

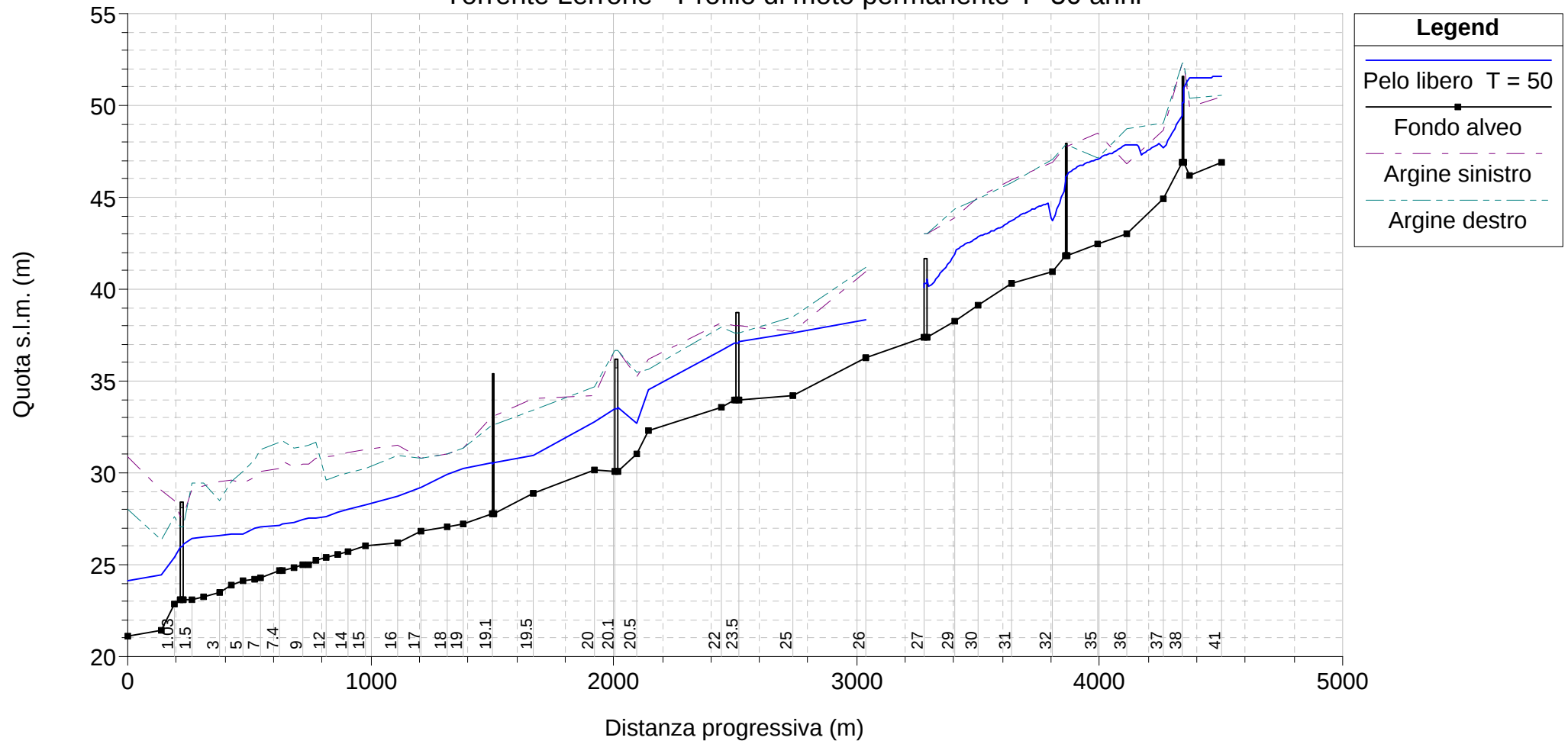


PROVINCIA DI SAVONA
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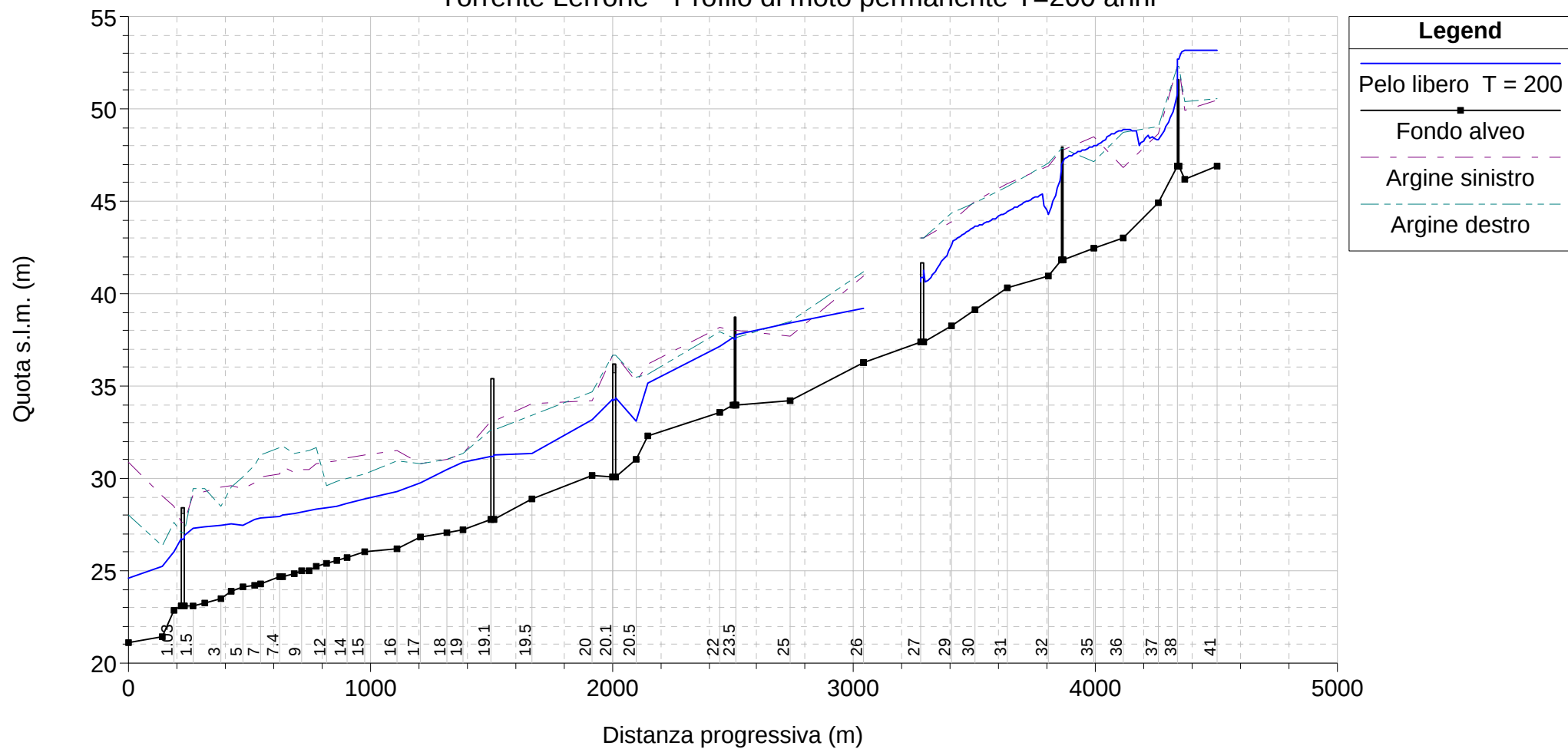
3. TORRENTE LERRONE

**3.1 PROFILI DI RIGURGITO IN CONDIZIONI DI MOTO
PERMANENTE PER LE PORTATE T=50, 200, 500 ANNI**

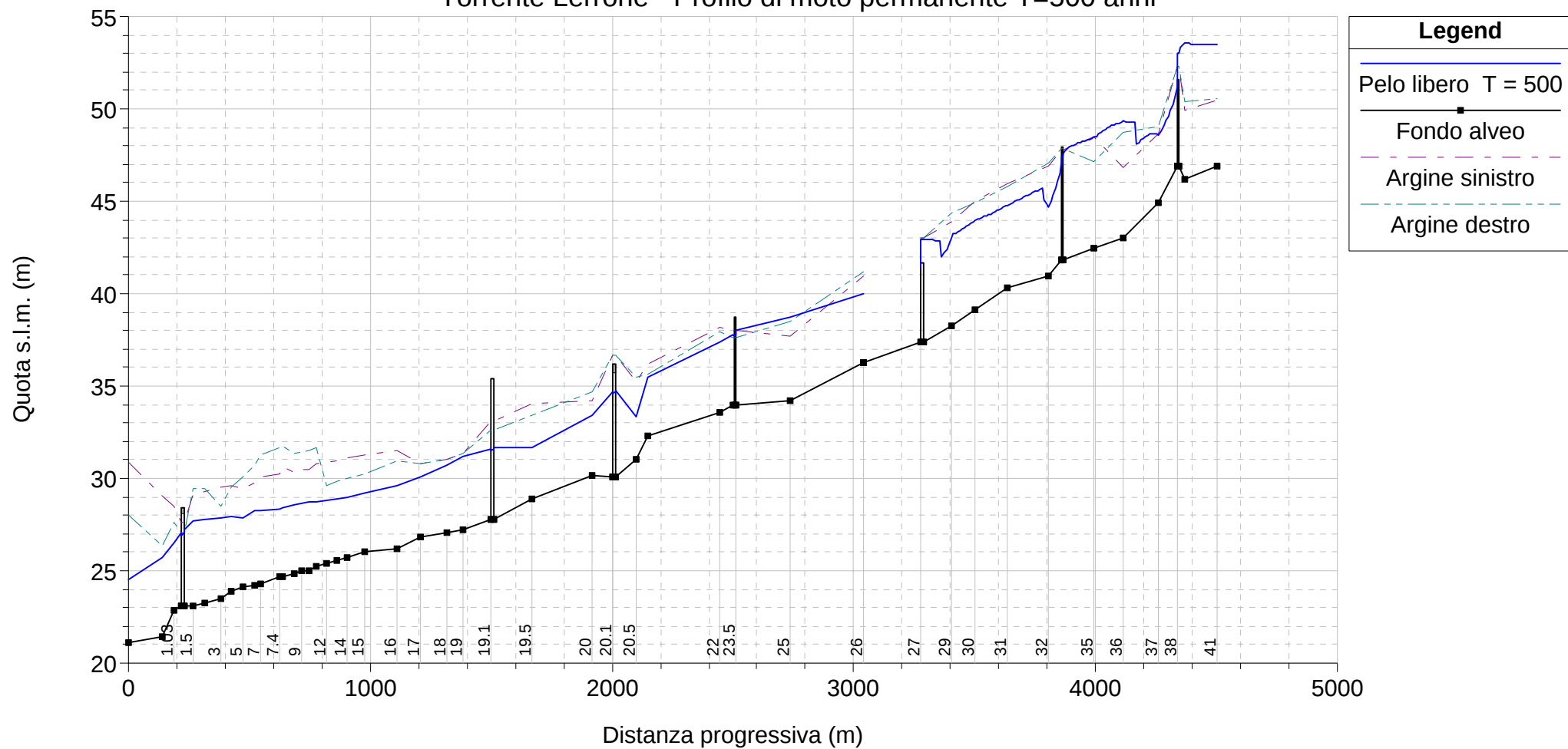
Torrente Lerrone - Profilo di moto permanente T=50 anni



Torrente Lerrone - Profilo di moto permanente T=200 anni



Torrente Lerrone - Profilo di moto permanente T=500 anni





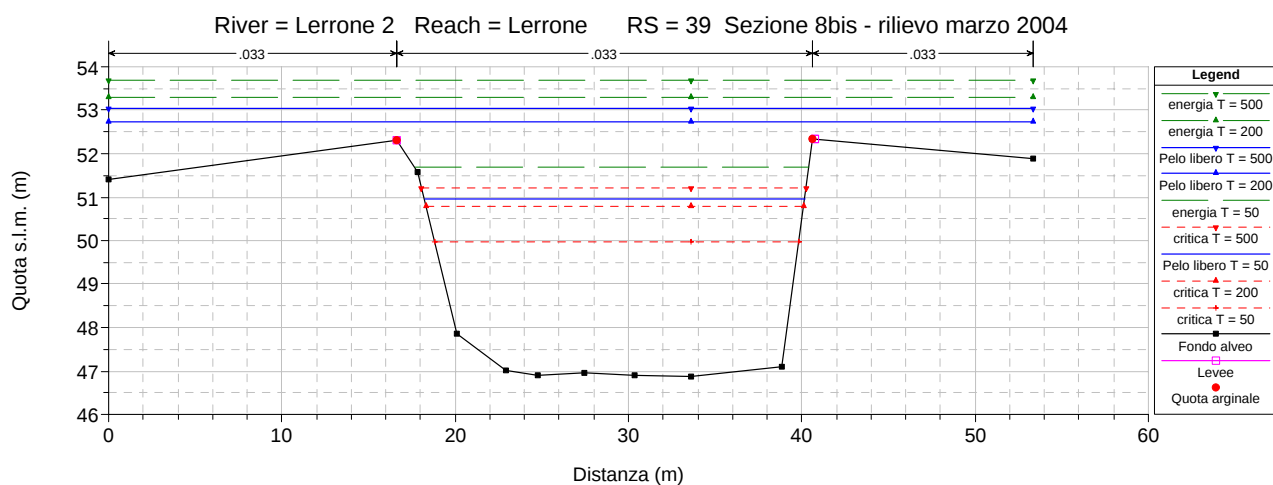
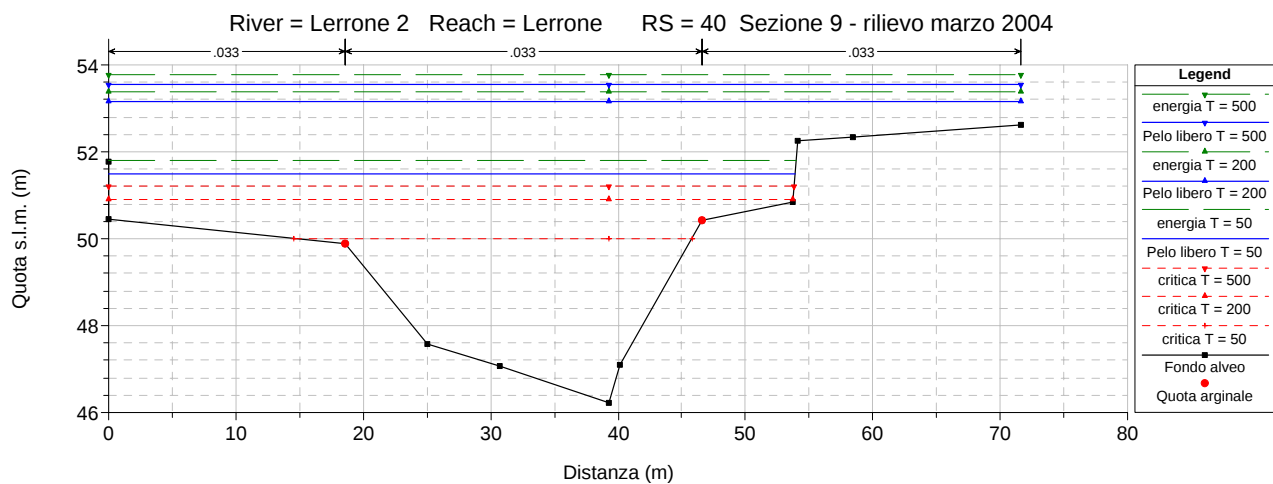
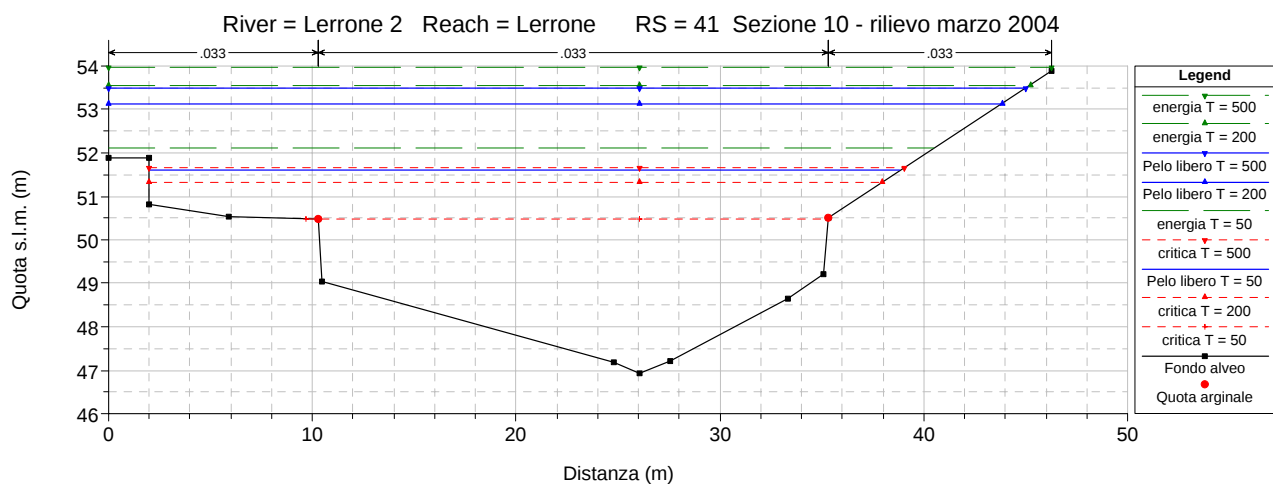
PROVINCIA DI SAVONA
PIANO DI BACINO STRALCIO SUL RISCHIO IDROGEOLOGICO
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3. TORRENTE LERRONE

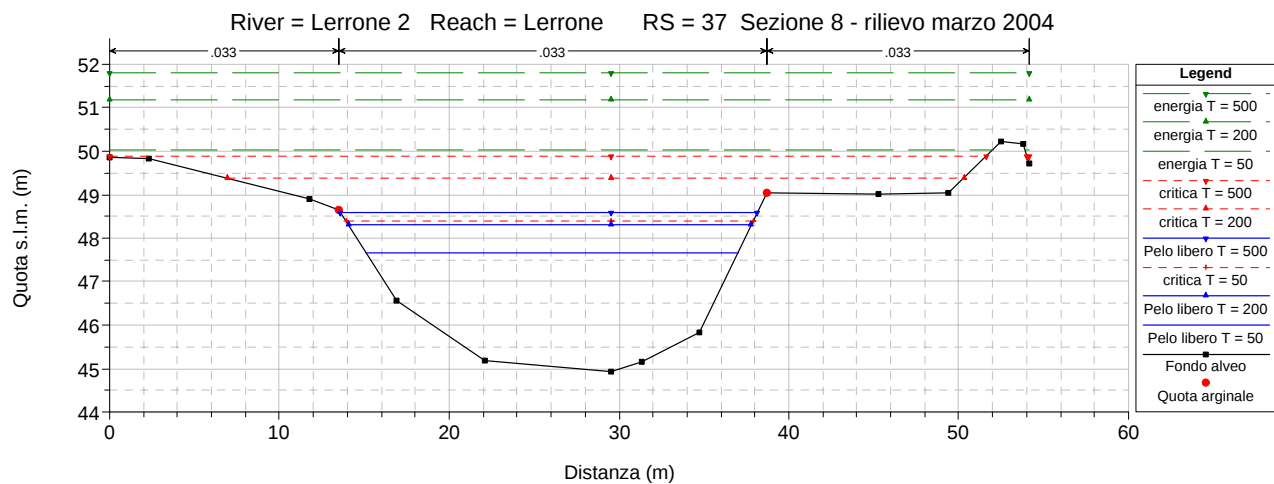
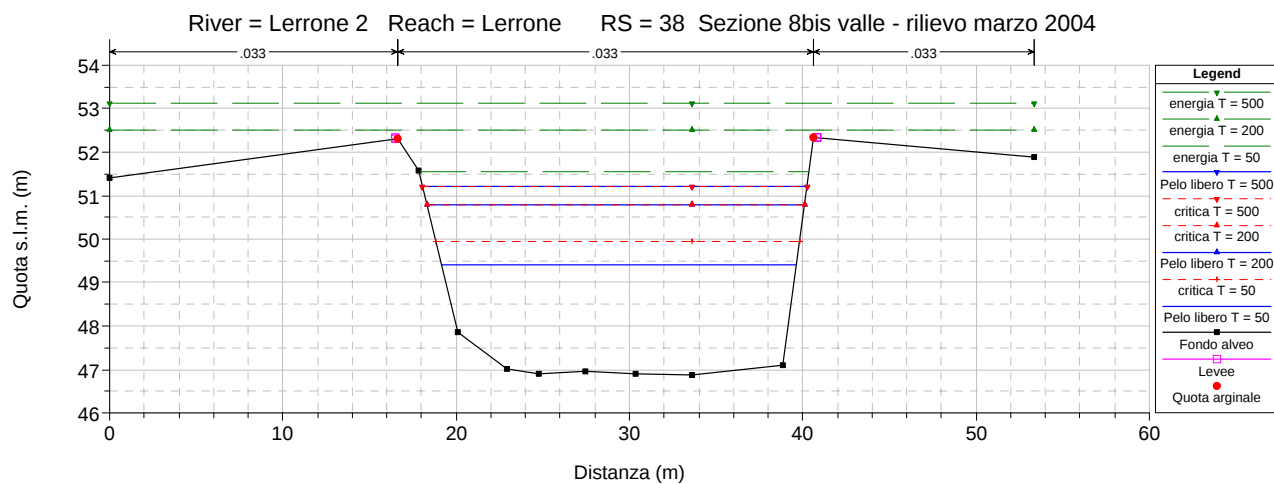
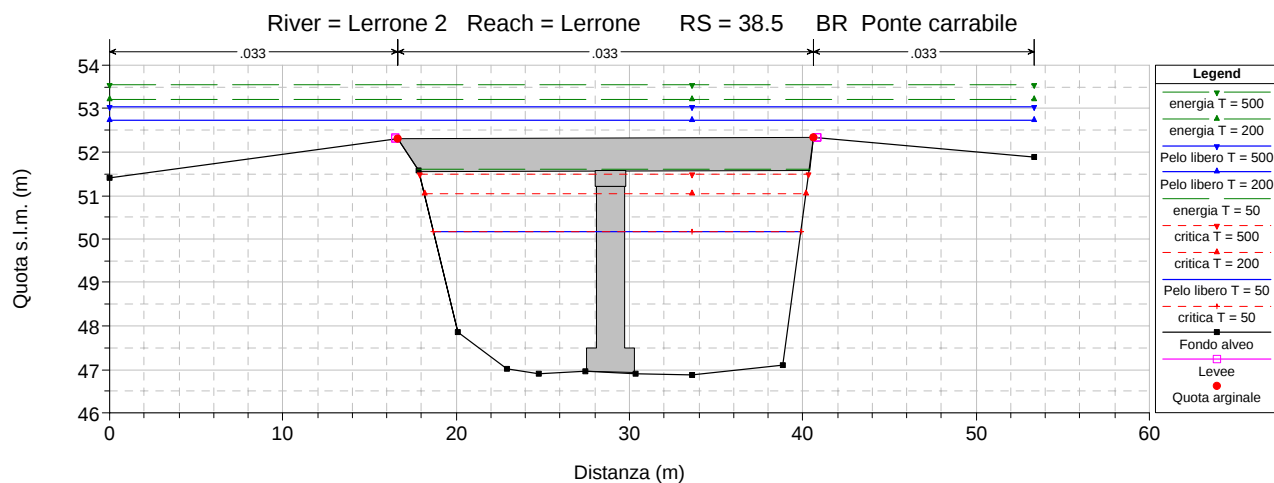
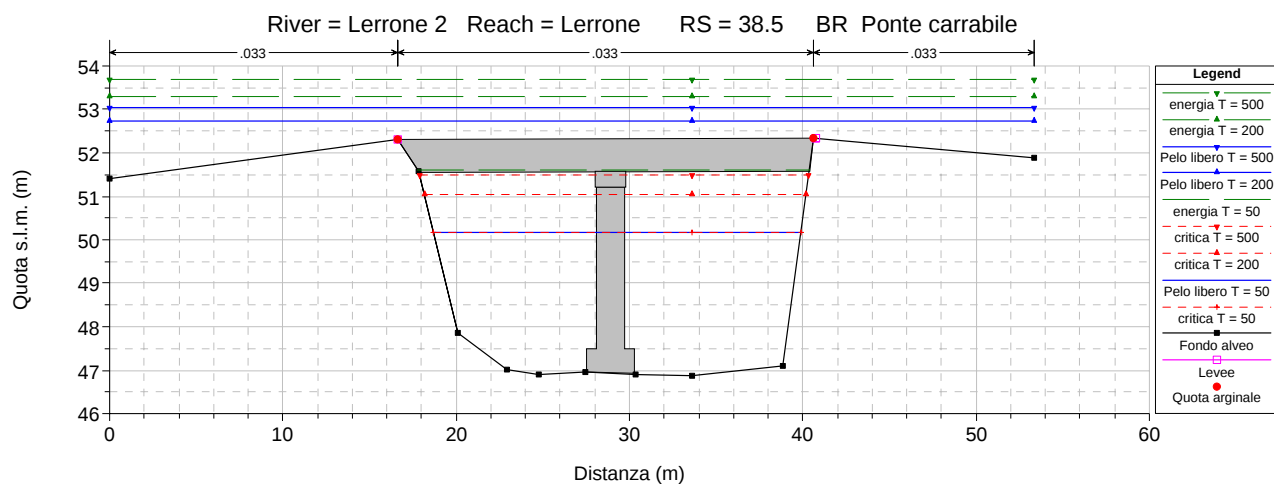
- 3.2 GEOMETRIA DELLE SEZIONI ED ALTEZZA DEL PELO LIBERO IN CONDIZIONI DI MOTO PERMANENTE PER LE PORTATE T=50, 200, 500 ANNI.
(dalla sezione 1.01 alla sezione 41)

TORRENTE LERRONE

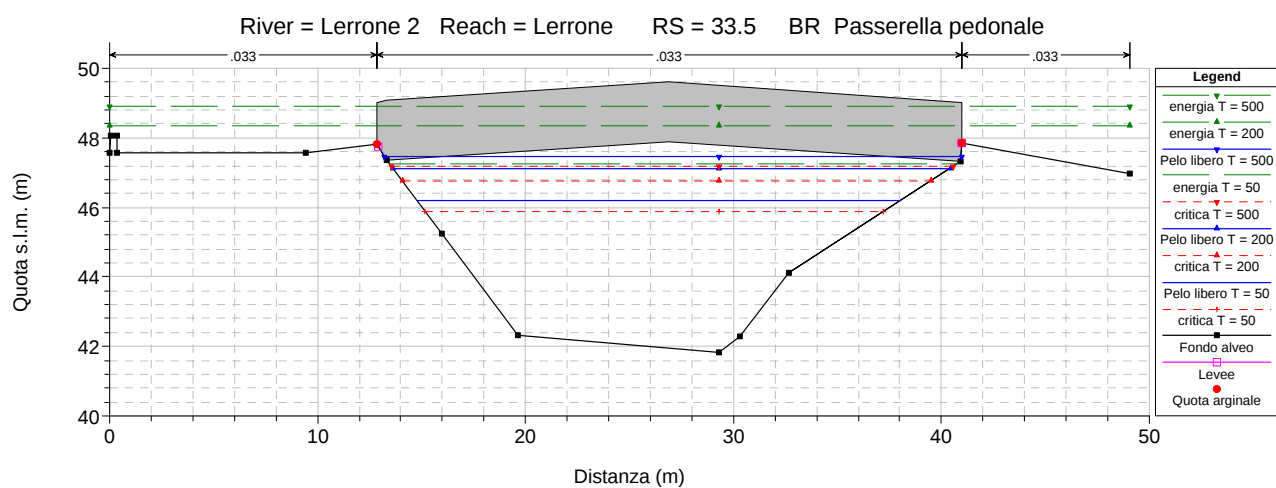
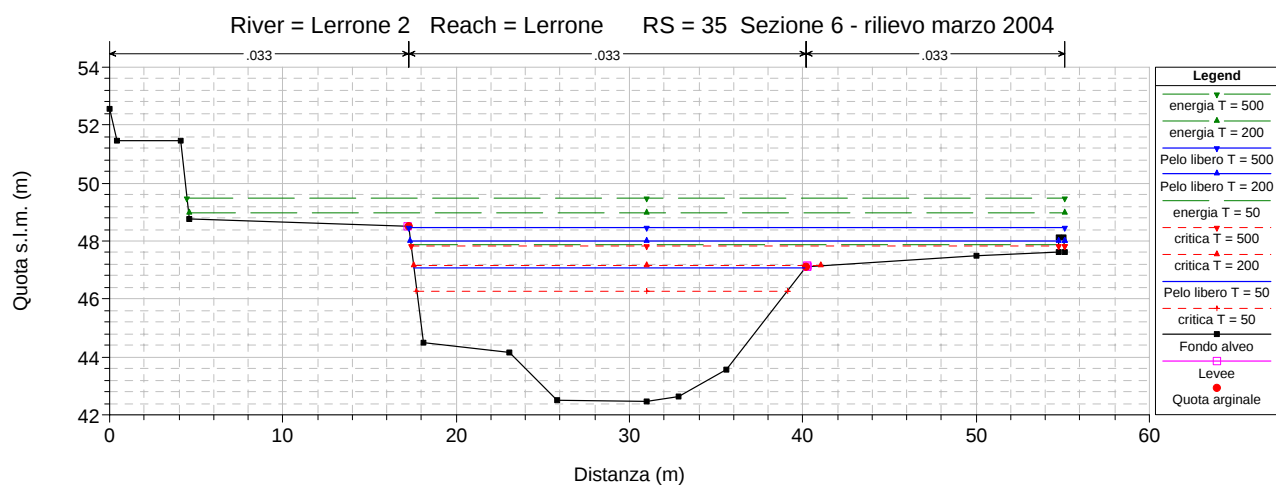
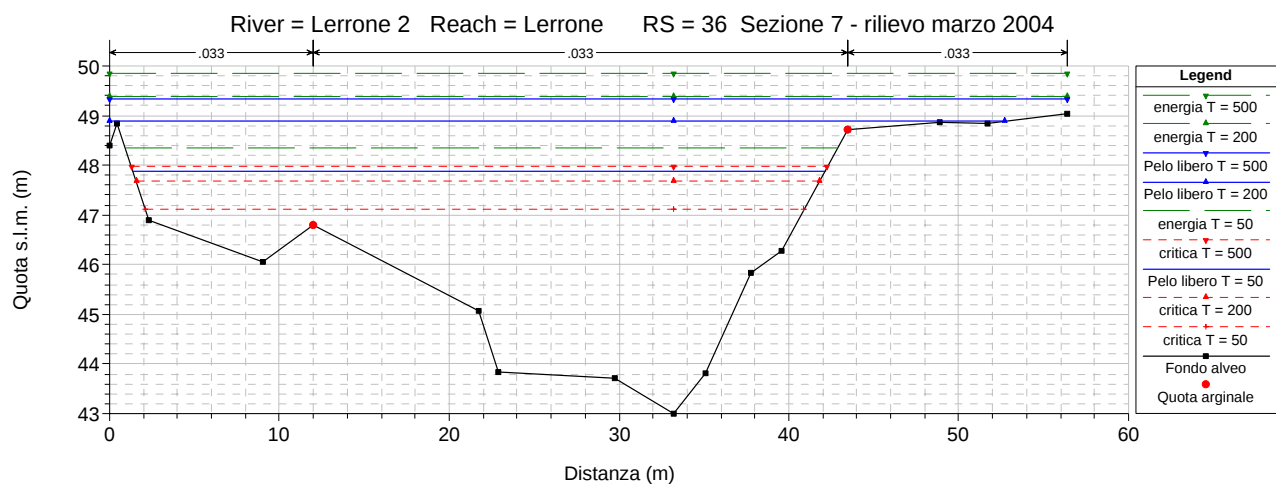
Sezioni trasversali



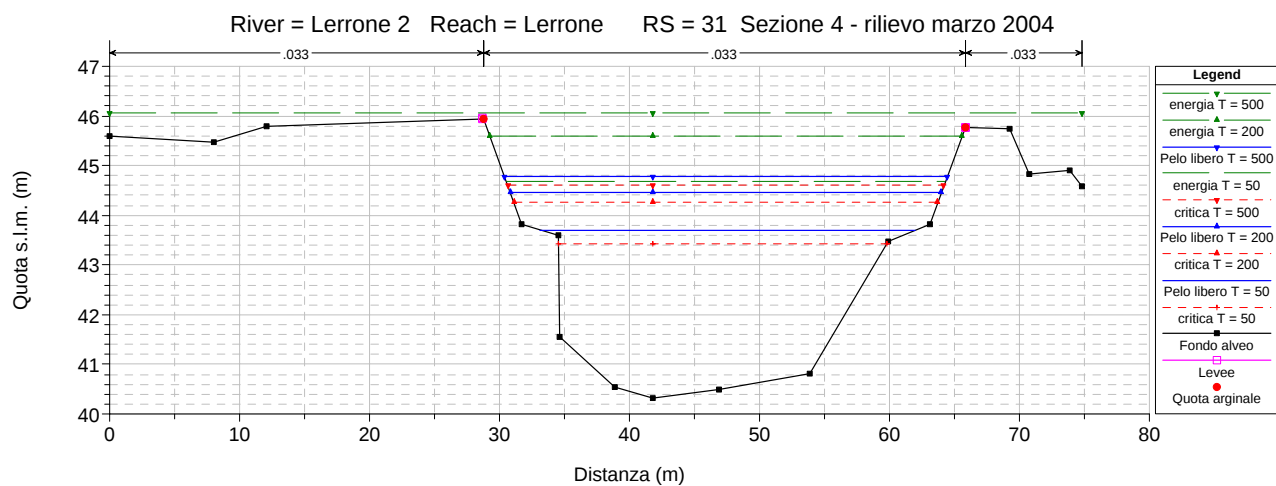
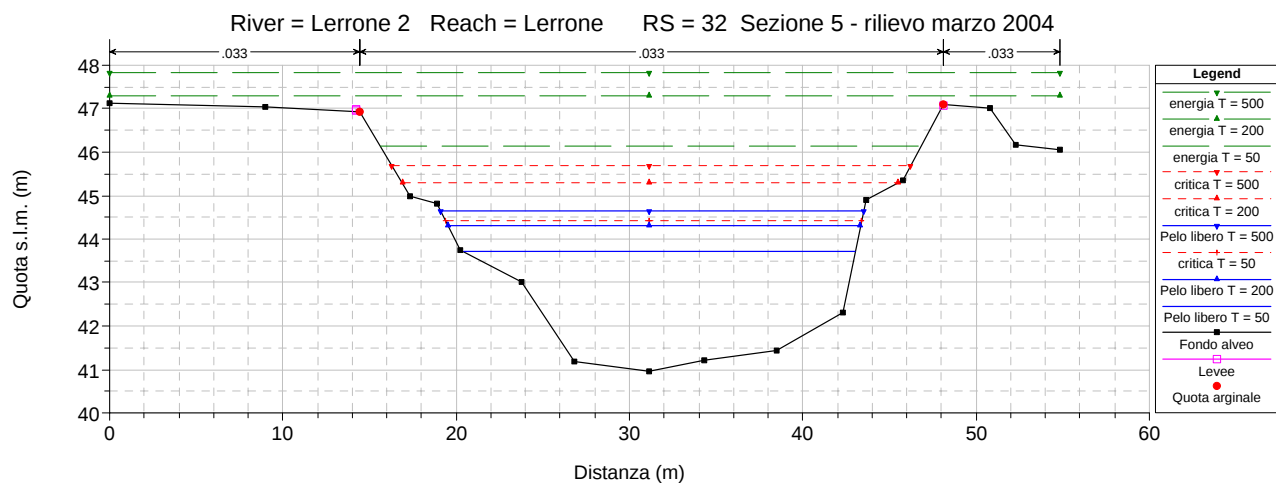
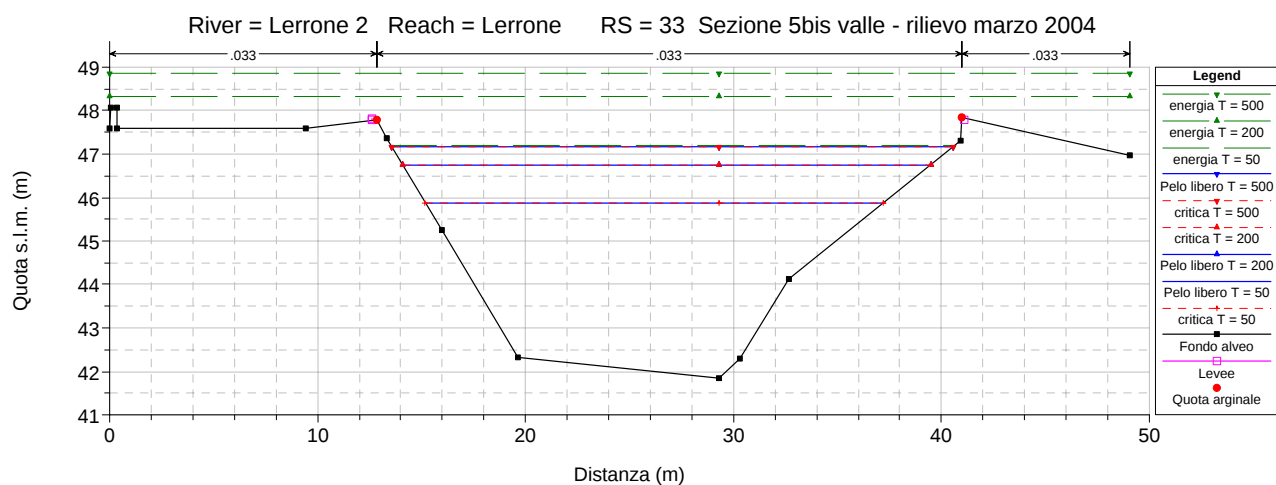
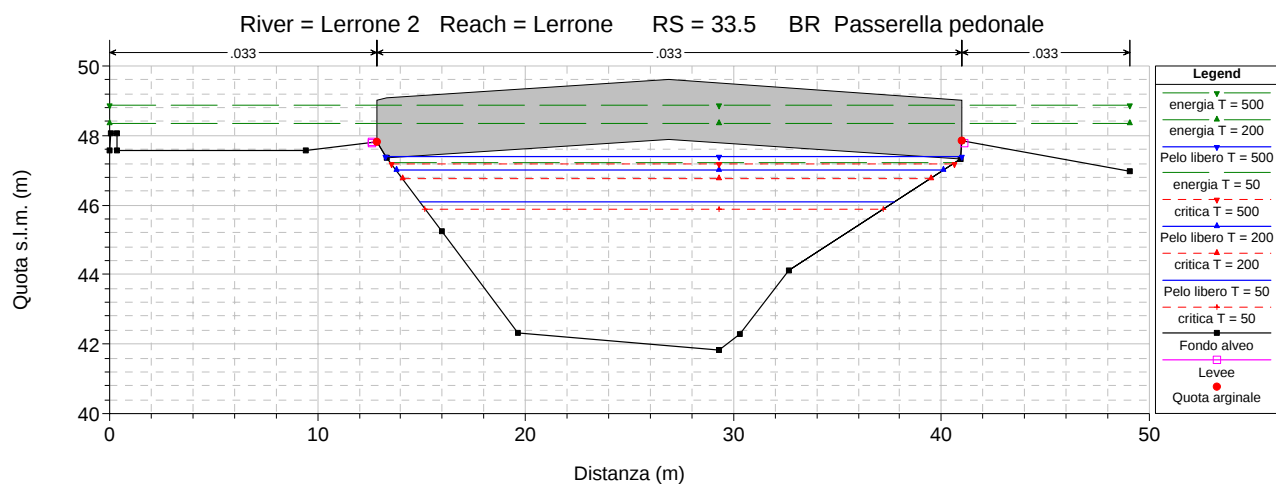
Torrente Lerrone – verifica idraulica – sezioni trasversali



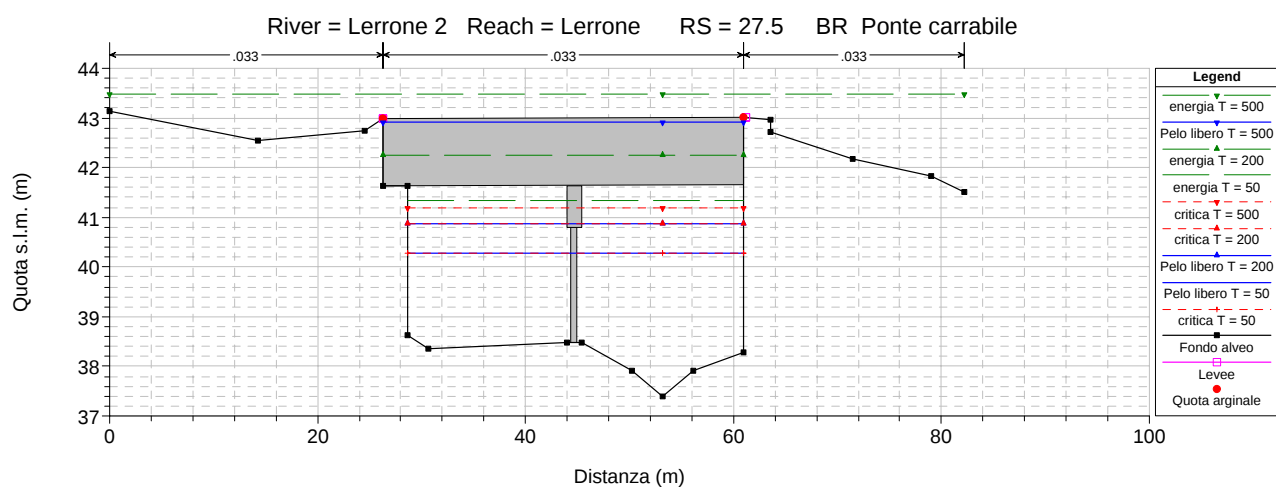
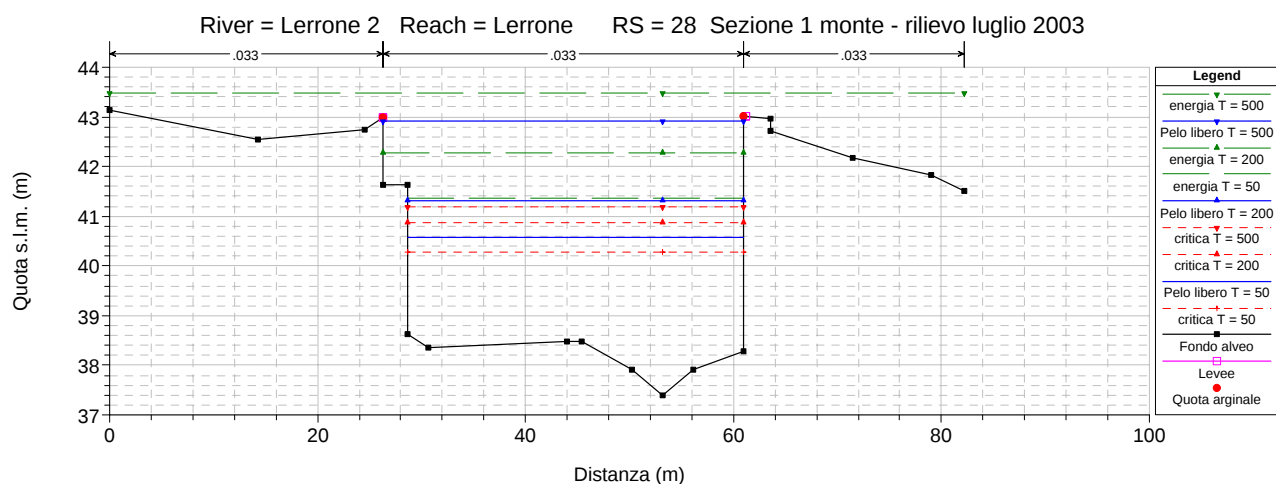
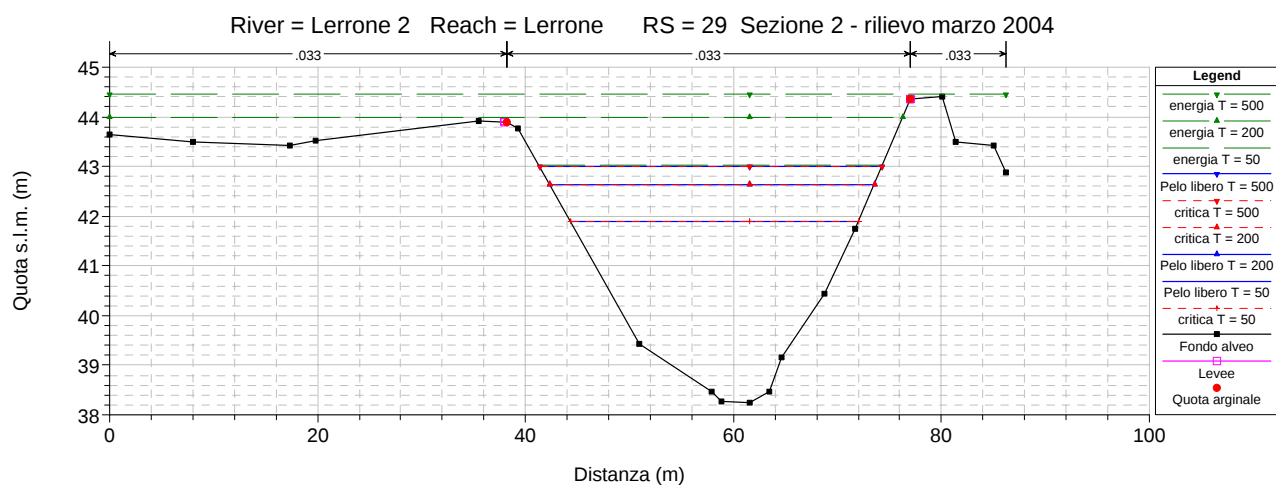
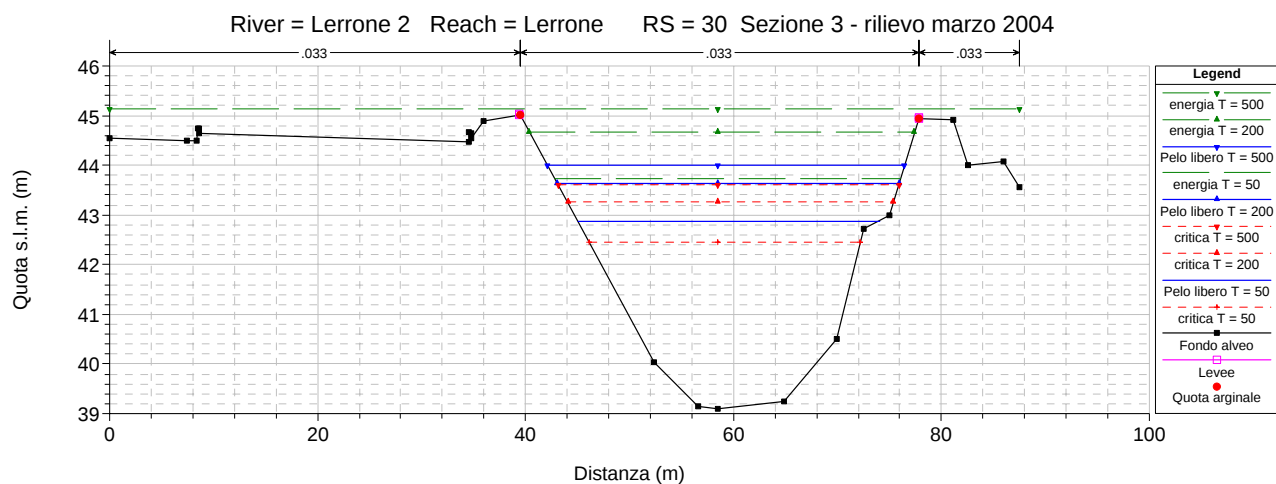
Torrente Lerrone – verifica idraulica – sezioni trasversali



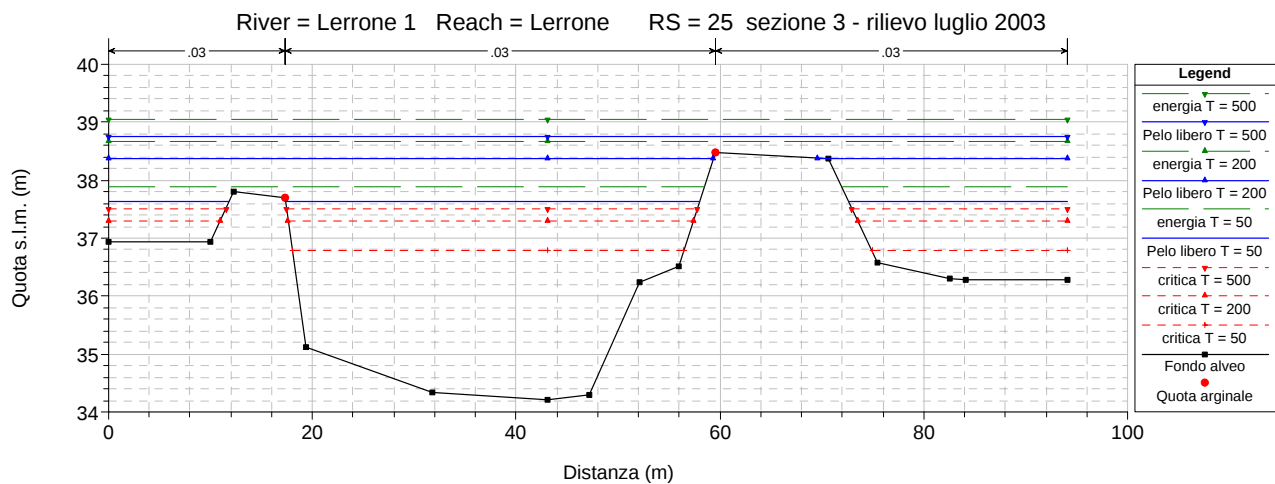
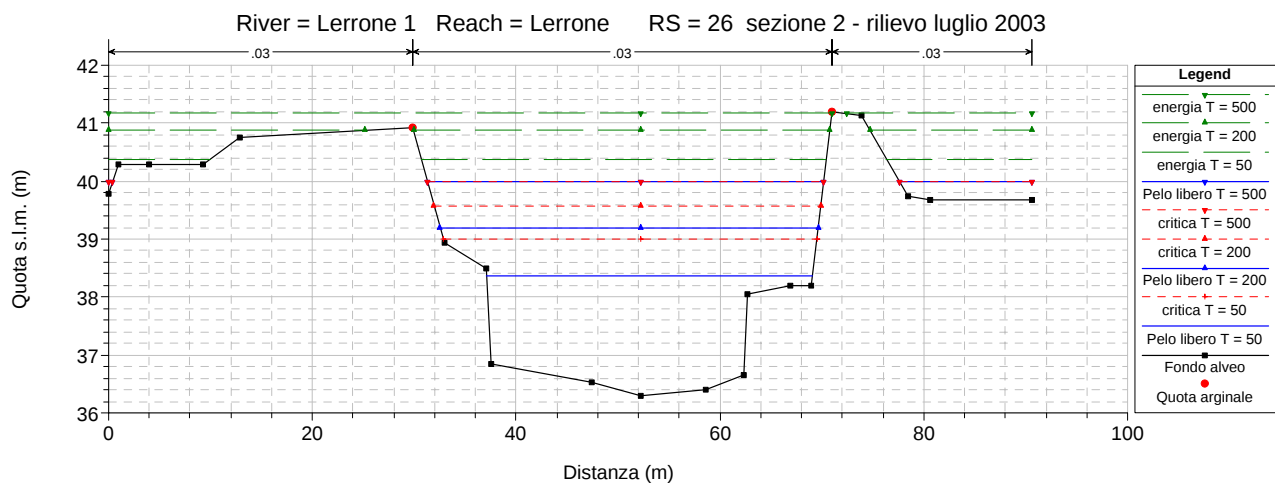
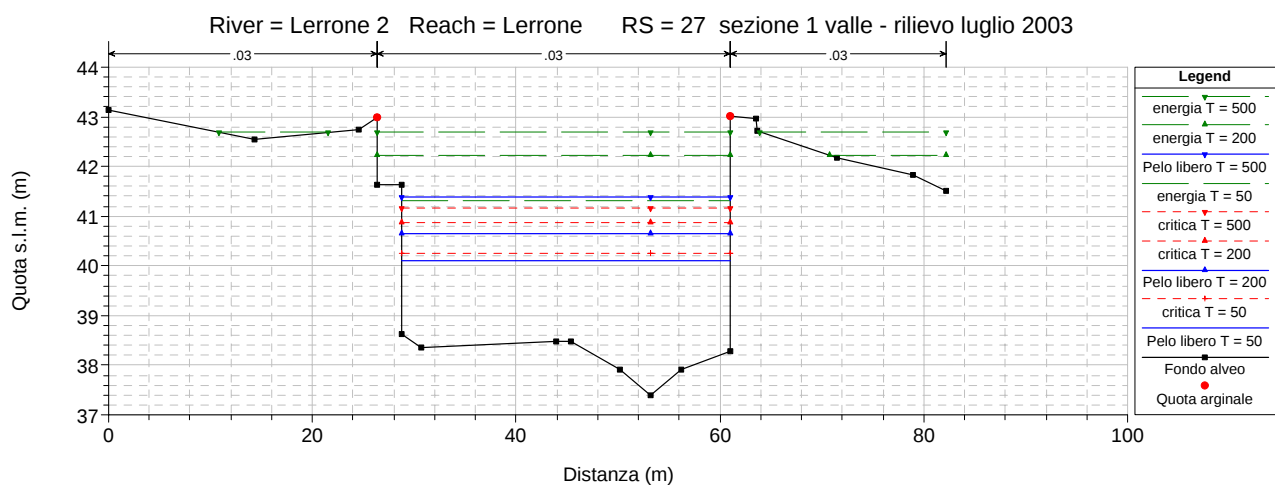
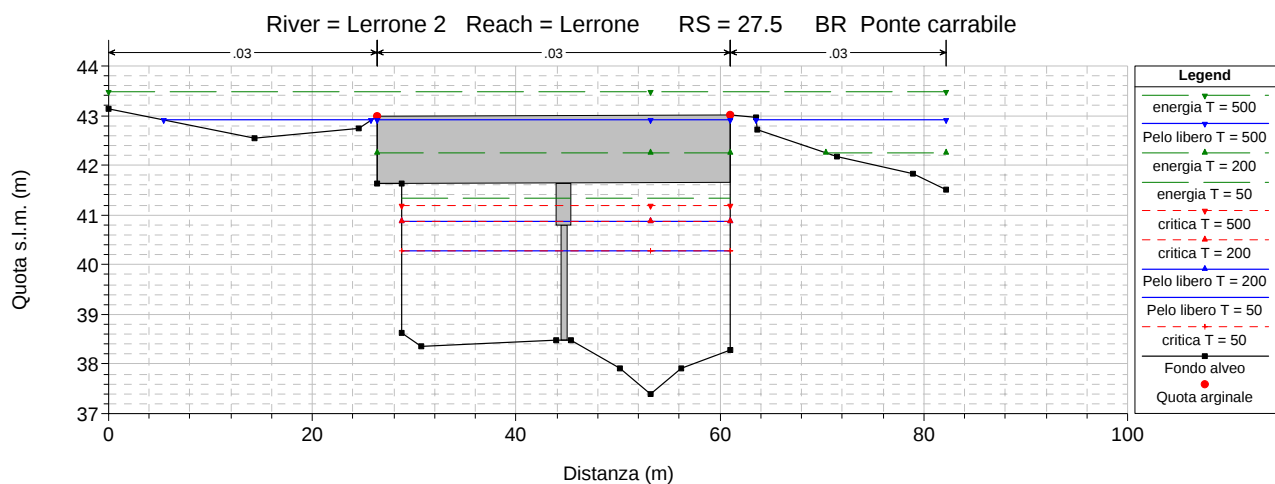
Torrente Lerrone – verifica idraulica – sezioni trasversali



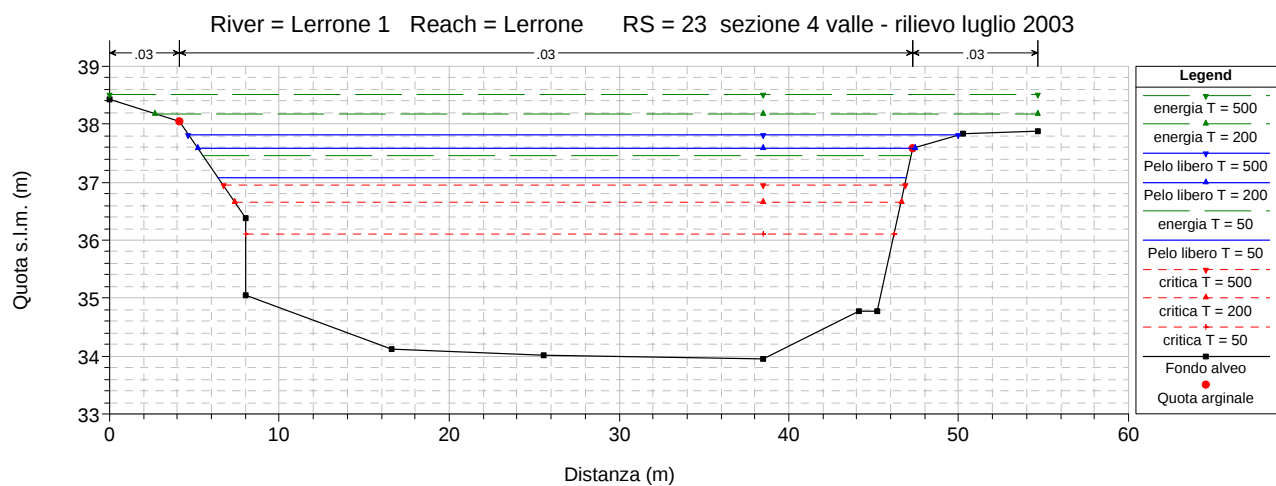
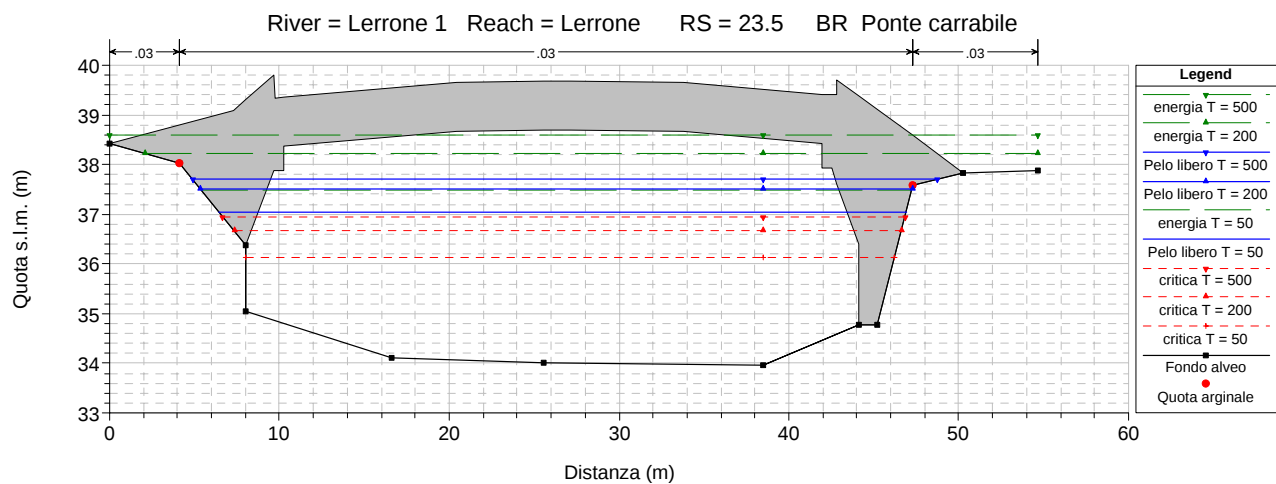
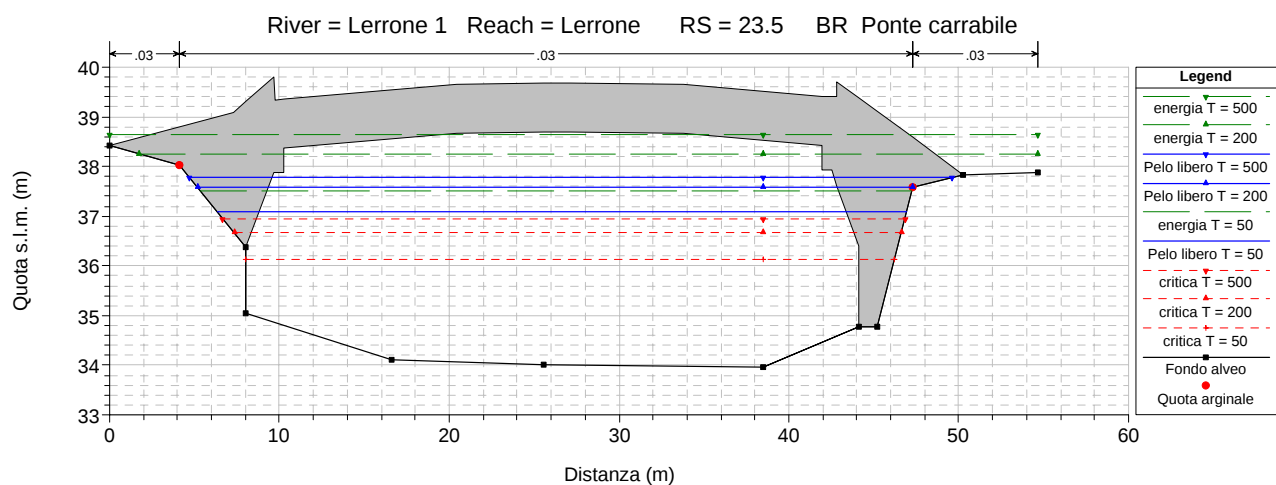
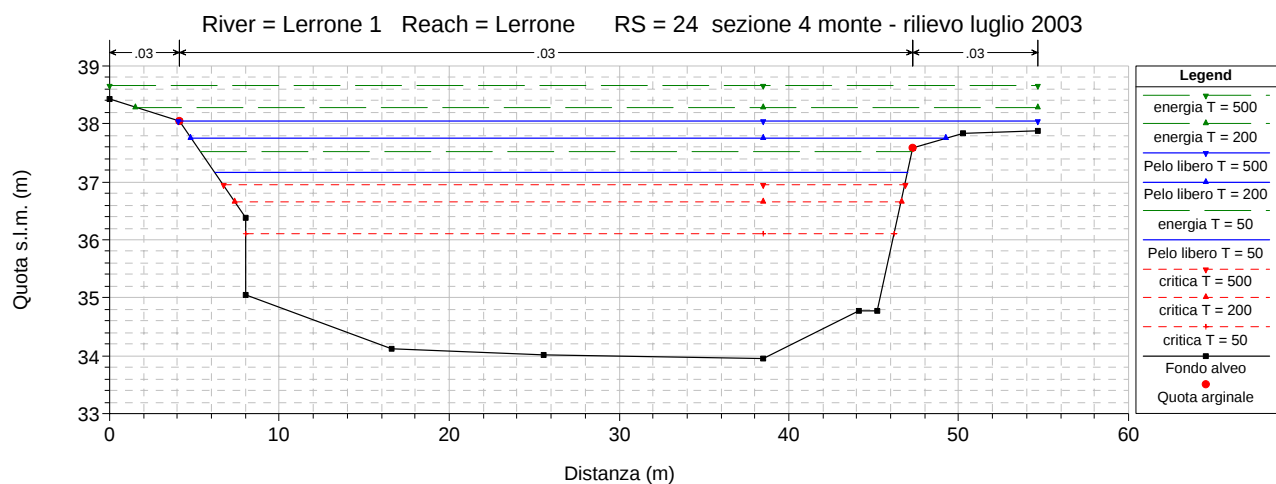
Torrente Lerrone – verifica idraulica – sezioni trasversali



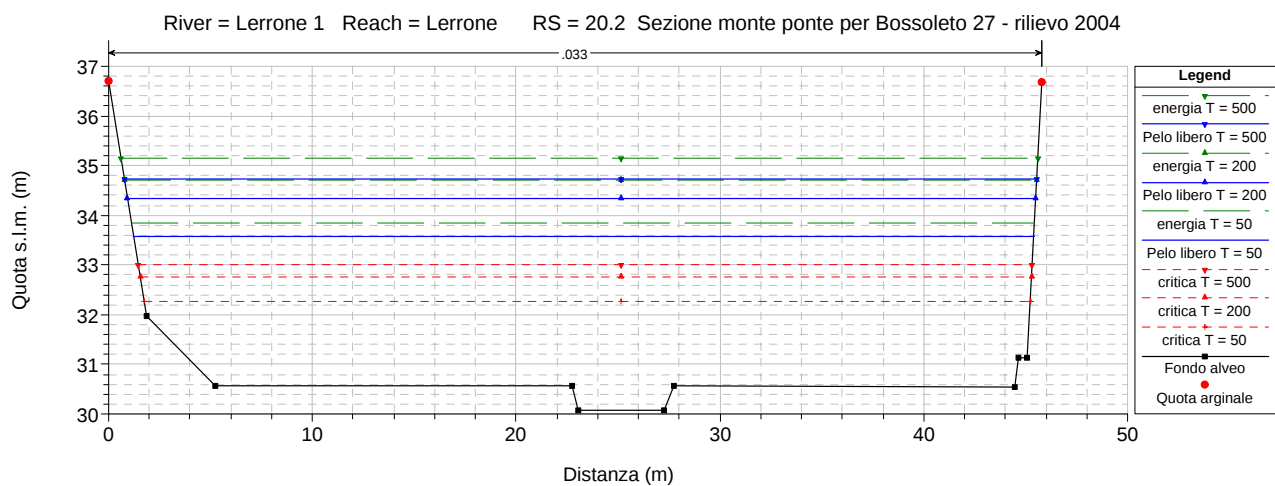
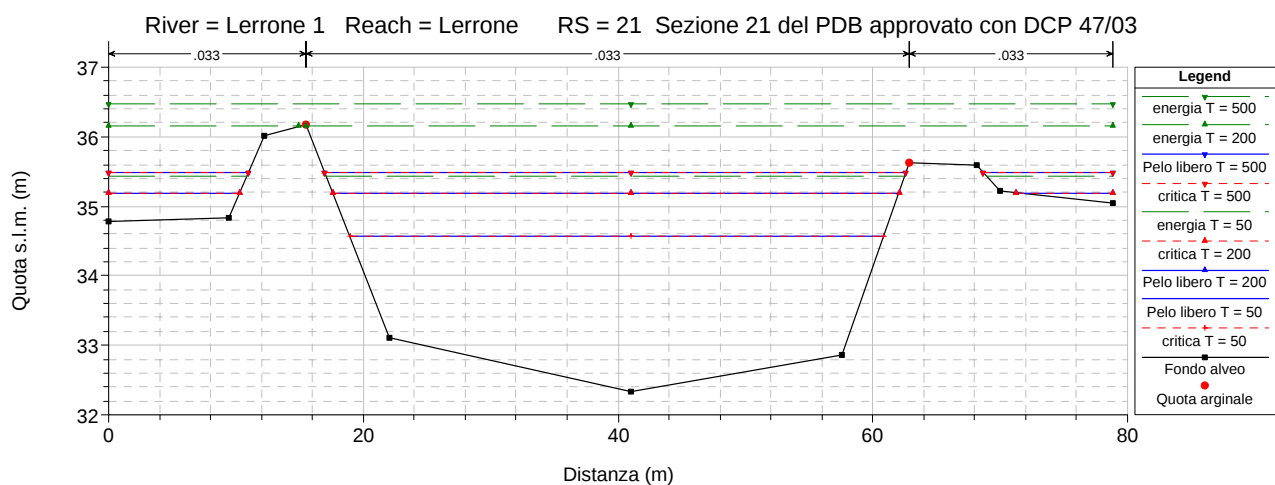
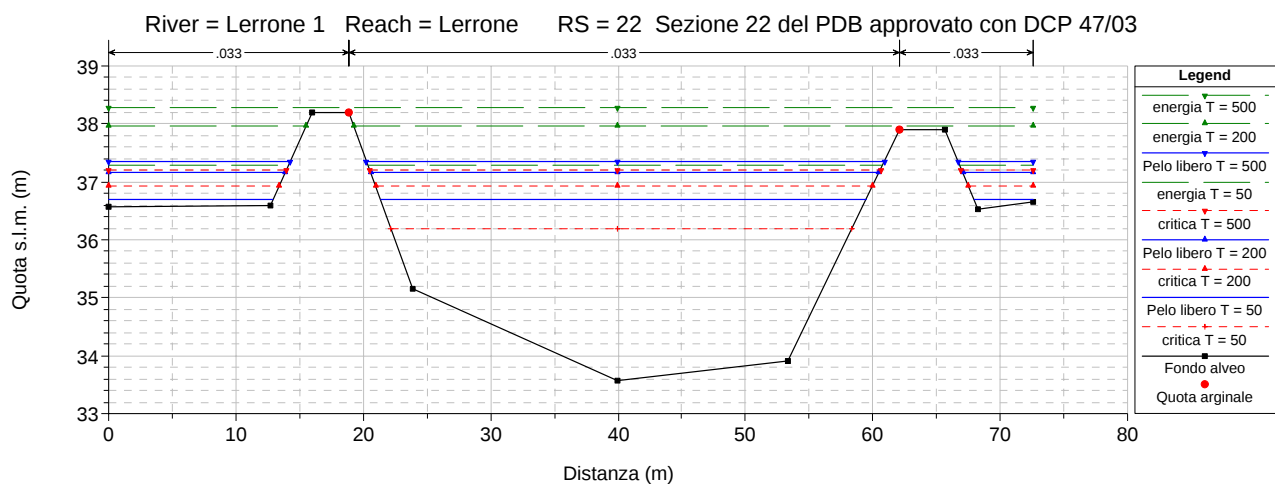
Torrente Lerrone – verifica idraulica – sezioni trasversali



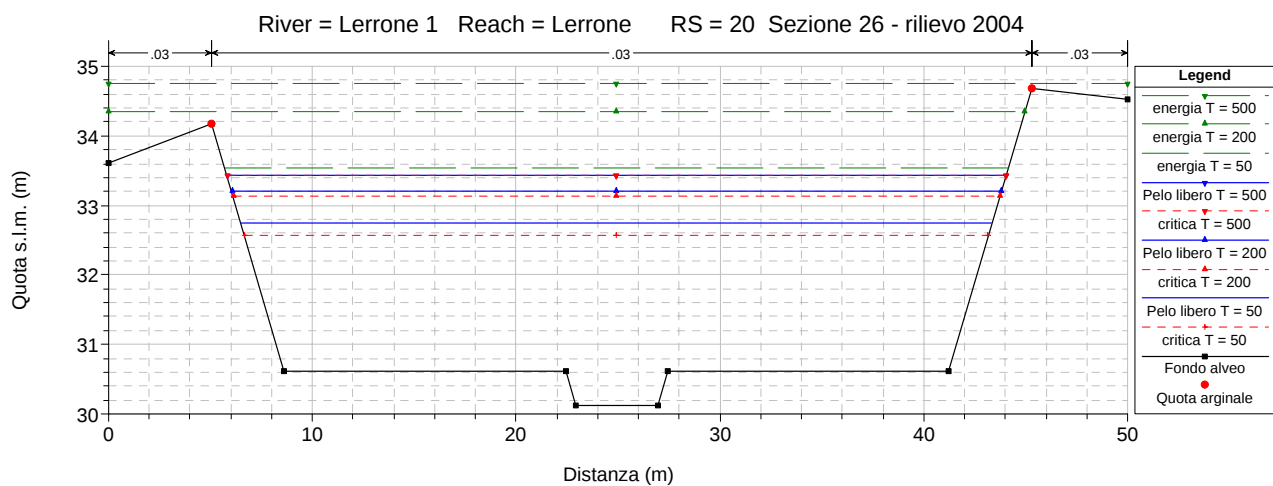
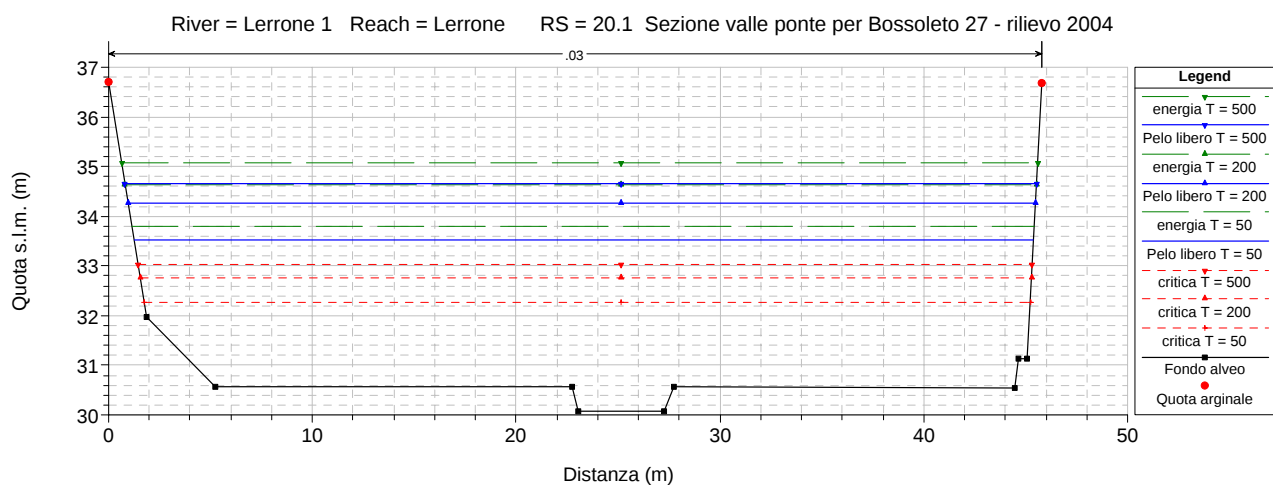
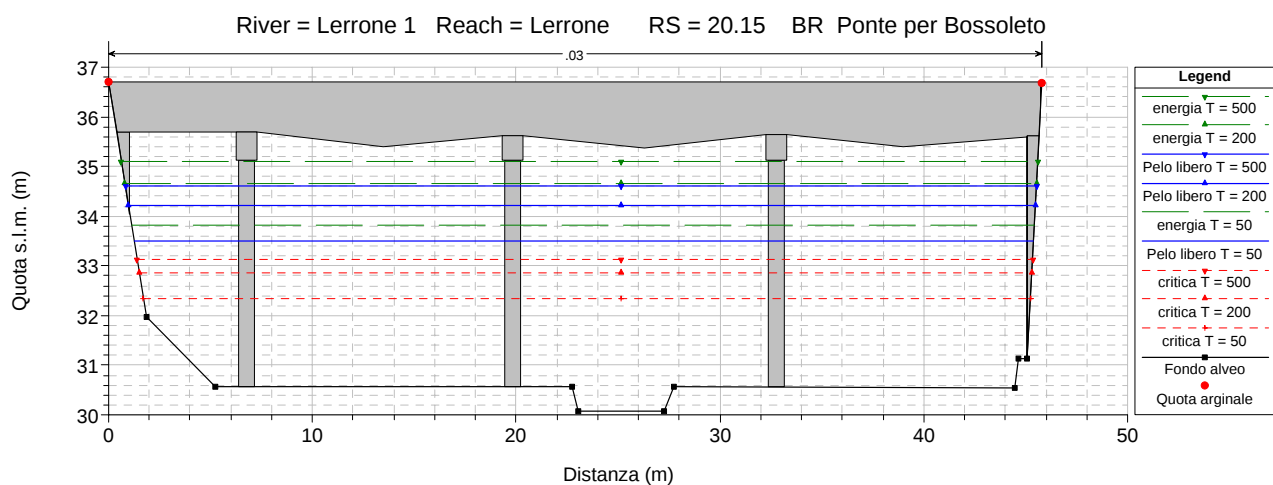
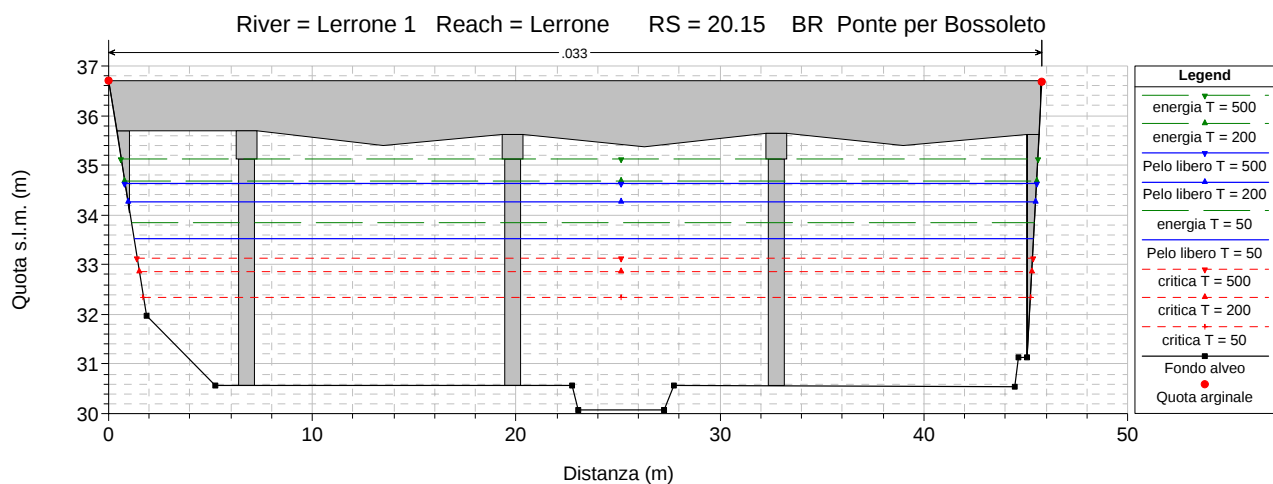
Torrente Lerrone – verifica idraulica – sezioni trasversali



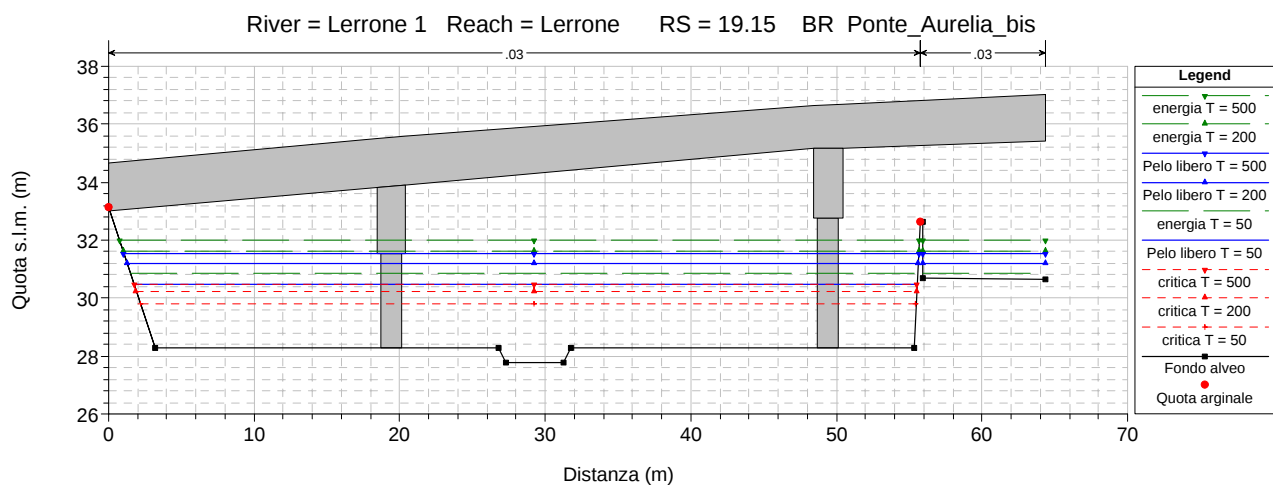
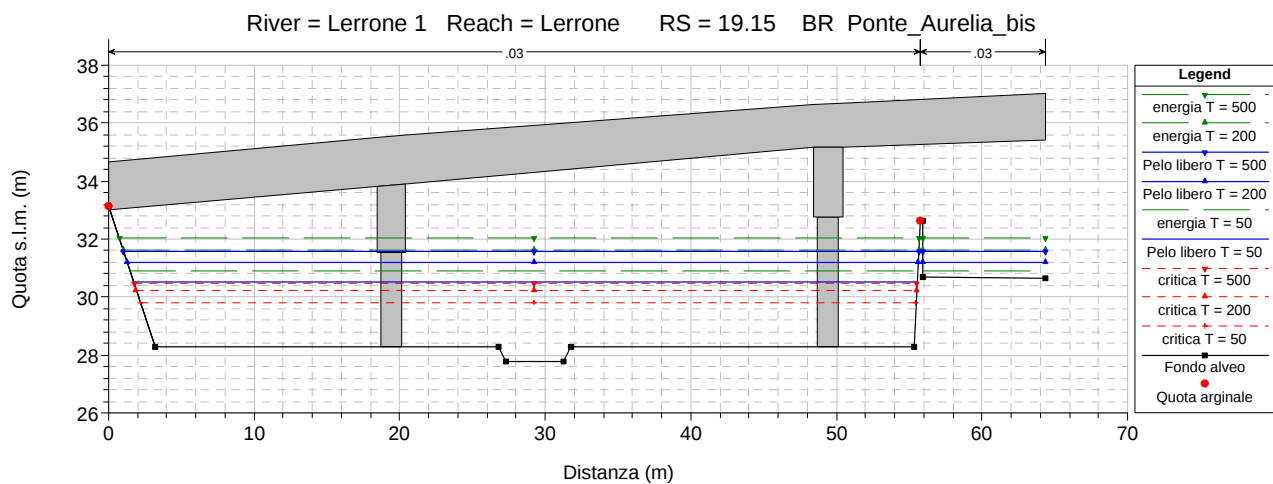
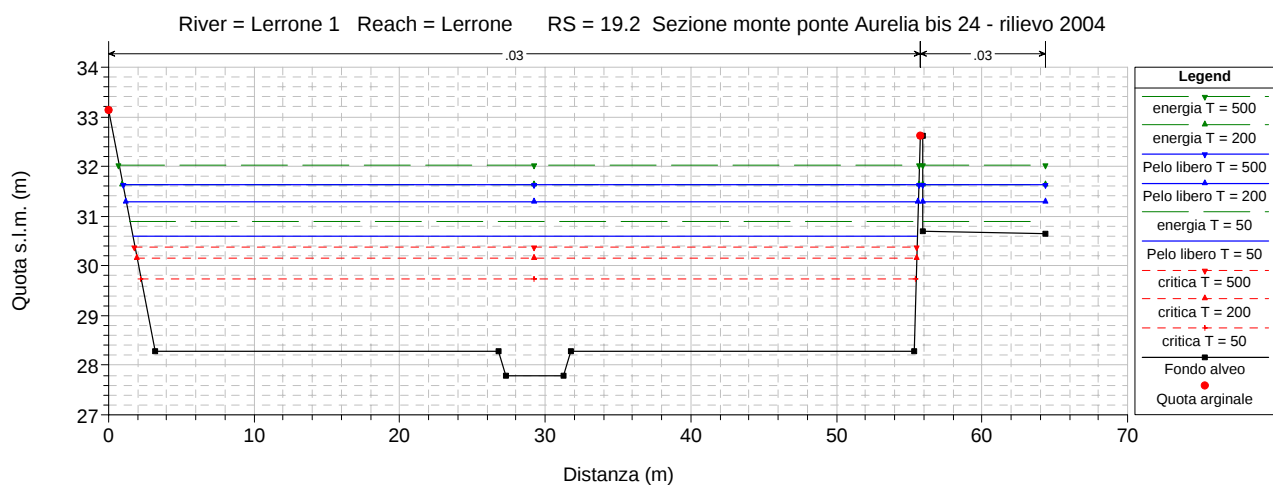
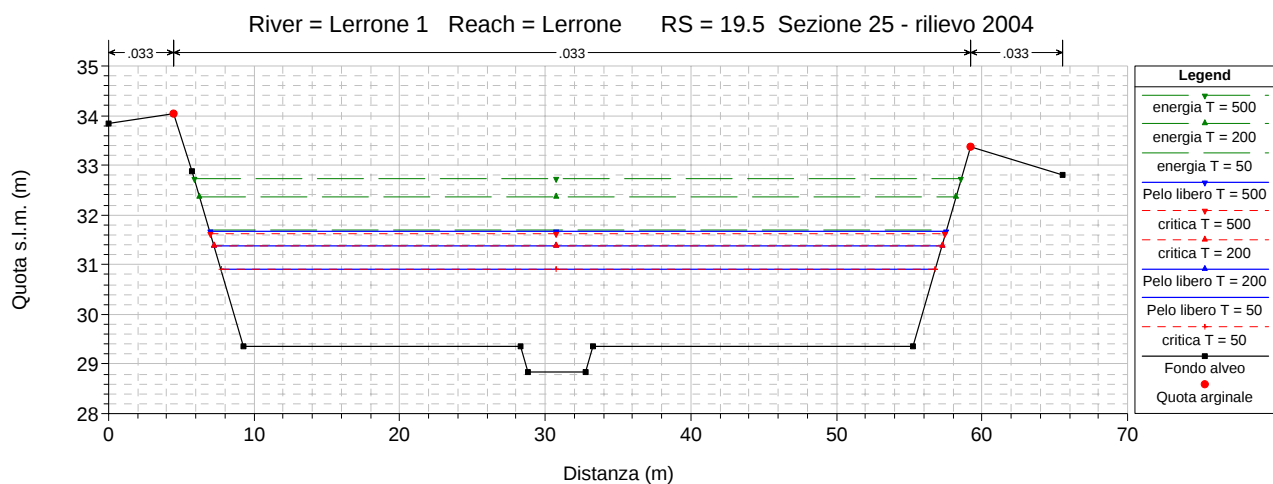
Torrente Lerrone – verifica idraulica – sezioni trasversali



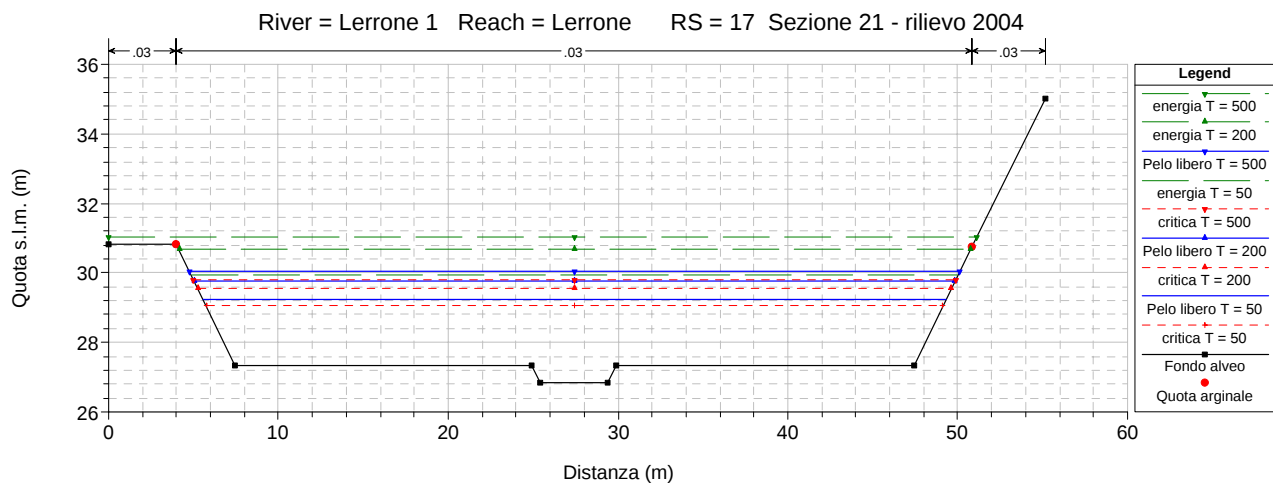
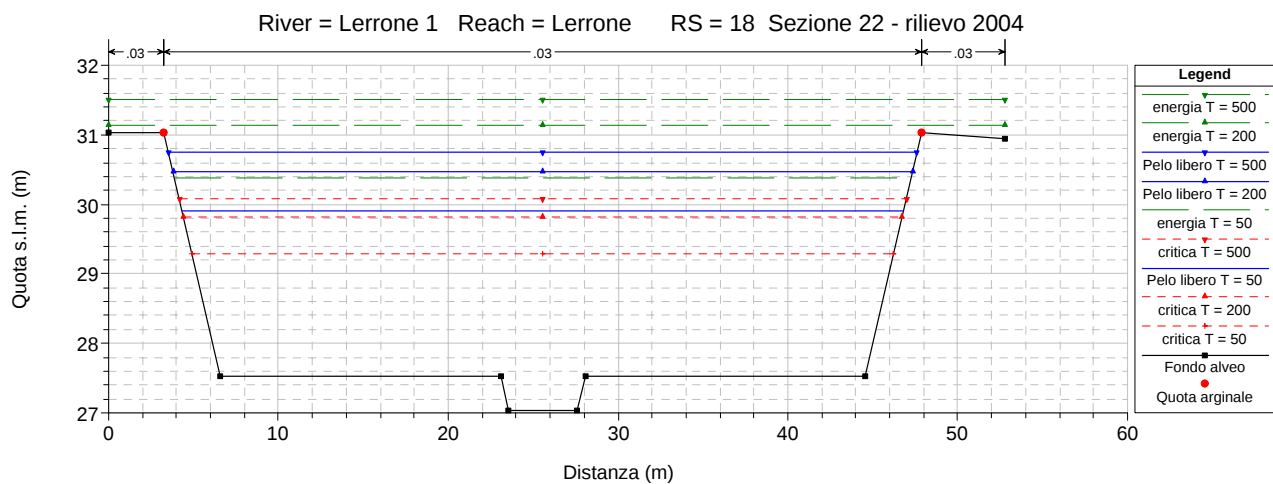
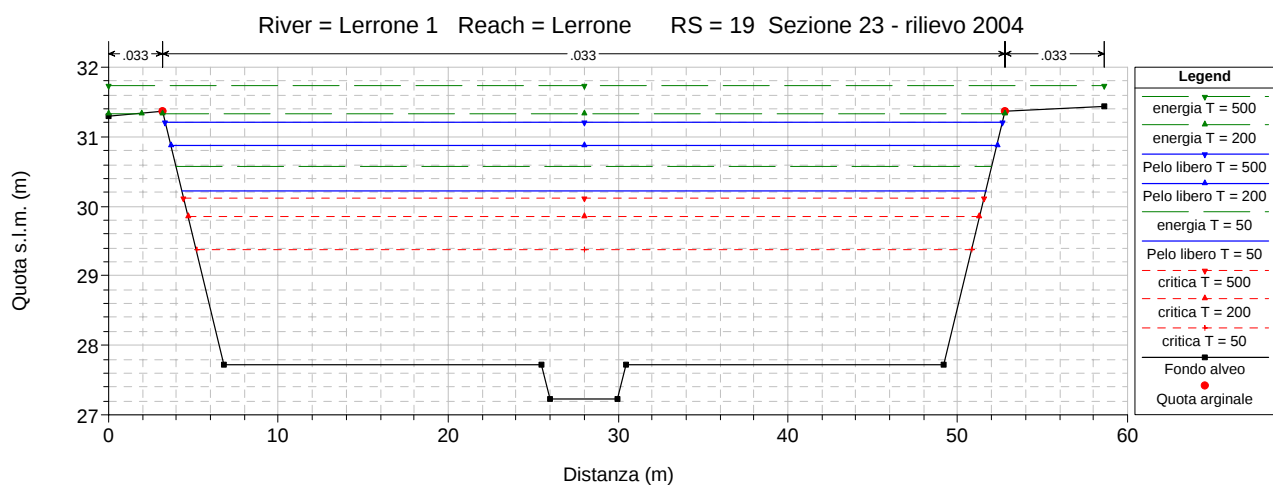
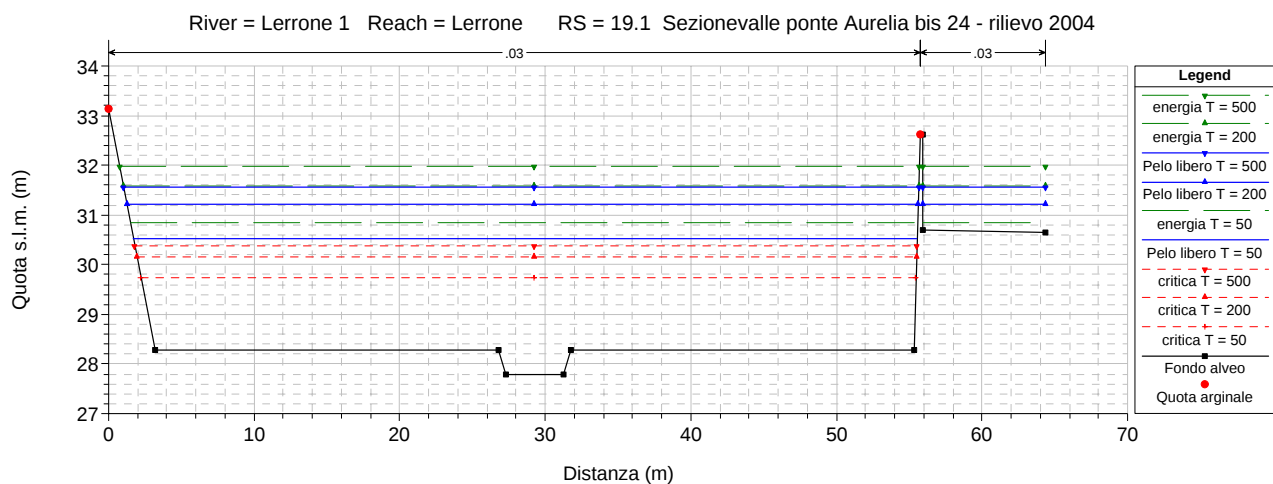
Torrente Lerrone – verifica idraulica – sezioni trasversali



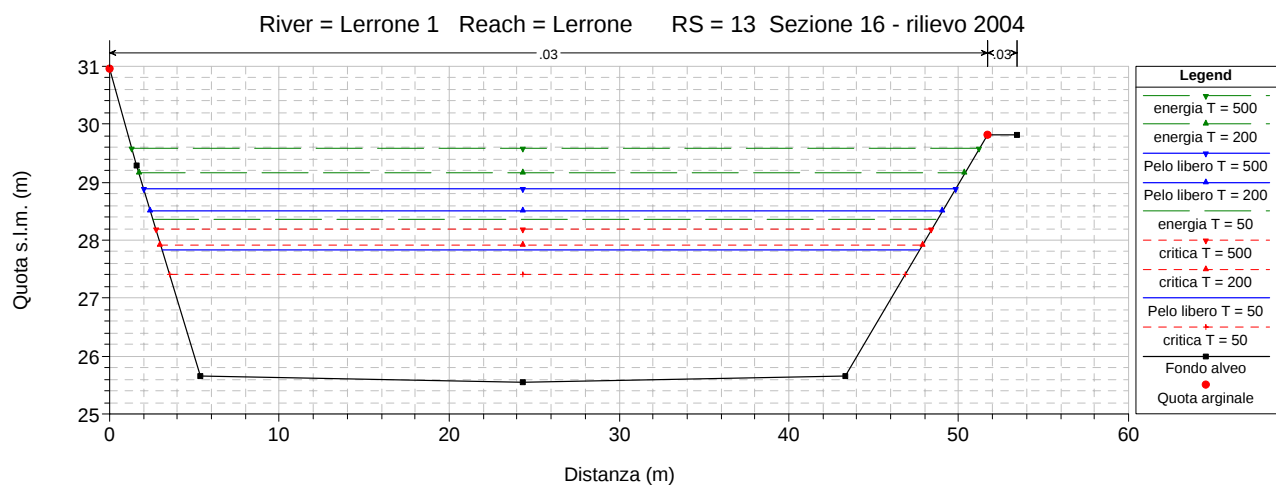
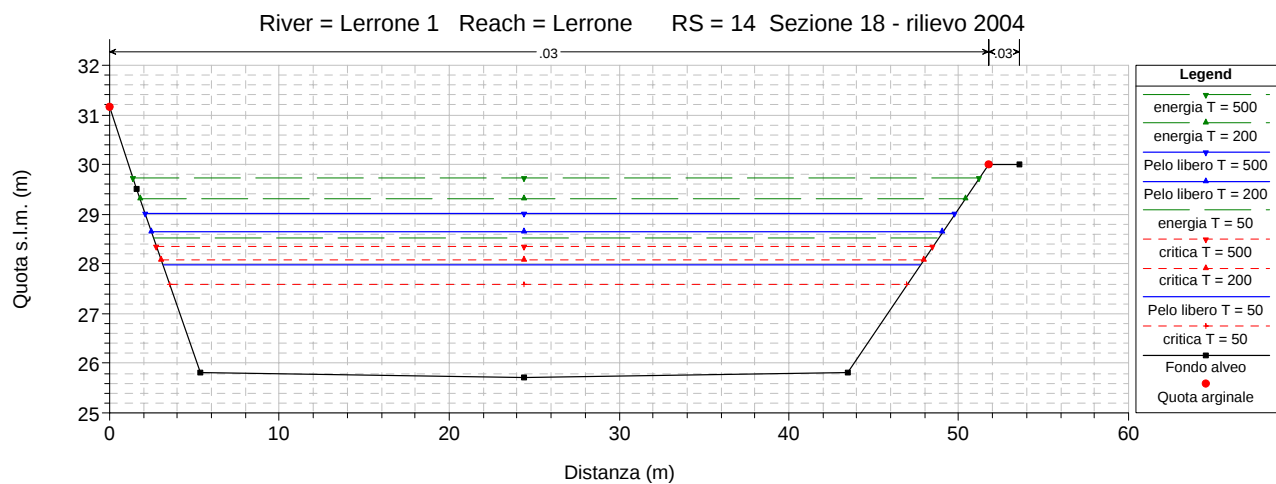
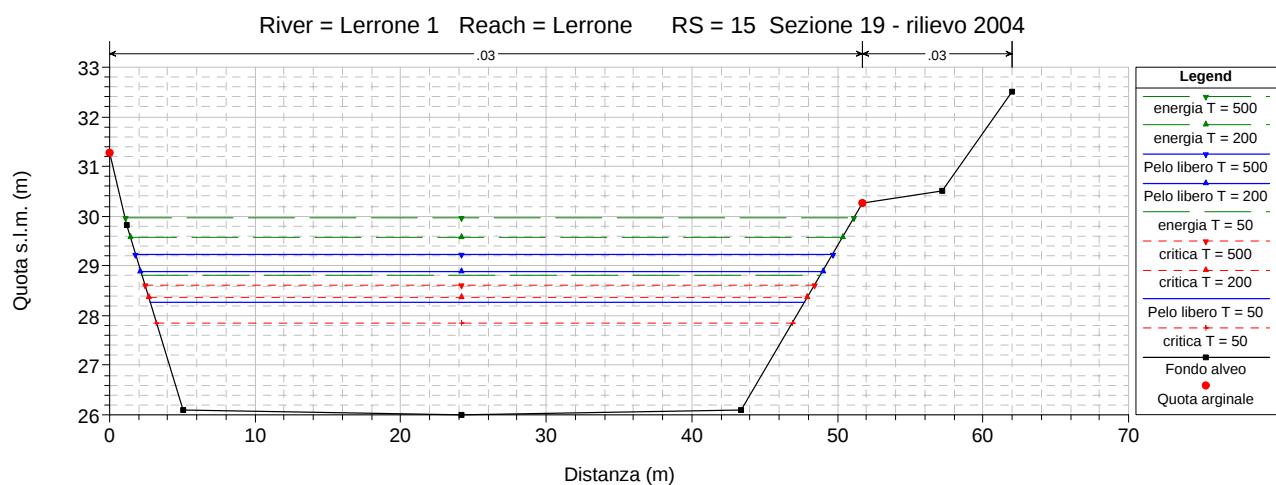
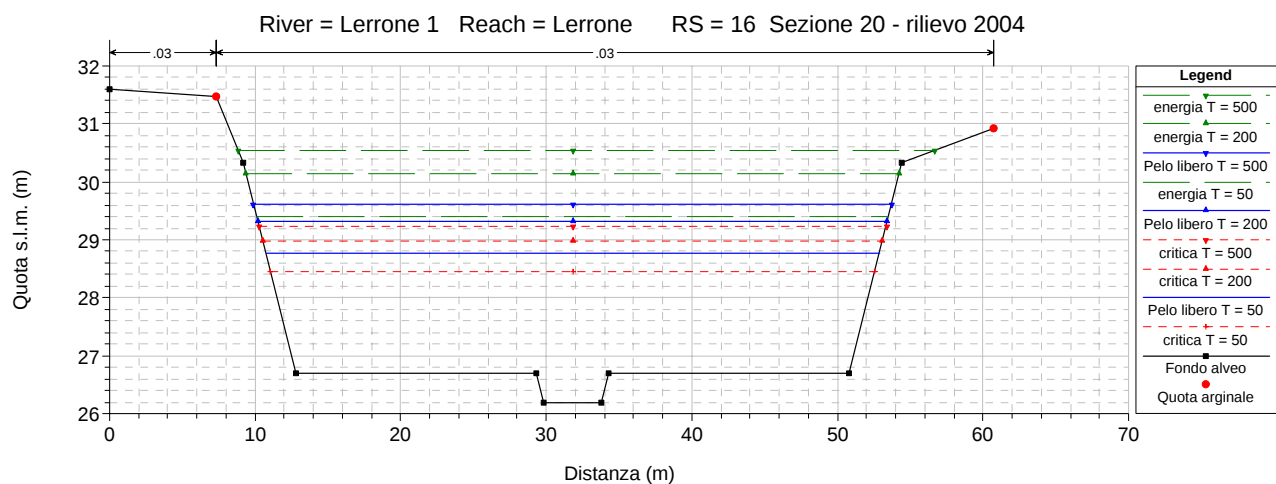
Torrente Lerrone – verifica idraulica – sezioni trasversali

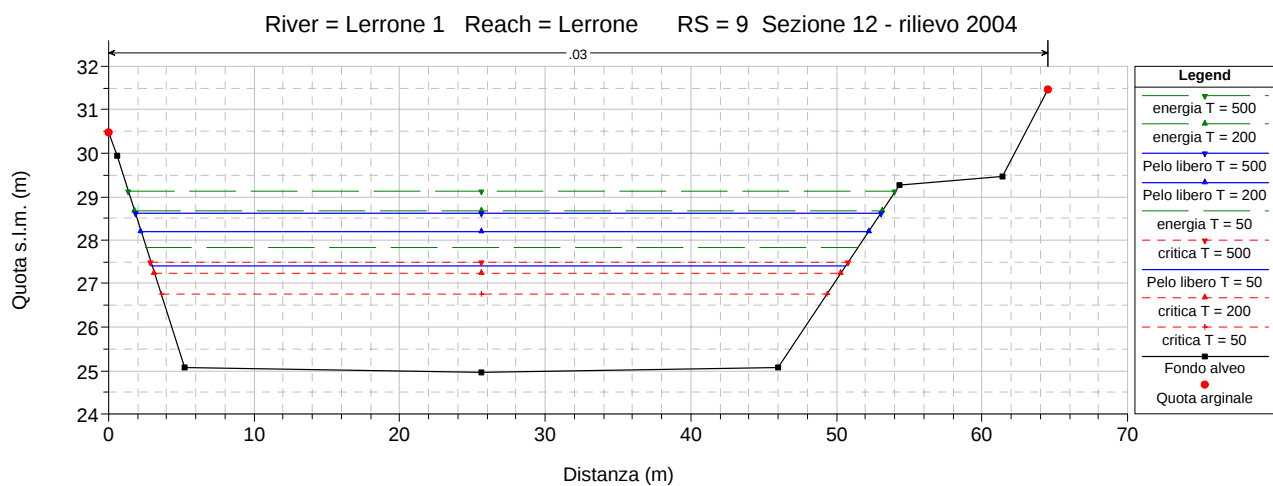
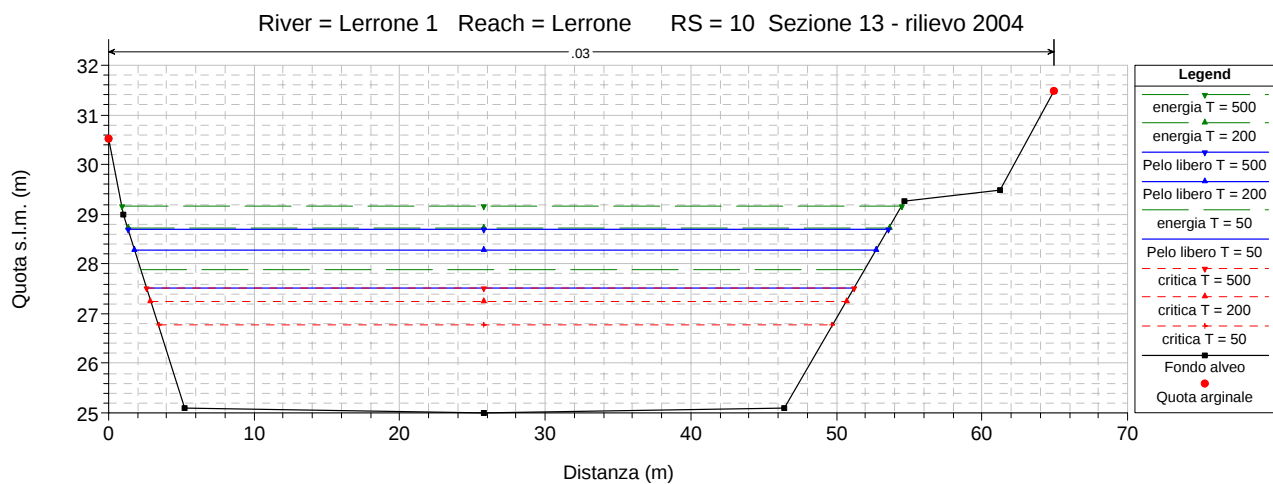
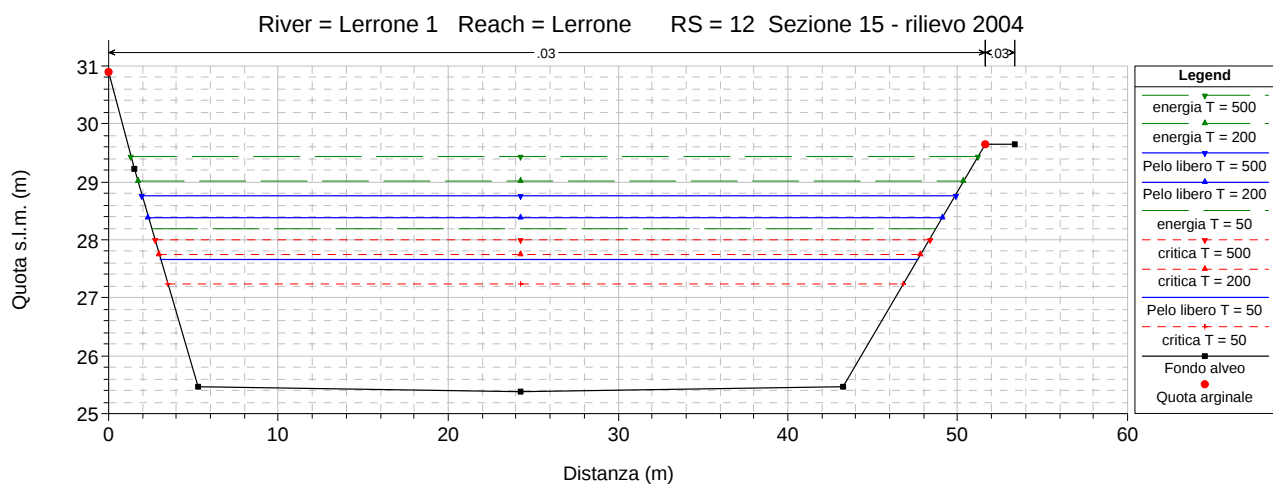


Torrente Lerrone – verifica idraulica – sezioni trasversali

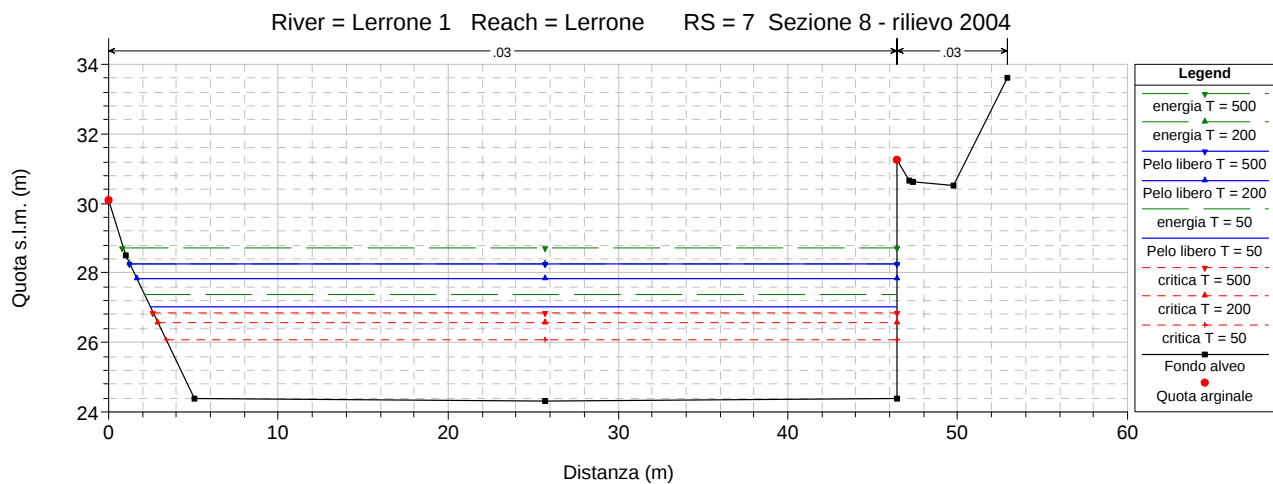
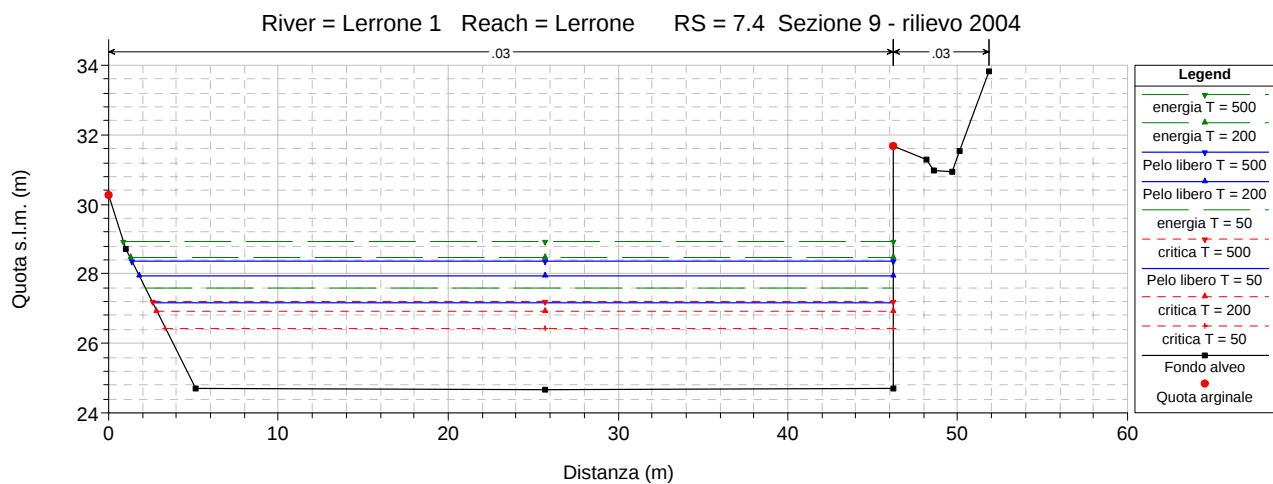
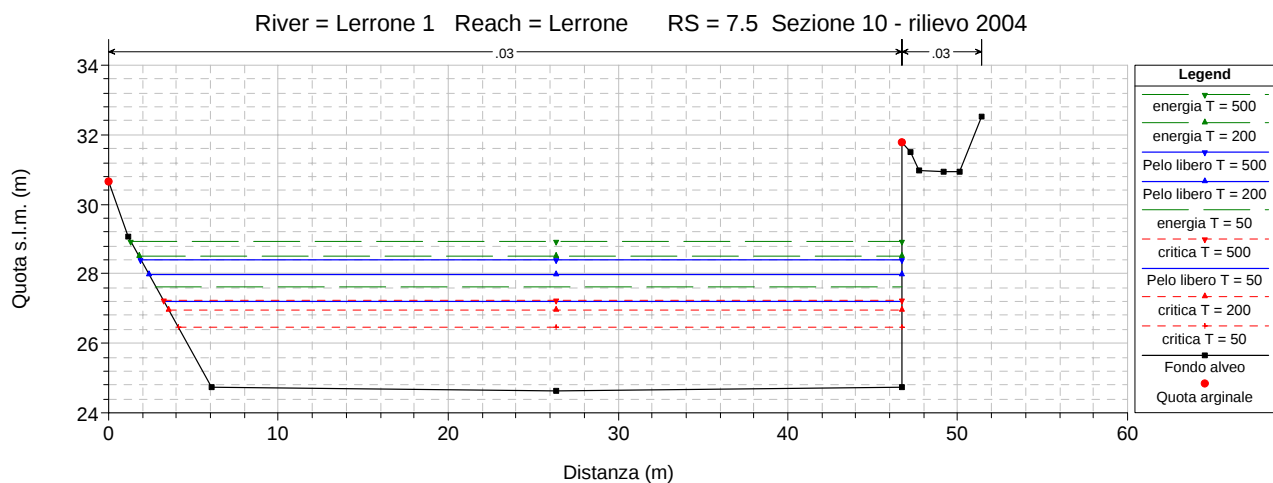
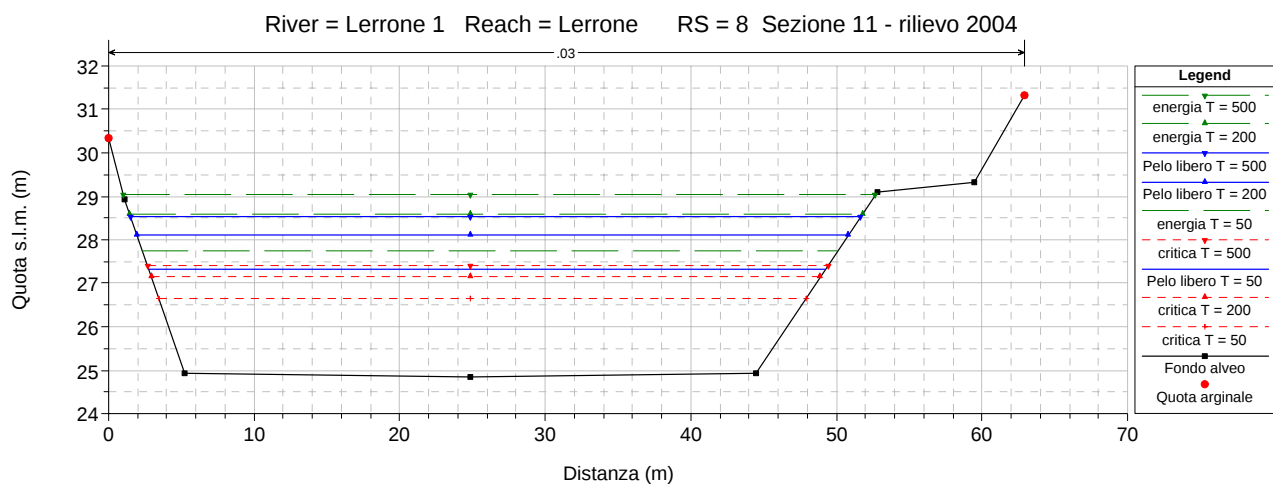


Torrente Lerrone – verifica idraulica – sezioni trasversali

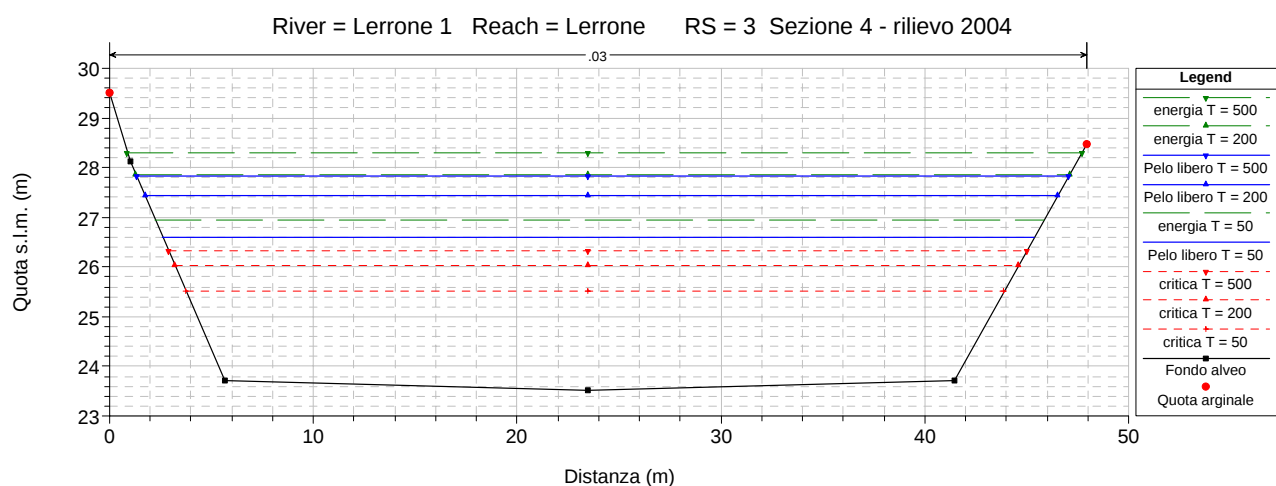
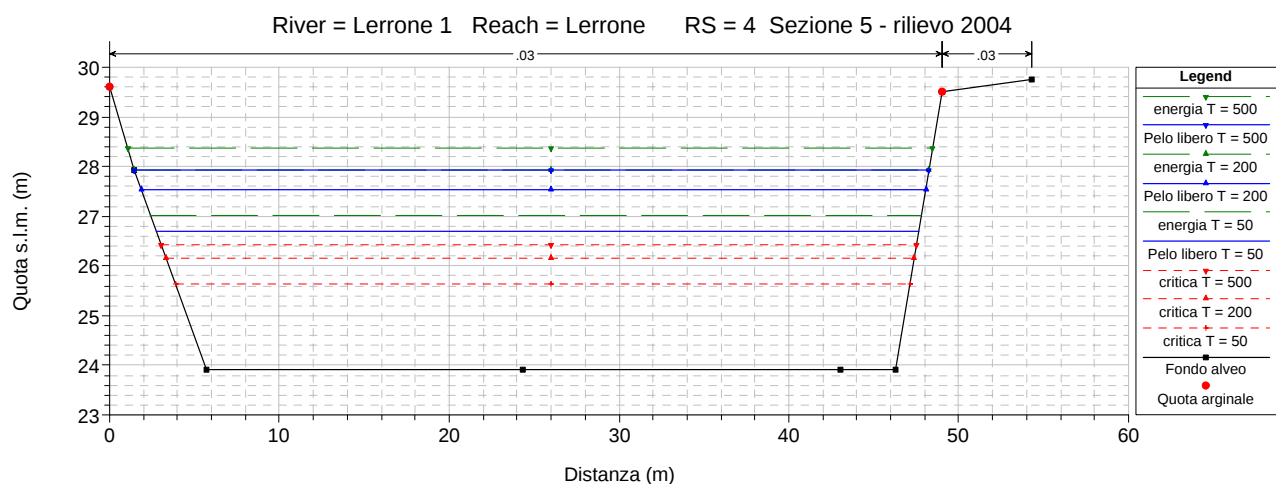
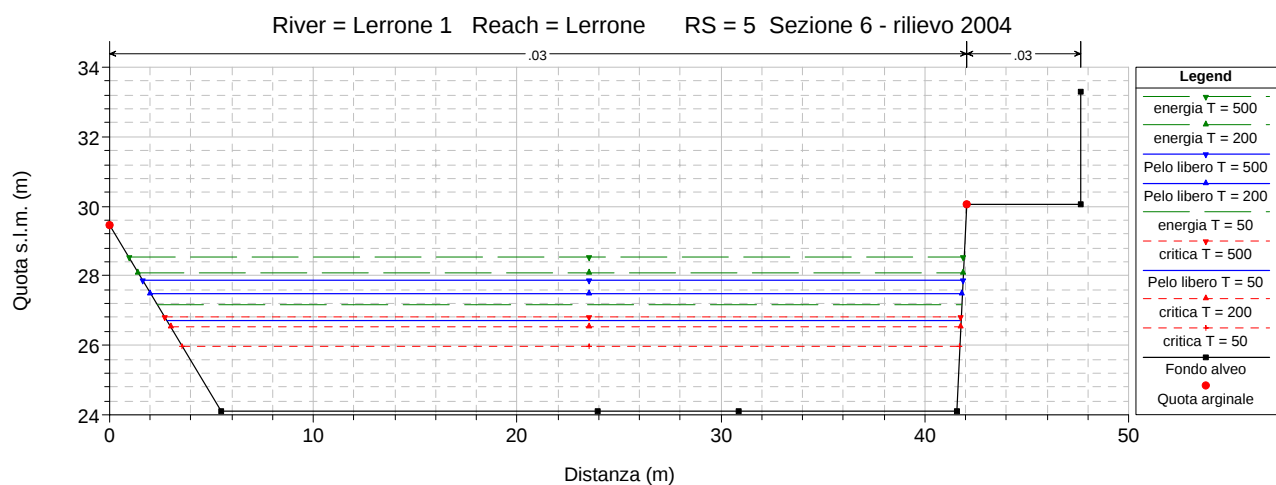
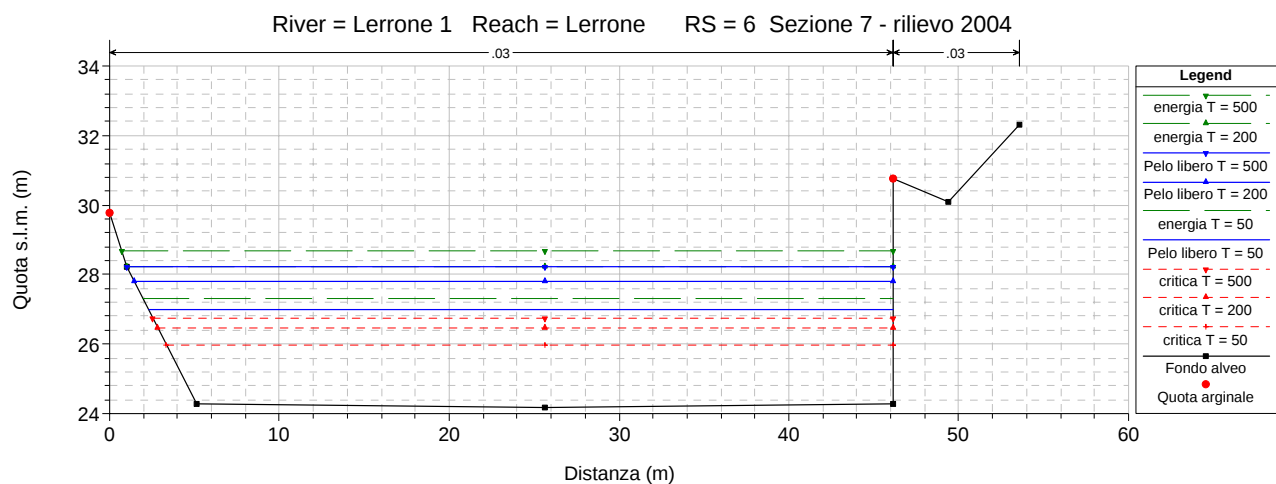


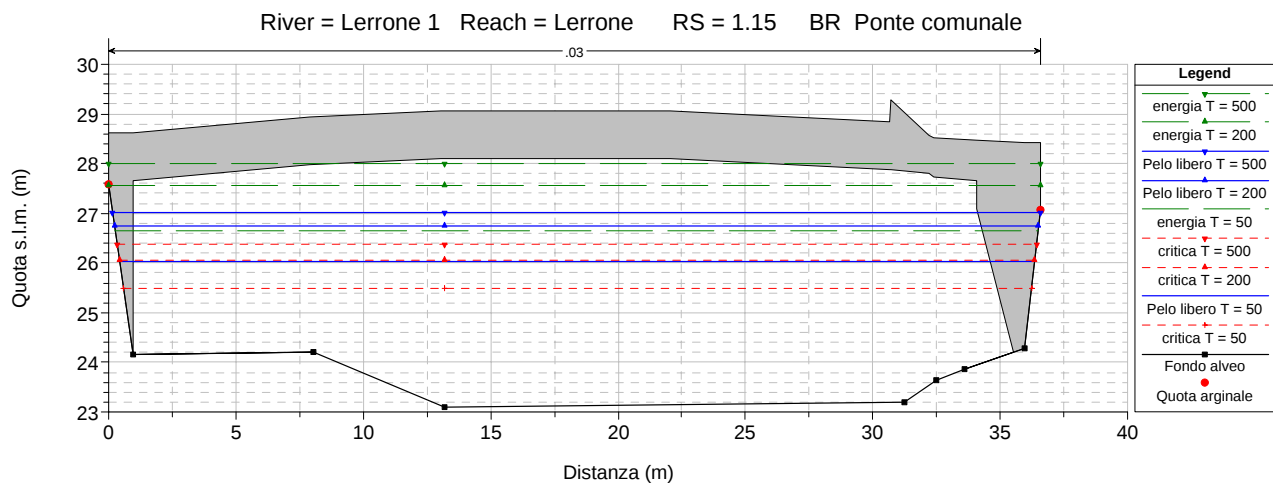
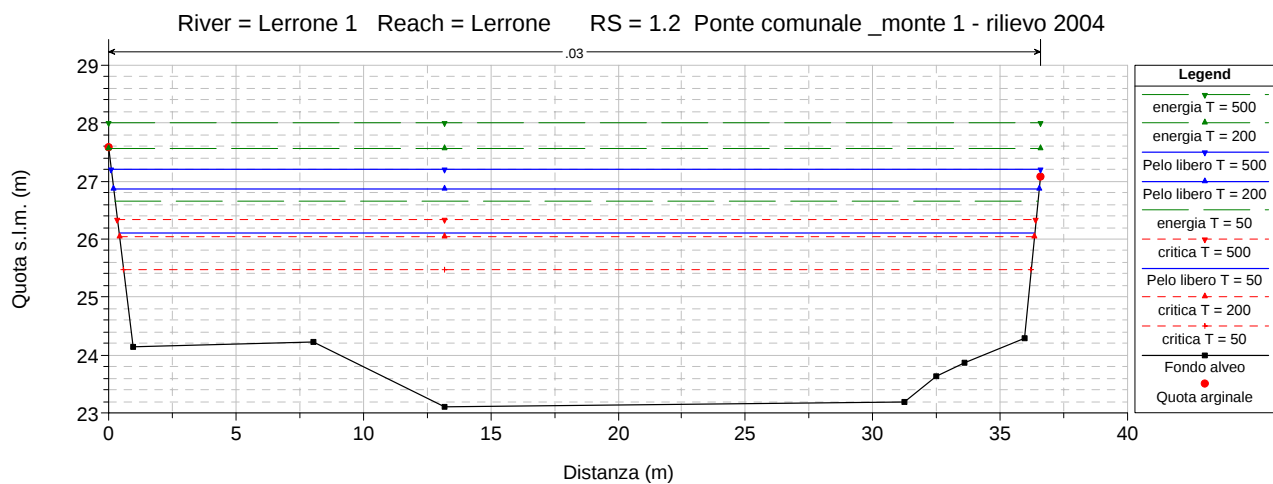
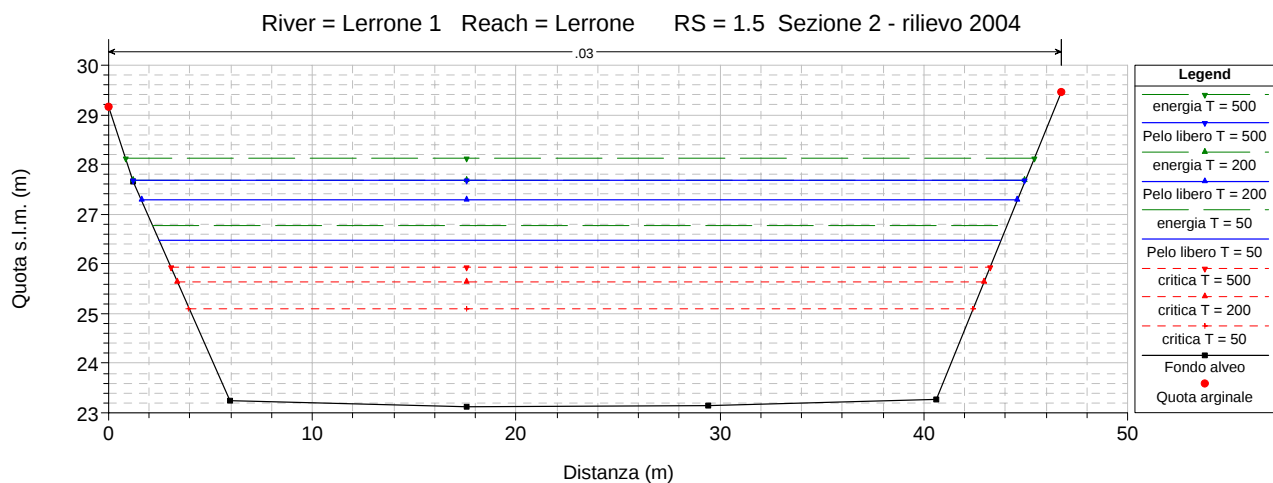
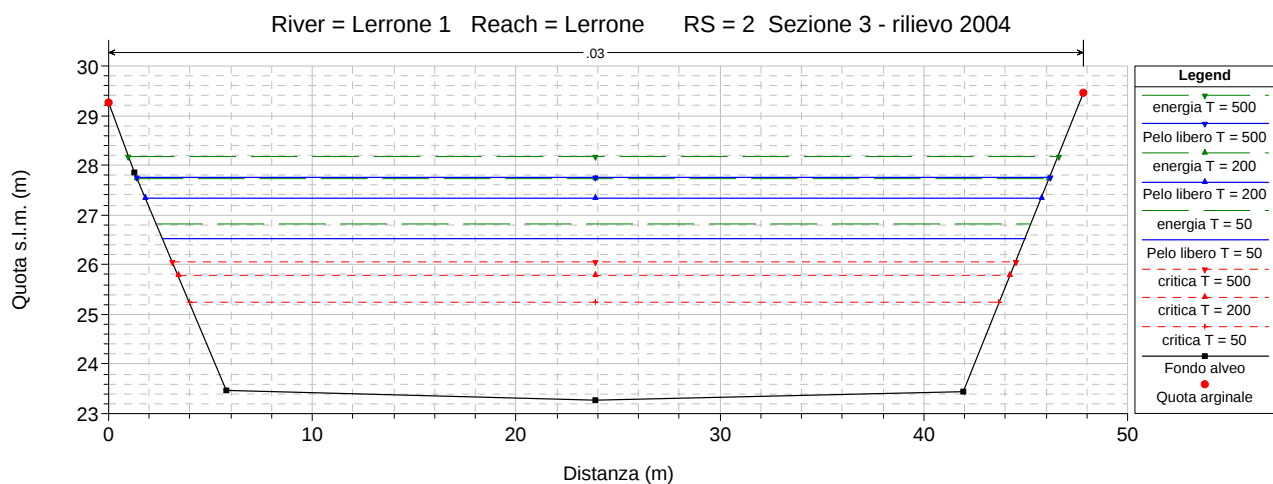


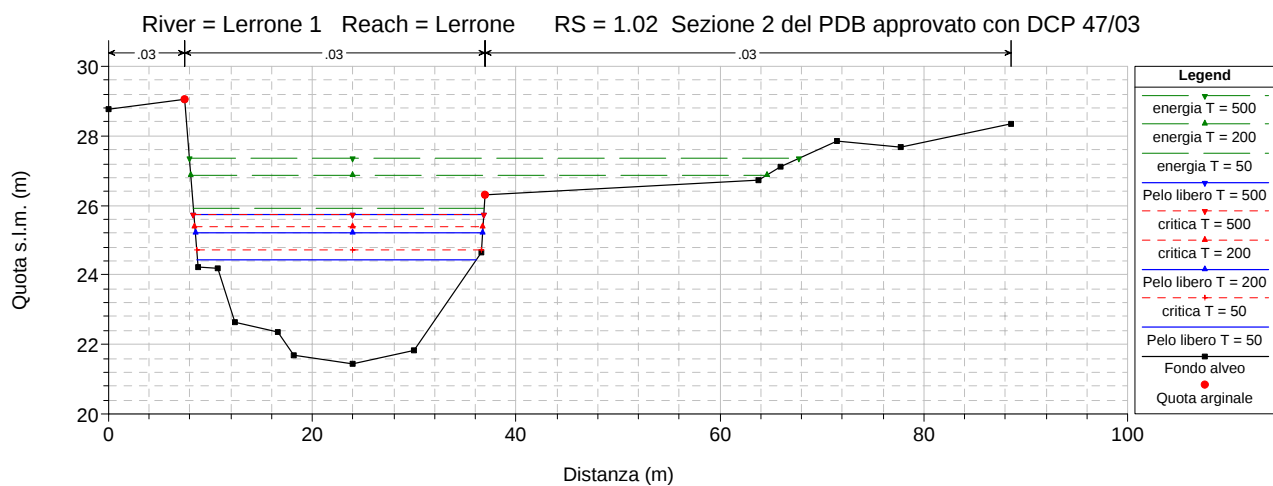
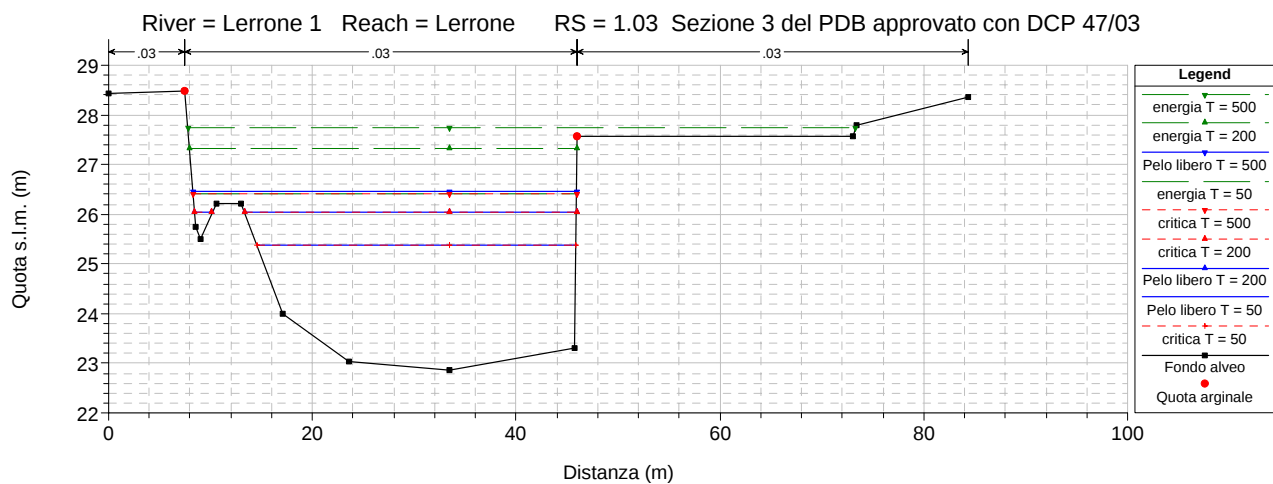
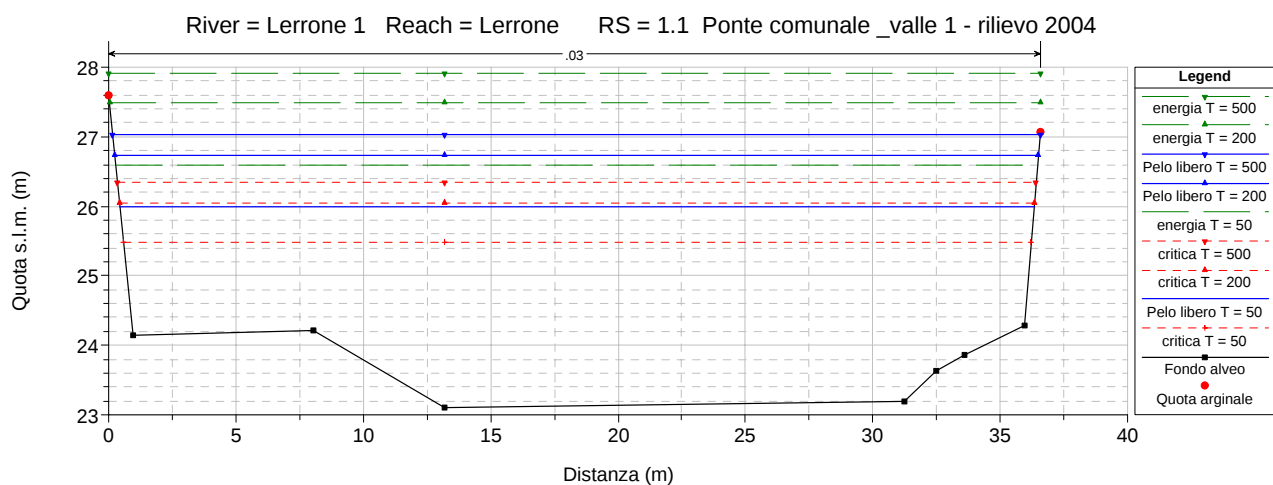
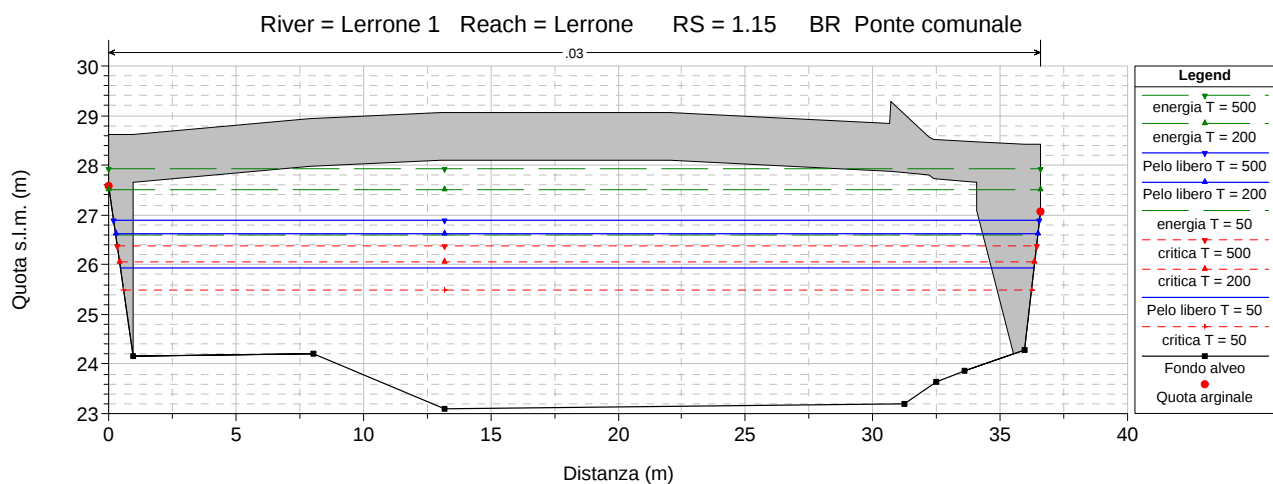
Torrente Lerrone – verifica idraulica – sezioni trasversali

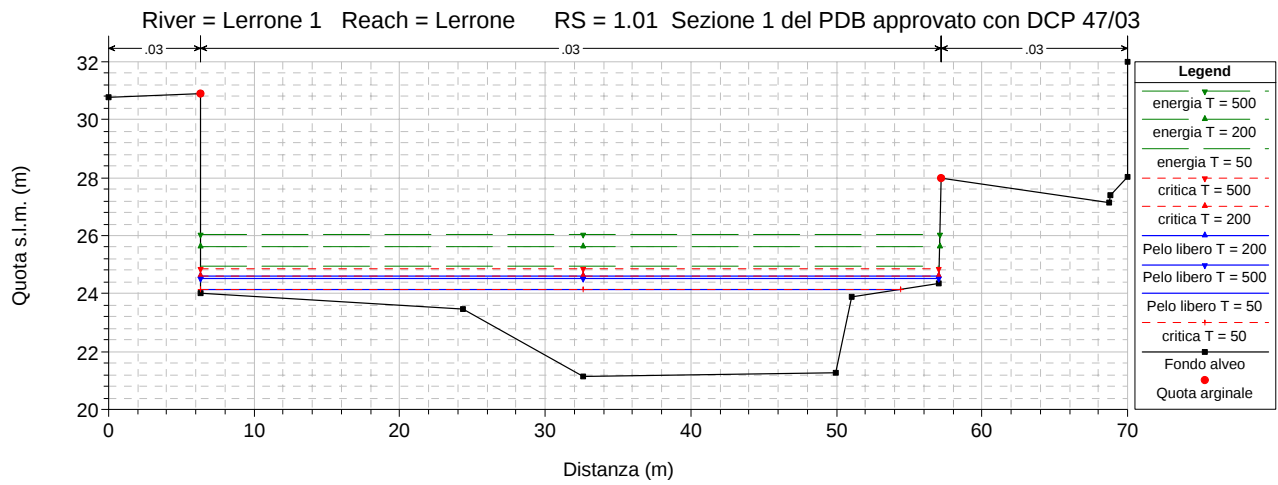


Torrente Lerrone – verifica idraulica – sezioni trasversali











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3. TORRENTE LERRONE

**3.3 TABELLE DELLE GRANDEZZE IDRAULICHE SIGNIFICATIVE
PER LE PORTATE T=50, 200, 500 ANNI.**

Torrente Lerrone T=50 anni										
Sezioni	Portata totale	Fondo alveo	Argine sinistro	Argine destro	Pelo libero	Profondità critica	Energia (m2)	Velocità (m/s)	Area bagnata	N° Froude
41	300	46.93	50.47	50.52	51.60	50.48	52.10	3.21	99.49	0.54
40	300	46.23	49.89	50.43	51.50	50.01	51.79	2.51	135.75	0.41
39	300	46.88	52.31	52.34	50.95	49.96	51.69	3.80	79.01	0.64
38.5	Bridge									
38	300	46.88	52.31	52.34	49.41	49.96	51.54	6.48	46.33	1.37
37	300	44.93	48.63	49.05	47.67	48.38	50.04	6.81	44.07	1.53
36	300	43.00	46.79	48.73	47.88	47.11	48.34	3.08	103.02	0.57
35	300	42.48	48.53	47.12	47.08	46.28	47.88	3.95	75.87	0.69
34	300	41.85	47.80	47.84	46.20	45.87	47.25	4.54	66.03	0.86
33.5	Bridge									
33	300	41.85	47.80	47.84	45.88	45.88	47.21	5.11	58.73	1.00
32	300	40.95	46.94	47.09	43.71	44.43	46.14	6.91	43.39	1.59
31	300	40.32	45.94	45.77	43.71	43.43	44.68	4.36	68.74	0.90
30	300	39.10	45.02	44.94	42.88	42.45	43.72	4.07	73.77	0.81
29	300	38.25	43.90	44.36	41.90	41.90	43.04	4.73	63.43	1.00
28	300	37.40	42.99	43.01	40.58	40.27	41.36	3.92	76.61	0.81
27.5	Bridge									
27	300	37.40	42.99	43.01	40.12	40.26	41.32	4.85	61.80	1.12
26	300	36.30	40.93	41.20	38.37	39.01	40.37	6.27	47.84	1.64
25	300	34.22	37.69	38.47	37.64	36.78	37.90	2.38	141.39	0.47
24	300	33.96	38.04	37.58	37.15	36.10	37.52	2.68	111.80	0.52
23.5	Bridge									
23	300	33.96	38.04	37.58	37.07	36.10	37.46	2.76	108.57	0.54
22	300	33.56	38.20	37.90	36.69	36.20	37.29	3.42	89.30	0.72
21	300	32.34	36.18	35.63	34.56	34.56	35.44	4.14	72.40	1.01
20.5	300	31.07	35.27	35.47	32.72	33.28	34.60	6.08	49.37	1.79
20.2	300	30.07	36.70	36.69	33.57	32.27	33.84	2.30	130.48	0.43
20.15	Bridge									
20.1	300	30.07	36.70	36.69	33.52	32.27	33.80	2.34	128.14	0.44
20	300	30.12	34.18	34.68	32.75	32.56	33.54	3.94	76.06	0.88
19.5	300	28.85	34.05	33.38	30.91	30.91	31.70	3.92	76.61	1.00
19.2	300	27.78	33.13	32.62	30.59	29.72	30.89	2.40	124.96	0.50
19.15	Bridge									
19.1	300	27.78	33.13	32.62	30.53	29.73	30.84	2.47	121.58	0.52
19	300	27.23	31.37	31.37	30.23	29.37	30.58	2.61	114.74	0.54
18	300	27.03	31.03	31.03	29.90	29.30	30.38	3.07	97.65	0.65
17	300	26.85	30.83	30.77	29.23	29.06	29.93	3.71	80.97	0.87
16	300	26.19	31.48	30.92	28.76	28.46	29.39	3.52	85.32	0.79
15	300	26.00	31.28	30.27	28.28	27.86	28.81	3.25	92.32	0.72
14	300	25.72	31.15	30.01	27.99	27.58	28.54	3.28	91.50	0.73
13	300	25.55	30.96	29.82	27.82	27.41	28.37	3.28	91.57	0.73
12	300	25.37	30.89	29.64	27.66	27.23	28.20	3.25	92.27	0.72
11	300	25.20	30.76	31.69	27.57	26.97	28.00	2.89	103.82	0.63
10	300	25.00	30.51	31.49	27.52	26.77	27.90	2.71	110.86	0.57
9	300	24.97	30.48	31.46	27.42	26.75	27.83	2.83	106.14	0.60
8	300	24.84	30.35	31.33	27.32	26.66	27.74	2.89	103.76	0.62
7.5	300	24.65	30.65	31.78	27.19	26.46	27.61	2.86	104.79	0.59
7.4	300	24.68	30.25	31.69	27.15	26.43	27.58	2.88	104.31	0.59
7	300	24.30	30.09	31.26	27.02	26.08	27.38	2.63	114.08	0.52
6	300	24.18	29.79	30.75	26.99	25.98	27.32	2.57	116.83	0.50
5	300	24.09	29.47	30.07	26.69	25.98	27.17	3.07	97.74	0.62
4	300	23.90	29.60	29.50	26.71	25.65	27.02	2.50	119.89	0.49
3	300	23.52	29.51	28.48	26.61	25.51	26.94	2.56	117.06	0.49
2	300	23.27	29.25	29.45	26.53	25.24	26.83	2.42	123.91	0.45
1.5	300	23.12	29.15	29.47	26.47	25.11	26.76	2.40	124.88	0.44
1.2	300	23.11	27.59	27.07	26.11	25.48	26.66	3.28	91.53	0.66

Torrente Lerrone – verifica idraulica – tabelle

Sezioni	Portata totale	Fondo alveo	Argine sinistro	Argine destro	Pelo libero	Profondità critica	Energia (m2)	Velocità (m/s)	Area bagnata	N° Froude
1.15	Bridge									
1.1	300	23.11	27.59	27.07	25.99	25.48	26.60	3.45	87.07	0.71
1.03	300	22.86	28.48	27.58	25.37	25.37	26.42	4.55	65.91	1.00
1.02	300	21.44	29.05	26.31	24.45	24.72	25.92	5.36	55.93	1.20
1.01	300	21.12	30.89	28.00	24.14	24.14	24.93	3.95	75.95	1.00

Torrente Lerrone T=200 anni										
Sezioni	Portata totale	Fondo alveo	Argine sinistro	Argine destro	Pelo libero	Profondità critica	Energia (m2)	Velocità (m/s)	Area bagnata	N° Froude
41	440	46.93	50.47	50.52	53.14	51.33	53.56	3.03	162.49	0.43
40	440	46.23	49.89	50.43	53.16	50.91	53.37	2.21	238.30	0.30
39	440	46.88	52.31	52.34	52.73	50.79	53.31	3.46	142.14	0.49
38.5	Bridge									
38	440	46.88	52.31	52.34	50.79	50.79	52.52	5.83	75.44	1.00
37	440	44.93	48.63	49.05	48.30	49.39	51.19	7.54	58.38	1.53
36	440	43.00	46.79	48.73	48.88	47.67	49.37	3.23	145.54	0.53
35	440	42.48	48.53	47.12	47.99	47.15	48.97	4.44	105.21	0.69
34	440	41.85	47.80	47.84	47.12	46.75	48.36	4.94	88.99	0.87
33.5	Bridge									
33	440	41.85	47.80	47.84	46.75	46.75	48.31	5.54	79.42	1.00
32	440	40.95	46.94	47.09	44.32	45.30	47.29	7.63	57.66	1.57
31	440	40.32	45.94	45.77	44.46	44.27	45.61	4.75	92.65	0.91
30	440	39.10	45.02	44.94	43.64	43.25	44.67	4.51	97.46	0.84
29	440	38.25	43.90	44.36	42.63	42.63	44.00	5.18	85.01	1.00
28	440	37.40	42.99	43.01	41.30	40.87	42.29	4.40	100.03	0.80
27.5	Bridge									
27	440	37.40	42.99	43.01	40.66	40.86	42.23	5.55	79.30	1.13
26	440	36.30	40.93	41.20	39.19	39.57	40.88	5.75	76.49	1.28
25	440	34.22	37.69	38.47	38.38	37.29	38.66	2.51	201.16	0.44
24	440	33.96	38.04	37.58	37.75	36.65	38.28	3.22	136.73	0.57
23.5	Bridge									
23	440	33.96	38.04	37.58	37.59	36.65	38.17	3.39	129.84	0.62
22	440	33.56	38.20	37.90	37.15	36.93	37.96	4.04	115.80	0.79
21	440	32.34	36.18	35.63	35.19	35.19	36.15	4.36	104.02	0.93
20.5	440	31.07	35.27	35.47	33.09	33.78	35.42	6.75	65.19	1.75
20.2	440	30.07	36.70	36.69	34.33	32.76	34.70	2.68	164.07	0.45
20.15	Bridge									
20.1	440	30.07	36.70	36.69	34.26	32.77	34.64	2.73	161.06	0.46
20	440	30.12	34.18	34.68	33.20	33.13	34.34	4.73	92.95	0.96
19.5	440	28.85	34.05	33.38	31.38	31.38	32.37	4.42	99.50	1.00
19.2	440	27.78	33.13	32.62	31.28	30.16	31.64	2.69	167.23	0.50
19.15	Bridge									
19.1	440	27.78	33.13	32.62	31.21	30.16	31.60	2.75	163.02	0.51
19	440	27.23	31.37	31.37	30.87	29.86	31.34	3.02	145.74	0.56
18	440	27.03	31.03	31.03	30.47	29.82	31.13	3.61	121.92	0.69
17	440	26.85	30.83	30.77	29.77	29.56	30.67	4.19	105.06	0.87
16	440	26.19	31.48	30.92	29.32	28.97	30.15	4.03	109.06	0.81
15	440	26.00	31.28	30.27	28.89	28.36	29.57	3.65	120.67	0.73
14	440	25.72	31.15	30.01	28.64	28.09	29.31	3.62	121.41	0.72
13	440	25.55	30.96	29.82	28.51	27.92	29.16	3.58	122.94	0.70
12	440	25.37	30.89	29.64	28.38	27.74	29.01	3.52	125.13	0.69
11	440	25.20	30.76	31.69	28.33	27.45	28.82	3.12	140.89	0.60
10	440	25.00	30.51	31.49	28.29	27.25	28.73	2.96	148.87	0.55
9	440	24.97	30.48	31.46	28.20	27.24	28.67	3.05	144.12	0.57
8	440	24.84	30.35	31.33	28.11	27.16	28.60	3.11	141.59	0.58
7.5	440	24.65	30.65	31.78	27.98	26.96	28.49	3.16	139.37	0.57
7.4	440	24.68	30.25	31.69	27.95	26.93	28.46	3.16	139.35	0.57
7	440	24.30	30.09	31.26	27.84	26.58	28.28	2.93	150.34	0.51
6	440	24.18	29.79	30.75	27.81	26.48	28.23	2.87	153.17	0.50
5	440	24.09	29.47	30.07	27.49	26.53	28.08	3.41	128.94	0.61
4	440	23.90	29.60	29.50	27.53	26.15	27.93	2.79	157.46	0.48
3	440	23.52	29.51	28.48	27.43	26.04	27.85	2.88	152.94	0.50
2	440	23.27	29.25	29.45	27.35	25.78	27.74	2.76	159.35	0.46
1.5	440	23.12	29.15	29.47	27.28	25.65	27.67	2.76	159.31	0.46
1.2	440	23.11	27.59	27.07	26.87	26.05	27.57	3.70	118.88	0.65

Torrente Arroscia – verifica idraulica – tabelle

Sezioni	Portata totale	Fondo alveo	Argine sinistro	Argine destro	Pelo libero	Profondità critica	Energia (m2)	Velocità (m/s)	Area bagnata	N° Froude
1.15	Bridge									
1.1	440	23.11	27.59	27.07	26.72	26.05	27.49	3.88	113.53	0.70
1.03	440	22.86	28.48	27.58	26.03	26.03	27.32	5.02	87.57	1.00
1.02	440	21.44	29.05	26.31	25.21	25.39	26.87	5.70	77.15	1.10
1.01	440	21.12	30.89	28.00	24.61	24.61	25.60	4.42	99.47	1.01

Torrente Lerrone T=500 anni										
Sezioni	Portata totale	Fondo alveo	Argine sinistro	Argine destro	Pelo libero	Profondità critica	Energia (m2)	Velocità (m/s)	Area bagnata	N° Froude
26	520	36.30	40.93	41.20	39.99	39.99	41.17	4.84	110.43	0.93
25	520	34.22	37.69	38.47	38.75	37.51	39.04	2.61	235.68	0.44
24	520	33.96	38.04	37.58	38.05	36.95	38.66	3.47	151.13	0.60
23.5	Bridge									
23	520	33.96	38.04	37.58	37.81	36.95	38.52	3.73	139.56	0.66
22	520	33.56	38.20	37.90	37.36	37.21	38.29	4.35	128.24	0.83
21	520	32.34	36.18	35.63	35.48	35.48	36.48	4.48	122.77	0.91
20.5	520	31.07	35.27	35.47	33.32	34.05	35.78	6.95	74.83	1.69
20.2	520	30.07	36.70	36.69	34.73	33.02	35.14	2.86	181.77	0.45
20.15	Bridge									
20.1	520	30.07	36.70	36.69	34.65	33.02	35.08	2.91	178.40	0.47
20	520	30.12	34.18	34.68	33.43	33.43	34.76	5.12	101.65	1.00
19.5	520	28.85	34.05	33.38	31.67	31.62	32.73	4.54	114.43	0.96
19.2	520	27.78	33.13	32.62	31.64	30.38	32.03	2.81	189.59	0.49
19.15	Bridge									
19.1	520	27.78	33.13	32.62	31.57	30.38	31.98	2.88	185.39	0.51
19	520	27.23	31.37	31.37	31.21	30.11	31.73	3.21	161.93	0.57
18	520	27.03	31.03	31.03	30.75	30.09	31.51	3.87	134.37	0.71
17	520	26.85	30.83	30.77	30.06	29.82	31.05	4.41	117.98	0.87
16	520	26.19	31.48	30.92	29.62	29.24	30.54	4.26	122.03	0.82
15	520	26.00	31.28	30.27	29.24	28.62	29.97	3.80	136.95	0.72
14	520	25.72	31.15	30.01	29.01	28.35	29.72	3.75	138.52	0.70
13	520	25.55	30.96	29.82	28.89	28.18	29.58	3.69	140.80	0.69
12	520	25.37	30.89	29.64	28.77	28.01	29.44	3.62	143.70	0.67
11	520	25.20	30.76	31.69	28.73	27.70	29.26	3.22	161.55	0.58
10	520	25.00	30.51	31.49	28.70	27.50	29.17	3.06	170.00	0.54
9	520	24.97	30.48	31.46	28.62	27.49	29.12	3.15	165.13	0.56
8	520	24.84	30.35	31.33	28.53	27.42	29.05	3.20	162.42	0.57
7.5	520	24.65	30.65	31.78	28.39	27.22	28.94	3.30	157.36	0.56
7.4	520	24.68	30.25	31.69	28.36	27.19	28.91	3.30	157.44	0.56
7	520	24.30	30.09	31.26	28.25	26.84	28.74	3.08	168.84	0.51
6	520	24.18	29.79	30.75	28.22	26.74	28.69	3.03	171.68	0.50
5	520	24.09	29.47	30.07	27.87	26.81	28.53	3.60	144.47	0.61
4	520	23.90	29.60	29.50	27.93	26.42	28.38	2.95	176.26	0.49
3	520	23.52	29.51	28.48	27.83	26.32	28.30	3.04	171.07	0.50
2	520	23.27	29.25	29.45	27.75	26.06	28.19	2.94	177.06	0.47
1.5	520	23.12	29.15	29.47	27.68	25.93	28.12	2.95	176.35	0.47
1.2	520	23.11	27.59	27.07	27.21	26.34	28.01	3.96	131.18	0.67
1.15	Bridge									
1.1	520	23.11	27.59	27.07	27.03	26.34	27.91	4.18	124.48	0.72
1.03	520	22.86	28.48	27.58	26.47	26.40	27.75	5.02	103.51	0.97
1.02	520	21.44	29.05	26.31	25.73	25.73	27.36	5.65	92.00	1.00
1.01	520	21.12	30.89	28.00	24.51	24.84	26.05	5.51	94.40	1.29
41	520	46.93	50.47	50.52	53.49	51.67	53.98	3.29	178.07	0.45
40	520	46.23	49.89	50.43	53.54	51.20	53.77	2.36	265.20	0.31
39	520	46.88	52.31	52.34	53.05	51.22	53.70	3.72	159.24	0.52
38.5	Bridge									
38	520	46.88	52.31	52.34	51.21	51.21	53.13	6.13	84.82	1.00
37	520	44.93	48.63	49.05	48.60	49.88	51.81	7.94	65.50	1.55
36	520	43.00	46.79	48.73	49.33	47.97	49.85	3.34	170.44	0.52
35	520	42.48	48.53	47.12	48.46	47.83	49.48	4.58	123.00	0.68
34	520	41.85	47.80	47.84	47.58	47.18	48.91	5.12	101.63	0.86
33.5	Bridge									
33	520	41.85	47.80	47.84	47.18	47.18	48.85	5.74	90.61	1.00
32	520	40.95	46.94	47.09	44.66	45.68	47.84	7.90	65.79	1.54
31	520	40.32	45.94	45.77	44.79	44.60	46.07	5.00	103.96	0.91

Torrente Arroscia – verifica idraulica – tabelle

Sezioni	Portata totale	Fondo alveo	Argine sinistro	Argine destro	Pelo libero	Profondità critica	Energia (m2)	Velocità (m/s)	Area bagnata	N° Froude
30	520	39.10	45.02	44.94	43.99	43.61	45.14	4.75	109.49	0.85
29	520	38.25	43.90	44.36	43.00	43.00	44.47	5.37	96.87	1.00
28	520	37.40	42.99	43.01	42.91	41.18	43.48	3.35	155.05	0.51
27.5	Bridge									
27	520	37.40	42.99	43.01	41.39	41.17	42.69	5.05	102.94	0.90