

## CAUDALES

SITIOS	AREA		C				I				Q (m³/s)			
			Período de retorno (años)				(mm/h)				Método Racional			
	(m²)	( km²)	3	5	10	25	3	5	10	25	3	5	10	25
1	492.64	0.0004926	0.37	0.4	0.42	0.46	66.78	75.04	85.70	99.32	0.00338	0.00411	0.00493	0.00626
1A	490.00	0.00049	0.37	0.4	0.42	0.46	66.78	75.04	85.70	99.32	0.00337	0.00409	0.0049	0.00622
2	652.83	0.0006528	0.37	0.4	0.42	0.46	66.78	75.04	85.70	99.32	0.00448	0.00545	0.00653	0.00829

## CUNETA-TC

tc (min)	2.33 años	5 años	10 años	25 años	50 años	100 años
	5	90.84	103.78	118.89	137.38	141.61
10	76.92	86.99	99.47	115.14	120.67	133.51
15	66.78	75.04	85.7	99.32	105.28	116.21
20	59.07	66.09	75.42	87.46	93.49	103
25	52.99	59.12	67.42	78.24	84.15	92.57
30	48.07	53.53	61.02	70.84	76.57	84.13
35	44.02	48.95	55.78	64.78	70.28	77.14
40	40.61	45.13	51.4	59.71	64.98	71.26
45	37.7	41.88	47.69	55.41	60.46	66.24
50	35.19	39.08	44.5	51.71	56.54	61.91
55	33.01	36.65	41.73	48.5	53.11	58.12
60	31.09	34.52	39.29	45.68	50.1	54.79
65	29.38	32.64	37.14	43.18	47.41	51.83
70	27.86	30.95	35.22	40.95	45.02	49.19
75	26.49	29.44	33.5	38.95	42.86	46.81
80	25.26	28.08	31.95	37.15	40.9	44.66
85	24.13	26.84	30.54	35.51	39.12	42.71
90	23.11	25.71	29.25	34.02	37.5	40.92
95	22.17	24.68	28.08	32.65	36.01	39.28
100	21.31	23.73	27	31.4	34.64	37.78
105	20.51	22.86	26	30.24	33.37	36.39
110	19.77	22.05	25.08	29.17	32.2	35.1
115	19.09	21.29	24.22	28.17	31.11	33.9
120	18.45	20.59	23.43	27.24	30.09	32.79

### CALCULO PARA CUNETAS SITIO 1

c= 0.46  
 I15min = 99.32  
 L=  
 B=3,1  
 B lateral =  
 A= 492.64  
 Q=CIA  
 I = Intensidad de la Lluvia (mm/h)  
 A = Área de drenaje (Km²)  
 Q = Caudal de diseño (m³/s)  
 pendiente prom 0.50%  
 Q (m3/s)= 0.00625204  
 Q (lps)= 6.252039502

### CALCULO PARA CUNETAS SITIO 1A

c= 0.46  
 I15min = 99.32  
 L=  
 B=3,1  
 B lateral =  
 A= 490  
 Q=CIA  
 I = Intensidad de la Lluvia (mm/h)  
 A = Área de drenaje (Km²)  
 Q = Caudal de diseño (m³/s)  
 pendiente prom 0.50%  
 Q (m3/s)= 0.006218536  
 Q (lps)= 6.218535556

### CALCULO PARA CUNETAS SITIO 2

c= 0.46  
 I15min = 99.32  
 L=  
 B=3,1  
 B lateral =  
 A= 652.83  
 Q=CIA  
 I = Intensidad de la Lluvia (mm/h)  
 A = Área de drenaje (Km²)  
 Q = Caudal de diseño (m³/s)  
 pendiente prom 0.50%  
 Q (m3/s)= 0.00828499  
 Q (lps)= 8.28499299

metodo racional					
SITIO	AREA (m <sup>2</sup> )	C	I (mm/h)	Q (m <sup>3</sup> /s)	Q (lps)
1	493	0.46	99.32	<b>0.006</b>	<b>6</b>

CUNETAS						
y (m)	B menor (m)	tal. lz. (h)	tal. der.(h.)	B mayor (m)	Area (m <sup>2</sup> )	n
<b>0.04</b>	<b>0.3</b>	<b>0</b>	<b>0</b>	0.3000	0.012	<b>0.015</b>

s (m/m)	P (m)	R (m)	Q (m <sup>3</sup> /s)	Q (l/s)	V (m/s)	h (m)	ancho (m)
<b>0.005</b>	0.380	0.032	<b>0.006</b>	<b>5.65</b>	0.47	0.05	0.3

metodo racional					
SITIO	AREA (m <sup>2</sup> )	C	I (mm/h)	Q (m <sup>3</sup> /s)	Q (lps)
1A	490	0.46	99.32	<b>0.006</b>	<b>6</b>

CUNETAS						
y (m)	B menor (m)	tal. lz. (h)	tal. der.(h.)	B mayor (m)	Area (m <sup>2</sup> )	n
<b>0.04</b>	<b>0.3</b>	<b>0</b>	<b>0</b>	0.3000	0.012	<b>0.015</b>

s (m/m)	P (m)	R (m)	Q (m <sup>3</sup> /s)	Q (l/s)	V (m/s)	h (m)	ancho (m)
<b>0.005</b>	0.380	0.032	<b>0.006</b>	<b>5.65</b>	0.47	0.05	0.3

metodo racional					
SITIO	AREA (m <sup>2</sup> )	C	I (mm/h)	Q (m <sup>3</sup> /s)	Q (lps)
2	653	0.46	99.32	<b>0.008</b>	<b>8</b>

CUNETAS						
y (m)	B menor (m)	tal. lz. (h)	tal. der.(h.)	B mayor (m)	Area (m <sup>2</sup> )	n
<b>0.05</b>	<b>0.3</b>	<b>0</b>	<b>0</b>	0.3000	0.015	<b>0.015</b>

s (m/m)	P (m)	R (m)	Q (m <sup>3</sup> /s)	Q (l/s)	V (m/s)	h (m)	ancho (m)
<b>0.005</b>	0.400	0.038	<b>0.008</b>	<b>7.92</b>	0.53	0.06	0.3

metodo racional					
CANAL	AREA (m <sup>2</sup> )	C	I (mm/h)	Q (m <sup>3</sup> /s)	Q (lps)
PROYECTADO	653	0.46	99.32	<b>0.008</b>	<b>8</b>

CUNETAS						
y (m)	B menor (m)	tal. lz. (h)	tal. der.(h.)	B mayor (m)	Area (m <sup>2</sup> )	n
<b>0.09</b>	<b>0.3</b>	<b>0</b>	<b>0</b>	0.3000	0.027	<b>0.015</b>

s (m/m)	P (m)	R (m)	Q (m <sup>3</sup> /s)	Q (l/s)	V (m/s)	h (m)	ancho (m)
<b>0.005</b>	0.480	0.056	<b>0.019</b>	<b>18.69</b>	0.69	0.1	0.3

	n	s	b	y	z
		m/m	m	m	1:z
Pantallas deflectoras	0.015	0.01	0.30	0.18	0.00

A	P	R	T	D	Q	Velocidad
m <sup>2</sup>	m	m	m	m	m <sup>3</sup> /s	m/s
0.05	0.66	0.08	0.66	0.54	0.07	1.26