

PLANILLA DE CÁLCULO HIDRÁULICO N° 1

OBRA: ACUEDUCTO QUEBRADA DE MOREIRA - PLANTA 1

Datos: Caudal total de 1 m³/s hasta Planta 1.

n =	0.000001	m³/seg	
k =	0.01	mm	PRFV
k =	0.005	mm	PVC
C ₁₀₀ =	145	PRFV	

OBSERVACIONES	CÁMARAS	PROGRESIVA (m)	DISTANCIA C.D.	DISTANCIA V.A.	DISTANCIAS PARCIALES (m)	COTA TERRENO (m)	COTA INTRADOS (m)	TAPADA (m)	PENDIENTE TUBERÍA (mm/m)	CAUDAL RAMAL (m³/h)	CAUDAL DERIVADO (m³/h)	CAUDAL TOTAL (m³/h)	CAUDAL (m³/seg)	DIÁMETRO NOMINAL (mm)	J H-W	J Darcy	COTA PIEZOM. (m)	PRESION SERVICIO (m)	PRESION ESTÁTICA (m)	PRESION MAXIMA (kg/cm²)	CLASE CÁLC.	PRESIÓN TRANST. (kg/cm²)	CLASE ADOP.	VELOCIDAD (m/seg)
D. De Moreira - V. Sec.	V. Aire	0.00	0.00	0.00	0.00	655.00	656.30	-1.30	-		0.00	3600.00	1.000	900	#####	0.00157	660.00	3.70	3.70	0.37	6	0.37	10	1.57
	V. Aire	700.00	700.00	700.00	700.00	598.75	600.05	-1.30	-80.36		0.00	3600.00	1.000	900	#####	0.00157	658.90	58.85	59.95	6.00	6		10	1.57
	V. Desag	933.40	933.40	233.40	233.40	580.00	581.30	-1.30	-80.33		0.00	3600.00	1.000	900	#####	0.00157	658.53	77.23	78.70	7.87	10	8.91	10	1.57
	V. Aire	940.00		6.60	240.00	6.60	580.00	578.79	1.21	-380.00		0.00	3600.00	1.000	900	#####	0.00157	658.52	79.73	81.21	8.12	10		10
V. Sec.	V. Aire	1400.00	466.60	700.00	460.00	560.00	558.78	1.22	-43.50		0.00	3600.00	1.000	900	#####	0.00157	657.80	99.02	101.22	10.12	>10		15	1.57
	V. Aire	1569.40	636.00	169.40	169.40	560.00	558.10	1.90	-4.00		0.00	3600.00	1.000	900	#####	0.00157	657.53	99.43	101.90	10.19	>10		15	1.57
	V. Aire	1729.40	796.00	329.40	160.00	546.81	545.37	1.44	-79.60		0.00	3600.00	1.000	900	#####	0.00157	657.28	111.91	114.63	11.46	>10		15	1.57
	V. Desag	1950.40	1017.00	550.40	221.00	544.90	543.60	1.30	-8.00		0.00	3600.00	1.000	900	#####	0.00157	656.93	113.33	116.40	11.64	>10	13.59	15	1.57
	V. Aire	2110.40	160.00	710.40	160.00	545.20	543.92	1.28	2.00		0.00	3600.00	1.000	900	#####	0.00157	656.68	112.76	116.08	11.61	>10		15	1.57
	V. Aire	2261.90	311.50	151.50	151.50	546.35	544.94	1.41	6.70		0.00	3600.00	1.000	900	#####	0.00157	656.44	111.51	115.06	11.51	>10		15	1.57
	V. Aire	2552.90	602.50	442.50	291.00	548.30	546.89	1.41	6.70		0.00	3600.00	1.000	900	#####	0.00157	655.98	109.10	113.11	11.31	>10		15	1.57
	V. Aire	2778.60	828.20	668.20	225.70	550.03	548.40	1.63	6.70		0.00	3600.00	1.000	900	#####	0.00157	655.63	107.23	111.60	11.16	>10		15	1.57
	V. Aire	2859.30	908.90	80.70	80.70	554.35	548.94	5.41	6.70		0.00	3600.00	1.000	900	#####	0.00157	655.50	106.56	111.06	11.11	>10		15	1.57
	V. Aire	2910.70	960.30	132.10	51.40	550.47	549.07	1.40	2.50		0.00	3600.00	1.000	900	#####	0.00157	655.42	106.35	110.93	11.09	>10		15	1.57
	V. Desag	2972.50	1022.10	193.90	61.80	550.25	549.22	1.03	2.50		0.00	3600.00	1.000	900	#####	0.00157	655.32	106.10	110.78	11.08	>10	13.94	15	1.57
	V. Aire	3034.00	61.50	255.40	61.50	551.51	549.37	2.14	2.50		0.00	3600.00	1.000	900	#####	0.00157	655.23	105.85	110.63	11.06	>10		15	1.57
	V. Aire	3101.60	129.10	323.00	67.60	553.34	549.54	3.80	2.50		0.00	3600.00	1.000	900	#####	0.00157	655.12	105.58	110.46	11.05	>10		15	1.57
	V. Aire	3165.30	192.80	386.70	63.70	551.79	549.70	2.09	2.50		0.00	3600.00	1.000	900	#####	0.00157	655.02	105.32	110.30	11.03	>10		15	1.57
	V. Aire	3234.30	261.80	455.70	68.00	552.58	549.88	2.70	2.50		0.00	3600.00	1.000	900	#####	0.00157	654.91	105.04	110.12	11.01	>10		15	1.57
	V. Aire	3309.00	336.50	530.40	74.70	552.57	550.06	2.51	2.50		0.00	3600.00	1.000	900	#####	0.00157	654.79	104.73	109.94	10.99	>10		15	1.57
V. Sec.	V. Aire	3378.00	405.50	599.40	69.00	552.95	550.23	2.72	2.50		0.00	3600.00	1.000	900	#####	0.00157	654.69	104.45	109.77	10.98	>10		15	1.57
	V. Aire	3447.00	474.50	668.40	69.00	554.27	550.41	3.86	2.50		0.00	3600.00	1.000	900	#####	0.00157	654.58	104.17	109.59	10.96	>10		15	1.57
	V. Aire	3516.70	544.20	69.70	69.70	552.89	550.58	2.31	2.50		0.00	3600.00	1.000	900	#####	0.00157	654.47	103.89	109.42	10.94	>10		15	1.57
	V. Aire	3597.70	625.20	150.70	81.00	552.92	551.72	1.20	14.00		0.00	3600.00	1.000	900	#####	0.00157	654.34	102.62	108.28	10.83	>10		15	1.57
	V. Desag	3755.90	783.40	308.90	158.20	556.49	553.93	2.56	14.00		0.00	3600.00	1.000	900	#####	0.00157	654.09	100.16	106.07	10.61	>10		15	1.57
	V. Desag	3830.90	858.40	383.90	75.00	557.36	554.98	2.38	14.00		0.00	3600.00	1.000	900	#####	0.00157	653.97	98.99	105.02	10.50	>10		15	1.57
	V. Aire	3902.90	72.00	455.90	72.00	557.28	555.99	1.29	14.00		0.00	3600.00	1.000	900	#####	0.00157	653.86	97.87	104.01	10.40	>10		15	1.57
	V. Aire	3980.90	150.00	533.90	78.00	559.44	557.08	2.36	14.00		0.00	3600.00	1.000	900	#####	0.00157	653.74	96.66	102.92	10.29	>10		15	1.57
	V. Aire	4060.70	229.80	613.70	79.80	563.31	562.27	1.04	65.00		0.00	3600.00	1.000	900	#####	0.00157	653.61	91.34	97.73	9.77	10		15	1.57
	V. Aire	4138.70	307.80	691.70	78.00	568.97	567.34	1.63	65.00		0.00	3600.00	1.000	900	#####	0.00157	653.49	86.15	92.66	9.27	10		15	1.57
	V. Sec.	4177.30	346.40	730.30	38.60	568.85	567.41	1.44	2.00	0.00	0.00	3600.00	1.000	900	#####	0.00157	653.43	86.01	92.59	9.26	10	13.08	15	1.57
	V. Aire	4234.70	403.80	787.70	57.40	568.85	567.53	1.32	2.00		0.00	3600.00	1.000	800	#####	0.00282	653.27	85.74	92.47	9.25	10		15	1.99
	V. Desag	4684.70	853.80	450.00	450.00	563.85	562.58	1.27	-11.00		0.00	3600.00	1.000	800	#####	0.00282	652.00	89.42	97.42	9.74	10		15	1.99
	V. Aire	5134.70	450.00	900.00	450.00	568.85	567.53	1.32	11.00		0.00	3600.00	1.000	800	#####	0.00282	650.73	83.20	92.47	9.25	10		15	1.99
	V. Desag	5196.60	511.90	61.90	61.90	558.16	557.01	1.15	-170.00		0.00	3600.00	1.000	800	#####	0.00282	650.56	93.55	102.99	10.30	>10	14.58	15	1.99
	V. Aire	5288.60	92.00	153.90	92.00	558.50	557.19	1.31	2.00		0.00	3600.00	1.000	800	#####	0.00282	650.30	93.11	102.81	10.28	>10		15	1.99
V. Sec.	V. Aire	5378.90	182.30	244.20	90.30	558.39	557.37	1.02	2.00		0.00	3600.00	1.000	800	#####	0.00282	650.04	92.67	102.63	10.26	>10		15	1.99
	V. Desag	5464.90	268.30	86.00	86.00	556.24	554.79	1.45	-30.00		0.00	3600.00	1.000	800	#####	0.00282	649.80	95.01	105.21	10.52	>10		15	1.99
	V. Aire	5554.90	90.00	176.00	90.00	556.03	554.97	1.06	2.00		0.00	3600.00	1.000	800	#####	0.00282	649.55	94.58	105.03	10.50	>10		15	1.99
	V. Aire	5648.00	183.10	269.10	93.10	556.45	555.16	1.29	2.00		0.00	3600.00	1.000	800	#####	0.00282	649.29	94.13	104.84	10.48	>10		15	1.99
	V. Desag	5736.40	271.50	88.40	88.40	551.86	550.74	1.12	-50.00		0.00	3600.00	1.000	800	#####	0.00282	649.04	98.30	109.26	10.93	>10		15	1.99
	V. Sec.	5820.30	355.40	172.30	83.90	549.63	546.54	3.09	-50.00	0.00	0.00	3600.00	1.000	800	#####	0.00282	648.80	102.26	113.46	11.35	>10		15	1.99
	V. Desag	5909.20	88.90	261.20	88.90	550.45	548.32	2.13	20.00		0.00	3600.00	1.000	800	#####	0.00282	648.55	100.23	111.68	11.17	>10		15	1.99
	V. Aire	6021.70	201.40	373.70	112.50	552.63	550.57	2.06	20.00		0.00	3600.00	1.000	800	#####	0.00282	648.23	97.66	109.43	10.94	>10		15	1.99
	V. Desag	6100.00	279.70	452.00	78.30	554.11	552.14	1.97	20.00		0.00	3600.00	1.000	800	#####	0.00282	648.01	95.88	107.86	10.79	>10		15	1.99
	V. Aire	6176.50	356.20	76.50	76.50	552.06	550.84	1.22	-17.00		0.00	3600.00	1.000	800	#####	0.00282	647.80	96.96	109.16	10.92	>10	15.86	15	1.99
	V. Aire	6288.60	112.10	188.60	112.10	555.01	553.53	1.48	24.00		0.00	3600.00	1.000	800	#####	0.00282	647.48	93.96	106.47	10.65	>10		15	1.99
	V. Aire	6358.50	182.00	258.50	69.90	556.40	555.20	1.20	24.00		0.00	3600.00	1.000	800	#####	0.00282	647.29	92.08	104.80	10.48	>10		15	1.99
	V. Aire	6450.00	273.50	350.00	91.50	556.46	555.39	1.07	2.00		0.00	3600.00	1.000	800	#####	0.00282	647.							

OBSERVACIONES	CÁMARAS	PROGRESIVA	DISTANCIA	DISTANCIA	DISTANCIAS	COTA	COTA	TAPADA	PENDIENTE	CAUDAL	CAUDAL	CAUDAL	CAUDAL	DIAMETRO	J	J	COTA	PRESION	PRESION	PRESION	CLASE	PRESION	CLASE	VELOCIDAD
		(m)	C.D.	V.A.	PARCIALES	TERRENO	INTRADOS	(m)	TUBERIA	RAMAL	DERIVADO	TOTAL	(m³/seg)	NOMINAL	H-W	Darcy	PIEZOM.	SERVICIO	ESTÁTICA	MAXIMA	CÁLC.	TRANST.	ADOP.	(m/seg)
V. Secc.	V. Aire	7051.40	874.90	951.40	191.20	559.39	558.09	1.30	4.50		0.00	3600.00	1.000	800	#####	0.00282	645.34	87.24	101.91	10.19	>10		15	1.99
	V. Desag	7221.40	1044.90	170.00	170.00	552.60	551.29	1.31	-40.00		0.00	3600.00	1.000	800	#####	0.00282	644.86	93.56	108.71	10.87	>10	16.49	15	1.99
		7320.60	1144.10	269.20	99.20	551.94	550.90	1.04	-4.00		0.00	3600.00	1.000	800	#####	0.00282	644.58	93.68	109.10	10.91	>10		15	1.99
		7364.60	44.00	313.20	44.00	553.18	551.42	1.76	12.00		0.00	3600.00	1.000	800	#####	0.00282	644.45	93.03	108.58	10.86	>10		15	1.99
	V. Aire	7430.60	110.00	379.20	66.00	553.92	552.22	1.70	12.00		0.00	3600.00	1.000	800	#####	0.00282	644.27	92.05	107.78	10.78	>10		15	1.99
	V. Desag	7509.40	188.80	458.00	78.80	554.46	553.16	1.30	12.00		0.00	3600.00	1.000	800	#####	0.00282	644.05	90.88	106.84	10.68	>10		15	1.99
		7568.40	247.80	59.00	59.00	552.70	551.39	1.31	-30.00	0.00	0.00	3600.00	1.000	800	#####	0.00282	643.88	92.49	108.61	10.86	>10		15	1.99
		7642.60	74.20	133.20	74.20	561.49	557.33	4.16	80.00	0.00	0.00	3600.00	1.000	800	#####	0.00282	643.67	86.34	102.67	10.27	>10		15	1.99
	V. Aire	7712.60	144.20	203.20	70.00	564.21	562.93	1.28	80.00		0.00	3600.00	1.000	800	#####	0.00282	643.47	80.55	97.07	9.71	10		15	1.99
		7800.80	232.40	291.40	88.20	571.02	569.98	1.04	80.00		0.00	3600.00	1.000	800	#####	0.00282	643.22	73.24	90.02	9.00	10		15	1.99
		7862.80	294.40	353.40	62.00	575.95	574.94	1.01	80.00		0.00	3600.00	1.000	800	#####	0.00282	643.05	68.11	85.06	8.51	10		15	1.99
	V. Desag	7992.80	424.40	130.00	130.00	575.29	574.16	1.13	-6.00		0.00	3600.00	1.000	800	#####	0.00282	642.68	68.52	85.84	8.58	10		15	1.99
		8133.20	564.80	270.40	140.40	576.26	573.32	2.94	-6.00		0.00	3600.00	1.000	800	#####	0.00282	642.29	68.97	86.68	8.67	10		15	1.99
		8196.40	63.20	333.60	63.20	580.61	578.25	2.36	78.00		0.00	3600.00	1.000	800	#####	0.00282	642.11	63.86	81.75	8.17	10	14.45	15	1.99
	V. Aire	8304.90	171.70	442.10	108.50	579.64	578.47	1.17	2.00		0.00	3600.00	1.000	800	#####	0.00282	641.81	63.34	81.53	8.15	10		15	1.99
		8442.30	309.10	579.50	137.40	583.03	579.57	3.46	8.00		0.00	3600.00	1.000	800	#####	0.00282	641.42	61.85	80.43	8.04	10		15	1.99
		8473.80	340.60	611.00	31.50	581.14	579.82	1.32	8.00		0.00	3600.00	1.000	800	#####	0.00282	641.33	61.51	80.18	8.02	10		15	1.99
		8598.00	464.80	735.20	124.20	582.87	580.81	2.06	8.00		0.00	3600.00	1.000	800	#####	0.00282	640.98	60.17	79.19	7.92	10		15	1.99
		8664.50	531.30	86.50	66.50	583.16	581.34	1.82	8.00		0.00	3600.00	1.000	800	#####	0.00282	640.79	59.45	78.66	7.87	10		15	1.99
		8704.50	571.30	106.50	40.00	583.34	581.66	1.68	8.00		0.00	3600.00	1.000	800	#####	0.00282	640.68	59.02	78.34	7.83	10		15	1.99
V. Desag	8792.30	659.10	194.30	87.80	583.81	582.37	1.44	8.00		0.00	3600.00	1.000	800	#####	0.00282	640.43	58.07	77.63	7.76	10		15	1.99	
	8860.30	727.10	262.30	68.00	585.08	582.91	2.17	8.00		0.00	3600.00	1.000	800	#####	0.00282	640.24	57.33	77.09	7.71	10		10	1.99	
	8922.30	62.00	324.30	62.00	586.88	583.41	3.47	8.00		0.00	3600.00	1.000	800	#####	0.00282	640.07	56.66	76.59	7.66	10		10	1.99	
8991.70	131.40	393.70	69.40	586.63	583.96	2.67	8.00		0.00	3600.00	1.000	800	#####	0.00282	639.87	55.91	76.04	7.60	10		10	1.99		
9057.30	197.00	459.30	65.60	588.05	584.49	3.56	8.00		0.00	3600.00	1.000	800	#####	0.00282	639.69	55.20	75.51	7.55	10		10	1.99		
9124.60	264.30	526.60	67.30	589.04	585.03	4.01	8.00		0.00	3600.00	1.000	800	#####	0.00282	639.50	54.47	74.97	7.50	10		10	1.99		
9228.60	368.30	630.60	104.00	587.72	585.86	1.86	8.00		0.00	3600.00	1.000	800	#####	0.00282	639.20	53.35	74.14	7.41	10		10	1.99		
9264.60	404.30	666.60	36.00	587.26	586.15	1.11	8.00		0.00	3600.00	1.000	800	#####	0.00282	639.10	52.96	73.85	7.39	10		10	1.99		
Planta 1 - V. Secc.	V. Aire	9379.60	519.30	781.60	115.00	599.00	597.65	1.35	100.00		0.00	3600.00	1.000	800	#####	0.00282	638.78	41.13	62.35	6.24	10	13.27	10	1.99