



COMUNE DI MONTALE

**STUDIO IDROLOGICO E IDRAULICO  
PER LA VALUTAZIONE DELLA PERICOLOSITÀ  
IDRAULICA E DEFINIZIONE DEGLI INTERVENTI DI  
MESSA IN SICUREZZA IN UN'AREA POSTA ALLA  
CONFLUENZA TRA I TORRENTI AGNA DELLE CONCHE  
E AGNA DI ACQUIPUTTOLI IN FRAZIONE FOGNANO  
NEL COMUNE DI MONTALE**

CODICE:

**A.01**

ELABORATO:

**TABULATI VERIFICHE IDRAULICHE  
STATO ATTUALE E STATO DI PROGETTO**

SCALA -

**WEST  
Systems**

West Systems s.r.l. divisione  
PHYSIS - Ingegneria per l'ambiente

Viale Donato Giannotti 24  
- 50126 - FIRENZE  
Tel. 055 4684253 / 055 461429  
Fax. 055 6580564  
Pec.: amministrazione@pec.westsystems.it

PROGETTISTA:

Ing. David Settesoldi

COLLABORATORI TECNICI:

Ing. Michele Catella  
P.E. Mattia Fermi

COMMITTENTE:

**MERIDIANA IMMOBILIARE**

02					
01					
00	PRIMA EMISSIONE	21/01/2019	Ing. Michele Catella	Ing. Michele Catella	Ing. David Settesoldi
REV.	DESCRIZIONE	DATA	REDATTO	VERIFICATO	APPROVATO
REVISIONE			DATA		
00			21/01/2019		



## INDICE

Tabulati verifiche idrauliche stato attuale $Tr = 30$ anni.....	3
Tabulati verifiche idrauliche stato attuale $Tr = 200$ anni.....	9
Tabulati verifiche idrauliche stato di progetto $Tr = 30$ anni.....	15
Tabulati verifiche idrauliche stato di progetto $Tr = 200$ anni.....	21



**Tabulati verifiche idrauliche**  
**stato attuale**  
**Tr = 30 anni**



Reach	River Station	L Chnl [m]	Q Tot [m³/s]	Ch El [m slm]	WS El [m slm]	Vel Tot [m/s]	Froude XS	EG El [m]	EG Slope [m/m]	Frc Loss [m]	Top W [m]	WP Tot [m]	Area [m²]	Hydr R [m]
Agna Conche	38 A 24	18.64	56.19	147.67	150.24	2.23	0.60	150.50	0.005560	0.07	18.00	19.26	25.20	1.31
Agna Conche	37 A 23 A	1.00	56.19	147.06	150.28	1.40	0.31	150.38	0.001503		19.34	22.99	40.05	1.74
Agna Conche	36 A 22 D	4.87	56.17	147.03	148.77	3.01	0.91	149.23	0.013289	0.07	16.71	17.54	18.69	1.07
Agna Conche	35 A 21 A	1.00	56.16	145.82	148.24	3.61	0.98	148.91	0.018801	0.02	11.19	14.36	15.54	1.08
Agna Conche	34 A 21 B	1.00	55.79	145.82	148.22	3.64	0.99	148.90	0.019302		11.08	14.24	15.31	1.07
Agna Conche	33 A 21 C	4.25	56.41	142.85	145.45	3.58	0.81	146.10	0.012364	0.05	7.98	10.80	15.77	1.46
Agna Conche	32 A 20	4.68	56.28	143.82	145.22	4.30	1.25	146.17	0.027444	0.12	10.95	12.39	13.10	1.06
Agna Conche	31 A 19	4.88	56.18	142.64	144.59	3.61	0.93	145.25	0.015317	0.07	10.13	12.31	15.55	1.26
Agna Conche	30 A 18 A	1.00	56.15	142.41	144.05	2.60	0.73	144.40	0.008915	0.01	16.47	18.67	21.59	1.16
Agna Conche	29 A 18 B	1.00	56.15	142.41	144.03	2.64	0.74	144.39	0.009297		16.47	18.64	21.31	1.14
Agna Conche	28 A 18 C	4.66	56.15	138.57	143.14	1.19	0.20	143.21	0.000656	0.00	12.35	18.50	47.05	2.54
Agna Conche	27 A 17	4.16	56.15	140.94	142.69	3.76	1.00	143.41	0.017318	0.06	10.38	12.26	14.95	1.22
Agna Conche	26 A 16	4.33	56.14	139.97	142.65	2.44	0.53	142.95	0.004915	0.02	10.80	14.04	23.03	1.64
Agna Conche	25 A 15 BIS	4.33	56.14	140.35	142.05	3.77	1.11	142.78	0.021314	0.09	12.68	14.20	14.90	1.05
Agna Conche	24 A 15 A	1.00	56.14	139.89	141.63	3.21	0.97	142.15	0.015585	0.01	15.68	16.71	17.46	1.05
Agna Conche	23 A 15 B	1.00	56.14	139.89	141.58	2.63	0.72	141.93	0.008516		15.71	17.60	21.38	1.21
Agna Conche	22 A 15 C	3.79	56.14	136.09	139.70	1.30	0.24	139.79	0.000835	0.00	14.06	17.75	43.04	2.43
Agna Conche	21 A 14	4.53	56.14	137.82	139.34	4.34	1.33	140.30	0.029233	0.13	11.95	12.65	12.94	1.02
Agna Conche	20 A 13	4.93	56.13	136.79	138.74	2.73	0.81	139.12	0.010698	0.05	17.98	18.97	20.57	1.08
Agna Conche	19 A 12	4.99	56.28	136.78	138.63	2.15	0.63	138.87	0.006301	0.03	21.70	23.18	26.16	1.13
Agna Conche	18 A 11	4.63	56.27	136.32	138.54	2.12	0.61	138.77	0.006288	0.03	21.68	24.01	26.55	1.11
Agna Conche	17 A 10 A	1.00	56.27	136.40	138.15	2.85	0.82	138.57	0.011767	0.01	15.98	18.28	19.72	1.08
Agna Conche	16 A 10 B	1.00	56.27	136.40	138.15	2.78	0.79	138.54	0.011122		15.99	18.62	20.21	1.09
Agna Conche	15 A 10 C	4.88	56.27	133.01	136.35	1.13	0.20	136.41	0.000634	0.00	15.63	20.79	49.88	2.40
Agna Conche	14 A 9	4.65	56.26	134.29	135.77	3.99	1.23	136.58	0.026515	0.11	13.17	14.55	14.11	0.97
Agna Conche	13 A 8	4.38	56.26	133.61	135.45	3.40	0.93	136.04	0.015371	0.06	11.99	14.38	16.54	1.15
Agna Conche	12 PONTE A	1.00	56.26	132.92	135.35	2.61	0.57	135.70	0.006190	0.01	9.99	14.12	21.56	1.53
Agna Conche	11 PONTE D	22.81	56.26	132.92	135.14	2.88	0.66	135.57	0.008310	0.18	9.99	13.70	19.51	1.42
Agna Conche	10 A 7 A	1.00	56.26	133.15	135.02	2.59	0.68	135.36	0.007242	0.01	14.62	16.14	21.70	1.34
Agna Conche	9 A 7 B	1.00	56.26	133.15	135.01	2.62	0.69	135.36	0.007446		14.61	16.11	21.51	1.34
Agna Conche	8 A 7 C	23.10	56.23	128.99	133.52	1.28	0.23	133.60	0.000758	0.14	13.85	17.42	44.02	2.53
Agna Conche	7 A 6	7.84	56.25	130.98	133.15	3.11	0.81	133.64	0.011253	0.11	11.97	14.19	18.06	1.27
Agna Conche	6 A 5	19.89	56.24	130.77	133.03	3.56	0.93	133.67	0.016106	0.31	10.44	13.25	15.78	1.19
Agna Conche	5 A 4	14.58	55.92	130.30	132.68	3.16	0.93	133.19	0.015408	0.16	15.09	17.24	17.70	1.03
Agna Conche	4 A 3	6.82	55.87	129.95	132.49	2.53	0.60	132.82	0.005947	0.06	12.29	14.71	22.10	1.50
Agna Conche	3 A 2	4.72	55.90	129.85	132.33	3.03	0.80	132.80	0.010586	0.04	12.47	14.38	18.42	1.28
Agna Conche	2 A 1	17.98	55.82	129.50	132.42	1.92	0.42	132.61	0.002793	0.04	13.91	16.63	29.09	1.75
Agna Conche	1 4*	1.00	55.78	129.09	132.45	1.34	0.31	132.54	0.001563	0.01	21.79	26.53	41.73	1.57
Agna 01	20 1 A	1.00	59.46	131.56	132.81	3.53	1.17	133.44	0.024145	0.03	17.95	19.39	16.83	0.87

Reach	River Station	L Chnl [m]	Q Tot [m³/s]	Ch El [m slm]	WS El [m slm]	Vel Tot [m/s]	Froude XS	EG El [m]	EG Slope [m/m]	Frc Loss [m]	Top W [m]	WP Tot [m]	Area [m²]	Hydr R [m]
Agna_01	19 1 B	1.00	59.46	131.56	132.78	3.65	1.22	133.46	0.026578	0.01	17.83	19.24	16.30	0.85
Agna_01	18 1 C	13.98	59.03	129.42	132.66	1.69	0.36	132.81	0.002147	0.07	15.77	19.71	34.85	1.77
Agna_01	17 2	13.35	58.96	130.30	132.43	2.47	0.68	132.74	0.007631	0.09	17.78	19.83	23.86	1.20
Agna_01	16 3	15.42	58.64	129.70	132.42	1.97	0.55	132.62	0.005245	0.05	22.28	26.16	29.74	1.14
Agna_01	15 4*	1.00	58.82	129.09	132.44	1.42	0.33	132.54	0.001768	0.01	21.79	26.51	41.51	1.57
Agna_02	14 4	22.30	114.73	129.09	131.81	3.70	0.78	132.51	0.009887	0.31	13.55	17.08	31.01	1.82
Agna_02	13 5	12.10	114.70	128.31	131.46	4.57	1.02	132.53	0.018003	0.27	12.20	15.79	25.10	1.59
Agna_02	12 6	6.80	114.35	128.42	131.17	4.96	1.25	132.43	0.026706	0.15	14.40	17.25	23.06	1.34
Agna_02	11 7	7.34	114.15	128.24	130.98	4.44	1.01	131.98	0.017014	0.12	12.90	16.15	25.69	1.59
Agna_02	10 8	3.38	113.64	128.28	130.83	4.23	1.02	131.75	0.016449	0.05	15.20	17.74	26.87	1.51
Agna_02	9 9	0.63	112.67	128.36	130.72	2.90	0.68	131.15	0.007448		21.30	24.99	38.89	1.56
Agna_02	8 10 A	4.50	112.67	121.38	124.66	4.03	0.82	125.49	0.010498	0.05	11.36	14.18	27.96	1.97
Agna_02	7 10	4.51	113.57	121.14	124.15	4.56	0.97	125.21	0.014673	0.06	10.98	13.51	24.93	1.85
Agna_02	6 11	30.17	113.61	120.54	123.80	4.02	0.90	124.62	0.012044	0.31	13.84	15.97	28.28	1.77
Agna_02	5 12 A	1.00	118.10	120.37	123.45	3.44	0.76	124.05	0.008552	0.01	16.60	18.94	34.35	1.81
Agna_02	4 12 B	1.00	118.10	120.37	123.59	2.47	0.59	123.90	0.005137	0.01	26.79	29.52	47.80	1.62
Agna_02	3 12 C	20.02	118.10	120.37	123.61	2.36	0.58	123.89	0.005000	0.14	29.89	32.45	50.05	1.54
Agna_02	2 13	25.80	118.10	120.10	123.21	3.60	0.80	123.87	0.009102	0.25	16.03	17.74	32.84	1.85
Agna_02	1 14	0.00	118.10	120.10	122.97	3.56	0.85	123.62	0.010006		18.43	19.57	33.20	1.70



Tronco	Lat Structure	s [m³/s]
Agna_Conche	37.999	0.0
Agna_Conche	37.998	0.0
Agna_Conche	35.999	0.0
Agna_Conche	35.998	0.0
Agna_Conche	32.999	0.0
Agna_Conche	32.998	0.0
Agna_Conche	27.999	0.0
Agna_Conche	27.998	0.0
Agna_Conche	21.999	0.0
Agna_Conche	21.998	0.0
Agna_Conche	14.999	0.0
Agna_Conche	14.998	0.0
Agna_Conche	10.999	0.0
Agna_Conche	10.998	0.0
Agna_Conche	7.999	0.0
Agna_Conche	7.998	0.0
Agna_01	17.999	0.0
Agna_01	17.998	0.0
Agna_02	13.999	1.7
Agna_02	13.998	0.4
Agna_02	7.999	-2.1
Agna_02	7.998	-0.6



**Tabulati verifiche idrauliche**  
**stato attuale**  
**Tr = 200 anni**



Reach	River Station	L Chnl [m]	Q Tot [m³/s]	Ch El [m slm]	WS El [m slm]	Vel Tot [m/s]	Froude XS	EG El [m]	EG Slope [m/m]	Frc Loss [m]	Top W [m]	WP Tot [m]	Area [m²]	Hydr R [m]
Agna Conche	38 A 24	18.64	117.78	147.67	151.20	2.63	0.62	151.55	0.005532	0.07	24.77	26.64	44.80	1.68
Agna Conche	37 A 23 A	1.00	115.41	147.06	151.26	1.96	0.36	151.45	0.001960		19.34	24.93	58.84	2.36
Agna Conche	36 A 22 D	4.87	115.37	147.03	149.59	3.23	0.87	150.13	0.011086	0.06	25.17	26.19	35.67	1.36
Agna Conche	35 A 21 A	1.00	115.74	145.82	149.26	3.71	0.97	149.96	0.015983	0.02	20.99	24.58	31.22	1.27
Agna Conche	34 A 21 B	1.00	115.79	145.82	149.24	3.75	0.98	149.96	0.016446		20.79	24.37	30.86	1.27
Agna Conche	33 A 21 C	4.25	117.72	142.85	146.36	4.99	0.99	147.63	0.017982	0.07	9.13	12.97	23.58	1.82
Agna Conche	32 A 20	4.68	117.86	143.82	146.09	5.17	1.17	147.45	0.022728	0.10	11.52	14.22	22.81	1.60
Agna Conche	31 A 19	4.88	117.60	142.64	145.50	4.65	0.99	146.60	0.016670	0.08	11.29	14.65	25.31	1.73
Agna Conche	30 A 18 A	1.00	117.57	142.41	144.96	3.21	0.69	145.49	0.007585	0.01	16.55	20.50	36.65	1.79
Agna Conche	29 A 18 B	1.00	117.57	142.41	144.95	3.23	0.69	145.48	0.007736		16.55	20.47	36.42	1.78
Agna Conche	28 A 18 C	4.66	117.57	138.57	144.27	1.85	0.30	144.44	0.001516	0.01	16.49	24.35	63.65	2.61
Agna Conche	27 A 17	4.16	117.63	140.94	143.56	4.78	1.06	144.72	0.018681	0.07	11.88	14.86	24.60	1.66
Agna Conche	26 A 16	4.33	117.63	139.97	143.35	3.80	0.75	144.08	0.009522	0.05	11.83	15.93	30.96	1.94
Agna Conche	25 A 15 BIS	4.33	117.76	140.35	142.80	4.73	1.12	143.94	0.020832	0.09	13.80	16.60	24.91	1.50
Agna Conche	24 A 15 A	1.00	117.76	139.89	142.36	4.01	1.02	143.18	0.015929	0.01	18.61	20.48	29.36	1.43
Agna Conche	23 A 15 B	1.00	117.76	139.89	142.31	3.55	0.82	142.95	0.010486		17.49	20.27	33.14	1.64
Agna Conche	22 A 15 C	3.79	117.76	136.09	140.62	2.09	0.34	140.84	0.001731	0.01	14.91	19.77	56.33	2.85
Agna Conche	21 A 14	4.53	117.76	137.82	140.13	5.01	1.27	141.41	0.023948	0.10	14.83	15.96	23.51	1.47
Agna Conche	20 A 13	4.93	117.75	136.79	139.61	3.16	0.75	140.12	0.008068	0.04	20.47	22.38	37.30	1.67
Agna Conche	19 A 12	4.99	118.65	136.78	139.61	2.50	0.54	139.93	0.004272	0.02	21.93	25.15	47.51	1.89
Agna Conche	18 A 11	4.63	118.64	136.32	139.56	2.44	0.52	139.86	0.004130	0.02	21.86	26.05	48.68	1.87
Agna Conche	17 A 10 A	1.00	118.63	136.40	139.12	3.37	0.72	139.70	0.008659	0.01	15.99	20.22	35.22	1.74
Agna Conche	16 A 10 B	1.00	118.63	136.40	139.12	3.31	0.71	139.68	0.008359		15.99	20.58	35.85	1.74
Agna Conche	15 A 10 C	4.88	118.63	133.01	137.57	1.72	0.26	137.72	0.001101	0.01	15.92	23.26	69.16	2.97
Agna Conche	14 A 9	4.65	118.61	134.29	136.87	4.11	0.90	137.74	0.013174	0.06	13.60	16.83	28.85	1.71
Agna Conche	13 A 8	4.38	118.61	133.61	136.75	3.67	0.72	137.43	0.009163	0.04	12.35	17.02	32.32	1.90
Agna Conche	12 PONTE A	1.00	118.60	132.92	136.67	3.41	0.58	137.26	0.007034	0.01	10.00	16.76	34.77	2.07
Agna Conche	11 PONTE D	22.81	118.60	132.92	135.99	4.23	0.81	136.91	0.012927	0.24	10.00	15.41	28.01	1.82
Agna Conche	10 A 7 A	1.00	118.60	133.15	135.89	3.24	0.75	136.42	0.008528	0.01	19.39	21.98	36.58	1.66
Agna Conche	9 A 7 B	1.00	118.60	133.15	135.87	3.27	0.76	136.42	0.008767		19.39	21.94	36.25	1.65
Agna Conche	8 A 7 C	23.10	118.54	128.99	134.56	2.01	0.32	134.77	0.001501	0.14	14.69	19.74	58.99	2.99
Agna Conche	7 A 6	7.84	118.60	130.98	134.12	3.83	0.83	134.87	0.010936	0.12	14.09	17.44	30.95	1.77
Agna Conche	6 A 5	19.89	118.55	130.77	133.98	4.31	1.06	134.92	0.019769	0.31	16.45	20.31	27.53	1.36
Agna Conche	5 A 4	14.58	117.26	130.30	133.62	3.68	0.81	134.31	0.010992	0.12	15.09	19.11	31.84	1.67
Agna Conche	4 A 3	6.82	110.72	129.95	133.61	3.09	0.58	134.10	0.005626	0.04	12.30	16.95	35.84	2.11
Agna Conche	3 A 2	4.72	108.67	129.85	133.57	3.13	0.62	134.07	0.006249	0.02	13.20	17.42	34.72	1.99
Agna Conche	2 A 1	17.98	103.17	129.50	133.75	2.16	0.37	133.99	0.002240	0.03	13.92	19.30	47.70	2.47
Agna Conche	1 4*	1.00	103.15	129.09	133.83	1.44	0.25	133.93	0.001003	0.01	21.82	29.28	71.70	2.45
Agna 01	20 1 A	1.00	128.47	131.56	133.84	3.52	0.84	134.47	0.010713	0.01	20.35	23.03	36.51	1.59

Reach	River Station	L Chnl [m]	Q Tot [m³/s]	Ch El [m slm]	WS El [m slm]	Vel Tot [m/s]	Froude XS	EG El [m]	EG Slope [m/m]	Frc Loss [m]	Top W [m]	WP Tot [m]	Area [m²]	Hydr R [m]
Agna_01	19 1 B	1.00	128.47	131.56	133.82	3.55	0.85	134.46	0.011009	0.01	20.32	22.97	36.18	1.57
Agna_01	18 1 C	13.98	128.46	129.42	133.87	2.22	0.42	134.12	0.002693	0.05	20.43	25.83	57.84	2.24
Agna_01	17 2	13.35	127.73	130.30	133.67	2.77	0.56	134.06	0.004691	0.05	18.11	22.36	46.07	2.06
Agna_01	16 3	15.42	127.22	129.70	133.74	2.15	0.42	133.98	0.002843	0.03	22.30	28.80	59.10	2.05
Agna_01	15 4*	1.00	123.18	129.09	133.78	1.74	0.31	133.94	0.001489	0.01	21.82	29.20	70.77	2.42
Agna_02	14 4	22.30	226.92	129.09	132.81	4.57	0.97	133.88	0.015065	0.41	21.81	27.26	49.61	1.82
Agna_02	13 5	12.10	221.57	128.31	132.36	5.30	1.14	133.80	0.021879	0.28	18.92	24.32	41.77	1.72
Agna_02	12 6	6.80	210.04	128.42	132.06	5.87	1.19	133.81	0.023730	0.14	14.40	19.01	35.78	1.88
Agna_02	11 7	7.34	203.52	128.24	131.87	5.47	1.03	133.39	0.018090	0.12	12.90	17.93	37.21	2.07
Agna_02	10 8	3.38	199.90	128.28	131.70	5.00	0.98	132.97	0.015323	0.05	15.20	19.47	39.98	2.05
Agna_02	9 9	0.63	199.05	128.36	131.58	3.48	0.68	132.20	0.007021		21.30	26.71	57.20	2.14
Agna_02	8 10 A	4.50	197.54	121.38	125.92	3.97	0.85	126.72	0.010598	0.05	22.17	25.96	49.75	1.92
Agna_02	7 10	4.51	210.74	121.14	125.35	4.96	1.11	126.60	0.018801	0.08	20.81	24.38	42.46	1.74
Agna_02	6 11	30.17	216.13	120.54	124.94	4.69	0.94	126.06	0.012149	0.33	17.95	20.71	46.05	2.22
Agna_02	5 12 A	1.00	242.86	120.37	124.58	4.39	0.85	125.56	0.009755	0.01	20.18	23.27	55.26	2.37
Agna_02	4 12 B	1.00	242.75	120.37	124.66	3.15	0.61	125.16	0.004964	0.00	28.12	32.23	77.06	2.39
Agna_02	3 12 C	20.02	242.67	120.37	124.71	2.89	0.56	125.14	0.004213	0.16	31.41	35.28	83.92	2.38
Agna_02	2 13	25.80	254.28	120.10	124.43	4.53	0.93	125.47	0.011306	0.27	22.97	25.23	56.13	2.22
Agna_02	1 14	0.00	255.02	120.10	124.15	4.43	0.89	125.15	0.010008		22.65	24.40	57.55	2.36

Tronco	Lat Structure	s [m³/s]
Agna_Conche	37.999	2.4
Agna_Conche	37.998	0.0
Agna_Conche	35.999	-1.7
Agna_Conche	35.998	0.0
Agna_Conche	32.999	-0.7
Agna_Conche	32.998	0.0
Agna_Conche	27.999	-0.3
Agna_Conche	27.998	0.0
Agna_Conche	21.999	0.0
Agna_Conche	21.998	0.0
Agna_Conche	14.999	0.0
Agna_Conche	14.998	0.0
Agna_Conche	10.999	0.0
Agna_Conche	10.998	0.0
Agna_Conche	7.999	0.0
Agna_Conche	7.998	14.9
Agna_01	17.999	4.6
Agna_01	17.998	0.0
Agna_02	13.999	23.7
Agna_02	13.998	1.0
Agna_02	7.999	-27.4
Agna_02	7.998	-20.0





**Tabulati verifiche idrauliche**  
**stato di progetto**  
**Tr = 30 anni**



Reach	River Station	L Chnl [m]	Q Tot [m³/s]	Ch El [m slm]	WS El [m slm]	Vel Tot [m/s]	Froude XS	EG El [m]	EG Slope [m/m]	Frc Loss [m]	Top W [m]	WP Tot [m]	Area [m²]	Hydr R [m]
Agna Conche	38 A 24	18.64	56.19	147.67	150.24	2.23	0.60	150.49	0.005559	0.07	18.00	19.26	25.20	1.31
Agna Conche	37 A 23 A	1.00	56.19	147.06	150.28	1.40	0.31	150.38	0.001503		19.34	22.99	40.05	1.74
Agna Conche	36 A 22 D	4.87	56.19	147.03	148.77	3.01	0.91	149.23	0.013297	0.07	16.71	17.54	18.69	1.07
Agna Conche	35 A 21 A	1.00	56.13	145.82	148.24	3.61	0.98	148.91	0.018781	0.02	11.19	14.36	15.54	1.08
Agna Conche	34 A 21 B	1.00	55.72	145.82	148.22	3.64	0.99	148.90	0.019256		11.08	14.24	15.31	1.07
Agna Conche	33 A 21 C	4.25	56.40	142.85	145.45	3.58	0.81	146.10	0.012363	0.05	7.98	10.80	15.77	1.46
Agna Conche	32 A 20	4.68	56.28	143.82	145.22	4.30	1.25	146.17	0.027444	0.12	10.95	12.39	13.10	1.06
Agna Conche	31 A 19	4.88	56.18	142.64	144.59	3.61	0.93	145.25	0.015318	0.07	10.13	12.31	15.55	1.26
Agna Conche	30 A 18 A	1.00	56.16	142.41	144.05	2.60	0.73	144.40	0.008917	0.01	16.47	18.67	21.59	1.16
Agna Conche	29 A 18 B	1.00	56.16	142.41	144.03	2.64	0.74	144.39	0.009299		16.47	18.64	21.31	1.14
Agna Conche	28 A 18 C	4.66	56.15	138.57	143.14	1.19	0.20	143.21	0.000656	0.00	12.35	18.50	47.05	2.54
Agna Conche	27 A 17	4.16	56.15	140.94	142.69	3.76	1.00	143.41	0.017319	0.06	10.38	12.26	14.95	1.22
Agna Conche	26 A 16	4.33	56.15	139.97	142.65	2.44	0.53	142.95	0.004915	0.02	10.80	14.04	23.03	1.64
Agna Conche	25 A 15 BIS	4.33	56.14	140.35	142.05	3.77	1.11	142.78	0.021314	0.09	12.68	14.20	14.90	1.05
Agna Conche	24 A 15 A	1.00	56.14	139.89	141.63	3.21	0.97	142.15	0.015586	0.01	15.68	16.71	17.46	1.05
Agna Conche	23 A 15 B	1.00	56.14	139.89	141.58	2.63	0.72	141.93	0.008516		15.71	17.60	21.38	1.21
Agna Conche	22 A 15 C	3.79	56.14	136.09	139.70	1.30	0.24	139.79	0.000835	0.00	14.06	17.75	43.05	2.43
Agna Conche	21 A 14	4.53	56.14	137.82	139.34	4.34	1.33	140.30	0.029234	0.13	11.95	12.65	12.94	1.02
Agna Conche	20 A 13	4.93	56.13	136.79	138.74	2.73	0.81	139.12	0.010699	0.05	17.98	18.97	20.57	1.08
Agna Conche	19 A 12	4.99	56.28	136.78	138.63	2.15	0.63	138.87	0.006301	0.03	21.70	23.18	26.16	1.13
Agna Conche	18 A 11	4.63	56.27	136.32	138.54	2.12	0.61	138.77	0.006288	0.03	21.68	24.01	26.55	1.11
Agna Conche	17 A 10 A	1.00	56.28	136.40	138.15	2.85	0.82	138.57	0.011767	0.01	15.98	18.28	19.72	1.08
Agna Conche	16 A 10 B	1.00	56.28	136.40	138.15	2.78	0.79	138.54	0.011123		15.99	18.62	20.21	1.09
Agna Conche	15 A 10 C	4.88	56.27	133.01	136.35	1.13	0.20	136.41	0.000634	0.00	15.63	20.79	49.88	2.40
Agna Conche	14 A 9	4.65	56.26	134.29	135.77	3.99	1.23	136.58	0.026516	0.11	13.17	14.55	14.11	0.97
Agna Conche	13 A 8	4.38	56.26	133.61	135.45	3.40	0.93	136.04	0.015372	0.06	11.99	14.38	16.54	1.15
Agna Conche	12 PONTE A	1.00	56.26	132.92	135.35	2.61	0.57	135.70	0.006190	0.01	9.99	14.12	21.56	1.53
Agna Conche	11 PONTE D	22.81	56.26	132.92	135.14	2.88	0.66	135.57	0.008311	0.18	9.99	13.70	19.51	1.42
Agna Conche	10 A 7 A	1.00	56.26	133.15	135.02	2.59	0.68	135.36	0.007242	0.01	14.62	16.14	21.70	1.34
Agna Conche	9 A 7 B	1.00	56.26	133.15	135.01	2.62	0.69	135.36	0.007446		14.61	16.11	21.51	1.34
Agna Conche	8 A 7 C	23.10	56.26	128.99	133.23	1.41	0.26	133.33	0.000988	0.19	13.44	16.70	39.99	2.39
Agna Conche	7 A 6	7.84	56.26	130.98	132.99	3.48	0.93	133.60	0.015237	0.15	11.47	13.53	16.18	1.20
Agna Conche	6 A 5	19.89	56.26	130.77	132.81	4.14	1.12	133.68	0.023932	0.38	9.70	12.28	13.59	1.11
Agna Conche	5 A 4	14.58	56.25	130.30	132.35	2.97	0.91	132.80	0.013892	0.19	17.39	18.65	18.91	1.01
Agna Conche	4 A 3	6.82	56.20	129.95	132.15	2.77	0.85	132.54	0.012224	0.08	18.64	20.19	20.28	1.00
Agna Conche	3 A 2	4.72	55.87	129.85	132.08	2.55	0.78	132.41	0.010022	0.04	19.94	21.27	21.89	1.03
Agna Conche	2 A 1	17.98	55.78	129.50	132.10	1.63	0.51	132.24	0.004168	0.05	32.36	33.70	34.21	1.02
Agna Conche	1 4*	1.00	55.75	129.09	132.11	1.06	0.27	132.17	0.001109	0.01	33.71	36.86	52.74	1.43
Agna 01	20 1 A	1.00	60.06	131.56	132.62	4.40	1.51	133.61	0.041392	0.05	15.75	16.95	13.65	0.80

Reach	River Station	L Chnl [m]	Q Tot [m³/s]	Ch El [m slm]	WS El [m slm]	Vel Tot [m/s]	Froude XS	EG El [m]	EG Slope [m/m]	Frc Loss [m]	Top W [m]	WP Tot [m]	Area [m²]	Hydr R [m]
Agna_01	19 1 B	1.00	59.97	131.56	132.56	4.72	1.65	133.70	0.049804	0.03	15.24	16.34	12.71	0.78
Agna_01	18 1 C	13.98	58.63	129.42	132.35	1.95	0.45	132.54	0.003296	0.12	15.50	18.88	30.00	1.59
Agna_01	17 2	13.35	59.21	130.30	132.20	3.00	0.90	132.66	0.013856	0.15	17.51	19.23	19.76	1.03
Agna_01	16 3	15.42	58.93	129.70	132.03	2.54	0.68	132.36	0.008060	0.07	16.19	19.29	23.21	1.20
Agna_01	15 4*	1.00	58.88	129.09	132.11	1.12	0.29	132.17	0.001253	0.01	33.71	36.85	52.53	1.43
Agna_02	14 4	22.30	114.75	129.09	131.71	2.93	0.84	132.15	0.011500	0.37	31.85	34.31	39.18	1.14
Agna_02	13 5	12.10	114.70	128.31	131.30	4.03	1.13	132.13	0.021804	0.25	21.92	24.99	28.48	1.14
Agna_02	12 6	6.80	114.70	128.42	131.04	3.92	1.11	131.82	0.019908	0.11	22.82	24.94	29.24	1.17
Agna_02	11 7	7.34	114.70	128.24	130.89	3.36	0.90	131.46	0.012633	0.09	23.84	26.11	34.14	1.31
Agna_02	10 8	3.38	114.58	128.28	130.79	3.14	0.84	131.29	0.010945	0.04	25.79	27.80	36.52	1.31
Agna_02	9 9	0.63	113.37	128.36	130.67	2.92	0.76	131.11	0.009375		25.85	29.21	38.77	1.33
Agna_02	8 10 A	4.50	113.30	121.38	124.66	4.06	0.83	125.50	0.010650	0.05	11.36	14.17	27.93	1.97
Agna_02	7 10	4.51	113.84	121.14	124.16	4.56	0.97	125.22	0.014694	0.07	10.98	13.52	24.96	1.85
Agna_02	6 11	30.17	113.87	120.54	123.80	4.02	0.90	124.63	0.012059	0.31	13.85	15.97	28.32	1.77
Agna_02	5 12 A	1.00	118.20	120.37	123.45	3.44	0.76	124.05	0.008556	0.01	16.60	18.94	34.36	1.81
Agna_02	4 12 B	1.00	118.18	120.37	123.59	2.47	0.59	123.91	0.005137	0.01	26.79	29.52	47.82	1.62
Agna_02	3 12 C	20.02	118.19	120.37	123.61	2.36	0.58	123.89	0.004999	0.14	29.89	32.45	50.08	1.54
Agna_02	2 13	25.80	118.19	120.10	123.22	3.60	0.80	123.87	0.009101	0.25	16.03	17.74	32.86	1.85
Agna_02	1 14	0.00	118.19	120.10	122.97	3.56	0.85	123.62	0.010007		18.44	19.57	33.21	1.70

Tronco	Lat Structure	s [m³/s]
Agna_Conche	37.999	0.0
Agna_Conche	37.998	0.0
Agna_Conche	35.999	0.0
Agna_Conche	35.998	0.0
Agna_Conche	32.999	0.0
Agna_Conche	32.998	0.0
Agna_Conche	27.999	0.0
Agna_Conche	27.998	0.0
Agna_Conche	21.999	0.0
Agna_Conche	21.998	0.0
Agna_Conche	14.999	0.0
Agna_Conche	14.998	0.0
Agna_Conche	10.999	0.0
Agna_Conche	10.998	0.0
Agna_Conche	7.999	0.0
Agna_Conche	7.998	0.0
Agna_01	17.999	0.0
Agna_01	17.998	0.0
Agna_02	13.999	1.3
Agna_02	13.998	0.0
Agna_02	7.999	-1.9
Agna_02	7.998	0.0



**Tabulati verifiche idrauliche**  
**stato di progetto**  
**Tr = 200 anni**





Reach	River Station	L Chnl [m]	Q Tot [m³/s]	Ch El [m slm]	WS El [m slm]	Vel Tot [m/s]	Froude XS	EG El [m]	EG Slope [m/m]	Frc Loss [m]	Top W [m]	WP Tot [m]	Area [m²]	Hydr R [m]
Agna Conche	38 A 24	18.64	117.78	147.67	151.20	2.63	0.62	151.55	0.005532	0.07	24.77	26.64	44.80	1.68
Agna Conche	37 A 23 A	1.00	115.41	147.06	151.26	1.96	0.36	151.45	0.001960		19.34	24.93	58.84	2.36
Agna Conche	36 A 22 D	4.87	115.29	147.03	149.59	3.24	0.87	150.13	0.011112	0.06	25.14	26.16	35.61	1.36
Agna Conche	35 A 21 A	1.00	116.47	145.82	149.25	3.74	0.98	149.96	0.016319	0.02	20.93	24.52	31.11	1.27
Agna Conche	34 A 21 B	1.00	116.42	145.82	149.23	3.79	0.99	149.96	0.016781		20.72	24.30	30.74	1.26
Agna Conche	33 A 21 C	4.25	117.89	142.85	146.36	5.00	0.99	147.63	0.018033	0.08	9.13	12.97	23.58	1.82
Agna Conche	32 A 20	4.68	117.87	143.82	146.09	5.17	1.17	147.45	0.022753	0.10	11.52	14.21	22.81	1.60
Agna Conche	31 A 19	4.88	117.58	142.64	145.50	4.65	0.99	146.60	0.016669	0.08	11.29	14.65	25.31	1.73
Agna Conche	30 A 18 A	1.00	117.57	142.41	144.96	3.21	0.69	145.49	0.007585	0.01	16.55	20.50	36.65	1.79
Agna Conche	29 A 18 B	1.00	117.57	142.41	144.95	3.23	0.69	145.48	0.007736		16.55	20.47	36.42	1.78
Agna Conche	28 A 18 C	4.66	117.57	138.57	144.27	1.85	0.30	144.44	0.001516	0.01	16.49	24.35	63.65	2.61
Agna Conche	27 A 17	4.16	117.62	140.94	143.56	4.78	1.06	144.72	0.018687	0.07	11.88	14.86	24.60	1.66
Agna Conche	26 A 16	4.33	117.60	139.97	143.35	3.80	0.75	144.08	0.009518	0.05	11.83	15.93	30.96	1.94
Agna Conche	25 A 15 BIS	4.33	117.75	140.35	142.80	4.73	1.12	143.94	0.020837	0.09	13.80	16.60	24.90	1.50
Agna Conche	24 A 15 A	1.00	117.74	139.89	142.36	4.01	1.02	143.18	0.015928	0.01	18.61	20.47	29.35	1.43
Agna Conche	23 A 15 B	1.00	117.75	139.89	142.31	3.55	0.82	142.95	0.010485		17.48	20.26	33.13	1.64
Agna Conche	22 A 15 C	3.79	117.74	136.09	140.62	2.09	0.34	140.84	0.001731	0.01	14.91	19.77	56.32	2.85
Agna Conche	21 A 14	4.53	117.74	137.82	140.13	5.01	1.27	141.41	0.023942	0.10	14.83	15.96	23.51	1.47
Agna Conche	20 A 13	4.93	117.73	136.79	139.61	3.16	0.75	140.12	0.008065	0.04	20.47	22.38	37.30	1.67
Agna Conche	19 A 12	4.99	118.61	136.78	139.61	2.50	0.54	139.93	0.004269	0.02	21.93	25.15	47.51	1.89
Agna Conche	18 A 11	4.63	118.63	136.32	139.56	2.44	0.52	139.86	0.004131	0.02	21.86	26.05	48.67	1.87
Agna Conche	17 A 10 A	1.00	118.62	136.40	139.12	3.37	0.72	139.70	0.008658	0.01	15.99	20.22	35.22	1.74
Agna Conche	16 A 10 B	1.00	118.62	136.40	139.12	3.31	0.71	139.68	0.008358		15.99	20.58	35.85	1.74
Agna Conche	15 A 10 C	4.88	118.60	133.01	137.57	1.71	0.26	137.72	0.001100	0.01	15.92	23.26	69.17	2.97
Agna Conche	14 A 9	4.65	118.59	134.29	136.88	4.11	0.90	137.74	0.013148	0.06	13.60	16.83	28.87	1.72
Agna Conche	13 A 8	4.38	118.59	133.61	136.75	3.67	0.72	137.43	0.009142	0.04	12.35	17.03	32.35	1.90
Agna Conche	12 PONTE A	1.00	118.59	132.92	136.67	3.41	0.58	137.26	0.007020	0.01	10.00	16.76	34.79	2.08
Agna Conche	11 PONTE D	22.81	118.59	132.92	135.99	4.24	0.81	136.90	0.013020	0.25	10.00	15.39	27.94	1.82
Agna Conche	10 A 7 A	1.00	118.59	133.15	135.87	3.27	0.76	136.42	0.008783	0.01	19.39	21.94	36.23	1.65
Agna Conche	9 A 7 B	1.00	118.59	133.15	135.85	3.30	0.78	136.41	0.009037		19.39	21.91	35.90	1.64
Agna Conche	8 A 7 C	23.10	118.59	128.99	134.14	2.25	0.38	134.40	0.002044	0.20	14.55	18.87	52.82	2.80
Agna Conche	7 A 6	7.84	118.58	130.98	133.87	4.32	0.98	134.82	0.015635	0.16	13.86	16.87	27.43	1.63
Agna Conche	6 A 5	19.89	118.58	130.77	133.66	5.12	1.21	135.00	0.025917	0.37	12.60	16.11	23.14	1.44
Agna Conche	5 A 4	14.58	118.53	130.30	133.13	3.26	0.86	133.68	0.011495	0.15	24.77	27.06	36.33	1.34
Agna Conche	4 A 3	6.82	118.15	129.95	133.00	2.96	0.74	133.44	0.008496	0.05	24.58	27.39	39.90	1.46
Agna Conche	3 A 2	4.72	118.10	129.85	132.99	2.72	0.65	133.36	0.006420	0.03	24.62	27.41	43.40	1.58
Agna Conche	2 A 1	17.98	118.07	129.50	133.09	1.78	0.40	133.25	0.002223	0.03	32.38	35.68	66.28	1.86
Agna Conche	1 4*	1.00	118.24	129.09	133.13	1.25	0.27	133.21	0.000990	0.01	41.93	47.06	94.47	2.01
Agna 01	20 1 A	1.00	128.47	131.56	133.49	4.33	1.12	134.45	0.019975	0.02	19.55	21.81	29.64	1.36

Reach	River Station	L Chnl [m]	Q Tot [m³/s]	Ch El [m slm]	WS El [m slm]	Vel Tot [m/s]	Froude XS	EG El [m]	EG Slope [m/m]	Frc Loss [m]	Top W [m]	WP Tot [m]	Area [m²]	Hydr R [m]
Agna_01	19 1 B	1.00	128.47	131.56	133.47	4.40	1.15	134.46	0.020932	0.01	19.49	21.73	29.18	1.34
Agna_01	18 1 C	13.98	128.46	129.42	133.33	2.72	0.55	133.71	0.004801	0.11	19.18	23.93	47.17	1.97
Agna_01	17 2	13.35	128.45	130.30	133.06	3.66	0.84	133.74	0.010883	0.13	17.98	21.13	35.11	1.66
Agna_01	16 3	15.42	127.84	129.70	132.99	3.02	0.70	133.45	0.008155	0.07	22.29	27.29	42.29	1.55
Agna_01	15 4*	1.00	127.85	129.09	133.11	1.36	0.29	133.21	0.001179	0.01	41.93	47.03	93.92	2.00
Agna_02	14 4	22.30	246.43	129.09	132.54	3.53	0.87	133.17	0.011407	0.35	41.91	45.88	69.78	1.52
Agna_02	13 5	12.10	245.34	128.31	132.15	4.54	1.12	133.20	0.019868	0.22	32.55	37.02	54.08	1.46
Agna_02	12 6	6.80	241.64	128.42	131.92	4.70	1.05	133.05	0.016530	0.10	25.39	29.09	51.42	1.77
Agna_02	11 7	7.34	238.92	128.24	131.78	4.26	0.90	132.71	0.011743	0.08	24.44	28.46	56.09	1.97
Agna_02	10 8	3.38	235.27	128.28	131.68	3.94	0.83	132.48	0.009783	0.03	25.80	29.60	59.64	2.02
Agna_02	9 9	0.63	225.72	128.36	131.68	3.48	0.70	132.30	0.007311		25.86	31.22	64.86	2.08
Agna_02	8 10 A	4.50	225.71	121.38	126.02	4.35	0.92	126.98	0.012301	0.06	22.55	26.41	51.89	1.97
Agna_02	7 10	4.51	230.36	121.14	125.41	5.26	1.16	126.82	0.020553	0.09	21.07	24.68	43.83	1.78
Agna_02	6 11	30.17	232.42	120.54	124.94	5.04	1.00	126.24	0.013993	0.36	17.97	20.74	46.12	2.22
Agna_02	5 12 A	1.00	239.83	120.37	124.54	4.40	0.85	125.53	0.009881	0.01	20.08	23.15	54.52	2.36
Agna_02	4 12 B	1.00	240.92	120.37	124.61	3.19	0.62	125.12	0.005190	0.01	28.06	32.09	75.58	2.35
Agna_02	3 12 C	20.02	256.12	120.37	124.66	3.11	0.61	125.16	0.004991	0.16	31.33	35.14	82.26	2.34
Agna_02	2 13	25.80	256.15	120.10	124.44	4.55	0.93	125.49	0.011382	0.28	23.02	25.29	56.31	2.23
Agna_02	1 14	0.00	256.16	120.10	124.16	4.44	0.89	125.16	0.010007		22.68	24.44	57.74	2.36

Tronco	Lat Structure	s [m³/s]
Agna_Conche	37.999	2.4
Agna_Conche	37.998	0.0
Agna_Conche	35.999	-1.7
Agna_Conche	35.998	0.0
Agna_Conche	32.999	-0.7
Agna_Conche	32.998	0.0
Agna_Conche	27.999	-0.3
Agna_Conche	27.998	0.0
Agna_Conche	21.999	0.0
Agna_Conche	21.998	0.0
Agna_Conche	14.999	0.0
Agna_Conche	14.998	0.0
Agna_Conche	10.999	0.0
Agna_Conche	10.998	0.0
Agna_Conche	7.999	0.0
Agna_Conche	7.998	0.0
Agna_01	17.999	0.0
Agna_01	17.998	0.0
Agna_02	13.999	20.7
Agna_02	13.998	0.0
Agna_02	7.999	-20.8
Agna_02	7.998	0.0

