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.		040456	1	179
				(2)	HWY. 162 IMPROVEMENTS (ALMA) (S)			

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

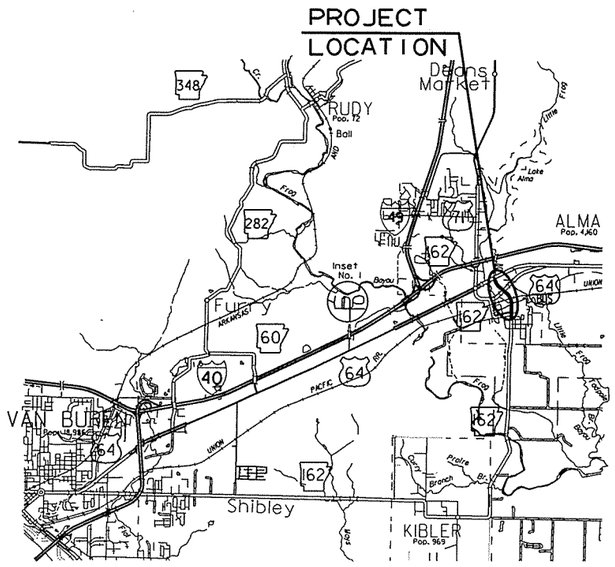
HWY. 162 IMPROVEMENTS (ALMA) (S)

CRAWFORD COUNTY

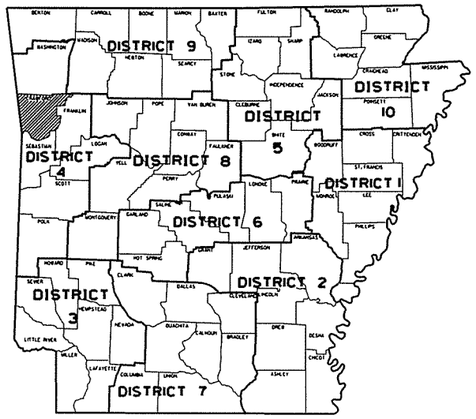
ROUTE 162 SECTION 1

JOB 040456

FED. AID PROJ. STP-STPC-0017(31)

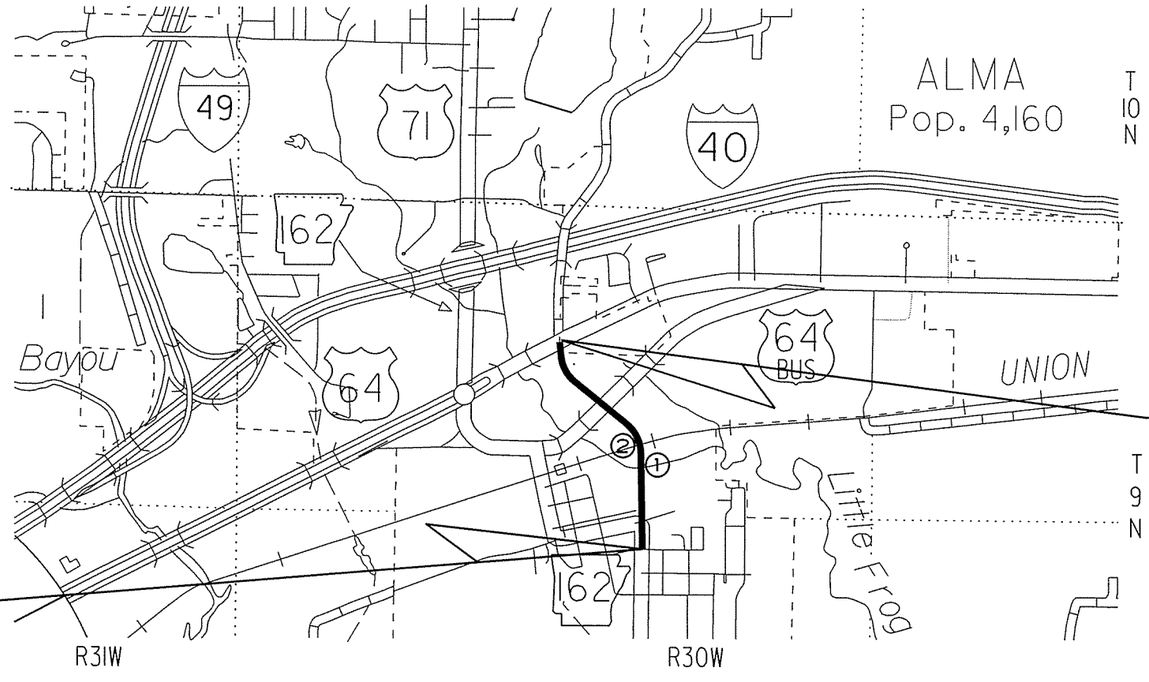


VICINITY MAP



ARK. HWY. DIST. NO. 4

NOT TO SCALE



STA. 101+05.00
BEGIN JOB 040456
LOG MILE 10.21

STA. 140+15.50
END JOB 040456

STRUCTURES OVER 20'-0" SPAN

(1) BR. END STA.112+70.93
BRIDGE NO. 07324
224'-13/4" TOTAL LENGTH
CONT. COMP. W-BEAM UNIT (68',86',68')
30'-0" CLEAR ROADWAY
BR. END STA. 114+95.07

(2) BR. END STA.116+21.92
BRIDGE NO. 07325
262'-2" TOTAL LENGTH
CONT. COMP. W-BEAM UNIT (76',108',76')
30'-0" CLEAR ROADWAY
BR. END STA.118+84.08

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2035
2015 ADT	7300
2035 ADT	9400
2035 DHV	1034
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	3%
DESIGN SPEED	40 MPH

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°28'34"	N 35°28'31"	N 35°29'08"
LONGITUDE	W 94°12'59"	W 94°13'32"	W 94°13'16"

GROSS LENGTH OF PROJECT	3910.50	FEET	OR	0.741	MILES
NET " " ROADWAY	3424.20	"	"	0.649	"
NET " " BRIDGES	486.30	"	"	0.092	"
NET " " PROJECT	3910.50	"	"	0.741	"

P.E. JOB 040456

APPROVED

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

9-31-15

DEPUTY DIRECTOR
AND CHIEF ENGINEER

INDEX OF SHEETS

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11485
TIMOTHY R. SMITH
8-28-15

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		2	179

JOB NO. 040456

(2) INDEX OF SHEETS

INDEX OF SHEETS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-06-2015				6	ARK.			
				JOB NO.		040456	3	179

(2) GOVERNING SPECIFICATIONS AND GEN. NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-7-15

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA_____	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__	SUPPLEMENT - TRAINING PROGRAM - JOB 040456
FHWA-1273__	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__	SUPPLEMENT - WAGE RATE DETERMINATION
108-1_____	LIQUIDATED DAMAGES
410-1_____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
620-1_____	MULCH COVER
JOB 040456__	ANTENNA SUPPORT
JOB 040456__	BIDDING REQUIREMENTS AND CONDITIONS
JOB 040456__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 040456__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 040456__	CABINET DRAWER ASSEMBLY
JOB 040456__	CLOSED LOOP TRAFFIC SYSTEM WITH ETHERNET RADIO COMMUNICATIONS
JOB 040456__	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 040456__	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 040456__	EDGE CARD VIDEO PROCESSOR
JOB 040456__	ELECTRICAL CONDUCTORS FOR LUMINAIRES
JOB 040456__	ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB 040456__	EXPLORATORY HOLES
JOB 040456__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 040456__	HIGH PERFORMANCE PAVEMENT MARKING
JOB 040456__	INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY (UPRR)
JOB 040456__	LED COUNTDOWN PEDESTRIAN SIGNAL HEAD
JOB 040456__	LED TRAFFIC SIGNAL HEAD
JOB 040456__	LUMINAIRE ASSEMBLY (CUTOFF TYPE)
JOB 040456__	MANDATORY ELECTRONIC CONTRACT
JOB 040456__	NESTING SITES OF MIGRATORY BIRDS
JOB 040456__	OFF-SITE RESTRAINING CONDITIONS FOR AMERICAN BURYING BEETLE
JOB 040456__	OFF-SITE RESTRAINING CONDITIONS FOR BATS
JOB 040456__	PARTNERING REQUIREMENTS
JOB 040456__	PLASTIC PIPE
JOB 040456__	PRE-BID ON SITE INVESTIGATION OF SOIL CONDITIONS
JOB 040456__	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT
JOB 040456__	SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)
JOB 040456__	SHORING FOR CULVERTS
JOB 040456__	SOIL STABILIZATION
JOB 040456__	STORM WATER POLLUTION PREVENTION PLAN
JOB 040456__	STREET NAME SIGN (MAST ARM MOUNTED)
JOB 040456__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 040456__	UTILITY ADJUSTMENTS
JOB 040456__	VALUE ENGINEERING
JOB 040456__	VIDEO DETECTOR (COLOR)
JOB 040456__	WARM MIX ASPHALT

GENERAL NOTES

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

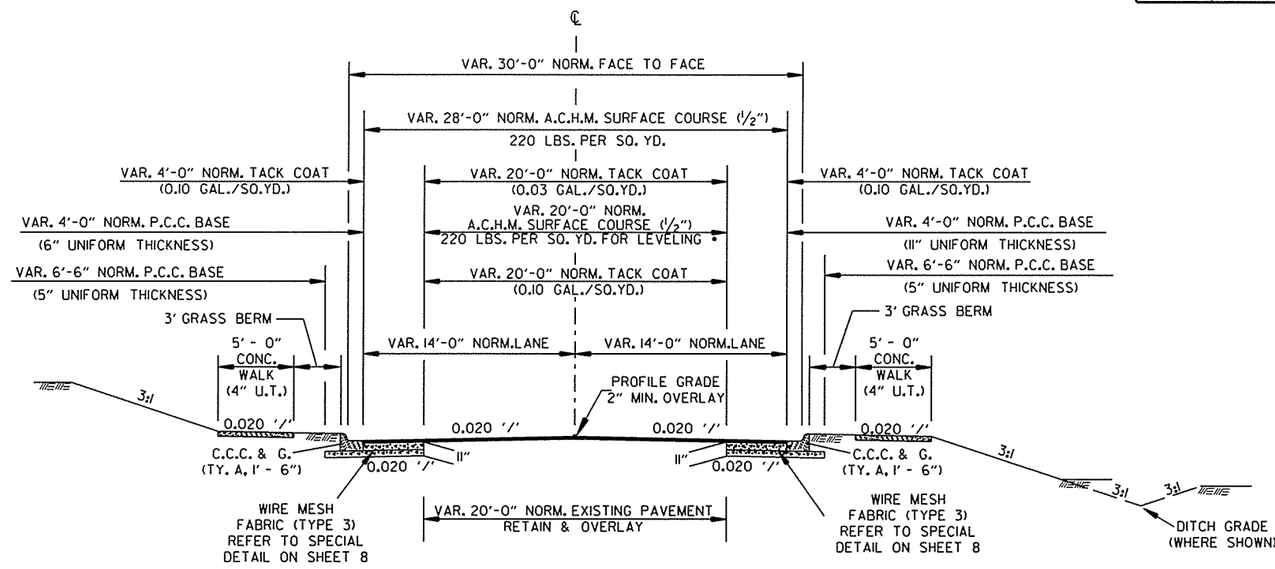
2/27/2015

R040456.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.		040456	4	179

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15



• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTCH AND WIDEN VAR. EXISTING PAVEMENT

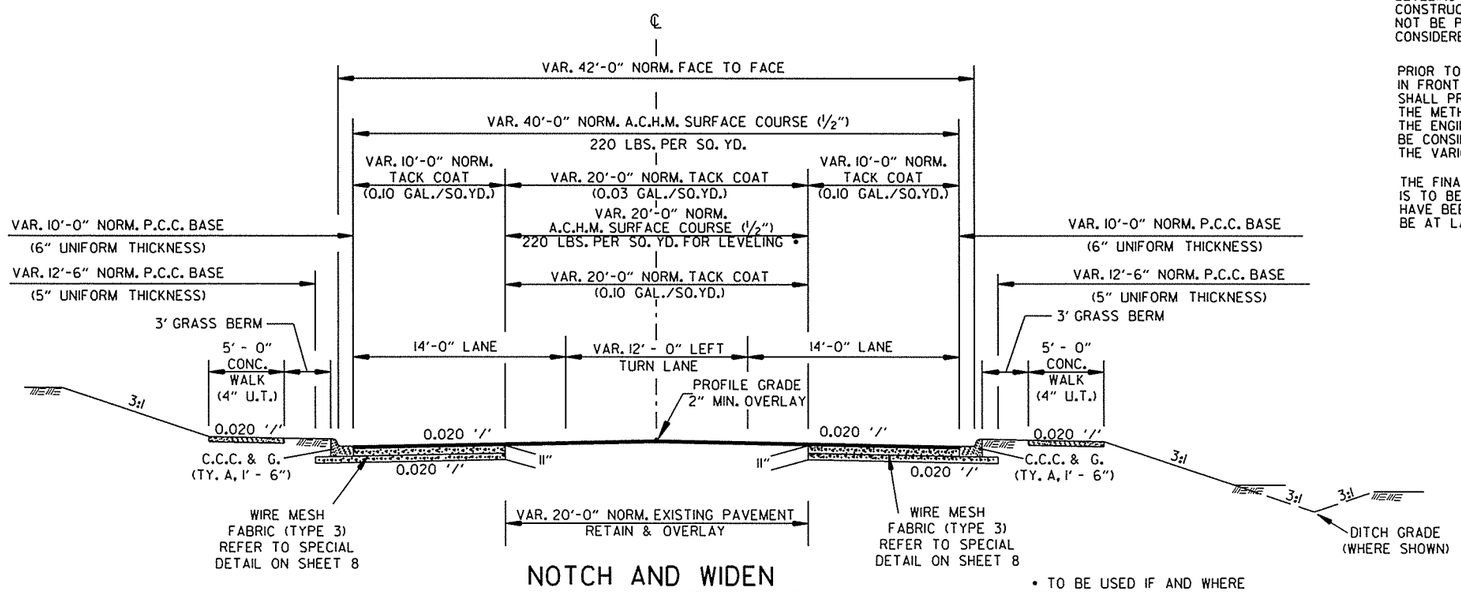
STA. 101+05.00 TO STA. 102+65.00

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

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY 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.

PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE 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.

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



• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTCH AND WIDEN WITH LEFT TURN LANE VAR. EXISTING PAVEMENT

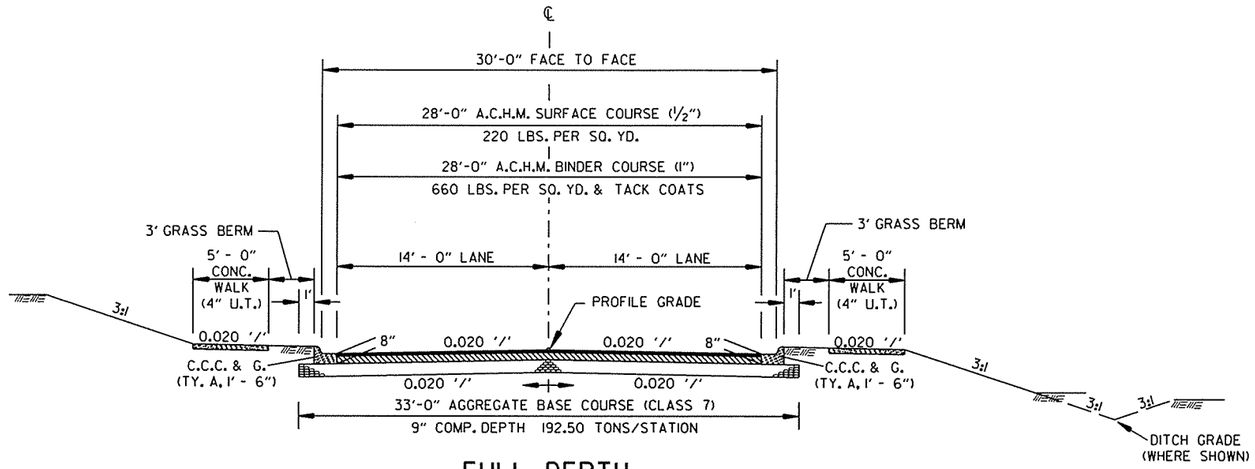
STA. 102+65.00 TO STA. 104+08.00
STA. 202+40.00 TO STA. 206+26.00 (E. MAIN ST.)
STA. 206+69.00 TO STA. 207+17.00 (E. MAIN ST.)

TYPICAL SECTIONS OF IMPROVEMENT

3/3/2015
R040456.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.		040456	5	179

(2) TYPICAL SECTIONS OF IMPROVEMENT



FULL DEPTH

STA. 106+15.00 TO STA. 112+70.93 BE

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

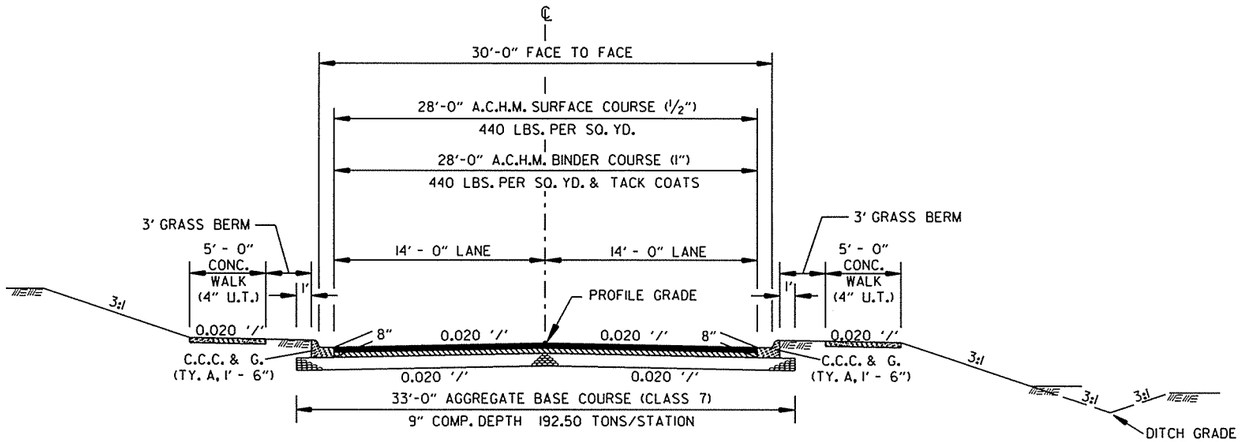
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS 1" OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY 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.

PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE 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.

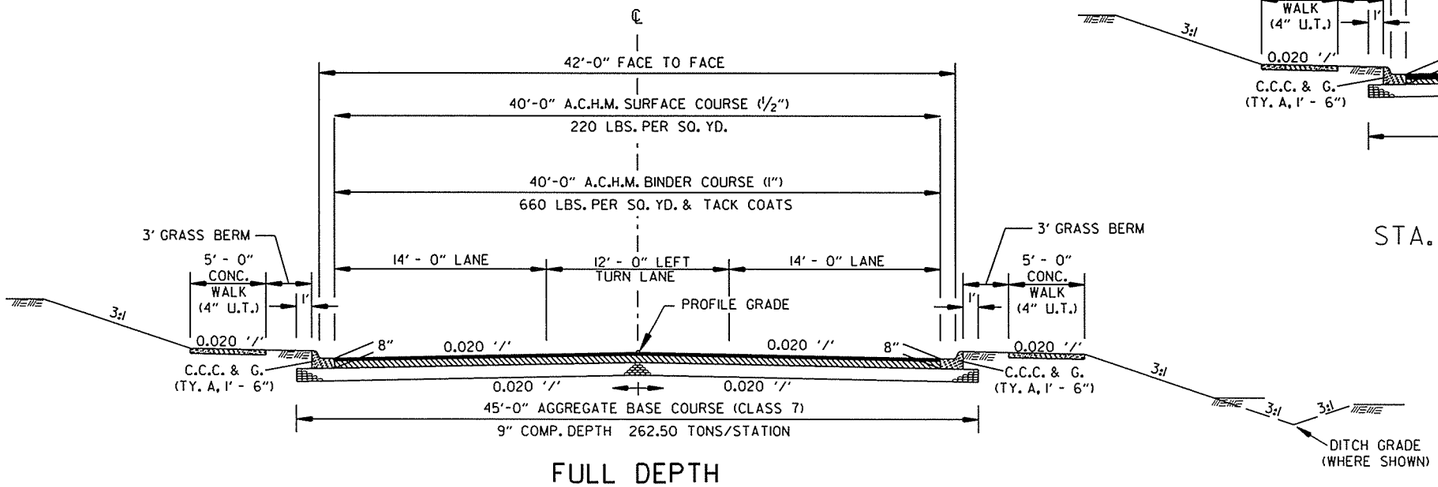
THE FINAL TWO INCHES (2") OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15



FULL DEPTH

STA. 138+49.00 TO STA. 140+15.50



FULL DEPTH
WITH LEFT TURN LANE

STA. 104+08.00 TO STA. 106+15.00
STA. 123+40.00 TO STA. 129+60.00

3/3/2015

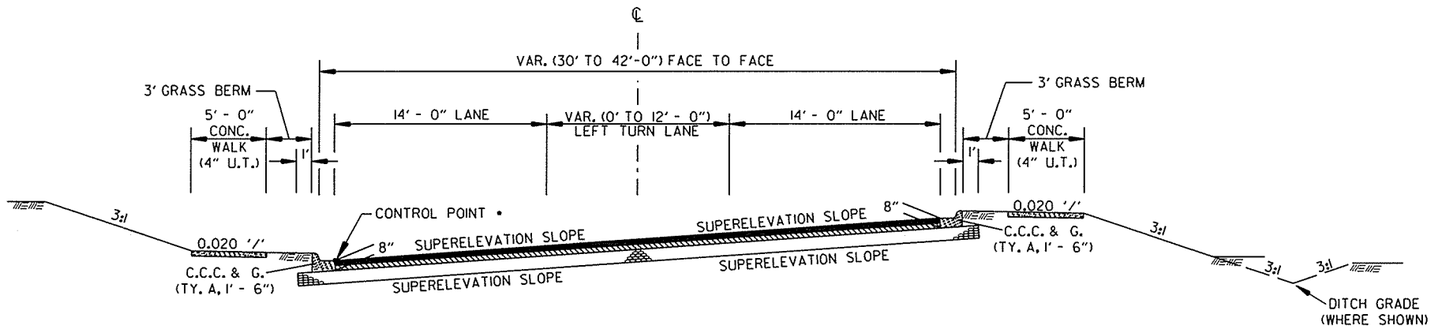
RD040456.DGN

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	6	179

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

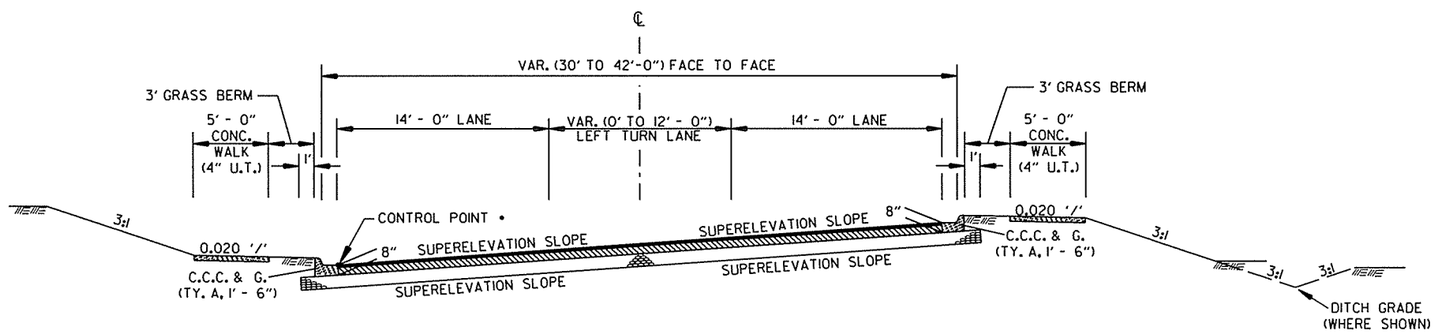


• BELOW PROFILE GRADE BY VAR. DISTANCE:
WITHOUT LEFT TURN LANE: 0.28' BELOW PROFILE GRADE;
WITH LEFT TURN LANE: 0.40' BELOW PROFILE GRADE

FULL DEPTH SUPERELEVATION

NOTE: PAVEMENT STRUCTURE AS SHOWN IN OTHER APPROPRIATE TYPICALS

STA. 133+91.00 TO STA. 138+49.00



• BELOW PROFILE GRADE BY VAR. DISTANCE:
WITHOUT LEFT TURN LANE: 0.28' BELOW PROFILE GRADE;
WITH LEFT TURN LANE: 0.40' BELOW PROFILE GRADE

FULL DEPTH SUPERELEVATION

NOTE: PAVEMENT STRUCTURE AS SHOWN IN OTHER APPROPRIATE TYPICALS

STA. 114+95.07 BE TO STA. 116+21.92 BE
STA. 118+84.08 BE TO STA. 123+40.00
STA. 129+60.00 TO STA. 133+91.00

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

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS 1" 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.

PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE 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.

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

3/3/2015

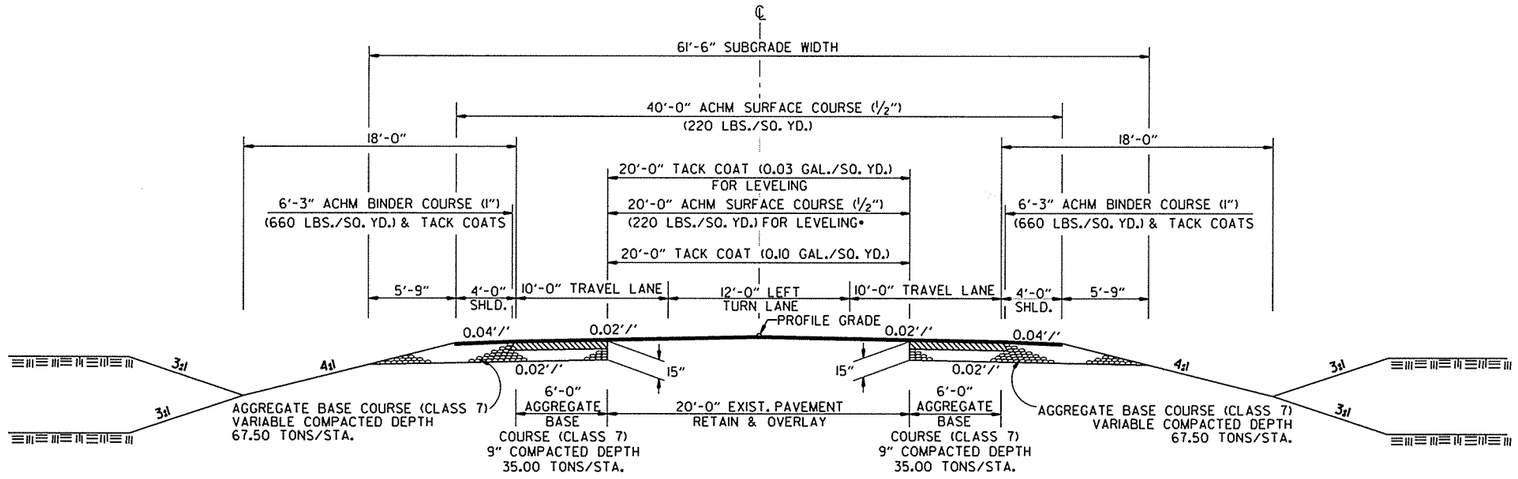
R040456.DGN

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.		040456	7	179

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15



• AS DIRECTED BY ENGINEER

HWY. 64B
NOTCH & WIDEN
OPEN SHOULDER

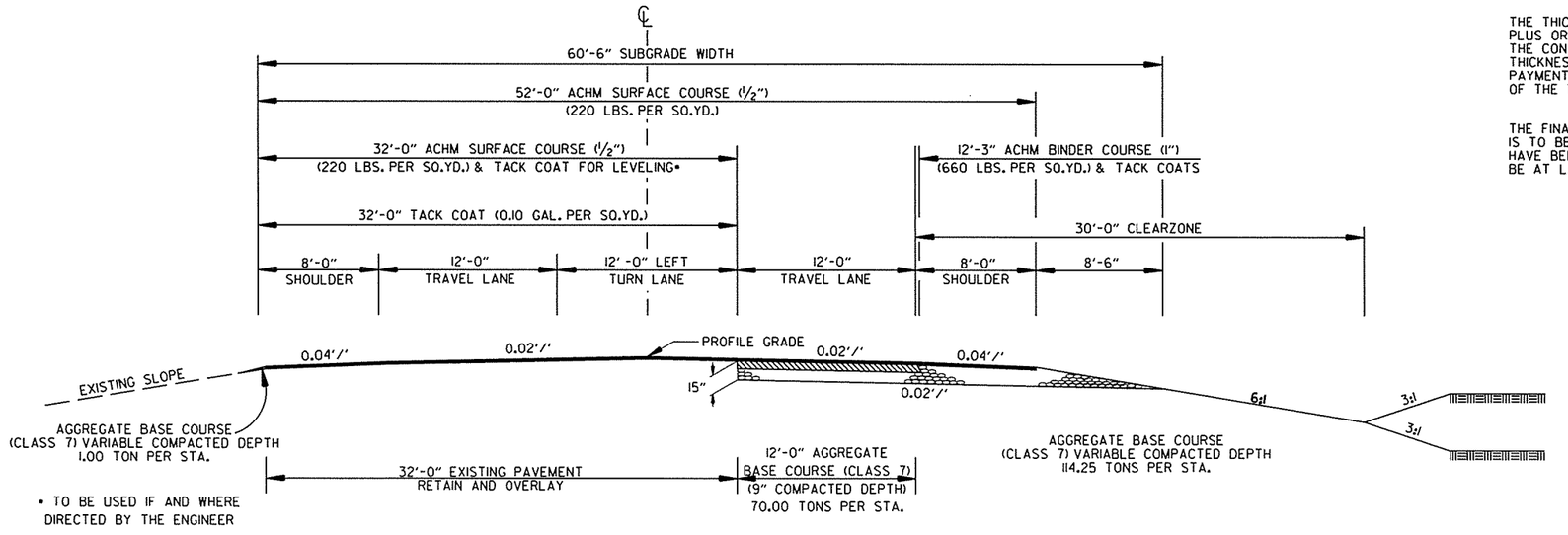
STA. 302+70 TO STA. 304+15
STA. 304+65 TO STA. 306+22

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

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

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS 1" 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.

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



• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

HWY. 64
NOTCH & WIDEN
OPEN SHOULDER
3 LANES

STA. 400+89 TO STA. 405+75

3/3/2015

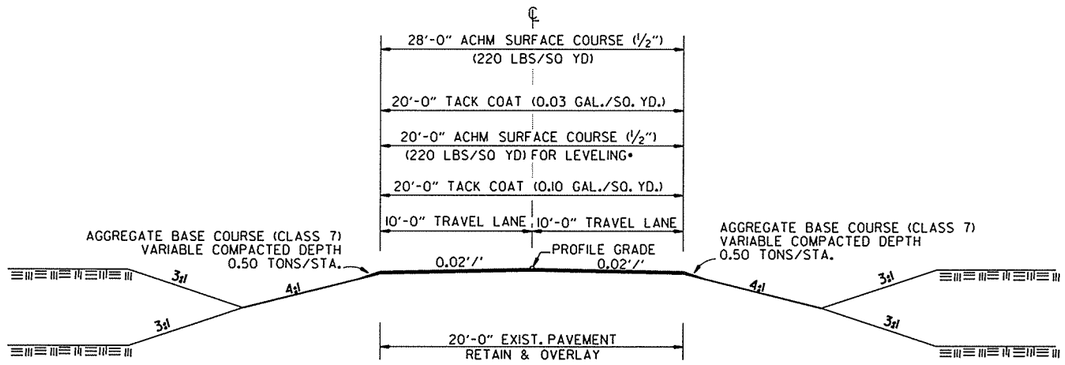
R040456.DGN

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.		040456	8	179

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15



• AS DIRECTED BY ENGINEER

E. MAIN STREET
OVERLAY
OPEN SHOULDER

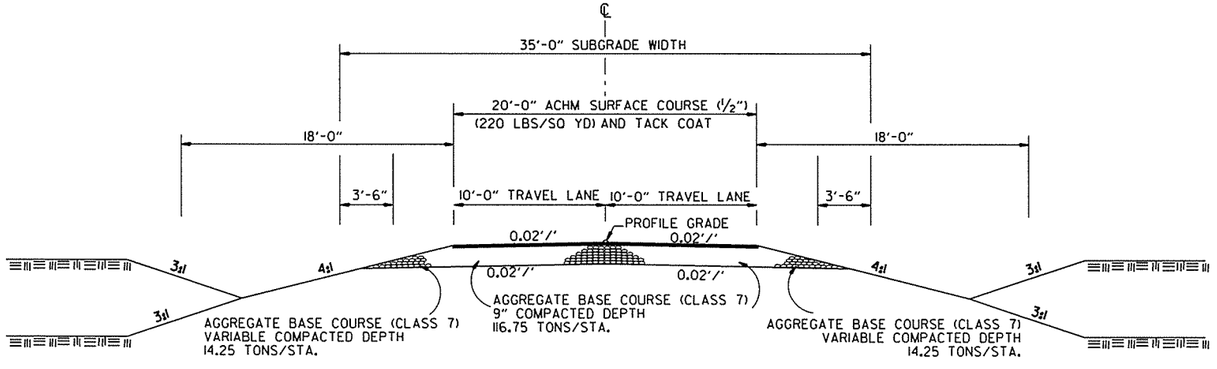
STA. 207+17.00 TO STA. 208+77.00

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

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

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS 1" OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY 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.



S. MOUNTAIN GROVE RD.
FULL DEPTH
OPEN SHOULDER

STA. 502+75.00 TO STA. 505+17.54

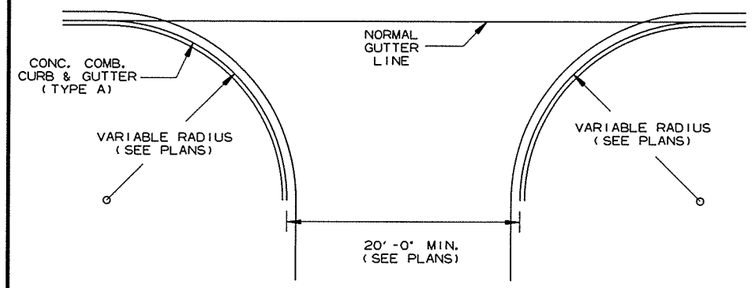
3/3/2015

R040456.DGN

TYPICAL SECTIONS OF IMPROVEMENT

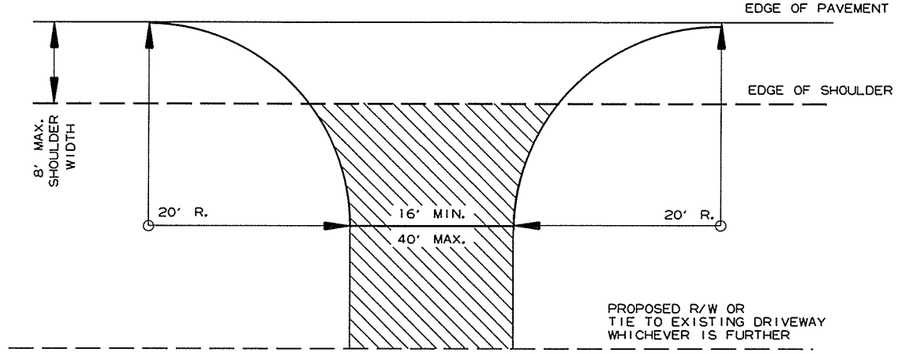
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	9	179

(2) SPECIAL DETAILS

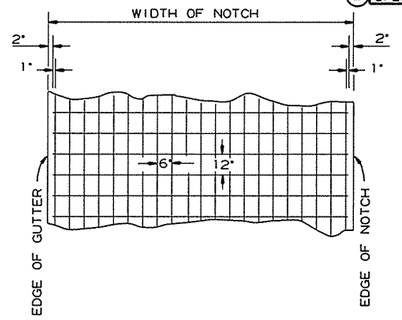


DETAIL OF TURNOUTS, ASPHALT STREETS, COUNTY ROADS & STATE HIGHWAYS CURB & GUTTER SECTION

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



DETAIL FOR DRIVEWAY TURNOUTS

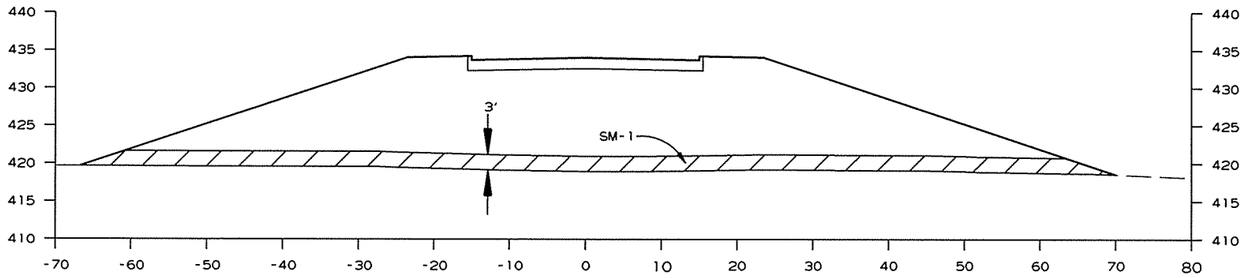


DETAIL OF REINFORCING STEEL FOR PAVEMENT (WIRE MESH TYPE 3)

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

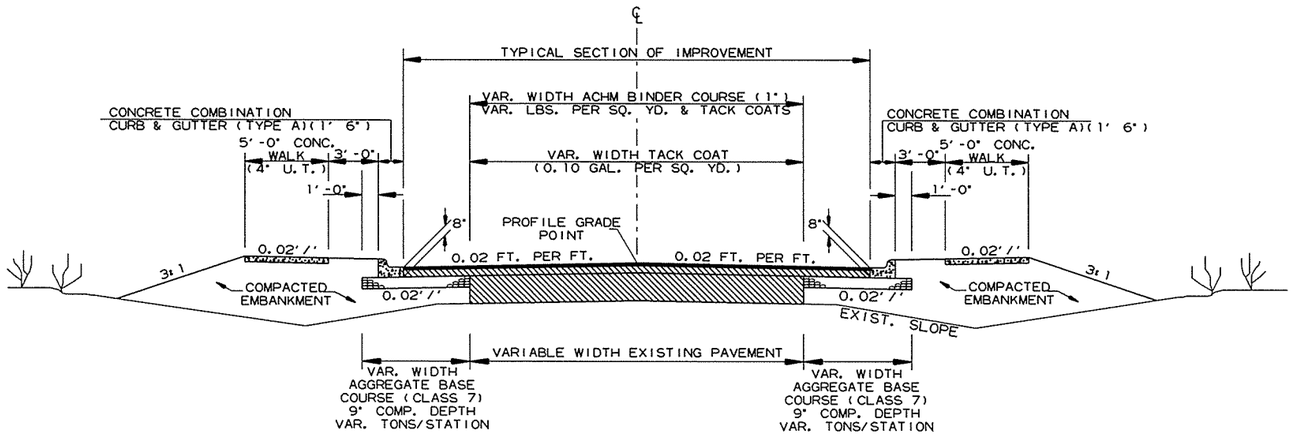
NOTES:

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 (10" U.T.)



DETAIL FOR FILL OVER 10'

MATERIAL PLACED IN THE BOTTOM 3' OF EMBANKMENTS 10' OR GREATER SHALL MEET THE MATERIAL REQUIREMENTS OF SELECT MATERIAL (CLASS SM-1). IT SHALL BE PLACED, COMPACTED, TESTED, AND PAID FOR AS COMPACTED EMBANKMENT.



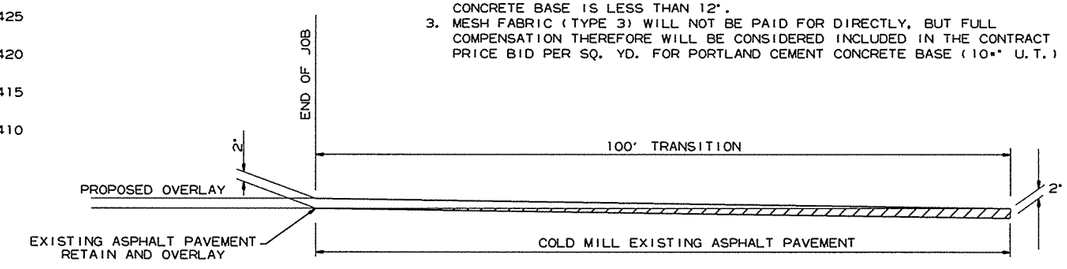
METHOD OF RAISING GRADE

NOTES:

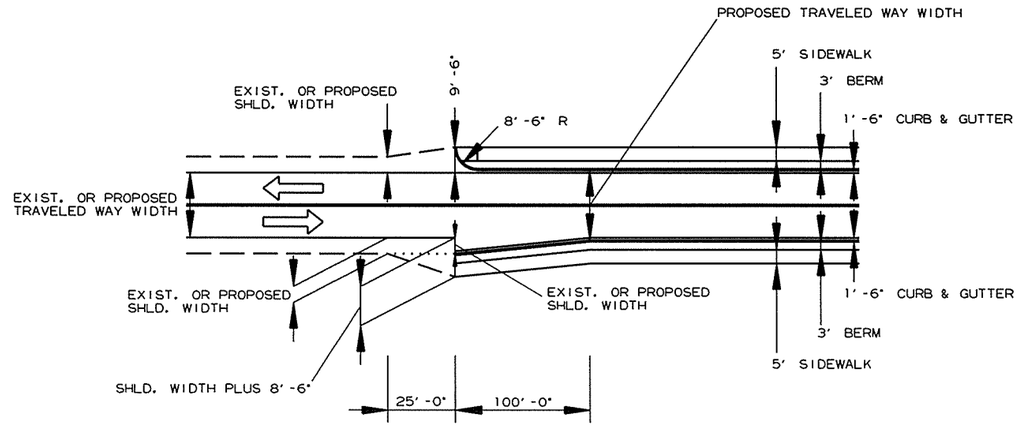
(1) THIS DETAIL TO BE USED ONLY WHERE DIRECTED BY THE ENGINEER.

(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.



DETAIL FOR TRANSITIONS



TRANSITION FROM OPEN SHOULDER TO CURB & GUTTER SECTION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

3/3/2015

R040456.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.		040456	10	179

(2) TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS

(E-6) = ROCK DITCH CHECKS

(E-11) = SILT FENCE

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL QUANTITIES:

SILT FENCE (E-11) = 3284 LIN. FT.

STA. 202+40.00
BEGIN EAST MAIN STREET

STA. 101+05.00
BEGIN JOB 040456
LOG MILE 10.21

PI = 104+00.26
Δ = 2° 47' 13" LT.
D = 1°00'
T = 139.38'
L = 278.70'
PC = 102+60.88
PT = 105+39.58
NO SUPER

PI = 205+17.73
Δ = 4° 20' 57" LT.
D = 2°00'
T = 108.78'
L = 217.46'
PC = 204+08.94
PT = 206+26.40
NO SUPER

PI = 208+80.61
Δ = 10° 12' 03" LT.
D = 4°00'
T = 127.85'
L = 255.02'
PC = 207+52.76
PT = 210+07.79
NO SUPER

STA. 104+63.70 HWY. 162 =
STA. 206+48.52 EAST MAIN STREET

STA. 208+77.00
END EAST MAIN STREET

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

3/3/2015

R040456.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.		040456	11	179

(2) TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE OF REVISION	REVISION

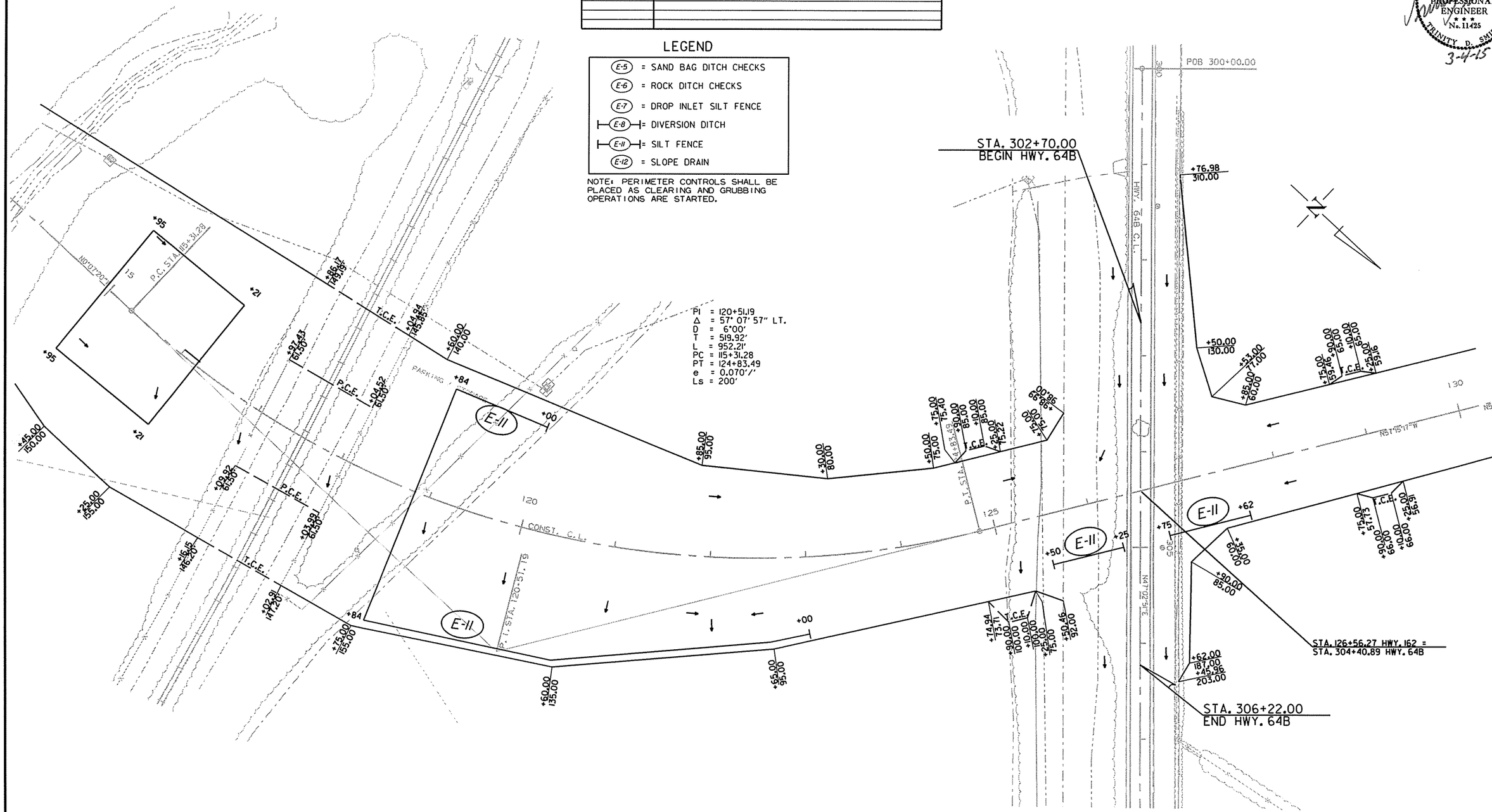
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN

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

PI = 120+51.19
Δ = 57° 07' 57" LT.
D = 6°00'
T = 519.92'
L = 952.21'
PC = 115+31.28
PT = 124+83.49
e = 0.070'/'
Ls = 200'



3/3/2015

R040456.DGN

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	12	179

(2) TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

STA. 501+63.81
BEGIN SOUTH MOUNTAIN GROVE ROAD

POB 500+00.00

PI = 503+21.44
Δ = 54° 51' 07" RT.
D = 20°00'
T = 148.66'
L = 274.26'
PC = 501+72.78
PT = 504+47.04
NO SUPER

P.C. STA. 501+72.78

P.T. STA. 504+47.04

POE 505+31.54
CONST. C.L.

S. MOUNTAIN GR. RD.

STA. 505+17.54
END SOUTH MOUTAIN GROVE ROAD

STA. 134+00.00 HWY. 162 =
STA. 505+31.54 S. MOUNTAIN GROVE RD.

PI = 134+06.36
Δ = 46° 51' 49" RT.
D = 8°00'
T = 310.40'
L = 585.79'
PC = 130+95.96
PT = 136+81.76
e = 0.084'/'
Ls = 250'

P.C. STA. 130+95.96

P.T. STA. 136+81.76

STA. 400+89.00
BEGIN HWY. 64

STA. 140+15.50
END JOB 040456

POE 140+33.32

STA. 140+33.32 HWY. 162 =
STA. 403+18.63 HWY. 64

STA. 405+75.00
END HWY. 64

E-11

T.C.E.

CONCRETE

PARKING

PAVED PARKING

3/3/2015

R040456.DGN

CLEARING AND GRUBBING STAGE
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	13	179

(2) TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN

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

STAGE 1 TEMPORARY EROSION CONTROL QUANTITIES:

SAND BAG DITCH CHECKS (E-5)	=	286 BAG (22 BAGS PER LOCATION)
ROCK DITCH CHECKS (E-6)	=	15 CU. YD. (3 CU. YD. PER LOCATION)
DROP INLET SILT FENCE (E-7)	=	750 LIN. FT.
DIVERSION DITCH (E-8)	=	1566 LIN. FT.
SILT FENCE (E-11)	=	2523 LIN. FT.
SLOPE DRAIN (E-12)	=	288 LIN. FT.
DUMPED RIPRAP	=	18 CU. YD.
SEDIMENT BASIN (E-14)	=	268 CU. YD.
EROSION CONTROL MATTING (CLASS III)	=	192 S.Y.

STA. 202+40.00
BEGIN EAST MAIN STREET

STA. 101+05.00
BEGIN JOB 040456
LOG MILE 10.21

PI = 104+00.26
Δ = 2° 47' 13" LT.
D = 1°00'
T = 139.38'
L = 278.70'
PC = 102+60.88
PT = 105+39.58
NO SUPER

PI = 205+17.73
Δ = 4° 20' 57" LT.
D = 2°00'
T = 108.78'
L = 217.46'
PC = 204+08.94
PT = 206+26.40
NO SUPER

PI = 208+80.61
Δ = 10° 12' 03" LT.
D = 4°00'
T = 127.85'
L = 255.02'
PC = 207+52.76
PT = 210+07.79
NO SUPER

STA. 101+70-102+40
SILT FENCE = 70 LIN.FT.

STA. 102+60-103+23
SILT FENCE = 63 LIN.FT.

STA. 103+43-104+47
SILT FENCE = 111 LIN.FT.

STA. 104+63.70 HWY. 162 =
STA. 206+48.52 EAST MAIN STREET

STA. 105+25-107+80
SILT FENCE = 255 LIN.FT.

STA. 208+77.00
END EAST MAIN STREET

STA. 111+80-112+75
SILT FENCE = 95 LIN.FT.

3/3/2015

R040456.DGN

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE OF REVISION	REVISION

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.		040456	14	179

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN

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

PI = 120+51.19
Δ = 57° 07' 57" LT.
D = 6°00'
T = 519.92'
L = 952.21'
PC = 115+31.28
PT = 124+83.49
e = 0.070'/'
Ls = 200'

STA. 115+00-116+25
SILT FENCE = 140 LIN.FT.

STA. 118+60-124+75
SILT FENCE = 694 LIN.FT.

STA. 126+90-128+75
SILT FENCE = 191 LIN.FT.

STA. 302+70.00
BEGIN HWY. 64B

STA. 306+22.00
END HWY. 64B

STA. 126+56.27 HWY. 162 =
STA. 304+40.89 HWY. 64B

POB 300+00.00

POE 309+07.71

HWY. 64B C.L.

CONST. C.L.

PACIFIC RAILROAD

CULTIVATED FIELD

PARKING / STORAGE

14 CY

3/3/2015

R040456.DGN

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	15	179

(2) TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE OF REVISION	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-7) = DROP INLET SILT FENCE
- (E-11) = SILT FENCE

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

STA. 501+63.81
BEGIN SOUTH MOUNTAIN GROVE ROAD

STA. 502+30-504+65
SILT FENCE = 205 LIN.FT.

PI = 503+21.44
Δ = 54° 51' 07" RT.
D = 20°00'
T = 148.66'
L = 274.26'
PC = 501+72.78
PT = 504+47.04
NO SUPER

STA. 505+17.54
END SOUTH MOUNTAIN GROVE ROAD

STA. 400+89.00
BEGIN HWY. 64

STA. 140+15.50
END JOB 040456

STA. 134+00.00 HWY. 162 =
STA. 505+31.54 S. MOUNTAIN GROVE RD.

STA. 129+25-135+75
SILT FENCE = 613 LIN.FT.

PI = 134+06.36
Δ = 46° 51' 49" RT.
D = 8°00'
T = 310.40'
L = 585.79'
PC = 130+95.96
PT = 136+81.76
e = 0.084'/'
Ls = 250'

STA. 138+85-139+70
SILT FENCE = 86 LIN.FT.

STA. 140+33.32 HWY. 162 =
STA. 403+18.63 HWY. 64

STA. 405+75.00
END HWY. 64

3/3/2015

R040456.DGN

STAGE 1
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	16	179

(2) TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-7) = DROP INLET SILT FENCE

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

STAGE 1 TEMPORARY EROSION CONTROL QUANTITIES:

SAND BAG DITCH CHECKS (E-5) = 44 BAG (22 BAGS PER LOCATION)
ROCK DITCH CHECKS (E-6) = 6 CY (3 CY PER LOCATION)
DROP INLET SILT FENCE (E-7) = 150 LIN. FT.

STA. 101+05.00
BEGIN JOB 040456
LOG MILE 10.21

STA. 202+40.00
BEGIN EAST MAIN STREET

STA. 208+77.00
END EAST MAIN STREET

STA. 104+63.70 HWY. 162 =
STA. 206+48.52 EAST MAIN STREET

P.C. STA. 204+08.94
P.I. STA. 205+17.73
P.C. STA. 102+60.88
P.T. STA. 105+39.58
P.C. STA. 206+26.40
P.C. STA. 207+52.76
P.I. STA. 104+00.26
P.I. STA. 208+80.61
P.T. STA. 210+07.79
POE 210+17.78

EARTHWORK

3/3/2015

R040456.DGN

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	17	179

(2) TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE OF REVISION	REVISION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

LEGEND

(E-5) = SAND BAG DITCH CHECK

(E-6) = ROCK DITCH CHECK

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

STA. 302+70.00
BEGIN HWY. 64B

POB 300+00.00

P.C. STA. 115+31.28

P.I. STA. 120+51.19

P.T. STA. 124+83.49

STA. 126+56.27 HWY. 162 =
STA. 304+40.89 HWY. 64B

STA. 306+22.00
END HWY. 64B

POE 309+07.71

CONST. C.L.

HWY. 64B C.L.

PARKING STORAGE

CULTIVATED FIELD

PACIFIC RAILROAD

3/3/2015

R040456.DGN

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	18	179

(2) TEMPORARY EROSION CONTROL DETAILS

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

3-4-15

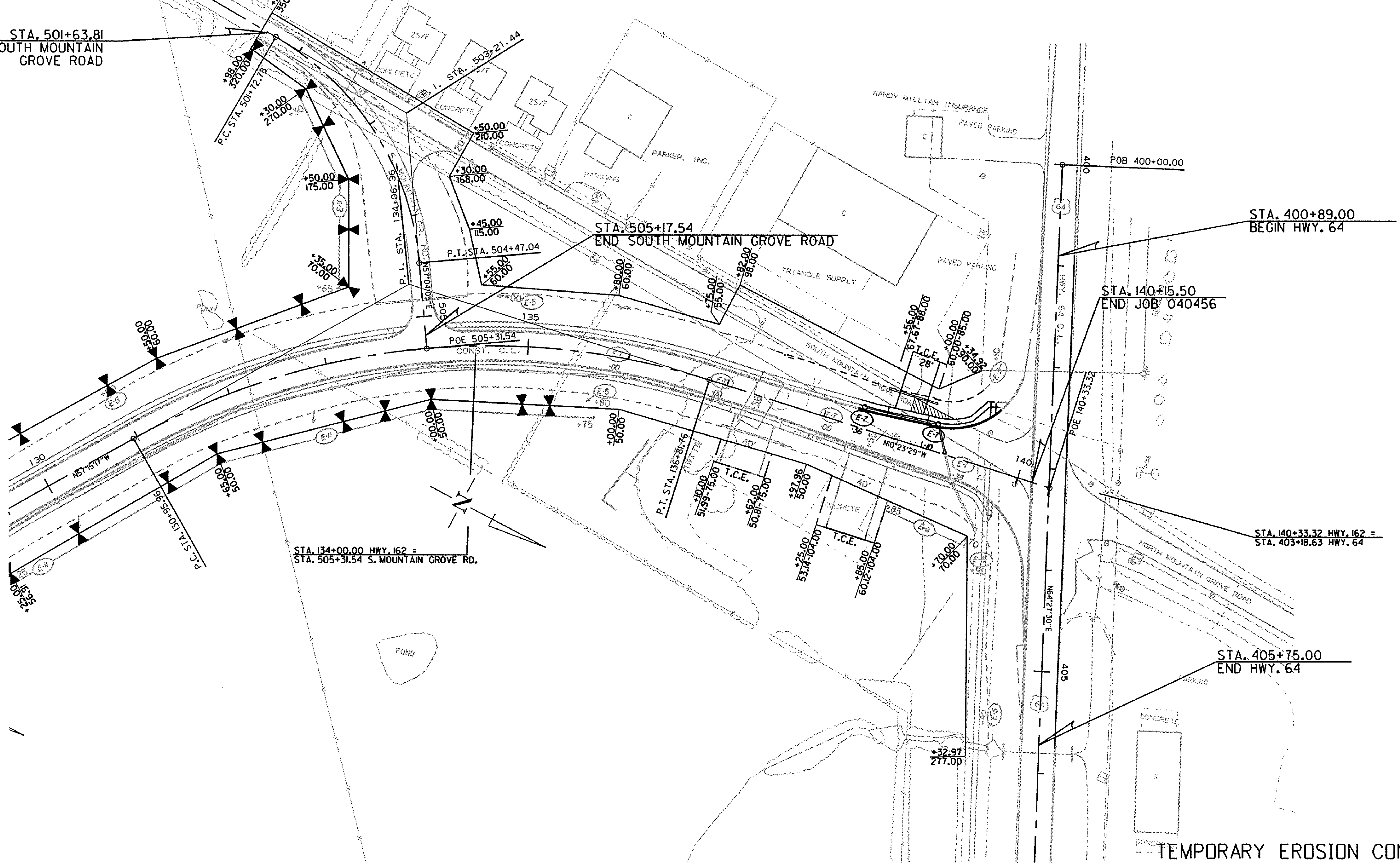
REVISIONS

DATE OF REVISION	REVISION

LEGEND

(E-7) = DROP INLET SILT FENCE

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



POB 500+00.00
N2°12'58"E
STA. 501+63.81
BEGIN SOUTH MOUNTAIN
GROVE ROAD
P.C. STA. 501+72.78
P.I. STA. 503+21.44
P.I. STA. 134+06.36
P.T. STA. 504+47.04
STA. 505+17.54
END SOUTH MOUNTAIN GROVE ROAD
POE 505+31.54
CONST. C.L.
PARKER, INC.
TRIANGLE SUPPLY
RANDY MILLIAN INSURANCE
PAVED PARKING
SOUTH MOUNTAIN GROVE ROAD
N10°23'29"W
T.C.E.
POB 400+00.00
STA. 400+89.00
BEGIN HWY. 64
STA. 140+15.50
END JOB 040456
POE 140+33.32
STA. 140+33.32 HWY. 162 =
STA. 403+18.63 HWY. 64
NORTH MOUNTAIN GROVE ROAD
N64°27'30"E
STA. 405+75.00
END HWY. 64
N57°15'17"W
P.C. STA. 130+95.96
P.T. STA. 136+81.76
STA. 134+00.00 HWY. 162 =
STA. 505+31.54 S. MOUNTAIN GROVE RD.
POND

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

3/3/2015

R040456.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.		040456	19	179

(2) MAINTENANCE OF TRAFFIC DETAILS

DO NOT PASS — (2) R4-1 (24" X 30")

SHOULDER CLOSED — (4) RSP-1 (48" X 30")

SHOULDER DROP-OFF — (4) W8-9 (36" X 36")

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

STA. 202+40.00
BEGIN EAST MAIN STREET

STA. 208+77.00
END EAST MAIN STREET

STA. 101+05.00
BEGIN JOB 040456
LOG MILE 10.21

SEQUENCE OF CONSTRUCTION:

STAGE 1
PLACE ADVANCE WARNING SIGNS AND DEVICES.
CONSTRUCT MOST OF NEW LOCATION (AS MUCH AS POSSIBLE AT SOUTH MOUNTAIN GROVE RD.).
CONSTRUCT BRIDGES.
CONSTRUCT RT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT ALL OF EAST MAIN STREET EAST OF MAIN LANES.
CONSTRUCT LT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT JUNCTION BOX WITH STUB IN ON LT. AND CROSS DRAIN AT STA. 103+77.
CONSTRUCT RT. SIDE OF HWY. 64.
CONSTRUCT RT. SIDE OF HWY. 64B.
CONSTRUCT NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.

STAGE 2
FINISH CONSTRUCTING NEW LOCATION.
CONSTRUCT LT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT RT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT LT. SIDE OF HWY. 64.
CONSTRUCT LT. SIDE OF HWY. 64B.
FINISH CONSTRUCTING NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.
OBLITERATE PARTS OF EXISTING SOUTH MOUNTAIN GROVE RD. AS SHOWN ON PLANS.

STAGE 3
PLACE FINAL 2" OF SURFACE COURSE FROM STA. 138+91 TO STA. 140+15.
FINAL STRIPING.

3/3/2015

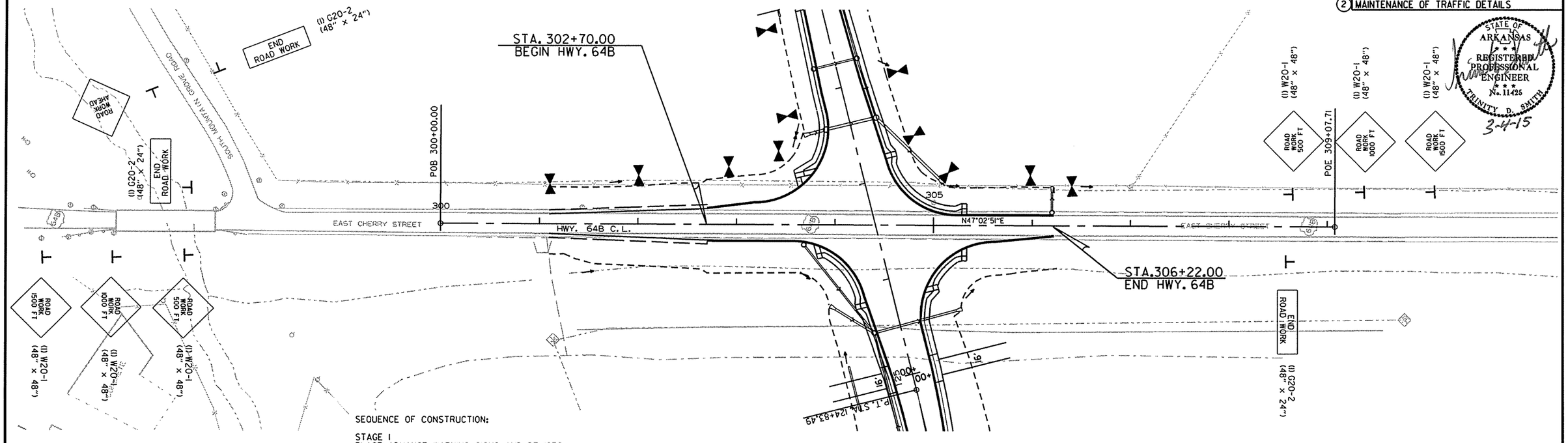
R040456.DGN

ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	20	179

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

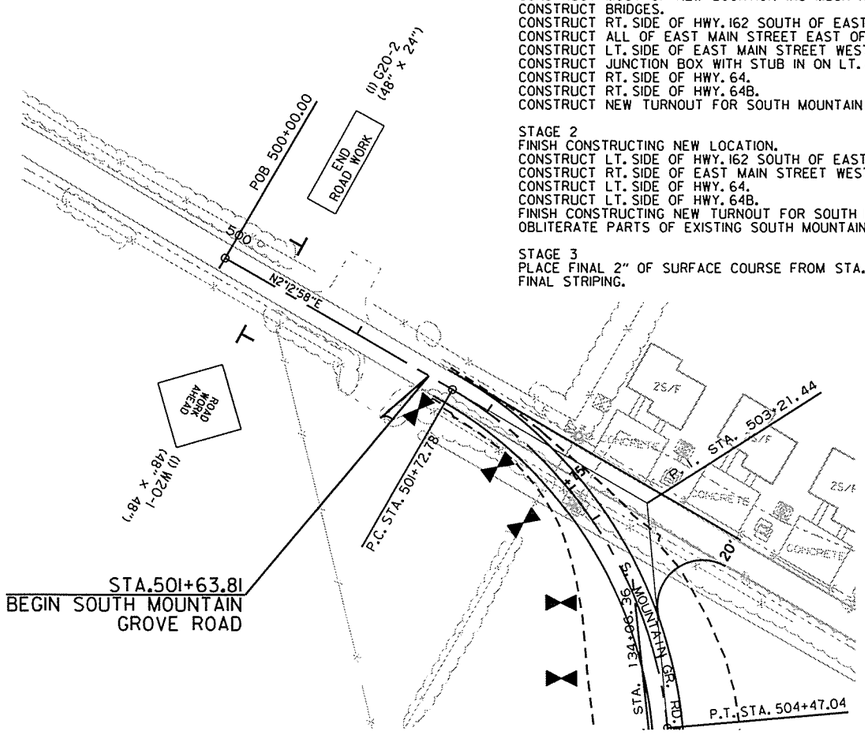


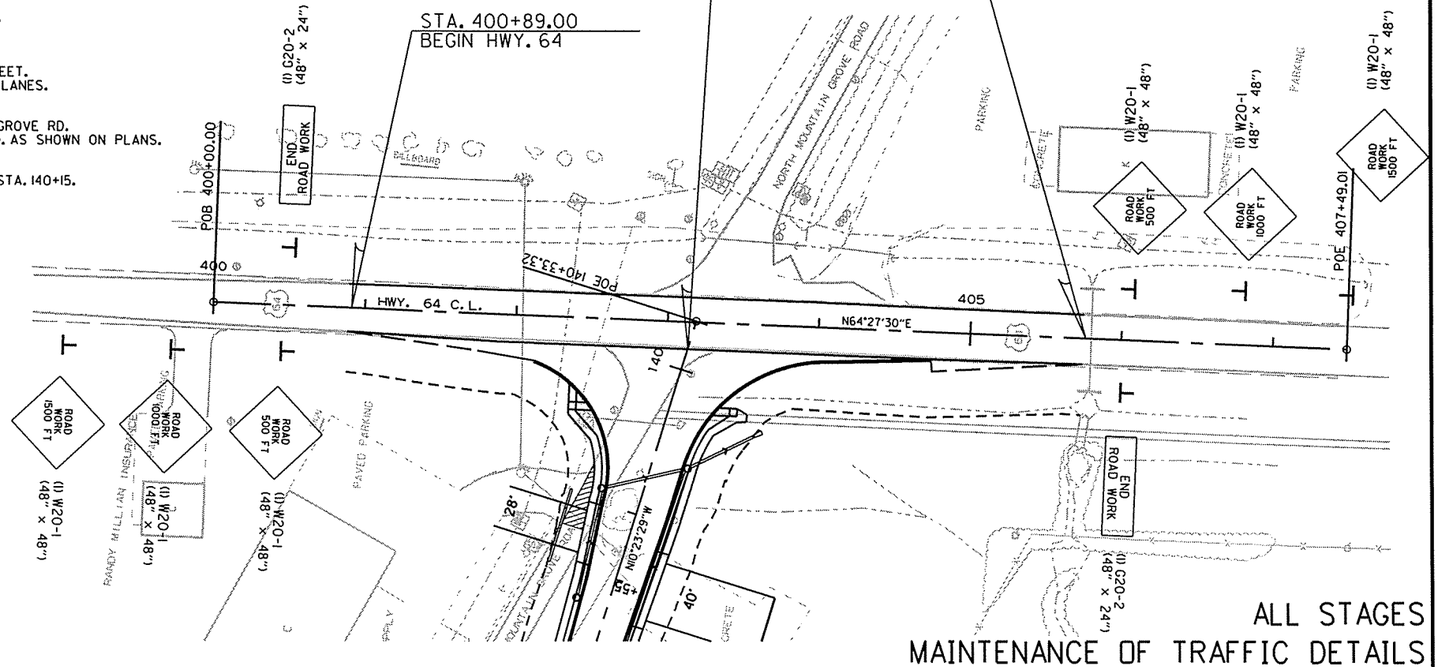
SEQUENCE OF CONSTRUCTION:

STAGE 1
PLACE ADVANCE WARNING SIGNS AND DEVICES.
CONSTRUCT MOST OF NEW LOCATION (AS MUCH AS POSSIBLE AT SOUTH MOUNTAIN GROVE RD.).
CONSTRUCT BRIDGES.
CONSTRUCT RT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT ALL OF EAST MAIN STREET EAST OF MAIN LANES.
CONSTRUCT LT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT JUNCTION BOX WITH STUB IN ON LT. AND CROSS DRAIN AT STA. 103+77.
CONSTRUCT RT. SIDE OF HWY. 64.
CONSTRUCT RT. SIDE OF HWY. 64B.
CONSTRUCT NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.

STAGE 2
FINISH CONSTRUCTING NEW LOCATION.
CONSTRUCT LT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT RT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT LT. SIDE OF HWY. 64.
CONSTRUCT LT. SIDE OF HWY. 64B.
FINISH CONSTRUCTING NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.
OBLITERATE PARTS OF EXISTING SOUTH MOUNTAIN GROVE RD. AS SHOWN ON PLANS.

STAGE 3
PLACE FINAL 2" OF SURFACE COURSE FROM STA. 138+91 TO STA. 140+15.
FINAL STRIPING.





ALL STAGES
MAINTENANCE OF TRAFFIC DETAILS

3/3/2015

R040456.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.		040456	21	179

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

LOCATION OF TRAFFIC

SEQUENCE OF CONSTRUCTION:

STAGE 1
PLACE ADVANCE WARNING SIGNS AND DEVICES.
CONSTRUCT MOST OF NEW LOCATION (AS MUCH AS POSSIBLE AT SOUTH MOUNTAIN GROVE RD.).
CONSTRUCT BRIDGES.
CONSTRUCT RT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT ALL OF EAST MAIN STREET EAST OF MAIN LANES.
CONSTRUCT LT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT JUNCTION BOX WITH STUB IN ON LT. AND CROSS DRAIN AT STA. 103+77.
CONSTRUCT RT. SIDE OF HWY. 64.
CONSTRUCT RT. SIDE OF HWY. 64B.
CONSTRUCT NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.

STAGE 2
FINISH CONSTRUCTING NEW LOCATION.
CONSTRUCT LT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT RT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT LT. SIDE OF HWY. 64.
CONSTRUCT LT. SIDE OF HWY. 64B.
FINISH CONSTRUCTING NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.
OBLITERATE PARTS OF EXISTING SOUTH MOUNTAIN GROVE RD. AS SHOWN ON PLANS.

STAGE 3
PLACE FINAL 2" OF SURFACE COURSE FROM STA. 138+91 TO STA. 140+15.
FINAL STRIPING.

POB 200+00.00
STA. 202+40.00
BEGIN EAST MAIN STREET
STA. 101+05.00
BEGIN JOB 040456
LOG MILE 10.21
POB 100+00.00
STA. 208+77.00
END EAST MAIN STREET
TRAFFIC DRUMS = 11 EACH
STA. 201+20-208+80 LT.
VERTICAL PANELS (40' O.C.) = 19 EACH
TRAFFIC DRUMS = 6 EACH
STA. 100+00-104+40 RT.
VERTICAL PANELS (40' O.C.) = 11 EACH
PI = 104+00.26
Δ = 2° 47' 13" LT.
D = 1°00'00"
T = 139.38'
L = 278.70'
PC = 102+60.88
PT = 105+39.58
NO SUPER
PI = 205+17.73
Δ = 4° 20' 57" LT.
D = 2°00'00"
T = 108.78'
L = 217.46'
PC = 204+08.94
PT = 206+26.40
NO SUPER
VERTICAL PANELS @ 40' O.C.
P.I. STA. 205+17.73
P.C. STA. 102+60.88
P.T. STA. 105+39.58
P.T. STA. 206+26.40
TRAFFIC DRUMS = 5 EACH
TRAFFIC DRUMS = 8 EACH
TRAFFIC DRUMS = 6 EACH
TRAFFIC DRUMS = 4 EACH
TRAFFIC DRUMS = 2 EACH
P.C. STA. 207+52.76
P.I. STA. 104+00.26
ROAD CLOSED
(1)-R11-2 (48" X 30")
24' BARR. TYP. III RT.
24' BARR. TYP. III LT.
PI = 208+80.61
Δ = 10° 12' 03" LT.
D = 2°00'00"
T = 127.85'
L = 255.02'
PC = 207+52.76
PT = 210+07.79
NO SUPER
P.I. STA. 208+80.61
P.T. STA. 210+07.79
POE 210+17.78
STA. 206+60-208+60 RT.
VERTICAL PANELS (40' O.C.) = 5 EACH
CONST. C.L. N0°07'20"W
EAST WALNUT STREET
MULBERRY STREET
ALMA SOUTH APARTMENTS
BOYS AND GIRLS CLUB
EARTHWORK
PAVED PARKING
PARKING
GARDEN
CONCRETE
SHEDS

3/3/2015
R040456.DGN

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	22	179

② MAINTENANCE OF TRAFFIC DETAILS

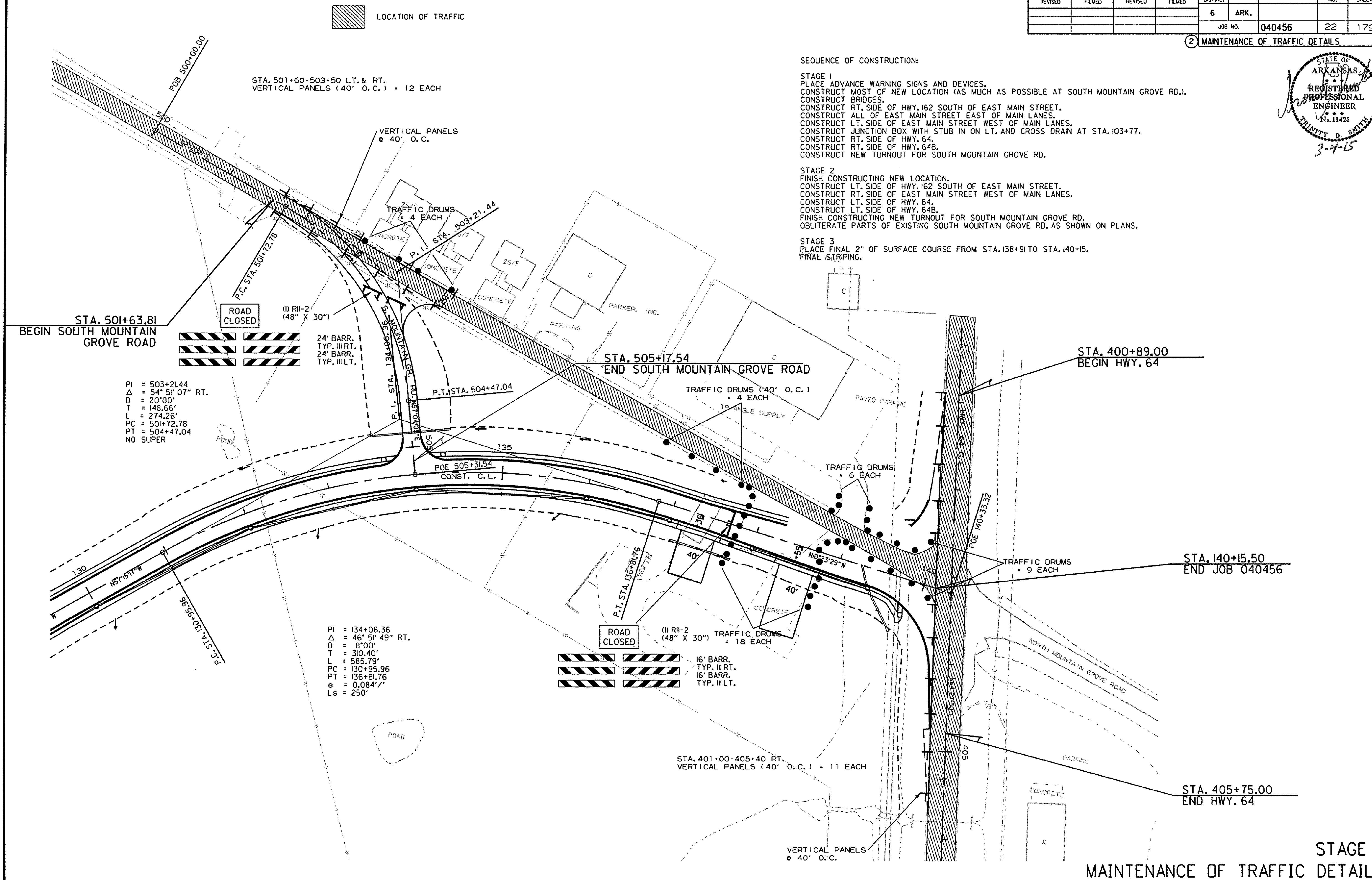
SEQUENCE OF CONSTRUCTION:

STAGE 1
PLACE ADVANCE WARNING SIGNS AND DEVICES.
CONSTRUCT MOST OF NEW LOCATION (AS MUCH AS POSSIBLE AT SOUTH MOUNTAIN GROVE RD.).
CONSTRUCT BRIDGES.
CONSTRUCT RT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT ALL OF EAST MAIN STREET EAST OF MAIN LANES.
CONSTRUCT LT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT JUNCTION BOX WITH STUB IN ON LT. AND CROSS DRAIN AT STA. 103+77.
CONSTRUCT RT. SIDE OF HWY. 64.
CONSTRUCT RT. SIDE OF HWY. 64B.
CONSTRUCT NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.

STAGE 2
FINISH CONSTRUCTING NEW LOCATION.
CONSTRUCT LT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT RT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT LT. SIDE OF HWY. 64.
CONSTRUCT LT. SIDE OF HWY. 64B.
FINISH CONSTRUCTING NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.
OBLITERATE PARTS OF EXISTING SOUTH MOUNTAIN GROVE RD. AS SHOWN ON PLANS.

STAGE 3
PLACE FINAL 2" OF SURFACE COURSE FROM STA. 138+91 TO STA. 140+15.
FINAL STRIPING.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 3-4-15



STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

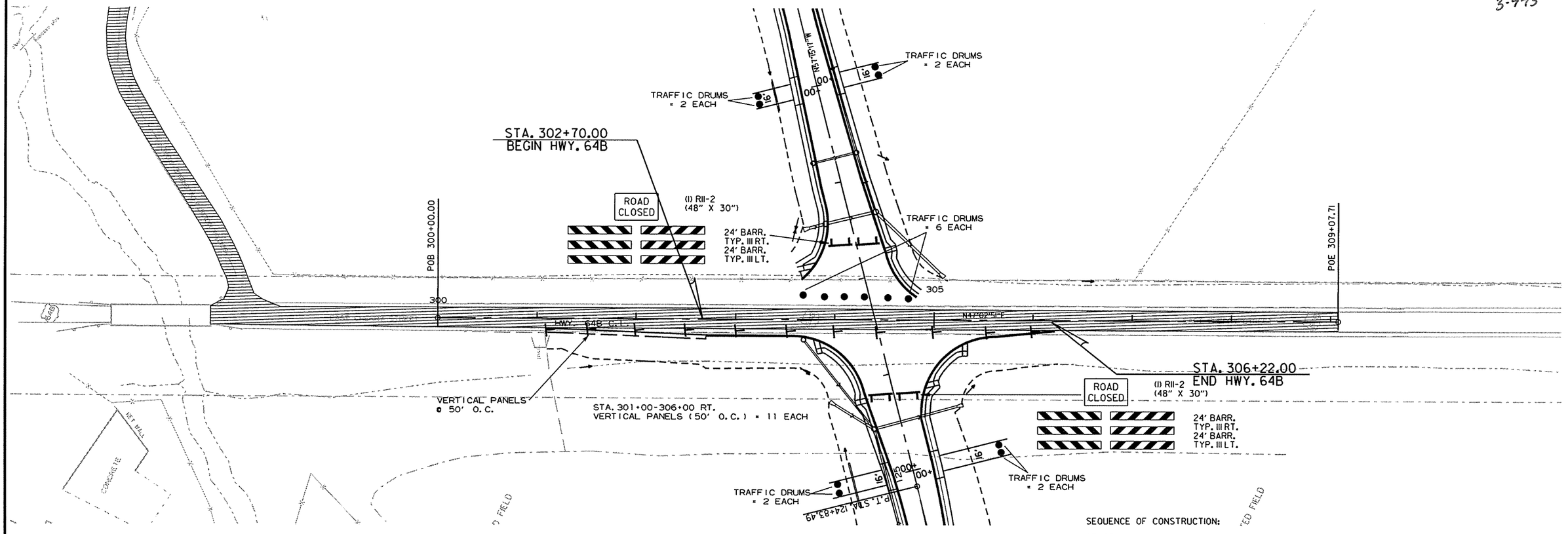
3/3/2015
R040456.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	23	179

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

LOCATION OF TRAFFIC



SEQUENCE OF CONSTRUCTION:

STAGE 1
PLACE ADVANCE WARNING SIGNS AND DEVICES.
CONSTRUCT MOST OF NEW LOCATION (AS MUCH AS POSSIBLE AT SOUTH MOUNTAIN GROVE RD.).
CONSTRUCT BRIDGES.
CONSTRUCT RT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT ALL OF EAST MAIN STREET EAST OF MAIN LANES.
CONSTRUCT LT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT JUNCTION BOX WITH STUB IN ON LT. AND CROSS DRAIN AT STA. 103+77.
CONSTRUCT RT. SIDE OF HWY. 64.
CONSTRUCT RT. SIDE OF HWY. 64B.
CONSTRUCT NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.

STAGE 2
FINISH CONSTRUCTING NEW LOCATION.
CONSTRUCT LT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT RT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT LT. SIDE OF HWY. 64.
CONSTRUCT LT. SIDE OF HWY. 64B.
FINISH CONSTRUCTING NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.
OBLITERATE PARTS OF EXISTING SOUTH MOUNTAIN GROVE RD. AS SHOWN ON PLANS.

STAGE 3
PLACE FINAL 2" OF SURFACE COURSE FROM STA. 138+91 TO STA. 140+15.
FINAL STRIPING.

3/3/2015

R040456.DGN

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	24	179

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

LOCATION OF TRAFFIC

SEQUENCE OF CONSTRUCTION:

STAGE 1
PLACE ADVANCE WARNING SIGNS AND DEVICES.
CONSTRUCT MOST OF NEW LOCATION (AS MUCH AS POSSIBLE AT SOUTH MOUNTAIN GROVE RD.).
CONSTRUCT BRIDGES.
CONSTRUCT RT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT ALL OF EAST MAIN STREET EAST OF MAIN LANES.
CONSTRUCT LT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT JUNCTION BOX WITH STUB IN ON LT. AND CROSS DRAIN AT STA. 103+77.
CONSTRUCT RT. SIDE OF HWY. 64.
CONSTRUCT RT. SIDE OF HWY. 64B.
CONSTRUCT NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.

STAGE 2
FINISH CONSTRUCTING NEW LOCATION.
CONSTRUCT LT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT RT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT LT. SIDE OF HWY. 64.
CONSTRUCT LT. SIDE OF HWY. 64B.
FINISH CONSTRUCTING NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.
OBLITERATE PARTS OF EXISTING SOUTH MOUNTAIN GROVE RD. AS SHOWN ON PLANS.

STAGE 3
PLACE FINAL 2" OF SURFACE COURSE FROM STA. 138+91 TO STA. 140+15.
FINAL STRIPING.

POB 200+00.00

STA. 202+40.00
BEGIN EAST MAIN STREET

TRAFFIC DRUMS @ 80' O.C.

TRAFFIC DRUMS = 11 EACH

TRAFFIC DRUMS = 4 EACH

STA. 201+80-206+00 LT.
TRAFFIC DRUMS (80' O.C.) = 6 EACH

TRAFFIC DRUMS = 6 EACH

STA. 201+50-205+00 RT.
VERTICAL PANELS (40' O.C.) = 9 EACH

STA. 101+05.00
BEGIN JOB 040456
LOG MILE 10.21

PI = 104+00.26
Δ = 2° 47' 13" LT.
D = 1°00'00"
T = 139.38'
L = 278.70'
PC = 102+60.88
PT = 105+39.58
NO SUPER

P.C. STA. 204+08.94

PI = 205+17.73
Δ = 4° 20' 57" LT.
D = 2°00'00"
T = 108.78'
L = 217.46'
PC = 204+08.94
PT = 206+26.40
NO SUPER

TRAFFIC DRUMS = 16 EACH

STA. 100+00-104+00 LT.
VERTICAL PANELS (40' O.C.) = 11 EACH

TRAFFIC DRUMS = 6 EACH

VERTICAL PANELS @ 40' O.C.

P.I. STA. 205+17.73

TRAFFIC DRUMS = 32 EACH

P.T. STA. 206+26.40

P.T. STA. 105+39.58

P.C. STA. 102+60.88

POB 100+00.00

ROAD CLOSED

(1) R11-2 (48" X 30")

16' BARR. TYP. III RT.
16' BARR. TYP. III LT.

TRAFFIC DRUMS = 2 EACH

CONST. C.L. N0°07'20"W

TRAFFIC DRUMS = 5 EACH

TRAFFIC DRUMS = 3 EACH

P.C. STA. 207+52.76

8' BARR. TYP. III RT.
8' BARR. TYP. III LT.

P.I. STA. 104+00.26

TRAFFIC DRUMS @ 80' O.C.

STA. 100+00-104+00 RT.
TRAFFIC DRUMS (80' O.C.) = 6 EACH

PI = 208+80.61
Δ = 10° 12' 03" LT.
D = 4°00'00"
T = 127.85'
L = 255.02'
PC = 207+52.76
PT = 210+07.79
NO SUPER

STA. 208+77.00
END EAST MAIN STREET

P.I. STA. 208+80.61

STA. 207+70-208+50 LT.& RT.
TRAFFIC DRUMS (80' O.C.) = 4 EACH

P.T. STA. 210+07.79

POE 210+17.78

EAST WALNUT STREET

PAVED PARKING

ALMA SOUTH APARTMENTS

BOYS AND GIRLS CLUB

EARTHWORK

GARDEN

3/3/2015

R040456.DGN

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	25	179

(2) MAINTENANCE OF TRAFFIC DETAILS

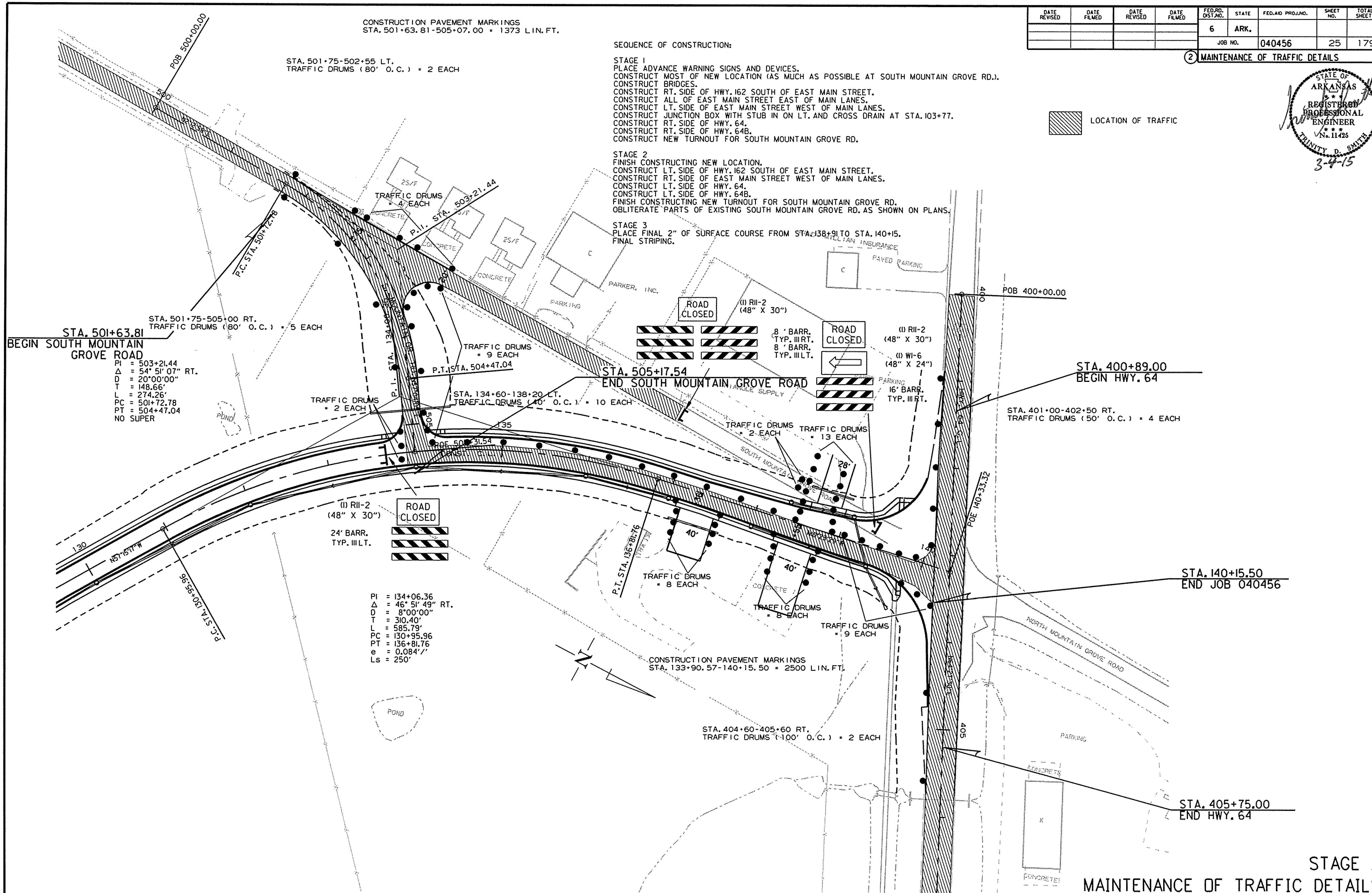
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH
3-4-15

SEQUENCE OF CONSTRUCTION:

STAGE 1
PLACE ADVANCE WARNING SIGNS AND DEVICES.
CONSTRUCT MOST OF NEW LOCATION (AS MUCH AS POSSIBLE AT SOUTH MOUNTAIN GROVE RD.).
CONSTRUCT BRIDGES.
CONSTRUCT RT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT ALL OF EAST MAIN STREET EAST OF MAIN LANES.
CONSTRUCT LT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT JUNCTION BOX WITH STUB IN ON LT. AND CROSS DRAIN AT STA. 103+77.
CONSTRUCT RT. SIDE OF HWY. 64.
CONSTRUCT RT. SIDE OF HWY. 64B.
CONSTRUCT NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.

STAGE 2
FINISH CONSTRUCTING NEW LOCATION.
CONSTRUCT LT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT RT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT LT. SIDE OF HWY. 64.
CONSTRUCT LT. SIDE OF HWY. 64B.
FINISH CONSTRUCTING NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.
OBLITERATE PARTS OF EXISTING SOUTH MOUNTAIN GROVE RD. AS SHOWN ON PLANS.

STAGE 3
PLACE FINAL 2" OF SURFACE COURSE FROM STA. 138+91 TO STA. 140+15.
FINAL STRIPING.



CONSTRUCTION PAVEMENT MARKINGS
STA. 501+63.81-505+07.00 = 1373 LIN. FT.
POB 500+00.00
STA. 501+75-502+55 LT.
TRAFFIC DRUMS (80' O.C.) = 2 EACH
LOCATION OF TRAFFIC
TRAFFIC DRUMS = 4 EACH
P.I. STA. 503+21.44
P.C. STA. 501+72.78
STA. 501+75-505+00 RT.
TRAFFIC DRUMS (80' O.C.) = 5 EACH
STA. 501+63.81
BEGIN SOUTH MOUNTAIN GROVE ROAD
PI = 503+21.44
Δ = 54° 51' 07" RT.
D = 20°00'00"
T = 148.66'
L = 274.26'
PC = 501+72.78
PT = 504+47.04
NO SUPER
TRAFFIC DRUMS = 9 EACH
P.T. STA. 504+47.04
STA. 505+17.54
END SOUTH MOUNTAIN GROVE ROAD
TRAFFIC DRUMS = 2 EACH
STA. 134+60-138+20 LT.
TRAFFIC DRUMS (40' O.C.) = 10 EACH
ROAD CLOSED
(1) R11-2 (48" X 30")
8' BARR. TYP. III RT.
8' BARR. TYP. III LT.
(1) W1-6 (48" X 24")
16' BARR. TYP. III RT.
STA. 400+89.00
BEGIN HWY. 64
POB 400+00.00
STA. 401+00-402+50 RT.
TRAFFIC DRUMS (50' O.C.) = 4 EACH
TRAFFIC DRUMS = 2 EACH
TRAFFIC DRUMS = 13 EACH
(1) R11-2 (48" X 30")
24' BARR. TYP. III LT.
P.C. STA. 130+95.96
P.T. STA. 136+81.76
TRAFFIC DRUMS = 8 EACH
TRAFFIC DRUMS = 8 EACH
TRAFFIC DRUMS = 9 EACH
POE 140+33.32
STA. 140+15.50
END JOB 040456
PI = 134+06.36
Δ = 46° 51' 49" RT.
D = 8°00'00"
T = 310.40'
L = 585.79'
PC = 130+95.96
PT = 136+81.76
e = 0.084'/'
Ls = 250'
CONSTRUCTION PAVEMENT MARKINGS
STA. 133+90.57-140+15.50 = 2500 LIN. FT.
NORTH MOUNTAIN GROVE ROAD
STA. 404+60-405+60 RT.
TRAFFIC DRUMS (100' O.C.) = 2 EACH
STA. 405+75.00
END HWY. 64
PARKING
POND
CONCRETE
PARKER, INC.

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

3/3/2015

R040456.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.		040456	26	179

(2) MAINTENANCE OF TRAFFIC DETAILS

LOCATION OF TRAFFIC

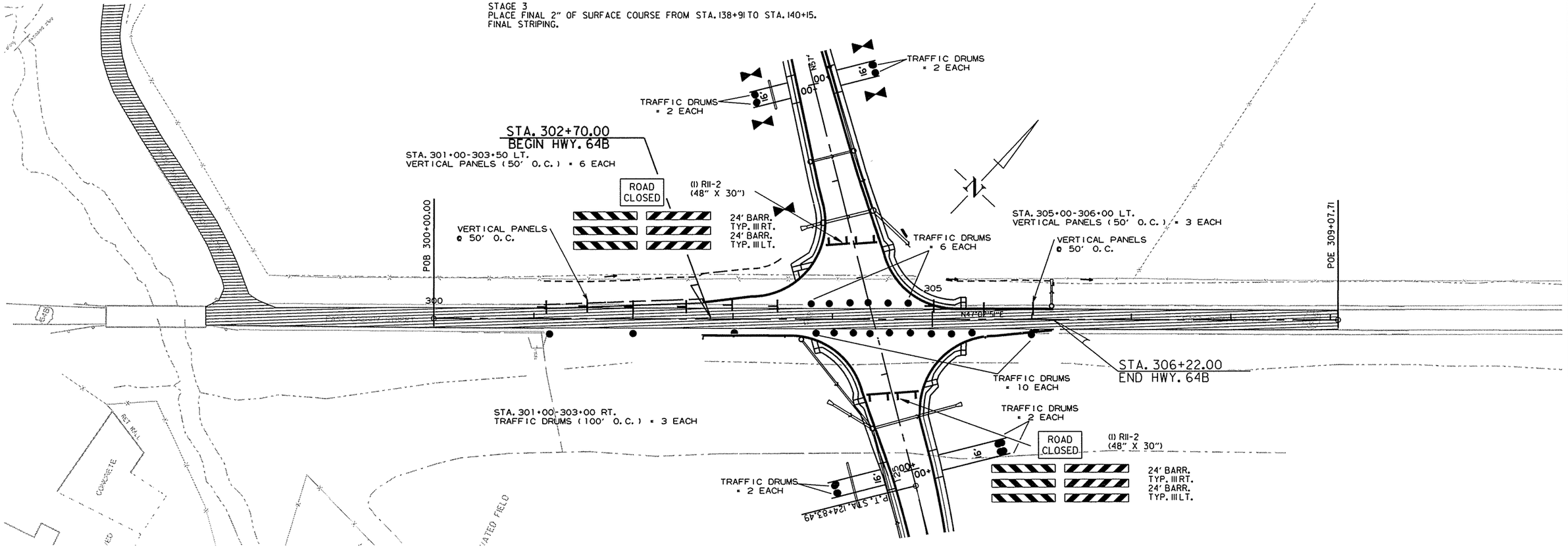
SEQUENCE OF CONSTRUCTION:

STAGE 1
PLACE ADVANCE WARNING SIGNS AND DEVICES.
CONSTRUCT MOST OF NEW LOCATION (AS MUCH AS POSSIBLE AT SOUTH MOUNTAIN GROVE RD.).
CONSTRUCT BRIDGES.
CONSTRUCT RT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT ALL OF EAST MAIN STREET EAST OF MAIN LANES.
CONSTRUCT LT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT JUNCTION BOX WITH STUB IN ON LT. AND CROSS DRAIN AT STA. 103+77.
CONSTRUCT RT. SIDE OF HWY. 64.
CONSTRUCT RT. SIDE OF HWY. 64B.
CONSTRUCT NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.

STAGE 2
FINISH CONSTRUCTING NEW LOCATION.
CONSTRUCT LT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET.
CONSTRUCT RT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES.
CONSTRUCT LT. SIDE OF HWY. 64.
CONSTRUCT LT. SIDE OF HWY. 64B.
FINISH CONSTRUCTING NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.
OBLITERATE PARTS OF EXISTING SOUTH MOUNTAIN GROVE RD. AS SHOWN ON PLANS.

STAGE 3
PLACE FINAL 2" OF SURFACE COURSE FROM STA. 138+91 TO STA. 140+15.
FINAL STRIPING.

STATE OF ARKANSAS
TRINITY D. SMITH
REGISTERED PROFESSIONAL ENGINEER
No. 11425
3-4-15

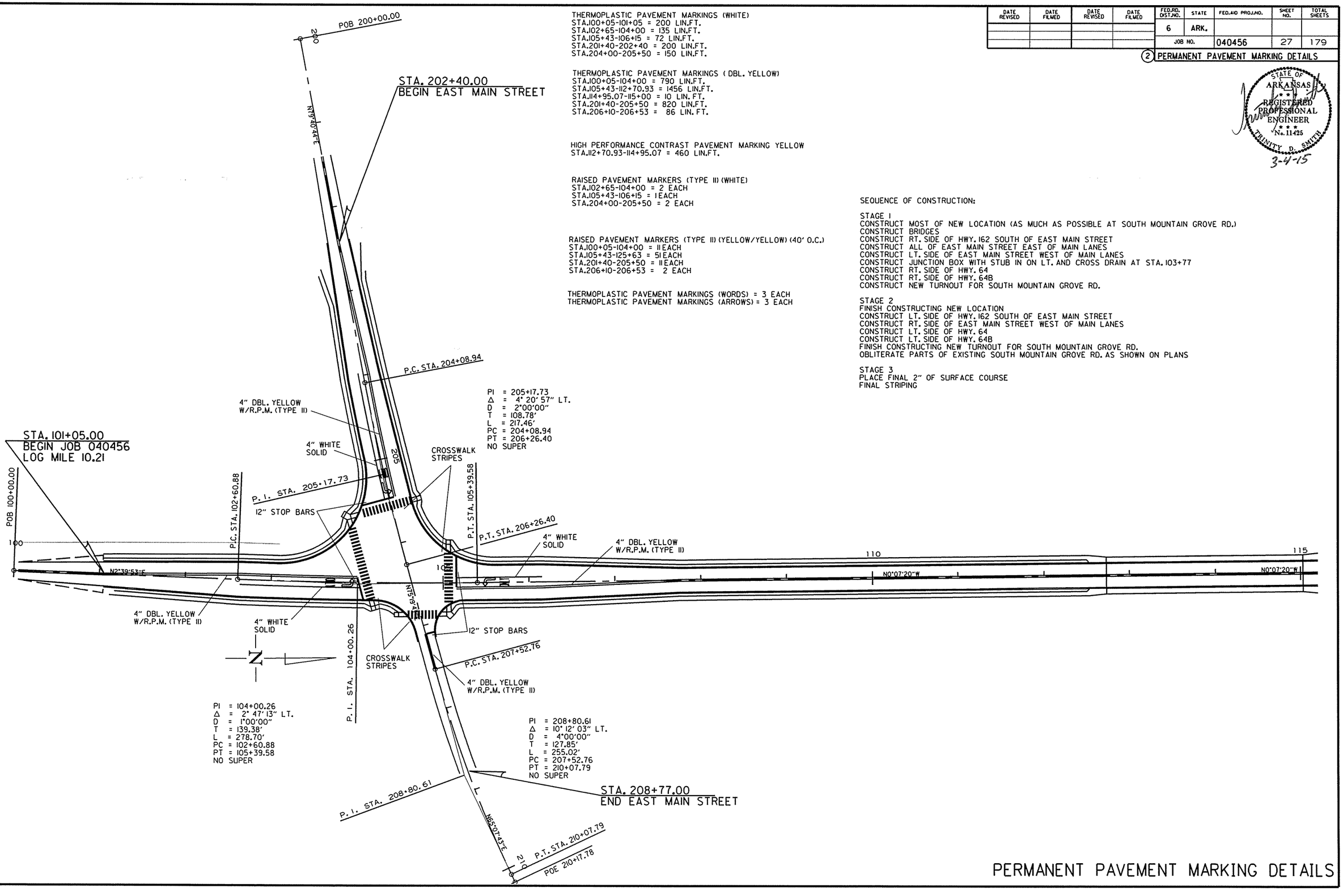


STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

3/3/2015
R040456.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.		040456	27	179

(2) PERMANENT PAVEMENT MARKING DETAILS



PI = 205+17.73
Δ = 4° 20' 57" LT.
D = 2°00'00"
T = 108.78'
L = 217.46'
PC = 204+08.94
PT = 206+26.40
NO SUPER

PI = 104+00.26
Δ = 2° 47' 13" LT.
D = 1°00'00"
T = 139.38'
L = 278.70'
PC = 102+60.88
PT = 105+39.58
NO SUPER

PI = 208+80.61
Δ = 10° 12' 03" LT.
D = 4°00'00"
T = 127.85'
L = 255.02'
PC = 207+52.76
PT = 210+07.79
NO SUPER

THERMOPLASTIC PAVEMENT MARKINGS (WHITE)
STA.100+05-101+05 = 200 LIN.FT.
STA.102+65-104+00 = 135 LIN.FT.
STA.105+43-106+15 = 72 LIN.FT.
STA.201+40-202+40 = 200 LIN.FT.
STA.204+00-205+50 = 150 LIN.FT.

THERMOPLASTIC PAVEMENT MARKINGS (DBL. YELLOW)
STA.100+05-104+00 = 790 LIN.FT.
STA.105+43-112+70.93 = 1456 LIN.FT.
STA.114+95.07-115+00 = 10 LIN. FT.
STA.201+40-205+50 = 820 LIN.FT.
STA.206+10-206+53 = 86 LIN. FT.

HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW
STA.112+70.93-114+95.07 = 460 LIN.FT.

RAISED PAVEMENT MARKERS (TYPE II) (WHITE)
STA.102+65-104+00 = 2 EACH
STA.105+43-106+15 = 1 EACH
STA.204+00-205+50 = 2 EACH

RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW) (40' O.C.)
STA.100+05-104+00 = 11 EACH
STA.105+43-125+63 = 51 EACH
STA.201+40-205+50 = 11 EACH
STA.206+10-206+53 = 2 EACH

THERMOPLASTIC PAVEMENT MARKINGS (WORDS) = 3 EACH
THERMOPLASTIC PAVEMENT MARKINGS (ARROWS) = 3 EACH

SEQUENCE OF CONSTRUCTION:

STAGE 1
CONSTRUCT MOST OF NEW LOCATION (AS MUCH AS POSSIBLE AT SOUTH MOUNTAIN GROVE RD.)
CONSTRUCT BRIDGES
CONSTRUCT RT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET
CONSTRUCT ALL OF EAST MAIN STREET EAST OF MAIN LANES
CONSTRUCT LT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES
CONSTRUCT JUNCTION BOX WITH STUB IN ON LT. AND CROSS DRAIN AT STA. 103+77
CONSTRUCT RT. SIDE OF HWY. 64
CONSTRUCT RT. SIDE OF HWY. 64B
CONSTRUCT NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.

STAGE 2
FINISH CONSTRUCTING NEW LOCATION
CONSTRUCT LT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET
CONSTRUCT RT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES
CONSTRUCT LT. SIDE OF HWY. 64
CONSTRUCT LT. SIDE OF HWY. 64B
FINISH CONSTRUCTING NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.
OBLITERATE PARTS OF EXISTING SOUTH MOUNTAIN GROVE RD. AS SHOWN ON PLANS

STAGE 3
PLACE FINAL 2" OF SURFACE COURSE
FINAL STRIPING

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

3/3/2015

R040456.DGN

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.		040456	28	179

(2) PERMANENT PAVEMENT MARKING DETAILS

THERMOPLASTIC PAVEMENT MARKINGS (WHITE)
STA.125+00-125+63 = 63 LIN.FT.
STA.127+31-128+00 = 69 LIN.FT.
STA.301+10-302+70 = 320 LIN.FT.
STA.302+70-303+56 = 86 LIN.FT.

THERMOPLASTIC PAVEMENT MARKINGS (DBL. YELLOW)
STA.115+00-116+21.92 = 244 LIN.FT.
STA.118+84.08-125+63 = 1358 LIN.FT.
STA.127+31-133+75 = 1288 LIN.FT.
STA.301+10-303+56 = 492 LIN.FT.
STA.305+23-306+22 = 198 LIN.FT.

HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW
STA.116+21.92-118+84.08 = 478 LIN.FT.

RAISED PAVEMENT MARKERS (TYPE II) (WHITE)
STA.125+00-125+63 = 1EACH
STA.127+31-128+00 = 1EACH
STA.302+70-303+56 = 1EACH

RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW) (40' O.C.)
STA.115+00-125+70 = 27 EACH
STA.127+30-130+00 = 7 EACH
STA.301+10-303+80 = 7 EACH
STA.305+40-306+22 = 2 EACH

THERMOPLASTIC PAVEMENT MARKINGS (WORDS) = 3 EACH
THERMOPLASTIC PAVEMENT MARKINGS (ARROWS) = 3 EACH

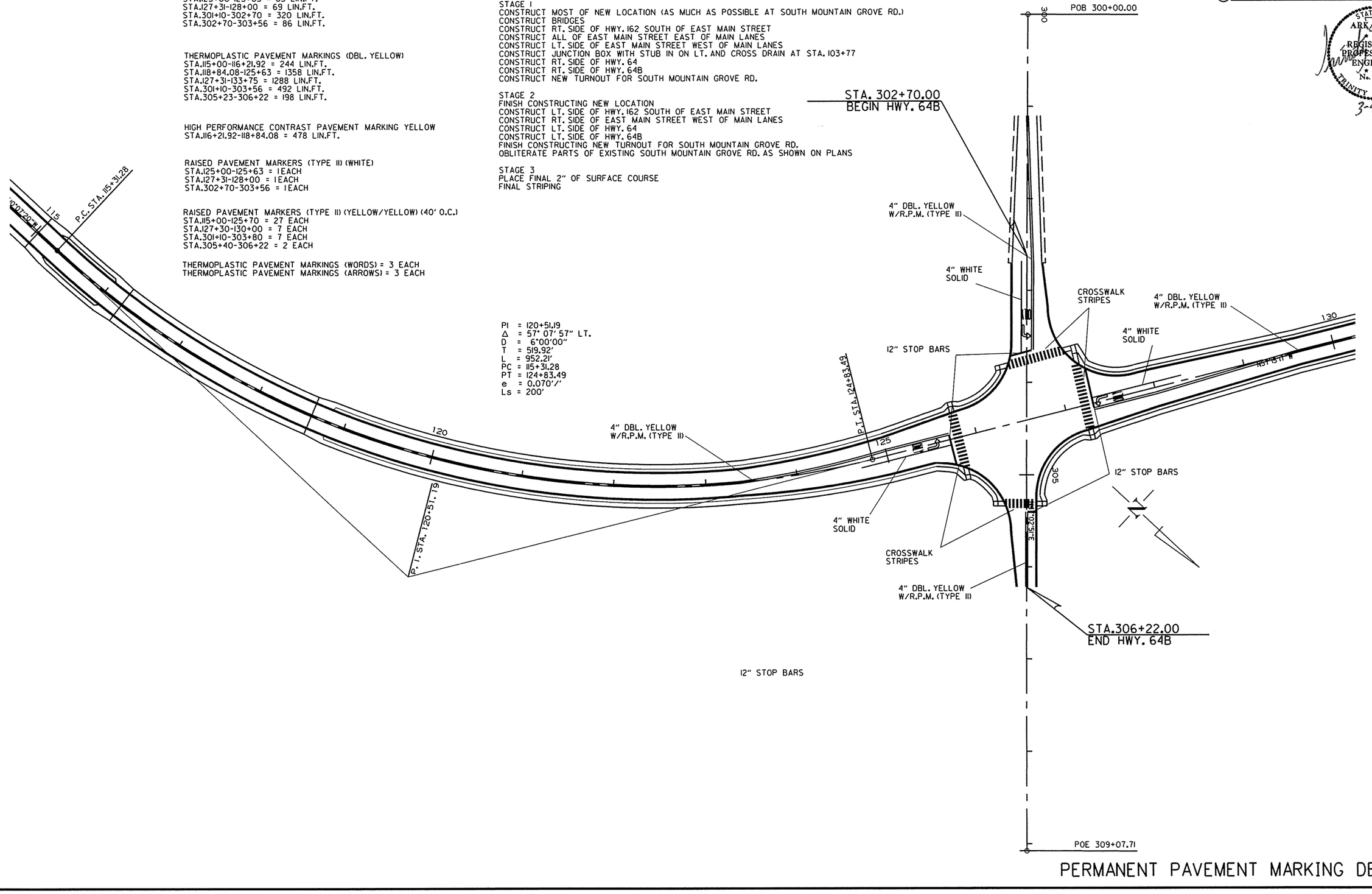
SEQUENCE OF CONSTRUCTION:

STAGE 1
CONSTRUCT MOST OF NEW LOCATION (AS MUCH AS POSSIBLE AT SOUTH MOUNTAIN GROVE RD.)
CONSTRUCT BRIDGES
CONSTRUCT RT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET
CONSTRUCT ALL OF EAST MAIN STREET EAST OF MAIN LANES
CONSTRUCT LT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES
CONSTRUCT JUNCTION BOX WITH STUB IN ON LT. AND CROSS DRAIN AT STA. 103+77
CONSTRUCT RT. SIDE OF HWY. 64
CONSTRUCT RT. SIDE OF HWY. 64B
CONSTRUCT NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.

STAGE 2
FINISH CONSTRUCTING NEW LOCATION
CONSTRUCT LT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET
CONSTRUCT RT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES
CONSTRUCT LT. SIDE OF HWY. 64
CONSTRUCT LT. SIDE OF HWY. 64B
FINISH CONSTRUCTING NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.
OBLITERATE PARTS OF EXISTING SOUTH MOUNTAIN GROVE RD. AS SHOWN ON PLANS

STAGE 3
PLACE FINAL 2" OF SURFACE COURSE
FINAL STRIPING

PI = 120+51.19
Δ = 57° 07' 57" LT.
D = 6°00'00"
T = 519.92'
L = 952.21'
PC = 115+31.28
PT = 124+83.49
e = 0.070'/'
Ls = 200'



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

3/3/2015

R040456.DGN

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.		040456	29	179

(2) PERMANENT PAVEMENT MARKING DETAILS

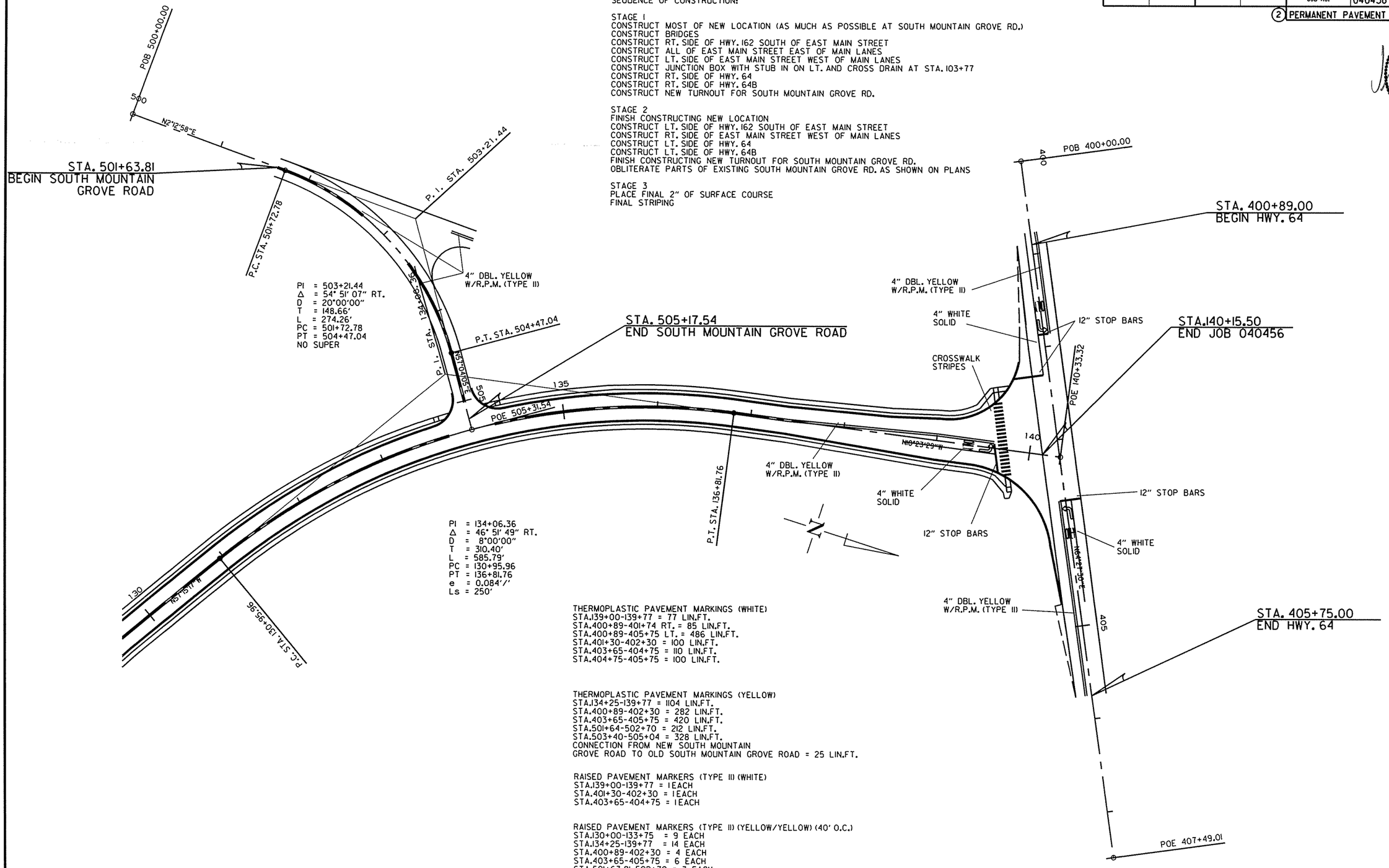
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

SEQUENCE OF CONSTRUCTION:

STAGE 1
CONSTRUCT MOST OF NEW LOCATION (AS MUCH AS POSSIBLE AT SOUTH MOUNTAIN GROVE RD.)
CONSTRUCT BRIDGES
CONSTRUCT RT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET
CONSTRUCT ALL OF EAST MAIN STREET EAST OF MAIN LANES
CONSTRUCT LT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES
CONSTRUCT JUNCTION BOX WITH STUB IN ON LT. AND CROSS DRAIN AT STA. 103+77
CONSTRUCT RT. SIDE OF HWY. 64
CONSTRUCT RT. SIDE OF HWY. 64B
CONSTRUCT NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.

STAGE 2
FINISH CONSTRUCTING NEW LOCATION
CONSTRUCT LT. SIDE OF HWY. 162 SOUTH OF EAST MAIN STREET
CONSTRUCT RT. SIDE OF EAST MAIN STREET WEST OF MAIN LANES
CONSTRUCT LT. SIDE OF HWY. 64
CONSTRUCT LT. SIDE OF HWY. 64B
FINISH CONSTRUCTING NEW TURNOUT FOR SOUTH MOUNTAIN GROVE RD.
OBLITERATE PARTS OF EXISTING SOUTH MOUNTAIN GROVE RD. AS SHOWN ON PLANS

STAGE 3
PLACE FINAL 2" OF SURFACE COURSE
FINAL STRIPING



THERMOPLASTIC PAVEMENT MARKINGS (WHITE)
STA.139+00-139+77 = 77 LIN.FT.
STA.400+89-401+74 RT. = 85 LIN.FT.
STA.400+89-405+75 LT. = 486 LIN.FT.
STA.401+30-402+30 = 100 LIN.FT.
STA.403+65-404+75 = 110 LIN.FT.
STA.404+75-405+75 = 100 LIN.FT.

THERMOPLASTIC PAVEMENT MARKINGS (YELLOW)
STA.134+25-139+77 = 1104 LIN.FT.
STA.400+89-402+30 = 282 LIN.FT.
STA.403+65-405+75 = 420 LIN.FT.
STA.501+64-502+70 = 212 LIN.FT.
STA.503+40-505+04 = 328 LIN.FT.
CONNECTION FROM NEW SOUTH MOUNTAIN GROVE ROAD TO OLD SOUTH MOUNTAIN GROVE ROAD = 25 LIN.FT.

RAISED PAVEMENT MARKERS (TYPE II) (WHITE)
STA.139+00-139+77 = 1 EACH
STA.401+30-402+30 = 1 EACH
STA.403+65-404+75 = 1 EACH

RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW) (40' O.C.)
STA.130+00-133+75 = 9 EACH
STA.134+25-139+77 = 14 EACH
STA.400+89-402+30 = 4 EACH
STA.403+65-405+75 = 6 EACH
STA.501+63.81-502+70 = 3 EACH
STA.503+40-505+02 = 5 EACH
STA.503+40-503+54 = 1 EACH

THERMOPLASTIC PAVEMENT MARKINGS (WORDS) = 3 EACH
THERMOPLASTIC PAVEMENT MARKINGS (ARROWS) = 3 EACH

PERMANENT PAVEMENT MARKING DETAILS

3/3/2015
R040456.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.		040456	30	179

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)	
											RIGHT	LEFT
			LIN. FT. - EACH				NO.	SQ. FT.	EACH		LIN. FT.	
W20-1	ROAD WORK 1500 FT.	48"x48"	6	6	6	6	6	96.0				
W20-1	ROAD WORK 1000 FT.	48"x48"	6	6	6	6	6	96.0				
W20-1	ROAD WORK 500 FT.	48"x48"	6	6	6	6	6	96.0				
W20-1	ROAD WORK AHEAD	48"x48"	7	7	7	7	7	112.0				
G20-2	END ROAD WORK	48"x24"	13	13	13	13	13	104.0				
R11-2	ROAD CLOSED	48"x30"	5	7		7	7	70.0				
W1-6	LARGE ARROW	48"x24"		1		1	1	8.0				
R4-1	DO NOT PASS	24"x30"	2	2	2	2	2	10.0				
RSP-1	SHOULDER CLOSED	48"x30"	4	4	4	4	4	40.0				
W8-9	LOW SHOULDER	36"X36"	4	4	4	4	4	36.0				
	VERTICAL PANELS		64			64			64			
	TRAFFIC DRUMS		144			144				144		
	TYPE III BARRICADE-RT. (8')			2		2					16	
	TYPE III BARRICADE-LT. (8')			2		2						16
	TYPE III BARRICADE-RT. (16')		1	2		2					32	
	TYPE III BARRICADE-LT. (16')		1	1		1						16
	TYPE III BARRICADE-RT. (24')		4	2		4					96	
	TYPE III BARRICADE-LT. (24')		4	3		4						96
TOTALS:								668.0	64	144	144	128

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 2	END OF JOB	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING					HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
				TYPE II (WHITE)	TYPE II (YEL/YEL)	4" WHITE	4" YELLOW	12" WHITE	WORDS	ARROWS	4" YELLOW
	LIN. FT. - EACH		LIN. FT.	EACH		LIN. FT.			EACH		LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS	3873		3873								
RAISED PAVEMENT MARKERS TYPE II (WHITE)		11		11							
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)		160			160						
THERMOPLASTIC PAVEMENT MARKING WHITE (4")		2253				2253					
THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		9113					9113				
THERMOPLASTIC PAVEMENT MARKING WHITE (12")		1675						1675			
THERMOPLASTIC PAVEMENT MARKING (WORDS)		9							9		
THERMOPLASTIC PAVEMENT MARKING (ARROWS)		9								9	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")		538									538
TOTALS:			3873	11	160	2253	9113	1675	9	9	538

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

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

2/27/2015

R040456.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	31	179

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.		TON
ENTIRE	PROJECT	MAIN LANES	2516	162101	
ENTIRE	PROJECT	EAST MAIN STREET	386	1512	
ENTIRE	PROJECT	HWY. 64	315	10015	
ENTIRE	PROJECT	SOUTH MOUNTAIN GROVE ROAD	7	6199	
ENTIRE	PROJECT	HWY. 64B	69	2925	
ENTIRE	PROJECT	APPROACHES	5	1840	
* ENTIRE	PROJECT	TO BE USED IF AND WHERE			3000
		DIRECTED BY THE ENGINEER			
TOTALS:			3298	184592	3000

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
100+00	115+00	MAIN LANES	15	15
116+00	120+00	MAIN LANES	4	4
125+00	127+00	MAIN LANES	2	2
135+00	140+00	MAIN LANES	5	5
202+00	207+00	EAST MAIN STREET	5	5
208+00	210+00	EAST MAIN STREET	2	2
301+00	307+00	HWY. 64B	6	6
501+00	504+00	SOUTH MOUNTAIN GROVE RD.	3	3
TOTALS:			42	42

REMOVAL AND DISPOSAL ITEMS

STATION	STATION	LOCATION	CURB	CONCRETE DRIVEWAYS	SIGN FOUNDATIONS	COLUMNS	LUMINAIRE POLE & FOUNDATION	CONCRETE SLABS
			LIN. FT.	SQ. YD.	EACH	EACH	EACH	SQ. YD.
103+90		SIGN FOUNDATION ON LT.			1			
104+78		LUMINAIRE POLE & FOUNDATION					2	
104+90		LUMINAIRE POLE & FOUNDATION					1	
137+00		CONCRETE COLUMNS ON RT.				2		
137+10		CONCRETE SLAB ON RT.						96
137+20		CONCRETE SLAB ON RT.						111
138+26		CONCRETE SLAB ON RT.						556
138+95		CONCRETE DRIVE ON LT.		309				
202+00		CONCRETE DRIVE ON LT.		23				
202+57		CONCRETE DRIVE ON RT.		26				
203+42	204+80	CURB	150					
503+84		CONCRETE DRIVE ON LT.		40				
503+37		CONCRETE DRIVE ON LT.		37				
TOTALS:			150	435	1	2	3	763

SOIL LOG

STATION	LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
		FEET				
102+00	5' RT.	0-5	23	8	A-4(3)	RD/BRN
102+00	17' RT.	0-5	34	16	A-6(11)	RD/BRN
110+00	CL	0-5	ND	NP	A-4(0)	RD/BRN
118+00	CL	0-3.0Z	21	3	A-2-4(0)	BROWN
126+00	CL	0-3.0Z	22	5	A-4(0)	RD/BRN
134+00	CL	0-3.0Z	20	2	A-4(0)	RD/BRN
140+00	8' LT.	0-5	34	17	A-6(9)	RD/BRN
140+00	20' RT.	0-5	28	15	A-6(9)	GR/BRN

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

REMOVAL AND DISPOSAL OF CULVERTS AND DROP INLETS

STATION	DESCRIPTION	PIPE CULVERTS	DROP INLETS
		EACH	EACH
100+45	18"X24' PIPE CULVERT ON LT.	1	
100+91	18"X28' R.C. PIPE CULVERT ON LT.	1	
101+12	12"X57' R.C. PIPE CULVERT ON RT.	1	
101+58	18"X25' C.M. PIPE CULVERT ON RT.	1	
101+93	18"X20" R.C. PIPE CULVERT ON LT.	1	
102+53	18"X25' R.C. PIPE CULVERT ON RT.	1	
103+18	12"X21' R.C. PIPE CULVERT ON RT.	1	
104+43	DROP INLET ON RT.		1
104+74	44"X24"82' C.M. ARCH PIPE CULVERT ON RT.	1	
107+74	6"X20' R.C. PIPE CULVERT ON LT.	1	
108+71	12"X30' PVC ARCH PIPE CULVERT ON RT.	1	
201+72	18"X5' PIPE CULVERT ON LT.	1	
202+15	24"X14"X43' R.C. ARCH PIPE CULVERT ON LT.	1	
203+30	18"X25' R.C. PIPE CULVERT ON LT.	1	
204+34	24"X110' R.C. PIPE CULVERT ON RT.	1	
204+91	18"X24' R.C. PIPE CULVERT ON LT.	1	
205+54	24"X19' R.C. PIPE CULVERT ON LT.	1	
207+24	18"X24' R.C. PIPE CULVERT ON LT.	1	
207+29	24"X24' R.C. PIPE CULVERT ON RT.	1	
208+48	24"X92' R.C. PIPE CULVERT ON RT.	1	
502+57	20"X12' C.M. PIPE CULVERT ON LT.	1	
TOTALS:		20	1

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

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
101+11	101+75	4' CHAIN LINK ON LT.	64
101+66	101+94	6'X1'X6' PRIVACY FENCE ON RT.	39
102+36	102+37	4' CHAIN LINK ON LT.	9
102+56	102+99	8"X2' PIPE RAIL FENCE ON RT.	44
103+32	104+31	8"X2' PIPE RAIL FENCE ON RT.	99
106+39	106+71	4' CHAIN LINK ON LT.	36
116+93	117+04	6 BARB ON LT. & RT.	128
117+04	117+17	4' CHAIN LINK ON RT.	125
118+06	118+03	4' CHAIN LINK W/3BARB ON LT. & RT.	294
118+33	119+63	4' CHAIN LINK W/3BARB ON LT. & RT.	315
132+37	132+14	5 BARB ON LT. & RT.	115
132+37	133+50	5 BARB W/GATE ON LT. & RT.	167
132+98	134+50	FENCE ON LT.	117
135+26	135+76	6 BARB ON LT. & RT.	127
207+46	209+00	FENCE ON LT.	153
301+77	306+46	6 BARB ON LT.	530
501+57	503+67	6' CHAIN LINK FENCE LT. & RT.	228
502+61	502+72	5 BARB ON RT.	33
TOTAL:			2623

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
112+70	RT. BRIDGE WALL	1
118+84	LT. BRIDGE WALL	1
TOTAL:		2

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

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	LOCATION	WIDTH	LENGTH	CU.YD.
		FEET		
103+88	EXIST. HWY. 162	10.83	26	9.6
207+15	EAST MAIN STREET	10.83	17	6.3
TOTAL:				15.9

AVG. DEPTH = 11"

2/27/2015

R040456.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	32	179

(2) QUANTITIES

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
ENTIRE	PROJECT	AS DIRECTED BY THE ENGINEER	750.00	6	500.00	333	4.2
TOTALS:					500.00	333	4.2

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

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS	
		(SINGLE)	(DOUBLE)
	EACH		
ENTIRE PROJECT	57	19	19
TOTALS:	57	19	19

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

EROSION CONTROL MATTING

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
110+85	111+75	ON RT.	90.0	80.0
110+85	111+75	ON LT.	90.0	80.0
115+03	116+23	ON RT.	120.0	106.7
115+03	116+23	ON LT.	120.0	106.7
TOTAL:				373.4

NOTE: AVERAGE WIDTH = 8'-0"

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	19	38
DIRECTED BY THE ENGINEER		
TOTALS:	19	38

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

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)	ROCK DITCH CHECKS (E-6)	DROP INLET SILT FENCE (E-7)	SILT FENCE (E-11)	WATTLE (12") (E-1)	DIVERSION DITCH (E-8)	SLOPE DRAIN (E-12) PIPE FOR SLOPE DRAINS	SLOPE DRAIN (E-12) DUMPED RIPRAP	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	SQ.YD.	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	CLEARING AND GRUBBING STAGE													3284							122
ENTIRE	PROJECT	STAGE 1										286	15	725	1564		2523	445	18	268	268	371
ENTIRE	PROJECT	STAGE 2	8.11	16.22	8.11	827.2	8.11		1.00	1.00	20.4	44	6	150								10
ENTIRE	PROJECT	MAIN LANES				29.4		2334														
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.																1000						
TOTALS:			8.11	16.22	8.11	856.6	8.11	2334	1.00	1.00	20.4	330	21	875	4848	1000	2523	445	18	268	268	503

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

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

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

2/27/2015

R040456.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	33	179

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

CONCRETE WALKS

STATION	STATION	LOCATION	LENGTH	CONCRETE WALKS
			LIN. FT.	SQ.YD.
101+05	103+87	LT. OF MAIN LANES	282	157
101+18	104+43	RT. OF MAIN LANES	325	181
105+04	112+73	RT. OF MAIN LANES	769	427
105+08	112+73	LT. OF MAIN LANES	765	425
115+03	116+23	LT. OF MAIN LANES	120	67
115+03	116+23	RT. OF MAIN LANES	120	67
118+62	126+42	LT. OF MAIN LANES	780	433
118+62	126+00	RT. OF MAIN LANES	738	410
126+51	139+82	RT. OF MAIN LANES	1331	739
127+22	133+70	LT. OF MAIN LANES	648	360
134+30	139+59	LT. OF MAIN LANES	529	294
203+00	206+10	LT. OF MAIN STREET	310	172
202+69	205+54	RT. OF MAIN STREET	285	158
TOTAL:				3890

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE D-1)	* 16'-0" GATES
			LIN. FT.	EACH
127+77	132+98	LT. OF MAIN LANES	1115	1
126+46	135+26	RT. OF MAIN LANES	940	1
TOTALS:			2055	2

* DENOTES ALTERNATE BID ITEM.

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	450
ENGINEER	
TOTAL:	450

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

CONCRETE COMBINATION CURB AND GUTTER

STATION	STATION	LOCATION	TYPE A (1' 6")
			LIN. FT.
101+05	103+90	MAIN LANES LT.	299
101+05	104+14	MAIN LANES RT.	309
103+94	103+98	MAIN LANES LT.	9
104+01	104+07	MAIN LANES LT.	61
104+19	104+54	MAIN LANES RT.	39
104+59	104+70	MAIN LANES RT.	32
104+61	104+63	MAIN LANES LT.	4
104+64	105+04	MAIN LANES LT.	69
105+09	125+77	MAIN LANES LT.	2068
125+82	126+49	MAIN LANES LT.	77
126+52	126+82	MAIN LANES LT.	110
104+93	104+95	MAIN LANES RT.	25
104+98	105+04	MAIN LANES RT.	8
105+09	125+77	MAIN LANES RT.	2068
125+82	126+10	MAIN LANES RT.	53
126+11	126+02	MAIN LANES RT.	89
126+21	126+44	MAIN LANES RT.	89
126+45	127+19	MAIN LANES RT.	104
127+24	139+80	MAIN LANES RT.	1256
139+84	140+55	MAIN LANES RT.	147
127+14	127+12	MAIN LANES LT.	97
127+15	127+22	MAIN LANES LT.	13
127+27	133+75	MAIN LANES LT.	656
133+82	133+90	MAIN LANES LT.	22
134+10	134+18	MAIN LANES LT.	22
134+24	139+56	MAIN LANES LT.	545
139+60	139+65	MAIN LANES LT.	9
139+68	139+75	MAIN LANES LT.	28
202+40	204+97	EAST MAIN STREET RT.	257
202+40	205+49	EAST MAIN STREET LT.	309
TOTAL:			8874

WHEELCHAIR RAMPS

STATION	LOCATION	TYPE 2	TYPE 3
		SQ.YD.	
103+92	MAIN LANES LT.	18.4	
104+19	MAIN LANES RT.		6.5
105+06	MAIN LANES LT.		6.5
105+04	MAIN LANES RT.	15.9	
125+80	MAIN LANES LT.		6.2
125+80	MAIN LANES RT.		7.1
127+25	MAIN LANES LT.		10.2
127+25	MAIN LANES RT.		6.2
139+59	MAIN LANES LT.	14.8	
139+83	MAIN LANES RT.		7.4
205+54	EAST MAIN STREET LT.		6.1
206+82	EAST MAIN STREET RT.		7.3
303+65	HWY. 64B LT.		4.7
303+83	HWY. 64B RT.		7.5
305+30	HWY. 64B LT.		6.1
305+30	HWY. 64B RT.		6.8
505+11	SOUTH MOUNTAIN GROVE ROAD LT.		7.9
505+11	SOUTH MOUNTAIN GROVE ROAD RT.		7.9
TOTALS:		49.1	104.4

2/27/2015

R040456.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	34	179

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III)					*SIDE DRAIN	PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2			FLARED END SECTIONS FOR R.C. PIPE CULVERTS					DROP INLETS TYPE		DROP INLETS EXT.		JUNCT. BOX	YARD DRAINS	SOLID SODDING	WATER	STD. DWG. NOS.
		18"	24"	30"	54"	51"X31"	12"	18"	24"	49"X33"	18"	24"	30"	54"	51"X31"	C	MO	4'	8'	(TYPE E)				
		LIN. FT.									EACH									EACH		SQ.YD.	M.GAL	
102+00	CONSTRUCT D.I. ON RT. W/RC PIPE CULVERT W/FES	115						104			1					1	1					5	0.06	FES-1, FES-2, FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
102+14	CONSTRUCT D.I. ON LT. W/RC PIPE CULVERT W/FES	137						90			1					1	1					5	0.06	FES-1, FES-2, FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
103+08	CONSTRUCT D.I. ON LT. W/PIPE CULVERT W/EXT.							70								1	1		1					FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
103+08	CONSTRUCT D.I. ON RT. W/PIPE CULVERT W/EXT.							88								1	1		1					FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
103+77	CONSTRUCT J.B. ON LT. OPENING IN BACK W/RC PIPE CULVERT					75														1		23	0.29	FES-1, FES-2, FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
104+00	CONSTRUCT D.I. ON RT. W/PIPE CULVERT									76						1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
105+55	CONSTRUCT D.I. ON LT. W/PIPE CULVERT	43														1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
105+55	CONSTRUCT D.I. ON RT. W/PIPE CULVERT W/EXT.							240								1	1	1						FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
108+00	CONSTRUCT D.I. ON LT. W/RC PIPE CULVERT W/FES				60									1		1	1					35	0.44	FES-1, FES-2, FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
108+00	CONSTRUCT D.I. ON RT. W/RC PIPE CULVERT W/FES				31									1		1	1					35	0.44	FES-1, FES-2, FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
111+00	CONSTRUCT D.I. ON LT. W/RC PIPE CULVERT	31														1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
111+00	CONSTRUCT D.I. ON RT. W/RC PIPE CULVERT W/FES	50									1					1	1					5	0.06	FES-1, FES-2, FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
112+59	CONSTRUCT D.I. ON LT. W/RC PIPE CULVERT	31														1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
112+59	CONSTRUCT D.I. ON RT. W/RC PIPE CULVERT W/FES	58									1					1	1					5	0.06	FES-1, FES-2, FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
115+10	CONSTRUCT D.I. ON LT. W/RC PIPE CULVERT W/FES W/EXT.	140									1					1	1	1				5	0.06	FES-1, FES-2, FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
116+00	CONSTRUCT D.I. ON LT. W/PIPE CULVERT							85								1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
119+00	CONSTRUCT D.I. ON LT. W/PIPE CULVERT							192								1	1	1						FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
121+00	CONSTRUCT D.I. ON LT. W/PIPE CULVERT W/EXT.							241								1	1	1						FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
123+50	CONSTRUCT D.I. ON LT. W/PIPE CULVERT W/EXT.							193								1	1	1						FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
125+50	CONSTRUCT D.I. ON LT. W/RC PIPE CULVERT W/FES W/EXT.		141									2				1	1	1				16	0.20	FES-1, FES-2, FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
127+62	CONSTRUCT D.I. ON LT. W/RC PIPE CULVERT W/FES W/EXT.			67									1			1	1		1			13	0.16	FES-1, FES-2, FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
127+62	CONSTRUCT D.I. ON RT. W/RC PIPE CULVERT W/FES W/EXT.			93									1			1	1		1			13	0.16	FES-1, FES-2, FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
128+25	CONSTRUCT D.I. ON LT. W/RC PIPE CULVERT	41														1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
128+25	CONSTRUCT D.I. ON RT. W/PIPE CULVERT							59								1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
130+00	CONSTRUCT D.I. ON RT. W/PIPE CULVERT							171								1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
132+00	CONSTRUCT D.I. ON RT. W/PIPE CULVERT							193								1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
134+00	CONSTRUCT D.I. ON RT. W/PIPE CULVERT							190								1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
136+00	CONSTRUCT D.I. ON RT. W/PIPE CULVERT							190								1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
137+00	CONSTRUCT D.I. ON RT. W/PIPE CULVERT							94								1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
138+00	CONSTRUCT D.I. ON RT. W/PIPE CULVERT							135								1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
138+36	CONSTRUCT D.I. ON LT. W/PIPE CULVERT							70								1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
139+10	CONSTRUCT D.I. ON LT. W/RC PIPE CULVERT	54														1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
139+39	CONSTRUCT D.I. ON RT. W/RC PIPE CULVERT W/FES W/EXT.	53									1					1	1	1				5	0.06	FES-1, FES-2, FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
202+98	CONSTRUCT J.B. ON RT. W/PIPE CULVERT								198											1				FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
205+00	CONSTRUCT D.I. ON RT. W/PIPE CULVERT W/EXT.								86							1	1		1					FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
205+69	CONSTRUCT D.I. ON LT. W/RC PIPE CULVERT W/FES W/EXT.	532									1					1	1		1			5	0.06	FES-1, FES-2, FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
207+15	CONSTRUCT D.I. ON LT. W/RC PIPE CULVERT W/FES					55									1	1	1					23	0.29	FES-1, FES-2, FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
207+15	CONSTRUCT D.I. ON RT. W/RC PIPE CULVERT					23										1	1							FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
303+69	CONSTRUCT D.I. ON RT. W/PIPE CULVERT W/EXT.							111								1	1		1					FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
306+20	CONSTRUCT D.I. ON LT. W/RC PIPE CULVERT W/FES	24									1					1	1	1				5	0.06	FES-1, FES-2, FPC-9, FPC-9E, FPC-9M, PCC-1, PCM-1
	AS DIRECTED BY THE ENGINEER.						600														6			
TOTALS:		1309	141	160	91	153	600	2516	284	76	8	2	2	2	1	38	38	8	7	2	6	198	2.46	

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

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

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.

2/27/2015

R040456.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.		040456	35	179

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

DRIVEWAYS & TURNOUTS

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				STANDARD DRAWINGS
										18"	24"	48"	21"X15"	
			FEET	STATION	STATION	SQ. YD.	SQ. YD.	TON	TON	LIN. FT.				
100+46	RT.	MAIN LANES	16				55.00	6.05	22.46				28	PCC-1, PCM-1, PCP-1, PCP-2
100+50	LT.	MAIN LANES	18				60.10	6.61	24.54				28	PCC-1, PCM-1, PCP-1, PCP-2
100+90	LT.	MAIN LANES	16	100+68	101+12	53.30	21.50	2.37	8.78					
101+04	RT.	MAIN LANES	16	100+82	101+26	53.30	25.30	2.78	10.33					
101+60	RT.	MAIN LANES	16	101+38	101+82	53.30	12.10	1.33	4.94					
101+88	LT.	MAIN LANES	20	101+64	102+12	56.90	15.10	1.66	6.17					
102+50	RT.	MAIN LANES	16	102+28	102+72	53.30	16.90	1.86	6.90					
102+83	LT.	MAIN LANES	16	102+61	103+05	53.30	16.00	1.76	6.53					
103+33	RT.	MAIN LANES	16	103+11	103+55	53.30	23.20	2.55	9.47					
106+03	LT.	MAIN LANES	16	105+81	106+25	53.30	27.50	3.03	11.23					
109+00	LT.	MAIN LANES	24	108+74	109+26	60.40	123.00	13.53	50.23	54				PCC-1, PCM-1, PCP-1, PCP-2
109+00	RT.	MAIN LANES	24	108+74	109+26	60.40	187.10	20.58	76.40			62		PCC-1, PCM-1, PCP-1, PCP-2
125+00	LT.	MAIN LANES	16	124+78	125+22	53.30	98.20	10.80	40.10	46				PCC-1, PCM-1, PCP-1, PCP-2
125+00	RT.	MAIN LANES	16	124+78	125+22	53.30	125.60	13.82	51.29					
129+00	LT.	MAIN LANES	16	128+78	129+22	53.30	69.80	7.68	28.50	30				PCC-1, PCM-1, PCP-1, PCP-2
129+00	RT.	MAIN LANES	16	128+78	129+22	53.30	71.50	7.87	29.20					
134+00	LT.	SIDE DRAIN UNDER SOUTH MOUNTAIN GROVE RD.								92				PCC-1, PCM-1, PCP-1, PCP-2
137+36	RT.	MAIN LANES	40	137+02	137+70	74.60	158.40	17.42	64.68	60				PCC-1, PCM-1, PCP-1, PCP-2
138+55	RT.	MAIN LANES	40	138+21	138+89	74.60	195.60	21.52	79.87					
138+66	LT.	MAIN LANES	28	138+38	138+94	49.80	168.20	18.50	68.68	50				PCC-1, PCM-1, PCP-1, PCP-2
201+96	LT.	EAST MAIN STREET	16				37.00	4.07	15.11					
202+29	LT.	EAST MAIN STREET	16			37.00								
202+55	RT.	EAST MAIN STREET	16	202+33	202+77	39.10	13.80	1.52	5.64					
203+31	LT.	EAST MAIN STREET	40	202+97	203+65	74.60	20.20	2.22	8.25					
203+89	RT.	EAST MAIN STREET	16	203+67	204+11	53.30	13.40	1.47	5.47					
204+68	RT.	EAST MAIN STREET	16	204+46	204+90	53.30	16.20	1.78	6.62					
204+91	LT.	EAST MAIN STREET	40	204+57	205+25	74.60	17.30	1.90	7.06					
207+46	LT.	EAST MAIN STREET	16				53.30	5.86	21.76					
207+46	RT.	EAST MAIN STREET	16				124.70	13.72	50.92		34			PCC-1, PCM-1, PCP-1, PCP-2
208+14	RT.	EAST MAIN STREET	30				83.40	9.17	34.06		44			PCC-1, PCM-1, PCP-1, PCP-2
208+80	RT.	EAST MAIN STREET	22				73.70	8.11	30.09		36			PCC-1, PCM-1, PCP-1, PCP-2
502+60	LT.	SOUTH MOUNTAIN GROVE ROAD	20				56.90	6.26	23.23					
* ENTIRE PROJECT TEMPORARY DRIVES									500.00					
TOTALS:						**1294.90**	**1980.00**	**217.80**	**1308.51**	**332**	**114**	**62**	**56**	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.1% MIN. AGGR.....5.9% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

'* 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.

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.

ACHM PATCHING OF EXISTING ROADWAY

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

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

PORTLAND CEMENT CONCRETE BASE

STATION	STATION	LOCATION	LENGTH	PORTLAND CEMENT CONCRETE BASE		PORTLAND CEMENT CONCRETE BASE	
				AVG. WID.	6" U.T.	AVG. WID.	5" U.T.
			FEET	FEET	SQ. YD.	FEET	SQ. YD.
101+05	102+65	MAIN LANES	160.0	13.0	231.1	8.0	142.2
102+65	104+08	MAIN LANES	143.0	25.0	397.2	20.0	317.8
202+40	205+50	EAST MAIN STREET	310.0	25.0	861.1	20.0	688.9
205+50	206+26.39	EAST MAIN STREET	76.4	25.0	212.2	20.0	169.8
206+69.03	207+17	EAST MAIN STREET	48.0	25.0	133.3	20.0	106.7
		ADDITIONAL FOR EAST MAIN STREET TURNOUT		VAR.	759.3	VAR.	659.8
TOTAL:					**2594.2**		**2085.2**

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
99+03	100+03	MAIN LANES	20	222.22
ENTIRE PROJECT		SIDE STREETS	VAR.	2544.43
TOTAL:				**2766.65**

NOTE: AVERAGE MILLING DEPTH 1".

2/27/2015

R040456.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.		040456	36	179

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	AVG. WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 76-22
			FEET			FEET				FEET			TON	FEET			TON
HWY. 162 - MAIN LANES																	
99+05.00	100+05.00	TRANSITION - MAIN LANES - LT. & RT.	100.00			20.00	222.22	0.03	6.67					20.00	222.22	220	24.44
100+05.00	101+05.00	M.L. OPEN SHOULDER - NOTCH & WIDEN - LT. & RT.	100.00			24.00	266.67	0.03	8.00					24.00	266.67	220	29.33
101+05.00	102+65.00	MAIN LANES NOTCH & WIDEN - LT. & RT.	160.00			34.00	604.44	0.03	18.13					34.00	604.44	220	66.49
101+05.00	102+65.00	MAIN LANES NOTCH & WIDEN - LT. & RT.	160.00			20.00	355.56	0.10	35.56								
102+65.00	104+08.00	MAIN LANES FULL DEPTH - LT. & RT.	143.00			40.00	635.56	0.03	19.07					40.00	635.56	220	69.91
102+65.00	104+08.00	MAIN LANES FULL DEPTH - LT. & RT.	143.00			20.00	317.78	0.10	31.78								
104+08.00	106+15.00	MAIN LANES FULL DEPTH - LT. & RT.	207.00	262.50	543.38	80.00	1840.00	0.03	55.20	40.00	920.00	660	303.60	40.00	920.00	220	101.20
106+15.00	112+70.93	MAIN LANES FULL DEPTH - LT. & RT.	655.93	192.50	1262.67	56.00	4081.34	0.03	122.44	28.00	2040.67	660	673.42	28.00	2040.67	220	224.47
114+95.07	116+21.92	MAIN LANES FULL DEPTH - LT. & RT.	126.85	192.50	244.19	56.00	789.29	0.03	23.68	28.00	394.64	660	130.23	28.00	394.64	220	43.41
118+84.08	123+40.00	MAIN LANES FULL DEPTH - LT. & RT.	455.92	192.50	877.65	56.00	2836.84	0.03	85.11	28.00	1418.42	660	468.08	28.00	1418.42	220	156.03
123+40.00	125+03.00	MAIN LANES FULL DEPTH - LT. & RT.	163.00	227.50	370.83	68.00	1231.56	0.03	36.95	34.00	615.78	660	203.21	34.00	615.78	220	67.74
125+03.00	128+00.00	MAIN LANES FULL DEPTH - LT. & RT.	297.00	262.50	779.63	80.00	2640.00	0.03	79.20	40.00	1320.00	660	435.60	40.00	1320.00	220	145.20
128+00.00	129+60.00	MAIN LANES FULL DEPTH - LT. & RT.	160.00	262.50	420.00	68.00	1208.89	0.03	36.27	34.00	604.44	660	199.47	34.00	604.44	220	66.49
129+60.00	133+91.00	MAIN LANES FULL DEPTH - LT. & RT.	431.00	192.50	829.68	56.00	2681.78	0.03	80.45	28.00	1340.89	660	442.49	28.00	1340.89	220	147.50
133+91.00	138+49.00	MAIN LANES FULL DEPTH - LT. & RT.	458.00	192.50	881.65	56.00	2849.78	0.03	85.49	28.00	1424.89	660	470.21	28.00	1424.89	220	156.74
138+49.00	140+15.00	MAIN LANES FULL DEPTH - LT. & RT.	166.00	192.50	319.55	56.00	1032.89	0.03	30.99	28.00	516.44	440	113.62	28.00	516.44	440	113.62
140+15.00	140+20.90	MAIN LANES FULL DEPTH - LT. & RT.	5.90	262.50	15.49	80.00	52.44	0.03	1.57	40.00	26.22	440	5.77	40.00	26.22	440	5.77
HWY. 64																	
399+89.00	400+89.00	TRANSITION - LT. & RT.	100.00	92.13	92.13	12.50	138.89	0.03	4.17	6.13	68.11	660	22.48	42.00	466.67	220	51.33
400+89.00	405+75.00	HWY. 64 NOTCH & WIDEN - LT. & RT.	486.00	184.25	895.46	24.50	1323.00	0.03	39.69	12.25	661.50	660	218.30	52.00	2808.00	220	308.88
405+75.00	406+75.00	TRANSITION - LT. & RT.	100.00	92.13	92.13	12.50	138.89	0.03	4.17	6.13	68.11	660	22.48	42.00	466.67	220	51.33
HWY. 64B																	
301+70.00	302+70.00	TRANSITION - LT. & RT.	100.00	102.50	102.50	26.50	294.44	0.03	8.83	6.25	69.44	660	22.92	6.25	69.44	220	7.64
302+70.00	304+15.00	HWY. 64B NOTCH & WIDEN - LT. & RT.	145.00	205.00	297.25	45.00	725.00	0.03	21.75	12.50	201.39	660	66.46	40.00	644.44	220	70.89
304+65.00	306+22.00	HWY. 64B NOTCH & WIDEN - LT. & RT.	157.00	205.00	321.85	45.00	785.00	0.03	23.55	12.50	218.06	660	71.96	40.00	697.78	220	76.76
306+22.00	307+22.00	TRANSITION - LT. & RT.	100.00	102.50	102.50	26.50	294.44	0.03	8.83	6.25	69.44	660	22.92	6.25	69.44	220	7.64
EAST MAIN STREET																	
201+40.00	202+40.00	TRANSITION - LT. & RT.	100.00			25.00	277.78	0.03	8.33					25.00	277.78	220	30.56
201+40.00	202+40.00	TRANSITION - LT. & RT.	100.00			10.00	111.11	0.10	11.11								
202+40.00	205+50.00	EAST MAIN STREET NOTCH & WIDEN - LT. & RT.	310.00			32.00	1102.22	0.03	33.07					32.00	1102.22	220	121.24
202+40.00	205+50.00	EAST MAIN STREET NOTCH & WIDEN - LT. & RT.	310.00			20.00	688.89	0.10	68.89								
205+50.00	206+26.00	EAST MAIN STREET TURNOUT	76.00			VAR.	699.40	0.03	20.98					VAR.	699.40	220	76.93
205+50.00	206+26.00	EAST MAIN STREET TURNOUT	76.00			VAR.	126.40	0.10	12.64								
206+69.03	207+17.00	EAST MAIN STREET TURNOUT	47.97			VAR.	189.60	0.03	5.69					VAR.	189.60	220	20.86
206+69.03	207+17.00	EAST MAIN STREET TURNOUT	47.97			VAR.	95.20	0.10	9.52								
207+17.00	208+77.00	EAST MAIN STREET OPEN SHOULDER OVERLAY	160.00			20.00	355.56	0.03	10.67					28.00	497.78	220	54.76
207+17.00	208+77.00	EAST MAIN STREET OPEN SHOULDER OVERLAY	160.00			20.00	355.56	0.10	35.56								
208+77.00	209+77.00	TRANSITION - LT. & RT.	100.00			25.00	277.78	0.03	8.33					25.00	277.78	220	30.56
208+77.00	209+77.00	TRANSITION - LT. & RT.	100.00			25.00	277.78	0.10	27.78								
SOUTH MOUNTAIN GROVE ROAD																	
500+63.81	501+63.81	TRANSITION - LT. & RT.	100.00			24.00	266.67	0.10	26.67					24.00	266.67	220	29.33
501+63.81	502+75.00	MOUNTAIN GROVE ROAD NOTCH & WIDEN - LT. & RT.	111.19	77.00	85.62	20.00	247.09	0.10	24.71					28.00	345.92	220	38.05
502+75.00	504+41.00	MOUNTAIN GROVE ROAD FULL DEPTH - LT. & RT.	166.00	145.25	241.12	20.00	368.89	0.03	11.07					28.00	516.44	220	56.81
504+41.00	505+17.54	S. MOUNTAIN GROVE RD. TURNOUT	76.54	VAR.	67.00									VAR.	110.40	220	12.14
ADDITIONAL FOR LEVELING																	
99+05.00	104+70.00	EXISTING HWY. 162	565.00			20.00	1255.56	0.10	125.56					20.00	1255.56	220	138.11
201+40.00	209+77.00	EXISTING EAST MAIN STREET	837.00			20.00	1860.00	0.10	186.00					20.00	1860.00	220	204.60
301+70.00	304+15.00	EXISTING HWY. 64B	245.00			20.00	544.44	0.10	54.44					20.00	544.44	220	59.89
304+65.00	307+22.00	EXISTING HWY. 64B	257.00			20.00	571.11	0.10	57.11					20.00	571.11	220	62.82
399+89.00	406+75.00	EXISTING HWY. 64	686.00			32.00	2439.11	0.10	243.91					32.00	2439.11	220	268.30
500+63.00	502+75.00	EXISTING SOUTH MOUNTAIN GROVE ROAD	212.00			20.00	471.11	0.10	47.11					20.00	471.11	220	51.82
TOTALS:					8842.28		39927.96		1896.70		11978.44		3893.22		28999.04		3249.59

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.1% MIN. AGGR.....5.9% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.0% MIN. AGGR.....5.0% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22

2/27/2015

R040456.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	37	179
				① 07324 & 07325 - QUANTITIES - 56111				

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 040456

BRIDGE NO. / CODE NO. / NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	619	801	802	802	803	804	804	805	805	806	806	807	808	809	812	816	816	816	SP JOB 040456
		ITEM	7' STEEL CHAIN LINK FENCE	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	① STEEL PILING (HP 12X53)	② PREBORING	METAL BRIDGE RAILING (TYPE H)	TRANSITIONAL APPROACH RAILING	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	CONCRETE RIPRAP	② EXPLORATORY HOLES
		UNIT	LIN. FT.	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	LB.	CU. IN.	LIN. FT.	EACH	SQ. YD.	CU. YD.	CU. YD.	LIN. FT.
07324 X071 LITTLE FROG BAYOU	BENT 1				36.25		0.3	4,028		222			2	1,049	1,579.5			551	288		
	BENT 2			195	74.00			11,035		162	30				2,120.5						24
	BENT 3			70	70.40			10,329		360					2,120.5						
	BENT 4				37.25		0.3	4,028		330				1,049	1,579.5			1,637	837		
	222' CONT. COMP. W-BEAM UNIT					359.30	25.0		75,330			462		283,052		95	1				
TOTALS FOR BRIDGE NO. 07324				265	217.90	359.30	25.6	29,420	75,330	1,074	30	462	2	285,150	7,400.0	95	1	2,188	1,125		24
07325 X171 UNION PACIFIC RAILROAD	BENT 1				40.14		0.3	4,196		348				1,030	1,711.0					103	
	BENT 2			96	100.38			14,676		360					2,349.0						
	BENT 3			96	98.24			14,322		360					2,349.0						
	BENT 4				40.14		0.3	4,196		312			2	1,030	1,711.0					100	
	260' CONT. COMP. W-BEAM UNIT		204			420.80	29.3		114,550			534		402,910		95	1				
TOTALS FOR BRIDGE NO. 07325			204	192	278.90	420.80	29.9	37,390	114,550	1,380		534	2	404,970	8,120.0	95	1			203	
TOTALS FOR JOB NO. 040456			204	457	496.80	780.10	55.5	66,810	189,880	2,454	30	996	4	690,120	15,520.0	190	2	2,188	1,125	203	24

①THESE PILES SHALL HAVE APPROVED STEEL H-PILE POINTS WHICH WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM "STEEL PILING (HP12X53)".

②THE QUANTITIES SHOWN FOR PREBORING AND EXPLORATORY HOLES ARE FOR ESTIMATING AND BIDDING PURPOSES ONLY. ACTUAL QUANTITIES WILL BE DETERMINED IN THE FIELD.

BRYAN FREELING
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
HWY. 162 IMPROVEMENTS (ALMA) (S)
CRAWFORD COUNTY

ROUTE 162 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-25-14 FILENAME: b040456_ql.dgn
CHECKED BY: CSR DATE: 6/26/14 SCALE: NONE
DESIGNED BY: -- DATE: —

BRIDGE NO. 07324 & 07325 DRAWING NO. 56111

PRINT DATE: 9/5/2014

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		42	STATION
201	GRUBBING		42	STATION
202	REMOVAL AND DISPOSAL OF CURB		150	LIN. FT.
202	REMOVAL AND DISPOSAL OF FENCE		2623	LIN. FT.
202	REMOVAL AND DISPOSAL OF CONCRETE SLABS		763	SQ. YD.
202	REMOVAL AND DISPOSAL OF COLUMNS		2	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE DRIVEWAYS		435	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS		1	EACH
202	REMOVAL AND DISPOSAL OF DROP INLETS		1	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		20	EACH
202	REMOVAL AND DISPOSAL OF LUMINAIRE POLE AND FOUNDATION		3	EACH
210	UNCLASSIFIED EXCAVATION		3298	CU. YD.
210	COMPACTED EMBANKMENT		184592	CU. YD.
SP & 210	SOIL STABILIZATION		3000	TON
303	AGGREGATE BASE COURSE (CLASS 7)		10151	TON
309	PORTLAND CEMENT CONCRETE BASE (5" UNIFORM THICKNESS)		2085	SQ. YD.
309	PORTLAND CEMENT CONCRETE BASE (6" UNIFORM THICKNESS)		2594	SQ. YD.
401	TACK COAT		1935	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		3698	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		195	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		3262	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		13	TON
SP, SS, & 407	ASPHALT BINDER (PG 76-22) IN ACHM SURFACE COURSE (1/2")		192	TON
412	COLD MILLING ASPHALT PAVEMENT		2767	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		19	TON
SP & 415	ACHM PATCHING OF EXISTING ROADWAY		50	TON
505	PORTLAND CEMENT CONCRETE DRIVEWAY		1294.90	SQ. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
SS & 604	SIGNS		668	SQ. FT.
SS & 604	BARRICADES		272	LIN. FT.
SS & 604	TRAFFIC DRUMS		144	EACH
604	CONSTRUCTION PAVEMENT MARKINGS		3873	LIN. FT.
SS & 604	VERTICAL PANELS		64	EACH
605	CONCRETE DITCH PAVING (TYPE B)		500	SQ. YD.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		1309	LIN. FT.
* 606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	2516	LIN. FT.
* 606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	2516	LIN. FT.
606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		141	LIN. FT.
* 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	284	LIN. FT.
* 606	24" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE	(ALTERNATE NO. 2)	284	LIN. FT.
606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		160	LIN. FT.
606	54" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		91	LIN. FT.
606	51" X 31" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)		153	LIN. FT.
* 606	51" X 31" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	(ALTERNATE NO. 1)	76	LIN. FT.
* 606	49" X 33" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL ARCH PIPE	(ALTERNATE NO. 2)	76	LIN. FT.
SS & 606	12" SIDE DRAIN		600	LIN. FT.
SP, SS & 606	18" SIDE DRAIN		332	LIN. FT.
SP, SS & 606	24" SIDE DRAIN		114	LIN. FT.
SP, SS & 606	48" SIDE DRAIN		62	LIN. FT.
SS & 606	21" X 15" SIDE DRAIN		56	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		8	EACH
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
606	54" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
606	51" X 31" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS		1	EACH
606	SELECTED PIPE BEDDING		450	CU. YD.
609	DROP INLETS (TYPE C)		38	EACH
609	DROP INLETS (TYPE MO)		38	EACH
609	JUNCTION BOXES (TYPE E)		2	EACH
609	DROP INLET EXTENSIONS (4')		8	EACH
609	DROP INLET EXTENSIONS (8')		7	EACH
609	YARD DRAINS		6	EACH
615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)		15.9	CU. YD.
619	WIRE FENCE (TYPE D-1)		2055	LIN. FT.
* 619	16' STEEL GATES	(ALTERNATE NO. 1)	2	EACH
* 619	16' ALUMINUM GATES	(ALTERNATE NO. 2)	2	EACH
620	LIME		16	TON
620	SEEDING		8.11	ACRE
SS & 620	MULCH COVER		9.11	ACRE
620	WATER		883.7	M.GAL.
621	TEMPORARY SEEDING		1.00	ACRE
621	SILT FENCE		4848	LIN. FT.
621	SAND BAG DITCH CHECKS		330	BAG
621	DIVERSION DITCH		2523	LIN. FT.
621	DROP INLET SILT FENCE		875	LIN. FT.
621	SEDIMENT BASIN		268	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		268	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		503	CU. YD.
621	PIPE FOR SLOPE DRAINS		445	LIN. FT.
621	WATTLE (12")		1000	LIN. FT.
621	ROCK DITCH CHECKS		21	CU. YD.
623	SECOND SEEDING APPLICATION		8.11	ACRE
624	SOLID SODDING		2865	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)		373	SQ. YD.
633	CONCRETE WALKS		3890	SQ. YD.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")		8874	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
637	MAILBOXES		57	EACH
637	MAILBOX SUPPORTS (SINGLE)		19	EACH
637	MAILBOX SUPPORTS (DOUBLE)		19	EACH
641	WHEELCHAIR RAMPS (TYPE 2)		49	SQ. YD.
641	WHEELCHAIR RAMPS (TYPE 3)		104	SQ. YD.
SP & 701	SYSTEM LOCAL CONTROLLER TS 2-TYPE 2 (8 PHASES)		7	EACH
SP & 701	ON-STREET MASTER CONTROLLER		1	EACH
SP	SERIAL TO ETHERNET PORT SERVER, T100 HARDENED (2 PORT)		7	EACH
SP	ETHERNET SWITCH, T100 HARDENED (8-PORT)		7	EACH
SP	ANTENNA SUPPORT (SHOE BASE, 50' HT.)		1	EACH
SP	LOCAL RADIO (E-NET 5.8) WITH ANTENNA		7	EACH
SP	E-NET CABLE (EXTERIOR CAT 5)		280	LIN. FT.
SP	MASTER RADIO (E-NET 5.8) WITH ANTENNA		1	EACH
SP	EMERGENCY BACKUP LOCAL RADIO UNIT		1	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)		24	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)		11	EACH
SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED		18	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)		3633	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)		808	LIN. FT.
708	TRAFFIC SIGNAL CABLE (12C/14 A.W.G.)		242	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)		1461	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)		1610	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)		540	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)		60	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES		2098	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")		60	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")		60	LIN. FT.
710	NON-METALLIC CONDUIT (2")		60	LIN. FT.
710	NON-METALLIC CONDUIT (3")		1399	LIN. FT.
711	CONCRETE PULL BOX (TYPE 2)		1	EACH
711	CONCRETE PULL BOX (TYPE 2 HD)		17	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (28')		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (32')		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (34')		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (36')		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (40')		2	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (42')		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (46')		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (68')		2	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (72')		1	EACH

* DENOTES ALTERNATE BID ITEMS.

SUMMARY OF QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-06-2015				6	ARK.		38	179
				JOB NO. 040456				

(2) SUMMARY OF QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TIMOTHY R. SMITH
10-7-15

SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM NUMBER	ITEM		QUANTITY	UNIT
SP	LUMINAIRE ASSEMBLY		11	EACH
715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION		4	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)		3	EACH
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT		1.00	LUMP SUM
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")		2253	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")		1675	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		9113	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)		9	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)		9	EACH
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	(ALTERNATE NO. 1)	538	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	(ALTERNATE NO. 2)	538	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)		171	EACH
SP	18" STREET NAME SIGN		12	EACH
SP & 733	VIDEO DETECTOR (CLR)		24	EACH
733	VIDEO CABLE		4860	LIN. FT.
733	VIDEO MONITOR (CLR)		3	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)		13	EACH
SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)		3	EACH
816	DUMPED RIPRAP		18	CU. YD.
	STRUCTURES OVER 20' SPAN			
619	7' STEEL CHAIN LINK FENCE		204	LIN. FT.
636	BRIDGE CONSTRUCTION CONTROL		1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE		457	CU. YD.
802	CLASS S CONCRETE-BRIDGE		496.80	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE		780.10	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT		55.5	GAL.
804	REINFORCING STEEL-BRIDGE (GRADE 60)		66810	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)		189880	POUND
805	STEEL PILING (HP 12X53)		2454	LIN. FT.
805	PREBORING		30	LIN. FT.
SP	EXPLORATORY HOLES		24	LIN. FT.
806	METAL BRIDGE RAILING (TYPE H)		996	LIN. FT.
806	TRANSITIONAL APPROACH RAILING		4	EACH
807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)		690120	POUND
808	ELASTOMERIC BEARINGS		15520.0	CU. IN.
809	SILICONE JOINT SEALANT		190	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)		2	EACH
816	FILTER BLANKET		2188	SQ. YD.
816	DUMPED RIPRAP		1125	CU. YD.
816	CONCRETE RIPRAP		203	CU. YD.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
10/6/2015	REMOVED SPECIAL PROVISION "TRAFFIC SIGNAL CONTROLLER (MODIFICATION)"	3
10/6/2015	REMOVED PAY ITEMS "TRAFFIC SIGNAL CONTROLLER MODIFICATION" AND "TRAFFIC TIMER UNIT"	38, 39, 53

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
10-06-2015				6	ARK.		39	179
				JOB NO.	040456			

(2) SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER TIMOTHY D. SMITH 11485 10-7-15

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	40	179

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES
Project Name: 040456
Date: 6/17/2014
Coordinate System: Arkansas State Plane Coordinates
Based on AHTD GPS PTS : *170007-170007A, 170012-170012A, 170016-170016A, 170017-170017A*
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
1	424002.4867	0.0070	652982.5404	0.0060	418.58	0.005	CTL	5/8" REBAR W/ 2" ALUM. CAP
2	423796.8543	0.0080	652543.1323	0.0060	422.29	0.005	CTL	5/8" REBAR W/ 2" ALUM. CAP
3	423711.6451	0.0050	651901.9005	0.0030	426.58	0.005	CTL	5/8" REBAR W/ 2" ALUM. CAP
4	423649.3105	0.0070	651498.2751	0.0050	429.36	0.005	CTL	5/8" REBAR W/ 2" ALUM. CAP
5	424284.9758	0.0060	652527.6269	0.0060	419.86	0.005	CTL	5/8" REBAR W/ 2" ALUM. CAP
6	424690.3020	0.0060	652494.9192	0.0050	423.27	0.004	CTL	5/8" REBAR W/ 2" ALUM. CAP
7	425082.4300	0.0050	652394.3551	0.0040	428.14	0.004	CTL	5/8" REBAR W/ 2" ALUM. CAP
8	425186.9550	0.0050	652764.6240	0.0040	426.25	0.004	CTL	5/8" REBAR W/ 2" ALUM. CAP
9	424908.1542	0.0060	651791.1945	0.0060	429.85	0.004	CTL	5/8" REBAR W/ 2" ALUM. CAP
10	425955.0264	0.0030	652148.7725	0.0020	427.22	0.003	CTL	5/8" REBAR W/ 2" ALUM. CAP
11	425708.9392	0.0040	651886.1501	0.0030	427.52	0.003	CTL	5/8" REBAR W/ 2" ALUM. CAP
12	425479.9229	0.0040	651217.0965	0.0030	425.08	0.003	CTL	5/8" REBAR W/ 2" ALUM. CAP
13	426205.9473	0.0070	651202.5546	0.0050	425.11	0.002	CTL	5/8" REBAR W/ 2" ALUM. CAP
14	426838.8787	0.0060	651276.0990	0.0030	430.75	0.002	CTL	5/8" REBAR W/ 2" ALUM. CAP
15	427062.1623	0.0040	651746.5266	0.0030	430.18	0.002	CTL	5/8" REBAR W/ 2" ALUM. CAP
16	427221.9023	0.0040	651272.2493	0.0030	429.14	0.002	CTL	5/8" REBAR W/ 2" ALUM. CAP
17	426565.6364	0.0020	650596.2696	0.0010	430.93	0.001	CTL	5/8" REBAR W/ 2" ALUM. CAP
100	427118.7430	0.0001	644725.8316	0.0001	458.46	0.010	GPS	AHTD GPS 170007
101	427292.8712	0.0001	646400.6414	0.0001	465.41	0.000	GPS	AHTD GPS 170007A
102	426612.7443	0.0001	650872.9301	0.0001	425.72	0.013	GPS	AHTD GPS 170012
103	427538.1403	0.0001	652806.7929	0.0001	434.86	0.014	GPS	AHTD GPS 170012A
104	420991.7281	0.0001	645704.5127	0.0001	416.46	5.000	GPS	AHTD GPS 170016
105	421365.4065	0.0001	646959.5117	0.0001	414.29	5.000	GPS	AHTD GPS 170016A
106	413736.5025	0.0001	651899.5316	0.0001	407.05	5.000	GPS	AHTD GPS 170017
107	415824.7315	0.0001	652122.6040	0.0001	399.38	5.000	GPS	AHTD GPS 170017A
900	413629.3514	30.0000	629147.0916	30.0000	457.53	0.000	BM	L 28 STD. DISK
901	416955.5914	30.0000	629638.3751	30.0000	458.37	0.025	BM	SQ CUT IN BOX CU
902	418206.2885	30.0000	632398.2574	30.0000	481.64	0.032	BM	SQ CUT IN HW S.
903	419548.7831	30.0000	635573.7440	30.0000	509.65	0.037	BM	SQ CUT IN CONC
904	420410.9091	30.0000	637662.2291	30.0000	503.36	0.040	BM	SQ CUT IN HW S.
905	421275.0823	30.0000	639667.8923	30.0000	490.08	0.042	BM	SQ CUT IN HW S.
906	423438.4115	30.0000	642365.0325	30.0000	447.24	0.044	BM	SQ CUT IN HW
907	423496.0833	30.0000	644269.2234	30.0000	431.70	0.044	BM	AHTD CAP N.W. COR
908	424360.7095	30.0000	646274.4746	30.0000	423.65	0.044	BM	SQ CUT IN HW S.
909	424847.3726	30.0000	647112.8287	30.0000	431.79	0.043	BM	SQ CUT IN BR WR
910	425526.8666	30.0000	648369.1632	30.0000	435.02	0.043	BM	SQ CUT IN CONC
911	427290.4069	30.0000	646423.7839	30.0000	468.67	0.041	BM	AHTD CAP
912	426303.7656	30.0000	649793.0895	30.0000	428.49	0.046	BM	2" ALUM CAP SET
913	427650.0085	30.0000	652884.1991	30.0000	436.73	0.052	BM	SQ CUT IN HW S.
914	423722.2609	30.0000	647666.4163	30.0000	411.70	0.046	BM	CPS IN 3RD BR
915	422413.7331	30.0000	647388.5304	30.0000	416.57	0.050	BM	RR SPK IN 26"
916	422960.3491	30.0000	650048.4335	30.0000	414.98	0.053	BM	CPS IN PP
917	423360.9681	30.0000	650222.9529	30.0000	411.81	0.055	BM	2" ALUM. CAP SET
918	422043.0746	30.0000	650358.6521	30.0000	410.77	0.057	BM	SQ CUT IN CONC LP
919	422322.0285	30.0000	646972.7681	30.0000	416.01	0.051	BM	1 1/2" ALUM CAP
920	428650.5159	30.0000	635618.4577	30.0000	465.56	0.000	BM	RV 40
921	429905.5853	30.0000	638211.6504	30.0000	459.62	0.023	BM	CPS IN PP N.
922	420229.0771	30.0000	650069.4533	30.0000	409.49	0.060	BM	CPS IN HIGH VOLT
923	429584.0388	30.0000	643415.4071	30.0000	439.49	0.034	BM	CH SQ CEN OF TRI. RC BOX
924	427125.8543	30.0000	644765.5833	30.0000	456.65	0.038	BM	CH SQ IN WR AT N. END
925	429848.6276	30.0000	640691.8247	30.0000	460.49	0.029	BM	CH SQ CONC SLAB
942	425345.2638	0.0050	651497.3347	0.0040	432.78	0.003	BM	CHISLED SQUARE
943	424979.0023	0.0080	652103.9442	0.0050	429.78	0.004	BM	CHISLED SQUARE
944	424543.2653	0.0070	650894.3876	0.0050	433.54	0.003	BM	CHISLED SQUARE
945	423952.4773	0.0160	652973.0351	0.0100	418.81	0.005	BM	CHISLED SQUARE
946	423638.0193	0.0090	651461.7900	0.0060	429.65	0.005	BM	CHISLED SQUARE

*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: 100-107*
Horizontal - Primary (2.0cm± 20PPM): *PN:1-17*
Horizontal - Secondary (3 cm ± 50PPM): *PN:N/A*
Vertical - NGS 1st Order (±4mm x √dist in km) *PN:900,920*
Vertical - NGS 2nd Order (±6mm x √dist in km) *PN:N/A*
Vertical - NGS 3rd Order (±8mm x √dist in km) *PN:901-919,921-946*

Horizontal Datum: NAD 1983 (1997) State Plane Zone: 0301 -North Zone
The adjustment year is based on metadata in the SDMS Control file
A project CAF of: 0.999917616 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: L 28 & RV 40
A project Elevation Factor of: 0.9999791646 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 435.59 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points: 1-17, 100-107 From NGS BM: L 28 & RV 40

Basis of Bearing: Grid Bearings based on AHTD GPS points: *170007-170007A, 170012-170012A, 170016-170016A, 170017-170017A*
Convergence Angle is: 1-17- 42.3 RIGHT at PN: 702
LT: 35-28-31 N LG: 094-13-32 W
Grid Azimuth = Astronomical Azimuth - Convergence Angle

Note: Information in Italics is for clarification only. It is not to be part of the actual Control Table or Control Detail Sheets.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

CONST. C.L.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	100+00.00	423367.0560	652563.9794
8001	P.C.	102+60.88	423627.6545	652576.1084
	P.I.	104+00.26	423766.8796	652582.5883
8003	P.T.	105+39.58	423906.2552	652582.2910
8004	P.C.	115+31.28	424897.9529	652580.1762
	P.I.	120+51.19	425417.8682	652579.0674
8006	P.T.	124+83.49	425699.0930	652141.7737
8007	P.C.	130+95.96	426030.3831	651626.6303
	P.I.	134+06.36	426198.2783	651365.5597
8009	P.T.	136+81.76	426503.5850	651309.5733
8010	P.I.	140+33.32	426849.3843	651246.1614
8011	POE	140+63.41	426878.9746	651240.7352

E. MAIN ST.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8012	POB	200+00.00	423704.1650	651945.9667
8013	P.C.	204+08.94	423777.4344	652348.2941
	P.I.	205+17.73	423796.9242	652455.3144
8015	P.T.	206+26.40	423824.4737	652560.5485
8016	P.C.	207+52.76	423856.4764	652682.7927
	P.I.	207+52.76	423856.4764	652682.7927
8018	P.T.	210+07.79	423942.6265	652922.4666
8019	POE	210+17.78	423946.8298	652931.5337

HWY. 64B C.L.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8020	POB	300+00.00	425492.1363	651673.7516
8021	POE	309+07.71	426110.6444	652338.1254

S. MOUNTAIN GR. RD.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8022	POB	500+00.00	425795.4542	651204.7857
8023	P.C.	501+72.78	425968.1078	651211.4670
	P.I.	503+21.44	426116.6582	651217.2155
8025	P.T.	504+47.04	426197.4768	651341.9899
8026	POE	505+31.54	426243.4112	651412.9071

HWY. 64 C.L.

POINT NO.	TYPE	STATION	NORTHING	EASTING
8027	POB	400+00.00	426711.3435	650958.7957
8028	POE	407+49.01	427034.2915	651634.6057

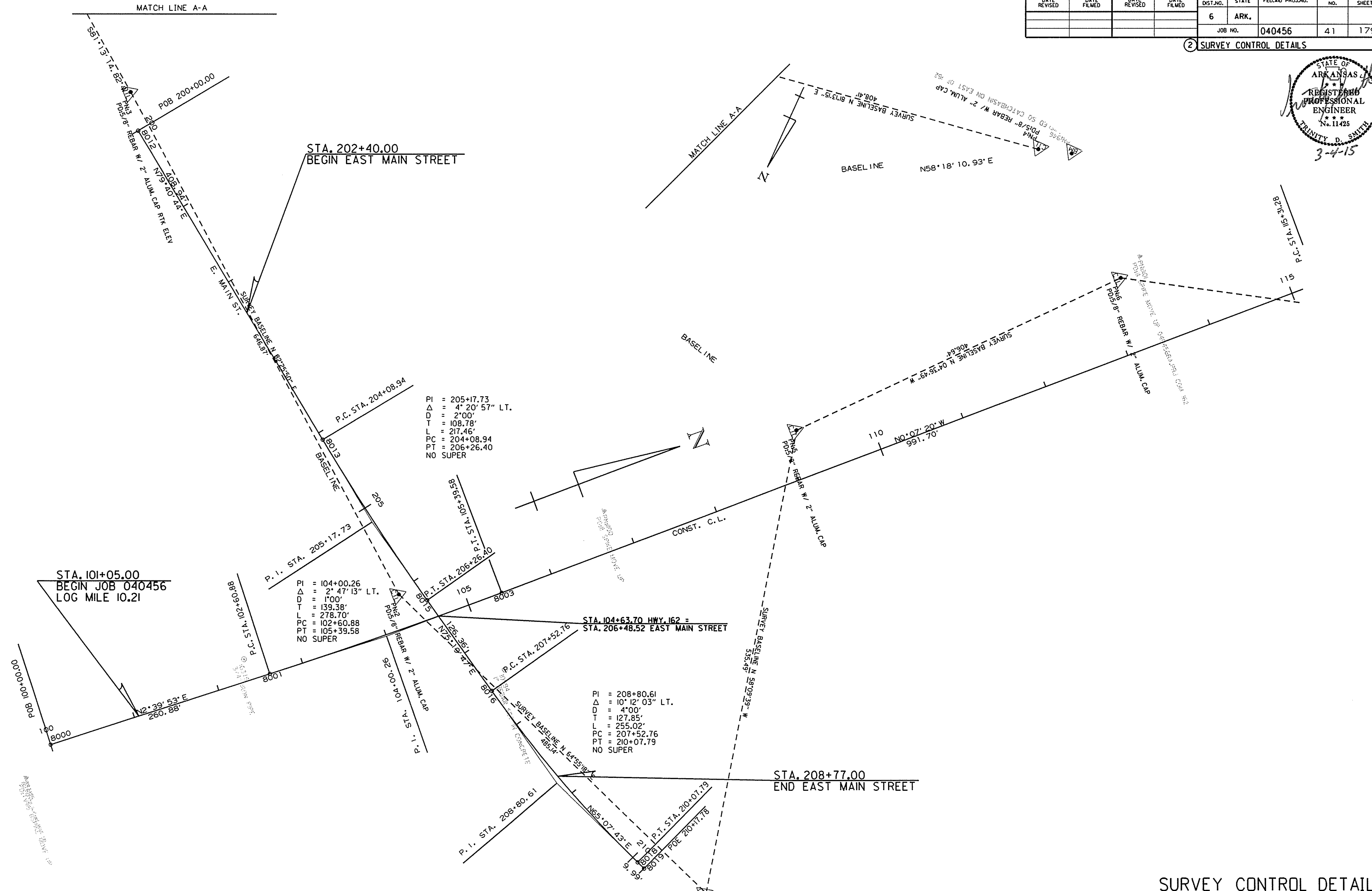
2/24/2015

R040456.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	41	179

(2) SURVEY CONTROL DETAILS



MATCH LINE A-A
POB 200+00.00
STA. 202+40.00
BEGIN EAST MAIN STREET
E. MAIN ST.
SURVEY BASELINE N 82°25'50" E
646.87'
N79°40'44"E
408.94'
PD:5/8" REBAR W/ 2" ALUM. CAP RTK ELEV
P.C. STA. 204+08.94
PI = 205+17.73
Δ = 4° 20' 57" LT.
D = 2°00'
T = 108.78'
L = 217.46'
PC = 204+08.94
PT = 206+26.40
NO SUPER
BASELINE
P.I. STA. 205+17.73
P.T. STA. 206+26.40
P.I. STA. 105+39.58
STA. 101+05.00
BEGIN JOB 040456
LOG MILE 10.21
P.C. STA. 102+60.88
PI = 104+00.26
Δ = 2° 47' 13" LT.
D = 1°00'
T = 139.38'
L = 278.70'
PC = 102+60.88
PT = 105+39.58
NO SUPER
POB 100+00.00
N 12°39'53" E
260.88'
P.I. STA. 104+00.26
PD:5/8" REBAR W/ 2" ALUM. CAP
STA. 104+63.70 HWY. 162 =
STA. 206+48.52 EAST MAIN STREET
P.C. STA. 207+52.76
N75°19'47"E
126.36'
SURVEY BASELINE N 64°55'18"
485.14'
PI = 208+80.61
Δ = 10° 12' 03" LT.
D = 4°00'
T = 127.85'
L = 255.02'
PC = 207+52.76
PT = 210+07.79
NO SUPER
STA. 208+77.00
END EAST MAIN STREET
P.I. STA. 208+80.61
N65°07'43"E
P.T. STA. 210+07.79
POE 210+17.78
9.99'
CONST. C.L.
N0°07'20"W
991.70'
SURVEY BASELINE N 58°09'39" W
535.45'
PD:5/8" REBAR W/ 2" ALUM. CAP
SURVEY BASELINE N 04°36'49" W
406.64'
P.C. STA. 115+31.28
MATCH LINE A-A
SURVEY BASELINE N 81°13'15" E
408.41'
PD:5/8" REBAR W/ 2" ALUM. CAP
BASELINE N58°18'10.93"E
N

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

SURVEY CONTROL DETAILS

2/24/2015

R040456.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.		040456	42	179

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

PM49 POIS/8" REBAR W/ 2" ALUM CAP

SURVEY BASELINE S 13°53'02" W 67.13'

PM48 POIS/8" REBAR W/ 2" ALUM CAP PURCHASED SO SE REYNOLDS WALL

SURVEY BASELINE N 18°51'13" E 1106.26'

POB 300+00.00

300

8020

N70°16'14" W

STA. 302+70.00
BEGIN HWY. 64B

HWY. 64B C.L.

PM47 POIS/8" REBAR W/ 2" ALUM CAP STUMP

N47°02'51" E 907.71'

130

N57°15'17" W 612.48'

STA. 126+56.27 HWY. 162 =
STA. 304+40.89 HWY. 64B

SURVEY BASELINE S 06°51'42" W 359.50'

P.T. STA. 124+83.49

125

8006

STA. 306+22.00
END HWY. 64B

PM10 POIS/8" REBAR W/ 2" ALUM. CAP

8021

POE 309+07.71

BASELINE

P.C. STA. 115+31.28

115

8004

PM47 POIS/8" REBAR W/ 2" ALUM CAP

SURVEY BASELINE S 74°49'03" W 364.74'

SURVEY BASELINE N 29°30'14" E 565.16'

PI = 120+51.19
Δ = 57° 07' 57" LT.
D = 6°00'
T = 519.92'
L = 952.21'
PC = 115+31.28
PT = 124+83.49
e = 0.070'/'
Ls = 200'

N

120

CONST. C.L.

P.I. STA. 120+51.19

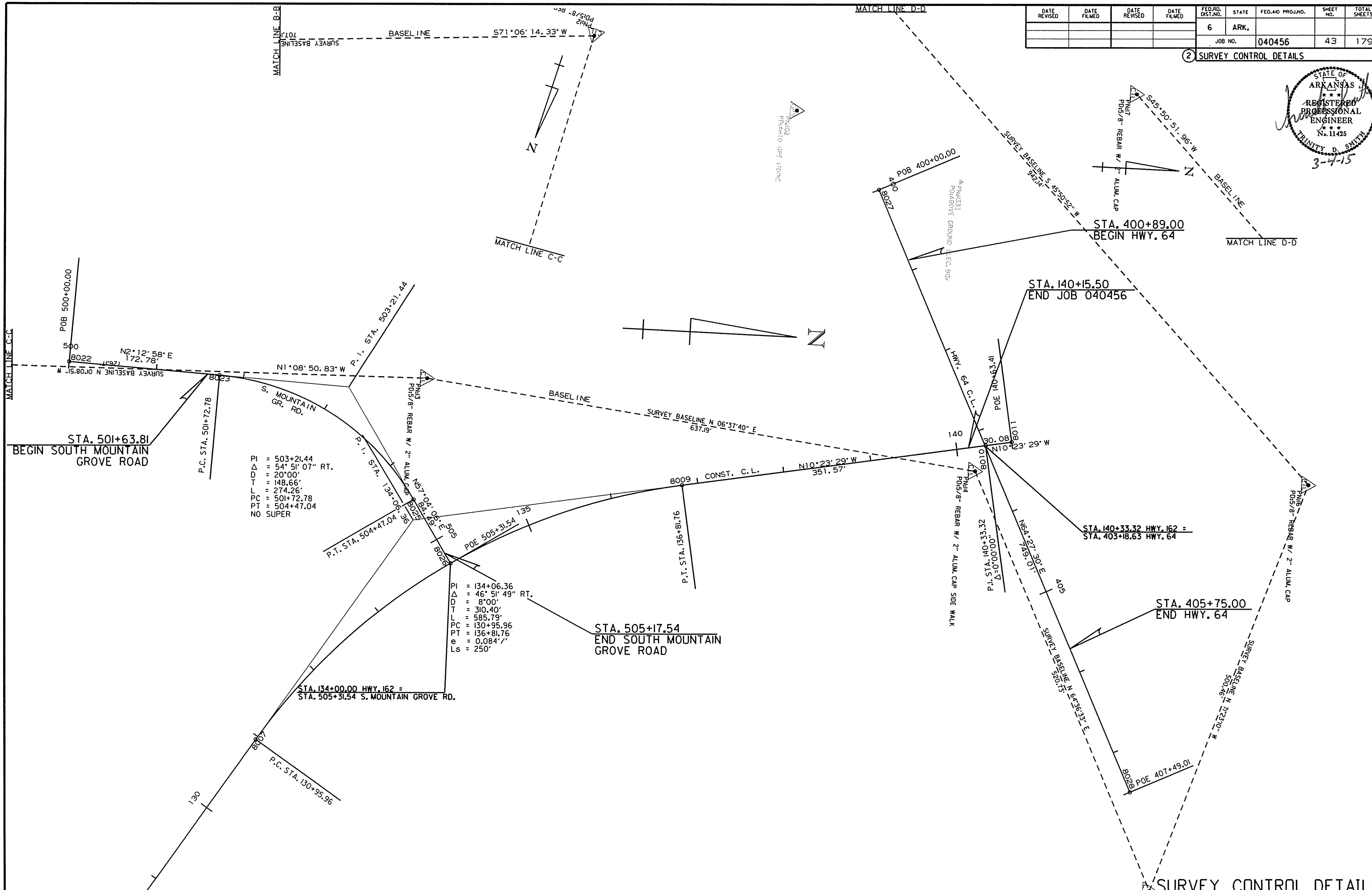
2/24/2015

R040456.DGN

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	43	179

(2) SURVEY CONTROL DETAILS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15
MATCH LINE B-B
MATCH LINE C-C
MATCH LINE D-D
BASELINE
S71°06' 14.33" W
SURVEY BASELINE
POB 500+00.00
N2°12' 58" E
172.78'
N1°08' 50.83" W
P.I. STA. 503+21.44
STA. 501+63.81
BEGIN SOUTH MOUNTAIN GROVE ROAD
P.C. STA. 501+72.78
S. MOUNTAIN GR. RD.
PI = 503+21.44
Δ = 54° 51' 07" RT.
D = 20°00'
T = 148.66'
L = 274.26'
PC = 501+72.78
PT = 504+47.04
NO SUPER
P.T. STA. 504+47.04
P.I. STA. 134+06.36
N57°04' 06" E
84.49'
PNH3 PD:5/8" REBAR W/ 2" ALUM. CAP
SURVEY BASELINE N 06°37'40" E
637.19'
POE 505+31.54
PI = 134+06.36
Δ = 46° 51' 49" RT.
D = 8°00'
T = 310.40'
L = 585.79'
PC = 130+95.96
PT = 136+81.76
e = 0.084'/'
Ls = 250'
STA. 505+17.54
END SOUTH MOUNTAIN GROVE ROAD
STA. 134+00.00 HWY. 162 =
STA. 505+31.54 S. MOUNTAIN GROVE RD.
P.C. STA. 130+95.96
CONST. C.L.
N10°23' 29" W
351.57'
P.T. STA. 136+81.76
POB 400+00.00
SURVEY BASELINE S 45°50'52" W
942.14'
STA. 400+89.00
BEGIN HWY. 64
HWY. 64 C.L.
STA. 140+15.50
END JOB 040456
POE 140+63.41
PNH4 PD:5/8" REBAR W/ 2" ALUM. CAP SIDE WALK
P.I. STA. 140+33.32
Δ=0°00'00"
N64°27' 30" E
749.01'
STA. 140+33.32 HWY. 162 =
STA. 403+18.63 HWY. 64
STA. 405+75.00
END HWY. 64
SURVEY BASELINE N 64°36'33" E
520.73'
POE 407+49.01
PNH7 PD:5/8" REBAR W/ 2" ALUM. CAP
S45°50' 51.96" W
PNH6 PD:5/8" REBAR W/ 2" ALUM. CAP
SURVEY BASELINE N 11°23'10" W
500.46'

SURVEY CONTROL DETAILS

2/24/2015

R040456.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.		040456	44	179

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

STA. 100+45 IN PLACE
18" X 24'
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND INSTALL @ +50
21" X 15" X 28' ARCH PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 5 CU. YDS.

STA. 100+91 IN PLACE
18" X 28' RC
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND @ +90
CONSTRUCT APPROACH ON LT. = 5 CU. YDS.

STA. 101+93 IN PLACE
18" X 20' RC
PIPE CULVERT LT. SIDE DRAIN
REMOVE AND @ +88
CONSTRUCT APPROACH ON LT.

STA. 102+83 CONSTRUCT
APPROACH ON LT.

STA. 104+15 IN PLACE
2' X 5' X 82' ROCK BOX CULVERT
REMOVE

PI = 104+00.26
Δ = 2° 47' 13" LT.
D = 1°00'00"
T = 139.38'
L = 278.70'
PC = 102+60.88
PT = 105+39.58
NO SUPER

STA. 106+51 IN PLACE
DROP INLET 126' LT.
RETAIN

STA. 107+07 IN PLACE
30" X 107' RC
PIPE CULVERT ON LT.
RETAIN

STA. 107+74 IN PLACE
6" X 20' RC PIPE CULVERT
REMOVE

STA. 108+21 IN PLACE
24" X 12' CM
PIPE CULVERT ON LT.
RETAIN

STA. 108+22 IN PLACE
24" X 12' RC
PIPE CULVERT ON LT.
RETAIN

STA. 109+00 INSTALL
18" X 54' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH ON LT. = 140 CU. YDS.

STA. 101+05.00
BEGIN JOB 040456
LOG MILE 10.21

STA. 103+92 CONSTRUCT
TYPE 2 WHEEL CHAIR RAMP = 18.4 SQ. YDS.

STA. 105+06 CONSTRUCT
TYPE 3 WHEEL CHAIR RAMP = 6.5 SQ. YDS.

FLOODPLAIN LIMITS

P.O.B. 100+00.00
265' TAPER
214' TAPER
256' TAPER
P.I. STA. 105+39.58
P.C. STA. 102+60.88
P.T. STA. 104+39.58
P.I. STA. 104+00.26
P.C. STA. 207+52.76
STA. 206+26.40
100' R
PROPOSED R/W
CONSTRUCTION LIMITS
CONST. C.L.
N2°39'53"E
N15°51'E
N0°07'20"W
EAST MAIN ST.
MULBERRY STREET
E. MAIN ST.
ALMA SOUTH APARTMENTS
PARKING

STA. 100+46 INSTALL
21" X 15" X 28' ARCH PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH ON RT. = 5 CU. YDS.

STA. 101+12 IN PLACE
12" X 57' RC
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND @ +04
CONSTRUCT APPROACH ON RT. = 5 CU. YDS.

STA. 101+58 IN PLACE
18" X 25' CM
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND @ +60
CONSTRUCT APPROACH ON RT.

STA. 102+53 IN PLACE
18" X 25' RC
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND @ +50
CONSTRUCT APPROACH ON RT.

STA. 103+18 IN PLACE
12" X 21' RC
PIPE CULVERT RT. SIDE DRAIN
REMOVE AND @ +33
CONSTRUCT APPROACH ON RT. = 5 CU. YDS.

STA. 104+43 IN PLACE
DROP INLET
REMOVE

STA. 104+74 IN PLACE
44" X 24" X 82' CM ARCH PIPE CULVERT
REMOVE

STA. 108+71 IN PLACE
12" X 135' PVC ARCH PIPE CULVERT
REMOVE APPROX. 30' OF THE CULVERT
SO THE CULVERT ENDS AT THE
BACK SLOPE OF THE DITCH

STA. 109+00 INSTALL
48" X 62' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH ON RT. = 490 CU. YDS.

STA. 112+70.93 TO STA. 114+95.07 - CONSTRUCT
224' - 13/4" X 222' CONT. COMP. W-BEAM UNIT
BRIDGE NO. 07324

STA. 104+63.70 HWY. 162 =
STA. 206+48.52 EAST MAIN STREET

HWY. 162

STA. 114+95.07
BRIDGE END

UNCLASSIFIED EXCAVATION, SURVEY CONTROL DETAIL SHEET FOR CONTROL AND VERTICAL CONTROL DATA.

NOTE:
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS.
THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM
BANK ELEVATIONS ARE 422 FEET MSL BETWEEN STATIONS 113+00 AND
114+00. REFER TO SECTION 110.06 (d) OF THE 2014 STANDARD SPECIFICATIONS.

STA. 113+81.28 BEGIN SUPER
STA. 115+81.28 MAX SUPER 7.0%
STA. 124+33.49 MAX SUPER 7.0%
STA. 126+33.49 END SUPER

FLOODPLAIN LIMITS
STA. 112+90 TO STA. 117+30

P.V.I. 100+05.00 ELEV. 425.61
P.V.I. 100+99.80 ELEV. 425.13
P.V.I. 102+55.45 ELEV. 421.42
P.V.I. 103+74.78 ELEV. 422.37
P.V.I. 108+00.00 ELEV. 414.39
P.V.I. 110+55.75 ELEV. 425.16
P.V.I. 111+00.00 ELEV. 414.20
0.51%
-2.38%
3.62%
1.00%
0.79%
0.41%
0.66%
K 53.24 VC=100' e=-0.23'
K 66.06 VC=210' e=0.83'
K 71.56 VC=400' e=2.79'
K 46.67 VC=560' e=8.40'
18" X 115'
18" X 104'
18" X 88'
18" X 240'
102+00.00 RT. TOP 423.06 FL. 418.82
103+08.00 RT. TOP 422.13 FL. 416.67
104+00.00 RT. TOP 422.55 FL. 415.72
105+55.00 RT. TOP 423.19 FL. 417.91
108+00.00 RT. TOP 424.31 FL. 414.480
111+00.00 RT. TOP 429.71 FL. 420.00
112+59.00 RT. TOP 437.92 FL. 452.42
RT. DITCH GRADE -0.06%
6.00%
DESIGN H.W. 050= ELEV. 419.6
BM: 945 CHISELED SQ RETAINING WALL S OF ROAD
390.84 RT. OF STA. 105+84.97
ELEVATION = 418.81
RT. SIDE

0.51%
-2.38%
3.09%
1.00%
0.79%
0.41%
0.58%
18" X 137'
18" X 70'
18" X 90'
102+14.00 LT. TOP 422.83 FL. 418.92
103+08.00 LT. TOP 422.13 FL. 418.41
103+77.00 LT. TOP 422.13 FL. 416.02
105+55.08 LT. TOP 423.19 FL. 419.03
108+00.00 LT. TOP 424.31 4FL. 14.58
111+00.00 LT. TOP 429.71 FL. 423.76
112+59.00 LT. TOP 437.92 FL. 433.50
LT. DITCH GRADE 1.25%
6.00%
DESIGN H.W. 050= ELEV. 419.6
BM: 945 CHISELED SQ RETAINING WALL S OF ROAD
390.84 RT. OF STA. 105+84.97
ELEVATION = 418.81
LT. SIDE

100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00

3/3/2015
R040456.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.		040456	45	179

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

STA. 116+21.92 TO STA. 118+84.08 - CONSTRUCT 262'-2" X 260' CONT. COMP. W-BEAM UNIT BRIDGE NO. 07325

STA. 125+00 INSTALL 18" X 46' PIPE CULVERT LT. SIDE DRAIN CONSTRUCT APPROACH ON LT. = 155 CU. YDS.

STA. 125+80 CONSTRUCT TYPE 3 WHEEL CHAIR RAMP = 6.2 SQ. YDS.

PI = 120+51.19
Δ = 57° 07' 57" LT.
D = 6°00'00"
T = 519.92'
L = 952.21'
PC = 115+31.28
PT = 124+83.49
e = 0.070'/'
Ls = 200'

STA. 127+25 CONSTRUCT TYPE 3 WHEEL CHAIR RAMP =10.2 SQ. YDS.

STA. 125+00 CONSTRUCT APPROACH ON RT. = 220 CU. YDS.

STA. 129+00 INSTALL 18" X 30' PIPE CULVERT LT. SIDE DRAIN CONSTRUCT APPROACH ON LT. = 50 CU. YDS.

STA. 129+00 CONSTRUCT APPROACH ON RT. = 55 CU. YDS.

STA. 126+56.27 HWY. 162 = STA. 304+40.89 HWY. 64B

STA. 125+80 CONSTRUCT TYPE 3 WHEEL CHAIR RAMP = 7.1 SQ. YDS.

STA. 127+25 CONSTRUCT TYPE 3 WHEEL CHAIR RAMP = 6.2 SQ. YDS.

HWY. 162

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

FLOODPLAIN LIMITS STA. 112+90 TO STA. 117+30

STA. 113+81.28 BEGIN SUPER
STA. 115+81.28 MAX SUPER 0.070%
STA. 124+33.49 MAX SUPER 0.070%
STA. 126+33.49 END SUPER

STA. 129+08.46 BEGIN SUPER
STA. 131+58.46 MAX SUPER 0.084%
STA. 135+99.00 MAX SUPER 0.084%
STA. 138+49.00 END SUPER

RT. SIDE

K 46.67 VC=560' e=-8.40'
K 79.80 VC=400' e=2.51'
K 78.13 VC=100' e=0.16'
-6.00%
-0.99%
0.99%
0.29%
18" X 59'
3.01%
18" X 171' 0.37%
30" X 93' 0.30%
P.V.I. 117+53.87 ELEV. 467.05
P.V.I. 123+47.06 ELEV. 431.46
P.V.I. 127+25.00 ELEV. 427.73
127+62.00 RT. TOP 428.00 FL. 421.38
128+25.00 RT. TOP 428.12 FL. 423.83
130+00.00 RT. TOP 428.73 FL. 424.63

LT. SIDE

STA. 116+21.92 BRIDGE END
STA. 118+84.08 BRIDGE END
16+00.00 LT. TOP 455.88 FL. 450.95
18" X 85' 7.07%
119+00.00 LT. TOP 456.12 FL. 451.21
121+00.00 LT. TOP 446.48 FL. 441.58
18" X 192' 5.02%
18" X 241' 5.37%
18" X 193' 2.33%
18" X 111' 0.26%
123+50.00LT. TOP 434.06 FL. 428.64
125+50.00 LT. TOP 429.44 FL. 419.50
126+54.45 LT. TOP 428.22 FL. 419.78
127+62.00 LT. TOP 428.00 FL. 421.53
128+25.00 LT. TOP 428.12 FL. 423.99
15+14.00 LT. TOP 452.23 FL. 435.00
121+00.00 420.40
LT. DITCH GRADE -0.16%
125+87.00 419.60

BM: 943 CHISELED SQ SE RETAINING WALL 469.08 LT. OF STA. 116+93.35 ELEVATION = 429.78

BM: 942 CHISELED SQ NE COR RETAINING 646.18 LT. OF STA. 128+34.13 ELEVATION = 432.78

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

3/3/2015

R040456.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.		040456	46	179

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

STA. 134+00 INSTALL
18" X 92' PIPE CULVERT
LT. SIDE DRAIN

STA. 135+15 IN PLACE
12" X 24' PVC
PIPE CULVERT LT. SIDE DRAIN
RETAIN

STA. 135+67 IN PLACE
12" X 24' PVC
PIPE CULVERT LT. SIDE DRAIN
RETAIN

STA. 136+66 IN PLACE
6" X 39' PVC
PIPE CULVERT LT. SIDE DRAIN
RETAIN

STA. 138+66 INSTALL
18" X 50' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH ON LT. = 165 CU. YDS.

STA. 139+59 CONSTRUCT
TYPE 2 WHEEL CHAIR RAMP = 14.8 SQ. YDS.

STA. 140+15.50
END JOB 040456

STA. 140+33.32 HWY. 162 =
STA. 403+18.63 HWY. 64

STA. 134+00.00 HWY. 162 =
STA. 505+31.54 S. MOUNTAIN GROVE RD.

PI = 134+06.36
Δ = 46° 51' 49" RT.
D = 8°00'00"
T = 310.40'
L = 585.79'
PC = 130+95.96
PT = 136+81.76
e = 0.084'/'
Ls = 250'

STA. 137+36 INSTALL
18" X 60' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH ON RT. = 130 CU. YDS.

STA. 138+55 CONSTRUCT
APPROACH ON RT. = 175 CU. YDS.

STA. 139+83 CONSTRUCT
TYPE 3 WHEEL CHAIR RAMP = 7.4 SQ. YDS.

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

HWY. 162

STA. 129+08.46 BEGIN SUPER
STA. 131+58.46 MAX SUPER 0.084%
STA. 135+99.00 MAX SUPER 0.084%
STA. 138+49.00 END SUPER

130+00.00 RT. TOP 428.73 FL. 424.63
132+00.00 RT. TOP 429.32 FL. 425.27
134+00.00 RT. TOP 429.90 FL. 425.90
136+00.00 RT. TOP 430.49 FL. 426.47
137+00.00 RT. TOP 430.78 FL. 426.93
138+00.00 RT. TOP 431.07 FL. 427.23
139+39.00 RT. TOP 431.63 FL. 425.75
P.V.I. 140+14.00 ELEV. 431.50
P.V.I. 140+33.32 ELEV. 431.86

18" X 193' 0.33%
18" X 190' 0.33%
18" X 190' 0.30%
0.29%
18" X 94' 0.46%
18" X 135' 0.30%
18" X 53' 0.37%
1.86%

RT. DITCH GRADE 0.20%
RT. DITCH GRADE 0.60%
135+75.00 424.95
136+17.27 425.03
138+00.00 426.12

RT. SIDE

138+36.00 LT. TOP 431.33 FL. 427.07
139+10.00 LT. TOP 431.47 FL. 426.15
18" X 70' 0.81%
LT. DITCH GRADE 0.14%
LT. DITCH GRADE 0.38%
131+00.00 422.80
133+00.00 423.09
139+00.00 425.35

LT. SIDE

130+00 131+00 132+00 133+00 134+00 135+00 136+00 137+00 138+00 139+00 140+00 141+00 142+00 143+00 144+00 145+00

3/3/2015
R040456.DGN

STA. 201+72 IN PLACE
18" X 5'
PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 201+96 CONSTRUCT
APPROACH ON LT. = 15 CU. YDS.

STA. 202+15 IN PLACE
24" X 14" X 43' RC
ARCH PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 202+29 CONSTRUCT
APPROACH ON LT. = 15 CU. YDS.

STA. 203+30 IN PLACE
18" X 25' RC PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 203+31 CONSTRUCT
APPROACH ON LT.

STA. 205+30 CONSTRUCT
APPROACH ON LT. = 5 CU. YDS.

STA. 204+91 IN PLACE
18" X 24' RC PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 204+91 CONSTRUCT
APPROACH ON LT.

PI = 205+17.73
Δ = 4° 20' 57" LT.
D = 2°00'00"
T = 108.78'
L = 217.46'
PC = 204+08.94
PT = 206+26.40
NO SUPER

STA. 205+54 IN PLACE
24" X 19' RC PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 207+24 IN PLACE
18" X 24' RC PIPE CULVERT
LT. SIDE DRAIN
REMOVE

STA. 207+46 CONSTRUCT
APPROACH ON LT. = 15 CU. YDS.

STA. 209+20 IN PLACE
40" X 28" X 41' CM PIPE CULVERT
LT. SIDE DRAIN
RETAIN

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.		040456	47	179

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

STA. 202+40.00
BEGIN EAST MAIN STREET

STA. 208+77.00
END EAST MAIN STREET

PI = 208+80.61
Δ = 10° 12' 03" LT.
D = 4°00'00"
T = 127.85'
L = 255.02'
PC = 207+52.76
PT = 210+07.79
NO SUPER

STA. 205+54 CONSTRUCT
TYPE 3 WHEEL CHAIR RAMP = 6.1 SQ. YDS.

STA. 206+82 CONSTRUCT
TYPE 3 WHEEL CHAIR RAMP = 7.3 SQ. YDS.

STA. 104+63.70 HWY. 162 =
STA. 206+48.52 EAST MAIN STREET

STA. 201+27 IN PLACE
24" X 79' RC PIPE CULVERT
RT. SIDE DRAIN
RETAIN

STA. 201+67 IN PLACE
DROP INLET
RETAIN

STA. 202+33 IN PLACE
2' X 2' X 129' ROCK BOX CULVERT
RT. SIDE DRAIN
RETAIN & TIE TO JUNCTION BOX

STA. 202+55 CONSTRUCT
APPROACH ON RT.

STA. 203+89 CONSTRUCT
APPROACH ON RT.

STA. 204+34 IN PLACE
24" X 110' RC PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 204+68 CONSTRUCT
APPROACH ON RT.

STA. 207+29 IN PLACE
24" X 24' RC PIPE CULVERT
RT. SIDE DRAIN
REMOVE & INSTALL @ +46
24" X 34' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH ON RT.= 25 CU.YDS.

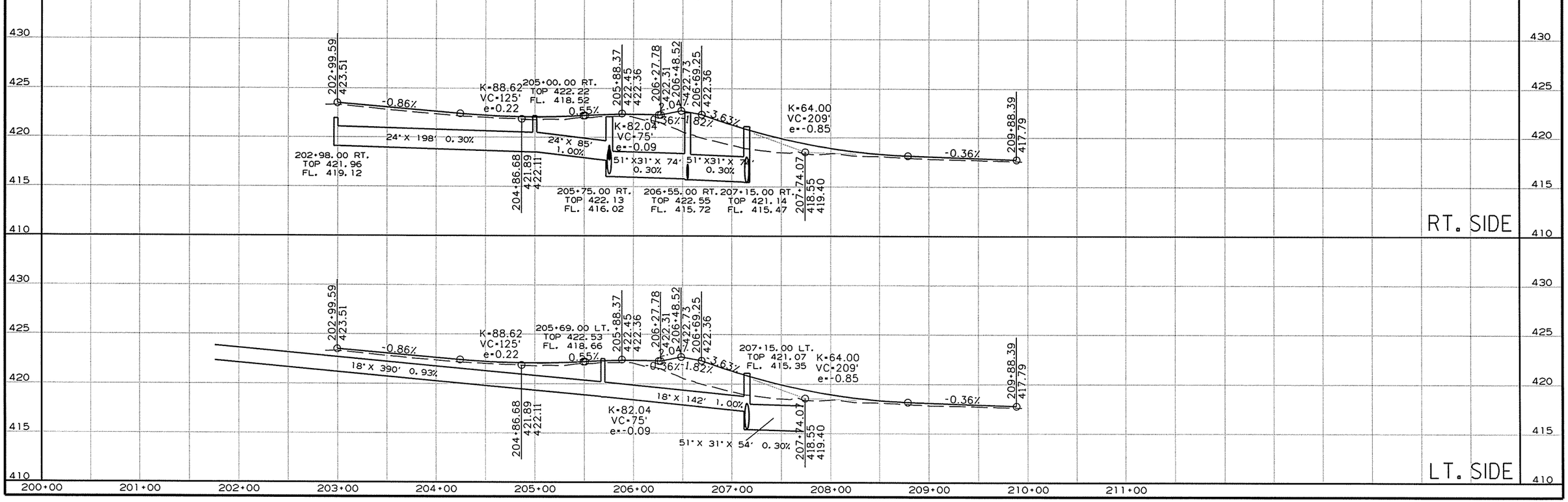
STA. 208+14 INSTALL
24" X 44' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH ON RT. = 25 CU. YDS.

STA. 208+48 IN PLACE
24" X 92' RC PIPE CULVERT
RT. SIDE DRAIN
REMOVE

STA. 208+80 INSTALL
24" X 36' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH ON RT.

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

E. MAIN STREET



3/3/2015

R040456.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.		040456	48	179

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

STA. 303+65 CONSTRUCT
TYPE 3 WHEEL CHAIR RAMP = 4.7 SQ. YDS.

STA. 305+30 CONSTRUCT
TYPE 3 WHEEL CHAIR RAMP = 6.1 SQ. YDS.

STA. 302+70.00
BEGIN HWY. 64B

STA. 306+22.00
END HWY. 64B

STA. 126+56.27 HWY. 162 =
STA. 304+40.89 HWY. 64B

POB 300+00.00

POE 309+07.71

160' TAPER

60' TAPER

CONSTRUCTION LIMITS

PROPOSED R/W

HWY. 64B C.L.

EAST SHEAL STREET

N47°02'51"E

STA. 303+83 CONSTRUCT
TYPE 3 WHEEL CHAIR RAMP = 7.5 SQ. YDS.

STA. 305+30 CONSTRUCT
TYPE 3 WHEEL CHAIR RAMP = 6.8 SQ. YDS.

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

HWY. 64B

300+27.40
430.27
-1.27%

K=182.99
VC=200'
e=0.27

301+75.09
428.39
428.66

-0.18%

303+68.54 RT.
TOP 428.22
FL. 419.78

304+20.25
427.96
304+40.89
428.41
304+60.31
428.08

-0.56%

304+92.87
427.89

306+20.00 LT.
TOP 428.14
FL. 423.97

-0.03%

309+07.71
427.78

455 450 445 440 435 430 425 420 415 410

300+00 301+00 302+00 303+00 304+00 305+00 306+00 307+00 308+00 309+00 310+00

3/3/2015

R040456.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.		040456	49	179

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

STA. 502+54 IN PLACE
JUNCTION BOX
RETAIN

STA. 502+57 IN PLACE
20" X 12" X 26' CM
PIPE CULVERT
REMOVE & INSTALL @ +60
18" X 44' PIPE CULVERT
LT. SIDE DRAIN
& CONNECT TO EXIST. JUNCTION BOX
AT STA.502+54

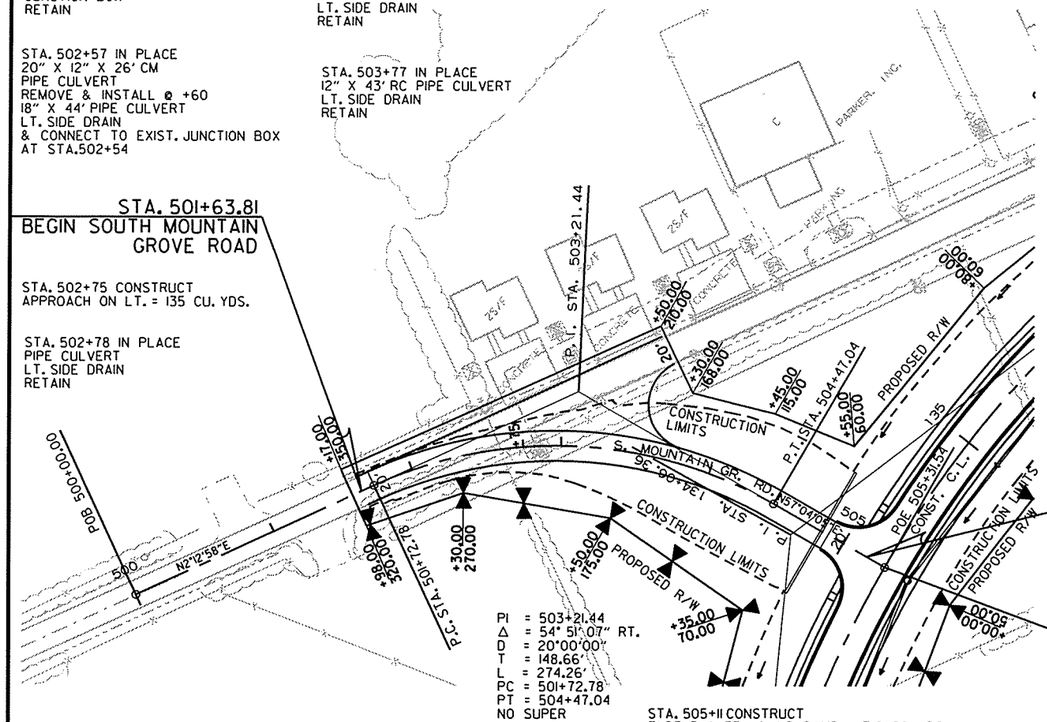
STA. 503+35 IN PLACE
12" X 43' RC PIPE CULVERT
LT. SIDE DRAIN
RETAIN

STA. 503+77 IN PLACE
12" X 43' RC PIPE CULVERT
LT. SIDE DRAIN
RETAIN

STA. 501+63.81
BEGIN SOUTH MOUNTAIN GROVE ROAD

STA. 502+75 CONSTRUCT
APPROACH ON LT. = 135 CU. YDS.

STA. 502+78 IN PLACE
PIPE CULVERT
LT. SIDE DRAIN
RETAIN



PI = 503+21.44
Δ = 54° 51' 07" RT.
D = 20°00'00"
T = 148.66'
L = 274.26'
PC = 501+72.78
PT = 504+47.04
NO SUPER

STA. 505+11 CONSTRUCT
TYPE 3 WHEEL CHAIR RAMP = 7.9 SQ. YDS.

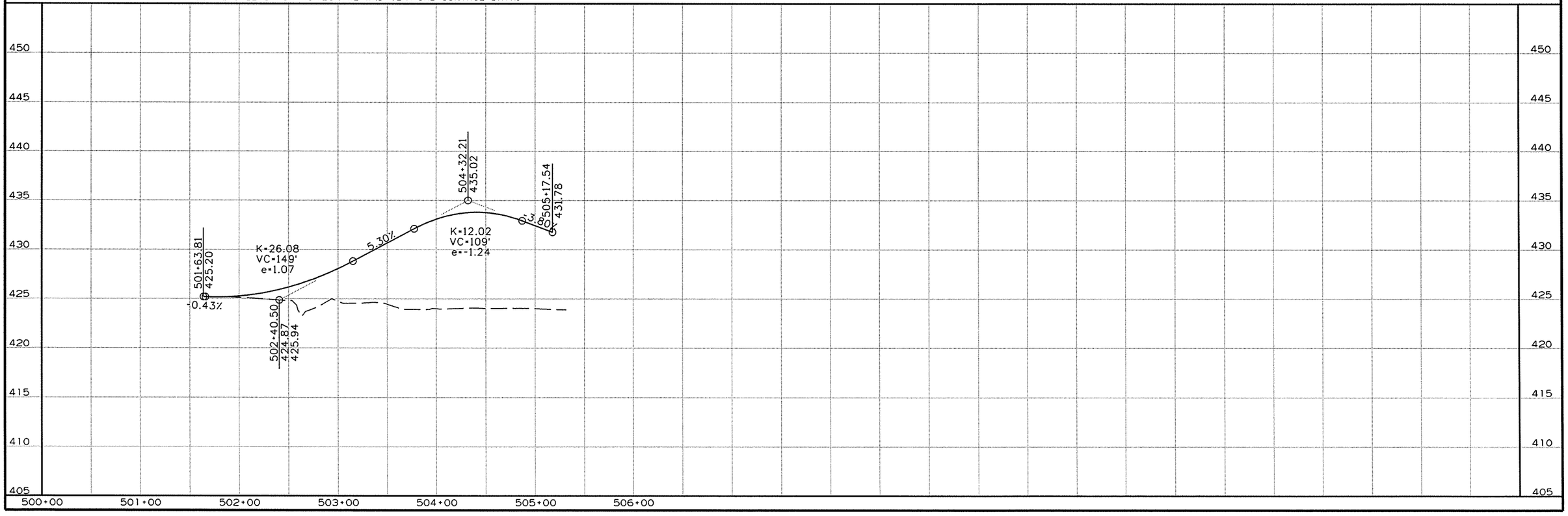
STA. 505+11 CONSTRUCT
TYPE 3 WHEEL CHAIR RAMP = 7.9 SQ. YDS.

STA. 505+17.54
END SOUTH MOUTAIN GROVE ROAD

STA. 134+00.00 HWY. 162 =
STA. 505+31.54 S. MOUNTAIN GROVE RD.

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

SOUTH MOUNTAIN GROVE ROAD



3/3/2015

R040456.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.		040456	50	179

(2) PLAN AND PROFILE SHEETS

STA. 403+53 IN PLACE
36" X 59' CM PIPE CULVERT
LT. SIDE DRAIN
RETAIN

STA. 404+27 IN PLACE
36" X 24" X 41' CM ARCH PIPE CULVERT
LT. SIDE DRAIN
RETAIN

STA. 405+80 IN PLACE
48" X 69' RC PIPE CULVERT
RETAIN

STA. 400+89.00
BEGIN HWY.64

STA. 140+33.32 HWY. 162 =
STA. 403+18.63 HWY. 64

STA. 405+75.00
END HWY.64

POB 400+00.00

POE 140+33.32

PDE 407+49.01

HWY. 64 C.L.

N64°27'30"E

85' TAPER

165' TAPER

CONSTRUCTION LIMITS

PROPOSED R/W

CONSTRUCTION LIMITS

T.C.E.

N10°23'29"W

STA. 405+76 IN PLACE
DBL. 32" X 20' CM PIPE CULVERT
RT. SIDE DRAIN
RETAIN

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

HWY. 64

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

455 450 445 440 435 430 425 420 415 410

400+00 401+00 402+00 403+00 404+00 405+00 406+00 407+00 408+00

3/3/2015

R040456.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.		040456	51	179

(2) PLAN AND PROFILE SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

STA. 102+00 CONSTRUCT
DROP INLET ON RT. H=4'-3"
WITH 18" X 104'
PIPE CULVERT TO DROP INLET ON RT.
WITH 18" X 115'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 104 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 104 LIN.FT.

STA. 102+14 CONSTRUCT
DROP INLET ON LT. H=3'-11"
OPEN IN BACK
WITH 18" X 90'
PIPE CULVERT TO DROP INLET ON LT.
WITH 18" X 137'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 90 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 90 LIN.FT.

STA. 103+08 CONSTRUCT
DROP INLET ON LT. H=3'-9"
OPEN IN BACK
WITH 8' EXTENSION AND 18" X 70'
PIPE CULVERT TO JUNCTION BOX ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 70 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 70 LIN.FT.

STA. 103+08 CONSTRUCT
DROP INLET ON RT. H=4'-4"
WITH 8' EXTENSION AND 18" X 88'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 88 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 88 LIN.FT.

STA. 103+77 CONSTRUCT
JUNCTION BOX ON LT. H=4'-0"
WITH 1' OPENING IN BACK
WITH 51" X 31" X 75'
R.C. ARCH PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
TYPE E JUNCTION BOX = 5' X 4'

STA. 104+00 CONSTRUCT
DROP INLET ON RT. H=5'-1"
WITH 49" X 33" X 76'
ARCH PIPE CULVERT TO DROP INLET ON EAST MAIN STREET
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 5' X 5'
51" X 31" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 76 LIN.FT.
49" X 33" SLPPMCCS PIPE (TYPE 2 BEDDING) = 76 LIN.FT.

STA. 105+55 CONSTRUCT
DROP INLET ON LT. H=4'-2"
OPEN IN BACK
WITH 18" X 43'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'

STA. 105+55 CONSTRUCT
DROP INLET ON RT. H=5'-3"
WITH 4' EXTENSION AND 18" X 240'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 240 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 240 LIN.FT.

STA. 108+00 CONSTRUCT
DROP INLET ON LT. H=9'-9"
WITH 54" X 31'
R.C. PIPE CULVERT INLET (CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
WITH 54" X 29'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 6' DIA.
TYPE C DROP INLET = 6' X 4'

STA. 108+00 CONSTRUCT
DROP INLET ON RT. H=9'-10"
WITH 54" X 31'
R.C. PIPE CULVERT OUTLET (CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 6' DIA.
TYPE C DROP INLET = 6' X 4'

STA. 111+00 CONSTRUCT
DROP INLET ON LT. H=5'-11"
WITH 18" X 31'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'

STA. 111+00 CONSTRUCT
DROP INLET ON RT. H=9'-9"
WITH 18" X 50'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'

STA. 112+59 CONSTRUCT
DROP INLET ON LT. H=4'-5"
WITH 18" X 31'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'

STA. 112+59 CONSTRUCT
DROP INLET ON RT. H=12'-6"
WITH 18" X 58'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'

STA. 115+14 CONSTRUCT
DROP INLET ON LT. H=17'-3"
WITH 4' EXTENSION AND 18" X 140'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'

STA. 116+00 CONSTRUCT
DROP INLET ON LT. H=4'-11"
WITH 18" X 85'
PIPE CULVERT TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 120 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 120 LIN.FT.

STA. 119+00 CONSTRUCT
DROP INLET ON LT. H=4'-11"
WITH 18" X 192'
PIPE CULVERT TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 192 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 192 LIN.FT.

STA. 121+00 CONSTRUCT
DROP INLET ON LT. H=4'-11"
WITH 4' EXTENSION AND 18" X 241'
PIPE CULVERT TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 241 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 241 LIN.FT.

STA. 123+50 CONSTRUCT
DROP INLET ON LT. H=5'-5"
WITH 4' EXTENSION AND 18" X 193'
PIPE CULVERT TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 193 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 193 LIN.FT.

STA. 125+50 CONSTRUCT
DROP INLET ON LT. H=9'-11"
WITH 4' EXTENSION AND 24" X 50'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES.
WITH 24" X 91'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'

STA. 127+62 CONSTRUCT
DROP INLET ON LT. H=6'-6"
WITH 8' EXTENSION AND 30" X 47'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
WITH 30" X 20'
R.C. PIPE CULVERT INLET (CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 5' X 4'

STA. 127+62 CONSTRUCT
DROP INLET ON RT. H=6'-7"
WITH 8' EXTENSION AND 30" X 93'
R.C. PIPE CULVERT OUTLET (CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 5' X 4'

STA. 128+25 CONSTRUCT
DROP INLET ON LT. H=4'-2"
WITH 18" X 41'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'

STA. 128+25 CONSTRUCT
DROP INLET ON RT. H=4'-3"
WITH 18" X 59'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 59 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 59 LIN.FT.

STA. 130+00 CONSTRUCT
DROP INLET ON RT. H=3'-8"
WITH 18" X 171'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 171 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 171 LIN.FT.

STA. 132+00 CONSTRUCT
DROP INLET ON RT. H=4'-1"
WITH 18" X 193'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 193 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 193 LIN.FT.

STA. 134+00 CONSTRUCT
DROP INLET ON RT. H=4'-0"
WITH 18" X 190'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 190 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 190 LIN.FT.

STA. 136+00 CONSTRUCT
DROP INLET ON RT. H=4'-0"
WITH 18" X 190'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 190 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 190 LIN.FT.

STA. 137+00 CONSTRUCT
DROP INLET ON RT. H=3'-10"
WITH 18" X 94'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 94 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 94 LIN.FT.

STA. 138+00 CONSTRUCT
DROP INLET ON RT. H=3'-10"
WITH 18" X 135'
PIPE CULVERT TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 135 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 135 LIN.FT.

STA. 138+36 CONSTRUCT
DROP INLET ON LT. H=4'-3"
WITH 18" X 70'
PIPE CULVERT TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 70 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 70 LIN.FT.

STA. 139+10 CONSTRUCT
DROP INLET ON LT. H=5'-4"
WITH 18" X 54'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'

STA. 139+39 CONSTRUCT
DROP INLET ON RT. H=5'-11"
WITH 4' EXTENSION AND 18" X 53'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'

STA. 202+98 CONSTRUCT
JUNCTION BOX ON RT. H=2'-10"
TIE TO EXISTING 2' X 2' ROCK BOX CULVERT
WITH 24" X 198'
PIPE CULVERT TO DROP INLET ON RT.
TYPE E JUNCTION BOX = 4' X 4'
24" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 198 LIN.FT.
24" SLPPMCCS PIPE (TYPE 2 BEDDING) = 198 LIN.FT.

STA. 205+00 CONSTRUCT
DROP INLET ON RT. H=3'-8"
WITH 8' EXTENSTION AND 24" X 86'
PIPE CULVERT TO JUNCTION BOX ON HWY. 162
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
24" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 86 LIN.FT.
24" SLPPMCCS PIPE (TYPE 2 BEDDING) = 86 LIN.FT.

STA. 205+69 CONSTRUCT
DROP INLET ON LT. H=3'-10"
OPEN IN BACK
WITH 8' EXTENSION AND 18" X 390'
R.C. PIPE CULVERT INLET (CLASS III) (TYPE 3 BEDDING)
WITH FES.
WITH 18" X 142'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'

STA. 207+15 CONSTRUCT
DROP INLET ON LT. H=3'-11"
WITH 51" X 31" X 55'
R.C. ARCH PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 5' X 5'

STA. 207+15 CONSTRUCT
DROP INLET ON RT. H=3'-10"
WITH 51" X 31" X 23'
R.C. ARCH PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
TO DROP INLET ON LT.
TYPE MO DROP INLET = 5' DIA.
TYPE C DROP INLET = 5' X 5'

STA. 303+69 CONSTRUCT
DROP INLET ON RT. H=8'-5"
WITH 8' EXTENSTION AND 18" X 111'
PIPE CULVERT TO DROP INLET ON HWY. 162
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 111 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 111 LIN.FT.

STA. 306+20 CONSTRUCT
DROP INLET ON LT. H=4'-2"
WITH 4' EXTENSION AND 18" X 24'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'

3/3/2015

R040456.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.		040456	52	179

(2) SYSTEM MAP

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

HWY. 71/COLLUM LANE

270°
ANTENNA ORIENTATION

MASTER ANTENNA SITE
HWY. 71/I-40 INTERCHANGE

HWY. 64/HWY. 71B & 162

90°
ANTENNA ORIENTATION

HWY. 162/HWY. 64 & N. MT. GROVE RD.

135°
ANTENNA ORIENTATION

HWY. 64/RUDY RD.

63°
ANTENNA ORIENTATION

HWY. 162/HWY. 64 (CHERRY ST.)

130°
ANTENNA ORIENTATION

HWY. 162/E. MAIN ST.

122°
ANTENNA ORIENTATION

ALMA

SCALE IN FEET
0 500 1000 2000

LOCATION:	HWY. 162 IMPROVEMENTS (ALMA) (S)		
CITY:	ALMA		
COUNTY:	CRAWFORD		
DISTRICT:	4	SCALE: 1"=1000'	DRAWN BY: GWE

DATE: 02-26-15 FILE NAME: t040456_job.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-6-2015				6	ARK.			
				JOB NO.		040456	53	179

(2) SUMMARY OF SIGNALIZATION QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
10-7-15

SUMMARY OF SIGNALIZATION QUANTITIES

	ITEM NO.	ITEM	HWY. 71 AT I-40 INTCH.	HWY. 71 AT COLLUM LANE	HWY. 64 AT HWY. 71B & 162	HWY. 64 AT RUDY ROAD	HWY. 162 AT E. MAIN ST.	HWY. 162 AT HWY. 64B (E. CHERRY ST.)	HWY. 162 AT HWY. 64 & (N. MT. GROVE RD.)	TOTAL JOB QUANTITY	UNIT
	SP&701	SYSTEM LOCAL CONTROLLER TS 2-TYPE 2 (8 PHASES)	1	1	1	1	1	1	1	7	EACH
	SP&706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1WAY)					6	10	8	24	EACH
	SP&706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1WAY)					4	3	4	11	EACH
	SP&707	COUNTDOWN PEDESTRIAN SIGNAL HEAD LED					8	8	2	18	EACH
	708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)					1358	1720	555	3633	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)					258	248	302	808	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (12C/14 A.W.G.)					242			242	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)					296	588	577	1461	LIN. FT.
	709	GALVANIZED STEEL CONDUIT (1.25")					20	20	20	60	LIN. FT.
	710	NON-METALLIC CONDUIT (1.25")					20	20	20	60	LIN. FT.
	710	NON-METALLIC CONDUIT (2")					20	20	20	60	LIN. FT.
	710	NON-METALLIC CONDUIT (3")					410	580	409	1399	LIN. FT.
	711	CONCRETE PULL BOX (TYPE 2)					1			1	EACH
	711	CONCRETE PULL BOX (TYPE 2 HD)					5	7	5	17	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (28')					1			1	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (32')					1			1	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (34')						1		1	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (36')							1	1	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (40')						2		2	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (42')					1			1	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (46')							1	1	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')						1		1	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (68')							2	2	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (72')					1			1	EACH
	715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION					2	1	1	4	EACH
	733	VIDEO CABLE					1295	1807	1758	4860	LIN. FT.
	SP&733	VIDEO DETECTOR (CLR)					•8	8	8	24	EACH
	733	VIDEO MONITOR (CLR)					1	1	1	3	EACH
	SP&733	VEHICLE DETECTOR RACK (16 CHANNEL)					1	1	1	3	EACH
	SP&733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)					•5	4	4	13	EACH
••	SP	ANTENNA SUPPORT (SHOE BASE, 50' HT.)	1							1	EACH
	SP	E-NET CABLE (EXTERIOR CAT 5)	160	35	50	35				280	LIN. FT.
	SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES					543	783	772	2098	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)					509	598	503	1610	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., E.G.C.)					150	195	195	540	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)					20	20	20	60	LIN. FT.
	SP	EMERGENCY BACKUP LOCAL RADIO UNIT	1							1	EACH
	SP	ETHERNET SWITCH, TI00 HARDENED (8-PORT)	1	1	1	1	1	1	1	7	EACH
	SP	LOCAL RADIO (E-NET 5.8) WITH ANTENNA	1	1	1	1	1	1	1	7	EACH
	SP	LUMINAIRE ASSEMBLY					3	4	4	11	EACH
	SP	MASTER RADIO (E-NET 5.8) WITH ANTENNA	1							1	EACH
	SP	ON-STREET MASTER CONTROLLER	1							1	EACH
	SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	0.25	0.25	0.25	0.25				1.00	LUMP SUM
	SP	SERIAL TO ETHERNET PORT SERVER, TI00 HARDENED (2 PORT)	1	1	1	1	1	1	1	7	EACH
	SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)					1	1	1	3	EACH
	SP	18" STREET NAME SIGN					4	4	4	12	EACH

• ONE SPARE VIDEO DETECTOR AND ONE SPARE VIDEO PROCESSOR SHALL BE SUPPLIED.

•• ANTENNA SUPPORT (SHOE BASE, 50' HT.) AT THE MASTER SITE HWY. 71/I-40 INTERCHANGE INSTALLED ON THE SOUTH SIDE OF I-40 ACROSS FROM MASTER DUE TO OVERHEAD UTILITY CONFLICTS. E-NET CABLE (EXTERIOR CAT 5) NOT TO EXCEED 333 FEET TOTAL LENGTH.

DATE: 10-07-15 FILE NAME: t040456_job.dgn

LOCATION: HWY. 162 IMPROVEMENTS (ALMA) (S)
CITY: ALMA
COUNTY: CRAWFORD
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

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.		040456	54	179

(2) TRAFFIC SIGNAL NOTES

TRAFFIC SIGNAL NOTES:

1. PERFORM ELECTRICAL WORK IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (2014) NATIONAL ELECTRICAL CODE, NFPA 101(2012) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.
2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (EGC) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND EGC 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 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 USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO TAP INTO THE CITY'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 AWG 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 SHALL HAVE 16 LOAD BAYS 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 ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARDS AND DETAILS, AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITIONS.
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 MAY BE USED.
9. TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.
10. PAVEMENT MARKING SHOWN FOR REFERENCE ONLY. SEE PAVEMENT MARKING PLAN SHEETS.
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 SPECIAL DETAILS). PAYMENT WILL BE INCLUDED IN SECTION 714, AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
12. ALL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE 3" 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. 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, 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 21' SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL 6 FEET SHOULD BE USED DIRECTLY ABOVE "VIDEO DETECTOR" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.
17. 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.
18. 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.
19. 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.
20. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO ISMA STANDARDS.
21. ONE VIDEO PROGRAMMING 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.
22. 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.
23. ALL STEEL POLES SHALL BE DESIGNED TO MEET THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 2013 6TH EDITION.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

DATE: 02-26-15 FILE NAME: t040456.dgn

LOCATION: HWY. 162 IMPROVEMENTS (ALMA) (S)
CITY: ALMA
COUNTY: CRAWFORD
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

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.		040456	55	179

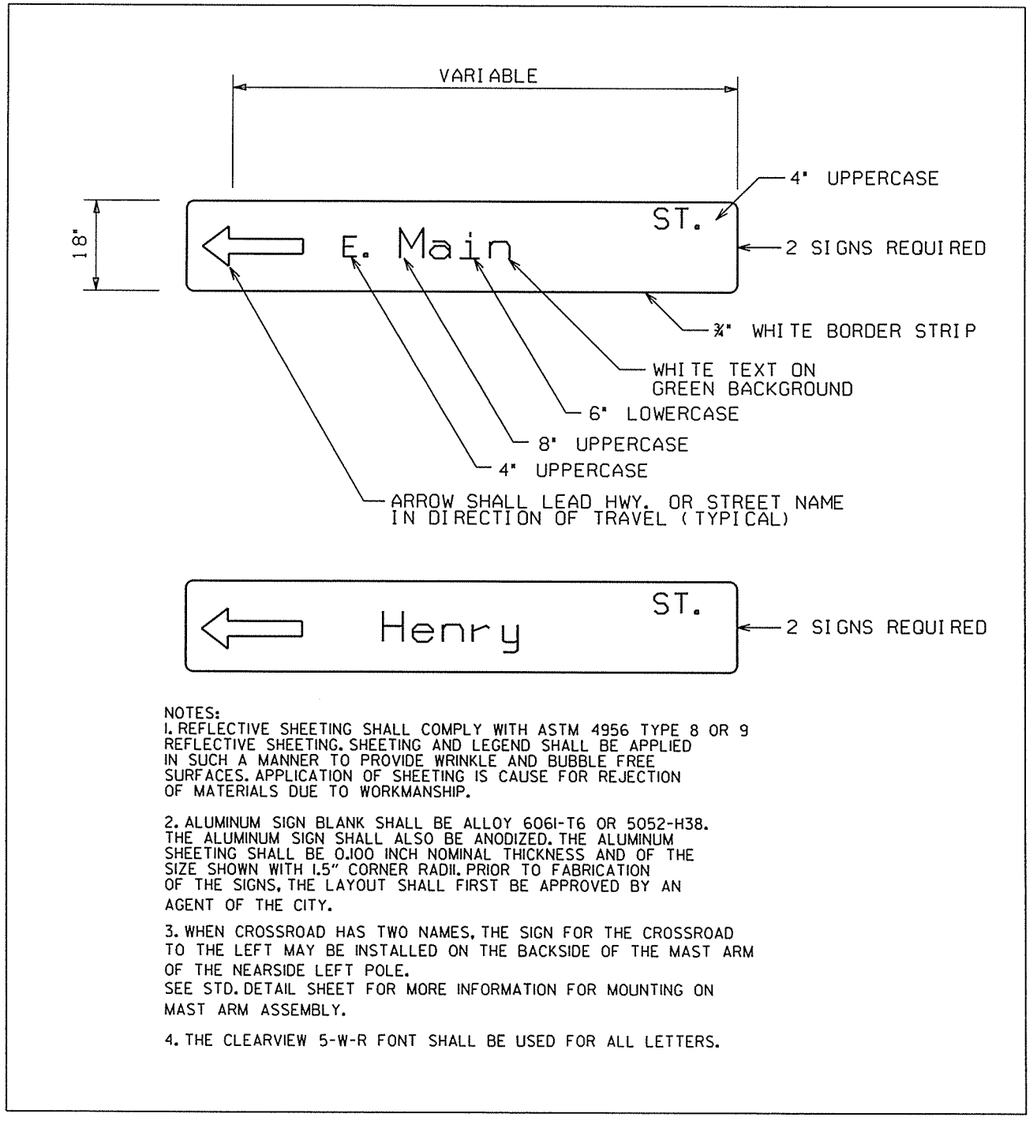
(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

TRAFFIC SIGNAL QUANTITIES

ITEM NO.	ITEM	QUANTITY	UNIT
SP&701	SYSTEM LOCAL CONTROLLER TS2-TYPE 2 (8 PHASES)	1	EACH
SP&706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	6	EACH
SP&706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	4	EACH
SP&707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	8	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	1358	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	258	LIN. FT.
708	TRAFFIC SIGNAL CABLE (12C/14 A.W.G.)	242	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	296	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (2")	20	LIN. FT.
710	NON-METALLIC CONDUIT (3")	410	LIN. FT.
711	CONCRETE PULL BOX (TYPE 2 HD)	5	EACH
711	CONCRETE PULL BOX (TYPE 2)	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (28')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (32')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (42')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (72')	1	EACH
715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	2	EACH
733	VIDEO CABLE	1295	LIN. FT.
• SP&733	VIDEO DETECTOR (CLR)	8	EACH
733	VIDEO MONITOR (CLR)	1	EACH
• SP&733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	5	EACH
SP&733	VEHICLE DETECTOR RACK (16 CHANNEL)	1	EACH
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., EGC)	509	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., EGC)	150	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	20	LIN. FT.
SP	ETHERNET SWITCH, TI00 HARDENED (8-PORT)	1	EACH
SP	LOCAL RADIO (E-NET 5.8) WITH ANTENNA	1	EACH
SP	LUMINAIRE ASSEMBLY	3	EACH
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	543	LIN. FT.
SP	SERIAL TO ETHERNET PORT SERVER, TI00 HARDENED (2 PORT)	1	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
SP	18" STREET NAME SIGN	4	EACH

• QUANTITIES INCLUDE ONE SPARE VIDEO DETECTOR AND ONE SPARE VIDEO PROCESSOR.



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 ANODIZED. 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. WHEN CROSSROAD HAS TWO NAMES, THE SIGN FOR THE CROSSROAD TO THE LEFT MAY BE INSTALLED ON THE BACKSIDE OF THE MAST ARM OF THE NEARSIDE LEFT POLE.
SEE STD. DETAIL SHEET FOR MORE INFORMATION FOR MOUNTING ON MAST ARM ASSEMBLY.

4. THE CLEARVIEW 5-W-R FONT SHALL BE USED FOR ALL LETTERS.

DATE: 02-26-15 FILE NAME: t040456_01.dgn

LOCATION: HWY. 162/E. MAIN ST.
CITY: ALMA
COUNTY: CRAWFORD
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

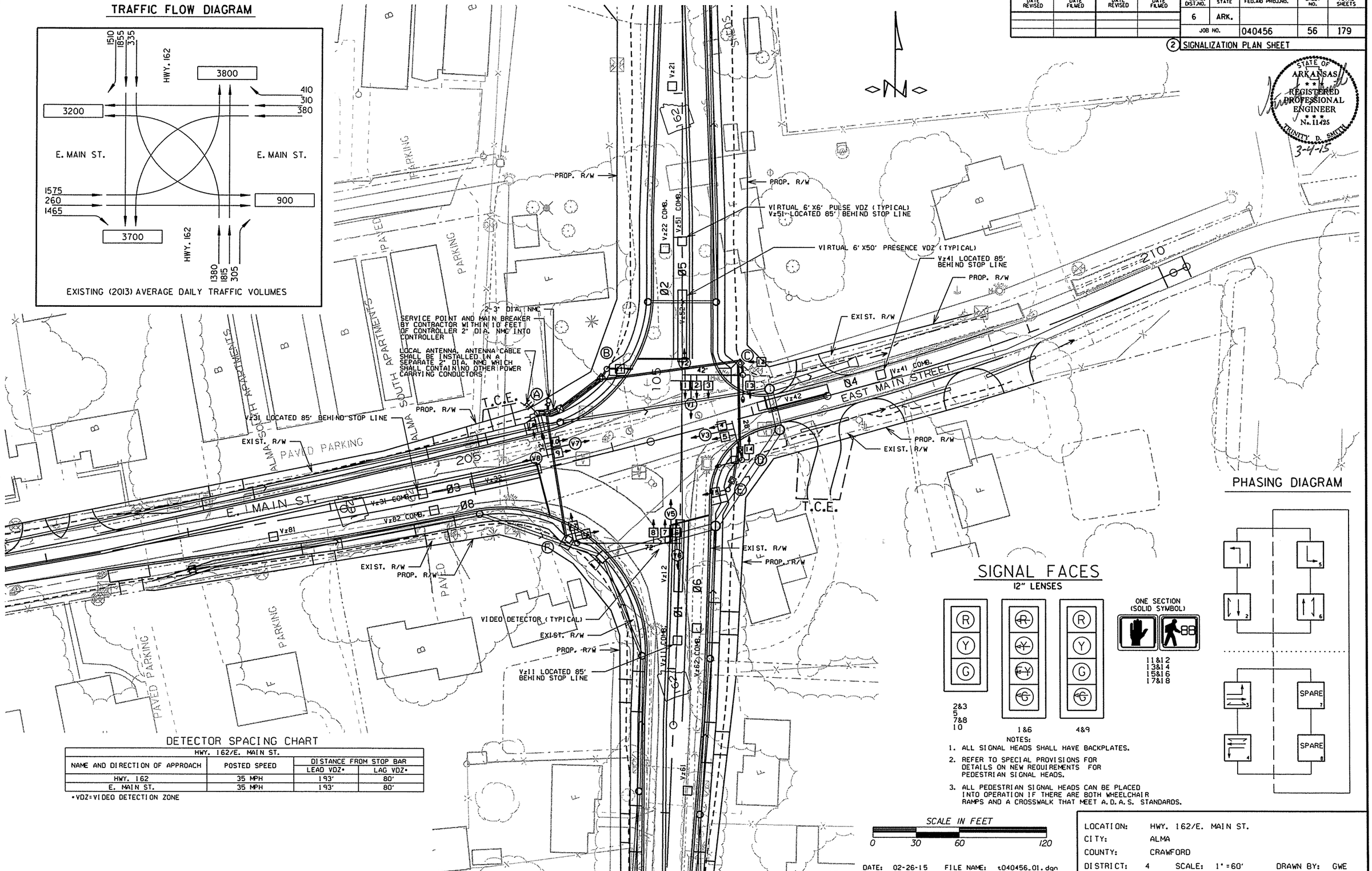
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	56	179

(2) SIGNALIZATION PLAN SHEET

TRAFFIC FLOW DIAGRAM

EXISTING (2013) AVERAGE DAILY TRAFFIC VOLUMES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15



PHASING DIAGRAM

SIGNAL FACES

12" LENSES

NOTES:

1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
3. ALL PEDESTRIAN SIGNAL HEADS CAN BE PLACED INTO OPERATION IF THERE ARE BOTH WHEELCHAIR RAMPS AND A CROSSWALK THAT MEET A.D.A.S. STANDARDS.

DETECTOR SPACING CHART

HWY. 162/E. MAIN ST.			
NAME AND DIRECTION OF APPROACH	POSTED SPEED	DISTANCE FROM STOP BAR	
		LEAD VDZ*	LAG VDZ*
HWY. 162	35 MPH	193'	80'
E. MAIN ST.	35 MPH	193'	80'

*VDZ=VIDEO DETECTION ZONE

SCALE IN FEET
0 30 60 120

DATE: 02-26-15 FILE NAME: t040456_01.dgn

LOCATION: HWY. 162/E. MAIN ST.
CITY: ALMA
COUNTY: CRAWFORD
DISTRICT: 4 SCALE: 1"=60' DRAWN BY: GWE

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.		040456	57	179

(2) SIGNALIZATION PLAN SHEET

HWY. 162/E. MAIN ST. POLE LOCATIONS

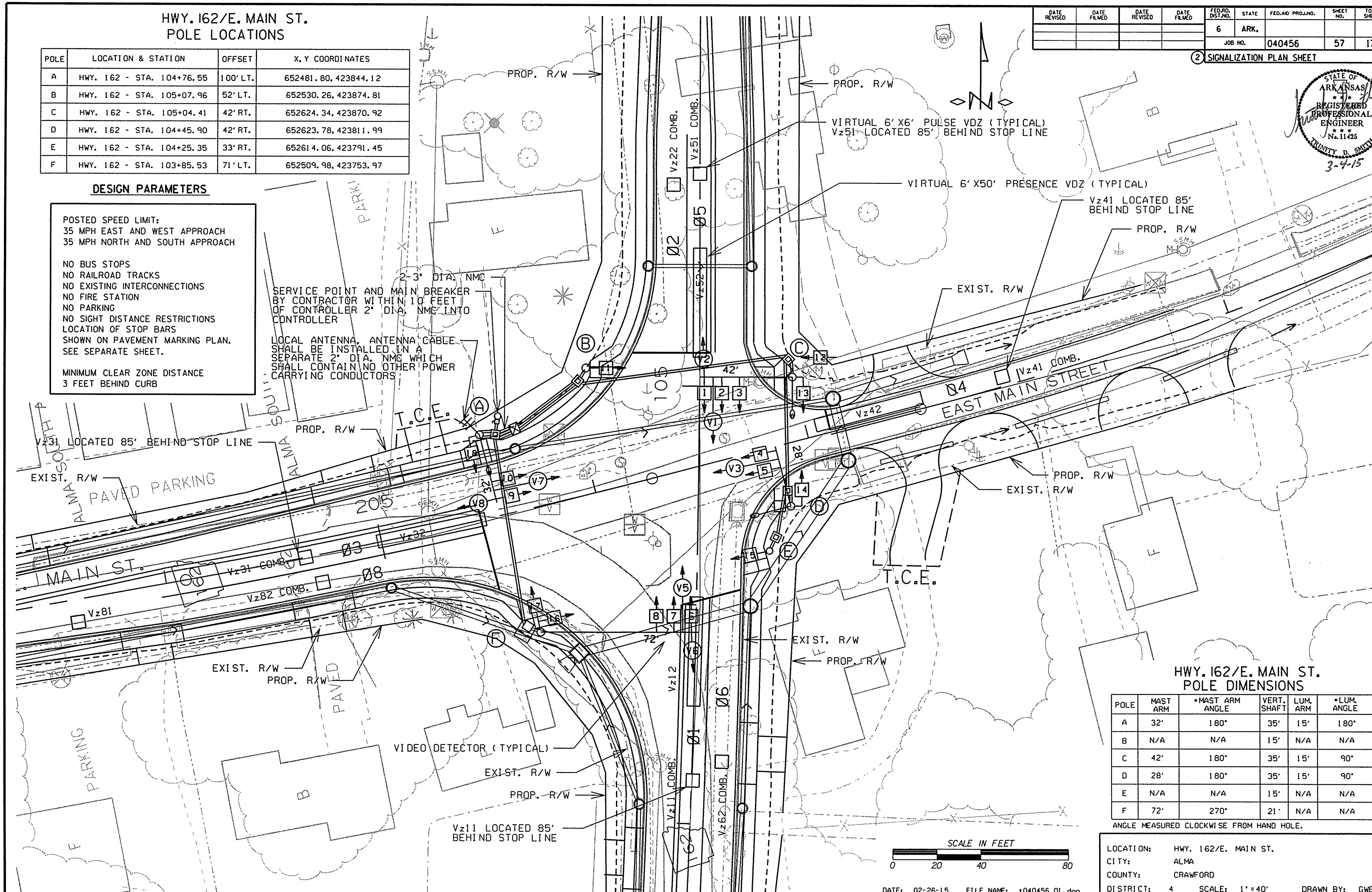
POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 162 - STA. 104+76.55	100' LT.	652481.80, 423844.12
B	HWY. 162 - STA. 105+07.96	52' LT.	652530.26, 423874.81
C	HWY. 162 - STA. 105+04.41	42' RT.	652624.34, 423870.92
D	HWY. 162 - STA. 104+45.90	42' RT.	652623.78, 423811.99
E	HWY. 162 - STA. 104+25.35	33' RT.	652614.06, 423791.45
F	HWY. 162 - STA. 103+85.53	71' LT.	652509.98, 423753.97

DESIGN PARAMETERS

POSTED SPEED LIMIT:
35 MPH EAST AND WEST APPROACH
35 MPH NORTH AND SOUTH APPROACH

NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS
LOCATION OF STOP BARS SHOWN ON PAVEMENT MARKING PLAN. SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE 3 FEET BEHIND CURB



STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 3-4-15

HWY. 162/E. MAIN ST. POLE DIMENSIONS

POLE	MAST ARM	•MAST ARM ANGLE	VERT. SHAFT	LUM. ARM	•LUM. ANGLE
A	32'	180°	35'	15'	180°
B	N/A	N/A	15'	N/A	N/A
C	42'	180°	35'	15'	90°
D	28'	180°	35'	15'	90°
E	N/A	N/A	15'	N/A	N/A
F	72'	270°	21'	N/A	N/A

• ANGLE MEASURED CLOCKWISE FROM HAND HOLE.

SCALE IN FEET: 0 20 40 80

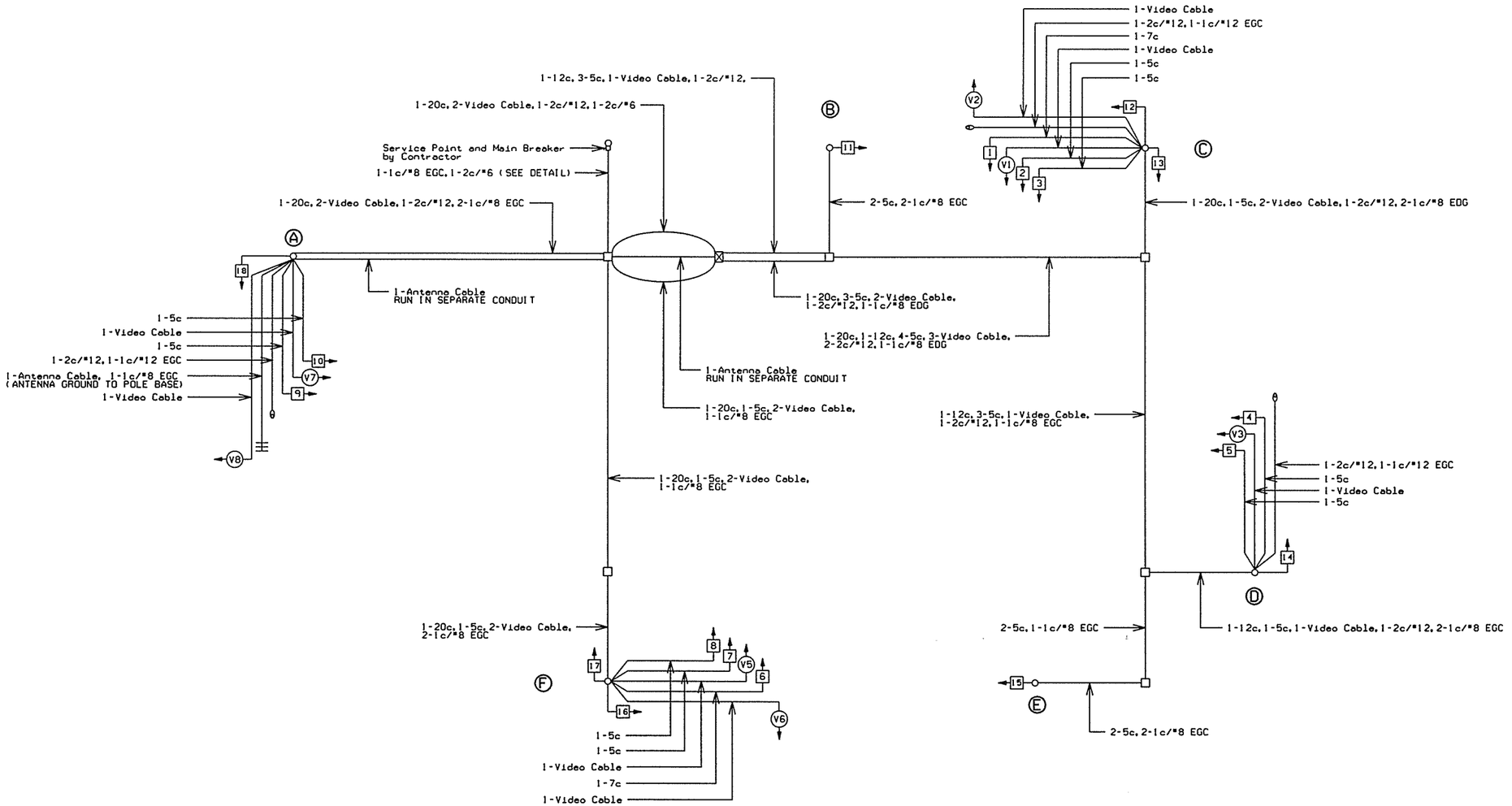
DATE: 02-26-15 FILE NAME: t040456.01.dgn

LOCATION: HWY. 162/E. MAIN ST.
CITY: ALMA
COUNTY: CRAWFORD
DISTRICT: 4 SCALE: 1" = 40' DRAWN BY: GWE

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.		040456	58	179

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15



WIRING DIAGRAM

NOTES TO CONTRACTOR:

1. ONE SEPARATE 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.

DATE: 02-26-15 FILE NAME: t040456_01.dgn

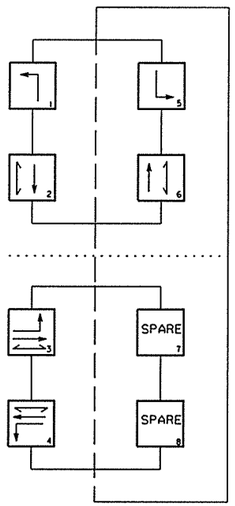
LOCATION: HWY. 162/E. MAIN ST.
CITY: ALMA
COUNTY: CRAWFORD
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

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.		040456	59	179

(2) SIGNALIZATION PLAN SHEET

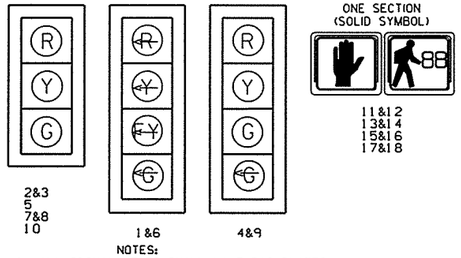
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

PHASING DIAGRAM



SIGNAL FACES

12" LENSES



NOTES:

1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
3. ALL PEDESTRIAN SIGNAL HEADS CAN BE PLACED INTO OPERATION IF THERE ARE BOTH WHEELCHAIR RAMPS AND A CROSSWALK THAT MEET A.D.A.S. STANDARDS.

DETECTOR SYSTEM DESCRIPTION: JOB 040456											
ALMA - HWY. 162/E. MAIN ST. DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS			COMMENTS	TUBE LENGTHS
							LOCAL		MASTER SYSTEM		
DET. ID*	LOCATION DIRECTION	TYPE	DET. *	CAB. TRM *	AMP CHN. *	CON. INP.*	PHS	SYSTEM DET. *	DETECTOR NUMBERS		
Vz11	NB LEFT TURN FAR	COMB.			1	D1	1	1		CAMERA V1	23'
Vz12	NB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	23'
Vz21	SB ADVANCE	LOCAL			5	V2	2			CAMERA V2	23'
Vz22	SB NEAR	COMB.			6	V10	2	2		CAMERA V5	23'
Vz31	EB LEFT TURN FAR	COMB.			9	V11	3	3		CAMERA V3	23'
Vz32	EB LEFT TURN	LOCAL			10	V3	3			CAMERA V3	23'
Vz41	WB ADVANCE	COMB.			13	V12	4	4		CAMERA V7	23'
Vz42	WB NEAR	LOCAL			14	V4	4			CAMERA V7	23'
Vz51	SB LEFT TURN FAR	COMB.			7	V13	5	5		CAMERA V5	23'
Vz52	SB LEFT TURN	LOCAL			8	V5	5			CAMERA V5	23'
Vz61	NB ADVANCE	LOCAL			3	V6	6			CAMERA V6	23'
Vz62	NB INTERMEDIATE	COMB.			4	V14	6	6		CAMERA V1	23'
Vz81	EB ADVANCE	COMB.			11	V16	8	8		CAMERA V8	23'
Vz82	EB NEAR	LOCAL			12	V8	8			CAMERA V3	23'
PB2A&B	E. MAIN ST. E. LEG	PED.				P2	2				
PB3A&B	HWY. 162 S. LEG	PED.				P3	3				
PB4A&B	HWY. 162 N. LEG	PED.				P4	4				
PB6A&B	E. MAIN ST. W. LEG	PED.				P6	6				
					SPARE 15 & 16						

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICLE INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

INTERVAL CHART

SIGNAL FACES	HWY. 162/E. MAIN ST.										FLASH SEQ.
	1+5	CLR.	1+6	CLR.	2+6	CLR.	3	CLR.	4	CLR.	
1	~~G~~	•	~~G~~	•	~~FY~~	•••	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
2&3	R	R	G	••	G	••	R	R	R	R	R
4	R	R	R	R	R	R	G/~~G~~	••/•	R	R	R
5	R	R	R	R	R	R	G	••	R	R	R
6	~~G~~	•	~~FY~~	•••	~~FY~~	•••	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
7&8	R	R	R	R	G	••	R	R	R	R	R
9	R	R	R	R	R	R	R	R	G/~~G~~	••/•	R
10	R	R	R	R	R	R	R	R	G	••	R
11&12	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	BLK
13&14	DW	DW	W	FDW	W	FDW	DW	DW	DW	DW	BLK
15&16	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	BLK
17&18	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	BLK

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE

DATE: 02-26-15 FILE NAME: t040456_01.dgn

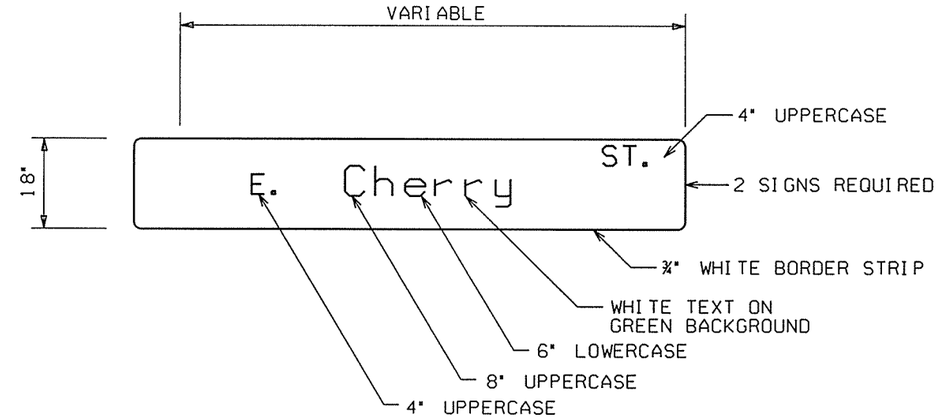
LOCATION: HWY. 162/E. MAIN ST.
CITY: ALMA
COUNTY: CRAWFORD
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

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.		040456	60	179
				(2) SIGNALIZATION PLAN SHEET				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

TRAFFIC SIGNAL QUANTITIES

ITEM NO.	ITEM	QUANTITY	UNIT
SP&701	SYSTEM LOCAL 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)	3	EACH
SP&707	COUNTDOWN PEDESTRIAN SIGNAL HEAD LED	8	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	1720	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	248	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	588	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (2")	20	LIN. FT.
710	NON-METALLIC CONDUIT (3")	580	LIN. FT.
711	CONCRETE PULL BOX (TYPE 2 HD)	7	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (34')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (40')	2	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')	1	EACH
715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	1	EACH
733	VIDEO CABLE	1807	LIN. FT.
SP&733	VIDEO DETECTOR (CLR)	8	EACH
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
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., EGC)	598	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., EGC)	195	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	20	LIN. FT.
SP	ETHERNET SWITCH, TI00 HARDENED (8-PORT)	1	EACH
SP	LOCAL RADIO (E-NET 5.8) WITH ANTENNA	1	EACH
SP	LUMINAIRE ASSEMBLY	4	EACH
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	783	LIN. FT.
SP	SERIAL TO ETHERNET PORT SERVER, TI00 HARDENED (2 PORT)	1	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
SP	18" STREET NAME SIGN	4	EACH



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 ANODIZED. 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. WHEN CROSSROAD HAS TWO NAMES, THE SIGN FOR THE CROSSROAD TO THE LEFT MAY BE INSTALLED ON THE BACKSIDE OF THE MAST ARM OF THE NEARSIDE LEFT POLE.
SEE STD. DETAIL SHEET FOR MORE INFORMATION FOR MOUNTING ON MAST ARM ASSEMBLY.

4. THE CLEARVIEW 5-W-R FONT SHALL BE USED FOR ALL LETTERS.

DATE: 02-26-15 FILE NAME: t040456_02.dgn

LOCATION: HWY. 162/HWY. 64B (E. CHERRY ST.)
CITY: ALMA
COUNTY: CRAWFORD
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

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.		040456	61	179

(2) SIGNALIZATION PLAN SHEET

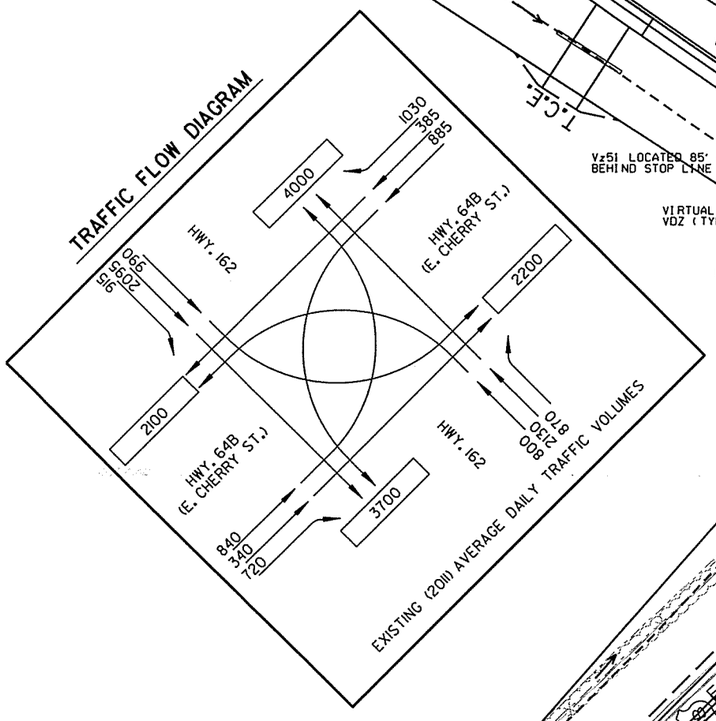
DETECTOR SPACING CHART

HWY. 162/HWY. 64B (E. CHERRY ST.)			
NAME AND DIRECTION OF APPROACH	POSTED SPEED	DISTANCE FROM STOP BAR	
		LEAD VDZ*	LAG VDZ*
HWY. 162	40 MPH	227'	97'
HWY. 64B (E. CHERRY ST.)	45 MPH	258'	113'

*VDZ=VIDEO DETECTION ZONE

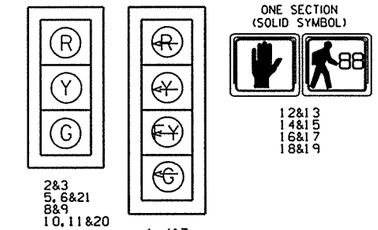
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

TRAFFIC FLOW DIAGRAM



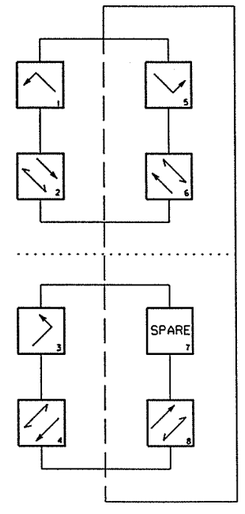
SIGNAL FACES

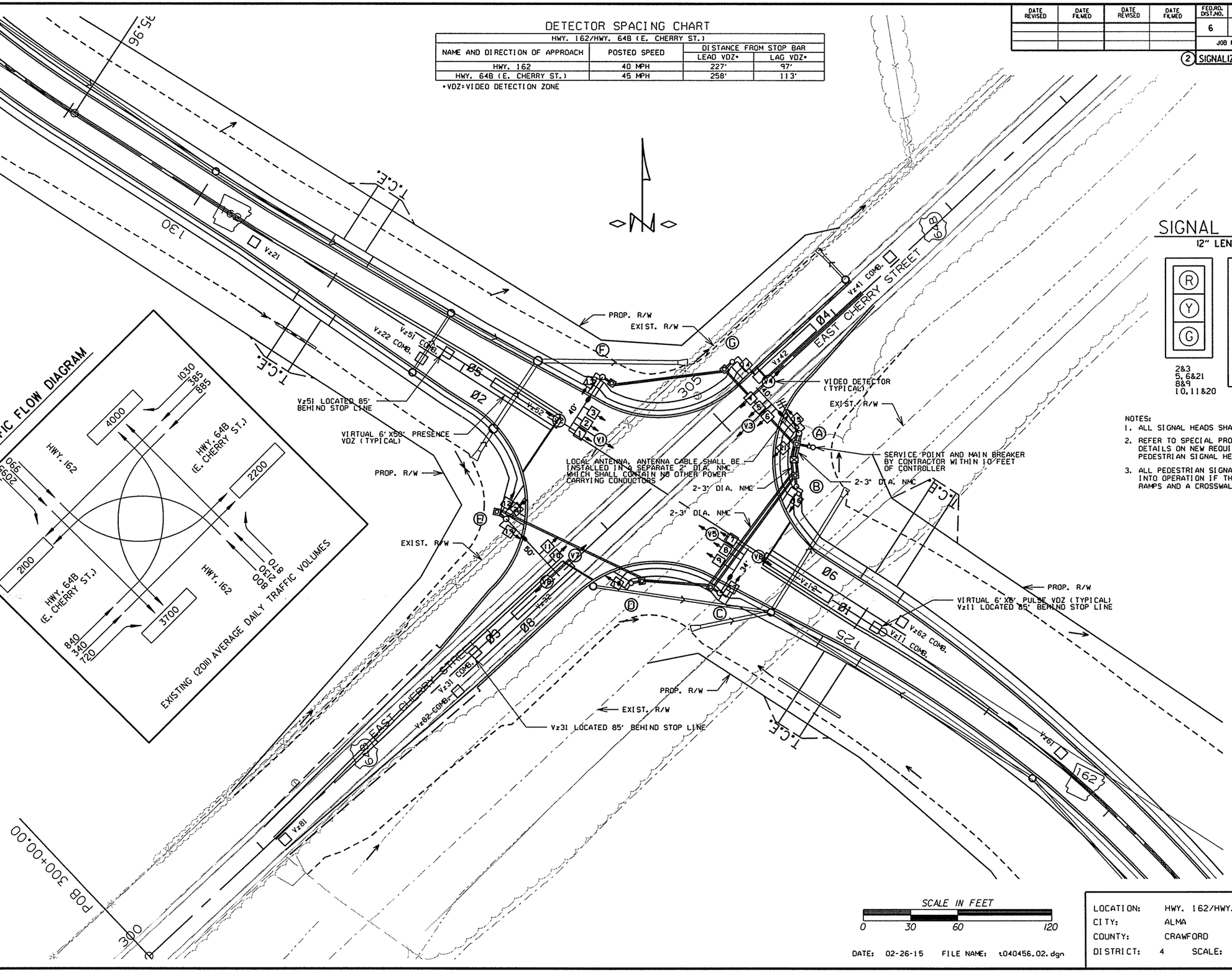
12" LENSES



NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
3. ALL PEDESTRIAN SIGNAL HEADS CAN BE PLACED INTO OPERATION IF THERE ARE BOTH WHEELCHAIR RAMPS AND A CROSSWALK THAT MEET A.D.A.S. STANDARDS.

PHASING DIAGRAM





SCALE IN FEET
0 30 60 120

DATE: 02-26-15 FILE NAME: t040456_02.dgn

LOCATION:	HWY. 162/HWY. 64B (E. CHERRY ST.)			
CITY:	ALMA			
COUNTY:	CRAWFORD			
DISTRICT:	4	SCALE:	1"=60'	DRAWN BY: GWE

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.		040456	62	179

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TIMOTHY D. SMITH
3-4-15

HWY. 162/HWY. 64B (E. CHERRY ST.)
POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 162 - STA. 125+96.69	78' RT.	652088.81, 425826.02
B	HWY. 162 - STA. 125+79.83	49' RT.	652087.05, 425792.12
C	HWY. 162 - STA. 125+84.21	35' LT.	652038.11, 425724.11
D	HWY. 162 - STA. 126+35.21	60' LT.	651981.56, 425730.46
E	HWY. 162 - STA. 127+24.35	69' LT.	651901.84, 425771.31
F	HWY. 162 - STA. 127+21.56	41' RT.	651963.42, 425861.89
G	HWY. 162 - STA. 126+57.21	94' RT.	652046.26, 425871.73

HWY. 162/HWY. 64B (E. CHERRY ST.)
POLE DIMENSIONS

POLE	MAST ARM	•MAST ARM ANGLE	VERT. SHAFT	LUM. ARM	•LUM. ANGLE
A	40'	270°	35'	15'	270°
B	N/A	N/A	15'	N/A	N/A
C	34'	180°	35'	10'	180°
D	N/A	N/A	15'	N/A	N/A
E	50'	270°	35'	15'	270°
F	40'	270°	35'	15'	270°
G	N/A	N/A	15'	N/A	N/A

ANGLE MEASURED CLOCKWISE FROM HAND HOLE.

DESIGN PARAMETERS

POSTED SPEED LIMIT:
45 MPH EAST AND WEST APPROACH
40 MPH NORTH AND SOUTH APPROACH

NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS
LOCATION OF STOP BARS
SHOWN ON PAVEMENT MARKING PLAN.
SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE
3 FEET BEHIND CURB

T.C.E.
Vz21
Vz51 COMB.
Vz22 COMB.
Ø5
Ø2
Vz52
Vz51 LOCATED 85' BEHIND STOP LINE
VIRTUAL 6'X58' PRESENCE VDZ (TYPICAL)
PROP. R/W
EXIST. R/W
LOCAL ANTENNA, ANTENNA CABLE SHALL BE INSTALLED IN A SEPARATE 2" DIA. NMC WHICH SHALL CONTAIN NO OTHER POWER CARRYING CONDUCTORS
2-3" DIA. NMC
Vz41 COMB.
EAST CHERRY STREET
Ø4
Vz42
VIDEO DETECTOR (TYPICAL)
SERVICE POINT AND MAIN BREAKER BY CONTRACTOR WITHIN 1-0 FEET OF CONTROLLER
Ø6
Vz12
Ø1
VIRTUAL 6'X6' PULSE VDZ (TYPICAL)
Vz11 LOCATED 85' BEHIND STOP LINE
Vz62 COMB.
Vz11 COMB.
125
Vz61
Ø3
Ø8
Vz32
Vz31 COMB.
Vz82 COMB.
Vz31 LOCATED 85' BEHIND STOP LINE
305
64B

SCALE IN FEET
0 20 40 80

DATE: 02-26-15 FILE NAME: t040456_02.dgn

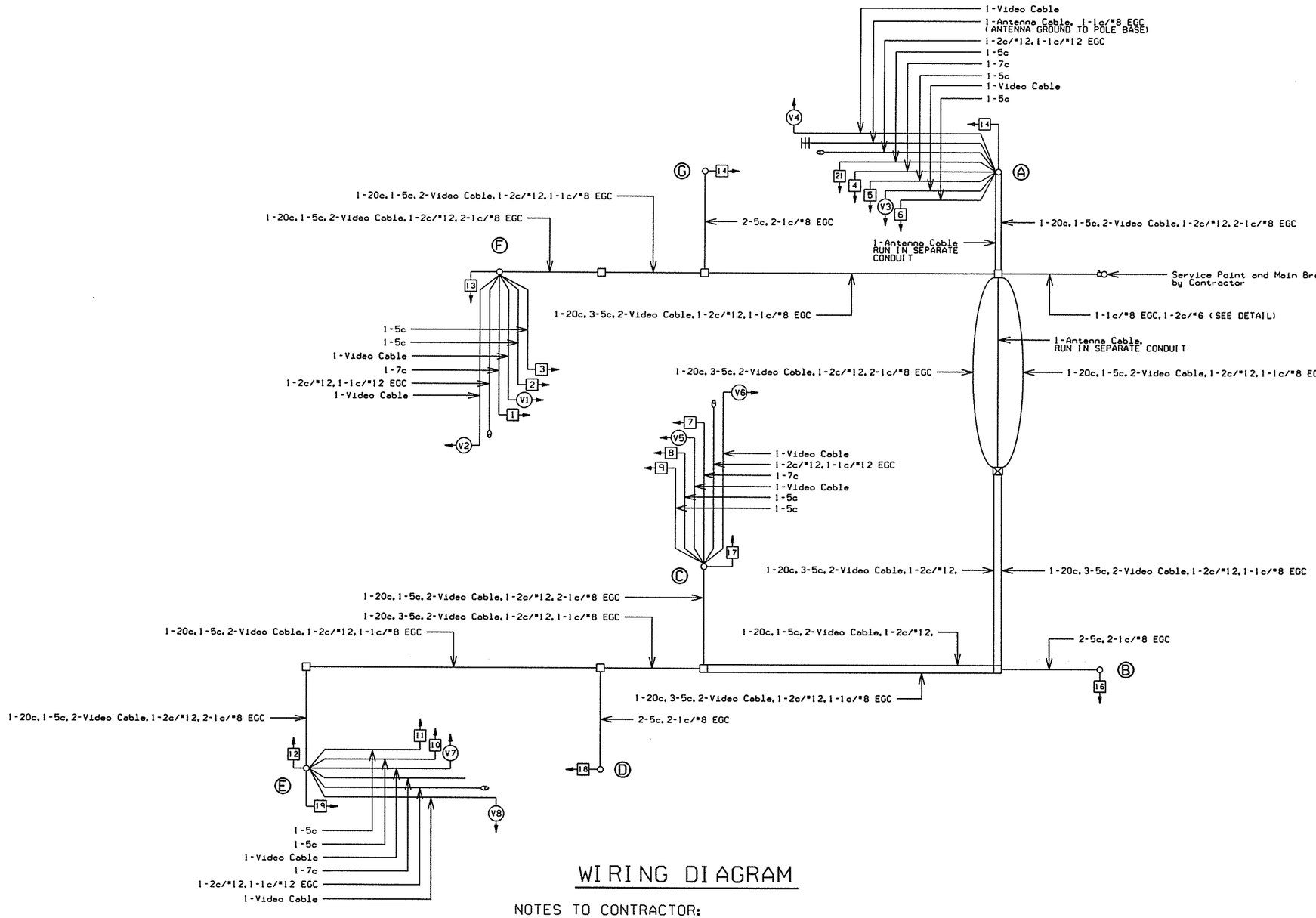
LOCATION: HWY. 162/HWY. 64B (E. CHERRY ST.)
CITY: ALMA
COUNTY: CRAWFORD
DISTRICT: 4 SCALE: 1"=40' DRAWN BY: GWE

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.		040456	63	179

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TIMOTHY D. SMITH
3-4-15



WIRING DIAGRAM

NOTES TO CONTRACTOR:

1. ONE SEPARATE 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.

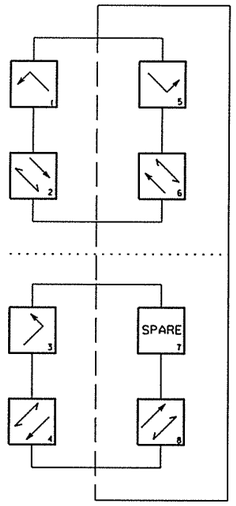
DATE: 02-26-15 FILE NAME: t040456_02.dgn

LOCATION: HWY. 162/HWY. 64B (E. CHERRY ST.)
CITY: ALMA
COUNTY: CRAWFORD
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

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.		040456	64	179
				(2) SIGNALIZATION PLAN SHEET				

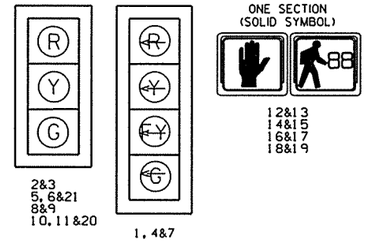
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

PHASING DIAGRAM



SIGNAL FACES

12" LENSES



NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
3. ALL PEDESTRIAN SIGNAL HEADS CAN BE PLACED INTO OPERATION IF THERE ARE BOTH WHEELCHAIR RAMPS AND A CROSSWALK THAT MEET A.D.A.S. STANDARDS.

DETECTOR SYSTEM DESCRIPTION: JOB 040456

ALMA - HWY. 162/HWY. 64B (E. CHERRY ST.) DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS LOCAL		MASTER SYSTEM DETECTOR NUMBERS	COMMENTS	TUBE LENGTHS
DET. ID*	LOCATION DIRECTION	TYPE	DET. *	CAB. TRM *	AMP CHN. *	CON. INP.*	PHS	SYSTEM DET. *			
Vz11	NB LEFT TURN FAR	COMB.			1	V9	1	1		CAMERA V1	23'
Vz12	NB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	23'
Vz21	SB ADVANCE	LOCAL			5	V2	2			CAMERA V2	23'
Vz22	SB INSIDE NEAR	COMB.			6	V10	2	2		CAMERA V5	23'
Vz31	EB LEFT TURN FAR	COMB.			9	V11	3	3		CAMERA V3	23'
Vz32	EB LEFT TURN	LOCAL			10	V3	3			CAMERA V3	23'
Vz41	WB ADVANCE	COMB.			13	V12	4	4		CAMERA V4	23'
Vz42	WB NEAR	LOCAL			14	V4	4			CAMERA V7	23'
Vz51	SB LEFT TURN FAR	COMB.			7	V13	5	5		CAMERA V5	23'
Vz52	SB LEFT TURN	LOCAL			8	V5	5			CAMERA V5	23'
Vz61	NB ADVANCE	LOCAL			3	V6	6			CAMERA V6	23'
Vz62	NB INSIDE NEAR	COMB.			4	V14	6	6		CAMERA V1	23'
Vz81	EB ADVANCE	LOCAL			11	V8	8			CAMERA V8	23'
Vz82	EB NEAR	COMB.			12	V16	8	8		CAMERA V3	23'
PB2A&B	SPARKSFORD W. LEG	PED.				P2	2				
PB4A&B	HWY. 124 N. LEG	PED.				P4	4				
PB6A&B	CROW MTN. RD.	PED.				P6	6				
PB8A&B	HWY. 124 S. LEG	PED.				P8	8				
					SPARE 15&16						

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICLE INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

NOTE: 'AMP CHN=' REFERS TO THE DETECTOR RACK OUTPUT POSITION.
THIS IS WIRED TO CONTROLLER INPUT DETECTOR NUMBER WHICH IS PROGRAMED TO ACTUATE THE DESIGNATED PHASE.
EXAMPLE: V9=SYSTEM DETECTOR 1, V10=SYSTEM DETECTOR 2

INTERVAL CHART

SIGNAL FACES	HWY. 162/HWY. 64B (E. CHERRY ST.) 1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	3+8	CLR.	4+8	CLR.	FLASH SEQ.
1	~~G~~	•	~~G~~	•	~~FY~~	•••	~~FY~~	•••	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
2,3&21	R	R	G	••	R	R	G	••	R	R	R	R	R
4	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	•	~~FY~~	•••	~~R~~
5&6	R	R	R	R	R	R	R	R	G	••	G	••	R
7	~~G~~	•	~~FY~~	•••	~~G~~	•	~~FY~~	•••	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
8&9	R	R	R	R	G	••	G	••	R	R	R	R	R
10,11&20	R	R	R	R	R	R	R	R	R	R	G	•••	R
12&13	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	BLK
14&15	DW	DW	W	FDW	DW	DW	W	FDW	DW	DW	DW	DW	BLK
16&17	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	W	FDW	BLK
18&19	DW	DW	DW	DW	W	FDW	W	FDW	DW	DW	DW	DW	BLK

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE

DATE: 02-26-15 FILE NAME: t040456_02.dgn

LOCATION: HWY. 162/HWY. 64B (E. CHERRY ST.)
CITY: ALMA
COUNTY: CRAWFORD
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

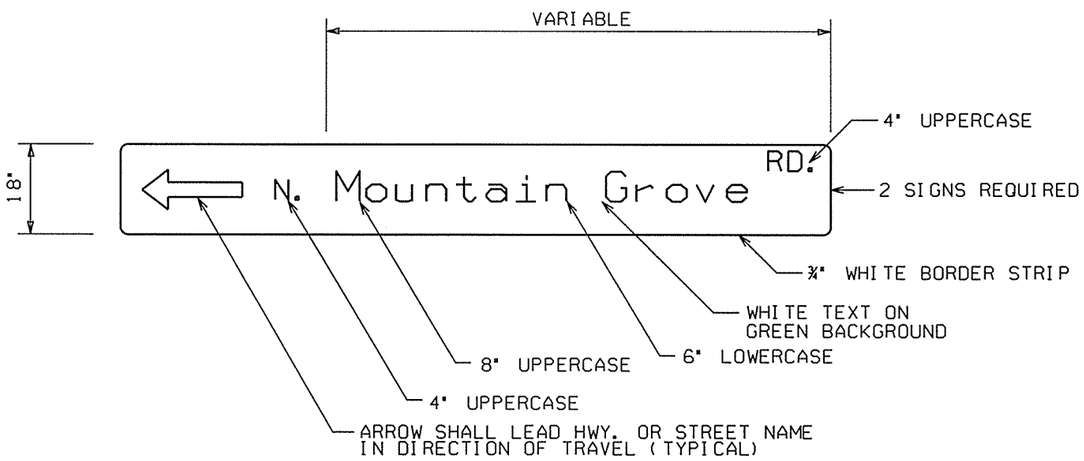
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	65	179

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

TRAFFIC SIGNAL QUANTITIES

ITEM NO.	ITEM	QUANTITY	UNIT
SP&701	SYSTEM LOCAL CONTROLLER TS2-TYPE 2 (8 PHASES)	1	EACH
SP&706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	8	EACH
SP&706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	4	EACH
SP&707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED	2	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	555	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	302	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	577	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")	20	LIN. FT.
710	NON-METALLIC CONDUIT (2")	20	LIN. FT.
710	NON-METALLIC CONDUIT (3")	409	LIN. FT.
711	CONCRETE PULL BOX (TYPE 2 HD)	5	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (36')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (46')	1	EACH
715	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (68')	2	EACH
715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION	1	EACH
733	VIDEO CABLE	1758	LIN. FT.
SP&733	VIDEO DETECTOR (CLR)	8	EACH
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
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., EGC)	503	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., EGC)	195	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	20	LIN. FT.
SP	ETHERNET SWITCH, TI00 HARDENED (8-PORT)	1	EACH
SP	LOCAL RADIO (E-NET 5.8) WITH ANTENNA	1	EACH
SP	LUMINAIRE ASSEMBLY	4	EACH
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	772	LIN. FT.
SP	SERIAL TO ETHERNET PORT SERVER, TI00 HARDENED (2 PORT)	1	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
SP	18" STREET NAME SIGN	4	EACH



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 ANODIZED. 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. WHEN CROSSROAD HAS TWO NAMES, THE SIGN FOR THE CROSSROAD TO THE LEFT MAY BE INSTALLED ON THE BACKSIDE OF THE MAST ARM OF THE NEARSIDE LEFT POLE.
SEE STD. DETAIL SHEET FOR MORE INFORMATION FOR MOUNTING ON MAST ARM ASSEMBLY.

4. THE CLEARVIEW 5-W-R FONT SHALL BE USED FOR ALL LETTERS.

DATE: 02-26-15 FILE NAME: t040456_03.dgn

LOCATION: HWY. 162/HWY. 64 & N. MT. GROVE RD.
CITY: ALMA
COUNTY: CRAWFORD
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

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.		040456	66	179

(2) SIGNALIZATION PLAN SHEET

PHASING DIAGRAM

SIGNAL FACES

12" LENSES

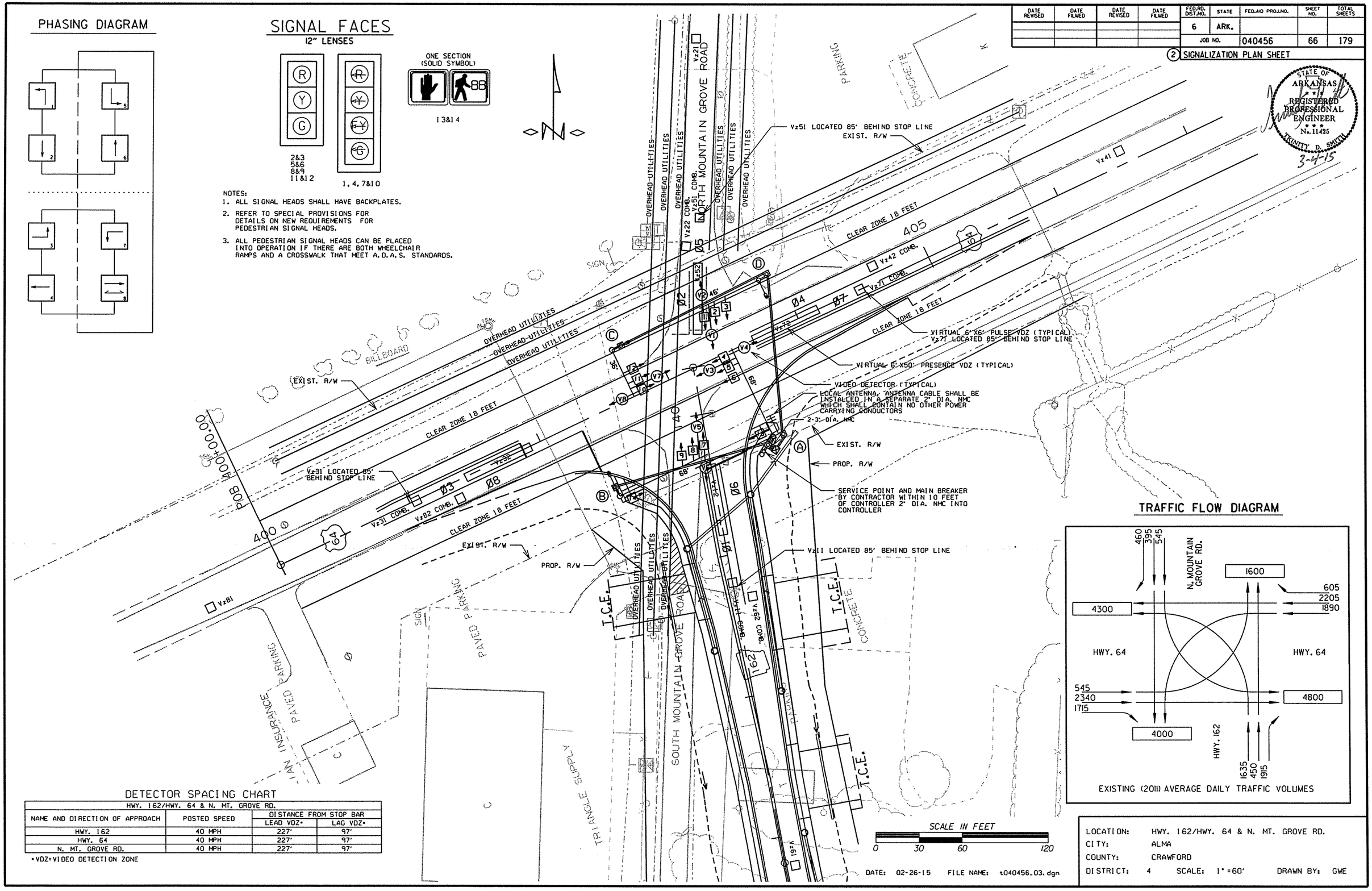
2&3
5&6
8&9
11&12

1,4,7&10

ONE SECTION
(SOLID SYMBOL)

13&14

NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISIONS FOR DETAILS ON NEW REQUIREMENTS FOR PEDESTRIAN SIGNAL HEADS.
3. ALL PEDESTRIAN SIGNAL HEADS CAN BE PLACED INTO OPERATION IF THERE ARE BOTH WHEELCHAIR RAMPS AND A CROSSWALK THAT MEET A.D.A.S. STANDARDS.



DATE: 02-26-15 FILE NAME: t040456_03.dgn

DETECTOR SPACING CHART

HWY. 162/HWY. 64 & N. MT. GROVE RD.			
NAME AND DIRECTION OF APPROACH	POSTED SPEED	DISTANCE FROM STOP BAR	
		LEAD VDZ*	LAG VDZ*
HWY. 162	40 MPH	227'	97'
HWY. 64	40 MPH	227'	97'
N. MT. GROVE RD.	40 MPH	227'	97'

*VDZ=VIDEO DETECTION ZONE

TRAFFIC FLOW DIAGRAM

EXISTING (2011) AVERAGE DAILY TRAFFIC VOLUMES

LOCATION:	HWY. 162/HWY. 64 & N. MT. GROVE RD.		
CITY:	ALMA		
COUNTY:	CRAWFORD		
DISTRICT:	4	SCALE: 1"=60'	DRAWN BY: GWE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

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.		040456	67	179

(2) SIGNALIZATION PLAN SHEET

HWY. 162/HWY. 64 & N. MT. GROVE RD.
POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 64 - STA. 403+48.74	67' RT.	651302.28, 426801.40
B	HWY. 64 - STA. 402+34.00	58' RT.	651195.07, 426759.61
C	HWY. 64 - STA. 402+73.01	36' LT.	651189.54, 426861.65
D	HWY. 64 - STA. 403+86.45	36' LT.	651291.86, 426910.66

HWY. 162/HWY. 64 & N. MT. GROVE RD.
POLE DIMENSIONS

POLE	MAST ARM	•MAST ARM ANGLE	VERT. SHAFT	LUM. ARM	•LUM. ANGLE
A	68'	270°	35'	20'	90°
B	68'	180°	35'	15'	90°
C	36'	180°	35'	10'	90°
D	46'	270°	35'	10'	180°

ANGLE MEASURED CLOCKWISE FROM HAND HOLE.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

Vz51 LOCATED 85' BEHIND STOP LINE
EXIST. R/W
OVERHEAD UTILITIES
Vz22 COMB.
Vz51 COMB.
NORTH MOUNTAIN GROVE
CLEAR ZONE 18 FEET
405
Vz42 COMB.
Vz71 COMB.
VIRTUAL 6'X6' PULSE VDZ (TYPICAL)
Vz71 LOCATED 85' BEHIND STOP LINE
VIRTUAL 6'X50' PRESENCE VDZ (TYPICAL)
VIDEO DETECTOR (TYPICAL)
LOCAL ANTENNA. ANTENNA CABLE SHALL BE INSTALLED IN A SEPARATE 2" DIA. NMC WHICH SHALL CONTAIN NO OTHER POWER CARRYING CONDUCTORS
2-3" DIA. NMC
EXIST. R/W
PROP. R/W
SERVICE POINT AND MAIN BREAKER BY CONTRACTOR WITHIN 10 FEET OF CONTROLLER 2" DIA. NMC INTO CONTROLLER
Vz11 LOCATED 85' BEHIND STOP LINE
BILLBOARD
SIGN
Vz31 LOCATED 85' BEHIND STOP LINE
Vz31 COMB.
Vz82 COMB.
Vz32
400
T.C.E.
PAVED PARKING
GROVE ROAD
Vz11 COMB.
Vz82 COMB.

DESIGN PARAMETERS

POSTED SPEED LIMIT:
40 MPH EAST AND WEST APPROACH
40 MPH NORTH AND SOUTH APPROACH

NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS
LOCATION OF STOP BARS SHOWN ON PAVEMENT MARKING PLAN. SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE
3 FEET BEHIND CURB

SCALE IN FEET
0 20 40 80

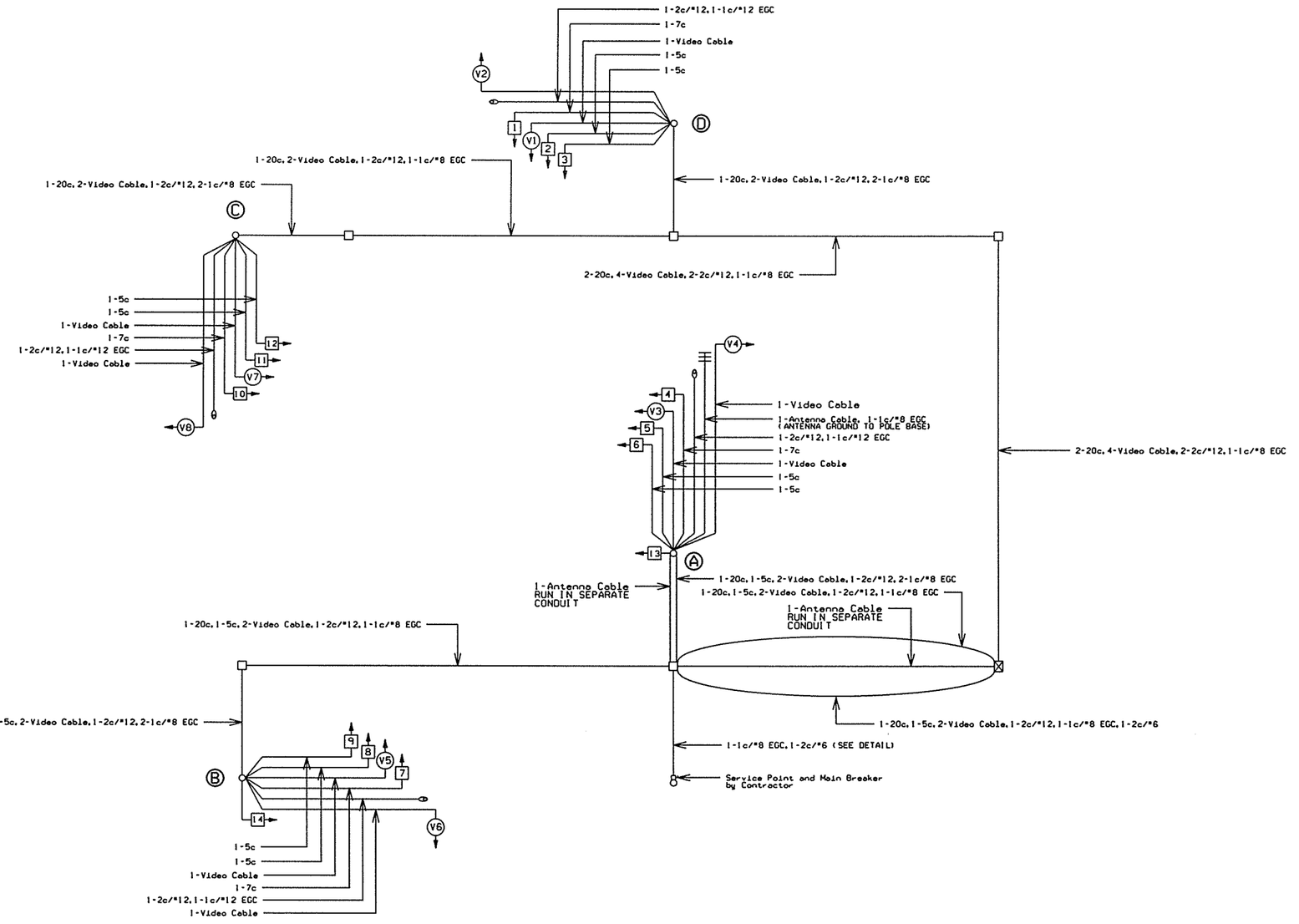
DATE: 02-26-15 FILE NAME: t040456_03.dgn

LOCATION: HWY. 162/HWY. 64 & N. MT. GROVE RD.
CITY: ALMA
COUNTY: CRAWFORD
DISTRICT: 4 SCALE: 1"=40' DRAWN BY: GWE

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.		040456	68	179

(2) SIGNALIZATION PLAN SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15



WIRING DIAGRAM

NOTES TO CONTRACTOR:

1. ONE SEPARATE 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.

DATE: 02-26-15 FILE NAME: t020456_03.dgn

LOCATION:	HWY. 162/HWY. 64 & N. MT. GROVE RD.
CITY:	ALMA
COUNTY:	CRAWFORD
DISTRICT: 4	SCALE: N/A DRAWN BY: GWE

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.		040456	69	179
				(2) SIGNALIZATION PLAN SHEET				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
3-4-15

DETECTOR SYSTEM DESCRIPTION: JOB 040456

ALMA - HWY. 162/HWY. 64 & N. MT. GROVE RD. DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS			COMMENTS	TUBE LENGTHS
							LOCAL		MASTER SYSTEM		
DET. ID*	LOCATION DIRECTION	TYPE	DET. *	CAB. TRM *	AMP CHN. *	CON. INP.*	PHS	SYSTEM DET. *	DETECTOR NUMBERS		
Vz11	NB LEFT TURN FAR	COMB.			1	V9	1	1		CAMERA V1	23'
Vz12	NB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	23'
Vz21	SB ADVANCE	LOCAL			5	V2	2			CAMERA V2	23'
Vz22	SB INSIDE NEAR	COMB.			6	V10	2	2		CAMERA V5	23'
Vz31	EB LEFT TURN FAR	COMB.			9	V11	3	3		CAMERA V3	23'
Vz32	EB LEFT TURN	LOCAL			10	V3	3			CAMERA V3	23'
Vz41	WB ADVANCE	LOCAL			13	V4	4			CAMERA V4	23'
Vz42	WB NEAR	COMB.			14	V12	4	4		CAMERA V7	23'
Vz51	SB LEFT TURN FAR	COMB.			7	V13	5	5		CAMERA V5	23'
Vz52	SB LEFT TURN	LOCAL			8	V5	5			CAMERA V5	23'
Vz61	NB ADVANCE	LOCAL			3	V6	6			CAMERA V6	23'
Vz62	NB INSIDE NEAR	COMB.			4	V14	6	6		CAMERA V1	23'
Vz71	WB LEFT TURN FAR	COMB.			15	V15	7	7		CAMERA V7	23'
Vz72	WB LEFT TURN	LOCAL			16	V7	7			CAMERA V7	23'
Vz81	EB ADVANCE	LOCAL			11	V8	8			CAMERA V8	23'
Vz82	EB NEAR	COMB.			12	V16	8	8		CAMERA V3	23'
PB8A&B	HWY. 162 S.LEG	PED.				P8	8				
					SPARE						

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICLE INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

NOTE: "AMP CHN=" REFERS TO THE DETECTOR RACK OUTPUT POSITION.
THIS IS WIRED TO CONTROLLER INPUT DETECTOR NUMBER WHICH IS PROGRAMED TO ACTUATE THE DESIGNATED PHASE.
EXAMPLE: V9=SYSTEM DETECTOR 1, V10=SYSTEM DETECTOR 2

INTERVAL CHART

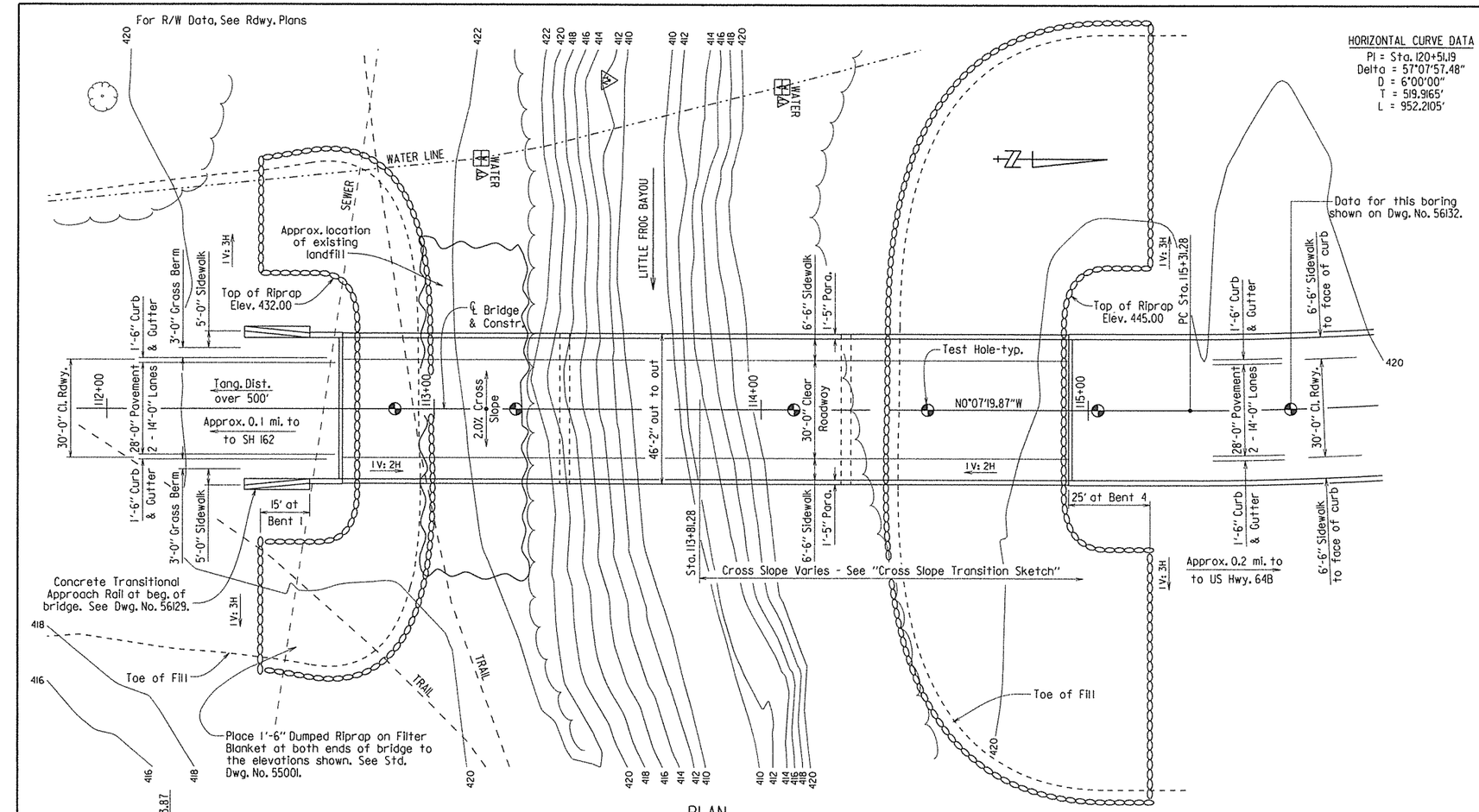
SIGNAL FACES	HWY. 162/HWY. 64 & N. MT. GROVE RD.																FLASH SEQ.
	1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	3+7	CLR.	3+8	CLR.	4+7	CLR.	4+8	CLR.	
1	~~G~~	•	~~G~~	•	~~FY~~	•••	~~FY~~	•••	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
2&3	R	R	G	••	R	R	G	••	R	R	R	R	R	R	R	R	R
4	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	•	~~G~~	•	~~FY~~	•••	~~FY~~	•••	~~R~~
5&6	R	R	R	R	R	R	R	R	R	R	G	••	R	R	G	••	R
7	~~G~~	•	~~FY~~	•••	~~G~~	•	~~FY~~	•••	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
8&9	R	R	R	R	G	••	G	••	R	R	R	R	R	R	R	R	R
10	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	•	~~FY~~	•••	~~G~~	•	~~FY~~	•••	~~R~~
11&12	R	R	R	R	R	R	R	R	R	R	R	R	G	••	G	••	R
13&14	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	W	FDW	BLK

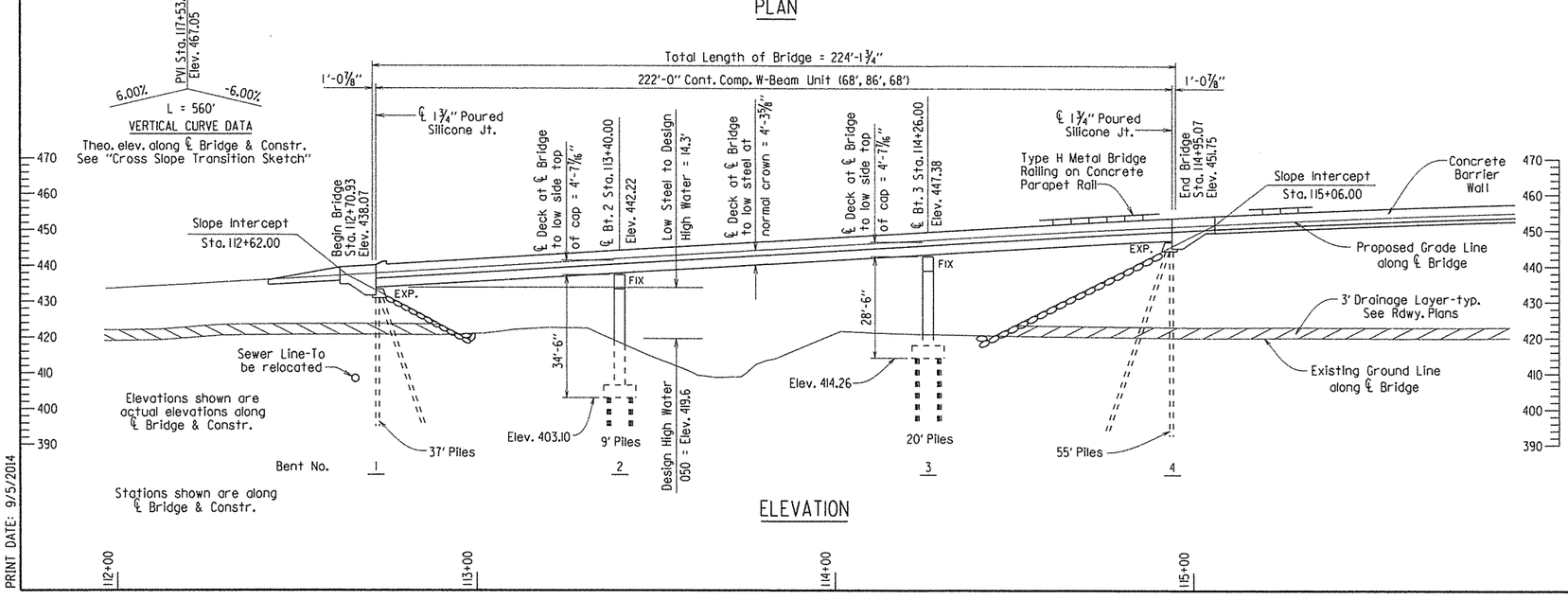
• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE

DATE: 02-26-15 FILE NAME: t020456_03.dgn

LOCATION: HWY. 162/HWY. 64 & N. MT. GROVE RD.
CITY: ALMA
COUNTY: CRAWFORD
DISTRICT: 4 SCALE: N/A DRAWN BY: GWE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	70	179
				07324 -		LAYOUT		- 56112





GENERAL NOTES

BENCH MARK: Chiseled square SE Retaining Wall, 469.08' left of Sta. 116+93.35 - Elev. 429.78.

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

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

LIVE LOADING: HL93 SEISMIC PERFORMANCE ZONE: 1

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4000 psi
Class S Concrete (substructure)	f'c = 3500 psi
Reinforcing Steel (Grade 60, AASHTO M31 or M322, Type A)	fy = 60000 psi
Structural Steel (AASHTO M270, Gr. 36)	Fy = 36000 psi
Structural Steel (AASHTO M270, Gr. 50W)	Fy = 50000 psi

BORING LOGS: Boring logs may be obtained from the Programs and Contracts Division upon request.

PILING: All piling shall be HP 12 x 53 and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 70 tons per pile and into the material designated as medium hard shale on the boring legend. Piles in end bents are to be driven after embankment to bottom of cap is in place. On all piles the Contractor shall use approved Steel H-Pile Driving Points.

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

EXPLORATORY HOLES: The Contractor shall drill exploratory holes at Bent 2, after excavation to bottom of footing is made, in accordance with SP Job No. 040456 "Exploratory Holes". The quantities of exploratory holes shown are for bidding purposes only. The actual locations, number, and depths of exploratory holes are to be determined in the field by the Engineer.

PREBORING: Preboring is required for all piling in Bent 2 if exploratory holes indicate that the depth to rock is less than 8' below bottom of footing. Preboring shall be to a 3' depth into material designated as medium hard shale on the boring legend. The quantities of preboring shown are for bidding purposes only. The actual size and depths of preboring are to be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free from debris prior to backfilling which may require casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of rock and the remaining length of prebored hole shall be backfilled with an approved non-shrink grout or other approved material to completely fill voids. The backfill and any required casings will not be paid for directly but shall be considered subsidiary to the item "Preboring".

FOOTINGS: Footings for Bents 2 and 3 shall be founded at the minimum elevation shown, and shall have a minimum cover of 2'-0" above the top of the footings. Foundations shall be prepared in accordance with Subsection 801.04, and backfilled according to Subsection 801.28.

BRIDGE DECK: The concrete bridge deck, except sidewalks, shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class S Tined Bridge Roadway Surface Finish. The sidewalk shall receive a Class 6 Broomed Finish.

DETAIL DRAWINGS	DRAWING NOS.
End Bents	56114-56116
Intermediate Bents	56117-56119
222' Cont. Comp. W-Beam Unit	56120-56125
Elastomeric Bearings	56126
Concrete Barrier Wall	56127-56128
Transitional Approach Railing	56129
Type H Metal Bridge Railing	56130
Steel Piling	55020

For "Hydraulic Data" and "Cross Slope Transition Sketch", see Dwg. No. 56113.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER LITTLE FROG BAYOU
HWY. 162 IMPROVEMENTS (ALMA) (S)
CRAWFORD COUNTY

ROUTE 162 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

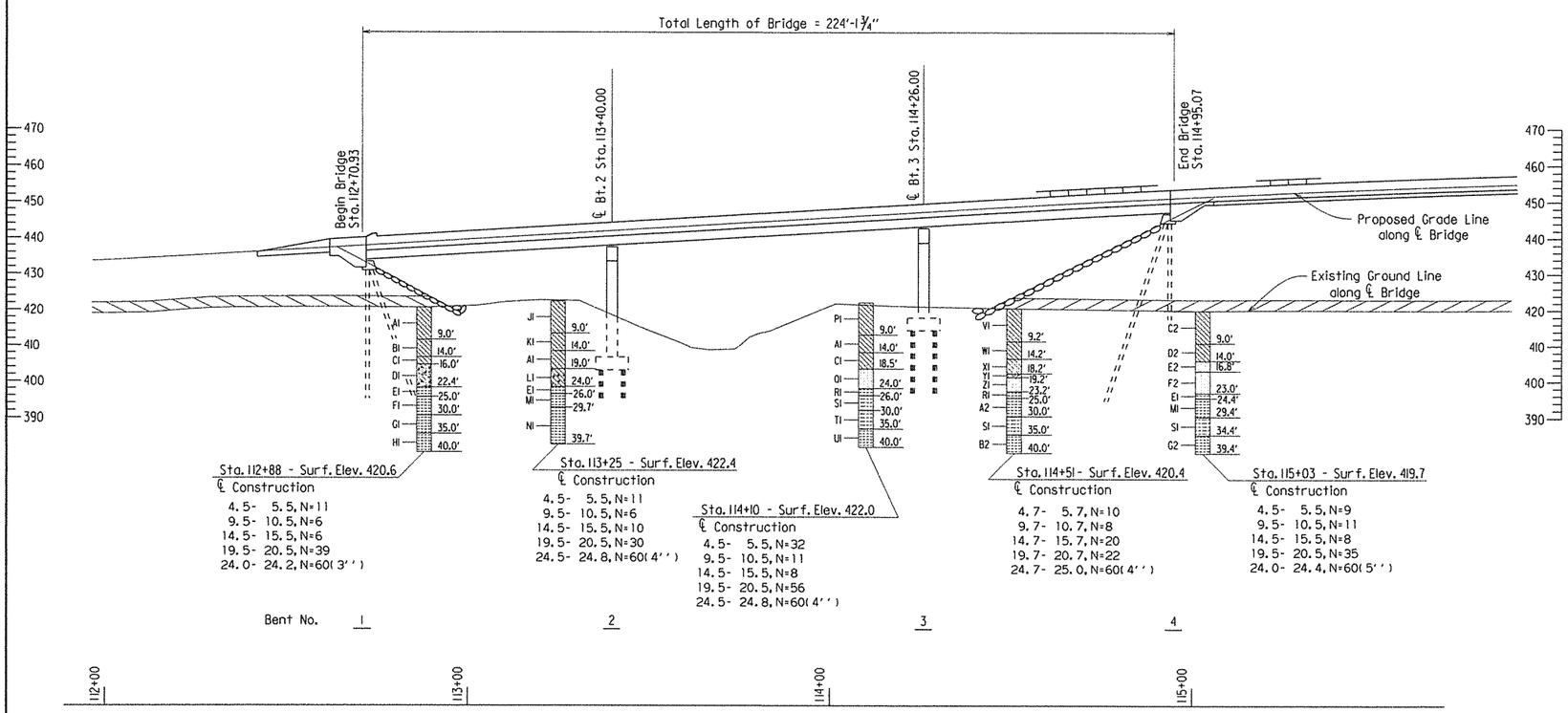
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 7-24-08 FILENAME: b040456x1_11.dgn
CHECKED BY: CSR DATE: 6/20/14 SCALE: 1" = 20'
DESIGNED BY: CSR DATE: 5/12

BRIDGE NO. 07324 DRAWING NO. 56112

PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	71	179
				(1)	07324 -	LAYOUT	- 56113	



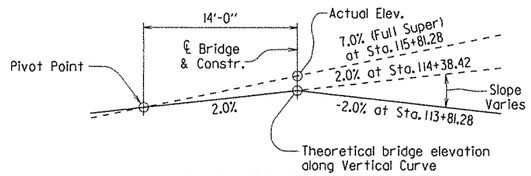
HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	*NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	1800	419.6	419.6
Base	100	2200	420.1	420.1
Extreme	500	6579	423.1	425.6
Overtopping	>500	-	-	-

* Unconstricted water surface without structure or roadway approaches.
Drainage area = 16.0 square miles.
Historical H.W. Elev. = N/A
Proposed low bridge chord = Elev. 433.90
Q100 Backwater = Elev. 420.1

ELEVATION OF SOIL BORINGS

BORING LEGEND
AI-Moist, Stiff, Brown Sandy Clay
BI-Moist, Medium Stiff, Brown Sandy Clay
CI-Moist, Medium Stiff, Brown and Gray Sandy Clay
DI-Moist, Dense, Brown Sand with Gravel(Sandstone Fragments) and Clay
EI-SHALE - Dark Gray, Weathered, Medium Hard
FI-SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip
GI-SHALE WITH FREQUENT GRAY SANDSTONE PARTINGS AND OCCASIONAL SANDSTONE SEAMS- Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip
HI-SHALE WITH TRACES OF COAL - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip
JI-Moist, Stiff, Brown Clay with Sand
KI-Moist, Medium Stiff, Brown Clay with Sand
LI-Moist, Medium Dense, Gravel(Sandstone Fragments) with Brown Sandy Clay
MI-SHALE - Dark Gray, Laminated, Weathered, Medium Hard, with Slight Dip
NI-SHALE WITH FREQUENT GRAY SANDSTONE PARTINGS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip and some Slickenslides
PI-Moist, Hard, Brown and Gray Clay with Sand
QI-SANDSTONE - Gray and Brown, Highly Weathered, Poorly-Cemented
RI-SHALE - Gray, Weathered, Medium Hard
SI-SHALE WITH FREQUENT GRAY SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip
TI-SHALE WITH FREQUENT GRAY SANDSTONE SEAMS - Dark Gray, Laminated, Weathered, Medium Hard, with Slight Dip
UI-SHALE WITH OCCASIONAL GRAY SANDSTONE PARTINGS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip
VI-Moist, Stiff, Brown and Gray Clay with Sand
WI-Moist, Medium Stiff, Brown Clay with Sand and some Gravel(Sandstone Fragments)
XI-Moist, Medium Dense, Brown and Gray Sand with Clay
YI-Sandstone Cobbles
ZI-SANDSTONE - Gray, Highly Weathered, Poorly-Cemented
A2-SHALE - Dark Gray, Laminated, Weathered, Medium Hard, with Slight Dip and some Slickensides
B2-SHALE - Dark Gray, Laminated, Weathered, Medium Hard, with Slight Dip and Vertical Fractures
C2-Moist, Stiff, Brown and Gray Sandy Clay
D2-Moist, Stiff, Brown and Gray Sandy Clay with Iron Nodules
E2-Wet, Loose, Gray Sand
F2-SANDSTONE - Gray, Highly Weathered, Cemented
G2-SHALE WITH OCCASIONAL GRAY SANDSTONE PARTINGS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip and some Slickenslides



CROSS SLOPE TRANSITION SKETCH

Looking Ahead

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER LITTLE FROG BAYOU
HWY. 162 IMPROVEMENTS (ALMA) (S)
CRAWFORD COUNTY

ROUTE 162 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

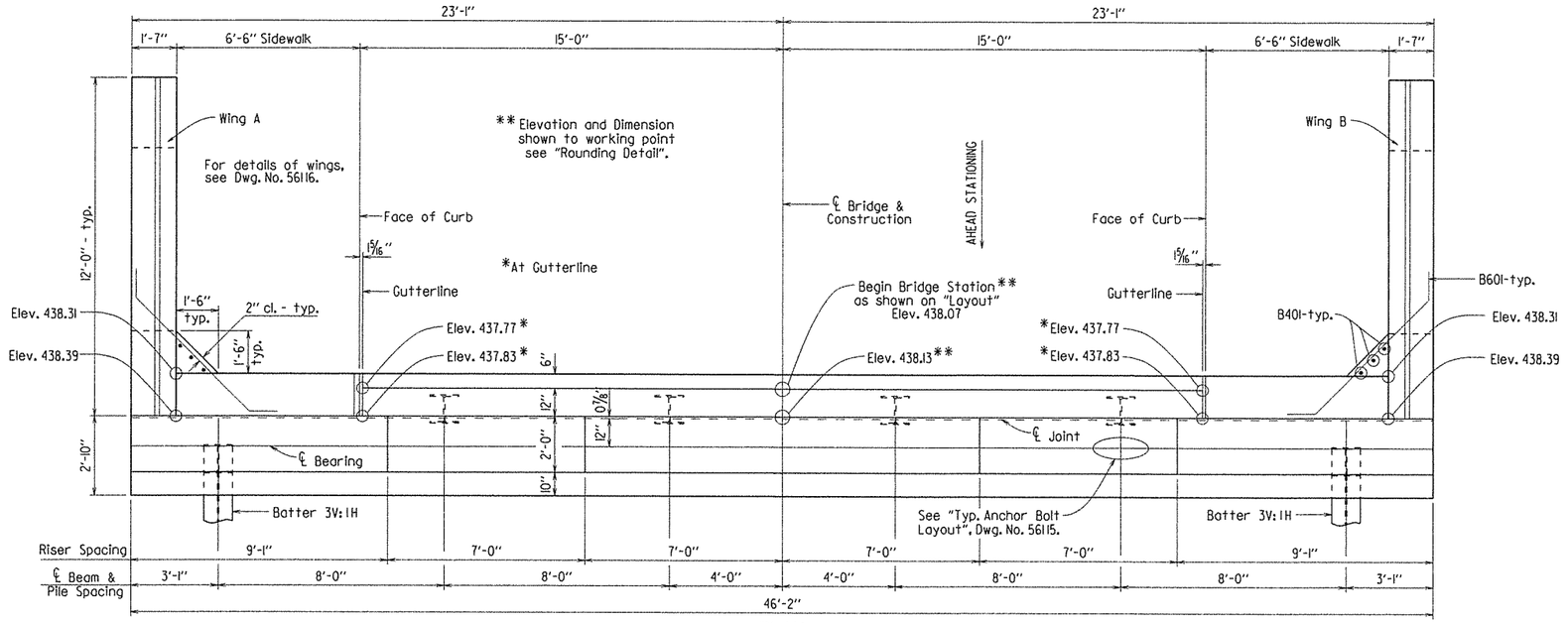
DRAWN BY: KDH DATE: 7-24-08 FILENAME: b040456xl_ll.dgn
CHECKED BY: CSR DATE: 6/30/14 SCALE: 1" = 20'
DESIGNED BY: CSR DATE: 5/12

BRIDGE NO. 07324 DRAWING NO. 56113

PRINT DATE: 9/5/2014

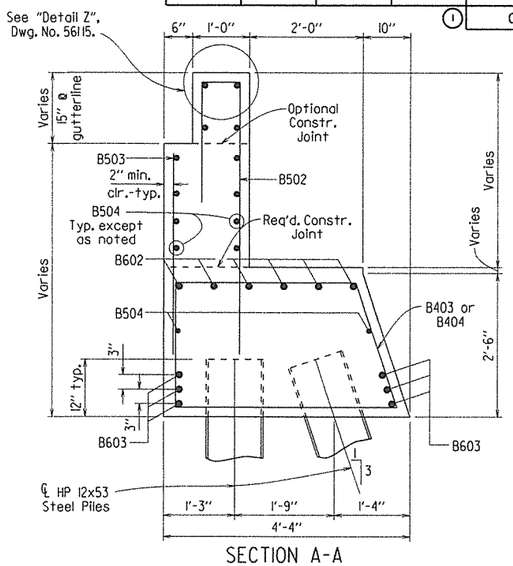
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	72	179
				1	07324 - END BENTS - 56114			

NOTE: Class I Protective Surface Treatment shall be applied to the top of the backwall, sidewalk and to the roadway face and top of the wing rails.



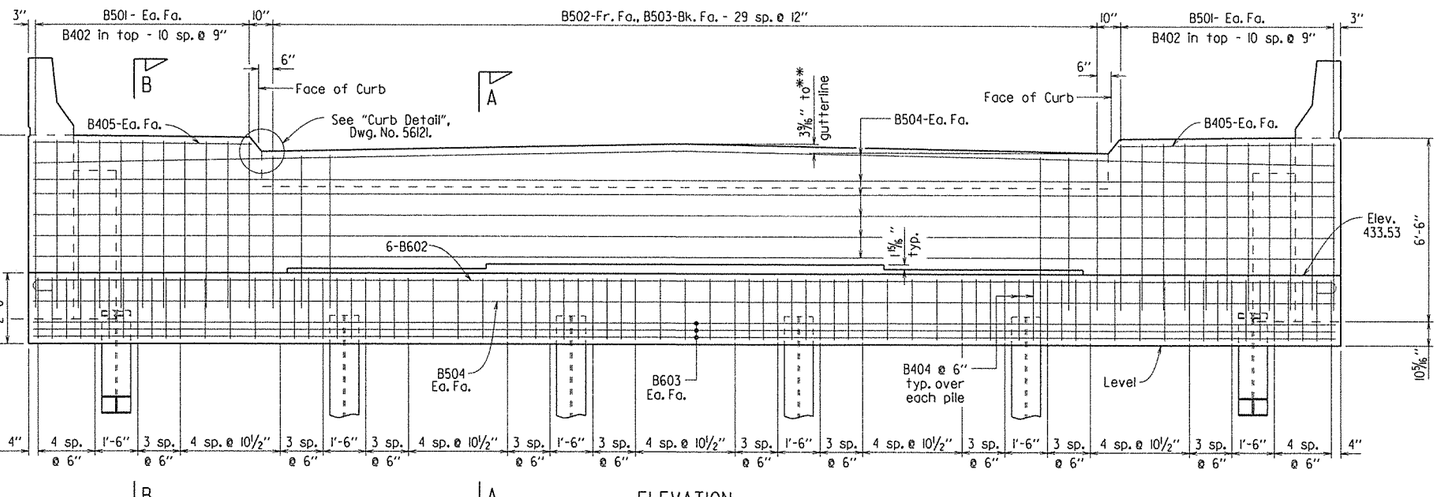
PLAN

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



SECTION A-A

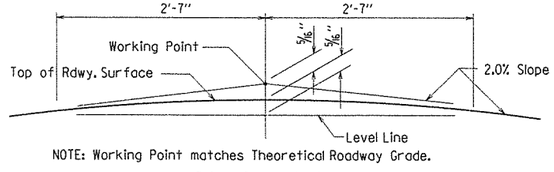
Scale: 3/4" = 1'-0"



ELEVATION

Looking Back - Bent 1

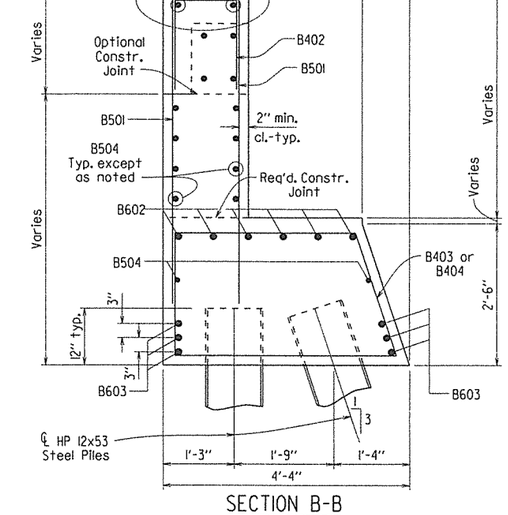
Scale: 3/8" = 1'-0"



NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL

No Scale



SECTION B-B

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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF END BENTS
LITTLE FROG BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 1/7/2014 FILENAME: b040456x1_b1.dgn

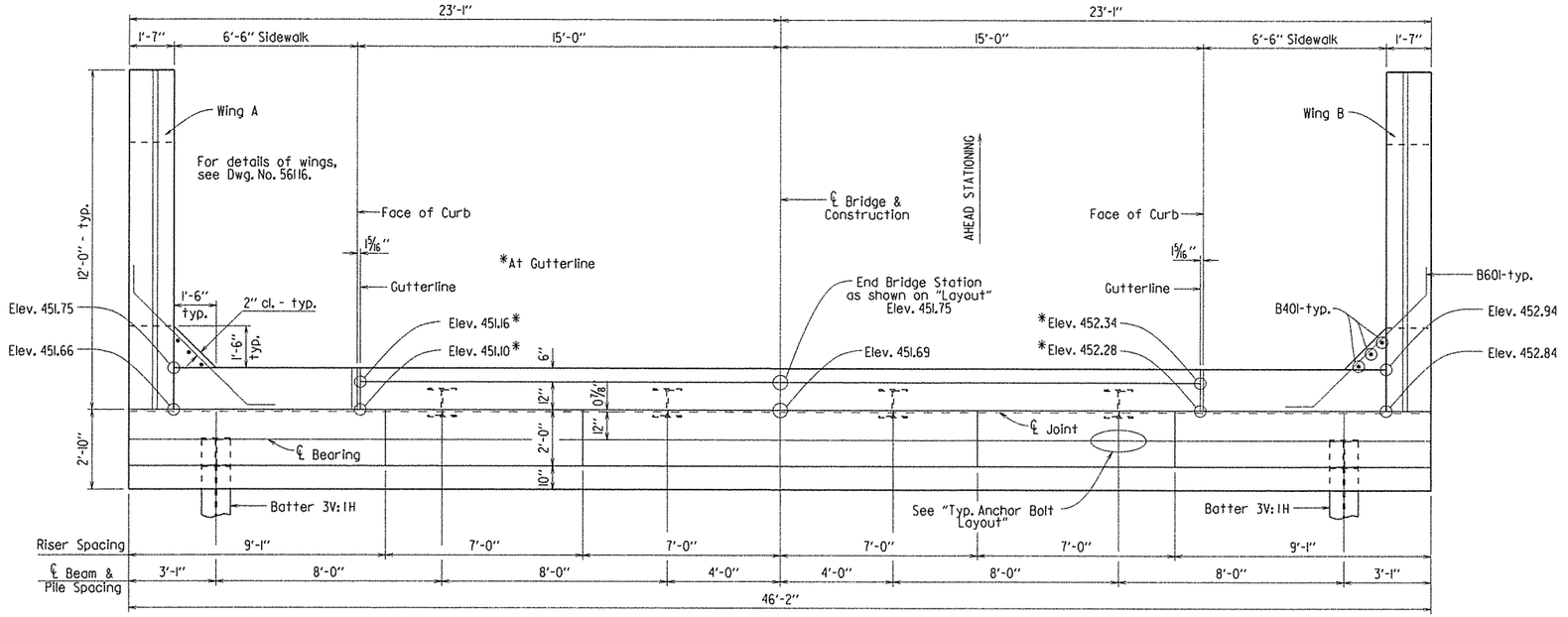
CHECKED BY: DB DATE: 7/4/14 SCALE: AS NOTED

DESIGNED BY: MCB DATE: 7-14

BRIDGE NO. 07324 DRAWING NO. 56114

PRINT DATE: 9/5/2014

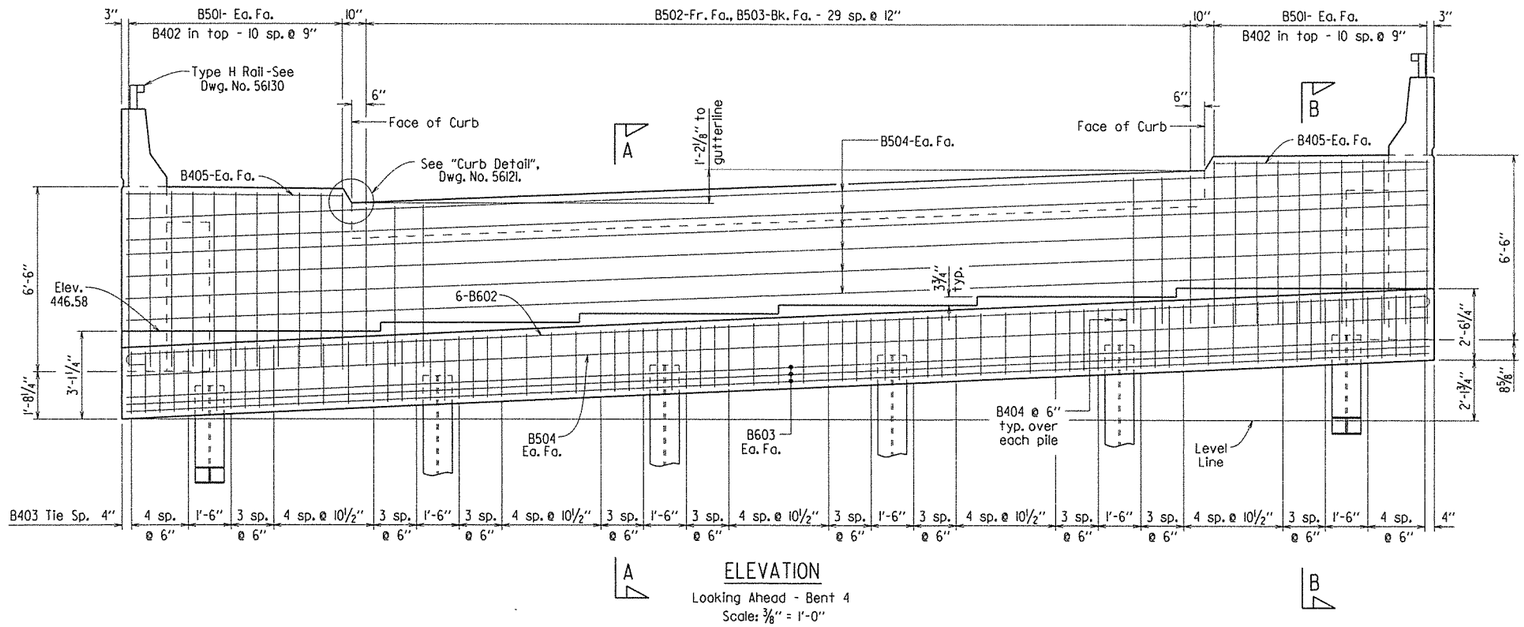
NOTE: Class I Protective Surface Treatment shall be applied to the top of the backwall, sidewalk and to the roadway face and top of the wing rails.



PLAN

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

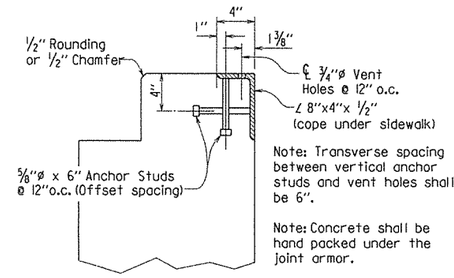
See Dwg. No. 56114., for Section A-A and Section B-B.



A ELEVATION B

Looking Ahead - Bent 4

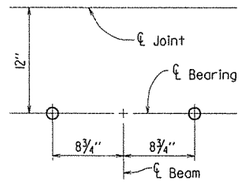
Scale: 3/8" = 1'-0"



Note: For additional joint details, see Dwg. No. 56125.

DETAIL Z

No Scale



TYP. ANCHOR BOLT LAYOUT

No Scale

GENERAL NOTES

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

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

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

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

No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 56125.

For additional information, See layout.

STATE OF ARKANSAS Charles R. Ellis REGISTERED PROFESSIONAL ENGINEER No. 9235 9-11-14 CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF END BENTS
LITTLE FROG BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 1/7/2014 FILENAME: b040456xl_bl.dgn
CHECKED BY: DBS DATE: 1/9/14 SCALE: AS NOTED
DESIGNED BY: MLB DATE: 1-13

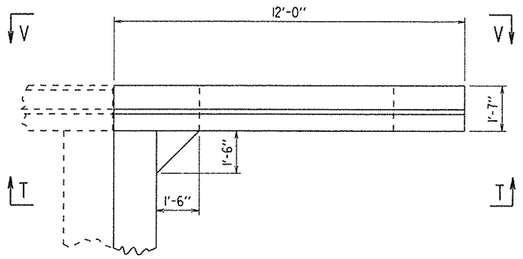
BRIDGE NO. 07324 DRAWING NO. 56115

PRINT DATE: 9/5/2014

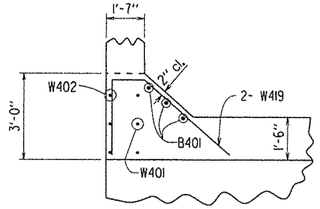
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	73	179

(1) 07324 - END BENTS - 56115

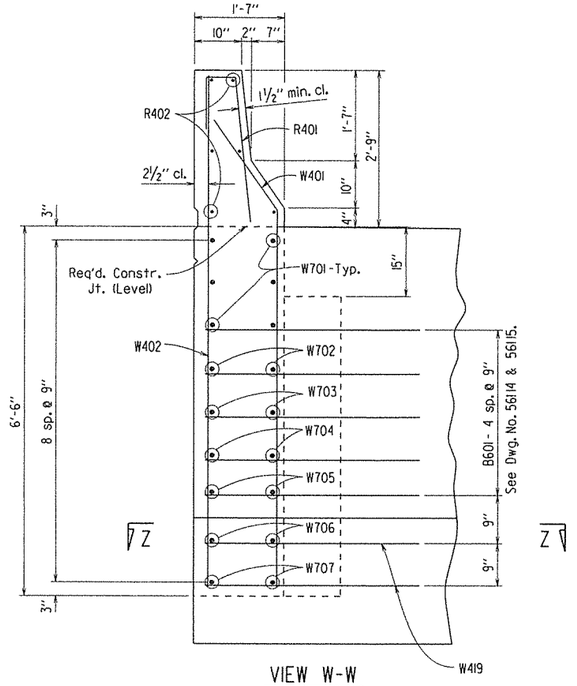
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	74	179
				①	07324 - END BENTS - 56116			



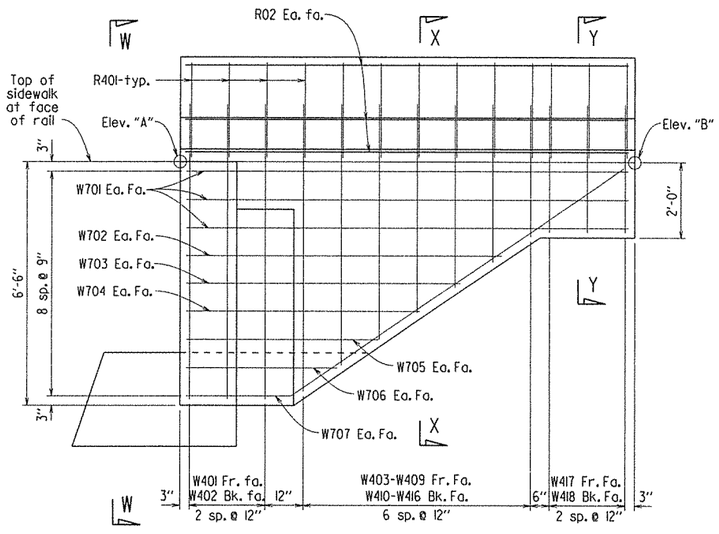
PLAN OF RAIL
Scale: 3/8" = 1'-0"



SECTION Z-Z
No Scale

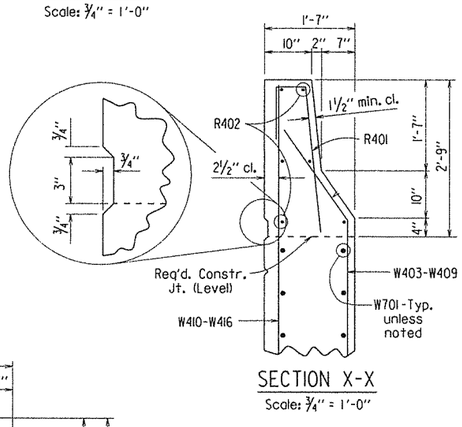


VIEW W-W
Scale: 3/4" = 1'-0"

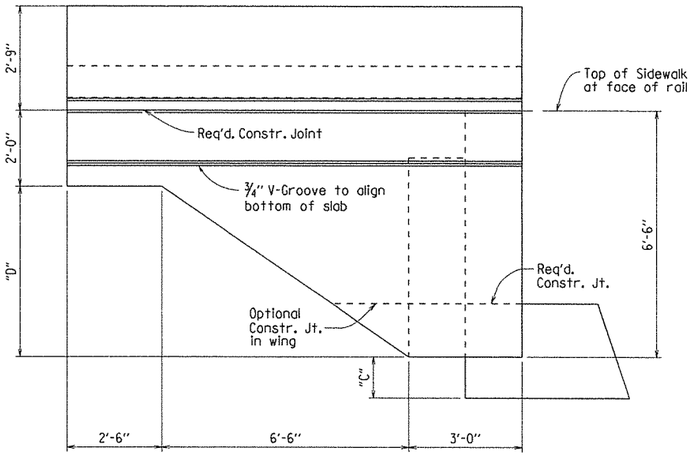


VIEW T-T
Scale: 1/2" = 1'-0"

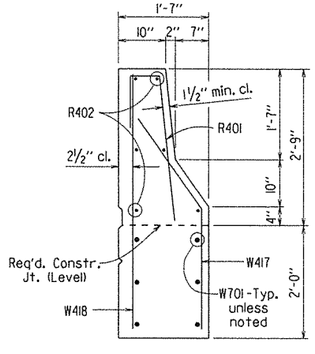
	Bent 1		Bent 4	
	Wing A	Wing B	Wing A	Wing B
Elev. "A"	438.39	438.39	451.66	452.84
Elev. "B"	437.68	437.68	452.31	453.62
"C"	10 5/16"	10 5/16"	1'-8 1/4"	8 5/8"
"D"	3'-9 1/2"	3'-9 1/2"	5'-1 15/16"	5'-3 3/8"



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



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



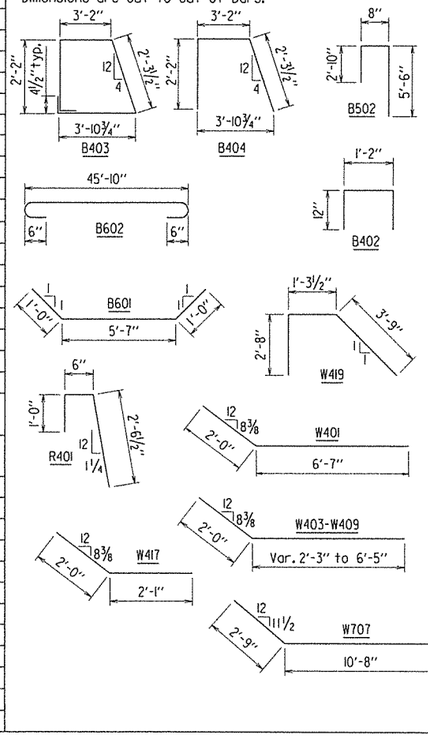
SECTION Y-Y
Scale: 3/4" = 1'-0"

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	6	4'-11"	Str.
B402	22	3'-0"	2"
B403	65	11'-11"	2"
B404	12	7'-6"	2"
B405	4	7'-7"	Str.
B501	44	6'-2"	Str.
B502	30	8'-10"	2½"
B503	30	4'-4"	Str.
B504	14	45'-10"	Str.
B601	10	7'-5"	4½"
B602	6	47'-2"	4½"
B603	6	45'-10"	Str.
R401	26	3'-11"	2"
R402	12	11'-8"	Str.
W401	6	8'-7"	2"
W402	6	8'-11"	Str.
W403-W409	2 each	Var. 4'-3" to 8'-5"	2"
W410-W416	2 each	Var. 4'-6" to 8'-8"	Str.
W417	6	4'-1"	2"
W418	6	4'-5"	Str.
W419	4	7'-7"	2"
W701	12	11'-8"	Str.
W702	4	8'-3"	Str.
W703	4	7'-2"	Str.
W704	4	6'-1"	Str.
W705	4	5'-1"	Str.
W706	4	3'-11"	Str.
W707	4	13'-5"	5¼"

BENDING DIAGRAMS

Dimensions are out to out of bars.



STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF END BENTS
LITTLE FROG BAYOU

ROUTE SEC.

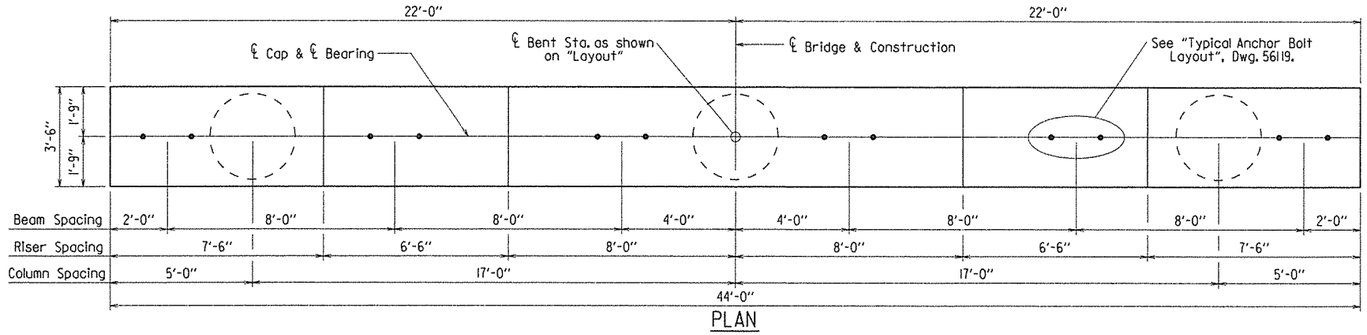
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 1/9/2014
CHECKED BY: DBS DATE: 9/4/14
DESIGNED BY: MCR DATE: 9-13
FILENAME: b040456xl_bl.dgn
SCALE: AS NOTED

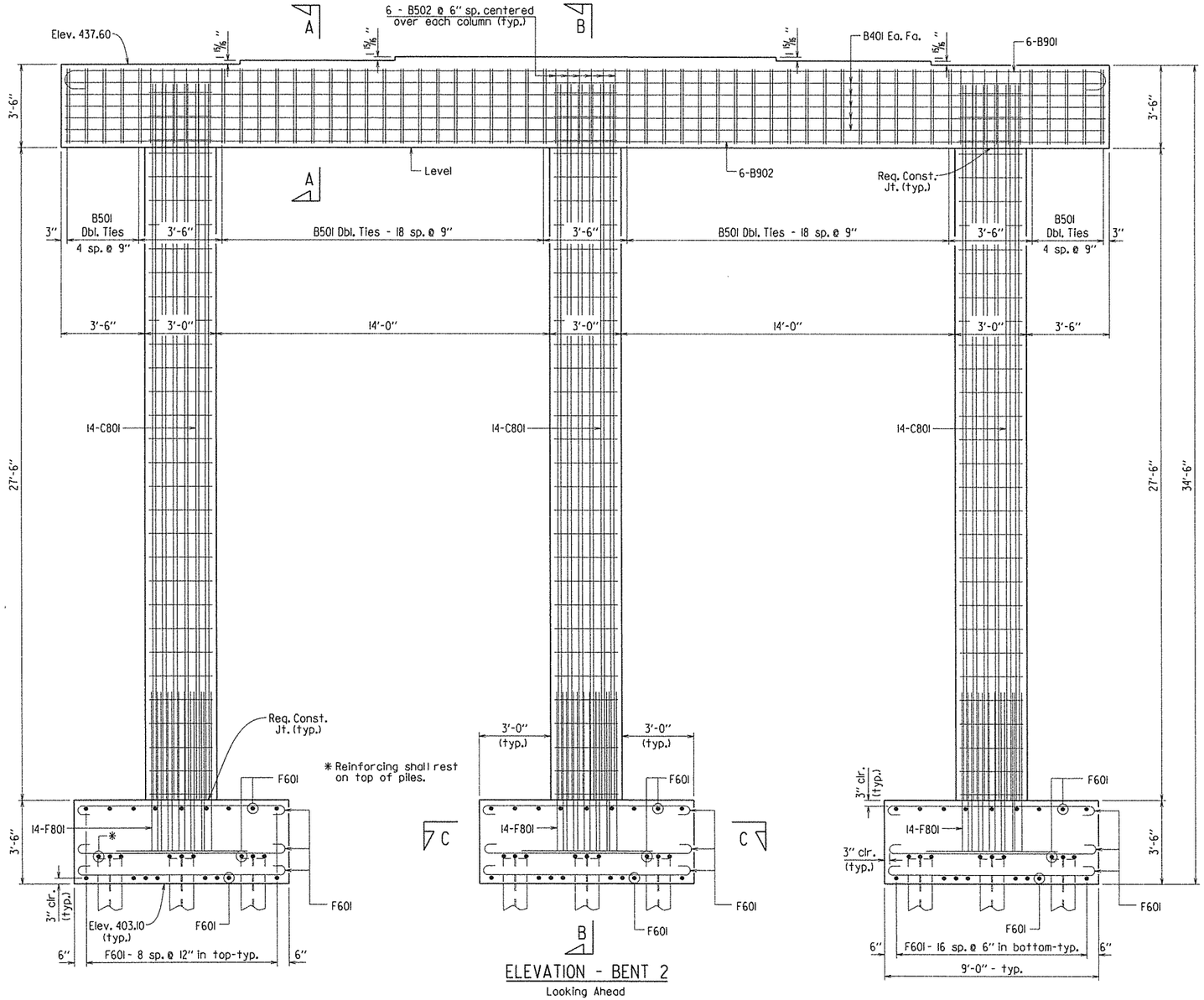
BRIDGE NO. 07324 DRAWING NO. 56116

PRINT DATE: 9/5/2014

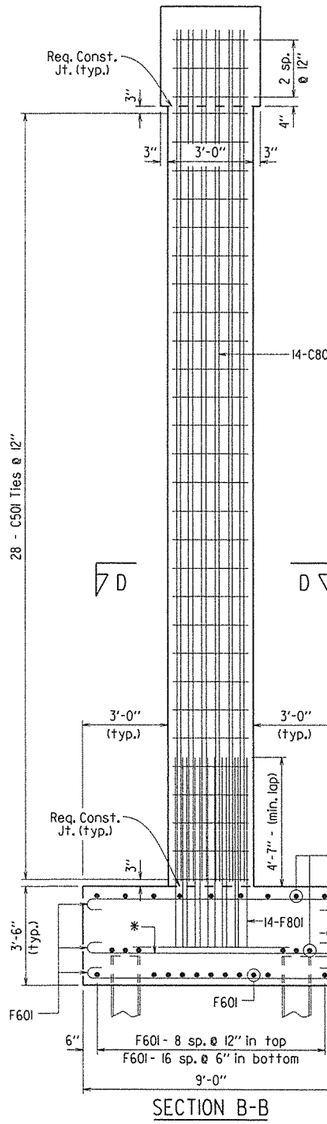
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	75	179
				(1)	07324	- INT. BENTS -	56117	

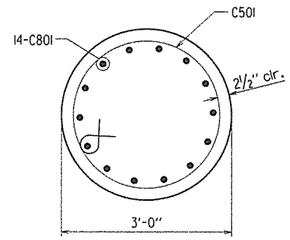


PLAN



ELEVATION - BENT 2
Looking Ahead





SECTION D-D
3/4" = 1'-0"

SECTION B-B

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-11-14
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF INTERMEDIATE BENTS
LITTLE FROG BAYOU

ROUTE SEC.

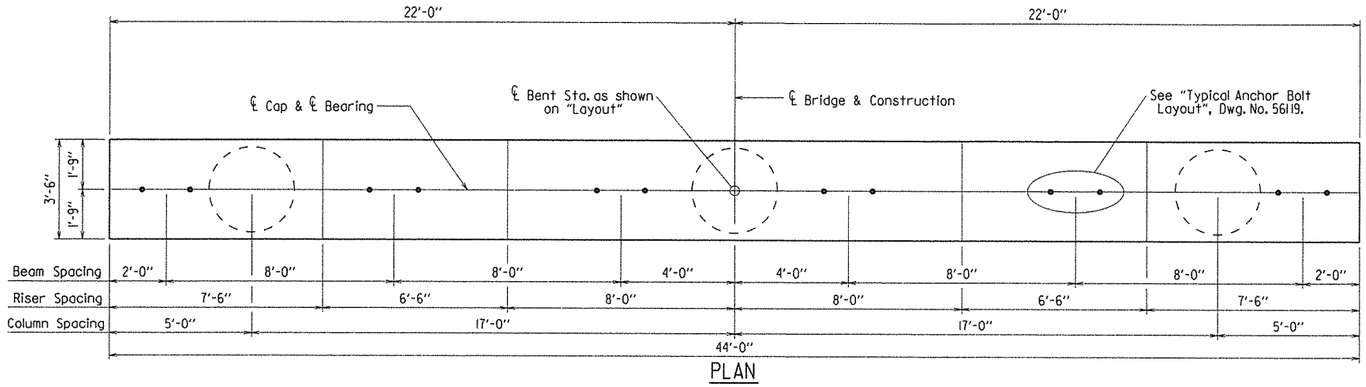
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 11/22/2013
CHECKED BY: DBJ DATE: 7/4/14
DESIGNED BY: MCB DATE: 4-13
FILENAME: b040456x1_b2.dgn
SCALE: 3/8" = 1'-0" OR AS NOTED

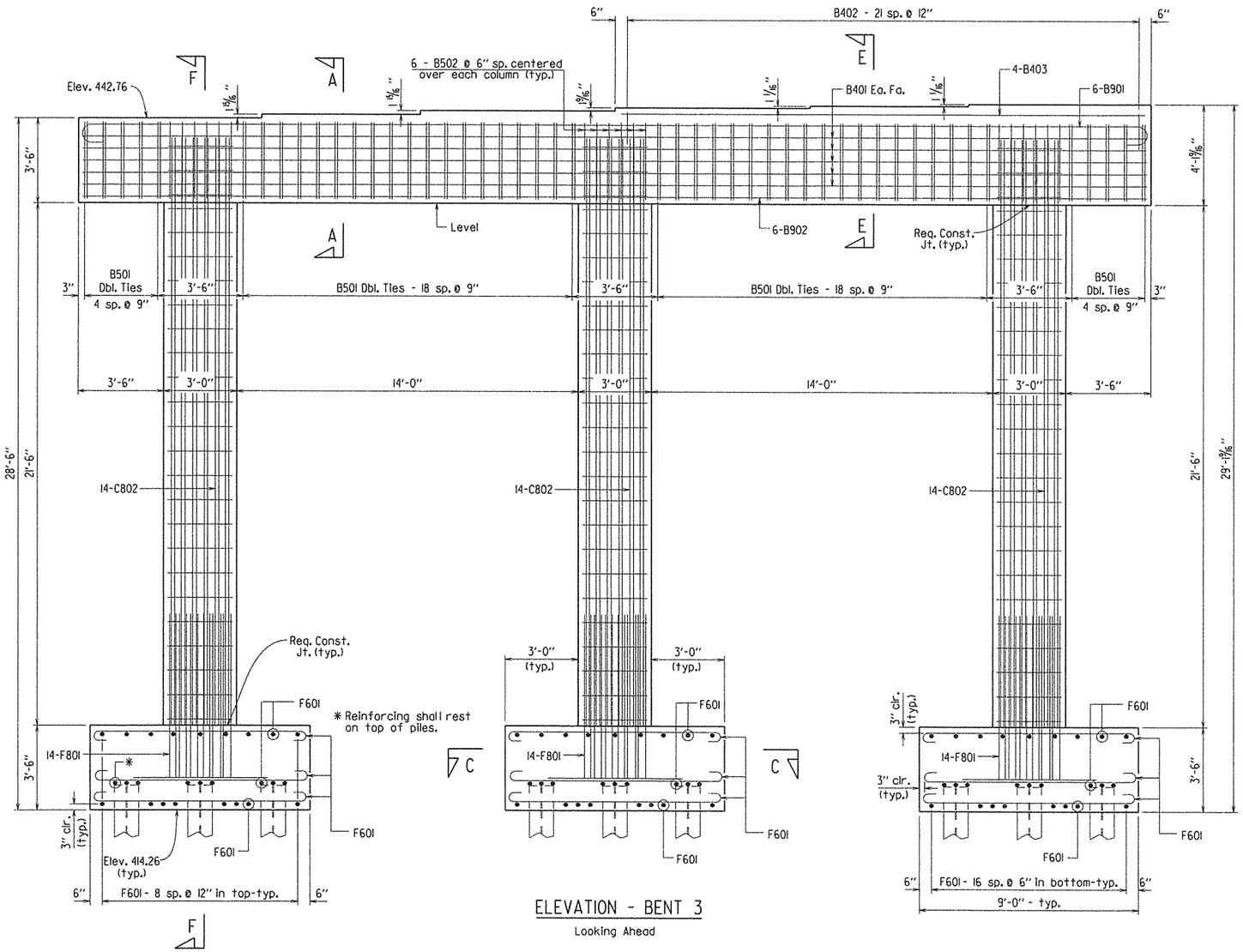
BRIDGE NO. 07234 DRAWING NO. 56117

PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	76	179
				(1) 07324		- INT. BENTS - 56118		

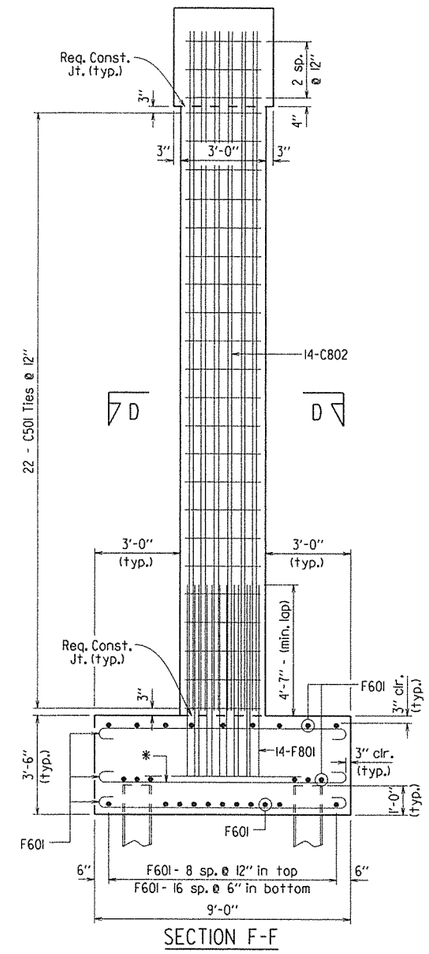


PLAN

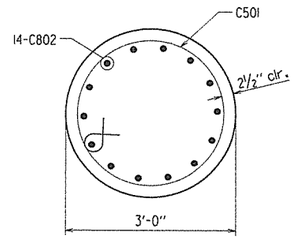


ELEVATION - BENT 3

Looking Ahead



SECTION F-F



SECTION D-D

3/4" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9233
7-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF INTERMEDIATE BENTS
LITTLE FROG BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

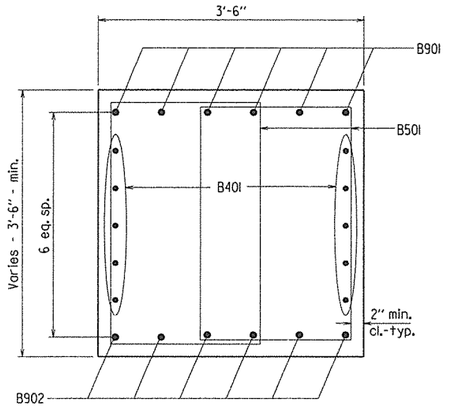
DRAWN BY: CJR DATE: 11/22/2013
CHECKED BY: DBS DATE: 7/14/14
DESIGNED BY: MCB DATE: 7-13

FILENAME: b040456x1_b2.dgn
SCALE: 3/8" = 1'-0" OR AS NOTED

BRIDGE NO. 07324 DRAWING NO. 56118

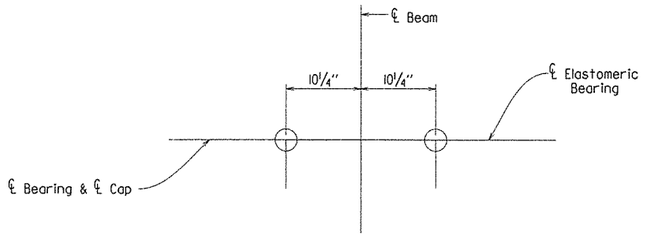
PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	77	179
				(1)	07324	- INT. BENTS -	56119	



SECTION A-A

1" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT

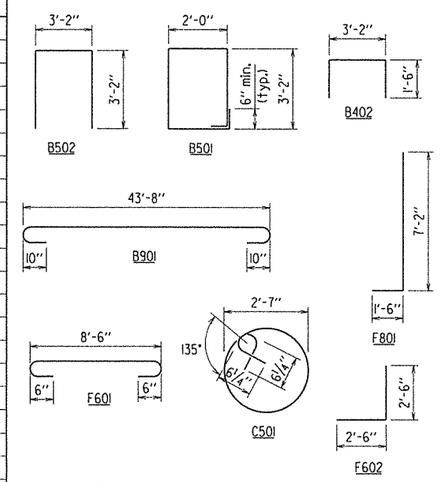
Not to Scale

For Details of Elastomeric Bearings, See Dwg. No. 56126.

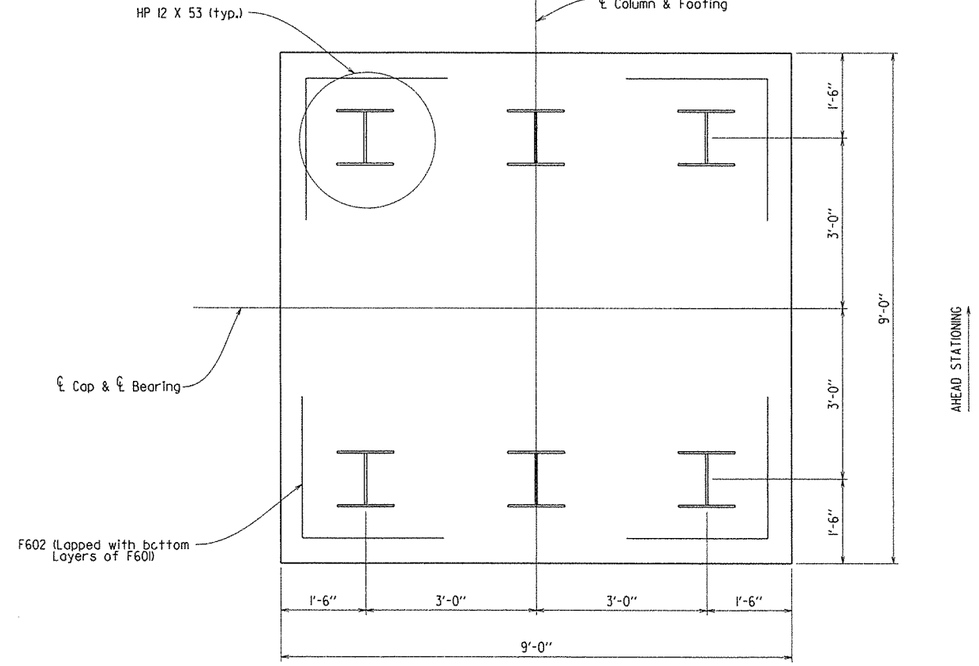
BAR LIST

MARK	NO. REQ'D. BENT 2	NO. REQ'D. BENT 3	LENGTH	P.D.
B401	10	10	43'-8"	Str.
B402	—	22	6'-0"	2"
B403	—	4	21'-8"	Str.
B501	96	96	10'-10"	2½"
B502	18	18	9'-4"	2½"
B901	6	6	46'-2"	9"
B902	6	6	43'-8"	Str.
C501	93	75	9'-6"	3¾"
C801	42	—	30'-3"	Str.
C802	—	42	24'-3"	Str.
F601	156	156	9'-10"	4½"
F602	12	12	4'-10"	4½"
F801	42	42	8'-5"	6"

BENDING DIAGRAMS

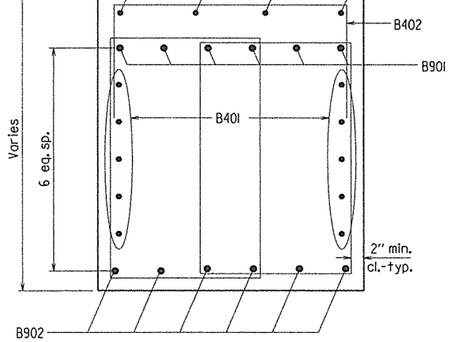


Dimensions are out to out of bars.



SECTION C-C

¾" = 1'-0"



SECTION E-E

(Bent 3 Only)

1" = 1'-0"

GENERAL NOTES

All concrete shall be Class S with a minimum 28 day compressive strength of f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

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

Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF INTERMEDIATE BENTS
LITTLE FROG BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 11/27/2013 FILENAME: b040456X1_b2.dgn

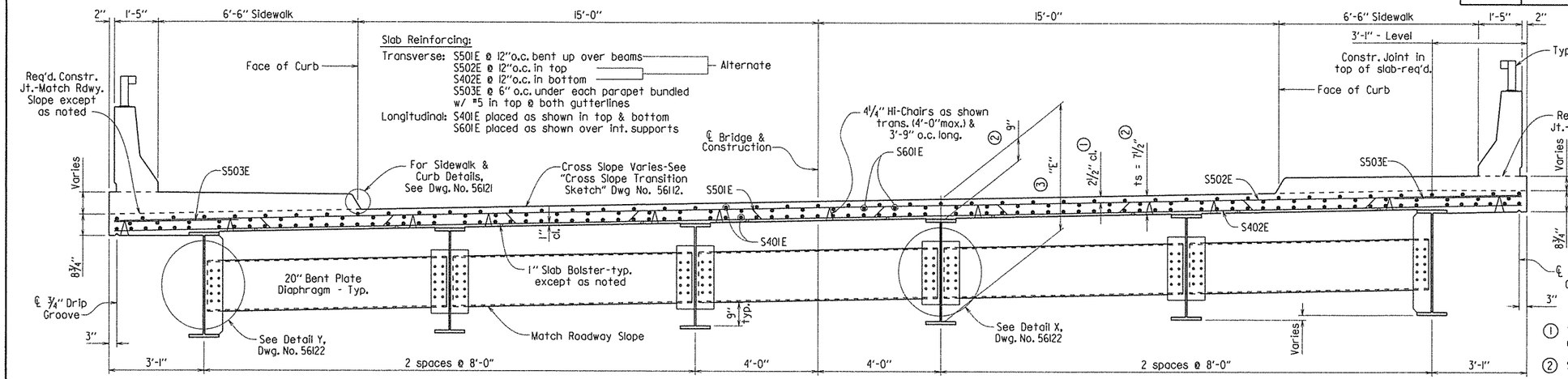
CHECKED BY: DBS DATE: 9/4/14 SCALE: AS NOTED

DESIGNED BY: MCB DATE: 9-13

BRIDGE NO. 07324 DRAWING NO. 56119

PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	78	179
				①		07324 - 222 FT. UNIT - 56120		



TYP. ROADWAY SECTION

Looking Ahead
Scale: ½" = 1'-0"

① Tolerance : Minus = ¼", Plus equal to amount of Slab Thickening used to meet Slab Thickness Tolerance.

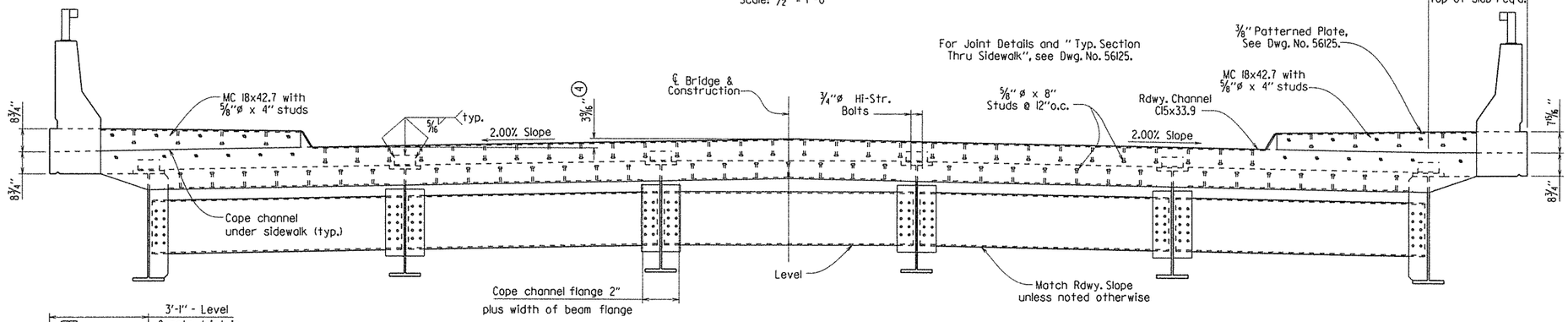
② See "Adjustment for Slab Thickness Tolerance", Dwg. No. 56121.

③ "E" = 3'-10⅛" measured at ℄ Bearing & ℄ Beam

④ Working Point to Gutterline - See "Rounding Detail", Dwg. No. 56114.

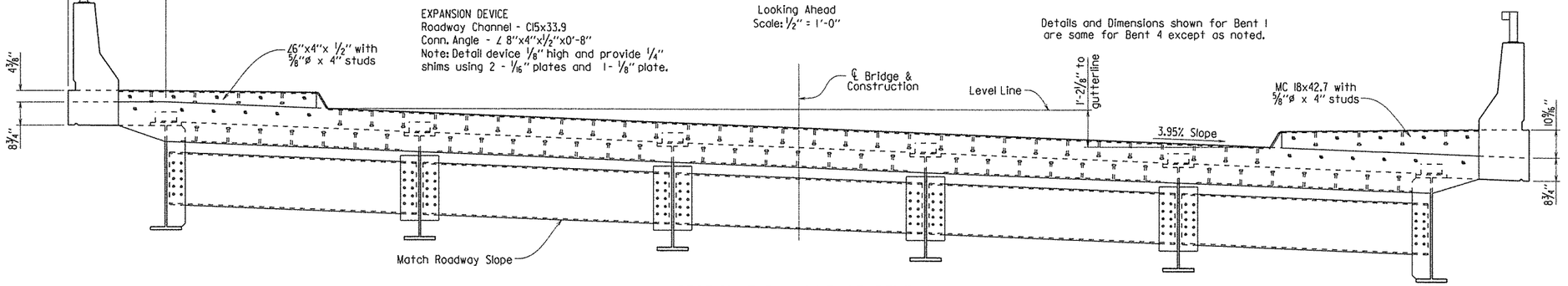
Note: At Contractor's Option, in lieu of providing bars S501E, one #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S501E. Bars in top and bottom shall be epoxy coated.

Note: Class 1 Protective Surface Treatment shall be applied to the Roadway Surface, Top of Sidewalk, and the Face and Top of Concrete Parapet Rail.



SECTION THRU JOINT AT BENT 1

Looking Ahead
Scale: ½" = 1'-0"



SECTION THRU JOINT AT BENT 4

Looking Back
Scale: ½" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 6
DETAILS OF 222'-0" CONTINUOUS COMPOSITE W-BEAM UNIT LITTLE FROG BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 01/24/14
CHECKED BY: DBJ DATE: 5/4/14
DESIGNED BY: MCB DATE: 7-13
FILENAME: b040456x1_sl.dgn
SCALE: AS SHOWN

BRIDGE NO. 07324 DRAWING NO. 56120

PRINT DATE: 9/5/2014

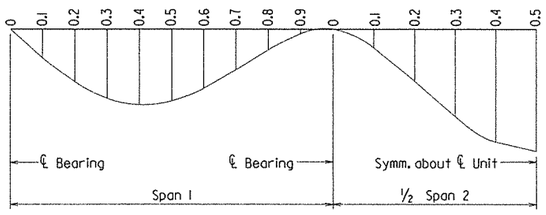
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	79	179
				(1)		07324 - 222 FT. UNIT - 56121		

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

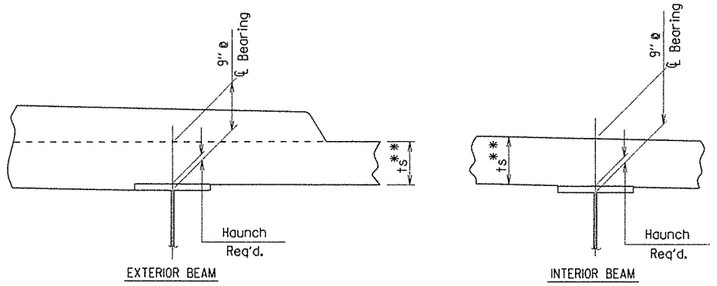
	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet + Sidewalk	
		Ext. Bm.	Int. Bm.	Ext. Bm.	Int. Bm.	Ext. Bm.	Int. Bm.
Span 1	0	0	0	0	0	0	0
	0.1	0.033	0.035	0.152	0.166	0.208	0.193
	0.2	0.061	0.064	0.279	0.304	0.383	0.354
	0.3	0.080	0.084	0.365	0.397	0.500	0.462
	0.4	0.087	0.091	0.398	0.433	0.545	0.504
	0.5	0.083	0.087	0.378	0.412	0.518	0.480
	0.6	0.069	0.072	0.313	0.340	0.429	0.396
	0.7	0.047	0.049	0.215	0.233	0.295	0.271
	0.8	0.024	0.025	0.109	0.118	0.149	0.137
	0.9	0.005	0.005	0.024	0.025	0.033	0.029
1/2 Span 2	0	0	0	0	0	0	0
	0.1	0.022	0.023	0.099	0.107	0.135	0.125
	0.2	0.061	0.063	0.277	0.301	0.379	0.350
	0.3	0.101	0.105	0.459	0.499	0.629	0.581
	0.4	0.129	0.135	0.589	0.641	0.807	0.746
	0.5	0.140	0.146	0.637	0.693	0.873	0.807

Symm. about ℄ Unit

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



DEAD LOAD DEFLECTION DIAGRAM



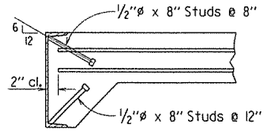
** Tolerance when removable deck forming is used is +1/2", -1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

Note : ts = slab thickness as shown in "Typ. Roadway Section".

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

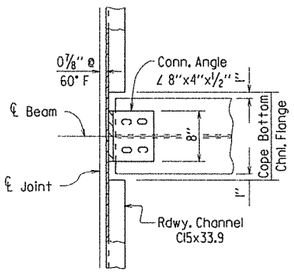
Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

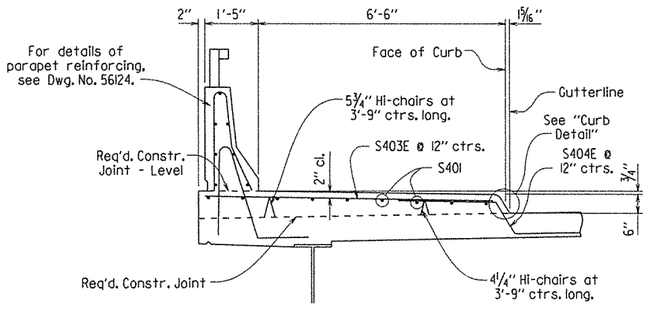


As an alternate to 5/8"ø studs, 1/2"ø x 8" studs spaced as shown may be used. Use weight of 5/8"ø stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS

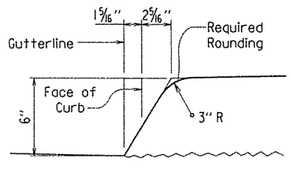


CHANNEL CONNECTION DETAIL



SIDEWALK DETAIL

Low Side Shown
High Side Similar



CURB DETAIL

No Scale

GENERAL NOTES - SUPERSTRUCTURE

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

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

MATERIAL AND STRENGTHS:

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

CONCRETE:
Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28-day compressive strength f'c = 4,000 psi. The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

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

The concrete deck, except sidewalks, shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall be given a Class 6 Broomed Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the sidewalk and railing. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the sidewalk. A minimum of 72 hours shall elapse between completion of a sidewalk pour and the beginning of a parapet pour. Any railing pours made before the entire slab has been placed and cured must be approved by the Engineer.

REINFORCING STEEL:
All reinforcing steel shall be Grade 60 (Yield Strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

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

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted and approval secured before fabrication is begun.

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

Beams & field splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M270, Gr. 50W)".

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

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

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

Field connections shall be bolted with high-strength bolts and shall be 3/4" ø bolts unless otherwise noted. Open Holes shall be 13/16" ø unless otherwise noted. Holes for 3/4"ø high-strength bolts may be 15/16 "ø if a washer is supplied for use under both the nut and head of the bolt. Bolts shall be placed with heads on the outside face of the exterior girder webs and on the bottom of the girder flanges.

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

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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 6
DETAILS OF 222'-0" CONTINUOUS COMPOSITE W-BEAM UNIT LITTLE FROG BAYOU

ROUTE SEC.

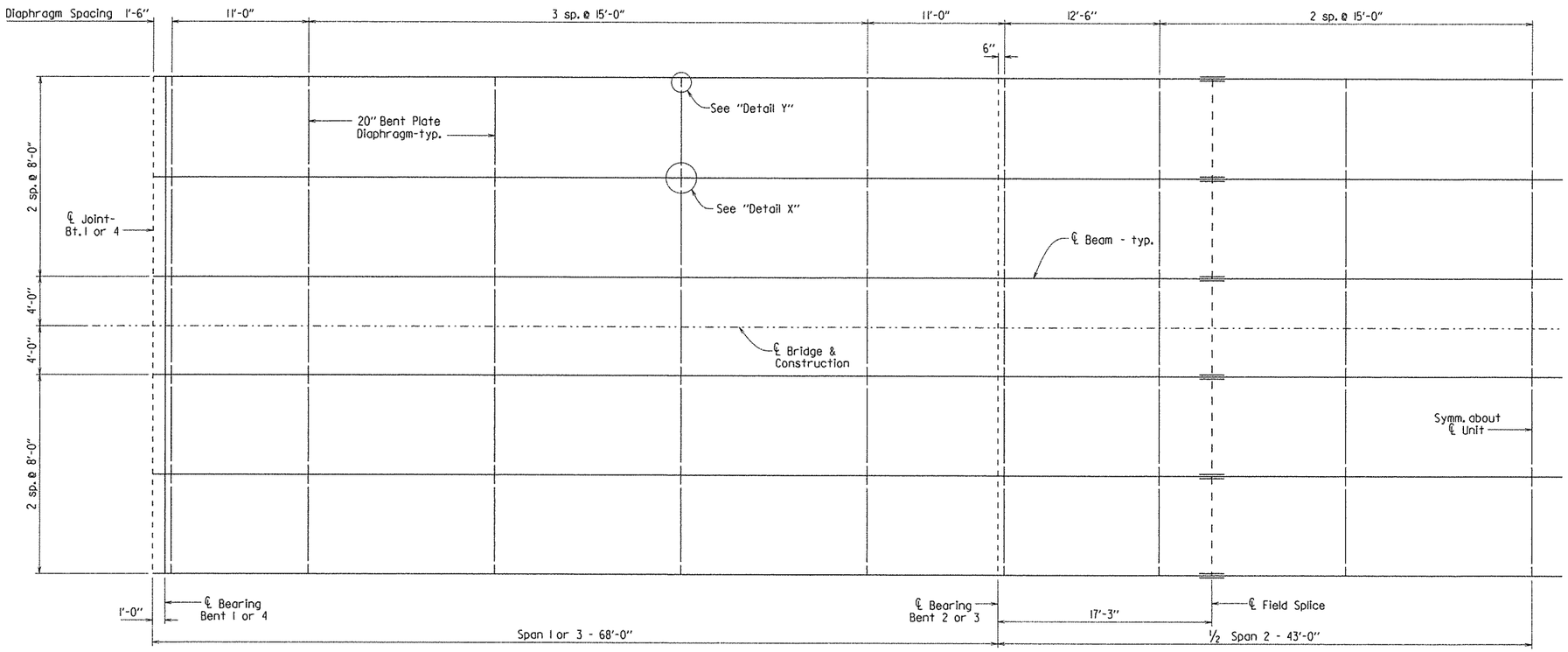
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 01/24/14 FILENAME: b040456xl_sl.dgn
CHECKED BY: DBS DATE: 9/4/14 SCALE: NO SCALE
DESIGNED BY: M.C.B. DATE: 9-13

BRIDGE NO. 07324 DRAWING NO. 56121

PRINT DATE: 9/5/2014

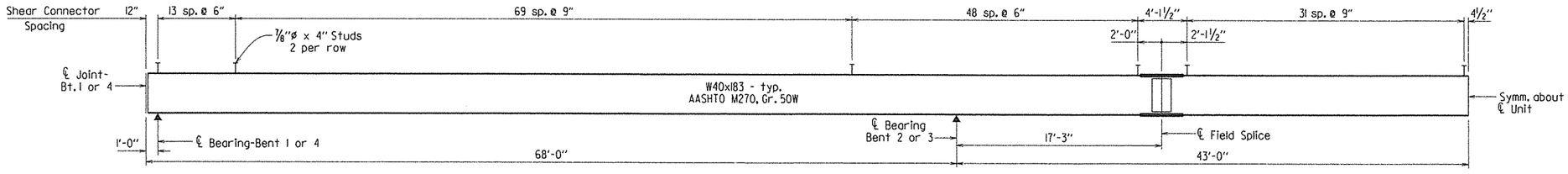
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	80	179
				(1)		07324 - 222 FT. UNIT - 56122		



FRAMING PLAN

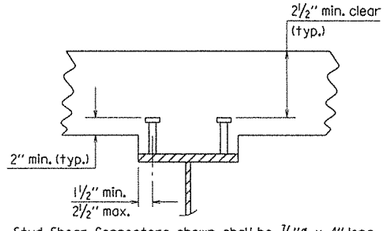
Scale: 3/16" = 1'-0"

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



BEAM ELEVATION

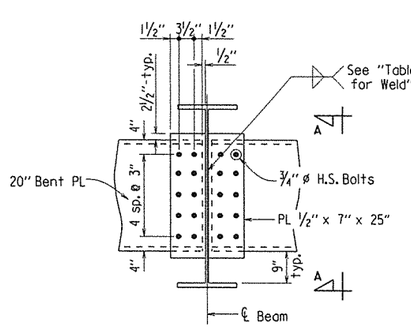
No Scale



Stud Shear Connectors shown shall be ⅞"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. ¾"ø studs may be used in place of the ⅞"ø studs shown, at the ratio of 1.361 - ¾"ø studs in place of one ⅞"ø stud. ⅞"ø studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

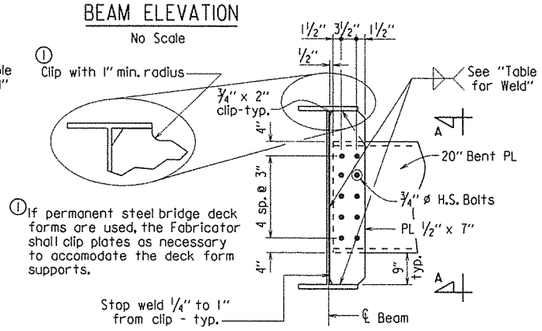
SHEAR CONNECTOR DETAIL

No Scale



DETAIL X

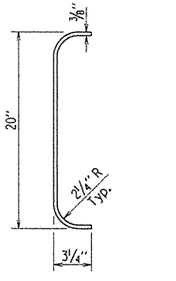
No Scale



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

DETAIL Y

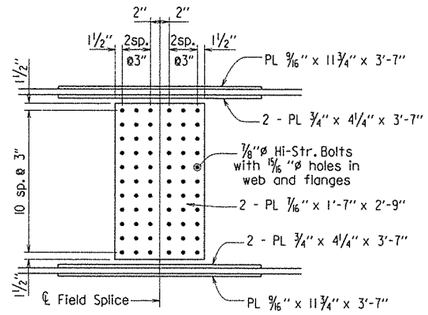
Bolts in diaphragm connections shall be properly installed and tightened in accordance with Subsection 807.71.



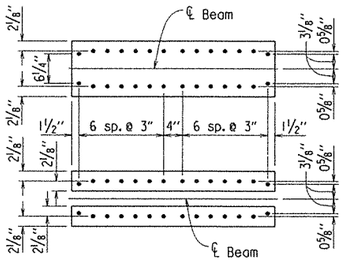
Typical cross-section for all 20" bent plate diaphragms.

SECTION A-A

No Scale



WEB SPLICE



FLANGE SPLICE

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

FIELD SPLICE DETAILS

Scale: ¾" = 1'-0"

TABLE FOR WELD

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

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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 6
DETAILS OF 222'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
LITTLE FROG BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

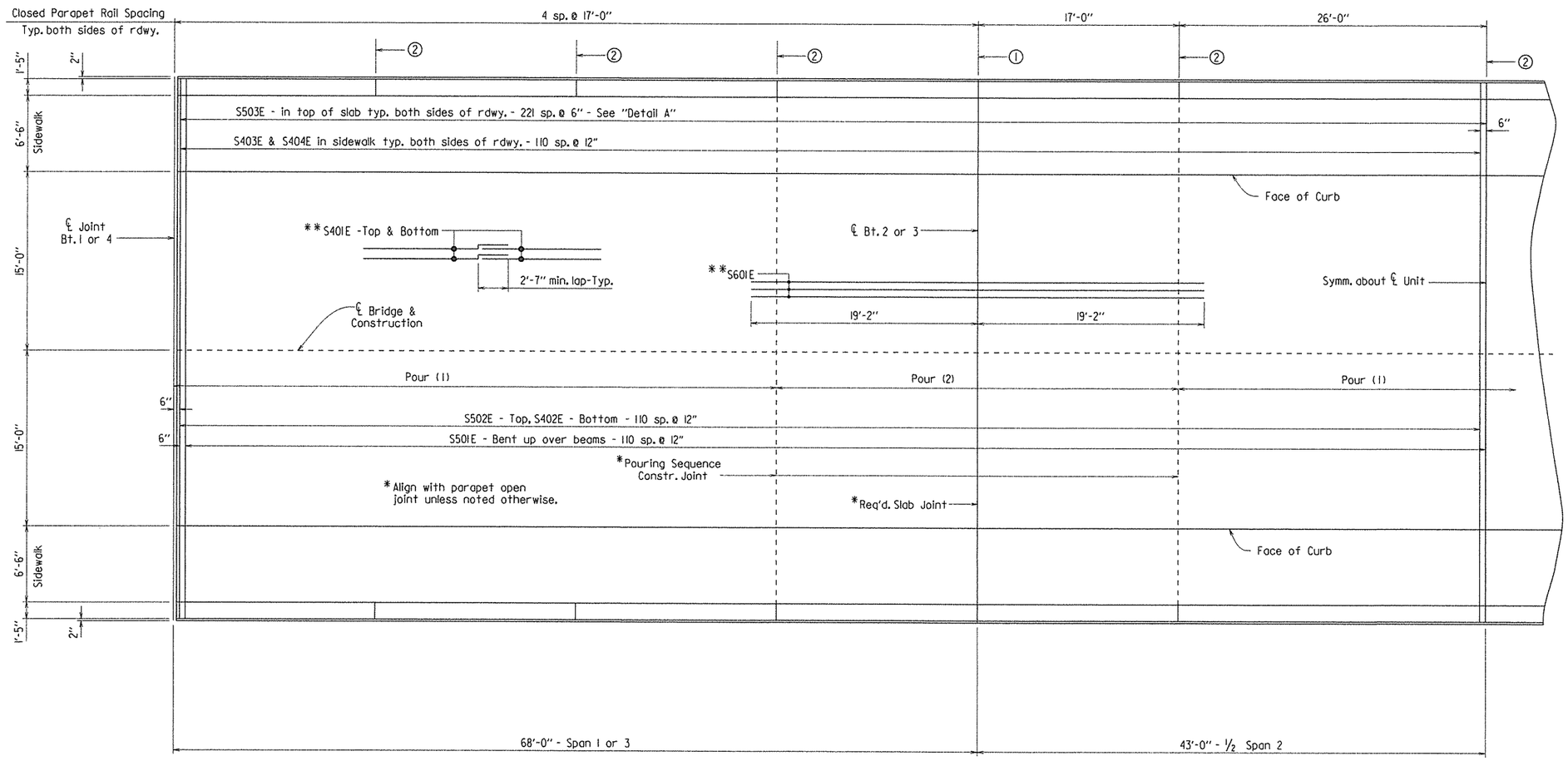
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 01/24/14
CHECKED BY: DBS DATE: 4/4/14
DESIGNED BY: MCB DATE: 9-13
FILENAME: b040456x1_si.dgn
SCALE: AS SHOWN

BRIDGE NO. 07324 DRAWING NO. 56122

PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	81	179
				①	07324 - 222 FT. UNIT - 56123			



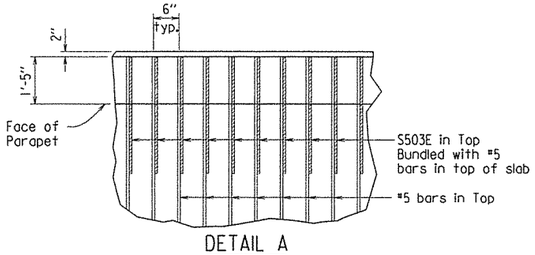
① ℄ Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of sidewalk.

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

**These bars shall be placed as shown in "Typ. Roadway Section", Dwg. No. 56120.

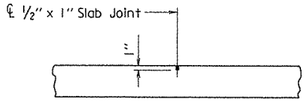
REINFORCING PLAN AND POURING SEQUENCE

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



DETAIL A

No Scale



SLAB JOINT DETAIL

No Scale

Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the sidewalk and parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. No joint sealer shall be placed under the sidewalk area. The joint sealer shall extend across the deck slab and across the top of the sidewalk.

Note:
Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 72 hours shall elapse between the end of a deck pour and the start of a sidewalk pour. 72 hours shall elapse between the end of a sidewalk pour and the start of a parapet railing pour. Any sidewalk or railing pours made before the entire slab unit has been placed must be approved by the Engineer.

The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 6
DETAILS OF 222'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
LITTLE FROG BAYOU

ROUTE SEC.

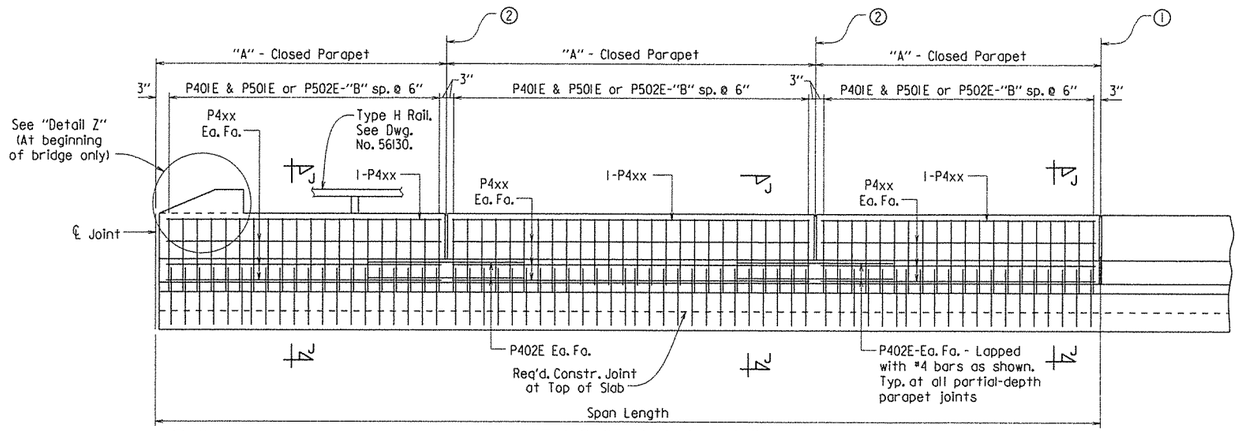
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 01/24/14
CHECKED BY: DBS DATE: 9/4/14
DESIGNED BY: MCB DATE: 9-13
FILENAME: b040456x1_s1.dgn
SCALE: AS SHOWN

BRIDGE NO. 07324 DRAWING NO. 56123

PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	82	179
				①		07324 - 222 FT. UNIT - 56124		



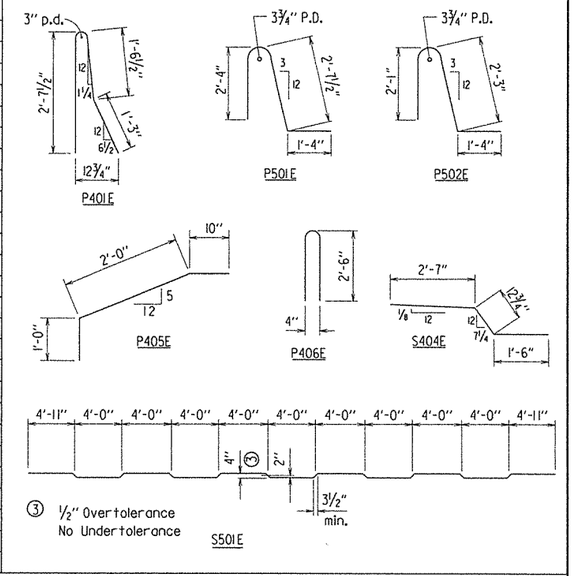
DETAILS OF PARAPET RAIL

① ℄ Full-Depth Parapet Joint (¼" to 1" max.) as shown in "Reinforcing Plan and Pouring Sequence", Dwg. No. 56123. Stop 4" from top of sidewalk.

② ℄ Partial-Depth Parapet Joint (¼" to 1" max.) as shown in Reinforcing Plan and Pouring Sequence"", Dwg. No. 56123. Stop 1'-2" from top of sidewalk.

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
S401E	804	39'-2"	Str.	Dimensions are out to out of bars.
S402E	222	45'-10"	Str.	
S403E	444	7'-8"	Str.	
S404E	444	5'-2"	3"	
P401E	888	5'-6"	2"	
P402E	72	3'-10"	Str.	
P403E	140	16'-8"	Str.	
P404E	28	25'-8"	Str.	
P405E	2	3'-10"	2"	
P406E	6	5'-2"	3"	
S501E	221	46'-11"	3"	
S502E	222	45'-10"	Str.	
S503E	886	6'-3"	Str.	
P501E	444	6'-5"	2½"	
P502E	444	5'-10"	2½"	
S601E	92	38'-4"	Str.	



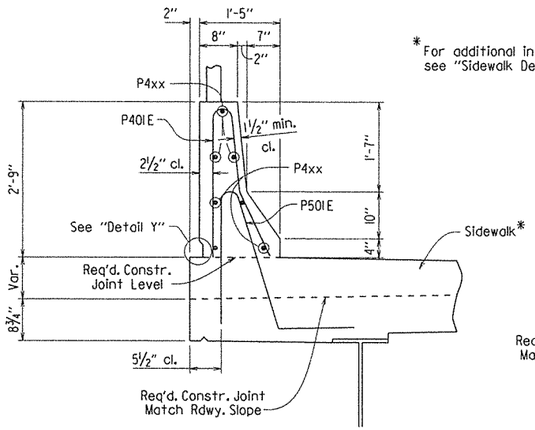
③ ½" Overtolerance
No Undertolerance

Note: All bars designated with an 'E' suffix shall be epoxy coated.

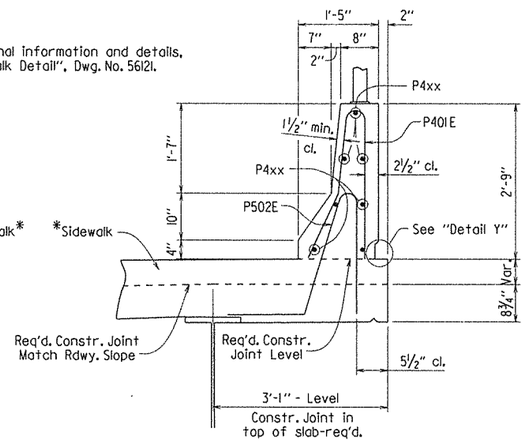
TABLE OF PARAPET RAIL VARIABLES

"A" Closed Parapet	"B"	P4xx Bar
17'-0"	33	P403E
26'-0"	51	P404E

For location of Closed Parapet panels, see "Reinforcing Plan and Pouring Sequence", Dwg. No. 56123.



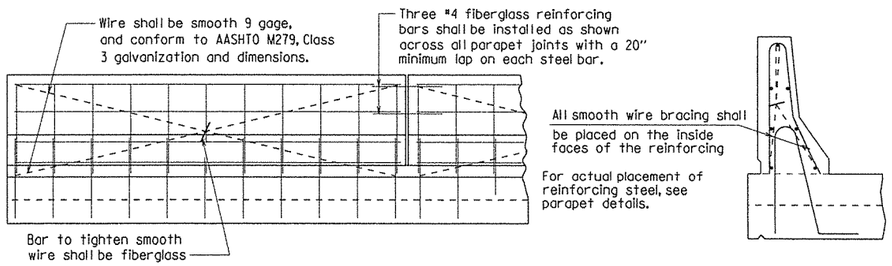
LOW SIDE



HIGH SIDE

*For additional information and details, see "Sidewalk Detail", Dwg. No. 56121.

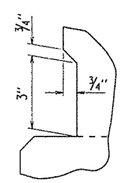
SECTION J-J



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

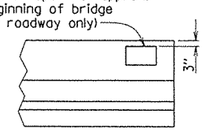
The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed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

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

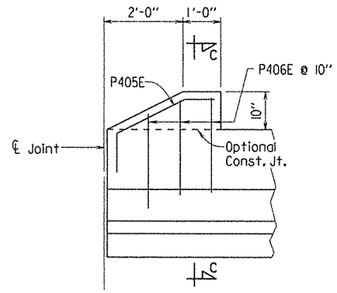


DETAIL Y

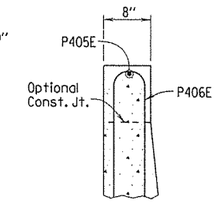
Place Type D Bridge Name Plate on front face of span rail approx. 2'-0" from beginning of bridge (Right side of roadway only)



NAME PLATE DETAIL



DETAIL Z



SECTION C-C

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 6
DETAILS OF 222'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
LITTLE FROG BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

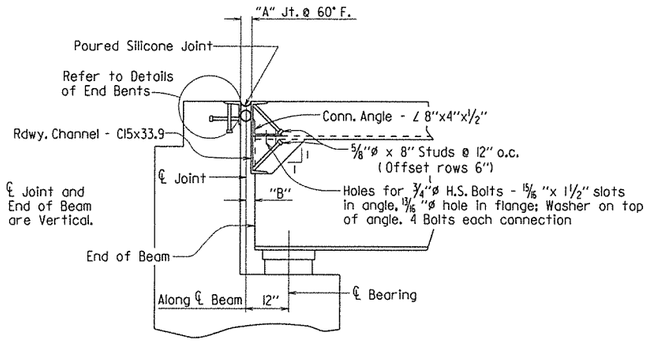
DRAWN BY: MCB DATE: 01/24/14
CHECKED BY: DBS DATE: 7/4/14
DESIGNED BY: MCB DATE: 7-13

FILENAME: b040456xl_sl.dgn
SCALE: NO SCALE

BRIDGE NO. 07324 DRAWING NO. 56124

PRINT DATE: 05-SEP-2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	83	179
				①	07324 - 222 FT. UNIT - 56125			



JOINT AT END BENTS

Perpendicular to ℄ Joint

SILICONE JOINT DATA

Bent Number	"A" Width Perpendicular to Joint at 24 Hour Average Temperature ① Of:			"B" Perpendicular to Joint at 60°F	Bumper Bar Size	"D"
	40°F	60°F	80°F			
1 & 4	1⅞"	1¾"	1⅝"	±2⅛"	1" x ⅞"	5"

① The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

Notes: The temperature limitations recommended by the sealant manufacturer shall be observed.

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

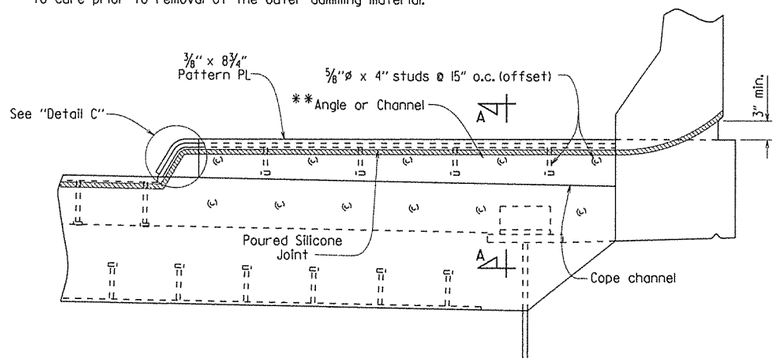
② BACKER ROD NOTE:

Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing.

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

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

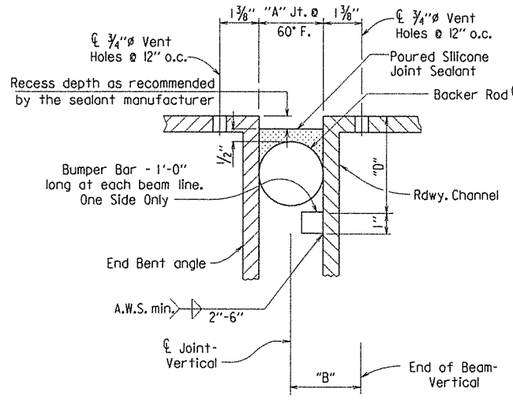
Install seal in slab joint and parapet joint with damming procedure as recommended by the manufacturer. The sealant shall be recessed to prevent damage and be allowed to cure prior to removal of the outer damming material.



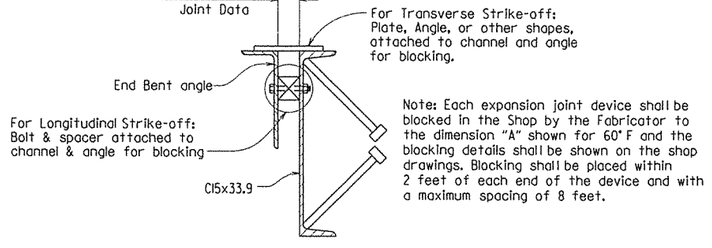
TYPICAL SECTION THRU SIDEWALK

* ¾" x 1⅝" Ctsk. Slots in ⅜" Pattern Plates. Tap 4" leg of angle or channel for ⅝" ø flat head cap screws @ 12" o.c. Install screws in the shop and ship as a unit. Remove screws on one side after erection is complete.

** For sidewalk joint armor location, see Dwg. No. 56120.

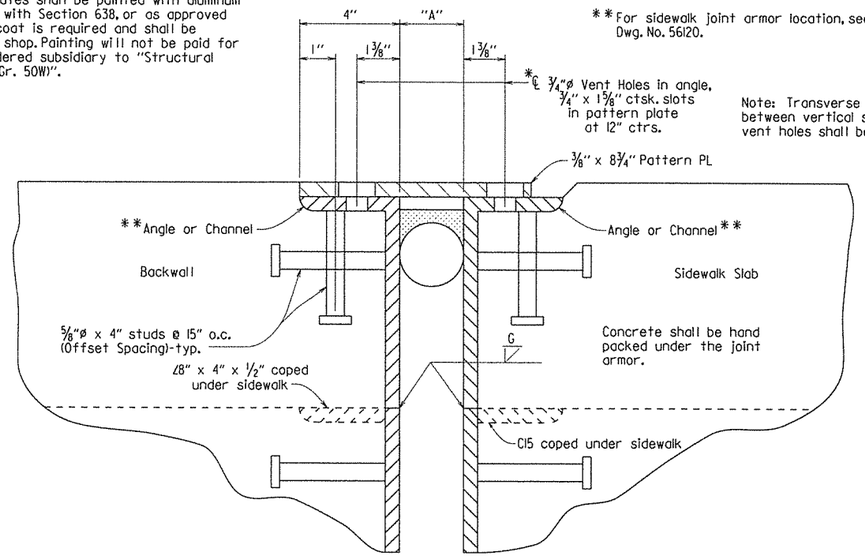


DETAIL OF POURED SILICONE JOINT SEAL



DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

The surfaces of the ⅜" plates shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the Fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M270, Gr. 50W)".



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

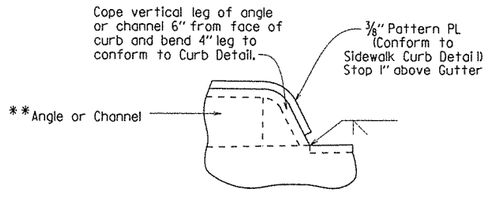
SECTION A-A

EXPANSION DEVICE INSTALLATION AT END BENTS

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

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

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



DETAIL C

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF 222'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
LITTLE FROG BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

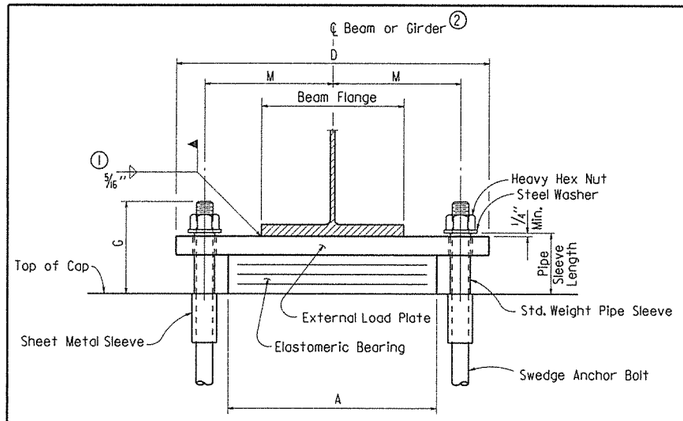
DRAWN BY: MCB DATE: 01/24/14
CHECKED BY: DBS DATE: 9/4/14
DESIGNED BY: M.C.B. DATE: 9-13
FILENAME: b040456xl_sl.dgn
SCALE: NO SCALE

BRIDGE NO. 07324 DRAWING NO. 56125

PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	84	179

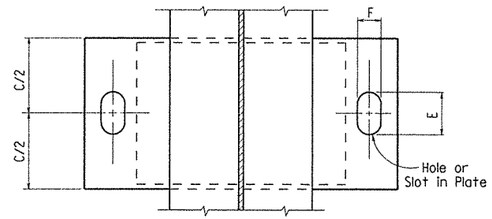
(1) 07324 - ELASTO. BRGS. - 56126



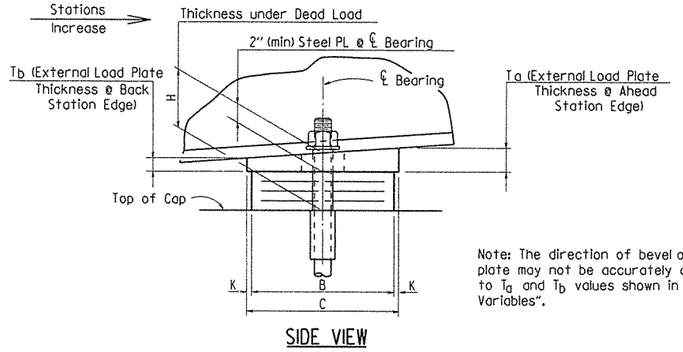
FRONT VIEW

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

(2) ℄ Elastomeric pad shall be aligned with ℄ Beam.

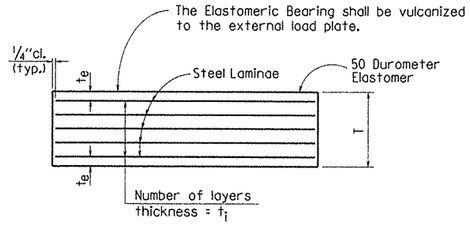


PLAN VIEW



SIDE VIEW

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



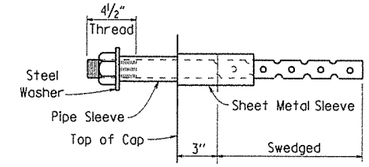
t_e = thickness of elastomer cover on top and bottom of pad

t_i = thickness of elastomer between steel laminae

N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

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



ANCHOR BOLT DETAIL

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

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

GENERAL NOTES

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

External load plates shall conform to AASHTO M270, Grade 50W. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, Class 50.

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

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

Pipe sleeves, anchor bolts, washers and nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)". External load plates will not be measured or paid for separately but will be considered included in the unit bid price for "Elastomeric Bearings".

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

**TABLE FOR Ta & Tb

	Beam	T_a	T_b
Bent 3	1	2.42	1.58
	2	2.42	1.58
	3	2.42	1.58
	4	2.44	1.56
	5	2.48	1.52
	6	2.52	1.48
Bent 4	1	2.22	1.78
	2	2.23	1.77
	3	2.25	1.75
	4	2.26	1.74
	5	2.27	1.73
	6	2.28	1.72

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION BENT NO(S).	LOCATION BEAM NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	EXTERNAL LOAD PLATE C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
07324	1	ALL	Exp.	6	103	7"	4 3/8"	13 1/2"	8"	3	1/2"	1/4"	4 @ 12 Gauge	2 7/16"	9"	22 1/2"	3 7/8"	2"	1/2"	8 3/4"	2.27"	1.73"	1 1/4" x 21"	55	1 1/4" x 4 3/4"	3" X 6"	2 1/2"
	2	ALL	Fix	6	237	7 1/4"	3 13/16"	15"	13"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	14"	27"	3 1/8"	3 1/8"	1/2"	10 1/4"	2.42"	1.58"	2" x 31"	55	2 1/2" x 4 1/4"	4" X 12"	3 3/4"
	3	ALL	Fix	6	237	7 1/4"	3 13/16"	15"	13"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	14"	27"	3 1/8"	3 1/8"	1/2"	10 1/4"	**	**	2" x 31"	55	2 1/2" x 4 1/4"	4" X 12"	3 3/4"
	4	ALL	Exp.	6	103	7"	4 3/8"	13 1/2"	8"	3	1/2"	1/4"	4 @ 12 Gauge	2 7/16"	9"	22 1/2"	3 7/8"	2"	1/2"	8 3/4"	**	**	1 1/4" x 21"	55	1 1/4" x 4 3/4"	3" X 6"	2 1/2"

* Maximum Design Load = Service I Limit State

Tabular Data by : MCB Date: 03/12/14

Checked by : DBS Date: 9/4/14

Designed by : MCB Date: 3-12-14

STATE OF ARKANSAS
Charles Ray Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS LITTLE FROG BAYOU

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: Nov.12,96 FILENAME: b040456xl_el.dgn

CHECKED BY: AMS DATE: Jul.7,05 SCALE: NONE

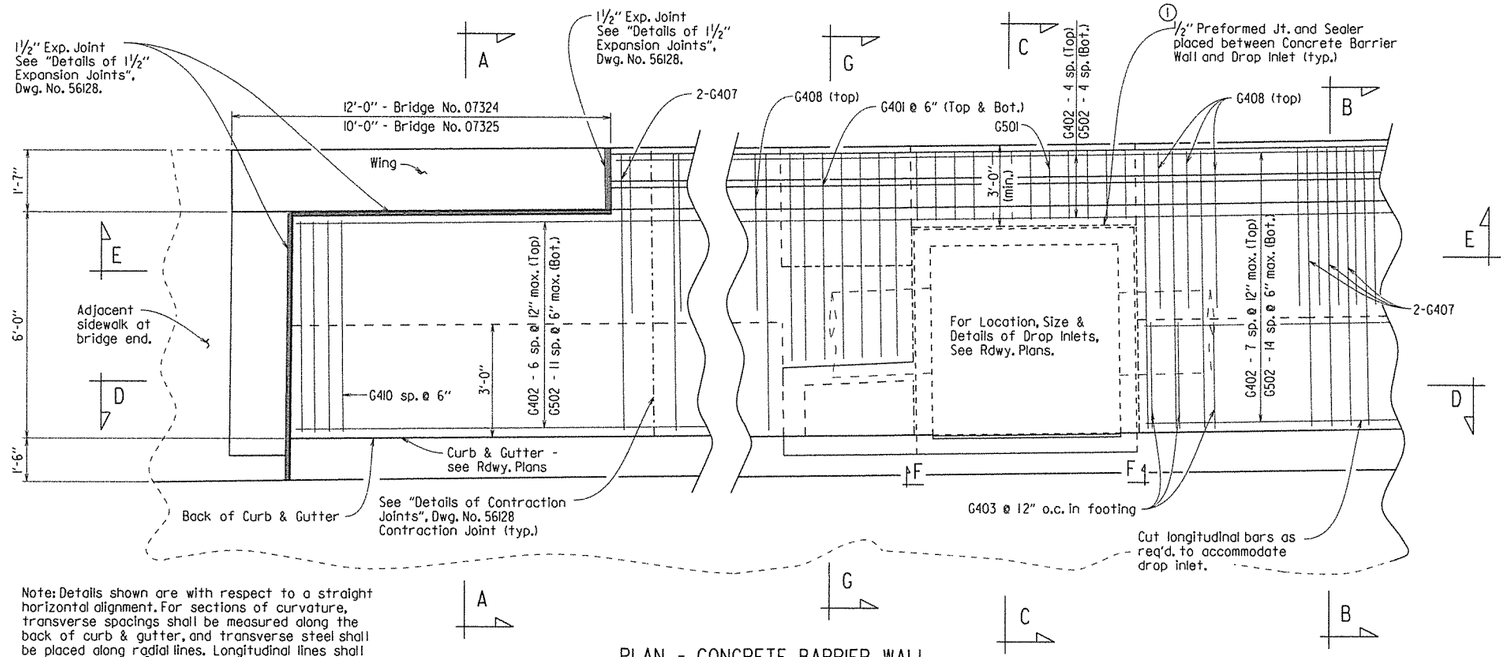
DESIGNED BY: Std. DATE:

BRIDGE NO. 07324 DRAWING NO. 56126

PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	85	179

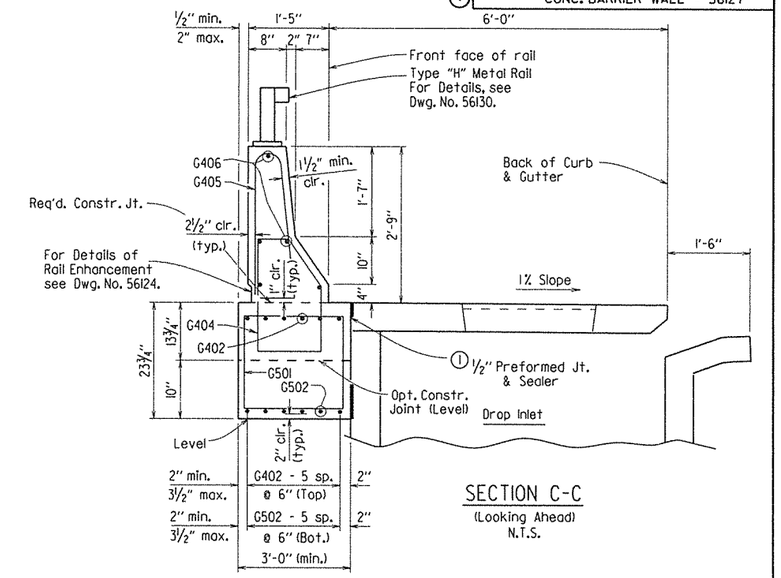
① CONC. BARRIER WALL - 56127



Note: Details shown are with respect to a straight horizontal alignment. For sections of curvature, transverse spacings shall be measured along the back of curb & gutter, and transverse steel shall be placed along radial lines. Longitudinal lines shall be concentric to ℄ Bridge.

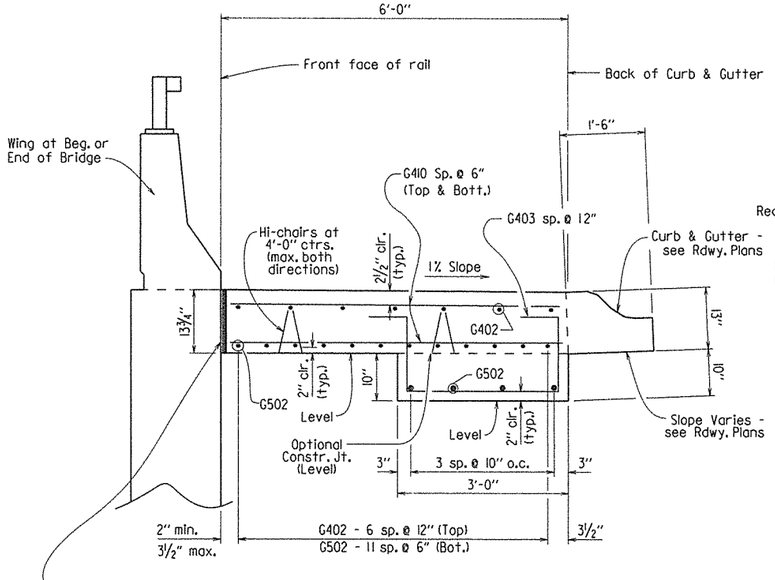
PLAN - CONCRETE BARRIER WALL

N.T.S.



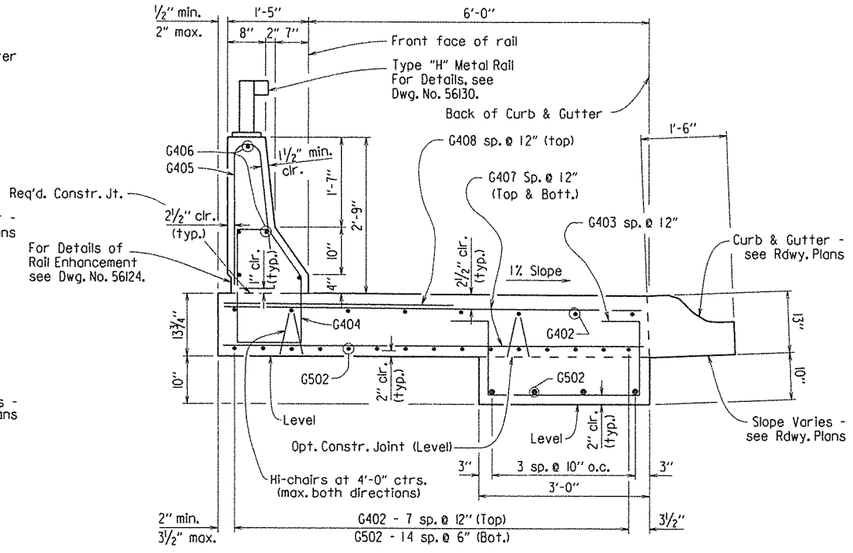
SECTION C-C

(Looking Ahead)
N.T.S.



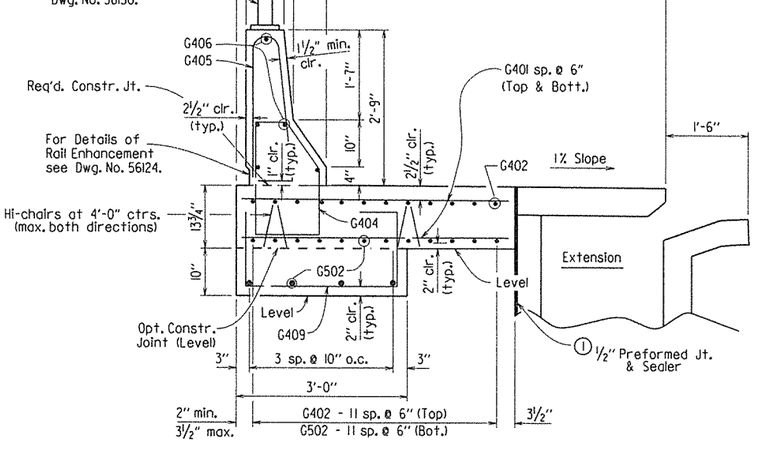
SECTION A-A

(Looking Ahead)
N.T.S.



SECTION B-B

(Looking Ahead)
N.T.S.



SECTION G-G

(Looking Ahead)
N.T.S.

① Use ½" Preformed Joint AASHTO M153 Type 1 and ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02 (h) and 501.05 (j).

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF CONCRETE BARRIER WALL

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

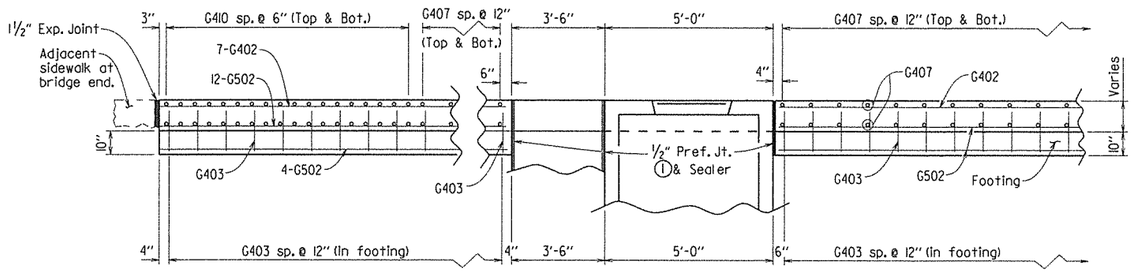
DRAWN BY: MCB DATE: 03/13/14
CHECKED BY: DBJ DATE: 9/9/14
DESIGNED BY: Std. DATE: —

FILENAME: b040456_cbw.dgn
SCALE: as noted

DRAWING NO. 56127

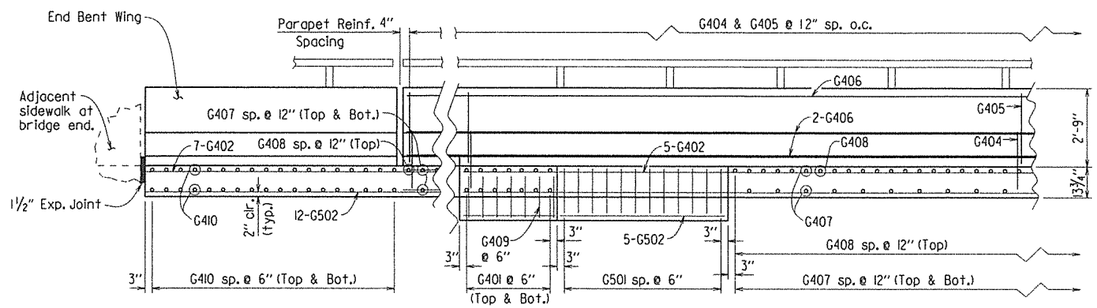
PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	86	179
				①		CONC. BARRIER WALL - 56128		



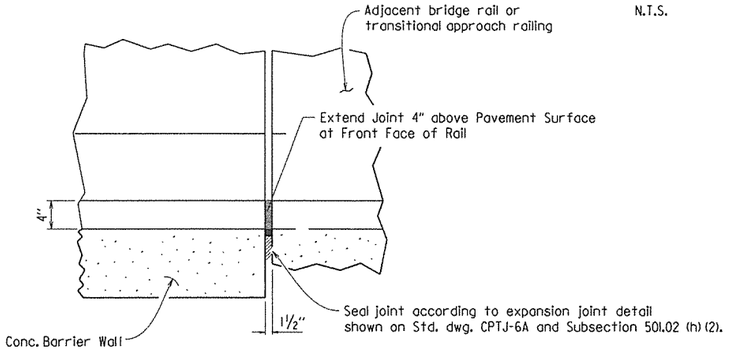
SECTION D-D

N.T.S.



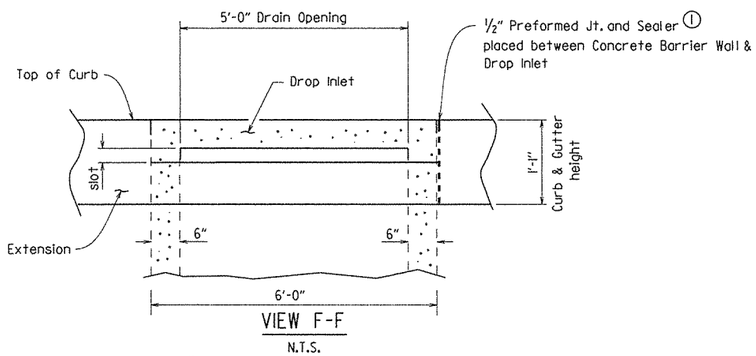
SECTION E-E

N.T.S.



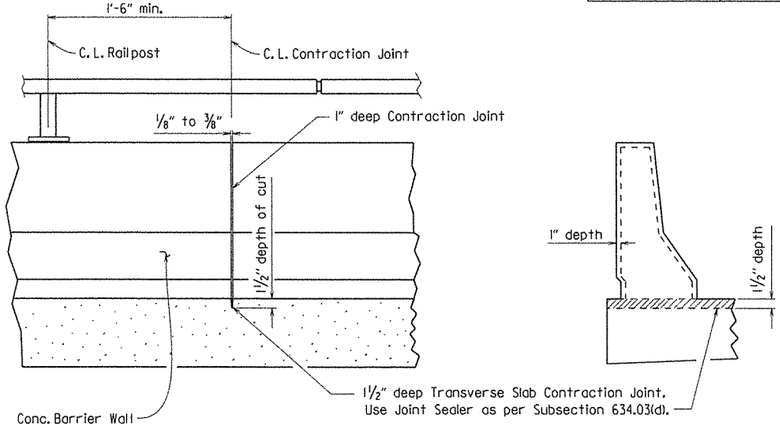
DETAILS OF 1½" EXPANSION JOINTS

N.T.S.



VIEW F-F

N.T.S.



DETAILS OF CONTRACTION JOINTS

N.T.S.

Note: Contraction Joints shall be constructed at 15'-0" Max. Sp. and coincide with Contraction Joints in Curb & Gutter.

Widths of Contraction Joints in the Concrete Barrier Walls shall match the widths of Contraction Joints used in the Curb & Gutter.

1" depth joints in rail section are not required to be sealed.

① Use ½" Preformed Joint AASHTO M153 Type I and ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j).

GENERAL NOTES

Concrete shall be Class S(AE) (f'c = 4,000 psi).

Reinforcement Steel shall be Grade 60 (yield Strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Preformed Joints and Sealer shall not be paid for directly. Expansion Joints and Sealer shall not be paid for directly. Payment for these items shall be considered incidental to the pay item "Concrete Barrier Wall (Parapet Type A)".

Concrete Barrier Wall will be paid for as "Concrete Barrier Wall (Parapet Type A)".

Type "H" Metal Rail shall be paid for as "Metal Bridge Railing (Type H)". See Dwg. No. 56130 for details of Type "H" Metal Rail.

Note: Parapet rails may be slipformed See Dwg. No. 56124.

TABLE OF QUANTITIES

Approximate Quantities For Concrete Barrier Wall Measured along C. L. Bridge Sta. 114+95.57 to 116+21.42

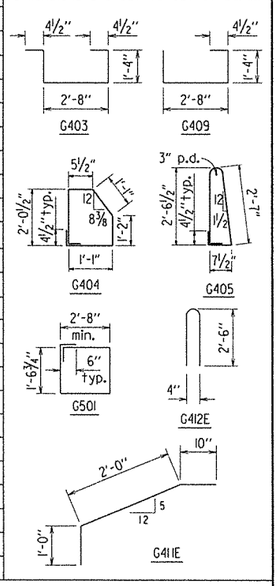
Item No.	631	806
Item	Concrete Barrier Wall (Parapet Type A)	Metal Bridge Railing (Type H)
	252 Lin. Ft.	214 Lin. Ft.

FOR INFORMATION ONLY

BAR LIST FOR CONC. BARRIER WALL

Mark	Length	Pin Dia.
G401	5'-3"	Str.
G402	*As Required	Str.
G403	5'-9"	2"
G404	6'-2"	2"
G405	6'-4"	2"
G406	*As Required	Str.
G407	7'-2"	Str.
G408	3'-11"	Str.
G409	5'-6"	2"
G410	5'-8"	Str.
G411E	3'-10"	2"
G412E	5'-2"	3"
G501	9'-0"	2½"
G502	*As Required	Str.

Bending Diagram (Dimensions are out to out of bars.)



* Note: Min. Lap Lengths For Longitudinal Bars are as follows:

G404 - 1'-9"
G408 - 1'-9"
G502 - 2'-2"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF
CONCRETE BARRIER WALL

ROUTE SEC.

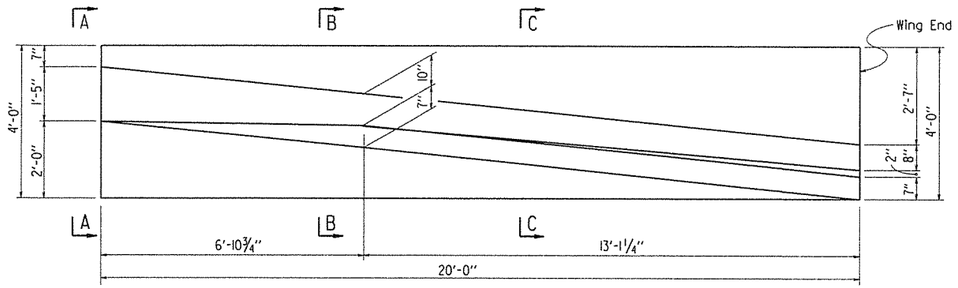
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 7/31/2013 FILENAME: b040456_cbw.dgn
CHECKED BY: DJS DATE: 9/4/14 SCALE: as noted
DESIGNED BY: S.T.J. DATE: –

DRAWING NO. 56128

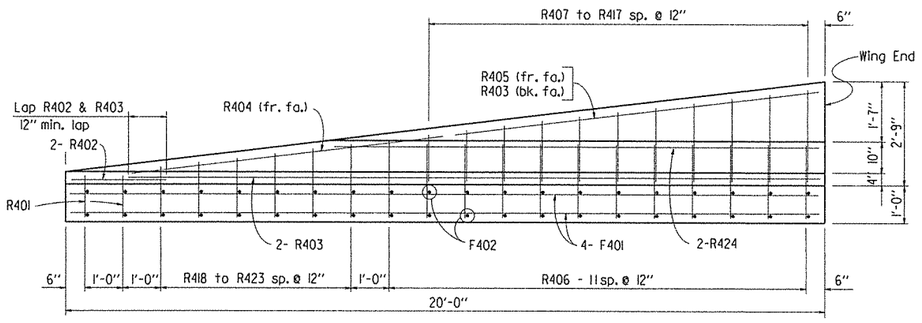
PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	87	179
				① 07234 & 07235	-	RAIL	- 56129	



PLAN OF TRANSITIONAL APPROACH RAILING

Note: Railings on each side of Roadway are opposite hand to each other.



ELEVATION OF TRANSITIONAL APPROACH RAILING

General Notes

Transitional Approach Railing shall be placed at ends of turnback wings at locations shown on the layout. All longitudinal lines shall be concentric to ℄ Bridge.

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

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

Transitional Approach Railing shall be paid for at the contract unit price bid per each for "Transitional Approach Railing." See Section 806.

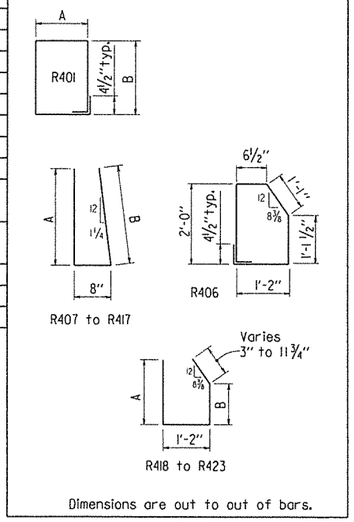
FOR INFORMATION ONLY
SCHEDULE OF QUANTITIES PER RAIL UNIT

CLASS "S" CONCRETE	REINFORCING STEEL (GRADE 60)	CLASS 1 PROTECTIVE SURFACE TREATMENT
4.20 Cu. Yds.	374.00 Lbs.	0.2 gal

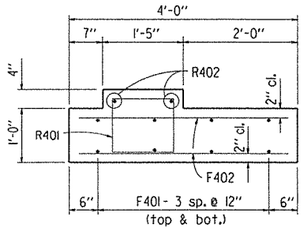
BAR LIST - ONE TRANSITIONAL RAIL

Mark	No. Req'd.	Length	A	B	Pin Dia.
F401	8	19'-8"			str.
F402	40	3'-8"			str.
R401	2	4'-10"	1'-2"	1'-1"	2"
R402	2	3'-0"			str.
R403	3	17'-9"			str.
R404	1	5'-0"			str.
R405	1	12'-9"			str.
R406	12	6'-3"			2"
R407-R417	1ea.	3'-0"-5'-5"	1'-3"-2'-5½"	1'-3"-2'-5½"	2"
R418-R423	1ea.	3'-9"-5'-1"	1'-4"-1'-11¼"	1'-1½"	2"
R424	2	10'-9"			str.

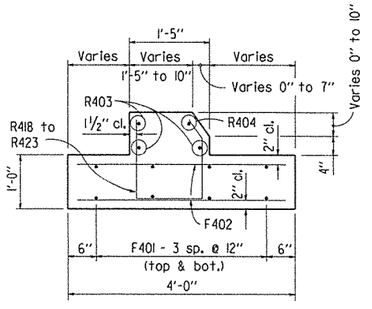
Bending Diagram



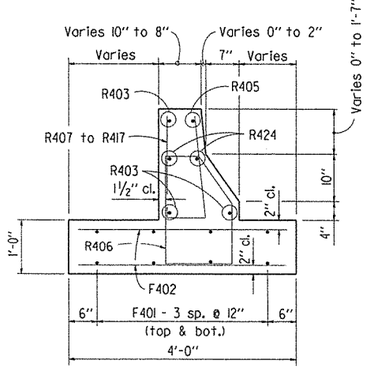
Dimensions are out to out of bars.



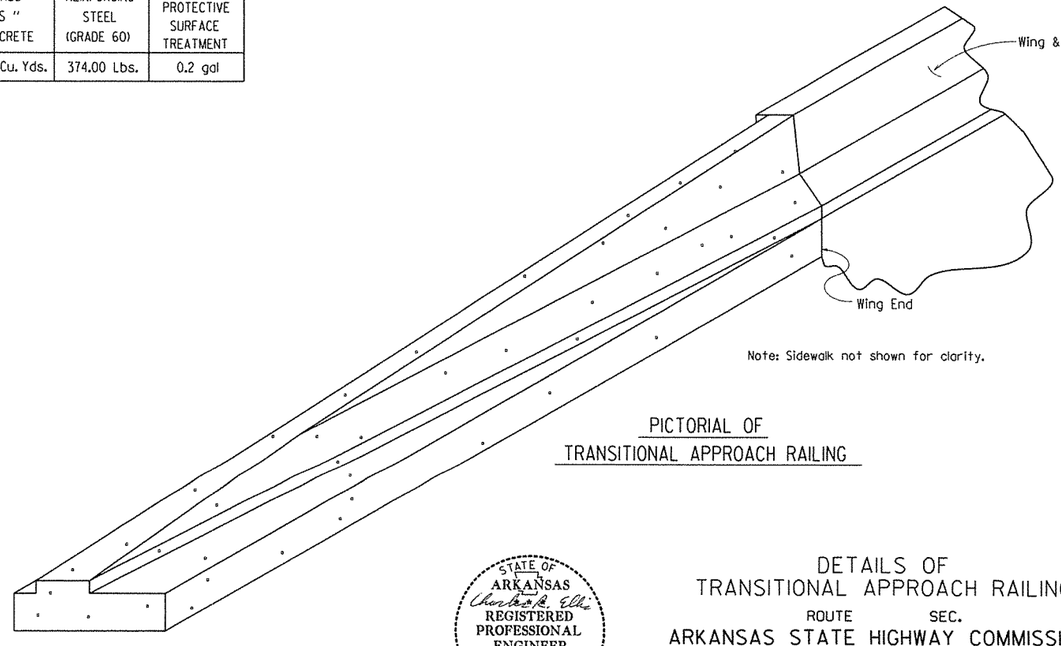
VIEW A - A
¾" = 1'-0"



SECTION B - B
¾" = 1'-0"



SECTION C - C
¾" = 1'-0"



Note: Sidewalk not shown for clarity.

PICTORIAL OF
TRANSITIONAL APPROACH RAILING

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF TRANSITIONAL APPROACH RAILING

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

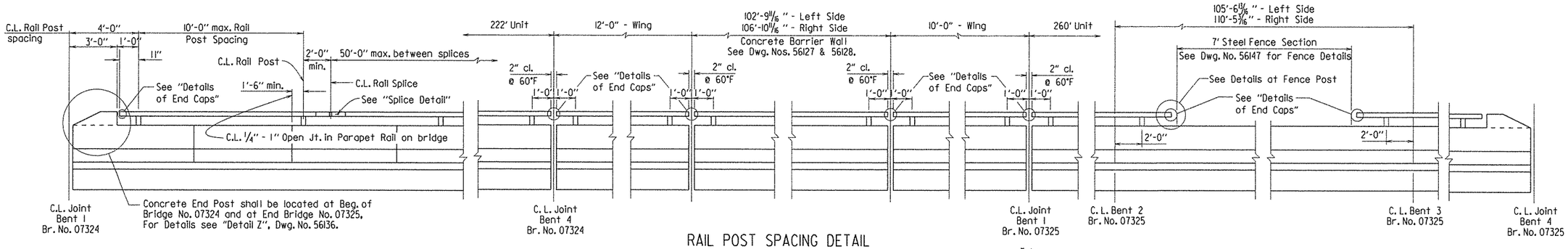
LITTLE ROCK, ARK.

DRAWN BY: CSL DATE: 11/21/2005 FILENAME: b0040456_tr.dgn
CHECKED BY: DBJ DATE: 9/4/14 SCALE: ½" = 1'-0" or as noted
DESIGNED BY: Std. DATE: -

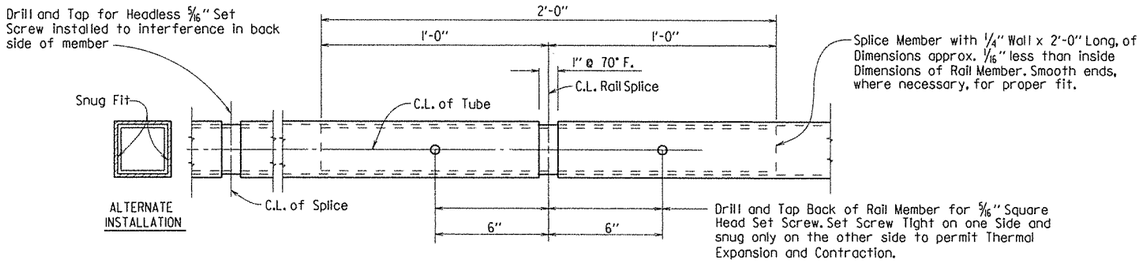
BRIDGE NO. 07234 & 07235 DRAWING NO. 56129

PRINT DATE: 9/5/2014

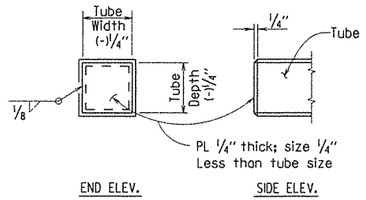
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
					ARK.			
				JOB NO.		040456	88	179
				07324 & 07325		- METAL BRIDGE RAIL - 56130		



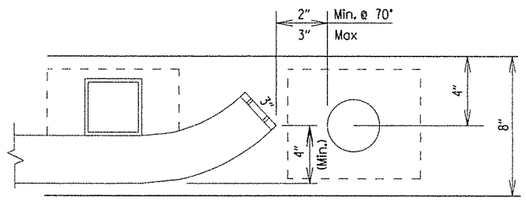
RAIL POST SPACING DETAIL



SPLICE DETAIL

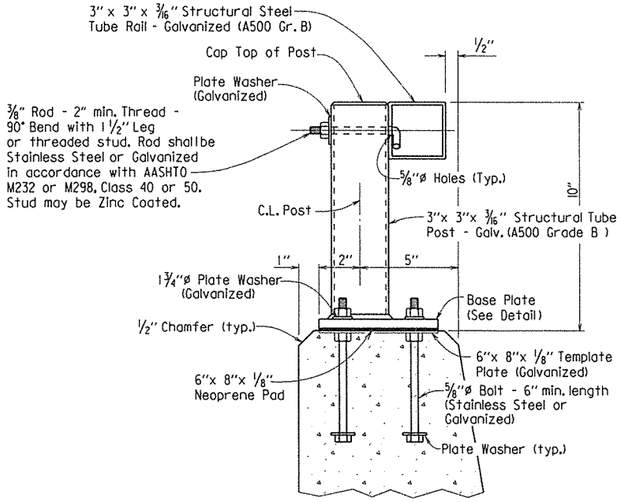


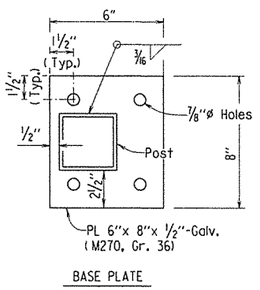
DETAILS OF END CAPS



DETAILS AT FENCE POST - BR. NO. 07325

Bend or Mitre as Shown.

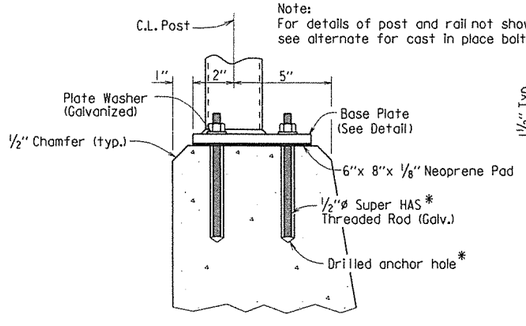


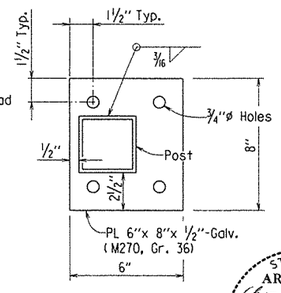


BASE PLATE

DETAILS OF POST ANCHOR SYSTEM

(CAST IN PLACE BOLTS)





BASE PLATE

* HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4 1/2" embedment or an approved equal.

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

DETAILS OF ALTERNATE POST ANCHOR SYSTEM

(EPOXY ADHESIVE ANCHORS)

NOTES FOR BRIDGE RAILING:

Rail layout shall conform to vertical and horizontal alignment of bridge.

Maximum post spacing = 10'-0"

Minimum distance from centerline post to centerline open or contraction joints in parapet = 1'-6".

Rail splices shall be at 50' maximum spacing. Centerline splices shall be located at a maximum of 2 feet from centerline of post. Rail sections shall be fabricated to attach to at least three posts.

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

Bridge railing, including posts, fasteners, template plates, and neoprene pad shall be paid for at the contract unit price bid per linear foot for "Metal Bridge Railing (Type H)".

Shop drawings showing details of railing shall be submitted and approval secured before fabrication is begun.

MATERIALS:

Tubing, Posts, and Accessories: AASHTO M270, Gr. 36 or ASTM A500-Grade B.

Railing End Caps: AASHTO M270, Grade 36, galvanized.

Steel Rail Members shall be galvanized in accordance with AASHTO M 111 after fabrication.

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

Splice Set Screws: Stainless steel, ASTM Specifications A193 or A320-Grade B8, or AASHTO M270, Grade 36, galvanized.

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

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

Washers shall conform to AASHTO M293, galvanized in accordance with AASHTO M232 or M298, Class 40 or 50, or of stainless steel conforming to ASTM A276 or A167-Type 302.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
7-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF TYPE H METAL BRIDGE RAILING

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 03/12/14 FILENAME: b040456_hr.dgn

CHECKED BY: DBS DATE: 7/14/14 SCALE: NONE

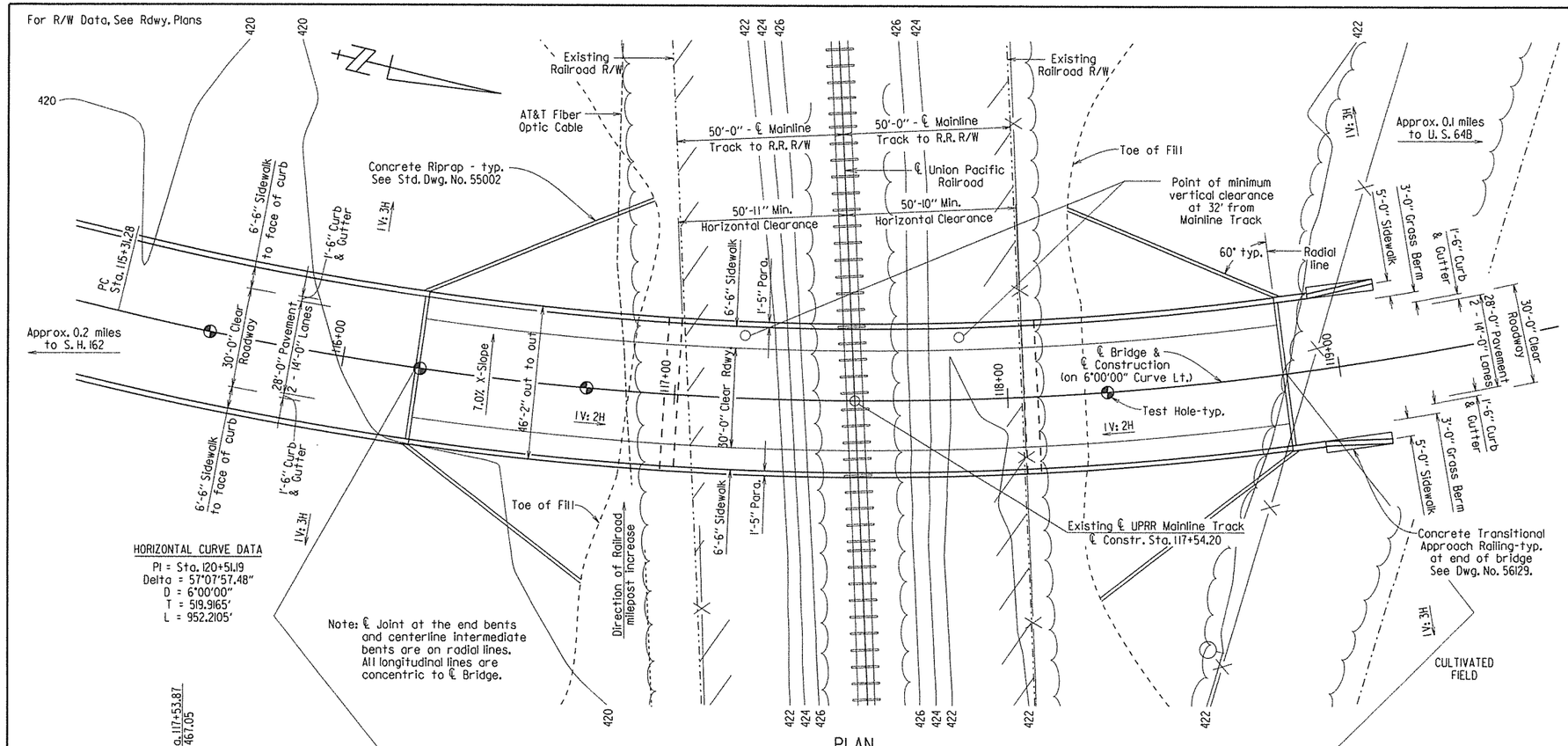
DESIGNED BY: S.rd DATE: -

BRIDGE NO. 07324 & 07325 DRAWING NO. 56130

PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	89	179
				(1)	07325	- LAYOUT -	56131	

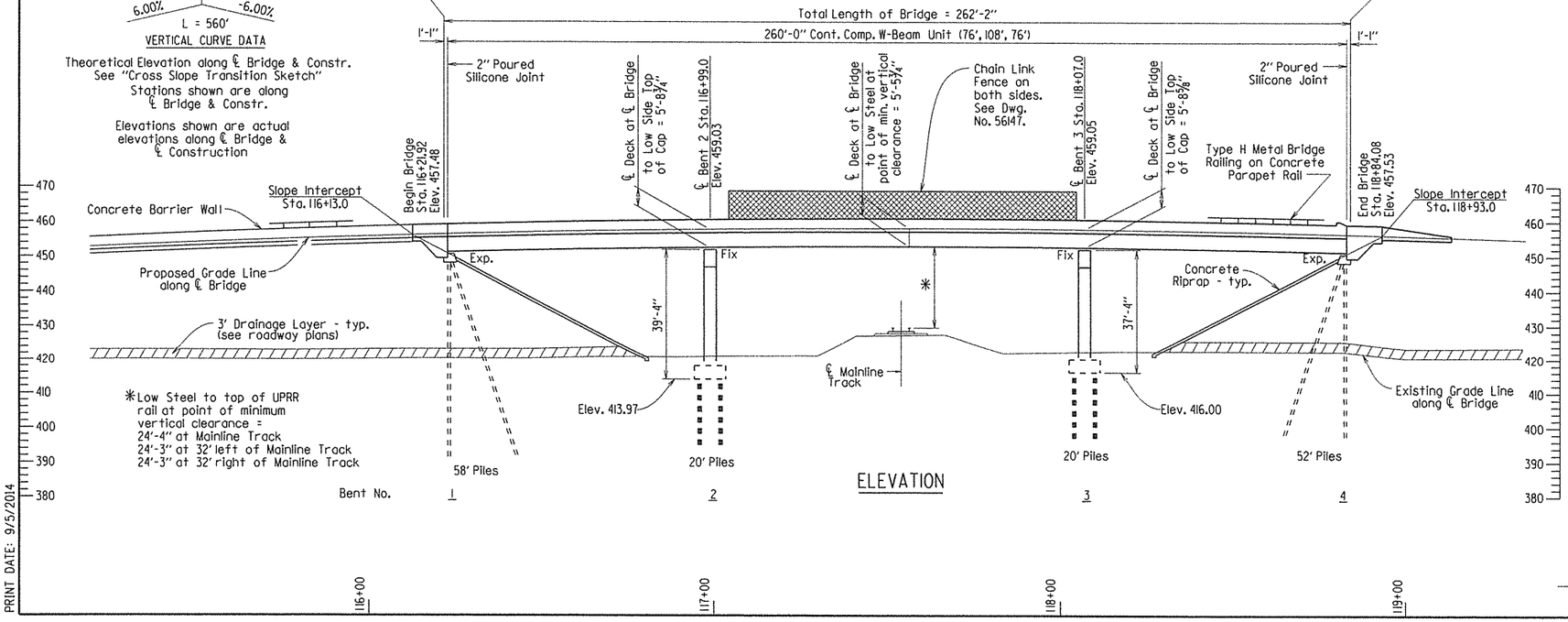
For R/W Data, See Rdwy. Plans



HORIZONTAL CURVE DATA
PI = Sta. 120+51.19
Delta = 57°07'57.48"
D = 6°00'00"
T = 519.9165'
L = 952.2105'

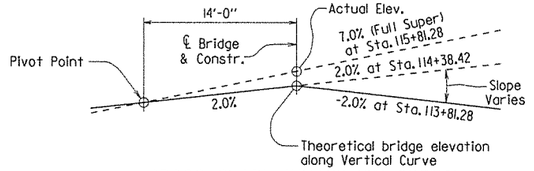
VERTICAL CURVE DATA
Theoretical Elevation along ℄ Bridge & Constr. See "Cross Slope Transition Sketch"
Stations shown are along ℄ Bridge & Constr.
Elevations shown are actual elevations along ℄ Bridge & ℄ Construction

PLAN



*Low Steel to top of UPRR rail at point of minimum vertical clearance =
24'-4" at Mainline Track
24'-3" at 32' left of Mainline Track
24'-3" at 32' right of Mainline Track

ELEVATION



CROSS SLOPE TRANSITION SKETCH
Looking Ahead

GENERAL NOTES

BENCH MARK: Chiseled square SE Retaining Wall, 469.08' left of Sta. 116+93.35, Elev. 429.78.

CONSTRUCTION SPECIFICATION: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Unless otherwise noted, section and subsection numbers in the plans refer to the Standard Construction Specifications.

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

LIVE LOADING: HL-93 SEISMIC ZONE: 1

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4000 psi
Class S Concrete (substructure)	f'c = 3500 psi
Reinforcing Steel (AASHTO M31 or M53, Gr. 60)	fy = 60000 psi
Structural Steel (AASHTO M270, Gr. 36)	Fy = 36000 psi
Structural Steel (AASHTO M270, Gr. 50W)	Fy = 50000 psi

BORING LOGS: Boring logs may be obtained from the Programs and Contracts Division.

PILING: All Piling shall be HP 12 x 53 and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 70 tons per pile and into the material designated as medium hard shale on the boring legend. Piling in end bents shall be driven after embankment to bottom of cap is in place. On all piles the Contractor shall use approved steel H-Pile driving points.

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

FOOTINGS: Footings at Bents 2 and 3 shall have a minimum cover of 2'-0" above top of footings. Foundations shall be prepared in accordance with Subsection 801.04 and backfilled according to Subsection 801.08.

BRIDGE DECK: The concrete bridge deck, except sidewalks, shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall be given a Class 6 Broomed Finish.

DETAIL DRAWINGS:	DRAWING NOS.
End Bents	56135-56137
Intermediate Bents	56138-56139
260' Cont. Comp. W-Beam Unit	56140-56147
Elastomeric Bearings	56148
Steel Piling	55020
Concrete Riprap	55002
Transitional Approach Railing	56129
Type H Metal Bridge Railing	56130

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 1 OF 2
LAYOUT OF BRIDGE OVER UNION PACIFIC RAILROAD HWY. 162 IMPROVEMENTS (ALMA)(S) CRAWFORD COUNTY

ROUTE 162 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

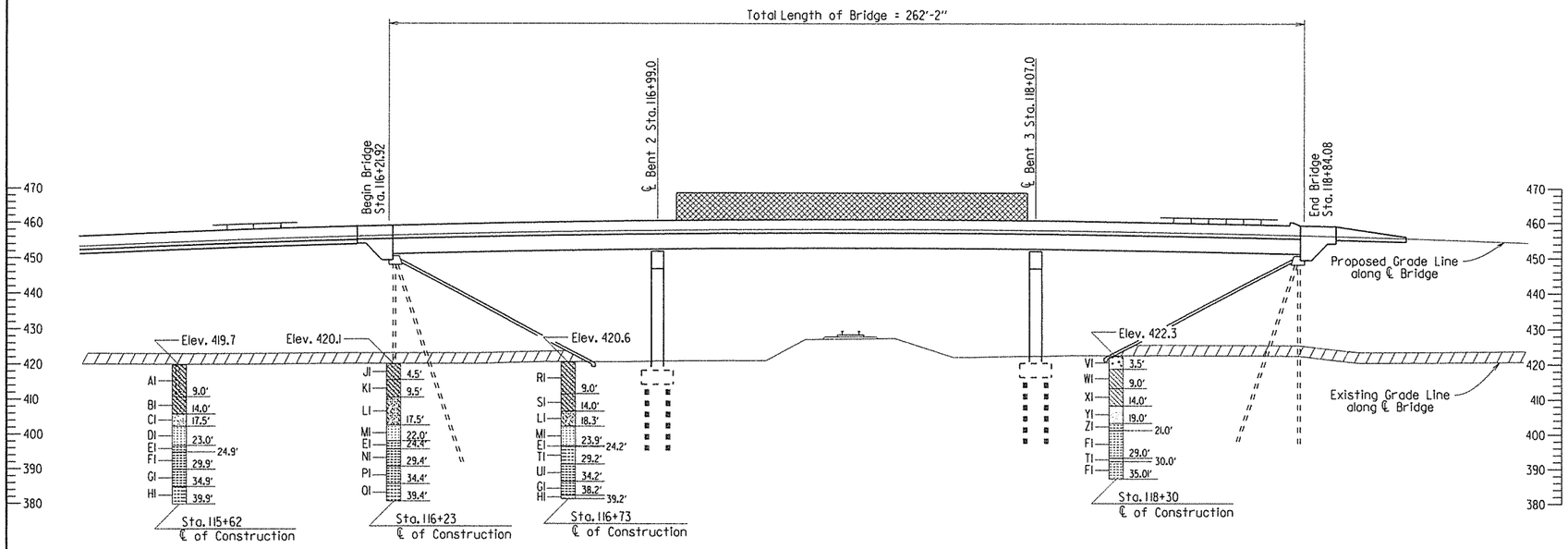
DRAWN BY: CJR DATE: 5/29/2012 FILENAME: b040456x2_11.dgn
CHECKED BY: DBJ DATE: 9/9/14 SCALE: 1" = 20'
DESIGNED BY: CJR DATE: 5/12

BRIDGE NO. 07325 DRAWING NO. 56131

PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		040456	90	179
(1) 07325 - LAYOUT - 56132				



ELEVATION

BORING LEGEND

A1-Moist, Very Stiff, Brown and Gray Sandy, Silty Clay with Iron Nodules
B1-Moist, Medium Stiff, Gray and Brown Clay with Sand and Iron Nodules
C1-Wet, Very Loose, Brown Sand
D1-SANDSTONE - Gray, Highly Weathered, Cemented
E1-SHALE - Dark Gray, Weathered, Medium Hard
F1-SHALE - Dark Gray, Laminated, Weathered, Medium Hard, with Slight Dip
G1-SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip
H1-SHALE WITH FREQUENT GRAY SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip
J1-Moist, Very Soft, Gray and Brown Sandy, Silty Clay with Iron Nodules
K1-Moist, Stiff, Gray and Brown Sandy, Silty Clay with Iron Nodules
L1-Wet, Loose, Brown Clayey Sand
M1-SANDSTONE - Gray, Highly Weathered, Poorly-Cemented
N1-SHALE - Dark Gray, Laminated, Highly Weathered, Medium Hard, with Slight Dip
P1-SHALE WITH OCCASIONAL GRAY SANDSTONE PARTINGS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip and some Slickensides
Q1-SHALE WITH FREQUENT GRAY SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip and some Fossils
R1-Moist, Stiff, Brown and Gray Sandy Clay
S1-Moist, Stiff, Brown and Gray Sandy Clay with Iron Nodules
T1-SHALE WITH FREQUENT GRAY SANDSTONE SEAMS - Dark Gray, Laminated, Weathered, Medium Hard, with Slight Dip
U1-SHALE - Dark Gray, Laminated, Weathered, Medium Hard, with Slight Dip and some Slickensides
V1-Concrete Rubble
W1-Moist, Soft, Brown Sandy Clay
X1-Moist, Soft, Gray Sandy Clay
Y1-Wet, Very Loose, Gray Sand
Z1-SHALE - Dark Gray, Weathered, Medium Hard

"N" VALUES

Sta. 115+62 - Center Line of Construction
4.5- 5.5, N=16
11.5- 12.5, N=6
14.5- 15.5, N=3
19.5- 20.5, N=35
24.5- 24.9, N=60(5")

Sta. 116+23 - Center Line of Construction
0.5- 1.5, N=1
5.0- 6.0, N=10
10.0- 11.0, N=10
14.5- 15.5, N=6
19.5- 20.5, N=30
24.0- 24.4, N=60(5")

Sta. 116+73 - Center Line of Construction
4.5- 5.5, N=10
9.5- 10.5, N=9
14.5- 15.5, N=6
19.5- 20.5, N=18
24.0- 24.2, N=60(3")

Sta. 118+30 - Center Line of Construction
4.5- 5.5, N=4
9.5- 10.5, N=3
14.5- 15.5, N=3
19.5- 19.9, N=60(5")

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 2 OF 2
LAYOUT OF BRIDGE OVER UNION PACIFIC RAILROAD HWY. 162 IMPROVEMENTS (ALMA) (S) CRAWFORD COUNTY

ROUTE 162 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

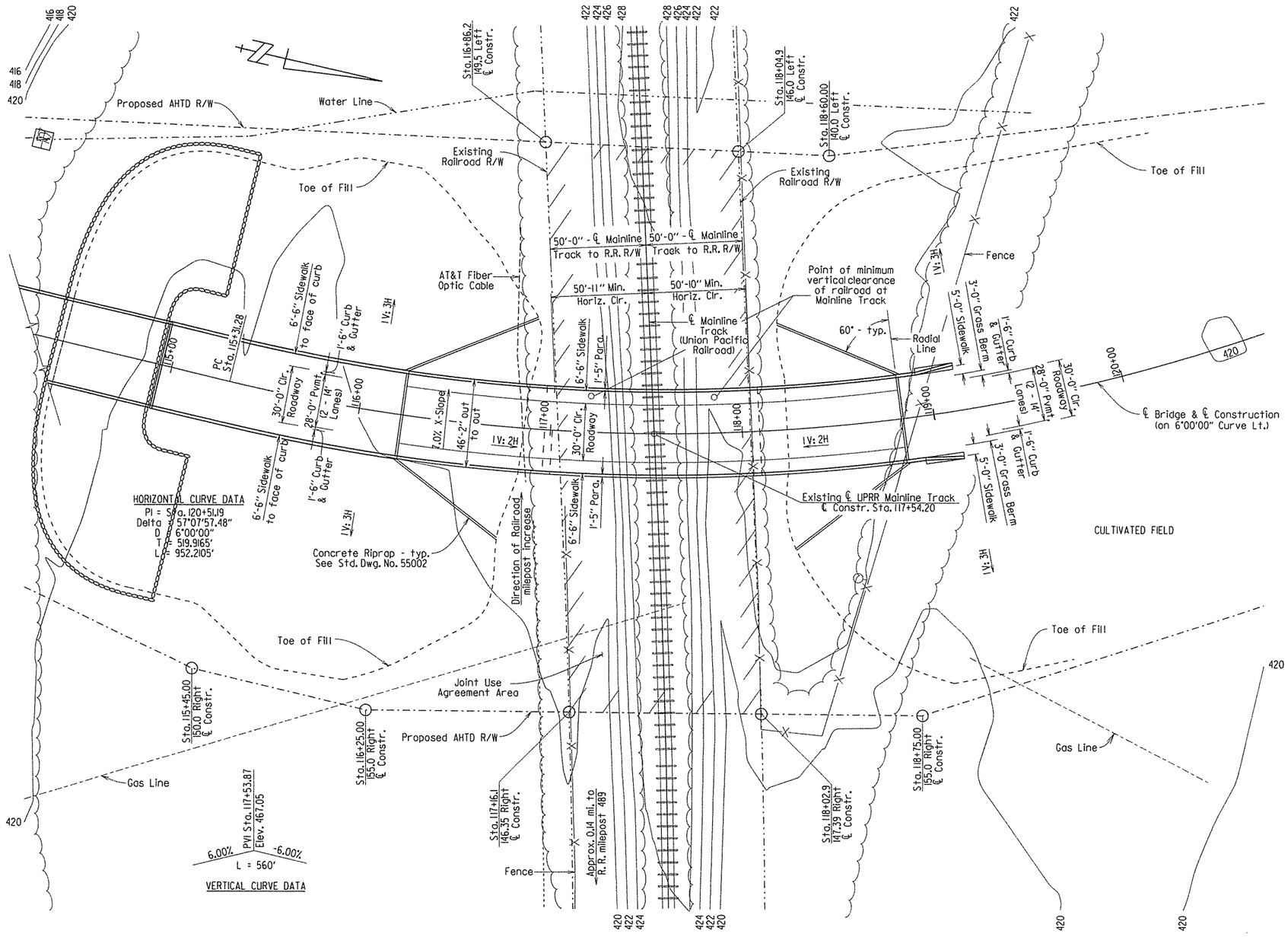
LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 5/29/2012 FILENAME: b040456x2_11.dgn
CHECKED BY: DBS DATE: 9/4/14 SCALE: 1" = 20'
DESIGNED BY: CSR DATE: 5/12

BRIDGE NO. 07325 DRAWING NO. 56132

PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	91	179
				(1)	07325	- EXHIBIT A -		56133



Note: All permanent clearances shall be verified before project closing.

Note: There are no known utilities in the Railroad right of way except the gas line and water line shown in the plan view.

PLAN

Scale: 1" = 30'

GENERAL NOTES

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

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

The Contractor must submit a proposed method of erosion and sediment control and have the method approved by the Railroad prior to beginning any grading on the project site.

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

The State shall not plow ice, snow, or sleet over the sides of the structure. In consideration of this practice, the Carrier waives its request for the State to attach splash boards to sides of the structure. This statement is in the State Railroad Agreement.

The proposed bridge structure will not significantly change the quantity and/or characteristic of the flow in the railway's ditches and/or drainage structure.

Closed Parapet Railing (No Deck Drains) over Railroad Right of Way on both sides of Bridge.

Construction shall comply with the Union Pacific Railroad requirements noted in SP Job No. 040456 "Insurance, Construction, and Flagging Requirements on Railroad Property (Union Pacific Railroad)". Any shoring shall comply with UPRR requirements.

Railroad review and approval of Shoring, Erection and Falsework is required. Allow a minimum of four weeks for the review and approval of each submittal.

For Railroad coordination, refer to the Railroad Minimum Requirments of SP Job No. 040456 "Insurance, Construction and Flagging Requirments on Railroad Property (Union Pacific Railroad)".

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
EXHIBIT A
LAYOUT OF BRIDGE OVER
UNION PACIFIC RAILROAD
HWY. 162 IMPROVEMENTS (ALMA)(S)
CRAWFORD COUNTY

ROUTE 162 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

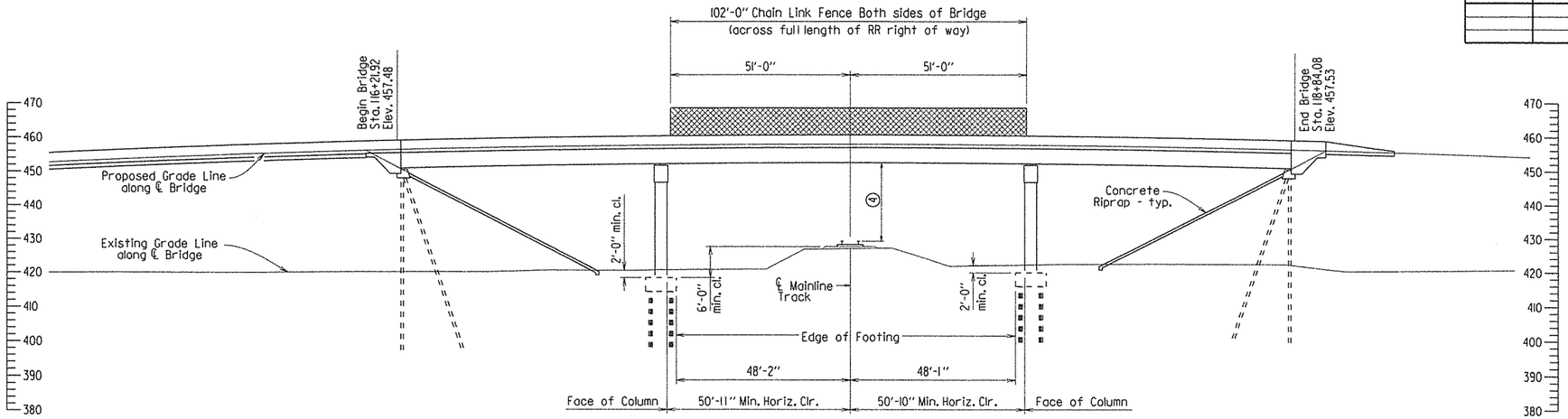
LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 5/21/2012 FILENAME: b040456_exa.dgn
CHECKED BY: DBS DATE: 9/4/14 SCALE: 1" = 30'
DESIGNED BY: CJR DATE: 5/12

BRIDGE NO. 07325 DRAWING NO. 56133

PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	92	179
				(1) 07325 - EXHIBIT A - 56134				



ELEVATION SECTION NORMAL TO TRACK

Scale: 1" = 20'

④ Low Steel to top of UPRR rail at point of minimum vertical clearance =
24'-4" at Mainline Track
24'-3" at 32' left of Mainline Track
24'-3" at 32' right of Mainline Track

Note: Looking in the the direction of the milepost increase

TOP OF RAIL ELEVATIONS

(Stations increase with Milepost Increase)

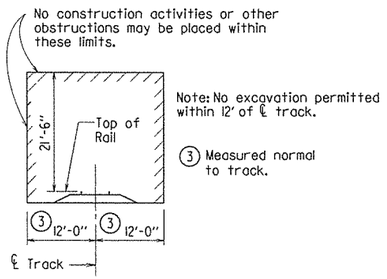
Direction of Railroad milepost increase

Main Line			
(1) Alignment: Left Rail		(2) Alignment: Right Rail	
Station	Elevation	Station	Elevation
4+00	426.62	4+00	426.69
5+00	427.00	5+00	427.10
6+00	427.44	6+00	427.53
7+00	427.92	7+00	428.01
8+00	428.44	8+00	428.55
9+00	428.97	9+00	429.03
10+00	429.38	10+00	429.38
11+00	429.72	11+00	429.72
12+00	429.99	12+00	429.99
13+00	430.27	13+00	430.45
14+00	430.60	14+00	430.60

Note: The elevations of the existing top-of-rail profile shall be verified by the Contractor prior to beginning construction.

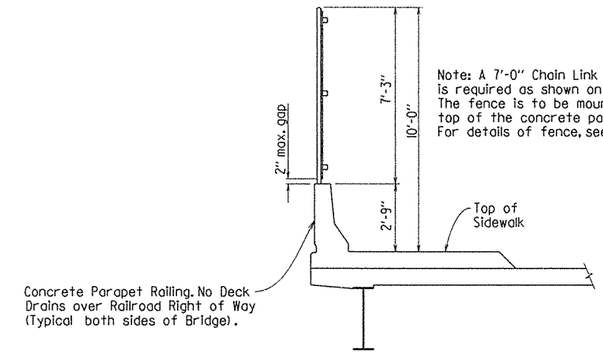
(1) ℄ Existing Track Sta. 10+00 = ℄ Construction Sta. 117+51.74

(2) ℄ Existing Track Sta. 10+00 = ℄ Construction Sta. 117+56.73



MINIMUM CONSTRUCTION

No Scale



Note: A 7'-0" Chain Link Fence is required as shown on both sides. The fence is to be mounted on top of the concrete parapet rail. For details of fence, see Dwg. No. 56147.

TYPICAL SECTION

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
EXHIBIT A
LAYOUT OF BRIDGE OVER
UNION PACIFIC RAILROAD
HWY. 162 IMPROVEMENTS (ALMA) (S)
CRAWFORD COUNTY

ROUTE 162 SEC. 1

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CJR DATE: 5/22/2012
CHECKED BY: DBS DATE: 9/4/14
DESIGNED BY: CJR DATE: 5/12

FILENAME: b040456_exa.dgn
SCALE: AS NOTED

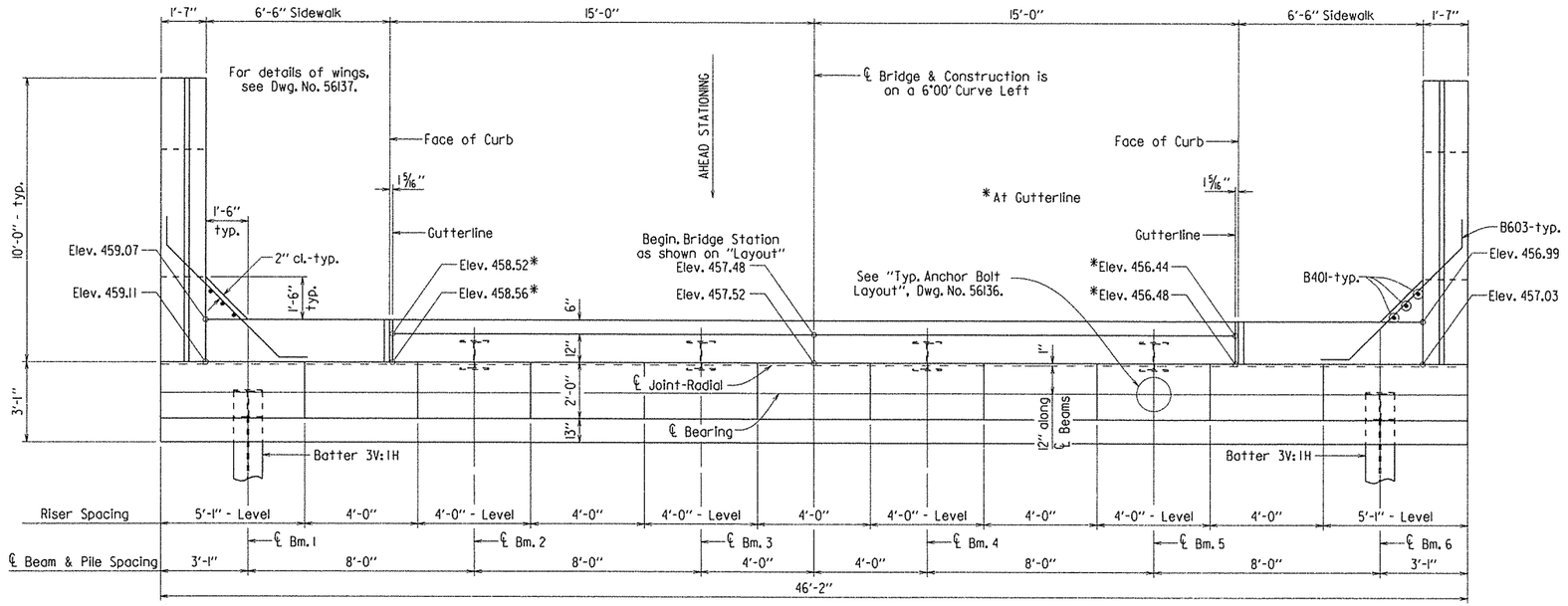
BRIDGE NO. 07325 DRAWING NO. 56134

PRINT DATE: 9/5/2014

116+00 117+00 118+00 119+00

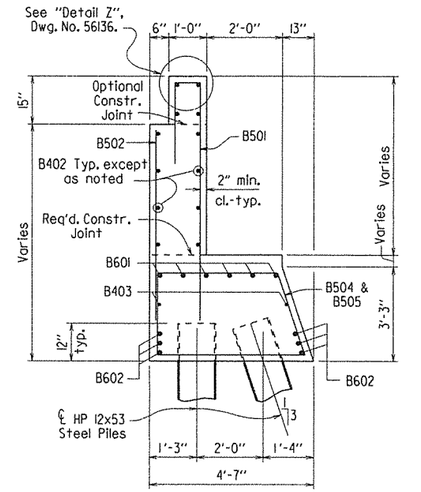
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	93	179
				(1) 07325 -		END BENTS	- 56135	

NOTE: Class I Protective Surface Treatment shall be applied to the top of the backwall, sidewalk and to the roadway face and top of the wing rails.



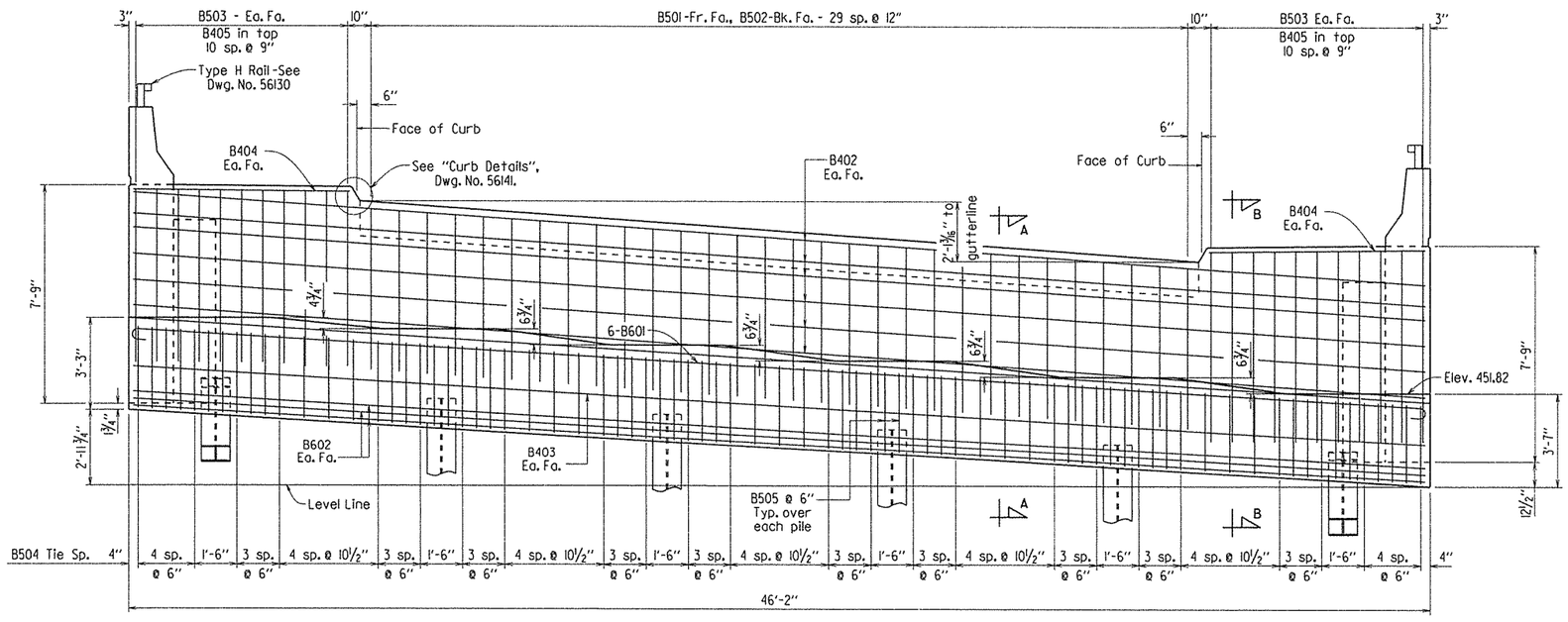
PLAN - BENT I

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



SECTION A-A

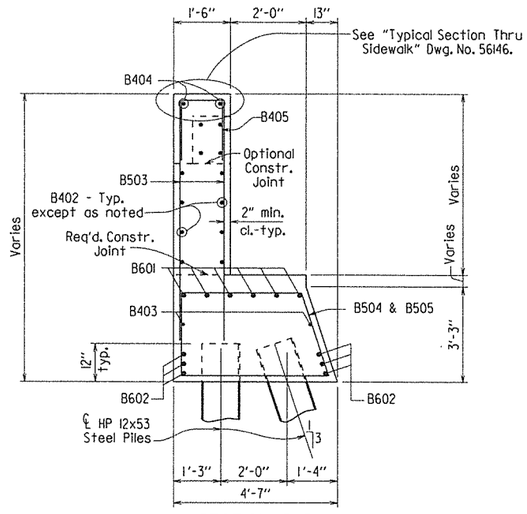
Scale: 1/2" = 1'-0"



ELEVATION - BENT I

Looking Back

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



SECTION B-B

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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF END BENTS
UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 12/18/13 FILENAME: b040456x2.bl.dgn

CHECKED BY: DBS DATE: 4/4/14 SCALE: AS NOTED

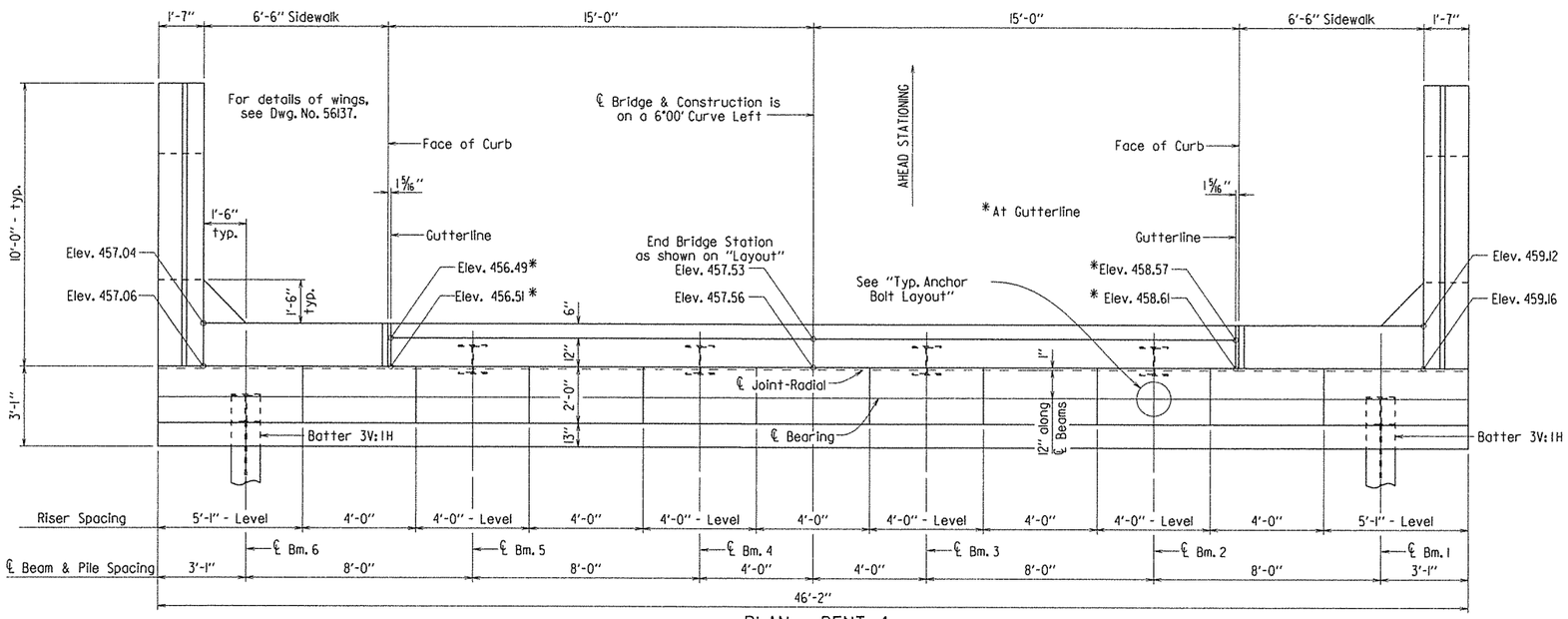
DESIGNED BY: DBS DATE: 2/14

BRIDGE NO. 07325 DRAWING NO. 56135

PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	94	179
				(1) 07325 -		END BENTS	- 56136	

NOTE: Class I Protective Surface Treatment shall be applied to the top of the backwall, sidewalk and to the roadway face and top of the wing rails.

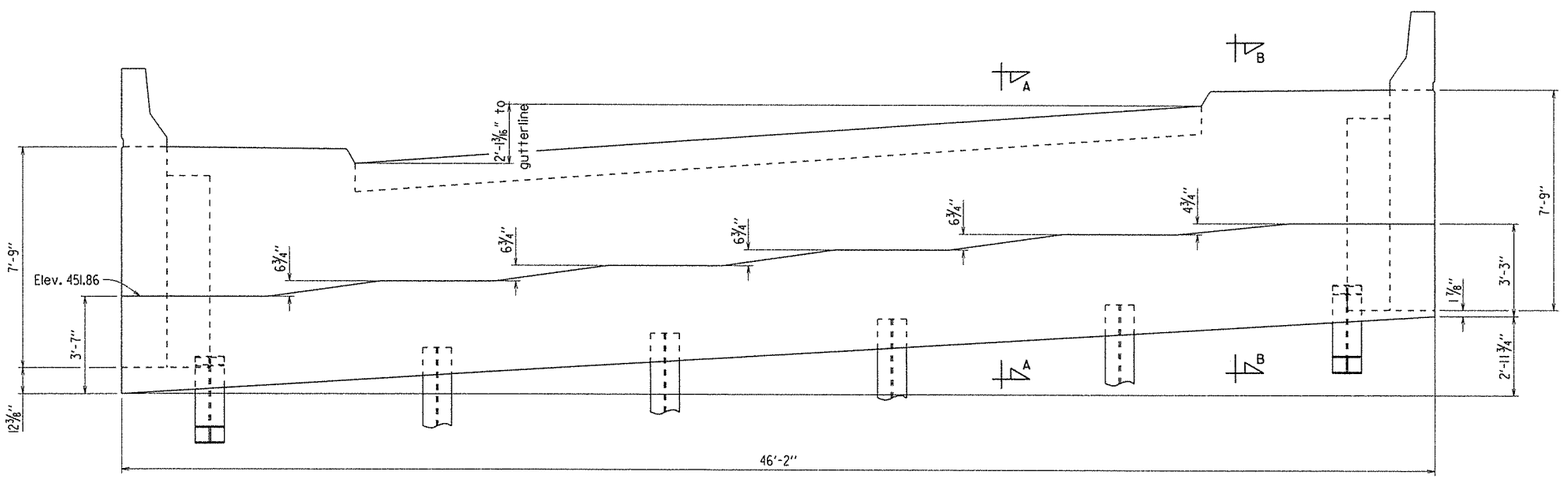


PLAN - BENT 4

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

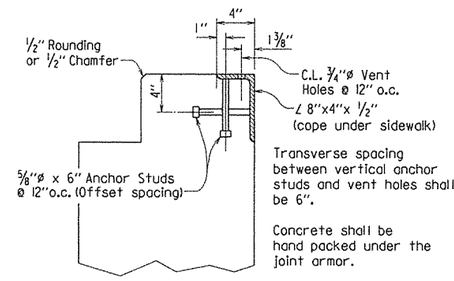
See Dwg. No. 56135., for Section A-A and Section B-B.

Note: Reinforcing steel, details and dimensions for Bent 4 are same as shown for Bent 1, except as noted.



ELEVATION - BENT 4

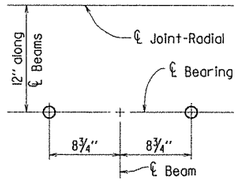
Looking Ahead
Scale: 3/8" = 1'-0"



Note: For additional joint details, see Dwg. No. 56146.

DETAIL Z

No Scale



TYP. ANCHOR BOLT LAYOUT

No Scale

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF END BENTS
UNION PACIFIC RAILROAD

ROUTE SEC.

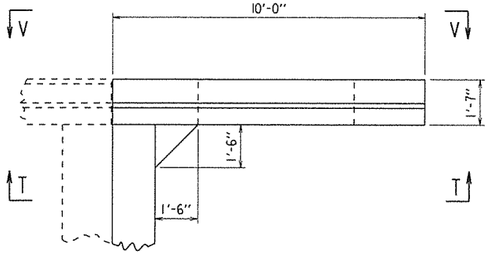
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 12/18/13
CHECKED BY: DBS DATE: 9/4/14
DESIGNED BY: DBS DATE: 2/14
FILENAME: b040456x2_bl.dgn
SCALE: AS NOTED

BRIDGE NO. 07325 DRAWING NO. 56136

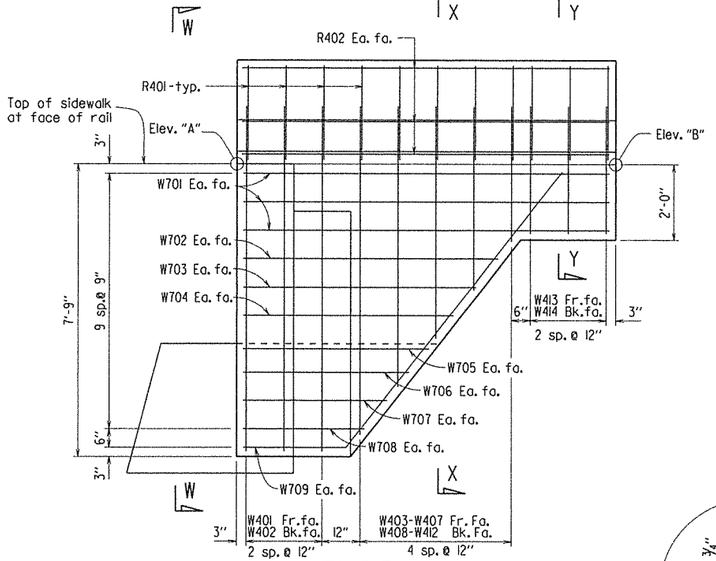
PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	95	179
				(1)	07325 -	END BENTS	- 56137	



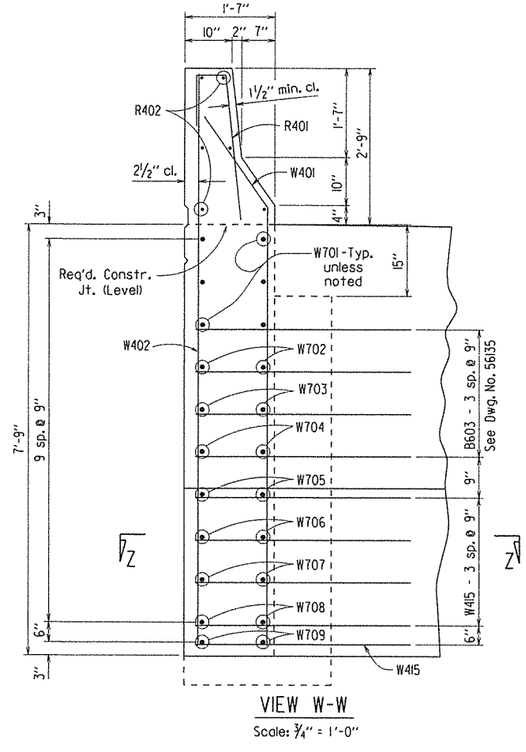
PLAN OF WING

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



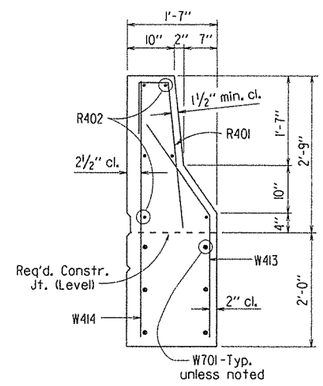
VIEW T-T

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



VIEW W-W

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

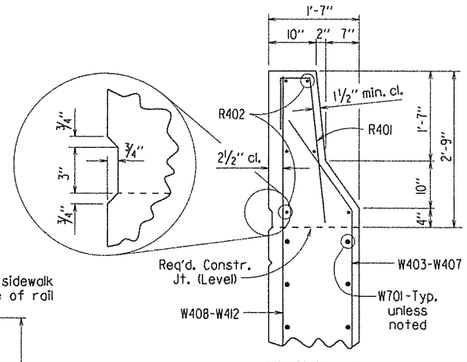


SECTION Y-Y

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

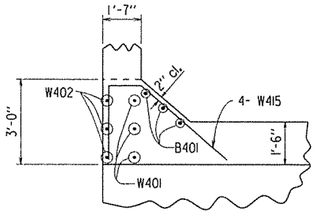
TABLE OF VARIABLES

	BENT 1		BENT 4	
	HIGH SIDE	LOW SIDE	HIGH SIDE	LOW SIDE
"A"	459.11	457.03	459.16	457.06
"B"	458.83	456.75	458.88	456.80
"C"	1 3/4"	12½"	1 7/8"	12 3/8"



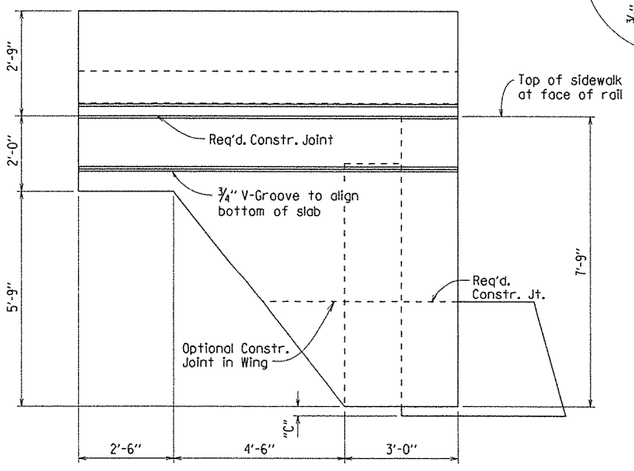
SECTION X-X

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



SECTION Z-Z

No Scale



VIEW V-V

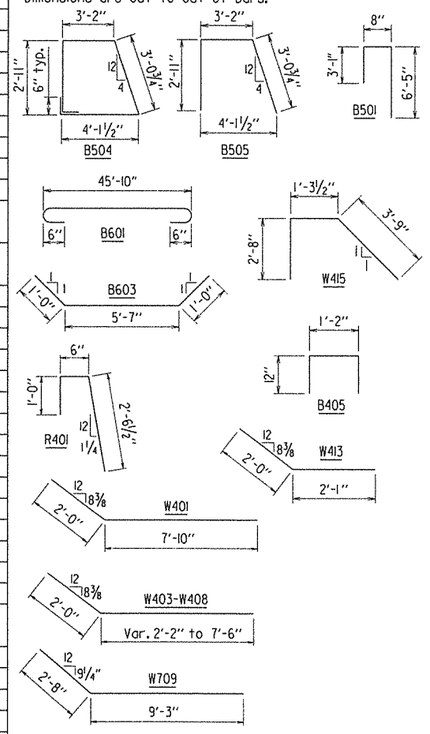
Scale: 1/2" = 1'-0"

BAR LIST - PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	6	6'-5"	Str.
B402	12	45'-10"	Str.
B403	2	45'-10"	Str.
B404	4	7'-6"	Str.
B405	22	3'-0"	2"
R401	22	3'-11"	2"
R402	12	9'-8"	Str.
W401	6	9'-10"	2"
W402	6	10'-2"	Str.
W403-W407	2 each	Var. 4'-2" to 9'-6"	2"
W408 W412	2 each	Var. 4'-7" to 9'-9"	Str.
W413	6	4'-1"	2"
W414	6	4'-5"	Str.
W415	10	7'-7"	2"
B501	30	10'-0"	2½"
B502	30	4'-7"	Str.
B503	44	6'-3"	Str.
B504	65	13'-10"	2½"
B505	12	9'-0"	2½"
B601	6	47'-2"	4½"
B602	6	45'-10"	Str.
B603	8	7'-5"	4½"
W701	12	9'-8"	Str.
W702 - W708	4 Each	Var. 6'-8" to 3'-2"	Str.
W709	4	11'-11"	5¼"

BENDING DIAGRAMS

Dimensions are out to out of bars.



GENERAL NOTES

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

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

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

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

No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 56146.

For additional information, See layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF END BENTS
UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 12/18/13
CHECKED BY: DBS DATE: 9/4/14
DESIGNED BY: DBS DATE: 2/14

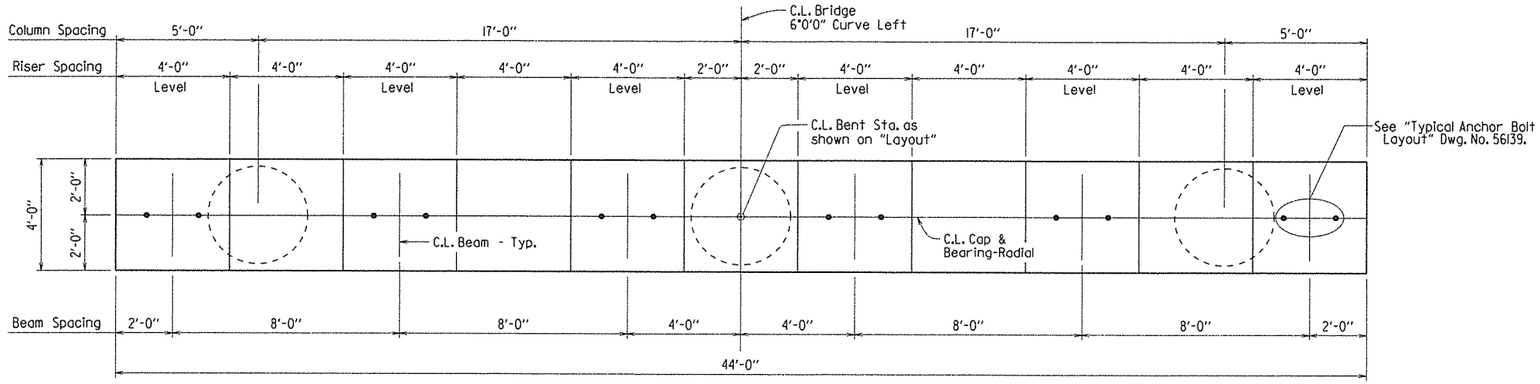
FILENAME: b040456x2_bl.dgn
SCALE: AS NOTED

BRIDGE NO. 07325

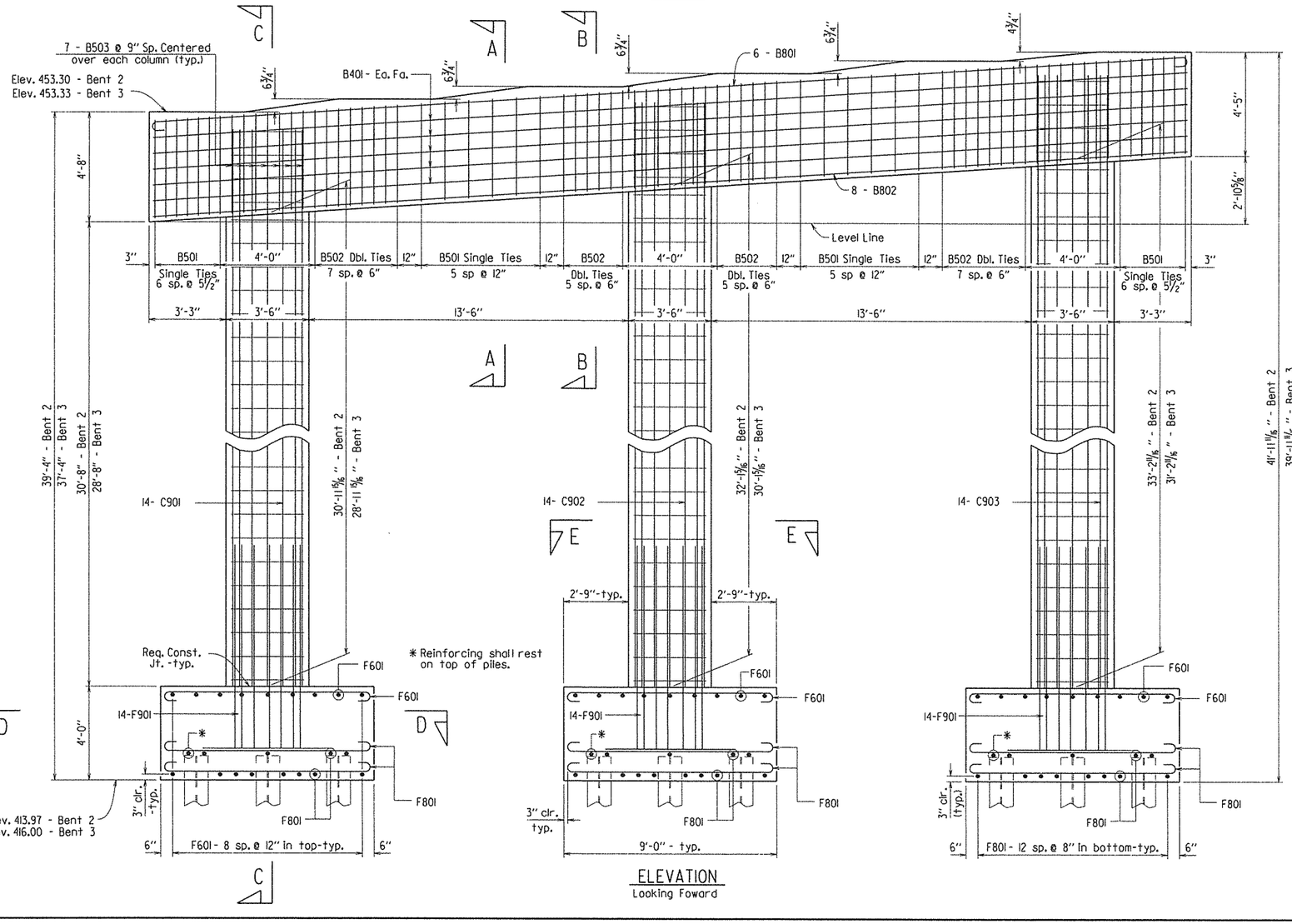
DRAWING NO. 56137

PRINT DATE: 9/5/2014

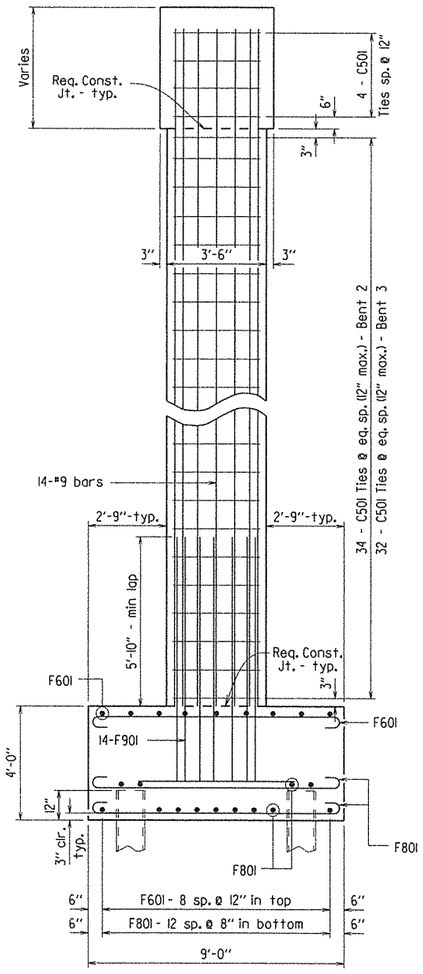
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	96	179
				①	07325 - INT. BENTS - 56138			



PLAN



ELEVATION
Looking Foward



SECTION C-C

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF
INTERMEDIATE BENTS
UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

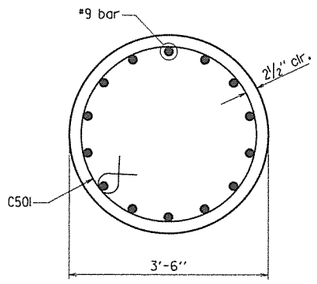
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 12/10/13
CHECKED BY: DBS DATE: 9/4/14
DESIGNED BY: DBS DATE: 2/14
FILENAME: b040456x2_b2.dgn
SCALE: 3/8" = 1'-0"

BRIDGE NO. 07325 DRAWING NO. 56138

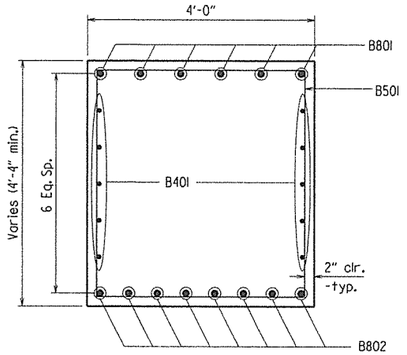
PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	97	179
				①		07325 - INT. BENTS - 56139		



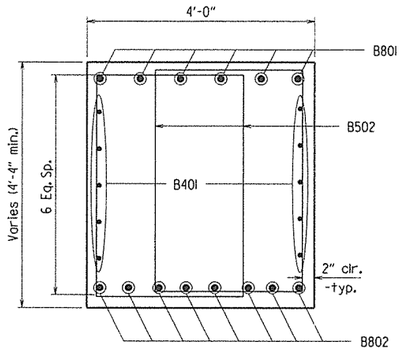
SECTION E-E

¾" = 1'-0"



SECTION A-A

¾" = 1'-0"



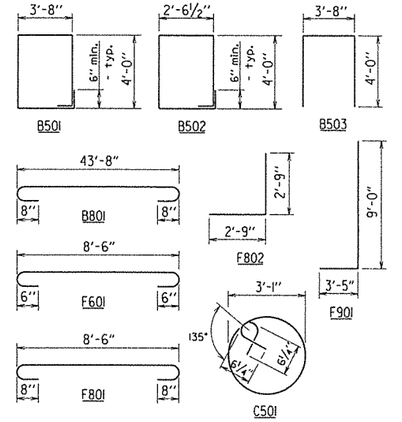
SECTION B-B

¾" = 1'-0"

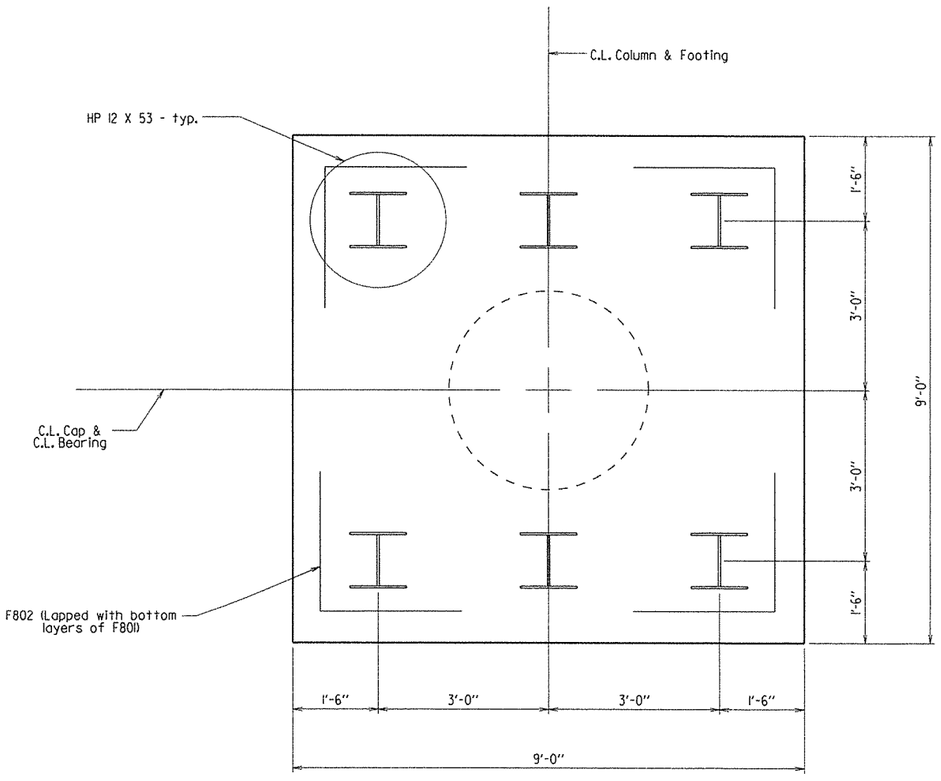
BAR LIST

MARK	NUMBER REQ'D Bent 2	NUMBER REQ'D Bent 3	LENGTH	P.D.
B401	10	10	43'-8"	Str.
B501	26	26	15'-10"	2½"
B502	56	56	13'-7"	2½"
B503	21	21	11'-6"	2½"
B801	6	6	45'-6"	6"
B802	8	8	43'-8"	Str.
C501	114	108	11'-1"	3¾"
C901	14	14	"A"	Str.
C902	14	14	"B"	Str.
C903	14	14	"C"	Str.
F601	54	54	9'-10"	4½"
F801	78	78	10'-4"	6"
F802	12	12	5'-4"	6"
F901	42	42	12'-2"	9"

BENDING DIAGRAMS



Dimensions are out to out of bars.



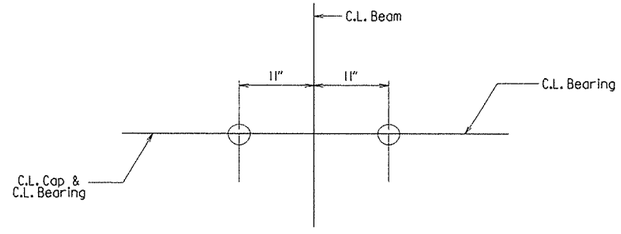
SECTION D-D

¾" = 1'-0"

AHEAD STATIONING

TABLE OF VARIABLES

	BENT 2	BENT 3
"A"	34'-5"	32'-5"
"B"	35'-6"	33'-6"
"C"	36'-8"	34'-8"



TYPICAL ANCHOR BOLT LAYOUT

Not to Scale

For Details of Elastomeric Bearings, See Dwg. No. 56148.

GENERAL NOTES

All concrete shall be Class S with a minimum 28 day compressive strength of f'c = 3500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

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

Reinforcing bars in top of cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see Layout.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF
INTERMEDIATE BENTS
UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 12/10/13
CHECKED BY: DBS DATE: 9/4/14
DESIGNED BY: DBS DATE: 9/14

FILENAME: b040456x2_b2.dgn
SCALE: ⅜" = 1'-0" OR AS NOTED

BRIDGE NO. 07325

DRAWING NO. 56139

PRINT DATE: 9/5/2014

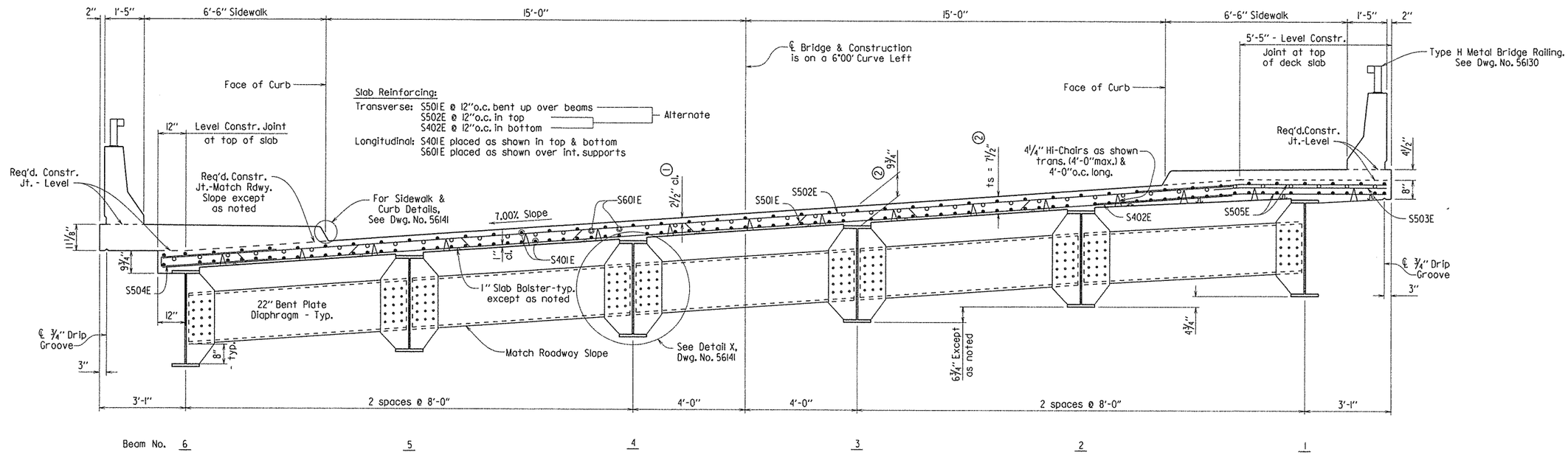
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	98	179
				①	07325 - 260 FT. UNIT - 56140			

① Tolerance: Minus = 1/4", Plus equal to amount of Slab Thickening used to meet Slab Thickness Tolerance.

② See "Adjustment for Slab Thickness Tolerance", Dwg. No. 56141.

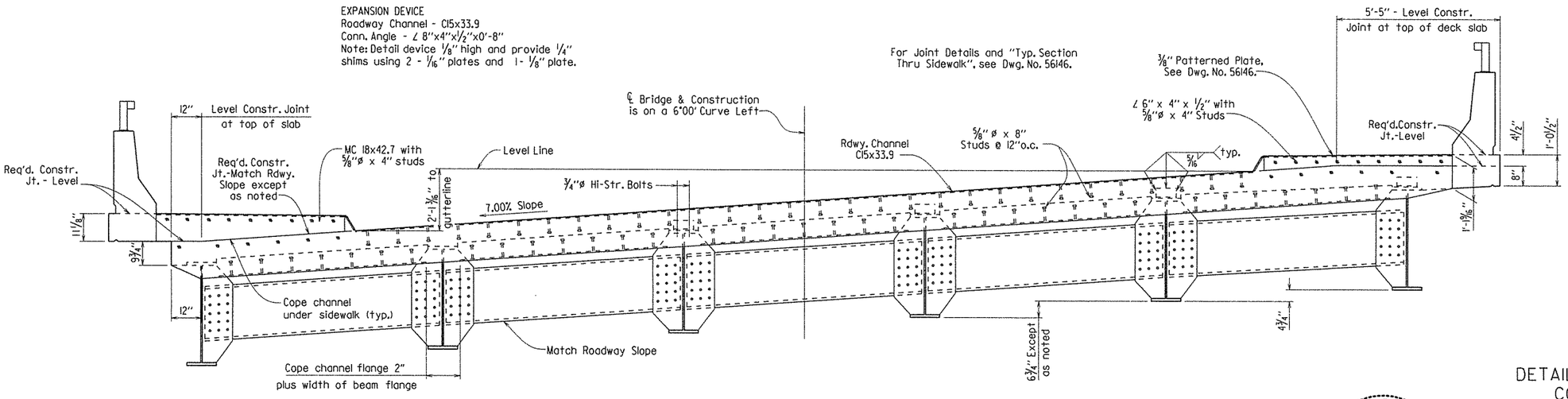
Note: Class I Protective Surface Treatment shall be applied to the Roadway Surface, Top of Sidewalk, and the Face and Top of Concrete Parapet Rail.

Note: At Contractor's Option, in lieu of providing bars S501E, one #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S501E. Bars in top and bottom shall be epoxy coated.



TYP. ROADWAY SECTION

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



SECTION THRU JOINT

Looking Ahead - Bent 1
Bent 4 Similar
Scale: 1/2" = 1'-0"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 1 OF 8
DETAILS OF 260'-0" CONTINUOUS COMPOSITE W-BEAM UNIT UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 02/14/14
CHECKED BY: DBS DATE: 9/4/14
DESIGNED BY: DBS DATE: 1/14

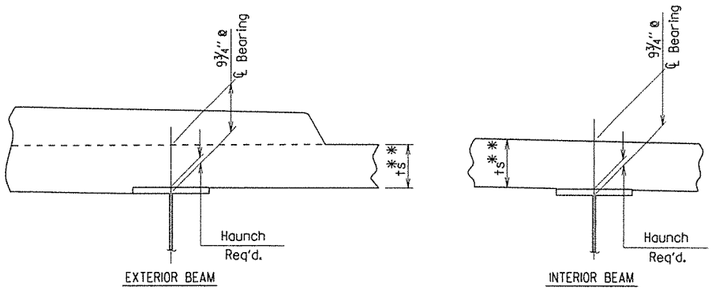
FILENAME: b040456x2_sl.dgn
SCALE: AS SHOWN

BRIDGE NO. 07325

DRAWING NO. 56140

PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	991	179
				①	07325 - 260 FT. UNIT - 56141			



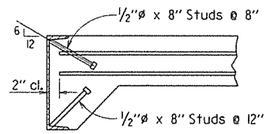
** Tolerance when removable deck forming is used is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

Note : ts = slab thickness as shown in "Typ. Roadway Section".

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

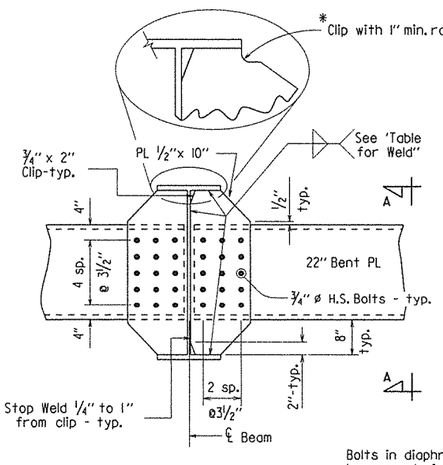
Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE



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

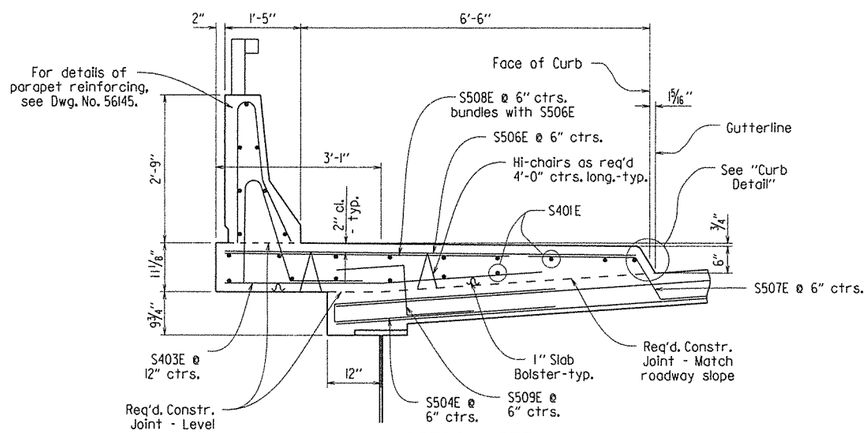
DETAILS OF ALTERNATE ANCHORS



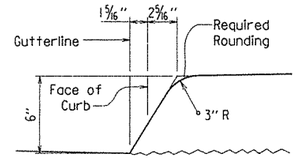
DETAIL X

*If permanent steel bridge deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.

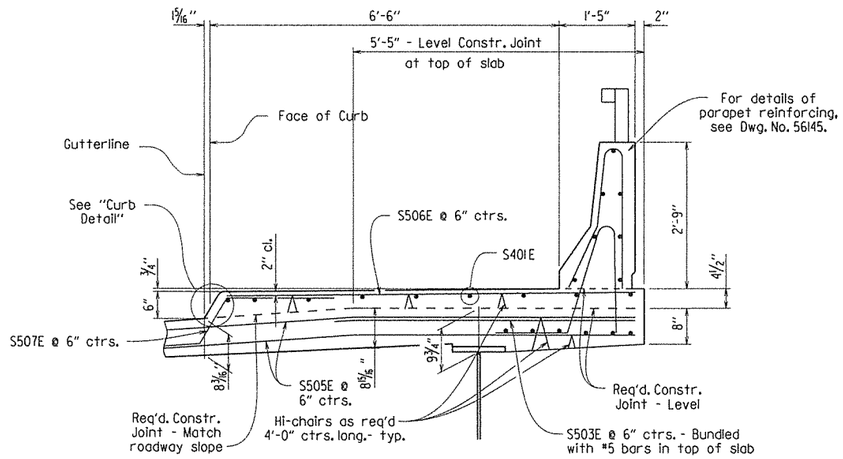
Bolts in diaphragm connections shall be properly installed and tightened in accordance with Subsection 807.71.



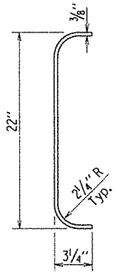
SIDEWALK DETAIL
Low Side



CURB DETAIL
No Scale

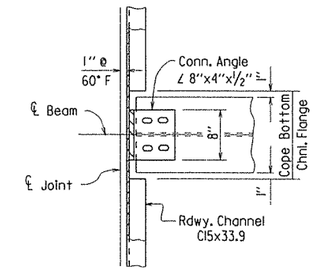


SIDEWALK DETAIL
High Side



Typical cross-section for all 22" bent plate diaphragms.

SECTION A-A



CHANNEL CONNECTION DETAIL

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9255
7-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 2 OF 8
DETAILS OF 260'-0" CONTINUOUS COMPOSITE W-BEAM UNIT UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

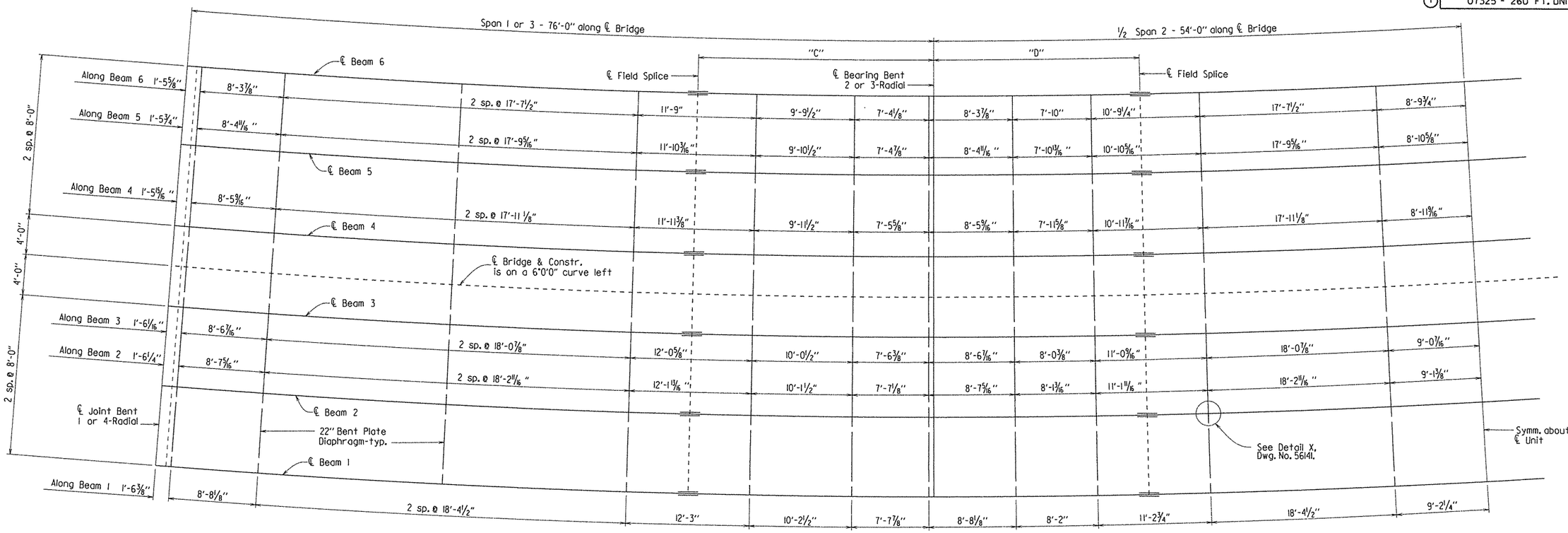
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 02/14/14 FILENAME: b040456x2_sl.dgn
CHECKED BY: DBS DATE: 7/4/14 SCALE: NO SCALE
DESIGNED BY: DBS DATE: 1/14

BRIDGE NO. 07325 DRAWING NO. 56141

PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	100	179
				①		07325 - 260 FT. UNIT - 56142		

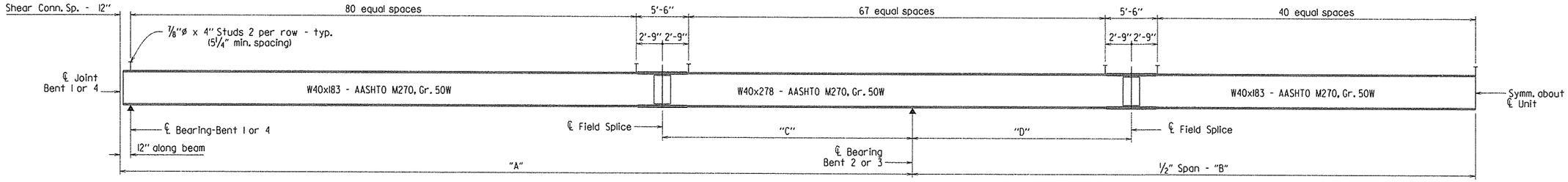


Note: Beams are curved and concentric to ℄ Bridge. Diaphragms are on radial lines.

FRAMING PLAN

Scale: 3⁄16" = 1'-0"

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



BEAM ELEVATION

No Scale

TABLE OF BEAM VARIABLES

	"A"	"B"	"C"	"D"
Beam 1	77'-7⅛"	55'-1⁹⁄₁₆"	24'-6"	21'-5¼"
Beam 2	76'-11⅞"	54'-8⅛"	24'-3⅝"	21'-3³⁄₁₆"
Beam 3	76'-3¹³⁄₁₆"	54'-2¹¹⁄₁₆"	24'-1³⁄₁₆"	21'-1¹⁄₁₆"
Beam 4	75'-8³⁄₁₆"	53'-9⁵⁄₁₆"	23'-10¹⁵⁄₁₆"	20'-11¹⁵⁄₁₆"
Beam 5	75'-0⁹⁄₁₆"	53'-3⅞"	23'-8⅜"	20'-8¹³⁄₁₆"
Beam 6	74'-4⅞"	52'-10⅞"	23'-6"	20'-6¾"

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 3 OF 8
DETAILS OF 260'-0" CONTINUOUS COMPOSITE W-BEAM UNIT UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 02/14/14
CHECKED BY: DBS DATE: 9/9/14
DESIGNED BY: DBS DATE: 1/14
FILENAME: b040456x2_sl.dgn
SCALE: AS SHOWN

BRIDGE NO. 07325 DRAWING NO. 56142

PRINT DATE: 9/5/2014

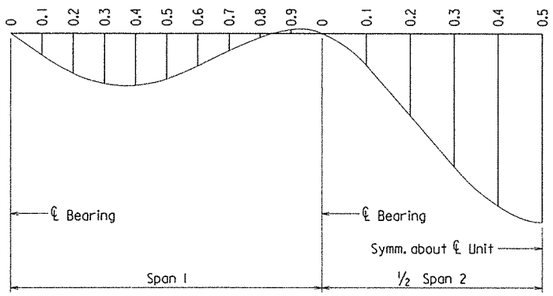
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	101	179
				①		07325 - 260 FT. UNIT - 56143		

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

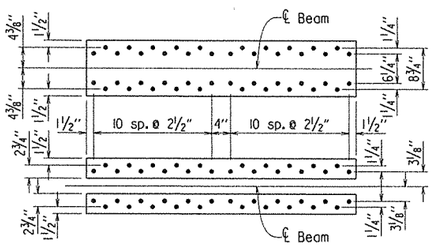
	Point of Deflection	Structural Steel						Structural Steel + Slab						Structural Steel + Slab + Parapet + Sidewalk					
		Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6
Span 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0.051	0.049	0.049	0.048	0.045	0.041	0.219	0.203	0.201	0.198	0.179	0.129	0.268	0.239	0.232	0.229	0.217	0.189
	0.2	0.094	0.091	0.089	0.087	0.083	0.076	0.399	0.371	0.365	0.360	0.326	0.237	0.491	0.438	0.422	0.416	0.397	0.349
	0.3	0.120	0.115	0.113	0.111	0.106	0.097	0.502	0.465	0.458	0.454	0.412	0.298	0.621	0.551	0.530	0.525	0.502	0.443
	0.4	0.126	0.122	0.120	0.117	0.112	0.102	0.516	0.482	0.475	0.472	0.429	0.308	0.640	0.571	0.549	0.544	0.523	0.461
	0.5	0.114	0.111	0.109	0.107	0.102	0.093	0.450	0.424	0.418	0.418	0.381	0.271	0.560	0.502	0.482	0.480	0.463	0.408
	0.6	0.086	0.085	0.083	0.081	0.078	0.071	0.319	0.303	0.301	0.304	0.279	0.195	0.399	0.359	0.345	0.346	0.336	0.297
	0.7	0.051	0.051	0.050	0.049	0.047	0.043	0.165	0.160	0.162	0.167	0.155	0.104	0.210	0.189	0.184	0.187	0.184	0.164
	0.8	0.019	0.020	0.019	0.019	0.019	0.017	0.033	0.036	0.040	0.047	0.047	0.025	0.047	0.042	0.043	0.049	0.052	0.046
	0.9	-0.003	-0.002	-0.002	-0.001	-0.001	-0.001	-0.042	-0.037	-0.033	-0.026	-0.021	-0.022	-0.048	-0.044	-0.040	-0.034	-0.029	-0.027
½ Span 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.1	0.061	0.059	0.057	0.055	0.052	0.047	0.323	0.302	0.284	0.265	0.235	0.187	0.393	0.360	0.335	0.317	0.297	0.269
	0.2	0.162	0.157	0.152	0.147	0.139	0.128	0.835	0.780	0.738	0.695	0.617	0.489	1.019	0.929	0.870	0.829	0.777	0.703
	0.3	0.268	0.258	0.250	0.241	0.229	0.209	1.360	1.267	1.201	1.132	1.006	0.791	1.658	1.508	1.413	1.348	1.266	1.138
	0.4	0.349	0.335	0.325	0.314	0.298	0.272	1.762	1.636	1.554	1.468	1.305	1.023	2.150	1.948	1.829	1.748	1.643	1.472
	0.5	0.382	0.366	0.355	0.343	0.326	0.297	1.925	1.785	1.697	1.603	1.425	1.116	2.350	2.126	1.997	1.909	1.795	1.608

Symm. about ℄ Unit

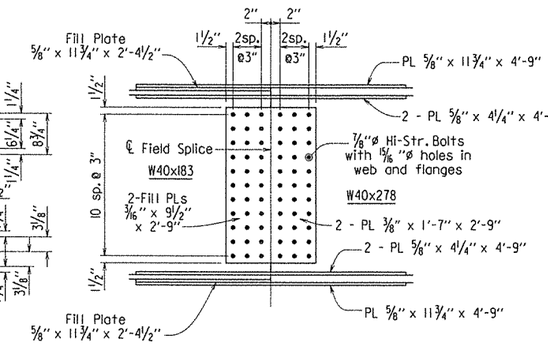
Camber for Dead Load Deflection plus Vertical curve ±1/4" tolerance. Deflections shown are along the ℄ of beam from the plane perpendicular to the web extending from ℄ Bearing to ℄ Bearing Vertical curve corrections not included. Negative Sign (-) indicates point above chord.



DEAD LOAD DEFLECTION DIAGRAM (TYP.)



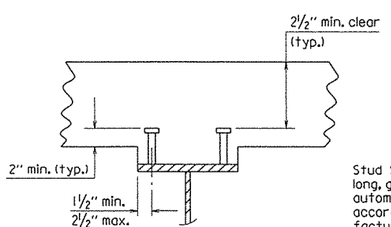
FLANGE SPLICE



WEB SPLICE

FIELD SPLICE DETAILS

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



SHEAR CONNECTOR DETAIL

Stud Shear Connectors shown shall be 7/8"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. ¾"ø studs may be used in place of the 7/8"ø studs shown, at the ratio of 1.361 - ¾"ø studs in place of one 7/8"ø stud. 7/8"ø studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

TABLE FOR WELD

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

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

GENERAL NOTES - SUPERSTRUCTURE

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

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

MATERIAL AND STRENGTHS:

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

CONCRETE:
Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28-day compressive strength f'c = 4,000 psi. The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent. The use of a longitudinal screed is prohibited. The concrete deck, except sidewalks, shall be given a fine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Sidewalks shall be given a Class 6 Broomed Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the sidewalk. A minimum of 72 hours shall elapse between completion of a sidewalk pour and the beginning of a parapet pour. Any railing pours made before the entire slab has been placed and cured must be approved by the Engineer. The use of a longitudinal screed is prohibited.

REINFORCING STEEL:
All reinforcing steel shall be Grade 60 (Yield Strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

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

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted and approval secured before fabrication is begun.

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

Beams, field splice plates, diaphragms, and connection plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M270, Gr. 50W)".

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

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

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

Field connections shall be bolted with high-strength bolts and shall be ¾" ø bolts unless otherwise noted. Open Holes shall be 15/16 " ø unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges.

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

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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 4 OF 8
DETAILS OF 260'-0" CONTINUOUS COMPOSITE W-BEAM UNIT UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 02/14/14
CHECKED BY: DBS DATE: 9/4/14
DESIGNED BY: DBS DATE: 1/14

FILENAME: b040456x2_sl.dgn
SCALE: NO SCALE

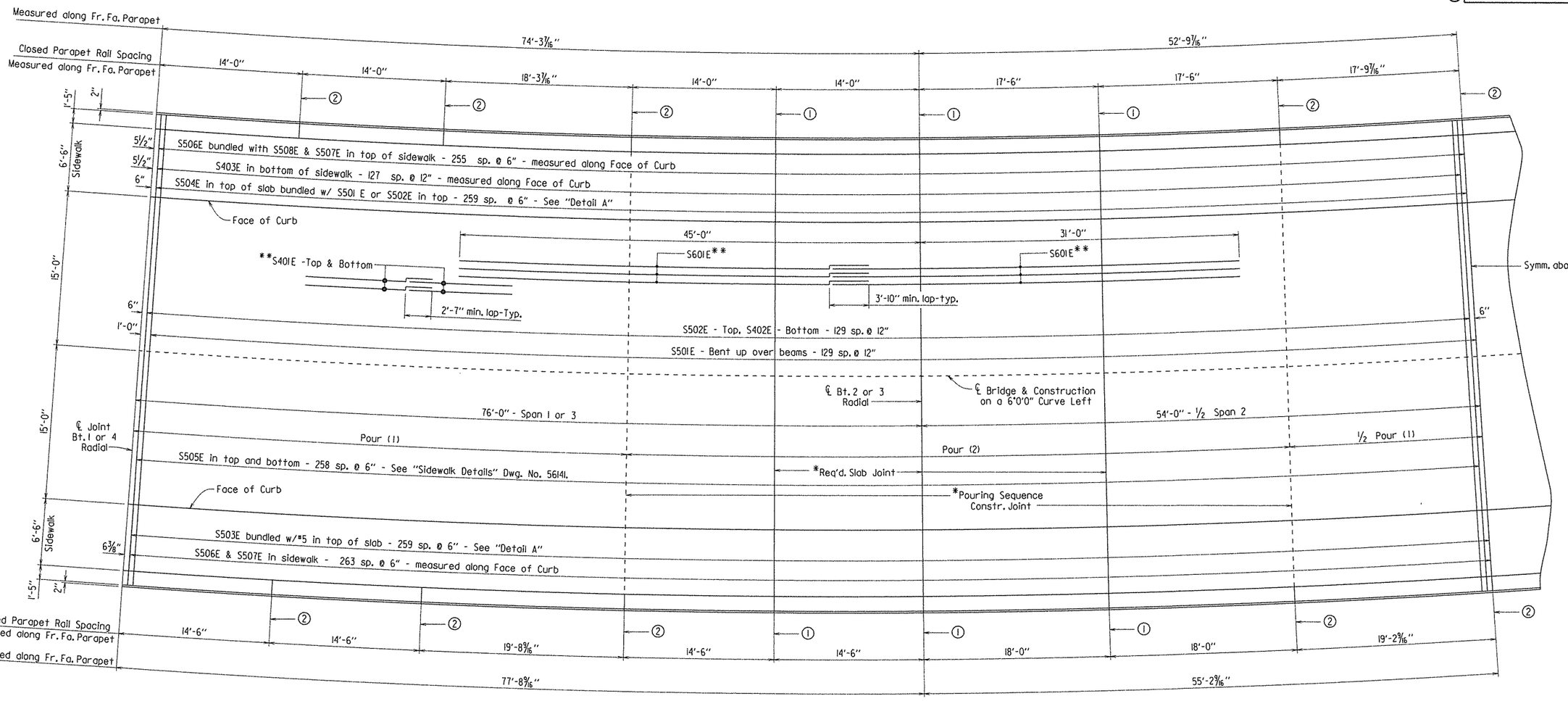
BRIDGE NO. 07325 DRAWING NO. 56143

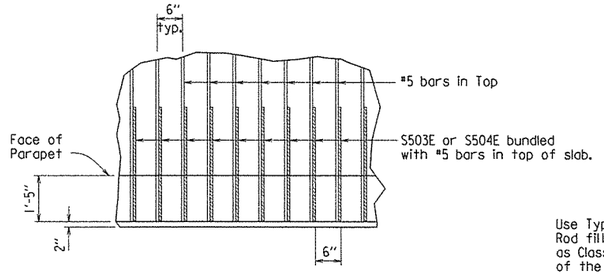
PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	102	179
				①	07325 - 260 FT. UNIT - 56144			

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

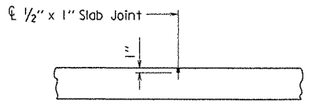
② ℄ Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of sidewalk.





DETAIL A

No Scale



SLAB JOINT DETAIL

No Scale

Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the sidewalk and parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. No joint sealer shall be placed under the sidewalk area. The joint sealer shall extend across the deck slab and across the top of the sidewalk.

REINFORCING PLAN AND POURING SEQUENCE

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

Note:
Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. 72 hours shall elapse between the end of a deck pour and the start of a sidewalk pour. 72 hours shall elapse between the end of a sidewalk pour and the start of a parapet railing pour. Any sidewalk or railing pours made before the entire slab unit has been placed must be approved by the Engineer.

The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

*Align with parapet open joint unless noted otherwise.

**These bars shall be placed as shown in "Typ. Roadway Section", Dwg. No. 56140.

Note:
All transverse reinforcing shall be placed on radial lines. Spacing is measured along ℄ Bridge, unless otherwise noted.

All longitudinal lines and reinforcing steel shall be placed on curves concentric to ℄ Bridge.

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 5 OF 8
DETAILS OF 260'-0" CONTINUOUS COMPOSITE W-BEAM UNIT UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

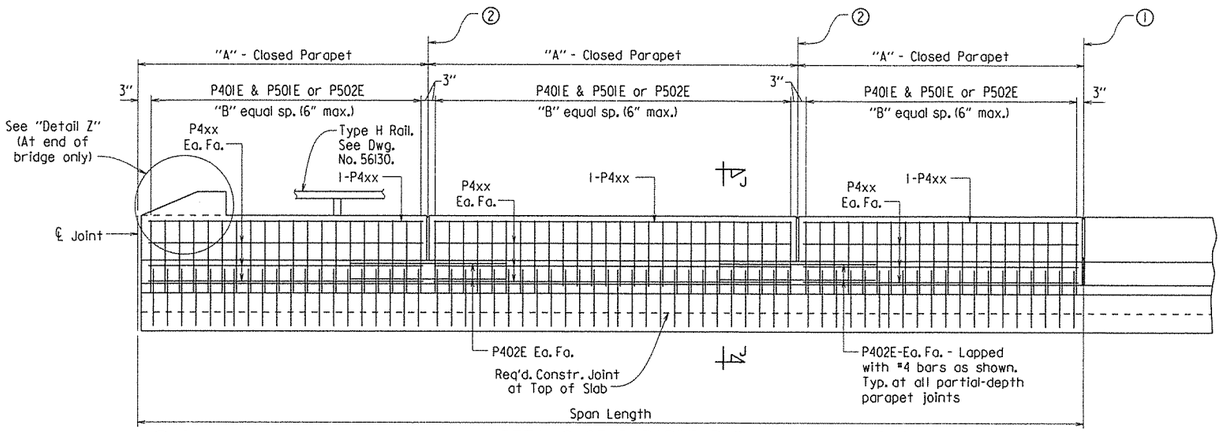
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 02/14/14 FILENAME: b040456x2_sl.dgn
CHECKED BY: DBS DATE: 9/4/14 SCALE: AS SHOWN
DESIGNED BY: DBS DATE: 1/14

BRIDGE NO. 07325 DRAWING NO. 56144

PRINT DATE: 9/5/2014

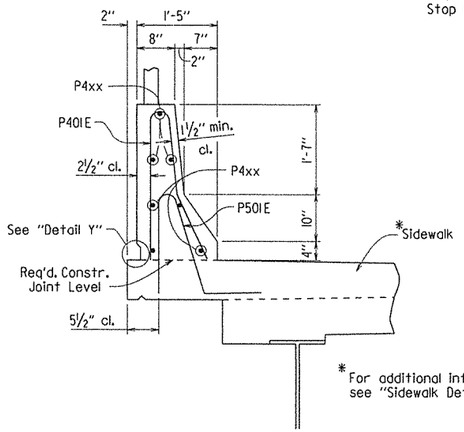
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	103	179
				①		07325 - 260 FT. UNIT - 56145		

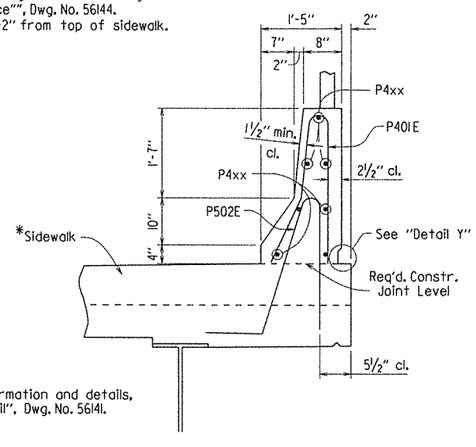


① ℄ Full-Depth Parapet Joint (1/4" to 1" max.) as shown in "Reinforcing Plan and Pouring Sequence", Dwg. No. 56144. Stop 4" from top of sidewalk.

② ℄ Partial-Depth Parapet Joint (1/4" to 1" max.) as shown in Reinforcing Plan and Pouring Sequence"", Dwg. No. 56144. Stop 1'-2" from top of sidewalk.

DETAILS OF PARAPET RAIL





* For additional information and details, see "Sidewalk Detail", Dwg. No. 56141.

SECTION J-J

TABLE OF PARAPET RAIL VARIABLES

"A" Closed Parapet	"B"	P4xx Bar
14'-0"	27	P403E
14'-6"	28	P404E
17'-6"	34	P405E
17'-9 9/16"	35	P406E
18'-0"	35	P407E
18'-3 9/16"	36	P408E
19'-2 9/16"	38	P409E
19'-8 9/16"	39	P410E

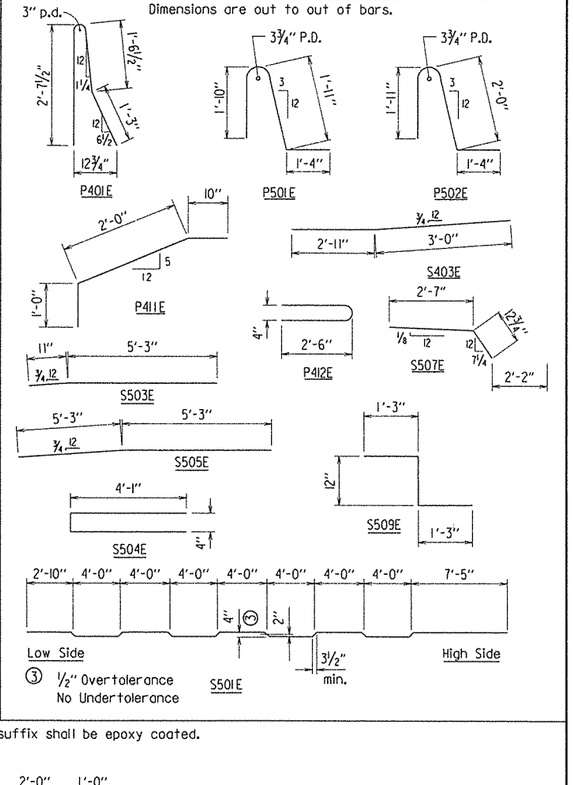
For location of Closed Parapet panels, see "Reinforcing Plan and Pouring Sequence", Dwg. No. 56144.

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	889	39'-9"	Str.
S402E	260	38'-4"	Str.
S403E	256	5'-11"	3"
P401E	1328	5'-6"	3"
P402E	72	5'-6"	Str.
P403E	56	13'-8"	Str.
P404E	56	14'-2"	Str.
P405E	56	17'-2"	Str.
P406E	14	17'-5"	Str.
P407E	56	17'-8"	Str.
P408E	14	17'-11"	Str.
P409E	14	18'-10"	Str.
P410E	14	19'-4"	Str.
P411E	2	3'-10"	2"
P412E	6	5'-2"	3"
S501E	259	39'-1"	B
S502E	260	38'-4"	Str.
S503E	519	6'-2"	3 3/4"
S504E	519	8'-4"	2 1/2"
S505E	1036	10'-6"	3 3/4"
S506E	1038	5'-8"	Str.
S507E	1038	7'-8"	3 3/4"
S508E	511	5'-0"	Str.
S509E	1038	3'-4"	2 1/2"
P501E	678	5'-2"	2 1/2"
P502E	650	5'-4"	2 1/2"
S601E	176	39'-11"	Str.

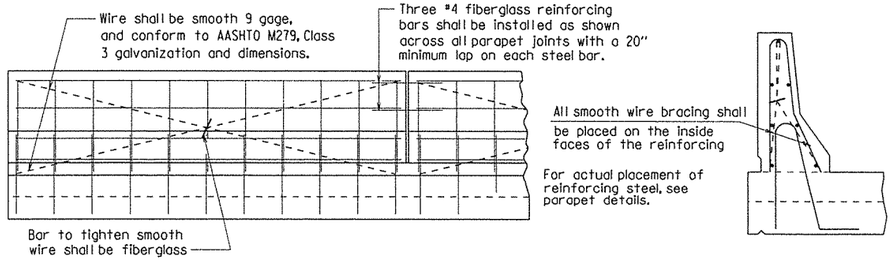
BENDING DIAGRAMS

Dimensions are out to out of bars.



③ 1/2" Overtolerance
No Undertolerance

Note: All bars designated with an 'E' suffix shall be epoxy coated.

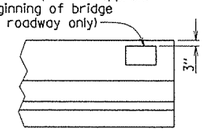


All panels shall be braced as required to prevent racking. All parapet joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved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

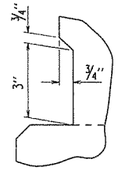
The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed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

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

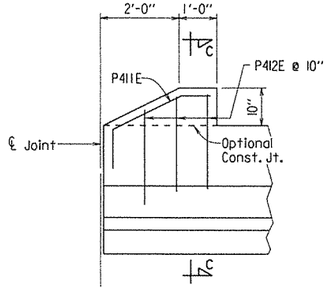
Place Type D Bridge Name Plate on front face of span rail approx. 2'-0" from beginning of bridge (Right side of roadway only)



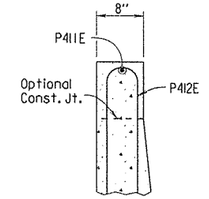
NAME PLATE DETAIL



DETAIL Y



DETAIL Z



SECTION C-C

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 6 OF 8
DETAILS OF 260'-0" CONTINUOUS COMPOSITE W-BEAM UNIT UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

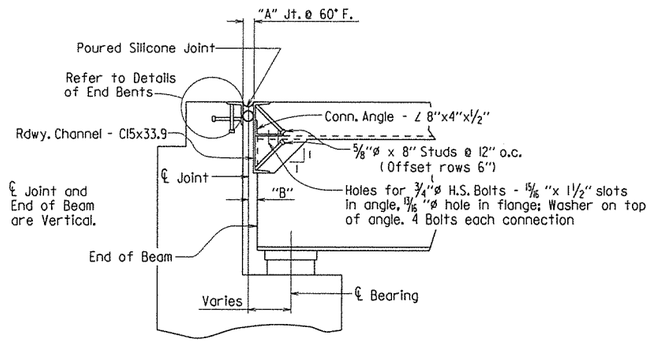
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 02/14/14 FILENAME: b040456x2_sl.dgn
CHECKED BY: DBS DATE: 9/4/14 SCALE: NO SCALE
DESIGNED BY: DBS DATE: 1/14

BRIDGE NO. 07325 DRAWING NO. 56145

PRINT DATE: 05-SEP-2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	104	179
				①		07325 - 260 FT. UNIT - 56146		



JOINT AT END BENTS

Perpendicular to ℄ Joint

SILICONE JOINT DATA

Bent Number	"A" Width Perpendicular to Joint at 24 Hour Average Temperature ① Of:			"B" Perpendicular to Joint at 60°F	Bumper Bar Size	"D"
	40°F	60°F	80°F			
1 & 4	2¼"	2"	1¾"	± 2¼"	1" x 1"	5"

① The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

Notes: The temperature limitations recommended by the sealant manufacturer shall be observed.

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

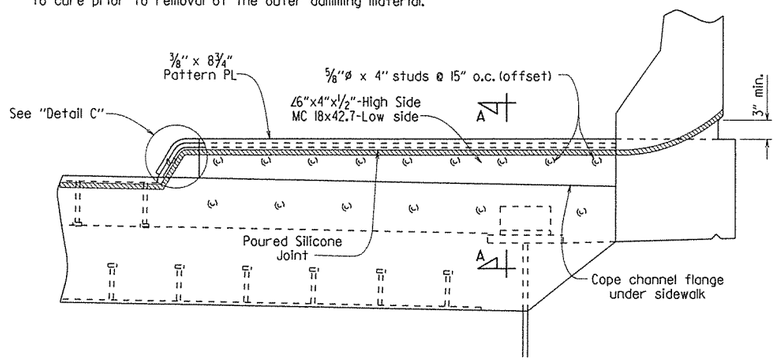
② BACKER ROD NOTE:

Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing.

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

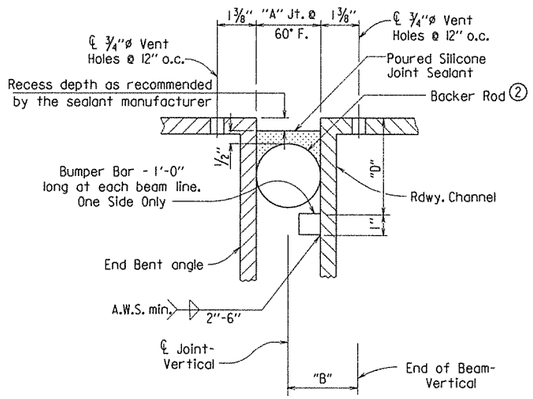
The contractor shall verify separation of the backer rod from the joint material after the joint material has set.

Install seal in slab joint and parapet joint with damming procedure as recommended by the manufacturer. The sealant shall be recessed to prevent damage and be allowed to cure prior to removal of the outer damming material.

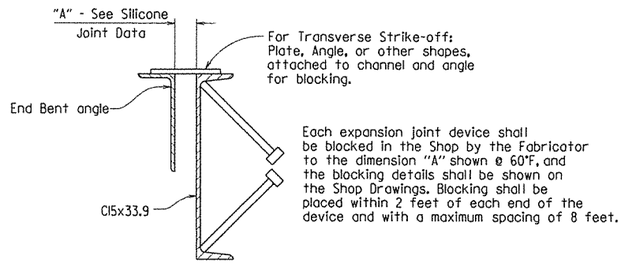


TYPICAL SECTION THRU SIDEWALK

High Side Shown
Low Side Simliar

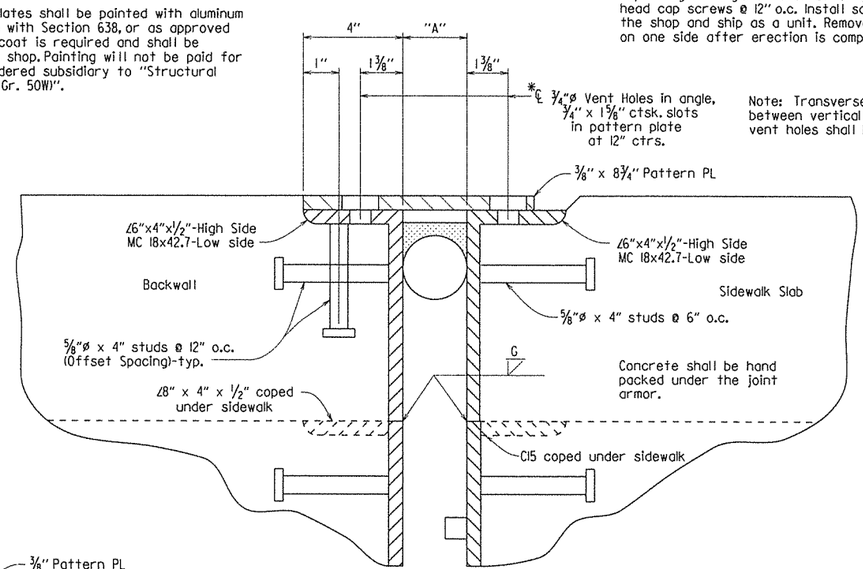


DETAIL OF POURED SILICONE JOINT SEAL



DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

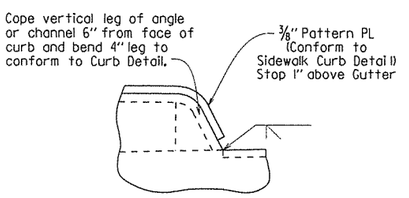
The surfaces of the ⅜" plates shall be painted with aluminum epoxy paint in accordance with Section 638, or as approved by the Engineer. Only one coat is required and shall be applied in the Fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Beam Spans (M270, Gr. 50W)".



SECTION A-A

* ¾" x 1⅝" Ctsk. Slots in ⅜" Pattern Plates. Tap 4" leg of angle or channel for ⅝" ø flat head cap screws @ 12" o.c. Install screws in the shop and ship as a unit. Remove screws on one side after erection is complete.

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



DETAIL C

EXPANSION DEVICE INSTALLATION AT END BENTS

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

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

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

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 7 OF 8
DETAILS OF 260'-0" CONTINUOUS COMPOSITE W-BEAM UNIT UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

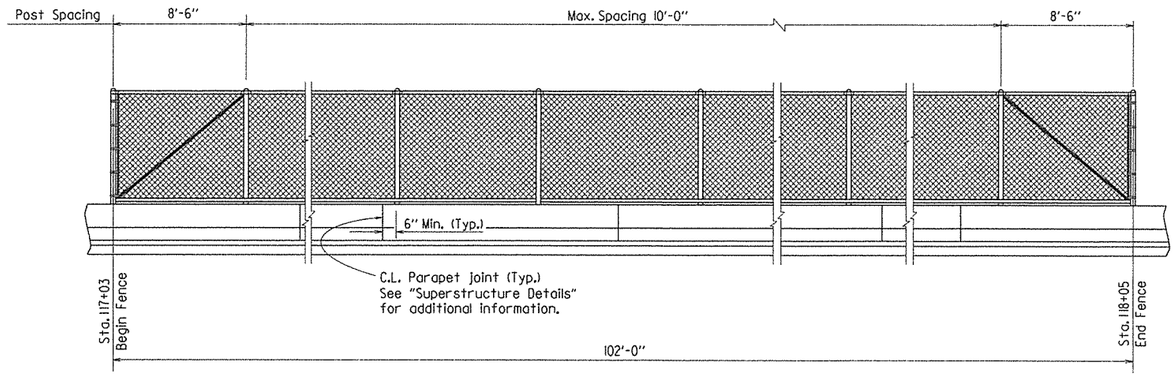
LITTLE ROCK, ARK.

DRAWN BY: MCB DATE: 02/14/14 FILENAME: b040456x2_sl.dgn
CHECKED BY: DBS DATE: 9/4/14 SCALE: NO SCALE
DESIGNED BY: DBS DATE: 1/14

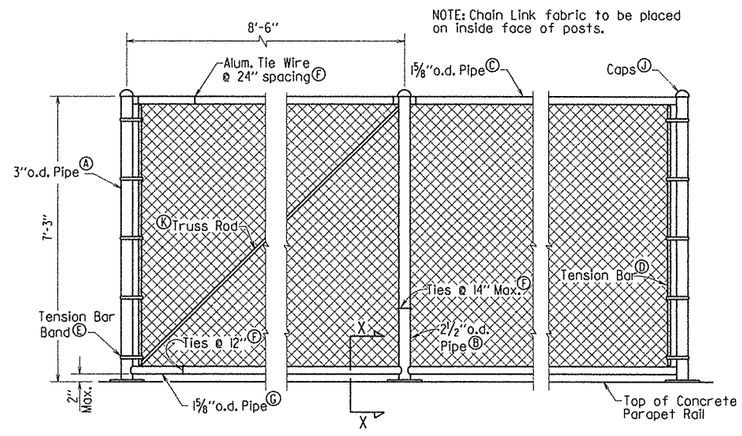
BRIDGE NO. 07325 DRAWING NO. 56146

PRINT DATE: 9/5/2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	105	179
				(1)	07325 -	260 FT. UNIT	- 56147	



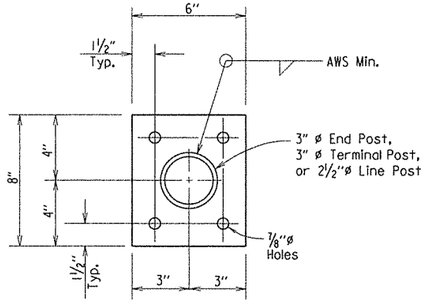
LONGITUDINAL VIEW OF CHAIN LINK FENCE



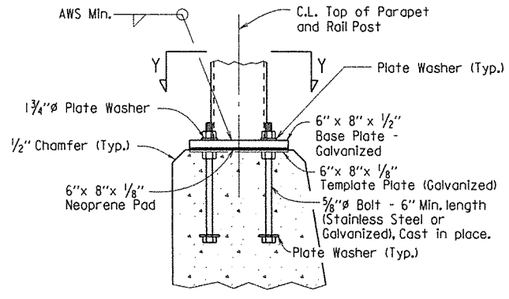
DETAIL OF CHAIN LINK FENCE

(A) END POST: 3" O.D.
(B) LINE POST: 2½" O.D.
(C) TOP RAIL: 1⅝"O.D.
(D) TENSION BAR: ⅜" x ¾" Bar
(E) TENSION BAR BAND: ¾"x .074 w/⅝"ø x 1¼" Bolt
(1 Band Top and Bottom w/15" Max. spaces)
(F) TIE WIRE: 9 Ga. Aluminum
(G) BOTTOM RAIL: 1⅝" O.D.
(H) FABRIC: 9 Ga. 2" Mesh w/Knocklug or Twisting Selvage
(J) CAPS: All Posts shall be Capped and Shall Conform to ASTM F626-84
(K) TRUSS ROD: Min. of ⅝" Round with Tighteners and Fittings

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



SECTION Y-Y



SECTION X-X

DETAILS OF POST ANCHOR SYSTEM
(CAST-IN PLACE BOLTS)

NOTES:

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

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

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

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

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

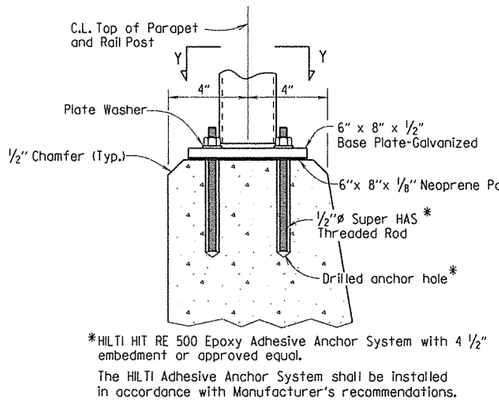
Base plates shall not be placed upon areas that are improperly finished, deformed, or irregular.

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

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

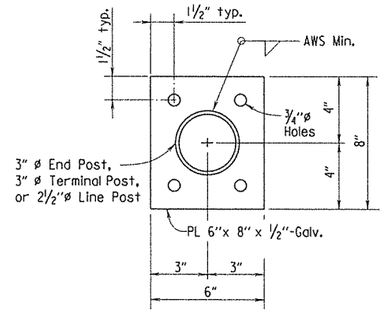
Neoprene pad and template plates shall not be paid for directly, but shall be considered incidental to the unit price bid for item "7' Steel Chain Link Fence".

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



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

SECTION X-X



SECTION Y-Y

DETAILS OF ALTERNATE POST ANCHOR SYSTEM
(EPOXY ADHESIVE ANCHORS)

STATE OF ARKANSAS
Charles R. Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9235
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

SHEET 8 OF 8
DETAILS OF 260'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
UNION PACIFIC RAILROAD

ROUTE SEC.

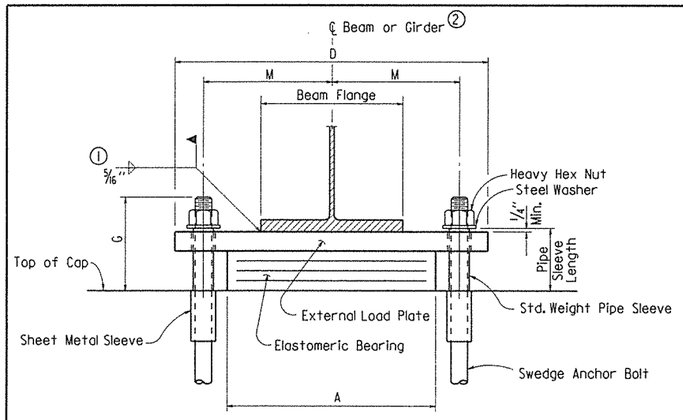
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 6-10-14 FILENAME: b040456x2_sl.dgn
CHECKED BY: DBS DATE: 9/9/14 SCALE: AS NOTED
DESIGNED BY: DBS DATE: 1/14

BRIDGE NO. 07325 DRAWING NO. 56147

PRINT DATE: 05-SEP-2014

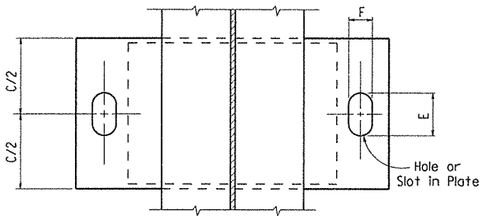
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	106	179
				①	07325 -	ELASTO. BRGS. -	56148	



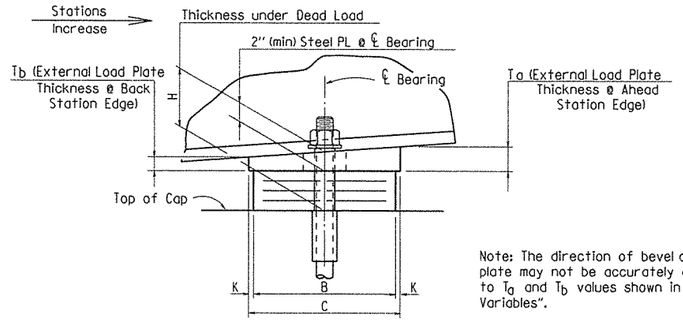
FRONT VIEW

① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.

② ℄ Elastomeric pad shall be aligned with ℄ Beam.

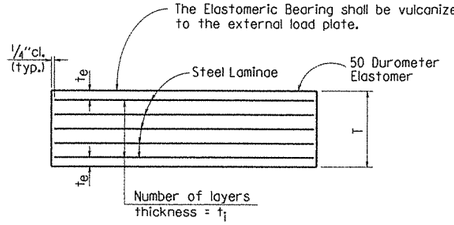


PLAN VIEW



SIDE VIEW

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



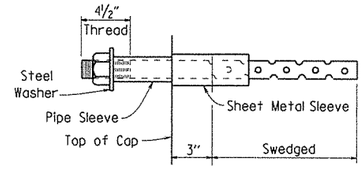
t_e = thickness of elastomer cover on top and bottom of pad

t_i = thickness of elastomer between steel laminae

N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING

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



ANCHOR BOLT DETAIL

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

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

GENERAL NOTES

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

External load plates shall conform to AASHTO M270, Grade 50W. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, Class 50.

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

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

Pipe sleeves, anchor bolts, washers and nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)". External load plates will not be measured or paid for separately but will be considered included in the unit bid price for "Elastomeric Bearings".

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

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION BENT NO(S).	LOCATION BEAM NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	EXTERNAL LOAD PLATE C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
07325	1	ALL	Exp.	6	101	7 1/4"	4 3/8"	13"	9"	3	1/2"	1/4"	4 @ 12 Gauge	2 1/16"	10"	23"	4 3/8"	2 1/4"	1/2"	8 3/4"	2.14"	1.86"	1 1/2" x 22"	55	1 1/2" x 4 3/4"	3" X 6"	3"
	2	ALL	Fix	6	283	7 1/2"	3 3/4"	16"	13 1/2"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	14 1/2"	29"	3 3/4"	3 3/4"	1/2"	11"	2.08"	1.92"	2 1/2" x 33"	55	3" x 4"	4" X 12"	4 1/2"
	3	ALL	Fix	6	283	7 1/2"	3 3/4"	16"	13 1/2"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	14 1/2"	29"	3 3/4"	3 3/4"	1/2"	11"	1.92"	2.08"	2 1/2" x 33"	55	3" x 4"	4" X 12"	4 1/2"
	4	ALL	Exp.	6	101	7 1/4"	4 3/8"	13"	9"	3	1/2"	1/4"	4 @ 12 Gauge	2 1/16"	10"	23"	4 3/8"	2 1/4"	1/2"	8 3/4"	1.86"	2.14"	1 1/2" x 22"	55	1 1/2" x 4 3/4"	3" X 6"	3"

*Maximum Design Load = Service I Limit State

Tabular Data by : MCB Date: 03/12/14

Checked by : DBS Date: 9/4/14

Designed by : DBS Date: 1/15/14

STATE OF ARKANSAS
Charlie Ray Ellis
REGISTERED PROFESSIONAL ENGINEER
No. 9255
9-11-14
CHARLES R. ELLIS

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: Nov.1996 FILENAME: b040456x2_el.dgn

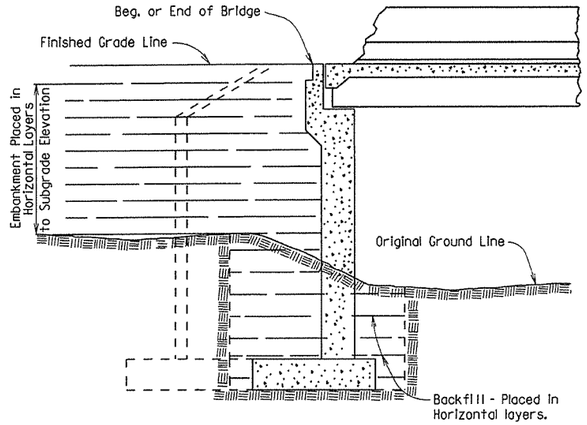
CHECKED BY: AMS DATE: Jul.7,05 SCALE: NONE

DESIGNED BY: Std. DATE:

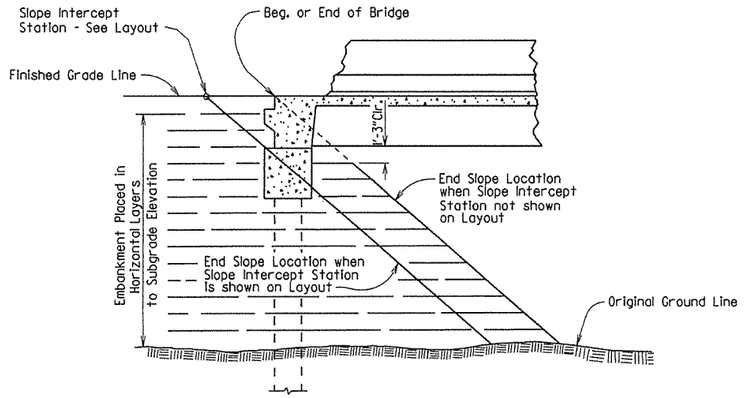
BRIDGE NO. 07325 DRAWING NO. 56148

PRINT DATE: 9/5/2014

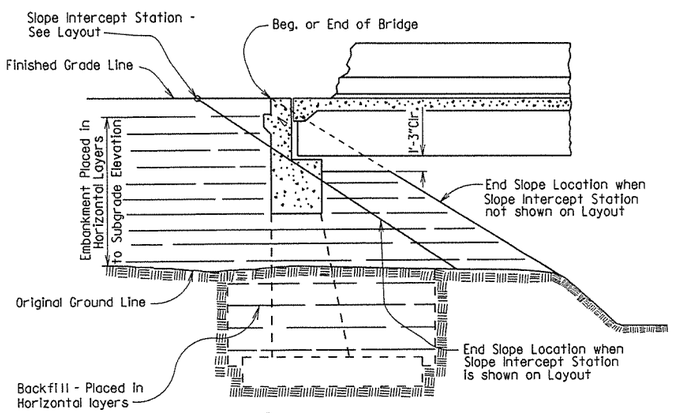
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		107	
				JOB NO.				
				① EMBANKMENT & BACKFILL 55000				



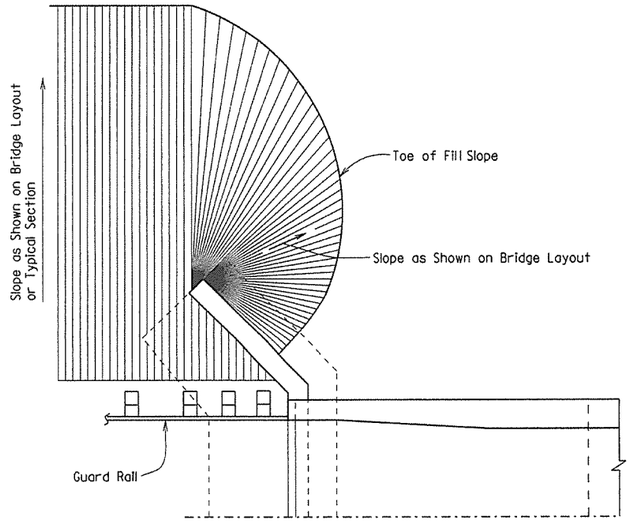
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



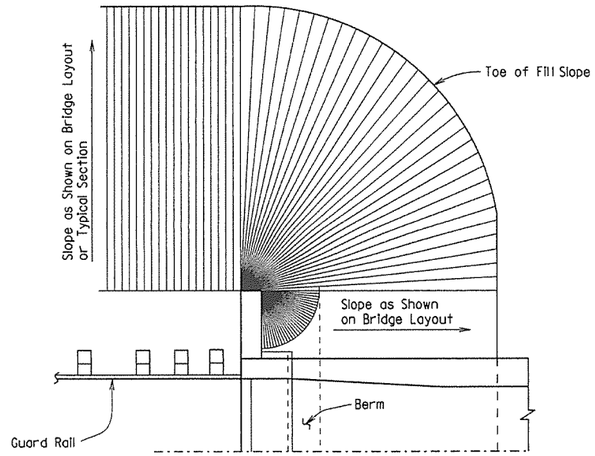
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



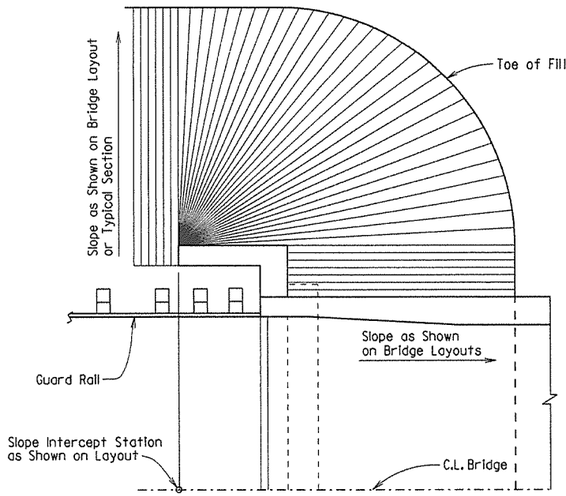
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



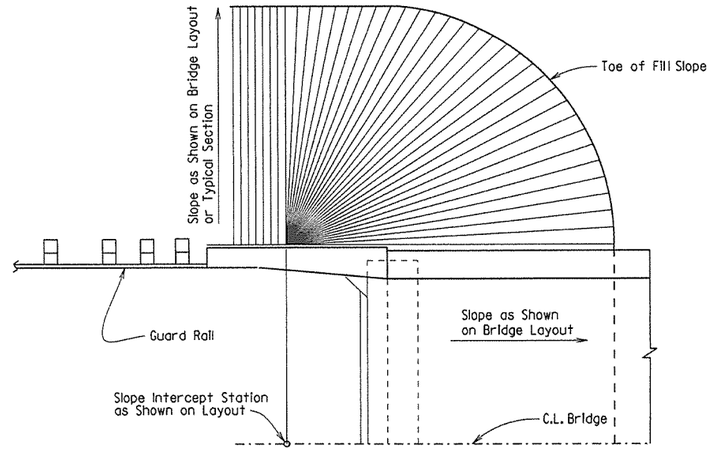
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

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

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

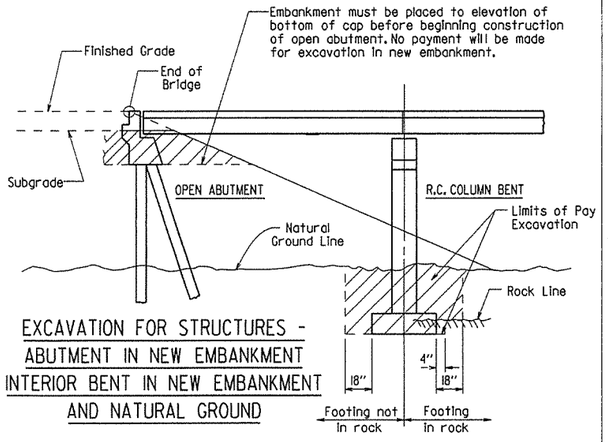
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

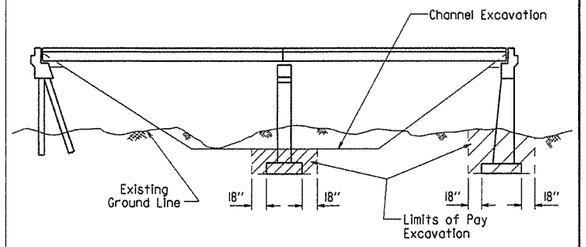
DRAWING NO. 55000

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		108	
				JOB NO.				

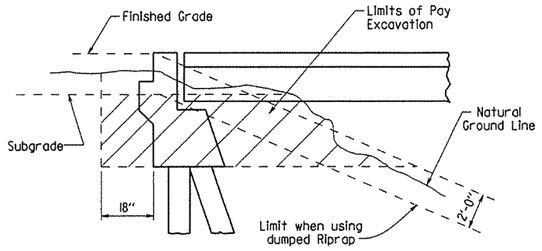
(1) RIPRAP & EXCAV. 55001



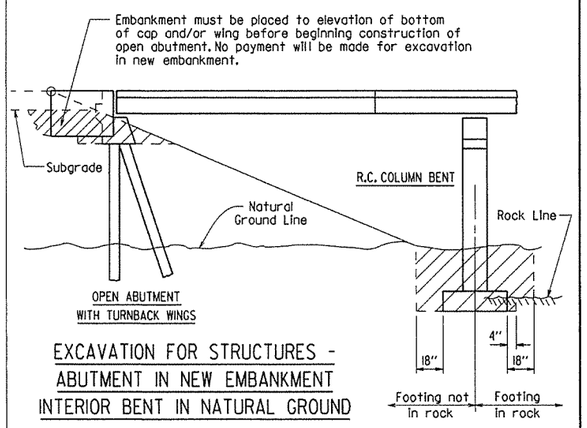
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



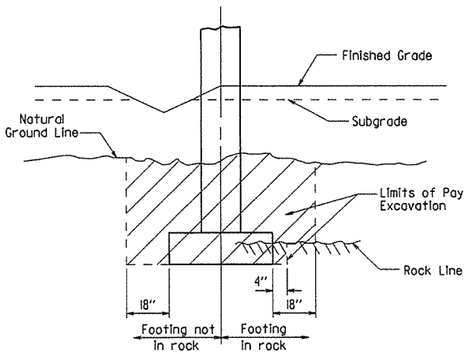
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



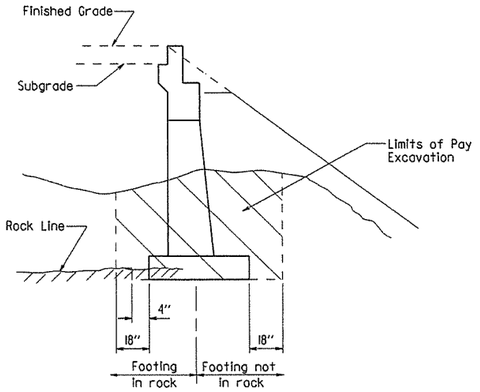
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



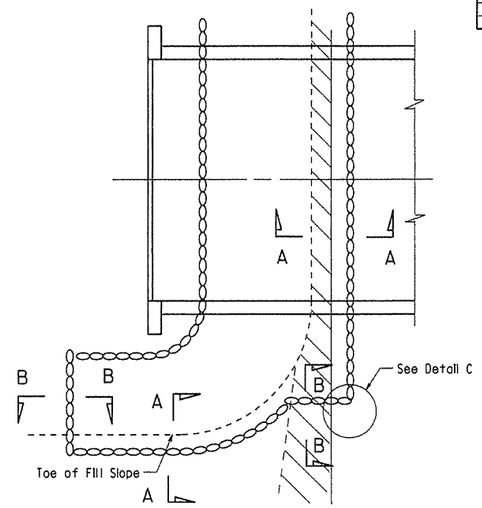
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



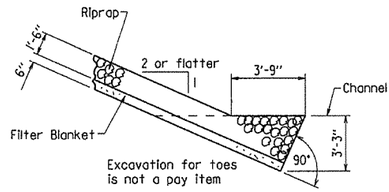
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

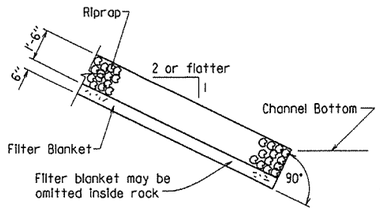


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



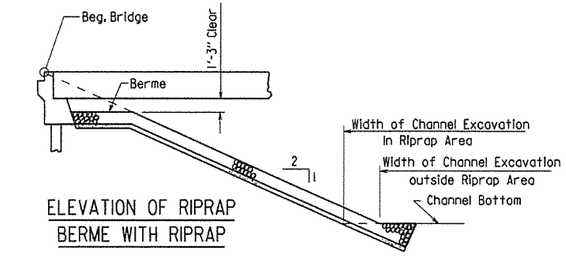
SECTION A-A

(Toe Excavation in Rock)

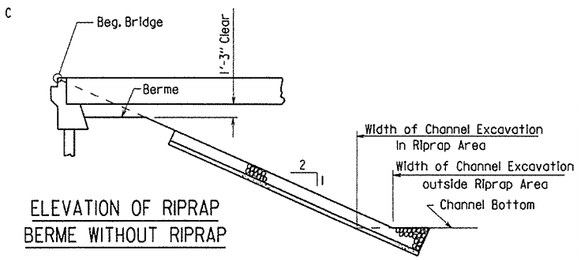
Note : Use this type of toe when rock is encountered which is in a stable condition.

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

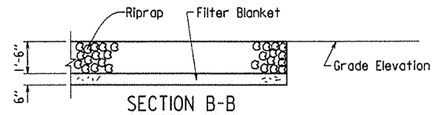
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



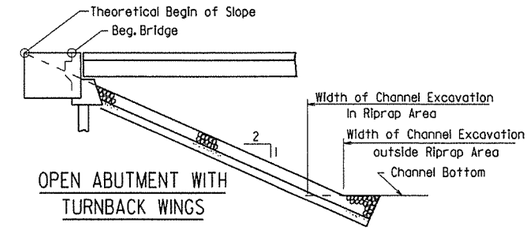
ELEVATION OF RIPRAP BERME WITH RIPRAP



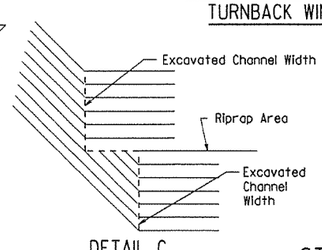
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn

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

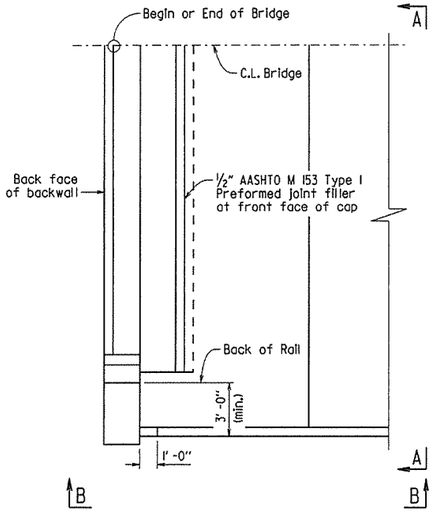
DESIGNED BY: STD. DATE:

DRAWING NO. 55001

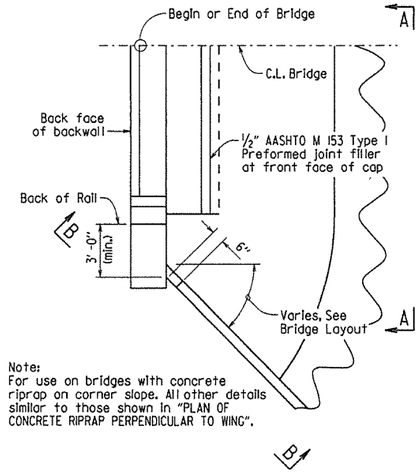
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		109	
				JOB NO.				

① CONCRETE RIPRAP 55002

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



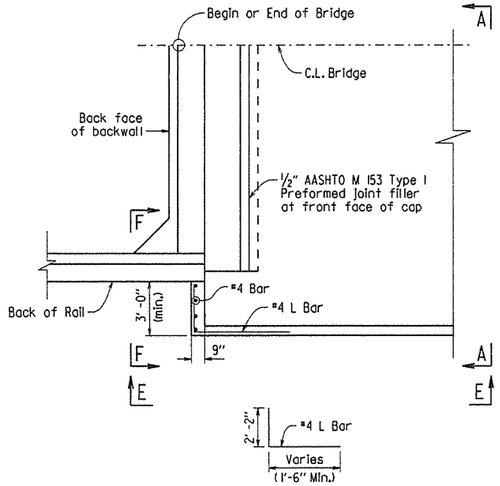
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO WING
¼" = 1'-0"



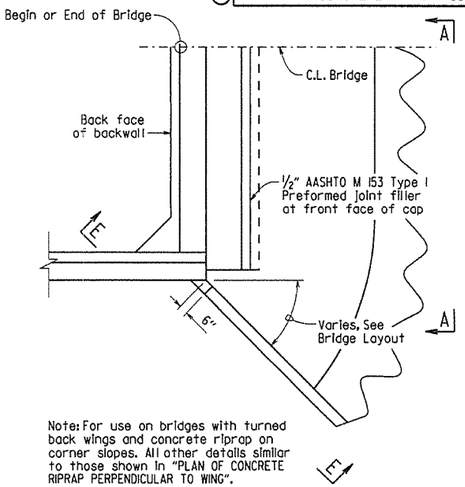
Note:
For use on bridges with concrete riprap on corner slope. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

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

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



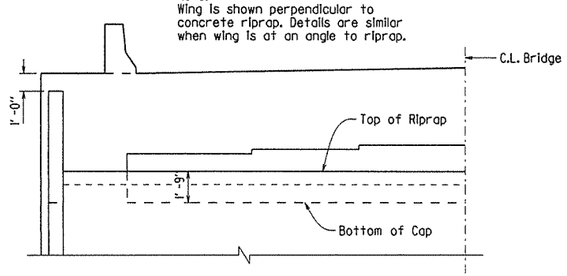
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO TURNED BACK WING
¼" = 1'-0"



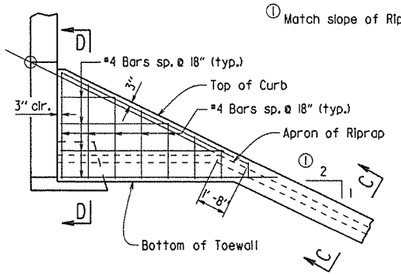
Note: For use on bridges with turned back wings and concrete riprap on corner slopes. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

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

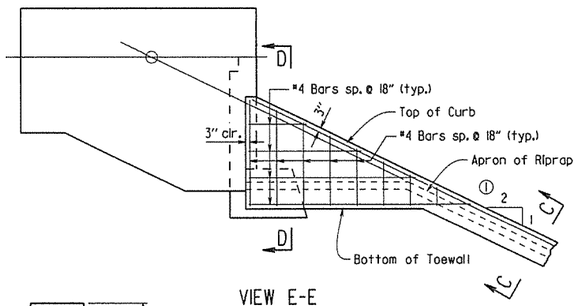
Note:
Wing is shown perpendicular to concrete riprap. Details are similar when wing is at an angle to riprap.



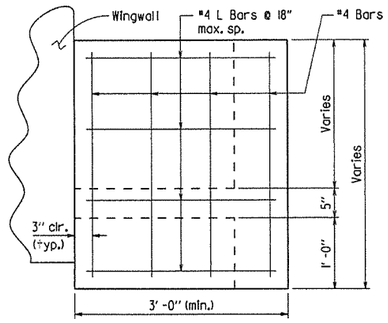
VIEW A-A
¼" = 1'-0"



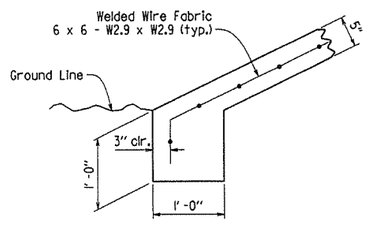
VIEW B-B
¼" = 1'-0"



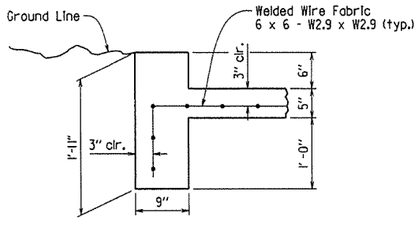
VIEW E-E
¼" = 1'-0"



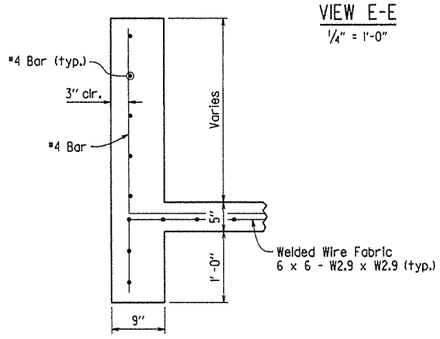
VIEW F-F
1" = 1'-0"



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



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



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

GENERAL NOTES

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

Welded wire fabric shall conform to AASHTO M55 or M221.

STANDARD DETAILS FOR CONCRETE RIPRAP

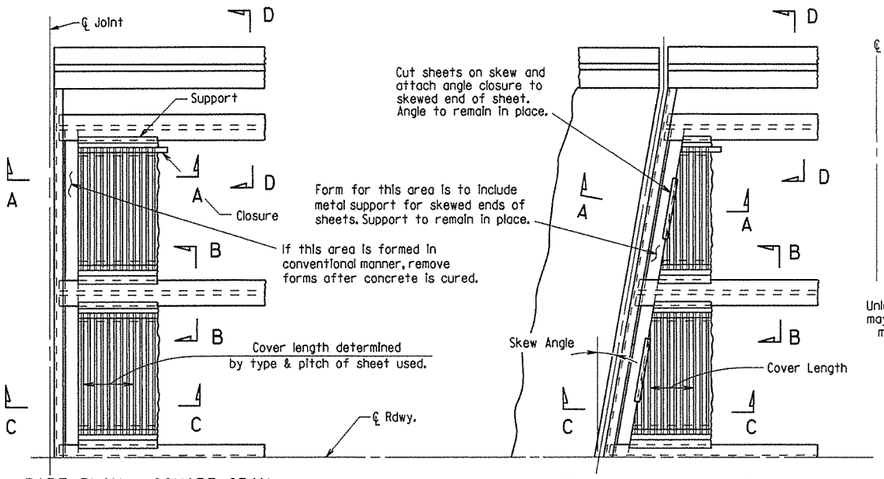
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

DRAWING NO. 55002

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		110	
				JOB NO.				
				①	BRIDGE DECK FORMS	55005		

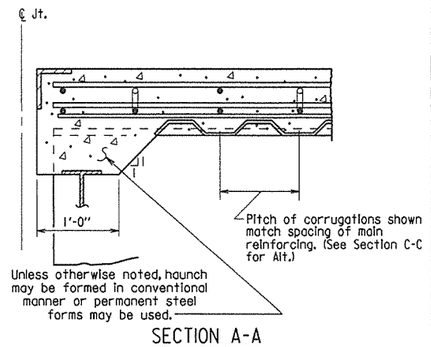


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

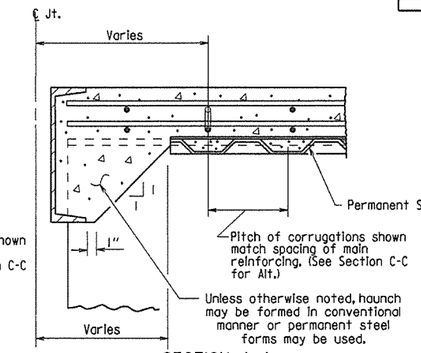
3/8" = 1'-0"



SECTION A-A

N.T.S.

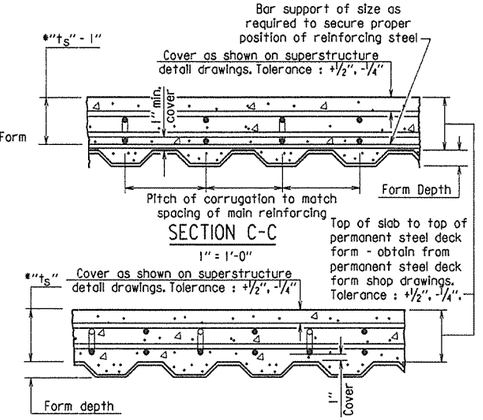
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



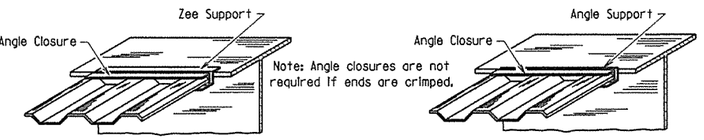
SECTION C-C

1" = 1'-0"

SECTION C-C - ALTERNATE

1" = 1'-0"

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



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

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

GENERAL NOTES

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

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

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

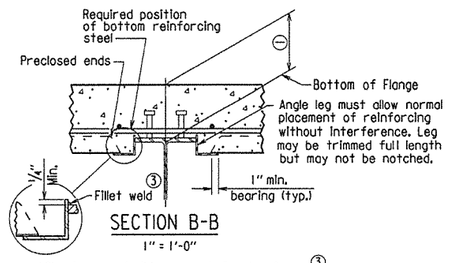
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

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

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

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

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

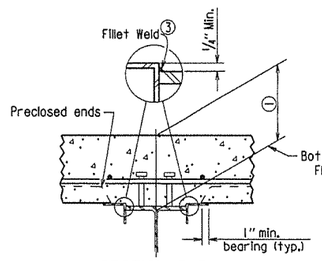


SECTION B-B

1" = 1'-0"

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

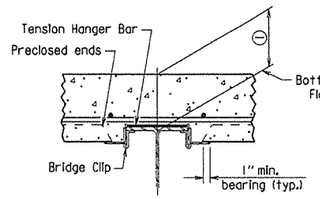
③ Minimum weld: 1/8" x 1' @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

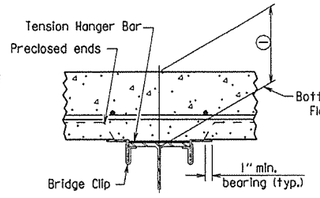
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

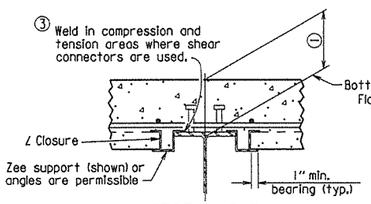
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

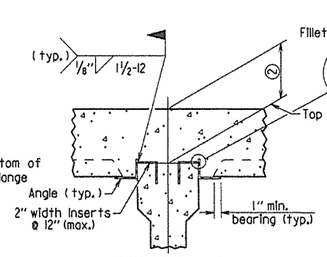
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

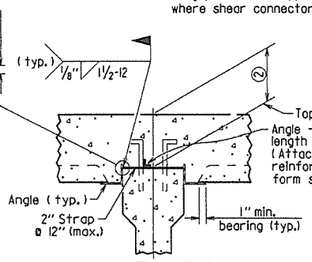
(Showing ∠ Closure)



SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"

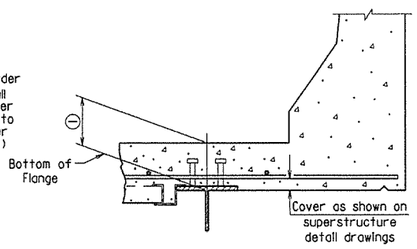
(Showing support by insert cast in girder)



SECTION B-B (FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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

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

DESIGNED BY: STD. DATE: —

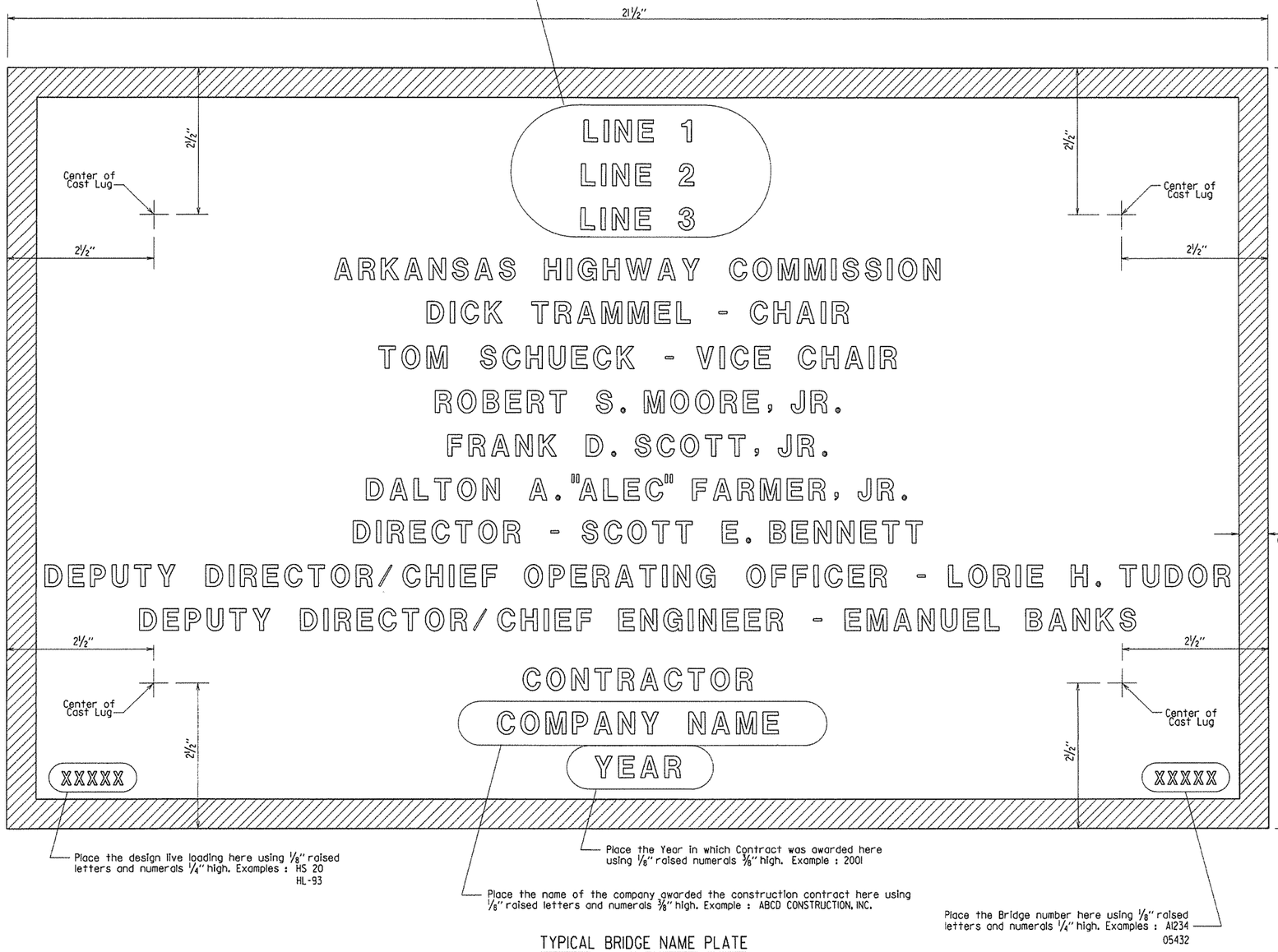
DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14				6	ARK.		111	
1-14-15				JOB NO.				

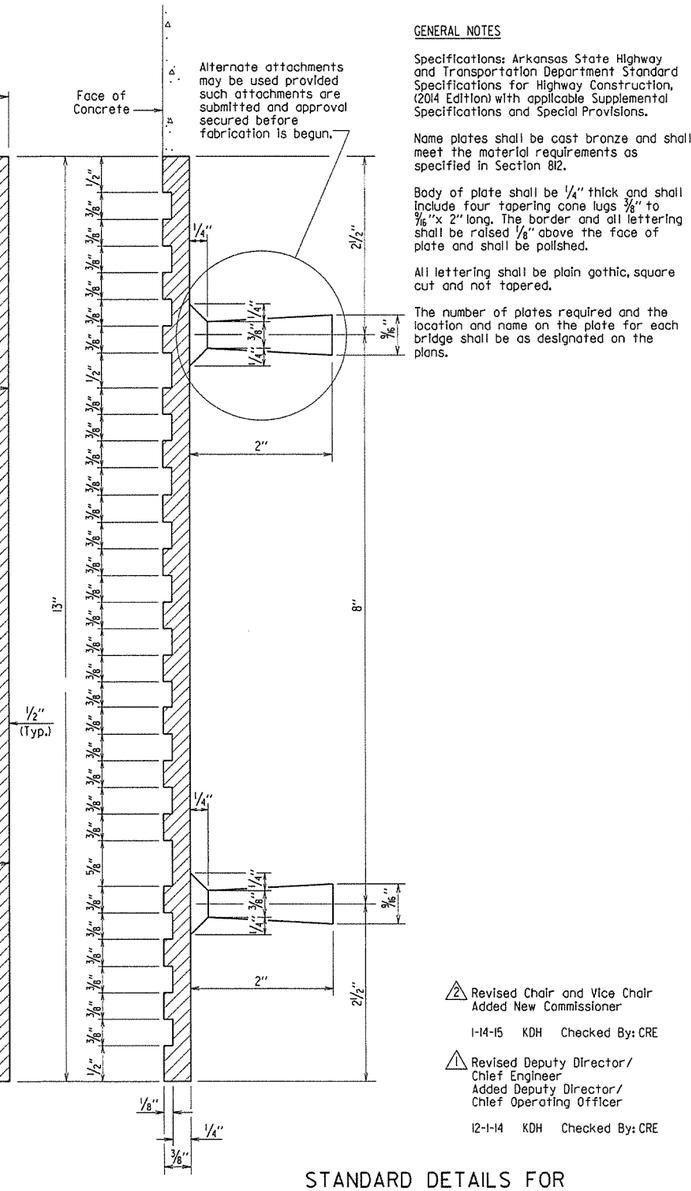
① TYPE D NAME PLATE 55010

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

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



TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

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

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

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 7/16" x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

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

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

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

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

STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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

DRAWING NO. 55010

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		112	
				JOB NO.				
				①	STEEL H-PILES			55020

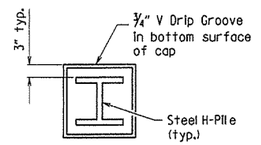
GENERAL NOTES FOR STEEL H-PILES:

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

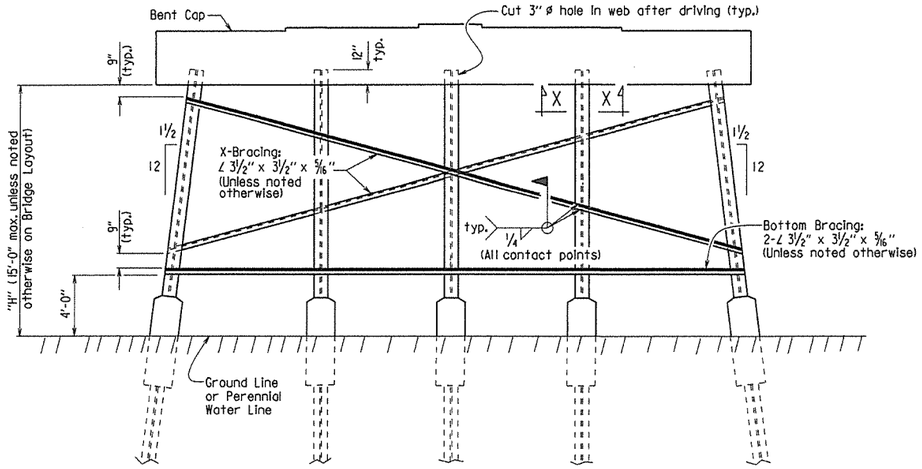
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

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

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



VIEW X-X



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

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

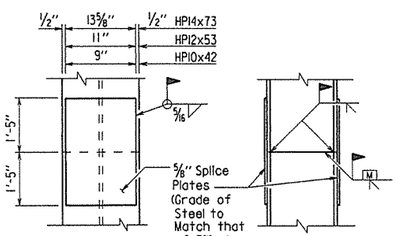
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

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

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

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)

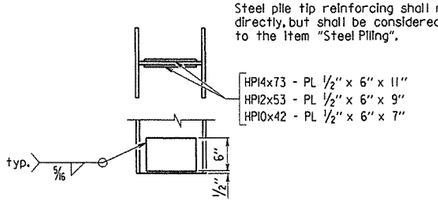


Note:
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

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

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



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

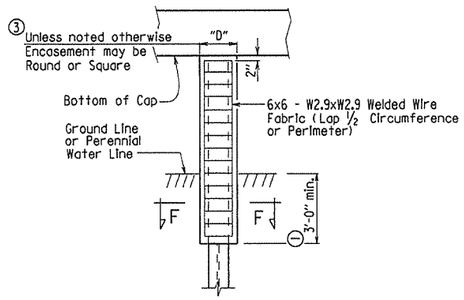
See Bridge Layout for additional notes and required location of pile encasements.

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

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

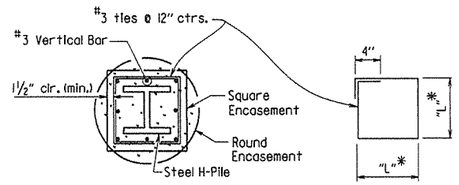
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

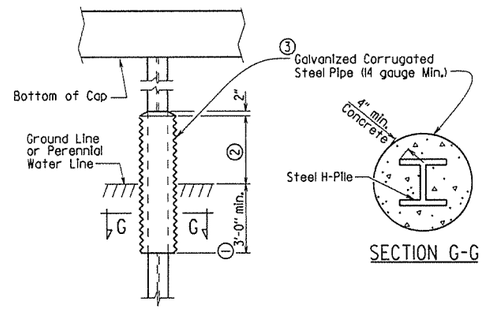


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

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



SECTION G-G

⑤ ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

① Unless otherwise noted on Bridge Layout.

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

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

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

⑤ Alternate pile encasement may not be allowed. See Bridge Layout.

This document was originally issued and sealed by Carl J. Fuselier, PE No. 7510, on February 27, 2014. This copy is not a signed and sealed document.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

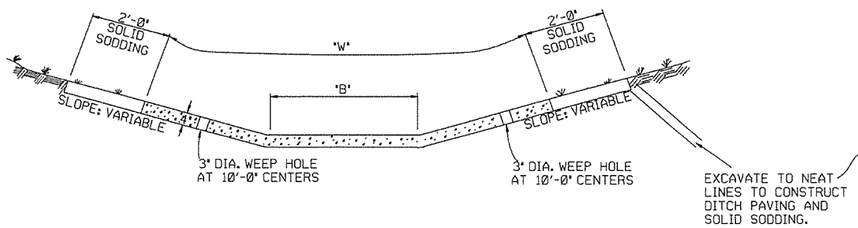
DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn

CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE

DESIGNED BY: STD. DATE: —

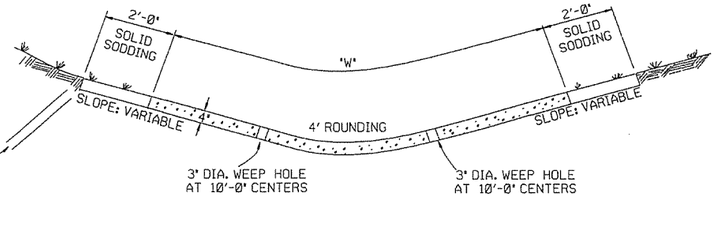
DRAWING NO. 55020

REFER TO TABULATION OF QUANTITIES
FOR 'W' & 'B' DIMENSIONS



TYPE A

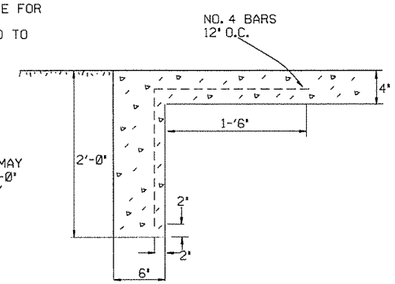
REFER TO TABULATION OF QUANTITIES
FOR 'W' DIMENSIONS



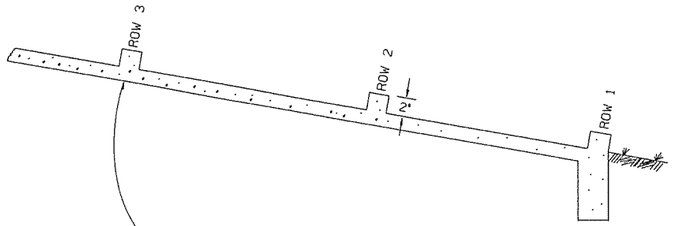
TYPE B

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

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



TOE WALL DETAIL FOR
CONCRETE DITCH PAVING



ENERGY DISSIPATORS
(NO SCALE)

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 UNCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.

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.

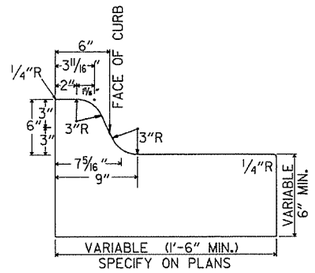
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

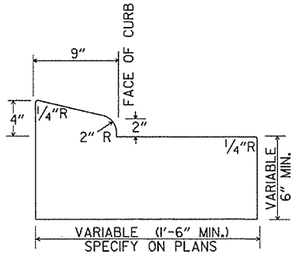
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

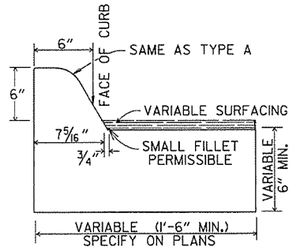
STANDARD DRAWING CDP-1



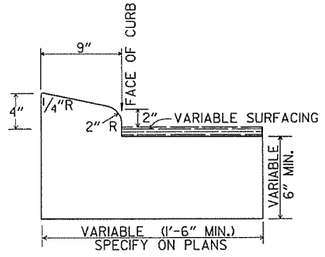
TYPE A



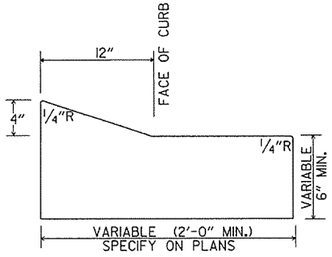
TYPE B-I



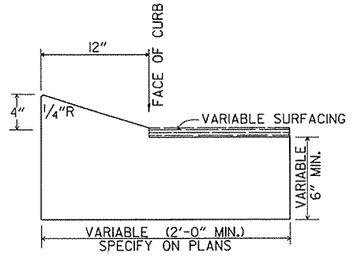
TYPE C



TYPE B-2

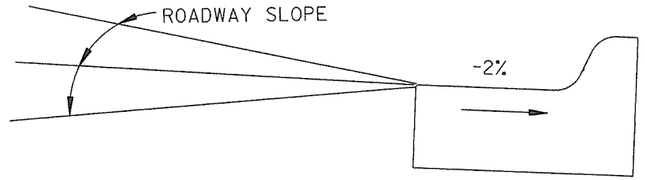


TYPE E-1



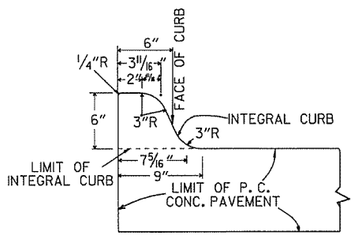
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

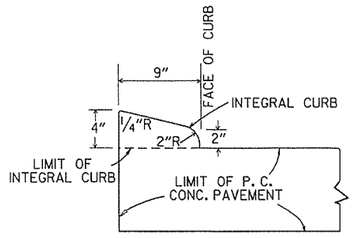


DETAIL OF GUTTER SLOPE

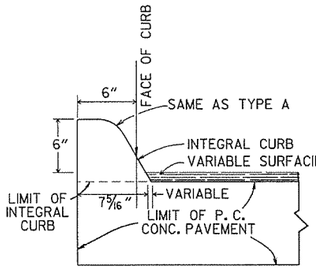
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

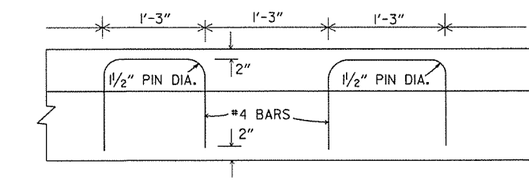


TYPE B

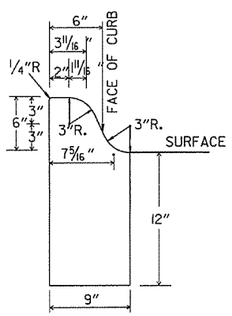


TYPE C

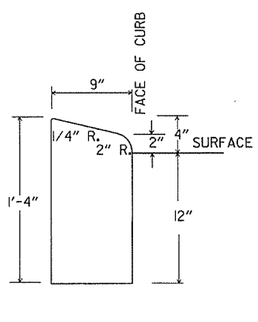
INTEGRAL CURB



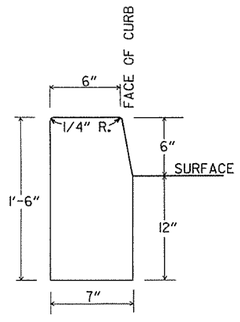
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



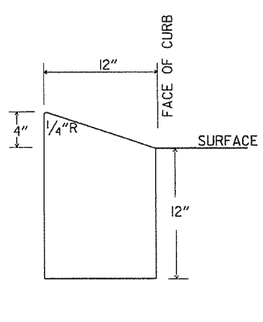
TYPE A



TYPE B

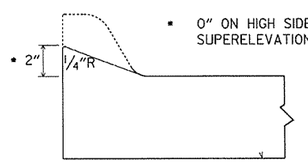


TYPE D



TYPE E

CONCRETE CURB



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

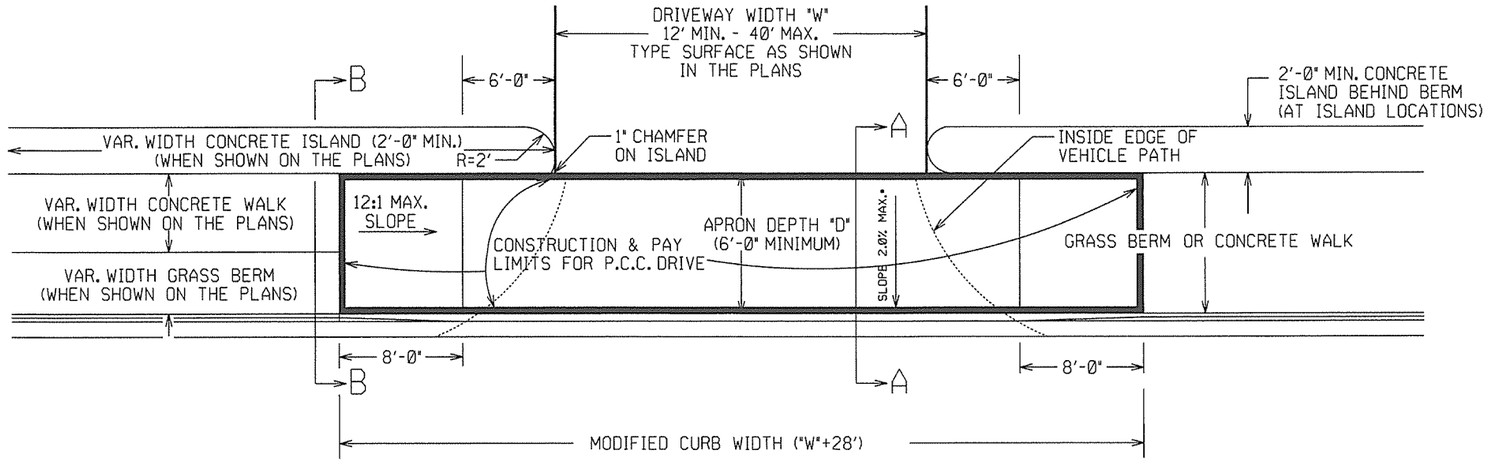
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B I	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

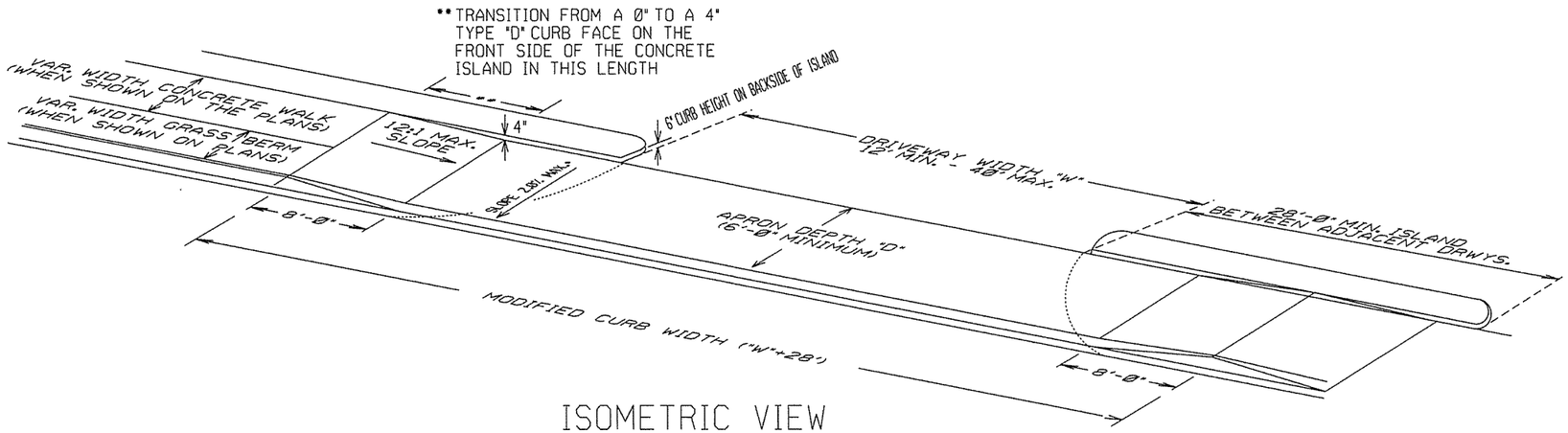
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

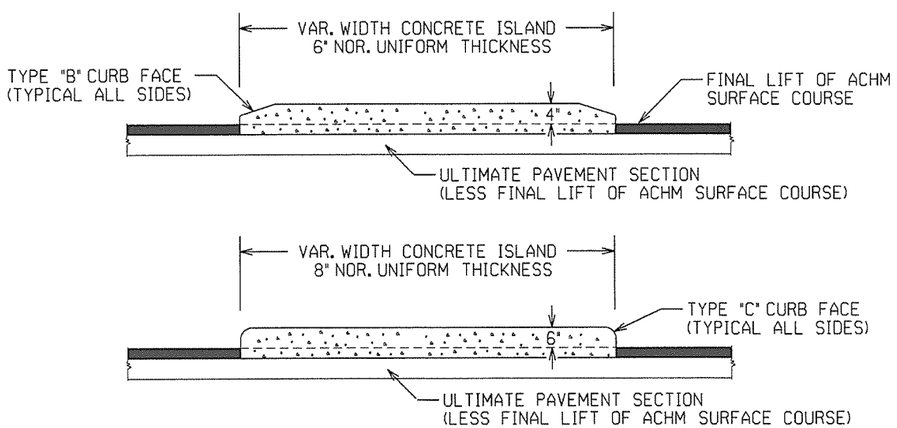
STANDARD DRAWING CG-1



PLAN VIEW

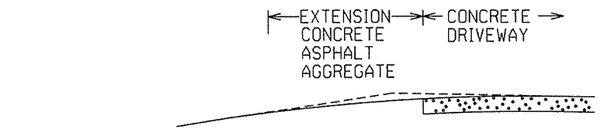


ISOMETRIC VIEW



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

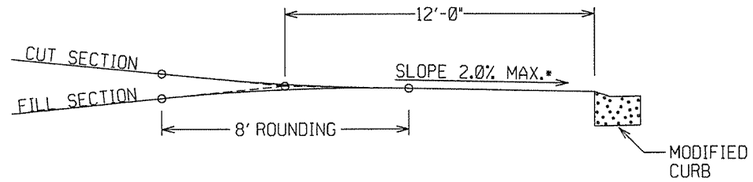
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

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

4: AGGREGATE - 6" AGGREGATE BASE COURSE

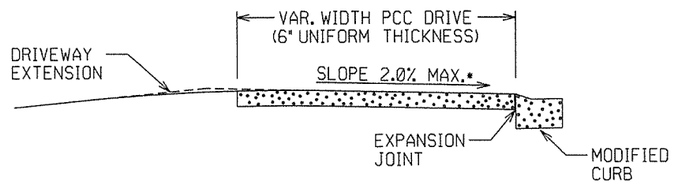
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

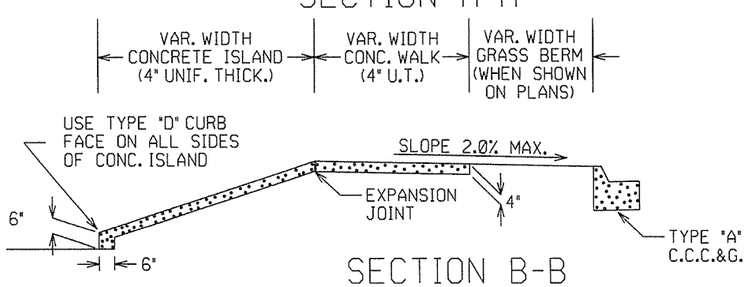


DRIVEWAY VERTICAL ALIGNMENT DETAILS

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



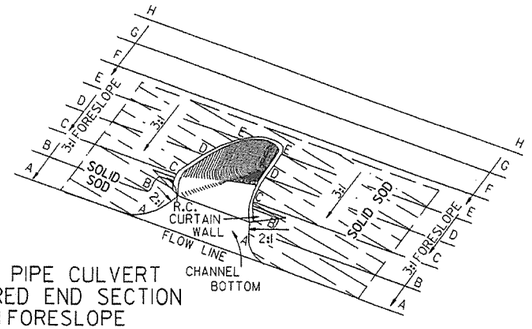
SECTION A-A



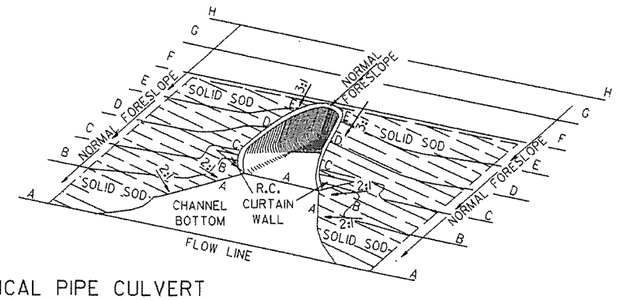
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
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

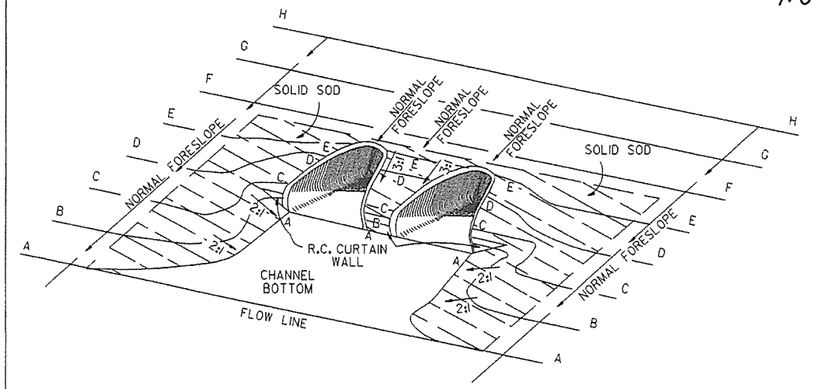
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



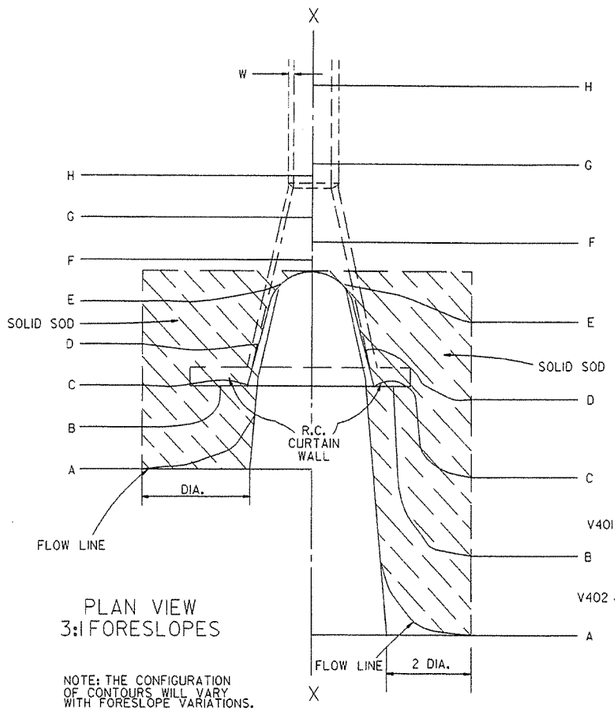
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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



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

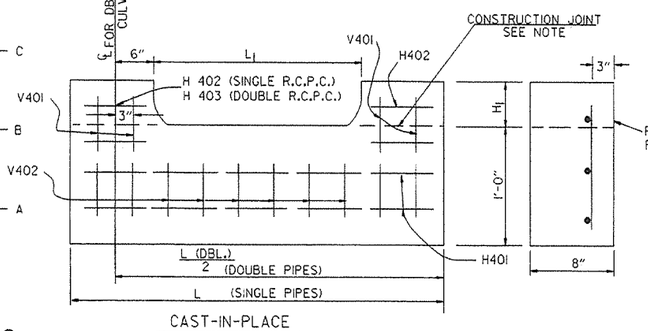
PLAN VIEW
3:1 FORESLOPES

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

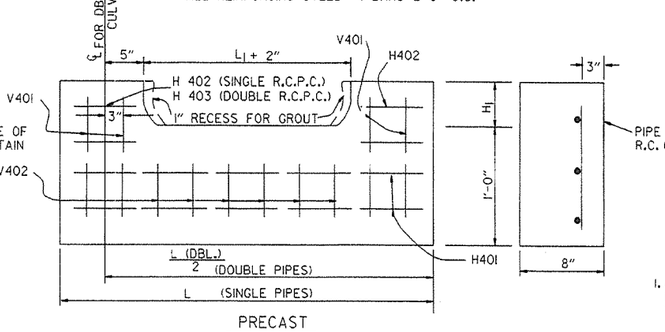
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC. CU. YDS.	SINGLE R.C.P.C. REINF. STEEL LBS.	DOUBLE R.C.P.C. CONC. CU. YDS.	DOUBLE R.C.P.C. REINF. STEEL LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67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

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



CAST-IN-PLACE

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



PRECAST

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

R.C. CURTAIN WALL DETAILS

REINFORCING STEEL SCHEDULE

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

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

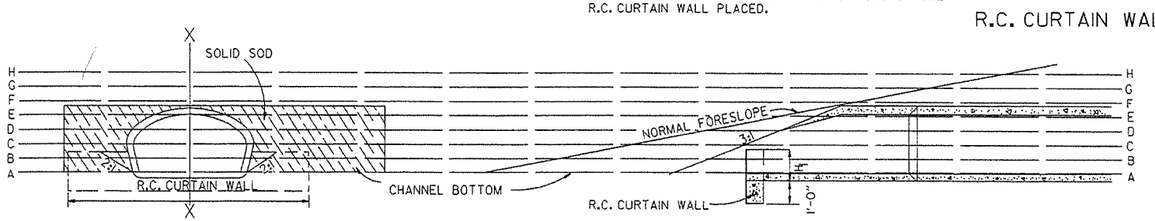
SOLID SODDING

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

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

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W/10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

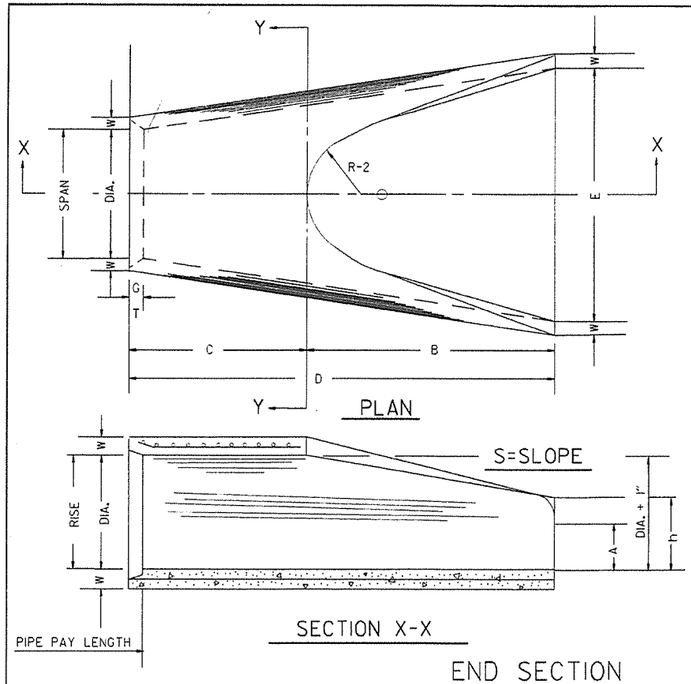
SECTIONAL VIEW "X-X"

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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

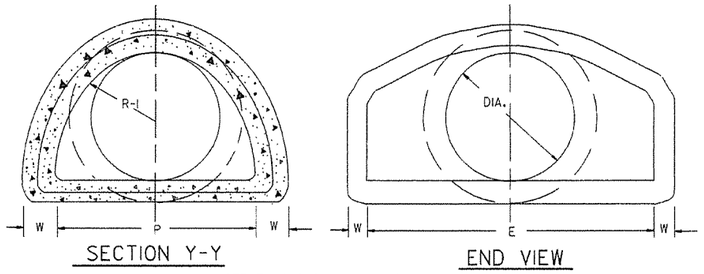
STANDARD DRAWING FES-1



END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33 3/16"	16 11/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47 13/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅛"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 5/16"	24"	5"	13250	4'-6"

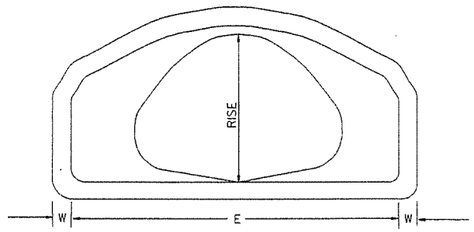


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

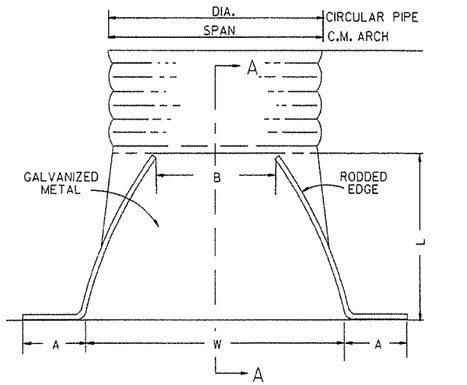
ARCH PIPE

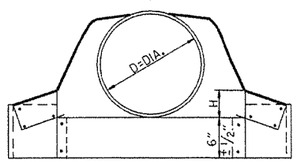
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 11/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 13/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54⅞"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 13/16"	24"	5"	2¼:1

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

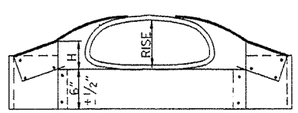


END VIEW
CONCRETE ARCH PIPE





CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

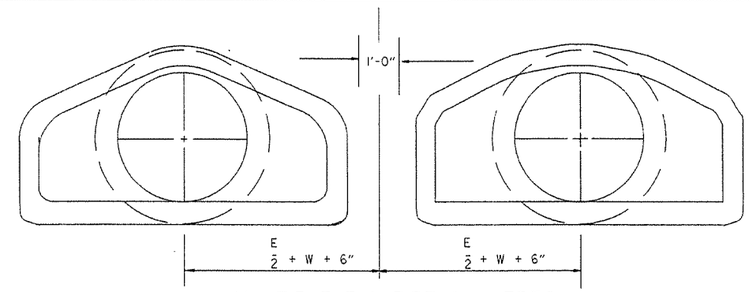
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

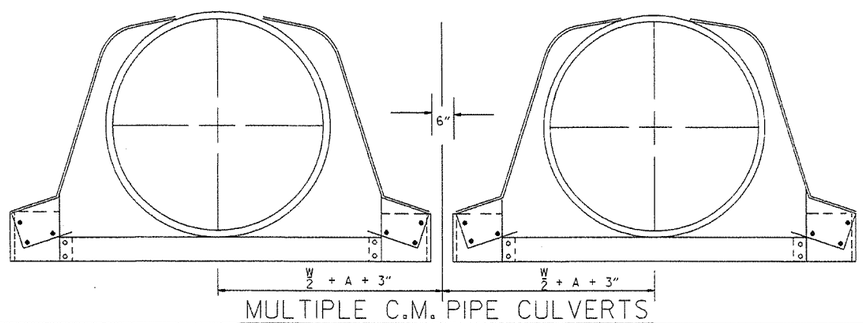
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2½:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

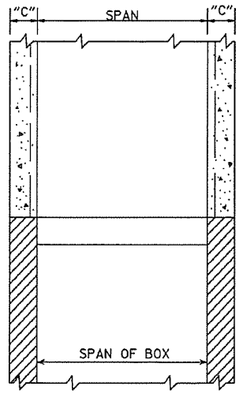
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74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

ARKANSAS STATE HIGHWAY COMMISION

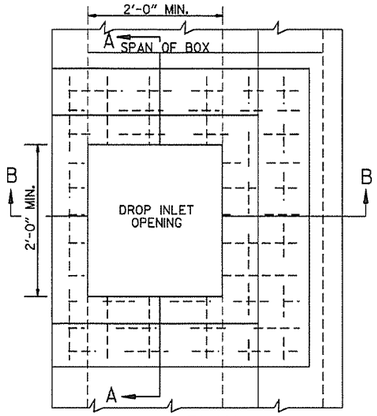
FLARED END SECTION

STANDARD DRAWING FES-2

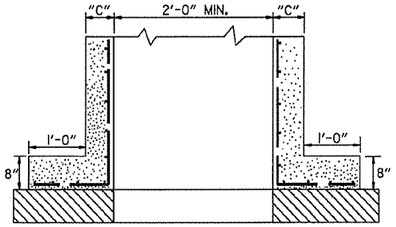
stdfes2.dgn



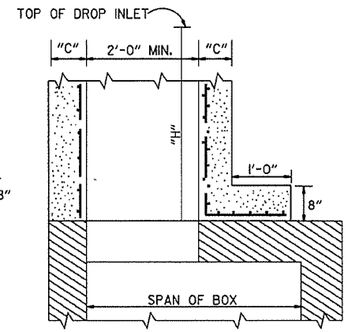
SECTION B-B



PLAN

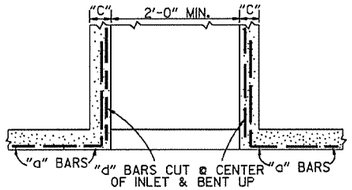


SECTION A-A

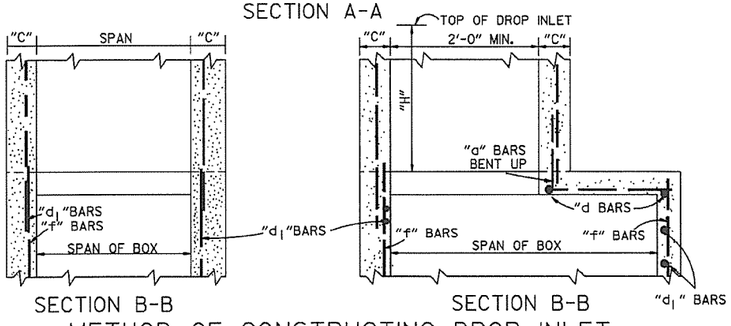


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



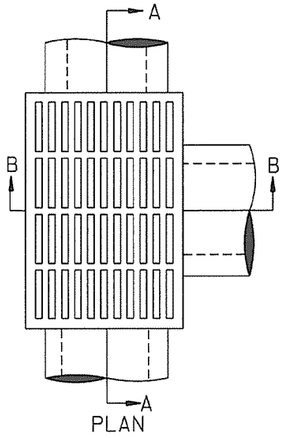
SECTION A-A



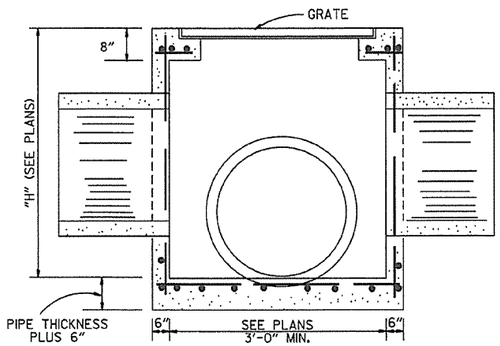
SECTION B-B SECTION B-B

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.

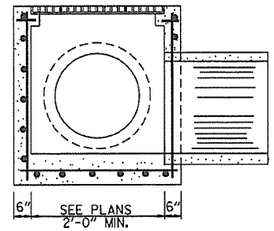


PLAN



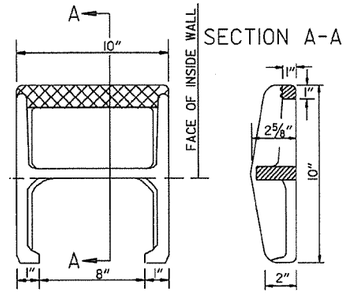
SECTION A-A

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)

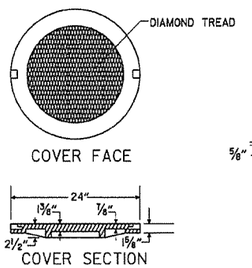


APPROX. WEIGHT = 11 LBS. (CAST IRON)

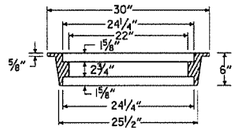
PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET



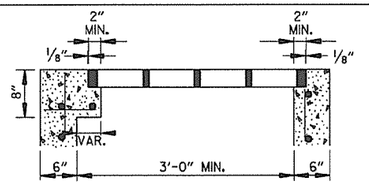
COVER SECTION



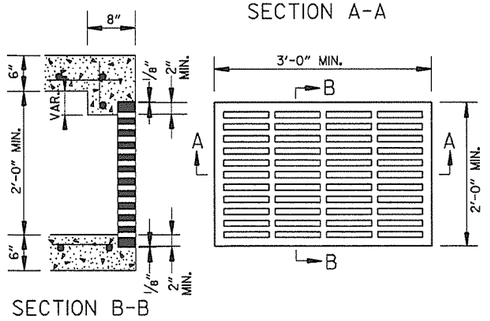
RING SECTION

APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



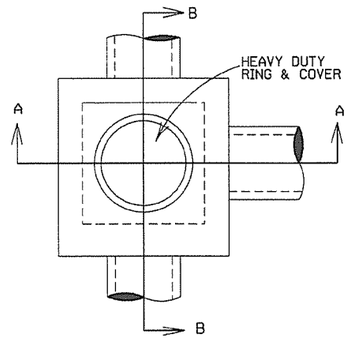
SECTION A-A



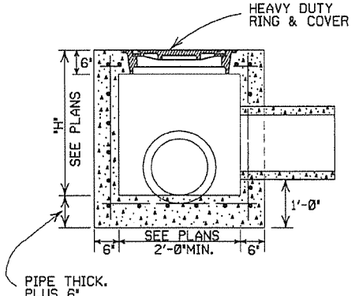
SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

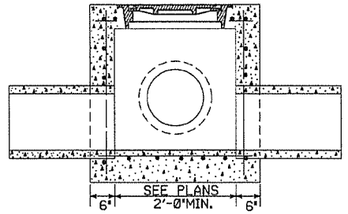


PLAN



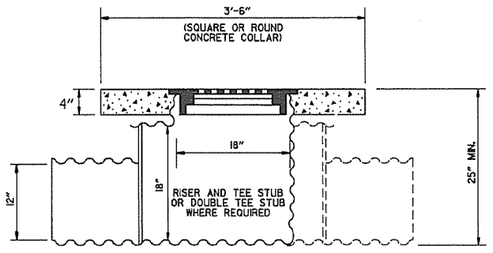
SECTION A-A

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.

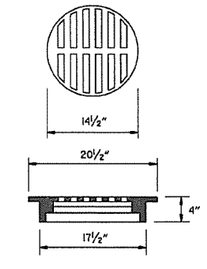


SECTION B-B

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

4'-0" LENGTH DROP INLET

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0" CLASS A CONC. CU. YDS.	HEIGHT 5'-0" REINF. STEEL POUNDS	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC. CU. YDS.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL POUNDS
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

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

DROP INLET EXTENSION

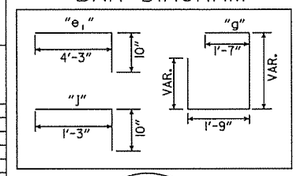
4'-0" CLASS A CONC. CU. YDS.	4'-0" REINF. STEEL POUNDS	8'-0" CLASS A CONC. CU. YDS.	8'-0" REINF. STEEL POUNDS
0.58	38	0.87	72

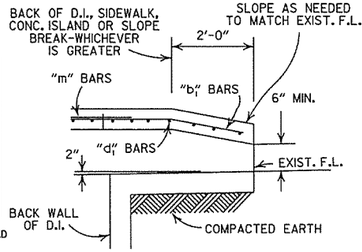
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.

0.04	3		

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET		
INSIDE DIA. PIPE	CLASS A CONC.	REINF. STEEL
INCHES	CU. YDS.	POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8

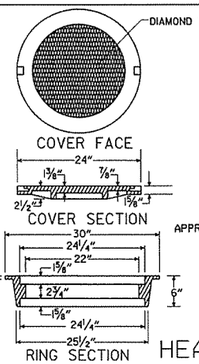
BAR DIAMETER





BACK OPENING

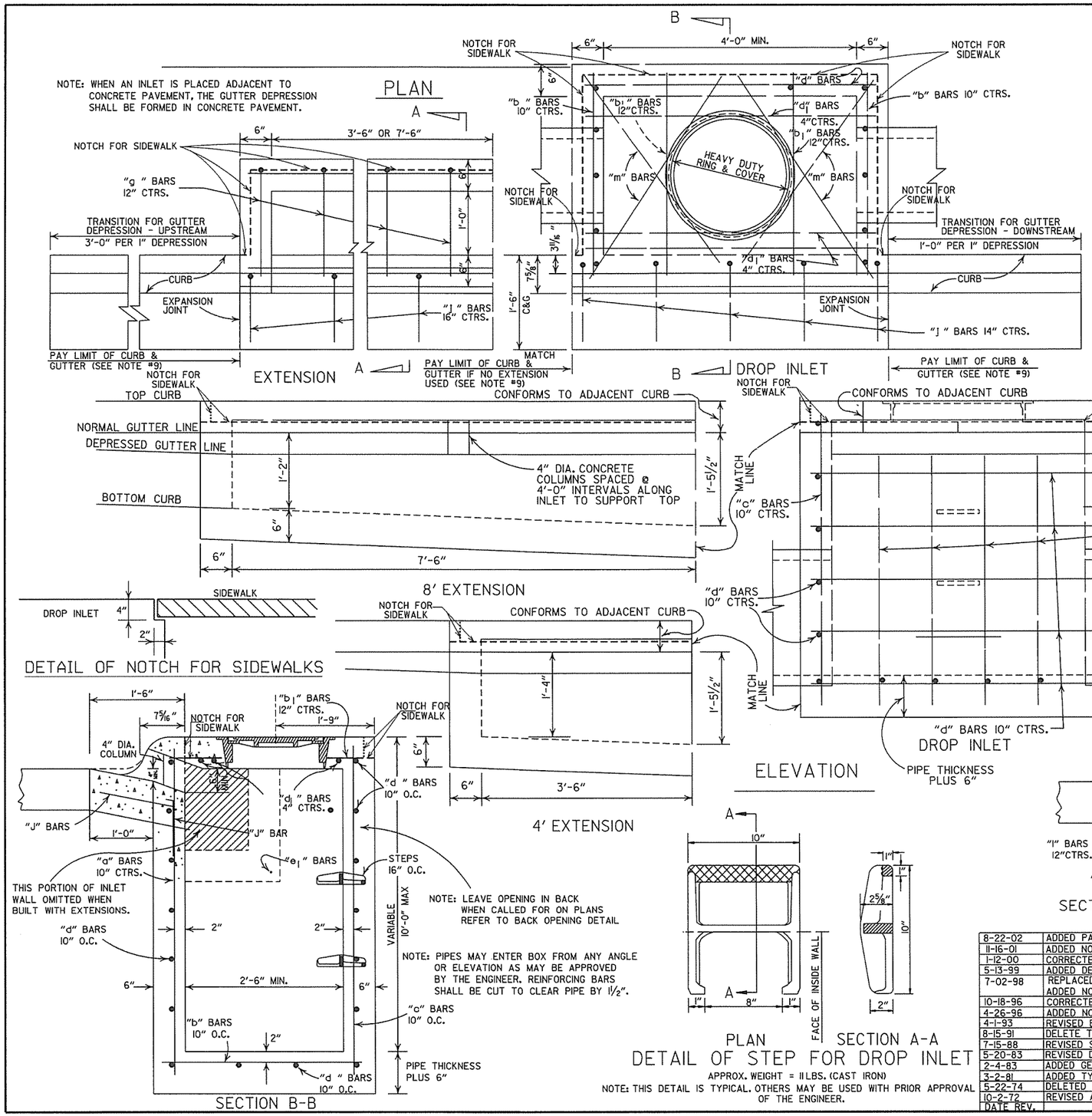
WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).



APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE 3/4" 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 (F.P.C.-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.



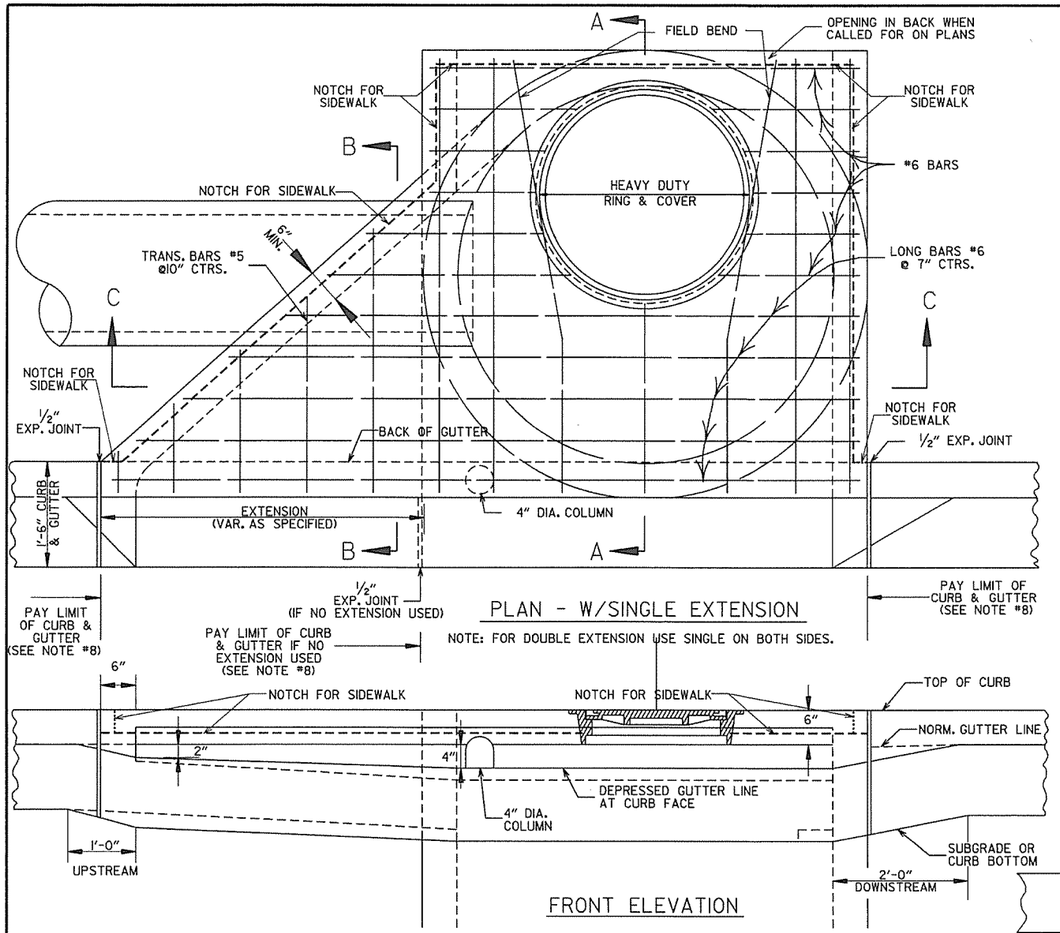
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER 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)

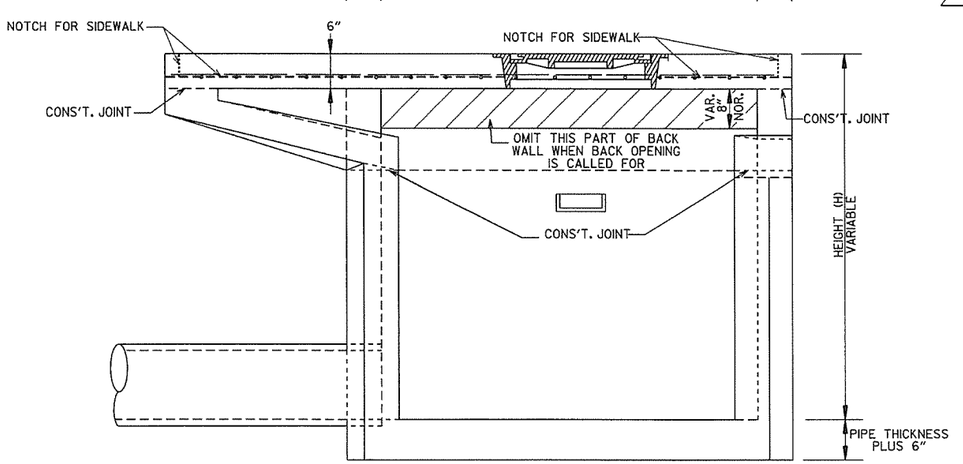
STANDARD DRAWING FPC-9E



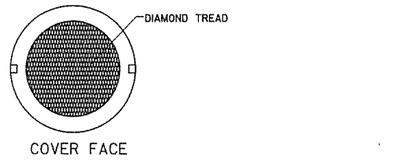
PLAN - W/SINGLE EXTENSION

NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.

FRONT ELEVATION



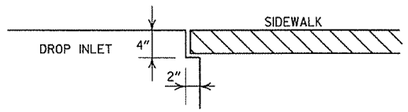
SECTION C-C



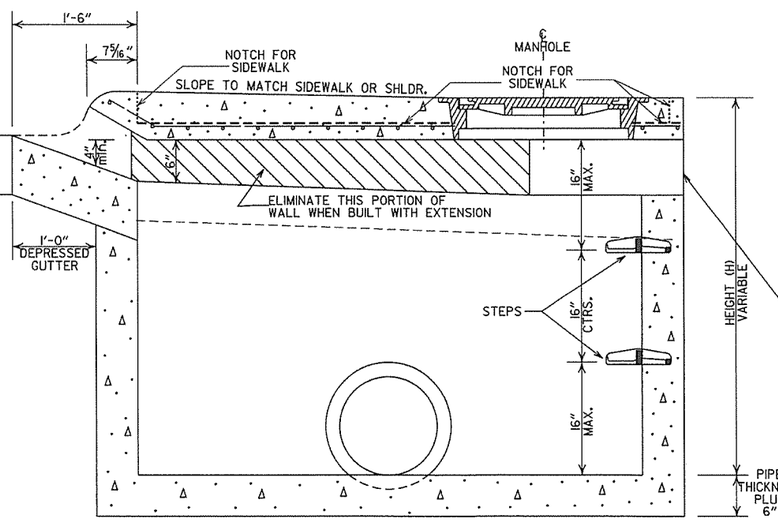
APPROXIMATE TOTAL WEIGHT = 333 LBS.

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.

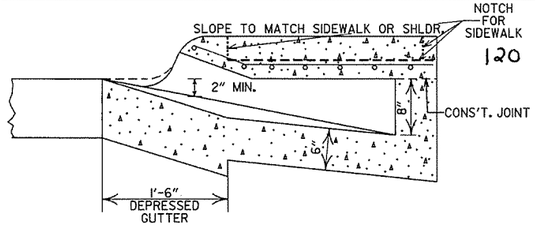


DETAIL OF NOTCH FOR SIDEWALKS

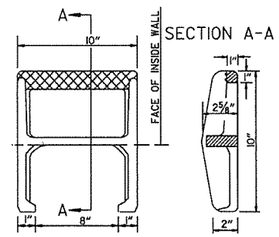


SECTION A-A

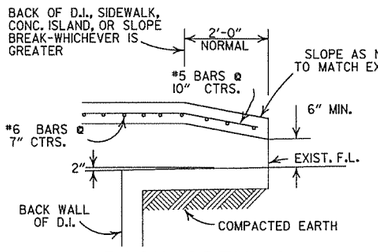
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-95	ADDED NOTE 11 ADJ. OPENING DIMENSION	
10-12-95	CORRECTED "6 BAR SPACING	
1-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
7-2-95	TYPE C TO MO (OPEN, BACK DETAIL)	
11-3-94	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
11-30-89	ADDED NOTE NO. 12	11-30-89
4-23-89	ADDED NOTE & MINIMUM WALL THICKNESS	513-4-23-89
7-15-88	ADDED EXTEND NOTE TO SECTION A-A	699-7-15-88
1-14-87	MODIFIED WALL THICKNESS	783-1-14-87
6-12-87	ISSUED	4-6-12-87
DATE	REVISIONS	DATE FILMED



SECTION B-B



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

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.

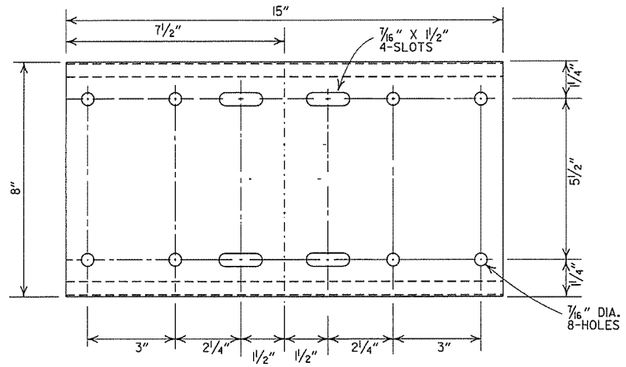
LEAVE OPENING IN BACK WHEN CALLED FOR ON PLANS REFER TO BACK OPENING DETAIL

DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS	
		CAST IN PLACE	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"

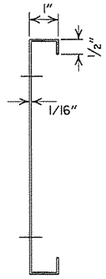
ARKANSAS STATE HIGHWAY COMMISSION

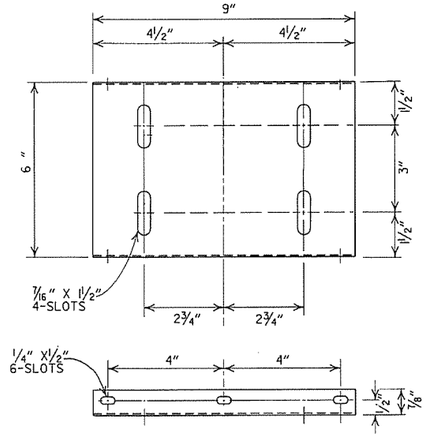
DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M

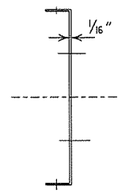


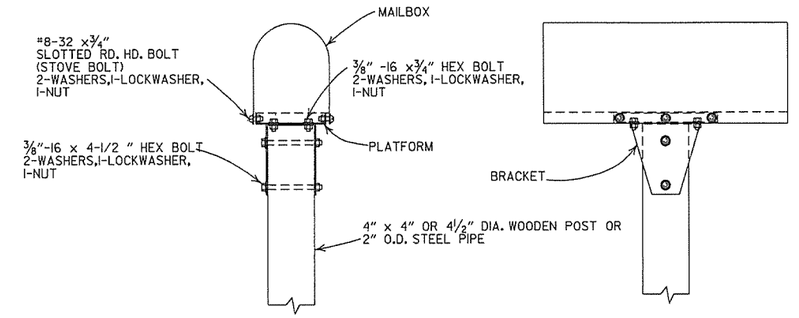
SHELF



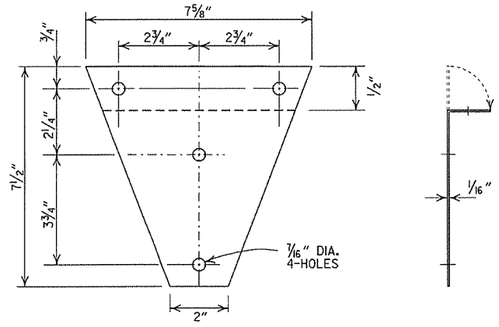


PLATFORM





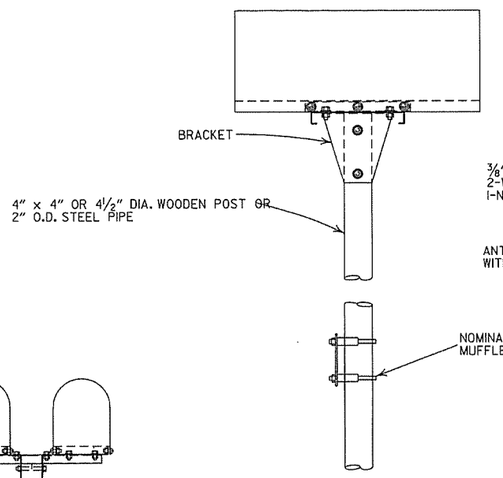
SINGLE INSTALLATION



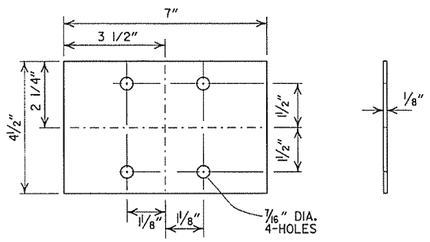
BRACKET

GENERAL NOTES

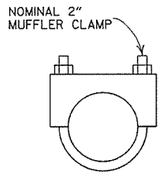
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED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



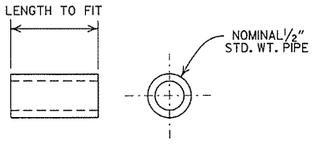
DOUBLE INSTALLATION



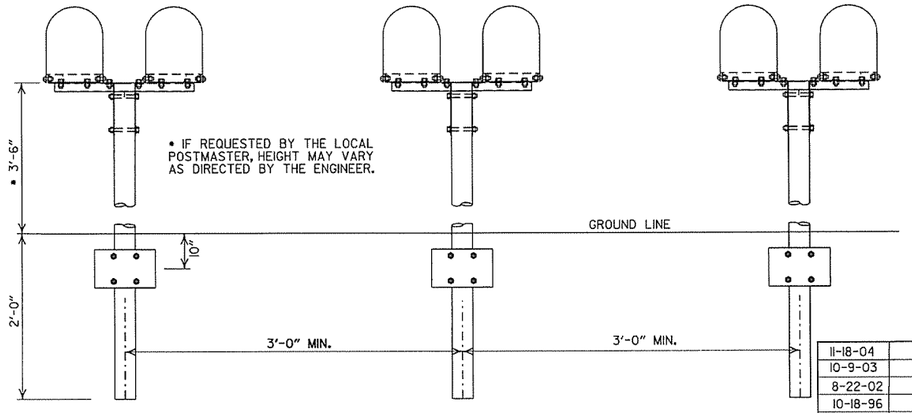
ANTI-TWIST PLATE



CLAMP



SPACER



SPACING FOR MULTIPLE POST INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31⅞	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.

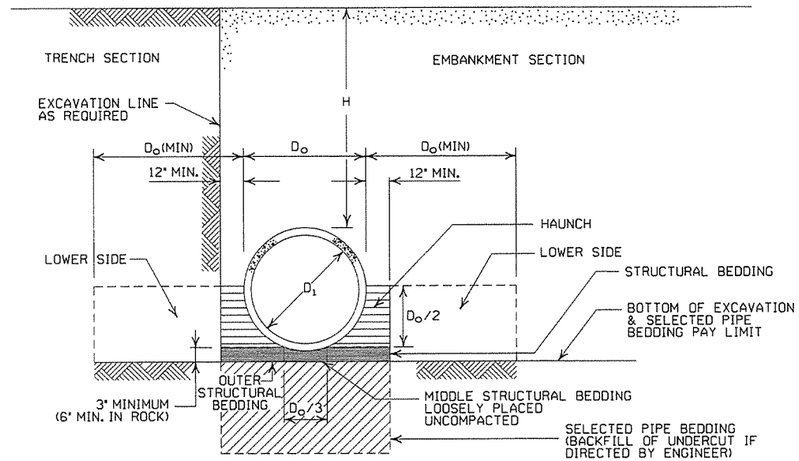
- LEGEND -

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 STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

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 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.

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)		MAX. HEIGHT OF FILL, "H" (FT.)
				INSTALLATION		INSTALLATION		INSTALLATION		INSTALLATION
				TYPE 1		TYPE 1		TYPE 1		TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM				2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM			
15	17x13	3	0.064	2		15	0.060	2		15
18	21x15	3	0.064	2		15	0.060	2		15
21	24x18	3	0.064	2.25		15	0.060	2.25		15
24	28x20	3	0.064	2.5		15	0.075	2.5		15
30	35x24	3	0.079	3		12	0.075	3		12
36	42x29	3½	0.079	3		12	0.105	3		12
42	49x33	4	0.079	3		12	0.105	3		12
48	57x38	5	0.109	3		13	0.135	3		13
54	64x43	6	0.109	3		14	0.135	3		14
60	71x47	7	0.138	3		15	0.164	3		15
66	77x52	8	0.168	3		15				
72	83x57	9	0.168	3		15				
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM							
				INSTALLATION		INSTALLATION				
				TYPE 2	TYPE 1	TYPE 2	TYPE 1			
36	40x31	5	0.079	3	2	12	15			
42	46x36	6	0.079	3	2	13	15			
48	53x41	7	0.079	3	2	13	15			
54	60x46	8	0.079	3	2	13	15			
60	66x51	9	0.079	3	2	13	15			
66	73x55	12	0.079	3	2	15	15			
72	81x59	14	0.079	3	2	15	15			
78	87x63	14	0.079	3	2	15	15			
84	95x67	16	0.109	3	2	15	15			
90	103x71	16	0.109	3	2	15	15			
96	112x75	18	0.109	3	2	15	15			
102	117x79	18	0.109	3	2	15	15			
108	128x83	18	0.138	3	2	15	15			

CONSTRUCTION SEQUENCE

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

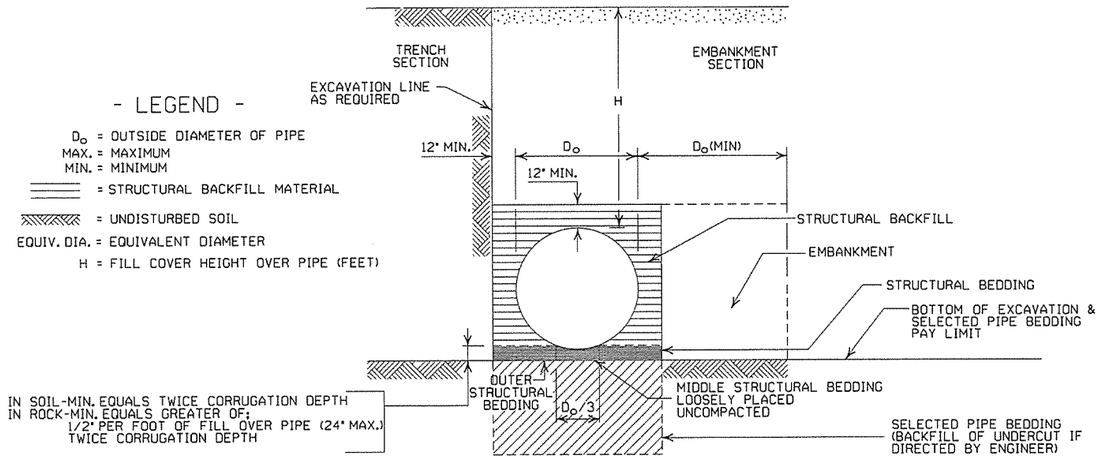
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

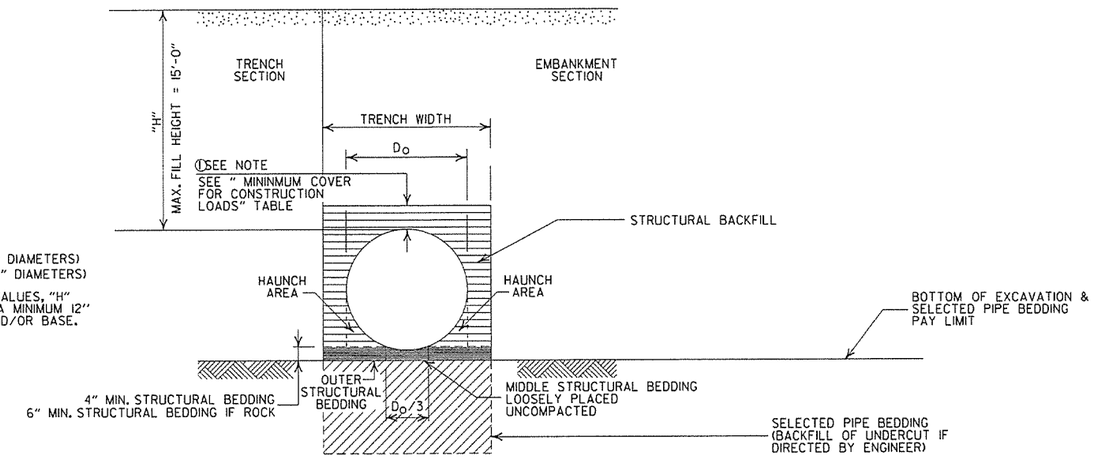
STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF HDPE PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET) "H" < 10'-0"	TRENCH WIDTH (FEET) "H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS 18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
Do = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"

MULTIPLE INSTALLATION OF PVC PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

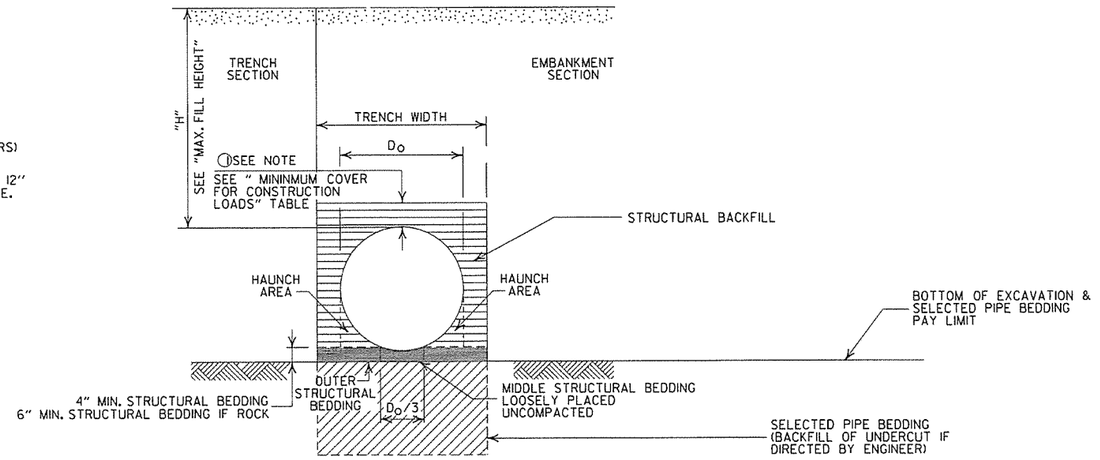
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

① NOTE:
12" MIN. (18" - 36" DIAMETERS)
MINIMUM COVER VALUE, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
18" THRU 36"	2'-0"	2'-6"	3'-0"	3'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
6. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
D_O = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

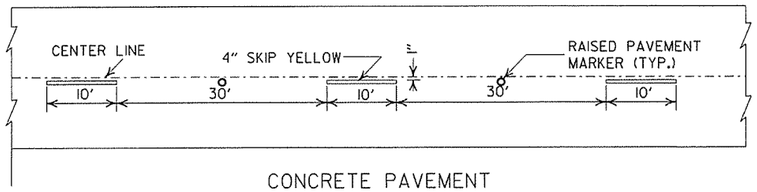
ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (PVC F949)

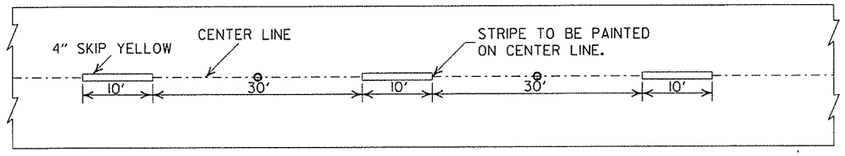
STANDARD DRAWING PCP-2

NOTES:

1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.

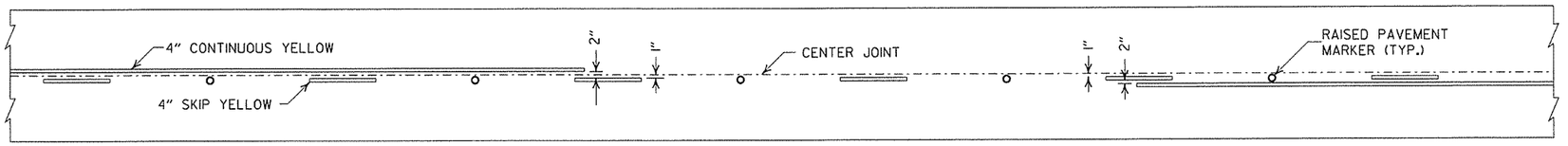


CONCRETE PAVEMENT

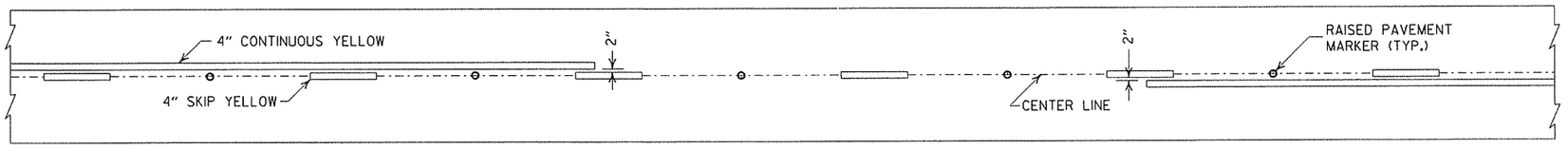


ASPHALT PAVEMENT

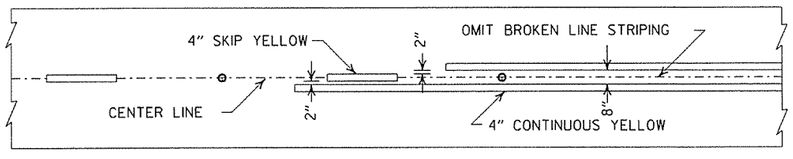
BROKEN LINE STRIPING



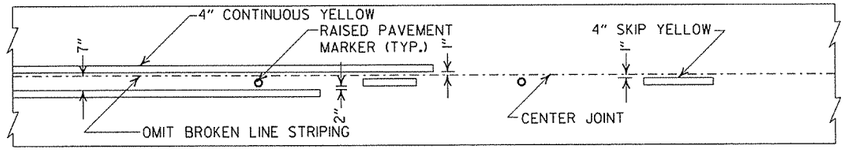
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

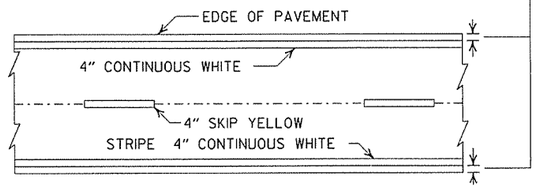


ASPHALT PAVEMENT



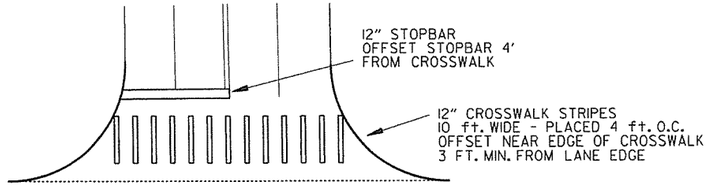
CONCRETE PAVEMENT

2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT

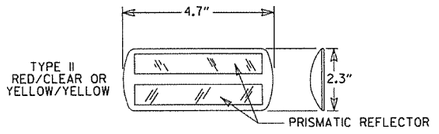


PAVEMENT EDGE LINE MARKING

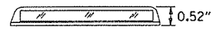
STRIPING AT ADJACENT NO PASSING LANES



CROSSWALK AND STOPBAR DETAILS



NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

NOTE:

DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

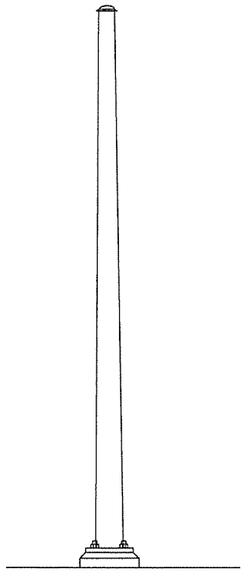
USE FATIGUE CATEGORY II.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH

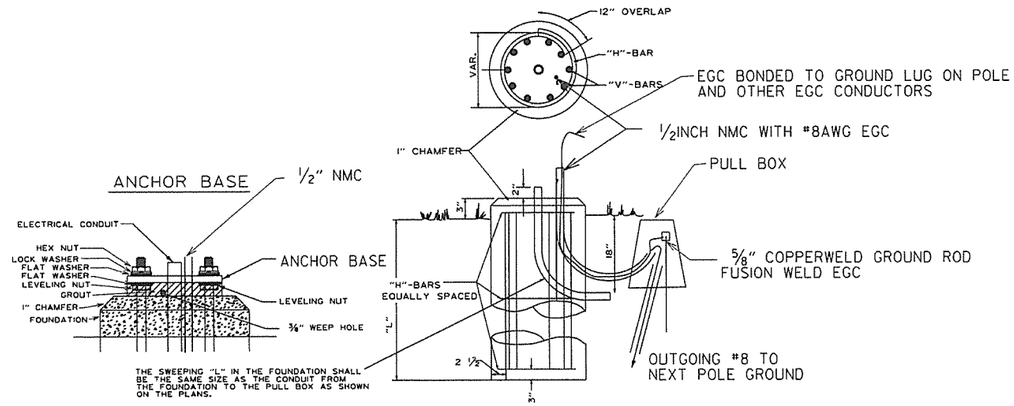
STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN ½" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

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 ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX PAID FOR SEPARATELY AS SHOWN ON THE PLANS.



ANTENNA POLE

NOTE: COMMUNICATION CABLE SHIELD SHALL BE TIED TO GROUND AT ONLY ONE POINT (MASTER CABINET). THE SHIELD SHALL BE MAINTAINED CONTINUOUS (THROUGH ALL SPLICES). PLEASE REFER TO TESTING PROCEDURES IN SPECIAL PROVISIONS.



TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING.

POLE HEIGHT	FOUNDATION DIAMETER	DEPTH 'L'	VERTICAL	HORIZONTAL	TIE SPACING
20.0'	30"	5'-6"	12-#7	#4	5 SP @ 12"
25.0'	30"	6'-0"	12-#7	#4	6 SP @ 11"
30.0'	30"	6'-6"	12-#7	#4	6 SP @ 12"
35.0'	30"	7'-0"	12-#7	#4	7 SP @ 11"
40.0'	30"	7'-6"	12-#7	#4	7 SP @ 12"
45.0'	36"	8'-6"	13-#8	#4	8 SP @ 12"
50.0'	36"	9'-6"	13-#8	#4	9 SP @ 12"
55.0'	36"	10'-0"	13-#8	#4	10 SP @ 11"
60.0'	36"	10'-6"	13-#8	#4	10 SP @ 12"
65.0'	36"	11'-0"	13-#8	#4	12 SP @ 10 ½"
70.0'	36"	11'-6"	13-#8	#4	11 SP @ 12"
75.0'	42"	13'-0"	18-#8	#4	14 SP @ 10 ½"
80.0'	42"	13'-6"	18-#8	#4	13 SP @ 12"
85.0'	42"	14'-6"	18-#8	#4	14 SP @ 12"
90.0'	42"	15'-0"	18-#8	#4	18 SP @ 9 ½"

ALL CONCRETE SHALL BE CLASS "S" WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH F'C=3500 PSI. CONCRETE SHALL BE POURED IN THE DRY AND ALL EXPOSED CORNERS CHAMFERED ¾" UNLESS NOTED OTHERWISE.

ALL REINFORCING STEEL SHALL CONFORM TO AASHTO M31 OR M53, GRADE 40 (YIELD STRENGTH=40,000 PSI).

PROVIDE 3" CLEAR TIES. DETAIL 3" TO FIRST TIE AT TOP OF SHAFT.

DATE	REVISION	DATE FILM
2-27-14	REVISED NOTES.	
9-12-13	ISSUED AS STANDARD DRAWING	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
4-18-08	REVISED AASHTO NOTES	
4-17-08	REVISED TO 2001 AASHTO STANDARDS	
9-6-00	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

ANTENNA POLE

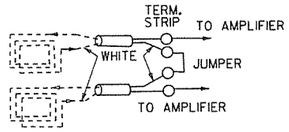
STANDARD DRAWING SD-1

LOOP DETECTOR INSTALLATION AND TESTING

NOTES:

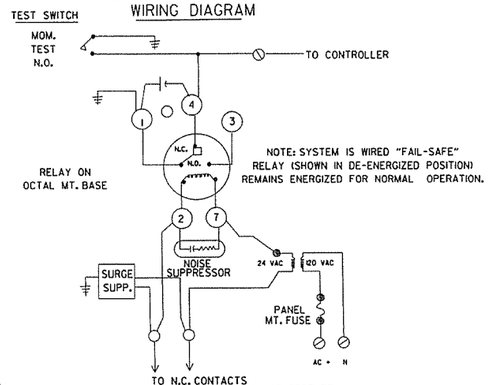
1. LOOPS WITH A PERIMETER GREATER THAN 40' SHALL HAVE TWO TURNS. LOOPS WITH A PERIMETER LESS THAN OR EQUAL TO 40' SHALL HAVE THREE TURNS, UNLESS OTHERWISE NOTED ON THE PLANS. QUADRUPOLE LOOPS SHALL BE TWO TURNS (2-4-2 CONFIGURATION) UNLESS OTHERWISE NOTED.
2. LOOP AND FEEDER WIRE SHALL BE CONTINUOUS WITHOUT SPLICES EXCEPT AT THE LOOP/FEEDER WIRE SPLICE AS SHOWN. SPLICE SHALL BE ROSIN SOLDERED AND WATERPROOFED WITH AN ACCEPTED SPLICE KIT. DRAIN WIRE SHALL BE GROUNDED IN CABINET AND INSULATED AT LOOP TO FEEDER SPLICE.
3. THE LOOP TO FEEDER SPLICE, FEEDER JACKET AND JACKET OF LOOP WIRE IN DUCT SHALL BE COMPLETELY SEALED AND WATERPROOFED.
4. CONTRACTOR MAY MAKE CONNECTIONS TO SIGNAL CABLE AND LOOP TO FEEDER CONNECTION AT TERMINAL STRIPS MOUNTED TO POLE INSIDE HAND HOLD COVER AS SHOWN IN DETAIL. TERMINALS MUST BE EASILY ACCESSIBLE, BUT PROTECTED AGAINST ACCIDENTAL CONTACT. CONNECTION OF POWER CARRYING CIRCUITS MUST BE SEPARATED 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 SEPARATE "FEEDER WIRE" UNLESS OTHERWISE NOTED. ALL FEEDER WIRES SHALL BE LABELED AS TO LOOP NUMBER AS DESIGNATED ON THE PLANS.
6. ALL LOOP WIRE ENTERING PULL BOXES SHALL BE ENCLOSED IN CONDUIT. EACH LOOP WIRE SHALL ENTER PULL BOX OR POLE BASE THROUGH A SEPARATE PIECE OF ONE INCH (1"Ø) 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. WARRANTY PERIOD FOR LOOPS SHALL NOT COMMENCE UNTIL TESTED BY THE CONTRACTOR AND ACCEPTED BY THE ENGINEER. CONTRACTOR SHALL PERFORM TEST AND PROVIDE A RECORD TO THE ENGINEER AS LISTED IN THE DETECTOR LOOP TESTING PROCEDURE.
9. UNLESS OTHERWISE APPROVED BY THE ENGINEER, BACKER ROD SHALL BE INSTALLED IN SHORT SECTIONS SPACED NOT MORE THAN 18" APART AND WEDGED INTO SLOT TO HOLD CABLE IN PLACE. CABLE SHALL BE TOTALLY ENCAPSULATED IN SEALER.
10. "HOT POUR" SEALER SHALL NOT BE ALLOWED WITH 705-LOOP WIRING IN DUCT.
11. WHERE UNDERGROUND SPLICES OF SIGNAL CABLE ARE REQUIRED, CONNECTIONS SHALL BE SOLDERED AND COMPLETELY WATERPROOFED TO THE SATISFACTION OF THE ENGINEER. WATERPROOFING SHALL EXTEND A MINIMUM OF TWO 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. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE. ONLY ONE NEUTRAL IS REQUIRED FOR PEDESTRIAN SIGNALS. A SEPARATE 5C (TYPICAL) IS PROVIDED FOR PEDESTRIAN PUSH BUTTONS.
13. 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 CONTROLLER. CONTROLLER CABINET SHALL BE WIRED SUCH POWER TO LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS DURING FLASH OPERATION.

SERIES CONNECTED LOOPS

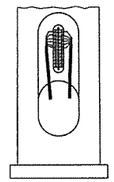


WIND LOOPS COUNTERCLOCKWISE; TAG WIRE EXITING SLOT AND TIE TO WHITE LEAD OF FEEDER WIRE; WHEN LOOPS ARE TIED TO SAME VEHICLE DETECTOR, SERIES CONNECT IN CABINET AS SHOWN.

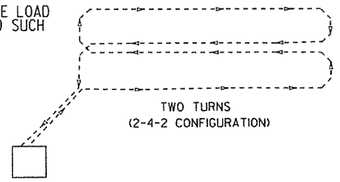
TRAFFIC SIGNAL PRE-EMPTION INTERFACE WIRING DIAGRAM



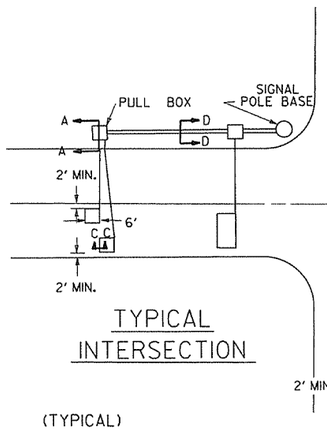
HANDHOLE TERMINAL

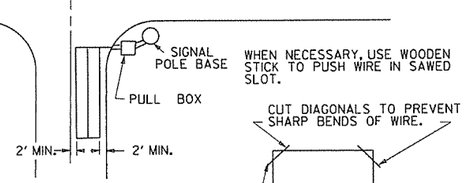


QUADRUPOLE LOOP



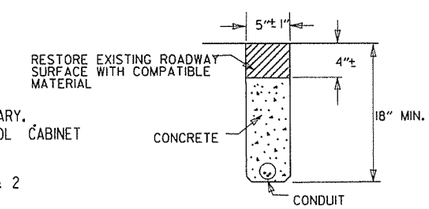
TYPICAL INTERSECTION





TRENCHING DETAIL

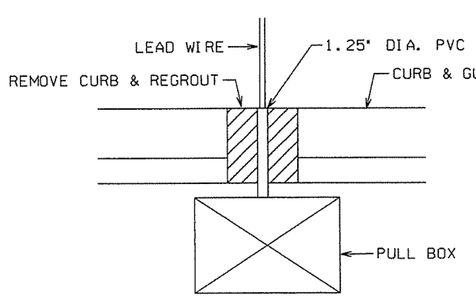
(FOR SAW CUT TRENCH IN ROADWAY)



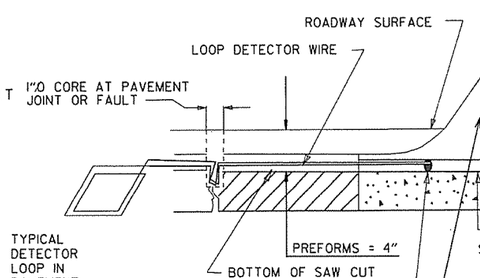
TYPICAL PROCEDURE FOR DETECTOR LOOP TESTING

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 SPLICE (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.



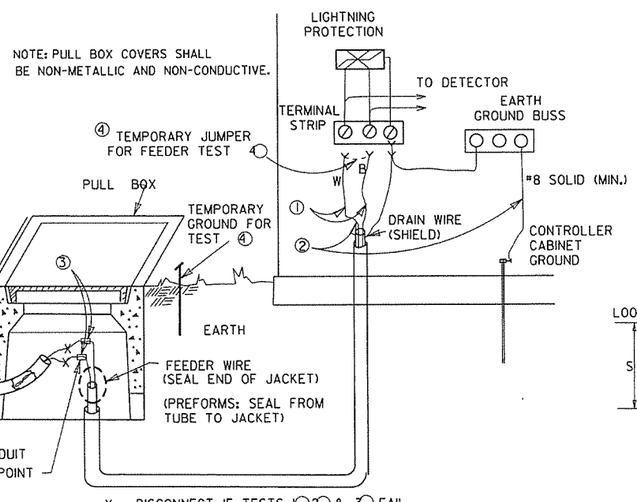
NOTE: CONDUIT SHALL BE INSTALLED IN CURB AS SHOWN OR AS DIRECTED BY THE ENGINEER. END OF CONDUIT SHALL BE WATER-TIGHT.



SECTION A-A

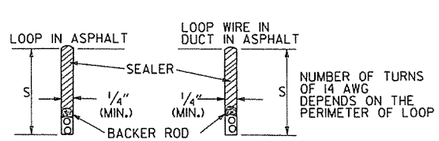
1'-6" CONCRETE COMBINATION CURB AND GUTTER

(TYPICAL)



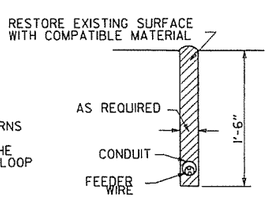
SPECIAL NOTE
IF FEEDER WIRE JACKET IS LEFT UNSEALED AND WATER IS ALLOWED TO ENTER JACKET, CONTRACTOR WILL BE REQUIRED TO REPLACE FEEDER AT NO COST TO THE DEPARTMENT.

TYPICAL SECTIONS FOR PULSE AND PRESENCE LOOP DETECTORS



SECTION C-C

S=2 1/2" IN ASPHALT
S=1 1/2" IN CONCRETE



SECTION D-D

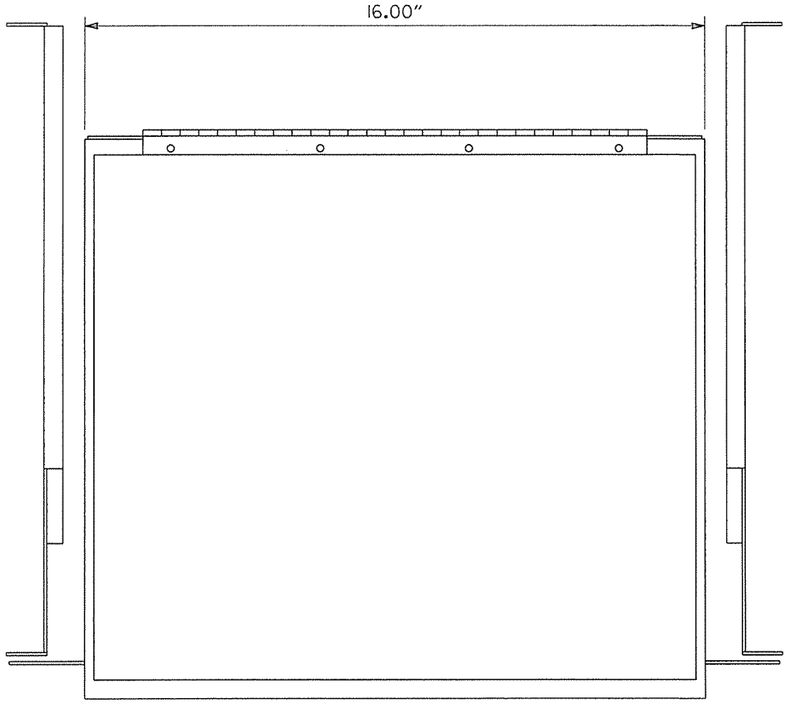
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
5-17-01	REVISED	
4-11-01	REVISED	
2-4-00	REVISED PRE-EMPTION TEST SWITCH	
11-18-98	REVISED NOTES	
11-21-95	ISSUED	

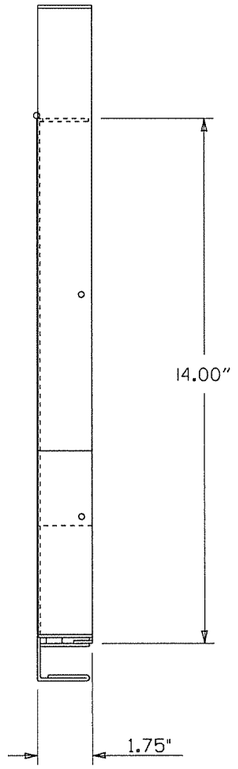
ARKANSAS STATE HIGHWAY COMMISSION

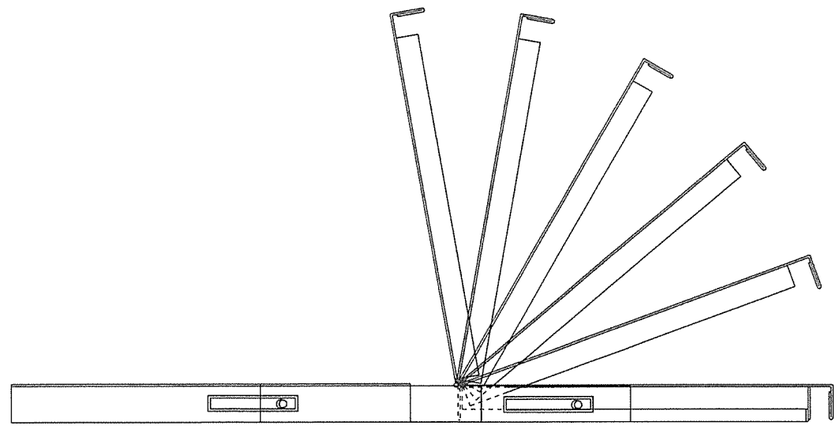
LOOP DETECTOR INSTALLATION

STANDARD DRAWING SD-4

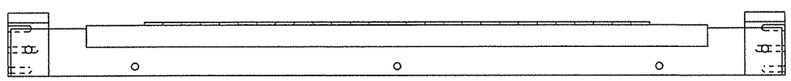
DRAWER PLAN VIEW



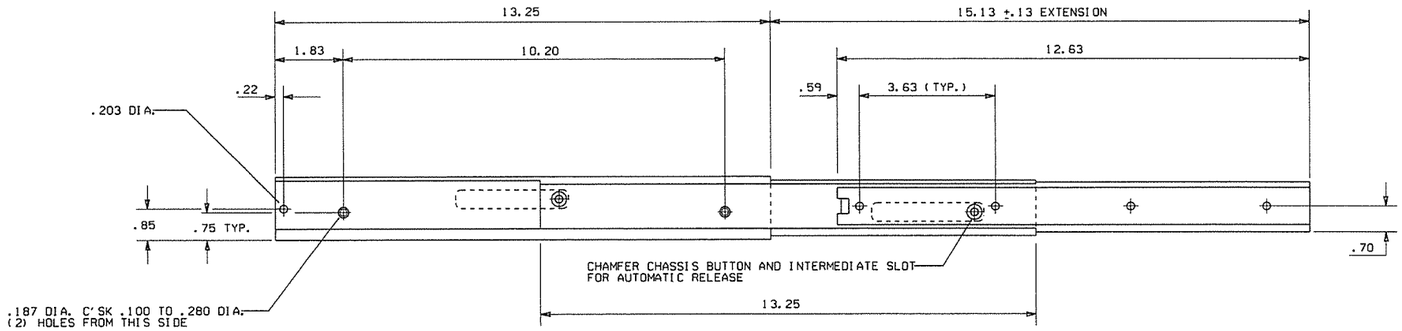




NOTES:
1. RIGHT HAND SLIDE SHOWN, LEFT SLIDE OPPOSITE.
2. GENERAL DEVICES (CC3002-99-0102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.
3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



FRONT VIEW



RIGHT SIDE ASSEMBLY

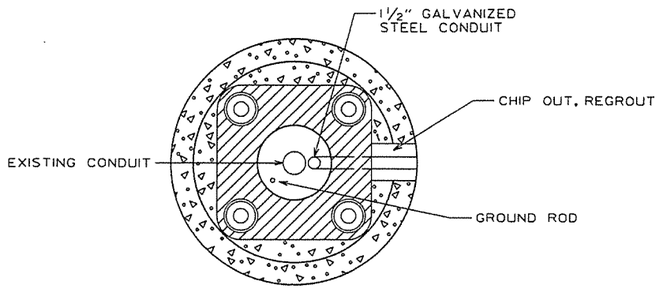
9-12-13	ISSUED AS STANDARD DRAWING	
6-15-05	ISSUED	
DATE	REVISION	DATE FILM

ARKANSAS STATE HIGHWAY COMMISSION

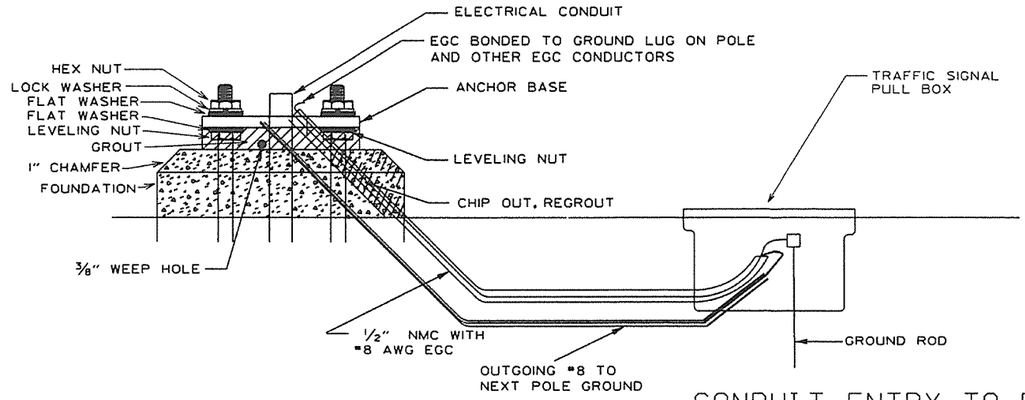
CONTROLLER CABINET
UTILITY DRAWER

STANDARD DRAWING SD-5

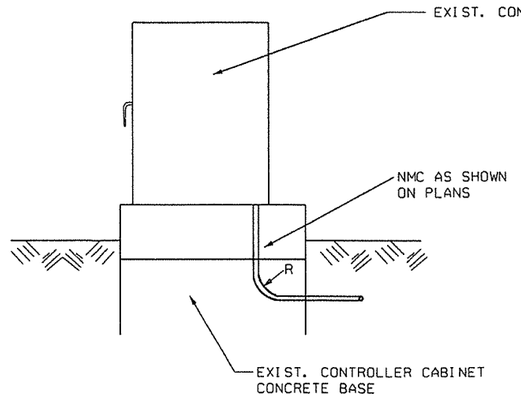
CONDUIT ENTRY TO EXISTING POLE BASE



ANCHOR BASE



CONDUIT ENTRY TO EXISTING CONTROLLER CABINET



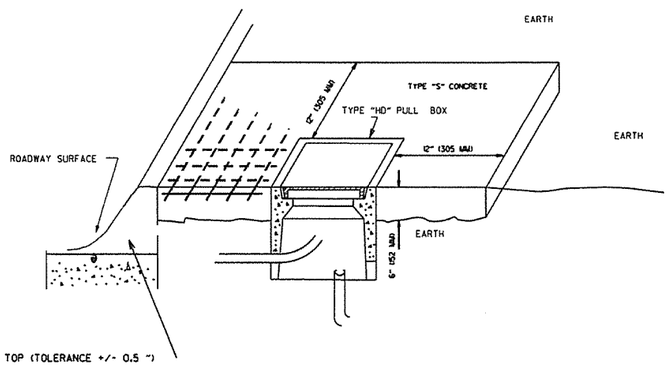
NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.

TYPE "HD" CONCRETE PULL BOX DETAIL

NOTE:
ALL REINFORCING BARS TO BE GRADE 60

TOP

ELEVATION



NOTE: ALL TYPE I AND TYPE 2 HD PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" (305 MM) WIDE AND 7" (178 MM) IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD PULL BOX. 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 PULL BOX IS REQUIRED IN CONCRETE.

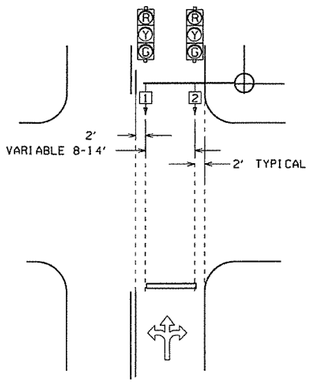
DATE	REVISION	DATE FILM
9-2-15	REVISED PULL BOX DEPTH	
9-12-13	ISSUED AS STANDARD DRAWING	
5-21-09	REVISED GROUNDING	
7-31-08	ADDED & REVISED CONDUIT ENTRY	
6-23-04	REVISED CLEARANCE AT CURB ENTRY	
1-4-02	ADDED REINFORCING TO BOX APRON	
7-2-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

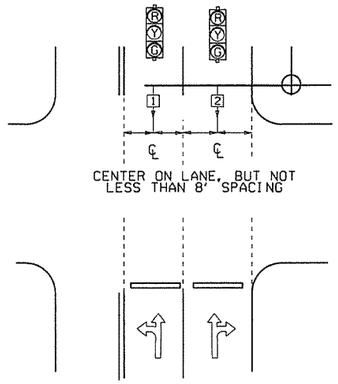
HEAVY DUTY PULL BOX

STANDARD DRAWING SD-6

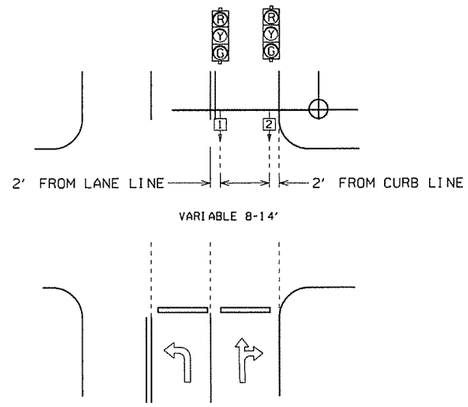
(A)



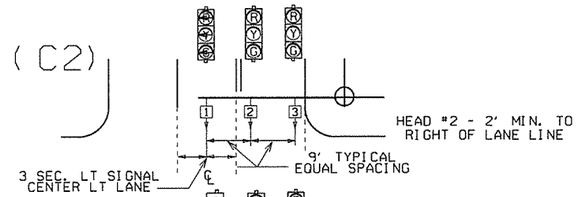
(B)



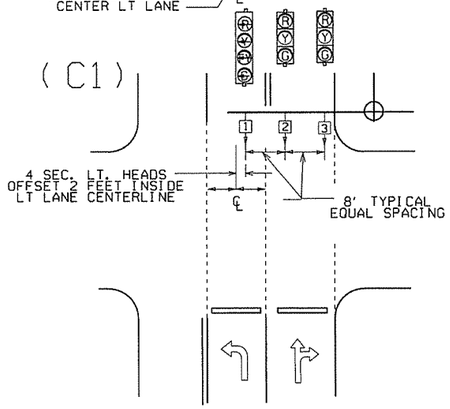
(C)



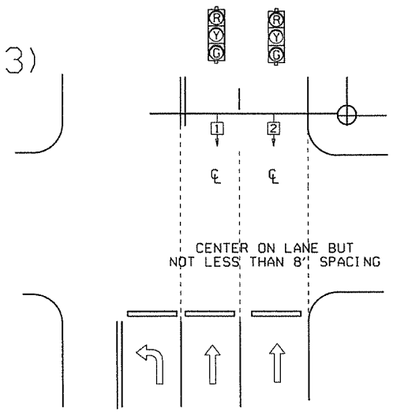
(C2)



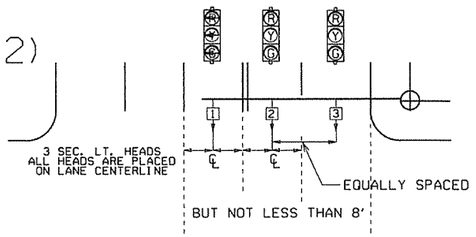
(C1)



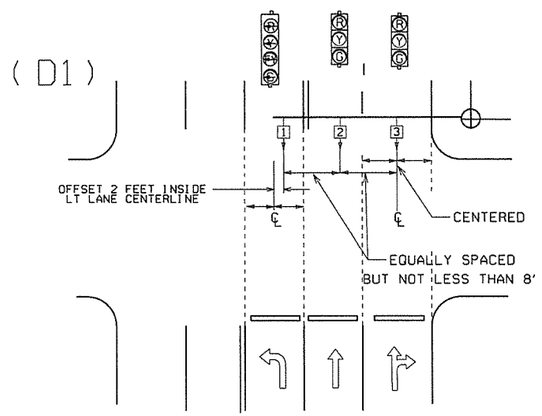
(C3)



(D2)

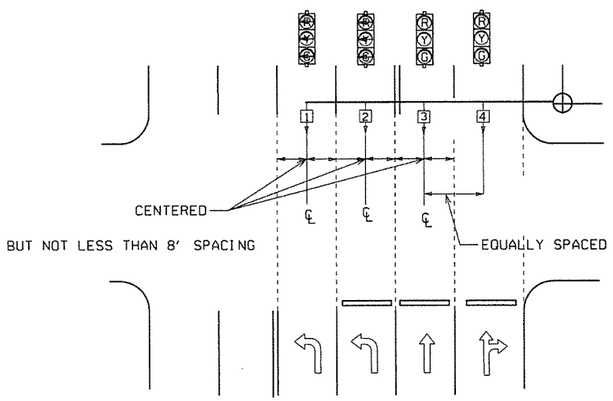


(D1)



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-1 OF 2009 MUTCD.

DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
3-11-10	2009 MUTCD	
12-9-99	ISSUED	

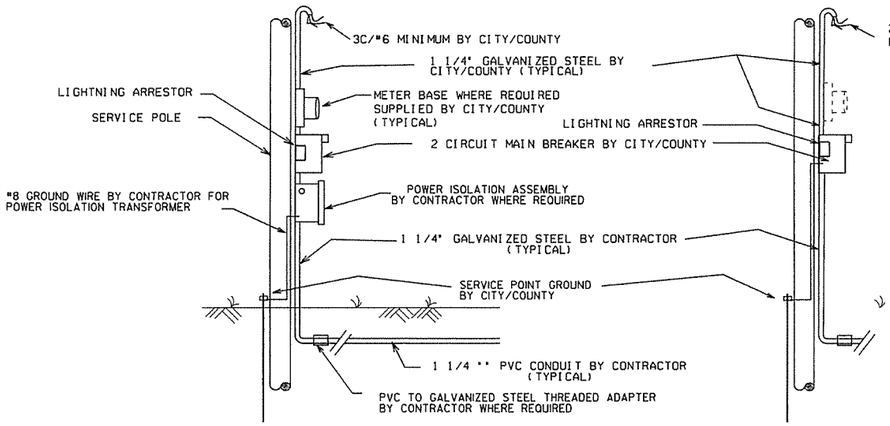
ARKANSAS STATE HIGHWAY COMMISSION

SIGNAL HEAD PLACEMENT

STANDARD DRAWING SD-8

MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

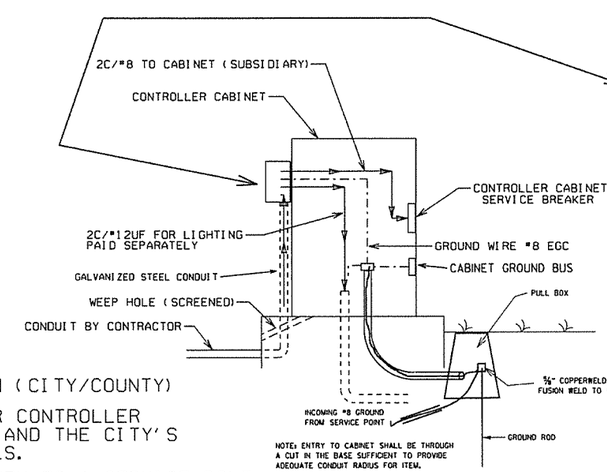
WITH POWER ISOLATION ASSEMBLY

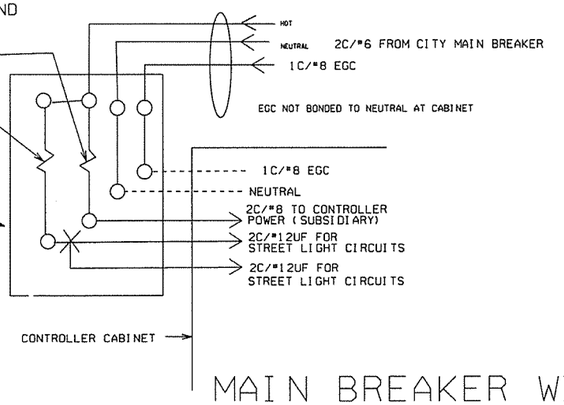


WITHOUT POWER ISOLATION ASSEMBLY

GROUND ROD-A 10' X ⅝" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND ½" NMC SHALL BE INCLUDED IN ITEM 701. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

SECONDARY BREAKER BY CONTRACTOR (SUBSIDIARY)





MAIN BREAKER WIRING (TYPICAL)

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 OR COUNTY'S RESPONSIBILITY VARIES ACCORDINGLY AS INDICATED ON THESE DETAILS.

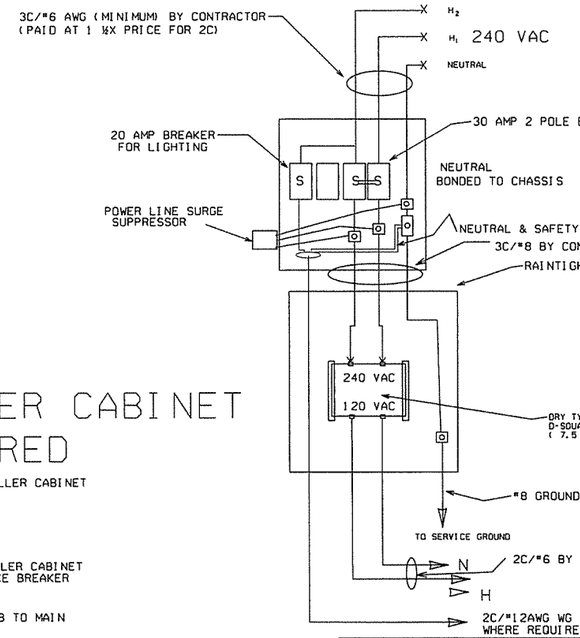
1. ALL SITUATIONS: ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, LIGHTNING ARRESTOR, POWER ISOLATION ASSEMBLY WHERE REQUIRED, METER LOOP IF REQUIRED BY LOCAL UTILITY, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2C/#12 AWG 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.

2. 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.

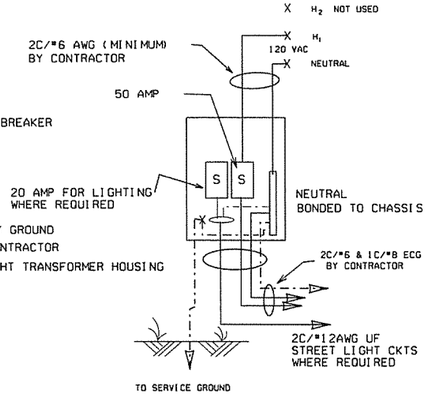
3. MAIN BREAKER NEAR CONTROLLER CABINET: ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER LOOP IS REQUIRED, METER BASE AND HARDWARE IS PROVIDED BY THE CITY/COUNTY AND INSTALLED BY THE CONTRACTOR.

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

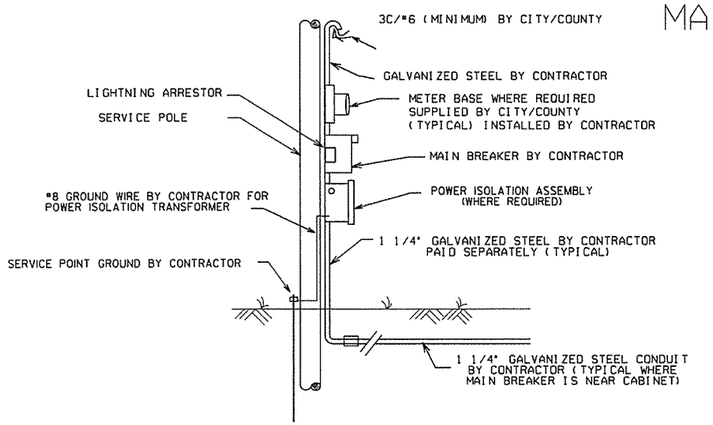


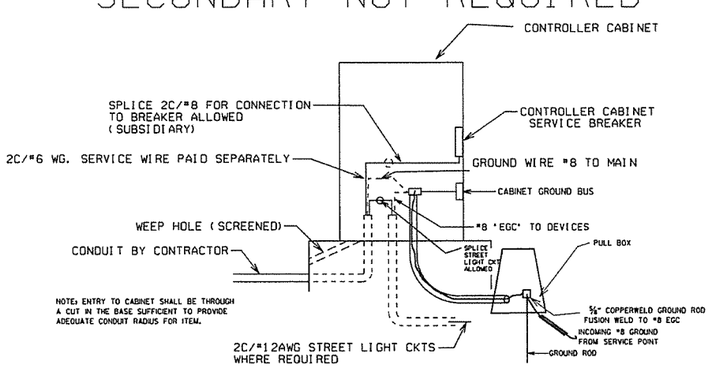
WITHOUT POWER ISOLATION ASSEMBLY
2 CIRCUIT MAIN BREAKER



NOTE: ELECTRICAL GROUND CONDUCTOR (EGG) ADDED 3-3-2003, CONSISTING OF A 1C/#8AWG CU GREEN WIRE AS PER NATIONAL ELECT. CODES.

MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED





DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
4-18-13	ADDED LIGHTNING ARRESTOR	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
3-3-03	ADDED EGC NOTE	
9-26-01	REVISED	
12-27-99	REVISED	
7-28-99	REVISED	
2-5-99	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SERVICE POINT

STANDARD DRAWING SD-9

NOTES, PED 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 SIGN FACES SHALL BE CONSTRUCTED OF HIGH INTENSITY SHEETING (TYPE III) WITH SILKSCREEN LEGEND AND BORDER.

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 4 FT. BEHIND CURB OR SHOULDER.

2. OCTAGONAL POLES AND ARMS MEETING THE REQUIREMENTS OF THE PLANS AND 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 SPEED LIMIT IS GREATER THAN 45 MPH WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY II FOR STRUCTURES ON ROUTES WITH A SPEED LIMIT LESS THAN 65 MPH AND GREATER THAN 45 MPH WITH ARMS LESS THAN 60' AND ROUTES WITH SPEED LIMITS OF 45 MPH AND LESS WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY III FOR ALL STRUCTURES WHERE SPEED LIMIT IS 45 MPH AND LESS AND ARMS LESS THAN 60'.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT 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 1/2" 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, 12 INCH, AND HAVE 5 IN. BACK PLATES:

HEADS AT END OF ARM - ONE 4 SEC., 85 LB., 16.0 SQ. FT. ONE SIGN MOUNTED 3 FT. FROM SIGNAL * 2' X 0' X 2' * 6", 20 LB. REMAINING HEADS SPACED A 8 FT. * 3 SEC., 56 LB., TWO 5 SEC):
14.4 SQ. FT. DESIGN TO ACCOMMODATE (INCLUDING
2 HEADS FOR ARMS 10 TO 16 FT.
2 HEADS FOR ARMS 10 TO 16 FT.; INCLUDING LB.
3 HEADS FOR 18 TO 24 FT. ARMS;
4 HEADS FOR OVER 26 FT. ARMS.

STREET NAME SIGN -- 72" X 18", 36 LB., MOUNTED SUCH THAT OUTSIDE EDGE IS NOT GREATER THAN 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.), 3.3 SQ. FT., 75 LB. PED SIGNALS -- TWO 2 SEC. 12 INCH MOUNTED 8 FT. FROM BASE OF POLE.
POST MOUNTED 3 SEC. SIGNAL HEAD AT 10 FT. ON SIDE OF POLE.

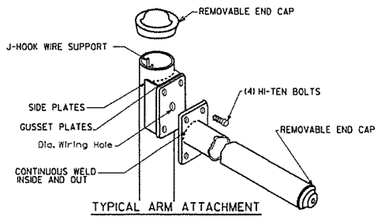
4. POLE/MAST ARM CAP -- POLE AND MAST ARMS CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

5. HAND HOLE -- HAND HOLES SHALL BE 4 X 6 INCHES FOR STANDARD, AND 3 X 5 INCHES FOR PED POLES, MINIMUM PLACED APPROXIMATELY 12 INCHES FROM BASE, AND SHALL BE FIXED WITH A BOLT DOWN COVER. A VACUUM FORMED ABS COVER IS AN ACCEPTABLE ALTERNATE TO STEEL. POLES GREATER THAN 21 FT. IN HEIGHT (FOR ROADWAY LUMINAIRE ATTACHMENT) SHALL INCLUDE A HAND HOLD WITHIN 12 INCHES OF MAST ARM(S) ATTACHMENT(S).

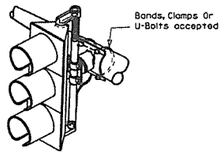
6. POLE/MAST ARM TAPER AND SLOPE - AVERAGE TAPER OF SIGNAL ARMS AND POLE SHALL BE 0.125 TO 0.15 INCHES PER FT.

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 ARM SHALL MAINTAIN A POSITIVE AFTER IT IS PLACED UNDER LOAD.

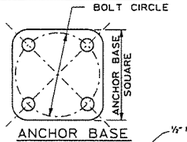
7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.



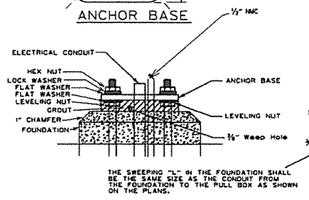
TYPICAL ARM ATTACHMENT

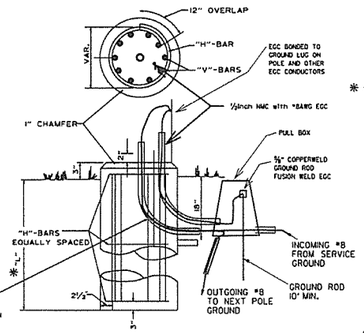


NOTE: THE SIGNAL SHALL BE CONNECTED TO THE MAST ARM BY BRACKETING AS DIRECTED BY THE ENGINEER.



ANCHOR BASE



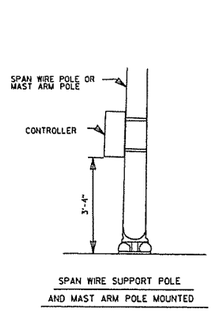


THE GROUND ROD SHALL BE FUSION WELDED TO A IC/#8 A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX.

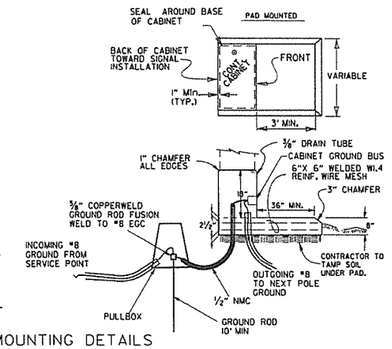
TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING. ALL REINFORCING STEEL SHALL BE GRADE 40 MIN.

ARM LENGTH	FDN. DIAMETER	DEPTH "L" *	STEEL		
			VERT.	HORZ.	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"



SPAN WIRE SUPPORT POLE AND MAST ARM POLE MOUNTED



CONTROLLER CABINET MOUNTING DETAILS

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 5/8" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 714 FOR SIGNAL POLES AND ITEM 701 FOR THE CONTROLLER. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

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 1/4" 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 PED PUSH SWITCH SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM PEDESTRIAN SIGNAL HEAD.

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.

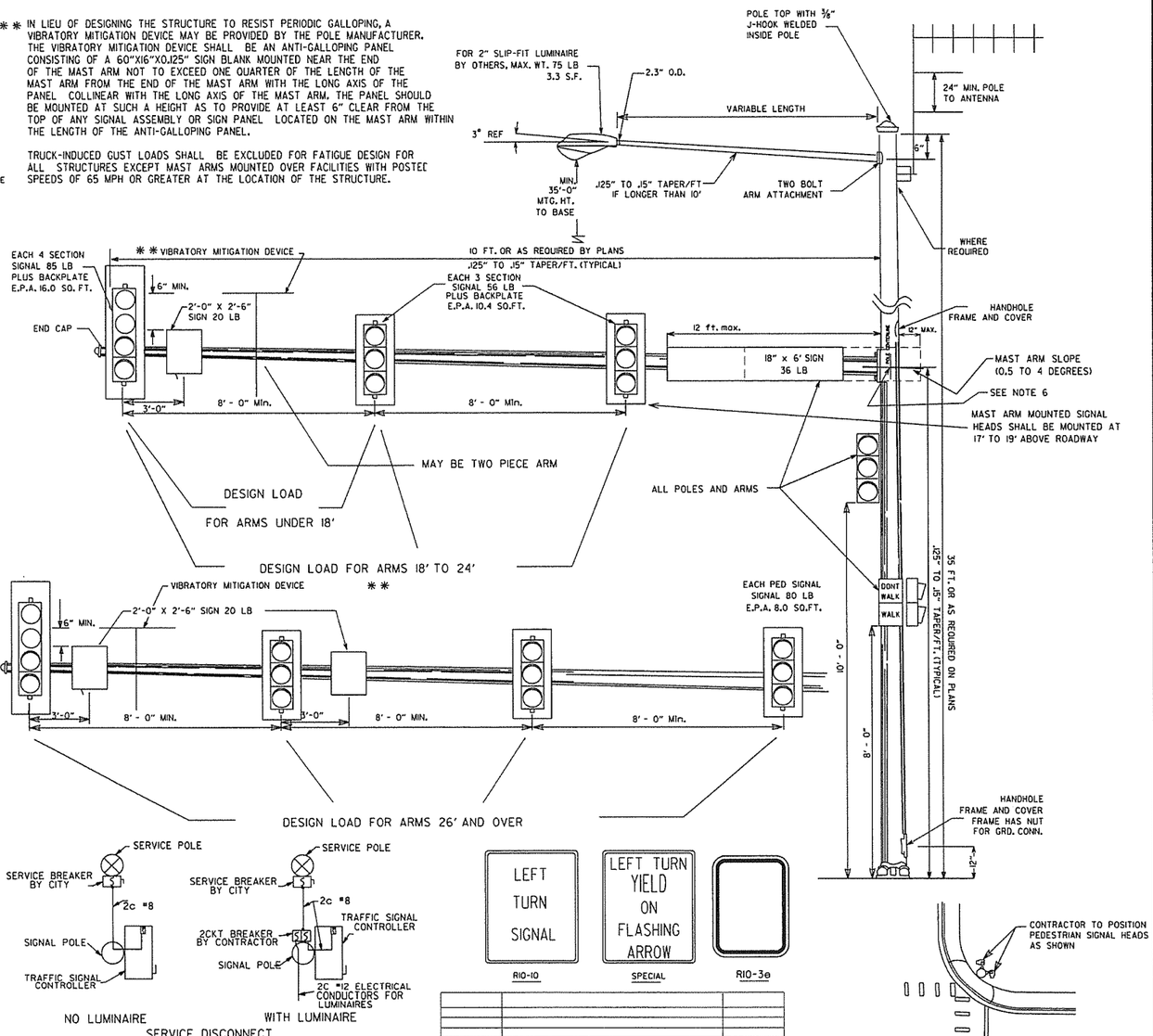
THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD, AT THE TIME INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATIONS IN FLASH SEQUENCE.

SPECIAL NOTE: 90 MPH WIND ZONE DESIGN, SEE NOTE 3. MINIMUM STRUCTURAL REQUIREMENTS.

* 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 OF THE STANDARD SPECIFICATIONS.

** IN LIEU OF DESIGNING THE STRUCTURE TO RESIST PERIODIC GALLOPING, A VIBRATORY MITIGATION DEVICE MAY BE PROVIDED BY THE POLE MANUFACTURER. THE VIBRATORY MITIGATION DEVICE SHALL BE AN ANTI-GALLOPING PANEL CONSISTING OF A 60"X16"XO.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 A HEIGHT AS TO PROVIDE AT LEAST 6" CLEAR FROM THE TOP OF ANY SIGNAL ASSEMBLY OR 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.



SERVICE DISCONNECT

PEDESTRIAN SIGNAL HEADS

DATE	REVISION	DATE FILM
2-27-14	REVISED NOTES.	
9-12-13	ISSUED AS STANDARD DRAWING	
7-21-11	REVISED VMD, SIGNAL HEADS	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
4-25-08	ADDED VIBRATORY MITIGATION DEVICE & NOTES	
4-18-08	REVISED AASHTO NOTES	
4-17-08	REVISED TO 2001 AASHTO STANDARDS	
10-12-04	REVISED CABINET ORIENTATION	
6-23-04	REVISED	
5-1-04	REV. NOTE 3/AASHTO REQUIREMENTS	
6-11-01	REV. NOTES & POLE MAST ARM SLOPE	
4-8-01	REVISED POLE TAPERS	
4-25-00	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

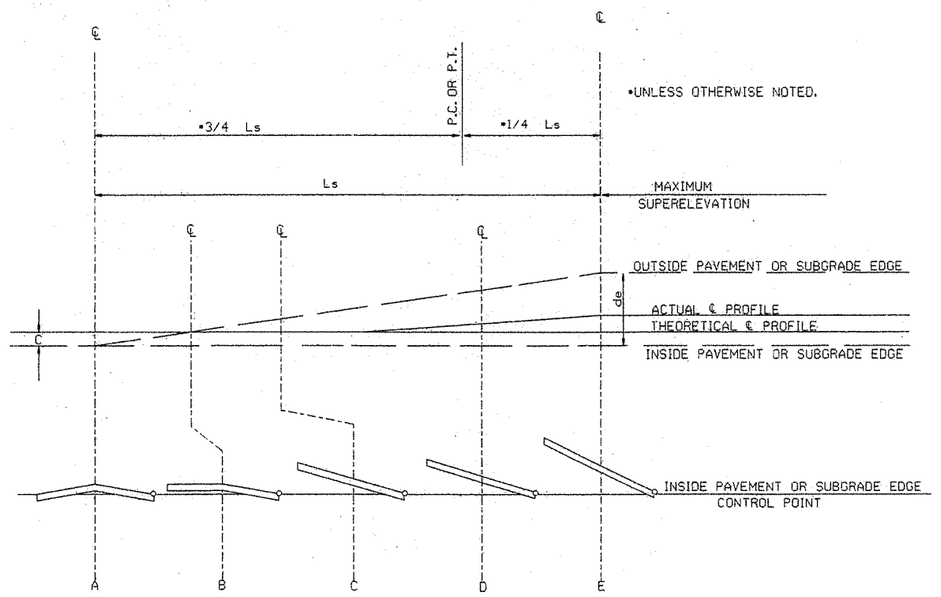
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45′	N.C.			N.C.			R.C.			0.022			0.023			0.028		
1° 00′	N.C.			N.C.			0.021			0.026			0.030			0.037	275	300
1° 15′	N.C.			R.C.			0.026			0.032			0.037			0.046		
1° 30′	N.C.			0.021			0.031	200		0.037	225		0.043	250		0.054		
1° 45′	N.C.			0.025	175		0.036			0.043		300	0.049		300	0.062		
2° 00′	R.C.			0.028			0.040			0.048			0.055			0.070		
2° 15′	R.C.			0.031			0.045		250	0.053			0.061			0.078	300	
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085	315	350
2° 45′	0.023			0.037		200	0.053			0.063			0.072			0.091	335	
3° 00′	0.025			0.040			0.057			0.067	230		0.077	260		0.096	350	400
3° 15′	0.027	150		0.043			0.061			0.072	245		0.082	275		0.098	360	
3° 30′	0.029			0.046			0.065	205		0.076	255		0.086	285		0.100	360	
3° 45′	0.031		200	0.049			0.069	215		0.080	265		0.090	295	350			
4° 00′	0.033			0.051			0.072	225		0.083	270		0.093	305				
4° 30′	0.037			0.056			0.078	240		0.087	280		0.096	315				
5° 00′	0.040			0.061			0.083	250		0.091	295	350	0.098	320				
5° 30′	0.043			0.066	185		0.088	260		0.094	300							
6° 00′	0.046			0.070	190		0.092	270		0.096	305							
6° 30′	0.050			0.074	200		0.095	280	300	0.100	315							
7° 00′	0.053			0.078	210		0.098	285										
7° 30′	0.056			0.081	215		0.099	290										
8° 00′	0.058			0.084	220	250	0.100	290										
8° 30′	0.061			0.087	225													
9° 00′	0.063			0.089	230													
10° 00′	0.068	160		0.094	235													
11° 00′	0.072	170		0.097	250													
12° 00′	0.076	175		0.099	250													
13° 00′	0.080	180		0.100	250													
14° 00′	0.083	190																
15° 00′	0.086	195																
16° 00′	0.089	200																
17° 00′	0.091	200																
18° 00′	0.093	205																
19° 00′	0.095	210																
20° 00′	0.097	215	250															
21° 00′	0.098	215																
22° 00′	0.099	215																
23° 00′	0.099	215																
24° 00′	0.100	220																

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 3° 30′

ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
e - RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
C - NORMAL CROWN (FT.)



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

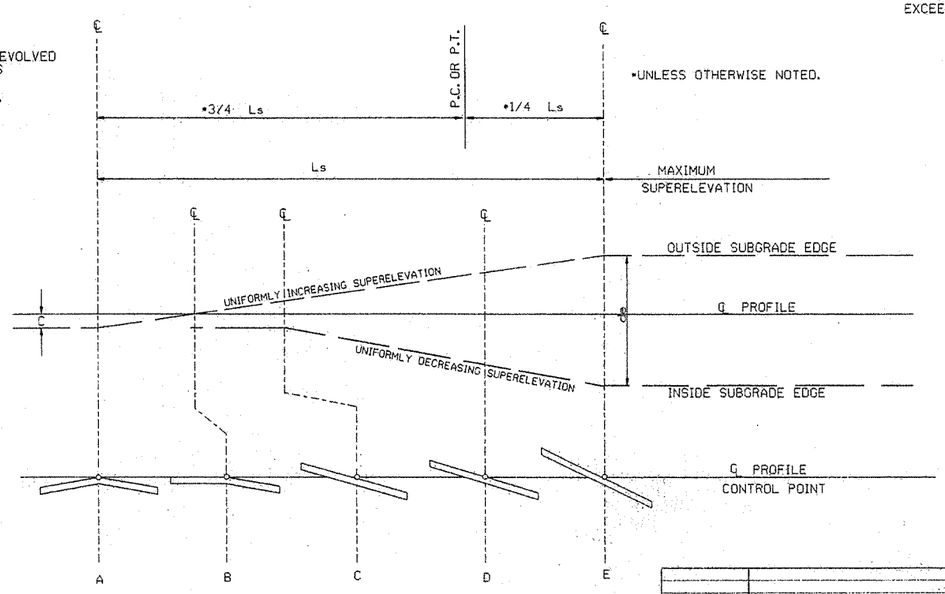
GENERAL NOTES

1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

3 LANE UNDIVIDED - - - - - +20%
4 LANE UNDIVIDED - - - - - +50%
5 LANE UNDIVIDED - - - - - +80%
6 LANE UNDIVIDED - - - - - +100%

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

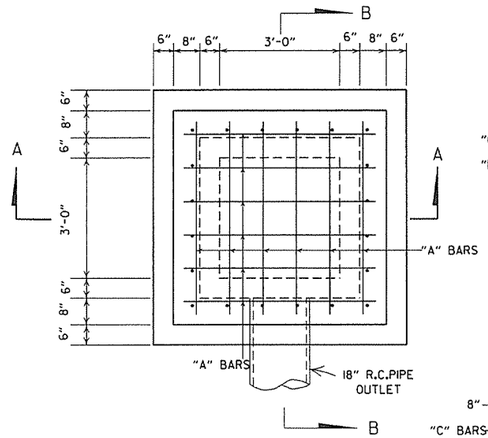
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

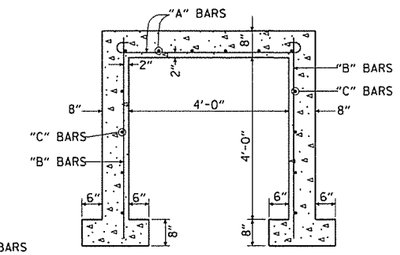
ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

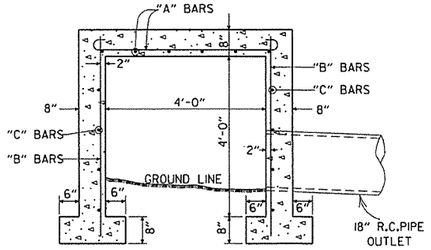
STANDARD DRAWING SE-2

FILE STDSE2.DGN





SEC A-A



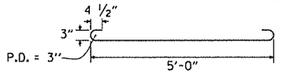
SEC B-B

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

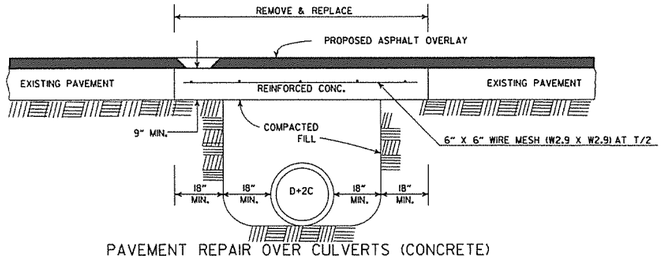
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

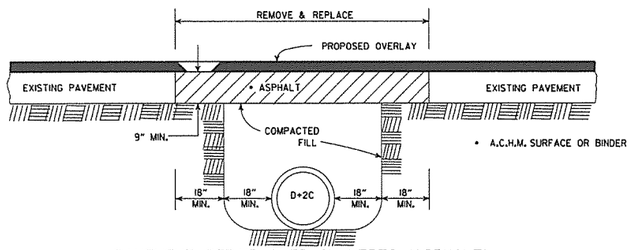
GENERAL NOTE:

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



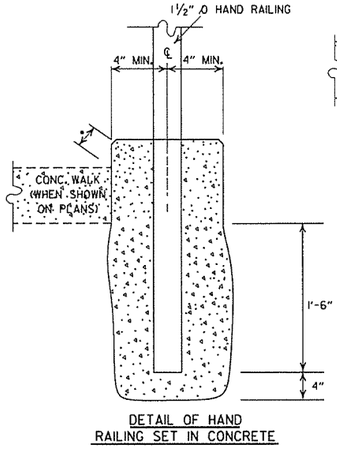
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



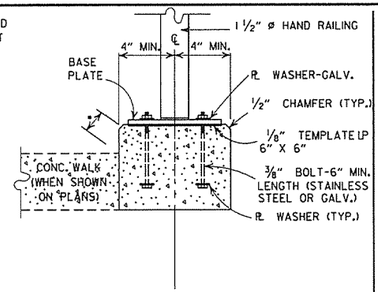
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

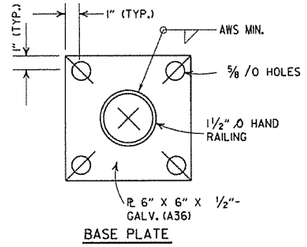
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

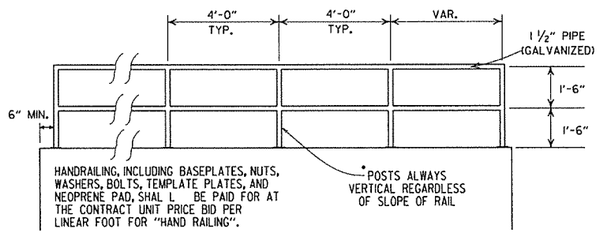


POST CONNECTION TO WALL

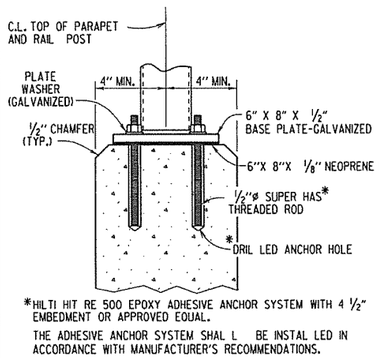


BASE PLATE

POST CONNECTION DETAILS



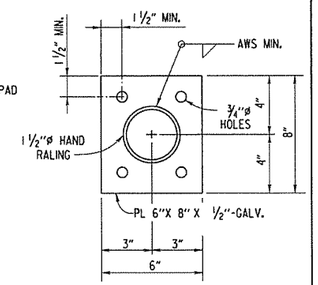
HAND RAILING SHAL L CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHAL L BE INSTAL LED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

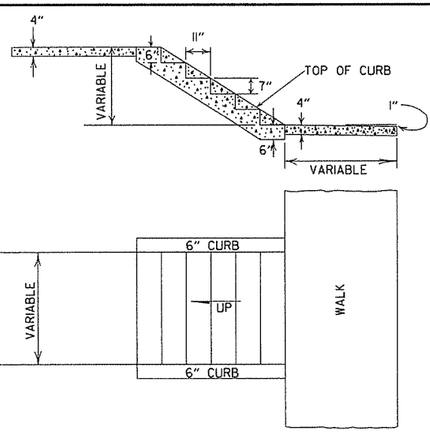
POST CONNECTION TO WALL



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
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE;REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V, BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

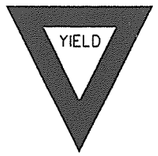
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI - 1

R1-1

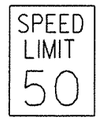
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

W3-5

STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

W3-5a

STD. 36"X36"
EXPWY. 48"X48"
FWY. 48"X48"

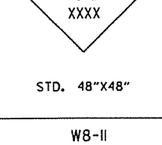
R4-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

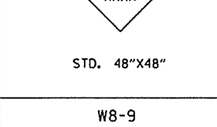
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



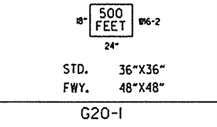
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2



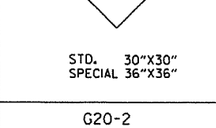
48"X30"

RII-3A



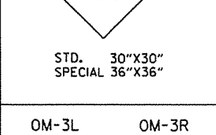
60"X30"

RII-4



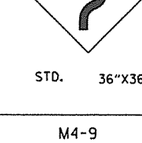
60"X30"

RSP-1



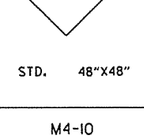
48"X30"

WI-1



STD. 36"X36"
FWY. 48"X48"

WI-2

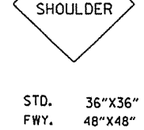


STD. 36"X36"
FWY. 48"X48"

WI-3

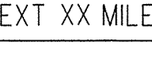
STD. 48"X48"

WI-4



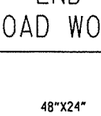
STD. 48"X48"

WI-6



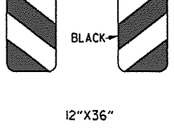
STD. 48"X24"
SPECIAL 60"X30"

WI-8



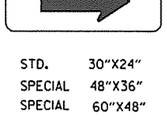
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2

STD. 36"X36"
FWY. 48"X48"

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

EXPWY. 36"X36"
FWY. 48"X48"

W9-2

STD. 36"X36"
FWY. 48"X48"

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

STD. 36"X36"
FWY. 48"X48"

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

R56-1

STD. 18"X18"

W8-11

STD. 36"X36"
FWY. 48"X48"

W8-9

STD. 36"X36"
FWY. 48"X48"

G20-1

60"X24"

G20-2

48"X24"

OM-3L OM-3R

12"X36"

M4-9

STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1

36"X60"

• USE 6" C LETTERS
•• USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ MILE
1500 FT	1 MILE AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

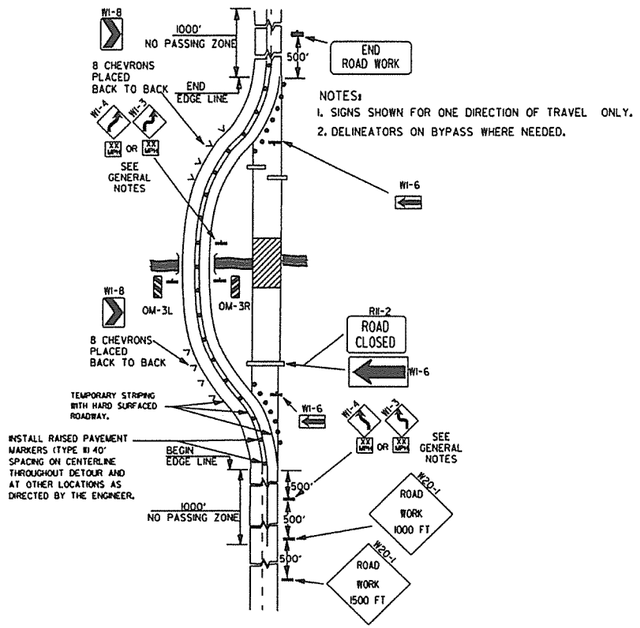
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-9	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

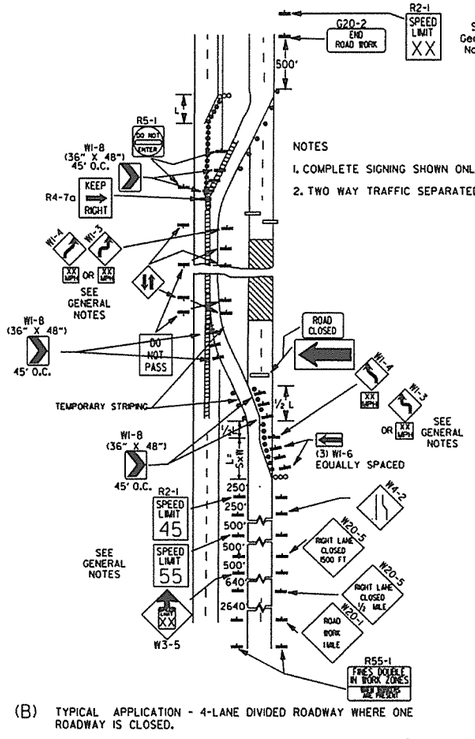
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



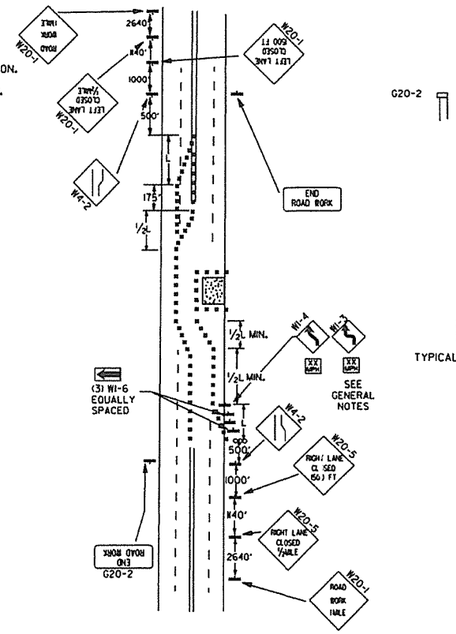
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

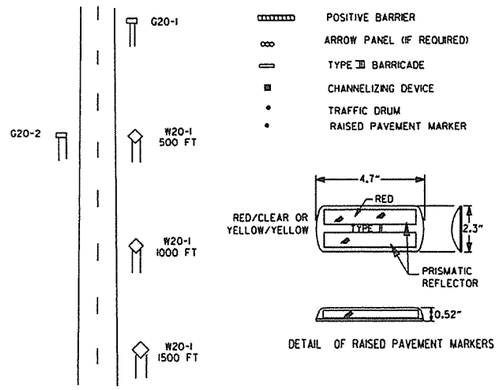


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



TYPICAL ADVANCE WARNING SIGN PLACEMENT

DETAIL OF RAISED PAVEMENT MARKERS

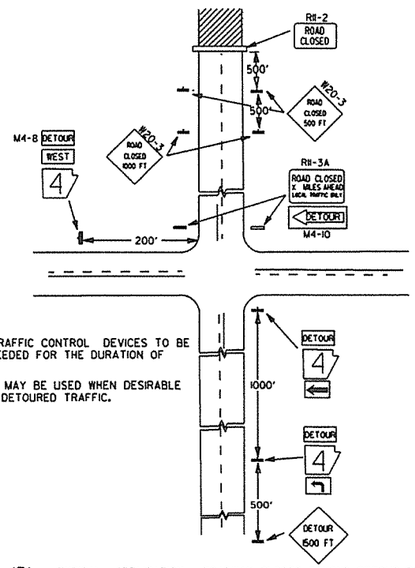
TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

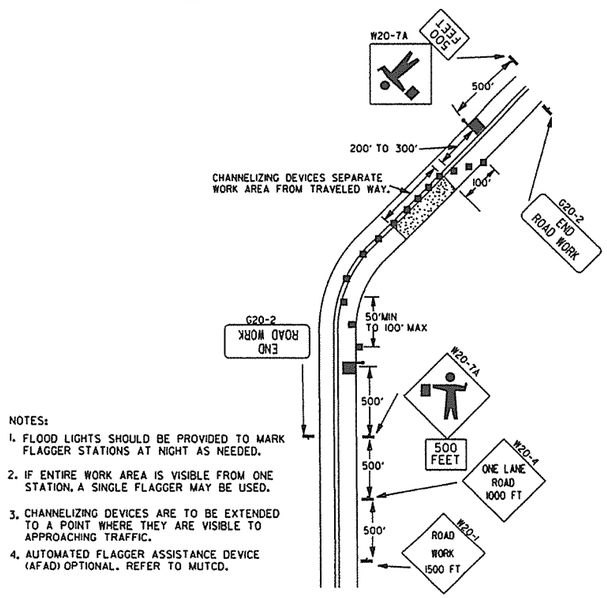
WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

GENERAL NOTES:
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.



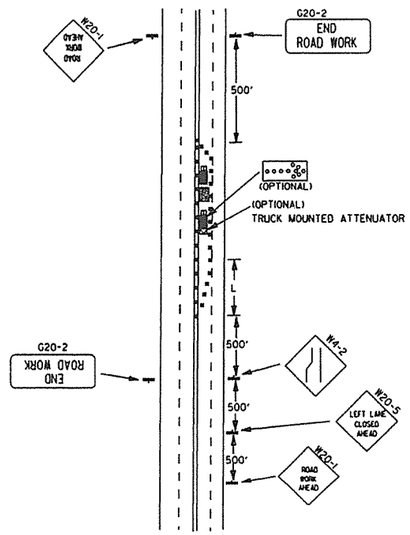
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



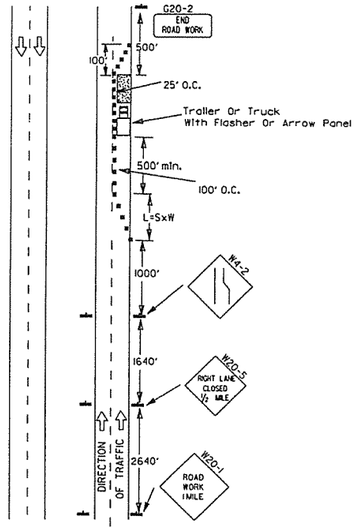
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

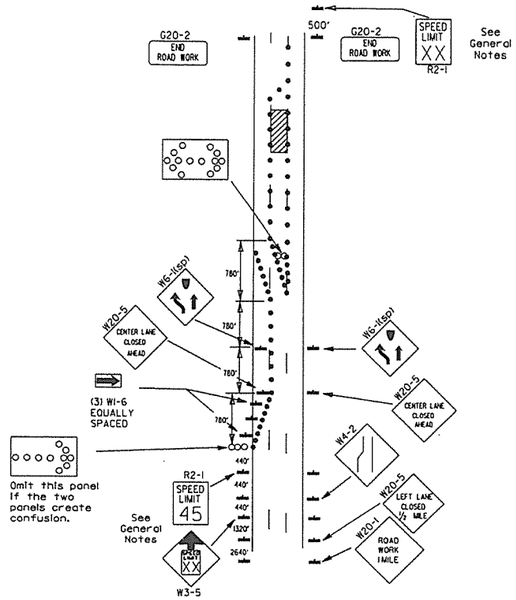
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

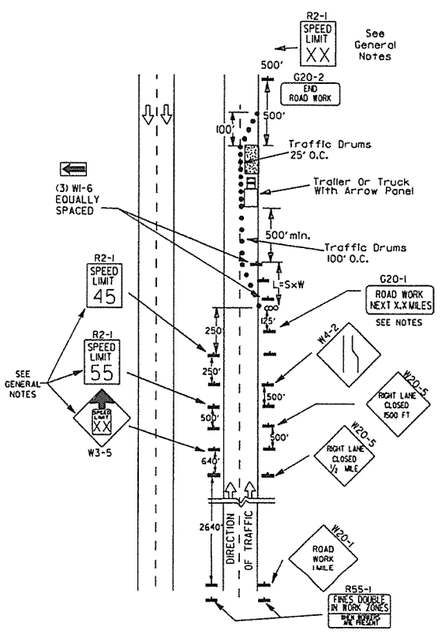
STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



(B) Typical application - 3-lane oneway roadway where center lane is closed.



(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

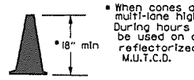
KEY:

- ○○○ Arrow Panel (If Required)
- ■ Channelizing Device
- ● Traffic drum

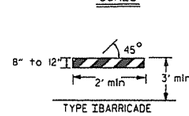
GENERAL NOTES:

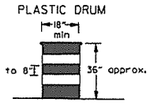
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 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. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

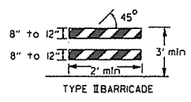
Channelizing devices

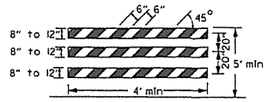


* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

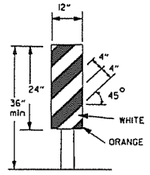








NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

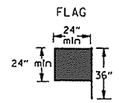


TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

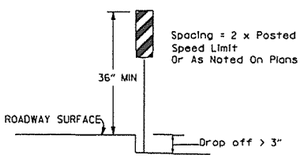
VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

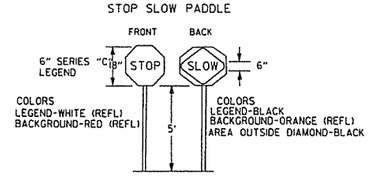
* When shown on the plans concrete barrier will be used.

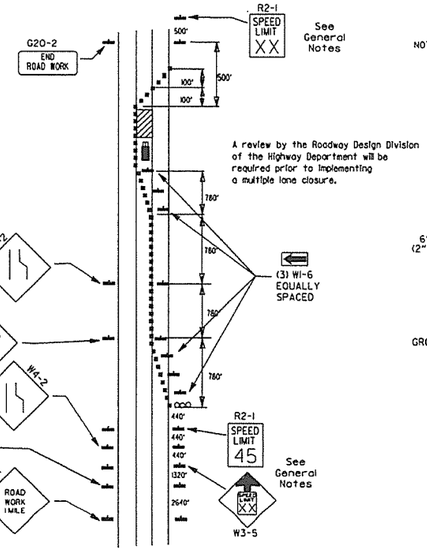
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



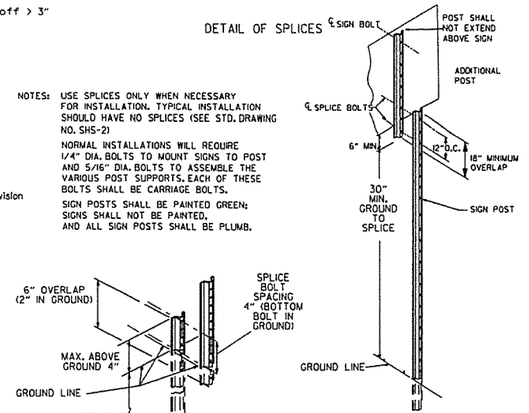
Flag shall be of good grade red material







(D) Typical application - closing multiple lanes of a multilane highway.



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

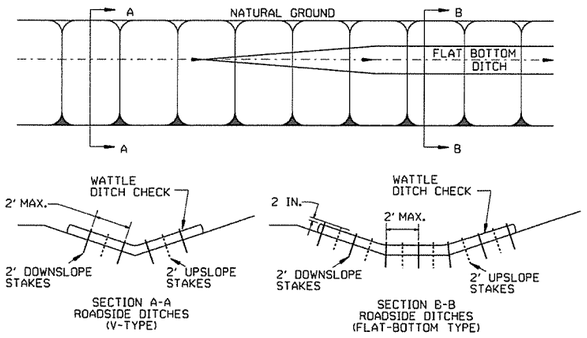
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

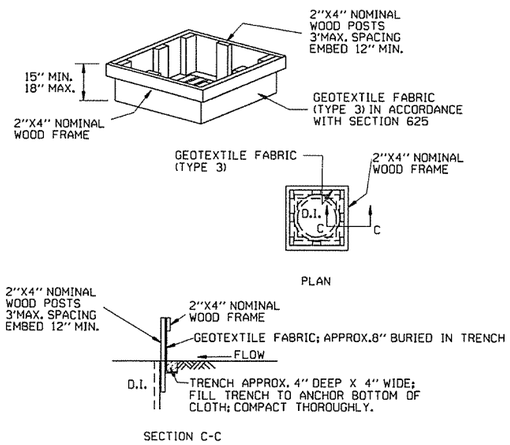
STANDARD DRAWING TC-3

GENERAL NOTES

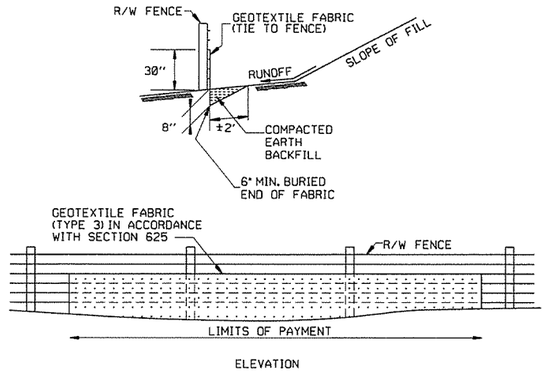
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

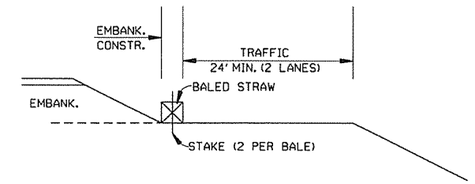
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

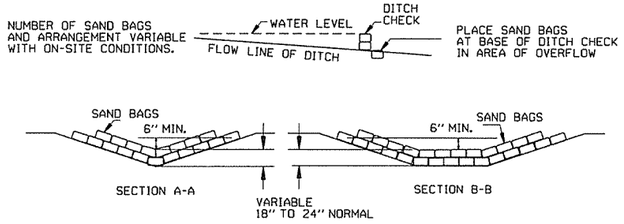
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

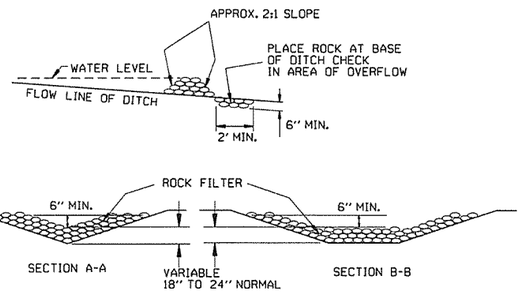
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



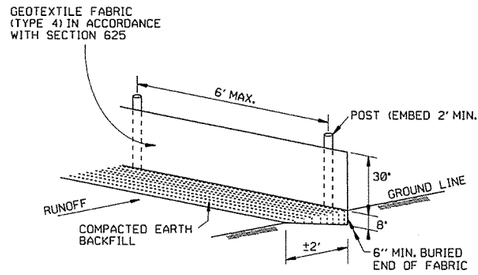
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

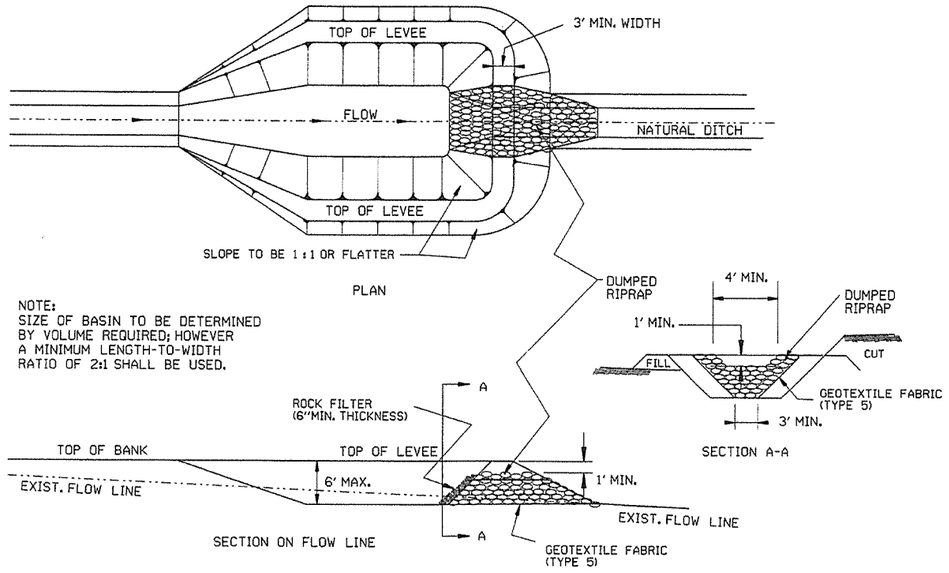
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

DATE	REVISION	FILMED
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
6-2-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
4-1-93	REDRAWN	
10-1-92	REDRAWN	
8-2-76	ISSUED R.D.M.	298-7-28-76

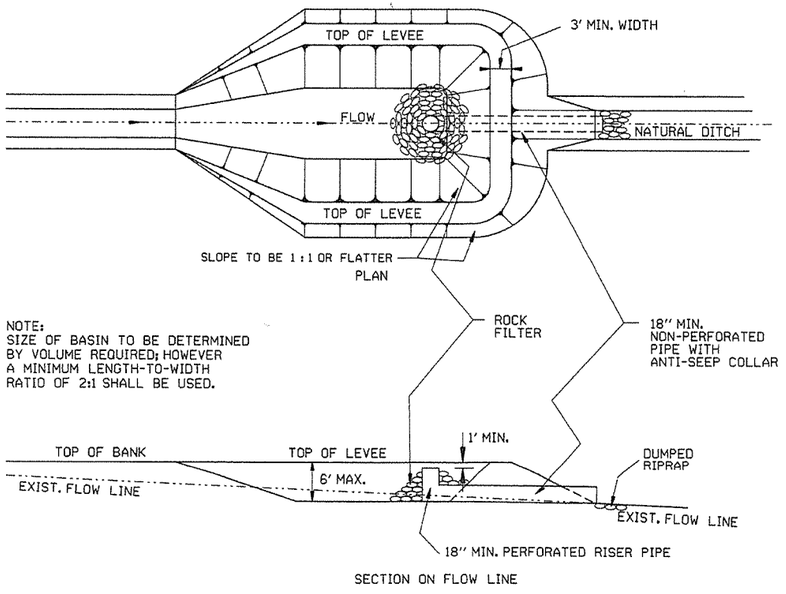
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

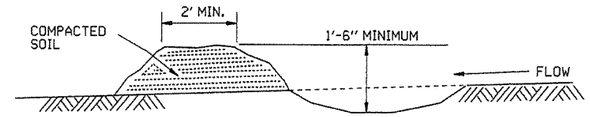
STANDARD DRAWING TEC-1



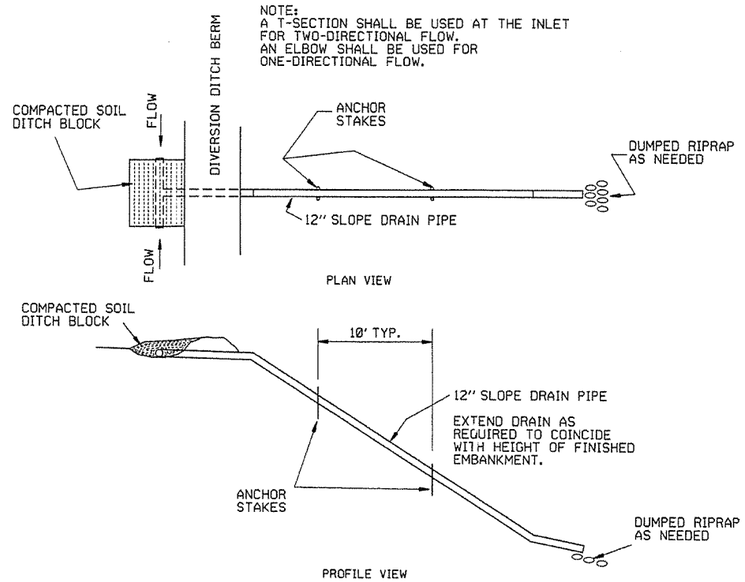
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



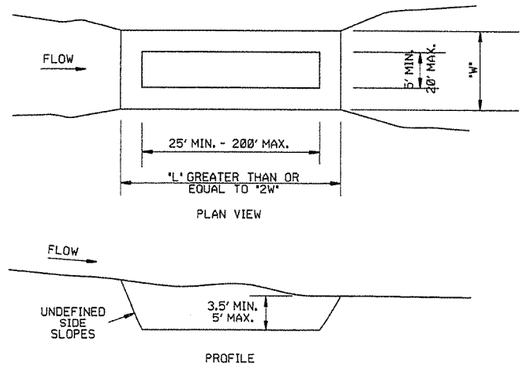
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

DATE	REVISION	FILMED
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13	
4-1-93	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

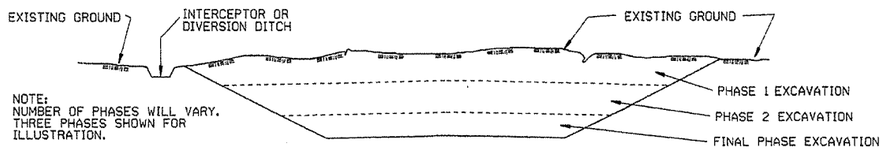
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



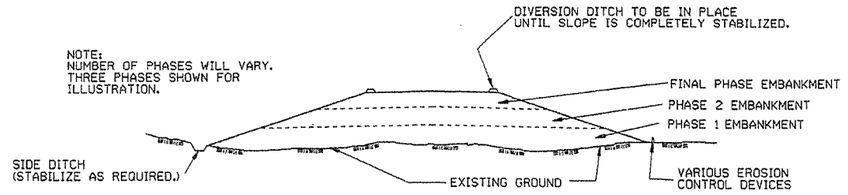
GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES, CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

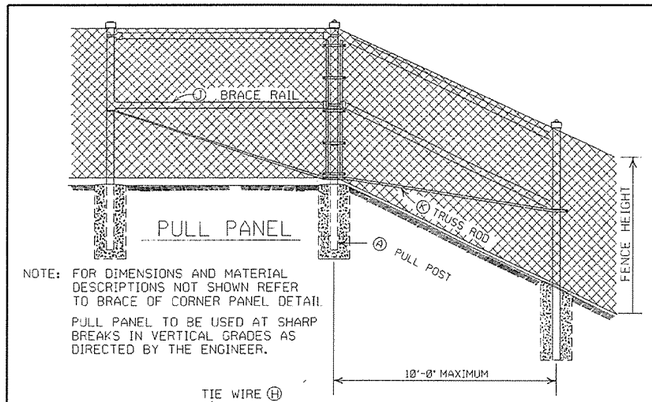
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

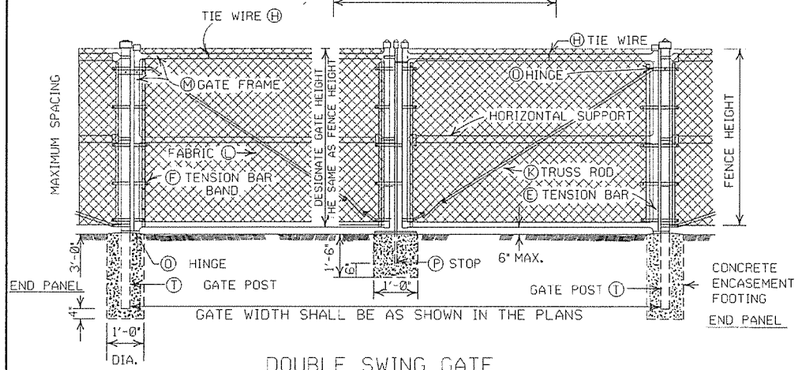
STANDARD DRAWING TEC-3

stdtec3.dgn



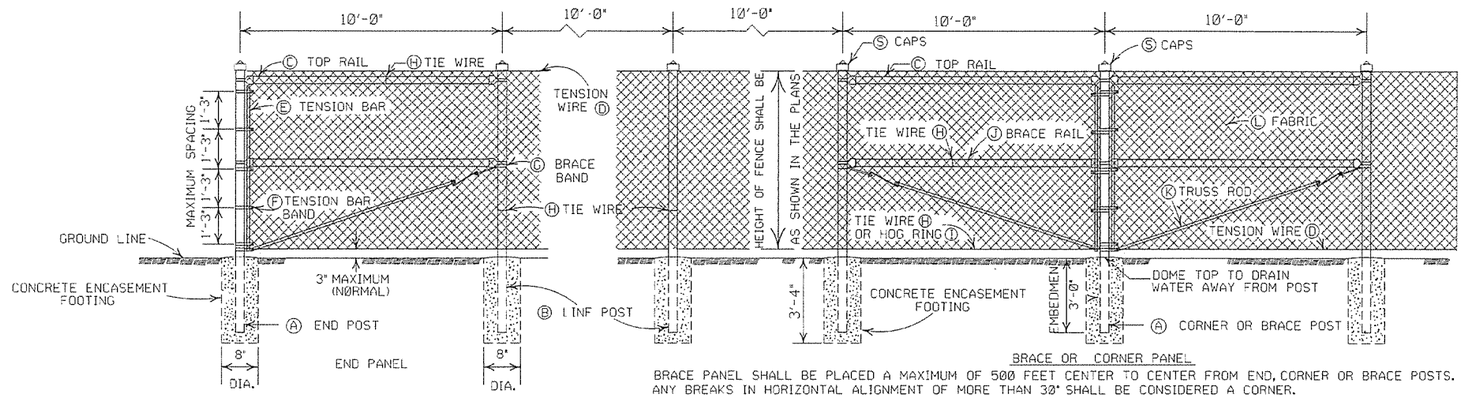
NOTE: FOR DIMENSIONS AND MATERIAL DESCRIPTIONS NOT SHOWN REFER TO BRACE OF CORNER PANEL DETAIL.

PULL PANEL TO BE USED AT SHARP BREAKS IN VERTICAL GRADES AS DIRECTED BY THE ENGINEER.



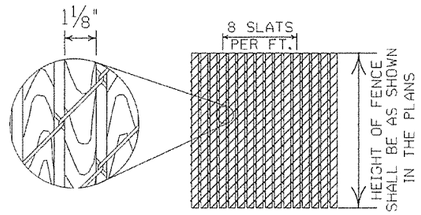
DOUBLE SWING GATE

POST SPACING DETAIL



BRACE OR CORNER PANEL

BRACE PANEL SHALL BE PLACED A MAXIMUM OF 500 FEET CENTER TO CENTER FROM END, CORNER OR BRACE POSTS. ANY BREAKS IN HORIZONTAL ALIGNMENT OF MORE THAN 30° SHALL BE CONSIDERED A CORNER.



1⅛" X ¼" REDWOOD SLATS(LENGTH TO MATCH HEIGHT OF FENCE)

DETAIL OF REDWOOD SLAT INSTALLATION

(WHERE APPLICABLE)

GENERAL NOTES:

(C) CHAIN LINK FENCE BEING PLACED ON PRIVATE PROPERTY SHALL INCLUDE A TOP RAIL. ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LIN. FT. OF CHAIN LINK FENCE.

(D) TENSION WIRE: SHALL BE SECURED TO ALL TERMINAL, PULL, BRACE OR CORNER POSTS WITH TENSION BAR BANDS.

(J) BRACE RAIL: BRACE RAILS SHALL BE PROVIDED AT ALL TERMINAL, PULL, BRACE OR CORNER POSTS HALFWAY BETWEEN THE TOP RAIL AND GROUND LEVEL WHEN TOPRAIL IS SPECIFIED AND TWELVE INCHES (12") DOWN FROM TOP OF FABRIC WHEN TOP TENSION WIRE IS SPECIFIED. BRACE RAIL SHALL EXTEND FROM SUCH POST TO THE FIRST ADJACENT LINE POST.

(L) FABRIC: SHALL CONFORM TO THE SPECIFICATIONS.

(M) GATE FRAMES: SHALL BE CONSTRUCTED OF TUBULAR MEMBERS ASSEMBLED BY USE OF HEAVY PRESSED STEEL, MALLEABLE FITTINGS OR BY WELDING. ALL GATES SHALL HAVE ONE HORIZONTAL SUPPORT EXTENDING THE WIDTH OF THE GATE AT THE MIDPOINTS OF VERTICAL FRAME MEMBERS. THE COMPLETE FRAME SHALL BE RIGID AND HAVE AMPLE STRENGTH TO BE FREE FROM SAG AND TWIST.

(O) HINGES: SHALL BE OF HEAVY PATTERN, OF ADEQUATE STRENGTH FOR GATE, AND WITH LARGE BEARING SURFACES FOR CLAMPING IN POSITION. THE HINGE SHALL BE OF THE PROPER TYPE TO ALLOW FOR THE DESIGNATED DEGREE OF SWING. THE HINGE SHALL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON.

(P) LATCHES AND STOPS: SHALL BE PROVIDED FOR ALL GATES. GATES SHALL HAVE A DROP BAR LATCH. LATCHES SHALL BE ARRANGED FOR LOCKING. THE STOP FOR DROP BAR LATCHES SHALL BE SET IN CONCRETE AND ENGAGE THE PLUNGER OF THE BAR LATCH.

(S) CAPS: ALL POSTS, EXCEPT ROLL FORMED POSTS AND "T" POSTS SHALL BE CAPPED OVER THE EXTERIOR OF THE POST, AND SHALL CONFORM TO ASTM F626.

CONCRETE REQUIRED FOR THE EMBEDMENT OF ALL POSTS SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR CHAIN LINK FENCE.

POSTS SHALL BE SPACED EQUIDISTANT ON A MAXIMUM OF 10' CENTERS.

EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

HEIGHT OF FENCE FABRIC	(A) END, PULL CORNER OR BRACE POST	(B) LINE POSTS SIZE	(B) LINE POSTS TIE SPACING	(C) TOP RAIL SIZE	(C) TOP RAIL TIE SPACING	(C) TOP RAIL MIN. LENGTH	(D) TENSION WIRE SIZE	(D) TENSION WIRE TIE SPACING	(E) TENSION BAR SIZE	(E) TENSION BAR LENGTH
6' AND LESS	2½" O.D.	2" O.D.	1 TIE EVERY 1'-2" OF FABRIC HEIGHT	1⅝" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	MIN. OF ⅜" X ¾"	MIN. OF 2" LESS THAN FABRIC HEIGHT
OVER 6' TO 12' INCL.	3 " O.D.	2½" O.D.								

HEIGHT OF FENCE FABRIC	(F) TENSION BAR BAND SIZE	(F) TENSION BAR BAND BOLT SIZE	(F) TENSION BAR BAND SPACING	(G) BRACE BAND SIZE	(G) BRACE BAND BOLT SIZE
6' AND LESS	MIN. OF ¾" X 0.074	⅝" X 1¼"	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	MIN. OF ¾" X 0.105	⅝" X 1¼"
OVER 6' TO 12' INCL.					

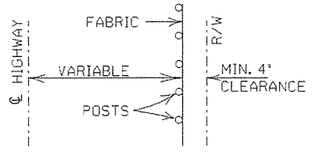
HEIGHT OF FENCE FABRIC	(H) TIE WIRE	(I) HOG RING	(J) BRACE RAIL SIZE	(J) BRACE RAIL TIE SPACING	(K) TRUSS ROD	(L) FABRIC SIZE	(L) FABRIC MESH	(L) FABRIC SELVAGE
6' AND LESS	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1⅝" O.D.	1 TIE EVERY 2'-0"	MIN. OF ⅝" ROUND WITH TIGHTNERS AND FITTINGS	9 GA.	2"	KNUCK -ING AND/OR TWIST -ING
OVER 6' TO 12' INCL.								

HEIGHT OF FENCE FABRIC	(M) GATE FRAME SIZE	(M) GATE FRAME TIE SPACING	(N) HORIZONTAL SUPPORT SIZE	(N) HORIZONTAL SUPPORT TIE SPACING	(O) HINGE TYPE 180° SWING	(T) GATE POST GATE WIDTH 12' AND LESS	(T) GATE POST GATE WIDTH OVER 12' TO 24' INCL.
6' AND LESS	2" O.D.	1 TIE EVERY 1'-0"	2" O.D.	1 TIE EVERY 1'-0"	OFFSET	3" O.D.	4" O.D.
OVER 6' TO 12' INCL.						4" O.D.	

NOTE: POST SIZES SHOWN ARE FOR STEEL. WHERE ALUMINUM IS PROVIDED, LINE POSTS SHALL HAVE AN OUT SIDE DIAMETER OF 2½" FOR FENCE HEIGHT OF 6' AND LESS, AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' TO 12'. END, PULL, CORNER OR BRACE POSTS SHALL HAVE AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' AND LESS; AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHTS OF 6' TO 12'. GATE POSTS WHERE GATE WIDTH IS 12' AND LESS SHALL HAVE AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHT OF 6' AND LESS. ALUMINUM TENSION WIRE SHALL BE 0.192" IN DIAMETER. MINIMUM THICKNESS OF MATERIAL FROM WHICH EXPANSION SLEEVES SHALL BE MADE WILL BE 0.078". POSTS AND RAILS MAY HAVE ANY CROSS-SECTIONAL SHAPE THAT WILL MEET THE SPECIFICATIONS.

OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

ALL MISCELLANEOUS FITTINGS AND HARDWARE SHALL MEET THE REQUIREMENTS AND PRODUCTION TOLERANCES AS SET FORTH IN THE SPECIFICATIONS.
9 GAUGE ALUMINUM WIRE SHALL BE ACCEPTABLE FOR TIEING FABRIC TO TUBULAR AND ROLL FORMED MEMBERS OF STEEL FENCE.



INSTALLATION MAY BE MODIFIED AS SHOWN IN THE PLANS

TYPICAL INSTALLATION DIAGRAM

POSTS AND RAILS

SIZE O.D.	GRADE 1 AND ALUMINUM ALLOY O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT. STEEL	LBS. PER LINEAR FT. ALUMINUM	GRADE 2 O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.
1⅝	1.660	0.140	2.27	0.786	1.660	0.111	1.84
2	1.900	0.145	2.72	0.940	1.900	0.120	2.28
2½	2.375	0.154	3.65	1.264	2.375	0.130	3.11
3	2.875	0.203	5.79	2.004	2.875	0.160	4.64
3½	3.500	0.216	7.58	2.621	3.500	0.160	5.71
4	4.000	0.226	9.11	3.151	4.000	0.160	6.56

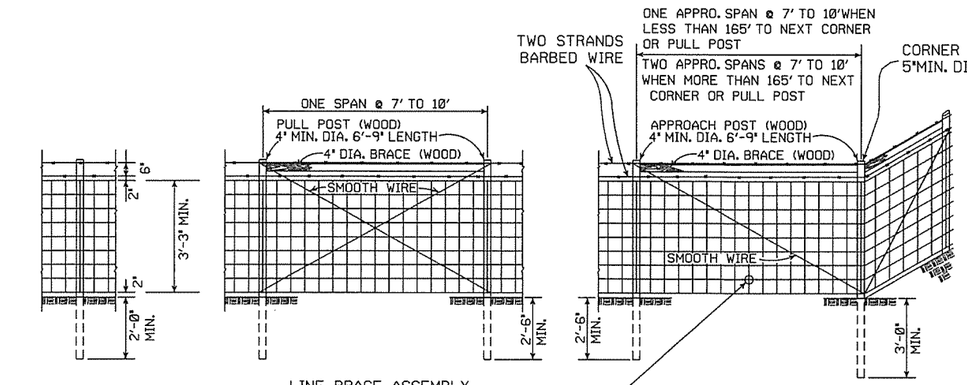
TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181

DATE	REVISION	FILMED
11-17-10	REVISED TRUSS ROD	
12-10-09	REVISED POSTS & RAILS TABLE	
5-21-09	ADDED TABLE & GEN. NOTE (C)	
8-22-02	REVISED NOTES, REMOVED TABLE, & REMOVED FENCE ALTERNATE	
4-3-97	REVISED BRACE RAIL NOTE	
10-18-96	REVISED AASHTO & ASTM REF.	
11-3-94	REVISED NOTE (L)	
10-1-92	DELETED ALTERNATE POST	10-1-92
8-15-91	DELETED ROLL FORMED POST DETAIL & ADDED NOTE	8-15-91 8-15-91
11-30-89	DELETED CLASS CONCRETE	11 30 89
11-17-88	REVISED O.D. SIZES	668-11-17-88
10-30-87	GENERAL REVISIONS	548-10-30-87
4-20-79	REVISED TOP RAIL & TENSION WIRE	695-4-20-79
10-2-72	REVISED AND REDRAWN	530-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

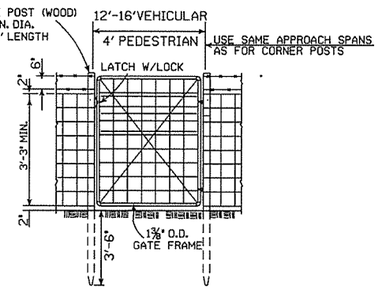
CHAIN LINK FENCE

STANDARD DRAWING WF-3



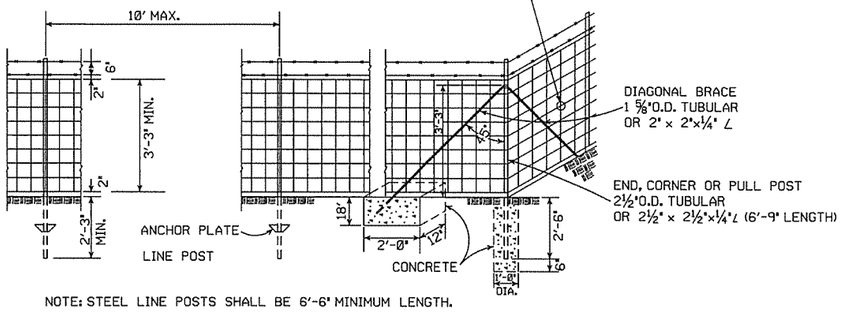
LINE POST
3" MIN. DIA. 6'-3" LENGTH
MAX. SPACING TO BE 10'-0"

LINE BRACE ASSEMBLY
MAX. SPACING TO BE 330'

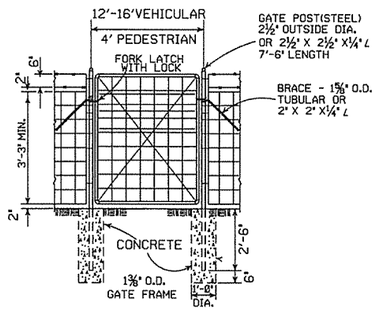


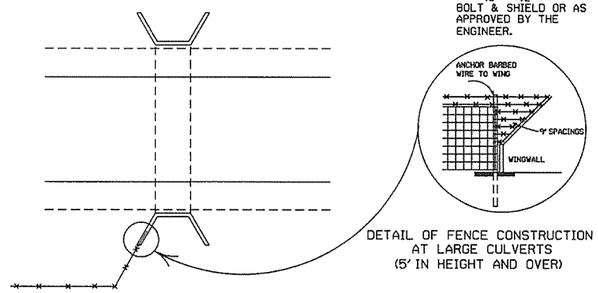
TYPE C FENCE (WOOD POSTS)

OTHER APPROVED TIES WILL BE PERMITTED



NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.





DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

GENERAL NOTES:

STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED.
TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE - 1" TO +2".
TUBULAR POSTS MUST BE PAINTED OR GALVANIZED.

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE, FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

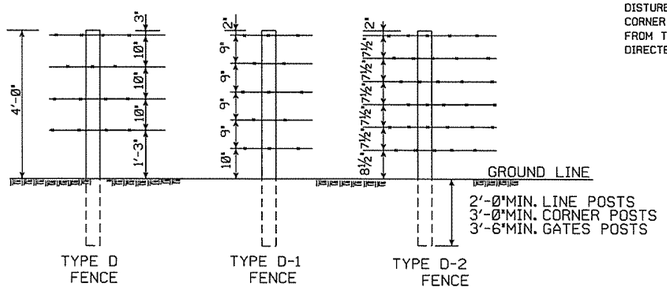
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

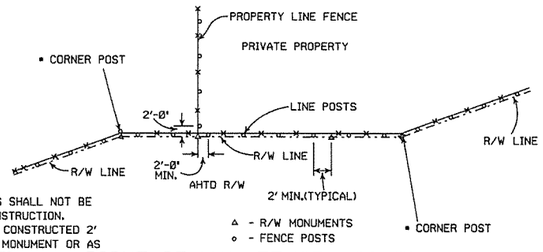
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE C FENCE (STEEL POSTS)

4 STRANDS BARBED WIRE (D)
5 STRANDS BARBED WIRE (D-1)
6 STRANDS BARBED WIRE (D-2)

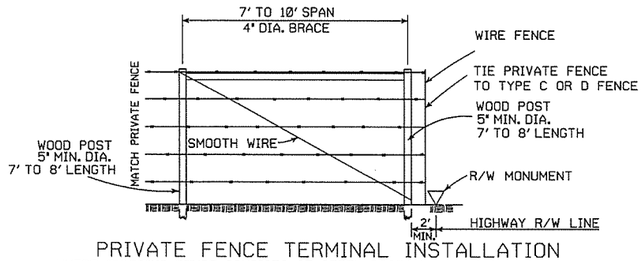


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

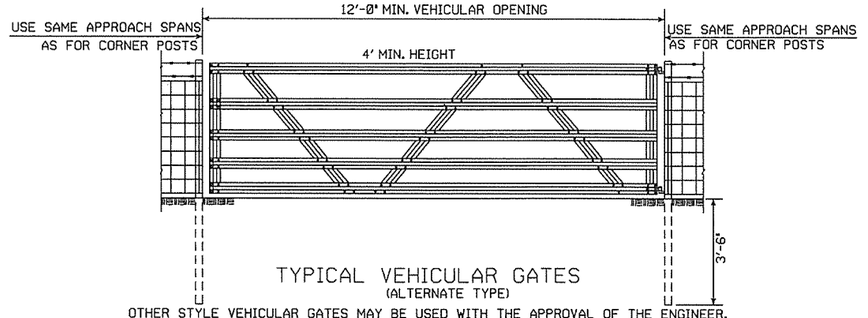


• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION
WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.



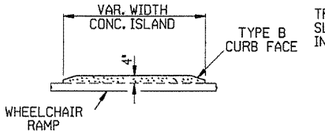
TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)
OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
THE METHOD OF SECURING GATE (LATCH AND/OR LOCK)SHALL MEET THE APPROVAL OF THE ENGINEER.

DATE	REVISION	FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE D-2 FENCE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
7-15-88	ADDED SPLICE NOTE	700-7-15-88
10-30-87	GENERAL REVISIONS	549-10-30-87
11-1-84	MAX. POST SPACING MIN. WIRE GAUGE	507-11-1-84
1-4-83	MIN. DIA. LINE POST	648-1-4-83
3-2-81	TOLERANCE FOR POST LENGTH	722-3-2-81
12-1-72	ADDED D-1 & FENCE INSTALLATION	564-12-1-72
10-2-72	REVISED AND REDRAWN	540-10-2-72

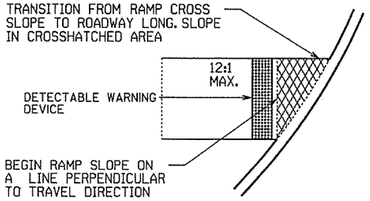
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE C AND D

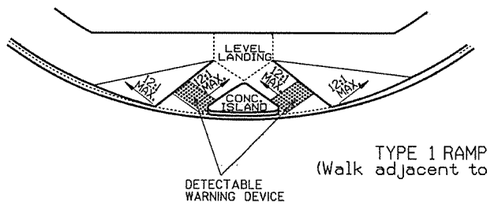
STANDARD DRAWING WF-4



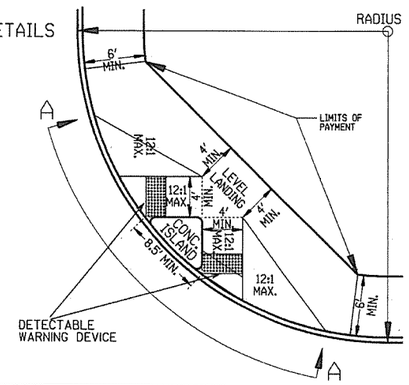
CONCRETE ISLAND DETAIL

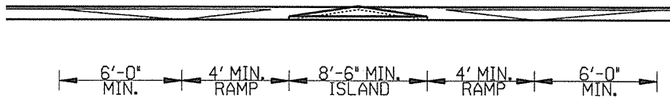


SLOPE TRANSITION DETAILS



TYPE 1 RAMP
(Walk adjacent to curb)

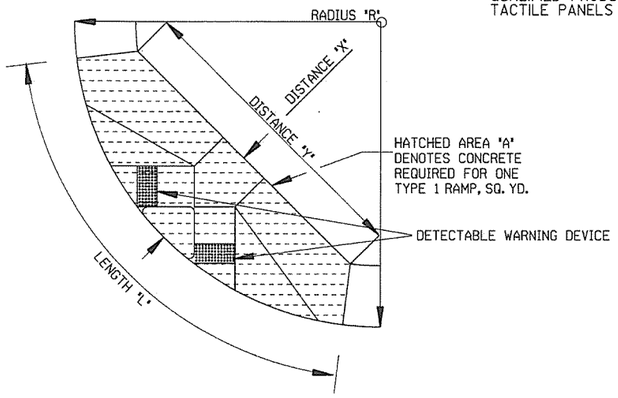




SECTION A-A

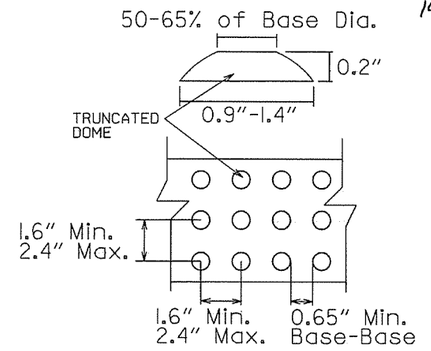
TYPE 1 RAMP DIMENSIONS AND QUANTITIES

RADIUS 'R'	DISTANCE 'X'	DISTANCE 'Y'	LENGTH 'L'	RAMP AREA 'A'
FEET	FEET	FEET	FEET	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

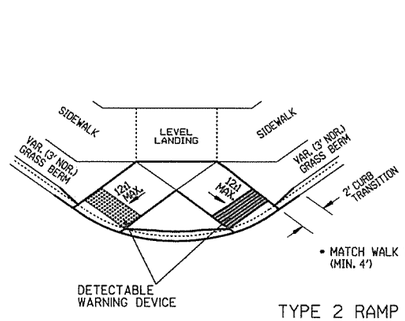
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT 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 AHTD QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).



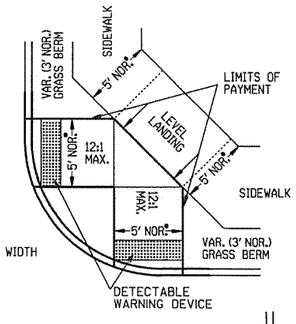
DETECTABLE WARNING DEVICE DETAIL

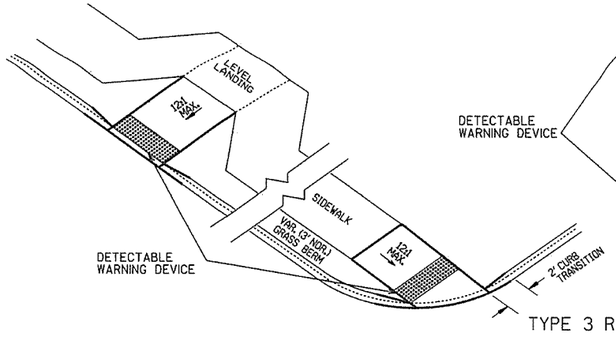
GENERAL NOTES:

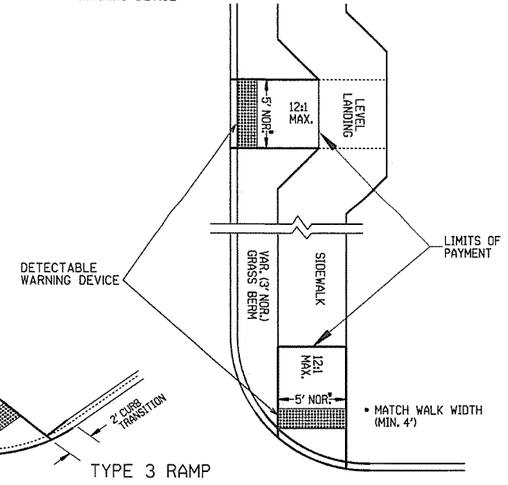
IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.
IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK 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

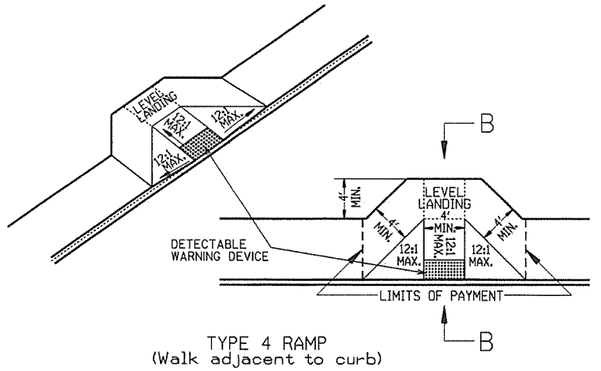




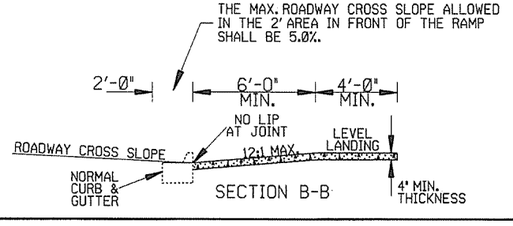


TYPE 3 RAMP

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
11-10-05	REVISED TO NEW SIDEWALK POLICY	
10-9-03	REVISED GEN. NOTES & ADDED NOTE	
4-10-03	REV. DETECTABLE WARNING DEVICES	
8-22-02	ADD DETECTABLE WARNING DEVICES	
3-30-00	ADD.SLOPE TRANS. & REV. ISL. DIMS.	
11-18-98	REVISED NOTES	
8-12-98	REVISED TEXTURE	
7-02-98	REDRAWN & REISSUED	
10-18-96	CORRECTED DIMENSIONS	10-18-96
5-24-90	FROM8%TO12%MAX.SLOPES	5-24-90
7-15-88	ADJUSTED MAX. SLOPE	652-7-15-88
7-14-88	INCLUD."CONC. ISLD."IN PAY ITEM	-------
6-02-76	ISSUED-P.H.D.	299-7-28-76

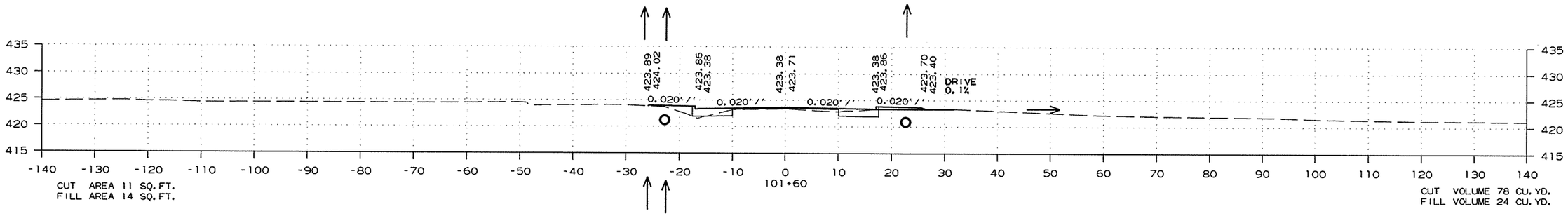
ARKANSAS STATE HIGHWAY COMMISSION

WHEELCHAIR RAMPS
NEW CONSTRUCTION
AND ALTERATIONS

STANDARD DRAWING WR-1

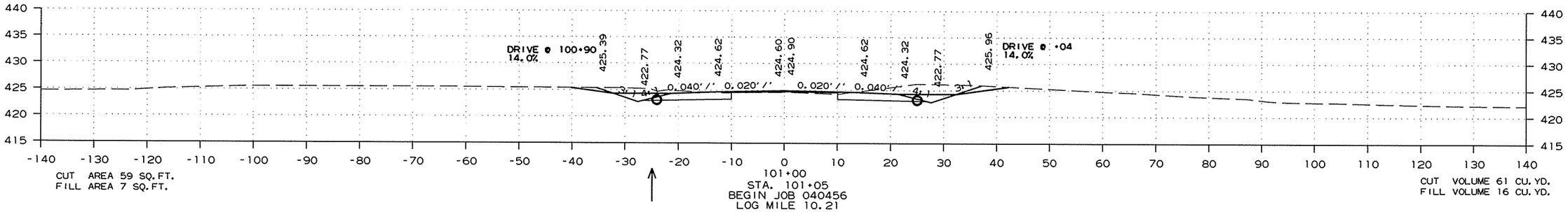
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	145	179

(2) CROSS SECTIONS



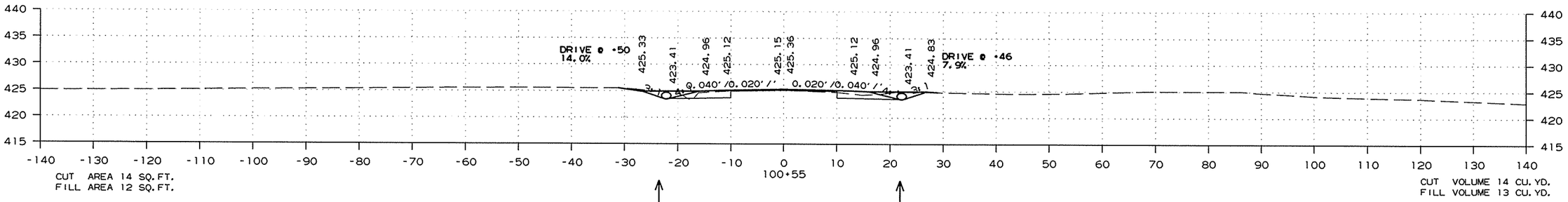
CUT AREA 11 SQ.FT.
FILL AREA 14 SQ.FT.

CUT VOLUME 78 CU.YD.
FILL VOLUME 24 CU.YD.



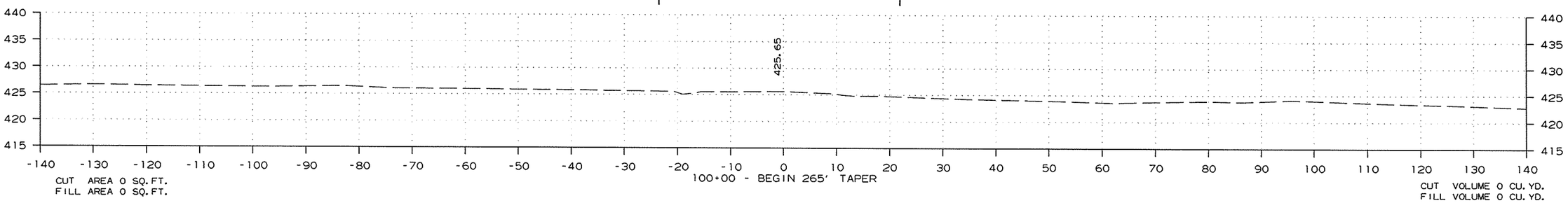
CUT AREA 59 SQ.FT.
FILL AREA 7 SQ.FT.

CUT VOLUME 61 CU.YD.
FILL VOLUME 16 CU.YD.



CUT AREA 14 SQ.FT.
FILL AREA 12 SQ.FT.

CUT VOLUME 14 CU.YD.
FILL VOLUME 13 CU.YD.



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

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

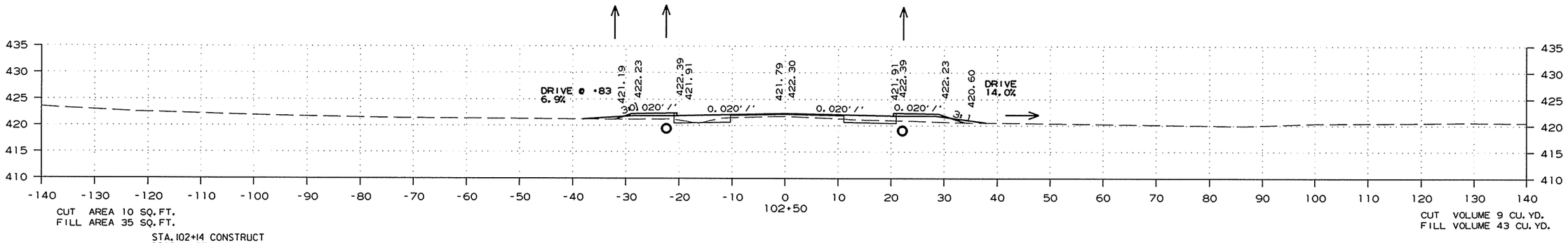
STA. 100+00 TO STA. 101+60

3/3/2015

R040456.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.		040456	146	179

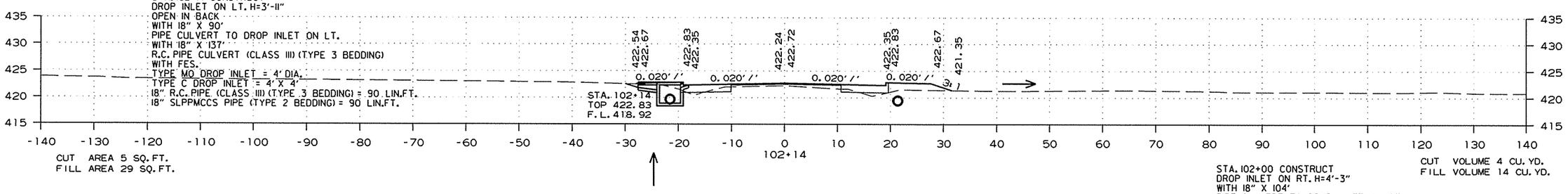
(2) CROSS SECTIONS



CUT AREA 10 SQ.FT.
FILL AREA 35 SQ.FT.

CUT VOLUME 9 CU.YD.
FILL VOLUME 43 CU.YD.

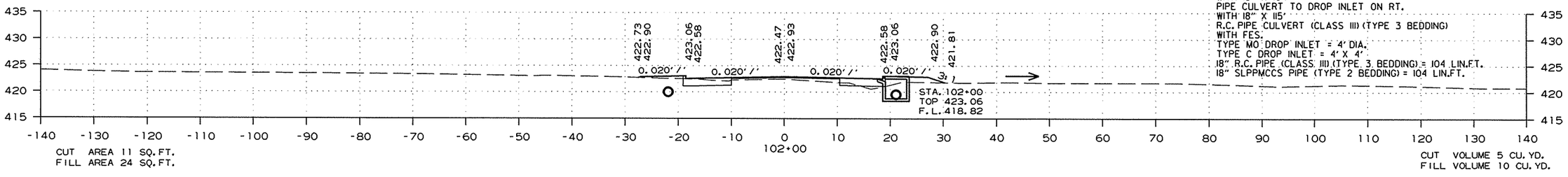
STA.102+14 CONSTRUCT
DROP INLET ON LT. H=3'-11"
OPEN IN BACK
WITH 18" X 90'
PIPE CULVERT TO DROP INLET ON LT.
WITH 18" X 137'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 90 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 90 LIN.FT.



CUT AREA 5 SQ.FT.
FILL AREA 29 SQ.FT.

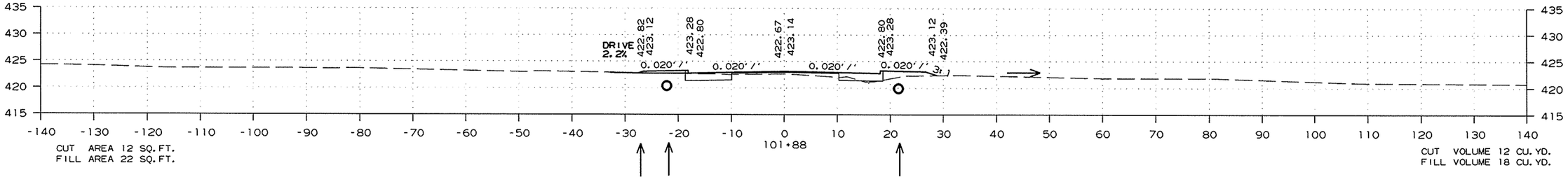
CUT VOLUME 4 CU.YD.
FILL VOLUME 14 CU.YD.

STA.102+00 CONSTRUCT
DROP INLET ON RT. H=4'-3"
WITH 18" X 104'
PIPE CULVERT TO DROP INLET ON RT.
WITH 18" X 115'
R.C. PIPE CULVERT (CLASS III) (TYPE 3 BEDDING)
WITH FES.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4' X 4'
18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 104 LIN.FT.
18" SLPPMCCS PIPE (TYPE 2 BEDDING) = 104 LIN.FT.



CUT AREA 11 SQ.FT.
FILL AREA 24 SQ.FT.

CUT VOLUME 5 CU.YD.
FILL VOLUME 10 CU.YD.



CUT AREA 12 SQ.FT.
FILL AREA 22 SQ.FT.

CUT VOLUME 12 CU.YD.
FILL VOLUME 18 CU.YD.

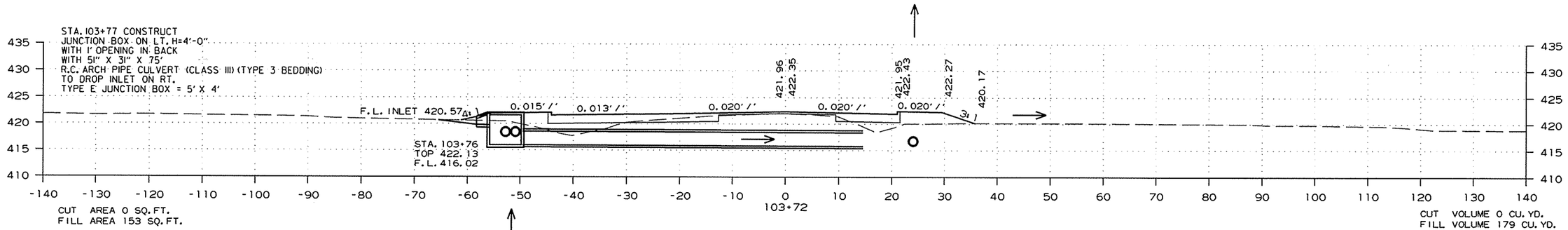
3/3/2015

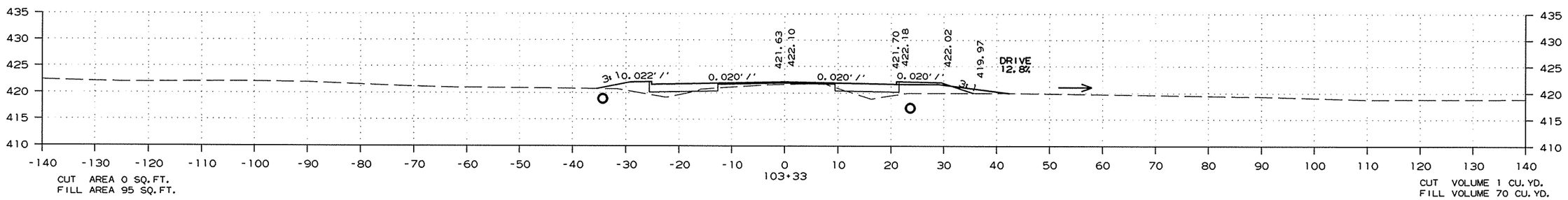
R040456.DGN

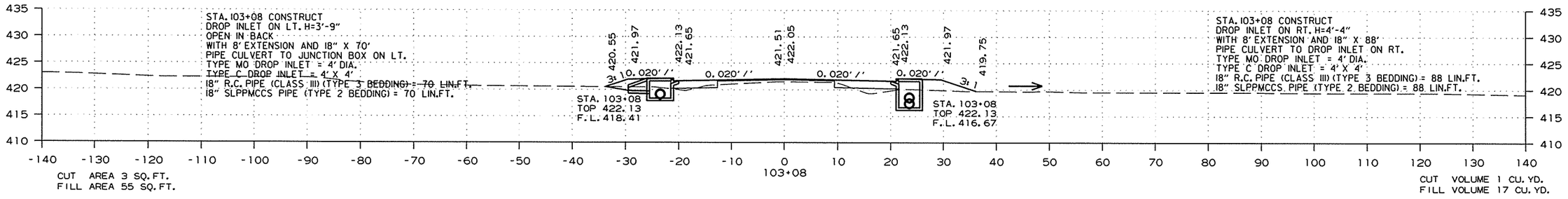
STA. 101+88 TO STA. 102+50

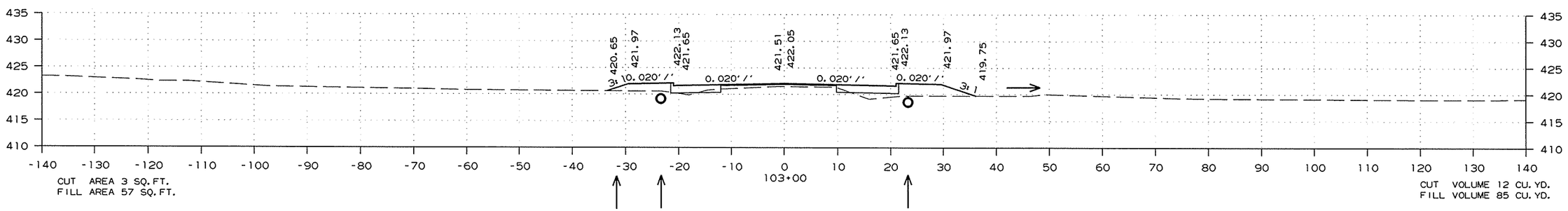
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	147	179

(2) CROSS SECTIONS









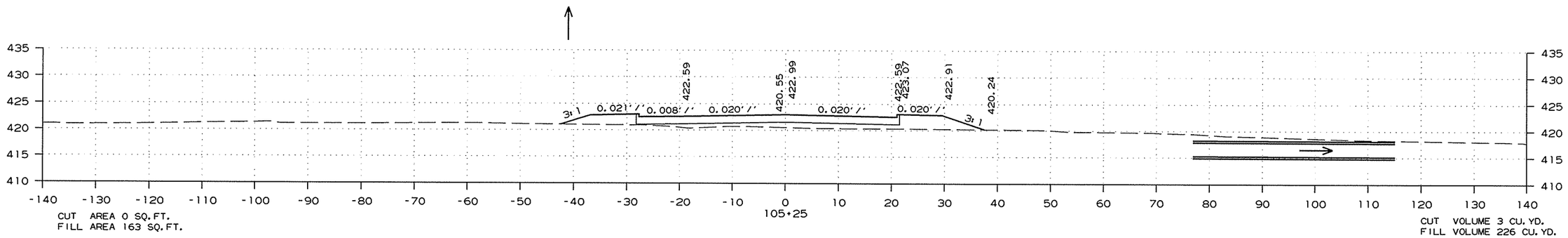
3/3/2015

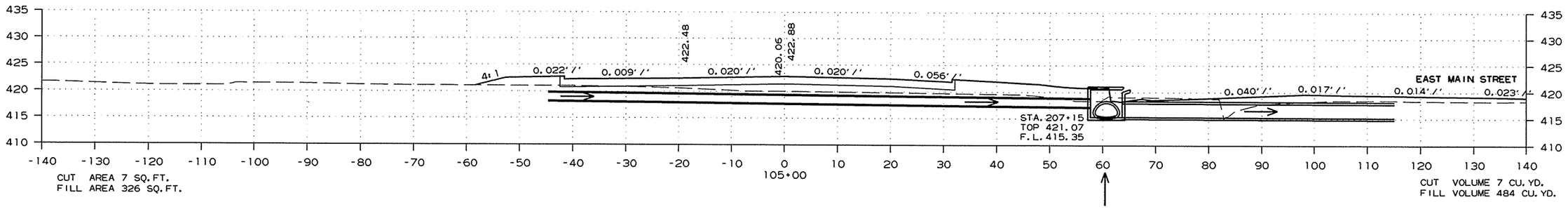
R040456.DGN

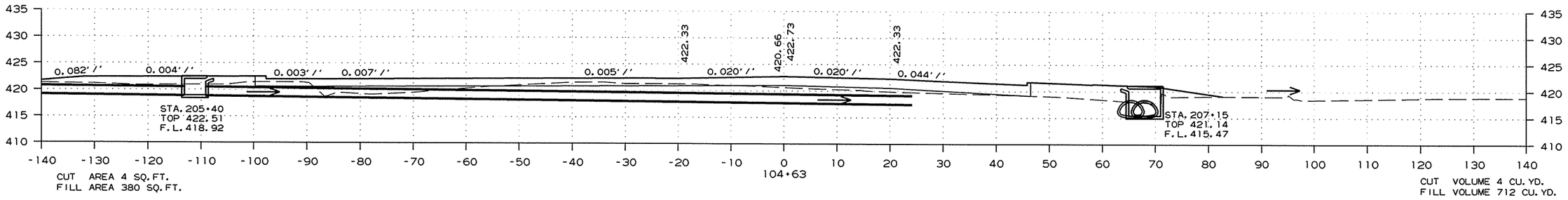
STA. 103+00 TO STA. 103+72

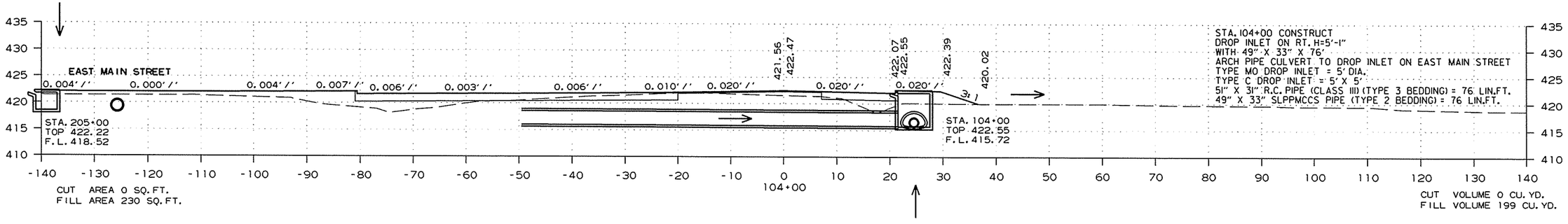
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	148	179

(2) CROSS SECTIONS









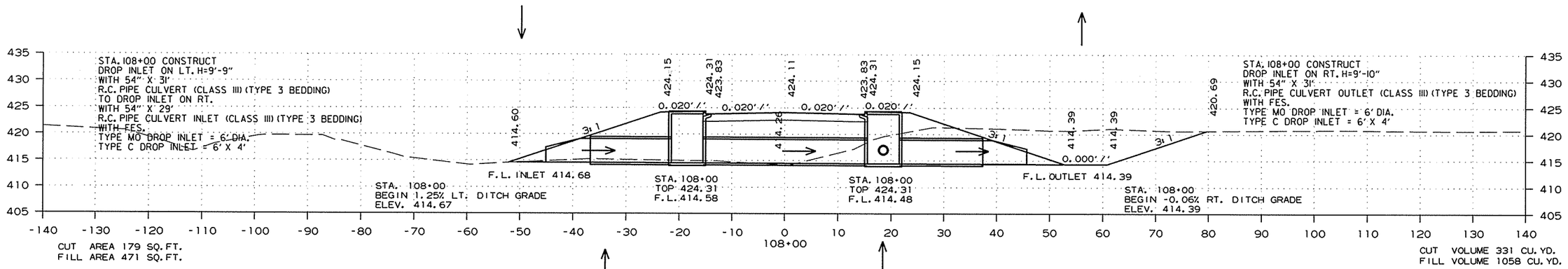
3/3/2015

R040456.DGN

STA. 104+00 TO STA. 105+25

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.		040456	149	179

(2) CROSS SECTIONS



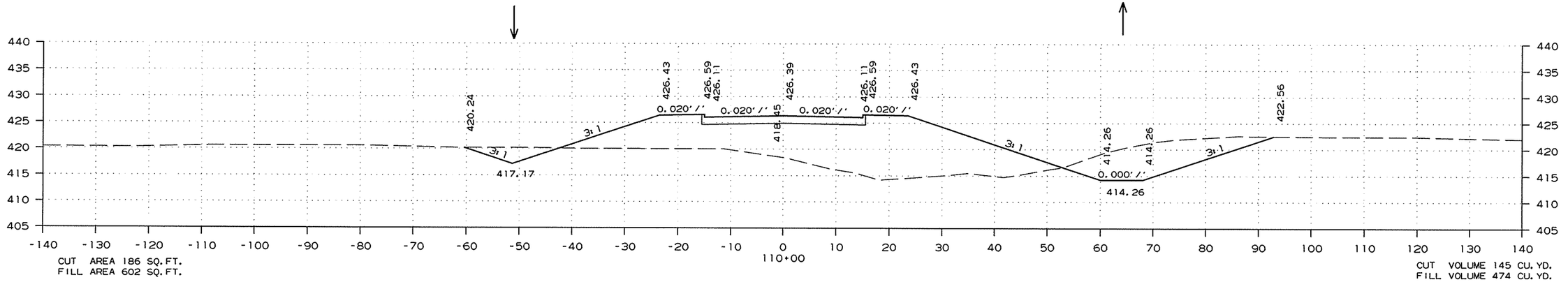
3/3/2015

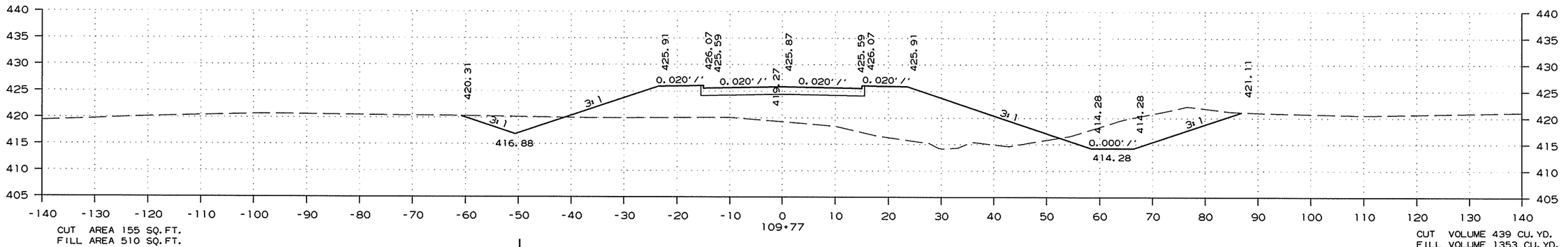
R040456.DGN

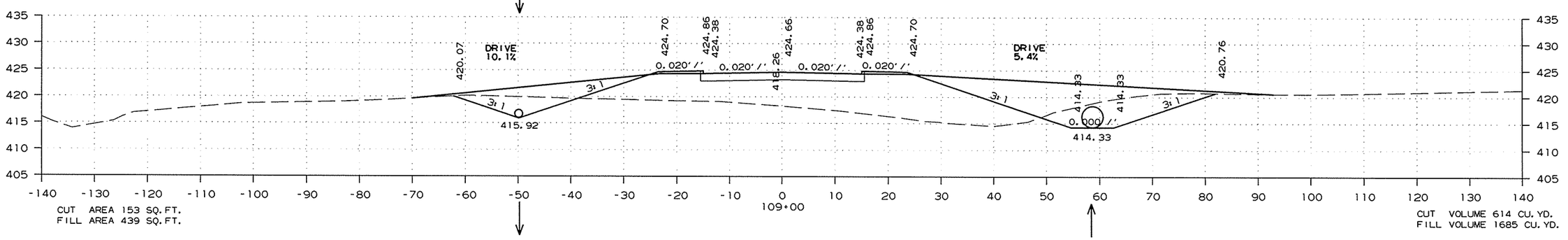
STA. 105+55 TO STA. 108+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	150	179

(2) CROSS SECTIONS







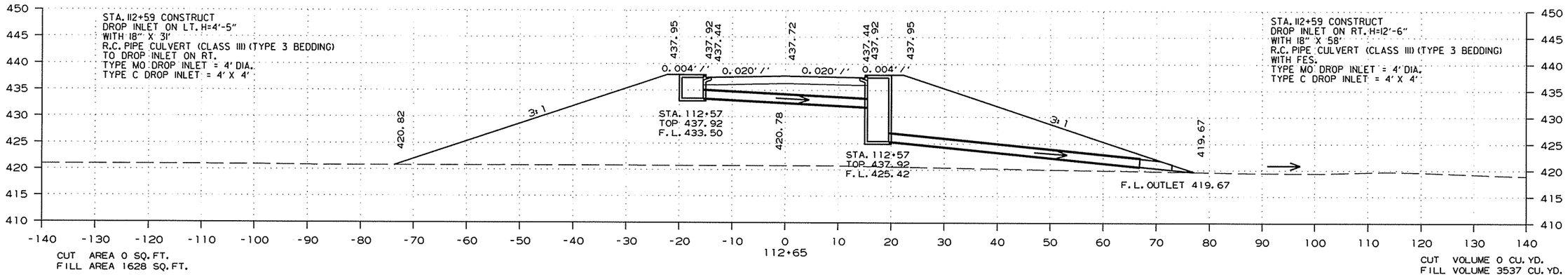
STA. 109+00 TO STA. 110+00

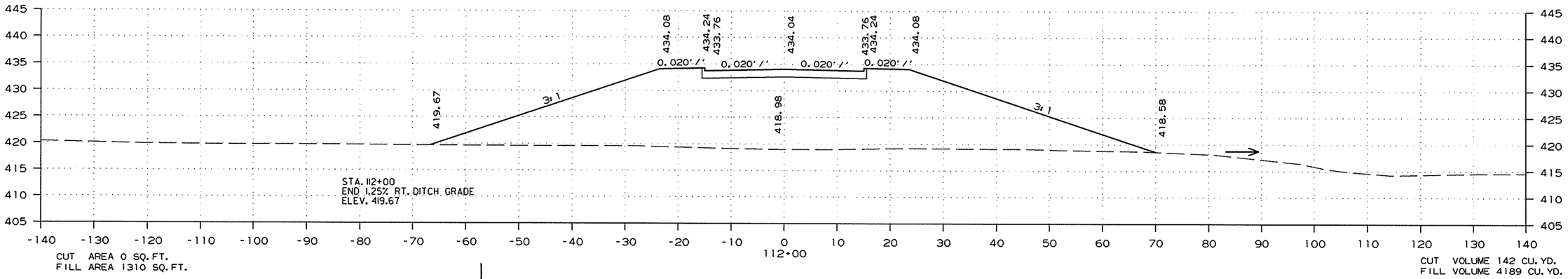
3/3/2015

R040456.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.		040456	151	179

(2) CROSS SECTIONS





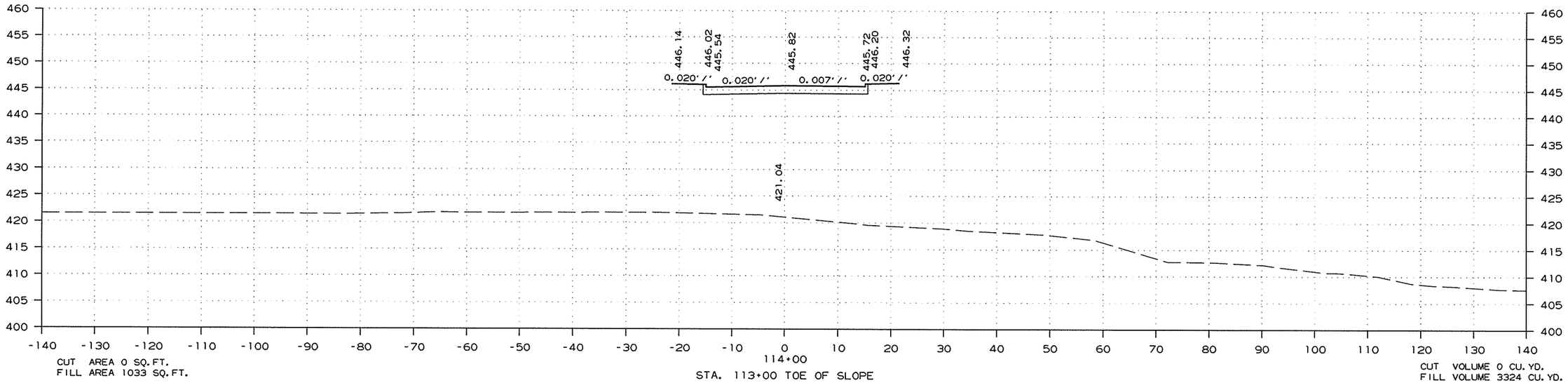
STA. 111+00 TO STA. 112+65

3/3/2015

R040456.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.		040456	152	179

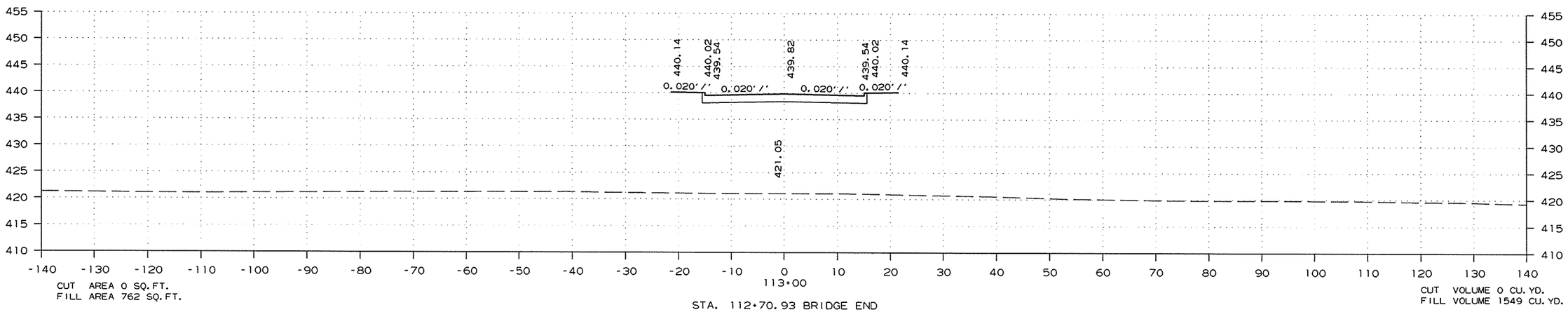
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 1033 SQ.FT.

STA. 113+00 TOE OF SLOPE

CUT VOLUME 0 CU.YD.
FILL VOLUME 3324 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 762 SQ.FT.

STA. 112+70.93 BRIDGE END

CUT VOLUME 0 CU.YD.
FILL VOLUME 1549 CU.YD.

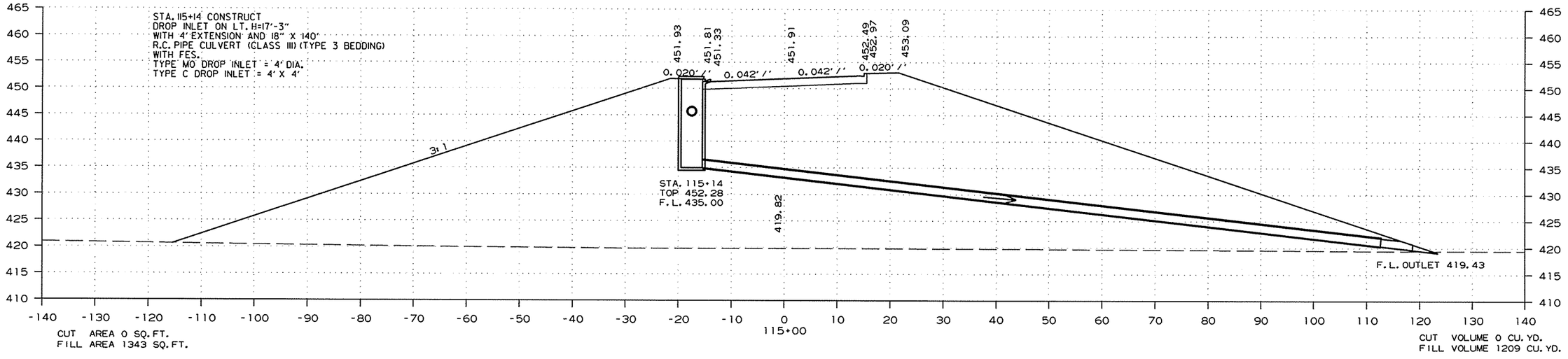
STA. 112+70.93 TO STA. 114+00

3/3/2015

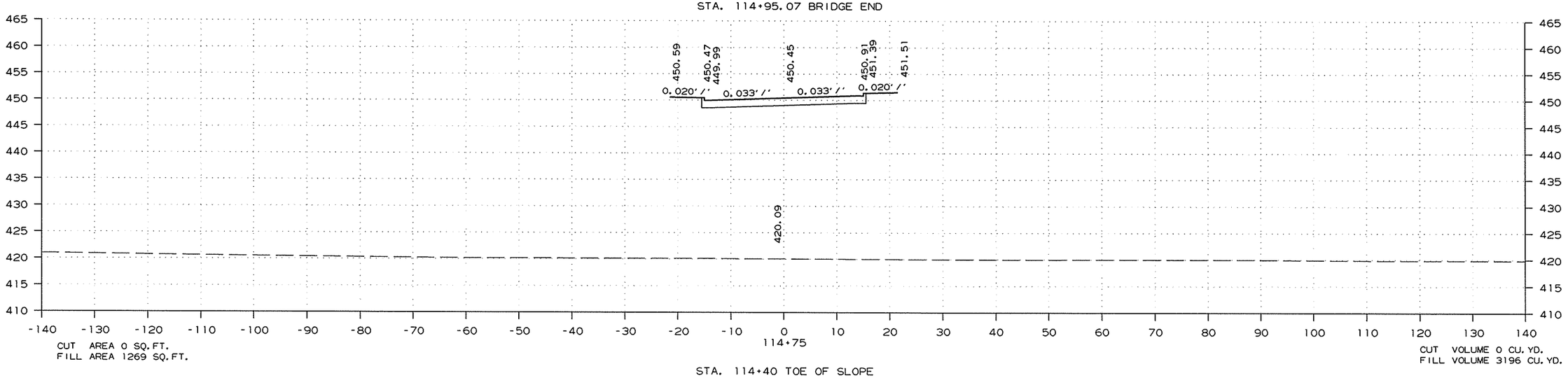
R040456.DGN

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.		040456	153	179

(2) CROSS SECTIONS



STA. 114+95.07 BRIDGE END



STA. 114+40 TOE OF SLOPE

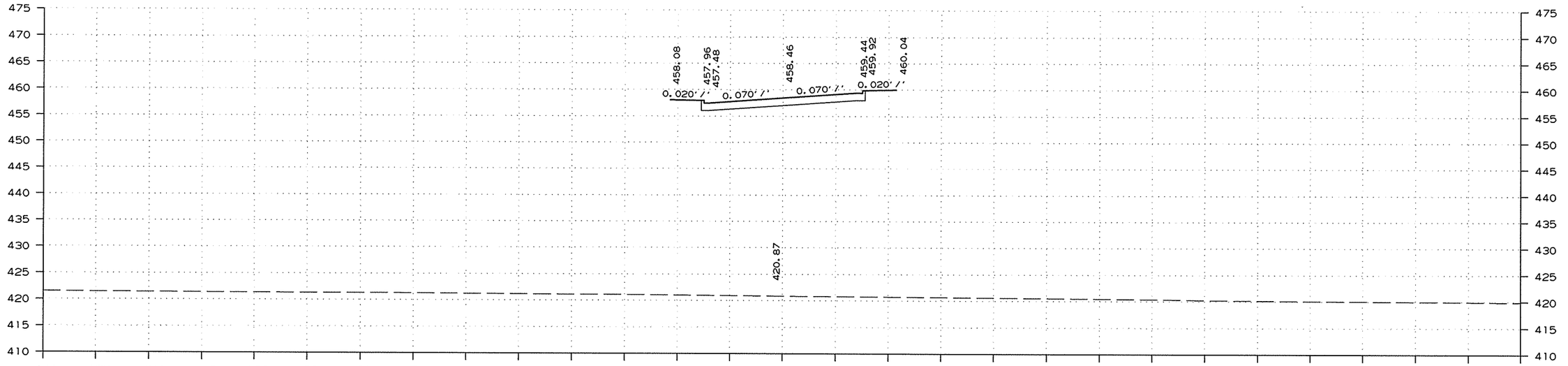
STA. 114+40 TO STA. 115+00

3/3/2015

R040456.DGN

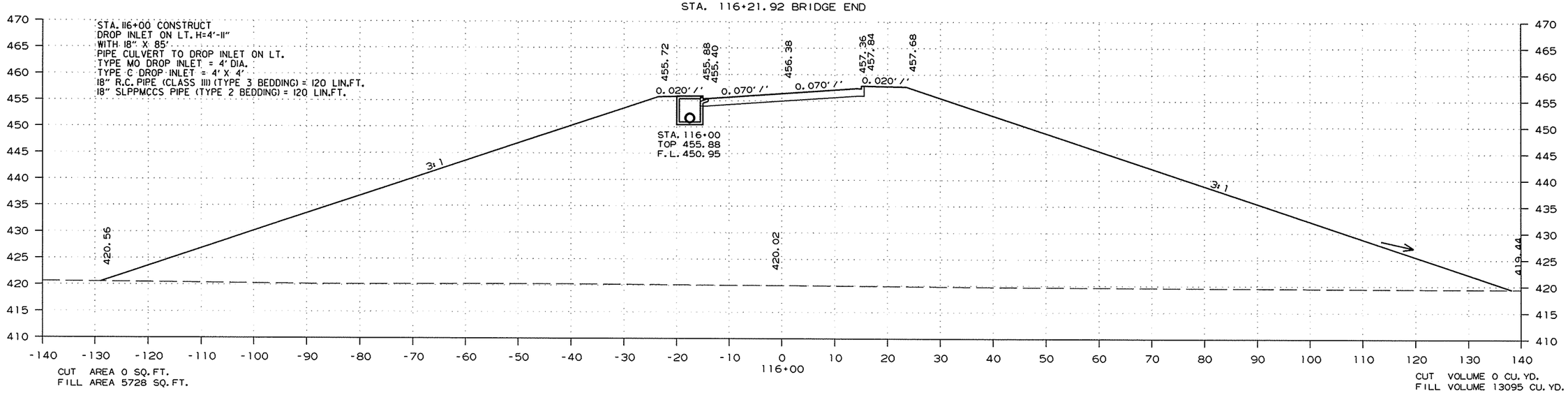
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	154	179

(2) CROSS SECTIONS



STA. 116+86 TOE OF SLOPE

STA. 116+21.92 BRIDGE END



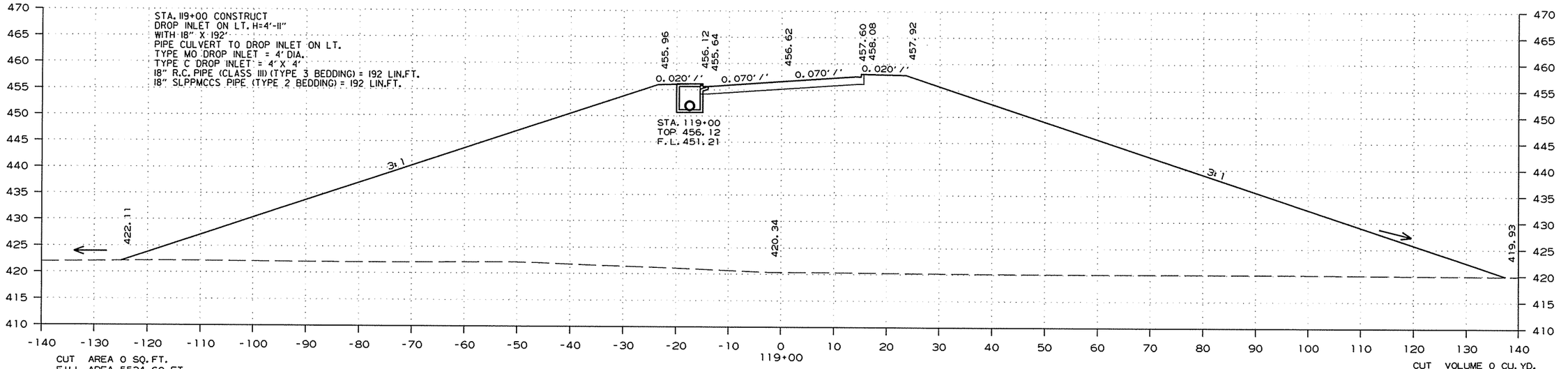
3/3/2015

R040456.DGN

STA. 116+00 TO STA. 117+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	155	179

(2) CROSS SECTIONS



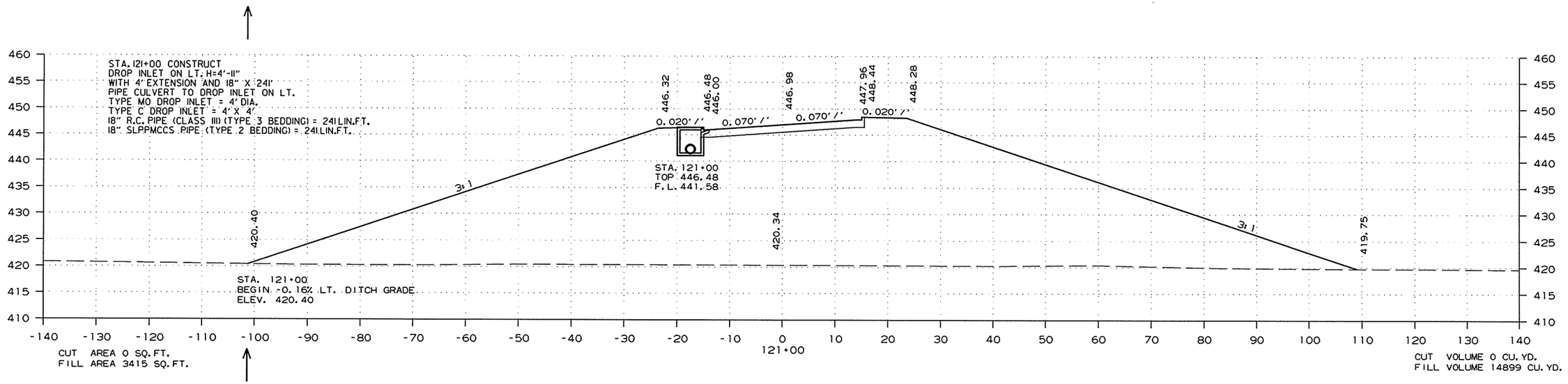
3/3/2015

R040456.DGN

STA. 118+00 TO STA. 119+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	156	179

(2) CROSS SECTIONS



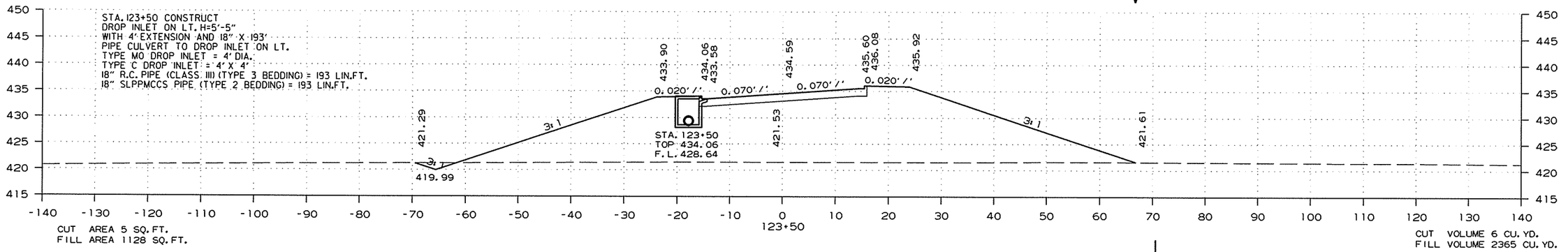
STA. 120+00 TO STA. 121+00

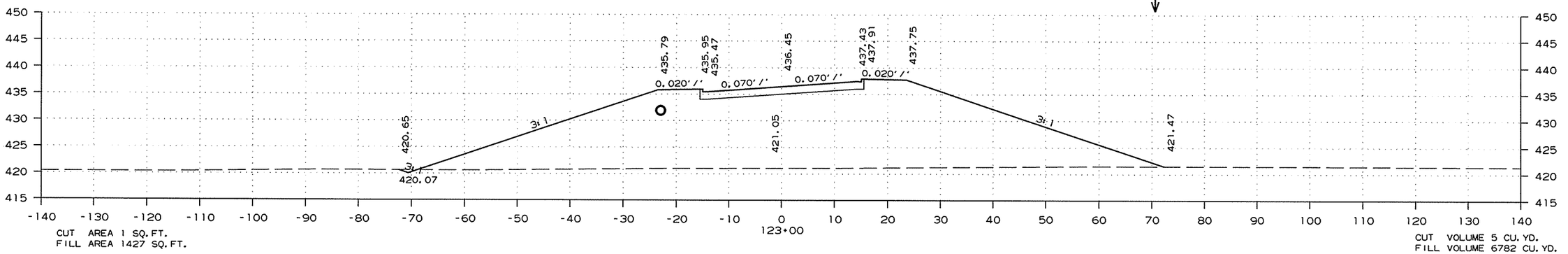
3/3/2015

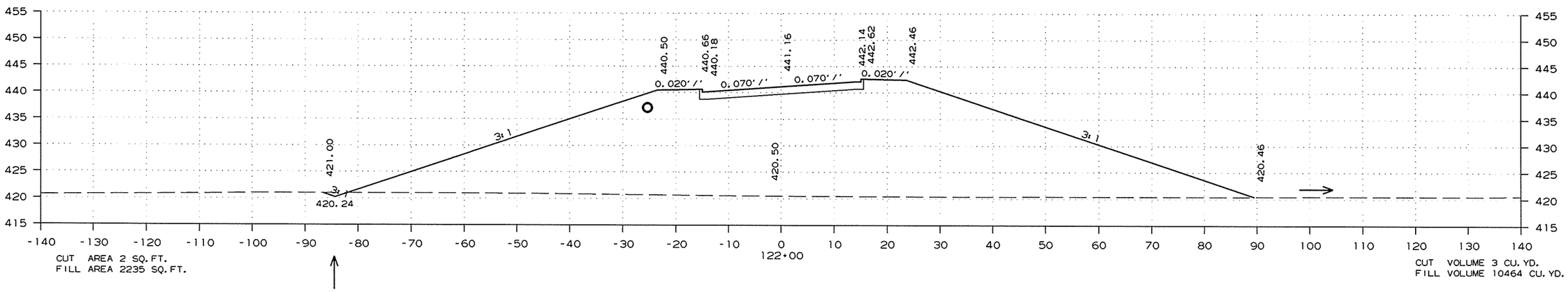
R040456.DGN

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.		040456	157	179

(2) CROSS SECTIONS







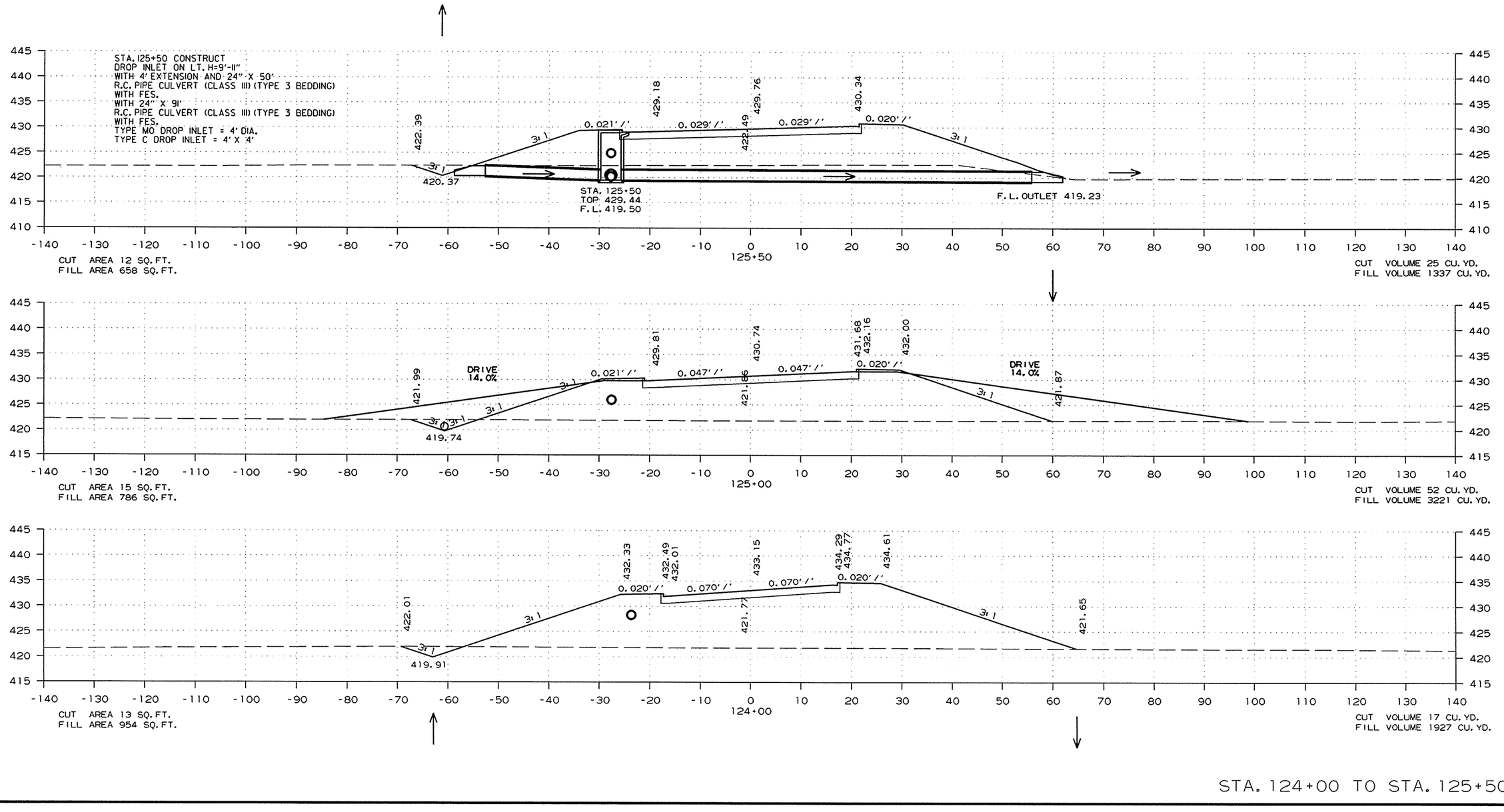
STA. 122+00 TO STA. 123+50

3/3/2015

R040456.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.		040456	158	179

(2) CROSS SECTIONS



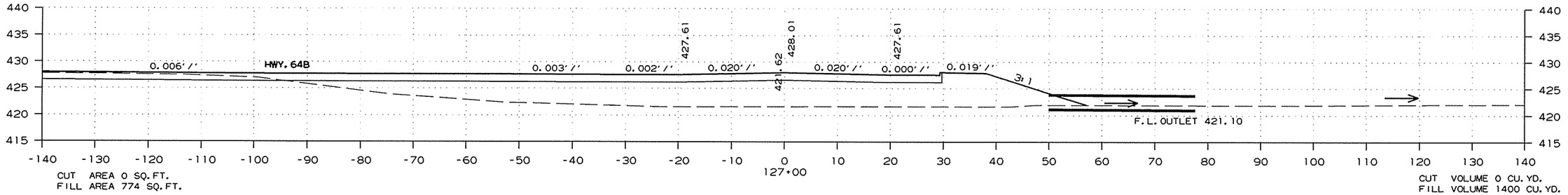
3/3/2015

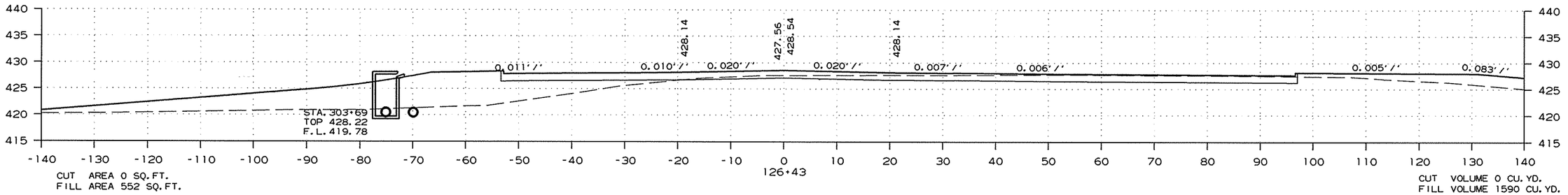
R040456.DGN

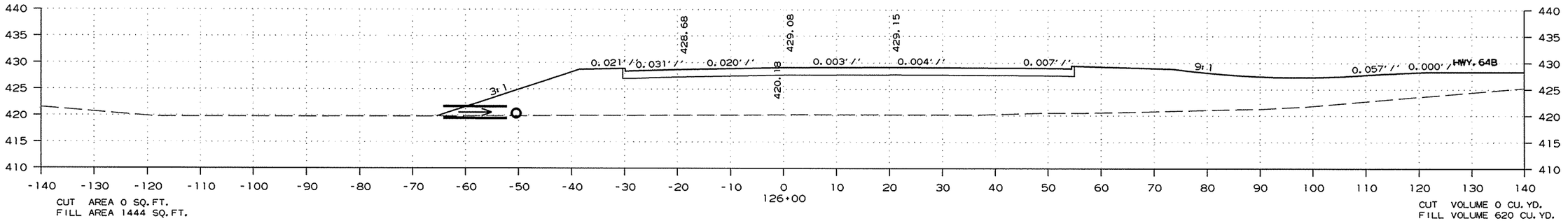
STA. 124+00 TO STA. 125+50

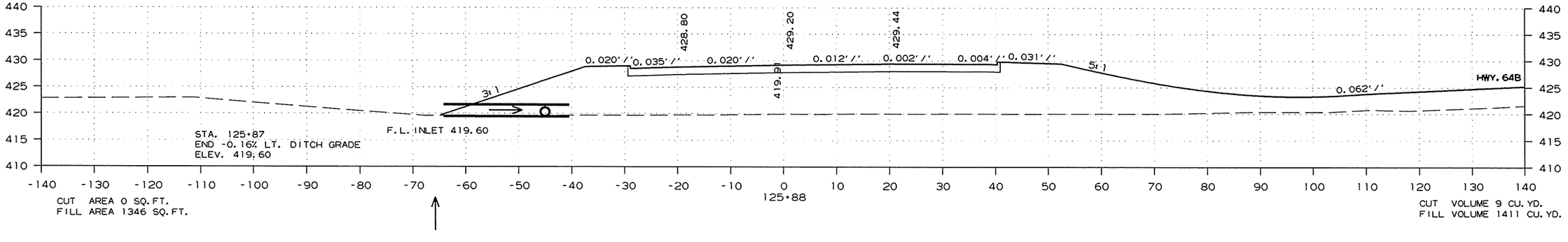
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	159	179

(2) CROSS SECTIONS









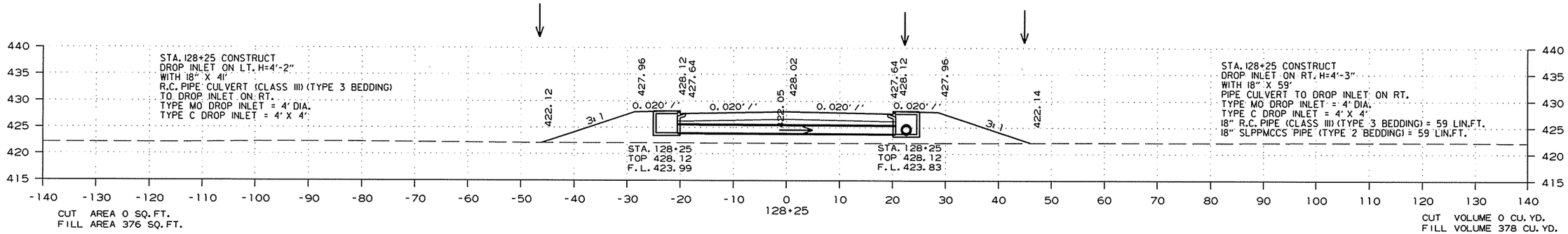
STA. 125+88 TO STA. 127+00

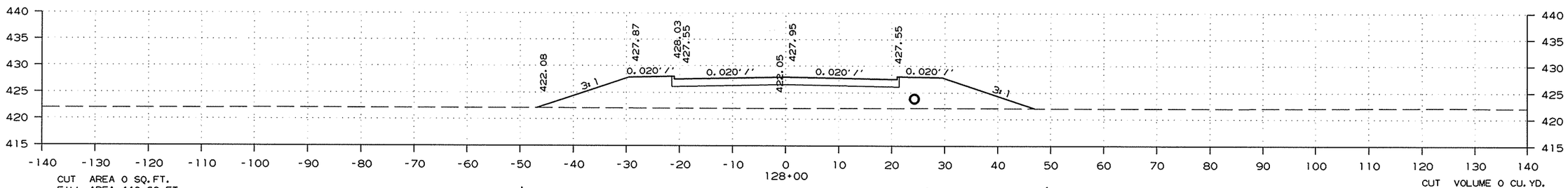
3/3/2015

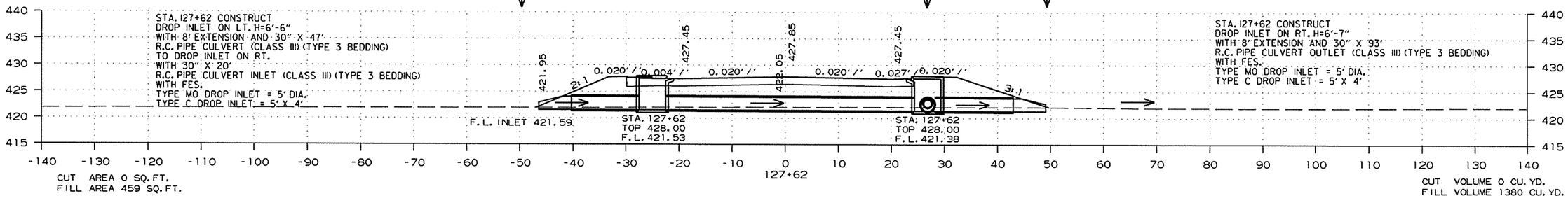
R040456.DGN

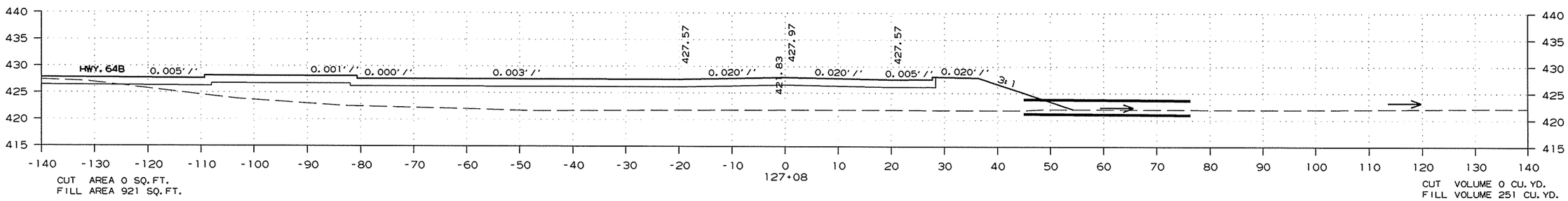
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	160	179

(2) CROSS SECTIONS









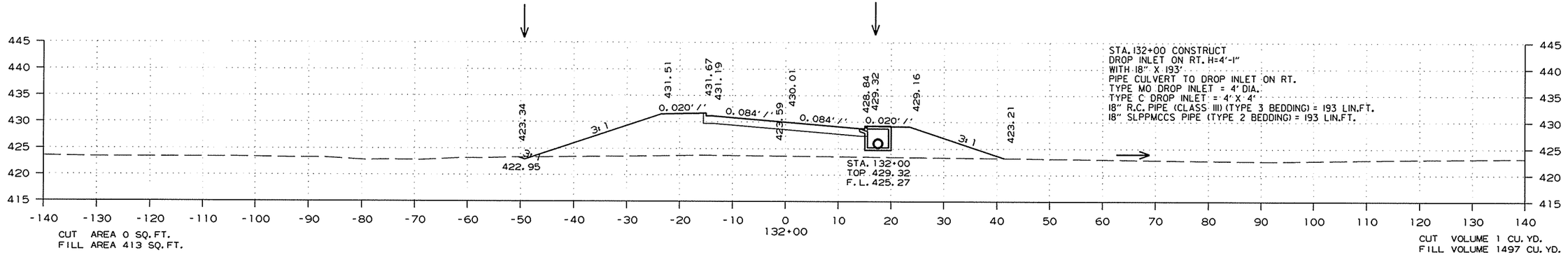
3/3/2015

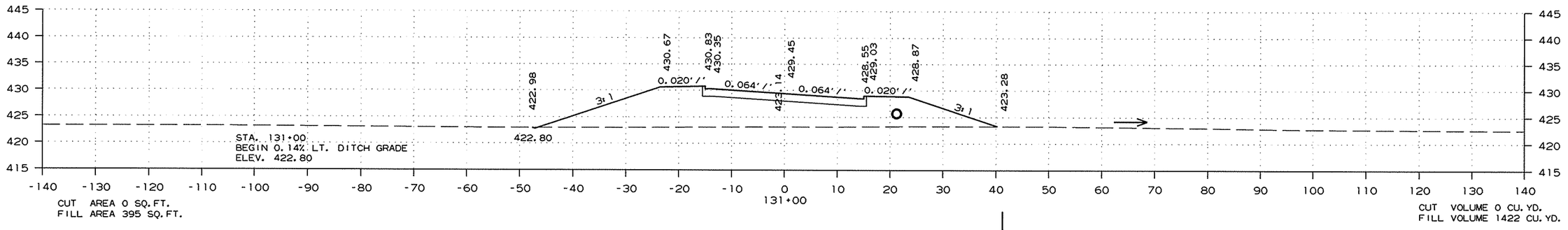
R040456.DGN

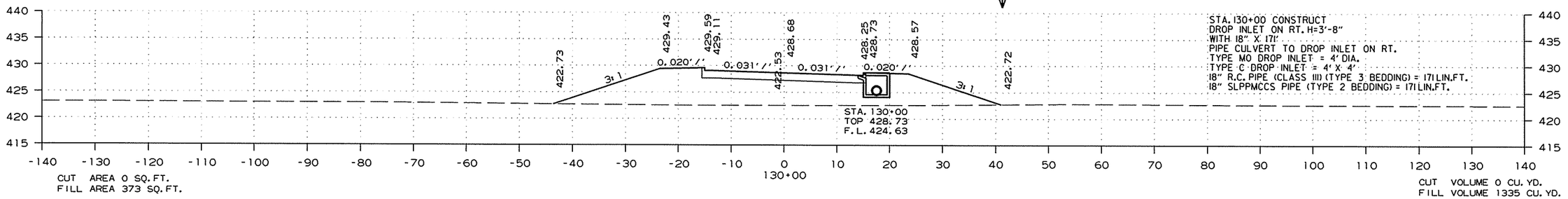
STA. 127+08 TO STA. 128+25

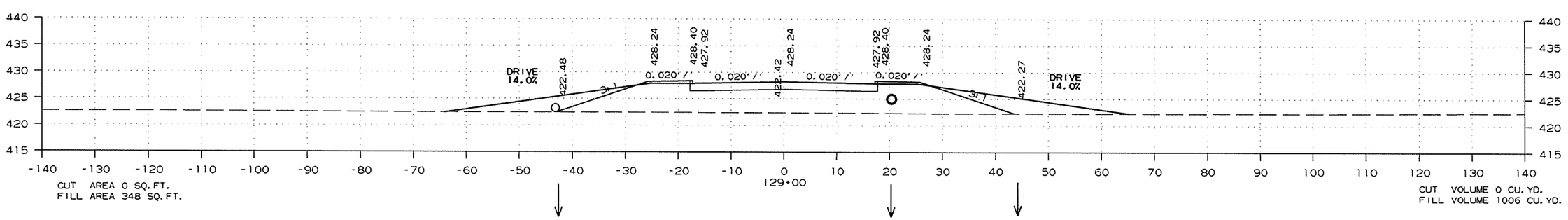
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	161	179

(2) CROSS SECTIONS









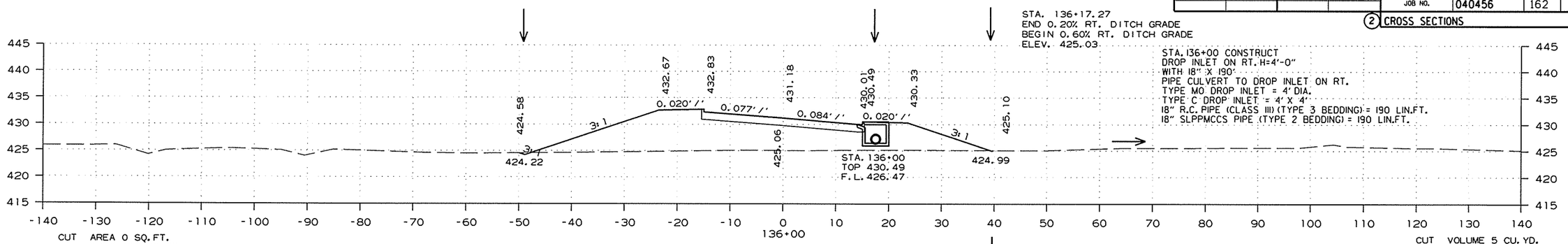
3/3/2015

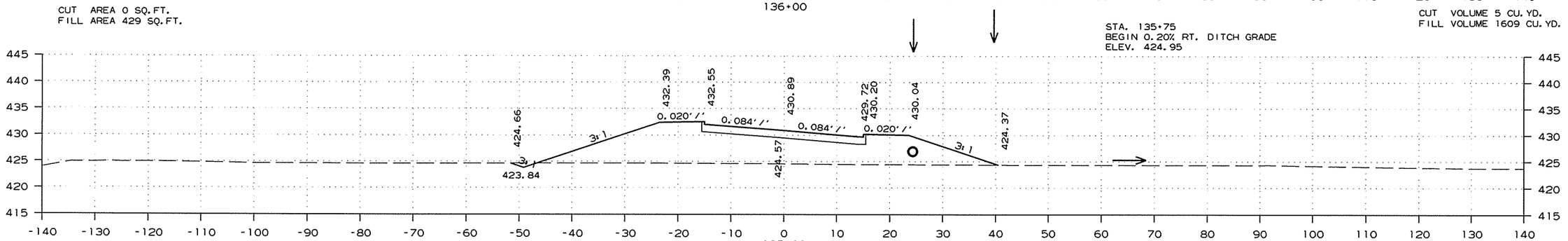
R040456.DGN

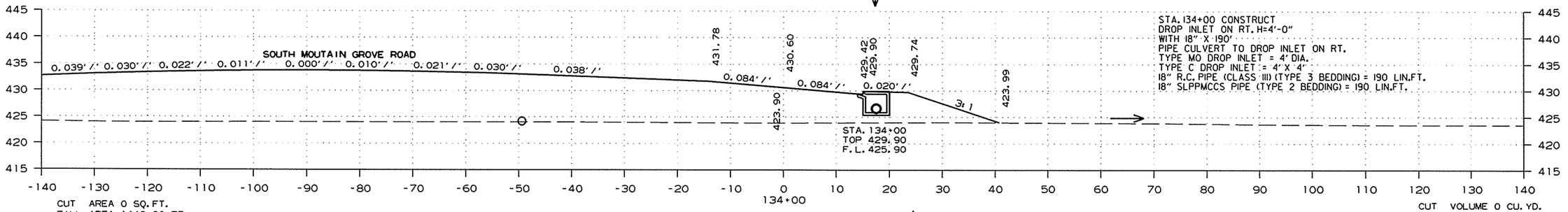
STA. 129+00 TO STA. 132+00

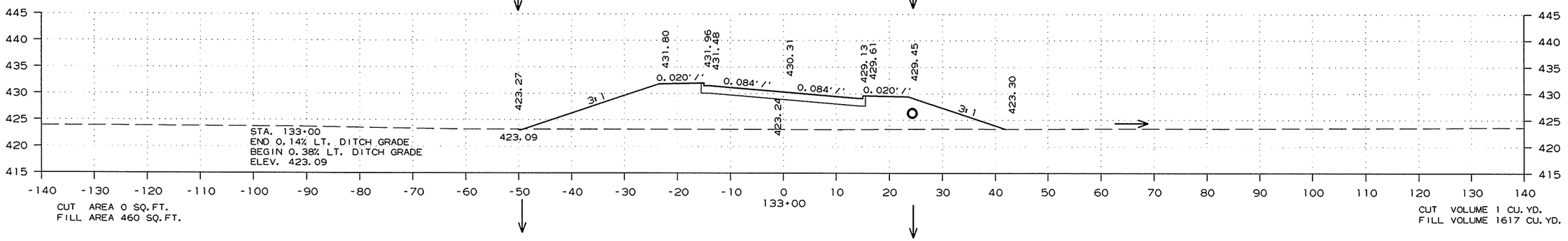
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	162	179

(2) CROSS SECTIONS









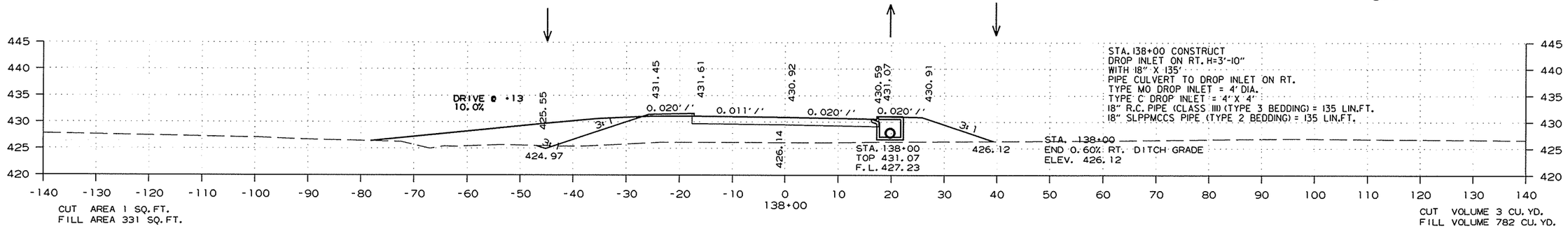
3/3/2015

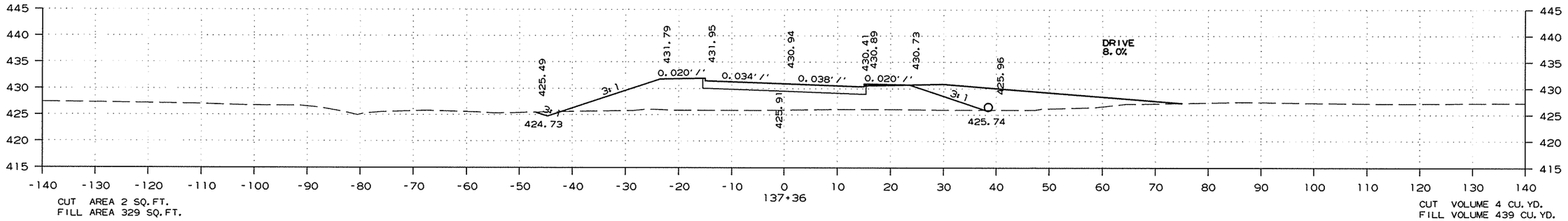
R040456.DGN

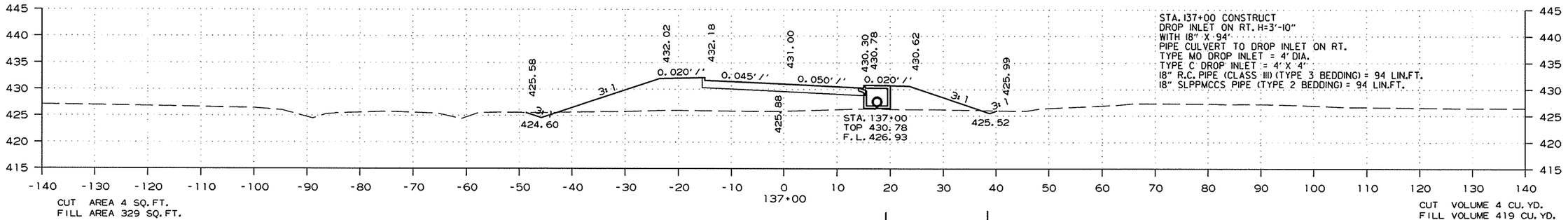
STA. 133+00 TO STA. 136+00

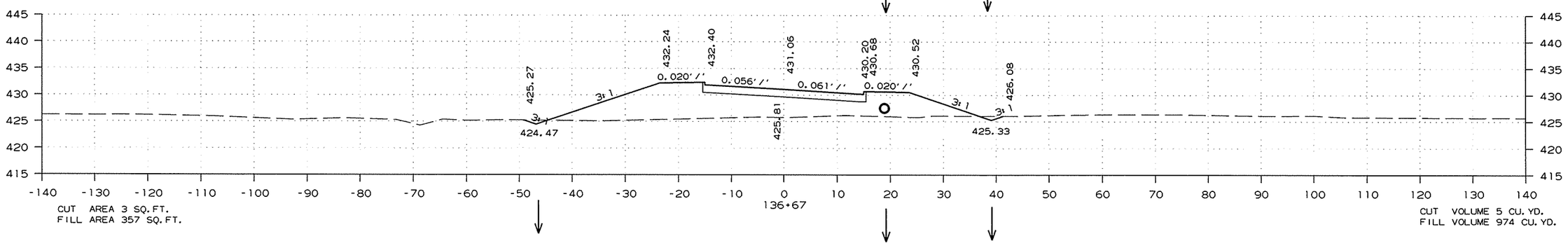
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	163	179

(2) CROSS SECTIONS









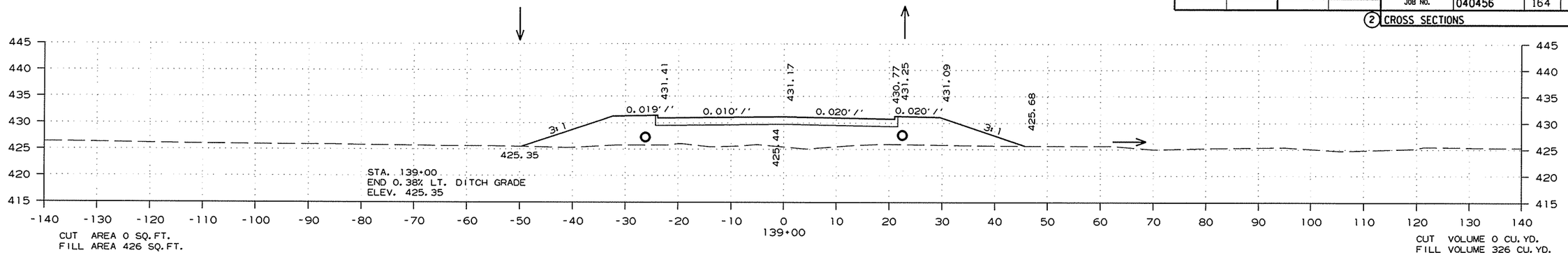
3/3/2015

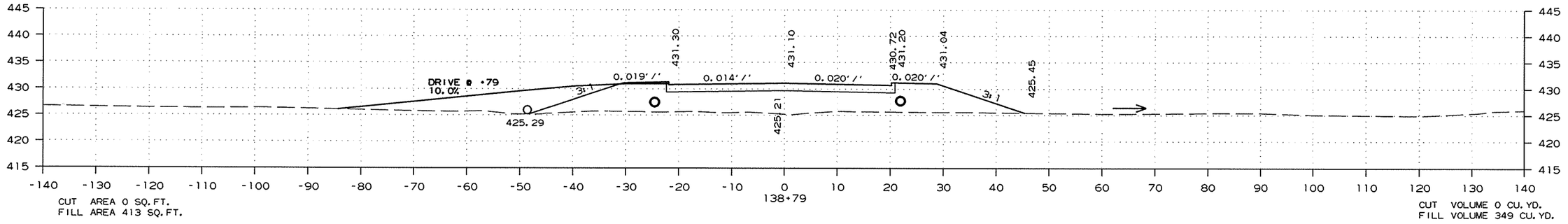
R040456.DGN

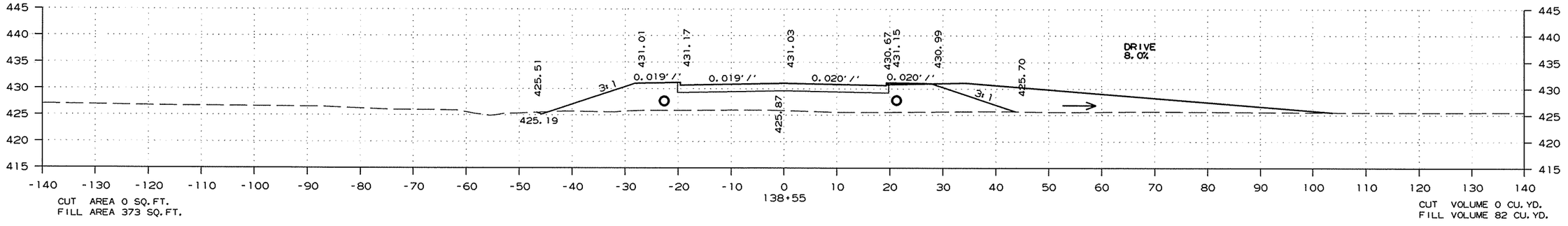
STA. 136+67 TO STA. 138+00

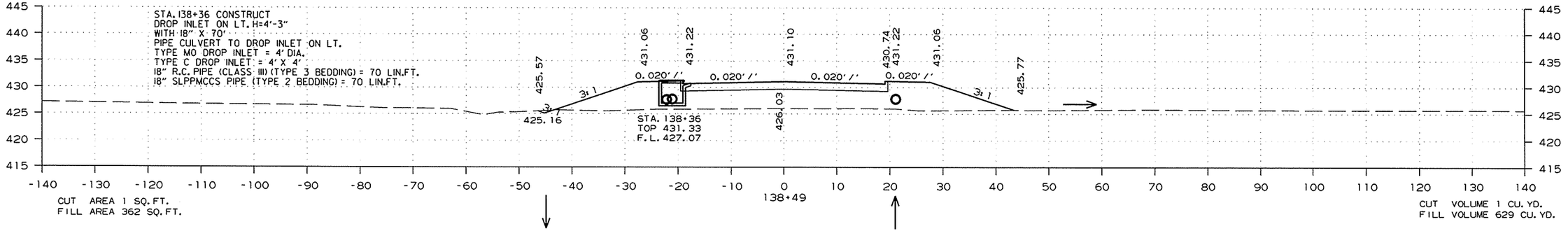
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	164	179

(2) CROSS SECTIONS









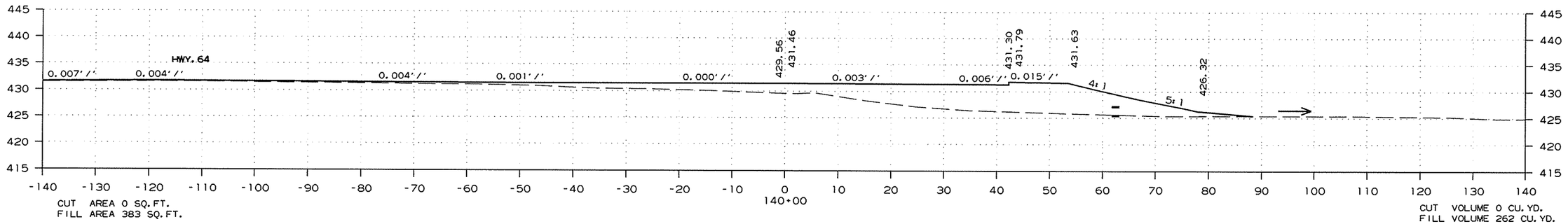
3/3/2015

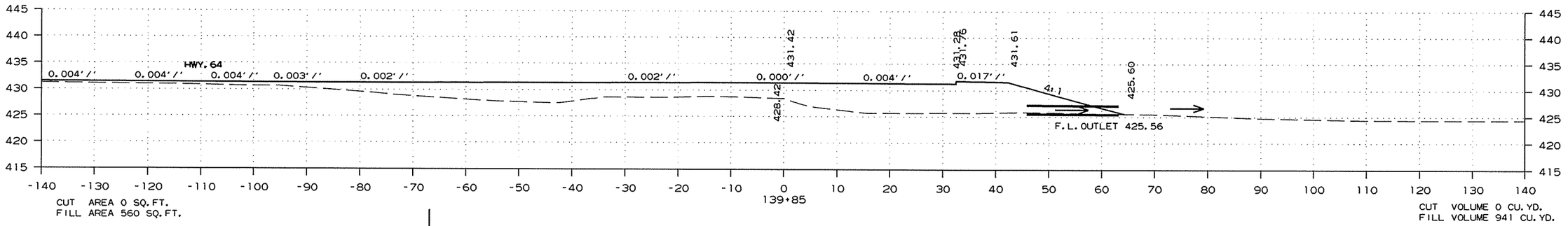
R040456.DGN

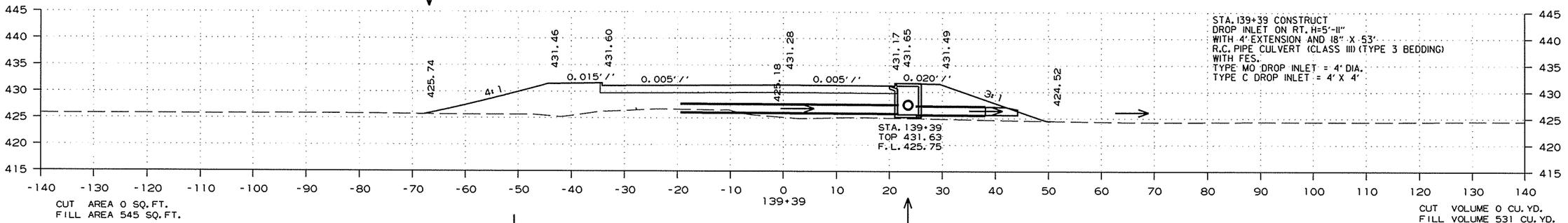
STA. 138+49 TO STA. 139+00

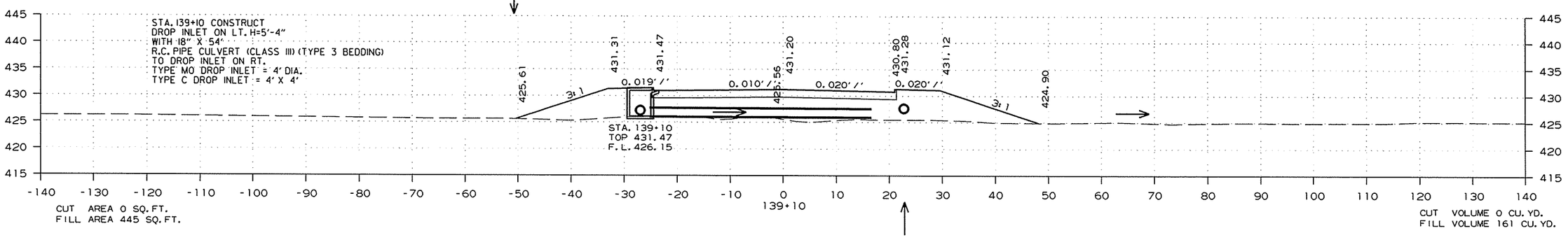
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	165	179

(2) CROSS SECTIONS









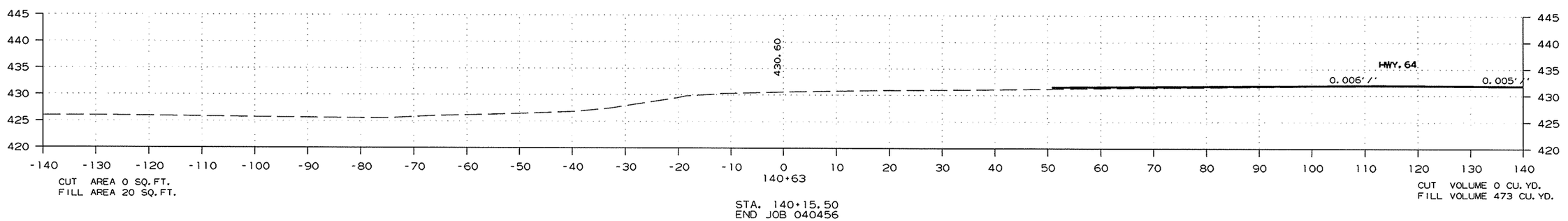
STA. 139+10 TO STA. 140+00

3/3/2015

R040456.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.		040456	166	179

(2) CROSS SECTIONS



STA. 140+63 TO STA. 140+63

3/3/2015

R040456.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.		040456	167	179

(2) CROSS SECTIONS

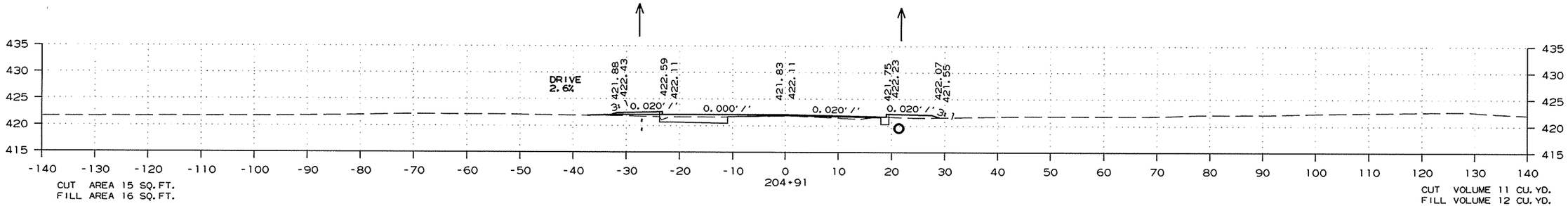
STA. 200+00 TO STA. 203+00

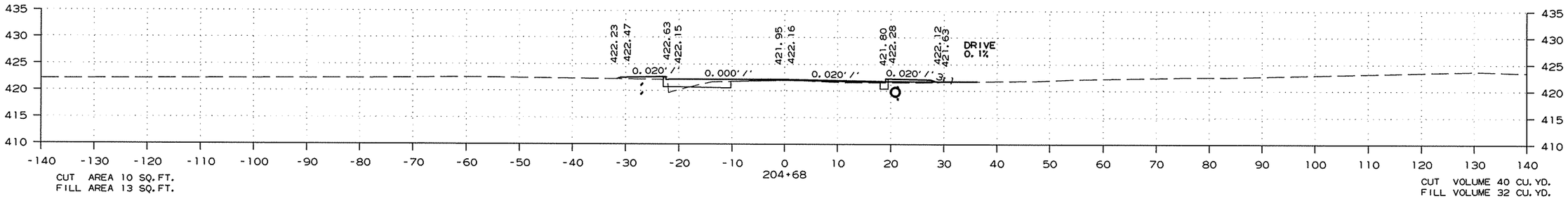
3/3/2015

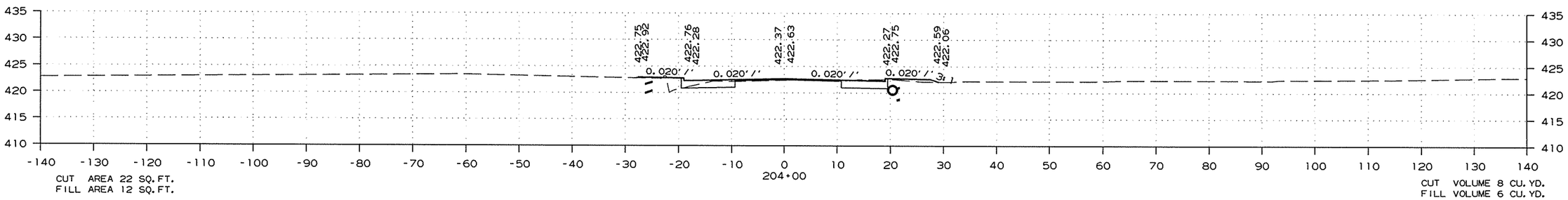
R040456.DGN

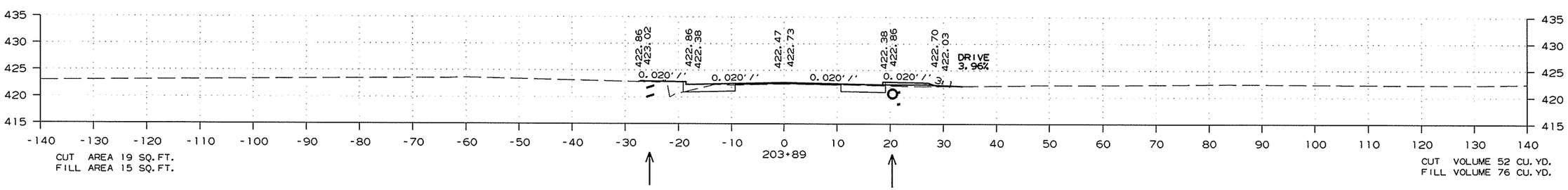
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	168	179

(2) CROSS SECTIONS









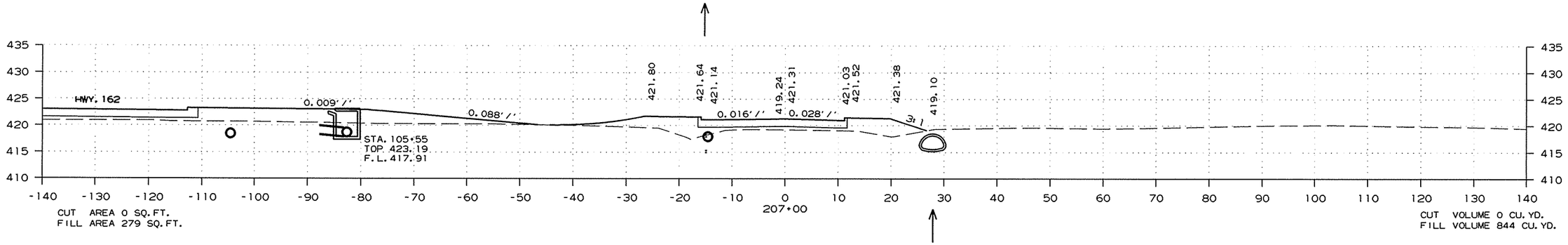
STA. 203+89 TO STA. 204+91

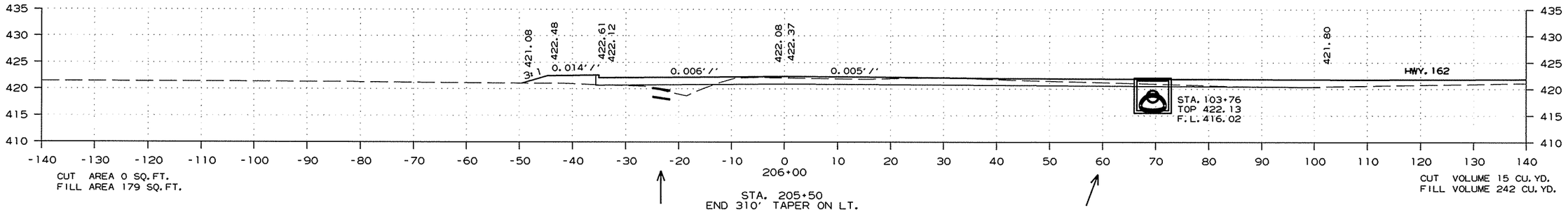
3/3/2015

R040456.DGN

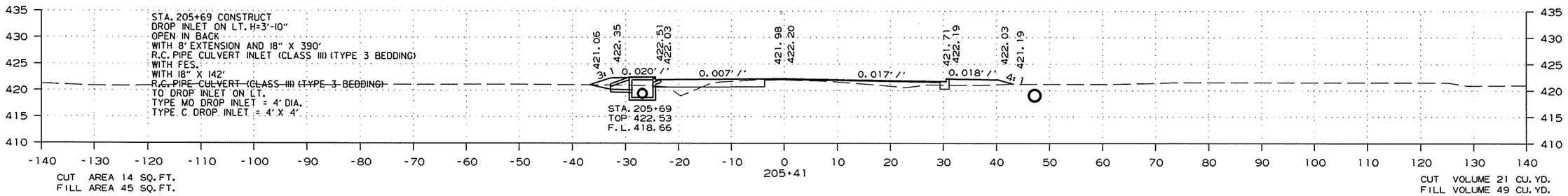
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	169	179

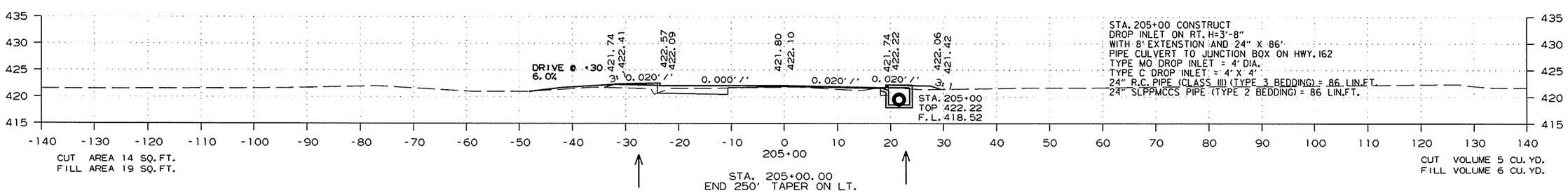
(2) CROSS SECTIONS





STA. 205+50
END 310' TAPER ON LT.





STA. 205+00.00
END 250' TAPER ON LT.

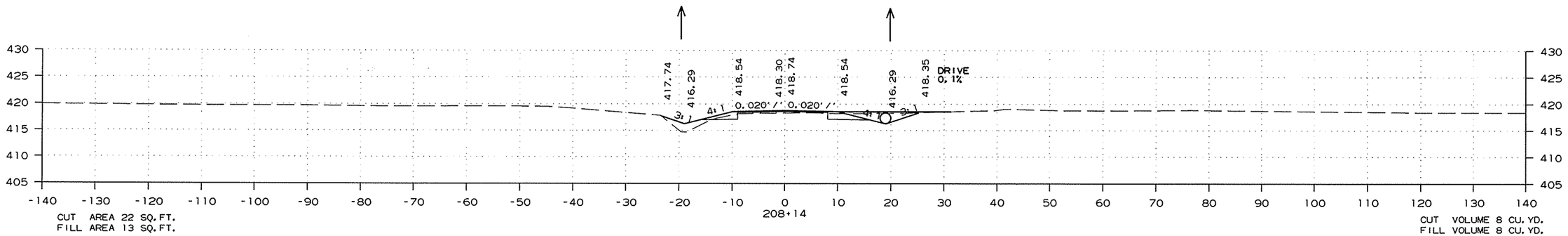
STA. 205+00 TO STA. 207+00

3/3/2015

R040456.DGN

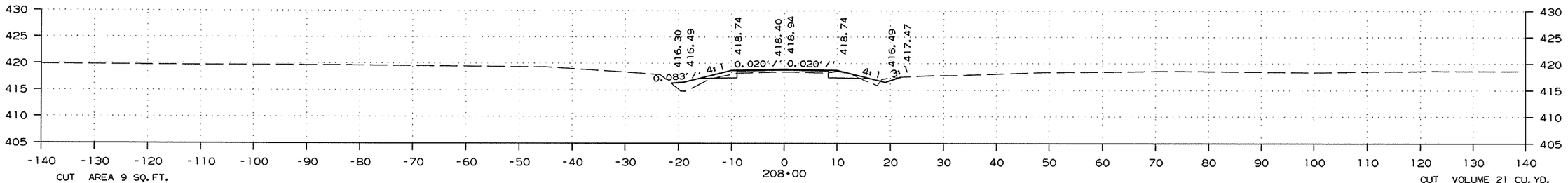
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	170	179

(2) CROSS SECTIONS



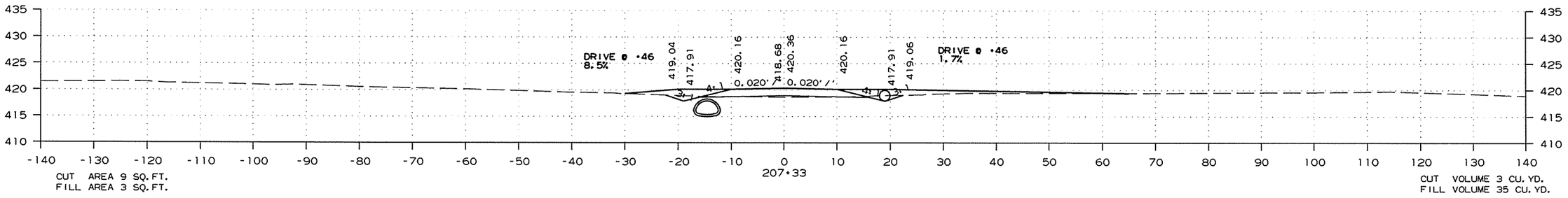
CUT AREA 22 SQ.FT.
FILL AREA 13 SQ.FT.

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



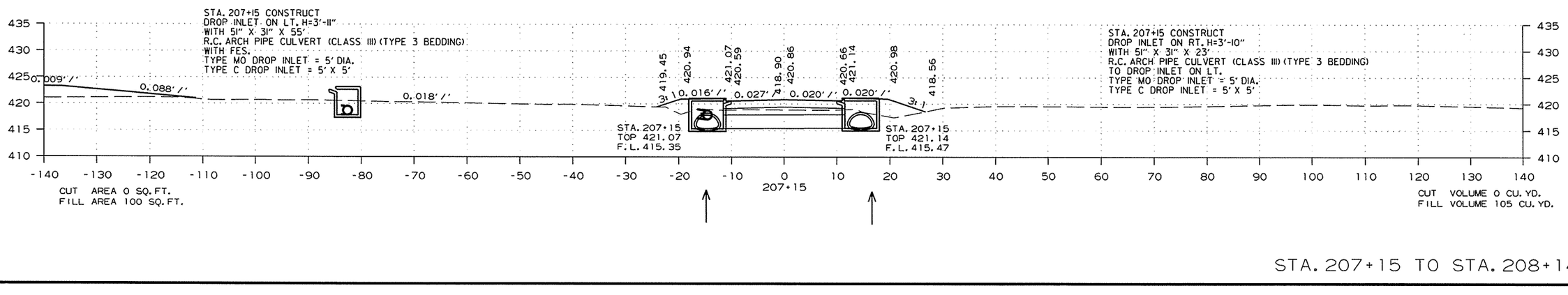
CUT AREA 9 SQ.FT.
FILL AREA 17 SQ.FT.

CUT VOLUME 21 CU.YD.
FILL VOLUME 25 CU.YD.



CUT AREA 9 SQ.FT.
FILL AREA 3 SQ.FT.

CUT VOLUME 3 CU.YD.
FILL VOLUME 35 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 100 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 105 CU.YD.

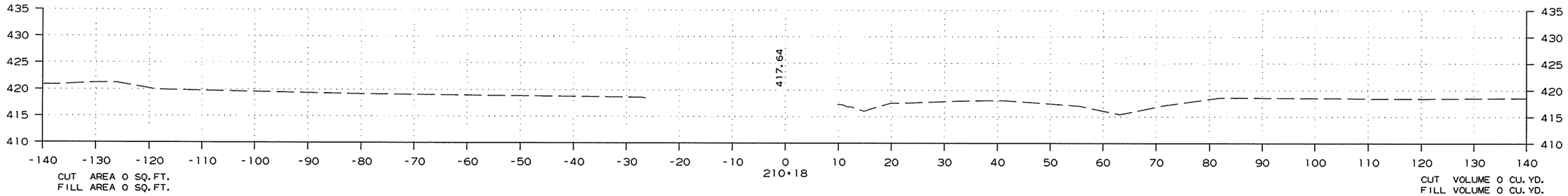
3/3/2015

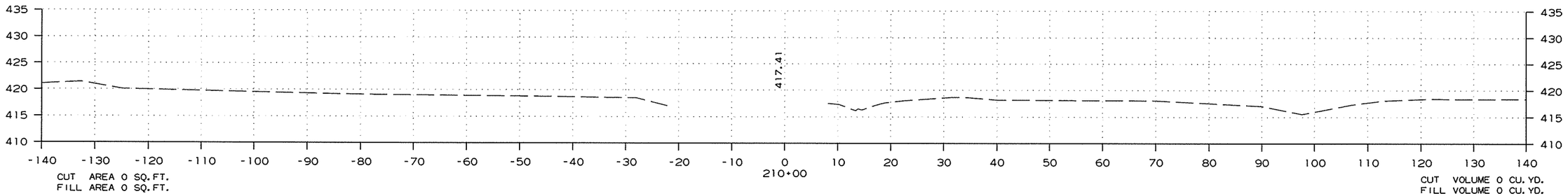
R040456.DGN

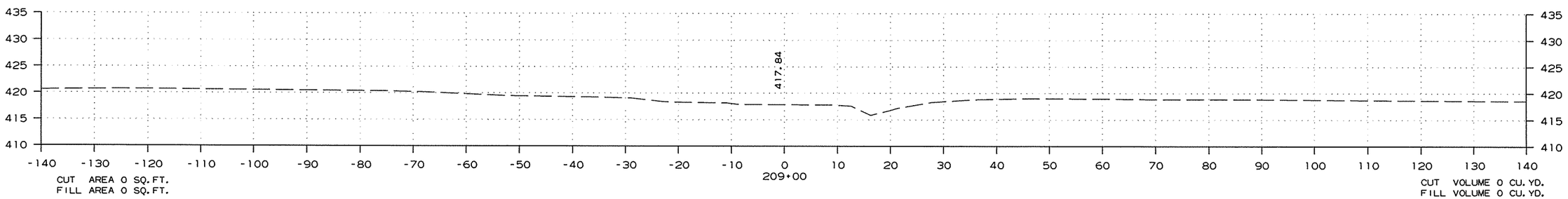
STA. 207+15 TO STA. 208+14

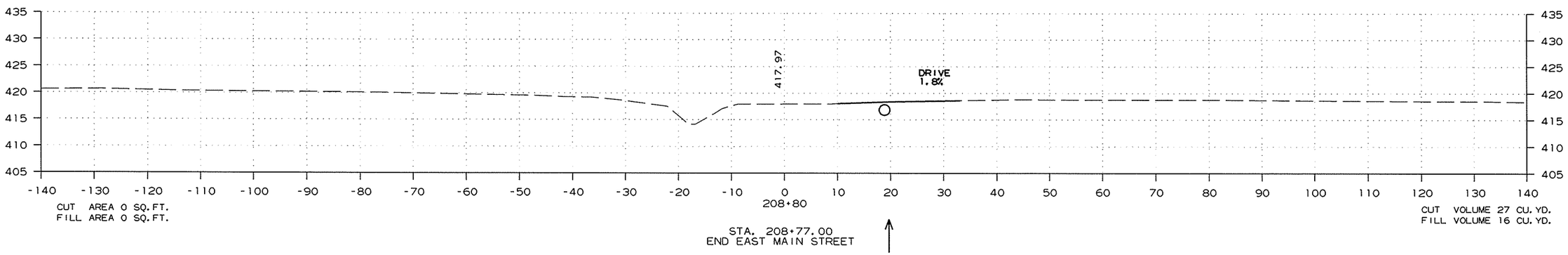
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	171	179

(2) CROSS SECTIONS









STA. 208+77.00
END EAST MAIN STREET

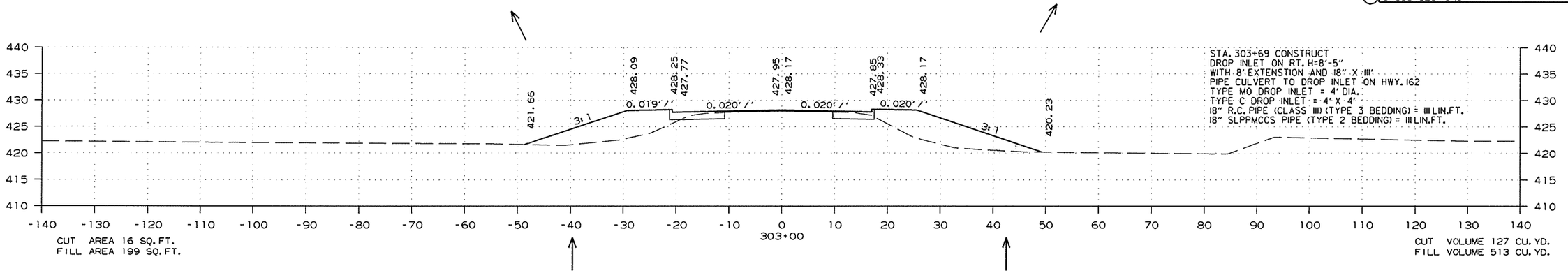
STA. 208+80 TO STA. 210+18

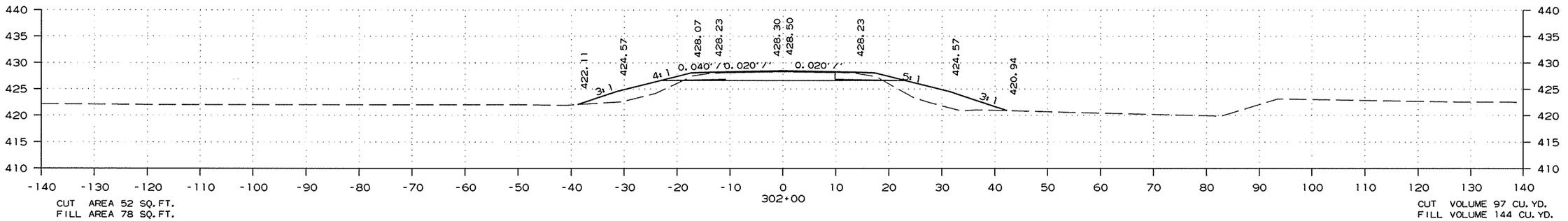
3/3/2015

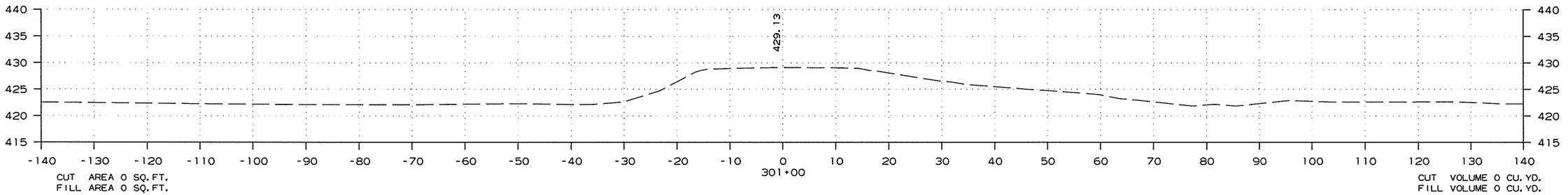
R040456.DGN

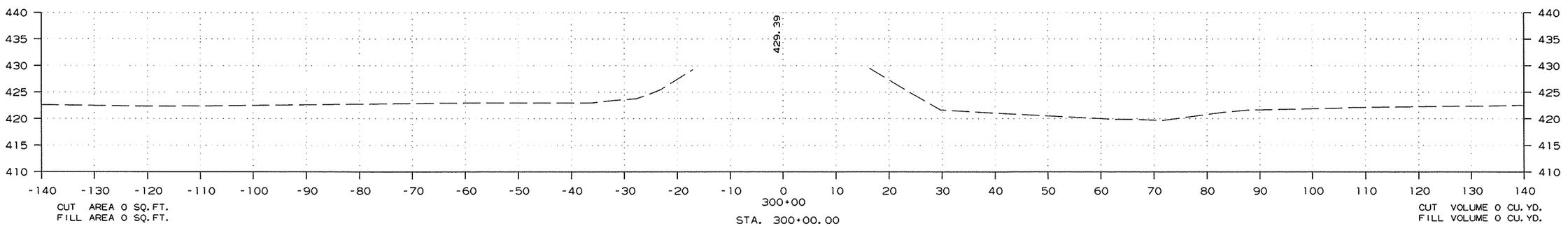
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	172	179

(2) CROSS SECTIONS









STA. 300+00.00
BEGIN HWY. 64B
BEGIN 160' TAPER LT. & RT.

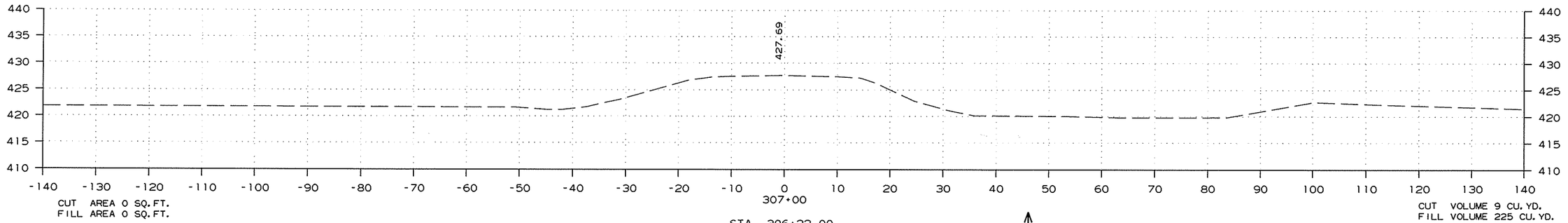
STA. 300+00 TO STA. 303+00

3/3/2015

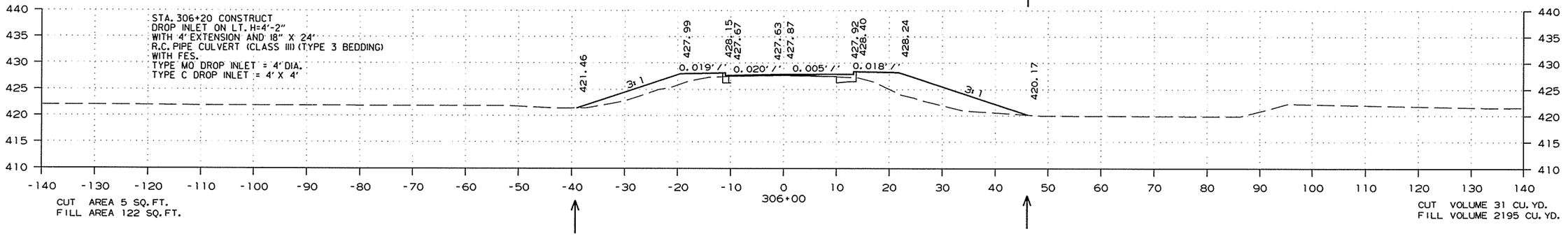
R040456.DGN

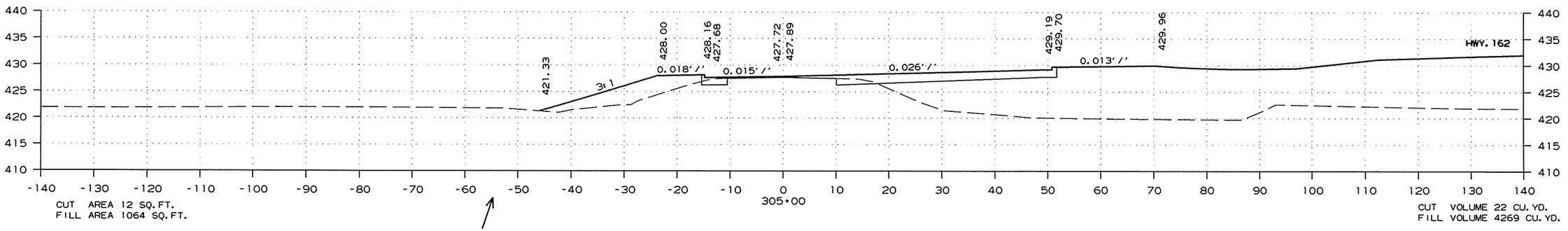
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	173	179

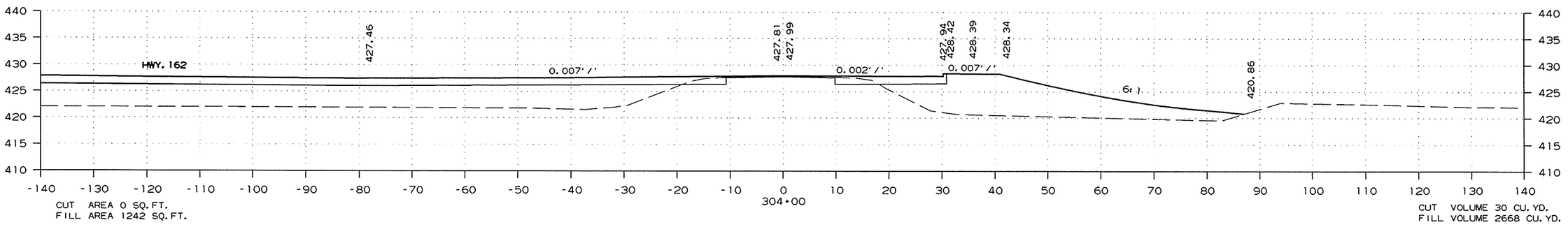
(2) CROSS SECTIONS



STA. 306+22.00
END HWY. 64B







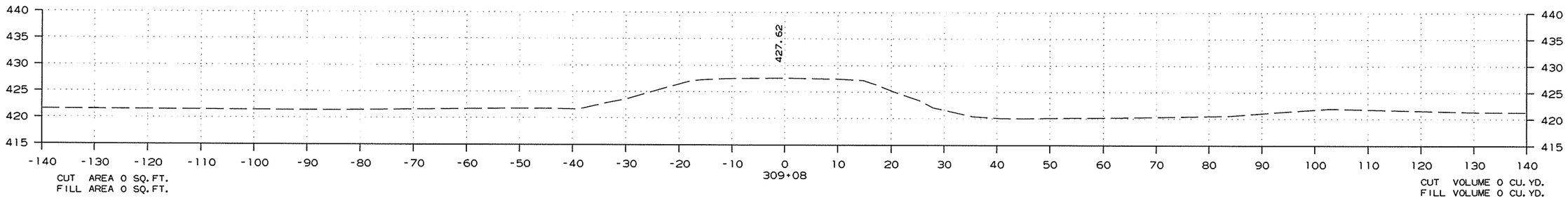
STA. 304+00 TO STA. 307+00

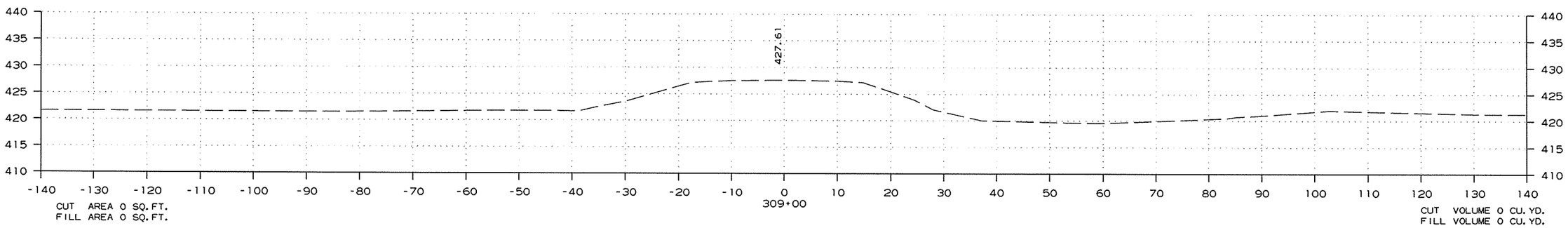
3/3/2015

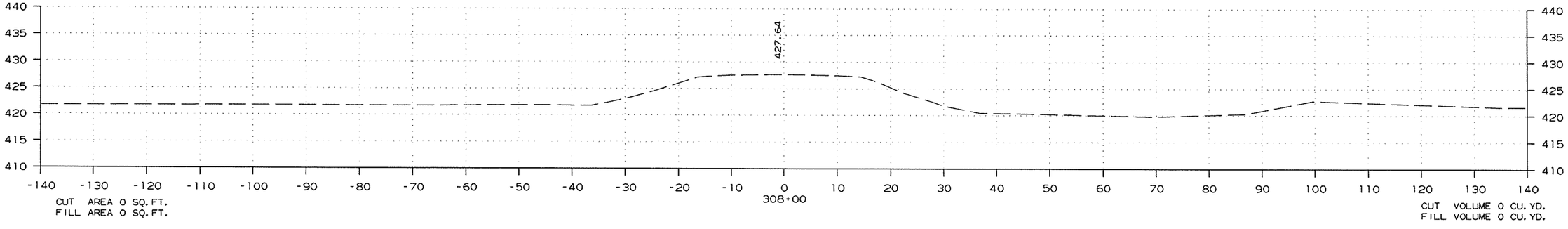
R040456.DGN

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.		040456	174	179

(2) CROSS SECTIONS







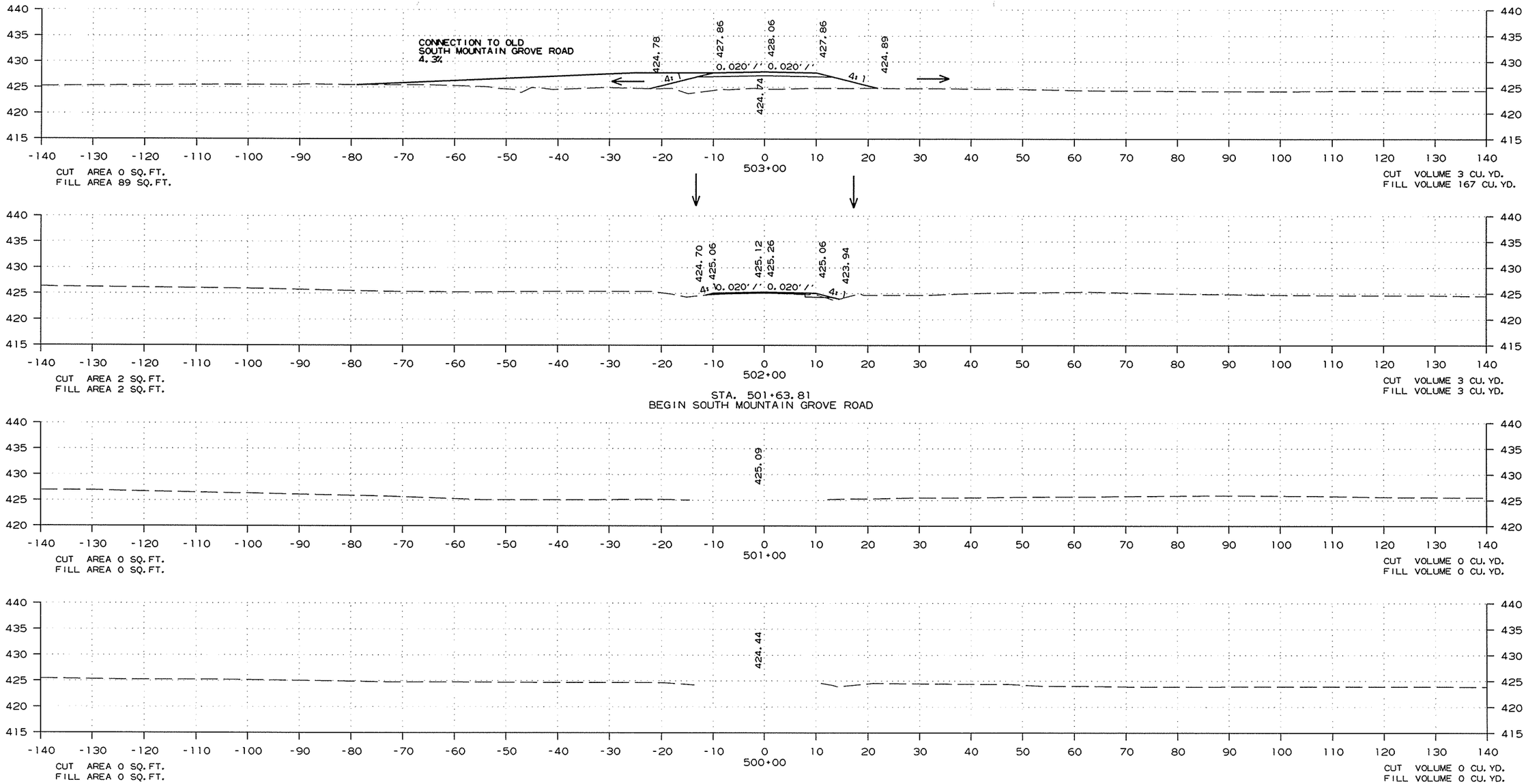
STA. 308+00 TO STA. 309+08

3/3/2015

R040456.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.		040456	175	179

(2) CROSS SECTIONS



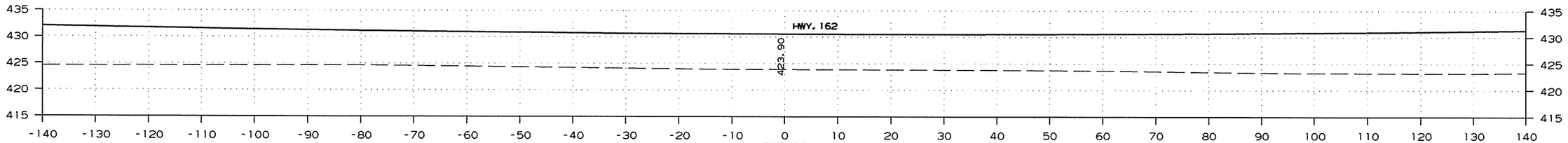
3/3/2015

R040456.DGN

STA. 500+00 TO STA. 503+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	176	179

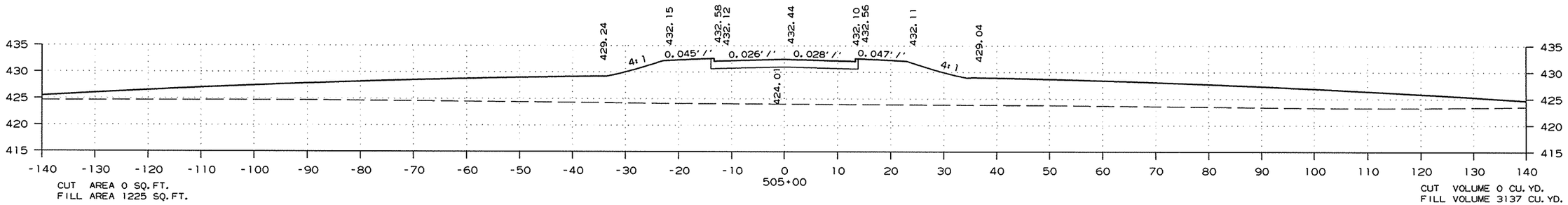
(2) CROSS SECTIONS



CUT AREA 0 SQ.FT.
FILL AREA 1960 SQ.FT.

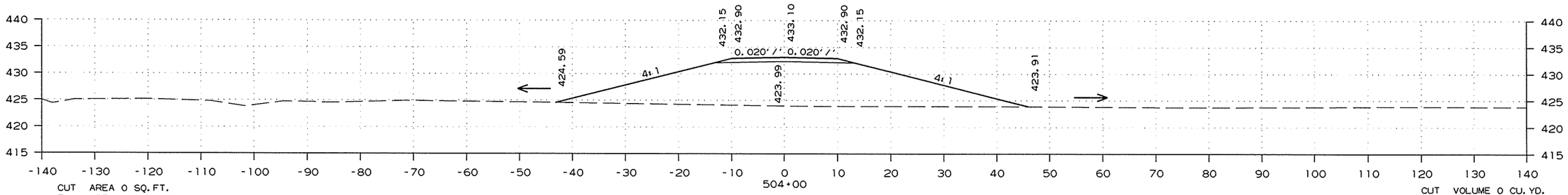
CUT VOLUME 0 CU.YD.
FILL VOLUME 1860 CU.YD.

STA. 505+17.54
END SOUTH MOUNTAIN GROVE ROAD



CUT AREA 0 SQ.FT.
FILL AREA 1225 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 3137 CU.YD.



CUT AREA 0 SQ.FT.
FILL AREA 469 SQ.FT.

CUT VOLUME 0 CU.YD.
FILL VOLUME 1033 CU.YD.

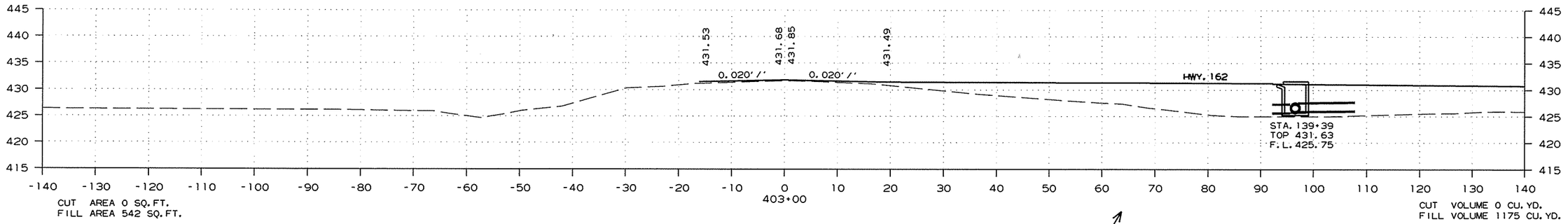
STA. 504+00 TO STA. 505+32

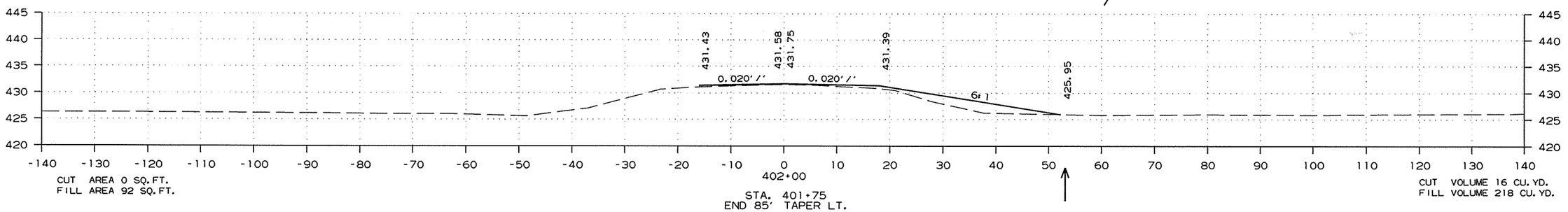
3/3/2015

R040456.DGN

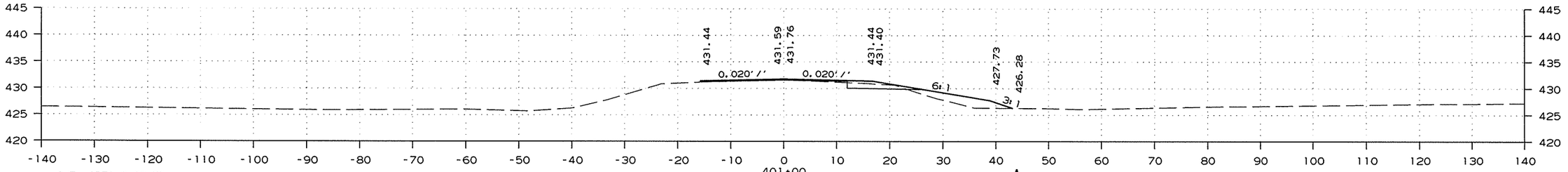
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	177	179

(2) CROSS SECTIONS

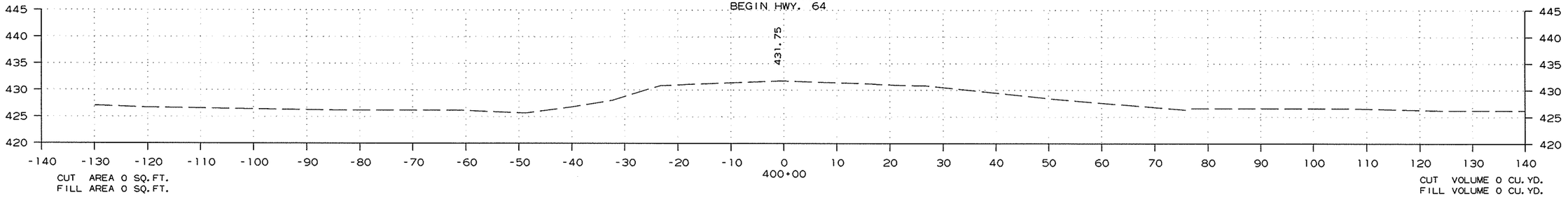




STA. 401+75
END 85' TAPER LT.



STA. 400+90
BEGIN 85' TAPER LT.
STA. 400+89.00
BEGIN HWY. 64



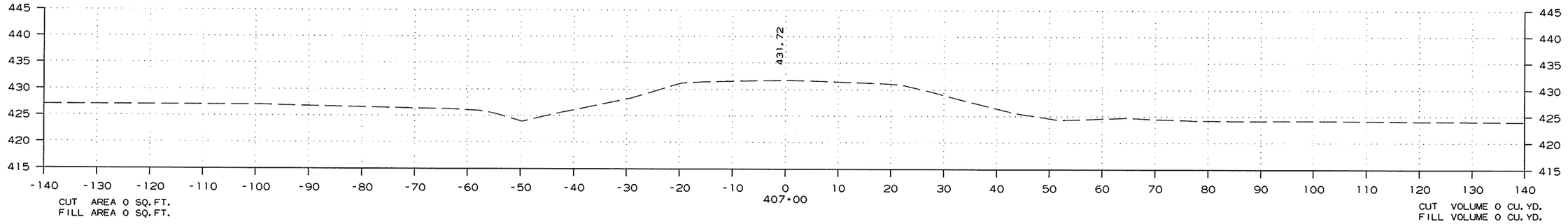
STA. 400+00 TO STA. 403+00

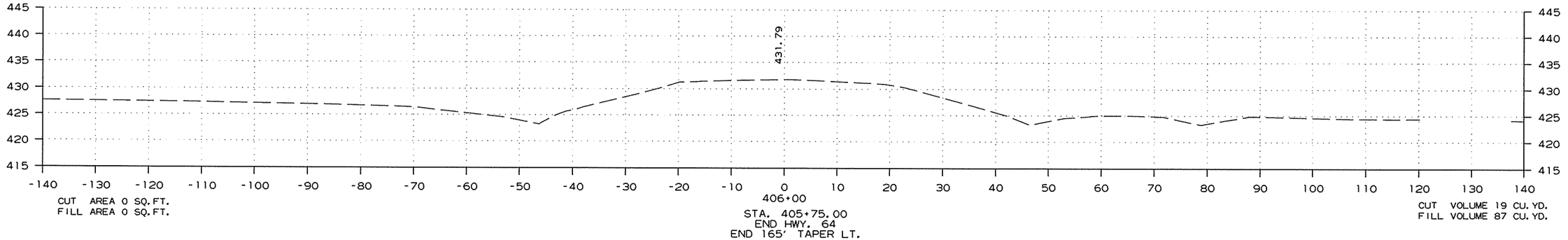
3/3/2015

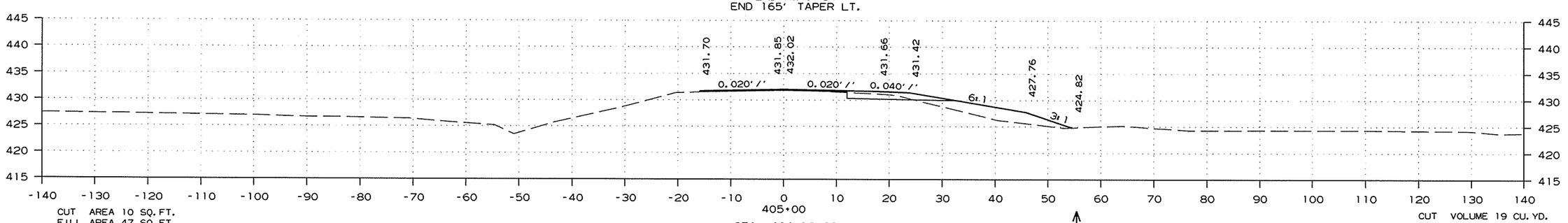
R040456.DGN

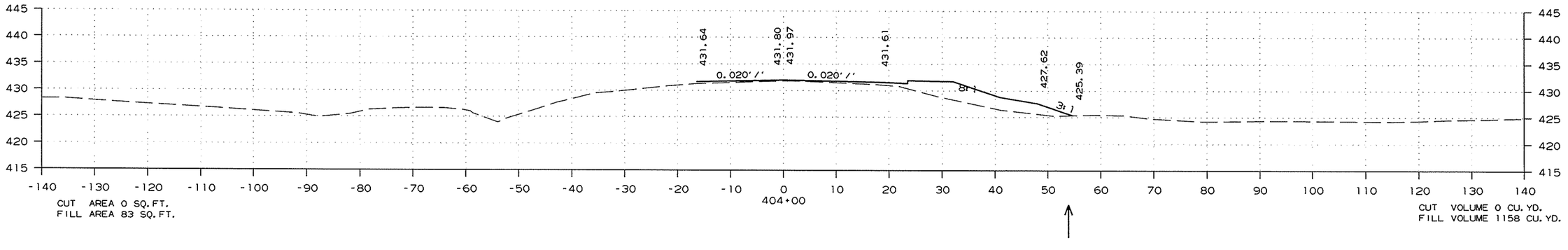
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	178	179

(2) CROSS SECTIONS









STA. 404+00 TO STA. 407+00

3/3/2015

R040456.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040456	179	179

(2) CROSS SECTIONS

STA. 407+49 TO STA. 407+49

3/3/2015

R040456.DGN