



CORRIDOIO PLURIMODALE TIRRENICO-NORD EUROPA ITINERARIO AGRIGENTO -CALTANISSETTA-A19

S.S. N° 640 "DI PORTO EMPEDOCLE"

AMMODERNAMENTO E ADEGUAMENTO ALLA CAT. B DEL D.M. 5.11.2001
Dal km 44+000 allo svincolo con l'A19

PROGETTO DEFINITIVO

GRUPPO DI PROGETTAZIONE

ATI:

TECHNITAL s.p.a. (mandataria)

S.I.S. Studio di Ingegneria Stradale s.r.l.

DELTA Ingegneria s.r.l.

INFRATEC s.r.l Consulting Engineering

PROGIN s.p.a.

I RESPONSABILI DI PROGETTO

Dott. Ing. M. Raccosta

Ordine Ing. Verona n° A1885

Prof. Ing. A. Bevilacqua

Ordine Ing. Palermo n° 4058

Dott. Ing. M. Carlino

Ordine Ing. Agrigento n° A828

Dott. Ing. N. Troccoli

Ordine Ing. Potenza n° 836

Dott. Ing. S. Esposito

Ordine Ing. Roma n° 20837

IL GEOLOGO

INTEGRAZIONI PRESTAZIONI SPECIALISTICHE

Dott. Ing. M. Raccosta

VISTO:IL RESPONSABILE
DEL PROCEDIMENTO

VISTO:IL RESPONSABILE DEL
SERVIZIO PROGETTAZIONE

DATA

Dott. Ing. Massimiliano Fidenzi

Dott. Ing. Antonio Valente

PROTOCOLLO

IDROLOGIA ED IDRAULICA - Parte generale

Vallone Favarella - Viadotto Favarella

Tabulato di confronto Ante e Post Operam

CODICE PROGETTO		NOME FILE	REVISIONE	FOGLIO	SCALA:
LO407B D 0501		ID01-IDR-TC02.pdf			
CODICE ELAB.		T01ID01IDR TC02	B	DI	
D					
C					
B	REVISIONE a seguito istruttoria ANAS 19/03/07	Aprile 2007	A. Mita	F. Arciuli	C. Marro
A	EMISSIONE	Ottobre 2006	A. Mita	F. Arciuli	C. Marro
REV.	DESCRIZIONE	DATA	VERIFICATO RESP. TECNICO	CONTROLLATO RESP. D'ITINERARIO	APPROVATO RESP. DI SETTORE

TABELLA DI CONFRONTO ANTE - POST OPERAM

HEC-RAS																
River: Vallone Favarella		Tempo di ritorno Tr = 50 anni														
River (Fiume)	River Station (Sezione)	Q Total (Portata) [m ³ /s]	Min Ch El (Qia fondo) [m.s.m.]	W.S. Elev. (Pelo libero) [m.s.m.]	Crit. W.S. (Alt.critica) [m.s.m.]	Mann Wtd (Scabrezza) [m ^{1/3} s ⁻¹]	W.S. (Tirante) [m]	Vel Chnl (Velocità) [m/s]	Flow Area (Area sec. liquida) [m ²]	Top Width (Largh. Superf.) [m]	Froude # Chl (n° Froude)	Shear Total (Tens. Trascinam.) [N/m ²]	W.P. Total (Cont. Bagn.) [m]	E.G. Slope (Pend. Energia) [m/m]	R Idr. (R Idraulico) [m]	
Vallone Favarella	1 A.O.	18.54	460.2	460.93	461.44	0.020	0.73	7.05	2.88	7.92	3.36	208.55	8.07	0.059586	0.357	
Vallone Favarella	1 P.O.	18.54	460.2	460.94	461.44	0.020	0.74	6.81	3	8.08	3.2	192.06	8.24	0.053778	0.364	
Variazioni %=(PO-AO)/AO							1.37	-3.40		2.02		-7.91				
Vallone Favarella	2 A.O.	18.54	462.44	463.37	463.93	0.020	0.93	6.54	3.09	6.67	2.67	152.23	6.94	0.034833	0.445	
Vallone Favarella	2 P.O.	18.54	462.44	463.39	463.93	0.020	0.95	6.26	3.26	6.86	2.5	135.66	7.13	0.030226	0.457	
Variazioni %=(PO-AO)/AO							2.15	-4.28		2.85		-10.88				
Vallone Favarella	3 A.O.	18.54	463.95	465.39	465.39	0.020	1.44	3.46	5.48	5.17	0.98	40.99	6.75	0.005147	0.812	
Vallone Favarella	3 P.O.	18.54	463.95	465.39	465.39	0.020	1.44	3.46	5.48	5.17	0.98	40.99	6.75	0.005147	0.812	
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00				
Vallone Favarella	4 A.O.	18.54	463.85	466.44	465.36	0.020	2.59	1.92	10.86	10.94	0.4	7.93	14.36	0.00107	0.756	
Vallone Favarella	4 P.O.	18.54	463.85	466.44	465.36	0.020	2.59	1.92	10.86	10.94	0.4	7.93	14.36	0.00107	0.756	
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00				
Vallone Favarella	5 A.O.	18.54	463.97	466.58		0.020	2.61	1.13	17.5	15.67	0.28	3.28	17.37	0.000332	1.007	
Vallone Favarella	5 P.O.	18.54	463.97	466.58		0.020	2.61	1.13	17.5	15.67	0.28	3.28	17.37	0.000332	1.007	
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00				
Vallone Favarella	6 A.O.	18.54	464.67	467.04	465.89	0.020	2.37	1.12	21.98	40.59	0.26	1.17	41.92	0.000228	0.524	
Vallone Favarella	6 P.O.	18.54	464.67	467.04	465.89	0.020	2.37	1.12	21.98	40.59	0.26	1.17	41.92	0.000228	0.524	
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00				
Vallone Favarella	7 A.O.	18.54	466.07	467.23	467.85	0.020	1.16	6.72	2.95	5.13	2.49	156.57	5.63	0.030431	0.524	
Vallone Favarella	7 P.O.	18.54	466.07	467.23	467.85	0.020	1.16	6.72	2.95	5.13	2.49	156.57	5.63	0.030431	0.524	
Variazioni %=(PO-AO)/AO							0.87	-0.59		0.39		-1.63				
Vallone Favarella	8 A.O.	18.54	468	469.12	469.7	0.020	1.12	6.01	3.75	6.72	2.24	127.39	7.17	0.024816	0.523	
Vallone Favarella	8 P.O.	18.54	468	469.14	469.7	0.020	1.14	5.83	3.88	6.84	2.16	119.45	7.29	0.022889	0.532	
Variazioni %=(PO-AO)/AO							1.79	-3.00		1.79		-6.23				
Vallone Favarella	9 A.O.	18.54	468.67	470.03	470.39	0.020	1.33	5.67	3.78	5.7	1.89	96.99	6.29	0.016456	0.601	
Vallone Favarella	9 P.O.	18.54	468.67	470.03	470.39	0.020	1.36	5.37	4.69	25.66	1.75	24.45	26.25	0.01397	0.179	
Variazioni %=(PO-AO)/AO							2.26	-5.29		350.18		-74.79				
Vallone Favarella	10 A.O.	18.54	470.37	471.06	471.39	0.020	0.60	6.91	3.97	13.38	3.12	140.94	13.44	0.048616	0.295	
Vallone Favarella	10 P.O.	18.54	470.37	471.06	471.39	0.020	0.69	5.5	5.28	15.55	2.29	81.77	15.62	0.024648	0.338	
Variazioni %=(PO-AO)/AO							15.00	-20.41		16.22		-41.98				
Vallone Favarella	11 A.O.	18.54	470.82	471.69	472.21	0.020	0.87	6.86	3.59	8.44	2.82	162.15	8.72	0.040189	0.412	
Vallone Favarella	11 P.O.	18.54	470.82	471.7	472.21	0.020	0.88	6.66	3.71	8.59	2.71	152.05	8.88	0.037105	0.418	
Variazioni %=(PO-AO)/AO							1.15	-2.92		1.78		-6.23				
Vallone Favarella	12 A.O.	18.54	471.16	472.18	472.63	0.020	1.02	6.29	3.73	11.93	2.52	94.04	12.23	0.031418	0.305	
Vallone Favarella	12 P.O.	18.54	471.16	472.2	472.63	0.020	1.04	6.05	3.95	12.38	2.39	85.68	12.68	0.028024	0.312	
Variazioni %=(PO-AO)/AO							1.96	-3.82		3.77		-8.89				
Vallone Favarella	13 A.O.	18.54	471.49	472.37	472.83	0.020	0.88	6.79	3.26	10.67	3.16	155.54	10.88	0.052887	0.300	
Vallone Favarella	13 P.O.	18.54	471.49	472.39	472.83	0.020	0.90	6.44	3.5	11.11	2.93	135.55	11.32	0.044739	0.309	
Variazioni %=(PO-AO)/AO							2.27	-5.15		4.12		-12.85				
Vallone Favarella	14 A.O.	18.54	471.96	472.76	473.37	0.020	0.80	7.82	2.62	6.37	3.5	248.54	6.6	0.063876	0.397	
Vallone Favarella	14 P.O.	18.54	471.96	472.76	473.37	0.020	0.80	7.82	2.62	6.37	3.5	248.54	6.6	0.063876	0.397	
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00				
Vallone Favarella	15 A.O.	18.54	473.61	474.8	475.47	0.020	1.19	7.4	2.65	4.65	2.9	222.91	5.25	0.045087	0.505	
Vallone Favarella	15 P.O.	18.54	473.61	474.8	475.47	0.020	1.19	7.46	2.63	4.63	2.93	226.97	5.23	0.0461	0.503	
Variazioni %=(PO-AO)/AO							0.00	0.81		-0.43		1.82				
Vallone Favarella	16 A.O.	18.54	475.39	476.65	477.39	0.020	1.24	8.48	2.19	4.23	3.66	347.84	4.98	0.080569	0.440	
Vallone Favarella	16 P.O.	18.54	475.39	476.65	477.39	0.020	1.26	8.21	2.27	4.31	3.49	317.27	5.07	0.072328	0.448	
Variazioni %=(PO-AO)/AO							1.61	-3.18		1.89		-8.79				
Vallone Favarella	17 A.O.	18.54	480.76	481.58	481.96	0.020	0.82	5.75	4.53	11.16	2.35	103.48	11.31	0.026345	0.401	
Vallone Favarella	17 P.O.	18.54	480.76	481.58	481.96	0.020	0.82	5.67	4.6	11.24	2.31	100.22	11.4	0.025317	0.404	
Variazioni %=(PO-AO)/AO							0.00	-1.39		0.72		-3.15				
Vallone Favarella	18 A.O.	18.54	481.73	483.03	483.03	0.020	1.30	2.77	10.9	20.57	0.87	15.91	20.85	0.003103	0.523	
Vallone Favarella	18 P.O.	18.54	481.73	482.65	483	0.020	0.92	4.96	4.76	13.32	0.09	62.77	14.33	0.019283	0.332	
Variazioni %=(PO-AO)/AO							-29.23	79.06		-35.25		294.53				
Vallone Favarella	19 A.O.	18.54	482.89	484.75	484.31	0.020	1.86	1.03	44.89	70.84	0.26	1.46	71.13	0.000236	0.631	
Vallone Favarella	19 P.O.	18.54	482.89	485.4	484.29	0.020	2.51	0.43	98.04	89.31	0.09	0.32	90.35	0.00003	1.085	
Variazioni %=(PO-AO)/AO							34.95	-58.25		26.07		-78.08				
Vallone Favarella	20 A.O.	18.54	482.98	484.73	484.4	0.020	1.75	1.41	31.88	60.13	0.38	2.79	60.49	0.00054	0.527	
Vallone Favarella	20 P.O.	18.54	482.98	485.4		0.020	2.42	0.55	81.43	84.11	0.12	0.47	84.51	0.00005	0.964	
Variazioni %=(PO-AO)/AO							38.29	-60.99		39.88		-83.15				
Vallone Favarella	21 A.O.	18.54	484.04	485.04	485.45	0.020	1.00	5.45	4.82	11.56	2	71.82	11.78	0.017908	0.409	
Vallone Favarella	21 P.O.	18.54	484.04	485.01	485.45	0.020	0.97	5.71	4.49	10.71	2.14	83.6	10.93	0.020746	0.411	
Variazioni %=(PO-AO)/AO							-3.00	4.77		-7.35		16.40				
Vallone Favarella	22 A.O.	18.54	485.95	486.55	486.72	0.020	0.60	4.9	7.74	33.01	2.43	74.25	33.15	0.032415	0.233	
Vallone Favarella	22 P.O.	18.54	485.95	486.55	486.72	0.020	0.60	4.89	7.76	33.04	2.42	73.99	33.17	0.032272	0.234	
Variazioni %=(PO-AO)/AO							0.00	-0.20		0.09		-0.35				
Vallone Favarella	23 A.O.	18.54	486.7	487.11	487.25	0.020	0.41	4.78	8.09	38.27	2.58	77.18	38.3	0.037286	0.211	
Vallone Favarella	23 P.O.	18.54	486.7	487.12	487.25	0.020	0.42	4.68	8.27	38.6	2.51	73.63	38.64	0.035084	0.214	
Variazioni %=(PO-AO)/AO							2.44	-2.09		0.86		-4.60				
Vallone Favarella	24 A.O.	18.54	486.81	487.44	487.78	0.020	0.63	6.62	4.73	14.24	3.04	161.13	14.43	0.050064	0.328	
Vallone Favarella	24 P.O.	18.54	486.81	487.47	487.78	0.020	0.66	5.97	5.28	15.09	2.68	129.58	15.28	0.038254	0.346	
Variazioni %=(PO-AO)/AO							4.76	-9.82		5.97		-19.58				
Vallone Favarella	25 A.O.	18.54	487.47	488.8	488.8	0.020	1.33	2.99	12.99	24.36	0.89	16.06	24.62	0.003102	0.528	
Vallone Favarella	25 P.O.	18.54	487.47	488.8	488.8	0.020	1.33	2.99	12.99	24.36	0.89	16.06	24.62	0.003102	0.528	
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00				

TABELLA DI CONFRONTO ANTE - POST OPERAM

Tempo di ritorno Tr = 100 anni																
HEC-RAS																
River: Vallone Favarella																
River (Fiume)	River Station (Sezione)	Q Total (Portata) [m ³ /s]	Min Ch El (Qia fondo) [m.s.m.]	W.S. Elev. (Pelo libero) [m.s.m.]	Crit. W.S. (Alt.critica) [m.s.m.]	Mann Wtd (Scabrezza) [m ^{1/3} s ⁻¹]	W.S. (Tirante) [m]	Vel Chnl (Velocità) [m/s]	Flow Area (Area sec. liquida) [m ²]	Top Width (Largh. Superf.) [m]	Froude # Chl (n° Froude)	Shear Total (Tens. Trascinam.) [N/m ²]	W.P. Total (Cont. Bagn.) [m]	E.G. Slope (Pend. Energia) [m/m]	R Idr. (R Idrantico) [m]	
Vallone Favarella	1 A.O.	21.61	460.2	460.97	461.52	0.020	0.77	7.4	3.25	8.4	3.4	222.39	8.57	0.059864	0.379	
Vallone Favarella	1 P.O.	21.61	460.2	460.99	461.52	0.020	0.79	7.15	3.38	8.57	3.25	205.23	8.74	0.054156	0.387	
Variazioni %=(PO-AO)/AO							2.60	-3.38		2.02		-7.72				
Vallone Favarella	2 A.O.	21.61	462.44	463.44	463.95	0.020	1.00	6.79	3.56	7.16	2.63	152.85	7.45	0.032594	0.478	
Vallone Favarella	2 P.O.	21.61	462.44	463.46	463.95	0.020	1.02	6.53	3.74	7.34	2.48	138.18	7.63	0.028769	0.490	
Variazioni %=(PO-AO)/AO							2.00	-3.83		2.51		-9.60				
Vallone Favarella	3 A.O.	21.61	463.95	465.54	465.54	0.020	1.59	3.59	6.29	5.7	0.96	40.07	7.36	0.004779	0.855	
Vallone Favarella	3 P.O.	21.61	463.95	465.54	465.54	0.020	1.59	3.59	6.29	5.7	0.96	40.07	7.36	0.004779	0.855	
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00				
Vallone Favarella	4 A.O.	21.61	463.85	466.57	465.51	0.020	2.72	2.08	12.46	17.13	0.42	6.9	20.57	0.001162	0.606	
Vallone Favarella	4 P.O.	21.61	463.85	466.57	465.51	0.020	2.72	2.08	12.46	17.13	0.42	6.9	20.57	0.001162	0.606	
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00				
Vallone Favarella	5 A.O.	21.61	463.97	466.73		0.020	2.76	1.19	20.55	30	0.29	2.07	31.74	0.000326	0.647	
Vallone Favarella	5 P.O.	21.61	463.97	466.73		0.020	2.76	1.19	20.55	30	0.29	2.07	31.74	0.000326	0.647	
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00				
Vallone Favarella	6 A.O.	21.61	464.67	467.32	466	0.020	2.65	1.03	35.84	58.65	0.22	0.94	60.26	0.00016	0.595	
Vallone Favarella	6 P.O.	21.61	464.67	467.32	466	0.020	2.65	1.03	35.84	58.65	0.22	0.94	60.26	0.00016	0.595	
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00				
Vallone Favarella	7 A.O.	21.61	466.07	467.31	467.97	0.020	1.24	7	3.38	5.48	2.46	158.67	6.02	0.028832	0.561	
Vallone Favarella	7 P.O.	21.61	466.07	467.31	467.97	0.020	1.24	6.98	3.39	5.49	2.45	157.46	6.03	0.028561	0.562	
Variazioni %=(PO-AO)/AO							0.00	-0.29		0.18		-0.76				
Vallone Favarella	8 A.O.	21.61	468	469.2	469.88	0.020	1.20	6.24	4.27	7.17	2.24	133.28	7.65	0.024329	0.558	
Vallone Favarella	8 P.O.	21.61	468	469.21	469.88	0.020	1.21	6.07	4.41	7.29	2.16	124.13	7.77	0.022301	0.568	
Variazioni %=(PO-AO)/AO							0.83	-2.72		1.67		-6.87				
Vallone Favarella	9 A.O.	21.61	468.67	470.06	470.45	0.020	1.39	5.98	5.33	26.24	1.92	32.55	26.84	0.016716	0.199	
Vallone Favarella	9 P.O.	21.61	468.67	470.08	470.45	0.020	1.41	5.7	5.97	26.97	1.81	31.22	27.57	0.014689	0.217	
Variazioni %=(PO-AO)/AO							1.44	-4.68		2.78		-4.09				
Vallone Favarella	10 A.O.	21.61	470.37	471	471.46	0.020	0.63	7.31	4.48	14.27	3.19	151.9	14.33	0.0495	0.313	
Vallone Favarella	10 P.O.	21.61	470.37	471.09	471.46	0.020	0.72	5.94	5.8	16.34	2.41	92.96	16.4	0.026792	0.354	
Variazioni %=(PO-AO)/AO							14.29	-18.74		14.51		-38.80				
Vallone Favarella	11 A.O.	21.61	470.82	471.73	472.29	0.020	0.91	7.27	4	8.95	2.9	178.53	9.25	0.042053	0.432	
Vallone Favarella	11 P.O.	21.61	470.82	471.75	472.29	0.020	0.93	7.08	4.13	9.09	2.81	168.47	9.4	0.039123	0.439	
Variazioni %=(PO-AO)/AO							2.20	-2.61		1.56		-5.63				
Vallone Favarella	12 A.O.	21.61	471.16	472.22	472.7	0.020	1.06	6.75	4.22	12.9	2.63	104.62	13.21	0.033373	0.319	
Vallone Favarella	12 P.O.	21.61	471.16	472.23	472.7	0.020	1.07	6.53	4.43	13.3	2.51	96.65	13.61	0.030247	0.325	
Variazioni %=(PO-AO)/AO							0.94	-3.26		3.10		-7.62				
Vallone Favarella	13 A.O.	21.61	471.49	472.41	472.91	0.020	0.92	7.25	3.65	11.39	3.26	168.91	11.6	0.054698	0.315	
Vallone Favarella	13 P.O.	21.61	471.49	472.42	472.91	0.020	0.93	6.94	3.87	11.77	3.06	151.11	11.98	0.047727	0.323	
Variazioni %=(PO-AO)/AO							1.09	-4.28		3.34		-10.54				
Vallone Favarella	14 A.O.	21.61	471.96	472.81	473.48	0.020	0.85	8.23	2.94	6.69	3.56	268.91	6.93	0.064738	0.424	
Vallone Favarella	14 P.O.	21.61	471.96	472.81	473.48	0.020	0.85	8.27	2.92	6.67	3.59	272.14	6.91	0.06574	0.423	
Variazioni %=(PO-AO)/AO							0.00	0.49		-0.30		1.20				
Vallone Favarella	15 A.O.	21.61	473.61	474.86	475.6	0.020	1.25	7.84	2.94	4.91	2.99	243.43	5.55	0.046792	0.530	
Vallone Favarella	15 P.O.	21.61	473.61	474.86	475.6	0.020	1.25	7.89	2.92	4.89	3.01	247.38	5.52	0.047726	0.529	
Variazioni %=(PO-AO)/AO							0.00	0.64		-0.41		1.62				
Vallone Favarella	16 A.O.	21.61	475.39	476.7	477.51	0.020	1.31	8.75	2.5	4.56	3.56	335.66	5.34	0.073143	0.468	
Vallone Favarella	16 P.O.	21.61	475.39	476.72	477.51	0.020	1.33	8.5	2.58	4.64	3.41	309.3	5.43	0.06637	0.475	
Variazioni %=(PO-AO)/AO							1.53	-2.86		1.75		-7.85				
Vallone Favarella	17 A.O.	21.61	480.76	481.65	481.98	0.020	0.89	5.84	5.35	12.13	2.26	100.41	12.3	0.023533	0.435	
Vallone Favarella	17 P.O.	21.61	480.76	481.66	481.98	0.020	0.90	5.72	5.49	12.29	2.19	95.29	12.46	0.022045	0.441	
Variazioni %=(PO-AO)/AO							1.12	-2.05		1.32		-5.10				
Vallone Favarella	18 A.O.	21.61	481.73	483.08	483.08	0.020	1.35	3.04	11.8	21.58	0.93	18.7	21.86	0.003533	0.540	
Vallone Favarella	18 P.O.	21.61	481.73	482.77	483.05	0.020	1.04	4.61	6.51	15.6	0.08	52.22	16.62	0.013602	0.392	
Variazioni %=(PO-AO)/AO							-22.96	51.64		-27.71		179.25				
Vallone Favarella	19 A.O.	21.61	482.89	484.78	484.36	0.020	1.89	1.15	47.01	71.62	0.28	1.82	71.91	0.000284	0.654	
Vallone Favarella	19 P.O.	21.61	482.89	485.67	484.34	0.020	2.78	0.39	123.11	95.16	0.08	0.28	96.22	0.000022	1.279	
Variazioni %=(PO-AO)/AO							47.09	-66.09		32.87		-84.62				
Vallone Favarella	20 A.O.	21.61	482.98	484.76	484.44	0.020	1.78	1.57	33.47	61.36	0.42	3.48	61.73	0.000655	0.542	
Vallone Favarella	20 P.O.	21.61	482.98	485.67	484.00	0.020	2.69	0.49	105.31	91.3	0.1	0.38	91.73	0.000034	1.148	
Variazioni %=(PO-AO)/AO							51.12	-68.79		48.79		-89.08				
Vallone Favarella	21 A.O.	21.61	484.04	485.12	485.53	0.020	1.08	5.57	5.83	13.85	1.95	66.65	14.08	0.016429	0.414	
Vallone Favarella	21 P.O.	21.61	484.04	485.09	485.53	0.020	1.05	5.82	5.47	13.08	2.07	75.39	13.31	0.018717	0.411	
Variazioni %=(PO-AO)/AO							-2.78	4.49		-5.56		13.11				
Vallone Favarella	22 A.O.	21.61	485.95	486.58	486.77	0.020	0.63	5.13	8.73	35	2.46	79.16	35.14	0.032506	0.248	
Vallone Favarella	22 P.O.	21.61	485.95	486.58	486.77	0.020	0.63	5.11	8.76	35.06	2.45	78.56	35.2	0.032199	0.249	
Variazioni %=(PO-AO)/AO							0.00	-0.39		0.17		-0.76				
Vallone Favarella	23 A.O.	21.61	486.7	487.13	487.3	0.020	0.43	5.1	8.88	39.69	2.67	86.28	39.73	0.039376	0.224	
Vallone Favarella	23 P.O.	21.61	486.7	487.14	487.3	0.020	0.44	5.02	9.02	39.95	2.62	83.37	39.99	0.037675	0.226	
Variazioni %=(PO-AO)/AO							2.33	-1.57		0.66		-3.37				
Vallone Favarella	24 A.O.	21.61	486.81	487.49	487.8	0.020	0.68	6.75	5.49	15.62	3	162.6	15.81	0.047777	0.347	
Vallone Favarella	24 P.O.	21.61	486.81	487.53	487.8	0.020	0.72	6.17	6.12	17.13	2.68	130.25	17.33	0.037591	0.353	
Variazioni %=(PO-AO)/AO							5.88	-8.59		9.67		-19.90				
Vallone Favarella	25 A.O.	21.61	487.47	488.86	488.86	0.020	1.39	3.15	14.48	25.38	0.91	17.88	25.65	0.003229	0.565	
Vallone Favarella	25 P.O.	21.61	487.47	488.86	488.86	0.020	1.39	3.15	14.48	25.38	0.91	17.88	25.65	0.003229	0.565	
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00				

TABELLA DI CONFRONTO ANTE - POST OPERAM

Tempo di ritorno Tr = 200 anni															
HEC-RAS River: Vallone Favarella															
River (Fiume)	River Station (Sezione) (Portata)	Q Total (Q.ta fondo) [m ³ /s]	Min Ch El ([m.s.m.]	W.S. Elev. (Pelo libero) [m.s.m.]	Crit. W.S. (Alt.critica) [m.s.m.]	Mann Wld (Scabrezza) [m ^{1/3} s ⁻¹]	W.S. (Tirante) [m]	Vel Chnl (Velocità) [m/s]	Flow Area (Area sec. liquida) [m ²]	Top Width (Largh. Superf.) [m]	Froude # Chl (n° Froude)	Shear Total (Tens. Traascinam.) [N/m ²]	W.P. Total (Cont. Bagn.) [m]	E.G. Slope (Pend. Energia) [m/m]	R Idr. (R Idr.) [m]
Vallone Favarella	1 A.O.	24.67	460.2	461.01	461.6	0.020	0.81	7.7	3.6	8.85	3.44	234.6	9.03	0.05992	0.399
Vallone Favarella	1 P.O.	24.67	460.2	461.03	461.6	0.020	0.83	7.46	3.74	9.02	3.29	217.97	9.19	0.054661	0.407
Variazioni %=(PO-AO)/AO							2.47	-3.12		1.92		-7.09			
Vallone Favarella	2 A.O.	24.67	462.44	463.5	464.21	0.020	1.06	7.01	4.03	7.62	2.6	153.82	7.92	0.03083	0.509
Vallone Favarella	2 P.O.	24.67	462.44	463.52	464.21	0.020	1.08	6.77	4.21	7.78	2.47	140.88	8.09	0.027633	0.520
Variazioni %=(PO-AO)/AO							1.89	-3.42		2.10		-8.41			
Vallone Favarella	3 A.O.	24.67	463.95	465.68	465.68	0.020	1.73	3.71	7.11	6.2	0.95	39.61	7.92	0.004498	0.898
Vallone Favarella	3 P.O.	24.67	463.95	465.68	465.68	0.020	1.73	3.71	7.11	6.2	0.95	39.61	7.92	0.004498	0.898
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00			
Vallone Favarella	4 A.O.	24.67	463.85	466.6	465.65	0.020	2.75	2.32	13.18	22.81	0.47	6.98	26.25	0.001418	0.502
Vallone Favarella	4 P.O.	24.67	463.85	466.6	465.65	0.020	2.75	2.32	13.18	22.81	0.47	6.98	26.25	0.001418	0.502
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00			
Vallone Favarella	5 A.O.	24.67	463.97	466.81		0.020	2.84	1.28	23.5	44.26	0.3	1.79	46.01	0.000356	0.511
Vallone Favarella	5 P.O.	24.67	463.97	466.81		0.020	2.84	1.28	23.5	44.26	0.3	1.79	46.01	0.000356	0.511
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00			
Vallone Favarella	6 A.O.	24.67	464.67	467.39	466.08	0.020	2.72	1.1	40.37	62.79	0.23	1.07	64.46	0.000175	0.626
Vallone Favarella	6 P.O.	24.67	464.67	467.39	466.08	0.020	2.72	1.1	40.37	62.79	0.23	1.07	64.46	0.000175	0.626
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00			
Vallone Favarella	7 A.O.	24.67	466.07	467.39	467.95	0.020	1.32	7.23	3.82	5.83	2.43	159.33	6.4	0.027229	0.597
Vallone Favarella	7 P.O.	24.67	466.07	467.39	467.95	0.020	1.32	7.23	3.82	5.83	2.42	158.46	6.41	0.027045	0.598
Variazioni %=(PO-AO)/AO							0.00	-0.28		0.17		-0.55			
Vallone Favarella	8 A.O.	24.67	468	469.27	469.94	0.020	1.27	6.41	4.83	7.63	2.2	132.54	8.13	0.022758	0.594
Vallone Favarella	8 P.O.	24.67	468	469.29	469.94	0.020	1.29	6.27	4.95	7.72	2.14	125.46	8.23	0.021273	0.601
Variazioni %=(PO-AO)/AO							1.57	-2.18		1.18		-5.34			
Vallone Favarella	9 A.O.	24.67	468.67	470.1	470.49	0.020	1.43	6.29	6.42	27.4	1.98	39.36	28	0.017512	0.229
Vallone Favarella	9 P.O.	24.67	468.67	470.12	470.49	0.020	1.45	6.02	6.99	27.95	1.88	37.49	28.56	0.015609	0.245
Variazioni %=(PO-AO)/AO							1.40	-4.29		2.01		-4.75			
Vallone Favarella	10 A.O.	24.67	470.37	471.03	471.52	0.020	0.66	7.7	4.95	15.04	3.26	163.58	15.1	0.050838	0.328
Vallone Favarella	10 P.O.	24.67	470.37	471.12	471.52	0.020	0.75	6.36	6.29	17.03	2.52	104.11	17.1	0.028877	0.368
Variazioni %=(PO-AO)/AO							13.64	-17.40		13.23		-36.36			
Vallone Favarella	11 A.O.	24.67	470.82	471.78	472.35	0.020	0.96	7.66	4.38	9.39	3	195.74	9.7	0.044195	0.452
Vallone Favarella	11 P.O.	24.67	470.82	471.79	472.35	0.020	0.97	7.47	4.51	9.53	2.9	185.26	9.85	0.041268	0.458
Variazioni %=(PO-AO)/AO							1.04	-2.48		1.49		-5.35			
Vallone Favarella	12 A.O.	24.67	471.16	472.25	472.78	0.020	1.09	7.19	4.67	13.74	2.73	115.75	14.04	0.035482	0.333
Vallone Favarella	12 P.O.	24.67	471.16	472.27	472.78	0.020	1.11	6.97	4.88	14.11	2.62	107.85	14.41	0.032486	0.339
Variazioni %=(PO-AO)/AO							1.83	-3.06		2.69		-6.83			
Vallone Favarella	13 A.O.	24.67	471.49	472.44	472.98	0.020	0.95	7.7	4.02	12.02	3.35	183.2	12.24	0.056916	0.328
Vallone Favarella	13 P.O.	24.67	471.49	472.45	472.98	0.020	0.96	7.4	4.22	12.37	3.18	166.22	12.59	0.050496	0.335
Variazioni %=(PO-AO)/AO							1.05	-3.90		2.91		-9.27			
Vallone Favarella	14 A.O.	24.67	471.96	472.86	473.58	0.020	0.90	8.64	3.22	6.96	3.64	291.54	7.22	0.066614	0.446
Vallone Favarella	14 P.O.	24.67	471.96	472.85	473.58	0.020	0.89	8.69	3.2	6.94	3.67	295.33	7.2	0.067729	0.444
Variazioni %=(PO-AO)/AO							-1.11	0.58		-0.29		1.30			
Vallone Favarella	15 A.O.	24.67	473.61	474.92	475.72	0.020	1.31	8.27	3.21	5.14	3.03	256.03	5.8	0.047133	0.553
Vallone Favarella	15 P.O.	24.67	473.61	474.91	475.72	0.020	1.30	8.3	3.2	5.13	3.05	258.36	5.79	0.047652	0.553
Variazioni %=(PO-AO)/AO							-0.76	0.36		-0.19		0.91			
Vallone Favarella	16 A.O.	24.67	475.39	476.77	477.64	0.020	1.38	8.98	2.82	4.88	3.46	325	5.69	0.066885	0.496
Vallone Favarella	16 P.O.	24.67	475.39	476.79	477.64	0.020	1.40	8.73	2.91	4.97	3.33	301.37	5.78	0.061093	0.503
Variazioni %=(PO-AO)/AO							1.45	-2.78		1.84		-7.27			
Vallone Favarella	17 A.O.	24.67	480.76	481.72	481.98	0.020	0.96	5.88	6.23	13.11	2.17	96.42	13.29	0.020977	0.469
Vallone Favarella	17 P.O.	24.67	480.76	481.73	481.98	0.020	0.97	5.75	6.41	13.3	2.1	91.15	13.49	0.019568	0.475
Variazioni %=(PO-AO)/AO							1.04	-2.21		1.45		-5.47			
Vallone Favarella	18 A.O.	24.67	481.73	483.06	483.06	0.020	1.33	3.54	11.49	21.24	1.1	25.58	21.52	0.004884	0.534
Vallone Favarella	18 P.O.	24.67	481.73	482.89	483.07	0.020	1.16	4.32	8.46	17.79	0.07	44.22	18.82	0.010031	0.450
Variazioni %=(PO-AO)/AO							-12.78	22.03		-16.24		72.87			
Vallone Favarella	19 A.O.	24.67	482.89	484.83	484.39	0.020	1.94	1.21	50.72	72.97	0.3	2.06	73.26	0.000304	0.692
Vallone Favarella	19 P.O.	24.67	482.89	485.93	484.36	0.020	3.04	0.37	148.29	100.38	0.07	0.24	101.47	0.000017	1.461
Variazioni %=(PO-AO)/AO							56.70	-69.42		37.56		-88.35			
Vallone Favarella	20 A.O.	24.67	482.98	484.81	484.55	0.020	1.83	1.66	36.6	64.85	0.44	3.86	65.22	0.000701	0.561
Vallone Favarella	20 P.O.	24.67	482.98	485.93		0.020	2.95	0.45	129.66	97.35	0.09	0.32	97.8	0.000025	1.326
Variazioni %=(PO-AO)/AO							61.20	-72.89		50.12		-91.71			
Vallone Favarella	21 A.O.	24.67	484.04	485.19	485.6	0.020	1.15	5.69	6.83	15.81	1.91	64.48	16.06	0.015446	0.425
Vallone Favarella	21 P.O.	24.67	484.04	485.84	485.6	0.020	1.80	2.25	23.04	34.25	0.58	7.69	34.58	0.001177	0.666
Variazioni %=(PO-AO)/AO							56.52	-60.46		116.64		-88.07			
Vallone Favarella	22 A.O.	24.67	485.95	486.6	486.8	0.020	0.65	5.34	9.67	36.81	2.49	83.73	36.95	0.032624	0.262
Vallone Favarella	22 P.O.	24.67	485.95	486.61	486.8	0.020	0.66	5.33	9.69	36.85	2.48	83.37	36.99	0.032448	0.262
Variazioni %=(PO-AO)/AO							1.54	-0.19		0.11		-0.43			
Vallone Favarella	23 A.O.	24.67	486.7	487.15	487.33	0.020	0.45	5.4	9.62	40.98	2.76	95.02	41.02	0.041316	0.235
Vallone Favarella	23 P.O.	24.67	486.7	487.15	487.33	0.020	0.45	5.36	9.69	41.1	2.74	93.68	41.14	0.040567	0.236
Variazioni %=(PO-AO)/AO							0.00	-0.74		0.29		-1.41			
Vallone Favarella	24 A.O.	24.67	486.81	487.54	487.9	0.020	0.73	6.88	6.3	17.53	2.97	160.15	17.74	0.045952	0.355
Vallone Favarella	24 P.O.	24.67	486.81	487.57	487.9	0.020	0.76	6.37	6.95	18.9	2.68	130.69	19.11	0.036673	0.364
Variazioni %=(PO-AO)/AO							4.11	-7.41		7.82		-18.40			
Vallone Favarella	25 A.O.	24.67	487.47	488.91	488.91	0.020	1.44	3.3	15.92	26.32	0.93	19.54	26.6	0.00333	0.598
Vallone Favarella	25 P.O.	24.67	487.47	488.91	488.91	0.020	1.44	3.3	15.92	26.32	0.93	19.54	26.6	0.00333	0.598
Variazioni %=(PO-AO)/AO							0.00	0.00		0.00		0.00			