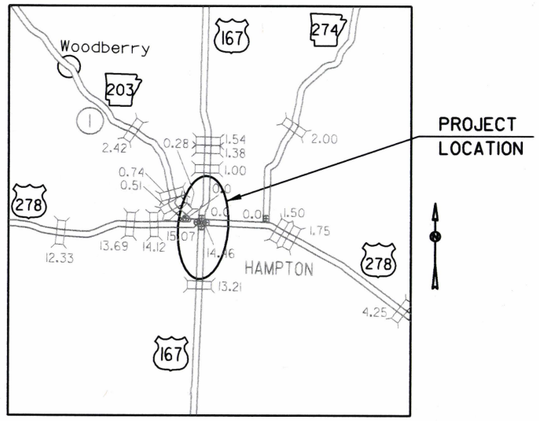
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	1	138
				(2) HWY. 167 IMPROVEMENTS (HAMPTON) (S)				



VICINITY MAP

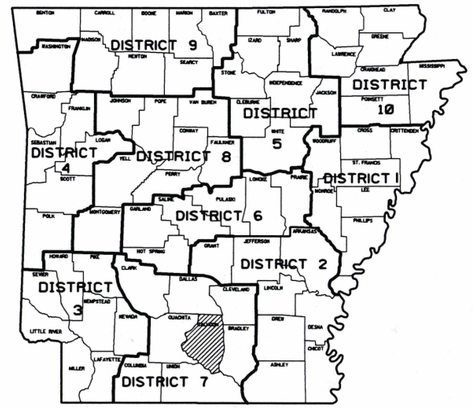
ARKANSAS DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLANS FOR STATE HIGHWAY

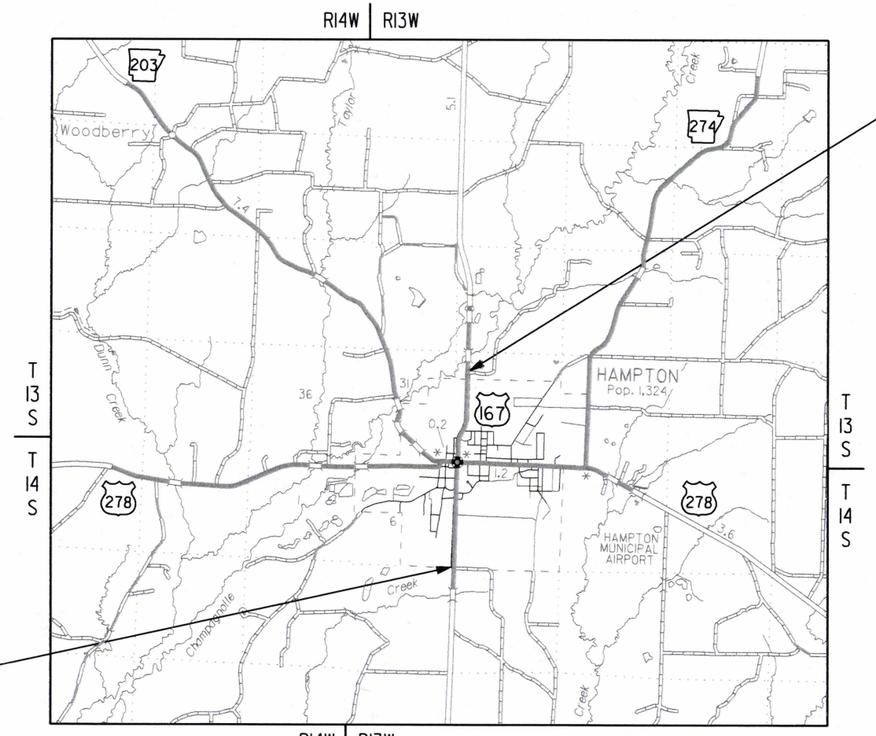
HWY. 167 IMPROVEMENTS (HAMPTON) (S)

CALHOUN COUNTY
ROUTE 167 SECTION 3 & 4
FED. AID PROJ. 9991

JOB CA0701



ARK. HWY. DIST. NO. 7



STA. 196+00.00 ℄ CONST. HWY. 167
END JOB CA0701
BEGIN JOB CA0702
LOG MILE 0.77

STA. 102+61.13 ℄ CONST. HWY. 167
BEGIN JOB CA0701
END JOB 070284
LOG MILE 13.47

N

AR

DESIGN TRAFFIC DATA - HWY. 167

DESIGN YEAR	2039
2019 ADT	3,400
2039 ADT	4,500
2039 DHV	500
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	16%
DESIGN SPEED	45 MPH

NOT TO SCALE

LENGTH COMPUTED ALONG ℄ CONST. HWY. 167

GROSS LENGTH OF PROJECT	9,338.87	FEET OR	1.769	MILES
NET LENGTH OF ROADWAY	9,338.87	FEET OR	1.769	MILES
NET LENGTH OF BRIDGES	0.00	FEET OR	0.00	MILES
NET LENGTH OF PROJECT	9,338.87	FEET OR	1.769	MILES

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 33°31′25"	N 33°32′11"	N 33°32′56"
LONGITUDE	W 92°28′13"	W 92°28′10"	W 92°28′06"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY E. KING
6/13/19

P.E. JOB 070373

7/30/2016

CA0701

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
8/7/19			
12/20/19			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0701	2	138

(2) INDEX OF SHEETS AND STANDARD DRAWINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING

Stanley G. King
1-8-20

INDEX OF SHEETS

SHEET NO.			TITLE
		1	TITLE SHEET
		2	INDEX OF SHEETS AND STANDARD DRAWINGS
		3	GOVERNING SPECIFICATIONS AND GENERAL NOTES
4	-	9	TYPICAL SECTIONS OF IMPROVEMENT
10	-	12A	SPECIAL DETAILS
13	-	20	TEMPORARY EROSION CONTROL DETAILS
21	-	36	MAINTENANCE OF TRAFFIC DETAILS
37	-	38	PERMANENT PAVEMENT MARKING DETAILS
		39	SOIL LOG
40	-	47	QUANTITIES
		48	SUMMARY OF QUANTITIES AND REVISIONS
49	-	51	SURVEY CONTROL DETAILS
52	-	67	PLAN AND PROFILE SHEETS
		68	TRAFFIC SIGNAL NOTES
		69	SUMMARY OF TRAFFIC SIGNAL QUANTITIES
		70	RAMP DETAILS
71	-	73	SIGNALIZATION PLAN SHEETS
74	-	138	CROSS SECTIONS

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

ROADWAY STANDARD DRAWINGS

DRWG. NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
CG-1	CURBING DETAILS	11-29-07
DR-1	DETAILS OF DRIVEWAYS & ISLANDS	11-07-19
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
FPC-9	DETAILS OF DROP INLETS & JUNCTION BOXES	11-16-01
FPC-9D	DETAILS OF DROP INLETS	08-22-02
FPC-9E	DETAILS OF DROP INLETS (TYPE C)	08-22-02
FPC-9M	DETAILS OF DROP INLET (TYPE MO)	08-22-02
FPC-9S	DETAILS OF DROP INLET & JUNCTION BOX (TYPE ST)	07-26-12
MB-1	MAILBOX DETAILS	11-18-04
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PM-1	PAVEMENT MARKING DETAILS	06-01-17
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	07-26-12
RCB-2	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
RCB-3	METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS	10-12-95
SD-4	LOOP DETECTOR INSTALLATION	11-07-19
SD-5	CONTROLLER CABINET UTILITY DRAWER	09-12-13
SD-6	HEAVY DUTY PULL BOX	11-16-17
SD-8	SIGNAL HEAD PLACEMENT	12-08-16
SD-9	SERVICE POINT	11-07-19
SD-11	STEEL POLE WITH MAST ARM	11-16-17
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-19
SI-1	DETAILS OF SPECIAL ITEMS	10-25-18
SI-2	REINFORCED CONCRETE RETAINING WALL (WITHOUT LIVE LOAD SURCHARGE)	05-12-16
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
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
WF-4	WIRE FENCE TYPE C AND D	08-22-02
WR-1	WHEELCHAIR RAMPS NEW CONSTRUCTION AND ALTERATIONS	11-10-05
W-X003-1	DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS	05-10-66
R-100X-0	DETAILS OF STANDARD BARREL SECTIONS FOR REINFORCED CONCRETE BOX CULVERTS	02-08-63

5/16/2017

CA0701

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/7/19		1/22/20		6	ARK.			
10/4/19				JOB NO.		CA0701	3	138
12/20/19								

(2) GOVERNING SPECIFICATIONS AND GENERAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY D. KING

Stanley King
1-22-20

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 - TRAINING PROGRAM - JOB CA0701
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
505-1_____	PORTLAND CEMENT CONCRETE DRIVEWAY
600-2_____	INCIDENTAL CONSTRUCTION
603-1_____	LANE CLOSURE NOTIFICATION
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
605-1_____	CONCRETE DITCH PAVING
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
620-1_____	MULCH COVER
621-1_____	FILTER SOCKS
633-1_____	CONCRETE WALKS, CONCRETE STEPS, AND HAND RAILING
634-1_____	CURBING
700-2_____	TRAFFIC CONTROLFACILITIES
800-1_____	STRUCTURES
802-3_____	CONCRETE FOR STRUCTURES
804-2_____	REINFORCING STEEL FOR STRUCTURES
JOB CA0701___	ACTUATED CONTROLLER
JOB CA0701___	BIDDING REQUIREMENTS AND CONDITIONS
JOB CA0701___	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB CA0701___	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB CA0701___	CABINET DRAWER ASSEMBLY
JOB CA0701___	CARGO PREFERENCE ACT REQUIREMENTS
JOB CA0701___	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB CA0701___	CONSTRUCTION PROJECT INFORMATION SIGN
JOB CA0701___	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB CA0701___	EDGE CARD VIDEO PROCESSOR
JOB CA0701___	ELECTRICAL CONDUCTORS FOR LUMINAIRES
JOB CA0701___	ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB CA0701___	ELECTRONIC DOCUMENT MANAGEMENT - CONNECTING ARKANSAS PROGRAM
JOB CA0701___	EMBANKMENT CONSTRUCTION
JOB CA0701___	EMPLOYMENT REPORTING
JOB CA0701___	ESTABLISHING CONTRACT TIME
JOB CA0701___	FLEXIBLE BEGINNING OF WORK - CALENDAR DAY CONTRACT
JOB CA0701___	GOALS FOR ARKANSAS OWNED MINORITY BUSINESS ENTERPRISE
JOB CA0701___	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB CA0701___	JOINT TAPE
JOB CA0701___	LED COUNTDOWN PEDESTRIAN SIGNAL HEAD
JOB CA0701___	LED LUMINAIRE ASSEMBLY (BUG U0 TYPE)
JOB CA0701___	LED TRAFFIC SIGNAL HEAD
JOB CA0701___	MANDATORY ELECTRONIC CONTRACT
JOB CA0701___	NESTING SITES OF MIGRATORY BIRDS
JOB CA0701___	PARTNERING REQUIREMENTS
JOB CA0701___	PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)
JOB CA0701___	PLASTIC PIPE
JOB CA0701___	PROSECUTION AND PROGRESS WITH BID SCHEDULE
JOB CA0701___	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT
JOB CA0701___	RESTRICTIONS ON THE USE OF RECYCLED ASPHALT PAVEMENT MATERIAL
JOB CA0701___	RETROREFLECTIVE BACKPLATES
JOB CA0701___	SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)
JOB CA0701___	SHORING FOR CULVERTS
JOB CA0701___	SOIL STABILIZATION
JOB CA0701___	STORM WATER POLLUTION PREVENTION PLAN
JOB CA0701___	STREET NAME SIGN (MAST ARM MOUNTED)
JOB CA0701___	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB CA0701___	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
JOB CA0701___	UTILITY ADJUSTMENTS
JOB CA0701___	VALUE ENGINEERING
JOB CA0701___	VIDEO DETECTOR (COLOR)
JOB CA0701___	WARM MIX ASPHALT
JOB CA0701___	WELLHEAD PROTECTION

GENERAL NOTES

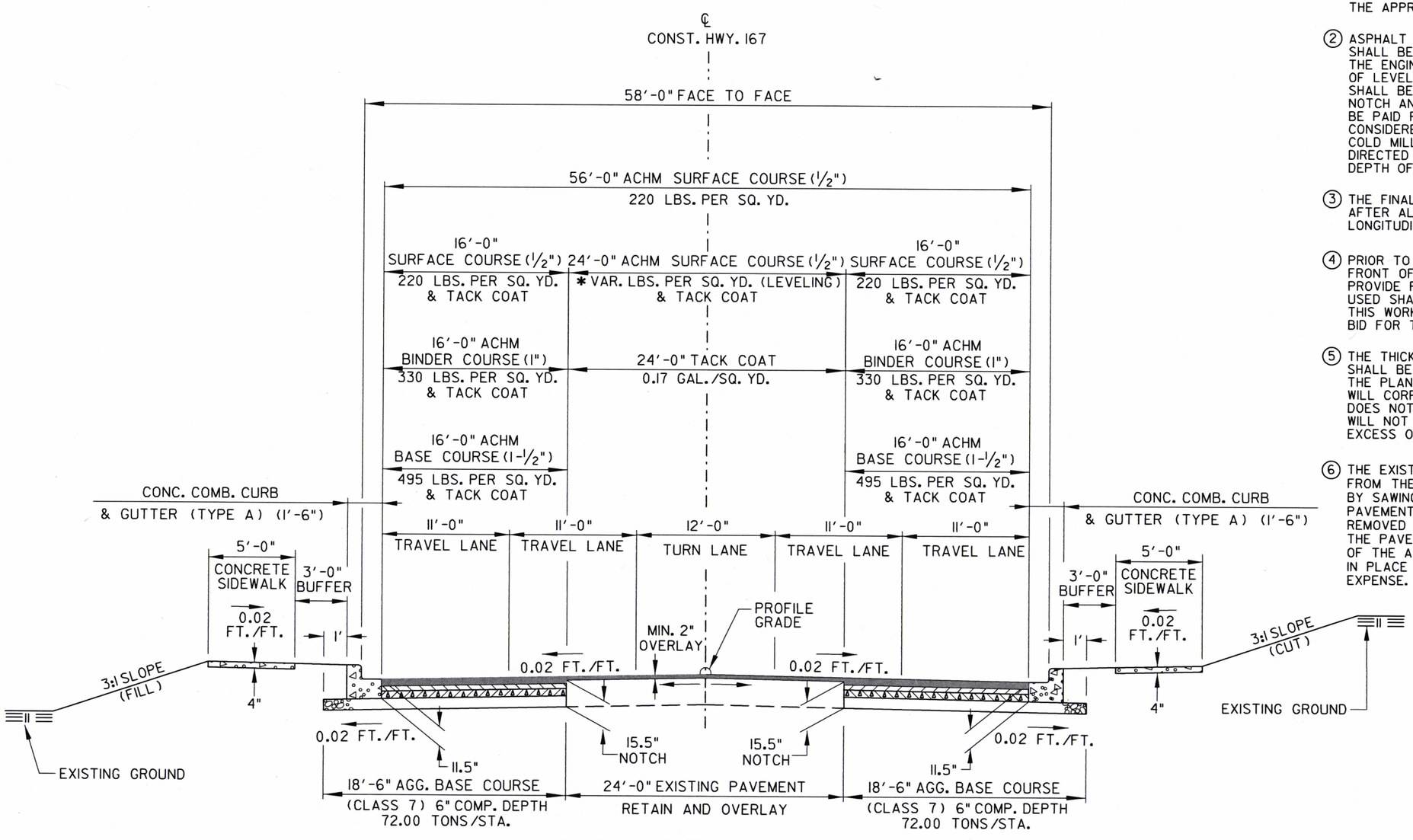
1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND OTHER UTILITY LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
8. THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.
9. 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.
10. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
11. 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.

5/15/2017

CA0701

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.		CA0701	4	138

(2) TYPICAL SECTIONS OF IMPROVEMENT



TYPICAL SECTION - TANGENT
HWY. 167

STA. 102+61.13 - STA. 128+72.00
STA. 184+25.00 - STA. 196+00.00

*TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

NOTES:

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

(2) ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED 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. COLD MILLING WILL BE REQUIRED IF AND WHERE DIRECTED BY THE ENGINEER TO ACHIEVE REQUIRED DEPTH OF FINAL SURFACE COURSE.

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

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

(5) 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.

(6) 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.

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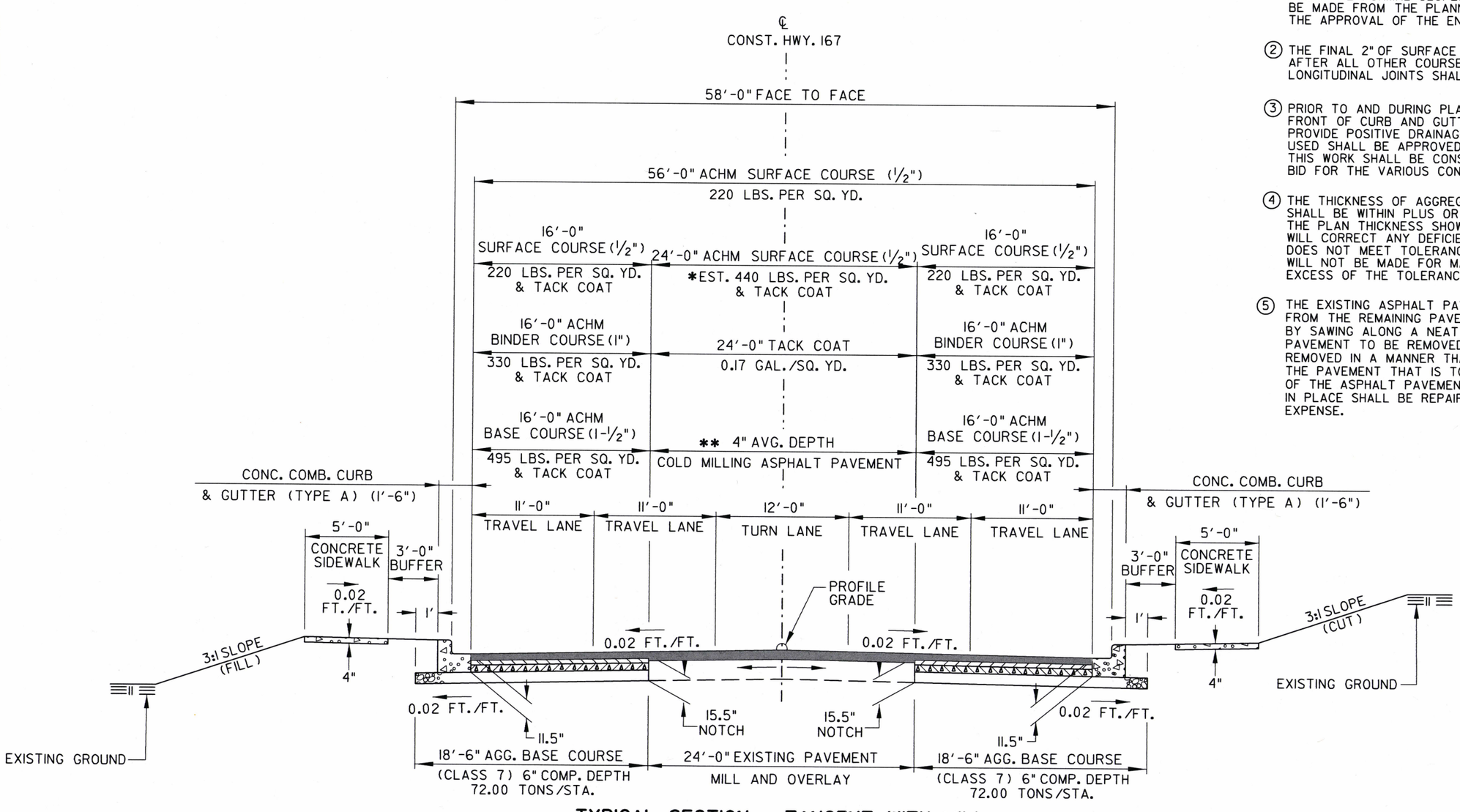
				JOB NO.		CA0701	5	138

(2) TYPICAL SECTIONS OF IMPROVEMENT



TYPICAL SECTION - TANGENT WITH MILL
HWY. 167

STA. 128+72.00 - STA. 145+58.00
STA. 160+51.00 - STA. 163+33.87
STA. 180+65.60 - STA. 184+25.00

NOTES:

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

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

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

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

* ACHM SURFACE COURSE THICKNESS SHALL BE EQUIVALENT TO COLD MILLING DEPTH.

** EXISTING PAVEMENT SHALL BE COLD MILLED 4 INCHES OR TO THE EXISTING CONCRETE PAVEMENT, WHICHEVER COMES FIRST. JOINT TAPE (36") (SEE SPECIAL PROVISION "JOINT TAPE" FOR ADDITIONAL INFORMATION) SHALL BE PLACED OVER CRACKS/JOINTS IN THE EXISTING CONCRETE PAVEMENT BEFORE PLACING ACHM SURFACE COURSE.

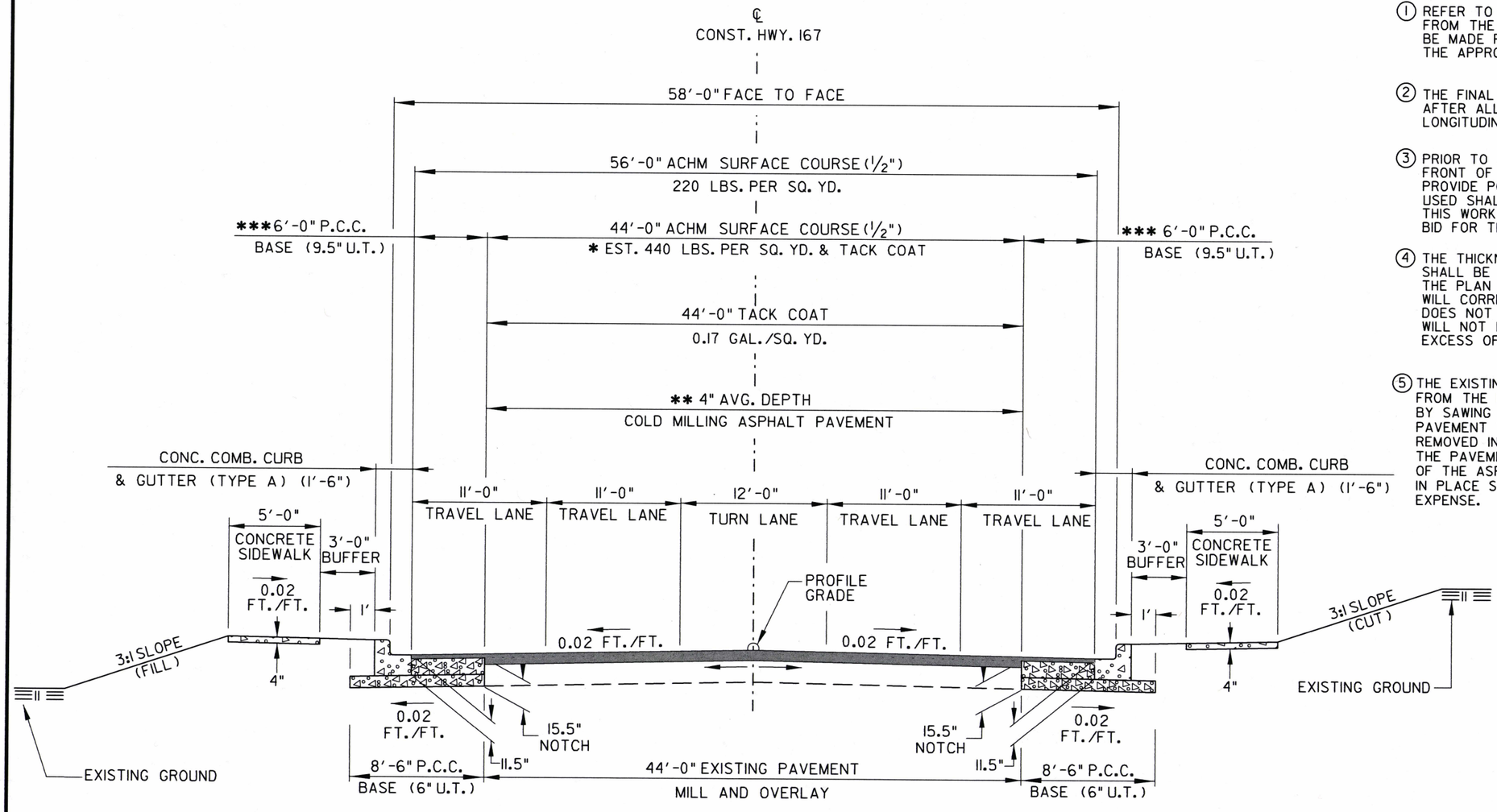
7/30/2016

CA0701

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.		CA0701	6	138

(2) TYPICAL SECTIONS OF IMPROVEMENT



TYPICAL SECTION - TANGENT WITH MILL
HWY. 167

STA. 144+37.00 - STA. 163+33.87

NOTES:

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

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 9066
STANLEY G. KING
6/5/19

* ACHM SURFACE COURSE THICKNESS SHALL BE EQUIVALENT TO COLD MILLING DEPTH.

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*** IN EXISTING PAVEMENT TAPERS WHERE WIDENING IS GREATER THAN 8'-0", USE ACHM PAVEMENT.

7/30/2016

CA0701

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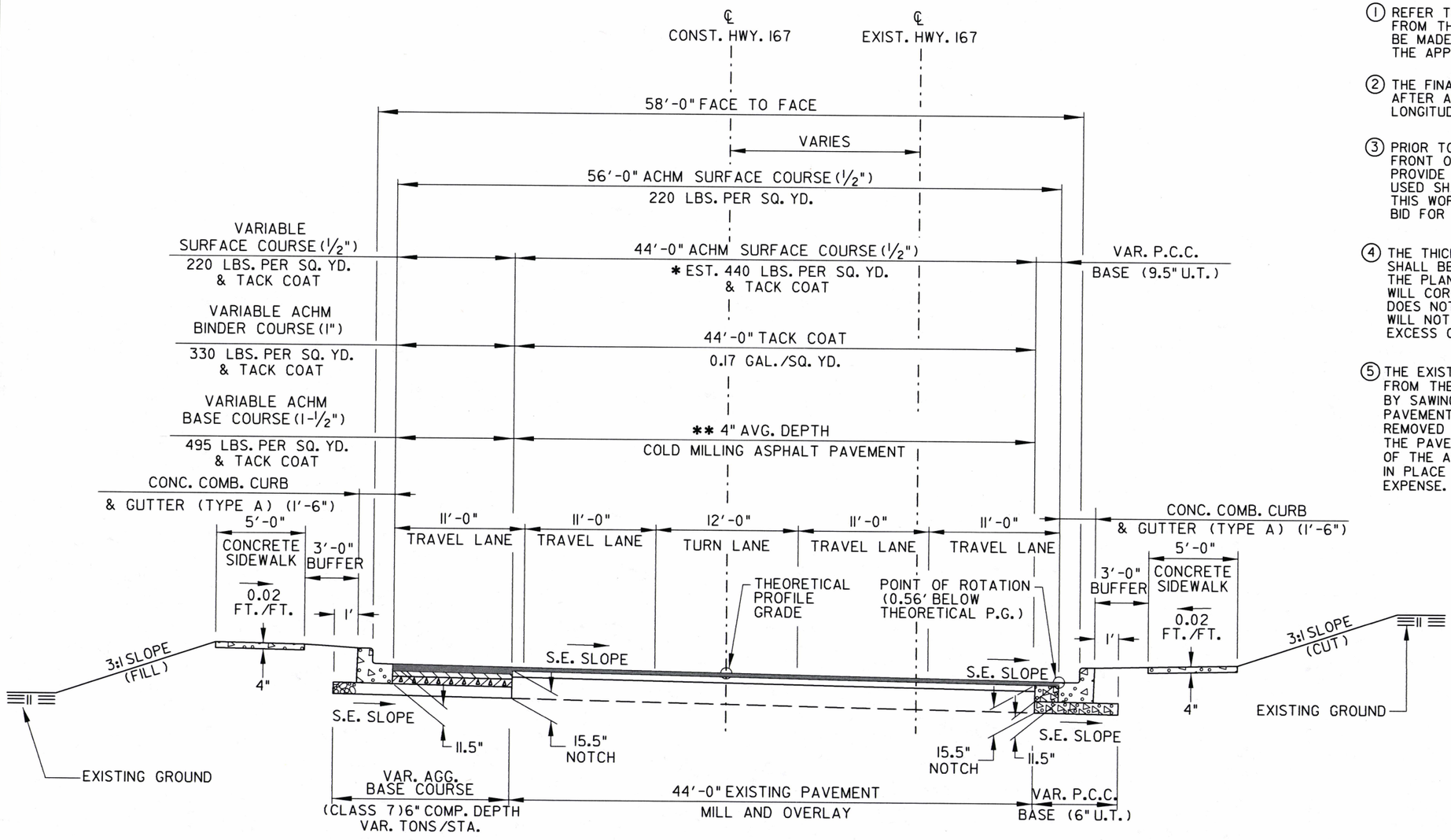
				6	ARK.			
				JOB NO.		CA0701	7	138

(2) TYPICAL SECTIONS OF IMPROVEMENT



TYPICAL SECTION - SUPERELEVATION WITH MILL (REVERSE FOR CURVE TO THE LEFT) HWY. 167

STA. 163+33.87 - STA. 180+65.60

NOTES:

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

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

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

(4) 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.

(5) THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9066 STANLEY C. KING

6/5/19

* ACHM SURFACE COURSE THICKNESS SHALL BE EQUIVALENT TO COLD MILLING DEPTH.

** EXISTING PAVEMENT SHALL BE COLD MILLED 4 INCHES OR TO THE EXISTING CONCRETE PAVEMENT, WHICHEVER COMES FIRST. JOINT TAPE (36") (SEE SPECIAL PROVISION "JOINT TAPE" FOR ADDITIONAL INFORMATION) SHALL BE PLACED OVER CRACKS/JOINTS IN THE EXISTING CONCRETE PAVEMENT BEFORE PLACING ACHM SURFACE COURSE.

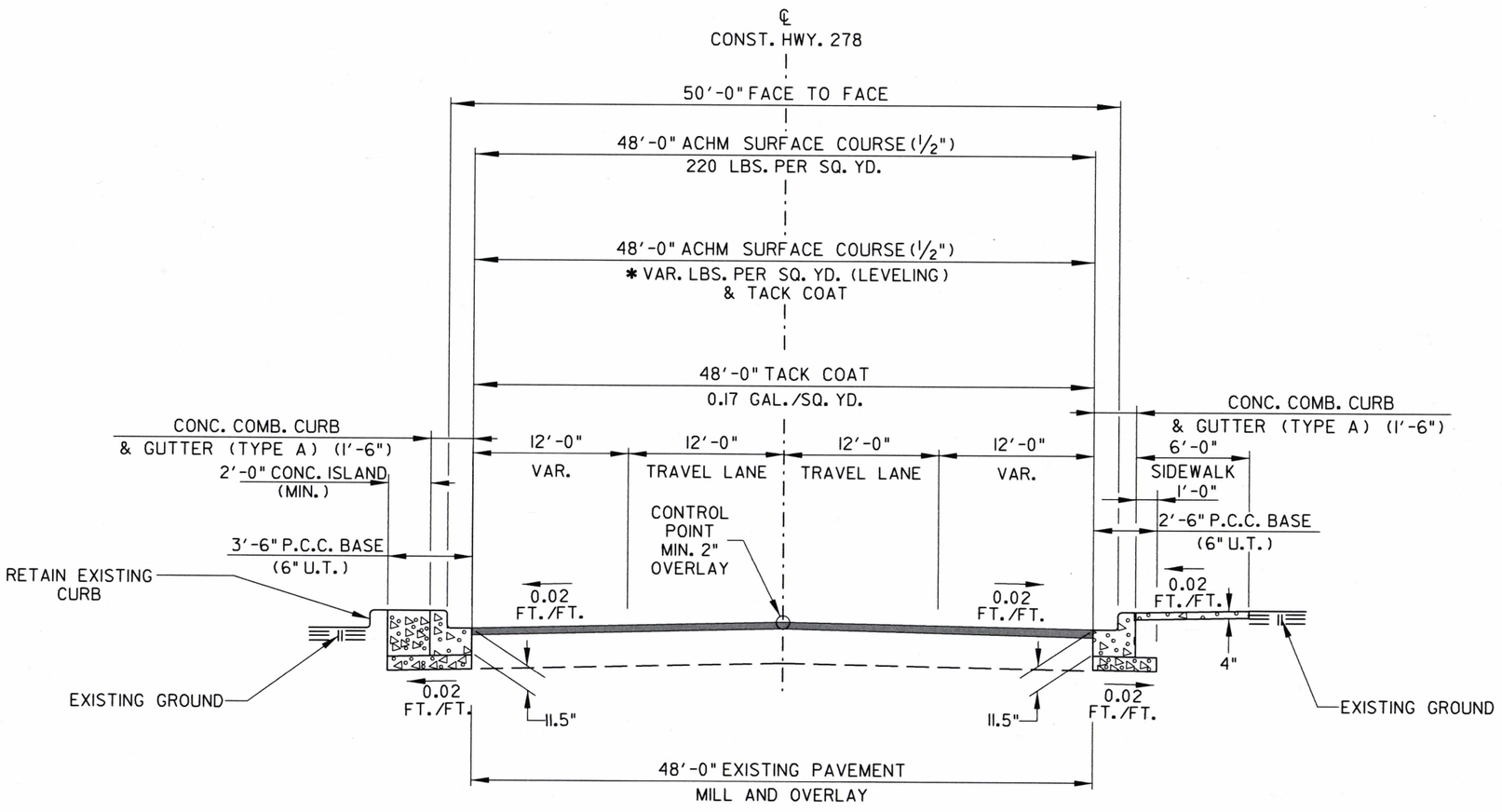
7/30/2016

CA0701

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.		CA0701	8	138

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 9066
STANLEY G. KING
6/5/19



TYPICAL SECTION - TANGENT
HWY. 278

STA. 48+09.71 - STA. 49+71.48

* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTES:

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

(2) ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED 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. COLD MILLING WILL BE REQUIRED IF AND WHERE DIRECTED BY THE ENGINEER TO ACHIEVE REQUIRED DEPTH OF FINAL SURFACE COURSE.

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

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

(5) 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.

7/30/2016

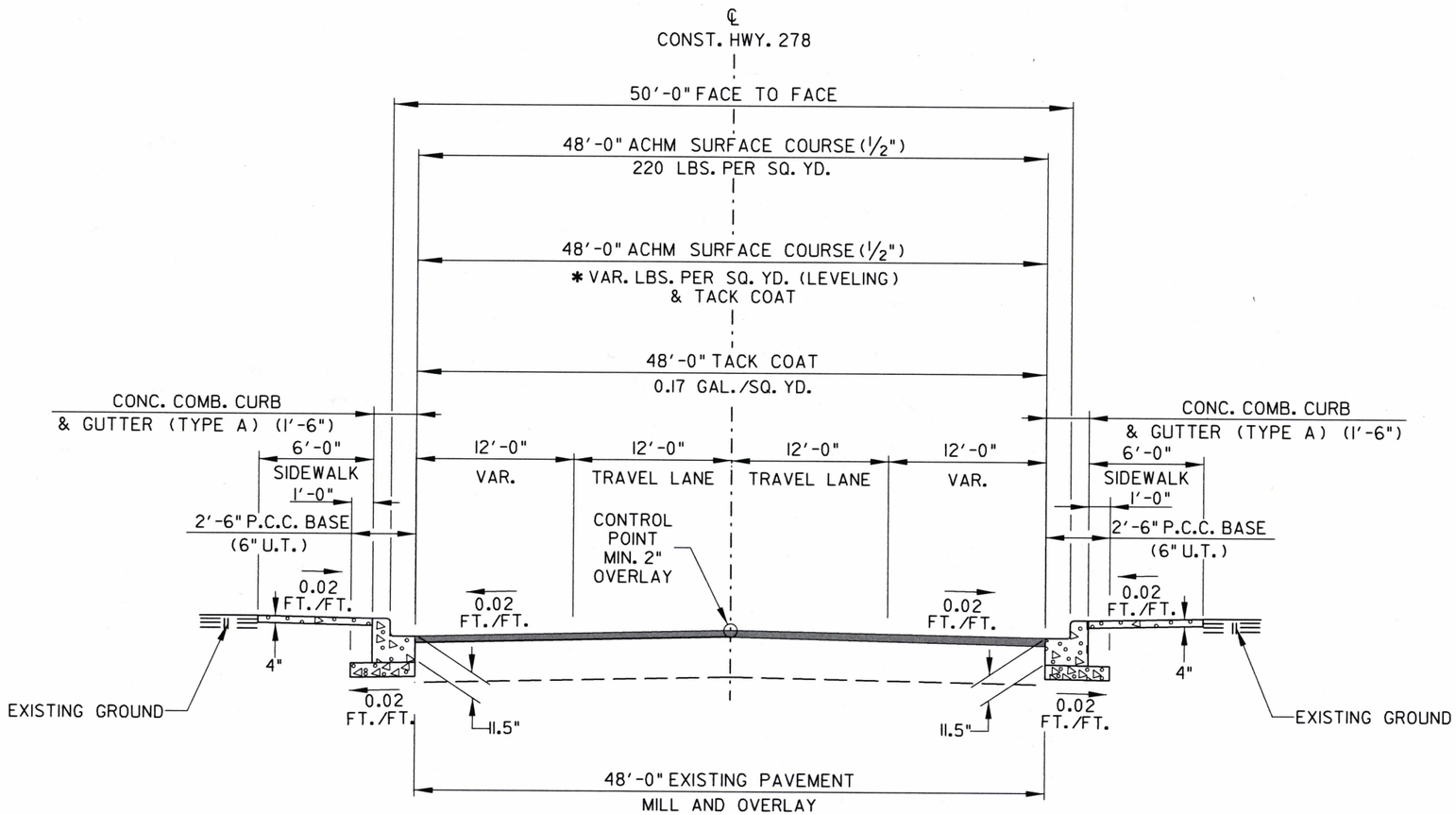
CA0701

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.		CA0701	9	138

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY D. KING
6/5/19



TYPICAL SECTION - TANGENT
HWY. 278

STA. 50+28.48 - STA. 51+13.45

* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTES:

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

(2) ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED 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. COLD MILLING WILL BE REQUIRED IF AND WHERE DIRECTED BY THE ENGINEER TO ACHIEVE REQUIRED DEPTH OF FINAL SURFACE COURSE.

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

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

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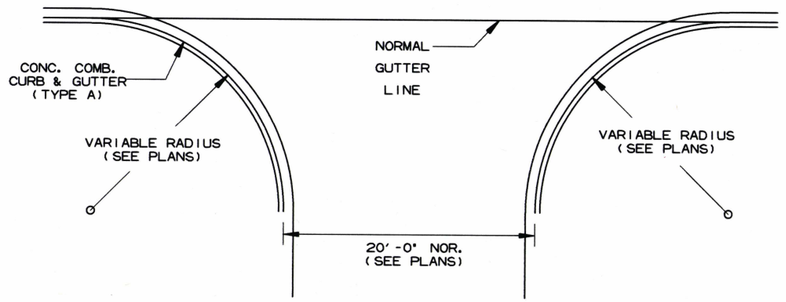
7/30/2016

CA0701

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.		CA0701	10	138

(2) SPECIAL DETAILS

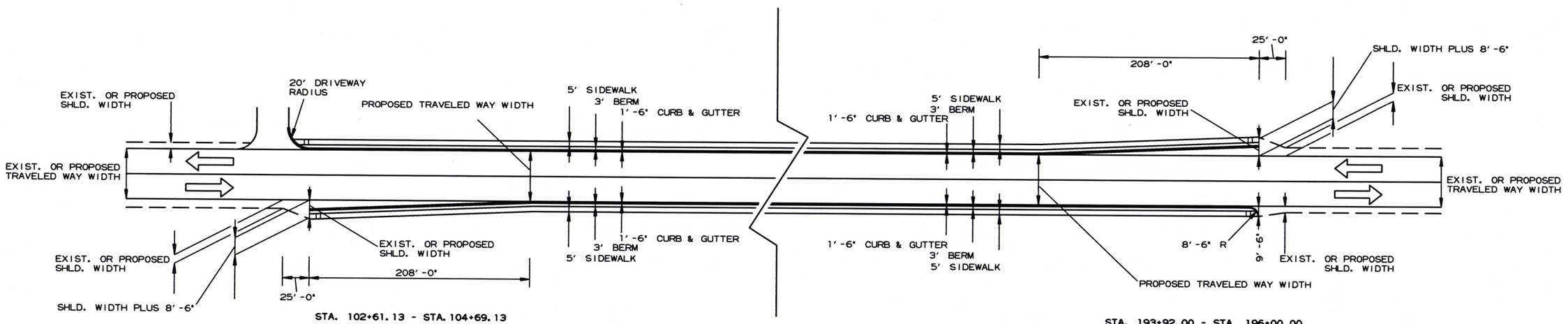
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY C. KING
6/5/19



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

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

MISSION RD.
WELCH ST.
W. ADAMS ST.
E. ADAMS ST.
ARCHER ST.
ELM ST.
HUNT ST.
DUNN AVE.
ABLE ST.



STA. 102+61.13 - STA. 104+69.13
(BEGINNING OF PROJECT)

STA. 193+92.00 - STA. 196+00.00
(END OF PROJECT)

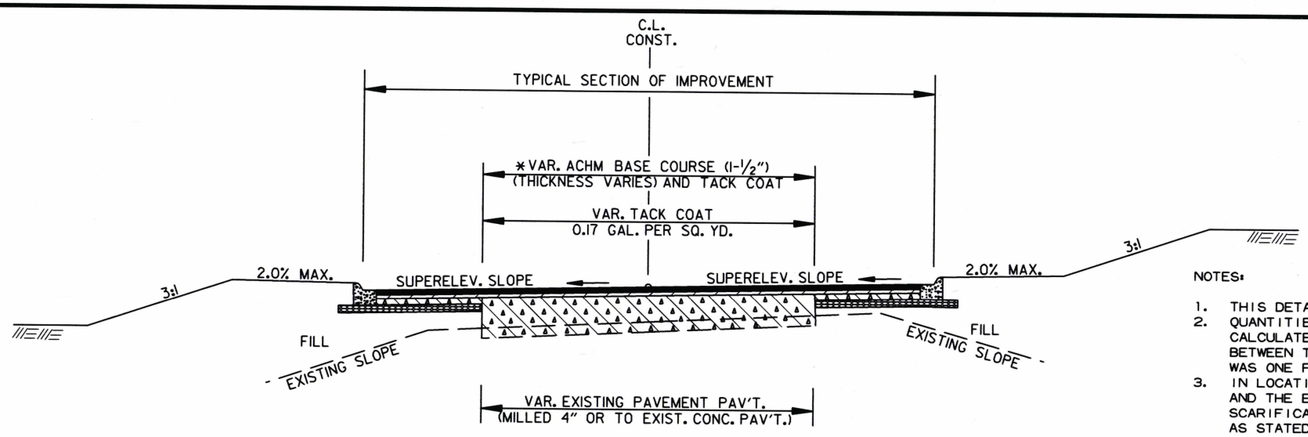
TRANSITION FROM OPEN SHOULDER TO CURB & GUTTER SECTION

8/29/2017

CA0701

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.		CA0701	11	138

(2) SPECIAL DETAILS



*6" AGGREGATE BASE COURSE (CLASS 7) TO BE REPLACED WITH ACHM BASE COURSE (1-½")

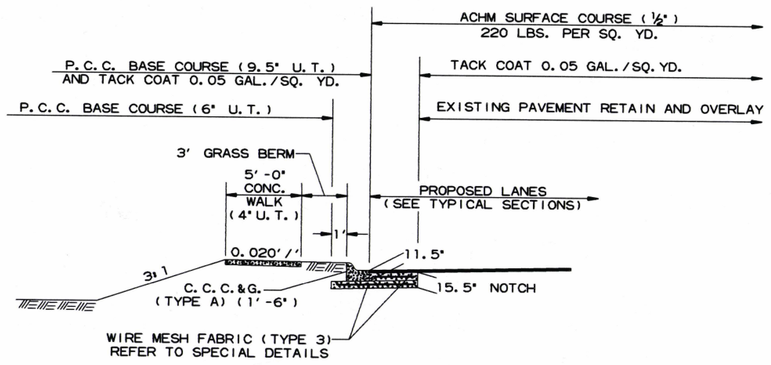
METHOD OF RAISING GRADE

NOTES:

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

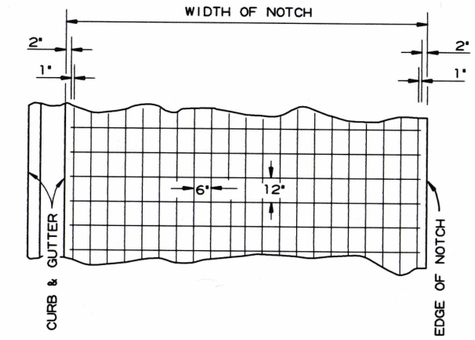
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9066 STANLEY G. KING

6/5/19



P.C.C. BASE WIDENING DETAIL

P.C.C. BASE WIDENING TO BE USED AS SHOWN ON THE PLANS AND IF AND WHERE DIRECTED BY THE ENGINEER.

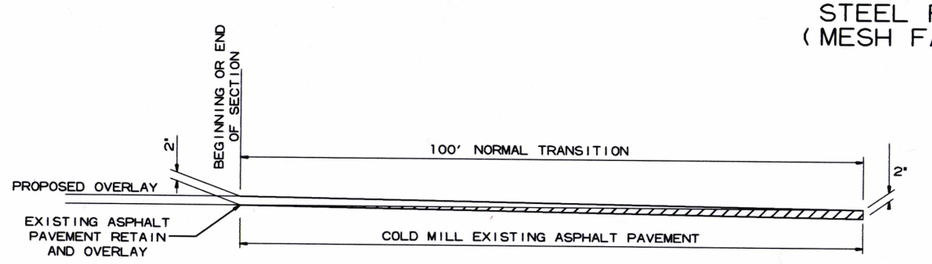


6" X 12" MESH FABRIC (TYPE 3) (W5.5 X W2.9) = 4.26 LBS./SQ. YD.

NOTES:

1. LAP MESH FABRIC MIN. 12" LONGITUDINALLY AND MIN. 6" TRANSVERSELY.
2. MESH FABRIC IS NOT REQUIRED WHEN WIDTH OF PORTLAND CEMENT CONCRETE BASE IS LESS THAN 12".
3. MESH FABRIC (TYPE 3) WILL NOT BE PAID FOR DIRECTLY, BUT FULL COMPENSATION THEREFORE WILL BE CONSIDERED INCLUDED IN THE CONTRACT PRICE BID PER SQ. YD. FOR PORTLAND CEMENT CONCRETE BASE (6" U.T. & 9.5" U.T.)

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



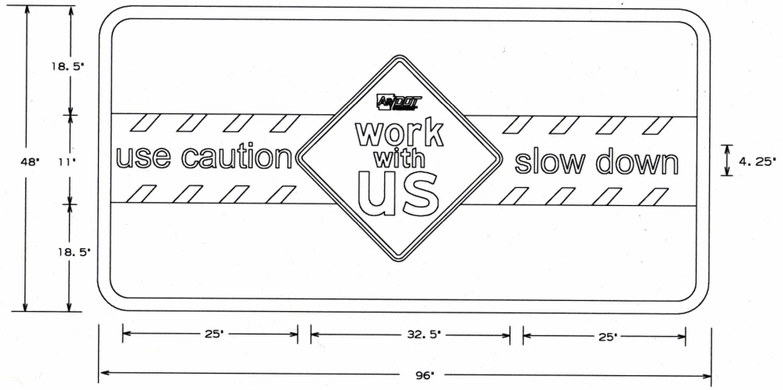
DETAIL FOR TRANSITIONS

8/29/2017

CA0701

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
		8/7/19		6	ARK.			
				JOB NO.		CA0701	12	138

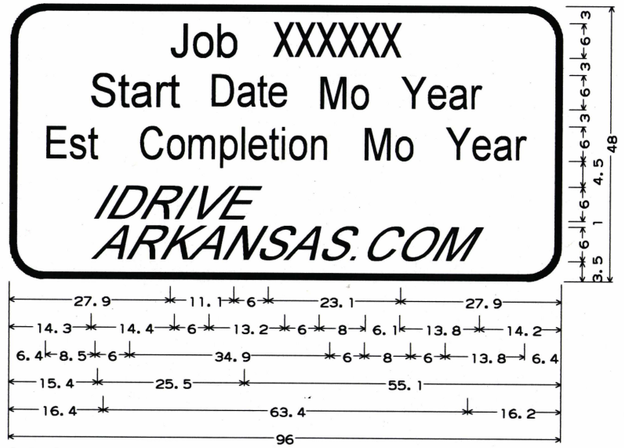
(2) SPECIAL DETAILS



1.5' WHITE BORDER, 1.5' RADII, GREEN BACKGROUND
'use caution/slow down' 4.25' NIVEAU GROTESK, REGULAR FONT
'work with us' 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.

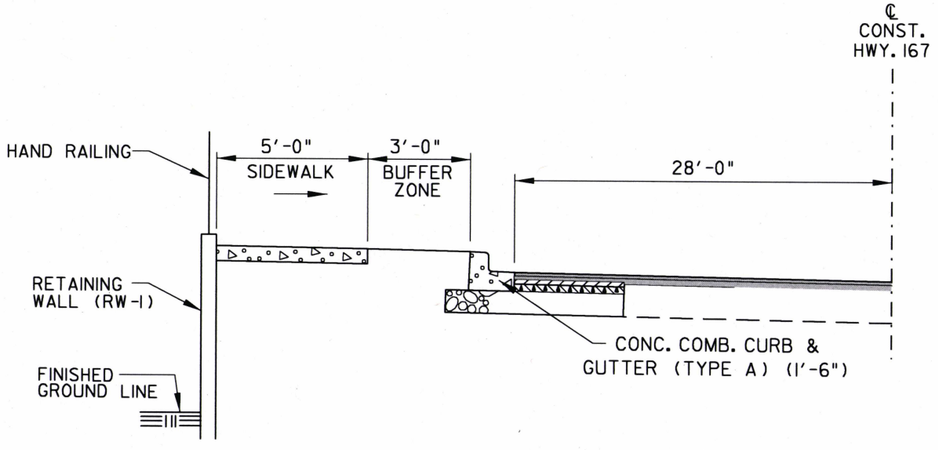
WORK WITH US SIGN



6.0' Radius, 1.3' Border, Black on Orange;
'Job XXXXXX' C 2K; 'Start Date Mo Year' C 2K;

' ARKANSAS.COM ' Arial;

CONSTRUCTION PROJECT INFORMATION SIGN

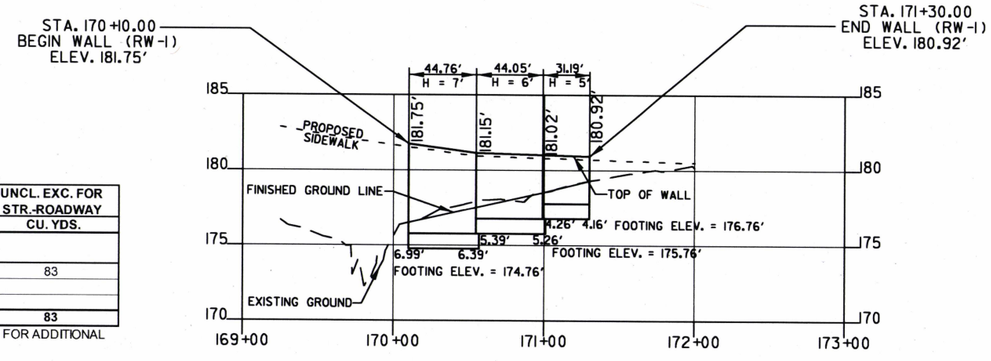


DETAIL OF RETAINING WALL (RW-1) ALONG HWY. 167 ON LT.

STA. 170+10.00 TO STA. 171+30.00

CLASS S CONCRETE ROADWAY CU. YDS.	REINF. STEEL-ROADWAY POUNDS	UNCL. EXC. FOR STR.-ROADWAY CU. YDS.
FOR INFORMATION ONLY		
46.76	4028	83
46.76	**4028**	**83**

NOTE: REFER TO STANDARD DRAWING NO. SI-2 FOR ADDITIONAL RETAINING WALL DETAILS.



RW-1 PROFILE (ELEV. OF RETAINING WALL)

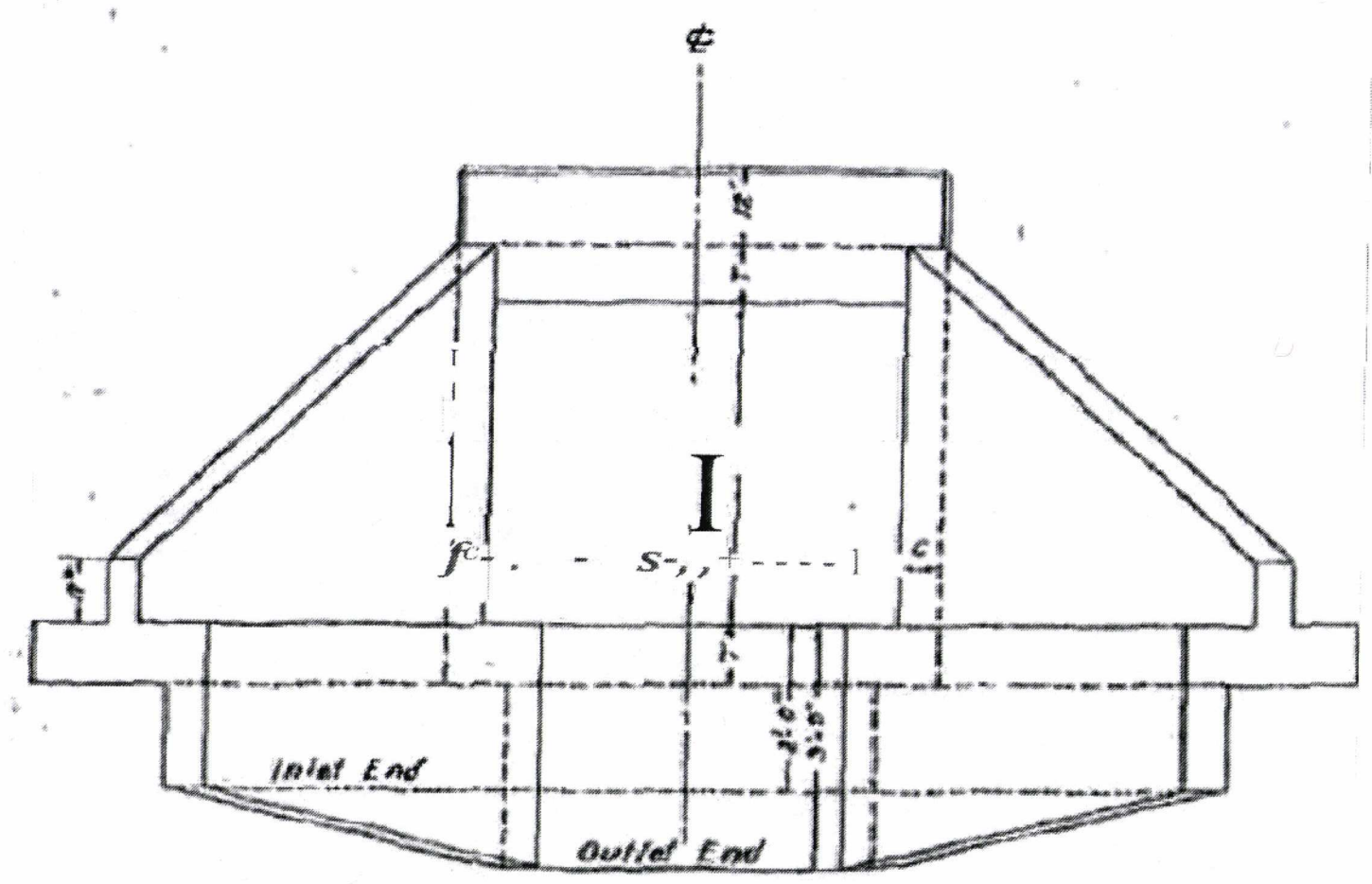
NOTE: SEE PLAN SHEETS, STANDARD ROADWAY DRAWING SI-1 AND SI-2 FOR ADDITIONAL INFORMATION.

4/9/2019

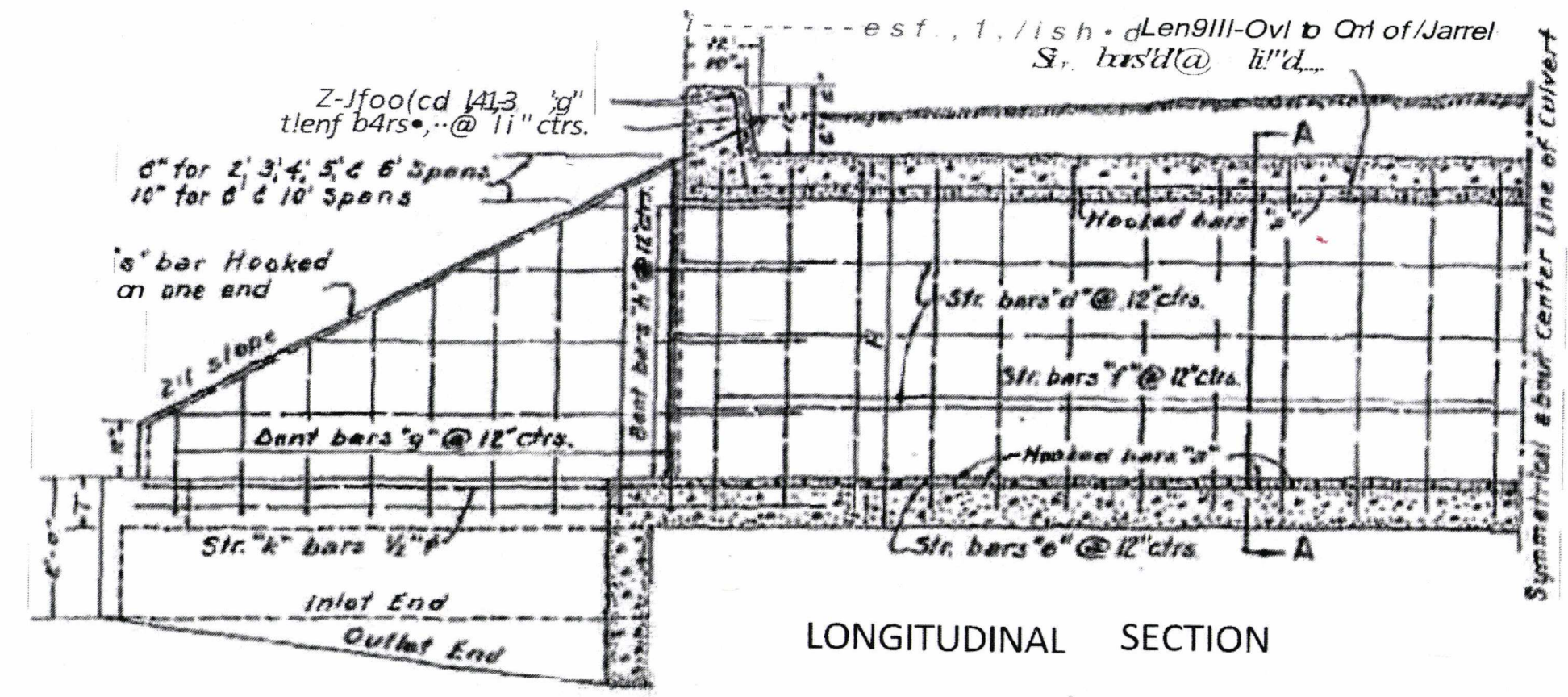
CA0701

SPECIAL DETAILS

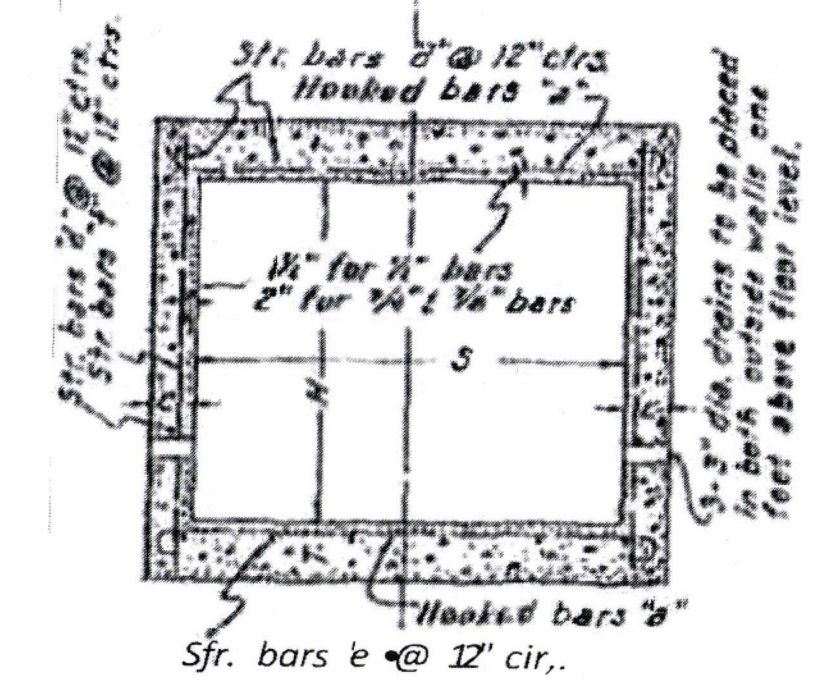
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	ARK.				
JOB NO.		CA0701		12A	138



END ELEVATION



LONGITUDINAL SECTION



SECTION A-A

DIMENSIONS & QUANTITIES

SPAN	HEIGHT	AREA OF OPENING SQ. FT.	MAXIMUM DEPTH OF COVER	THICKNESS OF TOP & BOTTOM SLAB	THICKNESS OF SIDE & WING WALLS	WIDTH OF FOOTING	LENGTH OF FOOTING	LENGTH OF WING WALLS	LENGTH OF WINGS FROM BACK OF HEADWALL	CONCRETE CU. YD. HEADWALLS WINGWALLS & FOOTING	CONCRETE CU. YD. PER LINEAR FT. OF BARREL	STEEL LB. HEADWALLS WINGWALLS & FOOTING	STEEL LB. PER LINEAR FT. OF BARREL	STEEL LB. ADD STEEL FOR LAPS
S	H	A	D	T	C	B	W_2	W_1	E					
2	2	4	20'-0"	6½"	6"	2'-6"	3'-6½"	3'-10"	3'-4"	2.38	.194	155	17.91	8.9
3	2	6	20'-0"	7"	6"	2'-6"	3'-6½"	3'-10"	3'-4"	2.65	.247	164	22.77	11.1
	3	9			6"		5'-10½"	6'-2"	5'-4"	4.10	.284	243	25.43	13.2
4	2	8	16'-0"	7½"	6"	2'-6"	3'-6½"	3'-10"	3'-4"	2.90	.306	173	28.28	13.4
	3	12			6"		5'-10½"	6'-2"	5'-4"	4.36	.343	251	30.94	15.6
	4	16			6"		8'-3"	8'-3½"	7'-4"	5.98	.380	372	33.60	17.8
5	2	10	10'-0"	8"	6"	2'-6"	3'-6½"	3'-10"	3'-4"	3.15	.370	189	34.56	15.6
	3	15			6"		5'-10½"	6'-2"	5'-4"	4.60	.407	267	37.22	17.8
	4	20			6"		8'-2"	8'-5½"	7'-4"	6.29	.444	370	39.88	20.0
	5	25			7"	2'-9"	10'-8"	10'-9½"	9'-4"	8.78	.521	476	42.56	22.3
6	3	18	7'-6"	8½"	6"	2'-6"	5'-10½"	6'-2"	5'-4"	4.94	.478	278	41.88	20.0
	4	24			6"		8'-2"	8'-5½"	7'-4"	6.61	.515	383	44.54	22.3
	5	30			7"	2'-9"	10'-8"	10'-9½"	9'-4"	9.14	.592	492	47.20	24.5
	6	36			7"	3'-0"	13'-1"	13'-1"	11'-4"	11.38	.635	611	49.86	26.7
8	3	28	5'-0"	10½"	7"	2'-7"	6'-3½"	6'-6½"	5'-8"	6.88	.724	336	60.81	24.5
	4	32			7"	2'-7"	8'-7½"	8'-10½"	7'-8"	8.85	.767	429	63.47	26.7
	5	40			7"	2'-9"	11'-0½"	11'-2"	9'-8"	10.57	.810	536	66.13	28.9
	6	48			7"	3'-8"	13'-3½"	13'-5½"	11'-8"	13.06	.853	673	68.80	31.2
	7	56			7"	3'-4"	16'-0"	15'-9½"	13'-8"	16.03	.897	976	71.46	33.4
	8	64			8"	3'-10"	18'-6"	18'-1"	15'-8"	20.69	1.080	1168	74.87	35.6
10	4	40	4'-0"	11¾"	7"	2'-7"	8'-7½"	8'-10½"	7'-8"	8.97	.983	605	90.62	31.2
	5	50			7"	2'-9"	11'-0½"	11'-2"	9'-8"	11.33	1.026	611	93.28	33.4
	6	60			7"	3'-0"	13'-3½"	13'-5½"	11'-8"	13.99	1.067	749	95.94	35.6
	7	70			7"	3'-4"	16'-0"	15'-9½"	13'-8"	17.27	1.112	1060	98.60	37.9
	8	80			8"	3'-10"	16'-6"	18'-1"	15'-8"	21.88	1.217	1253	101.26	40.1
	9	90			9"	4'-3"	21'-2"	20'-4½"	17'-8"	27.55	1.334	1740	111.86	42.3
	10	100			10"	4'-9"	23'-9½"	22'-8½"	19'-8"	34.78	1.463	2187	113.21	44.5

LAP NOTE-

A1 c1>mp.,fin9 qus,,litlos of sfeol from ihe-.,011v11 i'i!ible ddd O11e k1J tp,. cul.-erts 1p to 5"0' ln /sngfh ,mrl w1a lap for tu.ch <tddiUnn,.1 Z!,' h1 l11npfh.

STEEL SCHEDULE

For Culverl -Z h Lenglh Ou1 to Qui ol 8orrel

LENGTH OF SPAN	HEIGHT	"a" bars: 3" for 2, 3, 4, 5, 6, & 8' Span, 6" for 10' Span; 2 in each headwall, Balance in top and bottom slab of barrel					"d" bars: ½"φ bars spaced at 12" Centers STRAIGHT; Top slab and Sidewalls		"e" bars: Top of Bottom Slab		"f" bars: STRAIGHT Vertical bars in Sidewalls				"g" bars: Vertical bars in Wingwalls								"h" bars: ½"φ bars @ 12" Ctrs. Horizontal bars in Wingwalls				"k" bars: ½"φ Bars STRAIGHT Top of Wing Footings		"r" bars: ½"φ BENT Dowel bar in Headwall		"s" bars: ½"φ one in Top of Each Wingwall	
S	H	Size	Spacing	Number	Length	X	Number	Length	Number	Length	Size	Spacing	Number	Length	Size	Spacing	Number	Av. Length	X Min.	X Max.	Y Min.	Y Max.	Number	Av. Length	Z Min.	Z Max.	Number	Length	Number	Length	Number	Length
2	2	½"φ	5½"	122	3'-7"	2'-9"	5		3		⅝"φ	12"	64	7'-10"	½"φ	12"	16	3'-4"	1'-4"	2'-9"	1'-3"	1'-3"	12	4'-7"	1'-6"	3'-6"	12	6'-4"	6	3'-2"	4	5'-3"
3	2	½"φ	6"	132	4'-7"	3'-9"	6		4		½"φ	12"	64	2'-11"	⅜"φ	12"	16	3'-4½"	1'-4½"	2'-8½"	1'-3"	1'-3"	12	4'-7"	1'-6"	3'-6"	12	5'-4"	6	3'-2"	4	5'-3"
	3			132	4'-7"	3'-9"	8		4				64	3'-11"			24	3'-9½"	1'-6½"	3'-9½"	1'-3"	1'-3"	16	5'-11"	1'-6"	6'-0"	12	7'-8"	8	3'-2"	4	7'-9"
4	2	½"φ	3½"	144	5'-7"	4'-9"	7		5		½"φ	12"	64	3'-5"	½"φ	12"	16	3'-5"	1'-5"	2'-10"	1'-3"	1'-3"	12	4'-7"	1'-4"	3'-6"	12	5'-4"	10	3'-2"	4	5'-3"
	3			144	5'-7"	4'-9"	9		5				64	4'-0"			24	3'-11"	1'-7"	3'-10"	1'-3"	1'-3"	16	5'-11"	1'-4"	6'-0"	12	7'-8"	10	3'-2"	4	7'-9"
	4			144	5'-7"	4'-9"	11		5				64	5'-6"			36	4'-3"	1'-5"	4'-10"	1'-3"	1'-3"	20	7'-2"	1'-4"	8'-6"	12	10'-0"	10	3'-2"	4	10'-3"
5	2	½"φ	5"	158	6'-7"	5'-9"	8		6		½"φ	12"	64	3'-1"	½"φ	12"	16	3'-6"	1'-5"	2'-11"	1'-3"	1'-3"	12	4'-7"	1'-4"	3'-8"	12	5'-4"	14	3'-6"	4	5'-3"
	3			158	6'-7"	5'-9"	10		6				64	4'-1"			24	3'-11"	1'-5"	3'-11"	1'-3"	1'-3"	16	5'-11"	1'-6"	6'-0"	12	7'-8"	14	3'-6"	4	7'-9"
	4			158	6'-7"	5'-9"	12		6				64	5'-7"			36	4'-6"	1'-6"	4'-11"	1'-3"	1'-3"	20	7'-2"	1'-4"	8'-4"	12	10'-0"	14	3'-6"	4	10'-3"
	5			158	6'-7"	5'-9"	14		6				64	6'-1"			44	5'-2"	1'-7"	5'-11"	1'-4"	1'-6"	24	8'-5"	1'-6"	10'-8"	12	12'-4"	14	3'-6"	4	12'-9"
6	3	½"φ	5"	158	7'-7"	6'-9"	11	31'-9" for 32'-0" Length	7	33'-9" for 32'-0" Length	½"φ	12"	64	4'-2"	½"φ	12"	24	4'-1"	1'-6"	4'-3"	1'-5"	1'-5"	16	5'-11"	1'-4"	6'-6"	12	7'-8"	16	3'-6"	4	7'-9"
	4			158	7'-7"	6'-9"	13		7				64	5'-2"			36	4'-6"	1'-6"	5'-3"	1'-3"	1'-3"	20	7'-2"	1'-4"	8'-4"	12	10'-0"	16	3'-6"	4	10'-3"
	5			158	7'-7"	6'-9"	15		7				64	6'-2"			44	5'-4"	1'-7"	6'-3"	1'-4"	1'-8"	24	8'-5"	1'-6"	10'-8"	12	12'-4"	16	3'-6"	4	12'-9"
	6			158	7'-7"	6'-9"	17		7				64	7'-2"			52	5'-11"	1'-5"	7'-3"	1'-4"	1'-9"	28	9'-8"	1'-4"	13'-6"	12	14'-3"	16	3'-6"	4	15'-3"
8	3	⅝"φ	6"	132	9'-8"	8'-10"	13		9		½"φ	12"	64	[illegible]	½"φ	12"	28	[illegible]	1'-8"	[illegible]	1'-8"	1'-4"	16	6'-4"	1'-8"	[illegible]	12	[illegible]	20	3'-6"	[illegible]	[illegible]
	4			132	9'-8"	8'-10"	15		9				64	6'-5"			36	4'-11"	1'-8"	5'-6"	1'-6"	1'-6"	20	7'-6"	1'-6"	8'-3"	12	10'-4"	20	3'-6"	4	[illegible]
	5			132	9'-8"	8'-10"	17		9				64	[illegible]			44	6'-5"	1'-8"	6'-4"	1'-6"	1'-6"	24	8'-5"	1'-8"	11'-6"	12	12'-6"	20	3'-6"	4	[illegible]
	6			132	9'-8"	8'-10"	19		9				64	7'-6"			56	6'-0"	1'-7"	7'-4"	1'-6"	1'-8"	28	10'-0"	1'-8"	13'-4"	12	13'-8"	20	3'-6"	[illegible]	[illegible]
	7			132	9'-8"	8'-10"	21		9				64	8'-5"	⅝"φ	12"	64	6'-9"	1'-9"	8'-4"	1'-4"	2'-1"	32	11'-2"	1'-8"	16'-8"	12	17'-4"	20	3'-6"	[illegible]	[illegible]
	8			132	9'-10"	9'-0"	23		9				64	9'-5"			72	7'-5"	1'-7"	9'-6"	1'-6"	2'-6"	36	12'-5"	1'-8"	17'-11"	12	19'-8"	20	3'-6"	[illegible]	[illegible]
10	4	⅝"φ	9½"	86	12'-4"	10'-10"	17		11		⅝"φ	12"	64	5'-7"	½"φ	12"	36	6'-0"	1'-10"	5'-6"	1'-6"	1'-4"	20	7'-7"	1'-8"	8'-8"	12	10'-4"	24	3'-6"	4	[illegible]
	5			86	12'-4"	10'-10"	19		11				64	6'-7"			44	5'-6"	1'-8"	6'-6"	1'-4"	1'-6"	24	8'-9"	1'-8"	11'-0"	12	12'-6"	24	3'-6"	[illegible]	[illegible]
	6			86	12'-4"	10'-10"	21		11				64	7'-7"			56	6'-7"	1'-8"	7'-6"	1'-2"	1'-9"	28	10'-0"	1'-8"	13'-4"	12	15'-0"	24	3'-6"	[illegible]	[illegible]
	7			86	12'-4"	10'-10"	23		11			12"	64	8'-7"	⅝"φ	12"	64	6'-11"	1'-10"	8'-6"	1'-4"	2'-1"	32	11'-2"	1'-8"	15'-6"	12	17'-6"	24	3'-6"	[illegible]	[illegible]
	8			86	12'-6"	11'-0"	25		11				64	9'-7"			72	7'-7"	1'-8"	9'-6"	1'-3"	2'-6"	36	12'-5"	1'-8"	17'-11"	12	19'-8"	24	3'-6"	[illegible]	[illegible]
	9			86	12'-8"	11'-2"	27		11		¾"φ		64	10'-7"		9"	100	8'-7"	1'-8"	10'-6"	1'-6"	3'-0"	40	13'-7"	1'-8"	20'-4"	12	22'-0"	24	3'-6"	[illegible]	[illegible]
	10			86	12'-10"	11'-4"	29		11				64	11'-7"		8"	136	9'-3"	1'-10"	11'-6"	1'-7"	3'-6"	44	14'-5"	1'-8"	22'-6"	12	24'-6"	24	3'-6"	[illegible]	[illegible]

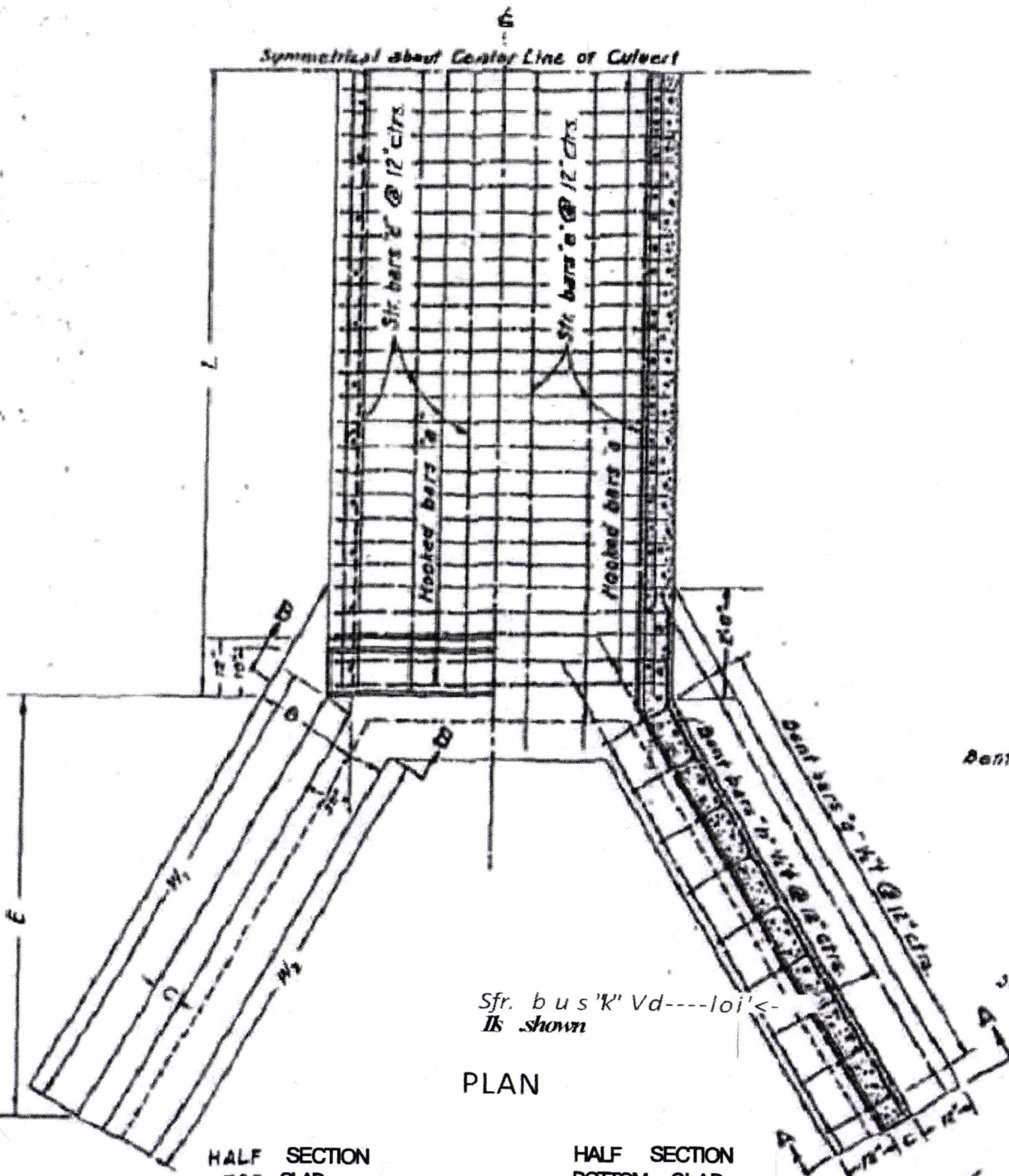
NOTE: Lengths given above do not include lap.

SP£CIFICATJONS1- Arlfl1nsc:s Jfand.arcl li'o1d dncl /Jrid9e Sp clficr1f/an.

REINFORC/1110 STE£[,–, To b tltformul bars of .slrvctural or inlormoc',,./o 9,-,t(ffl.

CHAMF.£R:o- A l l X,ODJ&d corna.rs,lv hd,.,e .Y• " C/om/'er.

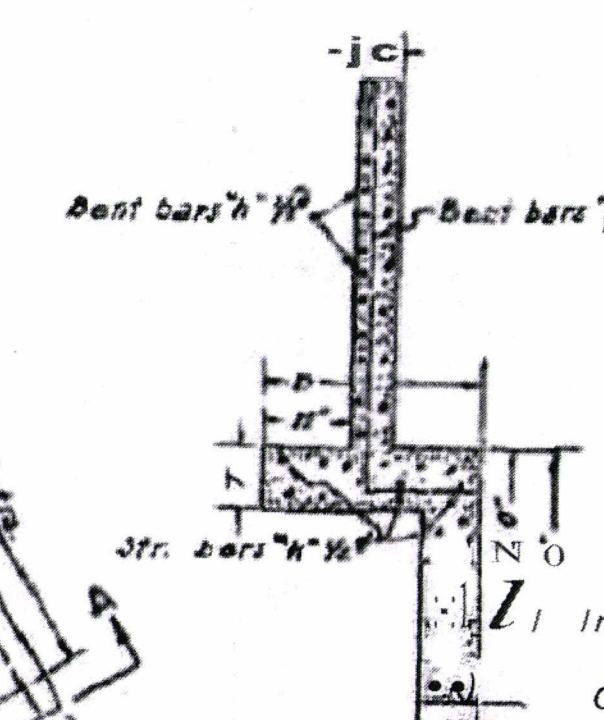
CONCN£r£,- A l l Conc.r•fe J0 he C/4s; "'l"



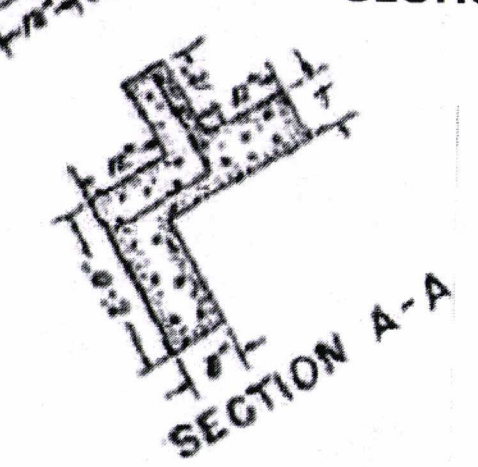
PLAN

HALF SECTION TOP SLAB

HALF SECTION BOTTOM SLAB 6 SIDE WALLS



SECTION B-B



NOTE:--

Amil, of Wingw lls mJV be p,gr/ed. t , conform D tli• n,rfu. d l or propose(! inlet or out /er clu,nnel.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9066 STANLEY G. KING

6/5/19

ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX CULVERTS

SINGLE

SPECIAL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
		8/7/19		6	ARK.			
				JOB NO.		CA0701	13	138

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
8/7/19

STA. 108+70 - STA. 111+53
INSTALL E-11 = 283 LIN. FT.

PI 110+00.00
DELTA = 0°02'07" RT.

EXIST. ROW
CONST. LIMITS

PROP. ROW
CONST. LIMITS

T.C.E.

N 2°08'47" E

105+00

110+00

115+00

CONST. HWY. 167

STA. 102+61.13 ℄ CONST. HWY. 167
BEGIN JOB CA0701
END JOB 070284
LOG MILE 13.47

COUNTY RD. 128

REVISIONS

DATE	DESCRIPTION

EROSION CONTROL LEGEND

E-5	SAND BAG DITCH CHECKS
E-11	SILT FENCE
E-13	COMPOST FILTER SOCK DROP INLET PROTECTION (18")

STAGE CONST.

STA. 116+20 - STA. 117+40
INSTALL E-11 = 120 LIN. FT.

STA. 118+19 - STA. 120+57
INSTALL E-11 = 235 LIN. FT.

STA. 120+76 - STA. 122+23
INSTALL E-11 = 147 LIN. FT.

STA. 122+43 - STA. 123+15
INSTALL E-11 = 72 LIN. FT.

STA. 123+31 - STA. 124+25
INSTALL E-11 = 94 LIN. FT.

STA. 124+41 - STA. 125+69
INSTALL E-11 = 128 LIN. FT.

PI 125+84.39
DELTA = 0°30'54" LT.

STA. 125+90 - STA. 127+17
INSTALL E-11 = 127 LIN. FT.

STA. 127+35 - STA. 127+64
INSTALL E-11 = 29 LIN. FT.

STA. 127+82 - STA. 128+76
INSTALL E-11 = 94 LIN. FT.

PROP. ROW
EXIST. ROW
CONST. LIMITS
T.C.E.

N 2°10'54" E

115+00

120+00

125+00

130+00

CONST. HWY. 167

MISSION RD.
EXIST. ROW
EXIST. ROW

7/30/2016

CA0701

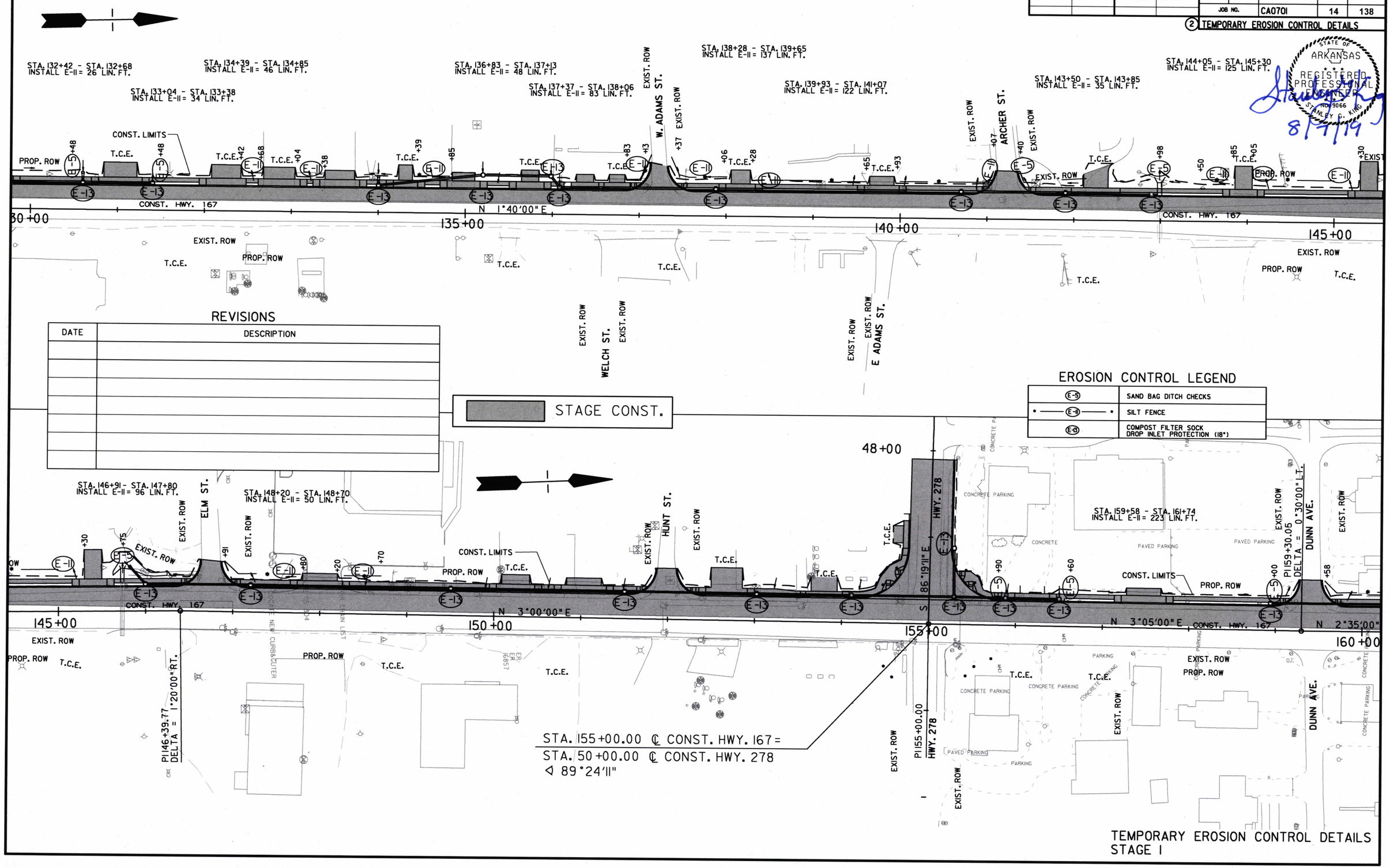
TEMPORARY EROSION CONTROL DETAILS
STAGE I

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
		8/7/19		6	ARK.			
				JOB NO.		CA0701	14	138

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9066 STANLEY G. KING

8/7/19



REVISIONS

DATE	DESCRIPTION

EROSION CONTROL LEGEND

E-5	SAND BAG DITCH CHECKS
E-11	SILT FENCE
E-13	COMPOST FILTER SOCK DROP INLET PROTECTION (18")

TEMPORARY EROSION CONTROL DETAILS
STAGE I

7/30/2016

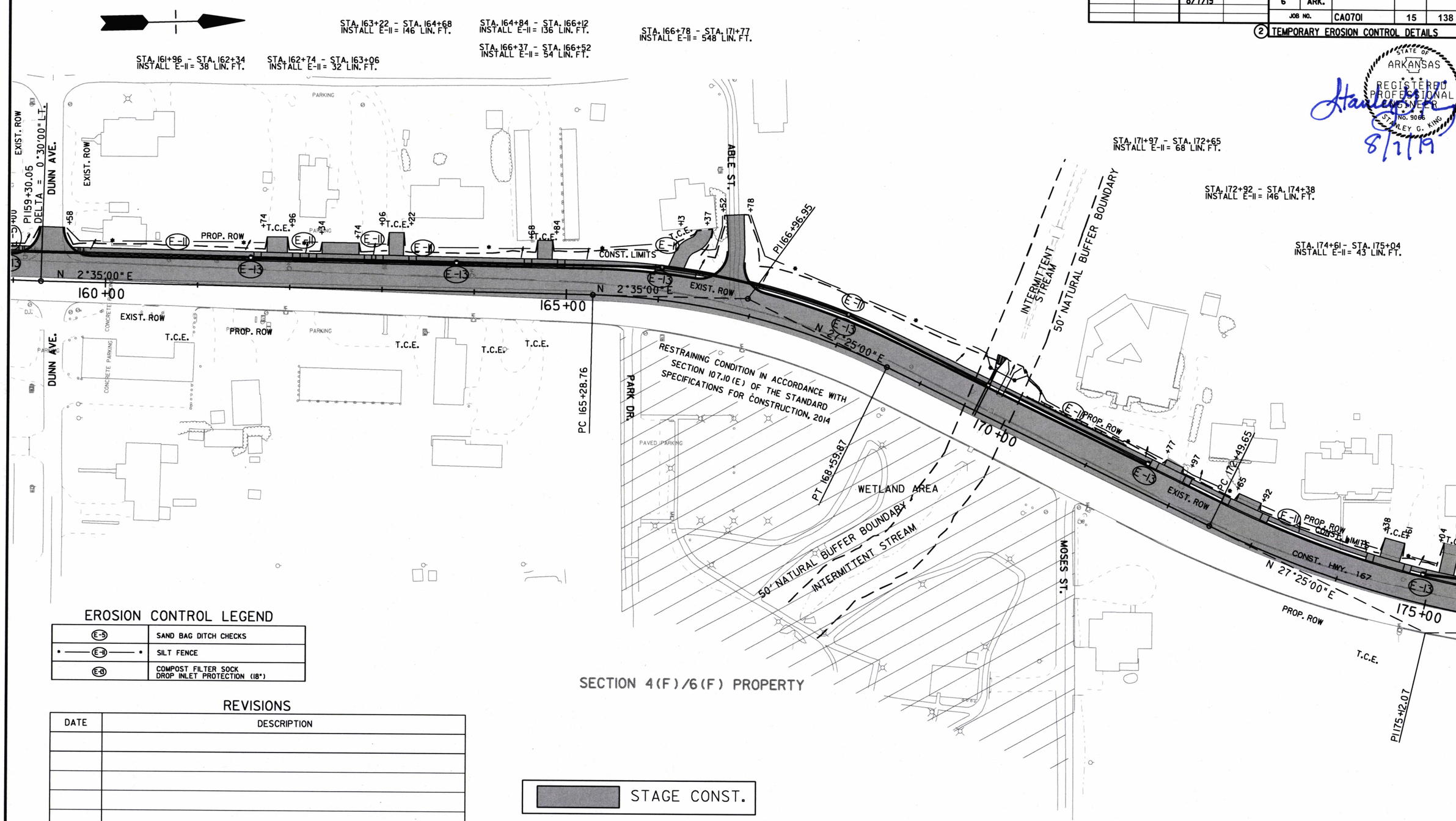
CA0701

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
		8/7/19		6	ARK.			
				JOB NO.		CA0701	15	138

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9066 STANLEY G. KING

Stanley G. King 8/7/19



EROSION CONTROL LEGEND

E-5	SAND BAG DITCH CHECKS
E-11	SILT FENCE
E-13	COMPOST FILTER SOCK DROP INLET PROTECTION (18")

REVISIONS

DATE	DESCRIPTION

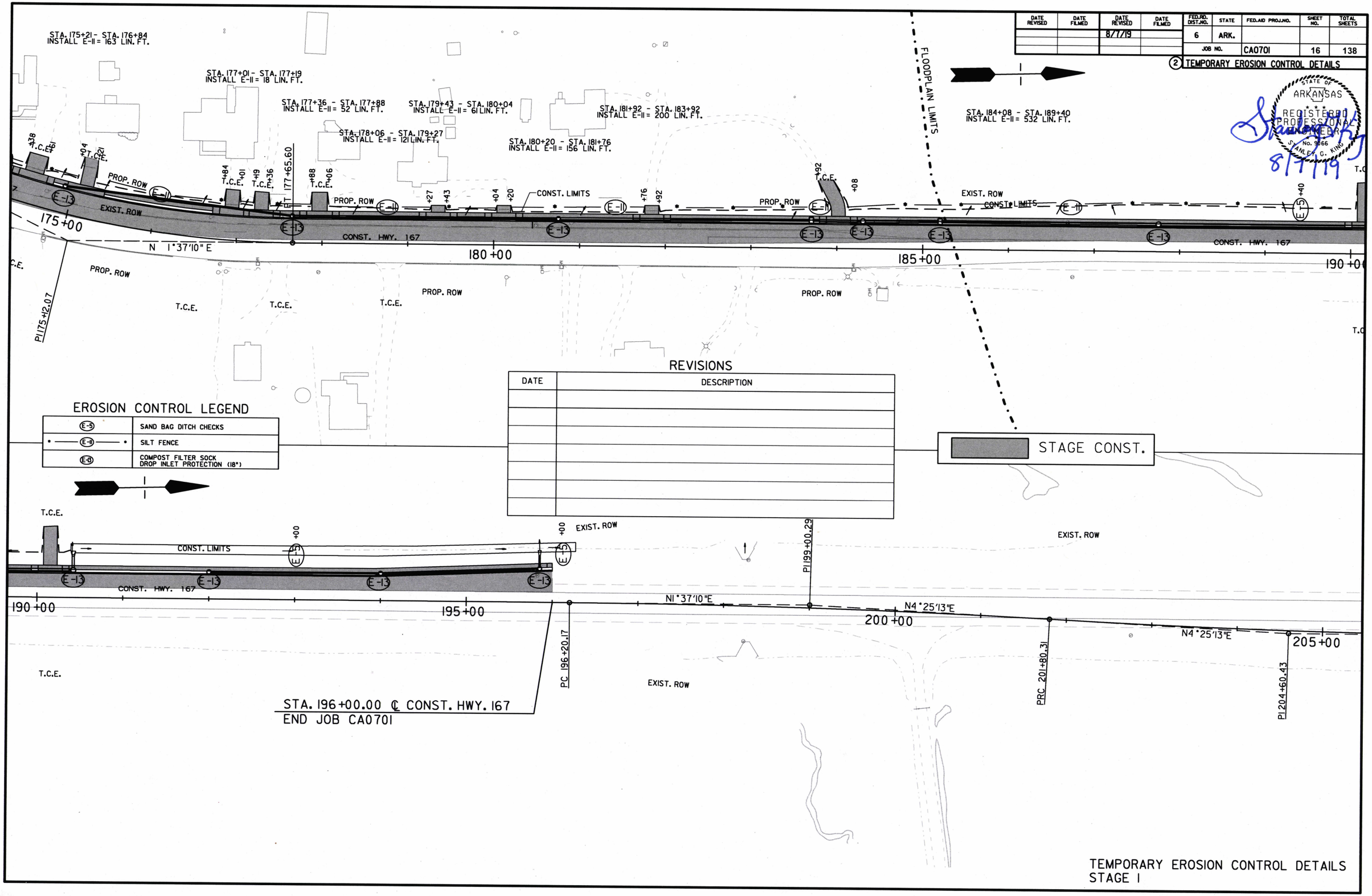
7/30/2016

CA0701

TEMPORARY EROSION CONTROL DETAILS
STAGE I

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
		8/7/19		6	ARK.			
				JOB NO.		CA0701	16	138

(2) TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE	DESCRIPTION

EROSION CONTROL LEGEND

E-5	SAND BAG DITCH CHECKS
E-11	SILT FENCE
E-13	COMPOST FILTER SOCK DROP INLET PROTECTION (18")

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9066 STANLEY G. KING

8/7/19

TEMPORARY EROSION CONTROL DETAILS
STAGE I

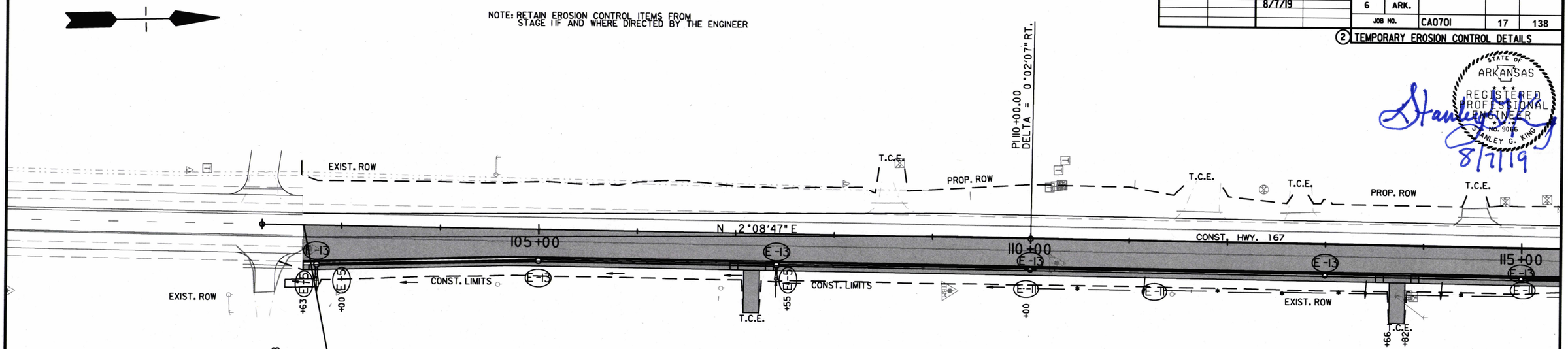
7/30/2016

CA0701

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
		8/7/19		6	ARK.			
				JOB NO.		CA0701	17	138

(2) TEMPORARY EROSION CONTROL DETAILS

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER

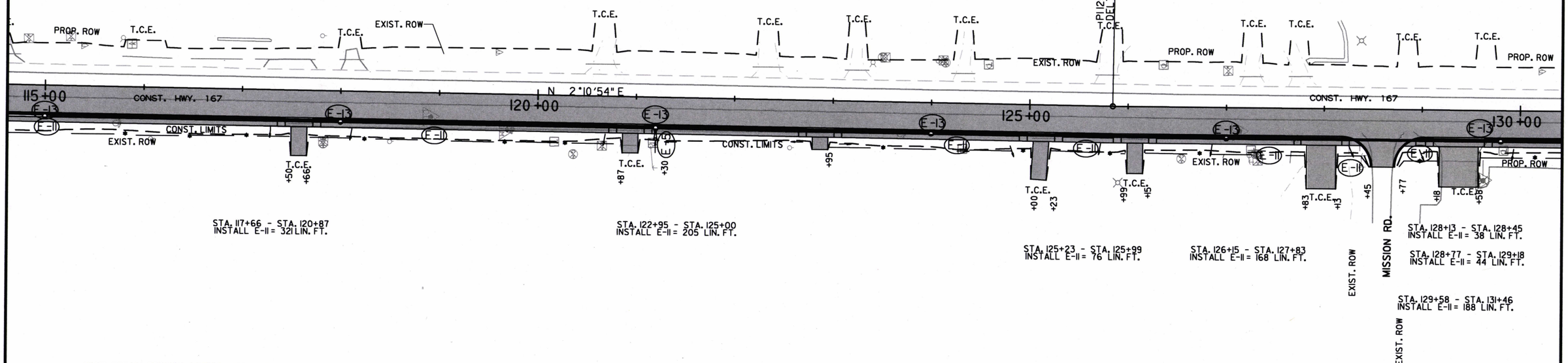


REVISIONS

DATE	DESCRIPTION

EROSION CONTROL LEGEND

E-5	SAND BAG DITCH CHECKS
E-11	SILT FENCE
E-13	COMPOST FILTER SOCK DROP INLET PROTECTION (18")



NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
8/7/19

7/30/2016

CA0701

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
		8/7/19		6	ARK.			
				JOB NO.		CA0701	18	138

(2) TEMPORARY EROSION CONTROL DETAILS

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 19066
STANLEY G. KING
8/7/19

PROP. ROW T.C.E. T.C.E. T.C.E. T.C.E. T.C.E. T.C.E. T.C.E. T.C.E. T.C.E. T.C.E. T.C.E. PROP. ROW

EXIST. ROW W. ADAMS ST. EXIST. ROW

ARCHER ST. EXIST. ROW

CONST. HWY. 167 N 1°40'00" E CONST. HWY. 167

130+00 135+00 140+00 145+00

E-13 E-11 E-5

CONST. LIMITS

STA. 131+86 - STA. 133+98
INSTALL E-11 = 212 LIN. FT.

+46 T.C.E. +86 PROP. ROW +98 +38 +98 +14 +42 T.C.E. +58

STA. 134+38 - STA. 134+98
INSTALL E-11 = 60 LIN. FT.

EXIST. ROW +45 WELCH ST. EXIST. ROW

STA. 135+14 - STA. 135+42
INSTALL E-11 = 28 LIN. FT.

STA. 135+58 - STA. 136+45
INSTALL E-11 = 96 LIN. FT.

T.C.E. +51

EXIST. ROW E ADAMS ST. EXIST. ROW

CONST. LIMITS

STA. 142+26 - STA. 142+65
INSTALL E-11 = 39 LIN. FT.

T.C.E. +26 +65 +86 +13 PROP. ROW T.C.E.

EXIST. ROW

REVISIONS

DATE	DESCRIPTION

STAGE CONST.

EROSION CONTROL LEGEND

E-5	SAND BAG DITCH CHECKS
E-11	SILT FENCE
E-8	COMPOST FILTER SOCK DROP INLET PROTECTION (18")

EXIST. ROW ELM ST. EXIST. ROW EXIST. ROW HUNT ST. EXIST. ROW

PROP. ROW T.C.E. T.C.E. T.C.E.

48+00 EXIST. ROW MAIN ST. (HWY. 278) EXIST. ROW

S 86°19'11" E

PI 159+30.05
DELTA = 0°30'00" LT.

EXIST. ROW DUNN AVE. EXIST. ROW

PROP. ROW

CONST. HWY. 167 N 3°00'00" E CONST. HWY. 167 N 3°05'00" E N 2°35'00"

145+00 150+00 155+00 160+00

E-13 E-11 E-10

EXIST. ROW T.C.E. EXIST. ROW +57 +87 +20 +71 +11 PROP. ROW +95 +36 +70 T.C.E. +88 +84 +24 +91 +21 +63 T.C.E. T.C.E. EXIST. ROW PROP. ROW

CONST. LIMITS

PI 146+39.77
DELTA = 1°20'00" RT.

STA. 147+11 - STA. 147+96
INSTALL E-11 = 85 LIN. FT.

STA. 148+36 - STA. 148+70
INSTALL E-11 = 34 LIN. FT.

STA. 146+20 - STA. 146+71
INSTALL E-11 = 53 LIN. FT.

STA. 150+88 - STA. 151+84
INSTALL E-11 = 96 LIN. FT.

STA. 155+00.00 ℄ CONST. HWY. 167 =
STA. 50+00.00 ℄ CONST. HWY. 278
◁ 89°24'11"

PI 155+00.00

STA. 152+24 - STA. 152+91
INSTALL E-11 = 67 LIN. FT.

STA. 154+21 - STA. 154+63
INSTALL E-11 = 91 LIN. FT.

EXIST. ROW MAIN ST. (HWY. 278) EXIST. ROW EXIST. ROW DUNN AVE. EXIST. ROW

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER

7/30/2016

CA0701

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE IIF AND WHERE DIRECTED BY THE ENGINEER

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
		8/7/19		6	ARK.			
				JOB NO.		CA0701	19	138

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER STANLEY G. KING No. 9066

8/7/19

PI159+30.05 EXIST. ROW
DELTA = 0°30'00" LT.
DUNN AVE.
EXIST. ROW
PROP. ROW
T.C.E.
T.C.E.
T.C.E.
T.C.E.
ABLE ST.
PI166+86.95
N 2°35'00" E
160+00
EXIST. ROW
N 2°35'00" E
165+00
EXIST. ROW
PROP. ROW
T.C.E.
PROP. ROW
CONST. LIMITS
T.C.E.
T.C.E.
T.C.E.
PC 165+28.76
PARK DR.
RESTRAINING CONDITION IN ACCORDANCE WITH SECTION 107.10(E) OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2014
N 27°25'00" E
INTERMITTENT STREAM
50' NATURAL BUFFER BOUNDARY
PROP. ROW
170+00
PC 172+49.65
PT 168+59.87
WETLAND AREA
50' NATURAL BUFFER BOUNDARY
INTERMITTENT STREAM
MOSES ST.
CONST. HWY. 167
N 27°25'00" E
175+00
PROP. ROW
T.C.E.
T.C.E.
PI175+12.07
DUNN AVE.

SECTION 4(F)/6(F) PROPERTY

STA. 169+00 - STA. 170+88
INSTALL E-11 = 188 LIN. FT.

EROSION CONTROL LEGEND

E-5	SAND BAG DITCH CHECKS
E-11	SILT FENCE
E-13	COMPOST FILTER SOCK DROP INLET PROTECTION (18")

REVISIONS

DATE	DESCRIPTION

STAGE CONST.

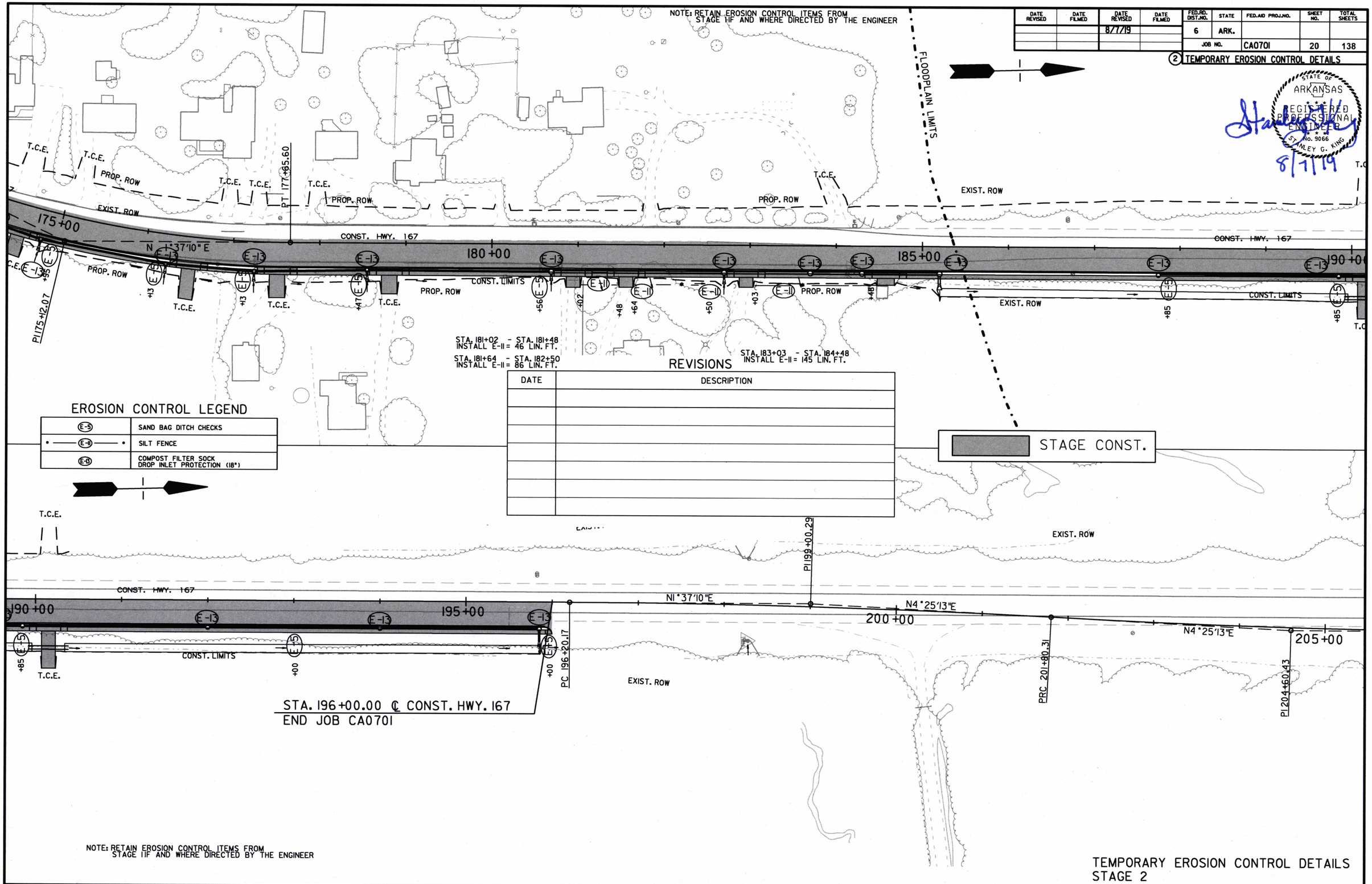
7/30/2016

CA0701

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
		8/7/19		6	ARK.			
				JOB NO.		CA0701	20	138

(2) TEMPORARY EROSION CONTROL DETAILS



REVISIONS

DATE	DESCRIPTION

EROSION CONTROL LEGEND

E-5	SAND BAG DITCH CHECKS
E-11	SILT FENCE
E-13	COMPOST FILTER SOCK DROP INLET PROTECTION (18")

NOTE: RETAIN EROSION CONTROL ITEMS FROM STAGE 1IF AND WHERE DIRECTED BY THE ENGINEER

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

7/30/2016

CA0701

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.		CA0701	21	138

(2) MAINTENANCE OF TRAFFIC DETAILS

STAGE 1 NOTES:

STA. 102+61.13 TO STA. 196+00.00
REDUCE WIDTH OF THE NB & SB LANES AND CLOSE LT. SHOULDER. STRIPE EXISTING PAVEMENT AS SHOWN.
SHIFT TRAFFIC AS SHOWN ON STAGE 1 MAINTENANCE OF TRAFFIC DETAILS REMOVE THE TRAFFIC SIGNAL AT THE INTERSECTION OF HWY. 167 AND HWY. 268, AND SET UP AN ALL-WAY STOP CONDITION.

NOTCH AND WIDEN LT. SIDE OF HWY. 167, DELINEATING THE WORK ZONE USING VERTICAL PANELS SPACED AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM SEWER.
EXTEND R.C. BOX CULVERTS @ STA. 142+99, STA. 145+73, AND STA. 169+82.

DO NOT PLACE FINAL LIFT OF ACHM SURFACE COURSE.

STAGE 2 NOTES:

STA. 102+61.13 TO STA. 196+00.00
PLACE CONSTRUCTION PAVEMENT MARKINGS AS SHOWN. MOVE SB TRAFFIC TO NEWLY CONSTRUCTED OUTSIDE SB LANE. MOVE NB TRAFFIC TO NEWLY CONSTRUCTED INSIDE SB LANE FOR STA. 144+75.00 TO STA. 184+75.00 AND TO EXISTING SB LANE FOR STA. 102+61.13 TO STA. 144+75.00 AND STA. 184+75.00 TO STA. 196+00.00.
ALL-WAY STOP CONDITION AT THE INTERSECTION OF HWY. 167 AND HWY. 278 TO REMAIN IN PLACE.

NOTCH AND WIDEN HWY. 167. ON RT., DELINEATING THE WORK ZONE USING TRAFFIC DRUMS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM SEWER.
COLD MILL THE EXISTING ASPHALT ON RT. AND REPLACE WITH ACHM SURFACE COURSE AS DIRECTED BY THE TYPICAL SECTIONS OF IMPROVEMENT.
EXTEND R.C. BOX CULVERTS @ STA. 142+99 AND STA. 145+73.

DO NOT PLACE FINAL LIFT OF ACHM SURFACE COURSE.

STAGE 3A NOTES:

STA. 102+61.13 TO STA. 196+00.00
PLACE CONSTRUCTION PAVEMENT MARKINGS. MOVE SB TRAFFIC TO NEWLY CONSTRUCTED INSIDE NB LANE.
MOVE NB TRAFFIC TO NEWLY CONSTRUCTED OUTSIDE NB LANE.
ALL-WAY STOP CONDITION AT THE INTERSECTION OF HWY. 167 AND HWY. 278 TO REMAIN IN PLACE.

COMPLETE MILLING OF REMAINING EXISTING PAVEMENT AS SHOWN ON STAGE 3A MAINTENANCE OF TRAFFIC DETAILS FROM STA. 102+61.13 TO STA. 142+50.00 AND FROM STA. 182+50.00 TO STA. 184+25.00.
COLD MILL THE EXISTING ASPHALT ON LT. AND REPLACE WITH ACHM SURFACE COURSE AS DIRECTED BY THE TYPICAL SECTIONS OF IMPROVEMENT.

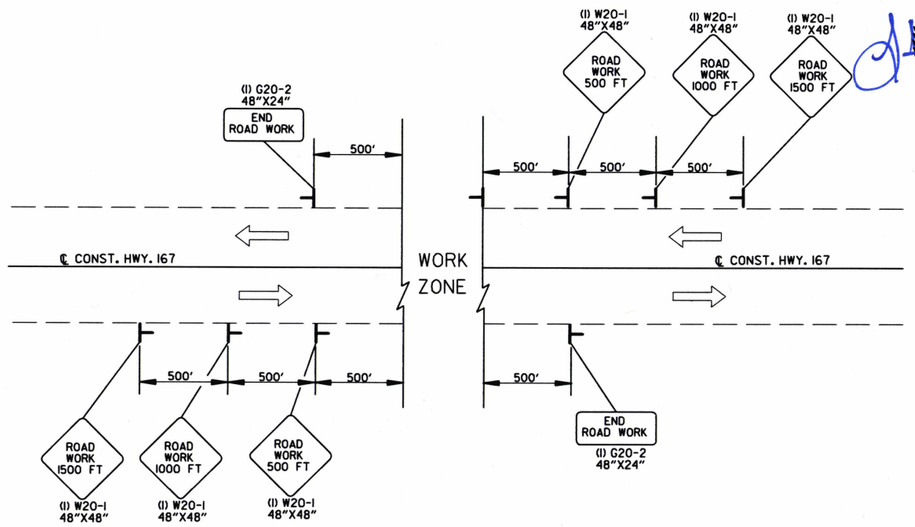
CONSTRUCT HWY. 167/HWY. 278 SIGNAL, BUT MAINTAIN ALL-WAY STOP CONDITION THROUGHOUT THIS STAGE.

DO NOT PLACE FINAL LIFT OF ACHM SURFACE COURSE.

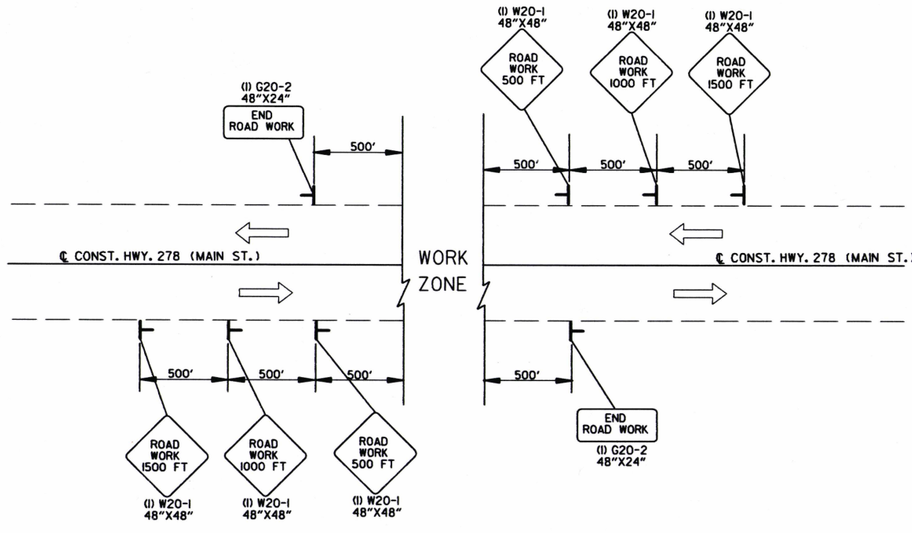
STAGE 3B NOTES:

PLACE FINAL LIFT OF ACHM SURFACE COURSE AND PERMANENT PAVEMENT MARKINGS AFTER ALL WIDENING HAS BEEN COMPLETED.
TRAFFIC SIGNAL WILL BE FULLY OPERATIONAL AT THIS STAGE.

OPEN TO TRAFFIC.



ADVANCE WARNING SIGNS AT BEGIN AND END WORK ZONES (HWY. 167)

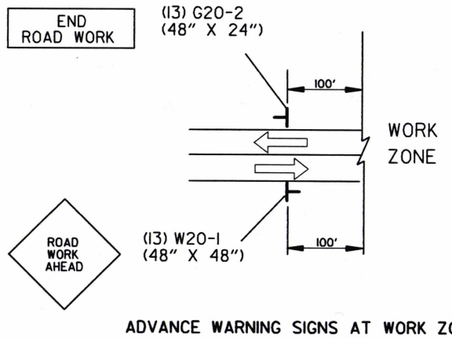


ADVANCE WARNING SIGNS AT BEGIN AND END WORK ZONES (HWY. 278)

DO NOT PASS — (8) R4-1 (24" X 30")

SHOULDER CLOSED — (8) RSP-1 (48" X 30")

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



ADVANCE WARNING SIGNS AT WORK ZONES ON SIDE STREETS

COUNTY RD. 128
MISSION RD.
WELCH ST.
W. ADAMS ST.
E. ADAMS ST.
ARCHER ST.
ELM ST.
HUNT ST.
DUNN AVE.
PARK DR.
ABLE ST.
MOSES ST.

● TRAFFIC DRUMS

⊢ VERTICAL PANEL

NOTE: ADVANCE WARNING SIGNS AND DEVICES SHOWN ARE TYPICAL FOR ALL STAGES OF CONSTRUCTION. COORDINATION MUST BE MAINTAINED WITH OTHER CONSTRUCTION ACTIVITIES REQUIRING ADVANCE WARNING SIGNS. SIGN LOCATIONS AND TYPES ARE TO BE MODIFIED WHEN ADDITIONAL SIGNS ARE REQUIRED FOR CHANNELIZATION, SHIFTS, OR CLOSURES AS REQUIRED FOR VARIOUS STAGES. SIGNS TO REMAIN IN PLACE UNTIL ALL STAGES ARE COMPLETE.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

7/30/2016

CA0701

MAINTENANCE OF TRAFFIC DETAILS
ALL STAGES

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.		CA0701	22	138

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING

4/5/19

STAGE 1 NOTES:

STA. 102+61.13 TO STA. 196+00.00
REDUCE WIDTH OF THE NB & SB LANES AND CLOSE LT. SHOULDER. STRIPE EXISTING PAVEMENT AS SHOWN.
SHIFT TRAFFIC AS SHOWN ON STAGE 1 MAINTENANCE OF TRAFFIC DETAILS REMOVE THE TRAFFIC SIGNAL AT THE INTERSECTION OF HWY. 167 AND HWY. 268, AND SET UP AN ALL-WAY STOP CONDITION.

NOTCH AND WIDEN LT. SIDE OF HWY. 167, DELINEATING THE WORK ZONE USING VERTICAL PANELS SPACED AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM SEWER.
EXTEND R.C. BOX CULVERTS @ STA. 142+99, STA. 145+73, AND STA. 169+82.

DO NOT PLACE FINAL LIFT OF ACHM SURFACE COURSE.

STAGE 2 NOTES:

STA. 102+61.13 TO STA. 196+00.00
PLACE CONSTRUCTION PAVEMENT MARKINGS AS SHOWN. MOVE SB TRAFFIC TO NEWLY CONSTRUCTED OUTSIDE SB LANE. MOVE NB TRAFFIC TO NEWLY CONSTRUCTED INSIDE SB LANE FOR STA. 144+75.00 TO STA. 184+75.00 AND TO EXISTING SB LANE FOR STA. 102+61.13 TO STA. 144+75.00 AND STA. 184+75.00 TO STA. 196+00.00.
ALL-WAY STOP CONDITION AT THE INTERSECTION OF HWY. 167 AND HWY. 278 TO REMAIN IN PLACE.

NOTCH AND WIDEN HWY. 167. ON RT., DELINEATING THE WORK ZONE USING TRAFFIC DRUMS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM SEWER.
COLD MILL THE EXISTING ASPHALT ON RT. AND REPLACE WITH ACHM SURFACE COURSE AS DIRECTED BY THE TYPICAL SECTIONS OF IMPROVEMENT.
EXTEND R.C. BOX CULVERTS @ STA. 142+99 AND STA. 145+73.

DO NOT PLACE FINAL LIFT OF ACHM SURFACE COURSE.

STAGE 3A NOTES:

STA. 102+61.13 TO STA. 196+00.00
PLACE CONSTRUCTION PAVEMENT MARKINGS. MOVE SB TRAFFIC TO NEWLY CONSTRUCTED INSIDE NB LANE.
MOVE NB TRAFFIC TO NEWLY CONSTRUCTED OUTSIDE NB LANE.
ALL-WAY STOP CONDITION AT THE INTERSECTION OF HWY. 167 AND HWY. 278 TO REMAIN IN PLACE.

COMPLETE MILLING OF REMAINING EXISTING PAVEMENT AS SHOWN ON STAGE 3A MAINTENANCE OF TRAFFIC DETAILS FROM STA. 102+61.13 TO STA. 142+50.00 AND FROM STA. 182+50.00 TO STA. 184+25.00.
COLD MILL THE EXISTING ASPHALT ON LT. AND REPLACE WITH ACHM SURFACE COURSE AS DIRECTED BY THE TYPICAL SECTIONS OF IMPROVEMENT.

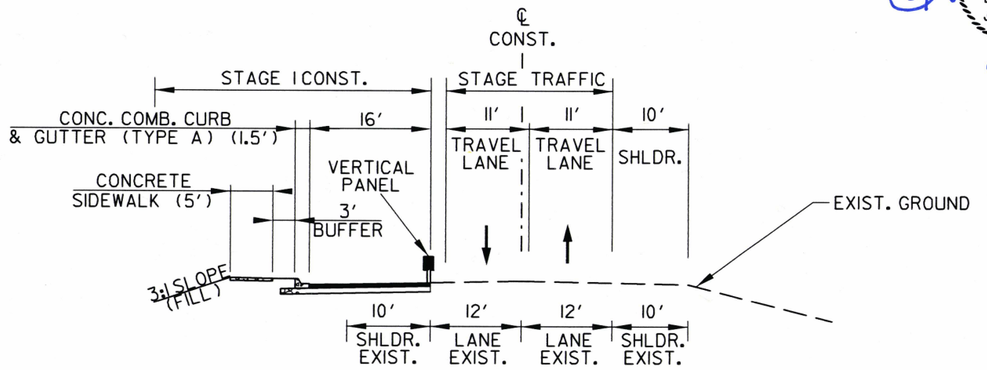
CONSTRUCT HWY. 167/HWY. 278 SIGNAL, BUT MAINTAIN ALL-WAY STOP CONDITION THROUGHOUT THIS STAGE.

DO NOT PLACE FINAL LIFT OF ACHM SURFACE COURSE.

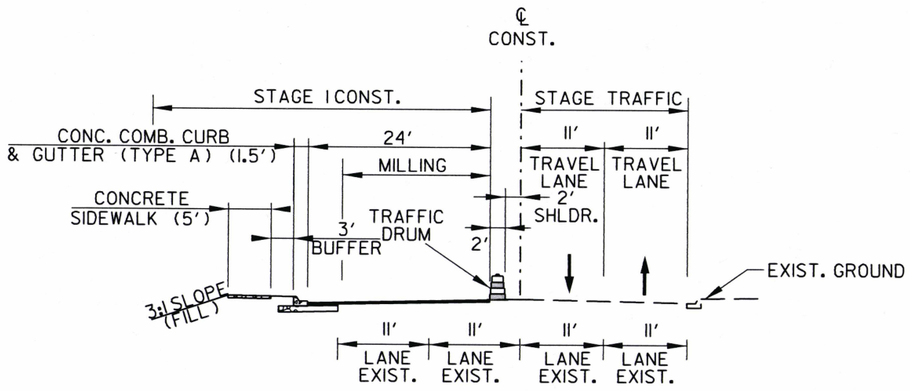
STAGE 3B NOTES:

PLACE FINAL LIFT OF ACHM SURFACE COURSE AND PERMANENT PAVEMENT MARKINGS AFTER ALL WIDENING HAS BEEN COMPLETED.
TRAFFIC SIGNAL WILL BE FULLY OPERATIONAL AT THIS STAGE.

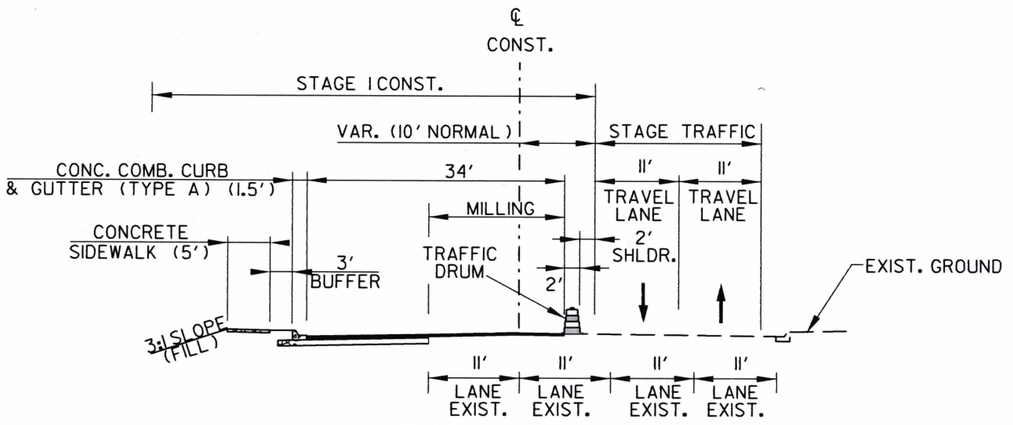
OPEN TO TRAFFIC.



STAGE 1 - MAIN LANES
STA. 102+61.13 TO STA. 142+50.00
STA. 187+00.00 TO STA. 196+00.00



STAGE 1 - MAIN LANES
STA. 142+50.00 TO STA. 159+30.05
STA. 177+65.60 TO STA. 187+00.00



STAGE 1 - MAIN LANES
STA. 159+30.05 TO STA. 177+65.60

MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

7/30/2016

CA0701

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.		CA0701	23	138

(2) MAINTENANCE OF TRAFFIC DETAILS

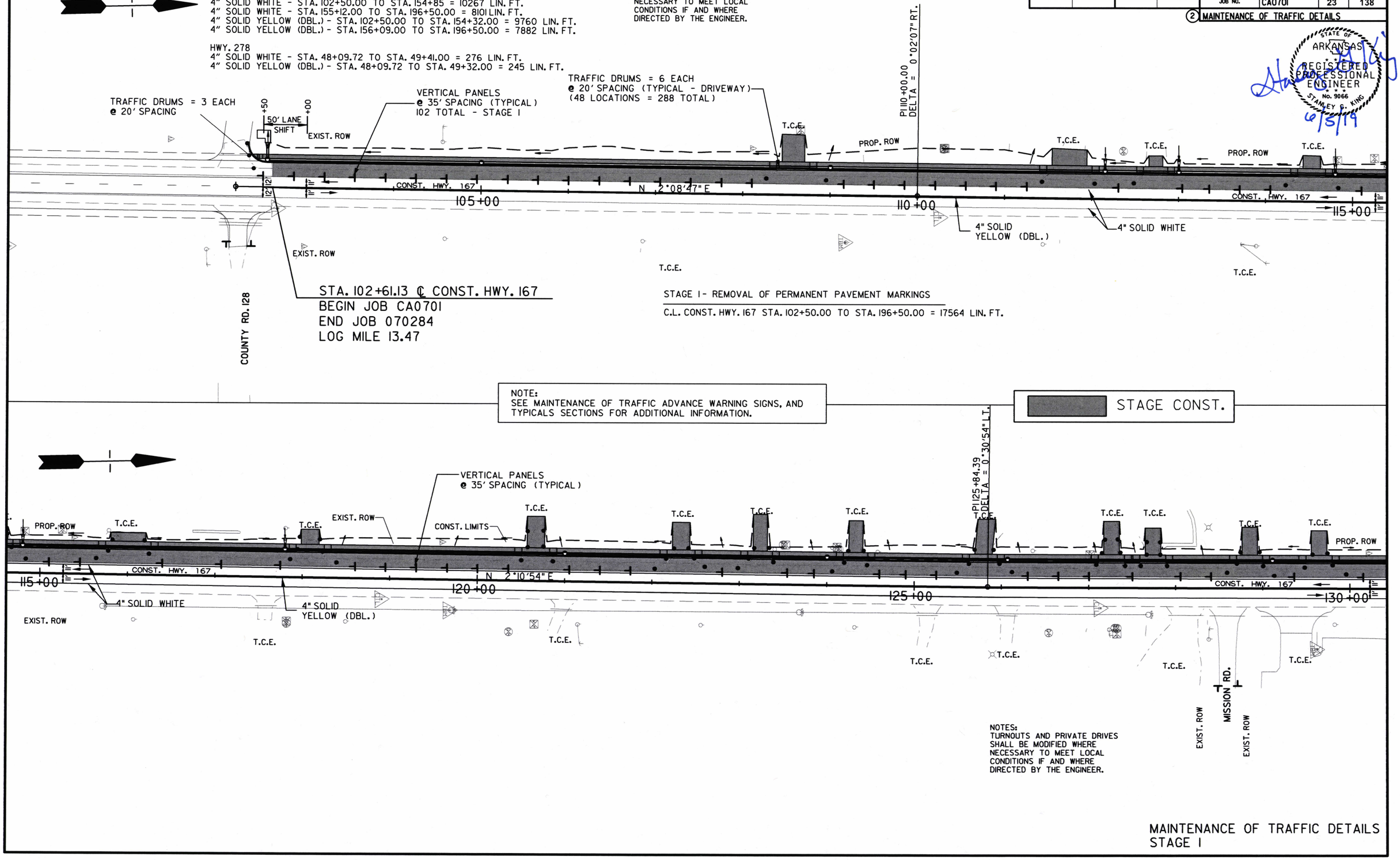
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/3/19

STAGE I- CONSTRUCTION PAVEMENT MARKINGS

HWY. 167
4" SOLID WHITE - STA. 102+50.00 TO STA. 154+85 = 10267 LIN. FT.
4" SOLID WHITE - STA. 155+12.00 TO STA. 196+50.00 = 8101 LIN. FT.
4" SOLID YELLOW (DBL.) - STA. 102+50.00 TO STA. 154+32.00 = 9760 LIN. FT.
4" SOLID YELLOW (DBL.) - STA. 156+09.00 TO STA. 196+50.00 = 7882 LIN. FT.

HWY. 278
4" SOLID WHITE - STA. 48+09.72 TO STA. 49+41.00 = 276 LIN. FT.
4" SOLID YELLOW (DBL.) - STA. 48+09.72 TO STA. 49+32.00 = 245 LIN. FT.

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



STAGE I- REMOVAL OF PERMANENT PAVEMENT MARKINGS

C.L. CONST. HWY. 167 STA. 102+50.00 TO STA. 196+50.00 = 17564 LIN. FT.

NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS, AND TYPICALS SECTIONS FOR ADDITIONAL INFORMATION.

STAGE CONST.

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

7/30/2016

CA0701

MAINTENANCE OF TRAFFIC DETAILS
STAGE I

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.		CA0701	24	138

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

TRAFFIC DRUMS = 10 EACH
@ 20' SPACING (TYPICAL - CITY STREETS)
(6 LOCATIONS = 60 TOTAL)

VERTICAL PANELS
@ 35' SPACING (TYPICAL)

CONST. LIMITS

T.C.E.

CONST. HWY. 167

130+00

N 1°40'00" E

135+00

EXIST. ROW

PROP. ROW

4" SOLID WHITE

EXIST. ROW
W. ADAMS ST.
EXIST. ROW

EXIST. ROW
ARCHER ST.
EXIST. ROW

TRAFFIC DRUMS
@ 35' SPACING (TYPICAL)
110 TOTAL - STAGE 1

PROP. ROW

140+00

4" SOLID YELLOW (DBL.)

145+00

EXIST. ROW

PROP. ROW

T.C.E.
450' LANE SHIFT

100' MIN.

+50

(1)W1-4R
(48" X 48")

XX M.P.H.

(1) W13-1
(24" X 24")

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

EXIST. ROW
WELCH ST.
EXIST. ROW

EXIST. ROW
E ADAMS ST.
EXIST. ROW

NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS, AND TYPICALS SECTIONS FOR ADDITIONAL INFORMATION.

STAGE CONST.

(1)W1-4R
(48" X 48")

EXIST. ROW
ELM ST.
EXIST. ROW

TRAFFIC DRUMS
@ 35' SPACING (TYPICAL)
110 TOTAL - STAGE 1

CONST. LIMITS

PROP. ROW

EXIST. ROW

T.C.E.

EXIST. ROW
HUNT ST.
EXIST. ROW

TRAFFIC DRUMS = 10 EACH
@ 20' SPACING (HWY. 278 RADII)

STOP

(2) R1-1
(30" X 30")

48+00

EXIST. ROW

S 86°19'11" E
HWY. 278

+32

4" SOLID YELLOW (DBL.)

TRAFFIC DRUMS = 8 EACH
@ 30' SPACING (HWY. 278)

4" SOLID WHITE

EXIST. ROW

PI 159+30.05
DELTA = 0°30'00" LT.
DUNN AVE.

EXIST. ROW

CONST. LIMITS

PROP. ROW

CONST. HWY. 167

145+00

N 3°00'00" E

150+00

155+00

N 3°05'00" E

CONST. HWY. 167

N 2°35'00"

160+00

EXIST. ROW

T.C.E.
450' LANE SHIFT (CONT'D)

PI 146+39.77
DELTA = 1°20'00" RT.

+00

PROP. ROW

4" SOLID YELLOW (DBL.)

T.C.E.

4" SOLID WHITE

T.C.E.

4" SOLID WHITE

+30

+10

+65

T.C.E.

T.C.E.

4" SOLID WHITE

4" SOLID WHITE

51+00

EXIST. ROW
PROP. ROW

EXIST. ROW
DUNN AVE.
EXIST. ROW

EXIST. ROW
HWY. 278

PI 155+00.00

STOP

(2) R1-1
(30" X 30")

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

STA. 155+00.00 ℄ CONST. HWY. 167 =
STA. 50+00.00 ℄ CONST. HWY. 278
◁ 89°24'11"

7/30/2016

CA0701

MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0701	25	138

(2) MAINTENANCE OF TRAFFIC DETAILS

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY C. KING
6/5/19

EXIST. ROW
PI 159+30.05
DELTA = 0°30'00" LT.
DUNN AVE.
EXIST. ROW
PROP. ROW
T.C.E.
T.C.E.
T.C.E.
CONST. LIMITS
ABLE ST.
T.C.E.
PI 166+86.95
TRAFFIC DRUMS @ 35' SPACING (TYPICAL)
N 2°35'00" E
CONST. HWY. 167
160+00
EXIST. ROW
N 2°35'00" E
165+00
PROP. ROW
EXIST. ROW
PROP. ROW
T.C.E.
T.C.E.
T.C.E.
T.C.E.
N 27°25'00" E
4" SOLID YELLOW (DBL.)
4" SOLID WHITE
PC 165+28.76
PARK DR.
EXIST. ROW
DUNN AVE.
EXIST. ROW
170+00
PT 168+59.87
PC 172+49.65
PROP. ROW
CONST. LIMITS
T.C.E.
T.C.
CONST. HWY. 167
N 27°25'00" E
175+00
EXIST. ROW
PROP. ROW
T.C.E.
MOSES ST.
PI 175+12.07

NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS, AND TYPICALS SECTIONS FOR ADDITIONAL INFORMATION.

STAGE CONST.

MAINTENANCE OF TRAFFIC DETAILS
STAGE I

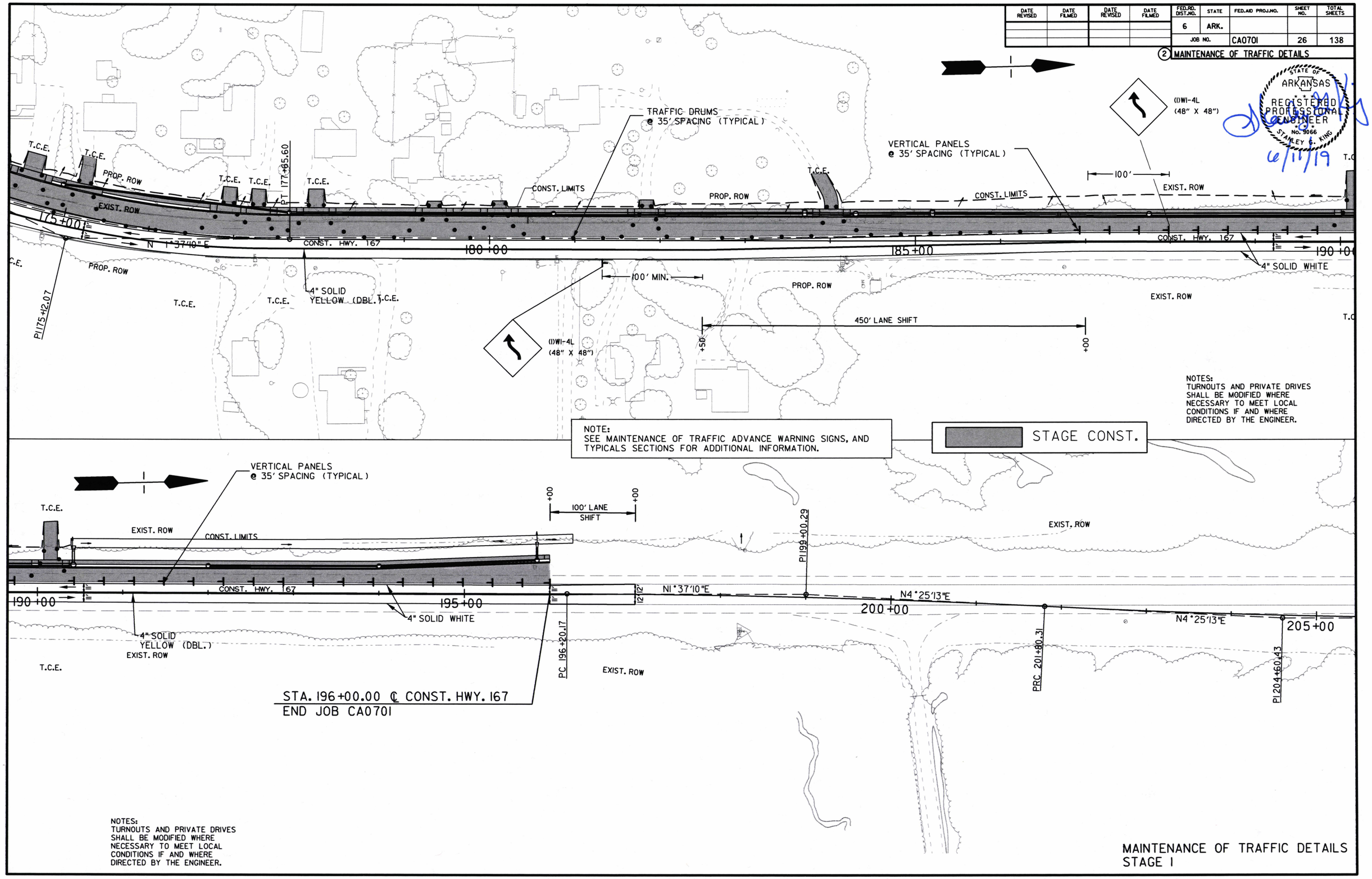
7/30/2016

CA0701

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.		CA0701	26	138

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 9066
STANLEY C. KING
6/11/19



MAINTENANCE OF TRAFFIC DETAILS
STAGE I

7/30/2016

CA0701

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.		CA0701	27	138

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

STAGE 1 NOTES:

STA. 102+61.13 TO STA. 196+00.00
REDUCE WIDTH OF THE NB & SB LANES AND CLOSE LT. SHOULDER. STRIPE EXISTING PAVEMENT AS SHOWN.
SHIFT TRAFFIC AS SHOWN ON STAGE 1 MAINTENANCE OF TRAFFIC DETAILS REMOVE THE TRAFFIC SIGNAL AT THE INTERSECTION OF HWY. 167 AND HWY. 268, AND SET UP AN ALL-WAY STOP CONDITION.

NOTCH AND WIDEN LT. SIDE OF HWY. 167, DELINEATING THE WORK ZONE USING VERTICAL PANELS SPACED AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM SEWER.
EXTEND R.C. BOX CULVERTS @ STA. 142+99, STA. 145+73, AND STA. 169+82.

DO NOT PLACE FINAL LIFT OF ACHM SURFACE COURSE.

STAGE 2 NOTES:

STA. 102+61.13 TO STA. 196+00.00
PLACE CONSTRUCTION PAVEMENT MARKINGS AS SHOWN. MOVE SB TRAFFIC TO NEWLY CONSTRUCTED OUTSIDE SB LANE. MOVE NB TRAFFIC TO NEWLY CONSTRUCTED INSIDE SB LANE FOR STA. 144+75.00 TO STA. 184+75.00 AND TO EXISTING SB LANE FOR STA. 102+61.13 TO STA. 144+75.00 AND STA. 184+75.00 TO STA. 196+00.00.
ALL-WAY STOP CONDITION AT THE INTERSECTION OF HWY. 167 AND HWY. 278 TO REMAIN IN PLACE.

NOTCH AND WIDEN HWY. 167. ON RT., DELINEATING THE WORK ZONE USING TRAFFIC DRUMS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM SEWER.
COLD MILL THE EXISTING ASPHALT ON RT. AND REPLACE WITH ACHM SURFACE COURSE AS DIRECTED BY THE TYPICAL SECTIONS OF IMPROVEMENT.
EXTEND R.C. BOX CULVERTS @ STA. 142+99 AND STA. 145+73.

DO NOT PLACE FINAL LIFT OF ACHM SURFACE COURSE.

STAGE 3A NOTES:

STA. 102+61.13 TO STA. 196+00.00
PLACE CONSTRUCTION PAVEMENT MARKINGS. MOVE SB TRAFFIC TO NEWLY CONSTRUCTED INSIDE NB LANE.
MOVE NB TRAFFIC TO NEWLY CONSTRUCTED OUTSIDE NB LANE.
ALL-WAY STOP CONDITION AT THE INTERSECTION OF HWY. 167 AND HWY. 278 TO REMAIN IN PLACE.

COMPLETE MILLING OF REMAINING EXISTING PAVEMENT AS SHOWN ON STAGE 3A MAINTENANCE OF TRAFFIC DETAILS FROM STA. 102+61.13 TO STA. 142+50.00 AND FROM STA. 182+50.00 TO STA. 184+25.00.
COLD MILL THE EXISTING ASPHALT ON LT. AND REPLACE WITH ACHM SURFACE COURSE AS DIRECTED BY THE TYPICAL SECTIONS OF IMPROVEMENT.

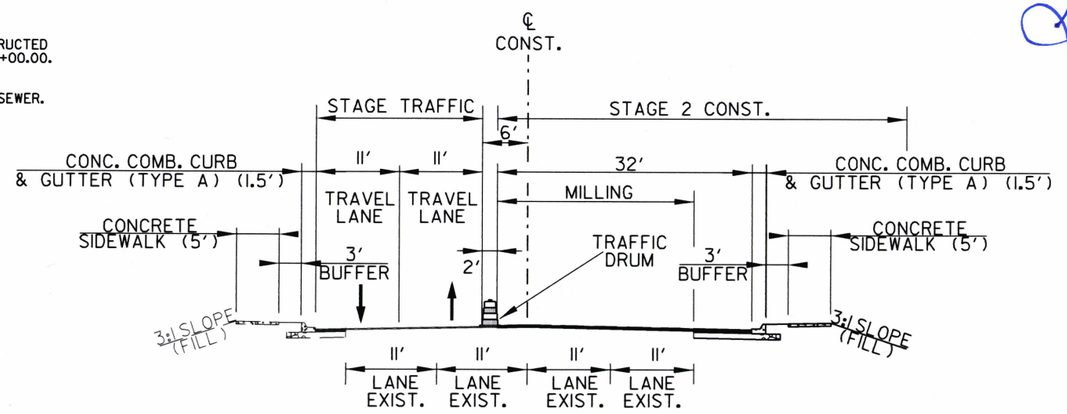
CONSTRUCT HWY. 167/HWY. 278 SIGNAL, BUT MAINTAIN ALL-WAY STOP CONDITION THROUGHOUT THIS STAGE.

DO NOT PLACE FINAL LIFT OF ACHM SURFACE COURSE.

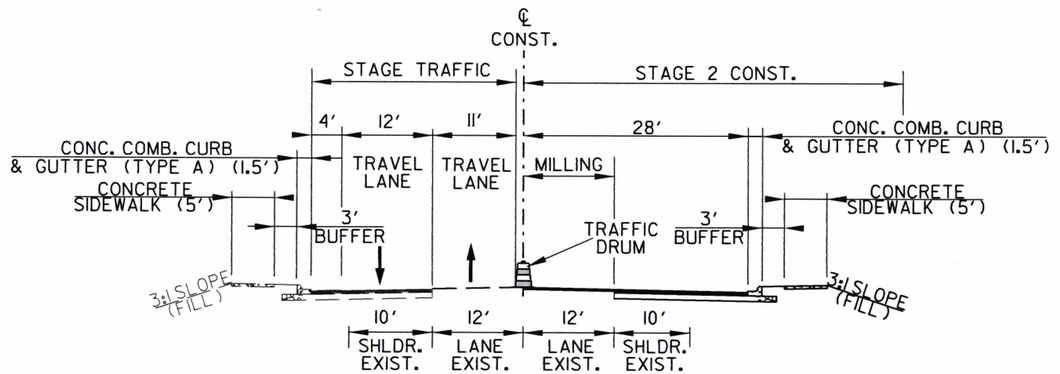
STAGE 3B NOTES:

PLACE FINAL LIFT OF ACHM SURFACE COURSE AND PERMANENT PAVEMENT MARKINGS AFTER ALL WIDENING HAS BEEN COMPLETED.
TRAFFIC SIGNAL WILL BE FULLY OPERATIONAL AT THIS STAGE.

OPEN TO TRAFFIC.



STAGE 2 - MAIN LANES
STA. 144+75.00 TO STA. 184+75.00



STAGE 2 - MAIN LANES
STA. 102+61.13 TO STA. 144+75.00
STA. 184+75.00 TO STA. 196+00.00

7/30/2016

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MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

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.		CA0701	28	138

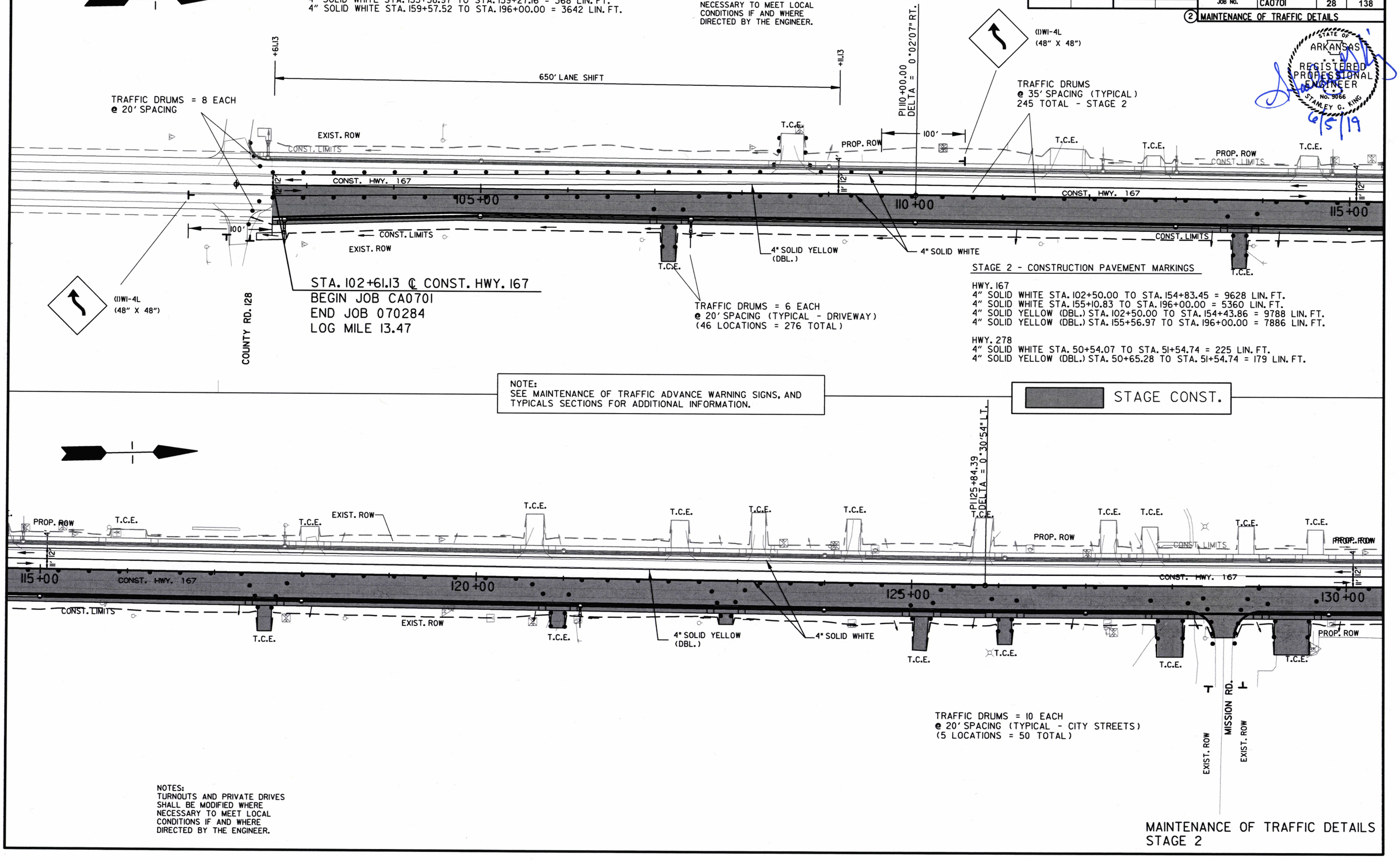
(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY C. KING
6/5/19

STAGE 2 - REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS

4" SOLID WHITE STA. 102+61.13 TO STA. 154+42.06 = 5181 LIN. FT.
4" SOLID WHITE STA. 155+58.97 TO STA. 159+27.16 = 368 LIN. FT.
4" SOLID WHITE STA. 159+57.52 TO STA. 196+00.00 = 3642 LIN. FT.

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



STAGE 2 - CONSTRUCTION PAVEMENT MARKINGS

HWY. 167
4" SOLID WHITE STA. 102+50.00 TO STA. 154+83.45 = 9628 LIN. FT.
4" SOLID WHITE STA. 155+10.83 TO STA. 196+00.00 = 5360 LIN. FT.
4" SOLID YELLOW (DBL.) STA. 102+50.00 TO STA. 154+43.86 = 9788 LIN. FT.
4" SOLID YELLOW (DBL.) STA. 155+56.97 TO STA. 196+00.00 = 7886 LIN. FT.

HWY. 278
4" SOLID WHITE STA. 50+54.07 TO STA. 51+54.74 = 225 LIN. FT.
4" SOLID YELLOW (DBL.) STA. 50+65.28 TO STA. 51+54.74 = 179 LIN. FT.

NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS, AND TYPICALS SECTIONS FOR ADDITIONAL INFORMATION.

STAGE CONST.

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

7/30/2016

CA0701

MAINTENANCE OF TRAFFIC DETAILS STAGE 2

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.		CA0701	29	138

(2) MAINTENANCE OF TRAFFIC DETAILS

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

ROAD WORK AHEAD — (I) W20-1 (48" X 48")

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
STANLEY G. KING
No. 9066
6/5/19

PROP. ROW | T.C.E. | 12' | 11' | CONST. HWY. 167 | CONST. LIMITS | 4" SOLID WHITE | 4" SOLID YELLOW (DBL.) | EXIST. ROW | W. ADAMS ST. | WELCH ST. | E ADAMS ST. | ARCHER ST.

130+00 | 135+00 | 140+00 | 145+00

225'
+75

NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS, AND TYPICALS SECTIONS FOR ADDITIONAL INFORMATION.

STAGE CONST.

(I)WI-4L (48" X 48")

ELM ST. | HUNT ST. | MAIN ST. (HWY. 278) | DUNN AVE.

100' MIN.

145+00 | 150+00 | 155+00 | 160+00

48+00 | 51+00

(I) RI-1 (30" X 30") | STOP

4" SOLID WHITE | 4" SOLID YELLOW (DBL.)

TRAFFIC DRUMS = 10 EACH @ 20' SPACING (HWY. 278 RADII)

225' LANE SHIFT

PI 146+39.77
DELTA = 1°20'00" RT.

PI 155+00.00

PI 159+30.05
DELTA = 0°30'00" LT.

STA. 155+00.00 ℄ CONST. HWY. 167 =
STA. 50+00.00 ℄ CONST. HWY. 278
◁ 89°24'11"

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

MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

7/30/2016

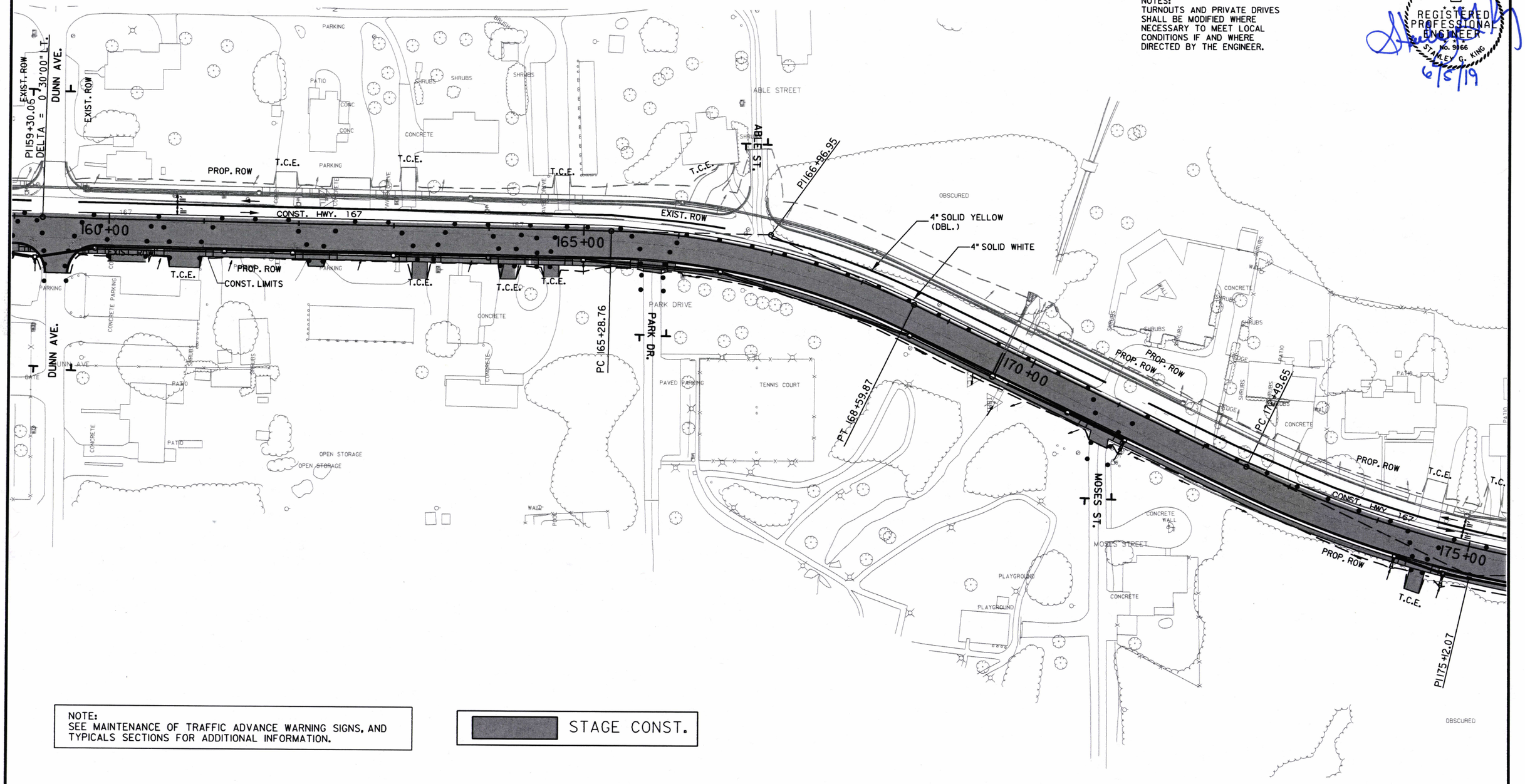
CA0701

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.		CA0701	30	138

(2) MAINTENANCE OF TRAFFIC DETAILS

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9166
STANLEY G. KING
6/5/19



NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS, AND TYPICALS SECTIONS FOR ADDITIONAL INFORMATION.

STAGE CONST.

MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

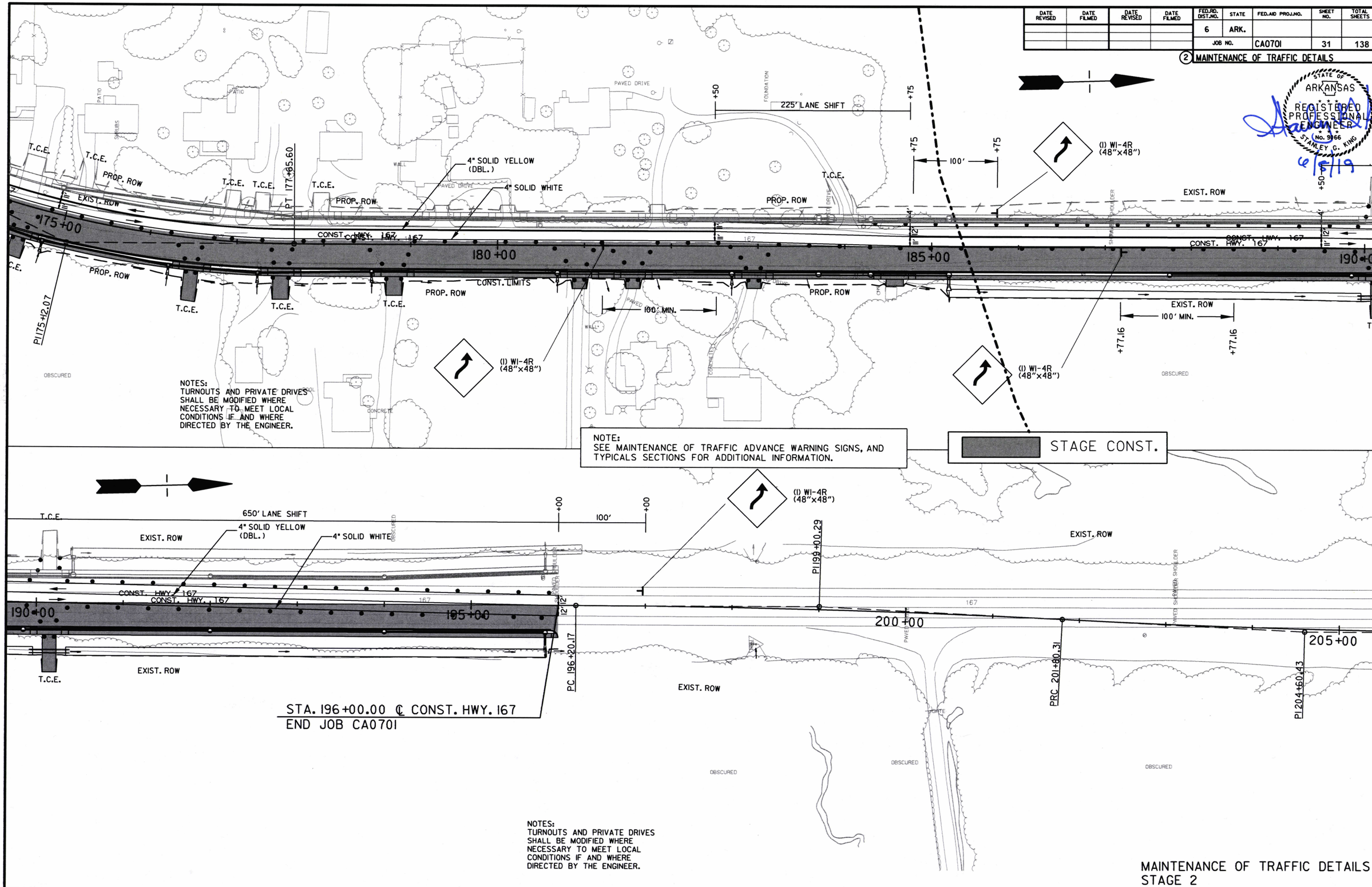
7/30/2016

CA0701

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.		CA0701	31	138

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19



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

MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

7/30/2016

CA0701

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.		CA0701	32	138

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

STAGE 1NOTES:

STA. 102+61.13 TO STA. 196+00.00
REDUCE WIDTH OF THE NB & SB LANES AND CLOSE LT. SHOULDER. STRIPE EXISTING PAVEMENT AS SHOWN.
SHIFT TRAFFIC AS SHOWN ON STAGE 1MAINTENANCE OF TRAFFIC DETAILS REMOVE THE TRAFFIC SIGNAL AT THE INTERSECTION OF HWY. 167 AND HWY. 268, AND SET UP AN ALL-WAY STOP CONDITION.

NOTCH AND WIDEN LT. SIDE OF HWY. 167, DELINEATING THE WORK ZONE USING VERTICAL PANELS SPACED AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM SEWER.
EXTEND R.C. BOX CULVERTS @ STA. 142+99, STA. 145+73, AND STA. 169+82.

DO NOT PLACE FINAL LIFT OF ACHM SURFACE COURSE.

STAGE 2 NOTES:

STA. 102+61.13 TO STA. 196+00.00
PLACE CONSTRUCTION PAVEMENT MARKINGS AS SHOWN. MOVE SB TRAFFIC TO NEWLY CONSTRUCTED OUTSIDE SB LANE. MOVE NB TRAFFIC TO NEWLY CONSTRUCTED INSIDE SB LANE FOR STA. 144+75.00 TO STA. 184+75.00 AND TO EXISTING SB LANE FOR STA. 102+61.13 TO STA. 144+75.00 AND STA. 184+75.00 TO STA. 196+00.00.
ALL-WAY STOP CONDITION AT THE INTERSECTION OF HWY. 167 AND HWY. 278 TO REMAIN IN PLACE.

NOTCH AND WIDEN HWY. 167. ON RT., DELINEATING THE WORK ZONE USING TRAFFIC DRUMS AT 35' O.C. ON THE SIDE BEING WIDENED, AND CONSTRUCT STORM SEWER.
COLD MILL THE EXISTING ASPHALT ON RT. AND REPLACE WITH ACHM SURFACE COURSE AS DIRECTED BY THE TYPICAL SECTIONS OF IMPROVEMENT.
EXTEND R.C. BOX CULVERTS @ STA. 142+99 AND STA. 145+73.

DO NOT PLACE FINAL LIFT OF ACHM SURFACE COURSE.

STAGE 3A NOTES:

STA. 102+61.13 TO STA. 196+00.00
PLACE CONSTRUCTION PAVEMENT MARKINGS. MOVE SB TRAFFIC TO NEWLY CONSTRUCTED INSIDE NB LANE.
MOVE NB TRAFFIC TO NEWLY CONSTRUCTED OUTSIDE NB LANE.
ALL-WAY STOP CONDITION AT THE INTERSECTION OF HWY. 167 AND HWY. 278 TO REMAIN IN PLACE.

COMPLETE MILLING OF REMAINING EXISTING PAVEMENT AS SHOWN ON STAGE 3A MAINTENANCE OF TRAFFIC DETAILS FROM STA. 102+61.13 TO STA. 142+50.00 AND FROM STA. 182+50.00 TO STA. 184+25.00.
COLD MILL THE EXISTING ASPHALT ON LT. AND REPLACE WITH ACHM SURFACE COURSE AS DIRECTED BY THE TYPICAL SECTIONS OF IMPROVEMENT.

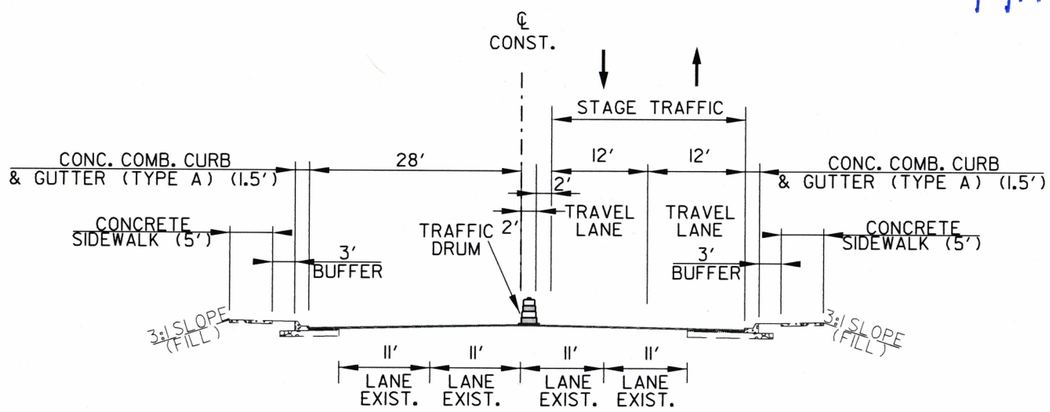
CONSTRUCT HWY. 167/HWY. 278 SIGNAL, BUT MAINTAIN ALL-WAY STOP CONDITION THROUGHOUT THIS STAGE.

DO NOT PLACE FINAL LIFT OF ACHM SURFACE COURSE.

STAGE 3B NOTES:

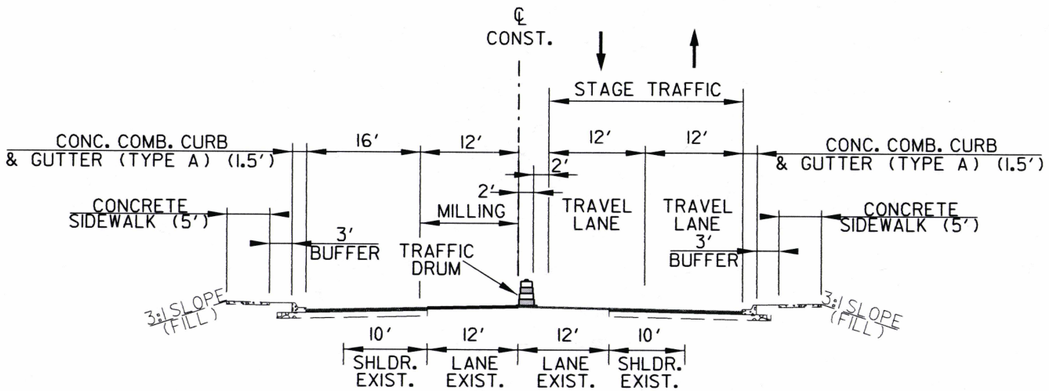
PLACE FINAL LIFT OF ACHM SURFACE COURSE AND PERMANENT PAVEMENT MARKINGS AFTER ALL WIDENING HAS BEEN COMPLETED.
TRAFFIC SIGNAL WILL BE FULLY OPERATIONAL AT THIS STAGE.

OPEN TO TRAFFIC.



STAGE 3A - MAIN LANES

STA. 102+61.13 TO STA. 128+72.00
STA. 147+00.00 TO STA. 182+50.00
STA. 184+25.00 TO STA. 196+00.00



STAGE 3A - MAIN LANES

STA. 128+72.00 TO STA. 147+00.00
STA. 182+50.00 TO STA. 184+25.00

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MAINTENANCE OF TRAFFIC DETAILS
STAGE 3

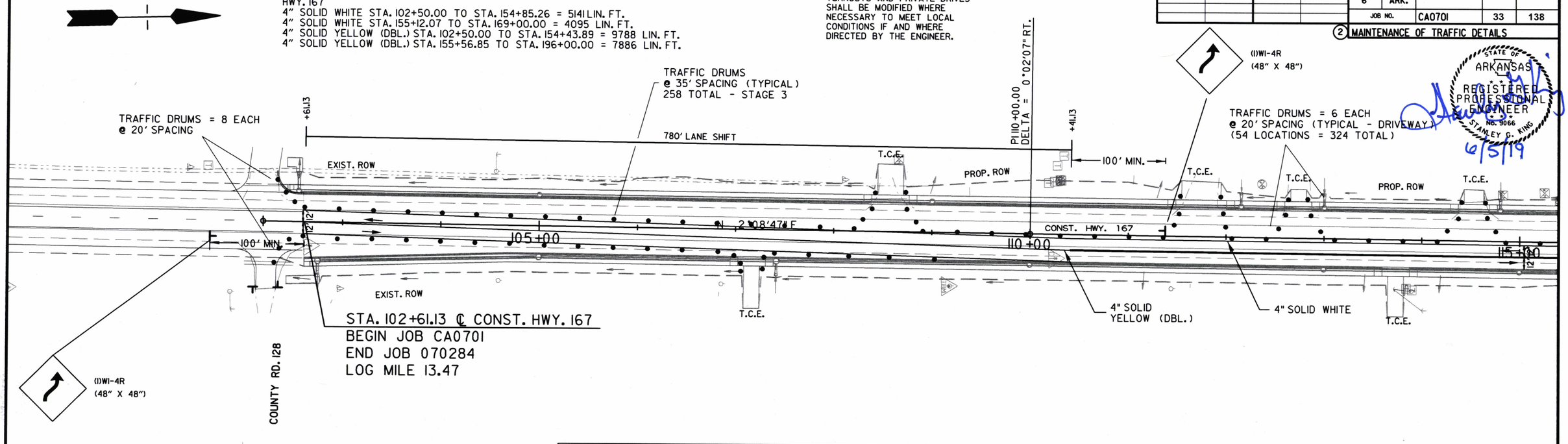
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	33	138

(2) MAINTENANCE OF TRAFFIC DETAILS

STAGE 3 - CONSTRUCTION PAVEMENT MARKINGS

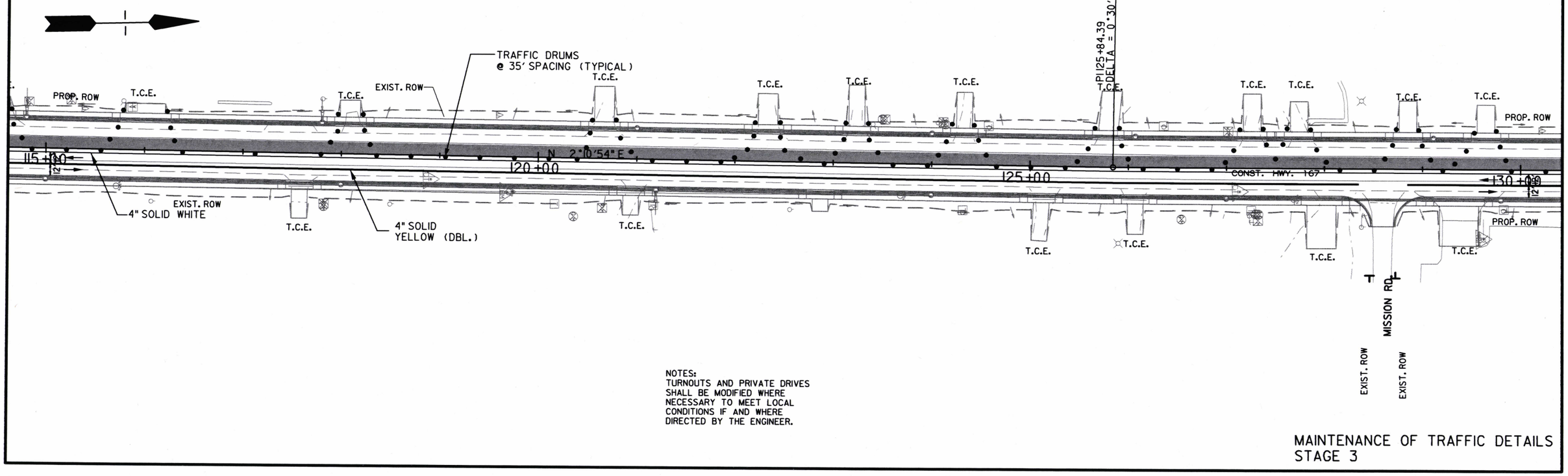
HWY. 167
4" SOLID WHITE STA. 102+50.00 TO STA. 154+85.26 = 5141 LIN. FT.
4" SOLID WHITE STA. 155+12.07 TO STA. 169+00.00 = 4095 LIN. FT.
4" SOLID YELLOW (DBL.) STA. 102+50.00 TO STA. 154+43.89 = 9788 LIN. FT.
4" SOLID YELLOW (DBL.) STA. 155+56.85 TO STA. 196+00.00 = 7886 LIN. FT.

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



NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS, AND TYPICALS SECTIONS FOR ADDITIONAL INFORMATION.

STAGE CONST.



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

MAINTENANCE OF TRAFFIC DETAILS
STAGE 3

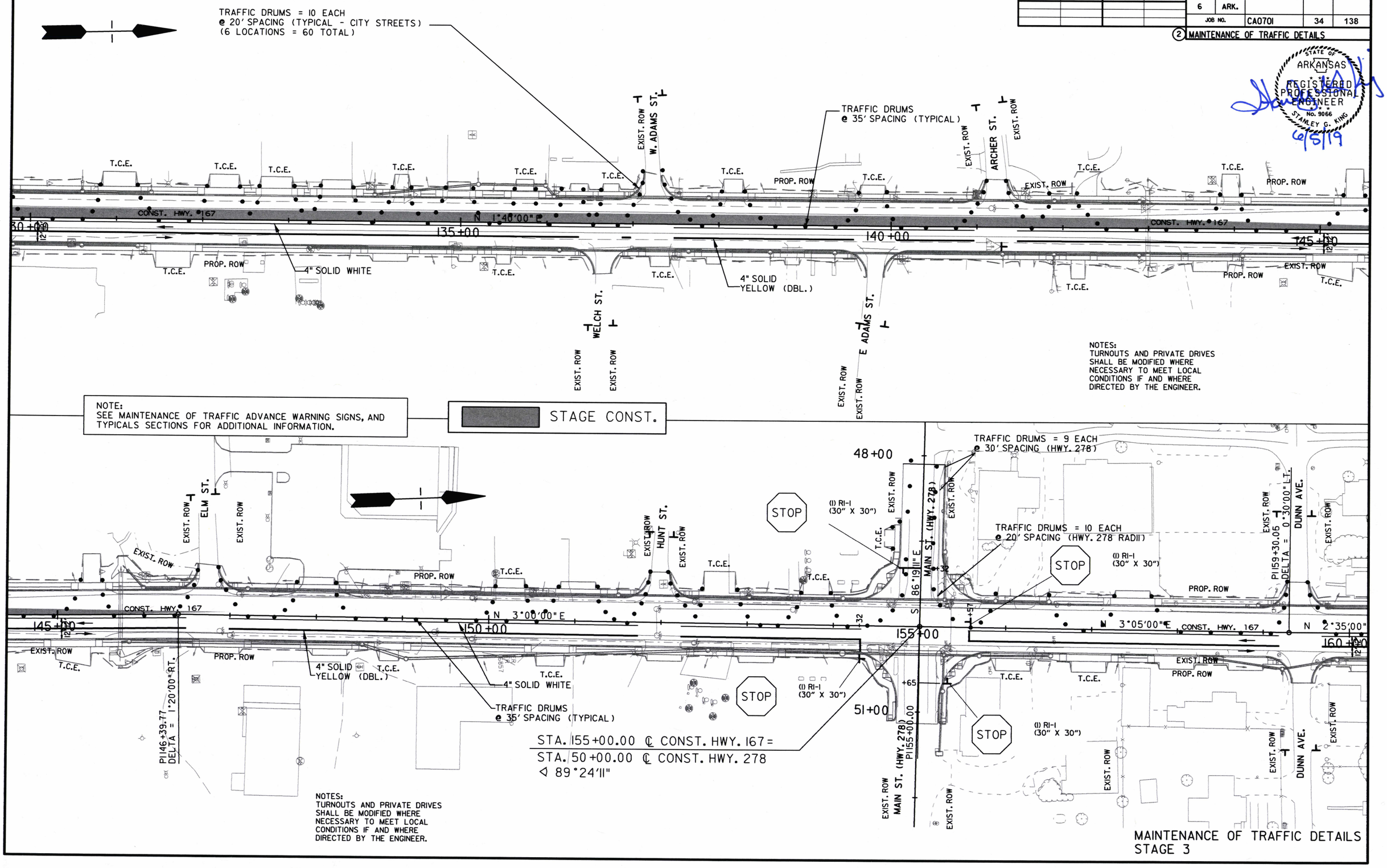
7/30/2016

CA0701

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.		CA0701	34	138

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9066 STANLEY G. KING 6/5/19



MAINTENANCE OF TRAFFIC DETAILS
STAGE 3

7/30/2016

CA0701

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.		CA0701	35	138

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY C. KING
6/5/19

EXIST. ROW
PI 159+30.05
DELTA = 0°30'00" L.T.
DUNN AVE.
EXIST. ROW
PROP. ROW
T.C.E.
T.C.E.
T.C.E.
T.C.E.
ABLE ST.
PI 166+86.95
TRAFFIC DRUMS @ 35' SPACING (TYPICAL)
N 2°35'00" E
160+00
12'
EXIST. ROW
N 2°35'00" E
165+00
PROP. ROW
T.C.E.
T.C.E.
T.C.E.
T.C.E.
4" SOLID YELLOW (DBL.)
PC 165+28.76
PARK DR.
4" SOLID WHITE
EXIST. ROW
N 27°25'00" E
170+00
EXIST. ROW
DUNN AVE.
PT 168+59.87
PC 172+49.65
MOSES ST.
PROP. ROW
T.C.E.
T.C.
CONST. HWY 167
N 27°25'00" E
EXIST. ROW
175+00
PROP. ROW
T.C.E.
PI 175+12.07

NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS, AND TYPICALS SECTIONS FOR ADDITIONAL INFORMATION.

STAGE CONST.

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

MAINTENANCE OF TRAFFIC DETAILS
STAGE 3

7/30/2016

CA0701

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.		CA0701	36	138

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

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

TRAFFIC DRUMS
@ 35' SPACING (TYPICAL)

T.C.E.
PROP. ROW
EXIST. ROW
175+00
N1°37'10"E
PI 175+12.07
CONST. HWY. 167
PT 177+85.60
180+00
185+00
190+00
4" SOLID YELLOW (DBL.)
4" SOLID WHITE
12'
12'
EXIST. ROW
100' MIN.
+00
(I)WI-4L
(48" X 48")

NOTE:
SEE MAINTENANCE OF TRAFFIC ADVANCE WARNING SIGNS, AND TYPICALS SECTIONS FOR ADDITIONAL INFORMATION.

STAGE CONST.

TRAFFIC DRUMS
@ 35' SPACING (TYPICAL)

T.C.E.
800' LANE SHIFT
EXIST. ROW
CONST. HWY. 167
190+00
195+00
200+00
205+00
N1°37'10"E
N4°25'13"E
PI 199+00.29
PC 196+20.17
PRC 201+80.31
PI 204+60.43
4" SOLID WHITE
4" SOLID YELLOW (DBL.)
EXIST. ROW

STA. 196+00.00 ℄ CONST. HWY. 167
END JOB CA0701

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

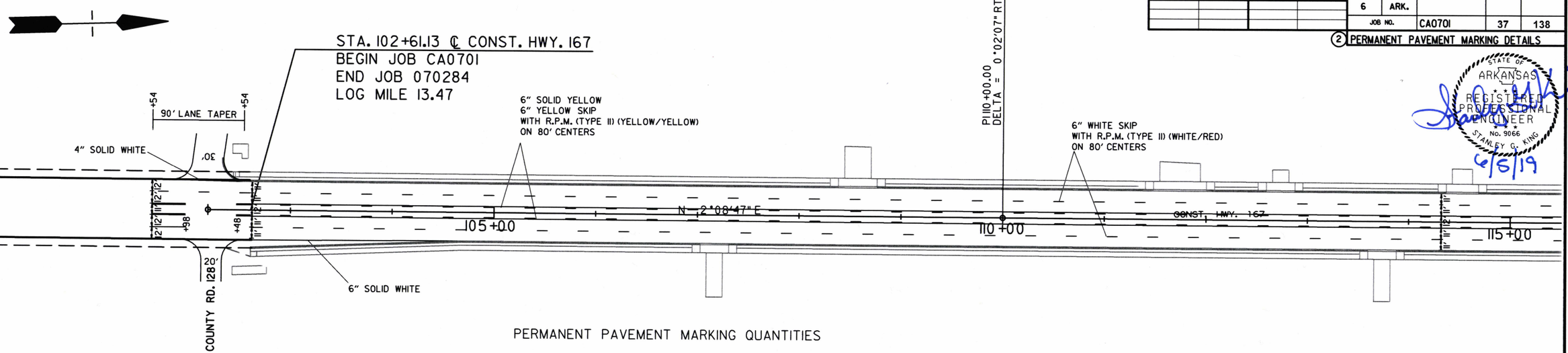
7/30/2016

CA0701

MAINTENANCE OF TRAFFIC DETAILS
STAGE 3

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	37	138

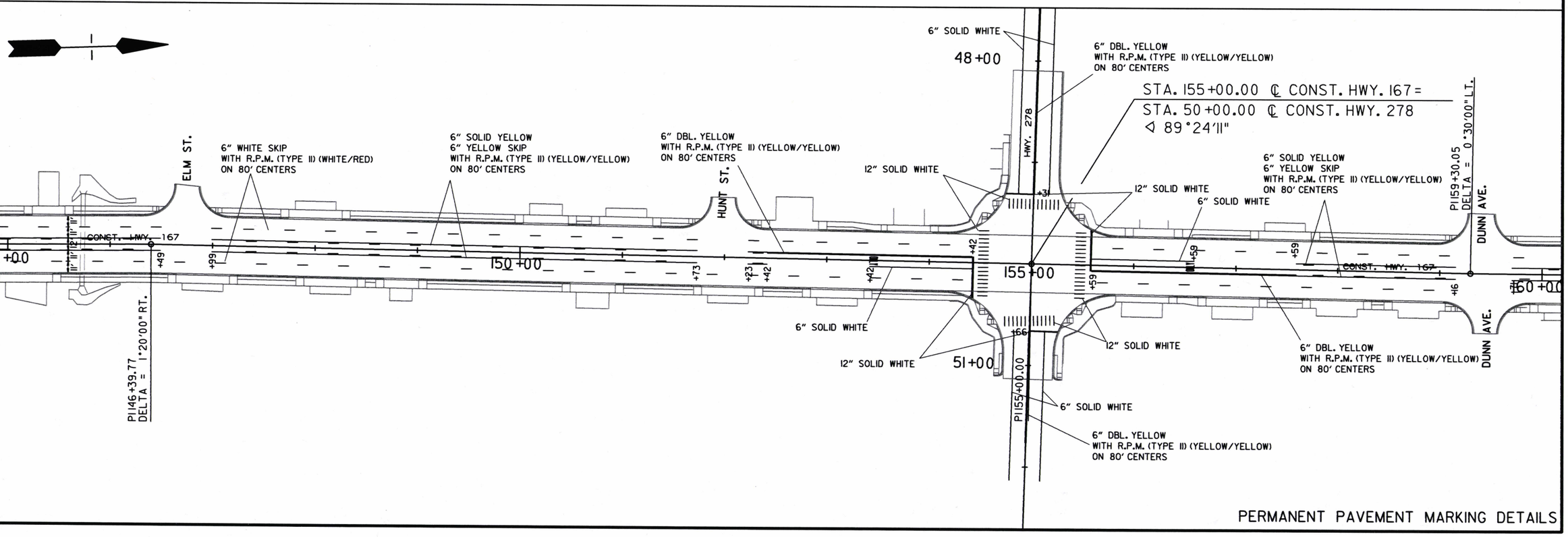
(2) PERMANENT PAVEMENT MARKING DETAILS



PERMANENT PAVEMENT MARKING QUANTITIES

THERMOPLASTIC PAVEMENT MARKING WHITE (6") = 5294 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (6") = 23745 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING WHITE (12") = 740 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING (ARROW) = 2 EACH
THERMOPLASTIC PAVEMENT MARKING (WORD) = 2 EACH
RAISED PAVEMENT MARKERS (TYPE II)(WHITE/RED) = 229 EACH
RAISED PAVEMENT MARKERS (TYPE II)(YELLOW/YELLOW) = 225 EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/6/19



PERMANENT PAVEMENT MARKING DETAILS

7/30/2016

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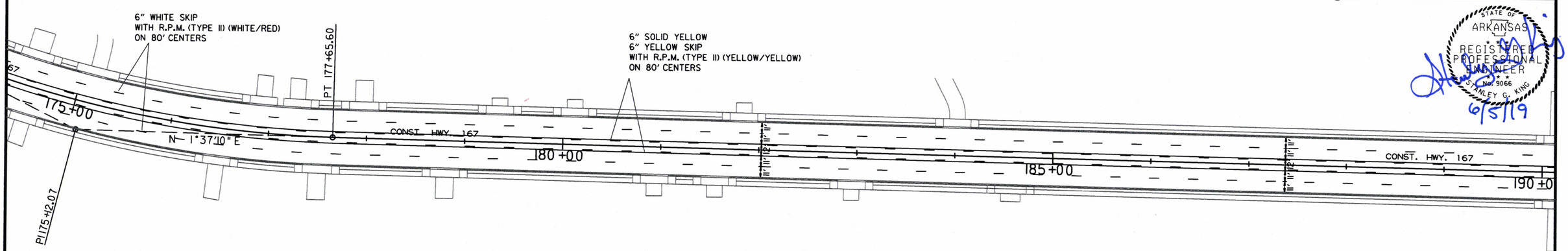
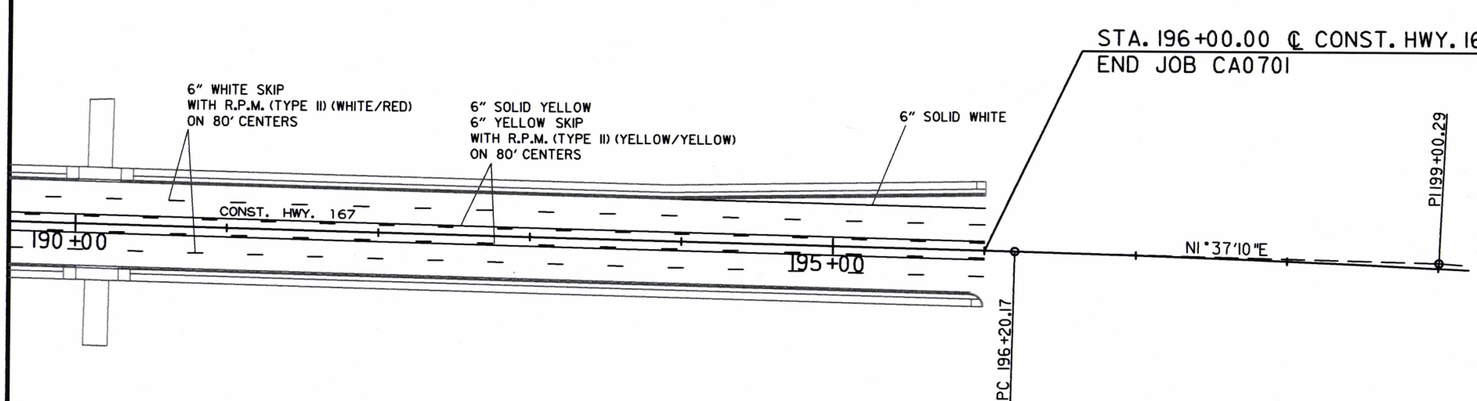
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	38	138

(2) PERMANENT PAVEMENT MARKING DETAILS





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PERMANENT PAVEMENT MARKING DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	39	138

(2) SOIL LOG

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9866
STANLEY G. KING
6/5/19

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
111+00	33	31	33.13	92	28	13.26	36' LT.	4.5-6	27	13	A-6 (5)	BR/GR
111+00	33	31	33.13	92	28	13.26	36' LT.	9.5-11	NP	NP	A-1-b (0)	BR/WH
111+00	33	31	33.13	92	28	13.26	36' LT.	24.5-26	NP	NP	A-1-b (0)	BR/LT BR
115+00	33	31	37.06	92	28	12.36	25' RT.	0-5	16	3	A-4 (0)	BR/GR
143+05	33	32	4.81	92	28	12.11	31' LT.	5-6.5	21	7	A-4 (2)	BR/GR
143+05	33	32	4.81	92	28	12.11	31' LT.	10-11.2	33	14	A-6 (6)	BROWN
143+05	33	32	4.81	92	28	12.11	31' LT.	15-16.5	19	2	A-4 (0)	BROWN
143+05	33	32	4.81	92	28	12.11	31' LT.	25-26.5	31	11	A-6 (10)	BROWN
150+00	33	32	11.69	92	28	11.89	37' LT.	0-5	29	14	A-2-6 (1)	BROWN
159+95	33	32	21.52	92	28	11.28	35' LT.	0-5	22	8	A-4 (1)	BR/RED
170+00	33	32	30.95	92	28	8.36	48' RT.	0-5	25	11	A-6 (1)	BROWN
170+00	33	32	31.27	92	28	9.16	38' LT.	4.1-5.6	21	7	A-4 (0)	BR/GR
170+00	33	32	31.27	92	28	9.16	38' LT.	9.1-10.5	38	16	A-6 (16)	GR/TAN
170+00	33	32	31.27	92	28	9.16	38' LT.	19.1-20.6	28	8	A-4 (1)	GRAY
170+00	33	32	31.27	92	28	9.16	38' LT.	24.1-25.6	23	1	A-2-4 (0)	GRAY
175+00	33	32	35.59	92	28	6.02	39' RT.	0-5	28	13	A-6 (1)	BROWN
180+00	33	32	40.60	92	28	6.38	33' LT.	0-5	25	11	A-6 (1)	RED
190+00	33	32	50.46	92	28	5.38	26' RT.	4.5-6	19	4	A-4 (0)	BR/GR
190+00	33	32	50.46	92	28	5.38	26' RT.	9.5-11	NP	NP	A-1-b (0)	BR/GR
190+00	33	32	50.46	92	28	5.38	26' RT.	14.5-16	8	NP	A-4 (0)	GRAY
190+00	33	32	50.46	92	28	5.38	26' RT.	19.5-20.8	NP	NP	A-4 (0)	BR/GR
190+00	33	32	50.46	92	28	5.38	26' RT.	24.5-26	25	1	A-4 (0)	BR/GR
194+00	33	32	54.46	92	28	6.02	38' LT.	4.5-5.7	19	3	A-4 (0)	GR/TAN
194+00	33	32	54.46	92	28	6.02	38' LT.	9.5-11	NP	NP	A-2-4 (0)	GRAY
194+00	33	32	54.46	92	28	6.02	38' LT.	14.5-16	14	NP	A-4 (0)	GRAY
194+00	33	32	54.46	92	28	6.02	38' LT.	19.5-21	24	NP	A-4 (0)	GRAY
194+00	33	32	54.46	92	28	6.02	38' LT.	24.5-26	27	5	A-4 (0)	GRAY
195+00	33	32	55.43	92	28	5.92	30' LT.	0-5	19	2	A-4 (0)	BR/GR

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.
NP - NON-PLASTIC

6/4/2019

CA0701

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
		8/7/19		6	ARK.			
				JOB NO.		CA0701	40	138

(2) QUANTITIES

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		CONSTRUCTION PROJECT INFORMATION UPDATE	VERTICAL PANELS	TRAFFIC DRUMS
			LIN. FT. - EACH				NO.	SQ. FT.	EACH		
W20-1	ROAD WORK 1500 FT.	48"x48"	4	4	4	4	4	64.0			
W20-1	ROAD WORK 1000 FT.	48"x48"	4	4	4	4	4	64.0			
W20-1	ROAD WORK 500 FT.	48"x48"	4	4	4	4	4	64.0			
W20-1	ROAD WORK AHEAD	48"x48"	13	13	13	13	13	208.0			
G20-2	END ROAD WORK	48"x24"	17	17	17	17	17	136.0			
W1-4AR	REVERSE CURVE RT.	48"x48"	2	4	2	4	4	64.0			
W1-4AL	REVERSE CURVE LT.	48"x48"	2	2	2	2	2	32.0			
W13-1	SPEED LIMIT (ADVISORY)	24"x24"	1			1	1	4.0			
R4-1	DO NOT PASS	24"x30"	8	8	8	8	8	40.0			
W21-5a	RIGHT SHOULDER CLOSED	48"x30"	8	8	8	8	8	80.0			
R1-1	STOP	30"x30"	4	4	4	4	4	25.0			
SPECIAL	WORK WITH US - USE CAUTION SLOW DOWN	96"x48"	2	2	2	2	2	64.0			
SPECIAL	CONSTRUCTION PROJECT NFORMATION SIGN	96"x48"	2	2	2	2	2	64.0			
	CONSTRUCTION PROJECT NFORMATION SIGN UPDATE					10			10		
	VERTICAL PANELS		102			102				102	
	TRAFFIC DRUMS		479	624	663	663					663
TOTALS:								909.0	10	102	663

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

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

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
113+01	114+34	HWY. 167 ON LT.	135
114+74	115+38	HWY. 167 ON LT.	70
118+49	119+58	HWY. 167 ON LT.	128
129+00	129+01	HWY. 167 ON LT.	5
130+25		HWY. 167 ON LT.	10
TOTAL:			348

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9066 STANLEY G. KING

8/7/19

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
		EACH
ENTIRE PROJECT	7	7
TOTALS:	7	7

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
143+01	NORTHWEST CORNER OF BOX CULVERT	1
169+86	NORTHWEST CORNER OF BOX CULVERT	1
TOTAL:		2

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

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	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING				
							TYPE II (WHITE/RED)	TYPE II (YEL/YEL)	6" WHITE	6" YELLOW	12" WHITE	WORDS	ARROWS
	LIN. FT. - EACH				LIN. FT.		EACH		LIN. FT.			EACH	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	17564	9191			26755								
CONSTRUCTION PAVEMENT MARKINGS	36531	33066	26910			96507							
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)				229			229						
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)				225				225					
THERMOPLASTIC PAVEMENT MARKING WHITE (6")				5294					5294				
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")				23745						23745			
THERMOPLASTIC PAVEMENT MARKING WHITE (12")				740							740		
THERMOPLASTIC PAVEMENT MARKING WORDS				2								2	
THERMOPLASTIC PAVEMENT MARKING ARROWS				2									2
TOTALS:					26755	96507	229	225	5294	23745	740	2	2

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
106+00	116+00	HWY. 167 - MAIN LANES	10	10
118+00	121+00	HWY. 167 - MAIN LANES	3	3
122+00	131+00	HWY. 167 - MAIN LANES	9	9
137+00	140+00	HWY. 167 - MAIN LANES	3	3
141+00	147+00	HWY. 167 - MAIN LANES	6	6
155+00	156+00	HWY. 167 - MAIN LANES	1	1
158+00	161+00	HWY. 167 - MAIN LANES	3	3
162+00	196+00	HWY. 167 - MAIN LANES	34	34
TOTALS:			69	69

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL						TEMPORARY EROSION CONTROL								
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	SOLID SODDING	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	SILT FENCE (E-11)	COMPOST FILTER SOCK DROP INLET PROTECTION (18") (E-13)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	SQ.YD.	ACRE	ACRE	M.GAL.	BAG	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	STAGE 1	1.13	2.26	1.13	154.6	1.13	3122				352	4457	1152			224
ENTIRE	PROJECT	STAGE 2	1.61	3.22	1.61	205.9	1.61	3304				440	2955	1440			183
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.									16.59	16.59	338.4	440	500	100	1000	1000	1042
TOTALS:			2.74	5.48	2.74	360.5	2.74	6426	16.59	16.59	338.4	1232	7912	2692	1000	1000	1449

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION

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

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

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
102+75	104+40	HWY. 167 LT.	165.00	146.67
102+80	107+10	HWY. 167 RT.	430.00	382.22
105+60	105+70	HWY. 167 LT.	10.00	8.89
112+70	117+90	HWY. 167 LT.	520.00	462.22
115+20	116+24	HWY. 167 RT.	104.00	92.44
120+60	124+00	HWY. 167 RT.	340.00	302.22
130+66	131+00	HWY. 167 LT.	34.00	30.22
133+30	133+90	HWY. 167 LT.	60.00	53.33
134+90	135+60	HWY. 167 LT.	70.00	62.22
136+08	136+60	HWY. 167 LT.	52.00	46.22
137+40	138+00	HWY. 167 LT.	60.00	53.33
137+88	139+35	HWY. 167 RT.	147.00	130.67
141+00	141+36	HWY. 167 RT.	36.00	32.00
141+50	142+80	HWY. 167 RT.	130.00	115.56
143+10	143+80	HWY. 167 LT.	70.00	62.22
147+50	148+00	HWY. 167 RT.	50.00	44.44
148+30	148+50	HWY. 167 LT.	20.00	17.78
157+70	159+10	HWY. 167 LT.	140.00	124.44
159+67	160+10	HWY. 167 LT.	43.00	38.22
165+00	165+20	HWY. 167 RT.	20.00	17.78
166+00	169+00	HWY. 167 RT.	300.00	266.67
167+00	167+20	HWY. 167 LT.	20.00	17.78
174+00	174+15	HWY. 167 RT.	15.00	13.33
184+40	185+10	HWY. 167 RT.	70.00	62.22
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			200.00	177.78
TOTAL:				2760.87

NOTE: AVERAGE WIDTH = 8'-0"

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

6/4/2019

CA0701

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.		CA0701	41	138

(2) QUANTITIES

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CURB	SIGNS	SIGN FOUNDATIONS	LUMINAIRE POLE AND FOUNDATION	TELEPHONE BOOTH	BUILDINGS	GATES	UNDERGROUND STORAGE TANK SYSTEMS (10000 GAL. TO 15000 GAL.)	POSTS	CANOPY	CURB AND GUTTER	CONCRETE PAVEMENT	CONCRETE ISLANDS	CONCRETE DRIVEWAYS	WALKS	PUMPS
			LIN. FT.	EACH									LIN. FT.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	EACH
114+40	114+52	HWY. 167 ON LT.							2									
116+70	117+25	HWY. 167 ON LT.									2							
127+80	128+24	HWY. 167 ON LT.															19	
128+92	129+83	HWY. 167 ON RT.	73													174		
129+60		HWY. 167 ON RT.		1	2													
131+60		HWY. 167 ON LT.		1	2													
131+62		HWY. 167 ON RT.																1
131+62	132+82	HWY. 167 ON RT.										1						
132+48	132+73	HWY. 167 ON RT.																2
132+63	133+77	HWY. 167 ON LT.														225		
133+23		HWY. 167 ON LT.		1	2													
134+81	135+12	HWY. 167 ON LT.	24													32		
135+17		HWY. 167 ON LT.		1	1													
136+46	136+65	HWY. 167 ON LT.	36															
136+11		HWY. 167 ON LT.		1	2													
136+49	137+45	HWY. 167 ON RT.												70		220		
137+30		HWY. 167 ON RT.		1	2													
138+76	138+95	HWY. 167 ON RT.														11	27	
141+85	144+20	HWY. 167 ON LT.	20													124		
145+55	145+57	HWY. 167 ON RT.	142															
145+57	146+63	HWY. 167 ON LT.	135															
146+89	149+12	HWY. 167 ON LT.	126															
148+60	150+58	HWY. 167 ON RT.	149															
149+83	150+97	HWY. 167 ON LT.	25													197		
150+62		HWY. 167 ON LT.		1	2													
151+10	151+80	HWY. 167 ON RT.	70															
151+68	152+39	HWY. 167 ON LT.	50															
151+69		HWY. 167 ON RT.				1												
151+81	154+75	HWY. 167 ON RT.	158											550	142	147	10	
152+63		HWY. 167 ON RT.				1												
152+79	153+50	HWY. 167 ON LT.	55											19			21	
152+95		HWY. 167 ON LT.		1	1													
152+95	153+45	HWY. 167 ON LT.						1										
153+61	154+77	HWY. 167 ON LT.	96													513		
154+00	154+26	HWY. 167 ON LT.										1						
154+60		HWY. 167 ON RT.		2	4													
154+60		HWY. 167 ON LT.		1	2													
155+20	156+28	HWY. 167 ON RT.	44											280	89	118		
155+21	156+41	HWY. 167 ON LT.	244										353	11	173	470	27	
155+35		HWY. 167 ON LT.		1	1													
155+40		HWY. 167 ON RT.		1	1													
155+50	155+75	HWY. 167 ON RT.										1						
155+70		HWY. 167 ON RT.								2								
156+28	156+68	HWY. 167 ON RT.	40															
156+30		HWY. 167 ON RT.		2	2	1												
156+30		HWY. 167 ON RT.					1											
157+10		HWY. 167 ON LT.		1	1													
157+10		HWY. 167 ON RT.		1	4													
157+25	157+75	HWY. 167 ON RT.	51															
157+32	157+66	HWY. 167 ON RT.						1										
157+39	159+32	HWY. 167 ON RT.	70											304		97		
157+60		HWY. 167 ON RT.		1	1													
157+92	159+09	HWY. 167 ON LT.	117										9					
158+45		HWY. 167 ON RT.		1	1													
159+20		HWY. 167 ON LT.		1	1													
159+54	161+75	HWY. 167 ON LT.	211										22					
159+56	161+14	HWY. 167 ON RT.	195											188		70		
160+00	160+46	HWY. 167 ON LT.						1										
161+42	163+24	HWY. 167 ON RT.	144															
161+75	162+74	HWY. 167 ON LT.	40													59		
162+13		HWY. 167 ON LT.		1	1													
162+76	164+66	HWY. 167 ON LT.	157													77		
163+51	165+64	HWY. 167 ON RT.	142										8				79	
164+92	170+68	HWY. 167 ON LT.	483															
165+88	170+86	HWY. 167 ON RT.	470										7					
170+68	176+74	HWY. 167 ON LT.	465													281	57	
171+11	178+62	HWY. 167 ON RT.	511															
177+00	183+90	HWY. 167 ON LT.	555															
178+98	184+17	HWY. 167 ON RT.	438													22		
180+14		HWY. 167 ON RT.		1	2													
TOTALS:			**5536**	**22**	**35**	**3**	**1**	**3**	**2**	**2**	**2**	**3**	**399**	**1422**	**404**	**2837**	**240**	**3**

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

6/4/2019

CA0701

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
8/22/19				6	ARK.			
12/20/19				JOB NO.		CA0701	41A	138

(2) QUANTITIES

CONCRETE CURB

STATION	STATION	LOCATION	TYPE D
			LIN. FT.
128+13	128+26	HWY. 167 RT. - CURB PARKING LOT AT ROW	13
130+78	131+46	HWY. 167 RT. - CURB PARKING LOT AT ROW	68
131+86	133+98	HWY. 167 RT. - CURB PARKING LOT AT ROW	212
133+04	133+38	HWY. 167 LT. - CURB PARKING LOT AT ROW	34
134+38	134+90	HWY. 167 RT. - CURB PARKING LOT AT ROW	52
135+11	135+64	HWY. 167 LT. - CURB PARKING LOT AT ROW	53
135+58	135+62	HWY. 167 RT. - CURB PARKING LOT AT ROW	4
135+84	136+01	HWY. 167 LT. - CURB PARKING LOT AT ROW	17
136+19	136+27	HWY. 167 LT. - CURB PARKING LOT AT ROW	8
136+47	136+65	HWY. 167 LT. - CURB PARKING LOT AT ROW	18
136+75	137+21	HWY. 167 RT. - CURB PARKING LOT AT ROW	54
136+83	137+13	HWY. 167 LT. - CURB PARKING LOT AT ROW	43
137+43	137+45	HWY. 167 RT. - CURB PARKING LOT AT ROW	2
138+02	138+06	HWY. 167 LT. - CURB PARKING LOT AT ROW	4
138+28	138+42	HWY. 167 LT. - CURB PARKING LOT AT ROW	14
139+96	141+51	HWY. 167 RT. - CURB PARKING LOT AT ROW	164
141+81	142+11	HWY. 167 LT. - CURB PARKING LOT AT ROW	30
143+80	143+85	HWY. 167 LT. - CURB PARKING LOT AT ROW	5
145+38	145+69	HWY. 167 RT. - CURB PARKING LOT AT ROW	31
146+02	146+71	HWY. 167 RT. - CURB PARKING LOT AT ROW	69
147+11	148+74	HWY. 167 RT. - CURB PARKING LOT AT ROW	163
148+96	150+56	HWY. 167 RT. - CURB PARKING LOT AT ROW	160
149+56	150+09	HWY. 167 LT. - CURB PARKING LOT AT ROW	53
150+41	150+83	HWY. 167 LT. - CURB PARKING LOT AT ROW	42
151+23	151+88	HWY. 167 LT. - CURB PARKING LOT AT ROW	76
151+76	151+84	HWY. 167 RT. - CURB PARKING LOT AT ROW	8
152+24	152+91	HWY. 167 RT. - CURB PARKING LOT AT ROW	67
152+26	152+49	HWY. 167 LT. - CURB PARKING LOT AT ROW	23
152+85	152+96	HWY. 167 LT. - CURB PARKING LOT AT ROW	11
153+31	154+71	HWY. 167 RT. - CURB PARKING LOT AT ROW	186
153+60	153+67	HWY. 167 LT. - CURB PARKING LOT AT ROW	7
153+97	153+67	HWY. 167 LT. - CURB PARKING LOT AT ROW	95
154+69	154+70	HWY. 167 RT. - CURB PARKING LOT AT ROW	9
155+31	155+89	HWY. 167 RT. - CURB PARKING LOT AT ROW	58
156+35	157+27	HWY. 167 LT. - CURB PARKING LOT AT ROW	92
157+05	157+25	HWY. 167 RT. - CURB PARKING LOT AT ROW	20
157+67	159+12	HWY. 167 LT. - CURB PARKING LOT AT ROW	145
157+69	157+80	HWY. 167 RT. - CURB PARKING LOT AT ROW	11
158+20	158+60	HWY. 167 RT. - CURB PARKING LOT AT ROW	40
159+00	159+16	HWY. 167 RT. - CURB PARKING LOT AT ROW	16
159+75	160+00	HWY. 167 RT. - CURB PARKING LOT AT ROW	39
160+40	160+64	HWY. 167 RT. - CURB PARKING LOT AT ROW	24
161+96	162+34	HWY. 167 LT. - CURB PARKING LOT AT ROW	38
TOTAL:			2278

SOIL STABILIZATION

	STATION	STATION	LOCATION / DESCRIPTION	TON
*	ENTIRE	PROJECT	IF AND WHERE DIRECTED BY THE ENGINEER	200
TOTAL:				200

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
1-8-20

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	"B"	CONC. DITCH PAVING (TYPE A)	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	FEET	SQ. YD.	SQ. YD.	SQ. YD.	M. GAL.
102+42.00	102+75.00	HWY. 167 ON RT.	33.00	8.00			29.33	14.67	0.18
102+43.00	102+61.00	HWY. 167 ON LT.	18.00	9.50			19.00	8.00	0.10
141+80.00	141+90.00	HWY. 167 ON RT.	10.00	4.00			4.44	4.44	0.06
142+70.00	143+35.00	HWY. 167 ON RT.	65.00	9.50			68.61	28.89	0.36
142+89.00	143+09.00	HWY. 167 ON RT.	20.00	9.50			21.11	8.89	0.11
142+89.00	143+09.00	HWY. 167 ON LT.	20.00	9.50			21.11	8.89	0.11
145+60.00	146+10.00	HWY. 167 ON RT.	50.00	9.50			52.78	22.22	0.28
145+63.00	145+83.00	HWY. 167 ON LT.	20.00	9.50			21.11	8.89	0.11
185+20.00	189+96.00	HWY. 167 ON RT.	476.00	9.50			502.44	211.56	2.67
190+34.00	195+85.00	HWY. 167 ON RT.	551.00	9.50			581.61	244.89	3.09
190+42.00	196+27.00	HWY. 167 ON LT.	585.00	10.50	1.00	682.50		260.00	3.28
TOTALS:						682.50	1321.54	821.34	10.35

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

UNDERCUT

	STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	STONE BACKFILL	GEOTEXTILE FABRIC (TYPE 10)
				CU. YD.	TON	SQ. YD.
*	ENTIRE	PROJECT	IF AND WHERE DIRECTED BY THE ENGINEER	7000	12285	10500
TOTALS:				7000	12285	10500

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

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	BACKFILLING UNDERGROUND STORAGE TANK SYSTEMS	EXCAVATION FOR UNDERGROUND STORAGE TANK SYSTEMS	TREATMENT OR DISPOSAL OF EXCAVATED MATERIAL
			CU. YD.				
ENTIRE	PROJECT	STAGE 1-MAIN LANES	4559	9330			
ENTIRE	PROJECT	STAGE 2-MAIN LANES	3881	7869			
ENTIRE	PROJECT	APPROACHES	40	1195			
155+70		HWY. 167 ON RT. (UNDERGROUND STORAGE TANK SYSTEM REMOVAL QTY. 2)			410	310	310
128+60		MISSION RD.		10			
141+22		ARCHER ST.		5			
151+98		HUNT ST.	10				
48+09.71	49+71.48	HWY. 278	136	32			
50+28.48	50+13.45	HWY. 278	169	9			
159+41		DUNN AVE (LT)		20			
159+41		DUNN AVE (RT)		10			
166+69		ABLE ST.		255			
170+95		MOSES ST.					
ENTIRE	PROJECT	TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER		7000			
TOTALS:			8795	25735	410	310	310

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

6/4/2019

CA0701

CONCRETE COMBINATION CURB AND GUTTER (BOX 1 OF 2)

STATION	STATION	LOCATION	TYPE A (1' 6")
			LIN. FT.
48+10	49+07	HWY. 278 LT.	97
50+78	51+11	HWY. 278 LT.	36
51+13	50+73	HWY. 278 RT.	55
102+33	102+53	HWY. 167 LT.	32
102+61	104+98	HWY. 167 LT.	237
102+61	102+73	HWY. 167 RT.	12
102+81	104+98	HWY. 167 RT.	217
105+10	108+98	HWY. 167 LT.	388
105+10	107+40	HWY. 167 RT.	230
107+48	109+98	HWY. 167 RT.	250
109+06	112+13	HWY. 167 LT.	307
110+06	112+98	HWY. 167 RT.	292
112+17	112+98	HWY. 167 LT.	81
113+06	114+78	HWY. 167 LT.	172
113+06	117+03	HWY. 167 RT.	397
114+82	117+78	HWY. 167 LT.	296
117+15	121+18	HWY. 167 RT.	403
117+86	120+98	HWY. 167 LT.	312
121+06	123+98	HWY. 167 RT.	292
121+30	124+83	HWY. 167 RT.	353
124+06	126+05	HWY. 167 LT.	199
124+95	128+47	HWY. 167 RT.	369
126+13	129+05	HWY. 167 LT.	292
128+73	129+78	HWY. 167 RT.	124
129+13	130+58	HWY. 167 LT.	145
129+82	130+58	HWY. 167 RT.	76
130+62	131+38	HWY. 167 LT.	76
130+62	131+23	HWY. 167 RT.	61
131+31	133+23	HWY. 167 RT.	192
131+42	133+98	HWY. 167 LT.	256
133+27	136+13	HWY. 167 RT.	286
134+02	136+06	HWY. 167 LT.	204
136+10	137+11	HWY. 167 LT.	119
136+17	136+50	HWY. 167 RT.	50
136+74	137+63	HWY. 167 RT.	106
137+34	137+82	HWY. 167 LT.	65
137+67	138+58	HWY. 167 RT.	91
137+90	140+64	HWY. 167 LT.	274
138+66	139+33	HWY. 167 RT.	67
139+37	139+69	HWY. 167 RT.	51
139+95	141+24	HWY. 167 RT.	142
140+72	141+10	HWY. 167 LT.	53
141+32	141+88	HWY. 167 RT.	56
141+34	141+88	HWY. 167 LT.	69
141+92	142+87	HWY. 167 LT.	95
141+92	142+87	HWY. 167 RT.	95
142+95	145+98	HWY. 167 LT.	303
142+95	144+08	HWY. 167 RT.	113
144+12	145+81	HWY. 167 RT.	169
145+93	148+51	HWY. 167 RT.	258
146+06	146+61	HWY. 167 LT.	69
146+87	147+18	HWY. 167 LT.	48
147+30	149+48	HWY. 167 LT.	218
148+63	148+81	HWY. 167 RT.	18
148+93	152+53	HWY. 167 RT.	360
149+60	151+48	HWY. 167 LT.	188
151+56	151+86	HWY. 167 LT.	45
152+11	153+00	HWY. 167 LT.	106
152+65	154+38	HWY. 167 RT.	188
153+08	154+09	HWY. 167 LT.	101
154+21	154+76	HWY. 167 LT.	90
154+46	154+67	HWY. 167 RT.	61
155+30	155+86	HWY. 167 LT.	91
155+30	155+68	HWY. 167 RT.	72
155+76	156+71	HWY. 167 RT.	81
155+90	156+48	HWY. 167 LT.	58
156+52	158+88	HWY. 167 LT.	236
156+83	158+38	HWY. 167 RT.	155
158+42	159+33	HWY. 167 RT.	108
158+96	159+27	HWY. 167 LT.	49
159+54	161+47	HWY. 167 LT.	211
159+58	159+76	HWY. 167 RT.	36
159+88	161+12	HWY. 167 RT.	124
161+24	161+92	HWY. 167 RT.	68
161+59	163+76	HWY. 167 LT.	219
161+96	162+90	HWY. 167 RT.	94
163+02	163+90	HWY. 167 RT.	88
163+82	166+61	HWY. 167 LT.	309
164+02	164+90	HWY. 167 RT.	88
165+02	166+44	HWY. 167 RT.	130
166+52	168+68	HWY. 167 RT.	216
166+77	171+58	HWY. 167 LT.	513
168+72	169+57	HWY. 167 RT.	85
169+70	170+53	HWY. 167 RT.	83
170+57	180+63	HWY. 167 RT.	1019
171+62	174+80	HWY. 167 LT.	318
174+92	177+55	HWY. 167 LT.	263
177+67	180+65	HWY. 167 LT.	298
SUBTOTAL:			15419

CONCRETE COMBINATION CURB AND GUTTER (BOX 2 OF 2)

STATION	STATION	LOCATION	TYPE A (1' 6")
			LIN. FT.
180+71	182+64	HWY. 167 RT.	193
180+77	184+28	HWY. 167 LT.	351
182+73	183+64	HWY. 167 RT.	91
183+73	184+28	HWY. 167 RT.	55
184+33	190+40	HWY. 167 LT.	607
184+33	185+18	HWY. 167 RT.	85
185+23	187+73	HWY. 167 RT.	250
187+81	190+40	HWY. 167 RT.	259
190+42	192+98	HWY. 167 LT.	256
190+44	192+98	HWY. 167 RT.	254
193+02	195+79	HWY. 167 LT.	277
193+02	195+79	HWY. 167 RT.	277
195+87	196+00	HWY. 167 LT.	13
195+87	196+00	HWY. 167 RT.	18
SUBTOTAL (BOX 1 OF 2):			15419
SUBTOTAL (BOX 2 OF 2):			2986
TOTAL:			18405

SELECTED PIPE BEDDING

	LOCATION	SELECTED PIPE BEDDING
		CU.YD.
*	ENTIRE PROJECT TO BE USED IF	
	AND WHERE DIRECTED BY THE	1270
	ENGINEER	
	TOTAL:	1270

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

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE C)
			LIN. FT.
118+49	119+58	HWY. 167 ON LT.	128
TOTAL:			128

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS
			LIN. FT.
164+00	170+55	HWY. 167 RT.	655
171+60	180+75	HWY. 167 LT.	915
*	ENTIRE PROJECT TO BE USED IF AND		1000
	WHERE DIRECTED BY THE ENGINEER		
TOTAL:			2570

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

UNDERDRAINS SHALL BE STUBBED INTO THE PROPOSED DROP INLET IF AND WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR THIS TO BE INCLUDED IN THE UNIT PRICE BID FOR 4" PIPE UNDERDRAIN.

DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YD.	SQ. YD.
169+67	OUTLET OF PIPE CULVERT-HWY. 167 LT.	5	9
*	TO BE USED IF AND WHERE	20	40
	DIRECTED BY THE ENGINEER		
TOTALS:		25	49

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

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

CONCRETE WALKS (BOX 1 OF 2)

STATION	STATION	LOCATION	LENGTH	CONCRETE WALKS
			LIN. FT.	SQ.YD.
102+49	108+30	HWY. 167 LT.	581	323
102+67	106+95	HWY. 167 RT.	428	238
107+39	113+52	HWY. 167 RT.	613	341
108+84	111+40	HWY. 167 LT.	256	142
112+08	112+51	HWY. 167 LT.	43	24
112+95	114+29	HWY. 167 LT.	134	74
113+96	117+36	HWY 167 RT.	340	189
114+77	115+67	HWY. 167 LT.	90	50
116+35	117+85	HWY. 167 LT.	150	83
117+80	120+73	HWY. 167 RT.	293	163
118+33	120+43	HWY. 167 LT.	210	117
120+91	122+09	HWY. 167 LT.	118	66
121+17	122+65	HWY. 167 RT.	148	82
122+57	123+01	HWY. 167 LT.	44	24
123+09	124+90	HWY. 167 RT.	181	101
123+45	124+11	HWY. 167 LT.	66	37
124+55	125+55	HWY. 167 LT.	100	56
125+34	125+85	HWY. 167 RT.	51	28
126+03	127+03	HWY. 167 LT.	100	56
126+29	127+69	HWY. 167 RT.	140	78
127+49	127+50	HWY. 167 LT.	1	1
127+96	128+62	HWY. 167 LT.	66	37
128+93	129+04	HWY. 167 RT.	11	6
129+08	129+42	HWY. 167 LT.	34	19
129+72	131+32	HWY. 167 RT.	160	89
129+88	130+70	HWY. 167 LT.	82	46
131+36	131+94	HWY. 167 LT.	58	32
132+00	133+84	HWY. 167 RT.	184	102
132+48	132+62	HWY. 167 LT.	14	8
133+18	133+24	HWY. 167 LT.	6	3
133+86	134+09	HWY. 167 LT.	23	13
134+52	134+84	HWY. 167 RT.	32	18
134+53	134+71	HWY. 167 LT.	18	10
135+25	135+50	HWY. 167 LT.	25	14
135+72	136+33	HWY. 167 RT.	61	34
135+98	136+05	HWY. 167 LT.	7	4
136+45	136+59	HWY. 167 LT.	14	8
136+94	137+07	HWY. 167 RT.	13	7
137+55	137+92	HWY. 167 LT.	37	21
137+57	137+72	HWY. 167 RT.	15	8
138+16	138+64	HWY. 167 RT.	48	27
138+42	139+51	HWY. 167 LT.	109	61
139+08	139+50	HWY. 167 RT.	42	23
140+07	140+88	HWY. 167 LT.	81	45
140+14	141+37	HWY. 167 RT.	123	68
141+56	141+97	HWY. 167 LT.	41	23
141+81	141+96	HWY. 167 RT.	15	8
142+40	143+38	HWY. 167 RT.	98	54
142+53	143+71	HWY. 167 LT.	118	66
144+06	144+84	HWY. 167 RT.	78	43
144+19	145+16	HWY. 167 LT.	97	54
145+52	146+57	HWY. 167 RT.	105	58
145+64	146+41	HWY. 167 LT.	77	43
147+07	147+66	HWY. 167 RT.	59	33
147+25	147+82	HWY. 167 RT.	57	32
148+34	149+95	HWY. 167 RT.	161	89
148+50	148+60	HWY. 167 RT.	10	6
149+10	150+42	HWY. 167 RT.	132	73
150+55	150+69	HWY. 167 LT.	14	8
151+02	151+70	HWY. 167 RT.	68	38
151+37	151+64	HWY. 167 LT.	27	15
152+31	152+35	HWY. 167 LT.	4	2
152+38	152+77	HWY. 167 RT.	39	22
152+99	153+53	HWY. 167 LT.	54	31
153+45	154+70	HWY. 167 RT.	125	117
154+11	154+75	HWY. 167 LT.	64	73
155+25	155+83	HWY. 167 RT.	58	100
155+41	157+13	HWY. 167 LT.	172	127
156+43	156+75	HWY. 167 RT.	32	20
157+19	157+66	HWY. 167 RT.	47	26
157+81	159+05	HWY. 167 LT.	124	69
158+34	158+46	HWY. 167 RT.	12	7
159+76	161+60	HWY. 167 LT.	184	102
159+79	159+86	HWY. 167 RT.	7	4
161+10	161+97	HWY. 167 RT.	87	48
162+10	162+20	HWY. 167 LT.	10	6
162+41	163+06	HWY. 167 RT.	65	36
162+88	162+92	HWY. 167 LT.	4	2
163+36	164+54	HWY. 167 LT.	118	66
163+50	163+99	HWY. 167 RT.	49	27
164+89	165+51	HWY. 167 RT.	62	34
164+98	166+40	HWY. 167 LT.	148	82
166+00	170+71	HWY. 167 RT.	460	256
167+02	171+63	HWY. 167 LT.	467	259
171+19	174+33	HWY. 167 RT.	319	177
172+11	172+50	HWY. 167 LT.	39	22
173+06	174+24	HWY. 167 LT.	115	64
174+75	174+91	HWY. 167 LT.	16	9
SUBTOTAL:				5407

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.		CA0701	42	138

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

CONCRETE WALKS (BOX 2 OF 2)

STATION	STATION	LOCATION	LENGTH	CONCRETE WALKS
			LIN. FT.	SQ.YD.
174+76	176+30	HWY. 167 RT.	158	88
175+36	176+69	HWY. 167 LT.	130	72
176+72	177+29	HWY. 167 RT.	58	32
177+50	177+74	HWY. 167 LT.	24	13
177+74	178+58	HWY. 167 RT.	84	47
178+20	179+13	HWY. 167 LT.	93	52
179+04	180+72	HWY. 167 RT.	168	93
179+57	179+90	HWY. 167 LT.	33	18
180+34	181+62	HWY. 167 LT.	128	71
181+16	181+70	HWY. 167 RT.	54	30
181+78	182+73	HWY. 167 RT.	95	53
182+06	183+79	HWY. 167 LT.	173	96
183+17	184+34	HWY. 167 RT.	117	65
184+23	189+93	HWY. 167 LT.	570	317
184+82	189+93	HWY. 167 RT.	511	284
190+37	195+94	HWY. 167 LT.	557	309
190+37	195+92	HWY. 167 RT.	555	308
SUBTOTAL (BOX 1 OF 2):				5407
SUBTOTAL (BOX 2 OF 2):				1948
TOTAL:				7355

WHEELCHAIR RAMPS

STATION	LOCATION	TYPE 3	TYPE 4
		SQ.YD.	
51+07	HWY. 278 ON LT.	3.4	
51+07	HWY. 278 ON RT.	3.4	
102+45	HWY. 167 ON LT.	5.4	
102+65	HWY. 167 ON RT.	3.3	
128+29	HWY. 167 ON RT.	5.4	
128+89	HWY. 167 ON RT.	5.4	
136+38	HWY. 167 ON RT.	5.4	
136+90	HWY. 167 ON LT.	5.4	
136+95	HWY. 167 ON LT.	5.4	
137+51	HWY. 167 ON LT.	5.4	
139+55	HWY. 167 ON RT.	5.4	
140+10	HWY. 167 ON RT.	5.4	
140+93	HWY. 167 ON LT.	5.4	
141+50	HWY. 167 ON LT.	5.4	
146+45	HWY. 167 ON LT.	5.4	
147+04	HWY. 167 ON LT.	5.4	
151+70	HWY. 167 ON LT.	5.4	
152+28	HWY. 167 ON LT.	5.4	
154+52	HWY. 167 ON RT.		25.9
154+54	HWY. 167 ON LT.		31.2
154+62	HWY. 167 ON RT.		25.8
154+66	HWY. 167 ON LT.		32.2
155+36	HWY. 167 ON LT.		13.2
155+38	HWY. 167 ON RT.		31.2
155+48	HWY. 167 ON RT.		31.2
155+48	HWY. 167 ON LT.		29.8
159+10	HWY. 167 ON LT.	5.4	
159+15	HWY. 167 ON RT.	5.4	
159+72	HWY. 167 ON LT.	5.4	
159+75	HWY. 167 ON RT.	5.4	
166+46	HWY. 167 ON LT.	5.2	
166+98	HWY. 167 ON LT.	5.4	
195+97	HWY. 167 ON LT.	3.3	
195+97	HWY. 167 ON RT.	4.0	
TOTALS:		130.6	220.5

6/4/2019

CA0701

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	43	138

(2) QUANTITIES

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9066 STANLEY G. KING 6/5/19

REMOVAL AND DISPOSAL OF CULVERTS AND DROP INLETS

STATION	DESCRIPTION	PIPE CULVERTS	DROP INLETS
		EACH	EACH
108+56	HWY. 167 LT. (SIDE DRAIN)	1	
111+72	HWY. 167 LT. (SIDE DRAIN)	1	
112+74	HWY. 167 LT. (SIDE DRAIN)	1	
114+54	HWY. 167 LT. (SIDE DRAIN)	1	
116+02	HWY. 167 LT. (SIDE DRAIN)	1	
116+73	HWY. 167 LT. (SIDE DRAIN)	1	
117+41	HWY. 167 LT. (SIDE DRAIN)	1	
117+59	HWY. 167 RT. (SIDE DRAIN)	1	
118+10	HWY. 167 LT. (SIDE DRAIN)	1	
120+66	HWY. 167 LT. (SIDE DRAIN)	1	
120+96	HWY. 167 RT. (SIDE DRAIN)	1	
122+33	HWY. 167 LT. (SIDE DRAIN)	1	
123+23	HWY. 167 LT. (SIDE DRAIN)	1	
124+32	HWY. 167 LT. (SIDE DRAIN)	1	
125+16	HWY. 167 RT. (SIDE DRAIN)	1	
125+79	HWY. 167 LT. (SIDE DRAIN)	1	
126+07	HWY. 167 RT. (SIDE DRAIN)	1	
127+26	HWY. 167 LT. (SIDE DRAIN)	1	
127+74	HWY. 167 LT. (SIDE DRAIN)	1	
128+12	HWY. 167 RT. (SIDE DRAIN)	1	
128+59	HWY. 167 RT. (SIDE DRAIN)	1	
129+38	HWY. 167 RT. (SIDE DRAIN)	1	
131+05	HWY. 167 LT. (SIDE DRAIN)	1	
132+25	HWY. 167 LT. (SIDE DRAIN)	1	
134+31	HWY. 167 LT. (SIDE DRAIN)	1	
134+98	HWY. 167 LT. (SIDE DRAIN)	1	
135+51	HWY. 167 RT. (SIDE DRAIN)	1	
136+29	HWY. 167 LT. (SIDE DRAIN)	1	
136+73	HWY. 167 RT. (SIDE DRAIN)	1	
136+74	HWY. 167 LT. (SIDE DRAIN)	1	
136+99	HWY. 167 RT. (DROP INLET)	1	1
137+32	HWY. 167 RT. (SIDE DRAIN)	1	
137+94	HWY. 167 RT. (SIDE DRAIN)	1	
138+47	HWY. 167 RT. (SIDE DRAIN)	1	
138+60	HWY. 167 RT. (SIDE DRAIN)	1	
138+86	HWY. 167 RT. (SIDE DRAIN)	1	
139+64	HWY. 167 RT. (SIDE DRAIN)	1	
139+68	HWY. 167 RT. (SIDE DRAIN)	1	
139+79	HWY. 167 LT. (SIDE DRAIN)	1	
139+86	HWY. 167 RT. (SIDE DRAIN)	1	
141+23	HWY. 167 LT. (SIDE DRAIN)	1	
141+59	HWY. 167 RT. (SIDE DRAIN)	1	
141+97	HWY. 167 LT. (SIDE DRAIN)	1	
142+00	HWY. 167 LT. (SIDE DRAIN)	1	
143+72	HWY. 167 RT. (SIDE DRAIN)	1	
143+95	HWY. 167 LT. (SIDE DRAIN)	1	
146+69	HWY. 167 LT. (SIDE DRAIN)	1	
147+00	HWY. 167 LT. (DROP INLET)	1	1
147+10	HWY. 167 LT. (DROP INLET)	1	1
149+80	HWY. 167 LT. (DROP INLET)	1	1
149+81	HWY. 167 RT. (DROP INLET)	1	1
152+39	HWY. 167 LT. (DROP INLET)	1	1
152+39	HWY. 167 RT. (DROP INLET)	1	1
154+66	HWY. 167 RT. (DROP INLET)	1	1
154+67	HWY. 167 LT. (DROP INLET)	1	1
155+32	HWY. 167 LT. (DROP INLET)	1	1
155+32	HWY. 167 RT. (DROP INLET)	1	1
159+12	HWY. 167 LT. (DROP INLET)	1	1
159+15	HWY. 167 RT. (DROP INLET)	1	1
159+16	HWY. 167 RT. (DROP INLET)	1	1
161+97	HWY. 167 RT. (DROP INLET)	1	1
161+99	HWY. 167 LT. (DROP INLET)	1	1
163+98	HWY. 167 LT. (DROP INLET)	1	1
164+00	HWY. 167 RT. (DROP INLET)	1	1
165+62	HWY. 167 LT. (SIDE DRAIN)	1	
166+71	HWY. 167 LT. (SIDE DRAIN)	1	
167+00	HWY. 167 RT. (DROP INLET)	1	1
171+24	HWY. 167 RT. (DROP INLET)	2	2
171+54	HWY. 167 RT. (SIDE DRAIN)	1	
174+81	HWY. 167 RT. (DROP INLET)	1	1
176+50	HWY. 167 LT. (DROP INLET)	1	1
177+26	HWY. 167 RT. (DROP INLET)	2	2
174+81	HWY. 167 RT. (DROP INLET)	1	1
180+49	HWY. 167 LT. (DROP INLET)	1	1
180+79	HWY. 167 RT. (DROP INLET)	1	1
182+96	HWY. 167 RT. (SIDE DRAIN)	1	
184+20	HWY. 167 RT. (DROP INLET)	1	1
184+21	HWY. 167 LT. (DROP INLET)	1	1
184+57	HWY. 167 RT. (SIDE DRAIN)	1	
TOTALS:		**81**	**30**

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

DRIVEWAYS & TURNOUTS (BOX 1 OF 2)

STATION	SIDE	LOCATION	WIDTH	** MODIFIED CURB		PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS 48"	STANDARD DRAWINGS
			FEET	STATION	STATION	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.	
107+17	RT.	HWY. 167 - MAIN LANES	16	106+95	107+39	39.11			36.13		DR-1
108+56	LT.	HWY. 167 - MAIN LANES	26	108+29	108+83	48.00			47.76		DR-1
111+72	LT.	HWY. 167 - MAIN LANES	40	111+38	112+06	60.44			44.12		DR-1
112+74	LT.	HWY. 167 - MAIN LANES	16	112+52	112+96	39.11			11.54		DR-1
113+74	RT.	HWY. 167 - MAIN LANES	16	113+52	113+96	39.11			33.85		DR-1
114+54	LT.	HWY. 167 - MAIN LANES	20	114+30	114+78	42.67			17.29		DR-1
116+02	LT.	HWY. 167 - MAIN LANES	40	115+68	116+36	60.44			23.73		DR-1
117+59	RT.	HWY. 167 - MAIN LANES	16	117+37	117+81	39.11			27.38		DR-1
118+10	LT.	HWY. 167 - MAIN LANES	20	117+86	118+34	42.67			16.79		DR-1
120+66	LT.	HWY. 167 - MAIN LANES	20	120+42	120+90	42.67			42.48		DR-1
120+96	RT.	HWY. 167 - MAIN LANES	16	120+74	121+18	39.11			18.70		DR-1
122+33	LT.	HWY. 167 - MAIN LANES	20	122+09	122+57	42.67			37.30		DR-1
122+87	RT.	HWY. 167 - MAIN LANES	16	122+65	123+09	39.11			11.79		DR-1
123+23	LT.	HWY. 167 - MAIN LANES	16	123+01	123+45	39.11			34.53		DR-1
124+32	LT.	HWY. 167 - MAIN LANES	16	124+10	124+54	39.11			34.34		DR-1
125+12	RT.	HWY. 167 - MAIN LANES	16	124+90	125+34	39.11			36.14		DR-1
125+79	LT.	HWY. 167 - MAIN LANES	20	125+55	126+03	42.67			41.46		DR-1
126+07	RT.	HWY. 167 - MAIN LANES	16	125+85	126+29	39.11			29.00		DR-1
127+26	LT.	HWY. 167 - MAIN LANES	18	127+03	127+49	40.89			40.52		DR-1
127+74	LT.	HWY. 167 - MAIN LANES	18	127+51	127+97	40.89			32.61		DR-1
127+98	RT.	HWY. 167 - MAIN LANES	30	127+69	128+27	51.56			77.86		DR-1
128+85	LT.	HWY. 167 - MAIN LANES	18	128+62	129+08	40.89			28.75		DR-1
129+38	RT.	HWY. 167 - MAIN LANES	40	129+04	129+72	60.44	157.07	17.28	64.14		DR-1
129+65	LT.	HWY. 167 - MAIN LANES	18	129+42	129+88	40.89			30.17		DR-1
131+05	LT.	HWY. 167 - MAIN LANES	38	130+72	131+38	58.67	72.96	8.03	29.79		DR-1
131+66	RT.	HWY. 167 - MAIN LANES	40	131+32	132+00	60.44			33.06		DR-1
132+25	LT.	HWY. 167 - MAIN LANES	34	131+94	132+56	55.11			31.10		DR-1
132+86	LT.	HWY. 167 - MAIN LANES	36	132+54	133+18	110.33					DR-1
133+55	LT.	HWY. 167 - MAIN LANES	34	133+24	133+86	94.93					DR-1
134+18	RT.	HWY. 167 - MAIN LANES	40	133+84	134+52	60.44			21.26		DR-1
134+32	LT.	HWY. 167 - MAIN LANES	16	134+10	134+54	39.11			16.60		DR-1
134+97	LT.	HWY. 167 - MAIN LANES	26	134+70	135+24	48.00	27.99	3.08	11.43		DR-1
135+06	RT.	HWY. 167 - MAIN LANES	16	134+84	135+28	39.11			11.29		DR-1
135+51	RT.	HWY. 167 - MAIN LANES	16	135+29	135+73	39.11			10.27		DR-1
135+74	LT.	HWY. 167 - MAIN LANES	20	135+50	135+98	42.67	29.69	3.27	12.12		DR-1
136+34	LT.	HWY. 167 - MAIN LANES	20	136+10	136+58	42.67			10.46		DR-1
136+74	LT.	HWY. 167 - MAIN LANES	18	136+51	136+97	40.89			9.82		DR-1
137+23	RT.	HWY. 167 - MAIN LANES	22	136+98	137+48	74.24					DR-1
137+93	RT.	HWY. 167 - MAIN LANES	16	137+71	138+15	39.11			7.93		DR-1
138+18	LT.	HWY. 167 - MAIN LANES	22	137+93	138+43	44.44			20.38		DR-1
138+86	RT.	HWY. 167 - MAIN LANES	16	138+64	139+08	54.22					DR-1
139+79	LT.	HWY. 167 - MAIN LANES	28	139+51	140+07	49.78			17.00		DR-1
141+67	RT.	HWY. 167 - MAIN LANES	16	141+45	141+89	39.11			7.93		DR-1
142+18	RT.	HWY. 167 - MAIN LANES	16	141+96	142+40	39.11			20.74		DR-1
142+27	LT.	HWY. 167 - MAIN LANES	28	141+99	142+55	98.00					DR-1
143+72	RT.	HWY. 167 - MAIN LANES	40	143+38	144+06	60.44			29.17		DR-1
143+95	LT.	HWY. 167 - MAIN LANES	20	143+71	144+19	42.67			31.15		DR-1
145+18	RT.	HWY. 167 - MAIN LANES	40	144+84	145+52	60.44			43.75		DR-1
145+40	LT.	HWY. 167 - MAIN LANES	20	145+16	145+64	42.67			39.36		DR-1
146+91	RT.	HWY. 167 - MAIN LANES	40	146+57	147+25	60.44			16.38		DR-1
148+00	LT.	HWY. 167 - MAIN LANES	40	147+66	148+34	98.22					DR-1
148+16	RT.	HWY. 167 - MAIN LANES	40	147+82	148+50	60.44			29.17		DR-1
148+85	RT.	HWY. 167 - MAIN LANES	22	148+60	149+10	44.44			16.04		DR-1
150+25	LT.	HWY. 167 - MAIN LANES	32	149+95	150+55	92.80					DR-1
150+72	RT.	HWY. 167 - MAIN LANES	32	150+42	151+02	53.33			29.14		DR-1
151+03	LT.	HWY. 167 - MAIN LANES	40	150+69	151+37	98.22					DR-1
152+04	RT.	HWY. 167 - MAIN LANES	40	151+70	152+38	93.77					DR-1
152+67	LT.	HWY. 167 - MAIN LANES	36	152+35	152+99	56.89	92.80	10.21	37.89		DR-1
153+13	RT.	HWY. 167 - MAIN LANES	40	152+79	153+47	93.77					DR-1
153+84	LT.	HWY. 167 - MAIN LANES	30	153+55	154+13	106.33					DR-1
156+09	RT.	HWY. 167 - MAIN LANES	40	155+75	156+43	125.20					DR-1
156+19	LT.	HWY. 167 - MAIN LANES	28	155+91	156+47	76.22					DR-1
156+97	RT.	HWY. 167 - MAIN LANES	16	156+75	157+19	39.11	22.35	2.46	9.13		DR-1
157+47	LT.	HWY. 167 - MAIN LANES	40	157+13	157+81	60.44	37.78	4.16	15.43		DR-1
SUBTOTALS:						**3584.22**	**440.64**	**48.49**	**1386.17**	**0**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.8% MIN. AGGR.....5.2% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

** FOR INFORMATION ONLY

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.

6/4/2019

CA0701

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.		CA0701	44	138

(2) QUANTITIES

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9866 STANLEY C. KING

6/11/19

HAND RAILING

STATION	STATION	LOCATION	HAND RAILING
			LIN. FT.
170+11	171+29	MOUNTED ON TOP OF RW-1 - HWY. 167 LT.	118
TOTAL:			118

JOINT TAPE (36")

STATION	STATION	LOCATION	JOINT TAPE (36")
			LIN. FT.
128+72	142+50	HWY. 167	2616
142+50	145+58	HWY. 167	848
145+58	163+34	HWY. 167	6160
163+34	180+65	HWY. 167	5984
180+65	184+25	HWY. 167	1232
TOTAL:			16840

DRIVEWAYS & TURNOUTS (BOX 2 OF 2)

STATION	SIDE	LOCATION	WIDTH	**MODIFIED CURB		PORTLAND CEMENT CONCRETE DRIVEWAY	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS 48"	STANDARD DRAWINGS
			FEET	STATION	STATION	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.	
158+00	RT.	HWY. 167 - MAIN LANES	40	157+66	158+34	98.22					DR-1
158+80	RT.	HWY. 167 - MAIN LANES	40	158+46	159+14	98.22					DR-1
160+20	RT.	HWY. 167 - MAIN LANES	40	159+86	160+54	93.77					DR-1
160+80	RT.	HWY. 167 - MAIN LANES	32	160+50	161+10	95.57					DR-1
161+85	LT.	HWY. 167 - MAIN LANES	22	161+60	162+10	44.44			21.74		DR-1
162+19	RT.	HWY. 167 - MAIN LANES	16	161+97	162+41	39.11			7.00		DR-1
162+54	LT.	HWY. 167 - MAIN LANES	40	162+20	162+88	60.44			29.05		DR-1
163+14	LT.	HWY. 167 - MAIN LANES	16	162+92	163+36	83.43					DR-1
163+28	RT.	HWY. 167 - MAIN LANES	16	163+06	163+50	39.11			16.33		DR-1
164+25	RT.	HWY. 167 - MAIN LANES	16	164+03	164+47	39.11			14.43		DR-1
164+67	RT.	HWY. 167 - MAIN LANES	16	164+45	164+89	39.11			11.67		DR-1
164+76	LT.	HWY. 167 - MAIN LANES	16	164+54	164+98	39.11			17.90		DR-1
165+76	RT.	HWY. 167 - MAIN LANES (PARK DR.)	20	165+52	166+00	42.67	7.78	0.86	3.18		DR-1
170+95	RT.	HWY. 167 - MAIN LANES (MOSES ST.)	20	170+71	171+19	42.67	22.22	2.44	9.07		DR-1
171+87	LT.	HWY. 167 - MAIN LANES	20	171+63	172+11	62.25					DR-1
172+78	LT.	HWY. 167 - MAIN LANES	26	172+51	173+05	73.13					DR-1
174+50	LT.	HWY. 167 - MAIN LANES	22	174+25	174+75	44.44	51.55	5.67	21.05		DR-1
174+55	RT.	HWY. 167 - MAIN LANES	16	174+33	174+77	39.11			22.03		DR-1
175+15	LT.	HWY. 167 - MAIN LANES	16	174+93	175+37	39.11	57.85	6.36	23.62		DR-1
176+51	RT.	HWY. 167 - MAIN LANES	16	176+29	176+73	39.11			33.17		DR-1
176+92	LT.	HWY. 167 - MAIN LANES	16	176+70	177+14	39.11			20.21		DR-1
177+28	LT.	HWY. 167 - MAIN LANES	16	177+06	177+50	39.11			19.63		DR-1
177+51	RT.	HWY. 167 - MAIN LANES	18	177+28	177+74	40.89			28.52		DR-1
177+97	LT.	HWY. 167 - MAIN LANES	18	177+74	178+20	40.89			22.97		DR-1
178+81	RT.	HWY. 167 - MAIN LANES	18	178+58	179+04	40.89			22.80		DR-1
179+35	LT.	HWY. 167 - MAIN LANES	16	179+13	179+57	39.11	14.33	1.58	5.85		DR-1
180+12	LT.	HWY. 167 - MAIN LANES	16	179+90	180+34	39.11	15.59	1.71	6.37		DR-1
180+94	RT.	HWY. 167 - MAIN LANES	16	180+72	181+16	39.11			11.87		DR-1
181+56	RT.	HWY. 167 - MAIN LANES	16	181+34	181+78	39.11			11.46		DR-1
181+84	LT.	HWY. 167 - MAIN LANES	16	181+62	182+06	39.11			9.66		DR-1
182+96	RT.	HWY. 167 - MAIN LANES	16	182+74	183+18	39.11	20.14	2.22	8.22		DR-1
184+01	LT.	HWY. 167 - MAIN LANES	16	183+79	184+23	39.11			38.73		DR-1
184+57	RT.	HWY. 167 - MAIN LANES	20	184+33	184+81	42.67			48.42		DR-1
190+15	RT.	HWY. 167 - MAIN LANES	16	189+93	190+37	39.11			36.60	38	DR-1, PCC-1, PCM-1, PCP-1, PCP-2
190+15	LT.	HWY. 167 - MAIN LANES	16	189+93	190+37	39.11			42.62		DR-1
48+98	RT.	HWY. 278	20	48+74	49+22	69.34					DR-1
*ENTIRE PROJECT TEMPORARY DRIVES									1500.00		
SUBTOTALS (BOX 1 OF 2):						3584.22	440.64	48.49	1386.17	0	
SUBTOTALS (BOX 2 OF 2):						1817.02	189.46	20.84	2064.17	38	
TOTALS:						5401.24	630.10	69.33	3450.34	38	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.8% MIN. AGGR.....5.2% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

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

**FOR INFORMATION ONLY

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

PORTLAND CEMENT CONCRETE BASE

STATION	STATION	LOCATION	LENGTH	PORTLAND CEMENT CONCRETE BASE		
				AVG. WID.	9.5" U.T.	6" U.T.
			FEET	FEET	SQ. YD.	SQ. YD.
48+09.71	49+69.92	HWY. 278 LT.	160.21	3.50		75.00
48+73.58	49+71.48	HWY. 278 RT.	97.90	2.50		36.00
50+28.48	51+13.45	HWY. 278 LT.	84.97	2.50		33.33
50+28.48	51+13.45	HWY. 278 RT.	84.97	2.50		32.00
144+37.00	145+66.00	HWY. 167 LT.	129.00	6.50	93.17	
144+37.00	145+66.00	HWY. 167 LT.	129.00	9.00		129.00
145+58.00	160+40.00	HWY. 167 RT.	1482.00	6.50	1070.33	
145+58.00	160+40.00	HWY. 167 RT.	1482.00	9.00		1482.00
145+66.00	154+00.00	HWY. 167 LT.	834.00	5.00	463.33	
145+66.00	154+00.00	HWY. 167 LT.	834.00	7.50		695.00
154+00.00	160+51.00	HWY. 167 LT.	651.00	6.50	470.17	
154+00.00	160+51.00	HWY. 167 LT.	651.00	9.00		651.00
160+40.00	163+82.00	HWY. 167 RT.	342.00	2.50	95.00	
160+40.00	163+82.00	HWY. 167 RT.	342.00	5.00		190.00
163+82.00	175+56.00	HWY. 167 RT.	1174.00	2.50		326.11
175+56.00	177+65.60	HWY. 167 RT.	209.60	3.00	69.87	
175+56.00	177+65.60	HWY. 167 RT.	209.60	5.50		128.09
177+29.00	180+45.00	HWY. 167 LT.	316.00	7.50	263.33	
177+29.00	180+45.00	HWY. 167 LT.	316.00	10.00		351.11
177+65.60	184+15.00	HWY. 167 RT.	649.40	5.75	414.89	
177+65.60	184+15.00	HWY. 167 RT.	649.40	8.25		595.28
184+15.00	184+85.00	HWY. 167 RT.	70.00	7.00	54.44	
184+15.00	184+85.00	HWY. 167 RT.	70.00	9.50		73.89
* HWY. 278 - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER				VAR.	459.00	459.00
TOTALS:					3453.53	5256.81

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

RETAINING WALLS

STATION	STATION	LOCATION	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY
			CU.YDS.	POUNDS	CU.YDS.
170+10	171+30	HWY. 167 LT.	46.76	4028	83
TOTALS:			46.76	4028	83

6/4/2019

CA0701

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.		CA0701	45	138

(2) QUANTITIES

STRUCTURES (BOX 1 OF 2)

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	24"	30"	(CLASS IV) 18"	24"	SIDE DRAIN 12"	PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2 18"	24"	30"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18"	24"	30"	DROP INLETS TYPE C	MO	ST	EXT. 4'	8'	JUNCTION BOXES (TYPE E)	(TYPE ST)	YARD DRAINS	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.									EACH			EACH								LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
49+12	DROP INLET ON LT. (HWY. 278)				52									1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
50+75	DROP INLET ON LT. (HWY. 278)					39								1																	FPC-9E, FPC-9M, PCC-1, PCM-1
51+48	DROP INLET ON LT. (HWY. 278)							69								1															FPC-9S, PCC-1, PCM-1
102+55	DROP INLET ON LT.		11									1		1			1												8	0.10	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1, PCM-1
102+75	DROP INLET ON RT.		9									1		1			1												8	0.10	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1, PCM-1
105+00	DROP INLET ON LT.								241					1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
105+00	DROP INLET ON RT.								221					1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
107+42	DROP INLET ON RT.	7							238		1			1			1												5	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1, PCM-1
109+00	DROP INLET ON LT.								396					1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
110+00	DROP INLET ON RT.								254					1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
112+15	DROP INLET ON LT.	6							311		1			1															5	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1, PCM-1
113+00	DROP INLET ON LT.	6							81		1			1			1												5	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1, PCM-1
113+00	DROP INLET ON RT.								296					1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
114+80	DROP INLET ON LT.	4							176		1			1			1												5	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1, PCM-1
115+00	DROP INLET ON RT.								196					1			1														FPC-9E, FPC-9M, PCC-1, PCM-0
118+00	DROP INLET ON RT.							196						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
117+80	DROP INLET ON LT.	4						296			1			1			1												5	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1, PCM-1
121+00	DROP INLET ON LT.							316						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
121+20	DROP INLET ON RT.	4						316			1			1			1												5	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1, PCM-1
124+00	DROP INLET ON LT.							296						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
124+00	DROP INLET ON RT.							276						1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
126+07	DROP INLET ON LT.							203						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
129+11	DROP INLET ON LT.							300						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
127+00	DROP INLET ON RT.							276						1			1														FPC-9E, FPC-9M, PCC-1, PCM-0
129+80	DROP INLET ON RT.							276						1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
130+60	DROP INLET ON LT.	4						145			1			1															5	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1, PCM-1
130+60	DROP INLET ON RT.							76						1																	FPC-9E, FPC-9M, PCC-1, PCM-1
131+25	DROP INLET ON RT.							61						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
131+40	DROP INLET ON LT.							76						1																	FPC-9E, FPC-9M, PCC-1, PCM-1
133+25	DROP INLET ON RT.							286						1																	FPC-9E, FPC-9M, PCC-1, PCM-1
134+00	DROP INLET ON LT.	3						117			1			1															5	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1, PCM-1
135+20	DROP INLET ON LT.							74						1																	FPC-9E, FPC-9M, PCC-1, PCM-1
135+98	DROP INLET ON LT.							12						1																	FPC-9E, FPC-9M, PCC-1, PCM-1
136+08	DROP INLET ON LT.							176						1																	FPC-9E, FPC-9M, PCC-1, PCM-1
136+15	DROP INLET ON RT.							146						1																	FPC-9E, FPC-9M, PCC-1, PCM-1
137+65	DROP INLET ON RT.							91						1																	FPC-9E, FPC-9M, PCC-1, PCM-1
137+88	DROP INLET ON LT.							278						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
138+60	DROP INLET ON RT.							71						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
139+35	DROP INLET ON RT.							191						1																	FPC-9E, FPC-9M, PCC-1, PCM-1
140+70	DROP INLET ON LT.							116						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
141+30	DROP INLET ON RT.							56						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
141+90	DROP INLET ON LT.							95						1																	FPC-9E, FPC-9M, PCC-1, PCM-1
142+89	DROP INLET ON LT.							5						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
142+89	DROP INLET ON RT.							5						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
142+99	R.C. BOX CULVERT EXTEND 17' LT. & 14' RT.																					5	2	35	15.98	1387	16	7	0.09	SPECIAL DETAIL, RCB-1, RCB-2, RCB-3
144+10	DROP INLET ON RT.	4						106			1			1			1												5	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1, PCM-1
145+73	R.C. BOX CULVERT EXTEND 11' LT. & 17' RT.																					4	3	33	16.63	1671	13	12	0.15	R-100X-0, W-X003-1, RCB-1, RCB-2, RCB-3
145+83	DROP INLET ON RT.								7					1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
146+00	DROP INLET ON LT.	20									1			1			1												5	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1
147+20	DROP INLET ON LT.							117						1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
148+53	DROP INLET ON RT.								265					1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
149+50	DROP INLET ON LT.							226						1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
149+05	DROP INLET ON RT.								50					1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
151+50	DROP INLET ON LT.							196						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
152+55	DROP INLET ON RT.								346					1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
153+02	DROP INLET ON LT.							148						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
154+11	DROP INLET ON LT.							105						1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
154+11	DROP INLET ON RT.								152					1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
155+29	JUNCTION BOX ON LT.				115															1											FPC-9, PCC-1
155+30	JUNCTION BOX ON RT.					115														1											FPC-9, PCC-2
155+70	DROP INLET ON RT.				38									1			1														FPC-9E, FPC-9M, PCC-1
155+88	DROP INLET ON LT.				56									1																	FPC-9E, FPC-9M, PCC-1
156+50	DROP INLET ON LT.							58						1																	FPC-9E, FPC-9M, PCC-1, PCM-1
156+73	DROP INLET ON RT.							99						1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
158+40	DROP INLET ON RT.							80						1																	FPC-9E, FPC-9M, PCC-1, PCM-1
158+94	DROP INLET ON LT.							259						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
159+23	JUNCTION BOX ON RT.							61													1										FPC-9S, PCC-1, PCM-1
159+86	DROP INLET ON RT.								132					1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
161+22	DROP INLET ON RT.								68					1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
161+57	DROP INLET ON LT.							219						1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
161+94	DROP INLET ON RT.								102					1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
163+00	DROP INLET ON RT.								96					1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
163+80	DROP INLET ON LT.							220						1			1														FPC-9E, FPC-9M, PCC-1, PCM-1
164+00	DROP INLET ON RT.								96					1				1													FPC-9E, FPC-9M, PCC-1, PCM-1
SUBTOTALS:		**62**	**20**	**0**	**261**	**154**	**0**	**6791**	**3724**	**0**	**10**	**2**	**0**	**0**	**68**	**1**	**35**	**16**	**1**	**2**	**0**				**32.61**	**3058**	**29**	**85**	**1.04**	

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

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
STANLEY G. KING
No. 9066
6/5/19

6/4/2019

CA0701

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	46	138

(2) QUANTITIES

STRUCTURES (BOX 2 OF 2)

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III) 18"	(CLASS III) 24"	(CLASS III) 30"	(CLASS IV) 18"	(CLASS IV) 24"	SIDE DRAIN 12"	PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2 18"	24"	30"	FLARED END SECTIONS FOR R.C. PIPE CULVERTS 18"	24"	30"	DROP INLETS TYPE C	TYPE MO	TYPE ST	EXT. 4'	EXT. 8'	JUNCTION BOXES (TYPE E)	JUNCTION BOXES (TYPE ST)	YARD DRAINS	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL.EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		LIN. FT.									EACH								EACH			LIN. FT.			CU.YD.	POUND	CU.YD.	SQ.YD.	M.GAL.	
165+00	DROP INLET ON RT.								141						1			1												FPC-9E, FPC-9M, PCC-1, PCM-1
166+00	JUNCTION BOX ON LT.							206											1											FPC-9, PCC-1, PCM-1
166+50	DROP INLET ON RT.								207						1		1													FPC-9E, FPC-9M, PCC-1, PCM-1
168+00	JUNCTION BOX ON LT.							167											1											FPC-9, PCC-1, PCM-1
168+70	DROP INLET ON RT.								92						1			1												FPC-9E, FPC-9M, PCC-1, PCM-1
169+67	JUNCTION BOX ON LT.			17									1						1									13	0.16	FPC-9, FES-1, FES-2, PCC-1, PCM-1
169+67	DROP INLET ON RT.			60											1			1												FPC-9E, FPC-9M, PCC-1, PCM-1
169+82	R.C. BOX CULVERT EXTEND 30' LT.																					6	3	32	18.39	2391	12	6	0.08	R-100X-0, W-X003-1, RCB-1, RCB-2, RCB-3
170+55	DROP INLET ON RT.							68							1															FPC-9E, FPC-9M, PCC-1, PCM-1
171+22	JUNCTION BOX ON RT.	4						64			1								1									5	0.06	FPC-9, FES-1, FES-2, PCC-1, PCM-1
171+60	DROP INLET ON LT.							172							1		1													FPC-9E, FPC-9M, PCC-1, PCM-1
174+28	JUNCTION BOX ON RT.	6						52			1								1									5	0.06	FPC-9, FES-1, FES-2, PCC-1, PCM-1
174+81	JUNCTION BOX ON RT.	6						145			1								1									5	0.06	FPC-9, FES-1, FES-2, PCC-1, PCM-1
174+90	DROP INLET ON LT.							263							1			1												FPC-9E, FPC-9M, PCC-1, PCM-1
176+25	JUNCTION BOX ON RT.	4						100			1								1									5	0.06	FPC-9, FES-1, FES-2, PCC-1, PCM-1
177+25	JUNCTION BOX ON RT.	4						128			1								1									5	0.06	FPC-9, FES-1, FES-2, PCC-1, PCM-1
177+65	DROP INLET ON LT.							306							1			1												FPC-9E, FPC-9M, PCC-1, PCM-1
178+55	JUNCTION BOX ON RT.	4						210			1								1									5	0.06	FPC-9, FES-1, FES-2, PCC-1, PCM-1
180+69	DROP INLET ON RT.	3								196	1				1		1											5	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1, PCM-1
180+75	DROP INLET ON LT.								291						1			1												FPC-9E, FPC-9M, PCC-1, PCM-1
182+70	DROP INLET ON RT.	5								95	1				1		1											5	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1, PCM-1
183+70	DROP INLET ON LT.								56					1			1													FPC-9E, PCC-1, PCM-1
183+70	DROP INLET ON RT.									55					1															FPC-9E, FPC-9M, PCC-1, PCM-1
184+30	DROP INLET ON LT.									86					1															FPC-9E, FPC-9M, PCC-1, PCM-1
184+30	DROP INLET ON RT.									85					1															FPC-9E, FPC-9M, PCC-1, PCM-1
185+20	DROP INLET ON RT.			10									1		1		1											13	0.16	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1
185+20	DROP INLET ON LT.									251				1	1		1													FPC-9E, PCC-1, PCM-1
187+75	DROP INLET ON RT.									262					1		1													FPC-9E, FPC-9M, PCC-1, PCM-1
187+75	DROP INLET ON RT.							206							1		1													FPC-9E, FPC-9M, FES-1, FES-2, PCC-1
189+85	DROP INLET ON RT.							211							1															FPC-9E, FPC-9M, PCC-1, PCM-1
190+42	DROP INLET ON LT.			14									1		1													13	0.16	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1
192+00	DROP INLET ON RT.							196							1															FPC-9E, FPC-9M, PCC-1, PCM-1
192+00	DROP INLET ON LT.							196							1															FPC-9E, FPC-9M, PCC-1, PCM-2
194+00	DROP INLET ON LT.							181							1		1													FPC-9E, FPC-9M, PCC-1, PCM-1
194+00	DROP INLET ON RT.							181							1		1													FPC-9E, FPC-9M, PCC-1, PCM-1
195+85	DROP INLET ON RT.	13									1				1		1											5	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1
195+85	DROP INLET ON LT.	13									1				1		1											5	0.06	FPC-9E, FPC-9M, FES-1, FES-2, PCC-1
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER							500														10									FPC-9, PCC-1, PCM-1, PCP-1, PCP-2
SUBTOTALS (BOX 1 OF 2):		**62**	**20**	**0**	**261**	**154**	**0**	**6791**	**3724**	**0**	**10**	**2**	**0**	**0**	**68**	**1**	**35**	**16**	**1**	**2**	**0**				**32.61**	**3058**	**29**	**85**	**1.04**	
SUBTOTALS (BOX 2 OF 2):		**62**	**0**	**101**	**0**	**0**	**500**	**3052**	**787**	**1030**	**10**	**0**	**3**	**2**	**25**	**0**	**13**	**6**	**9**	**0**	**10**				**18.39**	**2391**	**12**	**95**	**1.16**	
TOTALS:		**124**	**20**	**101**	**261**	**154**	**500**	**9843**	**4511**	**1030**	**20**	**2**	**3**	**2**	**93**	**1**	**48**	**22**	**10**	**2**	**10**				**51.00**	**5449**	**41**	**180**	**2.20**	

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

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

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

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	20
DIRECTED BY THE ENGINEER	
TOTAL:	**20**

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	AVG. DEPTH	COLD MILLING ASPHALT PAVEMENT
			FEET	INCHES	SQ. YD.
48+09.71	49+00.00	HWY. 278	30.00	1	300.97
51+13.45	52+13.45	HWY. 278 - TRANSITION	27.00	1	300.00
101+61.13	102+61.13	MAIN LANES - TRANSITION	24.00	1	266.67
128+72.00	142+43.00	MAIN LANES	25.00	4	3808.33
142+43.00	145+80.00	MAIN LANES	34.50	4	1291.83
145+80.00	163+82.00	MAIN LANES	43.50	4	8709.67
163+82.00	166+50.00	MAIN LANES	39.50	4	1176.22
166+50.00	172+65.00	MAIN LANES	34.00	4	2323.33
172+65.00	178+56.00	MAIN LANES	37.50	4	2462.50
178+56.00	183+70.00	MAIN LANES	42.50	4	2427.22
183+70.00	184+25.00	MAIN LANES	41.00	4	250.56
TOTAL:					**23317.30**

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	44	88
DIRECTED BY THE ENGINEER		
TOTALS:	**44**	**88**

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

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	LOCATION	WIDTH	LENGTH	CU.YD.
		FEET		
155+00	MAIN LANES ON LT (HWY. 278)	7.92	48	20.5
155+00	MAIN LANES ON RT (HWY. 278)	8.50	28	12.9
169+67	MAIN LANES	9.08	34	16.7
TOTAL:				**50.1**

AVG. DEPTH = 17.5"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

6/4/2019

CA0701

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	47	138

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY C. KING
6/5/19

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								TOTAL
				TON / STATION	TON	AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 76-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 76-22	PG 76-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	FEET			TON	TON
HWY. 167-MAIN LANES																										
101+61.13	102+61.13	TRANSITION	100.00															56.00	622.22	220.00	68.44					68.44
102+36.13	102+61.13	SHOULDER TAPER	25.00	65.75	16.44			0.05														4.75	13.19	220.00	1.45	1.45
102+61.13	104+69.13	24' EXIST. - NOTCH AND WIDENING FULL DEPTH - TAPER	208.00	160.50	333.84	132.75	3068.00	0.05	153.40	36.25	837.78	495.00	207.35	36.25	837.78	330.00	138.23	36.25	837.78	220.00	92.15	60.25	1392.44	220.00	153.17	245.33
104+69.13	142+50.00	24' EXIST. - NOTCH AND WIDENING	3780.87	144.00	5444.45	120.00	50411.60	0.05	2520.58	32.00	13443.09	495.00	3327.16	32.00	13443.09	330.00	2218.11	32.00	13443.09	220.00	1478.74	56.00	23525.41	220.00	2587.80	4066.54
142+50.00	144+37.00	24' - 44' EXIST. - NOTCH AND WIDENING	187.00	115.75	216.45	105.50	2192.06	0.05	109.60	24.75	514.25	495.00	127.28	24.75	514.25	330.00	84.85	24.75	514.25	220.00	56.57	56.00	1163.56	220.00	127.99	184.56
144+37.00	145+58.00	24' - 44' EXIST. - NOTCH AND WIDENING - PCC BASE ON LT.	121.00	43.75	52.94	73.50	988.17	0.05	49.41	8.75	117.64	495.00	29.12	8.75	117.64	330.00	19.41	8.75	117.64	220.00	12.94	56.00	752.89	220.00	82.82	95.76
145+58.00	160+51.00	44' EXIST. - NOTCH AND WIDENING - PCC BASE ON BOTH SIDES	1493.00			56.00	9289.78	0.05	464.49													56.00	9289.78	220.00	1021.88	1021.88
160+51.00	163+82.00	OFFSET TAPER - NOTCH AND WIDENING - PCC BASE ON RT.	331.00	60.25	199.43	77.00	2831.89	0.05	141.59	10.50	386.17	495.00	95.58	10.50	386.17	330.00	63.72	10.50	386.17	220.00	42.48	56.00	2059.56	220.00	226.55	269.03
163+82.00	175+56.00	OFFSET - NOTCH AND WIDENING - PCC BASE ON RT.	1174.00	74.75	877.57	89.50	11674.78	0.05	583.74	16.75	2184.94	495.00	540.77	16.75	2184.94	330.00	360.52	16.75	2184.94	220.00	240.34	56.00	7304.89	220.00	803.54	1043.88
175+56.00	177+29.00	OFFSET TAPER - NOTCH AND WIDENING - PCC BASE ON RT.	173.00	61.25	105.96	77.50	1489.72	0.05	74.49	10.75	206.64	495.00	51.14	10.75	206.64	330.00	34.10	10.75	206.64	220.00	22.73	56.00	1076.44	220.00	118.41	141.14
177+29.00	180+45.00	44' EXIST. - NOTCH AND WIDENING - PCC BASE ON BOTH SIDES	316.00			56.00	1966.22	0.05	98.31													56.00	1966.22	220.00	216.28	216.28
180+45.00	184+00.00	44' EXIST. - NOTCH AND WIDENING - PCC BASE ON RT.	355.00	74.75	265.36	89.50	3530.28	0.05	176.51	16.75	660.69	495.00	163.52	16.75	660.69	330.00	109.01	16.75	660.69	220.00	72.68	56.00	2208.89	220.00	242.98	315.66
184+00.00	184+85.00	44' - 24' EXIST. - NOTCH AND WIDENING - PCC BASE ON RT.	85.00	74.75	63.54	89.50	845.28	0.05	42.26	16.75	158.19	495.00	39.15	16.75	158.19	330.00	26.10	16.75	158.19	220.00	17.40	56.00	528.89	220.00	58.18	75.58
184+85.00	187+00.00	44' - 24' EXIST. - NOTCH AND WIDENING	215.00	126.50	271.98	111.00	2651.67	0.05	132.58	27.50	656.94	495.00	162.59	27.50	656.94	330.00	108.40	27.50	656.94	220.00	72.26	56.00	1337.78	220.00	147.16	219.42
187+00.00	193+92.00	24' EXIST. - NOTCH AND WIDENING	692.00	144.00	996.48	120.00	9226.67	0.05	461.33	32.00	2460.44	495.00	608.96	32.00	2460.44	330.00	405.97	32.00	2460.44	220.00	270.65	56.00	4305.78	220.00	473.64	744.29
193+92.00	196+00.00	24' EXIST. - NOTCH AND WIDENING - TAPER	208.00	160.50	333.84	132.75	3068.00	0.05	153.40	36.25	837.78	495.00	207.35	36.25	837.78	330.00	138.23	36.25	837.78	220.00	92.16	60.25	1392.44	220.00	153.17	245.33
HWY. 278																										
48+09.79	48+71.48	HWY. 278 OVERLAY	61.69			VAR.	1043.00	0.05	52.15													VAR.	1043.00	220.00	114.73	114.73
50+28.48	51+13.45	HWY. 278 OVERLAY	84.97			VAR.	623.00	0.05	31.15													VAR.	623.00	220.00	68.53	68.53
51+13.45	52+13.45	TRANSITION	100.00															27.00	300.00	220.00	33.00					33.00
CITY STREETS																										
128+60		MISSION ROAD	VAR.	VAR.	51.75	VAR.	366.00	0.05	18.30	VAR.	122.00	495.00	30.20	VAR.	122.00	330.00	20.13	VAR.	122.00	220.00	13.42	VAR.	122.00	220.00	13.42	26.84
136+62		WELCH STREET	VAR.	VAR.	45.75	VAR.	315.00	0.05	15.75	VAR.	105.00	495.00	25.99	VAR.	105.00	330.00	17.33	VAR.	105.00	220.00	11.55	VAR.	105.00	220.00	11.55	23.10
137+23		WEST ADAMS ST.	VAR.	VAR.	47.00	VAR.	282.00	0.05	14.10	VAR.	94.00	495.00	23.27	VAR.	94.00	330.00	15.51	VAR.	94.00	220.00	10.34	VAR.	94.00	220.00	10.34	20.68
139+82		EAST ADAMS ST.	VAR.	VAR.	47.75	VAR.	288.00	0.05	14.40	VAR.	96.00	495.00	23.76	VAR.	96.00	330.00	15.84	VAR.	96.00	220.00	10.56	VAR.	96.00	220.00	10.56	21.12
141+22		ARCHER ST.	VAR.	VAR.	48.75	VAR.	258.00	0.05	12.90	VAR.	86.00	495.00	21.29	VAR.	86.00	330.00	14.19	VAR.	86.00	220.00	9.46	VAR.	86.00	220.00	9.46	18.92
146+74		ELM ST.	VAR.	VAR.	51.75	VAR.	282.00	0.05	14.10	VAR.	94.00	495.00	23.27	VAR.	94.00	330.00	15.51	VAR.	94.00	220.00	10.34	VAR.	94.00	220.00	10.34	20.68
151+98		HUNT ST.	VAR.	VAR.	51.75	VAR.	282.00	0.05	14.10	VAR.	94.00	495.00	23.27	VAR.	94.00	330.00	15.51	VAR.	94.00	220.00	10.34	VAR.	94.00	220.00	10.34	20.68
159+41		DUNN AVE (LT)	VAR.	VAR.	54.25	VAR.	285.00	0.05	14.25	VAR.	95.00	495.00	23.51	VAR.	95.00	330.00	15.68	VAR.	95.00	220.00	10.45	VAR.	95.00	220.00	10.45	20.90
159+41		DUNN AVE (RT)	VAR.	VAR.	51.75	VAR.	285.00	0.05	14.25	VAR.	95.00	495.00	23.51	VAR.	95.00	330.00	15.68	VAR.	95.00	220.00	10.45	VAR.	95.00	220.00	10.45	20.90
166+69		ABLE ST.	VAR.	VAR.	58.00	VAR.	333.00	0.05	16.65	VAR.	111.00	495.00	27.47	VAR.	111.00	330.00	18.32	VAR.	111.00	220.00	12.21	VAR.	111.00	220.00	12.21	24.42
ADDITIONAL FOR LEVELING																										
48+09.79	49+71.48	HWY. 278	161.69			VAR.	805.00	0.17	136.85									VAR.	805.00	220.00	88.55					88.55
50+89.00	51+13.45	HWY. 278	24.45			VAR.	420.00	0.17	71.40									VAR.	420.00	220.00	46.20					46.20
102+61.13	128+72.00	HWY. 167	2610.87			25.00	7252.42	0.17	1232.91									25.00	7252.42	220.00	797.77					797.77
184+25.00	196+00.00	HWY. 167	1175.00			VAR.	3286.00	0.17	558.62									VAR.	3286.00	220.00	361.46					361.46
ADDITIONAL FOR GRADE RAISE/MILL AND OVERLAY																										
102+61.13	196+00.00	HWY. 167	9338.87			VAR.	84292.81	0.05	4214.64	VAR.	21059.56	258.14	2718.16	VAR.	30219.33	257.58	3891.95	VAR.	33013.92	204.79	3380.46					3380.46
TOTALS:					**9686.78**		**203932.35**		**11608.21**		**44516.11**		**8523.67**		**53675.88**		**7762.30**		**69156.11**		**7356.11**		**60976.16**		**6707.40**	**14063.51**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.8% MIN. AGGR.....5.2% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.2% MIN. AGGR.....3.8% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

6/4/2019

CA0701

SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		69	STATION
201	GRUBBING		69	STATION
202	REMOVAL AND DISPOSAL OF CURB		5536	LIN. FT.
202	REMOVAL AND DISPOSAL OF CURB AND GUTTER		399	LIN. FT.
202	REMOVAL AND DISPOSAL OF FENCE		348	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES		2	EACH
202	REMOVAL AND DISPOSAL OF POSTS		2	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE PAVEMENT		1422	SQ. YD.
202	REMOVAL AND DISPOSAL OF CONCRETE ISLANDS		404	SQ. YD.
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS		2837	SQ. YD.
202	REMOVAL AND DISPOSAL OF WALKS		240	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS		35	EACH
202	REMOVAL AND DISPOSAL OF DROP INLETS		30	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		81	EACH
202	REMOVAL AND DISPOSAL OF LUMINAIRE POLE AND FOUNDATION		3	EACH
202	REMOVAL AND DISPOSAL OF PUMPS		3	EACH
202	REMOVAL AND DISPOSAL OF BUILDINGS		3	EACH
202	REMOVAL AND DISPOSAL OF SIGNS		22	EACH
202	REMOVAL AND DISPOSAL OF CANOPY		3	EACH
202	REMOVAL AND DISPOSAL OF TELEPHONE BOOTH		1	EACH
203	REMOVAL AND DISPOSAL OF UNDERGROUND STORAGE TANK SYSTEM (10000 GAL TO 15000 GAL)		2	EACH
203	BACKFILLING UNDERGROUND STORAGE TANK SYSTEMS		410	CU. YD.
203	EXCAVATION FOR UNDERGROUND STORAGE TANK SYSTEMS		310	CU. YD.
203	TREATMENT OR DISPOSAL OF EXCAVATED MATERIAL		310	CU. YD.
207	STONE BACKFILL		12285	TON
210	UNCLASSIFIED EXCAVATION		15795	CU. YD.
SP & 210	COMPACTED EMBANKMENT		25735	CU. YD.
SP & 210	SOIL STABILIZATION		200	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)		13137	TON
309	PORTLAND CEMENT CONCRETE BASE (6" UNIFORM THICKNESS)		5257	SQ. YD.
309	PORTLAND CEMENT CONCRETE BASE (9 1/2" UNIFORM THICKNESS)		3454	SQ. YD.
SS & 401	TACK COAT		11696	GAL.
SP, SS, & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")		8200	TON
SP,SS, & 405	ASPHALT BINDER (PG 64-22) IN ACHM BASE COURSE (1 1/2")		324	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		7428	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		334	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		13398	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		4	TON
SP, SS, & 407	ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2")		731	TON
412	COLD MILLING ASPHALT PAVEMENT		23317	SQ. YD.
SP,SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		44	TON
SP,SS, & 415	ACHM PATCHING OF EXISTING ROADWAY		20	TON
SS & 505	PORTLAND CEMENT CONCRETE DRIVEWAY		5401.24	SQ. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
SS & 603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
SP, SS & 604	SIGNS		909	SQ. FT.
SP, SS & 604	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE		10	EACH
SP, SS & 604	TRAFFIC DRUMS		663	EACH
604	CONSTRUCTION PAVEMENT MARKINGS		96507	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		26755	LIN. FT.
SP, SS & 604	VERTICAL PANELS		102	EACH
SS & 605	CONCRETE DITCH PAVING (TYPE A)		683	SQ. YD.
SS & 605	CONCRETE DITCH PAVING (TYPE B)		1322	SQ. YD.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		124	LIN. FT.
* 606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	9843	LIN. FT.
* 606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	9843	LIN. FT.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		261	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		20	LIN. FT.
* 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	4511	LIN. FT.
* 606	24" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	4511	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)		154	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		101	LIN. FT.
* 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	1030	LIN. FT.
* 606	30" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	1030	LIN. FT.
SS & 606	12" SIDE DRAIN		500	LIN. FT.
SP, SS, & 606	48" SIDE DRAIN		38	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		20	EACH
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		3	EACH
606	SELECTED PIPE BEDDING		1270	CU. YD.
SS & 609	DROP INLETS (TYPE C)		2	EACH
SS & 609	DROP INLETS (TYPE MO)		93	EACH
SS & 609	DROP INLETS (TYPE ST)		1	EACH
SS & 609	JUNCTION BOXES (TYPE E)		10	EACH
SS & 609	JUNCTION BOXES (TYPE ST)		2	EACH
SS & 609	DROP INLET EXTENSIONS (4')		48	EACH
SS & 609	DROP INLET EXTENSIONS (8')		22	EACH
SS & 609	YARD DRAINS		10	EACH
SS & 611	4" PIPE UNDERDRAINS		2570	LIN. FT.
615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)		50.1	CU. YD.
619	WIRE FENCE (TYPE C)		128	LIN. FT.
620	LIME		5	TON
620	SEEDING		2.74	ACRE
SS & 620	MULCH COVER		19.33	ACRE
620	WATER		711.5	M.GAL.
621	TEMPORARY SEEDING		16.59	ACRE
621	SILT FENCE		7912	LIN. FT.
621	SAND BAG DITCH CHECKS		1232	BAG
621	SEDIMENT BASIN		1000	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		1000	CU. YD.

*DENOTES ALTERNATE BID ITEMS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
7/18/19		10/4/19	
8/7/19		12/20/19	
8/22/19		1/22/20	

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0701	48	138

(2) SUMMARY OF QUANTITIES & REVISIONS

SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM NUMBER	ITEM	QUANTITY	UNIT
621	SEDIMENT REMOVAL AND DISPOSAL	1449	CU. YD.
SS & 621	FILTER SOCK (18")	2692	LIN. FT.
623	SECOND SEEDING APPLICATION	2.74	ACRE
624	SOLID SODDING	7427	SQ. YD.
625	GEOTEXTILE FABRIC (TYPE 10)	10500	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	2761	SQ. YD.
SS & 633	CONCRETE WALKS	7355	SQ. YD.
SS & 633	HAND RAILING	118	LIN. FT.
SS & 634	CONCRETE CURB (TYPE D)	2278	LIN. FT.
SS & 634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")	18405	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
637	MAILBOXES	7	EACH
637	MAILBOX SUPPORTS (SINGLE)	7	EACH
641	WHEELCHAIR RAMPS (TYPE 3)	131	SQ. YD.
641	WHEELCHAIR RAMPS (TYPE 4)	221	SQ. YD.
SP & 701	ACTUATED CONTROLLER TS2-TYPE 2 (8 PHASES)	1	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	10	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	2	EACH
SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	8	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	2935	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	152	LIN. FT.
708	TRAFFIC SIGNAL CABLE (12C/14 A.W.G.)	309	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	293	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	612	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)	258	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	19	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	860	LIN. FT.
709	GALVANIZED STEEL CONDUIT (2")	40	LIN. FT.
710	NON-METALLIC CONDUIT (2")	106	LIN. FT.
710	NON-METALLIC CONDUIT (3")	497	LIN. FT.
711	CONCRETE PULL BOX (TYPE 1)	2	EACH
711	CONCRETE PULL BOX (TYPE 2)	7	EACH
711	CONCRETE PULL BOX (TYPE 2 HD)	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (38')	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (40')	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (42')	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')	1	EACH
SP	LED LUMINAIRE ASSEMBLY	4	EACH
SS & 715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	5	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	1.00	LUMP SUM
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	5294	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	740	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	23745	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	2	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	2	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)	454	EACH
SP	18" STREET NAME SIGN	4	EACH
SP & 733	VIDEO DETECTOR (CLR)	7	EACH
733	VIDEO CABLE	1370	LIN. FT.
733	VIDEO MONITOR (CLR)	1	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	4	EACH
SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)	1	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	124	CU. YD.
SS & 802	CLASS S CONCRETE-ROADWAY	97.76	CU. YD.
SS & 804	REINFORCING STEEL-ROADWAY (GRADE 60)	9477	POUND
816	FILTER BLANKET	49	SQ. YD.
816	DUMPED RIPRAP	25	CU. YD.
SP	JOINT TAPE (36")	16840	LIN. FT.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. JUNG
1-22-20

REVISIONS

DATE	REVISION	SHEET NUMBER
7/18/2019	REVISED PAY ITEM NUMBER FOR REINFORCING STEEL-ROADWAY (GRADE 60) TO "SS & 804"	48
8/7/2019	ADDED "WORK WITH US SIGN" TO THE PROJECT, REVISED DATE FOR STANDARD DRAWING TC-3, AND REMOVED DROP INLET SILT FENCE FROM PROJECT AND REPLACED WITH FILTER SOCK (18")	2,3,12-20,40 & 48
8/22/2019	ADDED 7000 C.Y. OF COMPACTED EMBANKMENT FOR BACKFILLING UNDERCUT AREAS	41A & 48
10/4/2019	REMOVED "FLEXIBLE BEGINNING OF WORK - CALENDAR DAY CONTRACT" AND "PROSECUTION AND PROGRESS WITH BID SCHEDULE" SPECIAL PROVISIONS. REVISED NAME OF "SITE USE (A+C METHOD) - CALENDAR DAY CONTRACT" TO "SITE USE (A+C METHOD) - WORKING DAY CONTRACT".	3,48
12/20/2019	UPDATED DATES ON REVISED STANDARD DRAWINGS TO 11-7-19. ADDED 603-1 "LANE CLOSURE NOTIFICATION", "ESTABLISHING CONTRACT TIME", "FLEXIBLE BEGINNING OF WORK - CALENDAR DAY CONTRACT" , "PROSECUTION AND PROGRESS WITH BID SCHEDULE" & "TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)" AND REMOVED "REMOVING & REPLACING TOPSOIL" &"SITE USE (A+C METHOD) - WORKING DAY CONTRACT" ON THE GOVERNING SPECIFICATIONS. REVISED THE ITEM NUMBER ON MAINTENACE OF TRAFFIC, SIGNS, TRAFFIC DRUMS & VERTICAL PANELS ON THE SUMMARY OF QUANTITIES. REMOVED "REMOVING & REPLACING TOPSOIL" FROM THE EARTHWORK QUANTITY BOX AND THE SUMMARY OF QUANTITIES.	2,3,41A & 48
1/22/2020	REMOVED "DELAY IN ROW OCCUPANCY" SPECIAL PROVISION	3 & 48

6/4/2019

CA0701

SUMMARY OF QUANTITIES AND REVISIONS

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.		CA0701	49	138

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES

Project Name: sCA0702
Date: 6/20/2013
Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	1631814.871200	1169670.034500	177.499	CTL	AHTD STD. MON STAMPED T-1
2	1632643.039700	1169762.101200	164.697	CTL	AHTD STD. MON STAMPED T-2
3	1633603.395000	1169788.646200	164.756	CTL	AHTD STD. MON STAMPED T-3
4	1634353.141300	1169810.600300	164.731	CTL	AHTD STD. MON STAMPED T-4
5	1635213.555600	1169839.078700	166.014	CTL	AHTD STD. MON STAMPED T-5
6	1636252.661600	1169863.905200	166.324	CTL	AHTD STD. MON STAMPED T-6
7	1637009.110600	1169888.107600	167.648	CTL	AHTD STD. MON STAMPED T-7
8	1637519.783000	1169901.217400	166.748	CTL	AHTD STD. MON STAMPED T-8
9	1637941.463700	1169914.776000	166.529	CTL	AHTD STD. MON STAMPED T-9
10	1638600.096800	1169913.849100	171.928	CTL	AHTD STD. MON STAMPED T-10
11	1639293.383700	1169841.596300	182.537	CTL	AHTD STD. MON STAMPED T-11
12	1640004.349100	1169673.193700	204.295	CTL	AHTD STD. MON STAMPED T-12
13	1640632.407400	1169506.972900	220.387	CTL	AHTD STD. MON STAMPED T-13
14	1641320.680900	1169467.079400	221.728	CTL	AHTD STD. MON STAMPED T-14
15	1642039.809300	1169486.701500	224.886	CTL	AHTD STD. MON STAMPED T-15
16	1642758.873500	1169506.209800	228.409	CTL	AHTD STD. MON STAMPED T-16
17	1643428.379900	1169521.816400	223.289	CTL	AHTD STD. MON STAMPED T-17
18	1644240.903700	1169539.047400	216.188	CTL	AHTD STD. MON STAMPED T-18
19	1644942.582100	1169555.543900	216.194	CTL	AHTD STD. MON STAMPED T-19
20	1645810.719000	1169577.945300	222.038	CTL	AHTD STD. MON STAMPED T-20
21	1646473.110800	1169593.212100	221.837	CTL	AHTD STD. MON STAMPED T-21
22	1647177.499500	1169615.549800	223.056	CTL	AHTD STD. MON STAMPED T-22
23	1648501.520700	1169653.081200	226.054	CTL	AHTD STD. MON STAMPED T-23
24	1649269.238400	1169678.687600	228.949	CTL	AHTD STD. MON STAMPED T-24
25	1649955.211700	1169689.971600	226.156	CTL	AHTD STD. MON STAMPED T-25
26	1650545.449500	1169711.024200	225.112	CTL	AHTD STD. MON STAMPED T-26
27	1651501.714200	1169738.629400	224.648	CTL	AHTD STD. MON STAMPED T-27
28	1652259.907400	1169758.330400	223.342	CTL	AHTD STD. MON STAMPED T-28
29	1653001.955300	1169777.593200	224.446	CTL	AHTD STD. MON STAMPED T-29
30	1653706.550400	1169797.473300	231.261	CTL	AHTD STD. MON STAMPED T-30
31	1654376.422200	1169814.853000	233.212	CTL	AHTD STD. MON STAMPED T-31
32	1655067.623400	1169833.910000	240.736	CTL	AHTD STD. MON STAMPED T-32
33	1655827.538600	1169856.635600	250.470	CTL	AHTD STD. MON STAMPED T-33
34	1656491.219600	1169816.578200	265.984	CTL	AHTD STD. MON STAMPED T-34
35	1657285.479600	1169894.652100	276.390	CTL	AHTD STD. MON STAMPED T-35
36	1658184.543300	1169894.203600	255.168	CTL	AHTD STD. MON STAMPED T-36
100	1645393.899000	1169490.986900	217.421	GPS	AHTD GPS *070008
101	1647756.804100	1169641.732600	222.516	GPS	AHTD GPS *0700008A
114	1629465.414500	1175560.048300	199.408	GPS	AHTD GPS *070003
115	1629677.427600	1172962.986400	206.432	GPS	AHTD GPS *070003A
900	1637014.019300	1169883.652100	168.859	TBM	CHSD SQ ON SE CNR OF BR
901	1637863.778800	1169907.090600	167.884	TBM	CHSD SQ ON SE CNR OF BR
902	1638895.266000	1169918.564600	170.690	TBM	CHSD SQ CNTR OF E HW
903	1639350.100000	1169845.983200	181.427	TBM	CHSD SQ CNTR IF E HW
904	1641266.313200	1169388.854800	221.174	TBM	CHSD SQ CNTR OF W HW, 46' W OF CL 167
905	1642667.239700	1169429.833000	228.477	TBM	CHSD SQ CNTR OF W HW, 39' W CL 167
906	1644112.873800	1169532.634300	213.825	TBM	CHSD SQ CNTR OF E HW, 43' E OF CL 167
907	1644858.482500	1169570.691400	214.129	TBM	CHSD SQ CNTR OF W HW
908	1646831.218200	1169621.181200	218.037	TBM	CHSD SQ CNTR OF W HW
909	1650636.424900	1169726.795500	225.041	TBM	CHSD SQ CNTR OF E HW
910	1651149.732200	1169740.305300	225.217	TBM	CHSD SQ CNTR OF E HW
911	1652232.700600	1169771.540300	223.501	TBM	CHSD SQ CNTR OF W HW
912	1652843.601000	1169790.012800	223.178	TBM	CHSLD SQ CNTR OF W HW
913	1654143.215300	1169825.471700	232.510	TBM	CHSD SQ CNTR OF W HW
956	1631257.365000	1169514.539000	177.578	TBM	CHL SQ IN CTR OF HW
959	1632670.030400	1169762.339600	165.220	TBM	SQ CUT BACK OF CA
960	1634076.263800	1169819.059500	163.960	TBM	SQ CUT IN CENT HW
970	1635033.419700	1169827.827700	167.461	BM	USGS BM UE TT 12 B 'A'

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.00000000 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999266997 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 s070285gi.ctl
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0302-SOUTH ZONE
DETERMINED FROM GPS CONTROL POINTS:
070009 - 070009A
070010 - 070010A
070011 - 070011A
CONVERGENCE ANGLE: 00-15-45.21 LEFT AT PN: 18
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.
MID POINT LAT N 33-34-39.20
MID POINT LON W092-28-08.81

4/19/2019

CA0701

SURVEY CONTROL COORDINATES
Project Name: ca0701
Date: 12/15/2014
Coordinate System: Arkansas State Plane Coordinates
Based on AHTD GPS PTS : *070009-070009a,070010-070010a,070011-070011a*
Projected to Ground Coordinates
Units: U.S. Survey Foot

COORDINATES LISTED BELOW ARE GROUND (Localized) COORDINATES !!!!

Point No.	Northing	SY	Easting	SX	Elevation	SZ	Feature Code	Point Description
72	1623944.7838	0.0080	1169080.1738	0.0060	167.08	0.022	CTL	PD:5/8"REBAR W/2"CAP STAMPED:72
73	1624601.4025	0.0090	1169106.0946	0.0070	168.81	0.022	CTL	PD:5/8"REBAR W/2"CAP STAMPED:73
74	1625359.6405	0.0090	1169134.5159	0.0090	171.49	0.022	CTL	PD:5/8"REBAR W/2"CAP STAMPED:74
75	1626223.2725	0.0060	1169167.3066	0.0060	175.99	0.022	CTL	PD:5/8"REBAR W/2"CAP STAMPED:75
76	1627045.3151	0.0030	1169197.1931	0.0030	180.03	0.022	CTL	PD:5/8"REBAR W/2"CAP STAMPED:76
77	1627774.2242	0.0040	1169162.8176	0.0030	180.60	0.022	CTL	PD:5/8"REBAR W/2"CAP STAMPED:77
78	1628450.0353	0.0110	1169236.6191	0.0100	178.11	0.022	CTL	PD:5/8"REBAR W/2"CAP STAMPED:78
79	1629284.2080	0.0100	1169214.0229	0.0080	193.66	0.022	CTL	PD:5/8"REBAR W/2"CAP STAMPED:79
80	1629852.8924	0.0070	1168456.9499	0.0040	202.43	0.022	CTL	PD:5/8"REBAR W/2"CAP STAMPED:80
81	1629861.1627	0.0170	1169309.9906	0.0130	200.19	0.022	CTL	PD:5/8"REBAR W/2"CAP STAMPED:81
82	1629774.6674	0.0120	1169982.4995	0.0090	208.07	0.022	CTL	PD:5/8"REBAR W/2"CAP STAMPED:82
83	1630559.4762	0.0100	1169284.5281	0.0100	194.82	0.022	CTL	PD:5/8"REBAR W/2"CAP STAMPED:83
84	1631236.7658	0.0160	1169487.9394	0.0110	180.13	0.022	CTL	PD:5/8"REBAR W/2"CAP STAMPED:
103	1579793.4803	0.0000	1163686.3736	0.0000	108.48	0.014	GPS	PD:AHTD GPS 070005A
104	1595946.0033	0.0000	1167307.2160	0.0000	115.48	0.018	GPS	PD:AHTD GPS 070006A
105	1596834.7149	0.0000	1165763.4508	0.0000	114.30	0.018	GPS	PD:AHTD GPS 070006
106	1611738.4809	0.0000	1168659.4221	0.0000	154.68	0.020	GPS	PD:AHTD GPS 070007A
107	1613579.2617	0.0000	1168615.9475	0.0000	158.99	0.020	GPS	PD:AHTD GPS 070007
108	1629677.4278	0.0000	1172962.9865	0.0000	206.43	0.023	GPS	PD:AHTD GPS 070003A
109	1629465.4145	0.0000	1175560.0482	0.0000	199.40	0.023	GPS	PD:AHTD GPS 070003
950	1624292.0231	30.0000	1169142.1285	30.0000	166.92	0.022	TBM	PD:CPS IN PP
951	1625250.1493	30.0000	1169160.0598	30.0000	170.76	0.022	TBM	PD:CPS IN PP
952	1626300.6613	30.0000	1169181.8564	30.0000	174.95	0.022	TBM	PD:CHL SQ
953	1627292.8361	30.0000	1169251.5305	30.0000	182.09	0.022	TBM	PD:CHL SQ
954	1628630.9401	30.0000	1169191.3401	30.0000	177.89	0.022	TBM	PD:CHL SQ
955	1629790.7311	30.0000	1169305.8995	30.0000	201.78	0.022	TBM	PD:CHL SQ
956	1631257.3347	30.0000	1169514.6388	30.0000	177.57	0.022	TBM	PD:CHL SQ
957	1629693.3820	30.0000	1170906.4178	30.0000	203.87	0.022	TBM	PD:CHL SQ
958	1629624.6160	30.0000	1173861.5264	30.0000	196.35	0.023	TBM	PD:CHL SQ
959	1632669.8902	30.0000	1169762.2919	30.0000	165.22	0.022	TBM	PD:SQ CUT BACK OF CA
960	1634076.3443	30.0000	1169818.9771	30.0000	163.96	0.022	TBM	PD:SQ CUT IN CENT HW
990	1599258.9872	30.0000	1168171.8143	30.0000	117.56	0.019	BM	PD:USGS BM 10 B 1933
991	1614454.6570	30.0000	1168661.4142	30.0000	162.16	0.000	BM	PD:USGS BM 11 B 1933
992	1635033.3974	30.0000	1169827.7837	30.0000	167.46	0.017	BM	PD:USGS BM UE TT 12 B "A"

*Standard Primary Control Monument - Rebar and Cap - Standard - 5/8"x 24" Rebar with 2"Aluminum Cap stamped: "(include all common information here)" plus other markings indicated in the point description of the individual point. AHTD monuments will be stamped "Arkansas Hwy & Trans Dept" with "PN: ###" & "Job ######". Monuments that are set by Consultants will be stamped "Arkansas Hwy & Trans Dept" with "PN:###", "Job######", & "PS####". The consultant Professional Surveyor in charge will stamp his/her PS license number on the cap.

**Standard GPS Control Point Monument - 5/8" x 48" Rebar with 2.5"Aluminum Cap stamped: "(include all common information here)" plus other markings indicated in the point description of the individual point. These monuments will be stamped "Ark. State Hwy Trans. Dept.", "GPS Survey", & "Point No. ######".

SX, SY, SZ – Represents the standard error estimate of the coordinate values of each point at the 67% confidence level (one sigma) based on the least squares analysis of the control network. See the AASHTO SDMS Technical Data Guide data tag definition for SX:, SY:, and SZ: for additional information. These values shall be used when control points are added and the entire network is reprocessed using least square analysis. A value of 0.001 is defined as fixed (no adjustment) in the least square analysis process. A value of 30 is defined as location by handheld GPS device or scaled from USGS Quadmap.

Reference Control points (1500 series) shall be used to re-establish horizontal datum if the primary control has been destroyed. These reference control points shall not be used for vertical control unless the elevation has been established from the project datum with 3-wire level techiniques.

All additional project control shall be occupied, measured, and adjusted with direct survey ties to at least two of the control points listed in the table above. New survey control shall not be independent of the survey control listed above. This includes horizontal coordinates and elevations.

Positional Accuracy:
- Horizontal - GPS (1.0 cm± 1PPM) — *PN: 103-109*
- Horizontal - Primary (2.0cm± 20PPM): — *PN:72-84*
- Horizontal - Secondary (3 cm ± 50PPM): — *PN:N/A*
- Vertical - NGS 1st Order (±4mm x Vdist in km) — *PN:*
- Vertical - NGS 2nd Order (±6mm x Vdist in km) — *PN:*
- Vertical - NGS 3rd Order (±8mm x Vdist in km) — *PN:950-960,990-992*

Horizontal Datum: NAD 1983 (1997) State Plane Zone: 0302 - South Zone
The adjustment year is based on metadata in the SDMS Control file
A project CAF of: 0.9999266997 has been used to compute the above coordinates.
The project CAF shall have a minimum precision of 9 digits right of the decimal.
This CAF is intended for use within the project limits only.
Grid Distance = Ground Distance X CAF
If Coordinates are listed as Ground:
To compute Grid Coordinates, multiply the Ground Coordinates by CAF about the origin of X=0 & Y=0
If Coordinates are listed as Grid:
To compute Ground Coordinates, divide the Grid Coordinates by CAF about the origin of X=0 & Y=0

Vertical Datum: NAVD 1988 based NGS BM: X 198 & Y 198
A project Elevation Factor of: 0.9999917169 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 173.17 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points: 72-84,103-109,950-960,990. From NGS BM: X 198 & Y 198

Basis of Bearing: Grid Bearings based on AHTD GPS points: 070009-070009a,070010-070010a,070011-070011a
Convergence Angle is: 00-15-45.21 LEFT at PN: 18
LT: 33-34-39.2 LG: 092-28-08.8 W
Grid Azimuth = Astronomical Azimuth - Convergence Angle

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
JAMLEY G. KING
6/5/19

CONSTRUCTION C.L.

HORIZONTAL ALIGNMENT — HWY. 167

DESCRIPTION	POINT	STATION	NORTHING	EASTING
POB	8005	102+18.99	1624552.9736	1169079.6434
PI	8006	110+00.00	1625333.4357	1169108.8953
PI	8007	125+84.39	1626916.6762	1169169.2073
PI	8008	146+39.77	1628971.1895	1169228.9876
PI	8009	155+00.00	1629830.2395	1169274.0085
PI	8010	159+30.05	1630259.6644	1169297.1400
PC	8012	165+28.76	1630857.7652	1169324.1253
PT	8014	168+59.87	1631175.0949	1169409.1535
PC	8015	172+49.65	1631521.0989	1169588.6327
PT	8017	177+65.60	1632016.3621	1169716.8830
PC	8018	196+20.17	1633870.1917	1169769.2950
PT	8020	201+80.31	1634429.4969	1169798.8007

HWY. 278 C.L.

HORIZONTAL ALIGNMENT — HWY. 278

DESCRIPTION	POINT	STATION	NORTHING	EASTING
POB	8024	45+80.16	1629857.1889	1168855.0349
POE	8025	54+39.87	1629802.0040	1168712.9756

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	50	138

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

BASIS FOR BEARING:
GRID NORTH FROM AHTD
GPS, SEE NOTES

STA. 102+61.13 ℄ CONST. HWY. 167
BEGIN JOB CA0701
END JOB 070284
LOG MILE 13.47

℄ CONST. HWY. 167

PI 110+00.00
DELTA = 0°02'07" RT.

PI 125+84.39
DELTA = 0°30'54" LT.

CTL PN:72
SURVEY BASELINE N02°15'38"E 657.13'
8005
CTL PN:73
SURVEY BASELINE N02°08'48"E 758.77'
N 2°08'47" E 781.01'
8006
CTL PN:74
SURVEY BASELINE N02°10'28"E 864.25'
N 2°10'54" E 1584.39'
CTL PN:75
SURVEY BASELINE N02°04'56"E 822.59'
8007

105+00 110+00 115+00 120+00 125+00

BASIS FOR BEARING:
GRID NORTH FROM AHTD
GPS, SEE NOTES

STA. 155+00.00 ℄ CONST. HWY. 167 =
STA. 50+00.00 ℄ CONST. HWY. 278
◁ 89°24'11"

PI 45+80.16 8024

S 86°19'11" E

48+00

℄ CONST. HWY. 167

CTL PN:76
SURVEY BASELINE N02°42'00"W 729.72'
N 1°40'00" E 2055.38'
CTL PN:77
SURVEY BASELINE N06°13'56"E 679.83'
CTL PN:78
SURVEY BASELINE N01°33'06"W 834.48'
8008
CTL PN:79
SURVEY BASELINE N09°26'38"E 584.88'
N 3°00'00" E 860.23'
8009
N 3°05'00" E 430.05'
CTL PN:81

51+00

PI 146+39.77
DELTA = 1°20'00" RT.

PI 155+00.00
DELTA = 0°05'00.0" RT.

℄ CONST. HWY. 278

PI 54+39.87
8025

130+00 135+00 140+00 145+00 150+00 155+00

SCALE IN FEET
0 100 200 400
1" = 200'

SURVEY CONTROL DETAILS

5/7/2019

CA0701

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.		CA0701	51	138

2 SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

BASIS FOR BEARING:
GRID NORTH FROM AHTD
GPS, SEE NOTES

N 3°05'00"E
430.05'

PI 159+30.05
DELTA = 0°30'00" LT.

SURVEY BASELINE
N02°05'18"W
698.78'

8010

CTL
PN:83

N 2°35'00"E
598.71'

8012

PI 166+96.95

PC 165+28.76

SURVEY BASELINE
N16°43'00"E
707.18'

PT 168+59.87

8014

CTL
PN:84

N 27°25'00"E
389.75'

PC 172+49.65

8015

℄ CONST. HWY. 167

160+00

165+00

170+00

HIGHWAY 167
P.I. = 166+96.95
Δ = 24°50'00.0" RT.
D = 7°30'00"
T = 168.20'
L = 331.11'
PC = 165+28.76
PT = 168+59.87
e = 0.090 FT./FT.
Ls = 500'

HIGHWAY 167
P.I. = 175+12.07
Δ = 25°47'50.0" LT.
D = 5°00'00"
T = 262.42'
L = 515.95'
PC = 172+49.65
PT = 177+65.60
e = 0.072 FT./FT.
Ls = 400'

N 27°25'00"E

PI 175+12.07

PT 177+65.60

CTL
PN:1

SURVEY BASELINE
833.27'
N 1°37'10"E
1854.57'

8017

NO6°20'36"E

CTL
PN:2

SURVEY BASELINE NO1°35'00"E, 960.72'

175+00

180+00

185+00

190+00

BASIS FOR BEARING:
GRID NORTH FROM AHTD
GPS, SEE NOTES

STA. 196+00.00 ℄ CONST. HWY. 167
END JOB CA0701
BEGIN JOB CA0702
LOG MILE 0.77

℄ CONST. HWY. 167

N 1°37'10"E
1854.57'

8018

CTL
PN:3

SURVEY BASELINE NO1°40'38"E, 750.07'

PI 199+00.29

8020 N 4°25'13"E

CTL
PN:4

PC 196+20.17

PRC 201+80.31

PI 204+60.43

PT 207+40.45

SURVEY BASELINE NO1°53'45"E
860.89'

CTL
PN:5

N 1°37'10"E

SURVEY BASELINE NO1°22'07"E
1039.40'

CTL
PN:6

190+00

195+00

200+00

205+00

210+00

215+00

220+00

HIGHWAY 167
P.I. = 199+00.29
Δ = 2°48'03.0" RT.
D = 0°30'00"
T = 280.13'
L = 560.14'
PC = 196+20.17
PRC = 201+80.31
e = N/A
Ls = N/A

SCALE IN FEET
0 100 200 400
1" = 200'

SURVEY CONTROL DETAILS

4/19/2019

CA0701

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.		CA0701	52	138

(2) PLAN SHEET

STA. 102+19 ℄ CONST. HWY. 167 - IN PLACE
24" X 44' PIPE CULVERT LT. SIDE DRAIN
RETAIN

STA. 108+56 ℄ CONST. HWY. 167 - IN PLACE
18" X 37' C.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT. = 15 CU. YDS.

STA. 111+72 ℄ CONST. HWY. 167 - IN PLACE
24" X 46' C.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT. = 15 CU. YDS.

STA. 112+74 ℄ CONST. HWY. 167 - IN PLACE
24" X 41' C.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT. = 5 CU. YDS.

STA. 114+54 ℄ CONST. HWY. 167 - IN PLACE
24" X 40' C.P. PIPE CULVERT
LT. SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT. = 10 CU. YDS.

STATE OF ARKANSAS
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6/5/19

STA. 102+55 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 24" x 11' R.C. STUB OUTLET WITH FES
TY C = 4' x 4'
TY MO = 4' I.D.
H= 4' 3"

STA. 105+00 - CONSTRUCT
D.I. ON LT. WITH 8' EXTENSION
& 24" x 241' PIPE OUTLET
CONNECT TO D.I. @ STA. 102+55 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H= 4' 6"

STA. 109+00 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 24" x 396' PIPE OUTLET
CONNECT TO D.I. @ STA. 105+00 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 0"

STA. 112+15 - CONSTRUCT
D.I. ON LT. WITH
18" x 6' R.C. PIPE STUB INLET WITH FES.
& 24" x 311' PIPE OUTLET
CONNECT TO D.I. @ STA. 109+00 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 0"

STA. 113+00 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 18" x 6' R.C. PIPE STUB INLET WITH FES.
& 24" x 81' PIPE OUTLET
CONNECT TO D.I. @ STA. 112+15 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 0"

STA. 114+80 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 18" x 4' R.C. PIPE STUB INLET WITH FES.
& 24" x 176' PIPE OUTLET
CONNECT TO D.I. @ STA. 113+00 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 0"

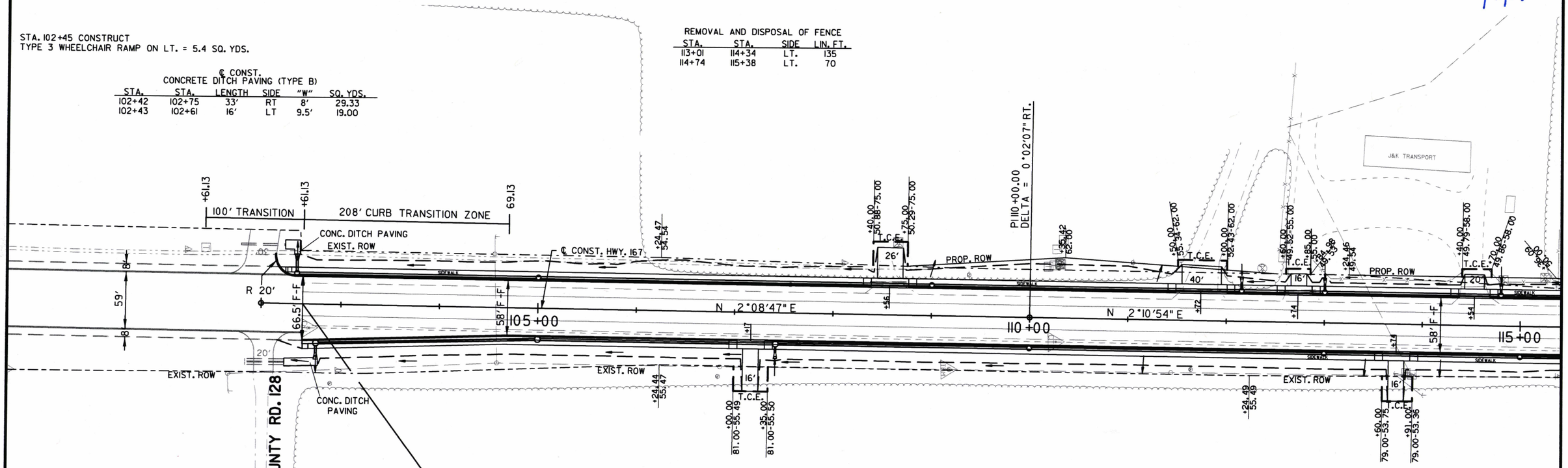
STA. 102+45 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 5.4 SQ. YDS.

℄ CONST.
CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	LENGTH	SIDE	"W"	SQ. YDS.
102+42	102+75	33'	RT	8'	29.33
102+43	102+61	16'	LT	9.5'	19.00

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
113+01	114+34	LT.	135
114+74	115+38	LT.	70



STA. 102+61.13 ℄ CONST. HWY. 167
BEGIN JOB CA0701
END JOB 070284
LOG MILE 13.47

STA. 102+65 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 3.4 SQ. YDS.

STA. 102+75 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 24" x 9' R.C. STUB OUTLET WITH FES.
TY C = 4' x 4'
TY MO = 4' I.D.
H= 4' 3"

STA. 105+00 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 24" x 221' PIPE OUTLET
CONNECT TO D.I. @ STA. 102+75 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 9"

STA. 107+42 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 18" x 7' R.C. PIPE STUB INLET WITH FES.
& 24" x 238' PIPE OUTLET
CONNECT TO D.I. @ STA. 105+00 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 0"

STA. 110+00 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
24" x 254' PIPE OUTLET
CONNECT TO D.I. @ STA. 107+42 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 0"

STA. 113+00 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
24" x 296' PIPE OUTLET
CONNECT TO D.I. @ STA. 110+00 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 0"

STA. 115+00 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 24" x 196' PIPE OUTLET
CONNECT TO D.I. @ STA. 113+00 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 0"

STA. 102+25 ℄ CONST. HWY. 167 - IN PLACE
DBL. 30" X 38' PIPE CULVERT RT. SIDE DRAIN
RETAIN

STA. 107+17 ℄ CONST. HWY. 167 CONSTRUCT
APPROACH ON RT.= 60 CU. YDS.

STA. 113+74 ℄ CONST. HWY. 167 CONSTRUCT
APPROACH ON RT.= 40 CU. YDS.

ALL R.C. PIPE CULVERTS SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED.

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

HWY. 167

7/30/2016

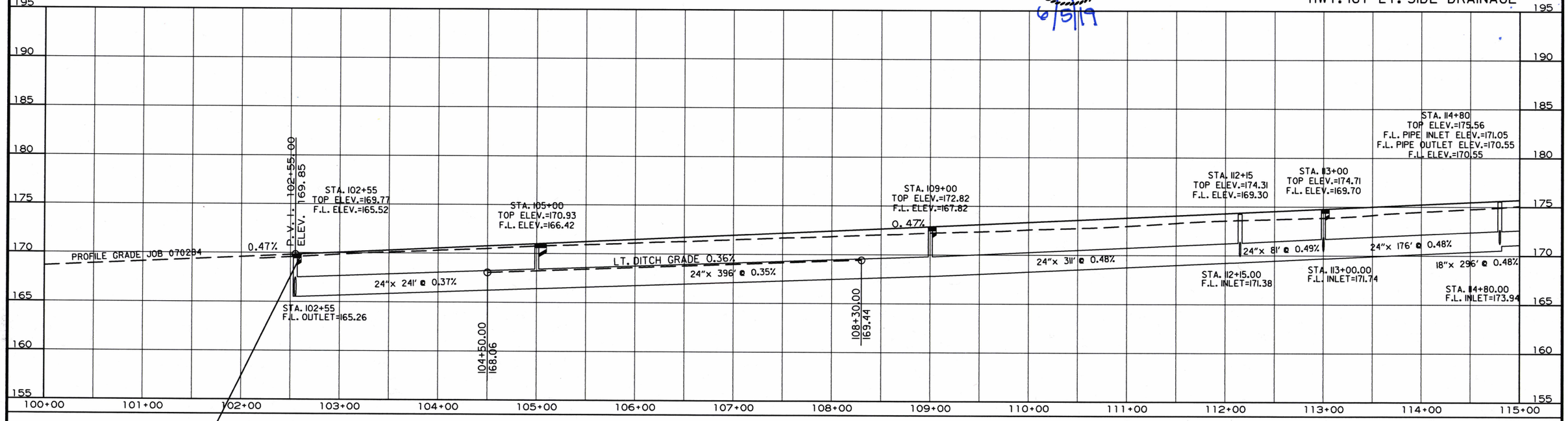
CA0701

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.		CA0701	53	138

(2) PROFILE SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
STANLEY G. KING
No. 9066
6/5/19

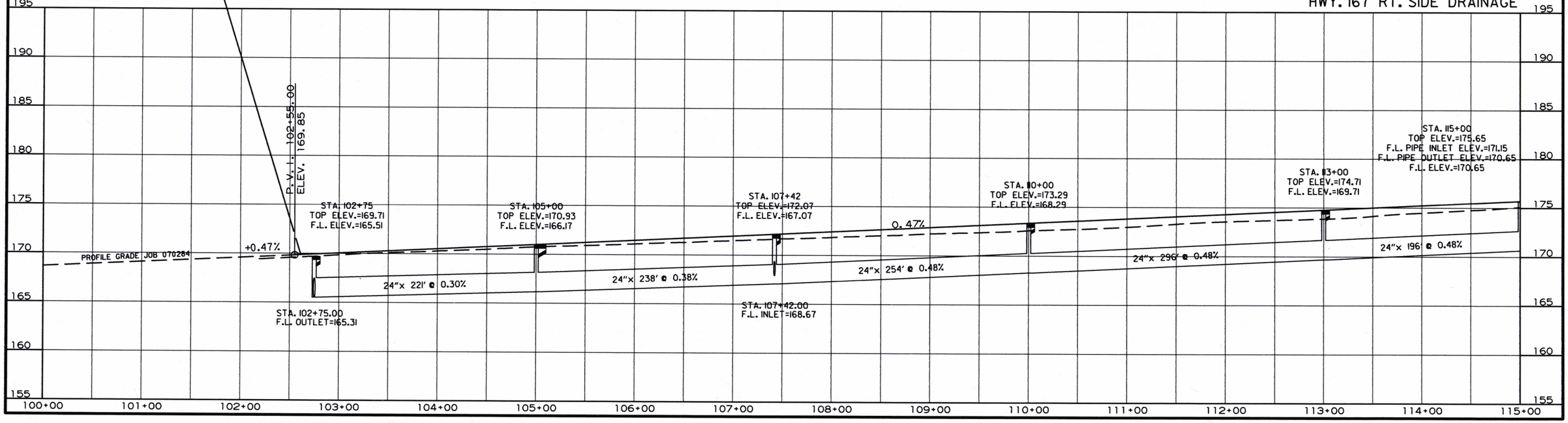
HWY. 167 LT. SIDE DRAINAGE



STA. 102+61.13
BEGIN JOB CA0701
END JOB 070284
LOG MILE 13.47

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

HWY. 167 RT. SIDE DRAINAGE



7/30/2016

CA0701

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.		CA0701	54	138

(2) PLAN SHEET

STA. 116+02 ℄ CONST. HWY. 167 - IN PLACE
24" X 50' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT. = 5 CU. YDS.

STA. 116+73 ℄ CONST. HWY. 167 - IN PLACE
24" X 52' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE

STA. 117+41 ℄ CONST. HWY. 167 - IN PLACE
24" X 61' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE

STA. 118+10 ℄ CONST. HWY. 167 - IN PLACE
18" X 25' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT. = 15 CU. YDS.

STA. 120+66 ℄ CONST. HWY. 167 - IN PLACE
18" X 35' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT. = 20 CU. YDS.

STA. 122+33 ℄ CONST. HWY. 167 - IN PLACE
18" X 31' C.M PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT.= 20 CU. YD.

STA. 123+23 ℄ CONST. HWY. 167 - IN PLACE
18" X 25' R.C. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT. = 30 CU. YDS.

STA. 124+32 ℄ CONST. HWY. 167 - IN PLACE
18" X 24' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT.= 25 CU. YDS.

STA. 125+79 ℄ CONST. HWY. 167 - IN PLACE
18" X 24' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT.= 45 CU. YDS.

STA. 127+26 ℄ CONST. HWY. 167 - IN PLACE
18" X 24' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT.= 35 CU. YDS

STA. 127+74 ℄ CONST. HWY. 167 - IN PLACE
18" X 24' C.P. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT.= 20 CU. YDS

STA. 128+85 ℄ CONST. HWY. 167 CONSTRUCT
APPROACH ON LT.= 25 CU. YDS.

STA. 129+65 ℄ CONST. HWY. 167 CONSTRUCT
APPROACH ON LT.= 15 CU. YDS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

STA. 117+80 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 18" x 4' R.C. PIPE STUB INLET WITH FES.
& 18" x 296' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 114+80 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 6"

STA. 121+00 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 18" x 316' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 117+80 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 6"

STA. 124+00 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 18" x 296' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 121+00 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 6"

STA. 126+07 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 18" x 203' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 124+00 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 10"

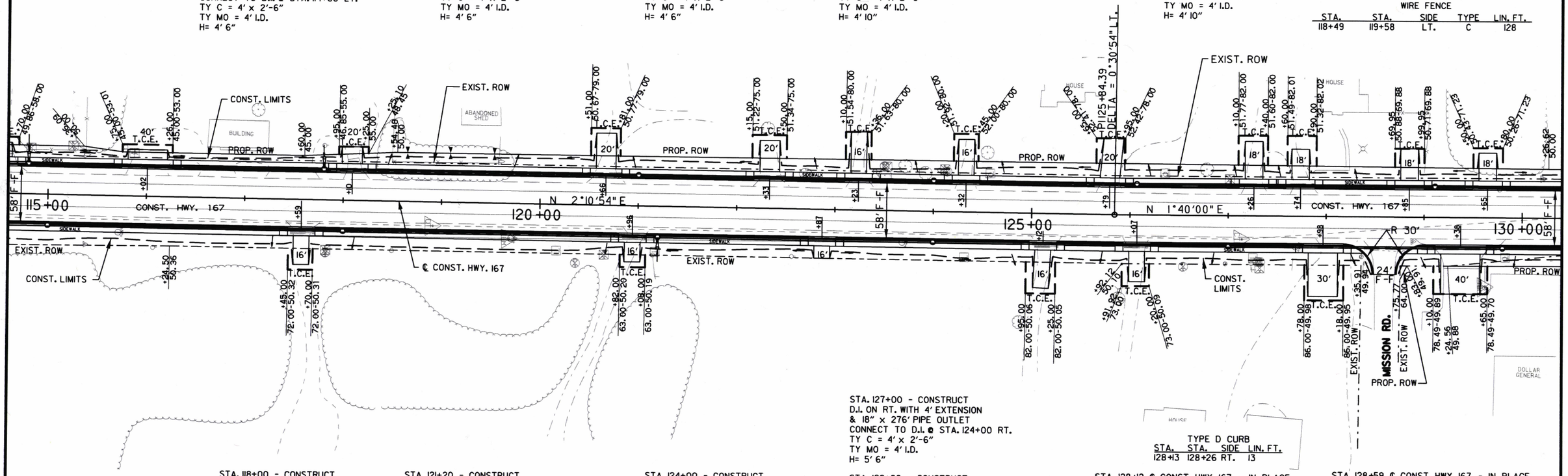
STA. 129+11 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 18" x 300' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 126+07 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 10"

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
118+49	119+58	LT.	128
129+00	129+01	LT.	5

WIRE FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.
118+49	119+58	LT.	C	128



STA. 118+00 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 18" x 296' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 115+00 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 6"

STA. 121+20 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 18" x 4' R.C. PIPE STUB INLET WITH FES.
& 24" x 316' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 118+00 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 6"

STA. 124+00 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION
& 18" x 276' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 121+20 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 0"

STA. 127+00 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 18" x 276' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 124+00 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 6"

STA. 129+80 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION
& 18" x 276' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 127+00 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 11"

STA. 128+12 ℄ CONST. HWY. 167 - IN PLACE
18" X 40' C.M. PIPE CULVERT SIDE DRAIN 32' RT.
REMOVE

STA. 128+59 ℄ CONST. HWY. 167 - IN PLACE
18" X 41' C.M. PIPE CULVERT SIDE DRAIN 33' RT.
REMOVE

STA. 128+29 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 5.4 SQ. YDS.

STA. 128+89 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 5.4 SQ. YDS.

STA. 117+59 ℄ CONST. HWY. 167 - IN PLACE
24" X 25' C.P. PIPE CULVERT
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT.= 15 CU. YDS.

STA. 120+96 ℄ CONST. HWY. 167 - IN PLACE
24" X 25' C.M. PIPE CULVERT
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT. = 5 CU. YDS.

STA. 122+87 ℄ CONST. HWY. 167 CONSTRUCT
APPROACH ON RT. = 5 CU. YDS.

STA. 125+12 ℄ CONST. HWY. 167 - IN PLACE
18" X 24' C.M. PIPE CULVERT
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT. = 20 CU. YDS.

STA. 126+07 ℄ CONST. HWY. 167 - IN PLACE
18" X 24' C.M. PIPE CULVERT
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT.= 20 CU. YDS.

STA. 127+98 ℄ CONST. HWY. 167 CONSTRUCT
APPROACH ON RT.= 60 CU. YDS.

STA. 128+60 ℄ CONST. HWY. 167 - IN PLACE
18" X 41' C.M. PIPE CULVERT
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT. = 10 CU. YDS.

STA. 129+38 ℄ CONST. HWY. 167 - IN PLACE
18" X 77' C.P. PIPE CULVERT
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT.= 65 CU. YDS.

ALL R.C. PIPE CULVERTS SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED.

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

HWY. 167

7/30/2016

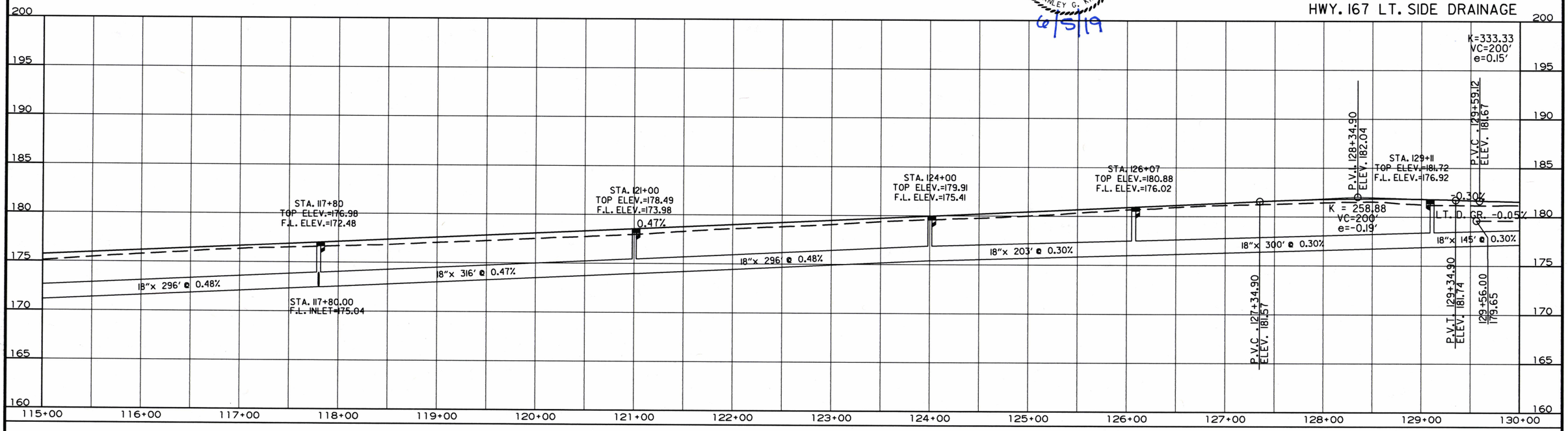
CA0701

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.		CA0701	55	138

(2) PROFILE SHEET

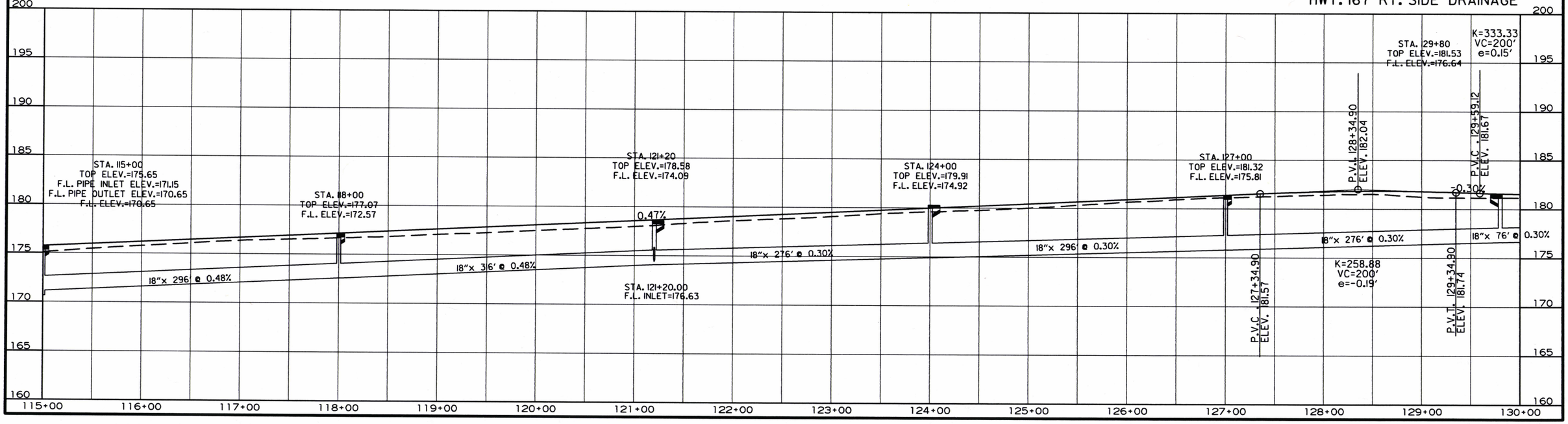
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

HWY. 167 LT. SIDE DRAINAGE



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

HWY. 167 RT. SIDE DRAINAGE



CA0701.DGN 7/30/2016

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.		CA0701	56	138

(2) PLAN SHEET

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 9066 — STANLEY G. KING — 6-5-19

STA. 131+05 ℄ CONST. HWY. 167 - IN PLACE
18" X 48' C.P. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT. = 10 CU. YDS.

STA. 132+86 ℄ CONST. HWY. 167 CONSTRUCT
APPROACH ON LT. = 10 CU. YDS.

STA. 136+55 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET ON LT WITH
18" X 42' R.C. PIPE OUTLET WITH SES ON LT.
REMOVE

STA. 130+60 - CONSTRUCT
D.I. ON LT. WITH
18" x 4' R.C. PIPE STUB INLET WITH FES.
& 18" x 145' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 129+11 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 1"

STA. 131+40 - CONSTRUCT
D.I. ON LT. WITH BACK OPENING
& 18" x 76' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 130+60 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 0"

STA. 132+25 ℄ CONST. HWY. 167 - IN PLACE
18" X 37' C.P. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT. = 10 CU. YDS.

STA. 133+55 ℄ CONST. HWY. 167 CONSTRUCT
APPROACH ON LT. = 5 CU. YDS.

STA. 135+20 - CONSTRUCT
D.I. ON LT. WITH
18" x 74' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 135+98 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 7"

STA. 134+31 ℄ CONST. HWY. 167 - IN PLACE
18" X 24' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT. = 10 CU. YDS.

STA. 134+98 ℄ CONST. HWY. 167 - IN PLACE
18" X 32' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT.

STA. 138+69 ℄ CONST. HWY. 167 - IN PLACE
18" X 6' R.C. PIPE CULVERT SIDE DRAIN 29' LT.
REMOVE

STA. 141+03 ℄ CONST. HWY. 167 - IN PLACE
12" X 24' C.M. PIPE CULVERT SIDE DRAIN 75' LT.
REMOVE

STA. 135+98 - CONSTRUCT
D.I. ON LT. WITH
18" x 12' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 136+08 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 11"

STA. 136+08 - CONSTRUCT
D.I. ON LT. WITH BACK OPENING
& 18" x 176' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 137+88 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 0"

STA. 136+95 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 5.4 SQ. YDS.

STA. 135+74 ℄ CONST. HWY. 167
CONSTRUCT
APPROACH ON LT.= 5 CU. YDS.
UNCLASSIFIED EXCAVATION

STA. 136+34 ℄ CONST. HWY. 167 - IN PLACE
18" X 41' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT.

STA. 136+74 ℄ CONST. HWY. 167 - IN PLACE
18" X 42' R.C. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT. = 5 CU. YDS.

STA. 141+23 ℄ CONST. HWY. 167 - IN PLACE
18" X 40' C.M. PIPE CULVERT SIDE DRAIN 31' LT.
REMOVE

STA. 137+88 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 18" x 278' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 140+70 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 7"

STA. 140+70 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 18" x 116' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 141+90 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 0"

STA. 137+51 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 5.4 SQ. YDS.

STA. 137+23 ℄ CONST. HWY. 167 - IN PLACE
18" X 40' C.M. PIPE OUTLET
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT.

STA. 138+18 ℄ CONST. HWY. 167 - IN PLACE
18" X 24' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT. = 5 CU. YDS.

STA. 139+79 ℄ CONST. HWY. 167 - IN PLACE
24" X 33' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT.

℄ CONST.
CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	LENGTH	SIDE	"W"	SQ. YDS.
141+80	141+90	10'	RT	4'	4.44
142+70	143+35	65'	RT	9.5'	68.61
142+89	143+09	20'	RT	9.5'	21.11
142+89	143+09	20'	LT	9.5'	21.11

STA. 140+93 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 5.4 SQ. YDS.

STA. 141+50 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 5.4 SQ. YDS.

STA. 141+22 ℄ CONST. HWY. 167 - IN PLACE
18" X 40' C.M. PIPE OUTLET
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT. = 5 CU. YDS.

STA. 141+97 ℄ CONST. HWY. 167 - IN PLACE
24" X 36' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ℄ 142+27 ON LT.

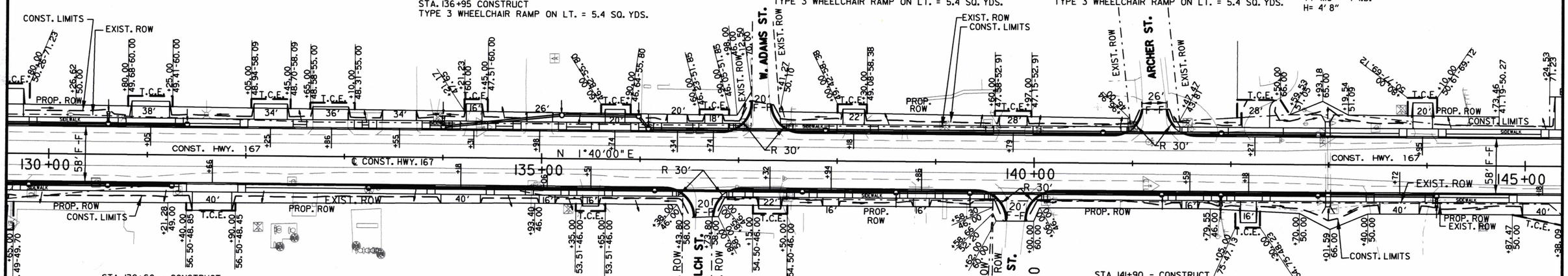
TYPE D CURB
(CONSTRUCT ℄ ROW LINE)

STA.	STA.	SIDE	LIN. FT.
133+04	133+38	LT.	34
135+11	135+64	LT.	53
135+84	136+01	LT.	17
136+19	136+27	LT.	8
136+47	136+65	LT.	18
136+83	137+13	LT.	43
138+02	138+06	LT.	4
138+28	138+42	LT.	14
141+81	142+11	LT.	30
143+80	143+85	LT.	5

STA. 143+95 ℄ CONST. HWY. 167 - IN PLACE
24" X 25' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT.

STA. 141+90 - CONSTRUCT
D.I. ON LT. WITH
18" x 95' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 142+89 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 3' 11"

STA. 142+89 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 18" x 5' PIPE OUTLET
CONNECT TO R.C. BOX CULVERT ℄ STA. 142+99
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 8"



STA. 130+60 - CONSTRUCT
D.I. ON RT. WITH
18" x 76' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 129+80 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 7"

STA. 131+25 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 18" x 61' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 130+60 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 3"

STA. 133+25 - CONSTRUCT
D.I. ON RT. WITH
18" x 286' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 136+15 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 0"

STA. 136+15 - CONSTRUCT
D.I. ON RT. WITH
18" x 146' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 137+65 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 1"

STA. 136+38 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 5.4 SQ. YDS.

STA. 136+90 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 5.4 SQ. YDS.

STA. 137+65 - CONSTRUCT
D.I. ON RT. WITH
18" x 91' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 138+60 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 9"

STA. 138+60 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& BACK OPENING
& 18" x 71' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 139+35 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 6"

STA. 139+35 - CONSTRUCT
D.I. ON RT. WITH BACK OPENING
& 18" x 191' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 141+30 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 4"

STA. 139+55 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 5.4 SQ. YDS.

STA. 141+30 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& BACK OPENING
& 18" x 56' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 141+90 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 3' 11"

STA. 140+10 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 5.4 SQ. YDS.

STA. 142+89 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 18" x 5' PIPE OUTLET
CONNECT TO R.C. BOX CULVERT ℄ STA. 142+99
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 6"

STA. 142+99 ℄ CONST. HWY. 167 - IN PLACE
5' X 2' X 54' R.C. BOX CULVERT
WITH 3:1 WINGS LT. & RT.
RETAIN & EXTEND 17' LT. & 14' RT.
Q50 = 53.93 CFS, D.A. = 11.30 ACRES

STA. 144+10 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 18" x 4' R.C. PIPE STUB INLET WITH FES.
& 18" x 106' PIPE OUTLET
CONNECT TO R.C. BOX CULVERT ℄ STA. 142+99
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 3' 8"

STA. 136+73 ℄ CONST. HWY. 167 - IN PLACE
18" X 49' R.C. PIPE INLET 28' RT.
TO D.I. ℄ STA. 136+99
REMOVE

STA. 136+99 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET ON RT WITH
18" X 47' R.C. PIPE OUTLET WITH SES ON RT.
REMOVE

TYPE D CURB
(CONSTRUCT ℄ ROW LINE)

STA.	STA.	SIDE	LIN. FT.
130+78	131+46	RT.	68
131+86	133+98	RT.	212
134+38	134+90	RT.	52
135+58	135+62	RT.	4
136+75	137+21	RT.	54
137+43	137+45	RT.	2
139+96	141+51	RT.	164

STA. 138+47 ℄ CONST. HWY. 167 - IN PLACE
18" X 25' C.M. PIPE CULVERT SIDE DRAIN 28' RT.
REMOVE

STA. 138+60 ℄ CONST. HWY. 167 - IN PLACE
12" X 13' P.V.C. PIPE CULVERT SIDE DRAIN 197' RT.
REMOVE

STA. 139+68 ℄ CONST. HWY. 167 - IN PLACE
8" X 21' CAST IRON PIPE CULVERT SIDE DRAIN 98' RT.
REMOVE

STA. 139+64 ℄ CONST. HWY. 167 - IN PLACE
8" X 33' P.V.C. PIPE CULVERT SIDE DRAIN 161' RT.
REMOVE

STA. 139+86 ℄ CONST. HWY. 167 - IN PLACE
24" X 44' C.M. PIPE CULVERT SIDE DRAIN 27' RT.
REMOVE

STA. 131+66 ℄ CONST. HWY. 167 CONSTRUCT
APPROACH ON RT. = 15 CU. YDS.

STA. 134+18 ℄ CONST. HWY. 167 CONSTRUCT
APPROACH ON RT.

STA. 135+06 ℄ CONST. HWY. 167 CONSTRUCT
APPROACH ON RT.

STA. 135+51 ℄ CONST. HWY. 167 - IN PLACE
18" X 24' C.P. PIPE CULVERT
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT.

STA. 136+62 ℄ CONST. HWY. 167 - IN PLACE
18" X 49' R.C. PIPE CULVERT
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT.

STA. 137+32 ℄ CONST. HWY. 167 - IN PLACE
18" X 47' R.C. PIPE OUTLET
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT.

STA. 137+94 ℄ CONST. HWY. 167 - IN PLACE
18" X 24' C.M. PIPE CULVERT
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT.

STA. 138+86 ℄ CONST. HWY. 167 - IN PLACE
18" X 24' C.M. PIPE CULVERT
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT.

STA. 139+80 ℄ CONST. HWY. 167 - IN PLACE
24" X 44' C.M. PIPE CULVERT
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT.

STA. 141+59 ℄ CONST. HWY. 167 - IN PLACE
24" X 40' C.M. PIPE CULVERT
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT.

STA. 142+18 ℄ CONST. HWY. 167 CONSTRUCT
APPROACH ON RT. = 10 CU. YDS.

STA. 143+72 ℄ CONST. HWY. 167 - IN PLACE
24" X 74' C.M. PIPE CULVERT
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT. = 5 CU. YDS.

ALL R.C. PIPE CULVERTS SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED.

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

HWY. 167

4/15/2019

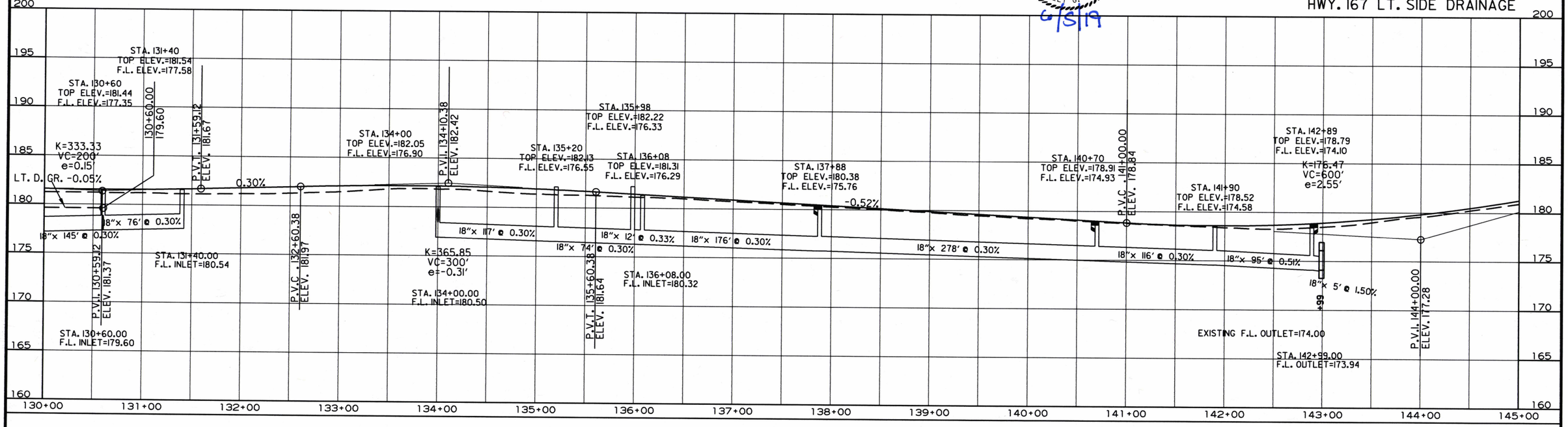
CA0701

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.		CA0701	57	138

(2) PROFILE SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

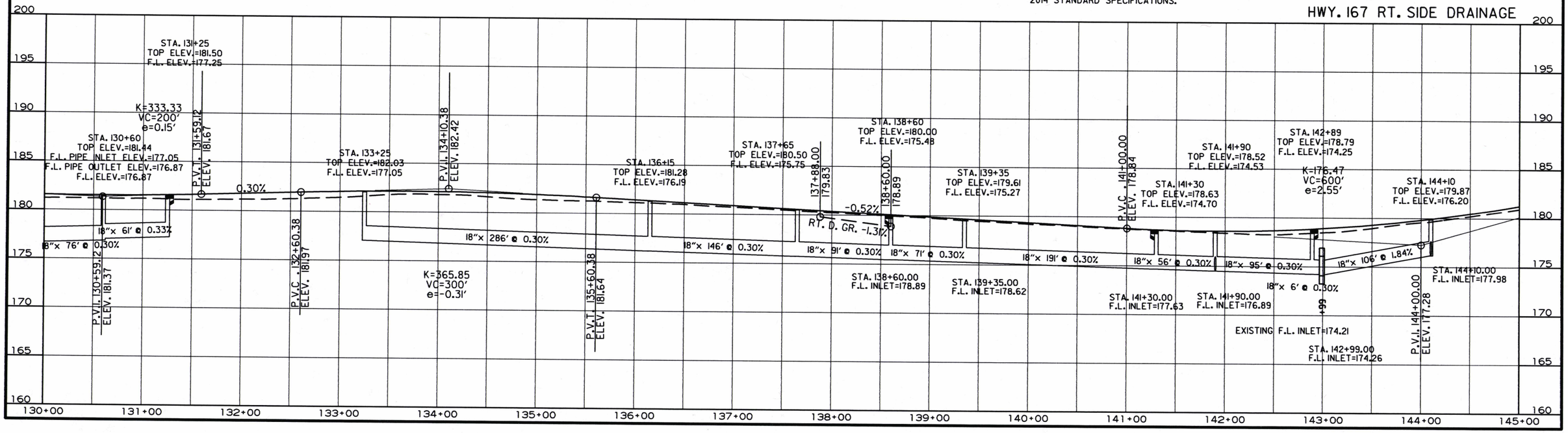
HWY. 167 LT. SIDE DRAINAGE



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

UNNAMED TRIBUTARY (STA. 142+99):
THIS STREAM IS CLASSIFIED AS EPHEMERAL
THE TOP OF CHANNEL ELEVATION IS 176 FT. MSL.
REFER TO SECTION 110.06(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

HWY. 167 RT. SIDE DRAINAGE



CA0701.DGN 7/30/2016

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.		CA0701	58	138

(2) PLAN SHEET

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 9066 — STANLEY G. KING — 4/5/19

STA. 145+40 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.= 25 CU. YDS.

STA. 146+74 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.

STA. 148+00 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.

STA. 150+25 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.

STA. 151+03 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.

STA. 151+95 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT. = 10 CU. YDS. UNCLASSIFIED EXCAVATION

STA. 152+67 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.= 15 CU. YDS. UNCLASSIFIED EXCAVATION

STA. 153+84 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.= 5 CU. YDS. UNCLASSIFIED EXCAVATION

STA. 155+00 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT. = 32 CU. YDS. COMP. EMB. & 136 CU. YDS. UNCLASSIFIED EXCAVATION

STA. 156+19 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT. = 5 CU. YDS. UNCLASSIFIED EXCAVATION

STA. 157+47 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.

STA. 159+41 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT. = 20 CU. YDS.

℄ CONST.
CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	LENGTH	SIDE	"W"	SQ. YDS.
145+60	146+10	50′	RT	9.5′	52.78
145+63	146+25	62′	LT	VARIES	66.98

STA. 146+00 - CONSTRUCT
D.I. ON LT. WITH 4′ EXTENSION
& 18″ x 20′ R.C. PIPE STUB OUTLET WITH FES.
TY C = 4′ x 4′
TY MO = 4′ I.D.
H= 4′ 3″

STA. 147+20 - CONSTRUCT
D.I. ON LT. WITH 8′ EXTENSION
& 18″ x 117′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 146+00 LT.
TY C = 4′ x 4′
TY MO = 4′ I.D.
H= 4′ 3″

STA. 149+50 - CONSTRUCT
D.I. ON LT. WITH 8′ EXTENSION
& 18″ x 226′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 147+50 LT.
TY C = 4′ x 4′
TY MO = 4′ I.D.
H= 4′ 3″

STA. 151+50 - CONSTRUCT
D.I. ON LT. WITH 4′ EXTENSION
& 18″ x 196′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 149+50 LT.
TY C = 4′ x 4′
TY MO = 4′ I.D.
H= 4′ 3″

STA. 153+02 - CONSTRUCT
D.I. ON LT. WITH 4′ EXTENSION
& 18″ x 148′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 151+50 LT.
TY C = 4′ x 2′-6″
TY MO = 4′ I.D.
H= 4′ 8″

TYPE D CURB
(CONSTRUCT ℄ ROW LINE)

STA.	STA.	SIDE	LIN. FT.
149+56	150+09	LT.	53
150+41	150+83	LT.	42
151+23	151+88	LT.	76
152+26	152+49	LT.	23
152+85	152+96	LT.	11
153+60	153+67	LT.	7
153+97	153+67	LT.	95
154+69	154+70	LT.	9
156+35	157+27	LT.	92
157+67	159+12	LT.	145

STA. 154+11 - CONSTRUCT
D.I. ON LT. WITH 8′ EXTENSION
& 18″ x 105′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 153+02 LT.
TY C = 4′ x 2′-6″
TY MO = 4′ I.D.
H= 4′ 7″

STA. 155+88 - CONSTRUCT
D.I. ON LT. WITH
18″ x 56′ R.C. PIPE OUTLET
(CLASS IV) (TYPE 3 BEDDING)
CONNECT TO JUNCTION BOX ℄ STA. 155+29 LT.
TY C = 4′ x 2′-6″
TY MO = 4′ I.D.
H= 3′ 11″

STA. 155+29 - CONSTRUCT
JUNCTION BOX ON LT. WITH
18″ x 115′ R.C. PIPE OUTLET
(CLASS IV) (TYPE 3 BEDDING)
CONNECT TO D.I. ℄ STA. 154+11 LT.
TY ST = 3′ x 3′
H= 3′ 8″

STA. 156+50 - CONSTRUCT
D.I. ON LT. WITH BACK OPENING
& 18″ x 58′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 155+88 LT.
TY C = 4′ x 2′-6″
TY MO = 4′ I.D.
H= 3′ 8″

STA. 157+94 - CONSTRUCT
D.I. ON LT. WITH 4′ EXTENSION
& 18″ x 259′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 161+57 LT.
TY C = 4′ x 4′
TY MO = 4′ I.D.
H= 3′ 8″

STA. 146+45 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 5.4 SQ. YDS.

STA. 147+04 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 5.4 SQ. YDS.

STA. 151+70 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 5.4 SQ. YDS.

STA. 152+28 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 5.4 SQ. YDS.

STA. 154+66 CONSTRUCT
TYPE 4 WHEELCHAIR RAMP ON LT. = 32.2 SQ. YDS.

STA. 155+48 CONSTRUCT
TYPE 4 WHEELCHAIR RAMP ON LT. = 29.8 SQ. YDS.

STA. 155+36 CONSTRUCT
TYPE 4 WHEELCHAIR RAMP ON LT. = 13.2 SQ. YDS.

STA. 159+10 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 5.4 SQ. YDS.

STA. 159+72 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 5.4 SQ. YDS.

STA. 152+39 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 25′ LT. WITH
18″ X 226′ R.C. PIPE CULVERT
TO D.I. ℄ STA. 154+67
REMOVE

STA. 154+54 CONSTRUCT
TYPE 4 WHEELCHAIR RAMP ON RT. = 31.2 SQ. YDS.

STA. 155+32 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 26′ LT.
REMOVE

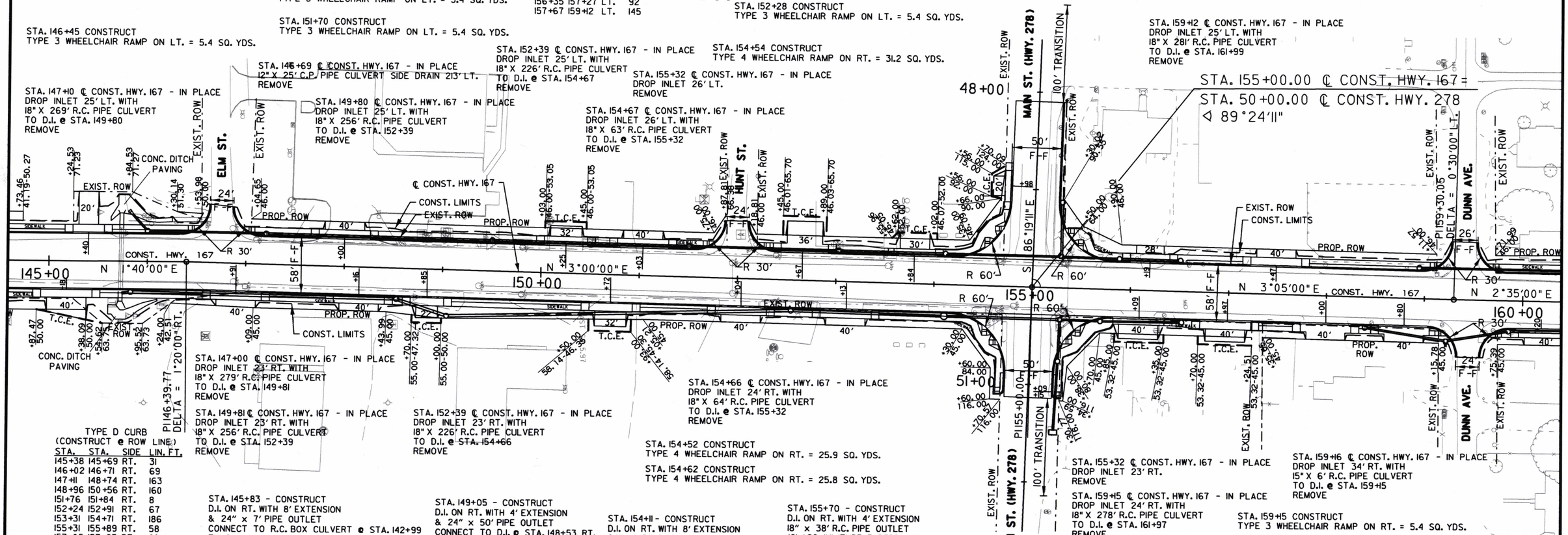
STA. 159+12 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 25′ LT. WITH
18″ X 281′ R.C. PIPE CULVERT
TO D.I. ℄ STA. 161+99
REMOVE

STA. 146+69 ℄ CONST. HWY. 167 - IN PLACE
12″ X 25′ C.P. PIPE CULVERT SIDE DRAIN 213′ LT.
REMOVE

STA. 147+10 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 25′ LT. WITH
18″ X 269′ R.C. PIPE CULVERT
TO D.I. ℄ STA. 149+80
REMOVE

STA. 149+80 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 25′ LT. WITH
18″ X 256′ R.C. PIPE CULVERT
TO D.I. ℄ STA. 152+39
REMOVE

STA. 154+67 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 26′ LT. WITH
18″ X 63′ R.C. PIPE CULVERT
TO D.I. ℄ STA. 155+32
REMOVE



STA. 147+00 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 23′ RT. WITH
18″ X 279′ R.C. PIPE CULVERT
TO D.I. ℄ STA. 149+81
REMOVE

STA. 149+81 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 23′ RT. WITH
18″ X 256′ R.C. PIPE CULVERT
TO D.I. ℄ STA. 152+39
REMOVE

STA. 152+39 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 23′ RT. WITH
18″ X 226′ R.C. PIPE CULVERT
TO D.I. ℄ STA. 154+66
REMOVE

STA. 154+66 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 24′ RT. WITH
18″ X 64′ R.C. PIPE CULVERT
TO D.I. ℄ STA. 155+32
REMOVE

STA. 154+52 CONSTRUCT
TYPE 4 WHEELCHAIR RAMP ON RT. = 25.9 SQ. YDS.

STA. 154+62 CONSTRUCT
TYPE 4 WHEELCHAIR RAMP ON RT. = 25.8 SQ. YDS.

TYPE D CURB
(CONSTRUCT ℄ ROW LINE)

STA.	STA.	SIDE	LIN. FT.
145+38	145+69	RT.	31
146+02	146+71	RT.	69
147+11	148+74	RT.	163
148+96	150+56	RT.	160
151+76	151+84	RT.	8
152+24	152+91	RT.	67
153+31	154+71	RT.	186
155+31	155+89	RT.	58
157+05	157+25	RT.	20
157+69	157+80	RT.	11
158+20	158+60	RT.	40
159+00	159+16	RT.	16
159+75	160+00	RT.	39

STA. 145+83 - CONSTRUCT
D.I. ON RT. WITH 8′ EXTENSION
& 24″ x 7′ PIPE OUTLET
CONNECT TO R.C. BOX CULVERT ℄ STA. 142+99
TY C = 4′ x 2′-6″
TY MO = 4′ I.D.
H= 5′ 5″

STA. 149+05 - CONSTRUCT
D.I. ON RT. WITH 4′ EXTENSION
& 24″ x 50′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 148+53 RT.
TY C = 4′ x 2′-6″
TY MO = 4′ I.D.
H= 7′ 6″

STA. 154+11 - CONSTRUCT
D.I. ON RT. WITH 8′ EXTENSION
24″ x 152′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 152+55 RT.
TY C = 4′ x 2′-6″
TY MO = 4′ I.D.
H= 5′ 1″

STA. 155+70 - CONSTRUCT
D.I. ON RT. WITH 4′ EXTENSION
18″ x 38′ R.C. PIPE OUTLET
(CLASS IV) (TYPE 3 BEDDING)
CONNECT TO J.B. ℄ STA. 155+59 RT.
TY C = 4′ x 4′
TY MO = 4′ I.D.
H= 4′ 3″

STA. 155+32 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 23′ RT.
REMOVE

STA. 159+16 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 34′ RT. WITH
15″ X 6′ R.C. PIPE CULVERT
TO D.I. ℄ STA. 159+15
REMOVE

STA. 159+15 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 24′ RT. WITH
18″ X 278′ R.C. PIPE CULVERT
TO D.I. ℄ STA. 161+97
REMOVE

STA. 159+15 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 5.4 SQ. YDS.

STA. 155+38 CONSTRUCT
TYPE 4 WHEELCHAIR RAMP ON RT. = 31.2 SQ. YDS.

STA. 155+48 CONSTRUCT
TYPE 4 WHEELCHAIR RAMP ON RT. = 31.2 SQ. YDS.

STA. 159+75 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 5.4 SQ. YDS.

STA. 145+73 ℄ CONST. HWY. 167 - IN PLACE
4′ X 3′ X 62′ R.C. BOX CULVERT
RETAIN & EXTEND 11′ LT. & 17′ RT.
TO A COMPLETED LENGTH OF 90′
WITH 31 WINGS LT. & RT.
Q50 = 53.93 CFS, D.A.= 11.31 ACRES

STA. 145+18 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT. = 10 CU. YDS.

STA. 146+91 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 148+53 - CONSTRUCT
D.I. ON RT. WITH 8′ EXTENSION
& 24″ x 265′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 145+83 RT.
TY C = 4′ x 2′-6″
TY MO = 4′ I.D.
H= 6′ 6″

STA. 148+16 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 148+85 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT. = 5 CU. YDS.

STA. 150+72 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT. = 5 CU. YDS.

STA. 152+04 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 153+13 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 152+55 - CONSTRUCT
D.I. ON RT. WITH 8′ EXTENSION
24″ x 346′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 149+05 RT.
TY C = 4′ x 2′-6″
TY MO = 4′ I.D.
H= 5′ 10″

STA. 155+29 - CONSTRUCT
JUNCTION BOX ON RT. WITH
24″ x 115′ R.C. PIPE OUTLET
(CLASS IV) (TYPE 3 BEDDING)
CONNECT TO D.I. ℄ STA. 154+11 RT.
TY ST = 3′ x 3′
H= 4′ 6″

STA. 156+53 - CONSTRUCT
D.I. ON RT. WITH 8′ EXTENSION
18″ x 99′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 155+70 RT.
TY C = 4′ x 4′
TY MO = 4′ I.D.
H= 3′ 10″

STA. 155+00 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT. = 9 CU. YDS. COMP. EMB. & 169 CU. YDS. UNCLASSIFIED EXCAVATION

STA. 156+09 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.= 5 CU. YDS. UNCLASSIFIED EXCAVATION

STA. 156+97 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 158+40 - CONSTRUCT
D.I. ON RT. WITH
18″ x 80′ PIPE OUTLET
CONNECT TO JUNCTION BOX ℄ STA. 159+23 RT.
TY C = 4′ x 2′-6″
TY MO = 4′ I.D.
H= 4′ 9″

STA. 158+00 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 158+80 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 159+41 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT. = 10 CU. YDS.

STA. 159+23 - CONSTRUCT
JUNCTION BOX ON RT. WITH BACK OPENING
& 18″ x 61′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 159+86 RT.
TY E = 3′ x 3′
H= 4′ 11″

STA. 159+86 - CONSTRUCT
D.I. ON RT. WITH 8′ EXTENSION
& 24″ x 132′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 161+22 RT.
TY C = 4′ x 2′-6″
TY MO = 4′ I.D.
H= 6′ 10″

ALL R.C. PIPE CULVERTS SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED.

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

HWY. 167

4/15/2019

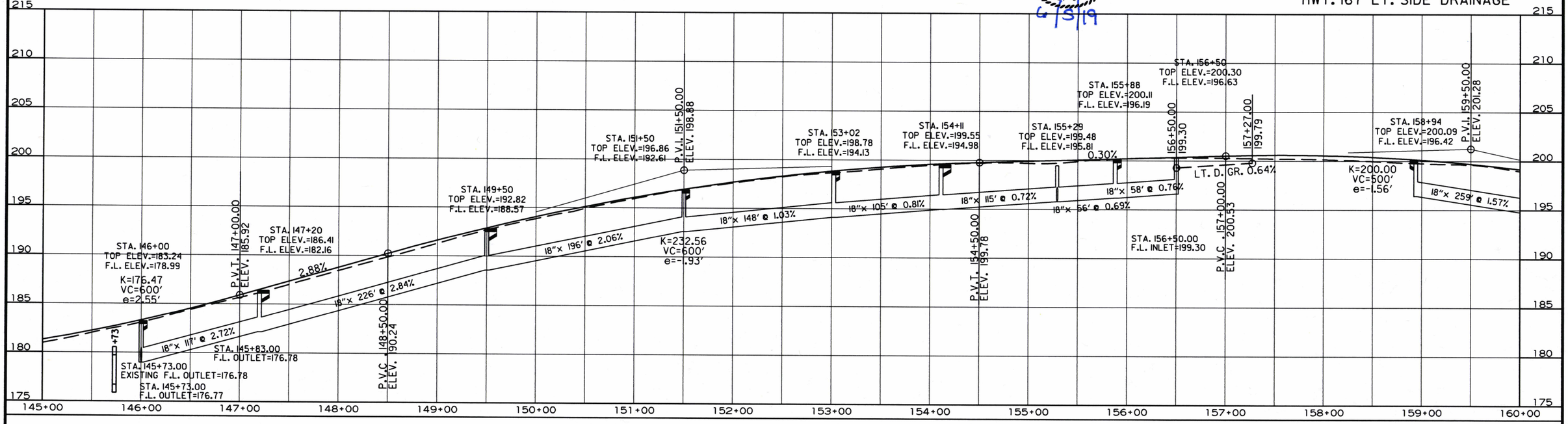
CA0701

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.		CA0701	59	138

(2) PROFILE SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/3/19

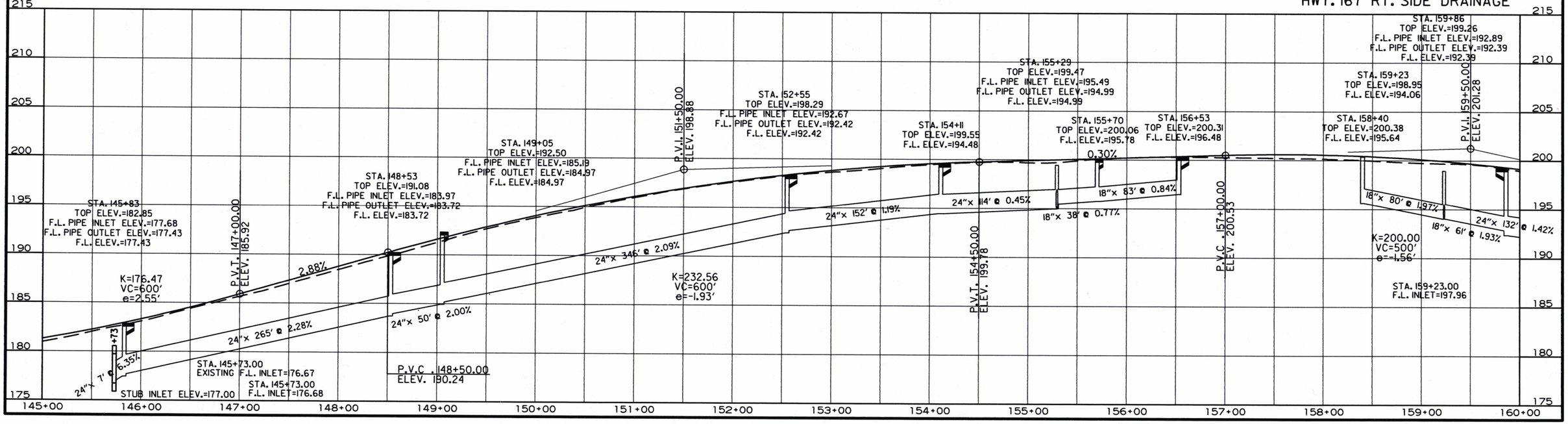
HWY. 167 LT. SIDE DRAINAGE



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

UNNAMED TRIBUTARY (STA. 145+73):
THIS STREAM IS CLASSIFIED AS INTERMITTENT
THE TOP OF CHANNEL ELEVATION IS 179 FT. MSL.
REFER TO SECTION 110.06(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

HWY. 167 RT. SIDE DRAINAGE



7/30/2016

CA0701

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.		CA0701	60	138

(2) PLAN SHEET

STA. 161+85 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT. = 5 CU. YDS.

STA. 162+54 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT. = 5 CU. YDS.

STA. 163+14 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT. = 15 CU. YDS.

STA. 164+76 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.= 10 CU. YDS.

STA. 166+69 ℄ CONST. HWY. 167 - IN PLACE
18" X 34' C.M. PIPE CULVERT
LT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON LT. = 255 CU. YDS.

STA. 171+87 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.

STA. 165+62 ℄ CONST. HWY. 167 - IN PLACE
18" X 48' C.M. PIPE CULVERT SIDE DRAIN 26' LT.
REMOVE

STA. 172+78 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.

STA. 174+50 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT. = 10 CU. YDS.

STA. 166+71 ℄ CONST. HWY. 167 - IN PLACE
18" X 34' R.C. PIPE CULVERT SIDE DRAIN 38' LT.
REMOVE

STA. 166+46 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 5.2 SQ. YDS.

STA. 166+98 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 5.4 SQ. YDS.

STA. 161+99 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 21' LT. WITH
18" X 193' R.C. PIPE CULVERT
TO D.I. ℄ STA. 163+98
REMOVE

STA. 163+98 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 18' LT. WITH
REMOVE

TYPE D CURB
(CONSTRUCT ℄ ROW LINE)

STA.	STA.	SIDE	LIN. FT.
160+40	160+64	RT.	24
161+96	162+34	LT.	38

STA. 161+57 - CONSTRUCT
D.I. ON LT. WITH 8' EXTENSION
& 18" x 219' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 163+80 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H= 4' 3"

STA. 163+80 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 18" x 220' PIPE OUTLET
CONNECT TO JUNCTION BOX ℄ STA. 166+00 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 1"

STA. 166+00 - CONSTRUCT
JUNCTION BOX ON LT. WITH
18" x 206' PIPE OUTLET
CONNECT TO JUNCTION BOX ℄ STA. 168+00 LT.
TY E = 3' x 3'
H= 7' 0"

STA. 168+00 - CONSTRUCT
JUNCTION BOX ON LT. WITH
18" x 167' PIPE OUTLET
CONNECT TO JUNCTION BOX ℄ STA. 169+67 LT.
TY E = 3' x 3'
H= 7' 0"

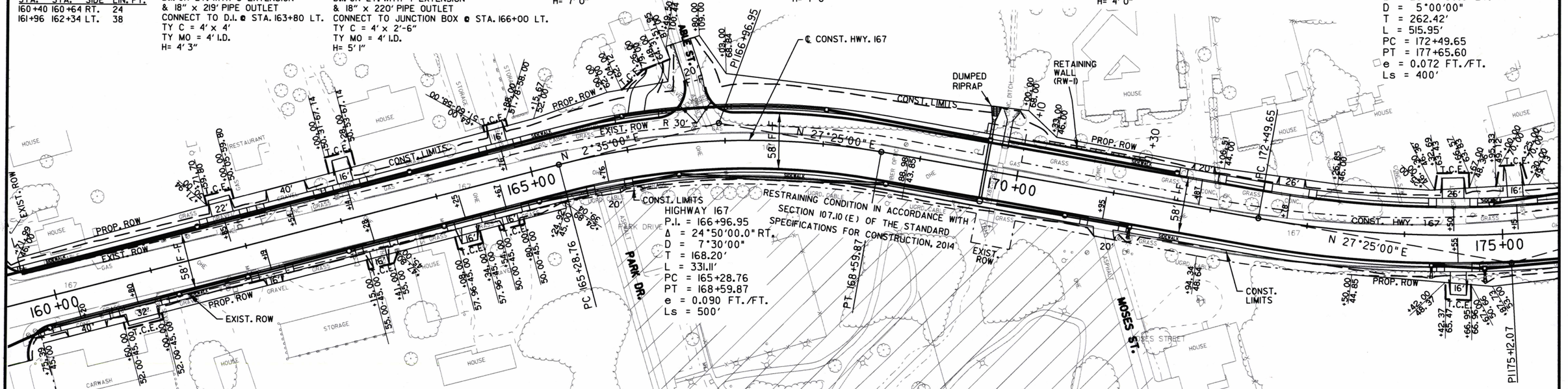
STA. 169+67 - CONSTRUCT
JUNCTION BOX ON LT. WITH
30" x 17' R.C. PIPE STUB OUTLET
WITH FES.
TY E = 3' x 3'
H= 7' 0"

STA. 171+60 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 18" x 172' PIPE OUTLET
CONNECT TO R.C. BOX CULVERT ℄ STA. 169+82.
TY C = 4' x 4'
TY MO = 4' I.D.
H= 4' 3"

STA. 174+90 - CONSTRUCT
D.I. ON LT. WITH 8' EXTENSION
& 18" x 263' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 177+65 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H= 4' 0"

HIGHWAY 167
P.I. = 175+12.07
Δ = 25°47'50.0" LT.
D = 5°00'00"
T = 262.42'
L = 515.95'
PC = 172+49.65
PT = 177+65.60
e = 0.072 FT./FT.
Ls = 400'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9056
STANLEY G. KING
4/5/19



STA. 169+82 ℄ CONST. HWY. 167 - IN PLACE
6' x 3' X 83' R.C. BOX CULVERT
RETAIN AND EXTEND 30' LT.
TO A COMPLETED LENGTH OF 113'
WITH 3:1 WINGS LT. & RT.
Q50 = 107.83 CFS, D.A.= 33.87 ACRES

STA. 161+94 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 24" x 102' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 163+00 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 6' 7"

STA. 165+00 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION & BACK OPENING
& 24" x 141' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 166+50 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 2"

STA. 163+00 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION
& 24" x 96' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 164+00 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 6' 1"

STA. 166+50 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 24" x 207' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 168+70 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 9"

STA. 169+67 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION
& 30" x 60' R.C. PIPE OUTLET
CONNECT TO JUNCTION BOX ℄ 169+67 LT.
TY C = 4' x 2'-6"
TY MO = 5' I.D.
H= 5' 5"

STA. 171+22 - CONSTRUCT
JUNCTION BOX ON RT. WITH
18" x 4' R.C. PIPE STUB INLET WITH FES.
& 18" x 64' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 170+55 RT.
TY E = 3' x 3'
H= 4' 6"

STA. 161+22 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION
& 24" x 68' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 161+94 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 6' 9"

STA. 164+00 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION
& 24" x 96' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 165+00 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 8"

STA. 168+70 - CONSTRUCT
D.I. ON RT. WITH 8' EXTENSION
& 24" x 92' PIPE OUTLET
CONNECT TO D.I. ℄ STA. 169+67 RT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 9"

STA. 170+55 - CONSTRUCT
D.I. ON RT. WITH
18" x 68' PIPE OUTLET
CONNECT TO R.C. BOX CULVERT ℄ STA. 169+82
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 1"

STA. 174+28 - CONSTRUCT
JUNCTION BOX ON RT. WITH
18" x 6' R.C. PIPE STUB INLET WITH FES.
& 18" x 52' PIPE OUTLET
CONNECT TO JUNCTION BOX ℄ STA. 174+81 RT.
TY E = 3' x 3'
H= 4' 6"

STA. 174+81 - CONSTRUCT
JUNCTION BOX ON RT. WITH
18" x 6' R.C. PIPE STUB INLET WITH FES.
& 18" x 145' PIPE OUTLET
CONNECT TO JUNCTION BOX ℄ STA. 176+25 RT.
TY E = 3' x 3'
H= 5' 1"

STA. 174+81 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 34' RT. WITH
18" X 248' R.C. PIPE CULVERT
TO D.I. ℄ STA. 177+26
REMOVE

STA. 171+54 ℄ CONST. HWY. 167 - IN PLACE
15" X 15' C.M. PIPE CULVERT SIDE DRAIN 128' RT.
REMOVE

STA. 161+97 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 28' RT. WITH
18" X 198' R.C. PIPE CULVERT
TO D.I. ℄ STA. 164+00
REMOVE

STA. 164+00 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 31' RT. WITH
18" X 288' R.C. PIPE CULVERT
TO D.I. ℄ STA. 167+00
REMOVE

STA. 167+00 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 38' RT. WITH
18" X 265' R.C. PIPE CULVERT
TO R.C. BOX
REMOVE

STA. 171+24 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 42' RT. WITH
18" X 138' R.C. PIPE CULVERT
TO R.C. BOX
REMOVE

STA. 171+24 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 47' RT. WITH
18" X 3' R.C. PIPE CULVERT
REMOVE

STA. 160+20 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 160+80 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 162+19 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 163+28 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 164+25 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 164+67 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 165+76 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 170+95 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 174+55 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT. = 15 CU. YDS.

ALL R.C. PIPE CULVERTS SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED.

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

HWY. 167

4/15/2019

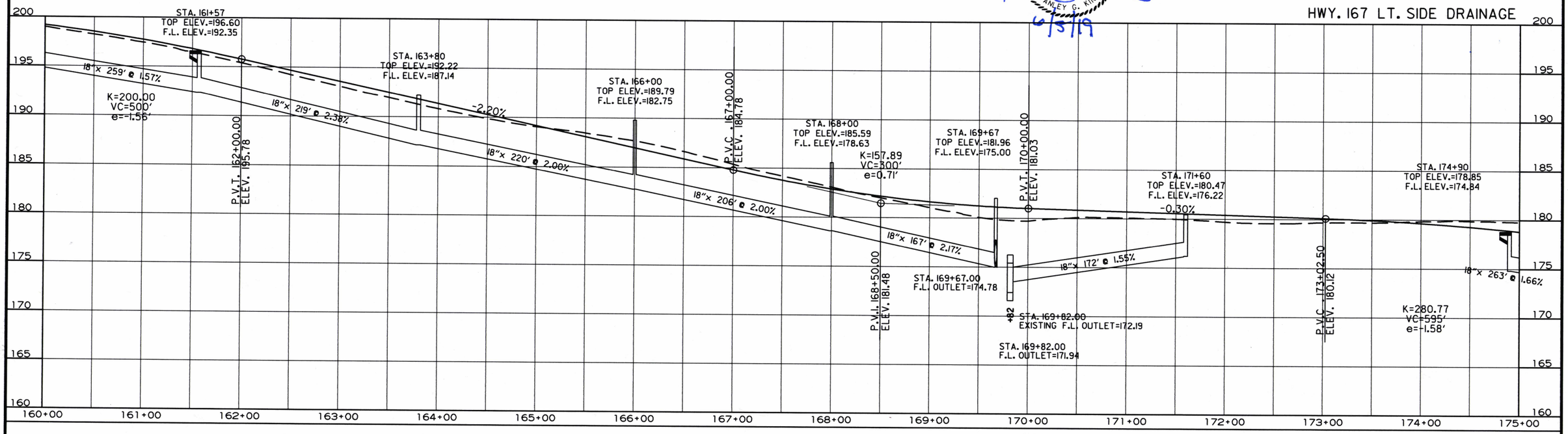
CA0701

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.		CA0701	61	138

(2) PROFILE SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
STANLEY G. KING
No. 9066
6/3/19

HWY. 167 LT. SIDE DRAINAGE



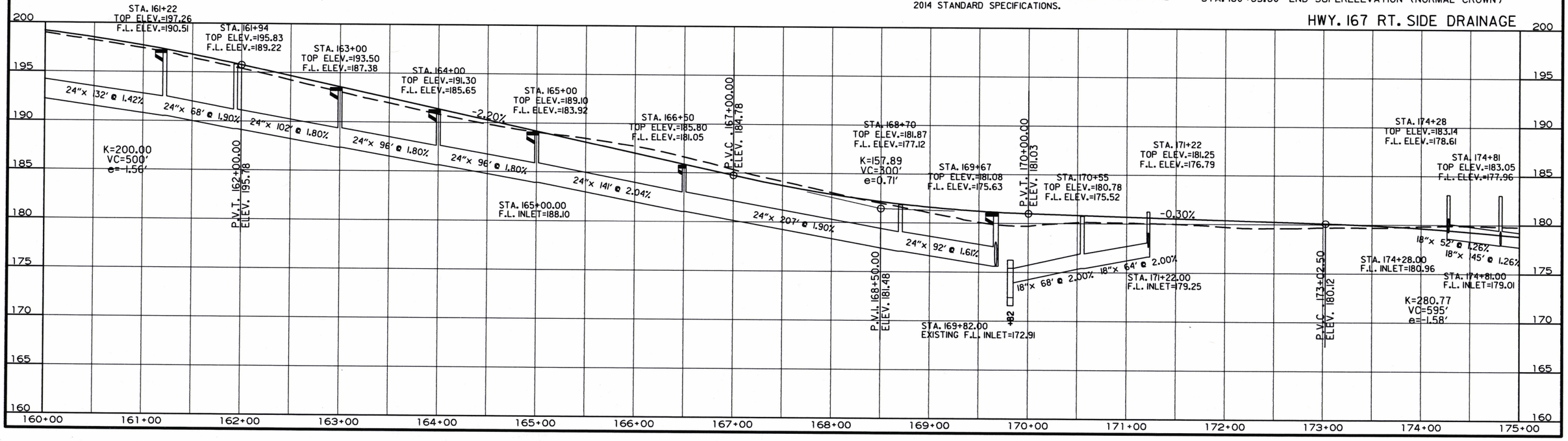
STA. 163+33.87 BEG. SUPERELEVATION (NORMAL CROWN)
STA. 166+94.32 MAX. SUPERELEVATION (0.065 FT/FT)
STA. 170+54.76 END SUPERELEVATION (NORMAL CROWN)

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

UNNAMED TRIBUTARY (STA. 169+82):
THIS STREAM IS CLASSIFIED AS INTERMITTENT
THE TOP OF CHANNEL ELEVATION IS 175 FT. MSL.
REFER TO SECTION 110.06(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

STA. 170+54.76 BEG. SUPERELEVATION (NORMAL CROWN)
STA. 174+54.76 MAX. SUPERELEVATION (0.072 FT/FT)
STA. 176+65.60 MAX. SUPERELEVATION (0.072 FT/FT)
STA. 180+65.60 END SUPERELEVATION (NORMAL CROWN)

HWY. 167 RT. SIDE DRAINAGE



7/30/2016

CA0701

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.		CA0701	62	138

(2) PLAN SHEET

STA. 175+15 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.= 20 CU. YDS.

STA. 176+50 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 21' LT. WITH
18" X 395' R.C. PIPE CULVERT
TO D.I. @ STA. 180+49
REMOVE

STA. 176+92 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT. = 10 CU. YDS.

STA. 177+28 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.= 5 CU. YDS.

STA. 177+97 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT. = 10 CU. YDS.

STA. 179+35 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.

STA. 180+12 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.

STA. 180+49 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 23' LT. WITH
18" X 371' R.C. PIPE CULVERT
TO D.I. @ STA. 184+21
REMOVE

STA. 181+84 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.

STA. 184+01 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON LT.= 30 CU. YDS.

STA. 184+21 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 24' LT. WITH
18" X 10' R.C. PIPE CULVERT
REMOVE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9056
STANLEY C. KING
6/5/19

HIGHWAY 167
P.I. = 175+12.07
Δ = 25°47'50.0" LT.
D = 5°00'00"
T = 262.42'
L = 515.95'
PC = 172+49.65
PT = 177+65.60
e = 0.072 FT./FT.
Ls = 400'

STA. 177+65 - CONSTRUCT
D.I. ON LT. WITH 8' EXTENSION
& 18" x 306' PIPE OUTLET
CONNECT TO D.I. @ STA. 180+75 LT.
TY C = 4' x 4'
TY MO = 4' I.D.
H= 4' 4"

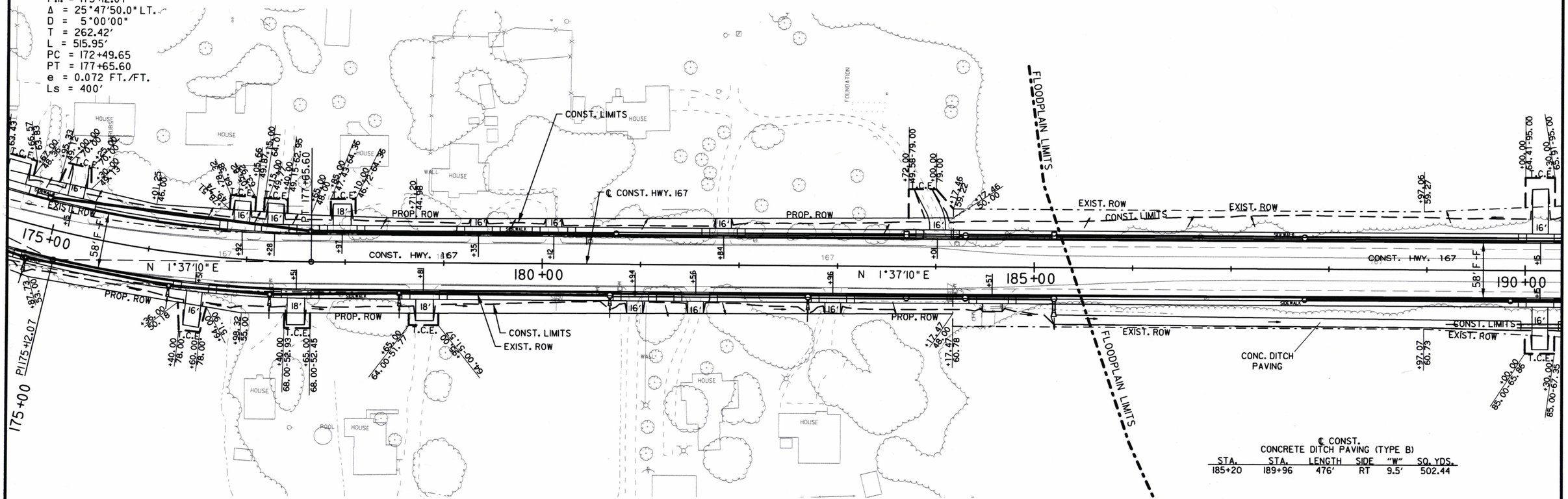
STA. 180+75 - CONSTRUCT
D.I. ON LT. WITH
30" x 291' PIPE OUTLET
CONNECT TO D.I. @ STA. 183+70 LT.
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 5' 0"

STA. 183+70 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 24" x 56' PIPE OUTLET
CONNECT TO D.I. @ STA. 184+30 LT.
TY C = 4' x 6'
H= 3' 7"

STA. 184+30 - CONSTRUCT
D.I. ON LT. WITH
30" x 86' PIPE OUTLET
CONNECT TO D.I. @ STA. 185+20 LT.
TY C = 4' x 4'
TY MO = 5' I.D.
H= 4' 2"

STA. 185+20 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 30" x 251' PIPE OUTLET
CONNECT TO D.I. @ STA. 187+75 LT.
TY C = 4' x 6'
H= 4' 7"

STA. 187+75 - CONSTRUCT
D.I. ON LT. WITH 4' EXTENSION
& 30" x 262' PIPE OUTLET
CONNECT TO D.I. @ STA. 190+42 LT.
TY C = 4' x 3'-2"
TY MO = 5' I.D.
H= 5' 8"



℄ CONST.
CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	LENGTH	SIDE	"W"	SQ. YDS.
185+20	189+96	476'	RT	9.5'	502.44

STA. 176+25 - CONSTRUCT
JUNCTION BOX ON RT. WITH
18" x 4' R.C. PIPE STUB INLET WITH FES.
& 18" x 100' PIPE OUTLET
CONNECT TO JUNCTION BOX @ STA. 177+25 RT.
TY E = 3' x 3'
H= 5' 1"

STA. 177+25 - CONSTRUCT
JUNCTION BOX ON RT. WITH
18" x 4' R.C. PIPE STUB INLET WITH FES.
& 18" x 128' PIPE OUTLET
CONNECT TO JUNCTION BOX @ STA. 178+55 RT.
TY E = 3' x 3'
H= 5' 7"

STA. 178+55 - CONSTRUCT
JUNCTION BOX ON RT. WITH
18" x 4' R.C. PIPE STUB INLET WITH FES.
& 18" x 210' PIPE OUTLET
CONNECT TO D.I. @ STA. 180+69 RT.
TY E = 3' x 3'
H= 5' 1"

STA. 180+69 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 18" x 3' R.C. PIPE STUB INLET WITH FES.
& 30" x 196' PIPE OUTLET
CONNECT TO D.I. @ STA. 182+70 RT.
TY C = 4' x 3'-2"
TY MO = 4' I.D.
H= 5' 2"

STA. 182+70 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 18" x 5' R.C. PIPE STUB INLET WITH FES.
& 30" x 95' PIPE OUTLET
CONNECT TO D.I. @ STA. 183+70 RT.
TY C = 4' x 4'
TY MO = 5' I.D.
H= 4' 1"

STA. 183+70 - CONSTRUCT
D.I. ON RT. WITH
30" x 55' PIPE OUTLET
CONNECT TO D.I. @ STA. 184+30 RT.
TY C = 4' x 3'-2"
TY MO = 5' I.D.
H= 4' 2"

STA. 184+30 - CONSTRUCT
D.I. ON RT. WITH
30" x 85' PIPE OUTLET
CONNECT TO D.I. @ STA. 185+20 RT.
TY C = 4' x 3'-2"
TY MO = 5' I.D.
H= 4' 4"

STA. 185+20 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 30" x 10' R.C. PIPE STUB OUTLET WITH FES.
TY C = 4' x 3'-2"
TY MO = 5' I.D.
H= 5' 0"

STA. 187+75 - CONSTRUCT
D.I. ON RT. WITH 4' EXTENSION
& 18" x 206' PIPE OUTLET
CONNECT TO D.I. @ STA. 189+85
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 3' 9"

STA. 189+85 - CONSTRUCT
D.I. ON RT. WITH
18" x 211' PIPE OUTLET
CONNECT TO D.I. @ STA. 192+00
TY C = 4' x 2'-6"
TY MO = 4' I.D.
H= 4' 7"

STA. 176+51 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.= 35 CU. YDS.

STA. 177+51 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.= 20 CU. YDS.

STA. 178+81 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.= 15 CU. YDS.

STA. 180+94 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 181+56 ℄ CONST. HWY. 167 CONSTRUCT APPROACH ON RT.

STA. 182+96 ℄ CONST. HWY. 167 - IN PLACE
6' X 20' C.M. PIPE CULVERT
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT.

STA. 177+26 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 26' RT. WITH
18" X 351' R.C. PIPE CULVERT
TO D.I. @ STA. 180+79
REMOVE

STA. 177+26 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 31' RT. WITH
18" X 4' R.C. PIPE CULVERT
REMOVE

STA. 184+57 ℄ CONST. HWY. 167 - IN PLACE
24" X 24' C.P. PIPE CULVERT
RT SIDE DRAIN
REMOVE
CONSTRUCT APPROACH ON RT.

STA. 180+79 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 25' RT. WITH
18" X 339' R.C. PIPE CULVERT
TO D.I. @ STA. 184+20
REMOVE

STA. 184+20 ℄ CONST. HWY. 167 - IN PLACE
DROP INLET 25' RT. WITH
18" X 10' R.C. PIPE CULVERT
REMOVE

ALL R.C. PIPE CULVERTS SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED.

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

HWY. 167

4/15/2019

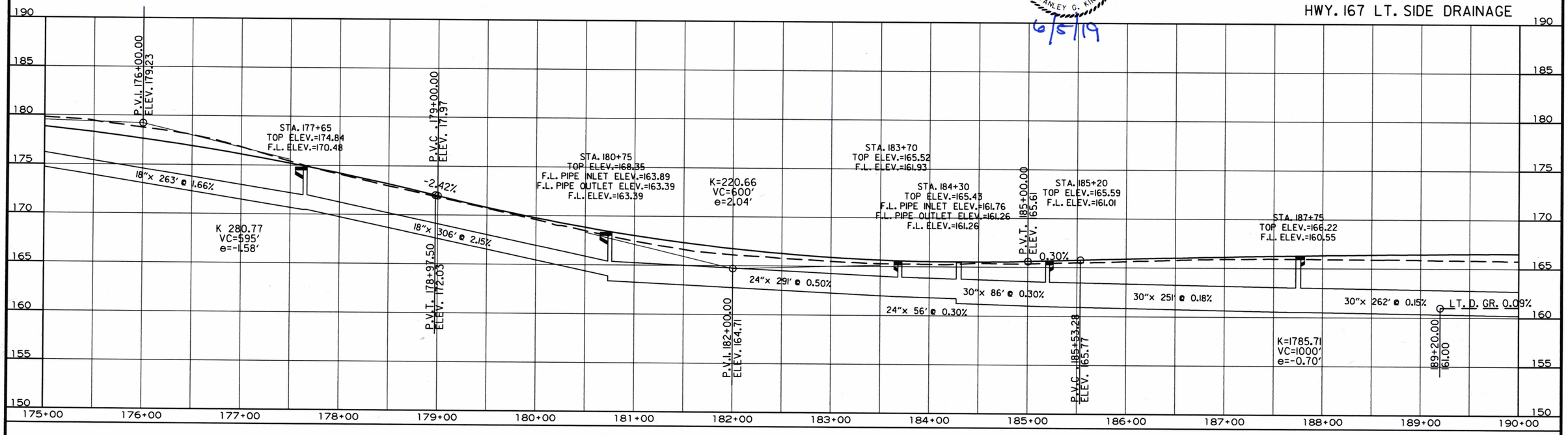
CA0701

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.		CA0701	63	138

(2) PROFILE SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

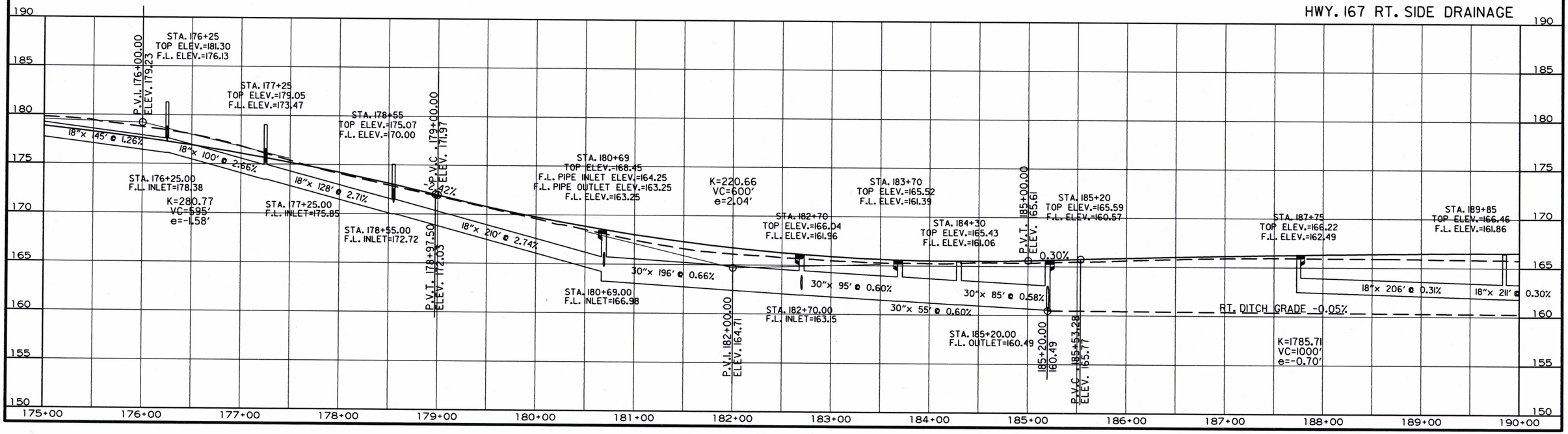
HWY. 167 LT. SIDE DRAINAGE



STA. 170+54.76 BEG. SUPERELEVATION (NORMAL CROWN)
STA. 174+54.76 MAX. SUPERELEVATION (0.072 FT/FT)
STA. 176+65.60 MAX. SUPERELEVATION (0.072 FT/FT)
STA. 180+65.60 END SUPERELEVATION (NORMAL CROWN)

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

HWY. 167 RT. SIDE DRAINAGE



7/30/2016
CA0701

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.		CA0701	64	138
				(2) PLAN SHEET				

℄ CONST.
CONCRETE DITCH PAVING

STA.	STA.	LENGTH	SIDE	TYPE	"W"	"B"	SQ. YDS.
190+34	195+85	551′	RT	B	9.5′		581.61
190+42	196+27	585′	LT	A	10.5′	1′	682.50

STA. 195+97 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON LT. = 3.3 SQ. YDS.

STA. 190+42 - CONSTRUCT
D.I. ON LT. WITH
30" x 14′ R.C. PIPE STUB OUTLET WITH FES.
TY C = 4′ x 2′-6"
TY MO = 5′ I.D.
H= 6′ 4"

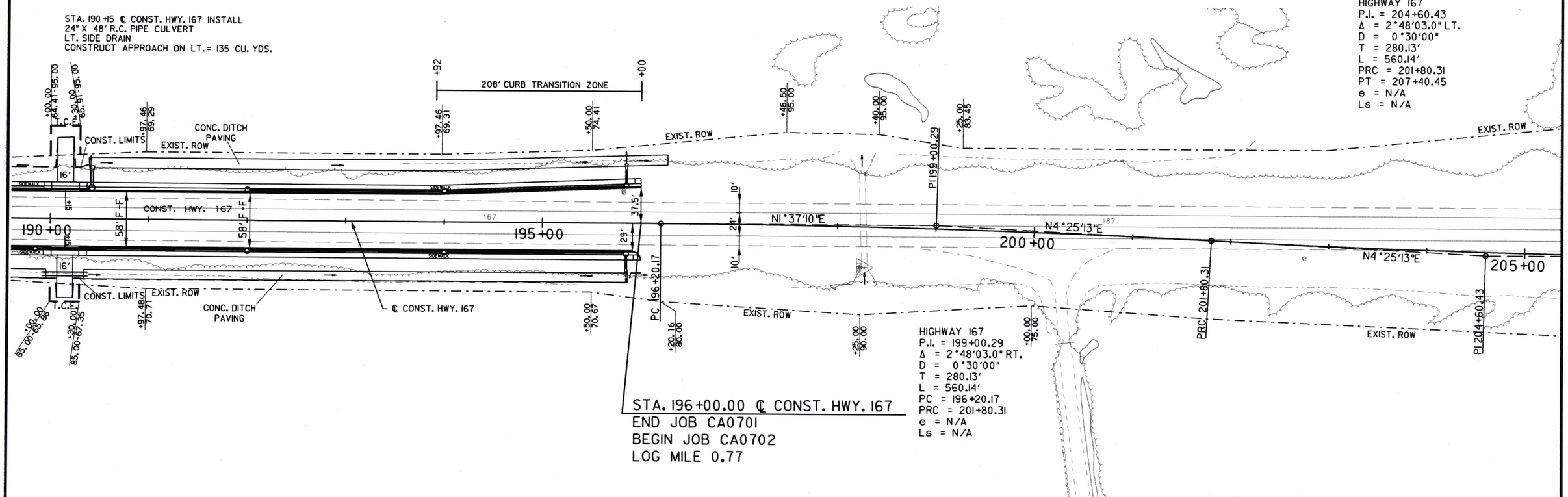
STA. 192+00 - CONSTRUCT
D.I. ON LT. WITH
18" x 196′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 194+00 LT.
TY C = 4′ x 2′-6"
TY MO = 4′ I.D.
H= 4′ 8"

STA. 194+00 - CONSTRUCT
D.I. ON LT. WITH 4′ EXTENSION
& 18" x 181′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 195+85 LT.
TY C = 4′ x 2′-6"
TY MO = 4′ I.D.
H= 5′ 2"

STA. 195+85 - CONSTRUCT
D.I. ON LT. WITH 4′ EXTENSION
18" x 13′ R.C. PIPE STUB OUTLET WITH FES.
TY C = 4′ x 2′-6"
TY MO = 4′ I.D.
H= 5′ 4"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

STA. 190+15 ℄ CONST. HWY. 167 INSTALL
24" X 48′ R.C. PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH ON LT.= 135 CU. YDS.



HIGHWAY 167
P.I. = 204+60.43
Δ = 2°48′03.0" LT.
D = 0°30′00"
T = 280.13′
L = 560.14′
PRC = 201+80.31
PT = 207+40.45
e = N/A
Ls = N/A

HIGHWAY 167
P.I. = 199+00.29
Δ = 2°48′03.0" RT.
D = 0°30′00"
T = 280.13′
L = 560.14′
PC = 196+20.17
PRC = 201+80.31
e = N/A
Ls = N/A

STA. 196+00.00 ℄ CONST. HWY. 167
END JOB CA0701
BEGIN JOB CA0702
LOG MILE 0.77

STA. 190+15 ℄ CONST. HWY. 167 INSTALL
48" X 38′ PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH ON RT.= 120 CU. YDS.

STA. 192+00 - CONSTRUCT
D.I. ON RT. WITH
18" x 196′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 194+00 RT.
TY C = 4′ x 2′-6"
TY MO = 4′ I.D.
H= 5′ 3"

STA. 194+00 - CONSTRUCT
D.I. ON RT. WITH 4′ EXTENSION
& 18" x 181′ PIPE OUTLET
CONNECT TO D.I. ℄ STA. 195+85 RT.
TY C = 4′ x 2′-6"
TY MO = 4′ I.D.
H= 5′ 7"

STA. 195+85 - CONSTRUCT
D.I. ON RT. WITH 4′ EXTENSION
& 18" x 13′ R.C. PIPE STUB OUTLET WITH FES.
TY C = 4′ x 2′-6"
TY MO = 4′ I.D.
H= 5′ 9"

STA. 195+97 CONSTRUCT
TYPE 3 WHEELCHAIR RAMP ON RT. = 4.0 SQ. YDS.

ALL R.C. PIPE CULVERTS SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED.

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

HWY. 167

4/15/2019

CA0701

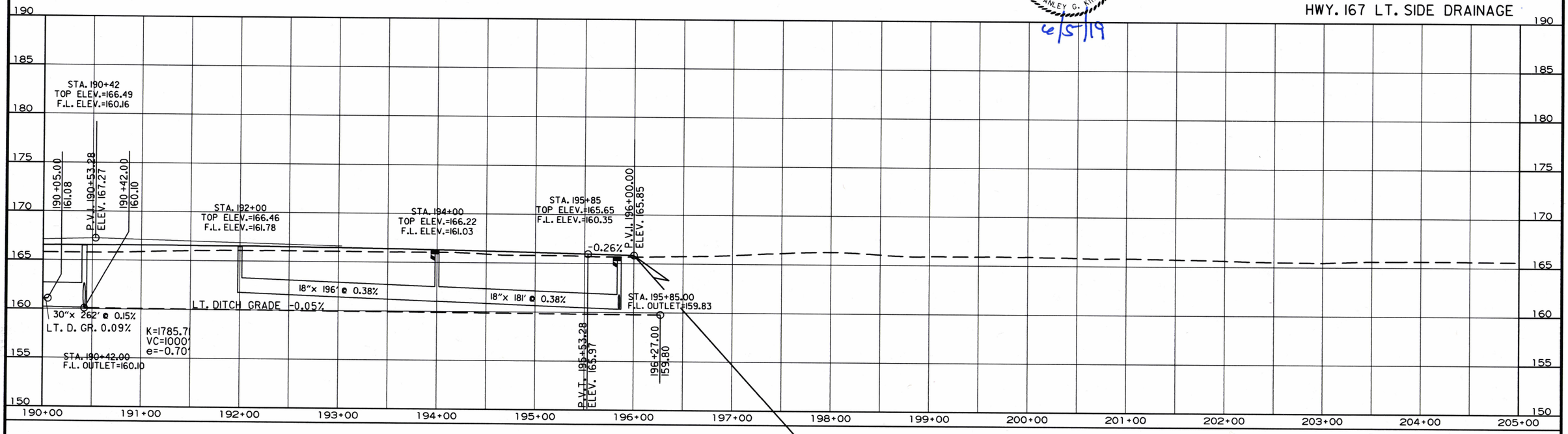
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0701		65	138

(2) PROFILE SHEET

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER STANLEY G. KING No. 9066

6/5/19

HWY. 167 LT. SIDE DRAINAGE

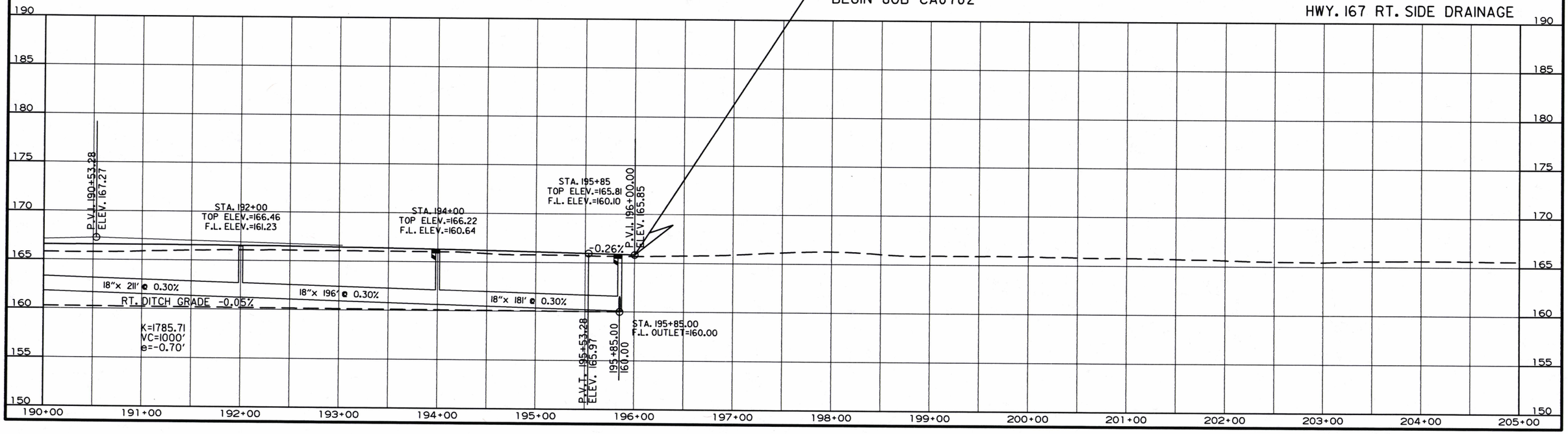


REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

UNNAMED TRIBUTARY (STA. 194+98 RT - STA. 196+00 RT):
THIS STREAM IS CLASSIFIED AS EPHEMERAL
THE TOP OF CHANNEL ELEVATION IS 161FT. MSL.
REFER TO SECTION 110.06(c) TEMPORARY FILL OF THE 2014 STANDARD SPECIFICATIONS.

STA. 196+00.00 ℄ CONST. HWY. 167
END JOB CA0701
BEGIN JOB CA0702

HWY. 167 RT. SIDE DRAINAGE

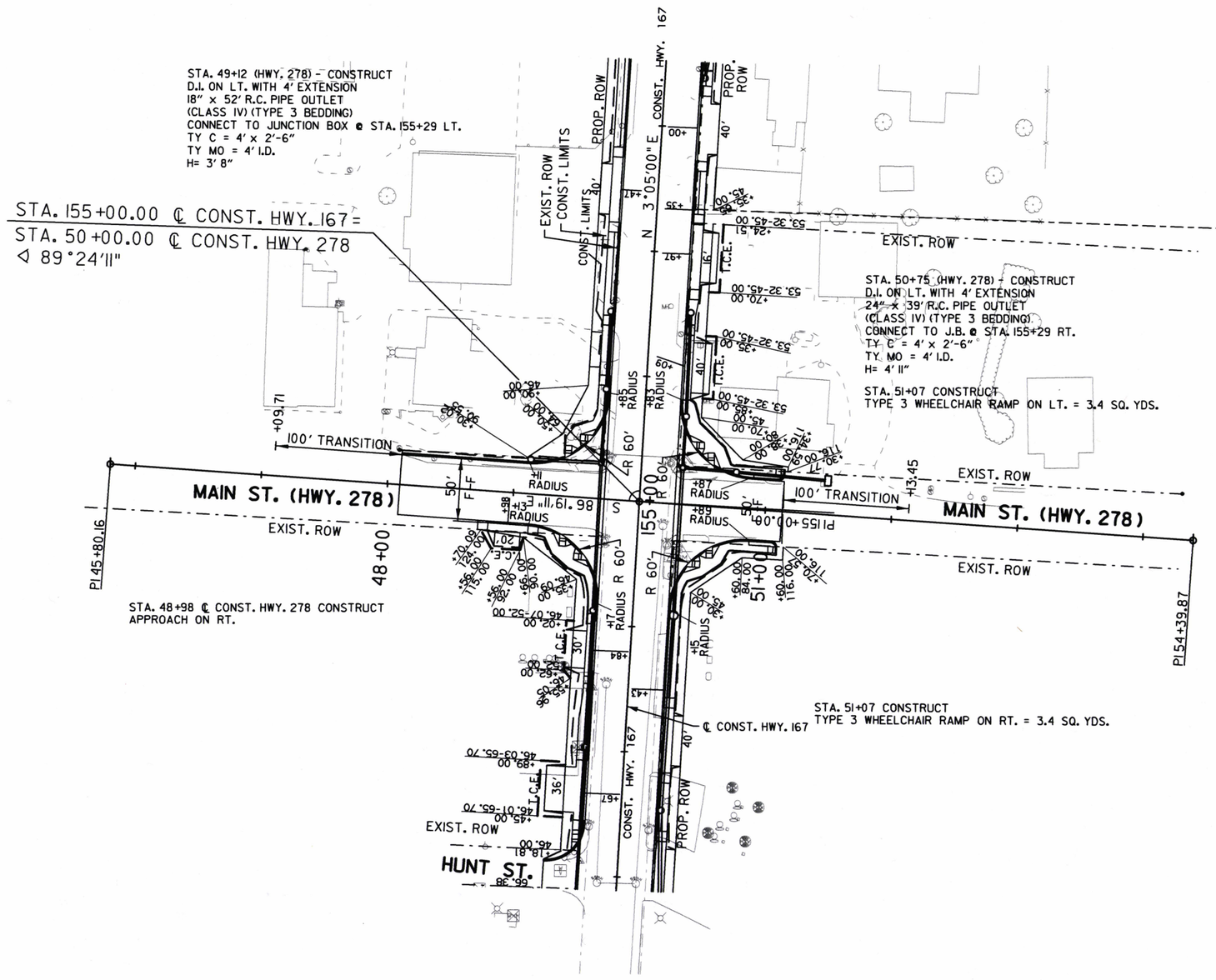


7/30/2016

CA0701

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.		CA0701	66	138
				(2) PLAN SHEET				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9866
STANLEY G. KING
4/5/19



ALL R.C. PIPE CULVERTS SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED.

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

HWY. 278

4/15/2019

CA0701

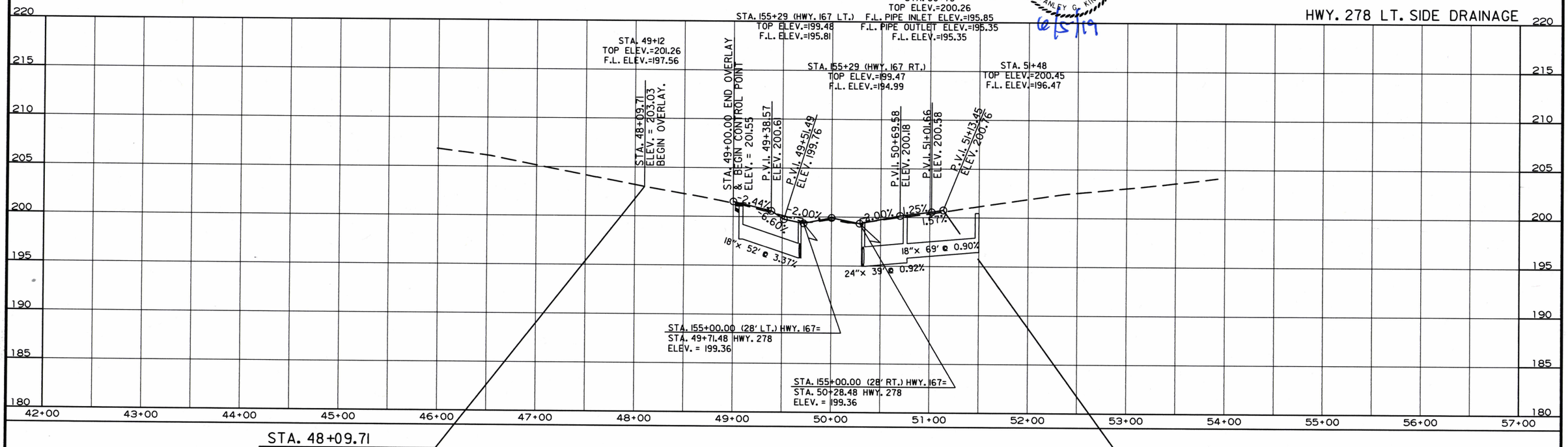
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	67	138

(2) PROFILE SHEET

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER STANLEY G. KING No. 9166

6/5/19

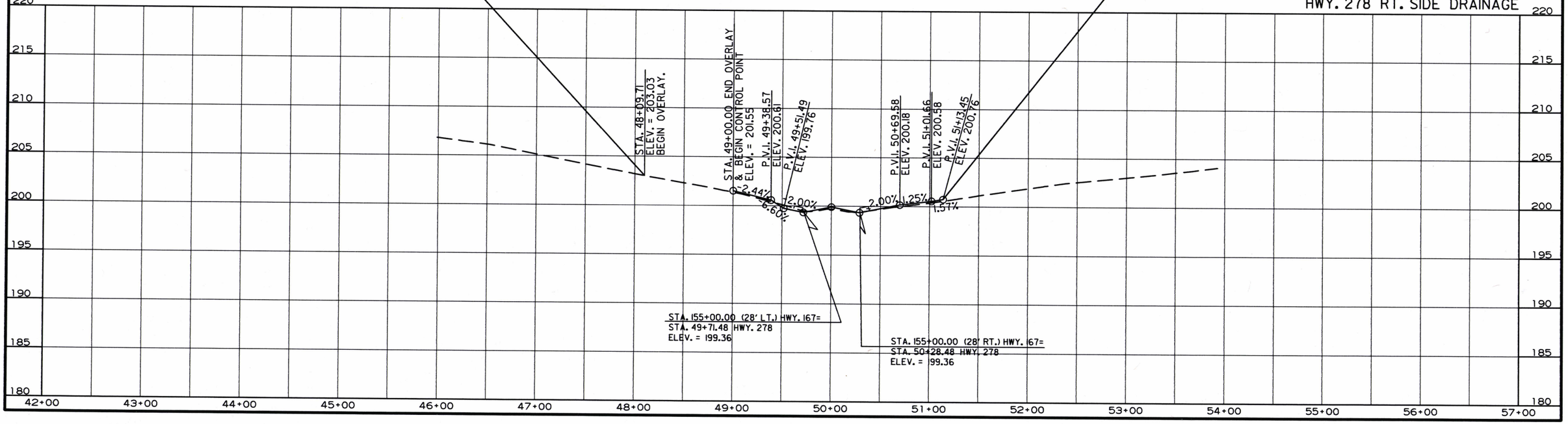
HWY. 278 LT. SIDE DRAINAGE



STA. 48+09.71
BEGIN HWY. 278

STA. 5I+13.45
BEGIN HWY. 278

HWY. 278 RT. SIDE DRAINAGE



CA0701 7/30/2016

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.		CA0701	68	138

(2) TRAFFIC SIGNAL NOTES

TRAFFIC SIGNAL NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (2017) NATIONAL ELECTRICAL CODE, NFPA 101 (CURRENT EDITION) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.

2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (E.G.C.) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND E.G.C. TO GROUND LUG OF CONTROL CABINET AND TO POLE GROUND. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.

3. ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER), GALVANIZED STEEL SERVICE RISER, METER LOOP (IF REQUIRED), AND WEATHERHEAD AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. IF THE SERVICE POINT IS OVER 10 FEET FROM THE CONTROLLER, THE CONTRACTOR SHALL PROVIDE AND INSTALL A SEPARATE TWO CIRCUIT EXTERNAL BREAKER (SECONDARY BREAKER) ON OR NEAR THE TRAFFIC SIGNAL CONTROLLER CABINET AND SHALL INSTALL CONDUIT, ELECTRICAL SERVICE WIRE (2c/#6 A.W.G. USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO TAP INTO THE CITY'S/COUNTY'S MAIN BREAKER AS PART OF THIS CONTRACT. CONDUIT IS PAID FOR AS A SEPARATE ITEM OF THIS CONTRACT. TWO CIRCUIT BREAKERS, CONSIDERED SUBSIDIARY TO THE CONTROL EQUIPMENT, ARE NEEDED WHERE STREET LIGHTING IS INCLUDED. AS PART OF THE SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2c/#12 A.W.G. UF RATED, TYPICAL) SHALL BE KEPT FROM THE CIRCUIT SERVING THE TRAFFIC SIGNAL CONTROL EQUIPMENT FROM THE POINT OF TIE-IN AT THE SECONDARY BREAKER PROVIDED BY THE CONTRACTOR.

4. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.

5. TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO THE CONTROLLER.

6. CONTROLLER CABINET SHALL BE WIRED SUCH THAT DURING FLASH OPERATIONS POWER TO THE LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS.

7. ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, STANDARD DRAWINGS AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.

8. CONDUIT INSTALLED UNDER ROADWAY SURFACES SHALL BE INSTALLED BY PUSHING OR BORING METHODS. IF THE ENGINEER DETERMINES THIS IS NOT FEASIBLE, THEN A TRENCHING METHOD AS SHOWN IN THE STANDARD DRAWINGS MAY BE USED.

9. TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.

10. PAVEMENT MARKINGS SHOWN FOR REFERENCE ONLY. SEE PERMANENT PAVEMENT MARKING DETAILS.

11. FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON STANDARD DRAWING). PAYMENT WILL BE INCLUDED IN SECTION 714, TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.

12. ALL CONCRETE PULL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE THREE (3") INCH DIAMETER UNLESS SPECIFIED ON PLANS.

13. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.

14. LUMINAIRE ASSEMBLIES SHALL BE OF THE FULL CUTOFF TYPE.

15. HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTUATE THE ASSOCIATED PHASE. COMBINATION (COMB.) DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNT/OCCUPANCY DATA.

16. THE LOCAL RADIO WITH ANTENNA SHALL BE COMPATIBLE WITH THE EXISTING CLOSED LOOP COORDINATION SYSTEM IN THE CITY/COUNTY.

17. TO DETERMINE UTILITY CLEARANCES ABOVE THE TRAFFIC SIGNAL POLE, REFER TO THE POLE SCHEDULE FOR VERTICAL SHAFT HEIGHT. WHERE THE POLE SCHEDULE INDICATES THAT A LUMINAIRE ARM WILL BE USED, THIRTY-EIGHT (38') FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINAIRE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINAIRE ARM, A HEIGHT OF TWENTY-ONE (21') FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL SIX (6') FEET SHOULD BE USED DIRECTLY ABOVE "VIDEO DETECTOR" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.

18. THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS 6 FEET. REFER TO TRAFFIC SIGNAL PLANS FOR SPECIFIC LOCATION OF POLES, CONTROLLER AND ANY OTHER NON-BREAKAWAY OBSTRUCTIONS. REFER TO "DESIGN PARAMETERS, MINIMUM CLEAR ZONE DISTANCE" FOR MINIMUM DISTANCE FROM THE EDGE OF TRAVELED WAY TO THE FACE OF A NON-BREAKAWAY POLE OR OBSTRUCTION. TRAFFIC SIGNAL POLES OR ANY OTHER NON-BREAKAWAY OBSTRUCTION SHALL NOT BE INSTALLED WITHIN THE CLEAR ZONE.

19. AS DETERMINED BY THE ENGINEER, FOUNDATION EMBEDMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVING PLAN EMBEDMENT AND AT LEAST HALF OF THE REMAINING PLAN EMBEDMENT LENGTH IS KEYED INTO COMPETENT ROCK.

20. CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP BEHIND HAND-HOLE COVER AT BASE OF POLE. TERMINAL STRIP SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT POLE COVER IS MISSING. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714-TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT ADDITION.

21. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO IMSA STANDARDS.

22. ONE VIDEO PROGRAMMNG MODULE SHALL BE PROVIDED FOR AIMING AND SETUP OF DETECTORS IF THE VIDEO SYSTEM CANNOT BE ADJUSTED THROUGH HARDWARE AND SOFTWARE PROVIDED BY ITEMS WITHIN THE JOB.

23. TRAFFIC SIGNAL CONTRACTOR MUST NOTIFY RESIDENT ENGINEER OR ASSIGNED DEPARTMENT PROJECT INSPECTOR EACH DAY PRIOR TO SIGNAL RELATED WORK. NO WORK ON TRAFFIC SIGNALS WILL BE ALLOWED OR APPROVED WITHOUT THIS PRIOR NOTIFICATION.

24. ALL STEEL POLES SHALL BE DESIGNED TO MEET THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4th EDITION (2001) WITH 2003 AND 2006 INTERIMS.

25. DOOR PANEL TEST PUSH BUTTONS SHALL ACTUATE INDICATED PHASES. DETECTOR ASSIGNMENTS AND/OR SIDE PANEL JUMPERS MAY REQUIRE MODFICATION.

26. ALL SYSTEM DETECTOR RACKS AND ASSOCIATED EQUIPMENT SHALL BE PROTECTED BY THE MAIN CONTROLLER CABINET POWER SURGE PROTECTION.

27. IN PULL BOXES, POLE BASES, JUNCTION BOXES AND CONTROLLER CABINETS, THE DIRECTION OF EACH CABLE RUN SHALL BE INDICATED BY ATTACHING A PERMANENT TAG OF RIGID PLASTIC OR NON-FERROUS METAL TO THE CONDUIT. TAGS SHALL BE EMBOSSED, STAMPED OR ENGRAVED WITH LETERS 1/4" OR GREATER IN HEIGHT AND SECURED TO THE CONDUIT WITH NYLON OR PLASTIC TIES. IN INSTANCES WHERE THE CONDUIT OR CONDUIT ENTRANCES ARE NOT VISIBLE OR ACCESSIBLE, A DIRECTION TAG SHALL BE ATTACHED TO EACH CABLE.

28. THE CONTRACTOR SHALL PERFORM ALL WORK POSSIBLE THAT WILL MINIMIZE THE TIME THAT THE TRAFFIC SIGNAL IS OUT OF OPERATION. IF, IN THE OPINION OF THE ENGINEER, TRAFFIC CONDITIONS WARRANT THE CONTRACTOR SHALL PROVIDE FLAGMEN TO DIRECT TRAFFIC WHILE THE TRAFFIC SIGNAL IS OUT OF OPERATION.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY C. KING
6/5/19

7/30/2016

CA0701

LOCATION:	HWY. 167/HWY. 278		
CITY:	HAMPTON		
COUNTY:	CALHOUN		
DISTRICT:	7	DRAWN BY:	PAR

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.		CA0701	69	138

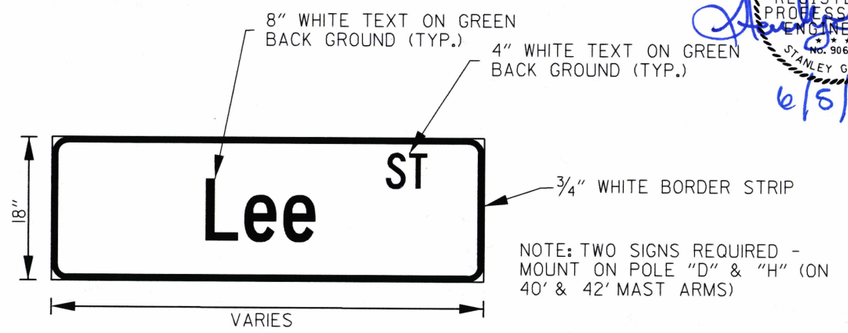
(2) SUMMARY OF TRAFFIC SIGNAL QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 9066
STANLEY G. KING
6/5/19

SUMMARY OF TRAFFIC SIGNAL QUANTITIES

	ITEM NO.	ITEM	HWY. 167 / HWY. 278	UNIT
	SP & 701	ACTUATED CONTROLLER TS2-TYPE 2 (8 PHASES)	1	EACH
	SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	10	EACH
	SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	2	EACH
	SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	8	EACH
	708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	2935	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	152	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (12C/14 A.W.G.)	309	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	293	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	612	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)	258	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	19	LIN. FT.
	SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	860	LIN. FT.
	709	GALVANIZED STEEL CONDUIT (2")	40	LIN. FT.
	710	NON-METALLIC CONDUIT (2")	106	LIN. FT.
	710	NON-METALLIC CONDUIT (3")	497	LIN. FT.
	711	CONCRETE PULL BOX (TYPE 1)	2	EACH
	711	CONCRETE PULL BOX (TYPE 2)	7	EACH
	711	CONCRETE PULL BOX (TYPE 2 HD)	1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (38')	1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (40')	1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (42')	1	EACH
	SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')	1	EACH
	SP	LED LUMINAIRE ASSEMBLY	4	EACH
	SS & 715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	5	EACH
	SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
	SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	1.00	LUMP SUM
	SP	18" STREET NAME SIGN	4	EACH
✳	SP & 733	VIDEO DETECTOR (CLR)	7	EACH
	733	VIDEO CABLE	1370	LIN. FT.
	733	VIDEO MONITOR (CLR)	1	EACH
✳	SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	4	EACH
	SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)	1	EACH

✳ ONE SPARE VIDEO PROCESSOR AND VIDEO DETECTOR PROVIDED TO CITY.



NOTES:

1. REFLECTIVE SHEETING SHALL COMPLY WITH ASTM 4956 TYPE 8 OR 9 REFLECTIVE SHEETING. SHEETING AND LEGEND SHALL BE APPLIED IN SUCH A MANNER TO PROVIDE WRINKLE AND BUBBLE FREE SURFACES. APPLICATION OF SHEETING IS CAUSE FOR REJECTION OF MATERIALS DUE TO WORKMANSHIP.

2. ALUMINUM SIGN BLANK SHALL BE ALLOY 6061-T6 OR 5052-H38. THE ALUMINUM SIGN SHALL ALSO BE ALODIZED. THE ALUMINUM SHEETING SHALL BE 0.100 INCH NOMINAL THICKNESS AND OF THE SIZE SHOWN WITH 1.5" CORNER RADII. PRIOR TO FABRICATION OF THE SIGNS, THE LAYOUT SHALL FIRST BE APPROVED BY AN AGENT OF THE CITY.

3. SEE STD. DRAWING SHEET FOR MORE INFORMATION FOR MOUNTING ON MAST ARM ASSEMBLY.

4. THE SERIES C 2000 FONT SHALL BE USED FOR ALL LETTERS.

LOCATION:	HWY. 167/HWY. 278
CITY:	HAMPTON
COUNTY:	CALHOUN
DISTRICT:	7

DRAWN BY: PAR

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				6	ARK.			
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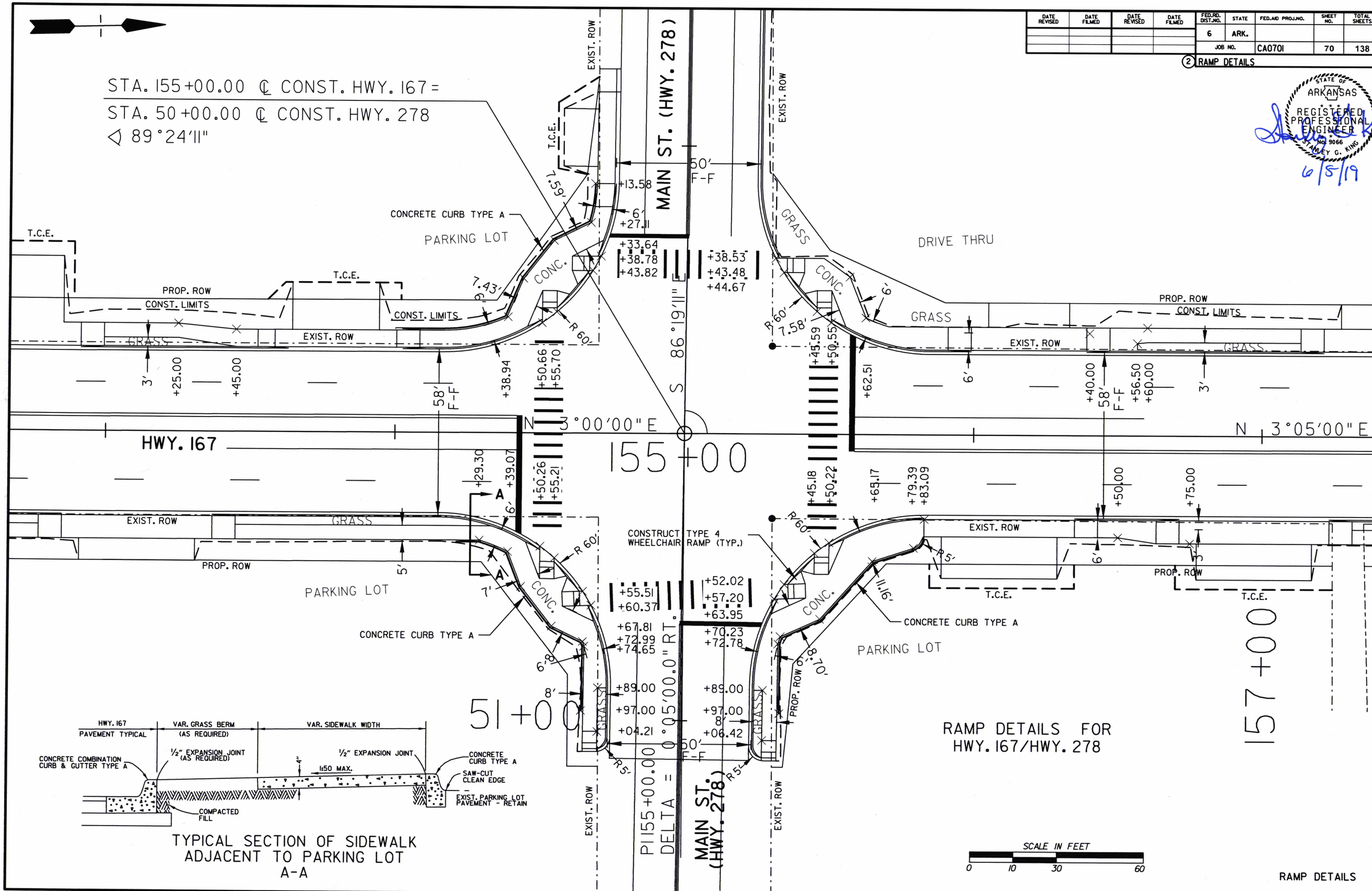
(2) RAMP DETAILS



RAMP DETAILS FOR HWY. 167/HWY. 278

TYPICAL SECTION OF SIDEWALK ADJACENT TO PARKING LOT A-A

RAMP DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9066 STANLEY G. KING

6/8/19

7/30/2016

CA0701

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(2) SIGNALIZATION PLAN SHEETS

POLE CHART

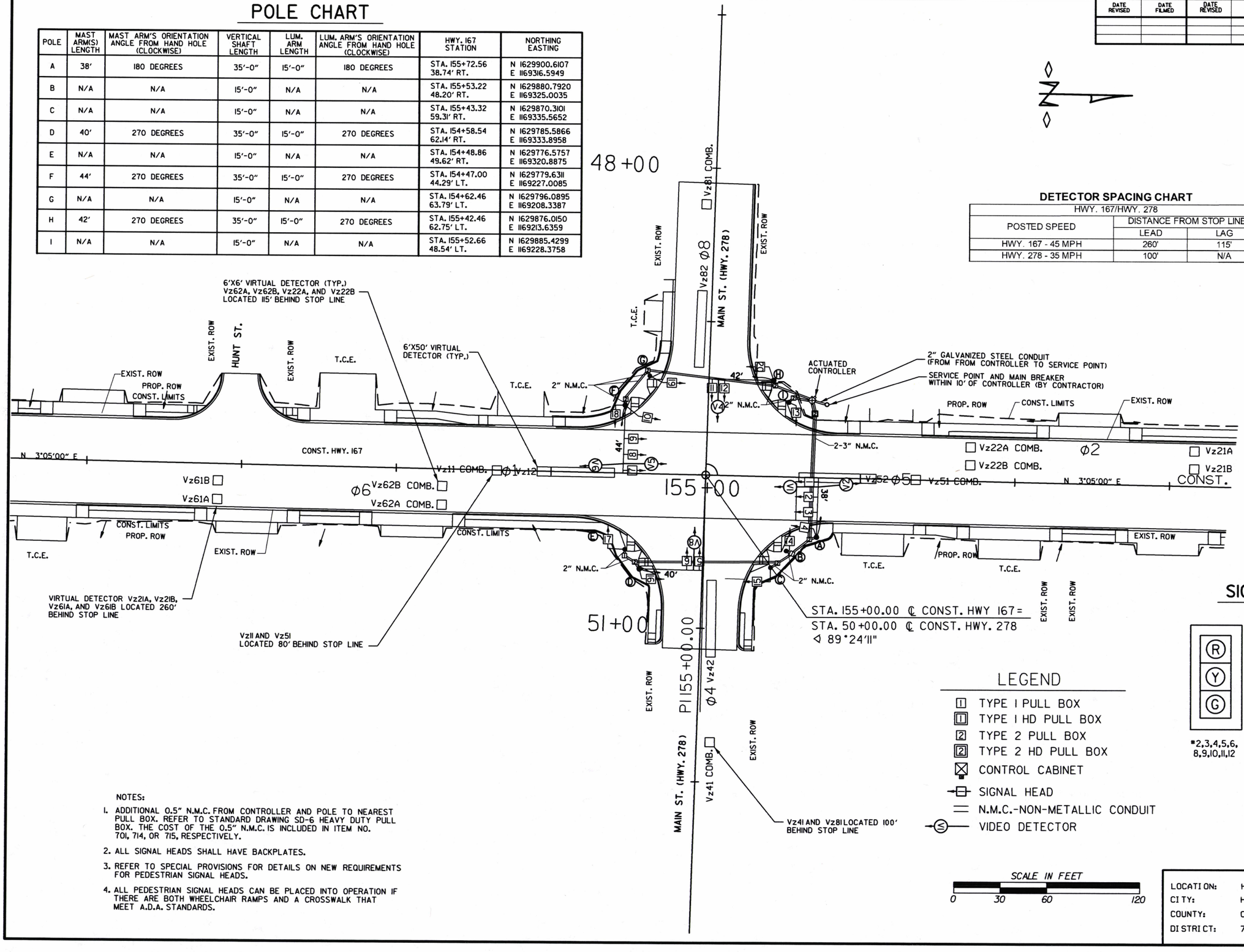
POLE	MAST ARM(S) LENGTH	MAST ARM'S ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	VERTICAL SHAFT LENGTH	LUM. ARM LENGTH	LUM. ARM'S ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	HWY. 167 STATION	NORTHING EASTING
A	38'	180 DEGREES	35'-0"	15'-0"	180 DEGREES	STA. 155+72.56 38.74' RT.	N 1629900.6107 E 1169316.5949
B	N/A	N/A	15'-0"	N/A	N/A	STA. 155+53.22 48.20' RT.	N 1629880.7920 E 1169325.0035
C	N/A	N/A	15'-0"	N/A	N/A	STA. 155+43.32 59.31' RT.	N 1629870.3101 E 1169335.5652
D	40'	270 DEGREES	35'-0"	15'-0"	270 DEGREES	STA. 154+58.54 62.14' RT.	N 1629785.5866 E 1169333.8958
E	N/A	N/A	15'-0"	N/A	N/A	STA. 154+48.86 49.62' RT.	N 1629776.5757 E 1169320.8875
F	44'	270 DEGREES	35'-0"	15'-0"	270 DEGREES	STA. 154+47.00 44.29' LT.	N 1629779.6311 E 1169227.0085
G	N/A	N/A	15'-0"	N/A	N/A	STA. 154+62.46 63.79' LT.	N 1629796.0895 E 1169208.3387
H	42'	270 DEGREES	35'-0"	15'-0"	270 DEGREES	STA. 155+42.46 62.75' LT.	N 1629876.0150 E 1169213.6359
I	N/A	N/A	15'-0"	N/A	N/A	STA. 155+52.66 48.54' LT.	N 1629885.4299 E 1169228.3758

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER NO. 9066 STANLEY G. KING

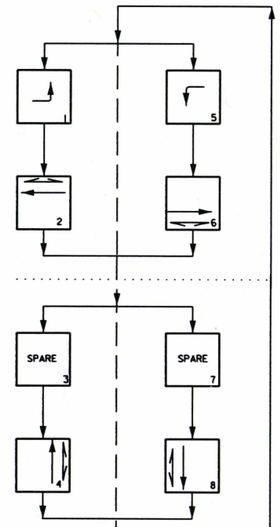
6/5/19

DETECTOR SPACING CHART

HWY. 167/HWY. 278		
POSTED SPEED	DISTANCE FROM STOP LINE	
	LEAD	LAG
HWY. 167 - 45 MPH	260'	115'
HWY. 278 - 35 MPH	100'	N/A



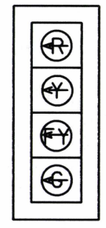
PHASING DIAGRAM



LED SIGNAL FACES

12" LENSES

*2,3,4,5,6, 8,9,10,11,12



*1,7

ONE SECTION (SOLID SYMBOL)



*13-20

LEGEND

- TYPE I PULL BOX
- TYPE I HD PULL BOX
- TYPE 2 PULL BOX
- TYPE 2 HD PULL BOX
- CONTROL CABINET
- SIGNAL HEAD
- N.M.C.-NON-METALLIC CONDUIT
- VIDEO DETECTOR

SCALE IN FEET

0 30 60 120

NOTES:

1. ADDITIONAL 0.5" N.M.C. FROM CONTROLLER AND POLE TO NEAREST PULL BOX. REFER TO STANDARD DRAWING SD-6 HEAVY DUTY PULL BOX. THE COST OF THE 0.5" N.M.C. IS INCLUDED IN ITEM NO. 701, 714, OR 715, RESPECTIVELY.
2. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
3. REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
4. ALL PEDESTRIAN SIGNAL HEADS CAN BE PLACED INTO OPERATION IF THERE ARE BOTH WHEELCHAIR RAMPS AND A CROSSWALK THAT MEET A.D.A. STANDARDS.

LOCATION:	HWY. 167/HWY. 278
CITY:	HAMPTON
COUNTY:	CALHOUN
DISTRICT:	7

DRAWN BY: PAR

4/19/2019

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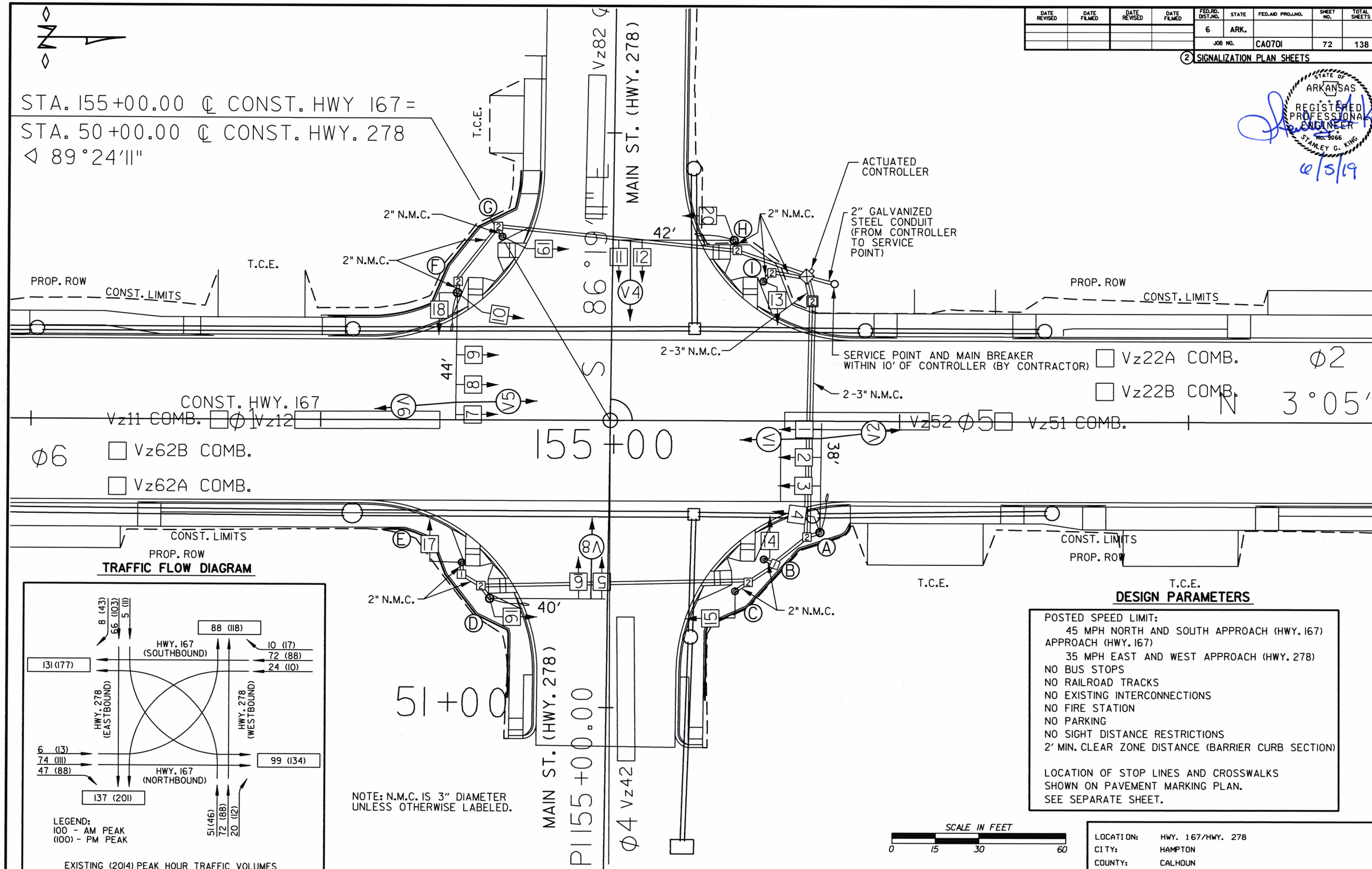
(2) SIGNALIZATION PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19



TRAFFIC FLOW DIAGRAM

EXISTING (2014) PEAK HOUR TRAFFIC VOLUMES

NOTE: N.M.C. IS 3" DIAMETER UNLESS OTHERWISE LABELED.

DESIGN PARAMETERS

POSTED SPEED LIMIT:
45 MPH NORTH AND SOUTH APPROACH (HWY. 167)
APPROACH (HWY. 167)
35 MPH EAST AND WEST APPROACH (HWY. 278)
NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS
2' MIN. CLEAR ZONE DISTANCE (BARRIER CURB SECTION)

LOCATION OF STOP LINES AND CROSSWALKS SHOWN ON PAVEMENT MARKING PLAN. SEE SEPARATE SHEET.

SCALE IN FEET
0 15 30 60

LOCATION:	HWY. 167/HWY. 278
CITY:	HAMPTON
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(2) SIGNALIZATION PLAN SHEETS

DETECTOR CHART

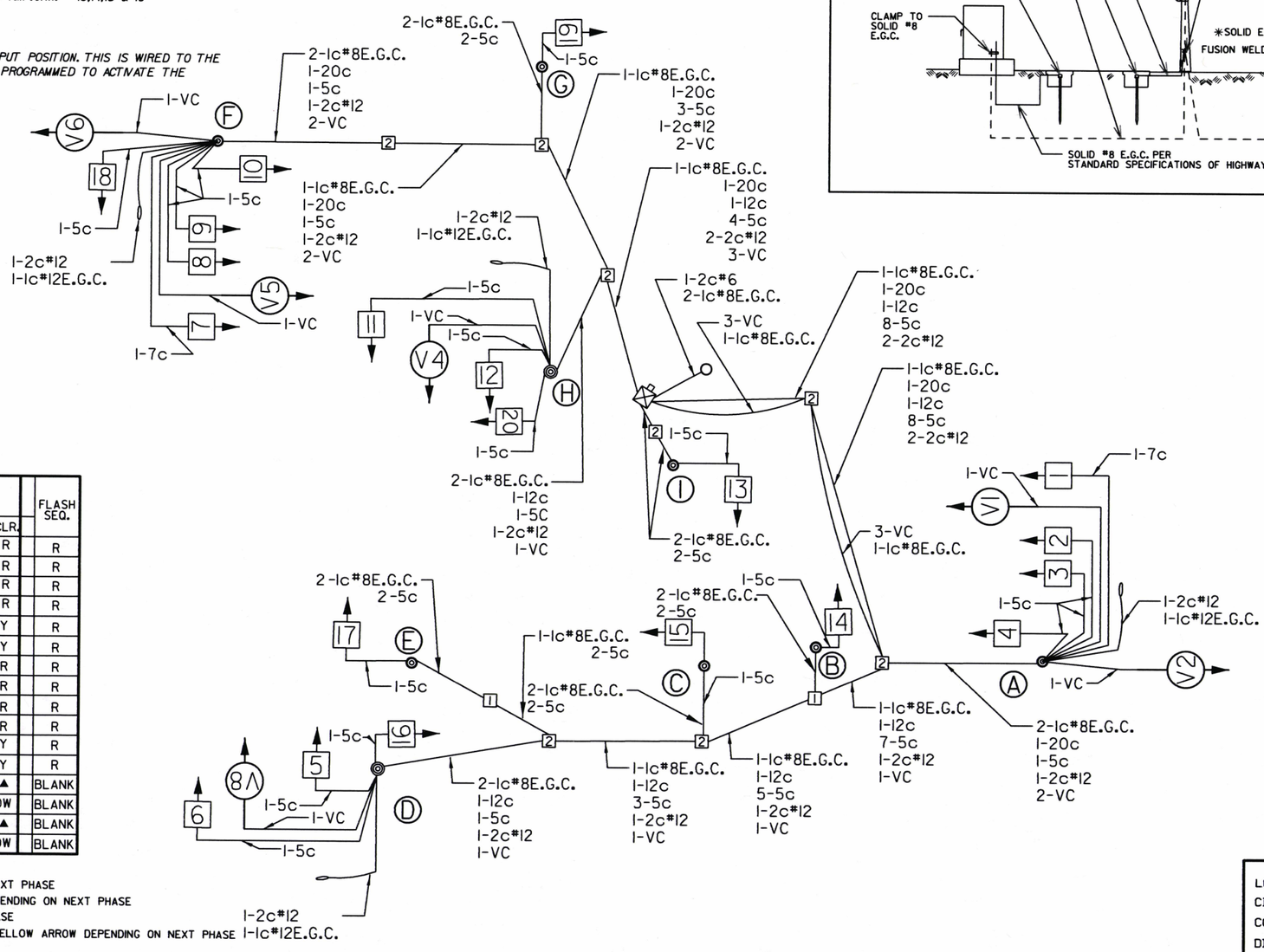
DETECTOR I.D. NUMBER	DIRECTION & LOCATION	TYPE	DET. NUM.	HARDWARE INPUTS: CAB. TER. NUM.	HARDWARE INPUTS: AMP. CHN. NUM.	HARDWARE INPUTS: CON. INP. NUM.	PROGRAM ASSIGNMENTS: LOCAL PHS.	PROGRAM ASSIGNMENTS: LOCAL SYS. DET.	PROGRAM ASSIGNMENTS: MSTR. SYS. DET.	COMMENT	TUBE LENGTH
Vz11	NB LT ADV	COMBO		-	1	V9	1	1	-	VIDEO 1	37'
Vz12	NB LT PRESENT	LOCAL		-	2	V1	1		-	VIDEO 1	37'
Vz21A&B	SB ADV	LOCAL		-	5	V2	2		-	VIDEO 2	46'
Vz22A&B	SB NEAR	COMBO		-	6	V10	2	2	-	VIDEO 5	37'
Vz41	WB ADV	COMBO		-	9	V12	4	4	-	VIDEO 4	23'
Vz42	WB PRESENT	LOCAL		-	10	V4	4		-	VIDEO 4	23'
Vz51	SB LT ADV	COMBO		-	7	V13	5	5	-	VIDEO 5	37'
Vz52	SB LT PRESENT	LOCAL		-	8	V5	5		-	VIDEO 5	37'
Vz61A&B	NB ADV	LOCAL		-	3	V6	6		-	VIDEO 6	46'
Vz62A&B	NB NEAR	COMBO		-	4	V14	6	6	-	VIDEO 1	37'
Vz81	EB ADV	COMBO		-	11	V16	8	8	-	VIDEO 8	23'
Vz82	EB PRESENT	LOCAL		-	12	V8	8		-	VIDEO 8	23'
PB2	N TO S	PED.		-	-	P2	2		-	HWY.278	-
PB4	E TO W	PED.		-	-	P4	4		-	HWY.167	-
PB6	S TO N	PED.		-	-	P6	6		-	HWY.278	-
PB8	W TO E	PED.		-	-	P8	8		-	HWY.167	-

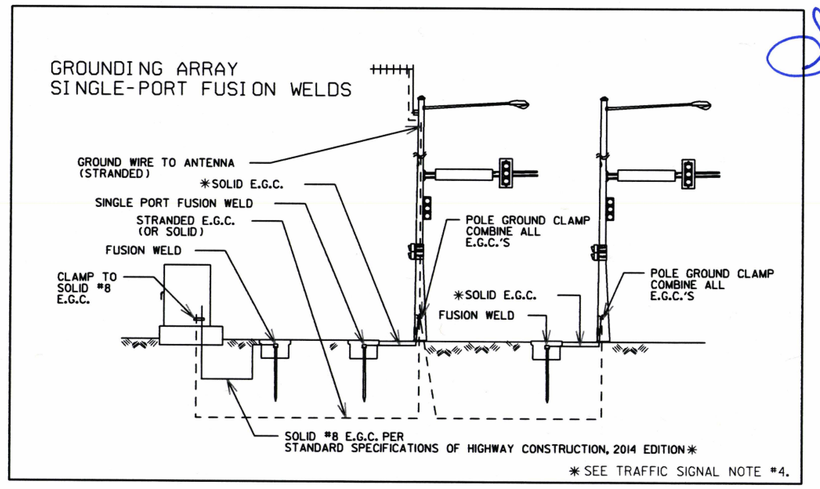
CONTROLLER INPUT ABBREVIATIONS:
V1 - V8 = VEHICLE INPUT
V9 - V16 = SYSTEM OR AUXILIARY INPUT
P1 - P8 = PEDESTRIAN INPUT

SPARE AMP.CHN.'s = 13,14,15 & 16

NOTE: "AMP.CHN." REFERS TO THE DETECTOR RACK OUTPUT POSITION. THIS IS WIRED TO THE CONTROLLER INPUT DETECTOR NUMBER THAT IS PROGRAMMED TO ACTIVATE THE DESIGNATED PHASE.

WIRING DIAGRAM





NOTES:

1. ONE SEPERATE 1-5c IS RUN TO EACH POLE FOR THE PEDESTRIAN PUSH BUTTON.
2. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
3. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.
4. ADDITIONAL 1-1c*8E.G.C. IN SEPARATE CONDUIT REQUIRED FROM POLE AND CONTROLLER TO NEAREST PULL BOX. REFER TO STANDARD DRAWING SD-6, HEAVY DUTY PULL BOX AND GROUNDING ARRAY DETAIL ON THIS SHEET. COST OF ADDITIONAL 1-1c*8E.G.C. INCLUDED IN ITEMS 701, 714 AND 715.

INTERVAL CHART

SIGNAL FACES	INTERVALS										FLASH SEQ.
	1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	4+8	CLR.	
1	~~G~~	***	~~G~~	***	~~FY~~	*	~~FY~~	*	R	R	R
2	R	R	G	**	R	R	G	**	R	R	R
3	R	R	G	**	R	R	G	**	R	R	R
4	R	R	G	**	R	R	G	**	R	R	R
5	R	R	R	R	R	R	R	R	G	Y	R
6	R	R	R	R	R	R	R	R	G	Y	R
7	~~G~~	***	~~FY~~	*	~~G~~	***	~~FY~~	*	R	R	R
8	R	R	R	R	G	**	G	**	R	R	R
9	R	R	R	R	G	**	G	**	R	R	R
10	R	R	R	R	G	**	G	**	R	R	R
11	R	R	R	R	R	R	R	R	G	Y	R
12	R	R	R	R	R	R	R	R	G	Y	R
13-14	DW	DW	DW	DW	DW	DW	DW	DW	W	▲	BLANK
15-16	DW	DW	W	▲	DW	DW	W	▲	DW	DW	BLANK
17-18	DW	DW	DW	DW	DW	DW	DW	DW	W	▲	BLANK
19-20	DW	DW	DW	DW	W	▲	W	▲	DW	DW	BLANK

▲ DENOTES FLASHING DON'T WALK OR WALK DEPENDING ON NEXT PHASE
* DENOTES YELLOW ARROW OR FLASHING YELLOW ARROW DEPENDING ON NEXT PHASE
** DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
*** DENOTES GREEN ARROW OR FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9066
STANLEY G. KING
6/5/19

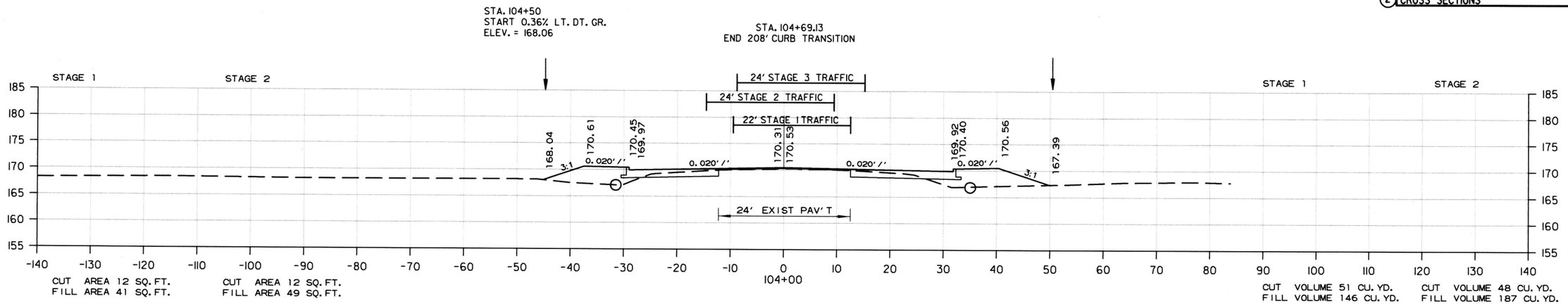
LOCATION:	HWY. 167/HWY. 278
CITY:	HAMPTON
COUNTY:	CALHOUN
DISTRICT:	7
DRAWN BY:	PAR

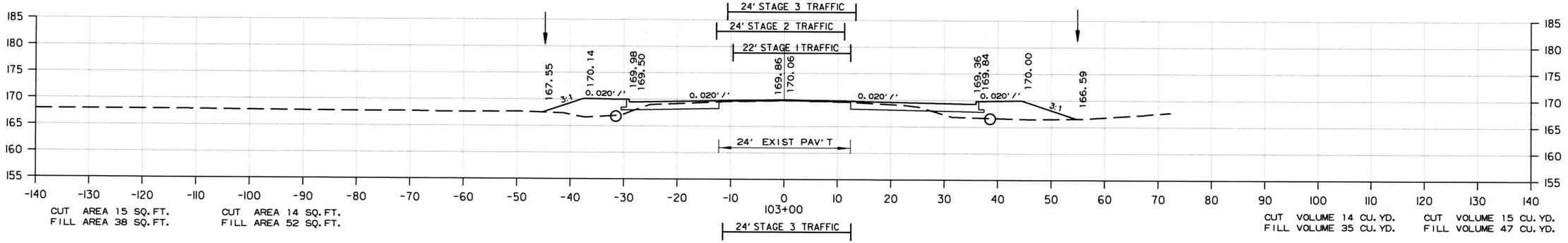
4/19/2019

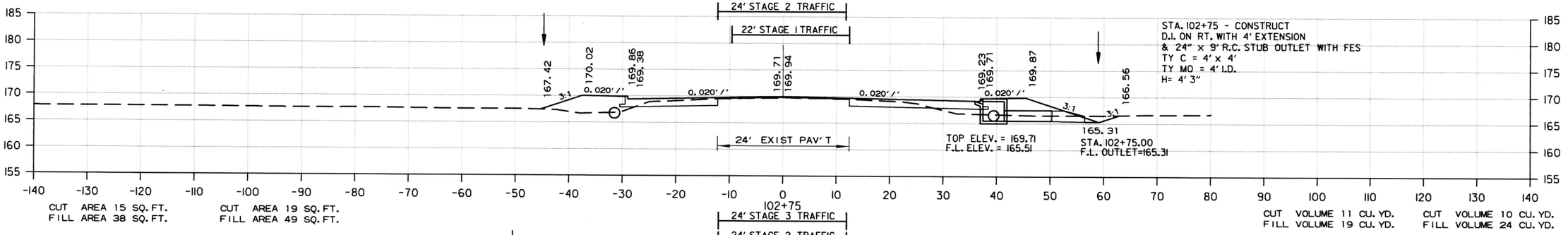
CA0701

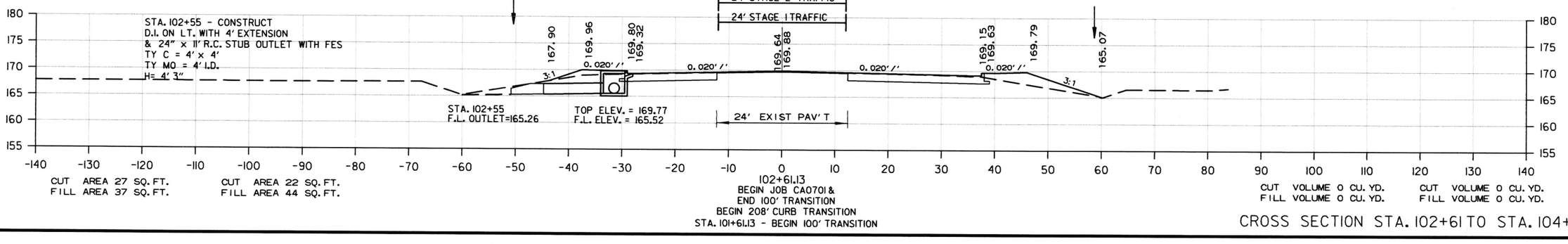
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	74	138

(2) CROSS SECTIONS









CROSS SECTION STA. 102+61 TO STA. 104+00

8/1/2016

CA0701_SB_XS.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.		CA0701	75	138

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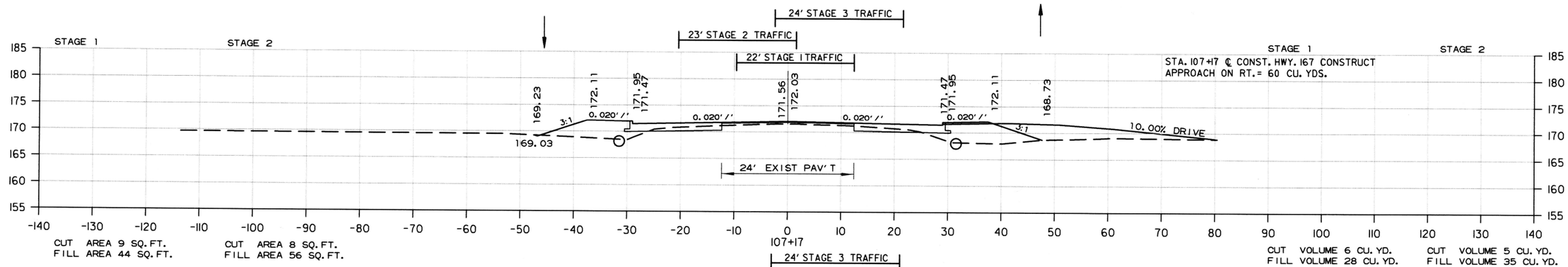

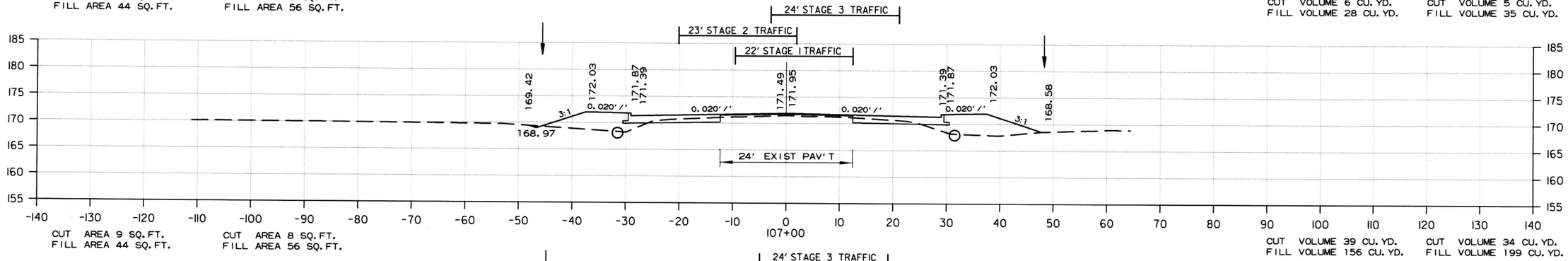

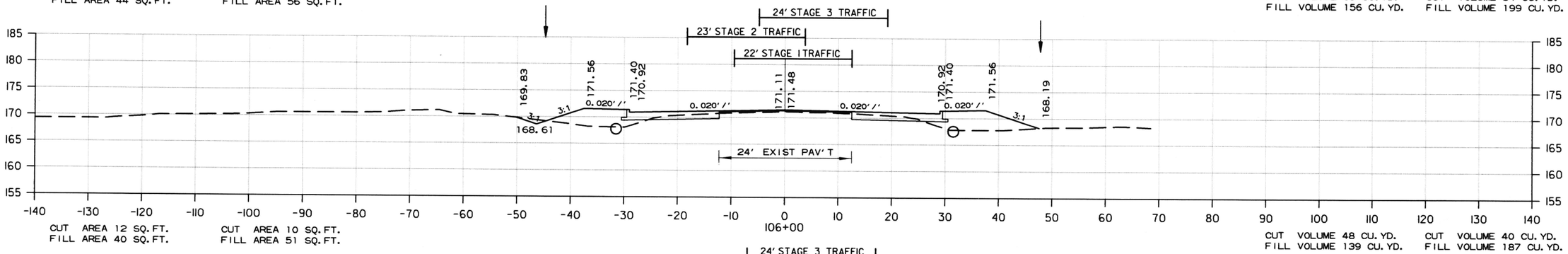

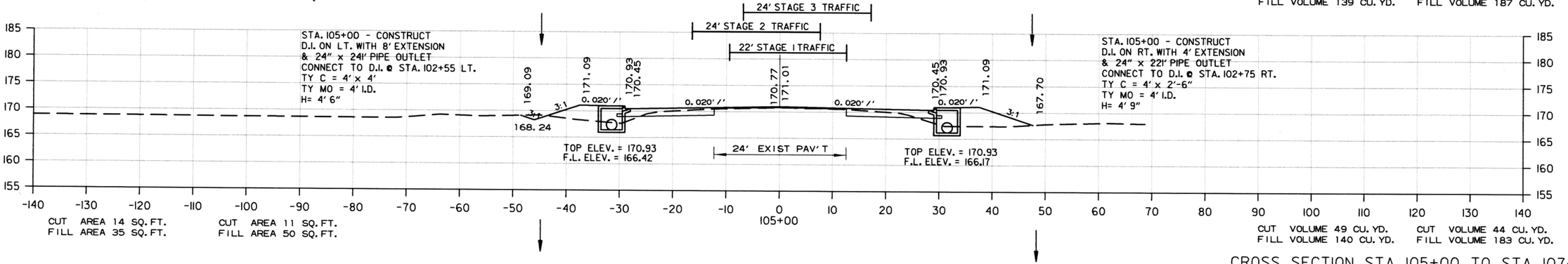

CROSS SECTION STA. 105+00 TO STA. 107+17

8/1/2016

CA0701_SB_XS.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.		CA0701	76	138

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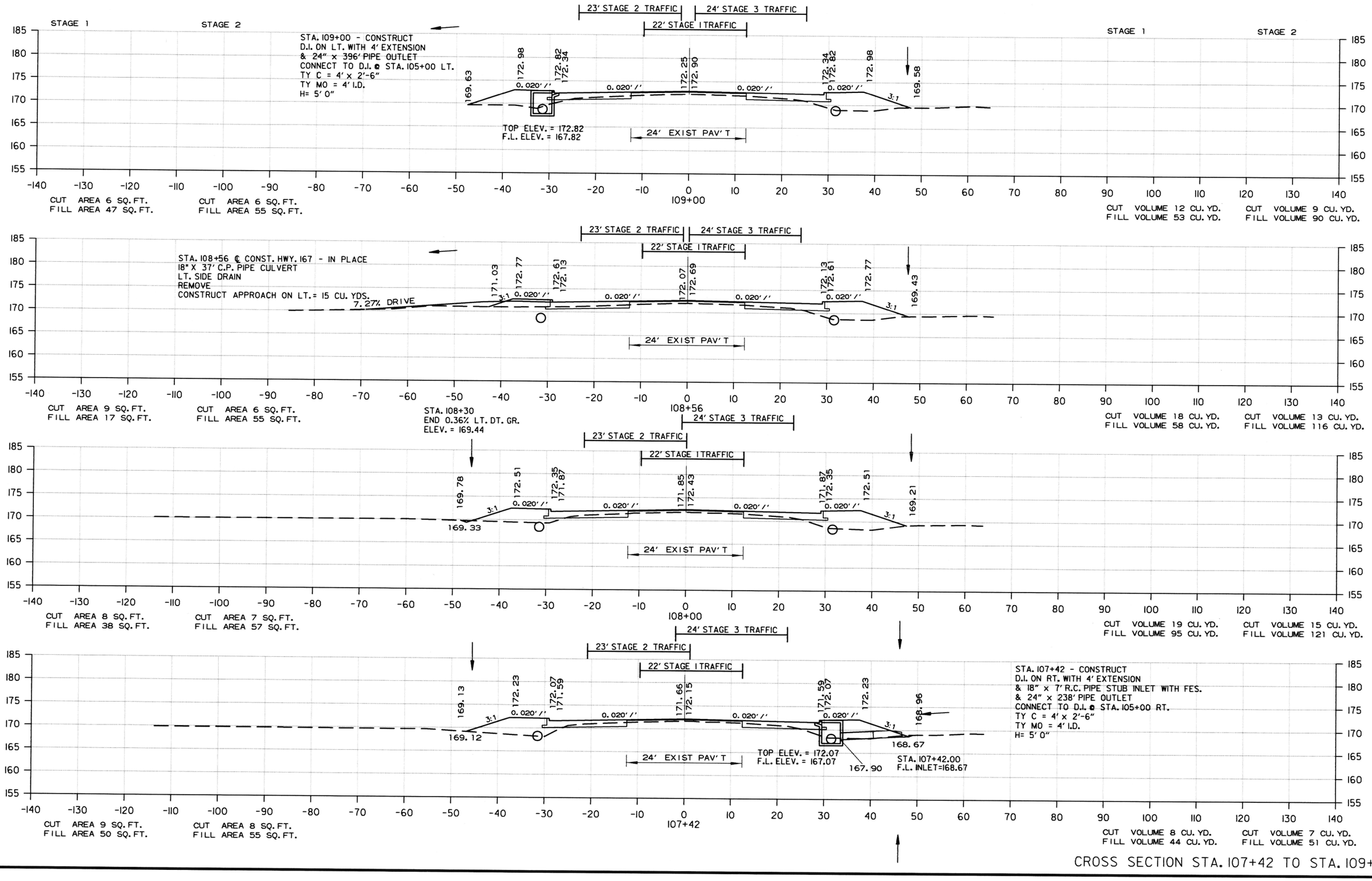

CROSS SECTION STA. 107+42 TO STA. 109+00

8/1/2016

CA0701_SB_XS.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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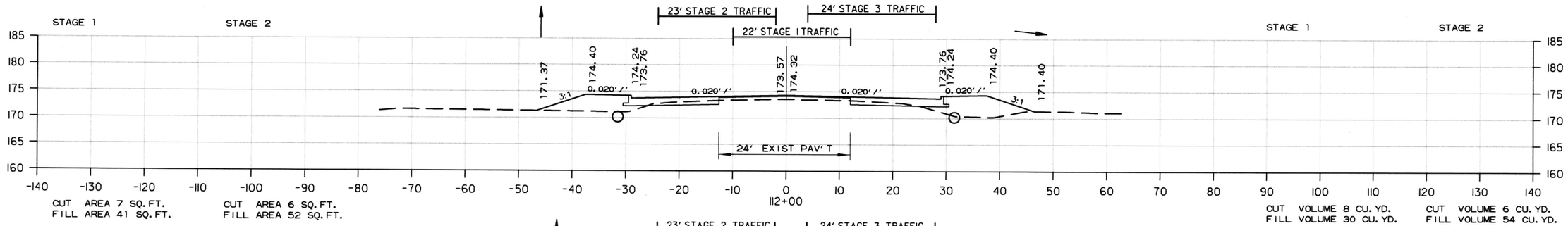

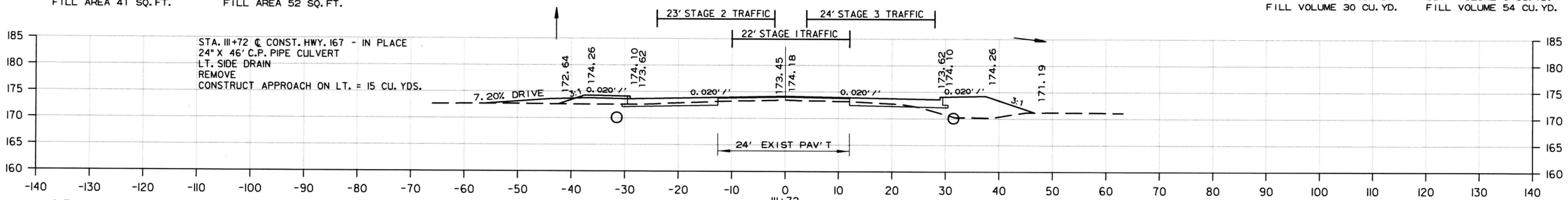

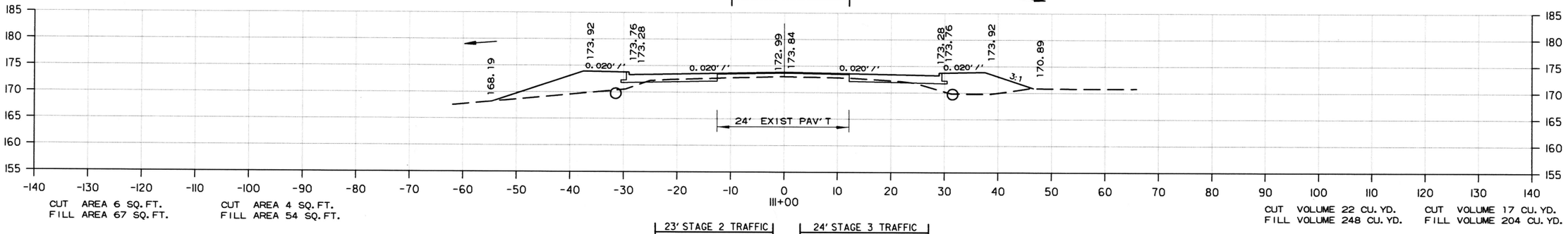

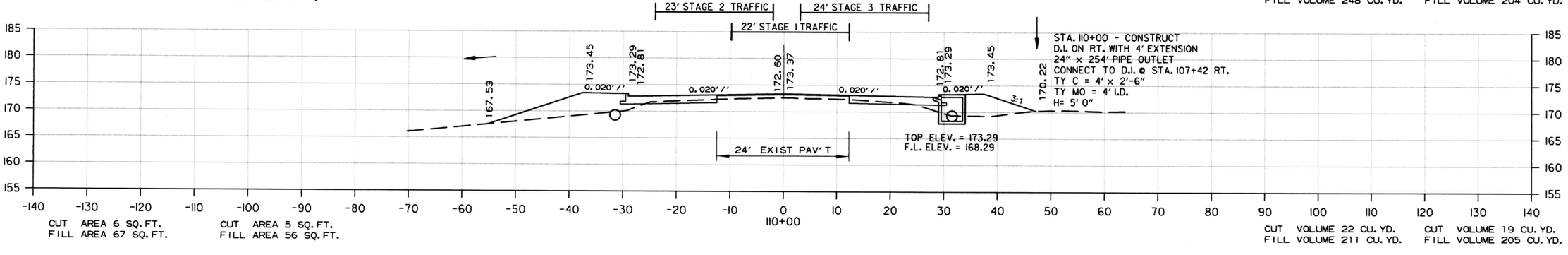

CROSS SECTION STA. 110+00 TO STA. 112+00

CA0701_SB_XS.DGN 8/1/2016

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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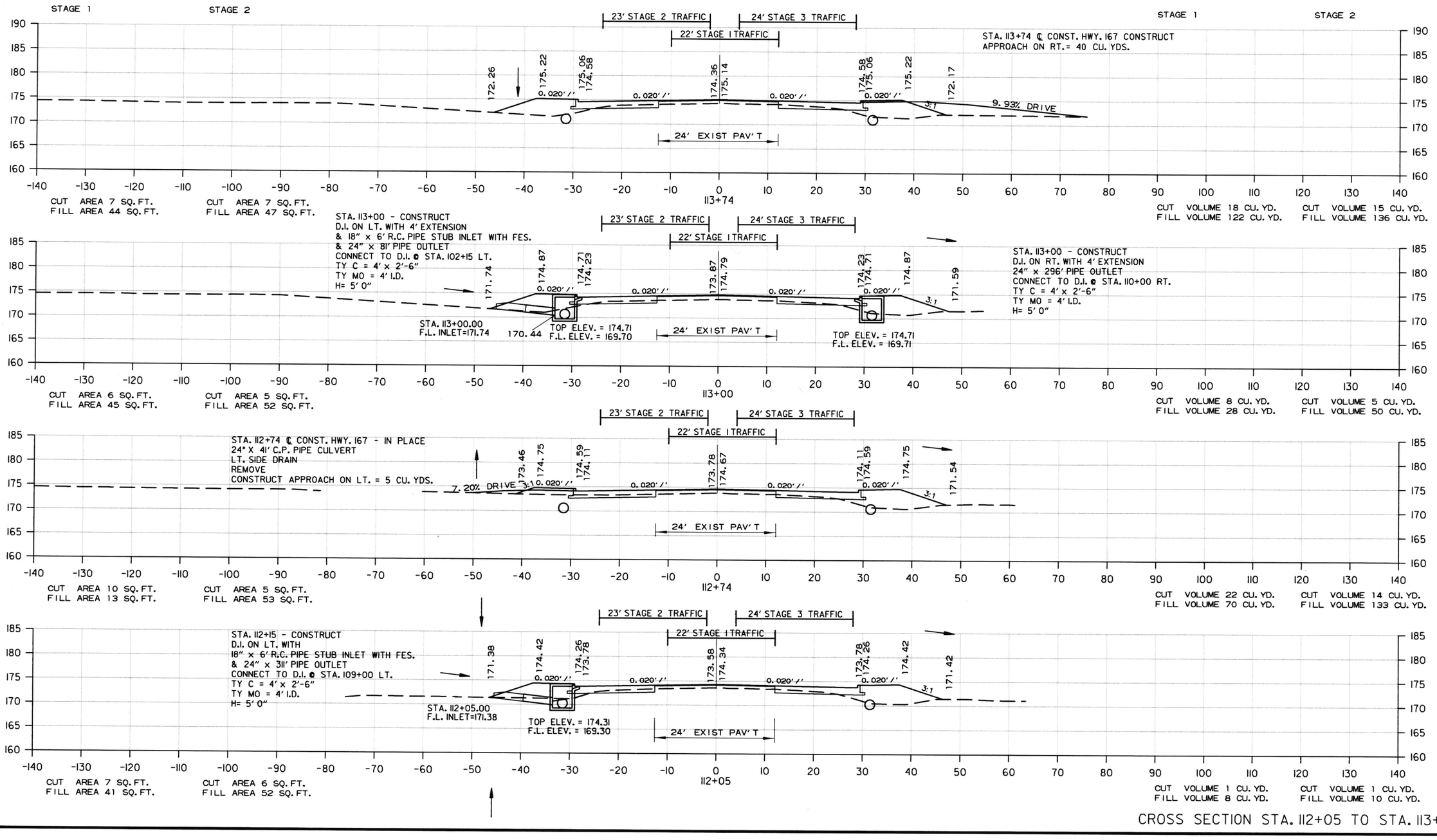
				JOB NO.		CA0701	78	138

(2) CROSS SECTIONS



CROSS SECTION STA. 112+05 TO STA. 113+74

8/1/2016

CA0701_SB_XS.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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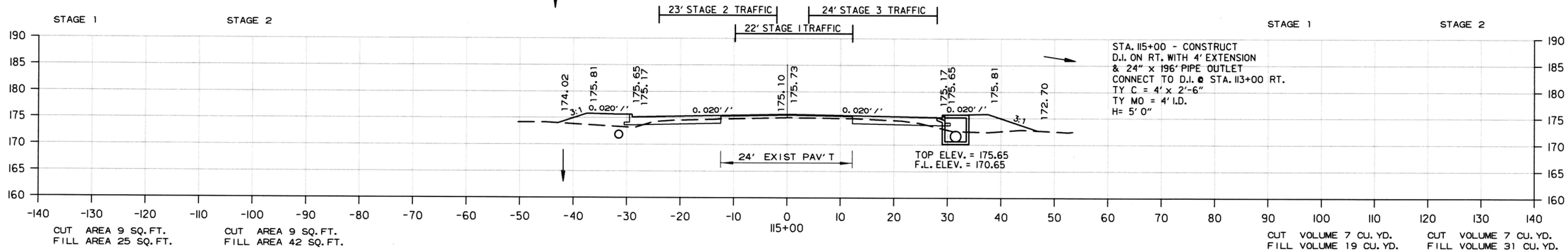
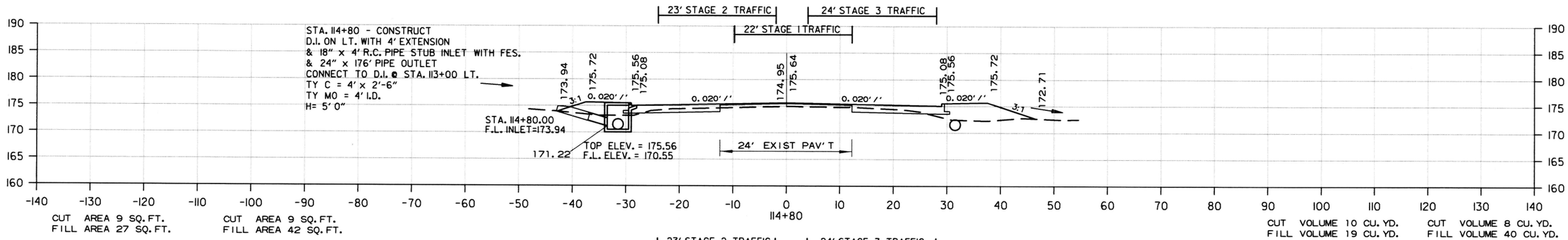
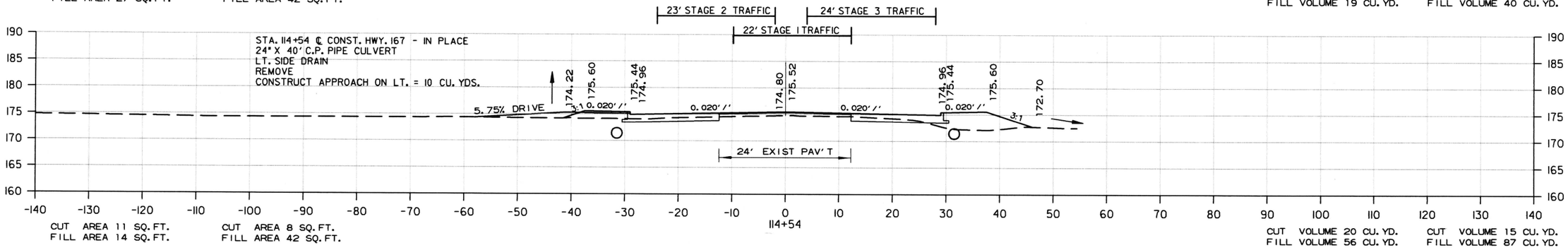
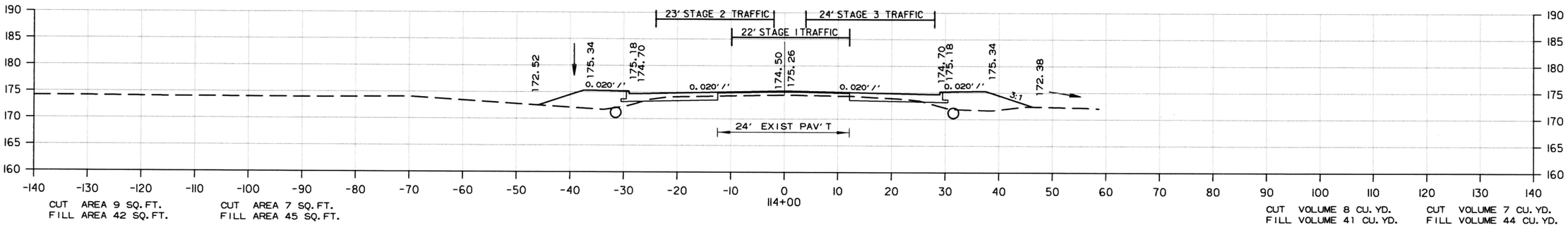
				JOB NO.		CA0701	79	138

(2) CROSS SECTIONS









CROSS SECTION STA. 114+00 TO STA. 115+00

8/1/2016

CA0701.SB_XS.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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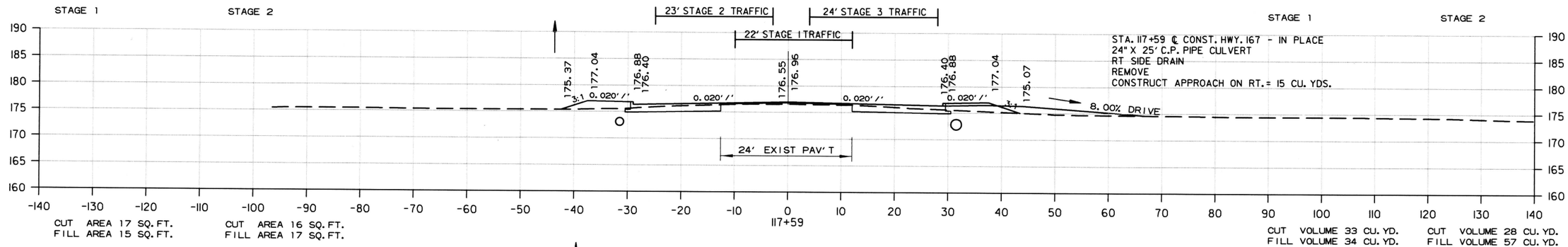
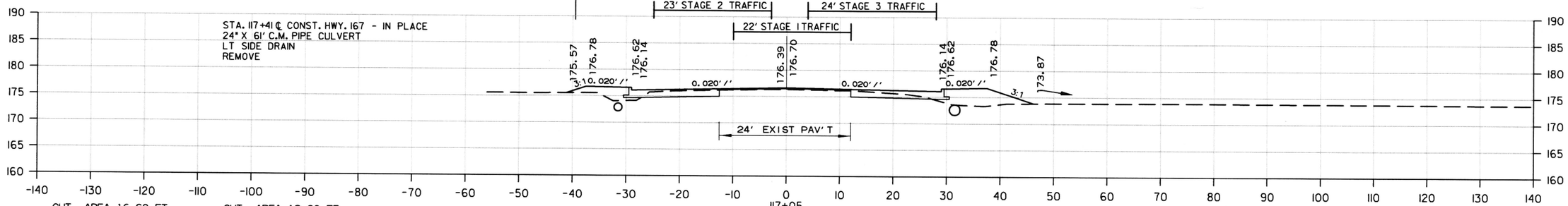
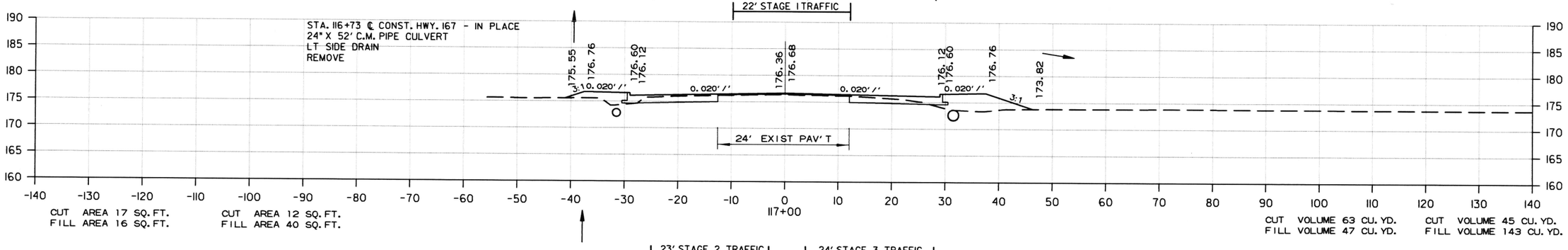
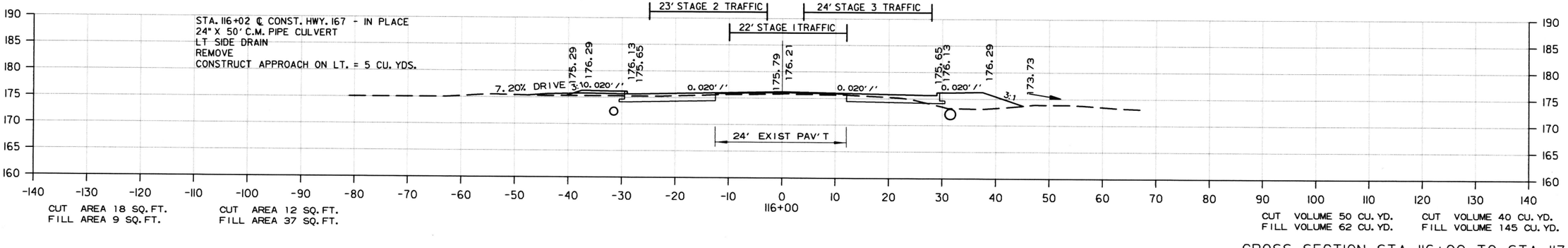
				JOB NO.		CA0701	80	138

(2) CROSS SECTIONS









CROSS SECTION STA. 116+00 TO STA. 117+59

8/1/2016

CA0701_SB_XS.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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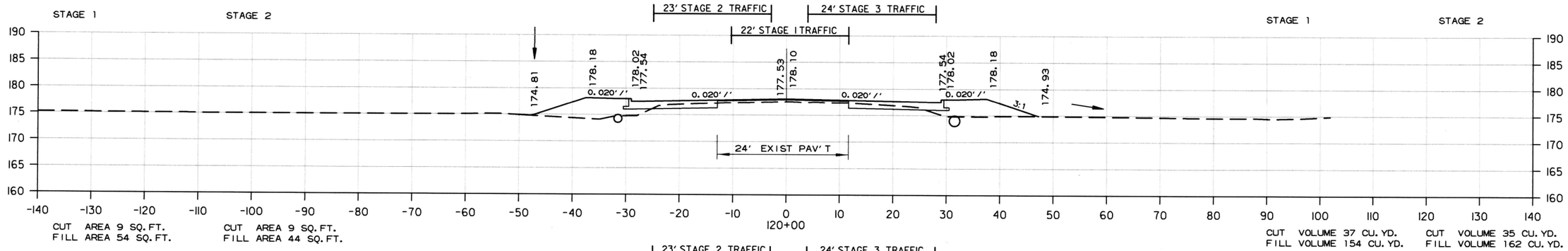
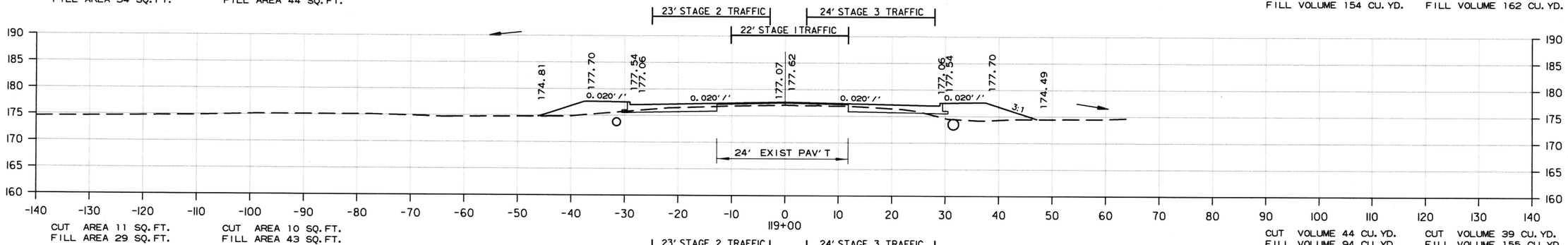
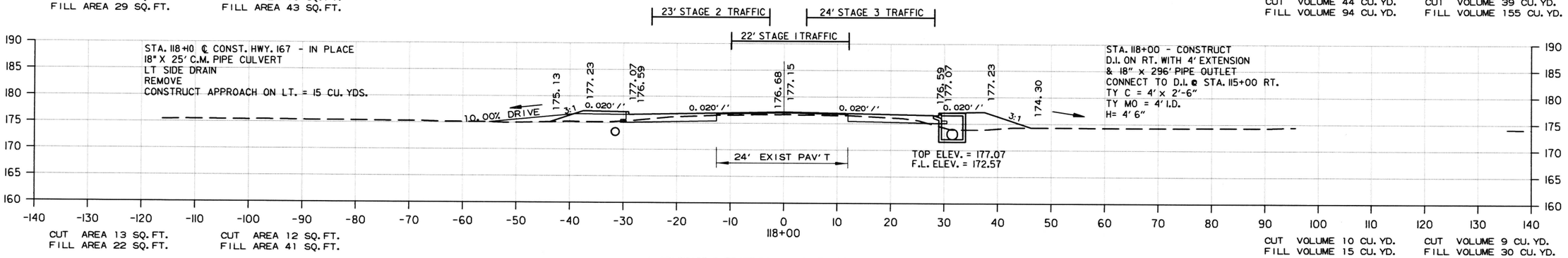
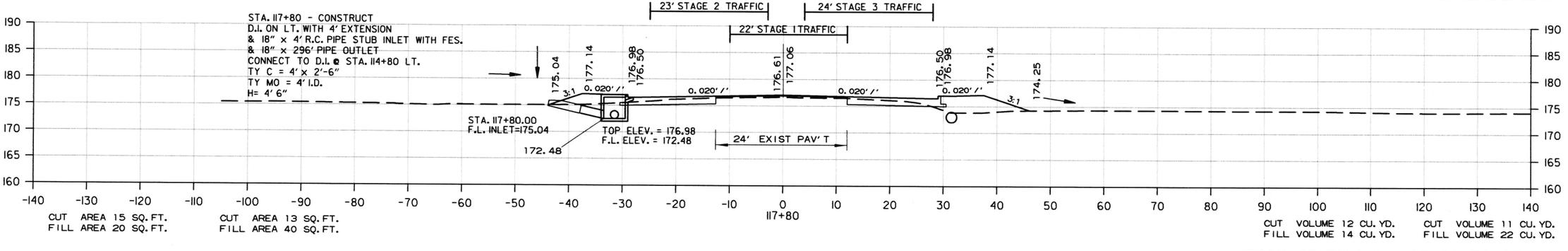
				JOB NO.		CA0701	81	138

(2) CROSS SECTIONS









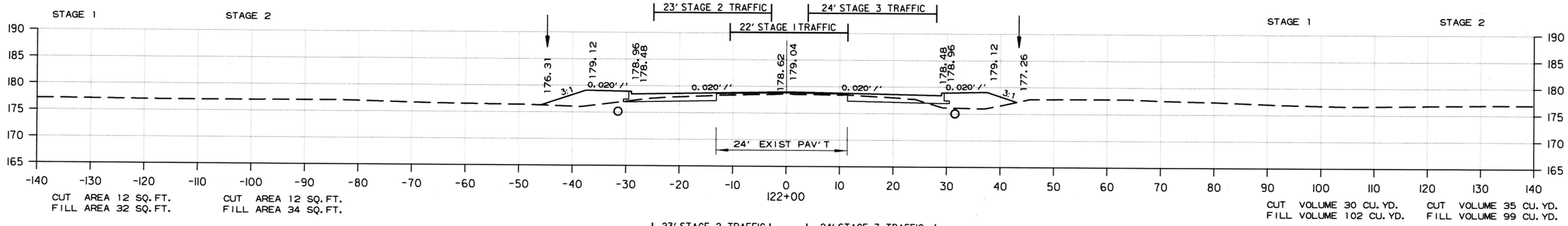
CROSS SECTION STA. 117+80 TO STA. 120+00

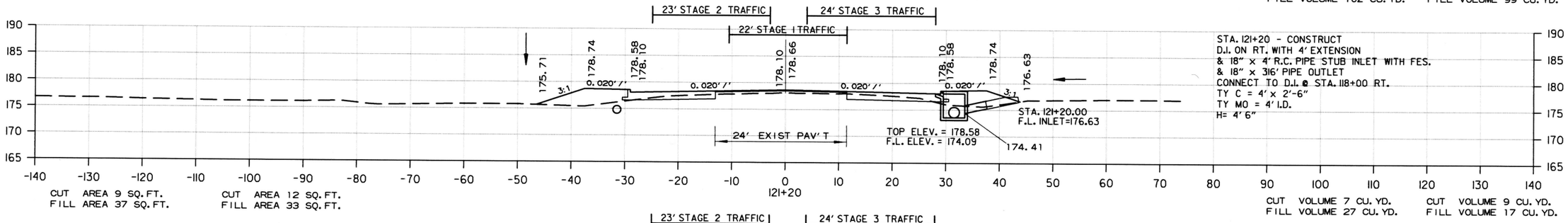
8/1/2016

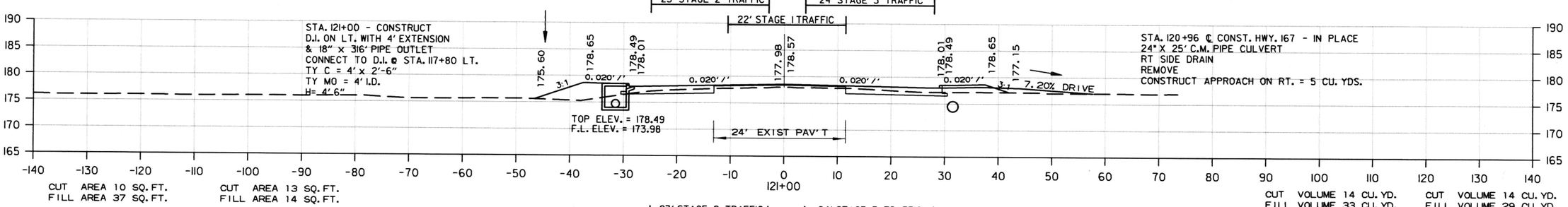
CA0701_SB_XS.DGN

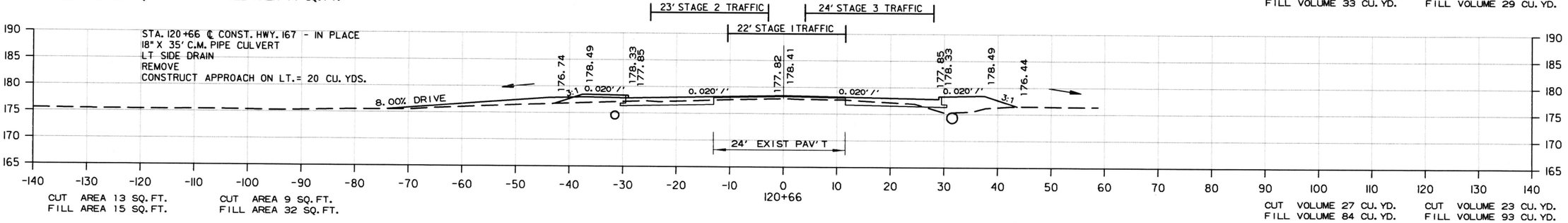
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	82	138

(2) CROSS SECTIONS









CROSS SECTION STA. 120+66 TO STA. 122+00

8/1/2016

CA0701_SB_XS.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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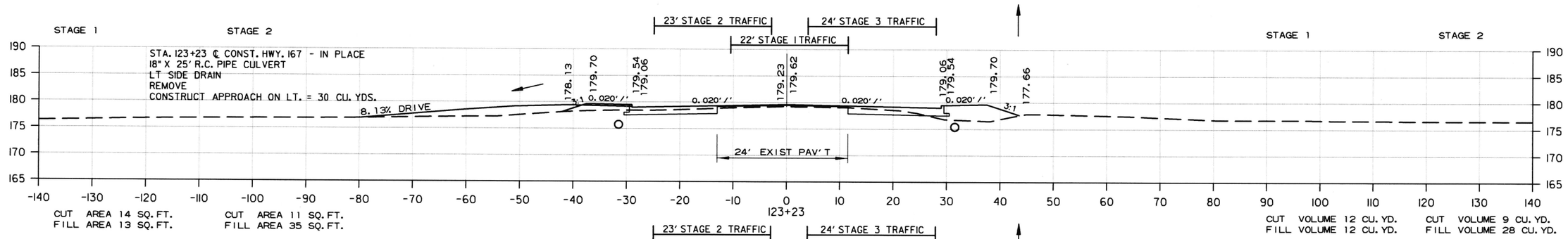
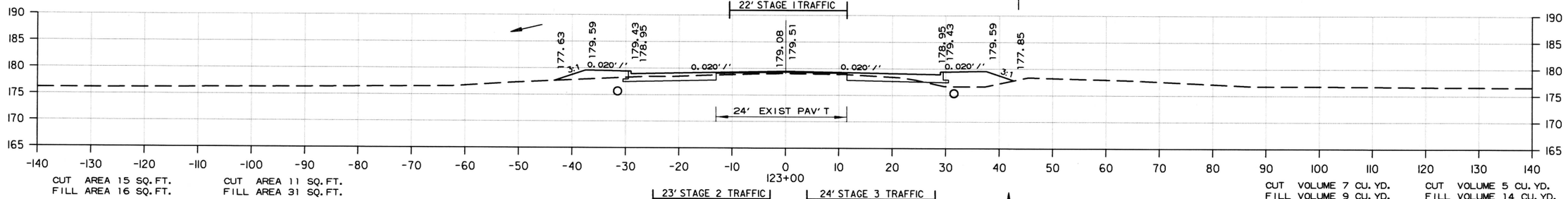
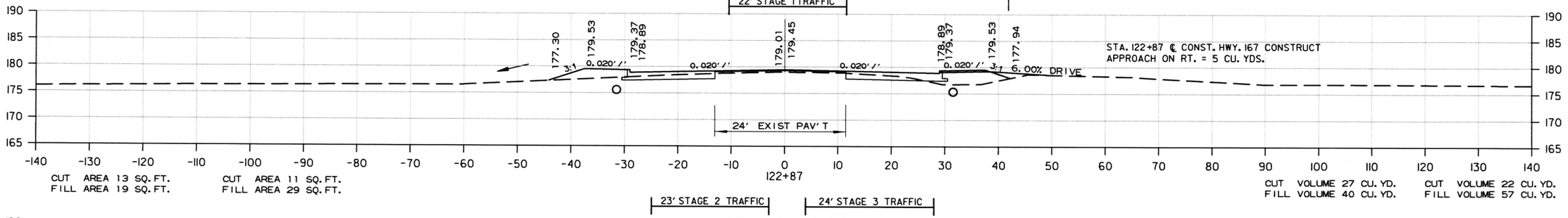
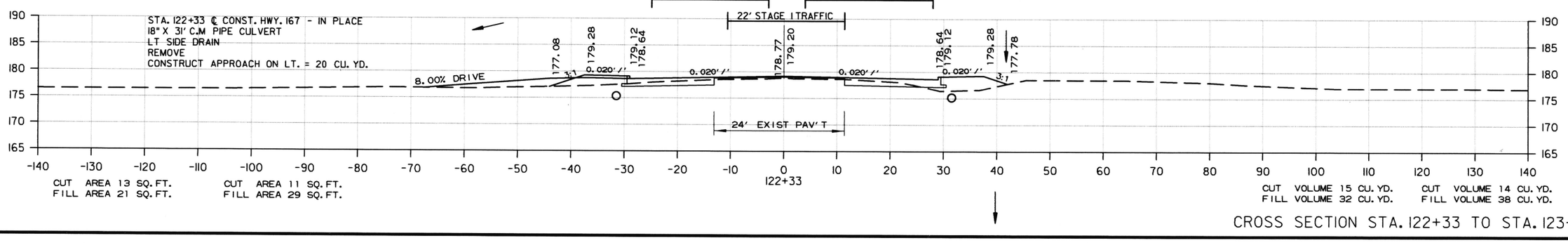
				JOB NO.		CA0701	83	138

(2) CROSS SECTIONS









CROSS SECTION STA. 122+33 TO STA. 123+23

8/1/2016

CA0701.SB.XS.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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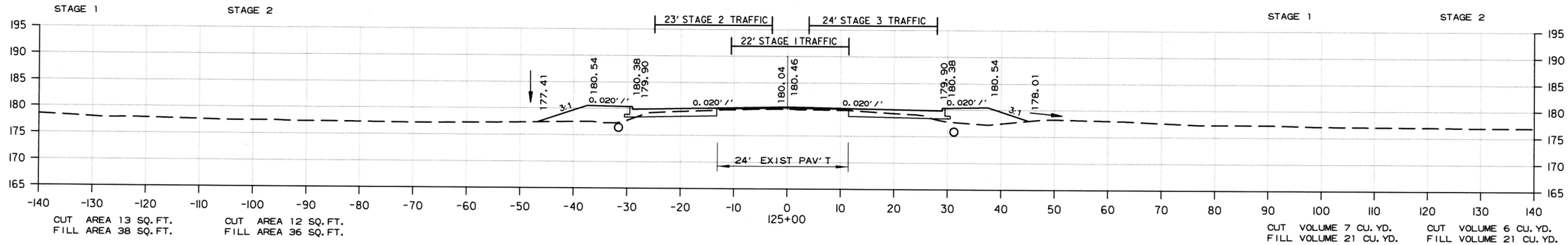
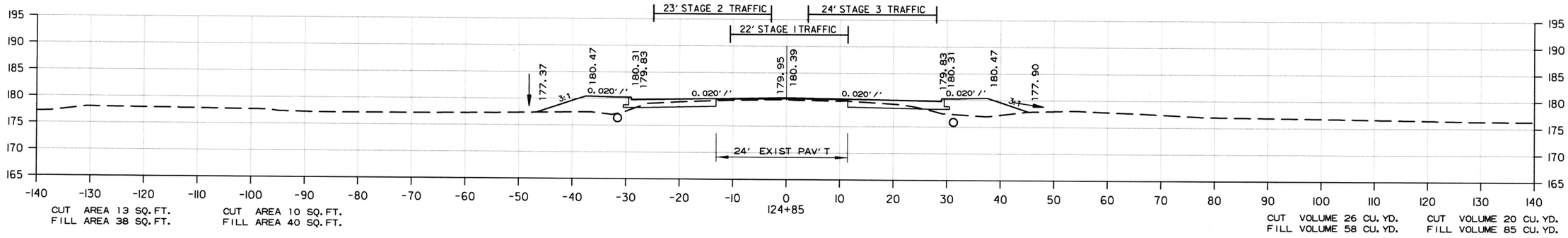
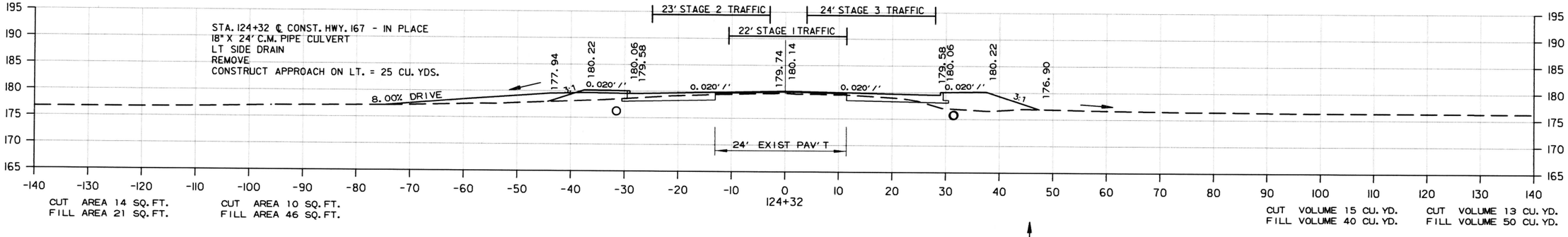
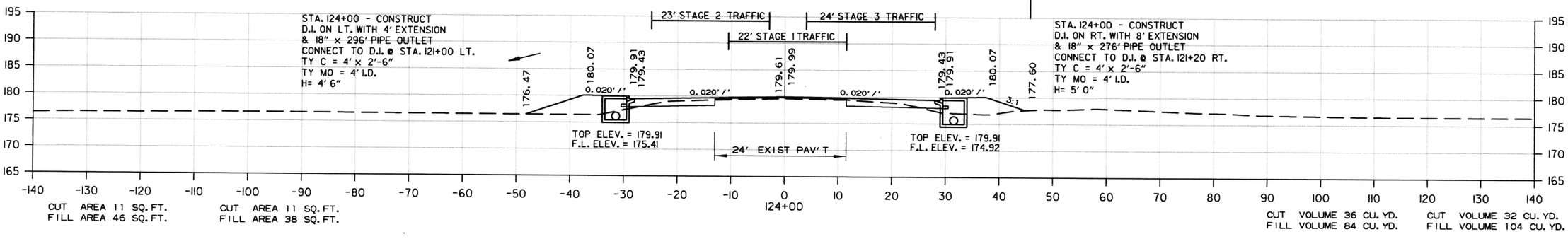
				JOB NO.		CA0701	84	138

(2) CROSS SECTIONS









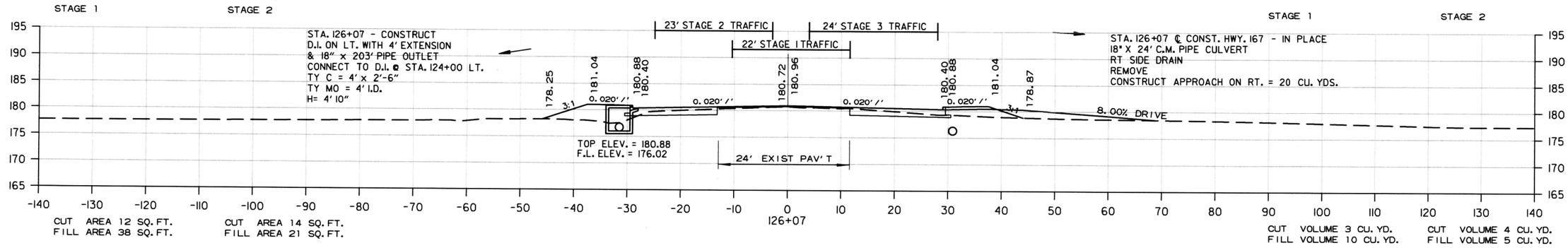
CROSS SECTION STA. 124+00 TO STA. 125+00

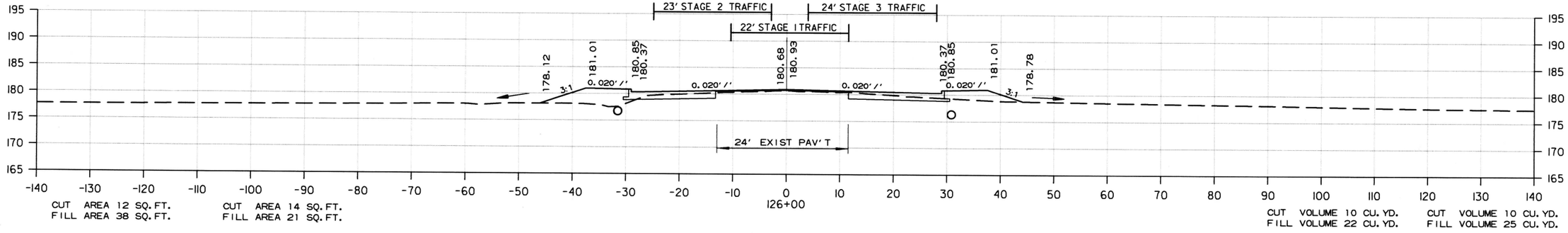
8/1/2016

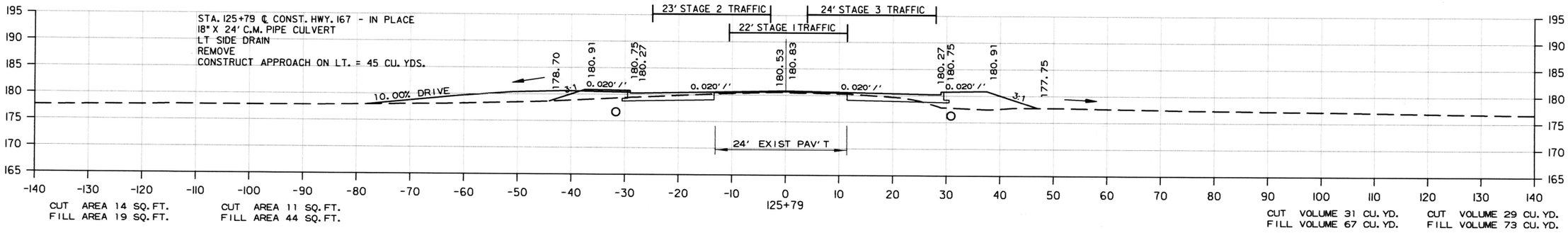
CA0701_SB_XS.DGN

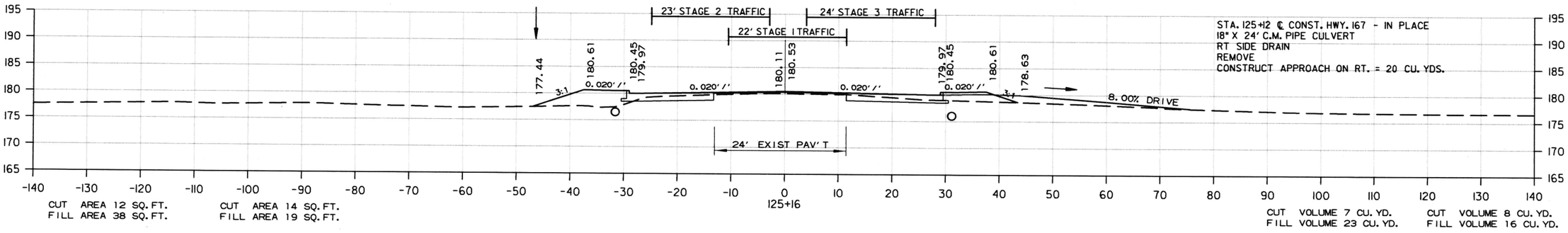
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	85	138

(2) CROSS SECTIONS









CROSS SECTION STA. 125+16 TO STA. 126+07

8/1/2016

CA0701_SB_XS.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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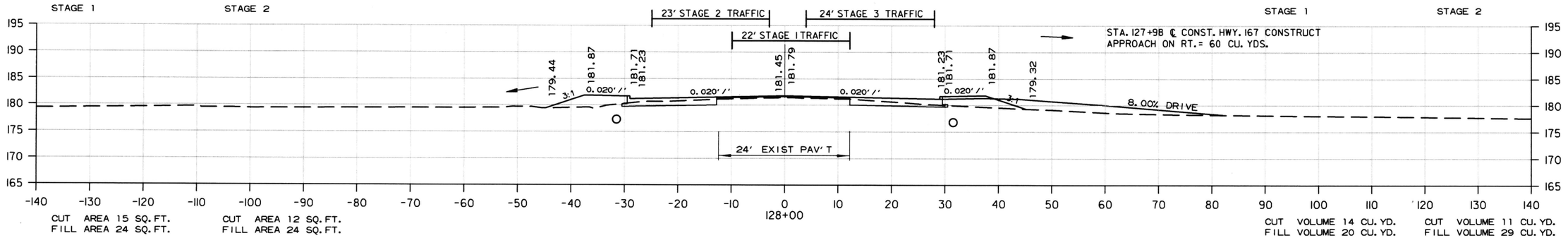
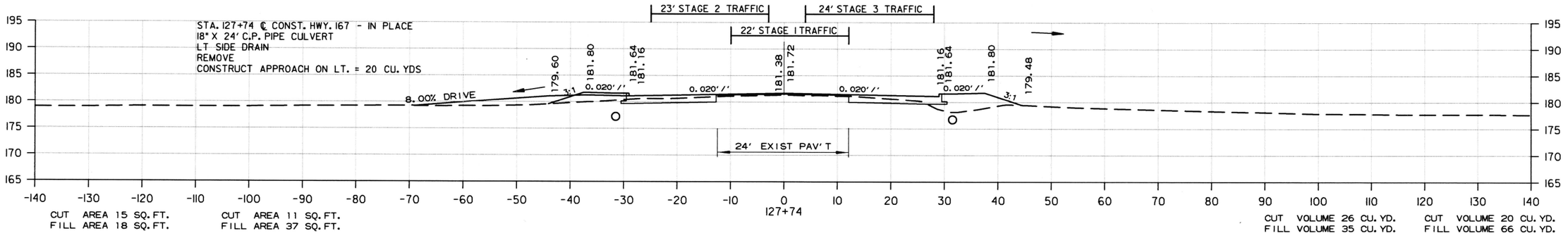
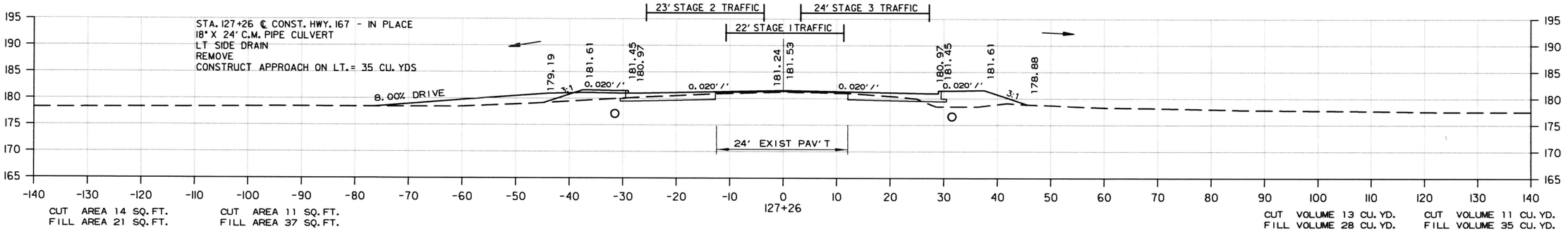
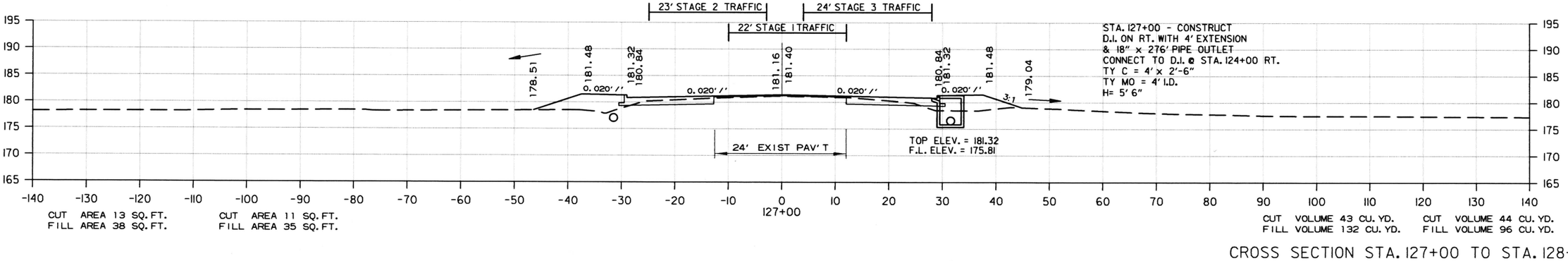
				JOB NO.		CA0701	86	138

(2) CROSS SECTIONS









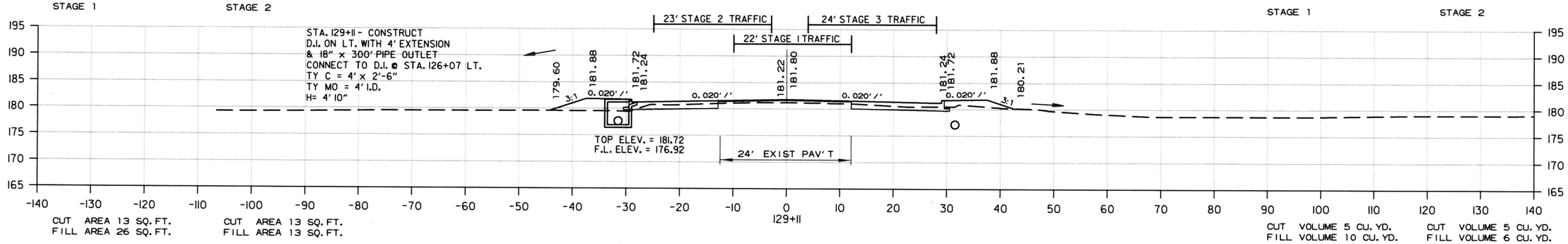
CROSS SECTION STA. 127+00 TO STA. 128+00

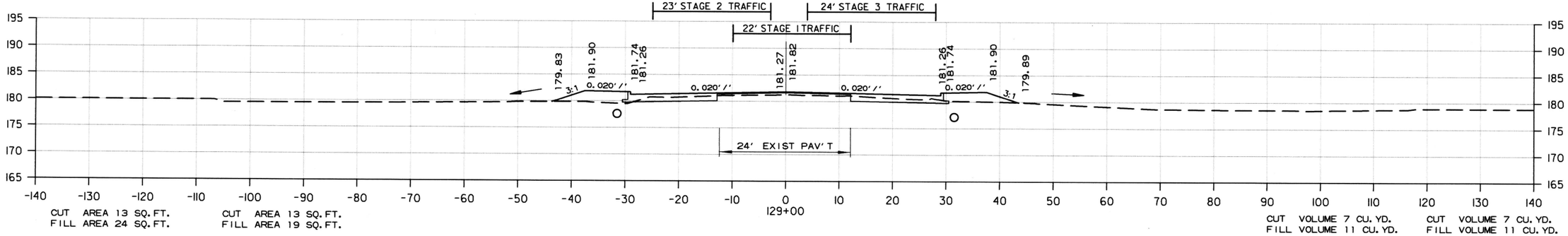
8/1/2016

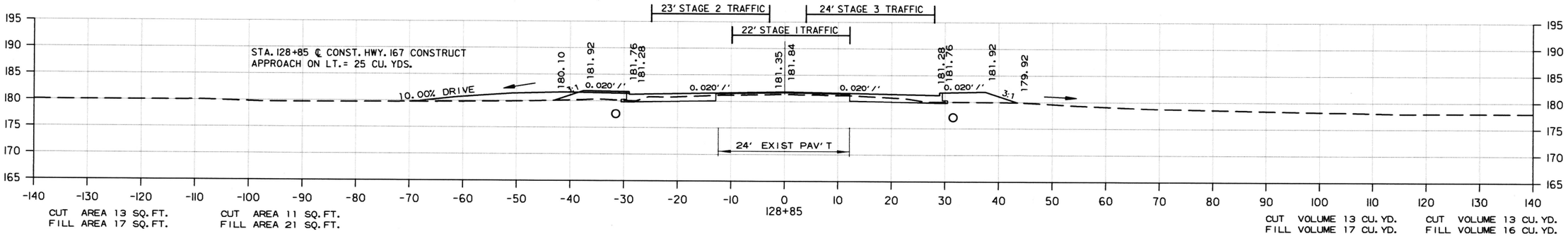
CA0701_SB_XS.DGN

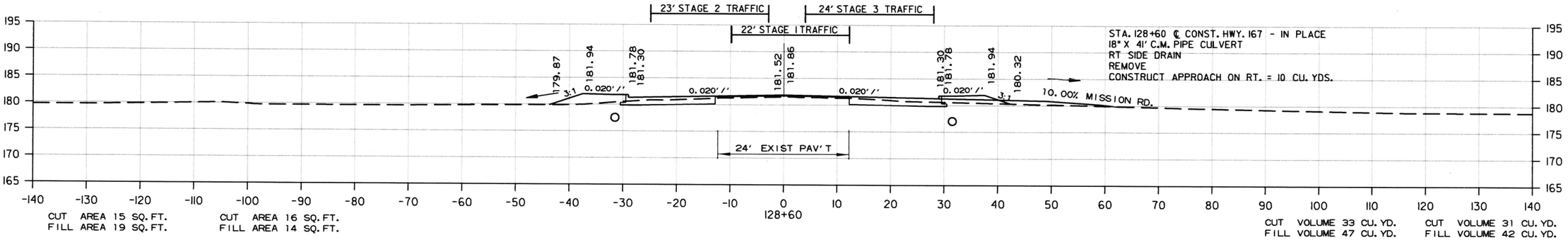
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	87	138

(2) CROSS SECTIONS









CROSS SECTION STA. 128+60 TO STA. 129+11

8/1/2016

CA0701_SB_XS.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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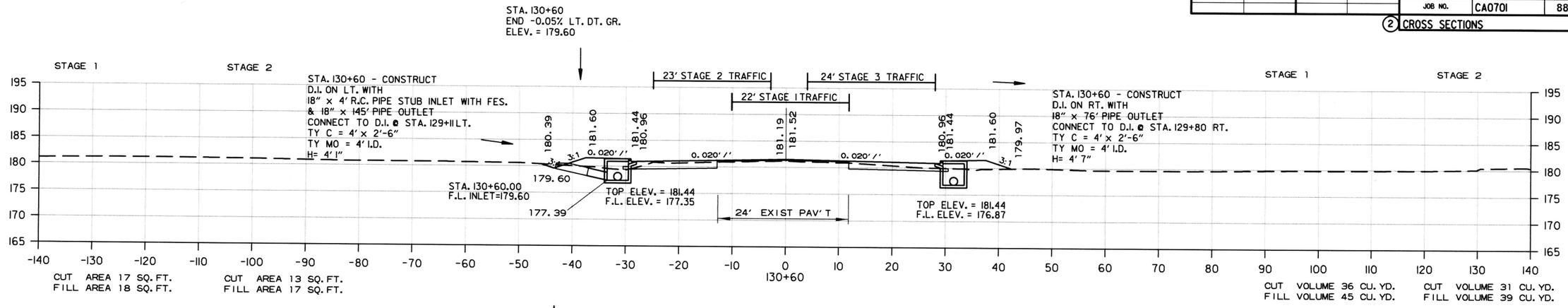
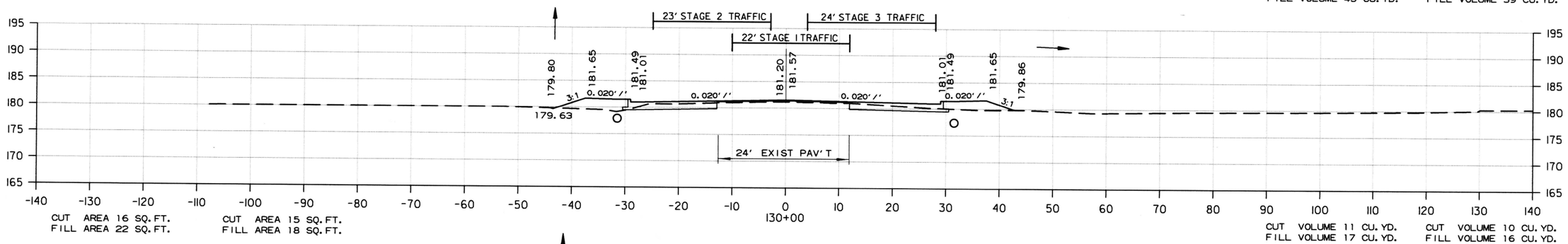
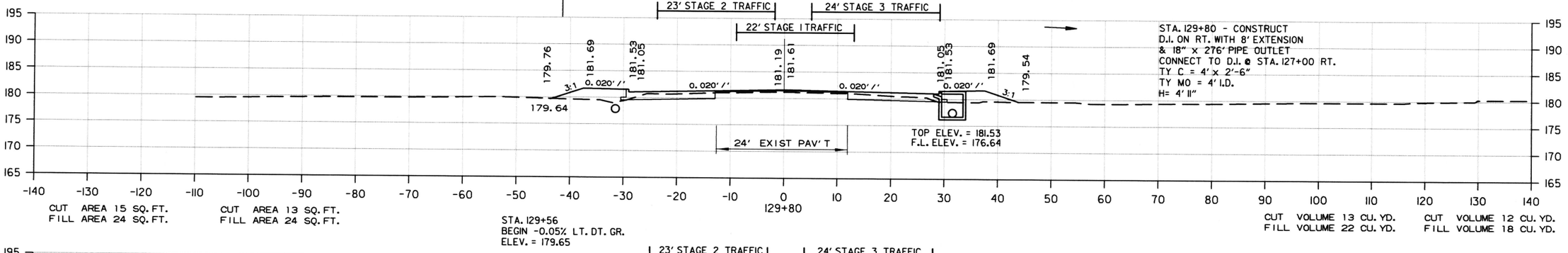
				JOB NO.		CA0701	88	138

(2) CROSS SECTIONS







STA. 129+56
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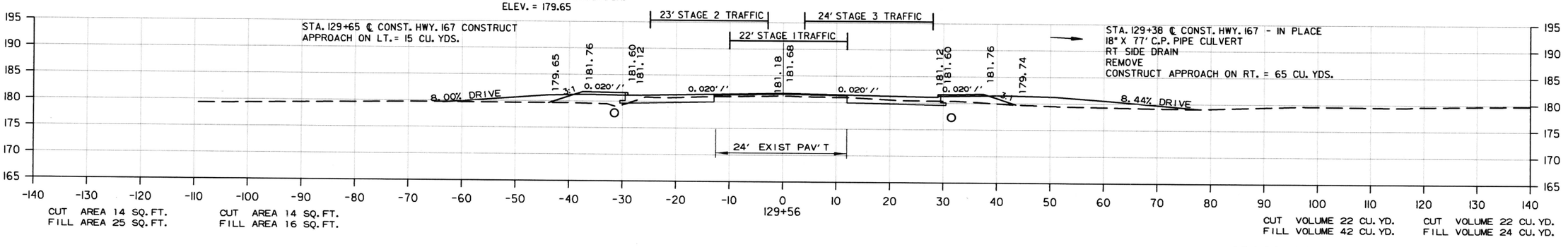

CROSS SECTION STA. 129+56 TO STA. 130+60

8/1/2016

CA0701_SB_XS.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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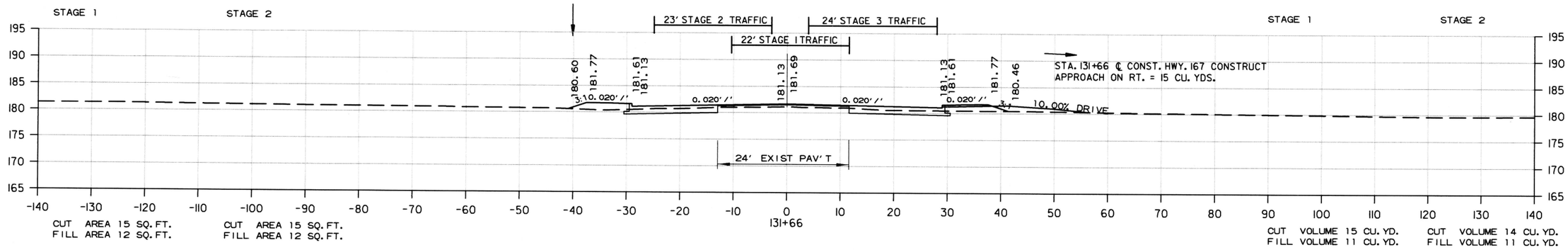
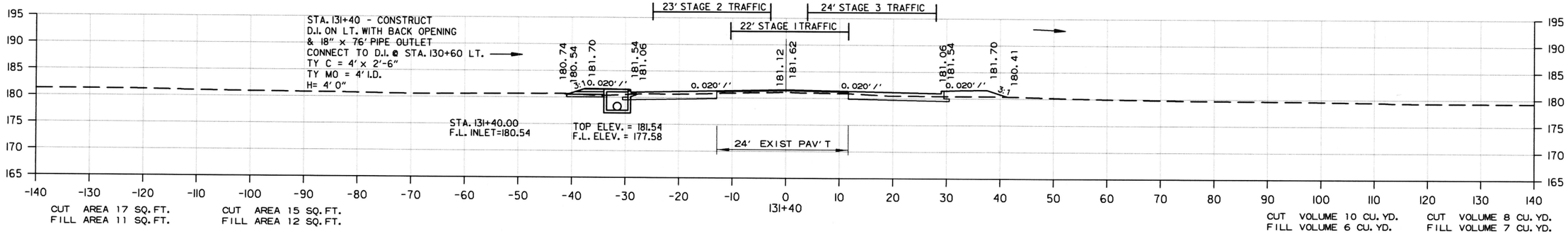
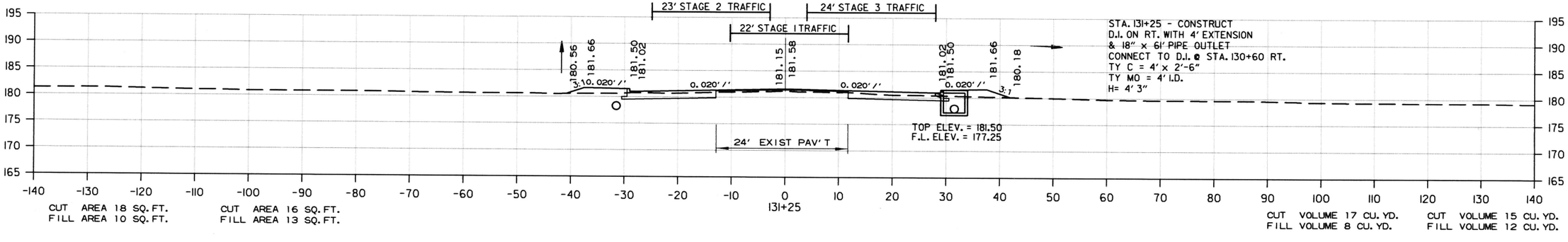
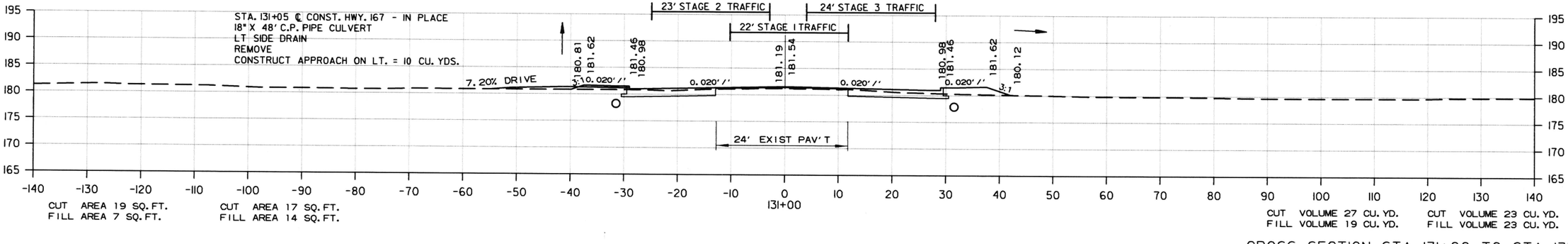
				JOB NO.		CA0701	89	138

(2) CROSS SECTIONS









CROSS SECTION STA. 131+00 TO STA. 131+66

8/1/2016

CA0701_SB_XS.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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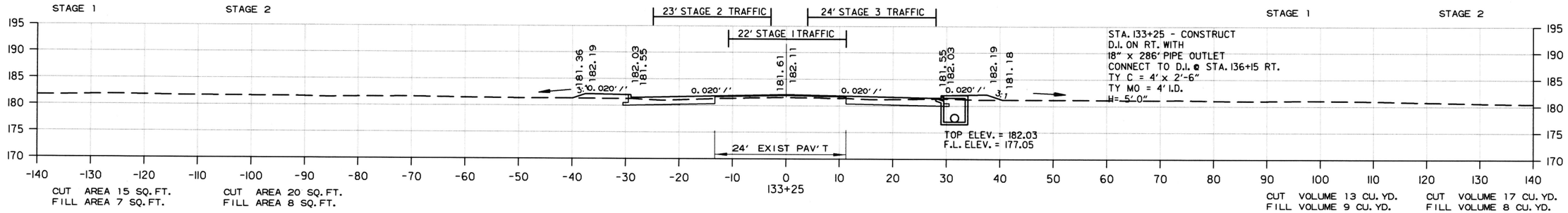
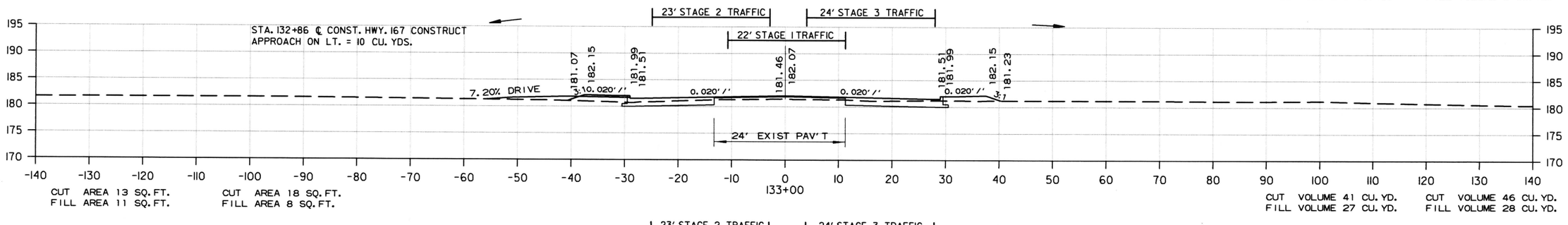
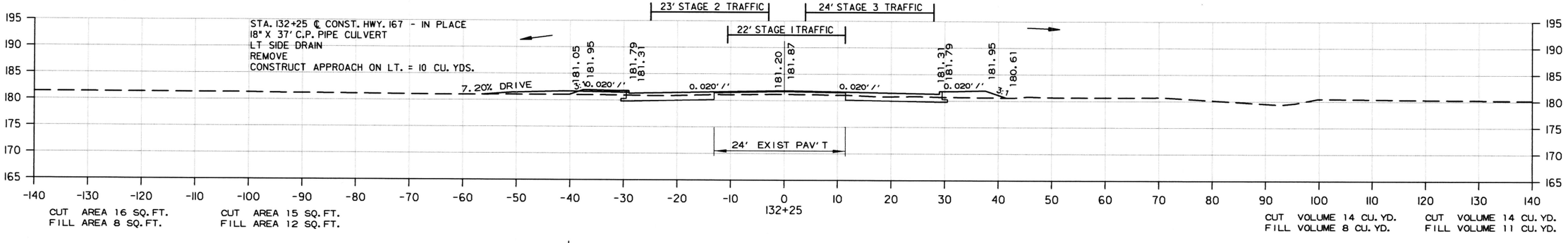
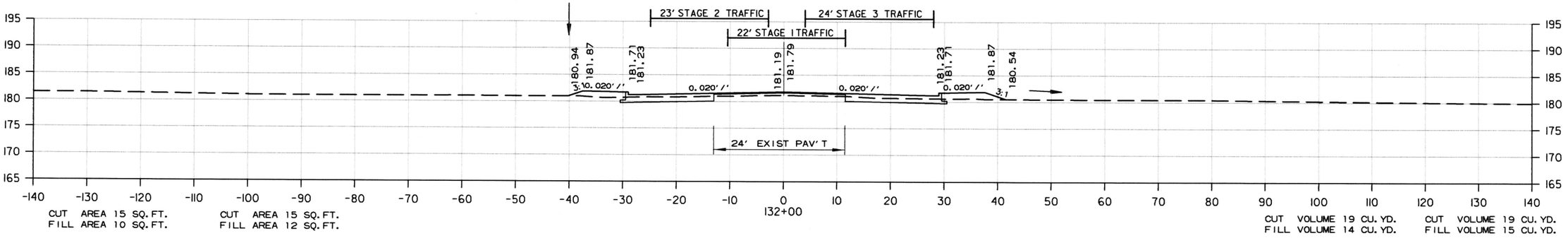
				JOB NO.		CA0701	90	138

(2) CROSS SECTIONS









CROSS SECTION STA. 132+00 TO STA. 133+25

8/1/2016

CA0701.SB_XS.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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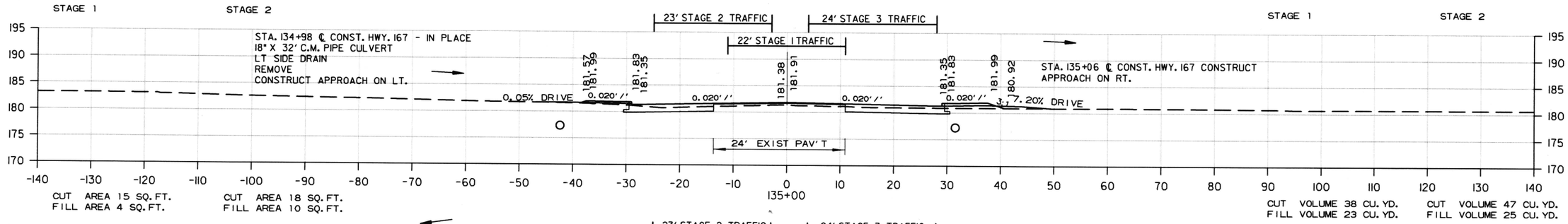
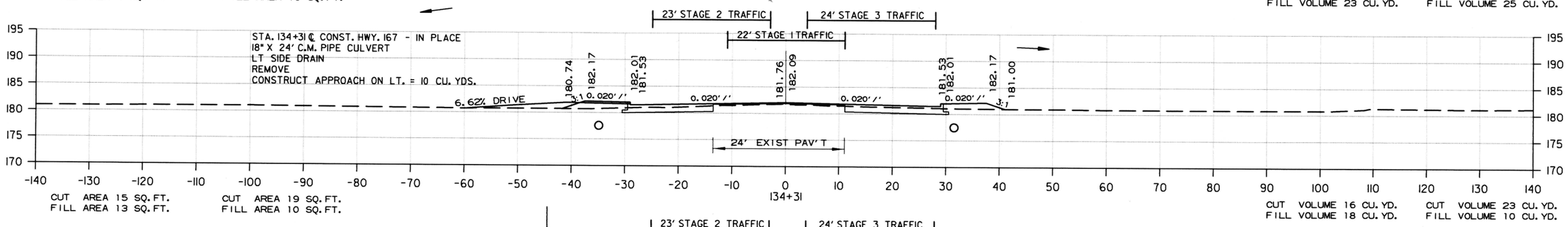
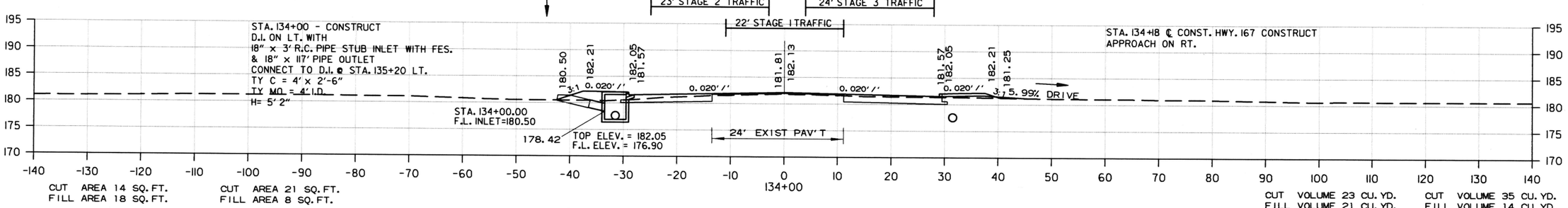
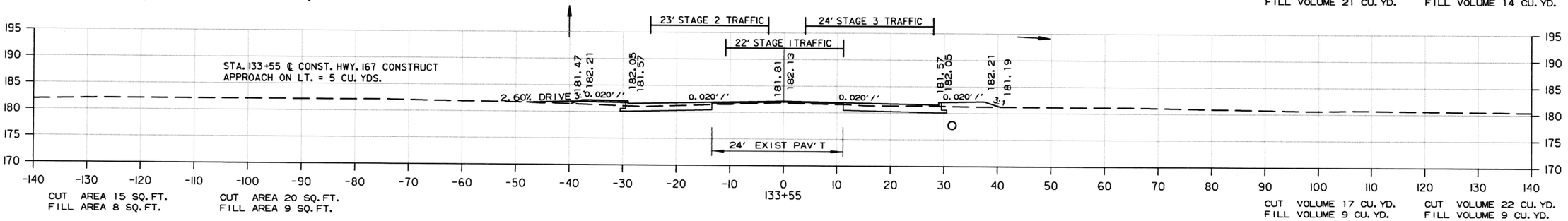
				JOB NO.		CA0701	91	138

(2) CROSS SECTIONS









CROSS SECTION STA. 133+55 TO STA. 135+00

8/1/2016

CA0701_SB_XS.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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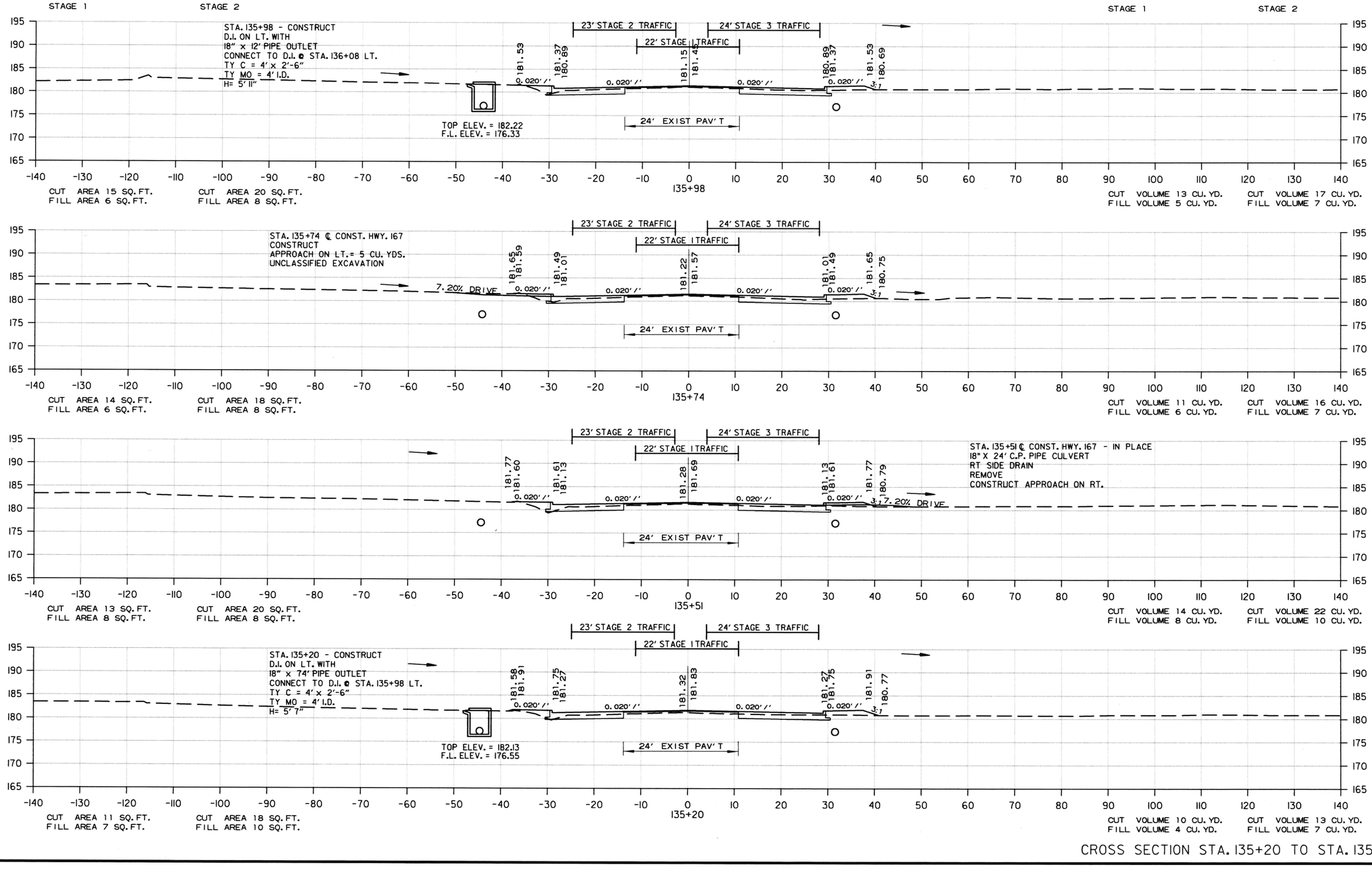
				JOB NO.		CA0701	92	138

(2) CROSS SECTIONS



CROSS SECTION STA. 135+20 TO STA. 135+98

8/1/2016

CA0701_SB_XS.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.		CA0701	93	138

(2) CROSS SECTIONS

CROSS SECTION STA. 136+00 TO STA. 136+29

CA0701.SB_XS.DGN 8/1/2016

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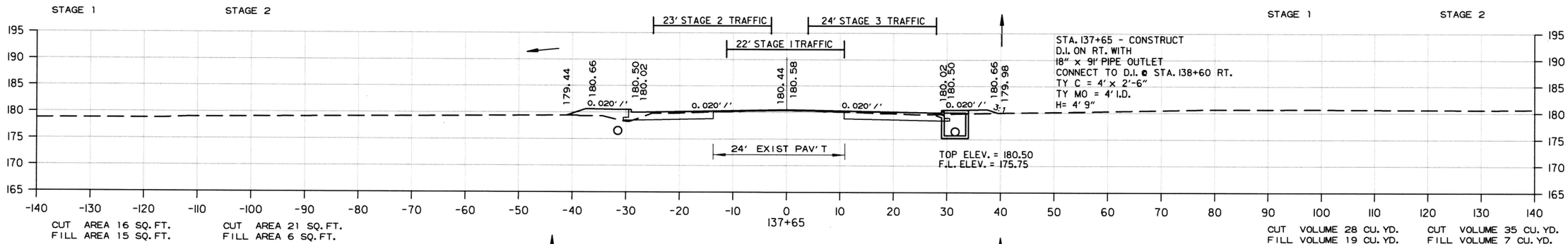
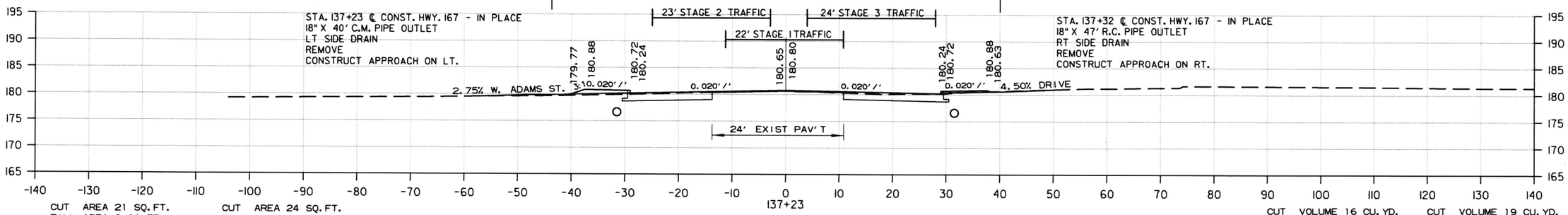
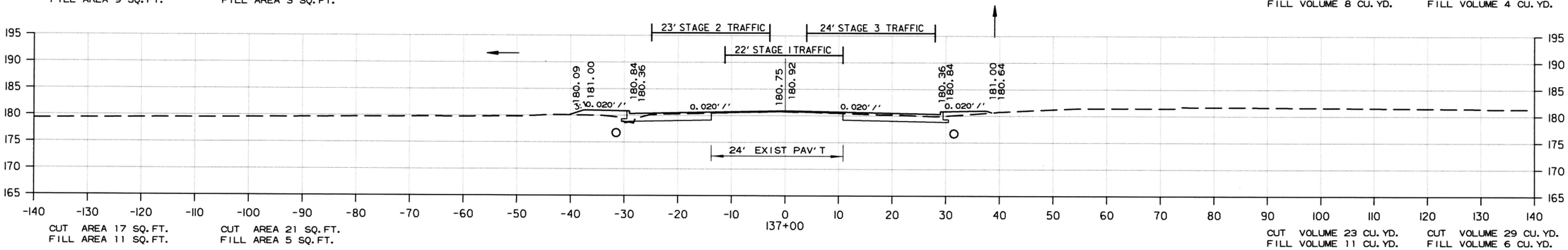
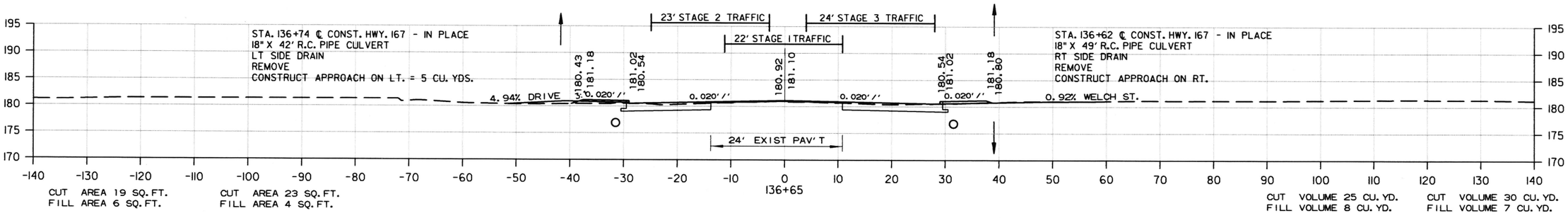
(2) CROSS SECTIONS









CROSS SECTION STA. 136+65 TO STA. 137+65

8/1/2016

CA0701_SB_XS.DGN

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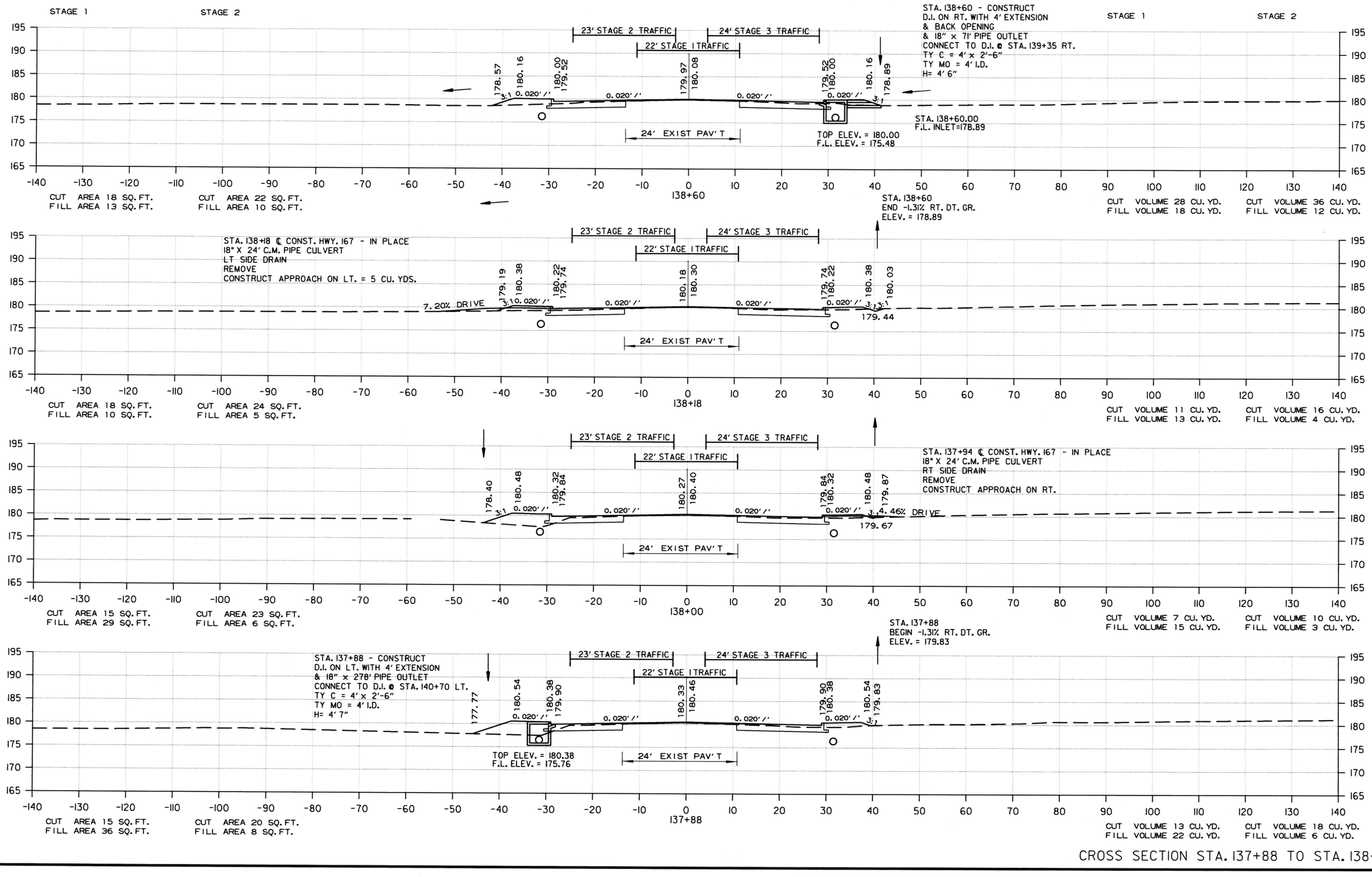
(2) CROSS SECTIONS



CROSS SECTION STA. 137+88 TO STA. 138+60

8/1/2016

CA0701_SB_XS.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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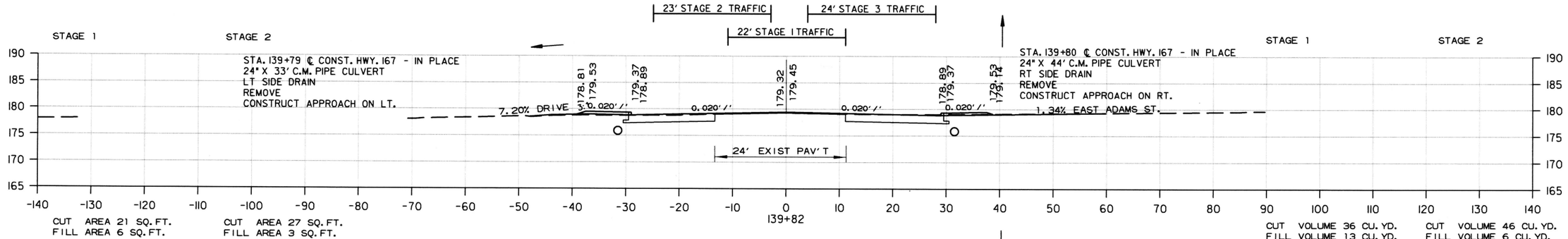
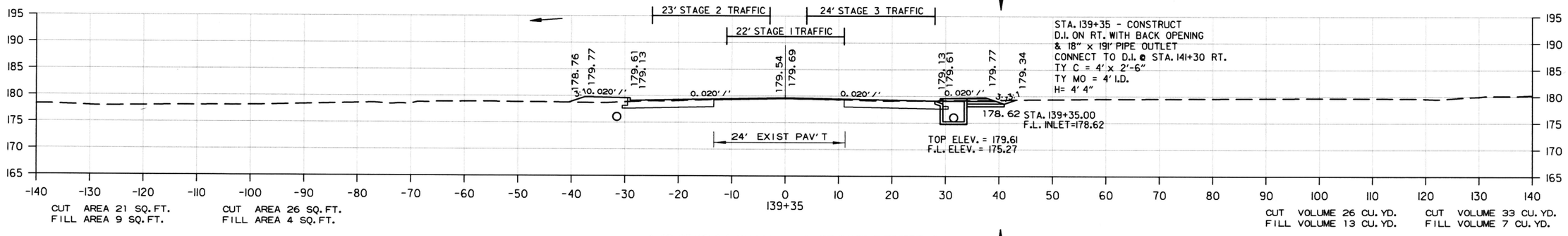
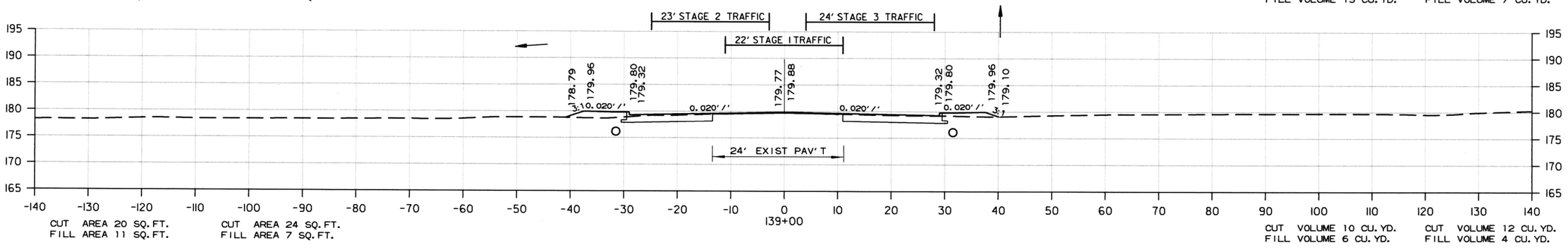
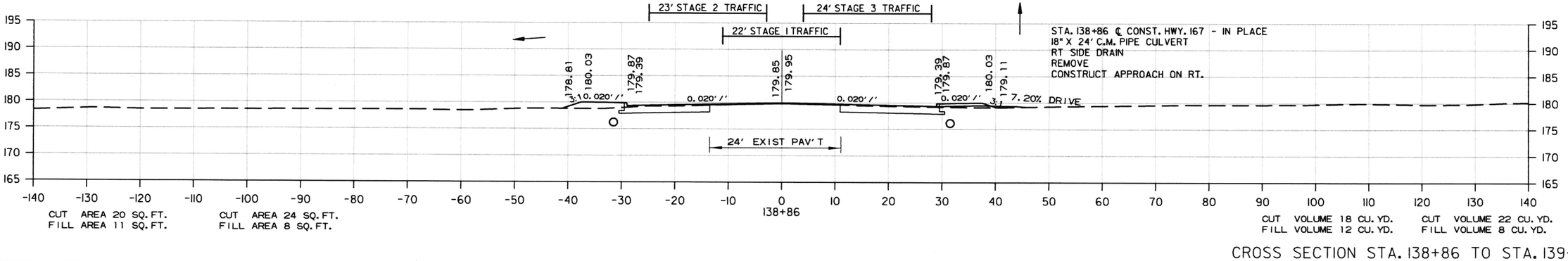
				JOB NO.		CA0701	96	138

(2) CROSS SECTIONS









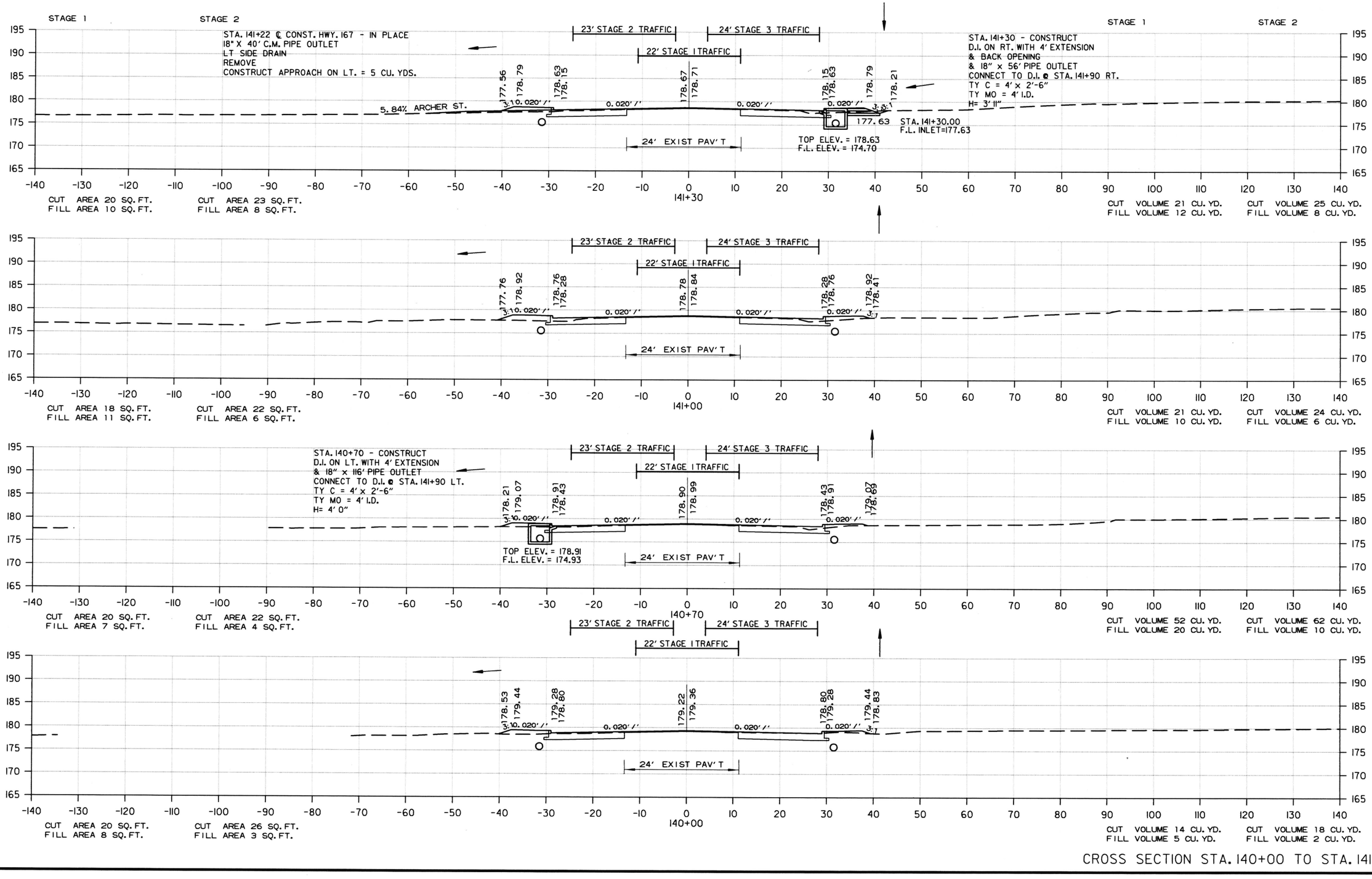
CROSS SECTION STA. 138+86 TO STA. 139+82

8/1/2016

CA0701_SB_XS.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.		CA0701	97	138

(2) CROSS SECTIONS



CROSS SECTION STA. 140+00 TO STA. 141+30

CA0701.SB_XS.DGN 8/1/2016

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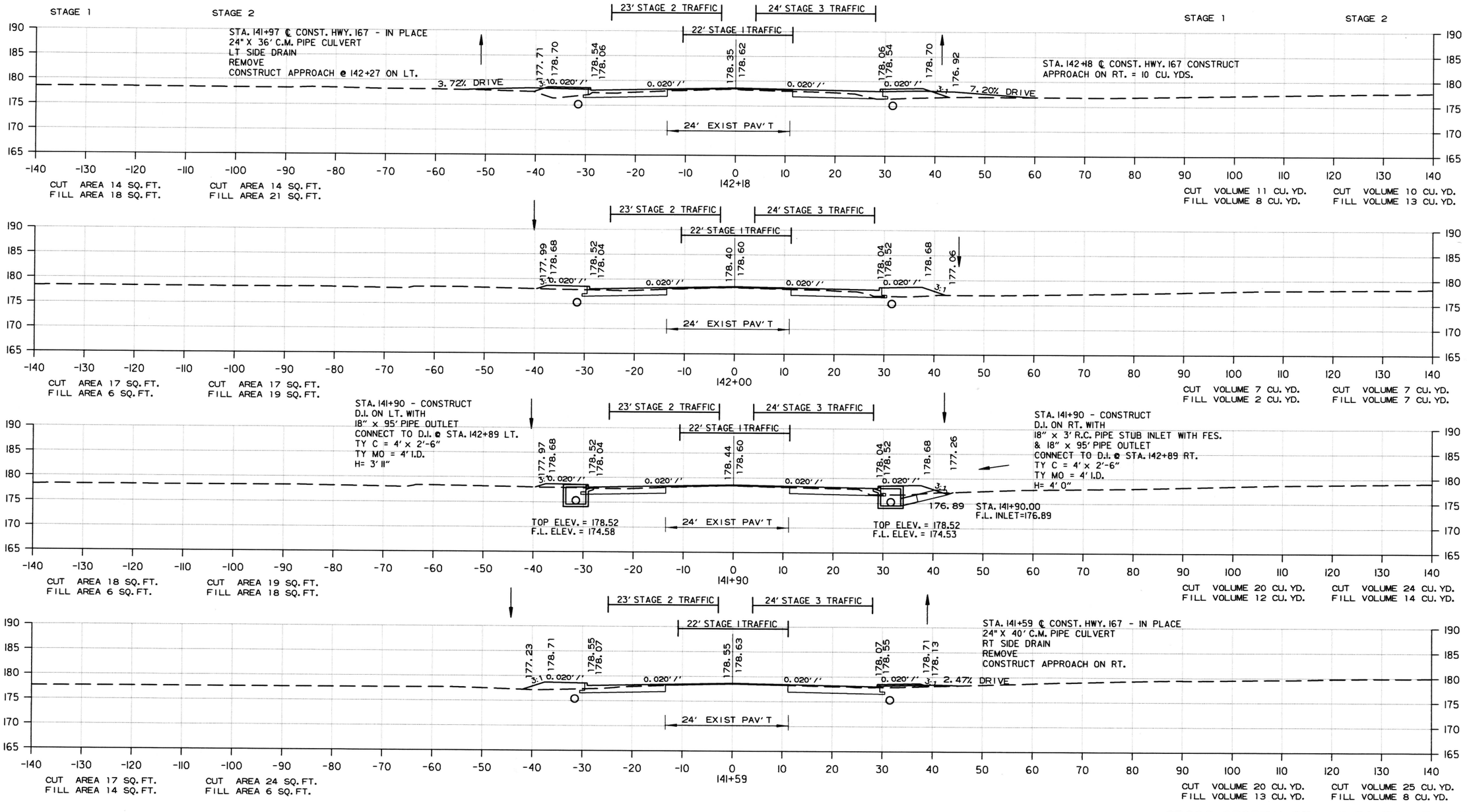
(2) CROSS SECTIONS



CROSS SECTION STA. 141+59 TO STA. 142+18

8/1/2016

CA0701_SB_XS.DGN

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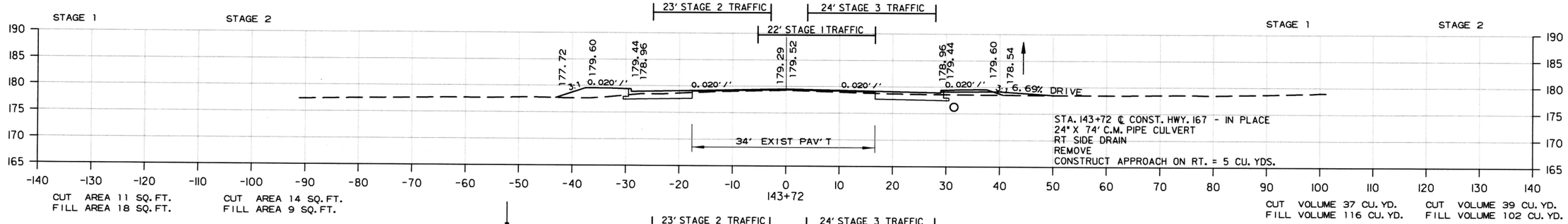
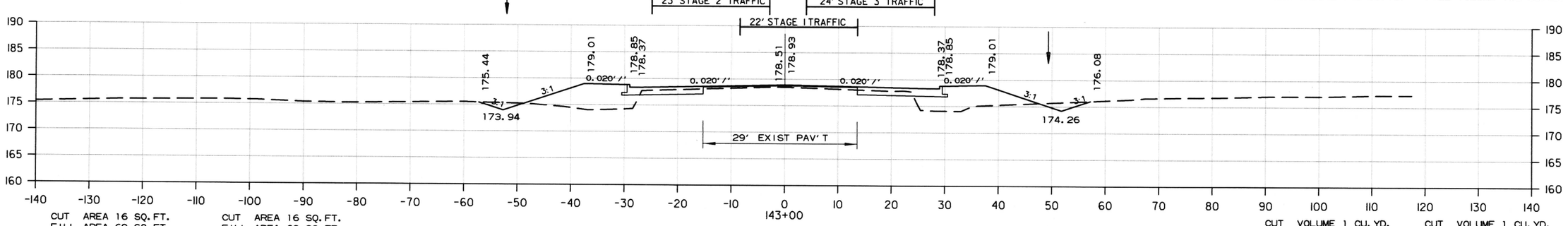
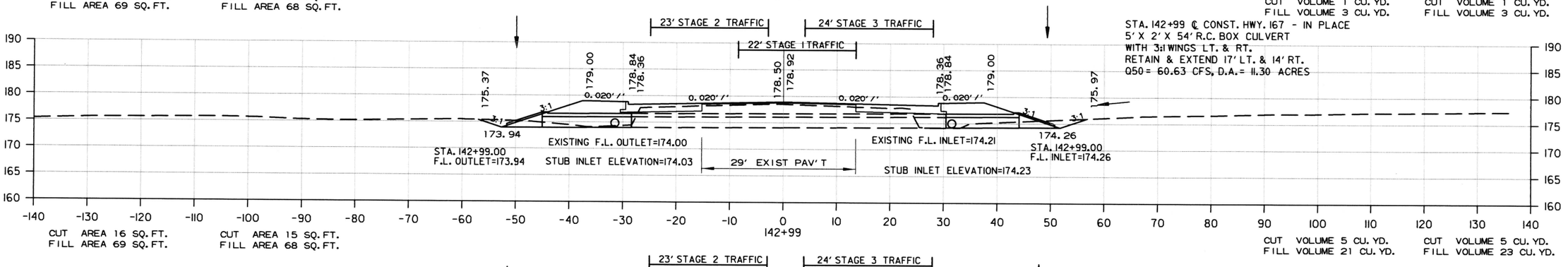
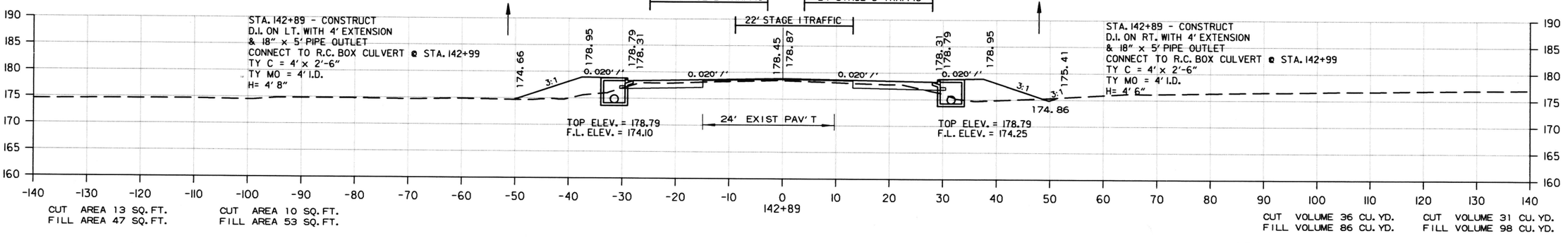
(2) CROSS SECTIONS









CROSS SECTION STA. 142+89 TO STA. 143+72

8/1/2016

CA0701.SB.XS.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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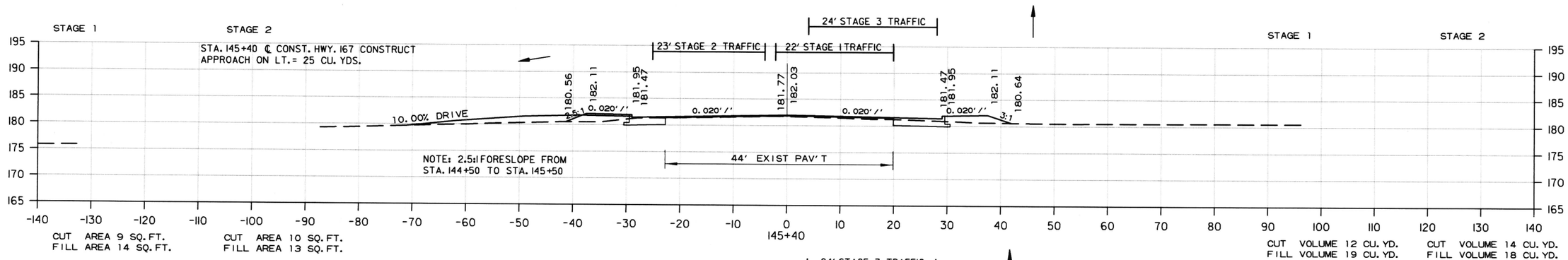
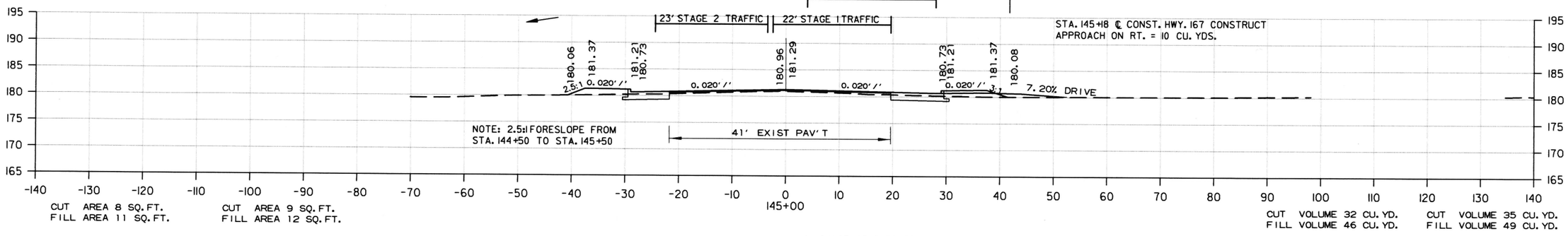
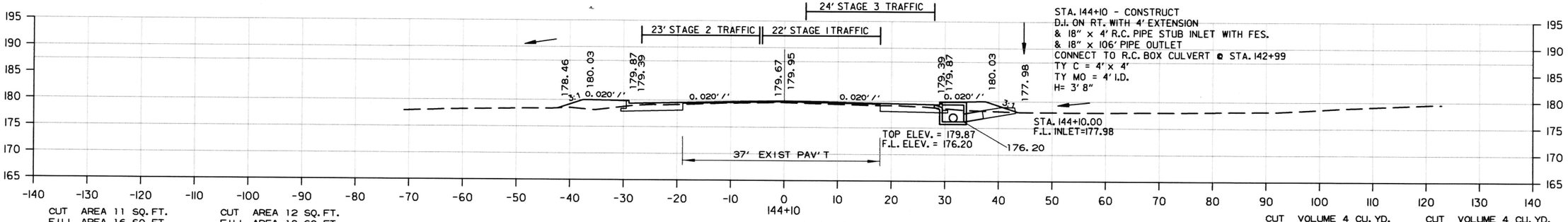
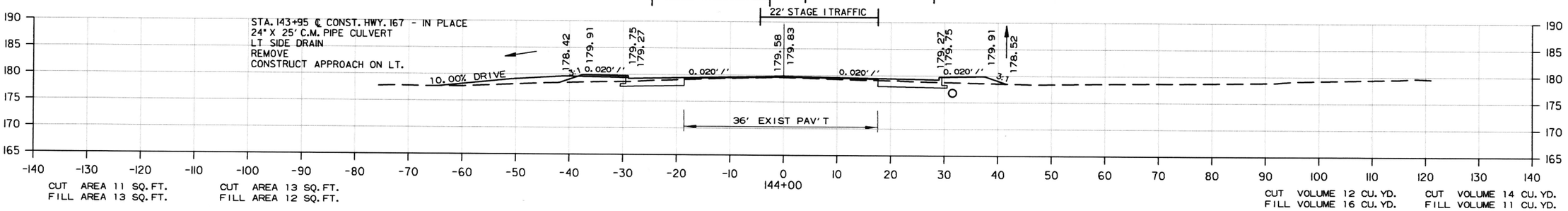
				JOB NO.		CA0701	100	138

(2) CROSS SECTIONS









CROSS SECTION STA. 144+00 TO STA. 145+40

1/14/2018

CA0701_SB_XS.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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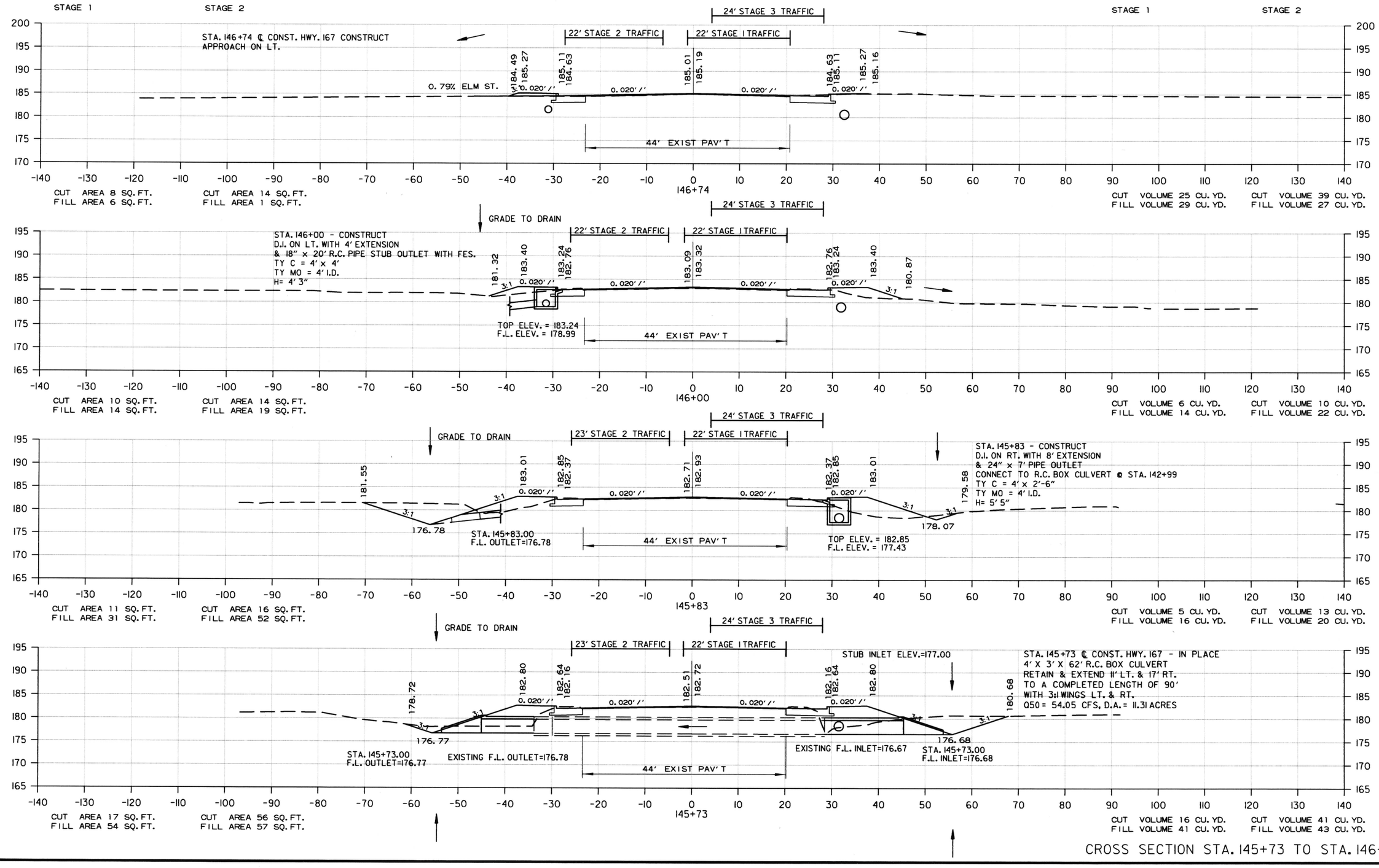
				JOB NO.		CA0701	101	138

(2) CROSS SECTIONS



CROSS SECTION STA. 145+73 TO STA. 146+74

8/1/2016

CA0701_SB_XS.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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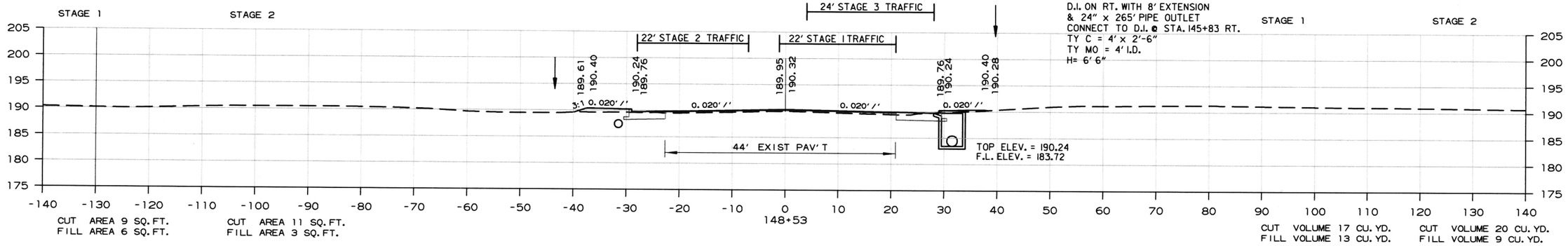
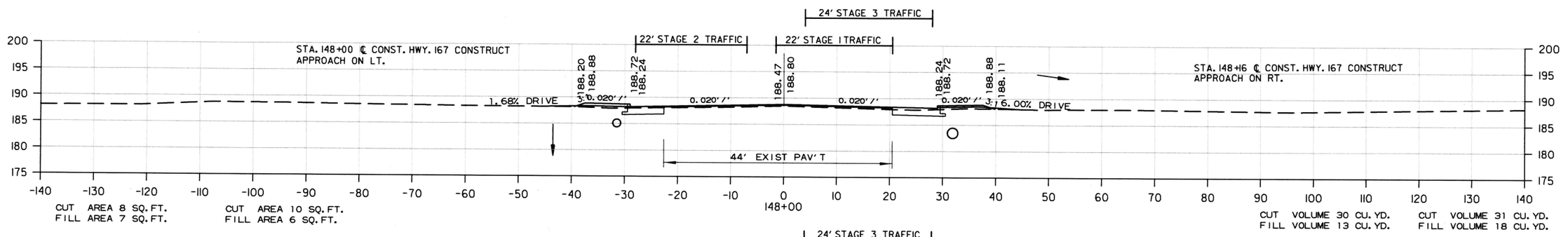
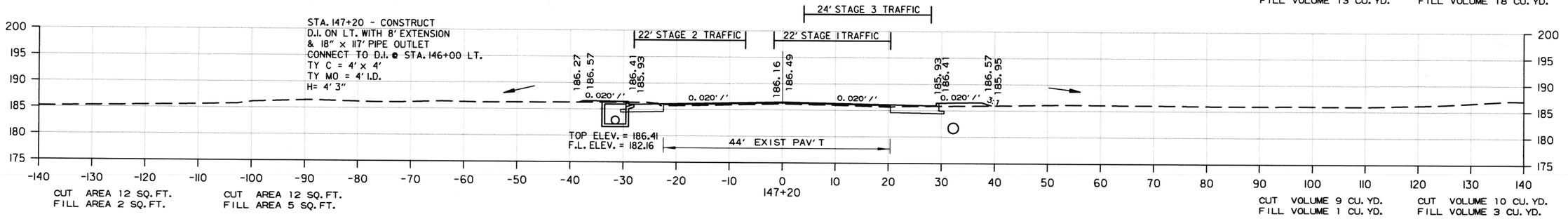
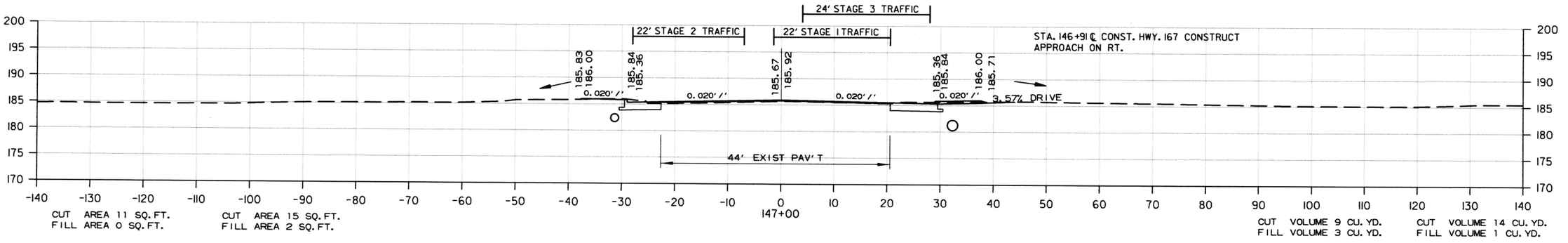
				JOB NO.		CA0701	102	138

(2) CROSS SECTIONS









CROSS SECTION STA. 147+00 TO STA. 148+53

8/1/2016

CA0701_SB_XS.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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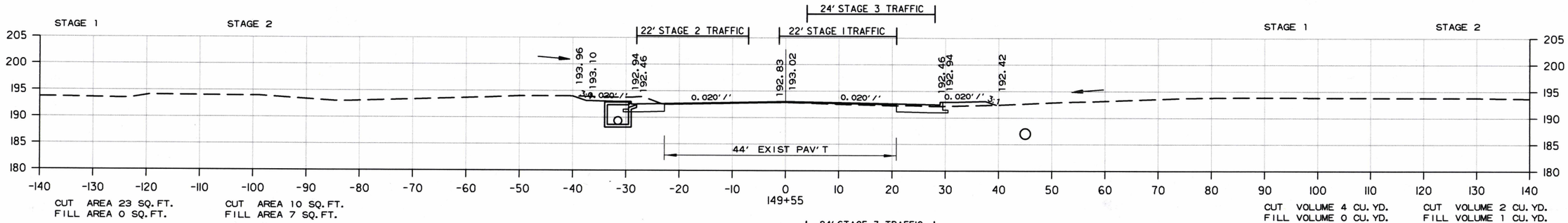
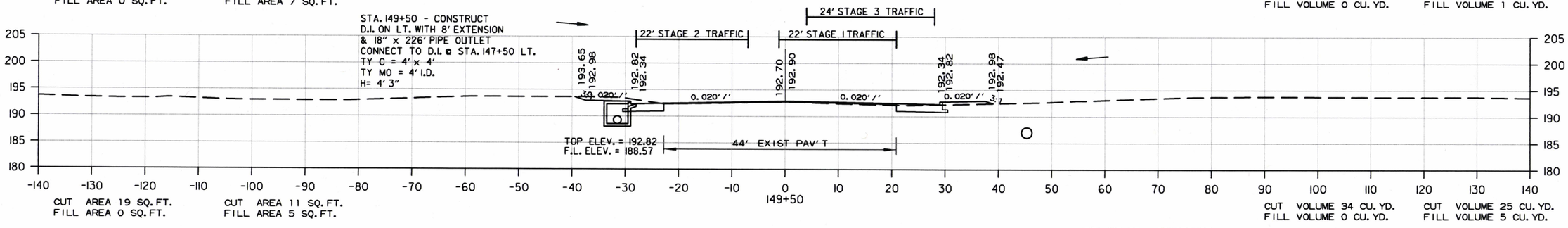
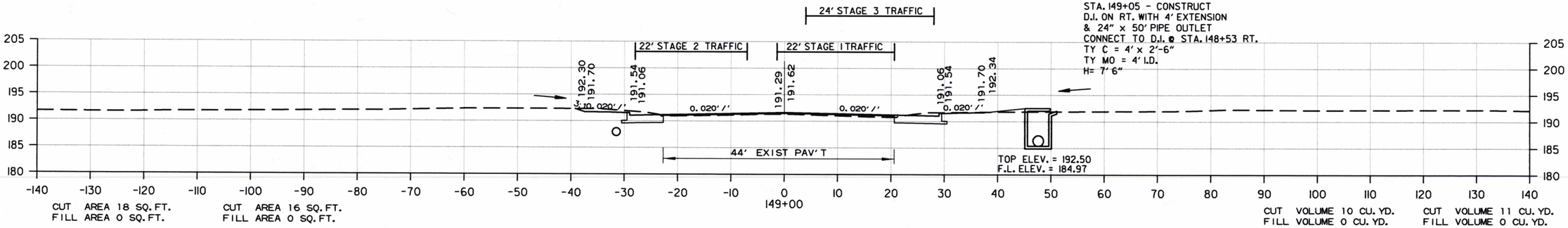
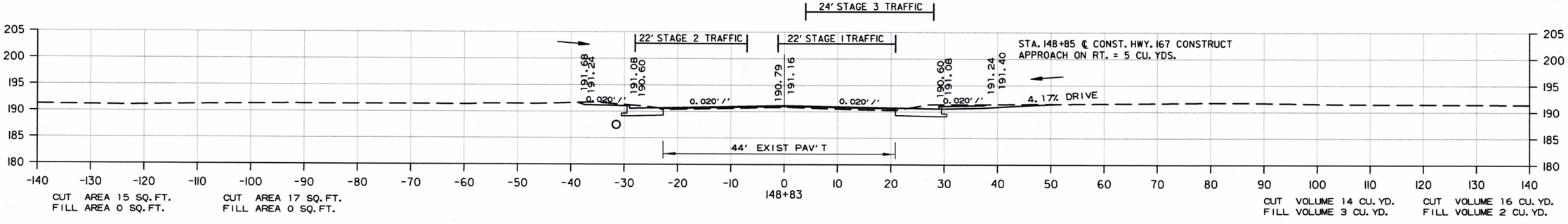
				JOB NO.		CA0701	103	138

(2) CROSS SECTIONS









CROSS SECTION STA. 148+83 TO STA. 149+55

CA0701_SB_XS.DGN 8/1/2016

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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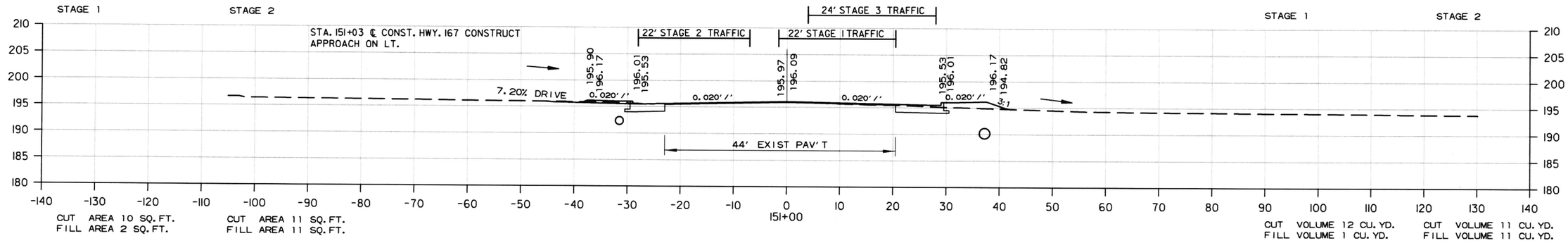
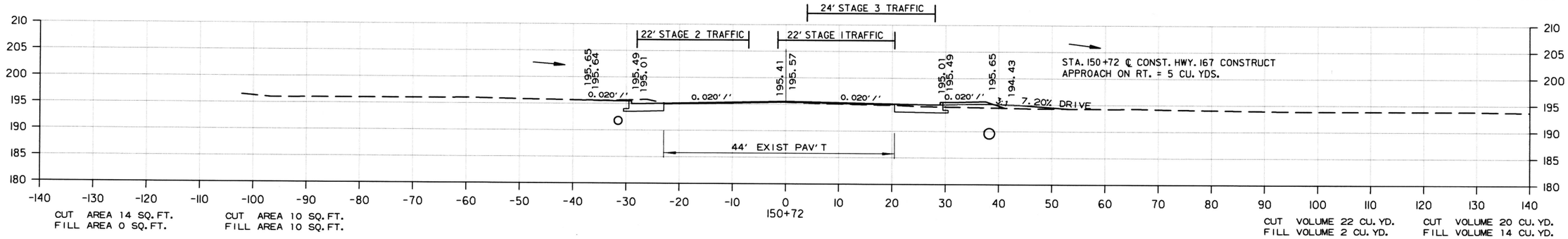
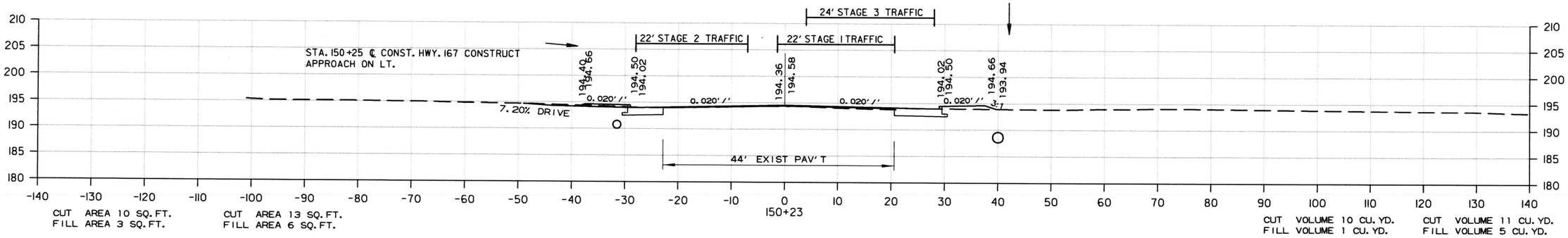
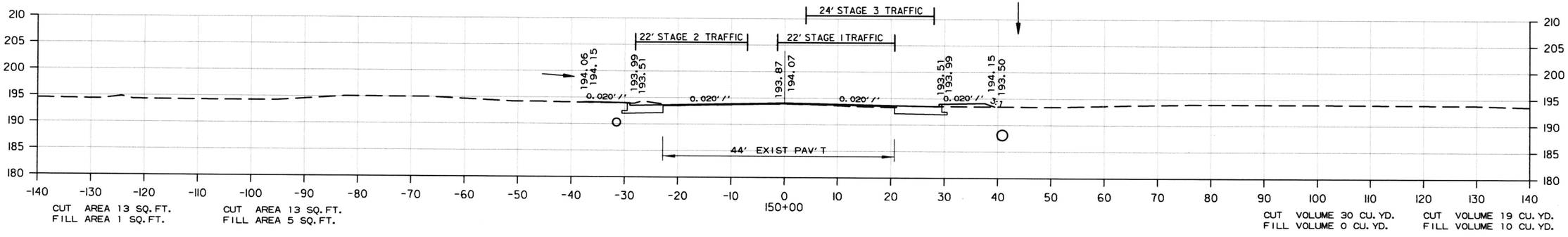
				JOB NO.		CA0701	104	138

(2) CROSS SECTIONS









CROSS SECTION STA. 150+00 TO STA. 151+00

8/1/2016

CA0701_SB_XS.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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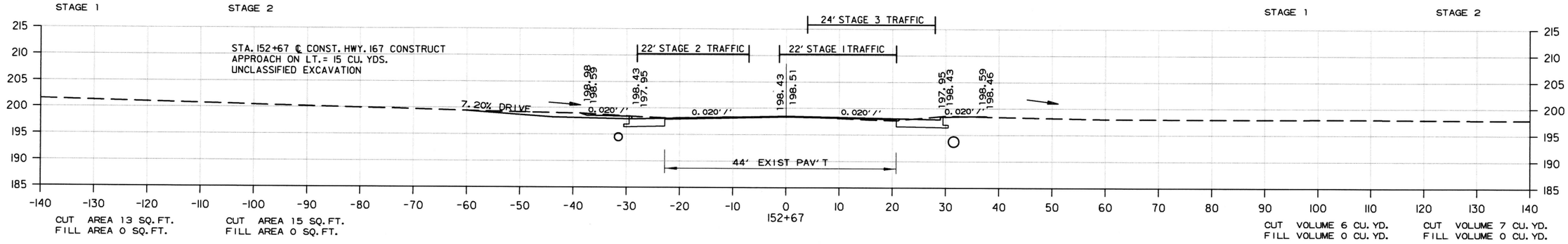
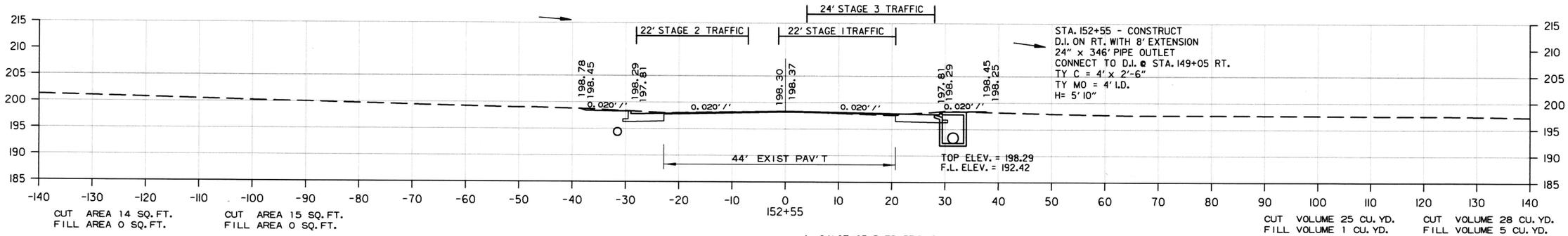
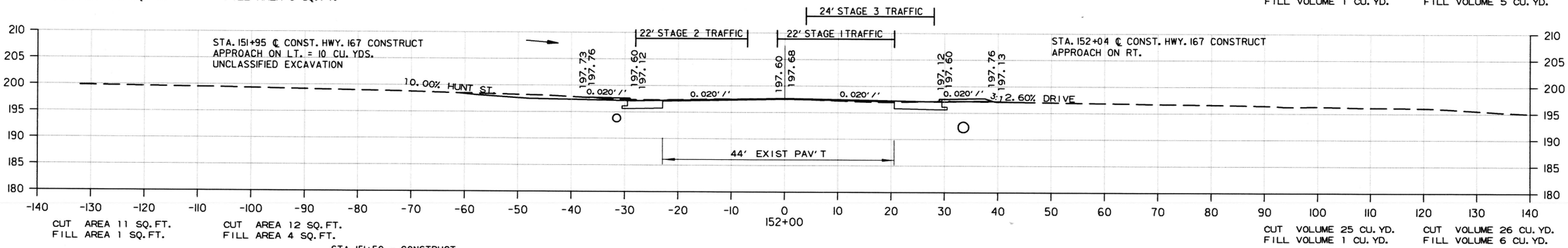
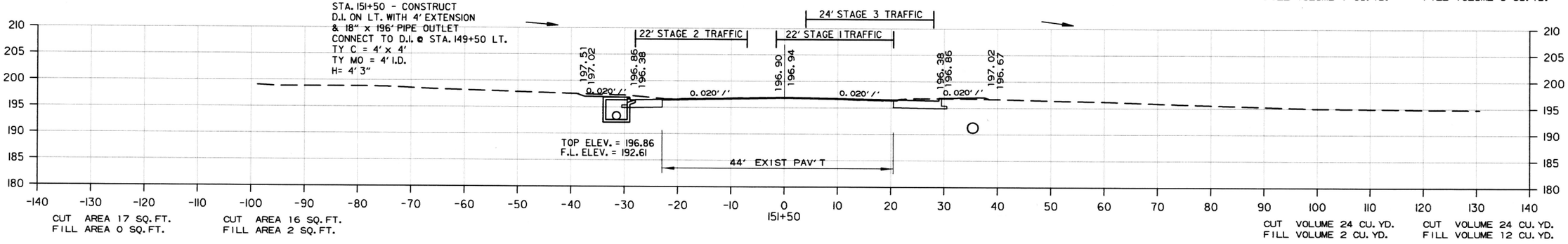
				JOB NO.		CA0701	105	138

(2) CROSS SECTIONS









CROSS SECTION STA. 151+50 TO STA. 152+67

8/1/2016

CA0701_SB_XS.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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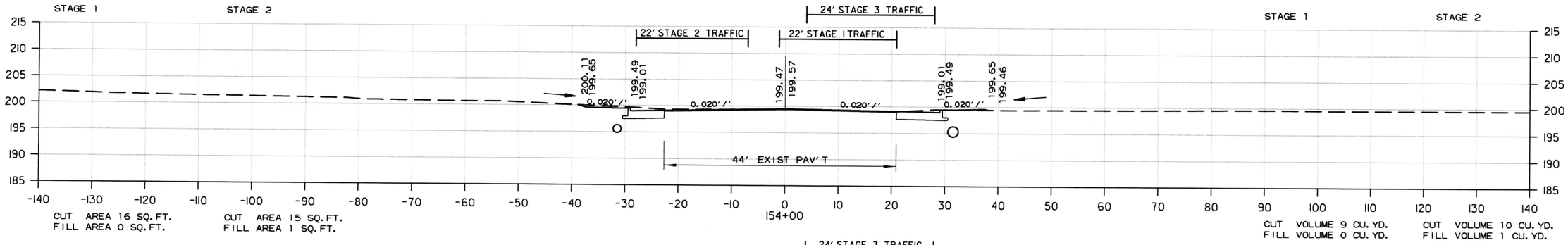
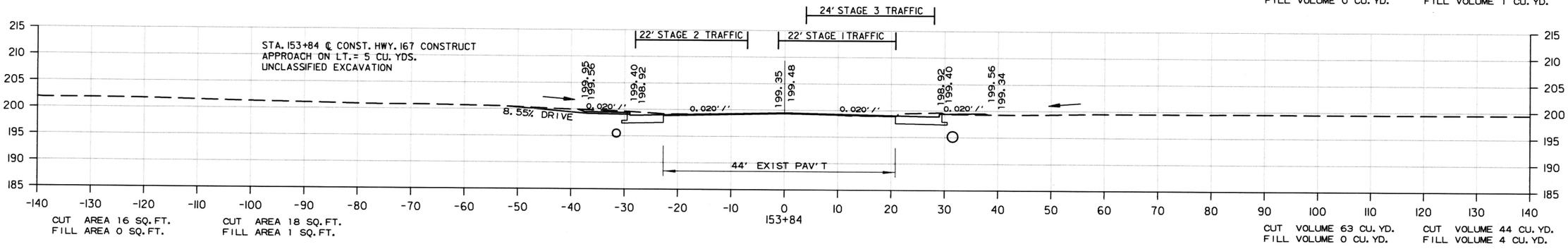
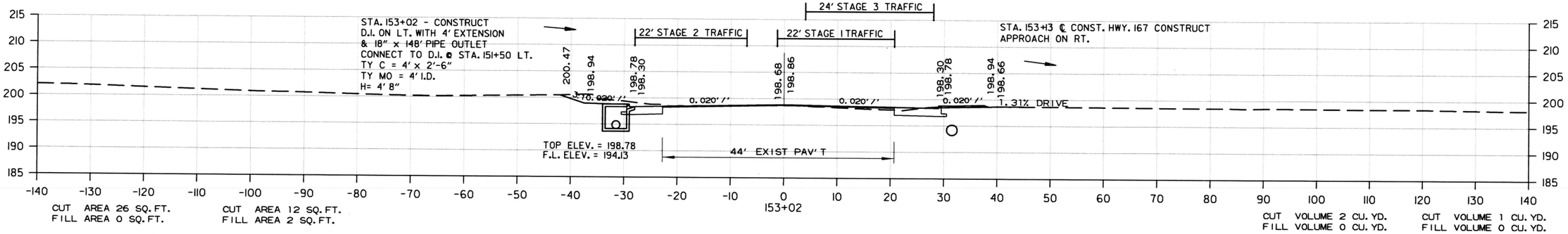
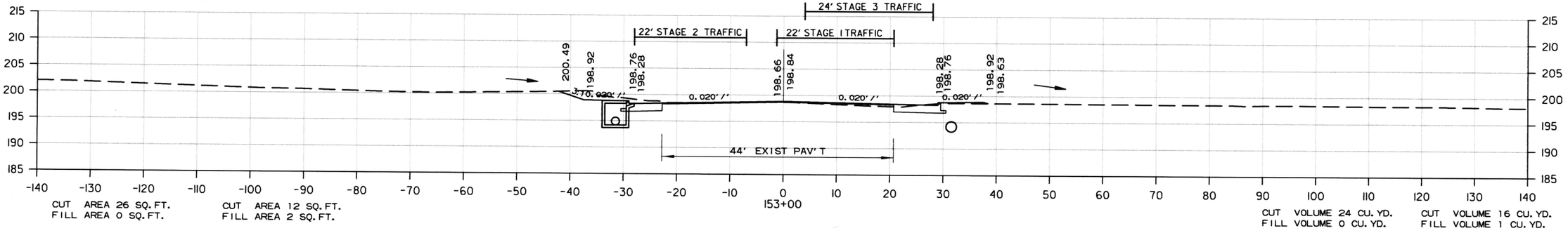
				JOB NO.		CA0701	106	138

(2) CROSS SECTIONS









CROSS SECTION STA. 153+00 TO STA. 154+00

8/1/2016

CA0701_SB_XS.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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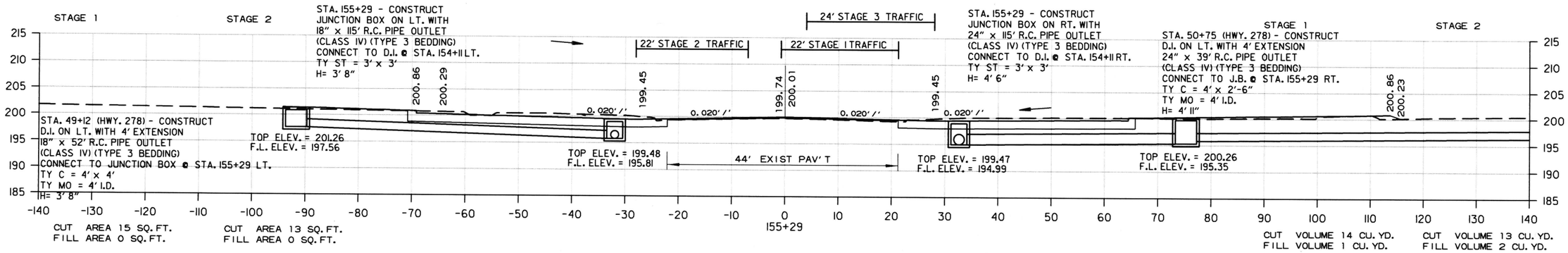
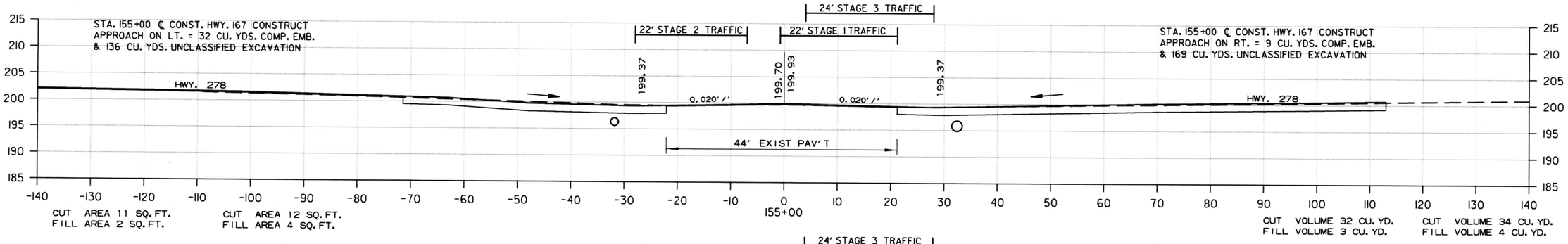
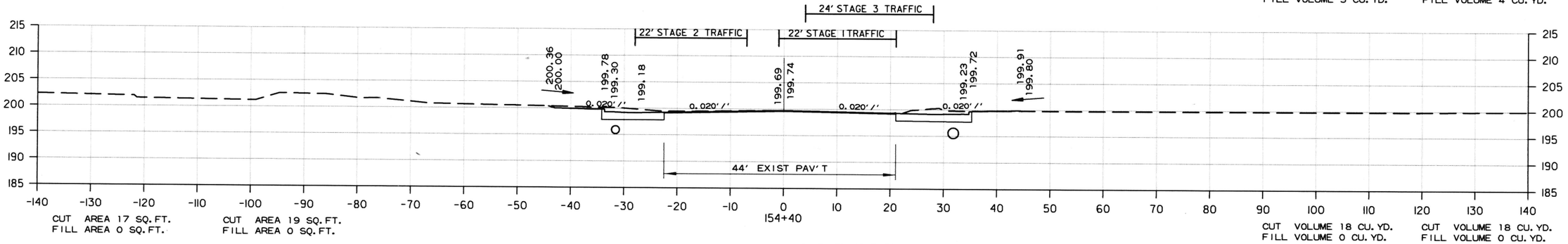
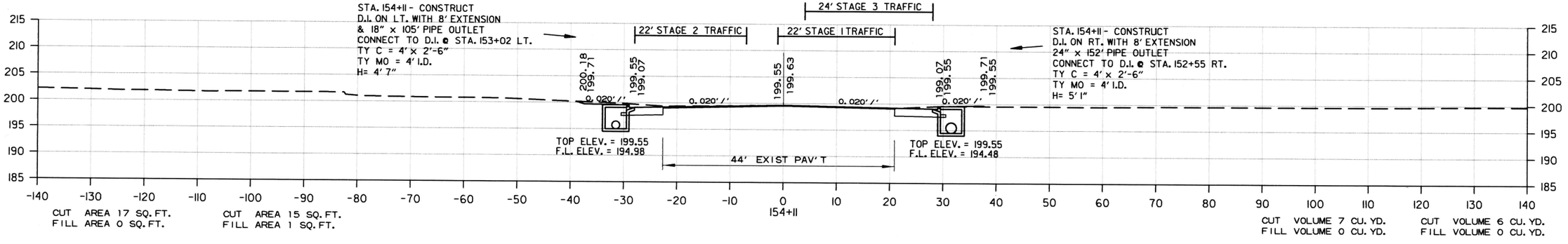
				JOB NO.		CA0701	107	138

(2) CROSS SECTIONS









CROSS SECTION STA. 154+11 TO STA. 155+29

CA0701_SB_XS.DGN 8/1/2016

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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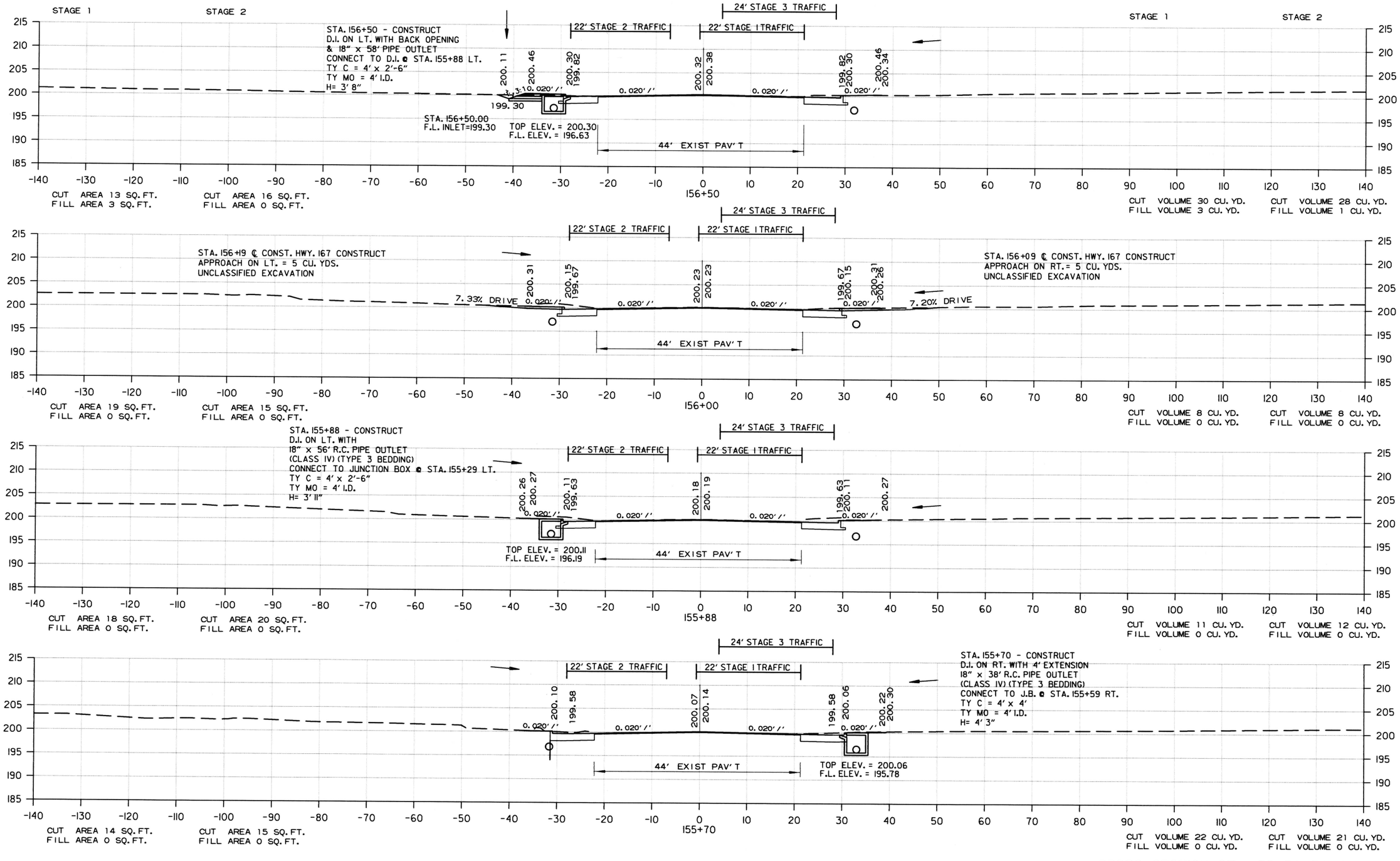
				JOB NO.		CA0701	108	138

(2) CROSS SECTIONS



CROSS SECTION STA. 155+70 TO STA. 156+50

8/1/2016

CA0701_SB_XS.DGN

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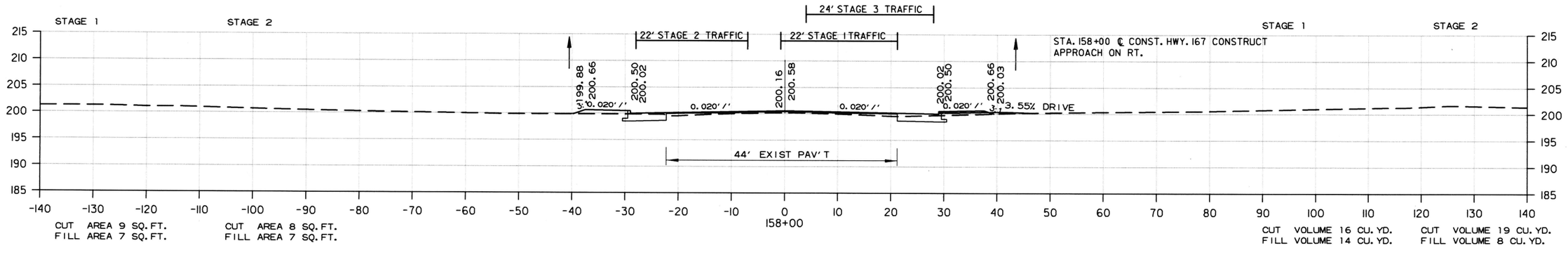
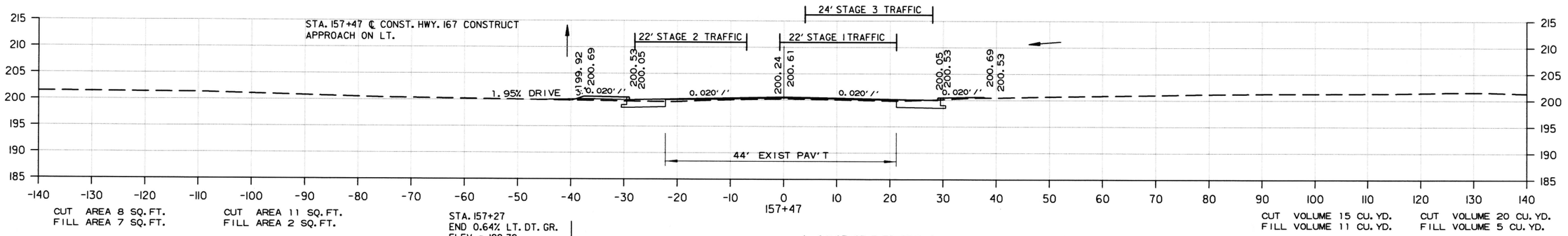
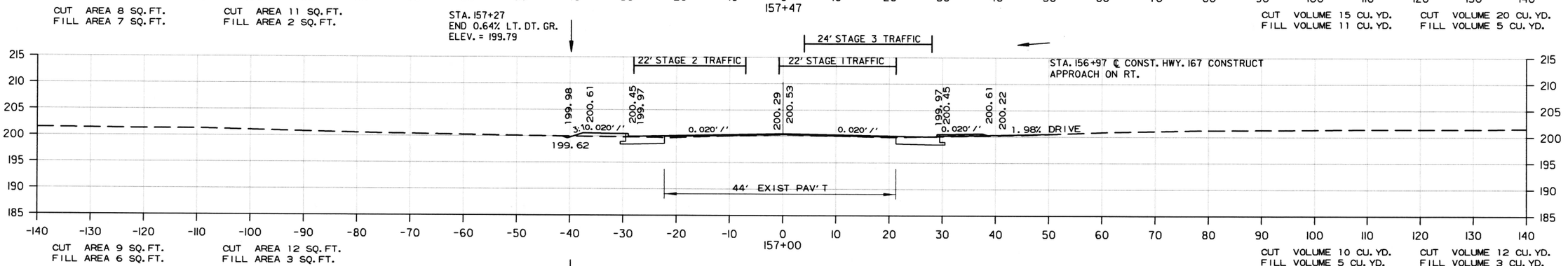
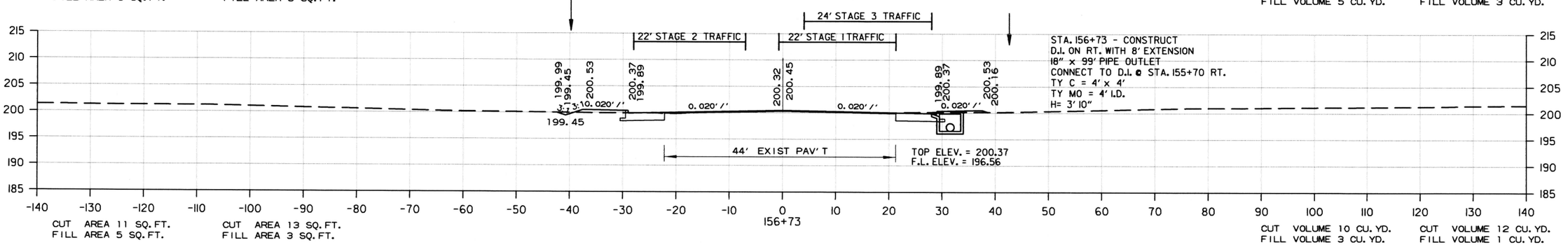
(2) CROSS SECTIONS









CROSS SECTION STA. 156+73 TO STA. 158+00

8/1/2016

CA0701_SB_XS.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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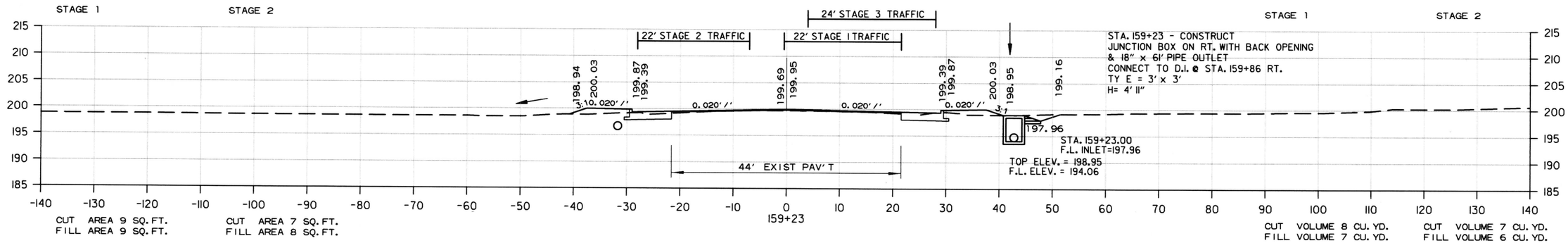
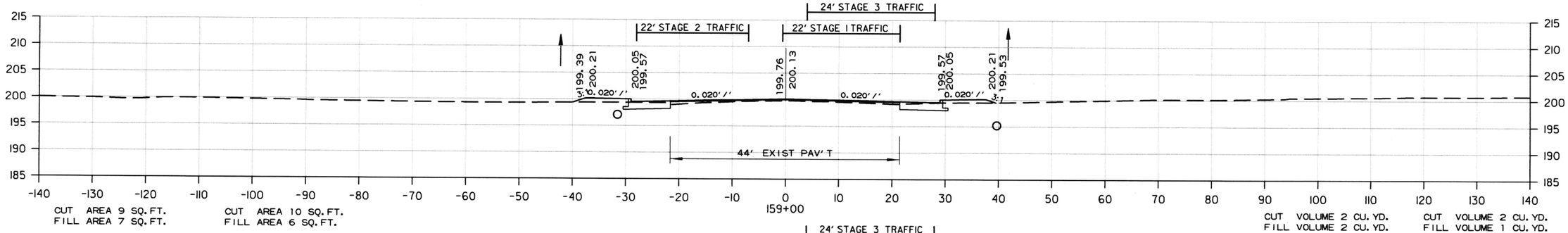
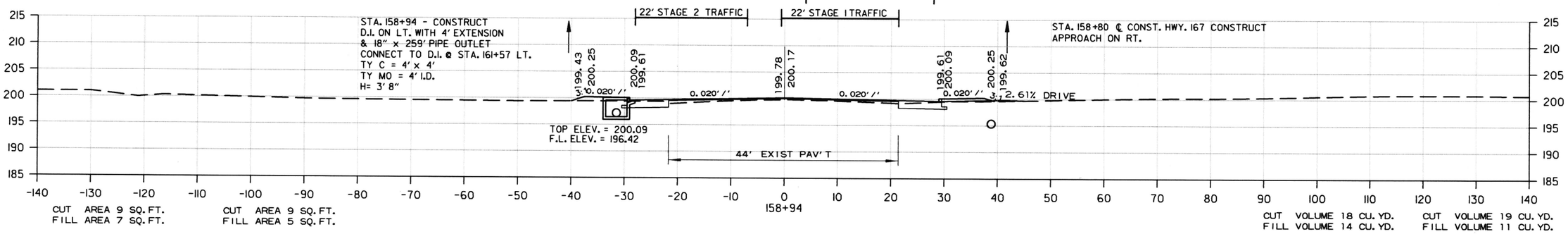
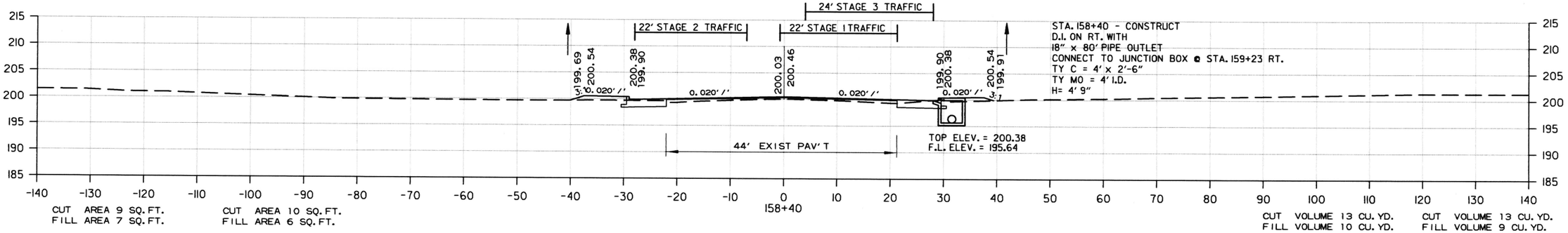
				JOB NO.		CA0701	110	138

(2) CROSS SECTIONS









CROSS SECTION STA. 158+40 TO STA. 159+23

8/1/2016

CA0701_SB_XS.DGN

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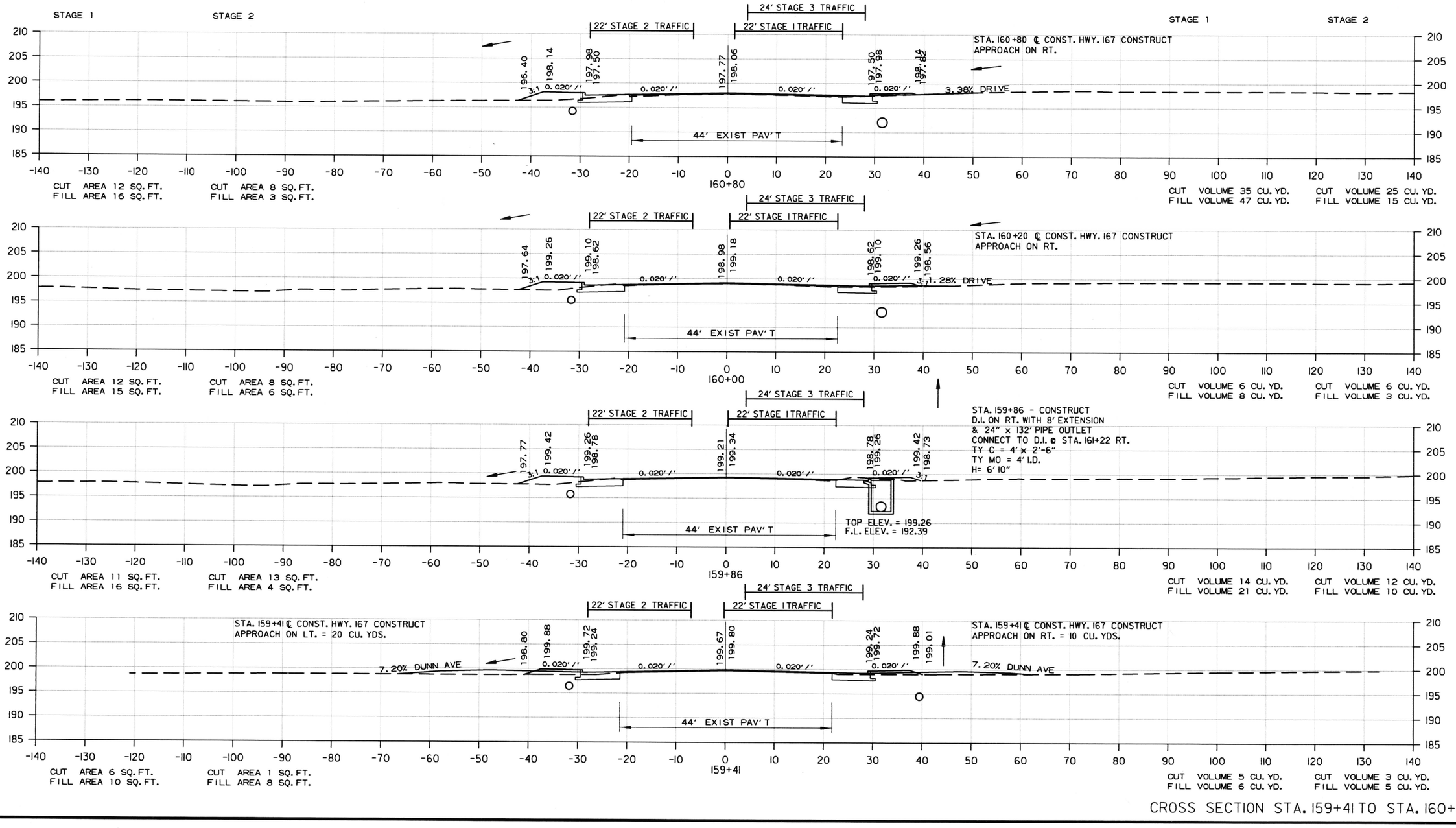
(2) CROSS SECTIONS



CROSS SECTION STA. 159+41 TO STA. 160+80

8/1/2016

CA0701_SB_XS.DGN

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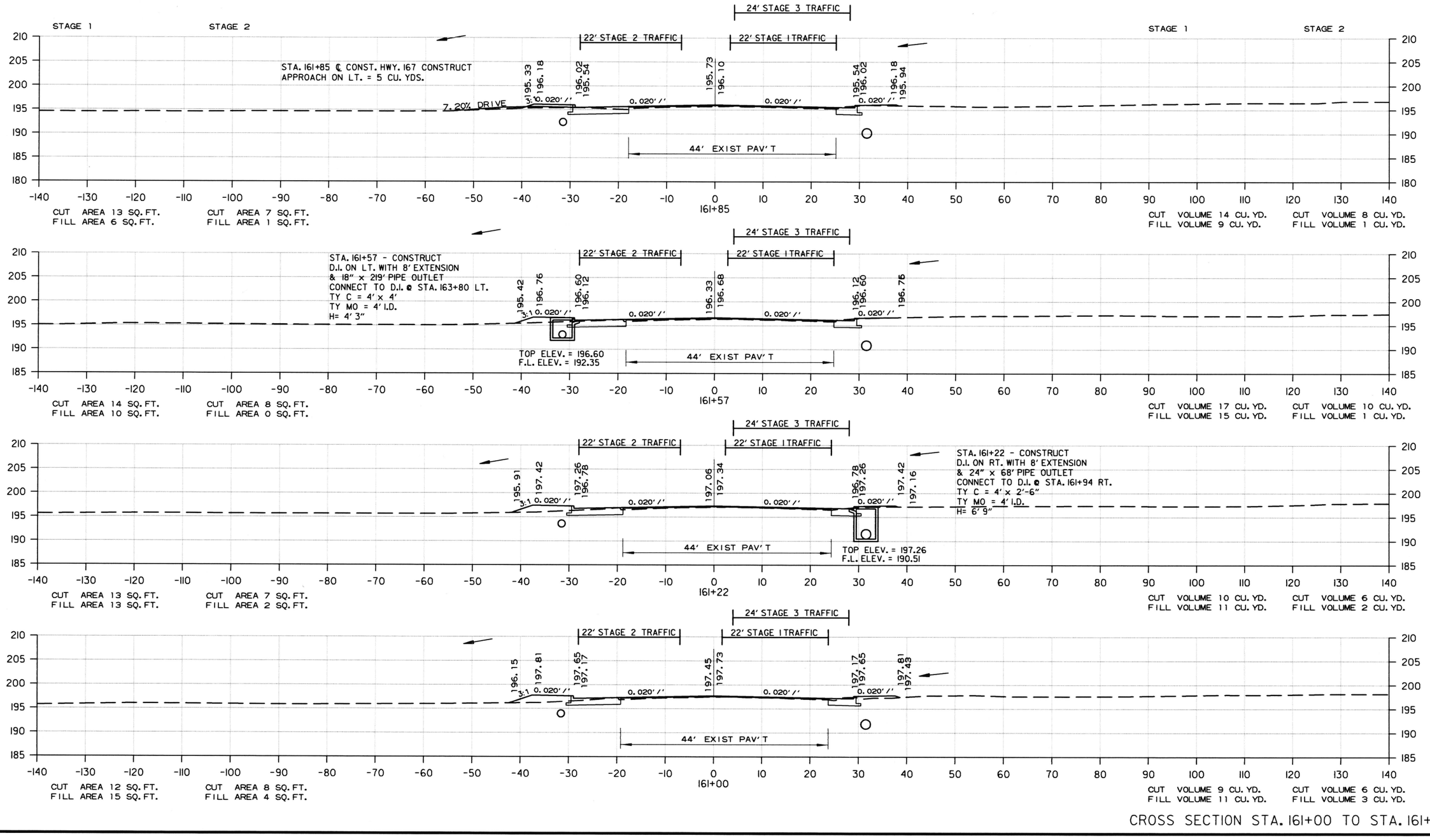
(2) CROSS SECTIONS



CROSS SECTION STA. 161+00 TO STA. 161+85

8/1/2016

CA0701_SB_XS.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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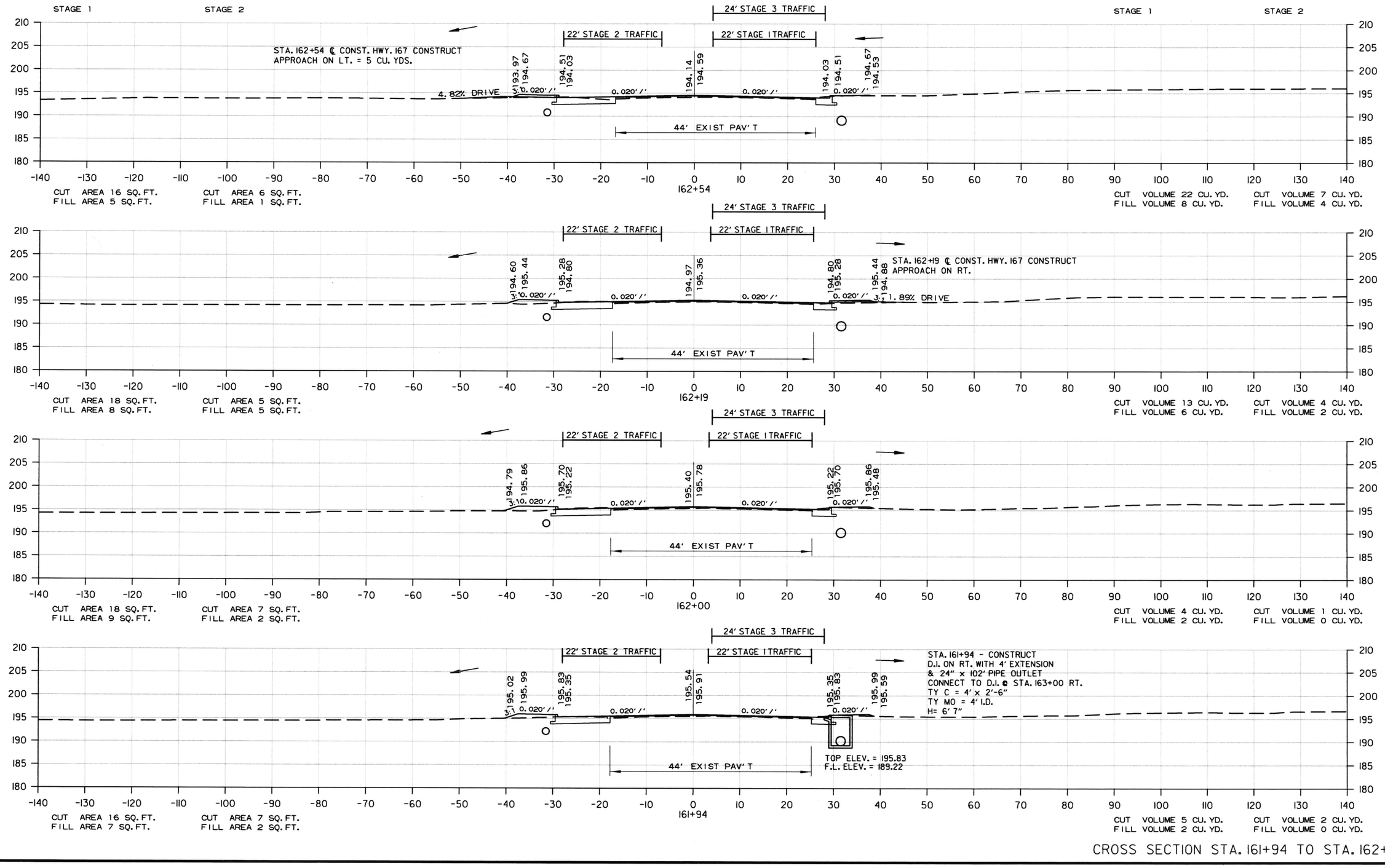
				JOB NO.		CA0701	113	138

(2) CROSS SECTIONS



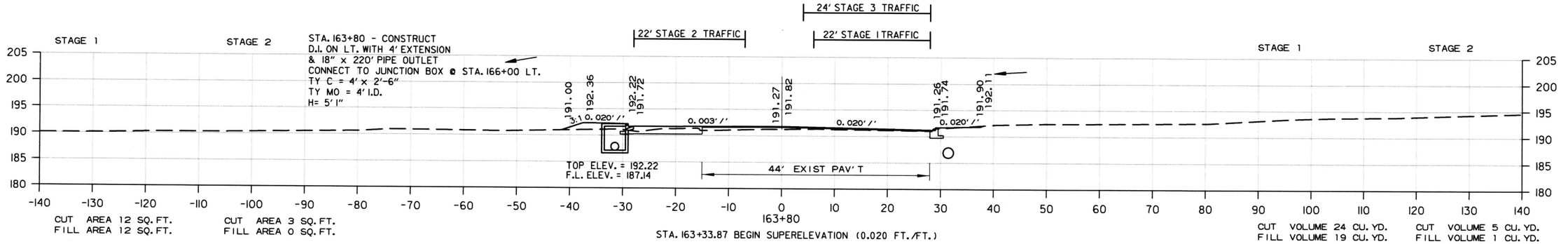
CROSS SECTION STA. 161+94 TO STA. 162+54

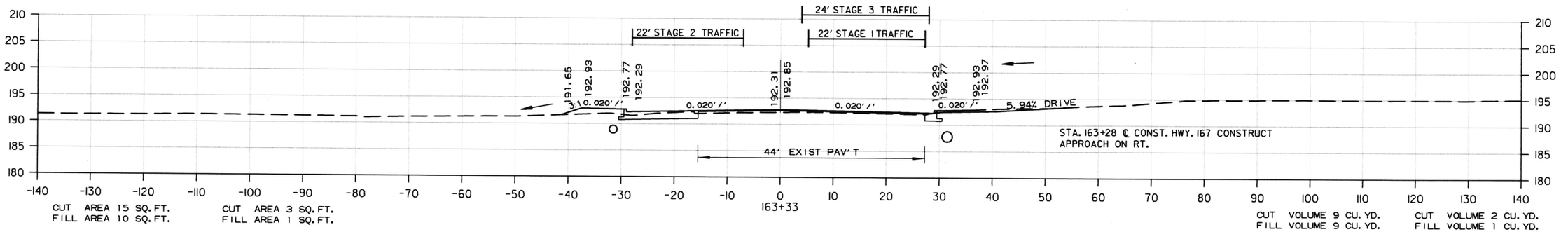
8/1/2016

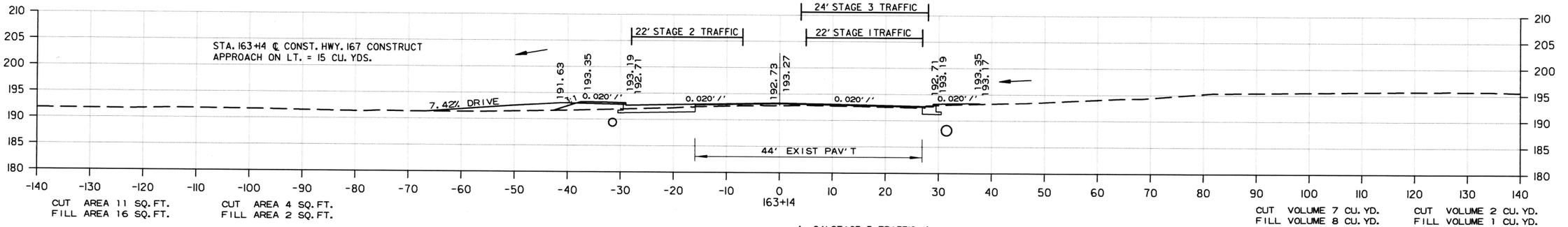
CA0701_SB_XS.DGN

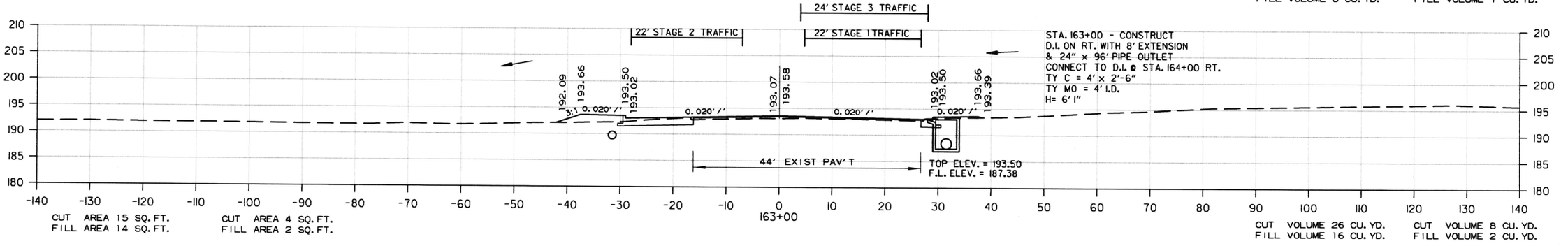
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	114	138

(2) CROSS SECTIONS









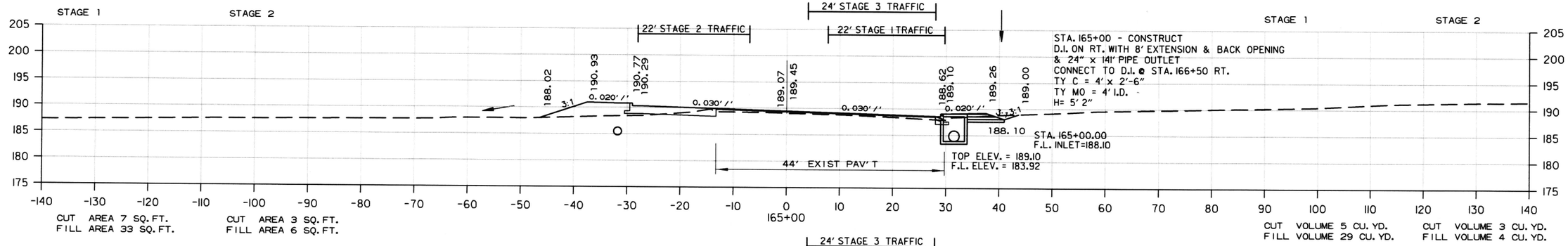
CROSS SECTION STA. 163+00 TO STA. 163+80

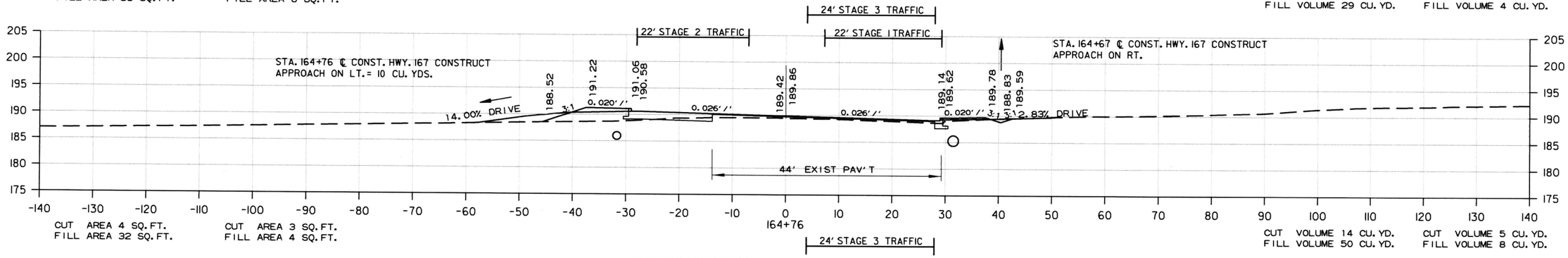
8/1/2016

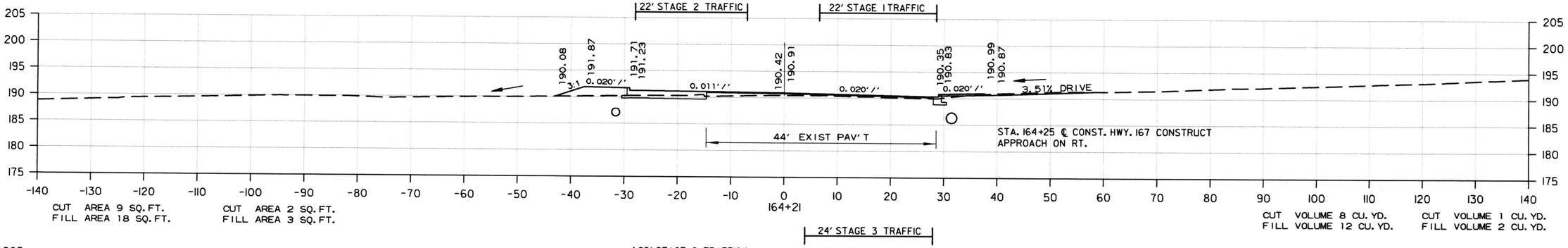
CA0701_SB_XS.DGN

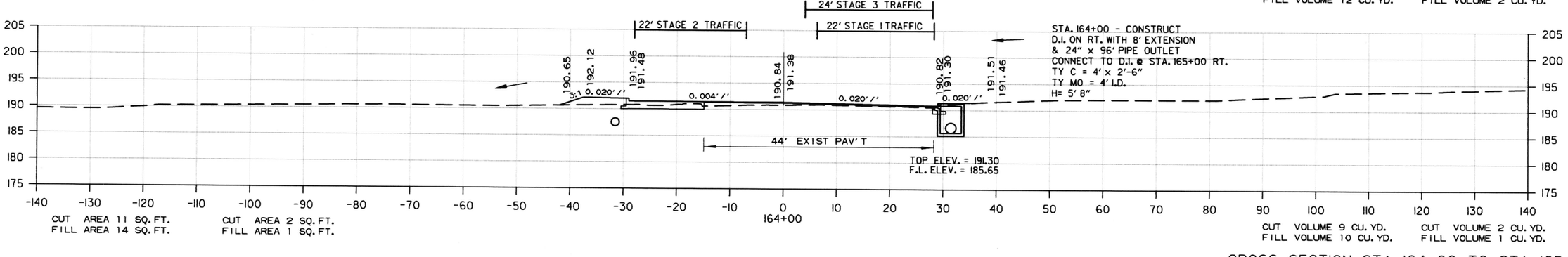
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	115	138

(2) CROSS SECTIONS









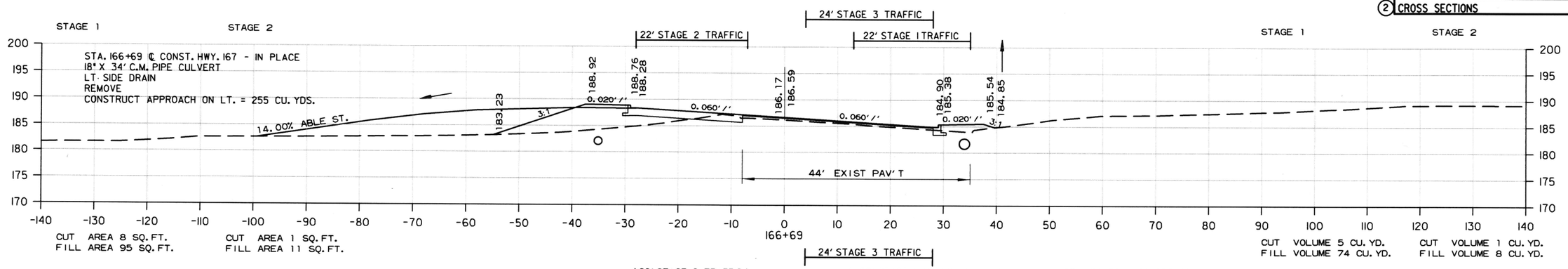
CROSS SECTION STA. 164+00 TO STA. 165+00

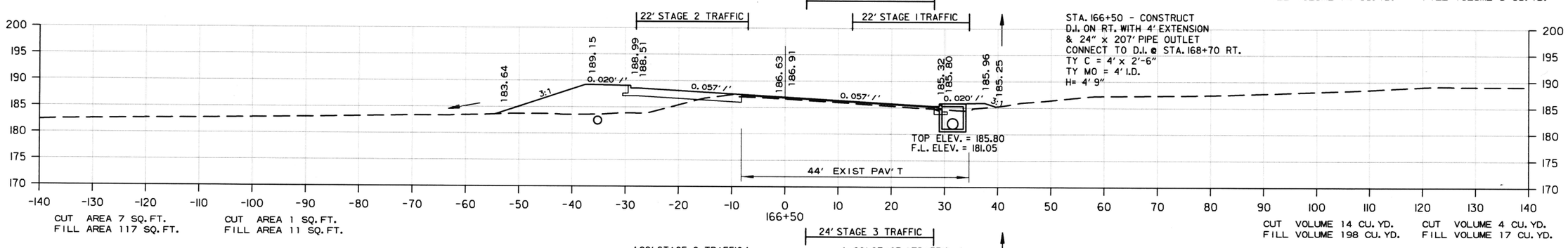
CA0701.SB_XS.DGN 8/1/2016

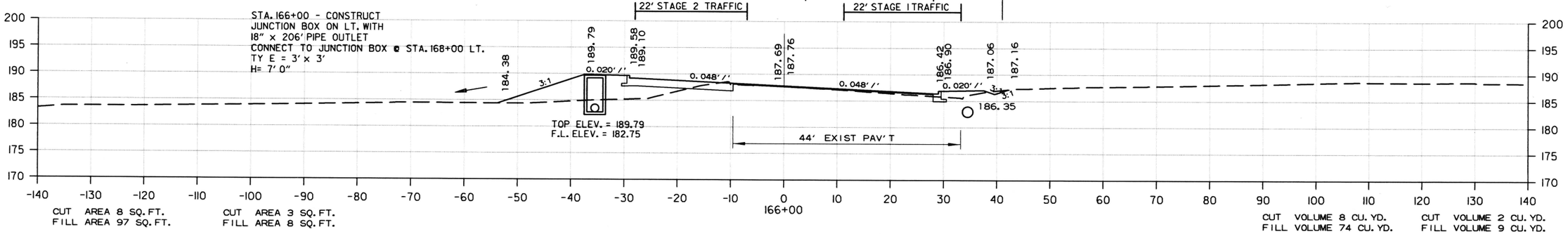
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	116	138

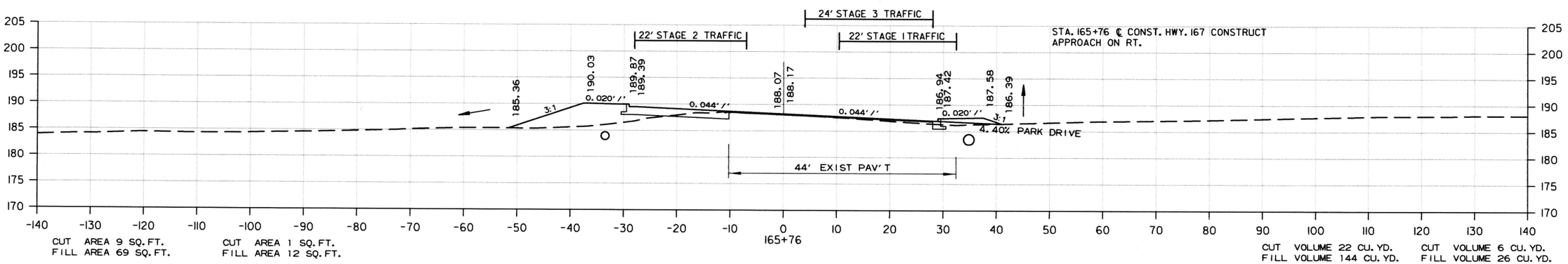
(2) CROSS SECTIONS

STA. 166+94.32 MAX SUPERELEVATION (0.065 FT./FT.)









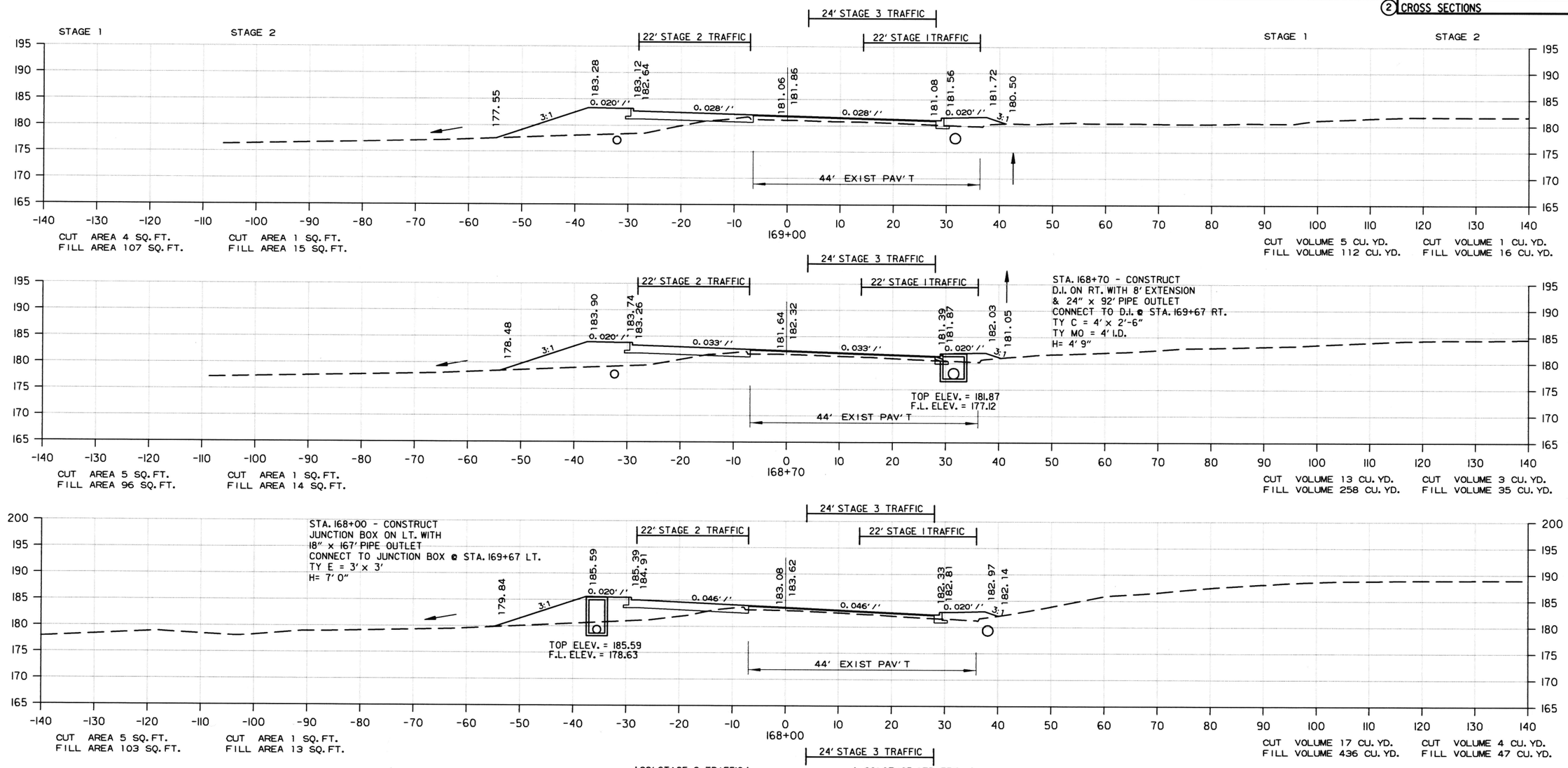
CROSS SECTION STA. 165+76 TO STA. 166+69

8/1/2016

CA0701_SB_XS.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.		CA0701	117	138

(2) CROSS SECTIONS



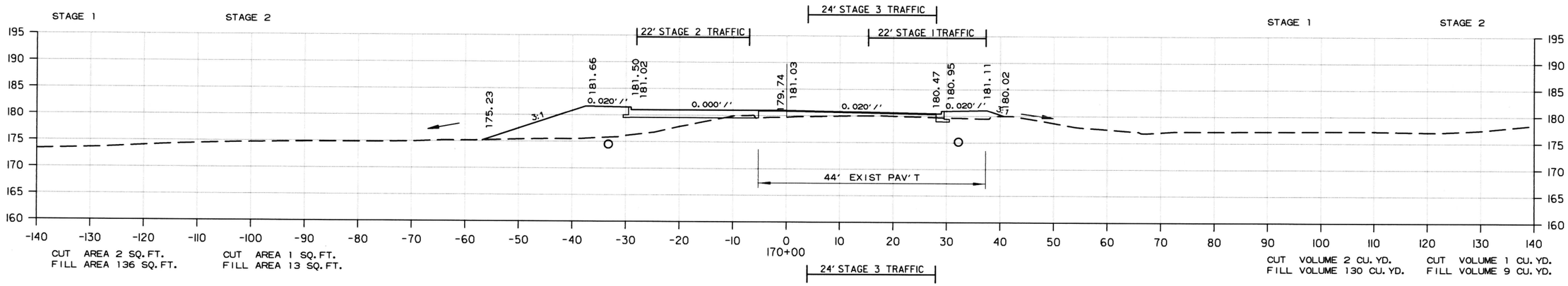
CROSS SECTION STA. 167+00 TO STA. 169+00

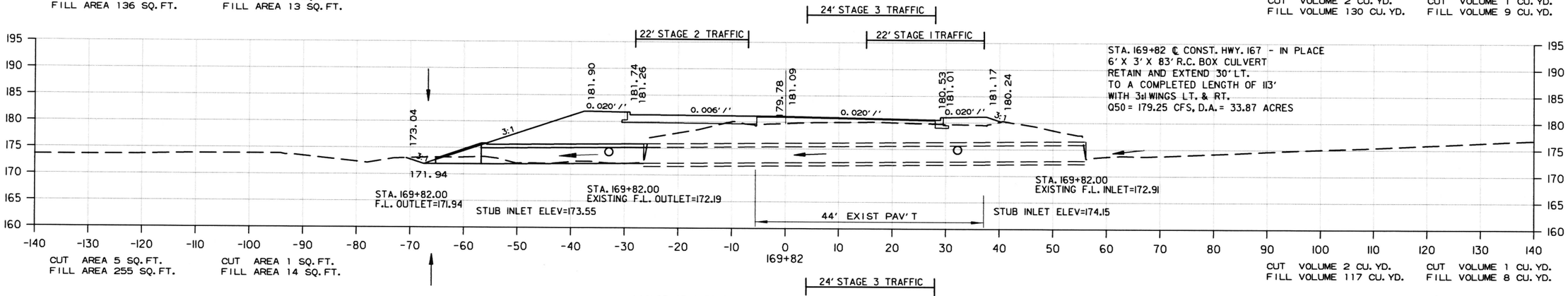
8/1/2016

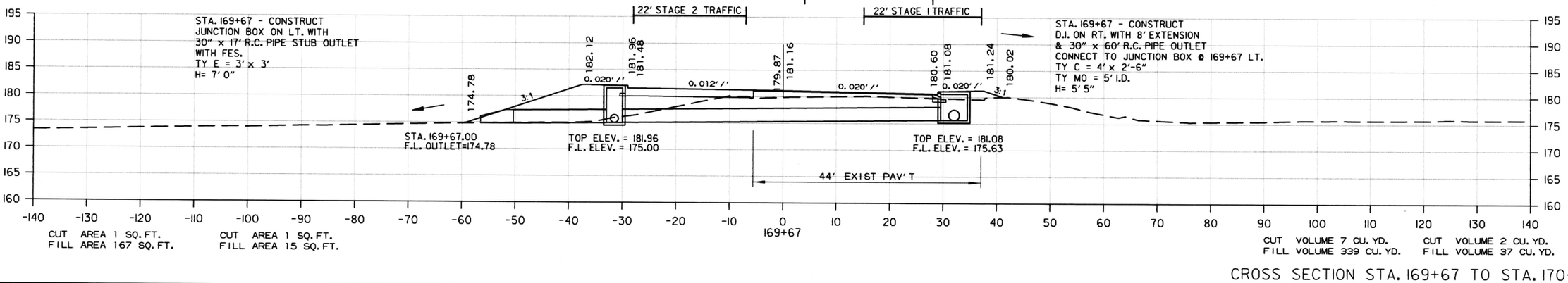
CA0701.SB.XS.DGN

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.		CA0701	118	138

(2) CROSS SECTIONS







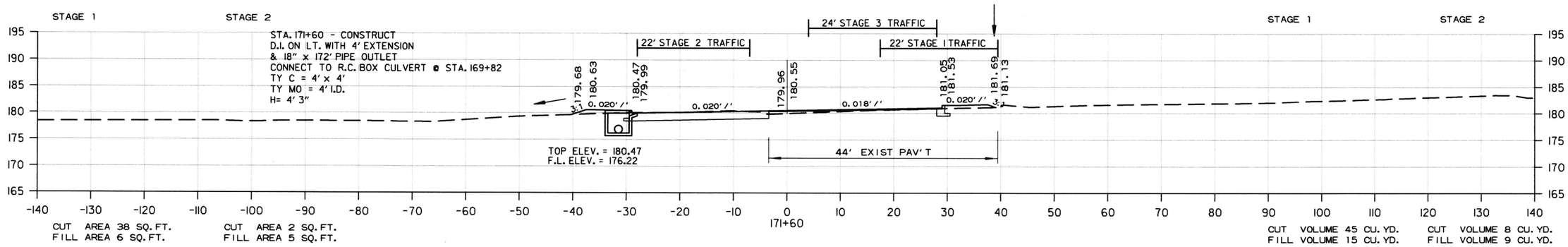
CROSS SECTION STA. 169+67 TO STA. 170+00

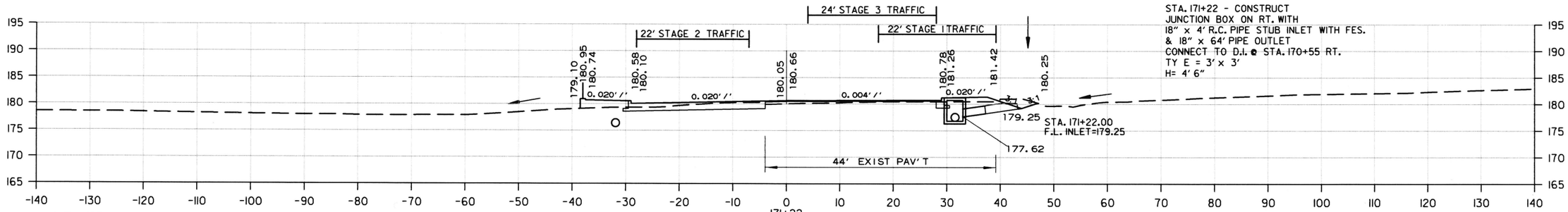
8/1/2016

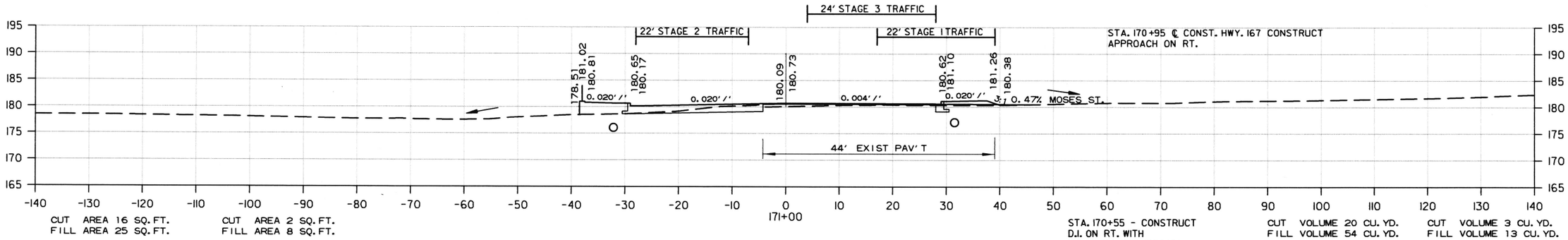
CA0701.SB_XS.DGN

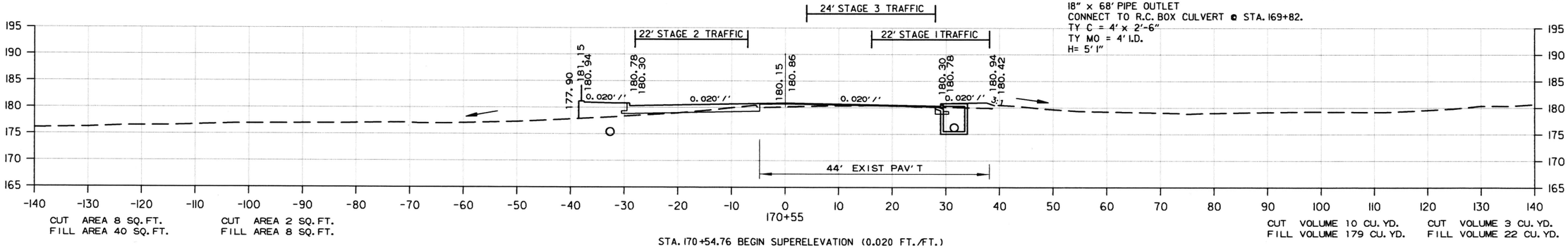
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	119	138

(2) CROSS SECTIONS









STA. 170+54.76 BEGIN SUPERELEVATION (0.020 FT./FT.)
STA. 170+54.76 END SUPERELEVATION (0.020 FT./FT.)

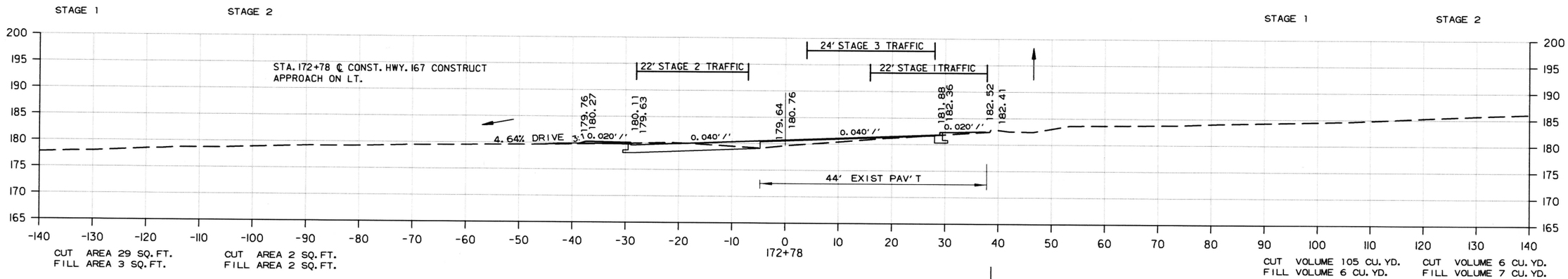
CROSS SECTION STA. 170+55 TO STA. 171+60

3/5/2017

CA0701_SB_XS.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.		CA0701	120	138

(2) CROSS SECTIONS



CROSS SECTION STA. 171+87 TO STA. 172+78

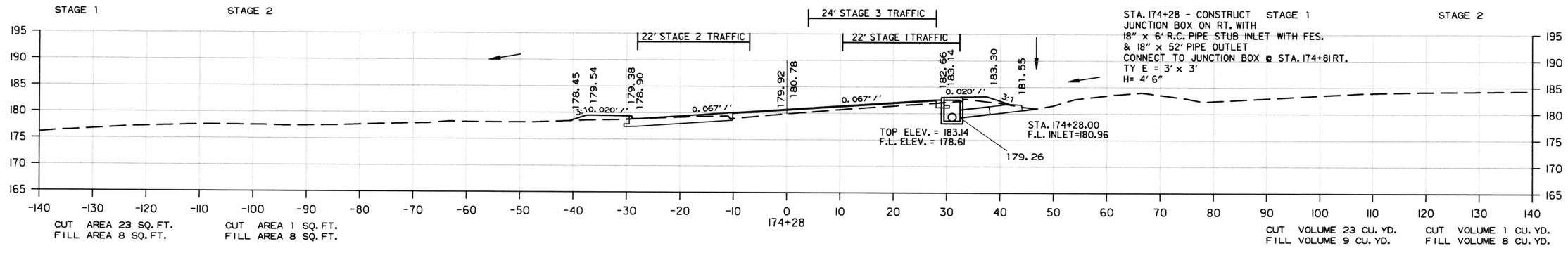
8/1/2016

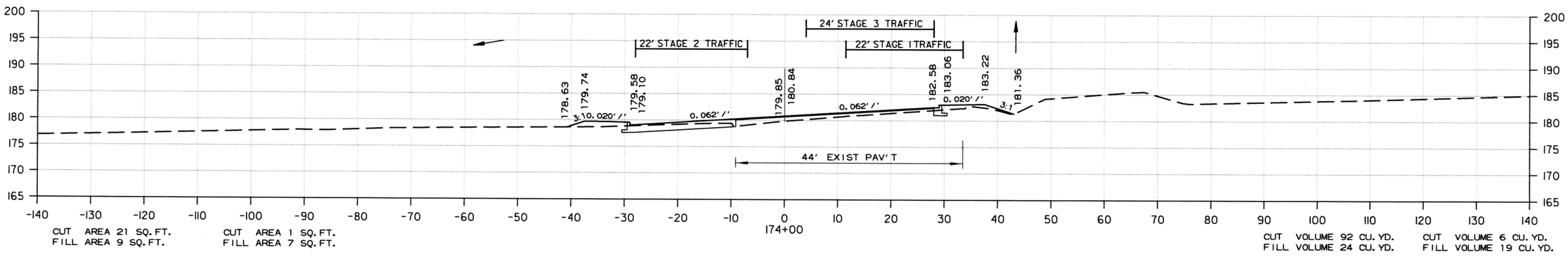
CA0701.SB.XS.DGN

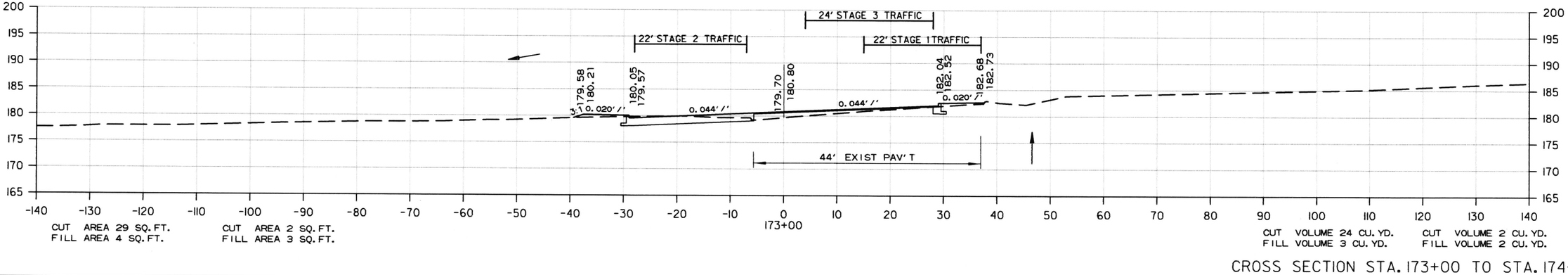
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA0701	121	138

(2) CROSS SECTIONS







CROSS SECTION STA. 173+00 TO STA. 174+28

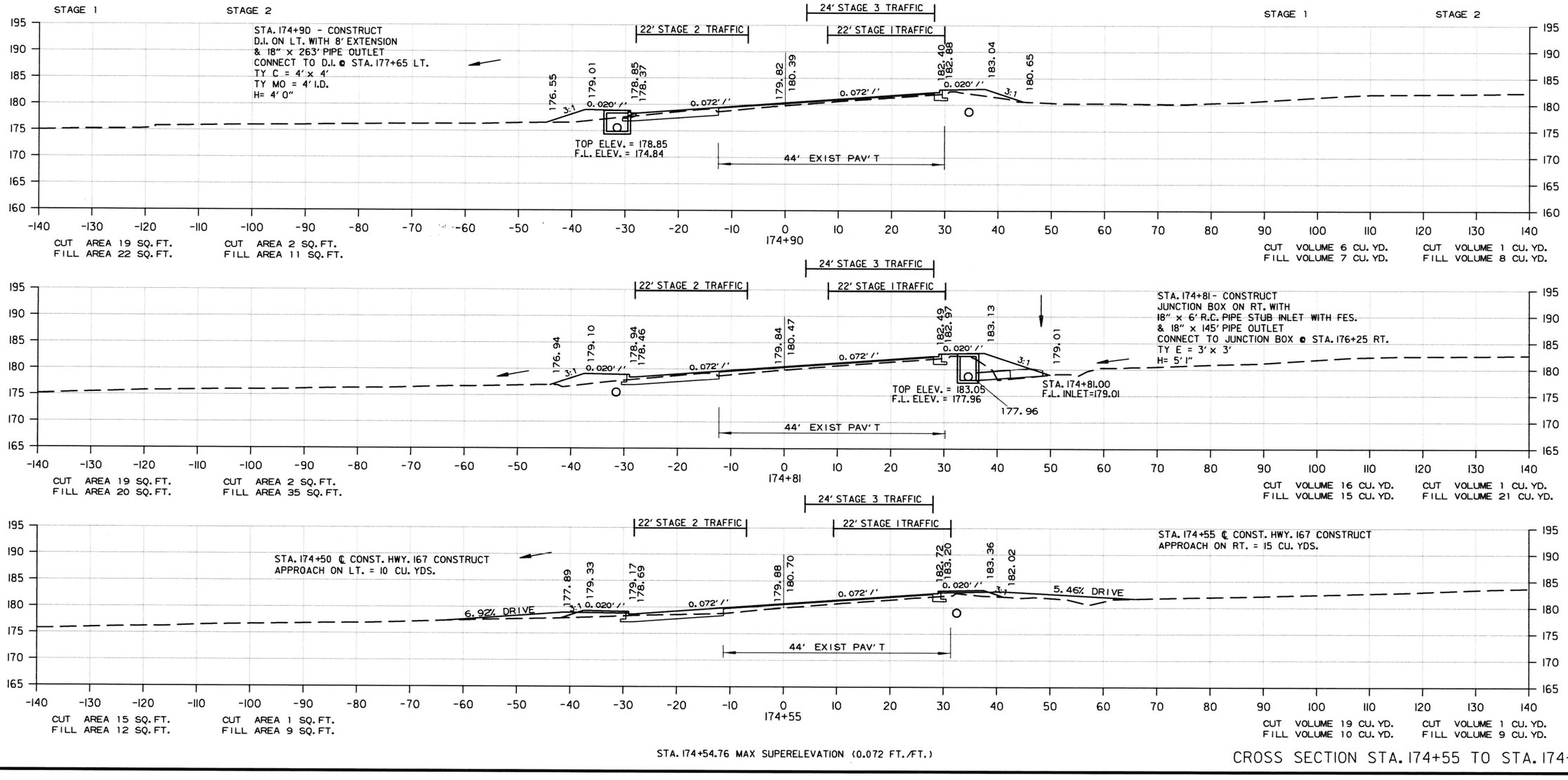
8/1/2016

CA0701.SB.XS.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.		CA0701	122	138

(2) CROSS SECTIONS



STA. 174+54.76 MAX SUPERELEVATION (0.072 FT./FT.)

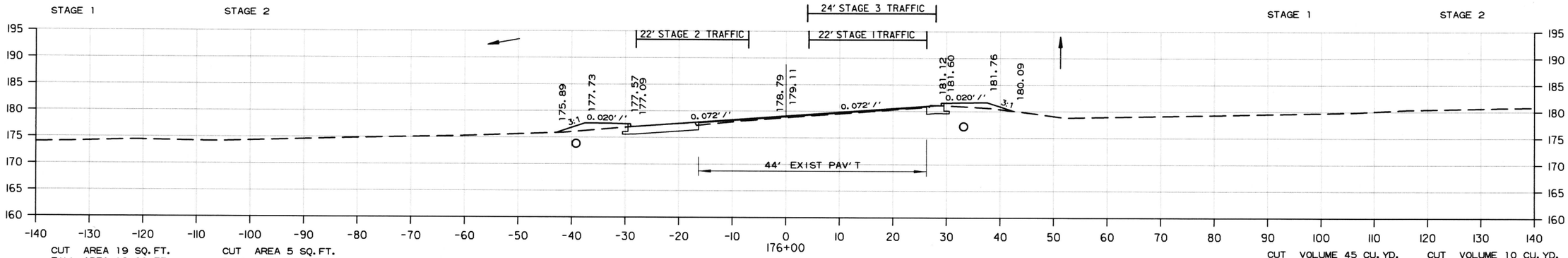
CROSS SECTION STA. 174+55 TO STA. 174+90

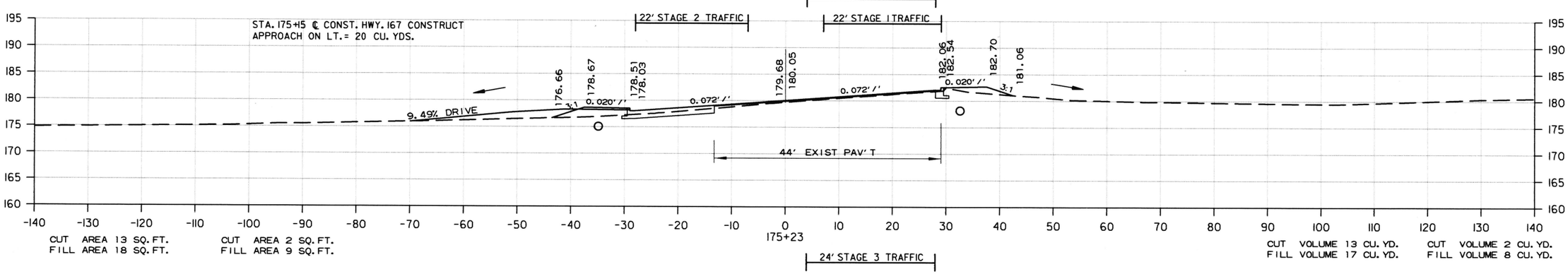
8/1/2016

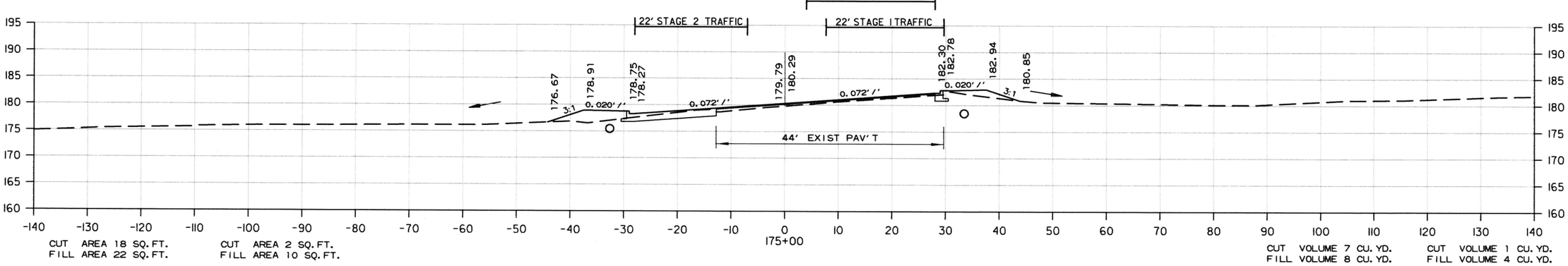
CA0701_SB_XS.DGN

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.		CA0701	123	138

(2) CROSS SECTIONS







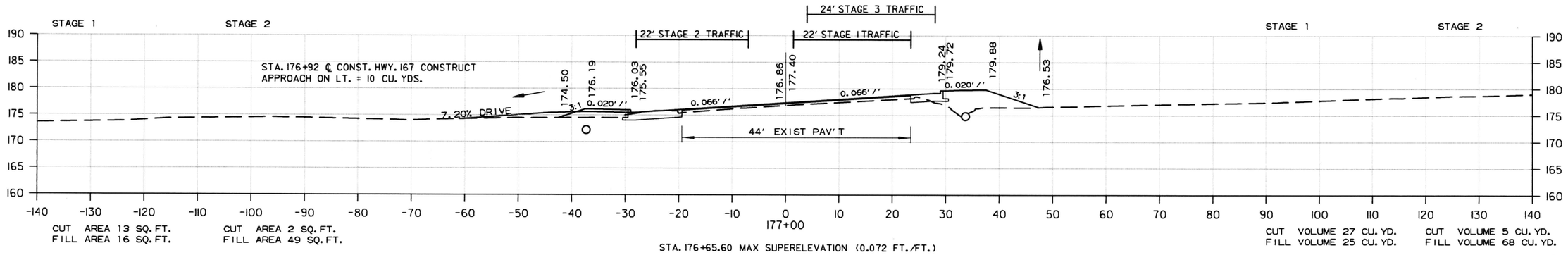
CROSS SECTION STA. 175+00 TO STA. 176+00

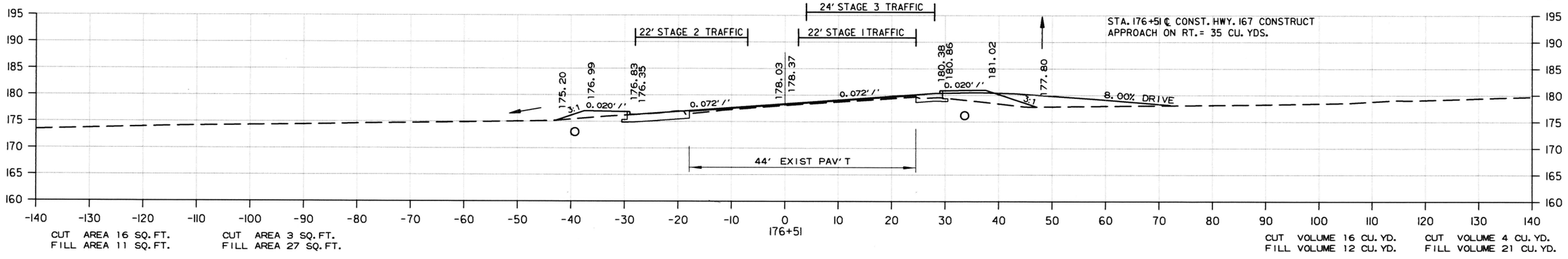
8/1/2016

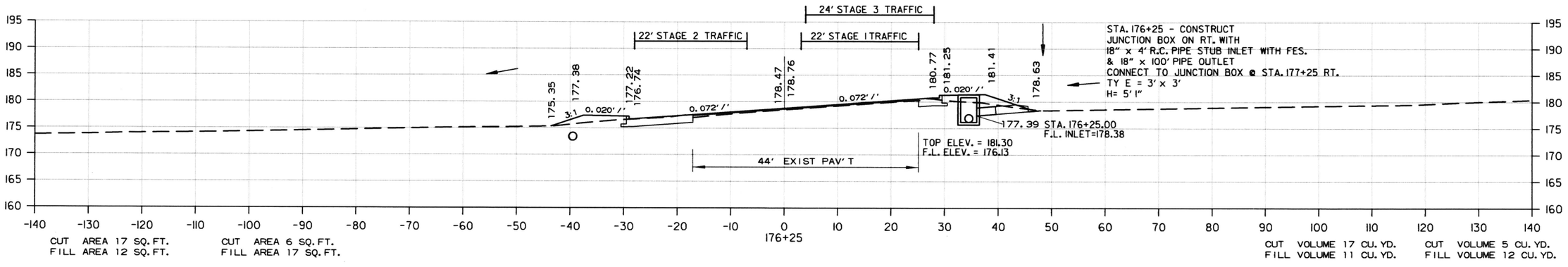
CA0701_SB_XS.DGN

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.		CA0701	124	138

(2) CROSS SECTIONS







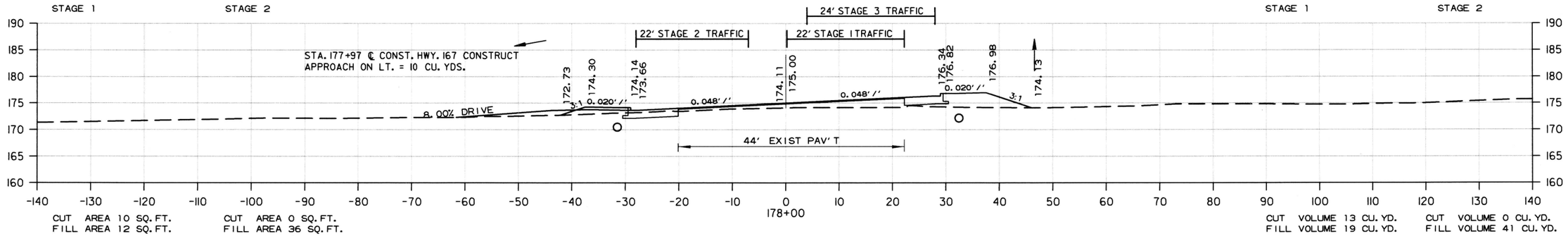
CROSS SECTION STA. 176+25 TO STA. 177+00

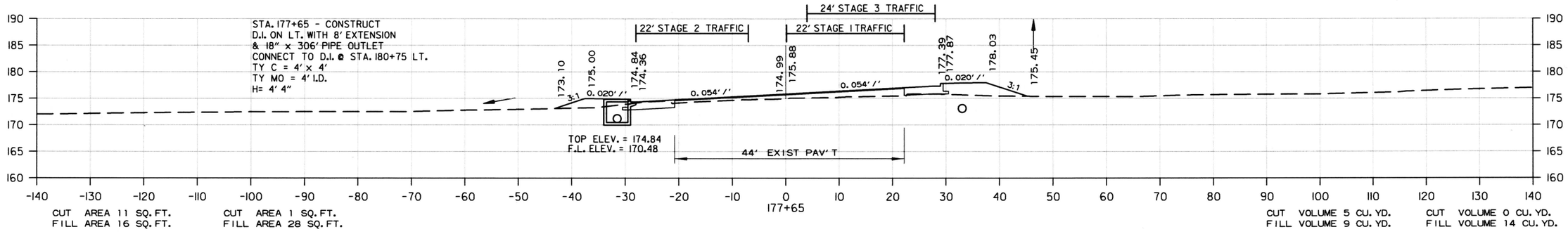
8/1/2016

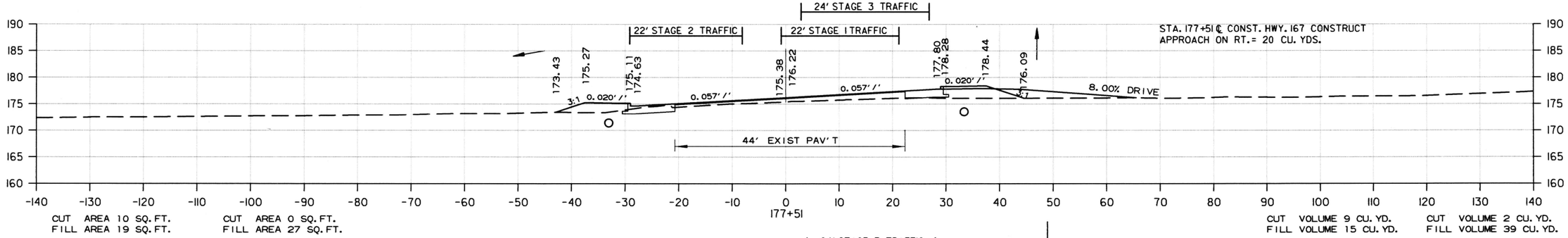
CA0701_SB_XS.DGN

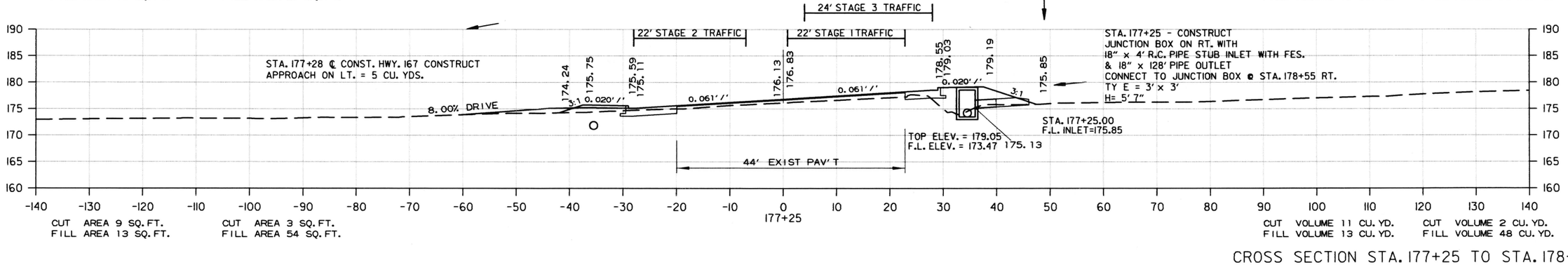
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	125	138

(2) CROSS SECTIONS









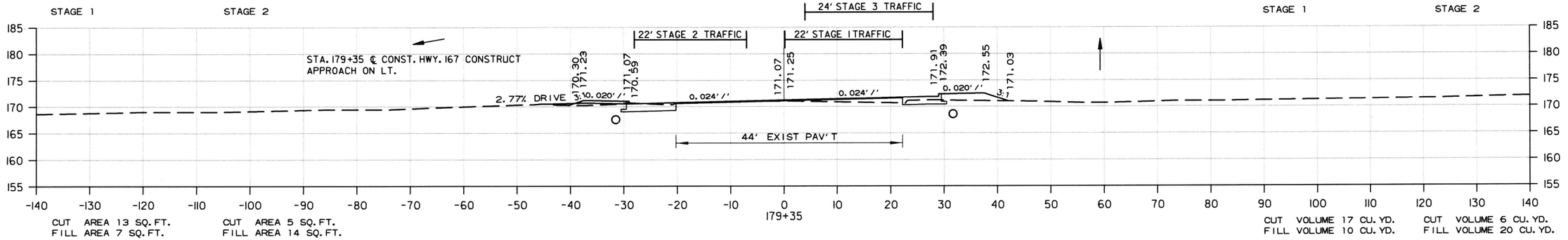
CROSS SECTION STA. 177+25 TO STA. 178+00

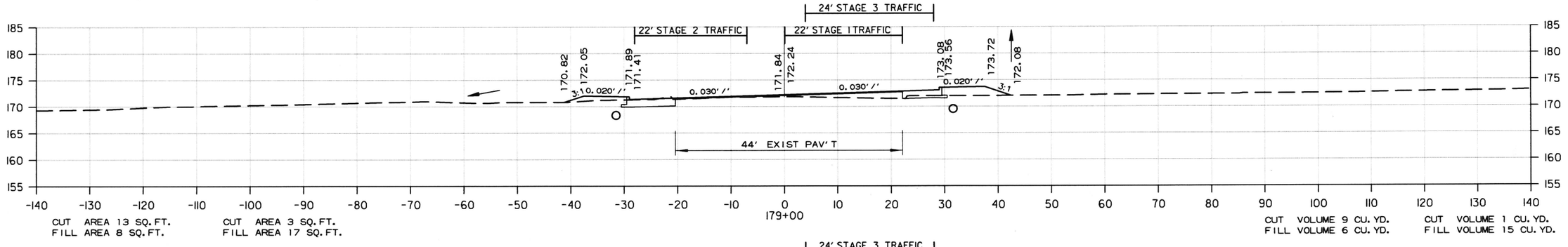
8/1/2016

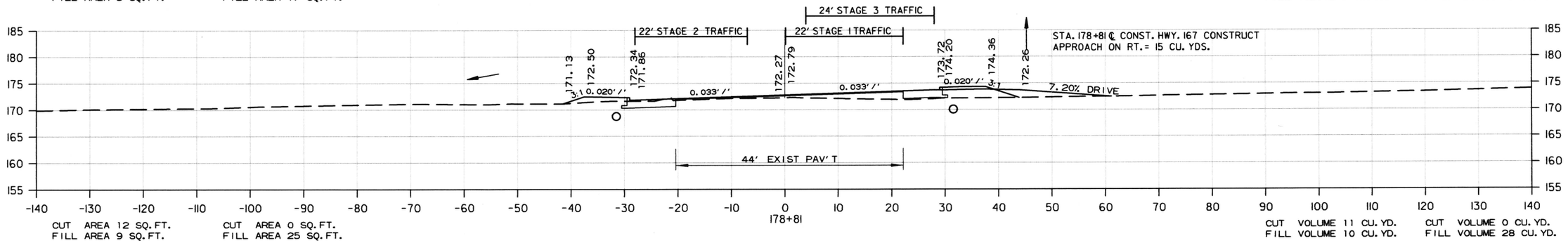
CA0701_SB_XS.DGN

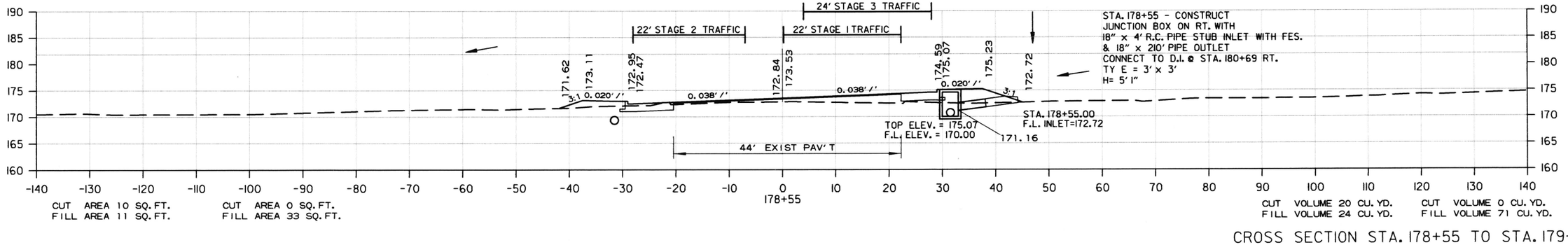
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	126	138

(2) CROSS SECTIONS









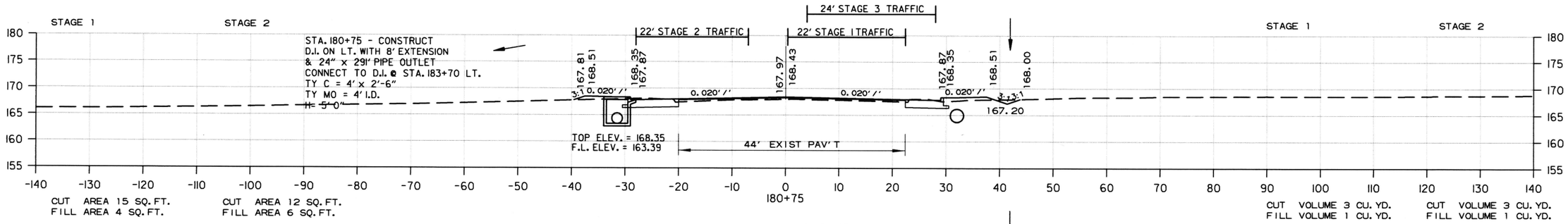
CROSS SECTION STA. 178+55 TO STA. 179+35

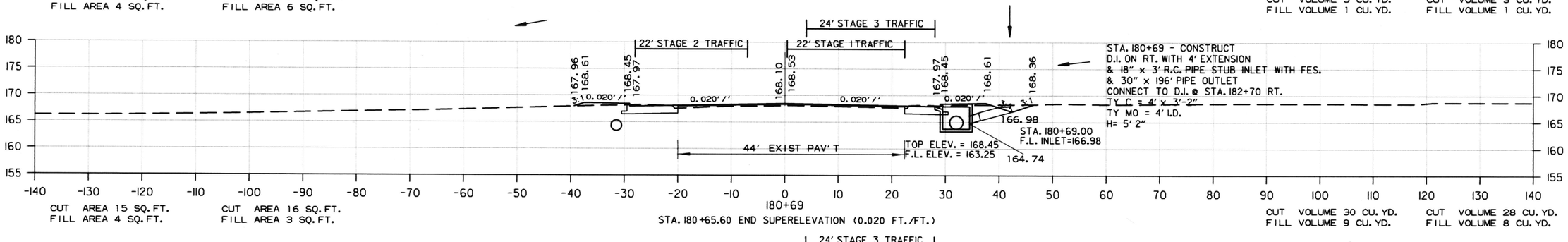
8/1/2016

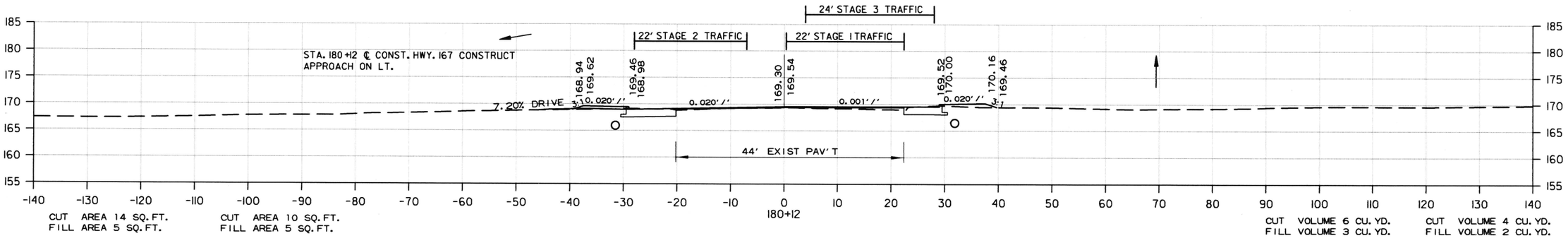
CA0701_SB_XS.DGN

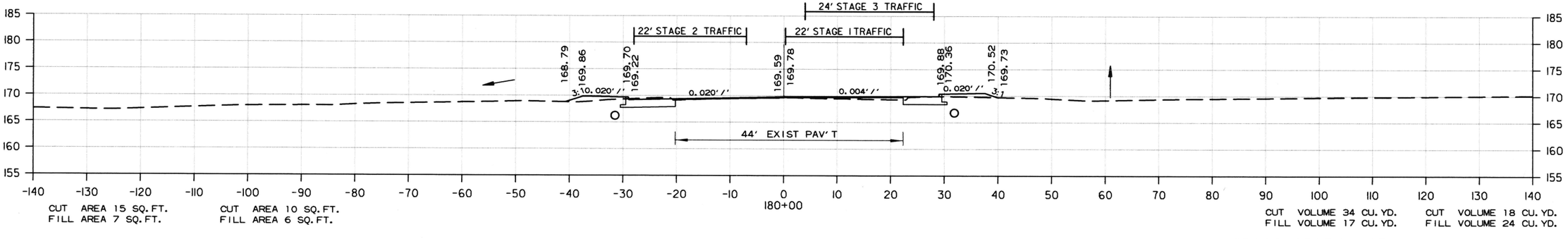
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	127	138

(2) CROSS SECTIONS









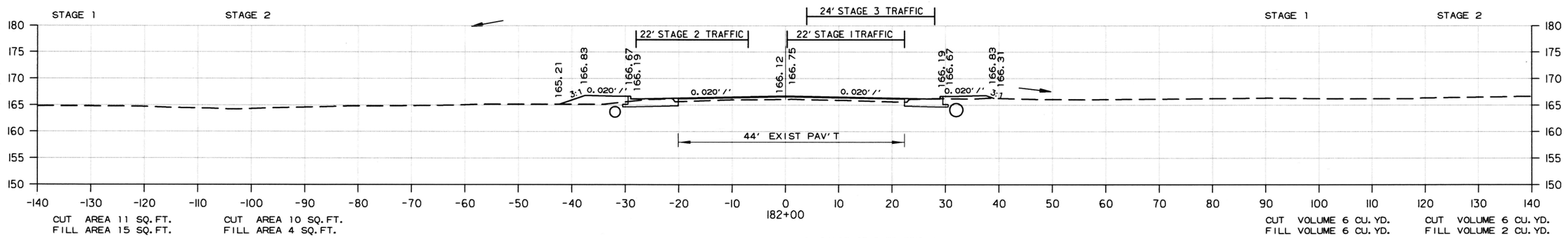
CROSS SECTION STA. 180+00 TO STA. 180+75

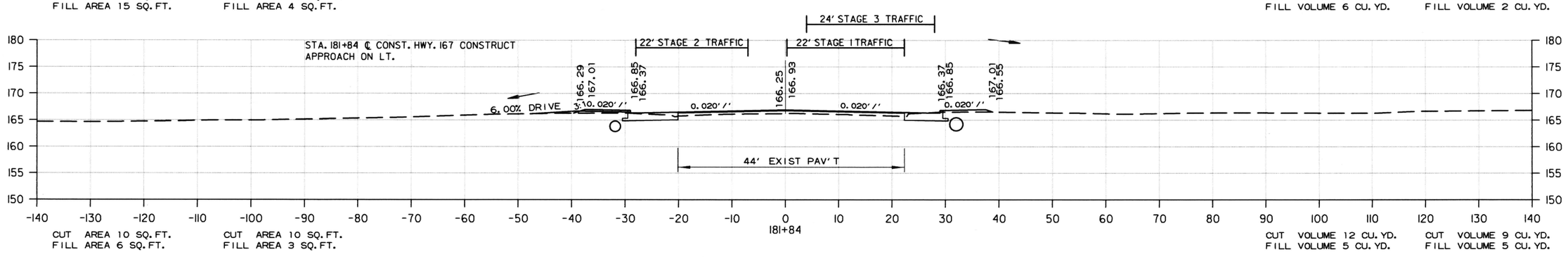
8/1/2016

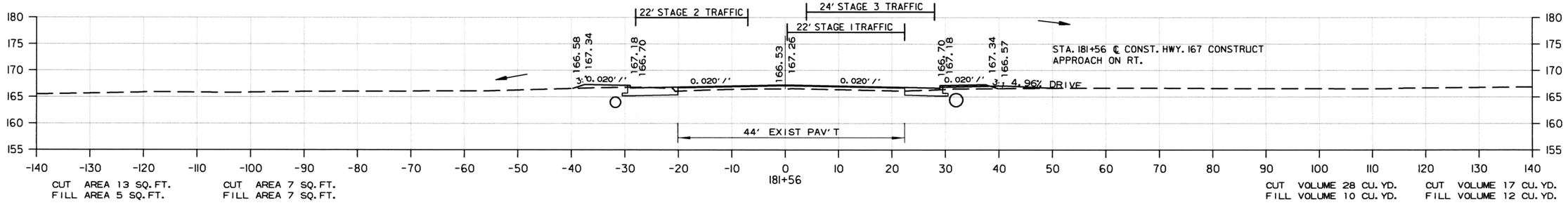
CA0701_SB_XS.DGN

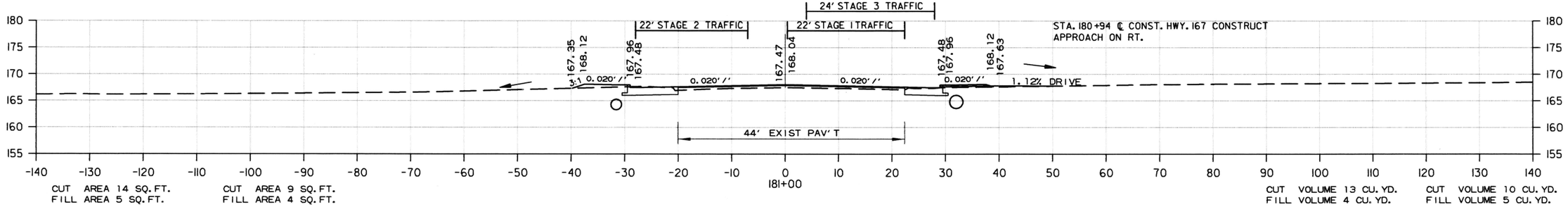
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	128	138

(2) CROSS SECTIONS







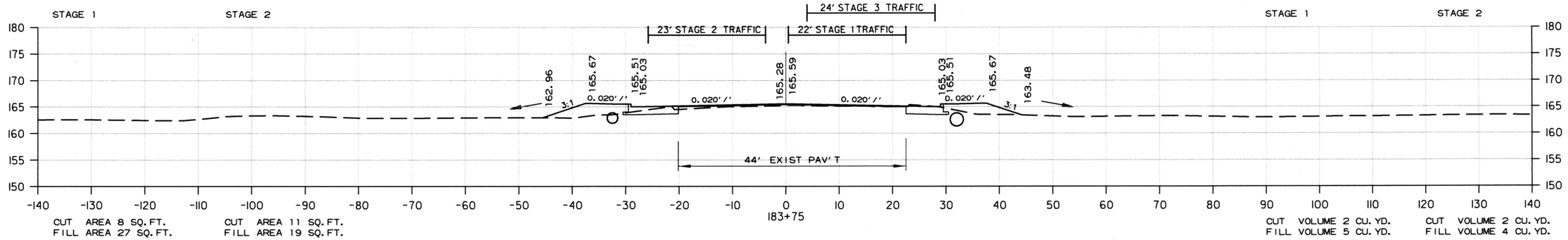


CROSS SECTION STA. 181+00 TO STA. 182+00

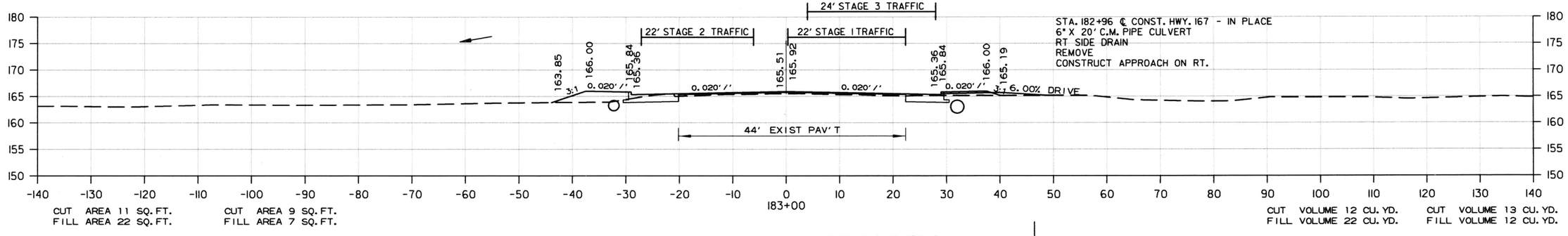
CA0701_SB_XS.DGN 8/1/2016

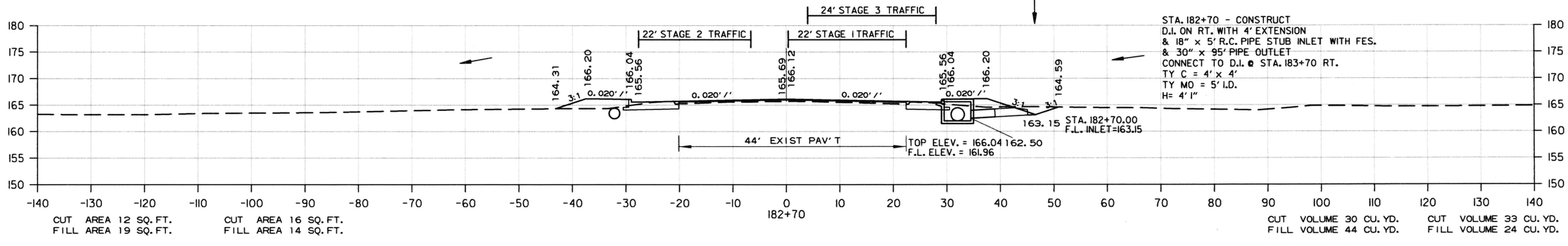
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	129	138

(2) CROSS SECTIONS









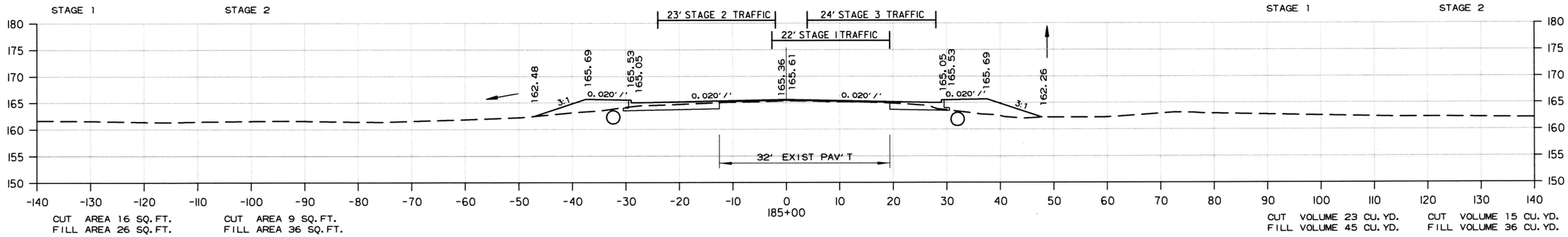
CROSS SECTION STA. 182+70 TO STA. 183+75

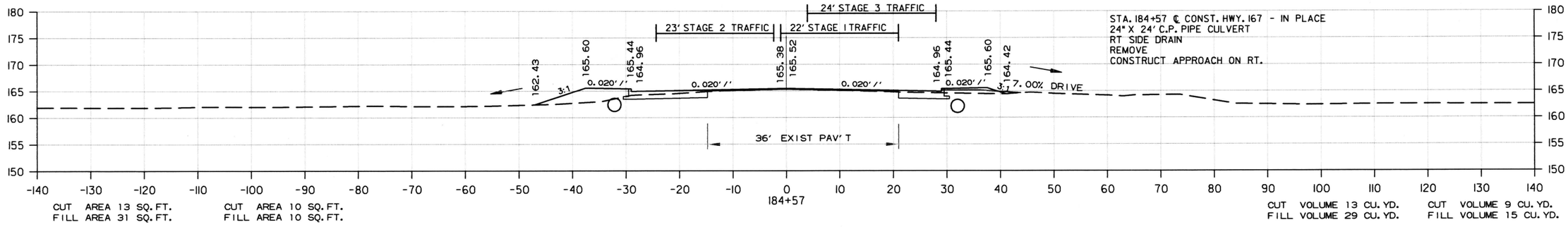
8/1/2016

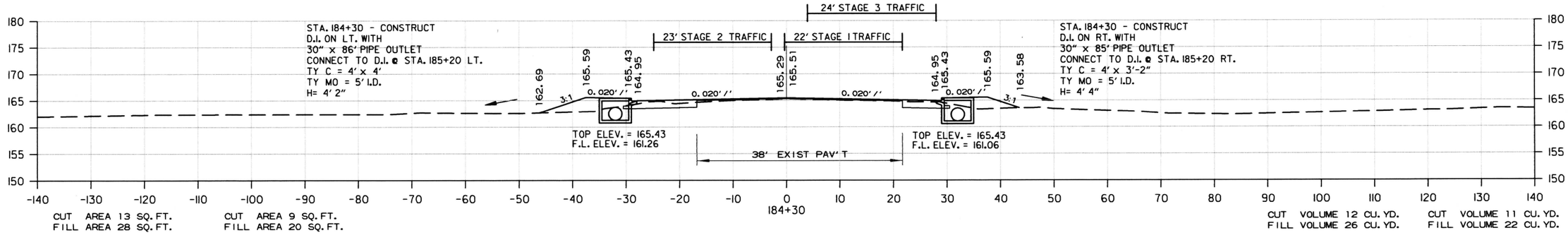
CA0701_SB_XS.DGN

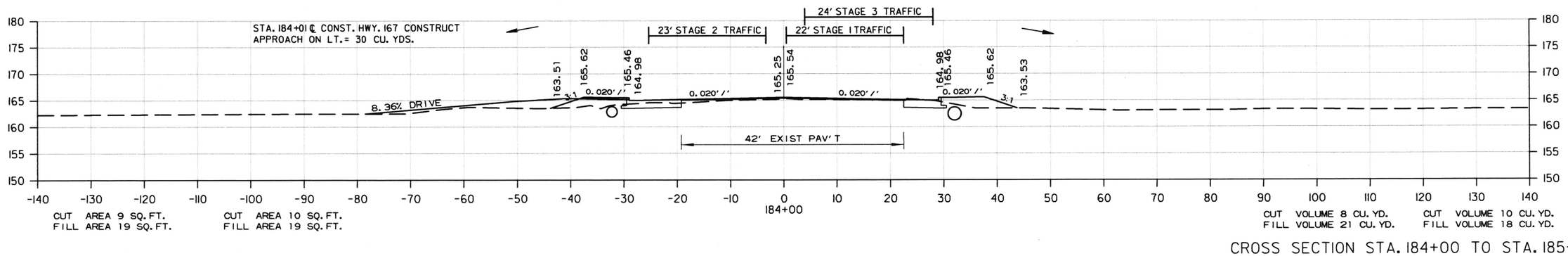
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	130	138

(2) CROSS SECTIONS









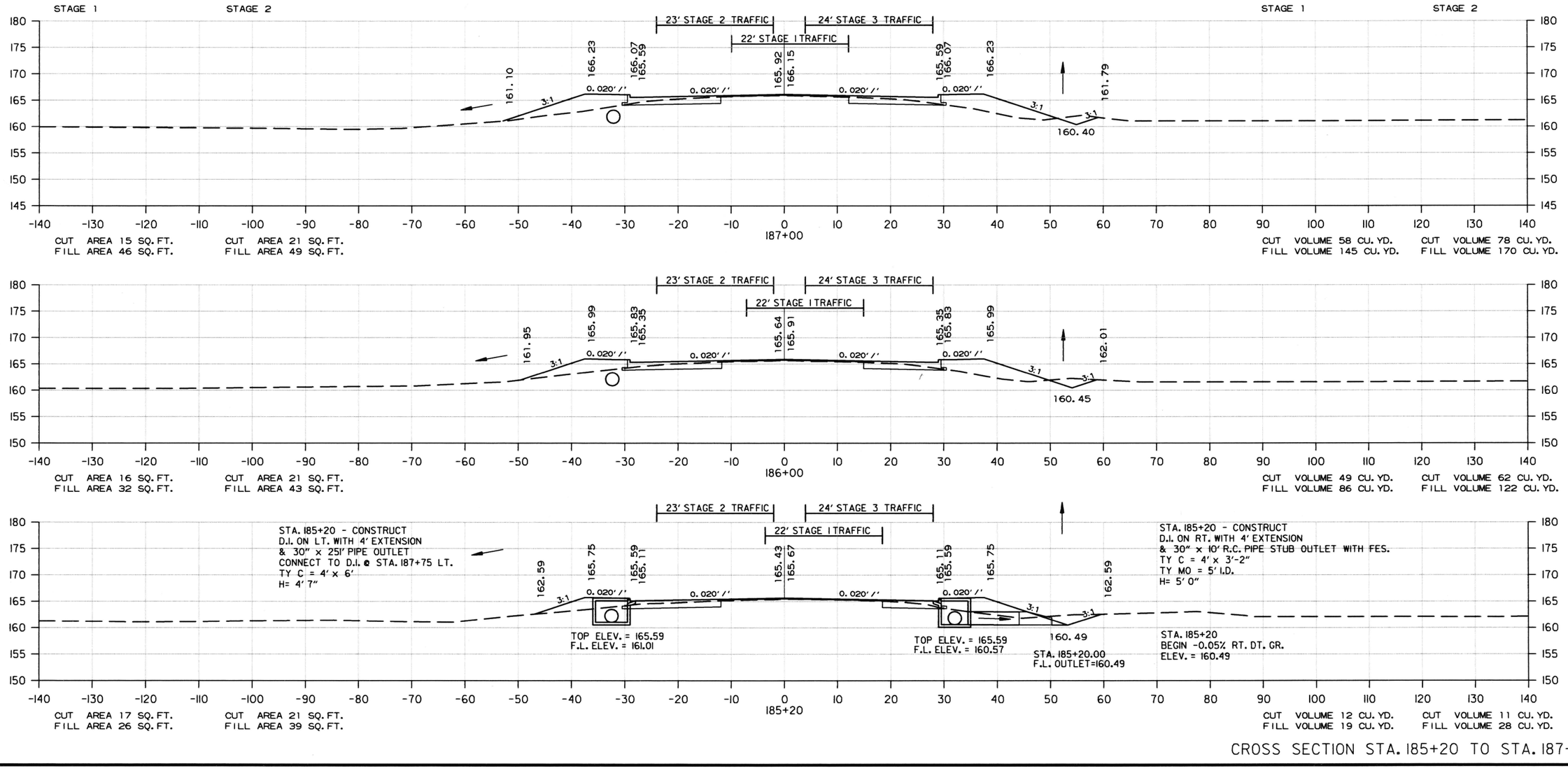
CROSS SECTION STA. 184+00 TO STA. 185+00

8/1/2016

CA0701_SB_XS.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.		CA0701	131	138

(2) CROSS SECTIONS



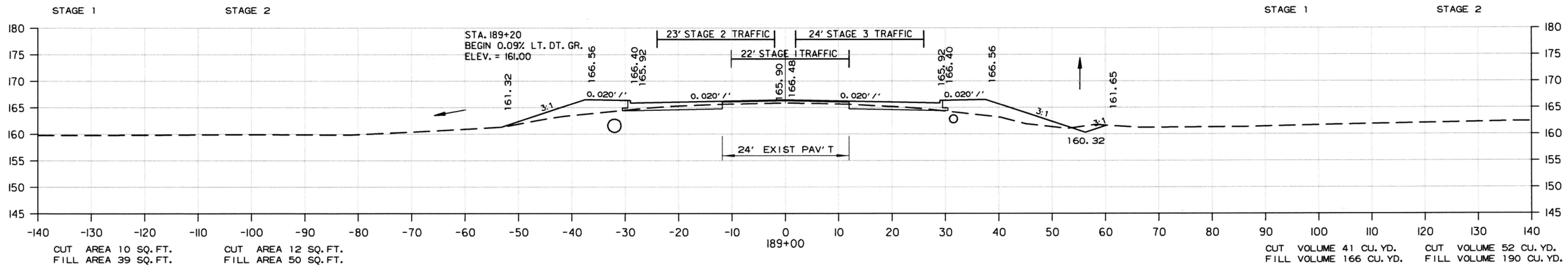
CROSS SECTION STA. 185+20 TO STA. 187+00

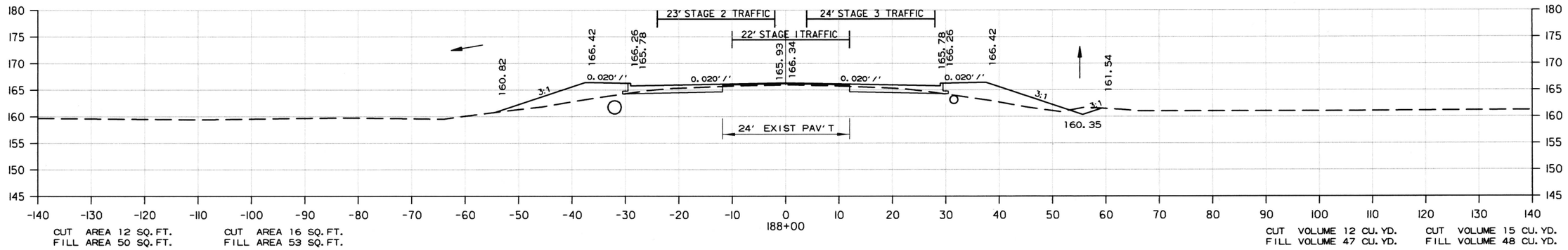
8/1/2016

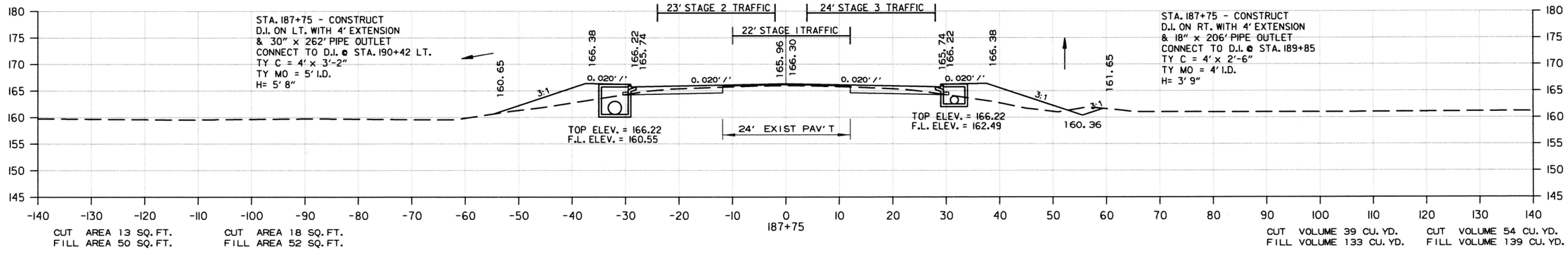
CA0701_SB_XS.DGN

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.		CA0701	132	138

(2) CROSS SECTIONS







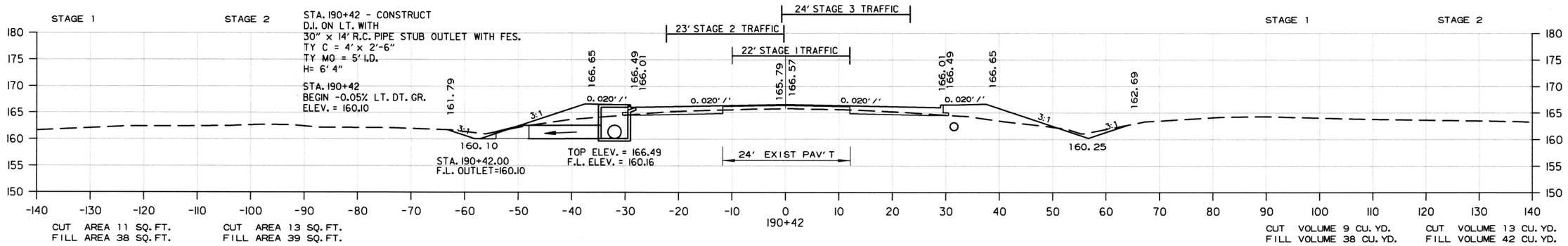
CROSS SECTION STA. 187+75 TO STA. 189+00

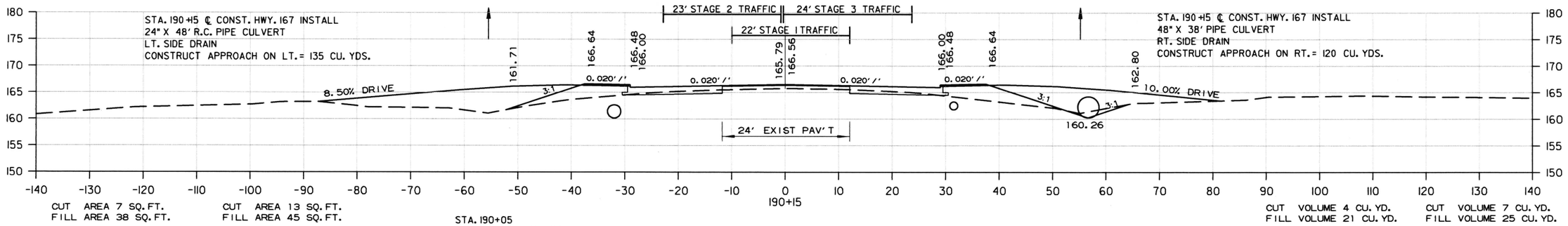
8/1/2016

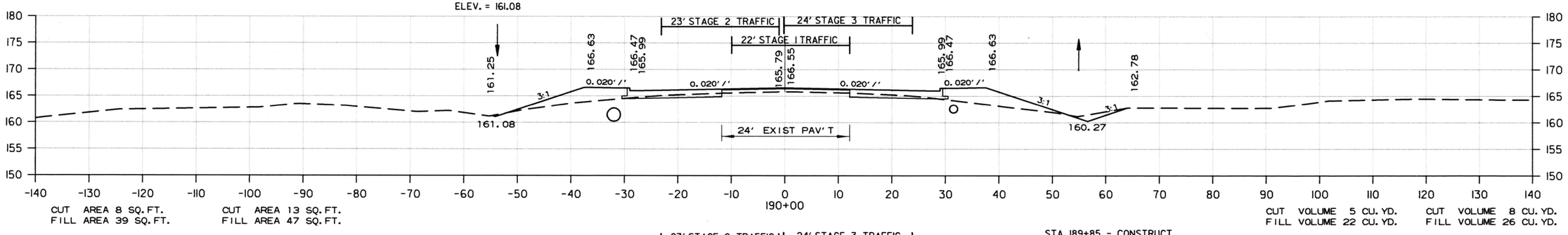
CA0701_SB_XS.DGN

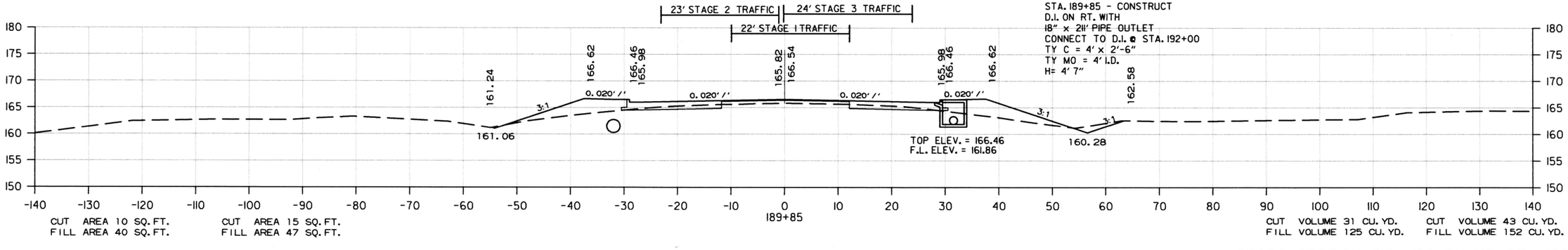
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	133	138

(2) CROSS SECTIONS









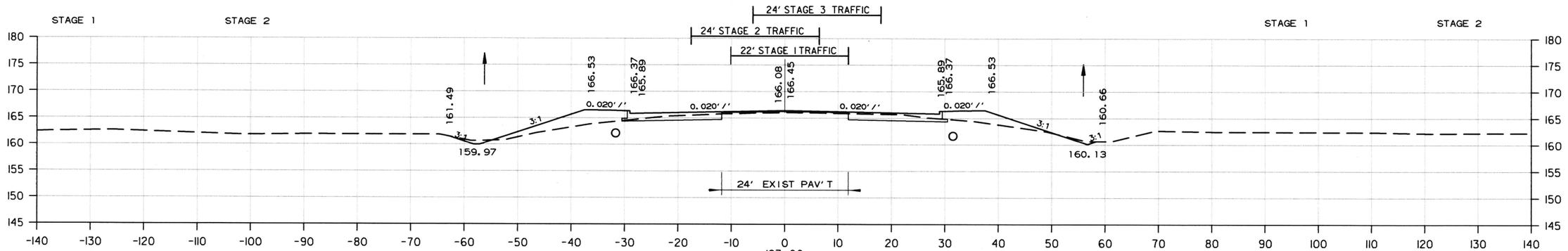
CROSS SECTION STA. 189+85 TO STA. 190+42

CA0701_SB_XS.DGN 8/1/2016

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.		CA0701	134	138

(2) CROSS SECTIONS

STA. 193+92.00
BEGIN 208' CURB TRANSITION

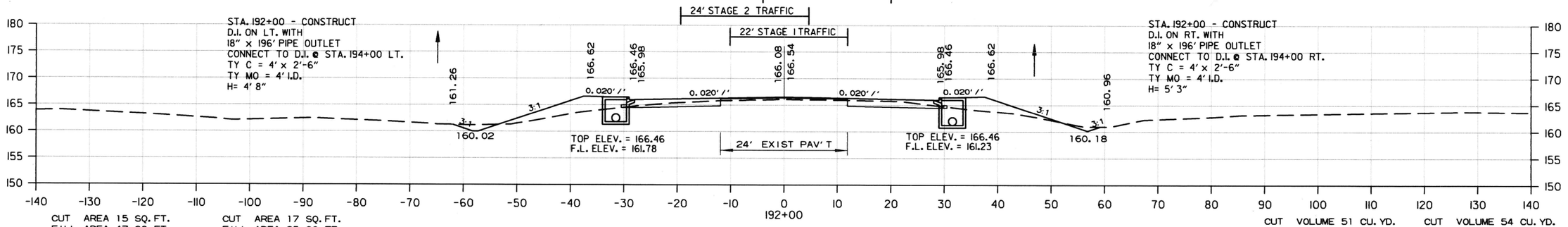


CUT AREA 14 SQ. FT.
FILL AREA 45 SQ. FT.

CUT AREA 18 SQ. FT.
FILL AREA 31 SQ. FT.

CUT VOLUME 53 CU. YD.
FILL VOLUME 170 CU. YD.

CUT VOLUME 66 CU. YD.
FILL VOLUME 122 CU. YD.

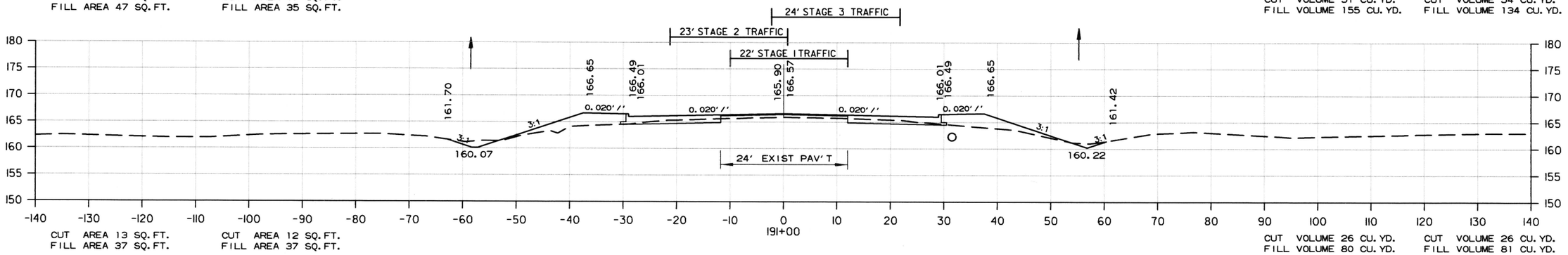


CUT AREA 15 SQ. FT.
FILL AREA 47 SQ. FT.

CUT AREA 17 SQ. FT.
FILL AREA 35 SQ. FT.

CUT VOLUME 51 CU. YD.
FILL VOLUME 155 CU. YD.

CUT VOLUME 54 CU. YD.
FILL VOLUME 134 CU. YD.



CUT AREA 13 SQ. FT.
FILL AREA 37 SQ. FT.

CUT AREA 12 SQ. FT.
FILL AREA 37 SQ. FT.

CUT VOLUME 26 CU. YD.
FILL VOLUME 80 CU. YD.

CUT VOLUME 26 CU. YD.
FILL VOLUME 81 CU. YD.

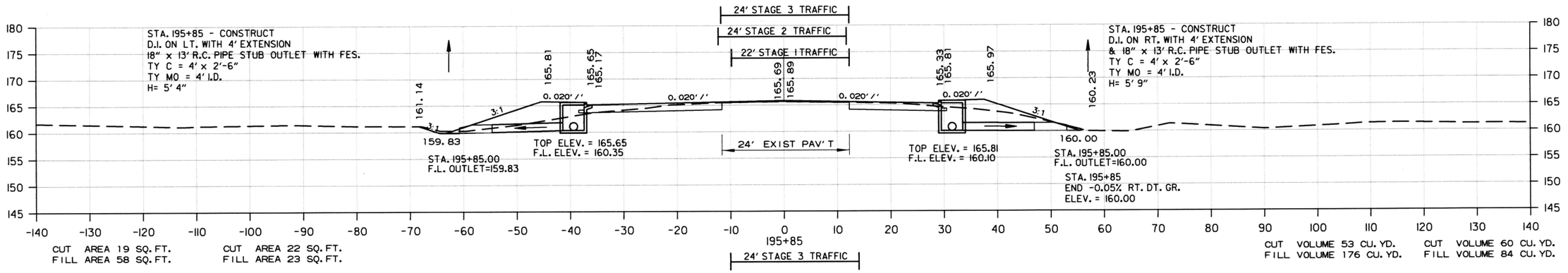
CROSS SECTION STA. 191+00 TO STA. 193+00

8/1/2016

CA0701_SB_XS.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.		CA0701	135	138

(2) CROSS SECTIONS



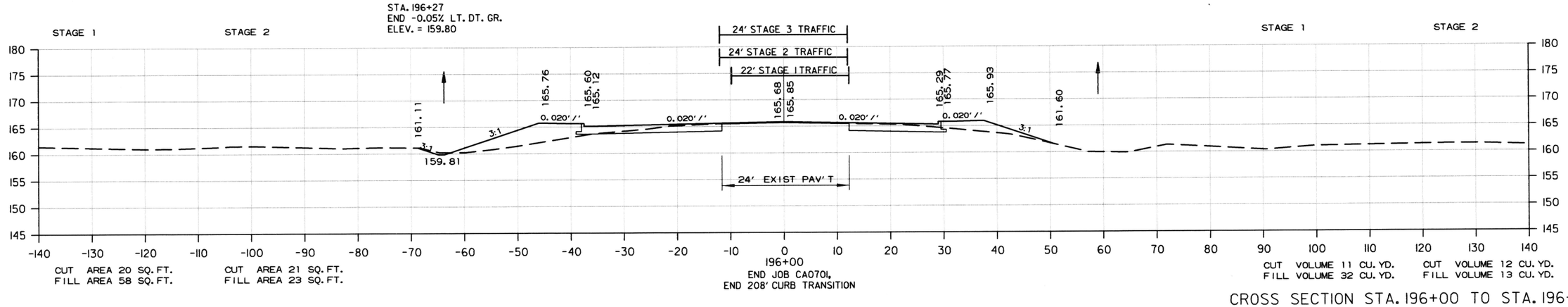
CROSS SECTION STA. 194+00 TO STA. 195+85

CA0701.SB_XS.DGN 8/1/2016

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.		CA0701	136	138

(2) CROSS SECTIONS



CROSS SECTION STA. 196+00 TO STA. 196+00

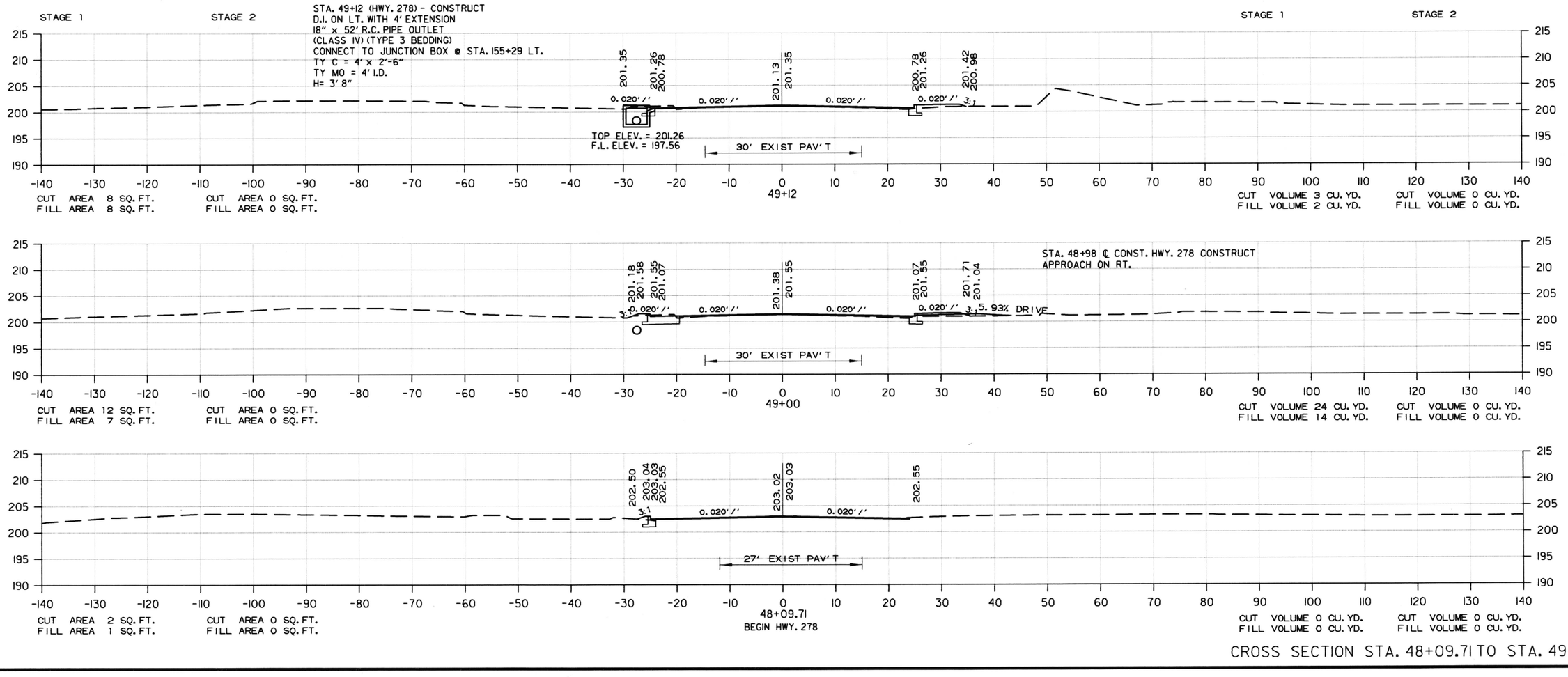
CA0701_SB_XS.DGN 8/1/2016

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.		CA0701	137	138

(2) CROSS SECTIONS

STA. 49+71.48 EARTHWORK VOLUMES

STAGE 1	STAGE 2
CUT VOLUME 109 CU. YD.	CUT VOLUME 0 CU. YD.
FILL VOLUME 16 CU. YD.	FILL VOLUME 0 CU. YD.



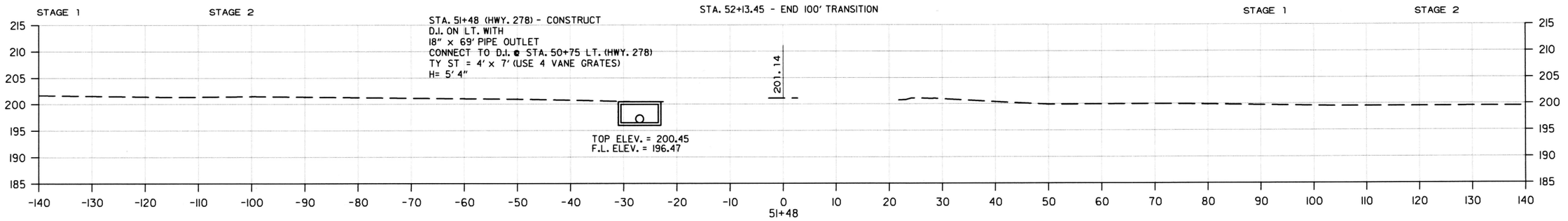
CROSS SECTION STA. 48+09.71 TO STA. 49+12

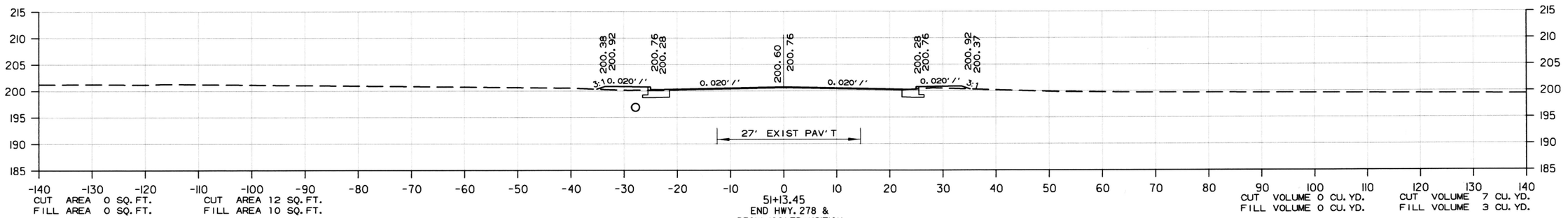
8/1/2016

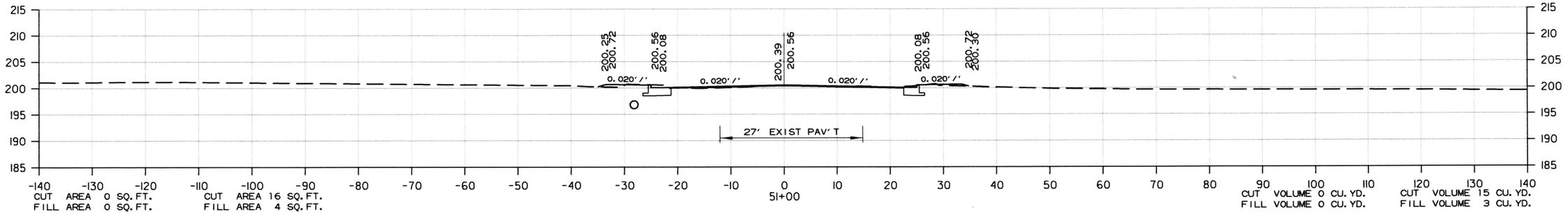
CA0701_SB_XS.DGN

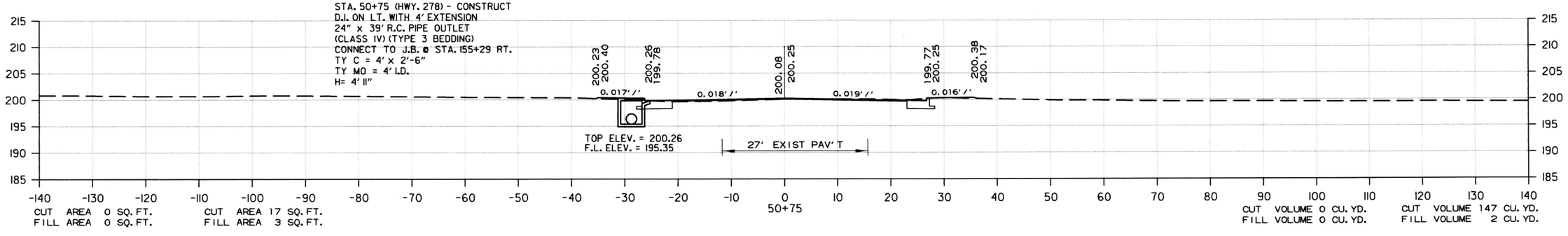
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA0701	138	138

(2) CROSS SECTIONS





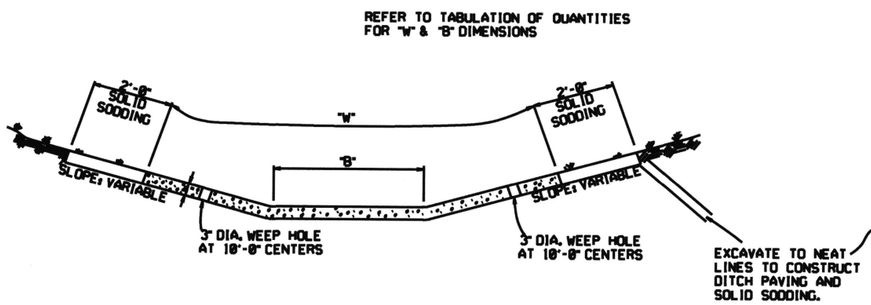




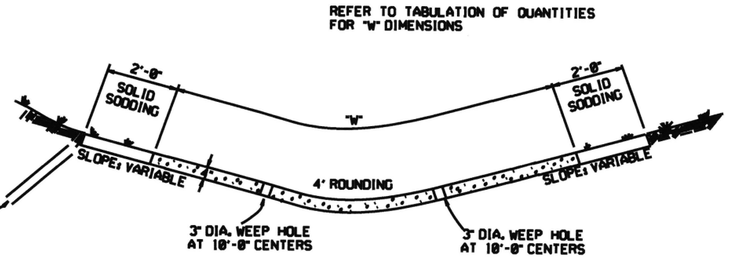
CROSS SECTION STA. 50+75 TO STA. 51+48

8/1/2016

CA0701_SB_XS.DGN

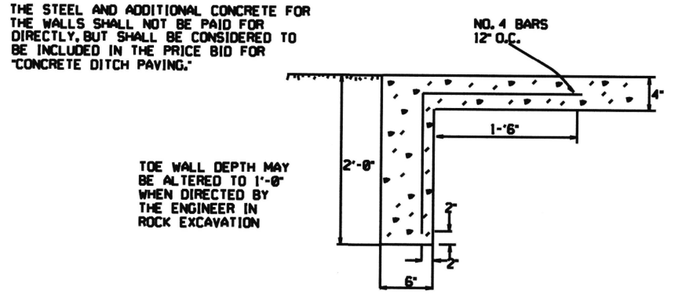


TYPE A



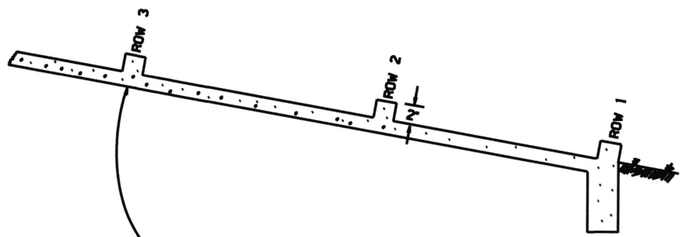
TYPE B

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

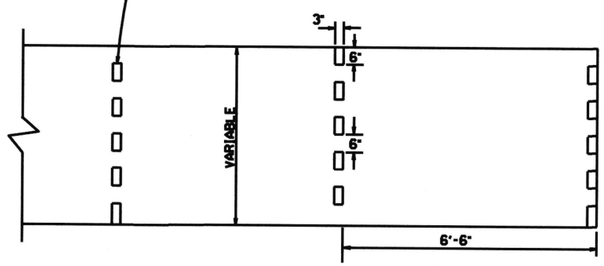


TOE WALL DEPTH MAY BE ALTERED TO 1'-6" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



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



ENERGY DISSIPATORS
(NO SCALE)

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

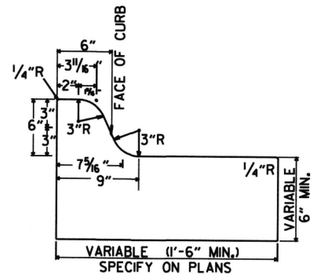
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-15	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-19-88	REVISED DISSIPATOR NOTE	651-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	642-1-8-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPES A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

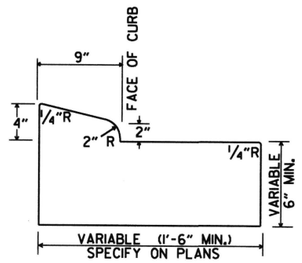
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

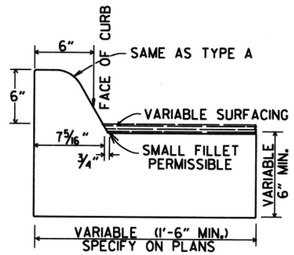
STANDARD DRAWING CDP-1



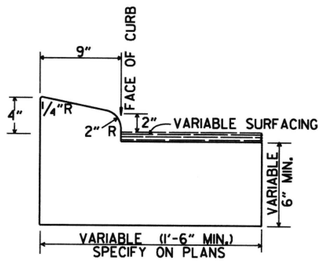
TYPE A



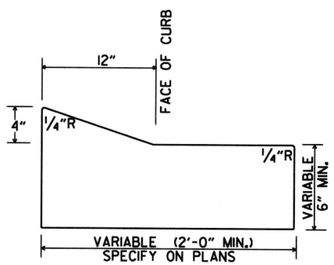
TYPE B-1



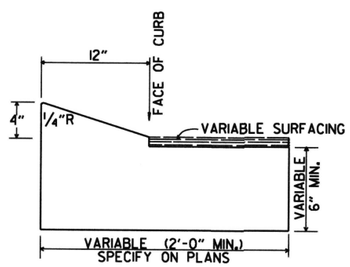
TYPE C



TYPE B-2

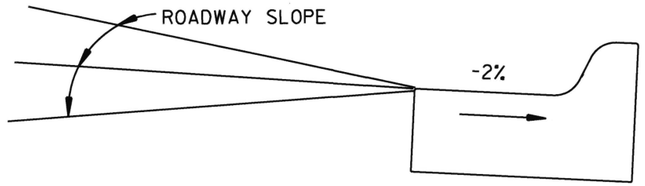


TYPE E-1



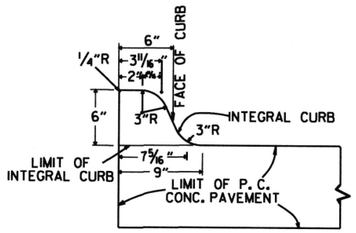
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

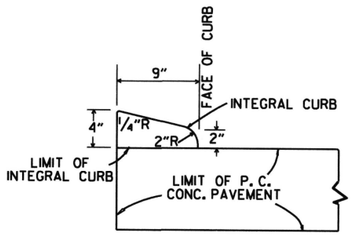


DETAIL OF GUTTER SLOPE

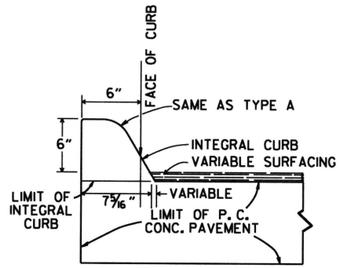
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

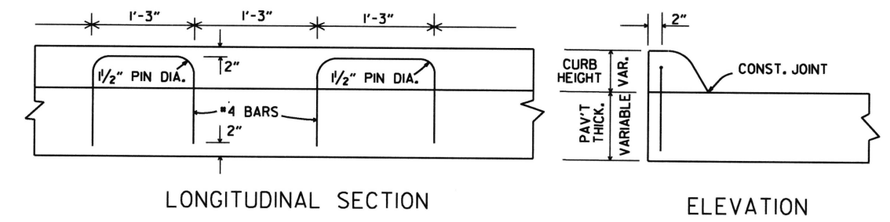


TYPE B



TYPE C

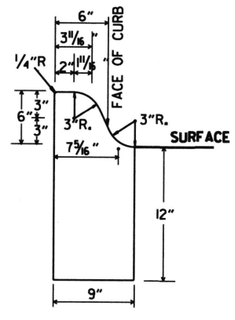
INTEGRAL CURB



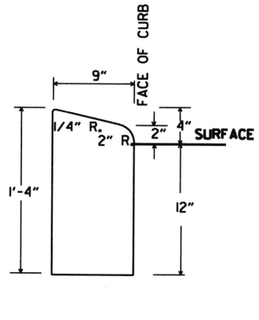
LONGITUDINAL SECTION

ELEVATION

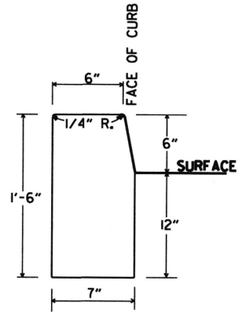
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



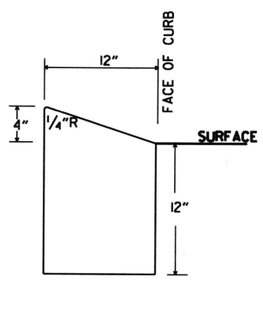
TYPE A



TYPE B

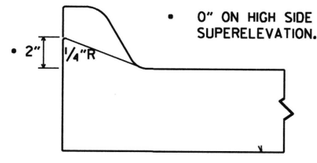


TYPE D



TYPE E

CONCRETE CURB



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

DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B 1	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	580-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

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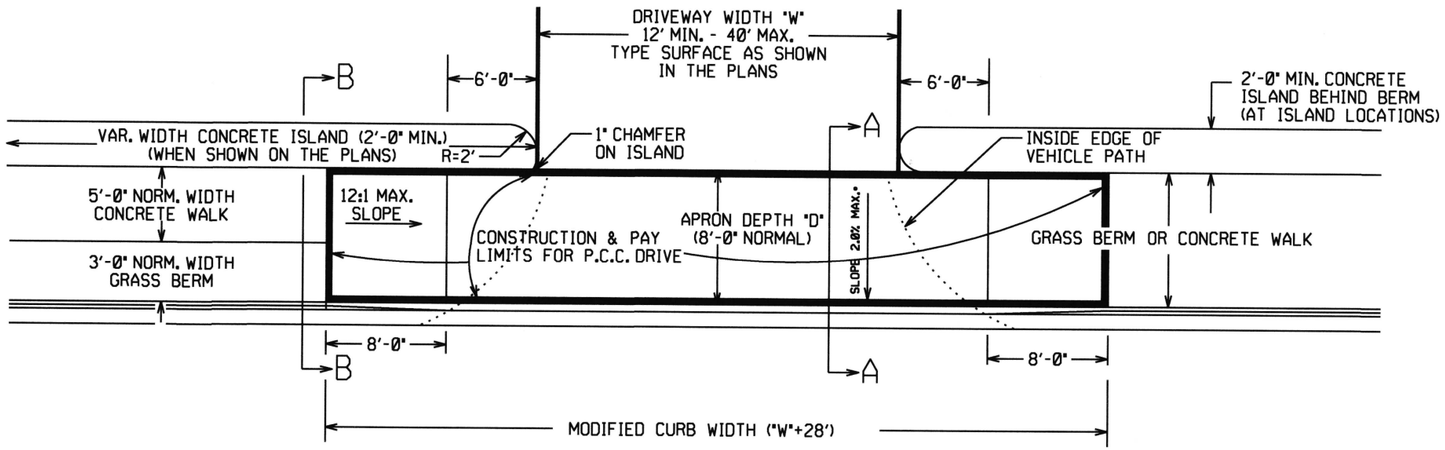
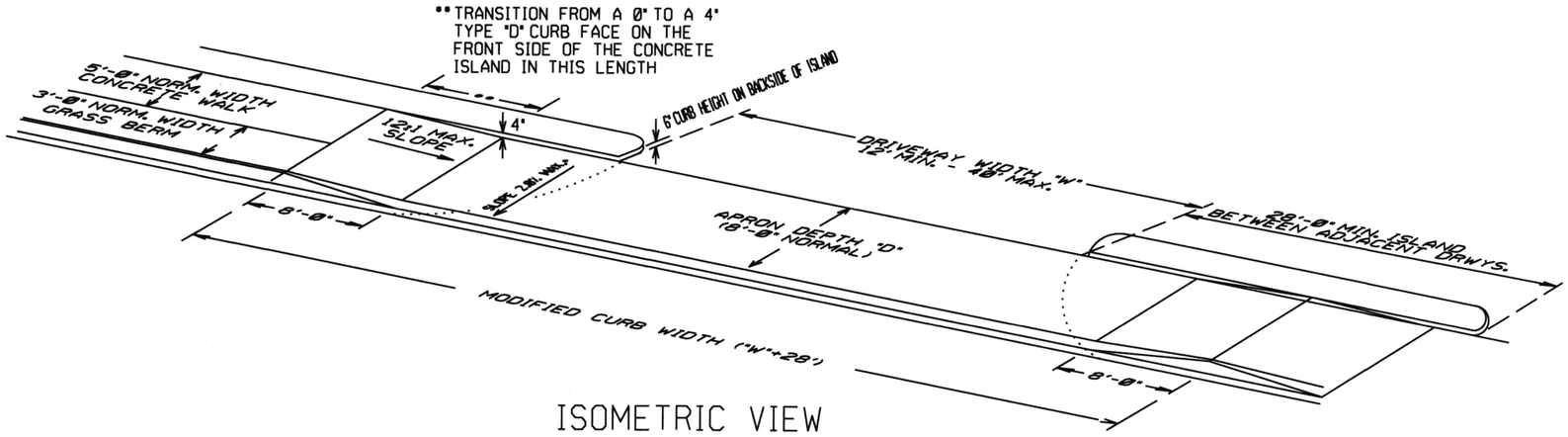
CURBING DETAILS

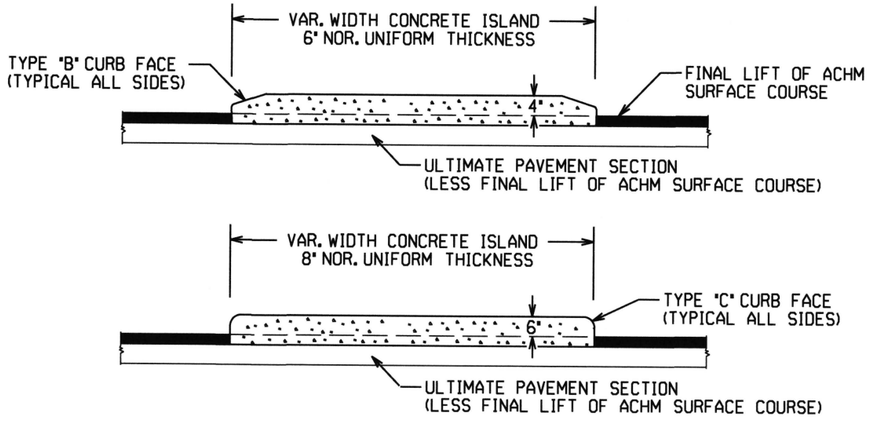
STANDARD DRAWING CG-1



PLAN VIEW

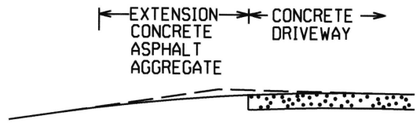


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

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



EXTENSION TYPICAL SECTIONS

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

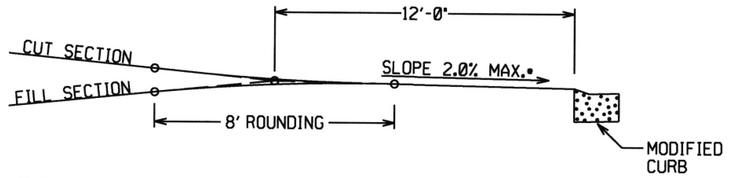
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE (1") OR
4" ACHM BASE COURSE (1-1/2")

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

4: AGGREGATE - 6" AGGREGATE BASE COURSE

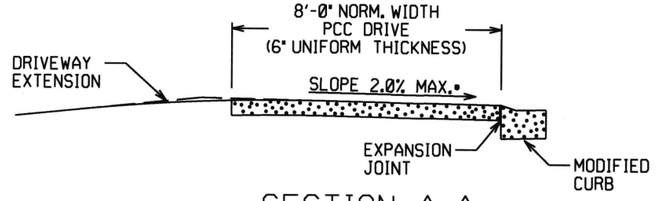
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

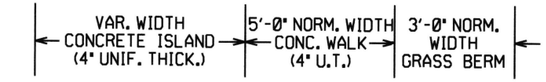


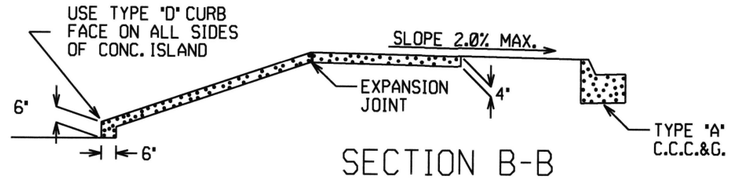
DRIVEWAY VERTICAL ALIGNMENT DETAILS

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



SECTION A-A





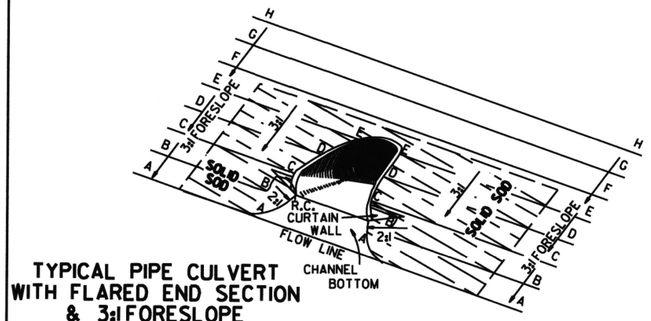
SECTION B-B
CURBED ISLAND BEHIND WALK

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

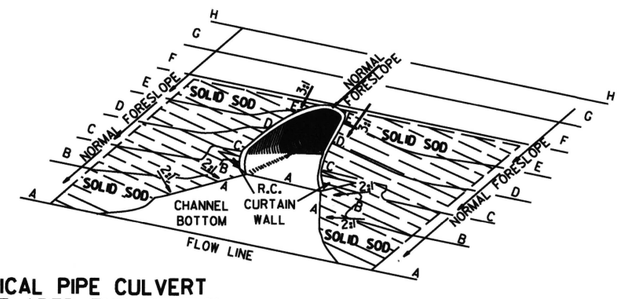
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & ISLANDS

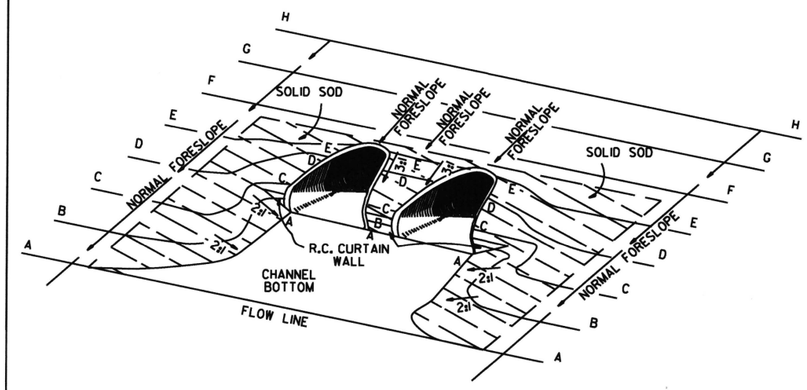
STANDARD DRAWING DR-1



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



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

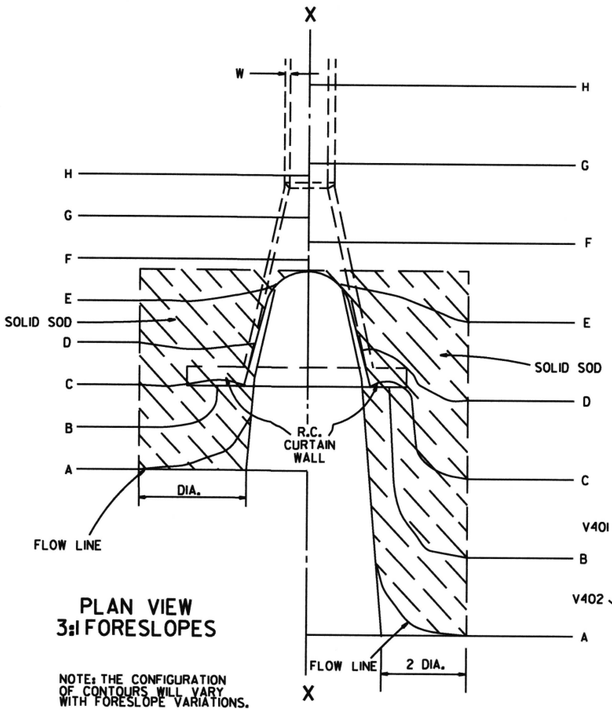
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"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

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

REINFORCING STEEL SCHEDULE

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

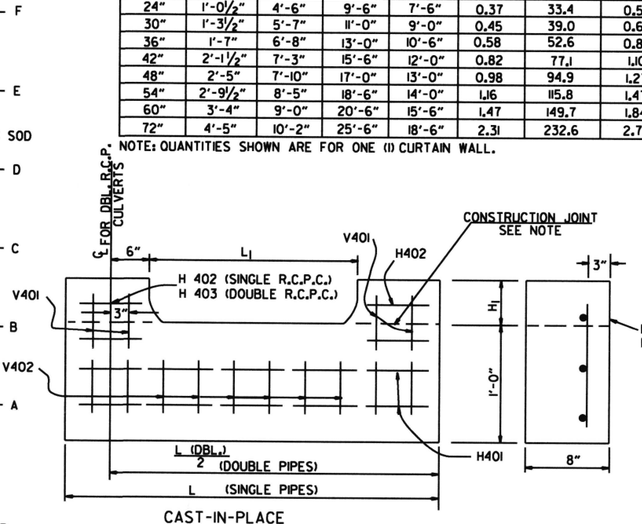
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

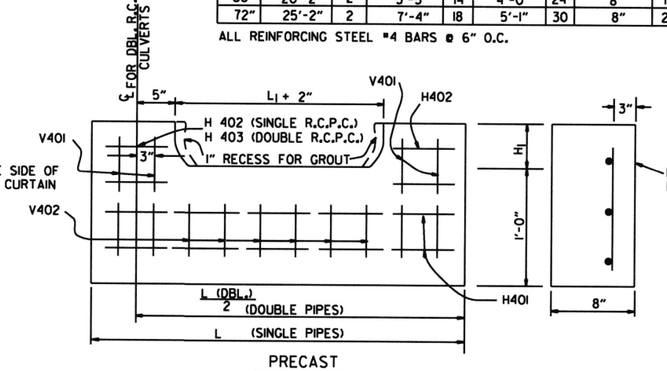
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

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



PRECAST

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

R.C. CURTAIN WALL DETAILS

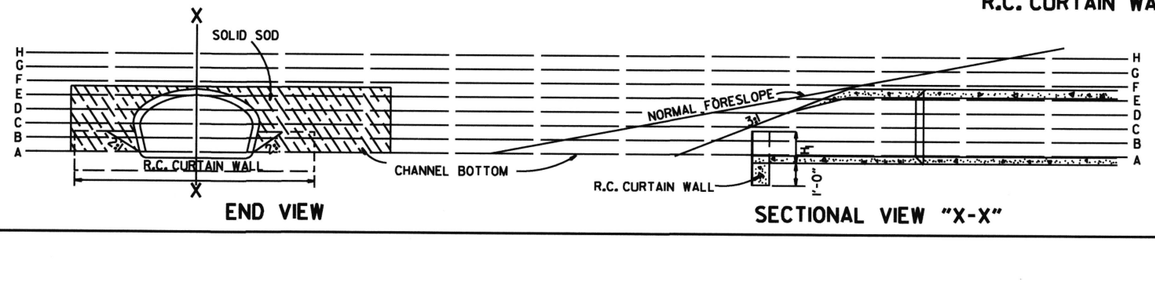
SOLID SODDING

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

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

GENERAL NOTES

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



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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

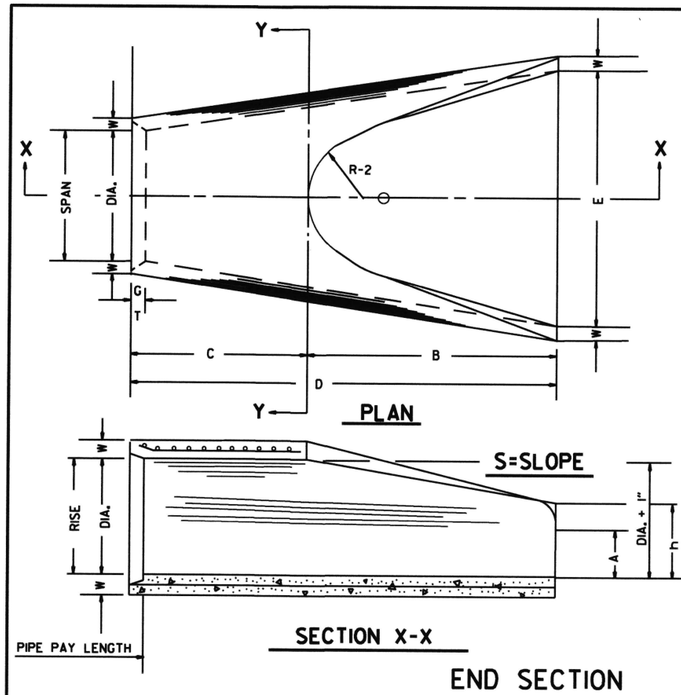
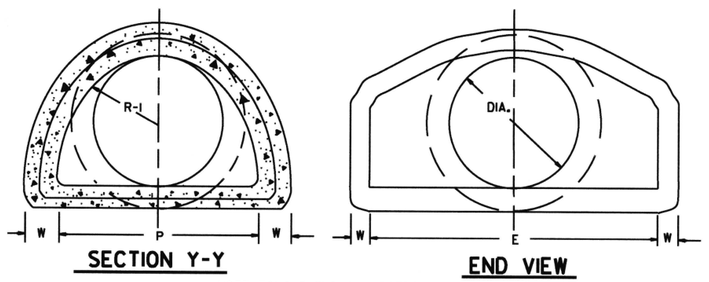


TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + I"	P	R-I	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3±I	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-1½"	2'-6"	6'-1½"	4'-0"	3±I	25"	33⅜"	16⅛"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3±I	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3±I	37"	47⅛"	24⅝"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3±I	43"	53⅛"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3±I	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3±I	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3±I	61"	72½"	36⅛"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3±I	73"	77⅛"	38⅛"	24"	5"	13250	4'-6"

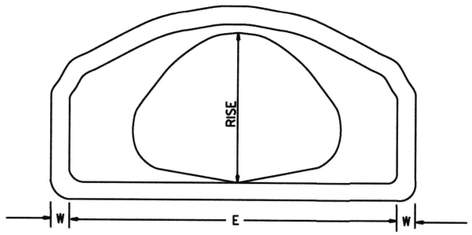


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

ARCH PIPE

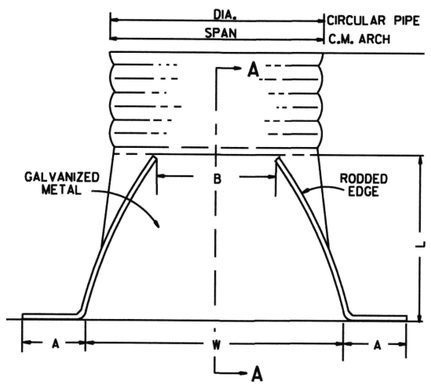
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½±I
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½±I
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½±I
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36⅝"	15"	2½"	2½±I
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47⅛"	20"	3"	2½±I
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54⅝"	22"	3½"	2½±I
42	51⅛	51	31⅝	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½±I
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅜"	24"	4¼"	2½±I
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72⅛"	24"	4¾"	2¼±I
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77⅛"	24"	5"	2¼±I

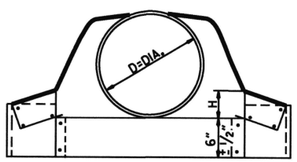
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



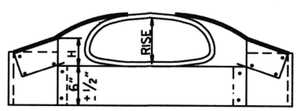
END VIEW
CONCRETE ARCH PIPE

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS





CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

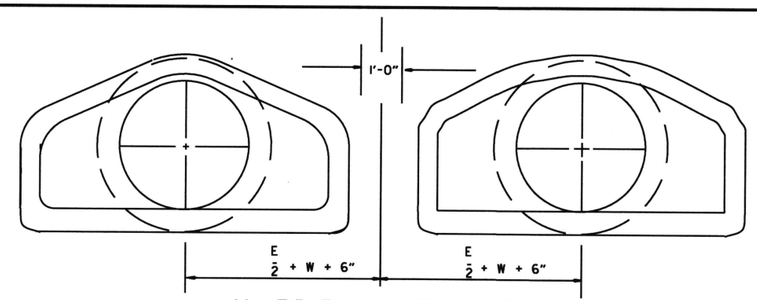
D. DIA.	GAUGE	A I" ±	B. MAX.	H I" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½±I
15	16	7	8	6	26	30	2½±I
18	16	8	10	6	31	36	2½±I
21	16	9	12	6	36	42	2½±I
24	16	10	13	6	41	48	2½±I
30	14	12	16	8	51	60	2½±I
36	14	14	19	9	60	72	2½±I
42	12	16	22	11	69	84	2½±I
48	12	18	27	12	78	90	2½±I
54	12	18	30	12	84	102	2±I
60	12	18	33	12	87	114	1¾±I
66	12	18	36	12	87	120	1½±I
72	12	18	39	12	87	126	1 1/3±I

C.M. ARCH PIPE

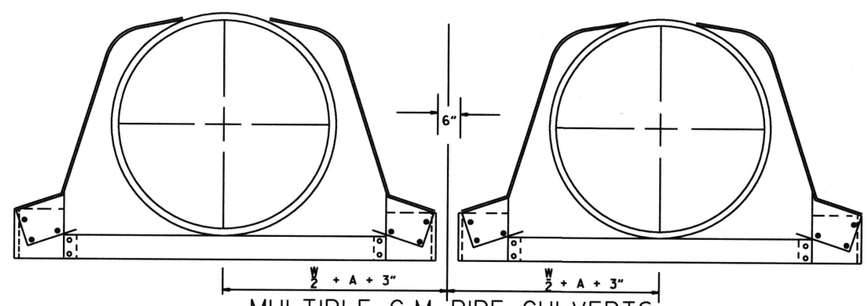
EQUIV. DIA.	SPAN	RISE	A I" ±	B MAX.	H I" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½±I	16
18"	21	15	7	10	6	23	36	2½±I	16
21"	24	18	8	12	6	28	42	2½±I	16
24"	28	20	9	14	6	32	48	2½±I	16
30"	35	24	10	16	6	39	60	2½±I	14
36"	42	29	12	18	8	46	75	2½±I	14
42"	49	33	13	21	9	53	85	2½±I	12
48"	57	38	18	26	12	63	90	2½±I	12
54"	64	43	18	30	12	70	102	2¼±I	12
60"	71	47	18	33	12	77	114	2¼±I	12

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



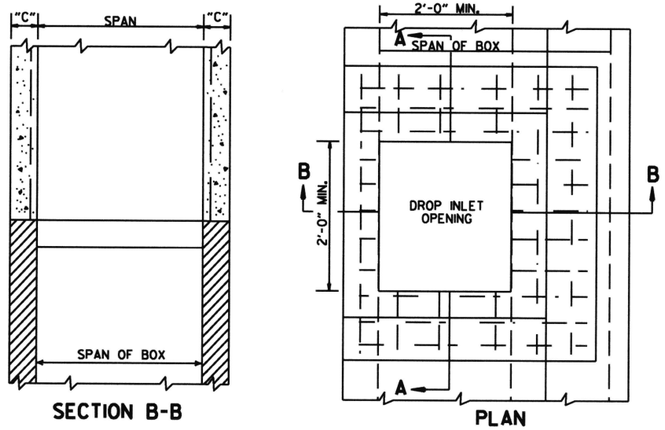
MULTIPLE C.M. PIPE CULVERTS

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

ARKANSAS STATE HIGHWAY COMMISSION

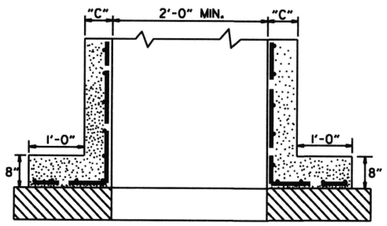
FLARED END SECTION

STANDARD DRAWING FES-2

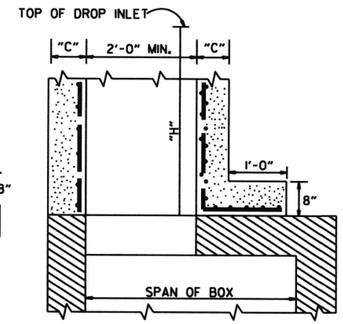


SECTION B-B

PLAN

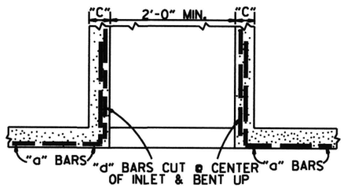


SECTION A-A

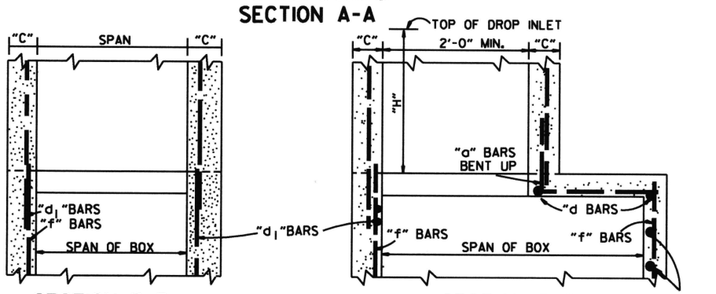


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



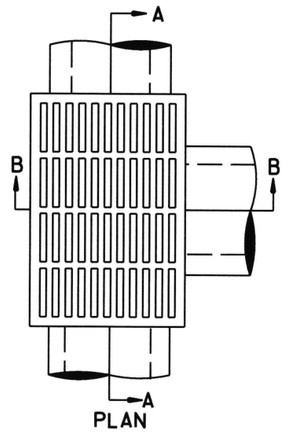
SECTION A-A



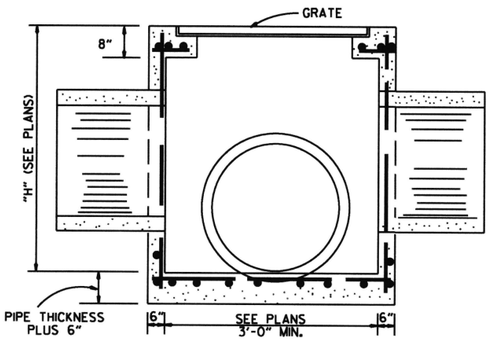
SECTION B-B SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.

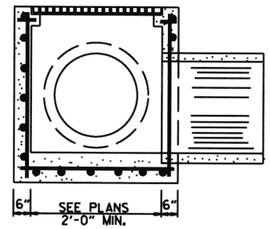


PLAN



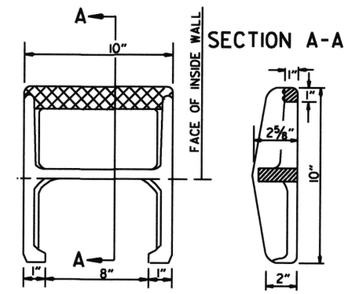
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

DROP INLET (TYPE E)



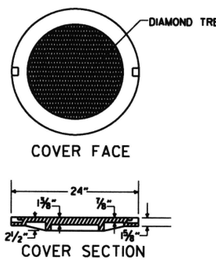
SECTION A-A

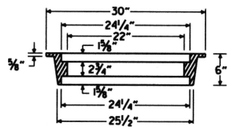
APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

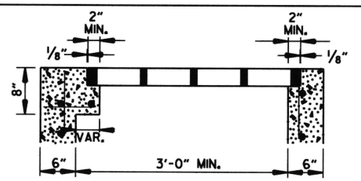




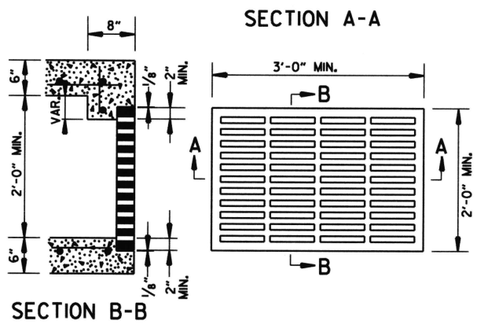
RING SECTION

APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



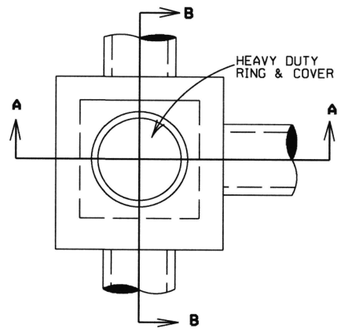
SECTION A-A



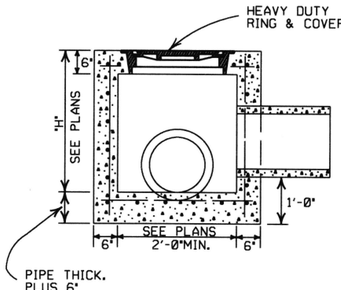
SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

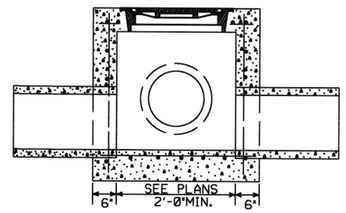


PLAN



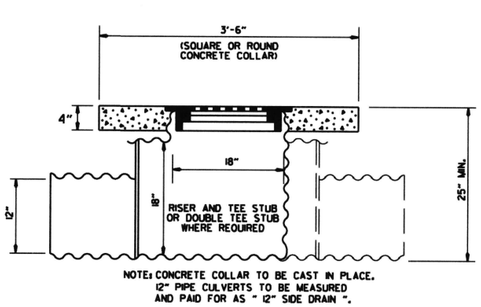
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE JUNCTION BOX TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.

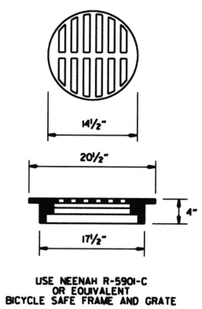


SECTION B-B

JUNCTION BOX (TYPE E)



NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12" PIPE CULVERTS TO BE MEASURED AND PAID FOR AS " 12" SIDE DRAIN ".



USE NEENAH R-5901-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

DETAIL OF YARD DRAIN

GENERAL NOTES:

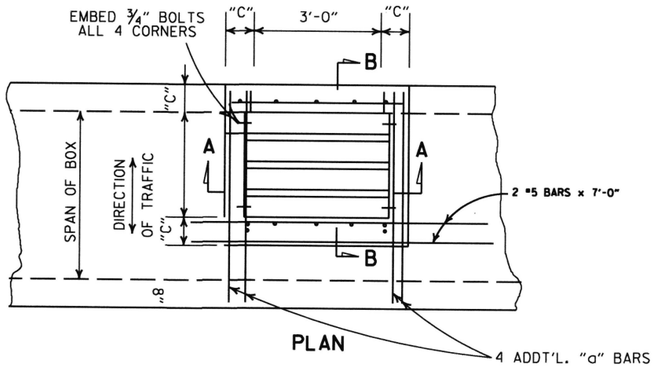
1. ALL EXPOSED CORNERS SHALL BE ¾" CHAMFERED.
2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL SHALL BE ¾" PREFORMED FIBER.
4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
5. GRATE AND FRAME SHALL NOT BE PAINTED.
6. GRATE SHALL BE BICYCLE SAFE.
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

DATE REV.	REVISION	DATE FILMED
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED DI(TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

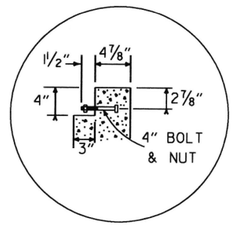
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS & JUNCTION BOXES

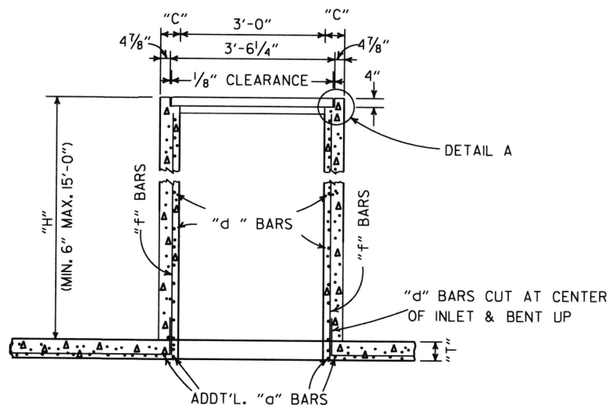
STANDARD DRAWING FPC-9



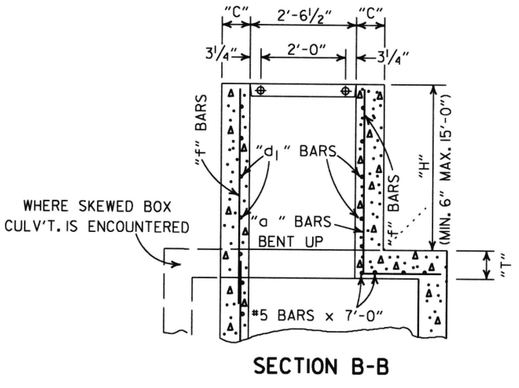
PLAN



DETAIL A



SECTION A-A

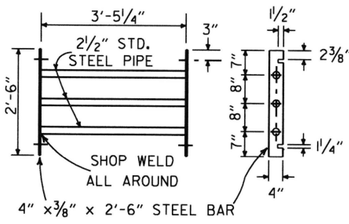


SECTION B-B

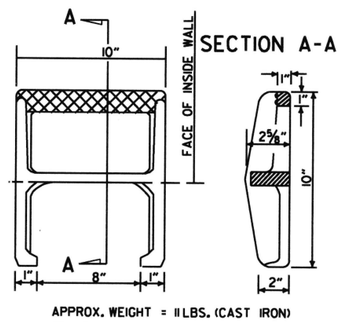
NOTE: ADDT'L.REINF. STEEL TO BE INCLUDED IN UNIT PRICE BID PER TYPE "TM" D.I.

DIMENSIONS & REINF. BARS FOR D.I. TO BE THE SAME AS THOSE SHOWN ON APPLICABLE STD. BARREL DRAWING FOR R.C. BOX CULVERTS.

DROP INLET TYPE "TM"
FOR REINFORCED CONC. BOX CULVERTS



GRATE DETAIL



APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

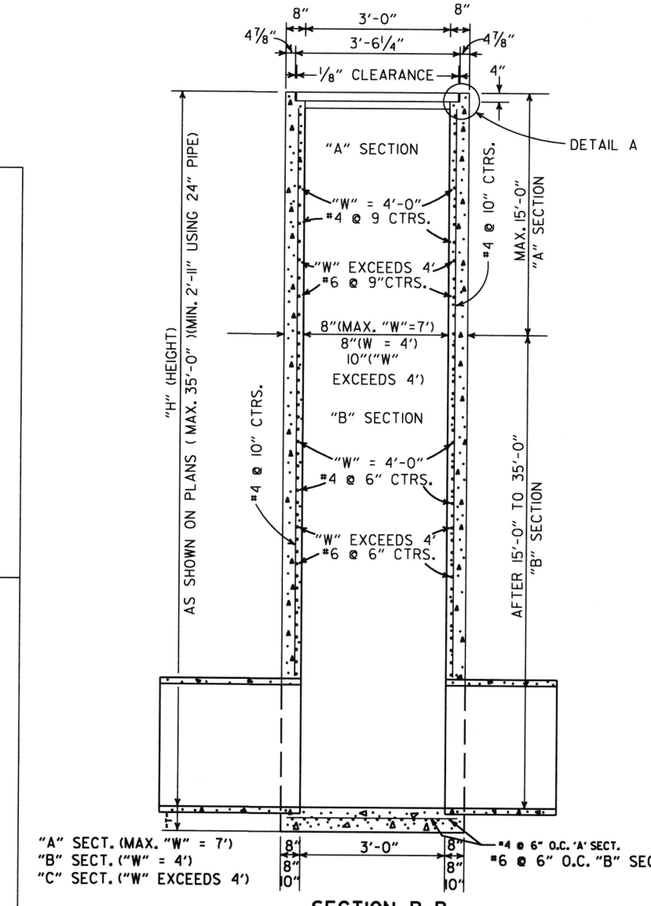
GENERAL NOTES:

1. STEEL PIPE FOR GRATES AND BOLTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 807. BOLTS SHALL CONFORM TO ONE OF THE FOLLOWING: ASTM A193, GRADE B8 CLASS 1 OR 2, ASTM A307 OR AASHTO M 164.
2. STEEL PIPE FOR GRATES SHALL BE "STANDARD WEIGHT" PIPE CONFORMING TO ASTM A53 NATIONAL STANDARD PIPE.
3. BOLTS, NUTS, WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 232 OR AASHTO M 298, CLASS 40 OR 50.
4. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
5. ALL #4 AND #5 REINFORCING BARS TO HAVE 1½" COVER. LARGER SIZES TO HAVE 2" COVER.
6. THE COMPLETE PIPE GRATE SHALL BE PAINTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

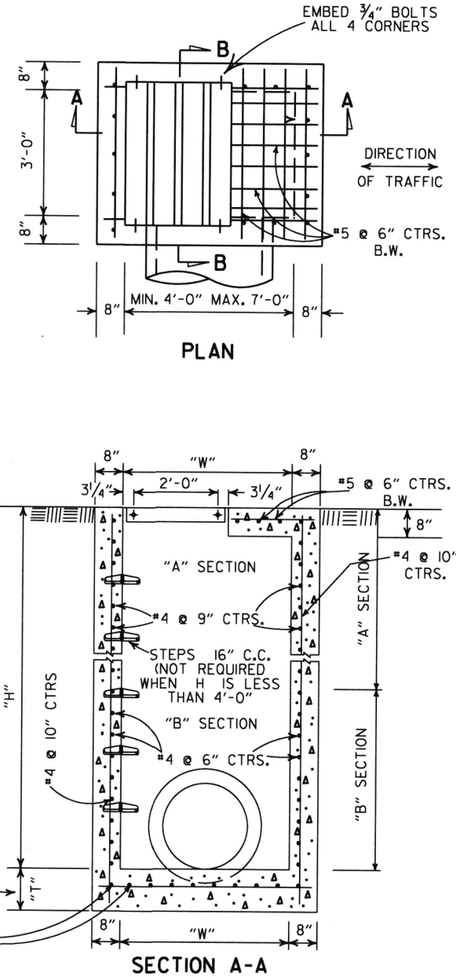
TABLE OF "W" DIMENSIONS

I.D. PIPE	SKEW OF CROSS DRAIN		
	STRAIGHT	30°	45°
	"W"	"W"	"W"
24"	4'-0"	4'-0"	4'-0"
30"	4'-0"	4'-0"	4'-5"
36"	4'-0"	4'-3"	5'-3"
42"	4'-3"	4'-11"	6'-1"
48"	4'-10"	5'-7"	6'-11"

NOTE: DIMENSIONS SHOWN ABOVE ARE FOR PIPES INTERSECTING DROP INLET ON ONE SIDE ONLY. FOR SKEWED PIPES INTERSECTING BOTH SIDES OF DROP INLET, "W" WILL NEED TO BE INCREASED OR AXIS OF INTERSECTING PIPES WILL NEED TO BE SHIFTED.



SECTION B-B



PLAN

SECTION A-A

DROP INLET(TYPE RM)

REVISED	DATE FILMED
8-22-02 ADDED & REVISED DIMENSION TO SECTION A-A	
1-12-00 CORRECTED DIMENSION ON SECTION B-B	
11-06-97 ADDED DIMENSION TO SECTION A-A	
10-18-96 REVISED ASTM REF. TO AASHTO AND ADDED NOTE TO TABLE OF "W" DIMENSIONS	
10-1-92 ADDED DIRECTION OF TRAFFIC	10-1-92
8-15-91 ADDED NOTE ABOUT PAINTING OF GRATE	8-15-91
11-30-89 ALTERED DETAIL A	11-30-89
7-15-88 REVISED STEP DETAIL,TM & RM D.I. & GRATE DETAIL	719-7-15-88
10-2-72 REVISED AND REDRAWN	542-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

STANDARD DRAWING FPC-9D

4'-0" LENGTH DROP INLET

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

DROP INLET EXTENSION

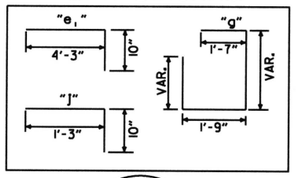
4'-0" CLASS A CONC.	4'-0" REINF. STEEL	8'-0" CLASS A CONC.	8'-0" REINF. STEEL
CU. YDS.	POUNDS	CU. YDS.	POUNDS
0.58	38	0.87	72
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.			
0.04	3		

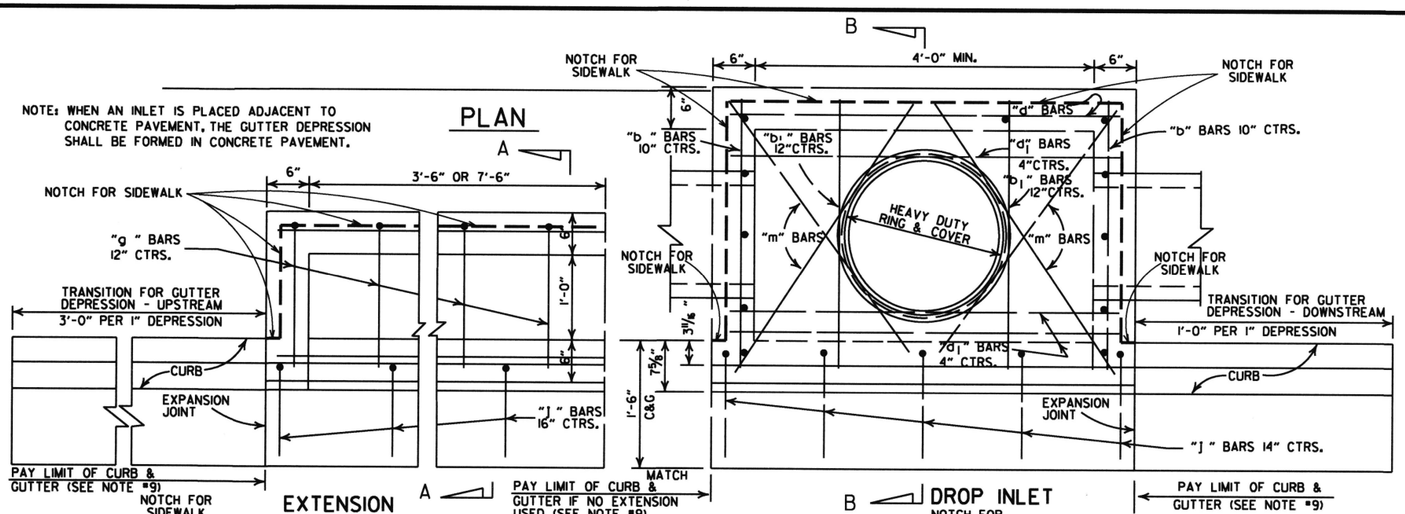
NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

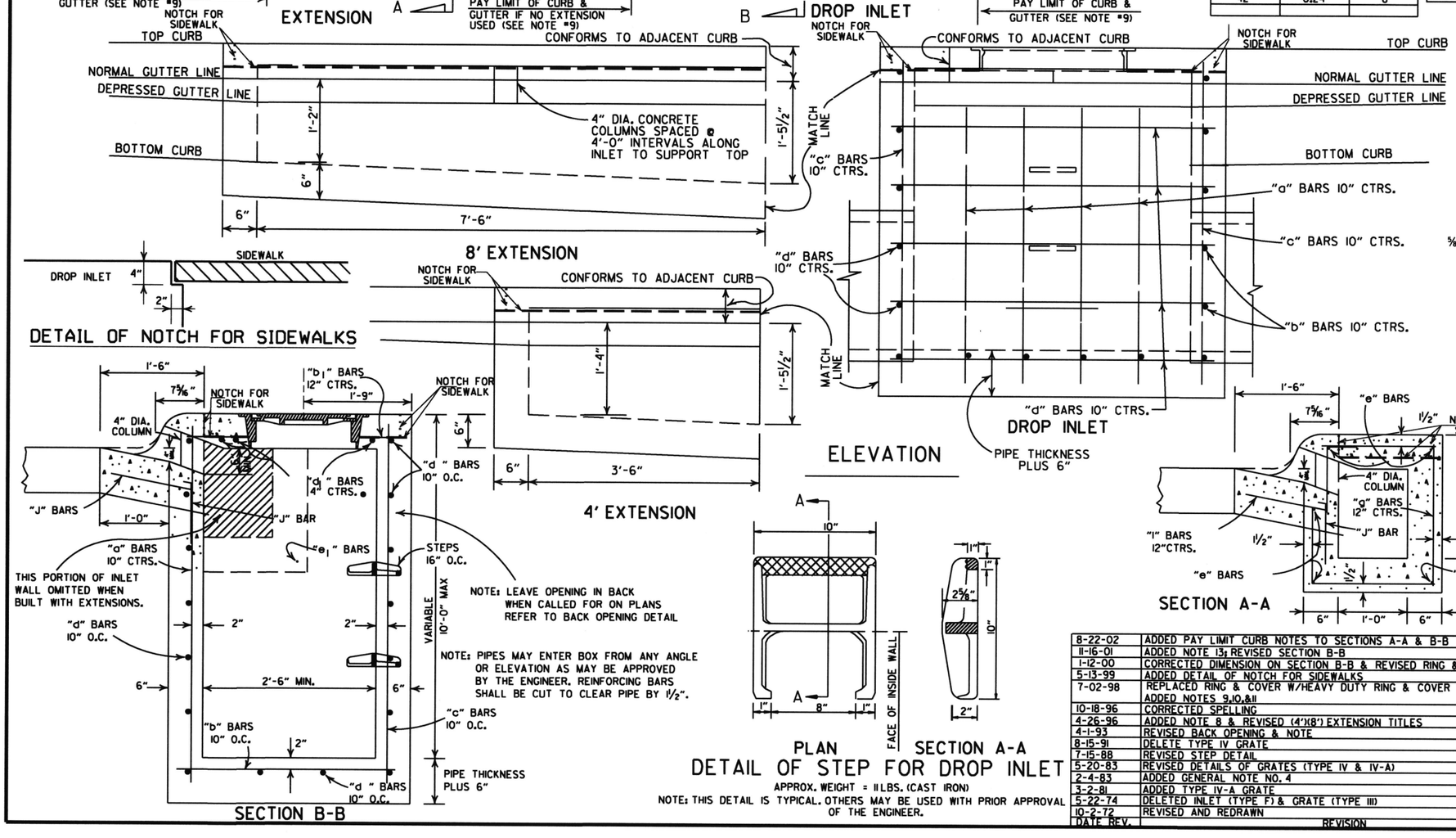
DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET

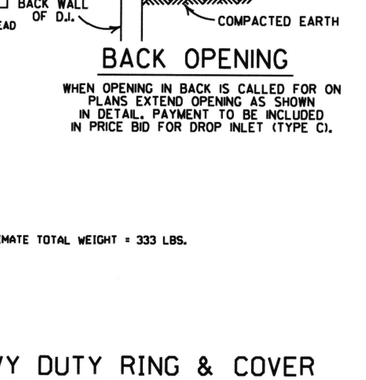
INSIDE DIA. PIPE	CLASS A CONC.	REINF. STEEL
INCHES	CU. YDS.	POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8

BAR DIAMETER



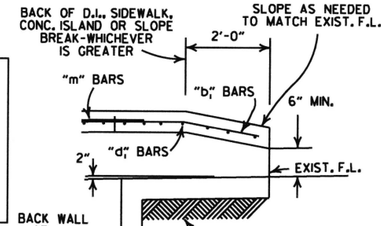






APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



BACK OPENING

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

GENERAL NOTES:

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

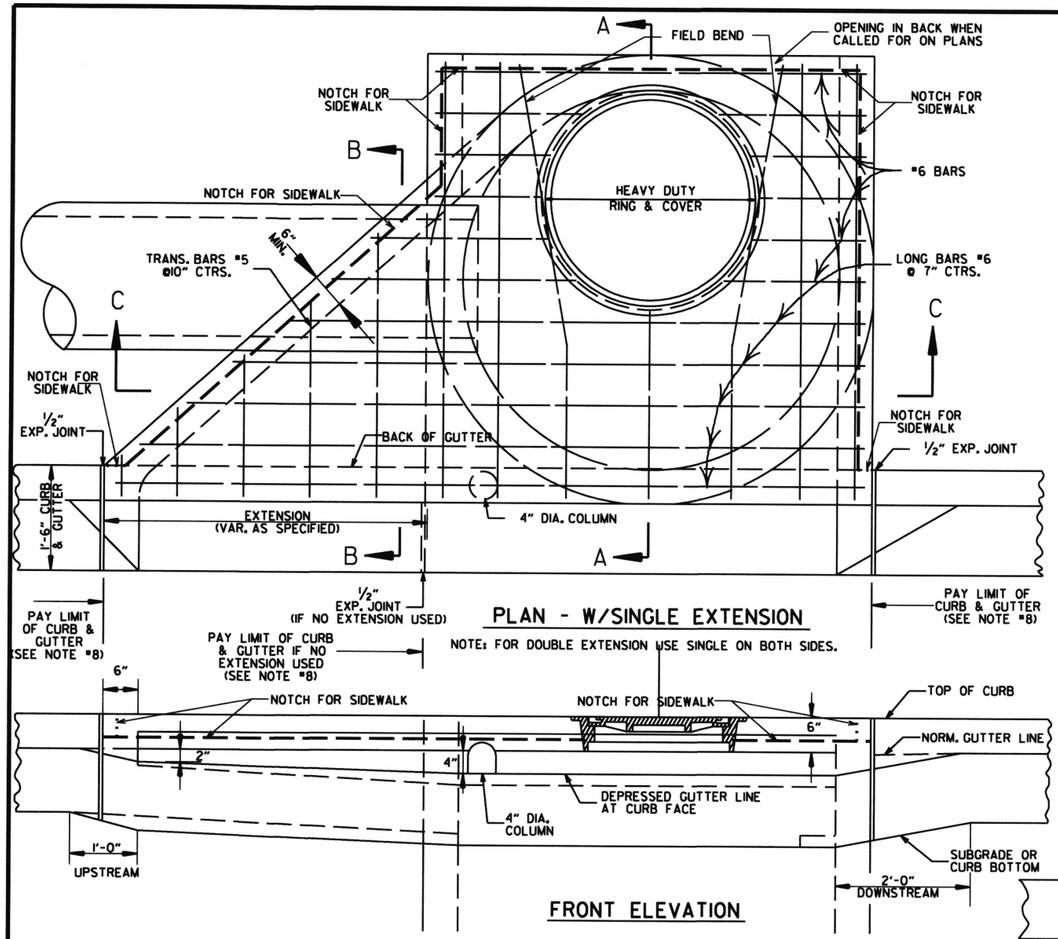
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER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

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS

(TYPE C)

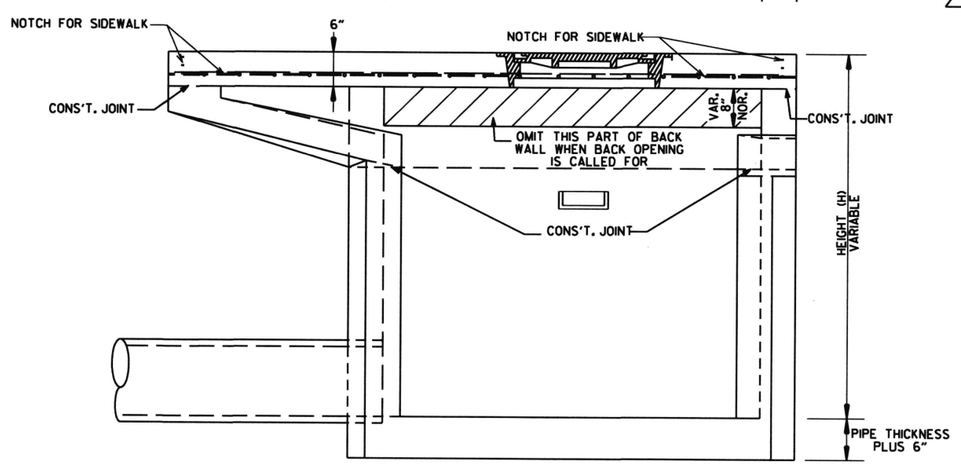
STANDARD DRAWING FPC-9E



PLAN - W/SINGLE EXTENSION

NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.

FRONT ELEVATION



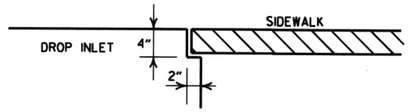
SECTION C-C



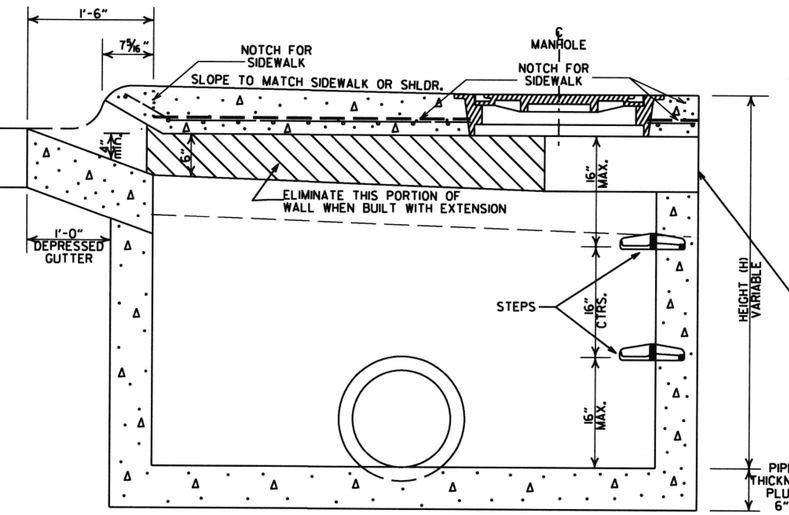
APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

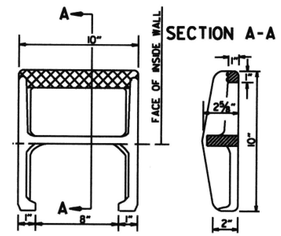
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



DETAIL OF NOTCH FOR SIDEWALKS



SECTION A-A

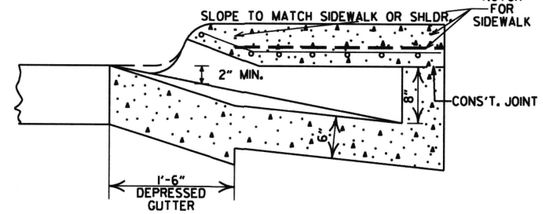


APPROX. WEIGHT = 11 LBS. (CAST IRON)

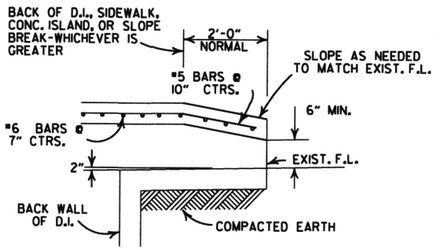
PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET



SECTION B-B



BACK OPENING

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

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1 1/2" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

LEAVE OPENING IN BACK WHEN CALLED FOR ON PLANS REFER TO BACK OPENING DETAIL

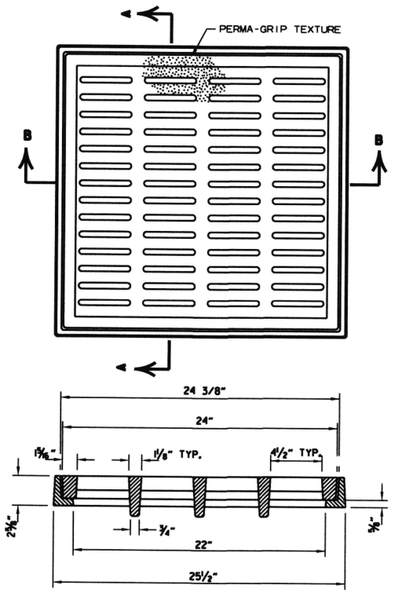
DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS CAST IN PLACE	MINIMUM WALL THICKNESS PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

DATE	REVISIONS	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REVI. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 11 AND OPENING DIMENSION	
10-12-95	CORRECTED "S" BAR SPACING	
7-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
2-2-95	TYPE C TO MO (OPEN BACK DETAIL)	
8-3-94	REVISED GENERAL NOTES	11-3-94
4-1-93	REV. BACK OPEN. DETAIL & NOTE	4-1-93
8-15-91	REVISED NOTES 11,12 & ADDED BK.OPEN DETAIL	8-15-91
12-20-89	ADDED NOTE NO.12	1-30-90
4-24-89	ADDED NOTE & MINIMUM WALL THICKNESS	513-5-24-89
10-05-88	ADDED EXTEND NOTE TO SECTION A-A	639-7-6-88
11-6-87	MODIFIED WALL THICKNESS	783-11-6-87
6-12-87	ISSUED	4-6-12-87

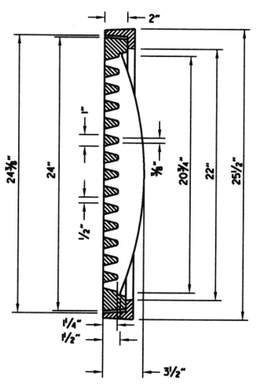
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M



SECTION B-B

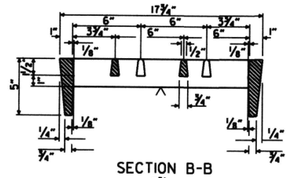


SECTION A-A

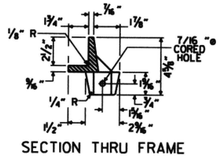
GENERAL NOTES (PEDESTRIAN GRATE & FRAME)

1. THE PEDESTRIAN GRATE SHALL BE ORIENTED IN THE TOP OF THE DROP INLET SO THAT THE ½" OPENINGS ARE PERPENDICULAR TO THE PATH OF PEDESTRIAN TRAVEL.
2. THE PEDESTRIAN GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
3. THE GRATE AND FRAME SHALL NOT BE PAINTED.
4. THE GRATE AND FRAME SHALL BE INSTALLED IN THE DROP INLET IN THE ASSEMBLED POSITION.
5. THE APPROXIMATE WEIGHT OF THE GRATE AND FRAME SHALL BE 211 LBS.
6. THE MINIMUM WATERWAY OPENING SHALL BE 122 SQ. IN.

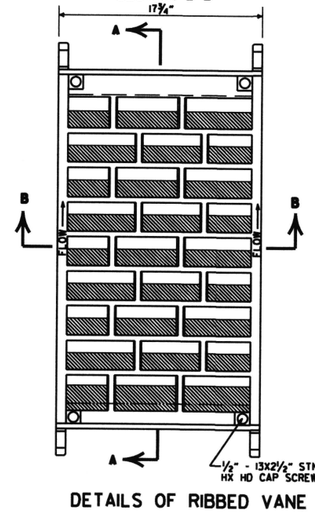
DETAILS OF PEDESTRIAN GRATE AND FRAME

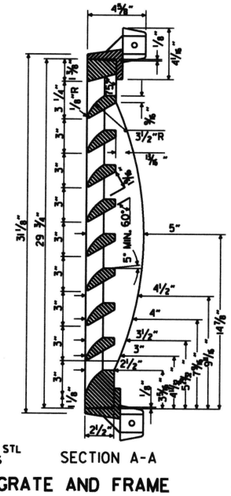


SECTION B-B



SECTION THRU FRAME



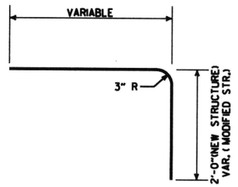


SECTION A-A

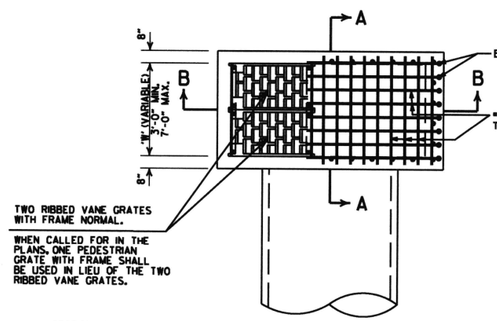
DETAILS OF RIBBED VANE GRATE AND FRAME

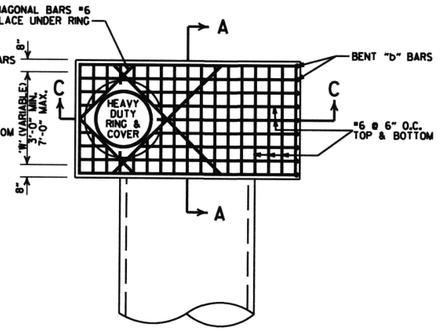
GENERAL NOTES (RIBBED VANE GRATE & FRAME)

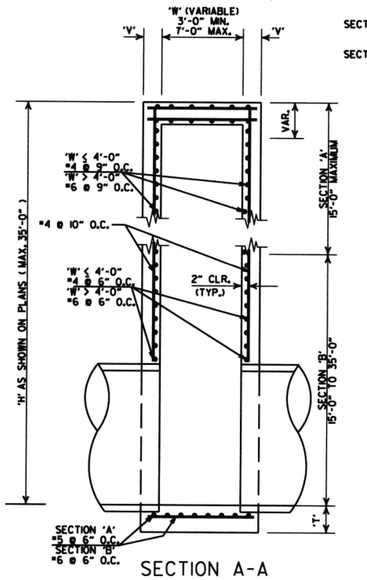
1. RIBBED VANE GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
2. GRATE AND FRAME SHALL NOT BE PAINTED.
3. GRATE AND FRAME SHALL BE INSTALLED IN DROP INLET IN ASSEMBLED POSITION.
4. APPROXIMATE WEIGHT OF GRATE SHALL BE 170 LBS.



DETAIL OF BENT "b" BAR







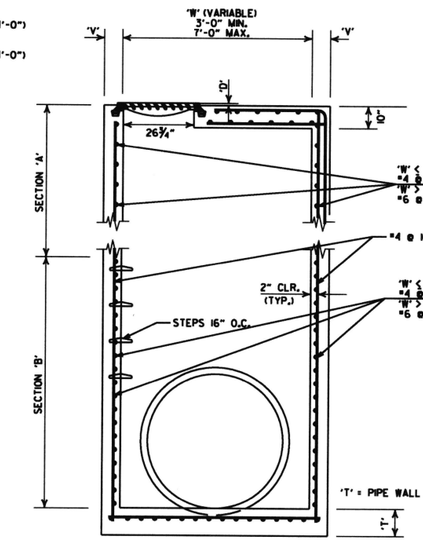
SECTION A-A

DETAILS OF DROP INLET (TYPE ST)

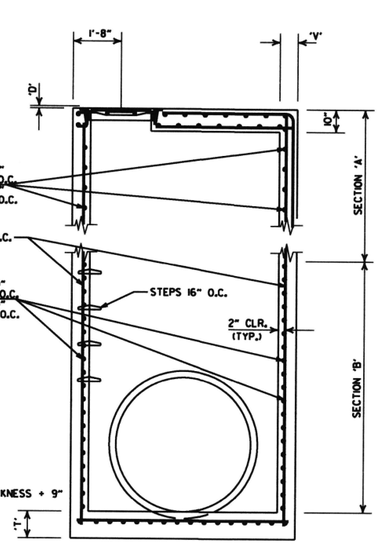
SECTION 'A'
'V' = 8"

SECTION 'B' (W≤4'-0")
'V' = 8"

SECTION 'B' (W>4'-0")
'V' = 10"



SECTION B-B



SECTION C-C

DETAILS OF JUNCTION BOX (TYPE ST)

GENERAL NOTES (TYPE ST DROP INLET & JUNCTION BOX)

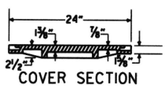
1. THE 'D' DIMENSION SHALL MATCH THE FINAL LIFT OF ACHM SURFACE COURSE SHOWN IN THE PLANS WHEN ASPHALT PAVING SURROUNDS THE GRATE OR RING COVER, AND SHALL BE 0" AT OTHER INSTALLATIONS.
2. THE STEPS SHALL BE OMITTED WHERE 'H' IS LESS THAN 4'-0".
3. ALL EXPOSED CORNERS ARE TO HAVE A ¾" CHAMFER.

GENERAL NOTES (HEAVY DUTY RING & COVER):

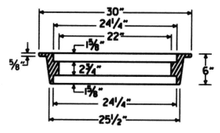
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
4. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.



COVER FACE



COVER SECTION



RING SECTION

HEAVY DUTY RING & COVER

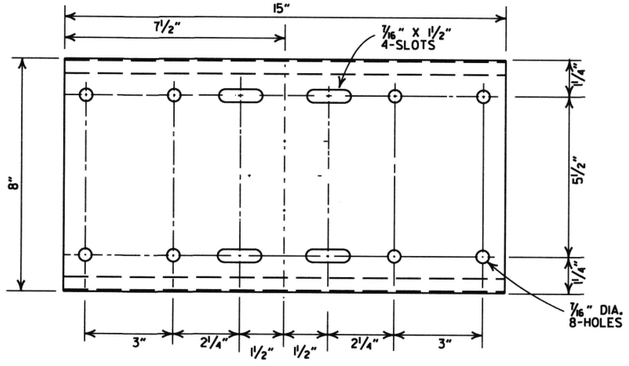
APPROXIMATE TOTAL WEIGHT = 333 LBS.

DATE REVISED	DATE FILMED	DESCRIPTION
7-26-12		REMOVED NOTE 4, REVISED 'T', REVISED BOTTOM SLAB REBAR FOR SECTION 'A', SHOWED REBAR CLEARANCE IN SECTIONS
11-16-01		ADDED NOTE 4
1-12-00		REVISED HEAVY DUTY RING & COVER
5-13-99		ADDED PEDESTRIAN FRAME & GRATE
7-02-98		REMOVED NOTE 5, REV. DIMENSIONS, ADDED HEAVY DUTY RING & COVER ADDED AASHTO REF. REVISED GRATE
10-18-96		REVISED ASTM REF. TO AASHTO
10-1-92		REVISED & REISSUED
8-15-91	8-15-91	REVISED & REISSUED

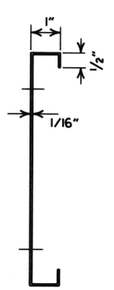
ARKANSAS STATE HIGHWAY COMMISSION

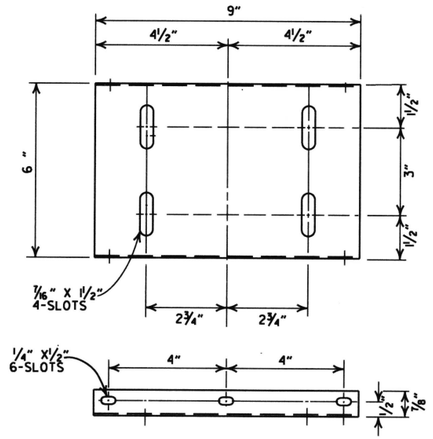
DETAILS OF DROP INLET & JUNCTION BOX (TYPE ST)

STANDARD DRAWING FPC-9S

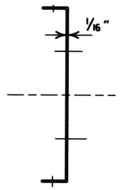


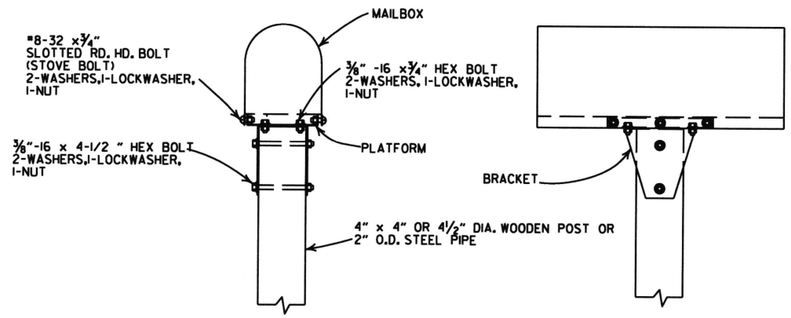
SHELF



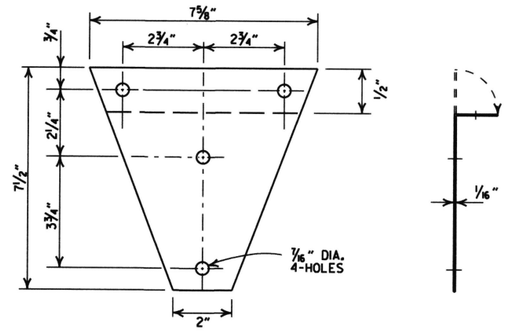


PLATFORM





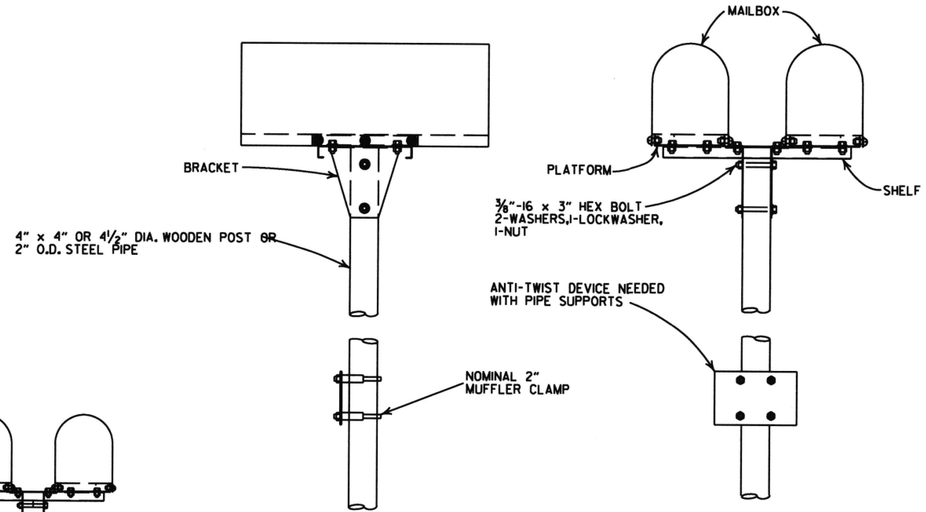
SINGLE INSTALLATION



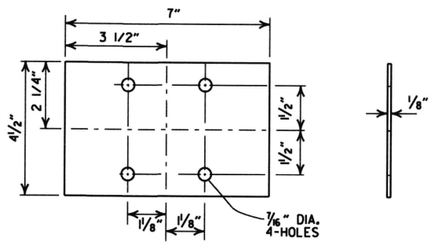
BRACKET

GENERAL NOTES

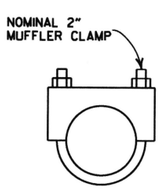
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X ¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



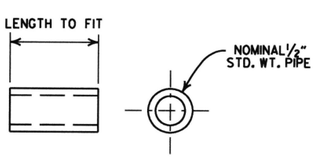
DOUBLE INSTALLATION



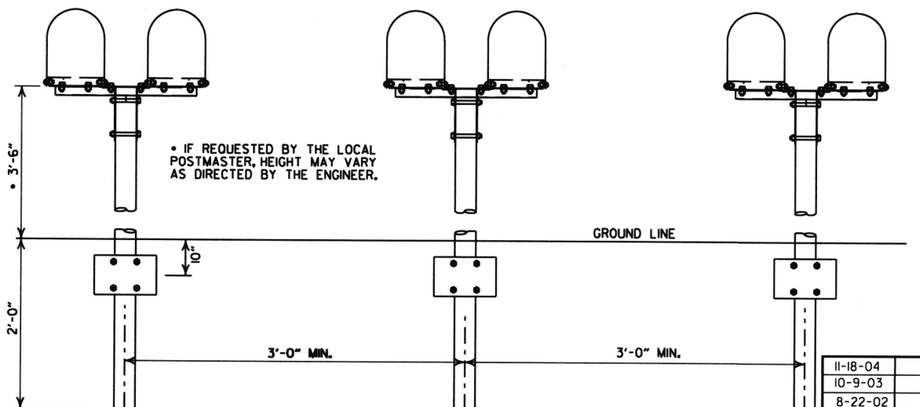
ANTI-TWIST PLATE



CLAMP



SPACER



SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	ARDOT NOMINAL	AASHTO M 206	ARDOT NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31 15/16	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)(1).

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

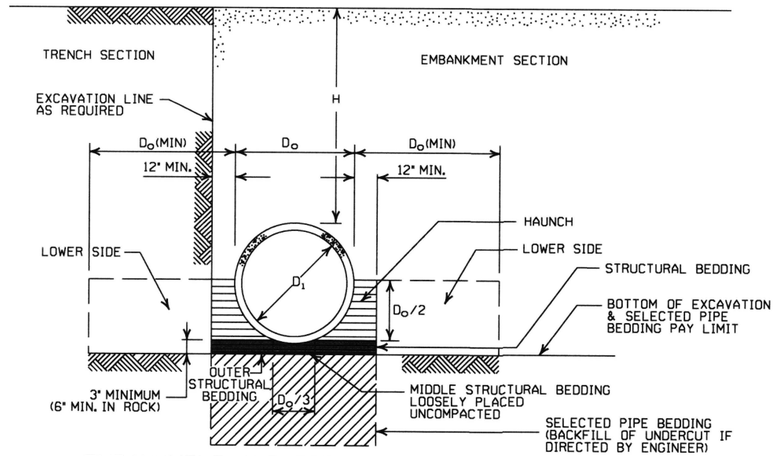
- LEGEND -

D_1 = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
= UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

* SM-3 WILL NOT BE ALLOWED.

** MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170. R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CONSTRUCTION SEQUENCE

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

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

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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

CORRUGATED METAL PIPE ARCHES

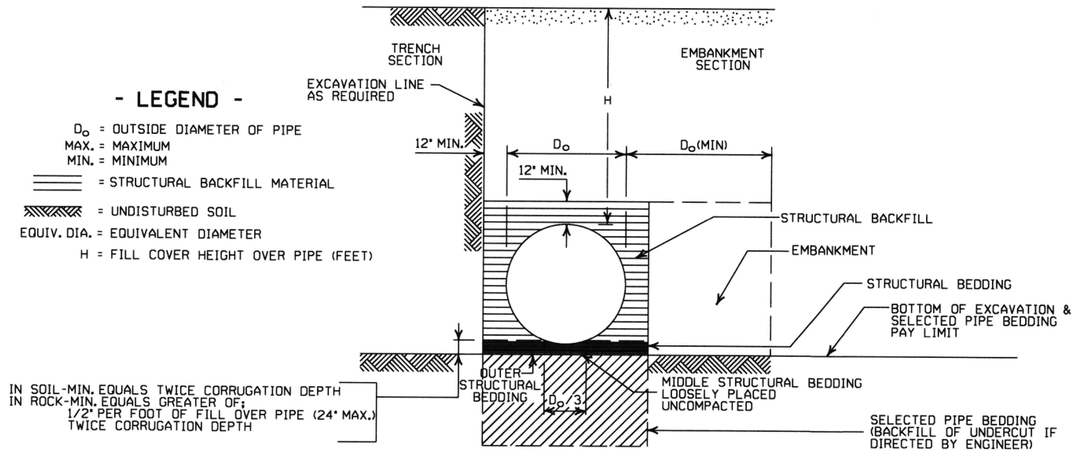
EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL			ALUMINUM		
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)
				INSTALLATION TYPE 1	INSTALLATION TYPE 1		INSTALLATION TYPE 1	INSTALLATION TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM		
15	17x13	3	0.064	2	15	0.060	2	15
18	21x15	3	0.064	2	15	0.060	2	15
21	24x18	3	0.064	2.25	15	0.060	2.25	15
24	28x20	3	0.064	2.5	15	0.075	2.5	15
30	35x24	3	0.079	3	12	0.075	3	12
36	42x29	3½	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					
				INSTALLATION TYPE 2	INSTALLATION TYPE 1			
36	40x31	5	0.079	3	2	12	15	
42	46x36	6	0.079	3	2	13	15	
48	53x41	7	0.079	3	2	13	15	
54	60x46	8	0.079	3	2	13	15	
60	66x51	9	0.079	3	2	13	15	
66	73x55	12	0.079	3	2	15	15	
72	81x59	14	0.079	3	2	15	15	
78	87x63	14	0.079	3	2	15	15	
84	95x67	16	0.109	3	2	15	15	
90	103x71	16	0.109	3	2	15	15	
96	112x75	18	0.109	3	2	15	15	
102	117x79	18	0.109	3	2	15	15	
108	128x83	18	0.138	3	2	15	15	

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

- LEGEND -

D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL
EQUIV. DIA. = EQUIVALENT DIAMETER
H = FILL COVER HEIGHT OVER PIPE (FEET)



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

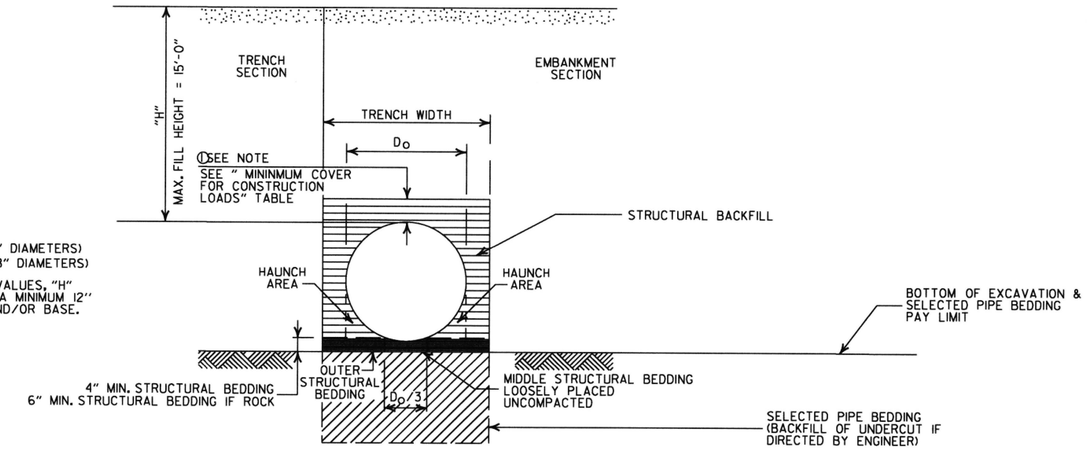
PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.



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.

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 CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
Ø = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"

MULTIPLE INSTALLATION OF PVC PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

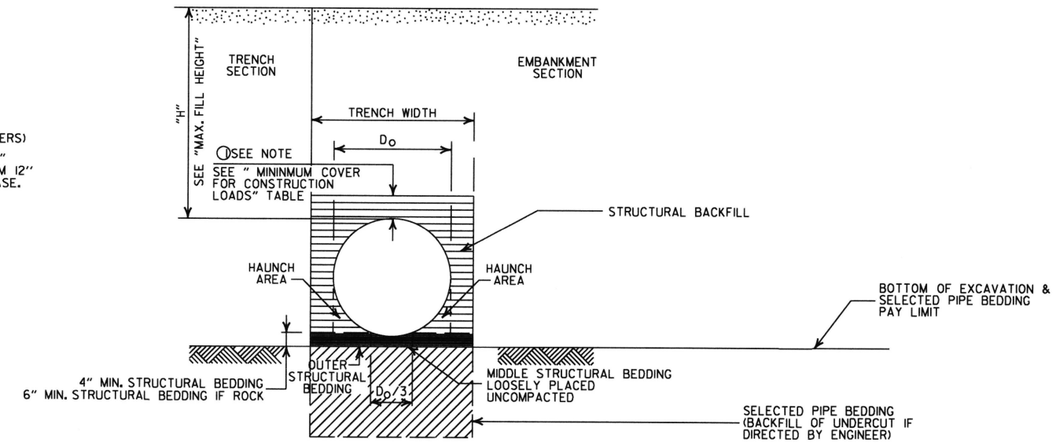
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

① NOTE:
12" MIN. (18" - 36" DIAMETERS)
MINIMUM COVER VALUE, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
18" THRU 36"	2'-0"	2'-6"	3'-0"	3'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFORM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
D_O = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

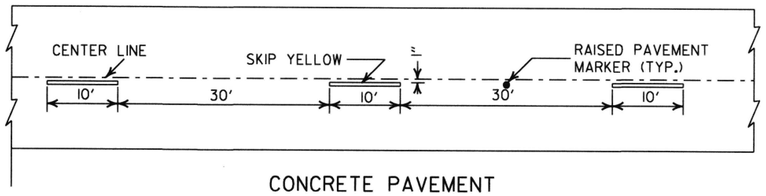
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

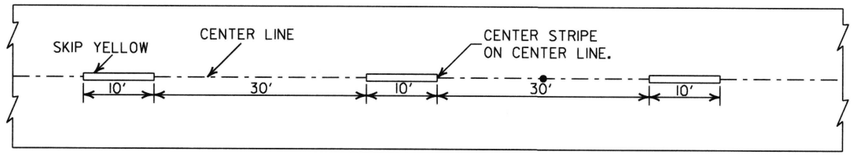
PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.

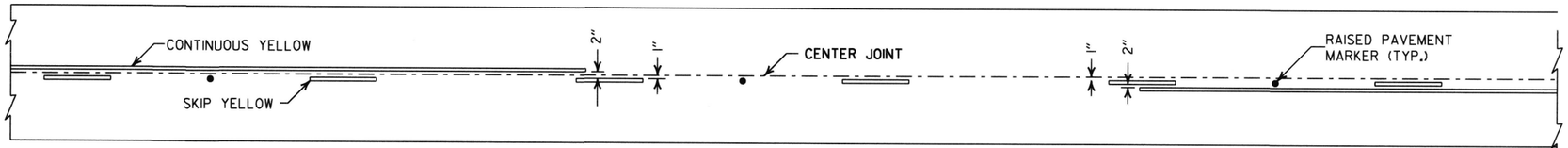


CONCRETE PAVEMENT

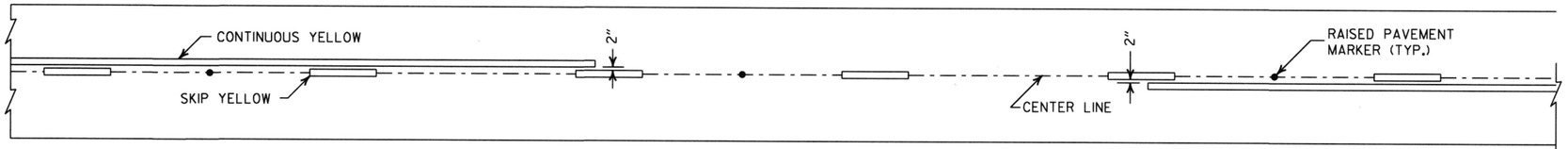


ASPHALT PAVEMENT

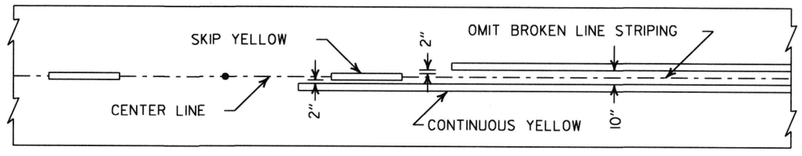
BROKEN LINE STRIPING



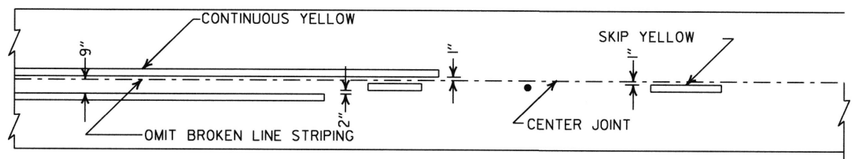
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

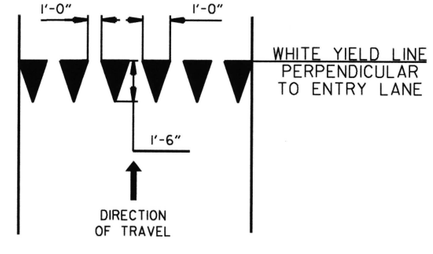


ASPHALT PAVEMENT

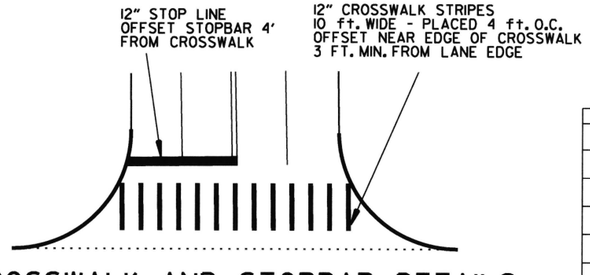


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

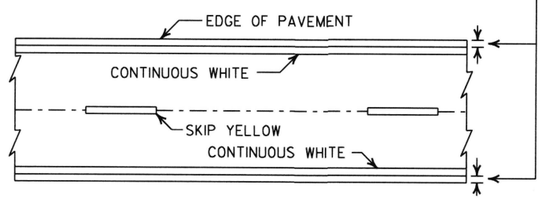


YIELD LINE DETAIL



CROSSWALK AND STOPBAR DETAILS

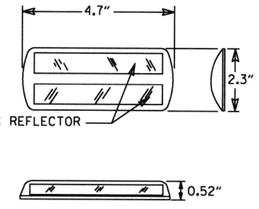
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING

NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.

NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE ARDOT QUALIFIED PRODUCTS LIST.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	FILMED
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

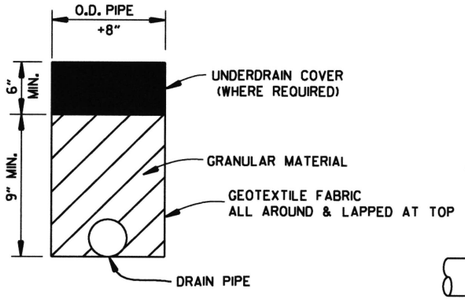
PAVEMENT MARKING DETAILS

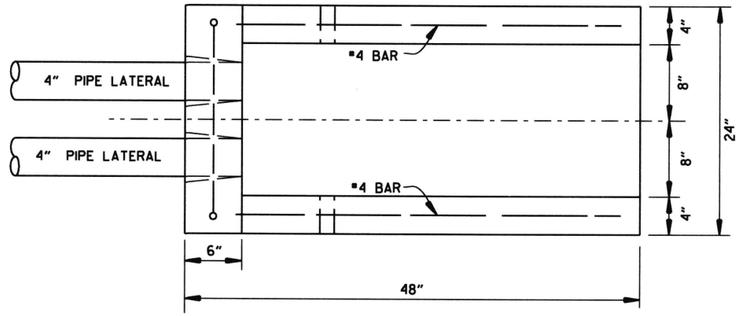
STANDARD DRAWING PM-1

NOTE:

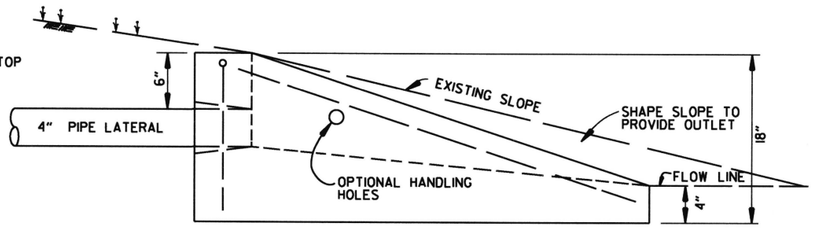
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.

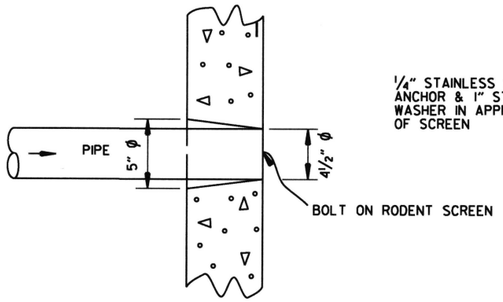




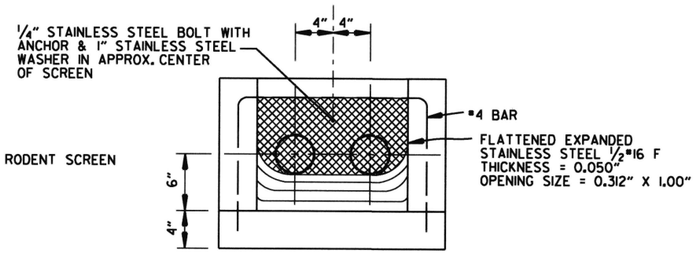
PLAN VIEW



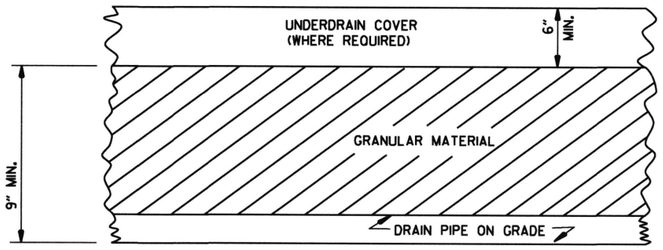
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE



FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

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."

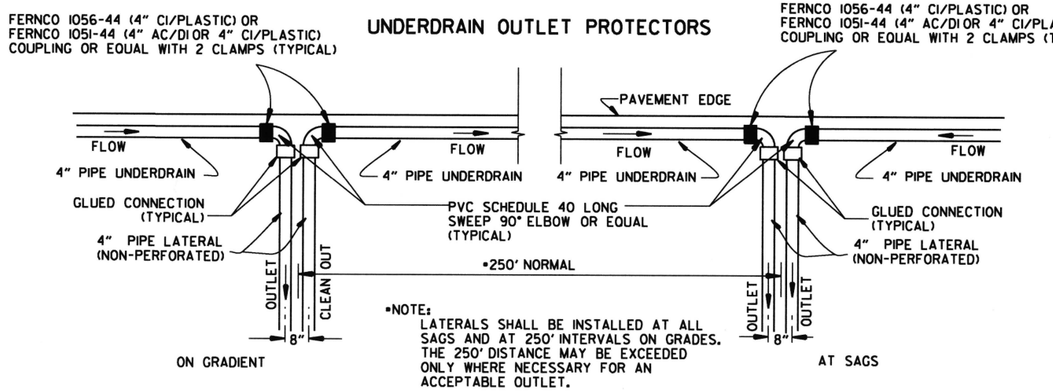
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

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.

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

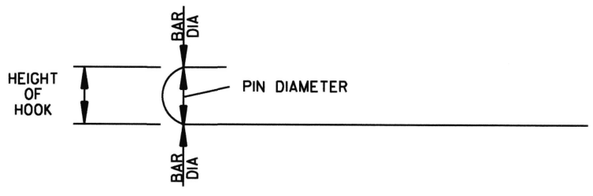
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

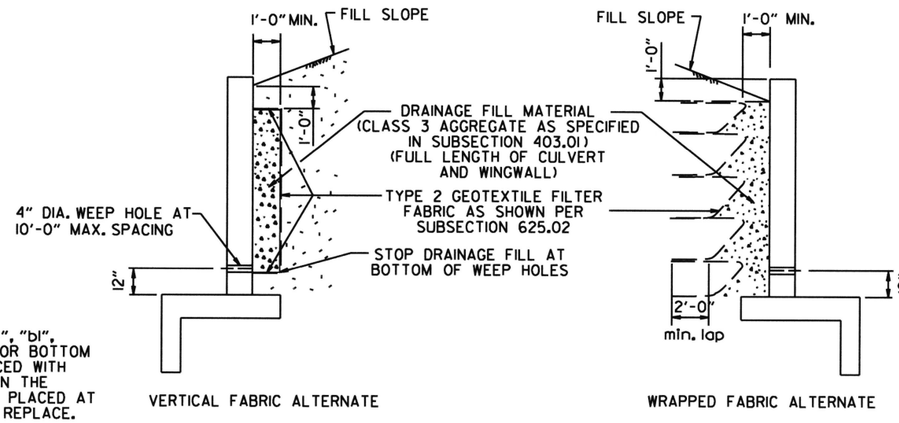
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

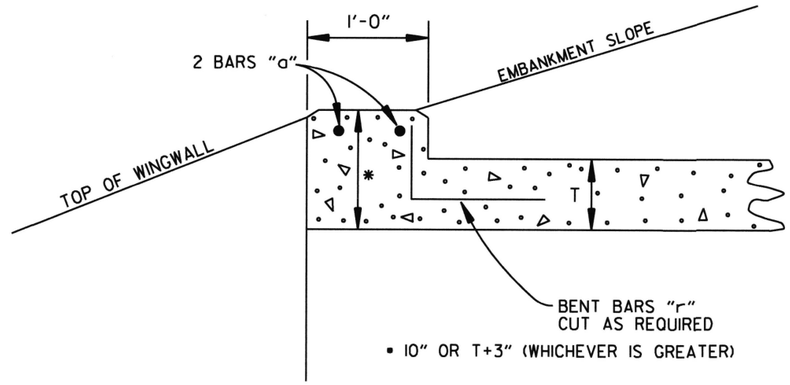
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

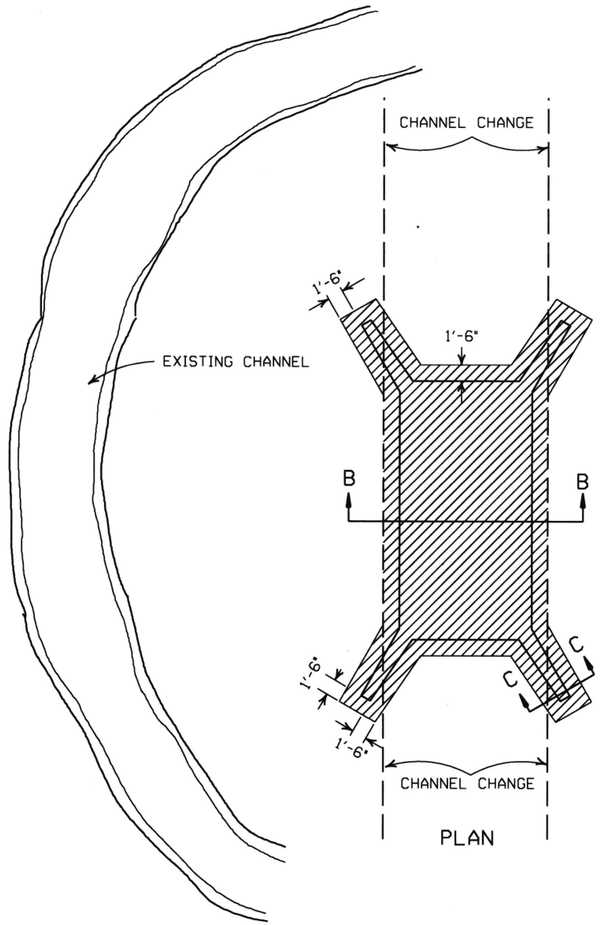
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

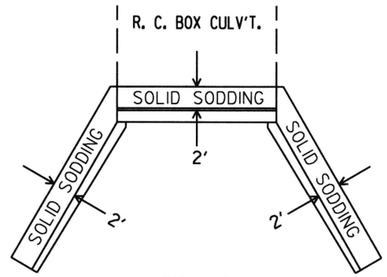
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

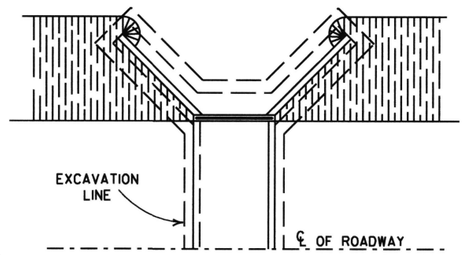
SOLID SODDING



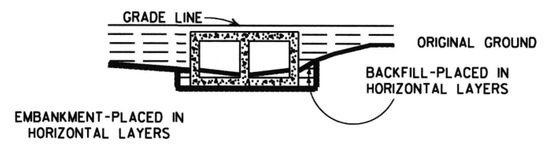
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

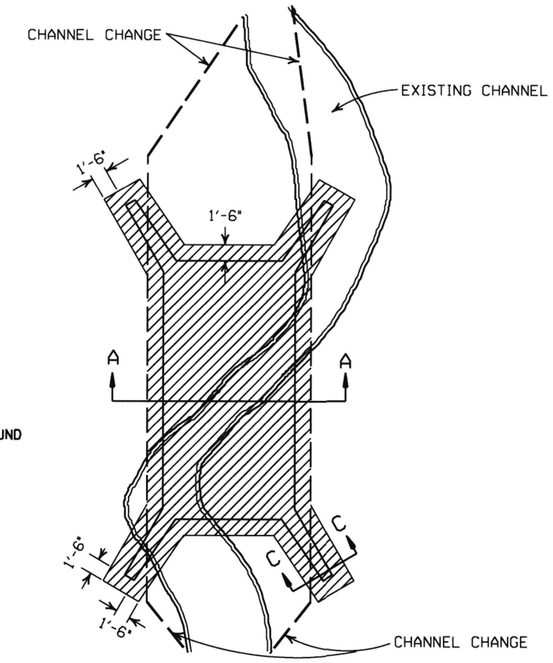


PLAN

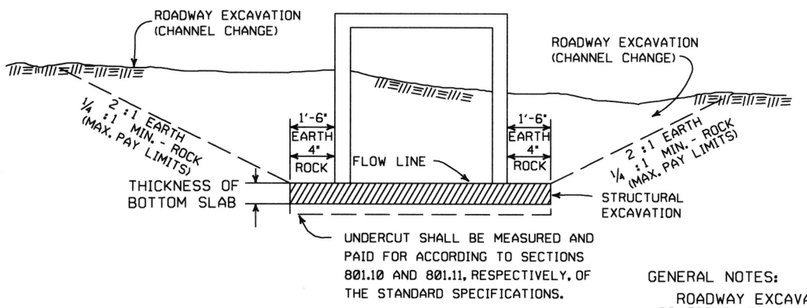


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

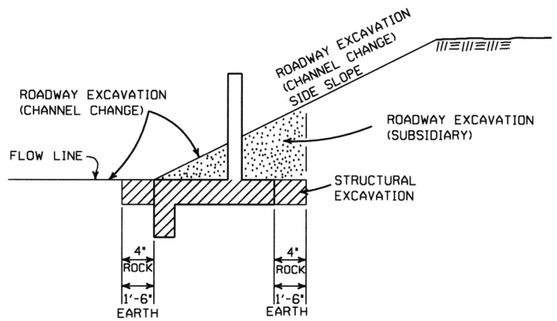


PLAN

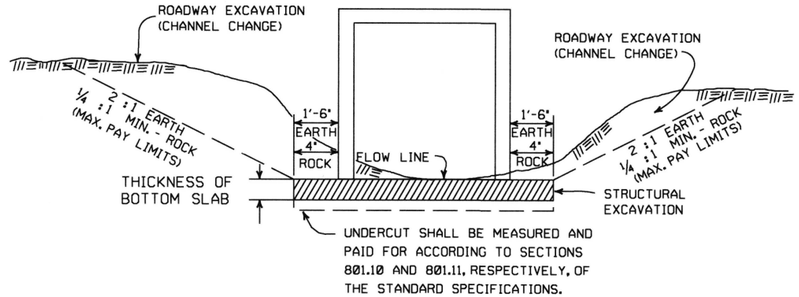


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

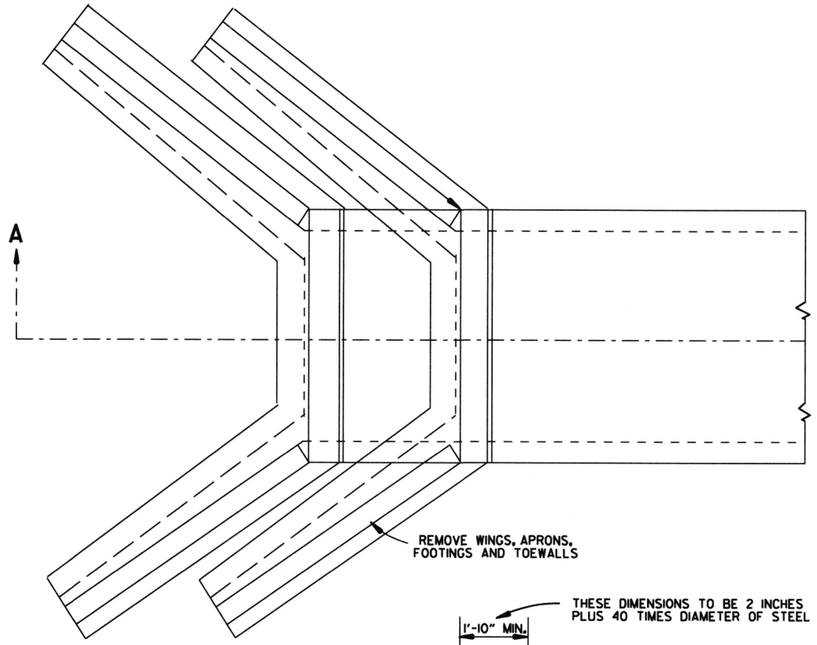
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES	674-1-4-83
	AND ADDED MAXIMUM PAY	
	LIMIT NOTES.	
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

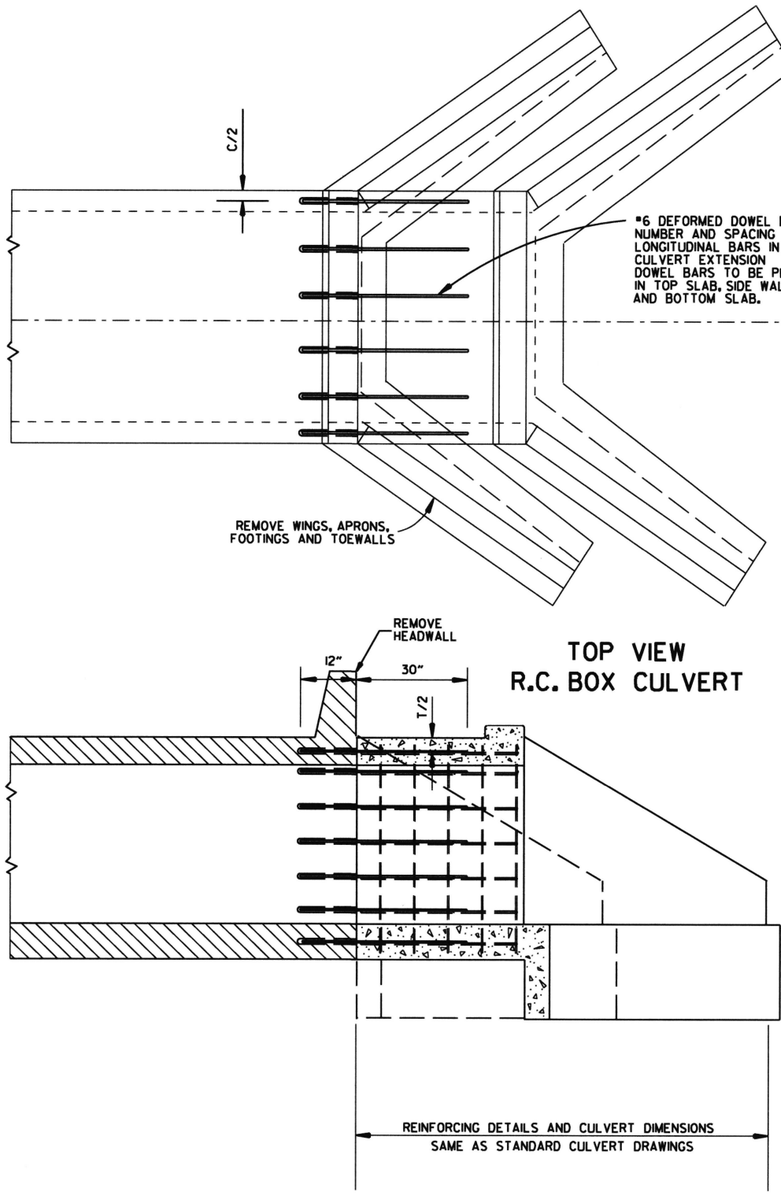
STANDARD DRAWING RCB-2



TOP VIEW
R.C. BOX CULVERT

SECTION A-A

METHOD 1



TOP VIEW
R.C. BOX CULVERT

SECTION A-A

METHOD 2

GENERAL NOTES

	USE FOR METHOD
THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED, MAKING NO ALLOWANCE FOR OVERBREAKAGE BEYOND THE LINES INDICATED.	1
IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PERMIT FULL 40 DIAMETER SPLICE OF REINFORCING STEEL.	1
REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.	1&2
ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON; THE CONCRETE APRON SHALL BE REMOVED WITH THE WINGS. THE COST OF REMOVING ALL OLD CONCRETE WILL BE INCLUDED IN THE PRICE BID PER CUBIC YARD FOR NEW CONCRETE OF THE CLASS SPECIFIED AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.	1&2
MATERIALS FOR SECURING DOWEL BARS SHALL MEET THE REQUIREMENTS OF SECTION 507.02 OF THE STANDARD SPECIFICATIONS.	2
DOWEL BARS SHALL BE INSTALLED AS FOLLOWS: THE DRILLING PROCEDURE SHALL BE APPROVED BY THE ENGINEER, THE FILLING SYSTEM SHALL BE APPROVED BY THE ENGINEER, AND SHALL BE AN INJECTION-TYPE SYSTEM WHICH WILL INSURE THAT SUFFICIENT MATERIAL IS INJECTED SO IT COMPLETELY SURROUNDS THE BARS AND FILLS THE HOLES.	2
THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2, REGARDLESS OF WHICH METHOD IS USED. PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1.	1&2

NOTE:
NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.

SEE STANDARD DRAWING LISTED IN TABULATION OF STRUCTURES FOR ALL NEW CONSTRUCTION DETAILS.

DATE	REVISION	DATE FILM
10-12-95	CHANGED DRAWING # FROM 144-A	
4-1-93	ADDED GENERAL NOTE	
10-1-92	ADDED ALT. METHOD OF EXTENSION	
11-30-89	REDRAWN	
1-4-83	ELIMINATED CONCRETE CLASS	
12-20-56	RETRACED	

ARKANSAS STATE HIGHWAY COMMISSION

METHOD OF EXTENDING EXISTING R.C. BOX CULVERTS

STANDARD DRAWING RCB-3

LOOP DETECTOR INSTALLATION AND TESTING

NOTES:

1. LOOPS WITH A PERIMETER GREATER THAN 40' SHALL HAVE TWO TURNS. LOOPS WITH A PERIMETER LESS THAN OR EQUAL TO 40' SHALL HAVE THREE TURNS, UNLESS OTHERWISE NOTED ON THE PLANS. QUADRUPOLE LOOPS SHALL BE TWO TURNS IN A (2-4-2 CONFIGURATION), UNLESS OTHERWISE NOTED ON THE PLANS.
2. LOOP AND FEEDER WIRE SHALL BE CONTINUOUS WITHOUT SPLICES EXCEPT AT THE LOOP/FEEDER WIRE SPLICE AS SHOWN. SPLICES SHALL BE ROSIN SOLDERED AND WATERPROOFED WITH AN ACCEPTED SPLICE KIT. A DRIAN WIRE SHALL BE GROUNDED IN THE CABINET AND INSULATED AT THE LOOP TO FEEDER WIRE SPLICE.
3. THE LOOP TO FEEDER WIRE SPLICE, THE FEEDER WIRE JACKET AND LOOP WIRE JACKET IN DUCT SHALL BE COMPLETELY SEALED AND WATERPROOFED.
4. THE CONTRACTOR MAY MAKE CONNECTIONS TO THE SIGNAL CABLE AND LOOP TO FEEDER WIRE CONNECTION AT THE TERMINAL STRIPS MOUNTED TO POLE INSIDE THE HAND HOLD COVER AS SHOWN IN DETAIL. HANDHOLE TERMINALS MUST BE EASILY ACCESSIBLE, BUT PROTECTED AGAINST ACCIDENTAL CONTACT. THE CONNECTION OF POWER CARRYING CIRCUITS MUST BE SEPERATED FROM LOOP OR LOGIC CIRCUITS. ALL CONNECTIONS TO TERMINAL STRIPS SHALL UTILIZE SPADE LUGS OR AS APPROVED BY THE ENGINEER.
5. EACH LOOP SHALL HAVE A SEPERATE "FEEDER WIRE" UNLESS OTHERWISE NOTED ON THE PLANS. ALL FEEDER WIRES SHALL BE LABELED AS TO LOOP NUMBER AS DESIGNATED ON THE PLANS.
6. ALL LOOP WIRE ENTERING CONCRETE PULL BOXES SHALL BE ENCLOSED IN CONDUIT. EACH LOOP WIRE SHALL ENTER CONCRETE PULL BOX OR POLE BASE THROUGH A SEPARATE PIECE OF ONE (1.25") IINCH CONDUIT.
7. LOOP WIRE FROM LOOP TO CONDUIT IS NOT TWISTED. LOOP WIRE IN THE CONDUIT MUST BE TWISTED TWO TO FIVE TURNS PER FOOT.
8. "30-DAY PERFORMANCE TEST SHALL NOT COMMENCE UNTIL ALL LOOPS ARE TESTED BY THE CONTRACTOR, THEN APPROVED AND ACCEPTED BY THE ENGINEER, AND THE TESTING RECORDS HAVE BEEN SUBMITTED TO THE ENGINEER. THE WARRENTY PERIOD FOR LOOPS SHALL NOT COMMENCE UNTIL TESTED BY THE CONTRACTOR AND ACCEPTED BY THE ENGINEER. THE CONTRACTOR SHALL PERFORM TEST AND PROVIDE A RECORD TO THE ENGINEER AS LISTED IN THE LOOP DETECTOR TESTING PROCEDURE.
9. UNLESS OTHERWISE APPROVED BY THE ENGINEER, BACKER ROD SHALL BE INSTALLED IN SHORT SECTIONS SPACED NO MORE THAN 18" APART AND WEDGED INTO THE SLOT TO THE CABLE IN PLACE. CABLE SHALL BE TOTALLY ENCAPSULATED IN SEALER.
10. "HOT POUR" SEALER SHALL NOT ALLOW WITH 705-LOOP WIRING IN DUCT.
11. WHERE UNDERGROUND SPLICES OF SIGNAL CABLE ARE REQUIRED. CONNECTIONS SHALL BE SOLDERED AND COMPLETELY WATERPROOFED TO THE SATISIFACTION OF THE ENGINEER. WATERPROOFING SHALL EXTEND A MININUM OF TWO (2") INCHES PAST THE SIGNAL CABLE JACKET AND SHALL COMPLETELY COVER ALL INDIVIDUAL CONDUCTORS OF THE SIGNAL CABLE. WATERPROOFING DOES NOT APPLY TO CONNECTIONS MADE IN POLE BASES.
12. THE CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE. ONLY ONE NEUTRAL IS REQUIRED FOR PEDESTRIAN SIGNALS. A SEPERATE 5C (TYPICAL) IS PROVIDED FOR PEDESTRIAN PUSH BUTTONS.
13. TRAFFIC CONTROLLER CABINET LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER TO REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO THE CONTROLLER. THE CONTROLLER CABINET SHALL BE WIRED SUCH THAT THE POWER TO LOAD SWITCHES CANNOT BACKFEED TO THE LOAD SWITCH POWER BUSS DURING FLASH OPERATION.

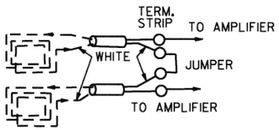
TYPICAL PROCEDURE FOR DETECTOR LOOP TESTING

1. DISCONNECT AND TEST CONTINUITY (< 10 OHMS) IF CONTINUITY IS BAD, GO TO TEST 3.
2. TEST INSULATION (@ 500 VOLT TEST > 10 MEG-OHM)

   IF TESTS 1& 2 ARE GOOD, NO FURTHER TESTING IS NECESSARY. RECORDED RESULTS CONSIST OF TESTS 1& 2 FROM CONTROL CABINET WITH FEEDER WIRE CONNECTED TO LOOP.
3. OPEN SPACE (DO NOT BREAK CONNECTION) REPEAT TEST 1& 2 IF TEST 3 IS BAD, GO TO TEST 4.
4. BREAK SPLICE, INSTALL JUMPER IN CABINET, REPEAT TESTS 1& 2 SEPARATELY FOR FEEDER AND FOR LOOP.

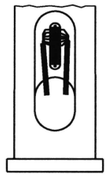
FAILURES TYPICALLY RESULT FROM BROKEN WIRE IN PAVEMENT, FAULTY INSULATION OF LOOP OR FEEDER WIRE, OR POORLY INSULATED SPLICE CONNECTION.

SERIES CONNECTED LOOPS

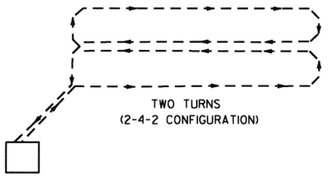


WIND LOOPS COUNTERCLOCKWISE; TAG WIRE EXITING SLOT AND TIE TO WHITE LEAD OF FEEDER WIRE; WHEN LOOPS ARE TIED TO SAME VEHICLE DETECTOR, SERIES CONNECT IN CABINET AS SHOWN.

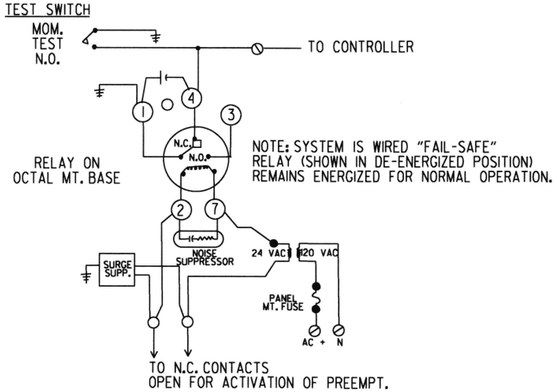
HANDHOLE TERMINAL



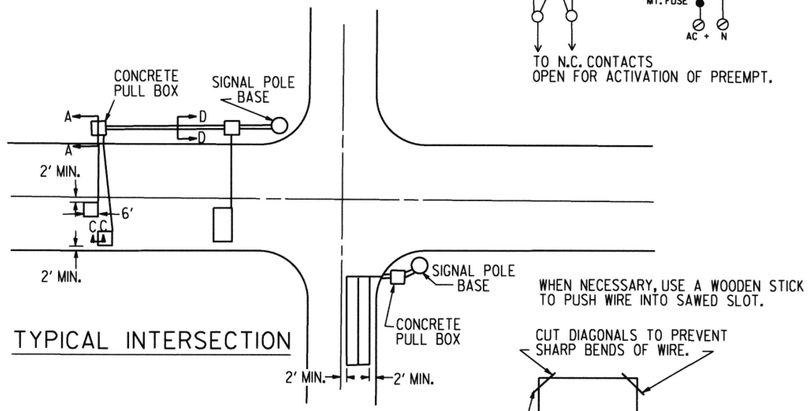
QUADRUPOLE LOOP



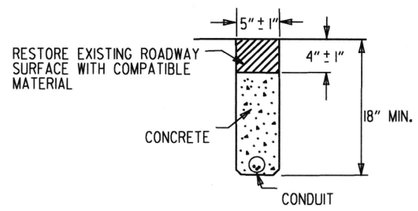
TRAFFIC SIGNAL PRE-EMPTION INTERFACE WIRING DIAGRAM

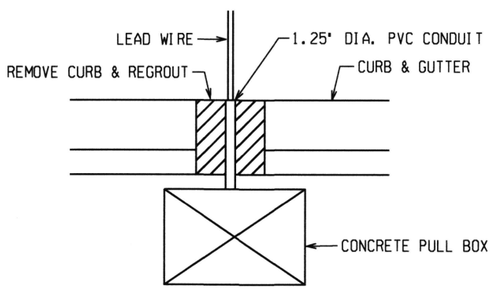


TYPICAL INTERSECTION



TRENCHING DETAIL
(FOR SAW CUT TRENCH IN ROADWAY)



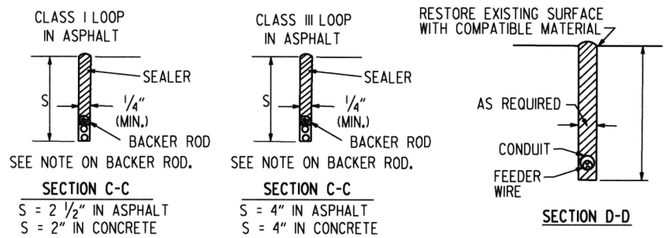


ALTERNATE - WHEN INSTALLING PREFORMS ON SUBSTRATE, LEAD-INS MAY BE INSTALLED IN CONDUIT UNDERNEATH THE CURB AND GUTTER.

SECTION A-A
1'-6" CONCRETE COMBINATION CURB AND GUTTER

SPECIAL NOTE:
IF FEEDER WIRE JACKET IS LEFT UNSEALED AND WATER IS ALLOWED TO ENTER JACKET, CONTRACTOR WILL BE REQUIRED TO REPLACE FEEDER WIRE AT NO COST TO DEPARTMENT.

TYPICAL SECTIONS FOR PULSE AND PRESENCE LOOP DETECTORS



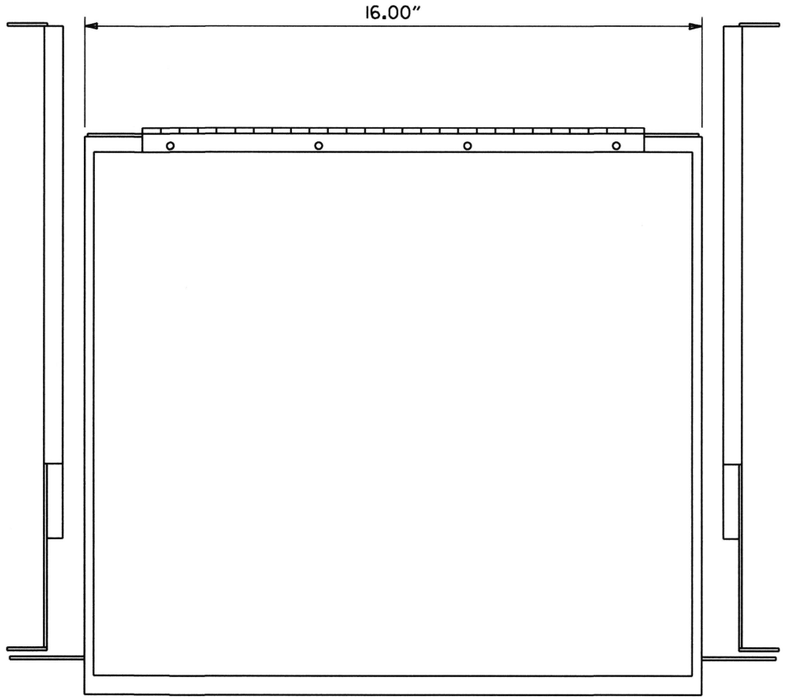
DATE	REVISION	FILMED
11-07-19	REVISED NOTE 6 & TYPICAL FOR PRESENCE LOOP DETECTORS	
11-16-17	REVISED NOTES	
09-12-13	ISSUED AS STANDARD DRAWING	
05-17-01	REVISED	
04-11-01	REVISED	
02-04-00	REVISED PRE-EMPTION TEST SWITCH	
11-18-98	REVISED NOTES	
11-21-95	ISSUED	

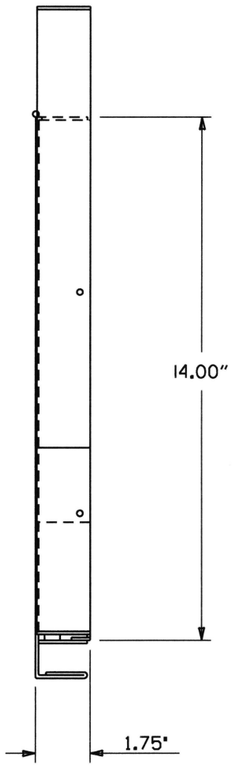
ARKANSAS STATE HIGHWAY COMMISSION

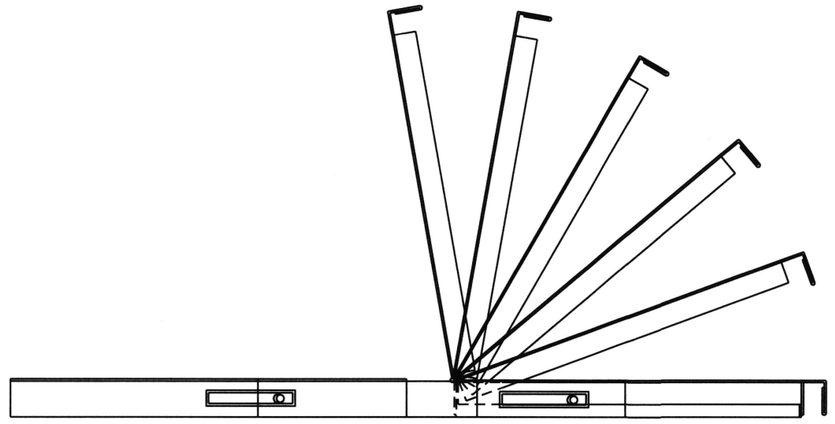
LOOP DETECTOR INSTALLATION

STANDARD DRAWING SD-4

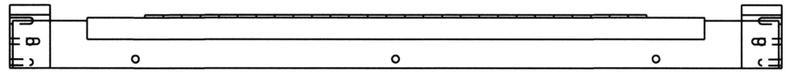
DRAWER PLAN VIEW



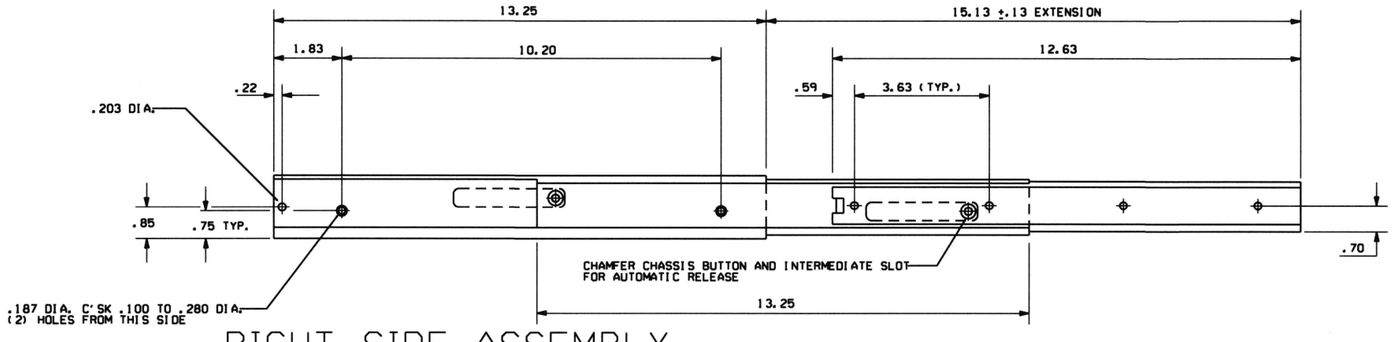




NOTES:
1. RIGHT HAND SLIDE SHOWN, LEFT SLIDE OPPOSITE.
2. GENERAL DEVICES (CC3002-99-0102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.
3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



FRONT VIEW



RIGHT SIDE ASSEMBLY

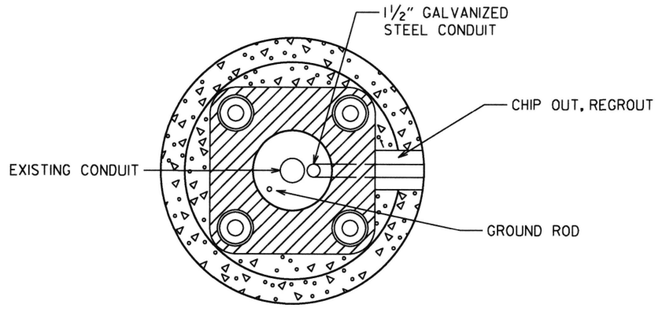
9-12-13	ISSUED AS STANDARD DRAWING	
6-15-05	ISSUED	
DATE	REVISION	DATE FILM

ARKANSAS STATE HIGHWAY COMMISSION

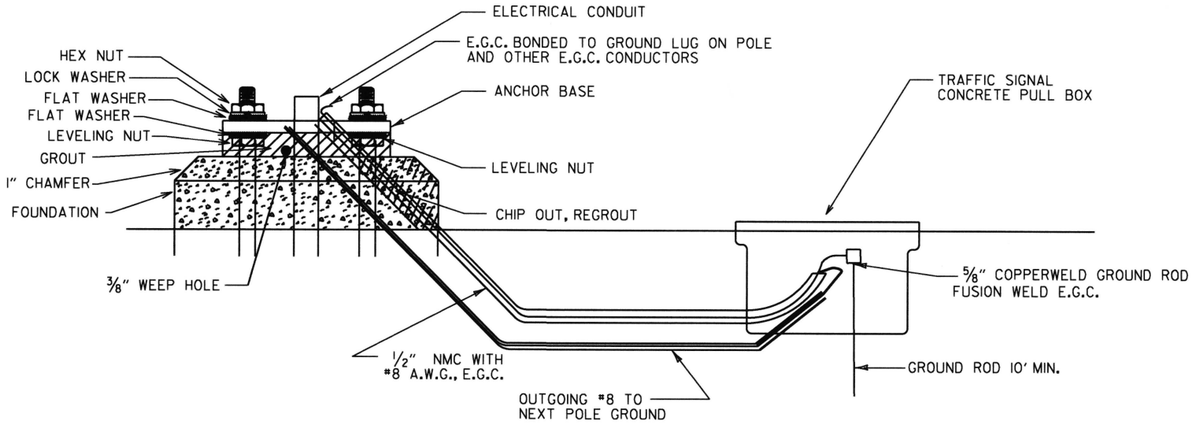
CONTROLLER CABINET UTILITY DRAWER

STANDARD DRAWING SD-5

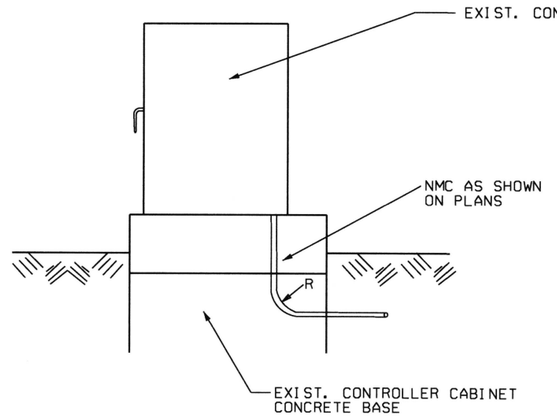
CONDUIT ENTRY TO EXISTING POLE BASE



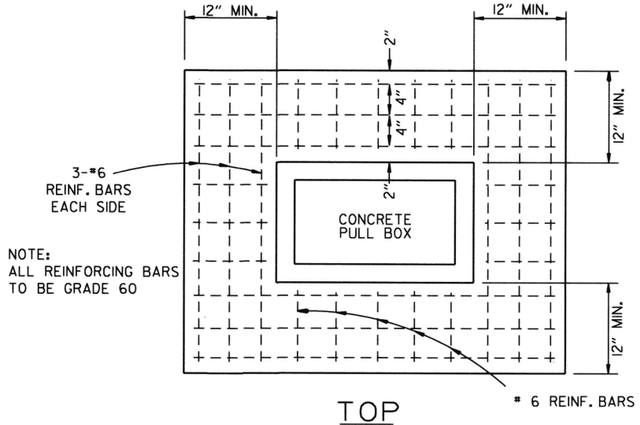
ANCHOR BASE



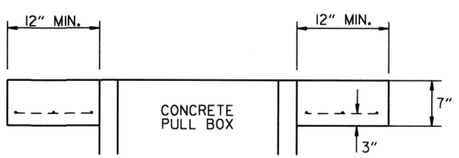
CONDUIT ENTRY TO EXISTING CONTROLLER CABINET



NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.

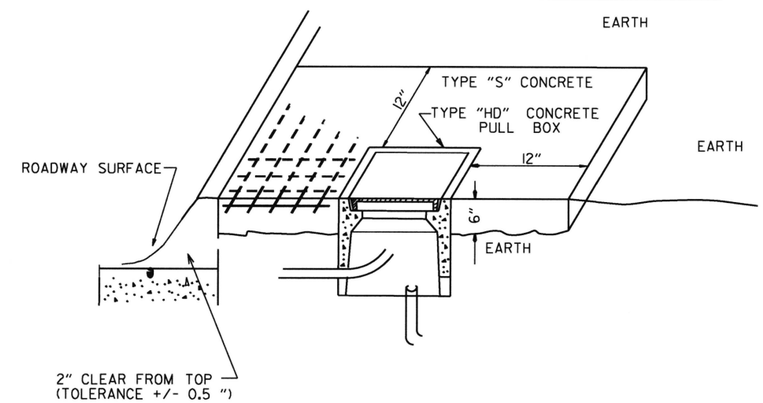


TOP



ELEVATION

TYPE "HD" CONCRETE PULL BOX DETAIL



NOTE:
ALL TYPE I AND TYPE 2 HD CONCRETE PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" WIDE AND 7" IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD CONCRETE PULL BOX. THE CONCRETE PULL BOX SHALL BE INSTALLED FLUSH TO SURROUNDING GRADE UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. THE CONCRETE SHALL BE CLASS "S". THREE #6 REINFORCING BARS IN THE APRON ON ALL SIDES OF THE CONCRETE PULL BOX IS REQUIRED IN CONCRETE.

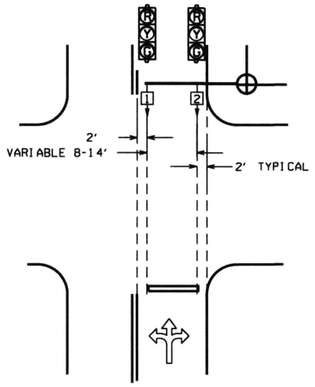
DATE	REVISION	FILMED
11-16-17	REVISED NOTES	
09-02-15	REVISED PULL BOX DEPTH	
09-12-13	ISSUED AS STANDARD DRAWING	
05-21-09	REVISED GROUNDING	
07-31-08	ADDED & REVISED CONDUIT ENTRY	
06-23-04	REVISED CLEARANCE AT CURB ENTRY	
01-04-02	ADDED REINFORCING TO BOX APRON	
07-02-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

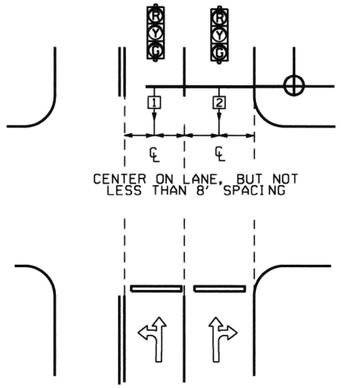
HEAVY DUTY PULL BOX

STANDARD DRAWING SD-6

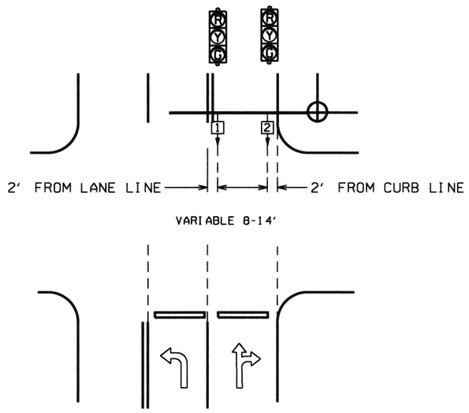
(A)



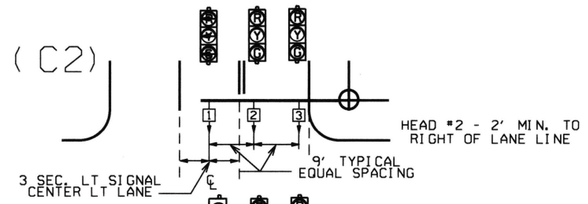
(B)



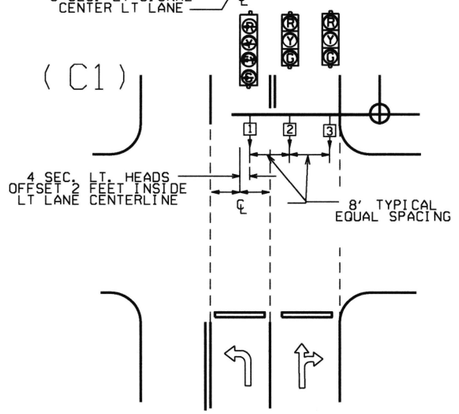
(C)



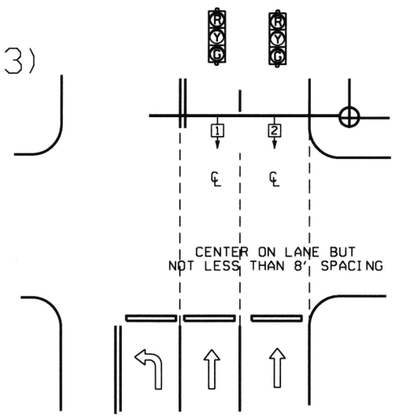
(C2)



(C1)



(C3)



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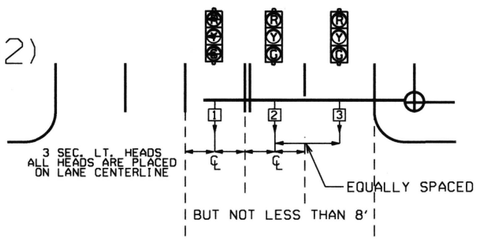

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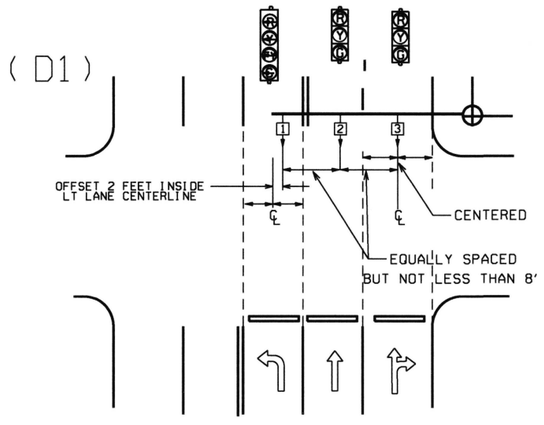
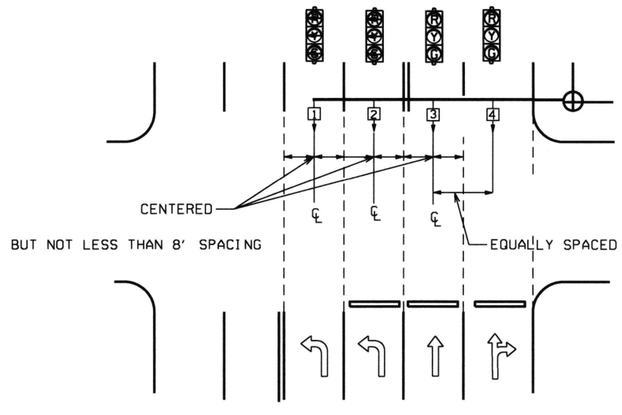


NOTE: WHERE LEFT TURN HEAD (HEAD 1 ON D1 AND D2) IS NOT CALLED FOR ON PLANS, MAST ARM LENGTH MAY STILL BE ALLOWED FOR FUTURE INSTALLATION. HEADS FOR THROUGH MOVEMENTS SHALL STILL BE ALIGNED WITH THROUGH LANES AS SHOWN ON DETAILS.

(E)



℄ = CENTER OF LANE FROM APPROACH SIDE

GENERAL NOTES:

1. FOUR SECTION "PROTECTED/PERMISSIVE" LEFT TURN HEADS SHOULD BE PLACED A MINIMUM OF TWO (2') FEET TO THE RIGHT OF THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

2. THREE SECTION "PROTECTED" LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

3. WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEET(S) RESULTING IN MAST ARM EXTENDING MORE THAN TWO FEET PAST (TO THE LEFT OF) THE CENTERLINE OF THE APPROACHING LEFT TURN LANE, MAST ARM SHALL BE CUT TO APPROPRIATE LENGTH AS DETERMINED BY THE ENGINEER, AND A NEW END CAP PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THIS PRIOR TO INSTALLING THE MAST ARM IF ADDITIONAL COMPENSATION IS REQUIRED.

4. SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH.

5. ALL SIGNAL HEADS SHOWN ON THIS DETAIL SHEET SHALL BE LOCATED ACCORDING TO THE DIMENSIONS SHOWN IN RELATION TO THE APPROACH SIDE OF THE INTERSECTION.

6. MAXIMUM MOUNTING HEIGHT OF SIGNAL FACES LOCATED BETWEEN 40 FEET AND 53 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 4D-5 OF 2009 MUTCD.

12-8-16	REVISED NOTE 6	
9-12-13	ISSUED AS STANDARD DRAWING	
3-11-10	2009 MUTCD	
12-9-99	ISSUED	
DATE	REVISION	DATE FILM

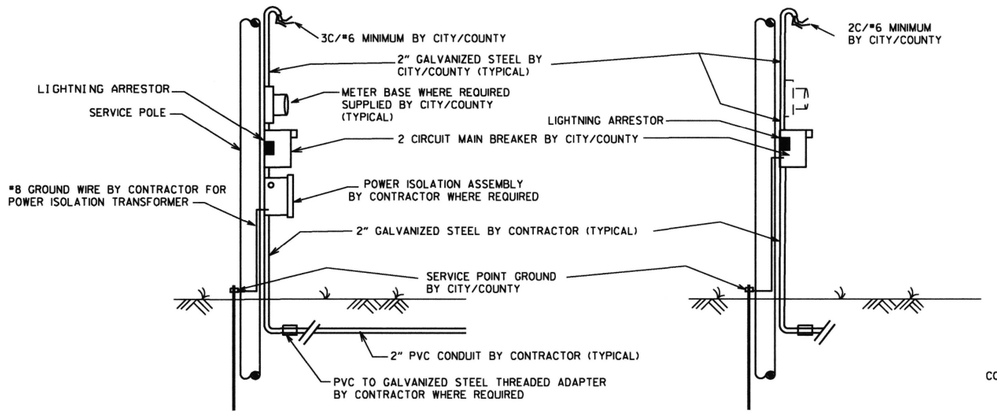
ARKANSAS STATE HIGHWAY COMMISSION

SIGNAL HEAD PLACEMENT

STANDARD DRAWING SD-8

MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

WITH POWER ISOLATION ASSEMBLY



WITHOUT POWER ISOLATION ASSEMBLY

NOTES TO CONTRACTOR AND AGENCY RESPONSIBLE FOR MAINTENANCE OF THE INTERSECTION (CITY/COUNTY):

ELECTRICAL SERVICE TYPICALLY FALLS INTO TWO CATEGORIES:
MAIN BREAKER NEAR CONTROLLER CABINET; AND MAIN BREAKER NOT NEAR CONTROLLER CABINET. THE CONTRACTOR'S AND THE CITY'S/COUNTY'S RESPONSIBILITY VARIES ACCORDINGLY AS INDICATED ON THESE DETAILS.

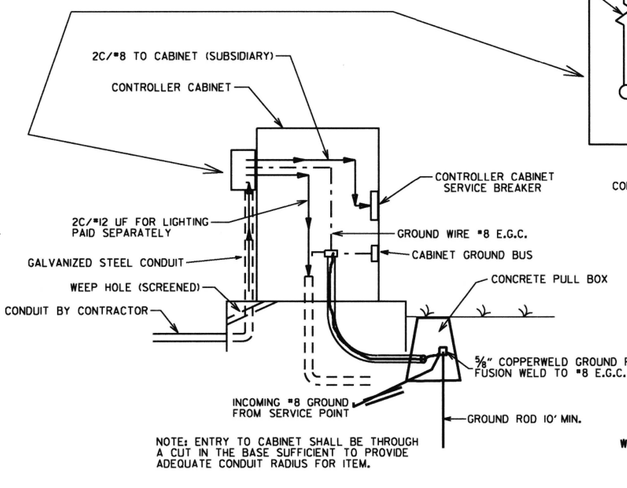
ALL SITUATIONS:
ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, LIGHTNING ARRESTOR, POWER ISOLATION ASSEMBLY WHERE REQUIRED, METER LOOP IF REQUIRED BY LOCAL UTILITY COMPANY, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION STREET LIGHTING CIRCUIT (2C/#12 A.W.G. UF RATED, TYPICAL) SHALL BE KEPT SEPARATE FROM THE CIRCUIT SERVING TRAFFIC SIGNAL. SERVICE WIRE AND WIRING FROM THE CONTROLLER TO MAIN BREAKER IS PROVIDED BY THE CONTRACTOR AS A PART OF THIS CONTRACT. WIRE AND WIRING FROM MAIN BREAKER, AND CONNECTION TO THE UTILITY IS THE RESPONSIBILITY OF THE CITY/COUNTY.

MAIN BREAKER NOT NEAR CONTROLLER CABINET:
THE MAIN BREAKER ASSEMBLY, GALVANIZED STEEL CONDUIT, WEATHERHEAD AND WIRE ABOVE MAIN BREAKER AND CONNECTION TO THE UTILITY SHALL BE PROVIDED BY CITY/COUNTY. CONTRACTOR SHALL PROVIDE AS PART OF CONTRACT SECONDARY BREAKER, CONDUIT, WIRE AND WIRING TO THE MAIN BREAKER.

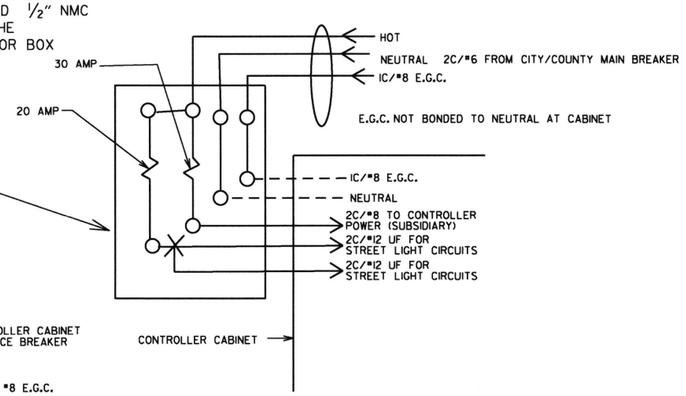
MAIN BREAKER NEAR CONTROLLER CABINET:
ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER LOOP IS REQUIRED, METER BASE AND HARDWARE IS PROVIDED BY THE CITY/COUNTY AND INSTALLED BY THE CONTRACTOR.

GROUND ROD - A 10' X 5/8" GROUND ROD SHALL BE INSTALLED IN THE CONCRETE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 701. THE CONCRETE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

SECONDARY BREAKER BY CONTRACTOR (SUBSIDIARY)



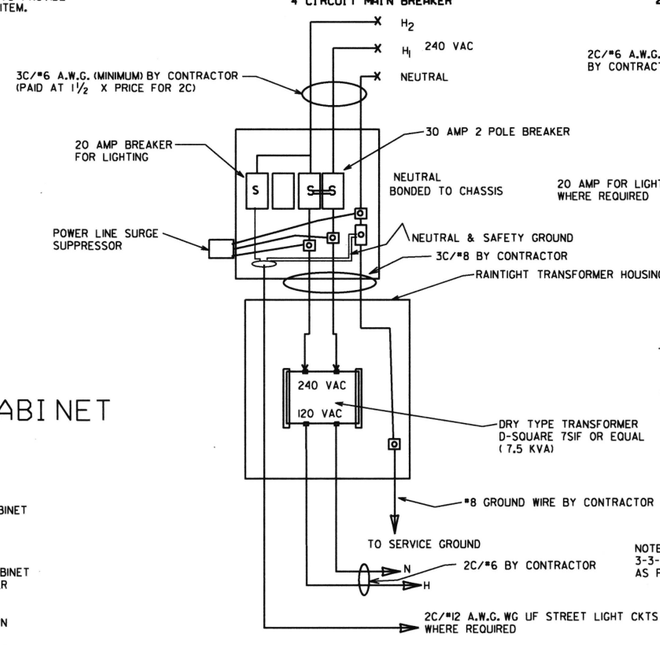
NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.



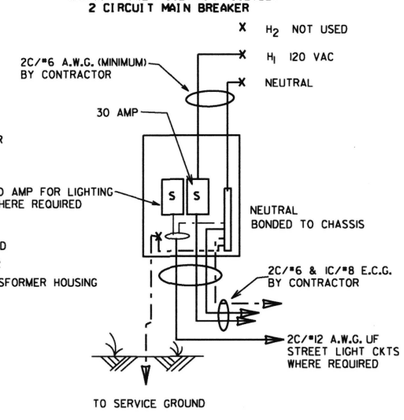
MAIN BREAKER WIRING (TYPICAL)

SERVICE GROUND IS TYPICALLY TIED TO NEUTRAL AT THE MAIN BREAKER. AS SUCH, CONTROLLER GROUND IS NOT TIED TO NEUTRAL AT SECONDARY BREAKER OR IN CONTROLLER CABINET.

WITH POWER ISOLATION ASSEMBLY
4 CIRCUIT MAIN BREAKER

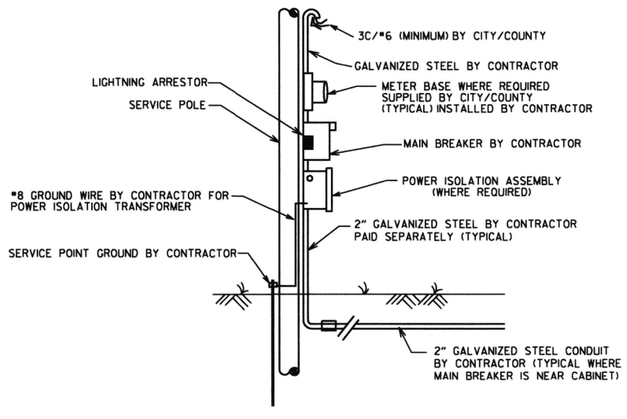


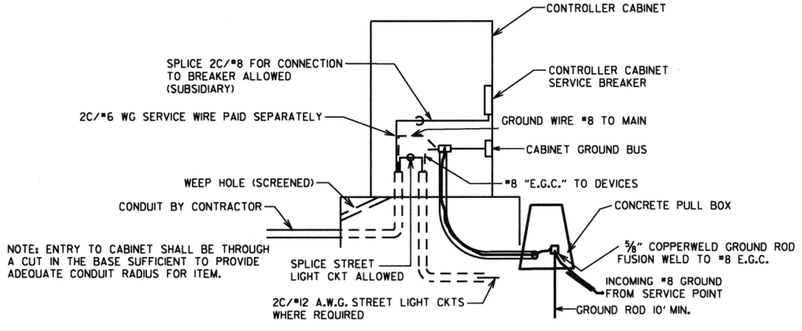
WITHOUT POWER ISOLATION ASSEMBLY
2 CIRCUIT MAIN BREAKER



NOTE: ELECTRICAL GROUND CONDUCTOR (E.C.G.) ADDED 3-3-2003, CONSISTING OF A IC/#8 A.W.G. CU GREEN WIRE AS PER NATIONAL ELECT. CODES.

MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED





NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.

DATE	REVISION	FILMED
11-07-19	REVISED	
11-16-17	REVISED NOTES	
09-12-13	ISSUED AS STANDARD DRAWING	
04-18-13	ADDED LIGHTNING ARRESTOR	
05-21-09	REVISED GROUNDING	
07-31-08	REVISED GROUNDING	
03-03-03	ADDED EGC NOTE	
09-26-01	REVISED	
12-27-99	REVISED	
07-28-99	REVISED	
02-05-99	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SERVICE POINT

STANDARD DRAWING SD-9

NOTES:
PEDESTRIAN AND TRAFFIC SIGNAL HEAD SIGNS:
EACH ITEM "TRAFFIC SIGNAL HEAD (4 SEC., 1-WAY)" SHALL INCLUDE A SPECIAL SIGN AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD UNLESS REMOVED WITHIN THE SIGNAL PLAN NOTES.

EACH ITEM "TRAFFIC SIGNAL HEAD (3 SEC., 1-WAY)" TO BE USED AS A LEFT TURN INDICATION ONLY SHALL INCLUDE A SIGN (R10-10) AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD.

EACH PEDESTRIAN PUSHBUTTON SHALL HAVE ONE R10-3E SIGN ATTACHED TO THE POLE ABOVE THE BUTTON. ALL SIGNS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 723 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

ALL SIGN BLANKS SHALL BE CONSTRUCTED OF ALUMINUM ALLOY (ASTM DESIGNATION B-209. ALLOY 5052-H38) WITH THICKNESS OF 0.100 INCH.

GENERAL NOTES:
1. MAST ARM POLES SHALL BE MOUNTED A MINIMUM OF FOUR (4') FEET BEHIND CURB OR SHOULDER.

2. OCTAGONAL POLES AND ARMS MEETING THE REQUIREMENTS OF THE PLANS SPECIFICATIONS CAN BE INSTALLED IN LIEU OF ROUND. ALL POLES AND ARMS IN A JOB MUST BE THE SAME SHAPE.

3. MINIMUM STRUCTURAL REQUIREMENTS:
DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

USE FATIGUE CATEGORY I FOR ALL STRUCTURES ON ROUTES WHERE THE SPEED LIMIT IS 65 MPH AND GREATER AT THE STRUCTURE LOCATION AND ON ROUTES WHERE THE SPEED LIMIT IS GREATER THAN 45 MPH WITH AN MAST ARM OF 60' OR LONGER.

USE FATIGUE CATEGORY II FOR ALL STRUCTURES ON ROUTES WHERE THE SPEED LIMIT IS LESS THAN 65 MPH AND GREATER THAN 45 MPH WITH MAST ARMS LESS THAN 60' AND ON ROUTES WHERE THE SPEED LIMITS OF 45 MPH AND LESS WITH AN MAST ARM OF 60' OR LONGER.

USE FATIGUE CATEGORY III FOR ALL STRUCTURES WHERE THE SPEED LIMIT IS 45 MPH AND LESS AND MAST ARMS LESS THAN 60'.

CONSTRUCTION SPECIFICATIONS:
STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH.

STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN ½" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

DEAD LOAD: AS A MINIMUM, DESIGN SHALL BE BASED ON THE FIXED ATTACHMENTS SHOWN BELOW OR AS MODIFIED IN THE PLANS.

ALL SIGNAL HEADS TO BE ONE WAY, TWELVE (12") INCH AND HAVE FIVE (5") INCH BACK PLATES:

SIGNAL HEADS AT THE END OF MAST ARM - ONE 4 SEC., 85 LB., 14.5 SQ. FT., ONE SIGN MOUNTED 3 FEET FROM SIGNAL HEAD (2'-0" X 2'-6"; 20 LB.) REMAINING SIGNAL HEADS SPACED AT 8 FT. (3 SEC., 56 LB., 8.3 SQ. FT.):
DESIGN TO ACCOMMODATE:
2 SIGNAL HEADS FOR MAST ARMS 10 FT. TO 16 FT.
3 SIGNAL HEADS FOR MAST ARMS 18 FT. TO 24 FT.
4 SIGNAL HEADS FOR MAST ARMS OVER 26 FT.

STREET NAME SIGN - 72" X 18", 36 LB., MOUNTED SUCH THAT OUTSIDE EDGE IS NOT GREATER THAT 12 FT. FROM POLE. DEPENDING UPON POSITION OF SIGNAL HEAD ADJACENT TO POLE, SIGN MAY OVERLAP POLE SHAFT.
ROADWAY LUMINAIRES (WHERE REQUIRED ON PLAN SHEET) - VARIABLE ARM LENGTH (MAX. WT. 75 LB., 3.3 SQ. FT.)
PEDESTRIAN SIGNALS - TWO 1 SEC., 12 INCH MOUNTED 8 FT. FROM BASE OF POLE. POST MOUNTED 3 SEC. SIGNAL HEAD AT 10 FT. ON SIDE OF POLE.

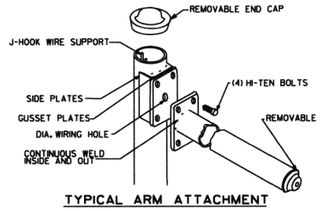
4. POLE/MAST ARM CAP - POLE AND MAST ARM CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

5. HAND HOLE - HAND HOLES SHALL BE 4 IN. X 6 IN. FOR STANDARD, AND 3 IN. X 5 IN. FOR PED POLES. MINIMUM PLACED APPROXIMATELY 12 INCHES FROM BASE, AND SHALL BE FIXED WITH A BOLT DOWN COVER. A VACCUM FORMED ABS COVER IS AN ACCEPTABLE ALTERNATE TO STEEL. POLES GREATER THAN 21 FT. IN HEIGHT (FOR ROADWAY LUMINAIRE ATTACHMENT) SHALL INCLUDED A HAND HOLE WITHIN 12 INCHES OF MAST ARM(S) ATTACHMENT(S).

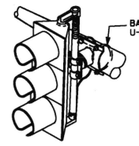
6. POLE/MAST ARM TAPER SLOPE - AVERAGE TAPER OF SIGNAL MAST ARMS AND POLE SHAFT SHALL BE 0.125 TO 0.15 INCHES PER FOOT.

MAST ARM CENTERLINE ANGLE AT ATTACHMENT POINT WITH POLE SHALL MAINTAIN NOT LESS THAN 0.5 DEGREES OR MORE THAN 4 DEGREES POSITIVE SLOPE WITH A LINE PERPENDICULAR TO THE POLE CENTERLINE. THE MAST ARM SHALL MAINTAIN A POSITIVE SLOPE AFTER IT IS PLACED UNDER LOAD.

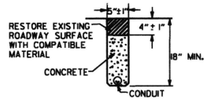
7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.



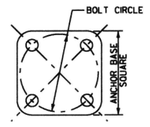
TYPICAL ARM ATTACHMENT



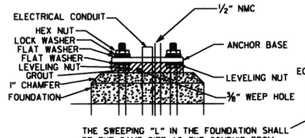
NOTE: THE SIGNAL SHALL BE CONNECTED TO THE MAST ARM BY BRACKETING AS DIRECTED BY THE ENGINEER.



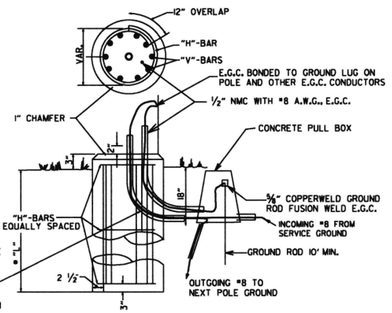
TRENCHING DETAIL
(FOR SAW CUT TRENCH IN ROADWAY)



ANCHOR BASE



THE SWEEPING "L" IN THE FOUNDATION SHALL BE THE SAME SIZE AS THE CONDUIT FROM THE FOUNDATION TO THE PULL BOX AS SHOWN ON THE PLANS.



THE GROUND ROD SHALL BE FUSION WELDED TO A 1C/#8 A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE GROUND ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX.

TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING. ALL REINFORCING STEEL SHALL BE GRADE 40 MIN.

ARM LENGTH	FOUNDATION DIAMETER	DEPTH "L"*	STEEL		
			VERTICAL	HORIZONTAL	O.C.
PED	30"	7'-0"	12-#7 (6'-6")	10-#4	8.44"
2' TO 12'	30"	10'-6"	12-#7 (10'-0")	15-#4	8.42"
OVER 12' TO 20'	30"	11'-6"	12-#7 (11'-0")	16-#4	8.66"
OVER 20' TO 35'	36"	12'-6"	13-#8 (12'-0")	17-#4	8.88"
OVER 35' TO 50'	36"	13'-6"	13-#8 (13'-0")	19-#4	8.56"
OVER 50' TO 72'	42"	14'-6"	18-#8 (14'-0")	20-#4	8.74"
TWINS TO 20'	30"	16'-0"	12-#6 (15'-6")	22-#4	8.76"
TWINS OVER 20' TO 44'	36"	16'-0"	13-#8 (15'-6")	22-#4	8.76"
TWINS OVER 44' TO 50'	42"	16'-0"	18-#8 (15'-6")	22-#4	8.76"
TWINS OVER 50' TO 72'	42"	16'-6"	18-#8 (16'-0")	23-#4	8.64"

* WHEN THE GROUND ELEVATION AT THE POLE IS LOWER THAN THE ROADWAY ELEVATION, THE LENGTH OF FOUNDATION ABOVE THE GROUND MAY BE INCREASED TO PROVIDE THE REQUIRED SIGNAL HEAD CLEARANCE ABOVE THE ROADWAY. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 18" OR LESS, NO INCREASE IN DEPTH "L" WILL BE REQUIRED. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 5'-6" OR LESS, INCREASE DEPTH "L" BY 1'-0". FOR LENGTHS GREATER THAN 5'-6", DEPTH "L" SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. LONGITUDINAL REINFORCING, AS SHOWN IN THE TABLE, SHALL BE PROVIDED FOR THE LENGTH OF THE EXTENDED SHAFT AND #4 TIES SHALL BE PROVIDED AT A SPACING NOT TO EXCEED 9" ON CENTERS. PAYMENT WILL BE IN ACCORDANCE WITH SECTION 714 TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS.

** IN LIEU OF DESIGNING THE STRUCTURE TO RESIST PERIODIC GALLOPING, A VIBRATORY MITIGATION DEVICE MAY BE PROVIDED BY THE POLE MANIFACTURER. THE VIBRATORY MITIGATION DEVICE SHALL BE AN ANTI-GALLOPING PANEL CONSISTING OF A 60" X 16" X 0.125" SIGN BLANK MOUNTED NEAR THE END OF THE MAST ARM NOT TO EXCEED ONE QUARTER OF THE LENGTH OF THE MAST ARM FROM THE END OF THE MAST ARM WITH THE LONG AXIS OF THE PANEL COLLINEAR WITH THE LONG AXIS OF THE MAST ARM. THE PANEL SHOULD BE MOUNTED AT SUCH THE HEIGHT AS TO PROVIDE AT LEAST 6" CLEAR FROM THE TOP OF ANY SIGNAL ASSEMBLY OF SIGN PANEL LOCATED ON THE MAST ARM WITHIN THE LENGTH OF THE ANTI-GALLOPING PANEL.

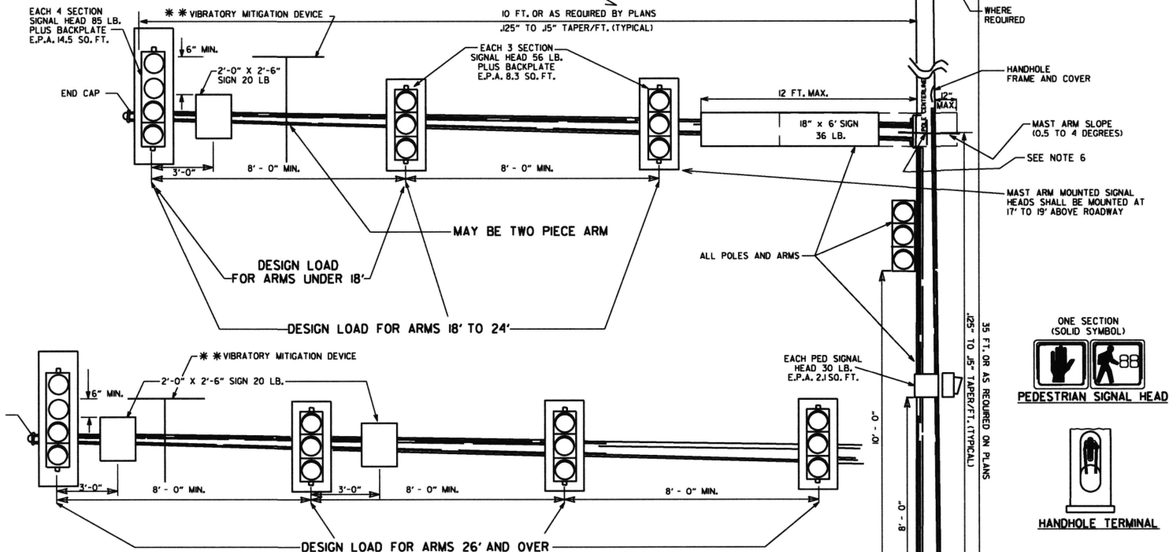
TRUCK-INDUCED GUST LOADS SHALL BE EXCLUDED FOR FATIGUE DESIGN FOR ALL STRUCTURES EXCEPT MAST ARMS MOUNTED OVER FACILITIES WITH POSTED SPEEDS OF 65 MPH OR GREATER AT THE LOCATION OF THE STRUCTURE.

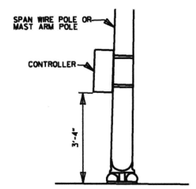
SIGNAL OPERATION NOTES:

FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORK DAYS OR AS DIRECTED BY THE ENGINEER. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.

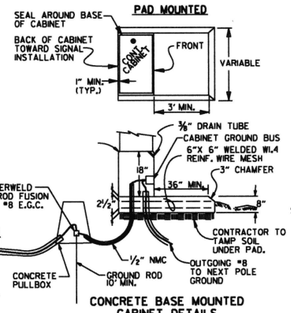
THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD. AT THE TIME THE INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATION IN FLASH SEQUENCE.

SPECIAL NOTE: 90 MPH WIND ZONE DESIGN, SEE NOTE 3. MINIMUM STRUCTURAL REQUIREMENTS.





SPAN WIRE SUPPORT POLE AND MAST ARM POLE MOUNTED



CONCRETE BASE MOUNTED CABINET DETAILS

CONTROLLER CABINET MOUNTING DETAILS

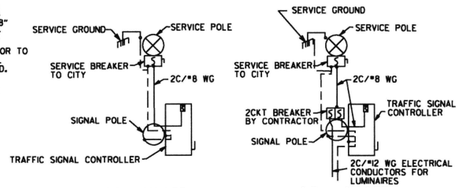
NOTE:
UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CABINET ORIENTATION SHALL BE SUCH THAT THE BACK OF THE CABINET IS PARALLEL TO THE STREET AND POSITIONED TO ALLOW VISIBILITY OF THE SIGNAL DISPLAY WHILE OBSERVING THE CONTROLLER FRONT PANEL.

8. GROUND ROD - A 10' X ⅝" GROUND ROD SHALL BE INSTALLED IN THE CONCRETE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND ½" NMC SHALL BE INCLUDED IN ITEM 714 FOR SIGNAL POLES AND ITEM 701 FOR THE CONTROLLER. THE CONCRETE PULL BOX AND CONDUCTOR BOX SHALL BE PAID SEPERATELY.

9. POLE BASE/FOUNDATION - ANCHOR BOLTS SHALL INCLUDE AS A MINIMUM, ONE LEVELING NUT, TWO FLAT WASHERS, ONE LOCK WASHER, AND ONE HEX NUT. PERIMETER OF ANCHOR BASE SHALL BE GROUTED WITH A ¼" WEEP HOLE. ALL CONCRETE SHALL BE CLASS "S" OR GREATER.

10. CONCRETE - ALL CONCRETE FOR CONTROLLER CABINET AND POLE FOUNDATIONS SHALL BE CLASS "S" OR GREATER.

11. PEDESTRIAN PHASES - PEDESTRIAN MOVEMENTS SHALL BE PUSH BUTTON ACTUATED AND CONCURRENTLY TIMED, UNLESS OTHERWISE INDICATED ON THE PLAN SHEET(S). FURNISHING AND INSTALLING PEDESTRIAN PUSH SWITCH SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM 707 PEDESTRIAN SIGNAL HEAD.



SERVICE DISCONNECT
NOTE: ELECTRICAL GROUND CONDUCTOR IS BONDED TO ALL METAL ENCLOSURES

DATE	REVISION	FILMED
11-16-17	REVISED NOTES, ADDED PEDESTRIAN SIGNAL HEAD DETAIL, ADDED HANDHOLE TERMINAL DETAIL, ADDED TRENCHING DETAIL	
02-27-14	REVISED NOTES.	
09-12-13	ISSUED AS STANDARD DRAWING	
12-08-16	REVISED NOTES	
02-27-14	REVISED NOTES	
09-12-13	ISSUED AS STANDARD DRAWING	
07-21-11	REVISED VMD, SIGNAL HEADS	
05-21-09	REVISED GROUNDING	
07-31-08	REVISED GROUNDING	
04-25-08	ADDED VIBRATORY MITIGATION DEVICE & NOTES	
04-18-08	REVISED AASHTO NOTES	
04-17-08	REVISED TO 2001 AASHTO STANDARDS	
10-12-04	REVISED CABINET ORIENTATION	
06-23-04	REVISED	
05-11-04	REV. NOTE 3/AASHTO REQUIREMENTS	
06-11-01	REV. NOTES & POLE MAST ARM SLOPE	
04-11-01	REVISED POLE TAPERS	
04-25-00	REV. NOTES & SIGNAL HEAD PLACEMENT	
11-22-99	REVISED FOUNDATION DETAILS	
11-17-98	REVISED DETAILS AND NOTES	
11-21-95	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

STEEL POLE WITH MAST ARM

STANDARD DRAWING SD-11

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			35 MPH			40 MPH			45 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH			75 MPH		
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)	
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
0° 30'	NC			NC			NC			NC			NC			NC			RC	96		RC	96		RC	96		0.022	101	
0° 45'	NC			NC			NC			NC			RC	96		RC	96		0.024	106		0.026	110		0.030	120		0.032	125	
1° 00'	NC			NC			NC			RC	90		0.022	101		0.026	110		0.030	120		0.034	130		0.038	139		0.042	149	300
1° 15'	NC			NC			RC	84		0.022	95		0.028	115		0.032	125		0.038	139		0.042	149		0.046	158	300	0.052	173	
1° 30'	NC			RC	78		0.022	88		0.028	108		0.032	125		0.038	139		0.044	154		0.050	168	300	0.056	182		0.062	197	
1° 45'	RC	72		RC	78		0.026	97		0.030	113		0.036	134		0.044	154		0.050	168		0.056	182		0.064	202		0.070	216	
2° 00'	RC	72		0.024	86		0.028	101		0.034	122		0.042	149		0.048	163		0.056	182		0.064	202		0.070	216		0.080	240	350
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178		0.062	197		0.070	216		0.078	235		0.088	259	
2° 30'	0.022	75		0.028	94		0.034	113		0.042	140		0.050	168		0.058	187		0.068	211		0.076	230		0.086	254	350	0.096	278	
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149		0.054	178		0.064	202		0.072	221		0.082	245		0.092	269		0.100	288	400
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187		0.068	211		0.078	235		0.088	259		0.098	283	400			
3° 15'	0.028	86		0.036	109		0.044	134		0.052	162		0.062	197		0.072	221		0.082	245		0.092	269		0.100	288				
3° 30'	0.030	90		0.038	113		0.046	139		0.056	171		0.066	206		0.076	230		0.086	254		0.096	278							
3° 45'	0.032	93		0.040	117		0.050	147		0.058	176		0.070	216		0.080	240		0.090	264		0.098	283							
4° 00'	0.034	97		0.042	121		0.052	151		0.062	185		0.072	221		0.084	250		0.094	274		0.100	288							
4° 15'	0.036	100		0.044	125		0.054	155		0.064	189		0.076	230		0.086	254		0.096	278										
4° 30'	0.036	100	200	0.046	129		0.056	160		0.068	198		0.078	235		0.090	264		0.098	283										
4° 45'	0.038	104		0.048	133		0.060	168		0.070	203		0.082	245		0.092	269		0.100	288										
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274													
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221		0.088	259		0.098	283													
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288													
6° 30'	0.050	126		0.062	160		0.074	198		0.086	239		0.096	278																
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283																
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252		0.100	288																
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257																			
8° 30'	0.060	144		0.072	179		0.086	223		0.096	261																			
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266																			
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270																			
10° 00'	0.066	155		0.080	195		0.094	240																						
11° 00'	0.070	162		0.084	203		0.096	244																						
12° 00'	0.074	169		0.088	211		0.098	248																						
13° 00'	0.076	173		0.090	215		0.100	252																						
14° 00'	0.080	180		0.094	222																									
15° 00'	0.082	184		0.096	226																									
16° 00'	0.086	191		0.098	230																									
17° 00'	0.088	194		0.100	234																									
18° 00'	0.090	198	250																											
19° 00'	0.092	202																												
20° 00'	0.094	205																												
21° 00'	0.096	209																												
22° 00'	0.096	209																												
23° 00'	0.098	212																												
24° 00'	0.098	212																												
25° 00'	0.100	216																												

D MAX = 28° 30' | D MAX = 19° 30' | D MAX = 13° 45' | D MAX = 10° 30' | D MAX = 8° 25' | D MAX = 6° 30' | D MAX = 5° 15' | D MAX = 4° 15' | D MAX = 3° 30' | D MAX = 2° 45'

GENERAL NOTES

1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

3 LANE UNDIVIDED - - - - - +20%
4 LANE UNDIVIDED - - - - - +50%
5 LANE UNDIVIDED - - - - - +80%
6 LANE UNDIVIDED - - - - - +100%

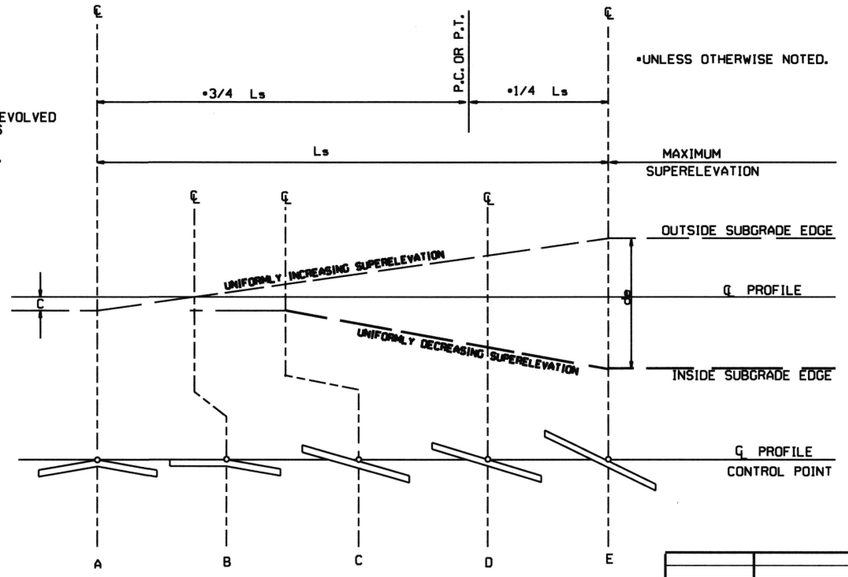
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.

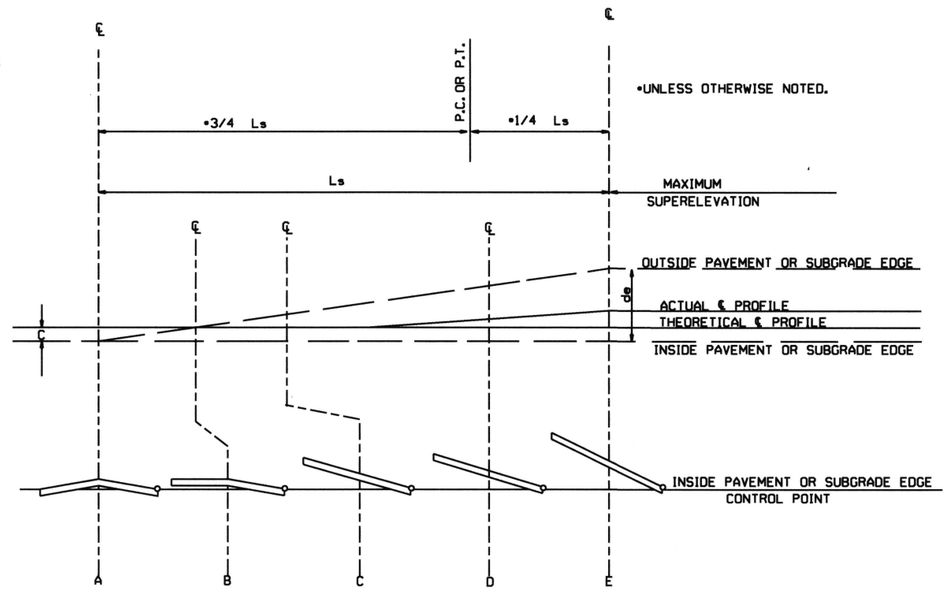
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
e - RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
C - NORMAL CROWN (FT.)



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

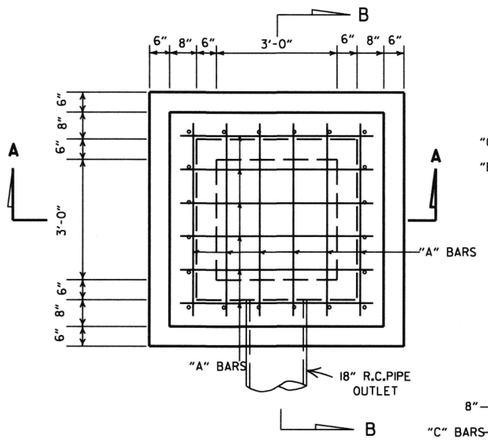
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

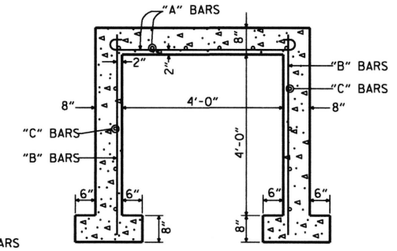
DATE	REVISION	DATE FILMED
11-07-19	REVISED SUPERELEVATION TABLE	
10-18-96	ADDED FORMULA	
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

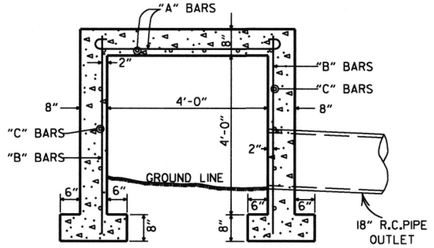
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2





SEC A-A



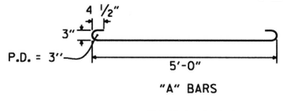
SEC B-B

NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



"A" BARS

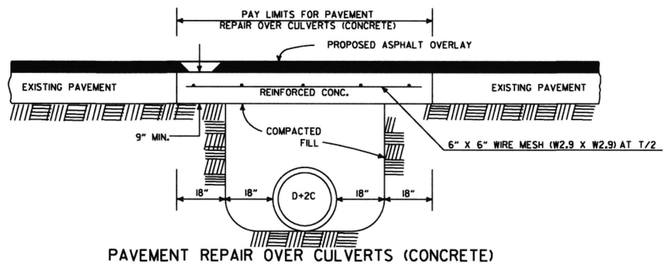
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

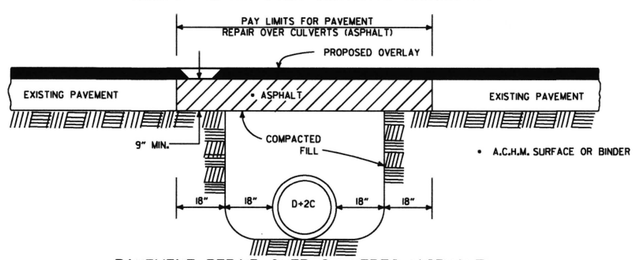
GENERAL NOTE:

THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITTIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



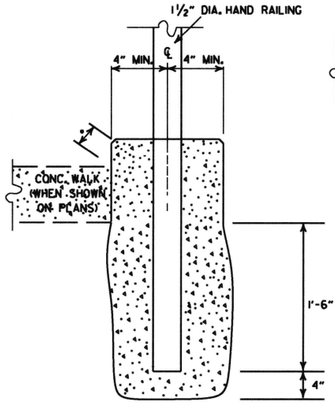
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



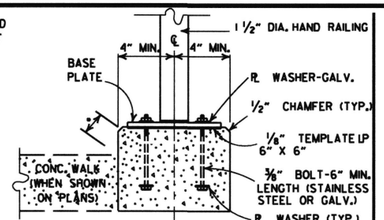
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

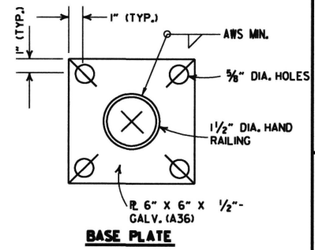
* A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

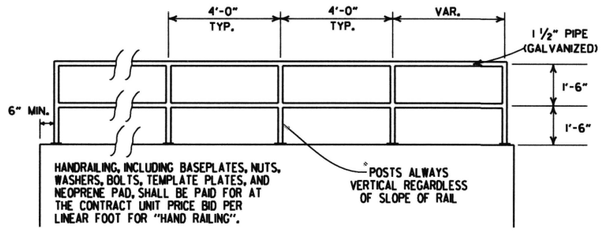


POST CONNECTION TO WALL

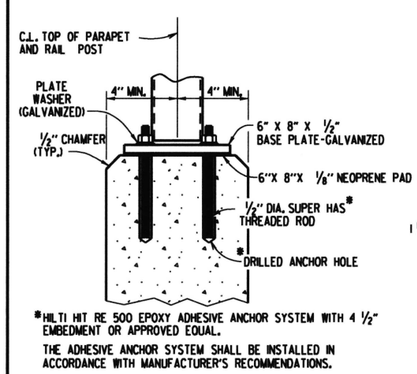


BASE PLATE

POST CONNECTION DETAILS



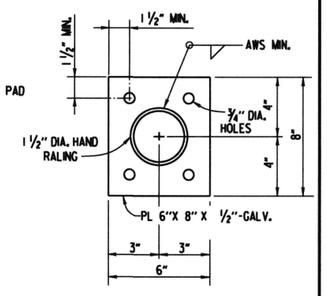
HAND RAILING SHALL CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

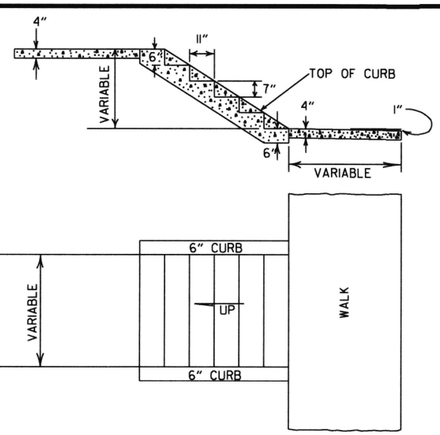
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45° INTERVALS.

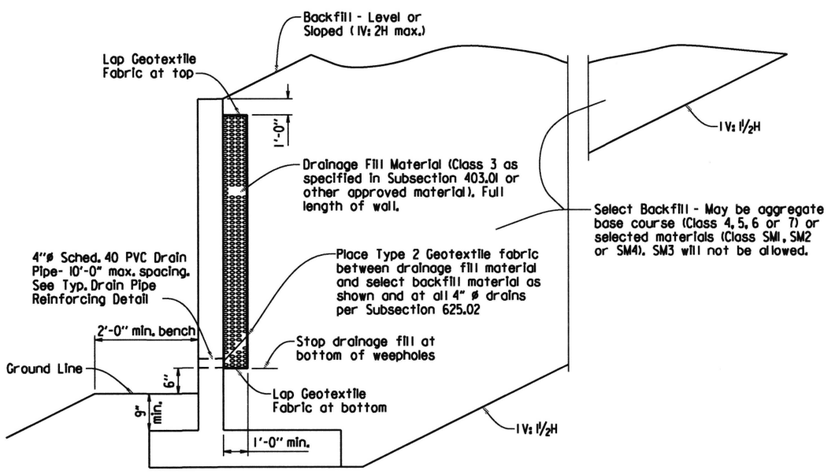
DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILMED
10-25-18	REVISED DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS	
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE;REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

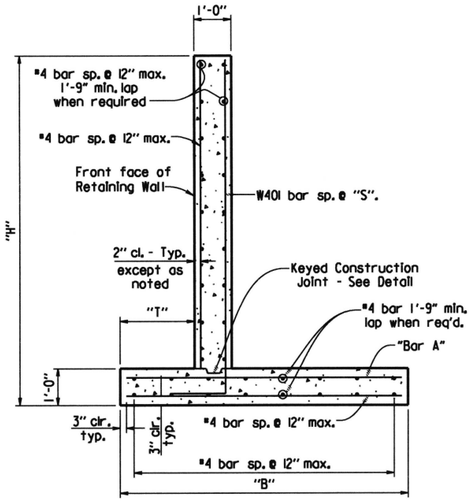
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1



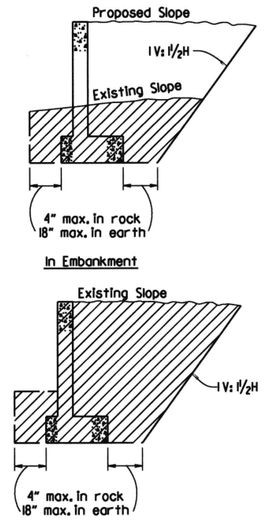
TYPICAL DRAINAGE & BACKFILL DETAILS

N.T.S



TYPICAL SECTION

N.T.S



NOTE: Hatched area denotes maximum limits of pay excavation.

DETAILS OF EXCAVATION

N.T.S

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas Department of Transportation Standard Specifications for Highway Construction (Current Edition) with applicable supplemental specifications and special provisions. Unless otherwise noted in the plans, Section and Subsection refer to the Standard Construction Specifications.

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

LIVE LOAD: Live Load Surcharge is not included in the design of these walls. Vehicular Live Load shall not be allowed within a distance equal to one-half the height of the wall.

CONCRETE: Concrete shall be poured in the dry and all exposed corners to be chamfered ½". All concrete shall be Class S with a minimum 28 day compressive strength f'c = 3,500 psi. A Class 2 Surface finish shall be used on all surfaces of the concrete unless otherwise noted.

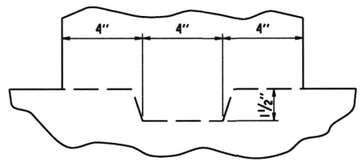
REINFORCING STEEL: All reinforcing steel shall conform to AASHTO M31 orM53, Grade 60.

Foundations for footings shall be prepared in accordance with subsection 801.04. Backfill for retaining walls shall be in accordance with subsection 801.08.

Waterproof Membrane (Type C), waterstops, preformed joints, weep holes & geotextile fabric shall not be paid for directly, but shall be considered subsidiary to Class S Concrete.

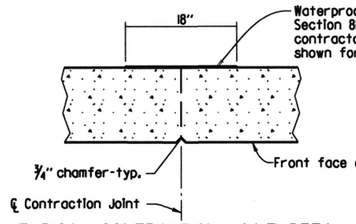
Drainage fill material (Class 3) and select backfill shall be measured and paid for as Compacted Embankment.

These details are not intended for use along streams or ditches without consideration for scour.



KEYED CONSTRUCTION JOINT DETAIL

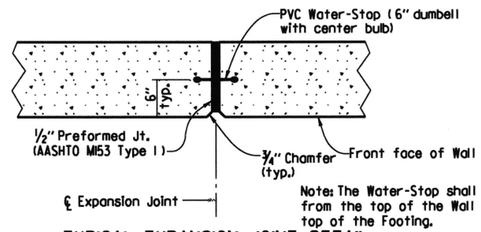
N.T.S



TYPICAL CONTRACTION JOINT DETAIL

N.T.S.

Note: 20'-0" Max. Spacing between Contraction Joints. Horizontal reinforcement shall be continuous through Contraction Joints.

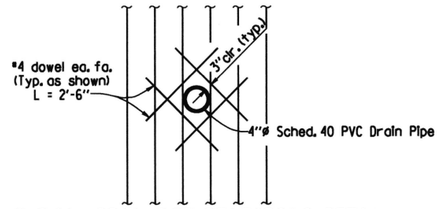


Note: The Water-Stop shall extend from the top of the Wall to the top of the Footing.

TYPICAL EXPANSION JOINT DETAIL

N.T.S.

Note: 60'-0" Max. Spacing between Expansion Joints. Horizontal reinforcing shall stop 2" from ℄ Expansion Joint.



TYPICAL DRAIN PIPE REINFORCING DETAIL

N.T.S

SEISMIC ZONE: These walls have been designed for the following site adjusted peak ground accelerations (A_S):
Level Backfill - $A_S \leq .40g$
Sloped Backfill (1V: 2H max.) - $A_S \leq .30g$

TABLE OF RETAINING WALL VARIABLES (LEVEL BACKFILL)

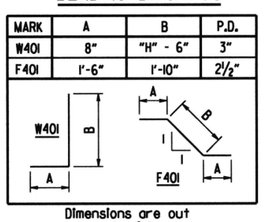
"H"	"T"	"B"	"S"	"Bar A" Size @ Spacing
3'-0"	9"	2'-6"	12"	#4 @ 12"
4'-0"	9"	3'-6"	12"	#4 @ 12"
5'-0"	9"	4'-0"	12"	#4 @ 12"
6'-0"	9"	4'-6"	12"	#4 @ 12"
7'-0"	9"	5'-6"	12"	#4 @ 10"
8'-0"	9"	6'-0"	12"	#5 @ 10"
9'-0"	1'-0"	7'-0"	12"	#5 @ 6½"

TABLE OF RETAINING WALL VARIABLES (SLOPED BACKFILL) (1V: 2H MAX.)

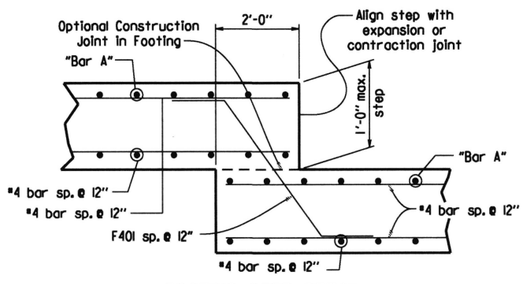
"H"	"T"	"B"	"S"	"Bar A" Size @ Spacing
3'-0"	9"	2'-6"	12"	#4 @ 12"
4'-0"	9"	3'-6"	12"	#4 @ 12"
5'-0"	9"	4'-6"	12"	#4 @ 12"
6'-0"	9"	5'-6"	12"	#4 @ 6"
7'-0"	9"	6'-6"	12"	#5 @ 6½"
8'-0"	1'-6"	8'-0"	7½"	#6 @ 6"
9'-0"	1'-11"	9'-6"	5"	#8 @ 6"

BENDING DIAGRAMS

MARK	A	B	P.D.
W401	8"	"H" - 6"	3"
F401	1'-6"	1'-10"	2½"



Dimensions are out to out of bars.



FOOTING STEP DETAIL

N.T.S.

DATE	REVISION	DATE FILMED
5-12-16	REVISED SLOPES FOR SELECT BACKFILL	
2-27-14	REVISED GENERAL NOTES	
7-26-12	DRAWING ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE RETAINING WALL (WITHOUT LIVE LOAD SURCHARGE)

STANDARD DRAWING SI - 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



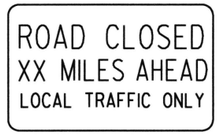
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

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



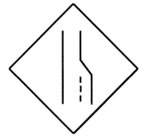
STD. 36"X36"
SPECIAL 48"X48"

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



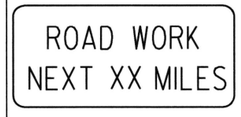
STD. 36"X36"
FWY. 48"X48"

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.

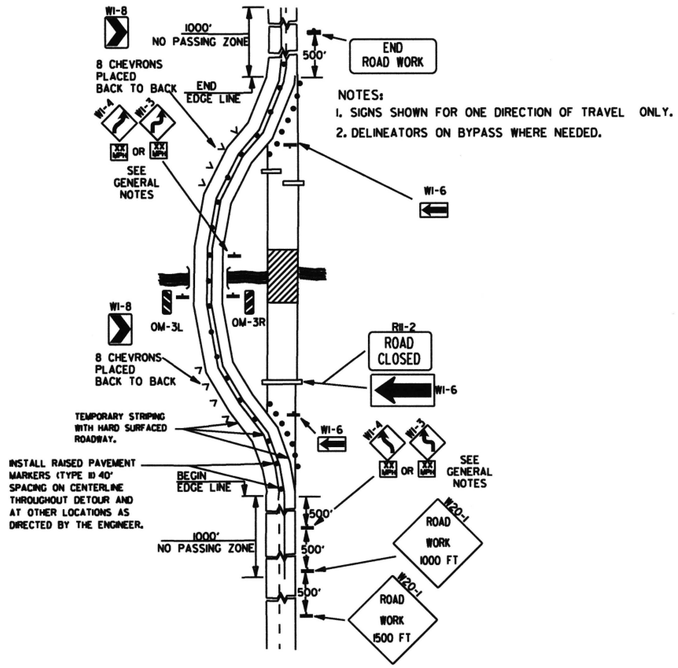
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
11-07-19	REVISED FOR MASH	
4-13-17	DELETED R5P-1 & ADDED W21-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

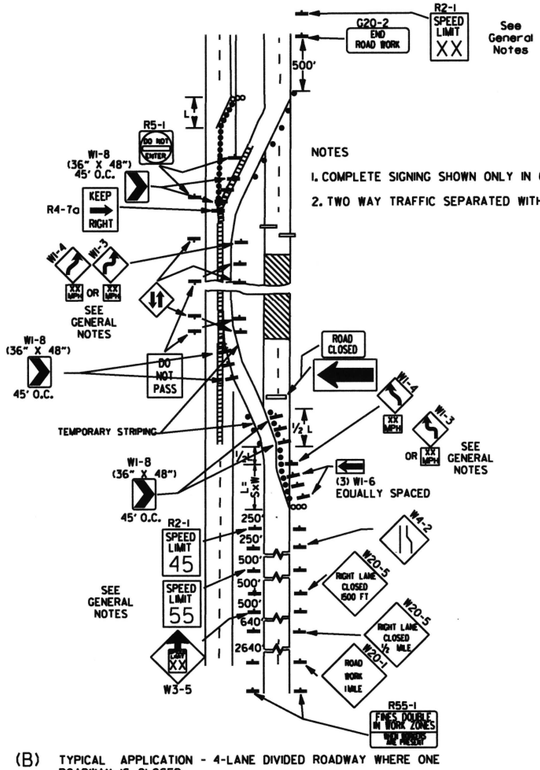
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



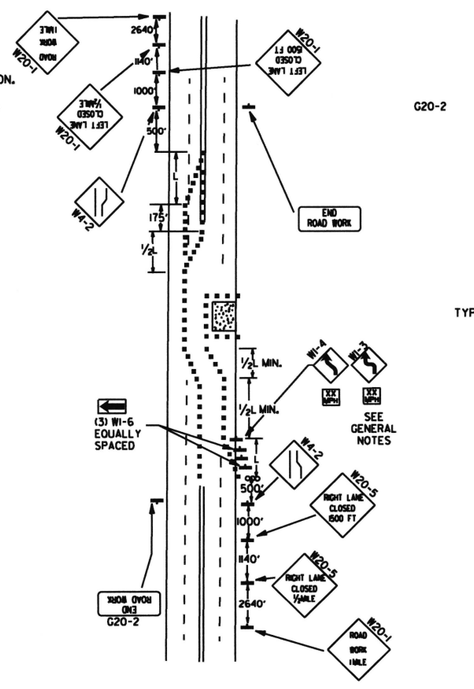
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

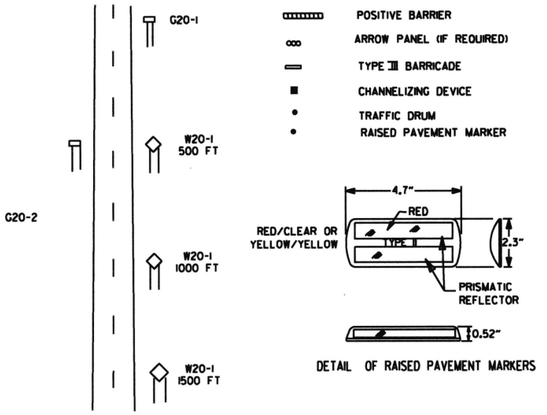


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT

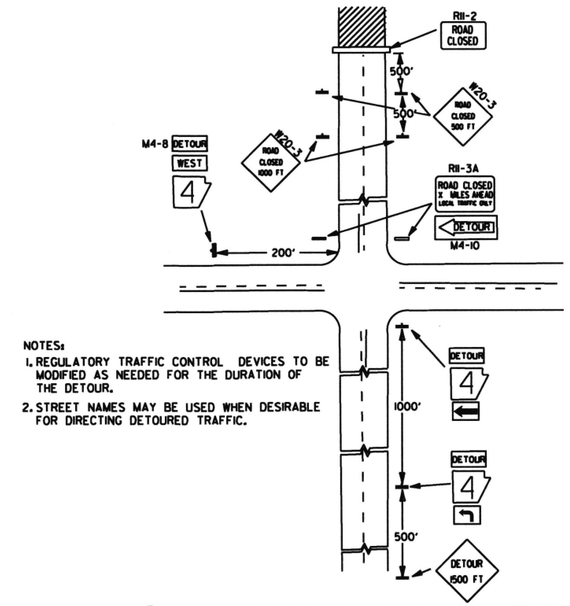
TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

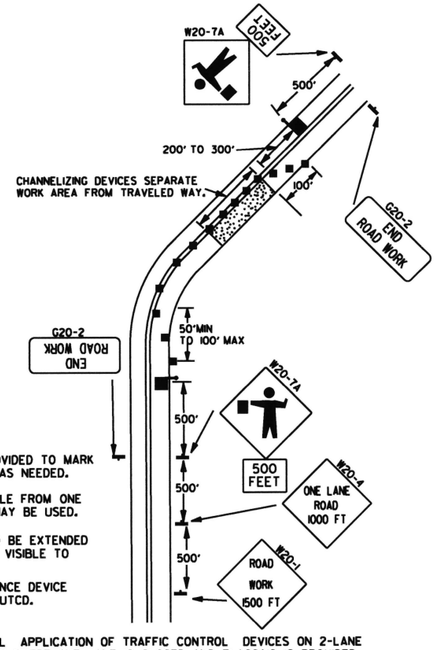
WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

GENERAL NOTES:
1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE ARDOT QUALIFIED PRODUCTS LIST.
9. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



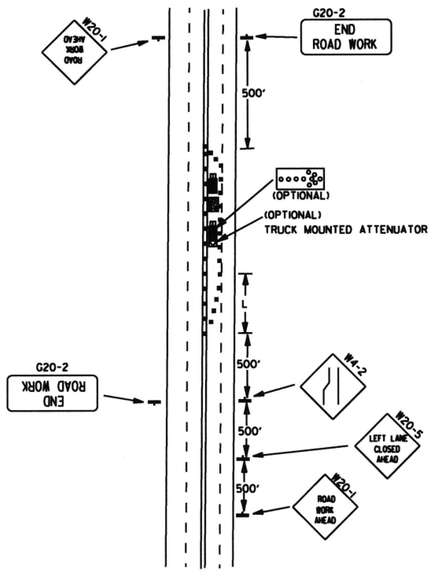
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



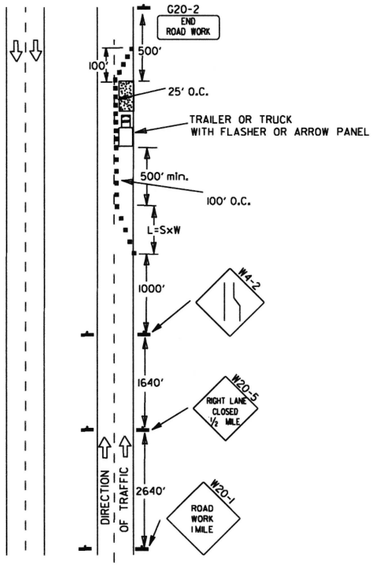
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
11-07-19	REVISED NOTE 1, ADDED NOTE 9	
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

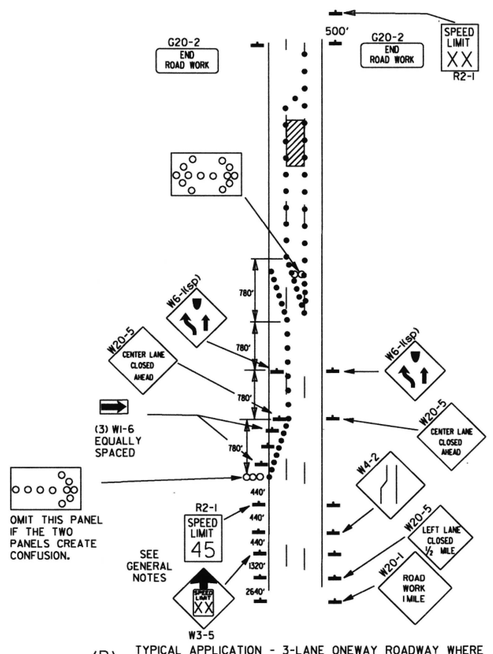
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

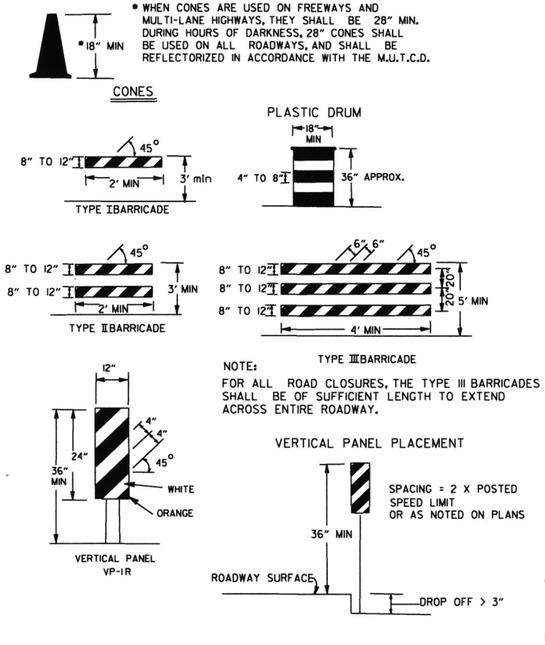
STANDARD DRAWING TC-2



(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.



KEY:

- ooo ARROW PANEL (IF REQUIRED)
- ■ CHANNELIZING DEVICE
- ● TRAFFIC DRUM

GENERAL NOTES:

1. A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. THE G20-1 SIGN WILL BE REQUIRED ON JOBS OF OVER TWO MILES IN LENGTH. WHEN THE LANE CLOSURE IS NOT AT THE BEGINNING OF THE PROJECT, THE G20-1 SIGN SHALL BE ERECTED 125' IN ADVANCE OF THE JOB LIMIT. ADDITIONAL W20-1 (1 MILE) SIGNS ARE NOT REQUIRED IN ADVANCE OF LANE CLOSURES THAT BEGIN INSIDE THE PROJECT LIMITS.
8. FLAGGERS SHALL USE STOP/SLOW PADDLES FOR CONTROLLING TRAFFIC THROUGH WORK ZONES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. ALL PLASTIC DRUMS AND CONES SHALL MEET THE REQUIREMENTS OF 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.
11. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

TRAFFIC CONTROL DEVICES

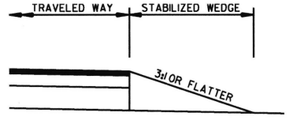
NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING	W8-11 AND LANE STRIPING
> 2"	CENTERLINE	STANDARD LANE CLOSURE	STANDARD LANE CLOSURE
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS	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

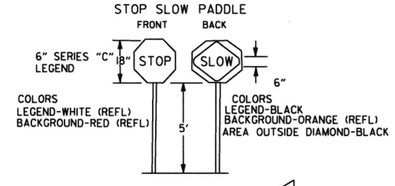
GENERAL NOTES:

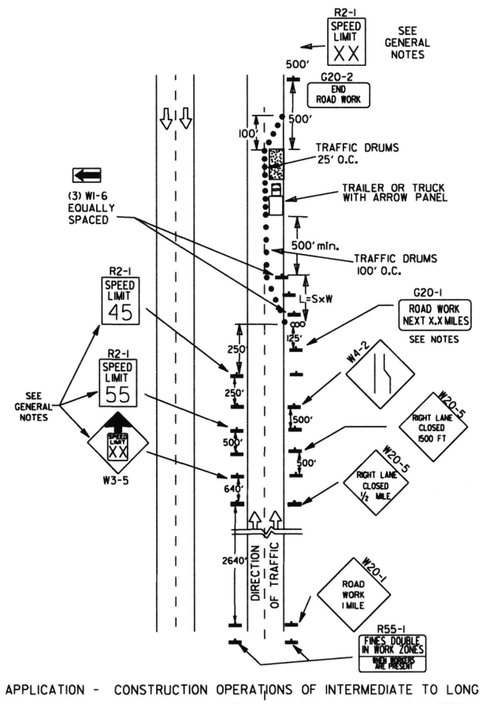
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL 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 UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.



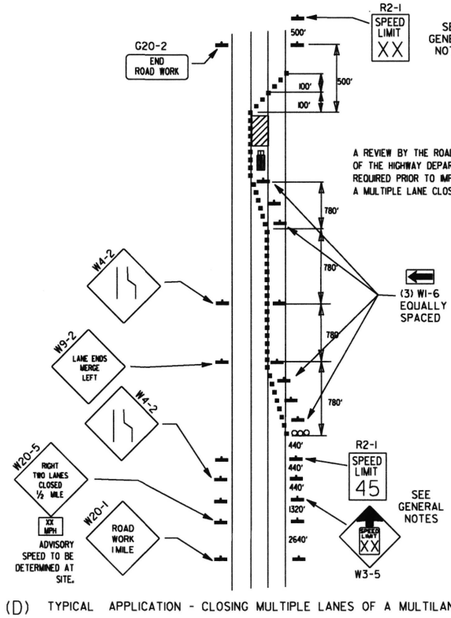
STABILIZED WEDGE

NOTE:
MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.



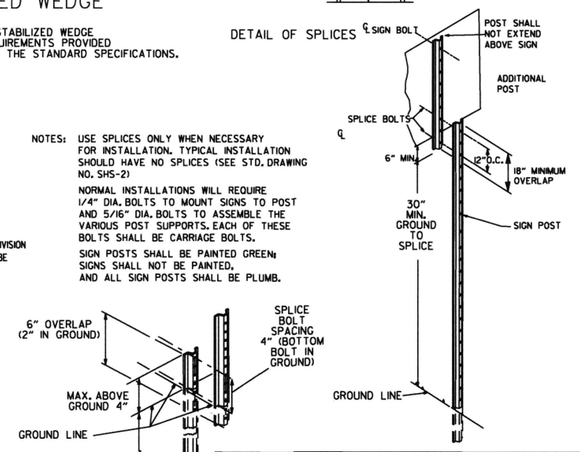


(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



(D) TYPICAL APPLICATION - CLOSING MULTIPLE LANES OF A MULTILANE HIGHWAY.

DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.

DATE	REVISION	FILMED
11-07-19	REVISED NOTE 9, ADDED NOTE 11	
7-25-19	REVISED TRAFFIC CONTROL DEVICES DETAILS	
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

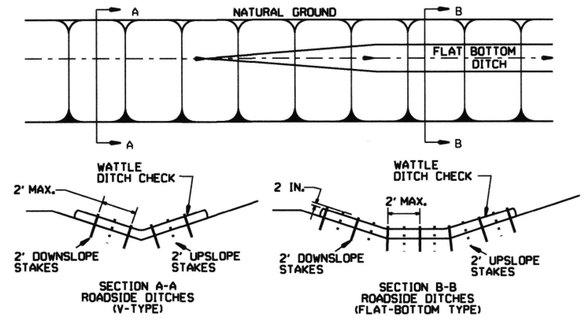
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

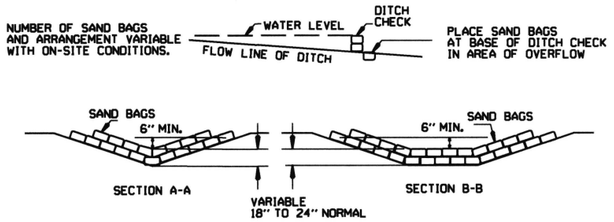
STANDARD DRAWING TC-3

GENERAL NOTES

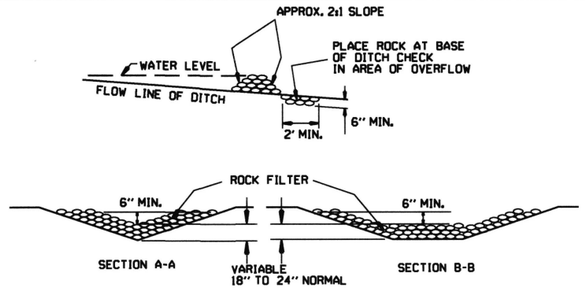
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

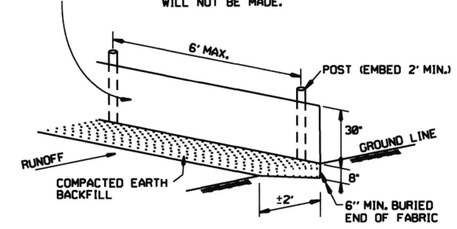


ROCK DITCH CHECK (E-6)

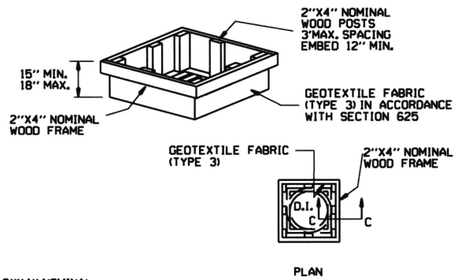
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

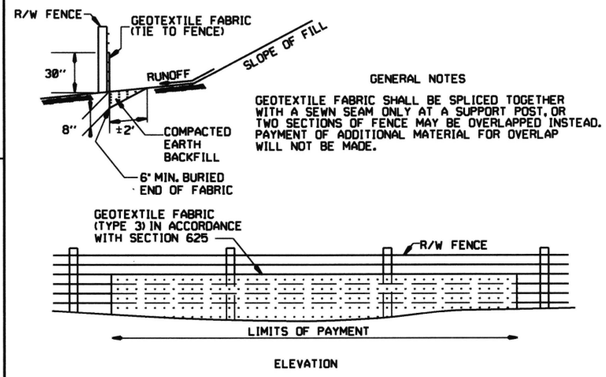
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)



DROP INLET SILT FENCE (E-7)



GENERAL NOTES

GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

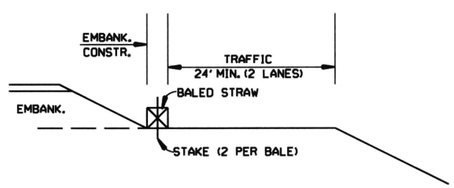
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

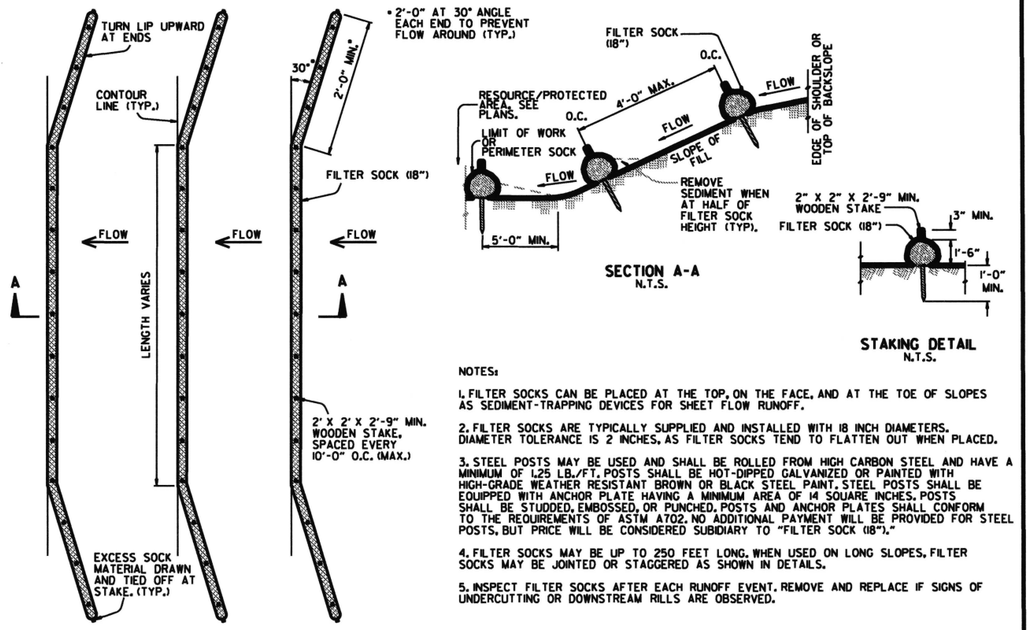
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



BALED STRAW FILTER BARRIER (E-2)



NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.

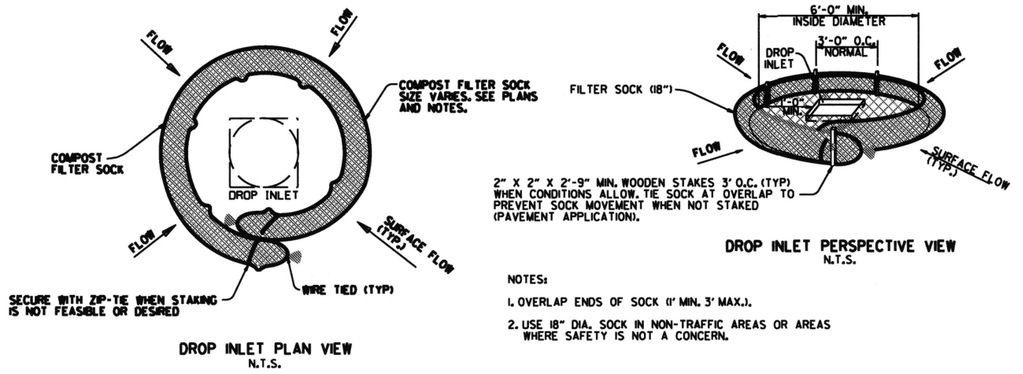
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBIDIARY TO "FILTER SOCK (18")."

4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.

FILTER SOCK ALONG SLOPE (E-3)



NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN, 3' MAX.).

2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

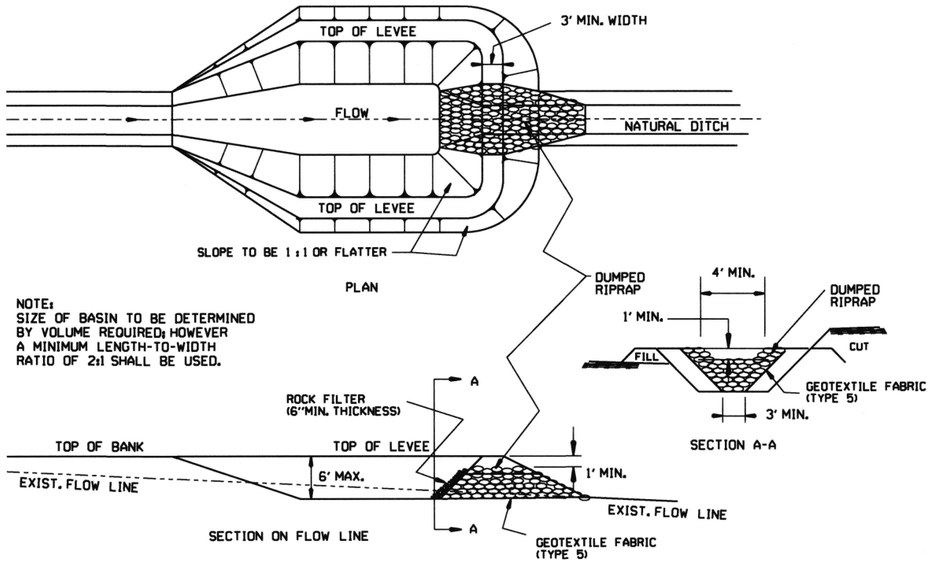
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

DATE	REVISION	FILMED
11-16-17	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
07-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
07-15-94	REV. E-4 & E-11 MIN. 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

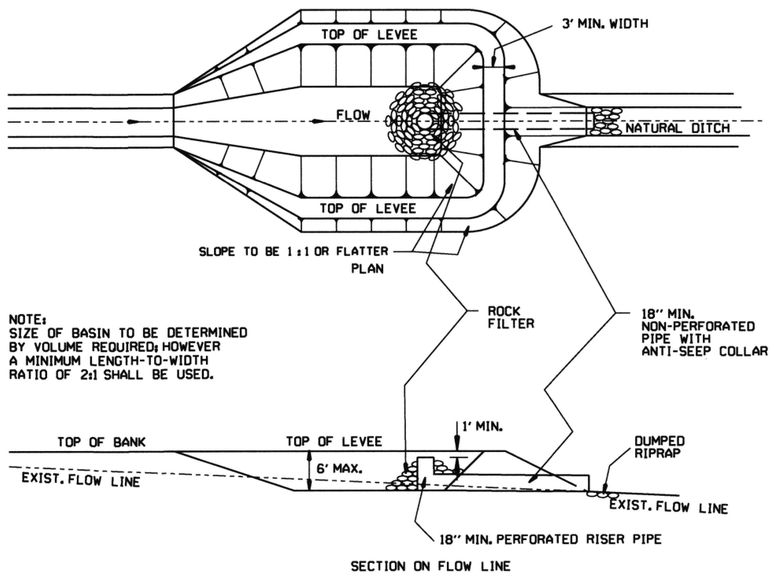
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

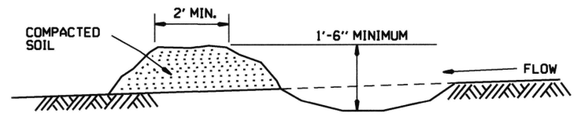
STANDARD DRAWING TEC-1



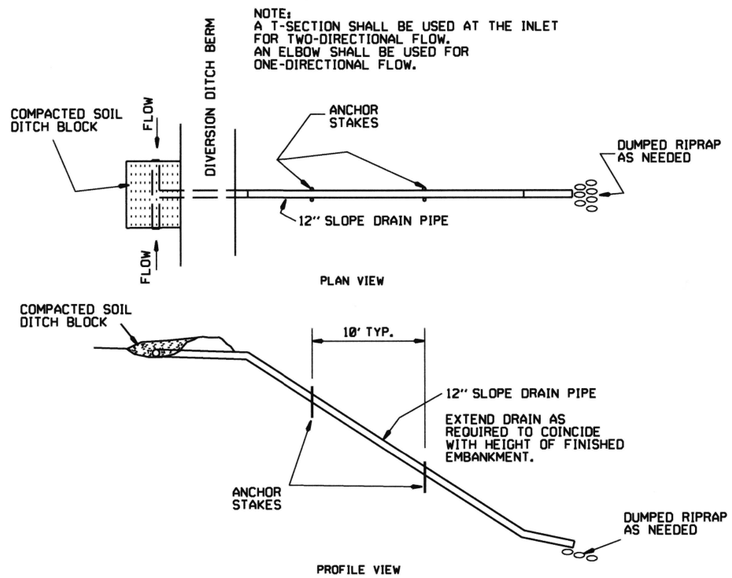
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



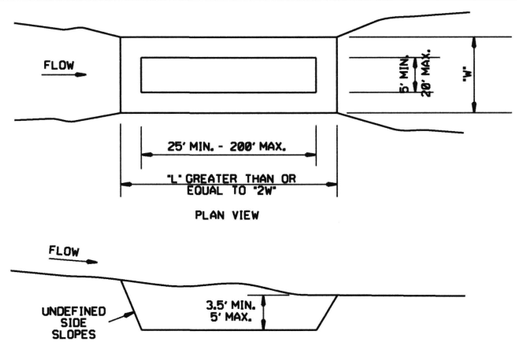
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

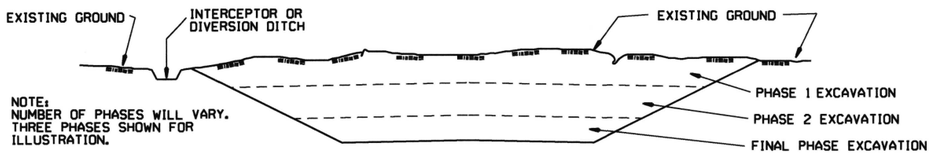
STANDARD DRAWING TEC-2

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



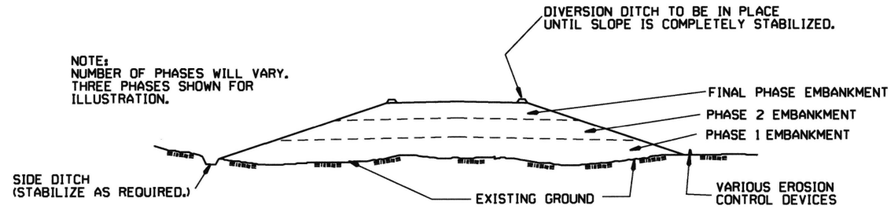
GENERAL NOTE

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

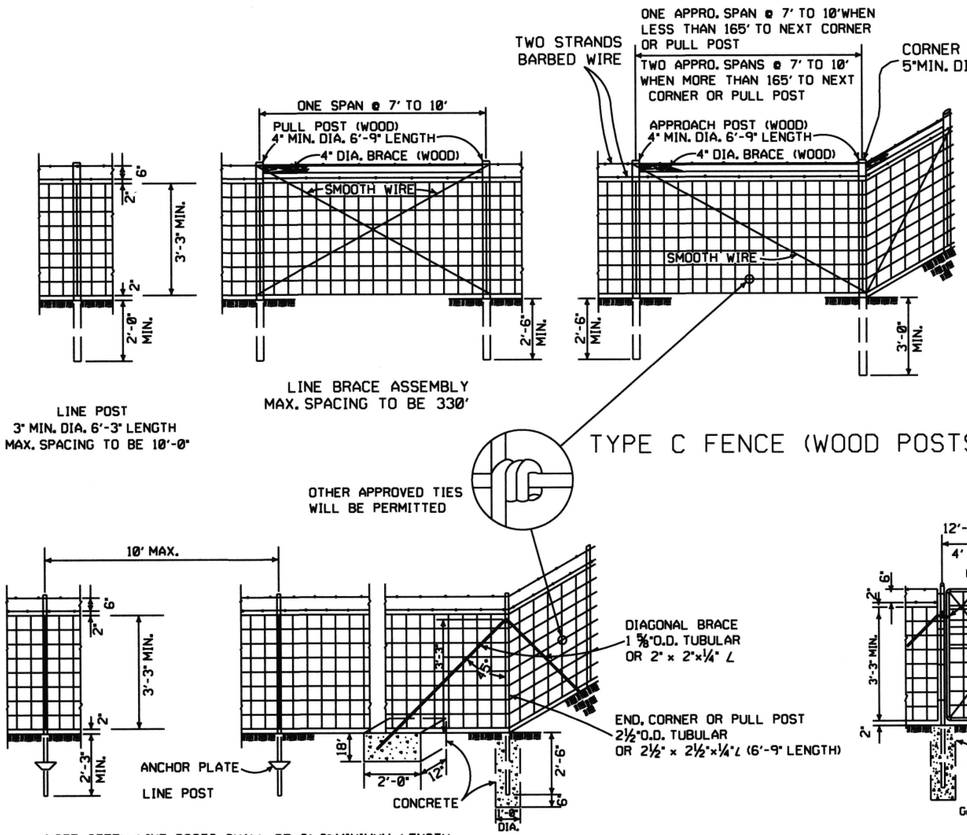
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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



GENERAL NOTES:

STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED. TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE - 1" TO +2".
TUBULAR POSTS MUST BE PAINTED OR GALVANIZED.

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

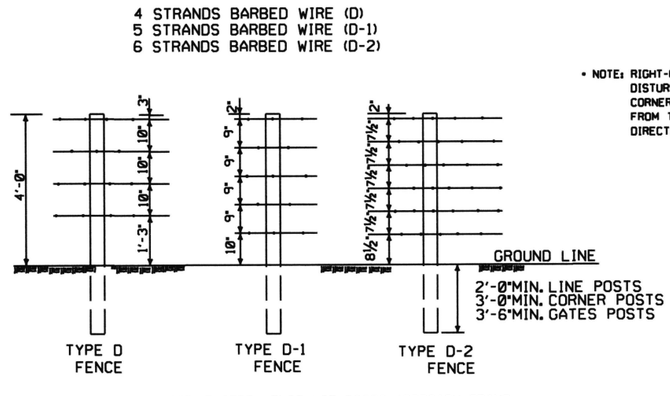
DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

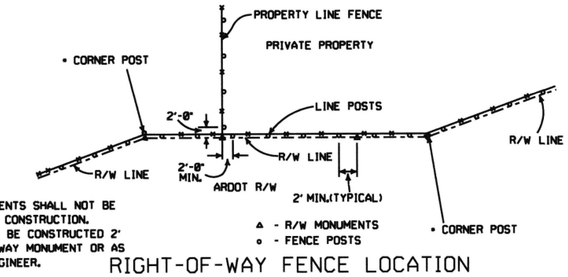
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

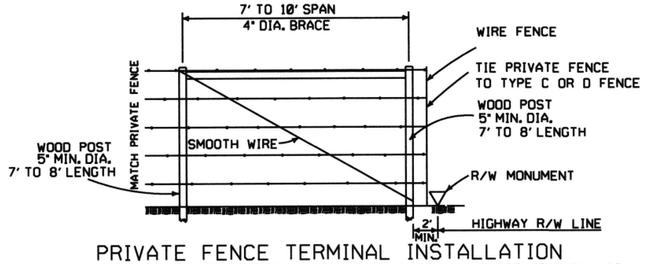


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

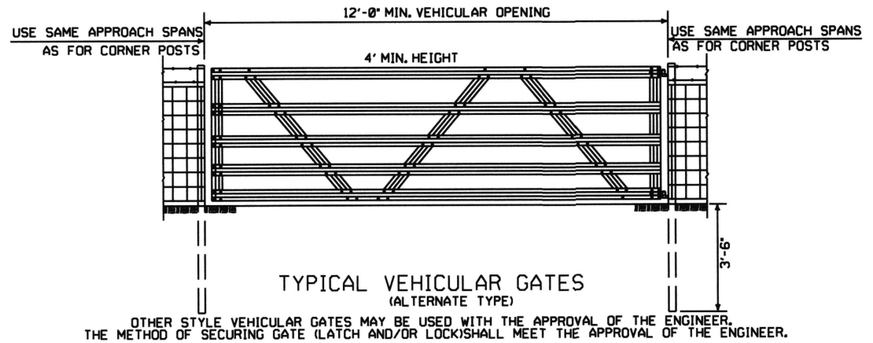


• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION
WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.



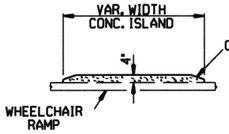
TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)
OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK) SHALL MEET THE APPROVAL OF THE ENGINEER.

DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND	6-2-94
	ADDED CORNER POST NOTES	
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
7-15-88	ADDED SPLICE NOTE	700-7-15-88
10-30-87	GENERAL REVISIONS	549-10-30-87
11-1-84	MAX. POST SPACING MIN. WIRE GAUGE	507-11-1-84
1-4-83	MIN. DIA. LINE POST	648-1-4-83
3-2-81	TOLERANCE FOR POST LENGTH	722-3-2-81
12-1-72	ADDED D-1 & FENCE INSTALLATION	564-12-1-72
10-2-72	REVISED AND REDRAWN	540-10-2-72

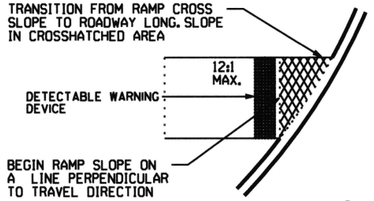
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

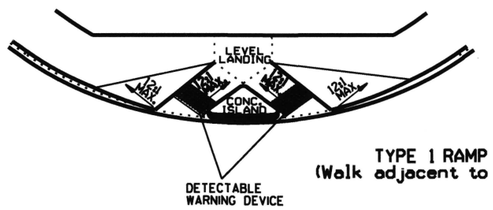
STANDARD DRAWING WF-4



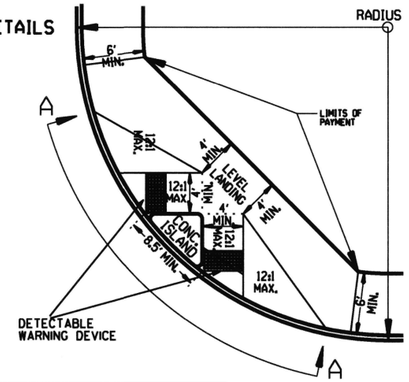
CONCRETE ISLAND DETAIL



SLOPE TRANSITION DETAILS



TYPE 1 RAMP
(Walk adjacent to curb)

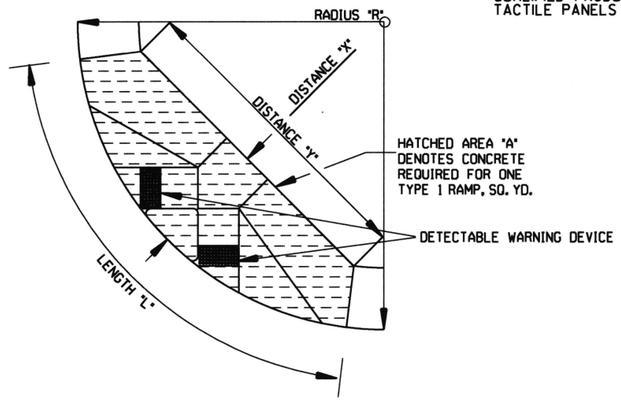




SECTION A-A

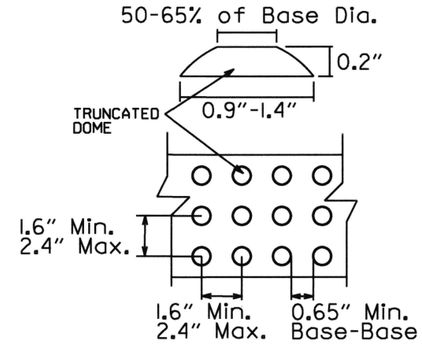
TYPE 1 RAMP DIMENSIONS AND QUANTITIES

RADIUS "R" FEET	DISTANCE "X" FEET	DISTANCE "Y" FEET	LENGTH "L" FEET	RAMP AREA "A" SQ. YD.
15	11.67	18.82	32.18	26.21
20	11.52	22.28	35.46	30.07
25	11.43	26.60	38.77	33.80
30	11.37	30.26	40.93	36.90
35	11.33	33.51	43.11	39.77
40	11.30	36.45	45.26	42.45
45	11.27	39.16	47.34	44.97
50	11.25	41.69	49.36	47.35
55	11.24	44.07	51.31	49.63
60	11.22	46.33	53.21	51.80



GENERAL NOTES FOR DETECTABLE WARNING DEVICES

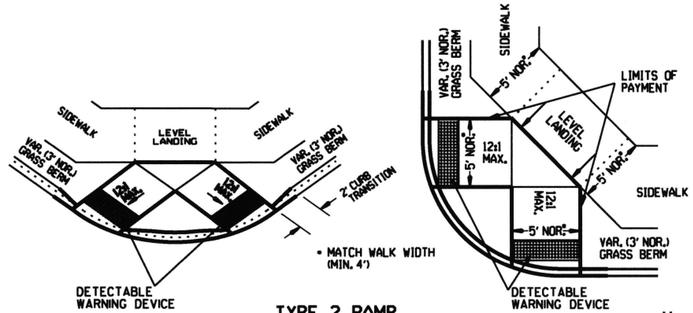
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE.
DETECTABLE WARNING DEVICE SHALL BE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).



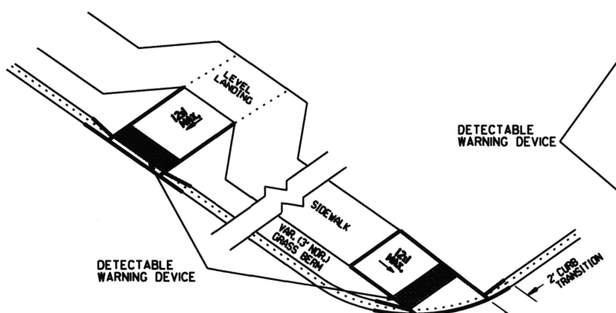
DETECTABLE WARNING DEVICE DETAIL

GENERAL NOTES:

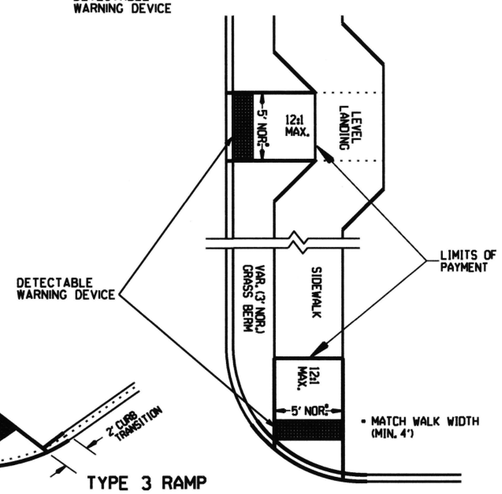
IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.
IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK LOCATIONS.
THE LENGTH OF THE RAMP SHALL BE SUCH THAT THE SLOPE DOES NOT EXCEED 12:1. THE SURFACE TEXTURE OF THE RAMP SHALL CONFORM TO A CLASS 6 FINISH ACCORDING TO SECTION 802.19.
THE NORMAL GUTTER GRADE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.
ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
THE MINIMUM THICKNESS OF THE RAMP, WALK, & LANDING SHALL BE 4".
THE MINIMUM WIDTH OF THE RAMPS SHALL BE THE WALK WIDTH OR 36", WHICHEVER IS GREATER.
RAMPS SHALL BE MODIFIED AS NECESSARY TO INSURE THAT THEY ARE PARALLEL TO A LINE DRAWN FROM THE CENTER OF ONE RAMP TO THE CENTER OF THE RAMP ON THE OPPOSITE SIDE OF THE INTERSECTION.
THE DIMENSIONS AND QUANTITIES SHOWN ON THIS DRAWING ARE FOR A 90° INTERSECTION ONLY. DIMENSIONS AND QUANTITIES FOR SKEWED INTERSECTIONS WILL VARY, AND ARE TO BE DETERMINED BY THE ENGINEER.



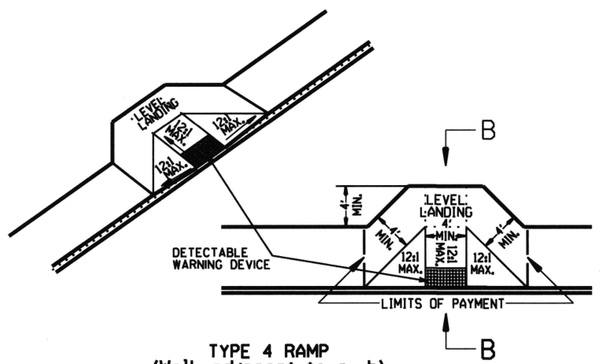
TYPE 2 RAMP



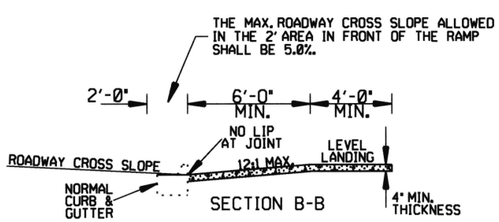
TYPE 3 RAMP



NOTE:
THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGTITUDINAL GRADE.



TYPE 4 RAMP
(Walk adjacent to curb)



SECTION B-B

RAMP SELECTION CRITERIA

FIRST CHOICE	TYPE 1	CORNER LOCATIONS WITH THE WALK ADJACENT TO THE CURB (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 2	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE INSUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 3	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE SUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 4	TANGENT LOCATIONS (BOTH NEW CONSTRUCTION AND ALTERATIONS).
SECOND CHOICE	TYPE 5	TANGENT LOCATIONS (ALTERATIONS ONLY).
THIRD CHOICE	TYPE 6	CORNER LOCATIONS (ALTERATIONS ONLY). THIS RAMP MAY BE USED ONLY IF THE TYPE 5 RAMPS CANNOT BE PLACED AT THE ENDS OF THE RADIUS.
FOURTH CHOICE		IF SITE CONSTRAINTS PREVENT THE CONSTRUCTION OF ANY OF THE TYPES LISTED, THEN AND ONLY THEN CAN THE 12:1 MAX. SLOPE ON THE RAMP BE EXCEEDED TO PROVIDE ACCESS TO THE STREET LEVEL (ALTERATIONS ONLY). THE SLOPE CAN BE STEEPENED TO A 10:1 MAX. FOR A MAX. LENGTH OF 5' OR A 8:1 MAX. FOR A MAX. LENGTH OF 2'. SLOPES STEEPER THAN 8:1 ARE NOT ALLOWED UNDER ANY CIRCUMSTANCES.

NOTE: IN ALTERATIONS, THE SELECTION OF THE TYPE OF WHEELCHAIR RAMP TO BE CONSTRUCTED SHALL BE BASED ON THE AMOUNT OF RIGHT-OF-WAY AVAILABLE, AND ON THE PRESENCE OF OTHER SITE CONSTRAINTS (UTILITIES, BUILDINGS, ETC.). THE TABLE ABOVE LISTS THE ORDER IN WHICH THE RAMPS ARE TO BE CONSIDERED.

AN ALTERATION IS DEFINED AS A PROJECT THAT CHANGES OR AFFECTS THE USE OF A PEDESTRIAN PATHWAY (OVERLAYS, SIGNALIZATION PROJECTS, ETC.) BUT DOES NOT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY. ALL PROJECTS THAT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY WILL USUALLY BE CONSIDERED NEW CONSTRUCTION FOR THE PURPOSES OF THE CHART ABOVE.

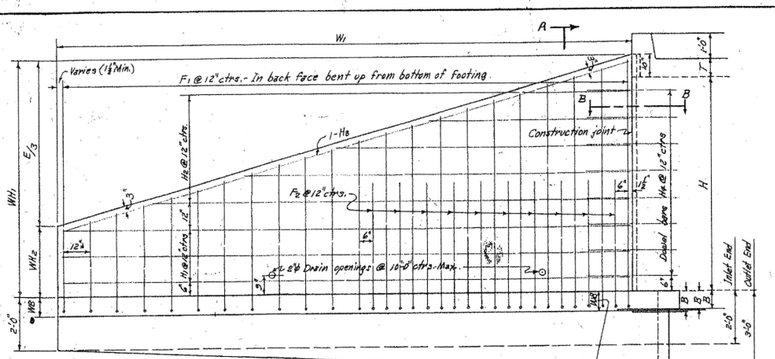
DATE	REVISION	DATE FILM
8-10-05	REVISED TO NEW SIDEWALK POLICY	
10-9-03	REVISED GEN. NOTES & ADDED NOTE	
4-10-03	REV. DETECTABLE WARNING DEVICES	
8-22-02	ADD DETECTABLE WARNING DEVICES	
3-30-00	ADD. SLOPE TRANS. & REV. ISL. DIMS.	
11-18-98	REVISED NOTES	
8-12-98	REVISED TEXTURE	
7-02-98	REDRAWN & REISSUED	
10-18-96	CORRECTED DIMENSIONS	10-18-96
5-24-90	FROM8&10%MAX.SLOPES	5-24-90
7-15-88	ADJUSTED MAX. SLOPE	652-7-15-88
7-14-88	INCLUD."CONC. ISLD."IN PAY ITEM	-------
6-02-76	ISSUED-P.H.D.	299-7-28-76

ARKANSAS STATE HIGHWAY COMMISSION

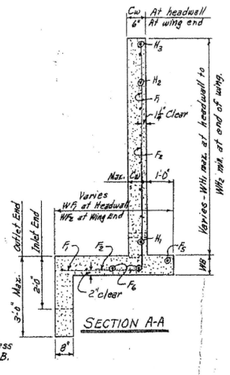
WHEELCHAIR RAMPS NEW CONSTRUCTION AND ALTERATIONS

STANDARD DRAWING WR-1

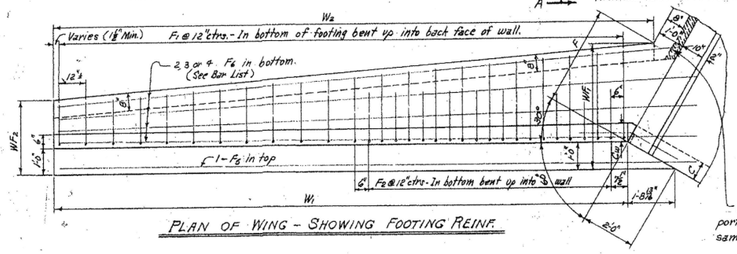
FED. ROAD NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	ARK.				
JOB NO.					



REAR ELEVATION OF WING - SHOWING BACK FACE REINF.

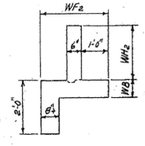


WB may be more, equal to, or less than the bottom slab thickness B.

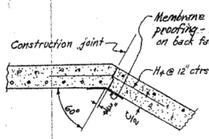


PLAN OF WING - SHOWING FOOTING REINF.

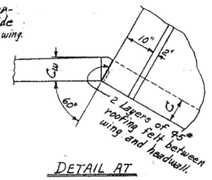
When B is more than WB, the shaded portion of the apron shall be made the same thickness as the barrel base B.



END VIEW OF WING



SECTION B-B THRU CONSTRUCTION JOINT



DETAIL AT TOP OF WING

Note:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

WING DIMENSIONS

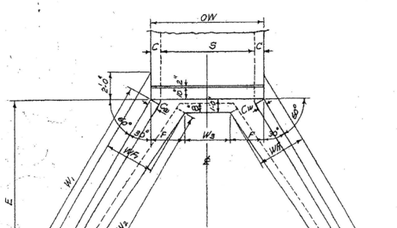
CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = C	WINGWALL HEIGHTS AT HEADWALL	WINGWALL HEIGHTS AT END OF WING	WIDTHS OF WING FOOTINGS AT HEADWALL	WIDTHS OF WING FOOTINGS AT END OF WING	PERPENDICULAR DISTANCE FROM CORNER TO END OF WING	LENGTH OF WINGWALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING CLASS S CONCRETE INLET END	* QUANTITY PER WING CLASS S CONCRETE OUTLET END
H	WB	Cw	WH1	WH2	WF1	WF2	F	E	W1	W2	CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-8"	2'-0"	0'-1⅞"	6'-6"	7'-6"	7'-1⅝"	0.889	0.986
3'	7"	6"	3'-10"	1'-0"	3'-8"	2'-1⅝"	1'-9⅜"	8'-6"	9'-9⅜"	9'-2⅝"	1.338	1.466
4'	7"	6"	4'-10"	1'-9"	3'-0"	2'-3"	1'-5"	10'-6"	12'-1⅛"	11'-6⅛"	1.868	2.027
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4⅝"	2'-1⅝"	12'-6"	14'-5⅝"	13'-7⅝"	2.478	2.668
		7"	5'-10"	1'-8"	3'-9"	2'-4⅝"	2'-1⅝"	12'-6"	14'-5⅝"	14'-2⅝"	2.582	2.772
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅝"	14'-6"	16'-9"	15'-11⅝"	3.440	3.661
		7⅝"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅝"	14'-6"	16'-9"	16'-3⅜"	3.511	3.732
		8"	6'-10"	2'-0"	3'-9"	2'-6"	2'-6⅝"	14'-6"	16'-9"	16'-7⅛"	3.588	3.803
7'	8⅝"	7⅝"	7'-10"	2'-9"	4'-2"	2'-7⅝"	3'-1⅛"	16'-6"	19'-0⅝"	18'-8⅝"	4.505	4.758
		8"	7'-10"	2'-9"	4'-2"	2'-7⅝"	3'-1⅛"	16'-6"	19'-0⅝"	19'-1⅜"	4.597	4.851
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-1⅝"	18'-6"	21'-4⅜"	22'-2⅝"	5.761	6.097

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W3.

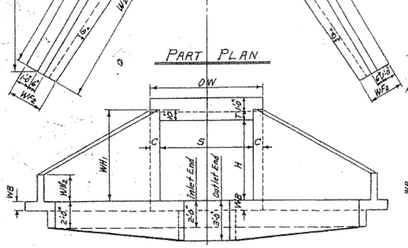
APRON DIMENSION W3

W3 = (OW - 2F)

CLEAR SPAN	CLEAR HEIGHT	FOOTING DIMENSION	SINGLE BARREL CULVERT OW	SINGLE BARREL CULVERT W3	DOUBLE BARREL CULVERT OW	DOUBLE BARREL CULVERT W3	TRIPLE BARREL CULVERT OW	TRIPLE BARREL CULVERT W3	QUADRUPLE BARREL CULVERT OW	QUADRUPLE BARREL CULVERT W3	QUINTUPLE BARREL CULVERT OW	QUINTUPLE BARREL CULVERT W3
S	H	2F										
4'	2'	1'-11⅛"	5'-0"	3'-0⅛"	9'-8"	7'-8⅛"	14'-4"	12'-4⅛"	19'-0"	17'-0⅛"	23'-8"	21'-8⅛"
	3'	2'-0⅜"	5'-0"	2'-3⅜"	9'-8"	6'-11⅜"	14'-4"	11'-7⅜"	19'-0"	16'-3⅜"	23'-8"	20'-11⅜"
	4'	3'-6"	5'-0"	1'-6"	9'-8"	6'-2"	14'-4"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
	5'	4'-3⅜"	5'-0"	0'-8⅜"	9'-8"	5'-4⅜"	14'-4"	10'-0⅜"	19'-0"	14'-8⅜"	23'-8"	19'-9⅜"
	6'	5'-0½"	5'-2"	0'-1½"	9'-11"	4'-10½"	14'-8"	9'-7½"	19'-5"	14'-2½"	24'-2"	19'-1½"
5'	3'	2'-0⅜"	6'-0"	3'-3⅜"	11'-8"	8'-11⅜"	17'-4"	14'-7⅜"	23'-0"	20'-3⅜"	28'-8"	25'-11⅜"
	4'	3'-6"	6'-0"	2'-6"	11'-8"	8'-2"	17'-4"	13'-10"	23'-0"	19'-6"	28'-8"	25'-2"
	5'	4'-3⅜"	6'-0"	1'-8⅜"	11'-8"	7'-4⅜"	17'-4"	13'-0⅜"	23'-0"	18'-8⅜"	28'-8"	24'-4⅜"
	6'	5'-0½"	6'-2"	1'-1½"	N'-11"	6'-10½"	17'-8"	12'-7½"	23'-5"	18'-2½"	29'-2"	24'-1½"
	7'	6'-2½"	6'-5"	0'-0½"	12'-1"	5'-10½"	17'-11"	11'-8½"	23'-9"	17'-2½"	29'-7"	23'-0½"
6'	3'	2'-0⅜"	7'-0"	4'-3⅜"	13'-8"	10'-11⅜"	20'-4"	17'-7⅜"	27'-0"	24'-3⅜"	33'-8"	30'-11⅜"
	4'	3'-6"	7'-0"	3'-6"	13'-8"	10'-2"	20'-4"	16'-10"	27'-0"	23'-6"	33'-8"	30'-2"
	5'	4'-3⅜"	7'-0"	2'-8⅜"	13'-8"	9'-4⅜"	20'-4"	16'-0⅜"	27'-0"	22'-8⅜"	33'-8"	29'-4⅜"
	6'	5'-0½"	7'-2"	2'-1½"	13'-11"	8'-10½"	20'-8"	15'-7½"	27'-5"	22'-2½"	34'-2"	29'-1½"
	7'	6'-2½"	7'-5"	1'-0½"	14'-5"	7'-10½"	20'-11"	14'-8½"	27'-9"	21'-2½"	34'-7"	28'-0½"
	8'	7'-4"	7'-8"	0'-5"	14'-8"	6'-10"	21'-0"	13'-8"	27'-10"	20'-6"	34'-8"	27'-0"
7'	4'	3'-6"	8'-0"	4'-6"	15'-8"	12'-8"	23'-4"	19'-10"	31'-0"	27'-6"	38'-8"	35'-2"
	5'	4'-3⅜"	8'-0"	3'-8⅜"	15'-8"	11'-4⅜"	23'-4"	19'-0⅜"	31'-0"	26'-8⅜"	38'-8"	34'-4⅜"
	6'	5'-0½"	8'-2"	3'-1½"	15'-11"	10'-10½"	23'-8"	18'-7½"	31'-5"	26'-2½"	39'-2"	34'-1½"
	7'	6'-2½"	8'-5"	2'-0½"	16'-1"	9'-10½"	23'-11"	17'-8½"	31'-9"	25'-2½"	39'-7"	33'-0½"
	8'	7'-4"	8'-8"	1'-0"	16'-2"	8'-10"	24'-0"	16'-8"	31'-10"	24'-6"	39'-8"	32'-4"
8'	4'	3'-6"	9'-0"	5'-6"	17'-8"	14'-8"	26'-4"	22'-10"	35'-0"	31'-6"	43'-8"	40'-2"
	5'	4'-3⅜"	9'-2"	4'-8⅜"	17'-11"	13'-7⅜"	26'-8"	22'-0⅜"	35'-5"	31'-1⅜"	44'-2"	39'-10⅜"
	6'	5'-0½"	9'-2"	4'-1½"	17'-11"	12'-10½"	26'-8"	21'-1½"	35'-5"	30'-1½"	44'-2"	39'-1½"
	7'	6'-2½"	9'-5"	3'-0½"	18'-1"	11'-10½"	26'-11"	20'-0½"	35'-9"	29'-1½"	44'-7"	38'-0½"
	8'	7'-4"	9'-9"	2'-0"	18'-2"	10'-10"	27'-0"	19'-0"	35'-10"	28'-6"	44'-8"	37'-0"
9'	5'	4'-3⅜"	10'-2"	5'-0⅜"	19'-11"	15'-7⅜"	29'-8"	25'-4⅜"	39'-5"	35'-1⅜"	49'-2"	44'-10⅜"
	6'	5'-0½"	10'-3"	5'-2½"	20'-1"	15'-0½"	29'-11"	24'-5½"	39'-9"	34'-5½"	49'-7"	44'-1½"
	7'	6'-2½"	10'-3"	4'-1½"	20'-1"	13'-10½"	29'-11"	23'-5½"	39'-9"	33'-5½"	49'-7"	43'-1½"
	8'	7'-4"	10'-4"	3'-0"	20'-2"	12'-10"	30'-0"	22'-5"	39'-10"	32'-6"	49'-8"	42'-0"
10'	5'	4'-3⅜"	11'-2"	6'-0⅜"	21'-11"	17'-7⅜"	32'-8"	28'-4⅜"	43'-5"	39'-1⅜"	54'-2"	49'-10⅜"
	6'	5'-0½"	11'-3"	6'-2½"	22'-1"	17'-0½"	32'-11"	27'-10½"	43'-9"	38'-5½"	54'-7"	49'-1½"
	7'	6'-2½"	11'-3"	5'-0½"	22'-1"	15'-10½"	32'-11"	26'-8½"	43'-9"	37'-5½"	54'-7"	48'-1½"
	8'	7'-4"	11'-4"	4'-0"	22'-2"	14'-10"	33'-0"	25'-8"	43'-10"	36'-6"	54'-8"	47'-0"
11'	6'	5'-0½"	12'-4"	7'-2½"	24'-2"	19'-1½"	36'-0"	30'-11½"	47'-10"	42'-3½"	59'-6"	54'-1½"
	7'	6'-2½"	12'-4"	6'-1½"	24'-2"	17'-11½"	36'-0"	29'-9½"	47'-10"	41'-1½"	59'-6"	52'-11½"
	8'	7'-4"	12'-5"	5'-0"	24'-3"	16'-10"	36'-0"	28'-8"	47'-11"	40'-1"	59'-7"	51'-10"
12'	6'	5'-0½"	13'-6"	8'-2½"	26'-2"	21'-1½"	39'-0"	33'-11½"	51'-10"	46'-3½"	64'-5"	59'-1½"
	7'	6'-2½"	13'-6"	7'-1½"	26'-2"	19'-11½"	39'-0"	32'-9½"	51'-10"	45'-1½"	64'-5"	57'-11½"
	8'	7'-4"	13'-6"	6'-0"	26'-2"	18'-10"	39'-0"	31'-8"	51'-10"	44'-1"	64'-5"	56'-10"

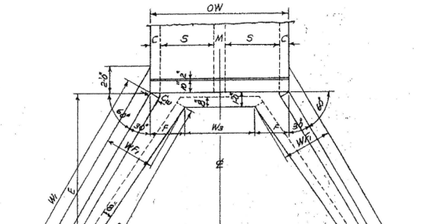


PART PLAN

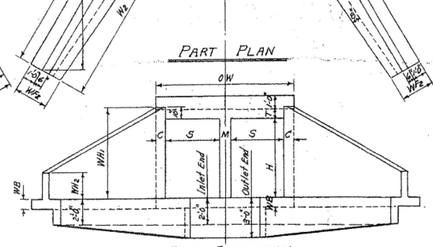


END ELEVATION

SINGLE BARREL CULVERT

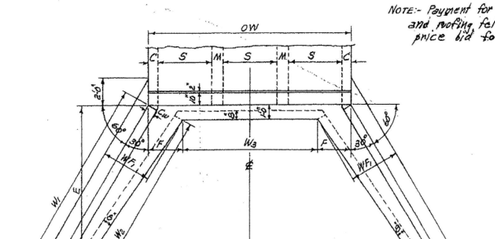


PART PLAN

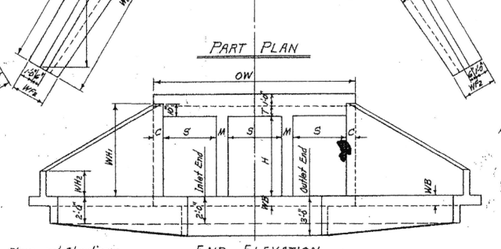


END ELEVATION

DOUBLE BARREL CULVERT



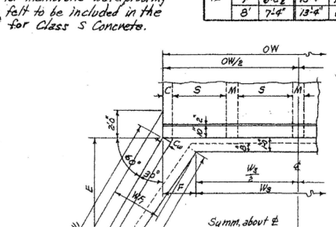
PART PLAN



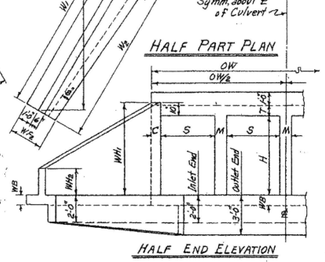
END ELEVATION

TRIPLE BARREL CULVERT

NOTE:- Plans and Elevations are not to scale.

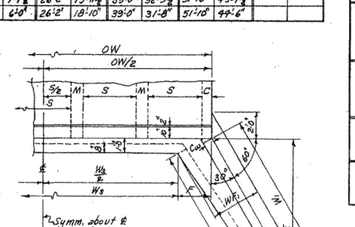


HALF PART PLAN

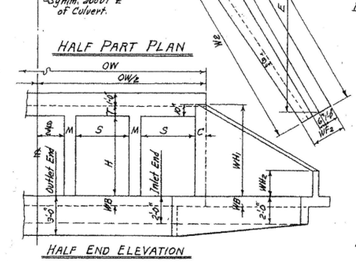


HALF END ELEVATION

QUADRUPLE BARREL CULVERT



HALF PART PLAN



HALF END ELEVATION

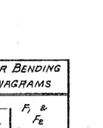
QUINTUPLE BARREL CULVERT

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three mopings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

BAR LIST FOR ONE WING - 4 REQUIRED

CLEAR HEIGHT H	F1 Bent: In bottom of footing, bent up into back face of wing. One bar of each length. SIZE	SPACING	NO. REQ'D	LENGTHS VARY MIN.	LENGTHS VARY MAX.	X MIN.	X MAX.	Y MIN.	Y MAX.	F2 Bent: In bottom of footing, bent up into back face of wing. Alt. with F1 bars. SIZE	SPACING	NO. REQ'D	LENGTH	X	Y	F3 Straight: Longitudinal in top of wing footing heel. SIZE	NO. REQ'D	LENGTH	F4 Straight: Longitudinal in bottom of wing footing toe. SIZE	NO. REQ'D	LENGTH	H1 Straight: Horizontal in back face of wing. SIZE	SPACING	NO. REQ'D	LENGTH	H2 Straight: Horizontal in back face of wing. One bar of each length. SIZE	SPACING	NO. REQ'D	LENGTHS VARY MAX.	LENGTHS VARY MIN.	H3 Straight: In back face of wing at top on slope. SIZE	NO. REQ'D	LENGTH	H4 Bent: Dowels thru construction joint at headwall. SIZE	SPACING	NO. REQ'D	LENGTH	X	QUANTITY REINFORCING STEEL PER WING LB.
2'	#3	12"	8	1'-6"	3'-10"	0'-8"	1'-0"	0'-1"	2'-1"	—	—	—	—	—	—	#3	1	9'-8"	#3	2	8'-6"	#3	12"	1	7'-2"	#3	12"	1	4'-0"	#8	1	7'-4"	#3	12"	2	2'-8"	1'-9"	27.0
3'	#3	12"	10	2'-2"	5'-2"	0'-10"	1'-3"	1'-5"	4'-0"	—	—	—	—	—	—	#3	1	12'-0"	#3	2	11'-0"	#3	12"	1	9'-6"	#3	12"	2	7'-6"	4'-0"	#8	1	9'-9"	#3	12"	3	2'-8"	1'-9"	41.1
4'	#3	12"	13	2'-9"	6'-6"	0'-11"	1'-7"	1'-6"	5'-0"	—	—	—	—	—	—	#3	1	14'-3"	#3	3	13'-6"	#3	12"	1	11'-10"	#3	12"	3	10'-11"	4'-0"	#3	1	12'-2"	#3	12"	4	2'-8"	1'-9"	68.7
5'	#3	12"	15	2'-11"	7'-10"	1'-1"	1'-11"	1'-11"	6'-0"	#3	12"	4	3'-6"	1'-1"	2'-6"	#3	1	16'-8"	#3	3	16'-0"	#8	12"	2	14'-2"	#3	12"	3	10'-11"	4'-0"	#3	1	14'-7"	#3	12"	5	2'-8"	1'-9"	89.5
6'	#4	12"	17	3'-6"	9'-3"	1'-2"	2'-3"	2'-5"	7'-1"	#3	12"	4	4'-6"	1'-4"	3'-3"	#3	1	19'-0"	#3	3	18'-6"	#3	12"	2	16'-6"	#3	12"	4	14'-4"	4'-0"	#3	1	17'-0"	#3	12"	6	2'-8"	1'-9"	145.8
7'	#4	12"	20	3'-9"	10'-9"	1'-3"	2'-9"	2'-7"	8'-1"	#4	12"	7	5'-6"	1'-7"	4'-0"	#4	1	21'-4"	#4	4	21'-0"	#4	12"	2	18'-9"	#4	12"	5	17'-9"	4'-0"	#4	1	19'-5"	#4	12"	7	3'-6"	1'-9"	283.7
8'	#4	12"	22	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	10	6'-6"	1'-10"	4'-9"	#4	1	23'-8"	#4	4	23'-9"	#4	12"	3	21'-1"	#4	12"	5	17'-9"	4'-0"	#4	1	21'-10"	#4	12"	8	3'-6"	1'-9"	356.4

BAR BENDING DIAGRAMS



NOTE:- Dimensions are to bar centers.

QUANTITIES

CLEAR SPAN S	CLEAR HEIGHT H	THICKNESS OF WING AT HEADWALL Cw	THICKNESS OF WING FOOTING WB	⊛ REINFORCING STEEL - FOR 4 WINGS LB.	CLASS S CONCRETE - 4 WINGS HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS SINGLE BARREL CULVERT CU.YD.	DOUBLE BARREL CULVERT CU.YD.	TRIPLE BARREL CULVERT CU.YD.	QUADRUPLE BARREL CULVERT CU.YD.	QUINTUPLE BARREL CULVERT CU.YD.
4'	2'	6"	7"	108.0	4.50	5.96	6.42	7.36	8.34
	3'	6"	7"	164.9	6.26	7.21	8.17	9.13	10.09
	4'	6"	7"	234.6	8.33	9.28	10.24	11.20	12.16
	5'	6"	7"	357.8	10.72	11.69	12.64	13.60	14.56
	6'	7"	8"	583.1	14.55	15.53	16.52	17.51	18.49
5'	3'	6"	7"	164.9	6.97	7.63	8.29	9.96	11.12
	4'	6"	7"	234.6	8.54	9.70	10.87	10.03	13.20
	5'	6"	7"	357.8	10.94	12.10	13.26	14.43	15.59
	6'	7"	8"	583.1	14.77	15.96	17.15	18.34	19.54
	7'	7⅝"	8⅝"	1134.6	18.94	20.15	21.37	22.59	23.80
6'	3'	6"	7"	164.9	6.68	8.06	9.42	10.80	12.18
	4'	6"	7"	234.6	8.75	10.14	11.49	12.87	14.25
	5'	6"	7"	357.8	11.15	12.53	13.89	15.27	16.65
	6'	7"	8"	583.1	14.98	16.39	17.78	19.18	20.59
	7'	7⅝"	8⅝"	1134.6	19.16	20.58	22.00	23.43	24.86
	8'	8"	9"	1925.6	24.09	25.53	26.96	28.39	29.83
7'	4'	6"	7"	234.6	8.97	10.58	12.15	13.76	15.35
	5'	6"	7"	357.8	11.36	12.97	14.54	16.15	17.75
	6'	7"	8"	583.1	15.20	16.82	18.42	20.04	21.66
	7'	7⅝"	8⅝"	1134.6	19.38	21.02	22.64	24.28	25.92
	8'	8"	9"	1925.6	24.32	25.97	27.60	29.25	30.89
8'	4'	6"	7"	234.6	9.19	11.03	12.82	14.65	16.45
	5'	7"	7"	357.8	12.03	13.89	15.70	17.55	19.34
	6'	7"	8"	583.1	15.92	17.27	19.09	20.93	22.75
	7'	7⅝"	8⅝"	1134.6	19.59	21.46	23.30	25.16	26.99
	8'	8"	9"	1925.6	24.54	26.91	28.24	30.11	31.96
9'	5'	7"	7"	357.8	12.26	14.39	16.87	18.95	20.97
	6'	7⅝"	8"	583.1	15.94	18.04	20.09	22.19	24.23
	7'	7⅝"	8⅝"	1134.6	19.81	21.91	23.96	26.06	28.10
	8'	8"	9"	1925.6	24.76	26.86	28.91	31.00	33.05
10'	5'	7"	7"	357.8	12.99	14.80	17.05	19.24	21.52
	6'	7⅝"	8"	583.1	16.17	18.50	20.77	22.99	25.28
	7'	7⅝"	8⅝"	1134.6	20.04	22.37	24.64	26.87	29.15
	8'	8"	9"	1925.6	24.98	27.31	29.58	31.81	34.10
11'	6'	8"	8"	583.1	16.69	19.27	21.76	24.23	
	7'	8"	8⅝"	1134.6	20.64	23.22	25.71	28.18	
	8'	8"	9"	1925.6	25.19	27.77	30.27	32.74	
12'	6'	8"	8"	583.1	16.92	19.75	22.45	25.18	
	7'	8"	8⅝"	1134.6	20.87	23.69	26.40	29.13	
	8'	8"	9"	1925.6	25.42	28.25	30.96	33.69	

⊛ For reinforcing steel in Headwalls and Aprons, See Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾ chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-

Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. as listed below.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-X1	R-200X-X1	R-300X-X1	R-400X-X1	R-500X-X1
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X003-1

Designed By:- W.C.H. 6-20-62. Checked By:- RHS 1-9-63
Drawn By:- W.C.H. 12-4-62. Checked By:- RHS 1-31-63
Quantities By:- W.C.H. 12-14-62. Rechecked By:- RHS 2-25-63

REVISIONS:- Membrane added. 5-10-66 W.C.H.

MYLAR

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					

BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

DEPTH OF COVER D	SPAN S	CLEAR HEIGHT H	"a" bars STRAIGHT In Top and Bottom Slabs of Barrel. 2 Addl'y In Apron and Headwall- Each. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
0'-0" to 5'-0" Maximum.	1 @ 4'	2'	#5	13"	120	120	4'-9"
		3'			120	120	4'-9"
		4'			120	120	4'-9"
		5'			120	120	4'-9"
		6'			120	120	4'-11"
	1 @ 5'	3'	#6	13"	120	120	5'-9"
		4'			120	120	5'-9"
		5'			120	120	5'-9"
		6'			120	120	5'-11"
		7'			120	120	6'-1"
	1 @ 6'	3'	#6	12"	128	128	6'-9"
		4'			128	128	6'-9"
		5'			128	128	6'-9"
		6'			128	128	6'-11"
		7'			128	128	7'-0"
		8'			128	128	7'-1"
	1 @ 7'	4'	#6	11"	140	140	7'-5"
		5'			140	140	7'-5"
		6'			140	140	7'-11"
		7'			140	140	8'-0"
		8'			140	140	8'-1"
		9'			140	140	8'-3"
	1 @ 8'	4'	#7	12"	128	128	8'-5"
		5'			128	128	8'-11"
		6'			128	128	8'-11"
		7'			128	128	9'-0"
		8'			128	128	9'-1"
		9'			128	128	9'-2"
		10'			128	128	9'-5"
	1 @ 9'	5'	#7	11"	140	140	9'-11"
		6'			140	140	10'-0"
		7'			140	140	10'-0"
		8'			140	140	10'-1"
		9'			140	140	10'-3"
		10'			140	140	10'-5"
		11'			140	140	10'-7"
	1 @ 10'	5'	#7	12"	128	128	10'-11"
		6'			128	128	11'-0"
		7'			128	128	11'-0"
		8'			128	128	11'-1"
		9'			128	128	11'-3"
		10'			128	128	11'-5"
		11'			128	128	11'-7"
		12'			128	128	11'-9"
	1 @ 11'	6'	#7	11"	140	140	12'-1"
		7'			140	140	12'-1"
		8'			140	140	12'-1"
		9'			140	140	12'-3"
		10'			140	140	12'-5"
		11'			140	140	12'-7"
		12'			140	140	12'-9"
	1 @ 12'	6'	#8	12"	128	128	13'-1"
		7'			128	128	13'-1"
		8'			128	128	13'-1"
		9'			128	128	13'-3"
		10'			128	128	13'-5"
		11'			128	128	13'-7"
		12'			128	128	13'-9"

DEPTH OF COVER D	SPAN S	CLEAR HEIGHT H	"b" bars STRAIGHT In Top and Bottom Slabs of Barrel. Alternate with "a" bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X
0'-0" to 5'-0" Maximum.	1 @ 4'	2'	#6	13"	110	110	5'-10"	4'-8"
		3'			110	110	5'-10"	4'-8"
		4'			110	110	5'-10"	4'-8"
		5'			110	110	6'-0"	4'-10"
	1 @ 5'	3'	#6	13"	110	110	6'-10"	5'-8"
		4'			110	110	6'-10"	5'-8"
		5'			110	110	7'-0"	5'-10"
		6'			110	110	7'-1"	5'-11"
		7'			110	110	7'-1"	5'-11"
	1 @ 6'	3'	#6	12"	118	118	7'-10"	6'-8"
		4'			118	118	7'-10"	6'-8"
		5'			118	118	7'-10"	6'-8"
		6'			118	118	8'-0"	6'-10"
		7'			118	118	8'-1"	6'-11"
		8'			118	118	8'-2"	7'-0"
	1 @ 7'	4'	#6	11"	130	130	8'-10"	7'-8"
		5'			130	130	8'-10"	7'-8"
		6'			130	130	9'-0"	7'-10"
		7'			130	130	9'-1"	7'-11"
		8'			130	130	9'-2"	8'-0"
		9'			130	130	9'-4"	8'-2"
	1 @ 8'	4'	#7	12"	118	118	9'-10"	8'-8"
		5'			118	118	10'-0"	8'-10"
		6'			118	118	10'-0"	8'-10"
		7'			118	118	10'-1"	8'-11"
		8'			118	118	10'-2"	9'-0"
		9'			118	118	10'-4"	9'-2"
		10'			118	118	10'-6"	9'-4"
	1 @ 9'	5'	#7	11"	130	130	11'-0"	9'-10"
		6'			130	130	11'-1"	9'-11"
		7'			130	130	11'-1"	9'-11"
		8'			130	130	11'-2"	10'-0"
		9'			130	130	11'-4"	10'-2"
		10'			130	130	11'-6"	10'-4"
		11'			130	130	11'-8"	10'-6"
	1 @ 10'	5'	#7	12"	118	118	12'-2"	10'-10"
		6'			118	118	12'-3"	10'-11"
		7'			118	118	12'-3"	10'-11"
		8'			118	118	12'-4"	11'-0"
		9'			118	118	12'-6"	11'-2"
		10'			118	118	12'-8"	11'-4"
		11'			118	118	12'-10"	11'-6"
		12'			118	118	13'-0"	11'-8"
	1 @ 11'	6'	#7	11"	130	130	13'-4"	12'-0"
		7'			130	130	13'-4"	12'-0"
		8'			130	130	13'-4"	12'-0"
		9'			130	130	13'-6"	12'-2"
		10'			130	130	13'-8"	12'-4"
		11'			130	130	13'-10"	12'-6"
		12'			130	130	14'-0"	12'-8"
	1 @ 12'	6'	#7	12"	118	118	14'-4"	13'-0"
		7'			118	118	14'-4"	13'-0"
		8'			118	118	14'-4"	13'-0"
		9'			118	118	14'-6"	13'-2"
		10'			118	118	14'-8"	13'-4"
		11'			118	118	14'-10"	13'-6"
		12'			118	118	15'-0"	13'-8"

DEPTH OF COVER D	SPAN S	CLEAR HEIGHT H	"d" bars STRAIGHT Longitudinal in Top Slab of Barrel SIZE	SPACING	NUMBER REQ'D	LENGTH
0'-0" to 5'-0" Maximum.	1 @ 4'	2'	#5	10½"	6	
		3'			6	
		4'			6	
		5'			6	
	1 @ 5'	3'	#5	10½"	6	
		4'			7	
		5'			7	
		6'			7	
		7'			7	
	1 @ 6'	3'	#5	10½"	7	
		4'			8	
		5'			8	
		6'			8	
		7'			8	
		8'			8	
	1 @ 7'	4'	#5	10½"	8	
		5'			9	
		6'			9	
		7'			9	
		8'			9	
		9'			9	
	1 @ 8'	4'	#5	10"	8	
		5'			9	
		6'			9	
		7'			9	
		8'			9	
		9'			9	
		10'			9	
	1 @ 9'	5'	#5	10"	10	
		6'			10	
		7'			10	
		8'			10	
		9'			10	
		10'			10	
		11'			10	
	1 @ 10'	5'	#5	10"	10	
		6'			11	
		7'			11	
		8'			11	
		9'			11	
		10'			11	
		11'			11	
		12'			11	
	1 @ 11'	6'	#5	9½"	12	
		7'			12	
		8'			12	
		9'			12	
		10'			12	
		11'			12	
		12'			12	
	1 @ 12'	6'	#5	9½"	13	
		7'			13	
		8'			13	
		9'			13	
		10'			13	
		11'			13	
		12'			13	

DEPTH OF COVER D	SPAN S	CLEAR HEIGHT H	"d1" bars STRAIGHT Longitudinal in Sidewalls SIZE	SPACING	NO. REQ'D	LENGTH
0'-0" to 5'-0" Maximum.	1 @ 4'	2'	#4	12"	4	
		3'			6	
		4'			8	
		5'			10	
	1 @ 5'	3'	#4	12"	6	
		4'			8	
		5'			10	
		6'			12	
		7'			14	
	1 @ 6'	3'	#4	12"	6	
		4'			8	
		5'			10	
		6'			12	
		7'			14	
		8'			16	
	1 @ 7'	4'	#4	12"	8	
		5'			10	
		6'			12	
		7'			14	
		8'			16	
		9'			18	
	1 @ 8'	4'	#4	12"	8	
		5'			10	
		6'			12	
		7'			14	
		8'			16	
		9'			18	
		10'			20	
	1 @ 9'	5'	#4	12"	10	
		6'			12	
		7'			14	
		8'			16	
		9'			18	
		10'			20	
		11'			22	
	1 @ 10'	5'	#4	12"	10	
		6'			12	
		7'			14	
		8'			16	
		9'			18	
		10'			20	
		11'			22	
		12'			24	
	1 @ 11'	6'	#4	12"	12	
		7'			14	
		8'			16	
		9'			18	
		10'			20	
		11'			22	
		12'			24	
	1 @ 12'	6'	#4	12"	12	
		7'			14	
		8'			16	
		9'			18	
		10'			20	
		11'			22	
		12'			24	

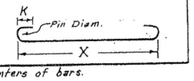
DEPTH OF COVER D	SPAN S	CLEAR HEIGHT H	"d2" bars STRAIGHT Longitudinal in Bottom Slab of Barrel SIZE	SPACING	NUMBER REQ'D	LENGTH
0'-0" to 5'-0" Maximum.	1 @ 4'	2'	#4	12"	4	
		3'			5	
		4'			5	
		5'			5	
	1 @ 5'	3'	#4	12"	6	
		4'			6	
		5'			6	
		6'			6	
		7'			6	
	1 @ 6'	3'	#4	12"	7	
		4'			7	
		5'			7	
		6'			7	
		7'			7	
		8'			7	
	1 @ 7'	4'	#4	12"	8	
		5'			8	
		6'			8	
		7'			8	
		8'			8	
		9'			8	
	1 @ 8'	4'	#4	12"	9	
		5'			9	
		6'			9	
		7'			9	
		8'			9	
		9'			9	
		10'			9	
	1 @ 9'	5'	#4	12"	10	
		6'			10	
		7'			10	
		8'			10	
		9'			10	
		10'			10	
		11'			10	
	1 @ 10'	5'	#4	12"	10	
		6'			11	
		7'			11	
		8'			11	
		9'			11	
		10'			11	
		11'			11	
		12'			11	
	1 @ 11'	6'	#4	12"	12	
		7'			12	
		8'			12	
		9'			12	
		10'			12	
		11'			12	
		12'			12	
	1 @ 12'	6'	#4	12"	13	
		7'			13	
		8'			13	
		9'			13	
		10'			13	
		11'			13	
		12'			13	

DEPTH OF COVER D	SPAN S	CLEAR HEIGHT H	"e" bars. Longitudinal in Bottom Slab of Barrel SIZE	SPACING	NUMBER REQ'D	LENGTH
0'-0" to 5'-0" Maximum.	1 @ 4'	2'	#4	12"	5	
		3'			5	
		4'			5	
		5'			5	
	1 @ 5'	3'	#4	12"	6	
		4'			6	
		5'			6	
		6'			6	
		7'			6	
	1 @ 6'	3'	#4	12"	7	
		4'			7	
		5'			7	
		6'			7	
		7'			7	
		8'			7	
	1 @ 7'	4'	#4	12"	8	
		5'			8	
		6'			8	
		7'			8	
		8'			8	
		9'			8	
	1 @ 8'	4'	#4	12"	9	
		5'			9	
		6'			9	
		7'			9	
		8'			9	
		9'			9	
		10'			9	
	1 @ 9'	5'	#4	12"	10	
		6'			10	
		7'			10	
		8'			10	
		9'			10	
		10'			10	
		11'			10	
	1 @ 10'	5'	#4	12"	10	
		6'			11	
		7'			11	
		8'			11	
		9'			11	
		10'			11	
		11'			11	
		12'			11	
	1 @ 11'	6'	#4	12"	12	
		7'			12	
		8'			12	
		9'			12	
		10'			12	
		11'			12	
		12'			12	
	1 @ 12'	6'	#4	12"	13	
		7'			13	
		8'			13	
		9'			13	
		10'			13	
		11'			13	
		12'			13	

DEPTH OF COVER D	SPAN S	CLEAR HEIGHT H	"f" bars STRAIGHT Verticals in Side walls SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
0'-0" to 5'-0" Maximum.	1 @ 4'	2'	#4	12"	120	120	2'-11"
		3'			120	120	3'-11"
		4'			120	120	4'-11"
		5'			120	120	5'-11"
		6'			120	120	6'-11"
	1 @ 5'	3'	#4	12"	120	120	4'-0"
		4'			120	120	5'-0"
		5'			120	120	6'-0"
		6'			120	120	7'-0"
		7'			120	120	8'-0"
	1 @ 6'	3'	#4	12"	120	120	4'-1"
		4'			120	120	5'-1"
		5'			120	120	6'-1"
		6'			120	120	7'-1"
		7'			120	120	8'-1"
		8'			120	120	9'-1"
	1 @ 7'	4'	#5	12"	120	120	5'-2"
		5'			120	120	6'-2"
		6'			120	120	7'-2"
		7'			120	120	8'-2"
		8'			120	120	9'-2"
		9'			120	120	10'-2"
	1 @ 8'	4'	#5	12"	120	120	5'-10"
		5'			120	120	6'-10"
		6'			120	120	7'-10"
		7'			120	120	8'-10"
		8'			120	120	9'-10"
		9'			120	120	10'-10"
		10'			120	120	11'-10"
	1 @ 9'	5'	#5	12"	120	120	6'-5"
		6'			120	120	7'-5"
		7'			120	120	8'-5"
		8'			120	120	9'-5"
		9'			120	120	10'-5"
		10'			120	120	11'-5"
		11'			120	120	12'-5"
	1 @ 10'	5'	#5	12"	120	120	6'-6"
		6'			120	120	7'-6"
		7'			120	120	8'-6"
		8'			120	120	9'-6"
		9'			120	120	10'-6"
		10'			120	120	11'-6"
		11'			120	120	12'-6"
		12'			120	120	13'-6"
	1 @ 11'	6'	#5	12"	120	120	7'-7"
		7'			120	120	8'-7"
		8'			120	120	9'-7"
		9'			120	120	10'-7"
		10'			120	120	11'-7"
		11'			120	120	12'-7"
		12'			120	120	13'-7"
	1 @ 12'	6'	#5	12"	120	120	8'-8"
		7'			120	120	9'-8"
		8'			120	120	10'-8"
		9'			120	120	11'-8"
		10'			120	120	12'-8"
		11'			120	120	13'-8"
		12'			120	120	14'-8"

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS
#6	3"	5"	1'-2"
#7	3½"	5⅞"	1'-4"

BENDING DIAGRAM Bars "b".

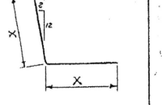


NOTE:- Dimensions are to centers of bars.

DOWEL BARS FOR TWO HEADWALLS

SPAN	SIZE	SPACING	NO. REQ'D	LENGTH	X
4'	#4	11"c	12	2'-6"	1'-3"
5'	#4	11"c	14	2'-7"	1'-3⅜"
6'	#4	11"c	16	2'-8"	1'-4"
7'	#4	11"c	18	2'-9"	1'-4⅜"
8'	#4	11⅜"c	20	2'-11"	1'-5⅜"
9'	#4	11⅜"c	22	3'-0"	1'-6"
10'	#4	11⅜"c	24	3'-1"	1'-6⅝"
11'	#4	12"c	26	3'-2"	1'-7"
12'	#4	12"c	28	3'-3"	1'-7⅝"

Bars "r" Dowel bars in Headwalls.



DIMENSIONS — BARREL DIMENSIONS

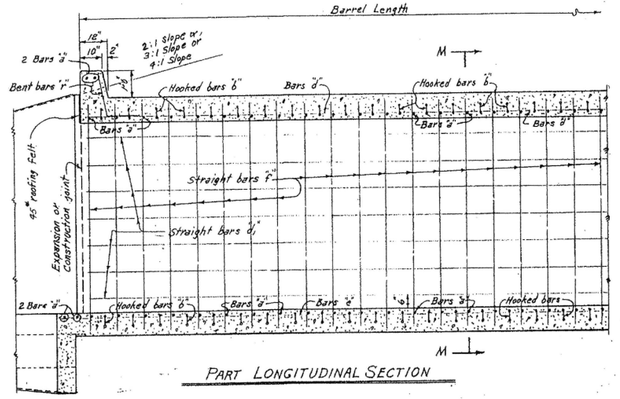
MAX. DESIGN DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	30 FT. OPENING	OVERALL WIDTH OW	THICKNESS OF TOP SLAB T	THICKNESS OF SIDEWALLS C	THICKNESS OF BOTTOM SLAB B	OVERALL HEIGHT OH
5'-0"	1 @ 4'	2'	8'	5'-0"	7"	6"	6½"	3'-1½"
		3'	12'	5'-0"		6"		4'-1½"
		4'	16'	5'-0"		6"		5'-1½"
		5'	20'	5'-0"		6"		6'-1½"
		6'	24'	5'-2"		7"		7'-1½"
	1 @ 5'	3'	15'	6'-0"	7⅞"	6"	7"	4'-2½"
		4'	20'	6'-0"		6"		5'-2½"
		5'	25'	6'-0"		6"		6'-2½"
		6'	30'	6'-2"		7"		7'-2½"
		7'	35'	6'-3"		7½"		8'-2½"
	1 @ 6'	3'	18'	7'-0"	8"	6"	7½"	4'-3½"
		4'	24'	7'-0"		6"		5'-3½"
		5'	30'	7'-0"		7"		6'-3½"
		6'	36'	7'-2"		7"		7'-3½"
		7'	42'	7'-3"		7½"		8'-3½"
		8'	48'	7'-4"		8"		9'-3½"
	1 @ 7'	4'	28'	8'-0"	8½"	6"	8½"	5'-5"
		5'	35'	8'-0"		6"		6'-5"
		6'	42'	8'-2"		7"		7'-5"
		7'	49'	8'-3"		7½"		8'-5"
		8'	56'	8'-4"		8"		9'-5"
		9'	63'	8'-6"		9"		10'-5"
	1 @ 8'	4'	32'	9'-0"	9½"	6"	9½"	5'-7"
		5'	40'	9'-2"		7"		6'-7"
		6'	48'	9'-2"		7"		7'-7"
		7'	56'	9'-3"		7½"		8'-7"
		8'	64'	9'-4"		8"		9'-7"
		9'	72'	9'-6"		9"		10'-7"
		10'	80'	9'-8"		10"		11'-7"
	1 @ 9'	5'	45'	10'-2"	10"	7"	10"	6'-8"
		6'	54'	10'-3"		7½"		7'-8"
		7'	63'	10'-3"		7½"		8'-8"
		8'	72'	10'-4"		8"		9'-8"
		9'	81'	10'-6"		9"		10'-8"
		10'	90'	10'-8"		10"		11'-8"
		11'	99'	10'-10"		11"		12'-8"
	1 @ 10'	5'	50'	11'-2"	10½"	7"	11"	6'-9⅝"
		6'	60'	11'-3"		7½"		7'-9⅝"
		7'	70'	11'-3"		7½"		8'-9⅝"
		8'	80'	11'-4"		8"		9'-9⅝"
		9'	90'	11'-6"		9"		10'-9⅝"
		10'	100'	11'-8"		10"		11'-9⅝"
		11'	110'	11'-10"		11"		12'-9⅝"
		12'	120'	12'-0"		12"		13'-9⅝"
	1 @ 11'	6'	66'	12'-9"	11⅝"	8"	11⅝"	7'-10⅝"
		7'	77'	12'-8"		8"		8'-10⅝"
		8'	88'	12'-8"		8"		9'-10⅝"
		9'	99'	12'-6"		9"		10'-10⅝"
		10'	110'	12'-8"		10"		11'-10⅝"
		11'	121'	12'-10"		11"		12'-10⅝"
		12'	132'	13'-0"		12"		13'-10⅝"
	1 @ 12'	6'	72'	13'-9"	12⅝"	8"	12⅝"	8'-0"
		7'	84'	13'-8"		8"		9'-0"
		8'	96'	13'-9"		8"		10'-0"
		9'	108'	13'-6"		9"		11'-0"
		10'	120'	13'-8"		10"		12'-0"
		11'	132'	13'-10"		11"		13'-0"
		12'	144'	14'-0"		12"		14'-0"

QUANTITIES — UNIT QUANTITIES

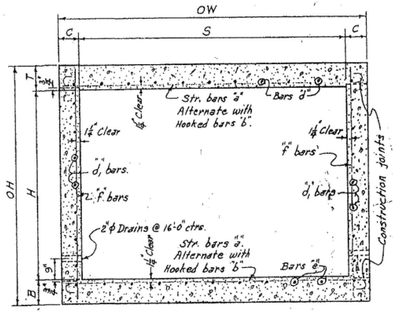
MAX. DESIGN DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	CLASS S CONC. PER LIN. FT. OF BARREL CU.YD.	REINFORCING STEEL PER LIN. FT. OF BARREL LB.	ADDITIONAL PER LAP LB.	ADDITIONAL TWO HEADWALLS & APRONS LB.
5'-0"	1 @ 4'	2'	0.282	41.49	17.95	66.35
		3'	0.319	44.16	19.62	66.35
		4'	0.356	46.83	21.29	66.85
		5'	0.396	49.50	22.96	66.85
		6'	0.434	52.96	24.63	67.75
	1 @ 5'	3'	0.380	55.55	22.19	101.27
		4'	0.417	58.23	23.86	101.27
		5'	0.464	60.90	25.53	101.27
		6'	0.535	64.99	27.20	103.27
		7'	0.604	67.63	28.87	104.27
	1 @ 6'	3'	0.496	66.29	29.76	118.96
		4'	0.483	68.96	26.43	118.96
		5'	0.520	71.64	28.10	118.96
		6'	0.602	75.31	29.77	120.96
		7'	0.671	78.98	31.44	121.97
		8'	0.746	88.47	33.11	122.87
	1 @ 7'	4'	0.568	81.32	29.01	136.88
		5'	0.605	84.00	30.68	136.88
		6'	0.688	87.76	32.35	138.88
		7'	0.757	90.98	34.02	139.88
		8'	0.832	96.65	35.69	140.88
		9'	0.946	105.59	37.36	142.89
	1 @ 8'	4'	0.676	95.26	33.32	199.07
		5'	0.759	99.12	34.99	196.80
		6'	0.797	101.79	36.66	196.80
		7'	0.867	105.05	38.33	198.16
		8'	0.998	110.81	40.00	199.52
		9'	1.057	119.92	41.67	202.25
		10'	1.186	126.67	43.36	204.97
	1 @ 9'	5'	0.848	119.72	37.56	219.61
		6'	0.910	118.04	39.23	220.97
		7'	0.957	120.71	40.90	220.97
		8'	1.033	126.56	42.57	222.33
		9'	1.148	135.80	44.26	225.02
		10'	1.276	142.68	45.91	227.78
		11'	1.416	150.90	47.58	230.51
	1 @ 10'	5'	0.957	130.64	40.13	242.64
		6'	1.024	133.99	41.80	244.00
		7'	1.071	136.86	43.47	244.00
		8'	1.147	142.55	45.14	245.36
		9'	1.263	151.92	96.81	248.09
		10'	1.391	158.89	98.98	250.81
		11'	1.532	166.71	50.15	253.59
		12'	1.695	178.67	51.82	256.26
	1 @ 11'	6'	1.153	156.16	96.12	268.62
		7'	1.202	157.88	47.79	268.62
		8'	1.252	163.06	49.96	268.62
		9'	1.368	172.60	51.13	271.34
		10'	1.497	179.70	52.80	274.07
		11'	1.638	187.67	54.97	276.79
		12'	1.792	199.79	56.14	279.52
	1 @ 12'	6'	1.284	172.20	98.69	357.62
		7'	1.333	174.87	50.86	357.62
		8'	1.383	180.15	52.031	357.62
		9'	1.500	189.85	58.70	361.18
		10'	1.630	197.07	55.37	369.74
		11'	1.772	205.16	57.04	369.30
		12'	1.926	217.95	58.71	371.86

W-X002-1, W-X003-1 or W-X003-2 and W-X004-1 or W-X004-2.

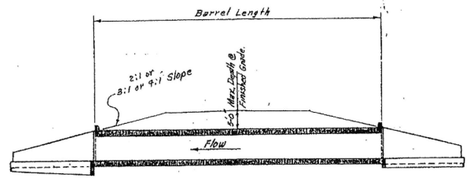
Note:- For details of wings and bar lists, see Drawing Nos. W-X002-1 or W-X002-2.



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M



LONGITUDINAL SECTION

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.

BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diame