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.		110617	1	78

(2) FIFTEENMILE & CUTOFF BAYOUS STRS. & APPRS. (S)

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

FIFTEENMILE & CUTOFF BAYOUS

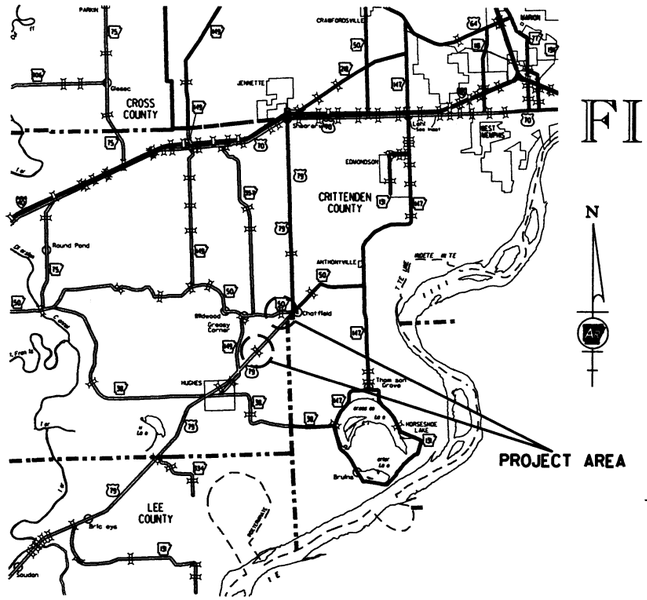
STRS. & APPRS. (S)

ST. FRANCIS COUNTY

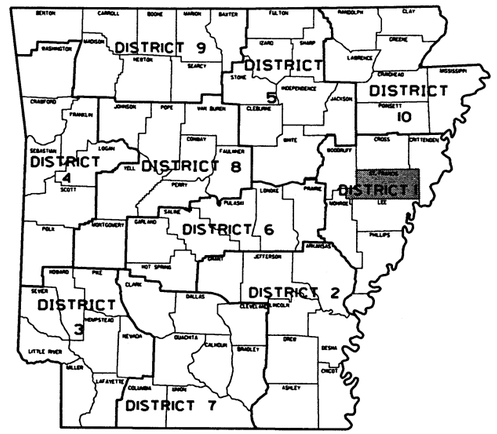
ROUTE 50 SECTION 1
ROUTE 79 SECTION 17

JOB 110617

FED. AID PROJ. NHPP-0068(42)



VICINITY MAP

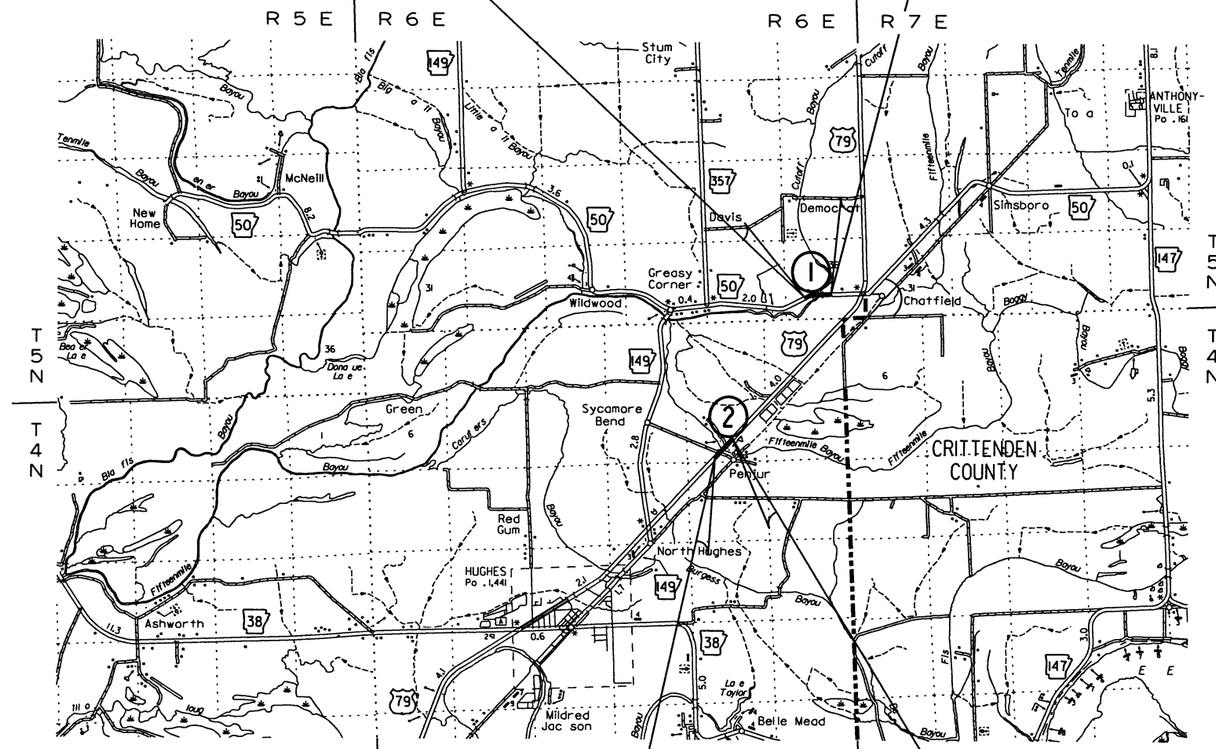


ARK. HWY. DIST. NO. 1

STA. 108+35.00
BEGIN SITE 1
LOG MILE 20.75

NOT TO SCALE

STA. 117+80.00
END SITE 1



STA. 207+50.00
BEGIN SITE 2
LOG MILE 7.44

STA. 214+50.00
END SITE 2

BRIDGE INFORMATION

(1) STA. 111+01.50 BR. END
408'-0" CONTINUOUS COMP. W-BEAM
(68'-68'-68'-68'-68'-68')
411'-0" TOTAL LENGTH
30'-0" CLEAR ROADWAY
BR. NO. 07467
STA. 115+12.50 BR. END

(2) STA. 209+21.50 BR. END
240'-0" CONTINUOUS COMP. W-BEAM
(75'-90'-75')
241'-0" TOTAL LENGTH
40'-0" CLEAR ROADWAY
BR. NO. 07468
STA. 211+62.50 BR. END

DESIGN TRAFFIC DATA (SITE 1)

DESIGN YEAR	2039
2019 ADT	65
2039 ADT	70
2039 DHV	8
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	15%
DESIGN SPEED	55 MPH

DESIGN TRAFFIC DATA (SITE 2)

DESIGN YEAR	2039
2019 ADT	2,100
2039 ADT	2,700
2039 DHV	297
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	14%
DESIGN SPEED	60 MPH

SITE 1 - HWY. 50

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°00'25"	N 35°00'25"	N 35°00'25"
LONGITUDE	W 90°24'53"	W 90°24'47"	W 90°24'42"

SITE 2 - HWY. 79

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 34°58'44"	N 34°58'46"	N 34°58'49"
LONGITUDE	W 90°26'12"	W 90°26'09"	W 90°26'06"

LENGTH OF PROJECT CALCULATED ALONG C.L.

GROSS LENGTH OF PROJECT	1645.00	FEET OR	0.312	MILES
NET " " ROADWAY	993.00	"	0.188	MILES
NET " " BRIDGES	652.00	"	0.124	MILES
NET " " PROJECT	1645.00	"	0.312	MILES

APPROVED

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
M. E. BANKS

9-24-19

DEPUTY DIRECTOR
AND CHIEF ENGINEER

h139710 8/7/2019
R110617.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.		110617	2	78

(2) INDEX OF SHEETS AND STANDARD DRAWINGS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-17-19

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG.NO.
1	TITLE SHEET		
2	INDEX OF SHEETS AND STANDARD DRAWINGS		
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES		
4 - 6	TYPICAL SECTIONS OF IMPROVEMENT		
7 - 10	SPECIAL DETAILS		
11 - 13	TEMPORARY EROSION CONTROL DETAILS		
14 - 17	MAINTENANCE OF TRAFFIC DETAILS		
18	PERMANENT PAVEMENT MARKING DETAILS		
19 - 23	QUANTITIES		
24	SCHEDULE OF BRIDGE QUANTITIES	07467, 07468	61255
25	SUMMARY OF QUANTITIES AND REVISIONS		
26 - 28	SURVEY CONTROL DETAILS		
29 - 31	PLAN AND PROFILE SHEETS		
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33	LAYOUT OF BRIDGE - HIGHWAY 50 OVER CUTOFF BAYOU (SHEET 2 OF 3)	07467	61257
34	LAYOUT OF BRIDGE - HIGHWAY 50 OVER CUTOFF BAYOU (SHEET 3 OF 3)	07467	61258
35	DETAILS OF END BENTS - CUTOFF BAYOU (SHEET 1 OF 4)	07467	61259
36	DETAILS OF END BENTS - CUTOFF BAYOU (SHEET 2 OF 4)	07467	61260
37	DETAILS OF END BENTS - CUTOFF BAYOU (SHEET 3 OF 4)	07467	61261
38	DETAILS OF END BENTS - CUTOFF BAYOU (SHEET 4 OF 4)	07467	61262
39	DETAILS OF INTERMEDIATE BENTS - CUTOFF BAYOU (SHEET 1 OF 2)	07467	61263
40	DETAILS OF INTERMEDIATE BENTS - CUTOFF BAYOU (SHEET 2 OF 2)	07467	61264
41	DETAILS OF 30" DIA. CONCRETE FILLED STEEL SHELL PILES	07467, 07468	61265
42	DETAILS OF ELASTOMETRIC BEARINGS - CUTOFF BAYOU	07467	61266
43	DETAILS OF 408'-0" CONTINUOUS W-BEAM UNIT - CUTOFF BAYOU (SHEET 1 OF 7)	07467	61267
44	DETAILS OF 408'-0" CONTINUOUS W-BEAM UNIT - CUTOFF BAYOU (SHEET 2 OF 7)	07467	61268
45	DETAILS OF 408'-0" CONTINUOUS W-BEAM UNIT - CUTOFF BAYOU (SHEET 3 OF 7)	07467	61269
46	DETAILS OF 408'-0" CONTINUOUS W-BEAM UNIT - CUTOFF BAYOU (SHEET 4 OF 7)	07467	61270
47	DETAILS OF 408'-0" CONTINUOUS W-BEAM UNIT - CUTOFF BAYOU (SHEET 5 OF 7)	07467	61271
48	DETAILS OF 408'-0" CONTINUOUS W-BEAM UNIT - CUTOFF BAYOU (SHEET 6 OF 7)	07467	61272
49	DETAILS OF 408'-0" CONTINUOUS W-BEAM UNIT - CUTOFF BAYOU (SHEET 7 OF 7)	07467	61273
50	LAYOUT OF BRIDGE - HIGHWAY 79 OVER FIFTEENMILE BAYOU (SHEET 1 OF 3)	07468	61274
51	LAYOUT OF BRIDGE - HIGHWAY 79 OVER FIFTEENMILE BAYOU (SHEET 2 OF 3)	07468	61275
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53	DETAILS OF END BENTS - FIFTEENMILE BAYOU	07468	61277
54	DETAILS OF INTERMEDIATE BENTS - FIFTEEN MILE BAYOU (SHEET 1 OF 2)	07468	61278
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56	DETAILS OF 240'-0" INTEGRAL W-BEAM UNIT - FIFTEENMILE BAYOU (SHEET 1 OF 7)	07468	61280
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60	DETAILS OF 240'-0" INTEGRAL W-BEAM UNIT - FIFTEENMILE BAYOU (SHEET 5 OF 7)	07468	61284
61	DETAILS OF 240'-0" INTEGRAL W-BEAM UNIT - FIFTEENMILE BAYOU (SHEET 6 OF 7)	07468	61285
62	DETAILS OF 240'-0" INTEGRAL W-BEAM UNIT - FIFTEENMILE BAYOU (SHEET 7 OF 7)	07468	61286
63 - 78	CROSS SECTIONS		

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

BRIDGE STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-16
55006	STANDARD GENERAL NOTES FOR STEEL BRIDGE STRUCTURES	09-02-15
55007	STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES	02-11-16
55009	STANDARD DETAILS FOR NEOPRENE STRIP SEAL JOINTS	02-11-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	01-15-19
55021	STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS	03-24-16
55030A	STANDARD DETAILS FOR TYPE A APPROACH GUTTERS	09-02-15
55030C	STANDARD DETAILS FOR TYPE C APPROACH GUTTERS	02-27-14
55040A	STANDARD DETAILS FOR TYPE A APPROACH SLAB	02-27-14
55040C1	STANDARD DETAILS FOR TYPE C1 APPROACH SLAB	02-27-14

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
GR-8	GUARD RAIL DETAILS	11-16-17
GR-8A	GUARD RAIL DETAILS	11-16-17
GR-9	GUARD RAIL DETAILS	04-17-08
GR-9A	GUARD RAIL DETAILS	04-17-08
GR-10	GUARD RAIL DETAILS	11-16-17
GR-11	GUARD RAIL DETAILS	11-16-17
GR-12	GUARD RAIL DETAILS	11-16-17
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PM-1	PAVEMENT MARKING DETAILS	06-01-17
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	10-18-96
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	04-13-17
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	07-25-19
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94

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

9-24-19

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA_____	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__	SUPPLEMENT - WAGE RATE DETERMINATION
100-3_____	CONTRACTOR'S LICENSE
100-4_____	DEPARTMENT NAME CHANGE
102-2_____	ISSUANCE OF PROPOSALS
108-1_____	LIQUIDATED DAMAGES
108-2_____	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1_____	PROTECTION OF WATER QUALITY AND WETLANDS
303-1_____	AGGREGATE BASE COURSE
306-1_____	QUALITY CONTROL AND ACCEPTANCE
400-1_____	TACK COATS
400-4_____	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5_____	PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6_____	LIQUID ANTI-STRIP ADDITIVE
410-1_____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2_____	DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
600-2_____	INCIDENTAL CONSTRUCTION
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
617-1_____	GUARDRAIL TERMINAL (TYPE 2)
620-1_____	MULCH COVER
734-1_____	BRIDGE END TERMINAL
800-1_____	STRUCTURES
802-3_____	CONCRETE FOR STRUCTURES
804-2_____	REINFORCING STEEL FOR STRUCTURES
808-1_____	INSTALLATION OF ELASTOMERIC BEARINGS
808-2_____	ELASTOMERIC BEARINGS
JOB 110617__	BIDDING REQUIREMENTS AND CONDITIONS
JOB 110617__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 110617__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 110617__	CARGO PREFERENCE ACT REQUIREMENTS
JOB 110617__	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB 110617__	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 110617__	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB 110617__	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 110617__	FLEXIBLE BEGINNING OF WORK – CALENDAR DAY CONTRACT
JOB 110617__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 110617__	MANDATORY ELECTRONIC CONTRACT
JOB 110617__	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 110617__	NESTING SITES OF MIGRATORY BIRDS
JOB 110617__	PARTNERING REQUIREMENTS
JOB 110617__	PLASTIC PIPE
JOB 110617__	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 110617__	PROSECUTION AND PROGRESS WITH BID SCHEDULE
JOB 110617__	REMOVAL AND DISPOSAL OF GUARDRAIL
JOB 110617__	SHORING FOR CULVERTS
JOB 110617__	SITE USE (A+C METHOD) - CALENDAR DAY CONTRACT
JOB 110617__	SOIL STABILIZATION
JOB 110617__	STORM WATER POLLUTION PREVENTION PLAN
JOB 110617__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 110617__	TIMBER PILING FOR SOIL DENSIFICATION
JOB 110617__	UTILITY ADJUSTMENTS
JOB 110617__	VALUE ENGINEERING
JOB 110617__	WARM MIX ASPHALT

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. 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 ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
6. THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
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.
9. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 23 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

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				6	ARK.			
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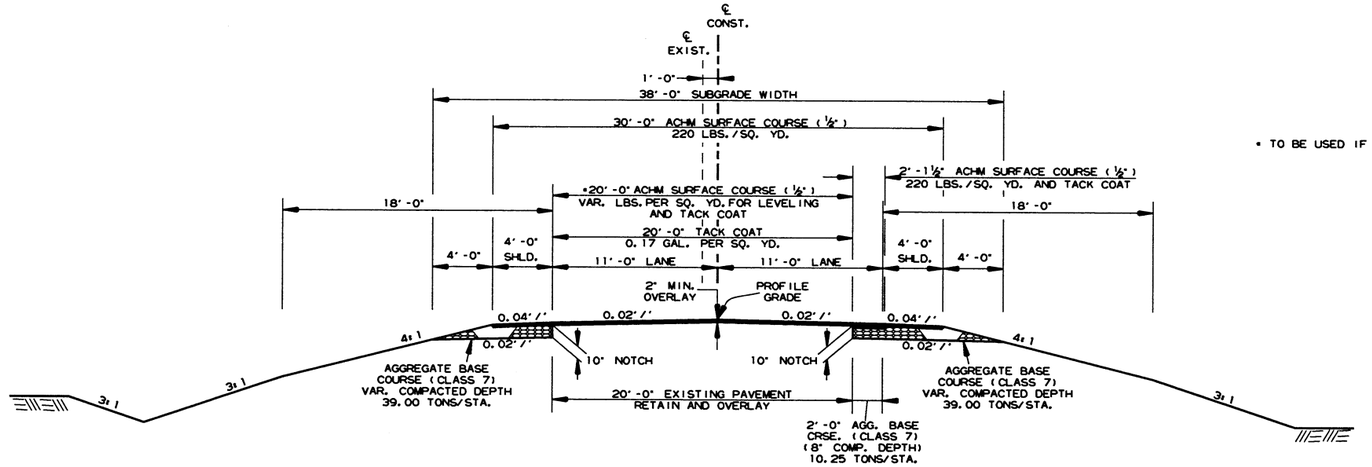
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
9-17-19



* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

TYPICAL SECTIONS OF IMPROVEMENT
HWY. 50 - NOTCH AND WIDEN
STA. 108+35.00 - STA. 109+26.00
STA. 115+79.00 - STA. 117+80.00

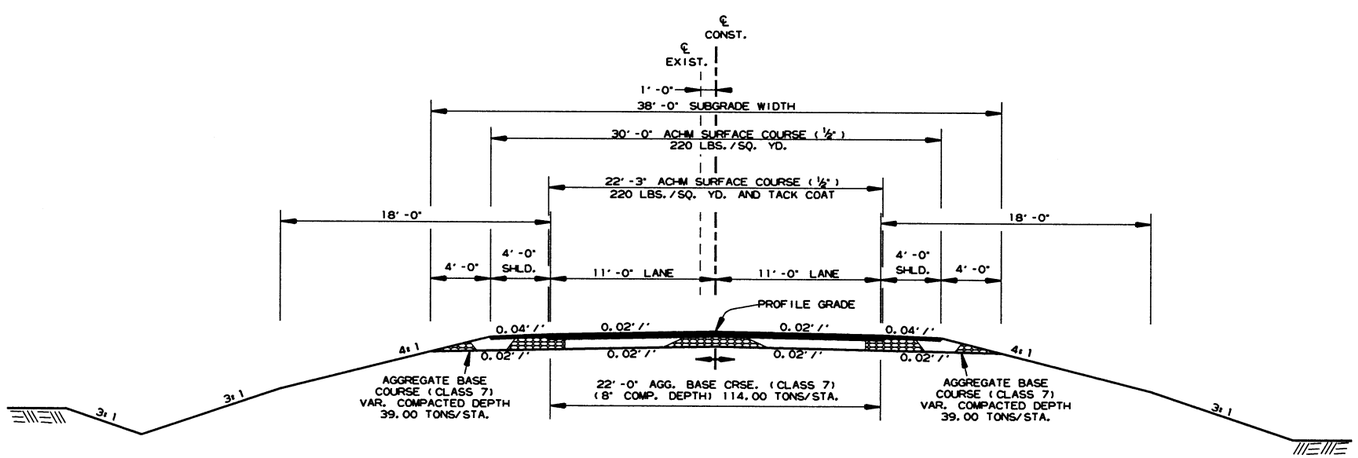
NOTES:

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

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

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

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
HWY. 50 - FULL DEPTH
STA. 109+26.00 - STA. 110+50.00
STA. 115+64.00 - STA. 115+79.00

h139710 9/13/2019
R110617.DGN

SITE I
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
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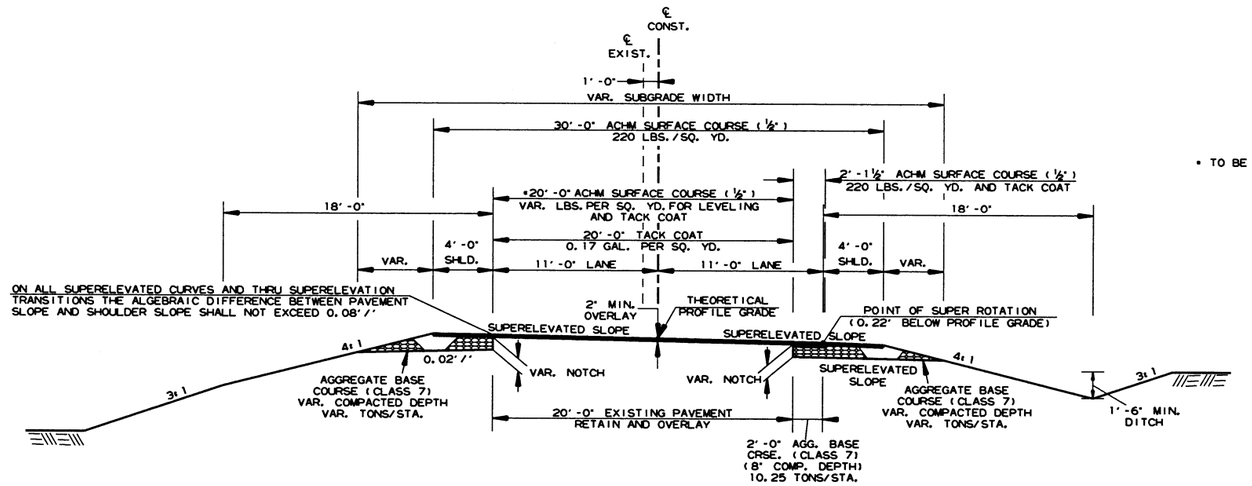
				JOB NO.		110617	5	78

(2) TYPICAL SECTIONS OF IMPROVEMENT

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

9-17-19



* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

TYPICAL SECTIONS OF IMPROVEMENT
HWY. 50 - NOTCH AND WIDEN
SUPERELEVATED

NOTES:

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

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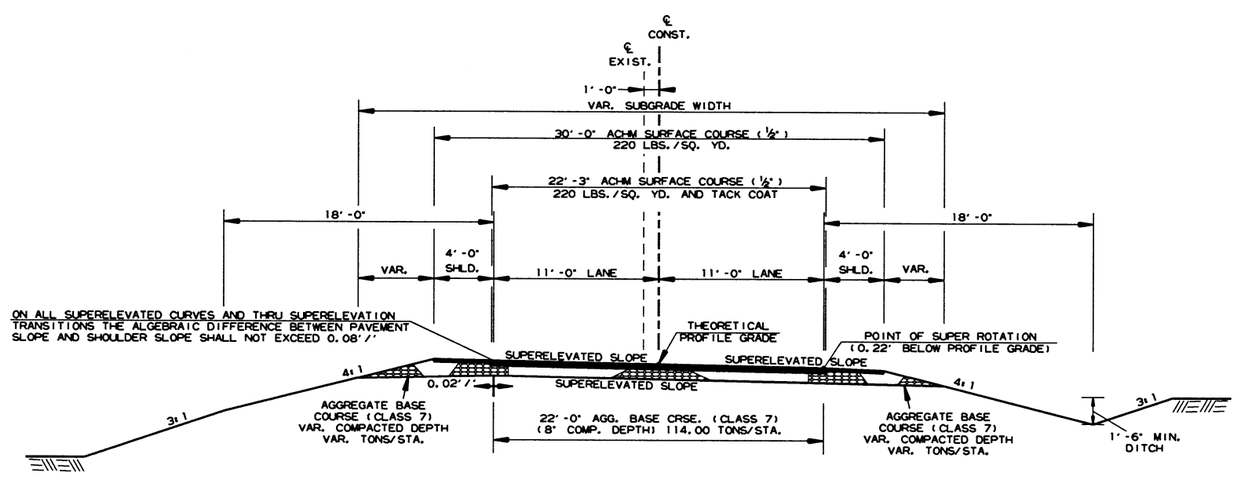


TYPICAL SECTIONS OF IMPROVEMENT
HWY. 50 - FULL DEPTH
SUPERELEVATED

hl39710 9/13/2019
R110617.DGN

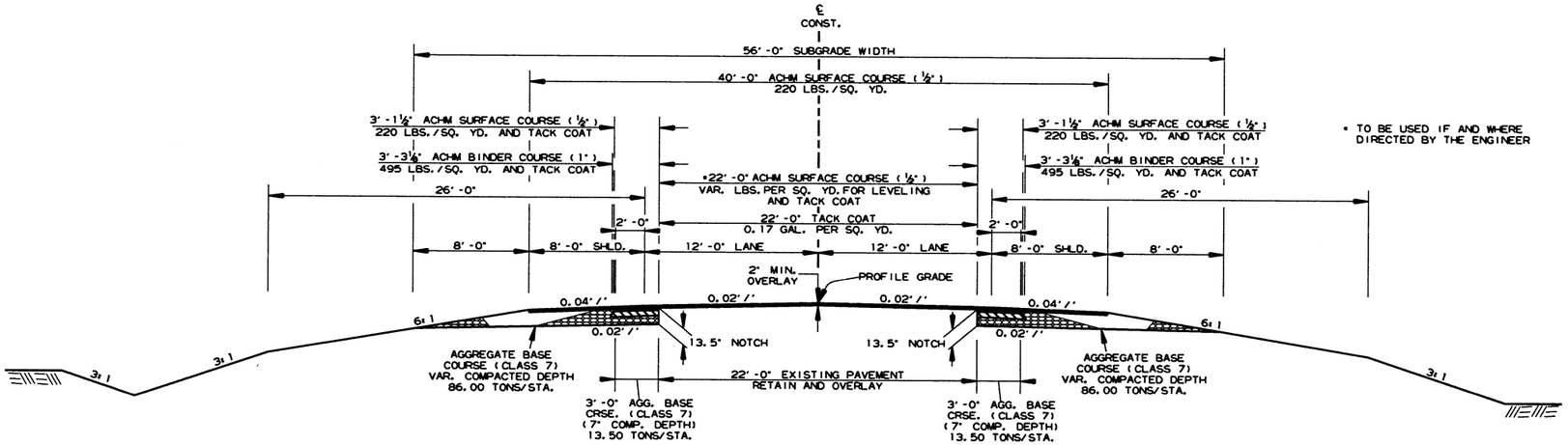
SITE I
TYPICAL SECTIONS OF IMPROVEMENT

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.		110617	6	78

(2) TYPICAL SECTIONS OF IMPROVEMENT

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

9-17-19



* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

TYPICAL SECTIONS OF IMPROVEMENT
HWY. 79 - NOTCH AND WIDEN
STA. 207+50.00 - STA. 208+85.00
STA. 211+99.00 - STA. 214+50.00

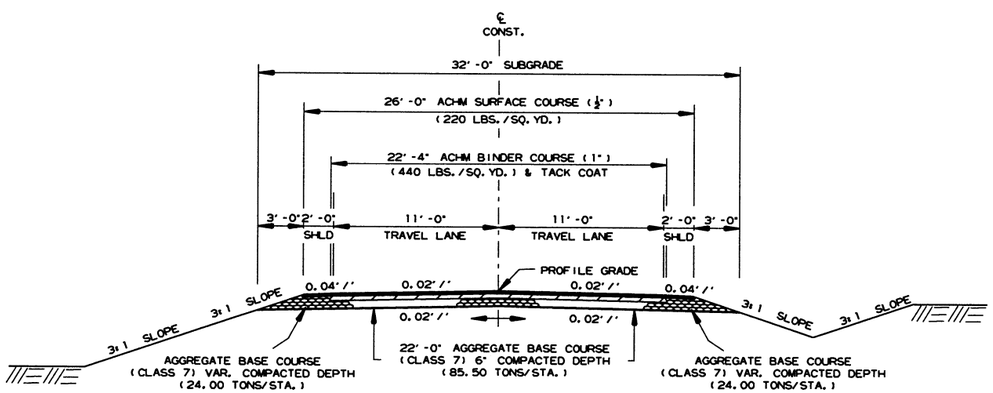
NOTES:

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

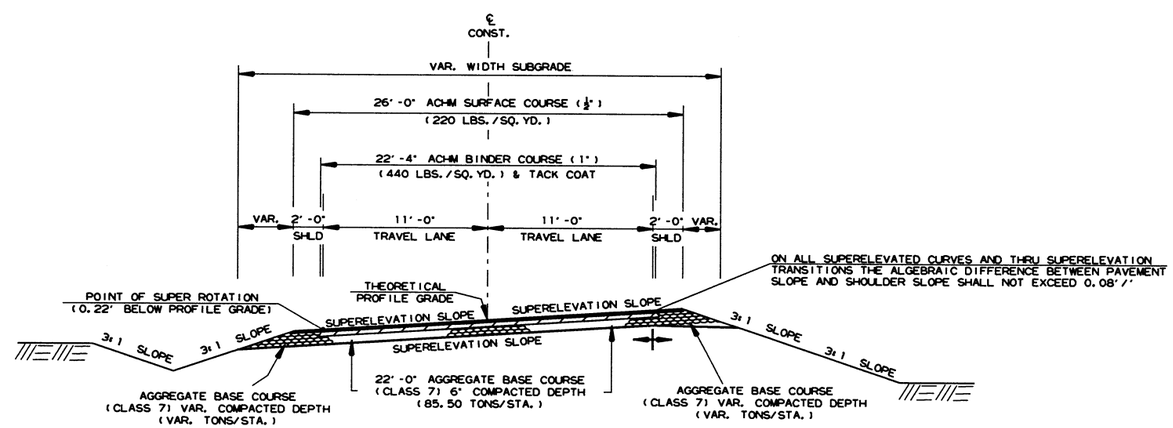
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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

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
HWY. 79 - DETOUR



TYPICAL SECTIONS OF IMPROVEMENT
HWY. 79 - DETOUR
SUPERELEVATION

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SITE 2
TYPICAL SECTIONS OF IMPROVEMENT

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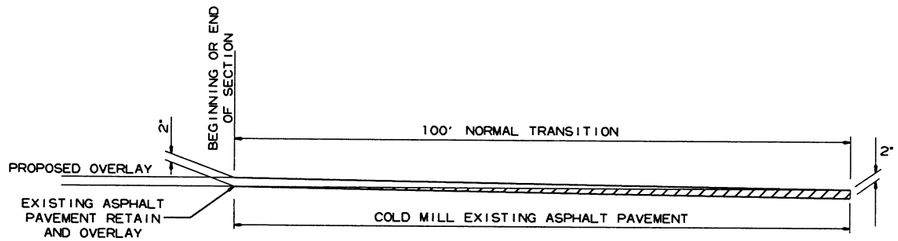
				6	ARK.			
				JOB NO.		110617	7	78

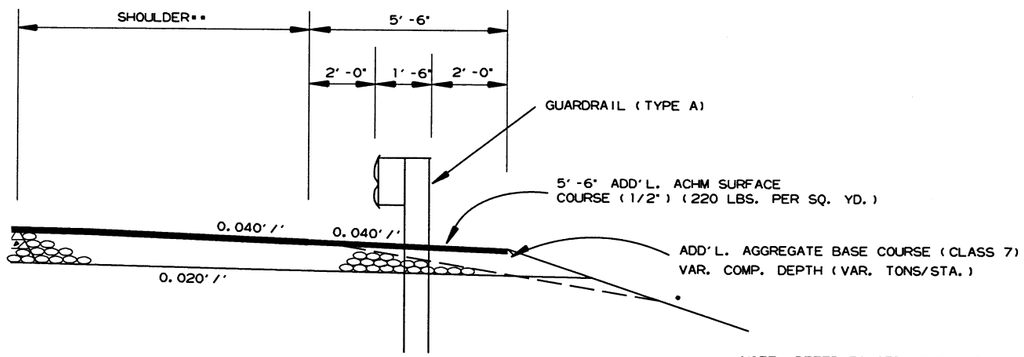
(2) SPECIAL DETAILS

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

9-17-19



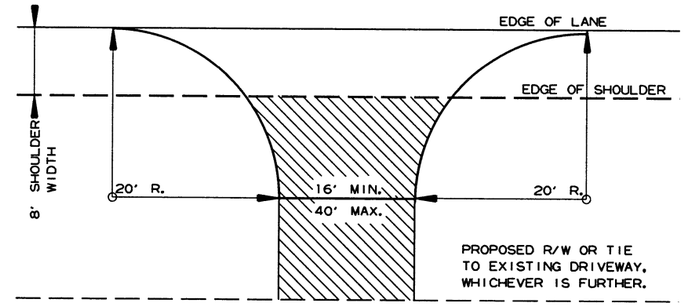
DETAIL FOR TRANSITIONS



WIDENING FOR GUARDRAIL

* NOTE: REFER TO STD. DWG. GR-9A AND CROSS SECTIONS FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL.

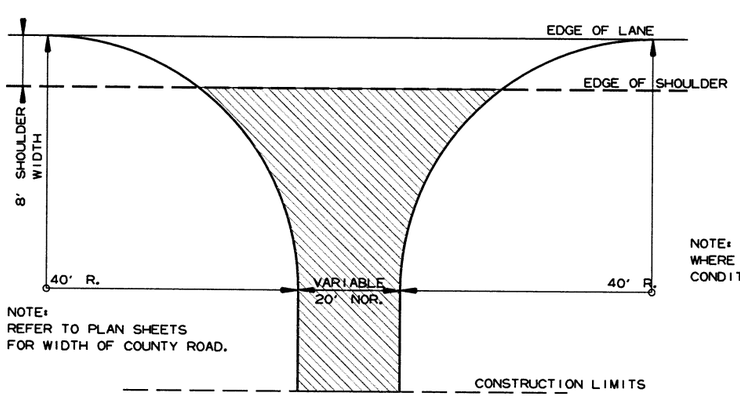
** SITE 1 - 4' SHOULDER
SITE 2 - 8' SHOULDER



DETAIL FOR DRIVEWAY TURNOUTS
OPEN SHOULDER SECTION
(ARTERIAL)

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

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

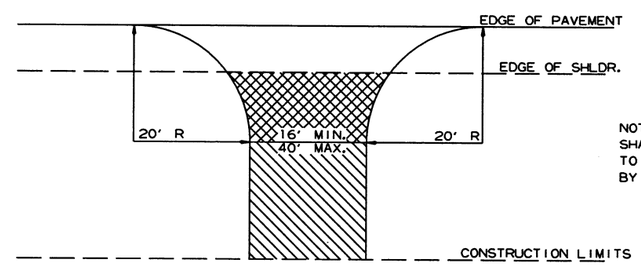


NOTE:
REFER TO PLAN SHEETS FOR WIDTH OF COUNTY ROAD.

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

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

DETAIL FOR COUNTY ROAD TURNOUTS
OPEN SHOULDER SECTION



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

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

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

DETAIL FOR DRIVEWAY TURNOUTS
(COLLECTORS)

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				6	ARK.			
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(2) SPECIAL DETAILS

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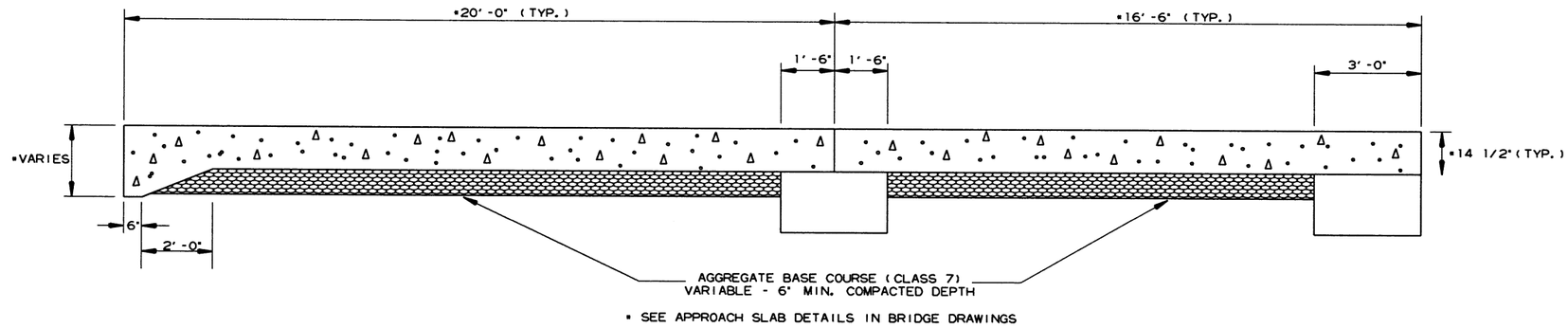
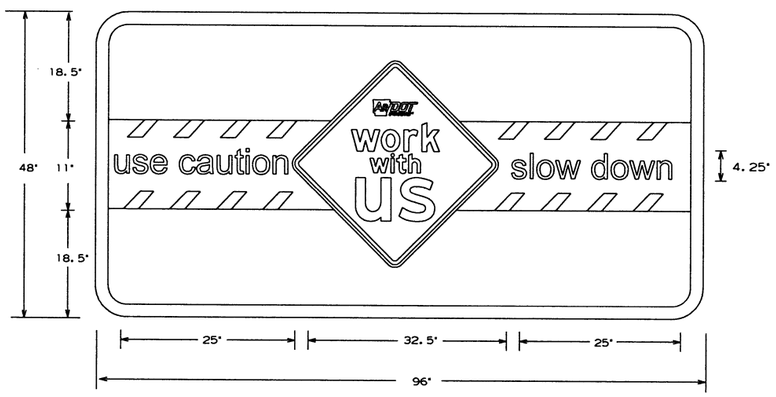


* SEE APPROACH SLAB DETAILS IN BRIDGE DRAWINGS

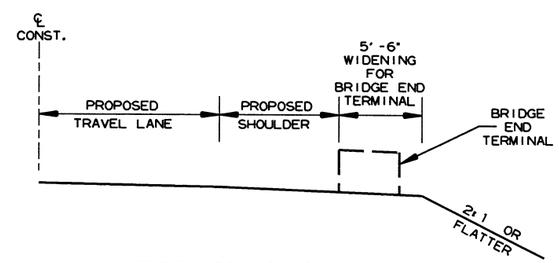
SECTION OF APPROACH SLAB



1.5" WHITE BORDER, 1.5" RADII, GREEN BACKGROUND
" e ca ion/ lo do n" 4.25" NIVEAU GROTESK, REGULAR FONT
" o k i h " FRUTIGER LT 75 BLACK FONT

NOTE: DIGITAL ART WORK FILE AVAILABLE FROM ARDOT MAINTENANCE DIVISION SIGN SHOP 501-569-2665.
THIS SIGN SHALL BE PLACED 500' PRECEDING THE FIRST ADVANCE WARNING SIGN, IN THE DIRECTION OF TRAFFIC.

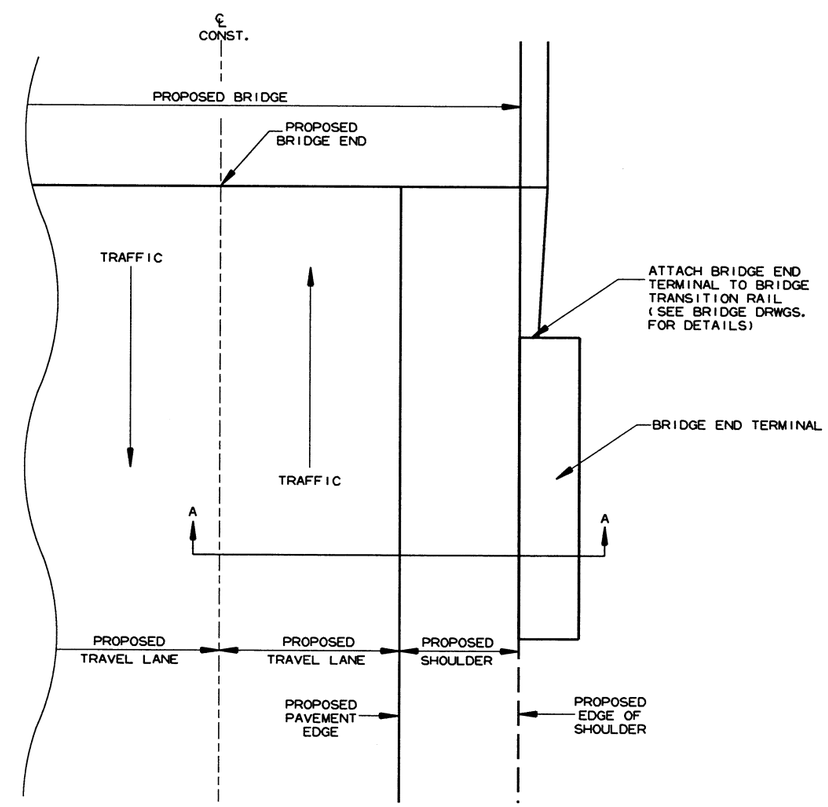
WORK WITH US SIGN



SECTION A-A

NOTE:
ELIMINATE OR MODIFY APPROACH CURB SECTION TO FIT BRIDGE END TERMINAL. NO PAYMENT SHALL BE MADE FOR ELIMINATING OR MODIFYING THIS CURB BUT SHALL BE CONSIDERED IN PAYMENT MADE FOR APPROACH GUTTERS OF THE TYPE SPECIFIED.

NOTE:
BRIDGE END TERMINAL SHALL CONFORM TO THE FOLLOWING:
-MAXIMUM LENGTH: 20'
-MAXIMUM HEIGHT: 2.75'
-DESIGN SPEED: 60 MPH



PLAN VIEW

BRIDGE END TERMINAL DETAILS

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SPECIAL DETAILS

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(2) SPECIAL DETAILS

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

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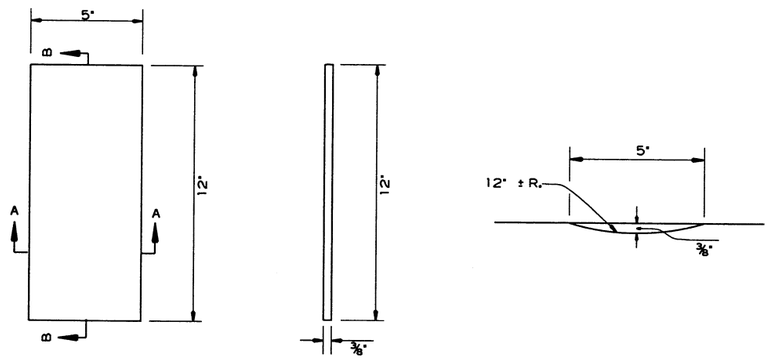
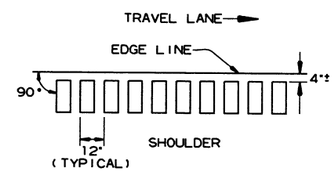
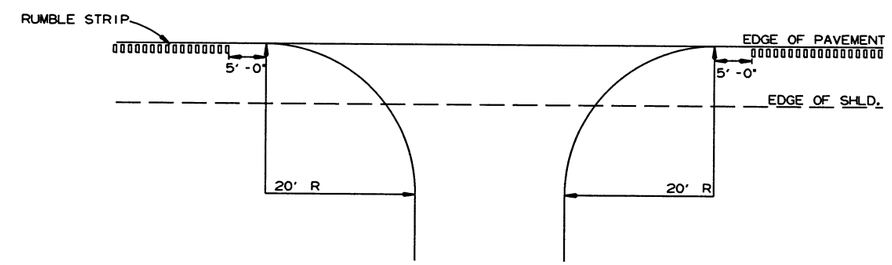


PLAN SECTION B-B SECTION A-A

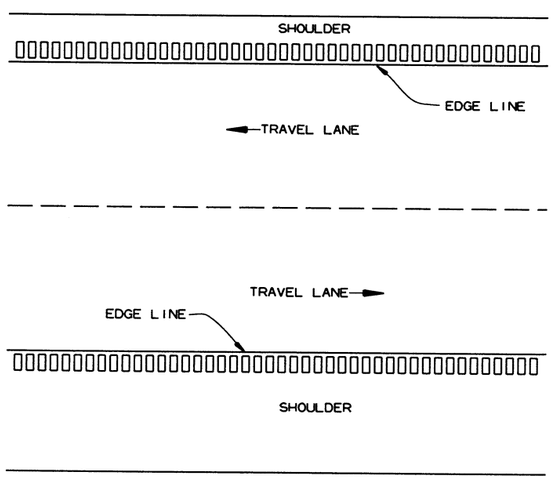
DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER



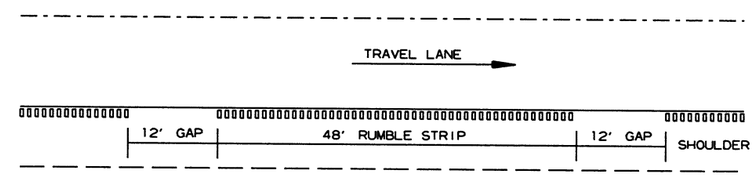
DETAIL FOR RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW

GENERAL NOTES

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



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

DETAIL FOR GAP PATTERN RUMBLE STRIP

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(2) SPECIAL DETAILS

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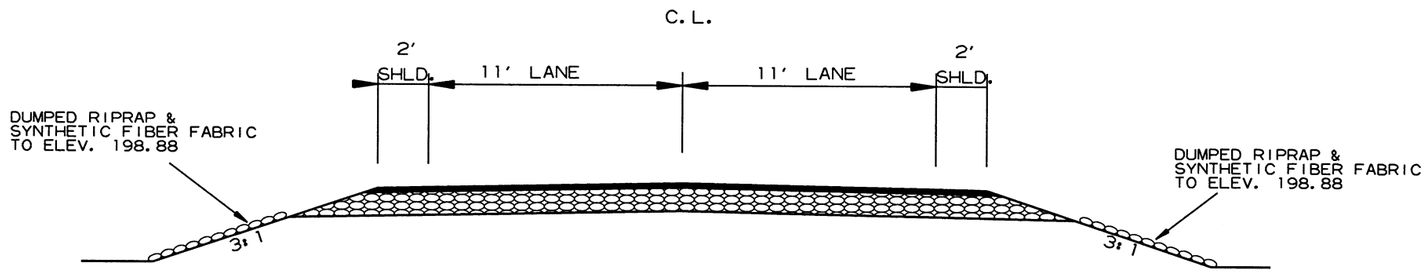
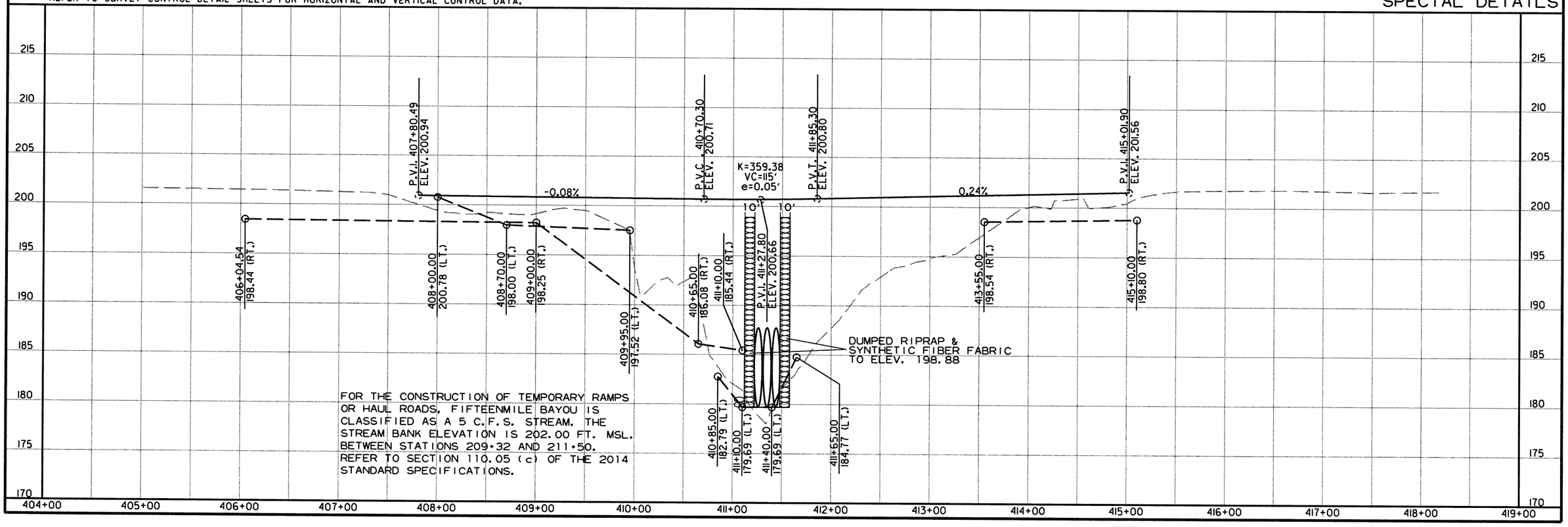


THIS STREAM IS CLASSIFIED AS A 5 C.F.S. STREAM. THE STREAM BANK ELEVATION IS 202.00 FT. MSL.

TYPICAL SECTIONS OF IMPROVEMENT - HWY. 79 DETOUR
STA. 411+35

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

SPECIAL DETAILS



FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, FIFTEENMILE BAYOU IS CLASSIFIED AS A 5 C.F.S. STREAM. THE STREAM BANK ELEVATION IS 202.00 FT. MSL. BETWEEN STATIONS 209+32 AND 211+50. REFER TO SECTION 110.05 (c) OF THE 2014 STANDARD SPECIFICATIONS.

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				6	ARK.			
				JOB NO.		110617	11	78

(2) TEMPORARY EROSION CONTROL DETAILS

TEMPORARY EROSION CONTROL GENERAL NOTES:

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

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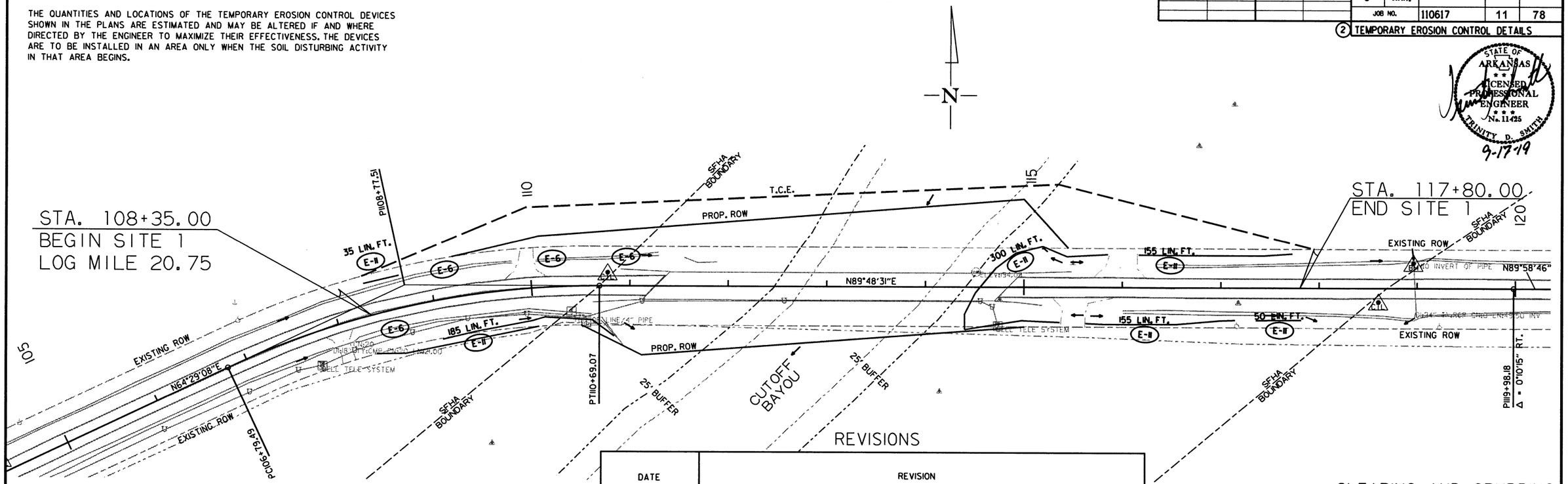


REVISIONS

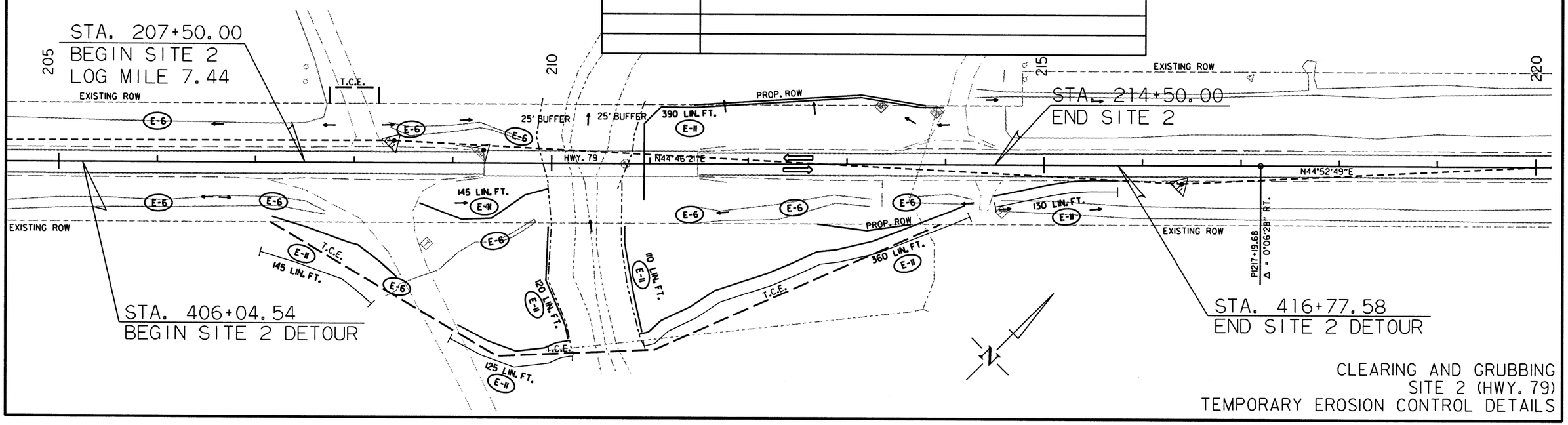
DATE	REVISION

LEGEND

E-6 ROCK DITCH CHECKS

E-11 SILT FENCE

CLEARING AND GRUBBING
SITE 1 (HWY. 50)
TEMPORARY EROSION CONTROL DETAILS



CLEARING AND GRUBBING
SITE 2 (HWY. 79)
TEMPORARY EROSION CONTROL DETAILS

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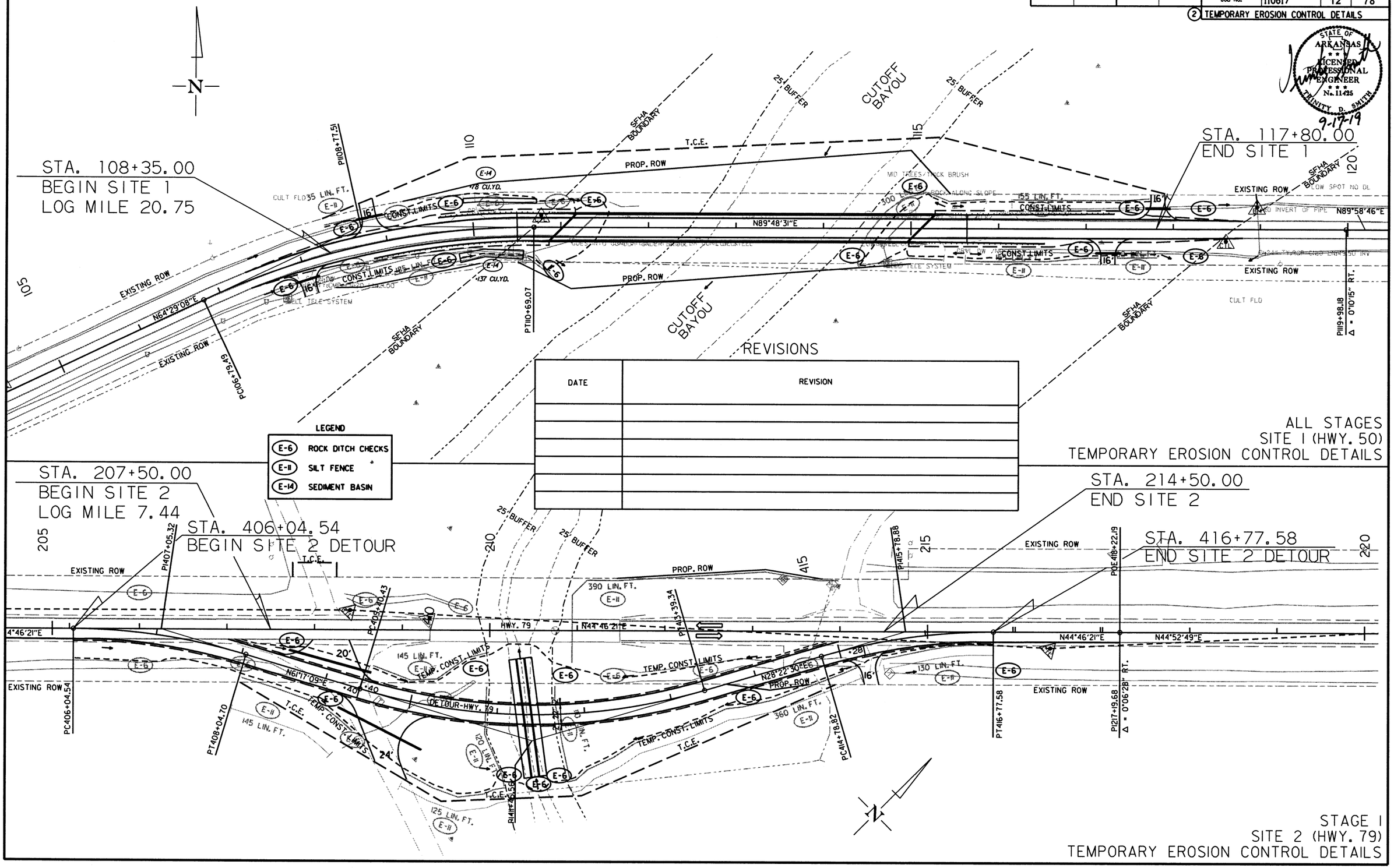
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	12	78

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 9-17-19



LEGEND

E-6	ROCK DITCH CHECKS
E-11	SILT FENCE
E-14	SEDIMENT BASIN

REVISIONS

DATE	REVISION

ALL STAGES
SITE 1 (HWY. 50)
TEMPORARY EROSION CONTROL DETAILS

STAGE 1
SITE 2 (HWY. 79)
TEMPORARY EROSION CONTROL DETAILS

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				6	ARK.			
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(2) TEMPORARY EROSION CONTROL DETAILS

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

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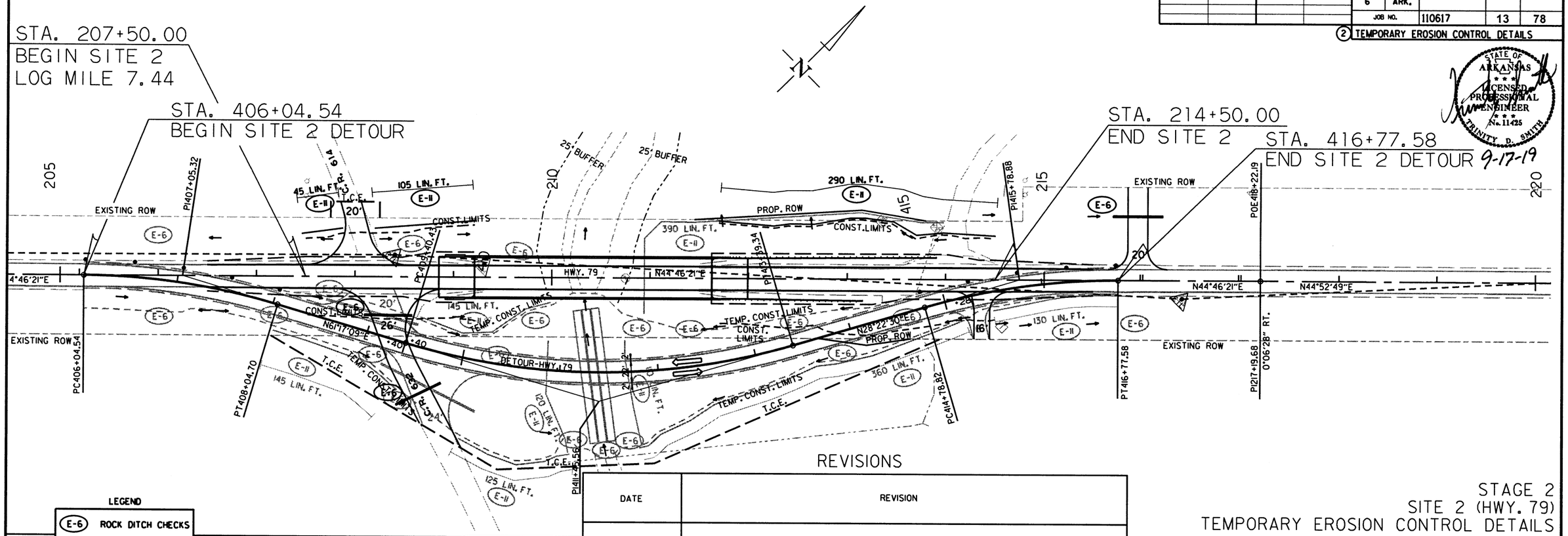

REVISIONS

DATE	REVISION

STAGE 2
SITE 2 (HWY. 79)
TEMPORARY EROSION CONTROL DETAILS

STAGE 3
SITE 2 (HWY. 79)
TEMPORARY EROSION CONTROL DETAILS

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				6	ARK.			
				JOB NO.		110617	14	78

(2) MAINTENANCE OF TRAFFIC DETAILS

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

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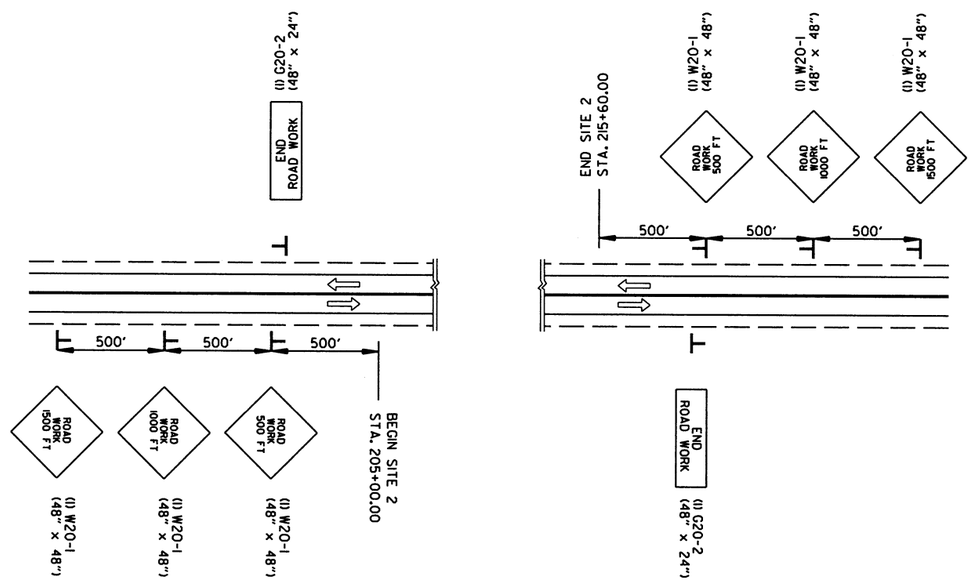
STAGE 1:
INSTALL ADVANCE WARNING SIGNS.

SITE 1:
CLOSE HWY. 50 AND CONSTRUCT THE ENTIRE BRIDGE AND APPROACHES.
DETOUR TRAFFIC AS SHOWN ON THE DETOUR ROUTE PLANS.

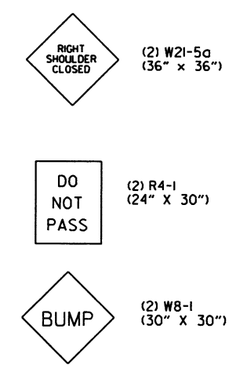
SITE 2:
INSTALL TRI. 96" X 136' TEMPORARY PIPE CULVERT AT STA. 210+35.00
AND CONSTRUCT DETOUR FROM STA. 205+24.22 TO STA. 215+75.06 ON HWY. 79 RIGHT.
INSTALL CONSTRUCTION PAVEMENT MARKINGS.
DELINEATE THE WORK ZONE USING VERTICAL PANELS AT 40' O.C.

STAGE 2:
SHIFT TRAFFIC ON TO THE DETOUR ROAD AND
CONSTRUCT BRIDGE FROM STA. 209+21.50 TO STA. 211+62.50.
CONSTRUCT MAIN LANES GRADING & PAVING.

STAGE 3:
APPLY THE FINAL 2" OF ACHM SURFACE COURSE AFTER ALL CONSTRUCTION HAS BEEN COMPLETED.
OBLITERATE DETOUR AND REMOVE TEMPORARY PIPE CULVERTS.
SHIFT TRAFFIC ON TO THE NEW CONSTRUCTION AND INSTALL PERMANENT SEEDING.



ADVANCE WARNING (ALL STAGES)



ALL STAGES
TO BE USED IF AND WHERE
DIRECTED BY THE ENGINEER.

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ADVANCE WARNING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
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(2) MAINTENANCE OF TRAFFIC DETAILS

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

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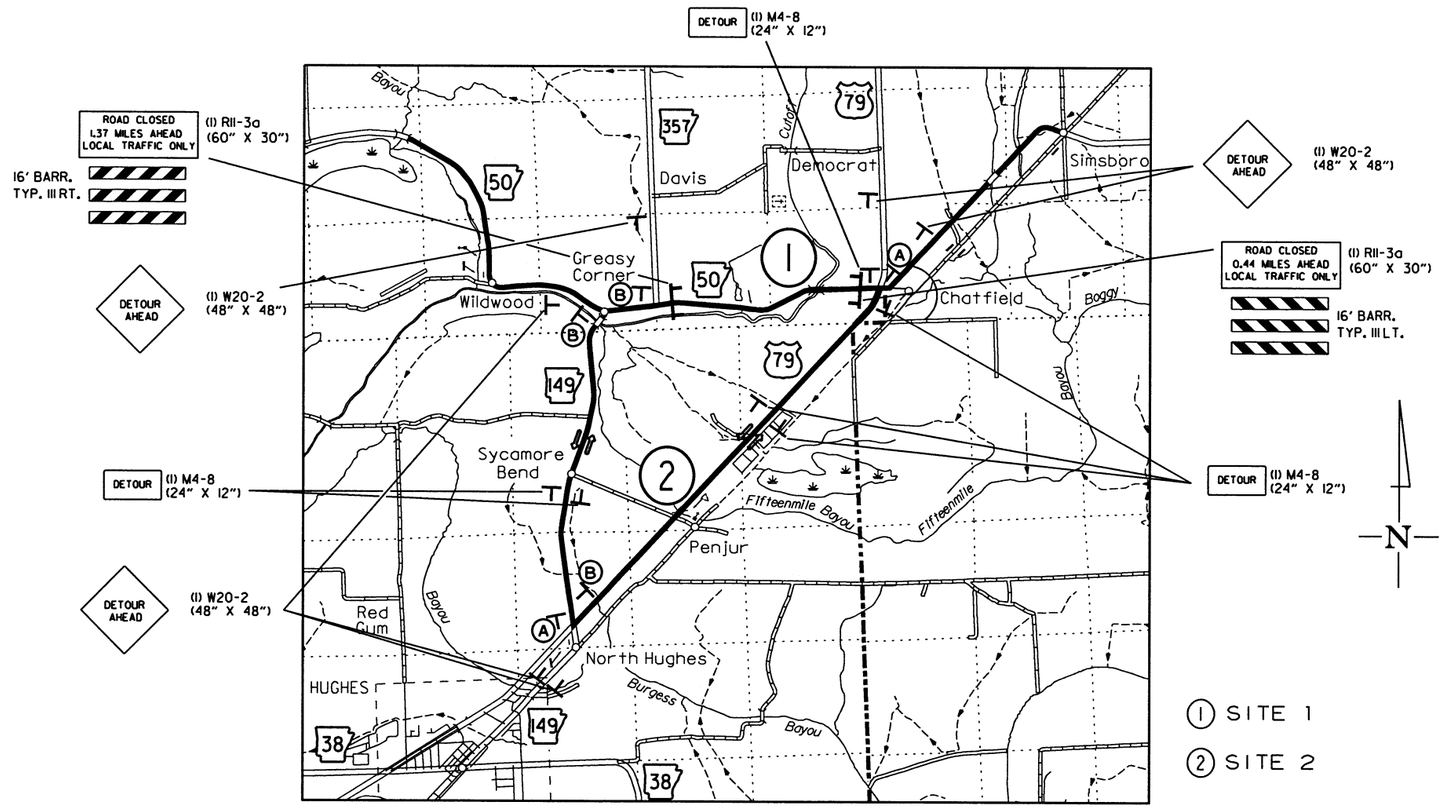

DETOUR ROUTE FOR SITE 1 (HWY. 50)

DETOUR ROUTE DETAILS

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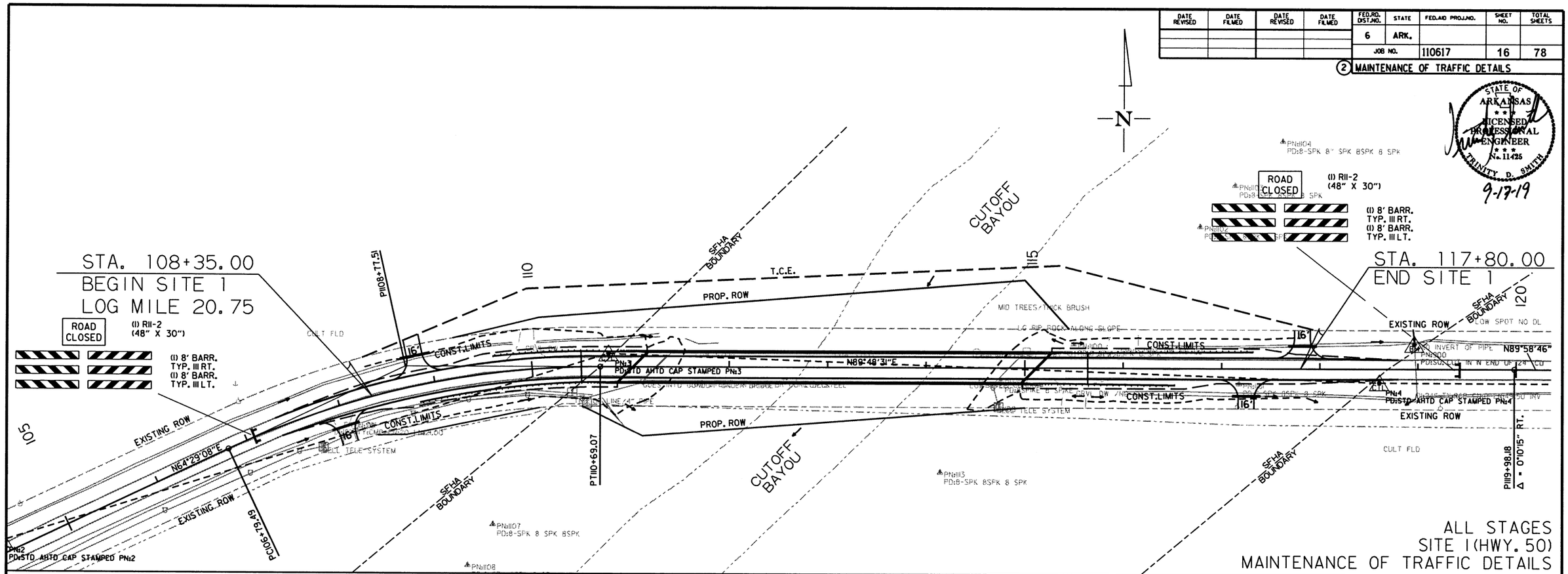
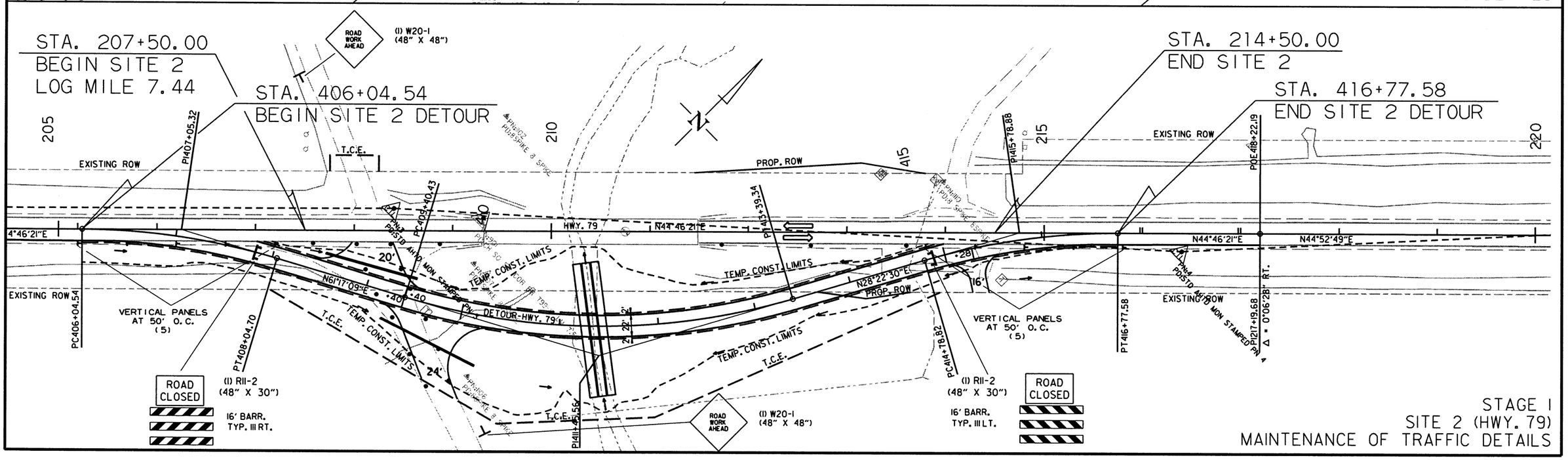
				6	ARK.			
				JOB NO.		110617	16	78

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-17-19





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(2) MAINTENANCE OF TRAFFIC DETAILS

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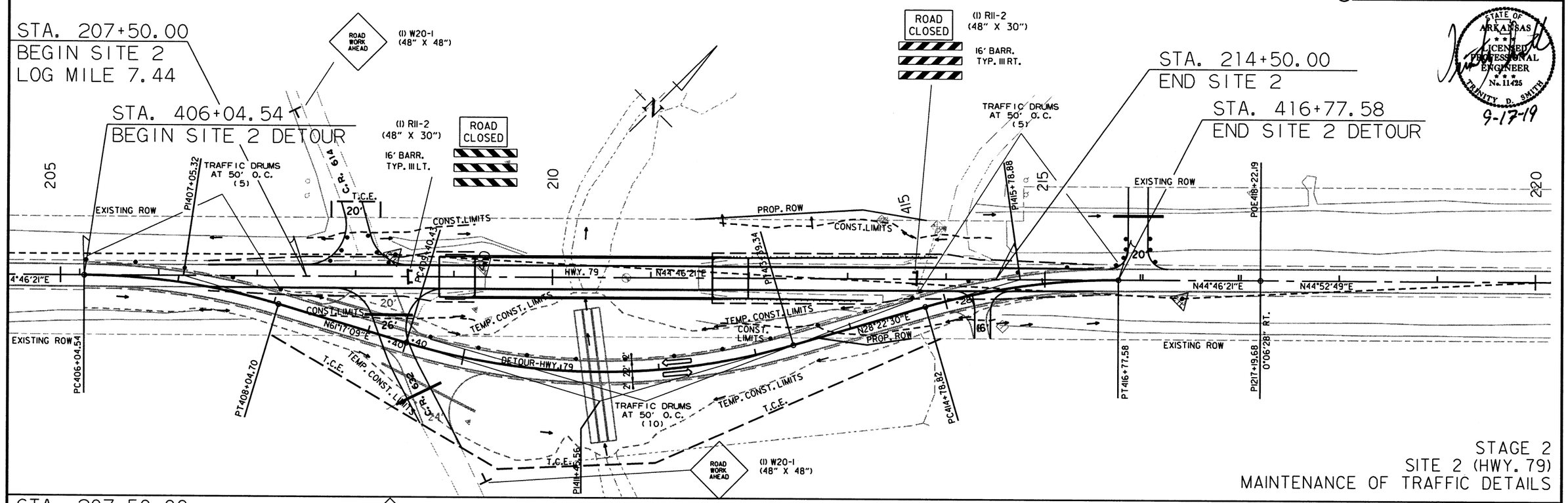

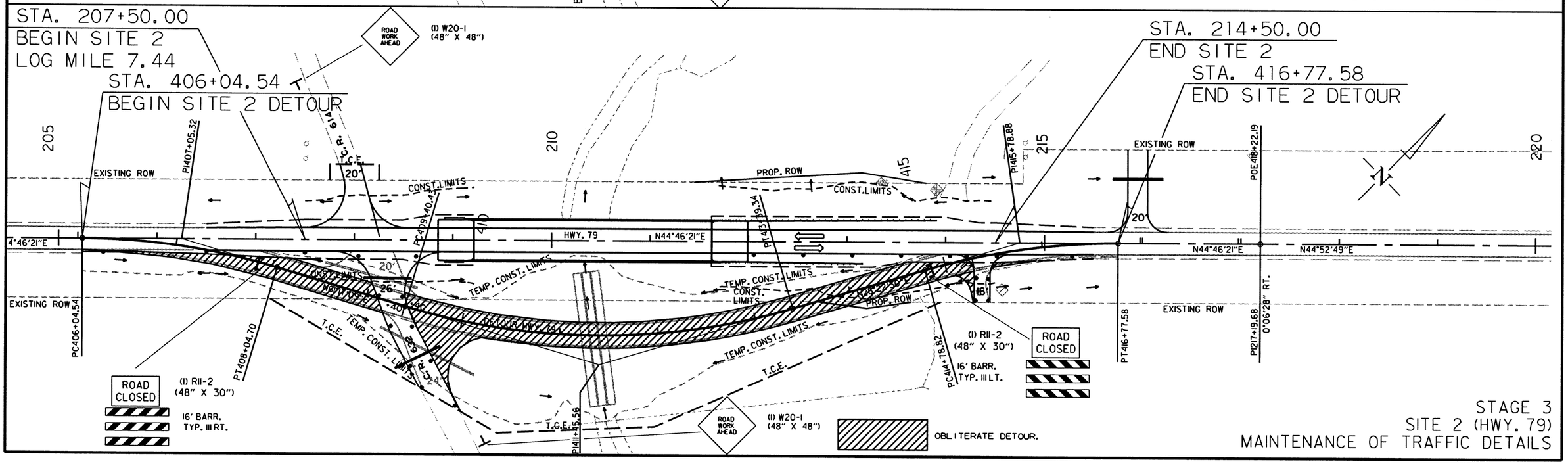

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				6	ARK.			
				JOB NO.		110617	18	78

(2) PERMANENT PAVEMENT MARKING DETAILS

PERMANENT PAVEMENT MARKING DETAILS QUANTITIES

SITE 1:
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6") = 2290 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6") = 2290 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) (80' O.C.) = 16 EACH

SITE 2:
THERMOPLASTIC PAVEMENT MARKING WHITE (6") = 2100 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (6") = 2100 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL) (80' O.C.) = 15 EACH

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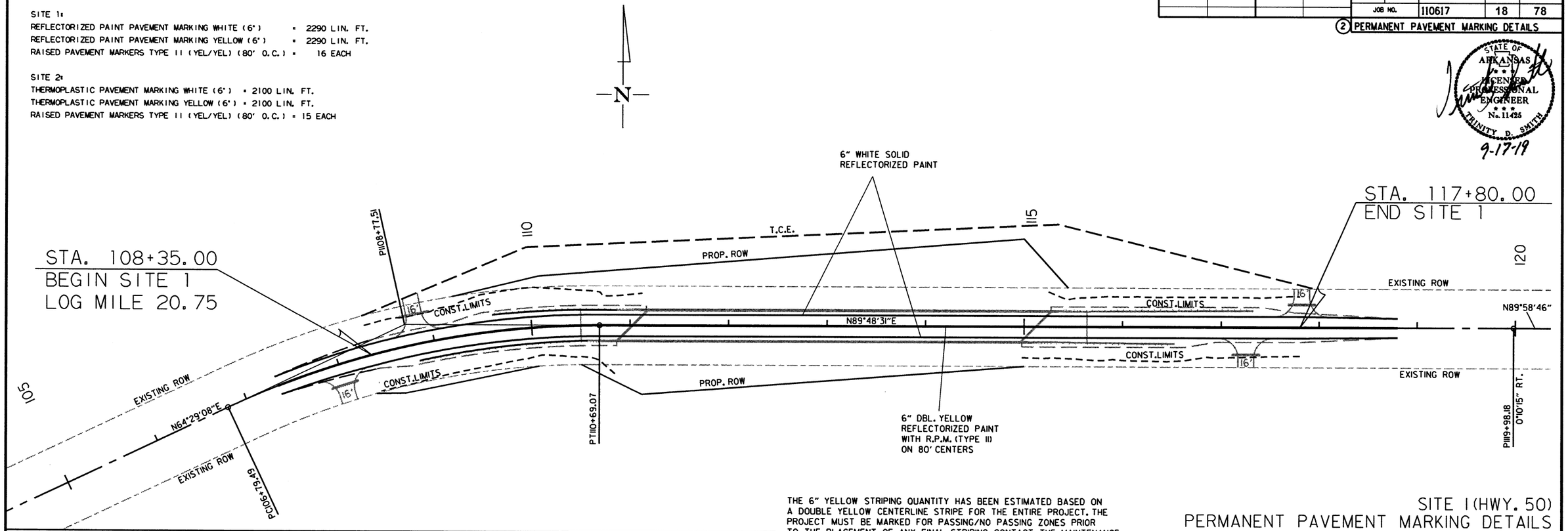
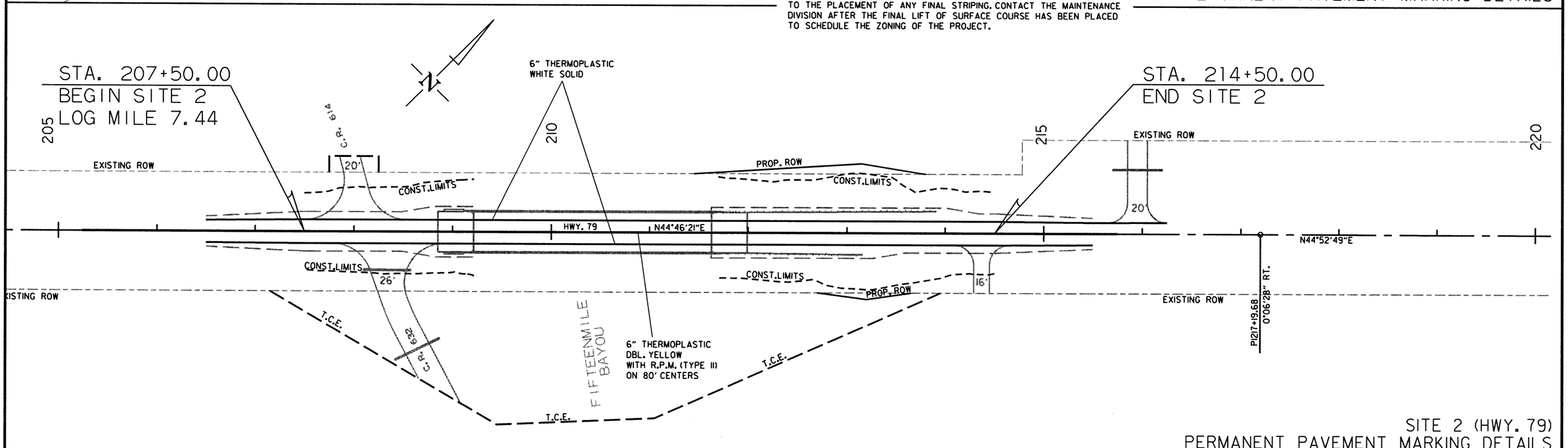


THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN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

SITE 1 (HWY. 50)
PERMANENT PAVEMENT MARKING DETAILS



SITE 2 (HWY. 79)
PERMANENT PAVEMENT MARKING DETAILS

ikge653 8/7/2019
R110617.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.		110617	19	78

(2) QUANTITIES

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CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKING		REFLECTORIZED PAINT PAVEMENT MARKING	
								TYPE II	6"		6"	
								(YELLOW/YELLOW)	WHITE	YELLOW	WHITE	YELLOW
	LIN. FT. - EACH				LIN. FT.		LIN. FT.	EACH	LIN. FT.		LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	810				810							
CONSTRUCTION PAVEMENT MARKINGS		4292				4292						
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		839					839					
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)				31				31				
THERMOPLASTIC PAVEMENT MARKING WHITE (6")				2100					2100			
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")				2100						2100		
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")				2290							2290	
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")				2290								2290
TOTALS:					**810**	**4292**	**839**	**31**	**2100**	**2100**	**2290**	**2290**

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

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

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	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"	3	3	3	3	3	48.0				
W20-1	ROAD WORK 1000 FT.	48"x48"	3	3	3	3	3	48.0				
W20-1	ROAD WORK 500 FT.	48"x48"	3	3	3	3	3	48.0				
W20-1	ROAD WORK AHEAD	48"x48"	2	2	2	2	2	32.0				
G20-2	END ROAD WORK	48"x24"	3	3	3	3	3	24.0				
R11-2	ROAD CLOSED	48"x30"	4	4	4	4	4	40.0				
R11-3a	ROAD CLOSED xx MILES AHEAD LOCAL TRAFFIC ONLY	60"x30"	2	2	2	2	2	25.0				
R4-1	DO NOT PASS	24"x30"	2	2	2	2	2	10.0				
W21-5a	RIGHT SHOULDER CLOSED	36"x36"	2	2	2	2	2	18.0				
W8-1	BUMP	30"x30"	2	2	2	2	2	12.5				
M4-8	DETOUR	24"x12"	6	6	6	6	6	12.0				
M4-9L	DETOUR (LEFT ARROW)	30"x24"	2	2	2	2	2	10.0				
M4-9R	DETOUR (RIGHT ARROW)	30"x24"	3	3	3	3	3	15.0				
W20-2	DETOUR AHEAD	48"x48"	6	6	6	6	6	96.0				
SPECIAL	WORK WITH US SIGN (USE CAUTION, SLOW DOWN)	96"x48"	2	2	2	2	2	64.0				
	VERTICAL PANELS		10			10			10			
	TRAFFIC DRUMS		17	32	25	32				32		
	TYPE III BARRICADE-RT. (8')		2	2	2	2					16	
	TYPE III BARRICADE-LT. (8')		2	2	2	2						16
	TYPE III BARRICADE-RT. (16')		2	2	2	2					32	
	TYPE III BARRICADE-LT. (16')		2	2	2	2						32
TOTALS:								**502.5**	**10**	**32**	**48**	**48**

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

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.		110617	20	78

(2) QUANTITIES

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

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CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
111+50	113+35	SITE 1: HWY. 50	2	2
113+65	116+30	SITE 1: HWY. 50	3	3
209+20	213+95	SITE 2: HWY. 79	5	5
TOTALS:			10	10

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	10	20
DIRECTED BY THE ENGINEER		
TOTALS:	10	20

NOTE: QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.
BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC...25 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE

REMOVAL AND DISPOSAL OF PIPE CULVERTS

STATION	DESCRIPTION	EACH
SITE 1: HWY. 50		
107+99	18" X 21' CM PIPE CULVERT ON RT.	1
SITE 2: HWY. 79		
208+66	18" X 41' CM PIPE CULVERT ON RT.	1
TOTAL:		2

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

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			300	2
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			300	2

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

TIMBER COMPACTION PILE

STATION	DESCRIPTION	LIN. FT.
ENTIRE PROJECT	SITE 1	6760
ENTIRE PROJECT	SITE 2	18040
TOTAL:		24800

REMOVAL AND DISPOSAL OF GUARDRAIL

STATION	STATION	LOCATION	LIN. FT.
SITE 1: HWY. 50			
110+61	111+10	HWY. 50 ON RT.	50
110+90	111+39	HWY. 50 ON LT.	50
114+70	115+19	HWY. 50 ON RT.	50
114+98	115+48	HWY. 50 ON LT.	50
SITE 2: HWY. 79			
209+03	209+30	HWY. 79 ON LT.	27
209+03	209+30	HWY. 79 ON RT.	27
211+51	211+78	HWY. 79 ON LT.	27
211+51	211+78	HWY. 79 ON RT.	27
TOTAL:			308

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
107+35.00	108+35.00	SITE 1: HWY. 50 - MAIN LANES	20.00	222.22
117+80.00	118+80.00	SITE 1: HWY. 50 - MAIN LANES	20.00	222.22
206+50.00	207+50.00	SITE 2: HWY. 79 - MAIN LANES	22.00	244.44
214+50.00	215+50.00	SITE 2: HWY. 79 - MAIN LANES	22.00	244.44
TOTAL:				933.32

NOTE: AVERAGE MILLING DEPTH 1".

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
111+02	SITE 1: HWY. 50 - BRIDGE END ON RT.	1
209+22	SITE 2: HWY. 79 - BRIDGE END ON RT.	1
TOTAL:		2

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

ACHM PATCHING OF EXISTING ROADWAY

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

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

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	BRIDGE END TERMINAL
			LIN. FT.	EACH		
108+81.72	110+75.47	SITE 1 - RT. SIDE	125	1	1	
109+61.72	111+05.47	SITE 1 - LT. SIDE	75	1	1	
114+97.53	116+41.28	SITE 1 - RT. SIDE	75	1	1	
115+27.53	117+21.28	SITE 1 - LT. SIDE	125	1	1	
208+91.50	209+21.50	SITE 2 - RT. SIDE				1
208+91.50	209+21.50	SITE 2 - LT. SIDE				1
211+62.50	213+06.25	SITE 2 - RT. SIDE	75	1	1	
211+62.50	213+81.25	SITE 2 - LT. SIDE	150	1	1	
TOTALS:			625	6	6	2

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	55
ENGINEER	
TOTAL:	55

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

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EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.		TON
ENTIRE	PROJECT	SITE 1 - HWY. 50: ALL STAGES - MAIN LANES	384	255	
ENTIRE	PROJECT	SITE 2 - HWY. 79: STAGE 1 - DETOUR	1448	11243	
ENTIRE	PROJECT	SITE 2 - HWY. 79: STAGE 2 - MAIN LANES	701	948	
ENTIRE	PROJECT	SITE 2 - HWY. 79: STAGE 3 - OBLITERATE DETOUR	12211	1253	
ENTIRE	PROJECT	APPROACHES		615	
ENTIRE	PROJECT	TEMPORARY APPROACHES		60	
111+01.47	115+12.53	SITE 1 - BRIDGE EXCAVATION	2100		
209+21.50	211+62.50	SITE 2 - BRIDGE EXCAVATION	405		
* ENTIRE	PROJECT	TO BE USED IF AND WHERE			100
		DIRECTED BY THE ENGINEER			
TOTALS:			17249	14374	100

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

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

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
107+00	35		24.40	90	24	54.60	6' RT.	0-5	36	19	A-6(17)	GRAY
107+00	35		24.30	90	24	54.60	16' RT.	0-5	34	15	A-6(14)	GRAY
107+10	35		24.40	90	24	54.50	16' RT.	0-5	36	18	A-6(16)	GRAY
120+00	35		25.10	90	24	41.60	6' LT.	0-5	52	33	A-7-6(27)	GRAY
120+00	35		25.20	90	24	41.60	16' LT.	0-5	56	35	A-7-6(34)	GRAY
208+00	34	58	43.00	90	26	13.00	6' RT.	0-5	27	15	A-6(11)	GRAY
208+00	34	58	42.80	90	26	12.70	27' RT.	0-5	49	30	A-7-6(27)	GRAY
208+10	34	58	42.90	90	26	12.60	27' RT.	0-5	43	33	A-7-6(22)	GRAY
215+00	34	58	48.90	90	26	5.70	6' LT.	0-5	34	20	A-6(13)	GRAY
215+00	34	58	48.90	90	26	5.80	24' LT.	0-5	53	38	A-7-6(36)	GRAY

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.

RUMBLE STRIPS IN ASPHALT SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN ASPHALT SHOULDERS
			LIN.FT.
207+50	207+74	SITE 2 - RT. SHOULDER	24
208+59	208+85	SITE 2 - LT. SHOULDER	26
211+99	212+47	SITE 2 - LT. SHOULDER	48
211+99	212+47	SITE 2 - RT. SHOULDER	48
212+59	213+07	SITE 2 - LT. SHOULDER	48
212+59	213+07	SITE 2 - RT. SHOULDER	48
213+19	213+67	SITE 2 - LT. SHOULDER	48
213+19	213+67	SITE 2 - RT. SHOULDER	48
213+79	214+04	SITE 2 - RT. SHOULDER	25
213+79	214+27	SITE 2 - LT. SHOULDER	48
TOTAL:			411

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

DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YD.	SQ. YD.
411+35	TEMPORARY PIPE CULVERT	22	42
	TO BE USED IF AND WHERE	5	10
	DIRECTED BY THE ENGINEER		
TOTALS:		27	52

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

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL							
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	CU.YD.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING									42	2405			103
ENTIRE	PROJECT	STAGE 1						6.51	6.51	132.8	63		215	215	236
ENTIRE	PROJECT	STAGE 2						4.56	4.56	93.0	9	440			19
ENTIRE	PROJECT	STAGE 3	3.78	7.56	3.78	385.6	3.78								
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			0.95	1.90	0.95	96.9	0.95	2.77	2.77	56.5	29	711	54	54	85
TOTALS:			4.73	9.46	4.73	482.5	4.73	13.84	13.84	282.3	143	3556	269	269	443

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
ROCK DITCH CHECKS.....3 CU.YD./LOCATION

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

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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
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(2) QUANTITIES

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

9-17-19

STRUCTURES

STATION	DESCRIPTION	TEMPORARY CULVERTS 18" (LIN. FT.)	TEMPORARY CULVERTS 96" (LIN. FT.)	STD. DWG. NOS.
409+40	18" TEMP. PIPE CULVERT SIDE DRAIN ON LT.	96		PCC-1, PCM-1, PCP-1, PCP-2
409+40	18" TEMP. PIPE CULVERT SIDE DRAIN ON RT.	108		PCC-1, PCM-1, PCP-1, PCP-2
411+35	TRI. 96" TEMP. PIPE CULVERT		408	PCC-1, PCM-2
TOTALS:		204	408	

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.

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE A) CU.YD.	APPROACH GUTTER (TYPE C) CU.YD.	APPROACH SLAB (TYPE A) CU.YD.	APPROACH SLAB (TYPE C1) CU.YD.	REINFORCING STEEL-RDWY. (GR. 60) POUND	AGGREGATE BASE CRS. (CLASS 7) TON
110+50.00	111+01.50	SITE 1: HWY. 50 - APPROACH SLABS			27.30		2110	25.00
110+56.50	110+86.50	SITE 1: HWY. 50 - RT. SIDE	4.25				360	
110+86.50	111+16.50	SITE 1: HWY. 50 - LT. SIDE	4.25				360	
114+97.50	115+27.50	SITE 1: HWY. 50 - RT. SIDE	4.25				360	
115+12.50	115+64.00	SITE 1: HWY. 50 - APPROACH SLABS			27.30		2110	25.00
115+27.50	115+57.50	SITE 1: HWY. 50 - LT. SIDE	4.25				360	
208+85.00	209+21.50	SITE 2: HWY. 79 - LT. SIDE		14.80			810	
208+85.00	209+21.50	SITE 2: HWY. 79 - RT. SIDE		14.80			810	
208+85.00	209+21.50	SITE 2: HWY. 79 - APPROACH SLABS				49.15	5775	25.00
211+62.50	211+99.00	SITE 2: HWY. 79 - LT. SIDE		14.80			810	
211+62.50	211+99.00	SITE 2: HWY. 79 - RT. SIDE		14.80			810	
211+62.50	211+99.00	SITE 2: HWY. 79 - APPROACH SLABS				49.15	5775	25.00
TOTALS:			17.00	59.20	54.60	98.30	20450	100.00

NOTE: USE T =12" FOR 4' SHOULDER.
NOTE: USE T =15.5" FOR 8' SHOULDER.

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH FEET	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22) SQ. YD.	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22) TON	AGGREGATE BASE COURSE (CLASS 7) TON	SIDE DRAINS 18" LIN. FT.	STANDARD DRAWINGS
108+00	RT.	SITE 1 - HWY. 50	16	40.73	4.48	16.63	28	PCC-1, PCM-1, PCP-1, PCP-2
108+85	LT.	SITE 1 - HWY. 50	16	40.73	4.48	16.63	30	PCC-1, PCM-1, PCP-1, PCP-2
117+25	RT.	SITE 1 - HWY. 50	16	40.73	4.48	16.63	28	PCC-1, PCM-1, PCP-1, PCP-2
117+82	LT.	SITE 1 - HWY. 50	16	40.73	4.48	16.63	28	PCC-1, PCM-1, PCP-1, PCP-2
208+01	LT.	SITE 2 - HWY. 79 - C.R. 614	20	50.07	5.51	20.45		
208+35	RT.	SITE 2 - HWY. 79 - C.R. 632	26	64.07	7.05	26.16	98	PCC-1, PCM-1, PCP-1, PCP-2
214+37	RT.	SITE 2 - HWY. 79	16	40.73	4.48	16.63		
215+95	LT.	SITE 2 - HWY. 79	20	50.07	5.51	20.45	50	PCC-1, PCM-1, PCP-1, PCP-2
* ENTIRE PROJECT TEMPORARY DRIVES						75.00		
TOTALS:				367.86	40.47	225.21	262	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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

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.		110617	23	78

(2) QUANTITIES

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

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BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT							ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
						(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)																
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLON	TOTAL WID.	SQ.YD.	GALLON	TOTAL GALLONS	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	TOTAL PG 64-22
			FEET			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	TON
MAIN LANES																									
SITE 1:																									
107+35.00	108+35.00	HWY. 50 - MAIN LANES - TRANSITION	100.00	44.13	44.13	21.06	234.00	11.70				11.70					1.06	11.78	220.00	1.30	25.00	277.78	220.00	30.56	31.86
108+35.00	109+26.00	HWY. 50 - MAIN LANES - NOTCH AND WIDEN	91.00	88.25	80.31	22.13	223.76	11.19				11.19					2.13	21.54	220.00	2.37	30.00	303.33	220.00	33.37	35.74
109+26.00	109+51.73	HWY. 50 - MAIN LANES - FULL DEPTH	25.73	192.00	49.40	22.25	63.61	3.18				3.18					22.25	63.61	220.00	7.00	30.00	85.77	220.00	9.43	16.43
109+51.73	110+50.00	HWY. 50 - MAIN LANES - FULL DEPTH	98.27	192.00	188.68	22.25	242.95	12.15				12.15					22.25	242.95	220.00	26.72	30.00	327.57	220.00	36.03	62.75
115+64.00	115+79.00	HWY. 50 - MAIN LANES - FULL DEPTH	15.00	192.00	28.80	22.25	37.08	1.85				1.85					22.25	37.08	220.00	4.08	30.00	50.00	220.00	5.50	9.58
115+79.00	117+80.00	HWY. 50 - MAIN LANES - NOTCH AND WIDEN	201.00	88.25	177.38	22.13	494.24	24.71				24.71					2.13	47.57	220.00	5.23	30.00	670.00	220.00	73.70	78.93
117+80.00	118+80.00	HWY. 50 - MAIN LANES - TRANSITION	100.00	44.13	44.13	21.06	234.00	11.70				11.70					1.06	11.78	220.00	1.30	25.00	277.78	220.00	30.56	31.86
SITE 2:																									
206+50.00	207+50.00	HWY. 79 - MAIN LANES - TRANSITION	100.00	99.50	99.50	28.39	315.44	15.77				15.77	3.26	36.22	495.00	8.96	3.13	34.78	220.00	3.83	31.00	344.44	220.00	37.89	41.72
207+50.00	208+85.00	HWY. 79 - MAIN LANES - NOTCH AND WIDEN	135.00	199.00	268.65	34.77	521.55	26.08				26.08	6.52	97.80	495.00	24.21	6.25	93.75	220.00	10.31	40.00	600.00	220.00	66.00	76.31
211+99.00	214+50.00	HWY. 79 - MAIN LANES - NOTCH AND WIDEN	251.00	199.00	499.49	34.77	969.70	48.49				48.49	6.52	181.84	495.00	45.01	6.25	174.31	220.00	19.17	40.00	1115.56	220.00	122.71	141.88
214+50.00	215+50.00	HWY. 79 - MAIN LANES - TRANSITION	100.00	99.50	99.50	28.39	315.44	15.77				15.77	3.26	36.22	495.00	8.96	3.13	34.78	220.00	3.83	31.00	344.44	220.00	37.89	41.72
406+04.54	407+80.49	HWY. 79 - DETOUR - NOTCH AND WIDEN	175.95	47.44	83.47				VAR.	135.55	23.04	23.04	VAR.	135.55	440.00	29.82					VAR.	173.33	220.00	19.07	19.07
407+80.49	415+01.90	HWY. 79 - DETOUR - FULL DEPTH	721.41	133.50	963.08				22.33	1789.90	304.28	304.28	22.33	1789.90	440.00	393.78					26.00	2084.07	220.00	229.25	229.25
415+01.90	416+77.58	HWY. 79 - DETOUR - NOTCH AND WIDEN	175.68	47.44	83.34				VAR.	135.55	23.04	23.04	VAR.	135.55	440.00	29.82					VAR.	173.33	220.00	19.07	19.07
ADDITIONAL FOR GUARDRAIL WIDENING																									
108+38.73	108+71.73	HWY. 50 - RT. MAIN LANES - GUARDRAIL WIDENING TRANSITION	33.00	14.00	235.71																2.75	10.08	220.00	1.11	1.11
108+71.73	109+18.73	HWY. 50 - RT. MAIN LANES - GUARDRAIL WIDENING	47.00	26.50	177.36																5.50	28.72	220.00	3.16	3.16
109+18.73	109+51.73	HWY. 50 - LT. MAIN LANES - GUARDRAIL WIDENING TRANSITION	33.00	40.50	81.48																8.25	30.25	220.00	3.33	3.33
109+51.73	110+86.50	HWY. 50 - MAIN LANES - GUARDRAIL WIDENING	134.77	53.00	254.28																11.00	164.72	220.00	18.12	18.12
110+86.50	111+16.50	HWY. 50 - LT. MAIN LANES - GUARDRAIL WIDENING	30.00	26.50	113.21																5.50	18.33	220.00	2.02	2.02
114+97.50	115+27.50	HWY. 50 - RT. MAIN LANES - GUARDRAIL WIDENING	30.00	26.50	113.21																5.50	18.33	220.00	2.02	2.02
115+27.50	116+62.27	HWY. 50 - MAIN LANES - GUARDRAIL WIDENING	134.77	53.00	254.28																11.00	164.72	220.00	18.12	18.12
116+62.27	116+95.27	HWY. 50 - RT. MAIN LANES - GUARDRAIL WIDENING TRANSITION	33.00	40.50	81.48																8.25	30.25	220.00	3.33	3.33
116+95.27	117+42.27	HWY. 50 - LT. MAIN LANES - GUARDRAIL WIDENING	47.00	26.50	177.36																5.50	28.72	220.00	3.16	3.16
117+42.27	117+75.27	HWY. 50 - LT. MAIN LANES - GUARDRAIL WIDENING TRANSITION	33.00	14.00	235.71																2.75	10.08	220.00	1.11	1.11
208+48.50	208+81.50	HWY. 79 - MAIN LANES - GUARDRAIL WIDENING TRANSITION	33.00	37.00	89.19																5.50	20.17	220.00	2.22	2.22
208+81.50	209+21.50	HWY. 79 - MAIN LANES - GUARDRAIL WIDENING	40.00	68.50	58.39																11.00	48.89	220.00	5.38	5.38
211+62.50	213+25.65	HWY. 79 - MAIN LANES - GUARDRAIL WIDENING	163.15	68.50	238.18																11.00	199.41	220.00	21.94	21.94
213+25.65	213+58.65	HWY. 79 - RT. MAIN LANES - GUARDRAIL WIDENING TRANSITION	33.00	52.75	62.56																8.25	30.25	220.00	3.33	3.33
213+58.65	214+00.65	HWY. 79 - LT. MAIN LANES - GUARDRAIL WIDENING	42.00	34.25	122.63																5.50	25.67	220.00	2.82	2.82
214+00.65	214+33.65	HWY. 79 - LT. MAIN LANES - GUARDRAIL WIDENING TRANSITION	33.00	18.50	178.38																2.75	10.08	220.00	1.11	1.11
ADDITIONAL FOR LEVELING																									
108+35.00	109+26.00	SITE 1: HWY. 50	91.00						20.00	202.22	34.38	34.38					20.00	202.22	VAR.	314.82					314.82
115+79.00	117+80.00	SITE 2: HWY. 79	201.00						20.00	446.67	75.93	75.93					22.00	491.33	VAR.	137.18					137.18
207+50.00	208+85.00	SITE 1: HWY. 50	135.00						22.00	330.00	56.10	56.10					20.00	300.00	VAR.	315.00					315.00
211+99.00	214+50.00	SITE 2: HWY. 79	251.00						22.00	613.56	104.31	104.31					22.00	613.56	VAR.	140.00					140.00
ADDITIONAL FOR SUPERELEVATION																									
108+35.00	108+74.28	SITE 1 - HWY. 50	39.28	21.25	8.35																				
108+74.28	110+84.28	SITE 1 - HWY. 50	210.00	10.63	22.32																				
408+40.49	411+39.88	SITE 2: HWY. 79 - DETOUR	299.39	3.75	11.23																				
411+39.88	411+42.51	SITE 2: HWY. 79 - DETOUR	2.63	7.50	0.20																				
411+42.51	414+41.90	SITE 2: HWY. 79 - DETOUR	299.39	3.75	11.23																				
TOTALS:					5236.60		3651.77	182.59		3653.45	621.08	803.67		2413.08		540.56		2381.04		992.14		7666.07		843.31	1835.45

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.7% MIN. AGGR.....5.3% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

ikge653 8/7/2019
R110617.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.		110617	24	78

(1) 07467, 07468 - QUANTITIES - 61255

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 110617

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	SS & 802	SP, SS, & 802	803	SS & 804	SS & 804	SS & 805	SS & 805	SS & 805	SS & 805	SP, SS & 807	SS & 807	SS & 808	SS & 809	812	816	816
			ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	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)	STEEL SHELL PILING (18" DIA.)	STEEL SHELL PILING (30" DIA.)	PILE ENCASEMENT	PREBORING	STRUCTURAL STEEL IN BEAM SPANS (A709, GR. 50W)	(1) PAINTING STRUCTURAL STEEL	ELASTOMERIC BEARINGS	ARMORED JOINT WITH NEOPRENE STRIP SEAL	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP
			UNIT	LUMP SUM	CUBIC YARD	CUBIC YARD	CUBIC YARD	GALLON	POUND	POUND	LINEAR FOOT	LINEAR FOOT	LINEAR FOOT	LINEAR FOOT	POUND	TON	CUBIC INCH	LINEAR FOOT	EACH	SQUARE YARD	CUBIC YARD
07467	HIGHWAY 50 OVER CUTOFF BAYOU	BENT 1			121	48.70		0.4	7,810	520	644				780		2,142.0			478	258
		BENT 2				60.00			11,930			320	20				1,392.0				
		BENT 3				60.00			11,930			360	33				1,392.0				
		BENT 4				60.00			11,930			360	65				1,392.0				
		BENT 5				60.00			11,930			360	65				1,392.0				
		BENT 6				60.00			11,930			360	31				1,392.0				
		BENT 7			121	48.70		0.4	7,810	520	724				780		2,142.0			437	234
		408'-0" CONTINUOUS COMPOSITE W-BEAM UNIT					454.30	33.7		104,410					314,260	3.8		89	1		
		SITE NO. 1 (EXISTING BR. NO. M3290)		1																	
		TOTALS FOR BRIDGE NO. 07467		1	242	397.40	454.30	34.5	75,270	105,450	1,368	1,760	214		315,820	3.8	11,244.0	89	1	915	492
07468	HIGHWAY 79 OVER FIFTEEN MILE BAYOU	BENT 1			84	20.40			3,630	650	420			60						89	58
		BENT 2				54.70			10,810	860		360	48								
		BENT 3				54.70			10,810	860		360	32								
		BENT 4			84	20.40			3,630	650	540			60						82	53
		240'-0" CONTINUOUS COMPOSITE INTEGRAL W-BEAM UNIT					376.60	25.6		77,370					292,440				1		
		SITE NO. 2 (EXISTING BR. NO. 02453)		1																	
		TOTALS FOR BRIDGE NO. 07468		1	168	150.20	376.60	25.6	28,880	80,390	960	720	80	120	292,440				1	171	111
		TOTALS FOR JOB NO. 110617			410	547.60	830.90	60.1	104,150	185,840	2,328	2,480	294	120	608,260	3.8	11,244.0	89	2	1,086	603

LUKE BAILEY
DESIGN SECTION SUPERVISOR

(1) The color of paint shall be Brown equal or close to Federal Std. 595B Color Chip No. 30070 and as approved by the Engineer.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
FIFTEENMILE & CUTOFF BAYOUS
STRS. & APPRS. (S)
ST. FRANCIS COUNTY

ROUTE 50 SEC. I
ROUTE 79 SEC. 17

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 9/9/2019 FILENAME: b110617_q1.dgn
CHECKED BY: WAC DATE: 9-19-19 SCALE: No Scale
DESIGNED BY: — DATE: —

BRIDGE NO. 07467, 07468 DRAWING NO. 61255

PRINT DATE: 9/19/2019

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
201	CLEARING	10	STATION
201	GRUBBING	10	STATION
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	2	EACH
SP & 202	REMOVAL AND DISPOSAL OF GUARDRAIL	308	LIN. FT.
210	UNCLASSIFIED EXCAVATION	17249	CU. YD.
210	COMPACTED EMBANKMENT	14374	CU. YD.
SP & 210	SOIL STABILZATION	100	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	5562	TON
SS & 401	TACK COAT	824	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	518	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	23	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	1777	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	99	TON
412	COLD MILLING ASPHALT PAVEMENT	933	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	10	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	10	TON
504	APPROACH SLABS	152.90	CU. YD.
504	APPROACH GUTTERS	76.20	CU. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
603	18" TEMPORARY CULVERT	204	LIN. FT.
603	96" TEMPORARY CULVERT	408	LIN. FT.
SS & 604	SIGNS	503	SQ. FT.
SS & 604	BARRICADES	96	LIN. FT.
SS & 604	TRAFFIC DRUMS	32	EACH
604	CONSTRUCTION PAVEMENT MARKINGS	4292	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	839	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	810	LIN. FT.
SS & 604	VERTICAL PANELS	10	EACH
SP, SS, & 606	18" SIDE DRAIN	262	LIN. FT.
606	SELECTED PIPE BEDDING	55	CU. YD.
SS & 611	4" PIPE UNDERDRAINS	300	LIN. FT.
SS & 611	UNDERDRAIN OUTLET PROTECTORS	2	EACH
SS & 617	GUARDRAIL (TYPE A)	625	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)	6	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL	6	EACH
620	LIME	9	TON
620	SEEDING	4.73	ACRE
SS & 620	MULCH COVER	18.57	ACRE
620	WATER	764.8	M. GAL.
621	TEMPORARY SEEDING	13.84	ACRE
621	SILT FENCE	3556	LIN. FT.
621	SEDIMENT BASIN	269	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	269	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	443	CU. YD.
621	ROCK DITCH CHECKS	143	CU. YD.
623	SECOND SEEDING APPLICATION	4.73	ACRE
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
642	RUMBLE STRIPS IN ASPHALT SHOULDERS	411	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (6")	2290	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (6")	2290	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	2100	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	2100	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	31	EACH
SS & 734	BRIDGE END TERMINAL	2	EACH
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	20450	POUND
816	FILTER BLANKET	52	SQ. YD.
816	DUMPED RIPRAP	27	CU. YD.
SP	TIMBER COMPACTION PILE	24800	LIN. FT.
	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
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	410	CU. YD.
SS & 802	CLASS S CONCRETE-BRIDGE	547.60	CU. YD.
SP, SS, & 802	CLASS S(AE) CONCRETE-BRIDGE	830.90	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	60.1	GAL.
SS & 804	REINFORCING STEEL-BRIDGE (GRADE 60)	104150	POUND
SS & 804	EPOXY COATED REINFORCING STEEL (GRADE 60)	185840	POUND
SS & 805	STEEL SHELL PILING (18" DIAMETER)	2328	LIN. FT.
SS & 805	STEEL SHELL PILING (30" DIAMETER)	2480	LIN. FT.
SS & 805	PREBORING	120	LIN. FT.
SS & 805	PILE ENCASEMENT	294	LIN. FT.
SP, SS, & 807	STRUCTURAL STEEL IN BEAM SPANS (A709-GR50W)	608260	POUND
SS & 807	PAINTING STRUCTURAL STEEL	3.8	TON
SS & 808	ELASTOMERIC BEARINGS	11244.0	CU. IN.
SS & 809	ARMORED JOINT WITH NEOPRENE STRIP SEAL	89	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)	2	EACH
816	FILTER BLANKET	1086	SQ. YD.
816	DUMPED RIPRAP	603	CU. YD.

REVISIONS

DATE	REVISION	SHEET NUMBER

STATE OF ARKANSAS
CERTIFIED PROFESSIONAL ENGINEER
No. 11425
MINTY D. SMITH
9-24-19

SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE PLANED	DATE REVISED	DATE PLANED

2 SUMMARY OF QUANTITIES AND REVISIONS

FEDERAL DIST. NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	110617	25	78

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.		110617	26	78

(2) SURVEY CONTROL DETAILS

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

9-17-19

SITE 1

SURVEY CONTROL COORDINATES

P ojec Name: 110617
Da e: 11/18/2016
Coo dina e S em: ARKANSAS STATE PLANE - NORTH ZONE BASED ON RTK GPS, CAF BASED ON JOB 110557
PROJECTED TO GROUND.
Uni : U.S. SURVEY FOOT

Poin Name	No hing	Ea ing	Ele	Fea e	De c i ion
1	248598.7917	1786193.7711	204.851	CTL	STD AHTD CAP STAMPED PN: 1
2	248851.9172	1786723.2209	206.076	CTL	STD AHTD CAP STAMPED PN: 2
3	249045.9553	1787337.3228	203.495	CTL	STD AHTD CAP STAMPED PN: 3
4	249021.0126	1788120.5491	202.061	CTL	STD AHTD CAP STAMPED PN: 4
5	249021.1866	1788858.2232	203.727	CTL	STD AHTD CAP STAMPED PN: 5
900	249060.3156	1788156.1530	200.521	BM	SQ. CUT IN N END OF 24" CU

*No e - Reba and Ca - S anda d - 5/8" Reba i h 2" Al min m Ca am ed
*(anda d ma king common o all ca), o a indica ed
(o he ma king indica ed in he oin de c i ion of he indi id al oin).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.999974080 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME 110617gi.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: SEE HEADER
CONVERGENCE ANGLE: 00 55 23 RIGHT AT LT: N 35-00-23 LG: W 90-24-50
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

HWY. 50

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	100+00.00	248653.6643	1786339.1138
8001	PC	106+79.49	248946.3447	1786952.3359
8003	PT	110+69.07	249032.3033	1787329.0748
8004	PI	119+98.18	249035.4068	1788258.1795
8005	POE	125+62.12	249035.6089	1788822.1198

SITE 2

SURVEY CONTROL COORDINATES

P ojec Name: 110647
Da e: 11/18/2016
Coo dina e S em: ARKANSAS STATE PLANE - NORTH ZONE BASED ON RTK GPS, CAF BASED ON JOB 110557
PROJECTED TO GROUND.
Uni : U.S. SURVEY FOOT

Poin Name	No hing	Ea ing	Ele	Fea e	De c i ion
1	237569.8607	1779585.1378	200.530	CTL	STD AHTD MON STAMPED PN 1
2	238207.6329	1780216.3332	200.284	CTL	STD AHTD MON STAMPED PN 2
3	238758.4999	1780760.6923	200.583	CTL	STD AHTD MON STAMPED PN 3
4	239297.3869	1781352.8507	200.866	CTL	STD AHTD MON STAMPED PN 4
5	239867.0613	1781865.3850	200.876	CTL	STD AHTD MON STAMPED PN 5
901	238816.3135	1780831.2051	201.409	TBM	CH SQ SW COR BR 799-17 LM 7.50

*No e - Reba and Ca - S anda d - 5/8" Reba i h 2" Al min m Ca am ed
*(anda d ma king common o all ca), o a indica ed
(o he ma king indica ed in he oin de c i ion of he indi id al oin).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.999974080 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME.S100647GI.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: SEE HEADER
CONVERGENCE ANGLE: 00 55 23 RIGHT AT LT: N 35-00-23 LG: W 90-24-50
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE

HWY. 79

POINT NO.	TYPE	STATION	NORTHING	EASTING
8020	POB	200+00.00	238146.0670	1780184.7059
8021	PI	204+19.68	238444.0320	1780480.2510
8022	PI	217+19.68	239366.9149	1781395.8312
8023	POE	221+96.63	239704.8732	1781732.3811

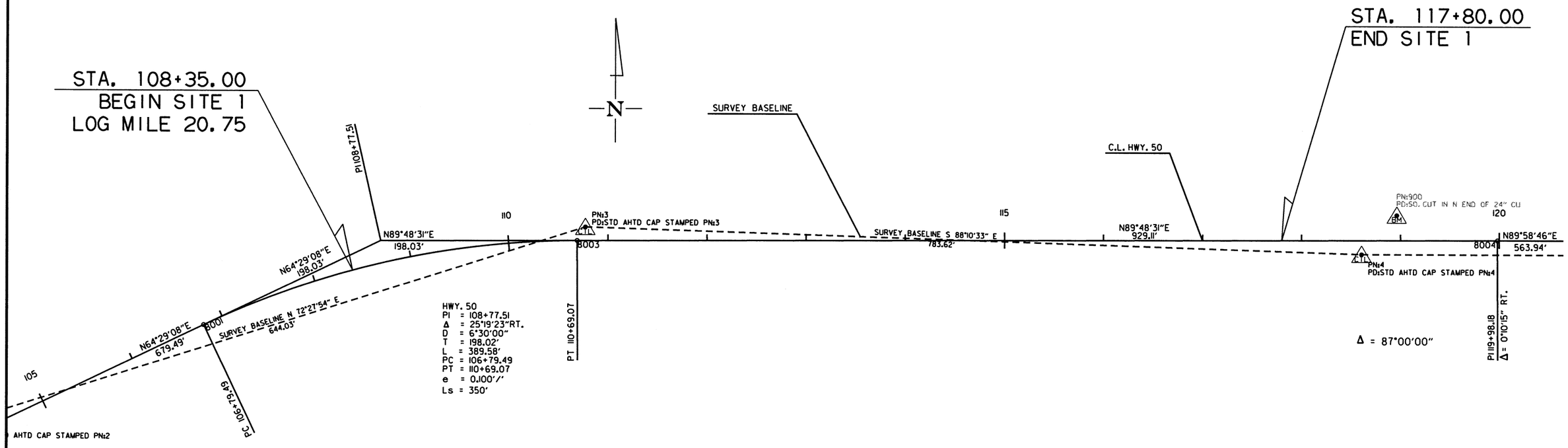
DETOUR - HWY. 79

POINT NO.	TYPE	STATION	NORTHING	EASTING
8021	POB	405+00.00	238444.0320	1780480.2510
8040	PC	406+04.54	238518.2475	1780553.8793
8042	PT	408+04.70	238638.2104	1780713.2437
8043	PC	409+40.43	238703.4176	1780832.2766
8045	PT	413+39.34	238982.4557	1781109.6675
8046	PC	414+78.82	239105.1751	1781175.9525
8048	PT	416+77.58	239264.2503	1781293.9790
8022	POE	418+22.19	239366.9149	1781395.8312

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.		110617	27	78

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-17-19



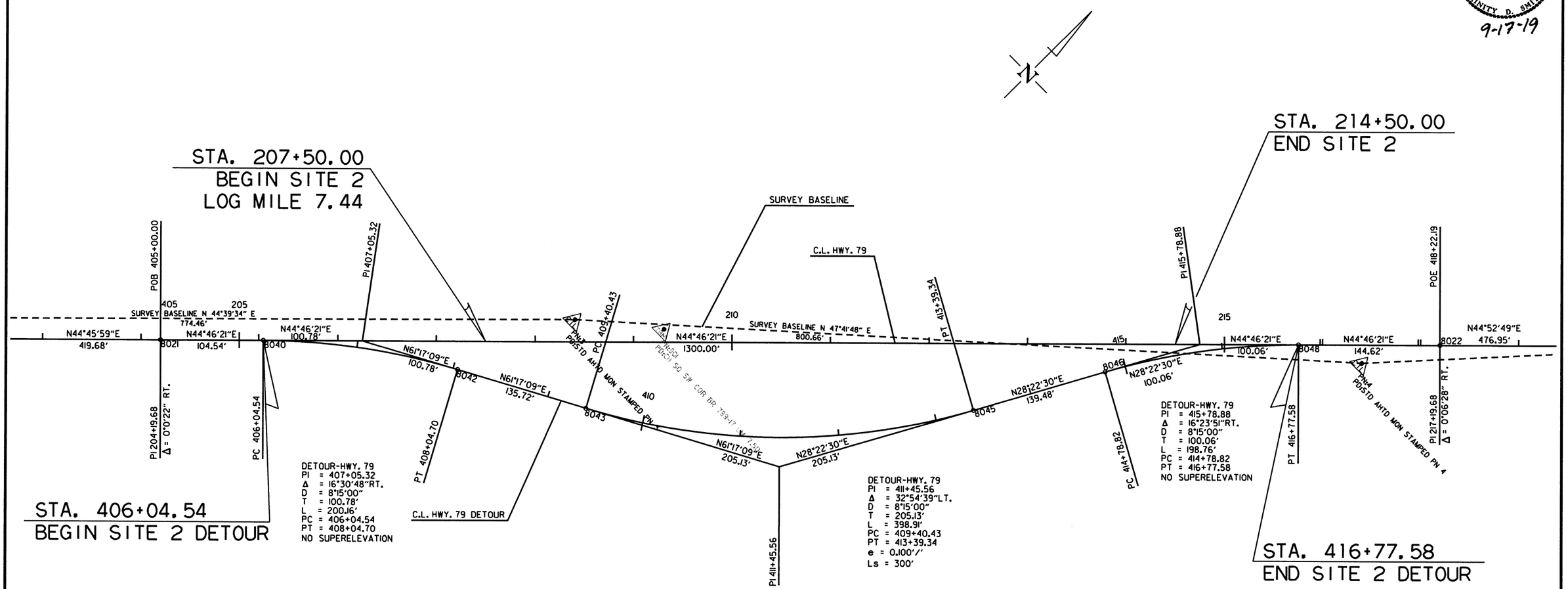
SITE I
SURVEY CONTROL DETAILS

ikge653 8/7/2019
R110617.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.		110617	28	78

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-17-19



SITE 2
SURVEY CONTROL DETAILS

kge653 8/7/2019
R110617.DGN

STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH
108+81.72	110+75.47	RT.	125	1	1
109+61.72	111+05.47	LT.	75	1	1
114+97.53	116+41.28	RT.	75	1	1
115+27.53	117+21.28	LT.	125	1	1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	29	78

(2) PLAN AND PROFILE SHEETS

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

9-17-19

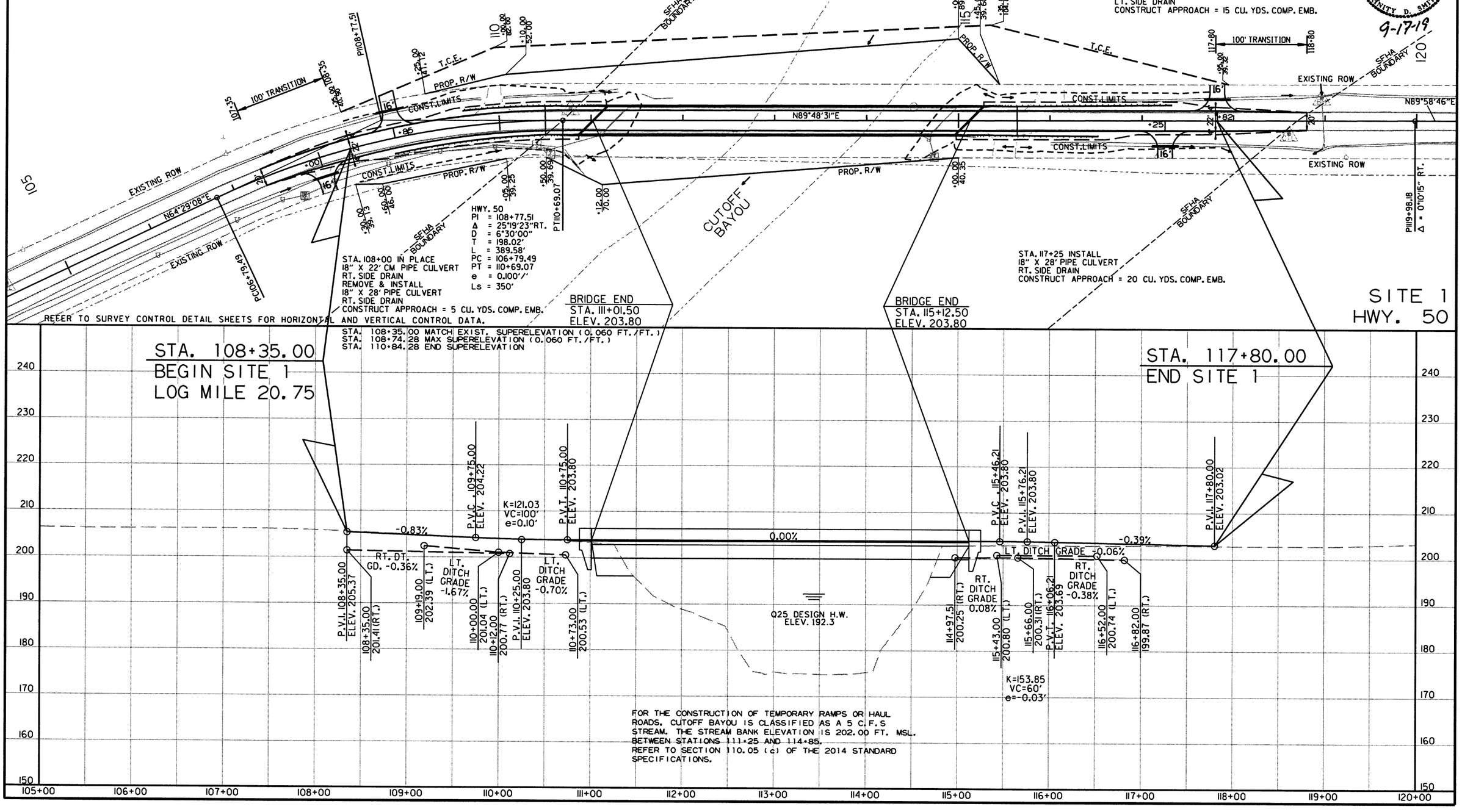
STA. 111+01.50 BR. END
408'-0" CONTINUOUS COMP. W-BEAM
(68'-68'-68'-68'-68'-68')
411'-0¾" TOTAL LENGTH
30'-0" CLEAR ROADWAY
BR. NO. 07467
STA. 115+12.50 BR. END

STA. 110+00 TO STA. 119+50
SPECIAL FLOOD HAZARD AREA

STA. 111+26 - STA 114+84 - IN PLACE
360' X 28' CLEAR RDWY. BRIDGE
STEEL MULTI-BEAM W/WOOD SUBSTRUCTURE
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 1) = 1.00 LUMP SUM
BR. NO. M3290

STA. 108+85 INSTALL
18" X 30' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 40 CU. YDS. COMP. EMB.

STA. 117+82 INSTALL
18" X 28' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 15 CU. YDS. COMP. EMB.



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

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, CUTOFF BAYOU IS CLASSIFIED AS A 5 C.F.S STREAM. THE STREAM BANK ELEVATION IS 202.00 FT. MSL. BETWEEN STATIONS 111+25 AND 114+85. REFER TO SECTION 110.05 (c) OF THE 2014 STANDARD SPECIFICATIONS.

ht39710 9/13/2019
R110617.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.		110617	30	78

(2) PLAN AND PROFILE SHEETS

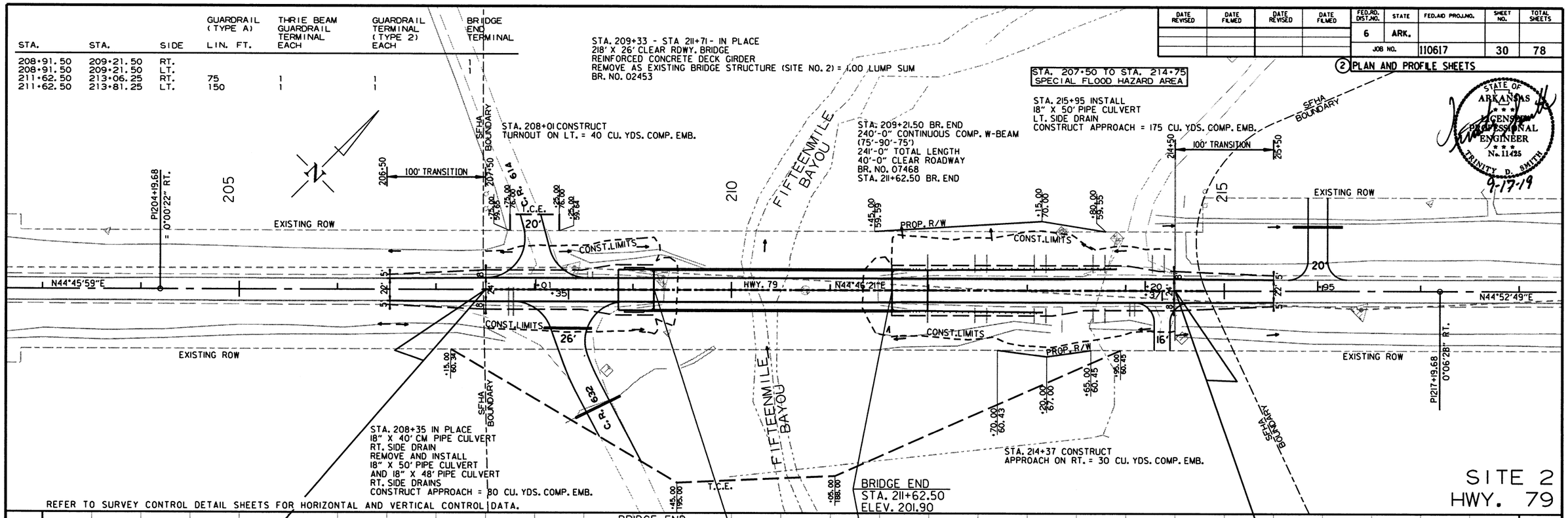
STA.	STA.	SIDE	GUARDRAIL (TYPE A) LIN. FT.	THRIE BEAM GUARDRAIL TERMINAL EACH	GUARDRAIL TERMINAL (TYPE 2) EACH	BRIDGE END TERMINAL
208+91.50	209+21.50	RT.				1
208+91.50	209+21.50	LT.				1
211+62.50	213+06.25	RT.	75	1	1	
211+62.50	213+81.25	LT.	150	1	1	

STA. 209+33 - STA 211+71 - IN PLACE
218' X 26' CLEAR RDWY. BRIDGE
REINFORCED CONCRETE DECK GIRDER
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 2) = 1.00 LUMP SUM
BR. NO. 02453

STA. 207+50 TO STA. 214+75
SPECIAL FLOOD HAZARD AREA

STA. 215+95 INSTALL
18" X 50' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 175 CU. YDS. COMP. EMB.

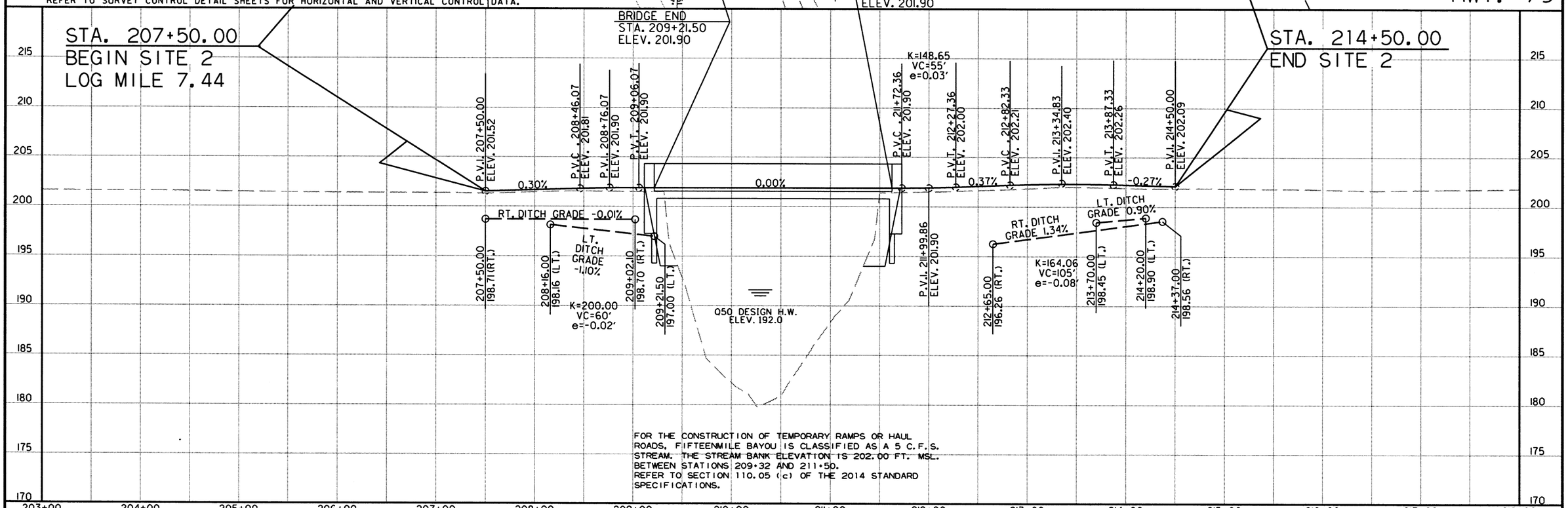
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
9-17-19



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

STA. 207+50.00
BEGIN SITE 2
LOG MILE 7.44

STA. 214+50.00
END SITE 2

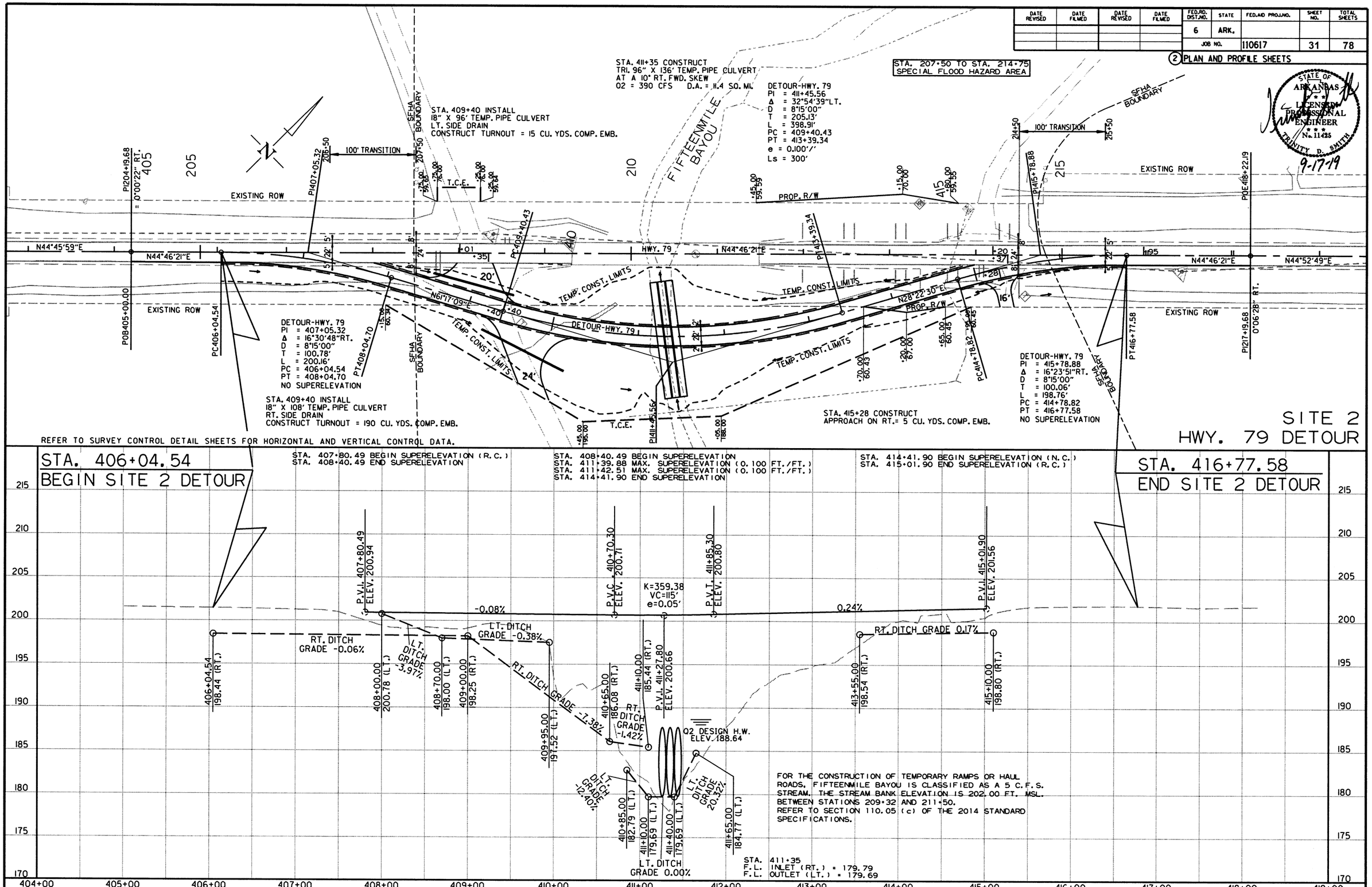


FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, FIFTEENMILE BAYOU IS CLASSIFIED AS A 5 C.F.S. STREAM. THE STREAM BANK ELEVATION IS 202.00 FT. MSL. BETWEEN STATIONS 209+32 AND 211+50.
REFER TO SECTION 110.05 (c) OF THE 2014 STANDARD SPECIFICATIONS.

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.		110617	31	78

(2) PLAN AND PROFILE SHEETS

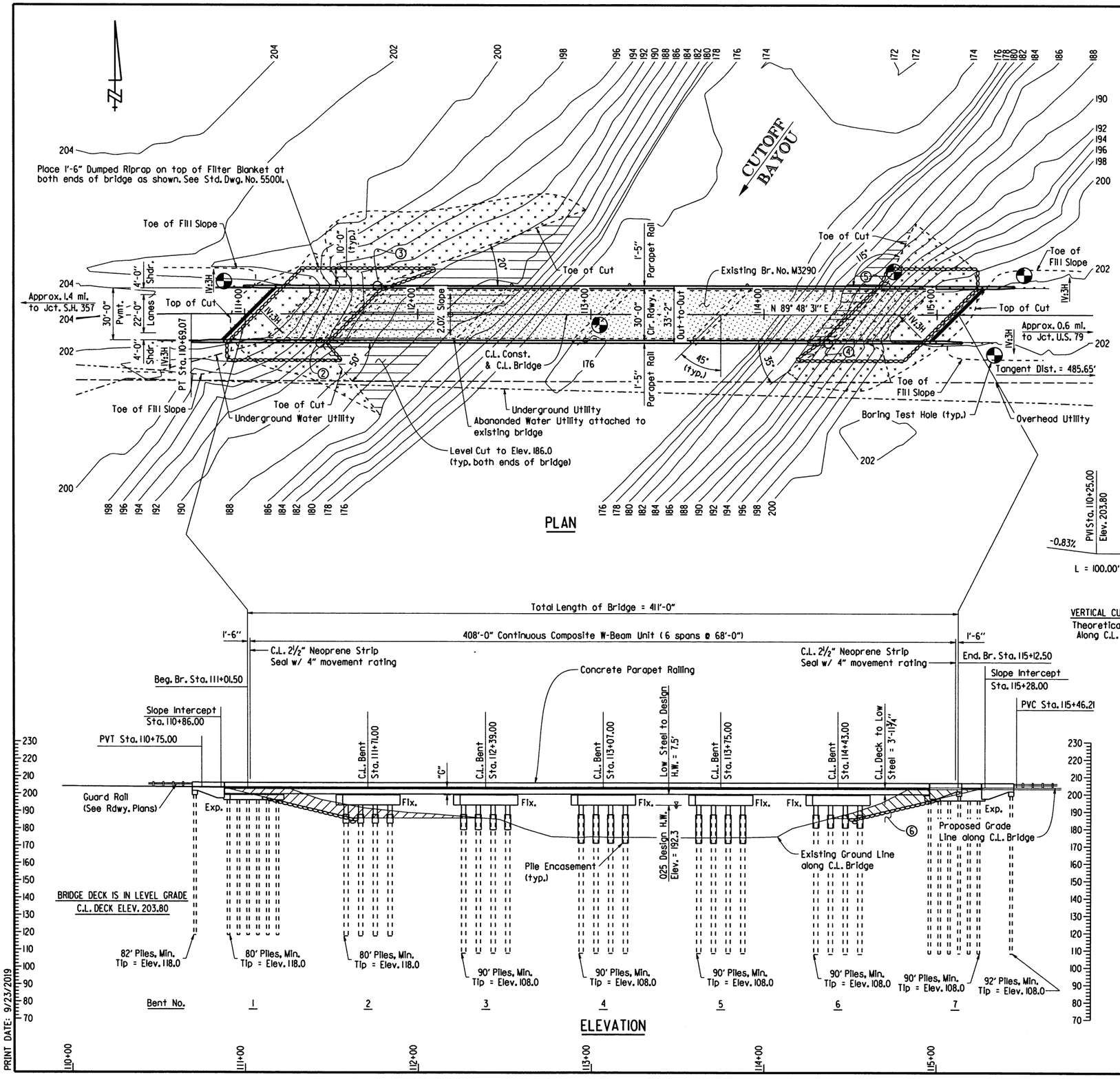
STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 9-17-19



9/13/2019

h139710
R110617.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.		110617	32	78
				① 07467 -		LAYOUT	- 61256	



For R/W Data See Rdwy. Plans.

Use Type A Approach Gutters ("W" = 4'-0") and Type A Approach Slabs (Width = 22'-0") at both ends of the bridge. See Std. Dwg. Nos. 55030A & 55040A, respectively.

The Contractor shall excavate the existing embankments as shown at both ends of bridge. Approx. 2,100 cu. yds. of excavation.

② Sta. 111+44, 16.6' Rt. of C.L. Bridge

③ Sta. 111+77, 16.6' Lt. of C.L. Bridge

④ Sta. 114+37, 16.7' Rt. of C.L. Bridge

⑤ Sta. 114+70, 16.6' Lt. of C.L. Bridge

The proposed bridge is positioned to avoid interference with existing piling. The Contractor shall verify the location of existing piling before driving any new piling. Any adjustments necessary to fit the proposed bridge to existing conditions shall be submitted for the Engineer's approval. See "Foundation Plan" on Drawing No. 61258 for additional details.

⑥ Timber Compaction Piles to be driven in embankment. See "Foundation Plan" on Drawing No. 61258 and Special Provision Job 110617 "Timber Piling for Soil Densification" for details of timber piling in bridge embankments.

See Dwg. No. 61258 for General Notes.

See Dwg. No. 61257 for Soil Borings.

Stations shown are along C.L. Construction. Elevations shown are theoretical working point elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on theoretical working point elevation at C.L. Bridge. See "Rounding Detail" on Standard Drawing Number 55007 for additional information.

TABLE OF VARIABLES

Bent No.	C.L. Deck @ C.L. Bent to Low Seat of Cap
	"G"
2	4'-3⅝"
3	4'-3¼"
4	4'-3½"
5	4'-3¼"
6	4'-3⅝"

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	① NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	25	6400	192.4	192.4
Base	100	7980	194.6	194.6
Extreme	500	9670	196.7	196.8
Overtopping	>500	-	-	-

① Unconstricted water surface without structure or roadway approaches.

0100 backwater elevation for existing structure = 194.6 ft.
Proposed Low Bridge Chord elevation = 199.82 ft.
Drainage area = 219 square miles.
Historical H.W. Elev. = 194.09 ft.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-23-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 3
LAYOUT OF BRIDGE
HIGHWAY 50 OVER CUTOFF BAYOU
FIFTEENMILE & CUTOFF BAYOUS
STRS. & APPRS. (S)
ST. FRANCIS COUNTY

ROUTE 50 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 5/21/18
CHECKED BY: LJB DATE: 9-23-19
DESIGNED BY: LJB DATE: 5-18
FILENAME: b110617_ll.dgn
SCALE: 1" = 30'

BRIDGE NO. 07467 DRAWING NO. 61256

PRINT DATE: 9/23/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	33	78
				① 07467 -		LAYOUT	- 61257	

BORING LEGEND

A1-Moist, Very Loose, Brown Sand with Clay
B1-Moist, Loose, Brown Sand
C1-Moist, Soft, Brown Clay with Some Silt
D1-Wet, Very Loose, Brown Sandy Silt
E1-Wet, Medium Dense, Brown Sand
F1-Wet, Dense, Brown Sand
G1-Wet, Dense, Brown Sand with Trace Gravel
H1-Wet, Very Dense, Brown Sand with Trace Gravel
J1-Wet, Medium Dense, Brown Sand with Some Gravel and Some Organic Matter
K1-Wet, Very Dense, Brown Sand with Gravel
L1-Wet, Medium Dense, Gray Sand with Silt
M1-Wet, Medium Dense, Gray Poorly-Graded Sand with Silt
N1-Wet, Dense, Gray Poorly-Graded Sand
P1-Wet, Loose, Gray Poorly-Graded Sand with Silt
Q1-Wet, Medium Dense, Gray Poorly-Graded Sand
R1-Wet, Dense, Gray Poorly-Graded Sand with Some Gravel
S1-Wet, Medium Dense, Gray Poorly-Graded Sand with Some Gravel
T1-Wet, Dense, Gray Poorly-Graded Sand with Silt and Gravel
U1-Wet, Dense, Gray Poorly-Graded Sand with Gravel
V1-Wet, Medium Dense, Gray Poorly-Graded Sand with Gravel
W1-Wet, Medium Dense, Gray Well-Graded Gravel with Sand
X1-Wet, Loose, Gray Poorly-Graded Sand with Some Gravel
Y1-Wet, Very Dense, Gray Poorly-Graded Sand with Gravel
Z1-Wet, Very Loose, Gray Silty Sand
A2-Wet, Loose, Gray Sand with Silt
B2-Wet, Loose, Gray Clayey Sand
C2-Wet, Medium Dense, Gray Sand
D2-Wet, Medium Dense, Gray Sand with Trace Gravel
E2-Wet, Medium Dense, Gray Sand with Some Gravel
F2-Wet, Medium Dense, Gray Sand with Silt and Some Gravel
G2-Wet, Medium Dense, Gray Sand with Silt and Trace Gravel
H2-Wet, Dense, Gray Sand with Silt
J2-Wet, Dense, Gray Sand with Trace Gravel
K2-Wet, Dense, Gray Sand with Silt and Trace Gravel
L2-Wet, Very Dense, Gray Sand with Silt
M2-Moist, Medium Stiff, Brown Clay with Trace Gravel
N2-Moist, Soft, Brown Lean Clay
P2-Wet, Soft, Brown Sandy Lean Clay
Q2-Wet, Very Soft, Brown Sandy Lean Clay
R2-Wet, Very Loose, Brown Silt
S2-Wet, Soft, Brown Silty Clay
T2-Wet, Medium Dense, Brown Poorly-Graded Sand with Silt
U2-Wet, Medium Dense, Brown Poorly-Graded Sand
V2-Wet, Medium Dense, Brown Silty Sand
W2-Wet, Medium Dense, Brown Poorly-Graded Sand with Trace Organic Matter
X2-Wet, Dense, Brown Poorly-Graded Sand with Silt
Y2-Wet, Medium Dense, Brown Well-Graded Sand with Some Gravel
Z2-Wet, Medium Dense, Brown Poorly-Graded Sand with Trace Gravel
A3-Wet, Loose, Brown Poorly-Graded Sand with Silt Some Gravel and Trace Organic Matter
B3-Wet, Dense, Brown Poorly-Graded Sand
C3-Wet, Dense, Brown Poorly-Graded Sand with Trace Gravel
D3-Wet, Medium Dense, Brown Poorly-Graded Sand with Silt and Some Organic Matter
E3-Wet, Medium Dense, Brown Poorly-Granded Sand
F3-Moist, Medium Stiff, Brown Clay with Some Organic Matter
G3-Moist, Soft, Brown Silty Clay
H3-Moist, Very Loose, Gray Clayey Sand
J3-Wet, Medium Dense, Gray Sand with Gravel and Organic Matter
K3-Wet, Dense, Gray Sand with Some Gravel
L3-Wet, Dense, Gray Sand
M3-Wet, Very Dense, Gray Sand

"N" VALUES

Sta. 110+88 - 19' Left of C.L. Construction

5.8- 6.8, N=4
10.8- 11.8, N=7
15.5- 16.5, N=4
20.5- 21.5, N=3
25.5- 26.5, N=13
30.5- 31.5, N=12
35.5- 36.5, N=12
40.5- 41.5, N=17
45.5- 46.5, N=23
50.5- 51.5, N=20
55.5- 56.5, N=25
60.5- 61.5, N=40
65.5- 66.5, N=25
70.5- 71.5, N=23
75.5- 76.5, N=31
80.5- 81.5, N=56
85.5- 86.5, N=37
90.5- 91.5, N=27
95.5- 96.5, N=76
100-100.2, N=60(2")

Sta. 113+05 - 6' Right of C.L. Construction

7.5- 8.5, N=14
17.5- 18.5, N=49
25.5- 26.5, N=9
30.5- 31.5, N=14
35.5- 36.5, N=17
40.5- 41.5, N=19
45.5- 46.5, N=17
50.5- 51.5, N=33
55.5- 56.5, N=30
60.5- 61.5, N=27
65.5- 66.5, N=40
70.5- 71.5, N=36
75.5- 76.5, N=22
80.5- 81.5, N=25
85.5- 86.5, N=10
90.5- 91.5, N=57
95.5- 96.5, N=25
100.5-101.5, N=28
105.5-106.5, N=31
110.5-111.5, N=45

Sta. 114+75 - 25' Left of C.L. Construction

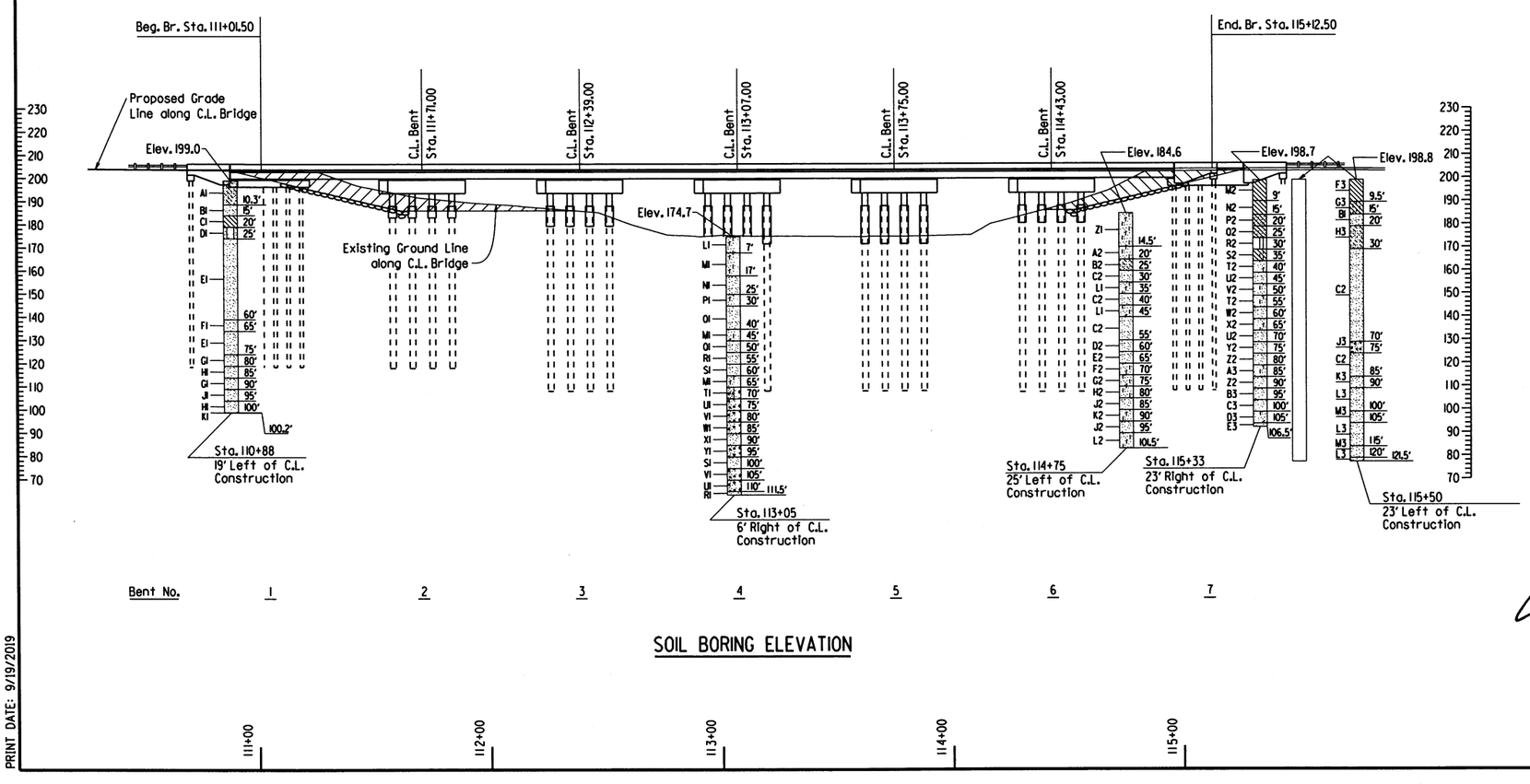
10.0- 11.0, N=3
15.0- 16.0, N=7
20.5- 21.5, N=8
25.5- 26.5, N=16
30.5- 31.5, N=17
35.5- 36.5, N=14
40.5- 41.5, N=14
45.5- 46.5, N=26
50.5- 51.5, N=13
55.5- 56.5, N=19
60.5- 61.5, N=11
65.5- 66.5, N=17
70.5- 71.5, N=12
75.5- 76.5, N=37
80.5- 81.5, N=44
85.5- 86.5, N=33
90.5- 91.5, N=47
95.5- 96.5, N=52
100.5-101.5, N=50

Sta. 115+33 - 23' Right of C.L. Construction

4.5- 5.5, N=6
9.5- 10.5, N=2
15.5- 16.5, N=3
20.5- 21.5, N=1
25.5- 26.5, N=1
30.5- 31.5, N=3
35.5- 36.5, N=13
40.5- 41.5, N=23
45.5- 46.5, N=14
50.5- 51.5, N=27
55.5- 56.5, N=20
60.5- 61.5, N=35
65.5- 66.5, N=18
70.5- 71.5, N=21
75.5- 76.5, N=23
80.5- 81.5, N=5
85.5- 86.5, N=30
90.5- 91.5, N=49
95.5- 96.5, N=33
100.5-101.5, N=25
105.5-106.5, N=25

Sta. 115+50 - 23' Left of C.L. Construction

5.0- 6.0, N=6
10.0- 11.0, N=4
15.5- 16.5, N=5
20.5- 21.5, N=0
25.5- 26.5, N=4
30.5- 31.5, N=13
35.5- 36.5, N=11
40.5- 41.5, N=11
45.5- 46.5, N=19
50.5- 51.5, N=16
55.5- 56.5, N=13
60.5- 61.5, N=26
65.5- 66.5, N=19
70.5- 71.5, N=21
75.5- 76.5, N=13
80.5- 81.5, N=21
85.5- 86.5, N=40
90.5- 91.5, N=36
95.5- 96.5, N=37
100.5-101.5, N=53
105.5-106.5, N=38
110.5-111.5, N=35
115.5-116.5, N=73
120.5-121.5, N=50



SOIL BORING ELEVATION

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 3
LAYOUT OF BRIDGE
HIGHWAY 50 OVER CUTOFF BAYOU
FIFTEENMILE & CUTOFF BAYOUS
STRS. & APPRS. (S)
ST. FRANCIS COUNTY

ROUTE 50 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 5/21/18
CHECKED BY: LJB DATE: 9-19-19
DESIGNED BY: LJB DATE: 5-2018

FILENAME: b110617_ll.dgn
SCALE: 1" = 30'

BRIDGE NO. 07467

DRAWING NO. 61257

PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	34	78
				① 07467 -		LAYOUT	- 61258	

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications Seventh Edition (2014) with 2015 interim revisions.

LIVE LOADING: HL-93

SEISMIC ZONE: 4 S_{D1} = 0.637 SITE CLASS: E

MATERIALS AND STRENGTHS:

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

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

STEEL SHELL PILING: Piling in Bents 1 and 7 shall be 18" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 210 tons per pile. Piling in Bents 2 thru 6 shall be 30" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 600 tons per pile. All piling shall be driven with an approved air, steam, or diesel hammer to the minimum tip elevations shown on Dwg. No. 61256 or lower. Piling in end bents shall be driven after embankment to bottom of cap is in place. Piling at Bents 6 and 7 shall be driven after completing driving of the Timber Compaction Piles. Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. No additional payment will be made for cut-off or build-up. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g).

Water jetting or other methods as approved by the Engineer may be required to achieve minimum penetration. This work shall not be paid for directly, but shall be considered incidental to the item "Steel Shell Piling (18" Dia.)" and "Steel Shell Piling (30" Dia.)".

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 hammer energy required to obtain the ultimate bearing capacity will be 30,000 foot pounds per blow at Bents 1 and 7 and 80,000 foot pounds per blow at Bents 2 thru 6.

PILE ENCASEMENT: Pile encasement for Bents 2 thru 6 shall extend from Elevation 188.0 to 3' below natural or finished ground, whichever is lower. Corrugated steel pipe shall not be used for pile encasement. See Std. Dwg. No. 55021 & Dwg No. 61265 for additional information.

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

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

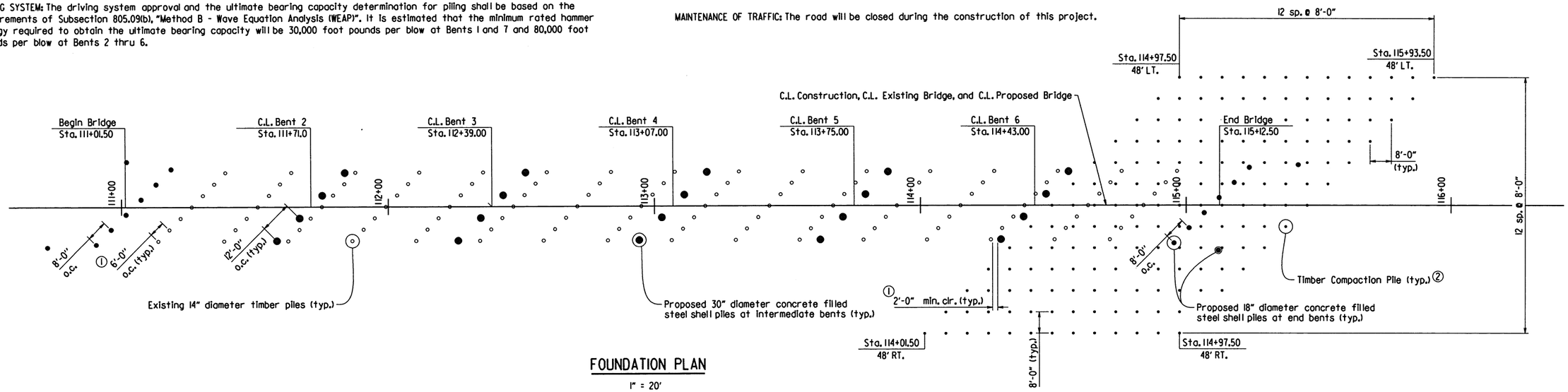
PAINTING: All Grade 50W structural steel, except galvanized members, surfaces in contact with concrete, and the expansion device, within five feet of bridge deck expansion joints shall be painted as specified in Subsection 807.75. The color of paint shall be Brown equal or close to Federal Std. 595B, Color Chip No. 30070 and as approved by the engineer. The finish system may be applied in the shop. Any damage to the paint system occurring during transport or installation shall be corrected according to the manufacturer's recommendations at no cost to the Department.

DETAIL DRAWINGS:	DRAWING NOS.
End Bents	61259-61262
Intermediate Bents	61263-61264
Elastomeric Bearings	61266
408'-0" Continuous W-Beam Unit	61267-61273
General Notes for Steel Bridge Structures	55006
Details for Steel Bridge Structures	55007
Neoprene Strip Seal Joints	55009
Concrete Filled Steel Shell Piling	55021 & 61265

EXISTING BRIDGE: Existing Bridge No. M3290 (L.M. 20.8) is 29.2' wide (28.2' clear roadway) and 360.0' long and consists of a concrete deck on timber planking on steel I-beam spans supported by timber pile bents. The existing bridge occupies the same location as the proposed new bridge. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

REMOVAL AND SALVAGE: After the road has been closed, the Contractor shall remove Existing Bridge No. M3290, including existing riprap, in accordance with Section 205. Removal of existing riprap will not be paid for directly but shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No. 1". All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: The road will be closed during the construction of this project.



FOUNDATION PLAN

1" = 20'

① Dimensions are approximate.

② TIMBER COMPACTION PILE NOTES:

Timber Compaction Piles shall be in accordance with Special Provision Job 110617 "Timber Piling for Soil Densification".

At the direction of the Engineer, drive 169 Timber Compaction Piles at Bent 7. The Timber Compaction Piles shall be 40' in length and driven until the top of the pile is 2' below finished ground. Timber Compaction piles in the foot print of the end bent cap, wings, approach slab, and approach gutters shall be driven until the top of the pile is 2' below the bottom of the lowest plan elevation of the concrete structural element above the pile.

The Timber Compaction Piles shall be driven after embankment to bottom of cap is in place, but prior to driving the concrete filled steel shell piling at Bents 6 and 7.

The Contractor shall coordinate with the Engineer to avoid any and all utilities and proposed or existing piles within the soil densification areas. Minor adjustments to the Timber Compaction Piles locations will be allowed.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-23-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 3
LAYOUT OF BRIDGE
HIGHWAY 50 OVER CUTOFF BAYOU
FIFTEENMILE & CUTOFF BAYOUS
STRS. & APPRS. (S)
ST. FRANCIS COUNTY

ROUTE 50 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

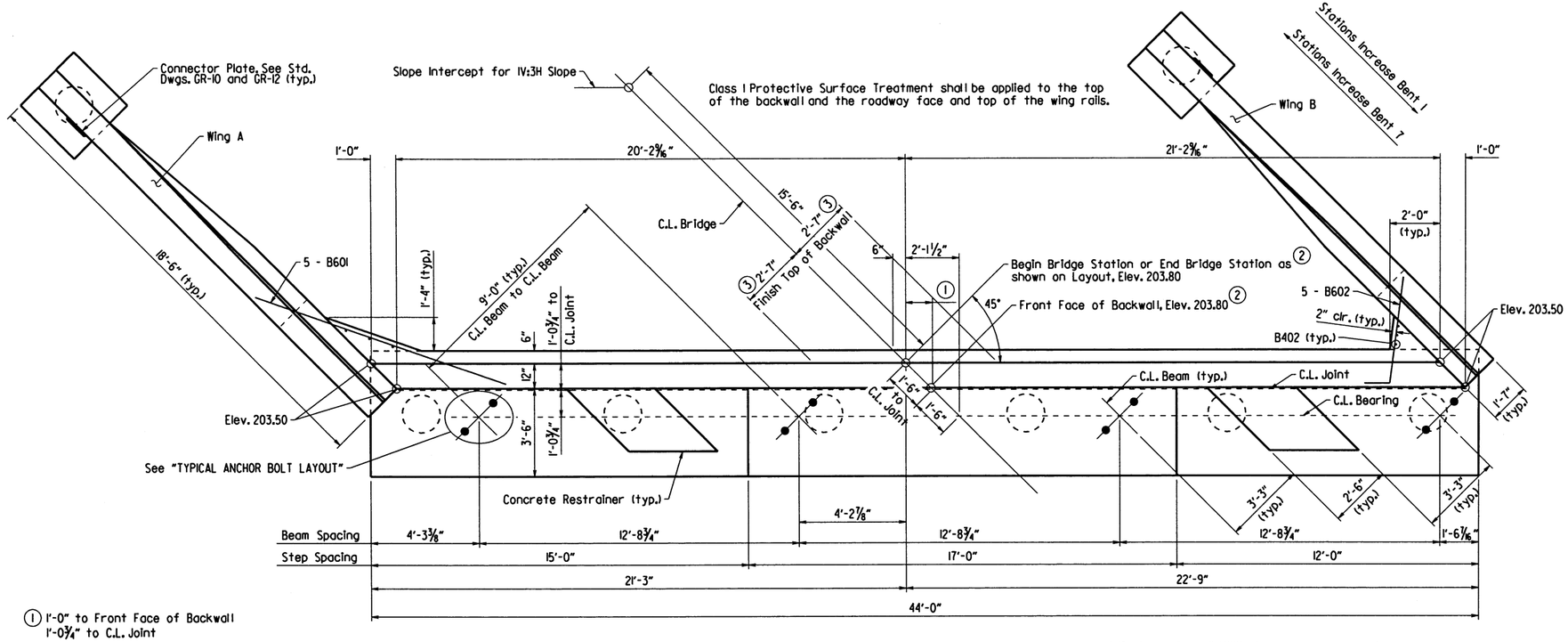
LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 5/21/18 FILENAME: b110617_1.dgn
CHECKED BY: LJB DATE: 9-23-19 SCALE: 1" = 30'
DESIGNED BY: LJB DATE: 5-2018

BRIDGE NO. 07467 DRAWING NO. 61258

PRINT DATE: 9/23/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	35	78
				①	07467 - END BENTS - 61259			



① 1'-0" to Front Face of Backwall
1'-0 3/4" to C.L. Joint

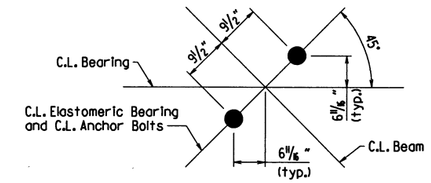
② Measured to Working Point

③ See "Rounding Detail" on Std. Dwg. No. 55007

PLAN - BENT 1 AND BENT 7

3/8" = 1'-0"

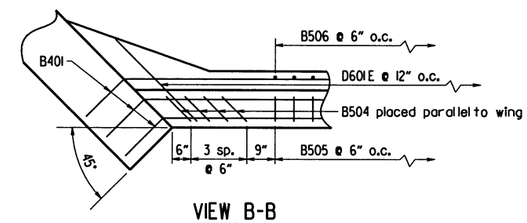
Adjust spacing of D601E bars as necessary to provide 3" clear from the longitudinal construction joint between the approach slab and gutters.



For details of elastomeric bearings, see Dwg. No. 61266.

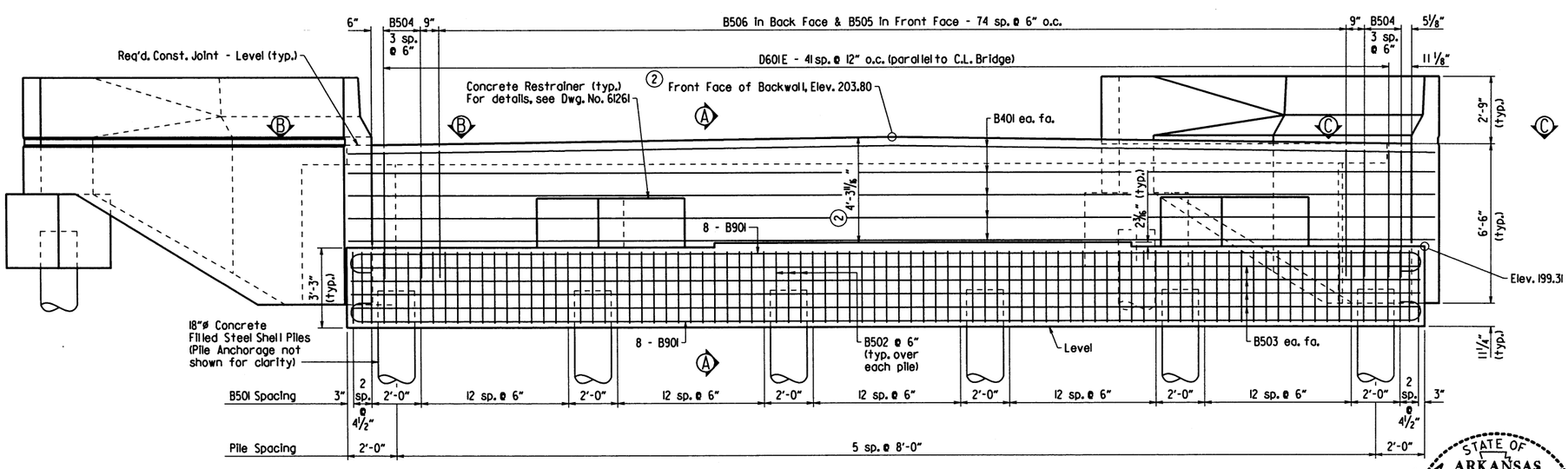
TYPICAL ANCHOR BOLT LAYOUT

3/4" = 1'-0"



VIEW B-B

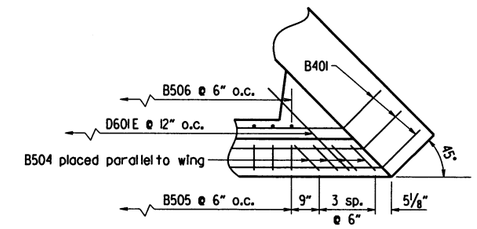
1/2" = 1'-0"



For "SECTION A-A", see Dwg. No. 61262.

ELEVATION - BENT 1 AND BENT 7

Looking Back - Bent 1
Looking Ahead - Bent 7
3/8" = 1'-0"



VIEW C-C

1/2" = 1'-0"

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

No portion of the backwall shall be poured before beams are in place. The portion of the backwall above the optional construction joint at the paving bracket shall not be placed until the adjacent deck pour has been made. Refer to the "EXPANSION DEVICE INSTALLATION AT END BENTS" note on Std. Dwg. No. 55009. No heavy construction equipment shall be allowed within 10' of the backwall until the deck concrete placement for the adjacent span has been completed.

Top reinforcing bars and pile anchorage in cap shall be properly placed to avoid interference with anchor bolts.

For additional information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 4
DETAILS OF END BENTS
CUTOFF BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

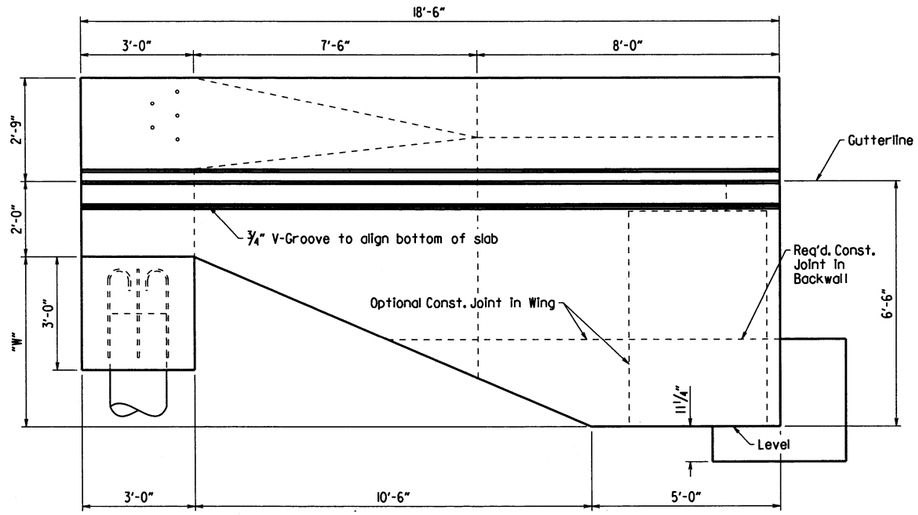
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 8/13/2019 FILENAME: b110617x1_bl.dgn
CHECKED BY: WAC DATE: 9/19/19 SCALE: As Noted
DESIGNED BY: LJB DATE: 8-2019

BRIDGE NO. 07467 DRAWING NO. 61259

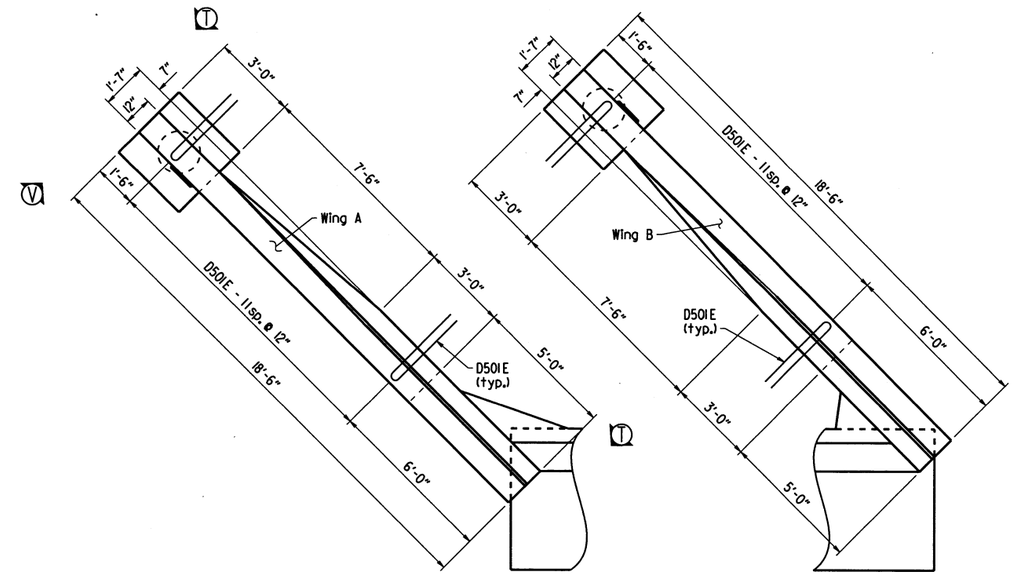
PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	36	78
				1	07467 - END BENTS - 61260			



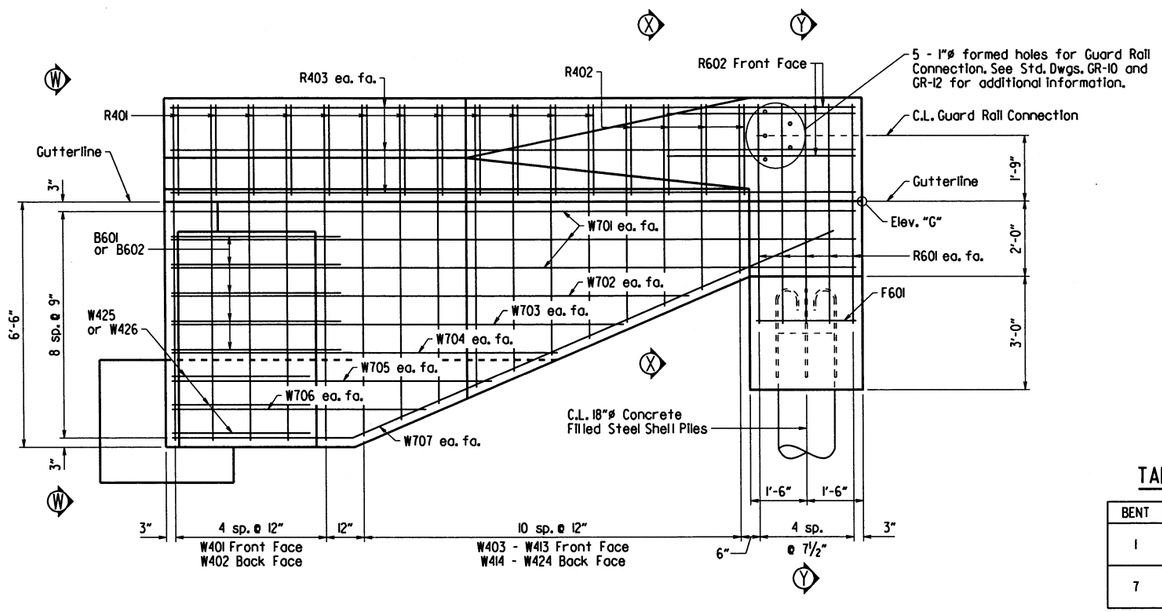
VIEW V-V

1/2" = 1'-0"



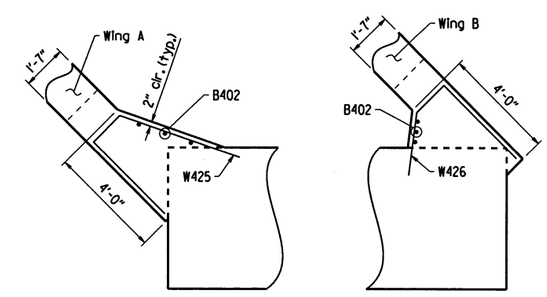
PLAN OF RAILS

3/8" = 1'-0"



VIEW T-T

1/2" = 1'-0"



SECTION P-P

3/8" = 1'-0"

For location of "SECTION P-P", see Dwg. No. 61262.

TABLE OF VARIABLES

BENT	WING	"W"	Elev. "G"
1	A	4'-6 1/8"	203.51
	B	4'-6"	203.50
7	A	4'-6"	203.50
	B	4'-6"	203.50

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 4
DETAILS OF END BENTS
CUTOFF BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

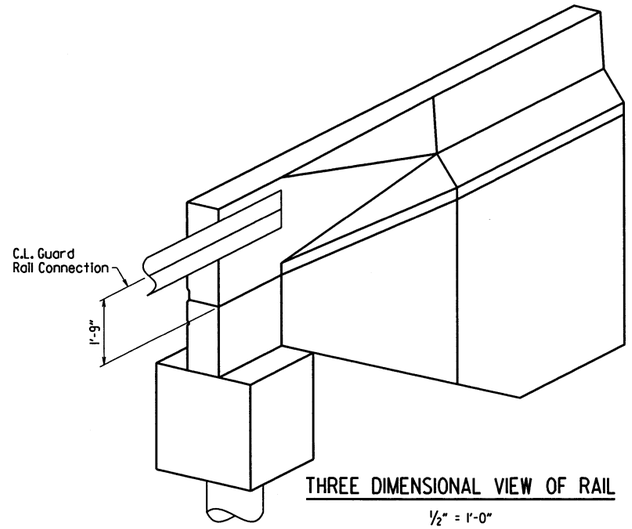
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 8/13/2019 FILENAME: b110617x1_bl.dgn
CHECKED BY: WAC DATE: 9/19/19 SCALE: As Noted
DESIGNED BY: LJB DATE: 8-2019

BRIDGE NO. 07467 DRAWING NO. 61260

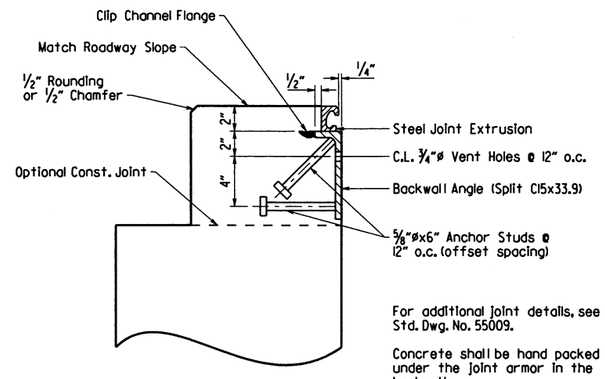
PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	37	78
				1	07467 - END BENTS - 61261			



THREE DIMENSIONAL VIEW OF RAIL

1/2" = 1'-0"



DETAIL Z

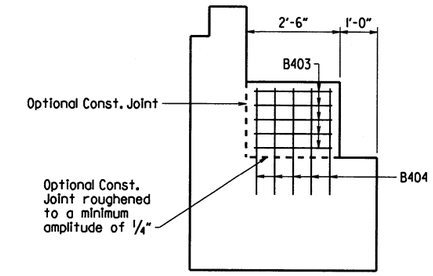
No Scale

For additional joint details, see Std. Dwg. No. 55009.

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

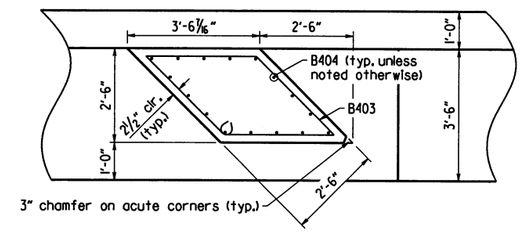
Transverse spacing between top anchor studs and vent holes shall be 6".

For location of "DETAIL Z", see Dwg. No. 61262.



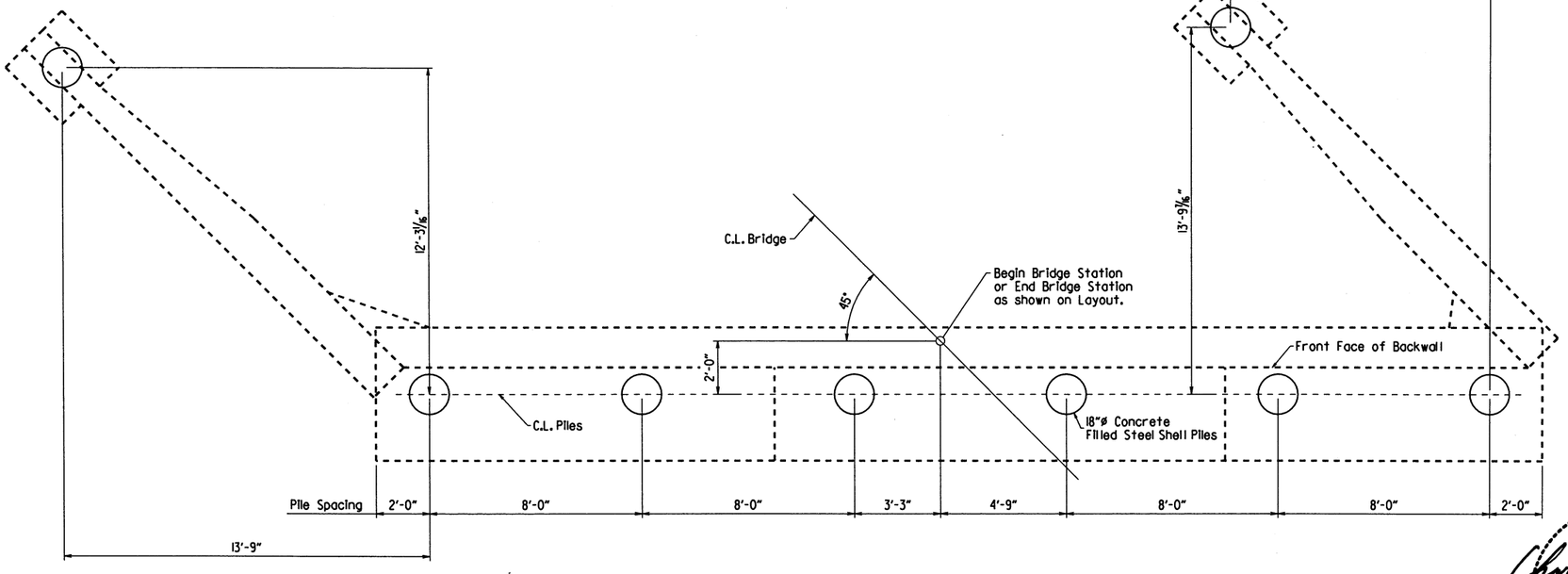
SECTION M-M

1/2" = 1'-0"



SECTION N-N

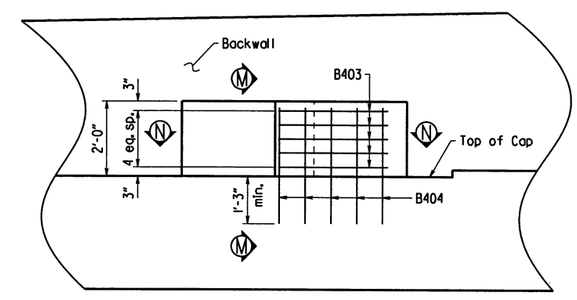
1/2" = 1'-0"



FOUNDATION PLAN

3/8" = 1'-0"

For details of piles and pile anchorage, see Std. Dwg. No. 55021.



ELEVATION - CONCRETE RESTRAINER

1/2" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 4
DETAILS OF END BENTS
CUTOFF BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

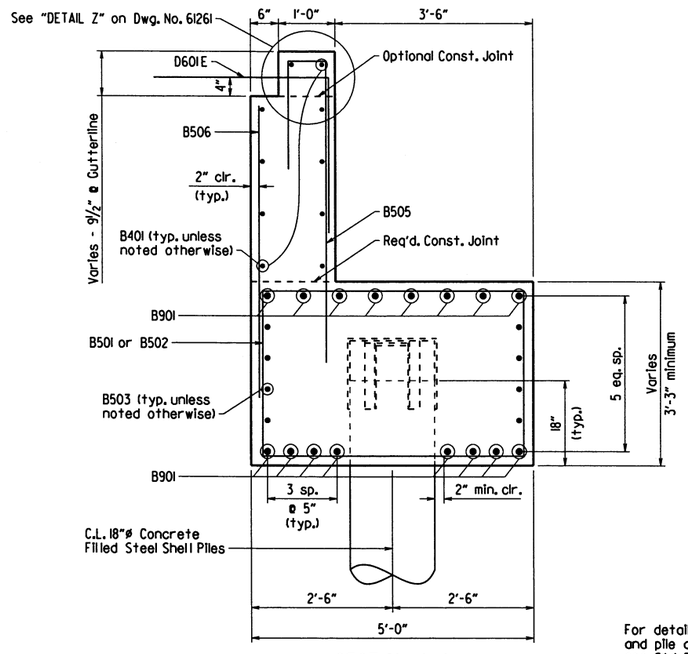
LITTLE ROCK, ARK.

DRAWN BY: NAC DATE: 8/13/2019 FILENAME: b110617xl_bl.dgn
CHECKED BY: WAC DATE: 9/19/19 SCALE: As Noted
DESIGNED BY: LJB DATE: 8-2019

BRIDGE NO. 07467 DRAWING NO. 61261

PRINT DATE: 9/19/2019

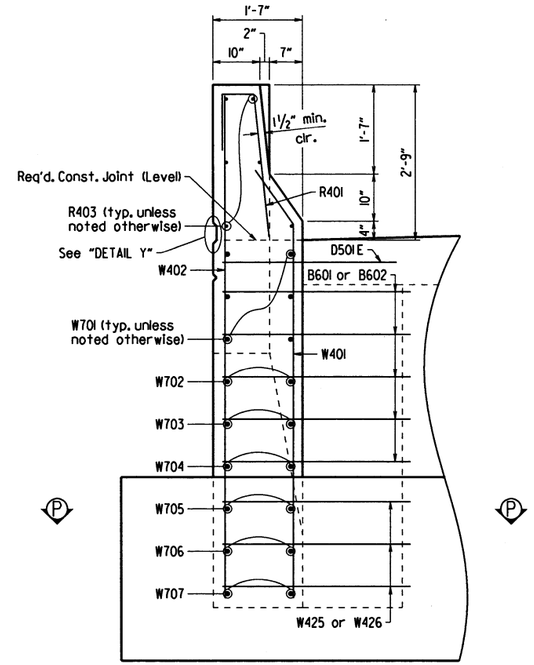
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	38	78
				1	07467 - END BENTS - 61262			



SECTION A-A

¾" = 1'-0"

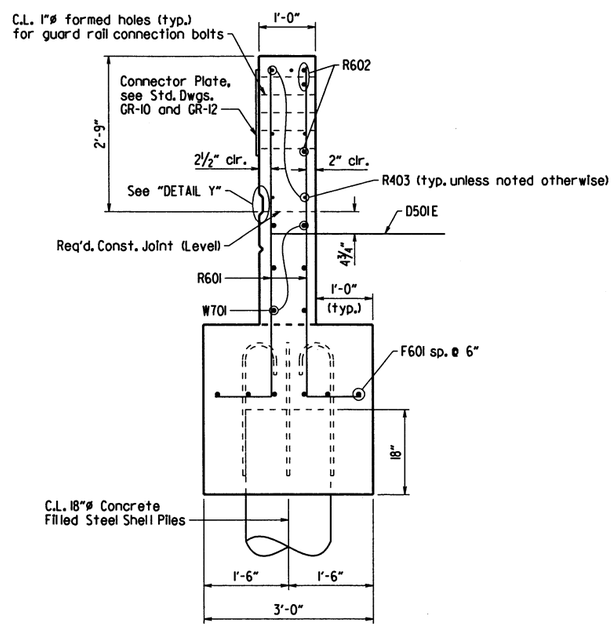
For details of piles and pile anchorage, see Std. Dwg. No. 55021.



VIEW W-W

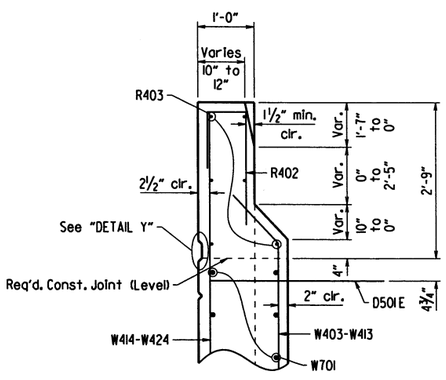
¾" = 1'-0"

For "SECTION P-P", see Dwg. No. 61260.



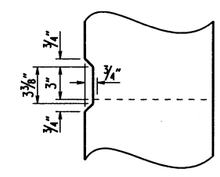
SECTION Y-Y

¾" = 1'-0"



SECTION X-X

¾" = 1'-0"



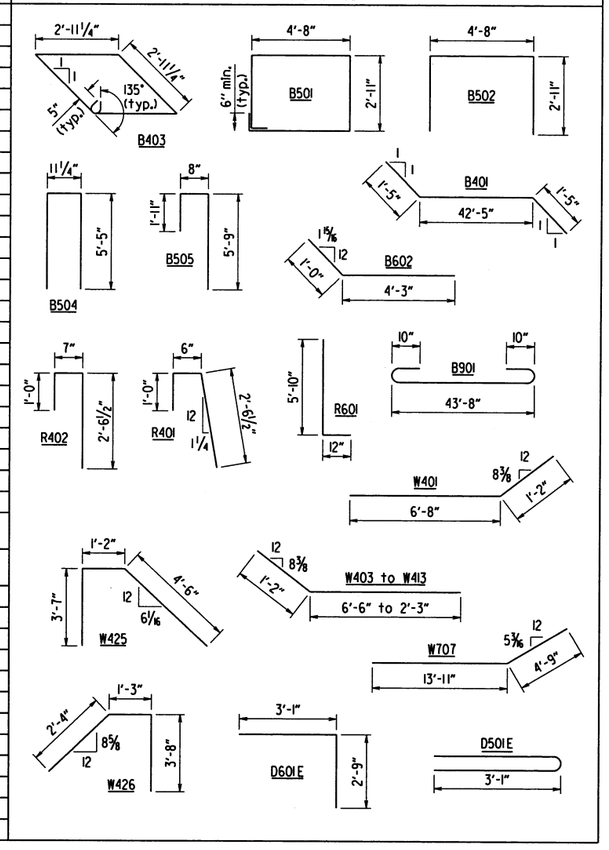
DETAIL Y

No Scale

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	10	45'-3"	2"
B402	6	5'-5"	Str.
B403	10	12'-3"	3"
B404	32	3'-1"	Str.
B501	71	15'-8"	2½"
B502	18	10'-3"	2½"
B503	8	43'-8"	Str.
B504	8	11'-7"	2½"
B505	75	8'-2"	2½"
B506	75	5'-0"	Str.
B601	5	10'-6"	Str.
B602	5	5'-3"	4½"
B901	16	46'-2"	9"
R401	24	3'-11"	2"
R402	8	4'-0"	2"
R403	12	18'-2"	Str.
R601	20	6'-8"	4½"
R602	6	5'-0"	Str.
F601	12	2'-8"	Str.
W401	10	7'-10"	2"
W402	10	8'-11"	Str.
W403-W413	2 each	7'-8"-3'-5"	2"
W414-W424	2 each	8'-9"-4'-6"	Str.
W425	3	9'-2"	2"
W426	3	7'-2"	2"
W701	12	18'-2"	Str.
W702	4	13'-9"	Str.
W703	4	12'-0"	Str.
W704	4	10'-3"	Str.
W705	4	8'-6"	Str.
W706	4	6'-9"	Str.
W707	4	18'-8"	5¼"
D501E	24	6'-4"	3¾"
D601E	42	5'-8"	4½"

BENDING DIAGRAMS



Dimensions are out to out of bars.
Bars with and "E" suffix are to be epoxy coated.

STATE OF ARKANSAS
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9-19-19
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SHEET 4 OF 4
DETAILS OF END BENTS
CUTOFF BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

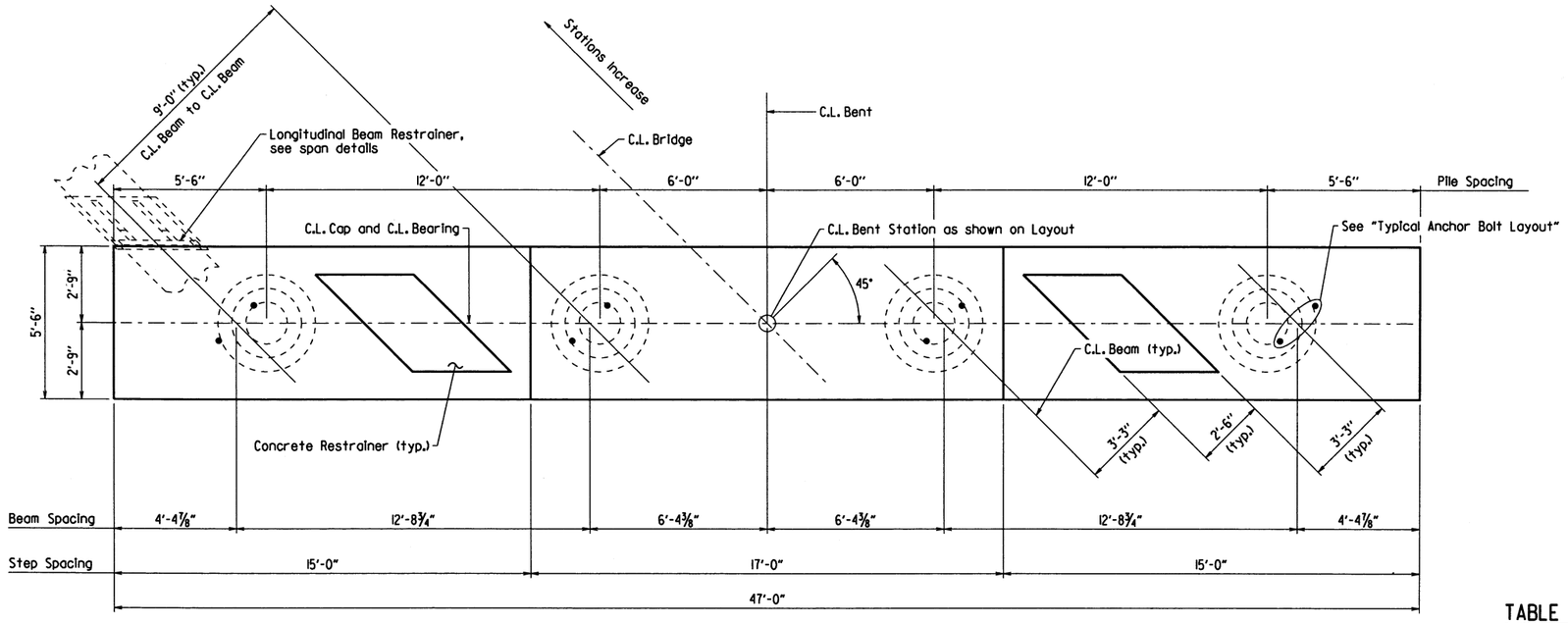
DRAWN BY: NAC DATE: 8/13/2019 FILENAME: bll06617xl_bl.dgn
CHECKED BY: WAC DATE: 9/19/19 SCALE: As Noted
DESIGNED BY: LJB DATE: 8-2019

BRIDGE NO. 07467 DRAWING NO. 61262

PRINT DATE: 9/19/2019

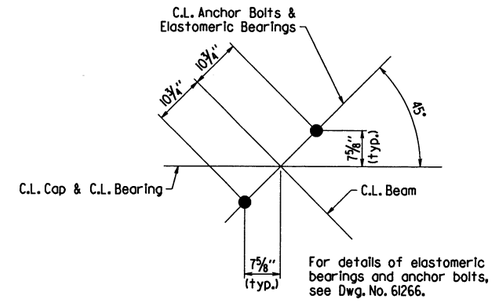
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	39	78

(1) 07467 - INTERMEDIATE BENTS - 61263



PLAN

⅜" = 1'-0"

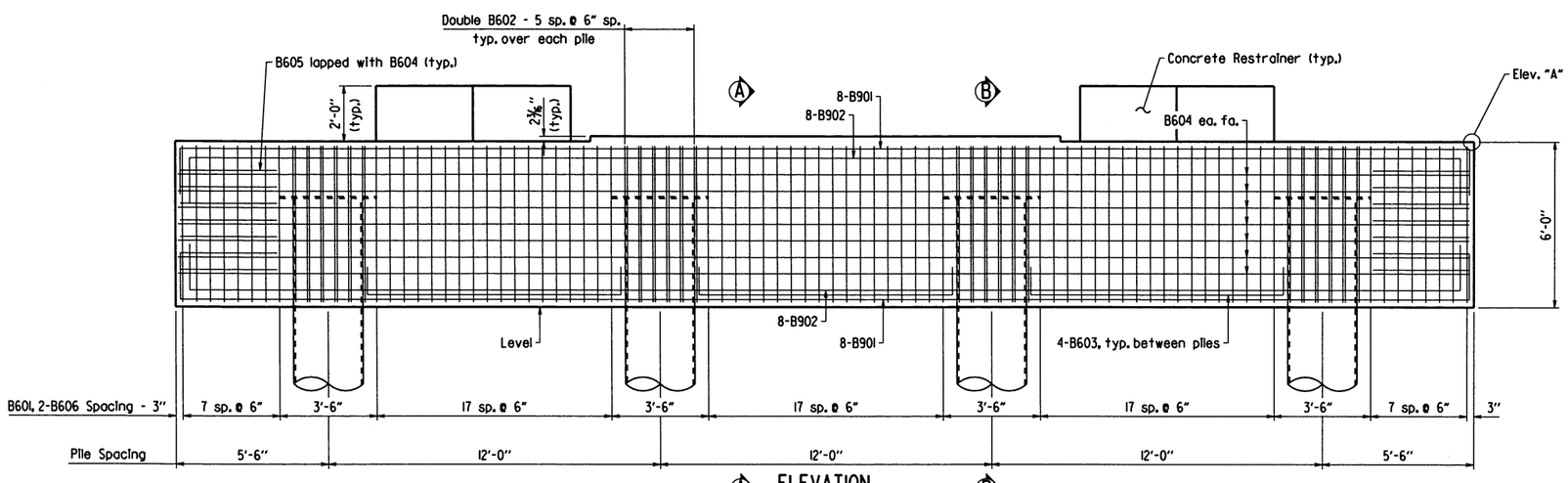


TYPICAL ANCHOR BOLT LAYOUT

No Scale

TABLE OF VARIABLES

BENT	Elev. "A"
2	199.50
3	199.53
4	199.51
5	199.53
6	199.50



ELEVATION

Looking Ahead

⅜" = 1'-0"

See Dwg. No. 61264 for "Section A-A", "Section B-B", and Concrete Restrainer details.

The concrete in the bent cap shall have a maximum nominal aggregate size of ¾".

For details of piling, see Dwg. No. 61265.

See Std. Dwg. No. 55006 for additional notes.

For additional information, see Layout.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS
CUTOFF BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

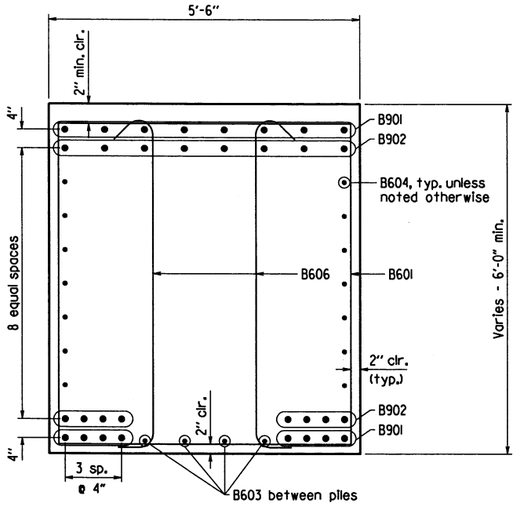
DRAWN BY: LJB DATE: 8/27/19 FILENAME: b110617x1_b2.dgn
CHECKED BY: DKS DATE: 9-19-19 SCALE: as noted
DESIGNED BY: LJB DATE: 8-2019

BRIDGE NO. 07467 DRAWING NO. 61263

PRINT DATE: 9/19/2019

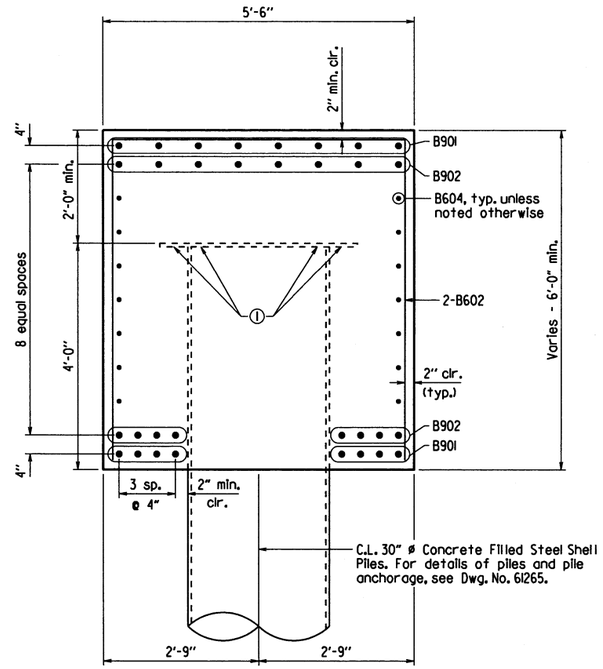
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	40	78

(1) 07467 - INTERMEDIATE BENTS - 61264



SECTION A-A

3/4" = 1'-0"



SECTION B-B

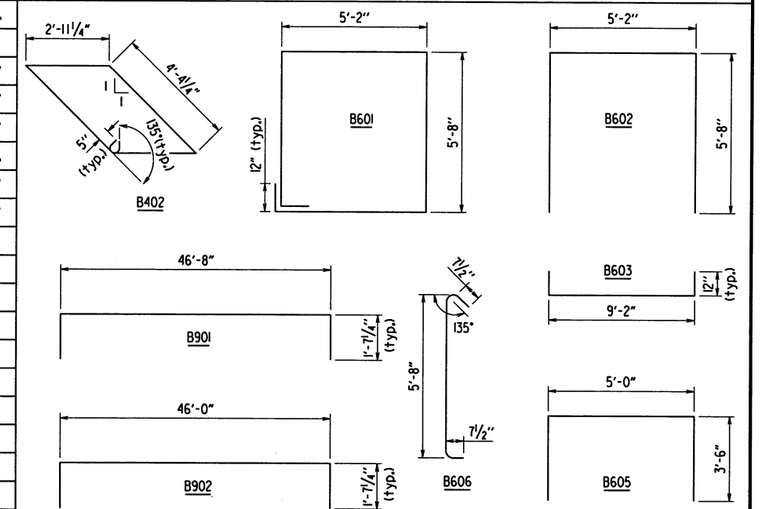
3/4" = 1'-0"

(1) Contractor shall ensure that concrete in this area is in full and complete contact with annular ring.

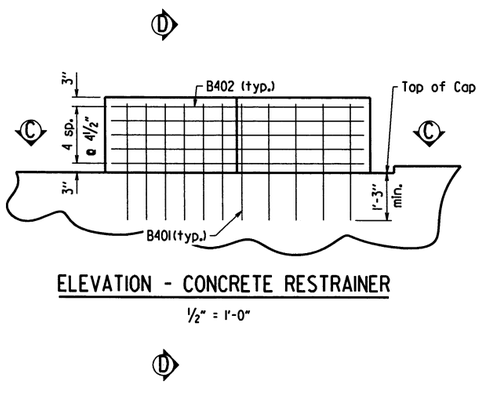
BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	40	3'-1"	Str.
B402	10	15'-1"	3"
B601	70	22'-10"	4½"
B602	48	16'-2"	4½"
B603	12	10'-10"	4½"
B604	14	46'-8"	Str.
B605	14	11'-8"	4½"
B606	140	6'-9"	4½"
B901	16	49'-4"	9"
B902	16	48'-8"	9"

BENDING DIAGRAMS

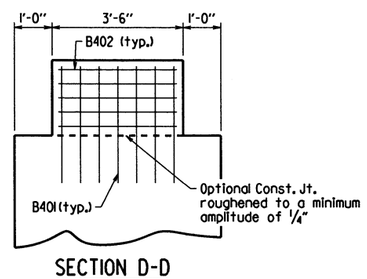


Dimensions are out to out of bars



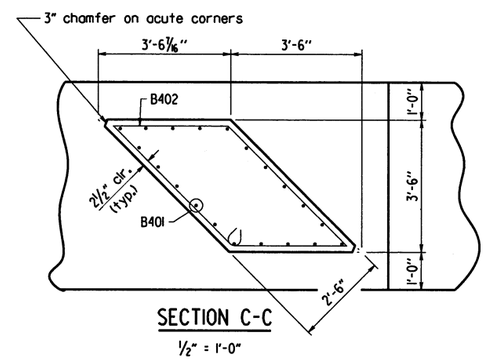
ELEVATION - CONCRETE RESTRAINER

½" = 1'-0"



SECTION D-D

½" = 1'-0"



SECTION C-C

½" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS
CUTOFF BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: LJB DATE: 8-27-19
CHECKED BY: DKS DATE: 9-19-19
DESIGNED BY: LJB DATE: 8-2019

FILENAME: b110617xl_b2.dgn
SCALE: as noted

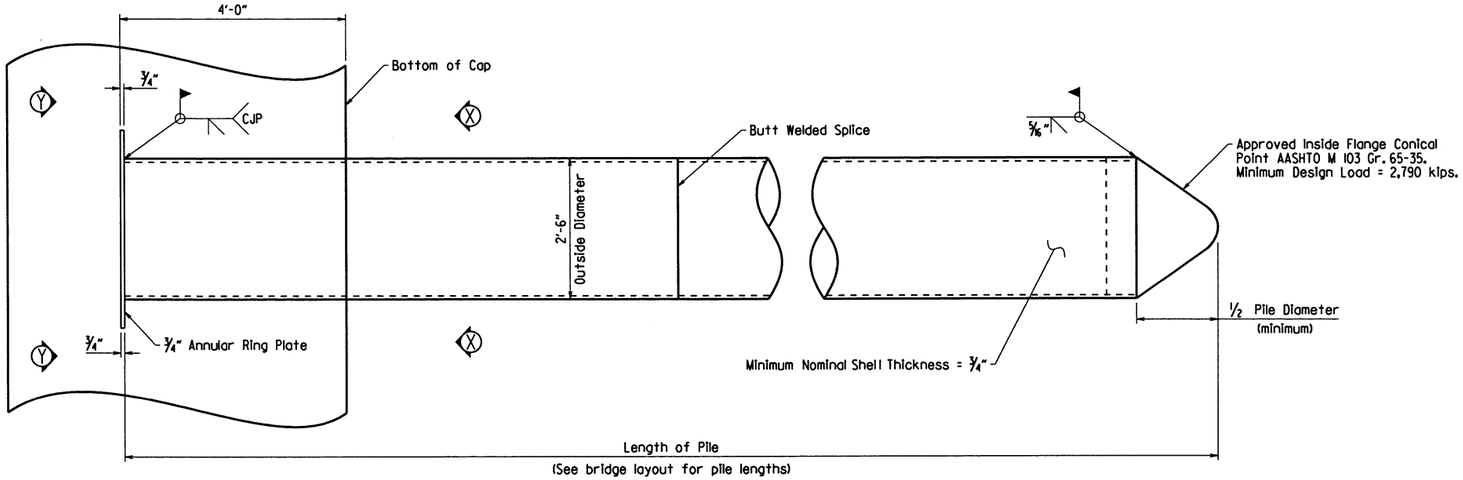
BRIDGE NO. 07467

DRAWING NO. 61264

PRINT DATE: 9/19/2019

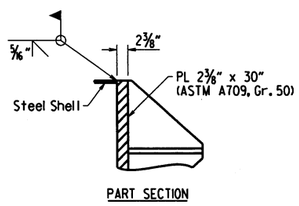
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	41	78

(1) 07467, 07468 - 30" DIA. CFSP - 61265

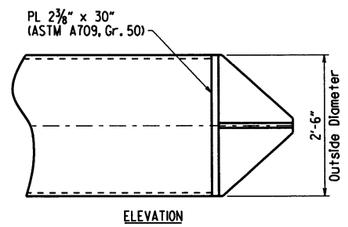


30" DIAMETER CONCRETE FILLED STEEL SHELL PILE

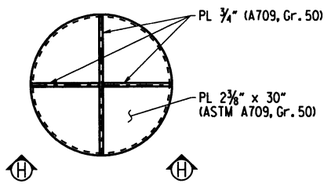
3/4" = 1'-0"



PART SECTION

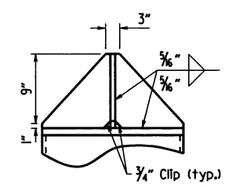


ELEVATION



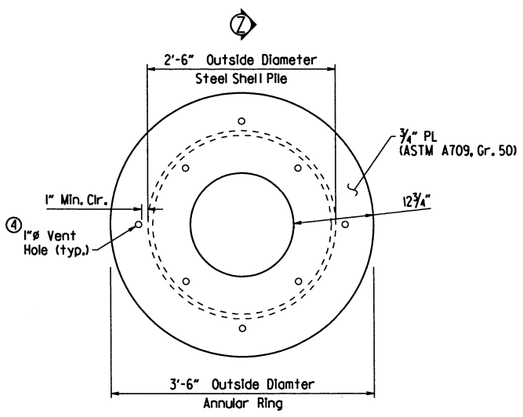
ALTERNATE VANED TIP DETAIL FOR 30" PILE

No Scale



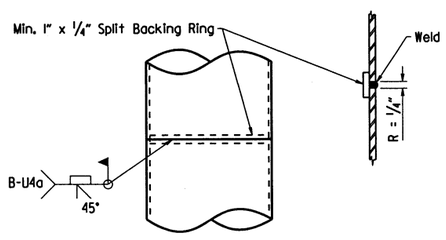
VIEW H-H

No Scale



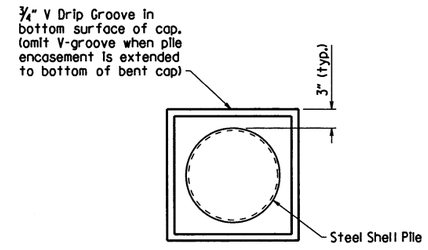
SECTION Y-Y

1" = 1'-0"



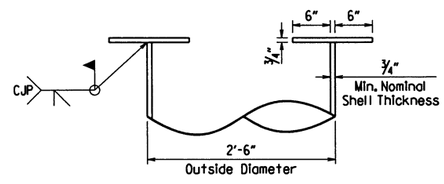
TYPICAL SPLICE DETAILS

No Scale



VIEW X-X

No Scale



SECTION Z-Z

1" = 1'-0"

(4) A minimum of 4 holes shall be equally spaced along the outside of the ring as shown. A minimum of 4 holes shall be equally spaced along the inside of the ring as shown.

GENERAL NOTES FOR CONCRETE FILLED STEEL SHELL PILES

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

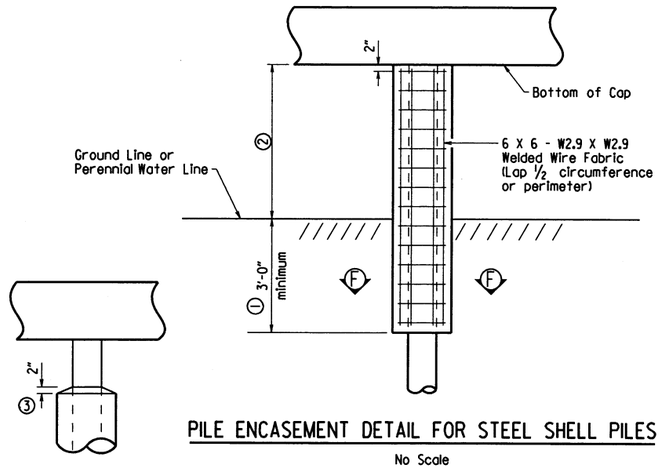
Concrete used for filling of steel shell shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. and shall be poured in the dry.

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.

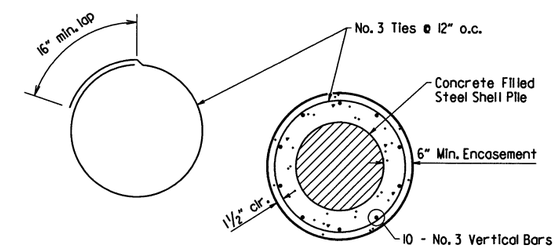
Concrete, structural steel, reinforcing steel (including welding), and painting shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling (30" dia.)"

Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling (30" dia.)"



PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

No Scale



SECTION F-F: REINFORCING ALTERNATE

No Scale

GENERAL NOTES FOR PILE ENCASEMENTS

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

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

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

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

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

(1) Unless otherwise noted on Bridge Layout.

(2) See Bridge Layout for height of pile encasement (3'-0" minimum).

(3) Pile encasement, when not extended to bottom of cap, shall have a 2" concrete taper for water runoff as shown.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
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DETAILS OF 30" DIA. CONCRETE FILLED STEEL SHELL PILES

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

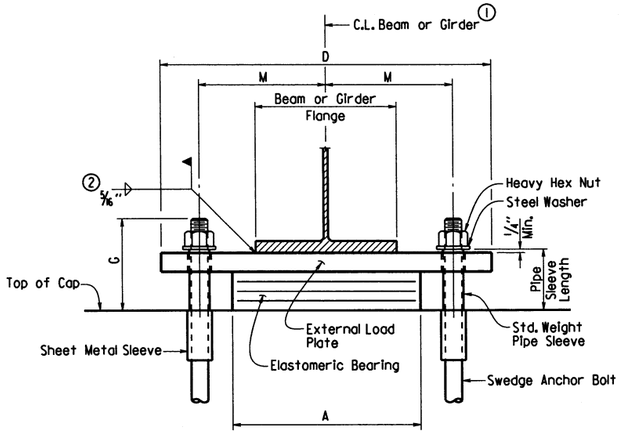
DRAWN BY: NAC DATE: 8/28/19
CHECKED BY: LJB DATE: 9-19-19
DESIGNED BY: LJB DATE: 8-2019
FILENAME: bM0617_cfsp.dgn
SCALE: As Noted

BRIDGE NO. 07467, 07468 DRAWING NO. 61265

PRINT DATE: 9/19/2019

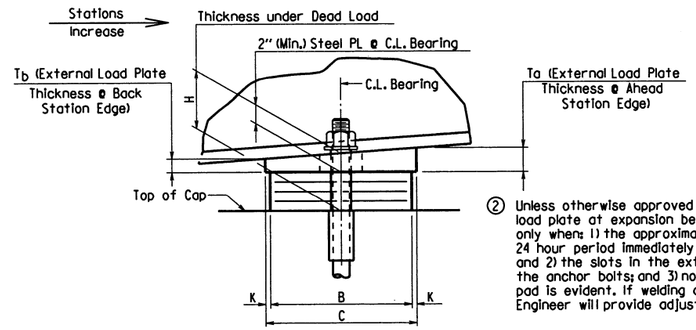
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	42	78

(1) 07467 - ELASTOMERIC BEARINGS - 61266



FRONT VIEW

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

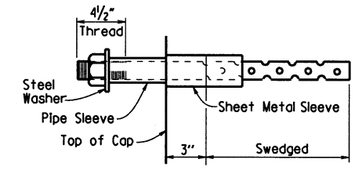


SIDE VIEW

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.

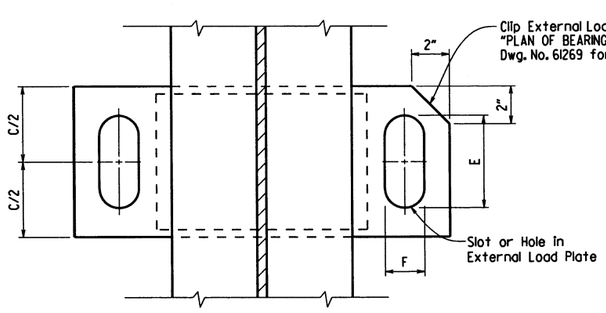


ANCHOR BOLT DETAIL

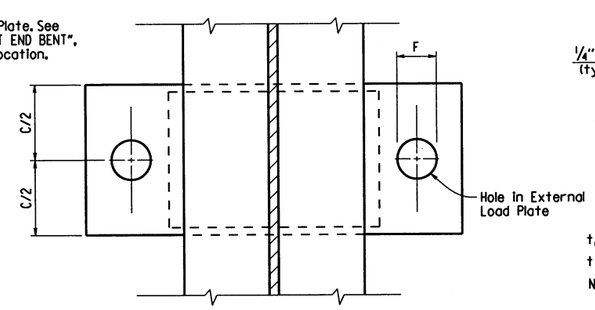
Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

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 (A709, Gr. 50W)"

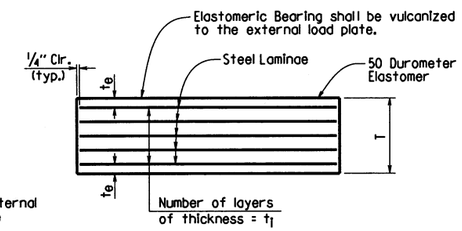
Prior to erection of the beams or girders, the Contractor shall verify the orientation of the bearing with respect to Ta and Tb.



PLAN VIEW AT BENTS 1 AND 7



PLAN VIEW AT BENTS 2 THRU 6



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

t_l = Thickness of elastomer between steel laminae

N = Number of elastomer layers of thickness t_l

ELASTOMERIC BEARING

GENERAL NOTES

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

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

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

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

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

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

TABLE OF FABRICATOR VARIABLES

(3) Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION: BENT NO(S).	LOCATION: BEAM OR GIRDER NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	(3) MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD: A	B	N	t_l	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.)
07467	1 & 7	All	Exp.	4	133	9 1/8"	6 1/8"	14"	9"	6	1/2"	1/4"	7 @ 12 Ga.	4 1/4"	10"	26"	6 1/8"	2 5/8"	1/2"	9 1/2"	2.00"	2.00"	1 3/4" x 29"	55	2" x 6 3/8"	4" x 6"	3 3/8"
	2 - 6	All	Fix	4	236	7 1/8"	3 15/16"	16"	12"	2	1/2"	1/4"	3 @ 12 Ga.	1 15/16"	13"	29"	-	3 1/8"	1/2"	10 3/4"	2.00"	2.00"	2" x 29"	55	2 1/2" x 4 1/8"	4" x 9"	3 3/4"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS CUTOFF BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 8/27/19 FILENAME: b110617_el.dgn

CHECKED BY: WAC DATE: 9-19-19 SCALE: None

DESIGNED BY: WAC DATE: 8/27/19

BRIDGE NO. 07467 DRAWING NO. 61266

PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	43	78
				① 07467 - 408' CONT. UNIT - 61267				

Slab Reinforcing:

Longitudinal: S402E as shown
S601E as shown centered over int. supports. See "REINFORCING PLAN & POURING SEQUENCE", Dwg. No. 61270.

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)

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

At the Contractor's option, two straight epoxy coated No. 5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

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

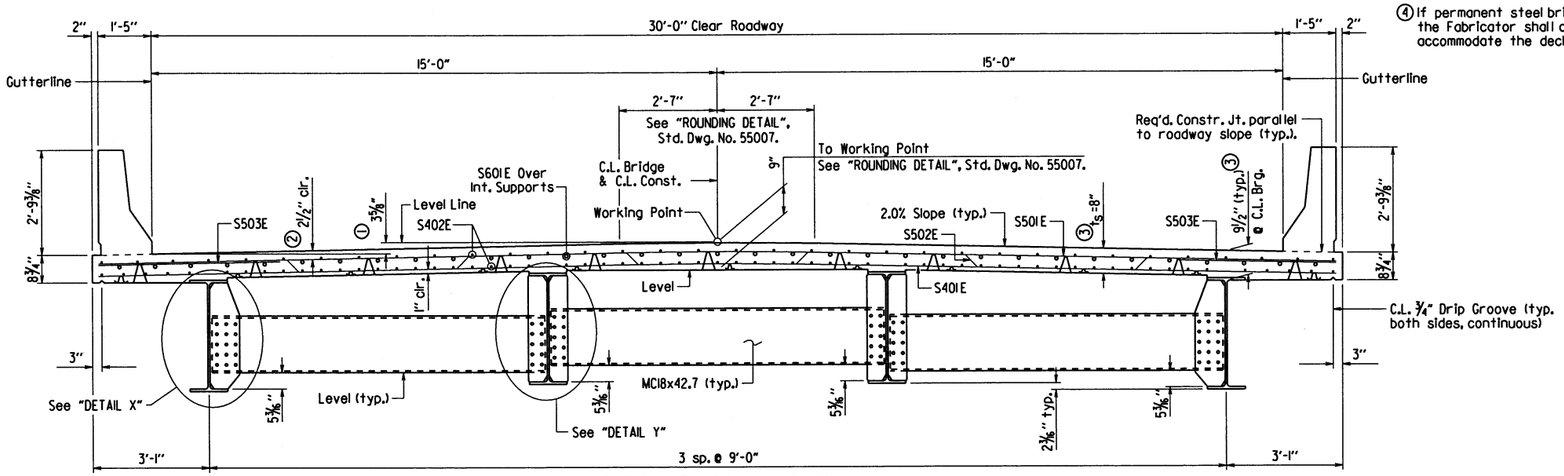
Bars with an "E" designation shall be epoxy coated.

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", Std. Dwg. No. 55007.

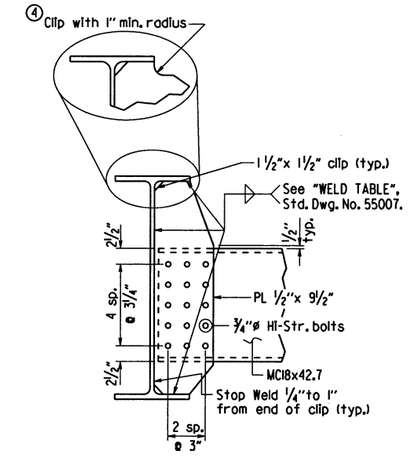
③ See ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007. For both removable and permanent steel deck forms the haunch dimension may vary within the following limits: plus 1 3/8"; minus when the top flange contacts the bottom reinforcing steel. See "SHEAR CONNECTOR DETAIL" on Std. Dwg. No. 55007 for shear connector requirements.

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



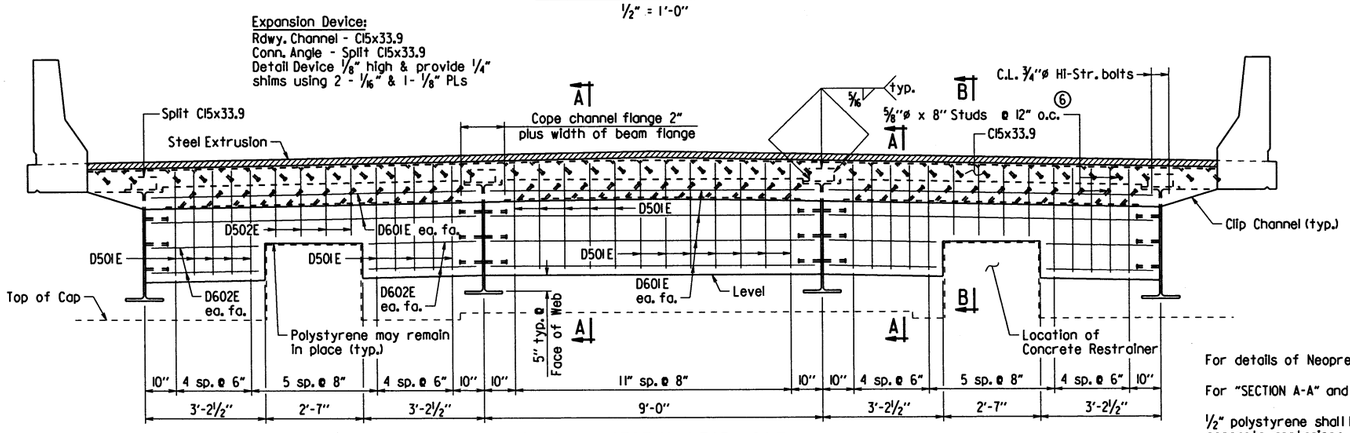
TYPICAL ROADWAY SECTION

1/2" = 1'-0"



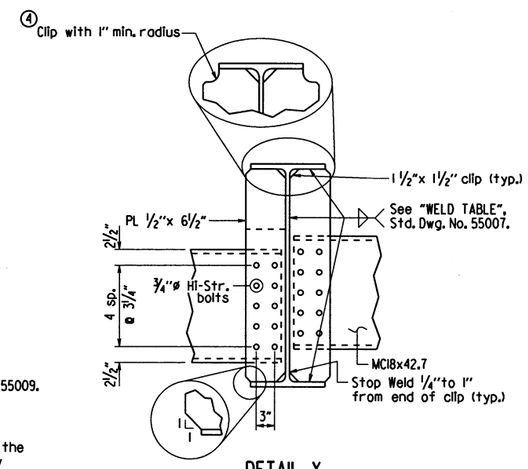
DETAIL X

1" = 1'-0"



ROADWAY SECTION NEAR JOINT

Looking Ahead - Bent 1
Looking Back - Bent 7
1/2" = 1'-0"



DETAIL Y

1" = 1'-0"

For details of Neoprene Strip Seal Joints, see Std. Dwg. No. 55009.

For "SECTION A-A" and "SECTION B-B", see Dwg. No. 61268.

1/2" polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place. Polystyrene will not be paid for directly, but will be considered subsidiary to Class S(AE) Concrete-Bridge.

Forms for concrete diaphragms shall be removable.

Concrete Diaphragms shall be vertical and poured monolithically with the deck.

Prior to pouring concrete diaphragms, remove mill scale from steel surfaces to be in contact with concrete with a wire brush.

STRIP SEAL JOINT DATA

Bent No(s).	Movement Rating (inch)	⑤ "A" Width Perpendicular to Joint at 24 Hour Average Temperature of:			⑤ "B" Width Perpendicular to Joint at 24 Hour Average Temperature of:			"C" (min.) Perpendicular to Joint at 24 Hour Average Temperature of 60° F
		40° F	60° F	80° F	40° F	60° F	80° F	
1 & 7	4"	1 3/4"	1 1/2"	1 1/4"	2 1/4"	2"	1 3/4"	2" +/-

⑤ 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.

⑥ See "DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT", Dwg. No. 61268.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 7
DETAILS OF
408'-0" CONTINUOUS W-BEAM UNIT
CUTOFF BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

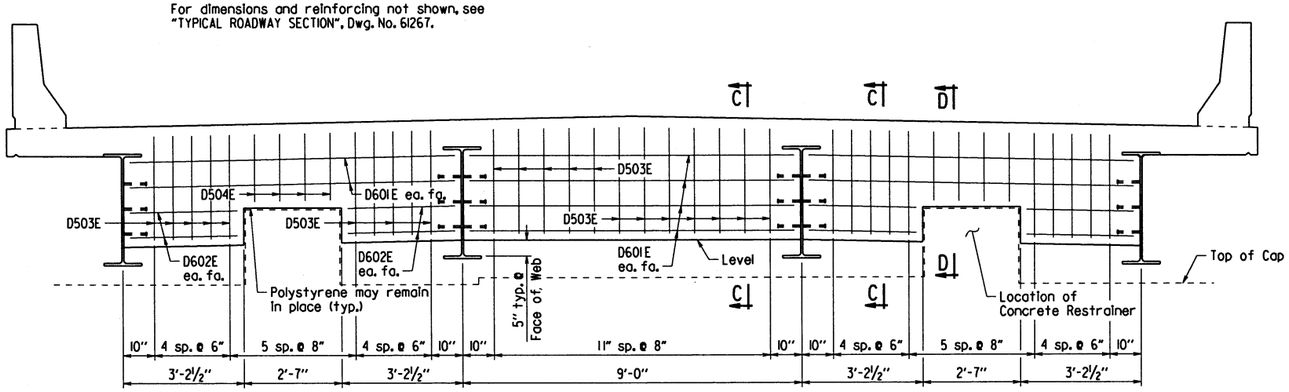
DRAWN BY: WAC DATE: 10-1-18 FILENAME: b110617xl_sl.dgn
CHECKED BY: NAC DATE: 9-19-19 SCALE: As Shown
DESIGNED BY: JYP DATE: 9-2013

BRIDGE NO. 07467 DRAWING NO. 61267

PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	44	78
				① 07467 - 408' CONT. UNIT - 61268				

For dimensions and reinforcing not shown, see "TYPICAL ROADWAY SECTION", Dwg. No. 61267.



ROADWAY SECTION AT INTERIOR BENTS

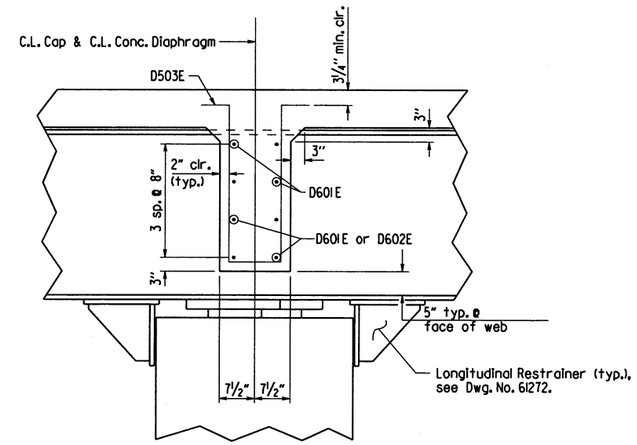
½" = 1'-0"

½" polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place. Polystyrene will not be paid for directly, but will be considered subsidiary to "Class S(AE) Concrete-Bridge".

Forms for concrete diaphragms shall be removable.

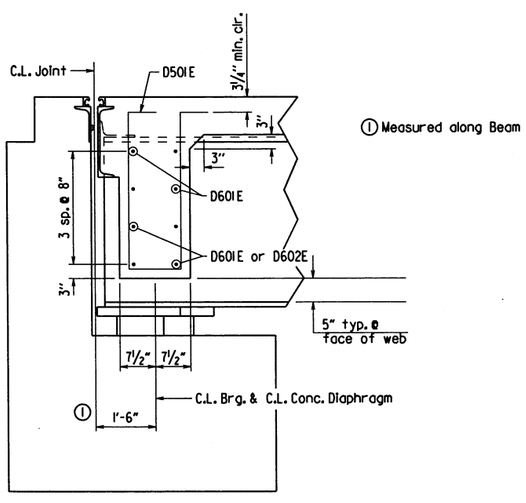
Concrete Diaphragms shall be vertical and poured monolithically with the deck.

Prior to pouring concrete diaphragms, remove mill scale from steel surfaces to be in contact with concrete with a wire brush.



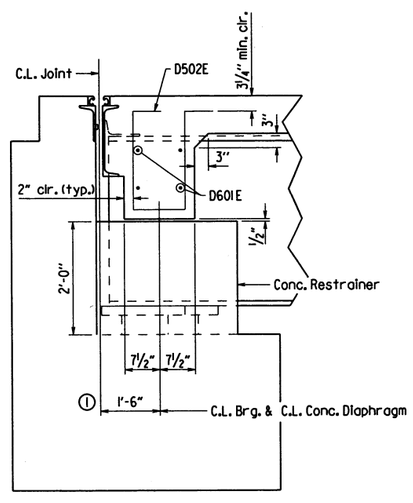
SECTION C-C

Section taken normal to conc. diaphragm
¾" = 1'-0"



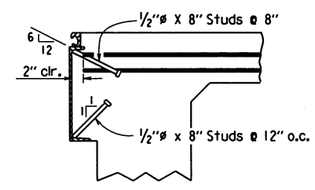
SECTION A-A

Section taken normal to conc. diaphragm
¾" = 1'-0"



SECTION B-B

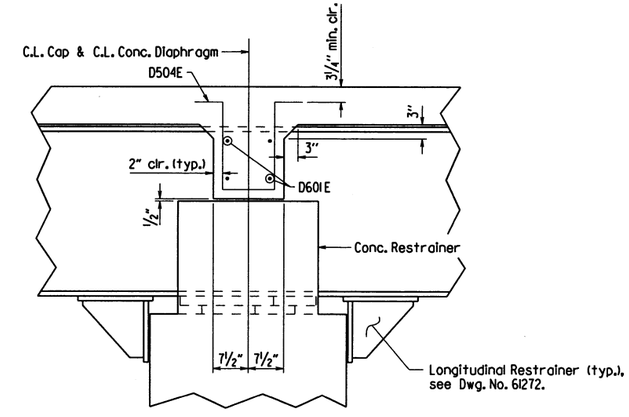
Section taken normal to conc. diaphragm
¾" = 1'-0"



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

DETAILS OF ALTERNATE ANCHORS AND PLACEMENT OF LONGITUDINAL REINFORCEMENT

No Scale



SECTION D-D

Section taken normal to conc. diaphragm
¾" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 7
DETAILS OF
408'-0" CONTINUOUS W-BEAM UNIT
CUTOFF BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

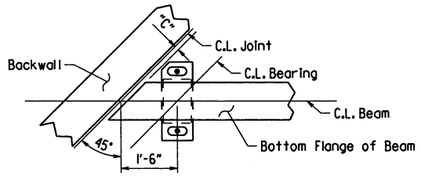
LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 10-1-18 FILENAME: b110617xl_sl.dgn
CHECKED BY: NAC DATE: 9-19-19 SCALE: As Shown
DESIGNED BY: JYP DATE: 9-2013

BRIDGE NO. 07467 DRAWING NO. 61268

PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	45	78
				① 07467 - 408' CONT. UNIT - 61269				



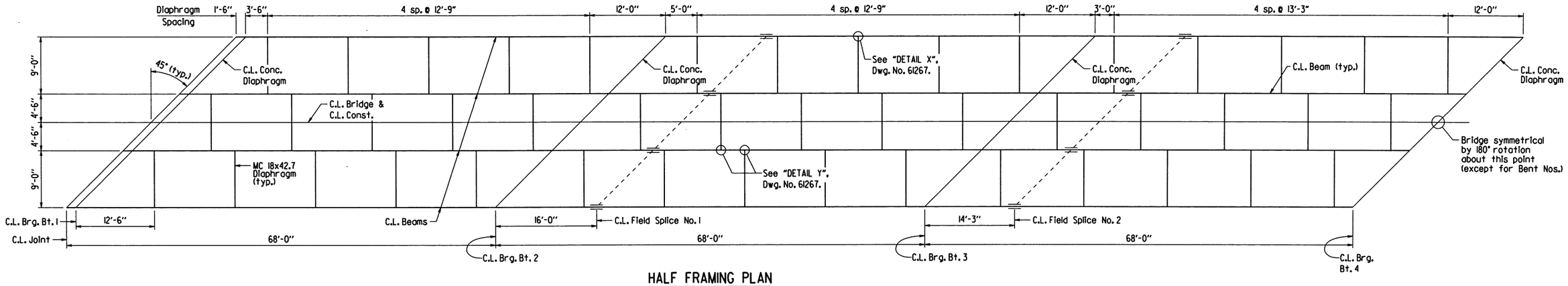
PLAN OF BEARING AT END BENT

No Scale

See "STRIP SEAL JOINT DATA" on Dwg. No. 61267 for "C".

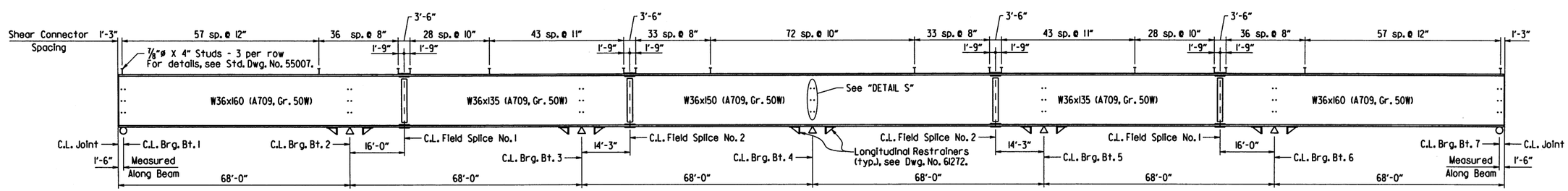
See Dwg. No. 61266 for details of Elastomeric Bearings.

All structural steel shall be ASTM A709, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (A709, Gr. 50W)". See Std. Dwg. Nos. 55006 and 55007 for additional notes and details.



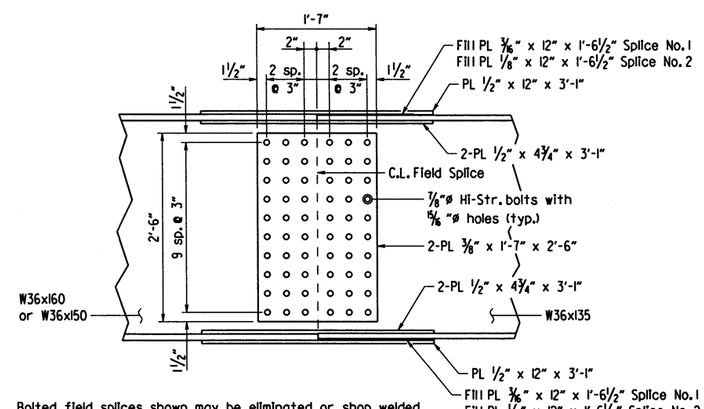
HALF FRAMING PLAN

1/8" = 1'-0"



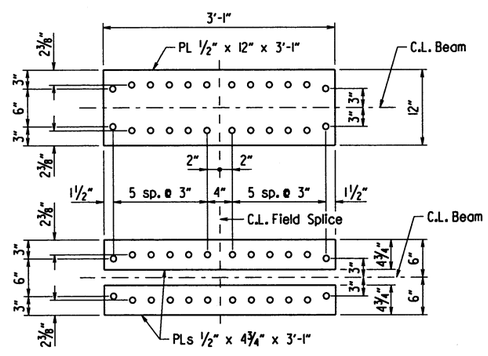
BEAM ELEVATION

No Scale



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

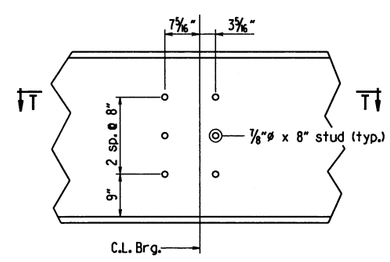
All field splice bolts shall be 7/8"ø Hi-str. bolts.
All holes for splice bolts shall be 15/16"ø.



(Top and Bottom Flange)

DETAILS OF BOLTED FIELD SPLICES

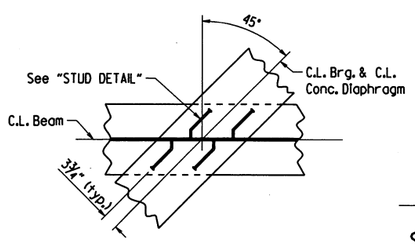
1" = 1'-0"



DETAIL S

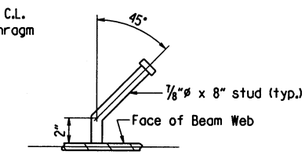
No Scale

Stud placement on side of beam at intermediate Bents shown, placement at End Bents similar.



SECTION T-T

(Shown @ Interior Beam)
No Scale



STUD DETAIL

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 7
DETAILS OF 408'-0" CONTINUOUS W-BEAM UNIT CUTOFF BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

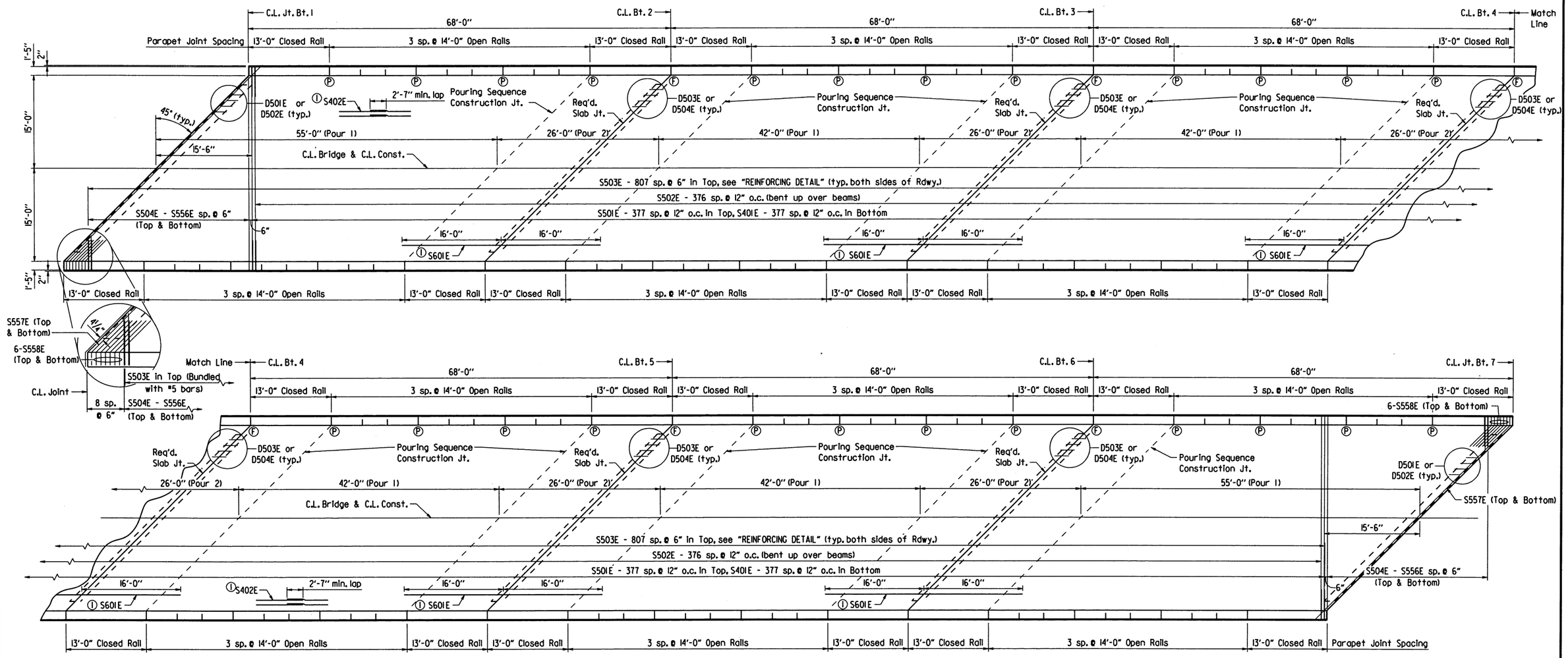
DRAWN BY: WAC	DATE: 10-1-18	FILENAME: b110617xl_sl.dgn			
CHECKED BY: WAC	DATE: 9-19-19	SCALE: As Shown			
DESIGNED BY: JYP	DATE: 9-2013				

BRIDGE NO. 07467 DRAWING NO. 61269

PRINT DATE: 9/19/2019

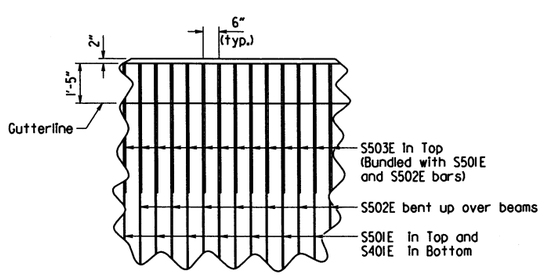
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	46	78
				(1) 07467 - 408' CONT. UNIT - 61270				

(1) For placement of reinforcement, see "TYPICAL ROADWAY SECTION", Dwg. No. 61267.



REINFORCING PLAN AND POURING SEQUENCE

1/8" = 1'-0"



REINFORCING DETAIL

No Scale

Required slab joints and pouring sequence construction joints shall align with open joints in parapet rail at the gutterline.

Locations of full and partial depth parapet joints shown are typical for both sides of roadway.

(P) Partial depth parapet joint at this location

(F) Full depth parapet joint at this location

For Parapet Reinforcing Details and Bar List, see Dwg. Nos. 61271 and 61273, respectively.

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

Concrete diaphragms shall be poured monolithically with the deck.

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

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

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 7
DETAILS OF
408'-0" CONTINUOUS W-BEAM UNIT
CUTOFF BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

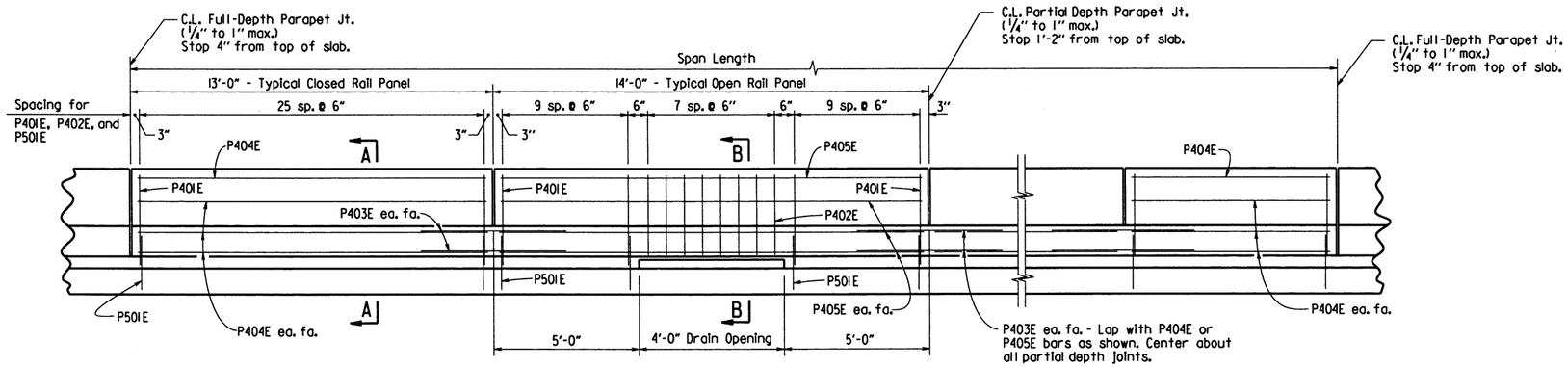
LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 10-1-18 FILENAME: b110617xl_sl.dgn
CHECKED BY: AJAC DATE: 9-19-19 SCALE: As Shown
DESIGNED BY: JAP DATE: 9-2013

BRIDGE NO. 07467 DRAWING NO. 61270

PRINT DATE: 9/19/2019

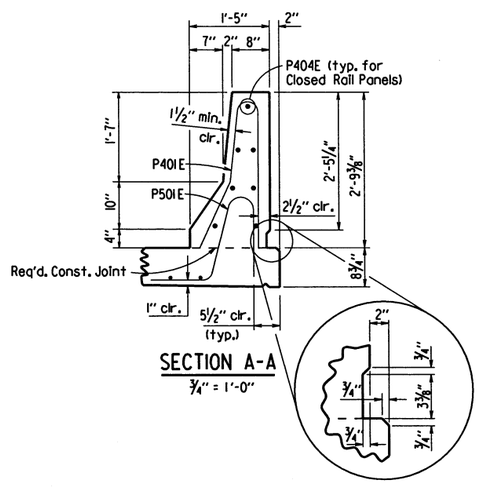
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	47	78
				1	07467 - 408' CONT. UNIT - 61271			



ELEVATION - CONCRETE PARAPET RAIL

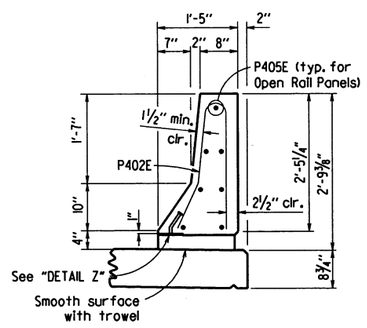
1/2" = 1'-0"

For location of full and partial depth parapet joints, See Dwg. No. 61270.



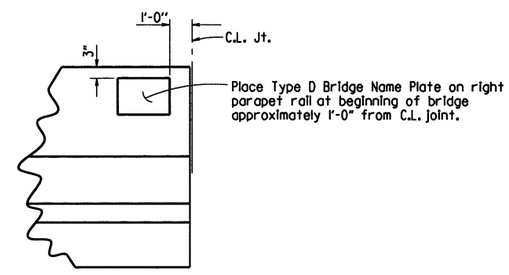
SECTION A-A

3/4" = 1'-0"



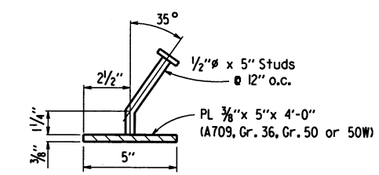
SECTION B-B

3/4" = 1'-0"



VIEW SHOWING LOCATION OF NAME PLATE

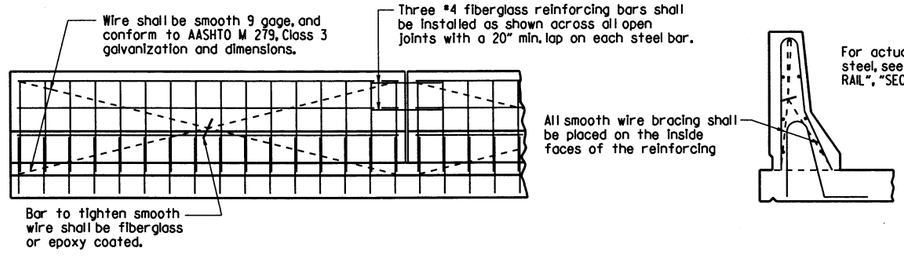
No Scale



Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel In Beam Spans (A709, Gr. 50W)". The surfaces of the 3/8" Plates which will not be in contact with concrete shall be painted 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 (A709, Gr. 50W)".

DETAIL Z

No Scale



For actual placement of reinforcing steel, see "ELEVATION - CONCRETE PARAPET RAIL", "SECTION A-A", and "SECTION B-B".

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 Class 2 Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 7
DETAILS OF
408'-0" CONTINUOUS W-BEAM UNIT
CUTOFF BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

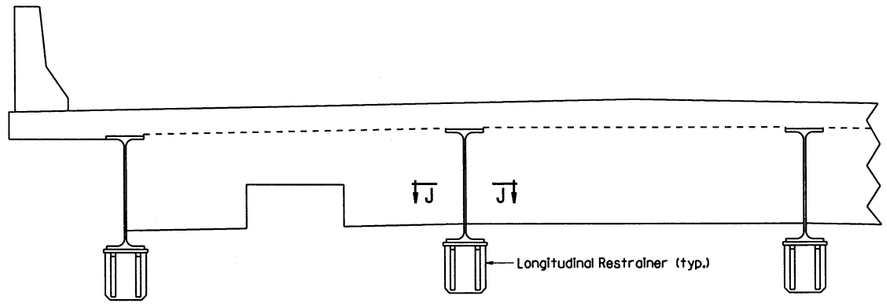
LITTLE ROCK, ARK.

DRAWN BY:	WAC	DATE:	10-1-18	FILENAME:	b110617xl_sl.dgn
CHECKED BY:	AJAC	DATE:	9-19-19	SCALE:	As Shown
DESIGNED BY:	JYP	DATE:	9-2013		

BRIDGE NO. 07467 DRAWING NO. 61271

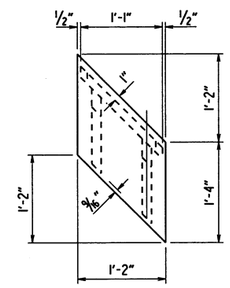
PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	48	78
				① 07467 - 408' CONT. UNIT - 61272				



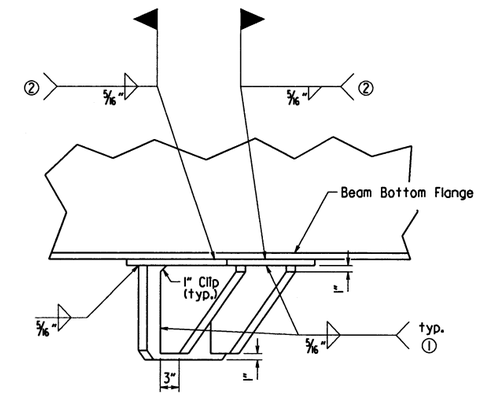
SKETCH OF LONGITUDINAL RESTAINER DEVICES AT INTERMEDIATE BENTS

1/2" = 1'-0"



PLAN OF LONGITUDINAL RESTRAINER

1" = 1'-0"

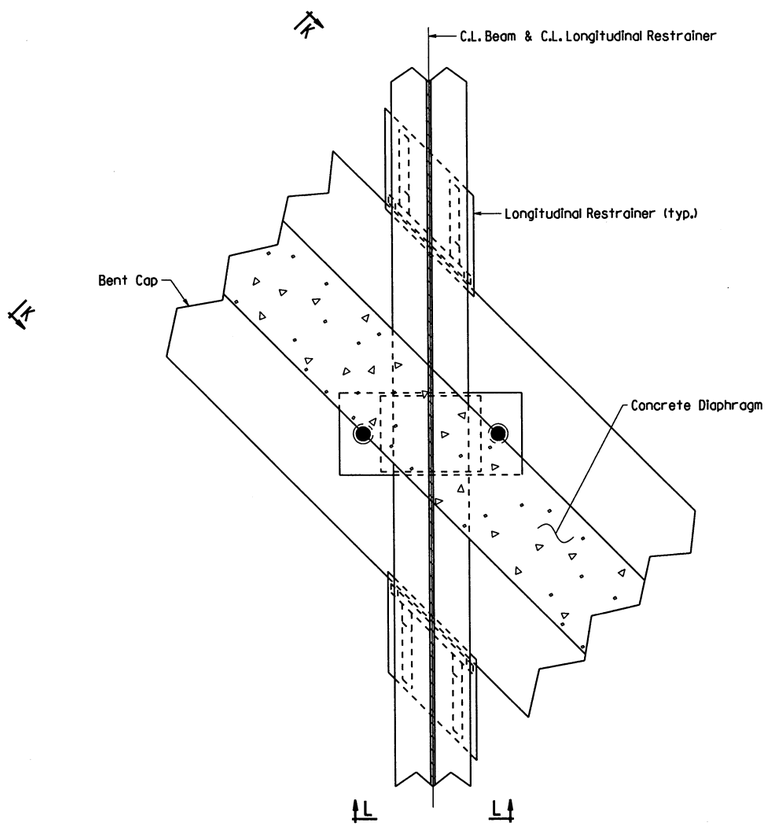


VIEW M-M

1" = 1'-0"

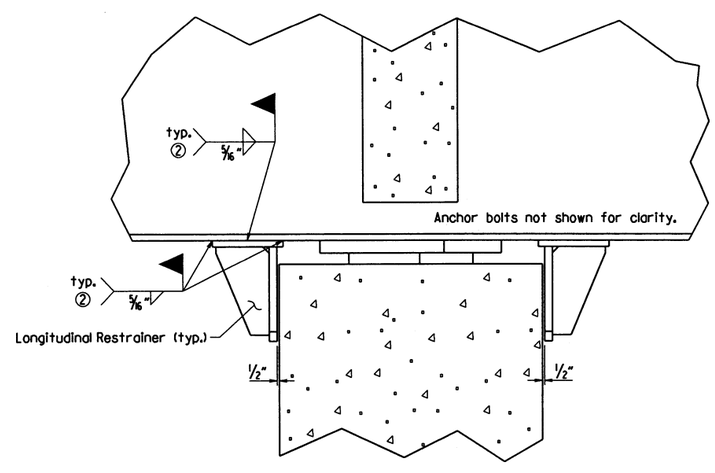
① Stop weld 1/2" from end of clip.

② Longitudinal restrainer shall not be welded to beam until deck has been poured.



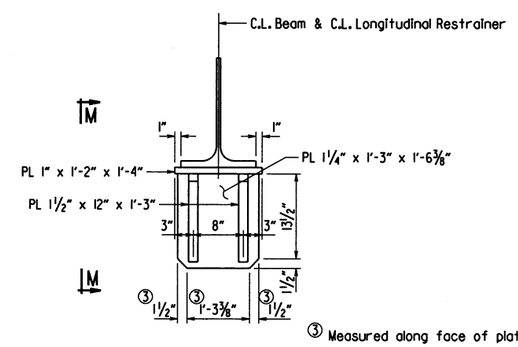
VIEW J-J

1" = 1'-0"



VIEW K-K

1" = 1'-0"



③ Measured along face of plate

VIEW L-L

1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 6 OF 7
DETAILS OF
408'-0" CONTINUOUS W-BEAM UNIT
CUTOFF BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 10-1-18 FILENAME: b110617xl_sl.dgn
CHECKED BY: NAC DATE: 9-19-19 SCALE: As Shown
DESIGNED BY: JYP DATE: 9-2013

BRIDGE NO. 07467 DRAWING NO. 61272

PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
09-15-2016				6	ARK.			
				JOB NO.		110617	49	78
				① 07467 - 408' CONT. UNIT - 61273				

TABLE OF DEAD LOAD DEFLECTIONS - INCHES

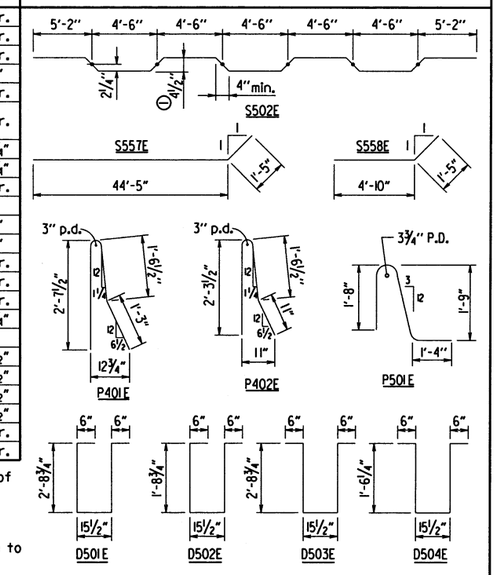
Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Exterior	Interior	Exterior	Interior	Exterior	Interior
1	0.0	0	0	0	0	0	0
	0.1	0.051	0.055	0.291	0.350	0.319	0.377
	0.2	0.094	0.101	0.539	0.649	0.591	0.698
	0.3	0.125	0.135	0.714	0.860	0.783	0.925
	0.4	0.141	0.151	0.800	0.962	0.877	1.035
	0.5	0.139	0.150	0.788	0.948	0.864	1.020
	0.6	0.123	0.132	0.689	0.828	0.755	0.891
	0.7	0.094	0.101	0.520	0.626	0.570	0.674
	0.8	0.058	0.062	0.317	0.380	0.347	0.409
	0.9	0.024	0.025	0.124	0.148	0.136	0.159
2	0.0	0	0	0	0	0	0
	0.1	-0.005	-0.005	-0.007	-0.008	-0.008	-0.009
	0.2	0.003	0.004	0.065	0.080	0.071	0.086
	0.3	0.017	0.019	0.167	0.203	0.182	0.218
	0.4	0.029	0.033	0.255	0.311	0.279	0.333
	0.5	0.036	0.040	0.301	0.365	0.329	0.391
	0.6	0.035	0.039	0.289	0.352	0.316	0.377
	0.7	0.027	0.030	0.225	0.273	0.246	0.293
	0.8	0.014	0.016	0.127	0.155	0.139	0.166
	0.9	0.003	0.003	0.035	0.042	0.038	0.045
3	0.0	0	0	0	0	0	0
	0.1	0.013	0.014	0.069	0.083	0.075	0.089
	0.2	0.034	0.036	0.193	0.232	0.211	0.249
	0.3	0.054	0.058	0.315	0.379	0.344	0.407
	0.4	0.067	0.072	0.398	0.479	0.435	0.514
	0.5	0.071	0.076	0.424	0.510	0.463	0.547
	0.6	0.064	0.069	0.385	0.464	0.421	0.498
	0.7	0.048	0.052	0.292	0.352	0.319	0.378
	0.8	0.028	0.030	0.168	0.203	0.184	0.218
	0.9	0.009	0.009	0.053	0.063	0.058	0.068
	0.0	0	0	0	0	0	0

Symmetrical about Half-Point of Unit

BAR LIST

Mark	No. Req'd.	Length	Pin Dia.
S401E	378	32'-10"	Str.
S402E	1045	40'-0"	Str.
S501E	378	32'-10"	Str.
S502E	377	33'-6"	3"
S503E	1,616	4'-10"	Str.
S504E-S556E	4 ea.	5'-1" to 31'-1"	Str.
S557E	4	45'-10"	3¾"
S558E	24	6'-3"	3¾"
S601E	165	32'-0"	Str.
P401E	1,344	5'-6"	3"
P402E	288	4'-10"	3"
P403E	192	4'-0"	Str.
P404E	168	12'-8"	Str.
P405E	252	13'-8"	Str.
P501E	1,344	4'-10"	3¾"
D501E	64	7'-4"	2½"
D502E	16	5'-4"	2½"
D503E	160	7'-4"	2½"
D504E	40	4'-11"	2½"
D601E	112	12'-3"	Str.
D602E	112	4'-2"	Str.

BENDING DIAGRAMS

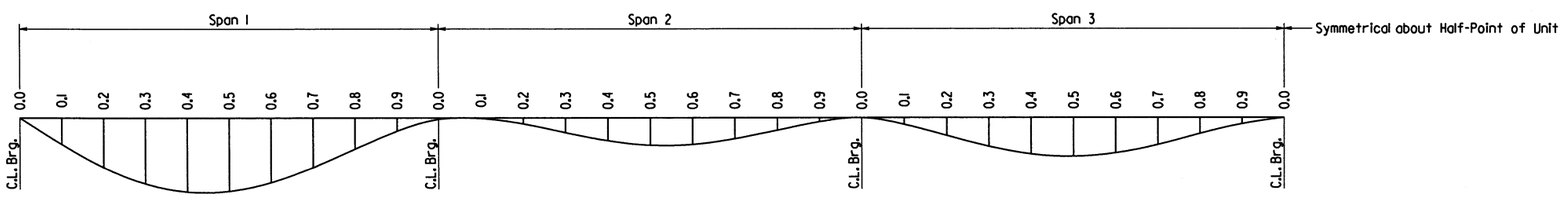


Dimensions are out to out of bars.

No Scale.

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

① ½" Overtolerance, No Undertolerance.



Camber for Dead Load Deflection +/- ¼ inch tolerance. Deflections shown are along C.L. beam/girder from a chord from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above chord. Vertical curve corrections not included.

DEAD LOAD DEFLECTION DIAGRAM

No Scale

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 9235 9-19-19 CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 7 OF 7
DETAILS OF
408'-0" CONTINUOUS W-BEAM UNIT
CUTOFF BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

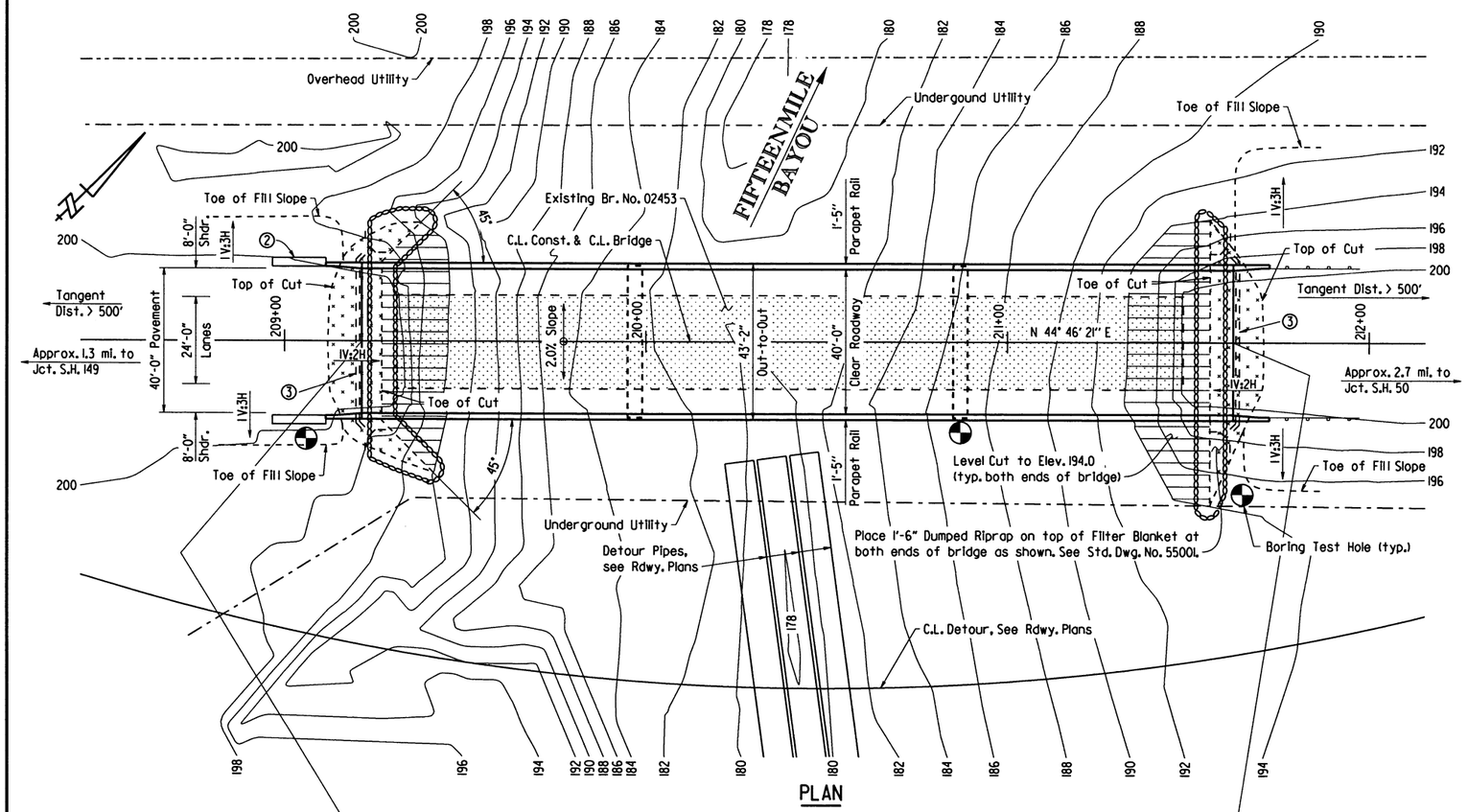
LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 10-1-18 FILENAME: b110617xl_sl.dgn
CHECKED BY: NAC DATE: 9-19-19 SCALE: No Scale
DESIGNED BY: JKD DATE: 9-2013

BRIDGE NO. 07467 DRAWING NO. 61273

PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	50	78
				① 07468 -		LAYOUT	- 61274	



PLAN

For R/W Data See Rdwy. Plans.

Use Type C Approach Gutters ("W" = 8'-0") and Type CI Approach Slabs (Width = 24'-0") at both ends of the bridge. See Std. Dwg. Nos. 55030C & 55040CI, respectively. Eliminate or modify Type C Approach Gutter curb section to fit bridge end terminal. No additional payment will be made for this work.

The Contractor shall excavate the existing embankments as shown at both ends of bridge. Approx. 405 cu. yds. of excavation.

② Bridge End Terminal (typ.). See Rdwy. Plans.

③ Install 4" ø Pipe Underdrain with Outlet Protectors at both bridge ends in accordance with Section 611 and Std. Dwg. PU-1. For additional details, see Dwg. No. 61284. Pipe Underdrains will not be paid for directly but shall be considered subsidiary to "Unclassified Excavation".

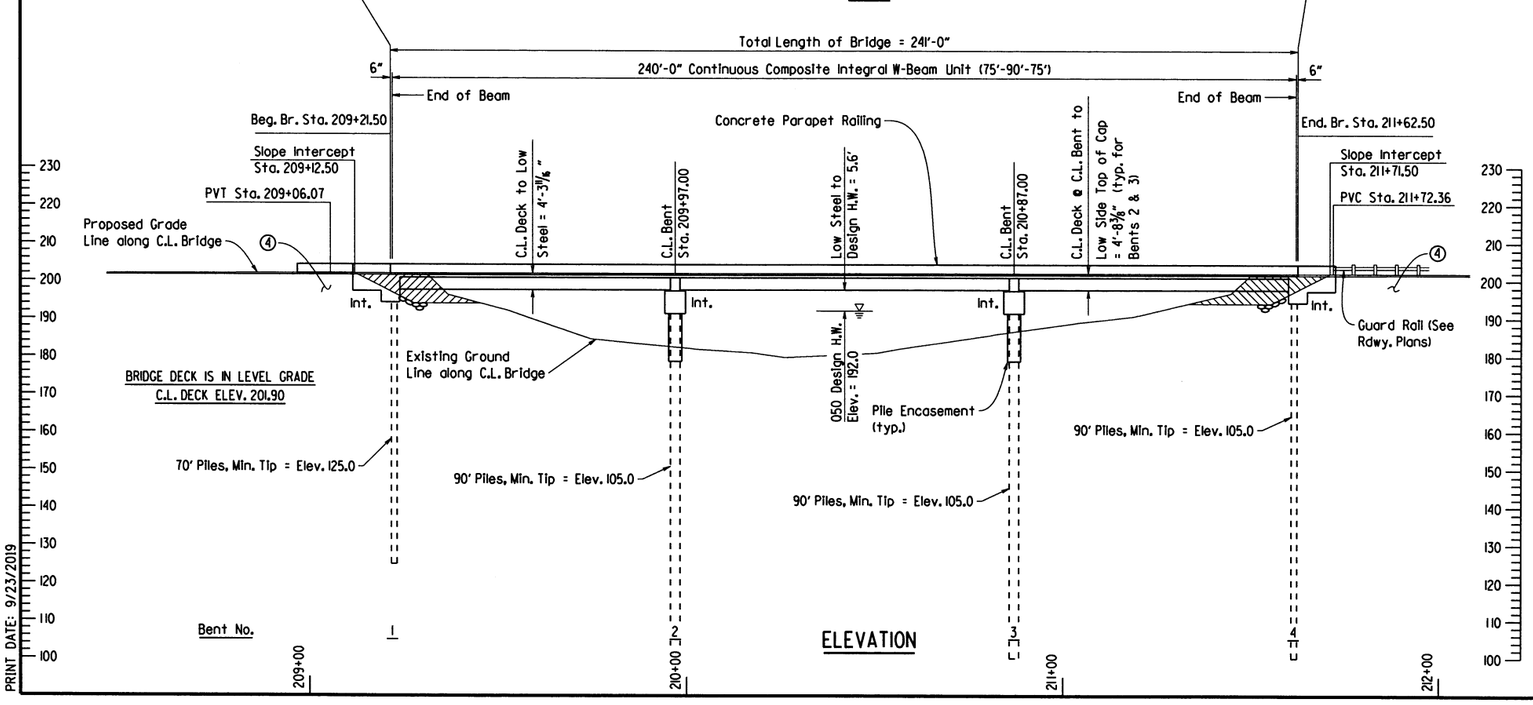
The proposed bridge is positioned to avoid interference with existing piling. The Contractor shall verify the location of existing piling before driving any new piling. Any adjustments necessary to fit the proposed bridge to existing conditions shall be submitted for the Engineer's approval. See "Foundation Plan" on Drawing No. 61276 for additional details.

④ Timber Compaction Piles to be driven in embankment. See "Foundation Plan" on Drawing No. 61276 and Special Provision Job 110617 "Timber Piling for Soil Densification" for details of timber piling in bridge embankments.

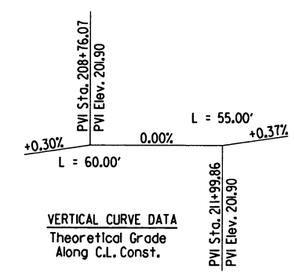
See Dwg. No. 61276 for General Notes.

See Dwg. No. 61275 for Soil Borings.

Stations shown are along C.L. Construction. Elevations shown are theoretical working point elevations at C.L. Bridge. Any vertical dimension referenced to C.L. Deck is based on theoretical working point elevation at C.L. Bridge. See "Rounding Detail" on Standard Drawing Number 55007 for additional information.



ELEVATION



VERTICAL CURVE DATA
Theoretical Grade Along C.L. Const.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	① NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	830	192.0	192.0
Base	100	900	192.4	192.4
Extreme	500	1060	193.1	193.1
Overtopping	>500	-	-	-

① Unconstricted water surface without structure or roadway approaches.

0100 backwater elev. for existing structure = 192.38 ft.
Proposed Low Bridge Chord elevation = 197.60 ft.
Drainage area = 11.4 square miles.
Historical H.W. Elev. = 194.68 ft.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-23-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 3
LAYOUT OF BRIDGE
HIGHWAY 79 OVER FIFTEENMILE BAYOU
FIFTEENMILE & CUTOFF BAYOUS
STRS. & APPRS. (S)
ST. FRANCIS COUNTY

ROUTE 79 SEC. 17

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 5-9-18
CHECKED BY: LJB DATE: 9-23-19
DESIGNED BY: WAC DATE: 5/2018
FILENAME: b07617_1.dgn
SCALE: 1" = 20'

BRIDGE NO. 07468 DRAWING NO. 61274

PRINT DATE: 9/23/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	51	78
				(1) 07468 -		LAYOUT	- 61275	

BORING LEGEND

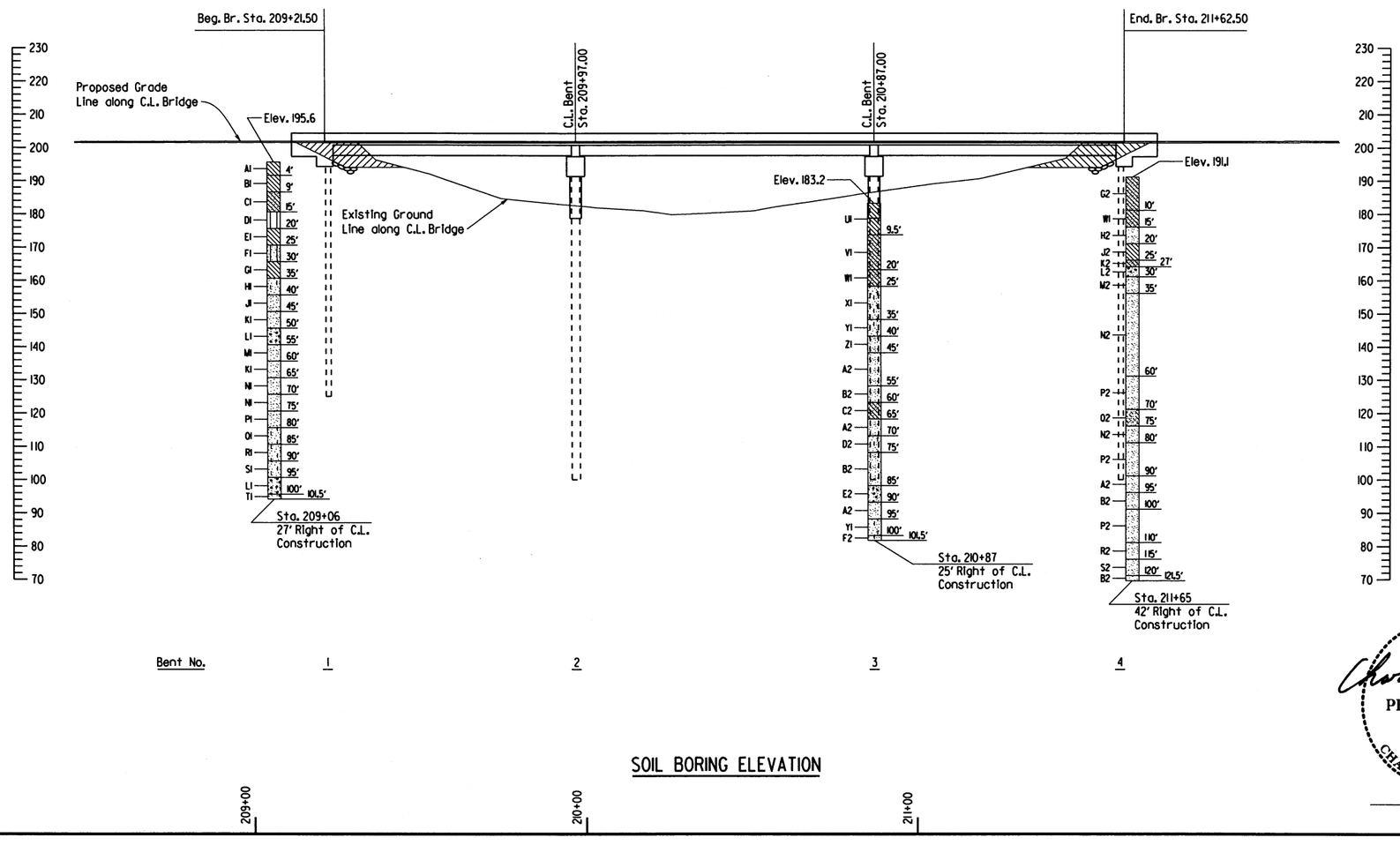
A1-Brown Clay
B1-Wet, Medium Stiff, Brown Fat Clay
C1-Wet, Soft, Brown Lean Clay with Sand
D1-Wet, Very Loose, Brown Silt
E1-Wet, Very Soft, Gray Lean Clay
F1-Wet, Very Loose, Gray Sandy Silt
G1-Wet, Soft, Gray Lean Clay
H1-Wet, Medium Dense, Gray Poorly-Graded Sand with Silt
J1-Wet, Medium Dense, Gray Poorly-Graded Sand with Trace Gravel
K1-Wet, Medium Dense, Gray Poorly-Graded Sand
L1-Wet, Medium Dense, Gray Well-Graded Sand with Gravel
M1-Wet, Medium Dense, Gray Sand with Trace Gravel
N1-Wet, Dense, Brown Poorly-Graded Sand
P1-Wet, Dense, Brown Poorly-Graded Sand with Trace Organic Matter (Carbonized Wood)
Q1-Wet, Dense, Gray Poorly-Graded Sand with Silt
R1-Wet, Dense, Gray Silty Sand
S1-Wet, Dense, Gray Poorly-Graded Sand with Silt and Some Gravel
T1-Wet, Dense, Gray Well-Graded Sand with Gravel
U1-Wet, Very Soft, Gray Clay
V1-Wet, Very Soft, Gray Clay with Sand
W1-Wet, Very Soft, Gray Sandy Clay
X1-Wet, Loose, Gray Sand with Silt and Trace Gravel
Y1-Wet, Medium Dense, Gray Sand with Silt and Trace Gravel
Z1-Wet, Loose, Gray Sand with Trace Gravel
A2-Wet, Medium Dense, Gray Sand with Trace Gravel
B2-Wet, Dense, Gray Sand with Trace Gravel
C2-Wet, Medium Stiff, Gray Sandy Clay with Some Gravel
D2-Wet, Dense, Gray Sand with Silt
E2-Wet, Medium Dense, Gray Sand with Gravel
F2-Wet, Dense, Gray Sand with Silt and Trace Gravel
G2-Moist, Very Soft, Gray Sandy Clay with Some Organic Matter
H2-Wet, Very Loose, Gray Sand
J2-Wet, Soft, Gray Clay
K2-Wet, Very Stiff, Gray Clay with Sand and Trace Gravel
L2-Sand with Gravel
M2-Wet, Medium Dense, Gray Sand with Some Organic Matter
N2-Wet, Medium Dense, Gray Sand
P2-Wet, Dense, Gray Sand
Q2-Wet, Loose, Gray Sand with Clay
R2-Wet, Very Dense, Gray Sand with Trace Gravel
S2-Wet, Very Dense, Gray Sand

"N" VALUES

Sta. 209+06 - 27' Right of C.L. Construction
4.5- 5.5, N=5
9.5- 10.5, N=3
15.5- 16.5, N=0
20.5- 21.5, N=0
25.5- 26.5, N=2
30.5- 31.5, N=3
35.5- 36.5, N=25
40.5- 41.5, N=18
45.5- 46.5, N=25
50.5- 51.5, N=25
55.5- 56.5, N=11
60.5- 61.5, N=19
65.5- 66.5, N=33
70.5- 71.5, N=41
75.5- 76.5, N=43
80.5- 81.5, N=45
85.5- 86.5, N=33
90.5- 91.5, N=41
95.5- 96.5, N=28
100.5-101.5, N=37

Sta. 210+87 - 25' Right of C.L. Construction
5.0- 6.0, N=0
10.0- 11.0, N=0
20.5- 21.5, N=1
25.5- 26.5, N=8
30.5- 31.5, N=10
35.5- 36.5, N=27
40.5- 41.5, N=9
45.5- 46.5, N=17
50.5- 51.5, N=26
55.5- 56.5, N=45
60.5- 61.5, N=7
65.5- 66.5, N=29
70.5- 71.5, N=34
75.5- 76.5, N=32
80.5- 81.5, N=39
85.5- 86.5, N=25
90.5- 91.5, N=29
95.5- 96.5, N=30
100.5-101.5, N=46

Sta. 211+65 - 42' Right of C.L. Construction
5.5- 6.5, N=0
10.5- 11.5, N=0
15.5- 16.5, N=0
20.5- 21.5, N=3
25.5- 26.5, N=16
30.5- 31.5, N=18
35.5- 36.5, N=18
40.5- 41.5, N=21
45.5- 46.5, N=22
50.5- 51.5, N=14
55.5- 56.5, N=12
60.5- 61.5, N=41
65.5- 66.5, N=38
70.5- 71.5, N=9
75.5- 76.5, N=14
80.5- 81.5, N=36
85.5- 86.5, N=43
90.5- 91.5, N=19
95.5- 96.5, N=32
100.5-101.5, N=43
105.5-106.5, N=39
110.5-111.5, N=61
115.5-116.5, N=60
120.5-121.5, N=47



SOIL BORING ELEVATION

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 9235 9-19-19 CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 3
LAYOUT OF BRIDGE
HIGHWAY 79 OVER FIFTEENMILE BAYOU
FIFTEENMILE & CUTOFF BAYOUS
STRS. & APPRS. (S)
ST. FRANCIS COUNTY

ROUTE 79 SEC. 17

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 5-9-18
CHECKED BY: CJB DATE: 9-19-19
DESIGNED BY: WAC DATE: 5/20/18
FILENAME: b110617_ll.dgn
SCALE: 1" = 20'

BRIDGE NO. 07468 DRAWING NO. 61275

PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	52	78
				① 07468 -		LAYOUT	- 61276	

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Specifications, Seventh Edition (2014) with 2015 Interim revisions.

LIVE LOADING: HL-93

SEISMIC ZONE: 4 S_{D1} = 0.615 SITE CLASS = E

MATERIALS AND STRENGTHS:

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

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

STEEL SHELL PILING: Piling in Bents 1 and 4 shall be 18" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 210 tons per pile. Piling in Bents 2 and 3 shall be 30" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 600 tons per pile. All steel shell piling shall be driven with an approved air, steam, or diesel hammer to the minimum tip elevations shown on Dwg. No. 61274 or lower. Piling in end bents shall be driven after embankment to bottom of cap is in place and after completing driving of the Timber Compaction Piles. Lengths of piling shown are assumed for estimating quantities only. Actual lengths are to be determined in the field. No additional payment will be made for cut-off or built-up. Test piles are not required but may be driven for the Contractor's information in accordance with Subsection 805.08(g).

Water jetting or other methods as approved by the Engineer may be required to achieve minimum penetration. This work shall not be paid for directly, but shall be considered incidental to the items "Steel Shell Piling (18" Dia.)" and "Steel Shell Piling (30" Dia.)".

PREBORING: Preboring is required for all piling at Bents 1 and 4. Prebored holes shall have a diameter 6" greater than the diameter of the pile for a depth of 10' below the bottom of the cap. The void space around the pile after the completion of driving shall be backfilled with sand or pea gravel. 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 approved methods. Any related cost for backfilling and temporary casing will not be paid for directly, but shall be considered subsidiary to the item "Preboring".

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 hammer energy required to obtain the ultimate bearing capacity will be 30,000 foot pounds per blow for Bents 1 and 4 and 75,000 foot pounds per blow at Bents 2 and 3.

PILE ENCASEMENT: Pile encasement for Bents 2 and 3 shall extend from bottom of cap to 3' below natural ground. Corrugated steel pipe shall not be used for the pile encasement. See Std. Dwg. No. 55021 & Dwg No. 61265 for additional information.

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

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

DETAIL DRAWINGS:	DRAWING NOS.
Ends Bents	61277
Intermediate Bents	61278-61279
240'-0" Continuous Integral W-Beam Unit	61280-61286
General Notes for Steel Bridge Structures	55006
Details for Steel Bridge Structures	55007
Concrete Filled Steel Shell Piling	55021 & 61265

EXISTING BRIDGE: Existing Bridge No. 02453 (L.M. 7.47) is 31.8' wide (26.0' clear roadway) and 218.0' long and consists of a concrete deck on steel I-beam spans supported by concrete pile bents. The existing bridge occupies the same location as the proposed new bridge. Plans of the existing structure, if available, may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

REMOVAL AND SALVAGE: After the detour has been opened to traffic, the Contractor shall remove existing Bridge No. 02453, including existing riprap, if present, in accordance with Section 205. Removal of existing riprap, if present, will not be paid for directly but shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No.)". All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

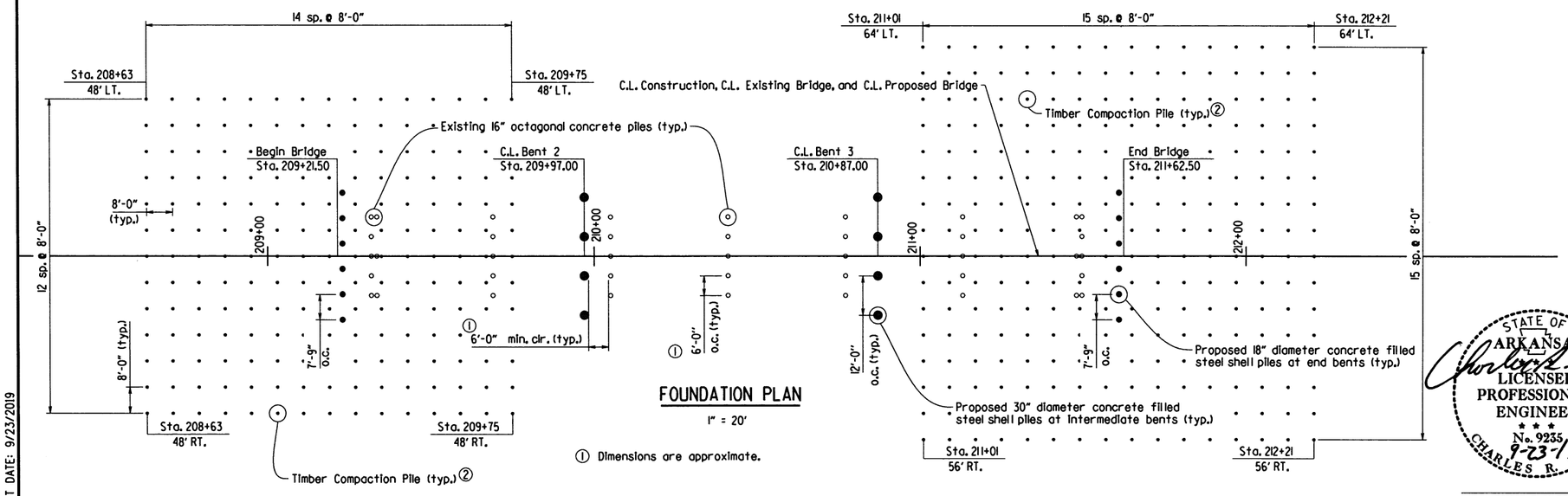
② TIMBER COMPACTION PILE NOTES:

Timber Compaction Piles shall be in accordance with Special Provision Job 110617 "Timber Piling for Soil Densification".

At the direction of the Engineer, drive 195 Timber Compaction Piles at Bent 1 and 256 Timber Compaction Piles at Bent 4. The Timber Compaction Piles shall be 40' in length and driven until the top of the pile is 2' below finished ground. Timber Compaction piles in the foot print of the end bent caps, wings, approach slabs, and approach gutters shall be driven until the top of the pile is 2' below the bottom of the lowest plan elevation of the concrete structural element above the pile.

The Timber Compaction Piles shall be driven after embankment to bottom of cap is in place, but prior to driving the concrete filled steel shell piling at the end bents.

The Contractor shall coordinate with the Engineer to avoid any and all utilities and proposed or existing piles within the soil densification areas. Minor adjustments to the Timber Compaction Piles locations will be allowed.



FOUNDATION PLAN

1" = 20'

① Dimensions are approximate.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-23-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 3
LAYOUT OF BRIDGE
HIGHWAY 79 OVER FIFTEENMILE BAYOU
FIFTEENMILE & CUTOFF BAYOUS
STRS. & APPRS. (S)
ST. FRANCIS COUNTY

ROUTE 79 SEC. 17

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

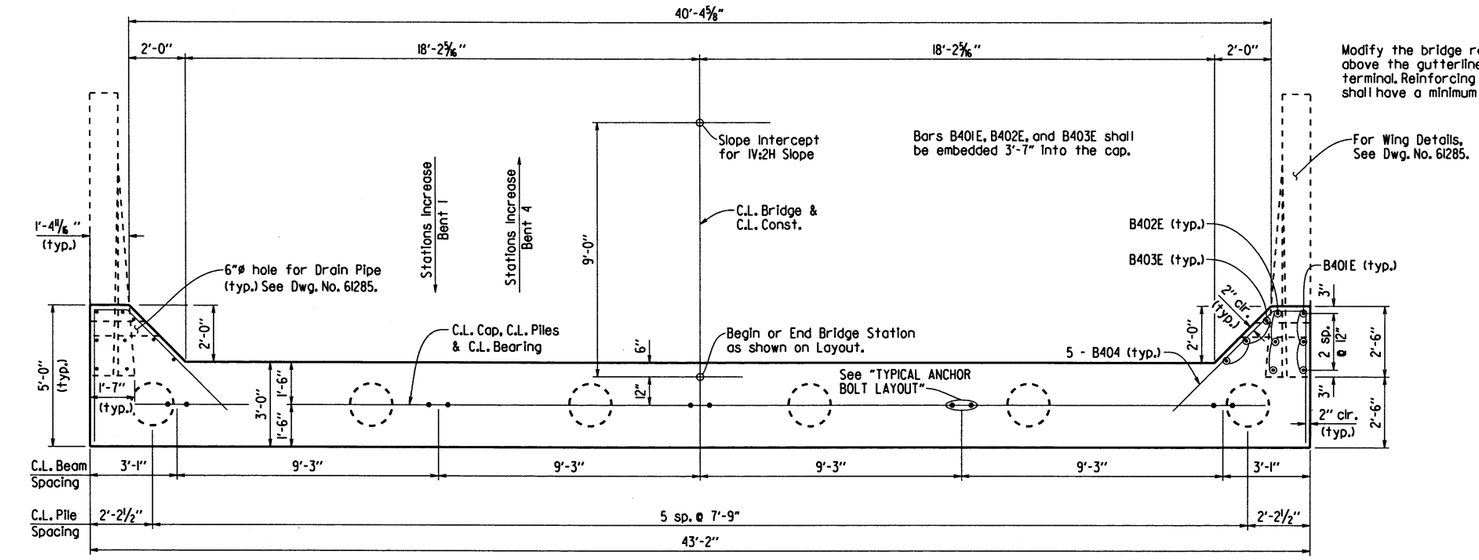
DRAWN BY: WAC DATE: 5-9-18 FILENAME: b110617_ll.dgn
CHECKED BY: LJB DATE: 9-23-19 SCALE: 1" = 20'
DESIGNED BY: WAC DATE: 5-2018

BRIDGE NO. 07468 DRAWING NO. 61276

PRINT DATE: 9/23/2019

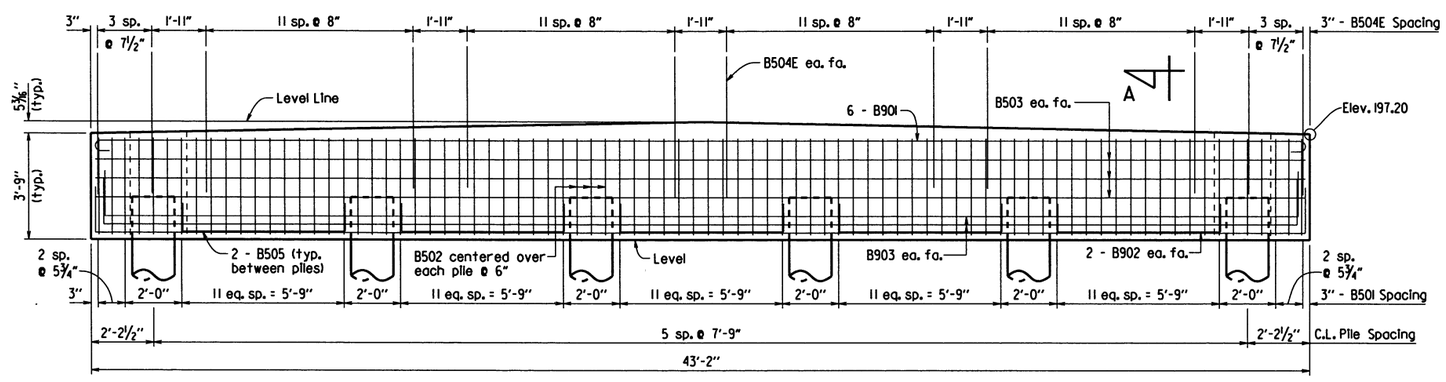
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	53	78
				07468 -		END BENTS	- 61277	

Modify the bridge rail and construction detail for Wings A and B at Bent 1 only above the gutterline as required by the manufacturer of the bridge end terminal. Reinforcing bars that are relocated or bent to fit the modified rail shall have a minimum plan concrete cover.



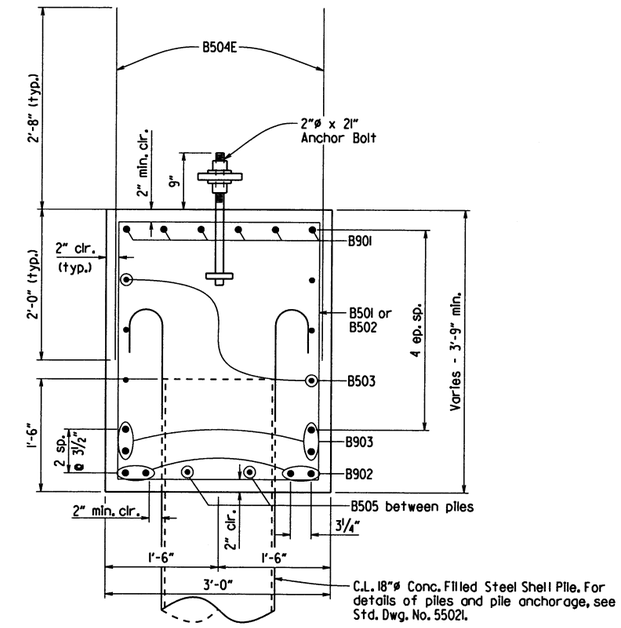
PLAN

⅜" = 1'-0"



ELEVATION

Looking Back - Bent 1
Looking Ahead - Bent 4
⅜" = 1'-0"



SECTION A-A

1" = 1'-0"

The concrete in the bent cap shall have a maximum nominal aggregate size of ¾".

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

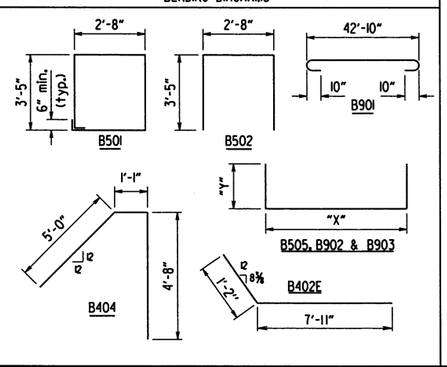
Granular Backfill and Pipe Underdrain required behind cap. See Dwg. No. 61284 for details.

For additional information, see Layout.

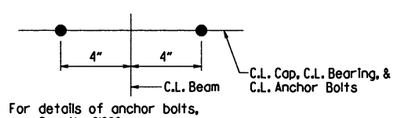
BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.	"X"	"Y"
B401E	6	10'-4"	Str.	-	-
B402E	6	9'-1"	2"	-	-
B403E	6	6'-5"	Str.	-	-
B404	10	10'-8"	2"	-	-
B501	66	12'-8"	2½"	-	-
B502	18	9'-4"	2½"	-	-
B503	6	42'-10"	Str.	-	-
B504E	112	4'-8"	Str.	-	-
B505	10	7'-8"	3¾"	5'-11"	1'-0"
B901	6	45'-4"	9"	-	-
B902	4	45'-6"	9"	42'-10"	1'-7¼"
B903	4	44'-11"	9"	42'-3"	1'-7¼"

BENDING DIAGRAMS



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



For details of anchor bolts, see Dwg. No. 61282.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF END BENTS FIFTEENMILE BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

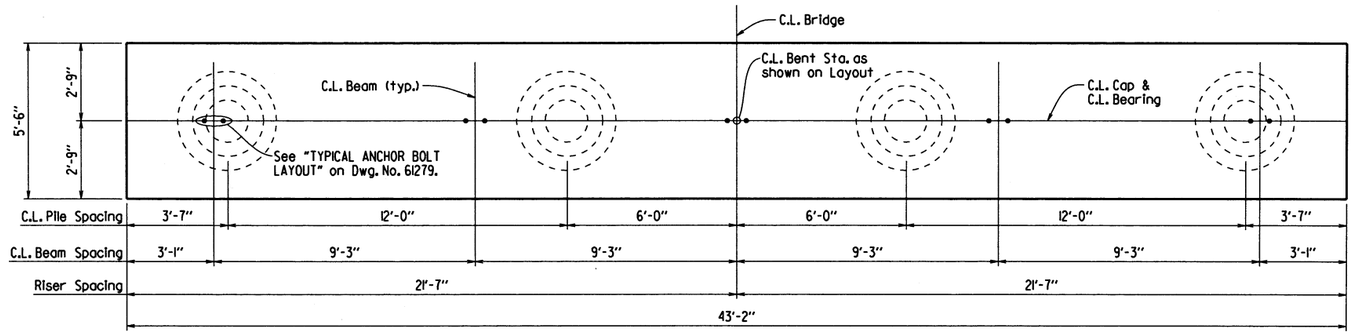
LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 9/18/18
CHECKED BY: DKS DATE: 9-19-19
DESIGNED BY: WAC DATE: 9/2018
FILENAME: b110617x2_bl.dgn
SCALE: As Shown

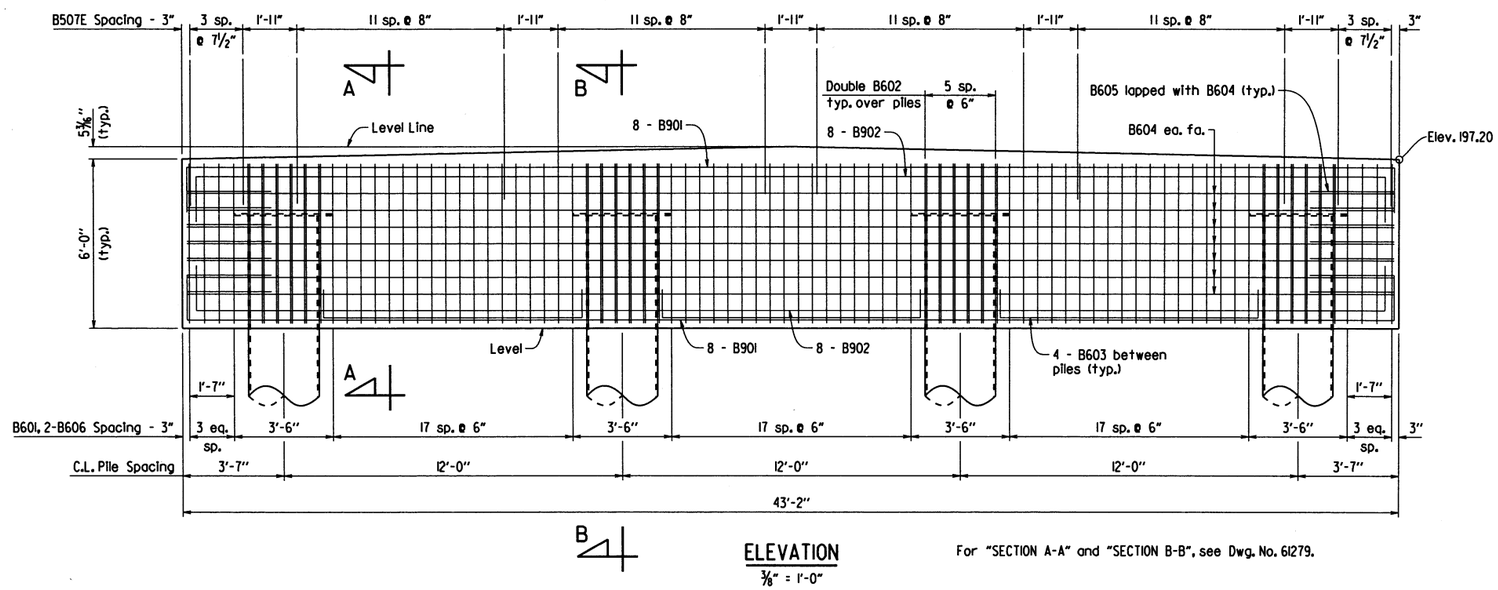
BRIDGE NO. 07468 DRAWING NO. 61277

PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	54	78
				(1) 07468 -		INT. BENTS	- 61278	



PLAN
3/8" = 1'-0"



ELEVATION
3/8" = 1'-0"

For "SECTION A-A" and "SECTION B-B", see Dwg. No. 61279.

The concrete in the bent cap shall have a maximum nominal aggregate size of ¾".

For details of piling, see Dwg. No. 61265.

See Std. Dwg. No. 55006 for additional notes.

For additional information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF INTERMEDIATE BENTS
FIFTEENMILE BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

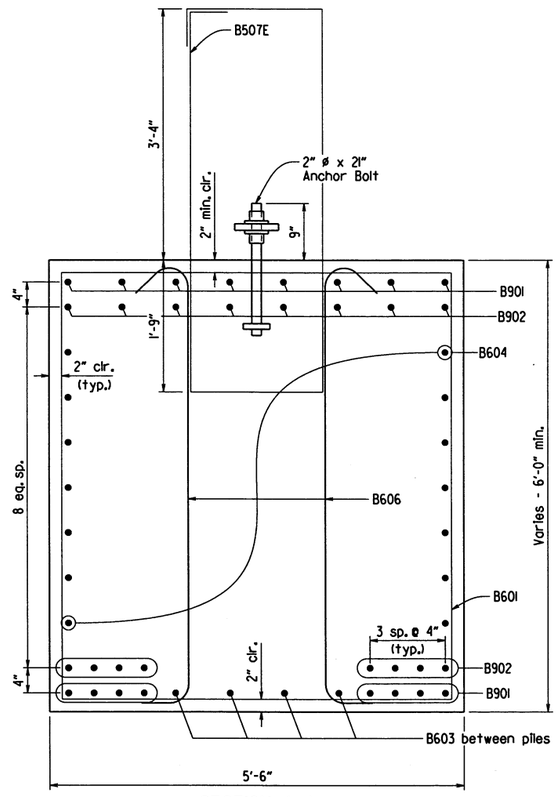
DRAWN BY: WAC DATE: 9/18/18
CHECKED BY: DRS DATE: 9-19-19
DESIGNED BY: WAC DATE: 9/2018

FILENAME: b110617x2_b2.dgn
SCALE: As Shown

BRIDGE NO. 07468 DRAWING NO. 61278

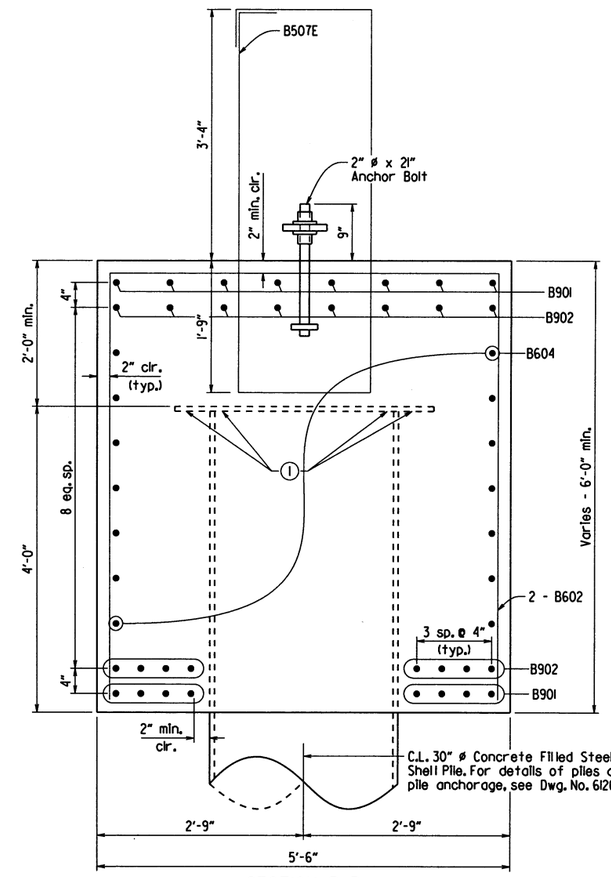
PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	55	78
				(1) 07468 -		INT. BENTS	- 61279	



SECTION A-A

1" = 1'-0"



(1) Contractor shall ensure that concrete in this area is in full and complete contact with annular ring.

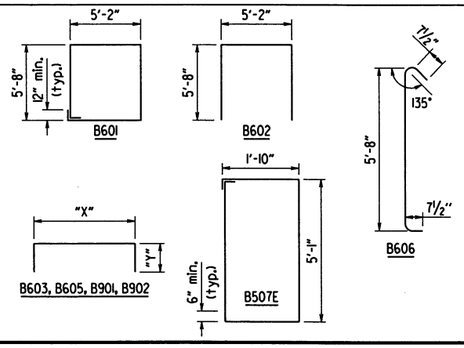
SECTION B-B

1" = 1'-0"

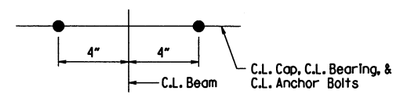
BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.	"X"	"Y"
B507E	56	14'-4"	2½"	-	-
B601	62	22'-10"	4½"	-	-
B602	48	16'-2"	4½"	-	-
B603	12	10'-10"	4½"	9'-2"	1'-0"
B604	14	42'-10"	Str.	-	-
B605	14	11'-8"	4½"	5'-0"	3'-6"
B606	124	6'-9"	4½"	-	-
B901	16	45'-6"	9"	42'-10"	1'-7¼"
B902	16	44'-10"	9"	42'-2"	1'-7¼"

BENDING DIAGRAMS



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



For details of anchor bolts, see Dwg. No. 61282.

TYPICAL ANCHOR BOLT LAYOUT

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF INTERMEDIATE BENTS
FIFTEENMILE BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 9/18/18
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DESIGNED BY: WAC DATE: 9/2018
FILENAME: b110617x2_b2.dgn
SCALE: As Shown

BRIDGE NO. 07468 DRAWING NO. 61279

PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	56	78
				① 07468 -		240 FT. UNIT	- 61280	

Slab Reinforcing:

Longitudinal: S402E as shown
S601E as shown over intermediate supports and S602E as shown over end supports, see "HALF REINFORCING PLAN AND SLAB POURING SEQUENCE", Dwg. No. 61283.

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

At the Contractor's option, two straight epoxy coated No. 5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

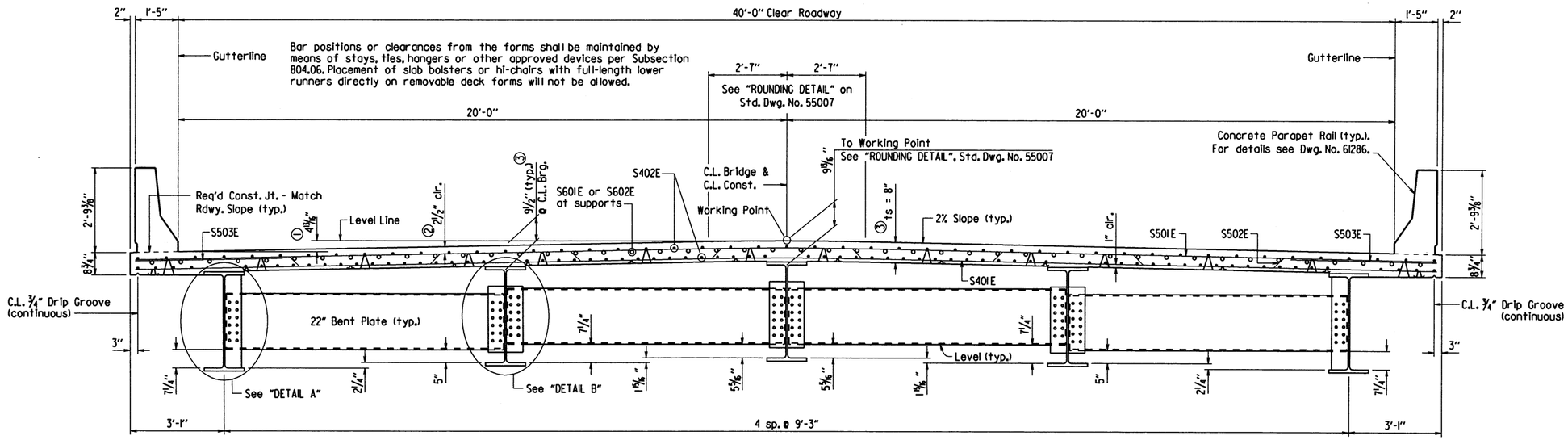
Class I Protective Surface Treatment shall be applied to the Roadway Surface and the Roadway Face and Top of Concrete Parapet Rail.

Bars with "E" designation shall be epoxy coated.

① Working Point to gutterline.

② Tolerance: Minus = 1/4";
Plus equal to the amount of slab thickening used to meet the slab thickness tolerance. See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE", Std. Dwg. No. 55007.

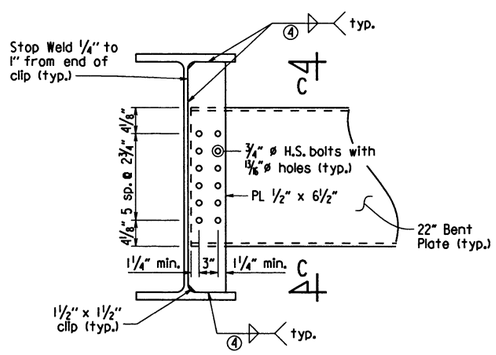
③ See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE" on Std. Dwg. No. 55007. For both removable and permanent steel deck forms the haunch dimension may vary within the following limits: plus 1 3/16"; minus when the top flange contacts bottom reinforcing steel. See "SHEAR CONNECTOR DETAIL" on Std. Dwg. No. 55007 for shear connector requirements.



TYPICAL ROADWAY SECTION

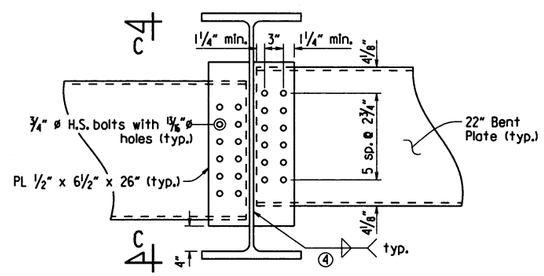
Looking Ahead
1/2" = 1'-0"

④ See "WELD TABLE" for min. weld size on Std. Dwg. No. 55007.



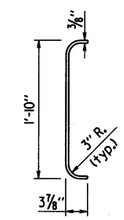
DETAIL A

1" = 1'-0"



DETAIL B

1" = 1'-0"



SECTION C-C

1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-23-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 7
DETAILS OF 240' INTEGRAL W-BEAM UNIT
FIFTEENMILE BAYOU

ROUTE SEC.

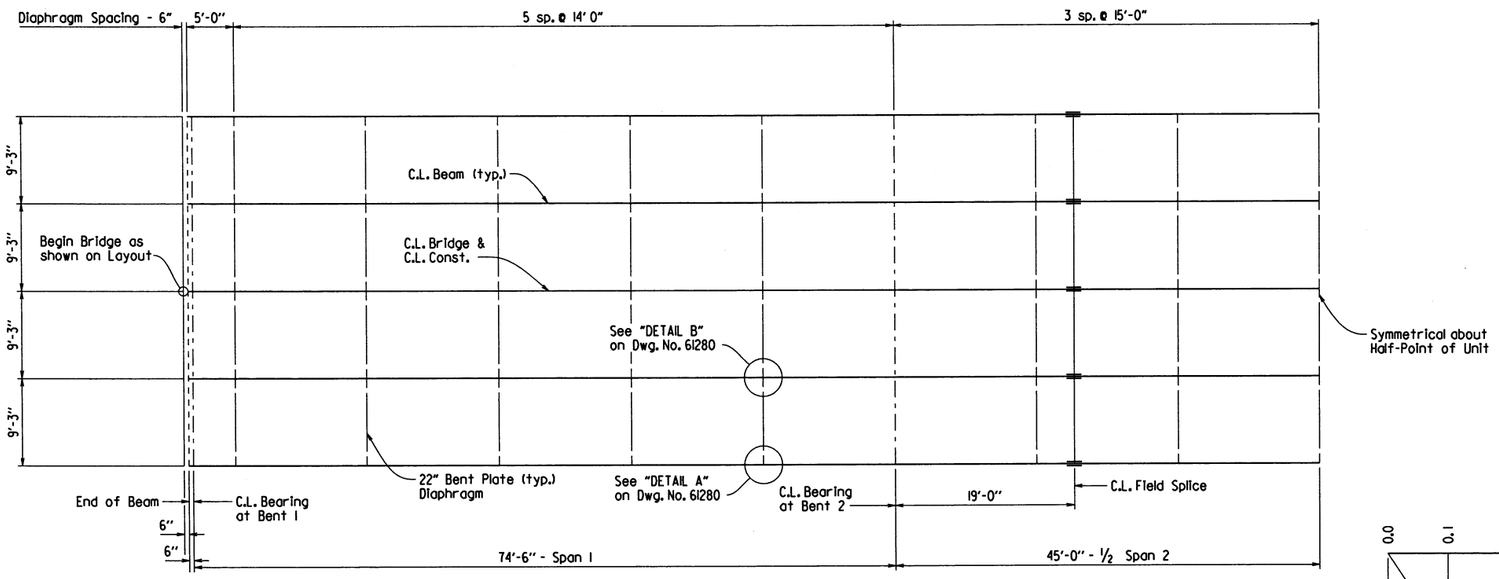
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 8/14/18
CHECKED BY: DBS DATE: 9/19/19
DESIGNED BY: WAC DATE: 8/2018
FILENAME: b110617x2_sl.dgn
SCALE: As Shown

BRIDGE NO. 07468 DRAWING NO. 61280

PRINT DATE: 9/20/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	57	78
				(1) 07468 - 240 FT. UNIT - 61281				



For Concrete Diaphragms at End Bents and Intermediate Bents, see Dwg. No. 61284.

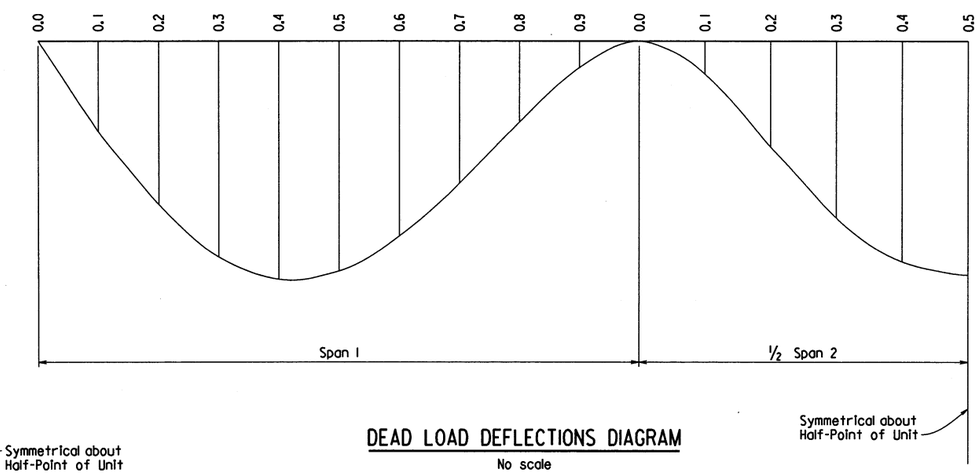
FRAMING PLAN

1/8" = 1'-0"

TABLE OF DEAD LOAD DEFLECTIONS - INCHES

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Exterior	Interior	Exterior	Interior	Exterior	Interior
1	0	0	0	0	0	0	0
	0.1	0.052	0.055	0.252	0.297	0.256	0.299
	0.2	0.096	0.101	0.464	0.548	0.475	0.555
	0.3	0.126	0.133	0.610	0.721	0.628	0.733
	0.4	0.140	0.147	0.674	0.796	0.697	0.810
	0.5	0.135	0.142	0.652	0.771	0.675	0.785
	0.6	0.115	0.121	0.554	0.655	0.572	0.667
	0.7	0.083	0.087	0.400	0.473	0.411	0.480
	0.8	0.046	0.049	0.224	0.265	0.227	0.267
	0.9	0.015	0.016	0.072	0.085	0.069	0.083
1/2 Span 2	0	0	0	0	0	0	0
	0.1	0.016	0.017	0.078	0.092	0.097	0.104
	0.2	0.054	0.056	0.260	0.306	0.306	0.335
	0.3	0.094	0.099	0.454	0.536	0.526	0.582
	0.4	0.123	0.130	0.596	0.705	0.687	0.763
	0.5	0.134	0.141	0.648	0.766	0.746	0.828

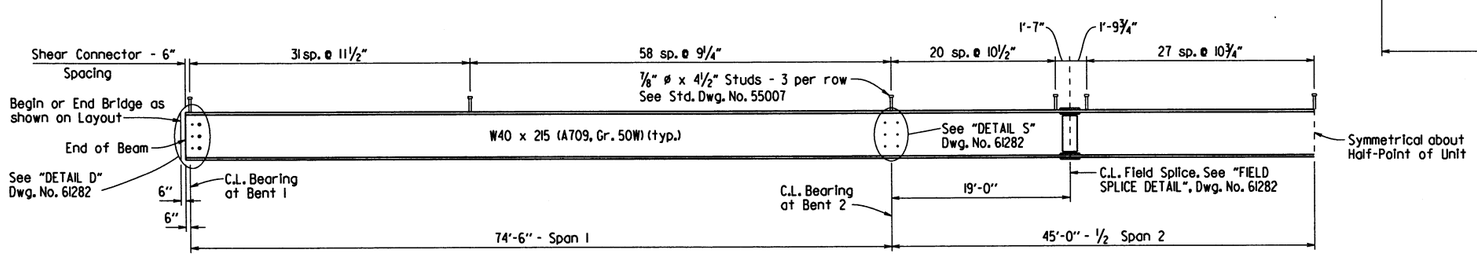
Symmetrical about Half-Point of Unit



DEAD LOAD DEFLECTIONS DIAGRAM

No scale

Camber for Dead Load Deflection +/- 1/4 inch tolerance. Deflections shown are along C.L. Beam from a chord from C.L. Bearing to C.L. Bearing. Negative sign (-) indicates point above chord. Vertical curve corrections not included.



TYPICAL BEAM ELEVATION

No scale

All structural steel shall be ASTM A709, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (A709, Gr. 50W)". See Std. Dwg. Nos. 55006 and 55007 for additional notes and details.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 7
DETAILS OF 240' INTEGRAL W-BEAM UNIT
FIFTEENMILE BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 8/14/18
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BRIDGE NO. 07468 DRAWING NO. 61281

PRINT DATE: 9/19/2019

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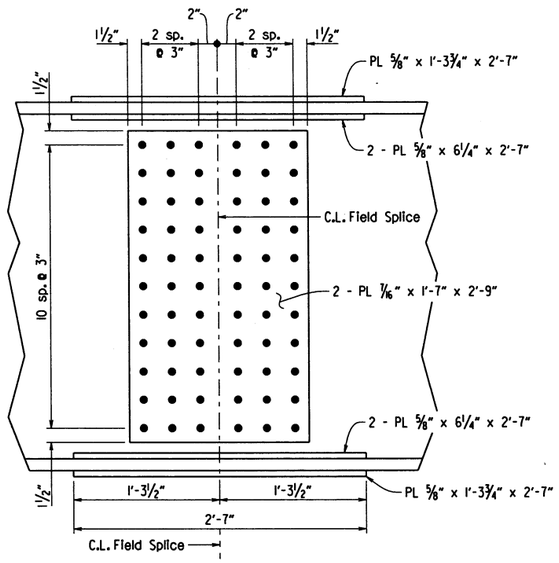
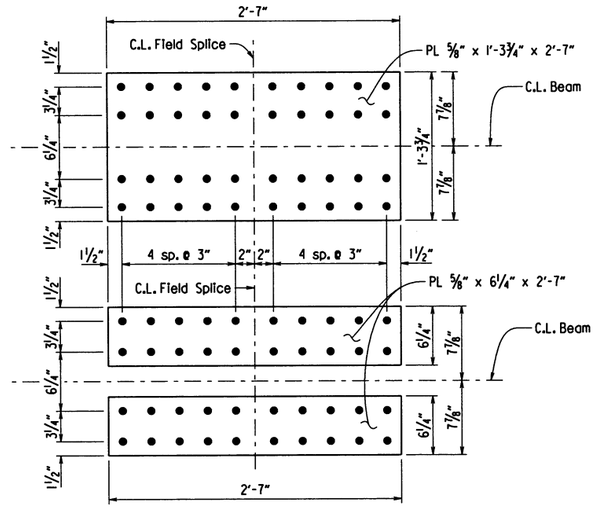
				6	ARK.			
				JOB NO.		110617	58	78
				(1) 07468 -	240 FT. UNIT		- 61282	



WEB SPLICE



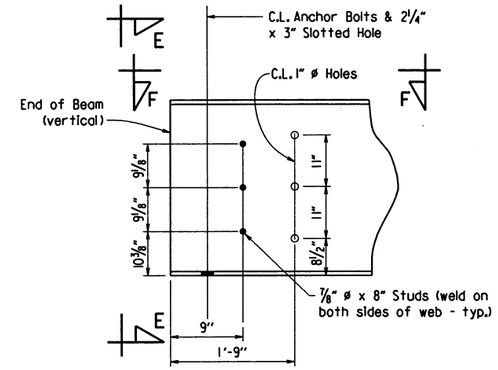
FLANGE SPLICE

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

All field splice bolts shall be ⅞" ø H.S. bolts.
All holes for splice bolts shall be 15/16"ø.

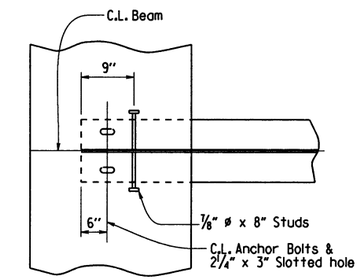
FIELD SPLICE DETAIL

1½" = 1'-0"



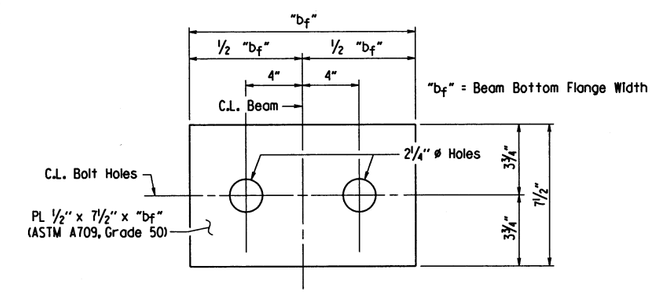
DETAIL D

No Scale



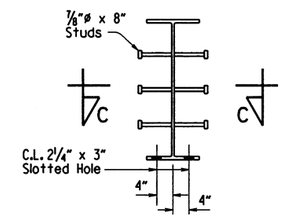
SECTION F-F

No Scale



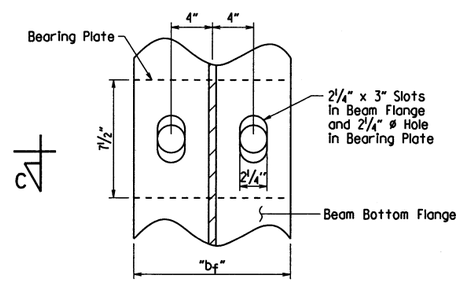
BEARING PLATE DETAIL

No Scale



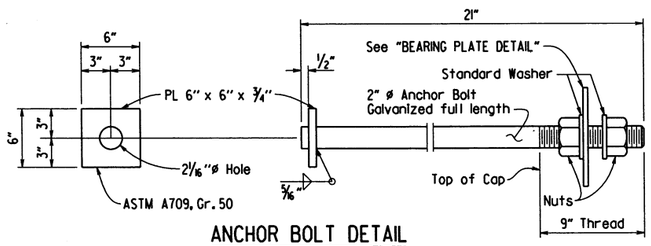
VIEW E-E

No Scale



VIEW C-C

No Scale



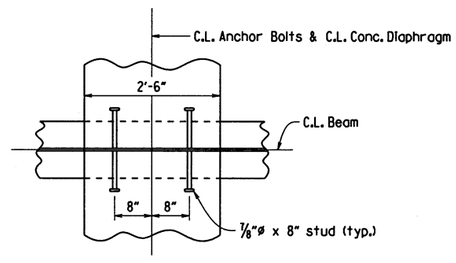
ANCHOR BOLT DETAIL

No Scale

Anchor bolts shall comply with AASHTO M 314, Grade 55, with Supplementary Requirement S1, and galvanized according to Subsection 807.07. Nuts and Washers for bolts shall be as specified in Subsection 807.07.

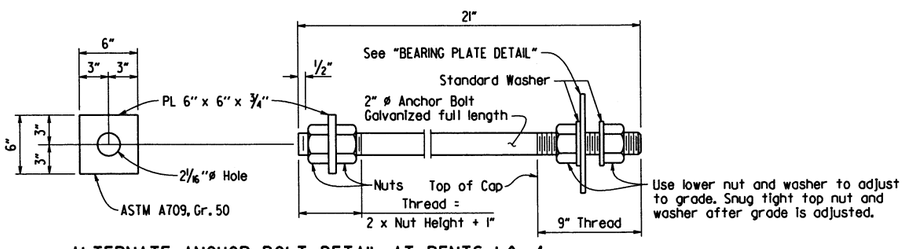
Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.

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



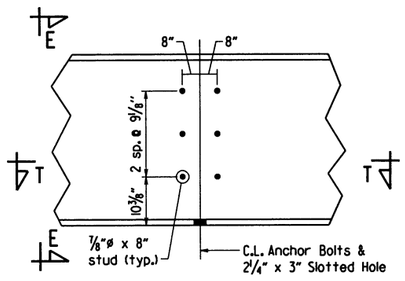
SECTION T-T

No Scale



ALTERNATE ANCHOR BOLT DETAIL AT BENTS 1 & 4

No Scale



DETAIL S

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 7
DETAILS OF 240' INTEGRAL W-BEAM UNIT
FIFTEENMILE BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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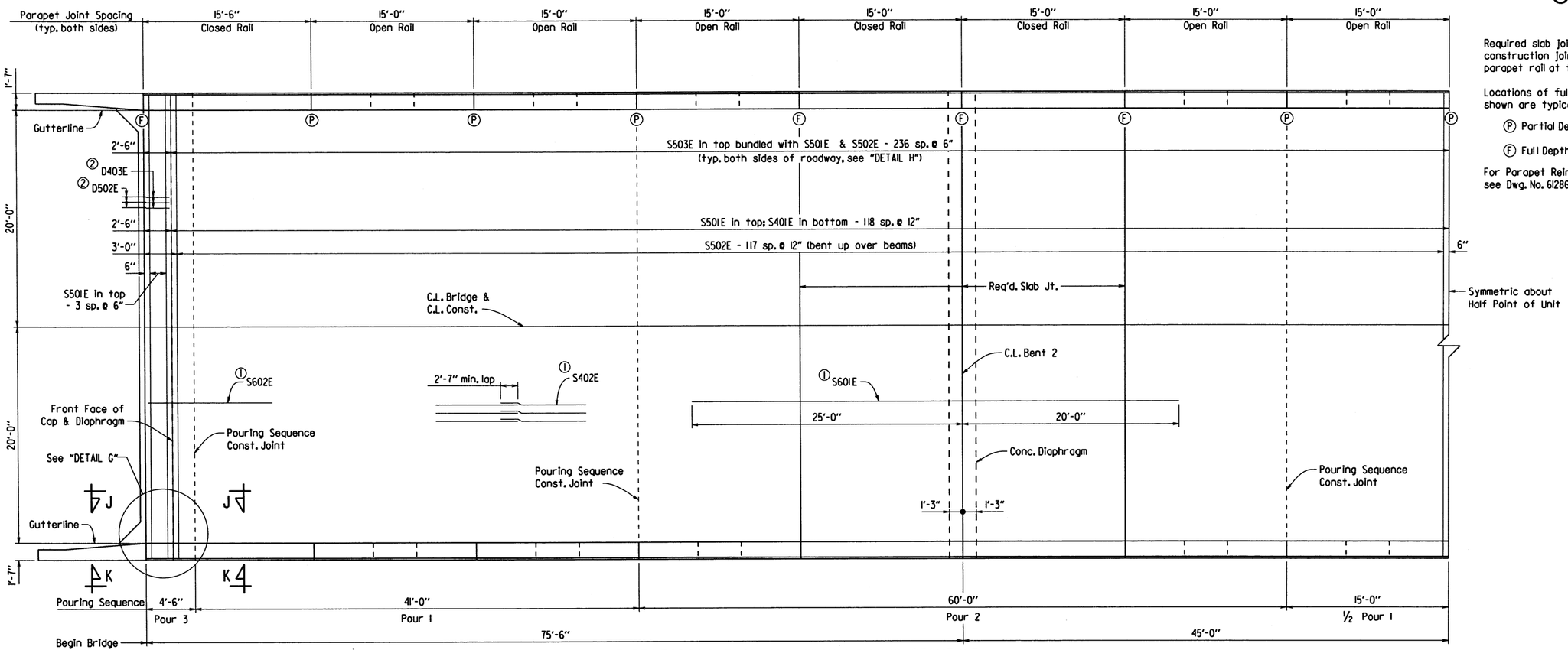
BRIDGE NO. 07468 DRAWING NO. 61282

PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	59	78
				① 07468 -		240 FT. UNIT	- 61283	

① Placed as shown in "TYPICAL ROADWAY SECTION", Dwg. No. 61280.

② Placed as shown in "SECTION L-L" or "TYPICAL SECTION AT END BENT CONCRETE DIAPHRAGMS" on Dwg. No. 61284.



Required slab joints and pouring sequence construction joints shall align with open joints in parapet rail at the gutterline.

Locations of full and partial depth parapet joints shown are typical for both sides of roadway.

Ⓟ Partial Depth Parapet Joint at this location

Ⓕ Full Depth Parapet Joint at this location

For Parapet Reinforcing Details and Bar List, see Dwg. No. 61286 and 61285, respectively.

For "VIEW J-J" and "VIEW K-K", see Dwg. No. 61285.

HALF REINFORCING PLAN AND SLAB POURING SEQUENCE

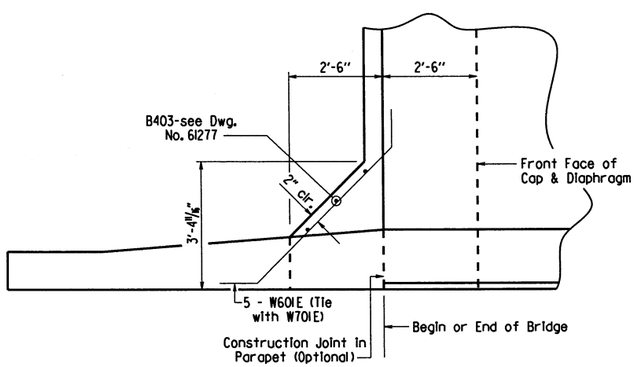
3/16" = 1'-0"

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

Concrete diaphragms shall be poured monolithically with the deck.

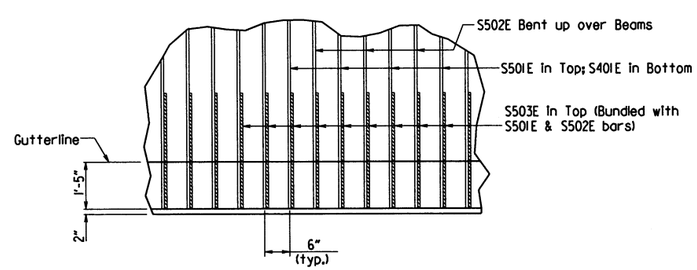
Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

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



DETAIL G

1/2" = 1'-0"



DETAIL H

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 7
DETAILS OF 240' INTEGRAL W-BEAM UNIT
FIFTEENMILE BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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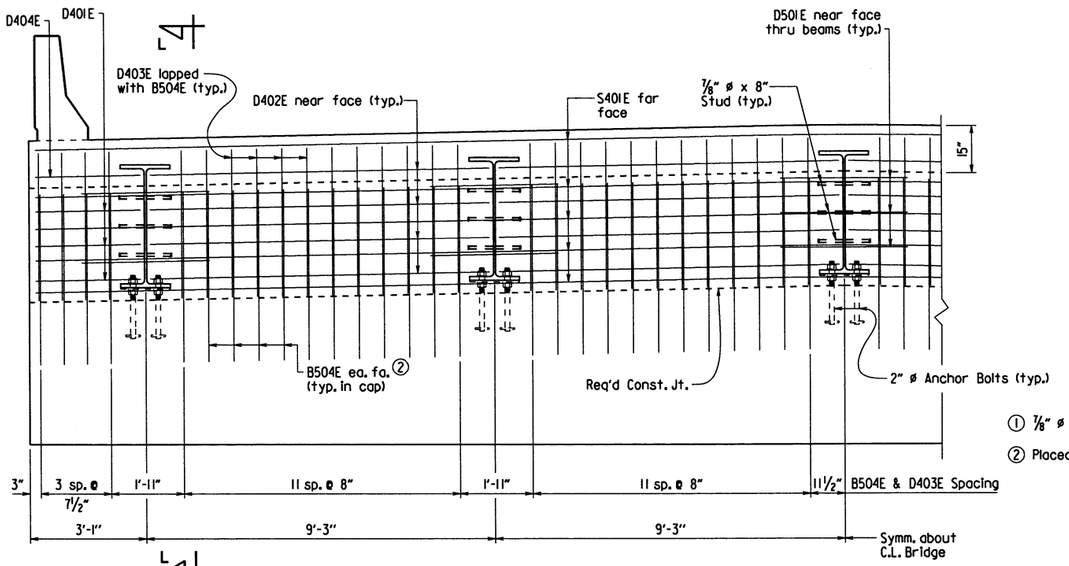
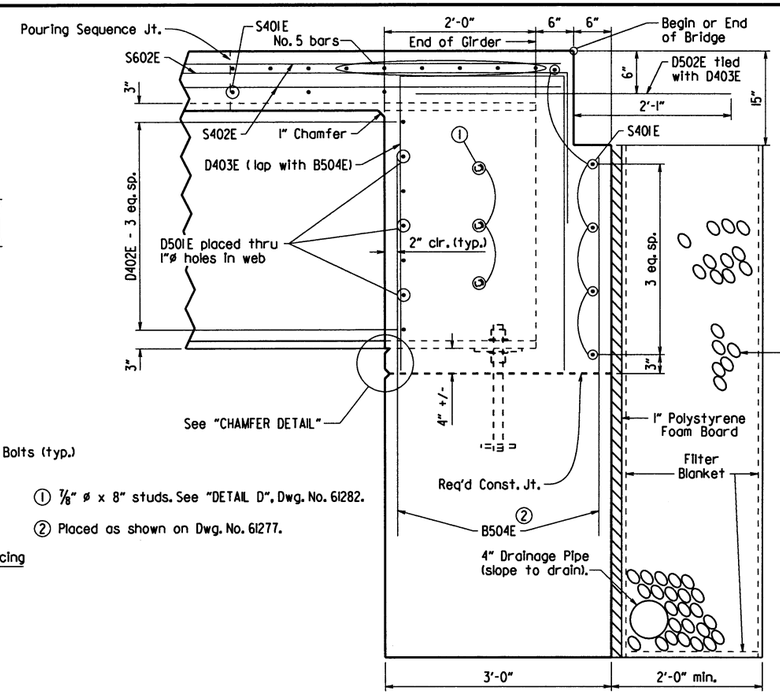
				6	ARK.			
				JOB NO.		110617	60	78
				① 07468 -	240 FT. UNIT	- 61284		



TYPICAL SECTION AT CONCRETE END BENT DIAPHRAGMS

1/2" = 1'-0"



① 7/8" ø x 8" studs. See "DETAIL D", Dwg. No. 61282.

② Placed as shown on Dwg. No. 61277.

SECTION L-L

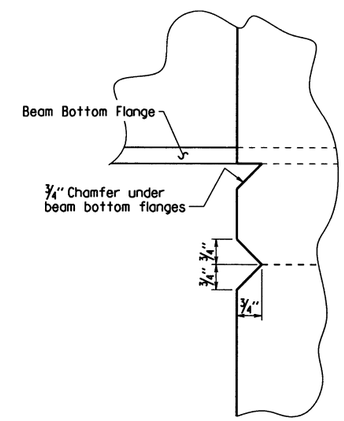
1" = 1'-0"

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

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

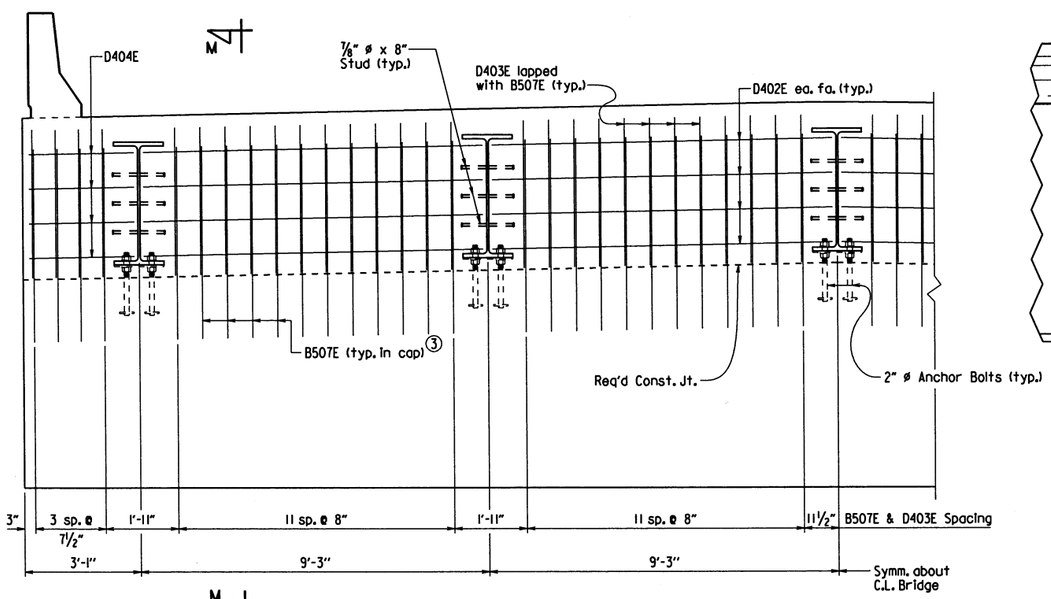
1" Polystyrene Foam Board, Filter Fabric and Granular Material shall not be paid for directly, but shall be considered subsidiary to the various bid items.

Granular Material (SM-1 or other approved material, Flowable Fill shall not be allowed), see Roadway Plans.



CHAMFER DETAIL

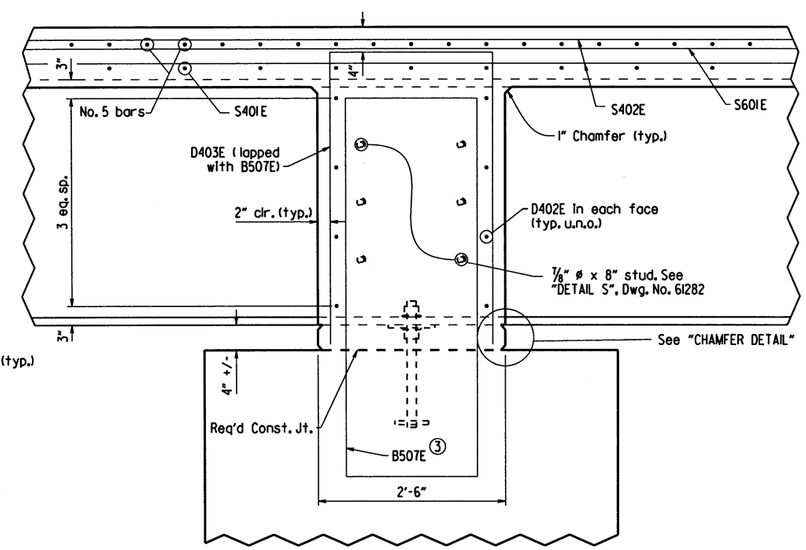
No Scale



TYPICAL SECTION AT CONCRETE INTERMEDIATE BENT DIAPHRAGMS

1/2" = 1'-0"

③ Placed as shown on Dwg. No. 61278.



SECTION M-M

1" = 1'-0"

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 7
DETAILS OF 240' INTEGRAL W-BEAM UNIT FIFTEENMILE BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

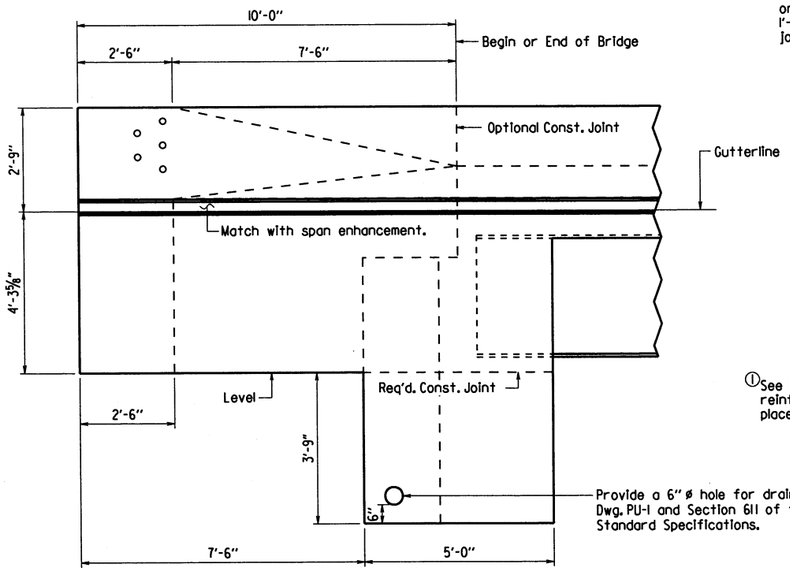
LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 8/14/18 FILENAME: b110617x2_s1.dgn
CHECKED BY: DBS DATE: 9-19-19 SCALE: As Shown
DESIGNED BY: WAC DATE: 8/30/18

BRIDGE NO. 07468 DRAWING NO. 61284

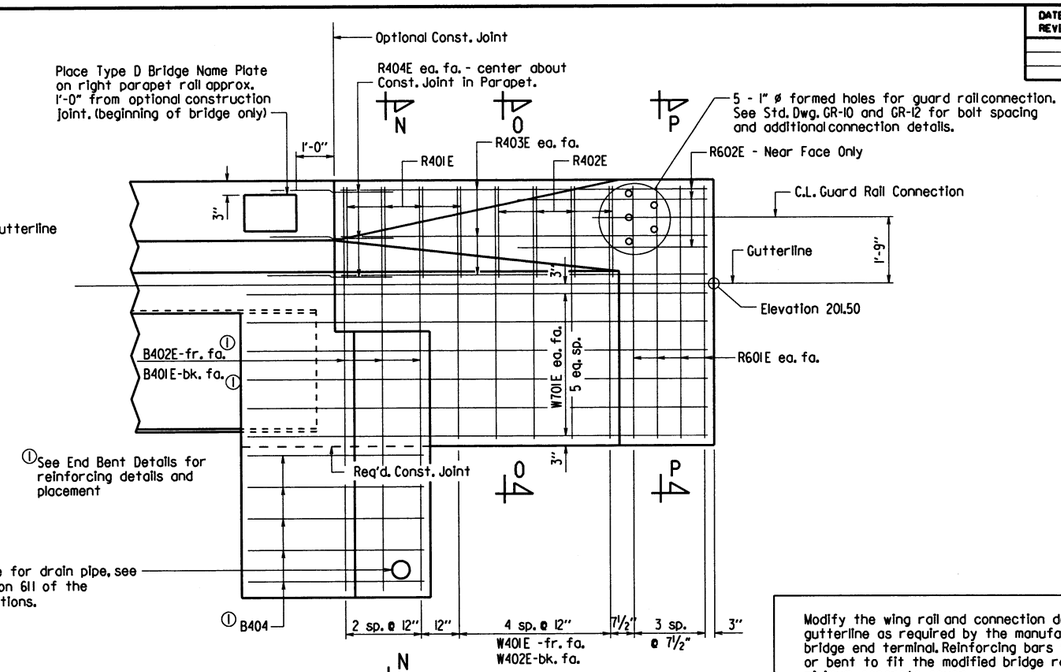
PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	61	78
				①	07468 - 240 FT. UNIT - 61285			



VIEW K-K

No Scale



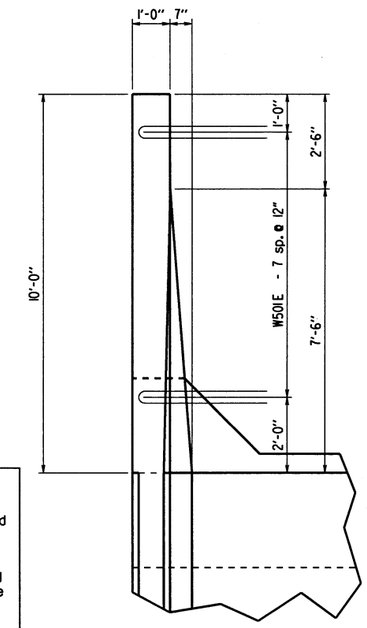
VIEW J-J

No Scale

Modify the wing rail and connection detail above the gutterline as required by the manufacturer of the bridge end terminal. Reinforcing bars that are relocated or bent to fit the modified bridge rail should have minimum concrete cover.

② Connector Plate not required at location of bridge end terminal, unless required by manufacturer of the bridge end terminal.

See Dwg. No. 61274 for location of bridge end terminal.



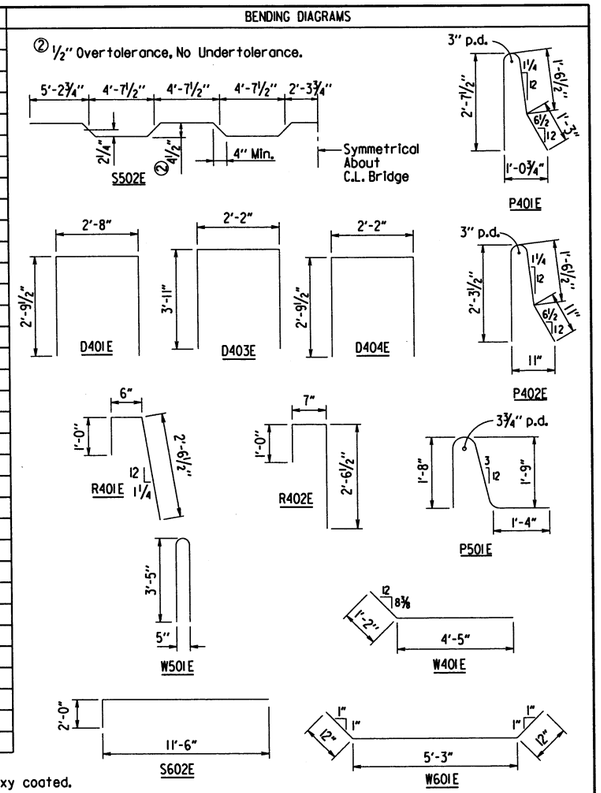
PLAN OF RAIL

½" = 1'-0"

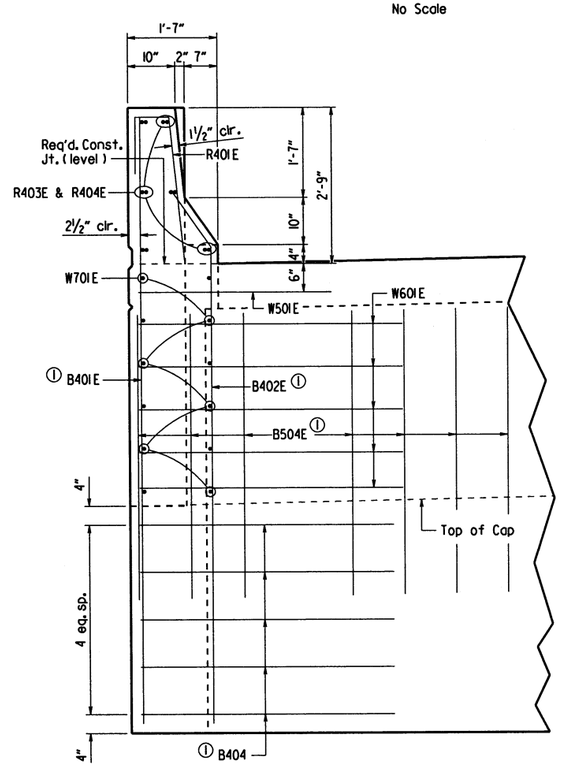
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	247	42'-10"	Str.
S402E	833	36'-8"	Str.
S501E	245	42'-10"	Str.
S502E	236	43'-8"	3"
S503E	946	4'-10"	Str.
S601E	92	45'-0"	Str.
S602E	92	13'-4"	4½"
D401E	12	8'-1"	2"
D402E	96	9'-0"	Str.
D403E	224	9'-10"	2"
D404E	20	7'-7"	2"
D501E	30	3'-6"	Str.
D502E	112	4'-6"	Str.
R401E	16	3'-11"	2"
R402E	16	4'-0"	2"
R403E	24	9'-8"	Str.
R404E	24	3'-11"	Str.
R601E	32	6'-9"	Str.
R602E	12	5'-0"	Str.
W401E	20	5'-7"	2"
W402E	20	6'-9"	Str.
W501E	32	7'-1"	3¾"
W601E	20	7'-3"	4½"
W701E	48	12'-2"	Str.
P401E	804	5'-6"	3"
P402E	160	4'-10"	3"
P403E	72	5'-6"	Str.
P404E	196	14'-8"	Str.
P405E	28	15'-2"	Str.
P501E	804	4'-10"	3¾"

BENDING DIAGRAMS

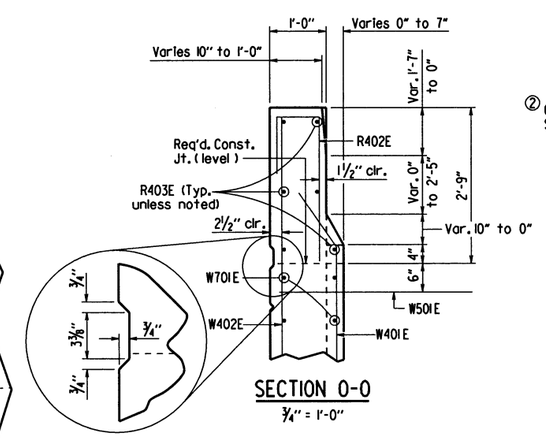


Bars with "E" designation shall be epoxy coated.



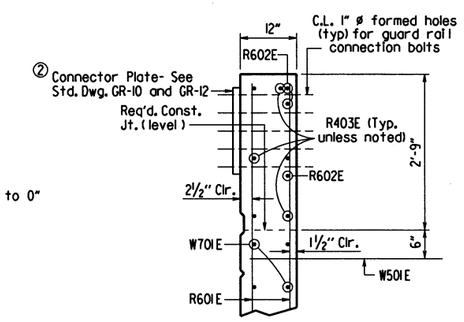
SECTION N-N

No Scale



SECTION O-O

¾" = 1'-0"



SECTION P-P

¾" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 6 OF 7
DETAILS OF 240' INTEGRAL W-BEAM UNIT FIFTEENMILE BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

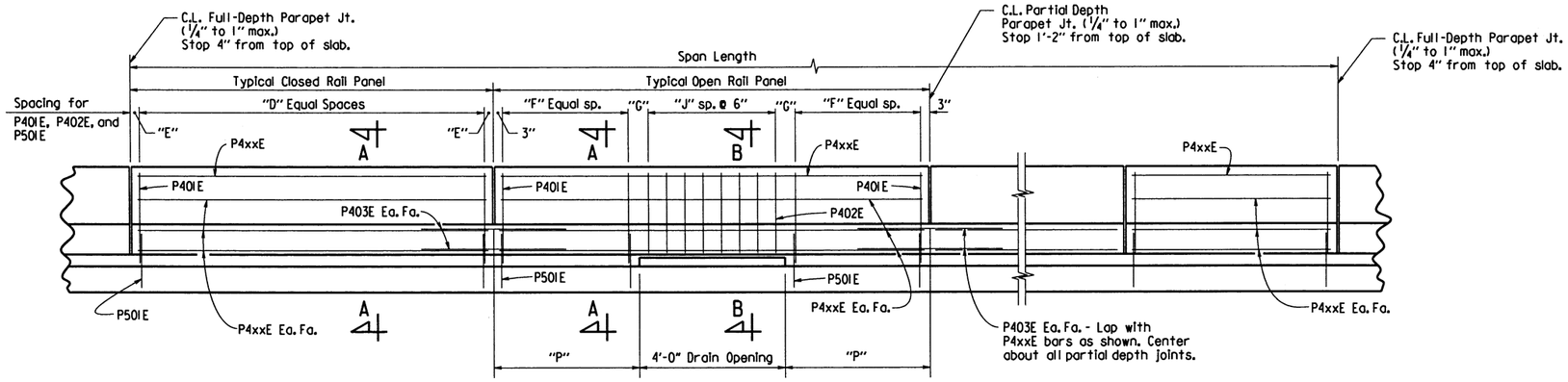
LITTLE ROCK, ARK.

DRAWN BY: WAC	DATE: 8/14/18	FILENAME: b110617x2_sl.dgn	
CHECKED BY: DBS	DATE: 9-19-19	SCALE: As Shown	
DESIGNED BY: WAC	DATE: 8/2018		

BRIDGE NO. 07468 DRAWING NO. 61285

PRINT DATE: 9/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	62	78
				(1) 07468 - 240 FT. UNIT - 61286				



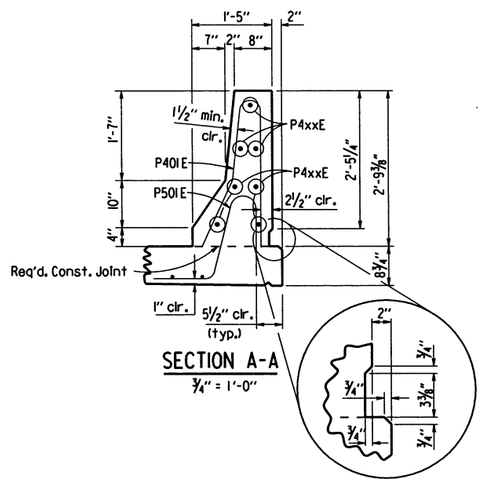
ELEVATION - CONCRETE PARAPET RAIL

1/2" = 1'-0"

Note:
For location of full and partial depth parapet joints, See Dwg. No. 61283.

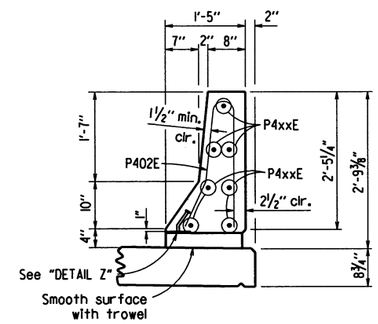
TABLE OF VARIABLES

Closed Rail Panels				Open Rail Panels					
Panel Length	"D"	"E"	P4xxE Bar	Panel Length	"F"	"G"	"J"	"P"	P4xxE Bar
15'-0"	29	3"	P404E	15'-0"	10	6"	7	5'-6"	P404E
15'-6"	30	3"	P405E						



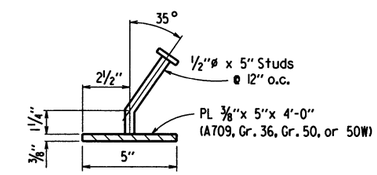
SECTION A-A

3/4" = 1'-0"



SECTION B-B

3/4" = 1'-0"

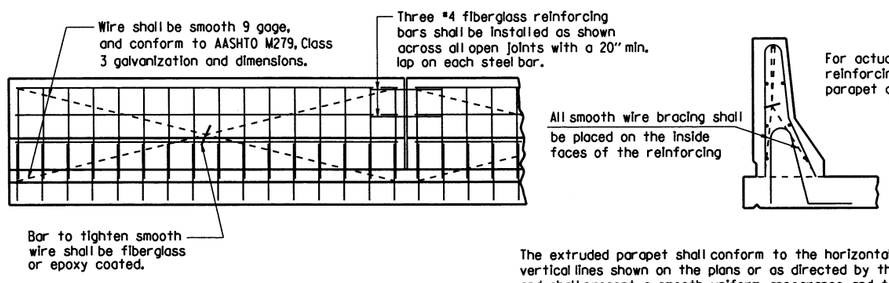


Note:
Parapet Studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plate shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel in Beam Spans (A709, Gr. 50W)".

The surfaces of the 3/8" Plates which will not be in contact with concrete shall be painted 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 (A709, Gr. 50W)".

DETAIL Z

No Scale



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

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

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 9235
9-19-19
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 7 OF 7
DETAILS OF 240' INTEGRAL W-BEAM UNIT
FIFTEENMILE BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: WAC DATE: 8/14/18
CHECKED BY: DBS DATE: 9-19-19
DESIGNED BY: WAC DATE: 3/2018
FILENAME: b#0617x2_sl.dgn
SCALE: As Shown

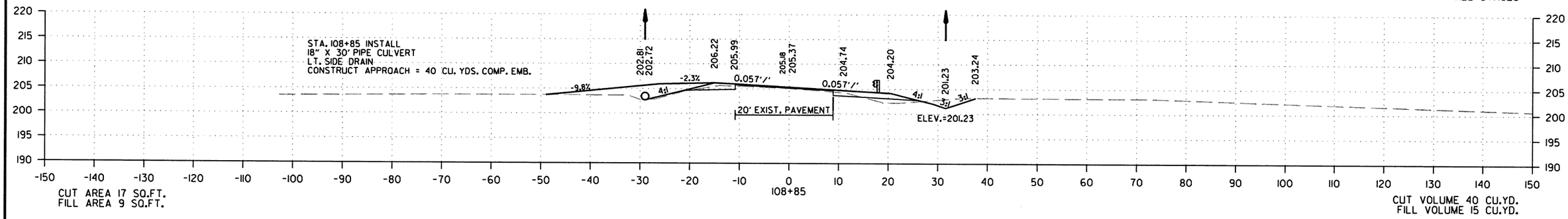
BRIDGE NO. 07468 DRAWING NO. 61286

PRINT DATE: 9/19/2019

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.		110617	63	78

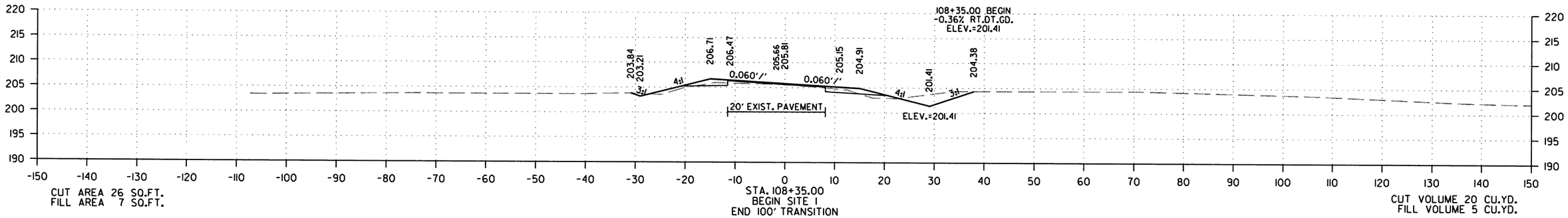
(2) CROSS SECTIONS

ALL STAGES



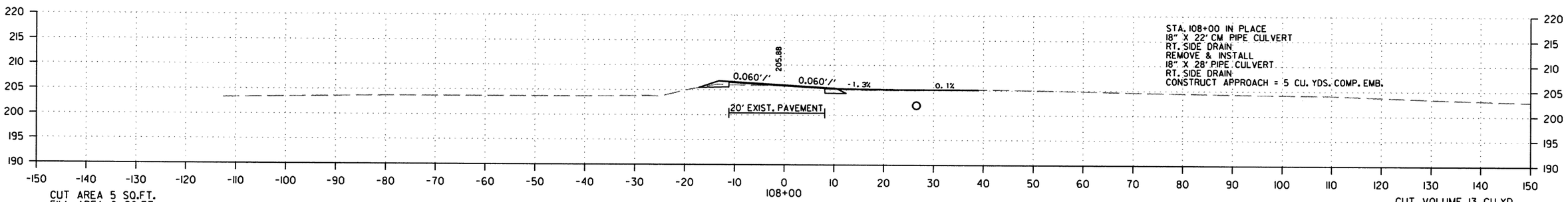
CUT AREA 17 SQ.FT.
FILL AREA 9 SQ.FT.

CUT VOLUME 40 CU.YD.
FILL VOLUME 15 CU.YD.



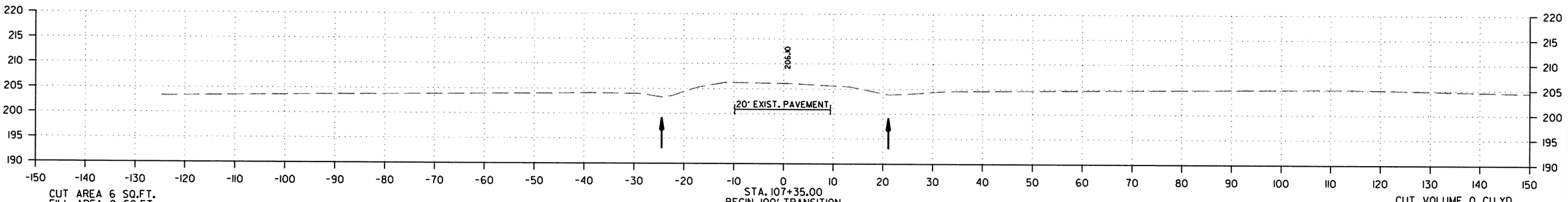
CUT AREA 26 SQ.FT.
FILL AREA 7 SQ.FT.

CUT VOLUME 20 CU.YD.
FILL VOLUME 5 CU.YD.



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

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



CUT AREA 6 SQ.FT.
FILL AREA 0 SQ.FT.

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

SITE I
CROSS SECTION STA. 107+35 TO STA. 108+85

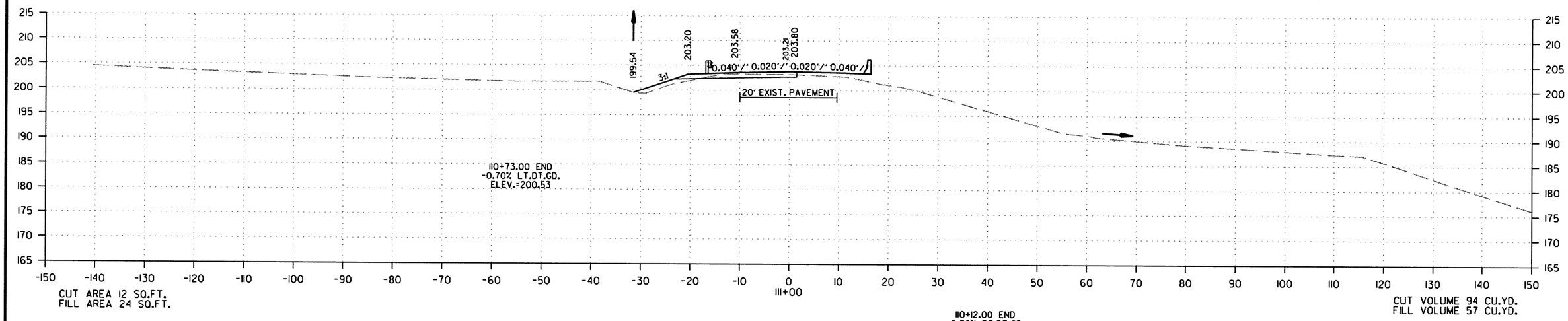
hl39710 9/12/2019
R110617.DGN

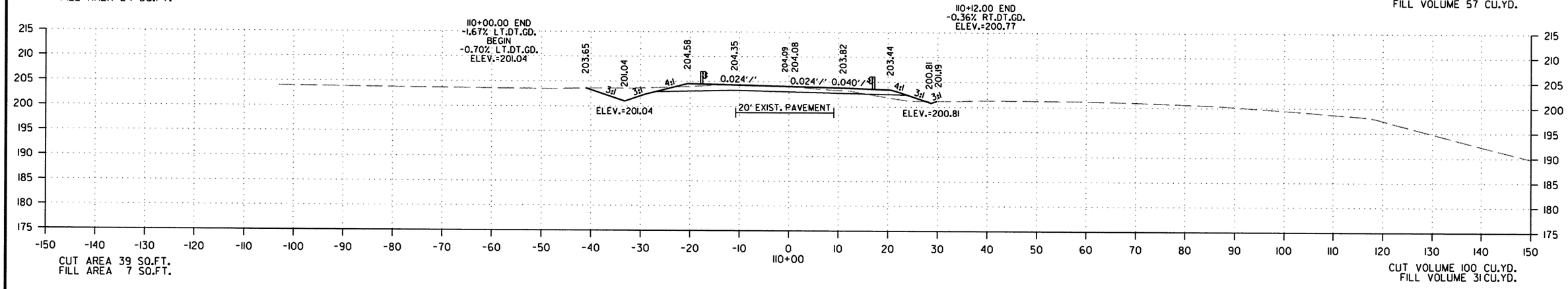
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	64	78

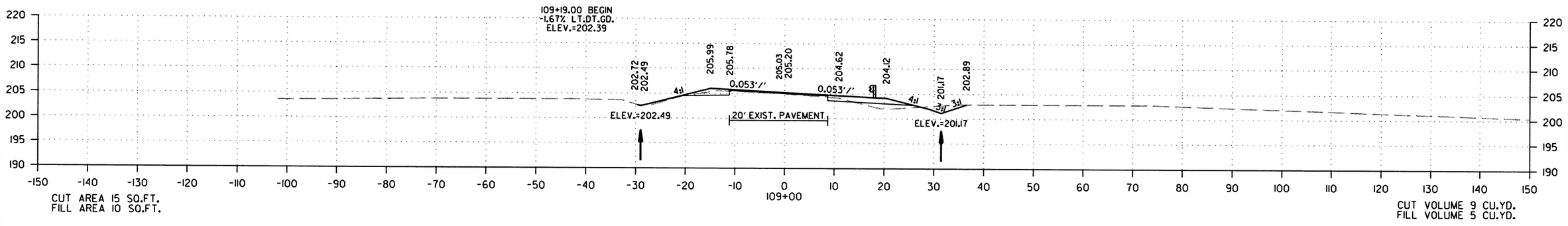
(2) CROSS SECTIONS

ALL STAGES

ALL STAGES







SITE 1
CROSS SECTION STA. 109+00 TO STA. 111+00

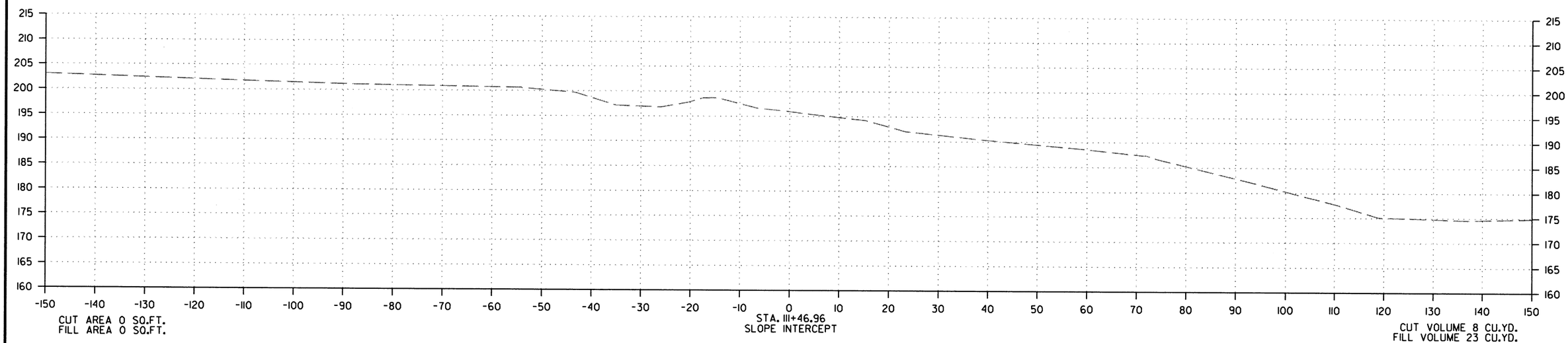
h139710 9/12/2019
R110617.DGN

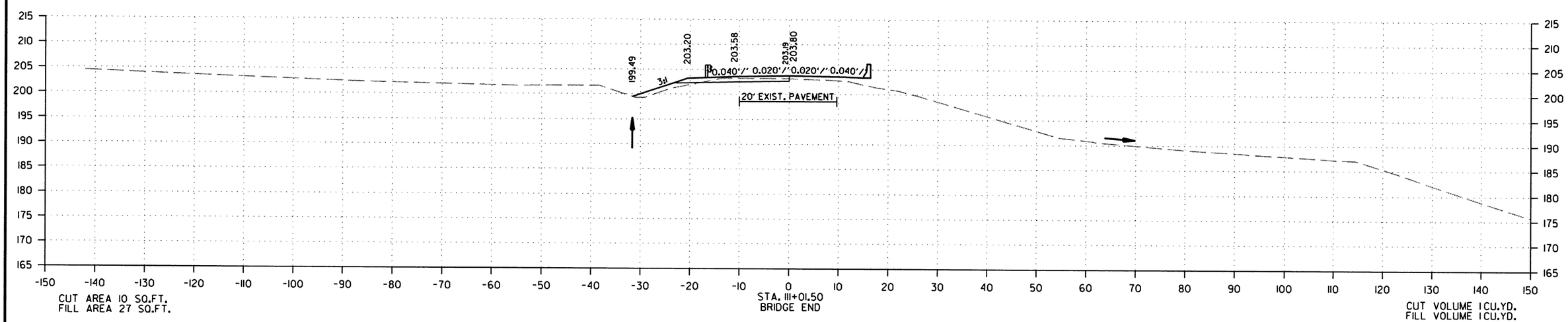
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	65	78

(2) CROSS SECTIONS

ALL STAGES

ALL STAGES





SITE 1
CROSS SECTION STA. 111+01 TO STA. 111+47

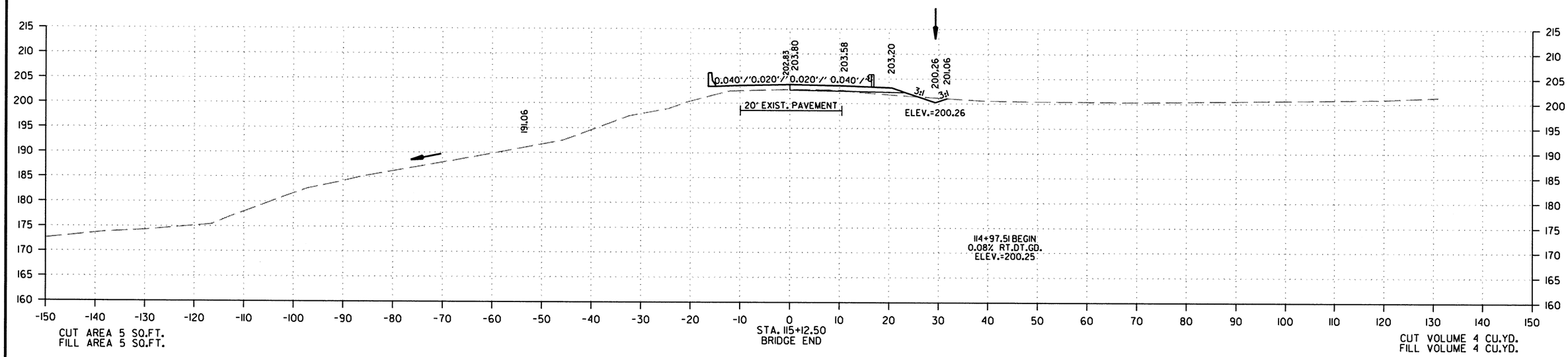
h139710 9/12/2019
R110617.DGN

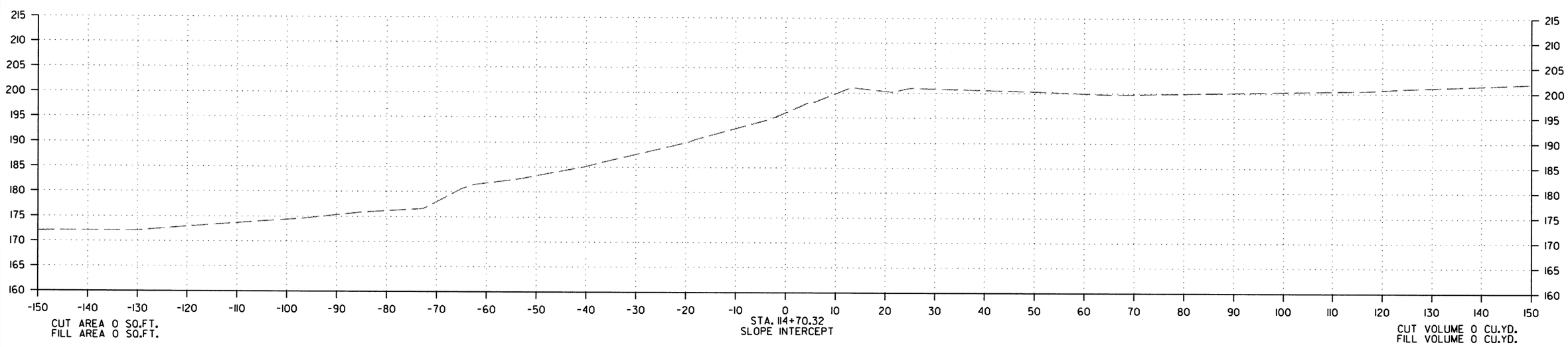
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	66	78

(2) CROSS SECTIONS

ALL STAGES

ALL STAGES





SITE 1
CROSS SECTION STA. 114+70 TO STA. 115+13

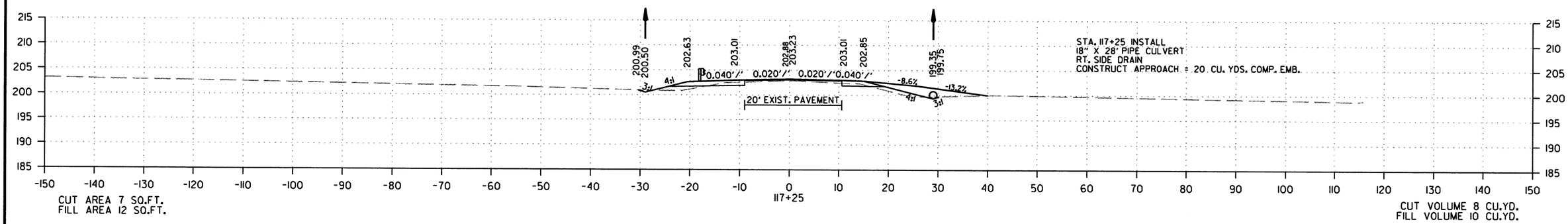
h139710 9/12/2019
R110617.DGN

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.		110617	67	78

(2) CROSS SECTIONS

ALL STAGES

ALL STAGES



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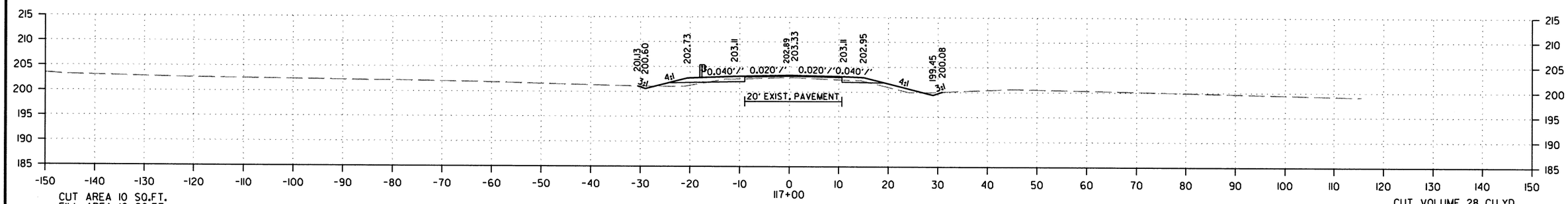
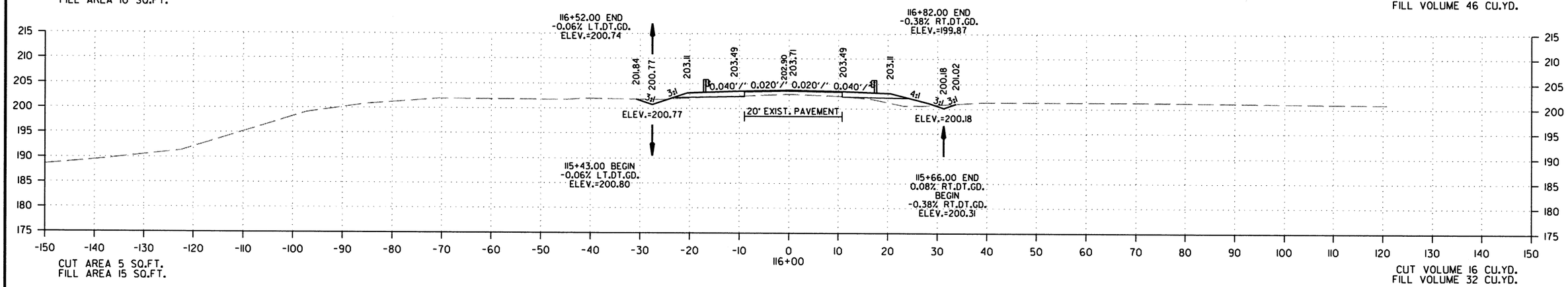
FILL AREA 12 SQ.FT.

CUT VOLUME 8 CU.YD.
FILL VOLUME 10 CU.YD.



CUT AREA 10 SQ.FT.
FILL AREA 10 SQ.FT.

CUT VOLUME 28 CU.YD.
FILL VOLUME 46 CU.YD.



CUT AREA 5 SQ.FT.
FILL AREA 15 SQ.FT.

CUT VOLUME 16 CU.YD.
FILL VOLUME 32 CU.YD.

SITE 1
CROSS SECTION STA. 116+00 TO STA. 117+25

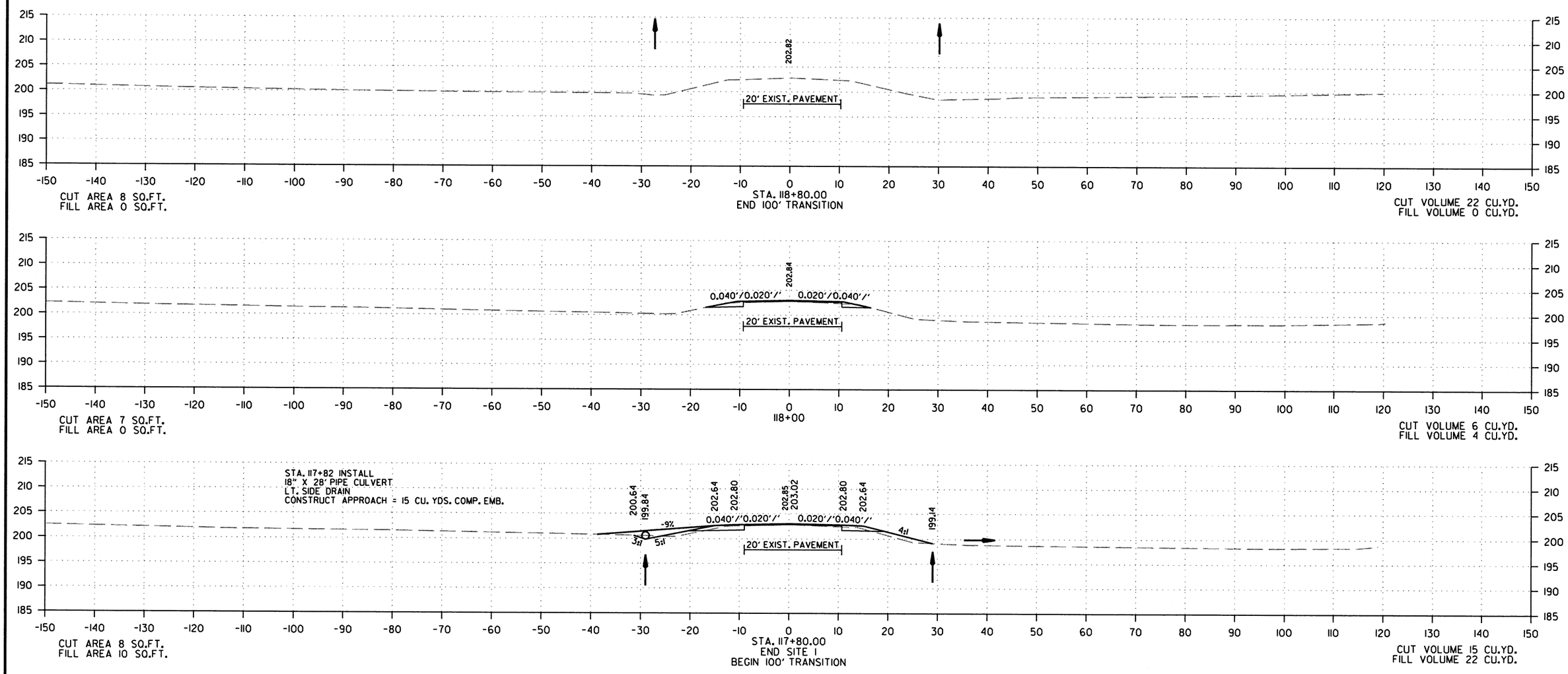
h139710 9/12/2019
R110617.DGN

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.		110617	68	78

(2) CROSS SECTIONS

ALL STAGES

ALL STAGES



SITE 1
CROSS SECTION STA. 117+80 TO STA. 118+80

h139710 9/12/2019
R110617.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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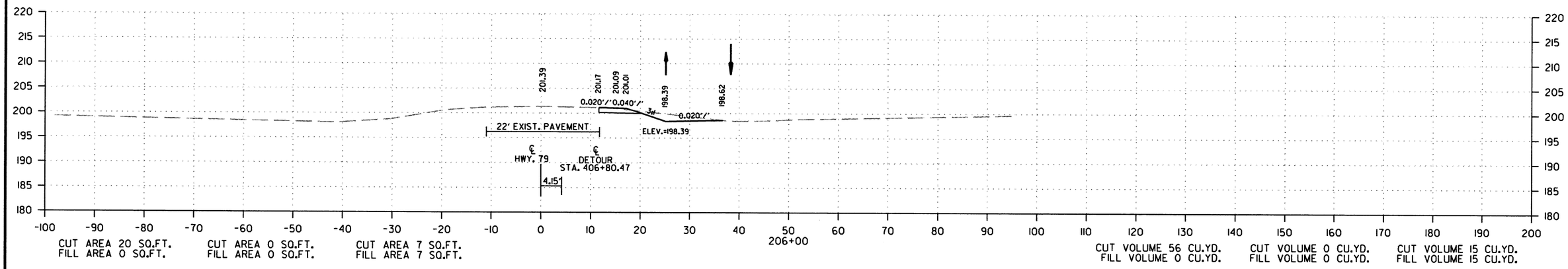
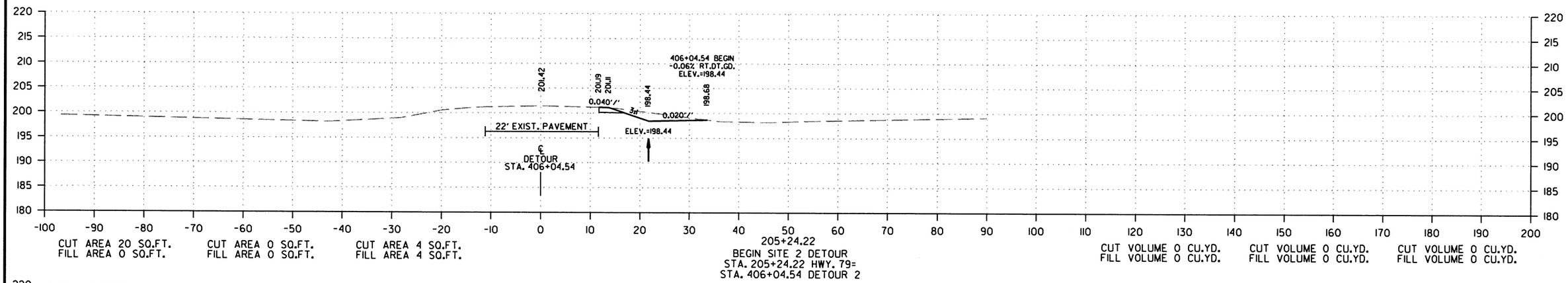
				JOB NO.		110617	69	78

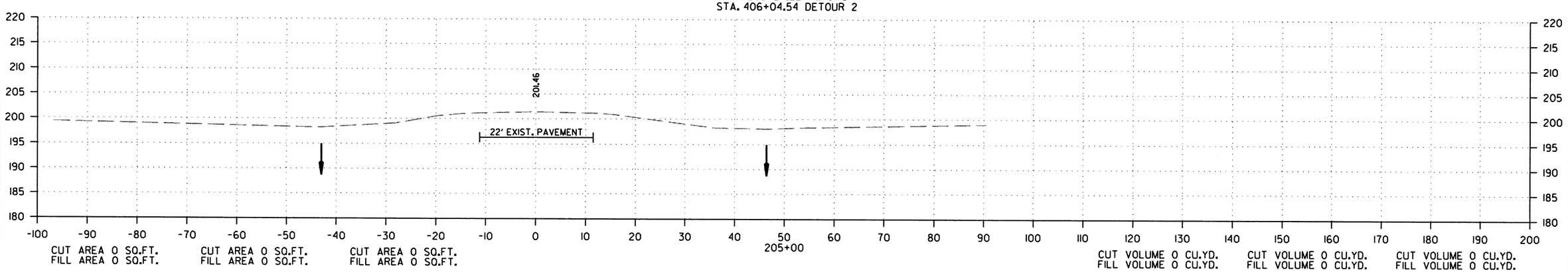
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3







SITE 2
CROSS SECTION STA. 205+00 TO STA. 206+00

h139710 9/12/2019
R110617.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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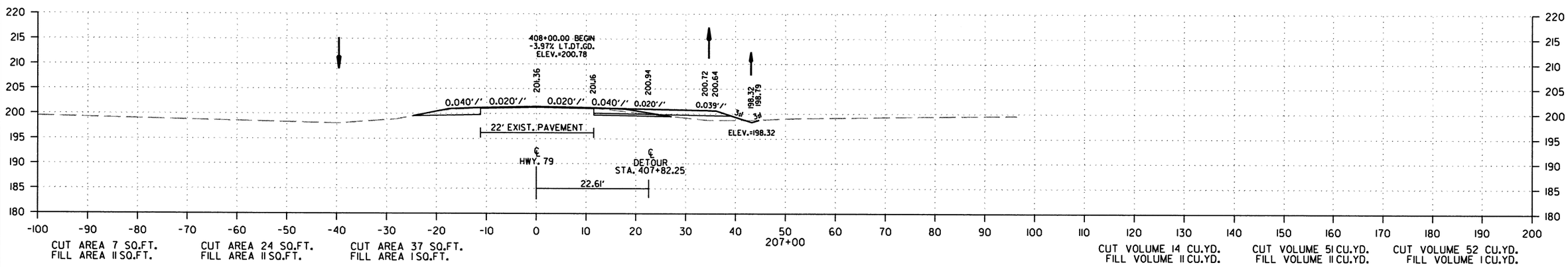
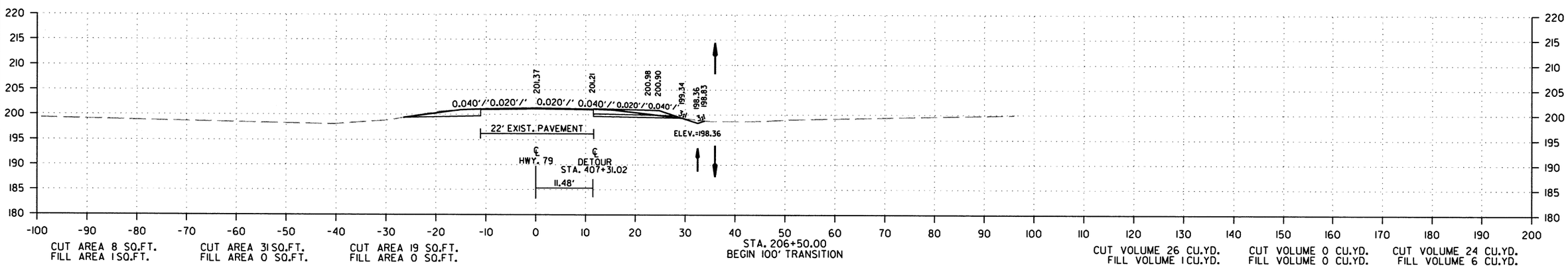
				JOB NO.		110617	70	78

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3





SITE 2
CROSS SECTION STA. 206+50 TO STA. 207+00

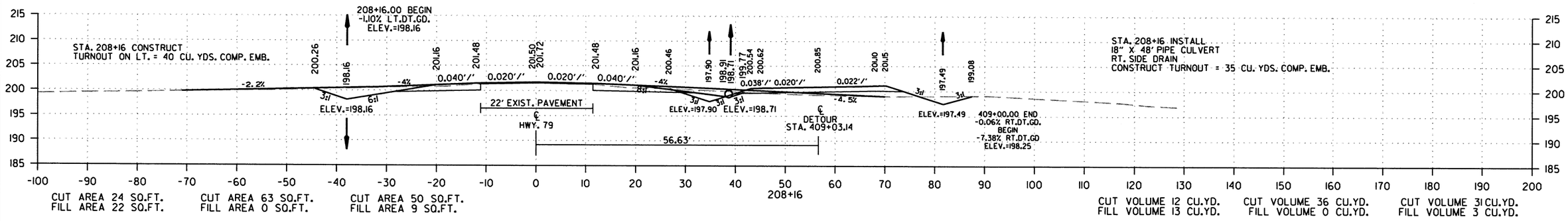
9/12/2019
ht39710
R110617.DGN

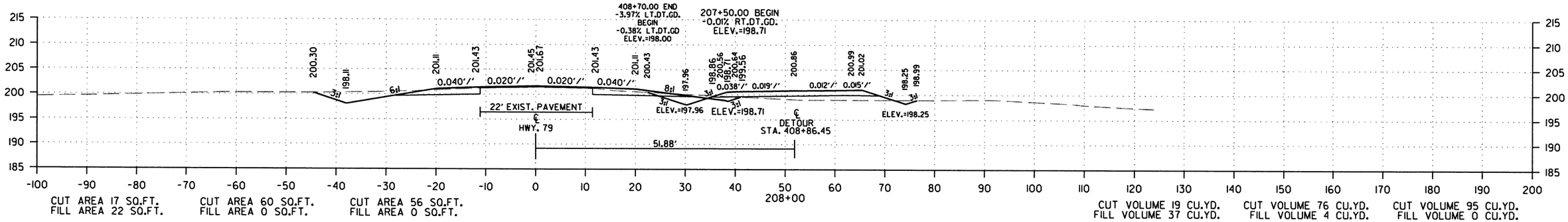
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	71	78

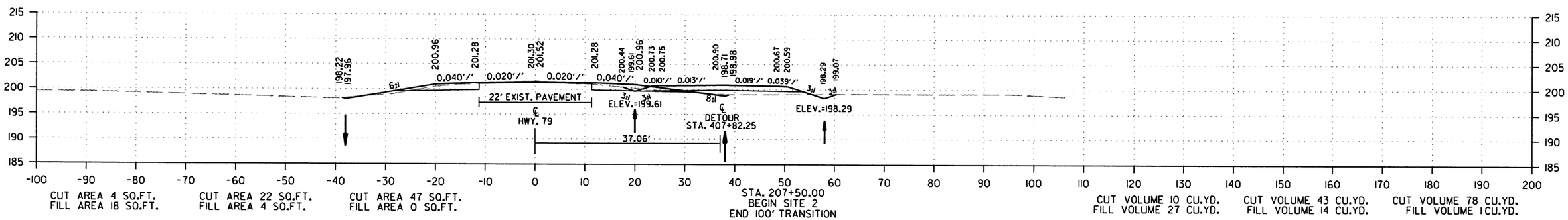
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3







SITE 2
CROSS SECTION STA. 207+50 TO STA. 208+16

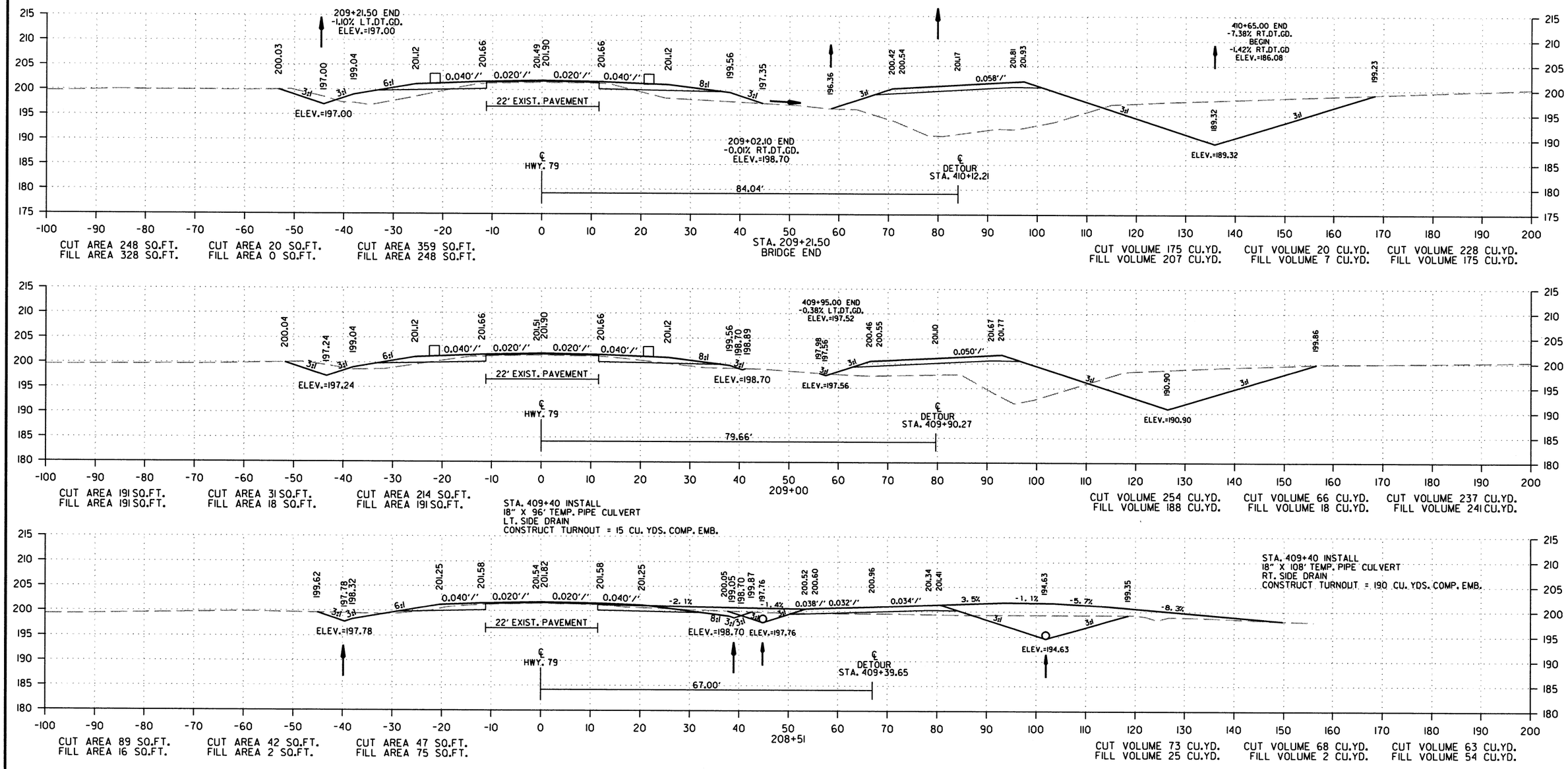
h139710 9/12/2019
R110617.DGN

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.		110617	72	78

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3



SITE 2
CROSS SECTION STA. 208+51 TO STA. 209+21

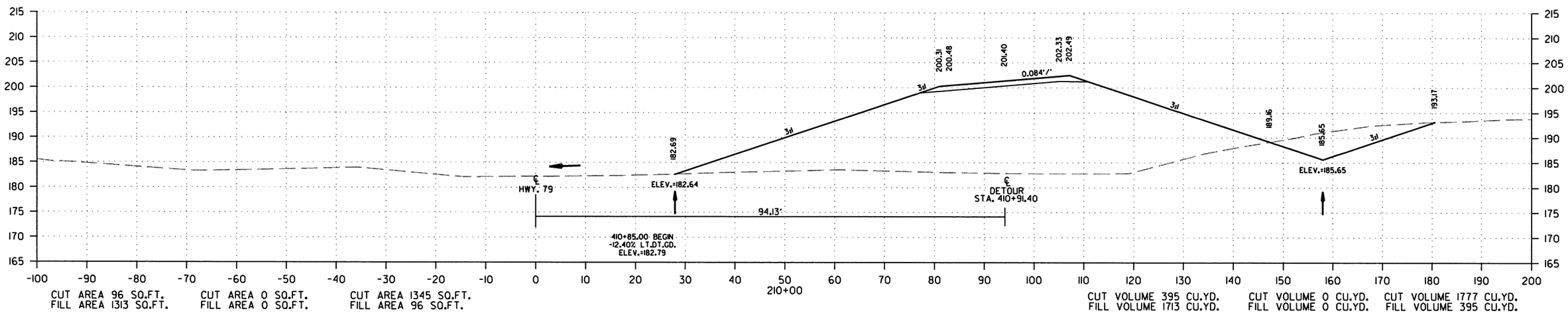
h139710 9/12/2019
R110617.DGN

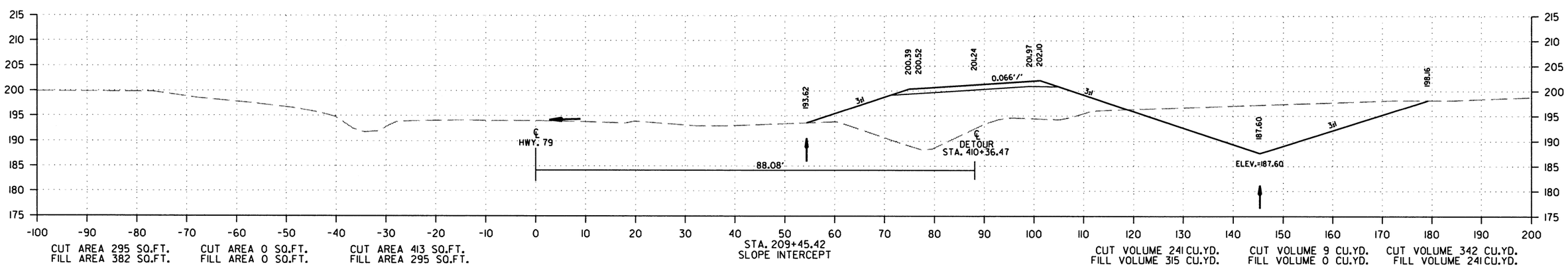
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	73	78

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3





SITE 2
CROSS SECTION STA. 209+45 TO STA. 210+00

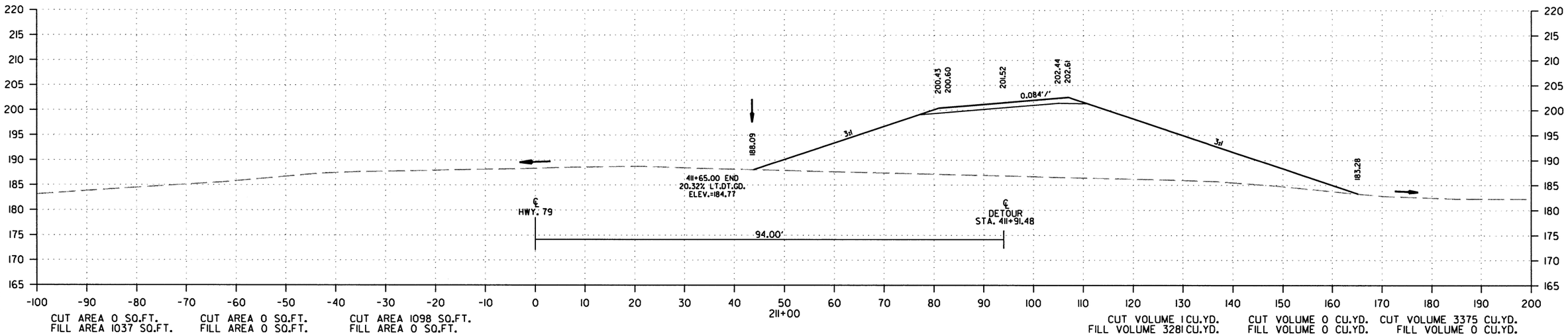
h139710 9/12/2019
R110617.DGN

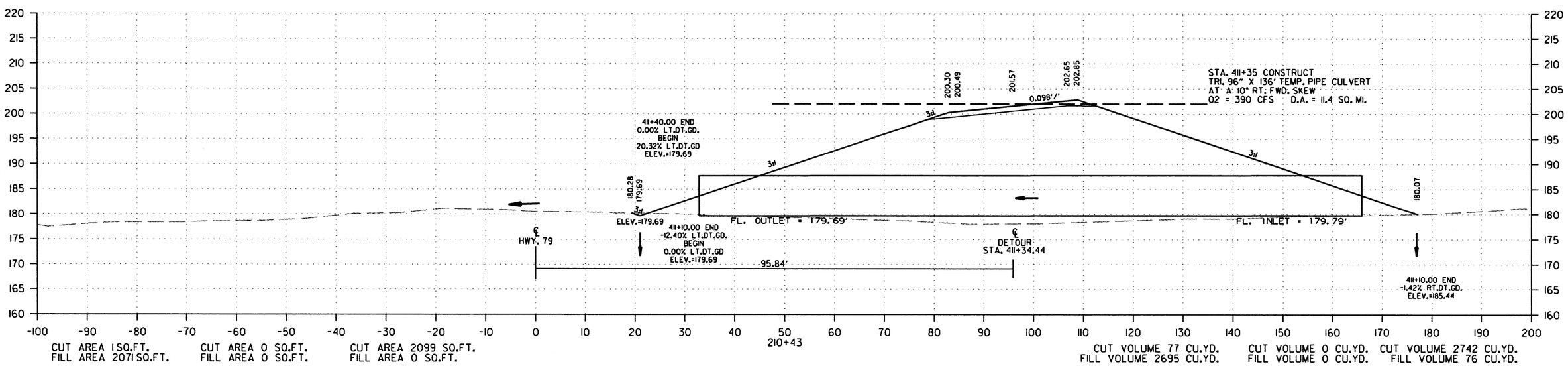
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	74	78

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3





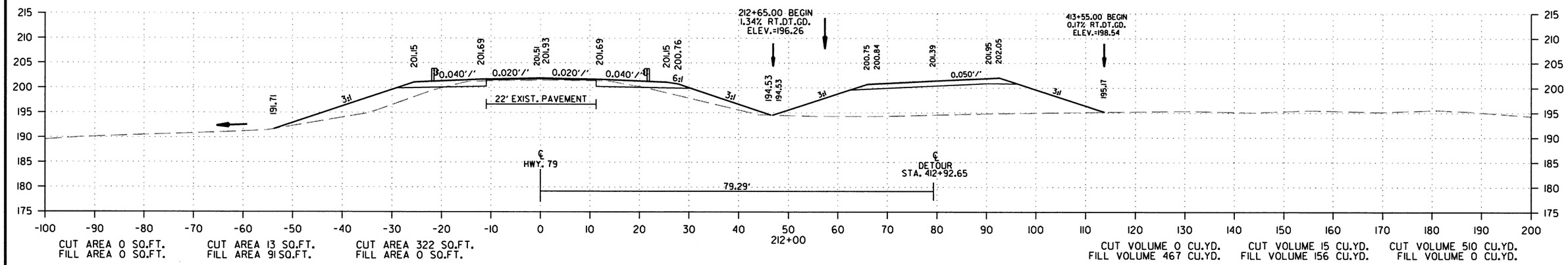
SITE 2
CROSS SECTION STA. 210+43 TO STA. 211+00

9/12/2019
h139710
R110617.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.		110617	75	78

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3 STAGE 1 STAGE 2 STAGE 3



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

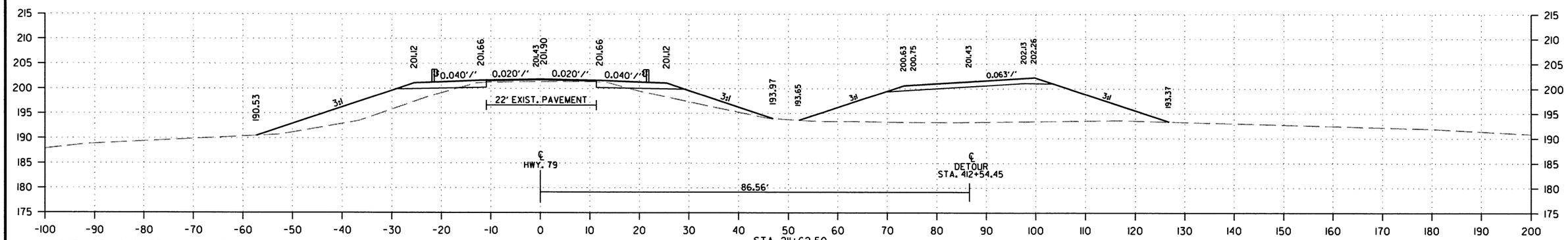
CUT AREA 13 SQ.FT.
FILL AREA 91 SQ.FT.

CUT AREA 322 SQ.FT.
FILL AREA 0 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 467 CU.YD.

CUT VOLUME 15 CU.YD.
FILL VOLUME 156 CU.YD.

CUT VOLUME 510 CU.YD.
FILL VOLUME 0 CU.YD.



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

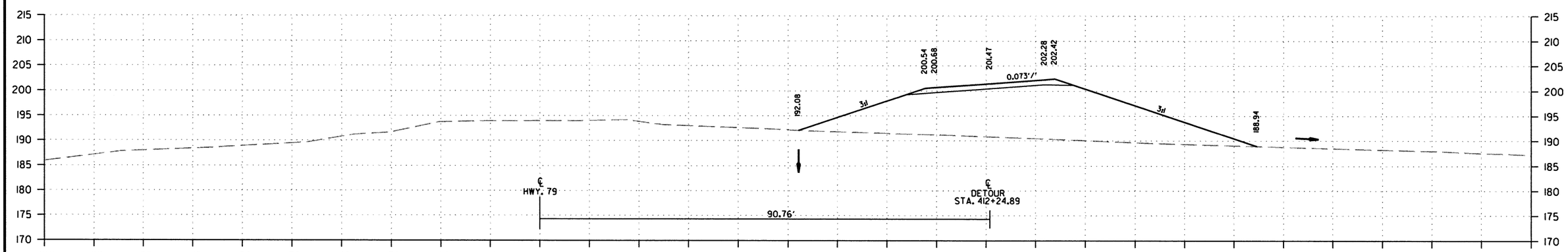
CUT AREA 8 SQ.FT.
FILL AREA 133 SQ.FT.

CUT AREA 413 SQ.FT.
FILL AREA 0 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 541 CU.YD.

CUT VOLUME 4 CU.YD.
FILL VOLUME 72 CU.YD.

CUT VOLUME 574 CU.YD.
FILL VOLUME 0 CU.YD.



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

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

CUT AREA 646 SQ.FT.
FILL AREA 0 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 1018 CU.YD.

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

CUT VOLUME 1074 CU.YD.
FILL VOLUME 0 CU.YD.

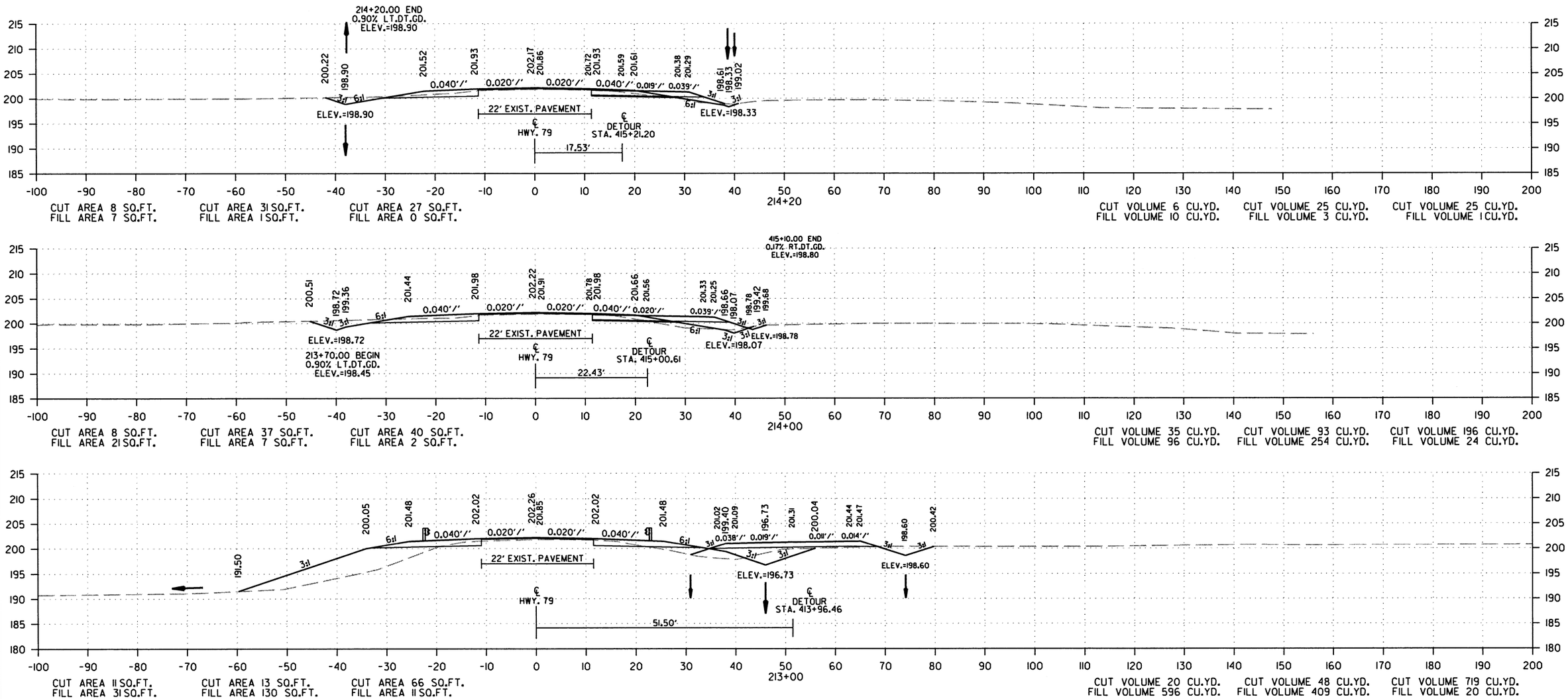
SITE 2
CROSS SECTION STA. 211+33 TO STA. 212+00

h139710 9/12/2019
R110617.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.		110617	76	78

(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3



SITE 2
CROSS SECTION STA. 213+00 TO STA. 214+20

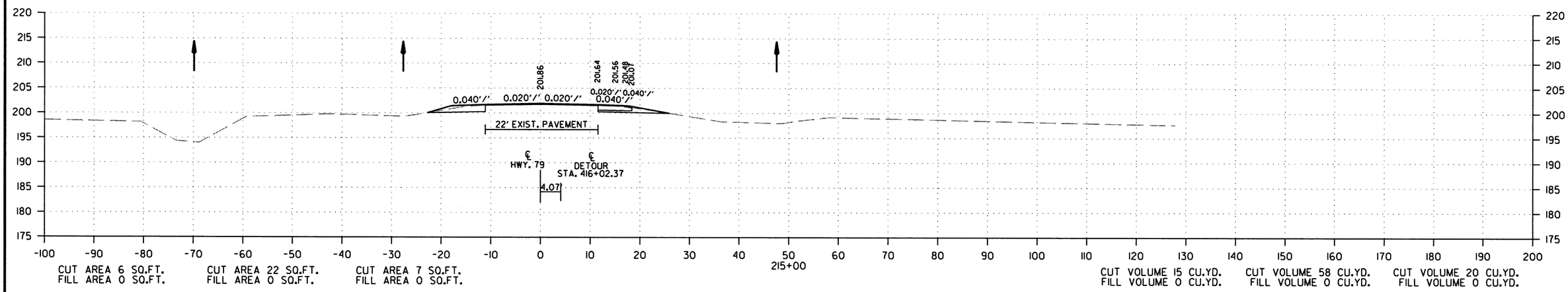
h139710 9/12/2019
R110617.DGN

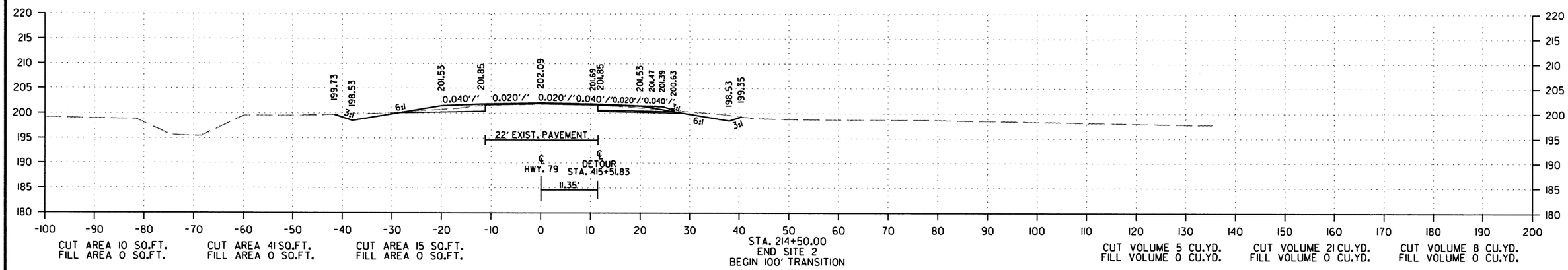
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		110617	77	78

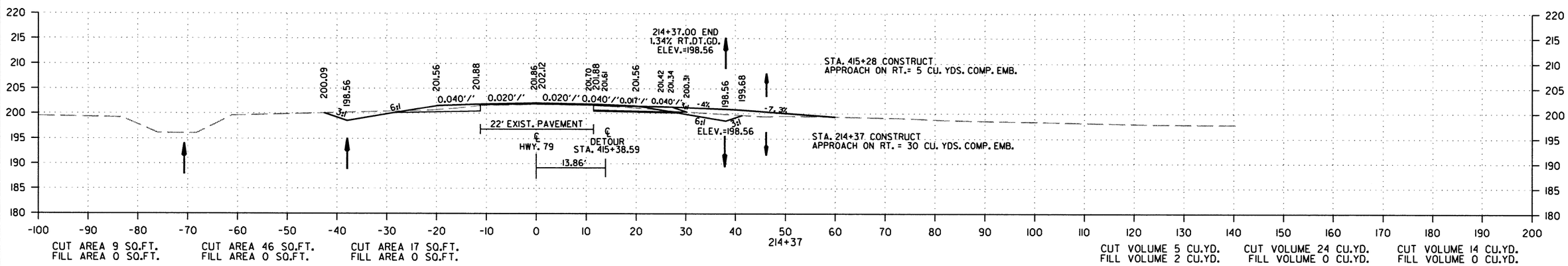
(2) CROSS SECTIONS

STAGE 1 STAGE 2 STAGE 3

STAGE 1 STAGE 2 STAGE 3





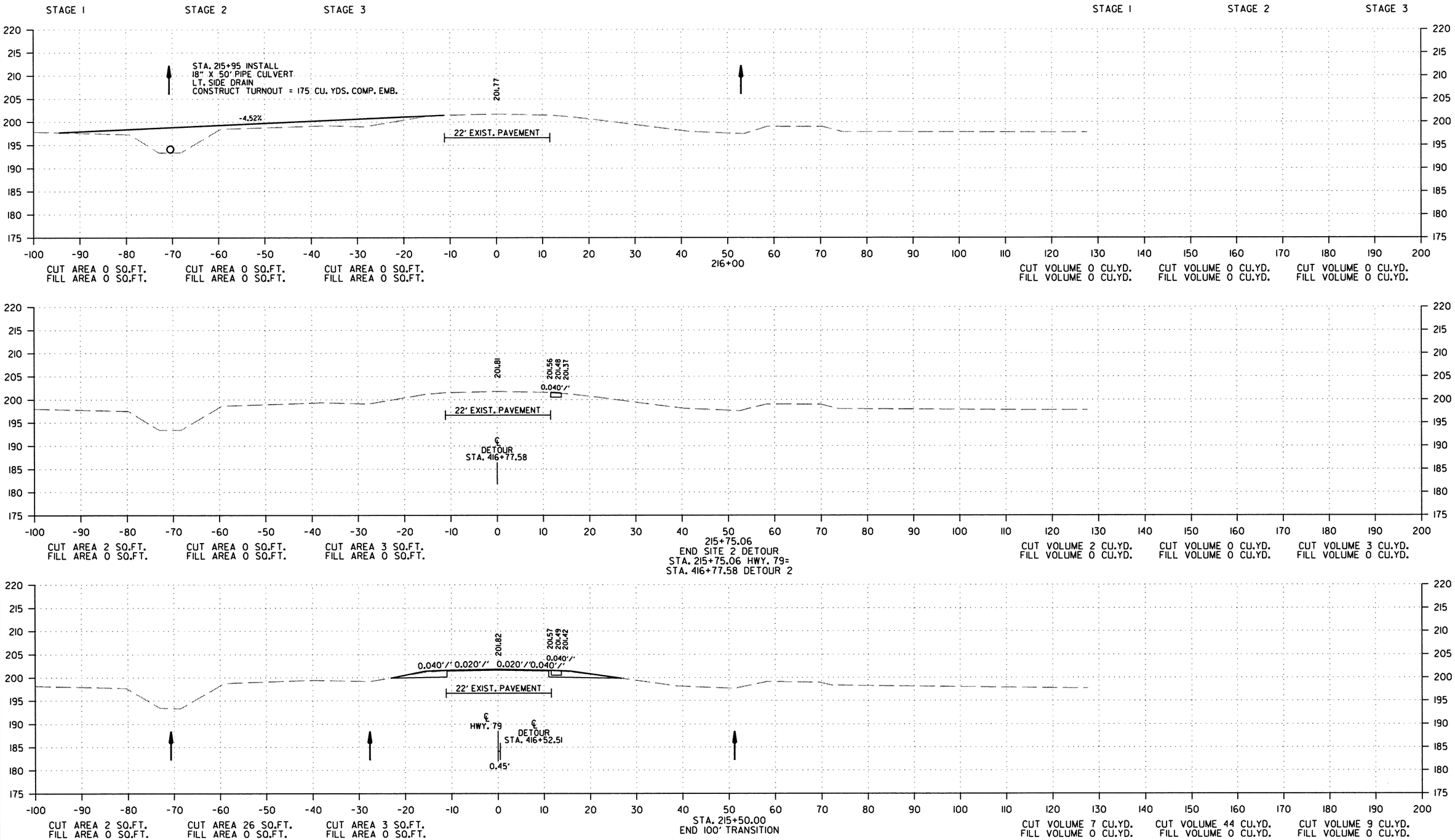


SITE 2
CROSS SECTION STA. 214+37 TO STA. 215+00

h139710 9/12/2019
R110617.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.		110617	78	78

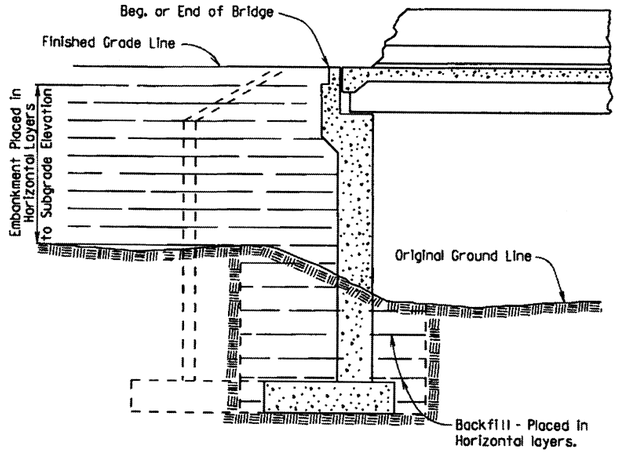
(2) CROSS SECTIONS



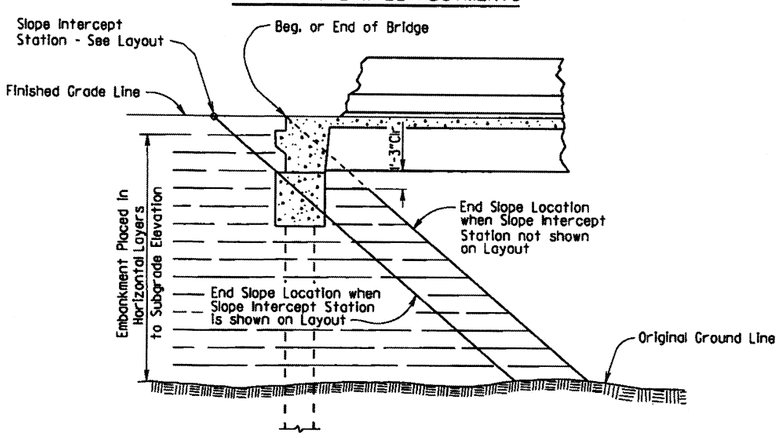
SITE 2
CROSS SECTION STA. 215+50 TO STA. 216+00

hl39710 9/12/2019
R110617.DGN

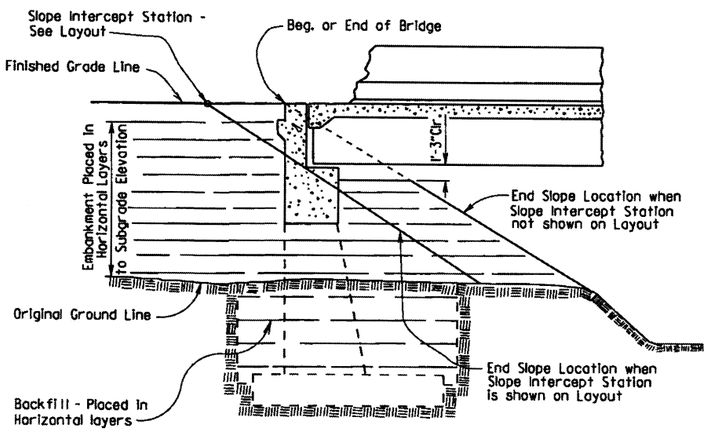
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. HIGHWAY DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				(1) EMBANKMENT & BACKFILL 55000				



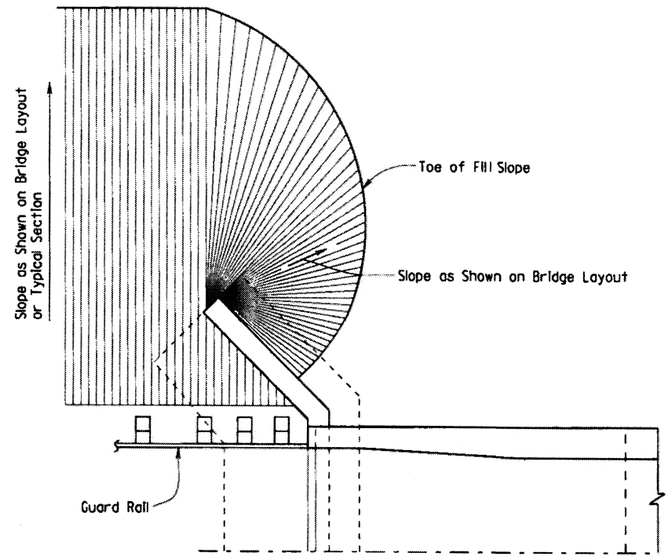
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



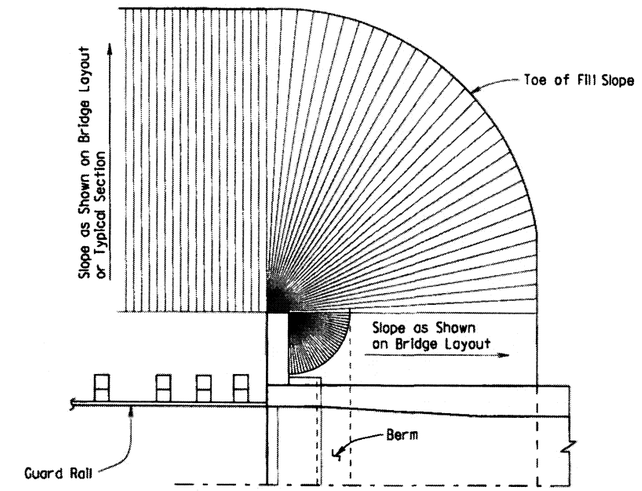
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



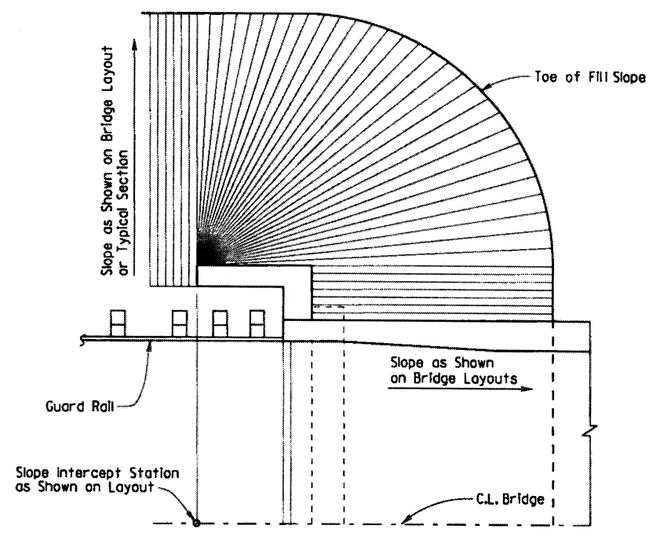
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



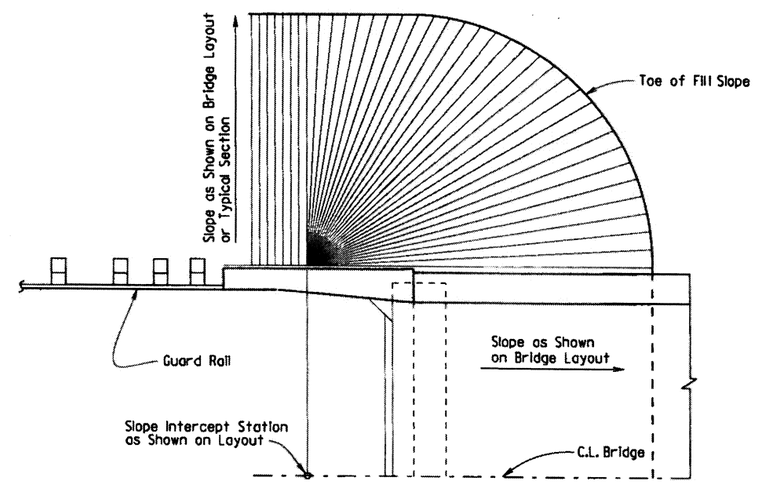
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

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

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

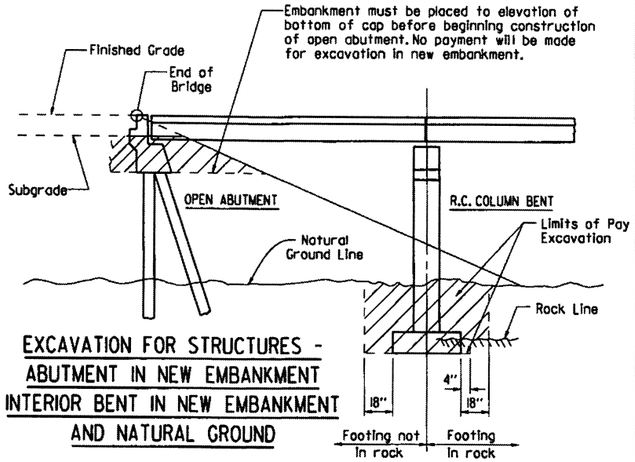
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

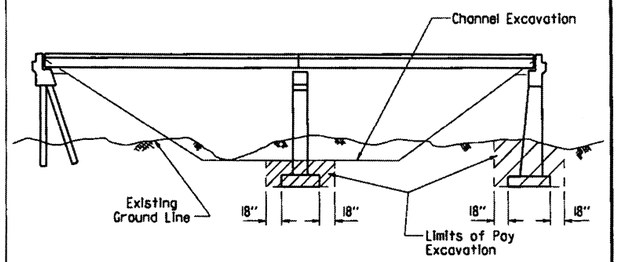
DRAWN BY: KDH	DATE: 2-27-2014	FILENAME: b55000.dgn	
CHECKED BY: BEF	DATE: 2-27-2014	SCALE: NO SCALE	
DESIGNED BY: STD.	DATE: -		

DRAWING NO. 55000

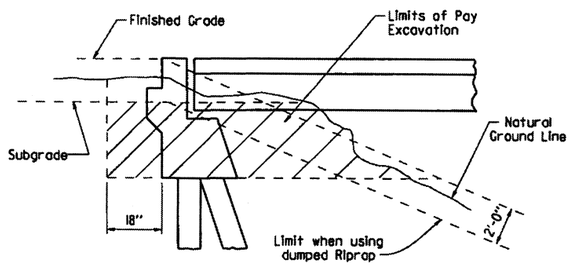
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				1	RIPRAP & EXCAV. 55001			



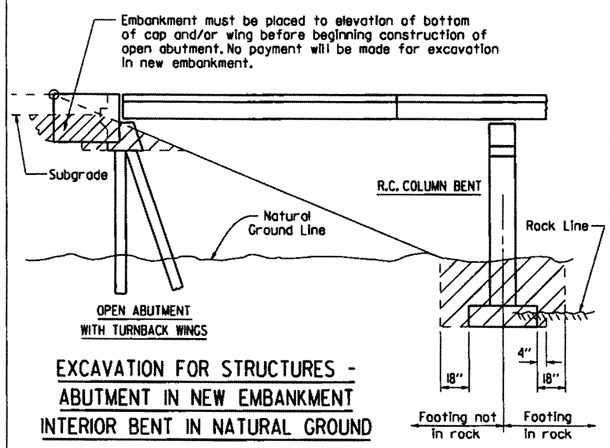
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



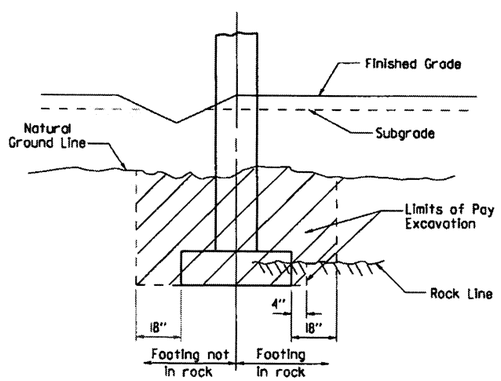
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



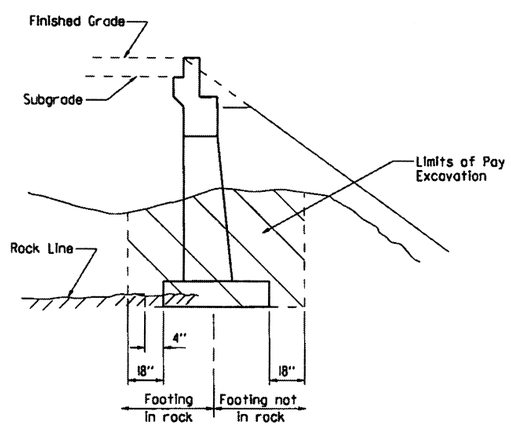
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



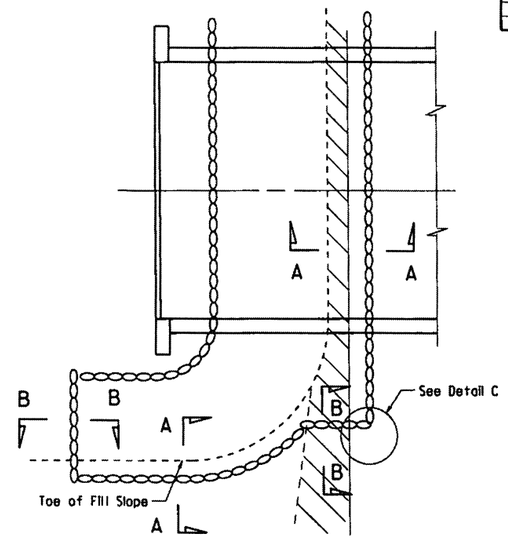
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



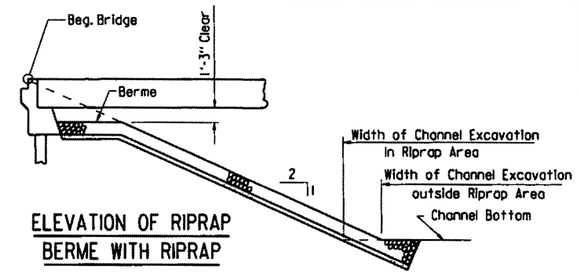
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



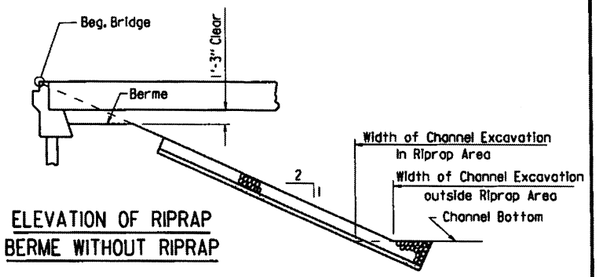
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



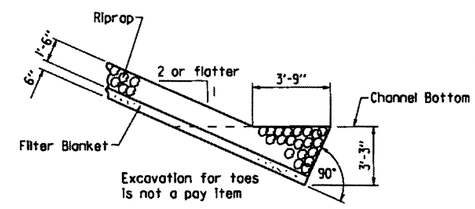
PLAN OF DUMPED RIPRAP



ELEVATION OF RIPRAP BERME WITH RIPRAP

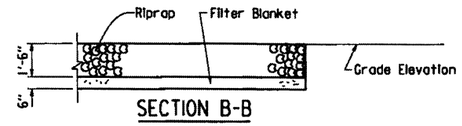


ELEVATION OF RIPRAP BERME WITHOUT RIPRAP

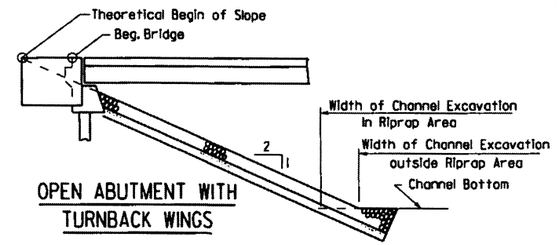


SECTION A-A

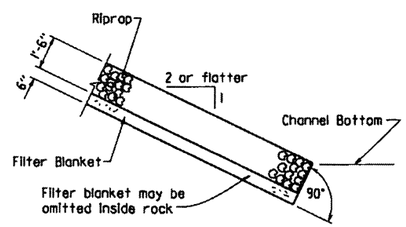
(Toe Excavation in Soil)



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



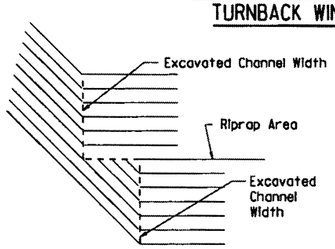
SECTION A-A

(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.



DETAIL C

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

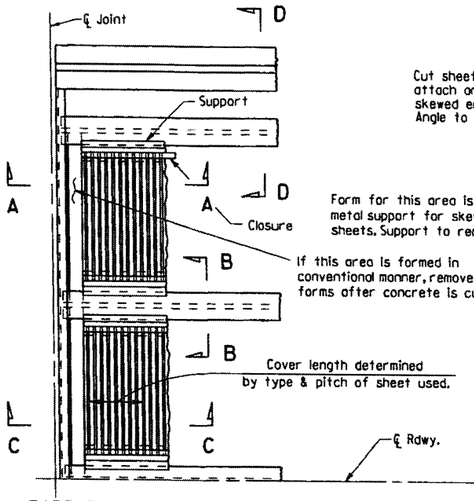
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

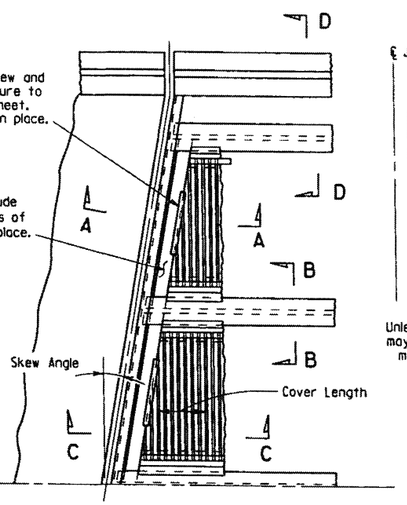
DRAWING NO. 55001

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				①	BRIDGE DECK FORMS	55005		



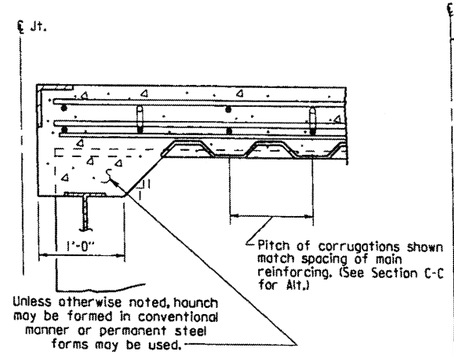
PART PLAN - SQUARE SPAN

3/8" = 1'-0"



PART PLAN - SKEWED SPAN

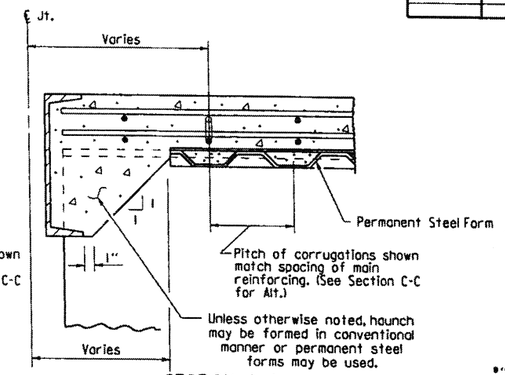
3/8" = 1'-0"



SECTION A-A

N.T.S.

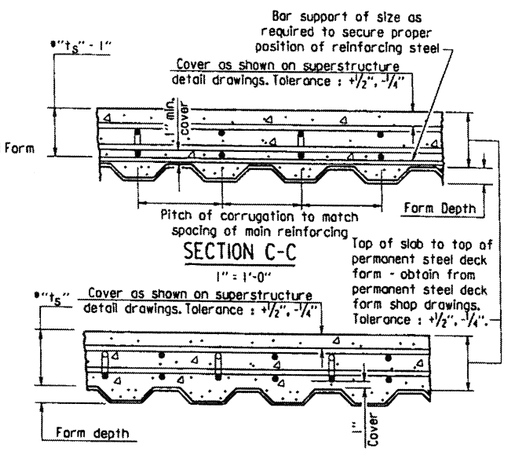
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



SECTION C-C

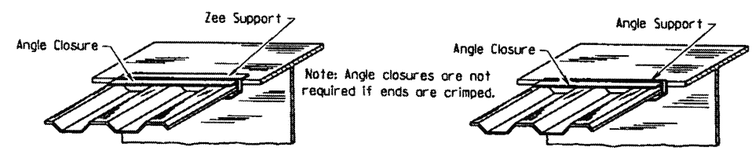
1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

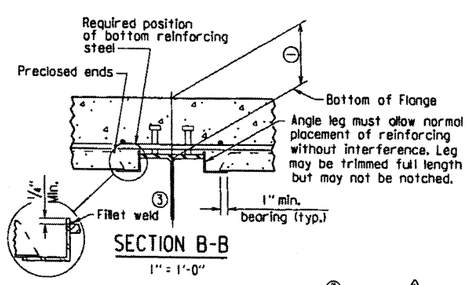
(Applicable when corrugations do not match spacing of main reinforcement)

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



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

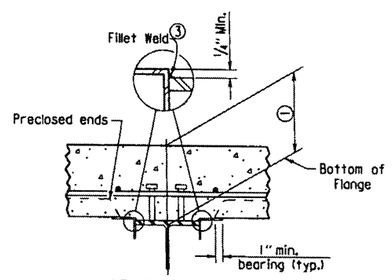


SECTION B-B

1" = 1'-0"

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

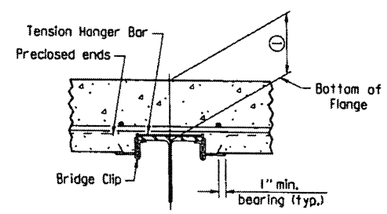
③ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

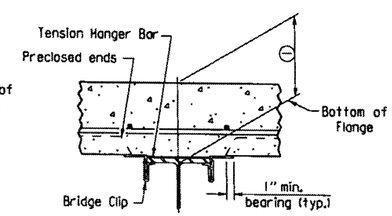
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

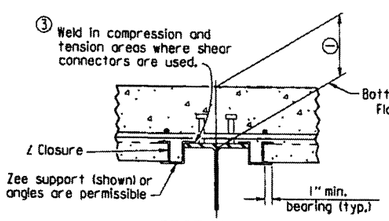
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

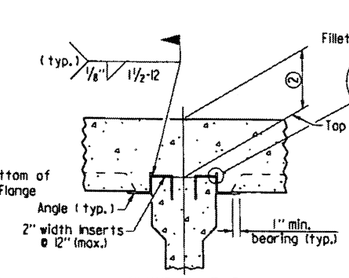
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

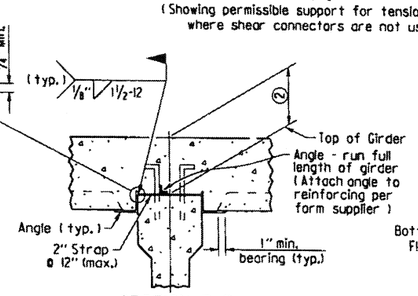


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

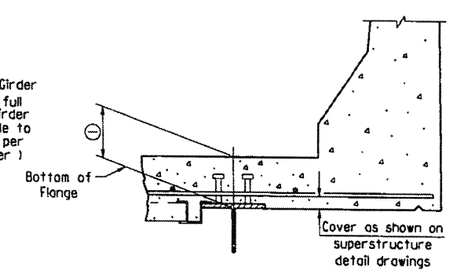


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

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

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

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH	DATE: 2-27-2014	FILENAME: b55005.dgn
CHECKED BY: BEF	DATE: 2-27-2014	SCALE: NONE
DESIGNED BY: STD.	DATE: —	

DRAWING NO. 55005

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

GENERAL NOTES

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

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

DESIGN SPECIFICATIONS: See Bridge Layout(s).

SUPERSTRUCTURE NOTES:

MATERIALS AND STRENGTHS:

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

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

CONCRETE:

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

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

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

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

REINFORCING STEEL:

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

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

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

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

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

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

Unless otherwise noted, field connections shall be bolted with ¾" ø high-strength bolts using 15/16" ø open holes. Holes for ¾" ø high-strength bolts may be 5/16" ø if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam or girder webs and on the bottom of the beam or girder flanges.

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

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

STRUCTURAL STEEL (W-BEAMS):

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

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

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

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

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

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

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

STRUCTURAL STEEL (PLATE GIRDERS):

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

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

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

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

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

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

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

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

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

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

SUBSTRUCTURE NOTES:

CONCRETE:

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

STANDARD GENERAL NOTES
FOR STEEL BRIDGE STRUCTURES

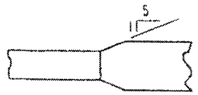
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

DRAWING NO. 55006

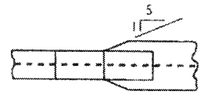
PRINT DATE: 9/21/2015

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.				
				①	STEEL BRIDGE STRUCTURES 55007			

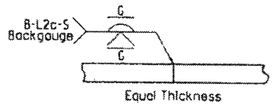


Plan-Unequal Width (Fig.)

FLANGE SPLICE

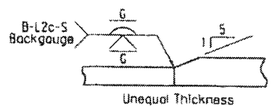


FLANGE SPLICE AT UNEQUAL BOTTOM FLANGE WIDTHS



Equal Thickness

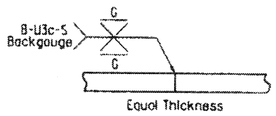
WEB & FLANGE SPLICE



Unequal Thickness

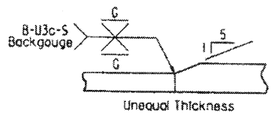
FLANGE SPLICE

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



Equal Thickness

WEB & FLANGE SPLICE

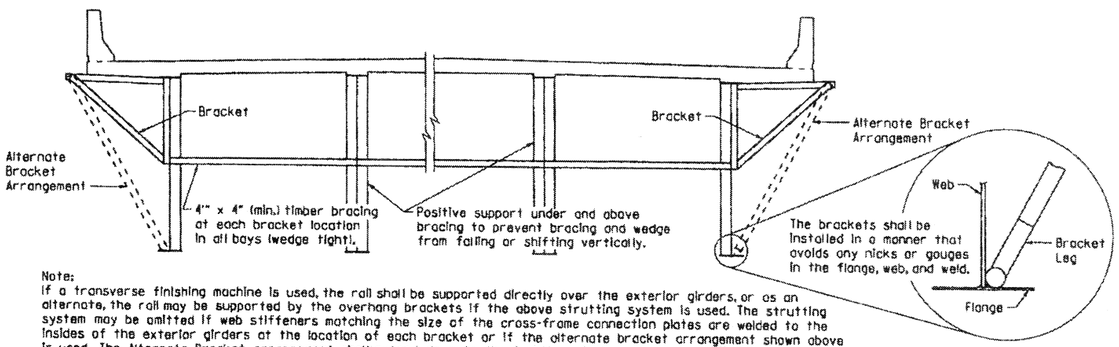


Unequal Thickness

FLANGE SPLICE

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

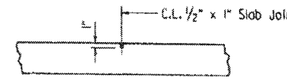
DETAILS OF WELDED SPLICES FOR PLATE GIRDERS



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

SCREED RAIL SUPPORT FOR PLATE GIRDERS

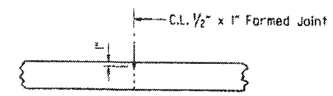
(USE WHEN WEB DEPTHS ARE 48" OR GREATER)



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

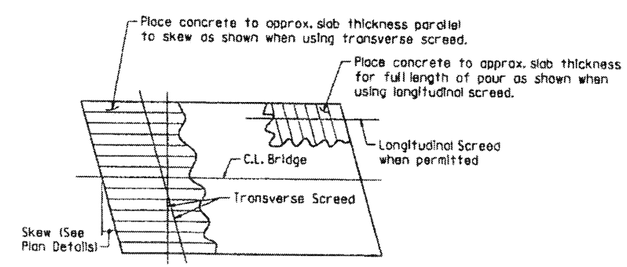
ADDITIONAL NOTES IF SIDEWALKS OR RAISED MEDIANS ARE REQUIRED:
Slab joints shall be installed before the sidewalk or raised median is poured. After installation of the joint in the sidewalk or raised median and prior to pouring the parapet rail, the joint sealer shall be placed extending across the deck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

TRANSVERSE SLAB JOINT DETAIL



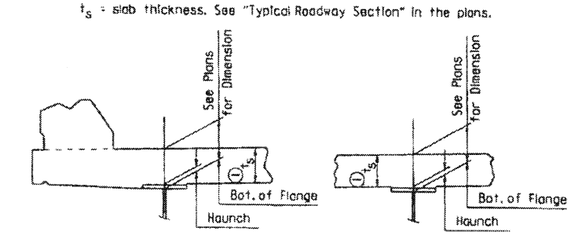
Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal color shall be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT



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

CONCRETE PLACEMENT PROCEDURE FOR BRIDGES WITH SKEW



EXTERIOR BEAM OR GIRDER

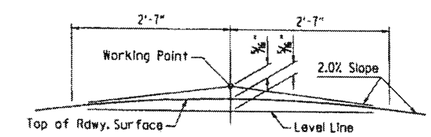
INTERIOR BEAM OR GIRDER

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

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

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

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE



NOTE: Working Point matches Theoretical Roadway Grade.

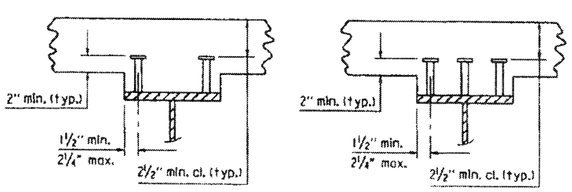
ROUNDING DETAIL

BRIDGES IN NORMAL CROWN

WELD TABLE

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	5/16"	

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

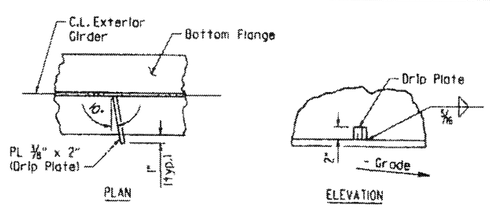


2 STUDS PER ROW

3 STUDS PER ROW

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

SHEAR CONNECTOR DETAIL



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

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

BOTTOM FLANGE DRIP PLATE

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

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

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

STANDARD DETAILS FOR STEEL BRIDGE STRUCTURES

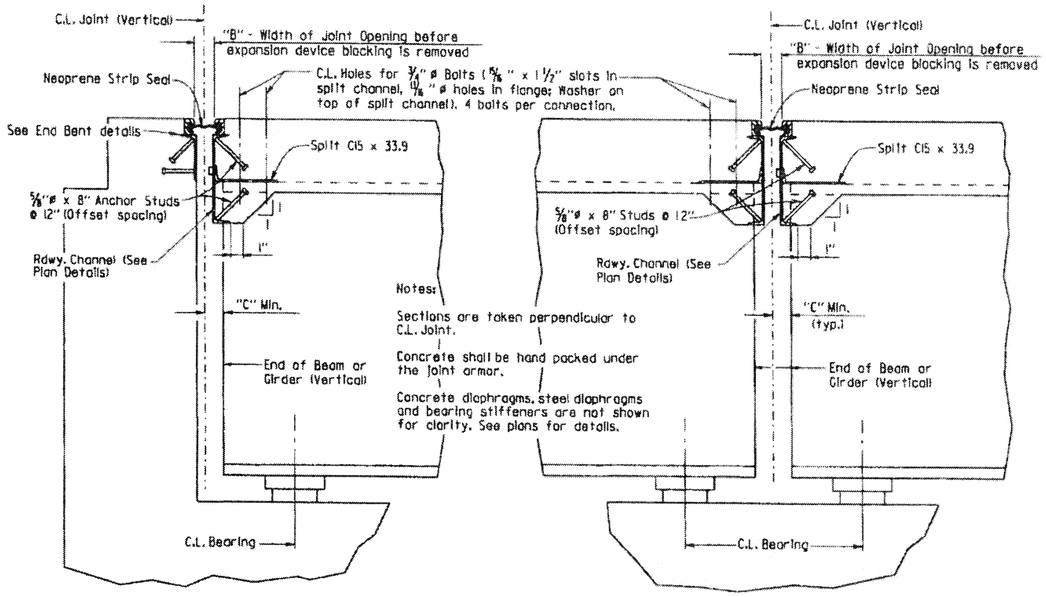
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

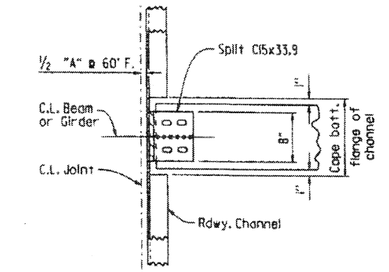
DRAWING NO. 55007

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				STRIP SEAL JOINT				55009



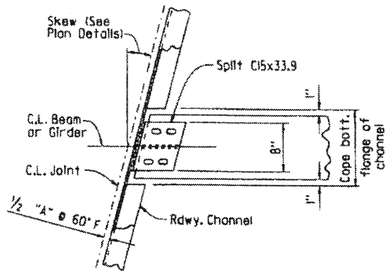
SECTION THRU JOINT AT END BENT

SECTION THRU JOINT AT INTERMEDIATE BENT



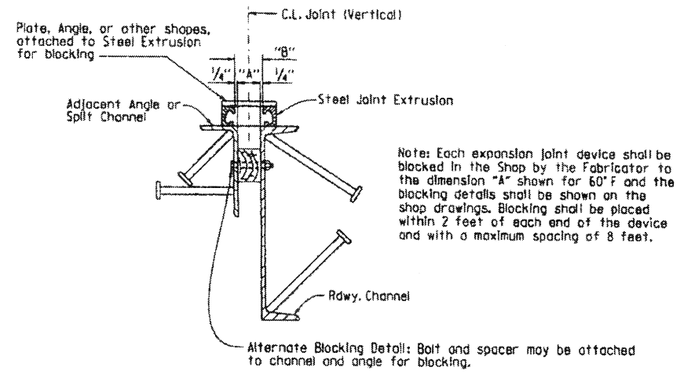
CHANNEL CONNECTION DETAIL

BENTS WITHOUT SKEW



CHANNEL CONNECTION DETAIL

BENTS WITH SKEW



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

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION AT END BENTS:

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

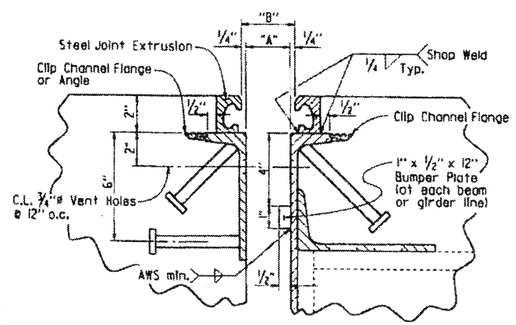
1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams or girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior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

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

EXPANSION DEVICE INSTALLATION AT INTERMEDIATE BENTS:

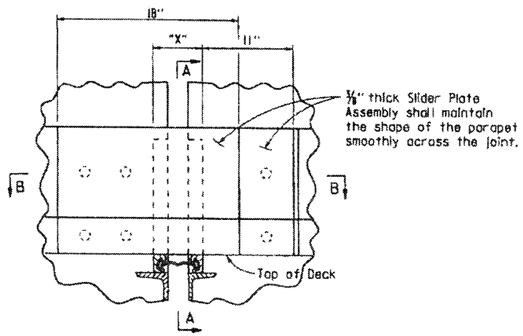
After all beams or girders on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first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

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



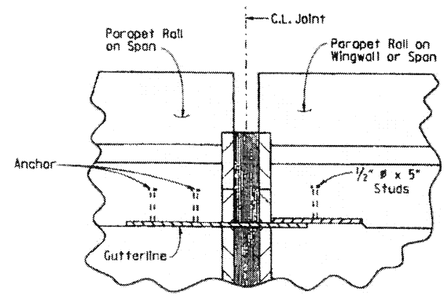
DETAIL OF STRIP SEAL JOINT

Detail shown at End Bent.
Details similar at Intermediate Bent



Dimension "X" equals the width of opening in parapet to allow for removal or repair of joint.

DETAIL OF PARAPET SLIDER PLATES

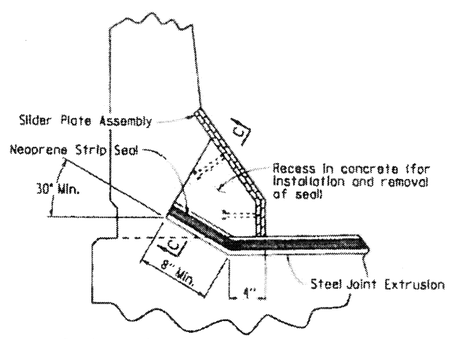


The method of attachment of the slider plate assembly shall allow for removal to provide for future replacement of the neoprene seal. Anchors shall not be paid for directly, but shall be considered subsidiary to the item "Armored Joint with Neoprene Strip Seal".

Method of installation and fabrication shall be determined by the Manufacturer.

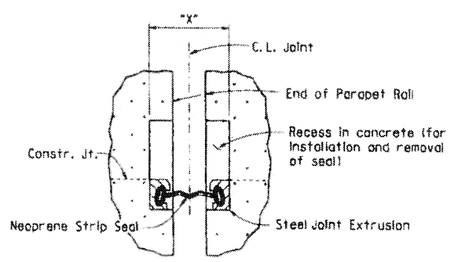
SECTION B-B

BENTS WITHOUT SKEW SHOWN



Details of joint turn-up in parapet are general and show basic design controls only. See plan details for joint installation at sidewalks.

SECTION A-A



SECTION C-C

GENERAL NOTES FOR NEOPRENE STRIP SEAL JOINTS:

The steel extrusion and neoprene strip seal material and installation shall be in accordance with Section 809.

The expansion device shall provide for the movement rating(s) shown in the "TABLE OF STRIP SEAL JOINT DATA" in the plan details. The expansion joint shall be capable of sealing the deck surface and parapet area to prevent moisture and other contaminants from descending through the joint.

Details of proposed slider plate assembly shall be submitted to the Engineer for approval prior to the fabrication of any structural steel at the expansion device.

All structural steel shall conform to AASHTO M 270, Grade 50W and all exposed surfaces shall be cleaned in accordance with Subsection 807.84(a). The parapet slider plates and structural steel completely embedded in concrete shall conform to AASHTO M 270, Grade 36, 50 or 50W steel. Unless otherwise noted in the plans, all exposed surfaces of the parapet slider plates shall be cleaned and painted in accordance with Section 638. Painting shall not be paid for directly and structural steel completely embedded in concrete need not be painted. Payment for structural steel shall be as specified in the plans.

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

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

STANDARD DETAILS FOR NEOPRENE STRIP SEAL JOINTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	L.J.B.	DATE:	2/11/2016	FILENAME:	b55009.dgn
CHECKED BY:	A.M.S.	DATE:	2/11/2016	SCALE:	No Scale
DESIGNED BY:	STD.	DATE:	—		

DRAWING NO. 55009

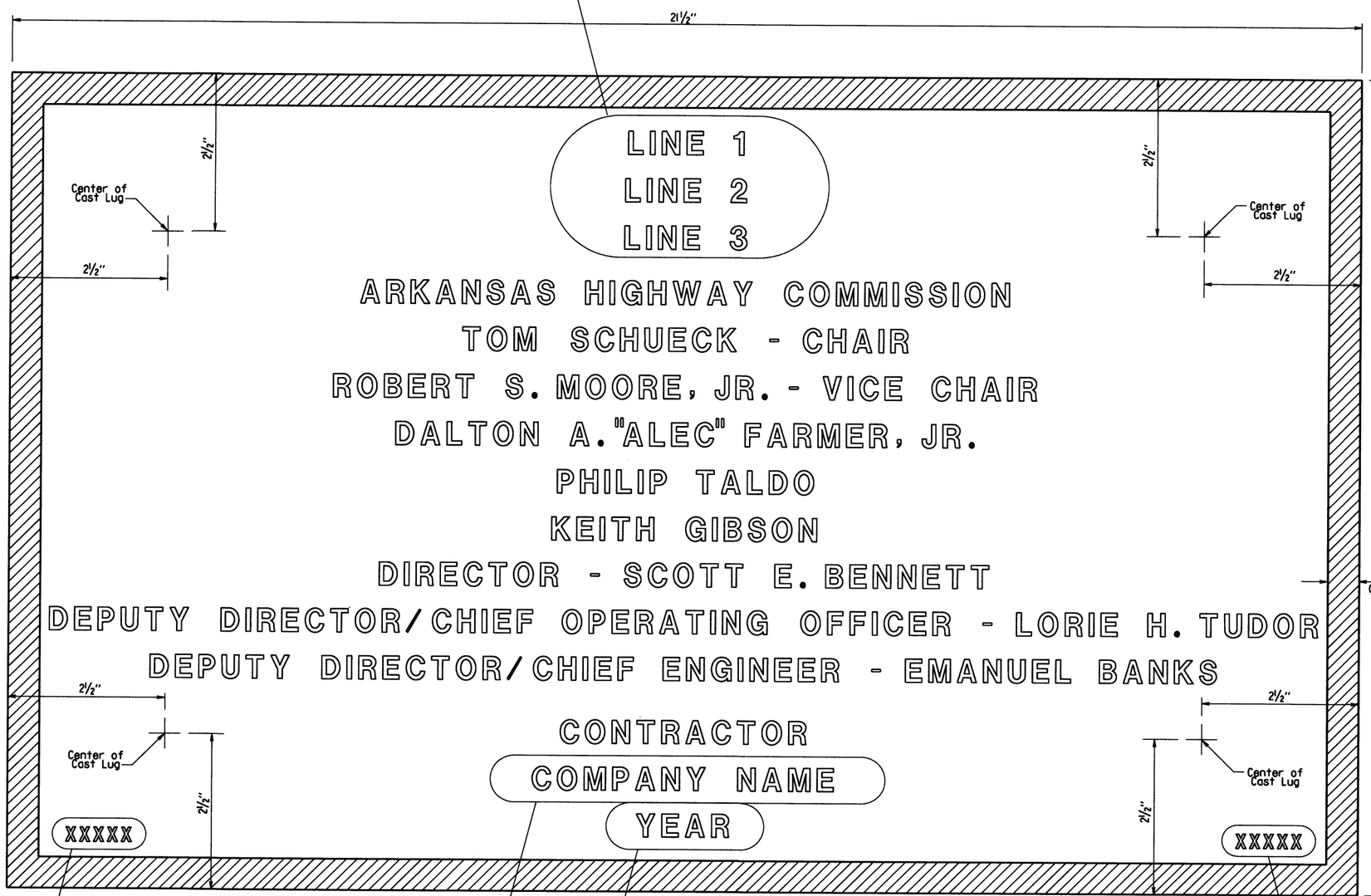
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
12-1-14		1-15-19	
1-14-15			
1-17-17			

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

1 TYPE D NAME PLATE 55010

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

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



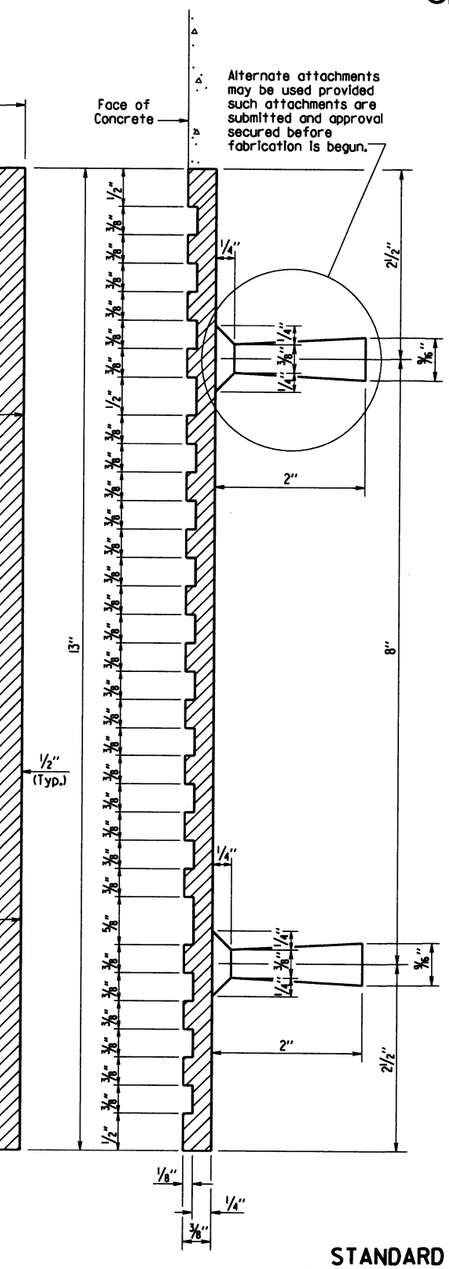
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20
HL-93

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

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

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples : A1234
05432

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

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

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

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 3/16" 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.

4 Revised Chair and Vice Chair
Added New Commissioner
1-15-19 CGP Checked By: CRE

3 Added New Commissioner
1-17-17 KDH Checked By: CRE

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

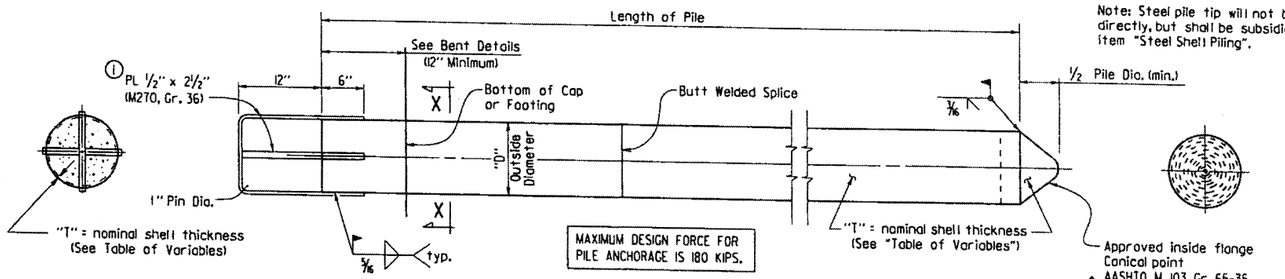
STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

DRAWING NO. 55010

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
				JOB NO.				
				①	STEEL SHELL PILES		55021	

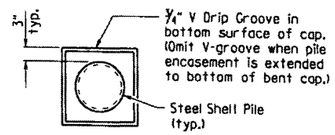


Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

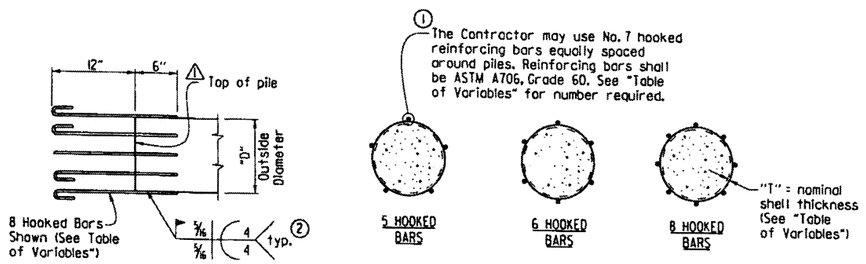
CONCRETE FILLED STEEL SHELL PILE

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

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

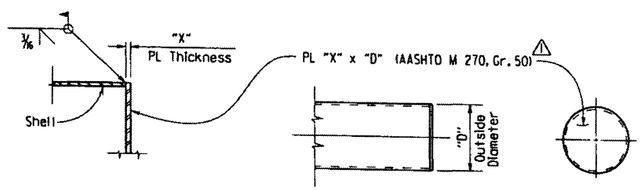


VIEW X-X



ALTERNATE PILE ANCHORAGE DETAIL

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

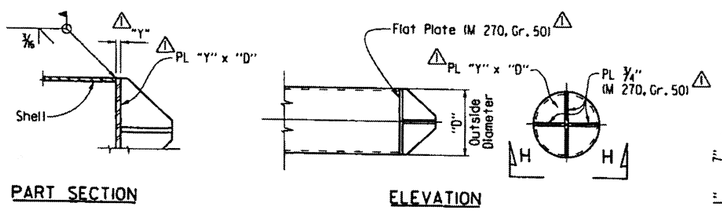


PART SECTION

ELEVATION

ALTERNATE FLAT TIP DETAIL

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



PART SECTION

ELEVATION

VIEW H-H

ALTERNATE VANED TIP DETAIL

GENERAL NOTES FOR CONCRETE FILLED STEEL SHEEL PILES:

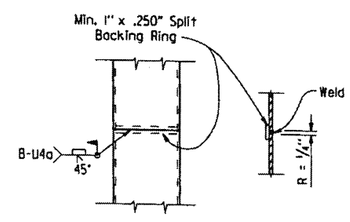
Steel shells shall conform ASTM A252, Grade 3 (Fy = 45,000 psi.)

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

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

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

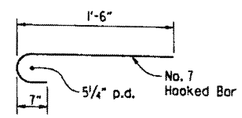
Concrete, structural steel, reinforcing steel (including welding), and painting shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling".



TYPICAL SPLICE DETAILS

TABLE OF VARIABLES

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



HOOKED BAR DETAIL

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

GENERAL NOTES FOR PILE ENCASEMENTS:

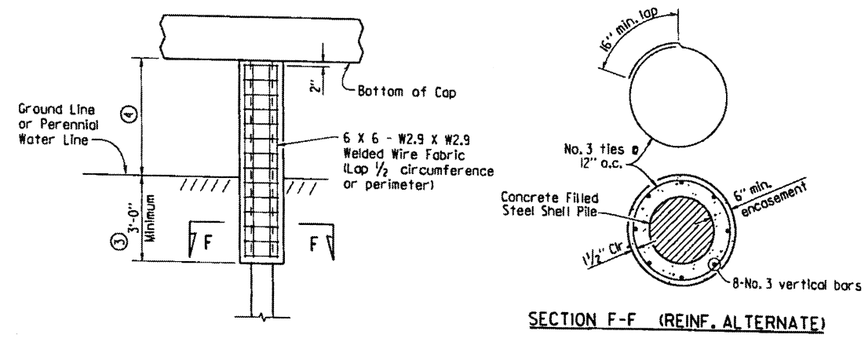
See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

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

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

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

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



SECTION F-F (REINF. ALTERNATE)

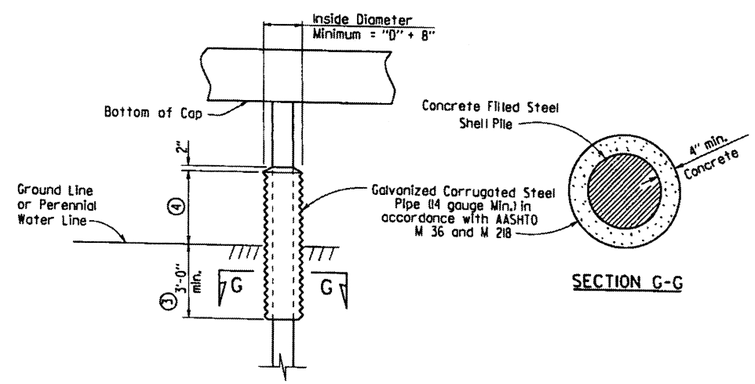
PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

⑤ (Shown with Encasement to Bottom of Cap)

③ Unless otherwise noted on Bridge Layout.

④ See Bridge Layout for height of pile encasement (3'-0" Minimum).

⑤ Pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the detail for partial height encasement.



SECTION G-G

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

(Shown with Partial Height Encasement)

This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
CHARLES R. ELLIS

BRIDGE ENGINEER

STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

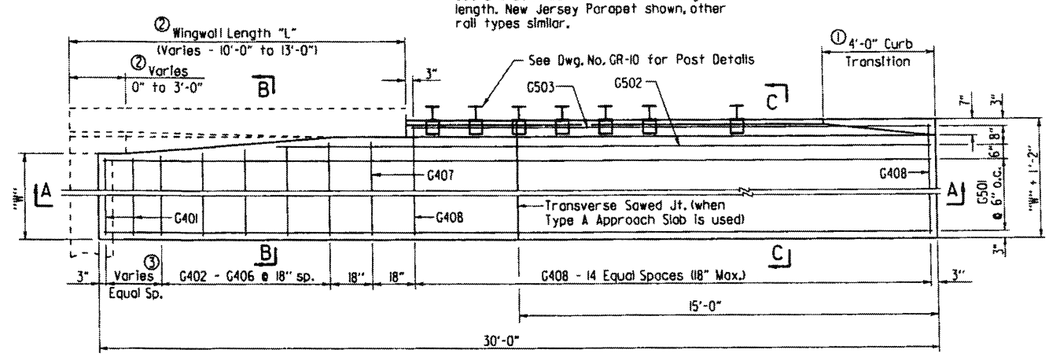
LITTLE ROCK, ARK.

DRAWN BY:	A.M.S.	DATE:	2/27/2014	FILENAME:	b55021.dgn
CHECKED BY:	B.E.F.	DATE:	2/27/2014	SCALE:	NO SCALE
DESIGNED BY:	STD.	DATE:	—		

DRAWING NO. 55021

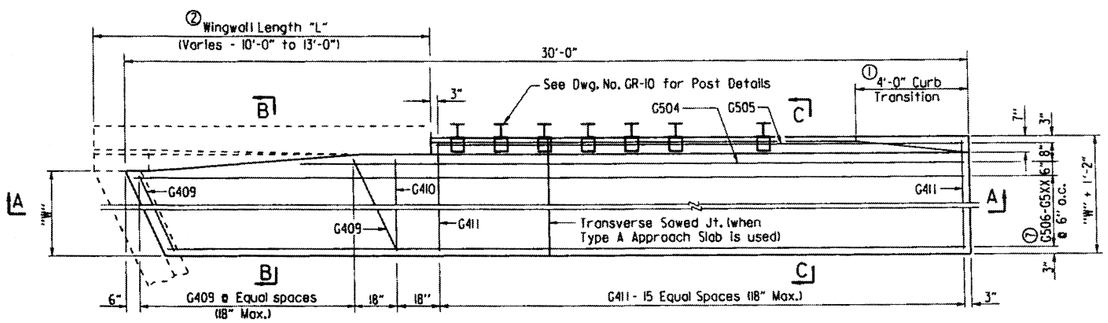
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9/2/15				6	ARK.			
				JOB NO.				
				①	TYPE A GUTTERS		55030A	

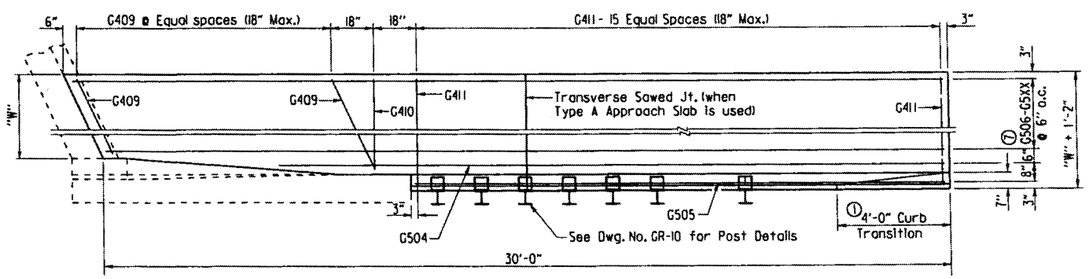
②See End Bent Details for actual wingwall length. New Jersey Parapet shown, other rail types similar.



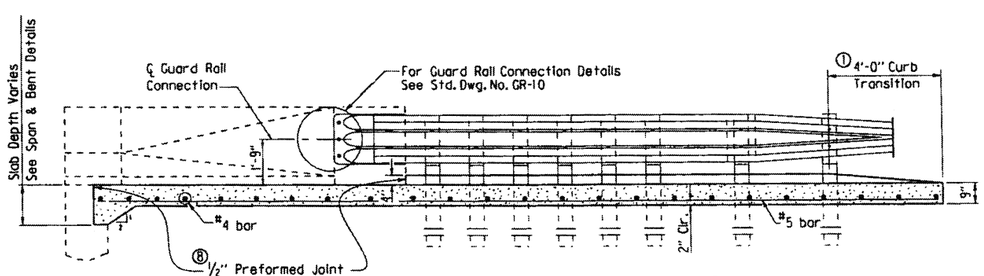
③Number of G401 bars vary with wingwall length - See Bar List

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE





PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



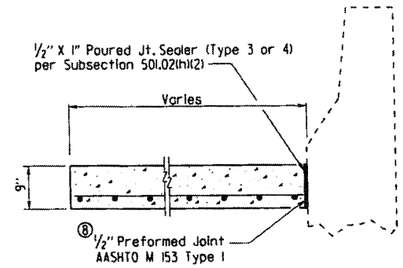
SECTION A-A

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.

⑧Eliminate 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.

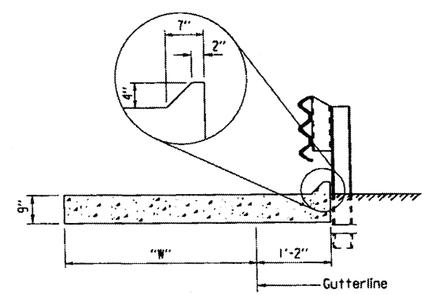
①Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

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.

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

④0 for "L" = 10'
1 for "L" = 11'
2 for "L" = 12'
2 for "L" = 13'

⑦G509 for "W" = 2' △
G511 for "W" = 3'
G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'

⑤Bar Lengths vary with Skew and Wingwall Length.

⑥No. Req'd. varies with Skew and Wingwall length.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

△ "W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
2	210	2.55
3	285	3.40
4	360	4.25
6	515	5.90
8	665	7.55

Quantities are based on "L" = 10'-0".

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

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

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

△ Revised to add "W" = 2'-0"; By LJB
Checked By: KWY 9/2/15

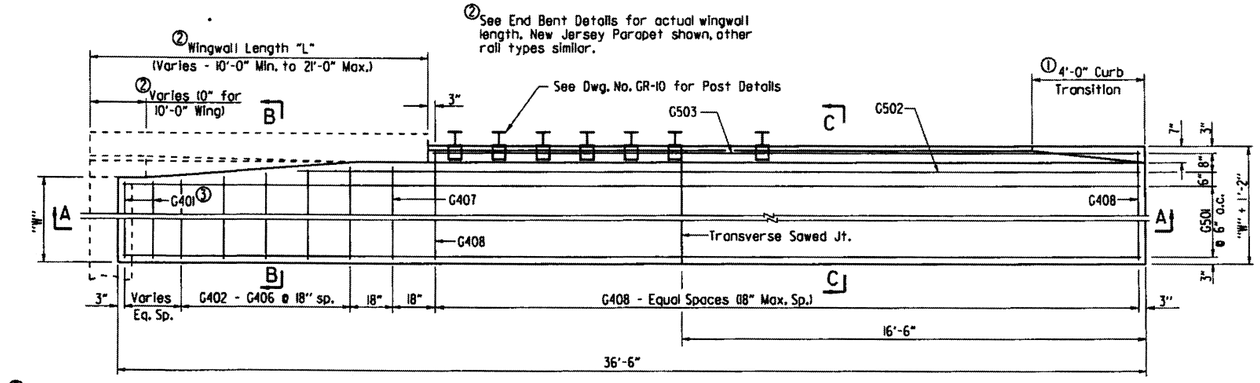
STANDARD DETAILS FOR TYPE A APPROACH GUTTERS

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	A.M.S.	DATE:	2/27/2014	FILENAME:	b55030a.dgn
CHECKED BY:	K.W.Y.	DATE:	2/27/2014	SCALE:	3/8" = 1'-0" or As Shown
DESIGNED BY:	STD.	DATE:			

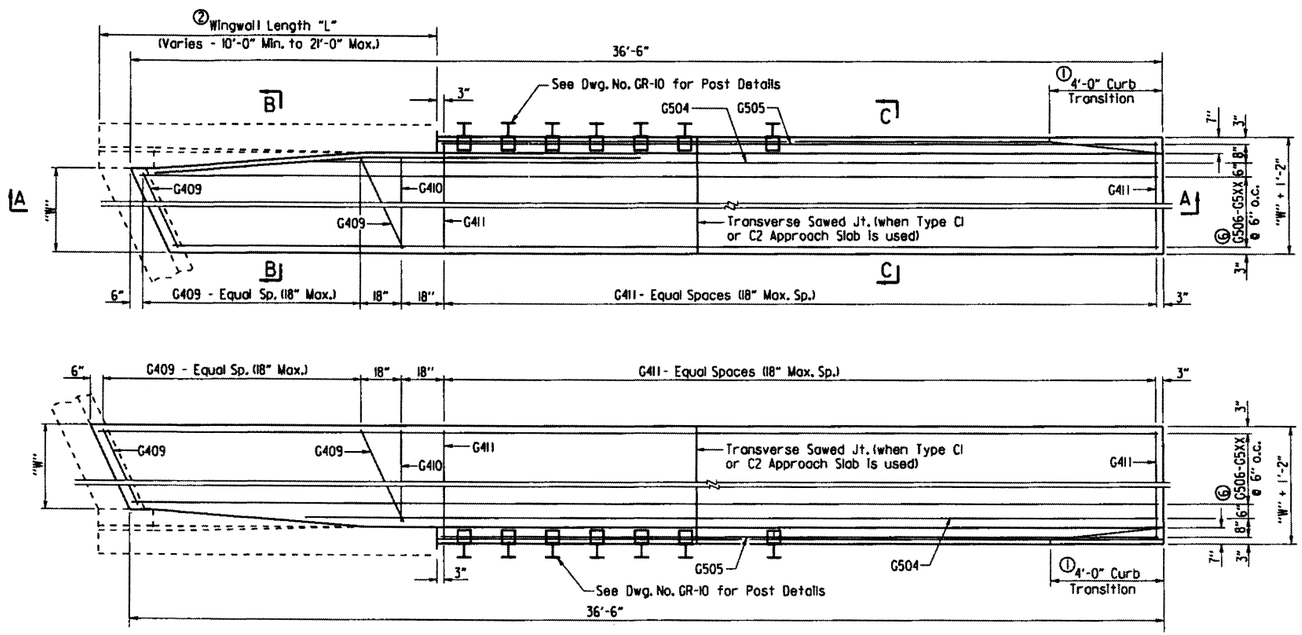
DRAWING NO. 55030A

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.				
				①	TYPE C GUTTERS		55030C	

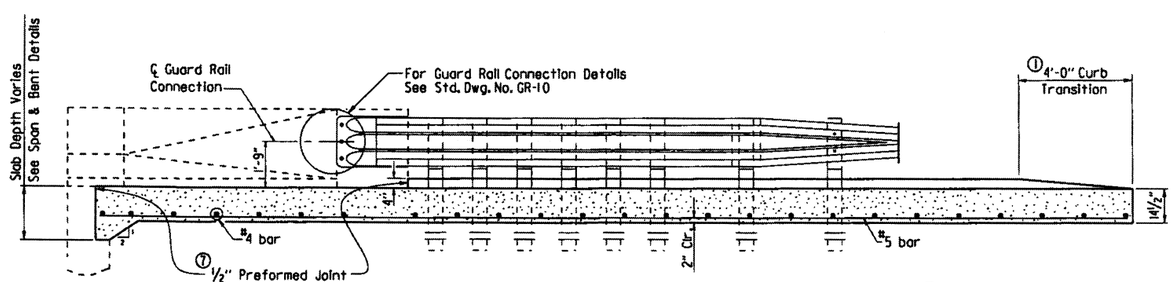


③Provide G401 bars @ 18" max. spacing. Number of G401 bars vary with wingwall length. No G401 bars required for 10'-0" wingwalls.

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE



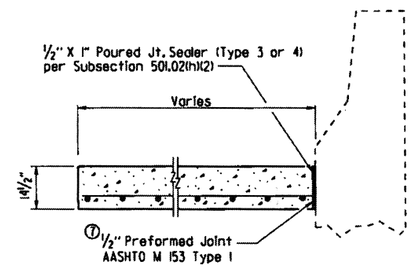
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



SECTION A-A

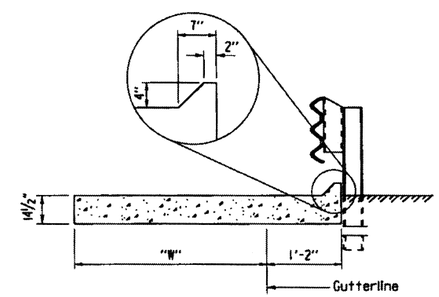
①Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

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.

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

④No. Req'd. varies with Skew and Wingwall Length.

⑤Bar Lengths vary with Skew and Wingwall Length.

⑥G513 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".

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.

⑦Eliminate 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.

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:	⅜" = 1'-0" or As Shown
DESIGNED BY:	STD.	DATE:			

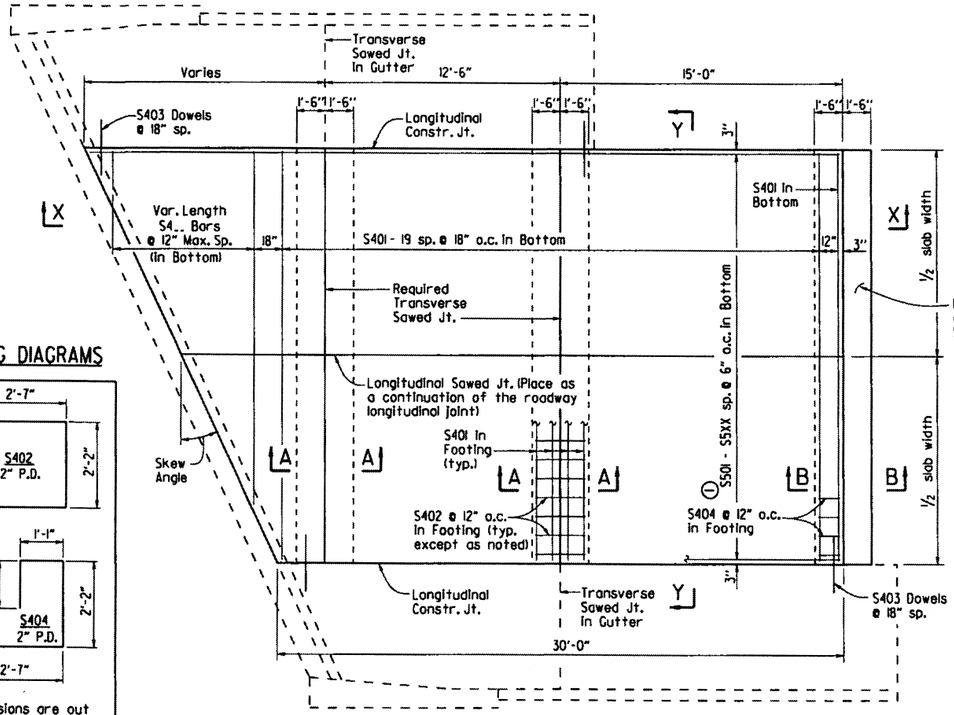
DRAWING NO. 55030C

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

TYPE A APPROACH SLAB 55040A

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

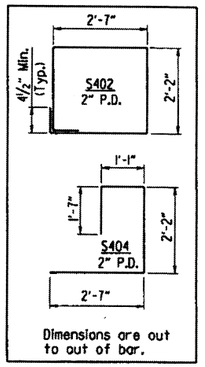
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.



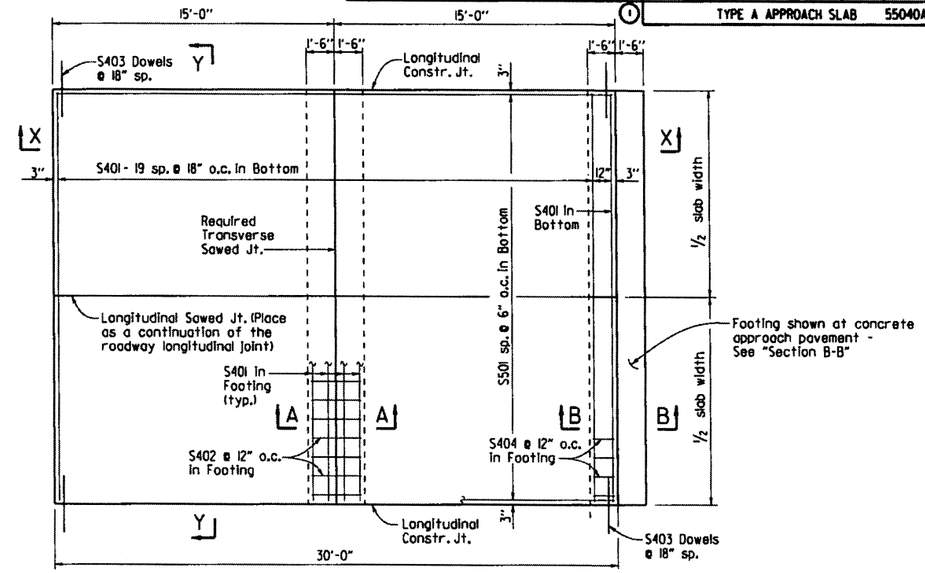
PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS
1/4" = 1'-0"

① S5XX = S540 for 20'-0" Width
= S544 for 22'-0" Width
= S548 for 24'-0" Width
= S572 for 36'-0" Width

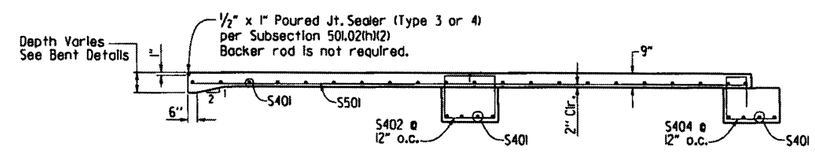
BENDING DIAGRAMS



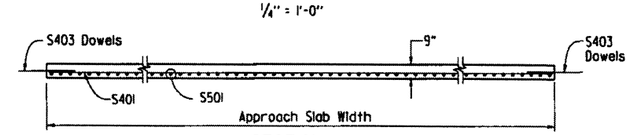
Dimensions are out to out of bar.



PLAN - SQUARE APPROACH SLAB
1/4" = 1'-0"



SECTION X-X
SQUARE APPROACH SLAB SHOWN
1/4" = 1'-0"



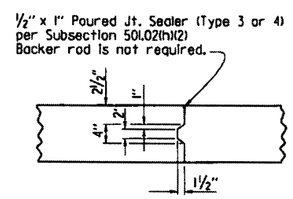
SECTION Y-Y
N.T.S.

BAR LIST

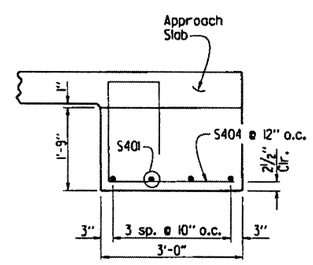
(Square & Skewed Approach Slabs)

	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)

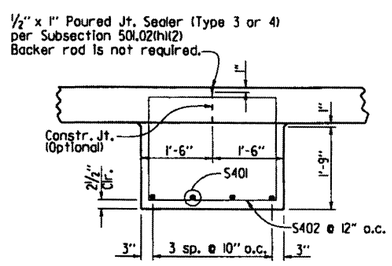
*Varies with skew angle



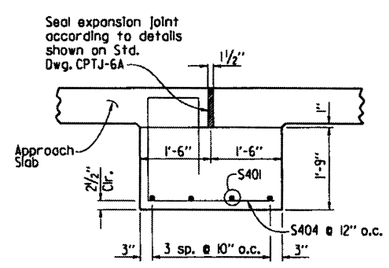
DETAILS OF LONGITUDINAL CONSTRUCTION JOINT
1" = 1'-0"



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



SECTION A-A
N.T.S.



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.)
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.

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:			

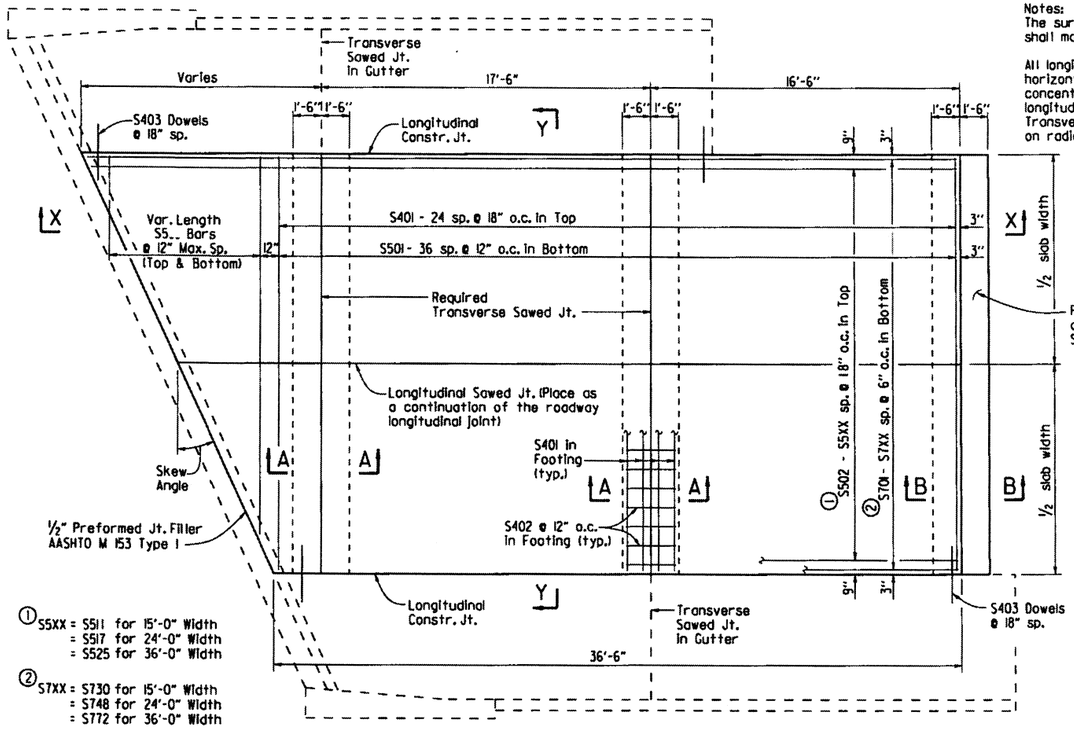
DRAWING NO. 55040A

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

1 TYPE CI APPROACH SLAB 55040CI

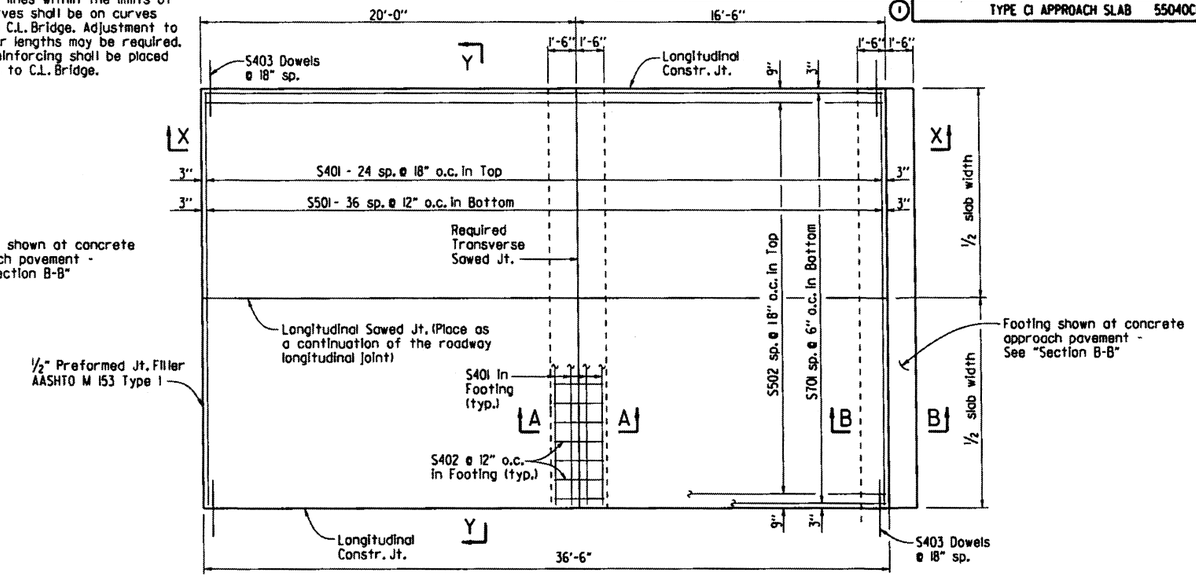
Notes:
The surface finish for Approach Slabs shall match that used on the bridge deck.

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.



PLAN - SKEWED APPROACH SLAB WITH APPROACH GUTTERS

¼" = 1'-0"



PLAN - SQUARE APPROACH SLAB

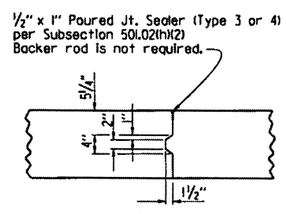
¼" = 1'-0"

BAR LIST

(Square & Skewed Approach Slabs)

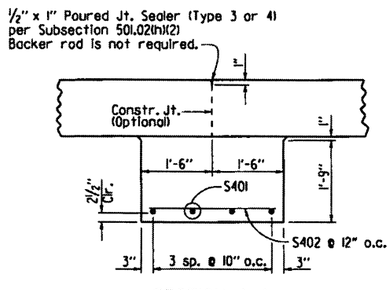
	Mark	Square No. Req'd.	Square Length	Skewed No. Req'd.	Skewed Length
15'-0" Slab Width	S401	33	14'-8"	37	14'-8"
	S402	30	2'-8"	45	2'-8"
	S403	50	3'-0"	*	3'-0"
	S501	37	14'-8"	37	14'-8"
	S502	10	36'-2"	—	—
	S502 - S511	—	—	1 Ea.	36.1' + 0.75' (tan skew angle) to 36.1' + 14.25' (tan skew angle)
	S5..	—	—	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	48	2'-8"	72	2'-8"
	S403	50	3'-0"	*	3'-0"
	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	72	2'-8"	108	2'-8"
	S403	50	3'-0"	*	3'-0"
	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



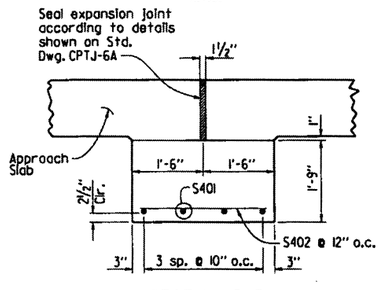
DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

¾" = 1'-0"



SECTION A-A

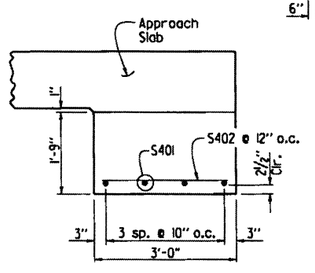
N.T.S.



SECTION B-B

AT CONCRETE APPROACH PAVEMENT

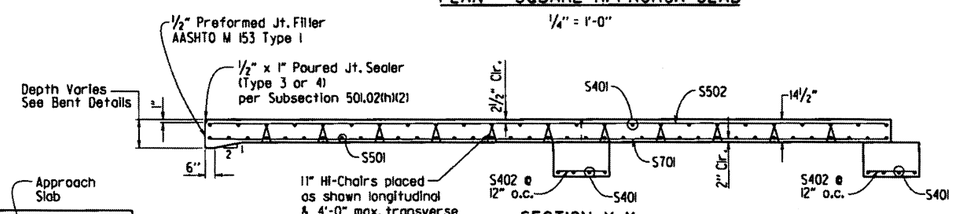
N.T.S.



SECTION B-B

AT ASPHALT APPROACH PAVEMENT

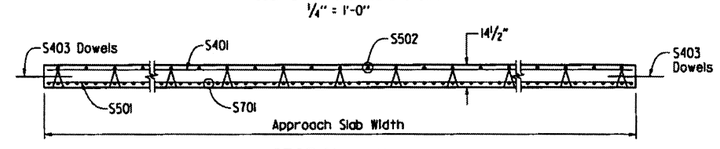
N.T.S.



SECTION X-X

SQUARE APPROACH SLAB SHOWN

¼" = 1'-0"



SECTION Y-Y

N.T.S.

TABLE OF QUANTITIES FOR ONE SQUARE APPROACH SLAB

(FOR INFORMATION ONLY)

Slab Width	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
15'-0"	3640	30.75
24'-0"	5775	49.15
36'-0"	8620	73.75

GENERAL NOTES

This drawing shall be used for Approach Slabs in Seismic Performance Zone I 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.

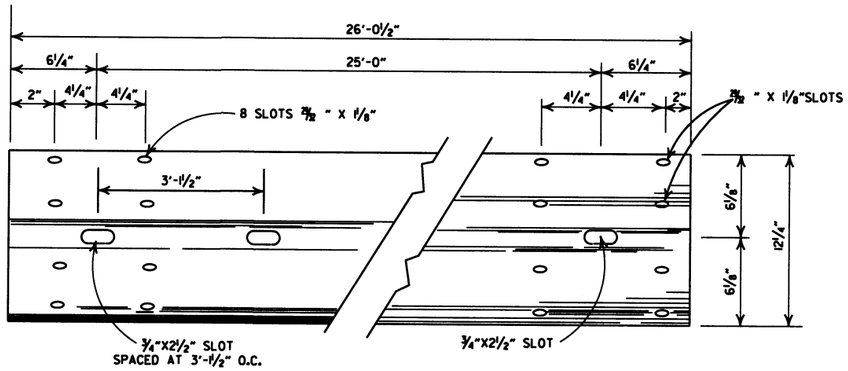
STANDARD DETAILS FOR TYPE CI APPROACH SLAB

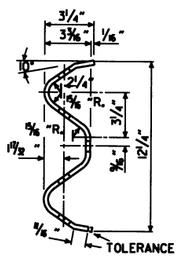
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55040ci.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: AS SHOWN
DESIGNED BY: STD. DATE:

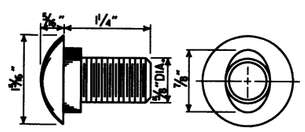
DRAWING NO. 55040CI



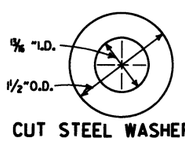


DETAILS OF W-BEAM GUARD RAIL

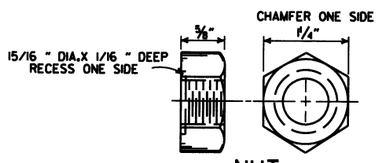
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



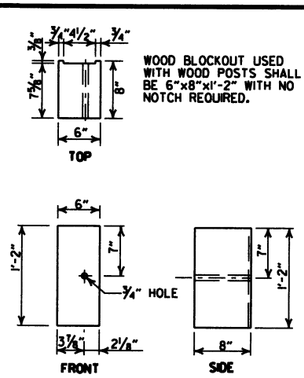
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

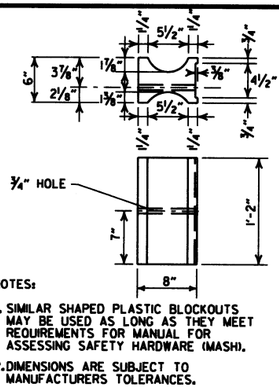


NUT



WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

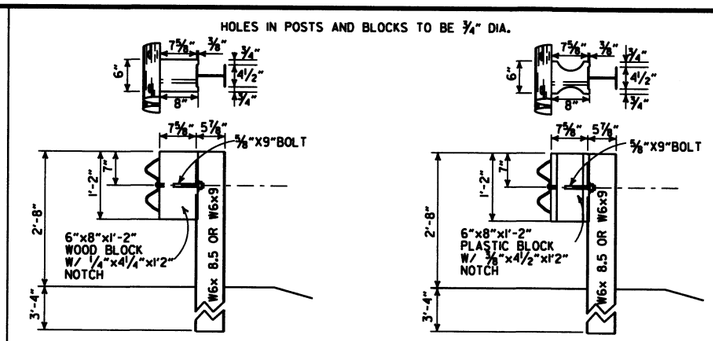
WOOD BLOCKOUT (W-BEAM)



NOTES:

1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

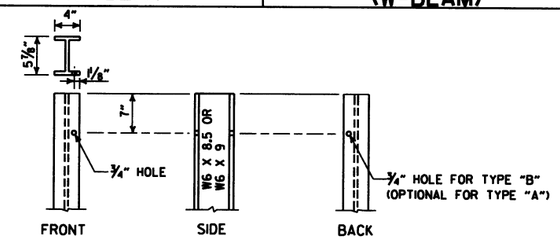
PLASTIC BLOCKOUT (W-BEAM)



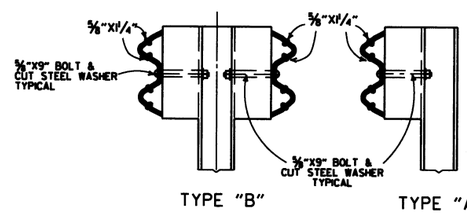
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

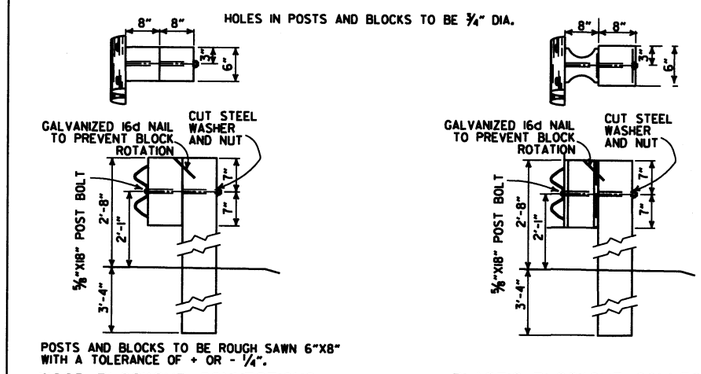
DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



STEEL POST



DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

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

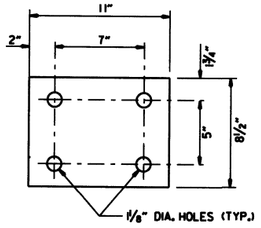
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

DATE	REVISION	FILMED
11-16-17	REVISED GENERAL NOTES AND RAISED GUARD RAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
03-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
01-12-00	ADDED PLASTIC BLOCKOUT	
08-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF 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	
04-03-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
06-02-94	ADDED ALT. STEEL POST SIZE	
08-05-93	REVISED STEEL POST SIZE	8-5-93
10-01-92	REDRAWN & REVISED	10-1-92
08-15-91	REVISED WASHER NOTE	8-15-91
08-02-90	REV. GEN. NOTE & DEPTH OF ANC. POST IN ROCK	8-2-90
07-15-88	REVISED SECTION 3 & GENERAL NOTES	
03-04-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-09-87	REDRAWN & REVISED	802-10-9-87

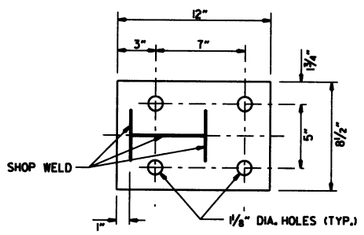
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8

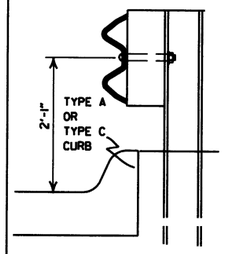


WASHER PLATE



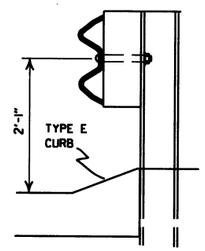
BASE PLATE

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



FOR DESIGN SPEEDS OF 50 MPH OR LESS

ALIGN FACE OF GUARD RAIL WITH FACE OF CURB.

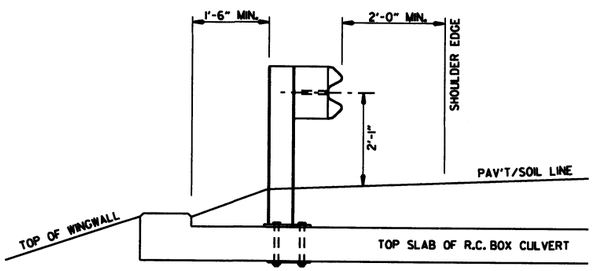


FOR DESIGN SPEEDS OF 55 MPH OR MORE

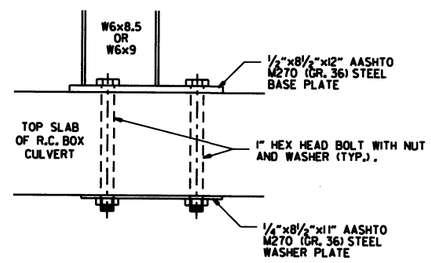
PLACE GUARD RAIL POSTS AGAINST BACK OF CURB.

DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

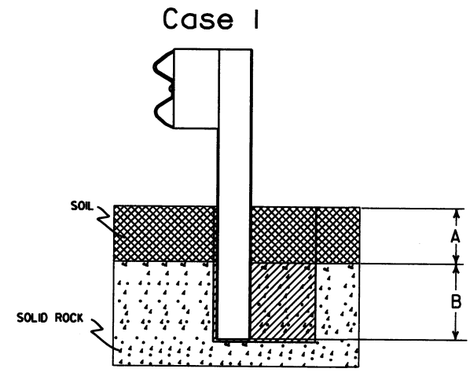
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.

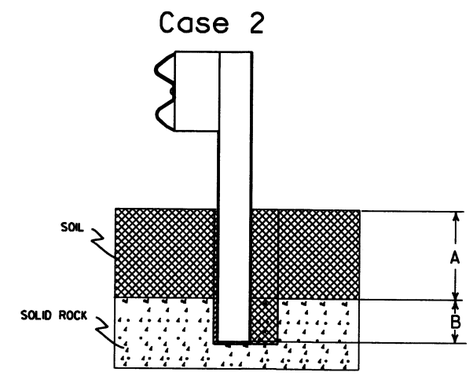


SECTION A-A



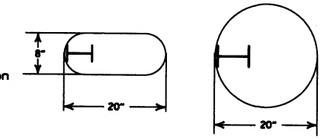
DETAIL OF CONNECTION

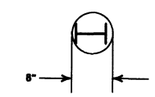




Plan View Steel Posts

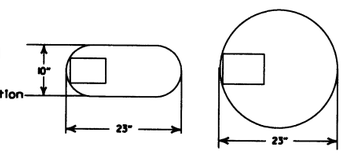
Either hole configuration acceptable

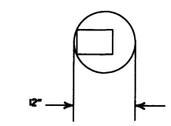




Plan View Wood Posts

Either hole configuration acceptable





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

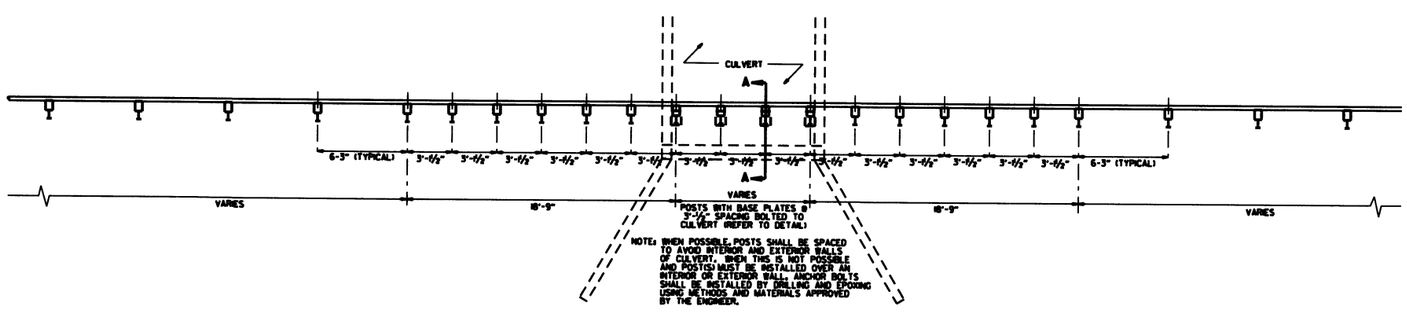
Zone A:
Backfill according to Section 617.03(a).

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

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

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

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



PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

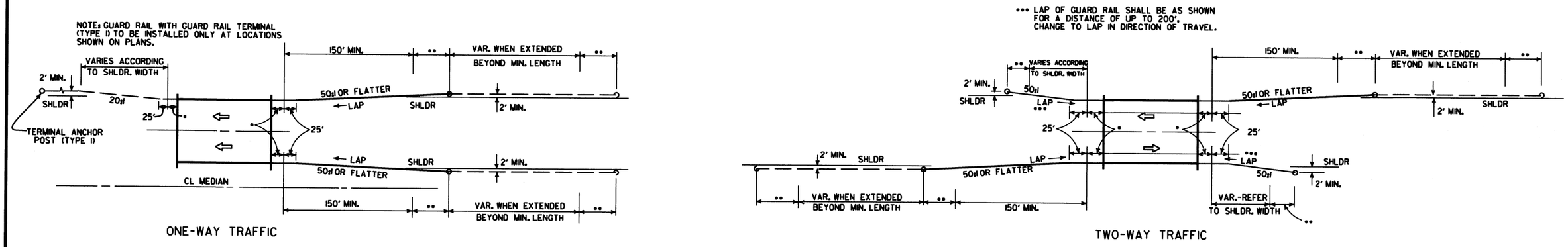
NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DWG. GR-8.

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

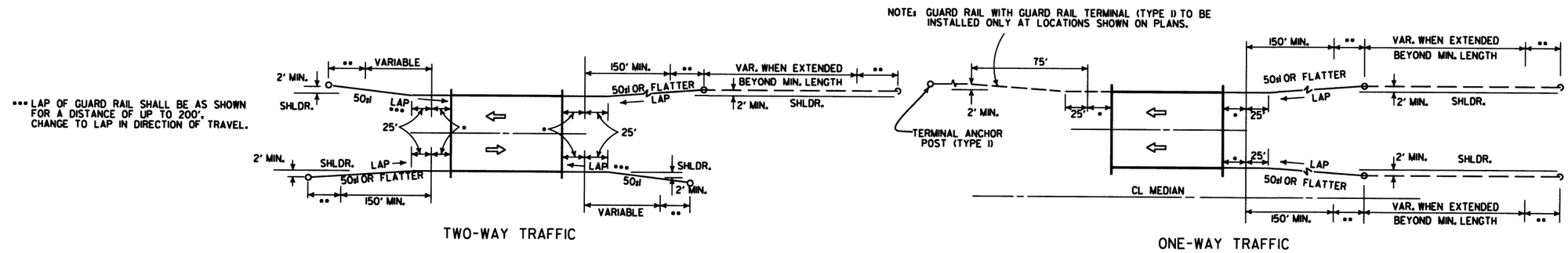
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8A

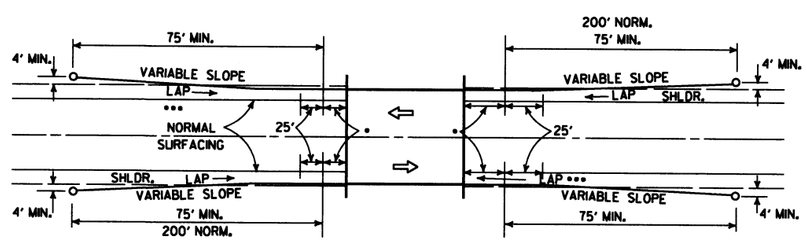


METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)



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

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



LEGEND

- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

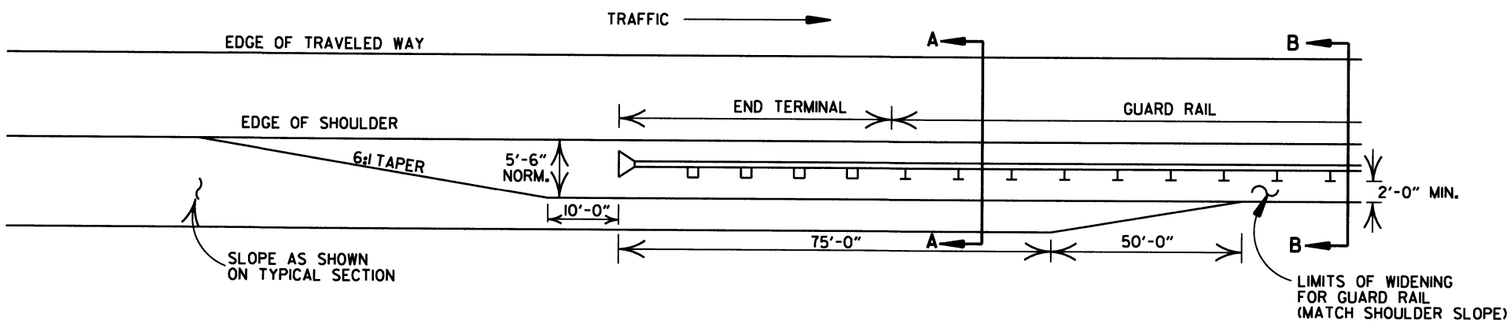
METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

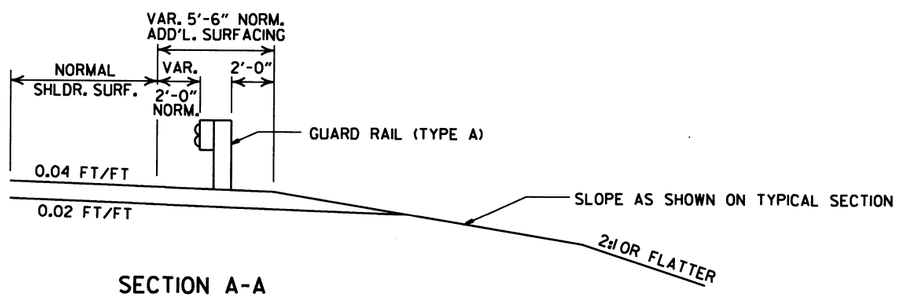
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

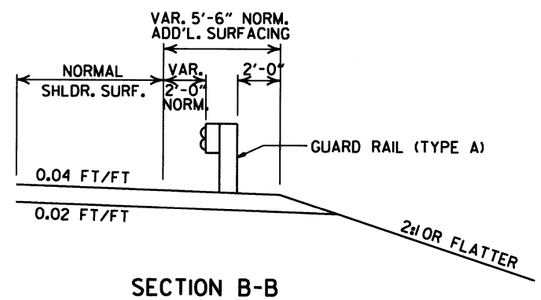
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





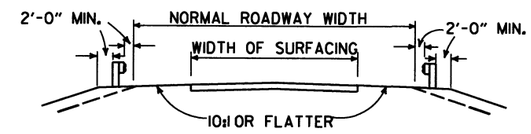
SECTION A-A



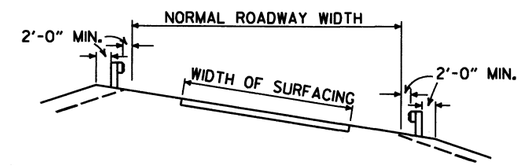
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

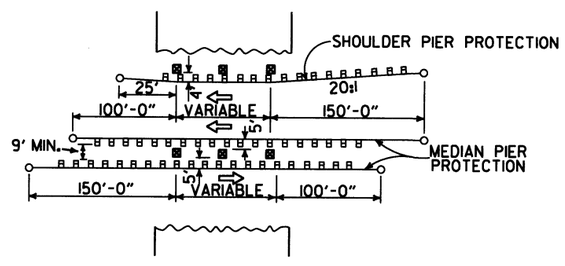


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



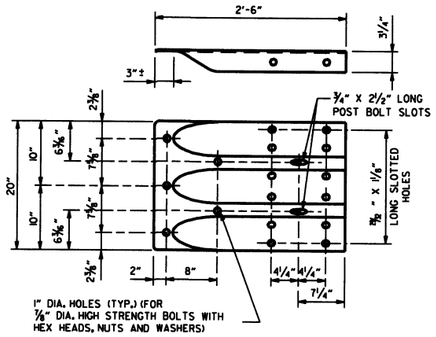
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

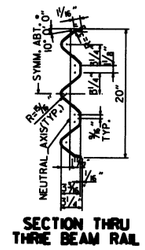
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

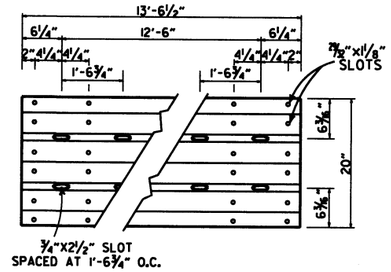
STANDARD DRAWING GR-9A



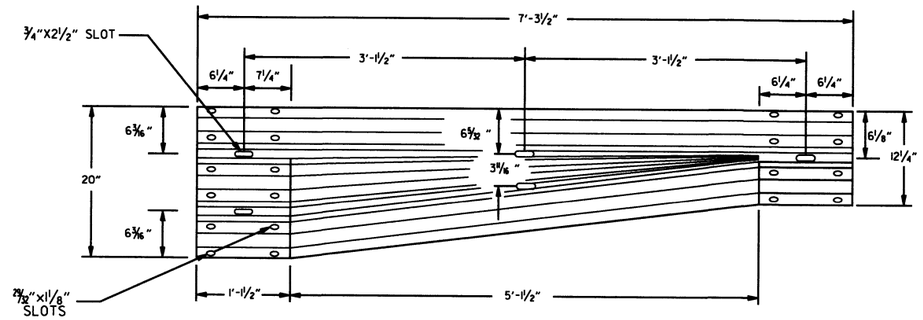
SPECIAL END SHOE



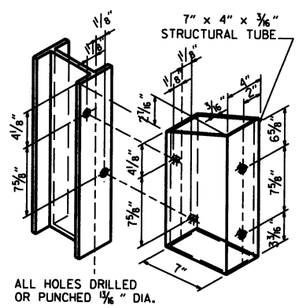
SECTION THRU THRIE BEAM RAIL



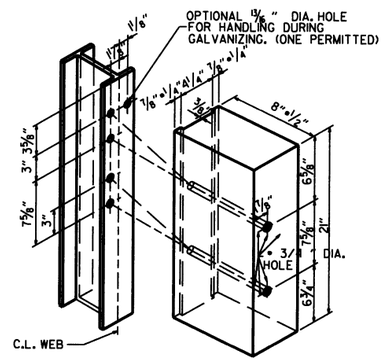
THRIE BEAM RAIL



TRANSITION SECTION



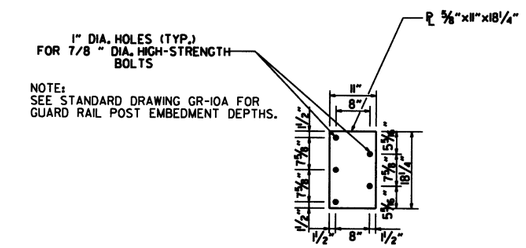
STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



ALL HOLES 15/16" DIAMETER EXCEPT AS NOTED

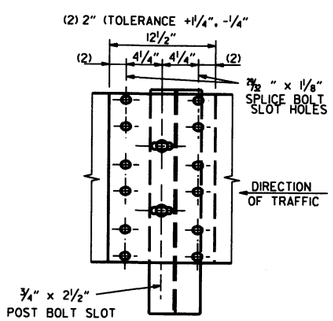
HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



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 7/8" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



THRIE BEAM RAIL SPLICE AT POST

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE I.

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

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3±4" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-13.

REFER TO STD. DRWG. GR-11 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.

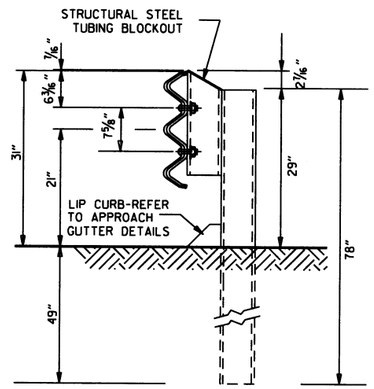
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-16-17	REVISED TRANSITION SECTION, GUARD RAIL HEIGHT, AND GENERAL NOTES; MOVED THRIE BEAM GUARD RAIL CONNECTIONS AT BRIDGES ENDS TO STD. DRWG. GR-12	
07-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-18-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED NOTE (2)	
06-29-00	MOVED DIMENSION LINES	
05-18-00	ADDED NOTE	
03-30-00	DRAWN & ISSUED	

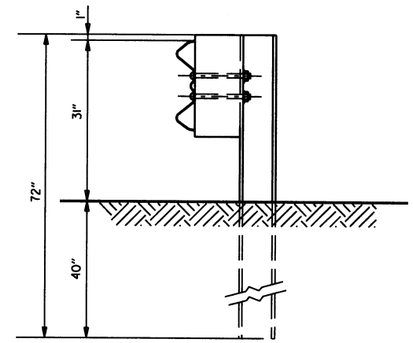
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

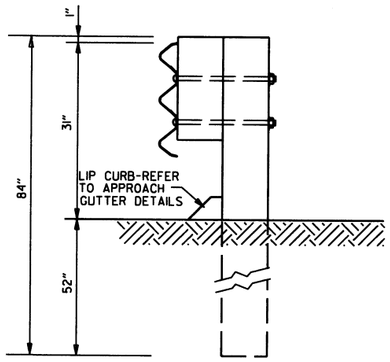
STANDARD DRAWING GR-10



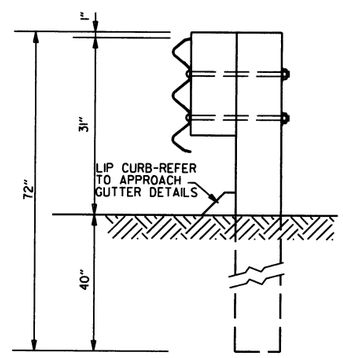
THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7



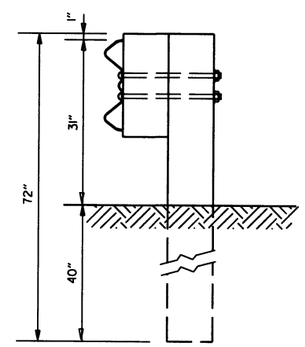
W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8



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.

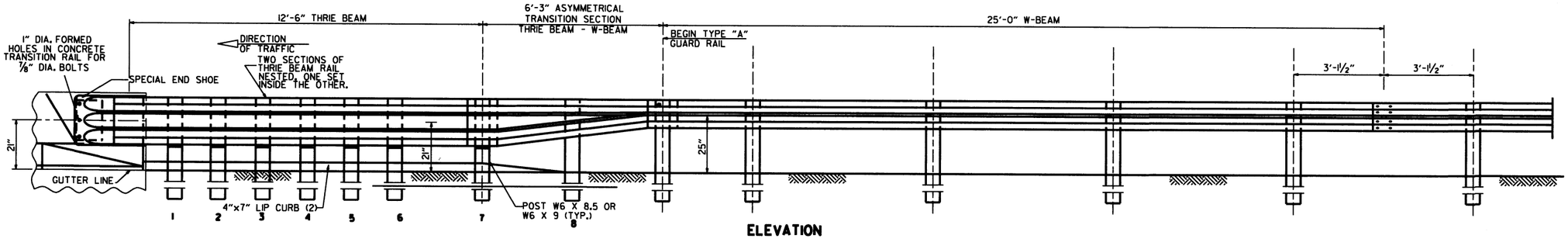
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-16-17	REVISED GUARD RAIL HEIGHT, CHANGED STD. DWG. NUMBER FROM GR-10A TO GR-11	
07-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
08-22-02	REVISED LIP CURB NOTE	
03-30-00	DRAWN & ISSUED	

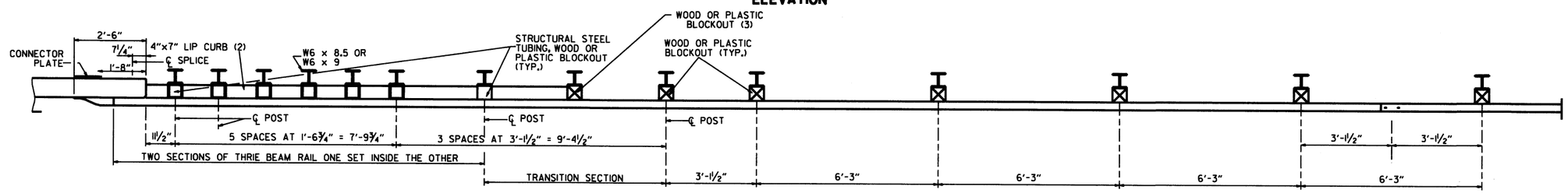
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

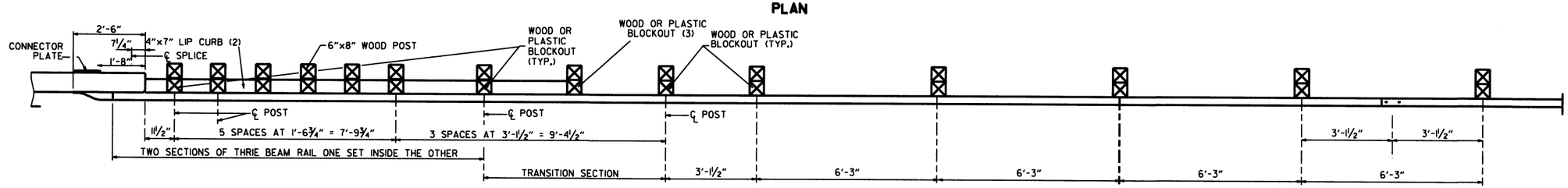
STANDARD DRAWING GR-11



ELEVATION



PLAN



PLAN

(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM 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 3"4" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-13.

REFER TO STD. DRWG. GR-11 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.

POSTS SHALL BE PLACED AT THE MID-SPAN OF THE W-BEAM.

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

DATE	REVISION	FILMED
11-16-17	RE-DRAWN FROM STD. DWG. GR-10 & ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-12

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	31 5/16	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)(i).

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.

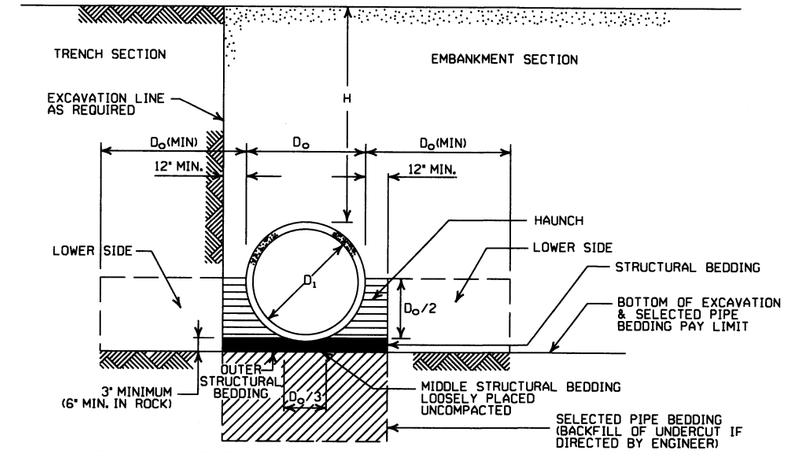
- LEGEND -

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.

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

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

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

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

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

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

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS 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."

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
		2⅔ 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: MIN. THICKNESS REQUIRED INCHES	STEEL: ① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	STEEL: MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	ALUMINUM: MIN. THICKNESS REQUIRED INCHES	ALUMINUM: ① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	ALUMINUM: MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1
			2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM		
15	17x13	3	0.064	2	15	0.060	2	15
18	21x15	3	0.064	2	15	0.060	2	15
21	24x18	3	0.064	2.25	15	0.060	2.25	15
24	28x20	3	0.064	2.5	15	0.075	2.5	15
30	35x24	3	0.079	3	12	0.075	3	12
36	42x29	3½	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					
				INSTALLATION TYPE 2	INSTALLATION TYPE 1		INSTALLATION TYPE 2	INSTALLATION TYPE 1
36	40x31	5	0.079	3	2		12	15
42	46x36	6	0.079	3	2		13	15
48	53x41	7	0.079	3	2		13	15
54	60x46	8	0.079	3	2		13	15
60	66x51	9	0.079	3	2		13	15
66	73x55	12	0.079	3	2		15	15
72	81x59	14	0.079	3	2		15	15
78	87x63	14	0.079	3	2		15	15
84	95x67	16	0.109	3	2		15	15
90	103x71	16	0.109	3	2		15	15
96	112x75	18	0.109	3	2		15	15
102	117x79	18	0.109	3	2		15	15
108	128x83	18	0.138	3	2		15	15

CONSTRUCTION SEQUENCE

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

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

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

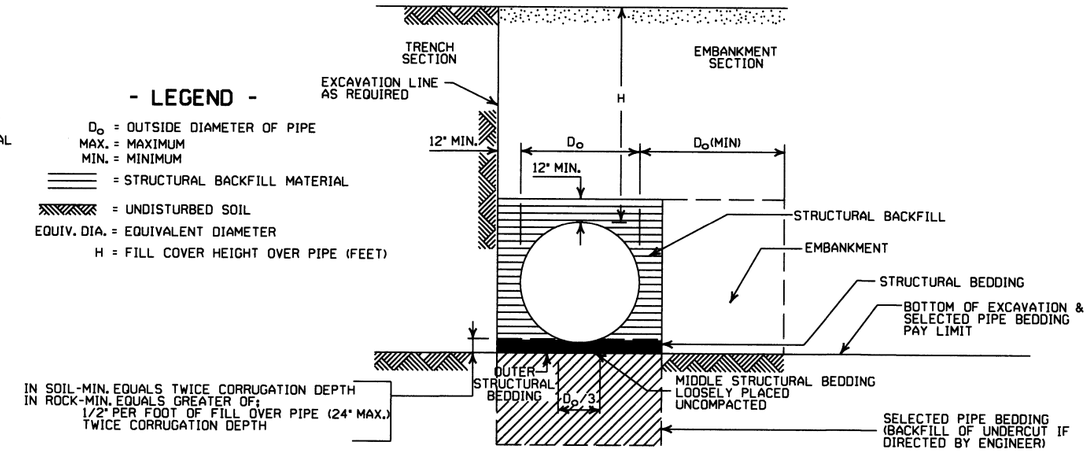
③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES: STEEL: ZINC COATED	STEEL: UNCOATED	ALUMINUM	GAUGE NUMBER
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.

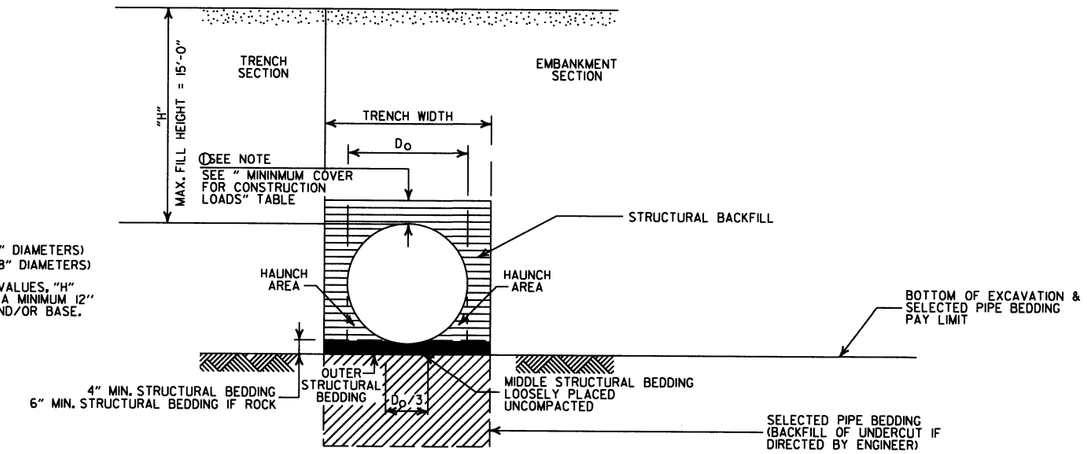
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

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.)
Do = 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

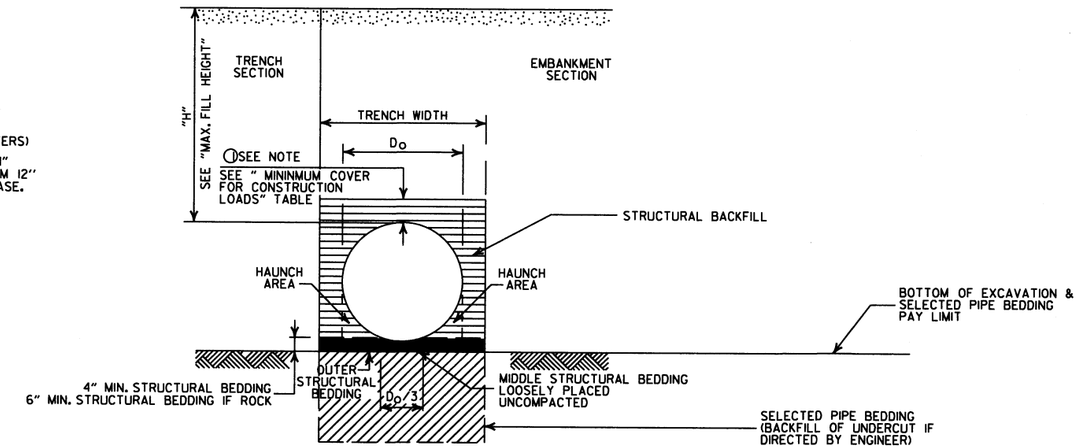
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

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

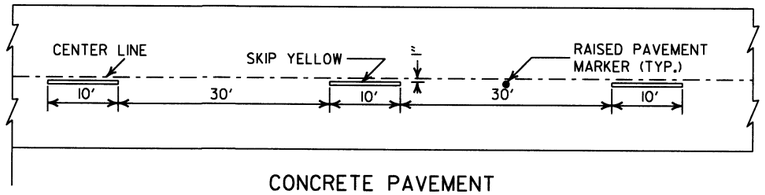
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

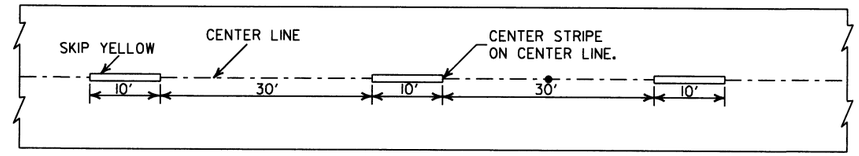
PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

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

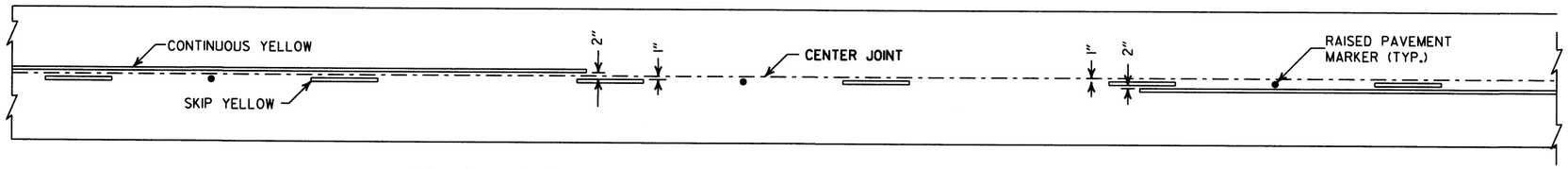


CONCRETE PAVEMENT

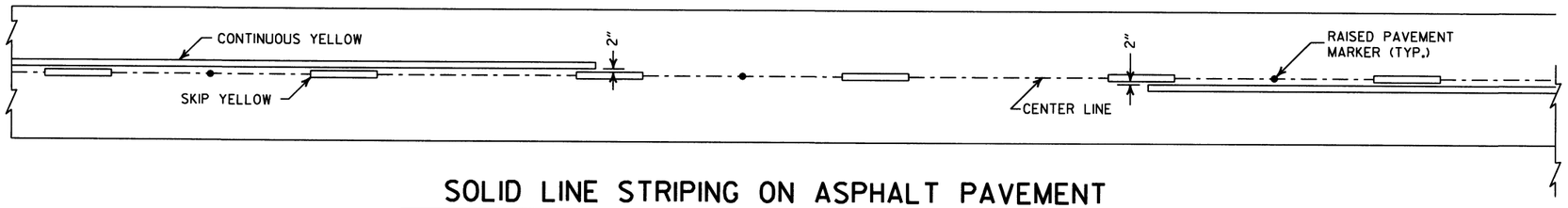


ASPHALT PAVEMENT

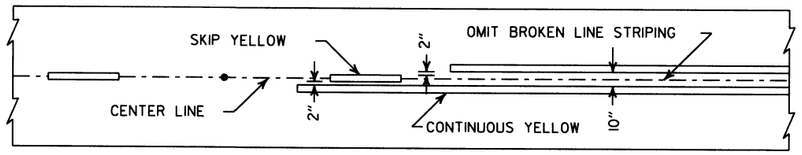
BROKEN LINE STRIPING



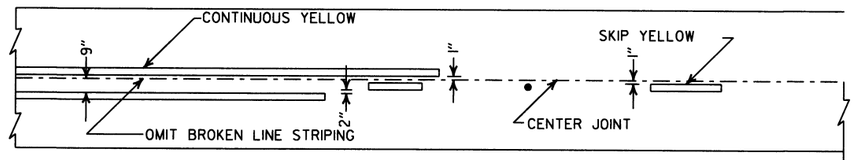
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

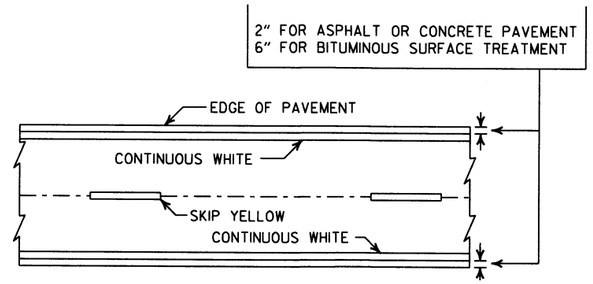


ASPHALT PAVEMENT



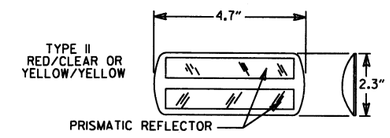
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES



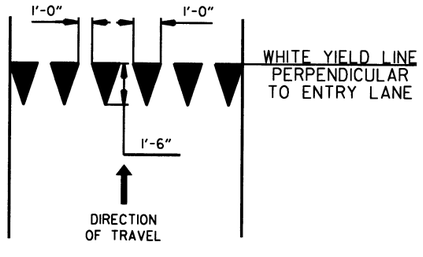
PAVEMENT EDGE LINE MARKING

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

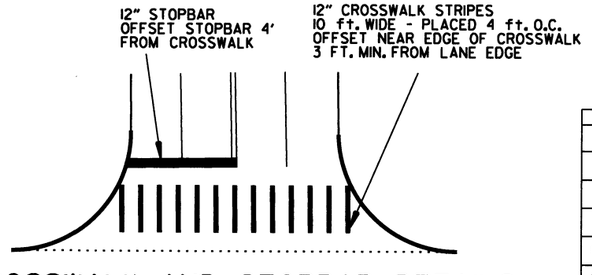


NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS



YIELD LINE DETAIL



CROSSWALK AND STOPBAR DETAILS

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

ARKANSAS STATE HIGHWAY COMMISSION

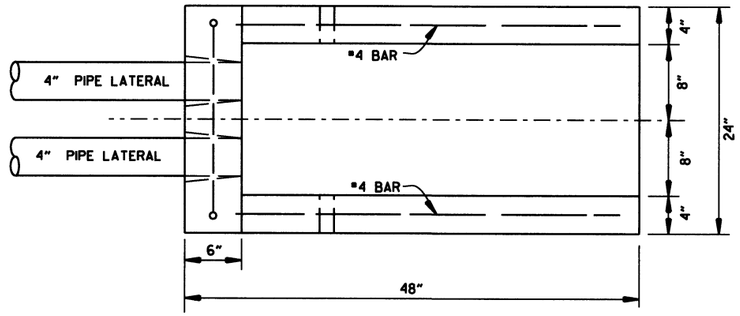
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

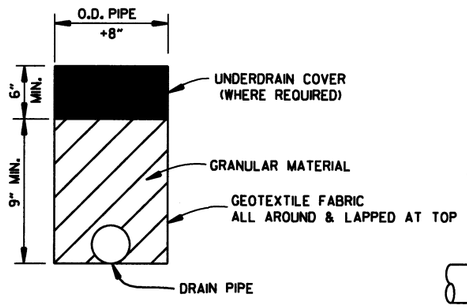
NOTE:

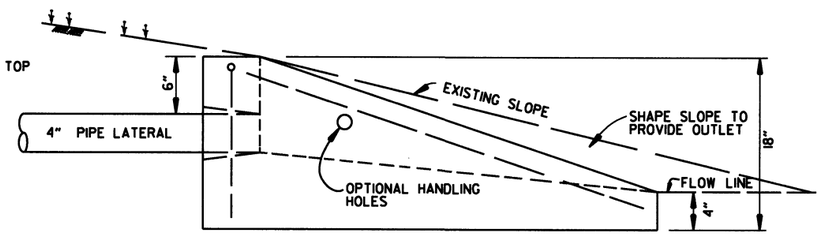
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.

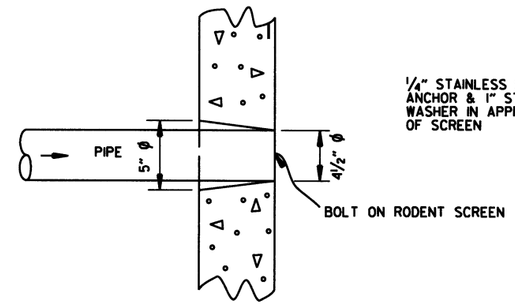


PLAN VIEW

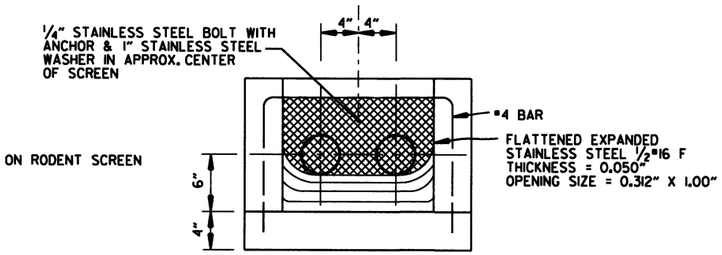




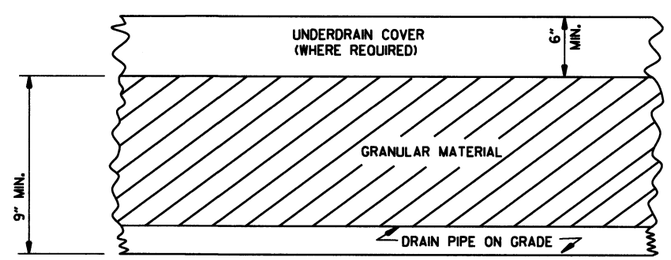
SIDE VIEW



DETAIL OF HOLE
FOR 4" PIPE

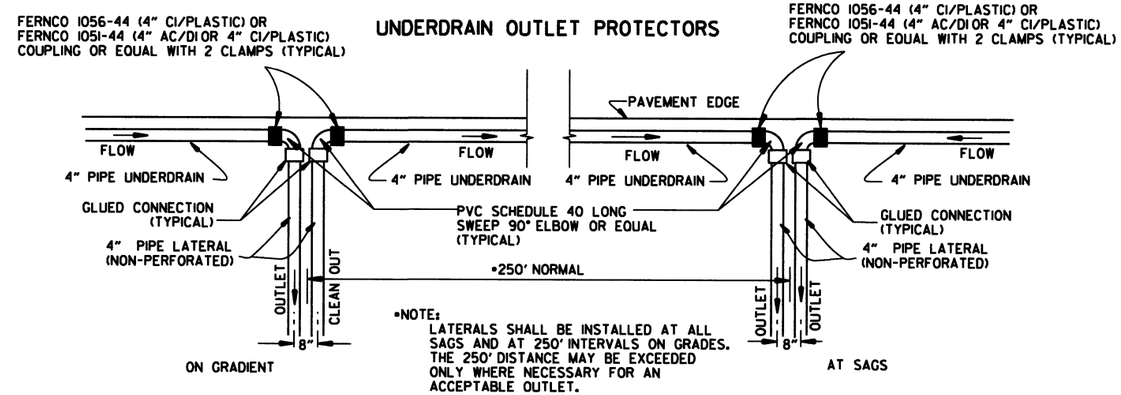


FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



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

DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."

4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."

6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE: 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

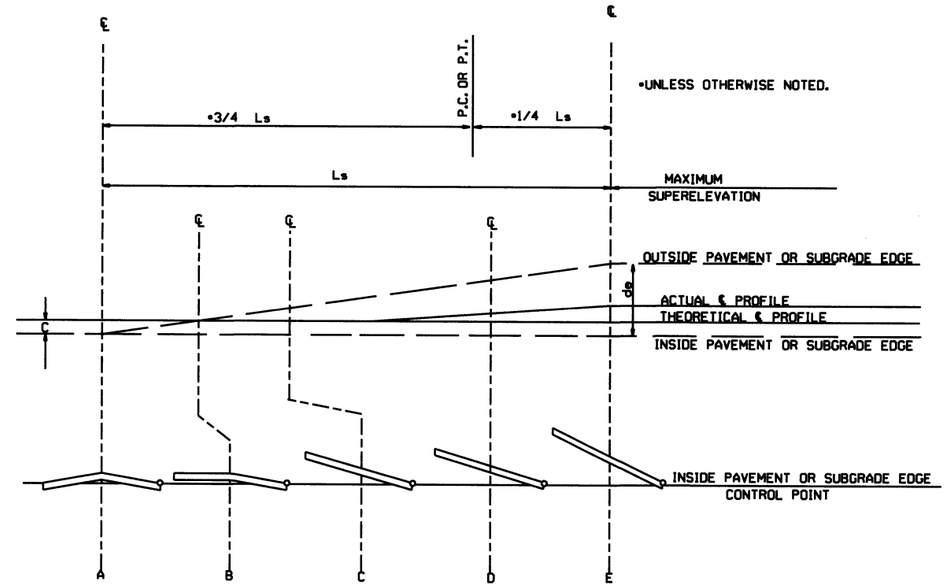
STANDARD DRAWING PU-1

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.*	150	200	N.C.*	175	200	N.C.*	200	250	N.C.*	225	300	N.C.*	250	300	N.C.*	275	300
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		
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			0.040			0.048			0.055			0.070		
2° 15'	R.C.*			0.031			0.045			0.053			0.061			0.078	300	350
2° 30'	0.021			0.034			0.049			0.058			0.067			0.085	315	
2° 45'	0.023			0.037			0.053			0.063			0.072			0.091	335	
3° 00'	0.025			0.040			0.057			0.067	230		0.077	260		0.096	350	400
3° 15'	0.027			0.043			0.061			0.072	245		0.082	275		0.098	360	
3° 30'	0.029			0.046			0.065	205		0.076	255		0.086	285		0.100	360	
3° 45'	0.031			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	300	0.096	305							
6° 30'	0.050			0.074	200		0.095	280		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	240													
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																
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.)



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

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

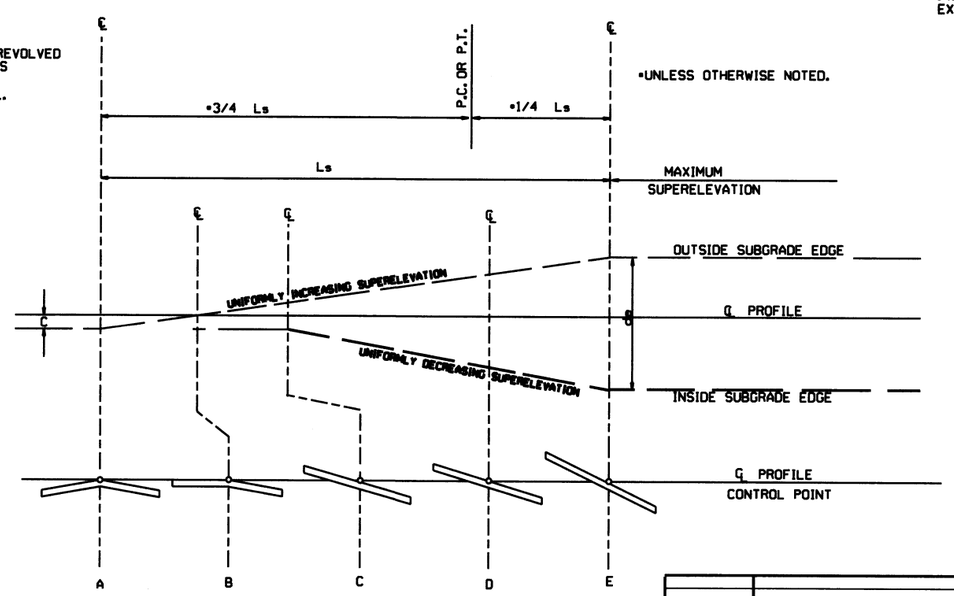
GENERAL NOTES

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

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

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

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

DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

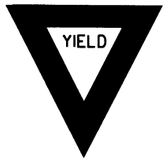
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

R1-1

STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

W3-5

STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

W3-5a

STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

R4-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

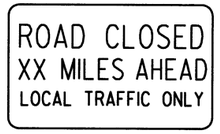
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2

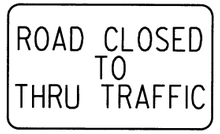
48"X30"

R11-3A



60"X30"

R11-4



60"X30"

W21-5a

STD. 36"X36"
FWY. 48"X48"

W1-1

STD. 36"X36"
FWY. 48"X48"

W1-2

STD. 36"X36"
FWY. 48"X48"

W1-3

STD. 48"X48"

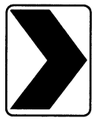
W1-4

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"

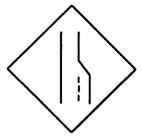
W3-1

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"

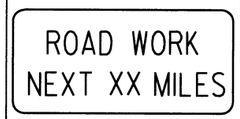
W8-11

STD. 36"X36"
FWY. 48"X48"

W8-9

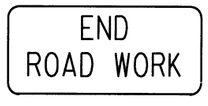
STD. 36"X36"
FWY. 48"X48"

G20-1



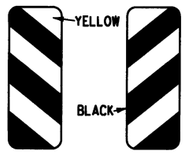
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

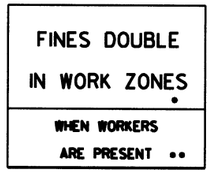
M4-9

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.

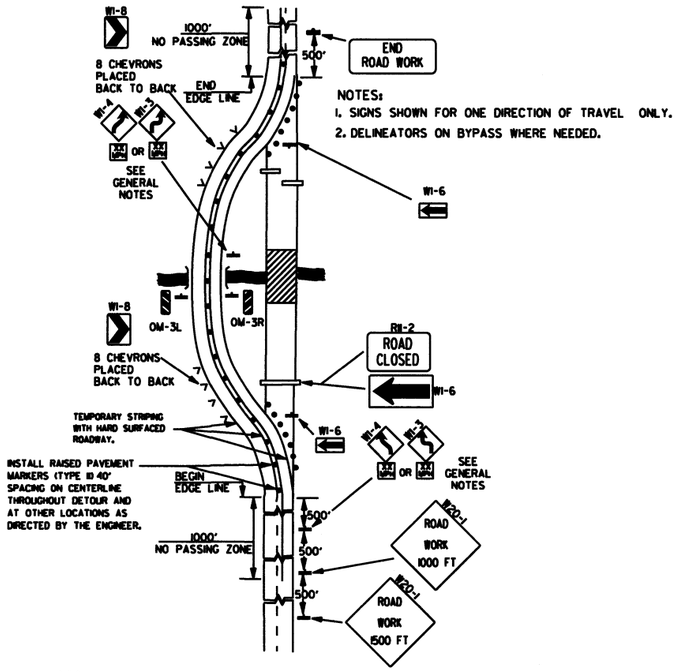
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
4-13-17	DELETED RSP-1 & ADDED W21-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
1-18-98	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

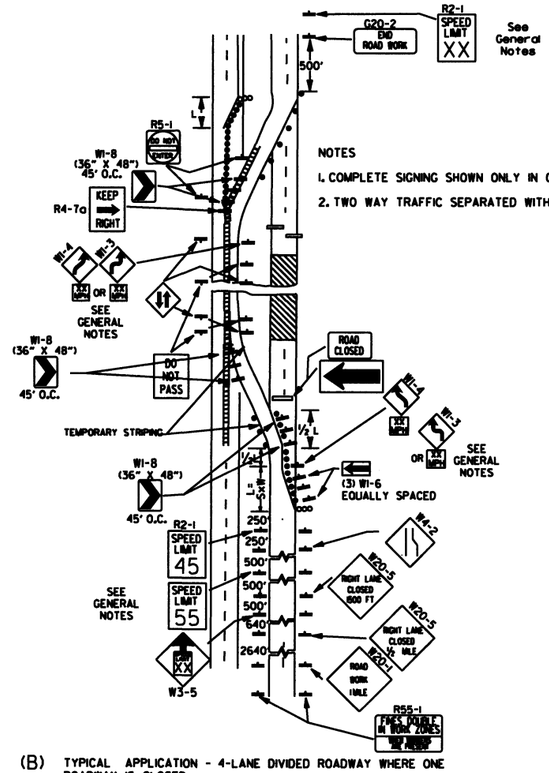
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



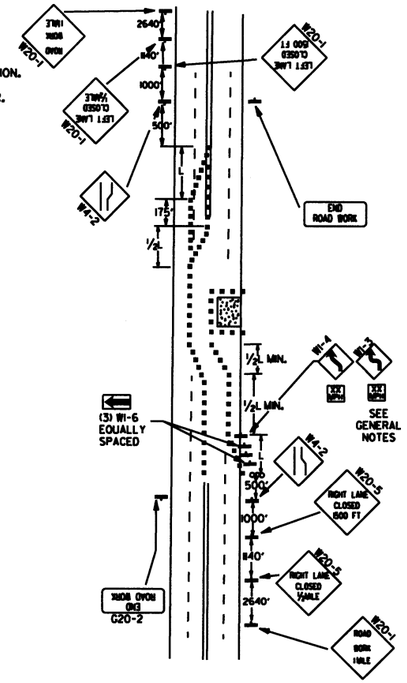
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

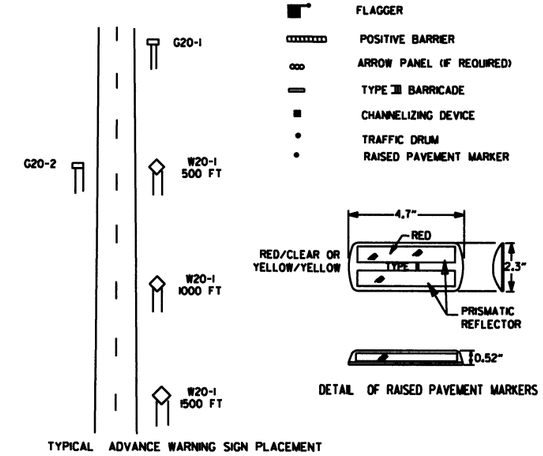


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(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:

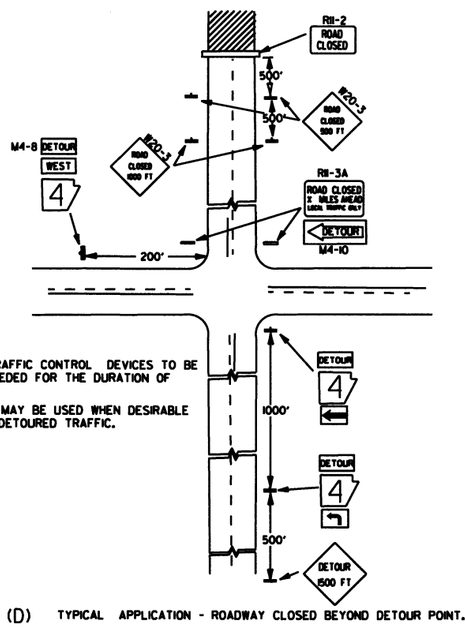
L= MINIMUM LENGTH OF TAPER.

S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.

W= WIDTH OF OFFSET.

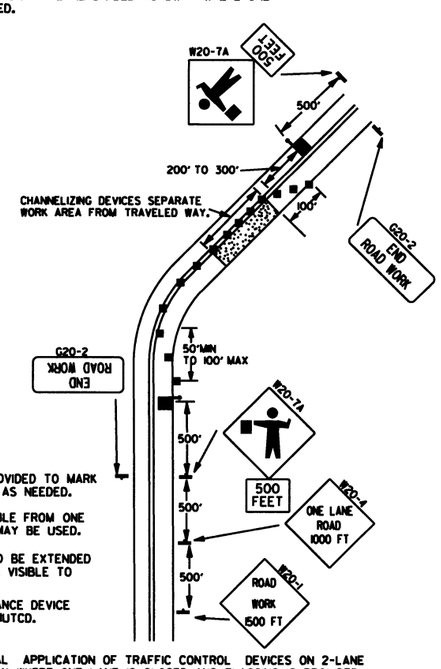
GENERAL NOTES:

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.



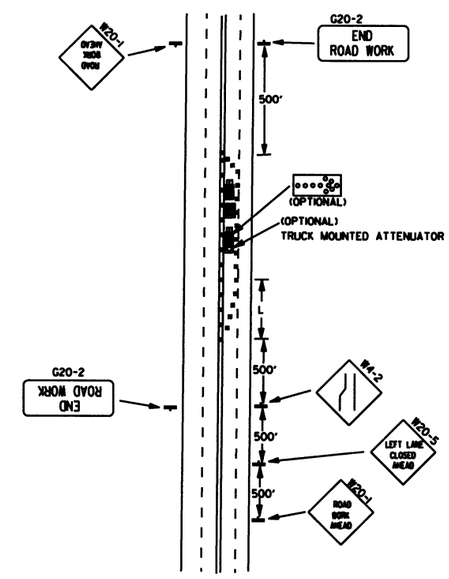
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.



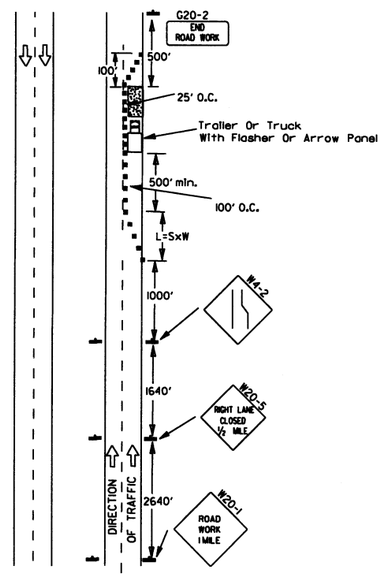
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

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	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

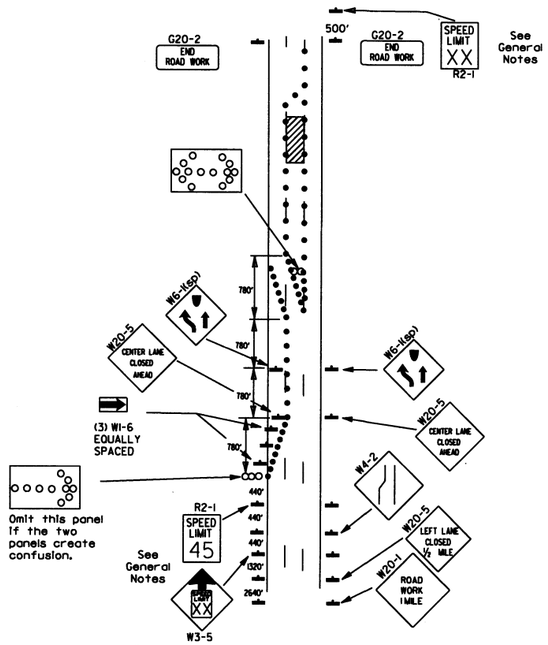
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



(B) Typical application - 3-lane oneway roadway where center lane is closed.

KEY:

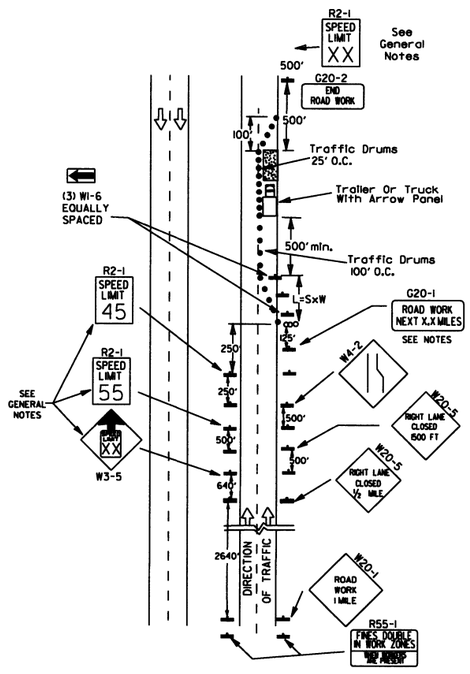
ooo Arrow Panel (if Required)

■ Channelizing Device

● Traffic drum

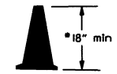
GENERAL NOTES:

1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 1,25' 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.



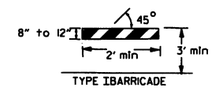
(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

Channelizing devices



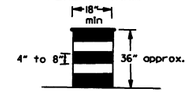
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

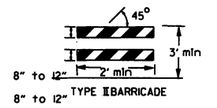
CONES



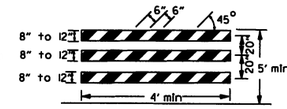
TYPE I BARRICADE

PLASTIC DRUM



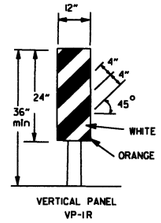


TYPE II BARRICADE



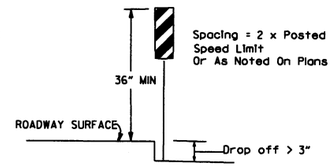
TYPE III BARRICADE

NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

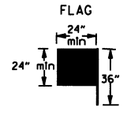


VERTICAL PANEL
VP-1R

VERTICAL PANEL PLACEMENT



FLAG



Flag shall be of good grade red material

TRAFFIC CONTROL DEVICES

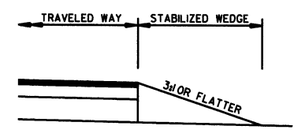
NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING	W8-11 AND LANE STRIPING
> 2"	CENTERLINE	STANDARD LANE CLOSURE	STANDARD LANE CLOSURE
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS
> 6" ≤ 12"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 12" ≤ 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	PRECAST CONCRETE BARRIER(3) & EDGE LINES
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER(3) & EDGE LINES	PRECAST CONCRETE BARRIER(3) & EDGE LINES

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

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

GENERAL NOTES:

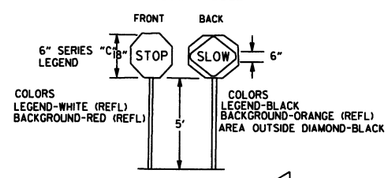
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
3. A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL, IF AND WHERE DIRECTED BY THE ENGINEER.
4. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.



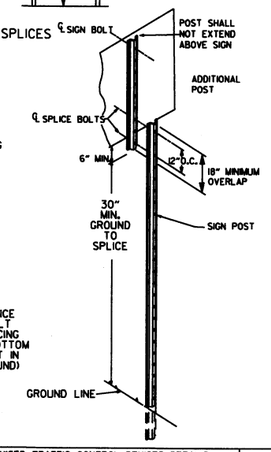
STABILIZED WEDGE

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

STOP SLOW PADDLE



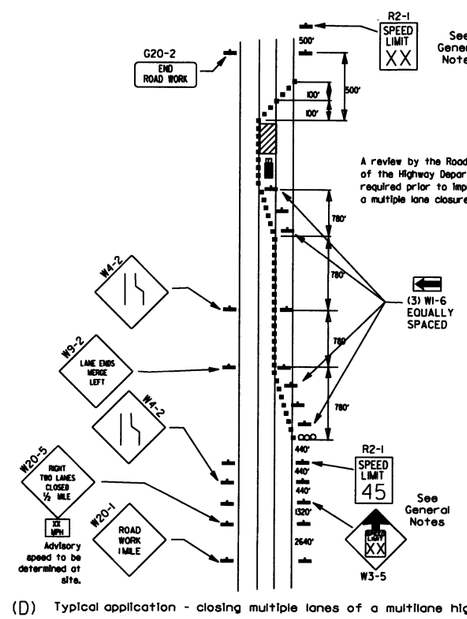
DETAIL OF SPLICES



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.



(D) Typical application - closing multiple lanes of a multilane highway.

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

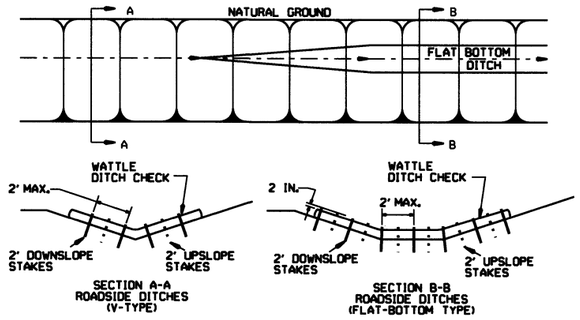
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

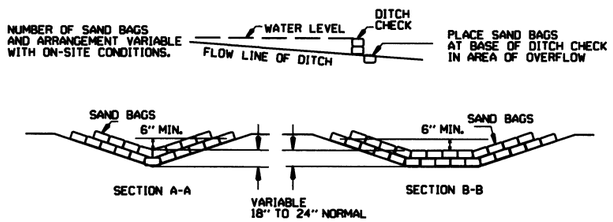
STANDARD DRAWING TC-3

GENERAL NOTES

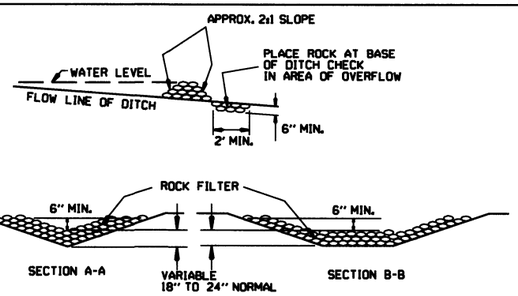
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

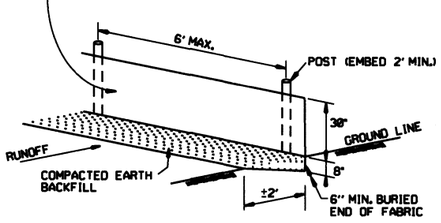


ROCK DITCH CHECK (E-6)

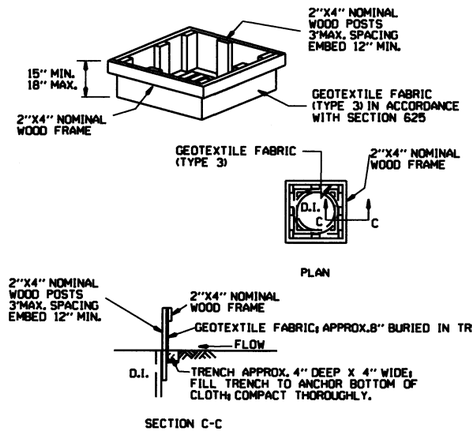
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

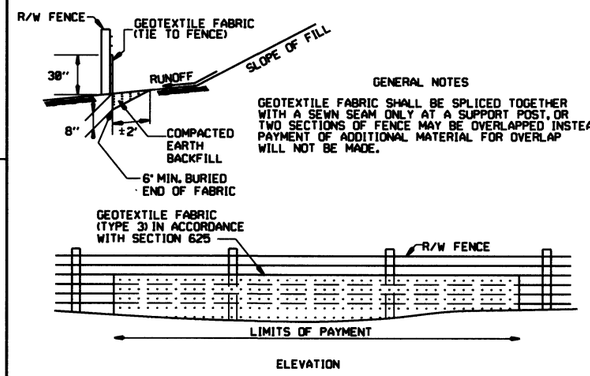
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)



DROP INLET SILT FENCE (E-7)



GENERAL NOTES

GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

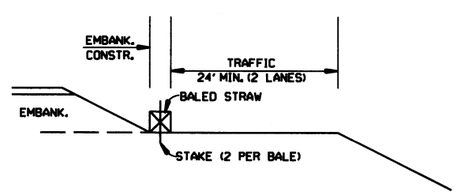
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

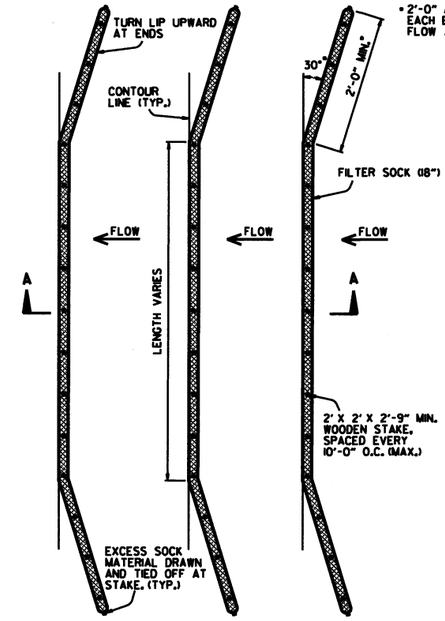
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.

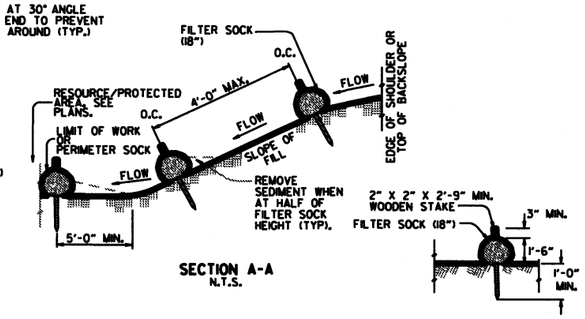


BALED STRAW FILTER BARRIER (E-2)



PLAN VIEW
N.T.S.

*2'-0" AT 30° ANGLE EACH END TO PREVENT FLOW AROUND (TYP.)



SECTION A-A
N.T.S.

STAKING DETAIL
N.T.S.

NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.

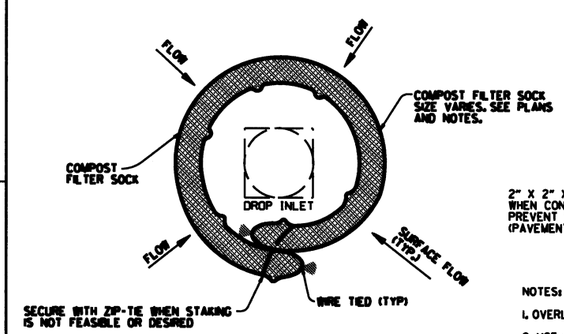
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBSIDIARY TO "FILTER SOCK (18")."

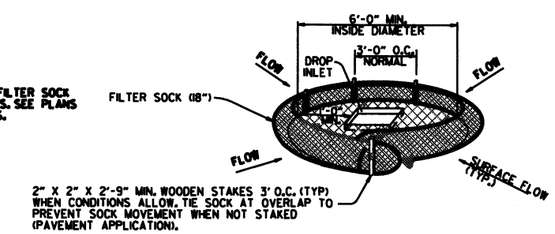
4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.

FILTER SOCK ALONG SLOPE (E-3)



DROP INLET PLAN VIEW
N.T.S.



DROP INLET PERSPECTIVE VIEW
N.T.S.

NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).

2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

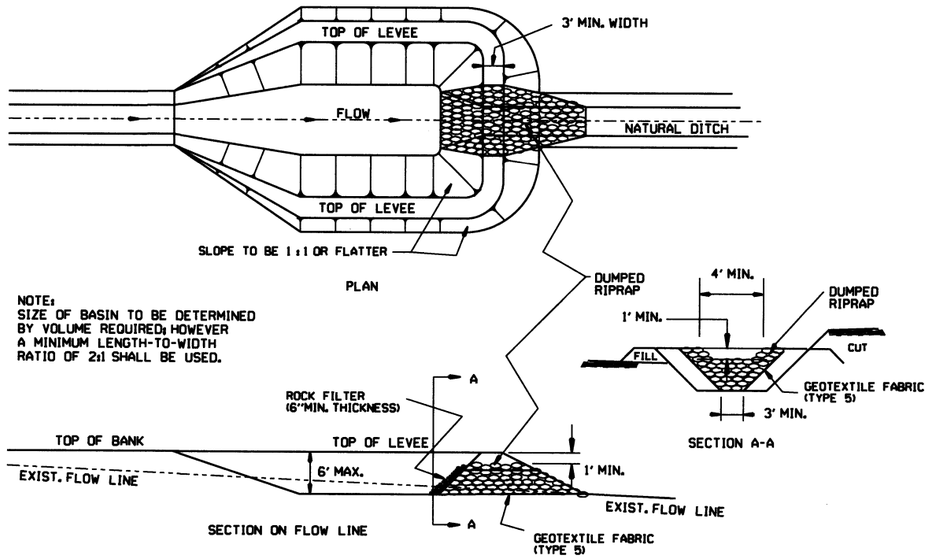
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

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

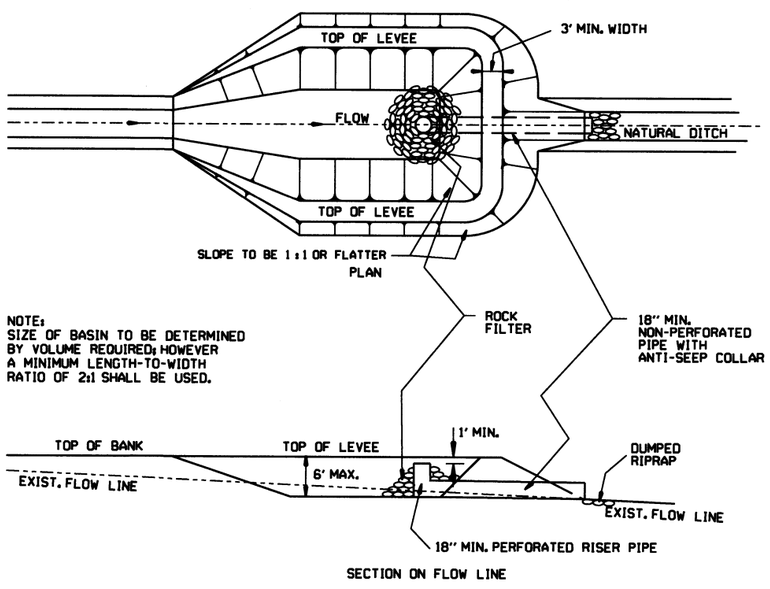
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

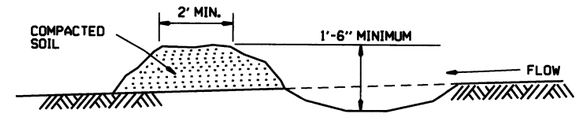
STANDARD DRAWING TEC-1



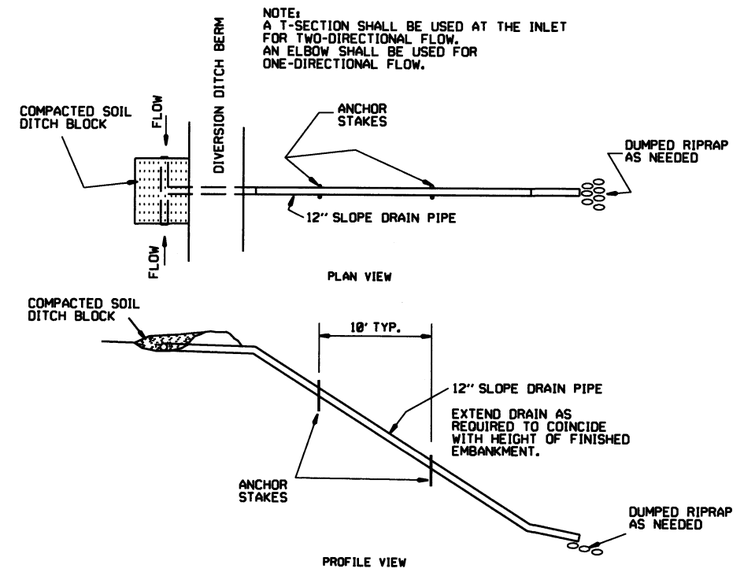
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



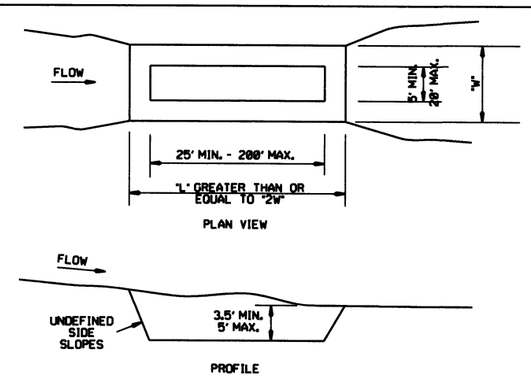
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

DATE	REVISION	FILMED
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13	
4-1-93	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

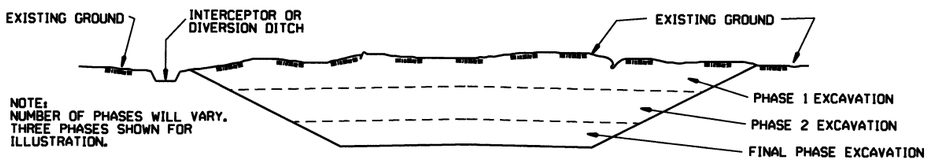
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



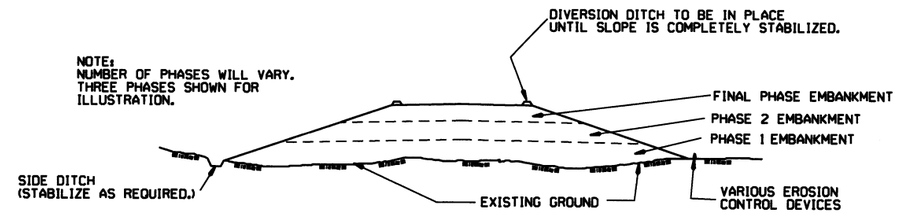
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3