Appendix D -

Drainage Capacity Calculations



0.015 0.016 0.223 1.696 1.026 3.445 0.191 0.314 2.104 5.342 0.354 0.801 CAPACITY 42.46 322.94 152.52 195.36 383.49 67.41 655.97 36.37 59.79 1017.19 CAPACITY ACRES corr plastic 0.65 0.35 0.4 96.0 96.0 0.64 1.02 1.14 1.58 2.45 VELOCITY concrete F.P.S 1/8 1/8 1/8 1/8 1/8 1/8 1/8 DRAINAGE 1/8 1/8 1/8 COEF. 0.013% **GRADE** % 0.045% 0.045% 0.347% 0.013% %980.0 0.086% 0.144% 0.061% 0.086% (assuming single wall PE pipe-actual pipe varies - concrete, PE, clay tile) 18 ∞ 10 10 12 14 18 20 20 **TILE SIZE** INCHES 1650.8 237 276.4 430.9 563.4 8966.3 1318.8 237 DRAINAGE 1451.7 1802.7 CUMM AREA 151.9 DRAINAGE 237 39.4 154.5 132.5 432.9 322.5 132.9 199.1 ACRES AREA 12274 11586 7113 13971 13120 9767 5780 1418 8297 6437 2 STATIONS 13120 7113 1418 12274 11586 5780 1926 8297 6437 250 **Existing Tile Capacity** FROM Main Main Main Main Main Main Main Main Main Main

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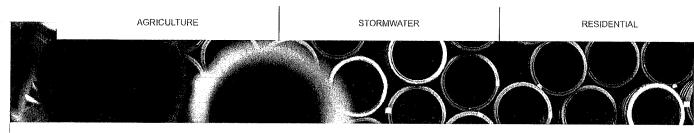
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2 = Definition

Enter the Diameter of the pipe (inches):		8
Enter the Grade (%): ②	1	.045 %
		View Results see below)

		Q, Flow 🕏	removement on the 20 million on opposition and image of	Velocity 🕏
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	0.223	100.1	5.31	0.64
Dual-Wall	0.279	125.2	6.64	0.80

		n min serin select in Lean Longinggeon in page 1 days 1.	Acres	Drained	, and the contract of the contraction of the plant of the contraction	r a rige and program gar
		Di	rainage Coefficie	nt (in: /24 hours) Ø	han I Transfer ann agus anggar g
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	42.46	21.23	14.15	10.62	7.08	5.31
Dual-Wall	53,13	26,56	17.71	13.28	8.85	6.64

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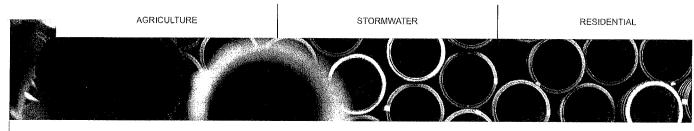
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Enter the Diameter of the pipe (inches):	10
Enter the Grade (%): ①	.045 %
	View Results (see below)

		Q, Flow 🕅	opportunities and appear and incompanies of the contract of th	Velocity @
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	0.354	158.9	8.43	0.65
Dual-Wall	0.502	225.3	11.95	0.92

		Acres Drained						
	100000000000000000000000000000000000000	Drainage Coefficient (in: /24 hours) ②						
	1/8"	1/4"	3/8"	1/2"	3/4"	1"		
Single-Wall	67,41	33,70	22.47	16.85	11.23	8.43		
Dual-Wall	95,59	47.79	31.86	23.90	15.93	11.95		

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Enter the Grade (%): ②	.013 %
	View Results (see below)
THE CAMES CHARGE OF THE PROPERTY OF THE PROPER	(coo bolow)

		Q, Flow 🕅	The second secon	Velocity ①
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	0.191	85.7	4.55	0.35
Dual-Wall	0.273	122.5	6.50	0.50

		(Bern 1990) - 1, 15, 15, 150, 150, 150, 150, 150, 150	Acres	Drained	The state of the s	The Confederation of the Confe			
		Drainage Coefficient (în: /24 hours) ூ							
	1/8"	1/4"	3/8"	1/2"	3/4"	1"			
Single-Wall	36.37	18.18	12.12	9,09	6.06	4.55			
Dual-Wall	51.98	25.99	17.33	13.00	8.66	6,50			

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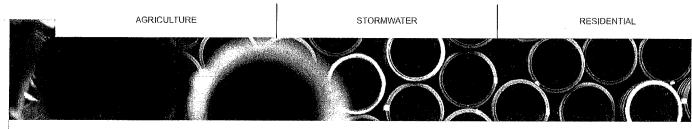
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2 = Definition

Enter the Diameter of the pipe (inches):	12
Enter the Grade (%): ②	.013 %
	View Results (see below)

		Q, Flow 🕏	Q, Flow ®			
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.		
Single-Wall	0.314	140.9	7.47	0.40		
Dual-Wall	0.440	197.5	10.47	0.56		

		Acres Drained						
		Drainage Coefficient (in: /24 hours) ௰						
the RT and Appendix of the second of	1/8"	1/4"	3/8"	1/2"	3/4"	1"		
Single-Wall	59.79	29.89	19.93	14.95	9.96	7.47		
Dual-Wall	83.78	41.89	27.93	20.95	13.96	10,47		

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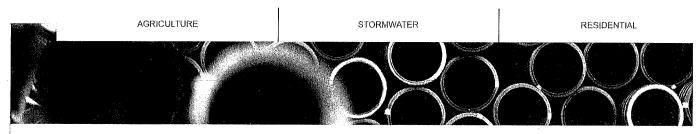
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Enter the Diameter of the pipe (inches):	12
Enter the Grade (%): ①	.086 %
	View Results (see below)

		Q, Flow 🕏		Velocity @
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	0.801	359.5	19.07	1.02
Dual-Wall	1.130	507.2	26.90	1.44

	Acres Drained							
	Drainage Coefficient (in: /24 hours) ๋ ๋ ๋							
	1/8"	1/4"	3/8"	1/2"	3/4"	1"		
Single-Wall	152.52	76.26	50.84	38.13	25.42	19.07		
Dual-Wall	215.17	107.58	71.72	53.79	35.86	26.90		

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② = Definition

Enter the Diameter of the pipe (inches):	14
Enter the Grade (%): ①	.086 %
	View Results (see below)

		Q, Flow 🕅				
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.		
Single-Wall	1.026	460,5	24.42	0.96		
Dual-Wall	1.710	767.5	40.70	1.60		

and the state of the design hypothesis and the state of t	Acres Drained						
THE RESERVE OF THE PARTY OF THE	Drainage Coefficient (in: /24 hours) ๋ ๋ ๋						
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	
Single-Wall	195.36	97.68	65.12	48.84	32.56	24.42	
Dual-Wall	325.61	162.80	108.54	81.40	54,27	40.70	

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2 = Definition

Enter the Diameter of the pipe (inches):	18
Enter the Grade (%): ①	.061 %
	View Results (see below)

		Q, Flow 🕅				
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.		
Single-Wall	1.696	761.2	40,37	0.96		
Dual-Wall	2.808	1260.3	66.84	1.59		

prid true vidi - en andribendo sobrano accessor - en	Acres Drained						
	Drainage Coefficient (in: /24 hours) ๋ ๋ ๋						
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	
Single-Wall	322.94	161,47	107.65	80.74	53.82	40.37	
Dual-Wall	534.68	267.34	178.23	133.67	89.11	66.84	

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Enter the Diameter of the pipe (inches):	18
Enter the Grade (%): ௰	.086 %
	View Results (see below)

		Q, Flow 🕏				
99-19-	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.		
Single-Wall	2.014	903.9	47.94	1.14		
Dual-Wall	3.338	1498.2	79.45	1.89		

Marie Le Marie Lancon I aggregation (L. 1994)	Acres Drained						
and the same of th	Drainage Coefficient (in: /24 hours) ๋ ๋ ๋ ๋						
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	
Single-Wall	383.49	191.75	127.83	95.87	63,92	47.94	
Dual-Wall	635.60	317.80	211.87	158.90	105.93	79,45	

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@ = Definition

Enter the Diameter of the pipe (inches):		20
Enter the Grade (%): ①	Γ	.144 %
		View Results see below)
Control of the contro	L	

	Q, Flow 🕏					
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.		
Single-Wall	3.445	1546.2	82.00	1.58		
Dual-Wall	5.735	2574,0	136.50	2.63		

	Acres Drained						
	Drainage Coefficient (in: /24 hours) ๋ ๋ ๋ ๋ ๋						
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	
Single-Wall	655.97	327.99	218,66	163.99	109.33	82.00	
Dual-Wall	1092.02	546.01	364.01	273.00	182.00	136.50	

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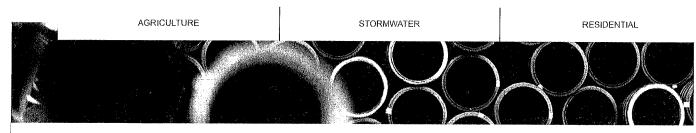
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Enter the Diameter of the pipe (inches):		20
Enter the Grade (%): ②		347 %
	(s	View Results see below)

		Q, Flow 🕏	and the second control of the second control	Velocity ⑦
	c,f,s,	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	5.342	2397.6	127.15	2.45
Dual-Wall	8.897	3993.2	211.76	4.08

	Acres Drained							
	Drainage Coefficient (in: /24 hours) ❷							
	1/8"	1/4"	3/8"	1/2"	3/4"	1"		
Single-Wall	1017.19	508.59	339.06	254.30	169.53	127.15		
Dual-Wall	1694.11	847.05	564.70	423.53	282,35	211.76		

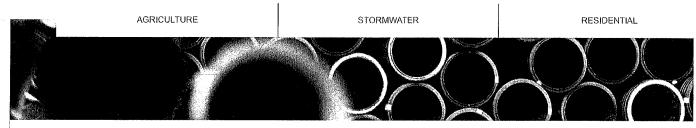
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						Acres
Inner		Minimum	Maximum		Acres To	Drained
Diameter	Slope	Cover	Cover	Length	Drain	Capacity
30.000"	0.035%	2.494'	4.023'	1643.037'	237	264
36.000"	0.015%	3.520'	7.604'	876.747'	276	282
42.000"	0.015%	3.225'	7.138'	864.2921	430	424
42.000"	0.262%	2.659'	5.035'	763.738'	430	1773
42.000"	0.095%	3.203'	4.280'	424.096'	563	1068
42.000"	0.095%	2.731'	6.544'	1048.498'	563	1068
42.000"	0.095%	3.974'	4.864'	477.261'	996	1068
42.000"	0.095%	2.672'	4.712'	706.446'	996	1068
48.000"	0.090%	2.288'	2.895'	676.449'	1318	1482
48.000"	0.090%	2.436'	3.347'	657.286'	1451	1482
48.000"	0.186%	2.486'	2.951'	250.851'	1650	2136
48.000"	0.186%	2.276'	3.721'	466.785'	1650	2136
48.000"	0.336%	2.717'	8.629'	277.352'	1650	2869
48.000"	0.186%	2.936'	3.307'	128.144'	1650	2136
48.000"	0.186%	2.683'	3.126'	295.203'	1650	2136
48.000"	0.186%	3.126'	6.412'	170.277'	1650	2136
48.000"	0.186%	2.739'	5.916'	368.512'	1650	2136
48.000"	0.186%	3.125'	3.346'	129.914'	1650	2136
48.000"	0.186%	2.694'	3.470'	174.517'	1650	2136
48.000"	0.186%	2.998'	3.470'	53.483'	1650	2136
48.000"	0.186%	2.850'	3.353'	295.417'	1650	2136
48.000"	0.186%	3.353'	3.487'	78.268'	1650	2136
48.000"	0.208%	3.4871	3.568'	56.974'	1650	2256
48.000"	0.208%	2.767'	6.218'	337.642'	1650	2256
48.000"	0.208%	2.729'	6.411'	261.461'	1650	2256
48.000"	0.208%	2.256'	2.966'	282.678'	1650	2256
48.000"	0.208%	2.674'	3.046'	294.202'	1650	2256
48.000"	0.208%	2.452'	3.191'	249.364'	1650	2256
48.000"	0.208%	2.137'	4.9031	189.255'	1650	2256
48.000"	0.197%	0.136'	3.217'	1169.314'	1802	2196
48.000"	0.140%	-4.245'	0.583'	1069.770'	1802	1853

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@ = Definition

Enter the Diameter of the pipe (inches):	30
Enter the Grade (%): ①	.035 %
	View Results (see below)

		Velocity 🕏		
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	5.004	2245.9	119.10	1.02
Dual-Wall	8.341	3743.7	198.53	1.70

	Acres Drained						
	Drainage Coefficient (in: /24 hours) ๋ ᡚ						
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	
Single-Wall	952.83	476.41	317.61	238,21	158.80	119.10	
Dual-Wall	1588.24	794.12	529,41	397.06	264.71	198.53	

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CALCULATOR PURPOSE

The Prinsco Drainage
Calculator estimates the
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BY ACREAGE BY PIPE SIZE

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These calculations are based on the Manning's Roughness ASAE EP 260.3 Plastic Tubing Drainage Chart and shou used for estimating purposes only. Consult a Water Table Management Professional for design criteria information

2 = Definition

Enter the Diameter of the pipe (inches):	36
Enter the Grade (%): ②	.015 %
	View Results (see below)

		Velocity 🕜		
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	5.299	2378.4	126.12	0.75
Dual-Wall	8.902	3995.5	211.88	1.26

	Acres Drained					
	Drainage Coefficient (in: /24 hours) ௰					
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	1009.00	504.50	336.33	252.25	168.17	126.12
Dual-Wall	1695.06	847.53	565.02	423.76	282.51	211.88

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Enter the Diameter of the pipe (inches):		42
Enter the Grade (%): ①	1	.015 %
		View Results (see below)

	Velocity ⑦			
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	7.981	3582.1	189.96	0.83
Dual-Wall	13,367	5999.5	318.16	1.39

		Acres Drained				
	Drainage Coefficient (in: /24 hours) ፟፟					
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	1519.69	759.84	506.56	379.92	253.28	189.96
Dual-Wall	2545.25	1272.63	848.42	636.31	424.21	318.16

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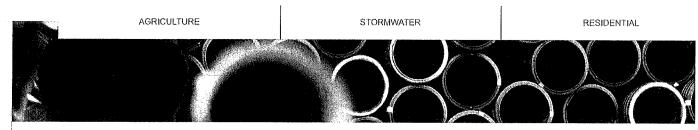


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Enter the Diameter of the pipe (inches);	آ	42
Enter the Grade (%): ①		.262 %
		View Results (see below)

	Q, Flow 🕏				
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.	
Single-Wall	33.561	15063.2	798.81	3.49	
Dual-Wall	55,870	25076,1	1329.80	5.81	

	e solden af an incommission objects para an empresso anager o	Acres Drained					
	Drainage Coefficient (in: /24 hours) ๋ ᡚ						
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	
Single-Wall	6390.46	3195,23	2130.15	1597.61	1065.08	798.81	
Dual-Wall	10638.39	5319.19	3546,13	2659.60	1773.06	1329.80	

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Enter the Diameter of the pipe (inches):		42
Enter the Grade (%): ①		.095 %
	[View Results (see below)
**************************************	1.,,	W-19-10-10-1-10-10-10-10-10-10-10-10-10-10-1

	egge to the transfer of the	Velocity ①		
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	20.194	9063.7	480.65	2.10
Dual-Wall	33.657	15106.3	801.09	3.50

file for the American same consessor.	Acres Drained					
	Drainage Coefficient (in: /24 hours) ๋ ᡚ					
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	3845.20	1922,60	1281.73	961.30	640.87	480.65
Dual-Wall	6408.74	3204.37	2136.25	1602,18	1068.12	801.09

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Enter the Diameter of the pipe (inches):	48
Enter the Grade (%): ①	7.09 %
	View Results (see below)

	Q, Flow 🕏				
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.	
Single-Wall	28.134	12627.4	669,64	2.24	
Dual-Wall	46.723	20970.7	1112.08	3.72	

	Acres Drained					
Mineral III Million - 1 The second applications of the special con-	Drainage Coefficient (in: /24 hours) ๋ ②					
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	5357.09	2678.54	1785.70	1339.27	892.85	669,64
Dual-Wall	8896,68	4448.34	2965.56	2224.17	1482.78	1112.08

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Enter the Grade (%): ①	.186 %
	View Results
	(see below)

		Velocity 🕏		
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	40.318	18095.9	959.64	3.21
Dual-Wall	67.322	30216,1	1602.37	5.36

per dell'er command di delle aggi congra companio aggi	My - Secreta addide diablean calculat accompanie and	Acres Drained				
	Drainage Coefficient (in: /24 hours) ❤️					
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	7677.08	3838.54	2559.03	1919.27	1279.51	959.64
Dual-Wall	12819.00	6409.50	4273.00	3204.75	2136.50	1602.37

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	Enter the Diameter of the pipe (inches):	48			
A Decision of the Company	Enter the Grade (%): ②	.336	}	%	
			w Resu below)	lts	

		Velocity ①		
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	54.259	24353,1	1291.45	4.32
Dual-Wall	90.432	40588.6	2152.43	7.20

The state of the s	Acres Drained					
Drainage Coefficient (in: /24 hours) ๋ ๋ ๋ ๋						
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	10331.63	5165.82	3443.88	2582.91	1721,94	1291.45
Dual-Wall	17219.45	8609.72	5739.82	4304.86	2869,91	2152,43

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2 = Definition

Enter the Diameter of the pipe (inches):	48
Enter the Grade (%): ①	,208 %
	View Results (see below)

		Velocity 🕜		
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	42.704	19166.8	1016.43	3,40
Dual-Wall	71.090	31907.3	1692.06	5,66

	Acres Drained					
	Drainage Coefficient (in: /24 hours) ௰					
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	8131.41	4065.70	2710.47	2032,85	1355.23	1016.43
Dual-Wall	13536.48	6768.24	4512.16	3384.12	2256.08	1692.0€

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@ = Definition

Enter the Diameter of the pipe (inches):	48
Enter the Grade (%): ②	.197 %
	View Results (see below)

		Velocity 🕅		
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	41.574	18659.7	989.53	3,31
Dual-Wall	69.206	31061.7	1647.22	5.51

	Acres Drained					
	Drainage Coefficient (in: /24 hours) ௰					
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	7916.24	3958.12	2638.75	1979.06	1319.37	989.53
Dual-Wall	13177.74	6588.87	4392.58	3294,43	2196,29	1647.22

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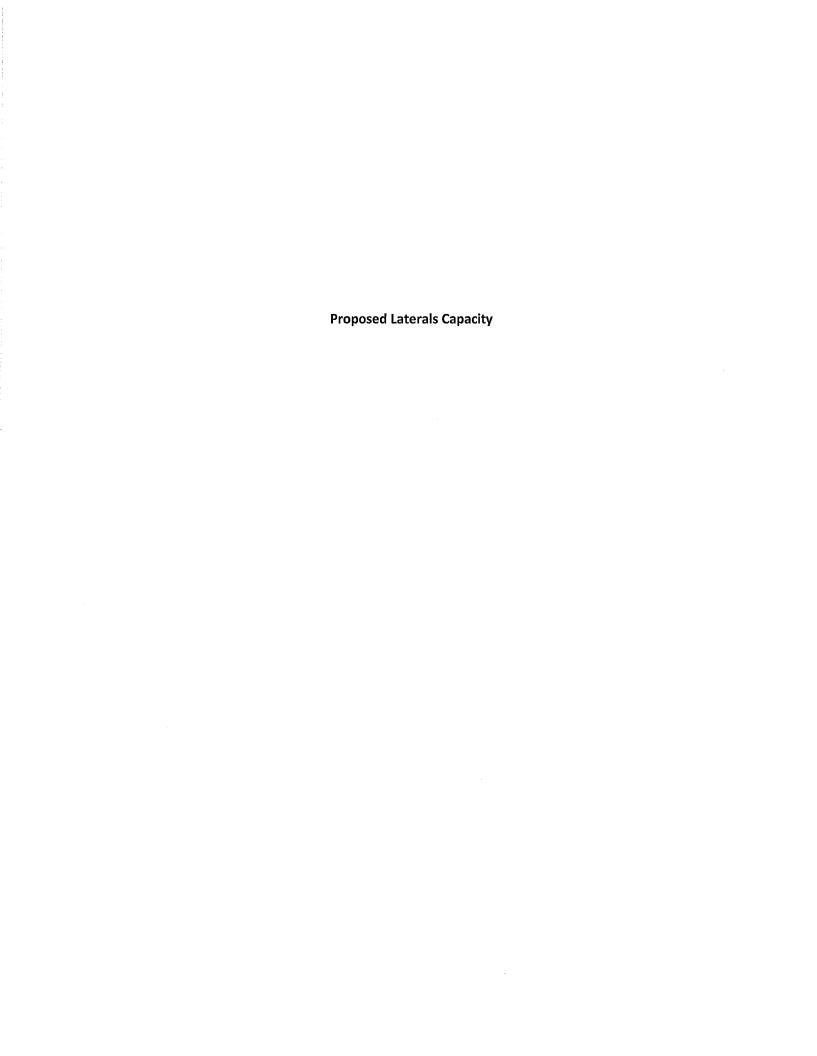
Enter the Diameter of the pipe (inches):	48
Enter the Grade (%): ①	.14 %
	View Results (see below)

	Q, Flow 🕏			Velocity ①
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	35.042	15727.9	834.06	2.79
Dual-Wall	58.404	26213.5	1390.11	4.65

	Acres Drained					
		Di	ainage Coefficie	nt (in: /24 hours)	0	R. C. CONTROL OF THE
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	6672.46	3336.23	2224,15	1668.12	1112.08	834.06
Dual-Wall	11120,89	5560,45	3706.96	2780.22	1853,48	1390.11

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New Laterals

STATIONS DRAINAGE CUMM TILE SIZE GRADE % COEE E D.S.
TO ACRES AREA INCHES
1024 154.5 154.5 18 0.191%
0 154.5 154.5 18 0.295%
0 285.1 285.1 30 0.100%
147.8 432.9 30 0.100%
2750 83.8 83.8 0.040%
1950 73.4 157.2 24 0.040%
0 102.5 259.7 30 0.040%
0 41.6 41.6 12 0.450%
0 21.7 21.7 10 0.260%
831 73.8 73.8 18 0.279%
0 59.1 132.9 18 0.279%
0 44.8 44.8 12 0.20%

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Enter the Diameter of the pipe (inches):	18
Enter the Grade (%): ②	.191 %
	View Results (see below)

	Marie	Q, Flow 🗹		
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	2.985	1339.8	71.05	1.69
Dual-Wall	4.981	2235.6	118.56	2.82

11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Acres Drained					A ACCOUNT OF THE SECOND
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***** ** * * * * * * * * * * * * * * *	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	568.38	284.19	189.46	142.10	94.73	71.05
Dual-Wall	948.45	474.22	316,15	237.11	158.07	118,56

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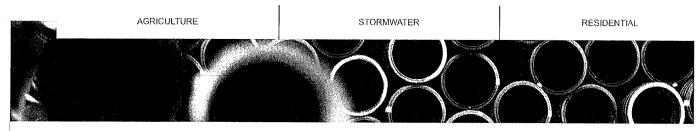
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2 = Definition

Enter the Diameter of the pipe (inches):	18
Enter the Grade (%): ①	.295 %
	View Results (see below)

		Velocity 🕏		
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	3.709	1664.7	88.28	2.10
Dual-Wall	6.200	2782.7	147.57	3.51

	Acres Drained Drainage Coefficient (in: /24 hours) ①					
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	706.24	353.12	235.41	176.56	117.71	88.28
Dual-Wall	1180,56	590.28	393.52	295.14	196,76	147.57

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Enter the Diameter of the pipe (inches):	30
Enter the Grade (%): ①	1.1 %
	View Results (see below)

		Velocity 🕅		
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	8.439	3787.7	200,86	1.72
Dual-Wall	14.081	6320.0	335,15	2.87

* ***	Acres Drained					
	Drainage Coefficient (In: /24 hours) ๋ ๋ ๋ ๋					
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	1606.90	803.45	535,63	401.72	267.82	200.86
Dual-Wall	2681.21	1340,60	893.74	670.30	446.87	335,15

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Drainage Calculator by Pipe Size

Our drainage calculator was developed in partnership with the University of Minnesota Extension to assist you in the preliminary design and understanding of your drainage needs. We encourage you to contact your local design profes or contractor for more specific design guidance and criteria.

These calculations are based on the Manning's Roughness ASAE EP 260.3 Plastic Tubing Drainage Chart and shou used for estimating purposes only. Consult a Water Table Management Professional for design criteria information

@ = Definition

Enter the Diameter of the pipe (inches):	24
Enter the Grade (%): ①	.04 %
	View Results (see below)

	Y COURS - No School of Marie and Course - Inc.	Velocity ⑦		
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	2.952	1324.9	70,26	0.94
Dual-Wall	4.898	2198.4	116.58	1.56

			Acres I	Drained		
		Dı	rainage Coefficie	nt (in: /24 hour	s) O	Taggi et in Taggin
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	562.10	281.05	187.37	140.52	93.68	70.26
Dual-Wall	932,64	466,32	310.88	233.16	155,44	116.58

CALCULATE BY ACREAGE



Select Langua

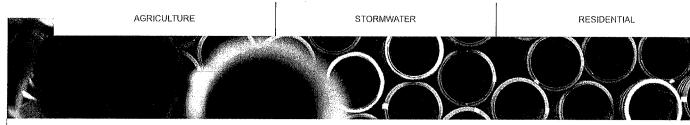
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CALCULATOR PURPOSE

The Prinsco Drainage
Calculator estimates the
capacity of tile drainage
systems. A particular pipe size
on a given grade will only carry
a certain amount of water. The
steeper the grade of the
installed pipe, the more water
it will carry.

- Checks the capacity of drain tile on existing drainage systems
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2 = Definition

Enter the Diameter of the pipe (inches):		30
Enter the Grade (%): ②	I	.04 %
		View Results (see below)
	٠	to a state of the contract of

	Q, Flow 🕏				
	c.f.s.	g.p.m _.	acre - in./24 hrs.	ft./sec.	
Single-Wall	5.348	2400.3	127.29	1.09	
Dual-Wall	8.929	4007.6	212.52	1.82	

		Acres Drained				
	Drainage Coefficient (in: /24 hours) ௰					
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	1018.33	509.16	339.44	254.58	169.72	127.29
Dual-Wall	1700.20	850.10	566.73	425.05	283.37	212,52

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E	Enter the Diameter of the pipe (inches):	1	2
E	Enter the Grade (%): ⑦	Ţ.4	15 %
		(se	/iew Results ee below)

		Velocity ①		
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	1.829	820,9	43.53	2.33
Dual-Wall	2.591	1162.9	61.67	3.30

	Acres Drained					
	Drainage Coefficient (in: /24 hours) ௰					
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Single-Wall	348.27	174.13	116.09	87.07	58.04	43.53
Dual-Wall	493,36	246.68	164.45	123.34	82,23	61.67

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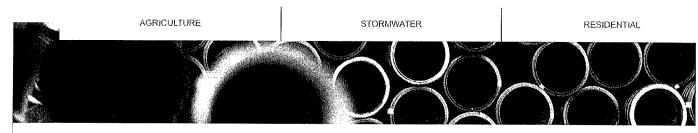
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Enter the Diameter of the pipe (inches):	10
Enter the Grade (%): ①	.26 %
	View Results (see below)
The state of the contract of t	

	- All Additions and MATE Commence again report that per seem of the company of the again of the	Velocity ⑦		
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	0.856	384.2	20.37	1.57
Dual-Wall	1.210	543.1	28.80	2.22

1	Acres Drained							
	Drainage Coefficient (in: /24 hours) ூ							
!	1/8"	1/4"	3/8"	1/2"	3/4"	1"		
Single-Wall	162.99	81.50	54,33	40.75	27.17	20.37		
Dual-Wall	230.40	115,20	76.80	57,60	38.40	28.80		

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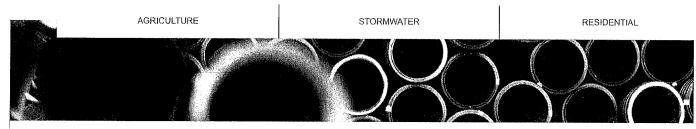
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2 = Definition

Enter the Diameter of the pipe (inches):	18
Enter the Grade (%): 🕏	.279 %
	View Results
Notes that the contraction of th	(see below)

		Velocity ⑦			
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.	
Single-Wall	3.621	1625.2	86.19	2.05	
Dual-Wall	6.023	2703.3	143.36	3.41	

M. 4: 4 4:-	Acres Drained Drainage Coefficient (in: /24 hours) ⑦						
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	
Single-Wall	689.49	344.74	229.83	172.37	114.91	86.19	
Dual-Wall	1146,86	573.43	382.29	286.71	191.14	143.36	

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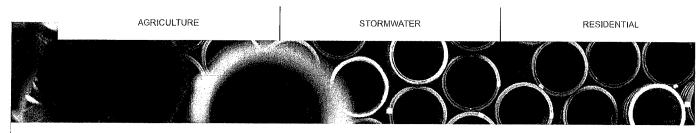
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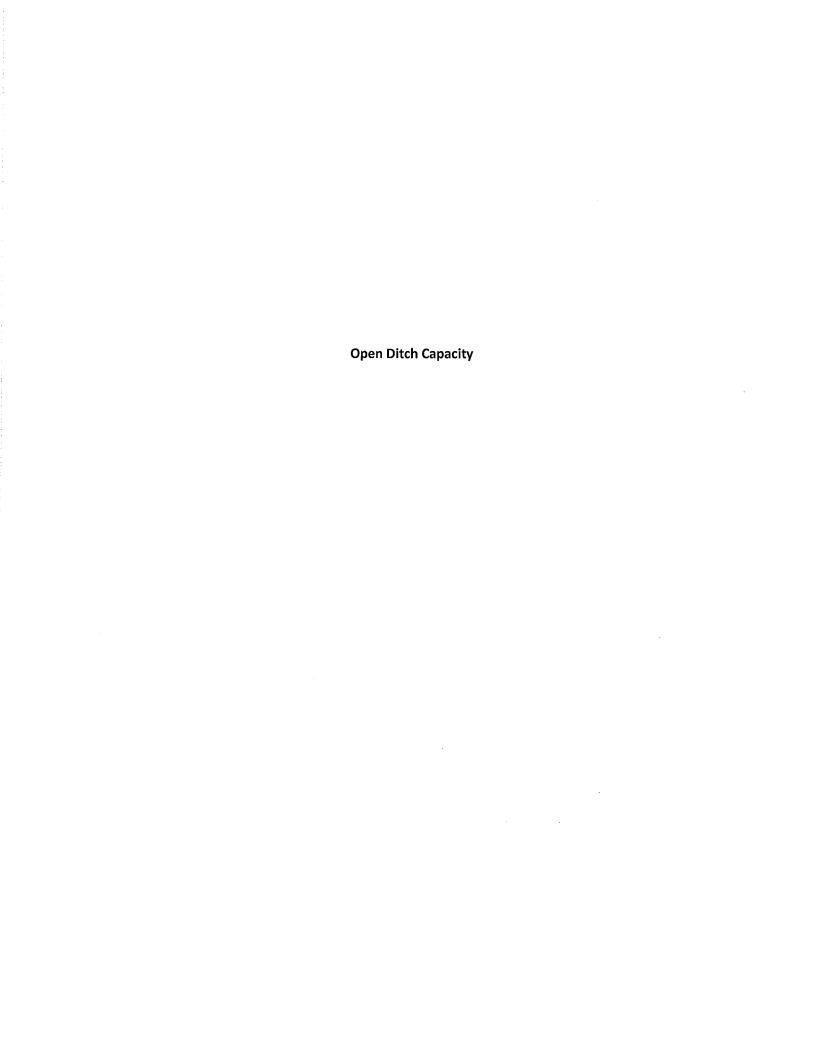
Enter the Diameter of the pipe (inches):	12
Enter the Grade (%): ①	.2 %
·	View Results (see below)

		Velocity ⑦		
	c.f.s.	g.p.m	acre - in./24 hrs.	ft./sec.
Single-Wall	1.217	546.2	28.97	1.55
Dual-Wall	1.727	775.1	41.11	2.20

			Acres	Drained	CO SO of the conductive and delicated and delicated and the conductive	The second secon	
	Drainage Coefficient (in: /24 hours) 🛈						
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	
Single-Wall	231.73	115.87	77.24	57.93	38.62	28.97	
Dual-Wall	328.84	164,42	109.61	82,21	54.81	41.11	

CALCULATE BY ACREAGE



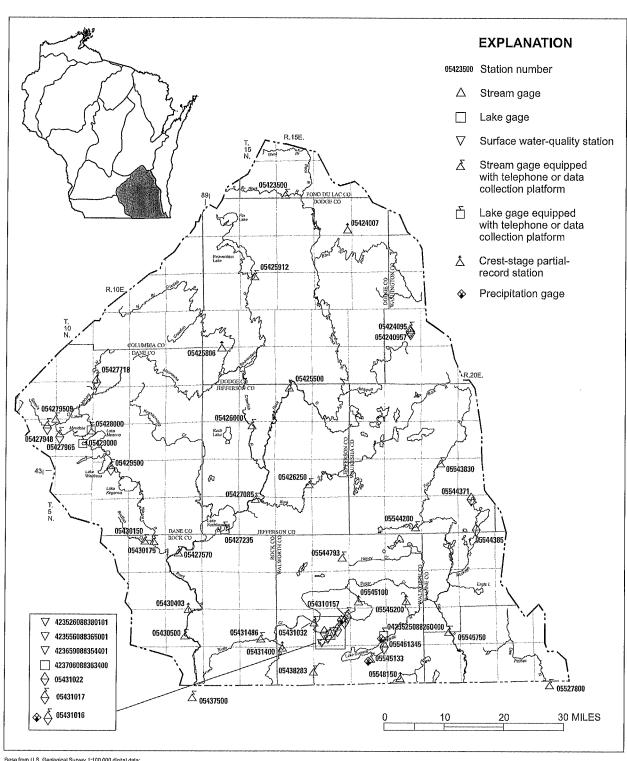


OPEN DITCH 4 FT BOTTOM 2:1 SIDESLOPE N=0.04

SLOPE	QB	D	V
%	CFS	FT	FT/S
0.16	0.18	0.13	0.33
0.1	0.18	0.14	0.3
0.13	0.25	0.16	0.36
0.27	0.25	0.13	0.45
0.1	0.25	0.18	0.32
0.29	0.25	0.13	0.45

SLOPE	Q10	D	V
%	CFS	FT	FT/S
0.16	38	2.35	1.86
0.1	38	2.63	1.56
0.13	67	3.22	1.99
0.27	67	2.72	2.61
0.1	67	3.42	1.81
0.29	67	2.67	2.69

SLOPE	Q25	D	V
%	CFS	FT	FT/S
0.16	46	2.57	1.96
0.1	46	2.87	1.65
0.13	81	3.51	2.09
0.27	81	2.97	2.74
0.1	81	3.72	1.9
0.29	81	2.92	2.82



Base from U.S. Geological Survey 1:100,000 digital data: modified by Wisconsin Department of Natural Resources. Wisconsin Transverse Mercutor projection.

054310157 JACKSON CREEK TRIBUTARY NEAR ELKHORN, WI

LOCATION.--Lat $42^{\circ}39^{\circ}03^{\circ}$, long $88^{\circ}33^{\circ}03^{\circ}$, in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.12, T.2 N., R.16 E., Walworth County, Hydrologic Unit 07090001, on left bank 20 ft downstream from Interstate Highway 43, 1.1 mi upstream from Delavan Lake inlet at Mound Road, and 1.5 mi south of Elkhorn.

DRAINAGE AREA. --4.34 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1983 to current year.

REVISED RECORDS. -- WDR WI-89-1: 1988.

GAGE.--Water-stage recorder. Datum of gage is 924.70 ft above NGVD of 1929 (Wisconsin Department of Transportation bench mark). Prior to Dec. 4, 1992, at site 180 ft downstream at same datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

REMARKS.--Records good except those for estimated daily discharges, which are poor (see page 11). Gage-height telemeter at

	DAILY MEAN VALUES											
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1 2 3 4 5	2.0 1.9 1.8 2.0 1.5	3.7 3.2 2.7 2.4 2.3	3.3 2.5 2.4 2.4 2.6	e0.82 e0.80 e0.80 e0.80 e0.82	3.2 e2.6 e2.2 e2.0 e1.8	2.1 e2.0 e1.9 e1.9 e2.0	2.6 3.7 2.4 2.1 2.1	2.7 4.0 2.2 1.9	1.1 1.1 7.8 64 19	1.5 0.95 0.80 0.60 0.49	0.92 0.36 0.26 1.8 0.35	0.32 7.2 0.81 0.51 0.45
6 7 8 9 10	1.2 1.1 1.1 0.99 5.8	2.2 2.2 2.0 2.0 1.8	2.4 2.0 1.9 1.6	e0.90 e0.86 e0.80 e0.94	e1.7 2.1 2.4 3.0	2.1 2.1 23 32 11	1.9 8.5 32 35 9.1	2.2 2.0 1.9 3.1 2.0	6.4 4.0 3.1 2.5 3.2	0.45 0.42 0.47 0.93 0.45	0.35 0.34 0.35 0.36 0.32	0.47 0.34 0.32 0.51 0.49
11 12 13 14 15	2.9 5.9 14 14 5.5	1.8 1.9 11 10 5.2	1.6 2.4 8.5 2.7 2.1	1.2 1.2 1.1 2.2 1.4	4.2 3.2 2.5 e2.2 e2.1	4.3 4.0 4.0 3.6 3.2	5.7 4.6 3.8 3.5 3.3	4.4 3.5 2.5 2.3 2.1	3.5 2.1 2.2 3.2 1.8	0.40 0.52 0.40 0.40 0.43	0.33 0.90 5.6 1.0 0.45	0.59 0.44 0.43 0.29 0.32
10		3.3 2.5 2.3 2.2 1.9			e2.0 1.9 2.1 6.4 7.4				1.4 1.5 1.3 1.2		0.48 0.45 0.32 0.47 0.48	
24 25	1.5 8.5 47 65 23	1.9 1.7 1.8 12 9.6	1.4 2.0 1.9 1.5	1.2 1.5 1.9 1.6 1.6	5.8 3.6 3.3 3.2 2.9	2.4 2.2 2.1 2.0 1.9	3.4 2.8 2.4 2.8 2.3	1.8 1.9 2.2 1.9 8.0	1.9 1.3 1.2 1.6 1.5	0.35 0.35 0.35 0.35 0.35	5.9 12 1.1 0.65 0.50	0.69 0.50 0.56 0.71 0.59
26 27 28 29 30 31	12 8.5 6.6 5.2 4.4 4.4	4.3 4.2 3.0 3.2 4.6	e1.2 e1.1 e1.0 e0.96 e0.90 e0.86	1.5 1.6 1.8 1.6 1.4	2.9 2.6 2.4	e1.8 e1.9 2.1 2.4 1.9 2.0	2.0 3.0 3.1 2.4 2.1	2.5 2.0 1.8 1.6 1.5	6.5 2.3 1.9 1.4 1.2	0.35 0.35 0.36 0.36 0.35	0.59 0.62 0.59 0.53 0.48 0.31	0.55 0.56 0.50 16 1.2
TOTAL MEAN MAX MIN CFSM IN.	259.79 8.380 65 0.99 1.93 2.23	112.9 3.763 12 1.7 0.87 0.97	64.72 2.088 8.5 0.86 0.48 0.55	38.38 1.238 2.2 0.80 0.29 0.33	94.7 3.382 13 1.7 0.78 0.81	134.8	159.9				39.16 1.263 12 0.26 0.29 0.34	
STATIS	TICS OF M	ONTHLY MEA	AN DATA F	OR WATER	YEARS 1984	- 2002,	BY WATER					
MEAN MAX (WY) MIN (WY)	2.416 8.38 2002 0.30 1995	3.607 13.3 1986 0.58 1990	2.417 6.55 1985 0.49 1990		3.902 9.42 2001 0.33 1989	4.694 10.7 1986 1.13 1996		3.582 8.00 2000 0.79 1989	3.785 9.42 1996 0.54 1988	2.085 5.39 1992 0.44 1988	1.607 5.59 1995 0.30 1988	2.751 10.8 1986 0.27 1987
SUMMAR	Y STATIST	ICS	FOR	2001 CALE	NDAR YEAR	F	OR 2002 W	ATER YEAR		WATER Y	EARS 1984	- 2002
LOWEST HIGHEST LOWEST ANNUAL MAXIMU MAXIMU	MEAN T ANNUAL M ANNUAL M T DAILY ME DAILY ME SEVEN-DA M PEAK FLO	MEAN		1803.39 4.941 81 0.57 0.77 1.14 15.46	Jun 12 (a) Aug 12 Aug 27		1194.48 3.27 65 0.26 0.34 119 8.93 0.75 10.24 5.8	Oct 24 5 Aug 3 4 Aug 5 Jun 4 8 Jun 4		5 1 113 0 0 210 10	. 72	1993 1989 19 1994 14 1997 8 1997 19 1993 19 1993
50 PER	CENT EXCE	EDS EDS		2.6 1.00			1.9 0.43	í			.41	

0.09 cfs niz

⁽a) Also occurred Sept. 2 (e) Estimated due to ice effect or missing record

FLOOD FREQUENCY CHARACTERISTICS OF WISCONSIN STREAMS (ver 2-2014) USGS Water Resources Investigations Report 03-4250 Clear Data Entry Cells Wisconsin Flood Frequency Area 5^{Note 1.} Project: District 4 County: Dane By: dw Date: Checked By: Date: Watershed Area (square miles) 2.82 Area Α 2.8 sq miles Main-channel length (miles) 2.32 Slope 12.07 feet/mile ST Note 2. 8.00 %+1 Storage Enter Elevation 0.232 miles 925 upstream from point of interest Peak Flood Discharge with n-year recurrence interval Note 3. Enter Elevation 1.972 miles 946 upstream from point of interest 1.2 29 Qn cfs Enter Storage (% of Basin Area) 7 Q_2 2 41 cfs Q_5 5 55 cfs Q₁₀ 10 67 cfs Q₂₅ 25 81 cfs 50 92 Q_{50} cfs Q₁₀₀ 104 100 cfs Slope valid between 0.74 - 74.2 FT/MI Note 1. Flood Frequency Area is indicated by Figure 3 of above report Note 2. ST is Storage in basin area consisting of ponds, lakes, wetlands + 1, in percent of total basin area. Note 3. Flood frequency equations from Table 2, equations 5-1 to 5-6 of above report.

return period	probabil 1- p	orobability er	ror bars o	q (cfs)	q log10 (cfs)	
1.2	0.83	0.17	1	29	1.462 extrapolated data	FALSE
2	0.50	0.50	1	41	1.608	
5	0.20	0.80	1	55	1.740	
10	0.10	0.90	1	67	1.823	
25	0.04	0.96	1	81	1.911	

FLOOD FREQUENCY CHARACTERISTICS OF WISCONSIN STREAMS (ver 2-2014) USGS Water Resources Investigations Report 03-4250 Clear Data Entry Cells Wisconsin Flood Frequency Area 5^{Note 1.} Project: District 4-mid County: Dane By: dw Date: Checked By: Date: Watershed Area (square miles) 2.06 2.1 Area Α sq miles Main-channel length (miles) 1.09 Slope 7.34 feet/mile ST Note 2. 9.00 %+1 Storage Enter Elevation 0.109 miles 936 upstream from point of interest Peak Flood Discharge with n-year recurrence interval Note 3. Enter Elevation 0.9265 miles 942 upstream from point of interest 17 1.2 cfs Qn Enter Storage (% of Basin Area) 8 Q_2 2 23 cfs Q_5 5 32 cfs Q₁₀ 10 38 cfs Q_{25} 25 46 cfs 50 52 cfs Q_{50} Q₁₀₀ 100 59 cfs Slope valid between 0.74 - 74.2 FT/MI Note 1. Flood Frequency Area is indicated by Figure 3 of above report Note 2. ST is Storage in basin area consisting of ponds, lakes, wetlands + 1, in percent of total basin area. Note 3. Flood frequency equations from Table 2, equations 5-1 to 5-6 of above report.

return period	probabil 1- p	probability e	rror bars o	q (cfs)	q log10 (cfs)	
1.2	0.83	0.17	1	17	1.222 extrapolated data	FALSE
2	0.50	0.50	1	23	1.370	
5	0.20	0.80	1	32	1.503	
10	0.10	0.90	1	38	1.583	
25	0.04	0.96	1	46	1.666	