REG	STATE	PROJECT	SHEET NO.

SLOPE PAVING FOR DOUBLE PIPE CULVERT

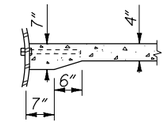
DIMENSIONS, REINFORCING STEEL AND CONCRETE TABLE OF QUANTITIES

D	SQUARE HEADWALL				15° SKEW				30° SKEW				45° SKEW			
	S	L	CONC.	STEEL	S	L	CONC.	STEEL	S	L	CONC.	STEEL	S	L	CONC.	STEEL
in	ft	ft	ft^3	lb	ft	ft	ft^3	lb	ft	ft	ft^3	lb	ft	ft	ft^3	lb
47	7.1	13.8	42.4	68.3	7.3	14.8	43.8	77.2	8.2	16.1	49.1	94.8	10.0	19.7	60.0	143.3
53	7.5	16.1	51.2	83.8	7.8	16.7	53.0	90.4	8.7	18.4	59.3	114.6	10.7	23.0	72.4	178.6
59	8.0	18.0	61.1	97.0	8.3	19.0	63.2	108.0	9.2	21.0	70.6	134.5	11.3	25.6	96.2	209.4
65	8.4	20.0	69.6	112.4	8.7	21.0	72.0	125.7	9.7	23.3	80.5	156.5	11.9	28.5	98.5	244.7
71	8.9	22.0	80.5	130.1	9.2	23.0	83.3	143.3	10.2	25.6	92.9	180.8	12.5	31.2	113.7	277.8
77	9.3	25.3	92.2	156.5	9.6	24.6	95.3	158.7	10.8	27.6	106.3	202.8	13.2	34.1	130.3	319.7
83	9.7	26.2	104.5	165.3	10.1	26.9	108.1	178.6	11.3	29.5	120.8	224.9	13.8	37.1	147.6	357.1
89	10.2	28.2	117.6	183.0	10.6	28.9	121.5	200.6	11.8	32.5	135.6	255.7	14.4	39.7	166.0	399.0
95	10.6	29.5	128.5	198.4	11.0	30.5	133.1	218.3	12.3	34.8	148.3	284.4	15.0	42.7	181.9	445.3
100	11.1	31.5	141.3	220.5	11.5	32.8	146.2	244.7	12.8	36.7	163.2	310.8	15.7	45.3	199.5	491.6
106	11.5	33.5	154.3	242.5	11.9	34.4	160.0	260.1	13.3	38.7	178.3	337.3	16.3	47.2	218.2	529.1
112	12.0	35.1	168.1	260.1	12.4	36.4	174.1	286.6	13.8	40.4	194.2	363.8	16.9	50.2	237.7	582.0
118	12.4	37.1	182.6	282.2	12.8	38.1	188.9	306.4	14.3	42.3	210.8	392.4	17.5	52.5	258.1	623.9
124	12.9	38.7	194.2	304.2	13.3	40.0	200.9	332.9	14.9	44.9	224.2	429.9	18.2	54.5	274.4	668.0
130	13.3	40.7	209.4	328.5	13.7	41.7	216.8	352.7	15.4	46.9	241.9	460.8	18.8	57.4	296.3	727.5
136	13.7	42.3	225.3	350.5	14.2	43.6	233.4	381.4	15.8	48.6	260.3	489.4	19.4	60.0	318.9	782.6
142	14.2	44.3	241.9	377.0	14.7	45.3	250.4	405.6	16.4	50.5	279.3	522.5	20.0	62.3	342.2	835.5
148	14.6	45.9	258.9	399.0	15.2	47.2	268.0	436.5	16.9	52.5	298.8	557.8	20.7	64.6	366.2	890.7
154	15.1	47.2	272.3	418.9	15.6	48.9	281.8	460.8	17.4	55.1	314.7	601.9	21.3	67.3	385.3	950.2
160	15.5	48.9	290.6	445.3	16.1	50.9	300.5	491.6	17.9	57.1	335.5	637.1	21.9	69.9	410.7	1014.1
166	16.0	50.9	309.0	474.0	16.5	52.5	319.9	518.1	18.4	58.7	357.0	670.2	22.6	72.2	437.2	1075.8
172	16.4	52.5	323.8	500.4	17.0	54.5	335.1	551.1	19.0	60.7	374.0	707.7	23.2	74.8	457.7	1142.0
178	16.9	54.5	348.2	533.5	17.5	56.4	360.2	584.2	19.5	62.7	401.9	751.8	23.9	77.4	491.9	1212.5

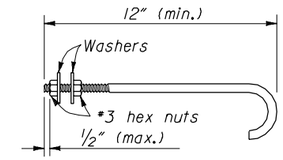
SLOPE PAVING FOR SINGLE PIPE CULVERT

DIMENSIONS, REINFORCING STEEL AND CONCRETE TABLE OF QUANTITIES

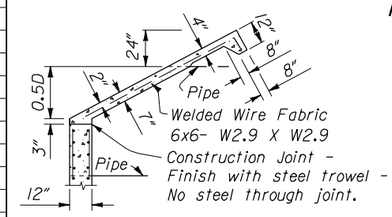
D	SQUARE HEADWALL				15° SKEW				30° SKEW				45° SKEW			
	S	L	CONC.	STEEL	S	L	CONC.	STEEL	S	L	CONC.	STEEL	S	L	CONC.	STEEL
in	ft	ft	ft^3	lb	ft	ft	ft^3	lb	ft	ft	ft^3	lb	ft	ft	ft^3	lb
47	7.1	7.9	25.1	39.7	7.3	8.2	26.1	44.1	8.2	9.2	29.0	55.1	10.0	11.2	35.7	79.4
53	7.5	9.2	31.1	48.5	7.8	9.8	32.1	55.1	8.7	10.8	36.0	68.3	10.7	13.1	43.8	99.2
59	8.0	10.5	37.4	57.3	8.3	10.8	38.5	61.7	9.2	12.1	43.1	79.4	11.3	15.1	52.6	121.3
65	8.4	11.8	43.1	68.3	8.7	12.1	44.8	72.8	9.7	13.5	49.8	92.6	11.9	16.7	61.1	143.3
71	8.9	13.1	50.1	79.4	9.2	13.5	51.9	86.0	10.2	14.8	57.9	105.8	12.5	18.4	71.0	165.3
77	9.3	14.1	57.9	88.2	9.6	14.8	60.0	99.2	10.8	16.4	67.1	123.5	13.2	20.3	81.9	191.8
83	9.7	15.4	66.0	101.4	10.1	16.1	68.5	110.2	11.3	18.0	76.3	141.1	13.8	22.0	93.6	213.8
89	10.2	16.7	74.9	114.6	10.6	17.4	77.3	123.5	11.8	19.4	86.5	156.5	14.4	23.6	105.6	242.5
95	10.6	18.0	82.3	127.9	11.0	18.7	85.1	138.9	12.3	20.7	95.0	174.2	15.0	25.6	116.5	271.2
100	11.1	19.4	92.2	141.1	11.5	20.0	95.3	154.3	12.8	22.3	106.3	196.2	15.7	27.2	130.3	302.0
106	11.5	20.3	102.1	154.3	11.9	21.3	105.6	169.8	13.3	23.6	118.0	213.8	16.3	28.9	144.4	330.7
112	12.0	21.7	112.7	169.8	12.4	22.6	116.5	187.4	13.8	25.3	130.0	238.1	16.9	30.8	159.3	368.2
118	12.4	23.0	123.6	185.2	12.8	23.9	127.8	202.8	14.3	26.6	142.7	257.9	17.5	32.5	174.8	399.0
124	12.9	24.3	133.1	202.8	13.3	25.3	137.7	222.7	14.9	27.9	153.6	280.0	18.2	34.1	188.2	434.3
130	13.3	25.6	145.1	220.5	13.7	26.6	150.1	240.3	15.4	29.5	167.4	306.4	18.8	36.1	205.2	474.0
136	13.7	26.9	157.5	238.1	14.2	27.9	162.8	260.1	15.8	30.8	181.9	328.5	19.4	37.7	222.5	511.5
142	14.2	27.9	170.2	253.5	14.7	28.9	176.2	275.6	16.4	32.5	196.3	357.1	20.0	39.7	134.5	555.6
148	14.6	29.2	183.6	273.4	15.2	30.2	190.0	297.6	16.9	33.8	211.9	381.4	20.7	41.3	259.6	597.4
154	15.1	30.5	194.9	293.2	15.6	31.5	188.2	319.7	17.4	35.1	225.3	407.8	21.3	43.3	275.8	643.7
160	15.5	31.8	209.1	315.3	16.1	32.8	216.5	341.7	17.9	36.7	347.5	438.7	21.9	44.9	295.6	685.6
166	16.0	33.1	223.9	337.3	16.5	34.1	231.7	366.0	18.4	38.1	258.5	467.4	22.6	46.6	316.4	731.9
172	16.4	34.1	236.3	354.9	17.0	35.4	244.4	390.2	19.0	39.4	273.0	496.0	23.2	48.6	334.1	782.6
178	16.9	35.4	255.0	379.2	17.5	36.7	263.8	414.5	19.5	41.0	294.5	531.3	23.9	50.2	360.2	831.1



SECTION A-A



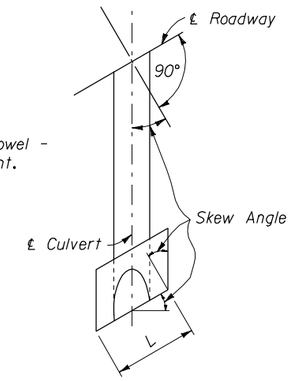
MIO HOOK BOLT DETAILS



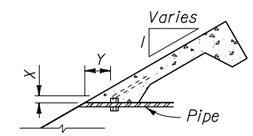
SECTION B-B

x { = 2" (1.5:1 Slope)
= 2" (2:1 Slope)
= 2" (2.5:1 Slope)

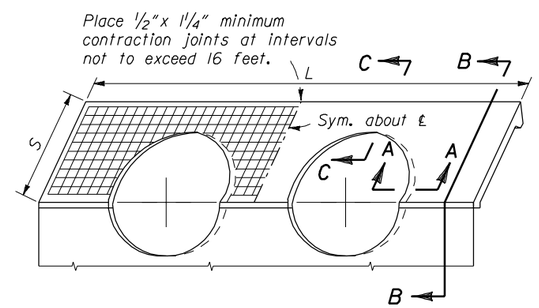
y { = 3" (1.5:1 Slope)
= 4" (2:1 Slope)
= 5" (2.5:1 Slope)



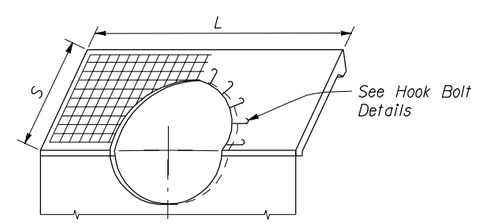
TYPICAL HALF PLAN



SECTION C-C



DOUBLE PIPE CULVERT

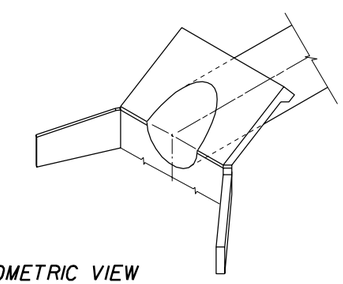


SINGLE PIPE CULVERT

NO SCALE

NOTES:

1. Concrete conforms to Section 601. Chamfer all exposed edges 3/4" and finish all exposed surfaces with a Class I ordinary finish.
2. Clearance for reinforcing steel is 2" unless otherwise noted.
3. Set hook bolts on nominal 18" centers around pipe perimeter. Hook bolts conform to ASTM A307. Galvanize according to ASTM A153.
4. For installations with more than two pipe culverts, increase the dimension "L" and all quantities shown for double pipe installation by adding a length equal to dimension "B" as shown on Standard M601-1 and the incremental change in quantities for each additional pipe culvert.
5. For skews other than those shown, multiply quantities and dimensions "A", "B" & "L" for square headwalls by secant of the skew angle.
6. For the skew angle shown, the dimension "S" and the quantities for slope paving are computed for a 1.5:1 sideslope. To compute dimension "S" and slope paving quantities for a 2:1 slope multiply the values for that particular skew by 1.24, and for a 2.5:1 slope multiply by 1.49.
7. Final quantities will be determined by using the tables on this standard.
8. Do not order materials until the length, skew angle, and slope bevel in the field have been approved.



ISOMETRIC VIEW

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

STANDARD

SLOPE PAVING FOR CONCRETE HEADWALLS

STANDARD APPROVED FOR USE --/----

REVISED:

STANDARD
601-2

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