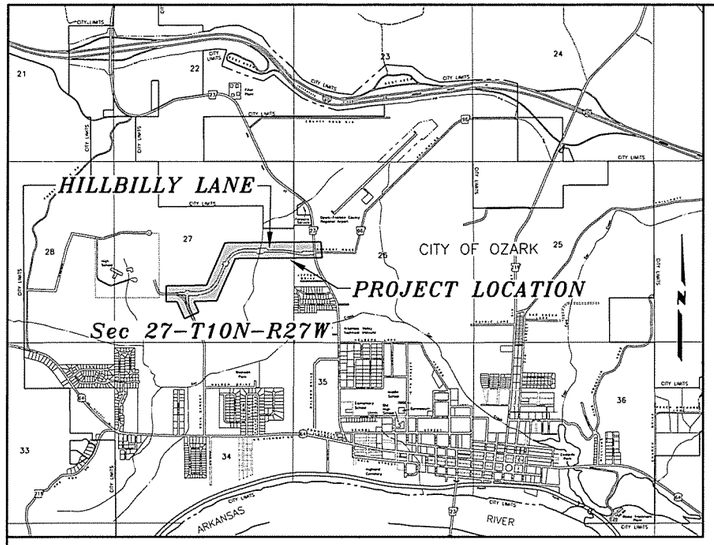
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	1	67
				② HILLBILLY LANE – HWY. 23 – OZARK(S)				
				MICKLE–WAGNER–COLEMAN, INC.				

ARK. STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR CITY STREET

HILLBILLY LANE - HWY. 23

(OZARK)(S)

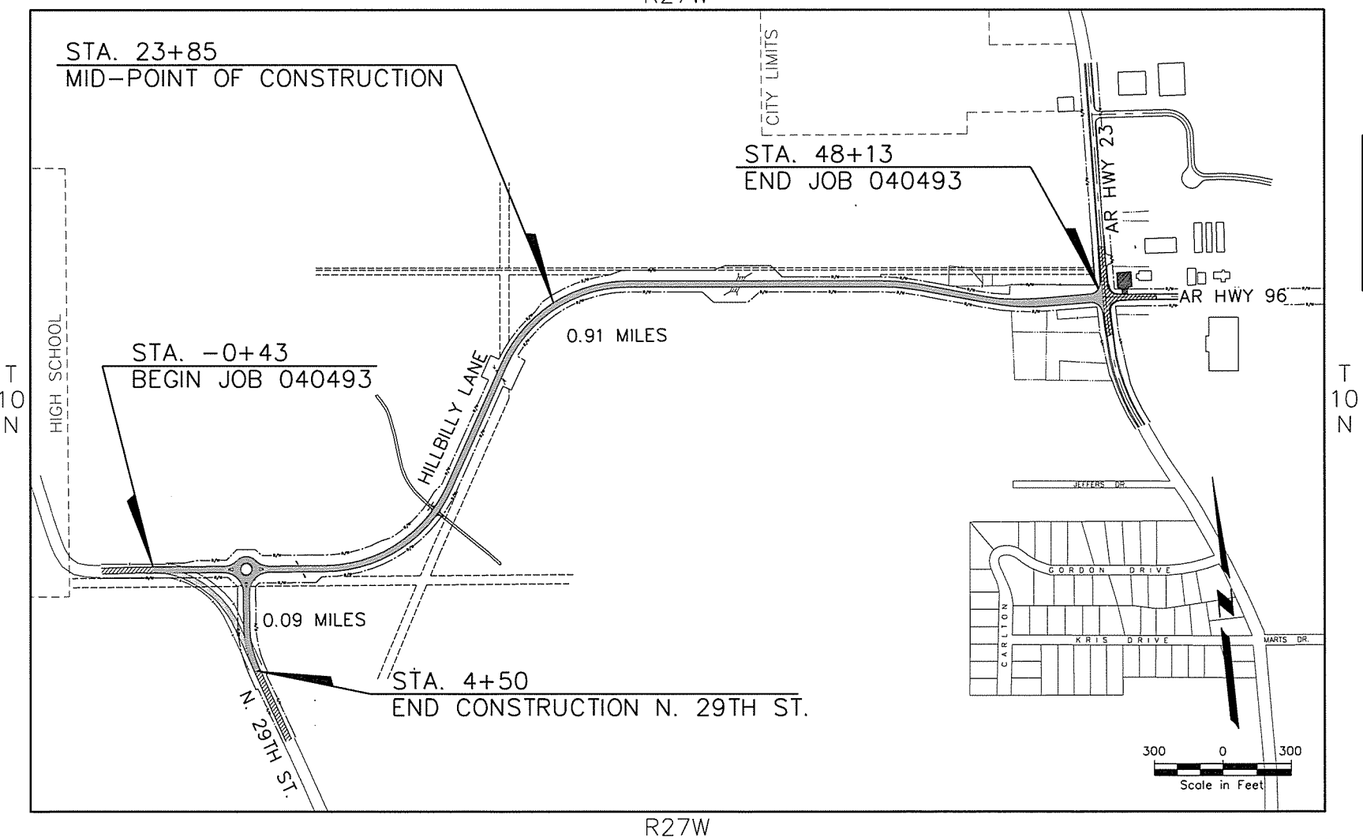
FRANKLIN COUNTY
FED. AID PROJECT STP-0024(21)
JOB 040493



VICINITY MAP
1"=2000'

ARK. HWY. DISTRICT 4

R27W



T 10 N

R27W

T 10 N

DESIGN TRAFFIC DATA

DESIGN YEAR	2034
2014 ADT	1000
2034 ADT	1220
2034 DHV	134
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	10%
DESIGN SPEED	40MPH

STRUCTURES OVER 20'–0" SPAN

STA. 32+16 CONSTRUCT
TRIPLE 8'X5'X74.17' R.C. BOX
CULVERT ON 30° LEFT FWD. SKEW
W/ 3:1 WINGS LEFT & RIGHT.
Q_{25} = 994 CFS
D.A. = 635 ACRES
SPAN = 30.79'

CERTIFICATE OF AUTHORIZATION
MICKLE WAGNER COLEMAN, INC.
No. 96
ARKANSAS ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 17296
ANDREW E. WAGNER
5/7/14

P.E. JOB 040493
F.A.P. Q200–0024–021

BEGINNING OF PROJECT:
LAT: 35°30'5.5" N
LONG: 93°51'35.2" W

MID–POINT OF PROJECT:
LAT: 35°30'16.2" N
LONG: 93°51'13.2" W

END OF PROJECT:
LAT: 35°30'15.5" N
LONG: 93°50'44.1" W

LENGTH OF PROJECT CALCULATED ALONG CENTERLINE HILLBILLY LANE

GROSS LENGTH OF PROJECT:	4,856.00 FT.	OR	0.920 MILES
NET LENGTH OF ROADWAY:	4,825.21 FT.	OR	0.914 MILES
NET LENGTH OF BRIDGES:	30.79 FT.	OR	0.006 MILES
NET LENGTH OF PROJECT:	4,856.00 FT.	OR	0.920 MILES

MICKLE WAGNER COLEMAN
Engineers-Consultants-Surveyors
3434 Country Club Ave.
P.O. Box 1507
Fort Smith, Arkansas
(479) 649-8484
Fax: (479) 649-8486
info@mwc-engr.com

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
05-08-2014			
05-12-2014			
05-15-2014			

FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	AR	STP-0024(21)		
JOB NO.		040493	2	67

② INDEX OF SHEETS, GOVERNING SPECIFICATIONS & GENERAL NOTES

MICKLE-WAGNER-COLEMAN, INC.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7396 ANDREW J. BECK

INDEX OF SHEETS

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

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT-EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT-SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT-EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT-EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT-POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT-WAGE RATE DETERMINATION
108-1	LIQUIDATED DAMAGES
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
620-1	MULCH COVER
JOB 040493	ARCHEOLOGICAL MONITORING
JOB 040493	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 040493	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 040493	CHANNEL POST SIGN SUPPORT
JOB 040493	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 040493	DOCUMENTATION OF PAYMENTS MADE TO DISADVANTAGED BUSINESS ENTERPRISES
JOB 040493	INTERNET BIDDING
JOB 040493	OFF-SITE RESTRAINING CONDITIONS FOR AMERICAN BURYING BEETLE
JOB 040493	PLASTIC PIPE
JOB 040493	STORM WATER POLLUTION PREVENTION PLAN
JOB 040493	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 040493	UTILITY ADJUSTMENTS
JOB 040493	WARM MIX ASPHALT

GENERAL NOTES

1. TEMPORARY BENCH MARKS ARE NOTED ON CONTROL DETAIL SHEETS AND THE PLAN AND PROFILE SHEETS.

2. ALL REFERENCES TO ELEVATION DENOTE FINISHED GRADE UNLESS OTHERWISE NOTED. PROFILE ELEVATIONS OF ROADWAY ARE TO FINAL GRADE AT CENTERLINE.

3. ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.

4. 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.

5. 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.

6. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.

7. TREES AND SHRUBBERY THAT DO NOT INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL NOT BE DISTURBED. CARE SHALL BE USED TO PROTECT ALL TREES AND SHRUBS. RESTORE DISTURBED AREAS AS SHOWN ON PLANS. AREAS MORE THAN TEN FEET BEYOND THE DAYLIGHT LIMITS (TOP OR TOE OF SLOPES) ARE DESIGNATED AS PRESERVED VEGETATION.

8. 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.

9. 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.

10. ALL EXISTING UTILITIES EXCEPT MANHOLES AND VALVE BOXES THAT CONFLICT WITH PROPOSED CONSTRUCTION WILL BE REMOVED OR ADJUSTED BY THEIR RESPECTIVE OWNER UNLESS OTHERWISE PROVIDED.

11. CONTRACTOR SHALL MAINTAIN TWO WAY TRAFFIC ALONG AR HIGHWAY 23. LANE CLOSING MAY BE PERMITTED WITH WRITTEN AUTHORIZATION FROM THE ARKANSAS HWY. & TRANSPORTATION DEPARTMENT. CONTRACTOR SHALL MAINTAIN PROPERTY ACCESS DURING CONSTRUCTION AND SHALL SCHEDULE DRIVEWAY CLOSINGS WITH OWNERS.

12. THE CONTRACTOR SHALL NOT STORE MATERIALS OR PARK EQUIPMENT IN PARKING AREAS OF ADJACENT RESIDENTS OR BUSINESSES WITHOUT WRITTEN PERMISSION OF THE OWNER.

13. CONSTRUCTION METHODS AND MATERIALS SHALL BE IN ACCORDANCE WITH THE ARKANSAS HIGHWAY & TRANSPORTATION DEPARTMENT'S "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION", 2014 EDITION AND THE SPECIAL PROVISIONS.

14. CONSTRUCTION SHALL TAKE PLACE ENTIRELY WITHIN PROJECT LIMITS. PROJECT LIMITS ARE THE RIGHT-OF-WAYS AND EASEMENTS DENOTED ON THE HORIZONTAL CONTROL PLANS. NO ENTRY ONTO PROPERTY BEYOND THESE LIMITS IS GRANTED BY THE CITY.

15. 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.

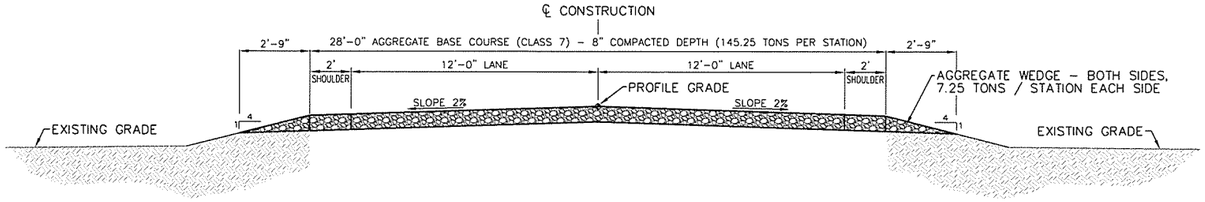
16. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	3	67

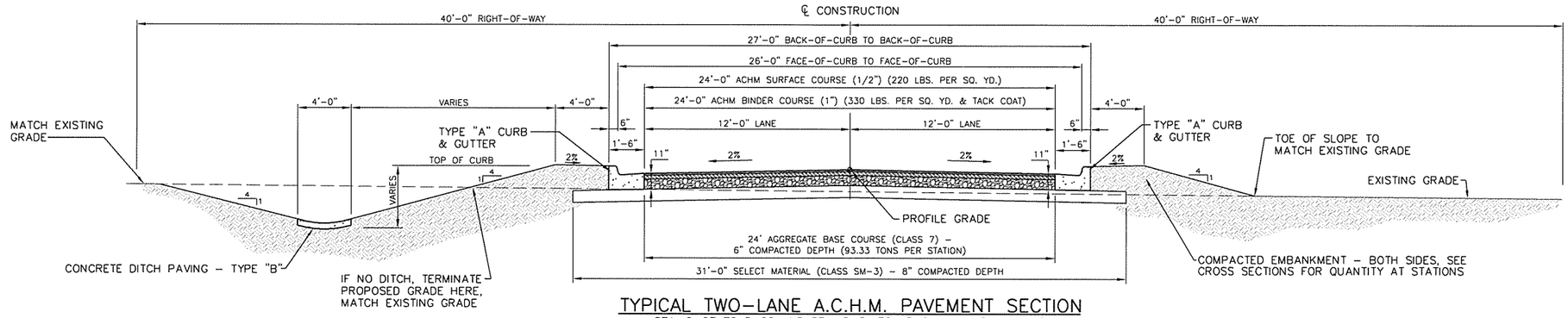
② TYPICAL SECTIONS OF IMPROVEMENTS

MICKLE-WAGNER-COLEMAN, INC.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 17396 ANDREW J. DIEGEL 5/6/14



TYPICAL DETOUR ROAD SECTION
STA. 0+30 TO 4+77 - HILLBILLY LANE
N.T.S.



TYPICAL TWO-LANE A.C.H.M. PAVEMENT SECTION
STA. 0+07 TO 3+06 AND STA. 5+31 TO 43+61 - HILLBILLY LANE
STA. 1+13 TO 4+00 - NORTH 29TH STREET
N.T.S.

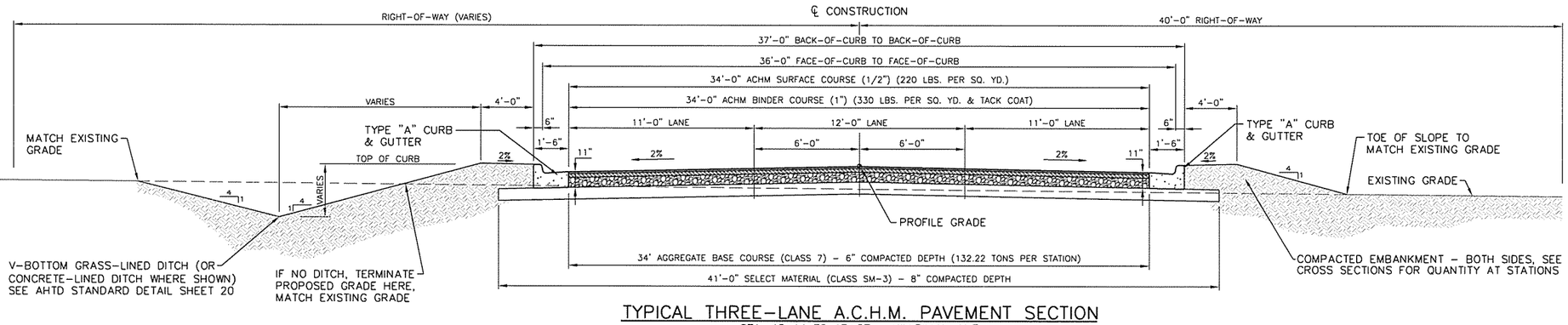
NOTES:

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

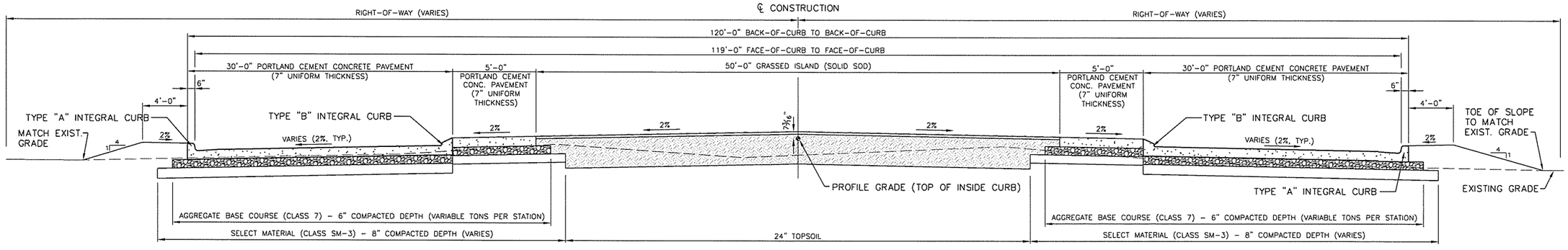
2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

3. 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.

4. REMOVE AND SALVAGE EXISTING TOPSOIL IN ALL CUT AND EMBANKMENT AREAS AND RESPREAD ON SLOPES AFTER ROUGH GRADING.



TYPICAL THREE-LANE A.C.H.M. PAVEMENT SECTION
STA. 45+14 TO 47+57 - HILLBILLY LANE
N.T.S.



TYPICAL ROTARY INTERSECTION P.C.C. PAVEMENT SECTION
STA. 4+18 - HILLBILLY LANE
N.T.S.

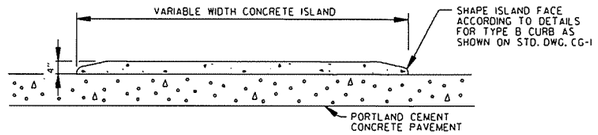
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	4	67

②

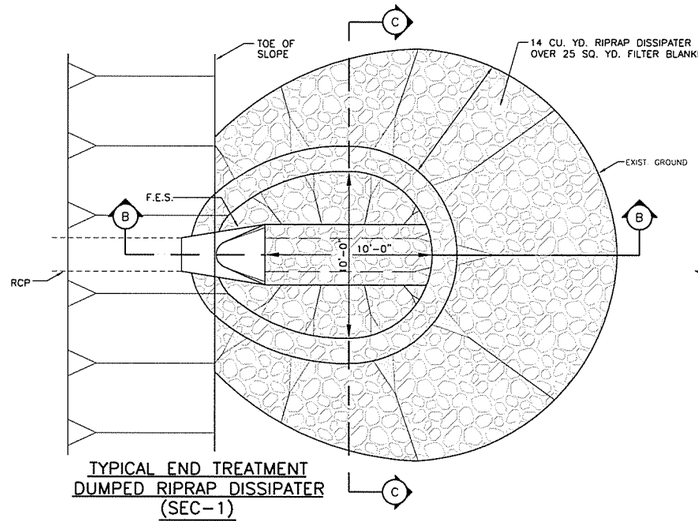
SPECIAL DETAILS

MICKLE-WAGNER-COLEMAN, INC.

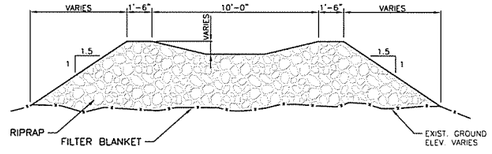
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7296
ANDREW J. DIBBLE



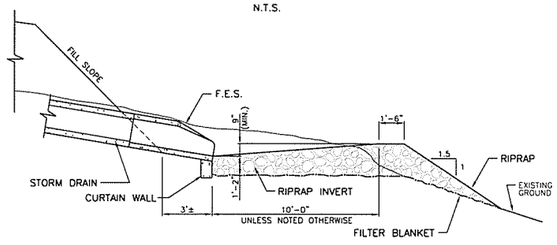
DETAIL OF ISLAND ON P.C. CONCRETE PAVEMENT



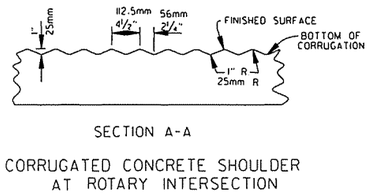
TYPICAL END TREATMENT
DUMPED RIPRAP DISSIPATER
(SEC-1)
N.T.S.



RIPRAP DISSIPATER SECTION C-C
N.T.S.



RIPRAP DISSIPATER SECTION B-B
N.T.S.



SECTION A-A

CORRUGATED CONCRETE SHOULDER
AT ROTARY INTERSECTION

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.		040493	5	67

SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
9'-8"	3'-0"	0'-9"	0'-8"	15	4:1	8'-11 5/8"	1'-0"	3'-10"	1'-0"	15	45	2'-2"	2'-2"	2'-2"	0'-3"	0'-3 -1/2"	11'-6"	16'-0"	13'-4 5/8"	17'-10 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
4.66	443

	F1						F2				F3				F4				F5				F6				F7			F8				F9				F10			F11			F12				
	WING	BAR SIZE	MAX. SPACING	NO. REQ'D	LENGTHS VARY		BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	REINF. STEEL QTY. PER WING (LBS)
	WING A	4	12	12	L	Min	-	-	-	-	-	-	-	-	4	18	2	Min	4	18	2	11'-2"	4	18	8	L Min	4	6	14'-3"	4	18	8	Min	-	-	-	Min	4	2	11'-4"	4	2	12'-6"	6	12	3	L 3'-4"	191
						Max												6'-7"								Max							1'-8"				Max								X 1'-8"	
					X	Min												Max								Min							Max				-									
						Max												6'-7"								Max							1'-8"													
					Y	Min												Min								Min							Min													
						Max												6'-7"								Max							1'-8"													
	WING B	4	12	16	L	Min	-	-	-	-	-	-	-	-	4	18	2	Min	4	18	2	15'-8"	4	18	11	L Min	4	6	18'-9"	4	18	11	Min	-	-	-	Min	4	2	15'-9"	4	2	17'-4"	6	12	3	L 3'-4"	252
						Max												9'-3"								Max							1'-8"				Max								X 1'-8"	
					X	Min												Max								Min							Max				-									
						Max												9'-3"								Max							1'-8"													
					Y	Min												Min								Min							Min													
						Max												9'-3"								Max							1'-8"													

③ MID-SECTION

BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.
For additional information and outlet sections, see Sheet 2 of 2.

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

TABULAR DATA BY: A.M.S. DATE: 5/1/14
CHECKED BY: ACP DATE: 5/1/14

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	TOP SLAB REINFORCING STEEL c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D	BOTTOM SLAB REINFORCING STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	BOTTOM SLAB REINFORCING STEEL f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D	SIDE WALL REINFORCING STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH	INTERIOR WALL REINFORCING STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH	TOP SLAB DISTRIBUTION REINFORCING STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY	SIDE WALL DISTRIBUTION REINFORCING STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH	INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
SK	SL	D	S	H	LL	T	HW	B	C	W	OW	OH																																								
15	4:1	2	4	3	3'-4"	8	3	9	6	8	9'-8"	4'-5"	4	8.5	Max 9'-4" Min 5'-11" 9'-4"	2 3	4	11	Max 9'-4" Min 5'-11" 9'-4"	2 3	4	11	Max 9'-4" Min 5'-11" 9'-4"	2 3	4	11	Max 9'-4" Min 5'-11" 9'-4"	2 3	4	9	10	4'-1"	4	12	8	4'-1"	4	12	19	Max 4'-5" Min 1'-10"	4	12	Max 4'-5" Min 1'-10"	4	12	3	LONG 4'-4" SHORT 1'-11"	4	12	6	3'-2"

k1 SIZE	k1 LENGTH	k1 NO. REQ'D	k2 SIZE	k2 LENGTH	k2 NO. REQ'D	h SIZE	h LENGTH	h Y	h NO. REQ'D
4	9'-2"	6	4	9'-2"	6	4	1'-7"	0'-7"	12

CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
2.48	355

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL																																							

HDWL THK. HW	ADDITIONAL REINF. FOR HDWL LBS.	"h" BARS SIZE	Y	LENGTH	NO. REQ'D

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	② ADDTL. REINF. PER LONG. LAP LOCATION LBS.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADDITIONAL REINF. FOR HDWL LBS.

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D	INTERIOR WALL DISTRIBUTION STEEL "d2" LENGTH = SL SIZE	SPACING	NO. REQ'D
A	D	S	H	T	B	C	W	OW	OH	SL																																						
A	2	4	3	9.5	9.5	6.0	8	9'-8"	4'-7"	53.33	4	9'-4"	8	9'-7"	8	9'-4"	20	31	4	9'-4"	4	9'-6"	4	9'-4"	22	29	4	9	142	4'-3"	4	12	106	4'-3"	4	11	23	4	11	23	4	12	6	4	12	6

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	② ADTL. REINF. PER LONG. LAP LOCATION (S) LBS.
0.75	96	68

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
DOUBLE BARREL BOX CULVERT
STA. 6+66

SPECIAL DETAILS

Ver. 1.14 b040493_cl.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.		040493	6	67

① SPECIAL DETAILS

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
9'-8"	3'-0"	0'-9"	0'-8"	15	4:1	8'-11 5/8"	1'-0"	3'-10"	1'-0"	15	45	2'-2"	2'-2"	2'-2"	0'-3"	0'--3 -1/2"	11'-6"	16'-0"	13'-4 5/8"	17'-10 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
5.20	443

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS		F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS		F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY		
WING A	4	12	12	L	Min	2'-0"	-	-	-	L	-	-	-	-	L	-	4	18	2	Min	4	18	2	11'-2"	4	18	8	L	Min	2'-8"
					Max	4'-8"														6'-7"									Max	5'-3"
				X	Min	0'-9"				X	-				X	-												X	Min	1'-4"
					Max	0'-9"														Max									Max	1'-4"
				Y	Min	1'-4"				Y	-				Y	-				6'-7"								Y	Min	1'-5"
					Max	4'-0"																							Max	4'-0"
WING B	4	12	16	L	Min	2'-1"	-	-	-	L	-	-	-	-	L	-	4	18	2	Min	4	18	2	15'-8"	4	18	11	L	Min	2'-8"
					Max	4'-8"														9'-3"									Max	5'-3"
				X	Min	0'-9"				X	-				X	-												X	Min	1'-4"
					Max	0'-9"														Max									Max	1'-4"
				Y	Min	1'-5"				Y	-				Y	-				9'-3"								Y	Min	1'-5"
					Max	4'-0"																							Max	4'-0"

WING	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	6	14'-3"	4	18	8	Min	-	-	-	Min	4	2	11'-4"	4	2	12'-6"	6	12	3	L	3'-4"	191
							1'-8"				-												
							Max				Max										X	1'-8"	
							1'-8"				-												
WING B	4	6	18'-9"	4	18	11	Min	-	-	-	Min	4	2	15'-9"	4	2	17'-4"	6	12	3	L	3'-4"	252
							1'-8"				-												
							Max				Max										X	1'-8"	
							1'-8"				-												

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

No. 7510
CARL J. FUSELIER
5/1/14
Carl J. Fuselier

TABULAR DATA BY: A.M.S. DATE: 5/1/14
CHECKED BY: ACP DATE: 5/1/14

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL								BOTTOM SLAB REINFORCING STEEL							
													a				c				d				f			
SK	SL	D	S	H	LL	T	HW	B	C	W	OW	OH	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D
15	4:1	2	4	3	3'-4"	8	3	9	6	8	9'-8"	4'-5"	4	8.5	Max	2	4	11	Max	2	4	11	Max	2	4	11	Max	2
															9'-4"				9'-4"				9'-4"				9'-4"	
															Min				Min				Min				Min	
															5'-11"				5'-11"				5'-11"				5'-11"	
															9'-4"	3			9'-4"	3			9'-4"	3			9'-4"	3

SIDE WALL REINFORCING STEEL				INTERIOR WALL REINFORCING STEEL				TOP SLAB DISTRIBUTION REINFORCING STEEL				BOTTOM SLAB DISTRIBUTION REINFORCING STEEL				SIDE WALL DISTRIBUTION REINFORCING STEEL				INTERIOR WALL DISTRIBUTION REINFORCING STEEL			
f0				f1				g				e				d1				d2			
SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
4	9	10	4'-1"	4	12	8	4'-1"	4	12	19	Max	4	12	19	Max	4	12	3	LONG	4	12	6	3'-2"
											4'-5"				4'-5"				4'-4"				
											Min				Min			3	SHORT				
											1'-10"				1'-10"				1'-11"				

CLASS "S" CONCRETE (Includes HDWL)	①REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
2.48	355

k1			k2			h			
SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	Y	NO. REQ'D
4	9'-2"	6	4	9'-2"	6	4	1'-7"	0'-7"	12

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS								BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS							
											a		Bent b		c		SPACING	NO. REQ'D	d		Bent b1		f		SPACING	NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L			SIZE	L	SIZE	L	SIZE	L		

SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"				INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"				TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL			INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL		
SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)	②ADTL. REINF. PER LONG. LAP LOCATION	ADDITIONAL CONCRETE FOR HDWL	TOTAL ADDITIONAL REINF. FOR HDWL
CU. YDS. PER LIN. FT.	LBS. PER LIN. FT.	LBS.	CU. YDS.	LBS.

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" BARS			
HW	LBS.	SIZE	Y	LENGTH	NO. REQ'D

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

The required number of bars and lengths shown are for estimating purpose only. The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2

DETAILS OF R.C. BOX CULVERT

DOUBLE BARREL BOX CULVERT
STA. 6+66

SPECIAL DETAILS

Ver. 1.14 b040493_cl.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.		040493	7	67

(1) SPECIAL DETAILS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7510 CARL J. FUSSLIER 5/1/14

TABULAR DATA BY: A.M.S. DATE: 5/1/14
CHECKED BY: ACP DATE: 5/1/14

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B	CLASS "S" CONCRETE (Includes apron) INLET	REINFORCING STEEL (Includes apron and laps if required) INLET
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.
6'-0"	3'-0"	0'-9"	0'-8"	15	4:1	5'-2 1/8"	1'-0"	3'-10"	1'-0"	15	45	2'-2"	2'-2"	2'-2"	0'-3"	0'--3 -1/2"	11'-6"	16'-0"	13'-4 5/8"	17'-10 5/8"	4.43	438

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	12	L Min 2'-0" Max 4'-8" X Min 0'-9" Max 0'-9" Y Min 1'-4" Max 4'-0"	-	-	-	L - X - Y -	-	-	-	L - X - Y -	4	18	2	Min 6'-7" Max 6'-7"	4	18	2	11'-2"	4	18	8	L Min 2'-8" Max 5'-3" X Min 1'-4" Max 1'-4" Y Min 1'-5" Max 4'-0"	4	6	14'-3"	4	18	8	Min 1'-8" Max 1'-8"	-	-	-	Min - Max -	4	2	11'-4"	4	2	12'-6"	6	12	3	L 3'-4" X 1'-8"	189
WING B	4	12	16	L Min 2'-1" Max 4'-8" X Min 0'-9" Max 0'-9" Y Min 1'-5" Max 4'-0"	-	-	-	L - X - Y -	-	-	-	L - X - Y -	4	18	2	Min 9'-3" Max 9'-3"	4	18	2	15'-8"	4	18	11	L Min 2'-8" Max 5'-3" X Min 1'-4" Max 1'-4" Y Min 1'-5" Max 4'-0"	4	6	18'-9"	4	18	11	Min 1'-8" Max 1'-8"	-	-	-	Min - Max -	4	2	15'-9"	4	2	17'-4"	6	12	3	L 3'-4" X 1'-8"	249

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 2 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF SINGLE-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.
For additional information and outlet sections, see Sheet 2 of 2.

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL HEIGHT	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINF. STEEL "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	BOTTOM SLAB REINF. STEEL "b" SIZE	"b" SPACEING	"b" LENGTHS VARY	"b" NO. REQ'D	SIDE WALL REINF. STEEL "f" SIZE	"f" SPACING	"f" NO. REQ'D	"f" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" SIZE	"d" SPACING	"d" NO. REQ'D	"d" LENGTHS VARY	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DISTRIBUTION REINF. STEEL "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	HDWL "k1", "k2" & "h" BAR	SIZE	NO. REQ'D	LENGTH	CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	(1) REINFORCING STEEL (GR. 60) (Includes HDWL) LBS.
SK	SL	D	S	H	LL	T	B	C	HW	OW	OH																														
15	4:1	2	5	3	1'-10"	8	9	6	3	6'-0"	4'-5"	5	7	Max 5'-8" Min 5'-8"	0 2	4	7.5	Max 5'-8" Min 5'-8"	0 2	4	9	6	4'-1"	4	12	6	Max 2'-5" Min 0'-10"	4	12	6	Max 2'-5" Min 0'-10"	4	12	3 3	LONG 2'-5" SHORT 0'-10"	k1 k2 h	4 4 4	6 6 8	5'-11" 5'-11" 1'-7" Y 0'-7"	0.89	111

(1) Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the Item "Reinforcing Steel - Roadway (Gr. 60)."

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
	D	S	H	T	B	C	OW	OH	SL																					

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 50) LBS. PER LIN. FT.	(2) ADTL. REINF. PER LONG. LAP LOCATION LBS.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADDITIONAL REINF. FOR HDWL LBS.

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" bars SIZE	Y	LENGTH	NO. REQ'D
HW	LBS				

(2) Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

(3) MID-SECTION BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINFORCING STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINFORCING STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "d" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
	D	S	H	T	B	C	OW	OH	SL																					
A	2	5	3	10.5	10.5	6	6'-0"	4'-9"	56.33	5	9	75	5'-8"	4	8	84	5'-8"	4	9	150	4'-5"	4	10	7	4	10	7	4	12	6

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (Gr. 60) LBS. PER LIN. FT.	(3) ADTL. REINF. PER LONG. LAP LOCATION(S) LBS.
0.50	35	23

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
SINGLE BARREL BOX CULVERT
STA. 20+00

SPECIAL DETAILS

LRFD

Ver. 1.114 b040493_c2.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.		040493	8	67

① SPECIAL DETAILS

STATE OF ARKANSAS
CARL V. PUSSELLER
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL V. PUSSELLER

TABULAR DATA BY: A.M.S. DATE: 5/1/14
CHECKED BY: ACP DATE: 5/1/14

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
6'-0"	3'-0"	0'-9"	0'-8"	15	4:1	5'-2 1/8"	1'-0"	3'-10"	1'-0"	15	45	2'-2"	2'-2"	2'-2"	0'-3"	0'--3 -1/2"	11'-6"	16'-0"	13'-4 5/8"	17'-10 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
4.88	438

WING	BAR SIZE	MAX. SPACING	NO. REQ'D	LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS
WING A	4	12	12	L	Min	2'-0"	-	-	-	-	-	-	-	-	4	18	2	Min	4	18	2	11'-2"
					Max	4'-8"												6'-7"				
				X	Min	0'-9"												Max				
					Max	0'-9"												6'-7"				
				Y	Min	1'-4"																
					Max	4'-0"																
WING B	4	12	16	L	Min	2'-1"	-	-	-	-	-	-	-	-	4	18	2	Min	4	18	2	15'-8"
					Max	4'-8"												9'-3"				
				X	Min	0'-9"												Max				
					Max	0'-9"												9'-3"				
				Y	Min	1'-5"																
					Max	4'-0"																

WING	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	8	L	Min	2'-8"	4	6	14'-3"	4	18	8	Min	-	-	-	Min	4	2	11'-4"	4	2	12'-6"	6	12	3	L	3'-4"	189
					Max	5'-3"							1'-8"				-												
				X	Min	1'-4"							Max				Max										X	1'-8"	
					Max	1'-4"							1'-8"				-												
				Y	Min	1'-5"																							
					Max	4'-0"																							
WING B	4	18	11	L	Min	2'-8"	4	6	18'-9"	4	18	11	Min	-	-	-	Min	4	2	15'-9"	4	2	17'-4"	6	12	3	L	3'-4"	249
					Max	5'-3"							1'-8"				-												
				X	Min	1'-4"							Max				Max										X	1'-8"	
					Max	1'-4"							1'-8"				-												
				Y	Min	1'-5"																							
					Max	4'-0"																							

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	HEADWALL HEIGHT	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINF. STEEL "a" SIZE	SPACING	LENGTHS VARY	NO. REQ'D	BOTTOM SLAB REINF. STEEL "b" SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIDE WALL REINF. STEEL "f" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIB. REINF. STEEL "d" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	BOTTOM SLAB DISTRIB. REINF. STEEL "e" SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIDE WALL DISTRIB. REINF. STEEL "d1" SIZE	SPACING	NO. REQ'D	LENGTH	HDWL "k1", "k2" & "h" BAR	SIZE	NO. REQ'D	LENGTH
SK	SL	D	S	H	LL	T	B	C	HW	OW	OH																												
15	4:1	2	5	3	1'-10"	8	9	6	3	6'-0"	4'-5"	5	7	Max 5'-8" / Min 5'-8"	0 / 2	4	7.5	Max 5'-8" / Min 5'-8"	0 / 2	4	9	6	4'-1"	4	12	6	Max 2'-5" / Min 0'-10"	4	12	6	Max 2'-5" / Min 0'-10"	4	12	3	LONG 2'-5" / SHORT 0'-10"	k1 / k2 / h	4	6 / 8	5'-11" / 5'-11" / 1'-7" / Y / 0'-7"

CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR. 60) (Includes HDWL)
CU. YDS.	LBS.
0.89	111

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

OUTLET SLOPE SECTIONS)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THICKNESS	BOTTOM SLAB THK.	SIDE WALL THICKNESS	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINF. STEEL "a" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	BOTTOM SLAB REINF. STEEL "b" LENGTH = OW - 4" SIZE	SPACING	NO. REQ'D	LENGTH	SIDE WALL REINF. STEEL "f" LENGTH = OH - 4" SIZE	SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIB. REINF. STEEL "d" LENGTH = SL SIZE	SPACING	NO. REQ'D	BOTTOM SLAB DISTRIB. REINF. STEEL "e" LENGTH = SL SIZE	SPACING	NO. REQ'D	SIDE WALL DISTRIB. REINF. STEEL "d1" LENGTH = SL SIZE	SPACING	NO. REQ'D
	D	S	H	T	B	C	OW	OH	SL																				

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" bars			
HW	LBS	SIZE	Y	LENGTH	NO. REQ'D

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 50)	② ADTL. REINF. PER LONG. LAP LOCATION	ADDITIONAL CONCRETE FOR HDWL	TOTAL ADDITIONAL REINF FOR HDWL
CU. YDS. PER LIN. FT.	LBS. PER LIN. FT.	LBS.	CU. YDS.	LBS.

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

The required number of bars and lengths shown are for estimating purpose only. The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT

SINGLE BARREL BOX CULVERT
STA. 20+00

SPECIAL DETAILS

Ver. 1.1.4 b040493_c2.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.		040493	9	67

① SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
26'-4"	5'-0"	0'-9"	0'-8"	30	4:1	29'-3"	1'-0"	5'-10"	1'-8"	0	60	2'-2"	2'-8 5/8"	3'-1 1/8"	1'-0 5/8"	1'-1 1/2"	16'-6"	33'-0"	18'-4 5/8"	34'-10 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
11.29	951

WING	BAR SIZE	MAX. SPACING	NO. REQ'D	LENGTHS VARY			F1 LENGTHS	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY			F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	17	L	Min	2'-8"	L	-			L	-			L	-	4	18	6	Min	4	18	2	16'-2"	4	18	11	L	Min	3'-6"	4	6	19'-3"	4	18	11	Min				4	2	16'-6"	4	2	17'-4"	6	12	5	L	3'-4"	333
					Max	7'-3"														2'-6"								Max	1'-4"								1'-8"												
				X	Min	0'-9"	X	-			X	-			X	-				Max								Max	1'-4"								2'-2"										X	1'-8"	
					Max	1'-4"														14'-4"									2'-3"								-											
				Y	Min	2'-0"	Y	-			Y	-			Y	-													Max	6'-0"																			
					Max	6'-0"																																												
WING B	4	12	33	L	Min	2'-8"	L	-			L	-			L	-	4	18	6	Min	4	18	2	32'-8"	4	18	22	L	Min	3'-4"	4	6	35'-9"	4	18	23	Min				4	2	32'-9"	4	2	36'-5"	6	12	5	L	3'-4"	618
					Max	7'-8"														5'-1"								Max	1'-4"								1'-8"												
				X	Min	0'-9"	X	-			X	-			X	-				Max								Max	1'-4"								2'-7"										X	1'-8"	
					Max	1'-8"														28'-10"									2'-1"								-											
				Y	Min	2'-0"	Y	-			Y	-			Y	-													Max	6'-1"																			
					Max	6'-1"																																											

③ MID-SECTION BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

STATE OF ARKANSAS
Carl S. Fussellier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL S. FUSSELLIER

TABULAR DATA BY: A.M.S. DATE: 5/1/14
CHECKED BY: ACP DATE: 5/1/14

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.

For additional information and outlet sections, see Sheet 2 of 2.

INLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINF. STEEL a SIZE	a SPACING	a LENGTHS VARY	a NO. REQ'D	TOP SLAB REINF. STEEL c SIZE	c SPACING	c LENGTHS VARY	c NO. REQ'D	BOTTOM SLAB REINF. STEEL d SIZE	d SPACING	d LENGTHS VARY	d NO. REQ'D	BOTTOM SLAB REINF. STEEL f SIZE	f SPACING	f LENGTHS VARY	f NO. REQ'D	SIDE WALL REINF. STEEL f0 SIZE	f0 SPACING	f0 NO. REQ'D	f0 LENGTH	INTERIOR WALL REINF. STEEL f1 SIZE	f1 SPACING	f1 NO. REQ'D	f1 LENGTH	TOP SLAB DISTRIB. REINF. STEEL g SIZE	g SPACING	g NO. REQ'D	g LENGTHS VARY	BOTTOM SLAB DISTRIB. REINF. STEEL e SIZE	e SPACING	e NO. REQ'D	e LENGTHS VARY	SIDE WALL DISTRIB. REINF. STEEL d1 SIZE	d1 SPACING	d1 NO. REQ'D	d1 LENGTH	INTERIOR WALL DISTRIB. REINF. STEEL d2 SIZE	d2 SPACING	d2 NO. REQ'D	d2 LENGTH
SK	SL	D	S	H	FL	T	HW	B	C	W	OW	OH	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
30	4:1	2	8	5	9'-7"	9	3	9	6	8	26'-4"	6'-6"	4	4	Max 26'-0" Min 3'-0" 26'-0"	40 6	6	7	Max 26'-0" Min 3'-0" 26'-0"	23 4	4	6.5	Max 26'-0" Min 3'-0" 26'-0"	25 4	4	7.5	Max 26'-0" Min 3'-0" 26'-0"	22 4	4	6.5	36	6'-2"	4	12	44	6'-2"	4	12	53	Max 17'-0" Min 1'-10"	4	12	53	Max 17'-0" Min 1'-10"	4	12	5	LONG 16'-10" SHORT 2'-0"	4	12	10	LONG 11'-11" SHORT 6'-11"

CLASS "S" CONCRETE (Includes HDWL) CU. YDS.	①REINFORCING STEEL (GR 60) (Includes HDWL) LBS.
18.81	3205

k1 SIZE	k1 LENGTH	k1 NO. REQ'D	k2 SIZE	k2 LENGTH	k2 NO. REQ'D	h SIZE	h LENGTH	h Y	h NO. REQ'D
4	30'-1"	6	4	30'-1"	6	4	1'-8"	0'-8"	32

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

INLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINF. STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINF. STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D	SIDE WALL REINF. STEEL "f0" LENGTH = OH - 4" SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINF. STEEL "f1" LENGTH = OH - 4" SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIB. REINF. STEEL "g" LENGTH = SL SPACING	NO. REQ'D	BOTTOM SLAB DISTRIB. REINF. STEEL "e" LENGTH = SL SPACING	NO. REQ'D	SIDE WALL DISTRIB. REINF. STEEL "d1" LENGTH = SL SPACING	NO. REQ'D	INTERIOR WALL DISTRIB. REINF. STEEL "d2" LENGTH = SL SPACING	NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL																																							

HDWL THK. HW	ADDITIONAL REINF. FOR HDWL LBS.	"h" BARS SIZE	Y	LENGTH	NO. REQ'D

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS. PER LIN. FT.	②ADTL. REINF. PER LONG. LAP LOCATION LBS.	ADDITIONAL CONCRETE FOR HDWL CU. YDS.	TOTAL ADTL. REINF. FOR HDWL LBS.

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

Design Fill Depth	Range of Actual Fill Depth
2	0.0 ft - 2.0 ft
5	>2.0 ft - 5.0 ft
10	>5.0 ft - 10.0 ft
15	>10.0 ft - 15.0 ft
20	>15.0 ft - 20.0 ft
25	>20.0 ft - 25.0 ft
30	>25.0 ft - 30.0 ft
35	>30.0 ft - 35.0 ft
40	>35.0 ft - 40.0 ft

Data shown for Mid-Section, Slope Section(s), and Skewed End Section is based on the design fill depth shown in the table, see PLAN AND PROFILE SHEETS for actual fill depth.

MID-SECTION

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINF. STEEL LENGTH = OW - 4" + BENDS a SIZE	a L	Bent b SIZE	Bent b L	c SIZE	c L	SPACING	NO. REQ'D	BOTTOM SLAB REINF. STEEL LENGTH = OW - 4" + BENDS d SIZE	d L	Bent b1 SIZE	Bent b1 L	f SIZE	f L	SPACING	NO. REQ'D	SIDE WALL REINF. STEEL "f0" LENGTH = OH - 4" SPACING	NO. REQ'D	LENGTH	INTERIOR WALL REINF. STEEL "f1" LENGTH = OH - 4" SPACING	NO. REQ'D	LENGTH	TOP SLAB DISTRIB. REINF. STEEL "g" LENGTH = SL SPACING	NO. REQ'D	BOTTOM SLAB DISTRIB. REINF. STEEL "e" LENGTH = SL SPACING	NO. REQ'D	SIDE WALL DISTRIB. REINF. STEEL "d1" LENGTH = SL SPACING	NO. REQ'D	INTERIOR WALL DISTRIB. REINF. STEEL "d2" LENGTH = SL SPACING	NO. REQ'D
D	S	H	T	B	C	W	OW	OH	SL																																							
A 2	8	5	11	11	6	8	26'-4"	6'-10"	54.83	4	26'-0"	8	26'-7"	8	26'-0"	17	38	4	26'-0"	4	26'-7"	4	26'-0"	18	36	4 7	186	6'-6"	4	12	216	6'-6"	4	10	65	4	10	65	4	12	10	4	12	20

CLASS "S" CONCRETE CU. YDS. PER LIN. FT.	REINFORCING STEEL (GR. 60) LBS PER LIN. FT.	③ADTL. STEEL PER LONG. LAP LOCATION (S) LBS.
2.22	285	187

SHEET 1 OF 2
DETAILS OF R.C. BOX CULVERT
TRIPLE BARREL BOX CULVERT
STA. 32+16

SPECIAL DETAILS

LRFD

Ver. 1.14 b040493_c3.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.		040493	10	67

① SPECIAL DETAILS

STATE OF ARKANSAS
CARL J. FUSELIER
REGISTERED PROFESSIONAL ENGINEER
No. 7510
5/1/14

TABULAR DATA BY: A.M.S. DATE: 5/1/14
CHECKED BY: ACP DATE: 5/1/14

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
26'-4"	5'-0"	0'-9"	0'-8"	30	4:1	29'-3"	1'-0"	5'-10"	1'-8"	0	60	2'-2"	2'-8 5/8"	3'-1 1/8"	1'-0 5/8"	1'-1 1/2"	16'-6"	33'-0"	18'-4 5/8"	34'-10 5/8"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
12.57	951

	F1					F2				F3				F4			F5				F6				F7		F8			F9			F10		F11		F12				
WING	BAR SIZE	MAX. SPACING	NO. REQ'D	LENGTHS VARY		BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS VARY		BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	NO. REQ'D	LENGTHS	BAR SIZE	SPACING	NO. REQ'D	LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	17	L	Min 2'-8"				L -				L -	4	18	6	Min	4	18	2	16'-2"	4	18	11	L	Min 3'-6"	4	6	19'-3"	4	18	11	Min	-	-	-	Min	4	2	16'-6"	4	2	17'-4"	6	12	5	L 3'-4"	333
					Max 7'-3"												2'-6"									Max 7'-3"							1'-8"										X 1'-8"	
				X	Min 0'-9"	-	-	-	X -	-	-	-	X -				Max								X	Min 1'-4"							Max											
					Max 1'-4"												14'-4"									Max 1'-4"							2'-2"											
				Y	Min 2'-0"				Y -				Y -												Y	Min 2'-3"																		
					Max 6'-0"																					Max 6'-0"																		
WING B	4	12	33	L	Min 2'-8"				L -				L -	4	18	6	Min	4	18	2	32'-8"	4	18	22	L	Min 3'-4"	4	6	35'-9"	4	18	23	Min	-	-	-	Min	4	2	32'-9"	4	2	36'-5"	6	12	5	L 3'-4"	618
					Max 7'-8"												5'-1"									Max 7'-4"							1'-8"										X 1'-8"	
				X	Min 0'-9"	-	-	-	X -	-	-	-	X -				Max								X	Min 1'-4"							Max											
					Max 1'-8"												28'-10"									Max 1'-4"							2'-7"											
				Y	Min 2'-0"				Y -				Y -												Y	Min 2'-1"																		
					Max 6'-1"																					Max 6'-1"																		

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL a				TOP SLAB REINFORCING STEEL c				BOTTOM SLAB REINFORCING STEEL d				BOTTOM SLAB REINFORCING STEEL f				SIDE WALL REINFORCING STEEL f0				INTERIOR WALL REINFORCING STEEL f1				TOP SLAB DISTRIBUTION REINFORCING STEEL g				BOTTOM SLAB DISTRIBUTION REINFORCING STEEL e				SIDE WALL DISTRIBUTION REINFORCING STEEL d1				INTERIOR WALL DISTRIBUTION REINFORCING STEEL d2			
SK	SL	D	S	H	LL	T	HW	B	C	W	OW	OH	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
30	4:1	2	8	5	9'-7"	9	3	9	6	8	26'-4"	6'-6"	4	4	Max 26'-0" Min 3'-0"	40	6	7	Max 26'-0" Min 3'-0"	23	4	6.5	Max 26'-0" Min 3'-0"	25	4	7.5	Max 26'-0" Min 3'-0"	22	4	6.5	36	6'-2"	4	12	44	6'-2"	4	12	53	Max 17'-0" Min 1'-10"	4	12	Max 17'-0" Min 1'-10"	53	4	12	5	LONG 16'-10" SHORT 2'-0"	4	12	10	LONG 11'-11" SHORT 6'-11"
																															26'-0"	6			26'-0"	4			26'-0"	4											

CLASS "S" CONCRETE (Includes HDWL)	① REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
18.81	3205

k1			k2			h			
SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	NO. REQ'D	SIZE	LENGTH	Y	NO. REQ'D
4	30'-1"	6	4	30'-1"	6	4	1'-8"	0'-8"	32

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS a		Bent b		c		SPACING	NO. REQ'D	BOTTOM SLAB REINFORCING STEEL LENGTH = OW - 4" + BENDS d		Bent b1		f		SPACING	NO. REQ'D	SIDE WALL REINFORCING STEEL "f0" LENGTH = OH - 4"				INTERIOR WALL REINFORCING STEEL "f1" LENGTH = OH - 4"				TOP SLAB DISTRIBUTION REINFORCING STEEL "g" LENGTH = SL			BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" LENGTH = SL			SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" LENGTH = SL			INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" LENGTH = SL		
D	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D

HDWL THK.	ADDITIONAL REINF. FOR HDWL	"h" BARS			
HW	LBS.	SIZE	Y	LENGTH	NO. REQ'D

CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)	② ADTL. REINF. PER LONG. LAP LOCATION	ADDITIONAL CONCRETE FOR HDWL	TOTAL ADTL. REINF. FOR HDWL
CU. YDS. PER LIN. FT.	LBS. PER LIN. FT.	LBS.	CU. YDS.	LBS.

② Bar Lap - Add one long. lap for each Slope Section, and one additional long. lap for Slope Sections greater than 40'-0" in length.

The required number of bars and lengths shown are for estimating purpose only. The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

SHEET 2 OF 2
DETAILS OF R.C. BOX CULVERT

TRIPLE BARREL BOX CULVERT
STA. 32+16

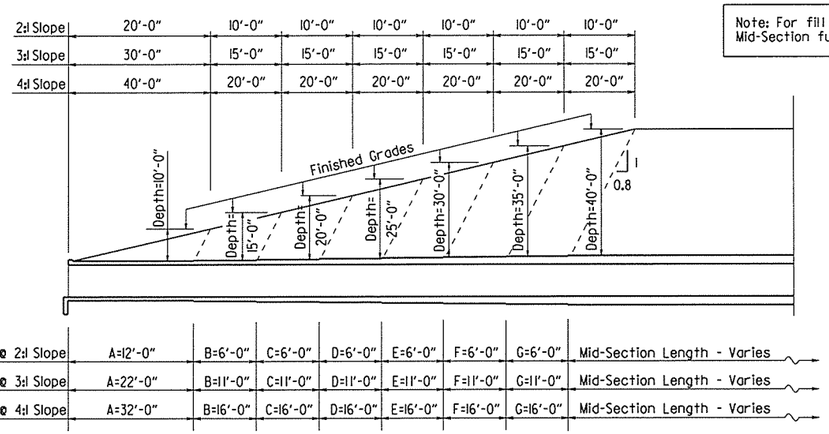
SPECIAL DETAILS

LRFD

Ver. 1.14 b040493_c3.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.		040493	11	67

(1) SPECIAL DETAILS

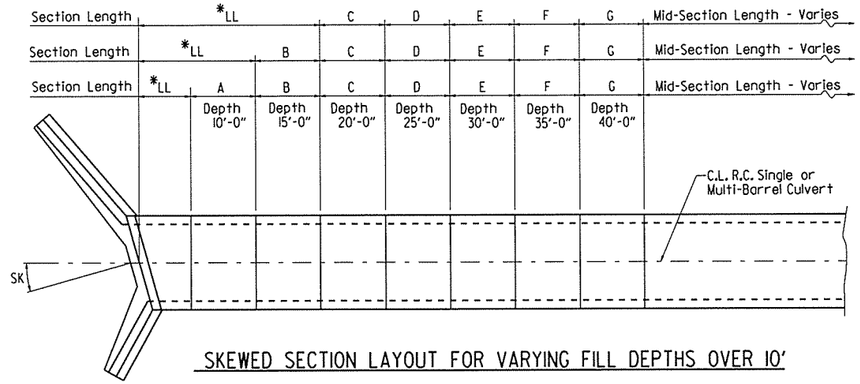


Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

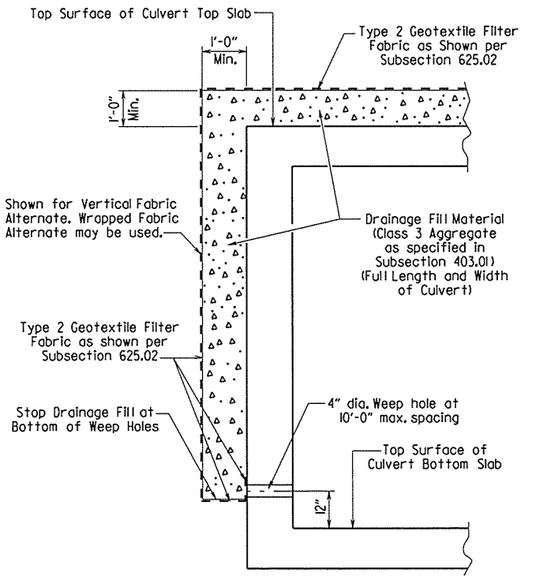
Lengths for Non-Skewed Boxes

*LL = Skewed End Section Length - See "Skewed End Section Details" Length LL varies with skew angle, overall box width and fill depth and may eliminate the need for some slope section lengths as shown.



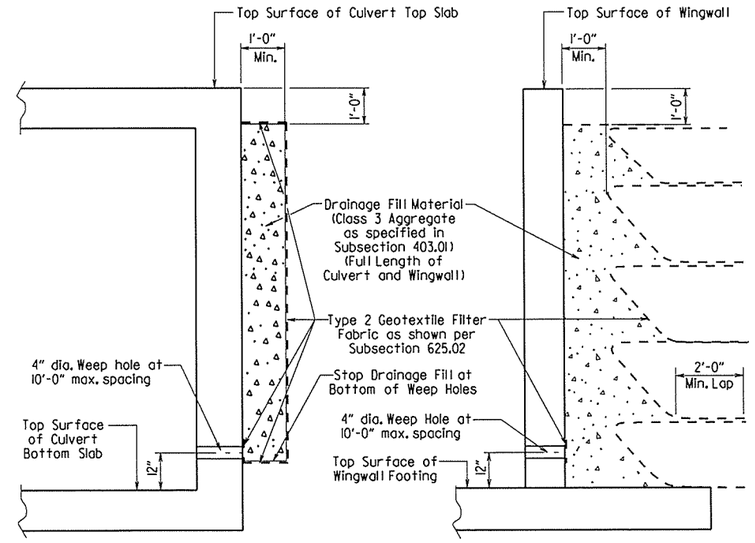
SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

STATE OF ARKANSAS
Carl J. Pusecker
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. PUSECKER



CULVERT DRAINAGE DETAIL FOR ROCK FILL

This detail shall be used when rock fill is specified for embankment construction.



VERTICAL FABRIC ALTERNATE
(Shown for Culvert, Similar for Wingwall)

WRAPPED FABRIC ALTERNATE
(Shown for Wingwall, Similar for Culvert)

For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

WINGWALL & CULVERT DRAINAGE DETAIL

GENERAL NOTES:

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fifth Edition (2010) with 2010 interim revisions.

LIVE LOADING: HL-93

All concrete shall be Class S with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have ¾" chamfers.

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

Reinforcing Steel Tolerances: The tolerances for reinforcing steel shall meet those listed in 'Manual of Standard Practice' published by Concrete Reinforcing Steel Institute (CRSI) except that the tolerance for truss bars such as Figure 3 on page 7-4 of the CRSI Manual shall be minus zero to plus 1/2 inch.

Excavation and backfilling shall be in accordance with the requirements of Section 801.

Membrane Waterproofing shall conform to the requirements of Section 815. Membrane Waterproofing shall be Type C and as directed by the Engineer applied to all construction joints in the top slab and the sidewalls of R.C. Box culverts and to the construction joint between wingwalls and R.C. Box culvert walls.

Weep Holes in box culvert walls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. The drain opening shall be 4" diameter and shall be placed 12" above the top of the bottom slab.

Weep Holes in wingwalls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. There shall be a minimum of two (2) weep holes in each wingwall. The drain opening shall be 4" diameter and shall be placed 12" above the top of the wingwall footing.

The barrel components of the culvert may be constructed using continuous pours. For longer culvert construction, the Contractor may use multiple pours with transverse construction joints spaced a minimum of 50 feet apart unless superseded by stage construction or site constraints as approved by the Engineer. Construction joints between footings and walls shall be made only where shown in the Plans. Joints shall be normal to the centerline of barrel and shall be keyed. Longitudinal reinforcing shall be continuous through joints unless shown otherwise. All longitudinal construction joints shall be submitted to the Engineer for approval.

Membrane Waterproofing, Weep Holes, Geotextile Filter Fabric, and Drainage Fill Material will not be paid for directly but shall be considered subsidiary to Class S Concrete.

When the top slab of the box culvert serves as finished roadway surface, curing and finishing shall be in accordance with subsections 802.17 and 802.20 for bridge roadway surface and a tine finish shall be applied in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Curing and finishing shall not be paid for directly, but shall be considered incidental to the item "Class S Concrete-Roadway". Class 1 Protective Surface Treatment shall be applied to the roadway surface and this work shall be paid for under the unit price bid for "Class 1 Protective Surface Treatment".

When precast reinforced concrete box culverts are substituted for cast in place box culverts, they shall be manufactured according to ASTM C 1577 and meet the requirements of Section 607. When the top slab of the box culvert serves as the finished roadway surface, a precast reinforced concrete box culvert substitution is not allowed.

SHEET 1 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

GENERAL NOTES &
LONGITUDINAL SECTION LENGTH SCHEDULE

SPECIAL DETAILS

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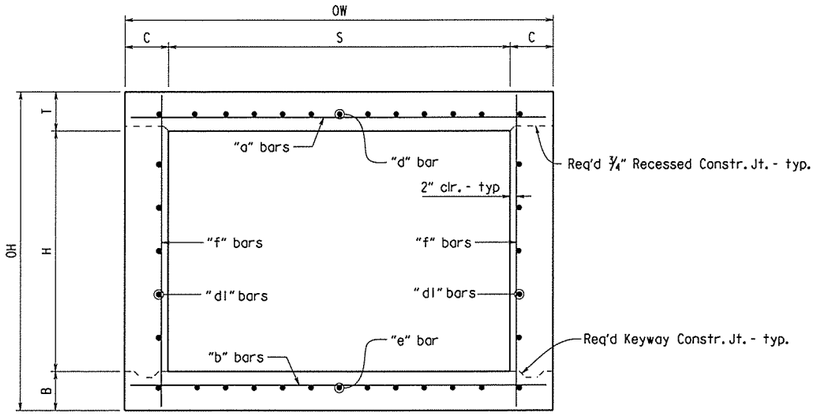
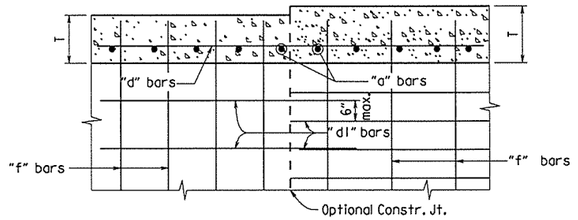
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040493	12	67

(1) SPECIAL DETAILS

Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



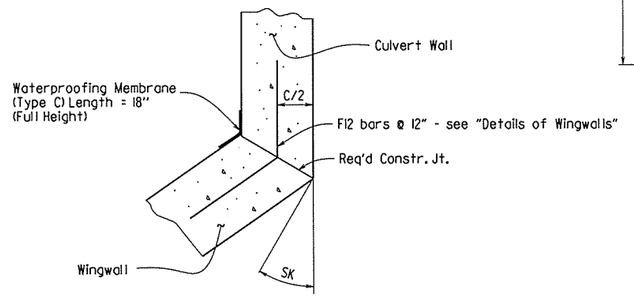
TYPICAL SECTION M-M



Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

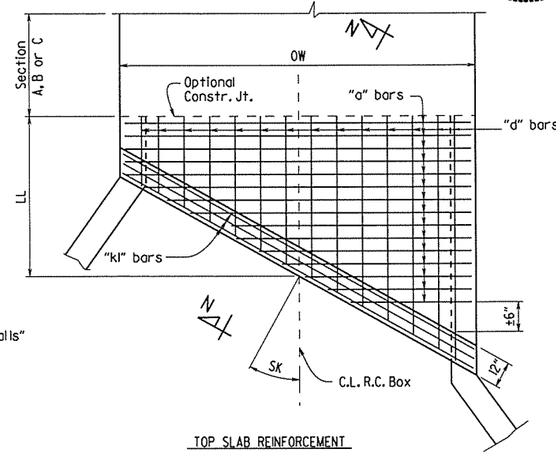
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

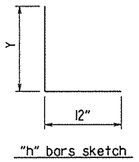


WINGWALL ATTACHMENT

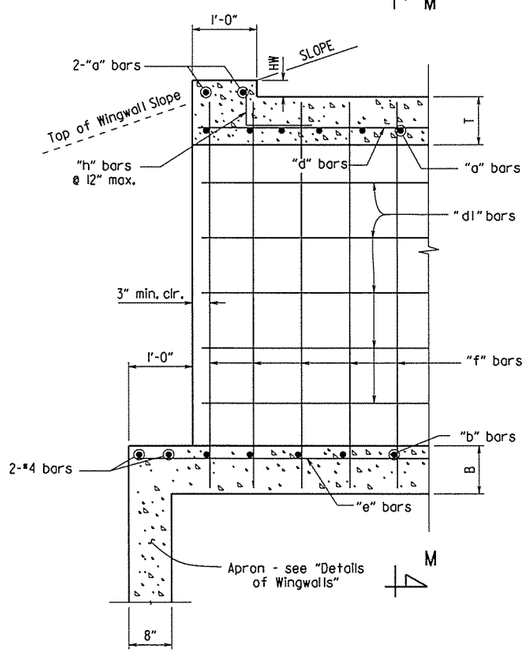
See "Details of Wingwalls" for additional information and wingwall details.



TOP SLAB REINFORCEMENT

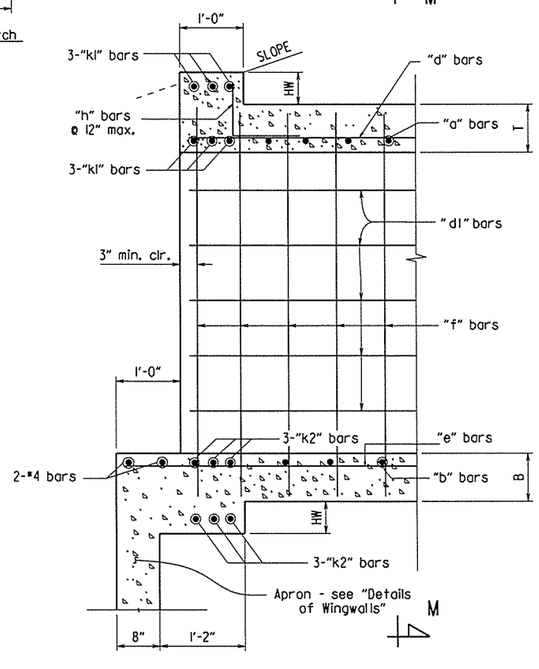


"h" bars sketch



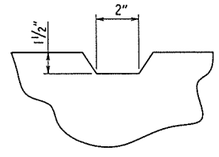
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



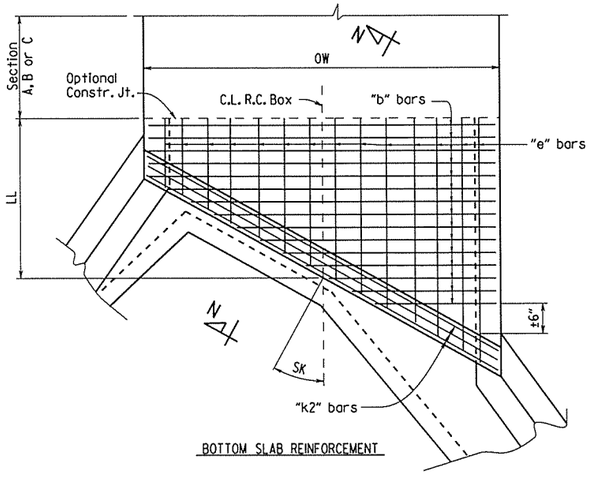
PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)



BOTTOM SLAB REINFORCEMENT

SKEWED END SECTION DETAILS

SHEET 2 OF 4

GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF SINGLE BARREL
R.C. BOX CULVERT

SPECIAL DETAILS

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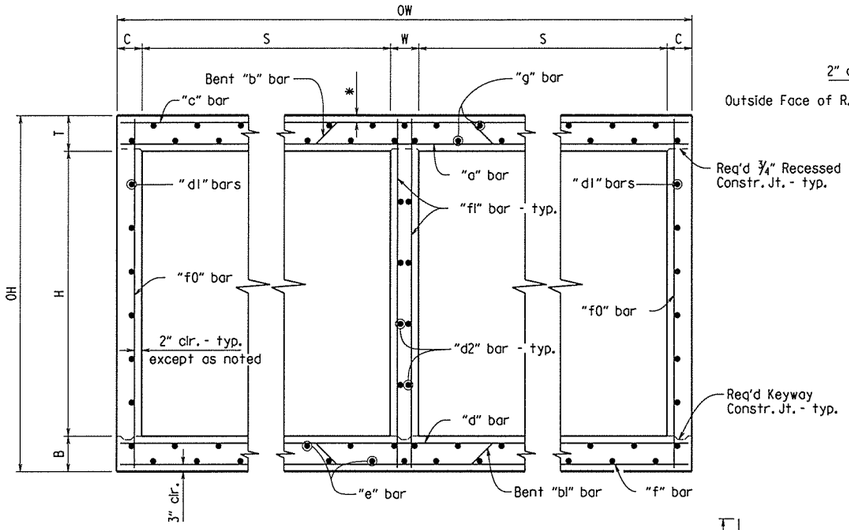
DATE REVISED	DATE FILMED	REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		040493	13	67

① SPECIAL DETAILS

*2" clr. for fill depth (D) greater than 2 ft.
2½" clr. for fill depth (D) equal to or less than 2 ft.

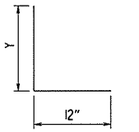
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



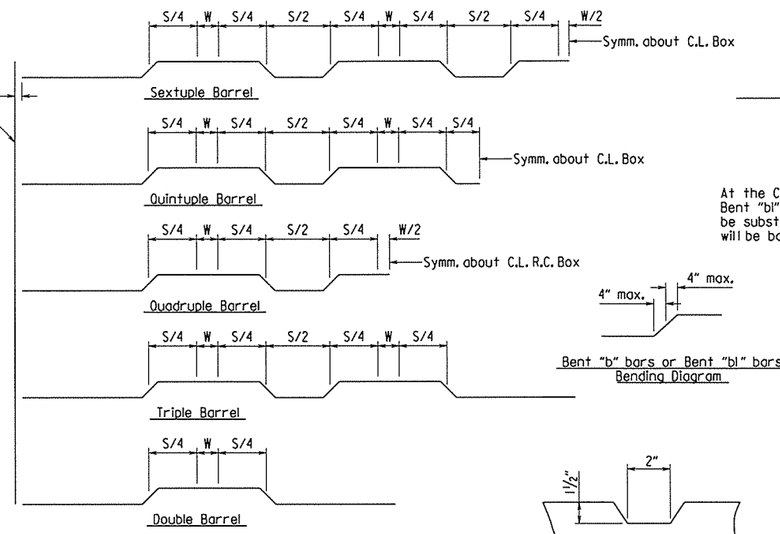
TYPICAL SECTION M-M

Top Slab
Straight "c" bars shall alternate with Bent "b" bars in top.
Straight "a" bars shall alternate with Bent "b" bars in bottom.

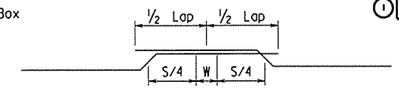
Bottom Slab
Straight "d" bars shall alternate with Bent "bl" bars in top.
Straight "f" bars shall alternate with Bent "bl" bars in bottom.



"h" bars sketch



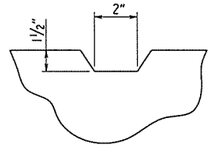
Bent "b" bars or Bent "bl" bars sketch



Lap Detail
For Bent "b" bars and Bent "bl" bars

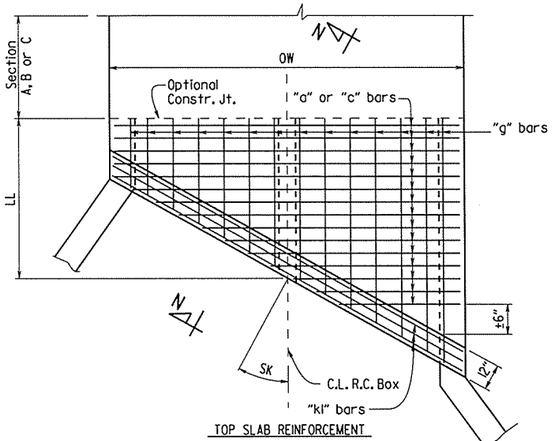
At the Contractor's option in lieu of providing Bent "b" or Bent "bl" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "bl" bar.

Bent "b" bars or Bent "bl" bars Bending Diagram

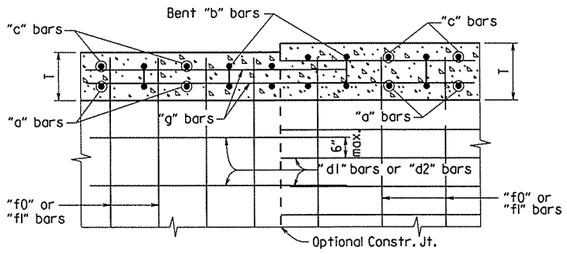


TYPICAL KEYWAY DETAIL

(All Construction Joints)



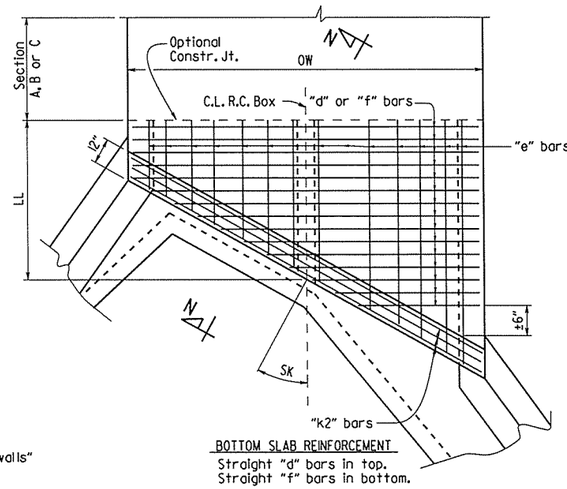
TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

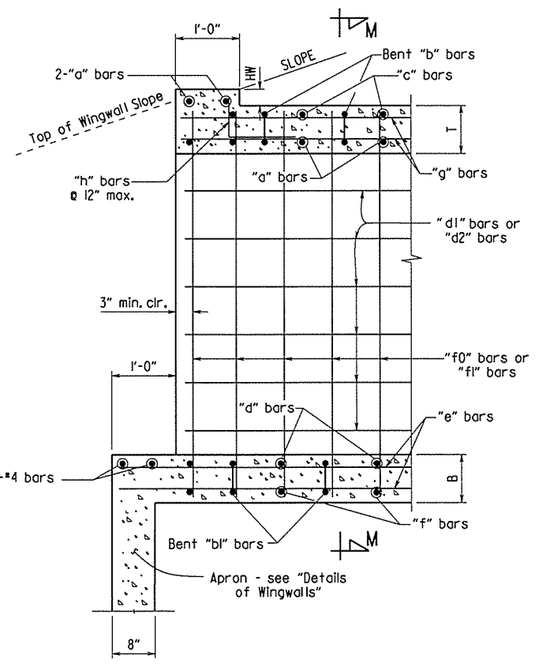
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



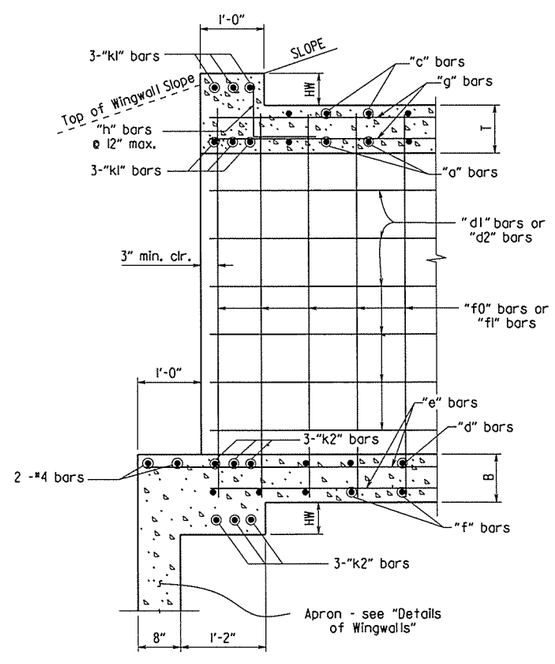
BOTTOM SLAB REINFORCEMENT
Straight "d" bars in top.
Straight "f" bars in bottom.

SKEWED END SECTION DETAILS



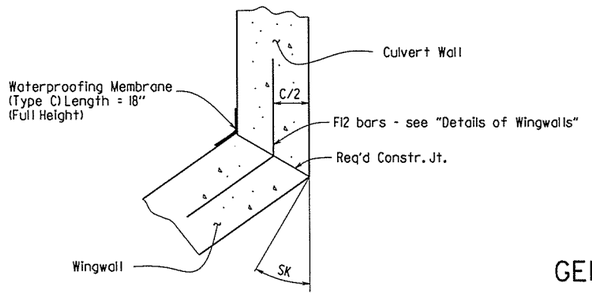
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

(Skewed Ends)



WINGWALL ATTACHMENT

See "Details of Wingwalls" for additional information and wingwall details.

SHEET 3 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF MULTI-BARREL R.C. BOX CULVERT

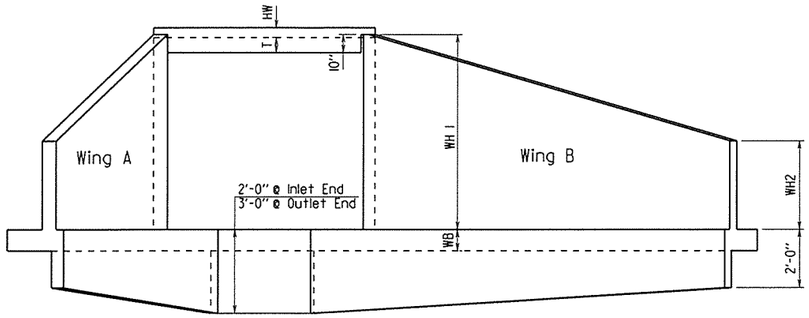
SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

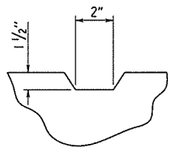
b040493_culvert.dgn

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.		040493	14	67

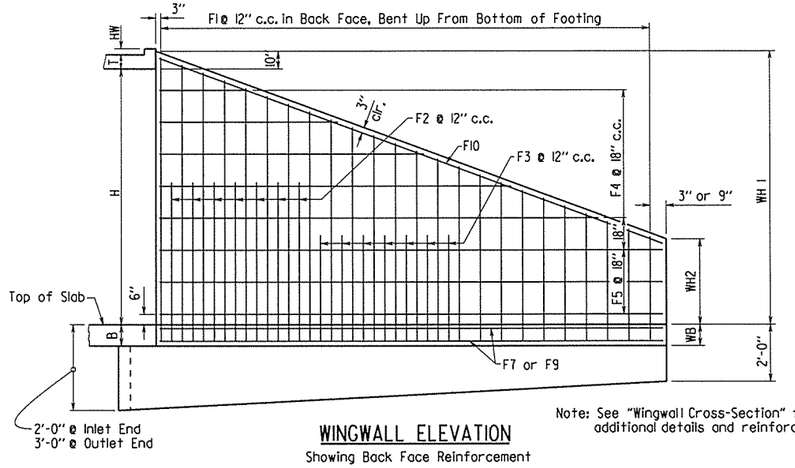
(1) SPECIAL DETAILS



END ELEVATION
Flared Wingwalls Shown

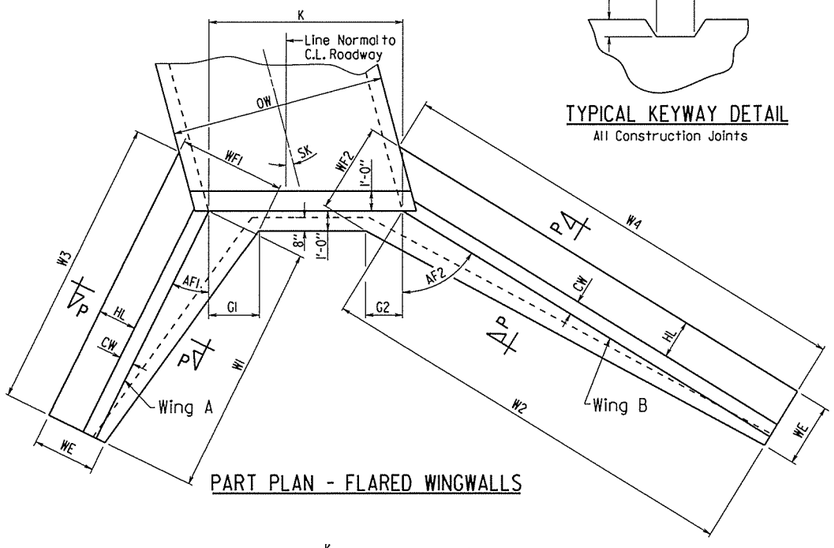


TYPICAL KEYWAY DETAIL
All Construction Joints

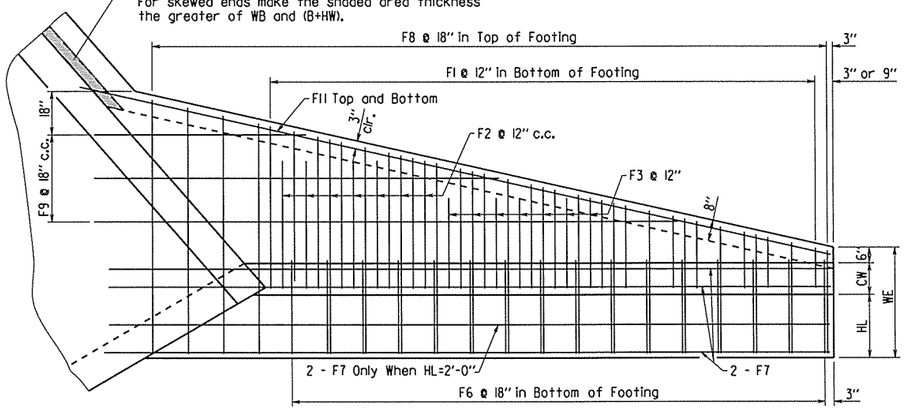


WINGWALL ELEVATION
Showing Back Face Reinforcement

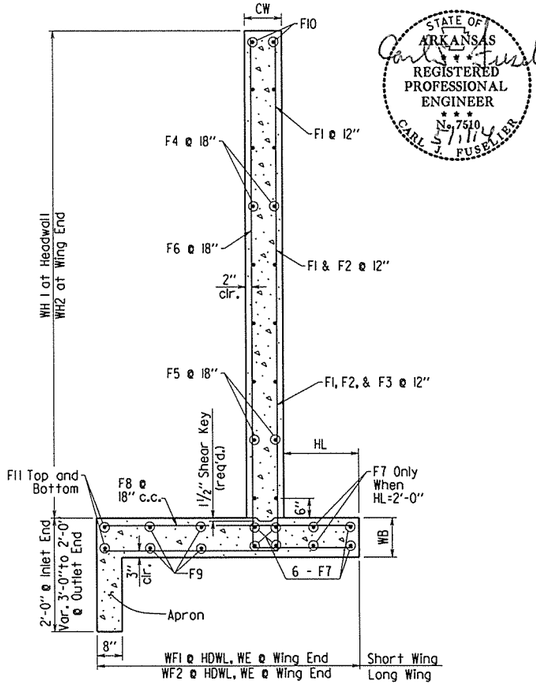
Note: See "Wingwall Cross-Section" for additional details and reinforcing



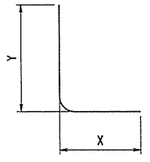
PART PLAN - FLARED WINGWALLS



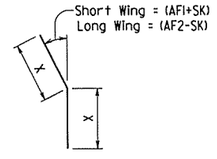
PLAN - FLARED WINGWALLS
Showing Footing Reinforcement



WINGWALL SECTION P-P

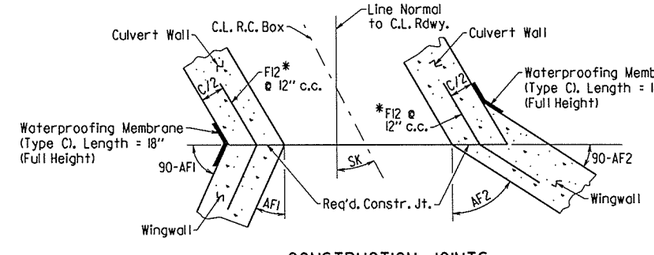


F1, F2, F3, & F6 BARS

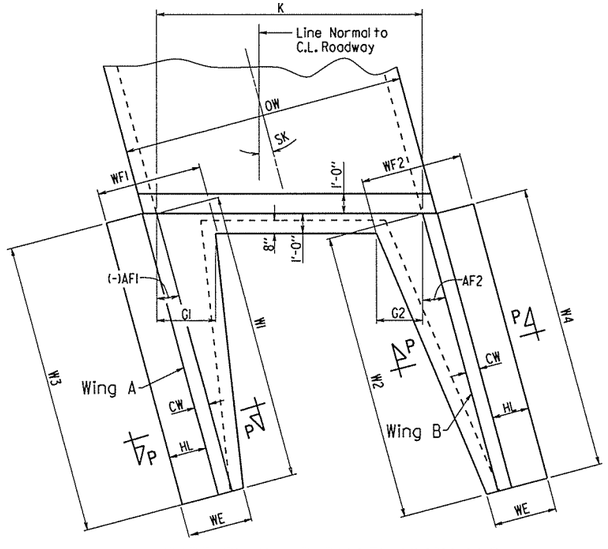


*F12 BAR

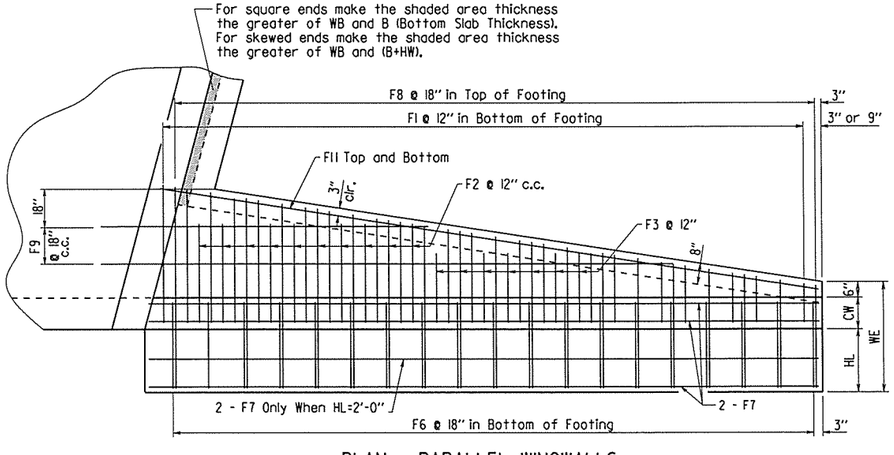
*F12 is a straight bar for parallel wingwalls



CONSTRUCTION JOINTS
Flared Wingwalls Shown



PART PLAN - PARALLEL WINGWALLS



PLAN - PARALLEL WINGWALLS
Showing Footing Reinforcement

SHEET 4 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF WINGWALLS
SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL V. FUSELIER
7/11/14

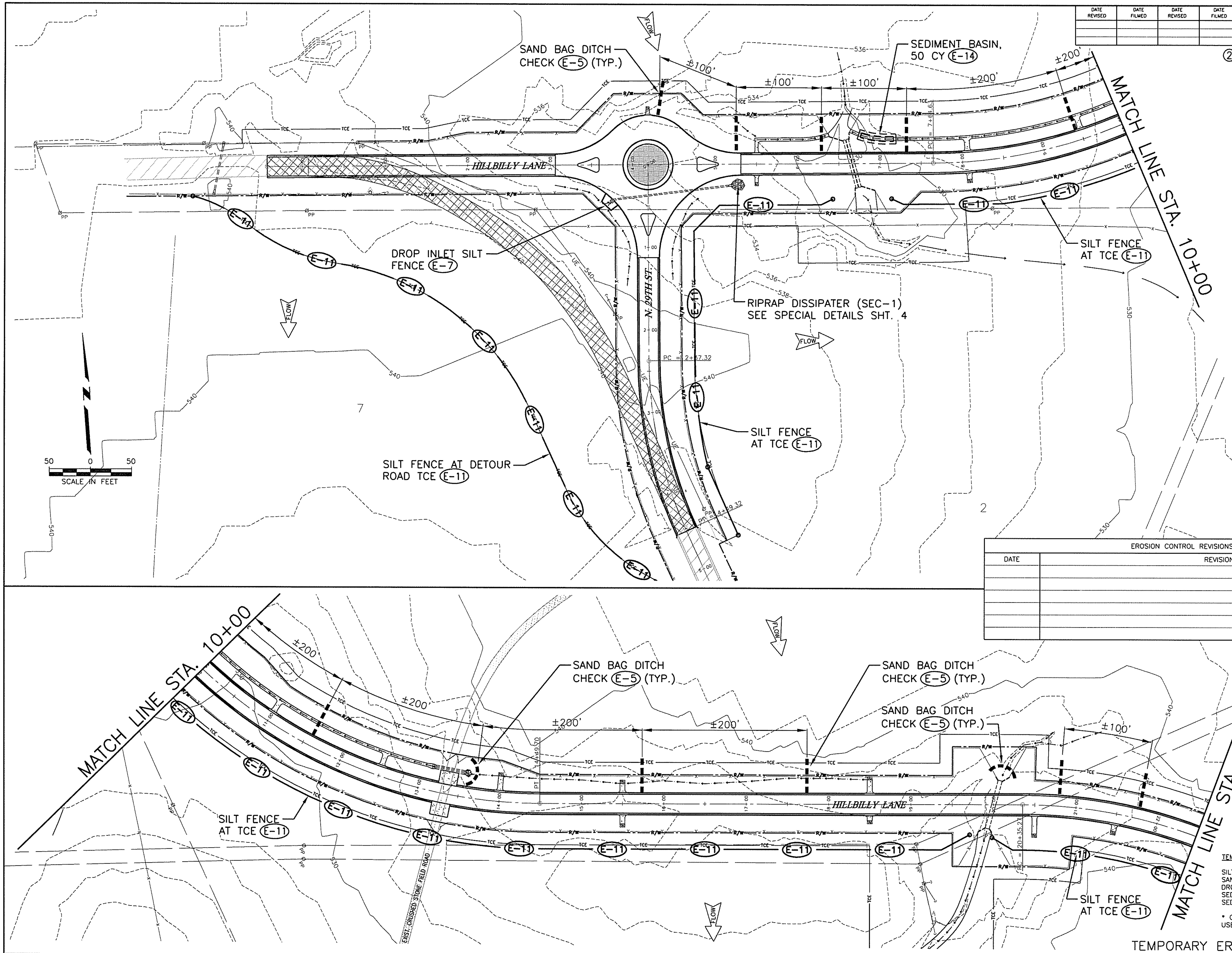
LRFD

b040493_culvert.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	15	67

② TEMPORARY EROSION CONTROL DETAILS

MICKLE-WAGNER-COLEMAN, INC.



EROSION CONTROL GENERAL NOTES:

1. SAND BAG DITCH CHECKS (TYPE E-5) ARE ESTIMATED AT 22 BAGS PER LOCATION.

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

EROSION CONTROL LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-7) DROP INLET SILT FENCE
- (E-11) SILT FENCE
- (E-14) SEDIMENT BASIN

EROSION CONTROL REVISIONS BOX	
DATE	REVISION

QUANTITIES

TEMPORARY EROSION CONTROL ITEMS:

SILT FENCE	2620 L.F.
SAND BAG DITCH CHECKS	264 BAGS
DROP INLET SILT FENCE	20 L.F.
SEDIMENT BASIN	50 C.Y.
SEDIMENT REMOVAL & DISPOSAL	10 C.Y.*

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

TEMPORARY EROSION CONTROL DETAILS

K:\Ozark\hillbilly drive\dwg\Plots\15-16 Hillbilly Ln Erosion.dwg, 5/5/2014 5:34:07 PM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	16	67

TEMPORARY EROSION CONTROL DETAILS

MICKLE-WAGNER-COLEMAN, INC.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 17396 ANDREW J. COBBLE

MATCH LINE STA. 37+50

SAND BAG DITCH CHECK (E-5) (TYP.) 30'

SEDIMENT BASIN, 50 CY (E-14)

SEDIMENT BASIN, 50 CY (E-14)

HILLBILLY LANE

REMOVE PORTION OF SILT FENCE AFTER FORMING DITCH

SILT FENCE AT TCE (E-11)

MATCH LINE STA. 22+50

FLOW

±100' ±200'

SCALE IN FEET 50 0 50

EROSION CONTROL REVISIONS BOX	
DATE	REVISION

MATCH LINE STA. 37+50

SILT FENCE AT TCE (E-11)

SAND BAG DITCH CHECK (E-5) (TYP.)

HILLBILLY LANE

AR HWY. 96

AR HWY. 23

±200' ±300'

SCALE IN FEET 50 0 50

EROSION CONTROL LEGEND

- (E-5) SAND BAG DITCH CHECKS
- (E-11) SILT FENCE
- (E-14) SEDIMENT BASIN

EROSION CONTROL GENERAL NOTES:

1. SAND BAG DITCH CHECKS (TYPE E-5) ARE ESTIMATED AT 22 BAGS PER LOCATION.

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

QUANTITIES

TEMPORARY EROSION CONTROL ITEMS:

SILT FENCE	1610 L.F.
SAND BAG DITCH CHECKS	616 BAGS
SEDIMENT BASIN	100 C.Y.
SEDIMENT REMOVAL & DISPOSAL	20 C.Y.*

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

TEMPORARY EROSION CONTROL DETAILS

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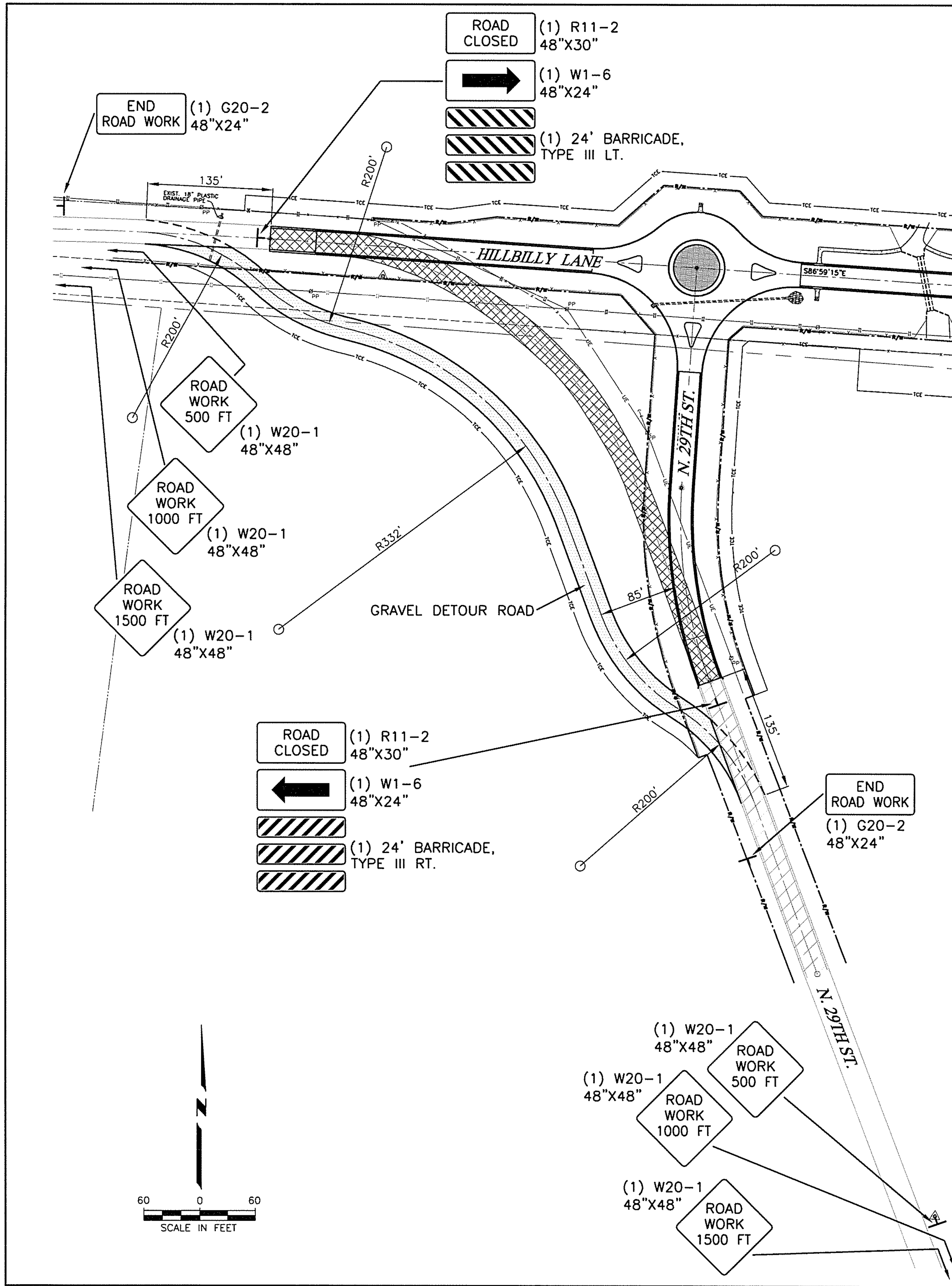
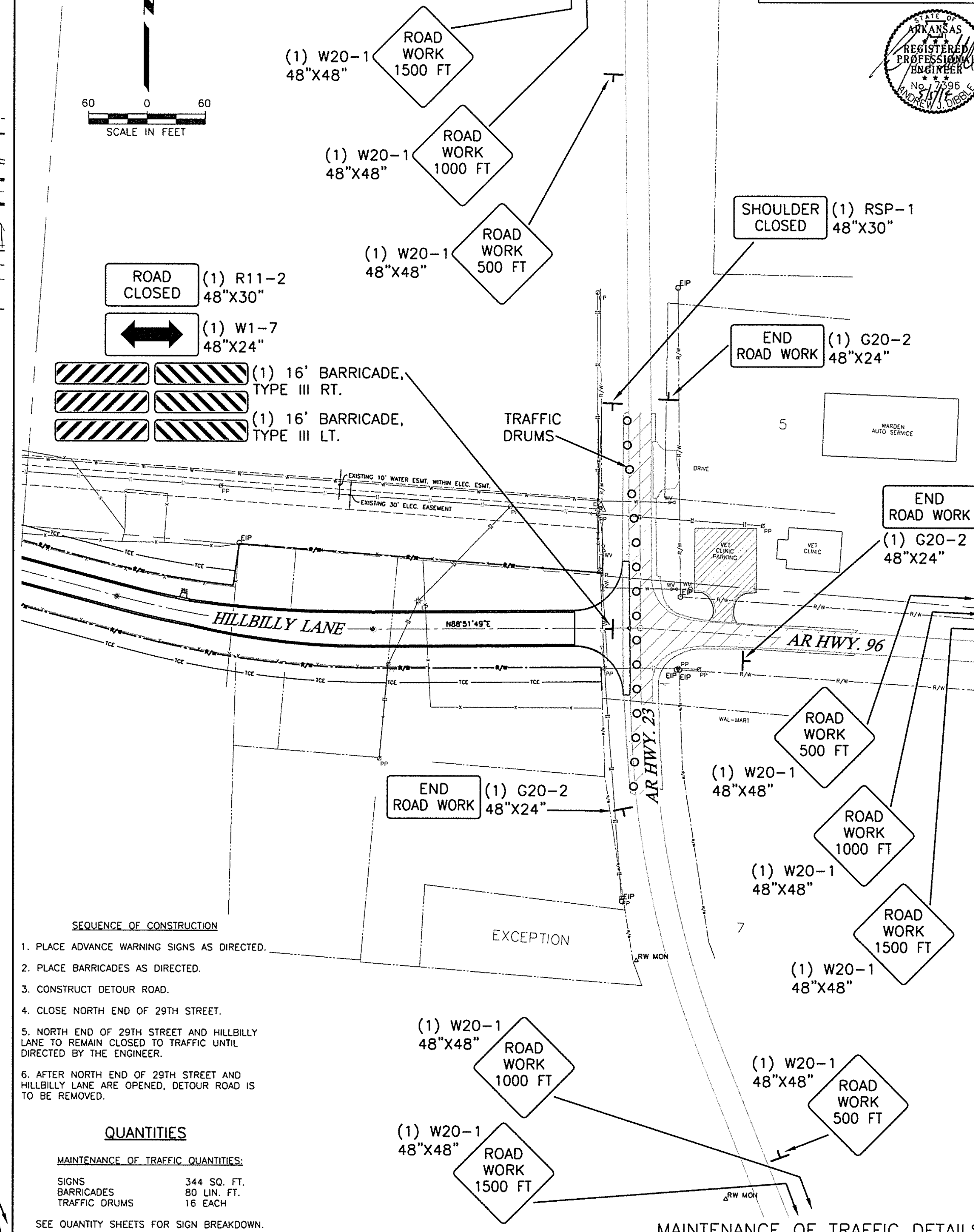
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	17	67

MAINTENANCE OF TRAFFIC DETAILS

MICKLE-WAGNER-COLEMAN, INC.





SEQUENCE OF CONSTRUCTION

1. PLACE ADVANCE WARNING SIGNS AS DIRECTED.
2. PLACE BARRICADES AS DIRECTED.
3. CONSTRUCT DETOUR ROAD.
4. CLOSE NORTH END OF 29TH STREET.
5. NORTH END OF 29TH STREET AND HILLBILLY LANE TO REMAIN CLOSED TO TRAFFIC UNTIL DIRECTED BY THE ENGINEER.
6. AFTER NORTH END OF 29TH STREET AND HILLBILLY LANE ARE OPENED, DETOUR ROAD IS TO BE REMOVED.

QUANTITIES

MAINTENANCE OF TRAFFIC QUANTITIES:

SIGNS	344 SQ. FT.
BARRICADES	80 LIN. FT.
TRAFFIC DRUMS	16 EACH

SEE QUANTITY SHEETS FOR SIGN BREAKDOWN.

MAINTENANCE OF TRAFFIC DETAILS

K:\Ozark\hillbilly drive\dwg\Plots\17 Hillbilly Ln Traffic Details.dwg, 5/5/2014 2:40:28 PM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	AR	STP-0024(21)		
JOB NO.		040493	18	67

PERMANENT PAVEMENT MARKING DETAILS

MICKLE-WAGNER-COLEMAN, INC.

②

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11395
ANDREW J. WEBB

THERMOPLASTIC PAVEMENT MARKING – 4" SOLID DOUBLE YELLOW CENTERLINE

R2-1 STA. 2+50 SPEED LIMIT 35

R1-2 STA. 4+93

R4-7 STA. 5+43

PC = 7+64.63

MATCH LINE STA. 10+00

HILLBILLY LANE

THERMOPLASTIC PAVEMENT MARKING – 4" SOLID DOUBLE YELLOW CENTERLINE

W2-6 STA. 9+25

W13-1 25 M.P.H.

SPEED LIMIT 40 R2-1 STA. 4+00

W2-6 STA. −0+82

25 M.P.H. W13-1

R4-7 STA. 2+94

R1-2 STA. 3+44

YIELD R1-2 STA. 0+75

R4-7 STA. 1+25

SPEED LIMIT 40 R2-1 STA. 1+50

PC = 2+37.32

THERMOPLASTIC PAVEMENT MARKING – 4" SOLID DOUBLE YELLOW CENTERLINE

N. 29TH ST.

PT = 4+49.37

W2-6 STA. 5+00

25 M.P.H. W13-1

N

50 0 50

SCALE IN FEET

QUANTITIES

PERMANENT PAVEMENT MARKING QUANTITIES:

THERMOPLASTIC PAVEMENT MARKING – WHITE (4")	= 114 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING – WHITE (12")	= 0 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING – YELLOW (4")	= 5413 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING – ARROWS	= 4 EACH
THERMOPLASTIC PAVEMENT MARKING – WORDS	= 3 EACH
THERMOPLASTIC PAVEMENT MARKING – WHITE (4" DOTTED)	= 66 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING – WHITE (YIELD LINE)	= 36 LIN. FT.

TRAFFIC SIGNING QUANTITIES:

SIGNS 103.50 SQ. FT.

SEE QUANTITY SHEETS FOR SIGN BREAKDOWN.

INSTALL THERMOPLASTIC ARROWS (TYP.)

THERMOPLASTIC PAVEMENT MARKING – 4" SOLID YELLOW STRIPING

THERMOPLASTIC PAVEMENT MARKING – 40 LF 4" SOLID WHITE STRIPING, TYP.

5', TYP.

THERMOPLASTIC PAVEMENT MARKING – 4" SOLID DOUBLE YELLOW CENTERLINE

THERMOPLASTIC PAVEMENT MARKING WHITE (4" DOTTED), TYP.

THERMOPLASTIC PAVEMENT MARKING – YIELD TEXT

THERMOPLASTIC PAVEMENT MARKING WHITE (YIELD LINE), TYP.

YIELD

ENLARGED PLAN
1"=30'

MATCH LINE STA. 10+00

EXIST. CRUSHED STONE FIELD ROAD

PT = 14+49.70

THERMOPLASTIC PAVEMENT MARKING – 4" SOLID DOUBLE YELLOW CENTERLINE

HILLBILLY LANE

PC = 20+35.27

MATCH LINE STA. 22+50

50 0 50

SCALE IN FEET

2'

CURB

4'

8'

7'

YIELD

YIELD MARKING DETAIL
N.T.S.

3 to 12 inches

base 12 inches

height 18 inches

Direction of travel

Notes:
Triangle height is equal to 1.5 times the base dimension.

YIELD LINE DETAIL
N.T.S.

PERMANENT PAVEMENT MARKING DETAILS

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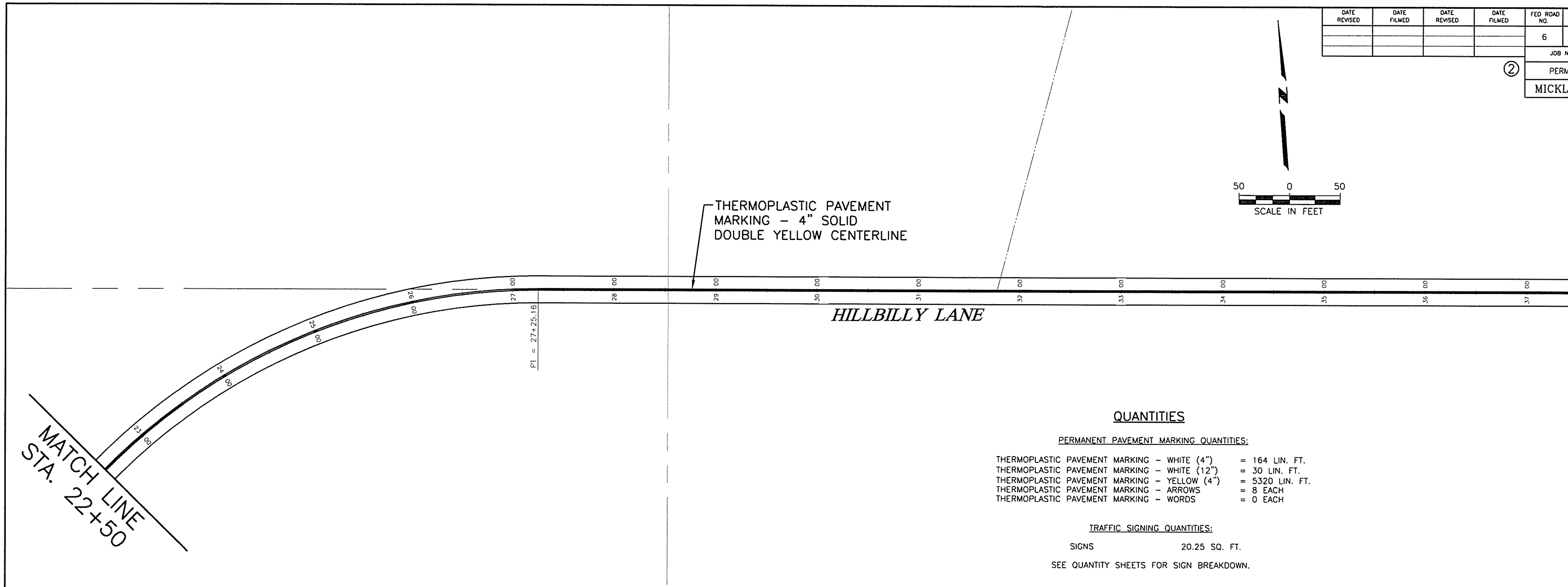
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	19	67

② PERMANENT PAVEMENT MARKING DETAILS

MICKLE-WAGNER-COLEMAN, INC.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7396 ANDREW J. DIBBLE



QUANTITIES

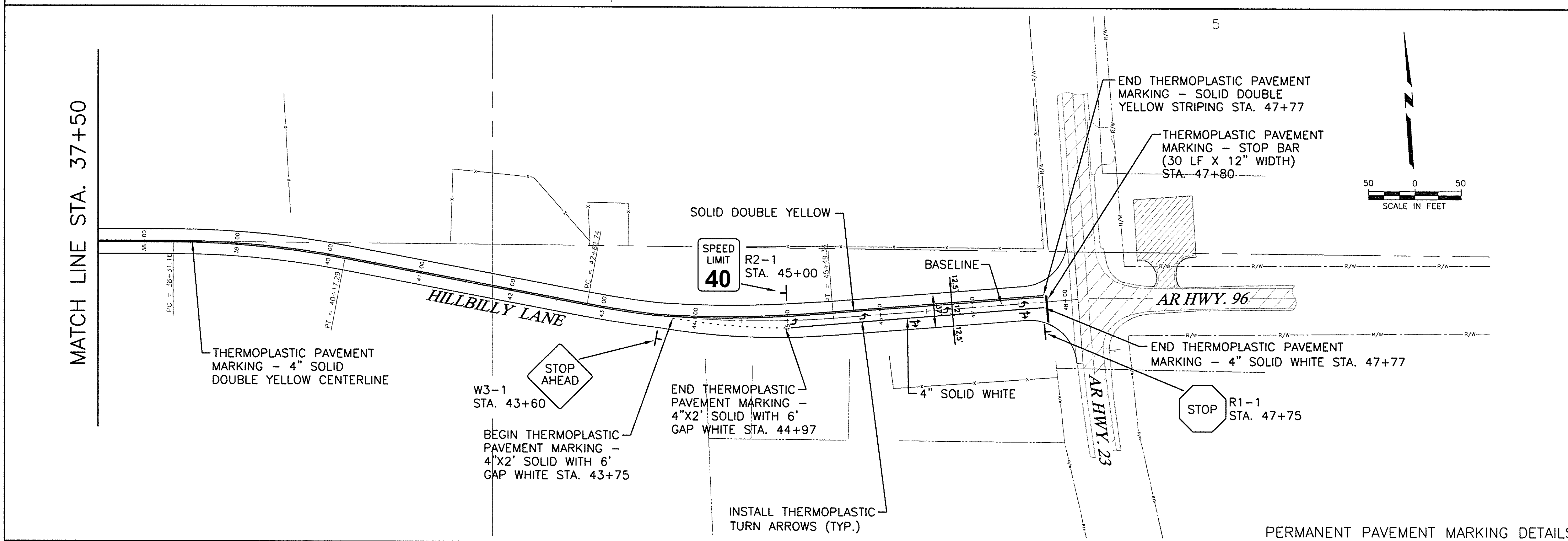
PERMANENT PAVEMENT MARKING QUANTITIES:

THERMOPLASTIC PAVEMENT MARKING - WHITE (4") = 164 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING - WHITE (12") = 30 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING - YELLOW (4") = 5320 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING - ARROWS = 8 EACH
THERMOPLASTIC PAVEMENT MARKING - WORDS = 0 EACH

TRAFFIC SIGNING QUANTITIES:

SIGNS 20.25 SQ. FT.

SEE QUANTITY SHEETS FOR SIGN BREAKDOWN.



PERMANENT PAVEMENT MARKING DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
05-15-2014				6	AR	STP-0024(21)		
				JOB NO.		040493	20	67

② QUANTITIES

MICKLE-WAGNER-COLEMAN, INC.

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 7396 — LANDON S. TABER

DRIVEWAYS

STATION	SIDE	APRON WIDTH	APRON LENGTH	AGG. BASE COURSE (CLASS 7) (7" DEPTH)	P.C.C. DRIVEWAY APRON	18" SIDE DRAIN
		LIN. FT.	LIN. FT.	TON	SQ. YD.	TOTAL LIN. FT.
13+10	LT					72
13+32	LT	24'	16'	14.8	43	
13+32	RT	24'	16'	14.8	43	
TOTAL				29.6	86	72

ADVANCED WARNING SIGNS & DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	TOTAL QUANTITY REQUIRED	SIGNS (SQ. FT.)
G20-2	END ROAD WORK	48"x24"	5	40.00
R11-2	ROAD CLOSED	48"x30"	3	30.00
W20-1	ROAD WORK 500 FT	48"x48"	5	80.00
W20-1	ROAD WORK 1000 FT	48"x48"	5	80.00
W20-1	ROAD WORK 1500 FT	48"x48"	5	80.00
RSP-1	SHOULDER CLOSED	48"x30"	1	10.00
W1-6	LARGE ARROW (ONE DIRECTION)	48"x24"	2	16.00
W1-7	LARGE ARROW (TWO DIRECTIONS)	48"x24"	1	8.00
TOTAL				344.00

NOTE: THIS IS A HIGH VOLUME ROAD AS DEFINED IN SECTION 604.03 OF THE STANDARD SPECS. FOR HIGHWAY CONSTRUCTION, EDITION OF 2014

STANDARD SIGNS

SIGN NUMBER	DESCRIPTION	SIGN SIZE	TOTAL QUANTITY REQUIRED	SIGNS (SQ. FT.)	CHANNEL POST SIGN SUPPORT (EA.)
R1-1	STOP	30"x30"	1	6.25	1
R1-2	YIELD	36"x36"x36"	3	11.69	3
R2-1	XX MPH	24"x30"	4	20.00	4
R4-7	KEEP RIGHT	24"x30"	3	15.00	3
W2-6	TRAFFIC CIRCLE	48"x48"	3	48.00	3
W3-1	STOP AHEAD	36"x36"	1	9.00	1
W13-1	ADVISORY SPEED	24"X24"	3	12.00	3
TOTAL				121.94	18

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE B)	*GATE (14')
			LIN. FT.	EACH
0+46	10+00	LEFT SIDE OF HILLBILLY LN	964	
0+46	10+00	RIGHT SIDE OF HILLBILLY LN	1031	
10+00	22+50	LEFT SIDE OF HILLBILLY LN	1321	
10+00	22+50	RIGHT SIDE OF HILLBILLY LN	1360	
13+23	13+43	LT. AND RT. SIDE OF HILLBILLY		2
22+50	37+50	LEFT SIDE OF HILLBILLY LN	1539	
22+50	37+50	RIGHT SIDE OF HILLBILLY LN	1485	
37+50	48+13	LEFT SIDE OF HILLBILLY LN	654	
37+50	48+13	RIGHT SIDE OF HILLBILLY LN	912	
1+10	4+49	LEFT SIDE OF N. 29TH ST.	390	
1+10	4+49	RIGHT SIDE OF N. 29TH ST.	465	
TOTALS			10121	2

*DENOTES ALTERNATE BID ITEM

EARTHWORK

STA.	STA.	LOCATION	SELECT MATERIAL (CLASS SM-3)	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT
			CU. YD.		
-0+43	48+13	HILLBILLY LANE	1844	9084	3749
0+00	5+00	DEMO N. 29TH		688	
0+00	5+00	N. 29TH STREET	10	1638	50
0+00	9+00	DETOUR ROAD	37	842	
6+66		CHANNEL CHANGE		55	
20+00		CHANNEL CHANGE		74	
32+16		CHANNEL CHANGE		638	
TOTALS			1891	13019	3799

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

MAINTENANCE OF TRAFFIC

STATION	BARRICADES (TYPE III)	TRAFFIC DRUMS
	LIN. FT.	EACH
SUMMARY OF MAINTENANCE OF TRAFFIC AS SHOWN IN THE MAINTENANCE OF TRAFFIC SIGNAGE PLAN	80	16
TOTALS	80	16

NOTE: THIS IS A HIGH VOLUME ROAD AS DEFINED IN SECTION 604.03 OF THE STANDARD SPECS. FOR HIGHWAY CONSTRUCTION, EDITION OF 2014

BENCH MARKS

LOCATION	BENCH MARKS
	EACH
STA. -4+22.60, 78.87' RT., EXIST. IRON PIN	1
STA. 8+82.47, 53.58' RT., CONTROL PT. NAIL	1
STA. 13+14.34, 321.30' RT., CONTROL PT. NAIL	1
STA. 23+32.39, 236.77' LT., CONTROL PT. NAIL	1
STA. 23+32.39, 236.77' LT., CONTROL PT. NAIL	1
STA. 32+02.02, 180.74' RT., SS MANHOLE RIM	1
STA. 44+00.20, 78.07' LT., EXIST. IRON PIN	1
STA. 48+24.38, 0.49' RT., COTTON SPINDLE	1

NOTE: SHOWN FOR INFORMATIONAL PURPOSES ONLY. BENCH MARKS TO BE FURNISHED, PLACED AND RECORDED BY STATE FORCES

CLEARING AND GRUBBING

STA	STA	LOCATION	CLEARING	GRUBBING
			STATION	
2+00	8+00	HILLBILLY LANE	6	6
22+00	31+00	HILLBILLY LANE	9	9
44+00	48+00	HILLBILLY LANE	4	4
TOTAL			19	19

BASE AND SURFACING

STA.	STA.	LOCATION	LENGTH	TACK COAT (0.03 GAL. PER SQ. YD)			AGG BASE COURSE (CLASS 7)		ACHM BINDER COURSE (1") (440 LBS./SQ. YD)			ACHM SURFACE COURSE (1/2") (220 LBS./SQ. YD)		
			LIN. FT.	AVG WIDTH (FT)	SQ. YD.	GAL.	TONS/STA.	TON	AVG. WIDTH	SQ. YD.	TON	AVG. WIDTH	SQ. YD.	TON
-0+43	0+07	HILLBILLY LN	50	24	133.3	4.0	93.33	46.7	24	133.3	22.0	24	133.3	14.7
0+07	3+05	HILLBILLY LN	298	24	794.7	23.8	93.33	278.1	24	794.7	131.1	24	794.7	87.4
5+31	43+61	HILLBILLY LN	3830	24	10213.3	306.4	93.33	3574.5	24	10213.3	1685.2	24	10213.3	1123.5
43+61	45+14	HILLBILLY LN	153	29	493.0	14.8	112.78	172.5	29	493.0	81.3	29	493.0	54.2
45+14	47+57	HILLBILLY LN	243	34	918.0	27.5	132.22	321.3	34	918.0	151.5	34	918.0	101.0
1+13	4+50	N. 29TH ST	337	24	898.7	27.0	93.33	314.5	24	898.7	148.3	24	898.7	98.9
-1+78	4+05	DETOUR	807				145.25	1172.2						
TOTALS					13451.0	403.5		5879.8		13451.0	2219.4		13451.0	1479.7

NOTE: RATES FOR ASPHALT: 110 LBS. PER SQ. YARD PER INCH DEPTH.
BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.6% MIN. AGGR.....5.4% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.6% MIN. AGGR.....4.4% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

SOIL LOG

STATION	LOCATION*	DEPTH FEET	LIQUID LIMIT	PLASTICITY INDEX	AASHTO SOIL CLASS	COLOR
4+60	C.L.	1.0-3.0	28	9	A-7	YEL/BRN
10+10	C.L.	1.0-2.0	46	25	A-7	LT BRN
13+30	C.L.	2.8-3.5	28	14	A-6	RED BRN
19+00	C.L.	2.0-3.5	NP	NP	A-4	BROWN
25+50	C.L.	1.5-3.5	25	8	A-4	BRN GREY
31+70	C.L.	1.0-3.0	NP	NP	A-2-4	LT BRN
37+75	C.L.	2.0-3.0	37	16	A-6	RED BRN
43+50	C.L.	2.0-3.0	34	15	A-6	RED BRN

NOTE: 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 ABOVE TABULATIONS.
*MEASUREMENTS TAKEN FROM CENTERLINE

P.C.C. CONCRETE PAVEMENT

STA.	STA.	DESCRIPTION	P.C.C. CONCRETE PAVEMENT
			SQ. YD.
3+06	5+31	ROTARY INTERSECTION	1397
47+57	48+14	HILLBILLY LANE APRON AT HWY. 23	393
TOTAL			1790

PERMANENT PAVEMENT MARKING

DESCRIPTION	UNITS	TOTAL QUANTITY REQUIRED
THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	LIN. FT.	10733
THERMOPLASTIC PAVEMENT MARKING WHITE (4")	LIN. FT.	278
THERMOPLASTIC PAVEMENT MARKING WHITE (12")	LIN. FT.	30
THERMOPLASTIC PAVEMENT MARKING (WORDS)	EA.	3
THERMOPLASTIC PAVEMENT MARKING (ARROWS)	EA.	12
THERMOPLASTIC PAVEMENT MARKING (YIELD LINE)	LIN. FT.	36

NOTE: THIS IS A HIGH VOLUME ROAD AS DEFINED IN SECTION 604.03 OF THE STANDARD SPECS. FOR HIGHWAY CONSTRUCTION, EDITION OF 2014

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	21	67

QUANTITIES

② MICKLE-WAGNER-COLEMAN, INC.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7396

R.C. BOX CULVERTS

STATION	LOCATION / DESCRIPTION	SPAN	HEIGHT	LENGTH	UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	CLASS S CONC. - ROADWAY	REIN. STEEL - ROADWAY (GRADE 60)
		FT.			CU. YDS.	CU. YDS.	LBS.
6+66	HILLBILLY LN - DOUBLE RCBC	4	3	60(X2)	55	54.82	6784
20+00	HILLBILLY LN	5	3	60	74	39.26	3093
					STRUCTURES OVER 20' SPAN		
32+16	HILLBILLY LN - TRIPLE RCBC	8	5	74(X3)	638	183.20	24126
TOTALS					767	277.28	34003

CONCRETE ISLAND

STATION	LOCATION	CURB FACE TYPE	SQ. YD.
3+50	C.L. HILLBILLY LANE	A	30.5
3+90	C.L. HILLBILLY LANE	B	96.0
5+00	C.L. HILLBILLY LANE	A	30.5
0+70	C.L. NORTH 29TH ST.	A	30.7
TOTAL			187.7

STRUCTURES

STATION	SIDE	LOCATION / DESCRIPTION	DROP INLET (TYPE C)	18" REIN. CONC. PIPE CLVT. (CLASS III)	18" REIN. CONC. F.E.S.	NON-METALLIC CONDUIT (4")	SOLID SODDING	WATER	STANDARD DWG. NUMBER
			EACH	LIN. FT.	EACH	LIN. FT.	SQ. YD.	M. GALLON	
3+75	RT.	4'X4' DROP INLET W/ 6"X48" BACK OPENING	1						FPC-9E
3+75	RT.	RCP CONNECTED TO DROP INLET		150	1		7	0.09	PCC-1, FES-1, FES-2
3+80	RT.	NON-METALLIC CONDUIT (4") (3X44LF)				132			
5+42		18" R.C. PIPE UTILITY CONDUIT		70					PCC-1
21+25		18" R.C. PIPE UTILITY CONDUIT		70					PCC-1
33+50		18" R.C. PIPE UTILITY CONDUIT		75					PCC-1
1+50		18" R.C. PIPE CONDUIT ON N. 29TH ST.		70					PCC-1
TOTALS			1	435	1	132	7	0.09	

BASIS OF ESTIMATE: WATER = 12.6 GAL. PER SQ. YD. (SOLID SODDING)
*NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED

DUMPED RIPRAP AND FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	*FILTER BLANKET
		CU. YARD	SQ. YD.
4+19	CONCRETE DITCH OUTLET	1.3	2.0
5+30	18" RCP OUTLET	1.3	2.0
5+50	CONCRETE DITCH OUTLET	1.3	2.0
8+07	CONCRETE DITCH OUTLET	1.3	2.0
14+00	CONCRETE DITCH OUTLET	1.3	2.0
14+00	STORM DRAIN OUTLET	10.0	15.5
15+00	CONCRETE DITCH OUTLETS	2.6	4.0
18+50	CONCRETE DITCH OUTLETS	2.6	4.0
20+50	CONCRETE DITCH OUTLET	1.3	2.0
21+50	CONCRETE DITCH OUTLET	1.3	2.0
23+00	CONCRETE DITCH OUTLET	1.3	2.0
26+00	CONCRETE DITCH OUTLET	1.3	2.0
27+50	CONCRETE DITCH OUTLET	1.3	2.0
30+84	CONCRETE DITCH OUTLET	1.3	2.0
33+00	CONCRETE DITCH OUTLET	1.3	2.0
38+00	CONCRETE DITCH OUTLET	1.3	2.0
41+00	CONCRETE DITCH OUTLETS	2.6	4.0
43+50	CONCRETE DITCH OUTLET	1.3	2.0
TOTAL		36.0	55.5

*NOTE: GEOTEXTILE FABRIC (TYPE 5) SHALL BE USED

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU. YD.
ENTIRE PROJECT - IF AND WHERE DIRECTED BY THE ENGINEER	50.0
TOTAL	50.0

CONCRETE DITCH PAVING

STA.	STA.	LOCATION	4' WIDE	6' WIDE	8' WIDE	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	LIN. FT.	LIN. FT.	SQ. YD.	SQ. YD.	M. GAL.
4+19	43+50	LEFT	1442	119	22	740	704	8.9
5+50	41+00	RIGHT	0	111	20	92	58	0.7
TOTALS			1442	230	42	832	762	9.6

BASIS OF ESTIMATE: WATER = 12.6 GAL. PER SQ. YD. (SOLID SODDING)

CONCRETE COMBINATION CURB AND GUTTER

STA.	STA.	SIDE	CURB AND GUTTER (TYPE A) (1'-6") LIN. FT.	CURB AND GUTTER (TYPE B1) (1'-6") LIN. FT.	INTEGRAL CURB (TYPE A) LIN. FT.	INTEGRAL CURB (TYPE B) LIN. FT.
-0+47	3+05	LT.	352			
-0+47	3+05	RT.	352			
3+05	5+31	LT. & RT.			560	190
5+31	13+14	LT.	781			
5+31	13+12	RT.	781			
13+14	13+56	LT.		42		
13+12	13+50	RT.		38		
13+56	47+56	LT.	3401			
13+50	47+56	RT.	3406			
1+13	4+50	LT. OF 29TH ST.	328			
1+13	4+50	RT. OF 29TH ST.	328			
TOTALS			9729	80	560	190

TEMPORARY EROSION CONTROL

LOCATION	SAND BAG DITCH CHECK (E-5)	DROP INLET SILT FENCE (E-7)	SILT FENCE (E-11)	*SEDIMENT BASIN (E-14)	*OBLIT. OF SEDIMENT BASIN	*SEDIMENT REMOVAL AND DISPOSAL	*EROSION CONTROL MATTING (CLASS 3)	TEMPORARY SEEDING	SEEDING	MULCH COVER	LIME	WATER
	BAG	LIN. FT.	LIN. FT.	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	ACRE	ACRE	ACRE	TONS	M. GALLON
ENTIRE PROJECT-AS SHOWN ON EROSION CONTROL DETAILS	880	20	4230	150	150	300	100	9.00	9.00	18.00	18	1101.6
TOTALS	880	20	4230	150	150	300	100	9.00	9.00	18.00	18	1101.6

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

BASIS OF ESTIMATE: SAND BAG DITCH CHECKS = 22 BAGS PER INSTALLATION
WATER = 20.4 M.G. PER ACRE (TEMPORARY SEEDING)
WATER = 102.0 M.G. PER ACRE (SEEDING)
LIME = 2 TONS PER ACRE (SEEDING)

* QUANTITY ESTIMATED – TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS

QUANTITIES

K:\Ozark\hillbilly drive\dwg\Plots\21 Hillbilly Ln Quantities.dwg, 5/7/2014 10:56:31 AM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
05-08-2014				6	AR	STP-0024(21)		
05-12-2014				JOB NO.		040493	22	66
05-15-2014								

② SUMMARY OF QUANTITIES AND REVISIONS

MICKLE-WAGNER-COLEMAN, INC.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER

SUMMARY OF QUANTITIES

ITEM NO.	ITEM	QUANTITY	UNIT
201	CLEARING	19	STATION
201	GRUBBING	19	STATION
210	UNCLASSIFIED EXCAVATION	13019	CU. YD.
210	COMPACTED EMBANKMENT	3799	CU. YD.
302	SELECTED MATERIAL (CLASS SM-3)	1891	CU. YD.
303	AGGREGATE BASE COURSE (CLASS 7)	5909	TON
401	TACK COAT	404	GAL.
SP,SS&406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")	2121	TON
SP,SS&406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")	98	TON
SP,SS&407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	1400	TON
SP,SS&407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")	80	TON
501	PORTLAND CEMENT CONCRETE PAVEMENT (7" UNIFORM THICKNESS)	1790	SQ. YD.
505	PORTLAND CEMENT CONCRETE DRIVEWAY	86	SQ. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP&602	FURNISHING FIELD OFFICE	1	EA.
603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
604	BARRICADES	80	LIN. FT.
604	TRAFFIC DRUMS	16	EA.
604	SIGNS	344	SQ. FT.
605	CONCRETE DITCH PAVING (TYPE B)	832	SQ. YD.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	435	LIN. FT.
SP&606	18" SIDE DRAIN	72	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	1	EA.
606	SELECTED PIPE BEDDING	50	CU. YD.
609	DROP INLETS (TYPE C)	1	EA.
619	WIRE FENCE (TYPE B)	10121	LIN. FT.
*619	14' STEEL GATES ALTERNATE NO. 1	2	EA.
*619	14' ALUMINIUM GATES ALTERNATE NO. 2	2	EA.
620	LIME	18	TON
620	SEEDING	9.00	ACRES
620	WATER	1111.3	M. GAL.
SS&620	MULCH COVER	18.00	ACRES
621	TEMPORARY SEEDING	9.00	ACRES
621	SEDIMENT REMOVAL AND DISPOSAL	300	CU. YD.
621	SAND BAG DITCH CHECK	880	BAG
621	SILT FENCE	4230	LIN. FT.
621	DROP INLET SILT FENCE	20	LIN. FT.
621	SEDIMENT BASIN	150	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	150	CU. YD.
624	SOLID SODDING	769	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	100	SQ. YD.
632	CONCRETE ISLAND	188	SQ. YD.
634	INTEGRAL CURB (TYPE A)	560	LIN. FT.
634	INTEGRAL CURB (TYPE B)	190	LIN. FT.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1'6")	9729	LIN. FT.
634	CONCRETE COMBINATION CURB AND GUTTER (TYPE B-1) (1'6")	80	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
710	NON-METALLIC CONDUIT (4")	132	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	10733	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	278	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	30	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	3	EA.
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	12	EA.
719	THERMOPLASTIC PAVEMENT MARKING (YIELD LINE)	36	LIN. FT.
726	STANDARD SIGN	122	SQ. FT.
SP&729	CHANNEL POST SIGN SUPPORT (TYPE U-1)	18	EA.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	129	CU. YD.
802	CLASS S CONCRETE-ROADWAY	94.08	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	9877	LBS.
816	DUMPED RIPRAP	36	CU. YD.
816	FILTER BLANKET	56	SQ. YD.
	STRUCTURES OVER 20' SPAN		
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	638	CU. YD.
802	CLASS S CONCRETE-ROADWAY	183.20	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	24126	LBS.

*DENOTES ALTERNATE BID ITEM

REVISIONS

DATE	REVISION	SHEET NO.
05-08-2014	ADDED SP OFF-SITE RESTRAINING CONDITIONS FOR AMERICAN BURYING BEETLE	2 & 22
05-12-2014	ADDED SP ARCHEOLOGICAL MONITORING	2 & 22
05-15-2014	ADDED SP CHANNEL POST SIGN SUPPORT, CHANNEL POST SIGN SUPPORT (TYPE U-1) QUANTITY, STANDARD DRAWINGS SHS-1 & SHS-2	2, 20 & 22 44A & 44B

SUMMARY OF QUANTITIES AND REVISIONS

K:\Ozark\hillbilly drive\dwg\Plots\22 Hillbilly Ln Summary Quantities.dwg, 5/15/2014 4:13:27 PM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	23	67

② SURVEY CONTROL DETAILS

MICKLE-WAGNER-COLEMAN, INC.

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 7396 — ANDREW J. GIBBLE

HILLBILLY LANE AND NORTH 29TH STREET

NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	0+00	430426.5371	758818.9961
8001	POT/POB	4+18.49	430404.5429	759236.9115
8002	PC	7+64.63	430386.3514	759582.5723
8003	PI	11+07.16	430366.1001	759967.3721
8004	PT	14+49.69	430707.6022	760145.8579
8005	PC	20+35.26	431226.5648	760417.0934
8006	PI	23+80.21	431571.1003	760597.1646
8007	PT	27+25.16	431547.5422	760985.2050
8008	PC	38+31.16	431480.5201	762089.1677
8009	PI	39+24.22	431474.8641	762182.3313
8010	PT	40+17.29	431452.0651	762272.8390
8011	PC	42+82.74	431387.2235	762530.2479
8012	PI	44+16.04	431354.4678	762660.2821
8013	PT	45+49.34	431357.1274	762794.3520
8014	POE	48+13.33	431362.3633	763058.2875
8015	PC	2+38.01*	430166.8624	759224.4028
8016	PI	3+42.49*	430060.9786	759218.8303
8017	PT	4+46.97*	429961.9464	759256.7125
8018	POB/PC	-1+77.48	430434.2160	758641.6935
8019	PI	-0+47.97	430430.3146	758713.1012
8020	PRC	-0+51.50	430382.0575	758765.8794
8021	PI	-0+11.39	430346.5200	758804.7464
8022	PT	0+41.75	430334.7369	758855.9731
8023	PC	0+49.94	430332.8732	758864.0753
8024	PI	2+25.57	430292.9023	759037.8477
8025	PT	2+70.04*	430133.4132	759099.5312
8026	PC	3+58.16*	430029.6366	759139.6675
8027	PI	4+16.00*	429965.5045	759164.4710
8028	PRC	4+64.76*	429930.1834	759223.4673
8029	PI	5+18.89*	429894.7885	759282.5869
8030	PT/POE	5+87.85*	429830.4904	759307.3597

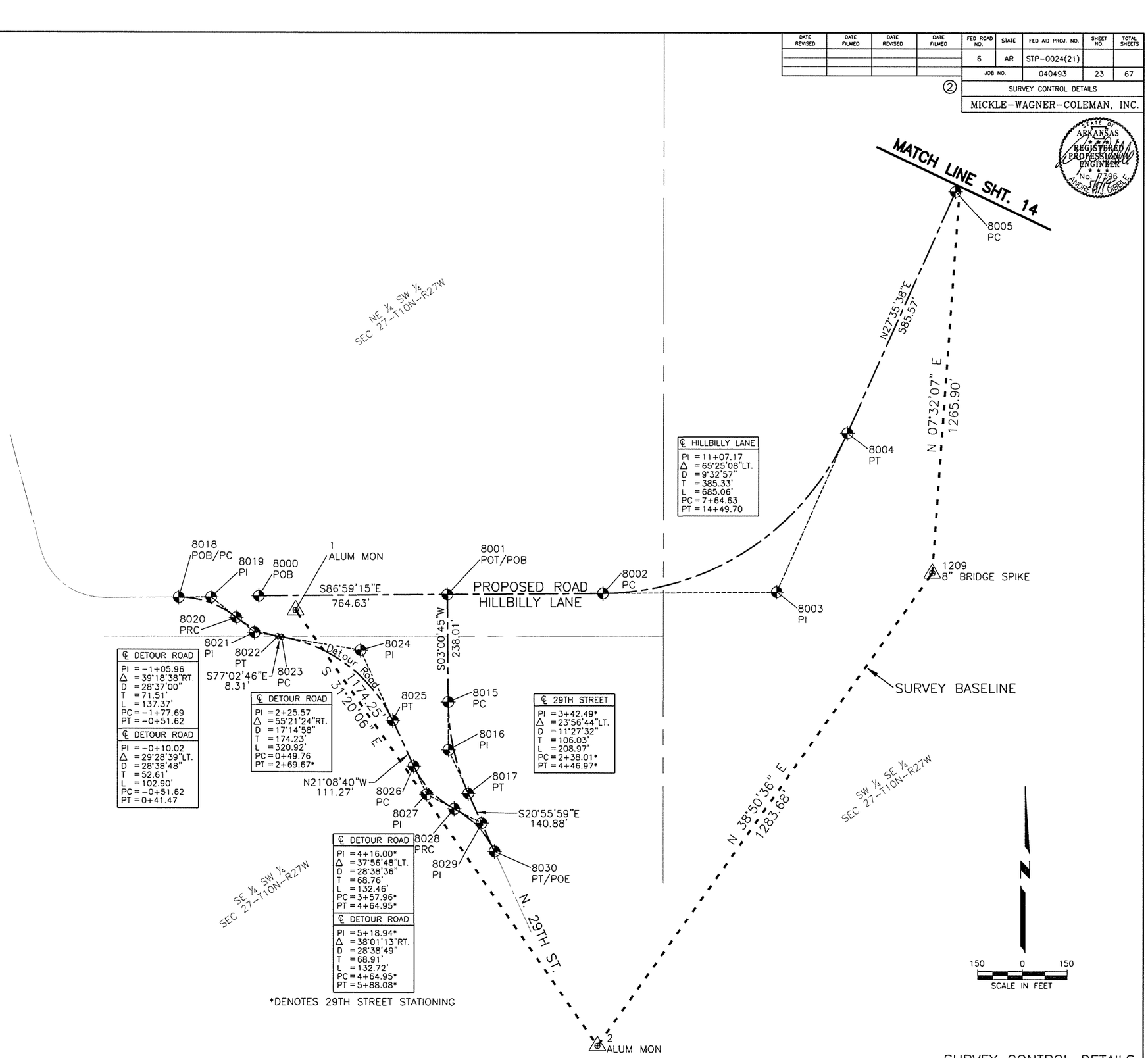
*DENOTES STATIONING FROM N. 29TH STREET, OTHERS FROM HILLBILLY LANE

SURVEY CONTROL COORDINATES

PROJECT NAME.....040493
DATE.....1/31/2012
COORDINATE SYSTEM...ARKANSAS STATE PLANE – NORTH ZONE BASED UPON GPS CONTROL PROJECTED TO GROUND
UNITS.....U.S. SURVEY FOOT

NAME	NORTHING	EASTING	ELEV.	FEATURE	DESCRIPTION
1	430390.2850	758898.9340	542.02	CTL	ALUM. MON.
2	429387.3110	759509.5900	526.66	CTL	ALUM. MON.
3	431485.0770	763026.9260	578.30	CTL	ALUM. MON.
1007	431528.9959	762226.5873	556.76	CTL	8" BRIDGE SPIKE
1205	431642.0873	760480.7141	543.95	CTL	8" BRIDGE SPIKE
1209	430387.1216	760314.7083	528.75	CTL	8" BRIDGE SPIKE

BASIS OF BEARING:
GRID, NAD83 ARKANSAS STATE PLANE, NORTH ZONE, BEARING BETWEEN SURVEY CONTROL MONUMENTS 2 AND 1209 = N38°50'36"E
CA = -01°04'44.37" AT N 35°30'17.83", W 93°51'15.34"
CAF = 0.999919849771 (BASED AN ELEVATION FACTOR OF 0.999982958696)
HORIZONTAL DATUM = NAD83, ARKANSAS STATE PLANE, NORTH ZONE
VERTICAL DATUM = ASSUMED



SURVEY CONTROL DETAILS

K:\Ozark\hillbilly drive\dwg\Plots\23-24 Hillbilly Ln Survey Control Details.dwg, 5/5/2014 2:56:23 PM

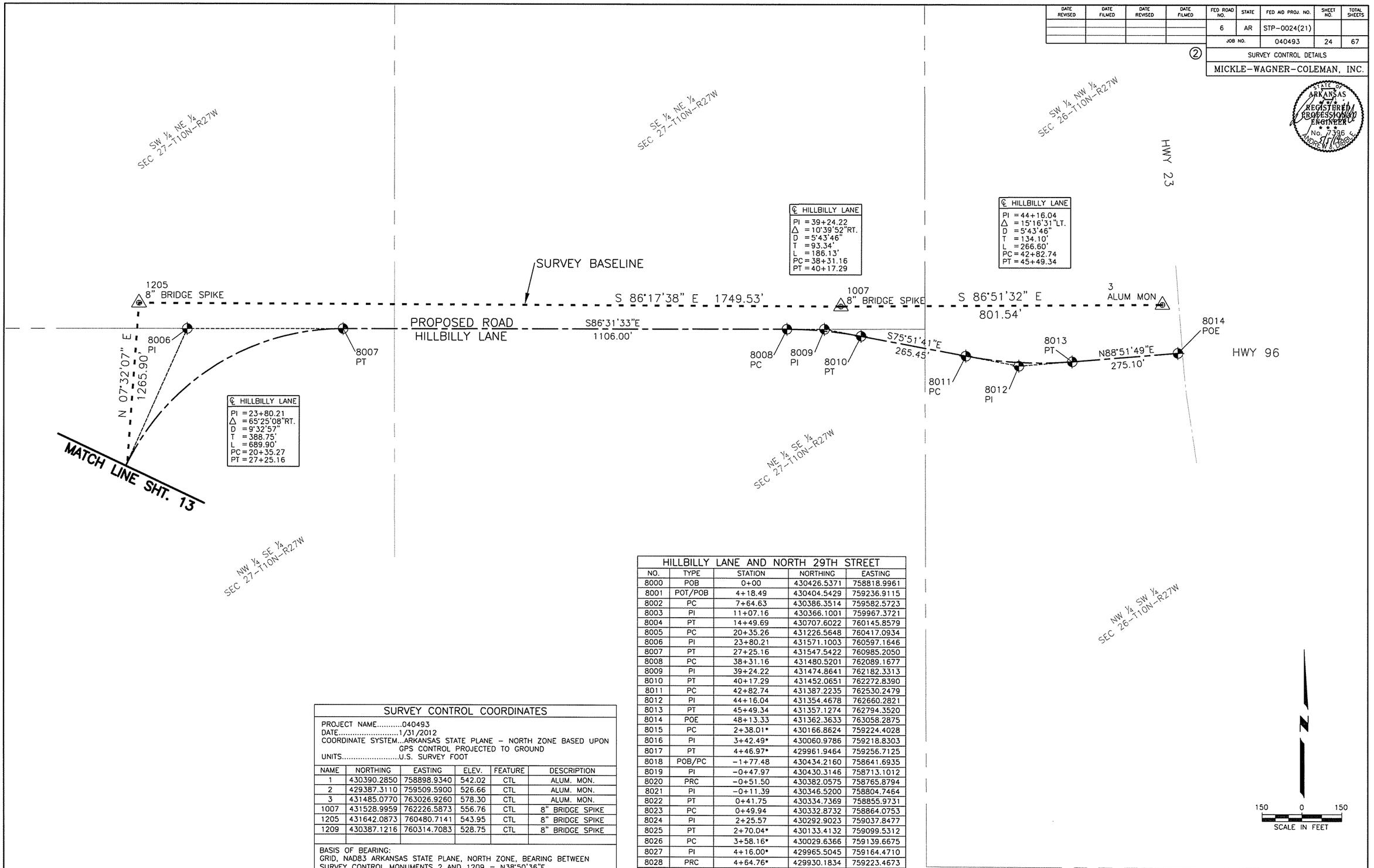
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	24	67

②

SURVEY CONTROL DETAILS

MICKLE-WAGNER-COLEMAN, INC.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7396 ANDREW J. WAGNER, JR.



SURVEY CONTROL COORDINATES

PROJECT NAME.....040493
DATE.....1/31/2012
COORDINATE SYSTEM...ARKANSAS STATE PLANE – NORTH ZONE BASED UPON GPS CONTROL PROJECTED TO GROUND
UNITS.....U.S. SURVEY FOOT

NAME	NORTHING	EASTING	ELEV.	FEATURE	DESCRIPTION
1	430390.2850	758898.9340	542.02	CTL	ALUM. MON.
2	429387.3110	759509.5900	526.66	CTL	ALUM. MON.
3	431485.0770	763026.9260	578.30	CTL	ALUM. MON.
1007	431528.9959	762226.5873	556.76	CTL	8" BRIDGE SPIKE
1205	431642.0873	760480.7141	543.95	CTL	8" BRIDGE SPIKE
1209	430387.1216	760314.7083	528.75	CTL	8" BRIDGE SPIKE

BASIS OF BEARING:
GRID, NAD83 ARKANSAS STATE PLANE, NORTH ZONE, BEARING BETWEEN SURVEY CONTROL MONUMENTS 2 AND 1209 = N38°50'36"E
CA = -01°04'44.37" AT N 35°30'17.83", W 93°51'15.34"
CAF = 0.999919849771 (BASED AN ELEVATION FACTOR OF 0.999982958696)
HORIZONTAL DATUM = NAD83, ARKANSAS STATE PLANE, NORTH ZONE
VERTICAL DATUM = ASSUMED

HILLBILLY LANE AND NORTH 29TH STREET

NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	0+00	430426.5371	758818.9961
8001	POT/POB	4+18.49	430404.5429	759236.9115
8002	PC	7+64.63	430386.3514	759582.5723
8003	PI	11+07.16	430366.1001	759967.3721
8004	PT	14+49.69	430707.6022	760145.8579
8005	PC	20+35.26	431226.5648	760417.0934
8006	PI	23+80.21	431571.1003	760597.1646
8007	PT	27+25.16	431547.5422	760985.2050
8008	PC	38+31.16	431480.5201	762089.1677
8009	PI	39+24.22	431474.8641	762182.3313
8010	PT	40+17.29	431452.0651	762272.8390
8011	PC	42+82.74	431387.2235	762530.2479
8012	PI	44+16.04	431354.4678	762660.2821
8013	PT	45+49.34	431357.1274	762794.3520
8014	POE	48+13.33	431362.3633	763058.2875
8015	PC	2+38.01*	430166.8624	759224.4028
8016	PI	3+42.49*	430060.9786	759218.8303
8017	PT	4+46.97*	429961.9464	759256.7125
8018	POB/PC	-1+77.48	430434.2160	758641.6935
8019	PI	-0+47.97	430430.3146	758713.1012
8020	PRC	-0+51.50	430382.0575	758765.8794
8021	PI	-0+11.39	430346.5200	758804.7464
8022	PT	0+41.75	430334.7369	758855.9731
8023	PC	0+49.94	430332.8732	758864.0753
8024	PI	2+25.57	430292.9023	759037.8477
8025	PT	2+70.04*	430133.4132	759099.5312
8026	PC	3+58.16*	430029.6366	759139.6675
8027	PI	4+16.00*	429965.5045	759164.4710
8028	PRC	4+64.76*	429930.1834	759223.4673
8029	PI	5+18.89*	429894.7885	759282.5869
8030	PT/POE	5+87.85*	429830.4904	759307.3597

*DENOTES STATIONING FROM N. 29TH STREET, OTHERS FROM HILLBILLY LANE

SURVEY CONTROL DETAILS

K:\Ozark\hillbilly drive\dwg\Plots\23-24 Hillbilly Ln Survey Control Details.dwg, 5/5/2014 2:56:52 PM

CONCRETE DITCH PAVING (TYPE B)					
STA.	STA.	SIDE	LF LT.	LF RT.	"W"
4+19(1)	4+19	LT.(2)	6.00		6'
5+48	6+39	LT.	90.00		4'
5+50(1)	5+50	LT.&RT.(2)	14.00	8.85	6'
6+64	10+00	LT.	335.00		4'
8+07(1)	8+07	LT.&RT.(2)	14.00	7.92	8'
9+50(1)	9+50	LT.	14.00		6'

(1): BEGIN AT CURB
(2): 1.30 CU. YD. DUMPED RIPRAP OVER 2.0 SQ. YD. FILTER BLANKET AT OUTLET.

FENCE (TYPE B)			
STA.	STA.	SIDE	LF
0+46	6+38	LT.(3)	638
-0+60	3+79	RT.	456
4+59	6+70	RT.(3)	231
6+63	10+00	LT.(3)	326
6+94	10+00	RT.(3)	344

(3): TIE FENCE TO WING

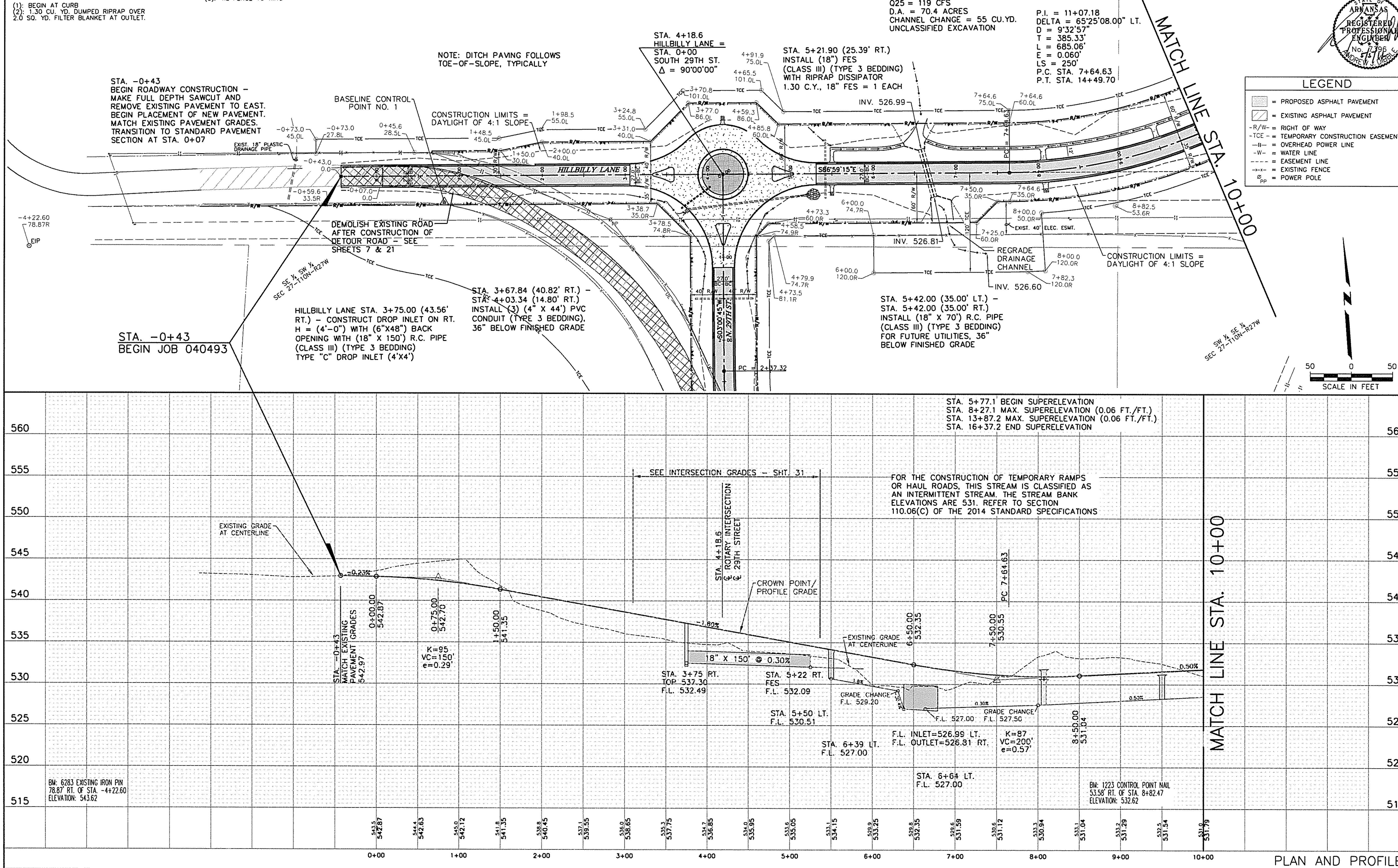
NOTE: SEE SHEET 31 FOR INTERSECTION CONSTRUCTION DETAILS

NOTE: NEW FENCE IS SHOWN ALONG RIGHT-OF-WAY LINE, TYP.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	25	67

② PLAN AND PROFILE - HILLBILLY LANE

MICKLE-WAGNER-COLEMAN, INC.



STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7396 ANDREW J. DIRSKI
STA. 6+66.00 - CONSTRUCT DOUBLE 4' X 3' X 60' R.C. BOX CULVERT ON 15' RT. FWD. SKEW WITH 4:1 WINGS LT. & RT. Q25 = 119 CFS D.A. = 70.4 ACRES CHANNEL CHANGE = 55 CU.YD. UNCLASSIFIED EXCAVATION
P.I. = 11+07.18 DELTA = 65°25'08.00" LT. D = 9°32'57" T = 385.33' L = 685.06' E = 0.060' LS = 250' P.C. STA. 7+64.63 P.T. STA. 14+49.70
LEGEND
= PROPOSED ASPHALT PAVEMENT
= EXISTING ASPHALT PAVEMENT
-R/W- = RIGHT OF WAY
-TCE- = TEMPORARY CONSTRUCTION EASEMENT
= OVERHEAD POWER LINE
-W- = WATER LINE
= EASEMENT LINE
= EXISTING FENCE
PP = POWER POLE
MATCH LINE STA. 10+00
NOTE: DITCH PAVING FOLLOWS TOE-OF-SLOPE, TYPICALLY
STA. 4+18.6 HILLBILLY LANE = STA. 0+00 SOUTH 29TH ST. Δ = 90°00'00"
STA. 5+21.90 (25.39' RT.) INSTALL (18") FES (CLASS III) (TYPE 3 BEDDING) WITH RIPRAP DISSIPATOR 1.30 C.Y., 18" FES = 1 EACH
STA. -0+43 BEGIN ROADWAY CONSTRUCTION - MAKE FULL DEPTH SAWCUT AND REMOVE EXISTING PAVEMENT TO EAST. BEGIN PLACEMENT OF NEW PAVEMENT. MATCH EXISTING PAVEMENT GRADES. TRANSITION TO STANDARD PAVEMENT SECTION AT STA. 0+07
BASELINE CONTROL POINT NO. 1
CONSTRUCTION LIMITS = DAYLIGHT OF 4:1 SLOPE
HILLBILLY LANE
S86°59'15"E
INV. 526.99
INV. 526.81
INV. 526.60
DEMOLISH EXISTING ROAD AFTER CONSTRUCTION OF DETOUR ROAD - SEE SHEETS 7 & 21
REGRADE DRAINAGE CHANNEL
CONSTRUCTION LIMITS = DAYLIGHT OF 4:1 SLOPE
EXIST. 40' ELEC. ESMT.
STA. 3+67.84 (40.82' RT.) - STA. 4+03.34 (14.80' RT.) INSTALL (3) (4" X 44') PVC CONDUIT (TYPE 3 BEDDING), 36" BELOW FINISHED GRADE
HILLBILLY LANE STA. 3+75.00 (43.56' RT.) - CONSTRUCT DROP INLET ON RT. H = (4'-0") WITH (6"X48") BACK OPENING WITH (18" X 150') R.C. PIPE (CLASS III) (TYPE 3 BEDDING) TYPE "C" DROP INLET (4'X4')
STA. 5+42.00 (35.00' LT.) - STA. 5+42.00 (35.00' RT.) INSTALL (18" X 70') R.C. PIPE (CLASS III) (TYPE 3 BEDDING) FOR FUTURE UTILITIES, 36" BELOW FINISHED GRADE
STA. -0+43 BEGIN JOB 040493
S.N. 29TH ST.
NE ¼ SW ¼ SEC 27-T10N-R27W
SE ¼ SW ¼ SEC 27-T10N-R27W
SW ¼ SE ¼ SEC 27-T10N-R27W
N
50 0 50 SCALE IN FEET
STA. 5+77.1 BEGIN SUPERELEVATION
STA. 8+27.1 MAX. SUPERELEVATION (0.06 FT./FT.)
STA. 13+87.2 MAX. SUPERELEVATION (0.06 FT./FT.)
STA. 16+37.2 END SUPERELEVATION
SEE INTERSECTION GRADES - SHT. 31
FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 531. REFER TO SECTION 110.06(C) OF THE 2014 STANDARD SPECIFICATIONS
EXISTING GRADE AT CENTERLINE
STA. 4+18.6 ROTARY INTERSECTION 29TH STREET
CROWN POINT/ PROFILE GRADE
PC 7+64.63
STA. -0+43 MATCH EXISTING PAVEMENT GRADES 542.97
0+00.00 542.87
0+75.00 542.70
1+50.00 541.35
6+50.00 532.35
7+50.00 530.55
8+50.00 531.04
K=95 VC=150' e=0.29'
K=87 VC=200' e=0.57'
18" X 150' @ 0.30%
STA. 3+75 RT. TOP 537.30 F.L. 532.49
STA. 5+22 RT. FES F.L. 532.09
STA. 5+50 LT. F.L. 530.51
GRADE CHANGE F.L. 529.20
STA. 6+39 LT. F.L. 527.00
STA. 6+64 LT. F.L. 527.00
F.L. 527.00
GRADE CHANGE F.L. 527.50
F.L. INLET=526.99 LT. F.L. OUTLET=526.81 RT.
BM: 6283 EXISTING IRON PIN 78.87' RT. OF STA. -4+22.60 ELEVATION: 543.62
BM: 1223 CONTROL POINT NAIL 53.58' RT. OF STA. 8+82.47 ELEVATION: 532.62
560 555 550 545 540 535 530 525 520 515
0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00
PLAN AND PROFILE

K:\Ozark\hillbilly drive\dwg\Plots\25 Hillbilly Ln P&P Sta. 0+00 to Sta. 10+00.dwg, 5/5/2014 6:38:06 PM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	26	67

② PLAN AND PROFILE – HILLBILLY LANE

MICKLE-WAGNER-COLEMAN, INC.

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 7936 — ANDREW J. CIEBLE

NOTE: NEW FENCE IS SHOWN ALONG RIGHT-OF-WAY LINE, TYP.

FENCE (TYPE B)			
STA.	STA.	SIDE	LF
10+00	13+28	LT.	305
10+00	13+23	RT.	344
13+43	20+03	LT.(3)	713
13+36	19+81	RT.(3)	717
20+19	22+50	LT.(3)	303
19+97	22+50	RT.(3)	299

(3): TIE FENCE TO WING

CONCRETE DITCH PAVING (TYPE B)					
STA.	STA.	SIDE	LF LT.	LF RT.	"W"
10+00	13+12	LT.	310.00		4'
11+00(1)	11+00	LT.	14.00		6'
12+50(1)	12+50	LT.	14.00		6'
14+00(1)	14+00	LT.(2)	17.43		6'
15+50(1)	15+50	LT.&RT.(2)	11.00	10.92	6'
18+50(1)	18+50	LT.&RT.(2)	16.15	6.12	6'
20+50(1)	20+50	RT.(2)		21.72	6'
21+50(1)	21+50	RT.(2)		8.14	6'

(1): BEGIN AT CURB
(2): 1.30 CU. YD. DUMPED RIPRAP OVER 2.0 SQ. YD. FILTER BLANKET AT OUTLET.

MATCH LINE STA. 10+00

P.I. = 11+07.17
DELTA = 65°25'08.00" LT.
D = 9°32'57"
T = 385.33'
L = 685.06'
E = 0.060'
LS = 250'
P.C. STA. 7+64.63
P.T. STA. 14+49.70

STA. 13+32 INSTALL 14' GATE

STA. 13+32 CONSTRUCT 16' X 24' OF 6" THICK P.C.C. DRIVE APRON WITH DOUBLE 18" SIDE DRAIN, 36 LF EA., 72 LF TOTAL @ 0.50% IF NEEDED

STA. 20+00.00 – CONSTRUCT 5' X 3' X 60' R.C. BOX CULVERT ON 15' LT. FWD. SKEW WITH 4:1 WINGS LT. & RT.
TIE FENCE TO WINGS
Q25 = 111 CFS
D.A. = 64.00 ACRES
CHANNEL CHANGE = 74 CU.YD. UNCLASSIFIED EXCAVATION

STA. 21+25.00 (35.00' LT.) – STA. 21+25.00 (35.00' RT.) INSTALL (18" X 70') R.C. PIPE (CLASS III) (TYPE 3 BEDDING) FOR FUTURE UTILITIES, 36" BELOW FINISHED GRADE

P.I. = 23+80.20
DELTA = 65°25'08.00" RT.
D = 9°32'57"
T = 388.75'
L = 689.90'
E = 0.060'
LS = 250'
P.C. STA. 20+35.27
P.T. STA. 27+25.16

MATCH LINE STA. 22+50

HILLBILLY LANE — N27°35'38"E

EXIST. 40' ELEC. EASEMENT

CONSTRUCTION LIMITS = DAYLIGHT OF 4:1 SLOPE

MATCH EXISTING DRIVE GRADE AT 40' LT. & RT.

10 CU. YD. RIPRAP

STA. 13+32 CONSTRUCT 16' X 24' OF 6" THICK P.C.C. DRIVE APRON

EXIST. CRUSHED STONE FIELD RD

GRADE CHANNEL BOTTOM @ > 0.50% GRADE TO DAYLIGHT. MATCH EXIST. – APPROX. 250 LF

INV. 531.3
INV. 531.0
INV. 529.66

NOTE: DITCH PAVING FOLLOWS TOE-OF-SLOPE, TYPICALLY

SW ¼ SE ¼ SEC 27-T10N-R27W
NW ¼ SE ¼ SEC 27-T10N-R27W
NW ¼ SE ¼ SEC 27-T10N-R27W

SCALE IN FEET: 50 0 50

STA. 5+77.1 BEGIN SUPERELEVATION
STA. 8+27.1 MAX. SUPERELEVATION (0.06 FT./FT.)
STA. 13+87.2 MAX. SUPERELEVATION (0.06 FT./FT.)
STA. 16+37.2 END SUPERELEVATION

STA. 18+47.8 BEGIN SUPERELEVATION
STA. 20+97.8 MAX. SUPERELEVATION (0.06 FT./FT.)
STA. 26+62.7 MAX. SUPERELEVATION (0.06 FT./FT.)
STA. 29+12.7 END SUPERELEVATION

MATCH LINE STA. 10+00

MATCH LINE STA. 22+50

STA. 13+30 ℄ DRIVEWAY

PT 14+49.70

PC 20+35.27

CROWN POINT/ PROFILE GRADE

F.L. 536.23

F.L. 534.25

V-BOTTOM EARTHEN DITCH LEFT

F.L. INLET=531.30 LT.
F.L. OUTLET=531.00 RT.

F.L. 532.5
F.L. 532.34

10 CU. YD. RIPRAP

F.L. 530.25

STA. 5+50
END 4' TYPE B
CDP LEFT
F.L. 529.55

4' BOTTOM CONCRETE DITCH PAVING, LEFT SIDE

0.50%

BM: 1209 CONTROL POINT NAIL
321.30' RT. OF STA. 13+14.34
ELEVATION: 528.75

BM: 1205 CONTROL POINT NAIL
236.77' LT. OF STA. 23+32.39
ELEVATION: 543.95

560 555 550 545 540 535 530 525 520 515

531.79 529.7 532.03 530.3 532.28 529.3 532.53 530.5 532.77 531.4 533.02 532.7 533.27 533.8 533.52 534.6 533.76 534.4 534.01 534.1 534.26 532.7 534.50 534.2 534.75 534.7 535.00 535.2 535.25 536.0 535.49 536.3 535.74 536.5 535.99 535.4 536.23 537.6 536.48 535.2 536.73 535.0 536.98 535.4 537.22 535.8 537.47 536.5 537.72 532.3

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00

PLAN AND PROFILE

K:\Ozark\hillbilly drive\dwg\Plots\26 Hillbilly Ln P&P Sta. 10+00 to Sta. 22+50.dwg, 5/5/2014 6:38:28 PM

CONCRETE DITCH PAVING (TYPE B)					
STA.	STA.	SIDE	LF LT.	LF RT.	"W"
23+00(1)	23+00	RT.(2)		4.20	6'
25+50	32+19	LT.	680.00		4'
26+00(1)	26+00	RT.(2)		8.52	6'
27+50(1)	27+50	RT.(2)		9.85	6'
30+84(1)	30+84	LT.&RT.(2)	8.00	12.28	8'
32+78	33+04	LT.	27.00		4'
33+00(1)	33+00	RT.(2)		18.96	6'

(1): BEGIN AT CURB
(2): 1.30 CU. YD. DUMPED RIPRAP OVER 2.0 SQ. YD. FILTER BLANKET AT OUTLET.

FENCE (TYPE B)			
STA.	STA.	SIDE	LF
22+50	32+20	LT.(3)	1029
22+50	31+55	RT.(3)	912
32+77	37+50	LT.(3)	510
32+12	37+50	RT.(3)	573

(3): TIE FENCE TO WING

NOTE: DITCH PAVING FOLLOWS TOE-OF-SLOPE, TYPICALLY

NOTE: NEW FENCE IS SHOWN ALONG RIGHT-OF-WAY LINE, TYP.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	27	67

② PLAN AND PROFILE - HILLBILLY LANE

MICKLE-WAGNER-COLEMAN, INC.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7795 ANDREW J. BEEBE

BASELINE CONTROL POINT NO. 1205

EXIST. 10" WATER ESMT. WITHIN ELEC. ESMT.

EXISTING 30' ELEC. EASEMENT

EXISTING 10" WATER LINE

HILLBILLY LANE

S86°31'33"E

P.I. = 23+80.21
DELTA = 65°25'08.00" LT.
D = 9°32'57"
T = 388.75'
L = 689.90'
E = 0.060
LS = 250'
P.C. STA. 20+35.27
P.T. STA. 27+25.16

HIGH POINT 22+98.4 45.0L 23+00.0 30.0L

CONSTRUCTION LIMITS = DAYLIGHT OF 4:1 SLOPE

MATCH LINE STA. 22+50

FLOODPLAIN BOUNDARY

SW ¼ NE ¼ SEC 27-T10N-R27W

NW ¼ SE ¼ SEC 27-T10N-R27W

SE ¼ NE ¼ SEC 27-T10N-R27W

NE ¼ SE ¼ SEC 27-T10N-R27W

REGRADE CHANNEL TO TIE TO EXISTING

NORTH BRANCH CAR CREEK

INV. 528.8

INV. 528.5

EXIST. 10" SANITARY SEWER

STA. 32+16.00 - CONSTRUCT TRIPLE 8' X 5' X 74.17' R.C. BOX CULVERT ON 30° LT. FWD. SKEW WITH 4:1 WINGS LT. & RT. TIE FENCE TO WINGS
Q25 = 994 CFS
D.A. = 635 ACRES
CHANNEL CHANGE = 638 CU.YD. UNCLASSIFIED EXCAVATION

STA. 33+50.00 (50.00' LT.) - STA. 33+50.00 (25.00' RT.) INSTALL (18" X 75') R.C. PIPE (CLASS III) (TYPE 3 BEDDING) FOR FUTURE UTILITIES, 36" BELOW FINISHED GRADE

MATCH LINE STA. 37+50

SCALE IN FEET

STA. 18+47.8 BEGIN SUPERELEVATION
STA. 20+97.8 MAX. SUPERELEVATION (0.06 FT./FT.)
STA. 26+62.7 MAX. SUPERELEVATION (0.06 FT./FT.)
STA. 29+12.7 END SUPERELEVATION

FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 534. REFER TO SECTION 110.06(C) OF THE 2014 STANDARD SPECIFICATIONS

0.50% -0.30% -0.60% -0.60% -0.30% 3.40%

23+50.00 538.46
24+50.00 538.95
25+50.00 538.35
PT. 27+25.16
30+00.00 535.65
32+75.00 534.00
35+50.00 543.36

F.L. 536.45
F.L. 533.15
F.L. 528.80

V-BOTTOM EARTHEN DITCH LEFT

STA. 25+50 BEGIN 4' TYPE B CDP LEFT F.L. 535.85

4' BOTTOM CONCRETE DITCH PAVING, LEFT SIDE

K=183
VC=200'
e=0.27'

K=137
VC=550'
e=2.75'

STA. 33+04 END 4' TYPE B CDP LEFT, F.L. 535.00

CROWN POINT / PROFILE GRADE

STA. 32+78 BEGIN 4' TYPE B CDP LEFT @ WINGWALL, F.L. 534.65

F.L. INLET=528.8 LT.
F.L. OUTLET=528.50 RT.

STA. 32+19 END 4' TYPE B CDP LEFT @ WING, F.L. 532.49

BM: 1205 CONTROL POINT NAIL 236.77' LT. OF STA. 23+32.39 ELEVATION: 543.95

BM: 6075 SS MANHOLE RIM 180.74' RT. OF STA. 32+02.02 ELEVATION: 528.62

23+00	24+00	25+00	26+00	27+00	28+00	29+00	30+00	31+00	32+00	33+00	34+00	35+00	36+00	37+00
537.96	538.0 538.21	536.8 538.46	536.7 538.64	537.1 538.68	537.2 538.58	536.7 538.35	537.1 538.05	536.7 537.75	536.3 537.45	535.9 537.15	535.6 536.85	535.8 536.55	536.0 536.25	535.7 535.95	535.4 535.65	534.9 535.44	533.5 535.41	531.0 535.57	532.0 535.91	530.0 536.43	534.4 537.13	538.9 538.01	537.0 539.07	538.6 540.32	540.7 541.75	542.3 543.36	543.9 545.06	545.5 546.77	547.1 548.47	548.9

PLAN AND PROFILE

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	28	67

PLAN AND PROFILE - HILLBILLY LANE

MICKLE-WAGNER-COLEMAN, INC.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 17396
ANDREW W. DEBBLE

CONCRETE DITCH PAVING (TYPE B)					
STA.	STA.	SIDE	LF LT.	LF RT.	"W"
38+00(1)	38+00	RT.(2)		8.00	6'
41+00(1)	41+00	LT.&RT.(2)	7.30	5.83	6'
43+50(1)	43+50	LT.(2)	5.22		6'

(1): BEGIN AT CURB
(2): 1.30 CU. YD. DUMPED RIPRAP OVER 2.0 SQ. YD. FILTER BLANKET AT OUTLET.

FENCE (TYPE B)			
STA.	STA.	SIDE	LF
37+50	44+03	LT.(4)	654
37+50	46+06	RT.(4)	912

(4): TIE TO EXISTING FENCE.

NOTE: NEW FENCE IS SHOWN ALONG RIGHT-OF-WAY LINE, TYP.

MATCH LINE STA. 37+50

JEFFERS FAMILY LIMITED PARTNERSHIP

SE ¼ NE ¼ SEC 27-T10N-R27W

SW ¼ NW ¼ SEC 26-T10N-R27W

P.I. = 44+16.04
DELTA = 15°16'31.00" LT.
D = 5°43'46"
T = 134.10'
L = 266.60'
E = 0.048
LS = 200'
P.C. STA. 42+82.74
P.T. STA. 45+49.34

BASELINE CONTROL POINT NO. 1007

BASELINE CONTROL POINT NO. 3

EXISTING 10" WATER ESMT. WITHIN ELEC. ESMT.

EXISTING 30" ELEC. EASEMENT

EXIST. 8" WL

EXIST. 20" STEEL CASING

250' QUEUE

P.I. = 39+24.22
DELTA = 10°39'52.00" RT.
D = 10°39'52"
T = 93.34'
L = 186.13'
E = 0.048
LS = 200'
P.C. STA. 38+31.16
P.T. STA. 40+17.29

S75°51'41"E

N88°51'49"E

HILLBILLY LANE

CONSTRUCTION LIMITS = DAYLIGHT OF 4:1 SLOPE

150' LANE WIDENING TRANSITION

NE ¼ SE ¼ SEC 27-T10N-R27W

NW ¼ SW ¼ SEC 26-T10N-R27W

ROBERT & SUE WOOLSEY

WARDEN AUTO SERVICE

DRIVE

VET CLINIC PARKING

VET CLINIC

AR HWY. 96

AR HWY. 25

80' R/W

WAL-MART

STA. 48+13.33
END PAVEMENT CONSTRUCTION
MATCH EXISTING GRADES

STA. 48+13
END JOB 040493

SCALE IN FEET

STA. 36+65.0 BEGIN SUPERELEVATION
STA. 38+65.0 MAX. SUPERELEVATION (0.048 FT./FT.)
STA. 39+50.0 MAX. SUPERELEVATION (0.048 FT./FT.)
STA. 41+50.0 END SUPERELEVATION

STA. 41+50.0 BEGIN SUPERELEVATION
STA. 43+50.0 MAX. SUPERELEVATION (0.048 FT./FT.)
STA. 45+10.0 MAX. SUPERELEVATION (0.048 FT./FT.)
STA. 47+10.0 END SUPERELEVATION

MATCH LINE STA. 37+50

PC 38+31.16
PT 40+17.29
PC 42+82.74
STA. 43+63.33 BEGIN WIDENING
STA. 45+13.33
PT 45+49.34
STA. 48+13.33 END PAVEMENT CONSTRUCTION MATCH EXISTING GRADES 578.80

K=117
VC=200'
e=0.43'

K=87
VC=200'
e=0.58'

K=82
VC=200'
e=0.61'

CROWN POINT/ PROFILE GRADE

1.70%

4.00%

1.55%

37+50.00 550.17
38+50.00 553.57
39+50.00 555.27
41+00.00 557.82
42+00.00 559.52
43+00.00 563.52
45+00.00 571.52
46+00.00 575.50
47+00.00 577.05

EXISTING 20" STEEL CASING WITH 8" WATER LINE

BM: 6035 EXISTING IRON PIN
78.07' LT. OF STA. 44+00.20
ELEVATION: 567.96

BM: 36005 COTTON SPINDLE
0.49' RT. OF STA. 48+24.38
ELEVATION: 577.88

585 580 575 570 565 560 555 550 545 540

550.17 550.5 551.77 551.9 553.15 553.0 554.32 554.5 555.27 556.0 556.12 557.3 556.97 557.9 557.82 558.9 558.82 560.3 560.10 561.8 561.67 563.7 563.52 565.1 565.52 567.2 567.52 569.2 569.52 571.6 571.52 573.7 573.34 575.8 574.79 578.7 575.86 579.0 576.37 579.8 577.10 577.4 577.62 577.8 577.2 576.3 574.7

38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00

PLAN AND PROFILE

K:\Ozark\hillbilly drive\dwg\Plots\28 Hillbilly Ln P&P Sta. 37+50 to End.dwg, 5/6/2014 3:09:35 PM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	29	67

② PLAN AND PROFILE – N. 29TH STREET

MICKLE-WAGNER-COLEMAN, INC.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7896 ANDREW W. LIEBLE 5/6/14

FENCE (TYPE B)			
STA.	STA.	SIDE	LF
0+81.1	4+80.3	LT.	390.00
0+74.8	4+49.0	RT.	465.00

FENCE 12" INSIDE RIGHT-OF-WAY

NOTE: SEE SHEET 31 FOR INTERSECTION CONSTRUCTION DETAILS

STA. 4+18.6
HILLBILLY LANE =
STA. 0+00
SOUTH 29TH STREET
Δ = 90°00'00"

CONSTRUCTION LIMITS

STA. 1+50.00 (35.00' LT.) –
STA. 1+50.00 (35.00' RT.)
INSTALL (18" X 70') R.C. PIPE
(CLASS III) (TYPE 3 BEDDING) FOR FUTURE
UTILITIES, 36" BELOW FINISHED GRADE

P.I. = 3+42.00
DELTA = 23°56'44.00" RT.
D = 11°27'32"
T = 106.03'
L = 208.97'
NO SUPER
P.C. STA. 2+37.32
P.T. STA. 4+49.32

STA. 4+50
END PAVEMENT CONSTRUCTION
MAKE FULL DEPTH SAWCUT AND REMOVE
EXISTING PAVEMENT TO NORTH. BEGIN
PLACEMENT OF NEW PAVEMENT. MATCH
EXISTING PAVEMENT GRADES. TRANSITION
TO STANDARD PAVEMENT SECTION AT
STA. 4+00

DEMOLISH EXISTING ROAD
AFTER CONSTRUCTION OF
DETOUR ROAD – SEE
SHEETS 7 & 21

REMOVE AND DISPOSE OF
EXIST. PAVEMENT AND BASE
STONE IN EMBANKMENT AREAS

HILLBILLY LANE

TEMP. DETOUR ROAD

N. 29TH ST.

EXIST. 18" PLASTIC DRAINAGE PIPE

P.I. = 0+71.51
DELTA = 39°18'38.00" LT.
D = 28°37'00"
T = 71.51'
L = 137.37'
NO SUPER
P.C. STA. 0+00.00
P.R.C. STA. 1+37.37

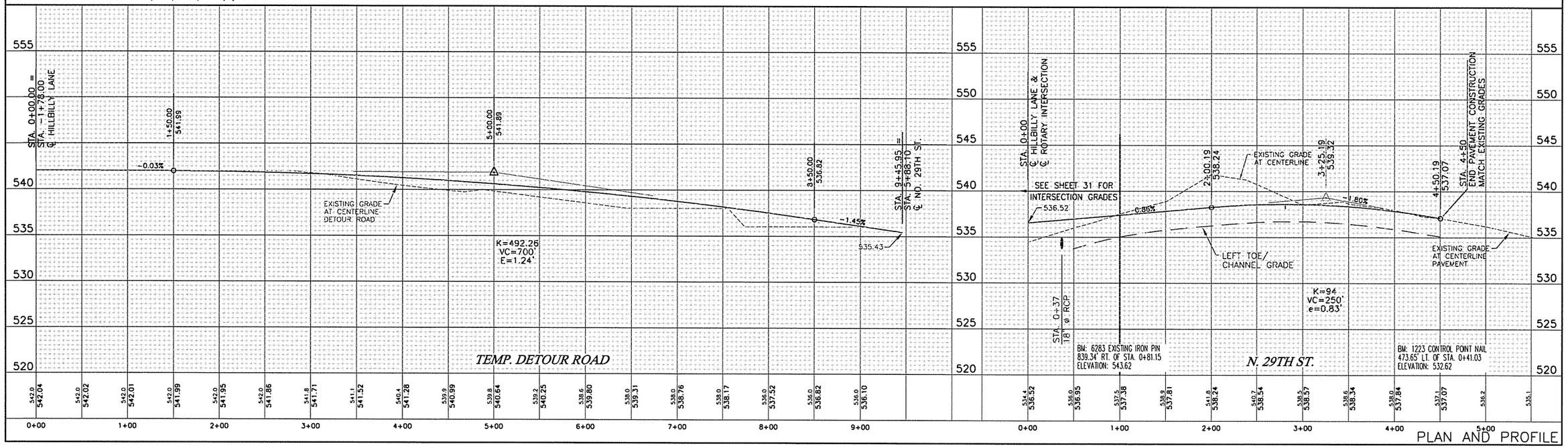
P.I. = 1+89.99
DELTA = 29°28'39.00" RT.
D = 28°38'48"
T = 52.61'
L = 102.90'
NO SUPER
P.R.C. STA. 1+37.37
P.T. STA. 2+40.27

P.I. = 4+22.81
DELTA = 55°21'24.00" LT.
D = 17°14'58"
T = 174.23'
L = 320.92'
NO SUPER
P.C. STA. 2+48.58
P.T. STA. 5+69.50

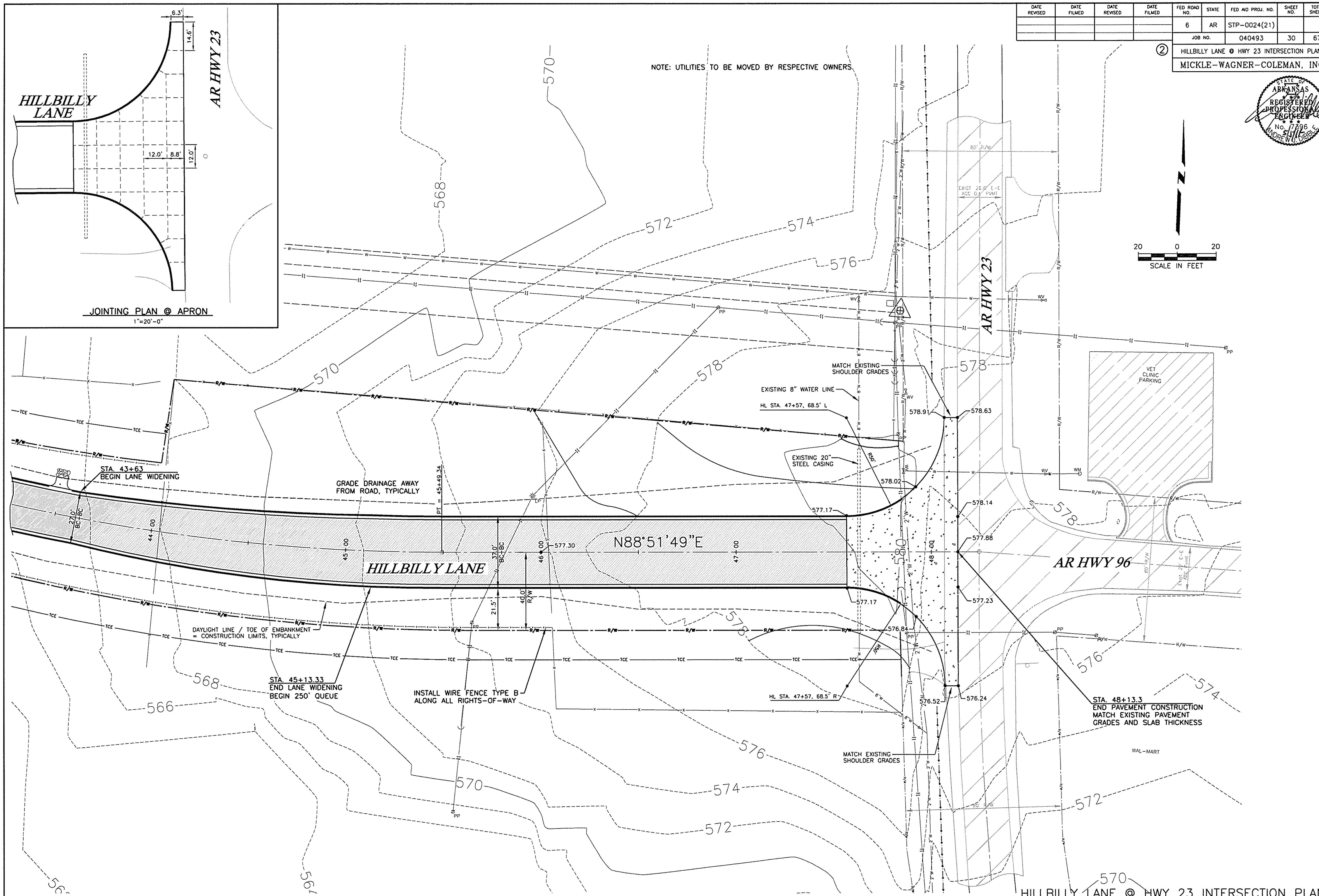
P.I. = 7+49.53
DELTA = 37°56'48.00" RT.
D = 28°38'36"
T = 68.76'
L = 132.46'
NO SUPER
P.C. STA. 6+80.77
P.R.C. STA. 8+13.23

P.I. = 8+82.14
DELTA = 38°01'13.00" LT.
D = 28°38'49"
T = 68.91'
L = 132.72'
NO SUPER
P.R.C. STA. 8+13.23
P.T. STA. 9+45.95

SCALE IN FEET
50 0 50



K:\Ozark\hillbilly driveldwg\Plots\29 Hillbilly Ln P&P N. 29th.dwg, 5/6/2014 3:14:47 PM



HILLBILLY LANE
AR HWY 23
6.3'
14.6'
12.0'
8.8'
12.0'
JOINTING PLAN @ APRON
1"=20'-0"
NOTE: UTILITIES TO BE MOVED BY RESPECTIVE OWNERS.
SCALE IN FEET
20 0 20
AR HWY 23
AR HWY 96
HILLBILLY LANE
N88°51'49"E
VET CLINIC PARKING
WAL-MART
STA. 43+63 BEGIN LANE WIDENING
GRADE DRAINAGE AWAY FROM ROAD, TYPICALLY
PT = 45+49.34
MATCH EXISTING SHOULDER GRADES
EXISTING 8" WATER LINE
HL STA. 47+57, 68.5' L
EXISTING 20" STEEL CASING
DAYLIGHT LINE / TOE OF EMBANKMENT = CONSTRUCTION LIMITS, TYPICALLY
STA. 45+13.33 END LANE WIDENING BEGIN 250' QUEUE
INSTALL WIRE FENCE TYPE B ALONG ALL RIGHTS-OF-WAY
HL STA. 47+57, 68.5' R
STA. 48+13.3 END PAVEMENT CONSTRUCTION MATCH EXISTING PAVEMENT GRADES AND SLAB THICKNESS
578.91
578.63
578.02
578.14
577.17
577.88
577.30
577.23
577.17
576.84
576.52
576.24
27.0'
37.0'
40.0'
21.5'
BC-BC
44+00
45+00
46+00
47+00
48+00
566
568
570
572
574
576
578
580
HILLBILLY LANE @ HWY 23 INTERSECTION PLAN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	30	67

② HILLBILLY LANE @ HWY 23 INTERSECTION PLAN

MICKLE-WAGNER-COLEMAN, INC.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 7396 ANDREW D. DIBBLE

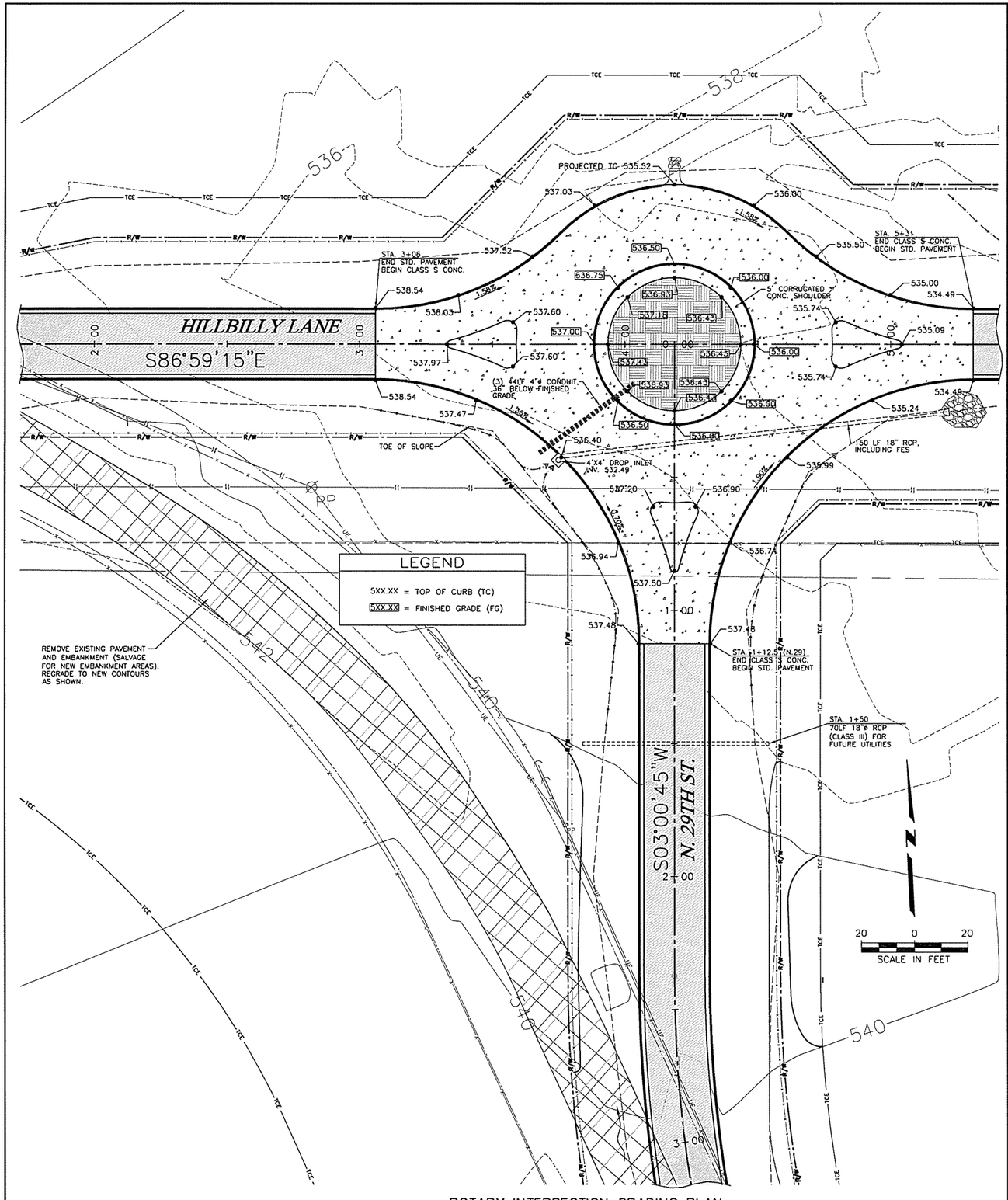
K:\Ozark\hillbilly drive\dwg\Plots\30 Hillbilly Ln Hillbilly @ Hwy 23.dwg, 5/5/2014 5:51:19 PM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	31	67

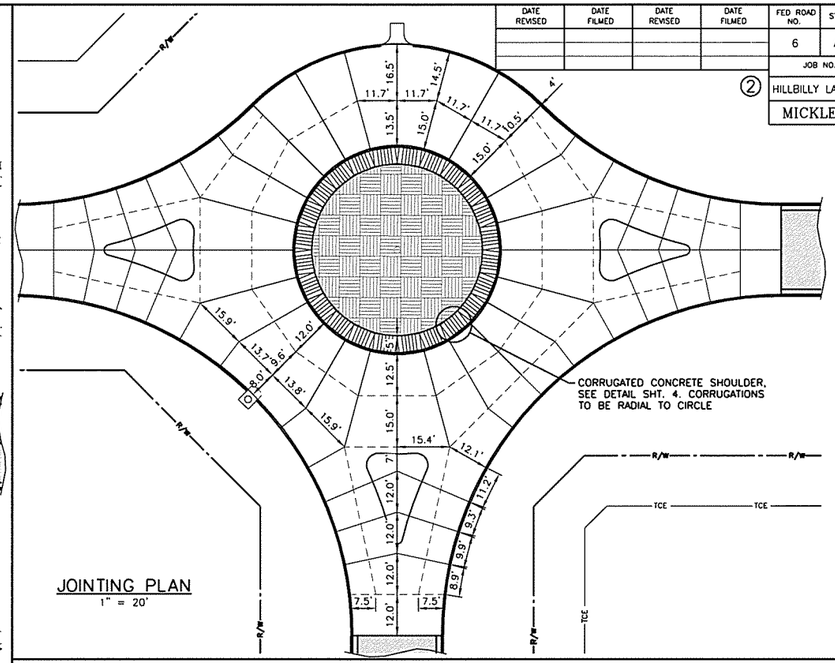
② HILLBILLY LANE @ N. 29TH ST. INTERSECTION PLAN

MICKLE-WAGNER-COLEMAN, INC.

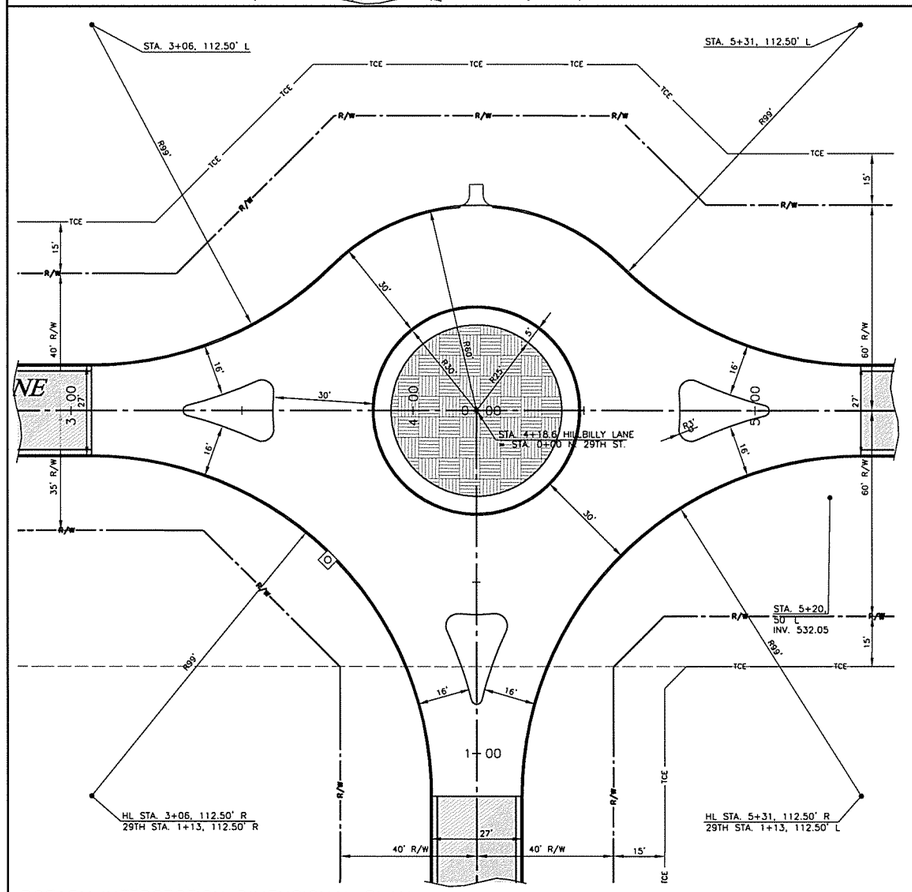
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 17796 ANDREW J. DIBBLE



ROTARY INTERSECTION GRADING PLAN
1" = 20'



JOINTING PLAN
1" = 20'

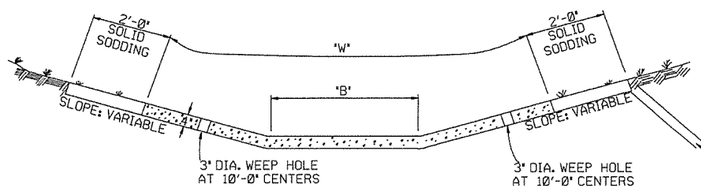


ROTARY INTERSECTION DIMENSIONAL PLAN
1" = 20'

HILLBILLY LANE @ N. 29TH ST. INTERSECTION PLAN

K:\Ozark\hillbilly drive\dwg\Plots\31 Hillbilly Ln Hillbilly @ N. 29th.dwg, 5/5/2014 6:34:42 PM

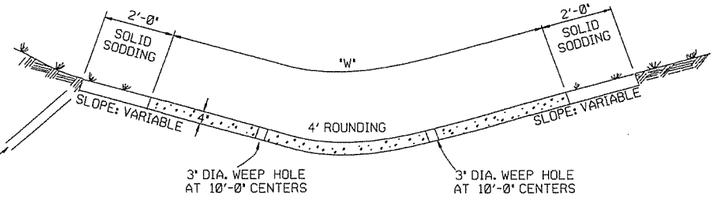
REFER TO TABULATION OF QUANTITIES FOR 'W' & 'B' DIMENSIONS



EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.

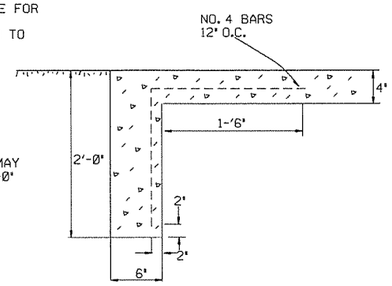
TYPE A

REFER TO TABULATION OF QUANTITIES FOR 'W' DIMENSIONS



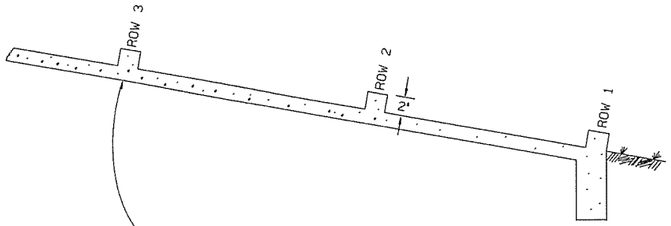
TYPE B

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.'

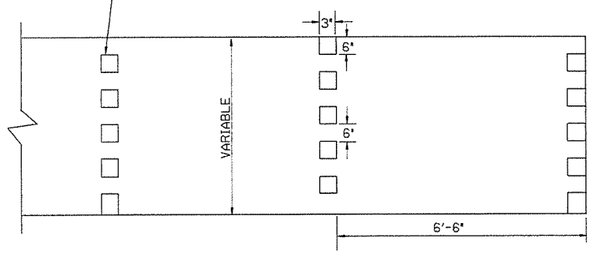


TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED



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.

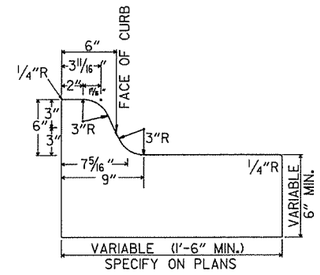
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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

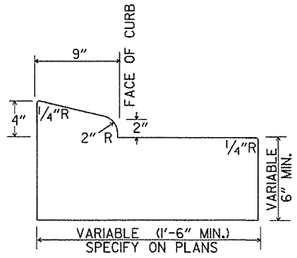
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

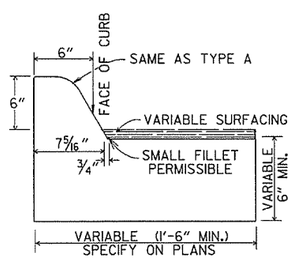
STANDARD DRAWING CDP-1



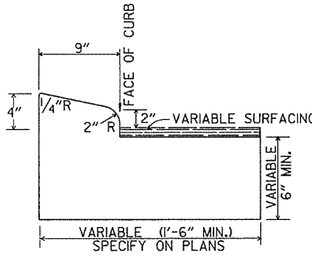
TYPE A



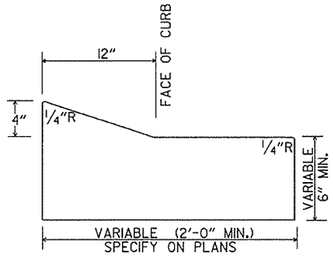
TYPE B-1



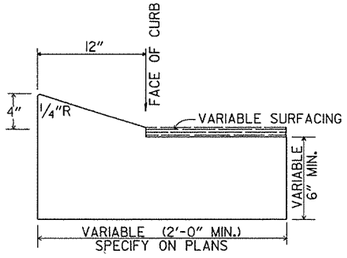
TYPE C



TYPE B-2

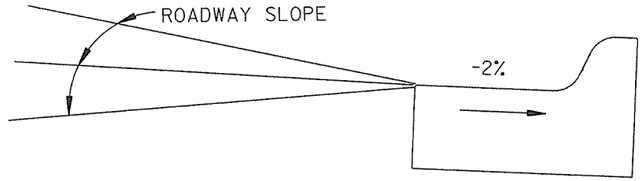


TYPE E-1



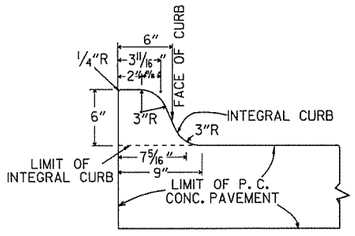
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

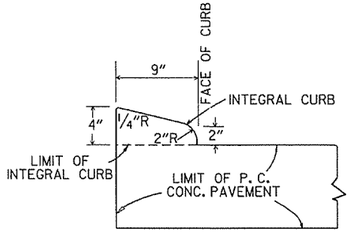


DETAIL OF GUTTER SLOPE

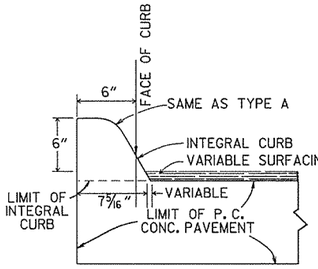
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

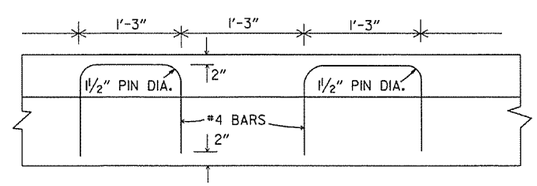


TYPE B

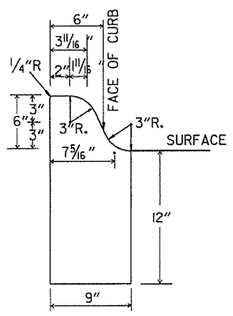


TYPE C

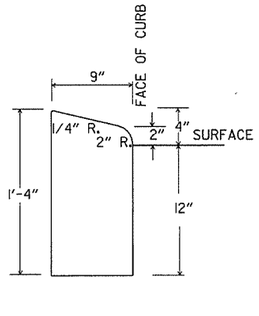
INTEGRAL CURB



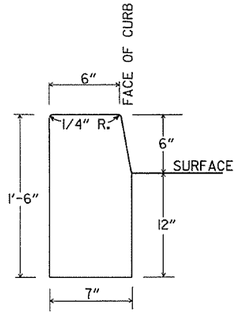
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



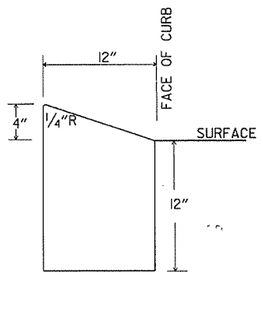
TYPE A



TYPE B

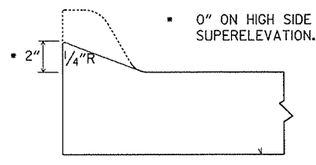


TYPE D



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.

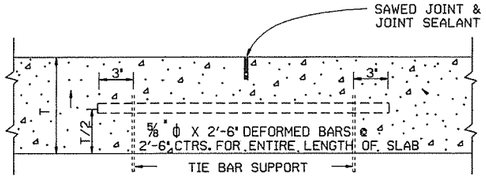
DETAILS OF MODIFIED CURB

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

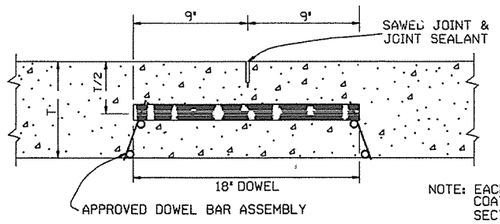
STANDARD DRAWING CG-1



LONGITUDINAL JOINT

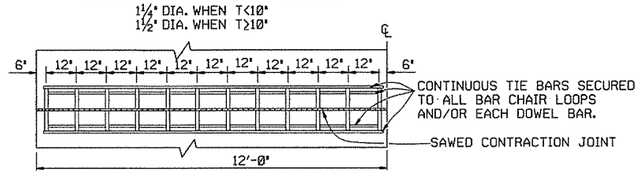
NOTE: THE TIE BAR SUPPORT SHOWN ABOVE MAY BE ELIMINATED IF OTHER APPROVED METHODS FOR PLACING AND SUPPORTING THE TIE BARS ARE PROVIDED.

TIE BARS SHALL BE 15' FROM TRANSVERSE JOINTS.



NOTE: EACH DOWEL TO BE COATED ACCORDING TO SECTION 502 OF THE STANDARD SPECIFICATIONS.

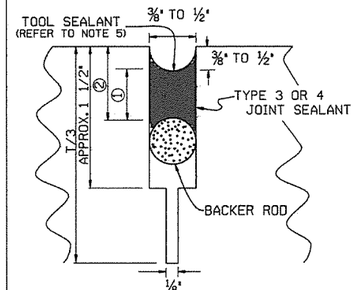
ROUND STEEL BAR DOWEL
1¼" DIA. WHEN T<10"
1½" DIA. WHEN T≥10"



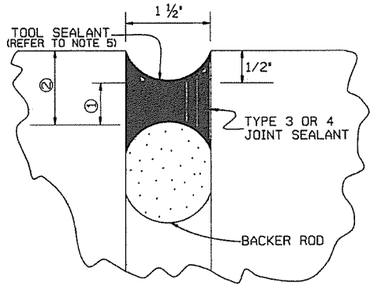
ONE-HALF 24' PAVEMENT
12 DOWELS
PLAN

NOTE: FOR 20' PAVEMENT USE 20 DOWELS @ 12' CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR 15' PAVEMENT USE 15 DOWELS @ 12' CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR 26' PAVEMENT USE 26 DOWELS @ 12' CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR PAVEMENT WIDTHS OTHER THAN THOSE SHOWN ABOVE, USE DOWELS AT 12" CTRS. WITH 6" MAX. SPACING FROM C.L. TO FIRST BAR. DISTANCE FROM EDGE OF SLAB TO FIRST BAR SHALL BE ADJUSTED TO MAINTAIN 12" DOWEL BAR SPACING

CONTRACTION JOINT DETAILS



DETAIL OF SAWED CONTRACTION JOINT



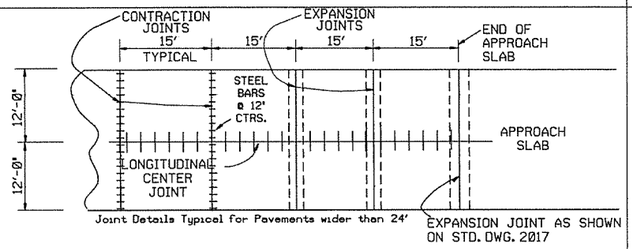
DETAIL OF EXPANSION JOINT

JOINT CONFIGURATION FOR TYPE 3 OR 4 JOINT SEALANT

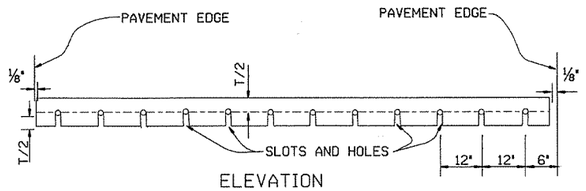
JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES			
¼	¼	⅜	½
⅜	¼	½	½
½	¼	½	½
½	⅜	⅝	½
⅝	⅜	¾	⅝
¾	⅜	⅞	⅞
¾	½	⅞	⅞
1 ½	¾	2	1 ¼

JOINT CONFIGURATION FOR TYPE 5 JOINT SEALANT

JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES			
¼	½	⅞	¾
⅜	¾	1	1
½	¾	1	1

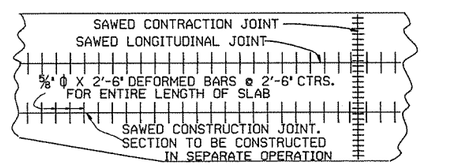


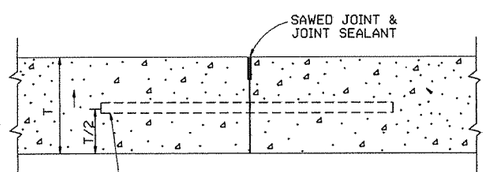
PLAN SHOWING EXPANSION JOINTS AT BRIDGE APPROACH SLABS



ELEVATION

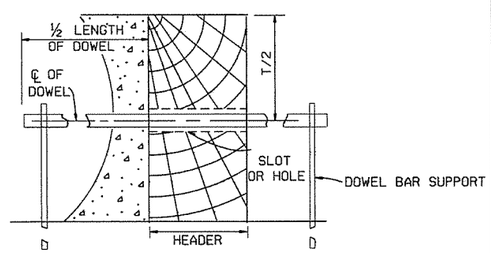
NOTE: ALL DOWEL BARS SHALL CONFORM TO THE DETAILS FOR CONTRACTION JOINTS.





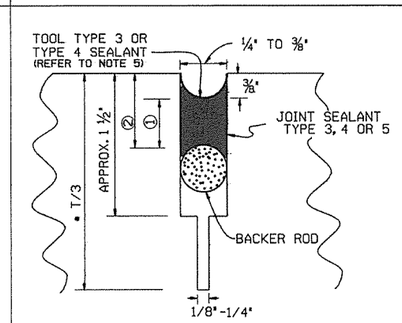
NOTE: TIE BARS SHALL BE 15' FROM TRANSVERSE JOINTS.

LONGITUDINAL CONSTRUCTION JOINT



SECTION

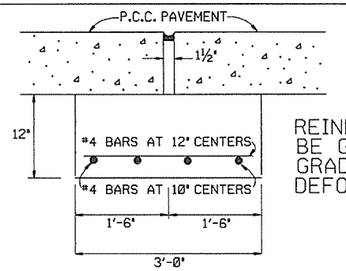
TRANSVERSE CONSTRUCTION JOINT



*NOTE: T/3 SAW CUT NOT REQUIRED FOR LONGITUDINAL CONSTRUCTION JOINT.

DETAIL OF SAWED LONGITUDINAL JOINT AND LONGITUDINAL CONSTRUCTION JOINT

DATE	REVISION	DATE FILMED
5-25-06	ADDED GENERAL NOTE 7	
10-9-03	REMOVED TIE BAR COATING & REVISED GENERAL NOTES	
11-16-01	ADDED TOOL SEALANT AND NOTE 5; REVISED NOTE 3	
4-26-96	REVISED CONTRACTION JOINT NOTE	
11- 3-94	ADDED NOTE RE: REINF. BARS	
4- 1-93	REVISED DOWEL BARS & GEN. NOTES	4- 1-93
10- 1-92	REVISED DOWEL SPACING	10- 1-92
8- 15-91	ADDED SPAC FOR CONTR JTS & DEL KEYWAY	
05-24-90	REVISED TIE BAR, DOWEL & JOINT SIZE	
01-25-90	ADDED EXPANSION JOINT	01-25-90
11-30-89	CHANGED T/4+1 TO T/3+1	11-30-89
03-23-89	ALTERED SAWED JOINT & ADDED NOTE	512-03-23-89
07-15-88	REVISED AND REDRAWN	632-07-15-88



REINFORCING SHALL BE GRADE 40 OR GRADE 60 DEFORMED BARS.

DETAIL OF JOINT SUPPORT FOR EXPANSION JOINTS

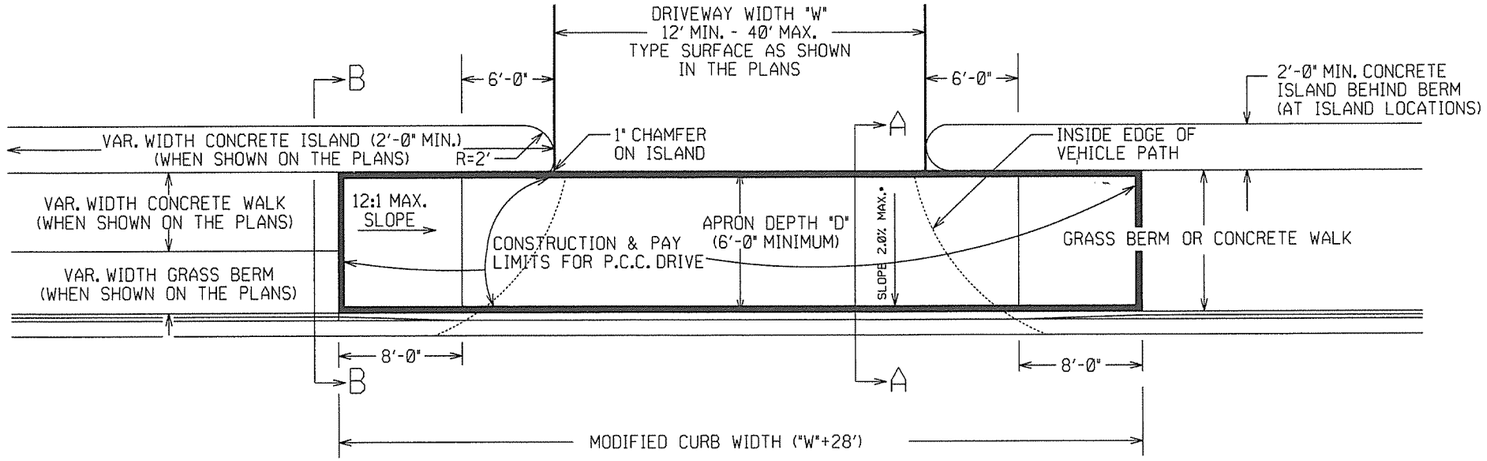
GENERAL NOTES

1. 'T' DENOTES THICKNESS OF SLAB.
2. DOWEL BARS SHALL BE PLACED IN ACCORDANCE WITH THE DIMENSIONS SHOWN. A TOLERANCE OF PLUS OR MINUS ONE INCH WILL BE ALLOWED FOR THE VERTICAL AND LATERAL PLACEMENT AND A TOLERANCE OF PLUS OR MINUS ¼" WILL BE ALLOWED FOR THE TILT AND SKEW. DOWEL BARS SHALL BE FIELD COATED FOR A MINIMUM DISTANCE OF 2' GREATER THAN HALF THE LENGTH OF THE BAR WITH AN APPROVED GREASE AS A BOND BREAKER JUST PRIOR TO PLACEMENT OF CONCRETE.
3. THE EXPANSION JOINT SUPPORT MAY BE CONSTRUCTED WITH CLASS 'A', 'S' OR PAVING CONCRETE. PAYMENT FOR THE JOINT SUPPORT SHALL BE FOR THE CONTRACT UNIT PRICE BID FOR THE CLASS OF CONCRETE SPECIFIED IN THE PLANS. PAYMENT FOR ALL OTHER WORK AND MATERIALS REQUIRED FOR THE CONSTRUCTION OF THE JOINT SUPPORT SHALL BE INCLUDED IN THE PRICE BID FOR THE ABOVE ITEMS.
4. CONTRACTION JOINTS SHALL BE CONSTRUCTED ON 15' CENTERS.
5. TOOLING NOT REQUIRED FOR SELF-LEVELING SILICONE.
6. UNLESS OTHERWISE SPECIFIED IN THE PLANS, CONCRETE SHOULDERS SHALL BE CONSTRUCTED ACCORDING TO THE DETAILS SHOWN HEREON. CONTRACTION JOINTS SHALL MATCH CONTRACTION JOINTS IN THE LANES.
7. TIE WIRES IN DOWEL BAR ASSEMBLIES SHALL NOT BE CUT PRIOR TO PLACEMENT OF PAVING CONCRETE.

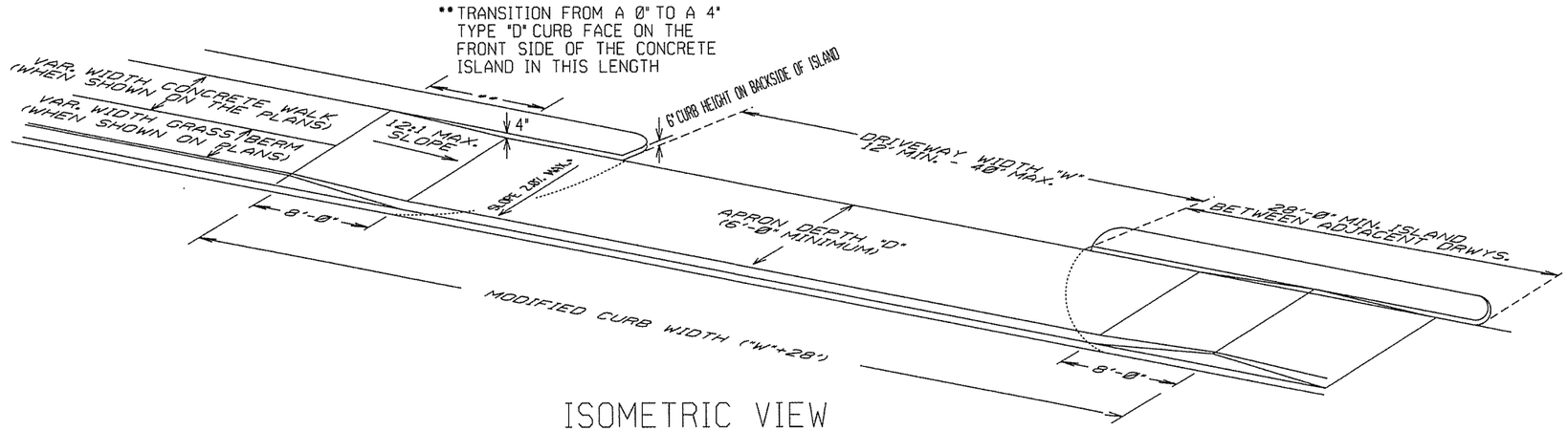
ARKANSAS STATE HIGHWAY COMMISSION

TRANSVERSE & LONGITUDINAL JOINTS FOR CONCRETE PAVEMENT (NON-REINFORCED)

STANDARD DRAWING CPTJ - 6A

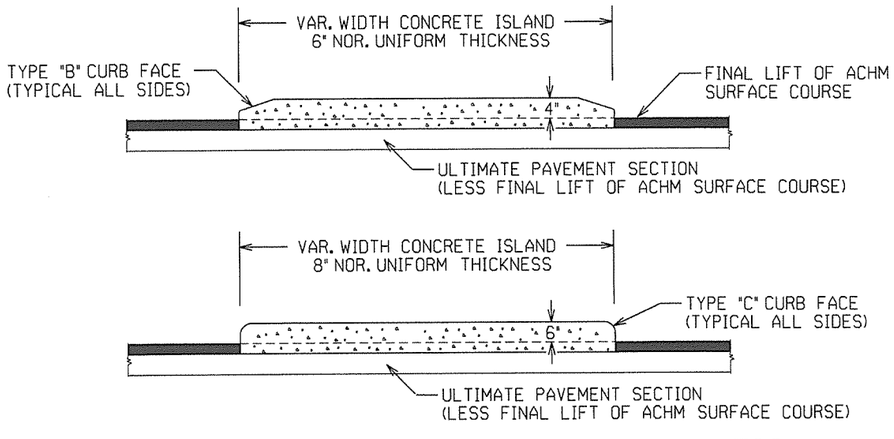


PLAN VIEW

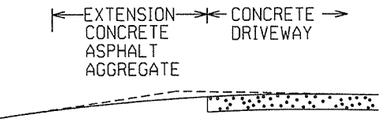


ISOMETRIC VIEW

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".



CURBED ISLANDS FOR CHANNELIZATION



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

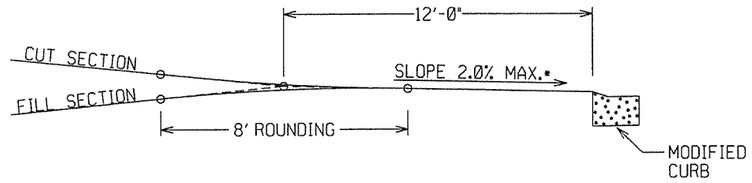
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

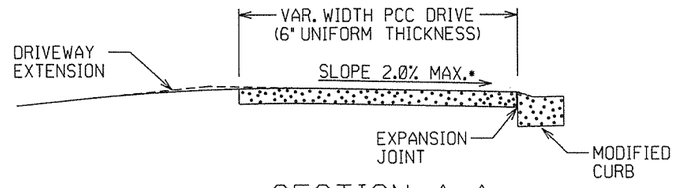
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

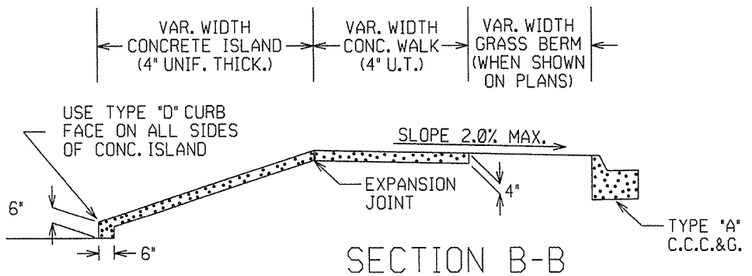


DRIVEWAY VERTICAL ALIGNMENT DETAILS

* NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



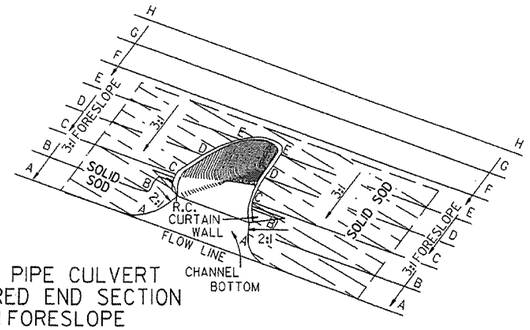
SECTION A-A



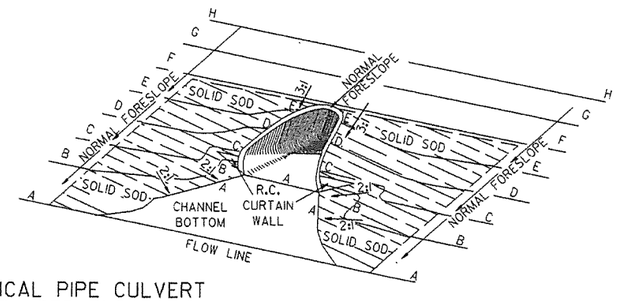
SECTION B-B
CURBED ISLAND BEHIND WALK

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
DATE REV	DATE FILMED	DESCRIPTION

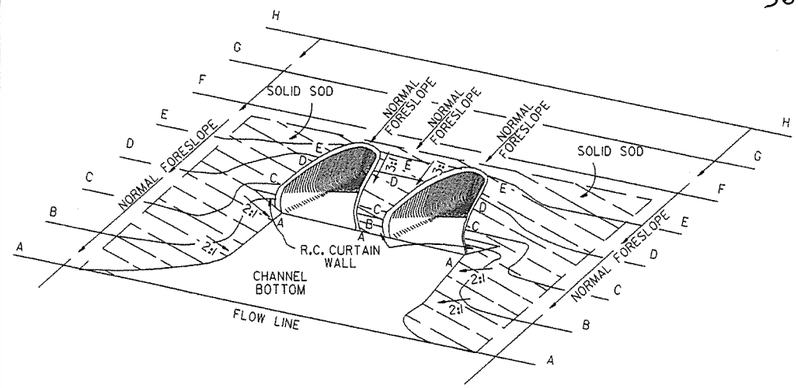
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



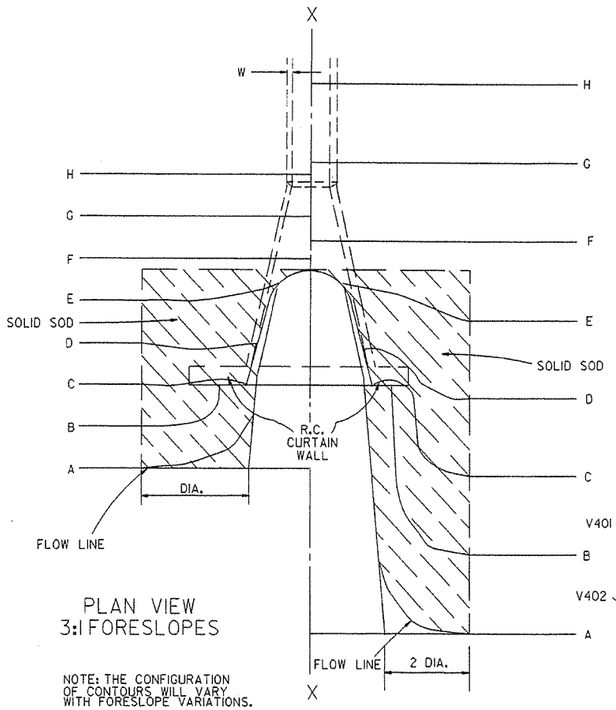
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES



PLAN VIEW
3:1 FORESLOPES

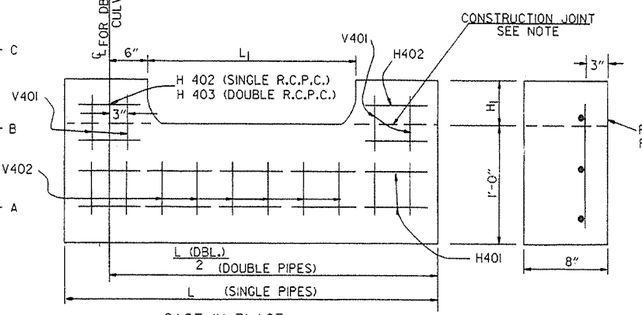
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

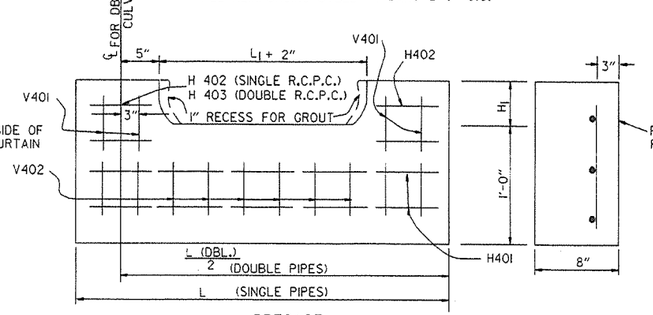
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	1 1/2"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0 1/2"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3 1/2"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1 1/2"	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'-9 1/2"	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.

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT								DOUBLE R.C. PIPE CULVERT									
	H401		H402		V401		V402		H401		H402		H403		V401		V402	
	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.
18"	7'-8"	2	1'-11 1/2"	4	1'-7 1/2"	8	8"	8	12'-2"	2	1'-11 1/2"	4	8"	2	1'-7 1/2"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8 1/2"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8 1/2"	12	8"	18
30"	10'-8"	2	2'-4 1/2"	4	1'-11 1/2"	10	8"	12	17'-8"	2	2'-4 1/2"	4	8"	2	1'-11 1/2"	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'-9 1/2"	8	2'-9 1/2"	16	8"	15	23'-8"	2	3'-9 1/2"	8	8"	4	2'-9 1/2"	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'-8 1/2"	12	3'-5 1/2"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5 1/2"	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.

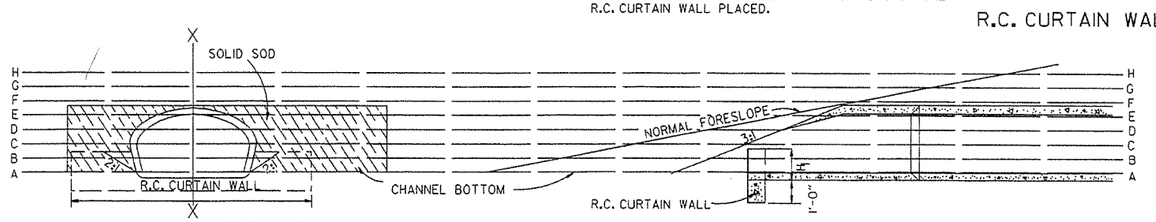
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C.			DOUBLE R.C.P.C.		
	3:1	4:1	6:1	3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	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 3/4".
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"

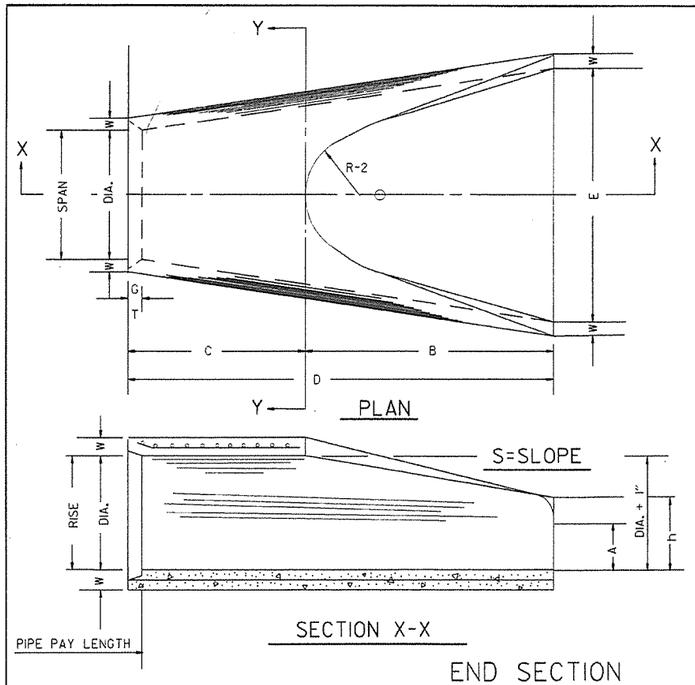
R.C. CURTAIN WALL DETAILS

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

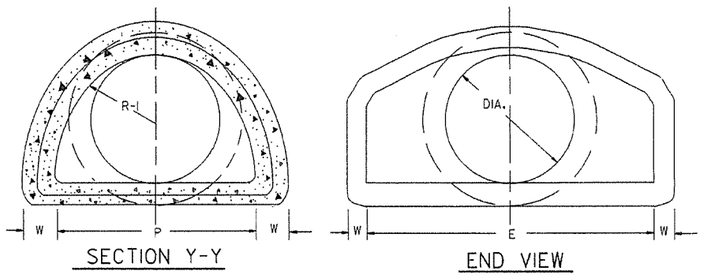
STANDARD DRAWING FES-1



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"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15 1/2"	12"	2"	1000	1'-0 1/2"
24"	3"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3:1	25"	33 3/16"	16 13/16"	14"	2 1/2"	1600	1'-1 1/2"
30"	3 1/2"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18 1/2"	15"	3 1/4"	1940	1'-4 5/8"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"	3:1	37"	47 13/16"	24 5/16"	20"	3 1/2"	4100	1'-8"
42"	4 1/2"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53 1/8"	27 1/2"	22"	3 1/2"	5380	2'-2 1/2"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56 1/2"	28 1/2"	22"	3 1/2"	6550	2'-6"
54"	5 1/2"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65 1/2"	33 1/8"	24"	4"	8750	2'-10 1/2"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72 1/2"	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 5/8"	24"	5"	13250	4'-6"

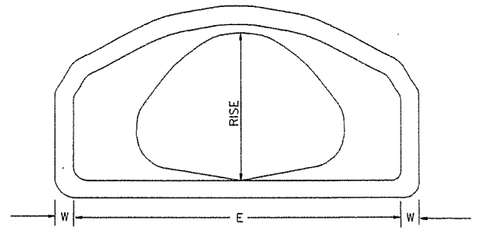


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

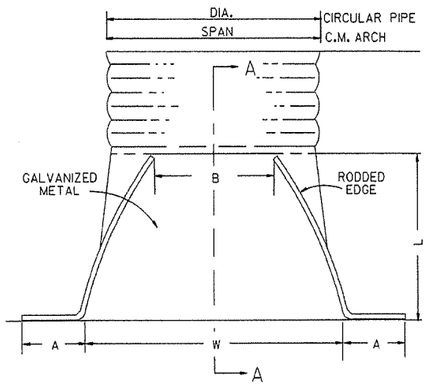
ARCH PIPE

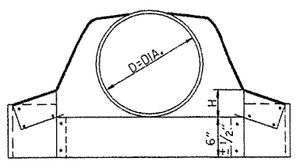
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1/2"	2 1/2:1
18	22	22	13 1/2	14	2 1/2"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32 1/8"	13"	2 1/2"	2 1/2:1
21	26	26	15 1/2	16	2 3/4"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34 1/8"	14"	2 1/2"	2 1/2:1
24	28 1/2	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 13/16"	15"	2 1/2"	2 1/2:1
30	36 1/4	36	22 1/2	23	3 1/2"	10"	3'-1"	3'-0 1/2"	6'-1 1/2"	6'-0"	47 13/16"	20"	3"	2 1/2:1
36	43 3/4	44	26 5/8	27	4"	10 1/2"	4'-0"	2'-1 1/2"	6'-1 1/2"	6'-6"	54 5/16"	22"	3 1/2"	2 1/2:1
42	51 1/8	51	31 5/16	31	4 1/2"	11 1/2"	4'-7"	1-10 1/4"	6'-5 1/4"	7'-2"	59 1/2"	23"	3 3/4"	2 1/2:1
48	58 1/2	59	36	36	5"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	7'-10"	70 5/16"	24"	4 1/4"	2 1/2:1
54	65	65	40	40	5 1/2"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4 3/4"	2 1/4:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 13/16"	24"	5"	2 1/4:1

• 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

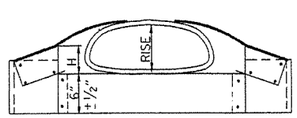




CIRCULAR PIPE

CIRCULAR PIPE

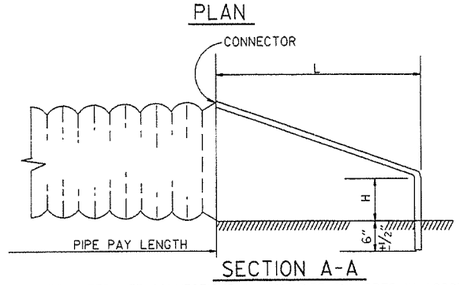
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1 1/2" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2 1/2:1
15	16	7	8	6	26	30	2 1/2:1
18	16	8	10	6	31	36	2 1/2:1
21	16	9	12	6	36	42	2 1/2:1
24	16	10	13	6	41	48	2 1/2:1
30	14	12	16	8	51	60	2 1/2:1
36	14	14	19	9	60	72	2 1/2:1
42	12	16	22	11	69	84	2 1/2:1
48	12	18	27	12	78	90	2 1/2:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1 3/4:1
66	12	18	36	12	87	120	1 1/2:1
72	12	18	39	12	87	126	1 1/3:1



C.M. ARCH PIPE

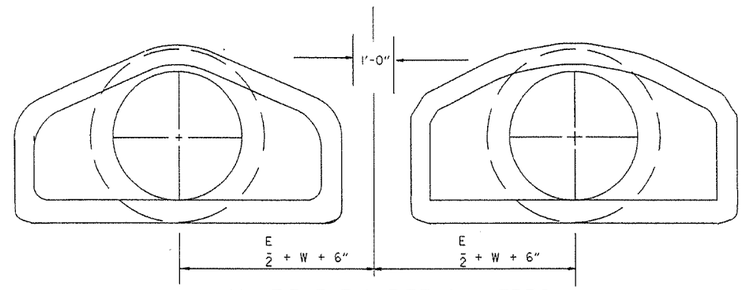
C.M. ARCH PIPE

EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1 1/2" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2 1/2:1	16
18"	21	15	7	10	6	23	36	2 1/2:1	16
21"	24	18	8	12	6	28	42	2 1/2:1	16
24"	28	20	9	14	6	32	48	2 1/2:1	16
30"	35	24	10	16	6	39	60	2 1/2:1	14
36"	42	29	12	18	8	46	75	2 1/2:1	14
42"	49	33	13	21	9	53	85	2 1/2:1	12
48"	57	38	18	26	12	63	90	2 1/2:1	12
54"	64	43	18	30	12	70	102	2 1/4:1	12
60"	71	47	18	33	12	77	114	2 1/4:1	12

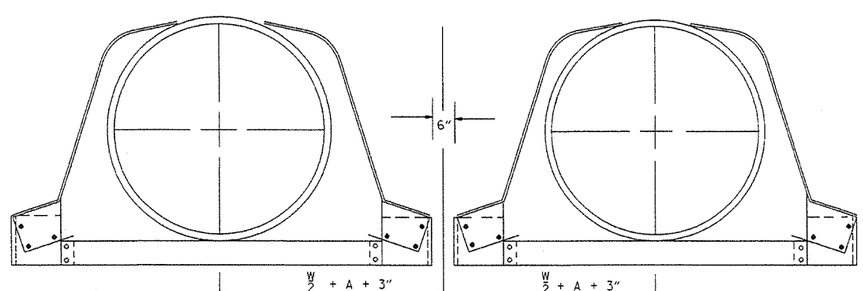


NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

DATE	REVISION	BY	MED
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

4'-0" LENGTH DROP INLET

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0" CLASS A CONC.	HEIGHT 5'-0" REINF. STEEL	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL
		CU. YDS.	POUNDS	CU. YDS.	POUNDS
18"	2'-6"	1.77	156	0.28	22
24"	2'-6"	1.79	156	0.28	22
30"	3'-2"	2.39	205	0.30	26
36"	3'-8"	2.63	236	0.32	28
42"	4'-4"	2.95	250	0.34	30
48"	4'-10"	3.21	265	0.36	32

NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

DROP INLET EXTENSION

4'-0" CLASS A CONC.	4'-0" REINF. STEEL	8'-0" CLASS A CONC.	8'-0" REINF. STEEL
CU. YDS.	POUNDS	CU. YDS.	POUNDS
0.58	38	0.87	72

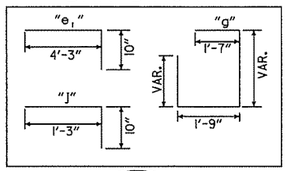
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.

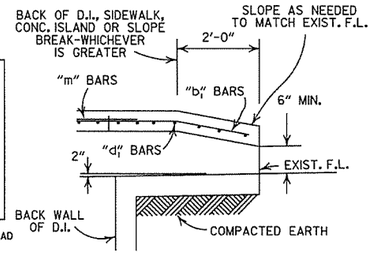
0.04	3		

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

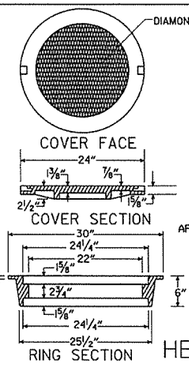
BAR DIAMETER





BACK OPENING

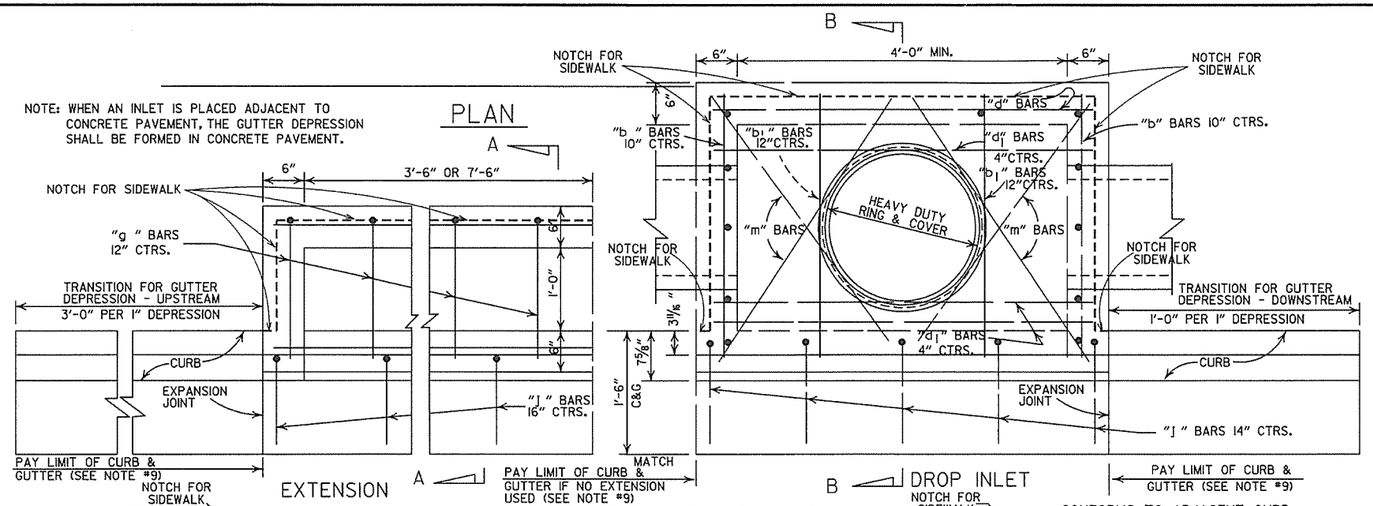
WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).



APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE #4 AND HAVE 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
6. WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (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.



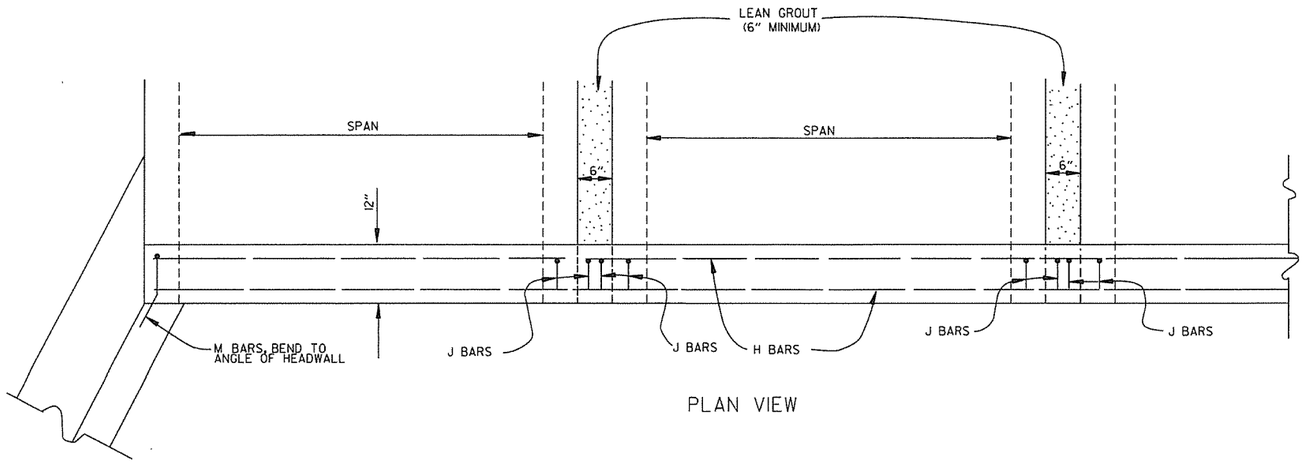
DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER 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)

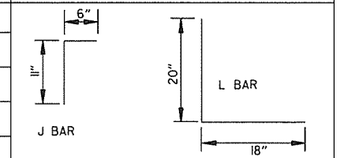
STANDARD DRAWING FPC-9E



PLAN VIEW

BAR LIST

BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	



• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING, STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS:
PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85.
SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS.
THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE. THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

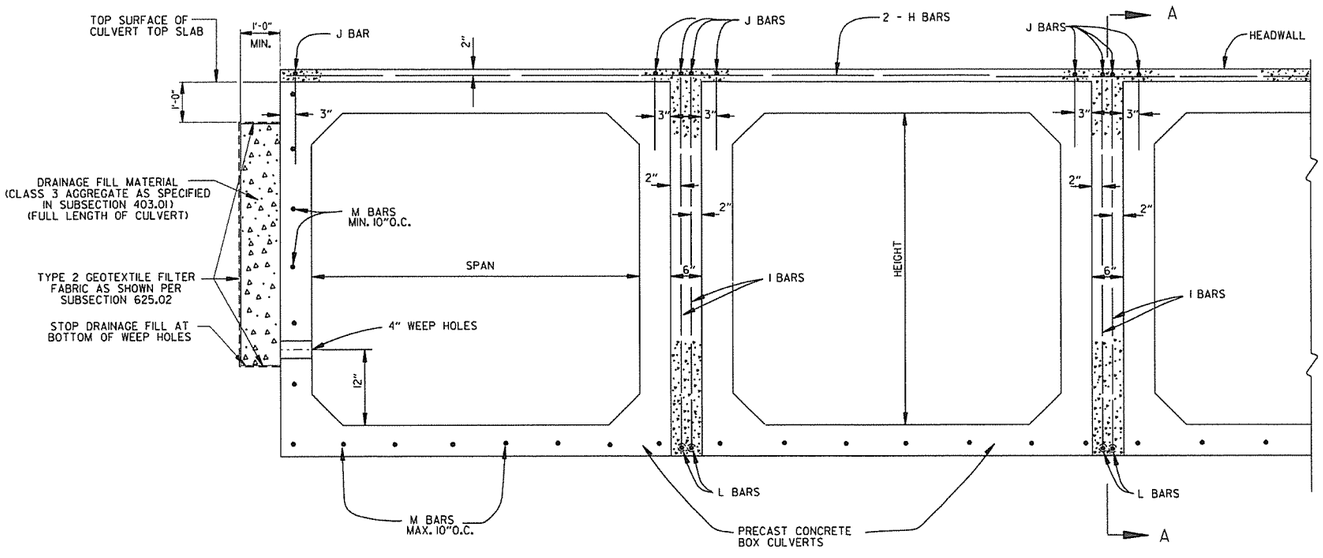
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

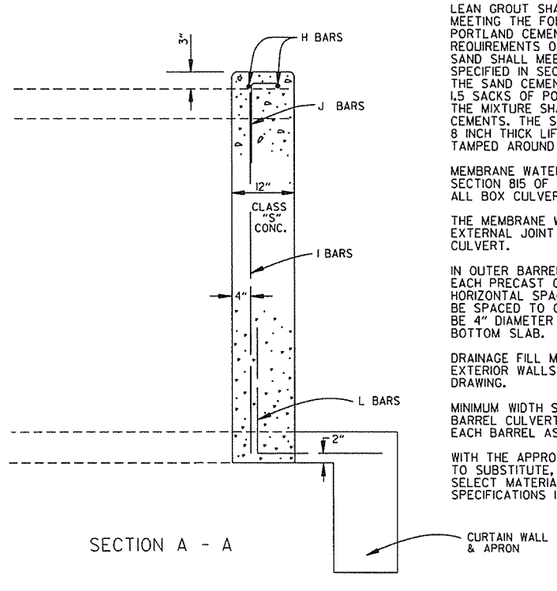
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.



END VIEW



SECTION A - A

DATE	REVISION	DATE FILMED
12-15-11	ADDED NOTE & DTLS FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED; JABE	

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-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.

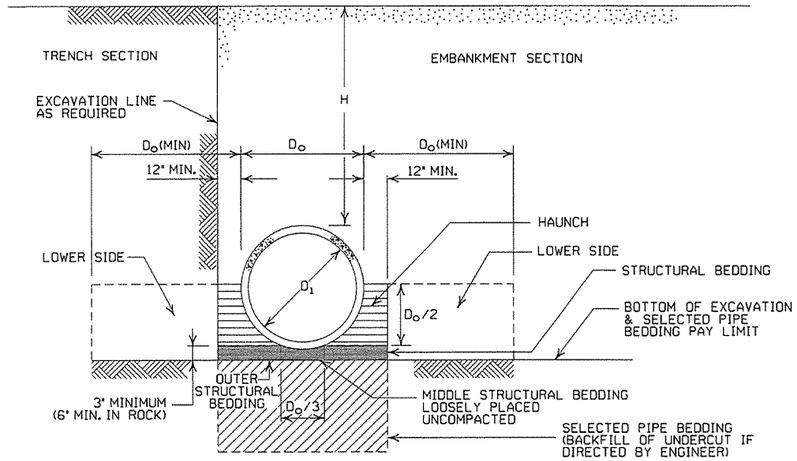
- LEGEND -

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.

MAXIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

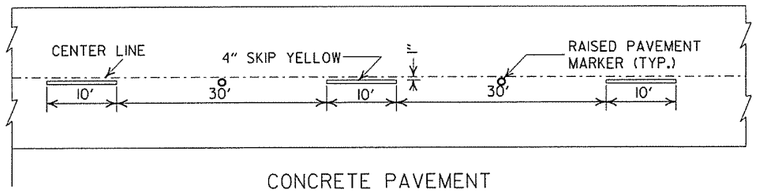
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

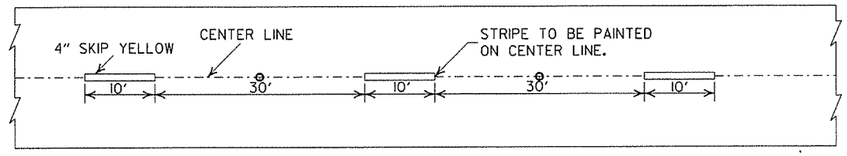
STANDARD DRAWING PCC-1

NOTES:

1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.

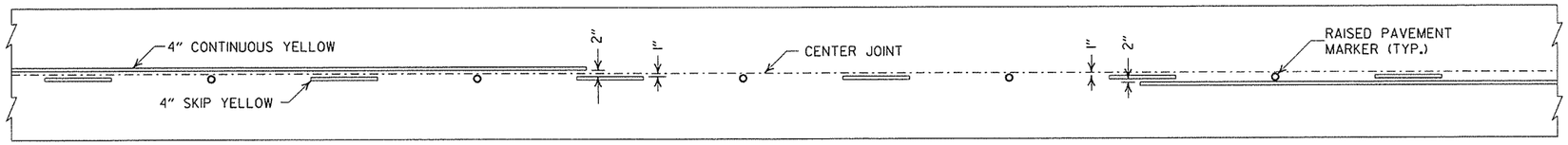


CONCRETE PAVEMENT

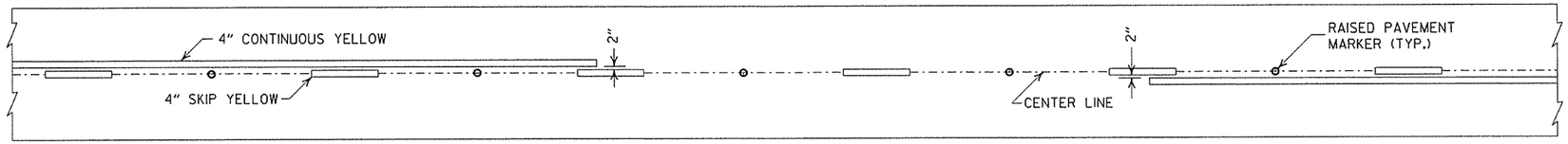


ASPHALT PAVEMENT

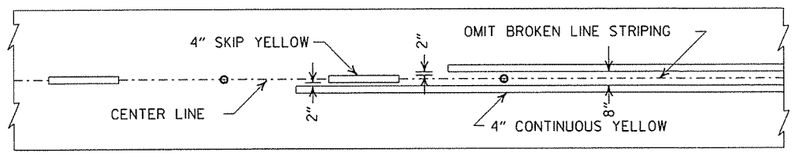
BROKEN LINE STRIPING



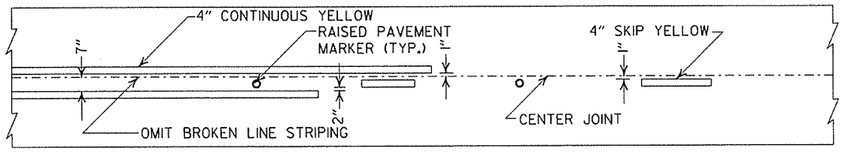
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

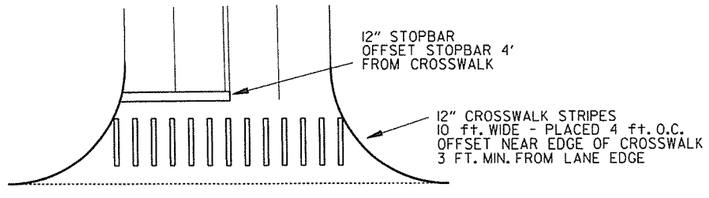


ASPHALT PAVEMENT



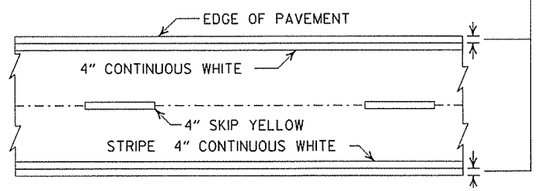
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

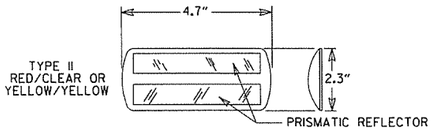


CROSSWALK AND STOPBAR DETAILS

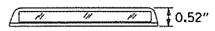
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING



NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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

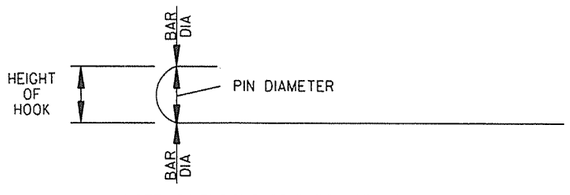
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2 1/4"	4"
4	3 "	4 1/2"
5	3 3/4"	5"
6	4 1/2"	6"
7	5 1/4"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2 3/4 INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

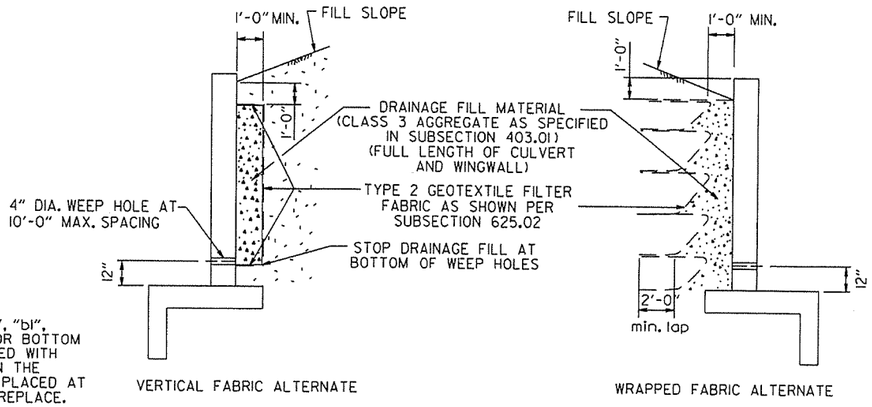
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

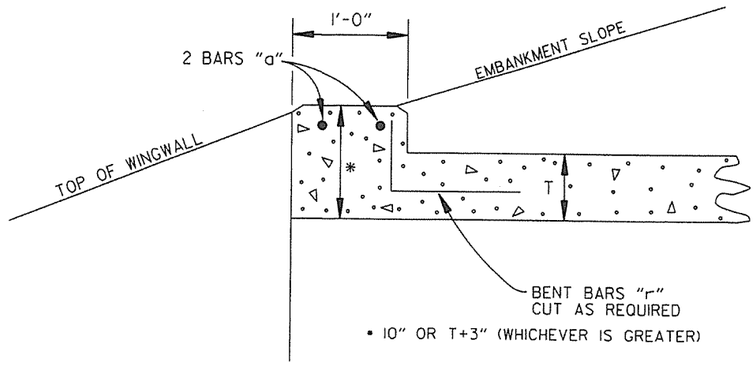
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS 1/2 INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

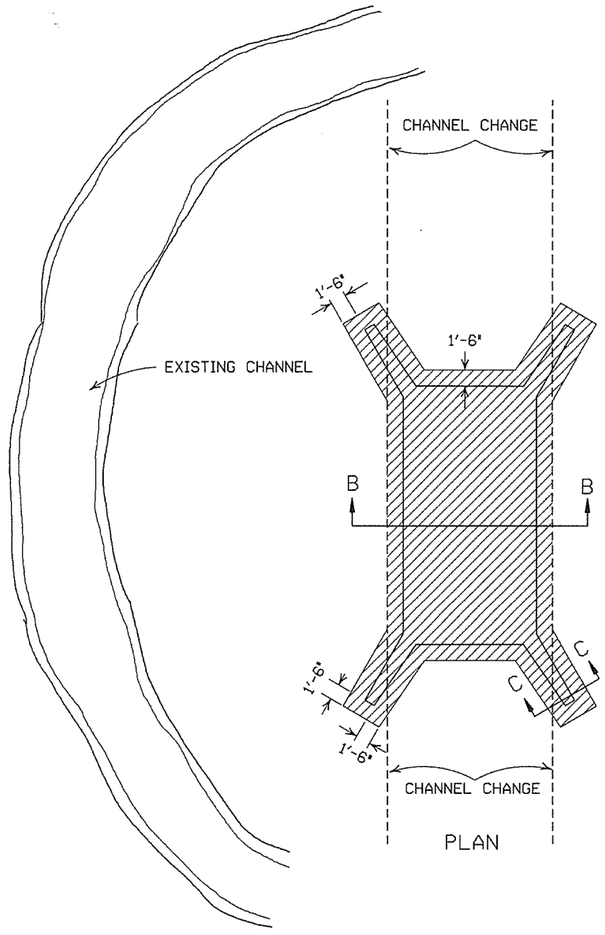
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

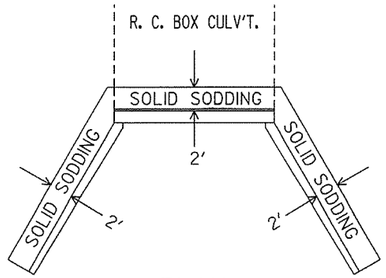
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

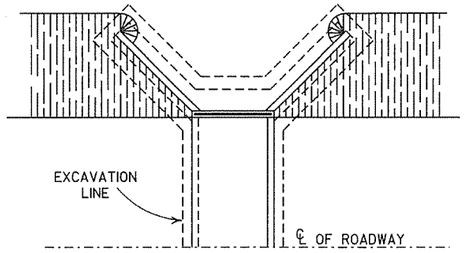
SOLID SODDING



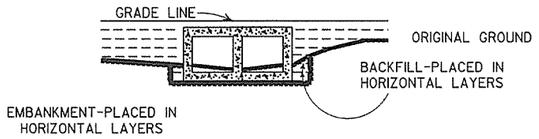
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

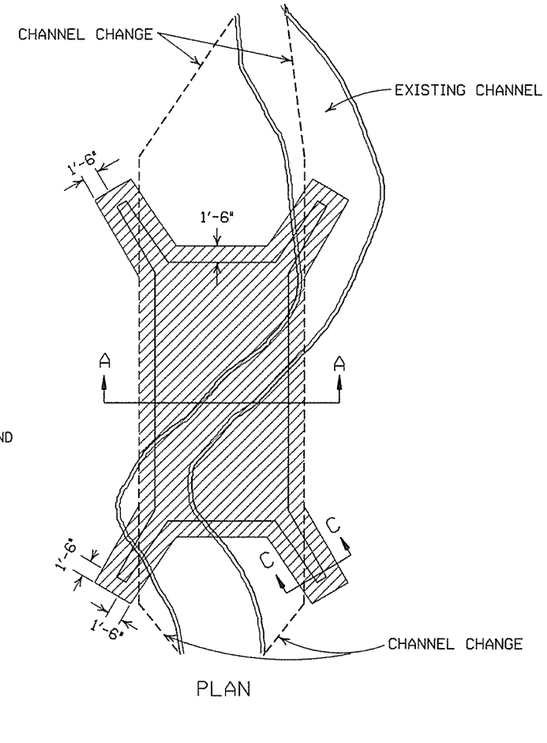


PLAN

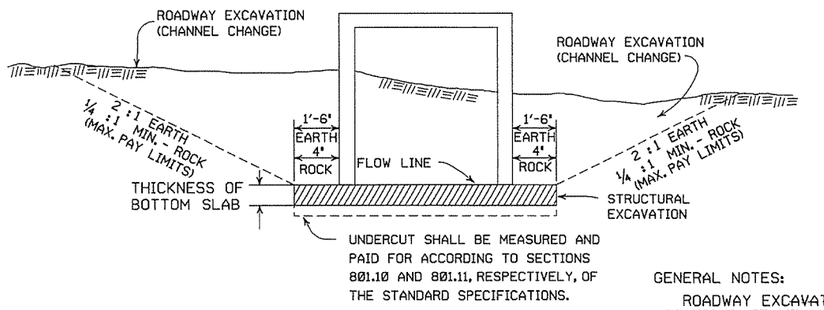


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

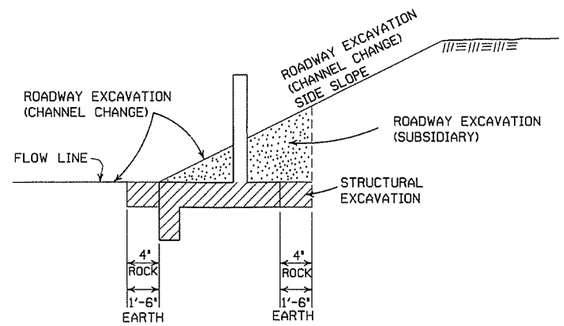


PLAN

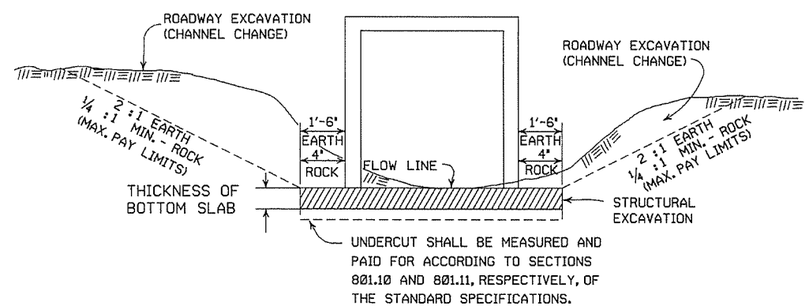


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES	674-1-4-83
	AND ADDED MAXIMUM PAY	
	LIMIT NOTES.	
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2

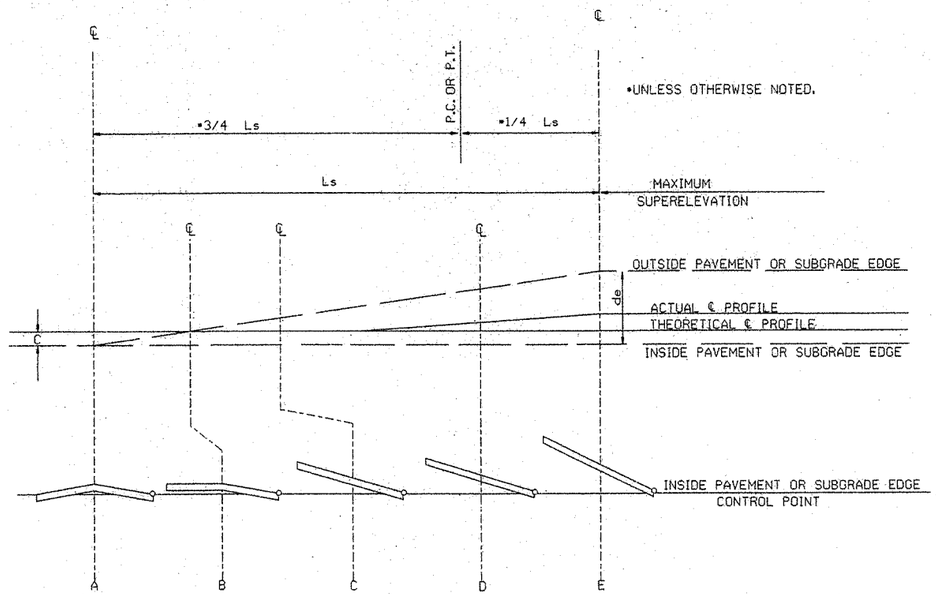
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45′	N.C.			N.C.			R.C.			0.022			0.023			0.028		
1° 00′	N.C.			N.C.			0.021			0.026			0.030			0.037	275	300
1° 15′	N.C.			R.C.			0.026			0.032			0.037	250	300	0.046		
1° 30′	N.C.			0.021			0.031	200		0.037	225		0.043			0.054		
1° 45′	N.C.			0.025	175		0.036			0.043		300	0.049			0.062		
2° 00′	R.C.			0.028			0.040			0.048			0.055			0.070		
2° 15′	R.C.			0.031			0.045		250	0.053			0.061			0.078	300	350
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085	315	
2° 45′	0.023			0.037		200	0.053			0.063			0.072			0.091	335	
3° 00′	0.025	150		0.040			0.057			0.067	230		0.077	260		0.096	350	400
3° 15′	0.027			0.043			0.061			0.072	245		0.082	275		0.098	360	
3° 30′	0.029			0.046			0.065	205		0.076	255		0.086	285		0.100	360	
3° 45′	0.031		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	350	0.096	315				
5° 00′	0.040			0.061			0.083	250		0.091	295		0.098	320				
5° 30′	0.043			0.066	185		0.088	260		0.094	300							
6° 00′	0.046			0.070	190		0.092	270	300	0.096	305							
6° 30′	0.050			0.074	200		0.095	280		0.100	315							
7° 00′	0.053			0.078	210		0.098	285										
7° 30′	0.056			0.081	215		0.099	290										
8° 00′	0.058			0.084	220		0.100	290										
8° 30′	0.061			0.087	225	250												
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.

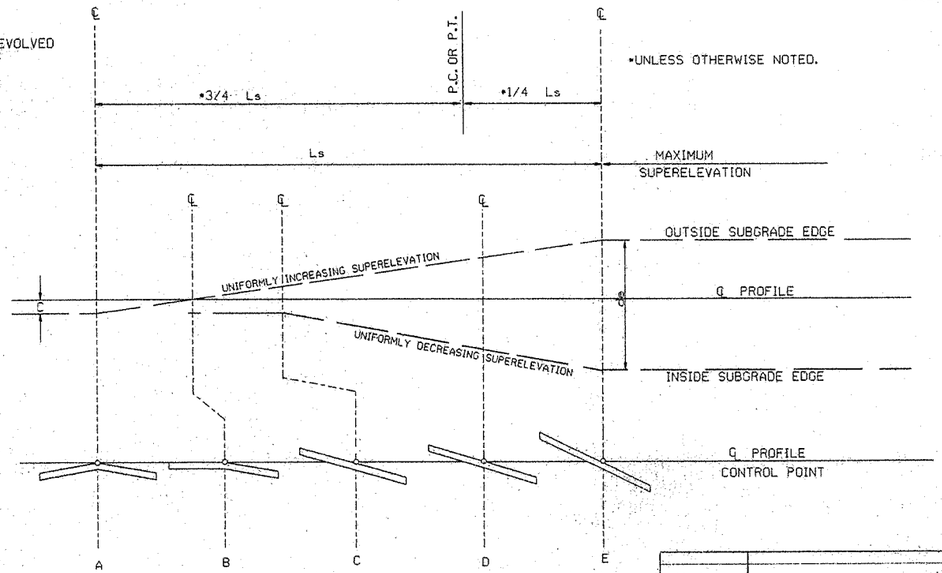
GENERAL NOTES

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

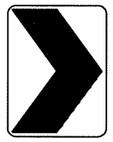
TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

FILE STDSE2.DGN

R1-1
30"X30"

W1-3
30"X30"
(LT. OR RT.)



W1-8
18"X24"

W2-5
30"X30"

W3-1
36"X36"

W5-1
36"X36"

M6-3
21"X15"

R1-2
36"X36"X36"

W1-4
30"X30"
(LT. or RT.)

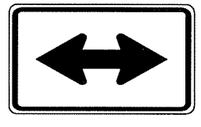
W2-1
30"X30"

S1-1
36"X36"

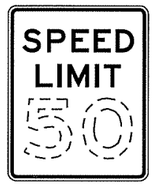
W3-2
36"X36"

County
Route Marker
MI-6
24"X24"

NOTE: REFLECTORIZED YELLOW LEGEND (COUNTY NAME, ROUTE LETTER & NUMBER) & BORDER ON A BLUE BACKGROUND.



M6-4
21"X15"



R2-1
24"X30"

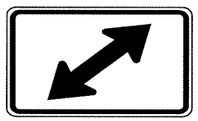
W1-5
30"X30"
(LT. or RT.)

W2-2
30"X30"

W5-2
36"X36"

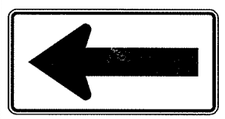
W8-3
36"X36"

RI-3P
18"X6"

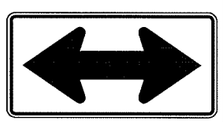


M6-5
21"X15"

WI-1
30"X30"
(LT. or RT.)



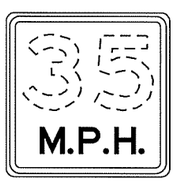
WI-6
48"X24"



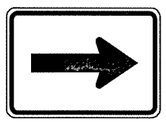
WI-7
48"X24"

W2-3
30"X30"
(LT. or RT.)

W5-3
36"X36"

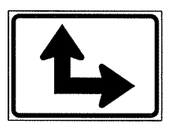


WI3-IP
18"X18"



M6-1
21"X15"

NOTE: ALL M6 SIGNS TO BE MADE WITH REFLECTORIZED YELLOW ARROW & BORDER WITH BLUE BACKGROUND.

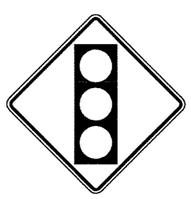


M6-6
21"X15"

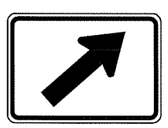
WI-2
30"X30"
(LT. or RT.)

W2-4
30"X30"

WI0-1
36" DIAMETER



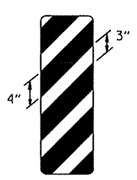
W3-3
36"X36"



M6-2
21"X15"

S4-3P
24"X8"

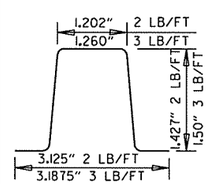
S4-2P
24"X10"



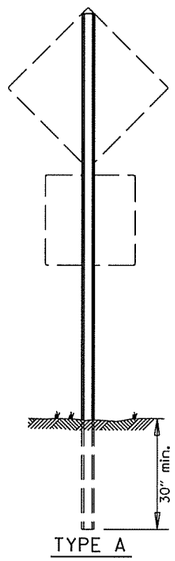
OM-3
12"X36"
(LT. or RT.)

MINIMUM DIMENSIONS SHOWN

SUPPORT SECTION

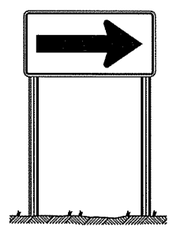


(U-CHANNEL)
STANDARD SUPPORT
ASSEMBLIES

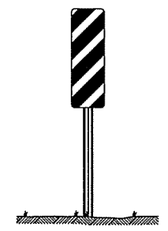


TYPE A

NOTE: LENGTH OF SIGN POSTS SHALL BE DETERMINED SO AS TO PROVIDE FOR MINIMUM VERTICAL CLEARANCES AS CALLED FOR IN THE SPECIFICATIONS PLUS A MINIMUM VERTICAL PENETRATION OF 30" IN THE SOIL.



TYPE B



TYPE C

MINIMUM WEIGHT

TYPE A & B = 3 LBS./FT.
TYPE C = 2 LBS./FT.

STANDARD HIGHWAY SIGNS

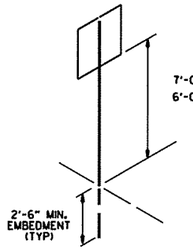
DATE	REVISION	DATE FILMED
9-12-13	DELETED JOB NO. BLOCK; REVISED RI-3 TO RI-3P	
4-17-08	REVISED SIGN DESIGNATION - W3-1 & W3-2	
4-10-03	REVISED W5-2, W8-3, OM-3; ADDED WI-8	
1-5-81	REDRAWN	960-1-15-81
9-15-78	ADDED W14-3	877-9-15-78
9-2-76	POST WT.	623-9-3-76
5-3-76	STEEL POST WT. FROM 2"-3"; ADDED S4-2 & S4-3	504-5-3-76
8-12-74	REV. HT. TYPE "C" ASSEMBLY	500-8-21-74
12-21-72	ADDED M6-2,3,4,5,6	500-12-21-72
12-1-72	ISSUED	562-12-1-72

SUPPORT ASSEMBLIES

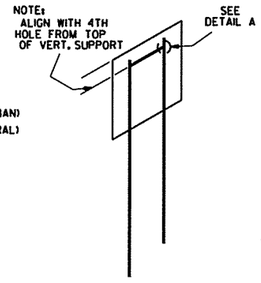
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES

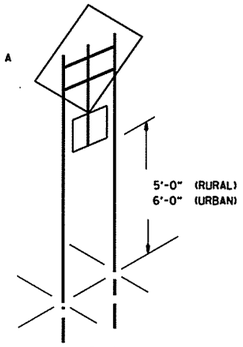
STANDARD DRAWING SHS-1



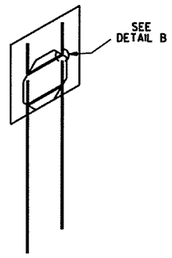
U-1



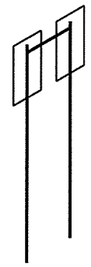
U-2

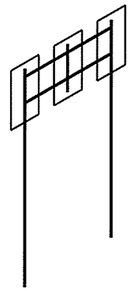


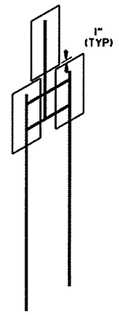
U-2 (A)



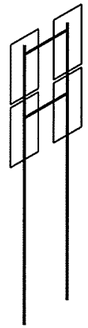
U-2 (B)

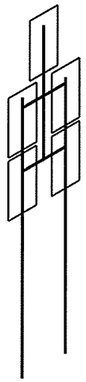

U-2 (1)

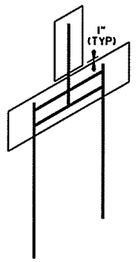

U-2 (2)



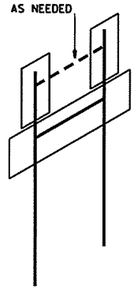
U-2 (3)


U-2 (4)

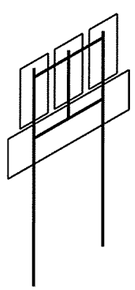

U-2 (5)

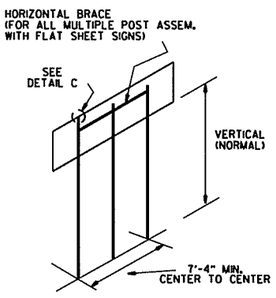


U-2 (6)

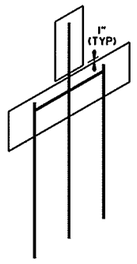


U-2 (7)

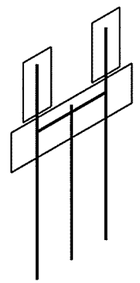

U-2 (8)

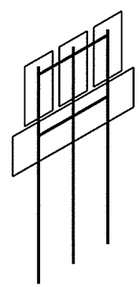


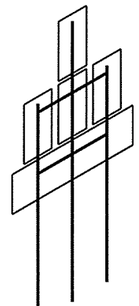
U-3

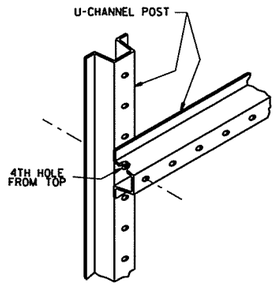


U-3 (1)

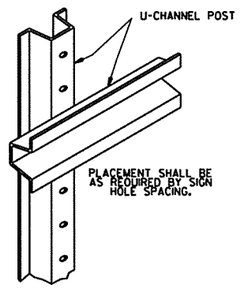

U-3 (2)


U-3 (3)

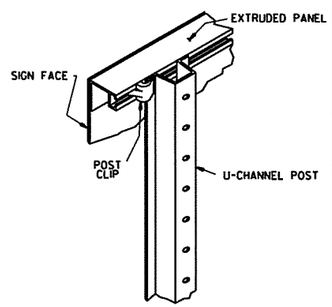

U-3 (4)



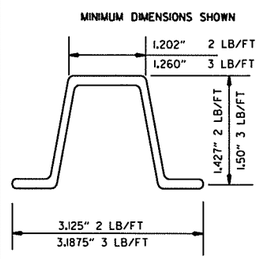
DETAIL A
SHOWING HORIZONTAL BRACE



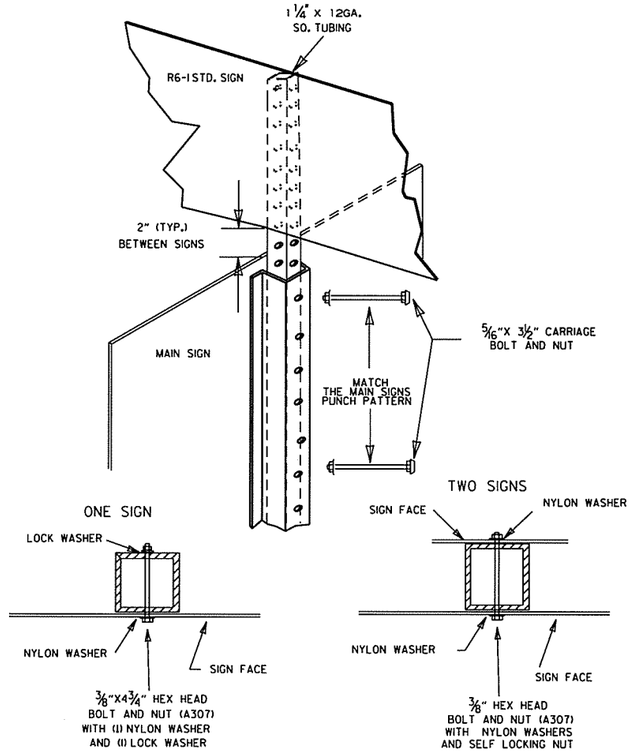
DETAIL B
SHOWING BACK-TO-BACK INSTALLATION



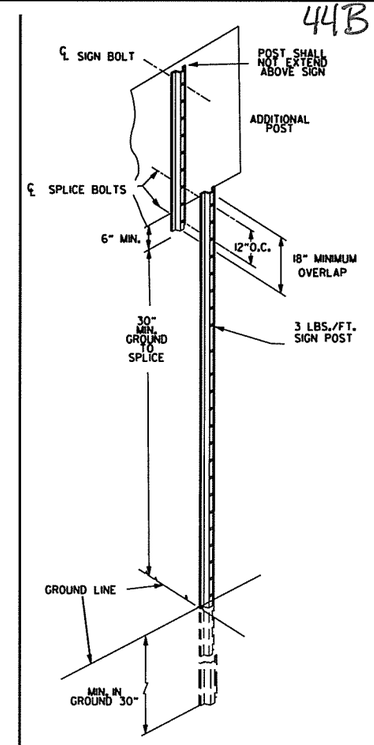
DETAIL C
SHOWING GUIDE SIGN MOUNTING WITH EXTRUDED PANELS



DETAIL D
U-CHANNEL POST



DETAIL E
R6-1 EXTENSION
FOR U-CHANNEL POST



DETAIL F
DETAIL OF SPLICES

NOTES:

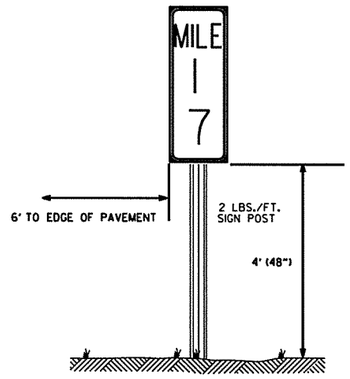
SIGNS AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.

SPLICES NECESSARY TO ATTAIN PROPER MOUNTING HEIGHT SHALL BE AS SHOWN IN DETAIL (F).

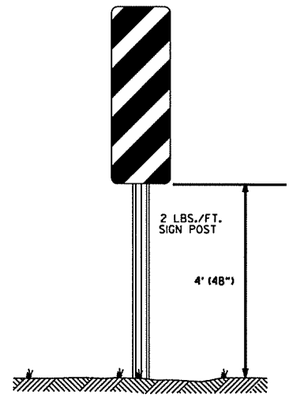
NORMAL INSTALLATIONS WILL REQUIRE 5/16" DIA. CARRIAGE BOLTS TO MOUNT SIGNS TO POST AND TO ASSEMBLE THE VARIOUS POST SUPPORTS.

ALL SIGN POSTS SHALL BE PLUMB.

THE POST FOR "TYPE U" SUPPORTS SHALL BE HOT DIP GALVANIZED.



TYPICAL MILE MARKER INSTALLATION



TYPICAL OM-3 INSTALLATION AT EDGE OF OBSTRUCTION

DATE	REVISION	FILMED
2-27-14	REVISED NOTES.	
9-12-13	REVISED U-2(3), U-2(6), U-3(1), DETAIL D; ADDED DETAILS E & F; ADDED TYPICAL MARKERS	
10-9-03	REMOVED ROUND POST & REVISED SPACING	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL	6-8-95
2-2-95	REDRAWN	2-2-95

ARKANSAS STATE HIGHWAY COMMISSION

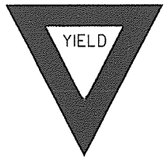
U-CHANNEL POST ASSEMBLIES

STANDARD DRAWING SHS-2

R1-1

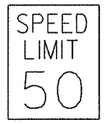
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



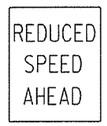
STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5A



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5C

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

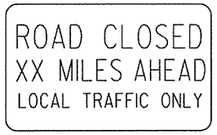
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2

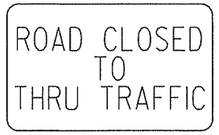
48"X30"

RII-3A



60"X30"

RII-4

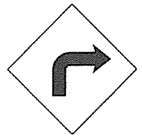


60"X30"

RSP-1

48"X30"

WI-1



STD. 36"X36"
FWY. 48"X48"

WI-2

STD. 36"X36"
FWY. 48"X48"

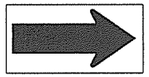
WI-3

STD. 48"X48"

WI-4

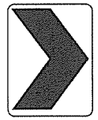
STD. 48"X48"

WI-6



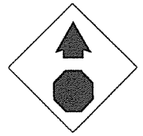
STD. 48"X24"
SPECIAL 60"X30"

WI-8



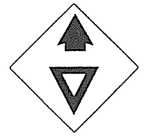
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



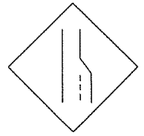
STD. 36"X36"
SPECIAL 48"X48"

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"

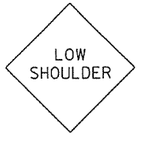
R56-1

STD. 18"X18"

W8-11

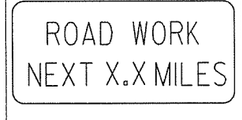
STD. 36"X36"
FWY. 48"X48"

W8-9



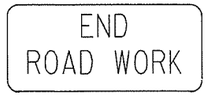
STD. 36"X36"
FWY. 48"X48"

G20-1



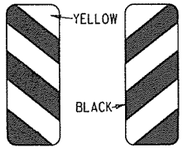
60"X24"

G20-2



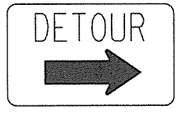
48"X24"

OM-3L OM-3R



12"X36"

M4-9

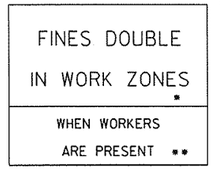


STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1



36"X60"

* USE 6" C LETTERS
** USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	1/2 MILE
1000 FT	3/4 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.

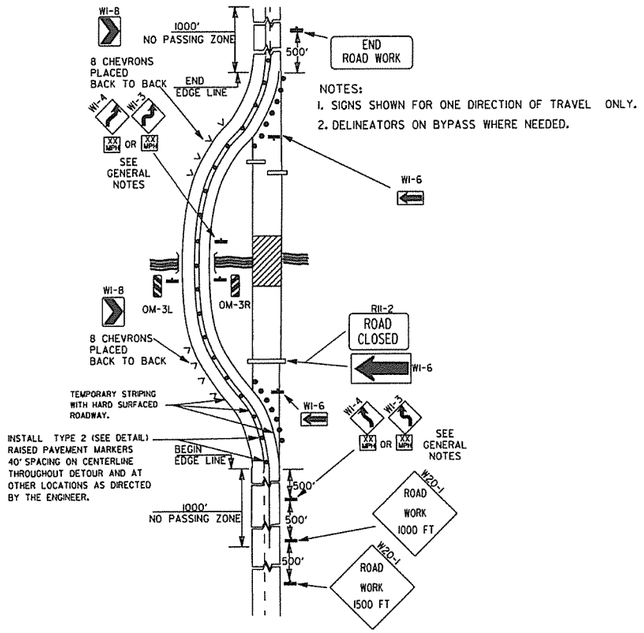
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

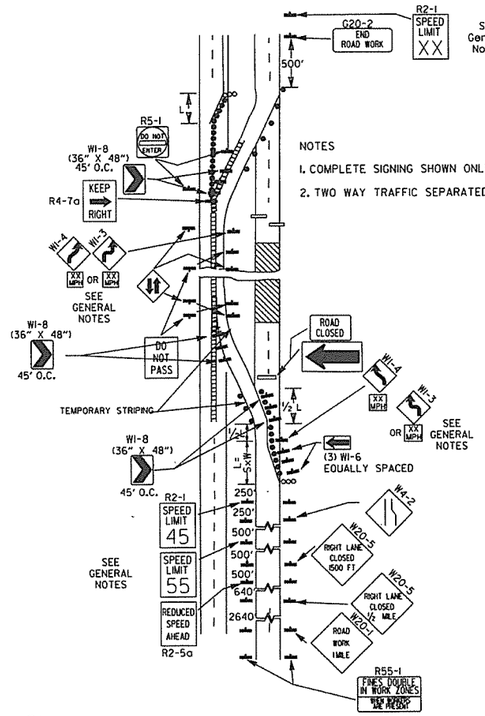
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



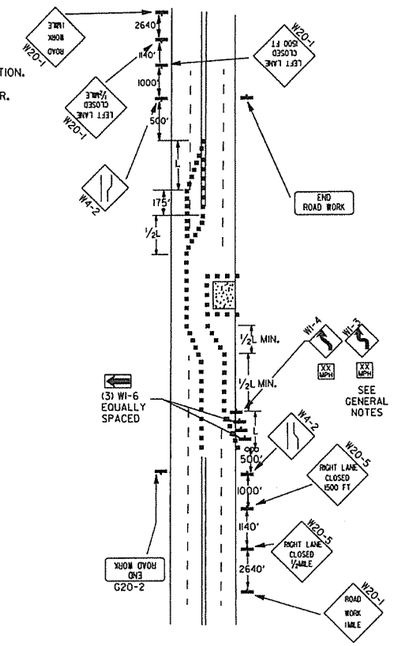
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

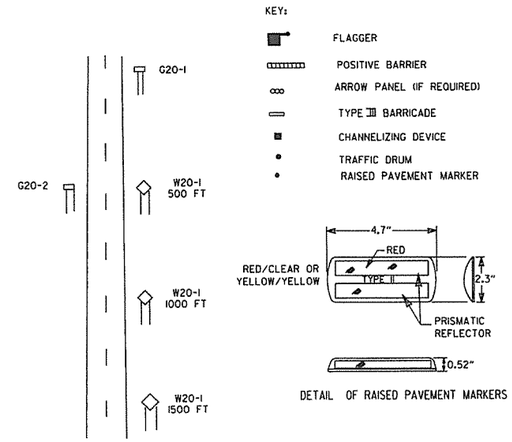


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.

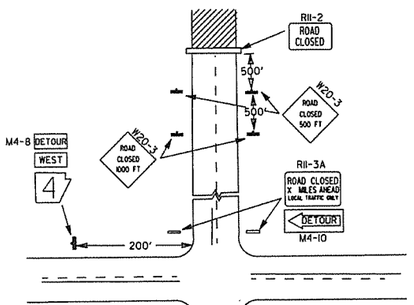


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

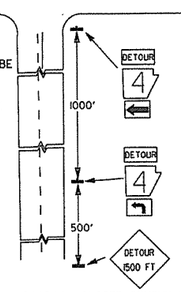


DETAIL OF RAISED PAVEMENT MARKERS

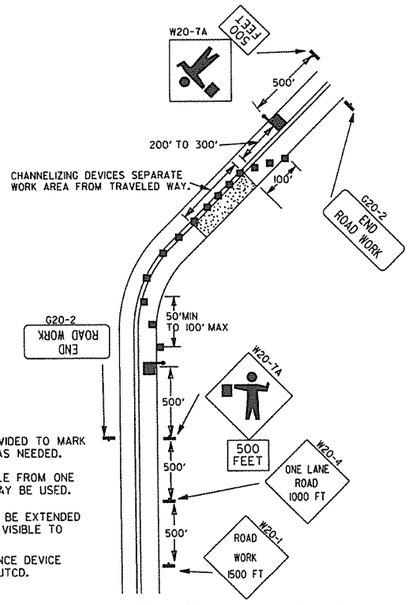
TYPICAL ADVANCE WARNING SIGN PLACEMENT



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.

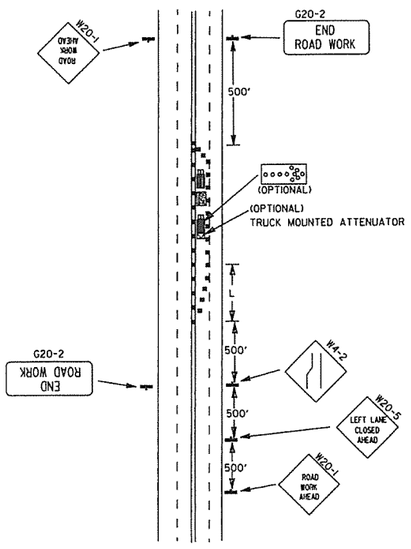


(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



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.

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:

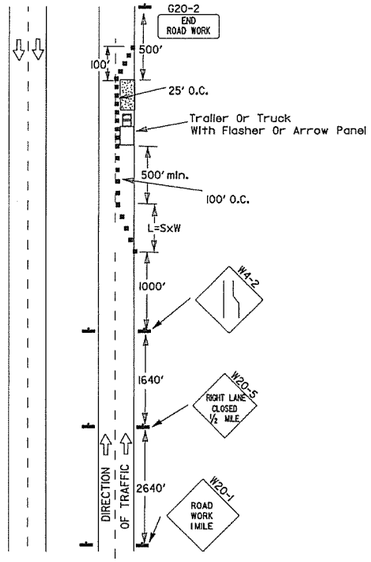
1. ADVISORY SPEED POSTED ON WI-3 OR WI-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED 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.

DATE	REVISION	FILMED
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 WI-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

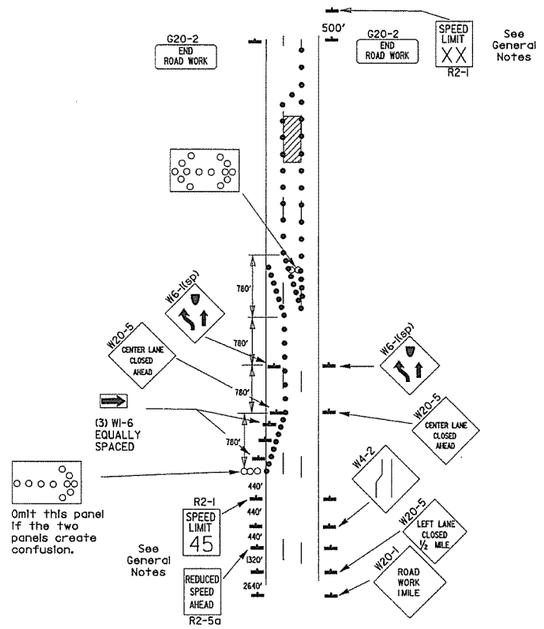
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

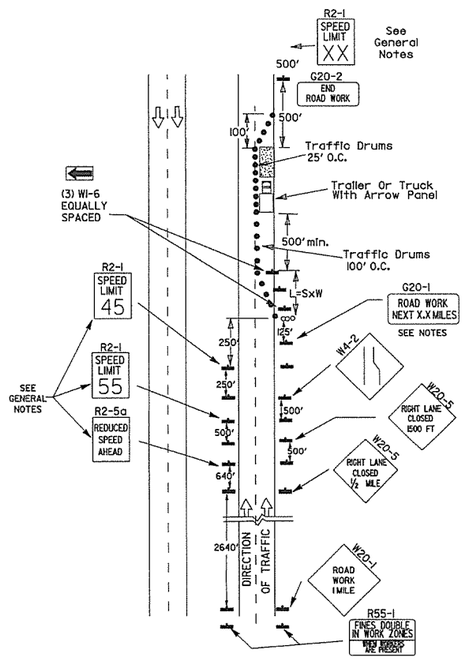
STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



(B) Typical application - 3-lane oneway roadway where center lane is closed.



(C) Typical application - construction operatipns of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

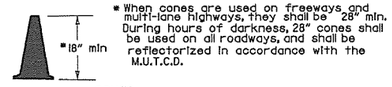
KEY:

- ○○○ Arrow Panel (If Required)
- ■ Channelizing Device
- ● Traffic drum

GENERAL NOTES:

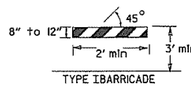
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional 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

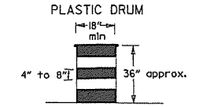


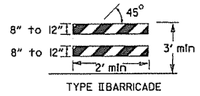
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

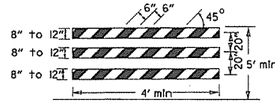
CONES



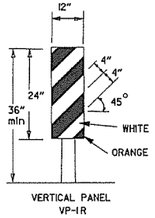
PLASTIC DRUM



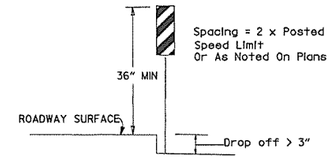




NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



VERTICAL PANEL PLACEMENT



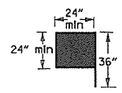
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

* When shown on the plans concrete barrier will be used.

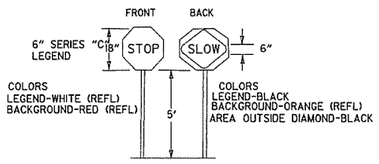
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

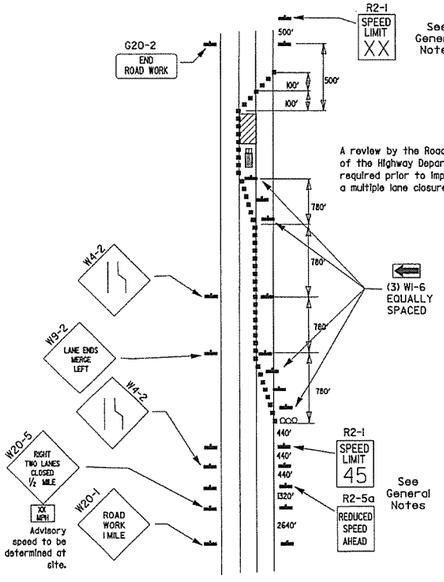
FLAG



Flag shall be of good grade red material

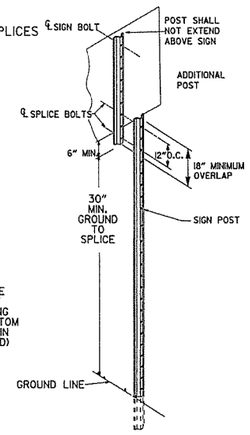
STOP SLOW PADDLE





(D) Typical application - closing multiple lanes of a multilane highway.

DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.

DATE	REVISION	FILMED
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	

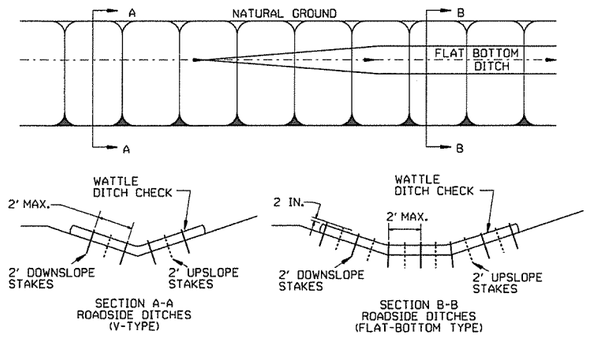
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

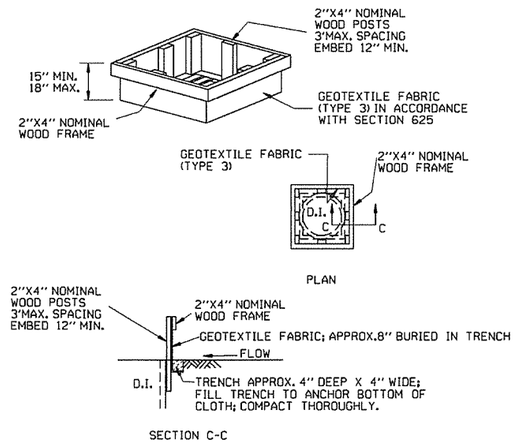
STANDARD DRAWING TC-3

GENERAL NOTES

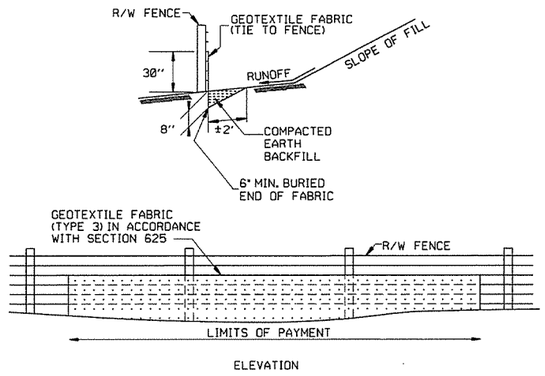
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



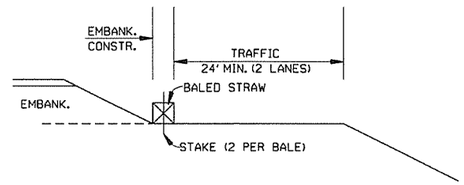
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

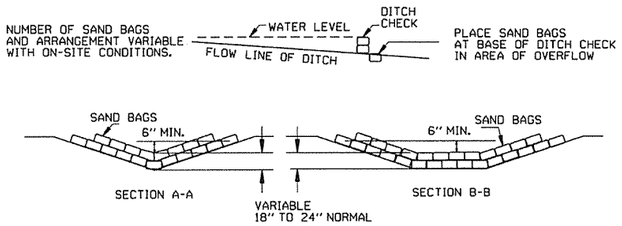
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

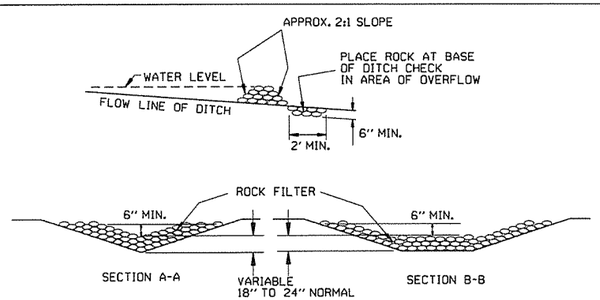
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
2. NO GAPS SHALL BE LEFT BETWEEN BALES.
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED 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.



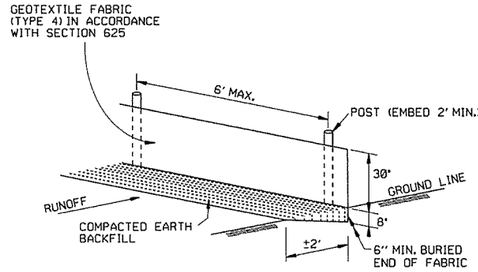
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

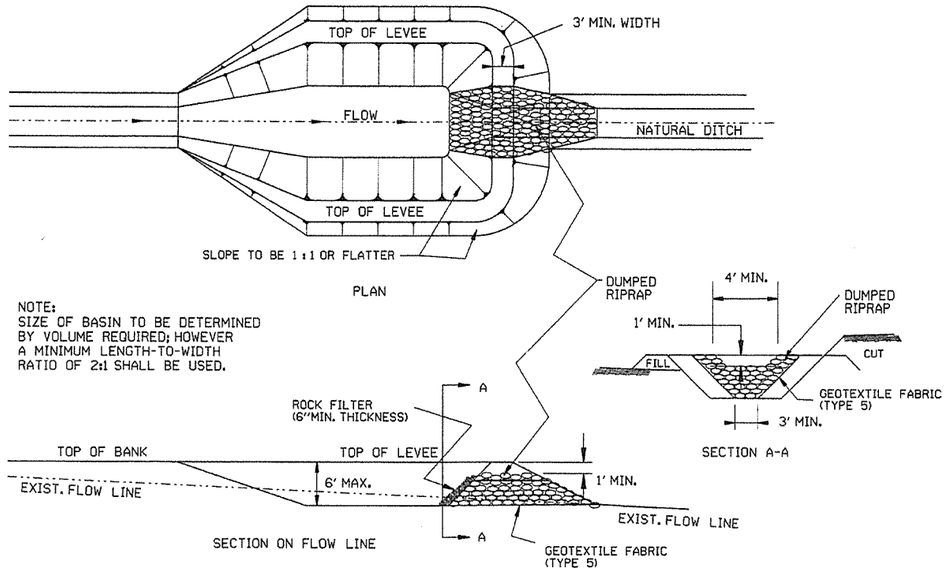
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

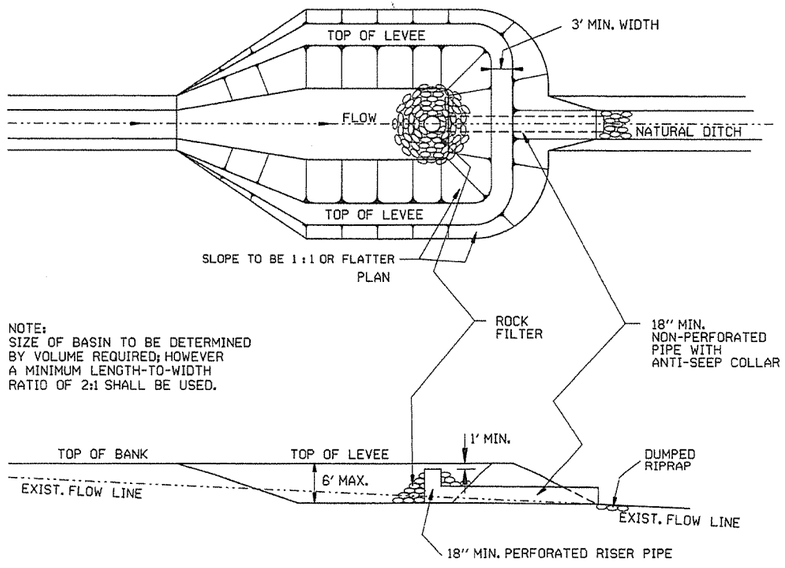
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

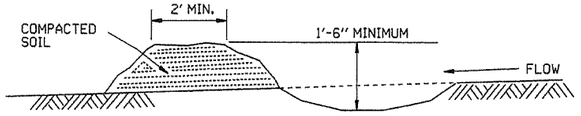
STANDARD DRAWING TEC-1



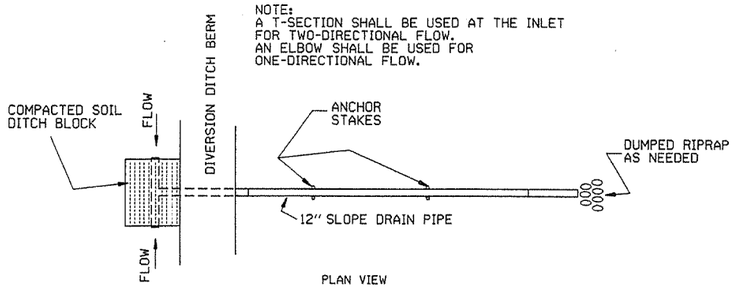
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



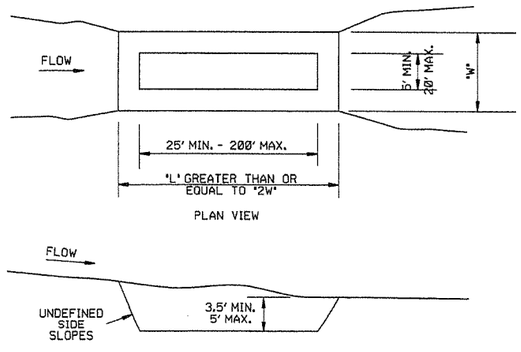
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

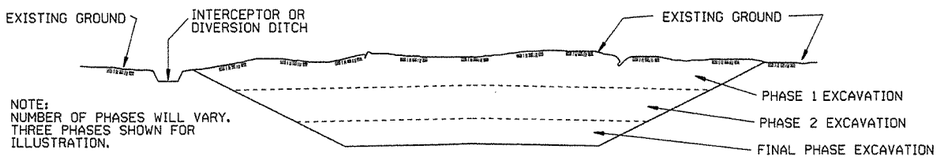
STANDARD DRAWING TEC-2

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



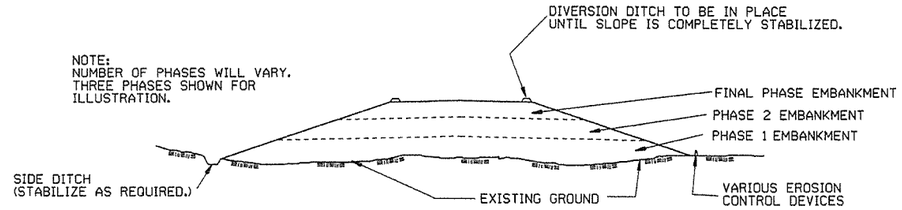
GENERAL NOTE

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

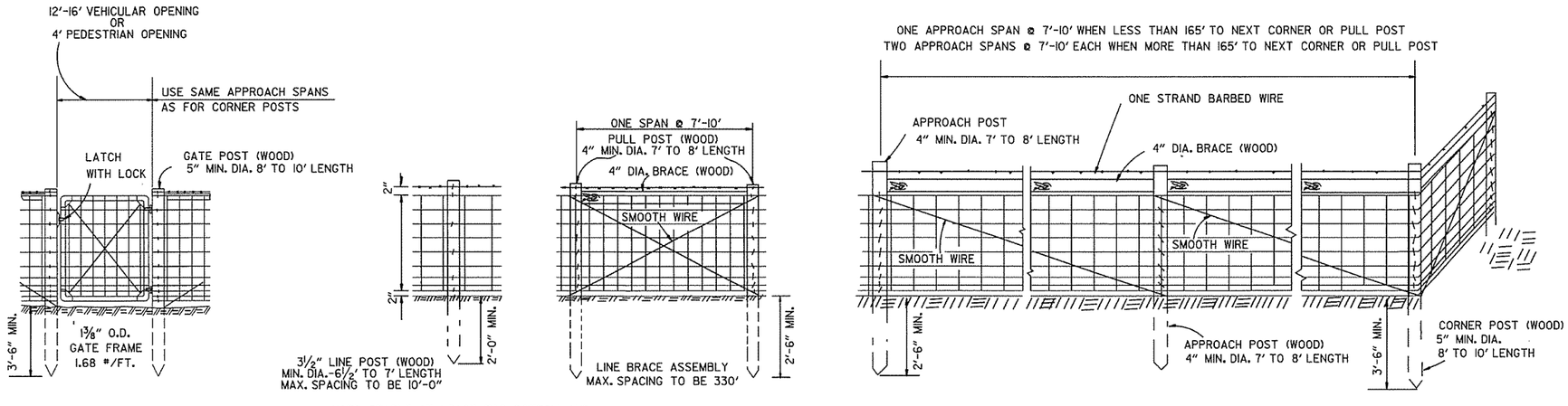
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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

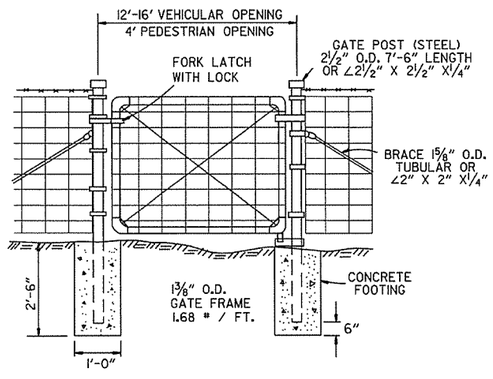
TEMPORARY EROSION CONTROL DEVICES

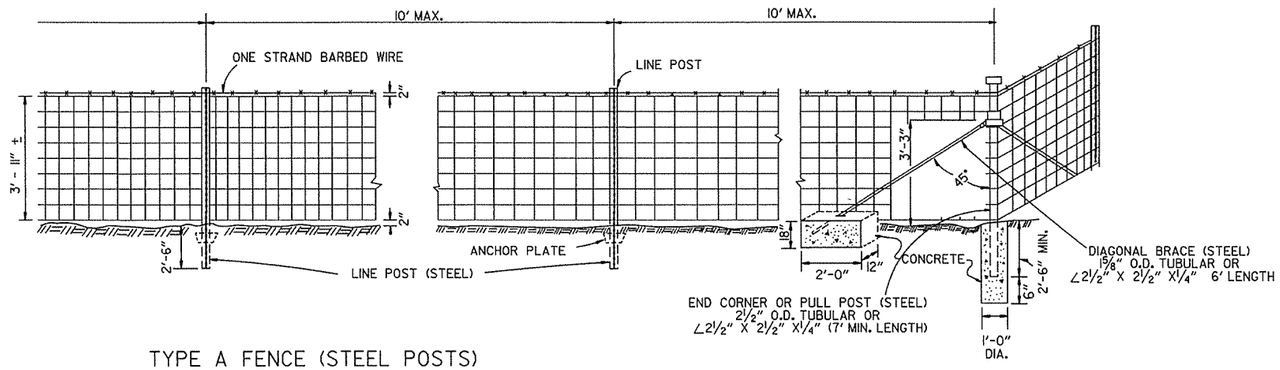
STANDARD DRAWING TEC-3



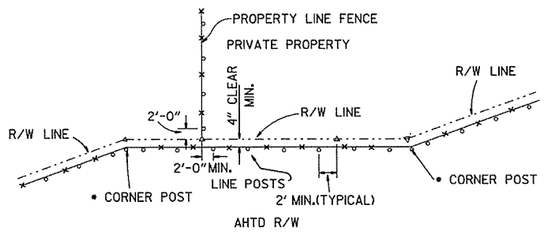
NOTE: STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE A FENCE (WOOD POSTS)





TYPE A FENCE (STEEL POSTS)

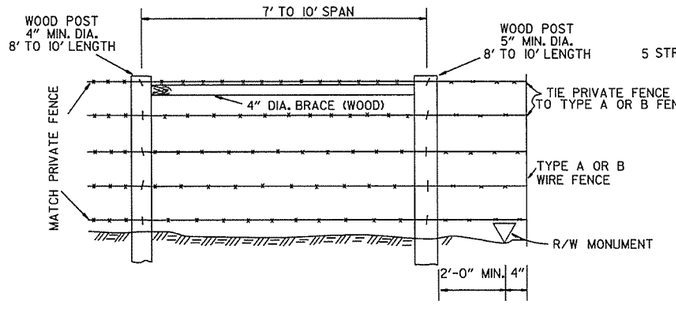


•NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

△ - R/W MONUMENTS

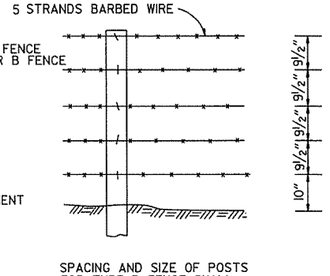
○ - FENCE POSTS

RIGHT-OF-WAY FENCE LOCATION



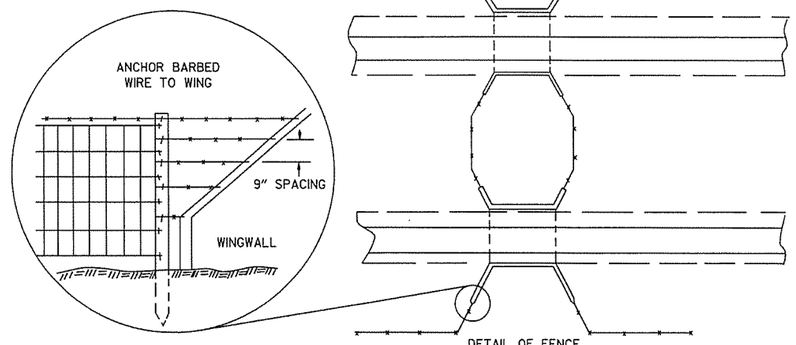
WHERE EXISTING PRIVATE FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN WITH TYPE A FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.

PRIVATE FENCE TERMINAL INSTALLATION



SPACING AND SIZE OF POSTS FOR TYPE B FENCE SHALL BE THE SAME AS TYPE A FENCE.

TYPE B FENCE



DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

GENERAL NOTES:

STEEL LINE POSTS SHALL BE GALVANIZED, 7 FT. IN LENGTH.

TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK).

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF WOOD LINE POSTS OF 7' LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

GATE HINGES AND LATCHES WITH LOCKS TO BE OF A TYPE APPROVED BY THE ENGINEER. DRIVEWAY GATES, EITHER SINGLE 12' OR 16' OR DOUBLE 6' TO 8' OPENINGS 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 BY MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON THE 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 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 SUFFIEICNT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO THE BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

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.

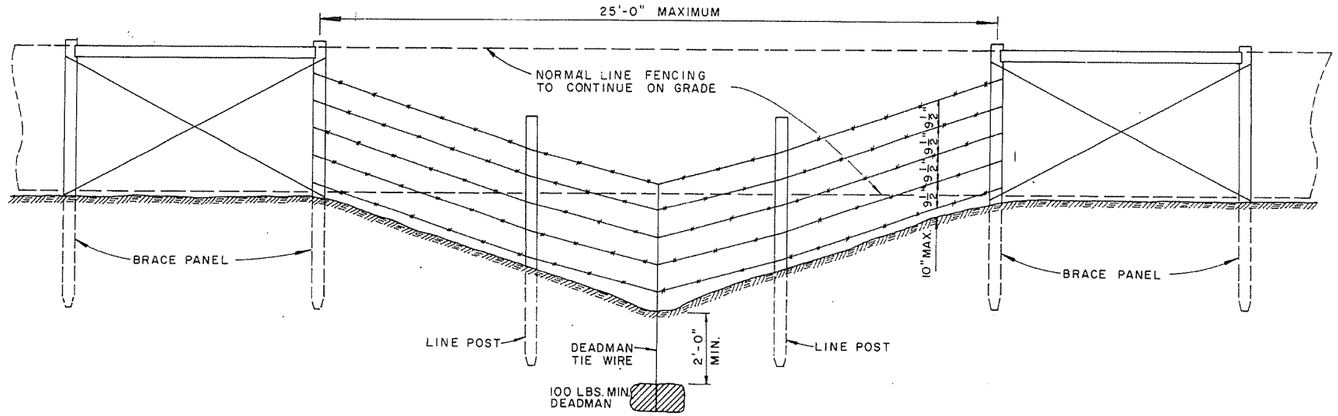
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD": AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRE A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

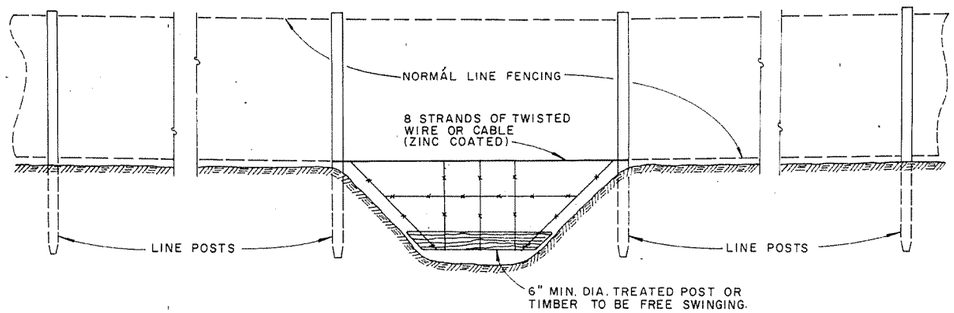
DATE	REVISION	DATE FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	ADDED CORNER POST NOTE	6-2-94
8-5-93	REVISED R-O-W LOCATION DETAIL	8-5-93
10-1-92	ADDED STAPLE NOTE	
8-2-90	REV'D PULL POST LENGTH	
11-30-89	DELETED CLASS CONC.	
7-15-88	ADDED SPLICE NOTES	
7-15-88	ADDED HEIGHT DIMENSION	
4-3-87	REVISED VARIOUS NOTES	
	AND GENERAL NOTES	
11-1-84	MAX. POST SPACING	
1-4-83	MIN. DIA. LINE POST	
10-2-72	REVISED & REDRAWN	

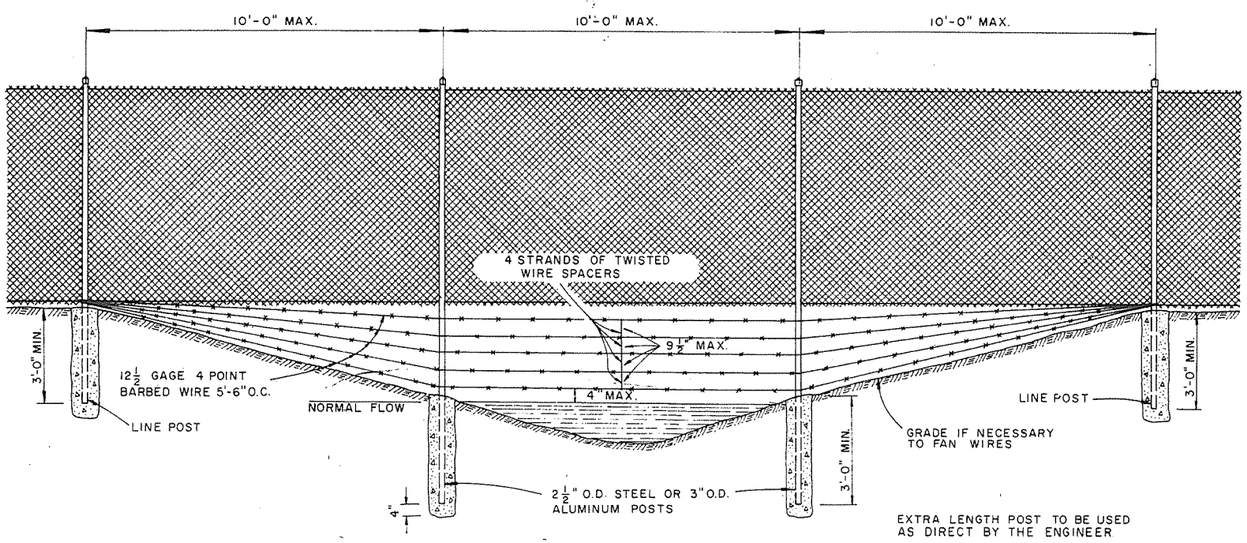
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE A AND B

STANDARD DRAWING WF-1







GENERAL NOTES:

THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION. INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER.

WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.

IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN.

PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

DATE	REVISION	DATE FILM'D.
4-20-79	REVISED TOP RAIL & TENSION WIRE	696-4-20-79
10-2-72	REVISED & REDRAWN	529-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE WATER GAPS

STANDARD DRAWING

WF-2

(M—11-71—4001—PPASCo

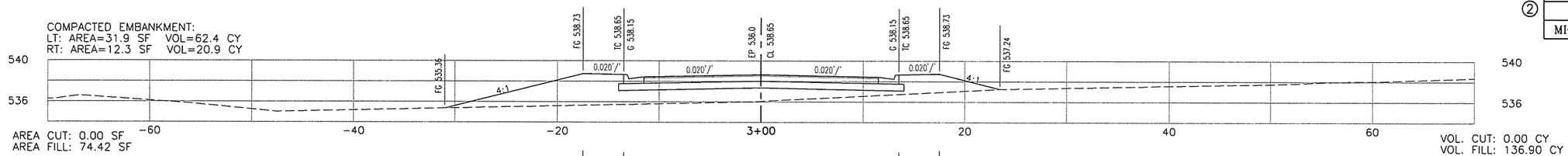
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	AR	STP-0024(21)		
JOB NO.		040493	53	67

②

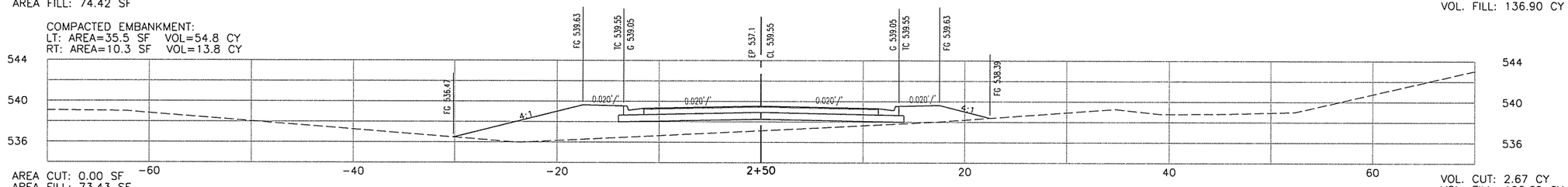
CROSS SECTIONS

MICKLE-WAGNER-COLEMAN, INC.



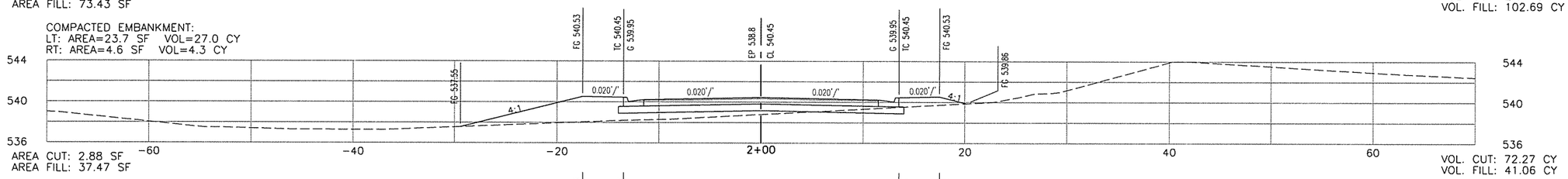
AREA CUT: 0.00 SF
AREA FILL: 74.42 SF

VOL. CUT: 0.00 CY
VOL. FILL: 136.90 CY



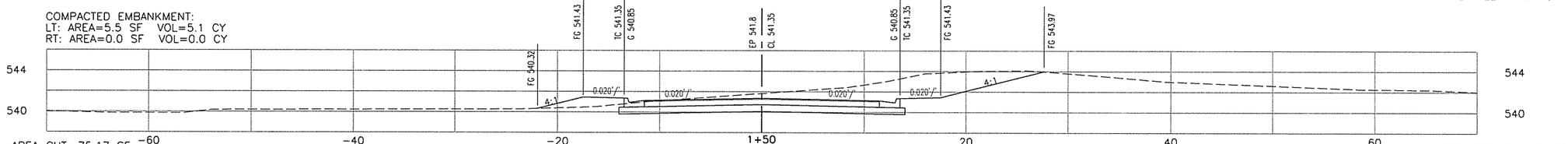
AREA CUT: 0.00 SF
AREA FILL: 73.43 SF

VOL. CUT: 2.67 CY
VOL. FILL: 102.69 CY



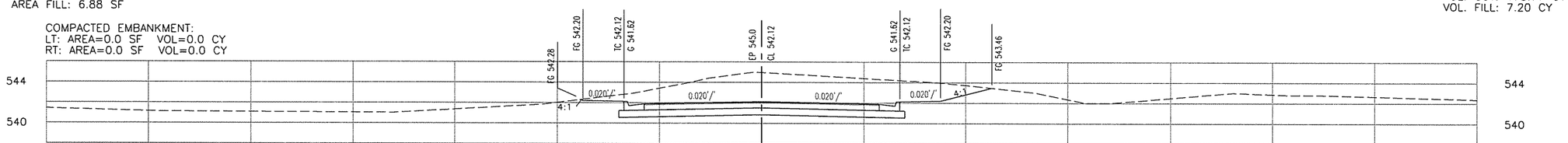
AREA CUT: 2.88 SF
AREA FILL: 37.47 SF

VOL. CUT: 72.27 CY
VOL. FILL: 41.06 CY



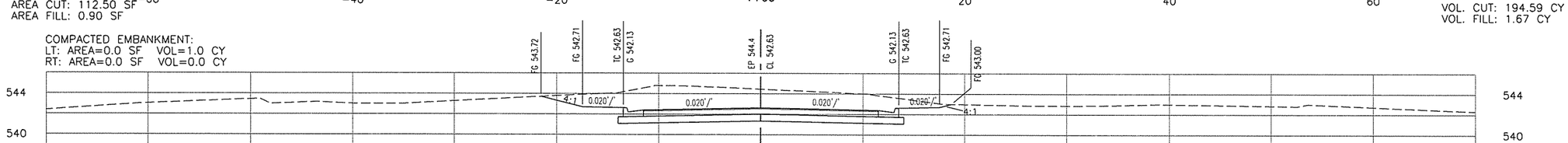
AREA CUT: 75.17 SF
AREA FILL: 6.88 SF

VOL. CUT: 173.77 CY
VOL. FILL: 7.20 CY



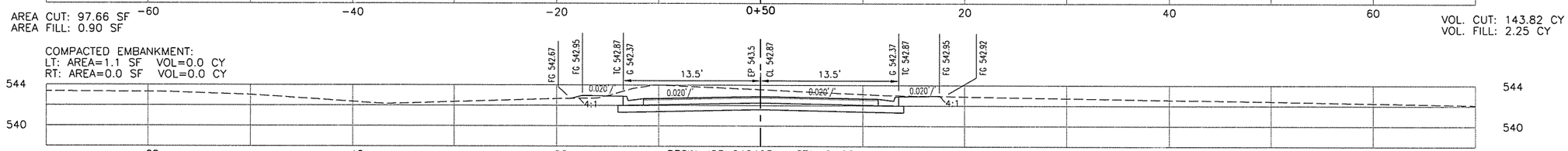
AREA CUT: 112.50 SF
AREA FILL: 0.90 SF

VOL. CUT: 194.59 CY
VOL. FILL: 1.67 CY



AREA CUT: 97.66 SF
AREA FILL: 0.90 SF

VOL. CUT: 143.82 CY
VOL. FILL: 2.25 CY



AREA CUT: 57.67 SF
AREA FILL: 1.53 SF

VOL. CUT: 0.00 CY
VOL. FILL: 0.00 CY

HILLBILLY LANE CROSS SECTIONS STA. 0+00 TO STA. 3+00

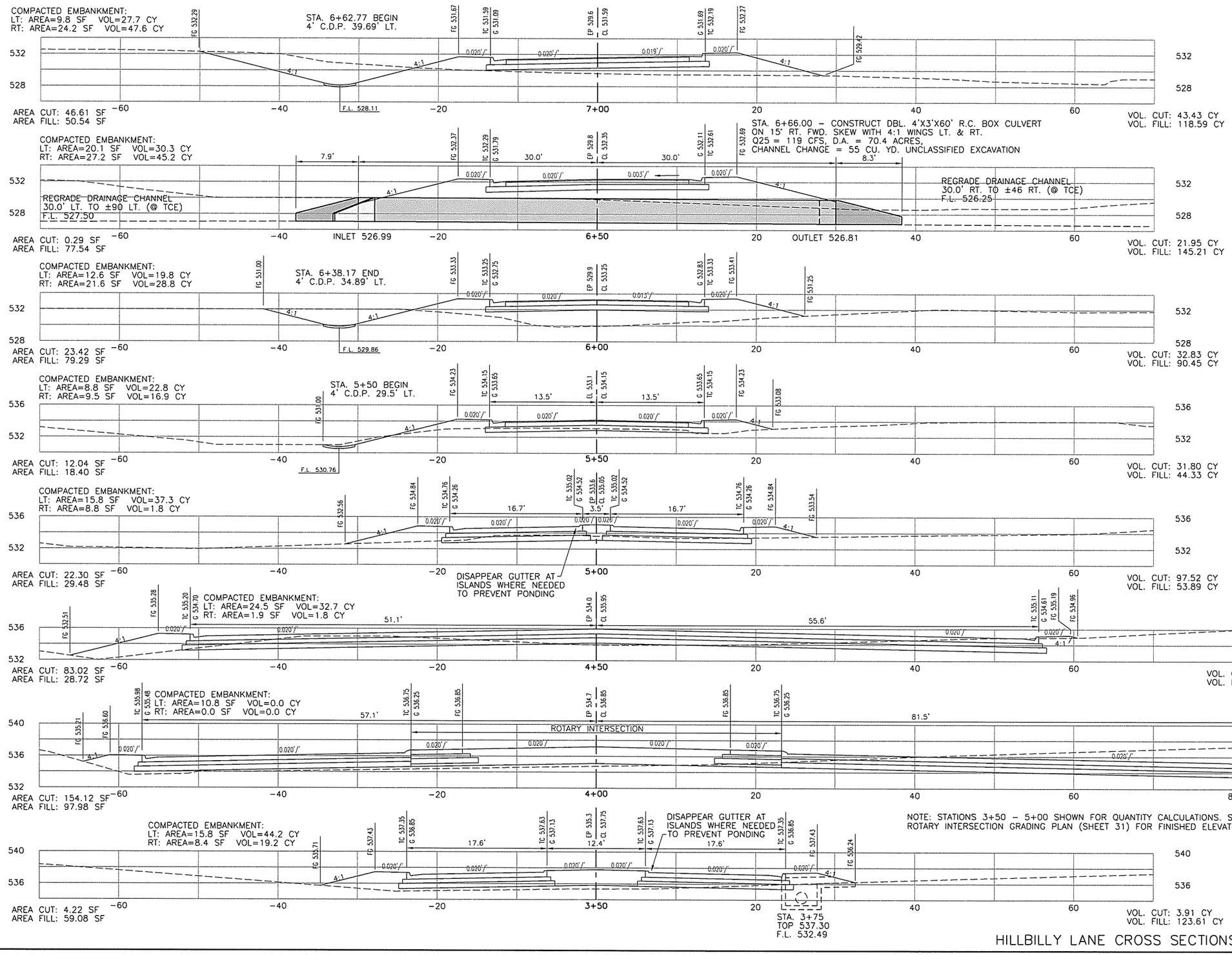
K:\Ozark\hillbilly drive\dwg\Plots\53-65 Hillbilly Ln Cross Sections.dwg, 5/6/2014 6:10:42 PM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	54	67

②

CROSS SECTIONS

MICKLE-WAGNER-COLEMAN, INC.



HILLBILLY LANE CROSS SECTIONS STA. 3+50 TO STA. 7+00

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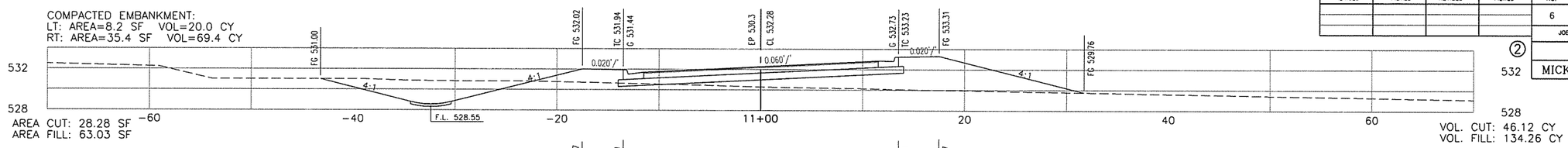
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	55	67

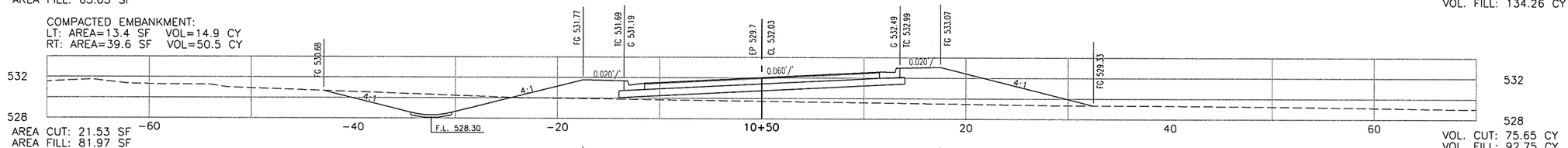
② CROSS SECTIONS

MICKLE-WAGNER-COLEMAN, INC.



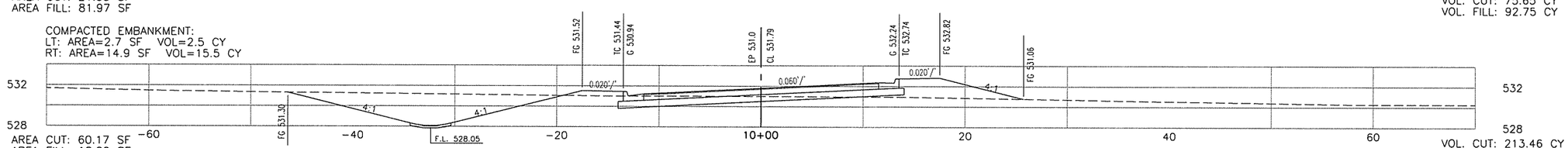
AREA CUT: 28.28 SF
AREA FILL: 63.03 SF

VOL. CUT: 46.12 CY
VOL. FILL: 134.26 CY



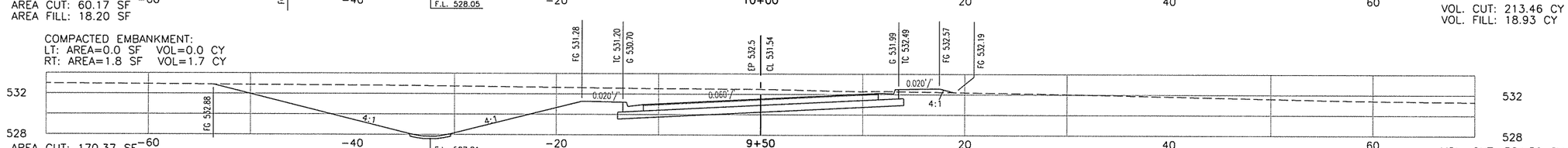
AREA CUT: 21.53 SF
AREA FILL: 81.97 SF

VOL. CUT: 75.65 CY
VOL. FILL: 92.75 CY



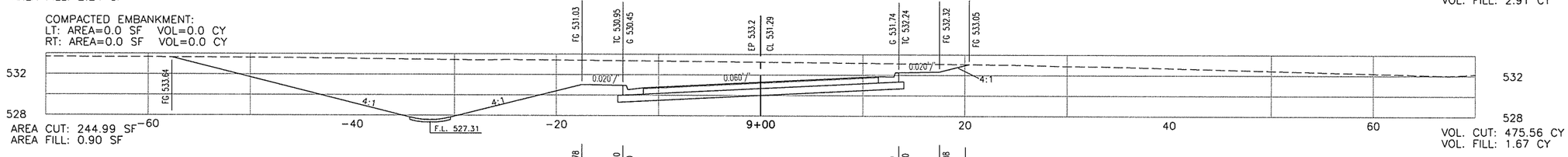
AREA CUT: 60.17 SF
AREA FILL: 18.20 SF

VOL. CUT: 213.46 CY
VOL. FILL: 18.93 CY



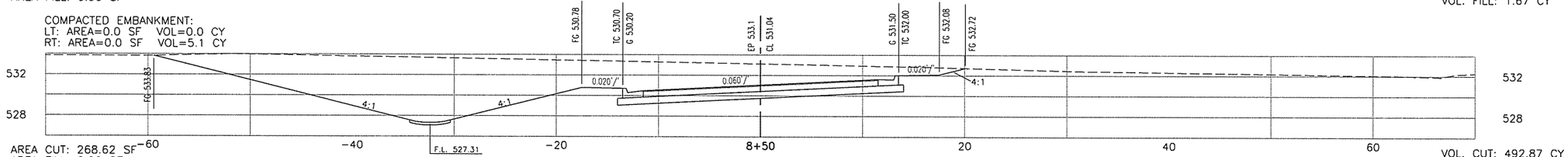
AREA CUT: 170.37 SF
AREA FILL: 2.24 SF

VOL. CUT: 384.59 CY
VOL. FILL: 2.91 CY



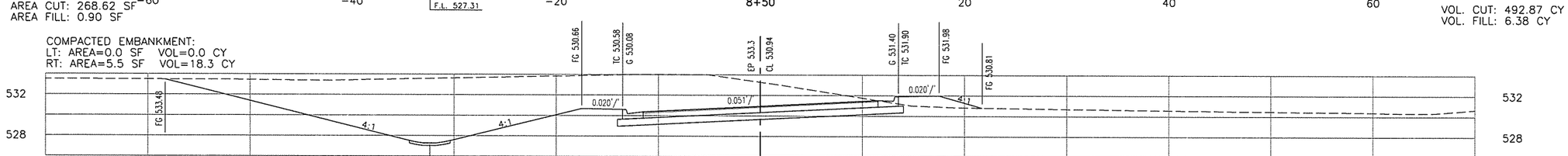
AREA CUT: 244.99 SF
AREA FILL: 0.90 SF

VOL. CUT: 475.56 CY
VOL. FILL: 1.67 CY



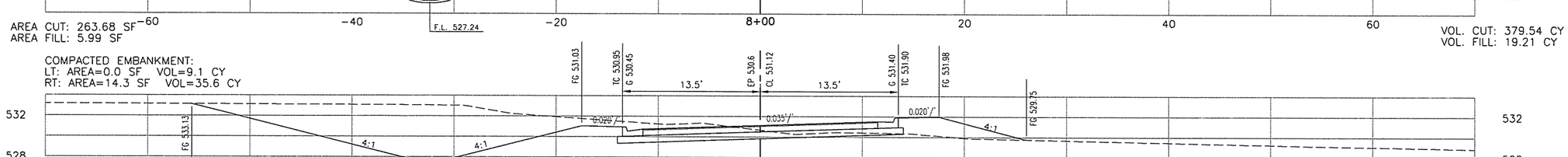
AREA CUT: 268.62 SF
AREA FILL: 0.90 SF

VOL. CUT: 492.87 CY
VOL. FILL: 6.38 CY



AREA CUT: 263.68 SF
AREA FILL: 5.99 SF

VOL. CUT: 379.54 CY
VOL. FILL: 19.21 CY



AREA CUT: 146.22 SF
AREA FILL: 14.76 SF

VOL. CUT: 178.55 CY
VOL. FILL: 60.46 CY

HILLBILLY LANE CROSS SECTIONS STA. 7+50 TO STA. 11+00

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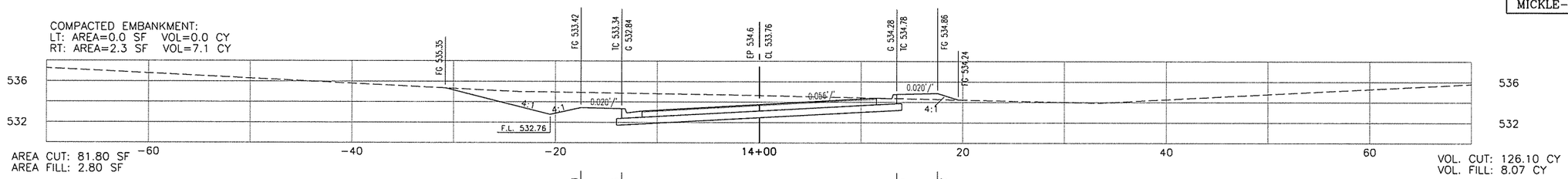
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	AR	STP-0024(21)		
JOB NO.		040493	56	67

②

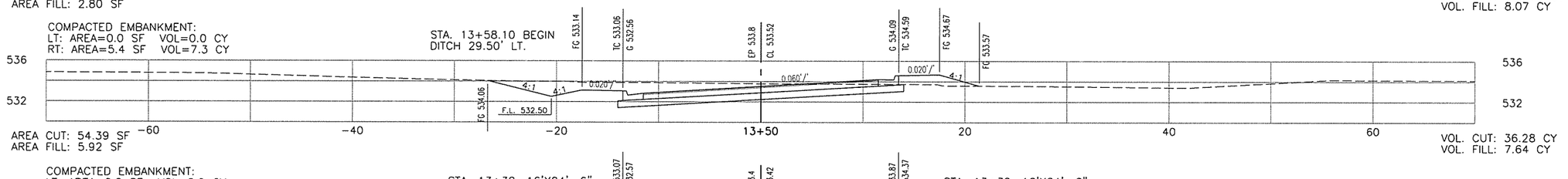
CROSS SECTIONS

MICKLE-WAGNER-COLEMAN, INC.



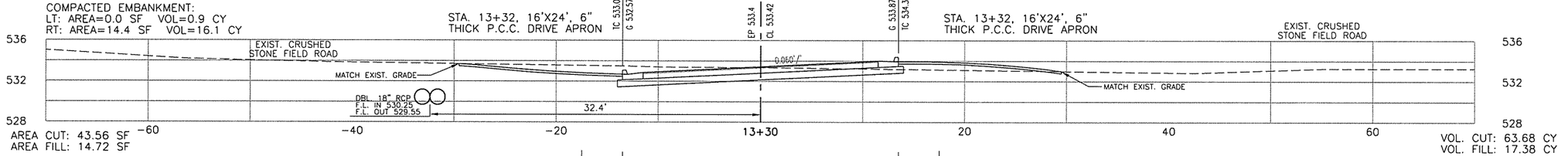
AREA CUT: 81.80 SF
AREA FILL: 2.80 SF

VOL. CUT: 126.10 CY
VOL. FILL: 8.07 CY



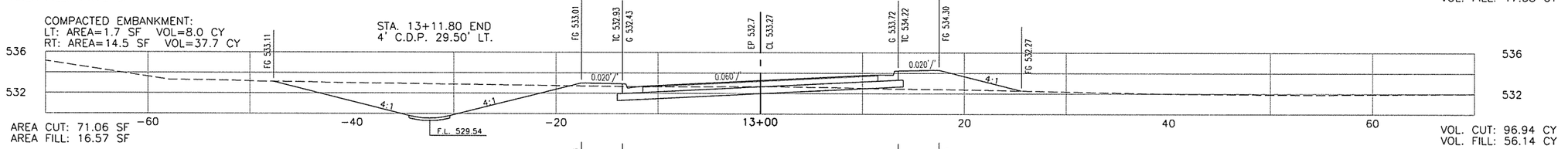
AREA CUT: 54.39 SF
AREA FILL: 5.92 SF

VOL. CUT: 36.28 CY
VOL. FILL: 7.64 CY



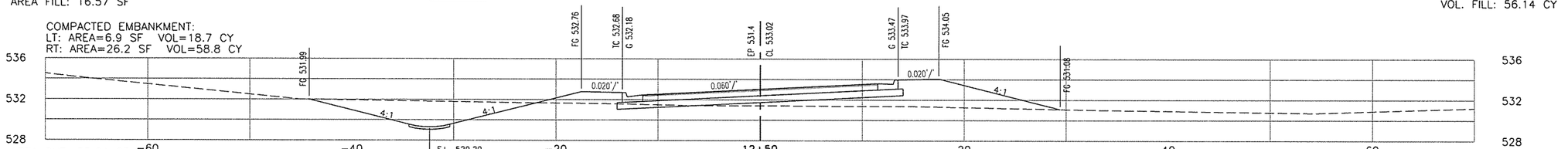
AREA CUT: 43.56 SF
AREA FILL: 14.72 SF

VOL. CUT: 63.68 CY
VOL. FILL: 17.38 CY



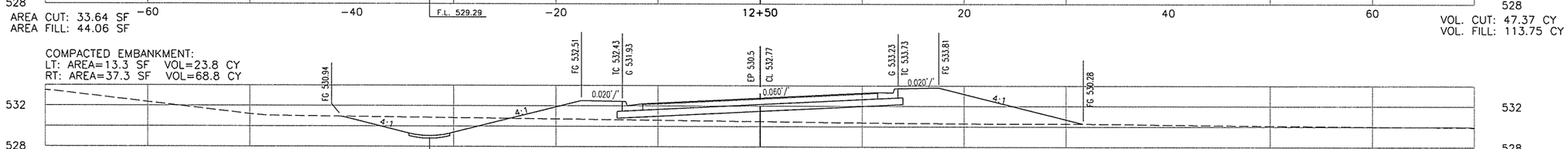
AREA CUT: 71.06 SF
AREA FILL: 16.57 SF

VOL. CUT: 96.94 CY
VOL. FILL: 56.14 CY



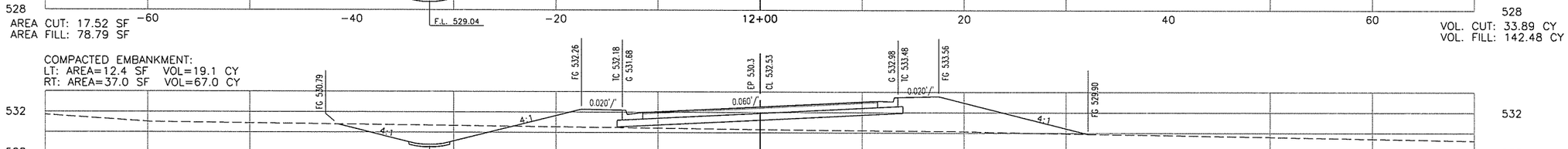
AREA CUT: 33.64 SF
AREA FILL: 44.06 SF

VOL. CUT: 47.37 CY
VOL. FILL: 113.75 CY



AREA CUT: 17.52 SF
AREA FILL: 78.79 SF

VOL. CUT: 33.89 CY
VOL. FILL: 142.48 CY



AREA CUT: 19.08 SF
AREA FILL: 75.09 SF

VOL. CUT: 43.85 CY
VOL. FILL: 127.89 CY

HILLBILLY LANE CROSS SECTIONS STA. 11+50 TO STA. 14+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	AR	STP-0024(21)		
JOB NO.		040493	57	67

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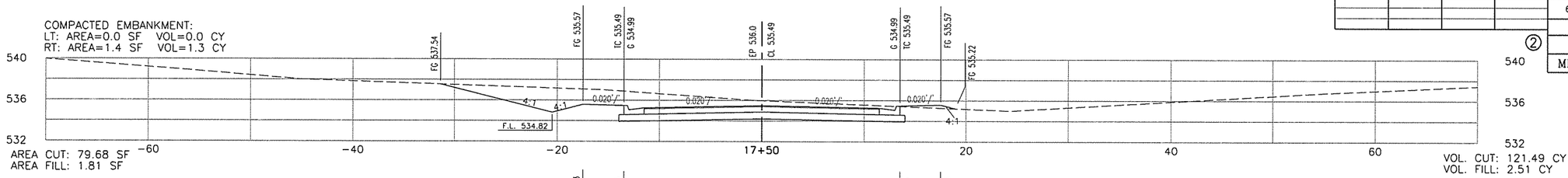
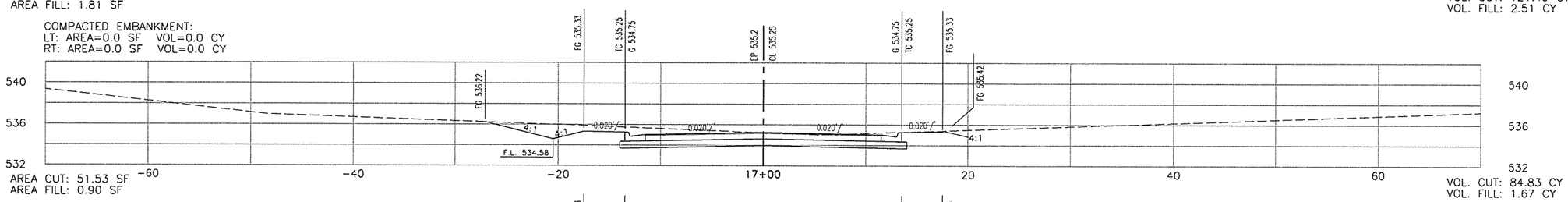
CROSS SECTIONS

MICKLE-WAGNER-COLEMAN, INC.



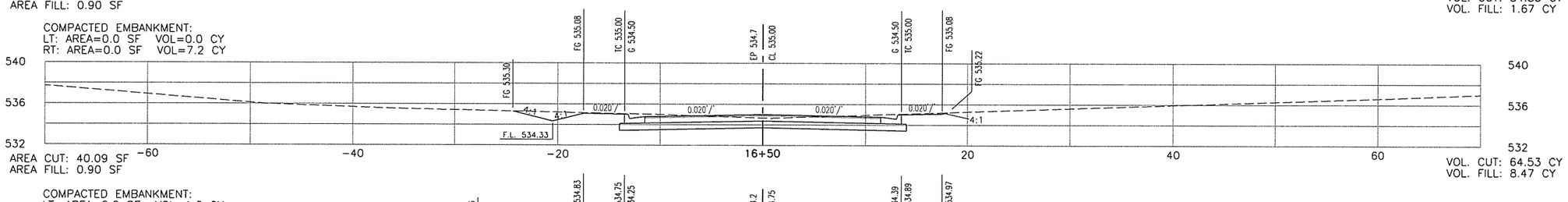
AREA CUT: 79.68 SF
AREA FILL: 1.81 SF

VOL. CUT: 121.49 CY
VOL. FILL: 2.51 CY



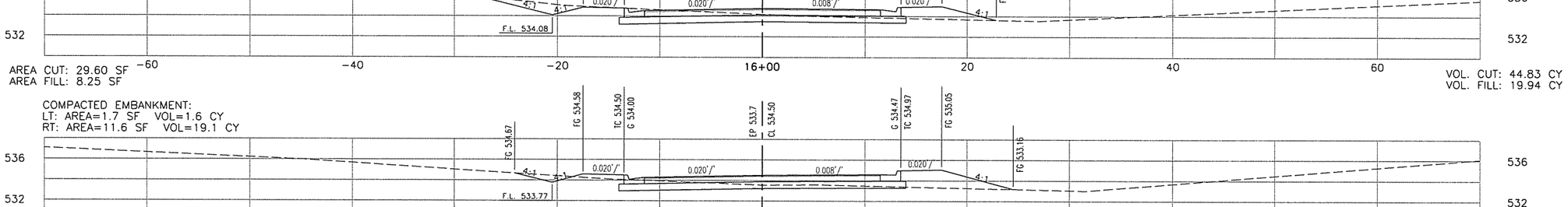
AREA CUT: 51.53 SF
AREA FILL: 0.90 SF

VOL. CUT: 84.83 CY
VOL. FILL: 1.67 CY



AREA CUT: 40.09 SF
AREA FILL: 0.90 SF

VOL. CUT: 64.53 CY
VOL. FILL: 8.47 CY

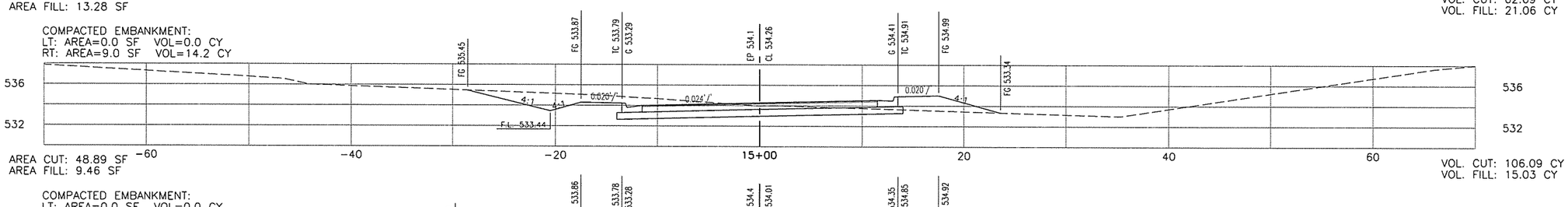


AREA CUT: 29.60 SF
AREA FILL: 8.25 SF

VOL. CUT: 44.83 CY
VOL. FILL: 19.94 CY

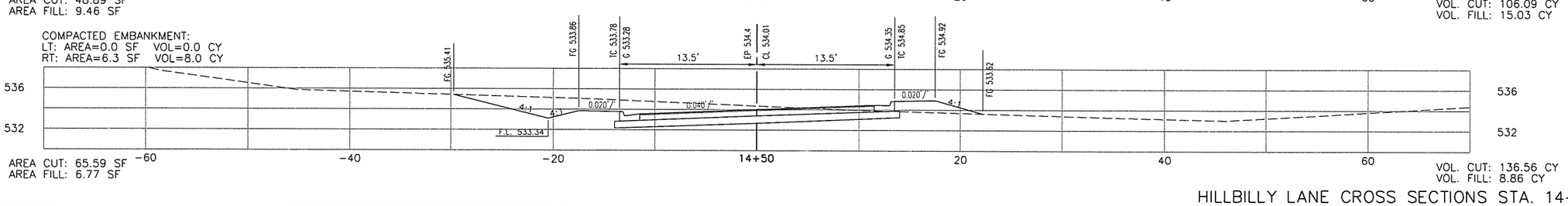
AREA CUT: 18.82 SF
AREA FILL: 13.28 SF

VOL. CUT: 62.69 CY
VOL. FILL: 21.06 CY



AREA CUT: 48.89 SF
AREA FILL: 9.46 SF

VOL. CUT: 106.09 CY
VOL. FILL: 15.03 CY



AREA CUT: 65.59 SF
AREA FILL: 6.77 SF

VOL. CUT: 136.56 CY
VOL. FILL: 8.86 CY

HILLBILLY LANE CROSS SECTIONS STA. 14+50 TO STA. 17+50

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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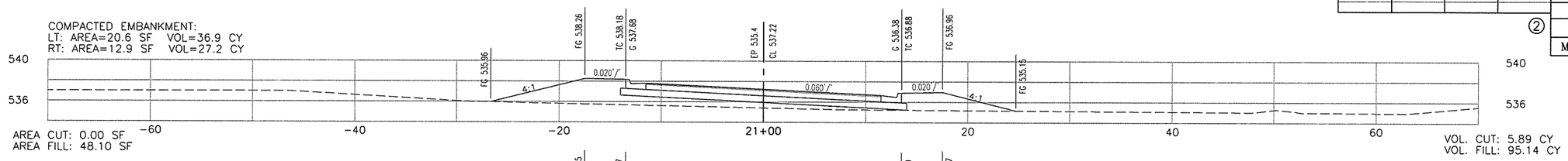
				JOB NO.		040493	58	67

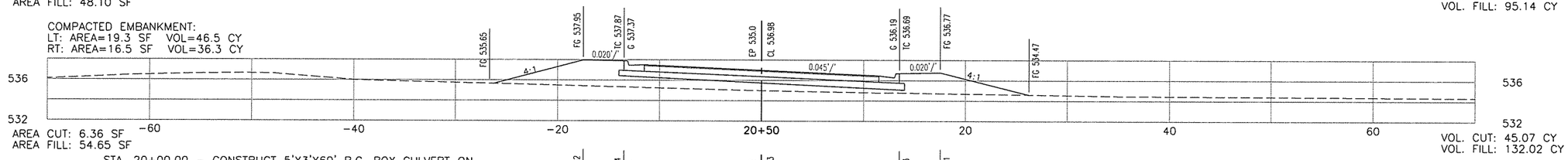
CROSS SECTIONS

MICKLE-WAGNER-COLEMAN, INC.



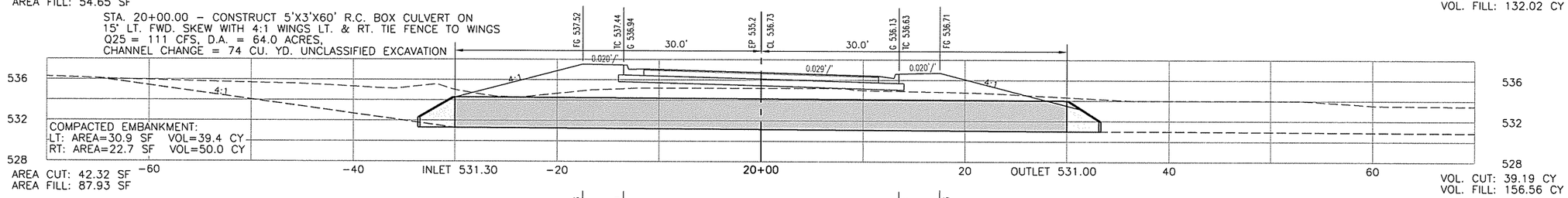
AREA CUT: 0.00 SF
AREA FILL: 48.10 SF

VOL. CUT: 5.89 CY
VOL. FILL: 95.14 CY



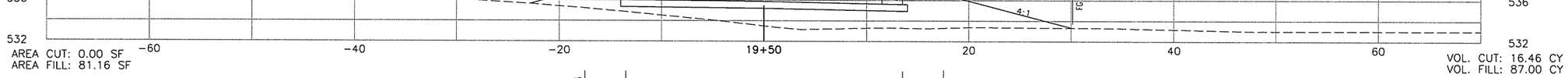
AREA CUT: 6.36 SF
AREA FILL: 54.65 SF

VOL. CUT: 45.07 CY
VOL. FILL: 132.02 CY



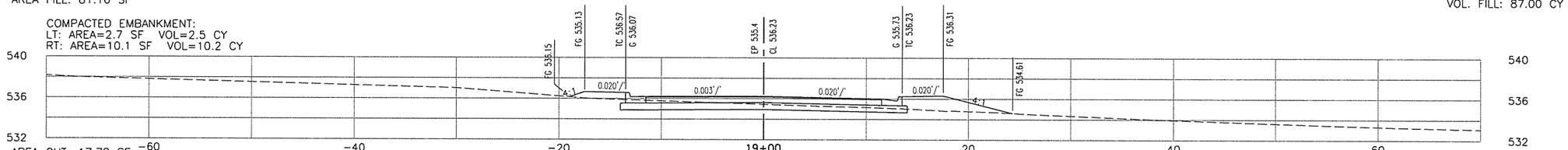
AREA CUT: 42.32 SF
AREA FILL: 87.93 SF

VOL. CUT: 39.19 CY
VOL. FILL: 156.56 CY



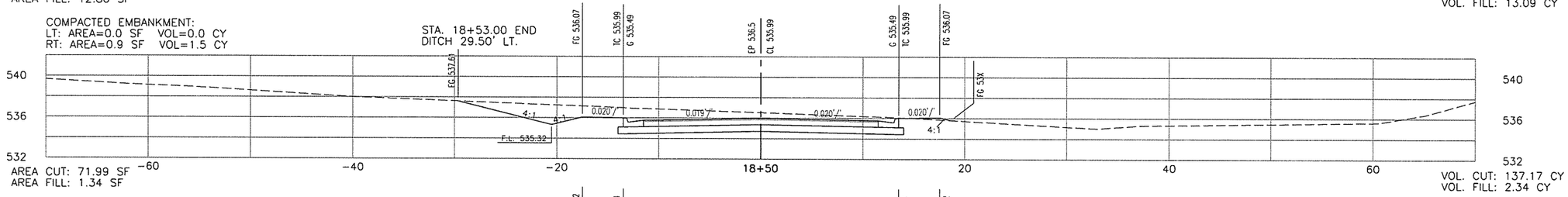
AREA CUT: 0.00 SF
AREA FILL: 81.16 SF

VOL. CUT: 16.46 CY
VOL. FILL: 87.00 CY



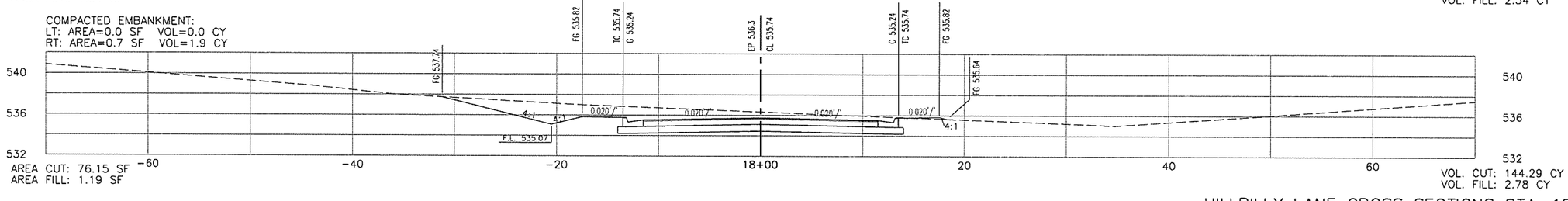
AREA CUT: 17.78 SF
AREA FILL: 12.80 SF

VOL. CUT: 83.12 CY
VOL. FILL: 13.09 CY



AREA CUT: 71.99 SF
AREA FILL: 1.34 SF

VOL. CUT: 137.17 CY
VOL. FILL: 2.34 CY



AREA CUT: 76.15 SF
AREA FILL: 1.19 SF

VOL. CUT: 144.29 CY
VOL. FILL: 2.78 CY

HILLBILLY LANE CROSS SECTIONS STA. 18+00 TO STA. 21+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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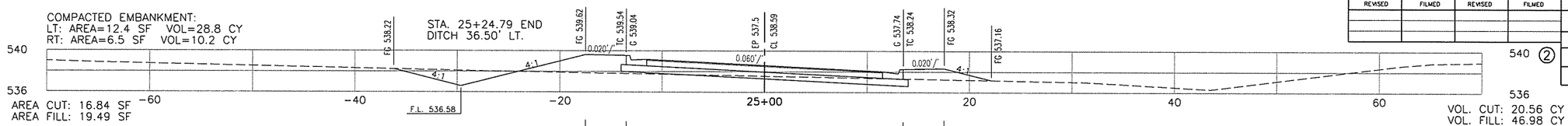
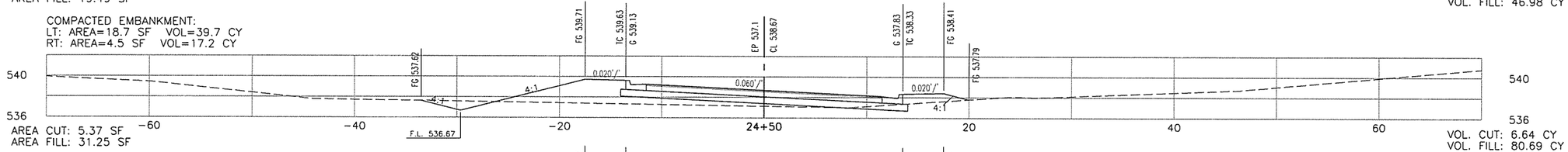
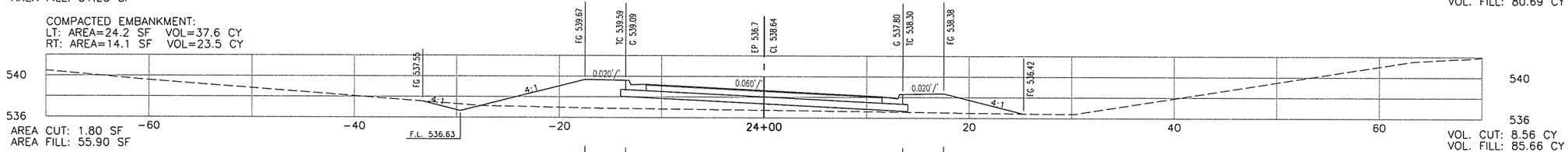
				JOB NO.		040493	59	67

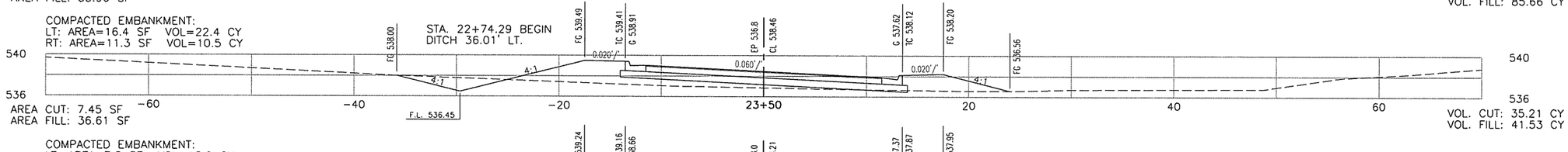
CROSS SECTIONS

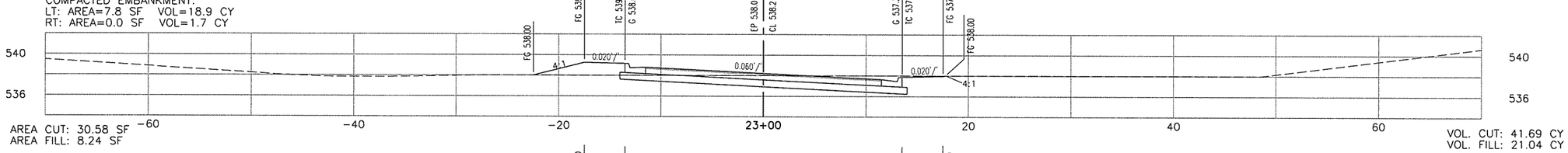
MICKLE-WAGNER-COLEMAN, INC.

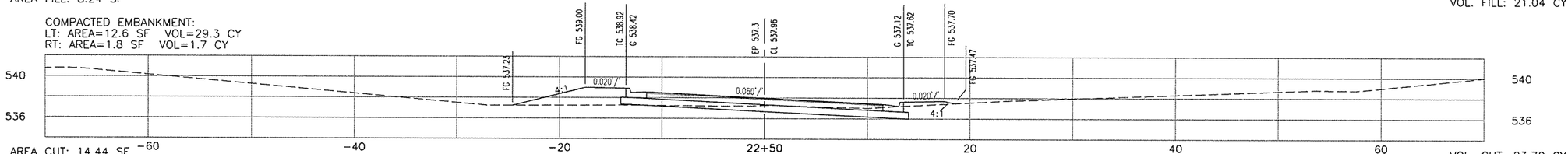


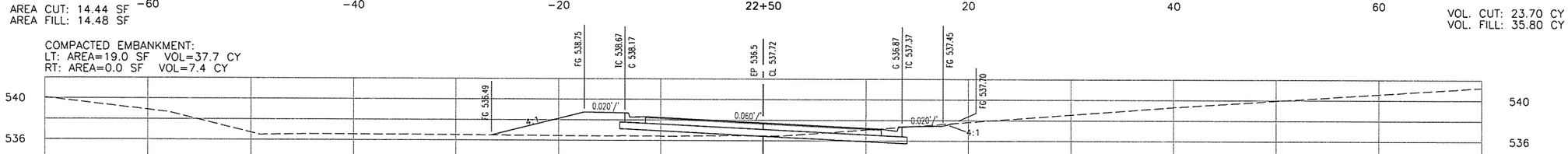


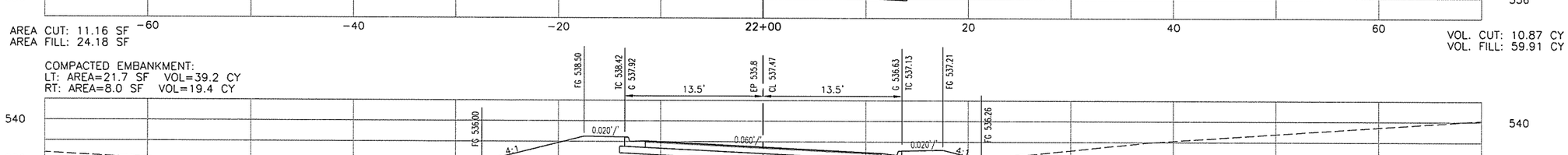












HILLBILLY LANE CROSS SECTIONS STA. 21+50 TO STA. 25+00

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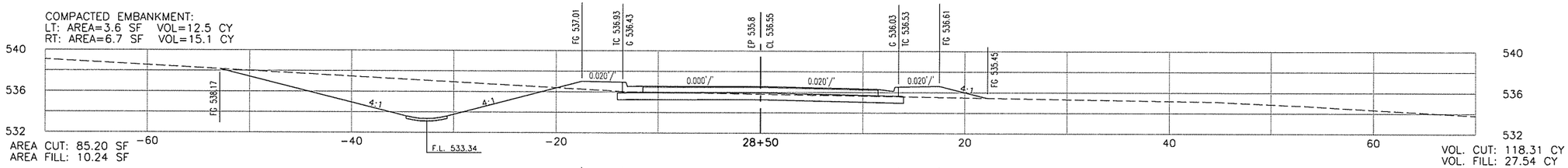
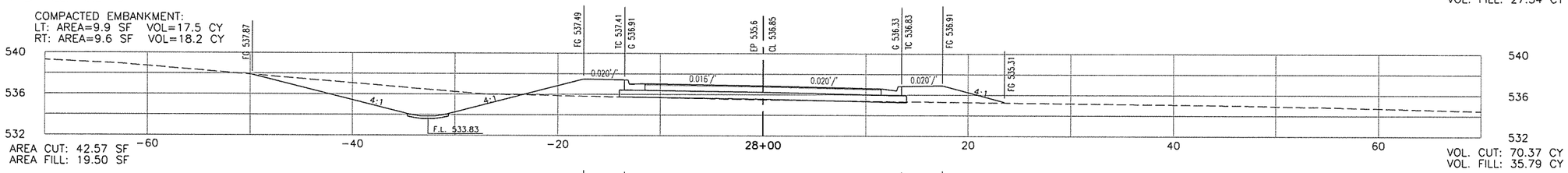
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	60	67

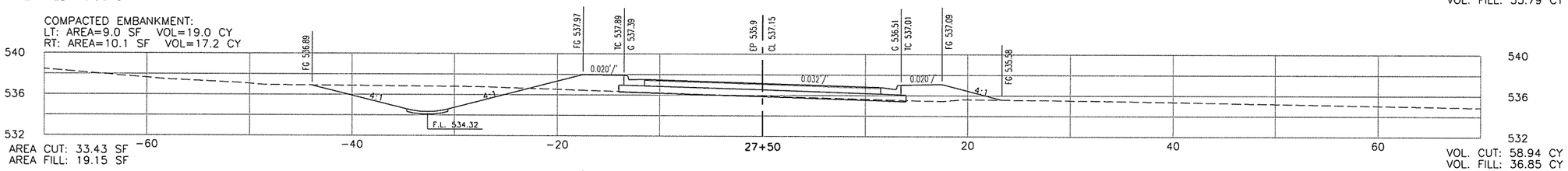
②

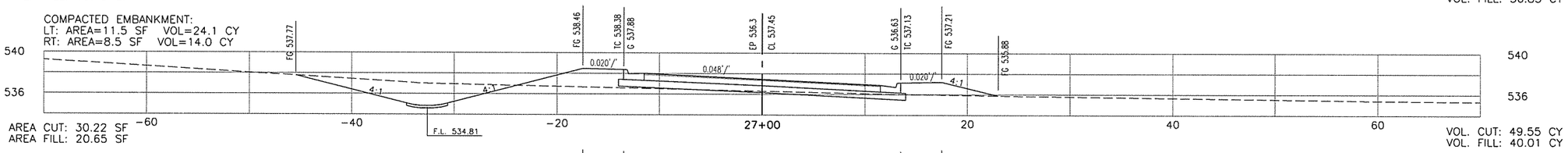
CROSS SECTIONS

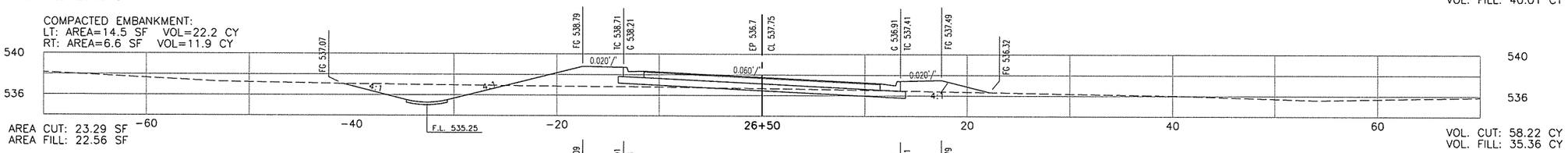
MICKLE-WAGNER-COLEMAN, INC.

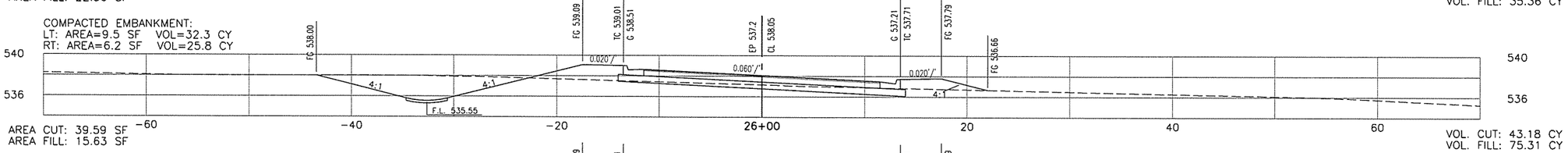


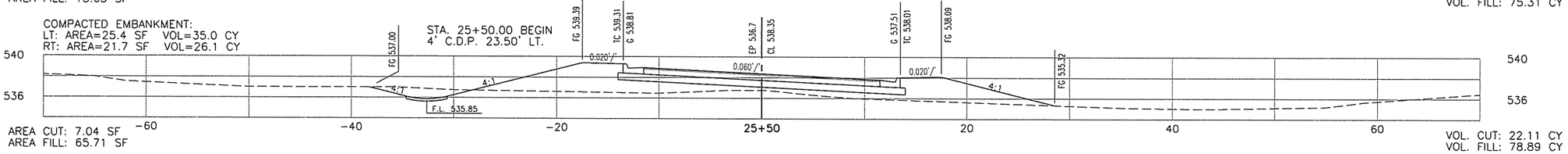












HILLBILLY LANE CROSS SECTIONS STA. 25+50 TO STA. 28+50

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO	TOTAL SHEETS
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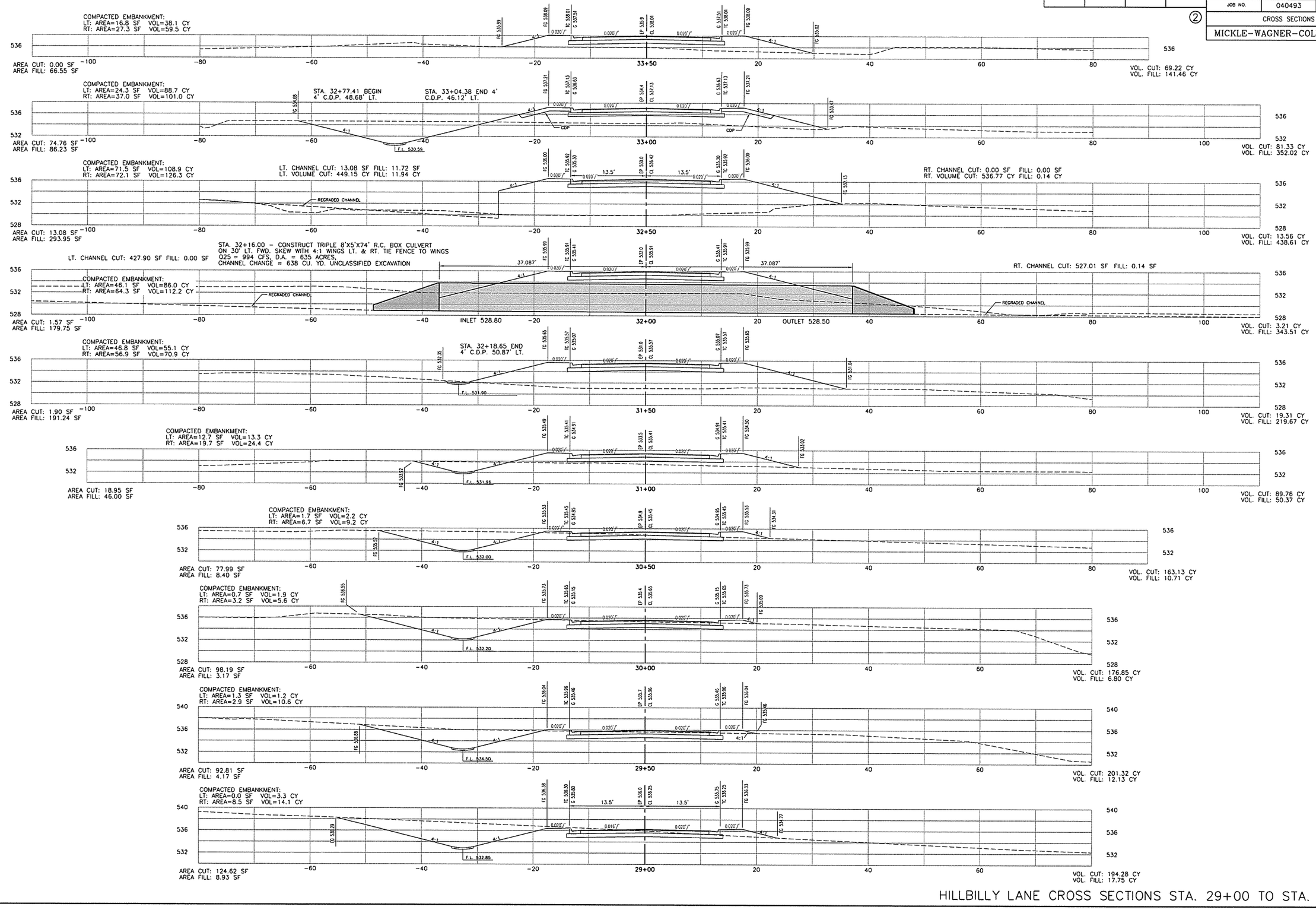
				JOB NO.		040493	61	67

②

CROSS SECTIONS

MICKLE-WAGNER-COLEMAN, INC.



HILLBILLY LANE CROSS SECTIONS STA. 29+00 TO STA. 33+50

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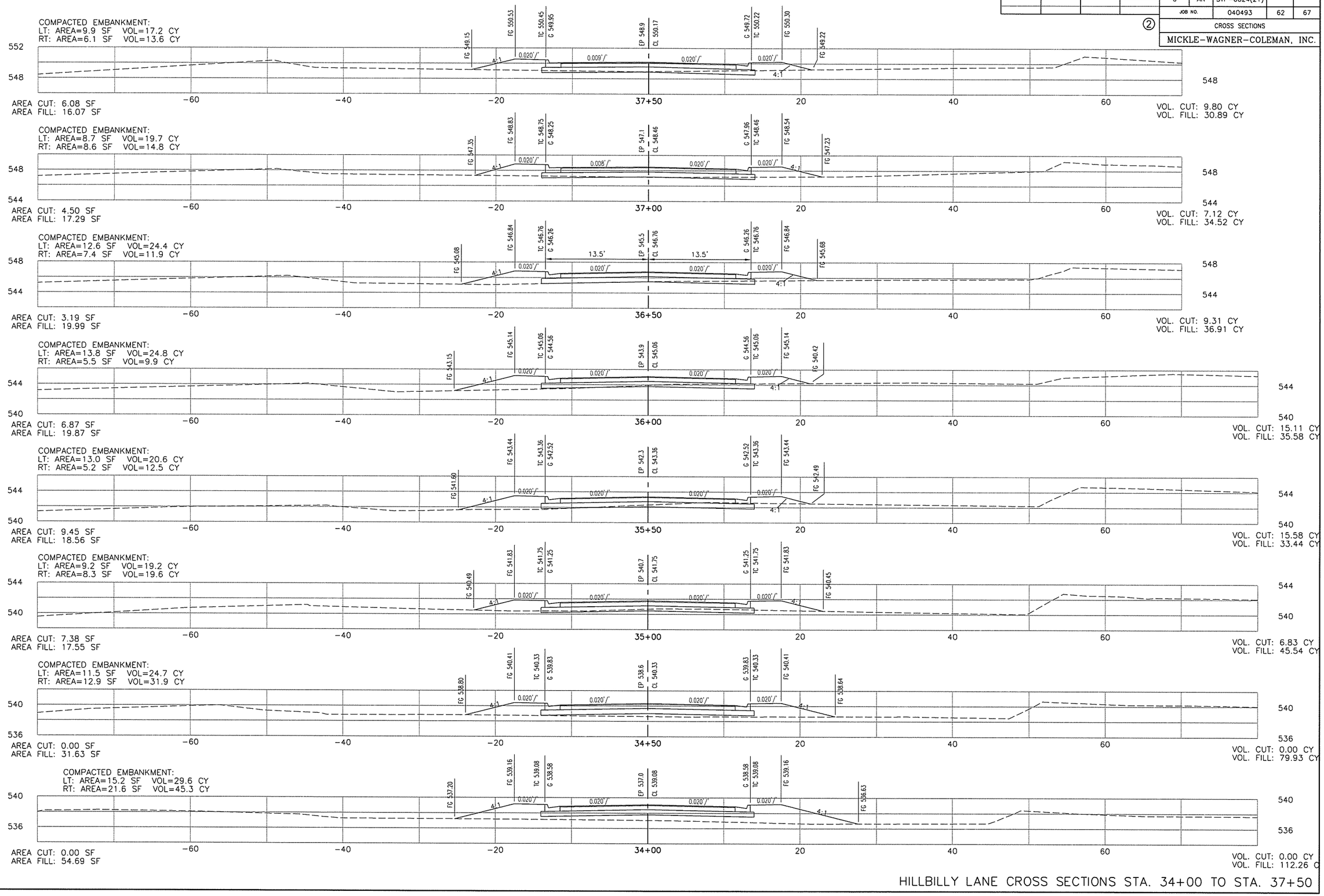
CROSS SECTIONS

MICKLE-WAGNER-COLEMAN, INC.



HILLBILLY LANE CROSS SECTIONS STA. 34+00 TO STA. 37+50

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
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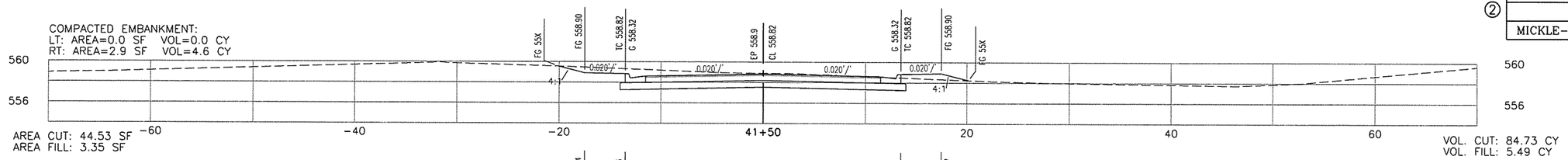
②

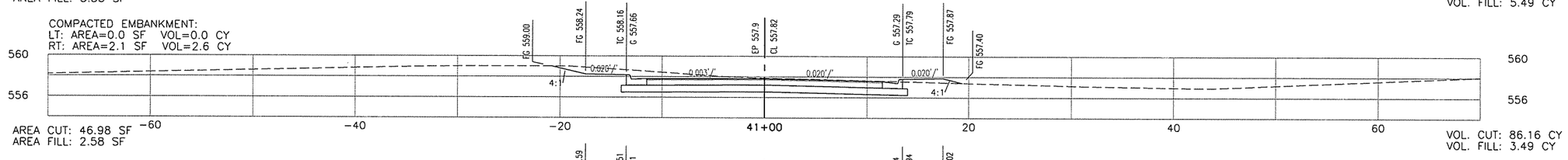
CROSS SECTIONS

MICKLE-WAGNER-COLEMAN, INC.



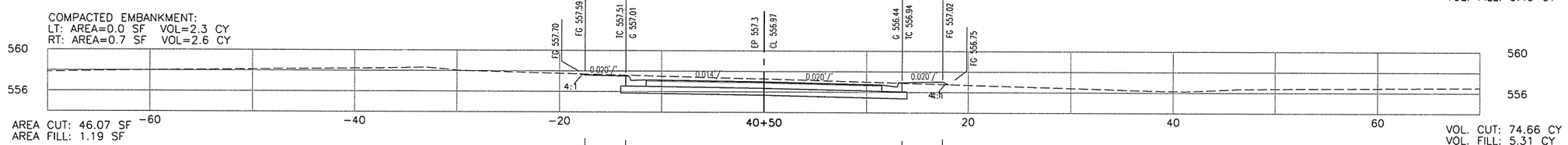
AREA CUT: 44.53 SF
AREA FILL: 3.35 SF

VOL. CUT: 84.73 CY
VOL. FILL: 5.49 CY



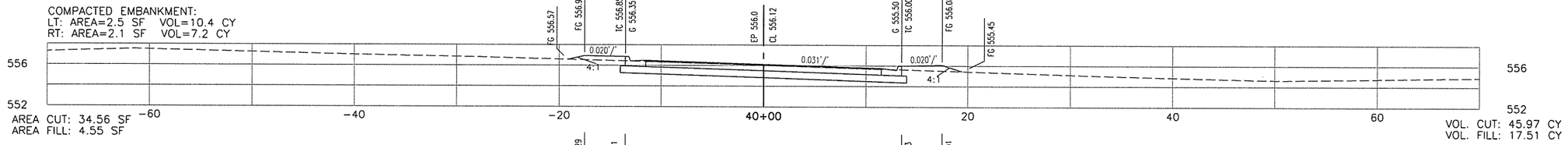
AREA CUT: 46.98 SF
AREA FILL: 2.58 SF

VOL. CUT: 86.16 CY
VOL. FILL: 3.49 CY



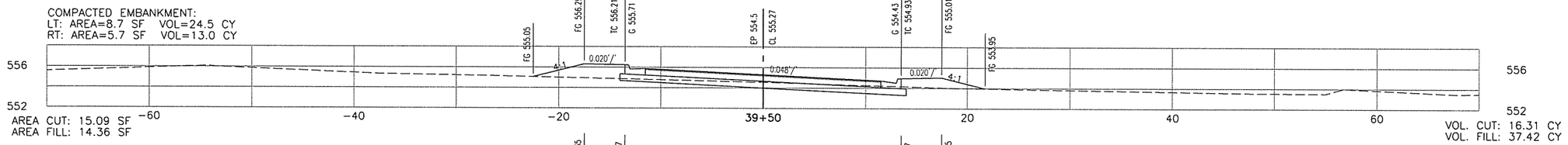
AREA CUT: 46.07 SF
AREA FILL: 1.19 SF

VOL. CUT: 74.66 CY
VOL. FILL: 5.31 CY



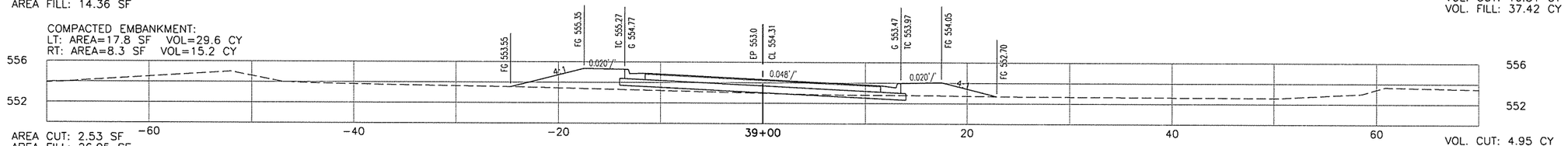
AREA CUT: 34.56 SF
AREA FILL: 4.55 SF

VOL. CUT: 45.97 CY
VOL. FILL: 17.51 CY



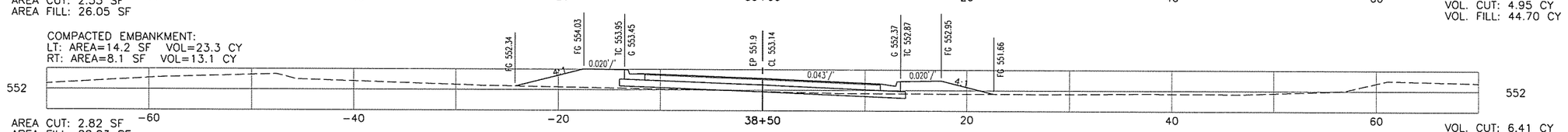
AREA CUT: 15.09 SF
AREA FILL: 14.36 SF

VOL. CUT: 16.31 CY
VOL. FILL: 37.42 CY



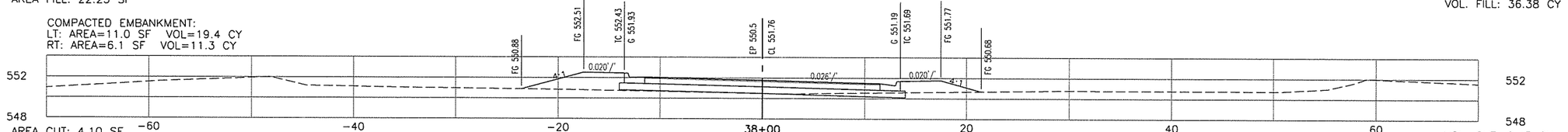
AREA CUT: 2.53 SF
AREA FILL: 26.05 SF

VOL. CUT: 4.95 CY
VOL. FILL: 44.70 CY



AREA CUT: 2.82 SF
AREA FILL: 22.23 SF

VOL. CUT: 6.41 CY
VOL. FILL: 36.38 CY



AREA CUT: 4.10 SF
AREA FILL: 17.06 SF

VOL. CUT: 9.43 CY
VOL. FILL: 30.68 CY

HILLBILLY LANE CROSS SECTIONS STA. 38+00 TO STA. 41+50

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	AR	STP-0024(21)		
				JOB NO.		040493	64	67

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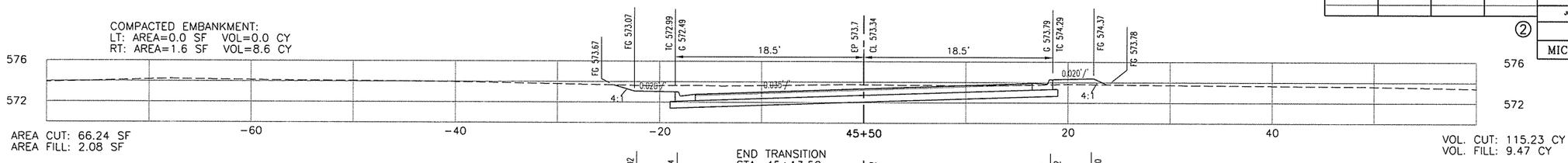
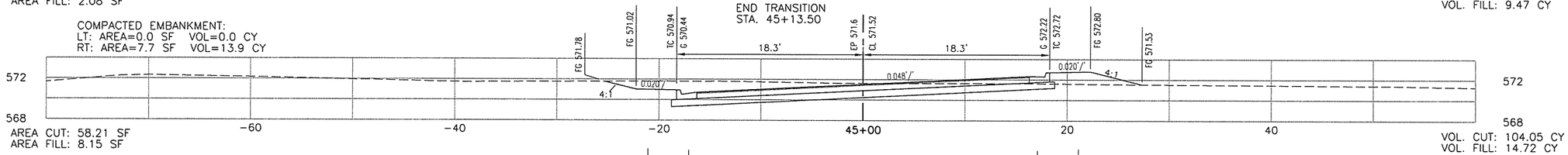
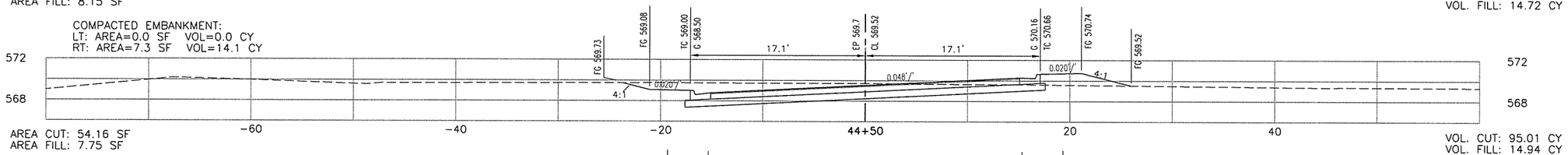
CROSS SECTIONS

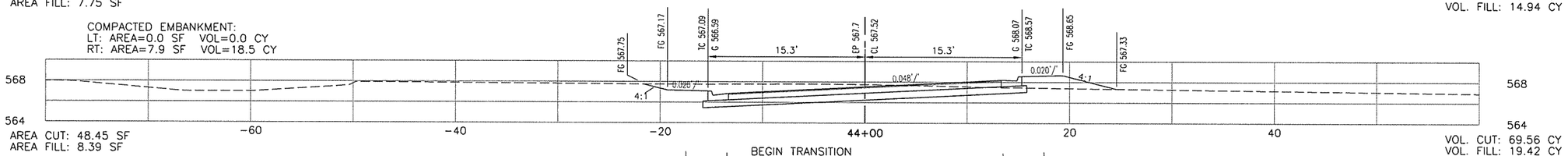
MICKLE-WAGNER-COLEMAN, INC.



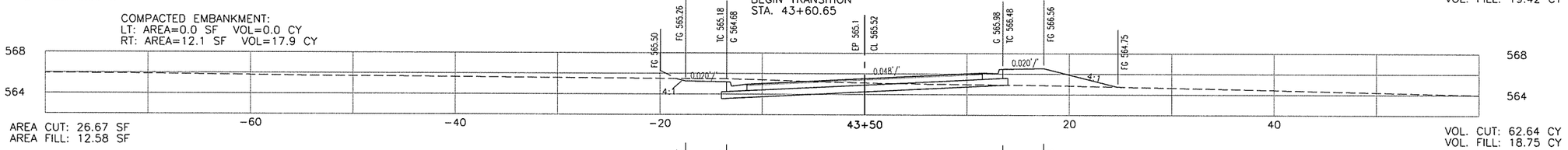
END TRANSITION
STA. 45+13.50

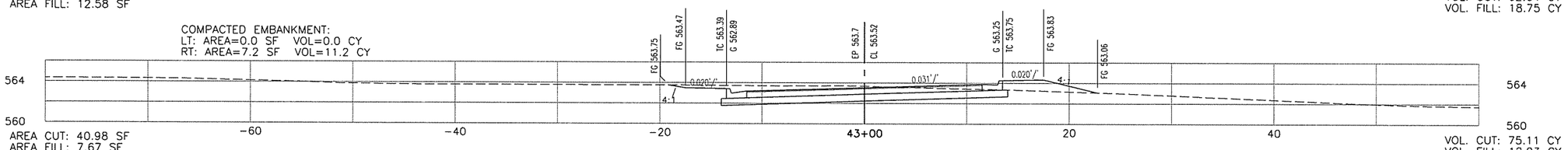


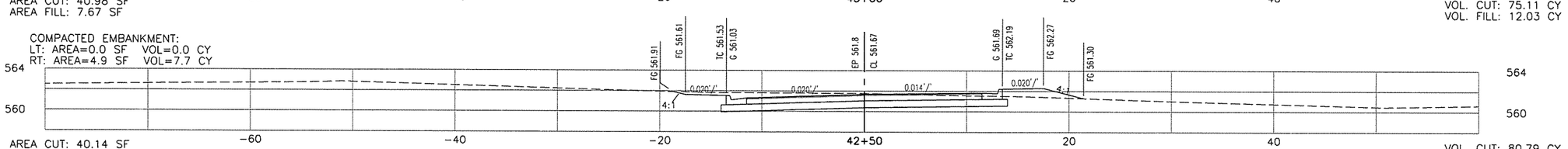


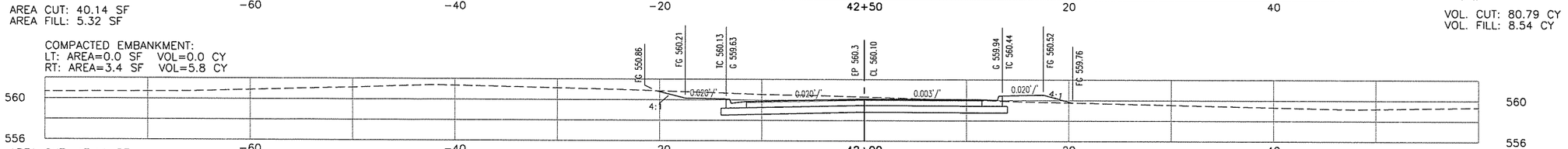


BEGIN TRANSITION
STA. 43+60.65









HILLBILLY LANE CROSS SECTIONS STA. 42+00 TO STA. 45+50

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED ROAD NO.	STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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JOB NO.		040493	65	67

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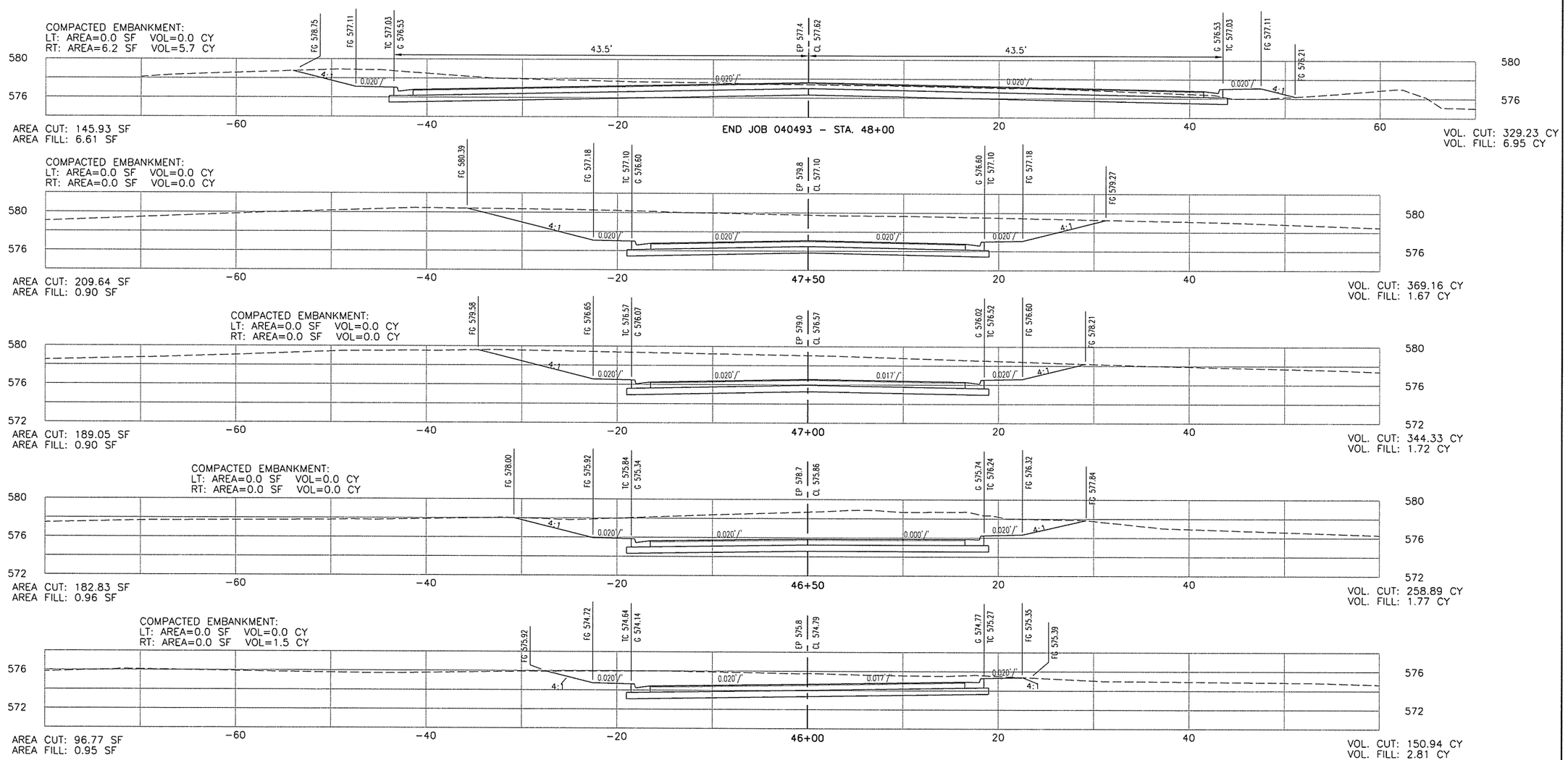
CROSS SECTIONS

MICKLE-WAGNER-COLEMAN, INC.



HILLBILLY LANE CROSS SECTIONS STA. 46+00 TO STA. 48+00

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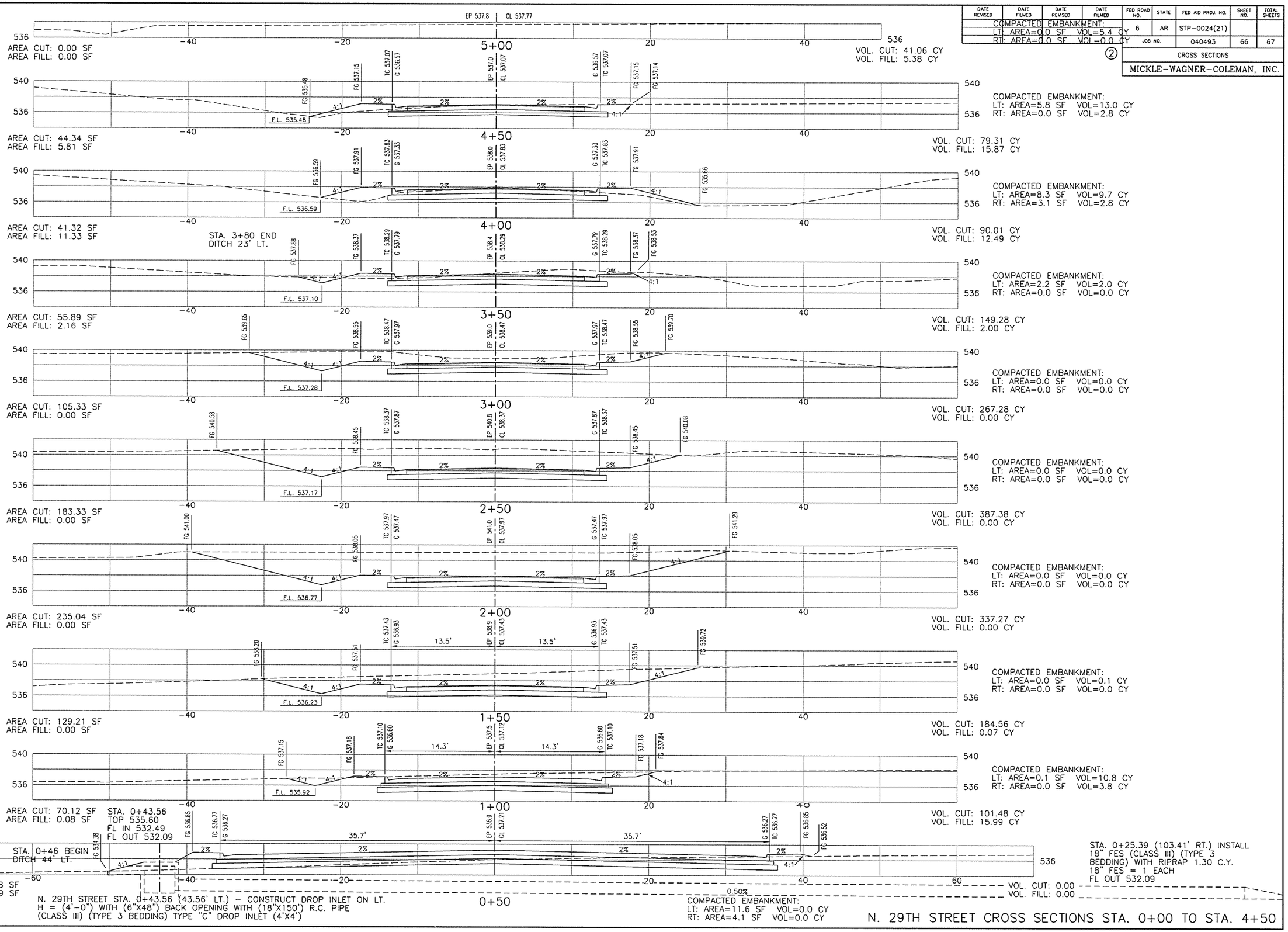
CROSS SECTIONS

MICKLE-WAGNER-COLEMAN, INC.



N. 29TH STREET CROSS SECTIONS STA. 0+00 TO STA. 4+50

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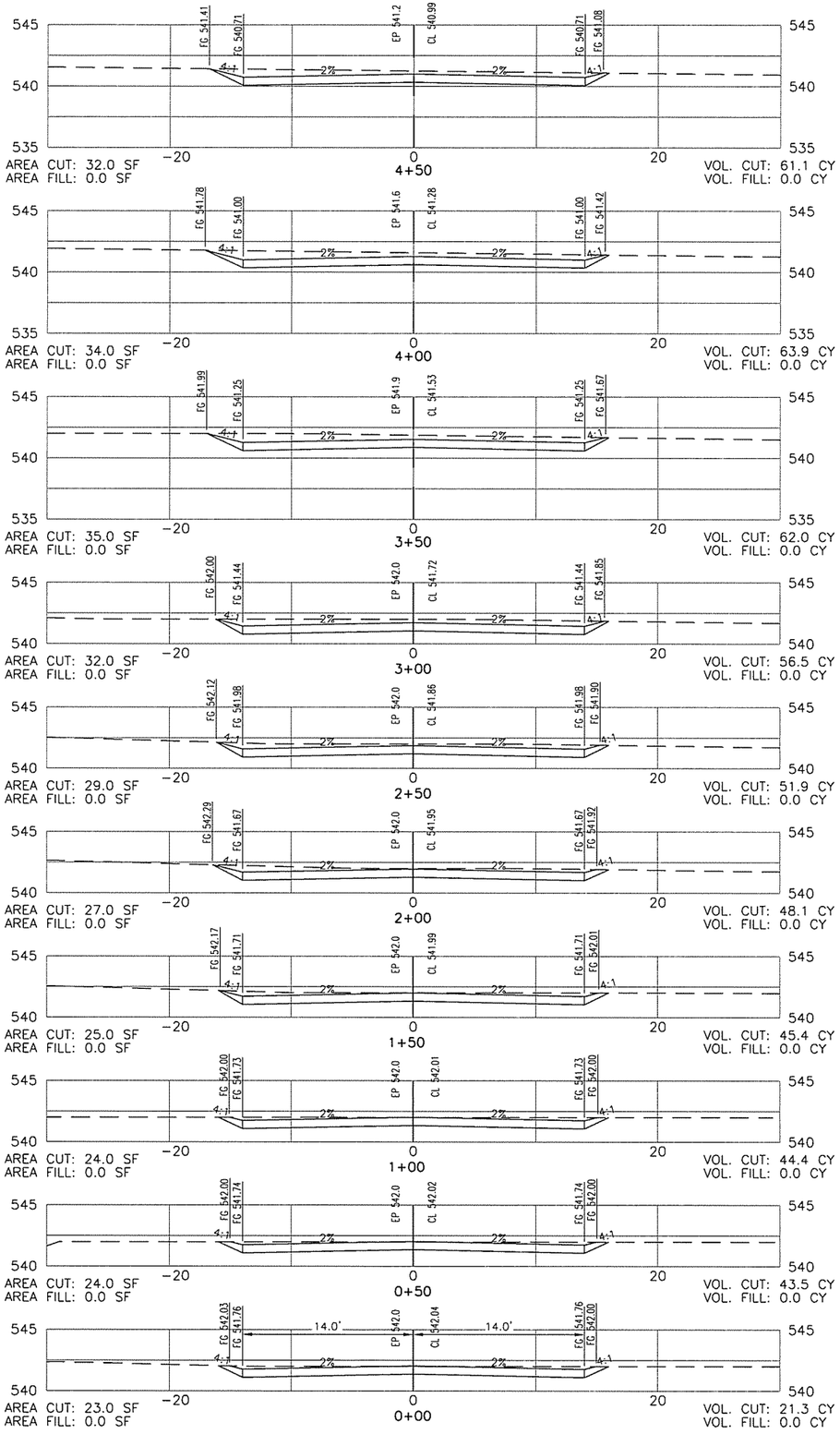
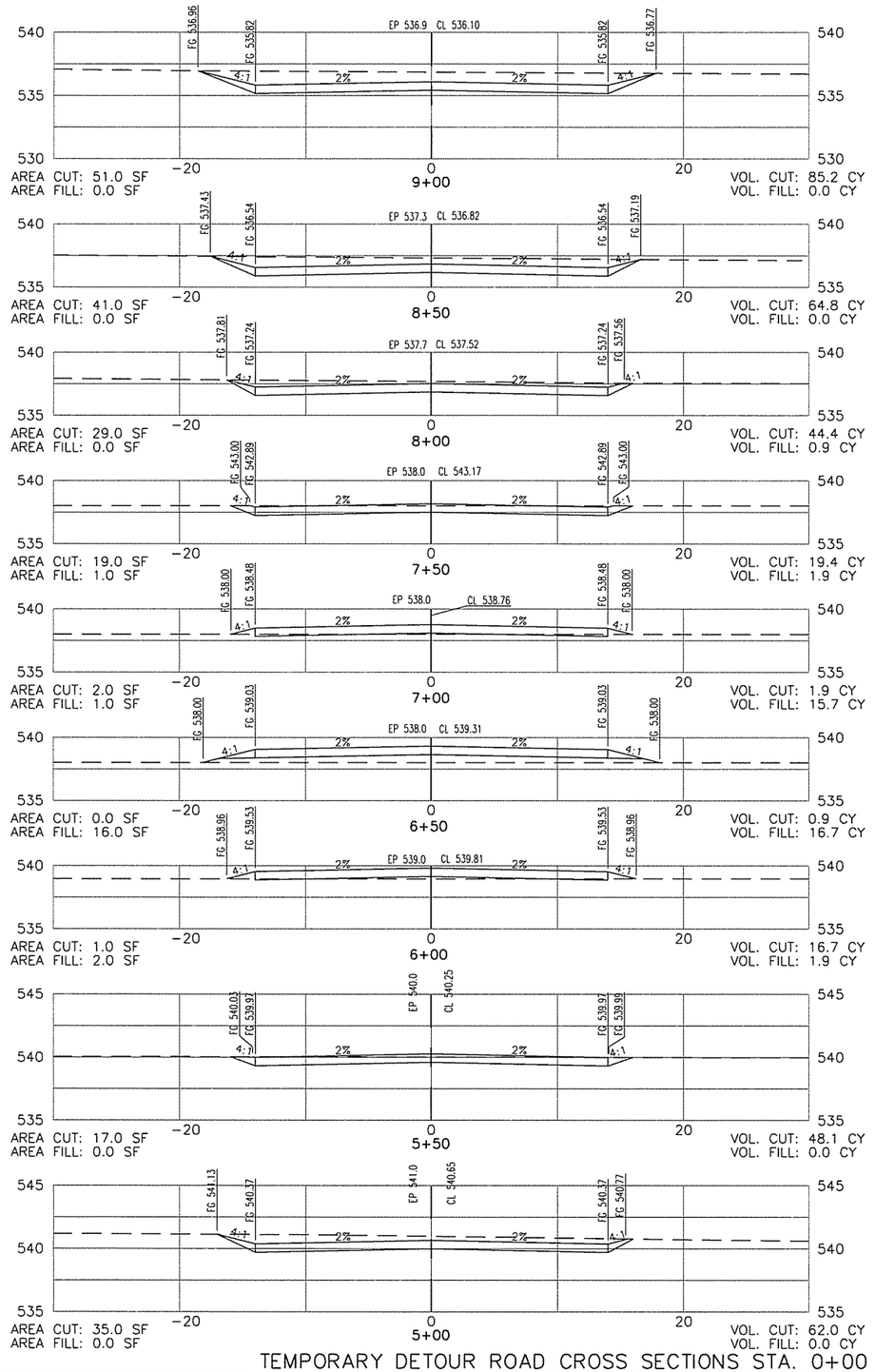
② CROSS SECTIONS

MICKLE-WAGNER-COLEMAN, INC.





TEMPORARY DETOUR ROAD CROSS SECTIONS STA. 0+00 TO STA. 9+00