2) PLAN AND PROFILE-SITE 1

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

P.I. = 119+05.32
Δ = 9°22'58" LT.
D = 6°30'00"
T = 72.34'
L = 144.35'
PC = 118+32.98
PT = 119+77.33
e = 0.100 '/'
Ls = 350'

STA. 117+38 INSTALL 30" X 62' PIPE CULVERT LT. SIDE DRAIN COUNTY RD.

STA. 117+67 INSTALL 30" X 64' PIPE CULVERT LT. SIDE DRAIN COUNTY RD.

STA. 116+09 IN PLACE 30" X 60' PIPE CULVERT LT. SIDE DRAIN REMOVE

STA. 117+59 INSTALL 30" X 36' PIPE CULVERT ON RT. SIDE DRAIN CONST. APPROACH = 80 CU. YD.

STA. 118+12 IN PLACE 24" X 41' CM PIPE REMOVE & CONSTRUCT 24" X 70' PIPE CULVERT W/ F.E.S. LT. & RT.
Q25= 9.29 CFS, DA= 2.41 ACRES
24" CM PIPE (TYPE 2 BEDDING) = 70 LIN.FT.
24" RC PIPE (CLASS III) (TYPE 3 BEDDING)= 65 LIN. FT.
24" F.E.S. = 2 EACH

STA. 121+50.00
END SITE 1 (HWY. 77)

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

SITE 1

STA. 115+55.16 BEGIN SUPERELEVATION
STA. 119+05.16 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 119+05.16 MAX. SUPERELEVATION (0.100 FT./FT.)
STA. 122+55.16 END SUPERELEVATION

P.V.I. 115+55.00 ELEV. 230.50
P.V.C. 117+27.51 ELEV. 229.96
P.V.T. 119+42.49 ELEV. 229.70
VC=215'
K=567.43
e=0.10'
-0.31%
0.07%
121+50.00 ELEV. 229.83
OUTLET FL. LT. 221.61
INLET FL. RT. 225.45
RT. DITCH GRADE 0.14%
LT. DITCH GRADE 0.82%
VC=200'
K=639.77
e=-0.08'
P.V.T. 116+55.00 ELEV. 230.19
LT. 118+00.00 221.61
P.V.I. 118+35.00 ELEV. 229.62
RT. 118+52.00 225.52

260 250 240 230 220 210 200 190 180 170

115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00 124+00 125+00 126+00 127+00 128+00 129+00 130+00

9/22/2015
R100760.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.		100760	50	133

(2) PLAN AND PROFILE-SITE 2

REMOVAL OF GUARDRAIL ITEMS

STA.	STA.	SIDE	LIN. FT.
214+91	215+66	RT.	75
215+16	215+66	LT.	50
216+80	217+35	RT.	55
216+80	217+60	LT.	80

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	TERMINAL ANCHOR POST (TYPE 1) EACH
213+09.04	215+19.04	RT.	200	1	1
214+58.60	215+33.60	LT.	75	1	1
217+23.40	217+98.40	RT.	75	1	1
217+37.96	219+37.96	LT.	200	1	1

STA. 219+88 INSTALL 24" X 46' PIPE CULVERT LT. SIDE DRAIN
CONSTRUCT APPROACH = 50 CU. YD.

STA. 219+15 IN PLACE
24" X 28' RC PIPE CULVERT
ON LT. SIDE DRAIN
REMOVE

STA. 221+69 IN PLACE
18" X 21' CPP PIPE CULVERT
ON LT. FIELD DRAIN
REMOVE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11435
TRINITY D. SMITH
9-30-15

STA. 209+81 IN PLACE
24" X 25' RC PIPE CULVERT
ON LT. SIDE DRAIN
RETAIN

STA. 211+19 IN PLACE
24" X 20' RC PIPE CULVERT
ON LT. SIDE DRAIN
RETAIN

P.I. = 211+26.92
Δ = 1°54' 13" RT.
D = 0°30' 00"
T = 190.38'
L = 380.73'
PC = 209+36.54
PT = 213+17.27
NO SUPER

STA. 212+80.00
BEGIN SITE 2 (HWY. 140)
L.M 4.99

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

BR. END STA. 215+54.47
BRIDGE NO. 07355
40'-00" CLEAR ROADWAY
148'-0-¾" TOTAL LENGTH
147'-0" INTEGRAL W-BEAM UNIT
(45', 57', 45')
BR. END STA. 217+02.53

STA. 215+67.21 - STA. 216+79.31
(112' X 24') BRIDGE M1989 CONSISTING OF
STEEL TRUSS, CONCRETE CHANNEL BEAM DECK
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 2) = 1.00 LUMP SUM

STA. 219+11 CONSTRUCT APPROACH
ON RT. = 26 CU. YD.

STA. 222+20.00
END SITE 2 (HWY. 140) &
END JOB 100760

SITE 2

LEFT HAND CHUTE OF LITTLE RIVER AT STA. 215+75 - STA. 216+80 IS CLASSIFIED AS A PERENNIAL STREAM. THE TOP OF THE CHANNEL ELEVATION IS 226.0 FT. MSL. REFER TO SECTION 110.05(C) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

P.V.I. 213+50.00 ELEV. 236.15
BRIDGE END STA. 215+54.47
P.V.C. 217+00.00 ELEV. 236.15
BRIDGE END STA. 217+02.53
P.V.I. 218+10.00 ELEV. 236.15
P.V.C. 220+10.00 ELEV. 232.77
P.V.T. 222+20.00 ELEV. 231.14
0.00%
-1.69%
0.13%
VC=220' K 130.29 e=-0.46'
VC=210' K = 115 e=0.48'
RT. DITCH GRADE -0.25%
LT. DITCH GRADE -0.59%
RT. DITCH GRADE 2.96%
RT. DITCH GRADE -0.80%
LT. DITCH GRADE 0.20%
LT. 212+80.00 223.90
RT. 212+80.00 225.56
LT. 215+00.00 222.60
RT. 215+00.00 225.01
Q50 ELEV. 229.60
RT. 217+02.00 223.88
LT. 218+00.00 225.69
RT. 219+00.00 229.75
P.V.T. 219+20.00 ELEV. 234.29
RT. 219+11.00 229.67
P.V.I. 221+15.00 ELEV. 231.00
RT. 222+20.00 227.21
LT. 222+20.00 226.53

8/26/2015
R100760.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.		100760	51	133

(2) PLAN AND PLOFILE-SITE 1 CO.RD.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

STA. 5+10.07
END COUNTY RD.
(CO. RD. S 57)

CO. RD. CURVE DATA

PI = 4+30.54
Δ = 26°38' 46 RT.
D = 24°45' 00"
T = 54.82'
L = 107.66'
PC = 3+75.72
PT = 4+83.38
e = 0.100 '/'
Ls = 250'

CONST. CURVE DATA

P. I. = 119+05.32
Δ = 9°22' 58" LT.
D = 6°30' 00"
T = 72.34'
L = 144.35'
PC = 118+32.98
PT = 119+77.33
e = 0.100 '/'
Ls = 350'

STA. 3+57 INSTALL 18" X 36" PIPE CULVERT LT. SIDE DRAIN FOR CO. RD. CONSTRUCT APPROACH - 35 CU. YD.

CO. RD. CURVE DATA

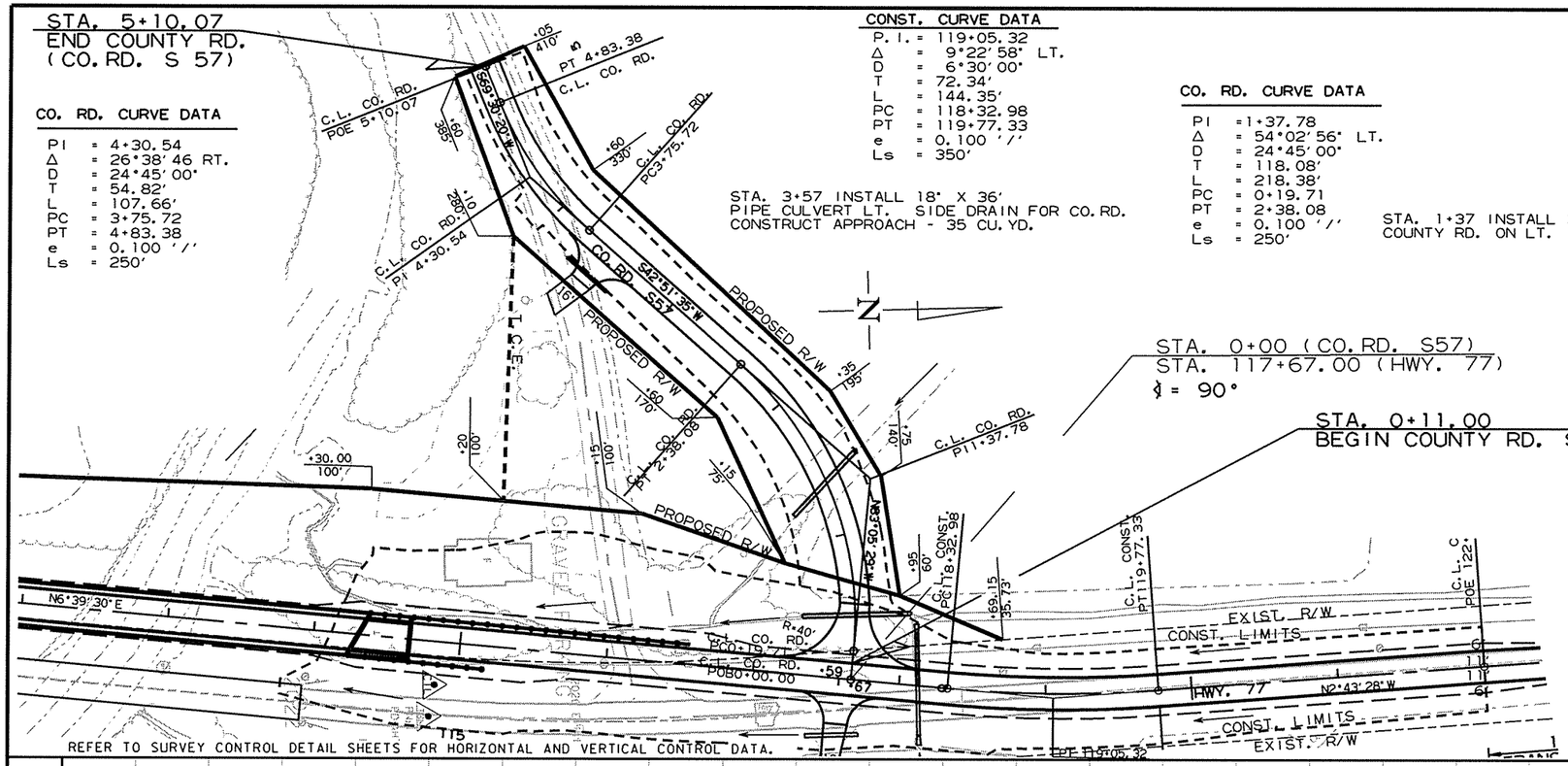
PI = 1+37.78
Δ = 54°02' 56" LT.
D = 24°45' 00"
T = 118.08'
L = 218.38'
PC = 0+19.71
PT = 2+38.08
e = 0.100 '/'
Ls = 250'

STA. 1+37 INSTALL 30' X 62' PIPE COUNTY RD. ON LT.

STA. 0+45 INSTALL 30' X 64' PIPE COUNTY RD. ON LT.

STA. 0+00 (CO. RD. S57)
STA. 117+67.00 (HWY. 77)
∢ = 90°

STA. 0+11.00
BEGIN COUNTY RD. S 57

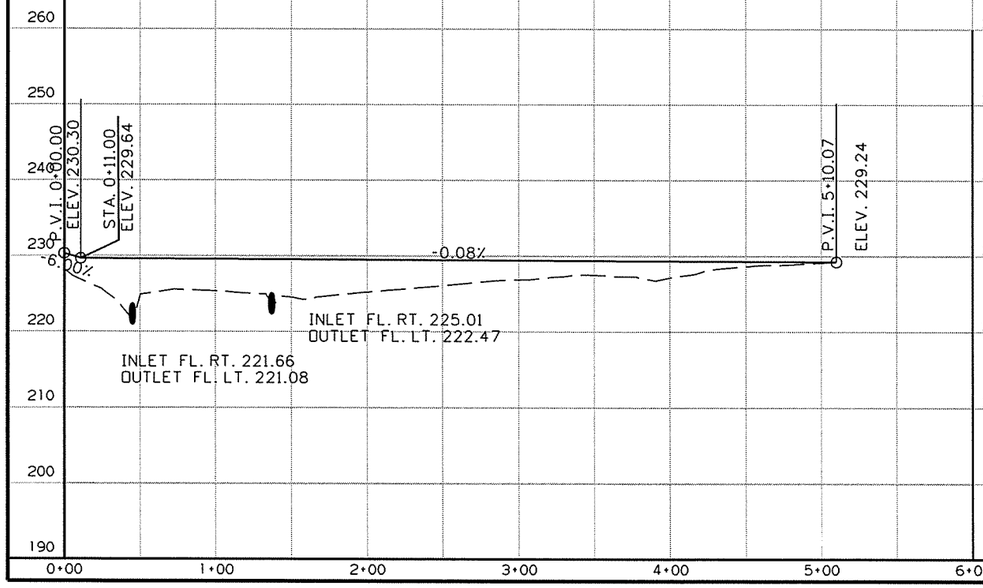


REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

SITE 1 - COUNTY RD. S 57

STA. 0+11.00 BEGIN SUPERELEVATION
STA. 1+28.90 MAX. SUPERELEVATION (0.047 FT./FT.)
STA. 1+89.00 MAX. SUPERELEVATION (0.047 FT./FT.)
STA. 3+06.90 END SUPERELEVATION

STA. 3+06.91 BEGIN SUPERELEVATION
STA. 3+87.35 MAX. SUPERELEVATION (0.032 FT./FT.)
STA. 4+29.63 MAX. SUPERELEVATION (0.032 FT./FT.)
STA. 5+10.07 END SUPERELEVATION



8/26/2015

R100760.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.		100760	52	133

(2) PLAN AND PROFILE DETOUR-SITE 2

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-30-15

DETOUR CURVE DATA
P. I. = 1+07.27
Δ = 16°29'37" LT.
D = 10°00'00"
T = 83.04'
L = 164.93'
PC = 0+24.23
PT = 1+89.16
NO SUPER

STA. 4+00.00 - STA. 5+12.00
TEMPORARY BRIDGE STRUCTURE
(24'ROADWAY WIDTH) = 112 LIN. FT.

FLOODPLAIN BOUNDARY

DETOUR CURVE DATA
P. I. = 8+12.48
Δ = 16°08'16" LT.
D = 10°00'00"
T = 81.23'
L = 161.38'
PC = 7+31.26
PT = 8+92.64
NO SUPER

DETOUR CURVE DATA
P. I. = 2+96.30
Δ = 16°48'42" RT.
D = 10°00'00"
T = 84.67'
L = 168.12'
PC = 2+11.63
PT = 3+79.75
e = 0.100 '/'
LS = 275'

DETOUR CURVE DATA
P. I. = 6+15.68
Δ = 16°08'16" RT.
D = 10°00'00"
T = 81.23'
L = 161.38'
PC = 5+34.45
PT = 6+95.83
e = 0.100 '/'
LS = 275'

STA. 0+24.23
BEGIN DETOUR - SITE 2

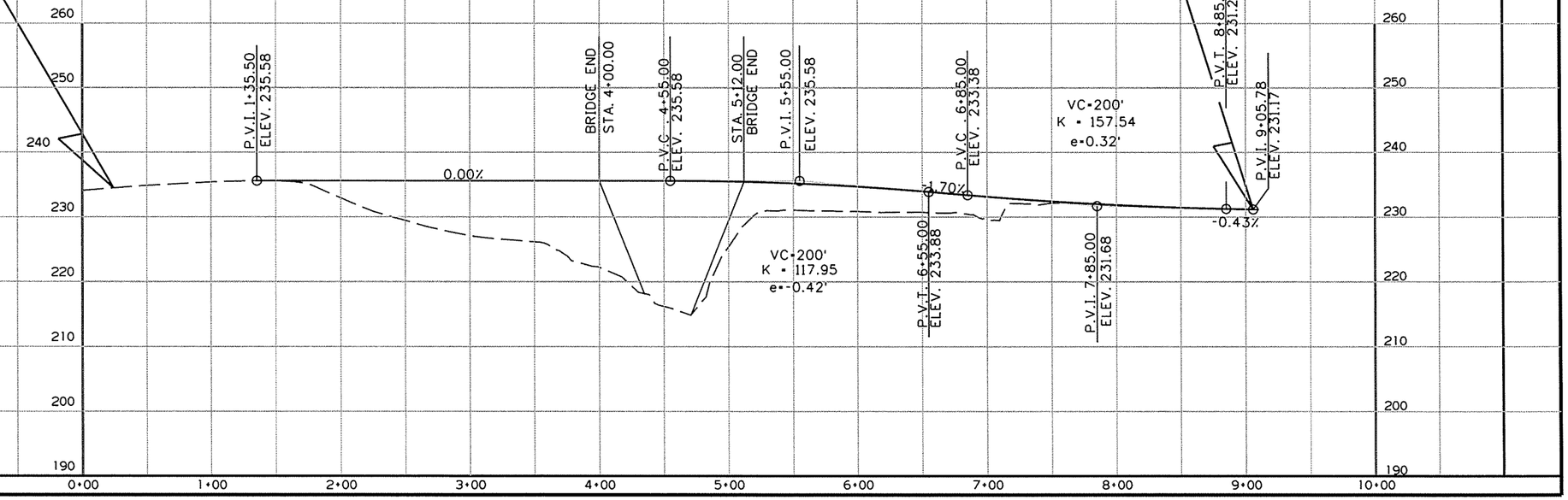
STA. 9+05.78
END DETOUR - SITE 2

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

SITE 2 - DETOUR

STA. 1+91.38	BEGIN SUPERELEVATION	STA. 5+12.00	BEGIN SUPERELEVATION
STA. 2+95.69	MAX. SUPERELEVATION (0.038 FT./FT.)	STA. 6+15.14	MAX. SUPERELEVATION (0.038 FT./FT.)
STA. 2+95.69	MAX. SUPERELEVATION (0.038 FT./FT.)	STA. 6+15.14	MAX. SUPERELEVATION (0.038 FT./FT.)
STA. 4+00.00	END SUPERELEVATION	STA. 7+18.28	END SUPERELEVATION

LEFT HAND CHUTE OF LITTLE RIVER AT STA. 4+25 - STA. 216+80 IS CLASSIFIED AS A PERENNIAL STREAM. THE TOP OF THE CHANNEL ELEVATION IS 226.0 FT. MSL. REFER TO SECTION 110.05(C) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.



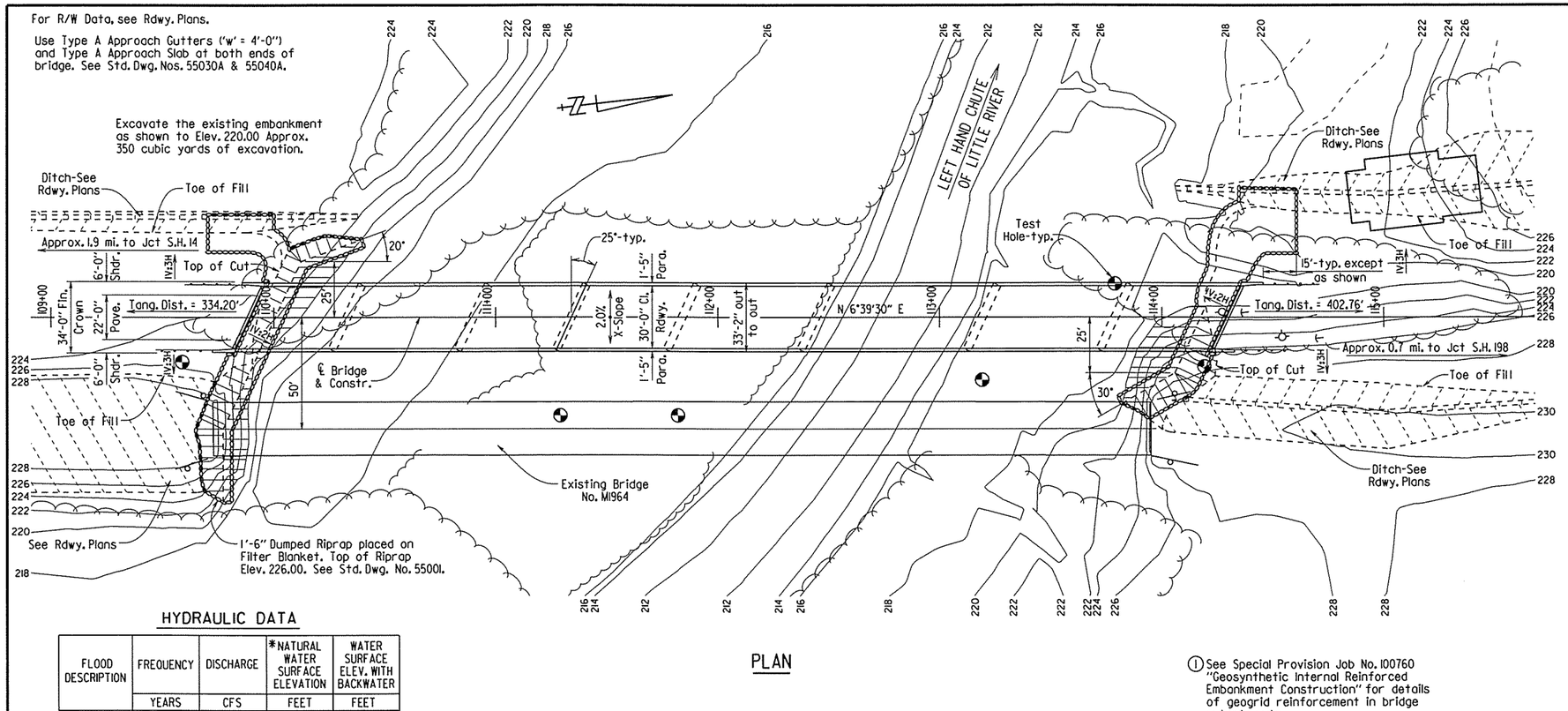
8/25/2015

R100760.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.		100760	53	133
				①	07354 -	LAYOUT	- 57304	

For R/W Data, see Rdwy. Plans.

Use Type A Approach Gutters ('w' = 4'-0") and Type A Approach Slab at both ends of bridge. See Std. Dwg. Nos. 55030A & 55040A.



PLAN

HYDRAULIC DATA

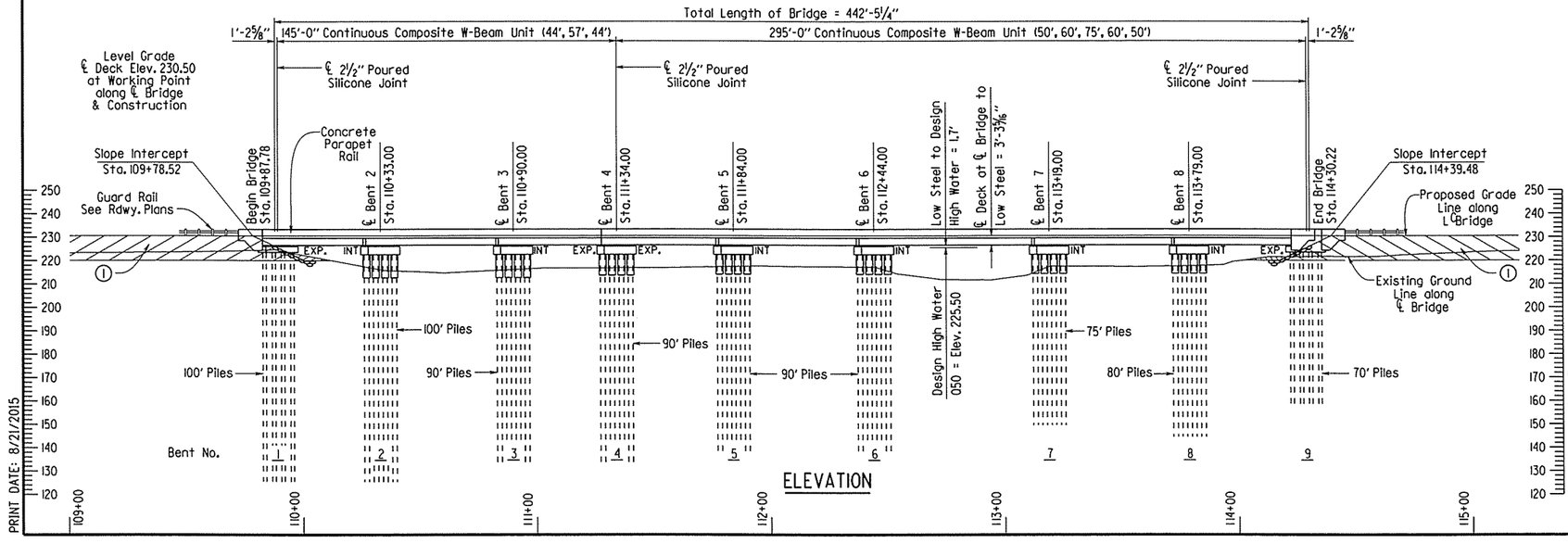
FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	*NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	4650	225.5	225.5
Base	100	5360	226.1	226.1
Extreme	500	7340	227.5	227.5
Overtopping	>500	-	-	-

*Unconstricted water surface without structure or roadway approaches.

0100 backwater elevation for existing structure = 226.1ft.
Proposed Low Bridge Chord elevation = 227.22 ft.
Drainage area = 122.3 square miles.
Historical H.W. Elev. = 224.9 ft.

① See Special Provision Job No. 100760 "Geosynthetic Internal Reinforced Embankment Construction" for details of geogrid reinforcement in bridge embankments.

Bent Nos.	Top of Deck at ℄ Bridge to Low Side top of Cap
2 & 3	3'-7 13/16"
4	3'-8 1/16"
5 & 8	3'-7 7/8"
6 & 7	3'-8 1/16"



ELEVATION

PRINT DATE: 8/21/2015

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

GENERAL NOTES

BENCH MARK: Vertical Control Data is shown in the Survey Control Data Sheets.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable Supplemental Specifications and Special Provisions. Unless otherwise noted in 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: 4

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.

PILING: Piling for Bents 1 & 9 shall be 18" diameter concrete filled steel shells and shall be driven to an ultimate bearing capacity of 195 tons per pile. Piling for Bents 2 - 8 shall be 24" diameter concrete filled steel shells and shall be driven to an ultimate bearing capacity of 375 tons per pile. All piling shall be driven with an approved air, steam, or diesel hammer. Drive piling in Bents 1 & 9 after embankment to bottom of cap is in place. Piling at Bents 1 & 2 shall have a tip elevation of 125.6 or lower.

Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g). No piles will be paid for as Test Piles. There will be no additional payment for cut-off or build-up of piles.

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b), "Method B-Wave Equation Analysis (WEAP)". It is estimated that the minimum rated energy of the hammer to obtain the ultimate bearing capacity on 18" diameter piles will be 40,200 foot pounds per blow and on 24" diameter piles will be 75,400 foot pounds per blow.

PREBORING: Preboring, water jetting or other methods approved by the Engineer may be needed to achieve the minimum pile penetration. Any cost associated with achieving the minimum pile penetration shall be considered subsidiary to "Steel Shell Piling"

PILE ENCASEMENT: Pile encasements are required for Bents 2 - 8 and shall extend 3' into the ground and to the bottom of cap. The use of Galvanized Corrugated Steel Pipe for pile encasement will NOT be allowed. See Std. Dwg. No. 55021 for additional details.

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.
Details of End Bents 1 & 9	57306-57308
Details of Int. Bents 2, 3, 5, 6, 7 & 8	57309
Details of Int. Bent 4	57310
145'-0" Cont. Comp. W-Beam Unit	57311-57318, 57324
295'-0" Cont. Comp. W-Beam Unit	57316-57324
Elastomeric Bearings	57325
Concrete Filled Steel Shell Piles	55021
Type A Approach Gutters	55030A
Type A Approach Slabs	55040A

EXISTING BRIDGE: Existing Bridge No. M1964, LM 5.25, is 424' in length, 25' wide and is comprised of a 100 ft. truss main span supported on concrete caps with timber and steel piles, and seventeen 19 ft. approach spans consisting of a concrete deck with timber stringers supported by timber caps and piles. The existing bridge is located 50' upstream of the proposed location.

REMOVAL AND SALVAGE: After the new bridge is open to traffic, existing Bridge No. M1964 shall be removed in accordance with Section 205. All material from the existing bridge shall become property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER
LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)
LEFT HAND CHUTE OF LITTLE RIVER
STRS. & APPRS. (S)
MISSISSIPPI COUNTY

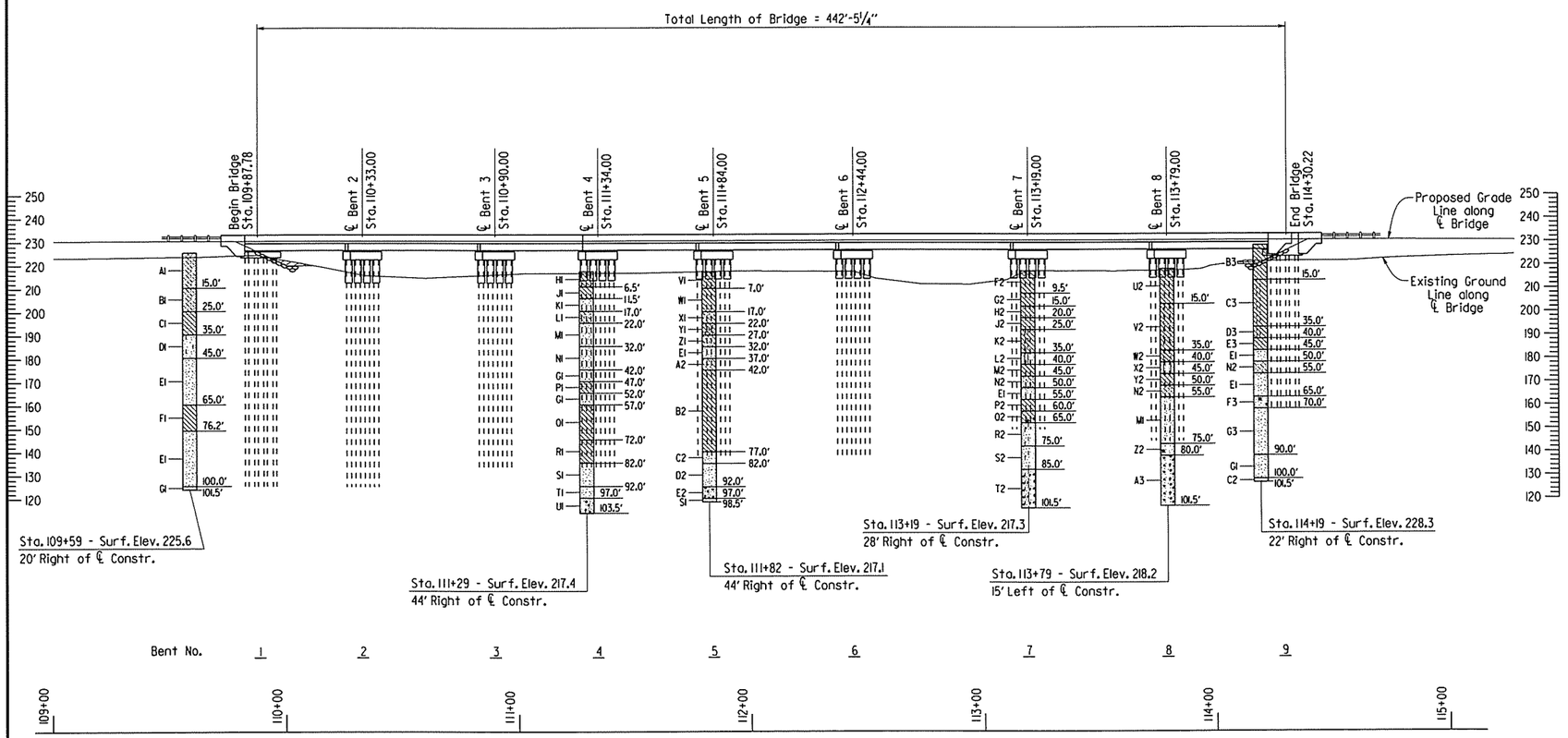
ROUTE 77 SEC. 3

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 6-26-14 FILENAME: bl00760xl_ll.dgn
CHECKED BY: DBJ DATE: 8/14 SCALE: 1" = 30'
DESIGNED BY: ASN DATE: 6/14

BRIDGE NO. 07354 DRAWING NO. 57304

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.		100760	54	133
				① 07354 -		LAYOUT	- 57305	



ELEVATION OF SOIL BORINGS

'N' VALUES

Sta. 109+59 - 20' Right of ℄ Constr.	Sta. 111+29 - 44' Right of ℄ Constr.	Sta. 111+82 - 44' Right of ℄ Constr.	Sta. 113+19 - 28' Right of ℄ Constr.	Sta. 113+79 - 15' Left of ℄ Constr.	Sta. 114+19 - 22' Right of ℄ Constr.
4.4- 5.4, N=12	0.5- 1.5, N=4	0.5- 1.5, N=2	4.5- 5.5, N=1	4.5- 5.5, N=4	4.5- 5.5, N=10
9.4- 10.4, N=15	7.0- 8.0, N=1	7.5- 8.5, N=0	10.0- 11.0, N=0	10.0- 11.0, N=1	10.0- 11.0, N=6
15.5- 16.5, N=3	12.0- 13.0, N=4	17.5- 18.5, N=0	15.5- 16.5, N=0	15.5- 16.5, N=1	15.5- 16.5, N=2
20.5- 21.5, N=8	17.5- 18.5, N=2	22.5- 23.5, N=0	20.5- 21.5, N=8	20.5- 21.5, N=0	20.5- 21.5, N=1
25.5- 26.5, N=3	22.5- 23.5, N=11	27.5- 28.5, N=36	25.5- 26.5, N=6	25.5- 26.5, N=4	25.5- 26.5, N=4
30.5- 31.5, N=5	27.5- 28.5, N=41	32.5- 33.5, N=24	30.5- 31.5, N=10	30.5- 31.5, N=4	30.5- 31.5, N=4
35.5- 36.5, N=10	32.5- 33.5, N=24	37.5- 38.5, N=8	35.5- 36.5, N=19	35.5- 36.5, N=5	35.5- 36.5, N=14
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45.5- 46.5, N=22	47.5- 48.5, N=6	47.5- 48.5, N=0	45.5- 46.5, N=30	45.5- 46.5, N=5	45.5- 46.5, N=25
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65.5- 66.5, N=10	67.5- 68.5, N=4	67.5- 68.5, N=1	65.5- 66.5, N=43	65.5- 66.5, N=33	65.5- 66.5, N=26
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75.5- 76.5, N=13	77.5- 78.5, N=7	77.5- 78.5, N=48	75.5- 76.5, N=26	75.5- 76.5, N=33	75.5- 76.5, N=56
80.5- 81.5, N=29	82.5- 83.5, N=58	82.5- 83.5, N=60	80.5- 81.5, N=30	80.5- 81.5, N=30	80.5- 81.5, N=45
85.5- 86.5, N=29	87.5- 88.5, N=53	87.5- 88.5, N=49	85.5- 86.5, N=34	85.5- 86.5, N=34	85.5- 86.5, N=40
90.5- 91.5, N=30	92.5- 93.5, N=42	92.5- 93.5, N=33	90.5- 91.5, N=51	90.5- 91.5, N=34	90.5- 91.5, N=37
95.5- 96.5, N=26	97.5- 98.5, N=49	97.5- 98.5, N=55	95.5- 96.5, N=63	95.5- 96.5, N=39	95.5- 96.5, N=41
100.5-101.5, N=48	102.5-103.5, N=59		100.5-101.5, N=45	100.5-101.5, N=35	100.5-101.5, N=48

BORING LEGEND

A1-Moist, Medium Dense, Gray Clayey Sand with some Organic Matter
B1-Moist to Wet, Very Loose, Gray Clayey Sand
C1-Wet, Soft, Gray Sandy Clay
D1-Wet, Loose to Very Loose, Gray Silty Sand
E1-Wet, Medium Dense, Gray Sand
F1-Alternating Moist, Stiff and Medium Stiff, Gray Clay
G1-Wet, Dense, Gray Sand
H1-Moist, Soft, Brown and Gray Clay with some Organic Matter and Concrete Fragments
J1-Moist, Very Soft, Gray Clay
K1-Wet, Very Loose, Gray Sand
L1-Wet, Very Loose, Gray Sand with Clay
M1-Wet, Medium Dense to Dense, Gray Sand
N1-Wet, Medium Dense, Gray Sand with Trace of Gravel
P1-Wet, Medium Stiff, Gray Clay with Sand
Q1-Wet, Soft, Gray Clay
R1-Wet, Soft to Medium Stiff, Gray Clay with Sand
S1-Wet, Very Dense, Gray Sand
T1-Wet, Dense, Gray Sand with some Gravel and Organic Matter
U1-Wet, Dense to Very Dense, Gray Sand with Gravel
V1-Moist, Soft, Brown and Gray Clay with Sand and some Organic Matter
W1-Wet, Very Soft, Gray Clay
X1-Wet, Very Loose, Gray Clayey Sand
Y1-Wet, Very Soft, Gray Sandy, Silty Clay
Z1-Wet, Dense, Gray Clayey Sand
A2-Wet, Loose, Gray Sand with Clay
B2-Wet, Soft to Very Soft, Gray Clay
C2-Wet, Dense, Gray Sand with some Gravel
D2-Wet, Very Dense to Dense, Gray Sand
E2-Wet, Dense, Gray Sand with Gravel
F2-Moist, Very Soft, Brown and Gray Clay with some Organic Matter
G2-Wet, Very Soft, Brown and Gray Clay
H2-Wet, Very Soft, Brown and Gray Clay with Sand and some Organic Matter
J2-Wet, Medium Stiff, Gray Sandy Clay
K2-Wet, Medium Stiff to Stiff, Gray Sandy, Silty Clay
L2-Wet, Medium Dense, Gray Sandy Silt
M2-Moist, Stiff, Gray Clay
N2-Wet, Medium Dense, Gray Sand with Clay
P2-Moist, Soft, Gray Clay
Q2-Moist, Very Stiff, Gray Clay with Sand and Organic Matter
R2-Wet, Dense, Gray Sand with Silt
S2-Wet, Medium Dense, Gray Sand with Silt and some Gravel
T2-Wet, Dense to Very Dense, Gray Sand with Silt and Gravel
U2-Moist, Soft to Very Soft, Brown and Gray Clay with Sand and some Organic Matter
V2-Wet, Very Soft to Soft, Gray Sandy, Silty Clay
W2-Wet, Medium Stiff, Gray Silty Clay
X2-Wet, Loose, Gray Sandy Silt
Y2-Moist, Medium Stiff, Gray Clay with Sand
Z2-Wet, Dense, Gray Sand with Organic Matter
A3-Wet, Medium Dense to Dense, Gray Sand with Gravel
B3-Moist, Stiff to Medium Stiff, Brown Clay with Sand and some Organic Matter
C3-Wet, Soft to Very Soft, Gray Silty Clay
D3-Wet, Stiff, Gray Silty Clay
E3-Wet, Stiff, Gray Sandy Clay
F3-Wet, Medium Dense, Gray Sand with Organic Matter
G3-Wet, Dense to Very Dense, Gray Sand

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-27-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER
LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)
LEFT HAND CHUTE OF LITTLE RIVER
STRS. & APPRS. (S)
MISSISSIPPI COUNTY

ROUTE 77 SEC. 3

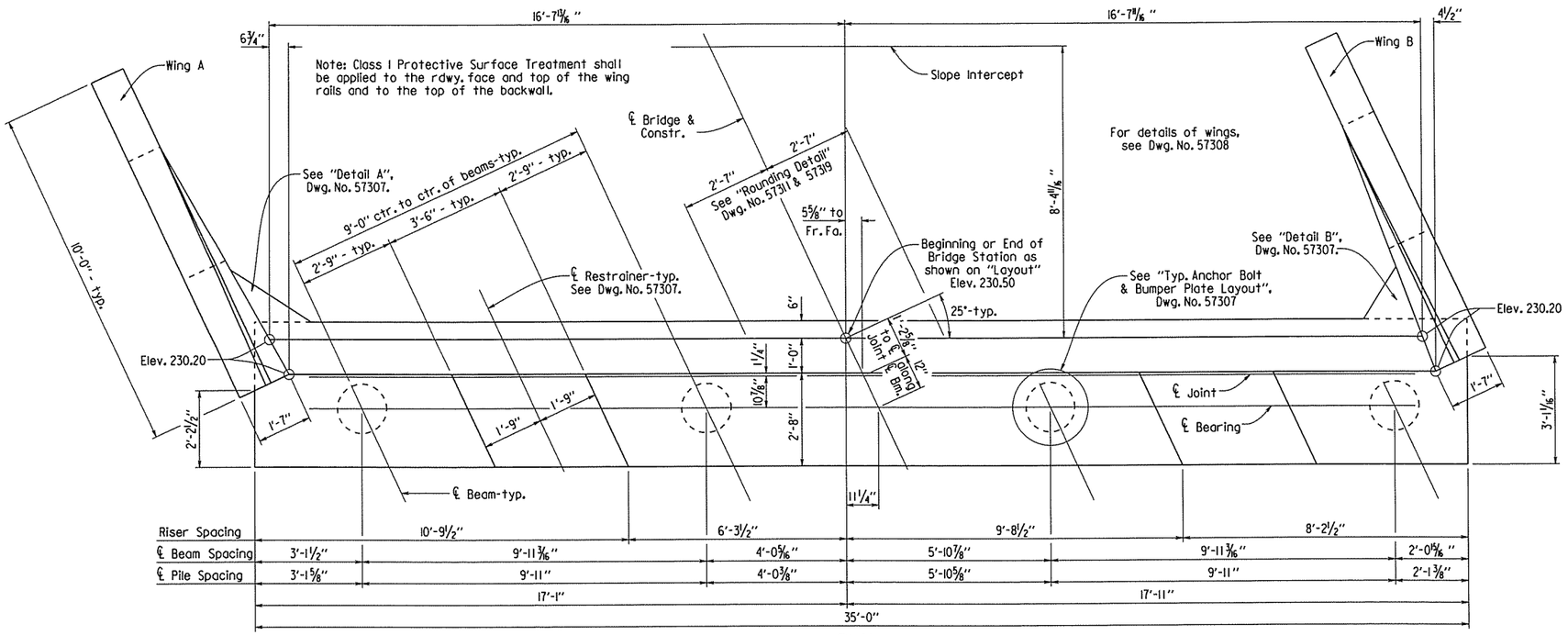
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 6-26-14
CHECKED BY: DBS DATE: 9/14
DESIGNED BY: ADN DATE: 10/14
FILENAME: bl00760xl_ll.dgn
SCALE: 1" = 30'

BRIDGE NO. 07354 DRAWING NO. 57305

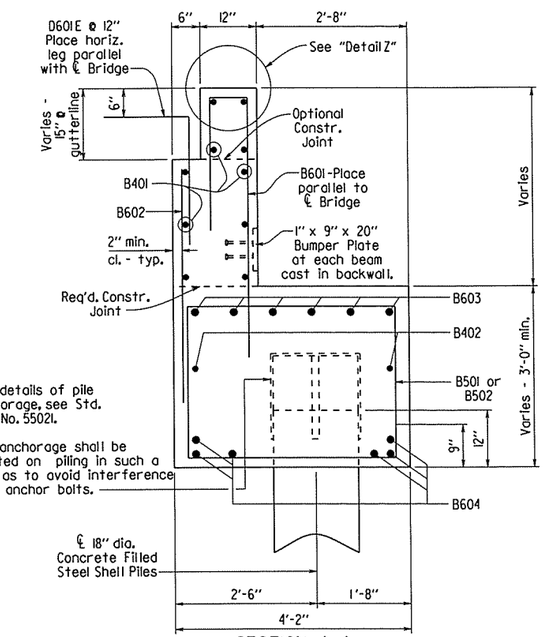
PRINT DATE: 8/21/2015

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.		100760	55	133
				(1) 07354 -		END BENTS		- 57306



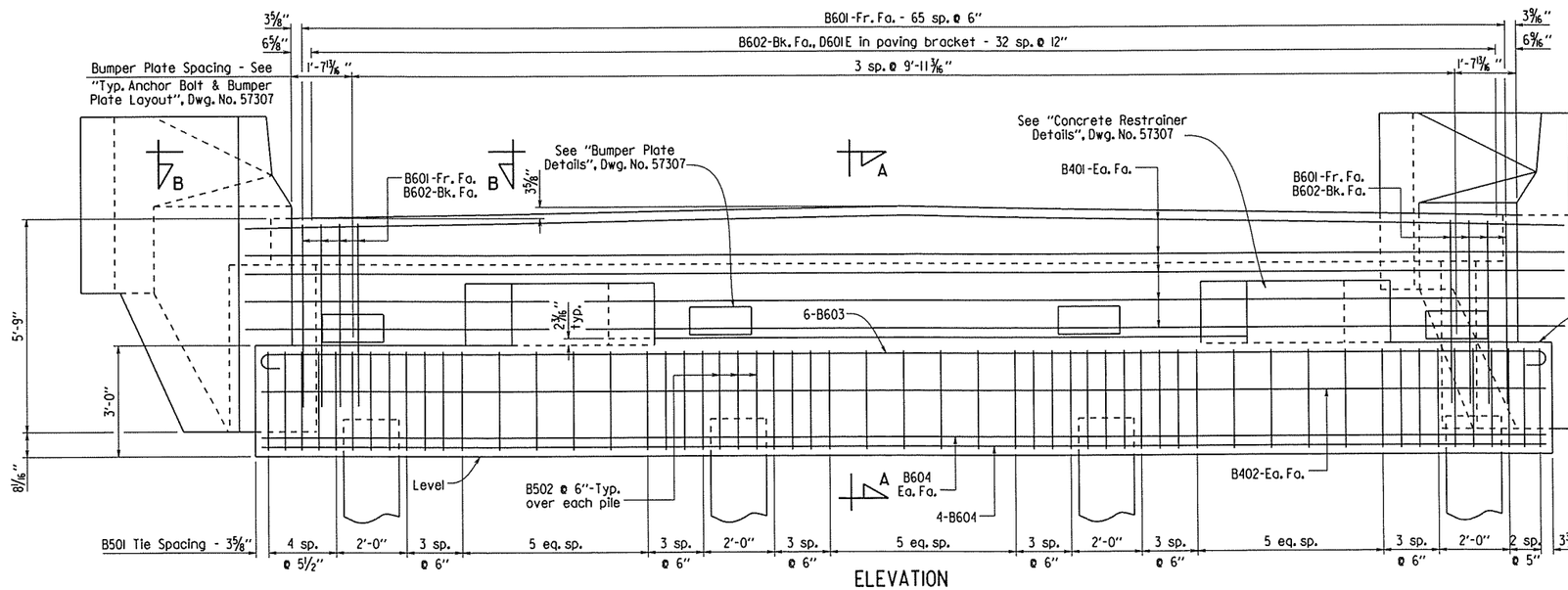
PLAN

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



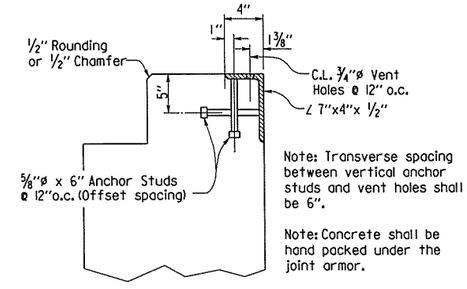
SECTION A-A

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



ELEVATION

Bent 1 - Looking Back
Bent 9 - Looking Ahead
Scale: 1/2" = 1'-0"



DETAIL Z

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF END BENTS
LEFT HAND CHUTE OF
LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

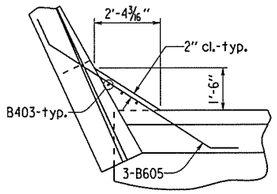
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-28-15 FILENAME: bl00760x1_bl.dgn
CHECKED BY: ADN DATE: 8/15 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 2/15

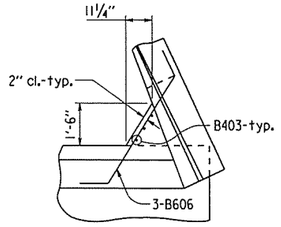
BRIDGE NO. 07354 DRAWING NO. 57306

PRINT DATE: 8/20/2015

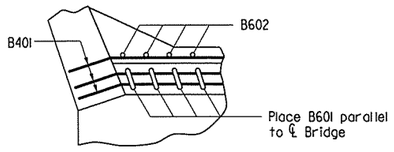
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100760	56	133
				①	07354 -	END BENTS		- 57307



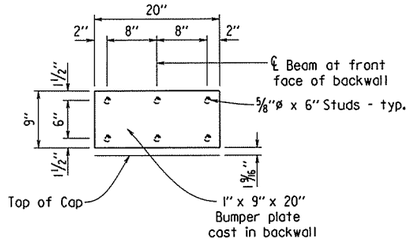
DETAIL A
No Scale



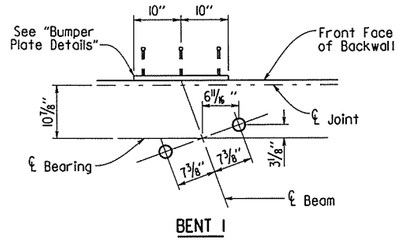
DETAIL B
No Scale



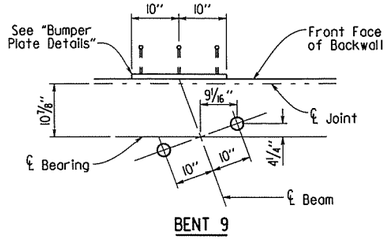
VIEW B-B
No Scale



BUMPER PLATE DETAILS
No Scale



BENT 1



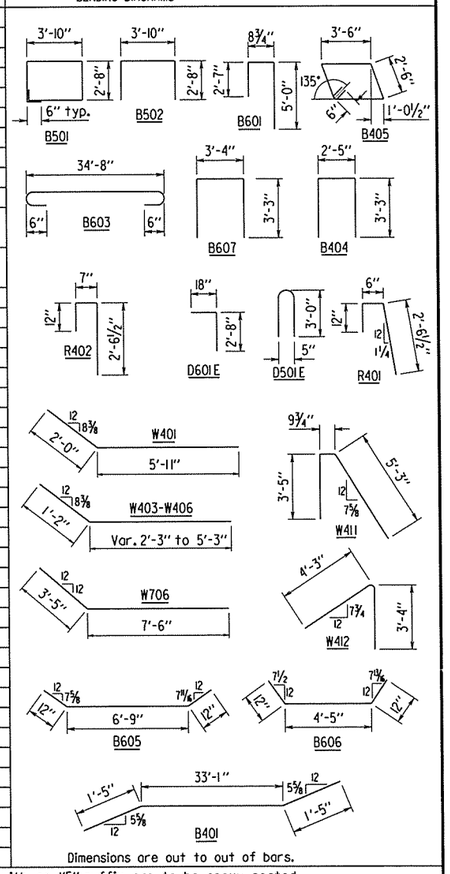
BENT 9

TYP. ANCHOR BOLT & BUMPER PLATE LAYOUT
No Scale

BAR LIST - PER BENT

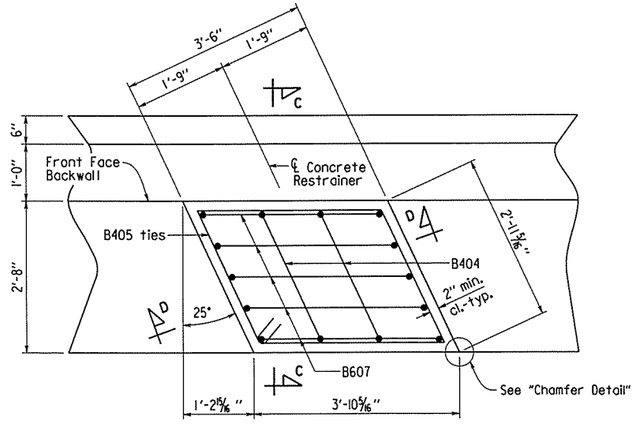
MARK	NO. REQ'D.	LENGTH	P.D.
B401	10	35'-11"	3"
B402	2	34'-8"	Str.
B403	6	4'-2"	Str.
B404	4	8'-9"	2"
B405	6	12'-9"	3"
R401	8	3'-11"	2"
R402	8	4'-0"	2"
R403	12	9'-8"	Str.
W401	8	7'-10"	2"
W402	8	8'-2"	Str.
W403-W406	2 each	Var. 3'-5" to 6'-5"	2"
W407-W410	2 each	Var. 4'-7" to 7'-8"	Str.
W411	3	9'-4"	2"
W412	3	7'-6"	4 1/2"
B501	44	13'-6"	2 1/2"
B502	12	8'-11"	2 1/2"
D501E	14	6'-2"	3 3/4"
B601	66	8'-0"	4 1/2"
B602	33	3'-6"	Str.
B603	6	36'-0"	4 1/2"
B604	6	34'-8"	Str.
B605	3	8'-9"	4 1/2"
B606	3	6'-5"	4 1/2"
B607	10	9'-6"	4 1/2"
D601E	33	4'-0"	4 1/2"
R601	20	4'-5"	Str.
R602	6	5'-0"	Str.
W701	12	9'-8"	Str.
W702	4	6'-7"	Str.
W703	4	5'-10"	Str.
W704	4	5'-1"	Str.
W705	4	4'-4"	Str.
W706	4	10'-11"	5 1/4"

BENDING DIAGRAMS

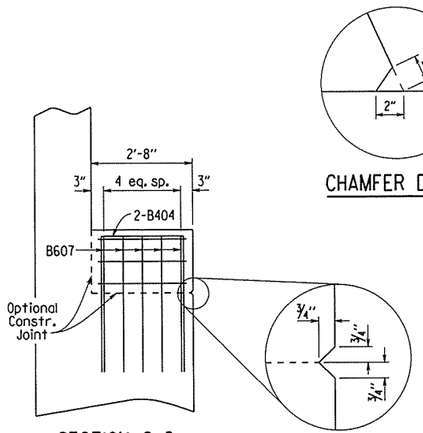


Dimensions are out to out of bars.

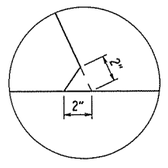
Note: Bars with an "E" suffix are to be epoxy coated.



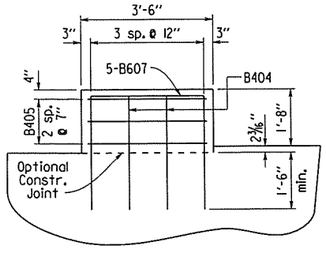
CONCRETE RESTRAINER DETAILS
Scale: 3/4" = 1'-0"



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



CHAMFER DETAIL



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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF END BENTS
LEFT HAND CHUTE OF
LITTLE RIVER (SITE 1)

ROUTE SEC.

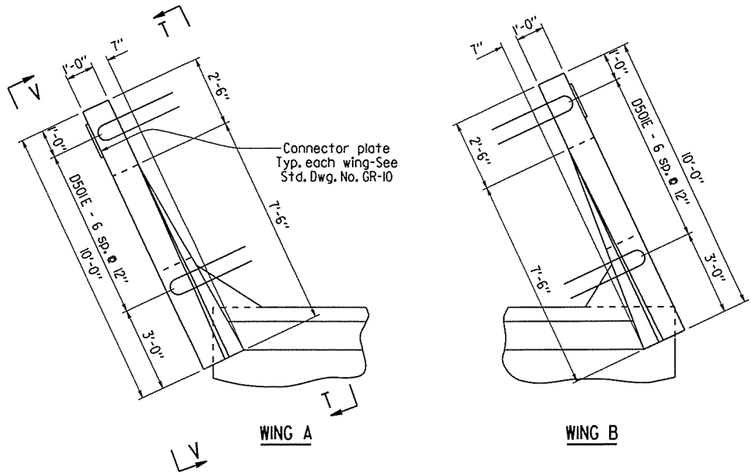
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-28-15 FILENAME: bl00760xl_bl.dgn
CHECKED BY: ADH DATE: 6/15 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 2/15

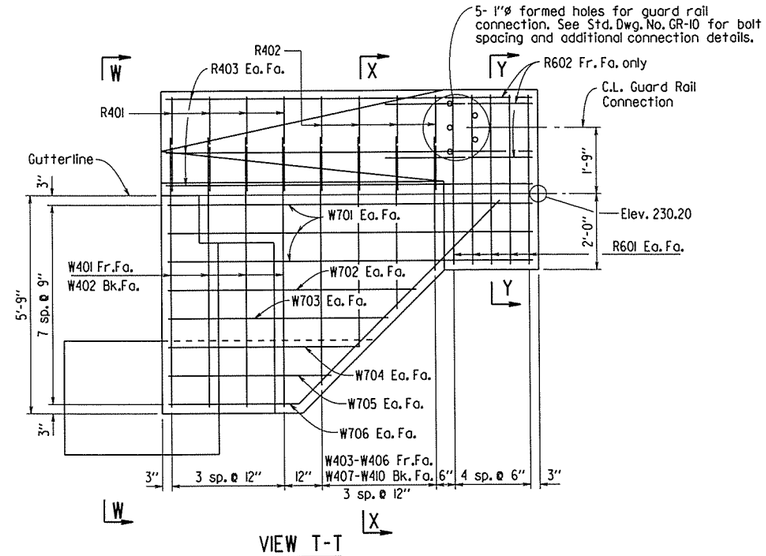
BRIDGE NO. 07354 DRAWING NO. 57307

PRINT DATE: 8/20/2015

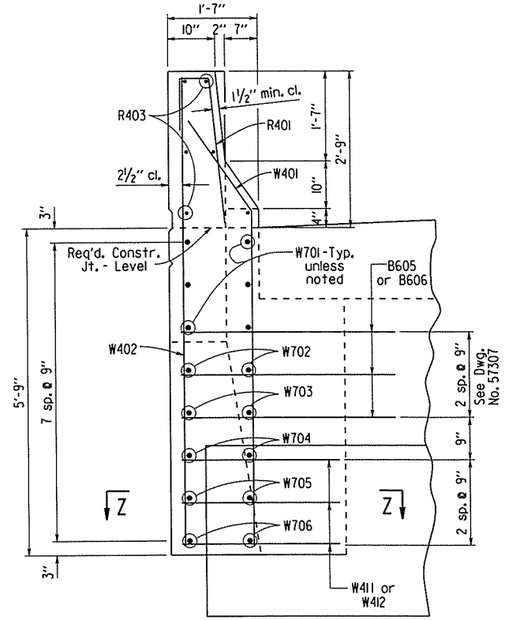
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100760	57	133
				(1) 07354 -		END BENTS		- 57308



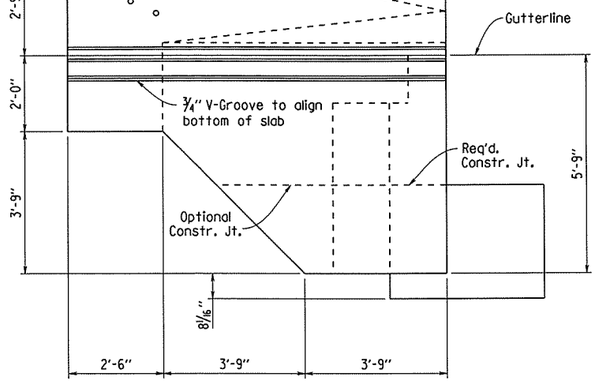
PLAN OF RAIL
Scale: 3/8" = 1'-0"



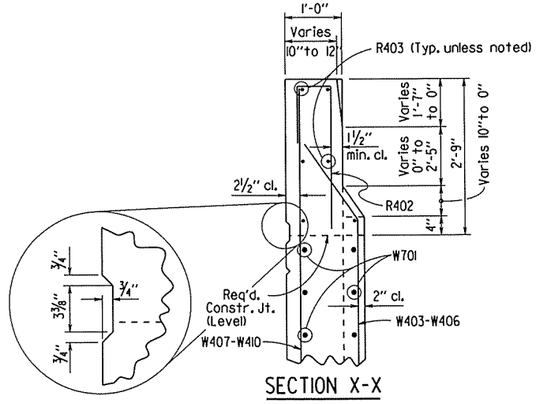
VIEW T-T
Scale: 1/2" = 1'-0"



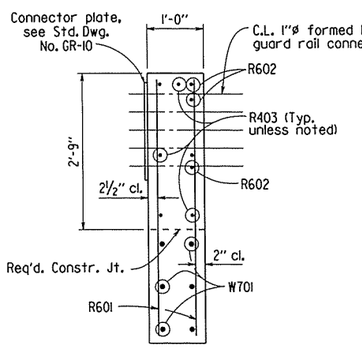
VIEW W-W
Scale: 3/4" = 1'-0"



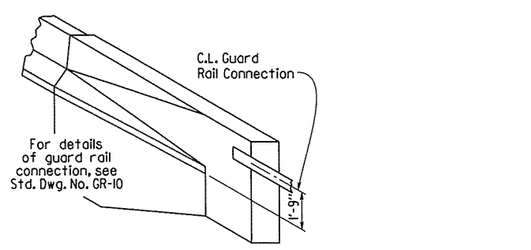
VIEW V-V
Scale: 1/2" = 1'-0"



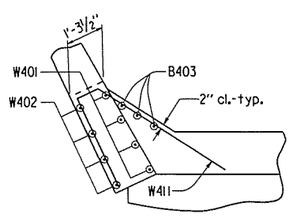
SECTION X-X
Scael: 3/4" = 1'-0"



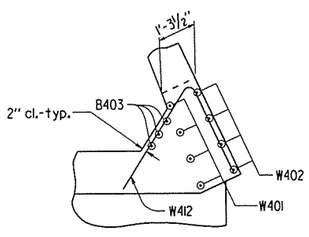
SECTION Y-Y
Scale: 3/4" = 1'-0"



THREE DIMENSIONAL VIEW OF RAIL
No Scale



WING A



WING B

SECTION Z-Z
No Scale

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete 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.

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)".

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

For details of steel shell piles & pile anchorage, see Std. Dwg. No. 55021.

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. 57324.

For additional information, See layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF END BENTS
LEFT HAND CHUTE OF
LITTLE RIVER (SITE 1)

ROUTE SEC.

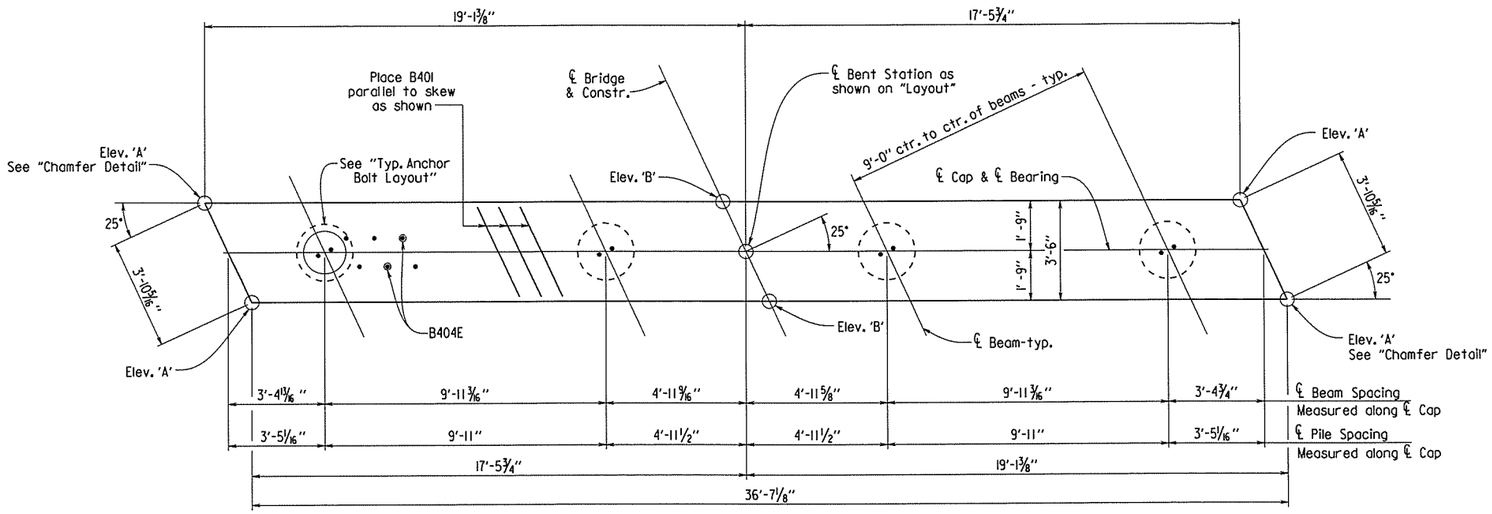
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-28-15 FILENAME: bl00760xl_bl.dgn
CHECKED BY: [illegible] DATE: 8/15 SCALE: AS NOTED
DESIGNED BY: DDS DATE: 2/15

BRIDGE NO. 07354 DRAWING NO. 57308

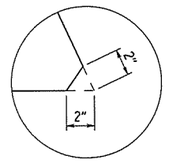
PRINT DATE: 8/20/2015

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.		100760	53	133
				① 07354 -		INT. BENTS	- 57309	

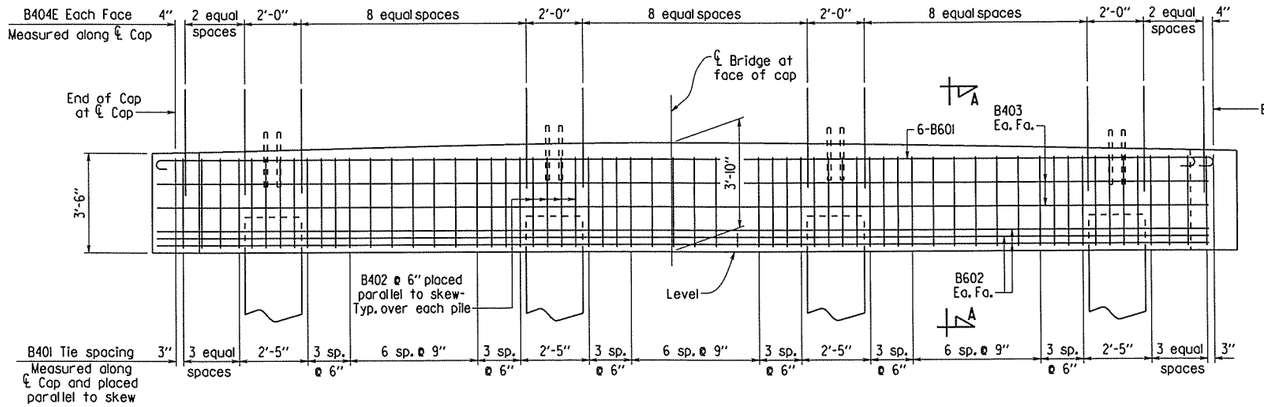


PLAN

Scale: ⅜" = 1'-0"



CHAMFER DETAIL

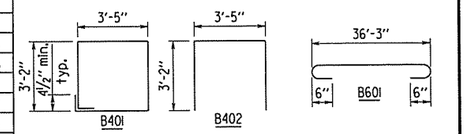


ELEVATION

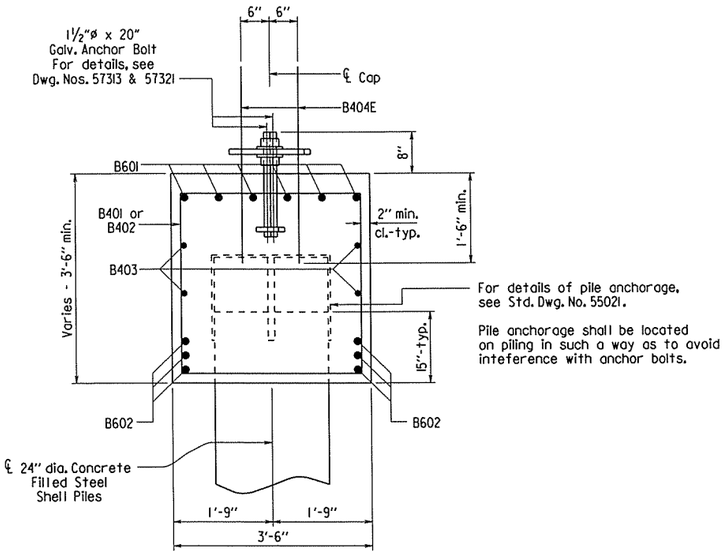
Scale: ⅜" = 1'-0"

BAR LIST-PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B401	47	13'-6"	2"	
B402	16	9'-7"	2"	
B403	4	36'-3"	Str.	
B404E	66	3'-9"	Str.	
B601	6	37'-7"	4½"	
B602	6	36'-3"	Str.	

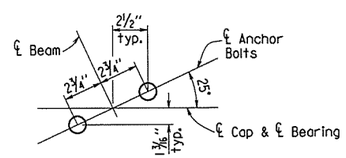


Note: Bars with an "E" suffix are to be epoxy coated.



SECTION A-A

Scale: ¾" = 1'-0"



TYP. ANCHOR BOLT LAYOUT

No Scale

TABLE OF VARIABLES

BENT NO.	ELEV. 'A'	ELEV. 'B'
2 & 3	226.85	227.18
5 & 8	226.84	227.17
6 & 7	226.83	227.16

GENERAL NOTES

All concrete shall be Class S with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry and 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.

For details of steel shell piles, pile anchorage & pile encasement, see Std. Dwg. No. 55021.

For details of anchor bolt, see Dwg. Nos. 57313 & 57321.

For additional information, see layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-21-15
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF INTERMEDIATE BENT NOS. 2, 3, 5, 6, 7 AND 8 LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

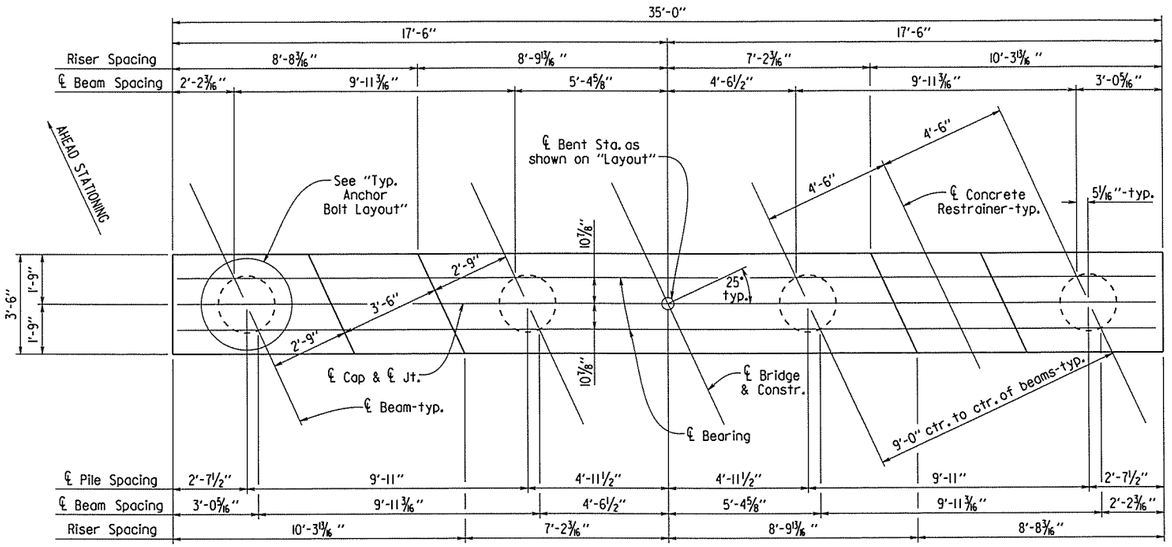
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 5-28-15 FILENAME: bl00760xl_b2.dgn
CHECKED BY: ADN DATE: 6/15 SCALE: AS NOTED
DESIGNED BY: DJS DATE: 2/15

BRIDGE NO. 07354 DRAWING NO. 57309

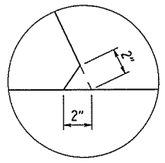
PRINT DATE: 8/20/2015

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.		100760	59	133
				① 07354 -		INT. BENT	- 57310	



PLAN

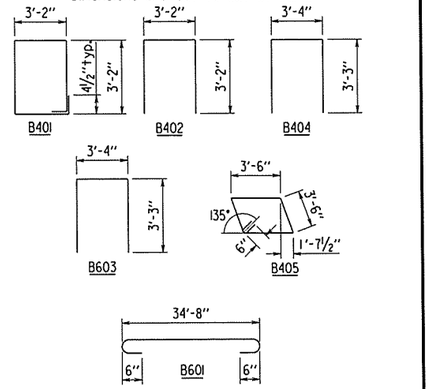
Scale: 3/8" = 1'-0"

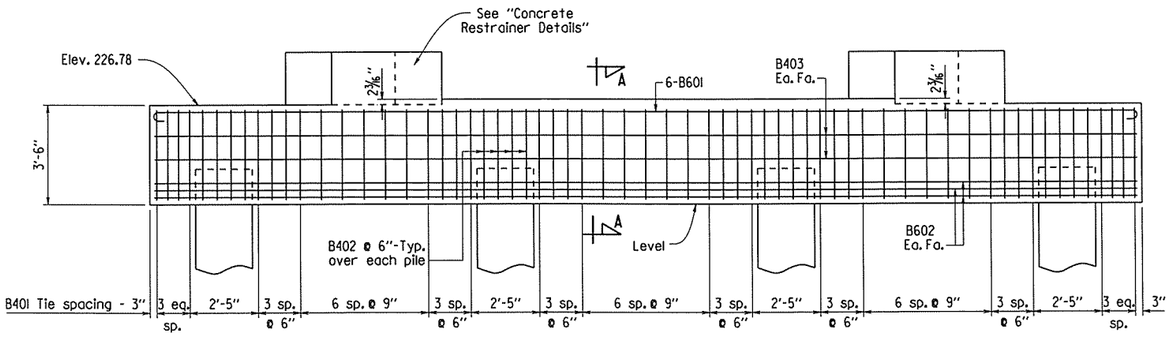


CHAMFER DETAIL

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B401	47	13'-0"	2"	Dimensions are out to out of bars.
B402	16	9'-4"	2"	
B403	4	34'-8"	Str.	
B404	4	9'-8"	2"	
B405	6	14'-6"	3"	
B601	6	36'-0"	4 1/2"	
B602	6	34'-8"	Str.	
B603	14	9'-6"	4 1/2"	

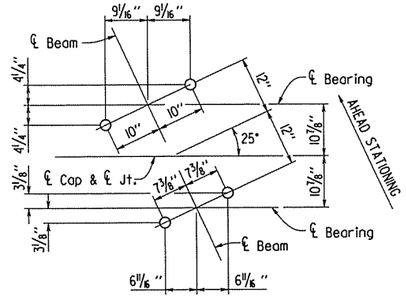




ELEVATION

Looking Ahead

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



TYP. ANCHOR BOLT LAYOUT

No Scale

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Concrete shall be poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.

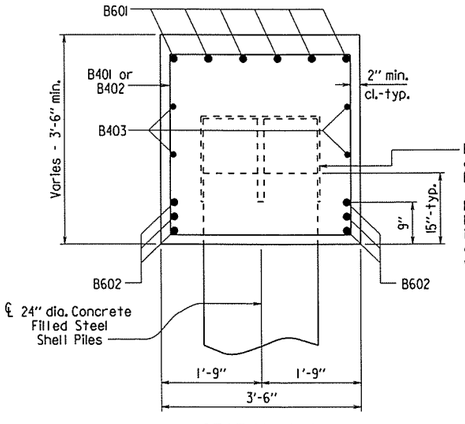
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

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)".

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

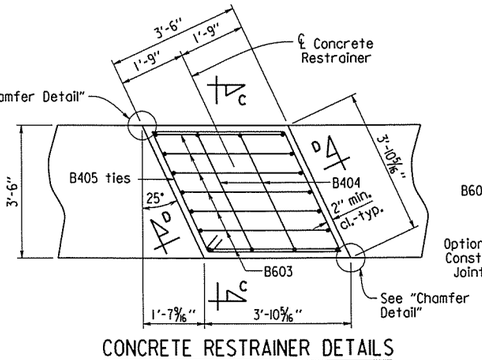
For details of steel shell piles & pile anchorage, see Std. Dwg. No. 55021.

For additional information, See layout.



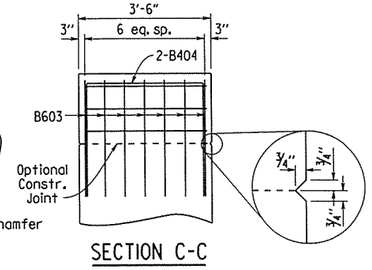
SECTION A-A

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



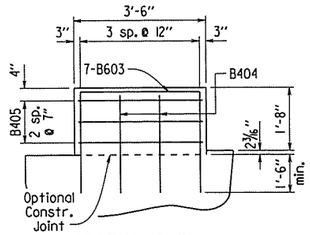
CONCRETE RESTRAINER DETAILS

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



SECTION C-C

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



SECTION D-D

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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF INTERMEDIATE BENT NO. 4 LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 6-3-15 FILENAME: bl00760xl_b4.dgn

CHECKED BY: ADH DATE: 8/15 SCALE: AS NOTED

DESIGNED BY: DBS DATE: 8/15

BRIDGE NO. 07354 DRAWING NO. 57310

PRINT DATE: 8/21/2015

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.		100760	120	133
				①	07354 -	145 FT. UNIT	- 57311	

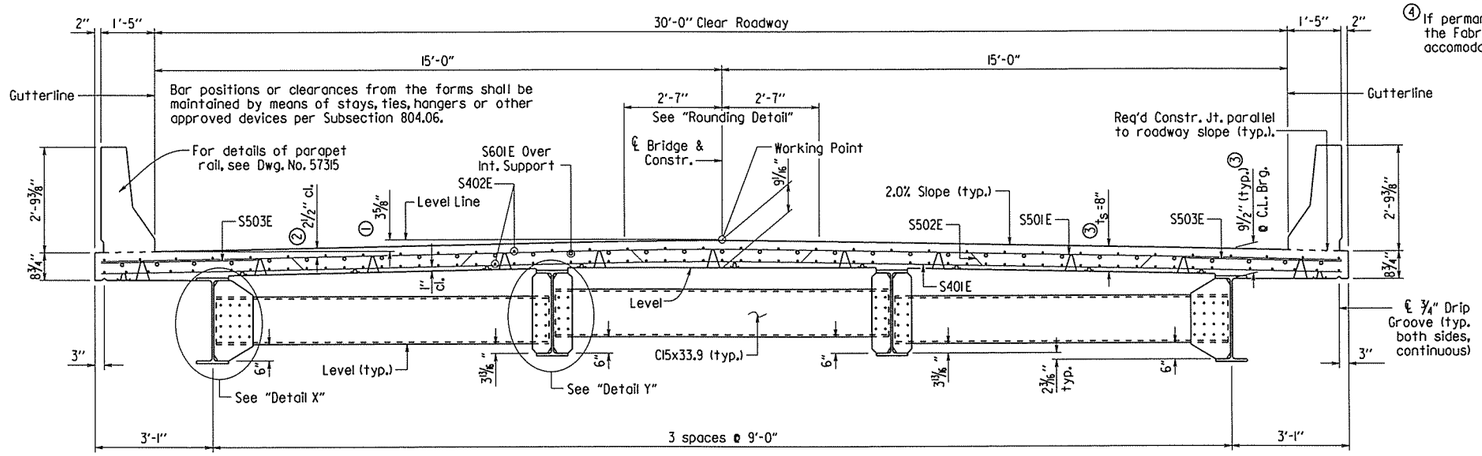
Slab Reinforcing:

Longitudinal: S402E as shown
S601E as shown centered over int. supports, see "Half-Reinforcing Plan & Pouring Sequence", Dwg. No. 57314.

Transverse: S502E @ 12" o.c. bent up over beams — Alternate
S501E @ 12" o.c. in top, S401E @ 12" o.c. in bottom —
S503E @ 6" in top of overhangs (bundled with #5 bars)

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.

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



TYPICAL ROADWAY SECTION

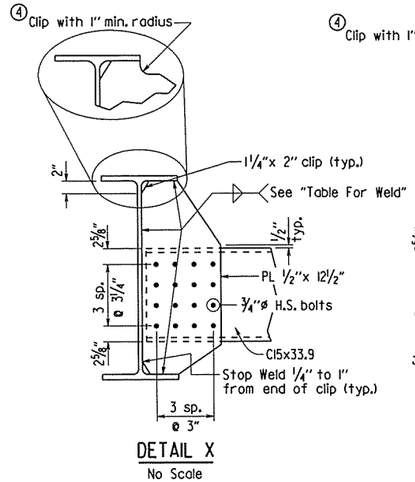
Scale: ½" = 1'-0"

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".

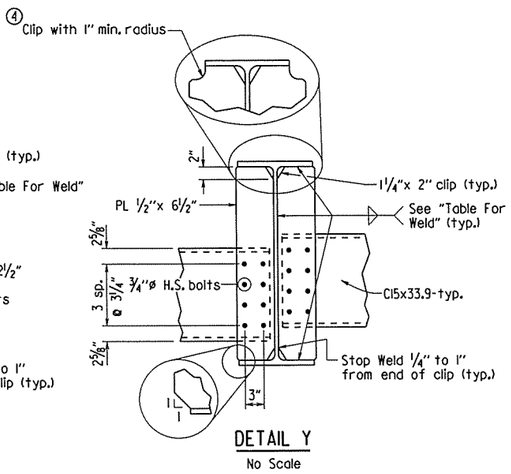
③ See "Adjustment for Slab Thickness Tolerance".

④ If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accomodate the deck form supports.



DETAIL X

No Scale

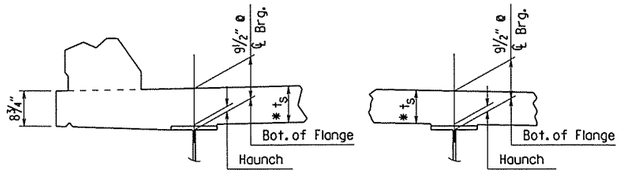


DETAIL Y

No Scale

Note: Bolts in connections shall be properly installed and tightened in accordance with Subsection 807.11.

t_s = slab thickness as shown in "Typical Roadway Section"



*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

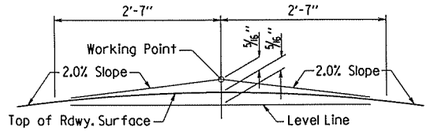
NOTES:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1¾". No increase in concrete and structural steel quantities will be made to maintain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

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.



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF 145'-0" CONTINUOUS COMPOSITE W-BEAM UNIT LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

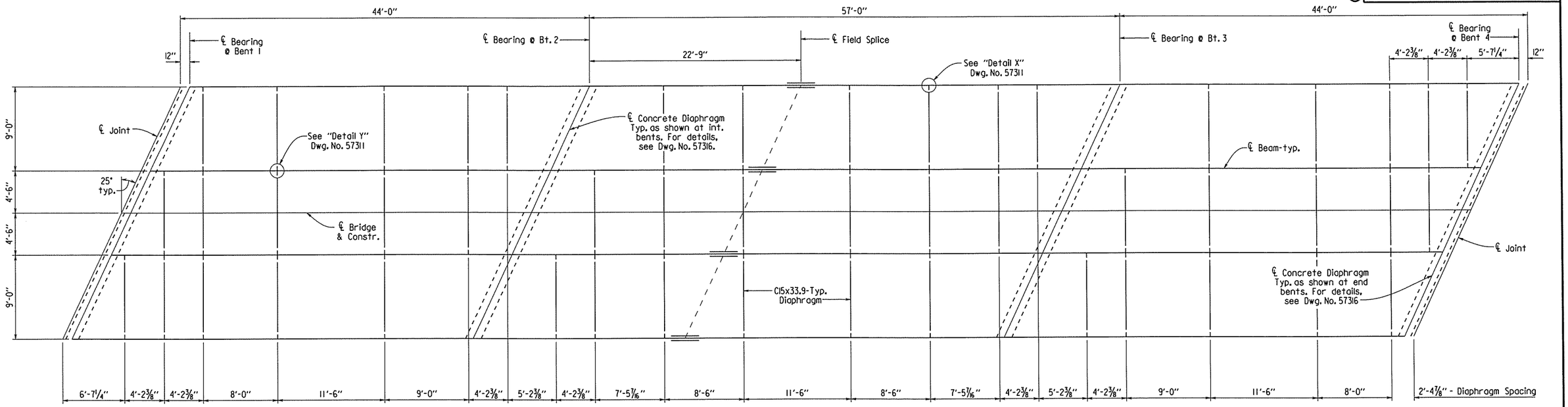
DRAWN BY: KDH DATE: 4-1-15
CHECKED BY: ADN DATE: 8/15
DESIGNED BY: DBS DATE: 1/15

FILENAME: bl00760x1_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07354 DRAWING NO. 57311

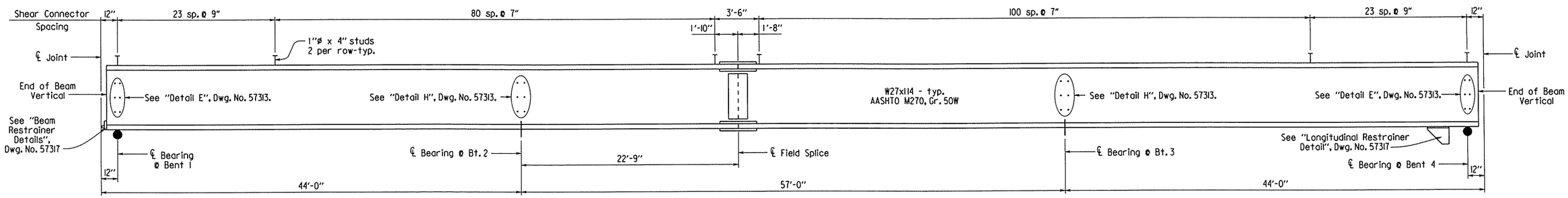
PRINT DATE: 8/20/2015

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.		100760	61	133
				(1) 07354 -		145 FT. UNIT	- 57312	



FRAMING PLAN

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



TYPICAL BEAM ELEVATION

No Scale

Note: 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.

For "Details of Anchor Bolts at Bents 2 & 3", see Dwg. No. 57313.

For details of elastomeric bearings at Bents 1 & 4, see Dwg. No. 57325.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF 145'-0" CONTINUOUS COMPOSITE W-BEAM UNIT LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

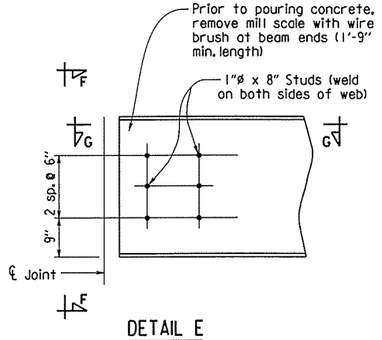
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-3-15 FILENAME: bl00760xl_sl.dgn
CHECKED BY: ADN DATE: 8/15 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 1/15

BRIDGE NO. 07354 DRAWING NO. 57312

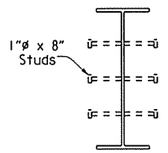
PRINT DATE: 8/21/2015

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.		100760	62	133
				① 07354 -		145 FT. UNIT	- 57313	

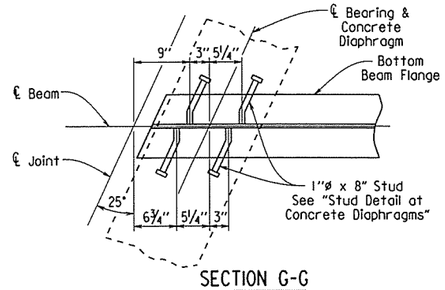


DETAIL E
No Scale

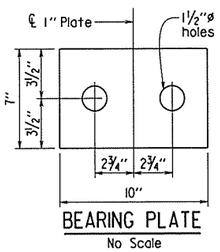
Note: Studs shall not be placed on the outside face of the exterior beam web at Bent Nos. 1 and 4.



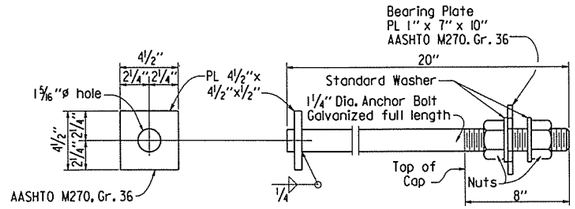
VIEW F-F
No Scale



SECTION G-G
No Scale



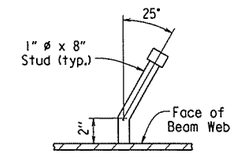
BEARING PLATE
No Scale



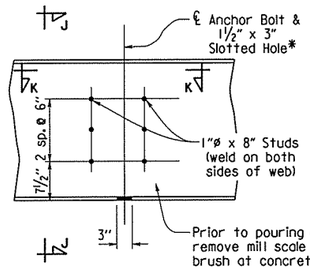
Anchor bolts shall comply with AASHTO M314, Grade 55, with Supplementary Requirement S1, and galvanized according to Subsection 807.07. Nuts for bolts shall be as specified in Subsection 807.07. Plates, anchor bolts, nuts and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)"

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

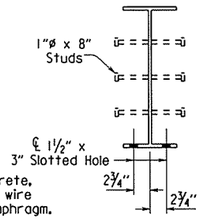
DETAILS OF ANCHOR BOLTS AT BENTS 2 & 3
No Scale



STUD DETAIL AT CONCRETE DIAPHRAGMS
No Scale

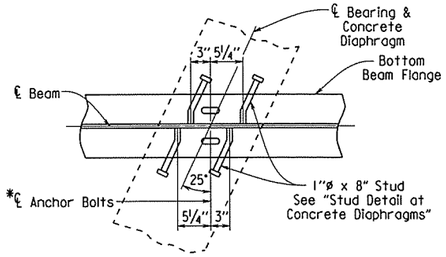


DETAIL H
No Scale



VIEW J-J
No Scale

* See "Typ. Anchor Bolt Layout, Dwg. No. 57509.



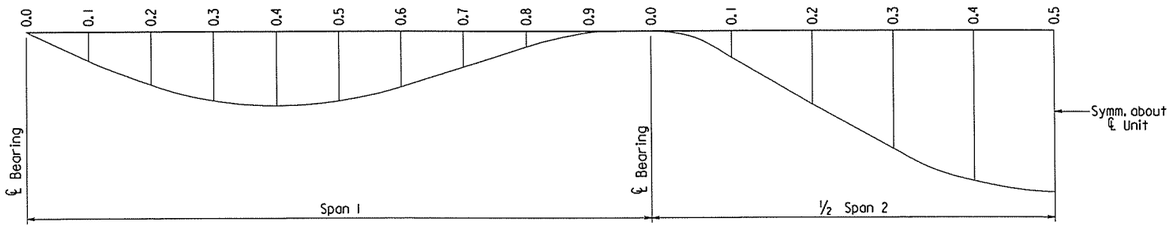
SECTION K-K
No Scale

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
1	0	0	0	0	0	0	0
	0.1	0.013	0.012	0.092	0.083	0.099	0.091
	0.2	0.024	0.022	0.168	0.152	0.181	0.166
	0.3	0.031	0.029	0.217	0.198	0.234	0.216
	0.4	0.033	0.031	0.234	0.213	0.253	0.232
	0.5	0.031	0.029	0.219	0.199	0.236	0.217
	0.6	0.025	0.024	0.177	0.160	0.191	0.174
	0.7	0.016	0.015	0.115	0.103	0.124	0.112
	0.8	0.007	0.007	0.052	0.045	0.056	0.049
	0.9	0.001	0.001	0.006	0.004	0.006	0.004
½ Span 2	0	0	0	0	0	0	0
	0.1	0.012	0.011	0.082	0.076	0.088	0.083
	0.2	0.032	0.031	0.220	0.211	0.237	0.230
	0.3	0.052	0.049	0.359	0.339	0.388	0.369
	0.4	0.066	0.063	0.455	0.432	0.491	0.470
	0.5	0.071	0.068	0.489	0.464	0.528	0.505

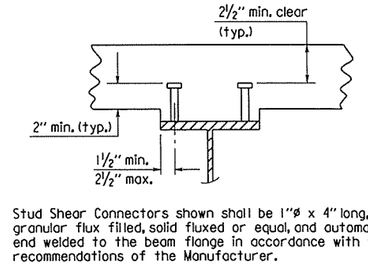
℄ Unit

Note: Table is symmetrical about ℄ Unit



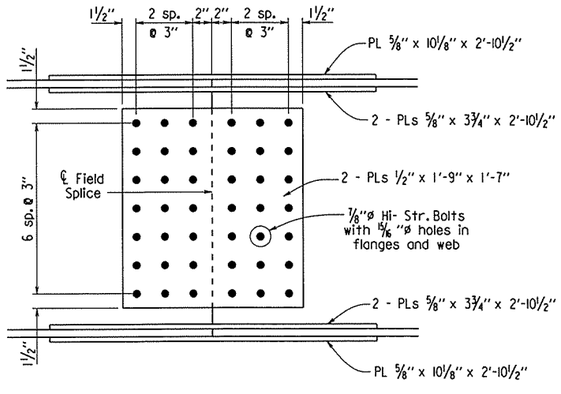
Camber for Dead Load Deflection +/- ¼" tolerance. Deflections shown are from a chord from ℄ Bearing to ℄ Bearing.

DEAD LOAD DEFLECTION DIAGRAM
No Scale



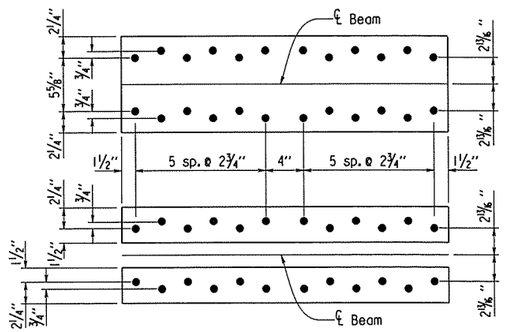
Stud Shear Connectors shown shall be 1"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

SHEAR CONNECTOR DETAIL
No Scale



WEB SPLICE

Note: All splice plates shall be AASHTO M270, Gr. 50W



FLANGE SPLICE

FIELD SPLICE DETAIL
Scale: 1½" = 1'-0"

STATE OF ARKANSAS
Charles R Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
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SHEET 3 OF 5
DETAILS OF 145'-0" CONTINUOUS COMPOSITE W-BEAM UNIT LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)

ROUTE SEC.

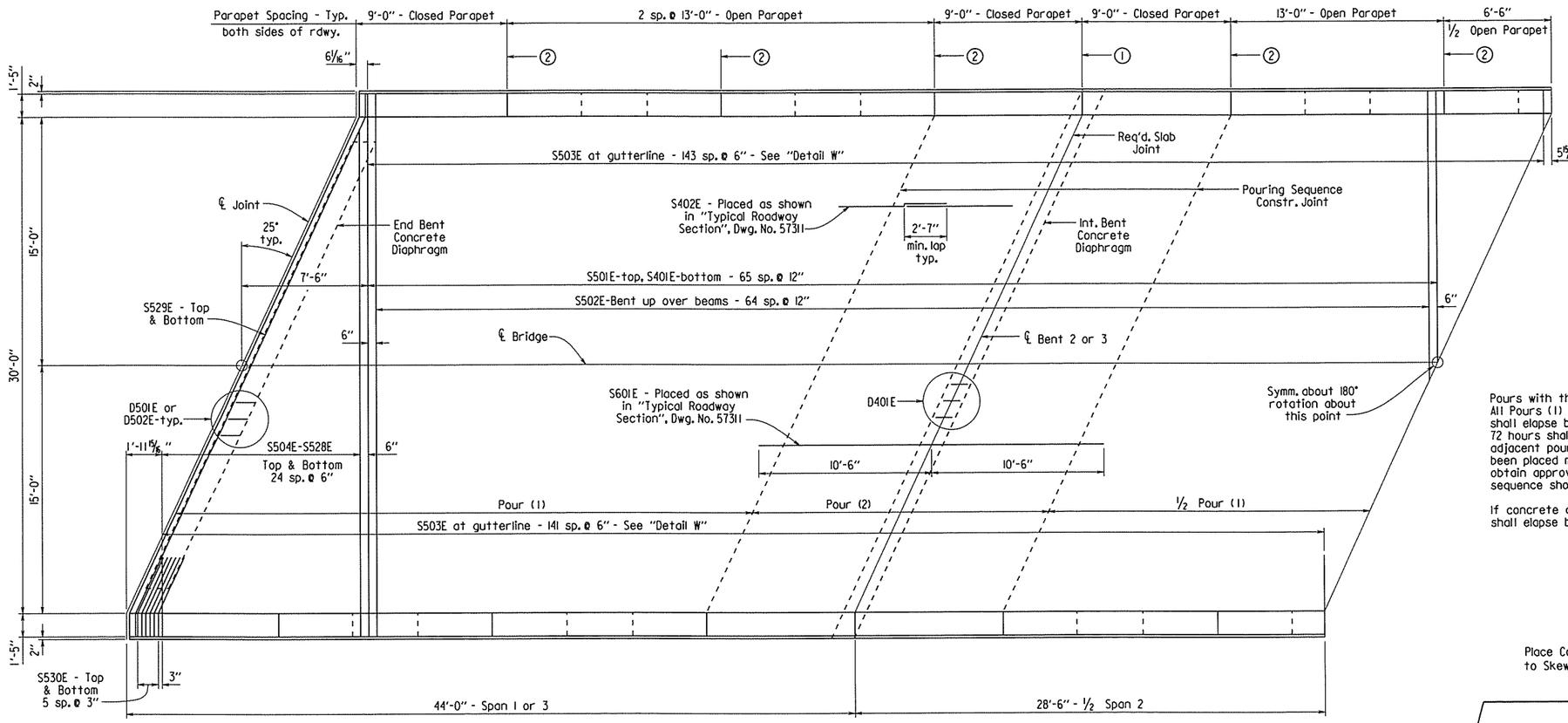
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-7-15 FILENAME: bl00760xl_sl.dgn
CHECKED BY: ADH DATE: 8/15 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 1/15

BRIDGE NO. 07354 DRAWING NO. 57313

PRINT DATE: 8/20/2015

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.		100760	63	133
				①	07354 -	145 FT. UNIT	- 57314	



HALF-REINFORCING PLAN & POURING SEQUENCE

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

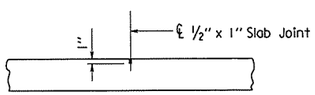
① ℄ Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab. Typ. both sides of Rdwy.

② ℄ Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab. Typ. both sides of Rdwy.

Note:
Unless otherwise noted, required slab joints and pouring sequence contruction joints shall align with parapet joints at the gutterline.

Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 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 deviation from the pouring sequence shown.

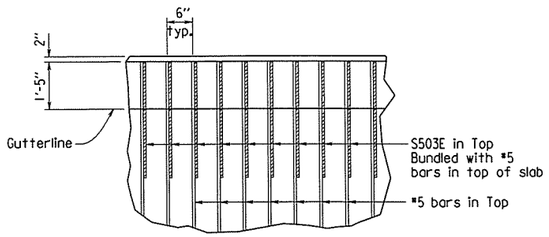
If concrete diaphragms are poured separately, a minimum of 48 hours shall elapse between the diaphragm pour and the slab pour.



SLAB JOINT DETAIL

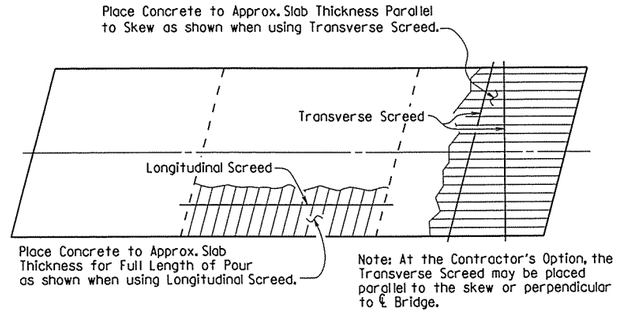
No Scale

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



DETAIL W

No Scale



CONCRETE PLACEMENT PROCEDURE

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF 145'-0" CONTINUOUS COMPOSITE W-BEAM UNIT LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

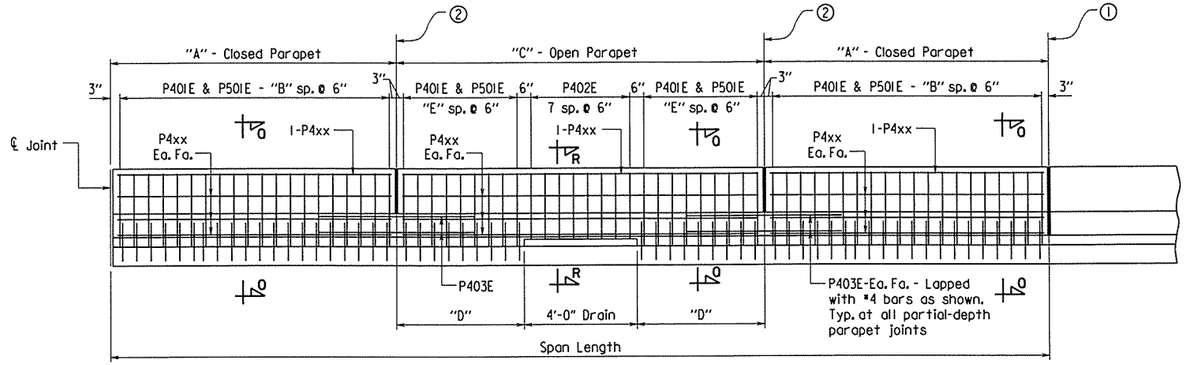
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-8-15 FILENAME: bl00760xl_sl.dgn
CHECKED BY: AON DATE: 8/15 SCALE: AS NOTED
DESIGNED BY: DDS DATE: 1/15

BRIDGE NO. 07354 DRAWING NO. 57314

PRINT DATE: 8/20/2015

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.		100760	64	133
				①	07354 - 145 FT. UNIT - 57315			

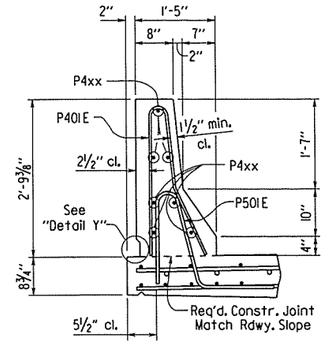


① ℄ Full-Depth Parapet Joint (¼" to 1" max.) as shown in "Half-Reinforcing Plan & Pouring Sequence", Dwg. No. 57314. Stop 4" from top of slab.

DETAILS OF PARAPET RAIL

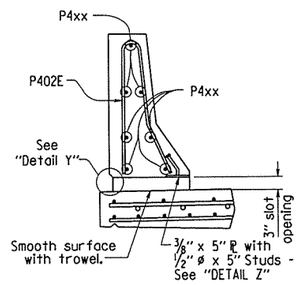
Scale: ⅜" = 1'-0"

② ℄ Partial-Depth Parapet Joint (¼" to 1" max.) as shown in "Half-Reinforcing Plan & Pouring Sequence", Dwg. No. 57314. Stop 1'-2" from top of slab.



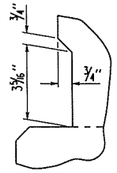
SECTION Q-Q

Scale: ¾" = 1'-0"



SECTION R-R

Scale: ¾" = 1'-0"



DETAIL Y

No Scale

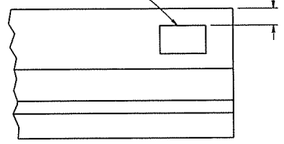
TABLE OF PARAPET RAIL VARIABLES

"A" Closed Parapet	"B"	P4xx Bar
9'-0"	17	P404E

"C" Open Parapet	"D"	"E"	P4xx Bar
13'-0"	4'-6"	8	P405E

Note: For location of Open and Closed Parapet panels, see "Half-Reinforcing Plan & Pouring Sequence", Dwg. No. 57314.

Place Type D Bridge Name Plate on right parapet rail approx. 2'-0" from front face of backwall. (Beg. of bridge only)



NAME PLATE DETAIL

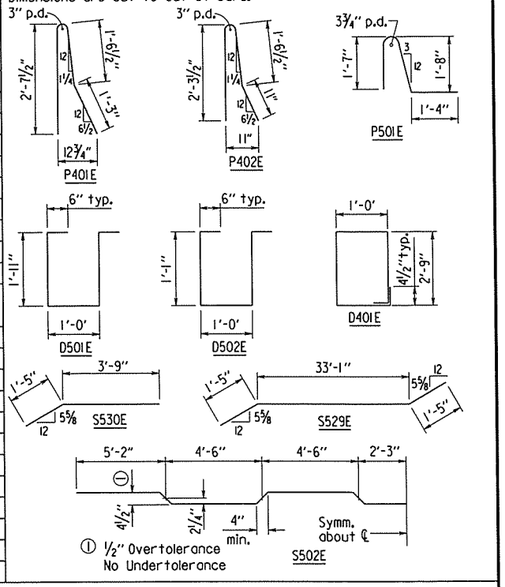
No Scale

BAR LIST

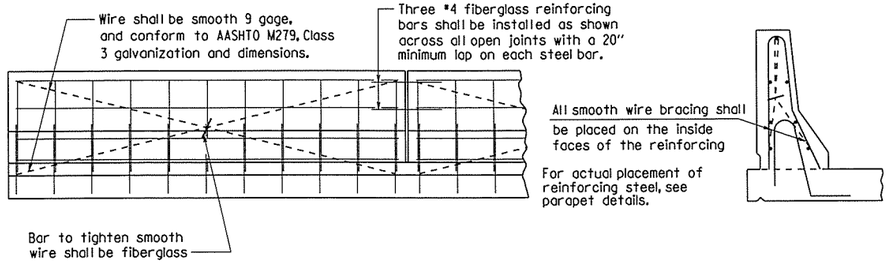
MARK	NO. REQ'D.	LENGTH	P.D.
S401E	131	32'-10"	Str.
S402E	380	38'-2"	Str.
D401E	66	7'-10"	2"
D402E	48	9'-7"	Str.
D403E	32	3'-0"	Str.
P401E	468	5'-6"	3"
P402E	112	4'-10"	3"
P403E	80	5'-6"	Str.
P404E	84	8'-8"	Str.
P405E	98	12'-8"	Str.
S501E	131	32'-10"	Str.
S502E	130	33'-6"	3"
S503E	572	4'-10"	Str.
S504E - S528E	4 ea.	Var. 5'-0" to 30'-9"	Str.
S529E	4	35'-11"	3"
S530E	24	5'-2"	3"
D501E	42	5'-5"	2½"
D502E	16	3'-9"	2½"
P501E	468	4'-8"	3¾"
S601E	66	21'-0"	Str.
D601E	32	9'-7"	Str.
D602E	32	2'-7"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.



Note: Bars with an "E" suffix are to be epoxy coated.

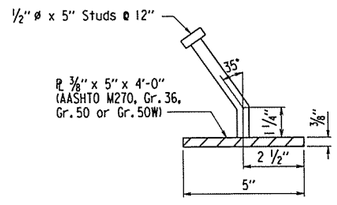


All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

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. Unless otherwise noted, exposed surfaces 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 ⅜" 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)."

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF 145'-0" CONTINUOUS COMPOSITE W-BEAM UNIT LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

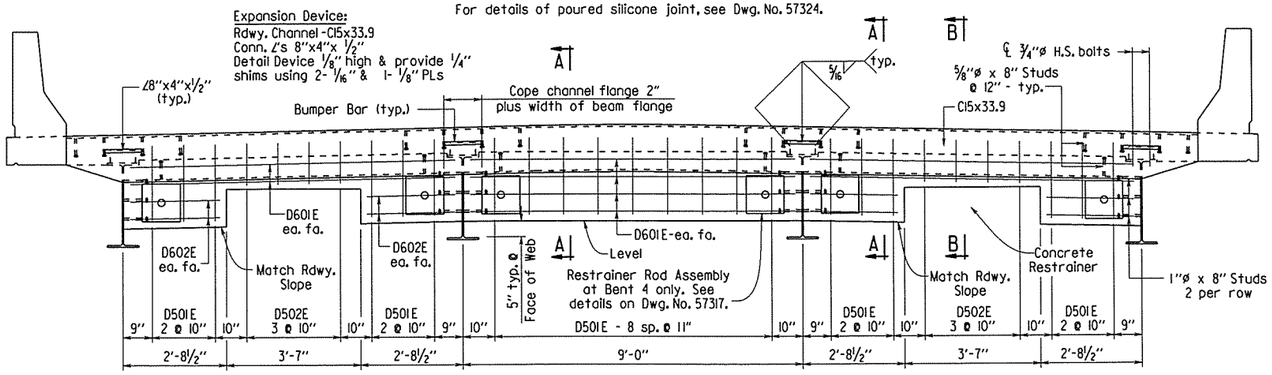
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-9-15 FILENAME: bl00760xl_sl.dgn
CHECKED BY: ADN DATE: 6/15 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 1/15

BRIDGE NO. 07354 DRAWING NO. 57315

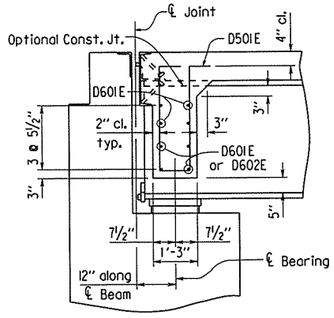
PRINT DATE: 8/20/2015

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.		100760	105	133
				07354 - COMMON DETAILS - 57316				



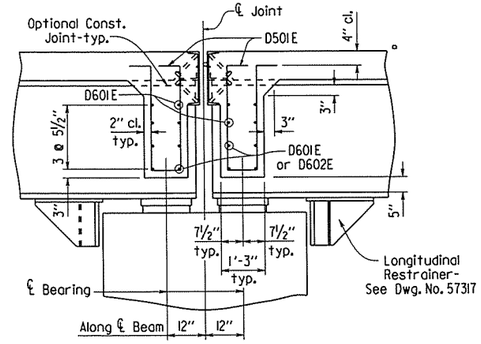
TYPICAL ROADWAY SECTION NEAR JOINT

At Bents 1, 4 & 9
Scale: ½" = 1'-0"



SECTION A-A

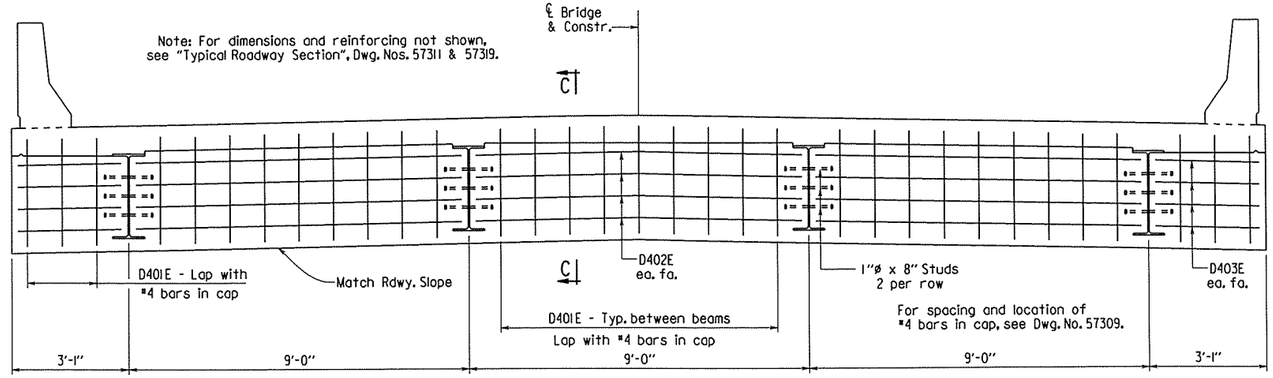
At Bents 1 & 9
No Scale



Note: Restrainer rods not shown. See Dwg. No. 57317.

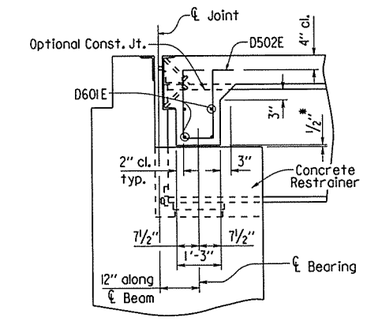
SECTION A-A

At Bent 4
No Scale



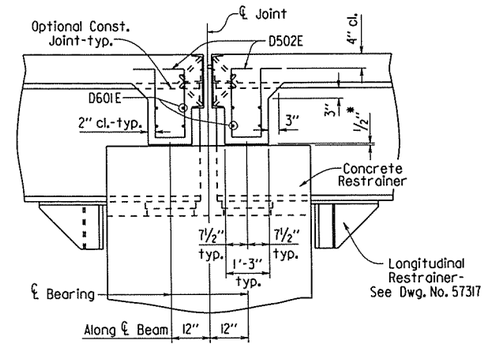
ROADWAY SECTION AT INTERMEDIATE BENTS

At Bents 2, 3, 5, 6, 7 & 8
Scale: ½" = 1'-0"



SECTION B-B

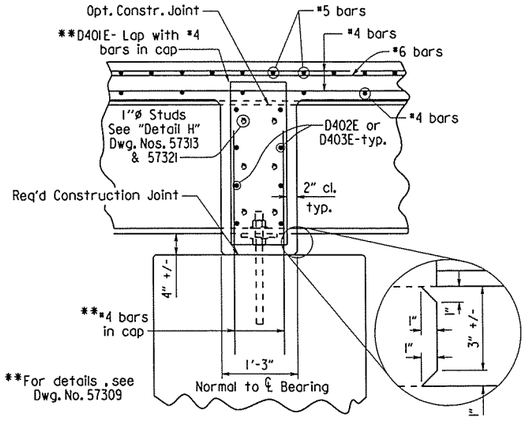
At Bents 1 & 9
No Scale



SECTION B-B

At Bent 4
No Scale

*Note: ½" polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place. Polystyrene shall be considered subsidiary to "Class S(AE) Concrete".



SECTION C-C

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS COMMON TO
145'-0" & 295'-0" CONTINUOUS
COMPOSITE W-BEAM UNITS
LEFT HAND CHUTE OF
LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

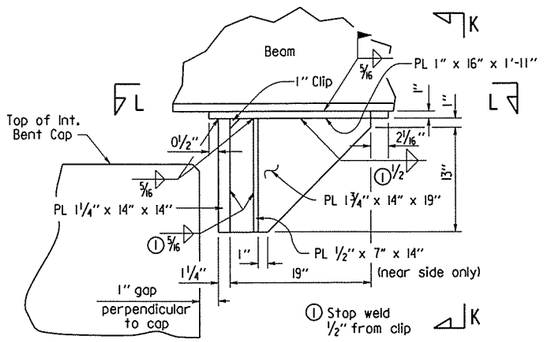
DRAWN BY: KDH DATE: 4-1-15
CHECKED BY: ADN DATE: 8/21/15
DESIGNED BY: DDS DATE: 7/15

FILENAME: bl00760_comm.dgn
SCALE: AS NOTED

BRIDGE NO. 07354 DRAWING NO. 57316

PRINT DATE: 8/20/2015

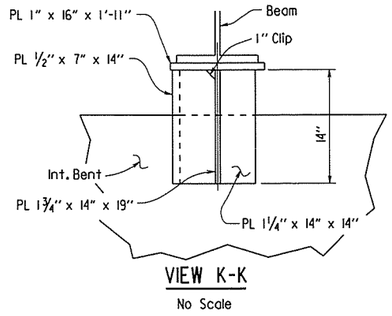
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100760	66	133
				①	07354 - COMMON DETAILS - 57317			



LONGITUDINAL RESTRAINER DETAIL

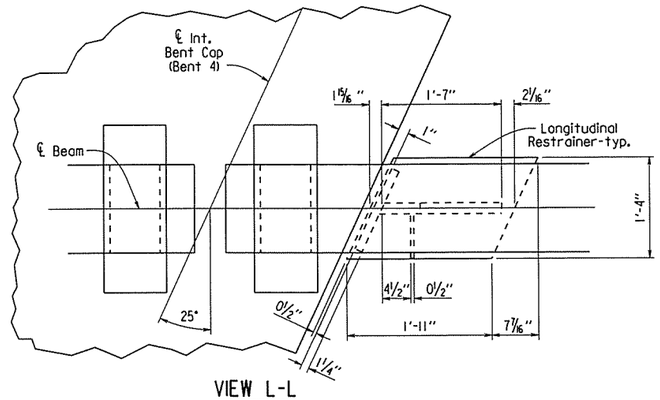
At Bent 4 Only
No Scale

NOTE: Weld longitudinal restrainer after deck has been poured.



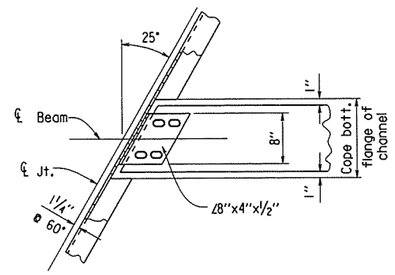
VIEW K-K

No Scale



VIEW L-L

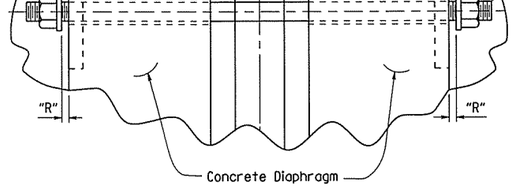
No Scale



CHANNEL CONNECTION DETAIL

No Scale

NOTE: After gap width has been set, tack weld heavy hex nut to restrainer rod.

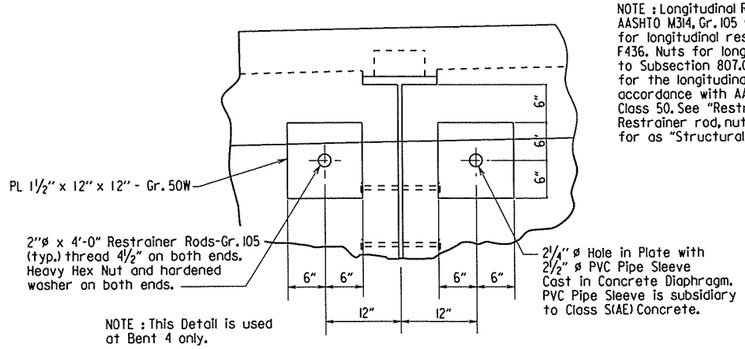


RESTRAINER ROD INSTALLATION DETAIL

At Bent 4 Only
No Scale

TABLE B

	"R" - Gap Width at 24 hour average temp. of:		
	40° F	60° F	80° F
Bent 4	3/4"	1"	1 1/4"

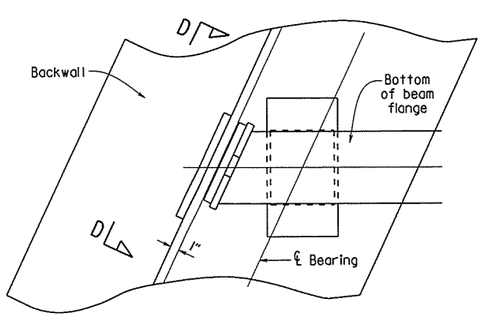


NOTE : This Detail is used at Bent 4 only.

RESTRAINER ROD ASSEMBLY DETAIL

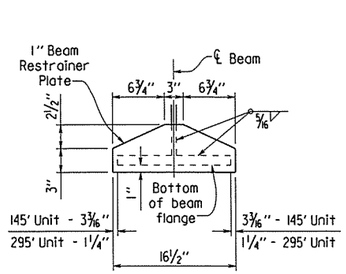
At Bent 4 Only
No Scale

NOTE : Longitudinal Restrainer Rod shall conform to AASHTO M314, Gr. 105 with threads on each end. Washers for longitudinal restrainer rod shall conform to ASTM F436. Nuts for longitudinal restrainers shall conform to Subsection 807.06. Rods, Nuts Washers and Plates for the longitudinal restrainers shall be galvanized in accordance with AASHTO M232 Class C or ASTM B695 Class 50. See "Restrainer Rod Installation Details". Restrainer rod, nut, washers and plate shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)".



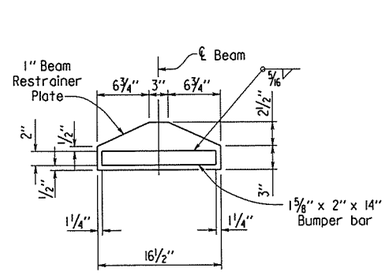
BEAM RESTRAINER DETAILS

At Bents 1 & 9
No Scale



NOTE: Beam restrainer plate shall be centered on each beam line.

Bumper bar not shown in this view.



NOTE: Hidden lines of beam are not shown in this view.

VIEW D-D

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
5-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS COMMON TO
145'-0" & 295'-0" CONTINUOUS
COMPOSITE W-BEAM UNITS
LEFT HAND CHUTE OF
LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 5-22-15
CHECKED BY: ADN DATE: 5/15
DESIGNED BY: DBJ DATE: 1/15
FILENAME: bl00760_comm.dgn
SCALE: AS NOTED

BRIDGE NO. 07354
DRAWING NO. 57317

PRINT DATE: 8/20/2015

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.		100760	167	183
				①	07354 - COMMON DETAILS - 57318			

GENERAL NOTES

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

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

MATERIALS AND STRENGTHS

Class S(AE) Concrete	f'c = 4,000 psi.
Reinforcing Steel (Gr. 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.

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

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

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. 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 railing. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing.

Removable forms shall be used for concrete diaphragms.

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 is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL: Structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with Subsection 807.84(e) unless otherwise noted. Structural steel completely embedded in concrete may be AASHTO M270, Gr. 36, Gr. 50 or Gr. 50W unless otherwise noted.

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

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

Beams and 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 Beam Spans (M270, Gr. 50W)".

All beams shall be blocked in their true position in the shop with webs horizontal in groups as specified in Subsection 807.54(b)(2). The camber, length of sections, and distance between bearings shall be measured with the beams in their true position and this information shall become part of the permanent records for this job. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of $\frac{1}{4}$" +/- is allowed for camber.

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

All 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.

Field connections shall be bolted with high-strength bolts and shall be $\frac{3}{4}$" ø bolts unless otherwise noted. Open holes shall be $\frac{15}{16}$" ø unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges. Holes for $\frac{3}{4}$" ø high-strength bolts may be $\frac{15}{16}$" ø diameter if a washer is supplied for use under both the nut and head of the bolt.

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

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.

PRINT DATE: 8/20/2015

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS COMMON TO
145'-0" & 295'-0" CONTINUOUS
COMPOSITE W-BEAM UNITS
LEFT HAND CHUTE OF
LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 5-22-15
CHECKED BY: ASN DATE: 8/15
DESIGNED BY: DDS DATE: 7/15
FILENAME: bl00760_comm.dgn
SCALE: NONE

BRIDGE NO. 07354 DRAWING NO. 57318

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.		100760	68	133
				① 07354 -		295 FT. UNIT		- 57319

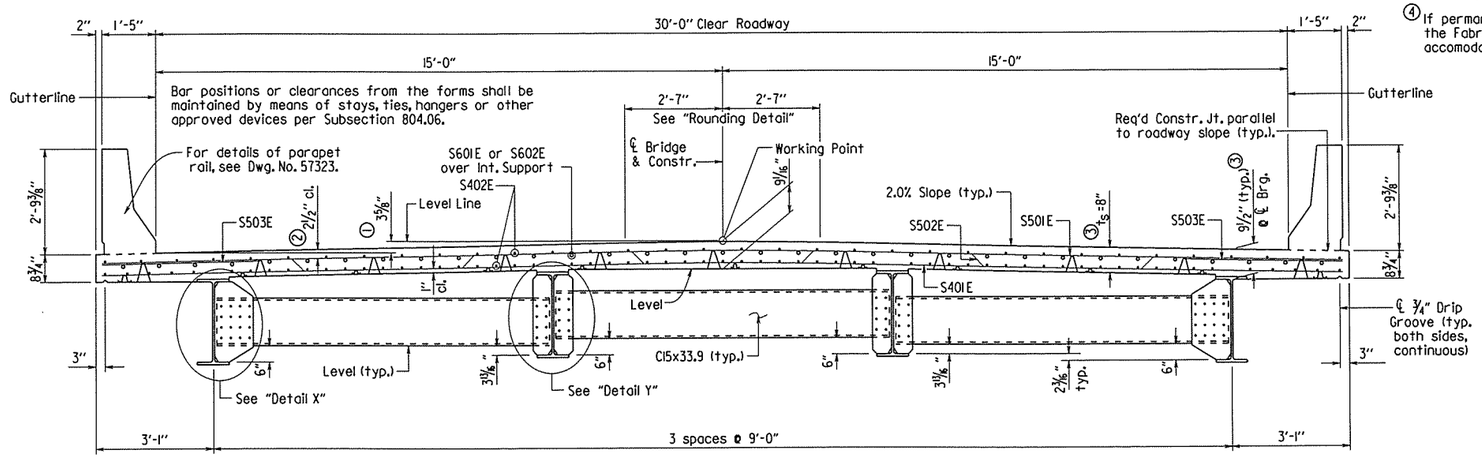
Slab Reinforcing:

Longitudinal: S402E as shown
S601E or S602E as shown over int. supports, see "Half-Reinforcing Plan & Pouring Sequence", Dwg. No. 57322.

Transverse: S502E @ 12" o.c. bent up over beams
S501E @ 12" o.c. in top, S401E @ 12" o.c. in bottom — Alternate
S503E @ 6" in top of overhangs (bundled with #5 bars)

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.

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



TYPICAL ROADWAY SECTION

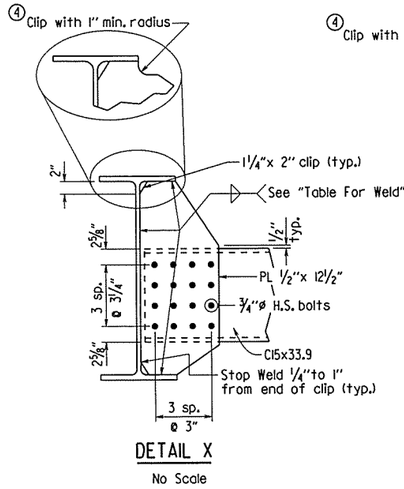
Scale: ½" = 1'-0"

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".

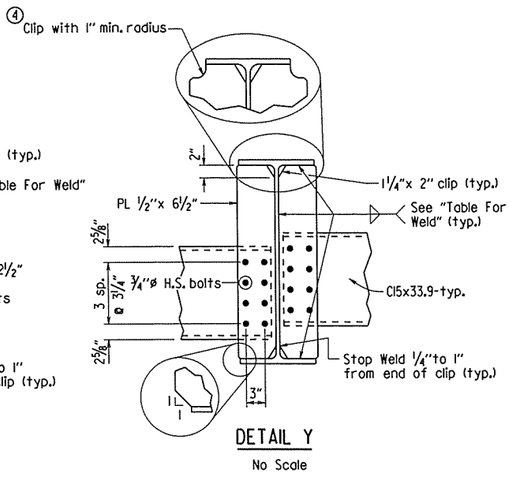
③ See "Adjustment for Slab Thickness Tolerance".

④ If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accomodate the deck form supports.



DETAIL X

No Scale

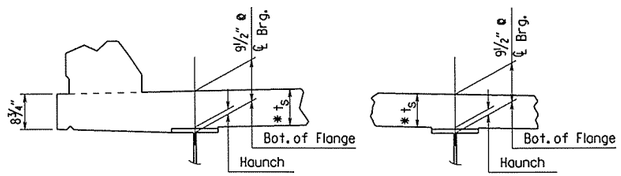


DETAIL Y

No Scale

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

t_s = slab thickness as shown in "Typical Roadway Section"



*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

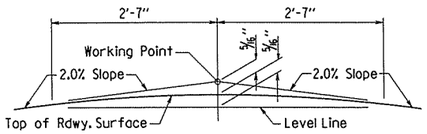
NOTES:
Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum occurs when top flange contacts bottom reinforcing steel; Maximum = top flange thickness plus 1¾". No increase in concrete and structural steel quantities will be made to maintain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

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.



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS
8-21-15

BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF 295'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
LEFT HAND CHUTE OF
LITTLE RIVER (SITE 1)

ROUTE SEC.

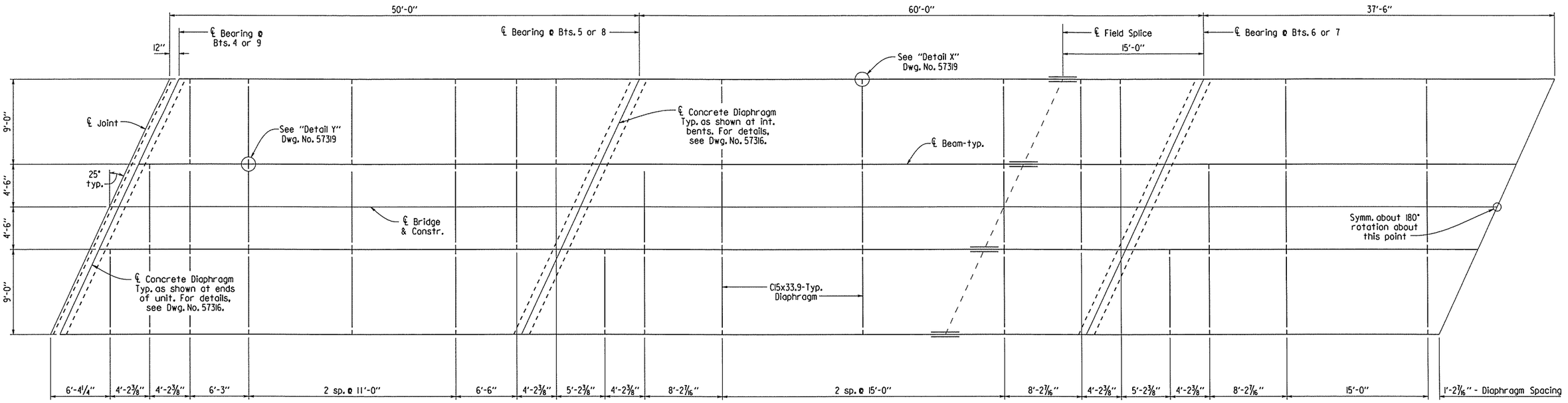
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-9-15 FILENAME: bl00760x1_s2.dgn
CHECKED BY: ADN DATE: 8/25 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 7/15

BRIDGE NO. 07354 DRAWING NO. 57319

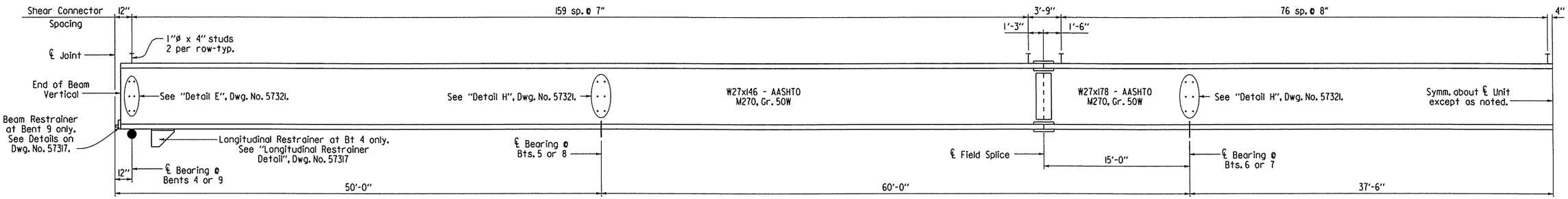
PRINT DATE: 8/20/2015

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.		100760	69	133
				(1) 07354 -		295 FT. UNIT	- 57320	



HALF-FRAMING PLAN

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



TYPICAL HALF-BEAM ELEVATION

No Scale

Note: 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.

For "Details of Anchor Bolts at Bents 5 - 8", see Dwg. No. 57321.

For details of elastomeric bearings at Bents 4 & 9, see Dwg. No. 57325.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF 295'-0" CONTINUOUS COMPOSITE W-BEAM UNIT LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

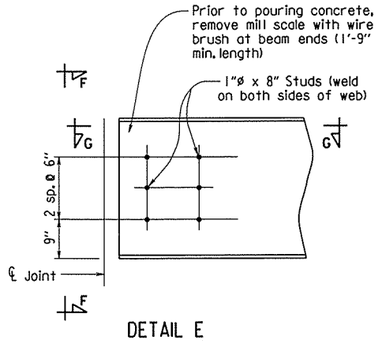
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-13-15
CHECKED BY: ADN DATE: 8/15
DESIGNED BY: DBS DATE: 1/15
FILENAME: bl00760xl_s2.dgn
SCALE: AS NOTED

BRIDGE NO. 07354 DRAWING NO. 57320

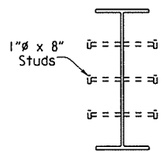
PRINT DATE: 8/21/2015

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.		100760	70	133
				(1) 07354 -		295 FT. UNIT	- 57321	

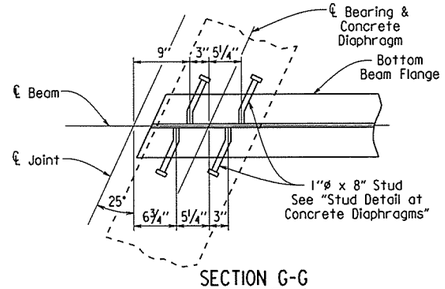


DETAIL E
No Scale

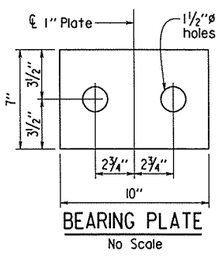
Note: Studs shall not be placed on the outside face of the exterior beam web.



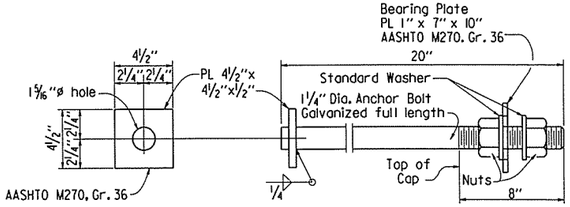
VIEW F-F
No Scale



SECTION G-G
No Scale



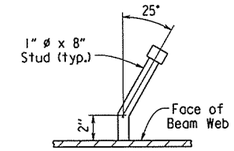
BEARING PLATE
No Scale



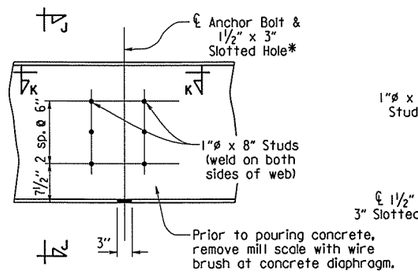
Anchor bolts shall comply with AASHTO M314, Grade 55, with Supplementary Requirement S1, and galvanized according to Subsection 807.07. Nuts for bolts shall be as specified in Subsection 807.07. Plates, anchor bolts, nuts and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)"

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

DETAILS OF ANCHOR BOLTS AT BENTS 5 - 8
No Scale

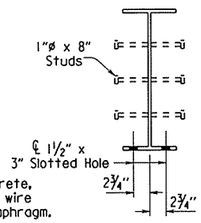


STUD DETAIL AT CONCRETE DIAPHRAGMS
No Scale

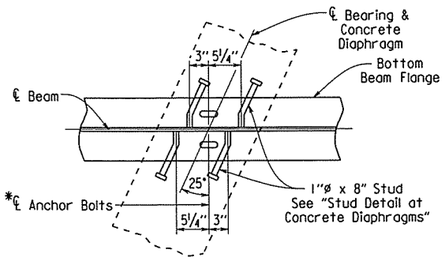


DETAIL H
No Scale

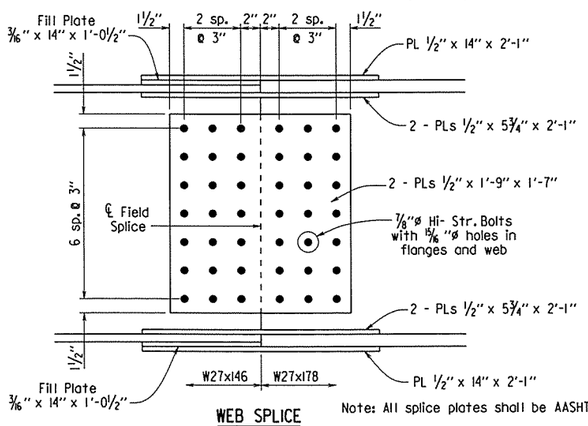
* See "Typ. Anchor Bolt Layout, Dwg. No. 57509.



VIEW J-J
No Scale

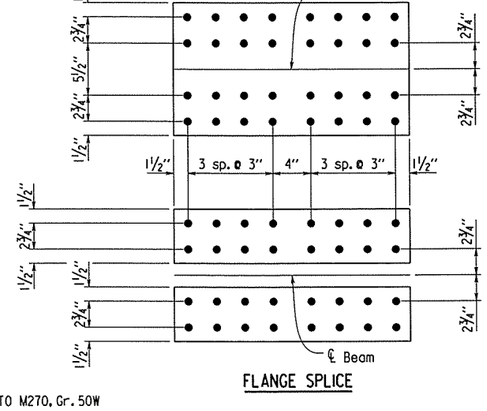


SECTION K-K
No Scale



WEB SPLICE

Note: All splice plates shall be AASHTO M270, Gr. 50W



FLANGE SPLICE

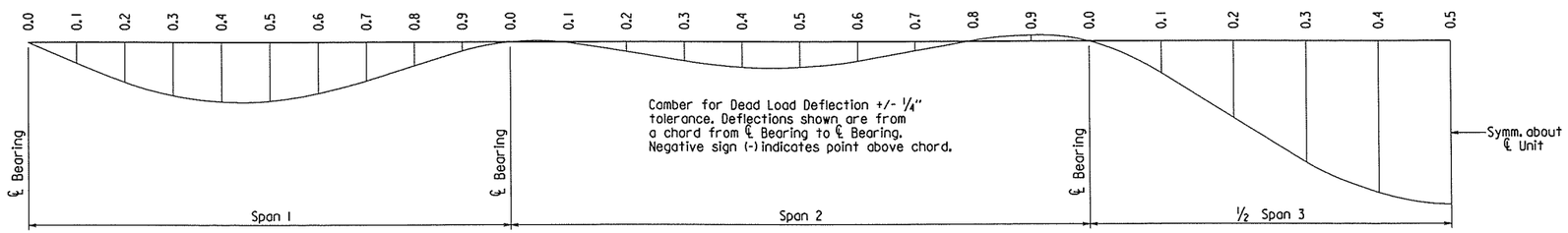
FIELD SPLICE DETAIL
Scale: 1½" = 1'-0"

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

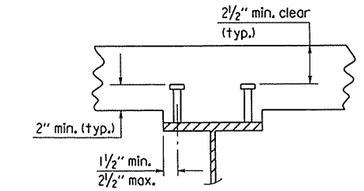
Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
1	0	0	0	0	0	0	0
	0.1	0.026	0.027	0.142	0.142	0.155	0.155
	0.2	0.049	0.050	0.264	0.264	0.287	0.289
	0.3	0.065	0.066	0.351	0.349	0.382	0.382
	0.4	0.073	0.073	0.393	0.390	0.427	0.427
	0.5	0.072	0.072	0.388	0.384	0.422	0.420
	0.6	0.063	0.064	0.338	0.336	0.367	0.367
	0.7	0.048	0.048	0.255	0.252	0.277	0.276
	0.8	0.030	0.030	0.156	0.154	0.169	0.168
	0.9	0.012	0.013	0.060	0.063	0.065	0.069
2	0	0	0	0	0	0	0
	0.1	-0.002	-0.002	0.005	0.000	0.006	0.000
	0.2	0.005	0.004	0.063	0.050	0.069	0.056
	0.3	0.013	0.011	0.127	0.107	0.138	0.119
	0.4	0.018	0.015	0.169	0.142	0.184	0.158
	0.5	0.016	0.013	0.169	0.142	0.184	0.158
	0.6	0.009	0.006	0.130	0.104	0.141	0.116
	0.7	-0.002	-0.004	0.062	0.042	0.067	0.048
	0.8	-0.011	-0.013	-0.006	-0.021	-0.007	-0.022
	0.9	-0.012	-0.013	-0.039	-0.045	-0.043	-0.049
½ Span 3	0	0	0	0	0	0	0
	0.1	0.046	0.046	0.210	0.207	0.230	0.227
	0.2	0.106	0.107	0.505	0.498	0.552	0.547
	0.3	0.165	0.165	0.797	0.778	0.871	0.854
	0.4	0.204	0.205	0.995	0.977	1.088	1.073
	0.5	0.219	0.219	1.072	1.049	1.172	1.153

℄ Unit

Note: Table is symmetrical about ℄ Unit



DEAD LOAD DEFLECTION DIAGRAM
No Scale



Stud Shear Connectors shown shall be 1"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

SHEAR CONNECTOR DETAIL
No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 5
DETAILS OF 295'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
LEFT HAND CHUTE OF
LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-13-15 FILENAME: bl00760xl_s2.dgn
CHECKED BY: ADN DATE: 8/15 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 1/15

BRIDGE NO. 07354 DRAWING NO. 57321

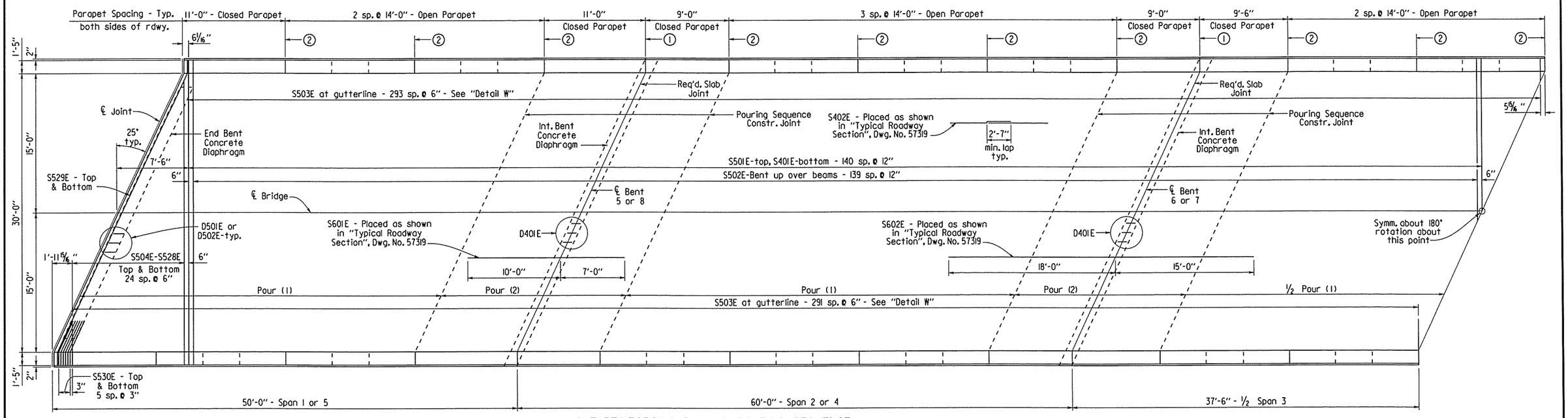
PRINT DATE: 8/21/2015

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.		100760	71	133
				①	07354 -	295 FT. UNIT	- 57322	

① ℄ Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab. Typ. both sides of Rdwy.

② ℄ Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab. Typ. both sides of Rdwy.

Note: Unless otherwise noted, required slab joints and pouring sequence contruction joints shall align with parapet joints at the gutterline.

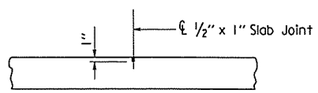


HALF-REINFORCING PLAN & POURING SEQUENCE

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

Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 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 deviation from the pouring sequence shown.

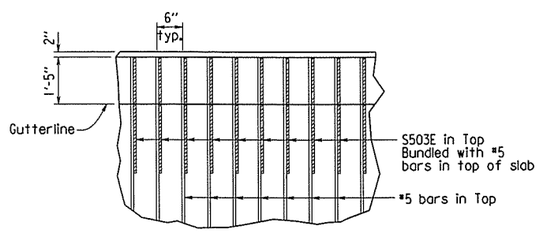
If concrete diaphragms are poured separately, a minimum of 48 hours shall elapse between the diaphragm pour and the slab pour.



SLAB JOINT DETAIL

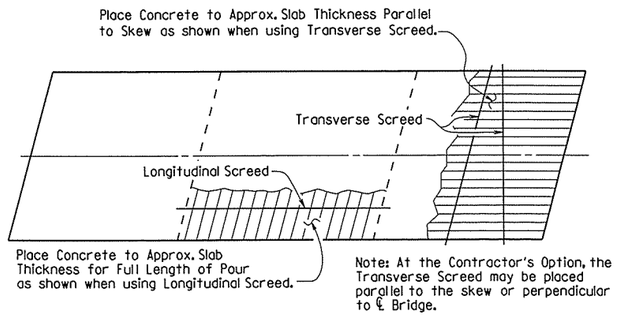
No Scale

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



DETAIL W

No Scale



CONCRETE PLACEMENT PROCEDURE

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 5
DETAILS OF 295'-0" CONTINUOUS COMPOSITE W-BEAM UNIT LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

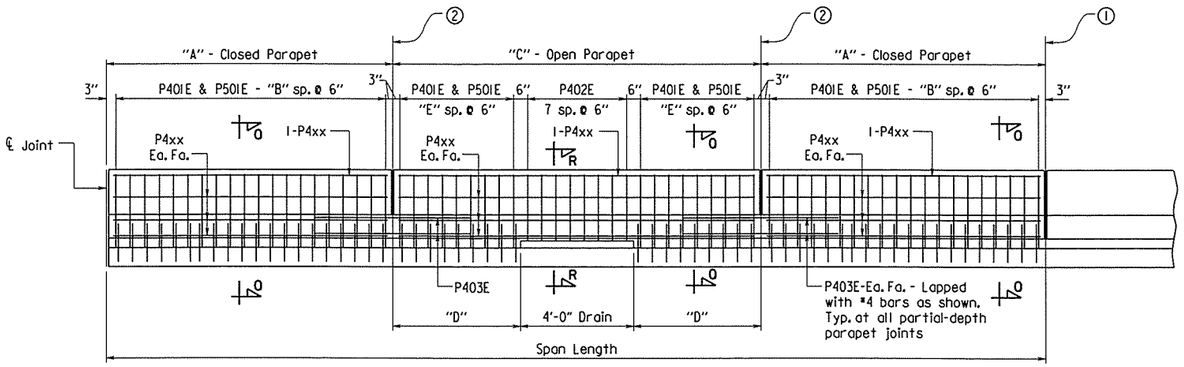
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-14-15 FILENAME: bl00760xl_s2.dgn
CHECKED BY: ADN DATE: 9/15 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 1/15

BRIDGE NO. 07354 DRAWING NO. 57322

PRINT DATE: 8/20/2015

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.		100760	72	133
				① 07354 -		295 FT. UNIT	- 57323	

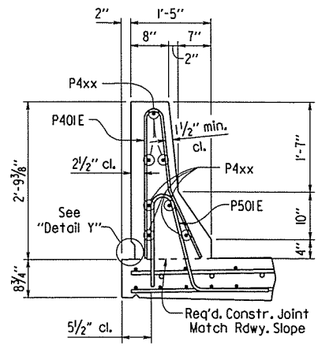


① ℄ Full-Depth Parapet Joint (1/4" to 1" max.) as shown in "Half-Reinforcing Plan & Pouring Sequence", Dwg. No. 57322 . Stop 4" from top of slab.

DETAILS OF PARAPET RAIL

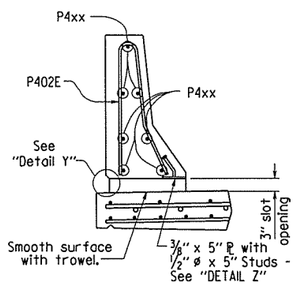
Scale: 3/8" = 1'-0"

② ℄ Partial-Depth Parapet Joint (1/4" to 1" max.) as shown in "Half-Reinforcing Plan & Pouring Sequence", Dwg. No. 57322 . Stop 1'-2" from top of slab.



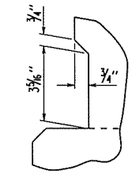
SECTION Q-Q

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



SECTION R-R

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



DETAIL Y

No Scale

TABLE OF PARAPET RAIL VARIABLES

"A" Closed Parapet	"B"	P4xx Bar
11'-0"	21	P404E
9'-0"	17	P405E
9'-6"	18	P406E

"C" Open Parapet	"D"	"E"	P4xx Bar
14'-0"	5'-0"	9	P407E

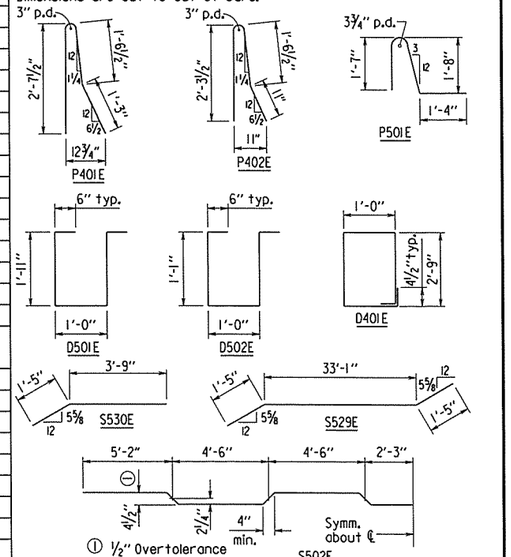
Note: For location of Open and Closed Parapet panels, see "Half-Reinforcing Plan & Pouring Sequence", Dwg. No. 57322.

BAR LIST

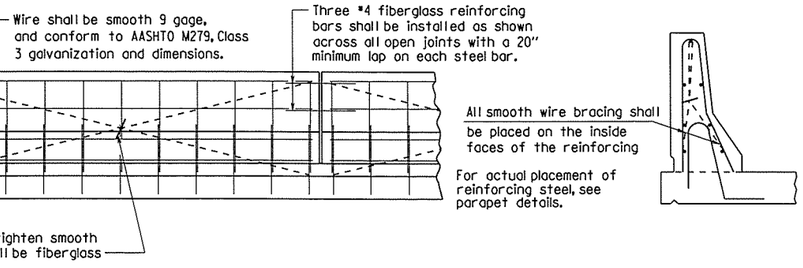
MARK	NO. REQ'D.	LENGTH	P.D.
S401E	281	32'-10"	Str.
S402E	760	39'-2"	Str.
D401E	132	7'-10"	2"
D402E	96	9'-7"	Str.
D403E	64	3'-0"	Str.
P401E	956	5'-6"	3"
P402E	224	4'-10"	3"
P403E	152	5'-6"	Str.
P404E	56	10'-8"	Str.
P405E	56	8'-8"	Str.
P406E	28	9'-2"	Str.
P407E	196	13'-8"	Str.
S501E	281	32'-10"	Str.
S502E	280	33'-6"	3"
S503E	1172	4'-10"	Str.
S504E - S528E	4 ea.	Var. 5'-0" to 30'-9"	Str.
S529E	4	35'-11"	3"
S530E	24	5'-2"	3"
D501E	42	5'-5"	2½"
D502E	16	3'-9"	2½"
P501E	956	4'-8"	3¾"
S601E	66	17'-0"	Str.
S602E	66	33'-0"	Str.
D601E	64	9'-7"	Str.
D602E	32	2'-7"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.



Note: Bars with an "E" suffix are to be epoxy coated.

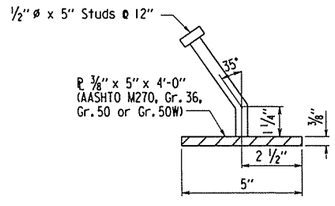


All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

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. Unless otherwise noted, exposed surfaces 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 ⅜" 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)."

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF 295'-0" CONTINUOUS COMPOSITE W-BEAM UNIT LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

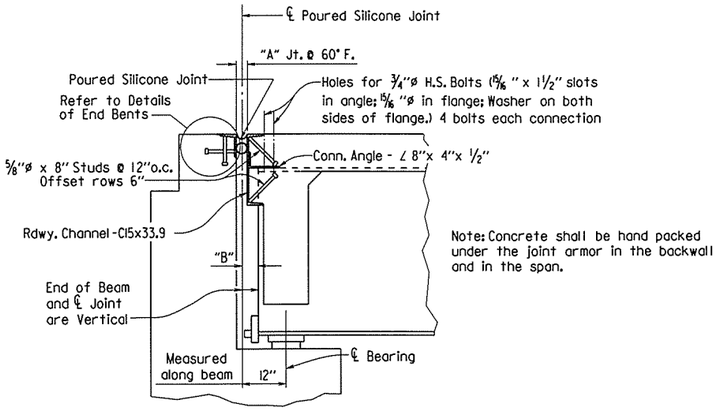
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-15-15 FILENAME: bl00760xl_s2.dgn
CHECKED BY: 4DN DATE: 8/15 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 1/15

BRIDGE NO. 07354 DRAWING NO. 57323

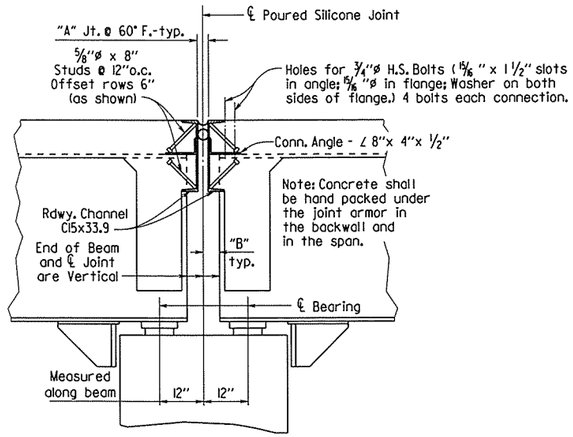
PRINT DATE: 8/20/2015

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.		100760	73	133
				(1) 07354 -		JOINTS	- 57324	



SECTION THRU JOINT AT BENTS 1 & 9

No Scale



SECTION THRU JOINT AT BENT 4

No Scale

SILICONE JOINT DATA

Bent Number	"A" Width Perpendicular to Joint at 24 Hour Average Temperature (1) Of:			"B" Perpendicular to Joint at 60°F	Bumper Bar Size	"D"
	40°F	60°F	80°F			
1	2 5/8"	2 1/2"	2 3/8"	2 1/2" ±	1" x 1 1/4"	5"
4	2 15/16"	2 1/2"	2 3/16"	2 1/2" ±	1" x 1 1/4"	5"
9	2 11/16"	2 1/2"	2 5/16"	2 1/2" ±	1" x 1 1/4"	5"

(1) 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.

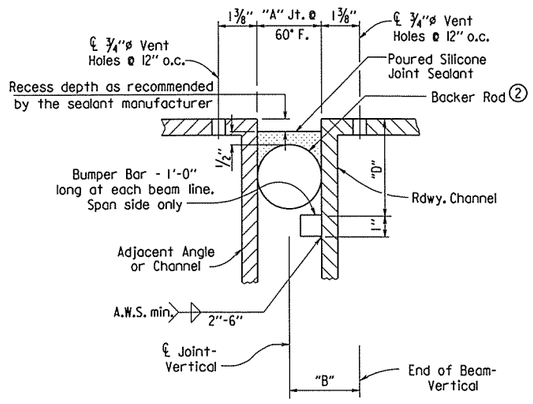
The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80°F.

(2) BACKER ROD NOTE:

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.

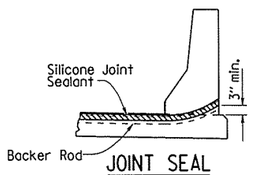
Except as noted, do not install more backer rod that can be sealed in the same day.

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



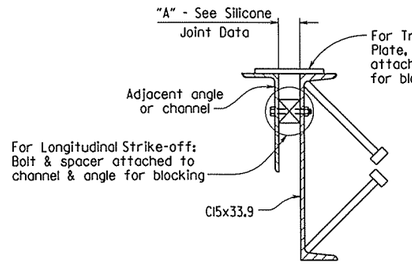
DETAIL OF POURED SILICONE JOINT SEAL

No Scale



JOINT SEAL PLACEMENT AT CURB

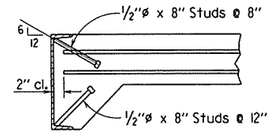
No Scale



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown @ 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



Note: As an alternate to 5/8"ø studs, ½"ø x 8" studs spaced as shown may be used. Use weight of 5/8"ø stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS

No Scale

EXPANSION DEVICE INSTALLATION AT END BENTS

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

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

2) The backwall shall be poured to the optional construction joint after beams are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature. **Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been placed.**

EXPANSION DEVICE INSTALLATION AT BENT 4:

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

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

STATE OF ARKANSAS
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8-21-15
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DETAILS OF JOINTS LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

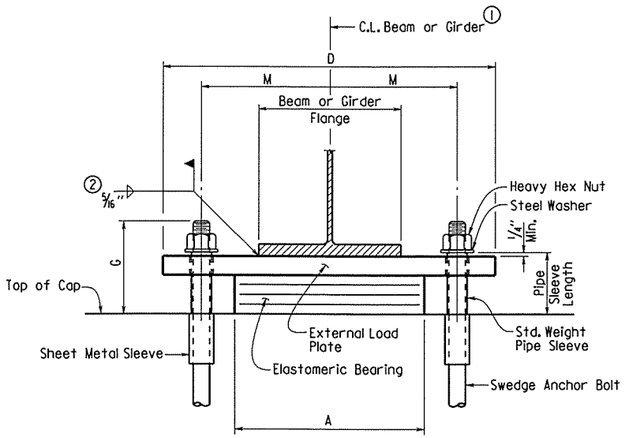
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-15-15 FILENAME: bl00760_jtl.dgn
CHECKED BY: ADN DATE: 8/15 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 1/15

BRIDGE NO. 07354 DRAWING NO. 57324

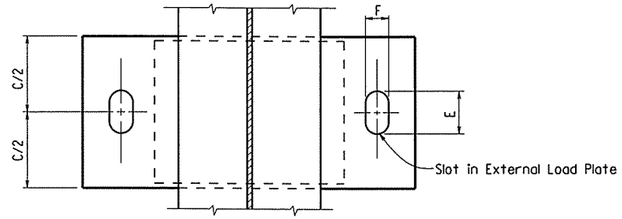
PRINT DATE: 8/21/2015

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.		100760	74	138
				①		07354 - ELASTO. BEARINGS - 57325		

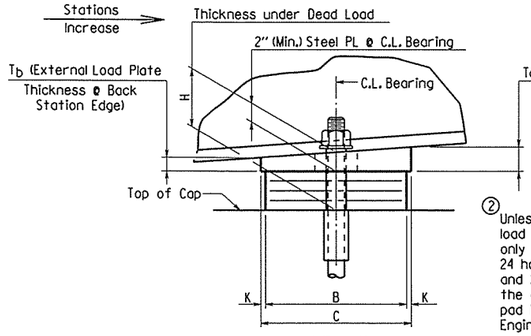


FRONT VIEW

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



PLAN VIEW

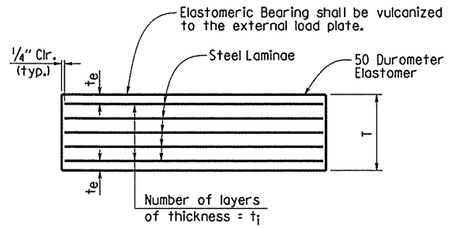


SIDE VIEW

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

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

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

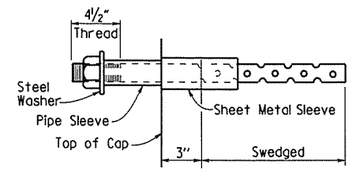


t_e = Thickness of elastomer cover on top and bottom of pad

t_i = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_i

ELASTOMERIC BEARING



ANCHOR BOLT DETAIL

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

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50W)"

GENERAL NOTES

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

External load plates shall conform to AASHTO M270, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

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

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

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

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

TABLE OF FABRICATOR VARIABLES

*Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION: BENT NO(S).	LOCATION: UNIT	LOCATION: BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD: A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	EXTERNAL LOAD PLATE: C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT: ANCHOR BOLT (Ø x L)	GRADE	PIPE SLEEVE SIZE (Ø x L)	SHEET METAL SLEEVE SIZE (Ø x L)	STEEL WASHER SIZE (O.D.)
07354	1 & 4 Bk.	145'	All	Exp.	4	87	8 1/4"	5 5/8"	10 1/2"	9"	4	1/2"	1/4"	5 @ 12 Gauge	3"	10"	19 3/4"	3 1/4"	2"	1/2"	7 3/8"	2.625"	2.625"	1 1/4"Øx20 1/2"	55	1 1/4"Ø x 6"	3"Ø x 6"	2 1/2"Ø
	4 Ahd. & 9	295'	All	Exp.	4	100	9 1/4"	5 5/8"	14"	8"	5	1/2"	1/4"	6 @ 12 Gauge	3 5/8"	9 3/4"	26 1/2"	5 5/8"	3 1/8"	7/8"	10"	2.00"	2.00"	2 1/4"Ø x 33"	55	2 1/2"Ø x 6"	4"Ø x 6"	4"Ø

STATE OF ARKANSAS
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DETAILS OF ELASTOMERIC BEARINGS LEFT HAND CHUTE OF LITTLE RIVER (SITE 1)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-15-15
CHECKED BY: ADN DATE: 8/15
DESIGNED BY: DBS DATE: 1/15
FILENAME: bl00760_el.dgn
SCALE: NONE

BRIDGE NO. 07354 DRAWING NO. 57325

PRINT DATE: 8/20/2015

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.		100760	75	133
				① 07355 -		LAYOUT	- 57326	

For R/W Data. see Rdwy. Plans.

Excavate the existing embankment as shown to Elev. 224.00 Approx. 780 cubic yards of excavation.

CULTIVATED FIELD

Toe of Detour Fill

LEFT HAND CHUTE OF LITTLE RIVER

Temporary Bridge See Layout, Dwg. No. 57338.

℄ Detour

Toe of Fill

Test Hole-typ.

1V:3H

8'-0" Shdr.

24'-0" Pavement

40'-0" Finished Crown

Tangent Distance = 237.20'

℄ Bridge & Constr.

Approx. 0.6 mi. to Jct. S.H. 77

1V:2H

1'-5" Para.

40'-0" Clear Rdwy.

43'-2" out to out

2.0% X-Slope

65°

30'

Tangent Distance over 500'

S 89°46'46" E

Approx. 2.4 mi. to Jct. S.H. 77

Pipe Underdrain-typ.

20"-typ.

Top of Cut

15'-typ. except as shown

Existing Bridge No. MI989

Toe of Fill

CULTIVATED FIELD

1'-6" Dumped Riprap placed on Filter Blanket. Top of Riprap Elev. 230.00. See Std. Dwg. No. 55001.

Use Type C Approach Gutters ('w' = 8'-0") and Type C2 Approach Slab at both ends of bridge. See Std. Dwg. Nos. 55030C & 55040C2.

PLAN

CULTIVATED FIELD

PVI = Sta. 218+10.00 Elev. 236.15

0.0% -1.69%

L = 220'

VERTICAL CURVE DATA ALONG ℄ BRIDGE

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	*NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	4470	229.3	229.6
Base	100	5150	229.8	230.1
Extreme	500	7100	230.6	230.9
Overtopping	>500	-	-	-

*Unconstricted water surface without structure or roadway approaches.

Q100 backwater elevation for existing structure = 230.1 ft.
Proposed Low Bridge Chord elevation = 232.60 ft.
Drainage area = 111.1 square miles.
Historical H.W. Elev. = 231.5 ft.

Total Length of Bridge = 148'-0¾"
147'-0" Integral W-Beam Unit (45', 57', 45')

6⅜" 6⅜"

Note: Stations and elevations shown are along ℄ Bridge & Construction. Elevations are at Working Point.

Slope Intercept Sta. 215+45.42

Begin Bridge Sta. 215+54.47 Elev. 236.15

Guard Rail See Rdwy. Plans

℄ Deck to Low Steel = 3'-6⅜"

℄ Bent 2 Sta. 216+00.00 Ele.v 236.15

℄ Deck at ℄ Bridge to Low side top of cap - 3'-11¼"

Low Steel to Design H.W. = 3.0'

℄ Bent 3 Sta. 216+57.00 Ele.v 236.15

Concrete Parapet Rail

End Bridge Sta. 217+02.53 Elev. 236.15

Slope Intercept Sta. 217+11.58

Proposed Grade Line along ℄ Bridge

Existing Ground Line along ℄ Bridge

Int. Int. Int. Int.

① See Special Provision Job No. 100760 "Geosynthetic Internal Reinforced Embankment Construction" for details of geogrid reinforcement in bridge embankments.

050 Design H.W. Elev. 229.6

Pile Encasement Typ. for Bents 2 & 3. Top of encasement at bottom of cap.

65' Piles 65' Piles

Bent No. 1 2 3 4

250 240 230 220 210 200 190 180 170 160 150

215+00 216+00 217+00 218+00

ELEVATION

PRINT DATE: 8/20/2015

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER LEFT HAND CHUTE OF LITTLE RIVER (SITE 2) LEFT HAND CHUTE OF LITTLE RIVER
STRS. & APPRS. (S)
MISSISSIPPI COUNTY

ROUTE 140 SEC. 2

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 6-17-14 FILENAME: bl00760x2_ll.dgn
CHECKED BY: DBS DATE: 8/15 SCALE: 1" = 20'
DESIGNED BY: ADN DATE: 6/14

BRIDGE NO. 07355 DRAWING NO. 57326

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.		100760	76	133
				07355 -		LAYOUT	- 57327	

GENERAL NOTES

BENCH MARK: Vertical Control Data is shown in the Survey Control Data Sheets.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable Supplemental Specifications and Special Provisions. Unless otherwise noted in 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: 4

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.

PILING: Piling for Bents 1 & 4 shall be 18" diameter concrete filled steel shells and shall be driven to an ultimate bearing capacity of 205 tons per pile. Piling for Bents 2 & 3 shall be 24" diameter concrete filled steel shells and shall be driven to an ultimate bearing capacity of 320 tons per pile. All piling shall be driven with an approved air, steam, or diesel hammer. Drive piling in Bents 1 & 4 after embankment to bottom of cap is in place. Bents 1 through 4 shall have a tip elevation of 167.0 or lower.

Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g). No piles will be paid for as Test Piles. There will be no additional payment for cut-off or build-up of piles. Piling in Bents 2 & 3 are positioned to avoid interference with the existing piling. The Contractor shall verify the location of existing piling before driving any piling. Any adjustments necessary to avoid interference with existing piling shall be submitted for the Engineer's approval.

DRIVING SYSTEM: The driving system approval and the ultimate bearing capacity determination for piling shall be based on the requirements of Subsection 805.09(b), "Method B-Wave Equation Analysis (WEAP)". It is estimated that the minimum rated energy of the hammer to obtain the ultimate bearing capacity on 18" diameter piles will be 40,200 foot pounds per blow and on 24" diameter piles will be 73,800 foot pounds per blow.

PREBORING: Preboring is required for all piles in Bents 1 and 4 to a depth of 10' below the bottom of the cap. Preboring shall be a minimum of 6" greater than the diameter of the pile cross-section and shall be backfilled with sand or pea gravel after the piles are in place. This required preboring shall be paid for at the unit price bid for "Preboring". The Contractor shall be responsible for keeping prebored holes free of debris prior to backfilling, which may require the use of temporary casings or other methods. Temporary casings, if required, shall not be paid for directly but shall be considered subsidiary to the item "Preboring".

Preboring, water jetting or other methods approved by the Engineer may be needed below the required preboring at Bents 1 and 4, and at Bents 2 and 3 to achieve the minimum tip elevation. Preboring to achieve the minimum tip elevation shall be in accordance with Subsection 805.08(a). Any cost associated with achieving the minimum tip elevation shall be considered subsidiary to the item "Steel Shell Piling".

PILE ENCASEMENT: Pile encasements are required for Bents 2 & 3 and shall extend 3' into the ground and to the bottom of cap. See Std. Dwg. No. 55021 for additional details. The use of Galvanized Corrugated Steel Pipe for pile encasement will NOT be allowed.

PIPE UNDERDRAIN: One pipe underdrain with outlet protectors shall be installed behind each bridge end in accordance with Section 611. Pipe underdrains and outlet protectors will not be paid for directly but shall be considered subsidiary to "Unclassified Excavation for Structures-Bridge".

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.

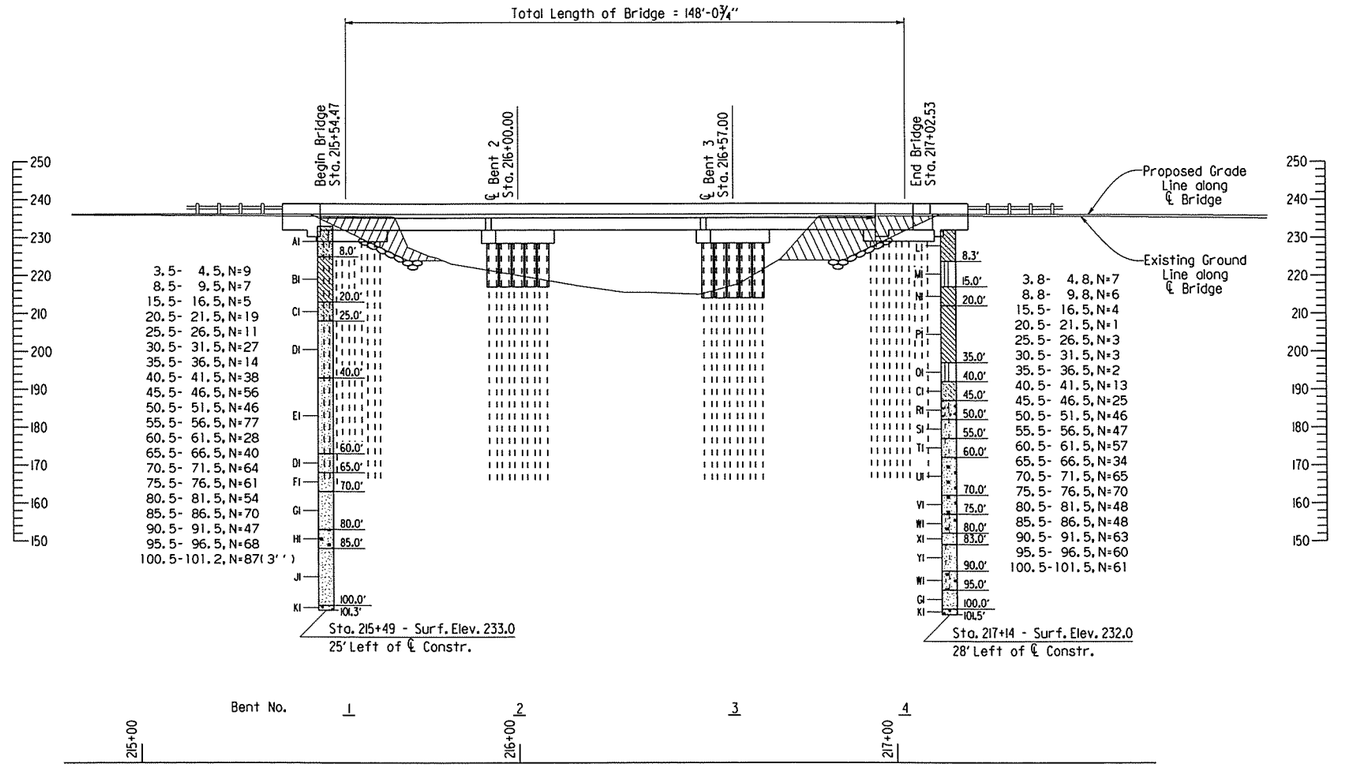
DETAIL DRAWINGS:	DRAWING NO.
Details of Bents 1 & 4	57328
Details of Bents 2 & 3	57329
147'-0" Integral W-Beam Unit	57330-57337
Concrete Filled Steel Shell Piles	55021
Type C Approach Gutters	55030C
Type C2 Approach Slabs	55040C2

EXISTING BRIDGE: Existing Bridge No. MI989, LM 5.04, is 112' in length, 25.2' wide and is comprised of an 80 ft. truss with concrete deck supported by concrete caps with concrete pile bents, and a 31 ft. approach span with concrete deck with concrete channel beam, supported by concrete caps with concrete pile bents. The existing bridge occupies the same location as the proposed bridge.

REMOVAL AND SALVAGE: After the temporary bridge is open to traffic, existing Bridge No. MI989 shall be removed in accordance with Section 205. All material from the existing bridge shall become property of the Contractor.

TEMPORARY BRIDGE: Construct a temporary bridge in accordance with Section 603 approximately 55 feet upstream from centerline construction. See Roadway Plans for actual detour grade and alignment. The temporary bridge shall have a minimum length of 112' with a minimum roadway width of 24', a minimum span length of 19', a minimum span length of 31' over main channel, a minimum live load capacity of H15, and meet the requirements for Seismic Category B. See Dwg. Nos. 57338-57340 for temporary bridge details. Neither a timber deck nor timber piles will be allowed for construction of temporary bridge.

MAINTENANCE OF TRAFFIC: See Roadway Plans.



ELEVATION OF SOIL BORINGS

BORING LEGEND

A1-Moist, Loose, Brown Sand with Clay and some Organic Matter
B1-Moist, Medium Stiff, Brown and Gray Clay with some Sand and Organic Matter
C1-Wet, Medium Dense, Gray Sand with Clay
D1-Wet, Medium Dense, Gray Sand
E1-Wet, Dense to Very Dense, Gray Sand
F1-Wet, Dense, Gray Sand with some Gravel and Organic Matter
G1-Wet, Very Dense, Gray Sand
H1-Wet, Very Dense, Gray Sand with Organic Matter
J1-Wet, Very Dense to Dense, Gray Sand
K1-Wet, Very Dense, Gray Sand with Gravel
L1-Moist, Medium Stiff, Brown and Gray Clay with Sand and some Organic Matter (Grassroots)
M1-Moist, Loose, Brown and Gray Silt
N1-Wet, Soft, Brown and Gray Clay with some Sand
P1-Wet, Very Soft to Soft, Gray Clay
O1-Wet, Very Loose, Gray Silt
R1-Wet, Medium Dense, Gray Silty Sand with Gravel
S1-Wet, Dense, Gray Sand with Silt, some Clay and Trace of Gravel
T1-Wet, Dense, Gray Sand with Silt and Trace of Gravel
U1-Wet, Very Dense to Dense, Gray Sand with Organic Matter and some Gravel
V1-Wet, Very Dense, Gray Sand with Organic Matter and Trace of Gravel
W1-Wet, Very Dense, Gray Sand with Silt and Organic Matter
X1-Wet, Dense, Gray Sand
Y1-Wet, Dense, Gray Sand with Silt and some Gravel

STATE OF ARKANSAS
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No. 9235
8-21-15
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SHEET 2 OF 2
LAYOUT OF BRIDGE OVER
LEFT HAND CHUTE OF LITTLE RIVER (SITE 2)
LEFT HAND CHUTE OF LITTLE RIVER
STRS. & APPRS. (S)
MISSISSIPPI COUNTY

ROUTE 140 SEC. 2

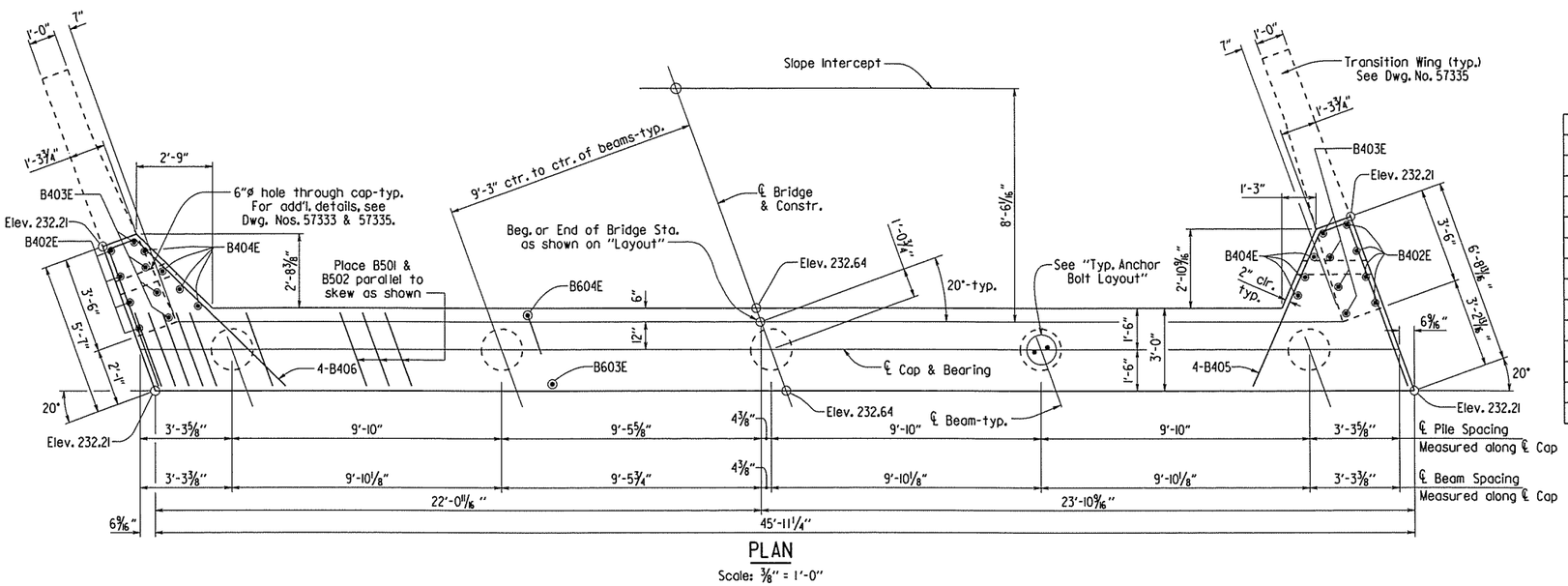
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 6-17-14 FILENAME: bl00760x2_ll.dgn
CHECKED BY: DBS DATE: 6/15 SCALE: 1" = 20'
DESIGNED BY: KDH DATE: 6/14

BRIDGE NO. 07355 DRAWING NO. 57327

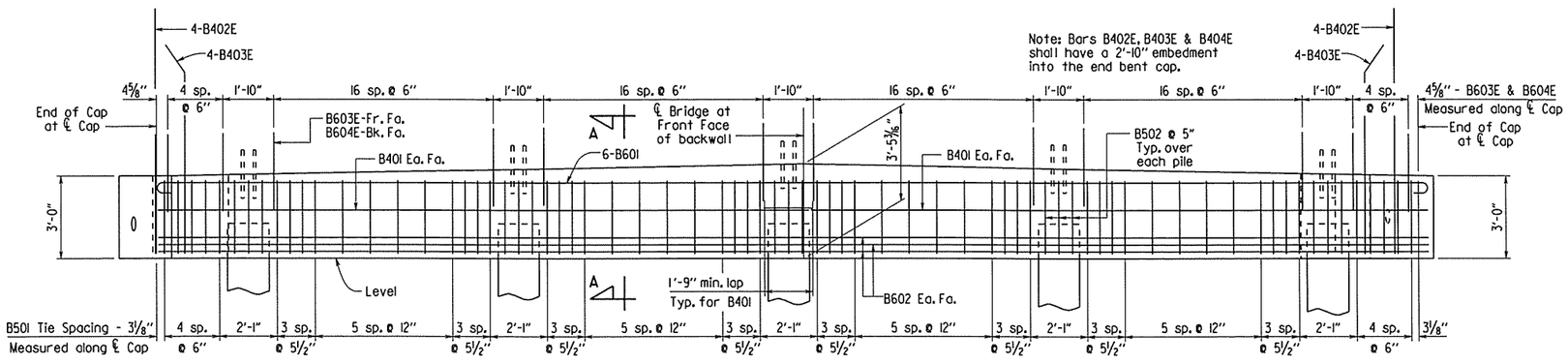
PRINT DATE: 8/20/2015

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.		100760	77	133
				① 07355 -		END BENTS	- 57328	



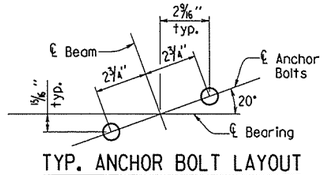
PLAN

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



ELEVATION

Looking Back - Bent 1
Looking Ahead - Bent 4
Scale: 3/8" = 1'-0"



TYP. ANCHOR BOLT LAYOUT

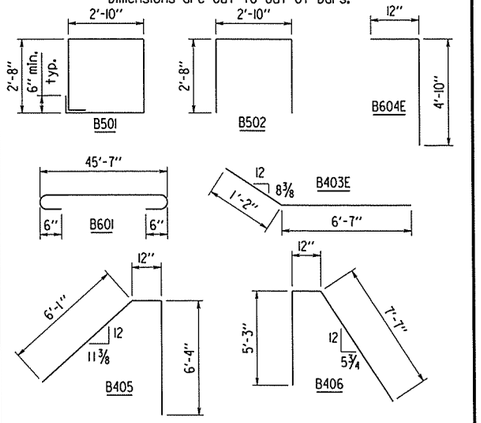
No Scale

BAR LIST-PER BENT

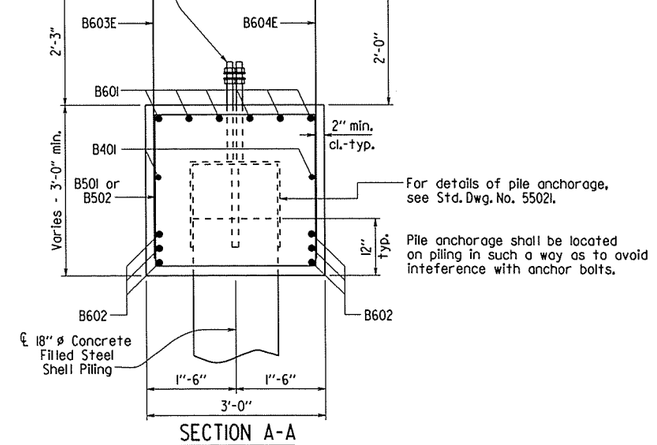
MARK	NO. REQ'D.	LENGTH	P.D.
B401	4	23'-9"	Str.
B402E	8	8'-11"	Str.
B403E	8	7'-9"	2"
B404E	7	4'-11"	Str.
B405	4	13'-3"	2"
B406	4	13'-8"	2"
B501	58	11'-6"	2 1/2"
B502	15	8'-0"	2 1/2"
B601	6	46'-11"	4 1/2"
B602	6	45'-7"	Str.
B603E	78	5'-1"	Str.
B604E	78	5'-9"	4 1/2"

BENDING DIAGRAMS

Dimensions are out to out of bars.



Note: Bars with an "E" suffix are to be epoxy coated.



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.

Granular backfill and pipe underdrain required behind end bent caps. See Dwg. No. 57333.

For details of steel shell piles & pile anchorage, see Std. Dwg. No. 55021.

For additional information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF END BENTS LEFT HAND CHUTE OF LITTLE RIVER (SITE 2)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

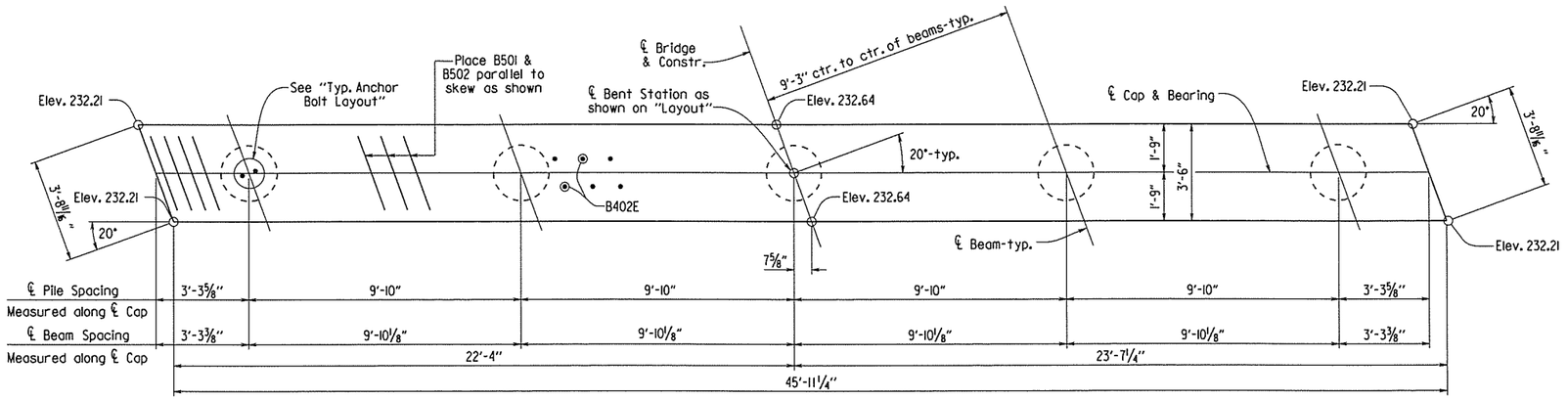
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 3-9-15 FILENAME: bl00760x2_bll.dgn
CHECKED BY: ADH DATE: 8/15 SCALE: AS NOTED
DESIGNED BY: DSE DATE: 12/14

BRIDGE NO. 07355 DRAWING NO. 57328

PRINT DATE: 8/20/2015

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.		100760	78	133
				①	07355 -	INT. BENTS	- 57329	

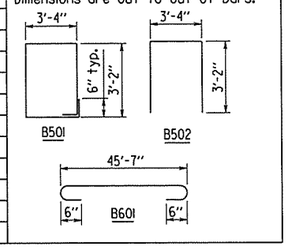


PLAN

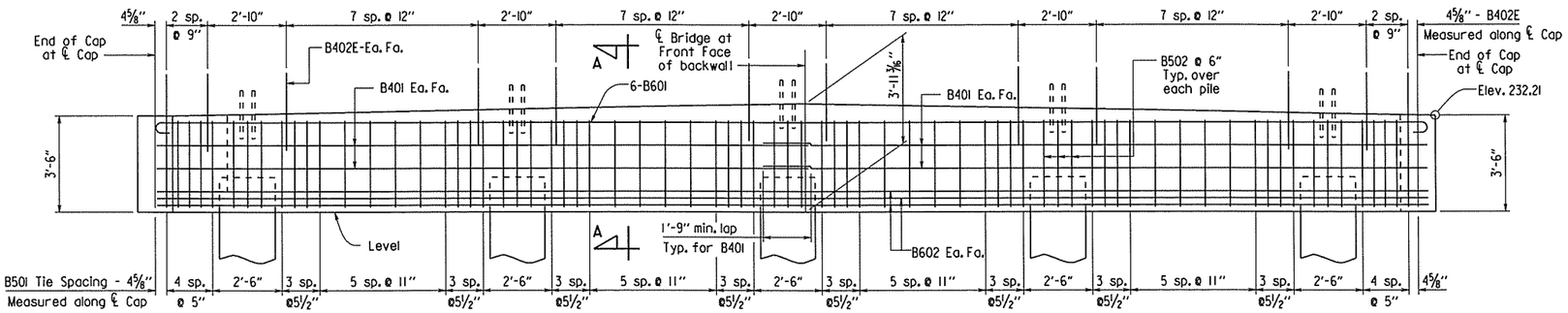
Scale: 3/8" = 1'-0"

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B401	8	23'-9"	Str.	Dimensions are out to out of bars.
B402E	76	3'-0"	Str.	
B501	58	13'-6"	2 1/2"	
B502	15	9'-5"	2 1/2"	
B601	6	46'-11"	4 1/2"	
B602	6	45'-7"	Str.	

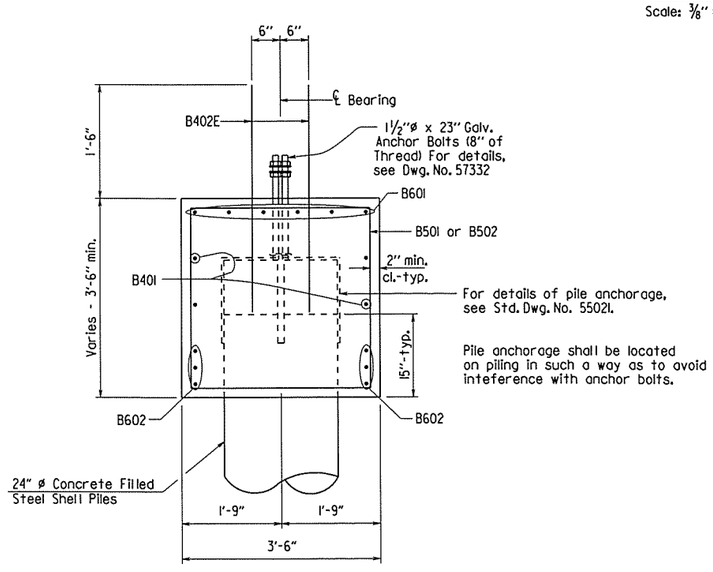


Note: Bars with an "E" suffix are to be epoxy coated.



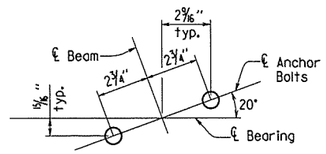
ELEVATION

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



SECTION A-A

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



TYP. ANCHOR BOLT LAYOUT

No Scale

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.

For details of steel shell piles, pile anchorage & pile encasement see Std. Dwg. No. 55021.

For additional information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
5-21-15
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF INTERMEDIATE BENTS LEFT HAND CHUTE OF LITTLE RIVER (SITE 2)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 3-10-15 FILENAME: bl00760x2_bl2.dgn
CHECKED BY: A-DN DATE: 4/15 SCALE: AS NOTED
DESIGNED BY: CSE DATE: 12/14
BRIDGE NO. 07355 DRAWING NO. 57329

PRINT DATE: 8/20/2015

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.		100760	79	133
				①	07355 -	147 FT. UNIT	- 57330	

Slab Reinforcing:

Longitudinal: S402E as shown
S601E or S602E as shown, see "Half-Reinforcing Plan on Dwg. No. 57333.

Transverse: S502E @ 12" o.c. bent up over beams
S501E @ 12" o.c. in top, S401E @ 12" o.c. in bottom — Alternate
S503E @ 6" in top of overhangs (bundled with #5 bars)

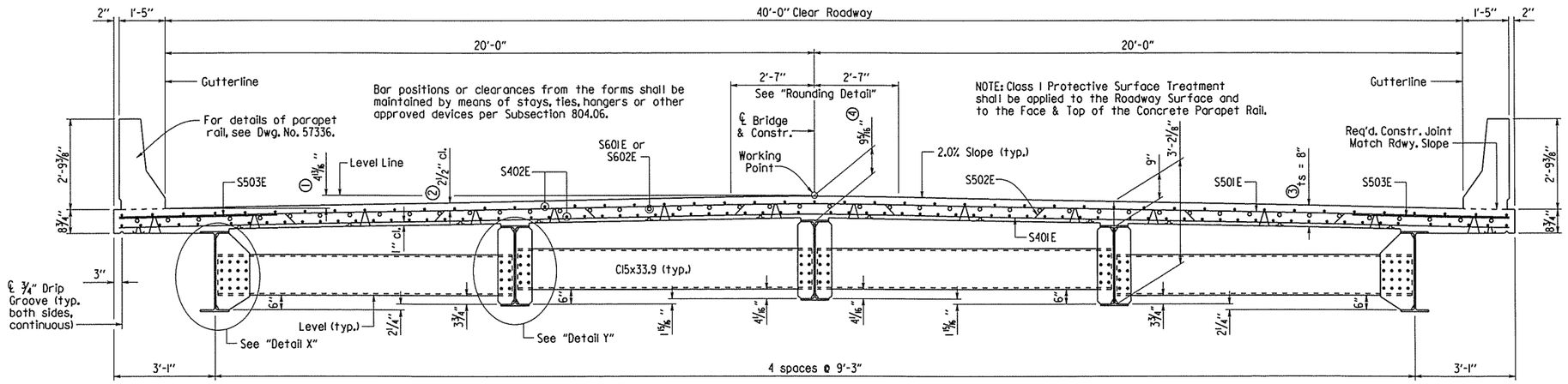
NOTE: At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

① Working point to gutterline.

② Tolerance: Minus = 1/4"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".

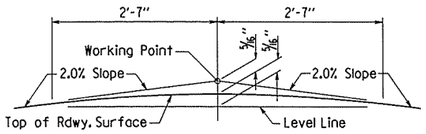
③ See "Adjustment for Slab Thickness Tolerance".

④ At ℄ Bridge to working point. See "Rounding Detail"



TYPICAL ROADWAY SECTION

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



NOTE: Working Point matches Theoretical Roadway Grade.

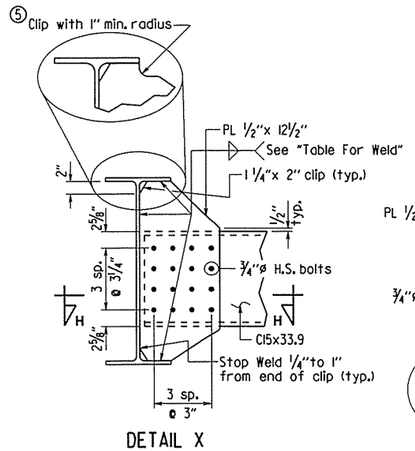
ROUNDING DETAIL

No Scale

TABLE FOR WELD

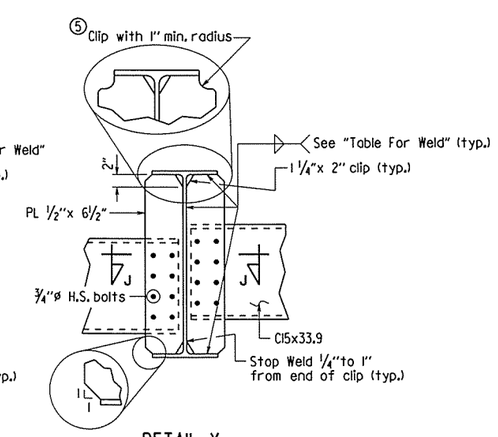
Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To 3/4" Inclusive	1/4"	
Over 3/4"	5/16"	

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.



DETAIL X

Scale: 1" = 1'-0"

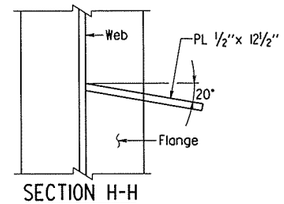


DETAIL Y

Scale: 1" = 1'-0"

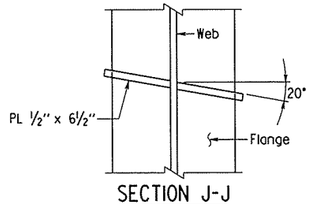
⑤ If permanent steel bridge deck forms are used, the Fabricator shall clip plates as necessary to accomodate the deck form supports.

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



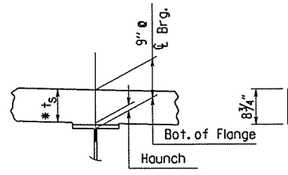
SECTION H-H

Typ. for Exterior Beams
No Scale

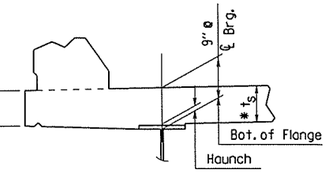


SECTION J-J

Typ. for Interior Beams
No Scale



INTERIOR BEAM



EXTERIOR BEAM

* 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.

t_s = slab thickness as shown in "Typical Roadway Section"

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale

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.

STATE OF ARKANSAS
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No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 8
DETAILS OF 147' INTEGRAL W-BEAM UNIT LEFT HAND CHUTE OF LITTLE RIVER (SITE 2)

ROUTE SEC.

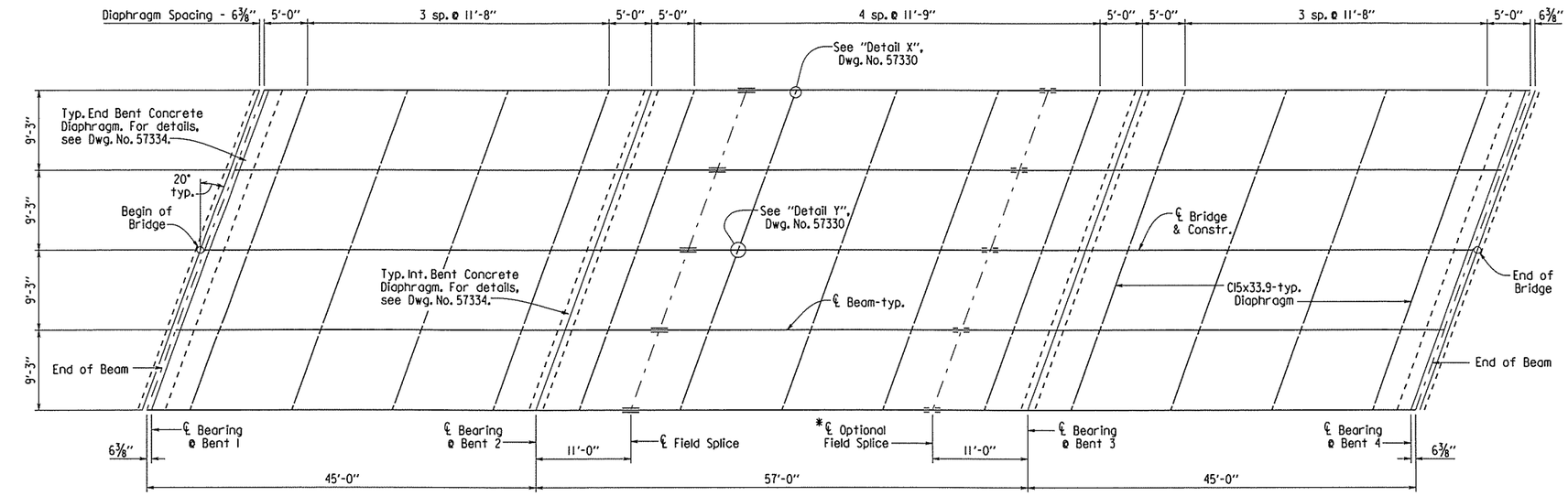
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 1-28-15 FILENAME: bl00760x2_sl.dgn
CHECKED BY: ADH DATE: 8/15 SCALE: AS NOTED
DESIGNED BY: CSE DATE: 7/14

BRIDGE NO. 07355 DRAWING NO. 57330

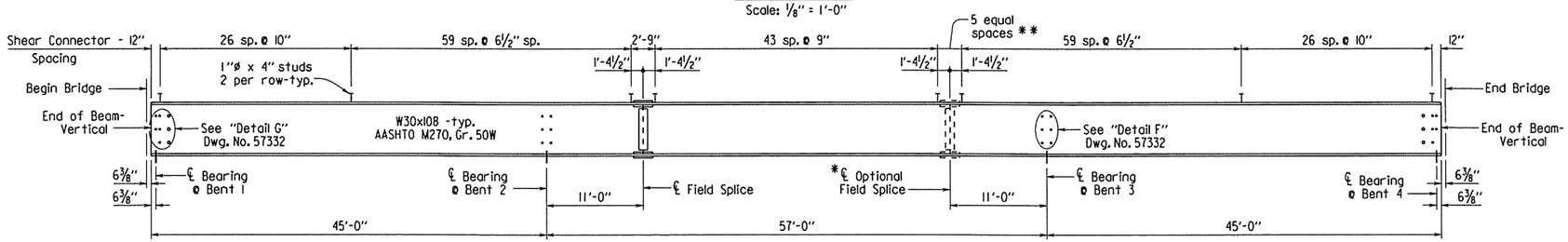
PRINT DATE: 8/20/2015

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.		100760	30	133
				07355 -		147 FT. UNIT	- 57331	



FRAMING PLAN

Scale: ⅛" = 1'-0"



TYPICAL BEAM ELEVATION

No Scale

Note: 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.

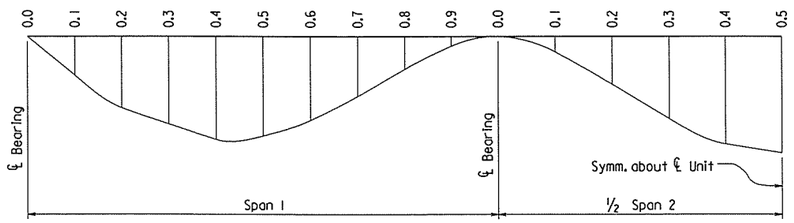
*At the Contractor's option, a field splice may be provided at this location. Payment will be at the Contractor's expense.

**If the optional field splice is used, eliminate the shear connectors in this region.

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Int. Beams	Ext. Beams	Int. Beams	Ext. Beams	Int. Beams	Ext. Beams
1	0	0	0	0	0	0	0
	0.1	0.014	0.013	0.107	0.092	0.113	0.099
	0.2	0.026	0.023	0.196	0.168	0.207	0.181
	0.3	0.034	0.030	0.256	0.219	0.271	0.236
	0.4	0.037	0.033	0.279	0.240	0.295	0.259
	0.5	0.035	0.031	0.266	0.228	0.281	0.246
	0.6	0.029	0.026	0.220	0.189	0.233	0.204
	0.7	0.020	0.018	0.151	0.130	0.160	0.140
	0.8	0.010	0.009	0.076	0.066	0.080	0.071
	0.9	0.002	0.002	0.017	0.015	0.018	0.016
½ Span 2	0	0	0	0	0	0	0
	0.1	0.009	0.008	0.068	0.058	0.072	0.063
	0.2	0.025	0.022	0.191	0.164	0.202	0.177
	0.3	0.042	0.037	0.318	0.273	0.336	0.294
	0.4	0.054	0.048	0.409	0.351	0.433	0.379
℄ Unit →	0.5	0.058	0.052	0.442	0.379	0.467	0.409

Note: Table is symmetrical about ℄ Unit



DEAD LOAD DEFLECTIONS DIAGRAM

Note:
Camber for Dead Load Deflection plus Vertical curve ± ¼" tolerance.
Deflections shown are from a chord from ℄ Bearing to ℄ Bearing.
Vertical curve corrections not included. Negative sign (-) indicates point above chord.

STATE OF ARKANSAS
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SHEET 2 OF 8
DETAILS OF 147' INTEGRAL W-BEAM UNIT
LEFT HAND CHUTE OF LITTLE RIVER (SITE 2)

ROUTE SEC.

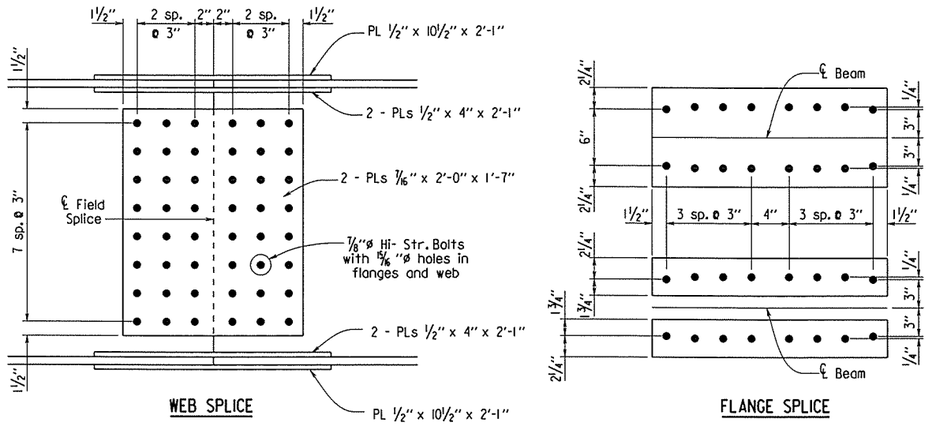
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-3-15 FILENAME: bl00760x2_sl.dgn
CHECKED BY: ADH DATE: 8/14 SCALE: AS NOTED
DESIGNED BY: CSE DATE: 12/14

BRIDGE NO. 07355 DRAWING NO. 57331

PRINT DATE: 8/20/2015

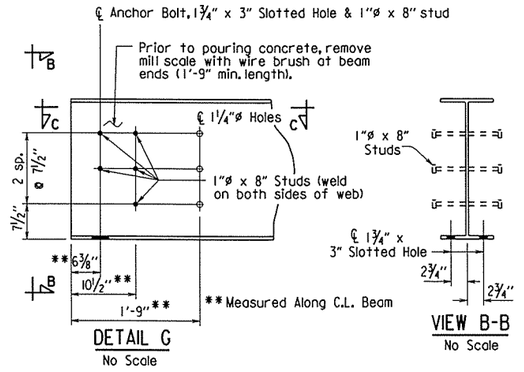
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100760	81	133
				07355 - 147 FT. UNIT - 57332				

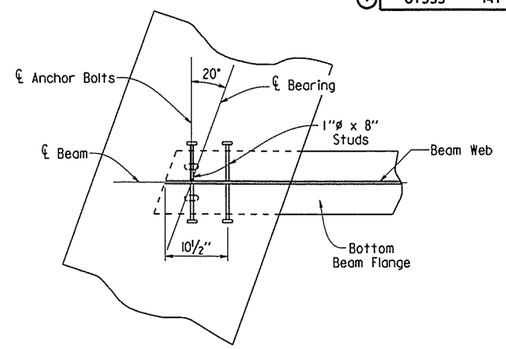


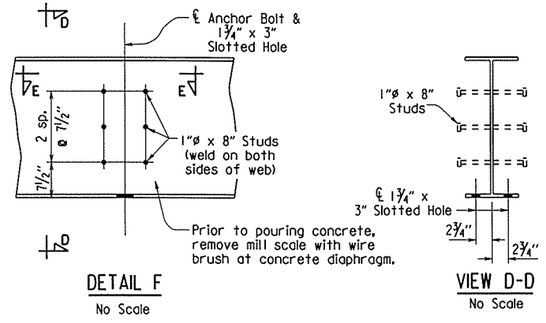
Note: All splice plates shall be AASHTO M270, Gr. 50W

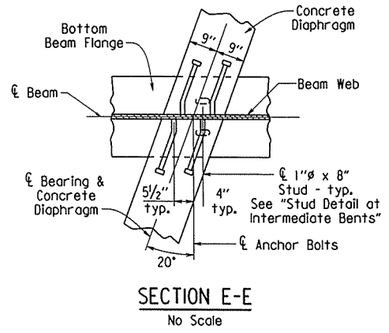
FIELD SPLICE DETAIL

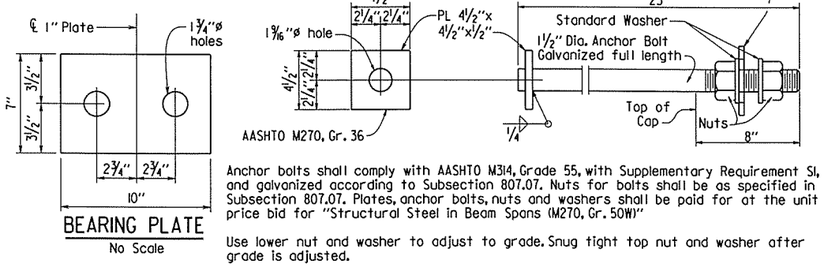
Scale: 1½" = 1'-0"









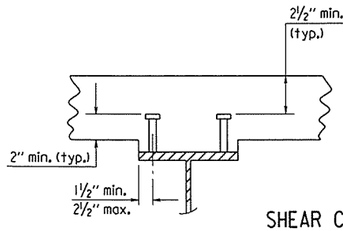


Anchor bolts shall comply with AASHTO M314, Grade 55, with Supplementary Requirement S1, and galvanized according to Subsection 807.07. Nuts for bolts shall be as specified in Subsection 807.07. Plates, anchor bolts, nuts and washers shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)"

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

ANCHOR BOLT DETAIL

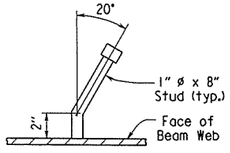
No Scale



Stud Shear Connectors shown shall be 1"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer.

SHEAR CONNECTOR DETAIL

No Scale



STUD DETAIL AT INTERMEDIATE BENTS

No Scale

STATE OF ARKANSAS
Charles R. Ellis
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No. 9233
8-21-15
CHARLES R. ELLIS
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SHEET 3 OF 8
DETAILS OF 147' INTEGRAL W-BEAM UNIT
LEFT HAND CHUTE OF
LITTLE RIVER (SITE 2)

ROUTE SEC.

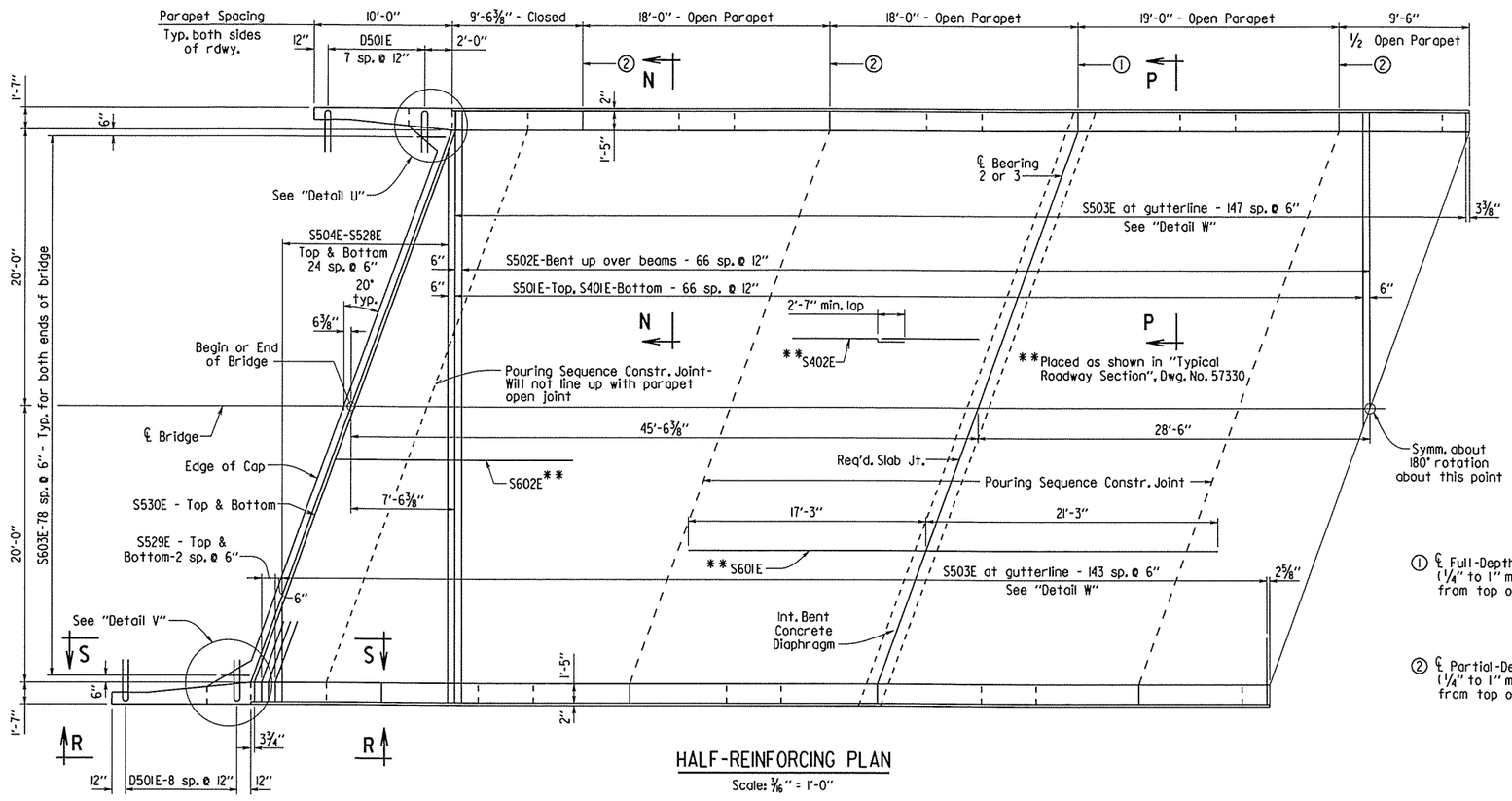
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-3-15
CHECKED BY: DATE: 8/15
DESIGNED BY: DATE: 12/14
FILENAME: bl00760x2_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07355 DRAWING NO. 57332

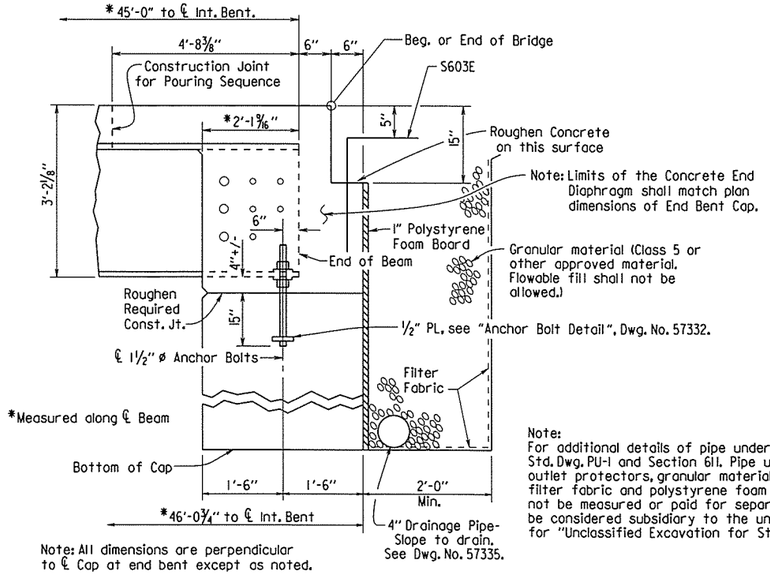
PRINT DATE: 8/20/2015

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.		100760	32	133
				(1) 07355 -		147 FT. UNIT	- 57333	



HALF-REINFORCING PLAN

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



Note: All dimensions are perpendicular to ℄ Cap at end bent except as noted.

SECTION AT END BENT

No Scale

Note:
For additional details of pipe underdrain see Std. Dwg. PU-1 and Section 611. Pipe underdrains, outlet protectors, granular materials, drain pipe, filter fabric and polystyrene foam board will not be measured or paid for separately, but will be considered subsidiary to the unit price bid for "Unclassified Excavation for Structures-Bridge".

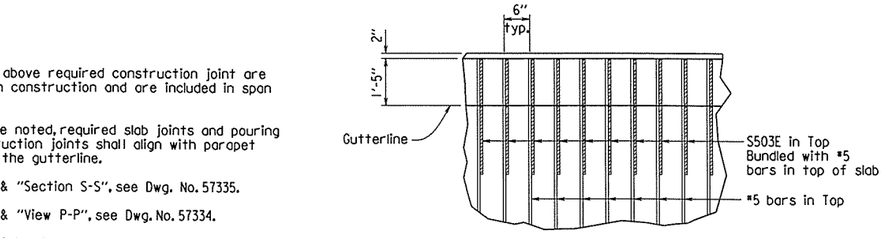
Notes:
Rails and wings above required construction joint are included in span construction and are included in span quantities.

Unless otherwise noted, required slab joints and pouring sequence contruction joints shall align with parapet open joints at the gutterline.

For "View R-R" & "Section S-S", see Dwg. No. 57335.

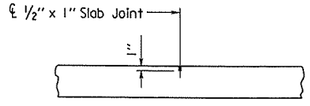
For "View N-N" & "View P-P", see Dwg. No. 57334.

Construction joints shown are based on Alternate No. 1 Pouring Sequence, see Dwg. No. 57337.



DETAIL W

No Scale

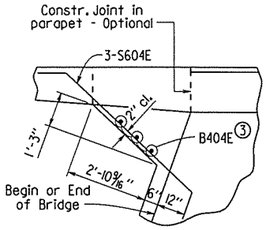


SLAB JOINT DETAIL

No Scale

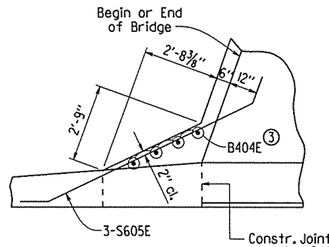
Use Type 3 or 4 Joint Sealer. See Subsections 501.02 (h) and 501.05 (j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet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

BRIDGE ENGINEER



DETAIL U

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



DETAIL V

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

(3) See End Bent Details on Dwg. No. 57328 for reinforcing and additional details.

SHEET 4 OF 8
DETAILS OF 147' INTEGRAL W-BEAM UNIT
LEFT HAND CHUTE OF LITTLE RIVER (SITE 2)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

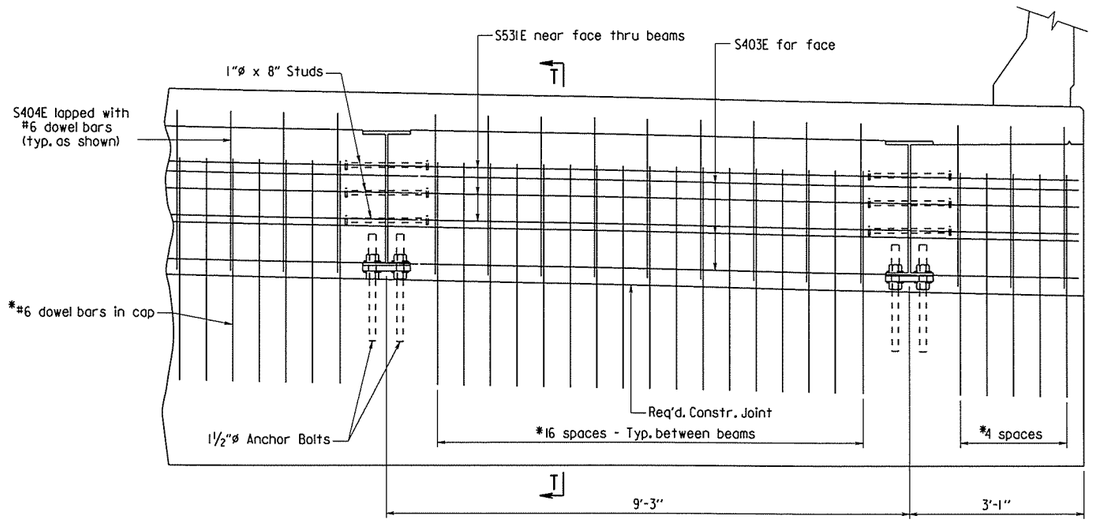
DRAWN BY: KDH DATE: 2-10-15
CHECKED BY: ADN DATE: 8/15
DESIGNED BY: CSR DATE: 12/14

FILENAME: bl00760x2_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07355 DRAWING NO. 57333

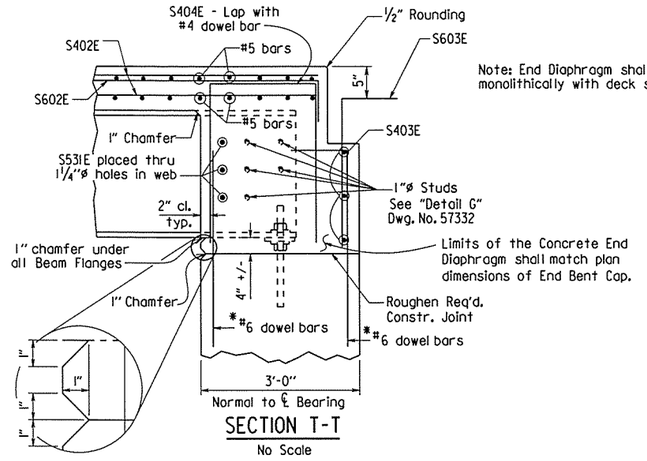
PRINT DATE: 8/20/2015

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.		100760	83	133
				(1) 07355 -		147 FT. UNIT	- 57334	



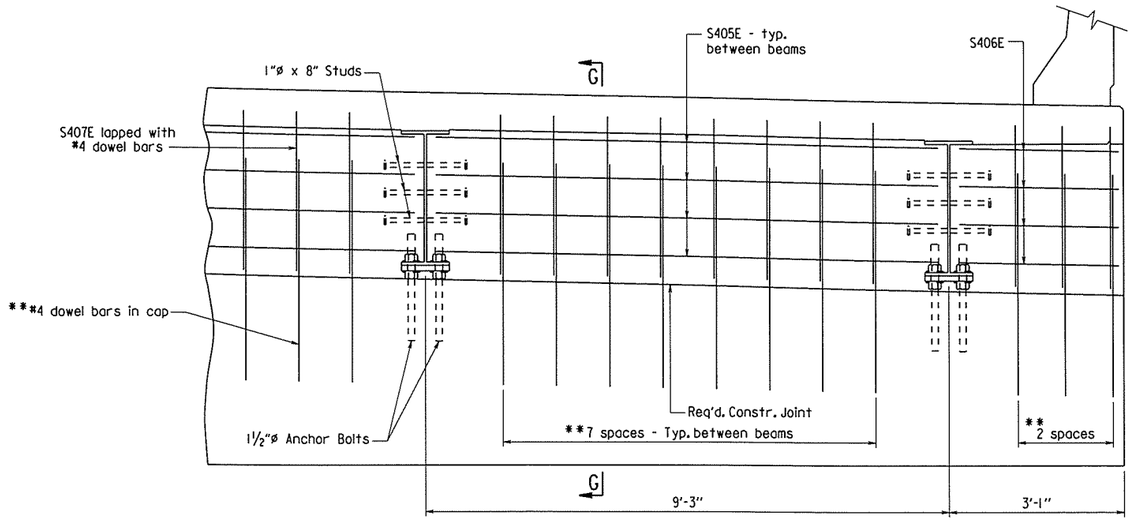
VIEW N-N
At End Bents
No Scale

*See Dwg. No. 57328 for bent reinforcing details and placement.



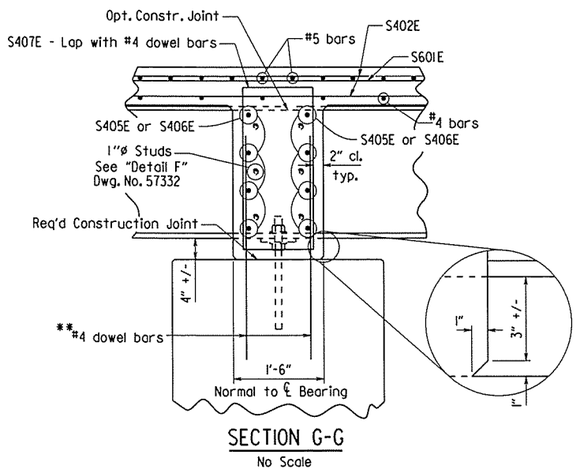
Note: End Diaphragm shall be poured monolithically with deck slab.

SECTION T-T
No Scale



VIEW P-P
At Int. Bents
No Scale

**See Dwg. No. 57329 for bent reinforcing details and placement.



SECTION G-G
No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 5 OF 8
DETAILS OF 147' INTEGRAL W-BEAM UNIT LEFT HAND CHUTE OF LITTLE RIVER (SITE 2)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-24-15 FILENAME: bl00760x2_sl.dgn
CHECKED BY: ADN DATE: 8/15 SCALE: AS NOTED
DESIGNED BY: CRE DATE: 12/14

BRIDGE NO. 07355 DRAWING NO. 57334

PRINT DATE: 8/20/2015

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.		100760	6	133

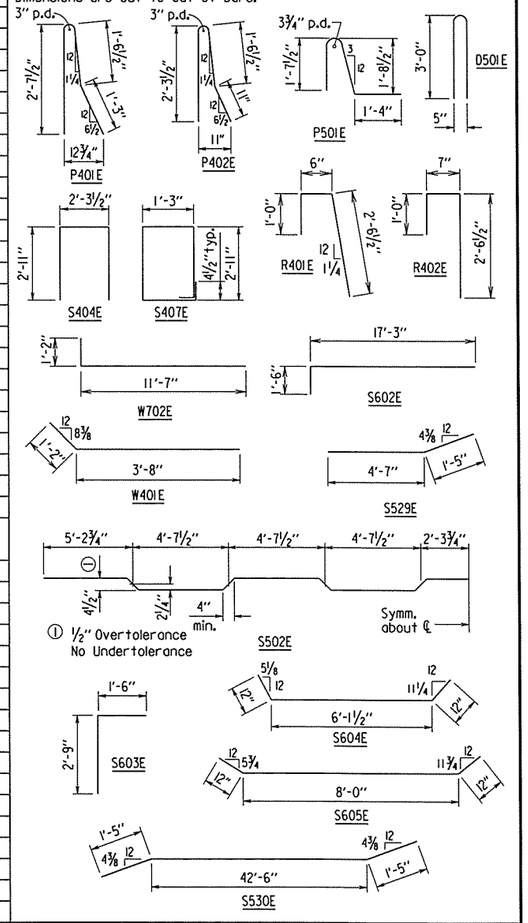
BAR LIST

① 07355 - 147 FT. UNIT - 57335

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	134	42'-10"	Str.
S402E	484	38'-11"	Str.
S403E	6	45'-7"	Str.
S404E	84	7'-11"	2"
S405E	64	9'-6"	Str.
S406E	32	2'-11"	Str.
S407E	76	8'-8"	2"
P401E	480	5'-6"	3"
P402E	112	4'-10"	3"
P403E	48	5'-5"	Str.
P404E	28	9'-2"	Str.
P405E	56	17'-8"	Str.
P406E	42	18'-8"	Str.
R401E	16	3'-11"	2"
R402E	16	4'-0"	2"
R403E	24	9'-8"	Str.
R404E	24	4'-5"	Str.
W401E	16	4'-10"	2"
W402E	16	5'-11"	Str.
S501E	134	42'-10"	Str.
S502E	133	43'-8"	3"
S503E	584	4'-10"	Str.
S504E - S528E	4 Each	Var. 7'-2" to 40'-2"	Str.
S529E	12	6'-0"	3¾"
S530E	4	45'-4"	3¾"
S531E	6	45'-7"	Str.
P501E	480	4'-10"	3¾"
D501E	34	6'-2"	3¾"
S601E	92	38'-6"	Str.
S602E	92	18'-8"	4½"
S603E	158	4'-2"	4½"
S604E	3	8'-1"	4½"
S605E	3	10'-0"	4½"
R601E	32	5'-11"	Str.
R602E	12	5'-0"	Str.
W701E	12	12'-7"	Str.
W702E	32	12'-7"	5¼"

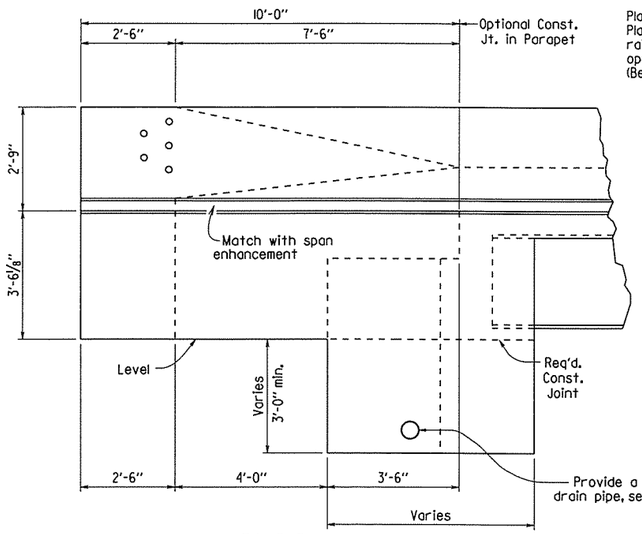
BENDING DIAGRAMS

Dimensions are out to out of bars.



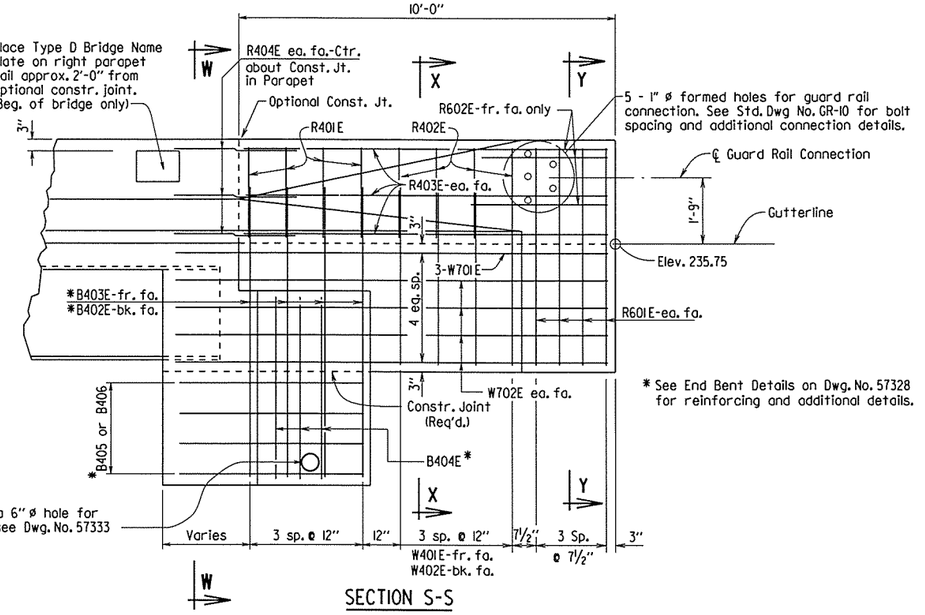
① ½" Overtolerance
No Undertolerance

Note: Bars with an "E" suffix are to be epoxy coated.



VIEW R-R

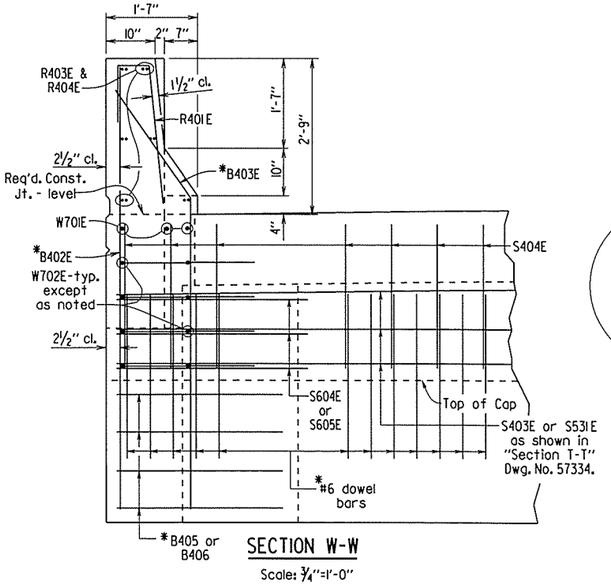
Scale: ½" = 1'-0"



* See End Bent Details on Dwg. No. 57328 for reinforcing and additional details.

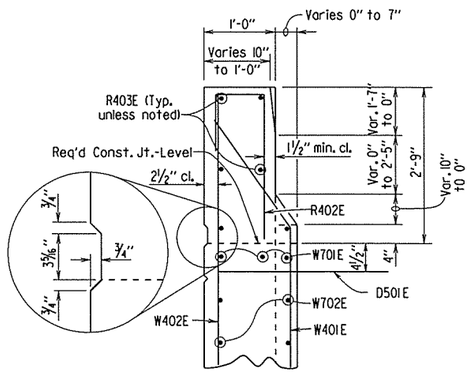
SECTION S-S

Scale: ½" = 1'-0"



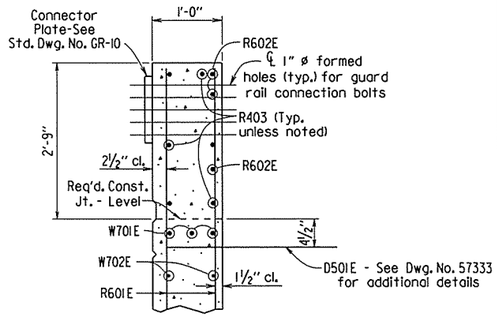
SECTION W-W

Scale: ¾"=1'-0"



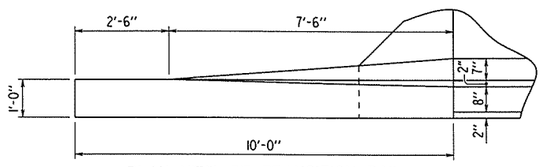
SECTION X-X

No Scale



SECTION Y-Y

No Scale



PLAN VIEW OF TRANSITION RAIL

Scale: ½" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
* * *
No. 9235
5-21-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 6 OF 8
DETAILS OF 147' INTEGRAL W-BEAM UNIT
LEFT HAND CHUTE OF LITTLE RIVER (SITE 2)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

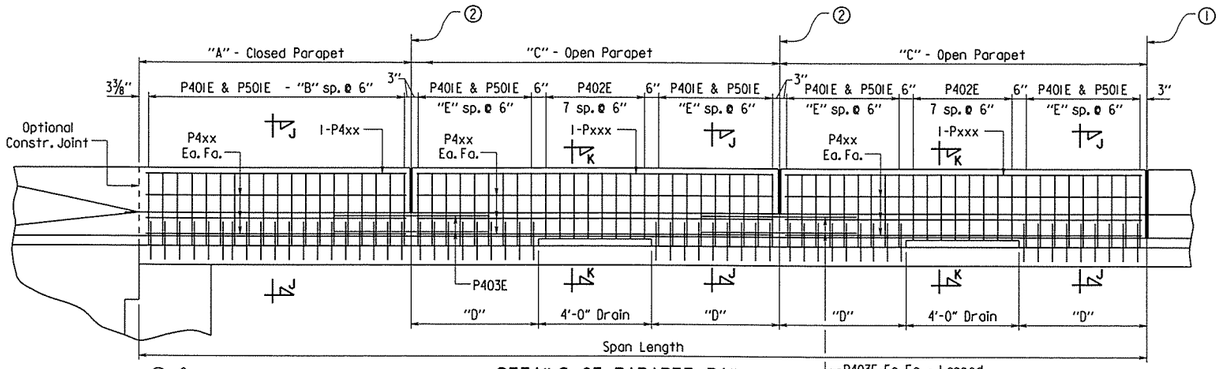
DRAWN BY: KDH DATE: 2-26-15
CHECKED BY: ADN DATE: 5/15
DESIGNED BY: CSE DATE: 12/14

FILENAME: bl00760x2_sl.dgn
SCALE: AS NOTED

BRIDGE NO. 07355 DRAWING NO. 57335

PRINT DATE: 8/20/2015

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.		100760	85	133
				①	07355 - 147 FT. UNIT - 57336			

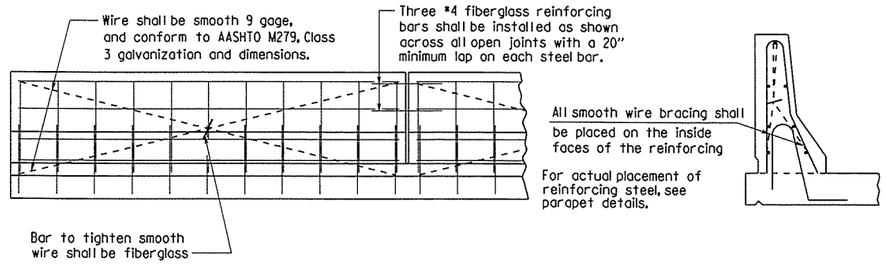


DETAILS OF PARAPET RAIL

Scale: ⅜" = 1'-0"

① ℄ Full-Depth Parapet Joint (¼" to 1" max.) as shown in "Half - Reinforcing Plan", Dwg. No. 57333. Stop 4" from top of slab.

② ℄ Partial-Depth Parapet Joint (¼" to 1" max.) as shown in "Half - Reinforcing Plan", Dwg. No. 57333. Stop 1'-2" from top of slab.



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 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. Unless otherwise noted, exposed surfaces 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

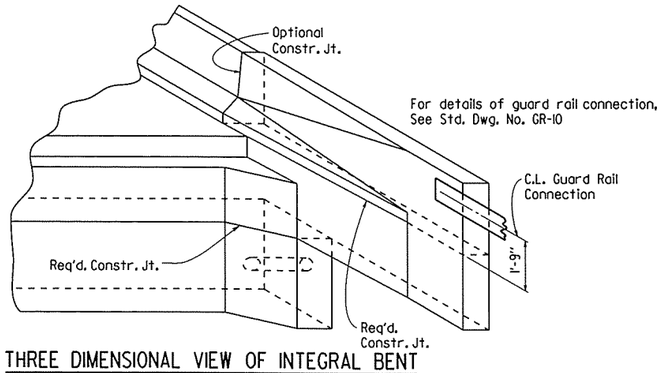
No Scale

TABLE OF PARAPET RAIL VARIABLES

"A" Closed Parapet	"B"	P4xx Bar
9'-6⅜"	18	P404E

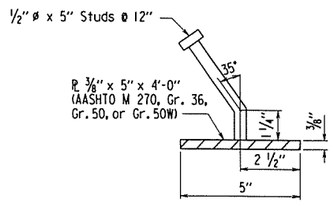
"C" Open Parapet	"D"	"E"	P4xx Bar
18'-0"	7'-0"	13	P405E
19'-0"	7'-6"	14	P406E

Note: For location of Open and Closed Parapet panels, see "Half - Reinforcing Plan", Dwg. No. 57333.



THREE DIMENSIONAL VIEW OF INTEGRAL BENT

No Scale

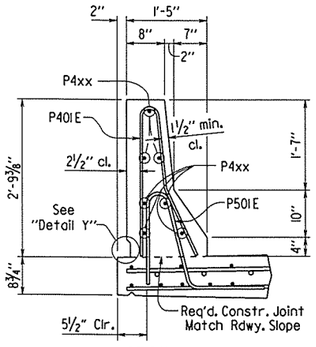


DETAIL Z

No Scale

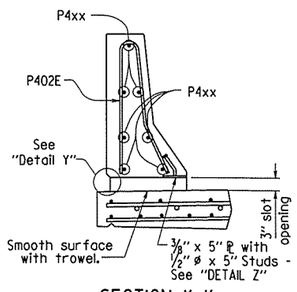
Note:
The surfaces of the ⅜" plates which will not be in contact with concrete shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but 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)."



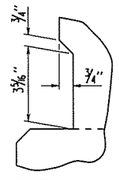
SECTION J-J

Scale: ¾" = 1'-0"



SECTION K-K

Scale: ¾" = 1'-0"



DETAIL Y

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 7 OF 8
DETAILS OF 147' INTEGRAL W-BEAM UNIT
LEFT HAND CHUTE OF
LITTLE RIVER (SITE 2)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 3-2-15 FILENAME: bl00760x2_sl.dgn
CHECKED BY: ADN DATE: 8/20/15 SCALE: AS NOTED
DESIGNED BY: CSE DATE: 12/14

BRIDGE NO. 07355 DRAWING NO. 57336

PRINT DATE: 8/20/2015

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.		100760	86	133
				①	07355 -	147 FT. UNIT	- 57337	

GENERAL NOTES

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

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

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

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

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

Removable forms shall be used for concrete diaphragms.

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. 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 railing. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing.

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 is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel-(Grade 60)".

STRUCTURAL STEEL: Structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with Subsection 807.84(e) unless otherwise noted. Structural steel completely embedded in concrete may be AASHTO M270, Gr. 36, Gr. 50, or Gr. 50W unless otherwise noted.

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

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

Beams and 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 Beam Spans (M270, Gr. 50W)".

All beams shall be blocked in their true position in the shop with webs horizontal in groups as specified in Subsection 807.54(b)(2). The camber, length of sections, and distance between anchor bolts shall be measured with the beams in their true position and this information shall become part of the permanent records for this job. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

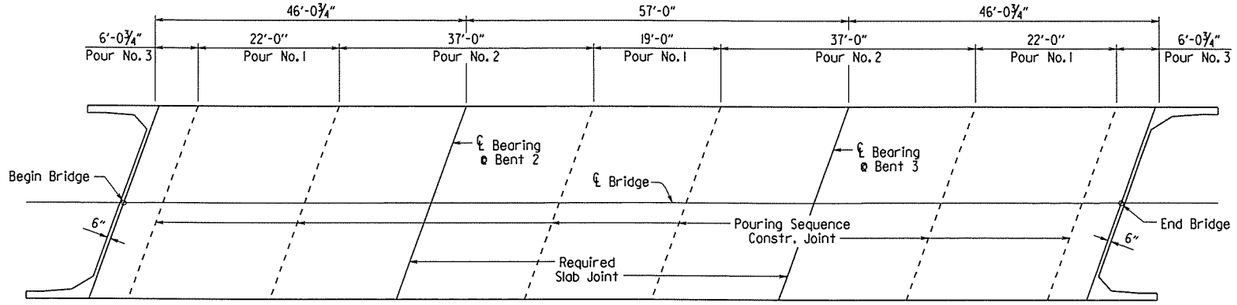
Flange field splice plates shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

All 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.

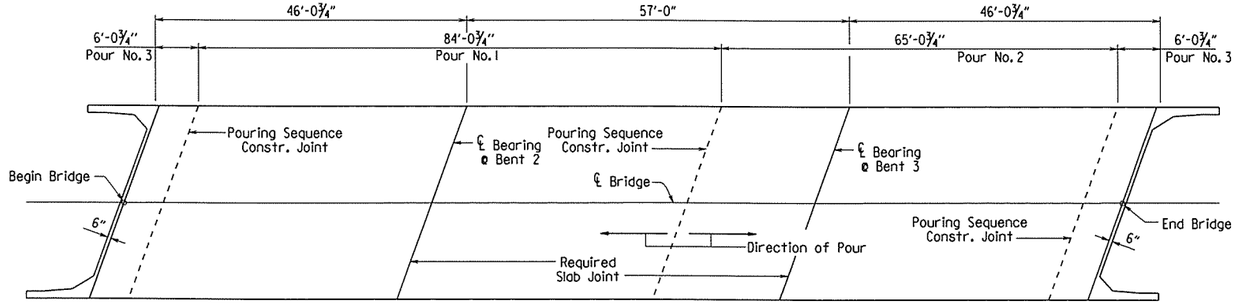
Field connections shall be bolted with high-strength bolts and shall be ¾" ø bolts unless otherwise noted. Open holes shall be 15/16 "ø unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges. Holes for ¾" ø high-strength bolts may be 15/16 " ø diameter if a washer is supplied for use under both the nut and head of the bolt.

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

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.



ALTERNATE NO. 1



ALTERNATE NO. 2

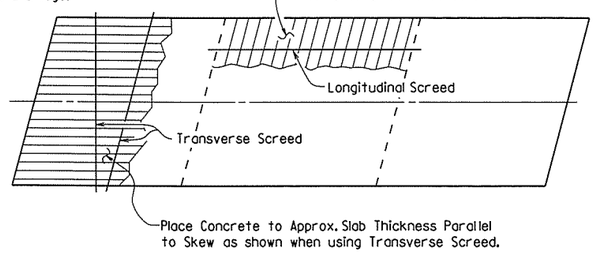
CONCRETE POURING SEQUENCE

No Scale

Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. All Pours (2) must be placed before Pours (3) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 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 deviation from the pouring sequences shown.

If concrete diaphragms at intermediate bents are poured separately, a minimum of 48 hours shall elapse between the diaphragm pour and the slab pour. Concrete diaphragms at end bents shall be poured monolithically with the slab.

Note: At the Contractor's Option, the Transverse Screed may be placed parallel to the skew or perpendicular to ℄ Bridge.



CONCRETE PLACEMENT PROCEDURE

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 8 OF 8
DETAILS OF 147' INTEGRAL W-BEAM UNIT
LEFT HAND CHUTE OF
LITTLE RIVER (SITE 2)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

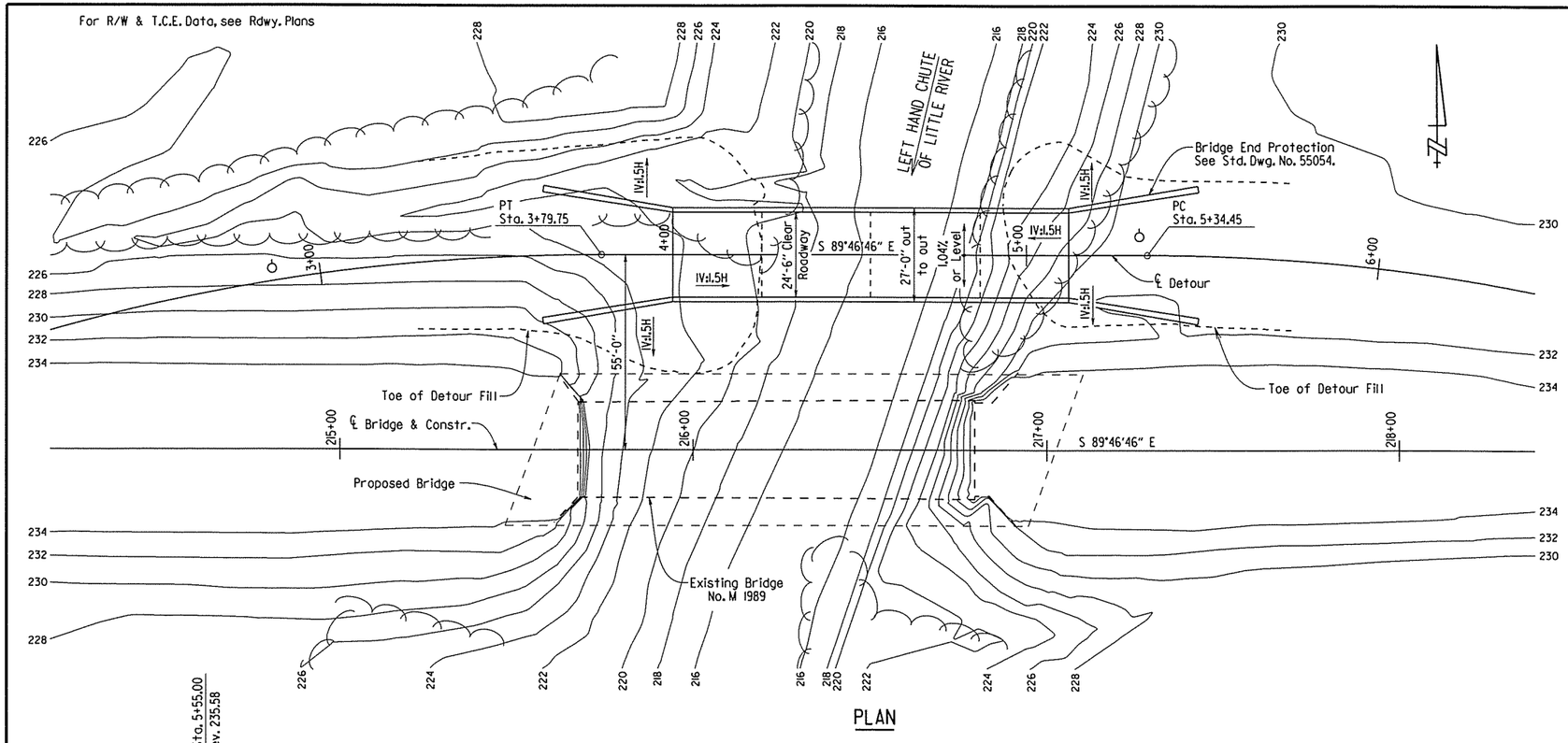
DRAWN BY: KDH DATE: 3-2-15
CHECKED BY: DATE: 8/16
DESIGNED BY: DATE: 12/14
FILENAME: bl00760x2_sl.dgn
SCALE: NO SCALE

BRIDGE NO. 07355 DRAWING NO. 57337

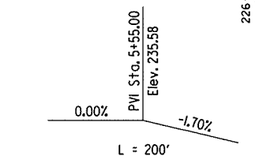
PRINT DATE: 8/20/2015

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.		100760	37	133
				①	07355 - TEMP. BR. LAYOUT - 57338			

For R/W & T.C.E. Data, see Rdwy. Plans

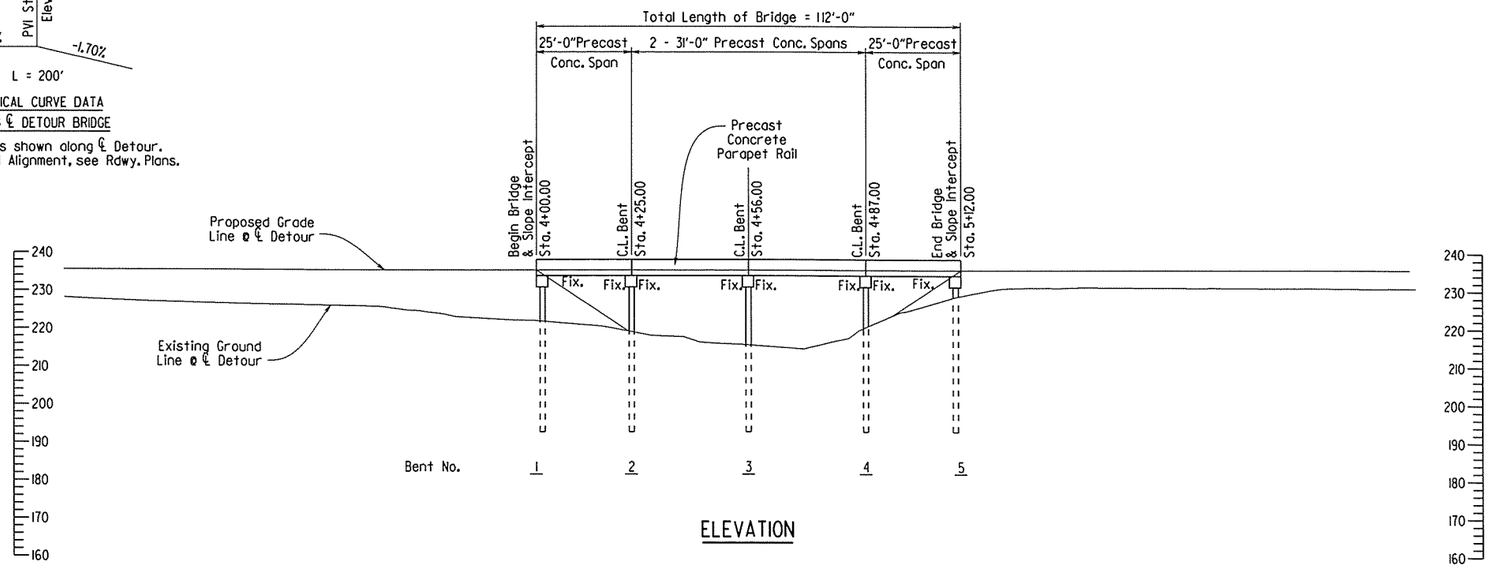


PLAN



VERTICAL CURVE DATA
ALONG ℄ DETOUR BRIDGE

Stationing is shown along ℄ Detour.
For Grade and Alignment, see Rdwy. Plans.



ELEVATION

GENERAL NOTES FOR TEMPORARY BRIDGE

BENCH MARK: Vertical Control Data is shown in the Survey Control Data Sheets.

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

DESIGN SPECIFICATIONS: AASHTO Standard Specifications for Highway Bridges, 17th Edition (2002).

LIVE LOADING: H-15

METHOD OF DESIGN: Load Factor

SEISMIC PERFORMANCE CATEGORY: B

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

PILING FOR TEMPORARY BRIDGE: All piling in the temporary bridge shall be driven according to the requirements of Subsections 805.07 through 805.09 using Method A, Empirical Pile Formulas. Painting of steel piling will not be required. All piling shall be 16" diameter unfilled steel shell piling and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 40 tons per pile. Drive piles in Bents 1 thru 5 to a tip elevation of 193.0 or lower.

Preboring or other methods as approved by the Engineer may be used to achieve the minimum penetration. Any cost for these methods shall be included in the item "Temporary Bridge Structure (24' Roadway Width)".

PRECAST CONCRETE UNITS: Precast concrete units shall comply with the requirements of AHTD Standard Drawings. Precast concrete units within the drawings series 5291 thru 5307, 14800 thru 14899 and 15190 thru 15400 may be used in lieu of units shown on Std. Dwg. Nos. 15240 & 15241. All precast units shall be doweled to bent caps as shown on Dwg. No. 57339.

Shear key joints between precast concrete units shall be filled with asphalt or the grout mix shown on Standard Drawings after sections are bolted.

DETAIL DRAWINGS:	DRAWING NO.
Bent Details	57339
Unfilled Steel Shell Piling	57340
25' & 31' Precast Concrete Spans	15240, 15241 & 15230
Bridge End Protection System	55054

PAYMENT: The Temporary Bridge Structure shall comply with and be paid for per linear foot as Temporary Bridge Structure (24' Roadway Width) in accordance with Section 603.

OPTIONAL TEMPORARY BRIDGE: If the Contractor elects to use an optional design for the detour bridge, as per Subsection 603.02, the bridge length shall provide a waterway opening that equals or exceeds the opening of the 112' bridge shown. Payment will be based on a 112' temporary length.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-27-15
CHARLES R. ELLIS
BRIDGE ENGINEER

LAYOUT OF TEMPORARY BRIDGE OVER LEFT HAND CHUTE OF LITTLE RIVER (SITE 2) LEFT HAND CHUTE OF LITTLE RIVER STRS. & APPRS. (S) MISSISSIPPI COUNTY

ROUTE 140 SEC. 2

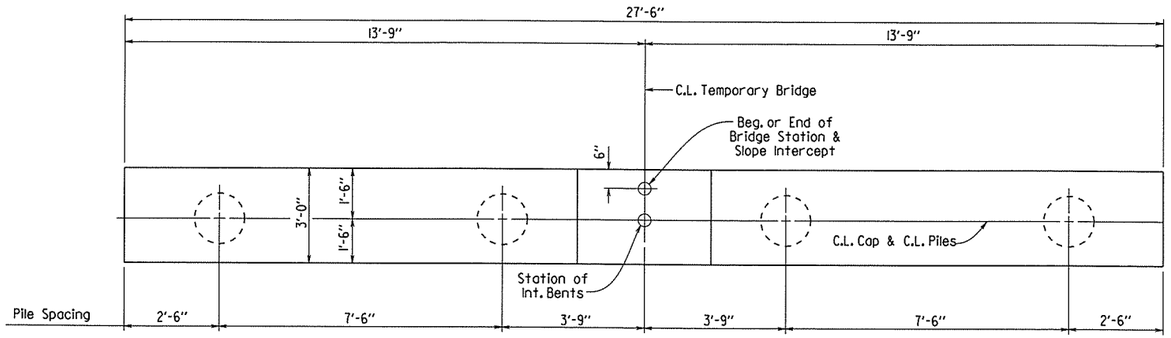
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-25-14 FILENAME: bl00760x2_ll.dgn
CHECKED BY: SWP DATE: 8-28-15 SCALE: 1" = 20'
DESIGNED BY: ADH DATE: 8/14

BRIDGE NO. 07355 DRAWING NO. 57338

PRINT DATE: 8/20/2015

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.		100760	33	133
				(1)	07355 -	TEMP. BENTS	- 57339	

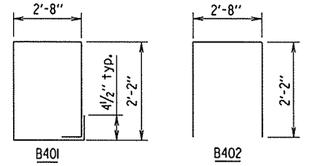


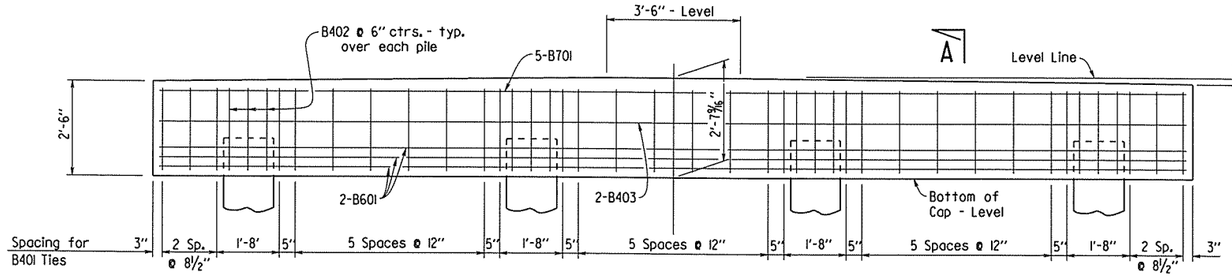
PLAN - END & INTERMEDIATE BENT

Scale: ½" = 1'-0"

BAR LIST - PER BENT

MARK	NO. REQ'D. END BT.	NO. REQ'D. INT. BT.	LENGTH	P.D.	BENDING DIAGRAMS
B401	30	30	10'-0"	2"	Dimensions are out to out of bars.
B402	12	12	6'-10"	2"	
B403	2	2	27'-2"	Str.	
B601	6	6	27'-2"	Str.	
B701	5	5	27'-2"	Str.	
S701	14	28	2'-0"	Str.	

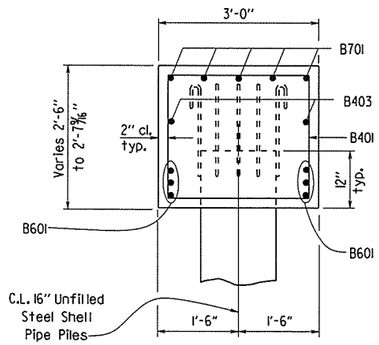




ELEVATION - END & INTERMEDIATE BENT

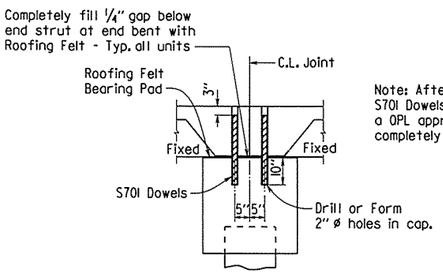
Scale: ½" = 1'-0"

A



SECTION A-A

N.T.S.



Note: After each unit is in its final position, S701 Dowels shall be grouted in place using a OPL approved non-shrink grout that completely fills the holes.

SECTION AT FIXED BENT

N.T.S.

General Notes

All concrete shall be Class "S" and have a minimum 28 day compressive strength f'c = 3500 psi. All exposed corners shall be chamfered ¾" unless otherwise noted.

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

For Details of Unfilled Steel Shell Piles, see Dwg. No. 57340.

For Details of 25'-0" Precast Spans, See Std. Dwg. Nos. 15240 & 15230.

For Details of 31'-0" Precast Spans, See Std. Dwg. Nos. 15241 & 15230.

APPROXIMATE QUANTITIES

(Per Bent)

Bent Type	Class "S" Concrete -Bridge	Reinforcing Steel (Gr. 60) -Bridge
Int.	7.9 Cu. Yds.	928 Lbs.
End	7.9 Cu. Yds.	871 Lbs.

(For Information Only)

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF PILE BENTS (16" DIA. UNFILLED SHELL PILES) PRECAST CONCRETE SPANS - 24'-6" RDWY.

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

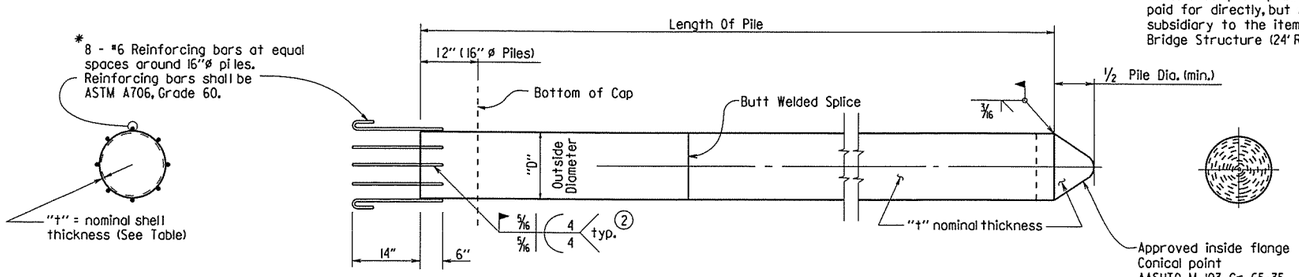
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 3-27-15
CHECKED BY: ADN DATE: 9/15
DESIGNED BY: CSR DATE: 12/14
FILENAME: bl00760x2_tbl.dgn
SCALE: AS NOTED

BRIDGE NO. 07355 DRAWING NO. 57339

PRINT DATE: 8/20/2015

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.		100760	89	133
				①	07355 -	PILE DETAILS	- 57340	

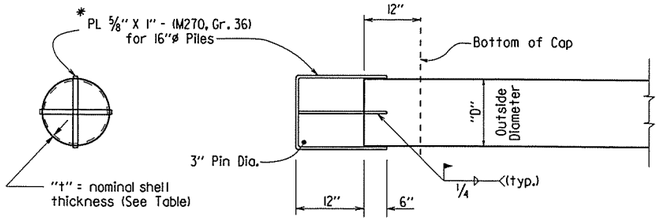


Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Temporary Bridge Structure (24' Roadway Width)".

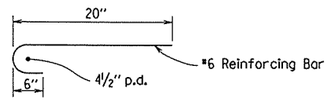
② Welding shall comply with ANSI/AWS D1.4 Structural Welding Code-Reinforcing Steel and applicable portions of ANSI/AWS D1.5 Bridge Welding Code.

UNFILLED STEEL SHELL PILES

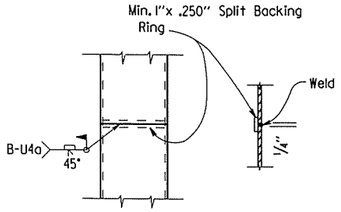
* Straps or reinforcing bars shall be placed to minimize interfence with dowel bars and cap reinforcing



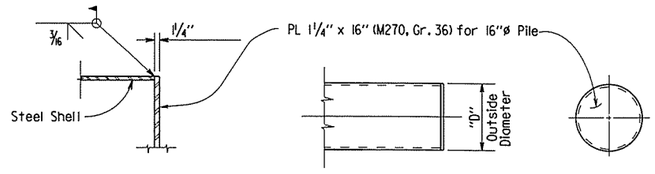
ALTERNATE CONNECTION DETAIL



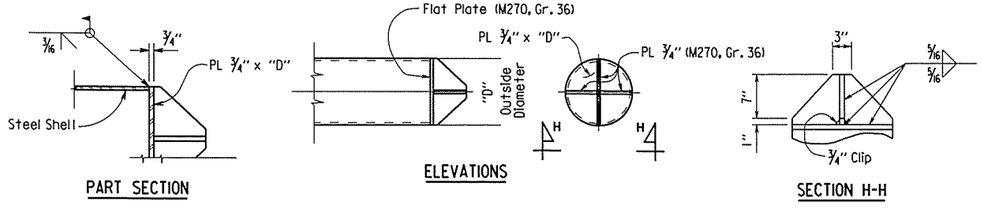
TYP. HOOKED BAR DETAIL



SPLICE DETAILS



ALTERNATE FLAT TIP DETAIL



ALTERNATE VANED TIP DETAIL

TABLE FOR SHELL PILES

OUTSIDE DIAMETER D	"t"-NOMINAL SHELL THICKNESS
16"	0.50"

GENERAL NOTES FOR UNFILLED STEEL SHELL PILES

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

Steel Shell Piling shall comply with Section 805, except piling shall not be filled with concrete after driving.

See temporary bridge layout for additional driving information.

Steel Shell Piling will not be paid for directly but shall be included in the item "Temporary Bridge Structure (24' Roadway Width)".

Painting of steel piles will not be required.

Steel shell piling may be driven open or closed ended.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
8-21-15
CHARLES R. ELLIS
BRIDGE ENGINEER

DETAILS OF UNFILLED STEEL SHELL PILES FOR TEMPORARY BRIDGE STRUCTURE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

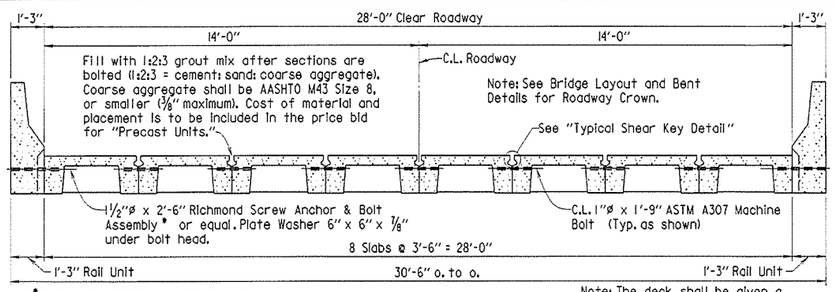
DRAWN BY: KDH DATE: 3-27-15
CHECKED BY: ADN DATE: 4/15
DESIGNED BY: CSR DATE: 12/14

FILENAME: b100760x2.tssp.dgn
SCALE: NONE

BRIDGE NO. 07355 DRAWING NO. 57340

PRINT DATE: 8/20/2015

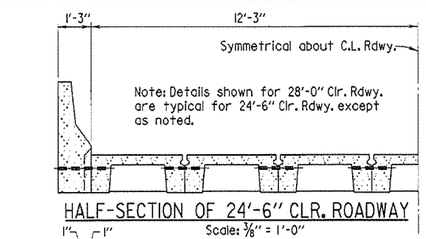
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4-10-2003				6	ARK.		90	
				JOB NO.				
				①	31' PRECAST SPAN		15240	



*Designated "Richmond SCAB" on the Plans.

CROSS-SECTION OF 28'-0" CLR. RDWY. (SHOWING ASSEMBLY)

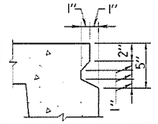
Scale: ⅜" = 1'-0"



HALF-SECTION OF 24'-6" CLR. ROADWAY

Scale: ⅜" = 1'-0"

Note: The deck shall be given a fine finish as specified for Class 5 Roadway Surface Finish in subsection 802.19 of the Standard Specifications.



Note: All corners exposed after erection shall have a ½" minimum chamfer. All other corners shall have sufficient chamfer or rounding to prevent breakage during form removal, handling and erection.

TYPICAL SHEAR KEY DETAIL

Scale: 1½" = 1'-0"

BAR LIST FOR PRECAST BRIDGE COMPONENTS

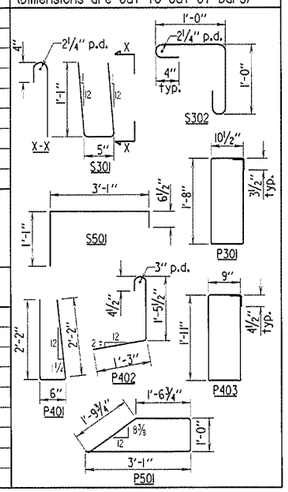
PRECAST SLAB UNIT

Note: Bar designations ending with "E" indicate epoxy coated bars.

MARK	NUMBER REQUIRED CURB UNIT	NUMBER REQUIRED INT. UNIT	LENGTH	P.D.
S301	122	122	3'-3½"	1½"
S302	4	4	2'-9"	1½"
S401	10	8	3'-2"	Str.
S501	26 Ⓐ	-	4'-6"	2½"
S701E	Ⓑ	Ⓑ	1'-11"	Str.
S1001	4	4	30'-8"	Str.
S1101	2	2	30'-8"	Str.

Ⓐ Plus 7 additional for each Drain Slot eliminated
Ⓑ 2 Per Fixed end of each Unit

BENDING DIAGRAMS (Dimensions are out to out of bars)



PRECAST PARAPET RAIL UNIT

MARK	NUMBER REQUIRED END SPAN	NUMBER REQUIRED INT. SPAN	LENGTH	P.D.
P301	See Std. Drwg. No. 15230	8	5'-4"	1½"
P401		54	4'-8"	2"
P402		36	3'-1½"	2"
P403		36	5'-8"	2"
P501		18	7'-2"	2½"
P502		9	30'-8"	Str.
P1001		2	30'-8"	Str.

GENERAL NOTES

All Reinforcing steel shall be AASHTO M31 or M53, Grade 60. Wire fabric shall be AASHTO M55 or M221. Reinforcing steel and wire fabric shall be accurately located in the forms and securely held in place by steel wire supports.

Concrete for precast units shall be Class S(AE) except that the coarse aggregate size shall meet AASHTO M43, Size 67 (¾" Max.).

Standard washers shall be provided under head and nut of all bolts in connection with concrete. Bolts shall be A307. All bolts, washers and nuts shall be galvanized to meet AASHTO M232, Class C or M298, Class 50.

Screw Anchor and Bolt Assembly (SCAB) shall be 1½"ø Richmond Screw Anchor or equal, and have a minimum ultimate strength of 65,000 psi in tension. Assembly shall be galvanized to meet AASHTO M232, Class C or M298, Class 50. Plate Washers for SCAB shall be AASHTO M270, Grade 36 and shall be galvanized to meet AASHTO M111.

Camber required for dead load deflection is ⅜". Deviation of more than ¼" in dimension of grade or line will be cause for rejection.

Concrete, reinforcing, wire mesh, bar supports, bolts, nuts, washers, threaded anchors, grout, roofing felt bearing pad and expansion joint fillers are considered subsidiary to the pay items for Precast Concrete Units. Roofing felt shall meet or exceed the requirements of ASTM D224 Type I. See Section 802.18(d). The roofing felt shall be in one piece for the full length of the cap and three layers shall be used.

Ends of adjacent units shall be coated (1/16"±) with asphaltic paint. The coating shall adhere and set firm and its softening point shall not be less than 140°F.

Bid items shall be as follows:
"31' Precast Concrete Curb Units"
"31' Precast Concrete Interior Units"
"31' Precast Parapet Rail Units"

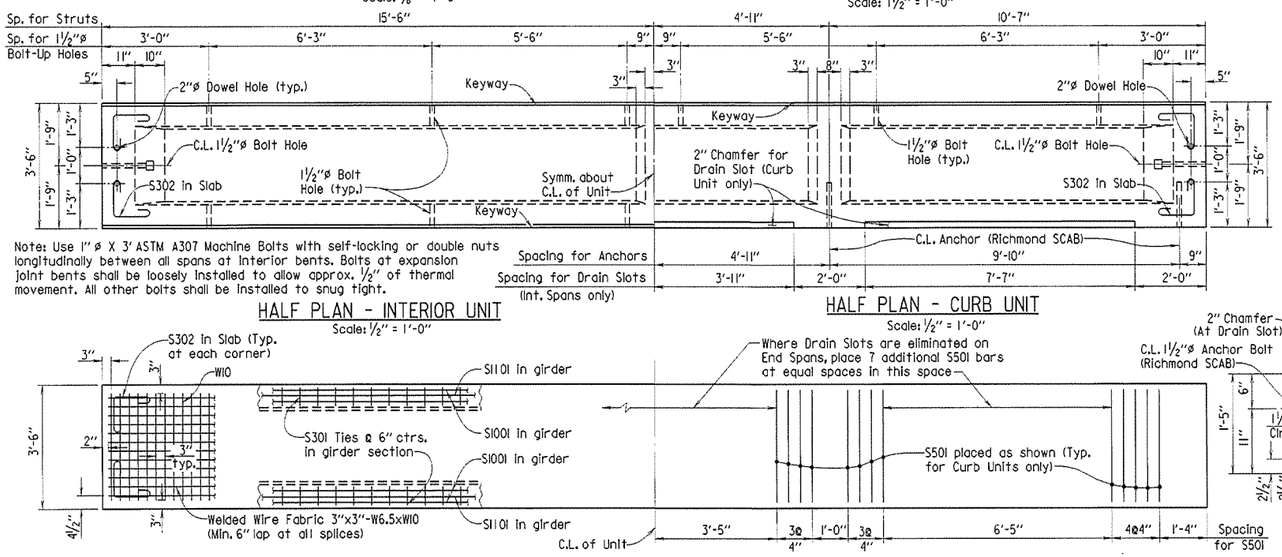
Design Specifications: AASHTO 2002
Method of Design: Load Factor
Live Loading: HS 20, 0.9 Wheels per Unit
Materials: 28 Day compressive strength of Concrete = 4,000 psi
Yield strength of Grade 60 Steel = 60,000 psi
Yield strength of Wire Fabric = 65,000 psi

Seismic Performance Category: A, B or C

Seismic Performance Category A:
1. Maximum spacing between 1 inch Expansion Joints is 155 feet.
2. 2"ø Dowel holes at expansion ends are not required. Grout holes if they exist.

Seismic Performance Category B or C:
1. All bents shall be fixed.
2. Do not use this drawing with bridge lengths that exceed 155 feet in Category B or 93 feet in Category C.

Note: For details and bar list for Precast Parapet Rail at End Span, see std. drwg. no. 15230.



Note: Use 1" ø X 3' ASTM A307 Machine Bolts with self-locking or double nuts longitudinally between all spans at interior bents. Bolts at expansion joint bents shall be loosely installed to allow approx. ½" of thermal movement. All other bolts shall be installed to snug tight.

HALF PLAN - INTERIOR UNIT

Scale: ½" = 1'-0"

HALF PLAN - CURB UNIT

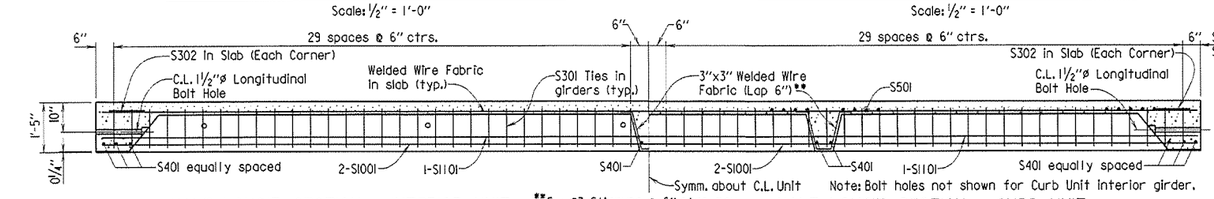
Scale: ½" = 1'-0"

HALF REINFORCING PLAN - CURB & INT. UNITS

Scale: ½" = 1'-0"

HALF REINFORCING PLAN - CURB UNIT ONLY

Scale: ½" = 1'-0"



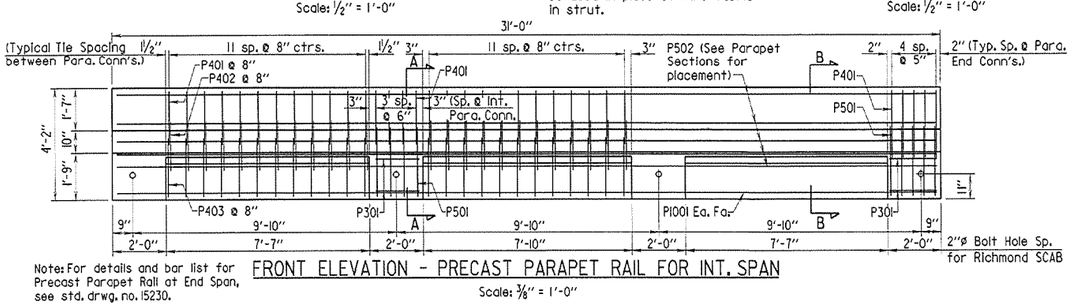
HALF LONGIT. SECTION - INTERIOR UNIT

Scale: ½" = 1'-0"

**5 - #3 Stirrups @ 6" ctrs. may be used in place of wire fabric in strut.

HALF LONGIT. SECTION - CURB UNIT

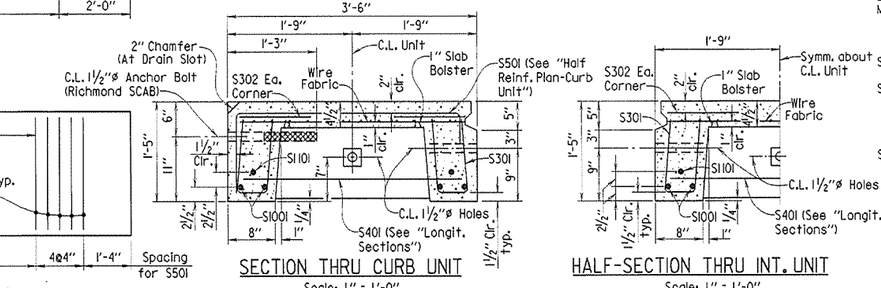
Scale: ½" = 1'-0"



Note: For details and bar list for Precast Parapet Rail at End Span, see std. drwg. no. 15230.

FRONT ELEVATION - PRECAST PARAPET RAIL FOR INT. SPAN

Scale: ⅜" = 1'-0"

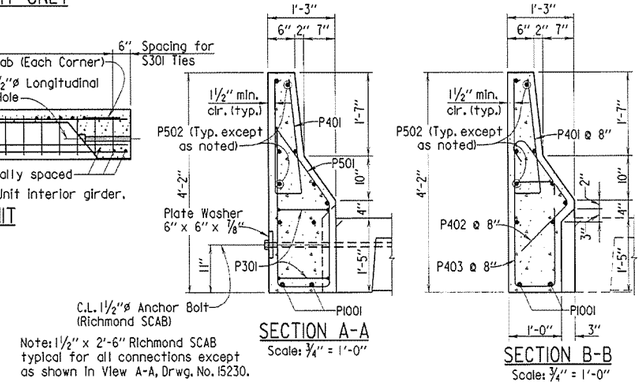


SECTION THRU CURB UNIT

Scale: 1" = 1'-0"

HALF-SECTION THRU INT. UNIT

Scale: 1" = 1'-0"



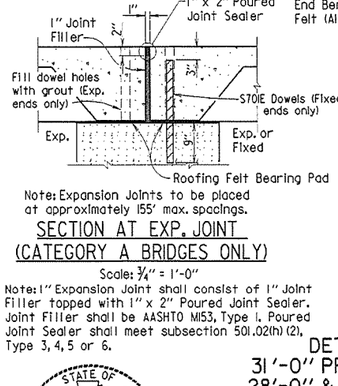
Note: 1½" x 2'-6" Richmond SCAB typical for all connections except as shown in View A-A, Drwg. No. 15230.

SECTION A-A

Scale: ¾" = 1'-0"

SECTION B-B

Scale: ¾" = 1'-0"



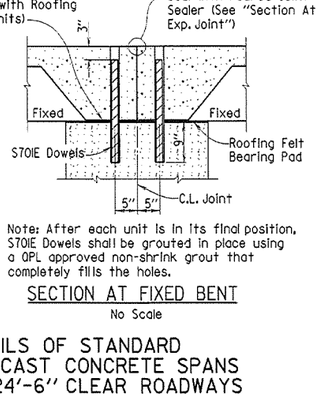
Note: Expansion Joints to be placed at approximately 155' max. spacings.

SECTION AT EXP. JOINT (CATEGORY A BRIDGES ONLY)

Scale: ¾" = 1'-0"

Note: 1" Expansion Joint shall consist of 1" Joint Filler topped with 1" x 2" Poured Joint Sealer. Joint Filler shall be AASHTO M153, Type I. Poured Joint Sealer shall meet subsection 501.02(h) (2), Type 3, 4, 5 or 6.

Completely fill ¼" gap below end strut at End Bent with Roofing Felt (All Units)



Note: After each unit is in its final position, S701E Dowels shall be grouted in place using a QPL approved non-shrink grout that completely fills the holes.

SECTION AT FIXED BENT

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

BRIDGE ENGINEER

DETAILS OF STANDARD 31'-0" PRECAST CONCRETE SPANS 28'-0" & 24'-6" CLEAR ROADWAYS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

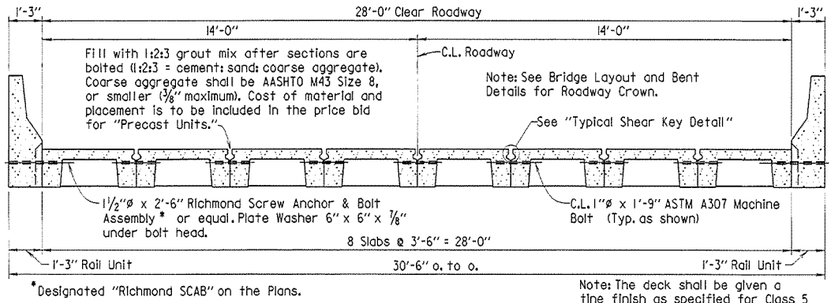
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-10-2003 FILENAME: BI5240.STD
CHECKED BY: MAH DATE: 4-10-2003 SCALE: As Shown
DESIGNED BY: STD. DATE:
BRIDGE NO. DRAWING NO. 15240

① Revised and redrawn: KDH 4-10-2003
Chkd. By: MAH

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6-24-94	6-27-94	11-16-2001		6	ARK.		91	
2-20-97	2-20-97	10-09-03		JOB NO.				
01-12-2000	01-12-2000							

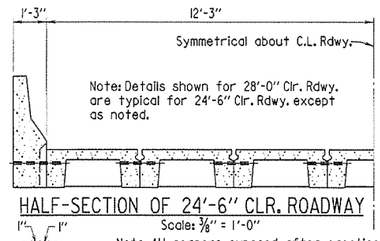
(1) 25' PRECAST SPAN 15241



*Designated "Richmond SCAB" on the Plans.

CROSS-SECTION OF 28'-0" CLR. RDWY. (SHOWING ASSEMBLY)

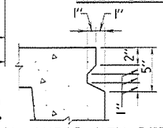
Scale: ⅜" = 1'-0"



HALF-SECTION OF 24'-6" CLR. ROADWAY

Scale: ⅜" = 1'-0"

Note: The deck shall be given a tine finish as specified for Class 5 Roadway Surface Finish in subsection 802.19 of the Standard Specifications.



TYPICAL SHEAR KEY DETAIL

Scale: 1½" = 1'-0"

Note: All corners exposed after erection shall have a ½" minimum chamfer. All other corners shall have sufficient chamfer or rounding to prevent breakage during form removal, handling and erection.

BAR LIST FOR PRECAST BRIDGE COMPONENTS

PRECAST SLAB UNIT

Note: Bars designated with an "E" are to be epoxy coated.

MARK	NUMBER REQUIRED CURB UNIT	NUMBER REQUIRED INT. UNIT	LENGTH	P.D.
S301	98	98	3'-3½"	1½"
S302	4	4	2'-9"	1½"
S401	10	8	3'-2"	Str.
S501	26 (A)	-	4'-6"	2½"
S601E	(B)	(B)	1'-11"	Str.
S1001	4	4	24'-8"	Str.

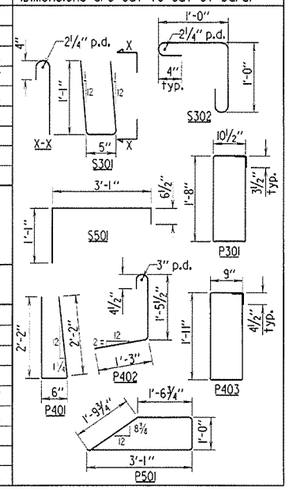
3

(A) Plus 5 additional for each Drain Slot eliminated
(B) 2 Per Fixed end of each Unit

PRECAST PARAPET RAIL UNIT

MARK	NUMBER REQUIRED END SPAN	NUMBER REQUIRED INT. SPAN	LENGTH	P.D.
P301	See Std. Drwg. No. 15230	8	5'-4"	1½"
P401		45	4'-8"	2"
P402		27	3'-1½"	2"
P403		27	5'-8"	2"
P501		18	7'-2"	2½"
P502		9	24'-8"	Str.
P901		2	24'-8"	Str.

BENDING DIAGRAMS (Dimensions are out to out of bars)



GENERAL NOTES

All Reinforcing steel shall be AASHTO M31 or M53, Grade 60. Wire fabric shall be AASHTO M55 or M221. Reinforcing steel and wire fabric shall be accurately located in the forms and securely held in place by steel wire supports.

Concrete for precast units shall be Class S(AE) except that the coarse aggregate size shall meet AASHTO M43, Size 67 (¾" Max.).

Standard washers shall be provided under head and nut of all bolts in connection with concrete. Bolts shall be A307. All bolts, washers and nuts shall be galvanized to meet AASHTO M232, Class C or M298, Class 50.

Screw Anchor and Bolt Assembly (SCAB) shall be 1½"ø Richmond Screw Anchor or equal, and have a minimum ultimate strength of 65,000 psi in tension. Assembly shall be galvanized to meet AASHTO M232, Class C or M298, Class 50. Plate Washers for SCAB shall be AASHTO M270, Grade 36 and shall be galvanized to meet AASHTO M111.

Camber required for dead load deflection is ¼". Deviation of more than ¼" in dimension of grade or line will be cause for rejection.

2 Concrete, reinforcing, wire mesh, bar supports, bolts, nuts, washers, threaded anchors, grout, roofing felt bearing pad and expansion joint fillers are considered subsidiary to the pay items for the Precast Concrete Units. Roofing felt shall meet or exceed the requirements of ASTM D224 Type I. See Section 802.18(d). The roofing felt shall be in one piece for the full length of the cap and three layers shall be used.

Ends of adjacent units shall be coated (1/16"±) with asphaltic paint. The coating shall adhere and set firm and its softening point shall not be less than 140°F.

Bid items shall be as follows:
"25' Precast Concrete Curb Units"
"25' Precast Concrete Interior Units"
"25' Precast Parapet Rail Units"

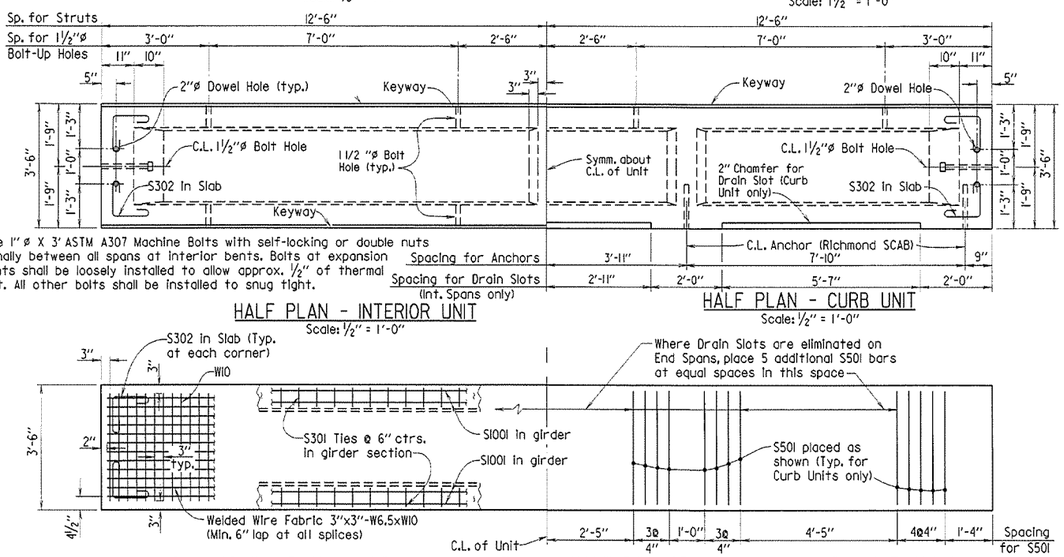
4 Design Specifications: AASHTO 2002
Method of Design: Load Factor
Live Loading: HS 20, 0.9 Wheels per Unit
Materials: 28 Day compressive strength of Concrete = 4,000 psi
Yield strength of Grade 60 Steel = 60,000 psi
Yield strength of Wire Fabric = 65,000 psi

Seismic Performance Category: A, B or C

Seismic Performance Category A:
1. Maximum spacing between 1 inch Expansion Joints is 155 feet.
2. 2"ø Dowel holes at expansion ends are not required. Grout holes if they exist.

Seismic Performance Category B or C:
1. All bents shall be fixed.
2. Do not use this drawing with bridge lengths that exceed 155 feet in Category B or 93 feet in Category C.

Note: For details and bar list for Precast Parapet Rail at End Span, see std. drwg. no. 15230.



Note: Use 1"ø X 3' ASTM A307 Machine Bolts with self-locking or double nuts longitudinally between all spans at interior bents. Bolts at expansion joint bents shall be loosely installed to allow approx. ½" of thermal movement. All other bolts shall be installed to snug tight.

HALF PLAN - INTERIOR UNIT

Scale: ½" = 1'-0"

HALF PLAN - CURB UNIT

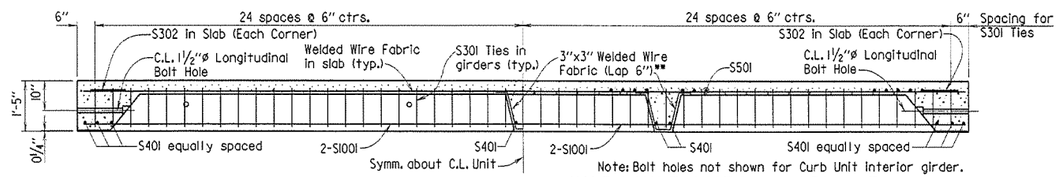
Scale: ½" = 1'-0"

HALF REINFORCING PLAN - CURB & INT. UNITS

Scale: ½" = 1'-0"

HALF REINFORCING PLAN - CURB UNIT ONLY

Scale: ½" = 1'-0"



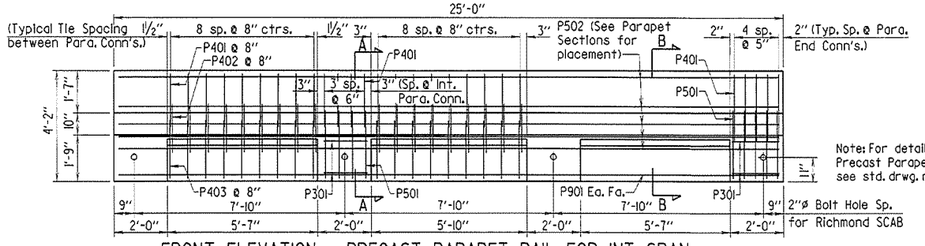
HALF LONGIT. SECTION - INTERIOR UNIT

Scale: ½" = 1'-0"

HALF LONGIT. SECTION - CURB UNIT

Scale: ½" = 1'-0"

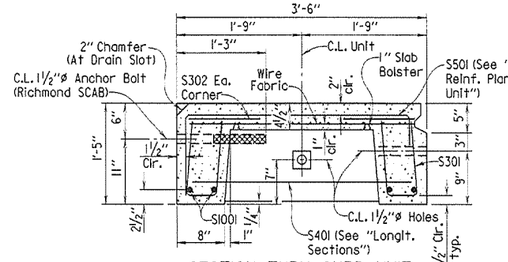
**5 - #3 Stirrups @ 6" ctrs. may be used in place of wire fabric in strut.



Note: For details and bar list for Precast Parapet Rail at End Span, see std. drwg. no. 15230.

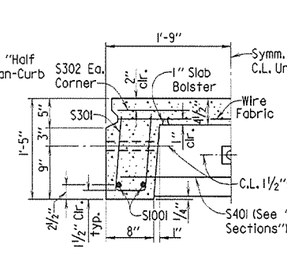
FRONT ELEVATION - PRECAST PARAPET RAIL FOR INT. SPAN

Scale: ⅜" = 1'-0"



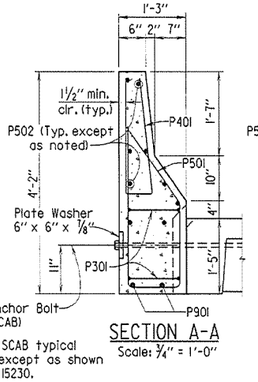
SECTION THRU CURB UNIT

Scale: 1" = 1'-0"



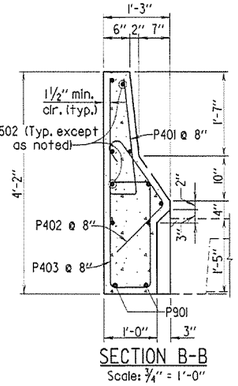
HALF-SECTION THRU INT. UNIT

Scale: 1" = 1'-0"



SECTION A-A

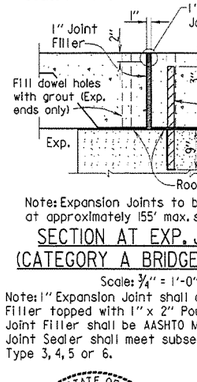
Scale: ¾" = 1'-0"



SECTION B-B

Scale: ¾" = 1'-0"

Note: 1½" x 2'-6" Richmond SCAB typical for all connections except as shown in View A-A, Drwg. No. 15230.

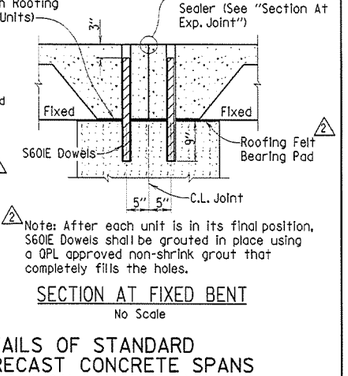


Note: Expansion Joints to be placed at approximately 155' max. spacings.

SECTION AT EXP. JOINT (CATEGORY A BRIDGES ONLY)

Scale: ¾" = 1'-0"

Note: 1" Expansion Joint shall consist of 1" Joint Filler topped with 1" x 2" Poured Joint Sealer. Joint Filler shall be AASHTO M153, Type I. Poured Joint Sealer shall meet subsection 501.02(h) (2), Type 3, 4, 5 or 6.



2 Completely fill ¼" gap below end strut at End Bent with Roofing Felt (All Units)

2 Note: After each unit is in its final position, S601E Dowels shall be grouted in place using a QPL approved non-shrink grout that completely fills the holes.

SECTION AT FIXED BENT

No Scale

4 Revised for current specifications and P.E. stamp 10-09-03 MJT Chk'd. By: JGT

3 Revised S601 bars to S601E 11-16-2001, JAC Chk'd. by: JGT

2 Revised type of bearing pad material and grout specifications. 01-12-2000, AMS

1 Revised for 1996 Specs. and Redrawn 02-20-97 MJT Chk'd. By: RLW Date: 1-31-97

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND
BRIDGE ENGINEER

DETAILS OF STANDARD 25'-0" PRECAST CONCRETE SPANS 28'-0" & 24'-6" CLEAR ROADWAYS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

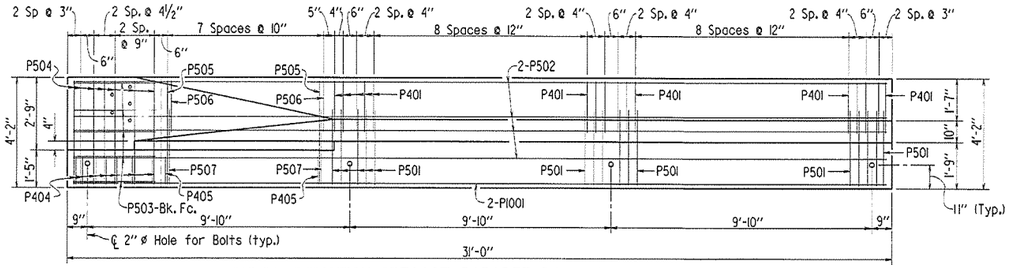
DRAWN BY: MJT DATE: 01-09-97
CHECKED BY: RLW DATE: 01-31-97
DESIGNED BY: STD. DATE: -
SCALE: As Shown

BRIDGE NO. DRAWING NO. 15241

FILENAME: B15240. STD

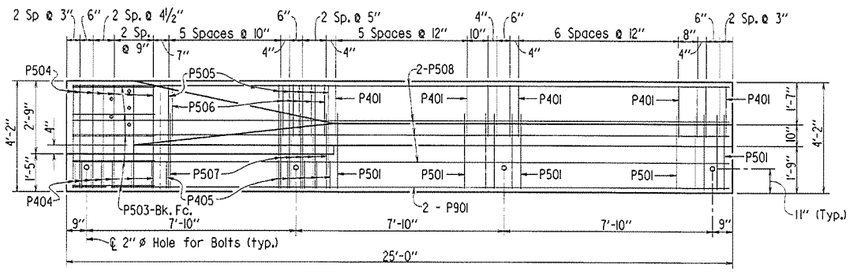
B1524.STD

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4-10-2003				6	ARK.		92	
				JOB NO.				
				①	PRECAST RAIL DETAILS		15230	



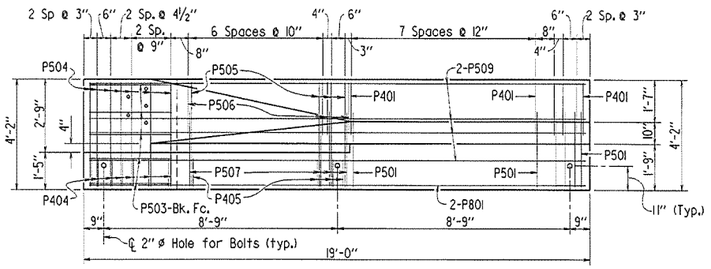
FRONT ELEVATION-PRECAST PARAPET RAIL FOR 31'-0" END SPAN

Scale ⅜" = 1'-0"



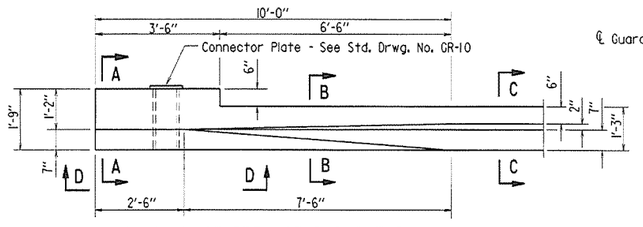
FRONT ELEVATION-PRECAST PARAPET RAIL FOR 25'-0" END SPAN

Scale ⅜" = 1'-0"



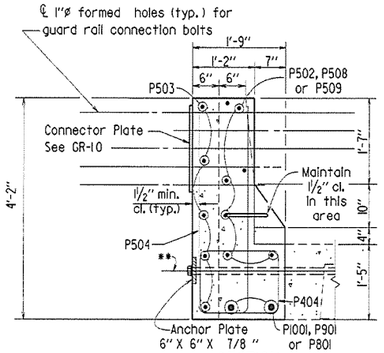
FRONT ELEVATION-PRECAST PARAPET RAIL FOR 19'-0" END SPAN

Scale ⅜" = 1'-0"



TYPICAL PLAN OF PRECAST PARAPET RAIL FOR END SPAN

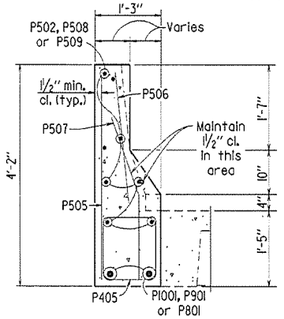
Scale ½" = 1'-0"



SECTION A-A

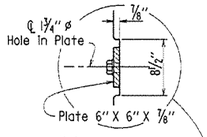
Scale ¾" = 1'-0"

** 1½" ø X 3'-0" Richmond S.C.A.B. or equal required at End Post Connections only.



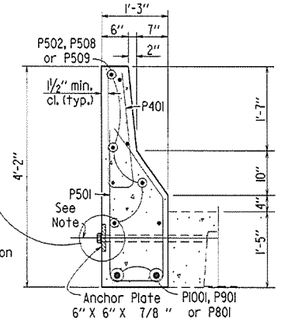
SECTION B-B

Scale ¾" = 1'-0"



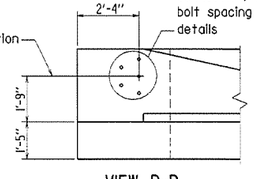
Note :
2" ø Hole for Bolt.
1½" ø X 2'-6" Richmond Screw Anchor & Bolt Assembly or equal is typical for all connections except as shown in SECTION A-A.

5 - 1"ø formed holes for guard rail connection, See Drwg. No. GR-10 for bolt spacing and additional connection details



SECTION C-C

Scale ¾" = 1'-0"



VIEW D-D

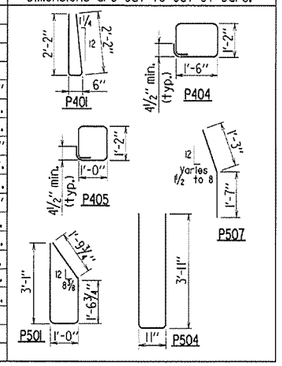
Scale ⅜" = 1'-0"

BAR LIST FOR PARAPET RAIL UNITS

MARK	NUMBER REQUIRED PER RAIL 19'-0" RAIL	25'-0" RAIL	31'-0" RAIL	LENGTH	PIN DIA.
P401	12	20	30	4'-8"	2"
P404	7	7	7	5'-8"	2"
P405	9	10	8	4'-8"	2"
P501	12	20	30	7'-3"	2½"
P502			8	30'-8"	Str.
P503	5	5	5	3'-3"	Str.
P504	7	7	7	8'-6"	2½"
P505	9	10	8	3'-11"	Str.
P506	9	10	8	2'-2"	Str.
P507	9	10	8	2'-10"	2½"
P508		8		24'-8"	Str.
P509	8			18'-8"	Str.
P801	2			18'-8"	Str.
P901		2		24'-8"	Str.
P1001			2	30'-8"	Str.

BENDING DIAGRAMS

Dimensions are out to out of bars.



NOTES

This drawing is to be used with drawing no. 15240, 15241 and/or 15242 of which all three contain details and general notes pertaining to this drawing.

⚠ Revised and redrawn: KDH 4-10-2003
Chkd. By: MAH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

BRIDGE ENGINEER

DETAILS OF STANDARD PRECAST PARAPET RAILS FOR 19'-0", 25'-0", & 31'-0" PRECAST END SPANS

ROUTE SEC.

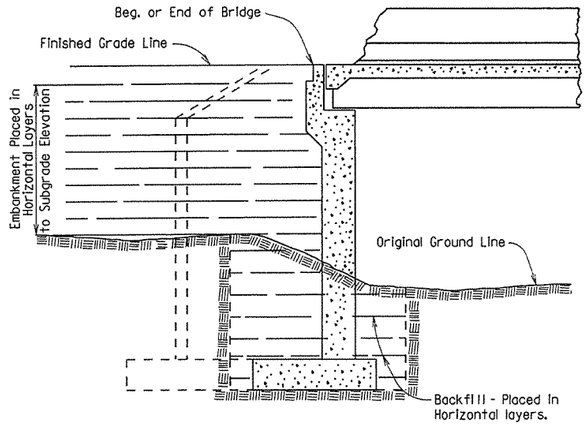
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

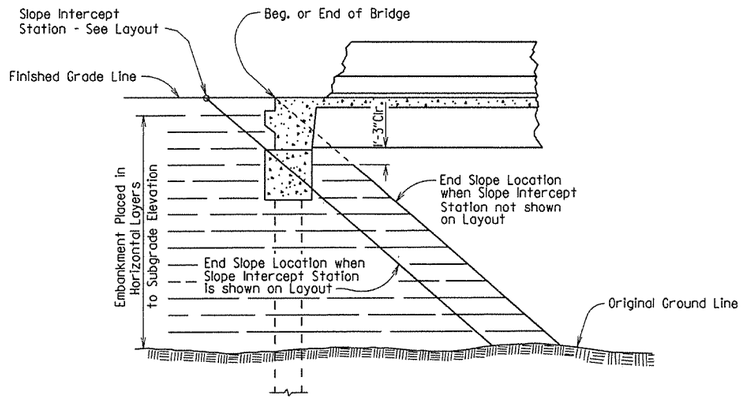
DRAWN BY: KDH DATE: 4-10-2003 FILENAME: BI5230.STD
CHECKED BY: MAH DATE: 4-10-2003 SCALE: AS SHOWN
DESIGNED BY: STD. DATE: -

BRIDGE NO. DRAWING NO. 15230

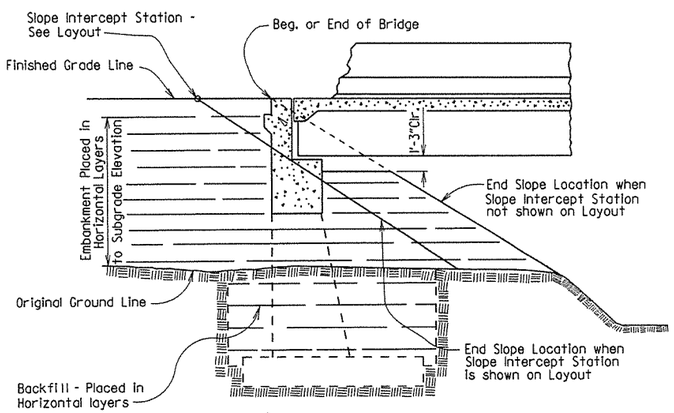
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		93	
				JOB NO.				
				(1) EMBANKMENT & BACKFILL		55000		



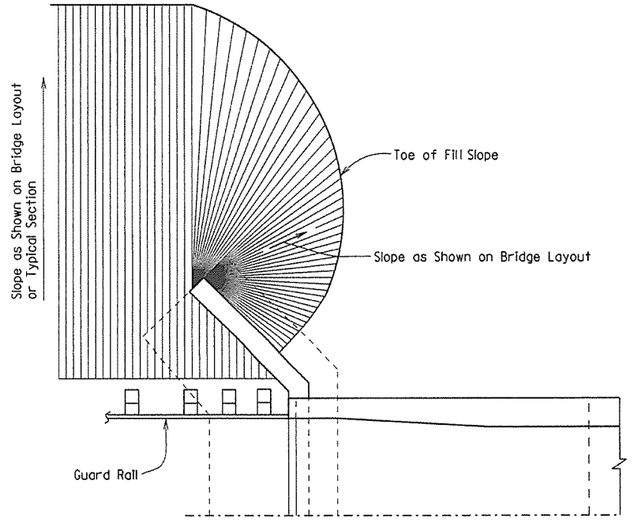
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



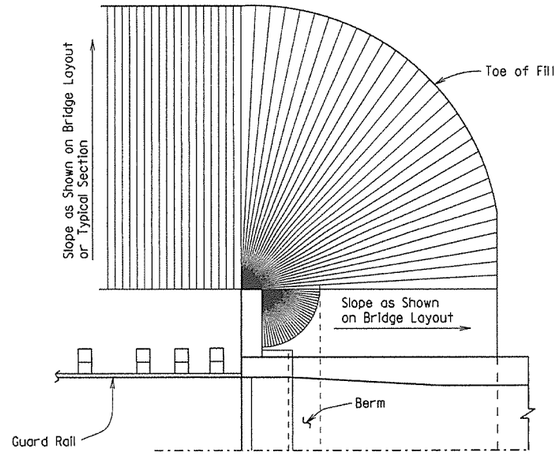
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



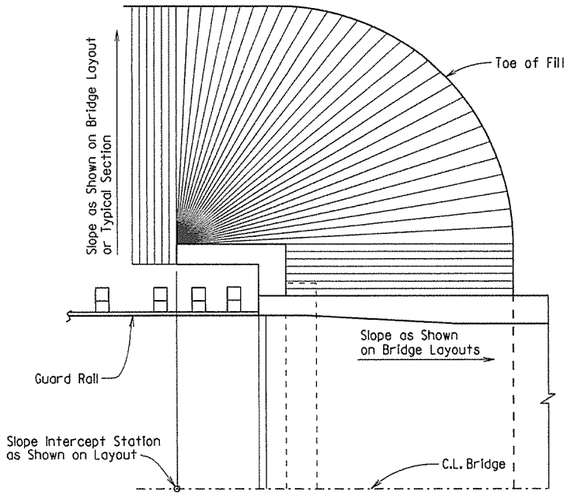
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



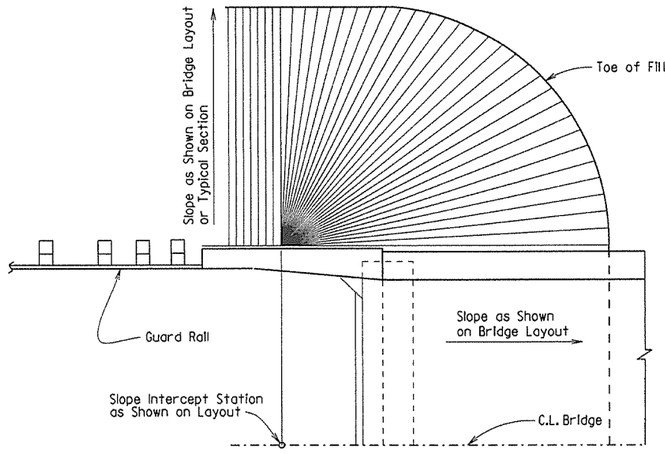
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

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

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

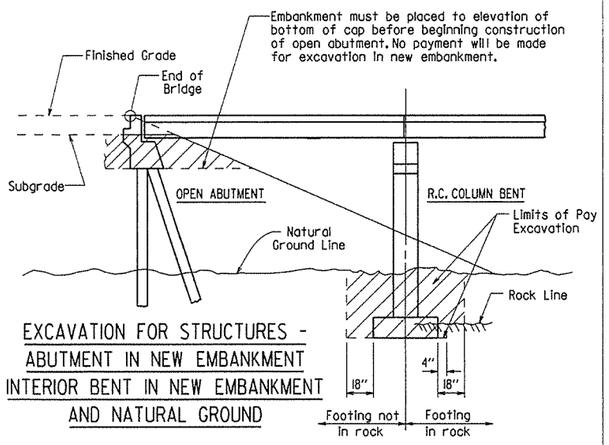
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn

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

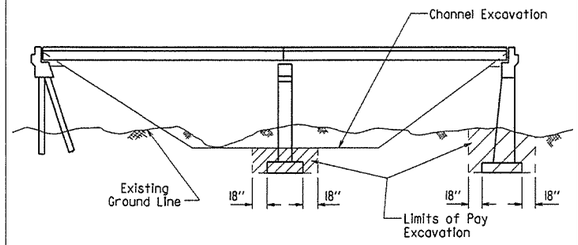
DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

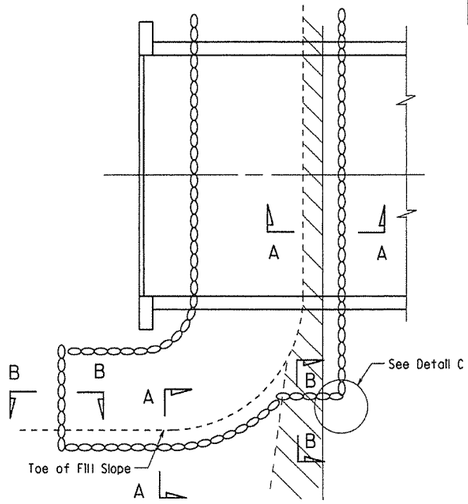
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		94	
				JOB NO.				
				(1)	RIPRAP & EXCAV. 55001			



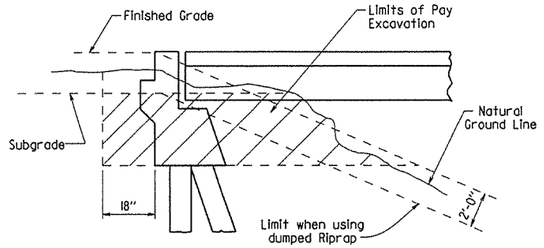
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



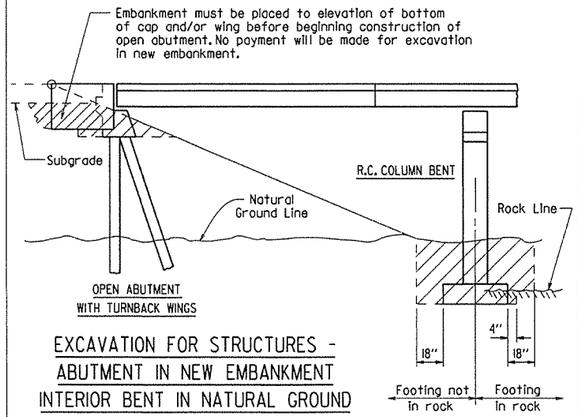
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



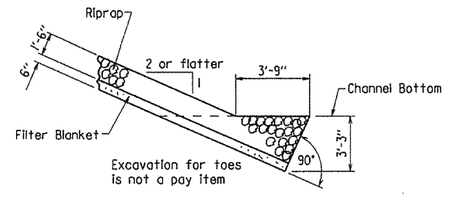
PLAN OF DUMPED RIPRAP



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND

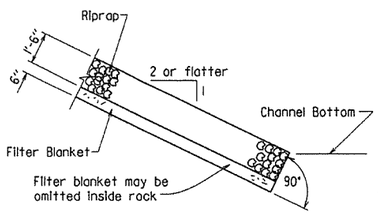


EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



SECTION A-A

(Toe Excavation in Soil)



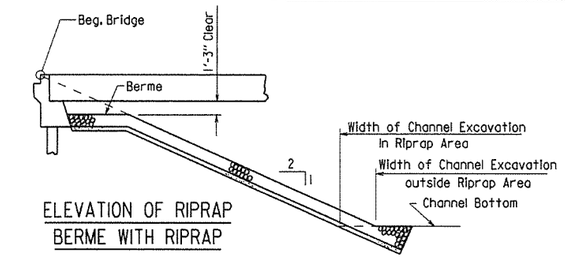
SECTION A-A

(Toe Excavation in Rock)

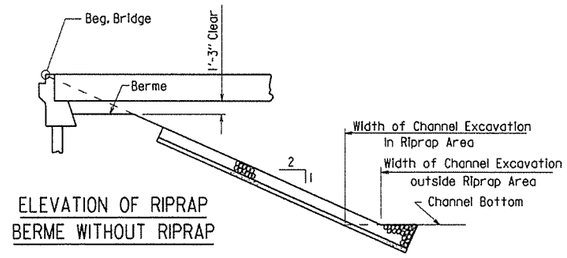
Note : Use this type of toe when rock is encountered which is in a stable condition.

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.

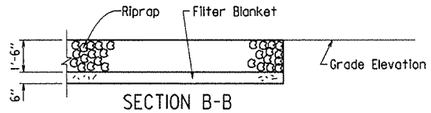
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



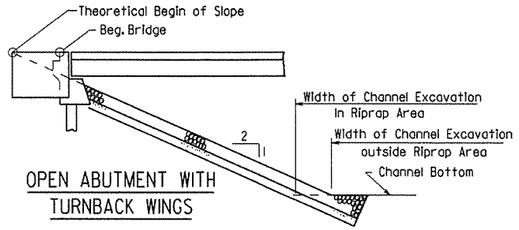
ELEVATION OF RIPRAP BERME WITH RIPRAP



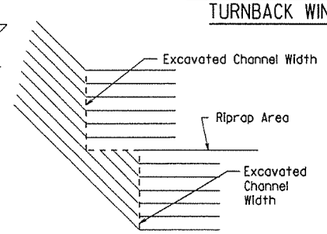
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



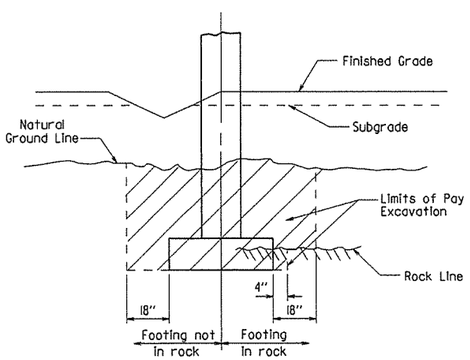
SECTION B-B



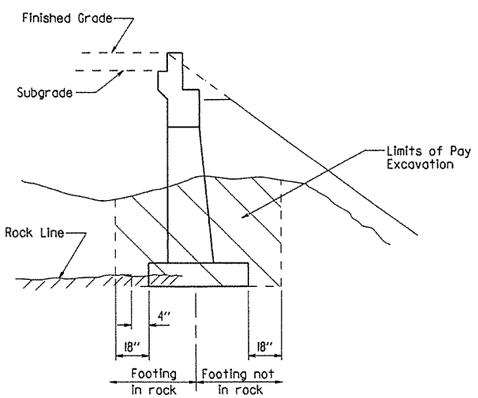
OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C



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



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

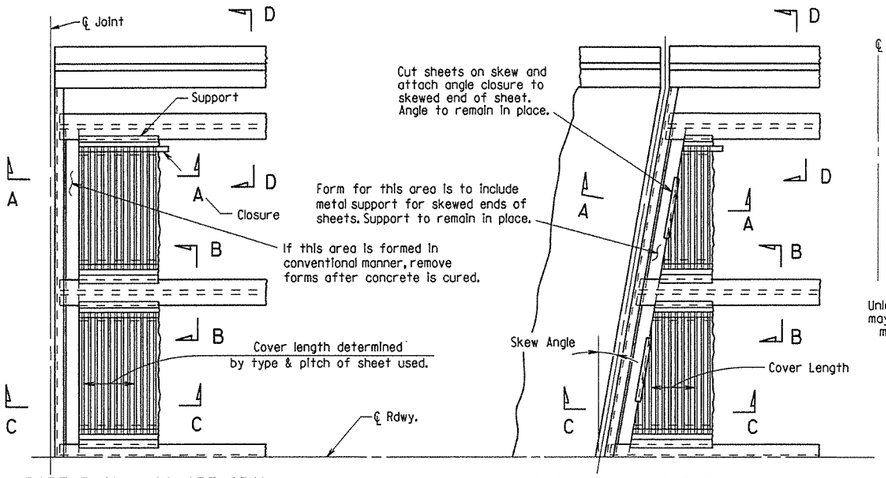
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

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

DESIGNED BY: STD. DATE:

DRAWING NO. 55001

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		95	
				JOB NO.				
				①	BRIDGE DECK FORMS		55005	

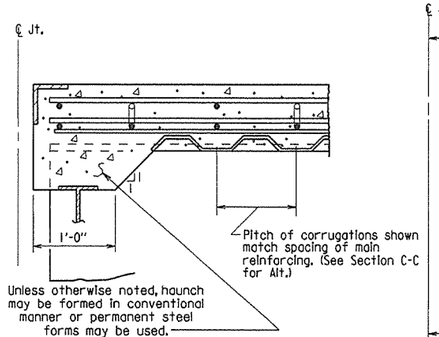


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

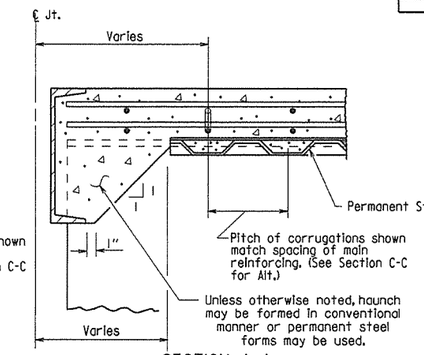
3/8" = 1'-0"



SECTION A-A

N.T.S.

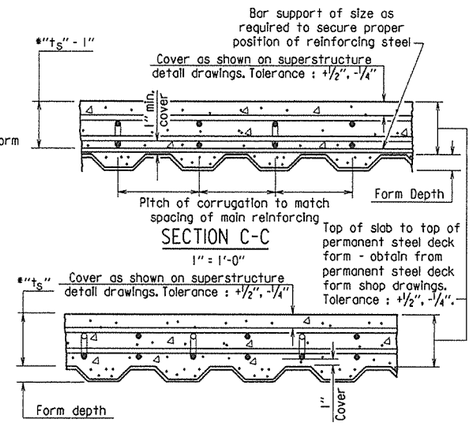
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



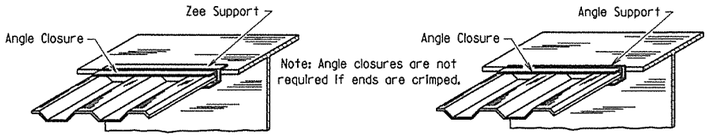
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

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



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

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

GENERAL NOTES

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

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

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

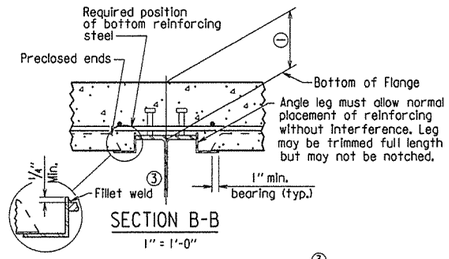
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

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

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

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

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

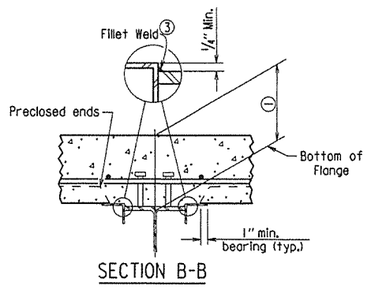


SECTION B-B

1" = 1'-0"

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

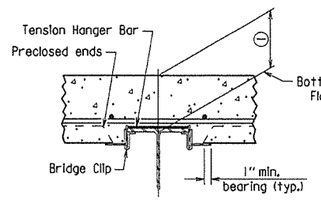
③ Minimum weld: 1/8" x 1' @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

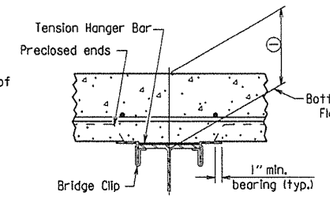
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

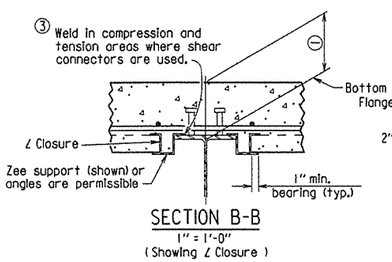
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

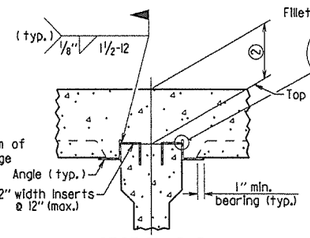
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

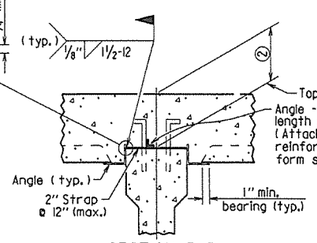


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

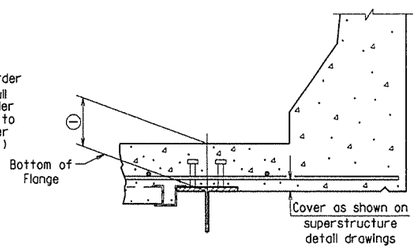


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

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

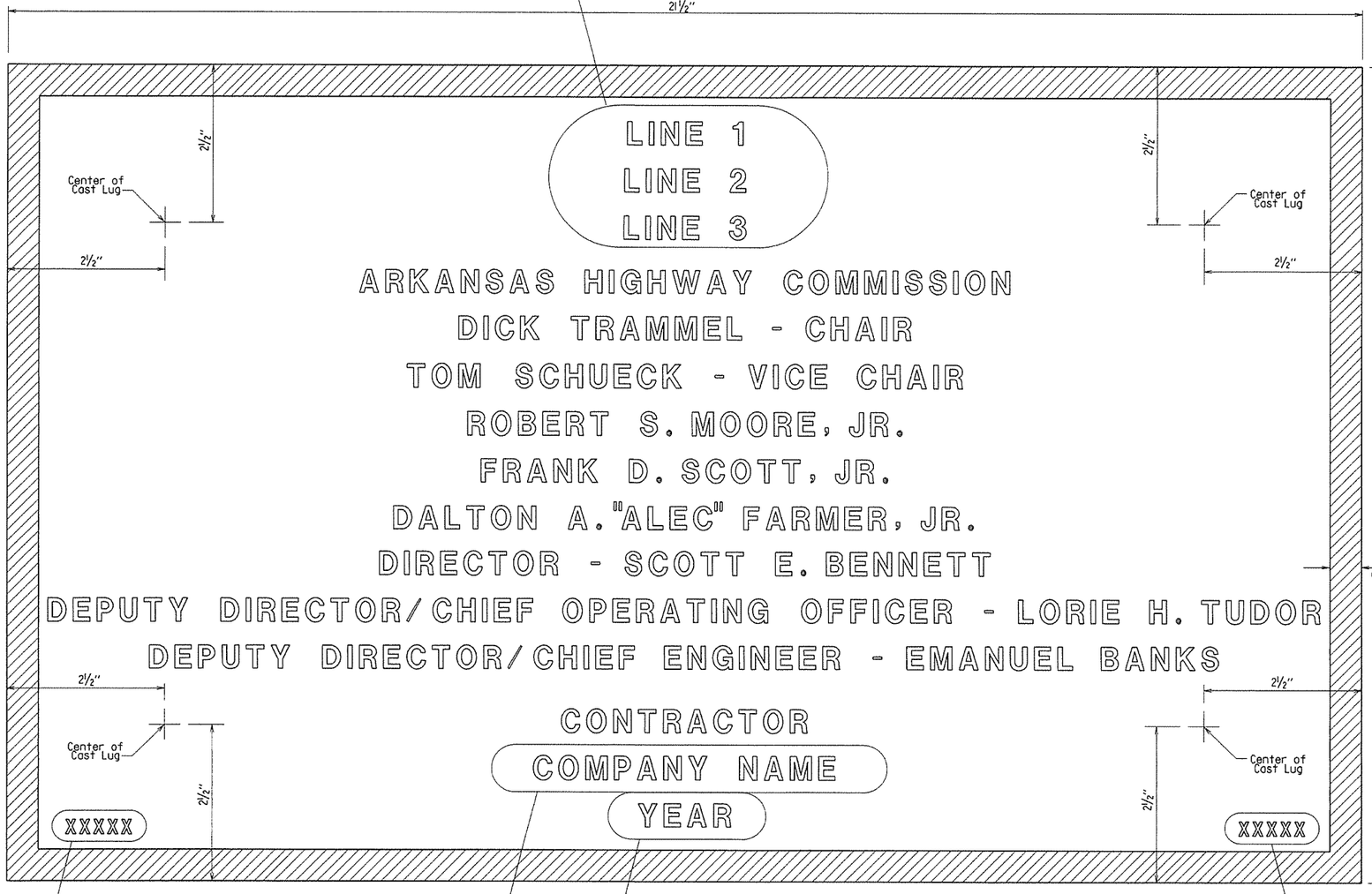
DESIGNED BY: STD. DATE: —

DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14				6	ARK.		96	
1-14-15				JOB NO.				
				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	



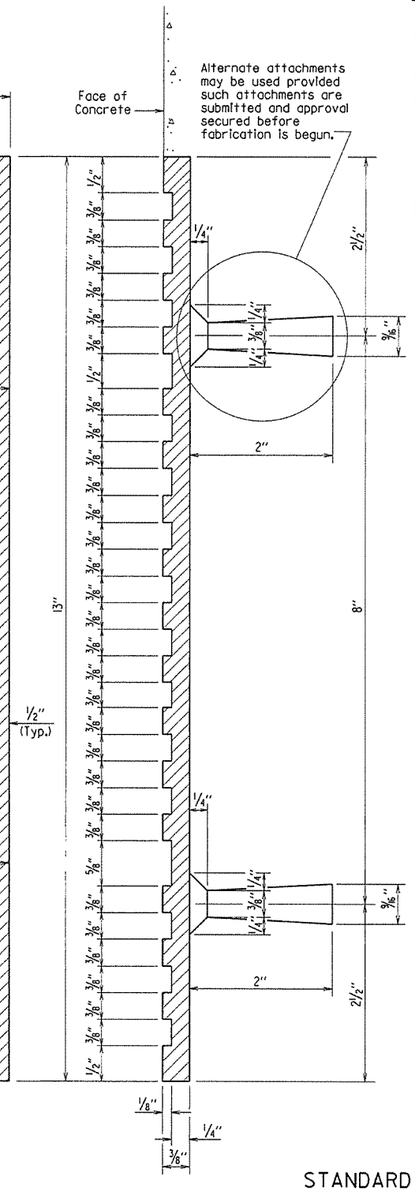
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20
HL-93

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

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

Place the 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

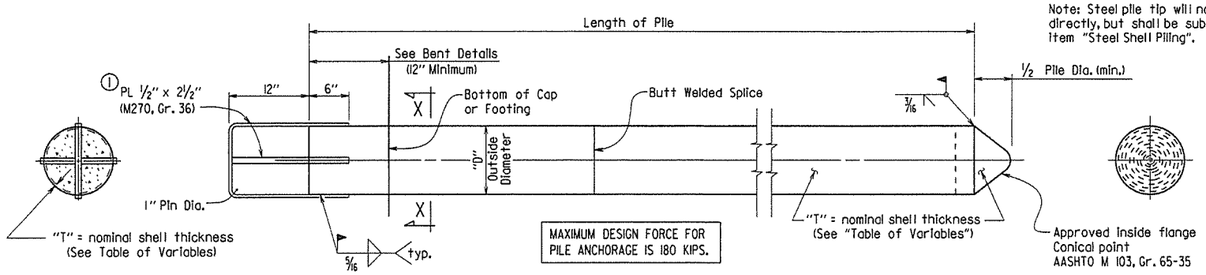
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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.		97	
				JOB NO.				

(1) STEEL SHELL PILES 55021

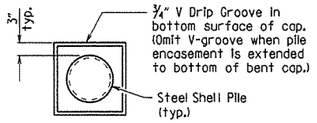


Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

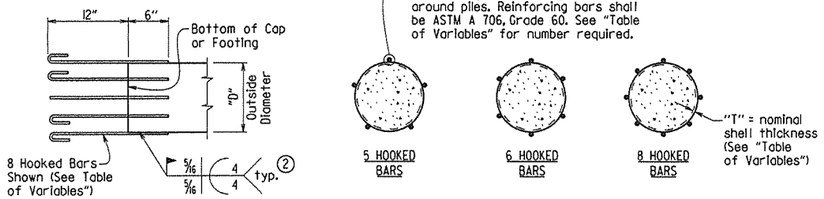
CONCRETE FILLED STEEL SHELL PILE

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

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

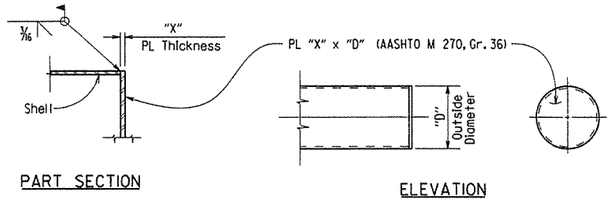


VIEW X-X



ALTERNATE PILE ANCHORAGE DETAIL

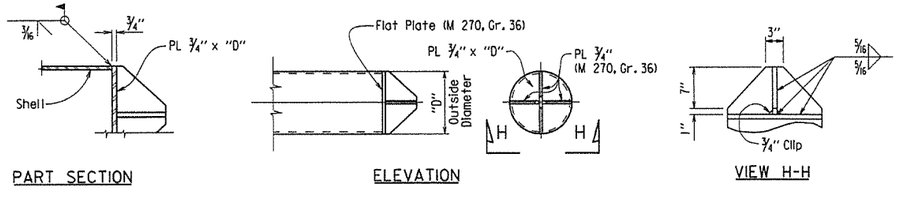
Note: Hooked bars shall be oriented to provide the required concrete clearances shown in the plans.



PART SECTION ELEVATION

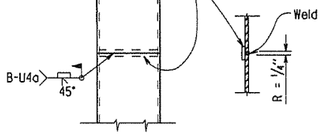
ALTERNATE FLAT TIP DETAIL

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



PART SECTION ELEVATION VIEW H-H

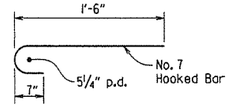
ALTERNATE VANED TIP DETAIL



TYPICAL SPLICE DETAILS

TABLE OF VARIABLES

OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	PLATE THICKNESS "X"	NO. OF HOOKED BARS FOR ALTERNATE PILE ANCHORAGE
14"	0.50"	¾"	5
16"	0.50"	1"	5
18"	0.50"	1¼"	6
20"	0.50"	1½"	6
24"	0.50"	1¾"	8



HOOKED BAR DETAIL

GENERAL NOTES FOR CONCRETE FILLED STEEL SHEEL PILES:

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

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

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

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

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

GENERAL NOTES FOR PILE ENCASEMENTS:

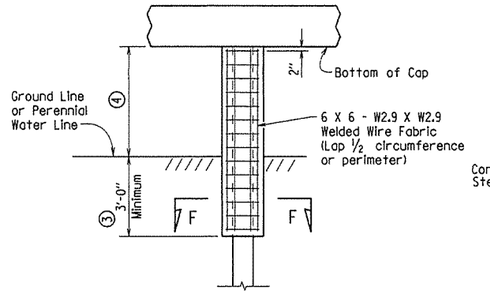
See Bridge Layout for additional notes and required location of pile encasements.

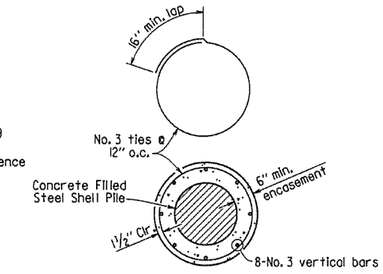
Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

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

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

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





SECTION F-F (REINF. ALTERNATE)

PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

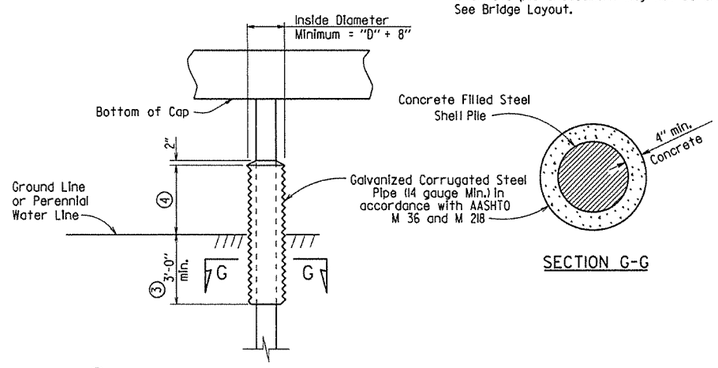
(5) (Shown with Encasement to Bottom of Cap)

(3) Unless otherwise noted on Bridge Layout.

(4) See Bridge Layout for height of pile encasement (3'-0" Minimum).

(5) Pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the detail for partial height encasement.

(6) Alternate pile encasement may not be allowed. See Bridge Layout.



SECTION G-G

(6) ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(Shown with Partial Height Encasement)

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. 7610
CARL J. FUSELIER

BRIDGE ENGINEER

STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

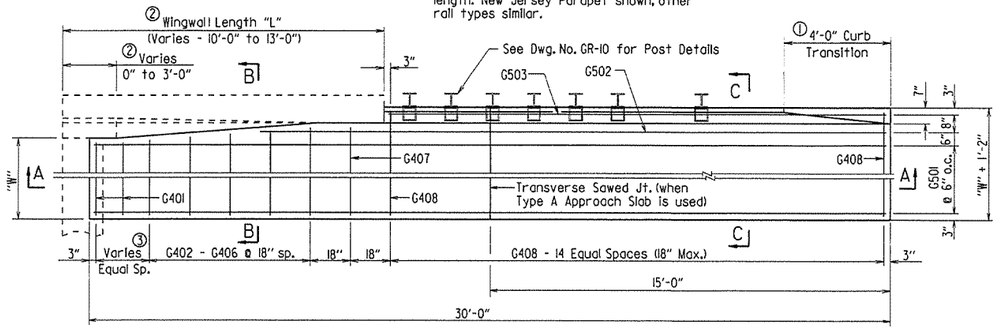
DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55021.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55021

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9/2/15				6	ARK.		98	
				JOB NO.				

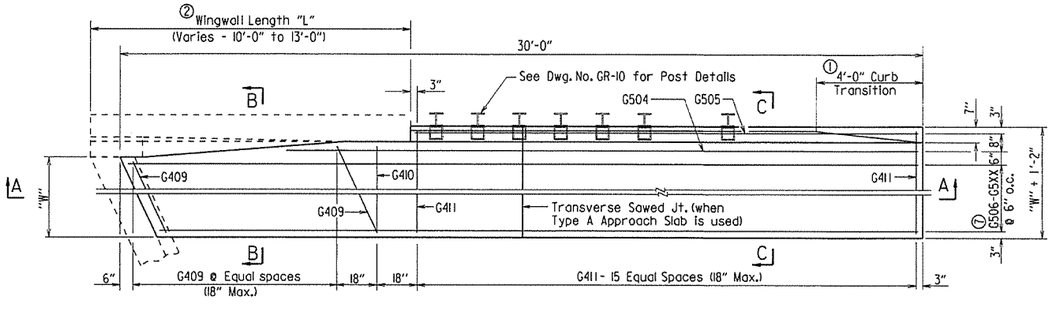
① TYPE A GUTTERS 55030A

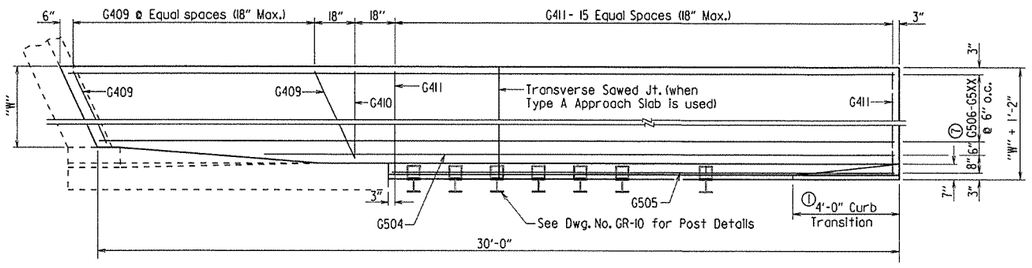
② See End Bent Details for actual wingwall length. New Jersey Parapet shown, other rail types similar.



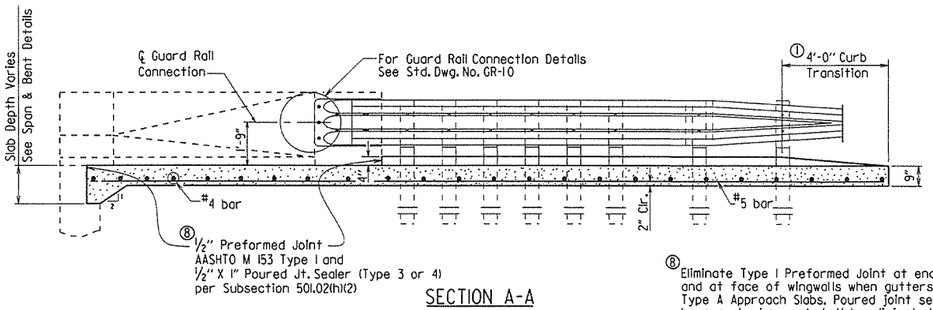
③ Number of G401 bars vary with wingwall length - See Bar List

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





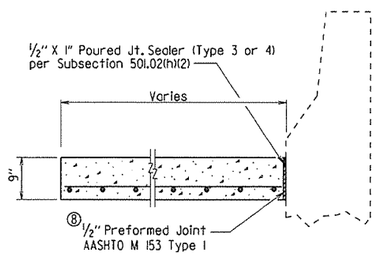
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



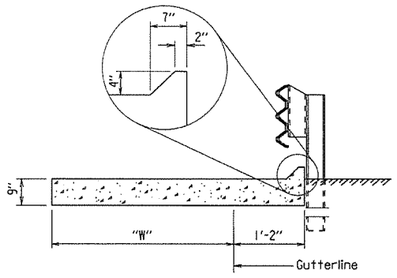
SECTION A-A

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.

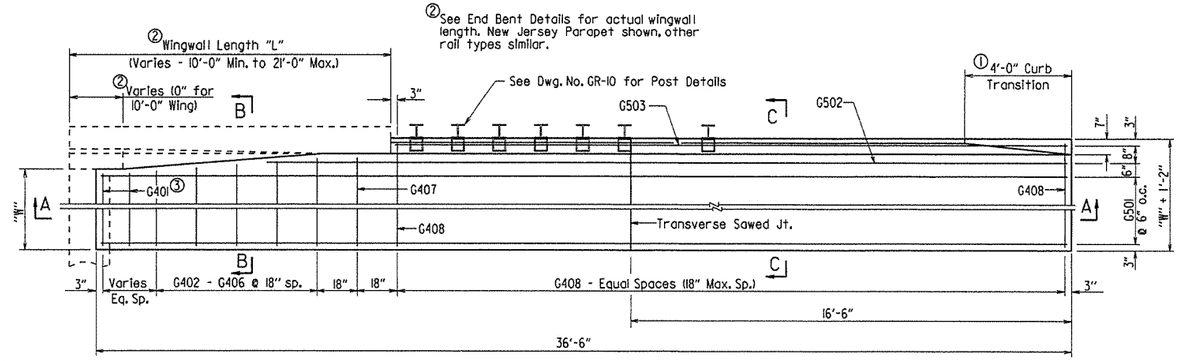
DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030a.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: ⅜" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

DRAWING NO. 55030A

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		99	
				JOB NO.				

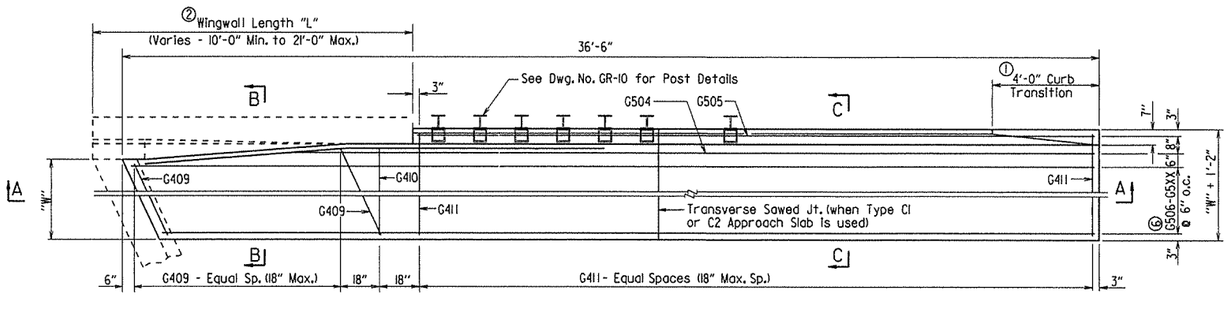
① TYPE C GUTTERS 55030C

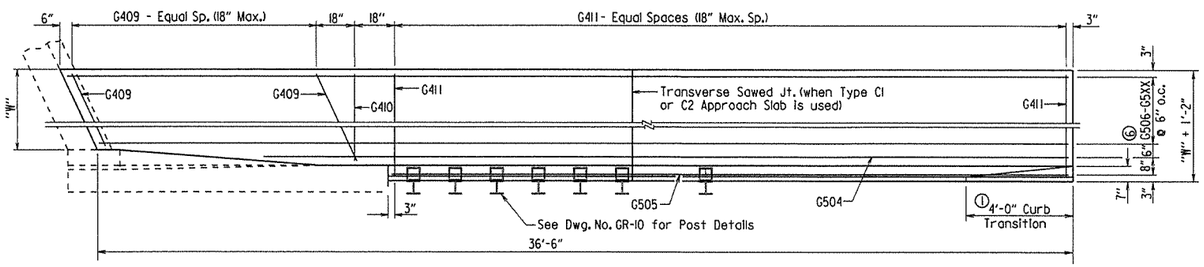
② See End Bent Details for actual wingwall length. New Jersey Parapet shown, other rail types similar.



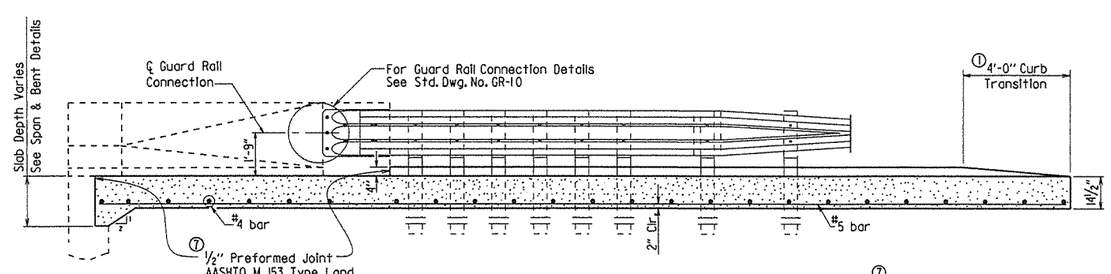
③ Provide G401 bars @ 18" max. spacing. Number of G401 bars vary with wingwall length. No G401 bars required for 10'-0" wingwalls.

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





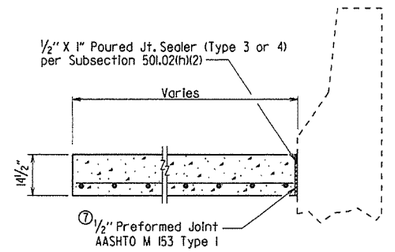
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



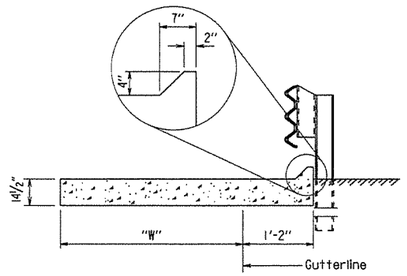
SECTION A-A

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.

⑦ Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type C2 Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

BAR LIST FOR ONE TYPE C GUTTER

	Mark	No. Req'd. for Width "W" 4'-0"	6'-0"	8'-0"	10'-0"	Length
Square Bridge	G401	④	④	④	④	"W" - 4"
	G402-G406	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	"W"+3"
	G408	④	④	④	④	"W"+ 10"
	G501	8	12	16	20	36'-2"
	G502	1	1	1	1	(41'-11") - "L"
	G503	1	1	1	1	(37'-2") - "L"
Skewed Bridge	G409	④	④	④	④	⑤
	G410	1	1	1	1	"W"+3"
	G411	④	④	④	④	"W"+ 10"
	G504	1	1	1	1	⑤
	G505	1	1	1	1	⑤
	G506 - G5XX ⑥	1 each	1 each	1 each	1 each	⑤

④ No. Req'd. varies with Skew and Wingwall Length.

⑤ Bar Lengths vary with Skew and Wingwall Length.

⑥ G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'
G525 for "W" = 10'

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
4	445	8.30
6	630	11.55
8	810	14.80
10	995	18.10

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.

STANDARD DETAILS FOR TYPE C APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION

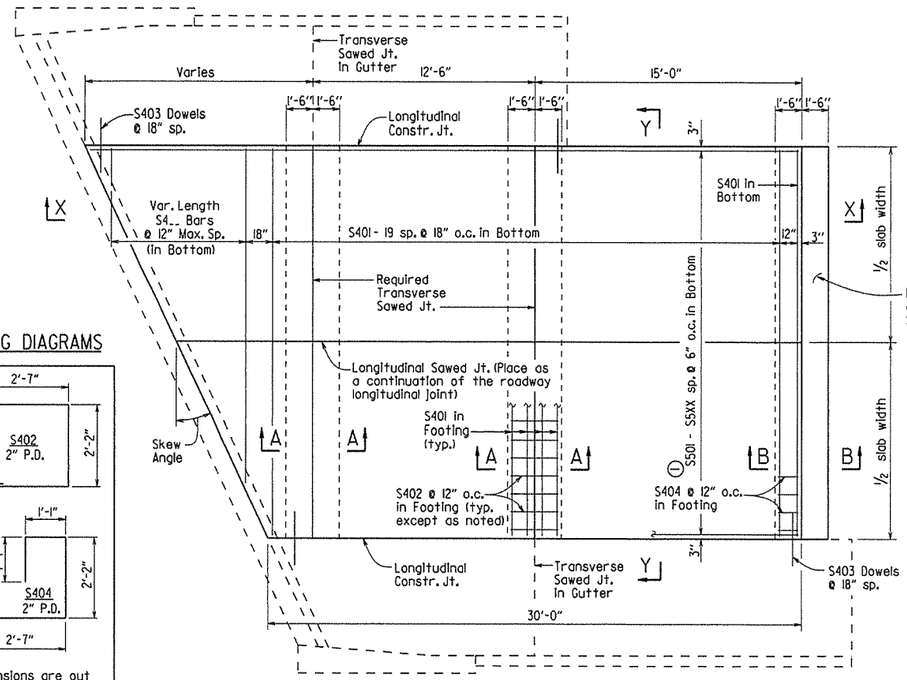
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030c.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: 3/8" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

DRAWING NO. 55030C

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		100	
				JOB NO.				

TYPE A APPROACH SLAB 55040A



PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

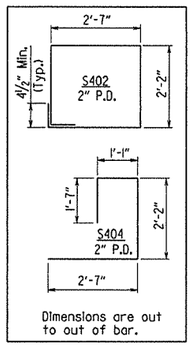
¼" = 1'-0"

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

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

① S5XX = S540 for 20'-0" Width
= S544 for 22'-0" Width
= S548 for 24'-0" Width
= S572 for 36'-0" Width

BENDING DIAGRAMS



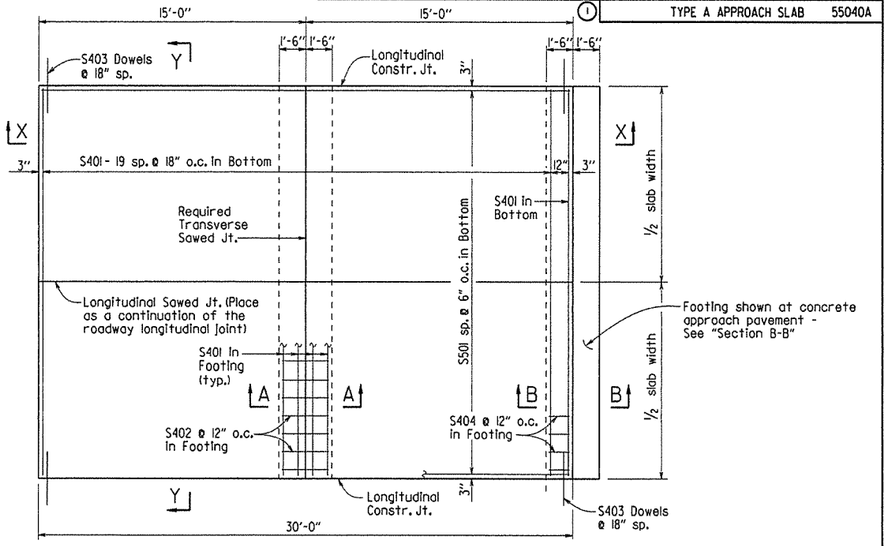
Dimensions are out to out of bar.

BAR LIST

(Square & Skewed Approach Slabs)

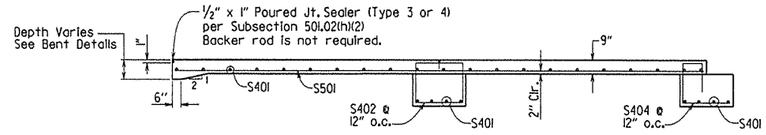
	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
20'-0" Slab Width	S401	29	19'-8"	33	19'-8"
	S402	20	9'-10"	40	9'-10"
	S403	40	3'-0"	*	3'-0"
	S404	20	7'-2"	20	7'-2"
	S4__	—	—	1 Ea.	19.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	40	29'-8"	—	—
	S501 - S540	—	—	1 Ea.	29.6' + 0.25'(tan skew angle) to 29.6' + 19.75'(tan skew angle)
22'-0" Slab Width	S401	29	21'-8"	33	21'-8"
	S402	22	9'-10"	44	9'-10"
	S403	40	3'-0"	*	3'-0"
	S404	22	7'-2"	22	7'-2"
	S4__	—	—	1 Ea.	21.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	44	29'-8"	—	—
	S501 - S544	—	—	1 Ea.	29.6' + 0.25'(tan skew angle) to 29.6' + 21.75'(tan skew angle)
24'-0" Slab Width	S401	29	23'-8"	33	23'-8"
	S402	24	9'-10"	48	9'-10"
	S403	40	3'-0"	*	3'-0"
	S404	24	7'-2"	24	7'-2"
	S4__	—	—	1 Ea.	23.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	48	29'-8"	—	—
	S501 - S548	—	—	1 Ea.	29.6' + 0.25'(tan skew angle) to 29.6' + 23.75'(tan skew angle)
36'-0" Slab Width	S401	29	35'-8"	33	35'-8"
	S402	36	9'-10"	72	9'-10"
	S403	40	3'-0"	*	3'-0"
	S404	36	7'-2"	36	7'-2"
	S4__	—	—	1 Ea.	35.7' - 1.25'/(tan skew angle) to 2'-0" Min.
	S501	72	29'-8"	—	—
	S501 - S572	—	—	1 Ea.	29.6' + 0.25'(tan skew angle) to 29.6' + 35.75'(tan skew angle)

*Varies with skew angle



PLAN - SQUARE APPROACH SLAB

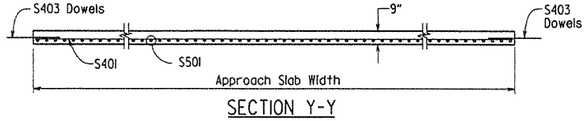
¼" = 1'-0"



SECTION X-X

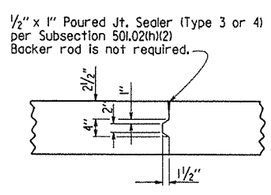
SQUARE APPROACH SLAB SHOWN

¼" = 1'-0"



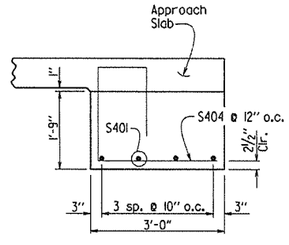
SECTION Y-Y

N.T.S.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

1" = 1'-0"



SECTION B-B

AT ASPHALT APPROACH PAVEMENT

N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
20'-0"	1925	24.85
22'-0"	2110	27.30
24'-0"	2300	29.90
36'-0"	3410	44.85

GENERAL NOTES

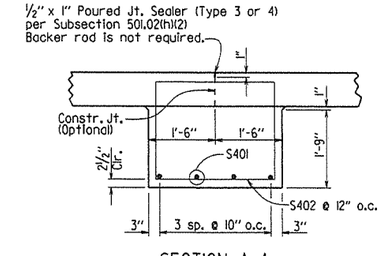
This drawing shall be used for Approach Slabs in Seismic Performance Zones 2, 3 & 4 and for the maximum skew angles shown below:

20'-0" Slab Width: Maximum Skew Angle = 45°
22'-0" Slab Width: Maximum Skew Angle = 45°
24'-0" Slab Width: Maximum Skew Angle = 40°
36'-0" Slab Width: Maximum Skew Angle = 30°

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

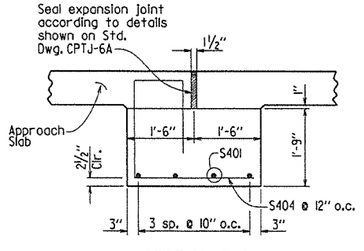
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

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



SECTION A-A

N.T.S.



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

N.T.S.

STANDARD DETAILS FOR
TYPE A APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040a.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

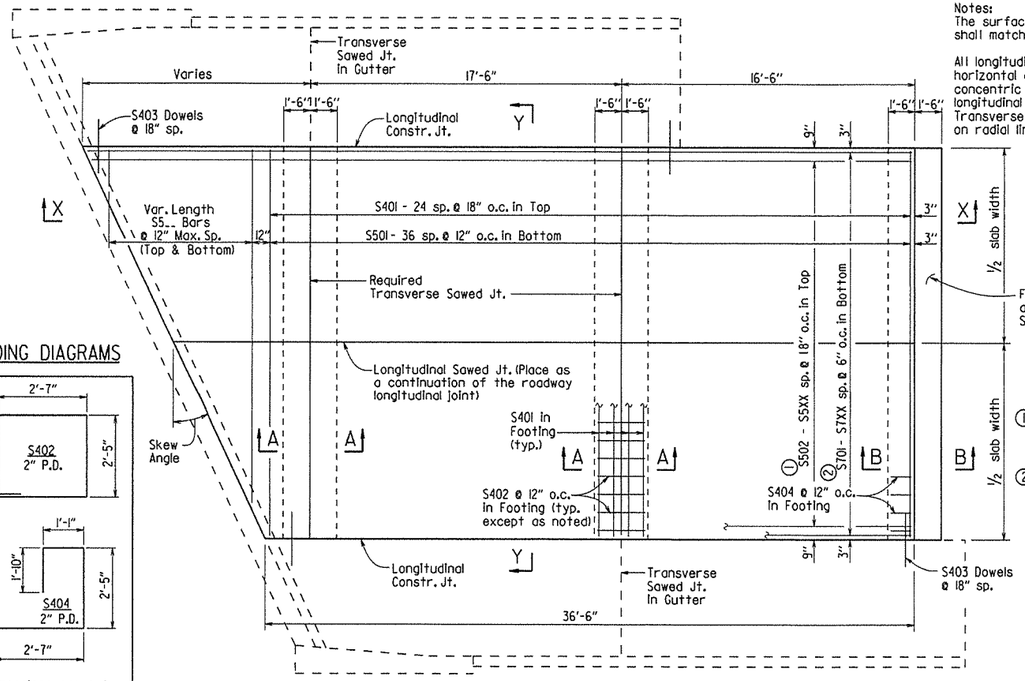
DRAWING NO. 55040A

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		101	
				JOB NO.				

TYPE C2 APPROACH SLAB 55040C2

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

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

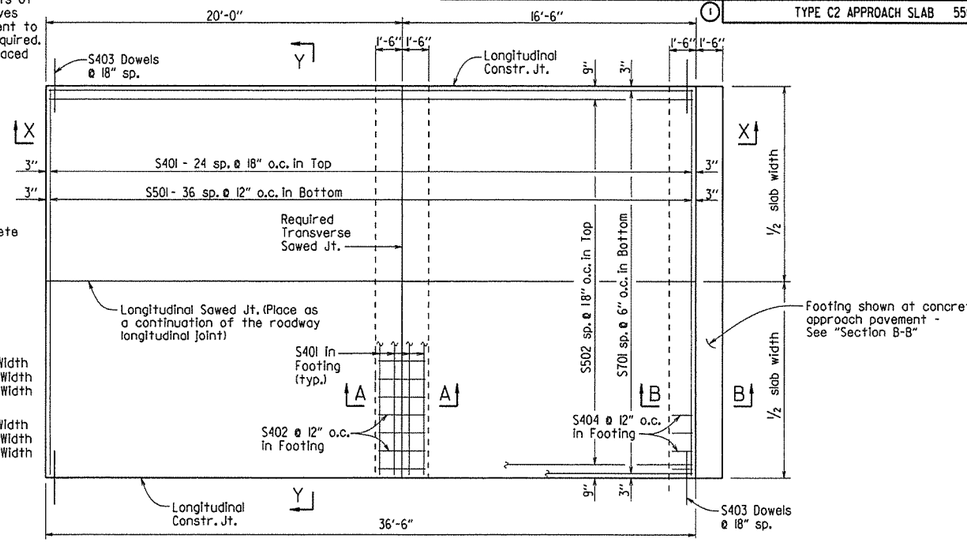


① S5XX = S511 for 15'-0" Width
= S517 for 24'-0" Width
= S525 for 36'-0" Width

② S7XX = S730 for 15'-0" Width
= S748 for 24'-0" Width
= S772 for 36'-0" Width

PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

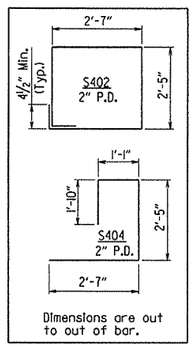
1/4" = 1'-0"



PLAN - SQUARE APPROACH SLAB

1/4" = 1'-0"

BENDING DIAGRAMS



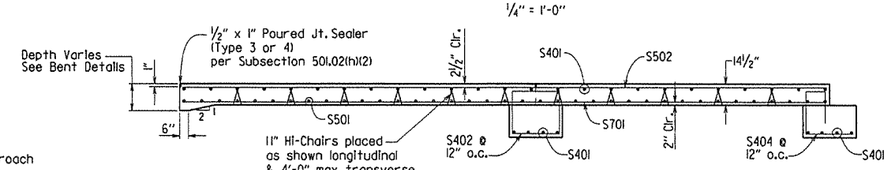
Dimensions are out to out of bar.

BAR LIST

(Square & Skewed Approach Slabs)

	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
15'-0" Slab Width	S401	33	14'-8"	37	14'-8"
	S402	15	10'-4"	30	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	15	7'-8"	15	7'-8"
	S501	37	14'-8"	37	14'-8"
	S502	10	36'-2"	—	—
	S502 - S511	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 14.25'(tan skew angle)
	S5__	—	—	2 Ea.	14.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	30	36'-2"	—	—
	S701 - S730	—	—	1 Ea.	36.1' + 0.25'(tan skew angle) to 36.1' + 14.75'(tan skew angle)
24'-0" Slab Width	S401	33	23'-8"	37	23'-8"
	S402	24	10'-4"	48	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	24	7'-8"	24	7'-8"
	S501	37	23'-8"	37	23'-8"
	S502	16	36'-2"	—	—
	S502 - S517	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 23.25'(tan skew angle)
	S5__	—	—	2 Ea.	23.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	48	36'-2"	—	—
	S701 - S748	—	—	1 Ea.	36.1' + 0.25'(tan skew angle) to 36.1' + 23.75'(tan skew angle)
36'-0" Slab Width	S401	33	35'-8"	37	35'-8"
	S402	36	10'-4"	72	10'-4"
	S403	50	3'-0"	*	3'-0"
	S404	36	7'-8"	36	7'-8"
	S501	37	35'-8"	37	35'-8"
	S502	24	36'-2"	—	—
	S502 - S525	—	—	1 Ea.	36.1' + 0.75'(tan skew angle) to 36.1' + 35.25'(tan skew angle)
	S5__	—	—	2 Ea.	35.7' - 0.75'/(tan skew angle) to 2'-0" Min.
	S701	72	36'-2"	—	—
	S701 - S772	—	—	1 Ea.	36.1' + 0.25'(tan skew angle) to 36.1' + 35.75'(tan skew angle)

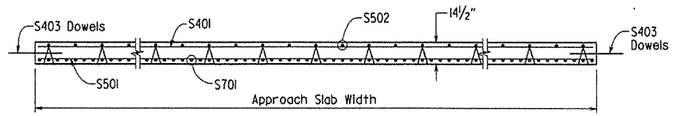
*Varies with skew angle



SECTION X-X

SQUARE APPROACH SLAB SHOWN

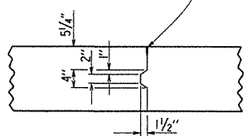
1/4" = 1'-0"



SECTION Y-Y

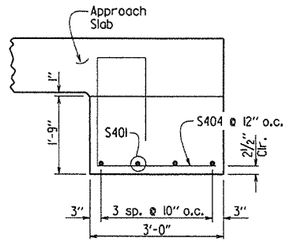
N.T.S.

½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2)
Backer rod is not required.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

¾" = 1'-0"

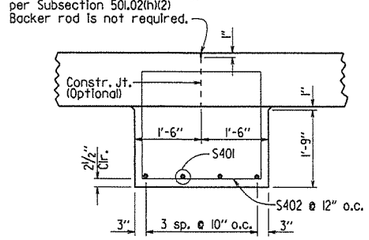


SECTION B-B

AT ASPHALT APPROACH PAVEMENT

N.T.S.

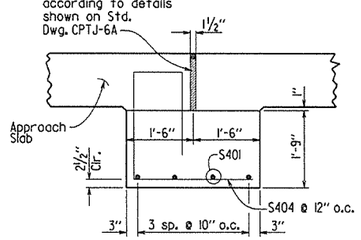
½" x 1" Poured Jt. Sealer (Type 3 or 4) per Subsection 501.02(h)(2)
Backer rod is not required.



SECTION A-A

N.T.S.

Seal expansion joint according to details shown on Std. Dwg. CPTJ-6A



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
15'-0"	3765	30.75
24'-0"	5980	49.15
36'-0"	8925	73.75

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zones 2, 3 & 4 and for the maximum skew angles shown below:

15'-0" Slab Width: Maximum Skew Angle = 50°
24'-0" Slab Width: Maximum Skew Angle = 40°
36'-0" Slab Width: Maximum Skew Angle = 30°

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

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

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

STANDARD DETAILS FOR TYPE C2 APPROACH SLAB

ARKANSAS STATE HIGHWAY COMMISSION

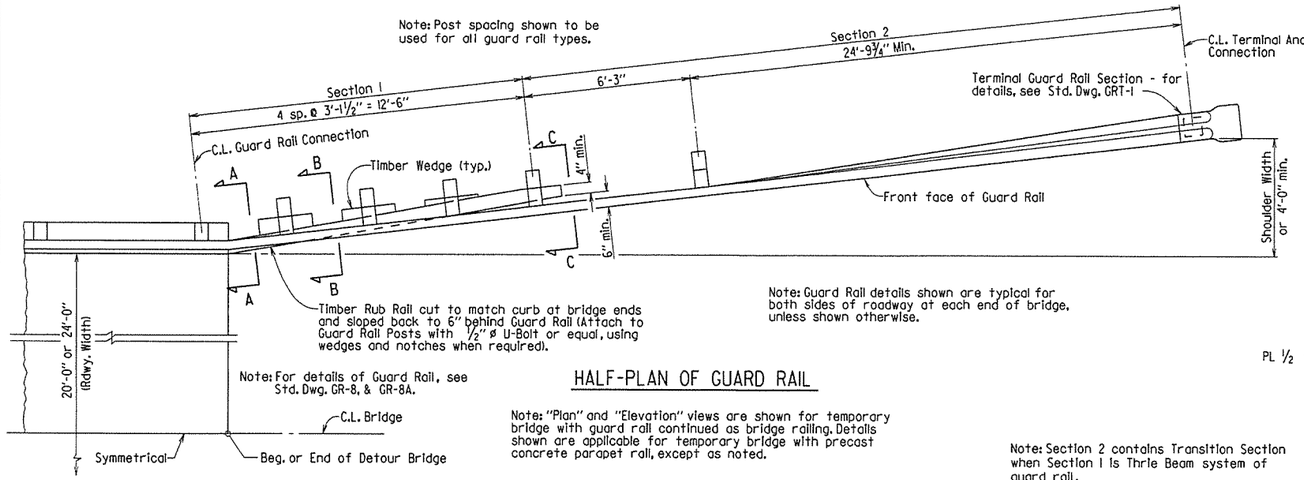
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040c2.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

DRAWING NO. 55040C2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		12	
				JOB NO.				
						TEMP. BRIDGE	55054	

Note: Post spacing shown to be used for all guard rail types.



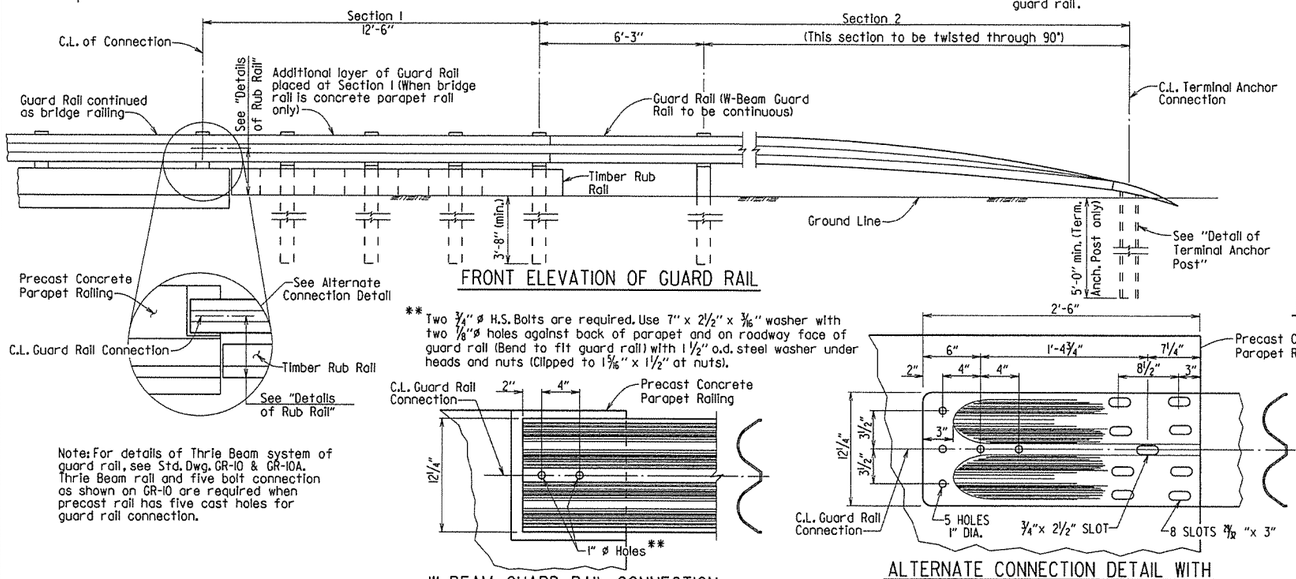
Note: For details of Guard Rail, see Std. Dwg. GR-8, & GR-8A.

HALF-PLAN OF GUARD RAIL

Note: Guard Rail details shown are typical for both sides of roadway at each end of bridge, unless shown otherwise.

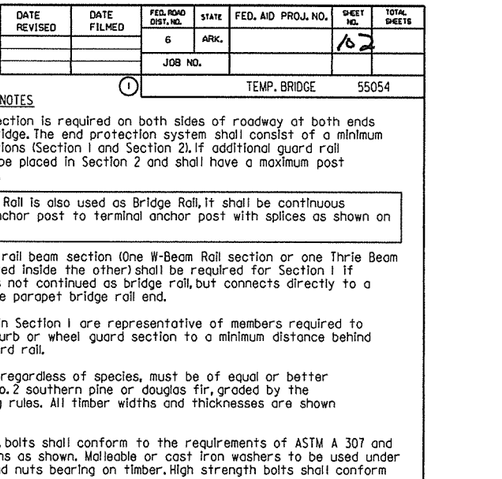
Note: "Plan" and "Elevation" views are shown for temporary bridge with guard rail continued as bridge railing. Details shown are applicable for temporary bridge with precast concrete parapet rail, except as noted.

Note: Section 2 contains Transition Section when Section 1 is Thrie Beam system of guard rail.



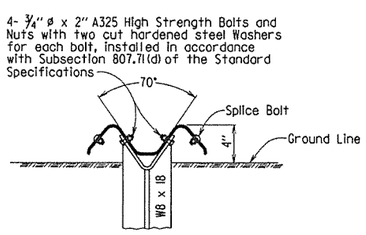
FRONT ELEVATION OF GUARD RAIL

Note: For details of Thrie Beam system of guard rail, see Std. Dwg. GR-10 & GR-10A. Thrie Beam rail and five bolt connection as shown on GR-10 are required when precast rail has five cast holes for guard rail connection.



Note: Post shall be driven or set in dug hole and compacted.

DETAILS OF TERMINAL ANCHOR POST



DETAILS OF TERMINAL ANCHOR CONNECTION

GENERAL NOTES

Bridge End Protection is required on both sides of roadway at both ends of temporary bridge. The end protection system shall consist of a minimum of two end sections (Section 1 and Section 2). If additional guard rail is used, it shall be placed in Section 2 and shall have a maximum post spacing of 6'-3".

If W-Beam Guard Rail is also used as Bridge Rail, it shall be continuous from terminal anchor post to terminal anchor post with splices as shown on Std. Drwg. GR-8.

A doubled guard rail beam section (One W-Beam Rail section or one Thrie Beam Rail section nested inside the other) shall be required for Section 1 if the guard rail is not continued as bridge rail, but connects directly to a precast concrete parapet bridge rail end.

Rub rails shown in Section 1 are representative of members required to transition the curb or wheel guard section to a minimum distance behind the face of guard rail.

Timber rub rail, regardless of species, must be of equal or better strength than no. 2 southern pine or douglas fir, graded by the standard grading rules. All timber widths and thicknesses are shown as nominal.

Except as noted, bolts shall conform to the requirements of ASTM A 307 and minimum dimensions as shown. Malleable or cast iron washers to be used under all bolt heads and nuts bearing on timber. High strength bolts shall conform to Section 807.

Guard rail as described in Subsection 617.01 of the Standard Specifications and these plans shall be constructed in accordance with Subsection 617.03. Subsection 617.02 is modified to allow the use of materials consistent with the requirements of Section 603.

Payment: The bridge end protection system completed and accepted will not be paid for directly, but shall be included in the contract unit price bid per linear foot for temporary bridge structure, which price shall be full compensation for furnishing materials and erecting guard rail, line posts, blockouts, rub rails, terminal anchor posts, etc.; and for all labor, tools, equipment and incidentals necessary to complete the work.

GUARD RAIL CONNECTION COMBINATIONS

BRIDGE RAIL TYPE	GUARD RAIL AND CONNECTION TYPE
Guard Rail continued as bridge railing	W-Beam Guard Rail. See Std. Drwg. GR-8 for splice details.
Concrete Parapet with 12½" x 14" x 3⅜" notch and two cast in holes	W-Beam Guard Rail fastened with two high-strength bolts as shown; blunt end on guard rail. Guard Rail doubled at Section 1.
Concrete Parapet with Concrete Insert Anchor assembly (4-Bolt embedded Anchor) flush with rail face	W-Beam Guard Rail fastened with four high-strength bolts; Special End Shoe. Guard Rail doubled at Section 1.
Concrete Parapet with 5 cast in holes	Thrie Beam Guard Rail; five high-strength through bolts with back-up plate; special end shoe as shown on Std. Dwg. GR-10. Guard Rail doubled at Section 1. Section 2 contains transitional rail and W-Beam Guard Rail.

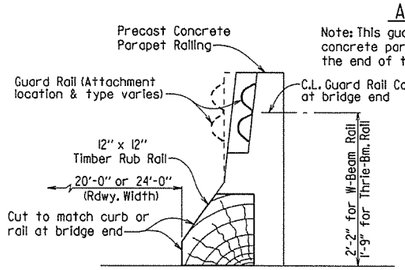
** Two ¾" ø H.S. Bolts are required. Use 7" x 2½" x ⅜" washer with two ⅞"ø holes against back of parapet and on roadway face of guard rail (Bend to fit guard rail) with 1½" o.d. steel washer under heads and nuts (Clipped to 1⅝" x 1½" at nuts).

W-BEAM GUARD RAIL CONNECTION AT CONCRETE PARAPET RAIL

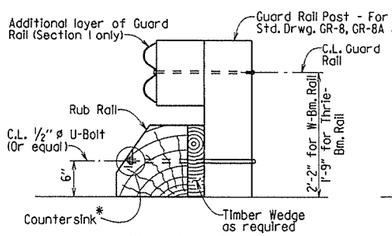
Note: This guard rail connection will only be allowed on precast concrete parapet rail units with a 12½" x 14" x 3⅜" notch at the end of the unit for connection of guard rails.

ALTERNATE CONNECTION DETAIL WITH SPECIAL END SHOE FOR W-BEAM GUARD RAIL CONNECTION AT CONCRETE PARAPET RAIL

Note: Special End Shoe and four ⅞" ø x 2½" H.S. Bolts are required when concrete insert anchor assembly is present in precast rail unit.

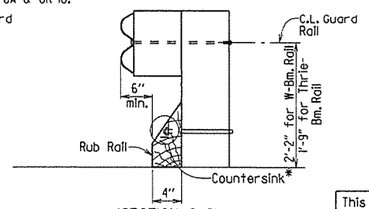


(SECTION A-A)



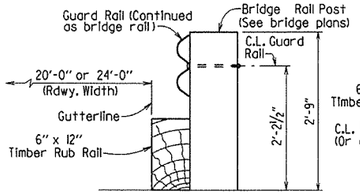
(SECTION B-B)

DETAILS OF RUB RAIL (CONC. PARAPET BRIDGE RAIL)

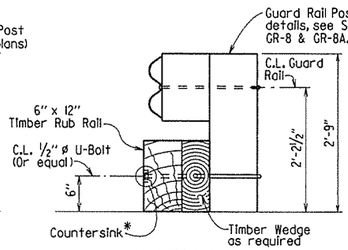


(SECTION C-C)

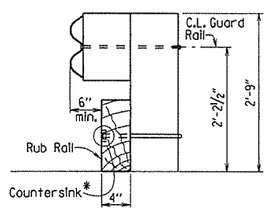
* U-Bolt Assembly, or equal, shall not project beyond rdwy. face of Rub Rail at any location.



(SECTION A-A)



(SECTION B-B)



(SECTION C-C)

DETAILS OF RUB RAIL (CONTINUOUS W-BEAM RAIL)

STANDARD DETAILS FOR TEMPORARY BRIDGE STRUCTURE BRIDGE END PROTECTION SYSTEM

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: JYP DATE: 4-17-14 FILENAME: b55054.dgn

CHECKED BY: AMS DATE: 4-17-14 SCALE: No Scale

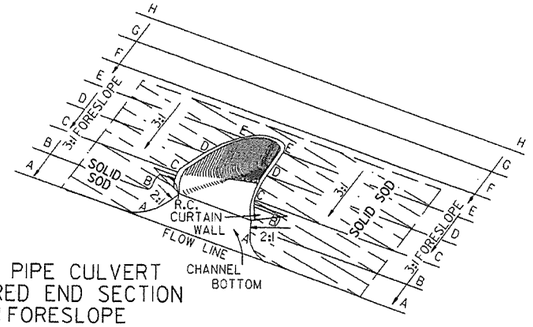
DESIGNED BY: STD. DATE: —

DRAWING NO. 55054

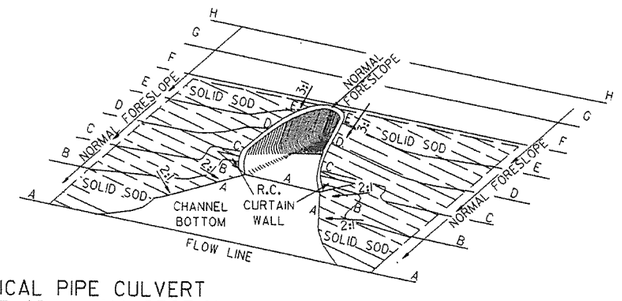
This document was originally issued and sealed by Carl J. Fuselier, PE No. 7510, on April 17, 2014. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

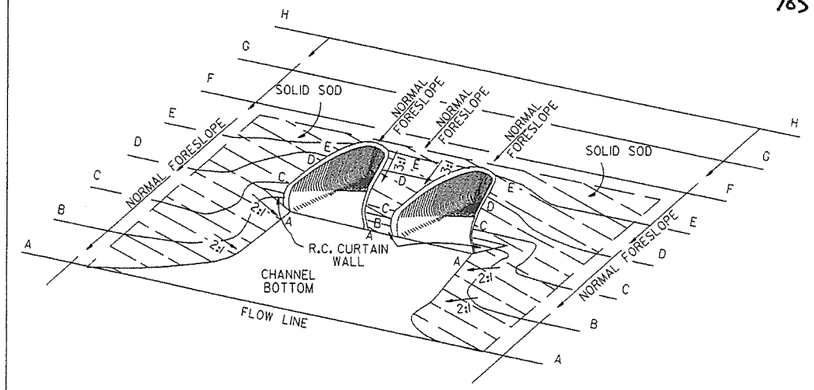
BRIDGE ENGINEER



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



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

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

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

REINFORCING STEEL SCHEDULE

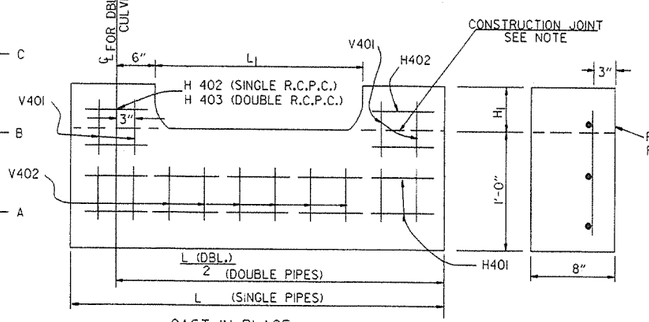
PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	V401 L	V401 NO.	V402 L	V402 NO.	DOUBLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	H403 L	H403 NO.	V401 L	V401 NO.	V402 L	V402 NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"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

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

PLAN VIEW
3:1 FORESLOPES

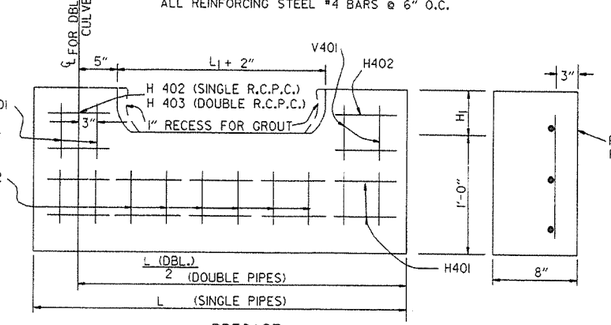
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

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



PRECAST

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

R.C. CURTAIN WALL DETAILS

SOLID SODDING

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

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

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 × 3 W/10 × W10 MAY BE USED IN LIEU OF REINFORCING BARS.

END VIEW

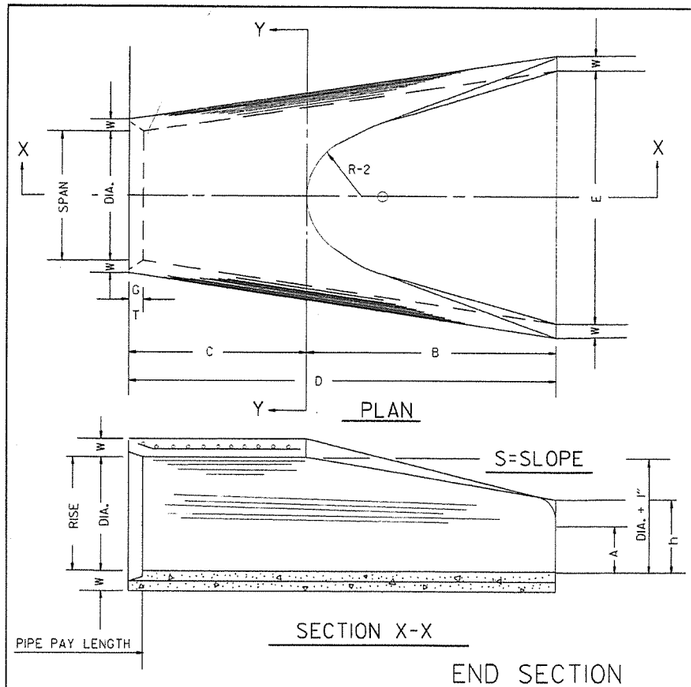
SECTIONAL VIEW "X-X"

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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

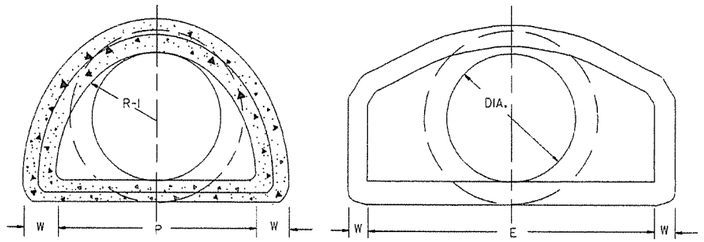
STANDARD DRAWING FES-1



END SECTION
FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. ± 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33 3/16"	16 11/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7 3/4"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4 3/16"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1¾"	6'-0"	3:1	37"	47 13/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53 1/8"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 5/16"	24"	5"	13250	4'-6"

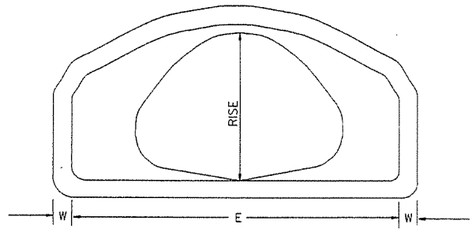


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

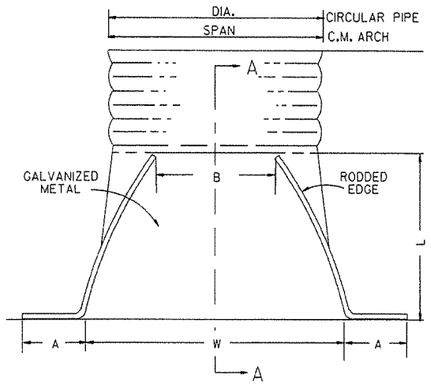
ARCH PIPE

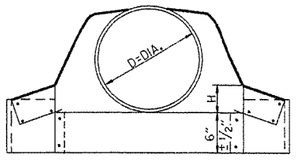
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 11/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 13/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54⅜"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1'-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 13/16"	24"	5"	2¼:1

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

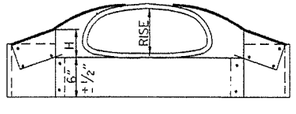


END VIEW
CONCRETE ARCH PIPE





CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

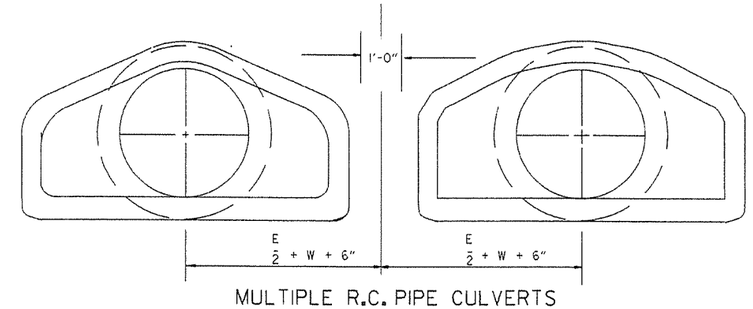
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

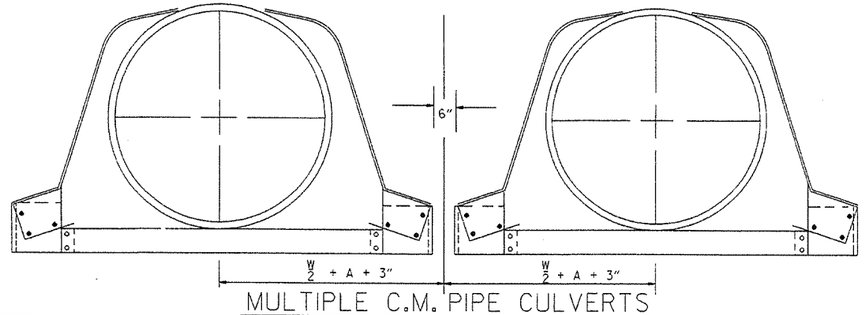
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

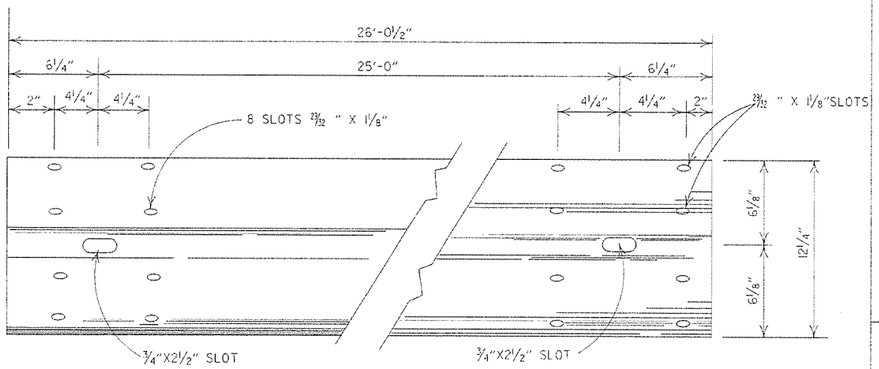
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	16-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

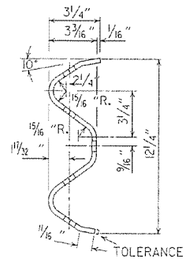
ARKANSAS STATE HIGHWAY COMMISION

FLARED END SECTION

STANDARD DRAWING FES-2

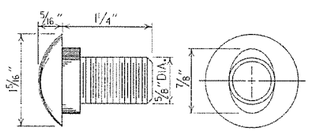
stdfes2.dgn



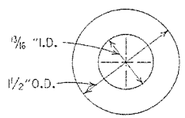


DETAILS OF W-BEAM GUARD RAIL

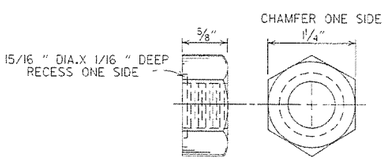
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



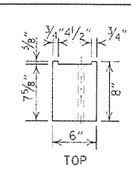
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

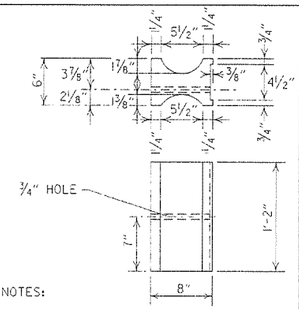


NUT



WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

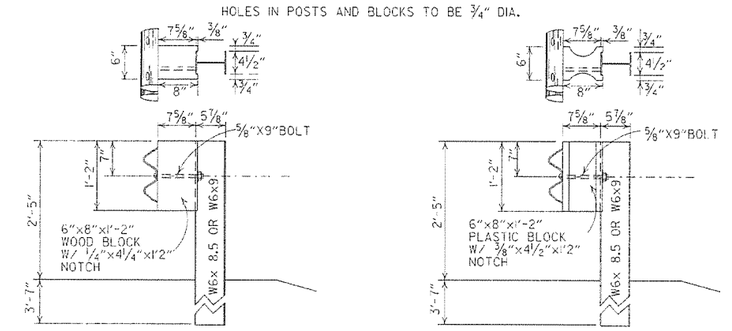
WOOD BLOCKOUT (W-BEAM)



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)

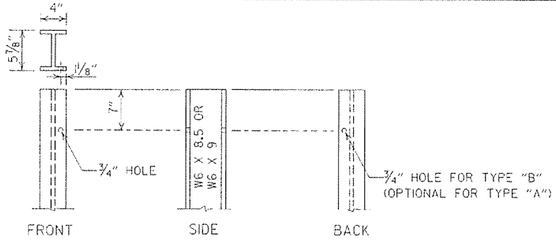
HOLES IN POSTS AND BLOCKS TO BE 3/4" DIA.



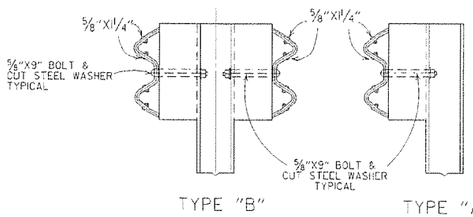
WOOD BLOCKOUT CONNECTIONS

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 3/4" DIA.

POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - 1/4".

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 3/4" 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.

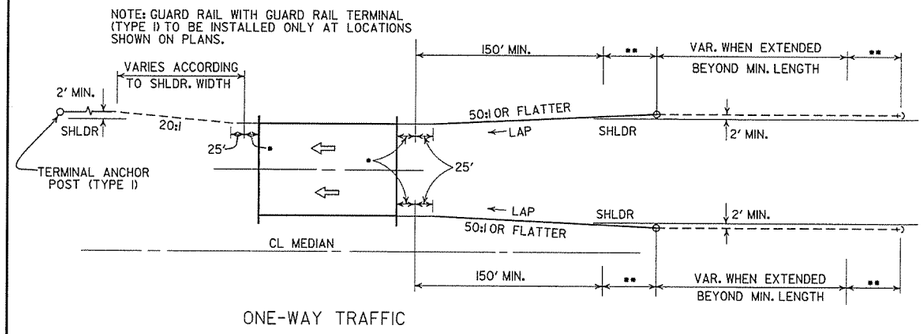
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

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	
8-22-02	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

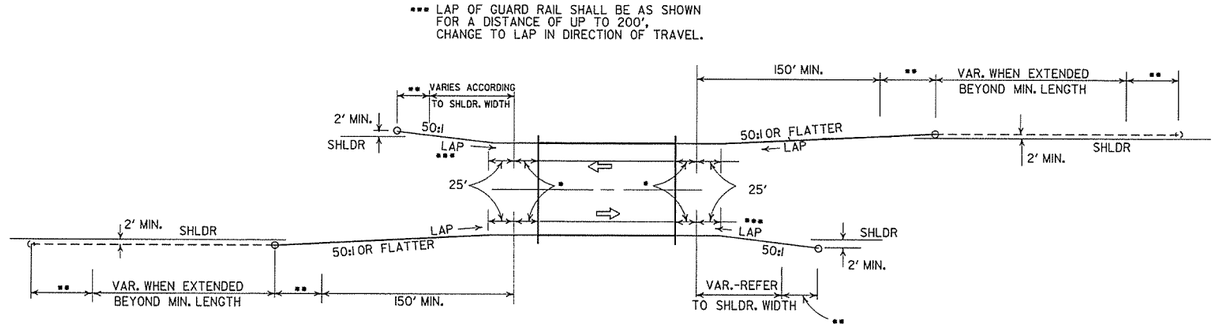
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8



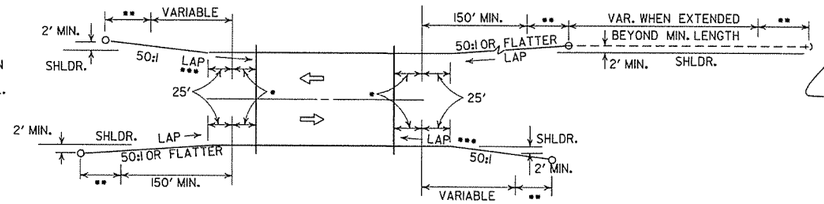
ONE-WAY TRAFFIC



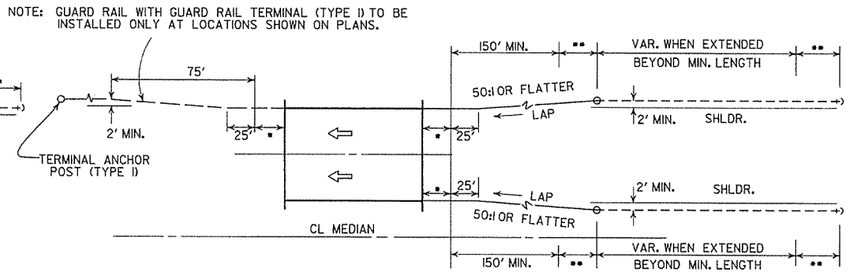
TWO-WAY TRAFFIC

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.



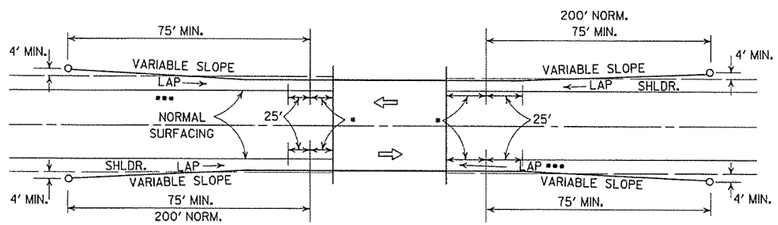
TWO-WAY TRAFFIC



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.



METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

LEGEND

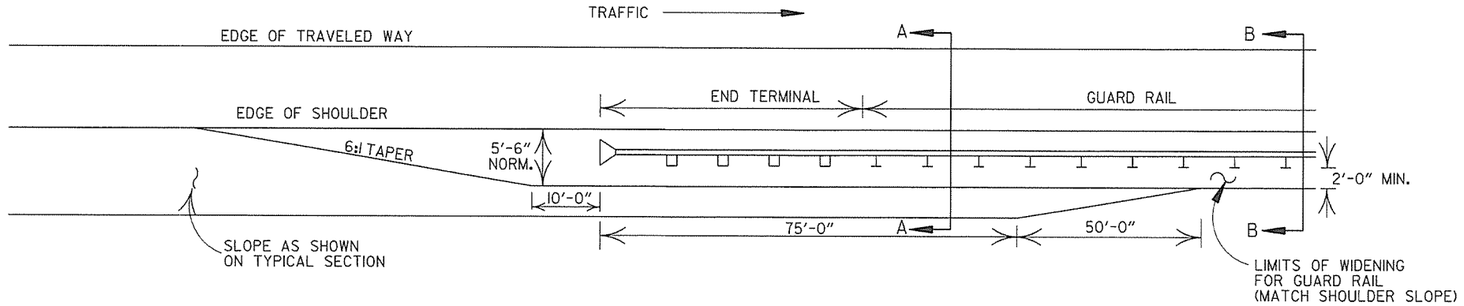
- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

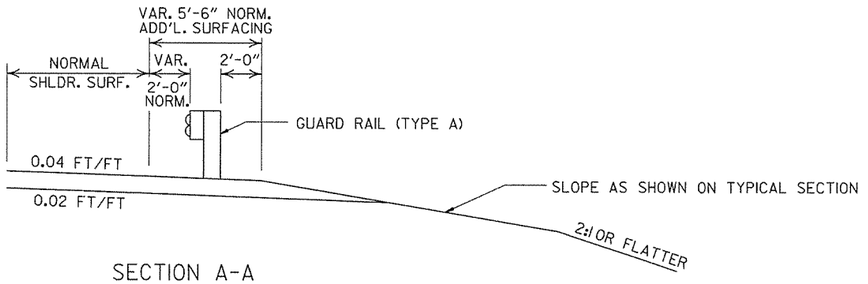
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87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

ARKANSAS STATE HIGHWAY COMMISSION

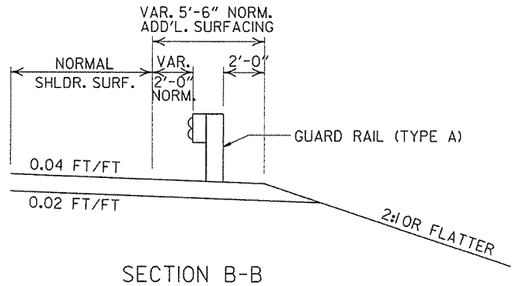
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





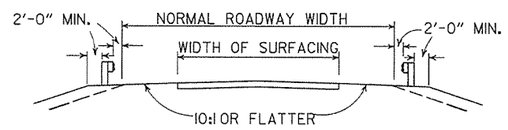
SECTION A-A



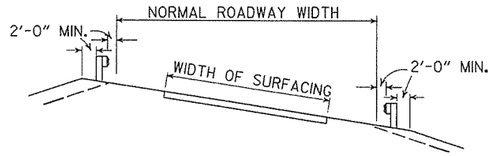
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

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

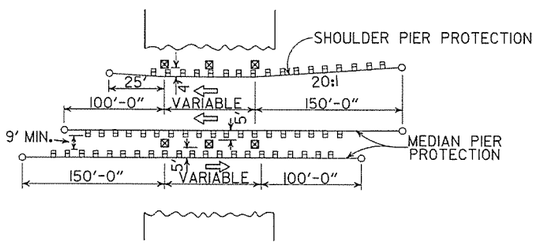


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



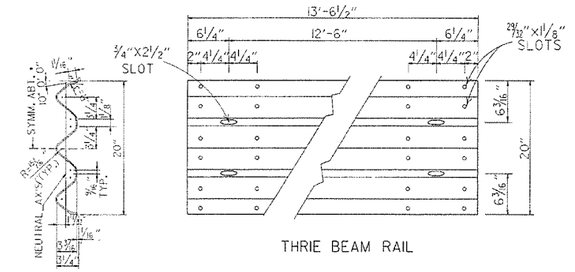
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

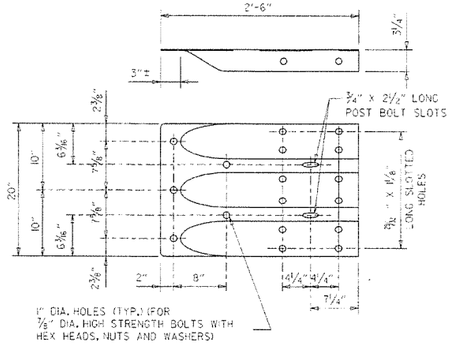
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A



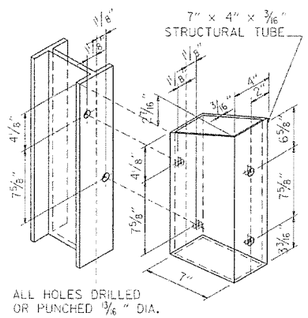
THRIE BEAM RAIL

SECTION THRU
THRIE BEAM RAIL



1" DIA. HOLES (TYP.) FOR ⅞" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS)

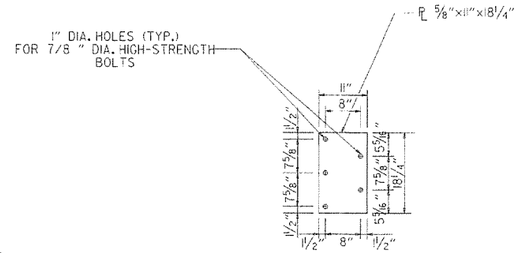
SPECIAL END SHOE



ALL HOLES DRILLED OR PUNCHED ⅜" DIA.

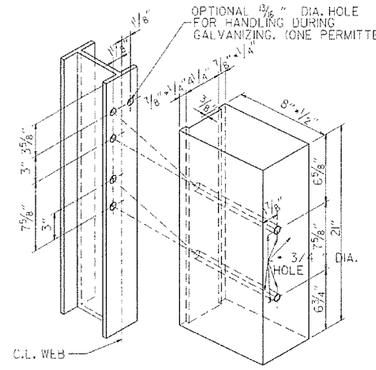
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL

ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.



CONNECTOR PLATE

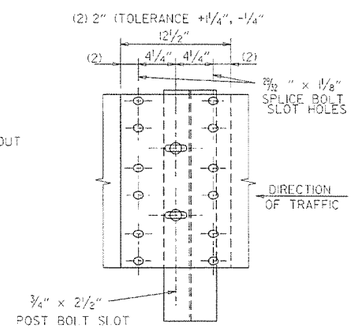
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



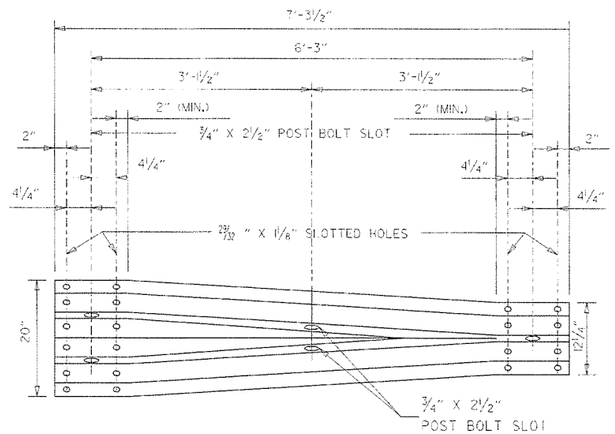
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL
FOR STEEL POST & WOOD
OR PLASTIC BLOCKOUTS

NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.

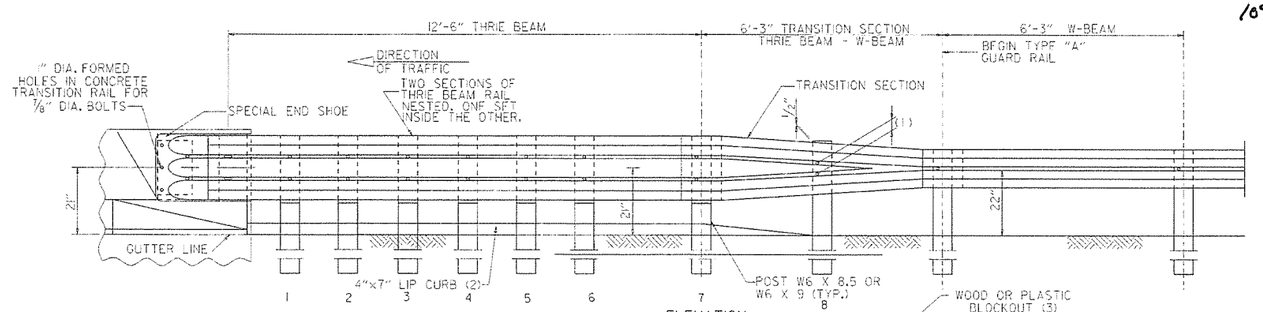


THRIE BEAM RAIL
SPLICE AT POST

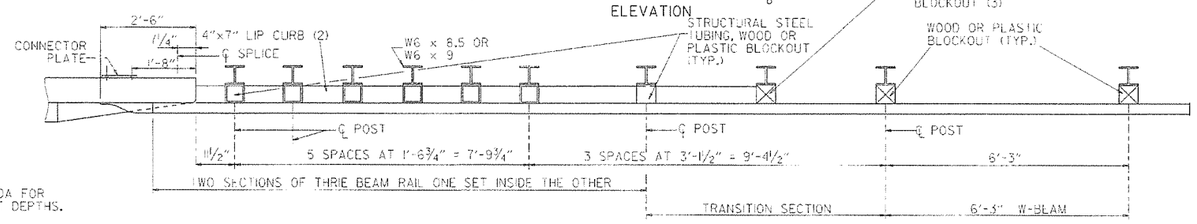


TRANSITION SECTION

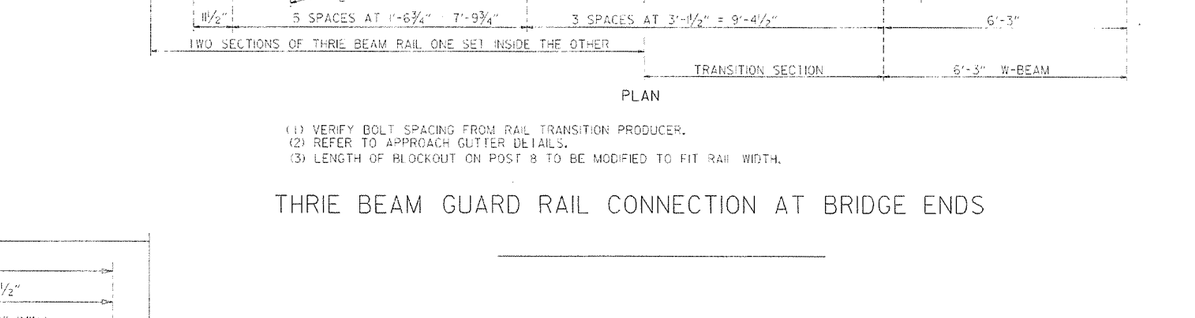
NOTE:
SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.



ELEVATION



PLAN



PLAN

(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM 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# (M00 F) 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.

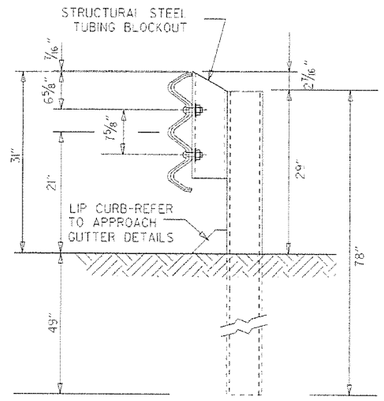
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W BEAM POSTS FOR ENTIRE JOB.

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	

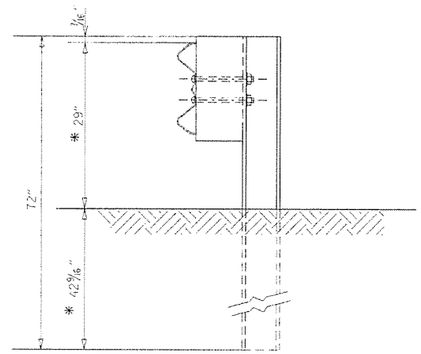
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

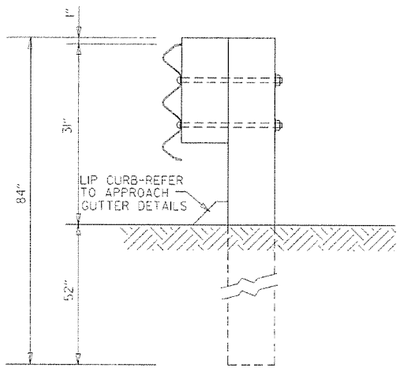


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

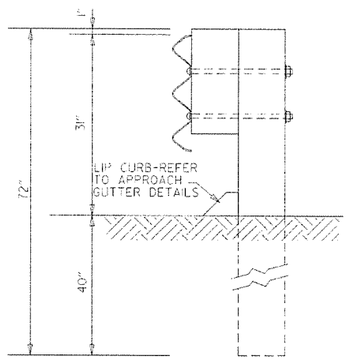


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

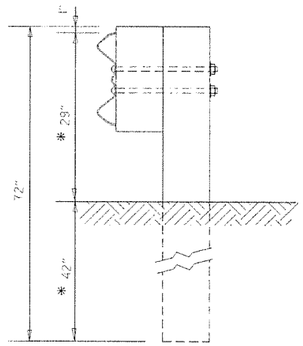
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



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.

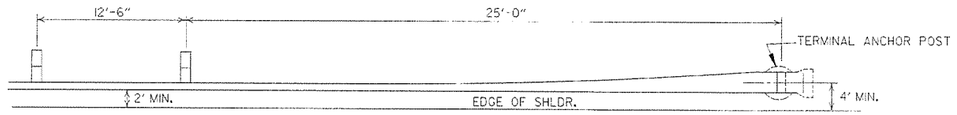
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 (1350 f) SOUTHERN PINE.

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	

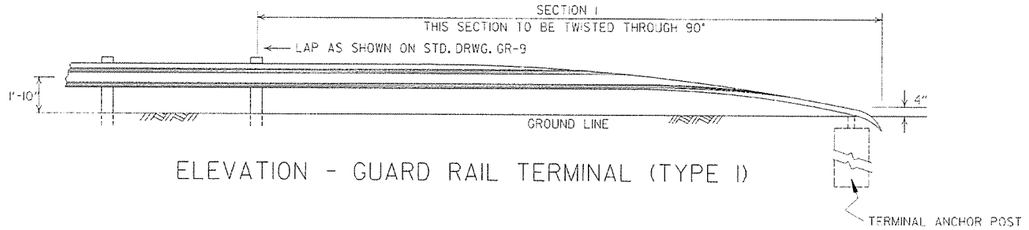
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

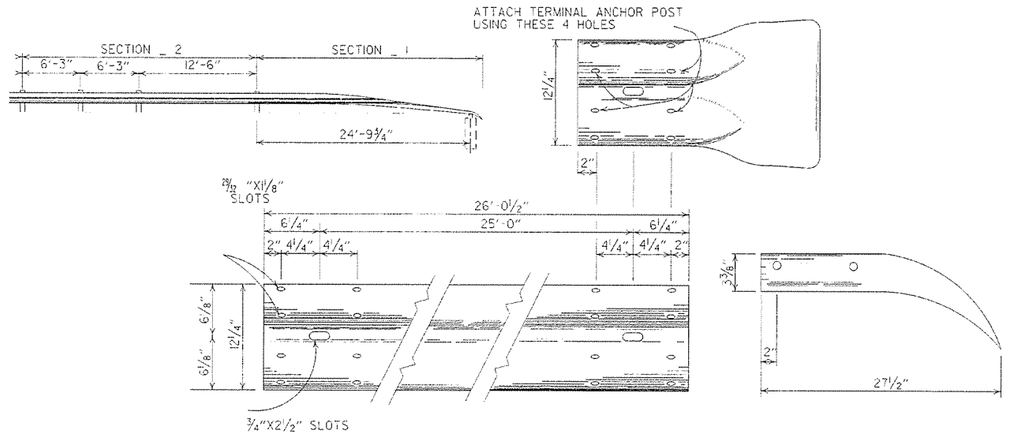


PLAN - GUARD RAIL TERMINAL (TYPE I)



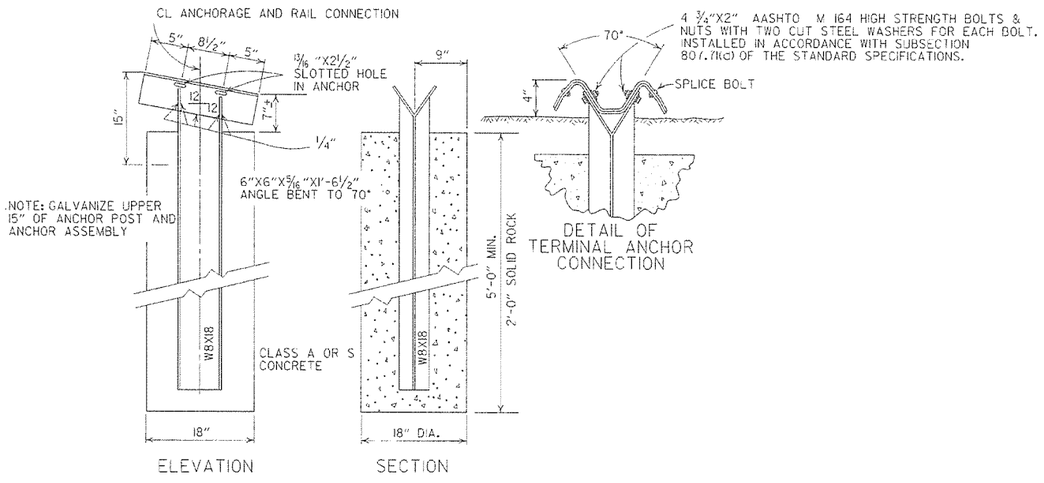
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

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

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.

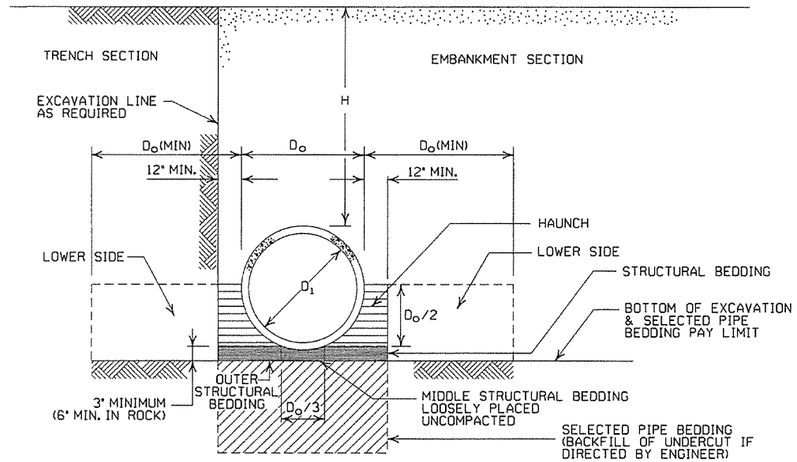
- LEGEND -

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)
				INSTALLATION		INSTALLATION		INSTALLATION		INSTALLATION
				TYPE 1		TYPE 1		TYPE 1		TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM				2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM			
15	17x13	3	0.064	2		15	0.060	2		15
18	21x15	3	0.064	2		15	0.060	2		15
21	24x18	3	0.064	2.25		15	0.060	2.25		15
24	28x20	3	0.064	2.5		15	0.075	2.5		15
30	35x24	3	0.079	3		12	0.075	3		12
36	42x29	3½	0.079	3		12	0.105	3		12
42	49x33	4	0.079	3		12	0.105	3		12
48	57x38	5	0.109	3		13	0.135	3		13
54	64x43	6	0.109	3		14	0.135	3		14
60	71x47	7	0.138	3		15	0.164	3		15
66	77x52	8	0.168	3		15				
72	83x57	9	0.168	3		15				
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM							
				INSTALLATION		INSTALLATION				
				TYPE 2	TYPE 1	TYPE 2	TYPE 1			
36	40x31	5	0.079	3	2	12	15			
42	46x36	6	0.079	3	2	13	15			
48	53x41	7	0.079	3	2	13	15			
54	60x46	8	0.079	3	2	13	15			
60	66x51	9	0.079	3	2	13	15			
66	73x55	12	0.079	3	2	15	15			
72	81x59	14	0.079	3	2	15	15			
78	87x63	14	0.079	3	2	15	15			
84	95x67	16	0.109	3	2	15	15			
90	103x71	16	0.109	3	2	15	15			
96	112x75	18	0.109	3	2	15	15			
102	117x79	18	0.109	3	2	15	15			
108	128x83	18	0.138	3	2	15	15			

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

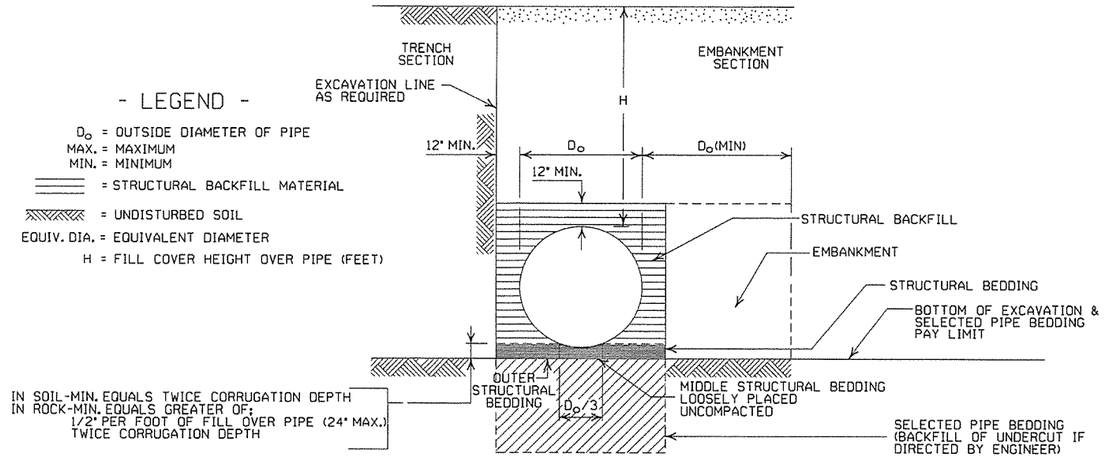
③ SM-3 WILL NOT BE ALLOWED.

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

- LEGEND -

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



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS 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.

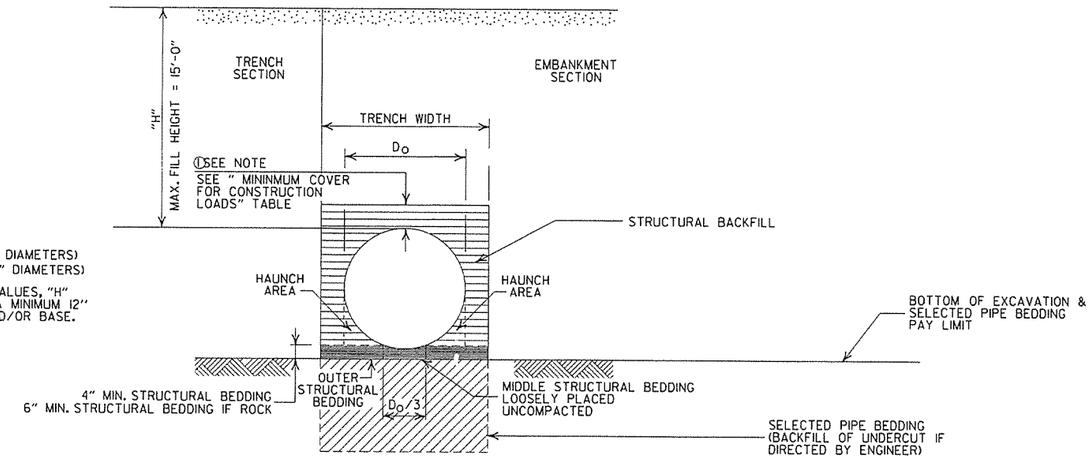
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

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.



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.

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

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

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	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.

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

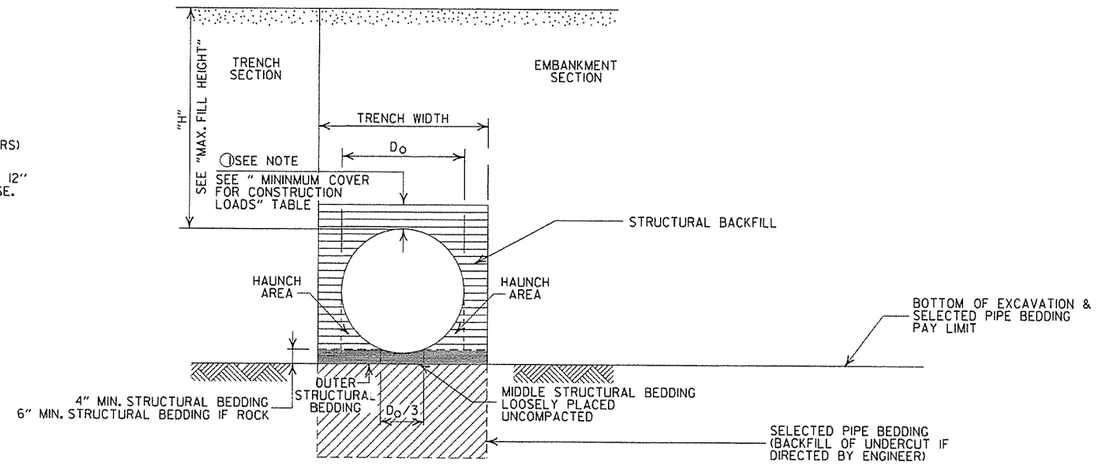
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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	

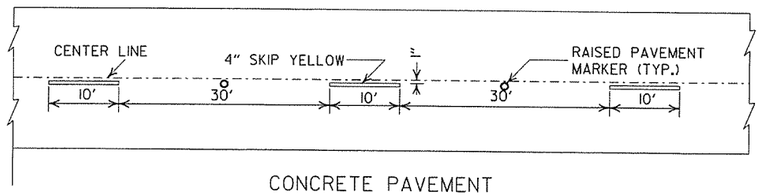
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

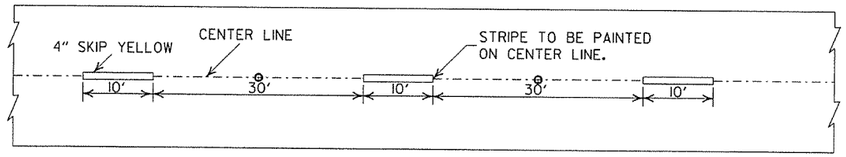
STANDARD DRAWING PCP-2

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.

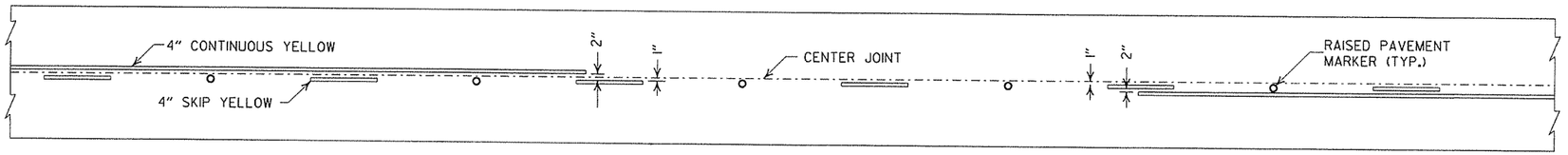


CONCRETE PAVEMENT

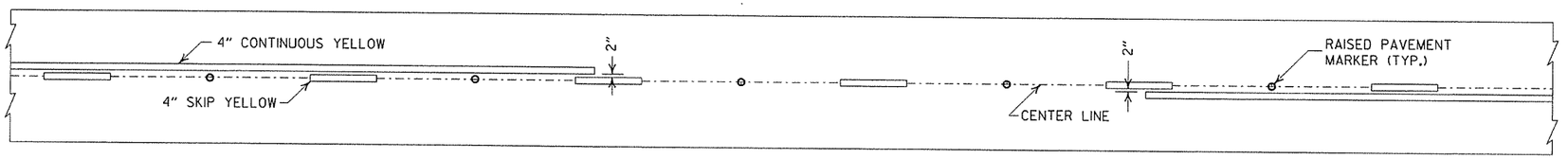


ASPHALT PAVEMENT

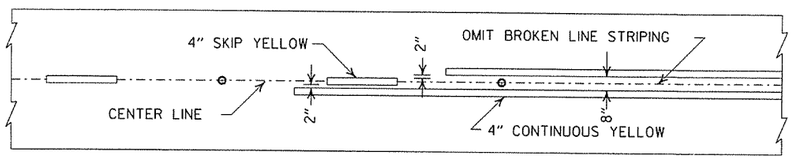
BROKEN LINE STRIPING



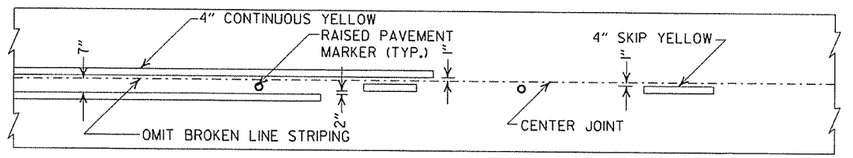
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT



ASPHALT PAVEMENT



CONCRETE PAVEMENT

GENERAL NOTES:

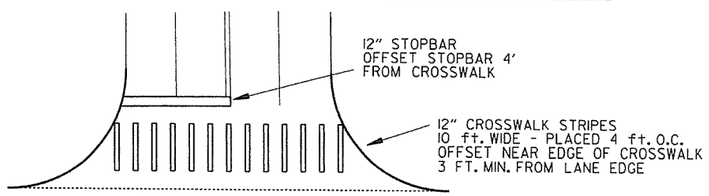
THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

NOTE:

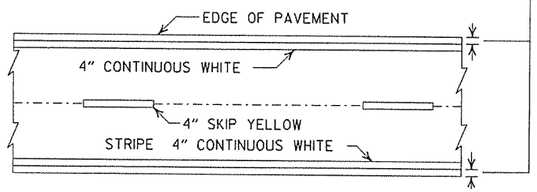
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

STRIPING AT ADJACENT NO PASSING LANES

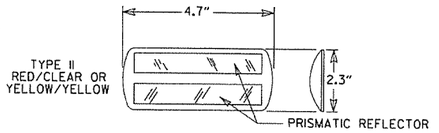


CROSSWALK AND STOPBAR DETAILS

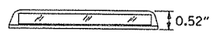
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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

ARKANSAS STATE HIGHWAY COMMISSION

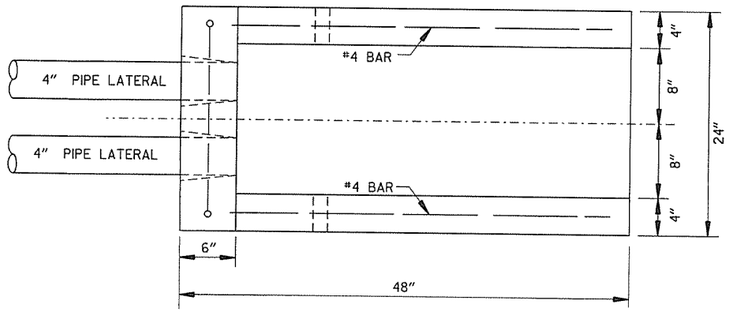
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

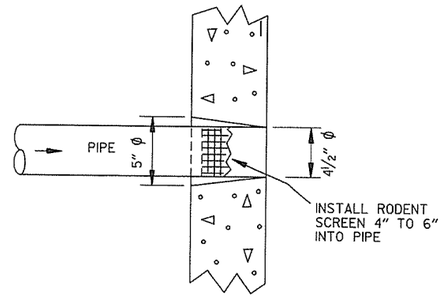
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

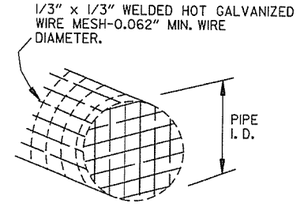
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



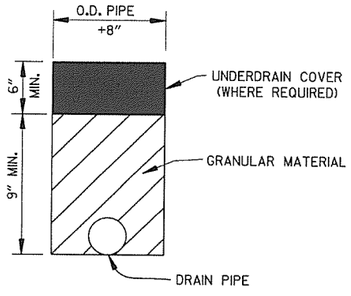
PLAN VIEW

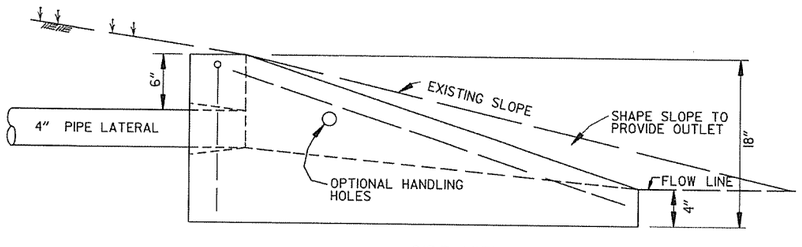


DETAIL OF HOLE FOR 4" PIPE

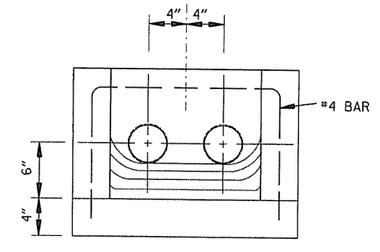


DETAIL OF RODENT SCREEN

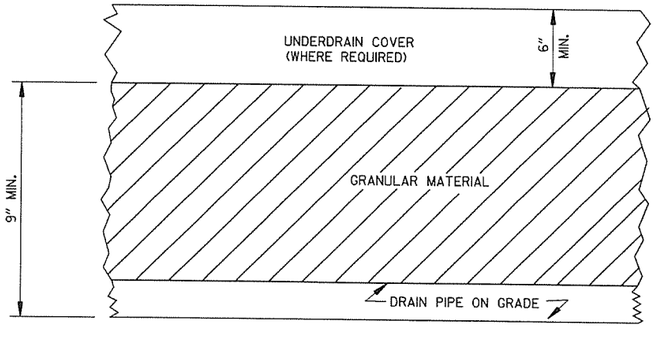




SIDE VIEW

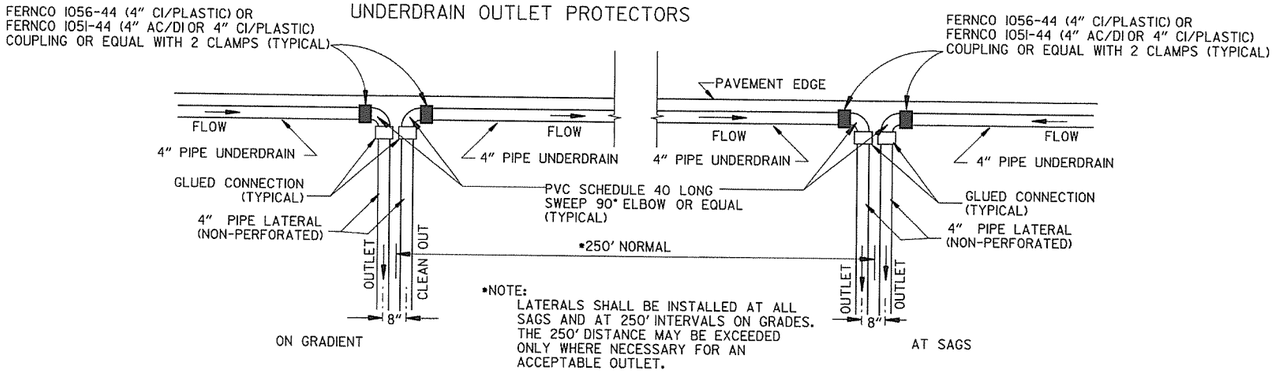


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

DATE	REVISION	DATE FILMED
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

7-20-95 INSTD.PUI

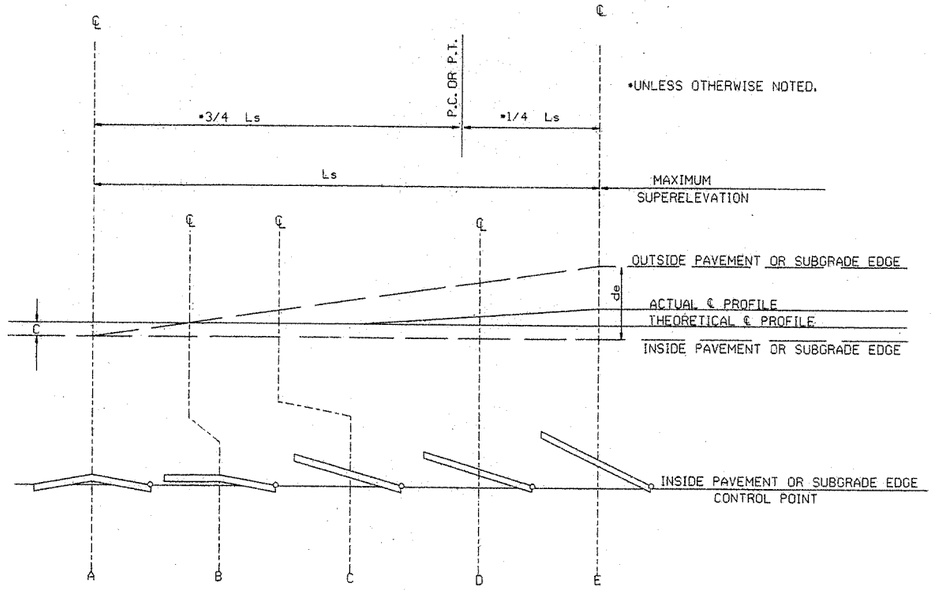
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

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			0.046		
1° 30′	N.C.			0.021			0.031			0.037			0.043			0.054		
1° 45′	N.C.			0.025			0.036			0.043			0.049			0.062		
2° 00′	R.C.			0.028	175		0.040	200		0.048	225		0.055	250		0.070		
2° 15′	R.C.			0.031			0.045			0.053			0.061			0.078	300	
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085	315	350
2° 45′	0.023			0.037			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	
3° 15′	0.027	150		0.043		200	0.061			0.072	245		0.082	275		0.098	360	400
3° 30′	0.029		200	0.046			0.065	205		0.076	255		0.086	285		0.100	360	
3° 45′	0.031			0.049			0.069	215		0.080	265		0.090	295	350			
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		0.098	320				
5° 30′	0.043			0.066	185		0.088	260		0.094	300	350						
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										
7° 30′	0.056			0.081	215		0.099	290										
8° 00′	0.058			0.084	220	250	0.100	290										
8° 30′	0.061			0.087	225													
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																
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′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 3° 30′

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.)



•UNLESS OTHERWISE NOTED.

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

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

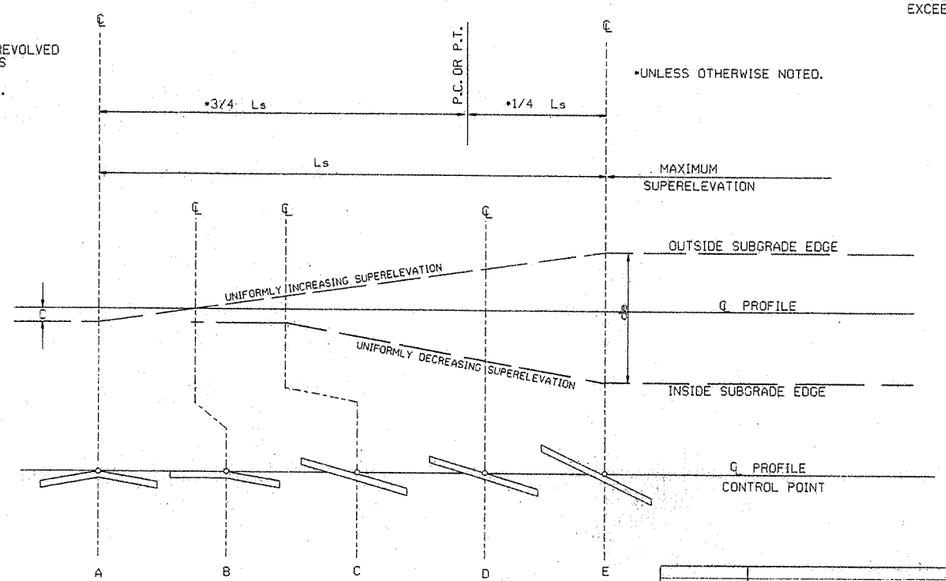
GENERAL NOTES

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.



•UNLESS OTHERWISE NOTED.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

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

DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-28-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

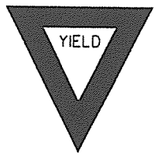
STANDARD DRAWING SE-2

FILE STDSE2.DGN

R1-1

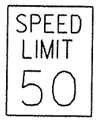
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

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"

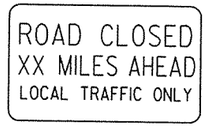
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2

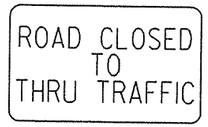
48"X30"

R11-3A



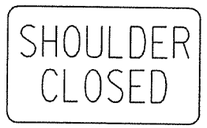
60"X30"

R11-4



60"X30"

RSP-1



48"X30"

W1-1

STD. 36"X36"
FWY. 48"X48"

W1-2

STD. 36"X36"
FWY. 48"X48"

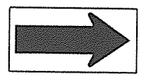
W1-3

STD. 48"X48"

W1-4

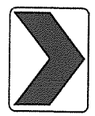
STD. 48"X48"

W1-6



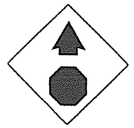
STD. 48"X24"
SPECIAL 60"X30"

W1-8



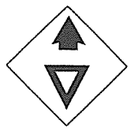
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



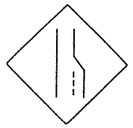
STD. 36"X36"
SPECIAL 48"X48"

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"

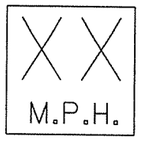
W8-7

EXPWY. 36"X36"
FWY. 48"X48"

W9-2

STD. 36"X36"
FWY. 48"X48"

W13-1



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"

W1-4b

STD. 48"X48"

R56-1

STD. 18"X18"

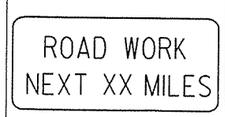
W8-11

STD. 36"X36"
FWY. 48"X48"

W8-9

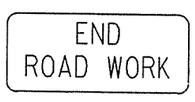
STD. 36"X36"
FWY. 48"X48"

G20-1



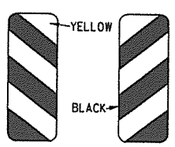
60"X24"

G20-2



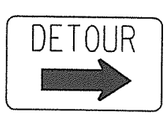
48"X24"

OM-3L OM-3R



12"X36"

M4-9

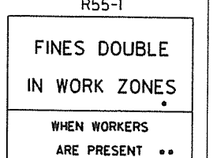


STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

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.

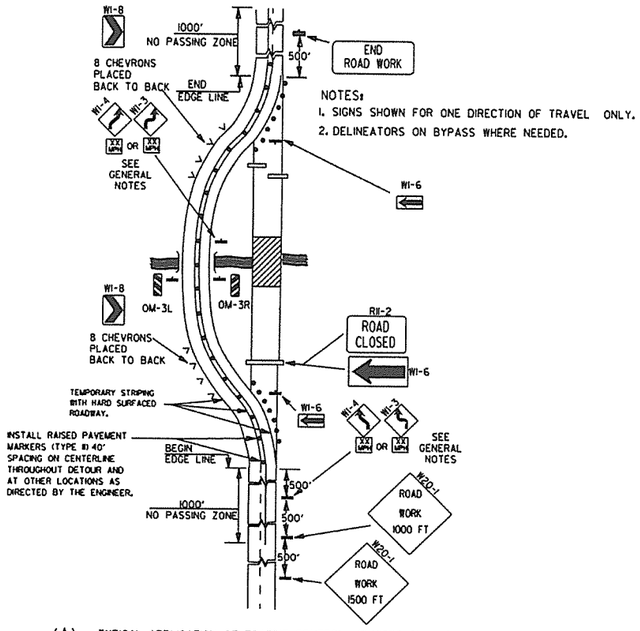
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY 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	
4-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
8-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
8-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
8-18-98	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

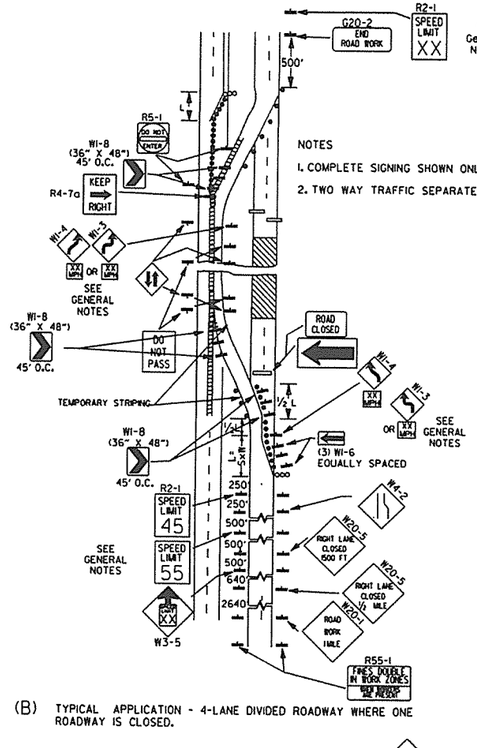
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



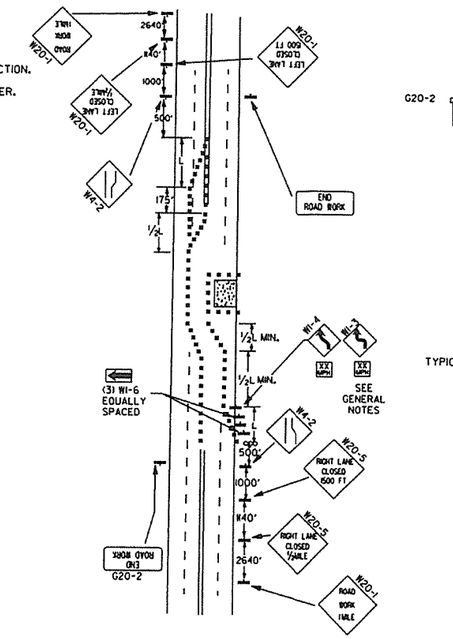
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

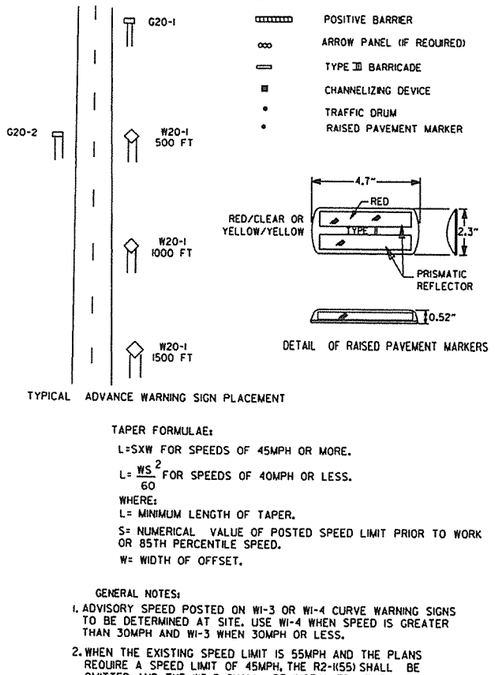


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(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.



TYPICAL ADVANCE WARNING SIGN PLACEMENT

TAPER FORMULAE:

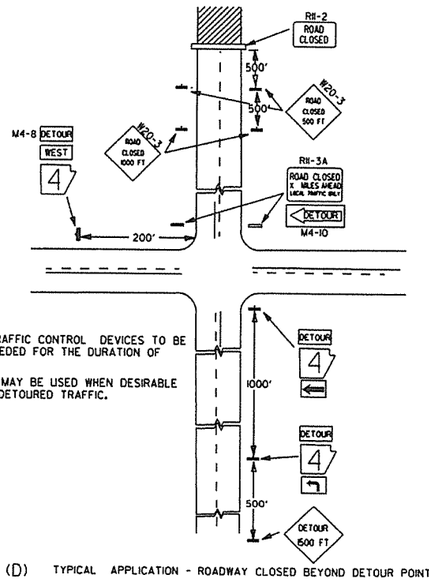
L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ 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.

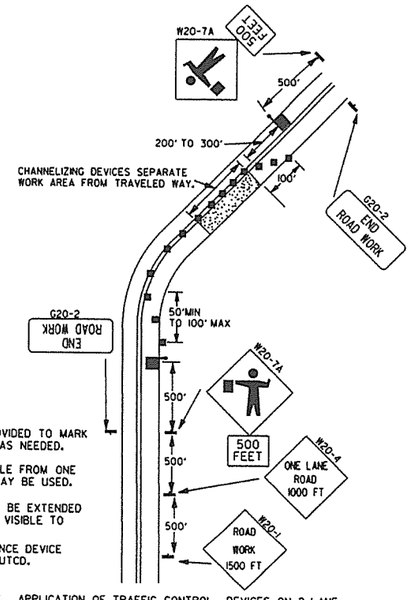
GENERAL NOTES:

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.



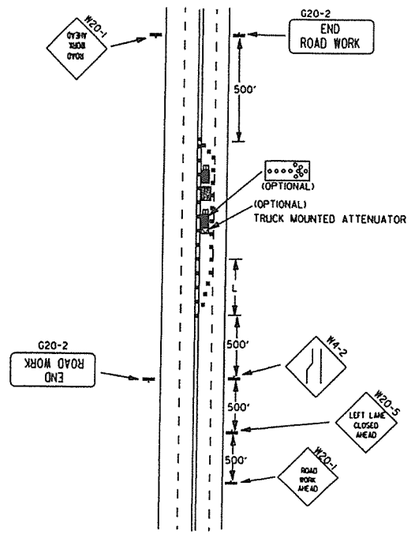
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.



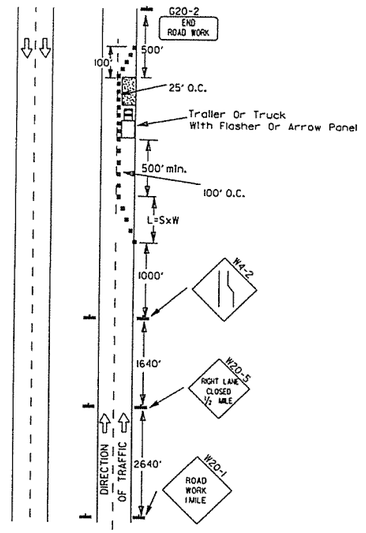
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

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	

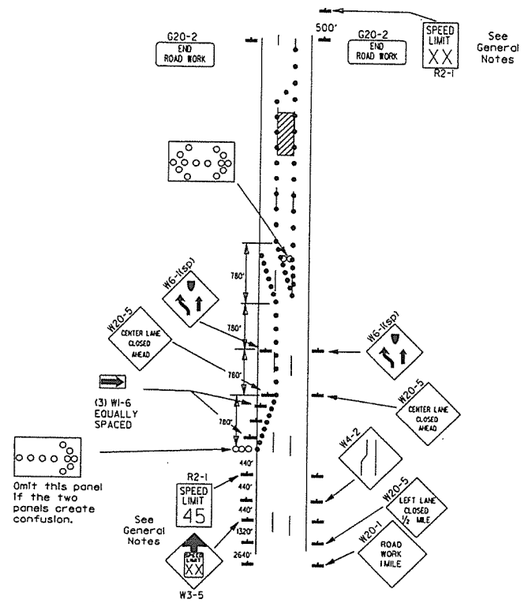
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

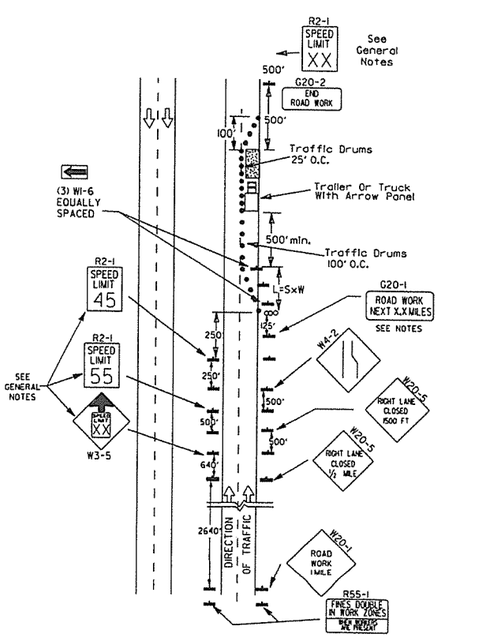
STANDARD DRAWING TC-2



(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 operatipns of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

KEY:

○○○ Arrow Panel (if Required)

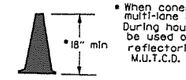
■ Channelizing Device

● Traffic drum

GENERAL NOTES:

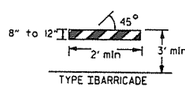
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 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



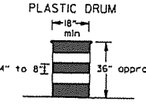
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

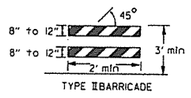
CONES



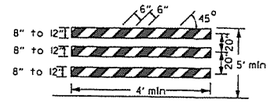
TYPE I BARRICADE

PLASTIC DRUM



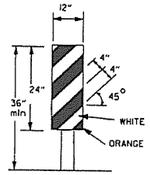


TYPE II BARRICADE



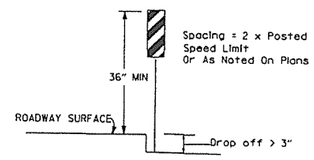
TYPE III BARRICADE

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



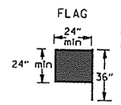
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

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.

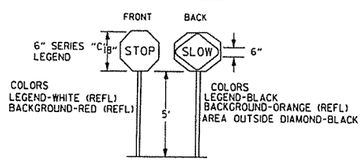
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

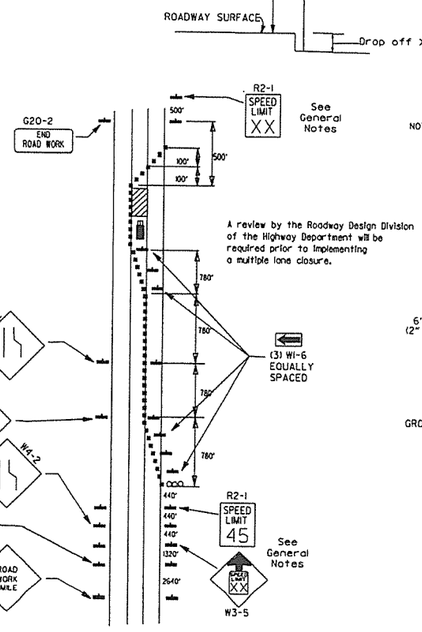
FLAG



Flag shall be of good grade red material

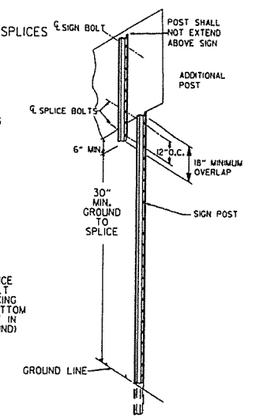
STOP SLOW PADDLE





(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	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

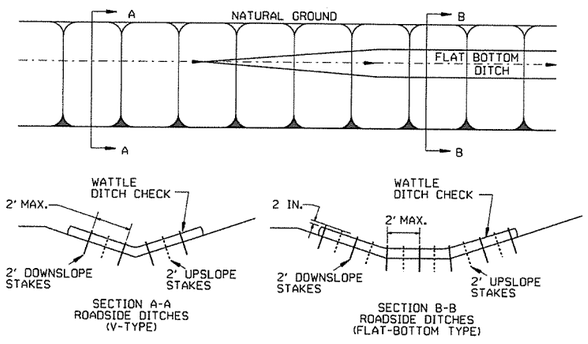
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION

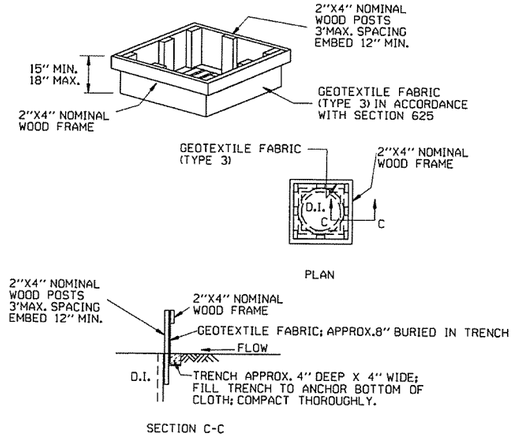
STANDARD DRAWING TC-3

GENERAL NOTES

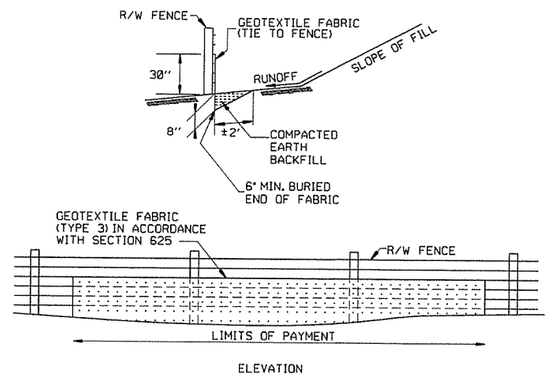
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

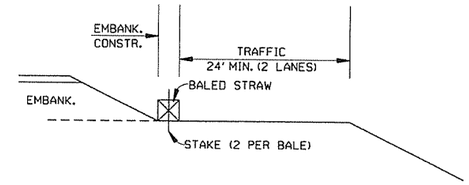
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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.

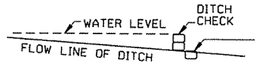
2. NO GAPS SHALL BE LEFT BETWEEN BALES.

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.

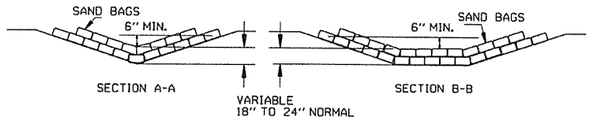


BALED STRAW FILTER BARRIER (E-2)

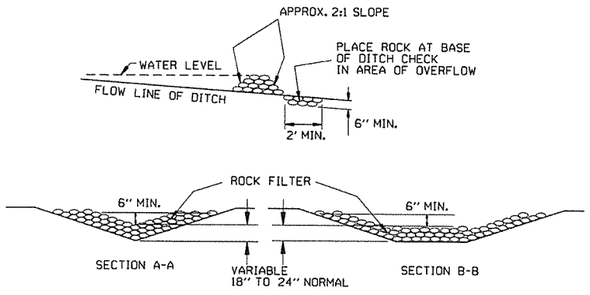
NUMBER OF SAND BAGS AND ARRANGEMENT VARIABLE WITH ON-SITE CONDITIONS.



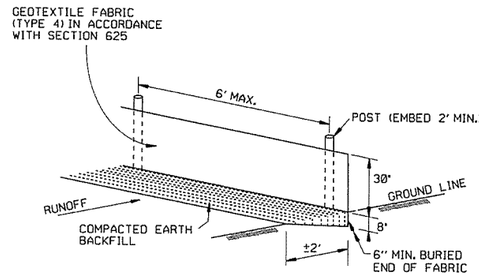
PLACE SAND BAGS AT BASE OF DITCH CHECK IN AREA OF OVERFLOW



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

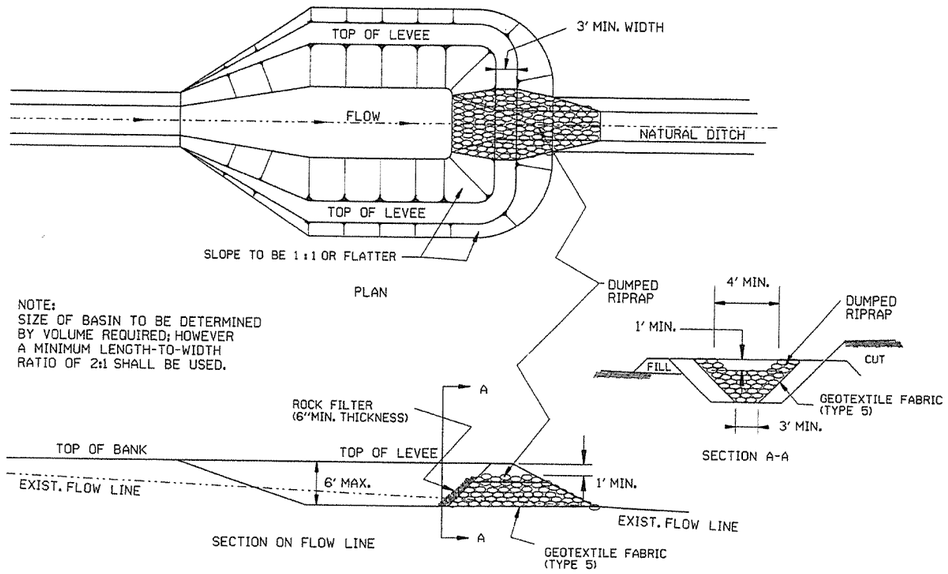
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

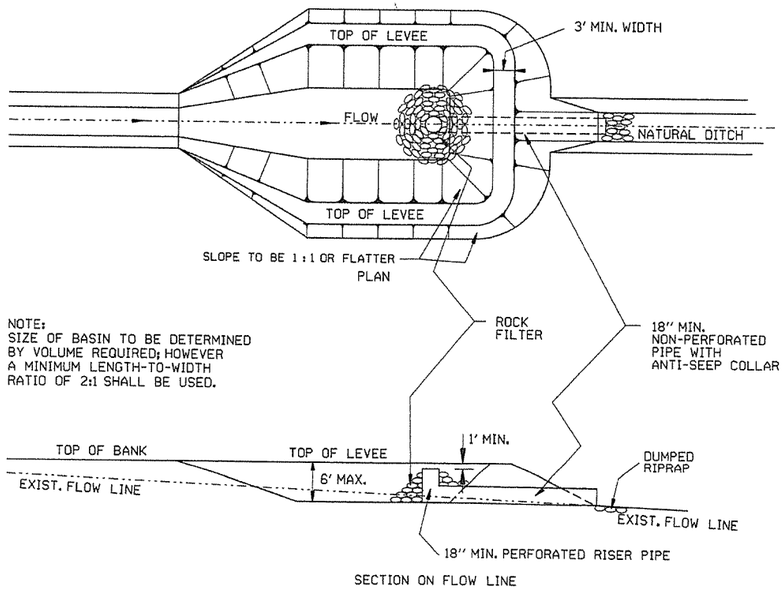
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

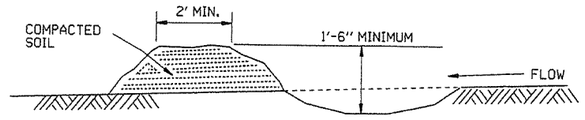
STANDARD DRAWING TEC-1



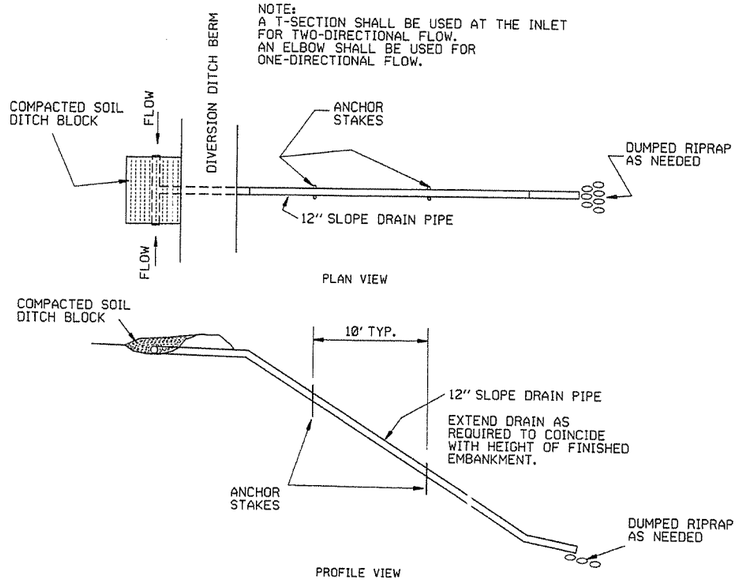
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



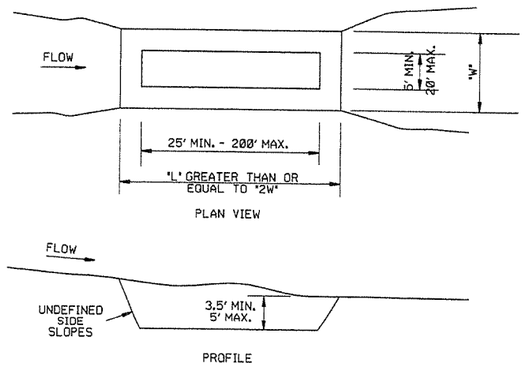
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

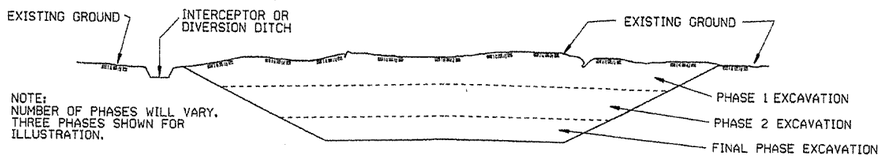
STANDARD DRAWING TEC-2

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



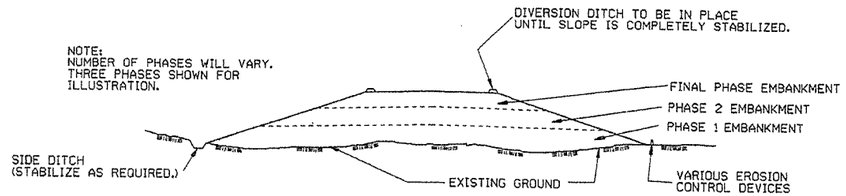
GENERAL NOTE

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

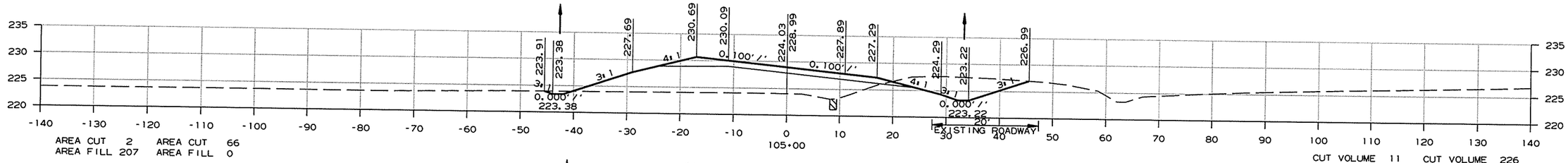
stdtec3.dgn

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.		100760	124	133

(2) CROSS SECTIONS

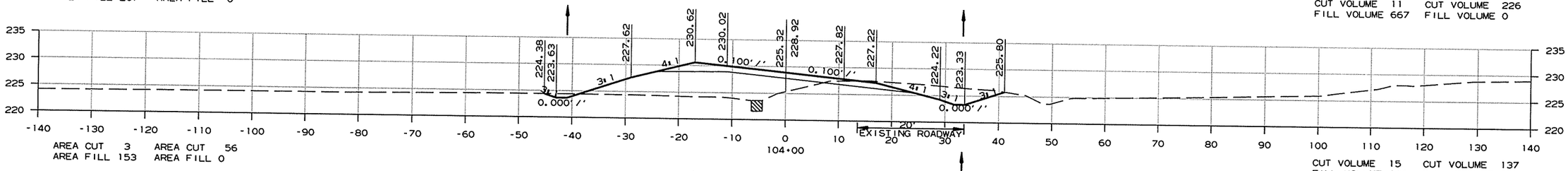
NOTE: UNDERCUT DITCH LINE TO AN ANTICIPATED DEPTH OF 2', REMOVE ALL UNSUITABLE MATERIAL AND REPLACE WITH UNSPECIFFIED COMPACTED EMBANKMENT. TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

STAGE 1 STAGE 2



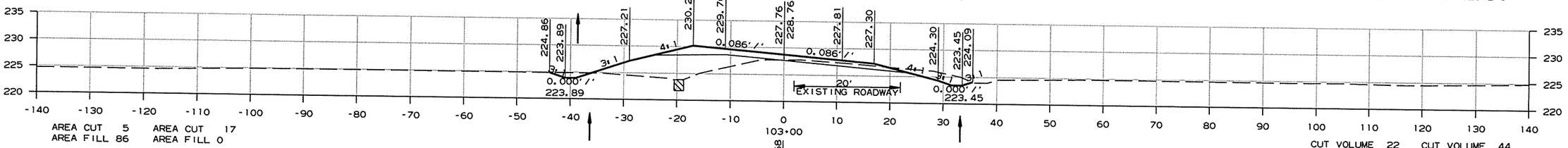
AREA CUT 2 AREA CUT 66
AREA FILL 207 AREA FILL 0

CUT VOLUME 11 CUT VOLUME 226
FILL VOLUME 667 FILL VOLUME 0



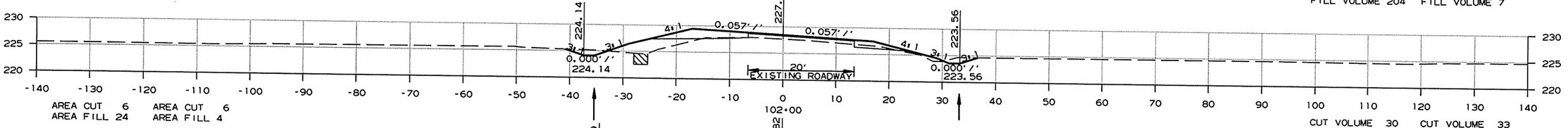
AREA CUT 3 AREA CUT 56
AREA FILL 153 AREA FILL 0

CUT VOLUME 15 CUT VOLUME 137
FILL VOLUME 444 FILL VOLUME 0



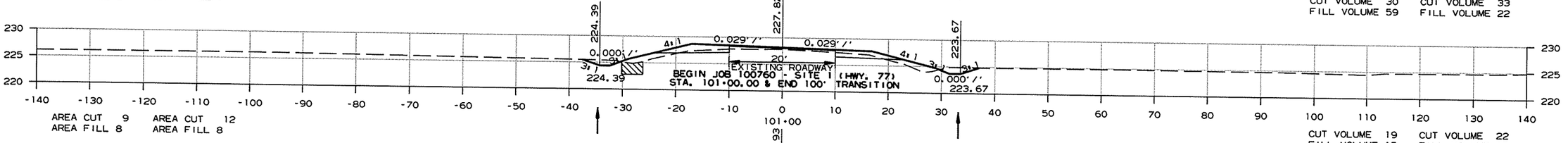
AREA CUT 5 AREA CUT 17
AREA FILL 86 AREA FILL 0

CUT VOLUME 22 CUT VOLUME 44
FILL VOLUME 204 FILL VOLUME 7



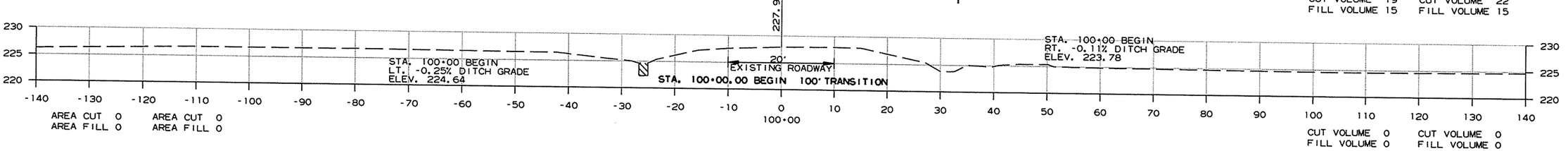
AREA CUT 6 AREA CUT 6
AREA FILL 24 AREA FILL 4

CUT VOLUME 30 CUT VOLUME 33
FILL VOLUME 59 FILL VOLUME 22



AREA CUT 9 AREA CUT 12
AREA FILL 8 AREA FILL 8

CUT VOLUME 19 CUT VOLUME 22
FILL VOLUME 15 FILL VOLUME 15



AREA CUT 0 AREA CUT 0
AREA FILL 0 AREA FILL 0

CUT VOLUME 0 CUT VOLUME 0
FILL VOLUME 0 FILL VOLUME 0

CROSS SECTION STA. 100+00 TO STA. 105+00

6/2/2015

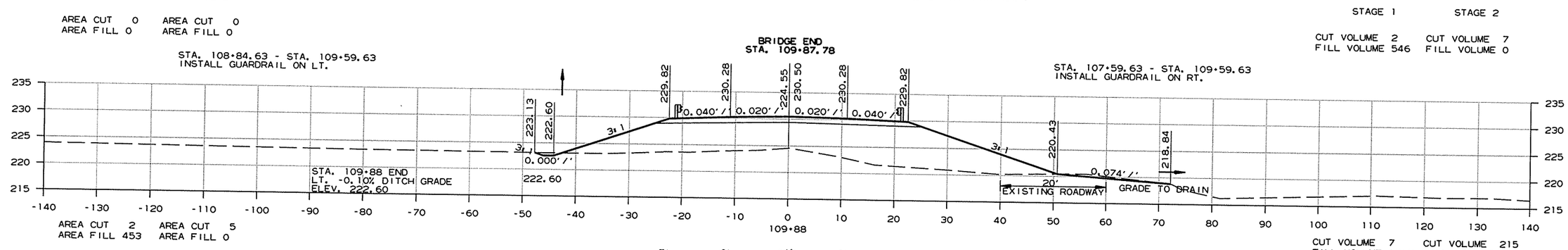
R100760.DGN

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.		100760	125	133

(2) CROSS SECTIONS

STA. 110+53 TO TOE

NOTE: UNDERCUT DITCH LINE TO AN ANTICIPATED DEPTH OF 2', REMOVE ALL UNSUITABLE MATERIAL AND REPLACE WITH UNSPECIFIED COMPACTED EMBANKMENT. TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.



CROSS SECTION STA. 106+00 TO STA. 109+88

6/2/2015

R100760.DGN

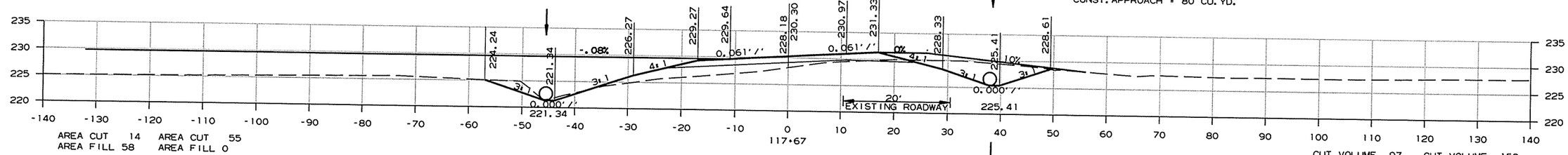
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100760	126	133

(2) CROSS SECTIONS

NOTE: UNDERCUT DITCH LINE TO AN ANTICIPATED DEPTH OF 2'. REMOVE ALL UNSUITABLE MATERIAL AND REPLACE WITH UNSPECIFIED COMPACTED EMBANKMENT, TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

STAGE 1 STAGE 2

STA. 117+67 INSTALL 30' X 60' PIPE
ON LT. (REFER TO CO.RD.S 57 CROSS SECTIONS)

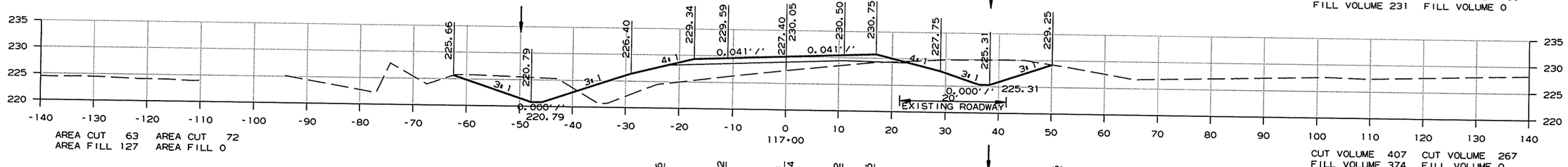


AREA CUT 14 AREA CUT 55
AREA FILL 58 AREA FILL 0

STAGE 1 STAGE 2

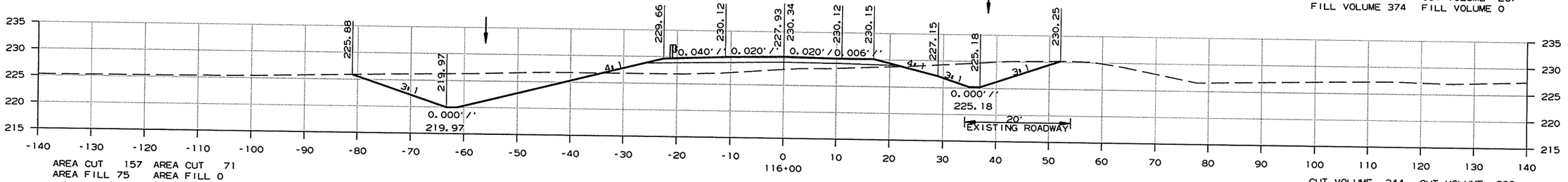
STA. 117+59 INSTALL 30' X 36' PIPE
SIDE DRAIN ON RT.
CONST. APPROACH = 80 CU. YD.

CUT VOLUME 97 CUT VOLUME 159
FILL VOLUME 231 FILL VOLUME 0



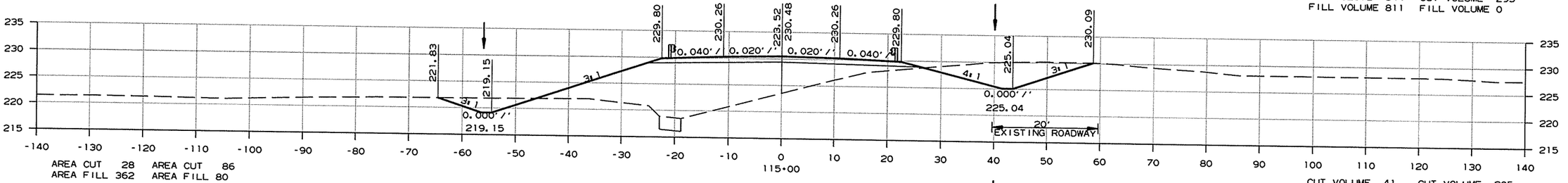
AREA CUT 63 AREA CUT 72
AREA FILL 127 AREA FILL 0

CUT VOLUME 407 CUT VOLUME 267
FILL VOLUME 374 FILL VOLUME 0



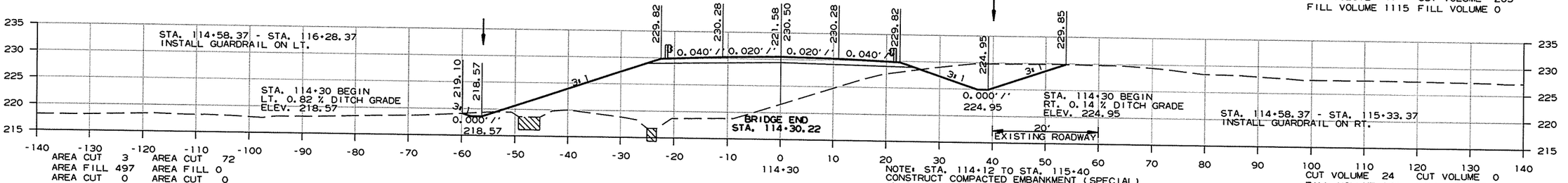
AREA CUT 157 AREA CUT 71
AREA FILL 75 AREA FILL 0

CUT VOLUME 344 CUT VOLUME 293
FILL VOLUME 811 FILL VOLUME 0



AREA CUT 28 AREA CUT 86
AREA FILL 362 AREA FILL 80

CUT VOLUME 41 CUT VOLUME 205
FILL VOLUME 1115 FILL VOLUME 0



AREA CUT 3 AREA CUT 72
AREA FILL 497 AREA FILL 0
AREA CUT 0 AREA CUT 0
AREA FILL 0 AREA FILL 0

STA. 114+12 TO TOE

NOTE: STA. 114+12 TO STA. 115+40
CONSTRUCT COMPACTED EMBANKMENT (SPECIAL) IN ACCORDANCE WITH SECTION 210 OF AHTD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION 2014 (SEE SPECIAL PROVISIONS AND DETAILS FOR INSTALLATION)

CUT VOLUME 24 CUT VOLUME 0
FILL VOLUME 166 FILL VOLUME 0
CUT VOLUME 0 CUT VOLUME 0
FILL VOLUME 0 FILL VOLUME 0

CROSS SECTION STA. 114+30 TO STA. 117+67

6/2/2015

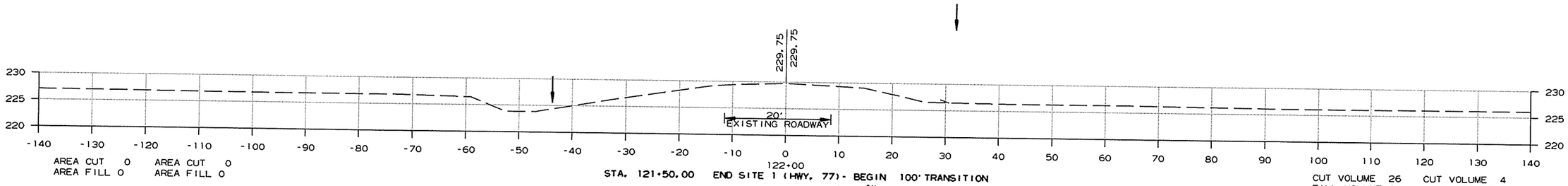
R100760.DGN

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.		100760	127	133

(2) CROSS SECTIONS

STAGE 1 STAGE 2

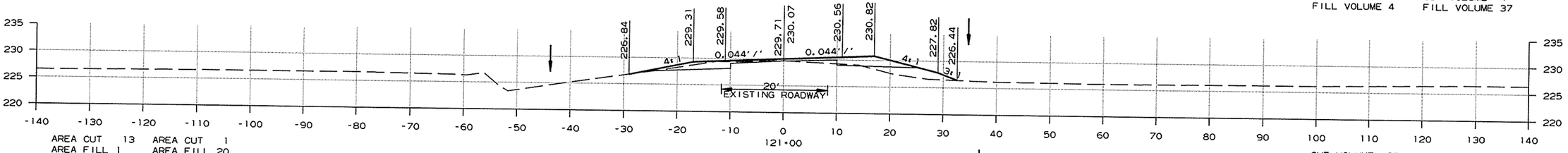
STAGE 1 STAGE 2



AREA CUT 0 AREA CUT 0
AREA FILL 0 AREA FILL 0

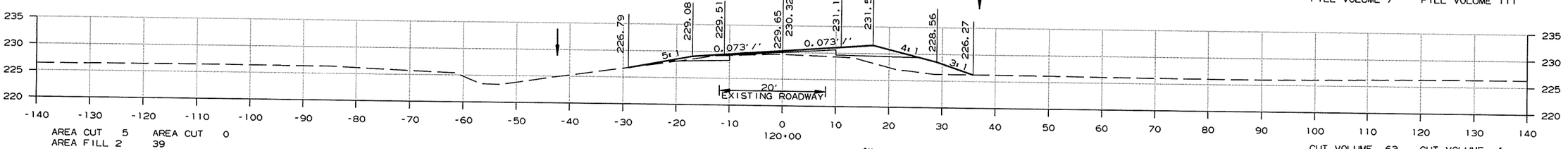
STA. 121+50.00 END SITE 1 (HWY. 77) - BEGIN 100' TRANSITION

CUT VOLUME 26 CUT VOLUME 4
FILL VOLUME 4 FILL VOLUME 37



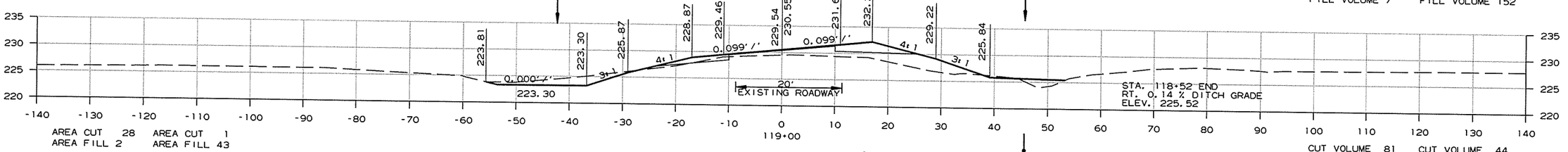
AREA CUT 13 AREA CUT 1
AREA FILL 1 AREA FILL 20

CUT VOLUME 33 CUT VOLUME 4
FILL VOLUME 7 FILL VOLUME 111



AREA CUT 5 AREA CUT 0
AREA FILL 2 39

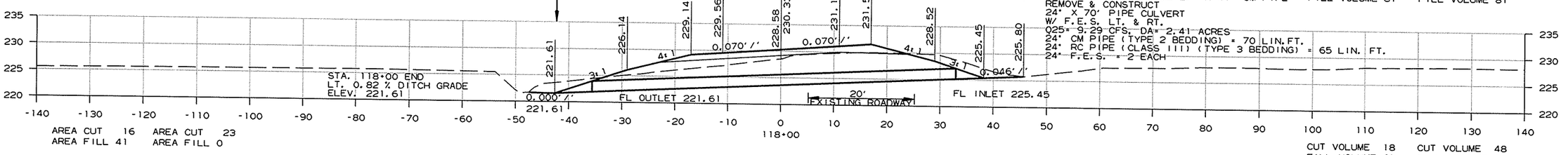
CUT VOLUME 63 CUT VOLUME 4
FILL VOLUME 7 FILL VOLUME 152



AREA CUT 28 AREA CUT 1
AREA FILL 2 AREA FILL 43

CUT VOLUME 81 CUT VOLUME 44
FILL VOLUME 81 FILL VOLUME 81

STA. 118+12 IN PLACE 24" X 41' CM PIPE
REMOVE & CONSTRUCT
24" X 70' PIPE CULVERT
W/ F.E.S. LT. & RT.
Q25= 9.29 CFS, DA= 2.41 ACRES
24" CM PIPE (TYPE 2 BEDDING) = 70 LIN.FT.
24" RC PIPE (CLASS III) (TYPE 3 BEDDING) = 65 LIN. FT.
24" F.E.S. = 2 EACH



AREA CUT 16 AREA CUT 23
AREA FILL 41 AREA FILL 0

CUT VOLUME 18 CUT VOLUME 48
FILL VOLUME 61 FILL VOLUME 0

CROSS SECTION STA. 118+00 TO STA. 122+00

6/2/2015

R100760.DGN

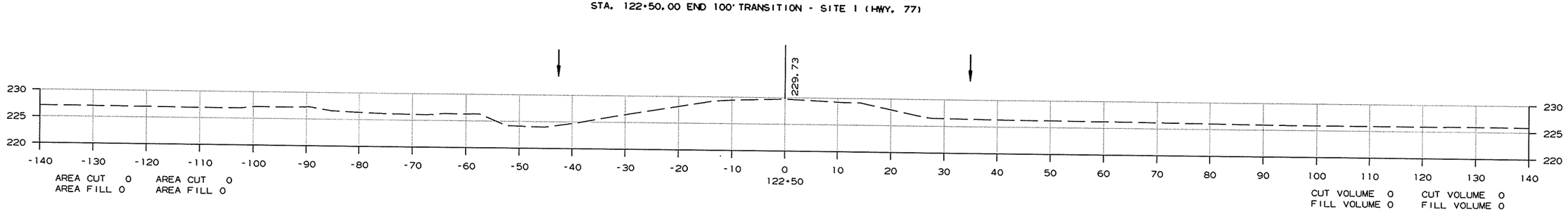
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100760	128	133

(2) CROSS SECTIONS

STAGE 1 STAGE 2

STAGE 1 STAGE 2

STA. 122+50.00 END 100' TRANSITION - SITE 1 (HWY. 77)



CROSS SECTION STA. 122+50 TO STA. 122+50

6/2/2015

R100760.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.		100760	129	133

(2) CROSS SECTIONS

MAIN LANES DET. CONST. DET. REMOVAL

AREA CUT 0 AREA CUT 0 AREA CUT 0
AREA FILL 0 AREA FILL 0 AREA FILL 0

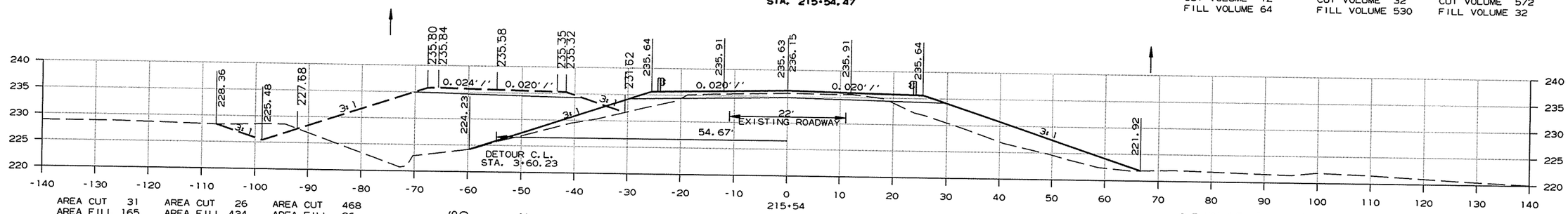
STA. 215+75 TO TOE

MAIN LANES DET. CONST. DET. REMOVAL

CUT VOLUME 12 CUT VOLUME 32 CUT VOLUME 572
FILL VOLUME 64 FILL VOLUME 530 FILL VOLUME 32

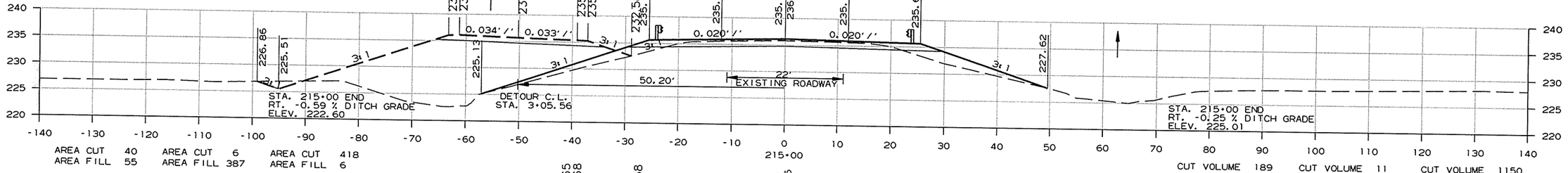
STA. 216+20 TO DETOUR TOE

BRIDGE END
STA. 215+54.47



AREA CUT 31 AREA CUT 26 AREA CUT 468
AREA FILL 165 AREA FILL 434 AREA FILL 26

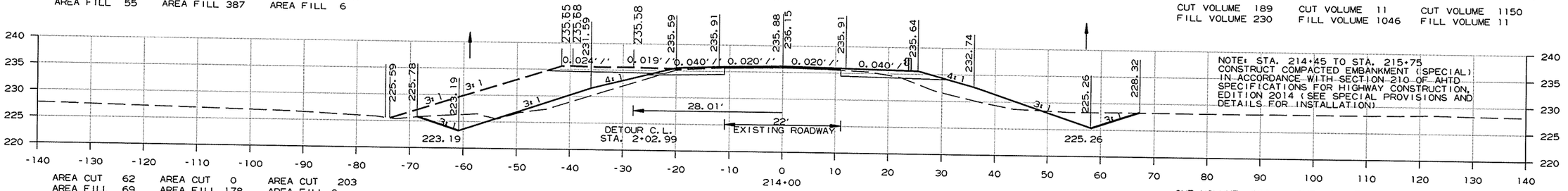
CUT VOLUME 71 CUT VOLUME 32 CUT VOLUME 886
FILL VOLUME 220 FILL VOLUME 821 FILL VOLUME 32



AREA CUT 40 AREA CUT 6 AREA CUT 418
AREA FILL 55 AREA FILL 387 AREA FILL 6

STA. 215+00 END
RT. -0.25 % DITCH GRADE
ELEV. 225.01

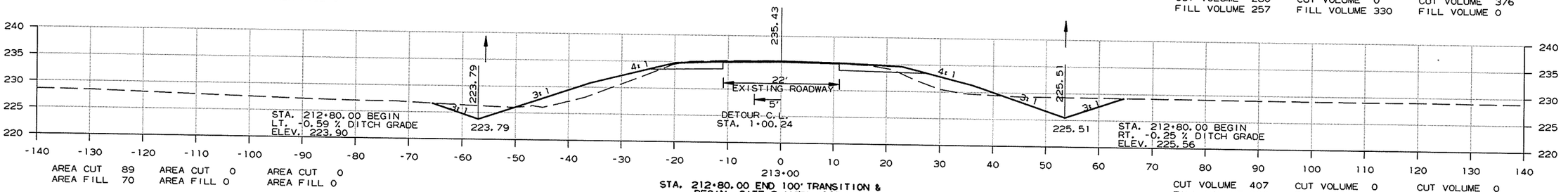
CUT VOLUME 189 CUT VOLUME 11 CUT VOLUME 1150
FILL VOLUME 230 FILL VOLUME 1046 FILL VOLUME 11



AREA CUT 62 AREA CUT 0 AREA CUT 203
AREA FILL 69 AREA FILL 178 AREA FILL 0

CUT VOLUME 280 CUT VOLUME 0 CUT VOLUME 376
FILL VOLUME 257 FILL VOLUME 330 FILL VOLUME 0

NOTE: STA. 214+45 TO STA. 215+75
CONSTRUCT COMPACTED EMBANKMENT (SPECIAL) IN ACCORDANCE WITH SECTION 210 OF AHTD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION 2014 (SEE SPECIAL PROVISIONS AND DETAILS FOR INSTALLATION)



AREA CUT 89 AREA CUT 0 AREA CUT 0
AREA FILL 70 AREA FILL 0 AREA FILL 0

CUT VOLUME 407 CUT VOLUME 0 CUT VOLUME 0
FILL VOLUME 206 FILL VOLUME 0 FILL VOLUME 0

STA. 212+80.00 END 100' TRANSITION &
BEGIN SITE 2 (HWY. 140)

STA. 211+80.00 BEGIN 100' TRANSITION

CROSS SECTION STA. 213+00 TO STA. 215+54

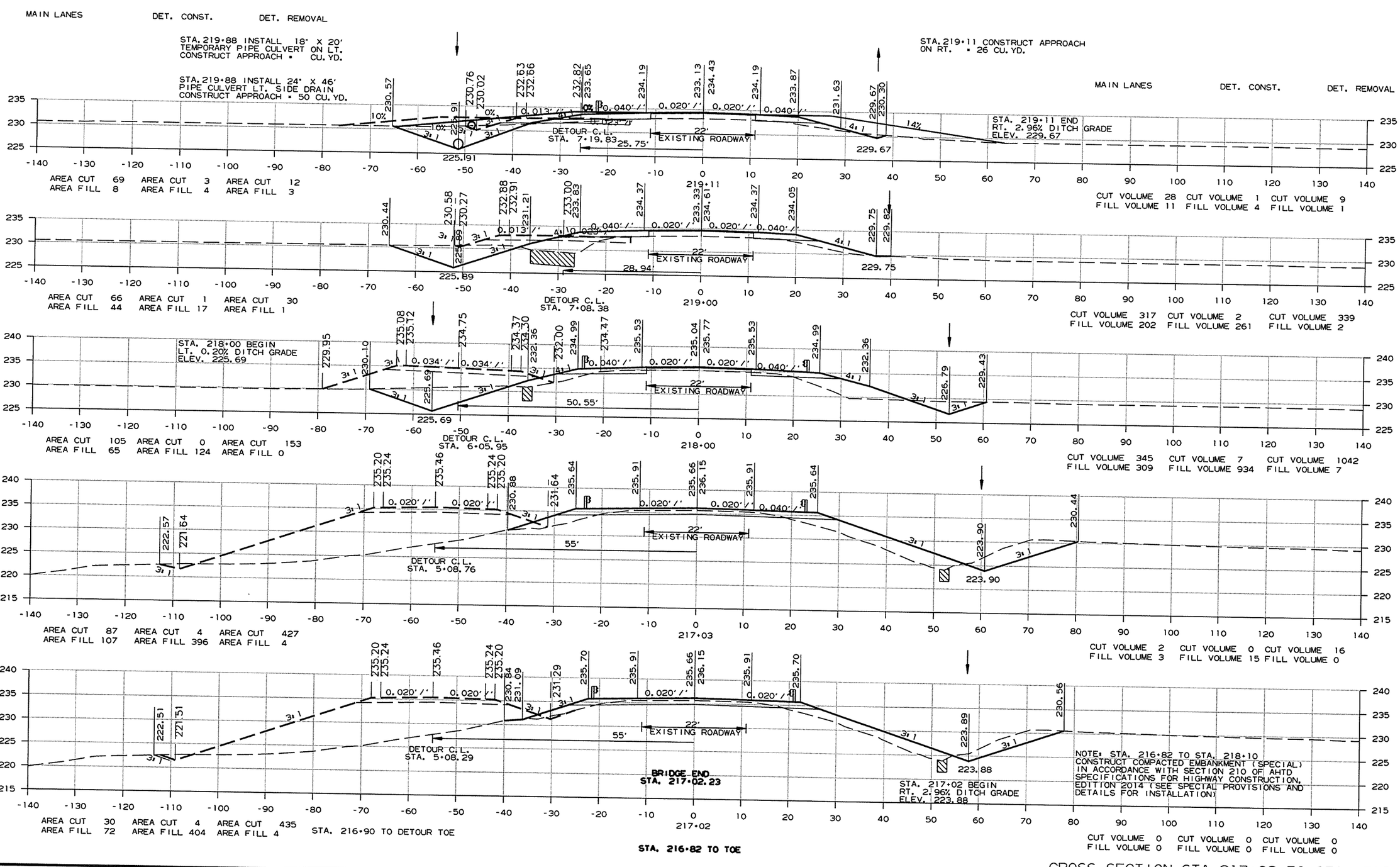
6/2/2015

R100760.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.		100760	130	133

(2) CROSS SECTIONS

NOTE: UNDERCUT DITCH LINE TO AN ANTICIPATED DEPTH OF 2'. REMOVE ALL UNSUITABLE MATERIAL AND REPLACE WITH UNSPECIFIED COMPACTED EMBANKMENT. TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.



CROSS SECTION STA. 217+02 TO STA. 219+11

6/2/2015

R100760.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.		100760	131	133

(2) CROSS SECTIONS

▨ NOTE: UNDERCUT DITCH LINE TO AN ANTICIPATED DEPTH OF 2'. REMOVE ALL UNSUITABLE MATERIAL AND REPLACE WITH UNSPECIFIED COMPACTED EMBANKMENT. TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

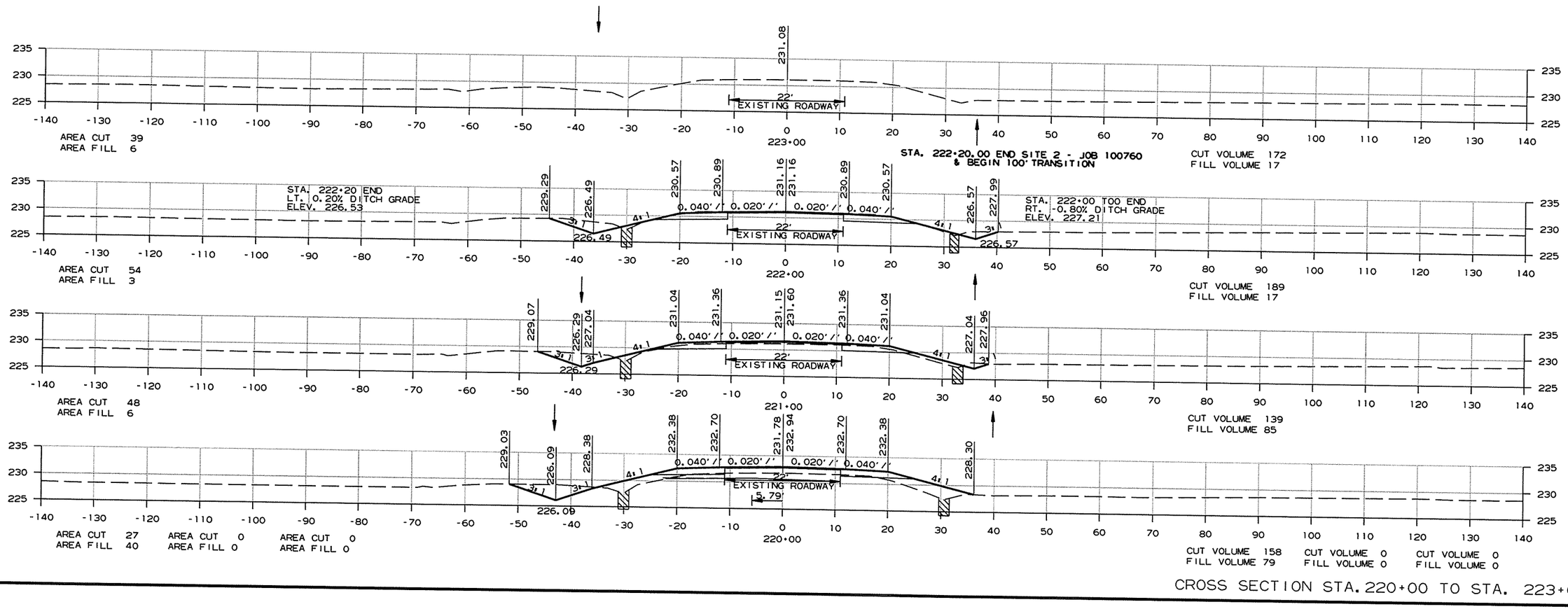
MAIN LANES DET. CONST. DET. REMOVAL

AREA CUT 39
AREA FILL 5

MAIN LANES DET. CONST. DET. REMOVAL

CUT VOLUME 14
FILL VOLUME 2

STA. 223+20.00 END 100' TRANSITION



CROSS SECTION STA. 220+00 TO STA. 223+00

6/2/2015

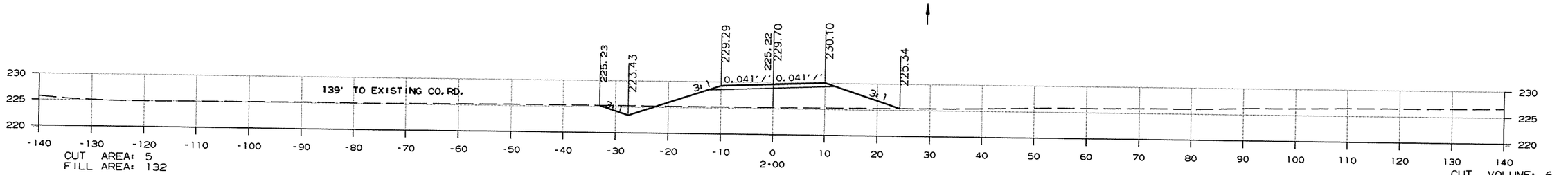
R100760.DGN

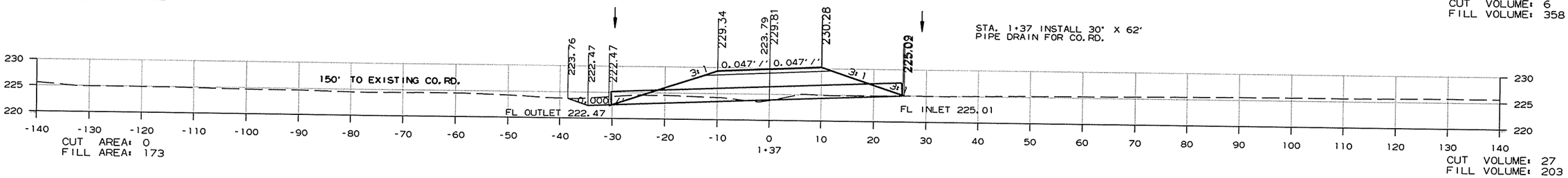
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		100760	132	133

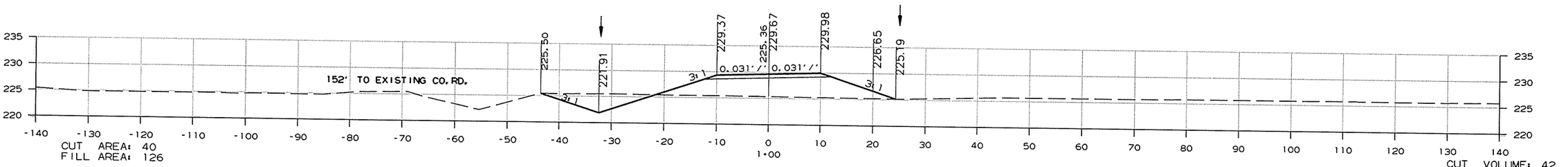
(2) CROSS SECTIONS

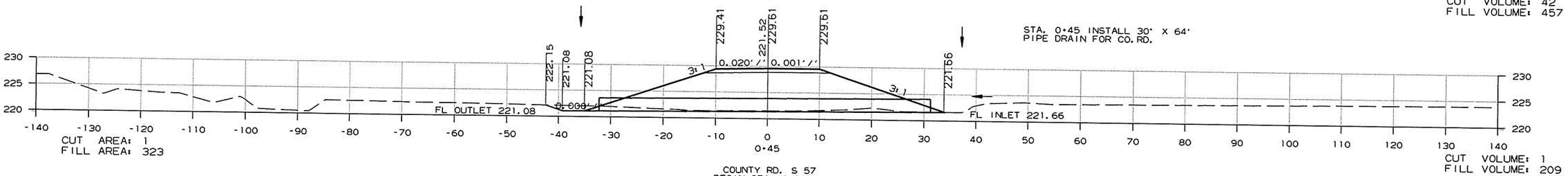
MAIN LANES

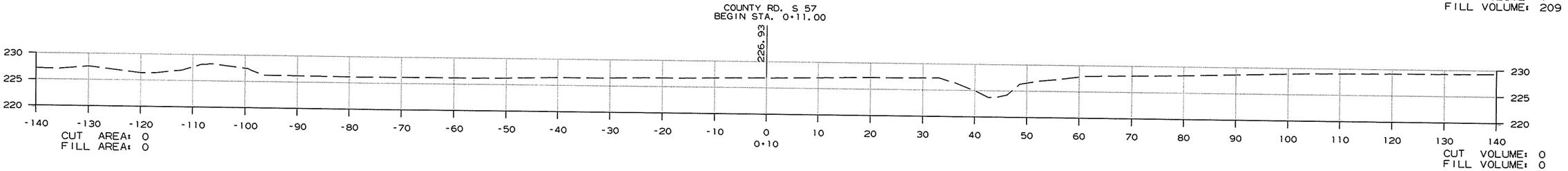
MAIN LANES











CROSS SECTION STA. 0+10 TO STA. 2+00

6/2/2015

R100760.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.		100760	133	133

(2) CROSS SECTIONS

MAIN LANES

COUNTY RD. S 57
END STA. 5+10.07

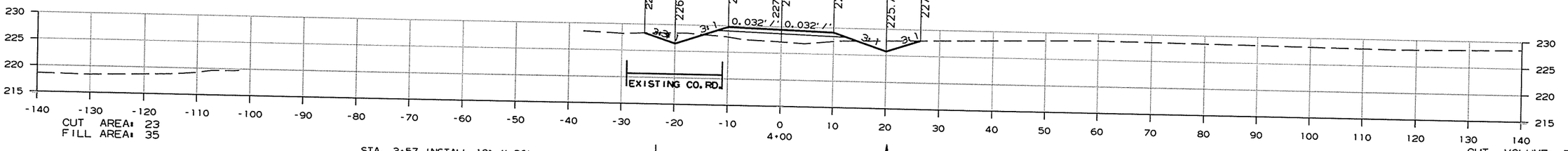
MAIN LANES

CUT AREA: 0
FILL AREA: 0

CUT VOLUME: 7
FILL VOLUME: 0

CUT AREA: 37
FILL AREA: 0

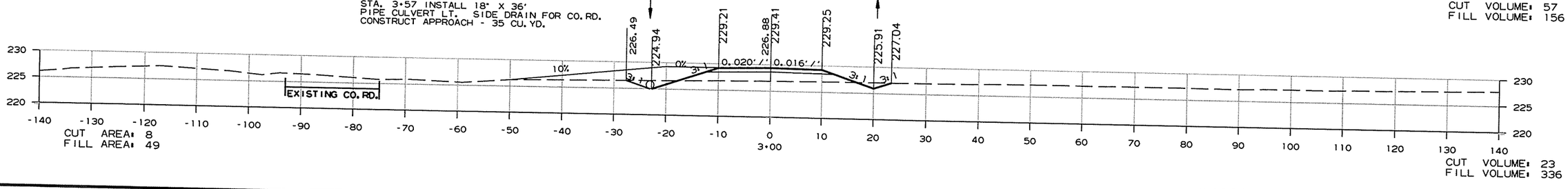
CUT VOLUME: 112
FILL VOLUME: 65



CUT AREA: 23
FILL AREA: 35

CUT VOLUME: 57
FILL VOLUME: 156

STA. 3+57 INSTALL 18" X 36"
PIPE CULVERT LT. SIDE DRAIN FOR CO.RD.
CONSTRUCT APPROACH - 35 CU.YD.



CUT AREA: 8
FILL AREA: 49

CUT VOLUME: 23
FILL VOLUME: 336

CROSS SECTION STA. 3+00 TO STA. 5+00

6/2/2015

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