



# **PROVINCIA DI SAVONA**

**DIFESA DEL SUOLO E TUTELA AMBIENTALE  
SERVIZIO PIANI DI BACINO**

## **VERIFICHE IDRAULICHE**

**Bacino: MERULA**

**TORRENTE MERULA**

---



# **PROFILI DI RIGURGITO**

PER LE PORTATE

**T=50, 200, 500 ANNI**

## **TORRENTE MERULA**

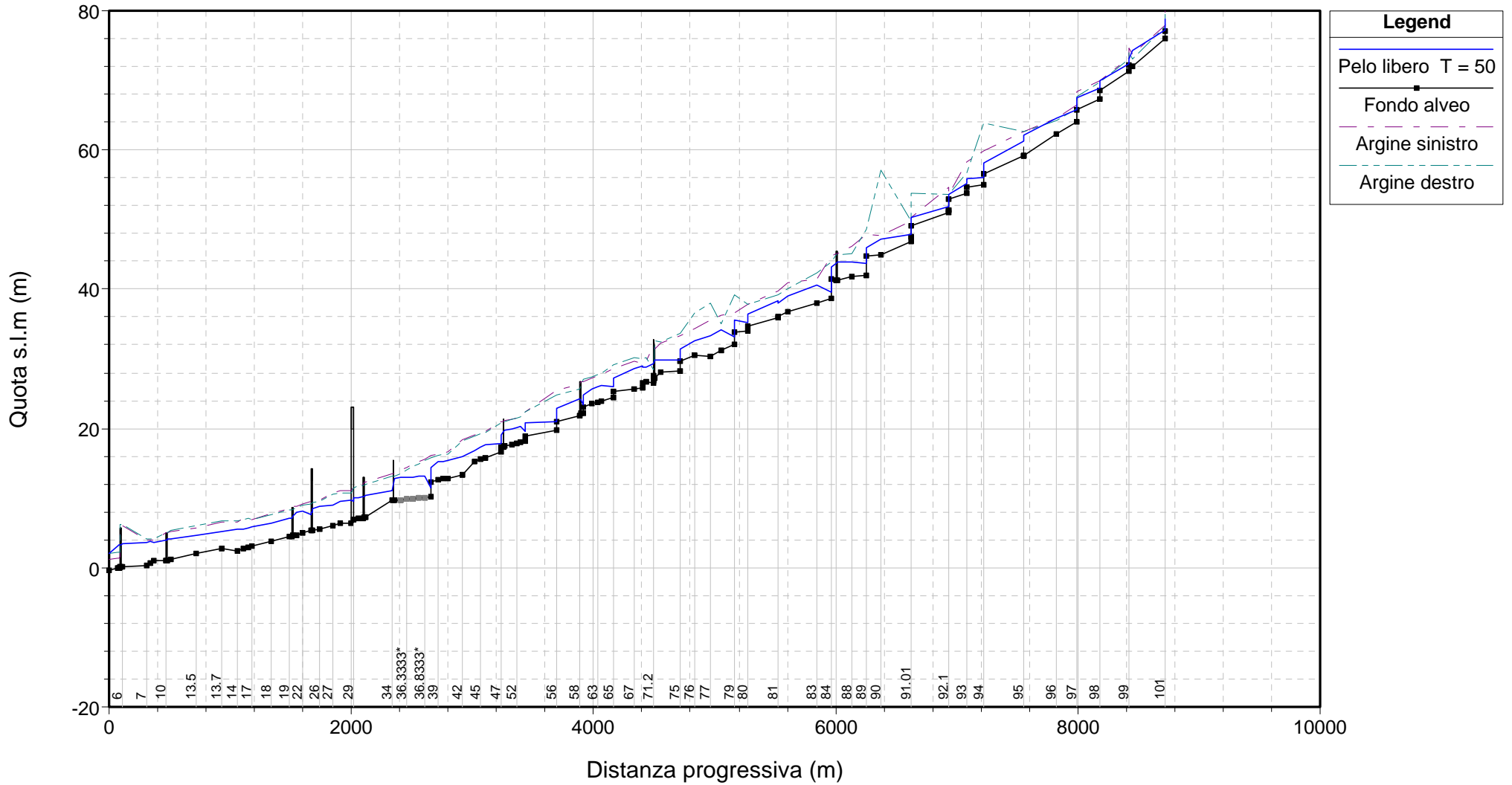
Dalla foce a loc. Case Castellana

**Dalla sez. 1 alla sez. 101.1**



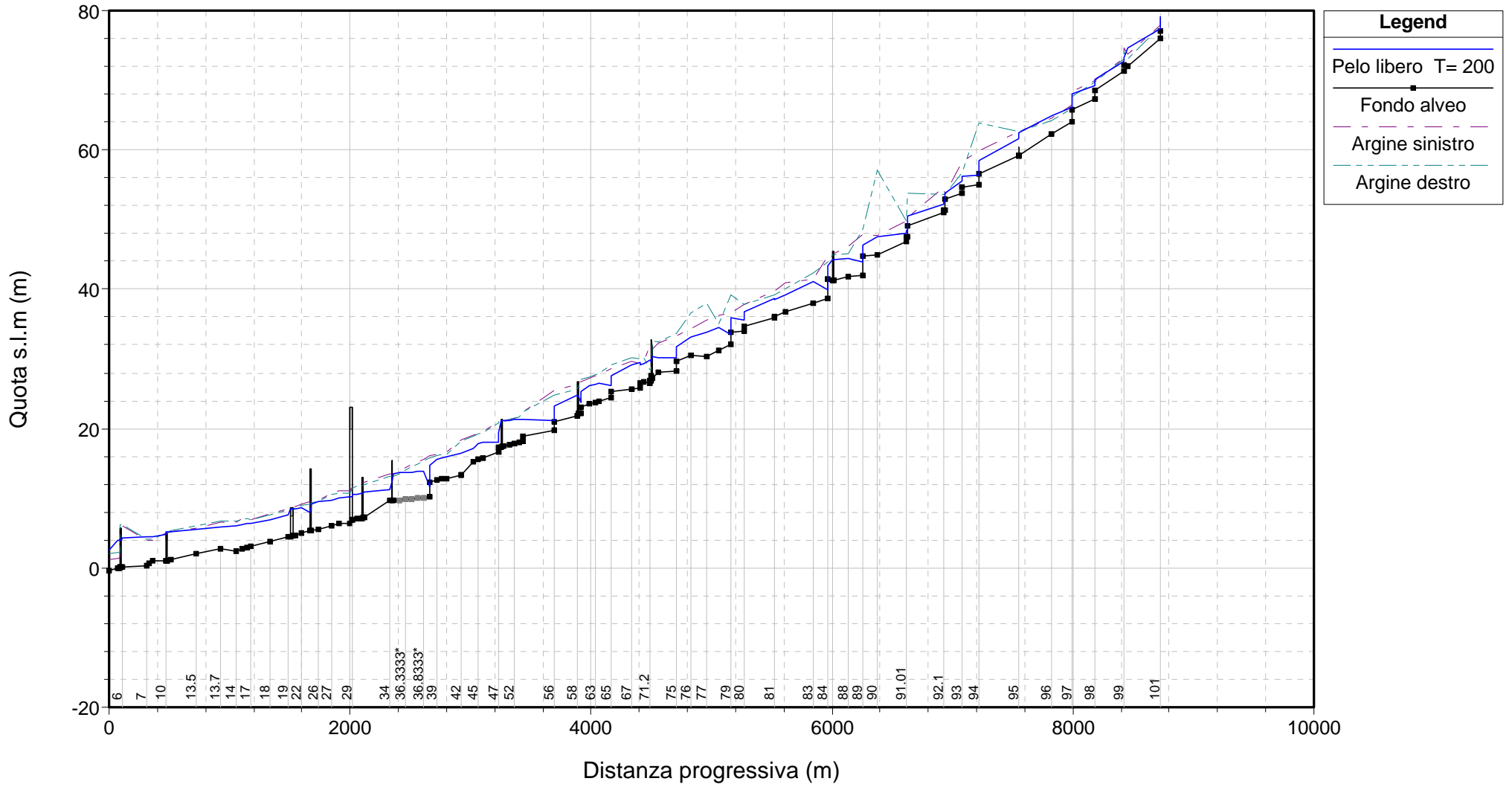
# Torrente Merula dalla foce a loc. Case Castellana

Profilo idraulico – dalla sez 1 alla sez 101.1



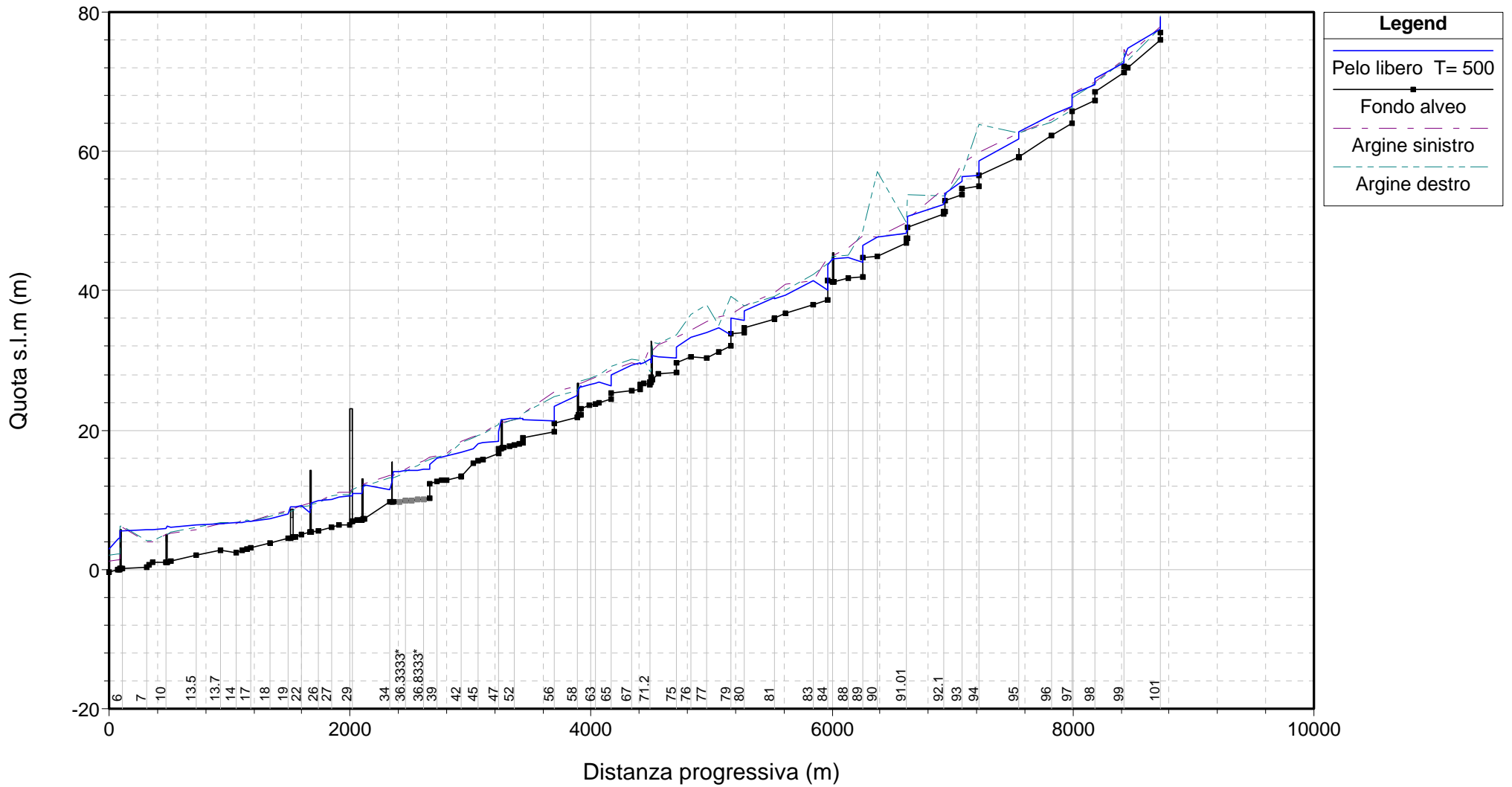
# Torrente Merula dalla foce a loc. Case Castellana

Profilo idraulico – dalla sez 1 alla sez 101.1



# Torrente Merula dalla foce a loc. Case Castellana

Profilo idraulico – dalla sez 1 alla sez 101.1



# **SEZIONI IDRAULICHE**

PER LE PORTATE

**T=50, 200, 500 ANNI**

## **TORRENTE MERULA**

Dalla foce a loc. Case Castellana

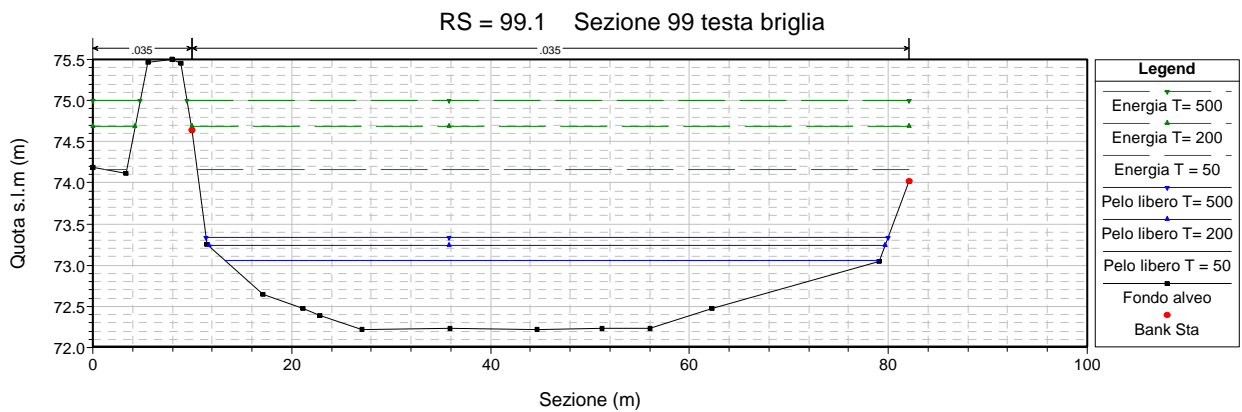
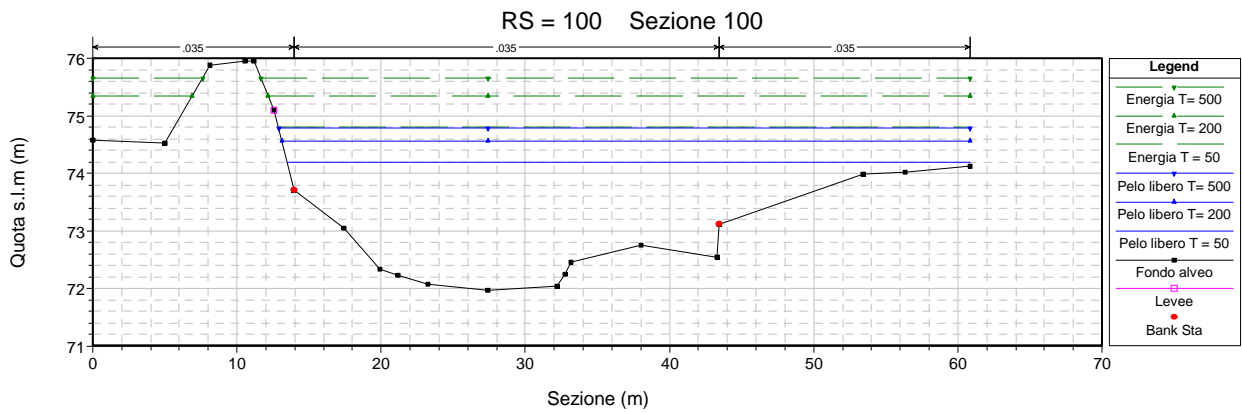
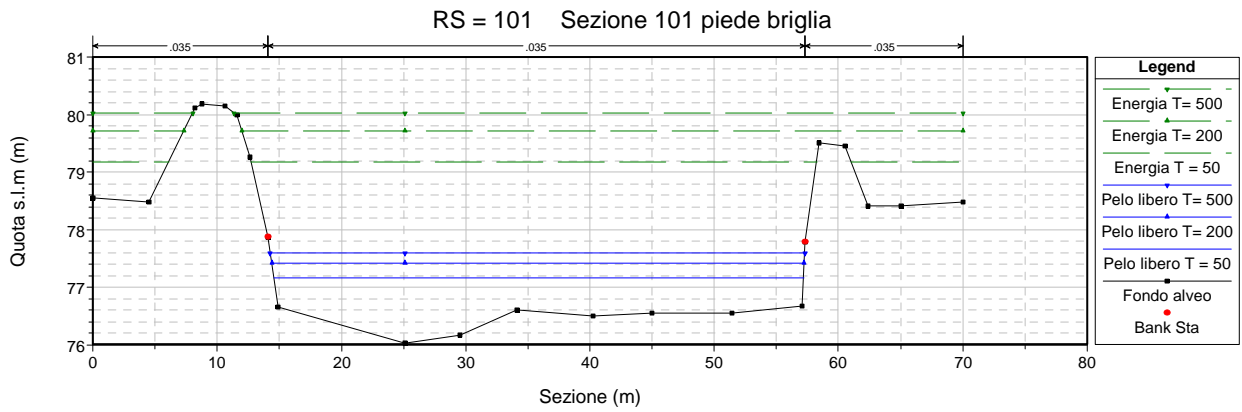
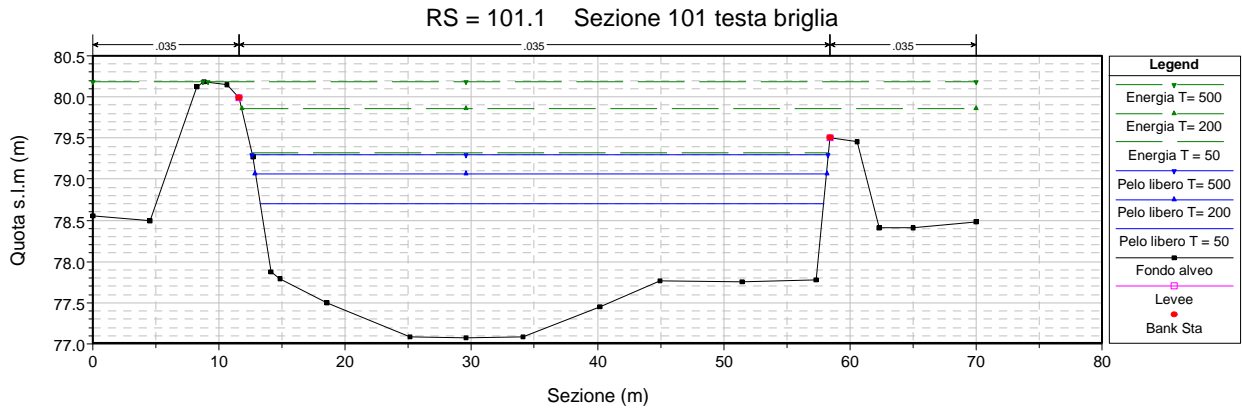
Dalla sez. 1 alla sez. 101.1





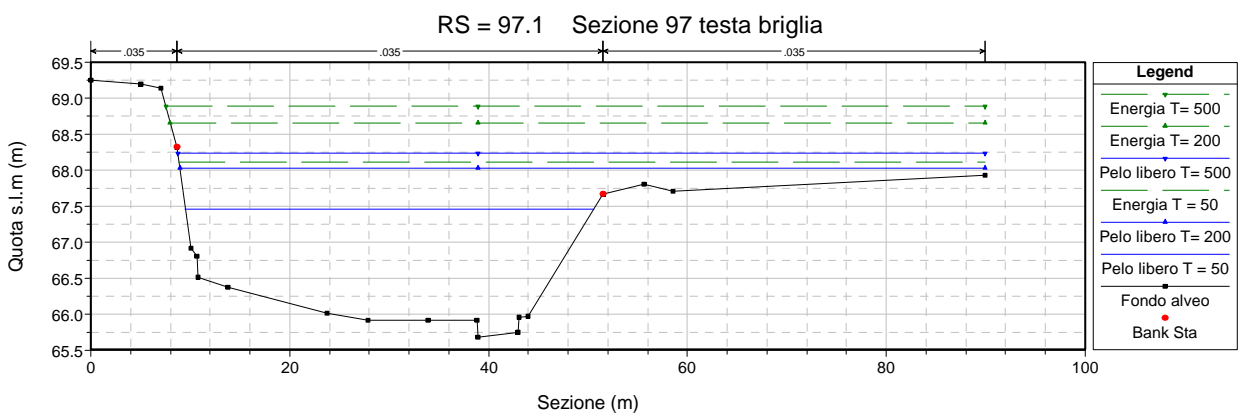
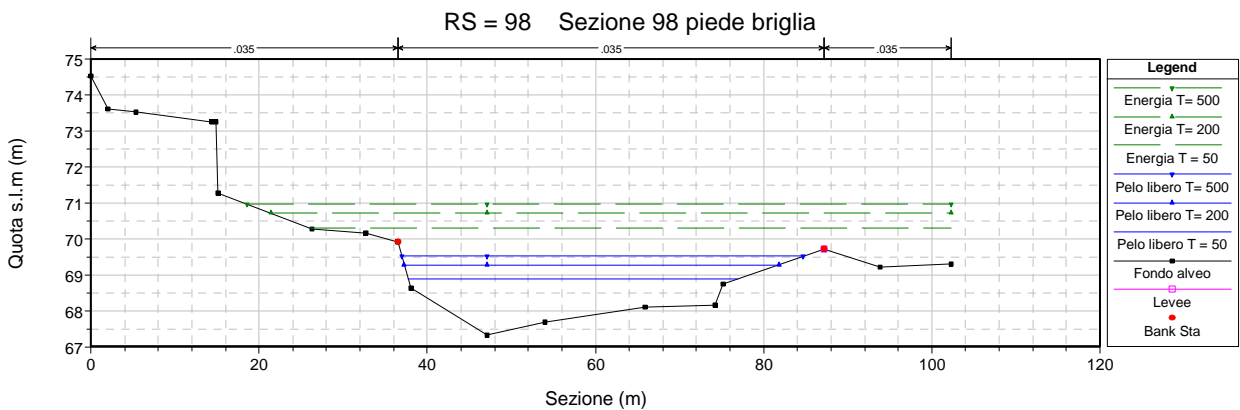
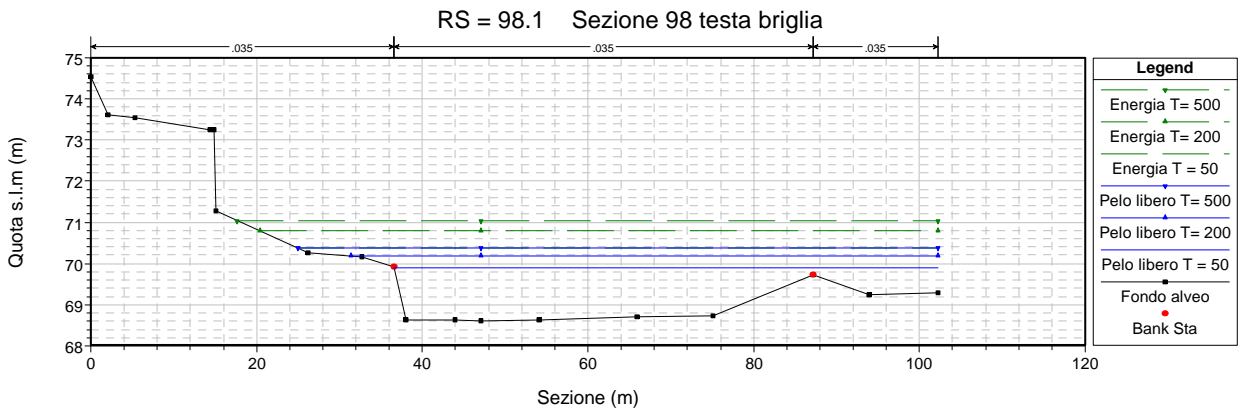
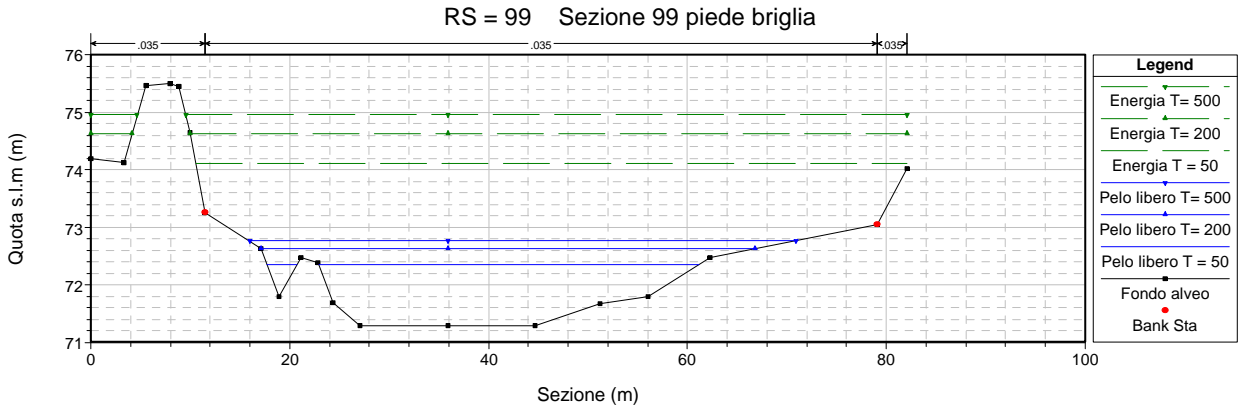
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



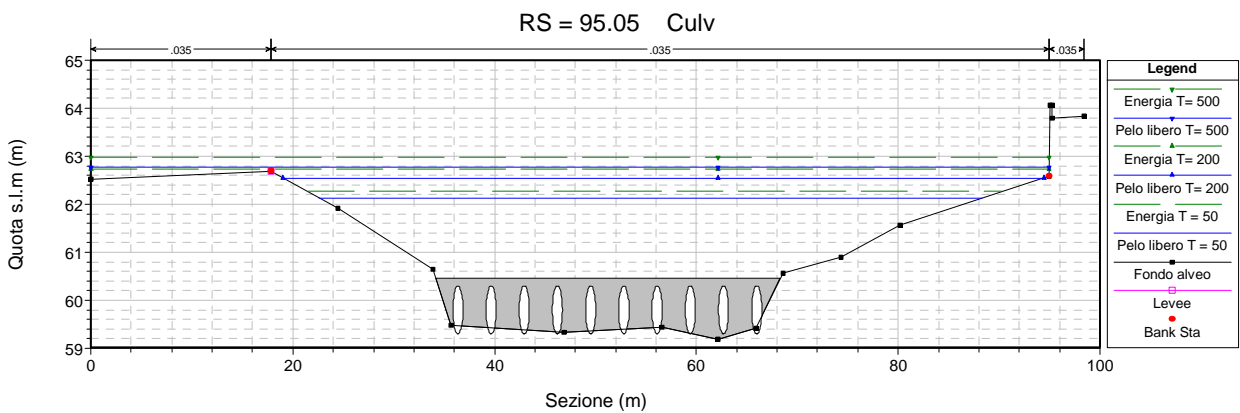
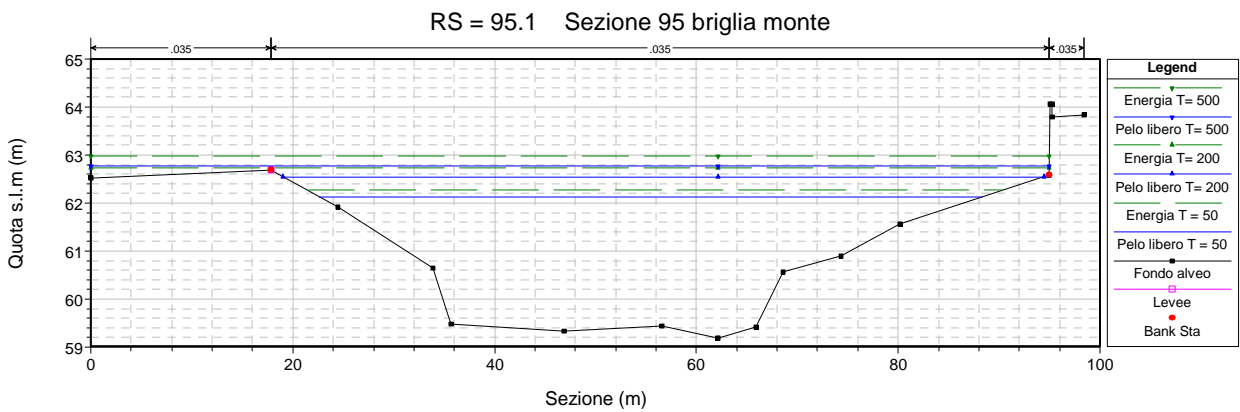
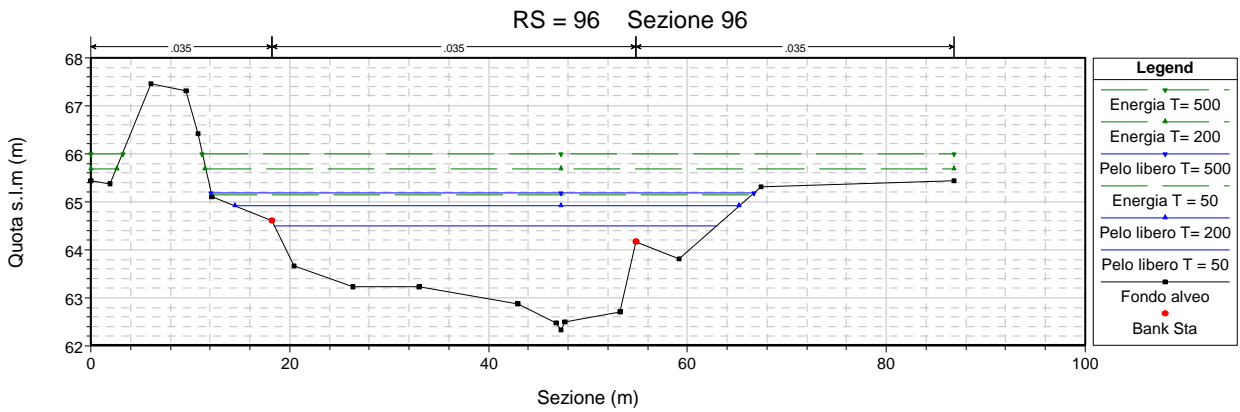
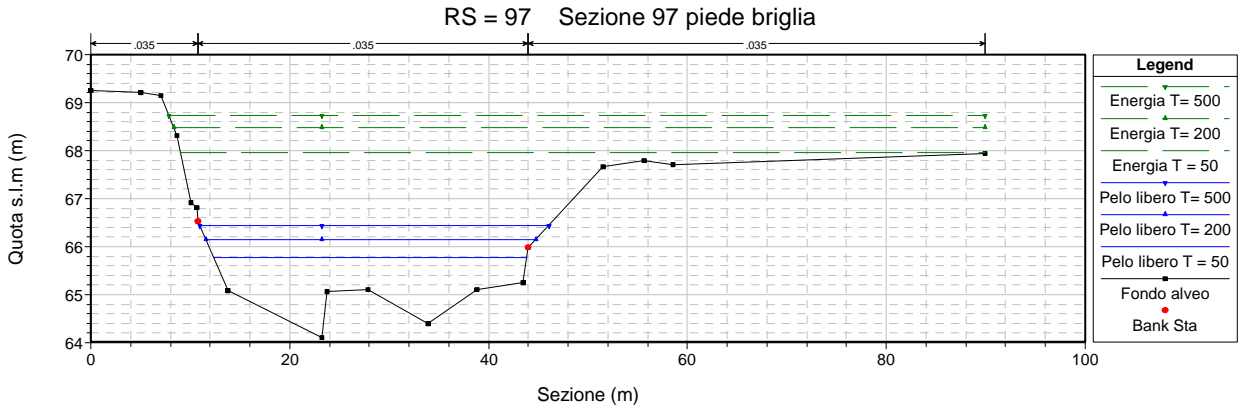
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



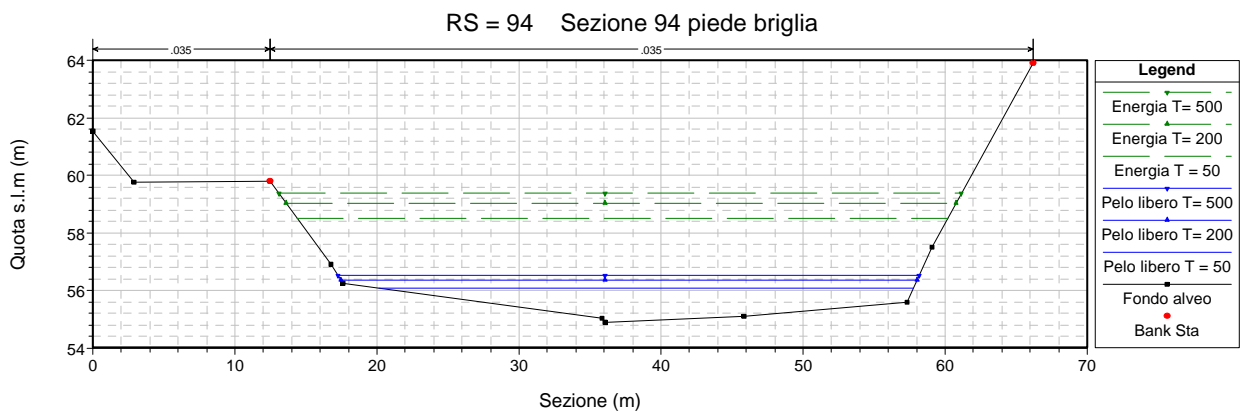
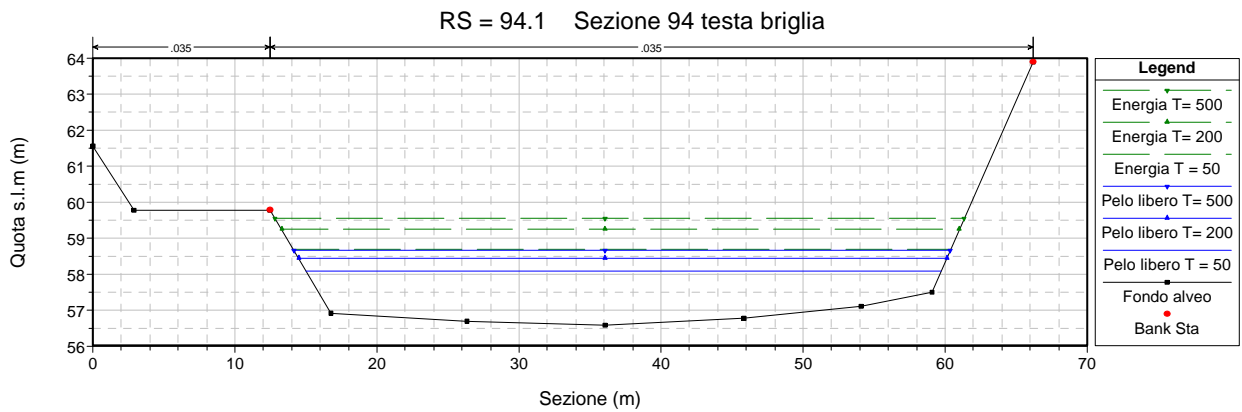
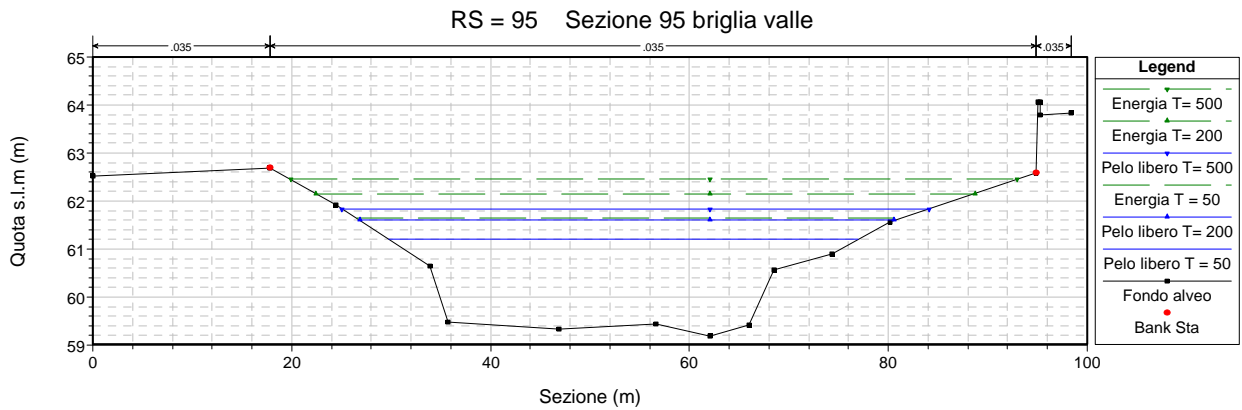
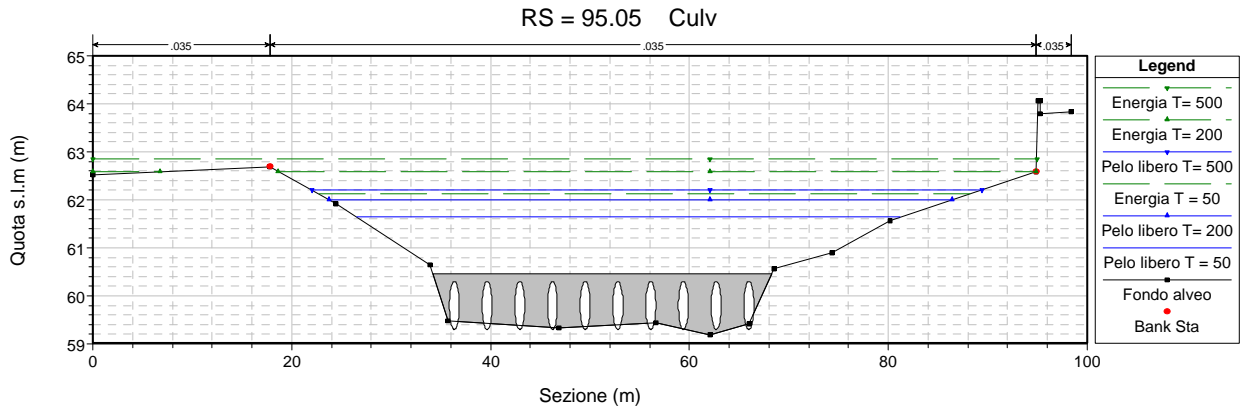
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



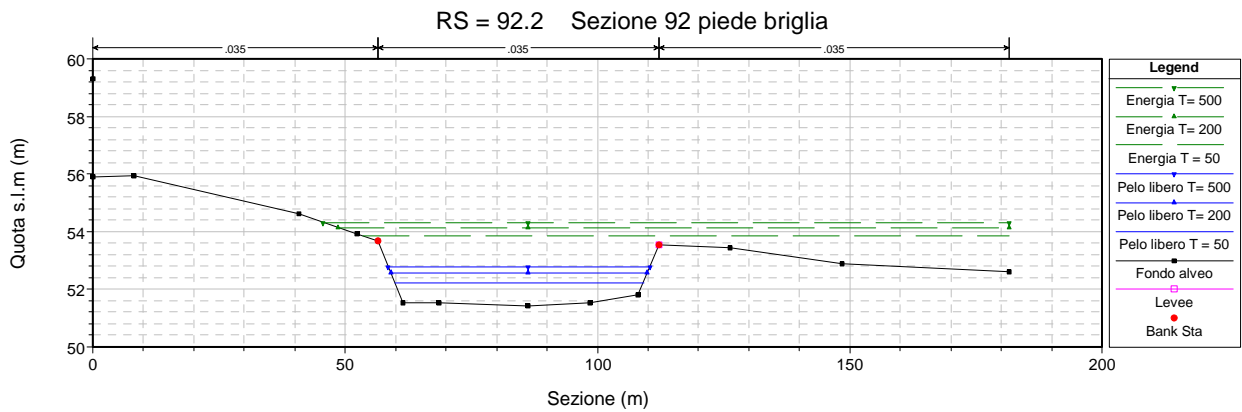
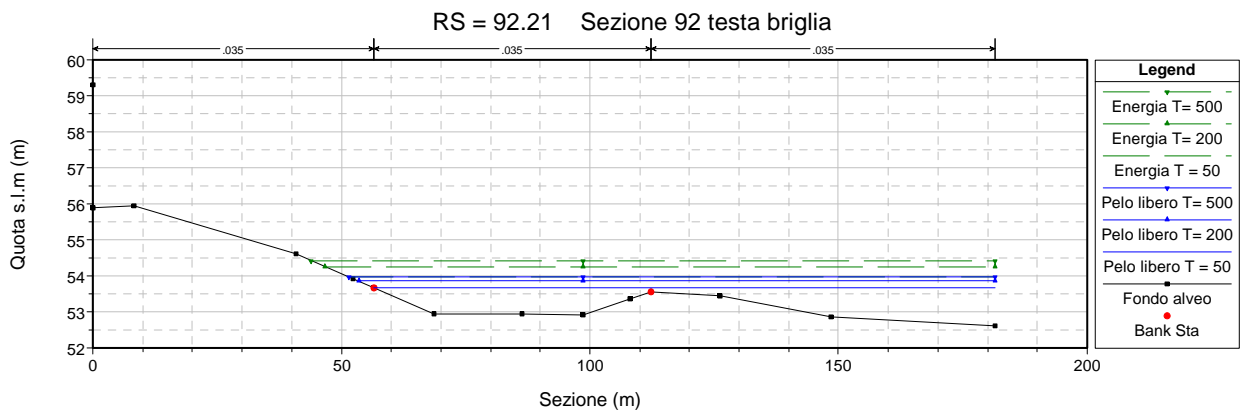
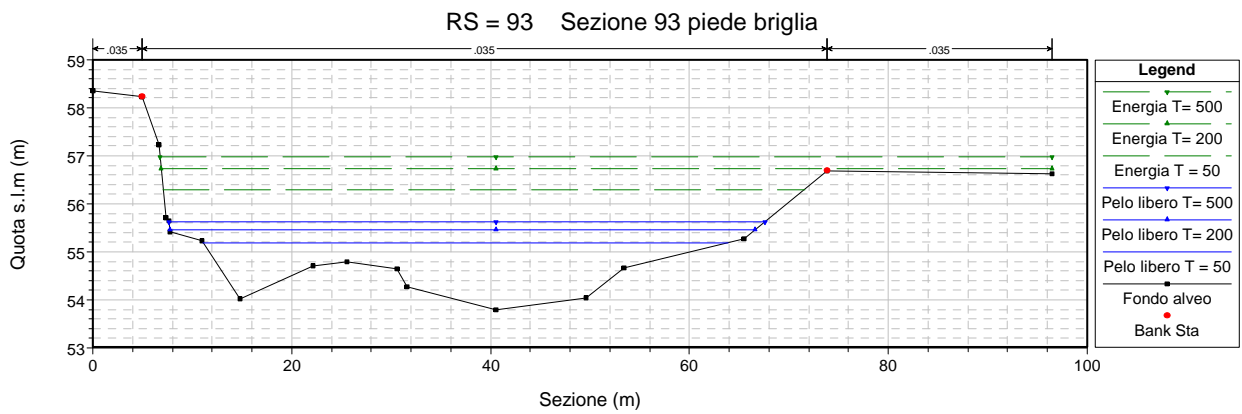
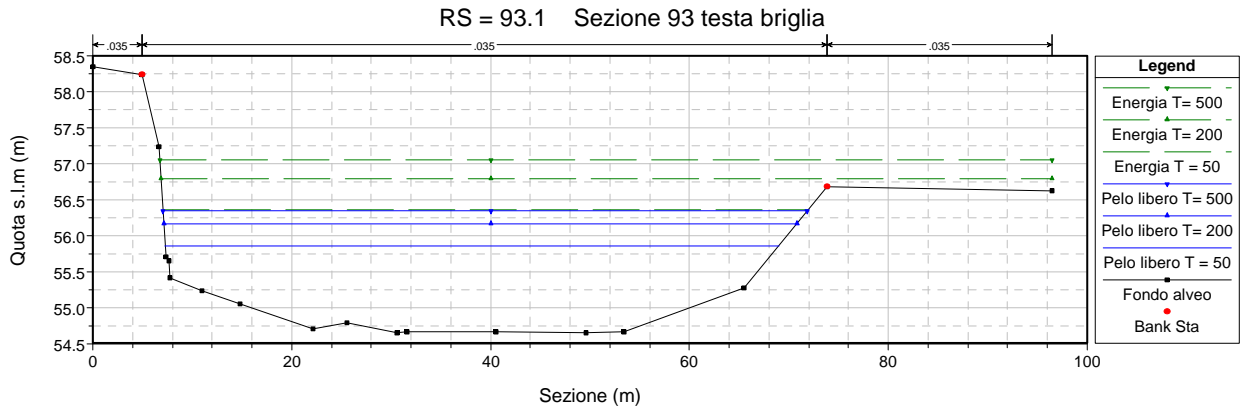
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



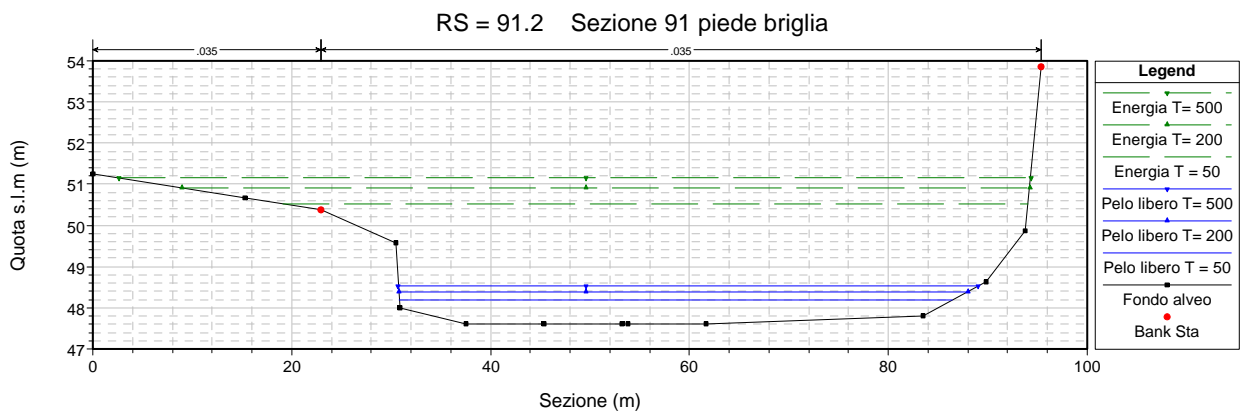
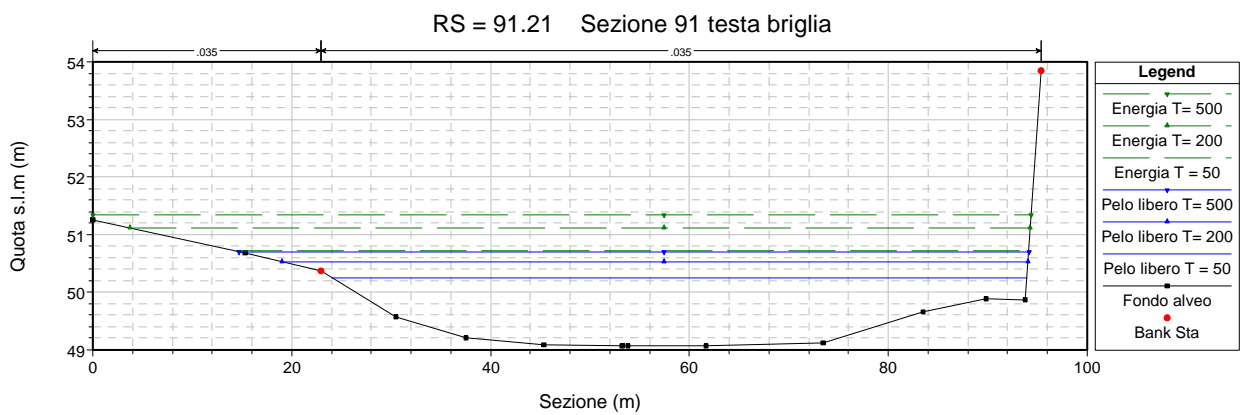
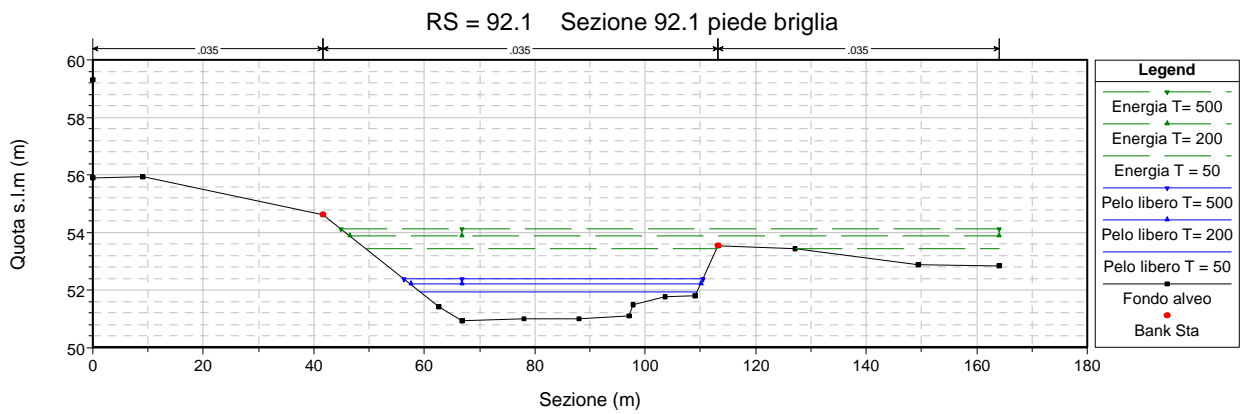
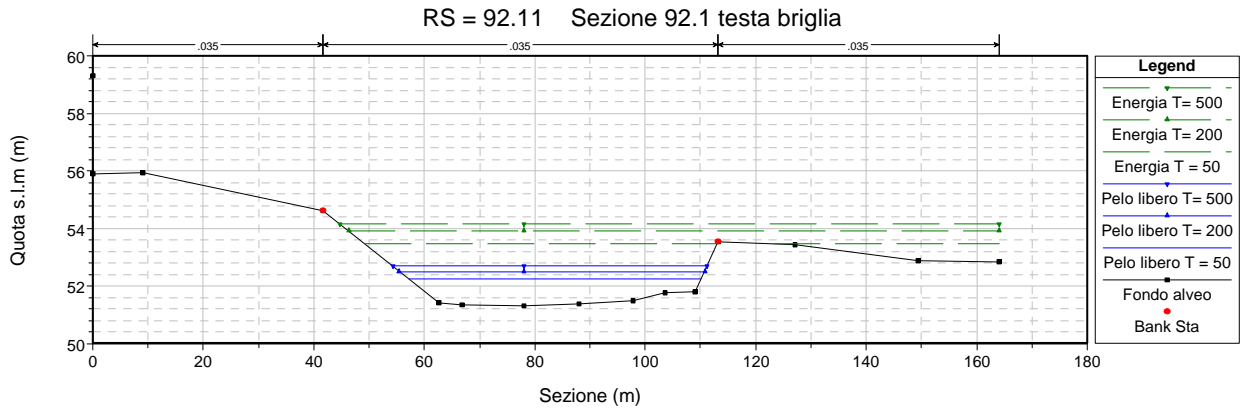
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



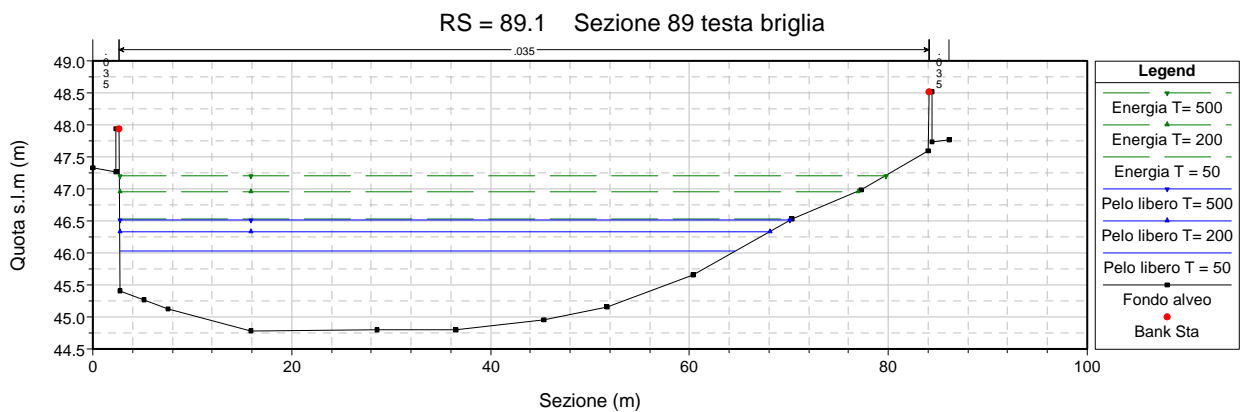
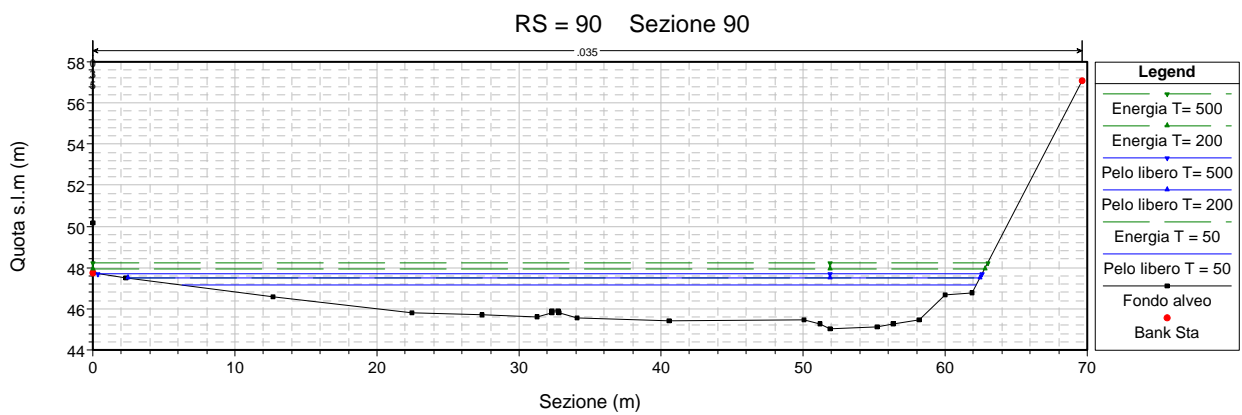
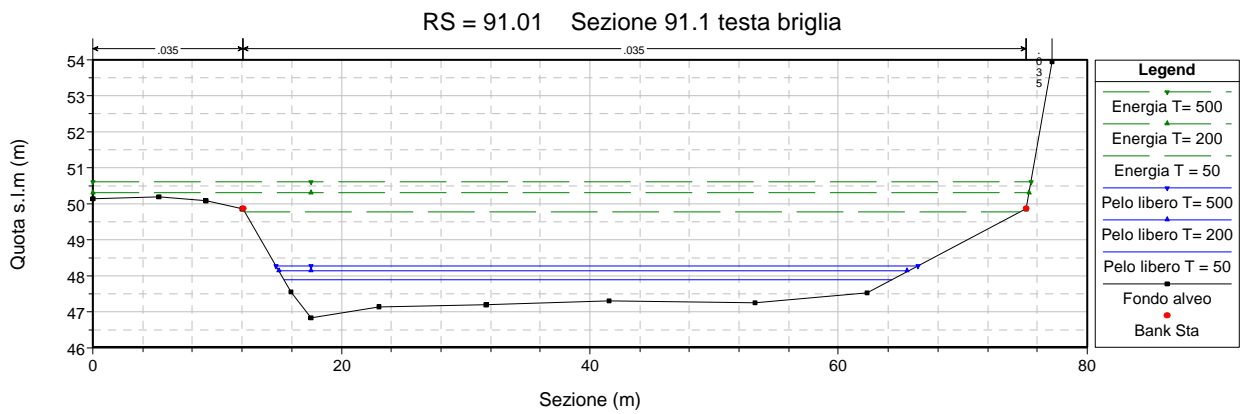
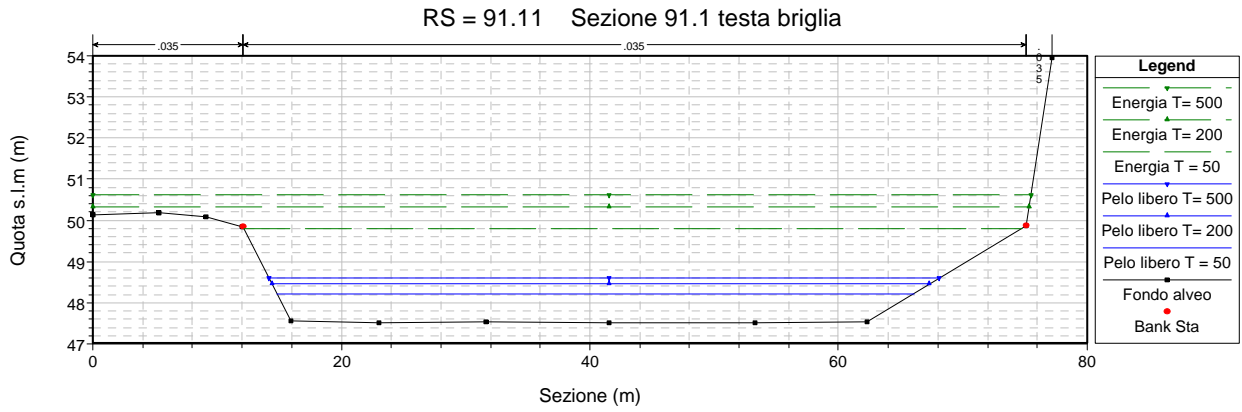
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



# Torrente Merula dalla foce a loc. Case Castellana

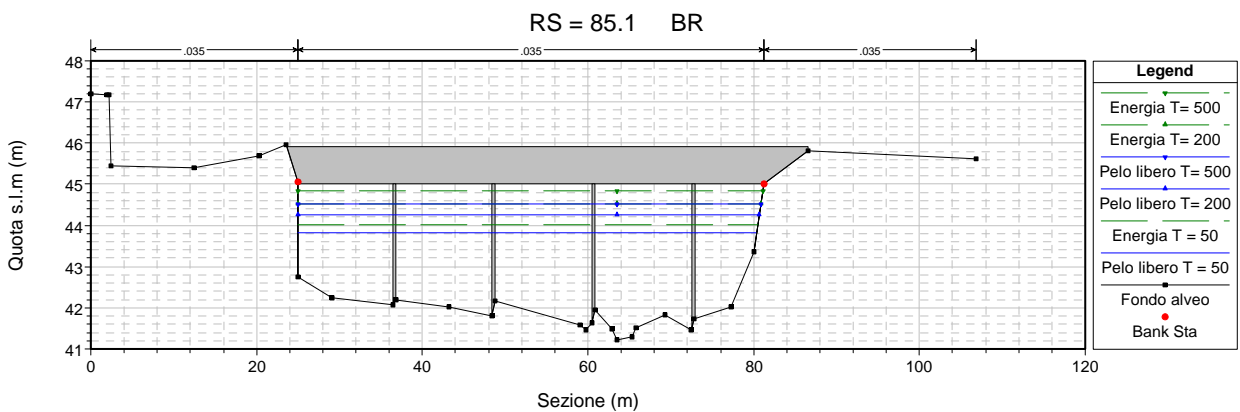
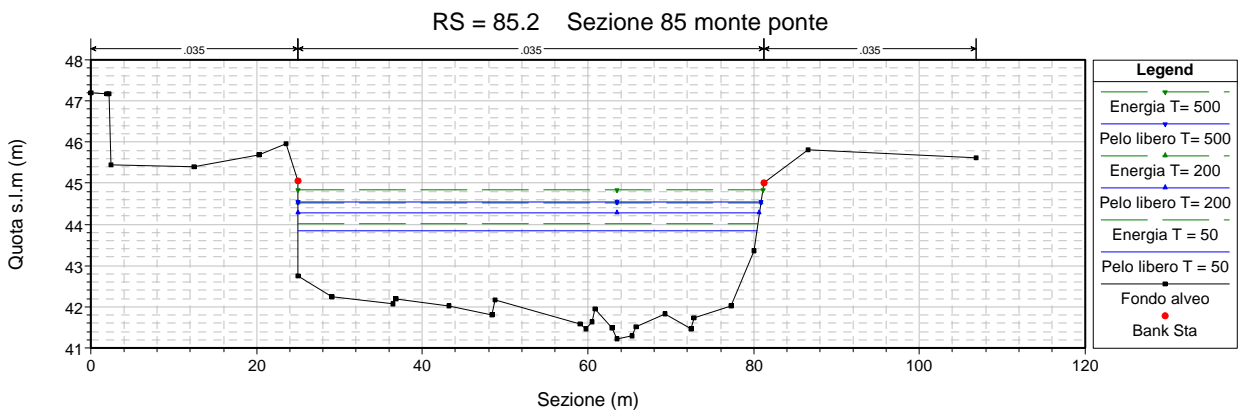
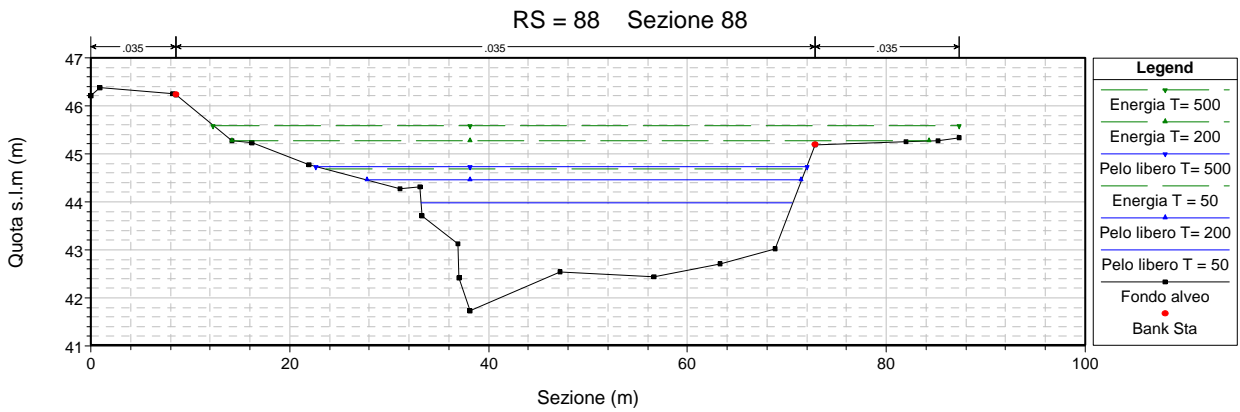
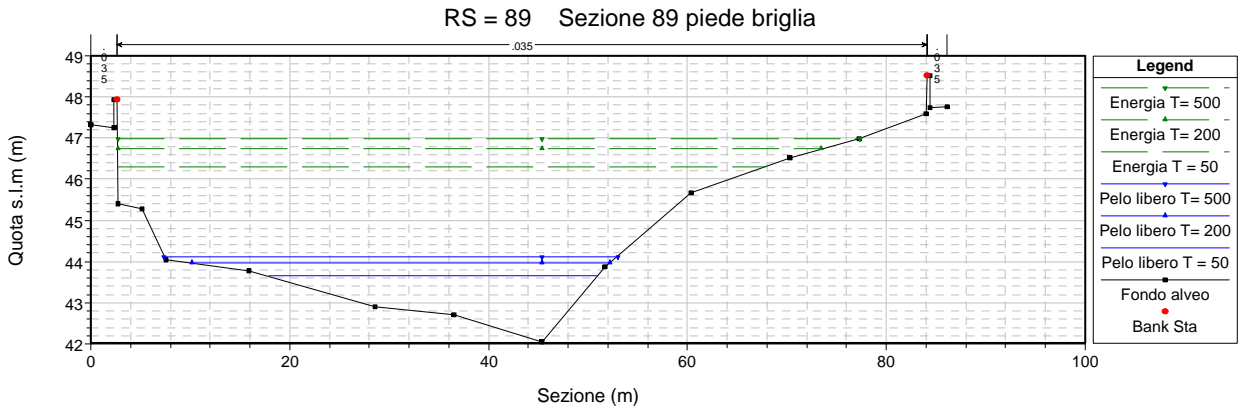
## Sezioni trasversali – dalla sez 1 alla sez 101.1





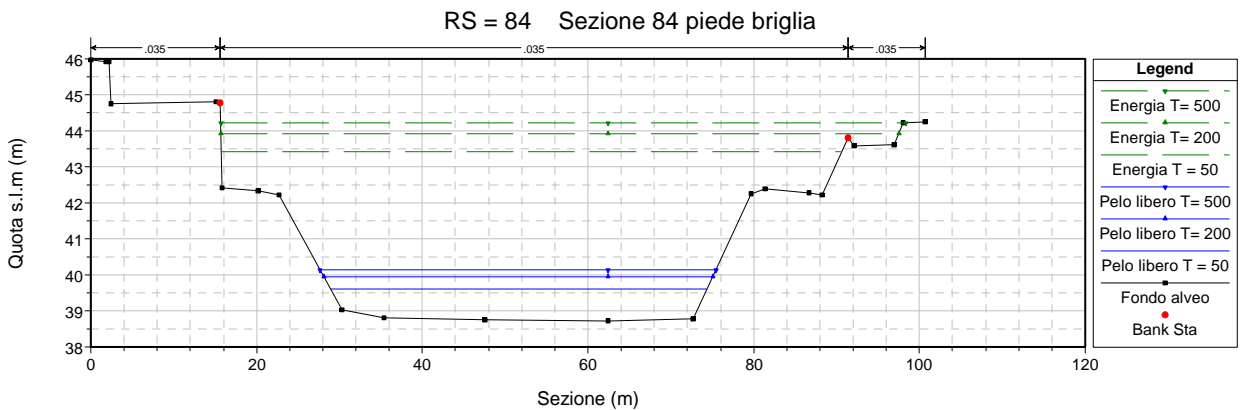
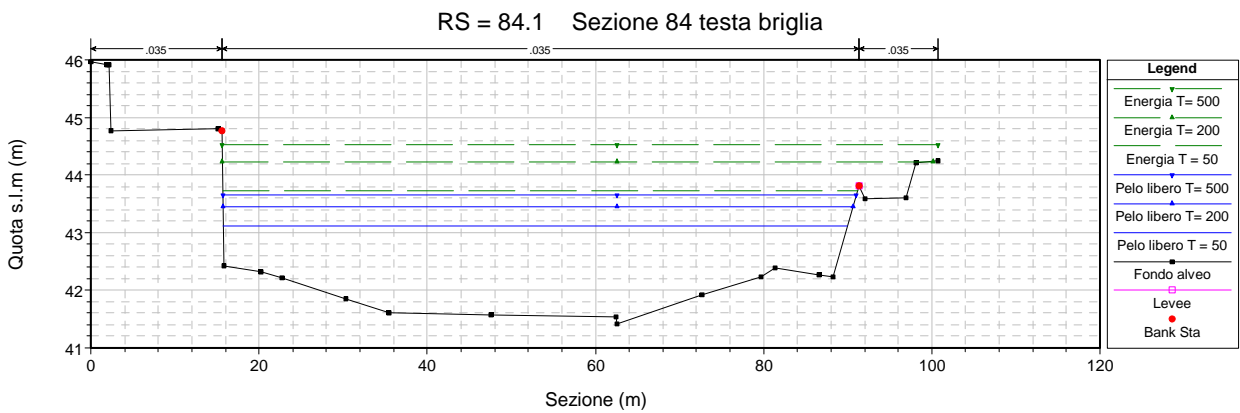
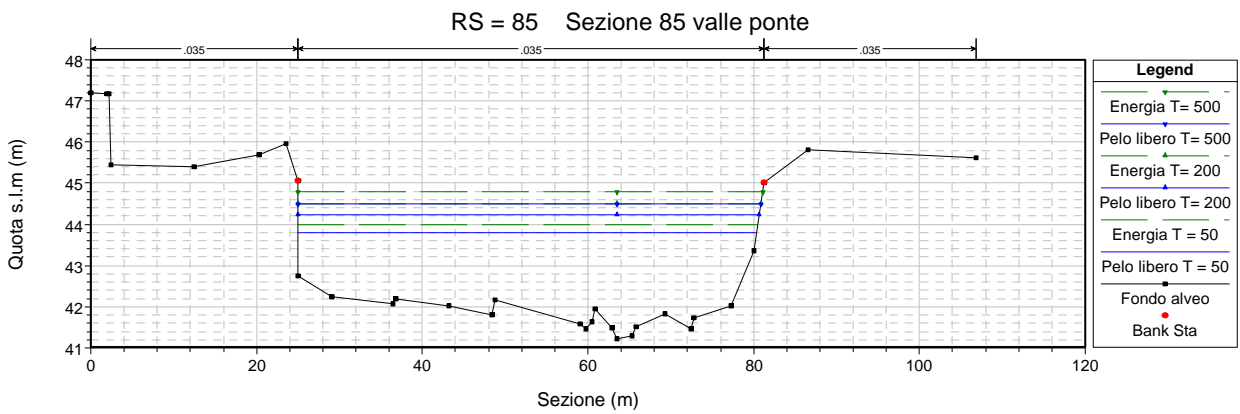
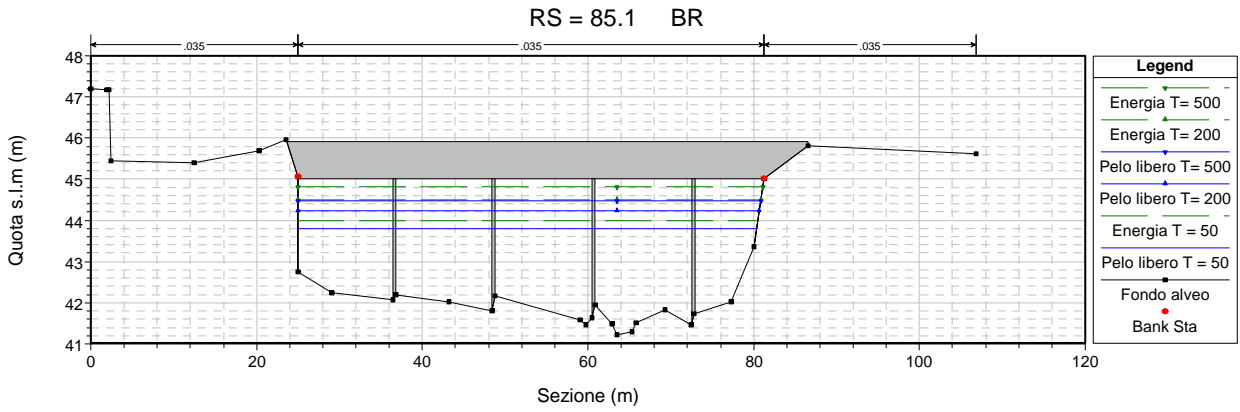
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



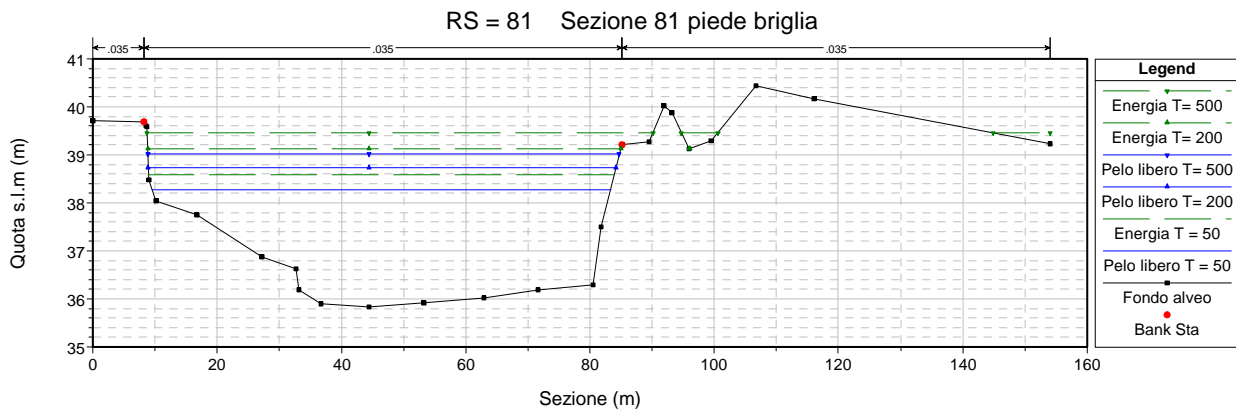
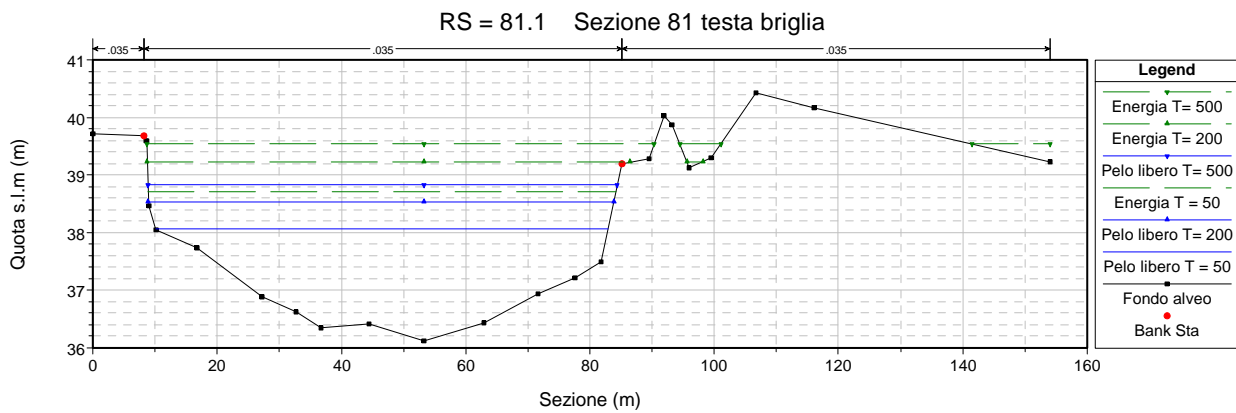
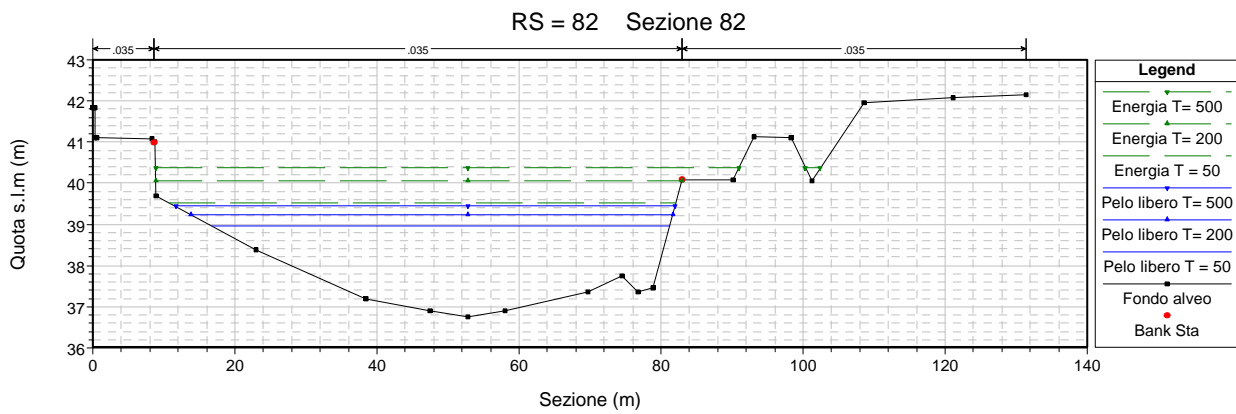
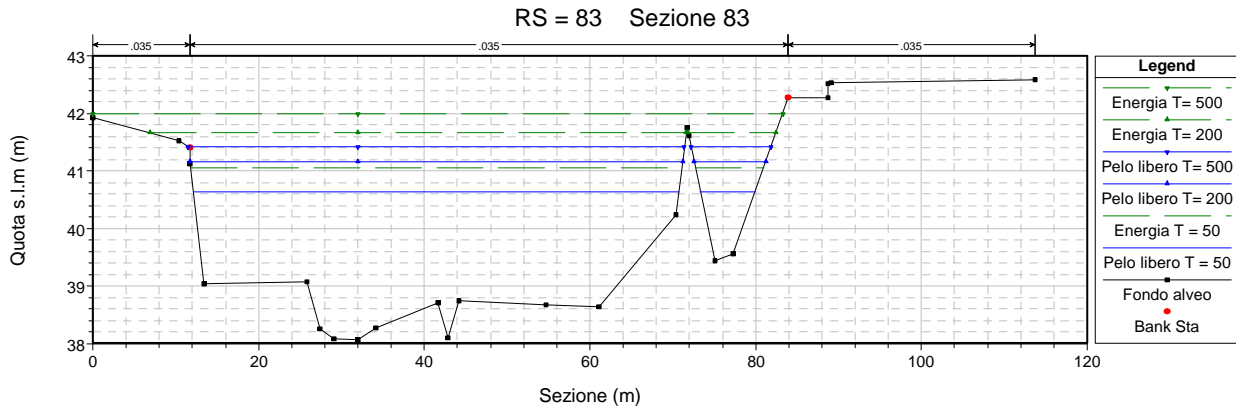
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



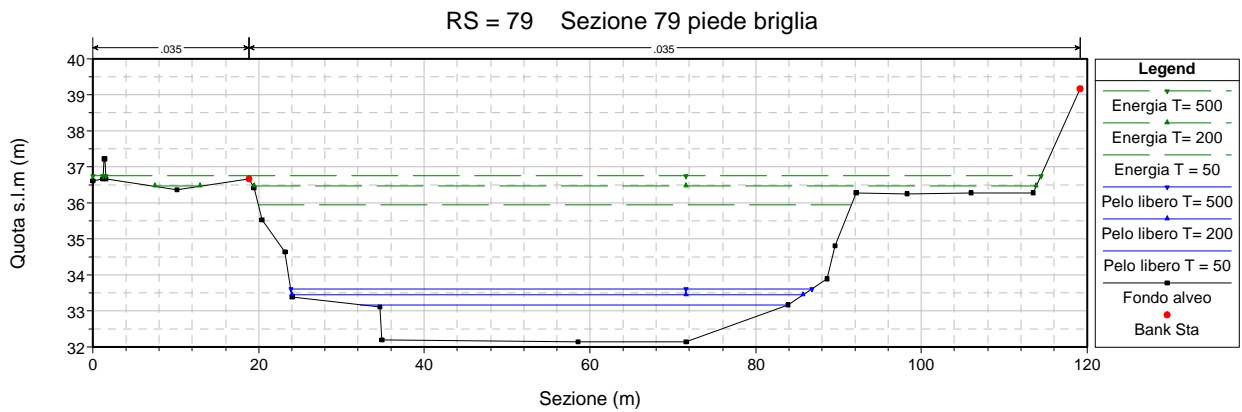
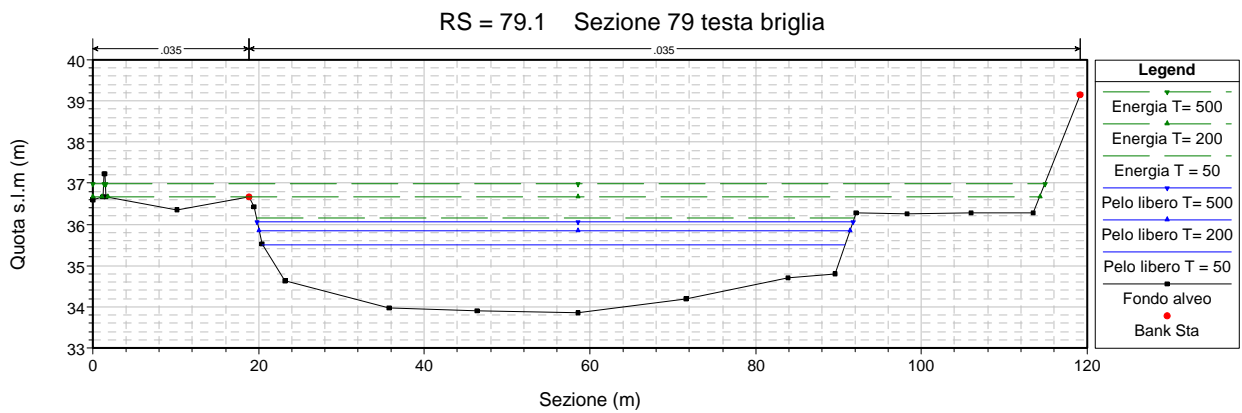
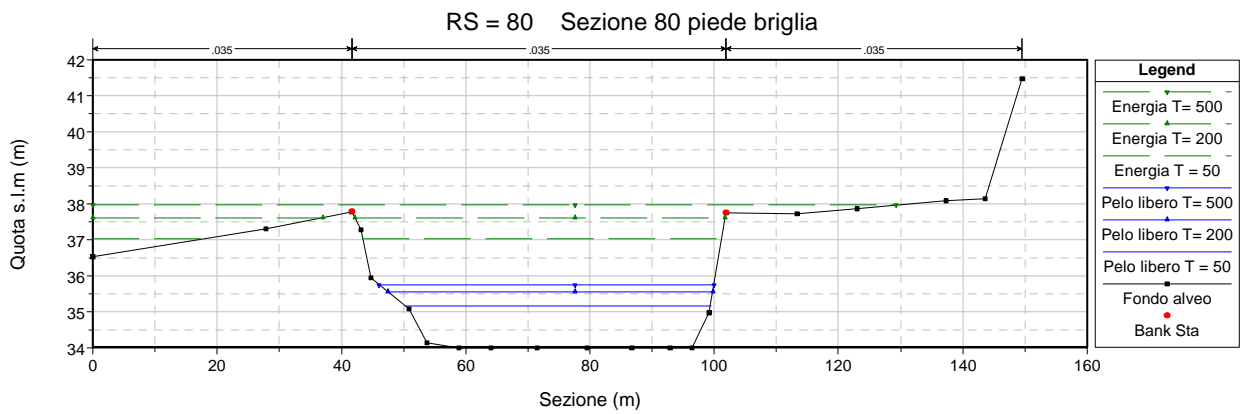
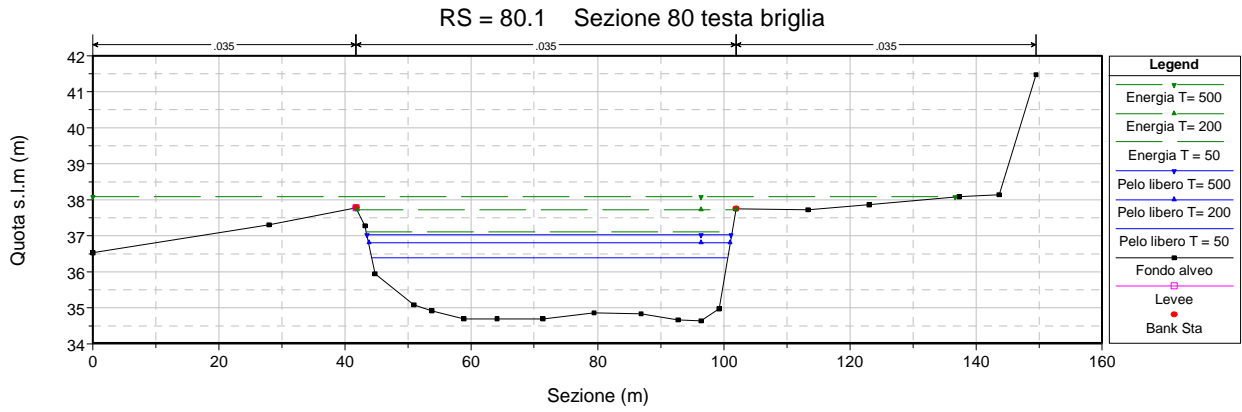
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



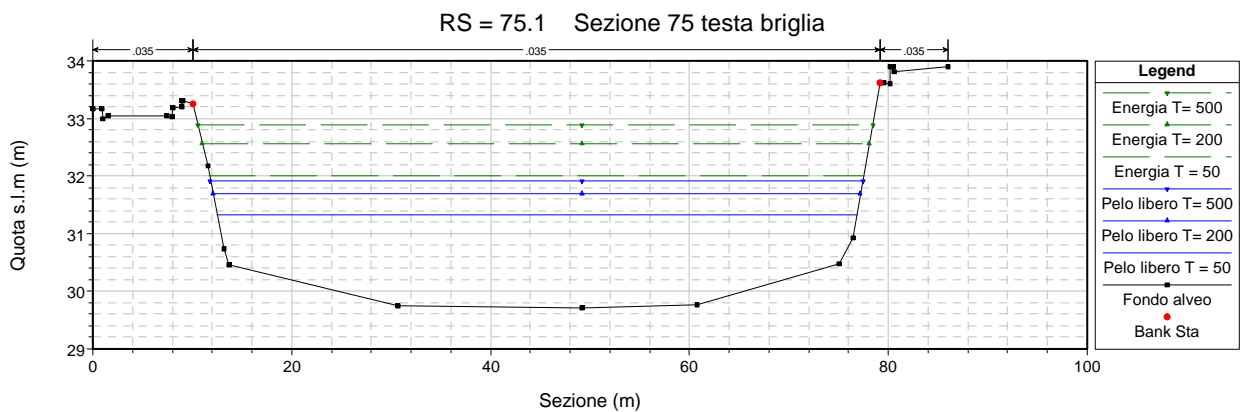
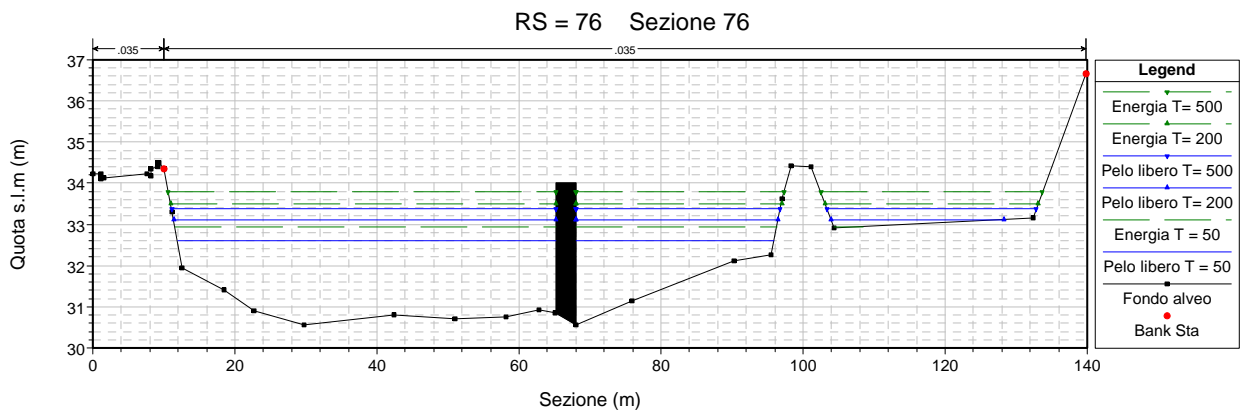
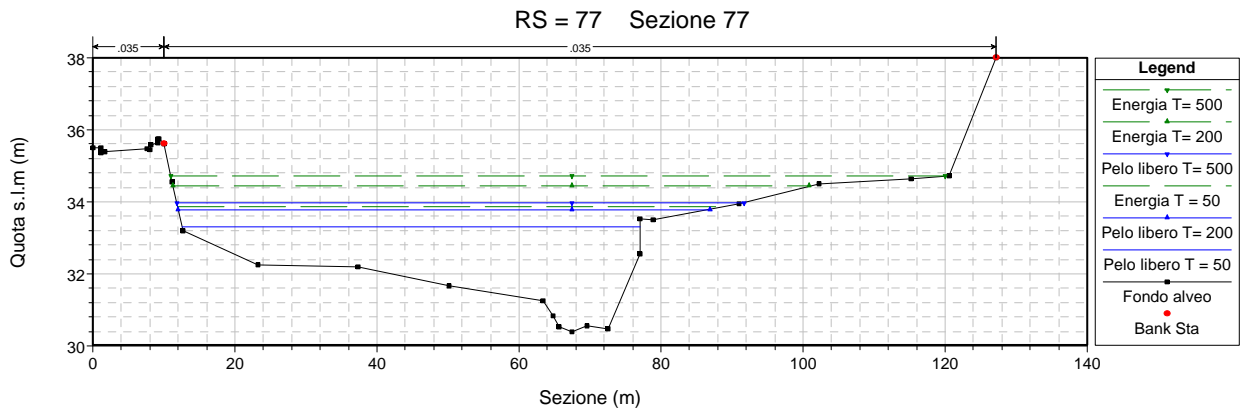
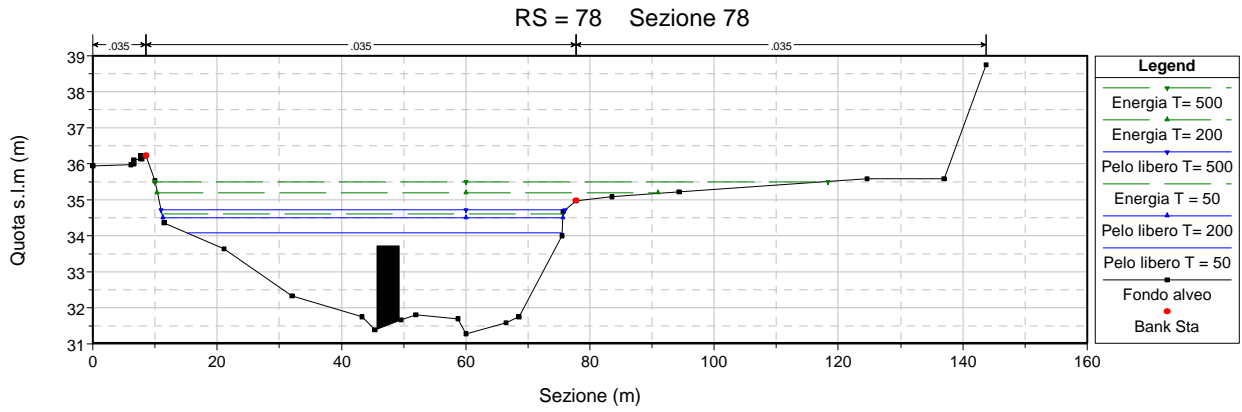
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



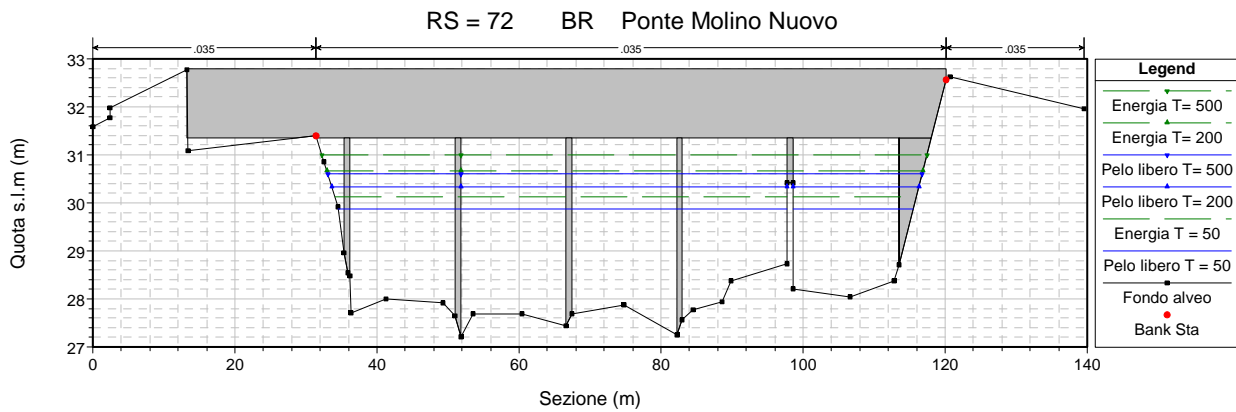
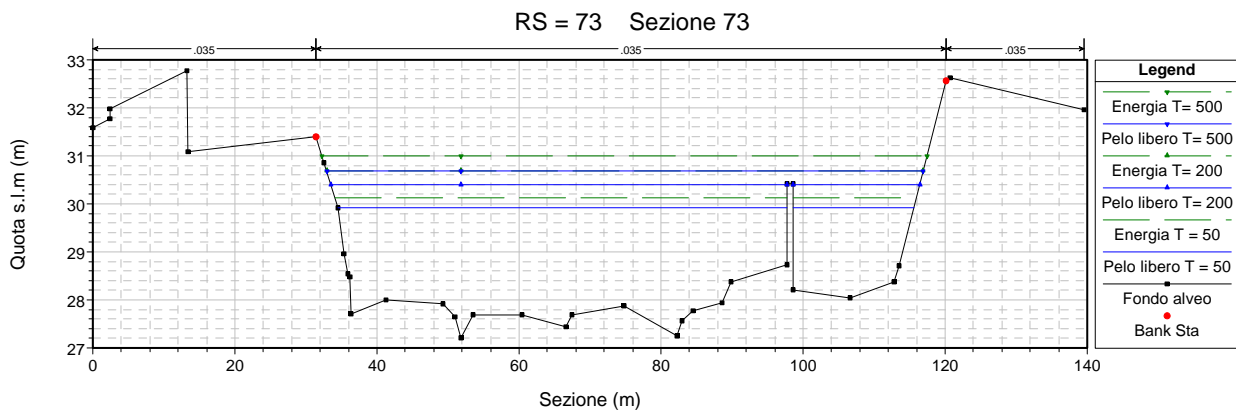
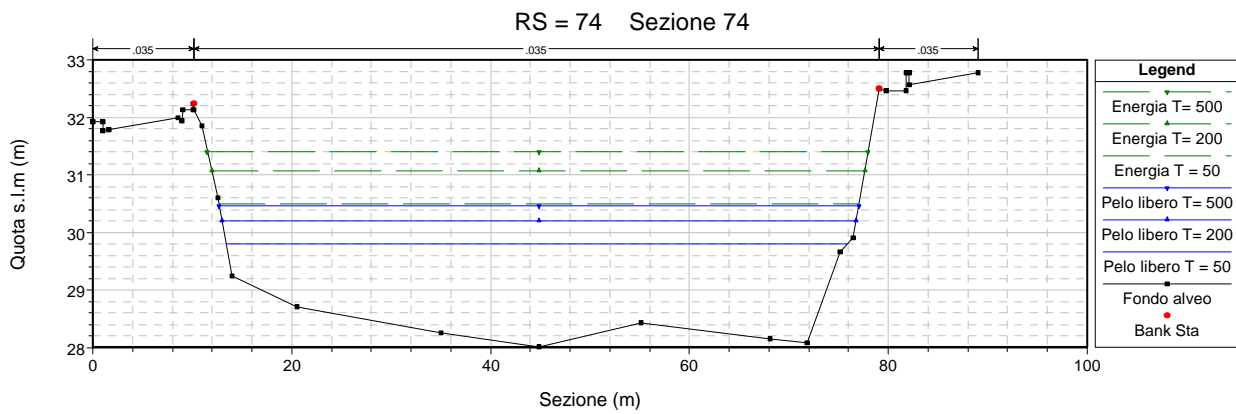
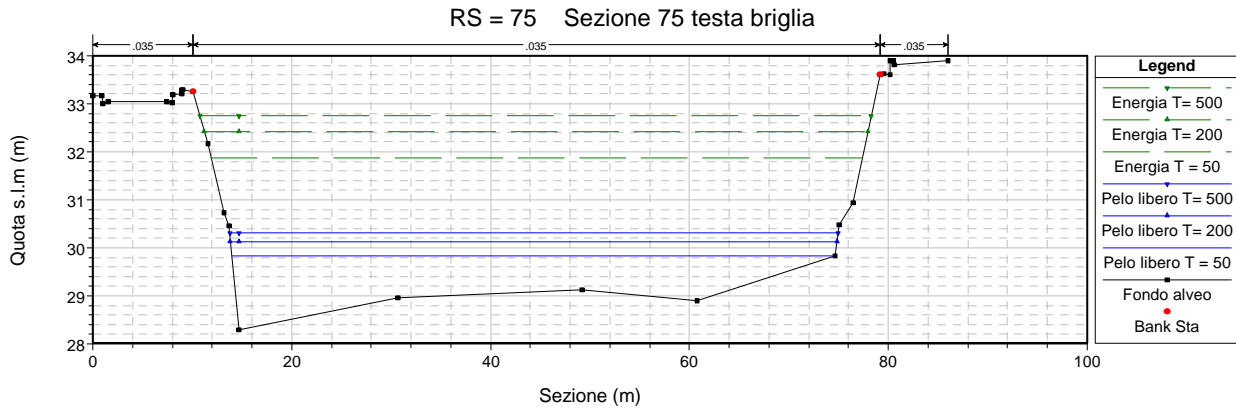
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



# Torrente Merula dalla foce a loc. Case Castellana

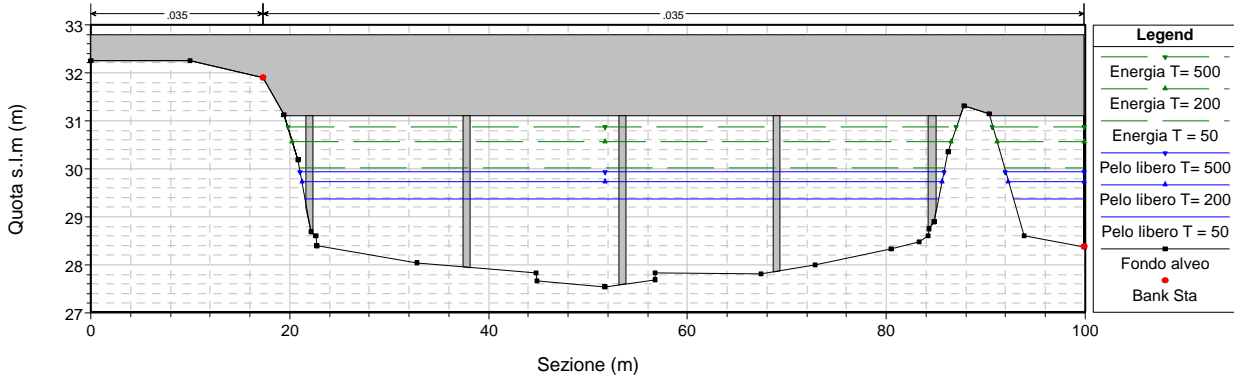
## Sezioni trasversali – dalla sez 1 alla sez 101.1



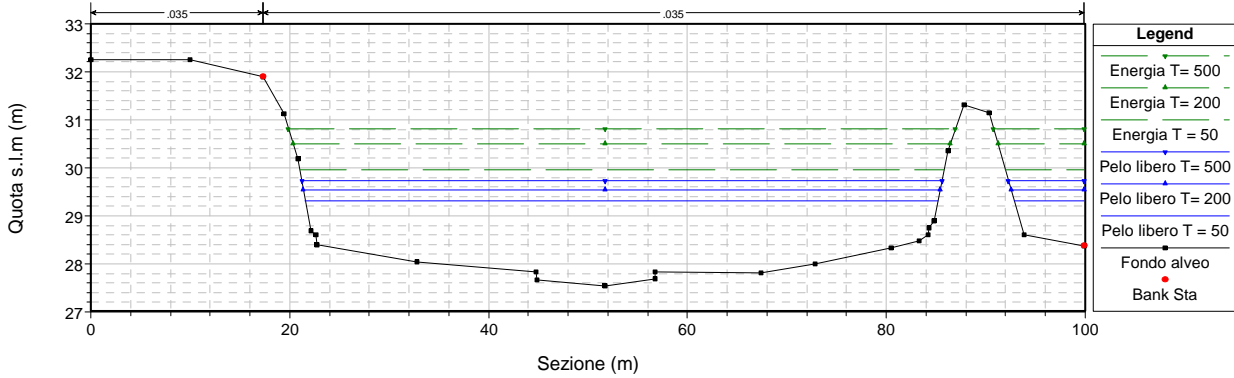
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1

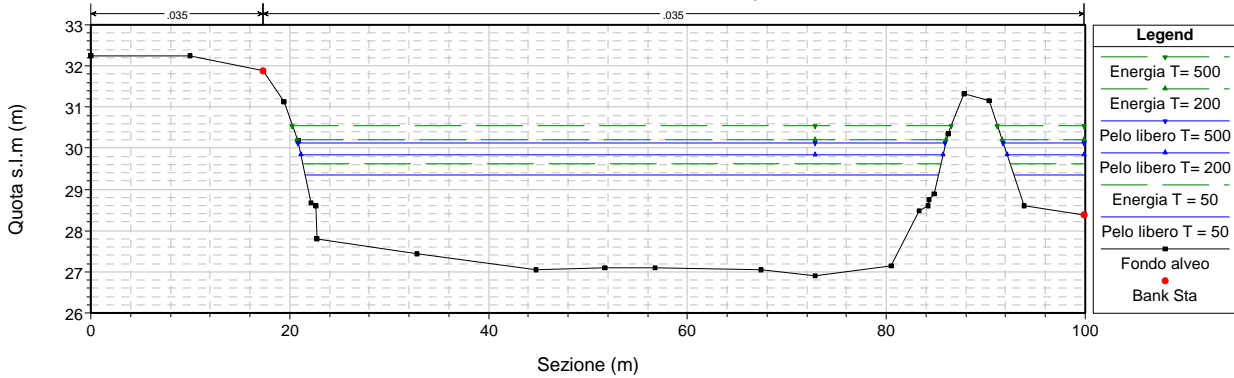
RS = 72 BR Ponte Molino Nuovo



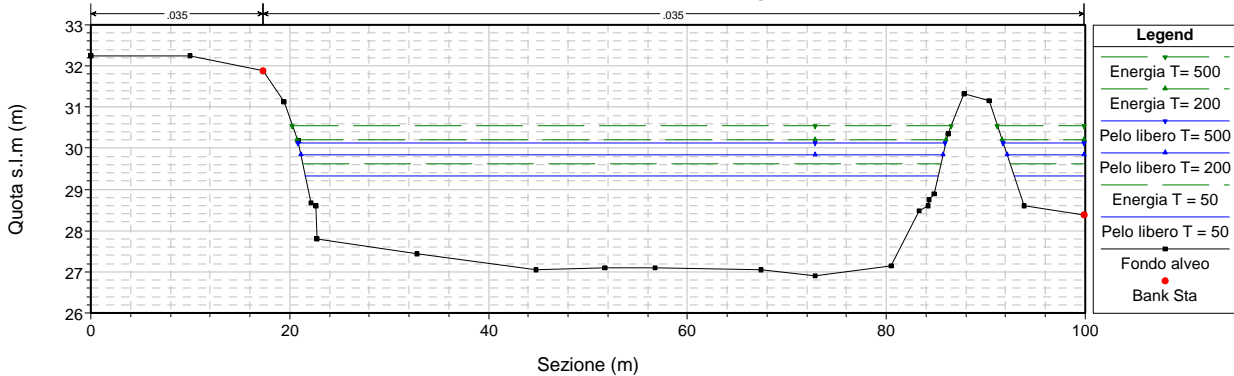
RS = 71.5 Sezione 71 - testa briglia a monte



RS = 71.4 Sezione 71 - piede briglia a monte



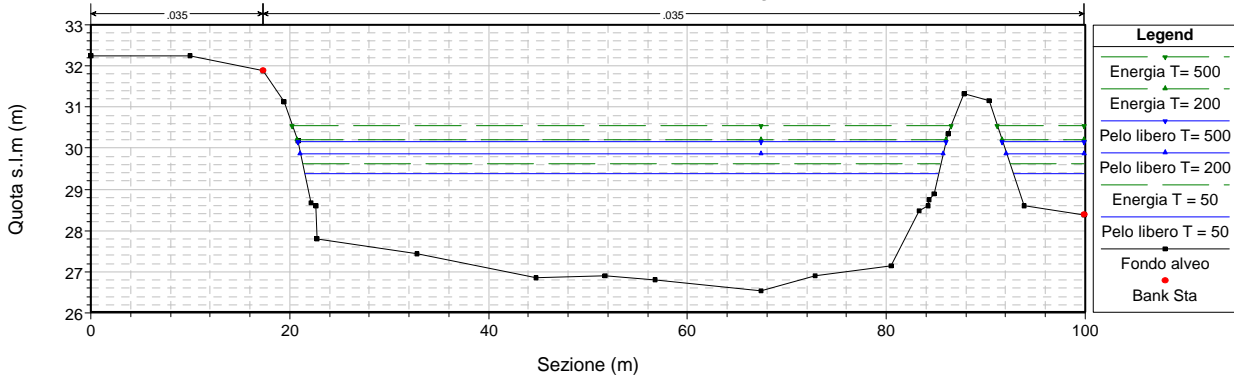
RS = 71.3 Sezione 71 - testa briglia a valle



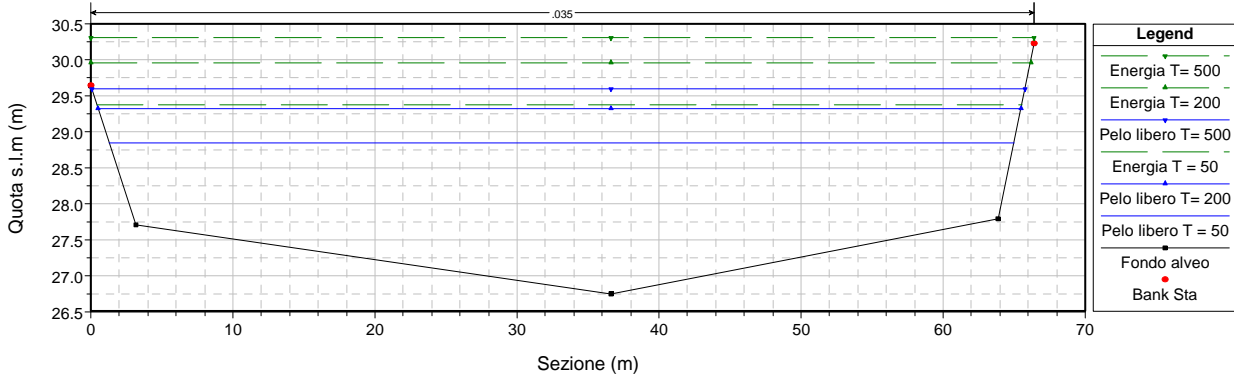
# Torrente Merula dalla foce a loc. Case Castellana

Sezioni trasversali – dalla sez 1 alla sez 101.1

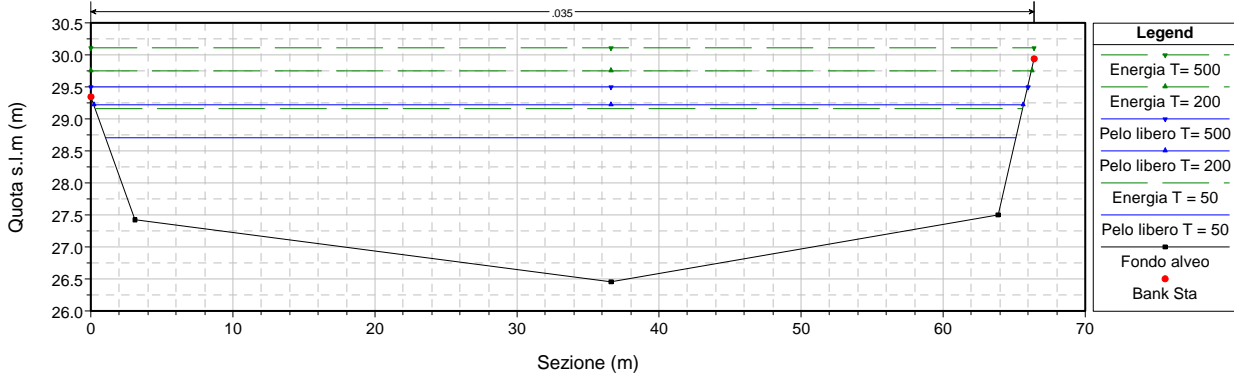
RS = 71.2 Sezione 71 - piede briglia a valle



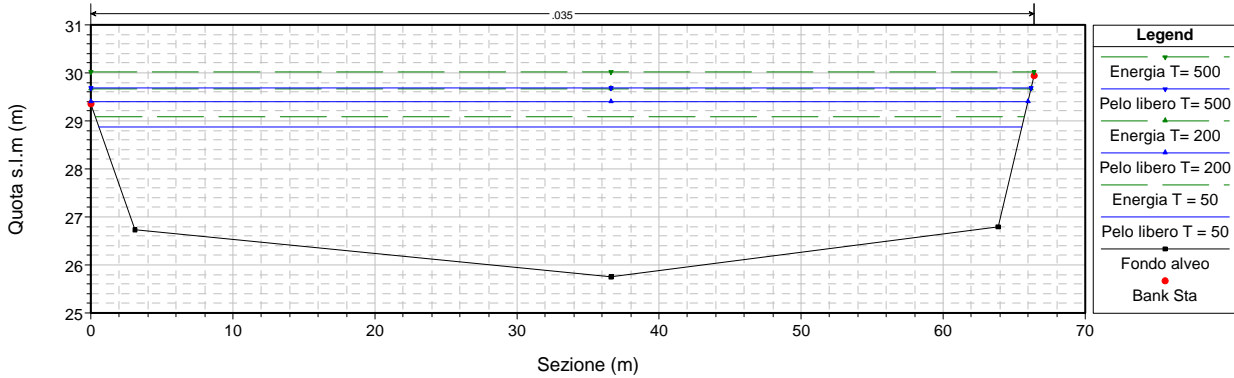
RS = 70 Sezione 70



RS = 69 Sezione 69



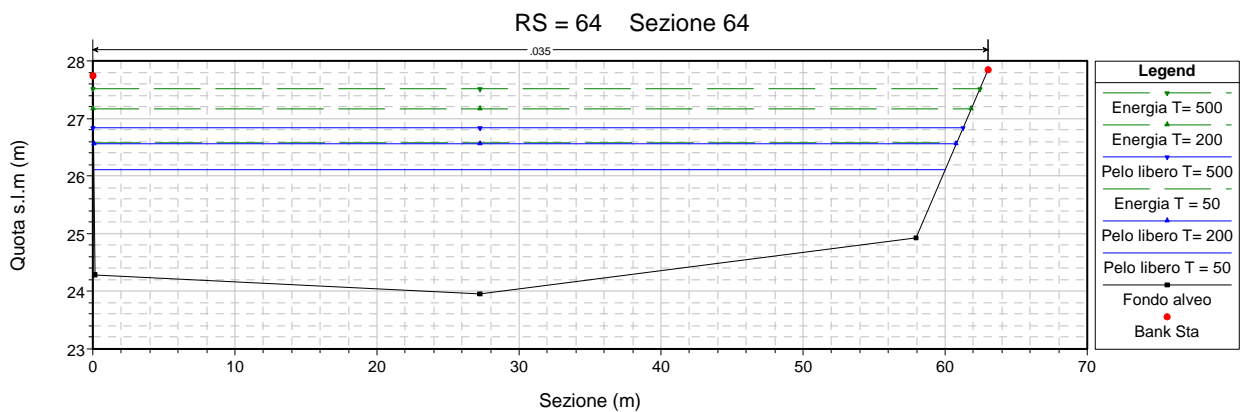
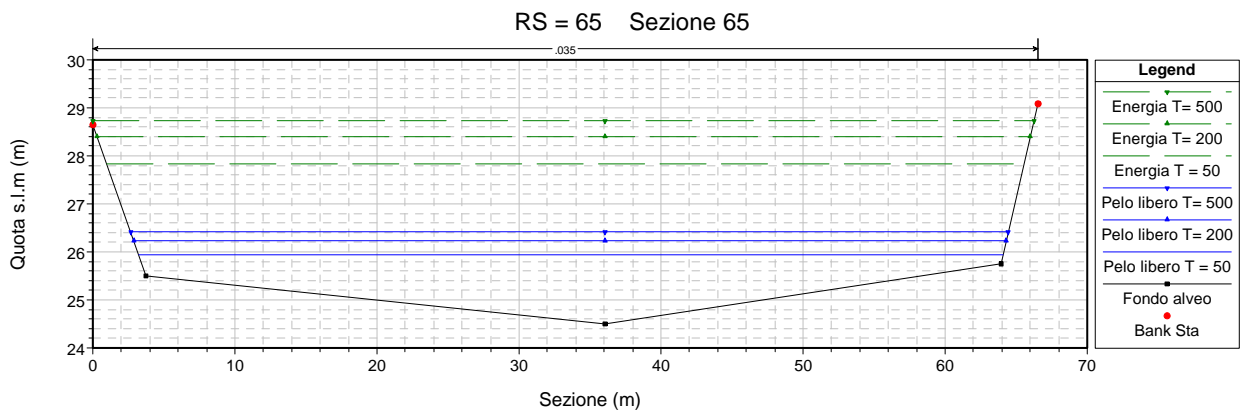
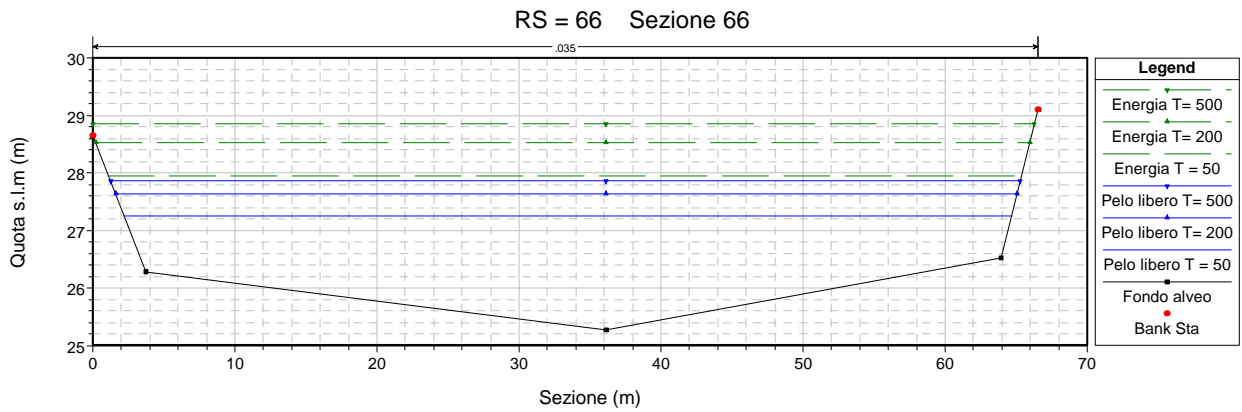
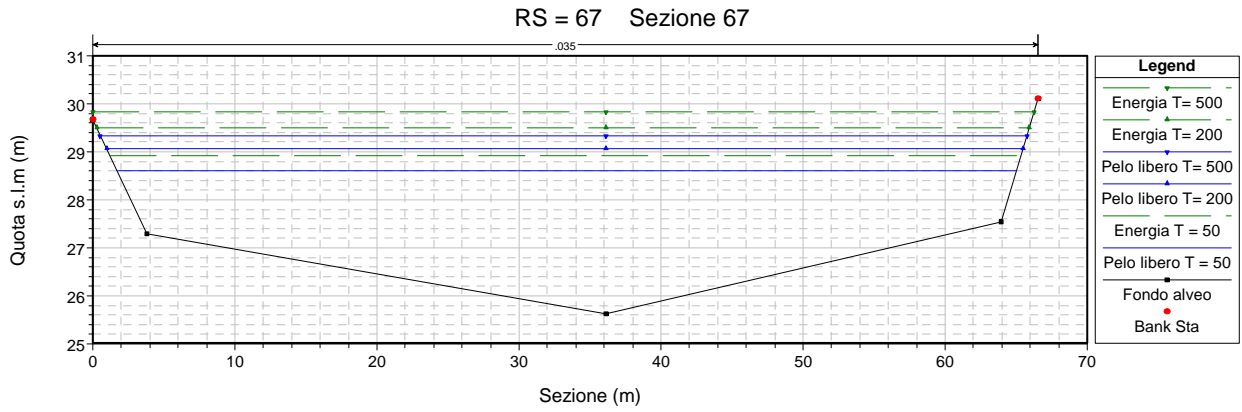
RS = 68 Sezione 68





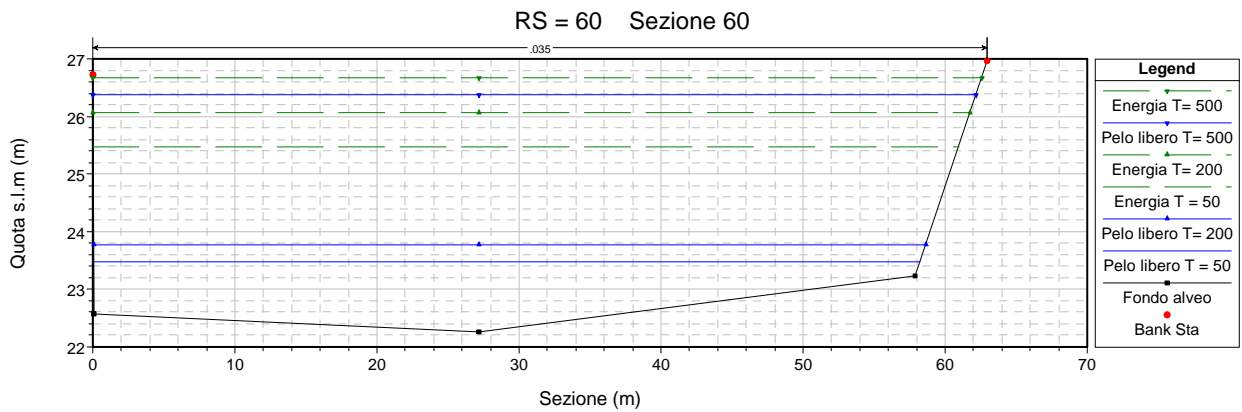
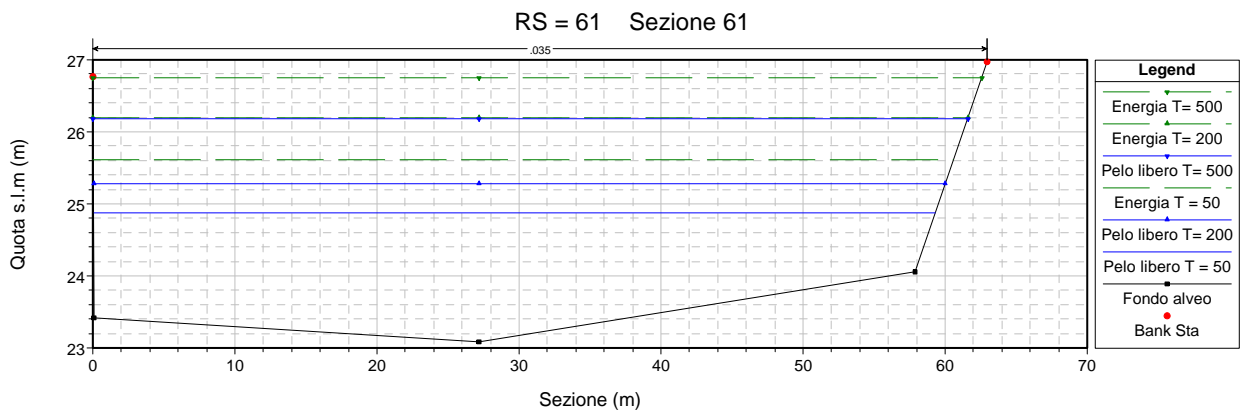
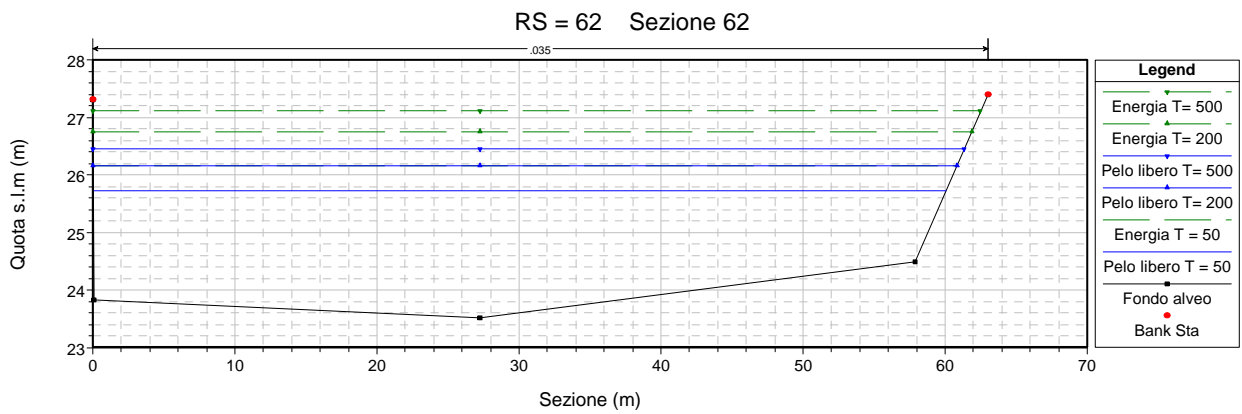
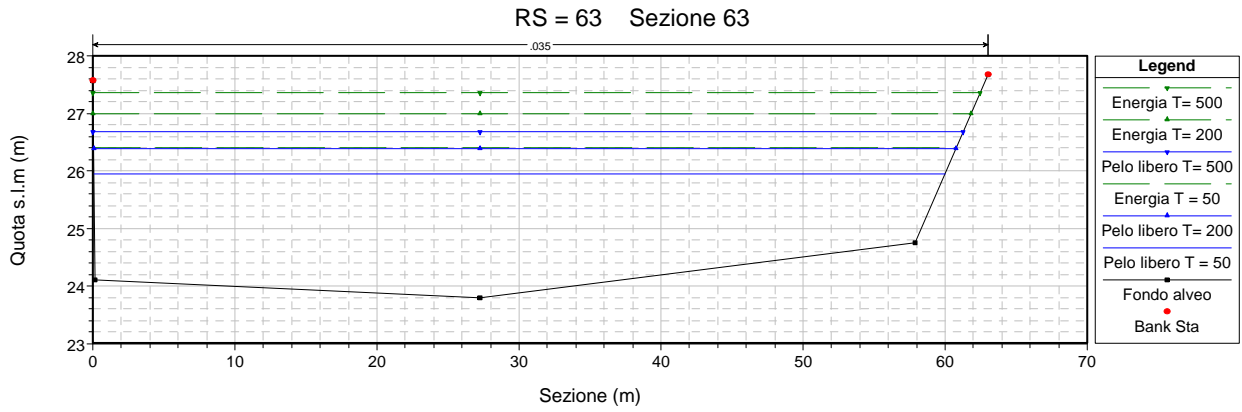
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



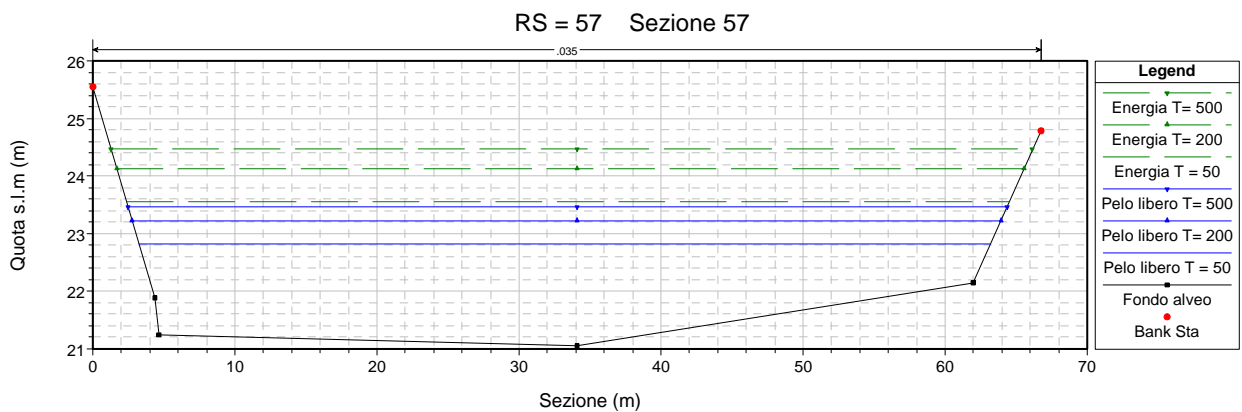
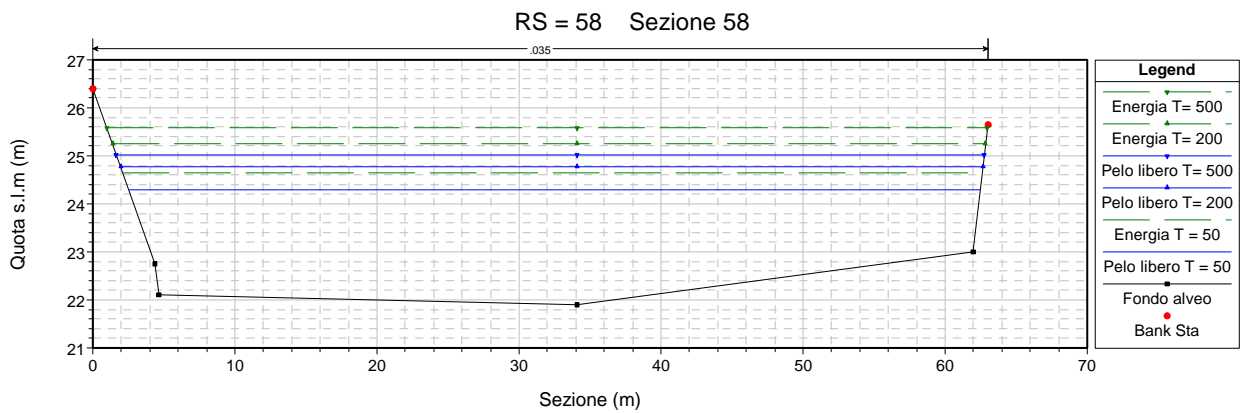
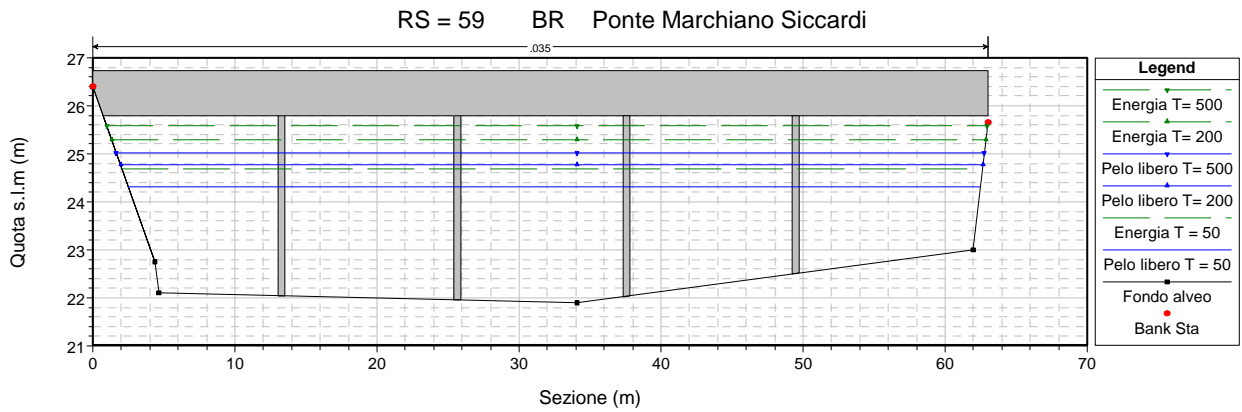
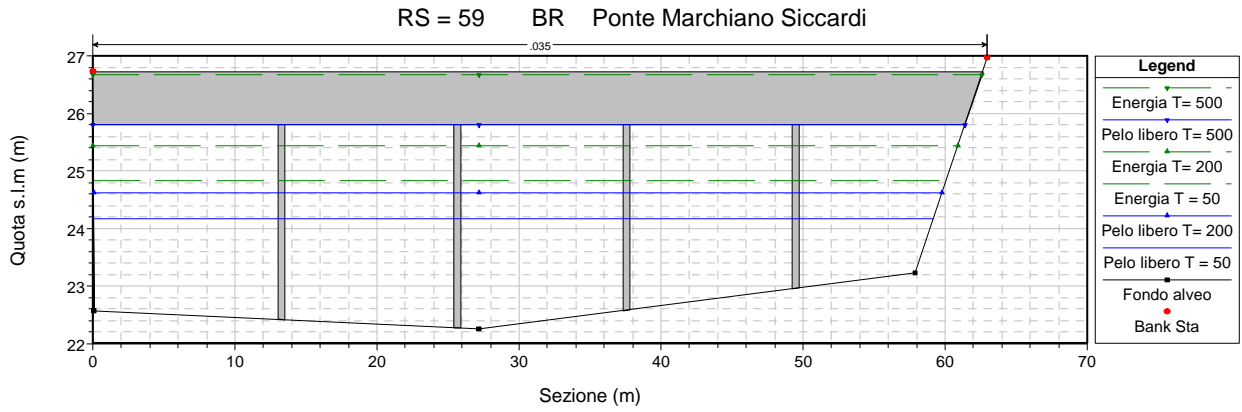
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



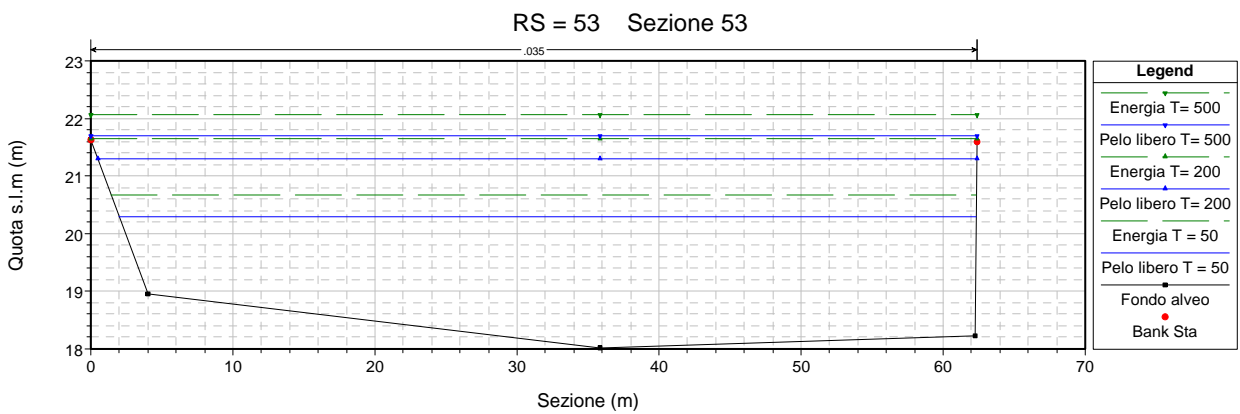
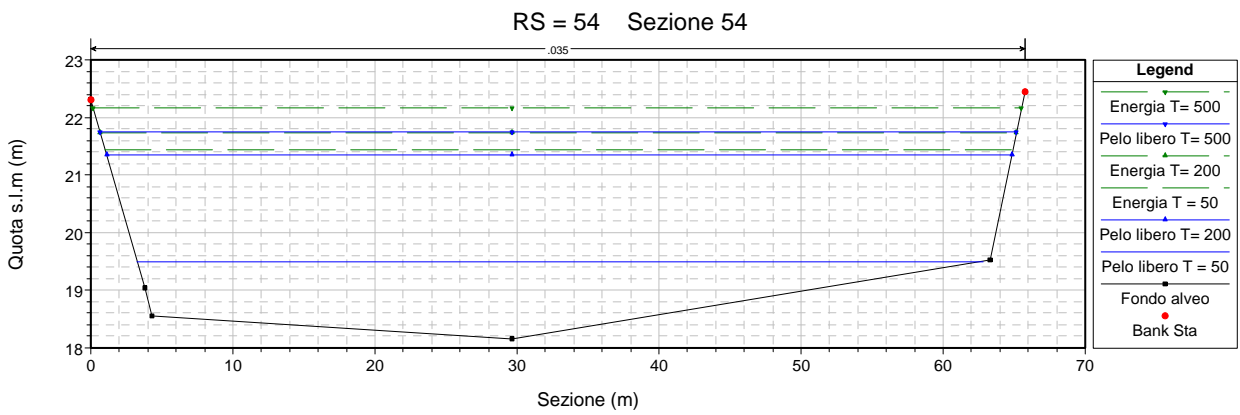
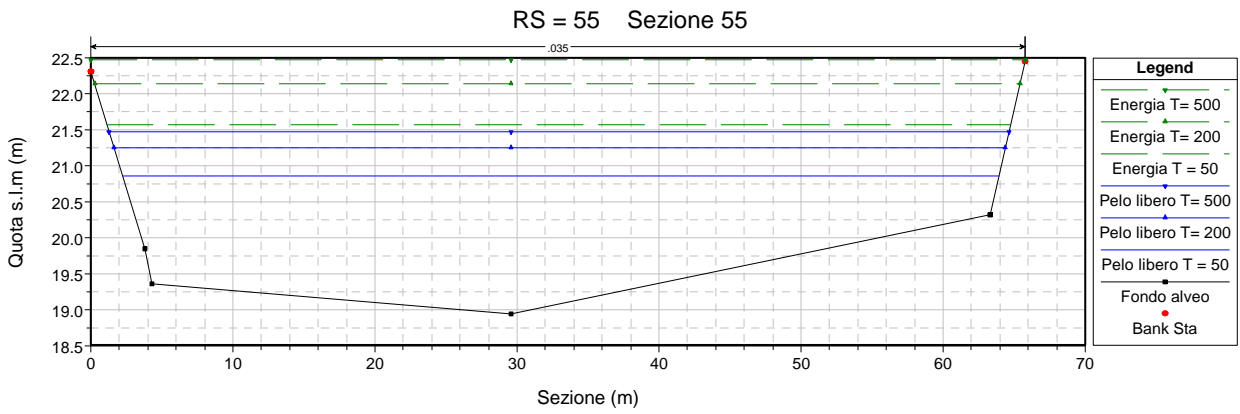
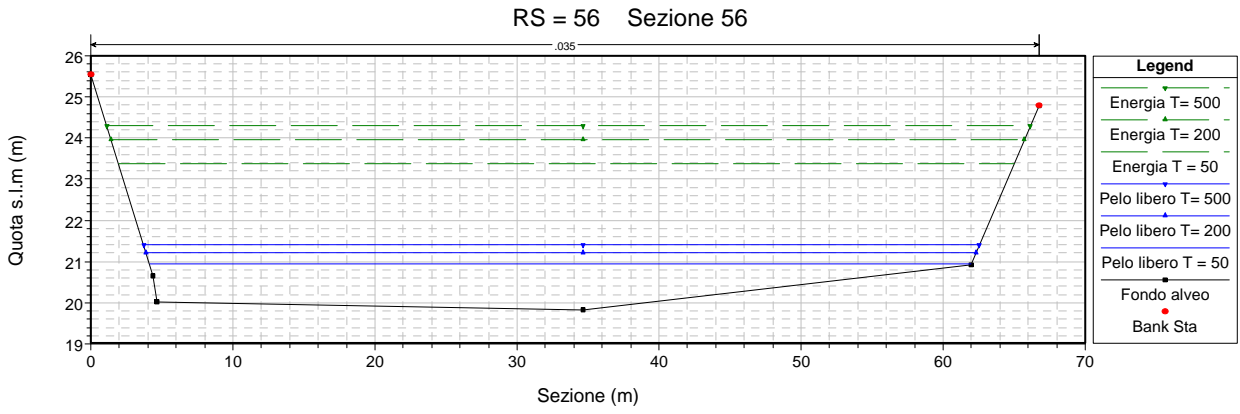
# Torrente Merula dalla foce a loc. Case Castellana

Sezioni trasversali – dalla sez 1 alla sez 101.1



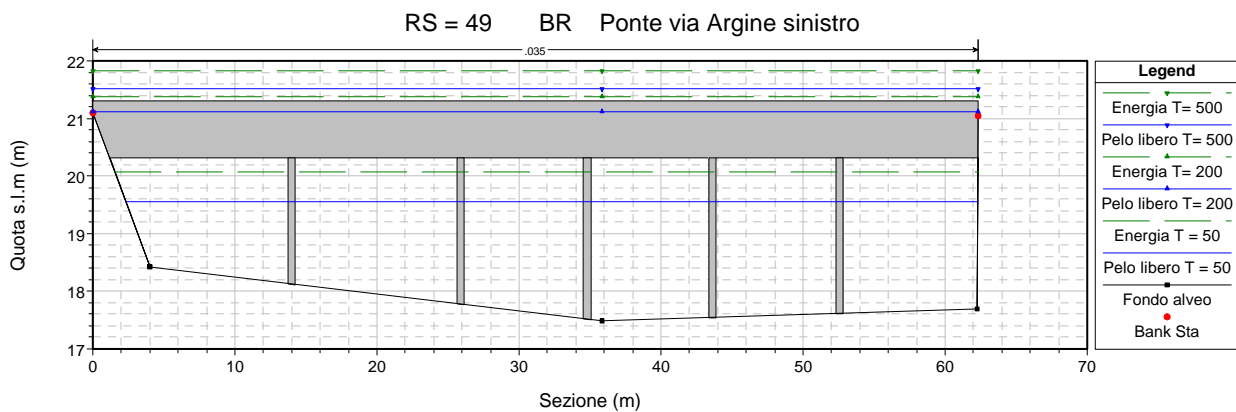
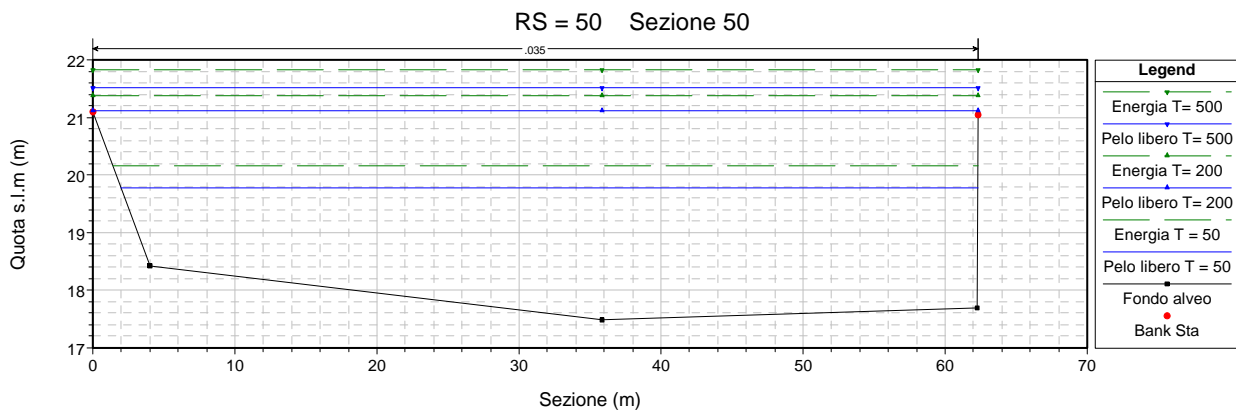
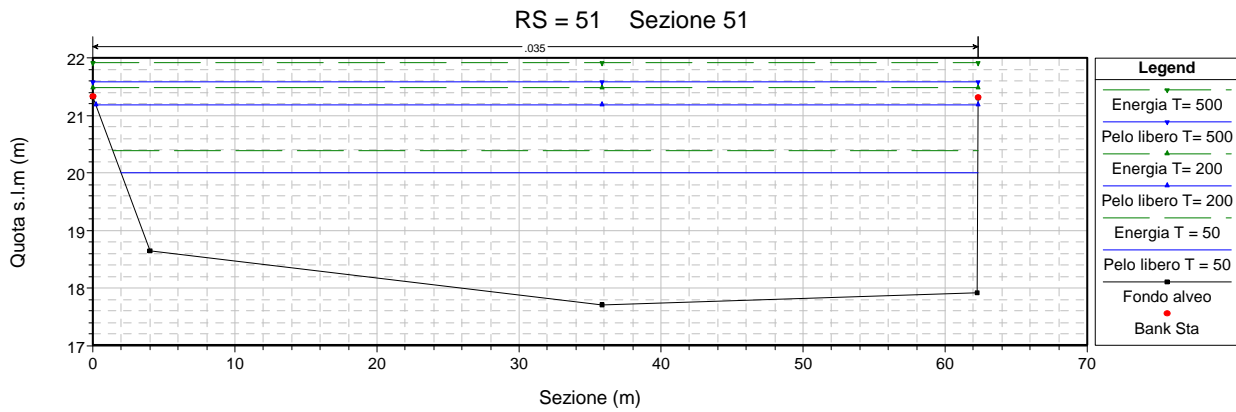
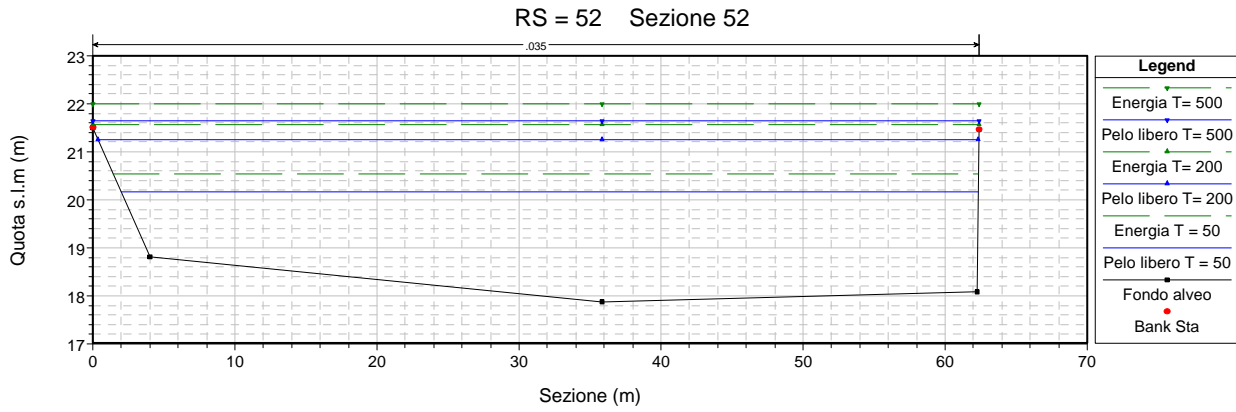
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



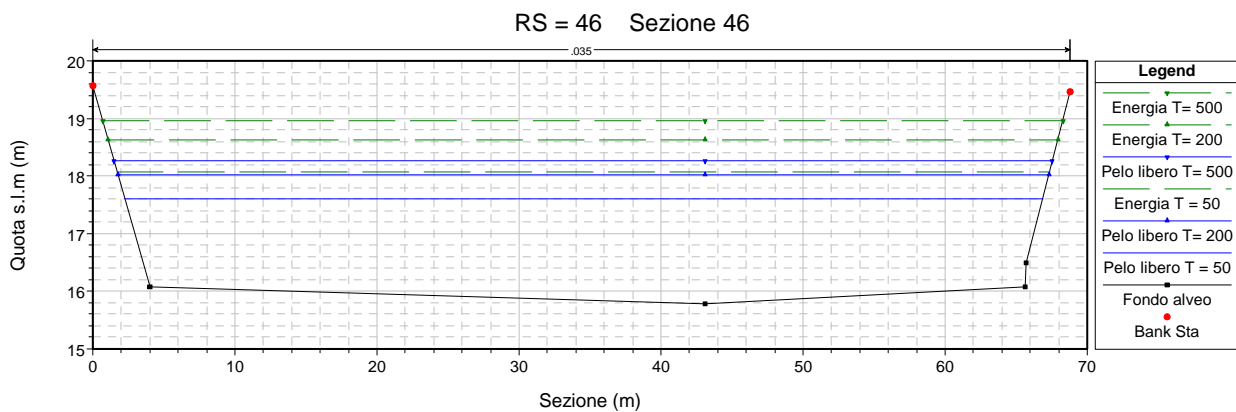
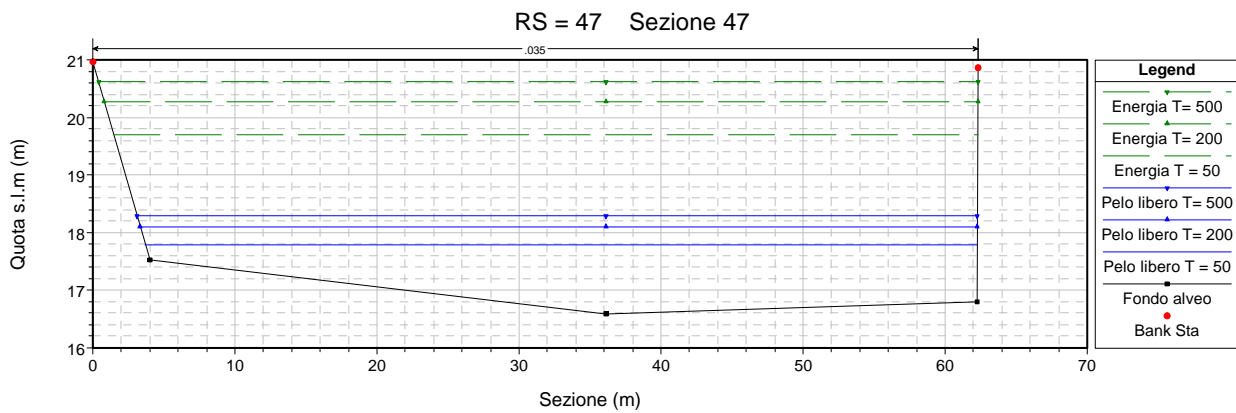
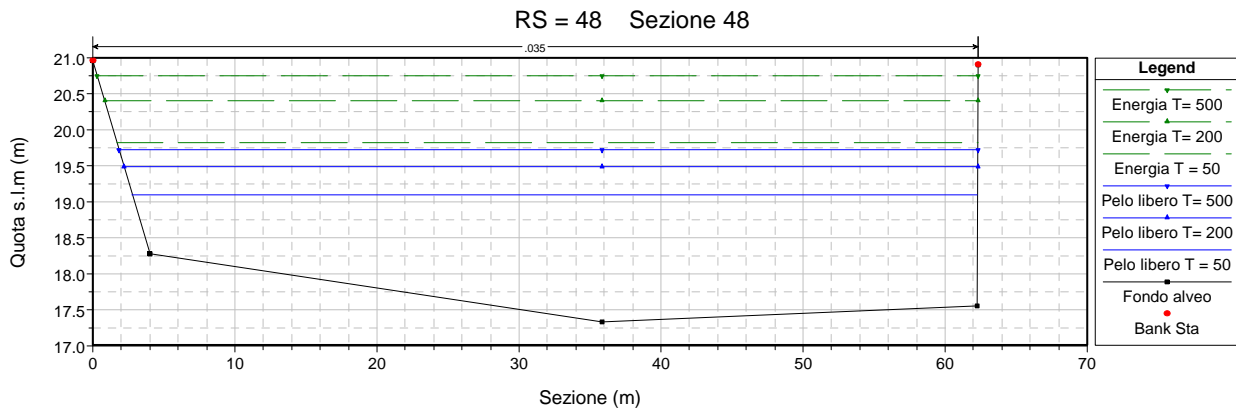
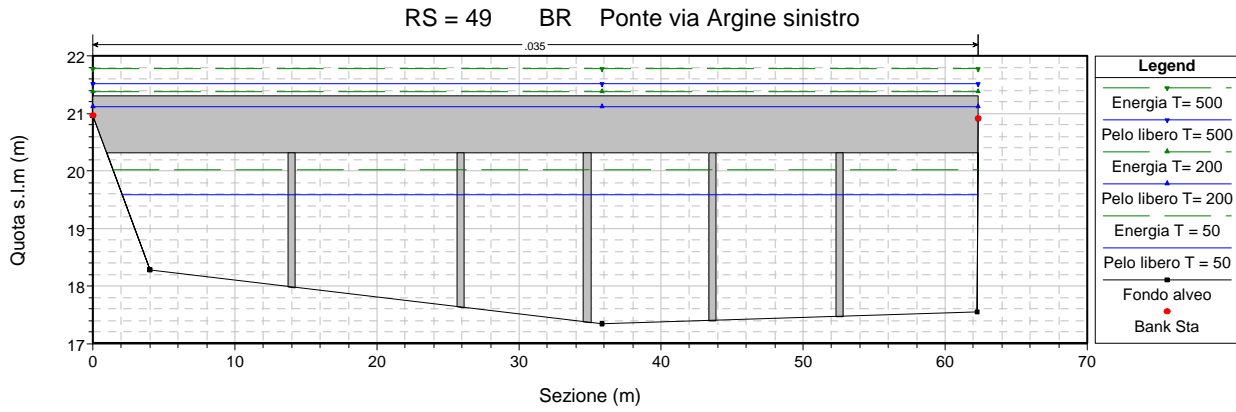
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



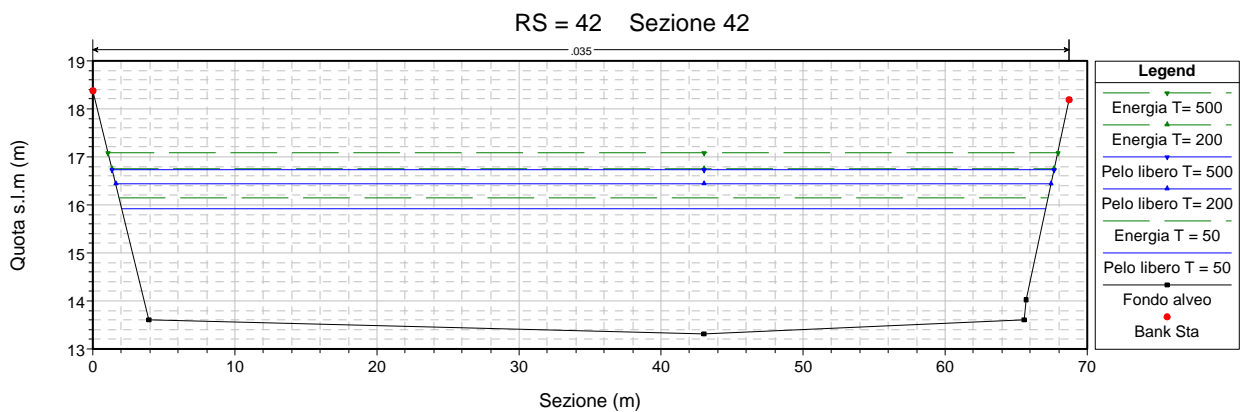
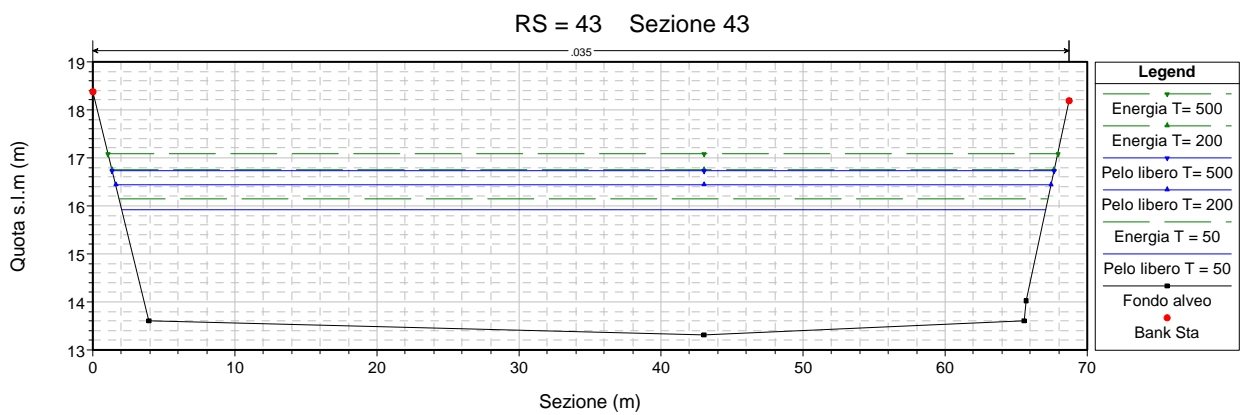
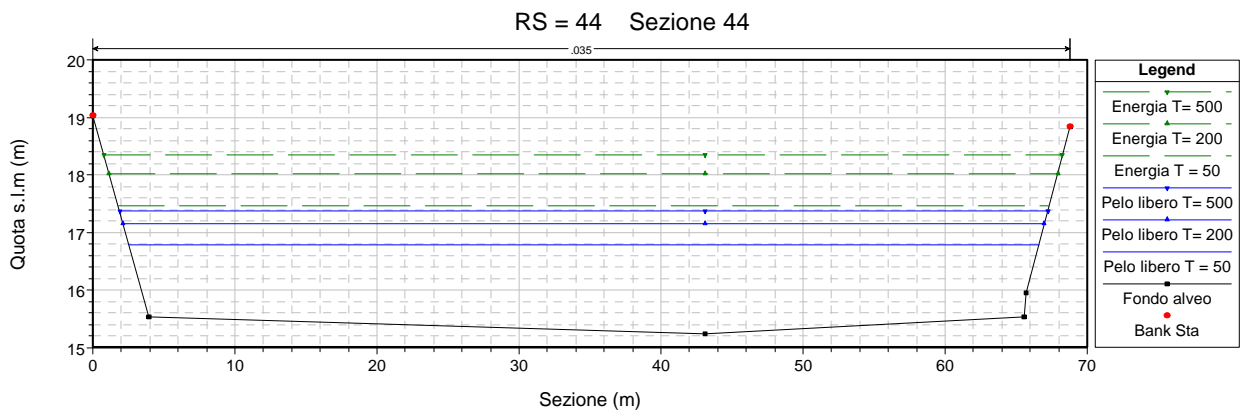
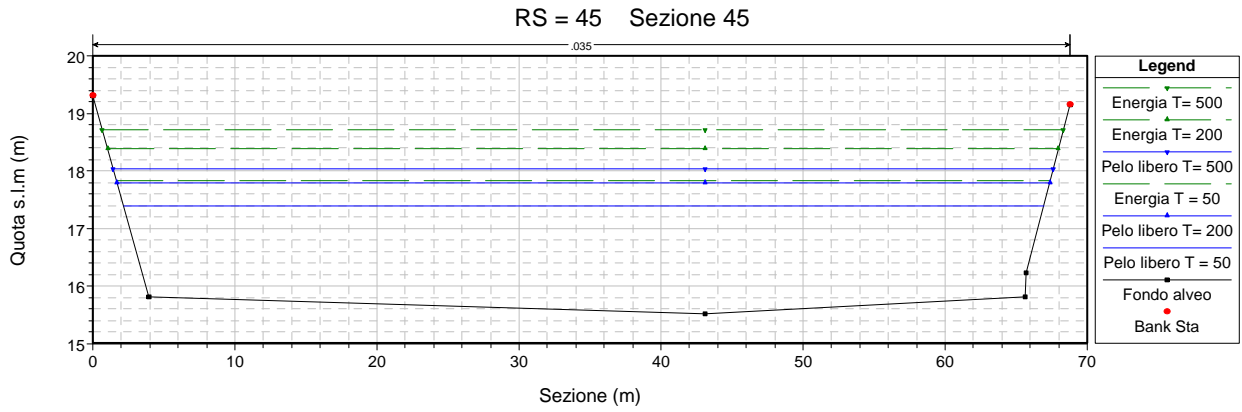
# Torrente Merula dalla foce a loc. Case Castellana

Sezioni trasversali – dalla sez 1 alla sez 101.1



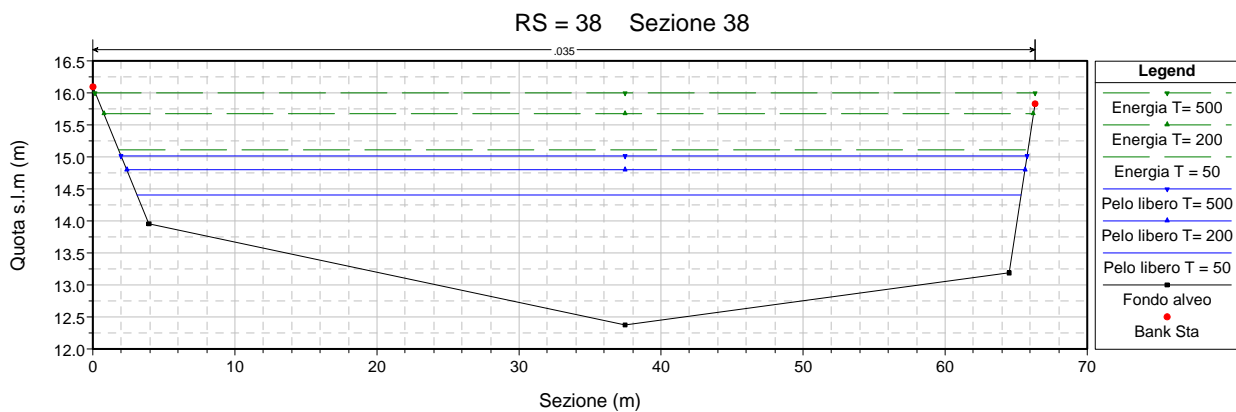
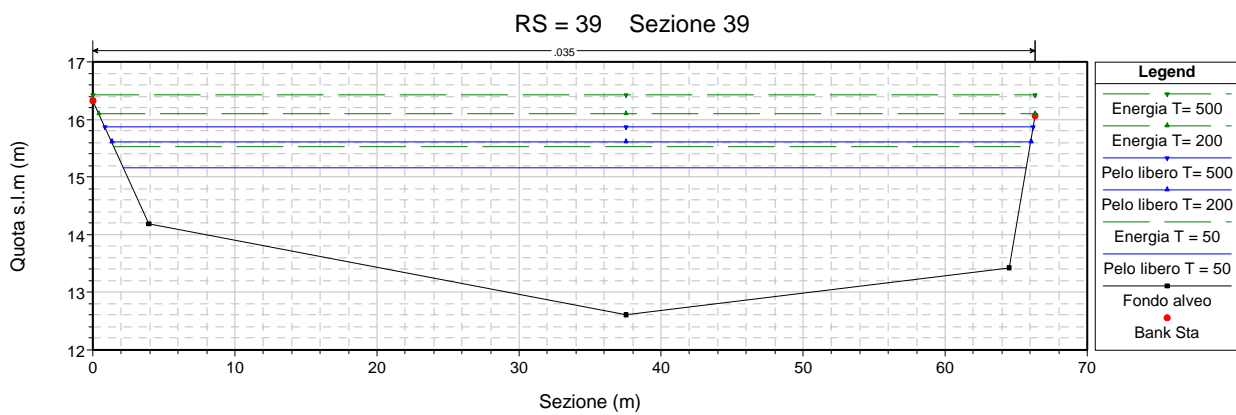
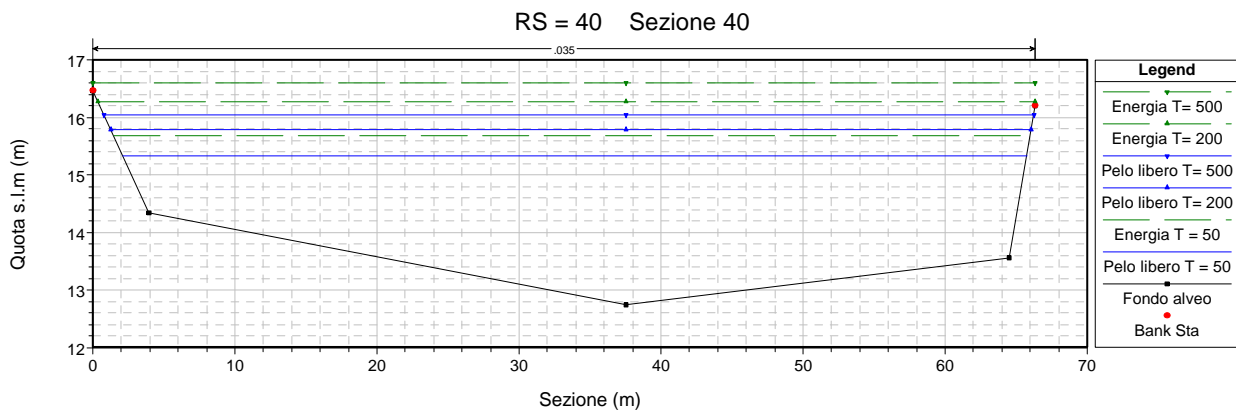
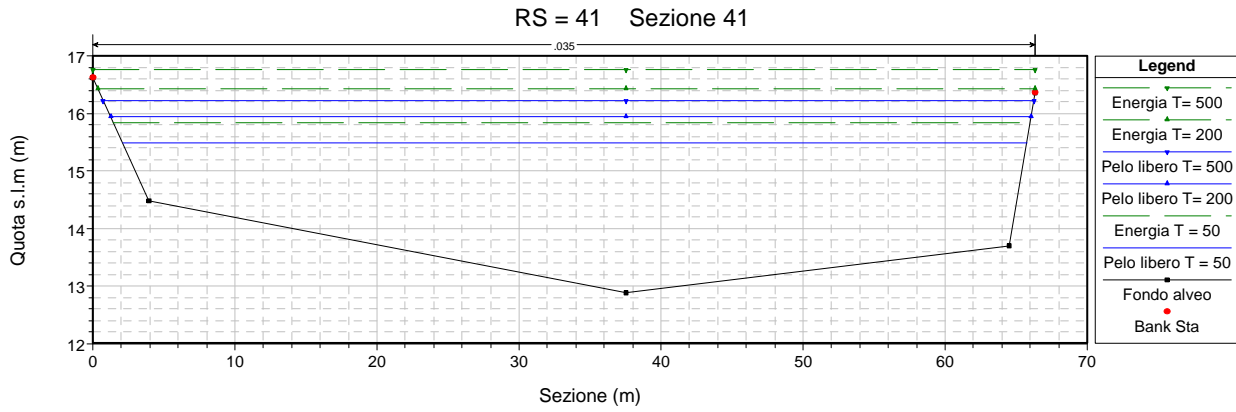
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



# Torrente Merula dalla foce a loc. Case Castellana

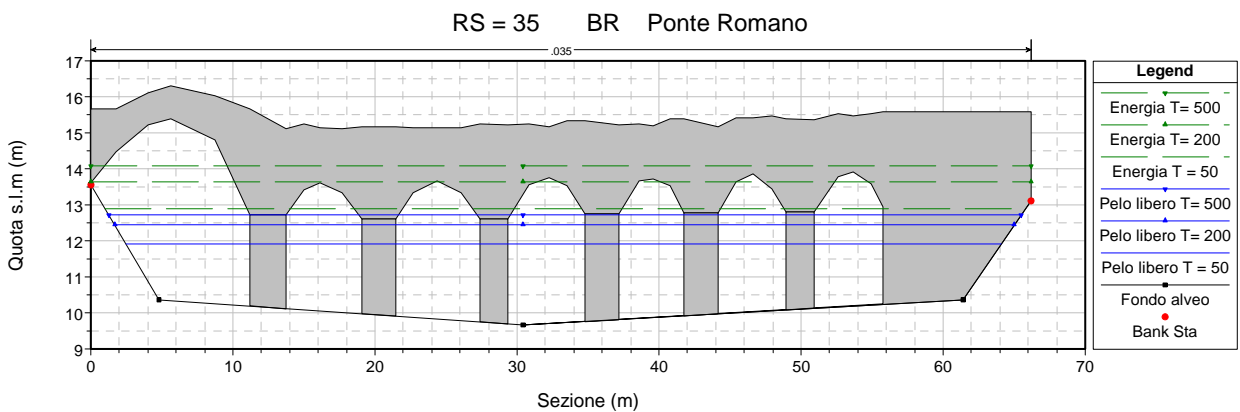
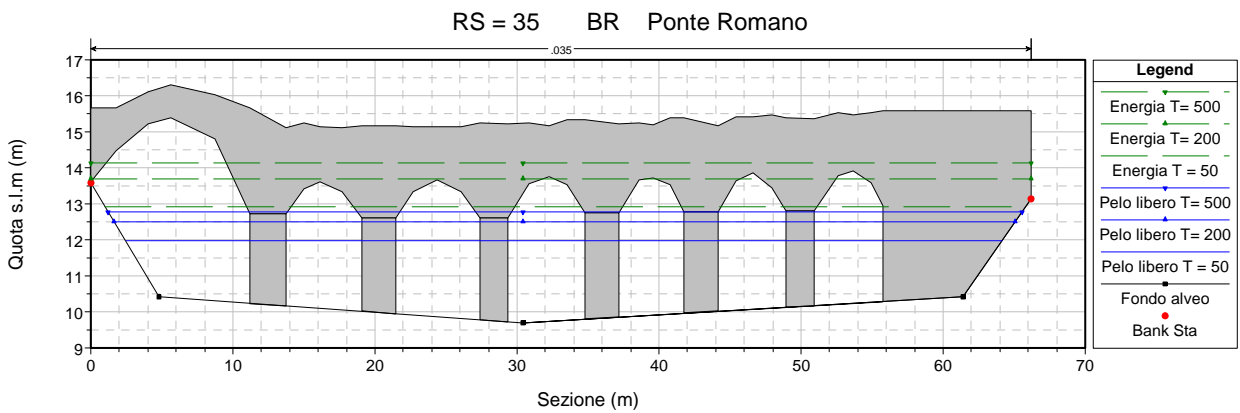
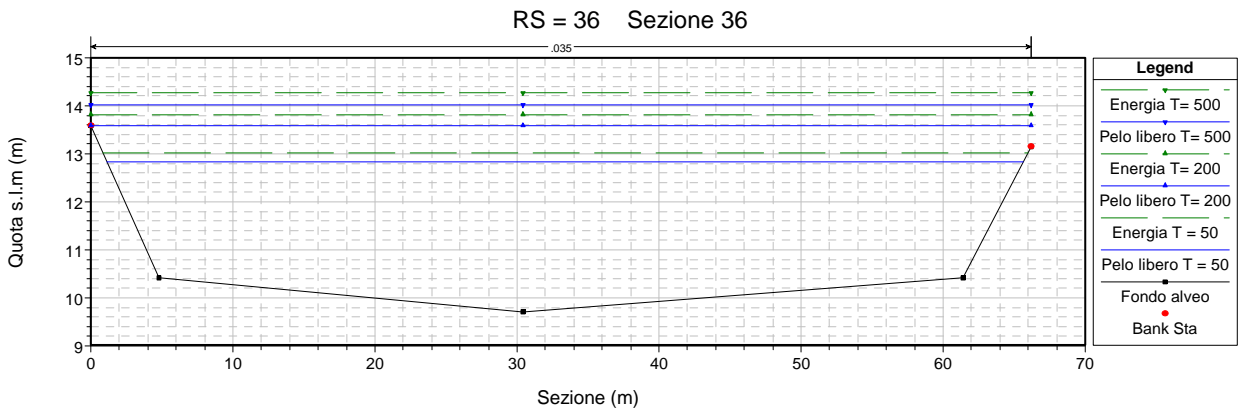
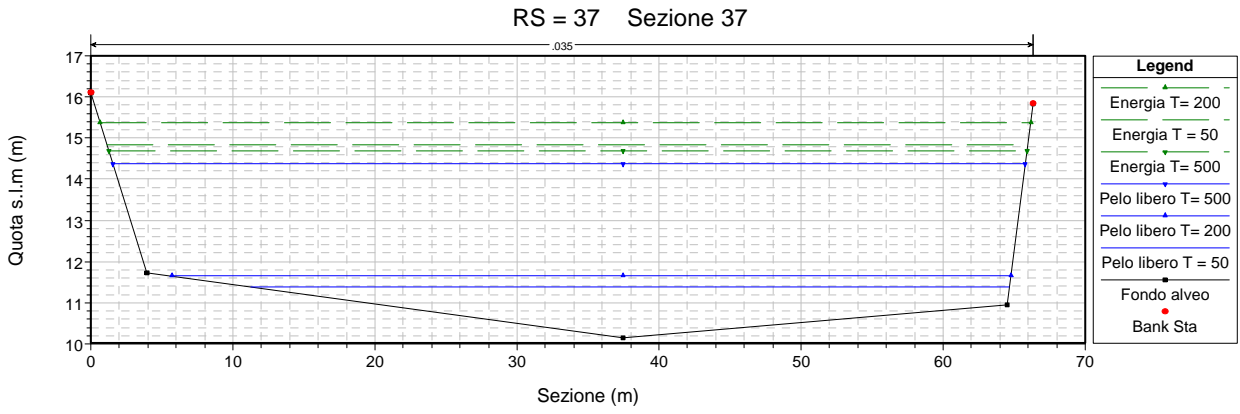
## Sezioni trasversali – dalla sez 1 alla sez 101.1





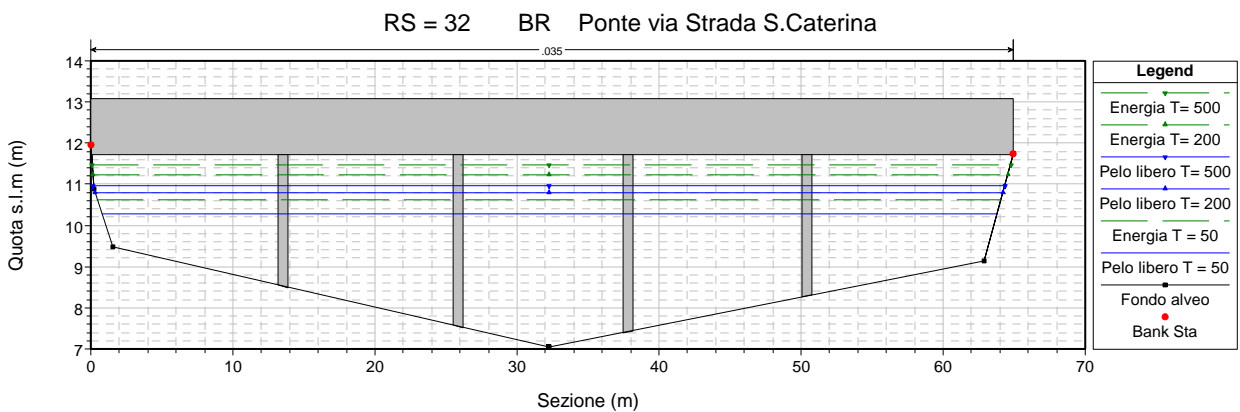
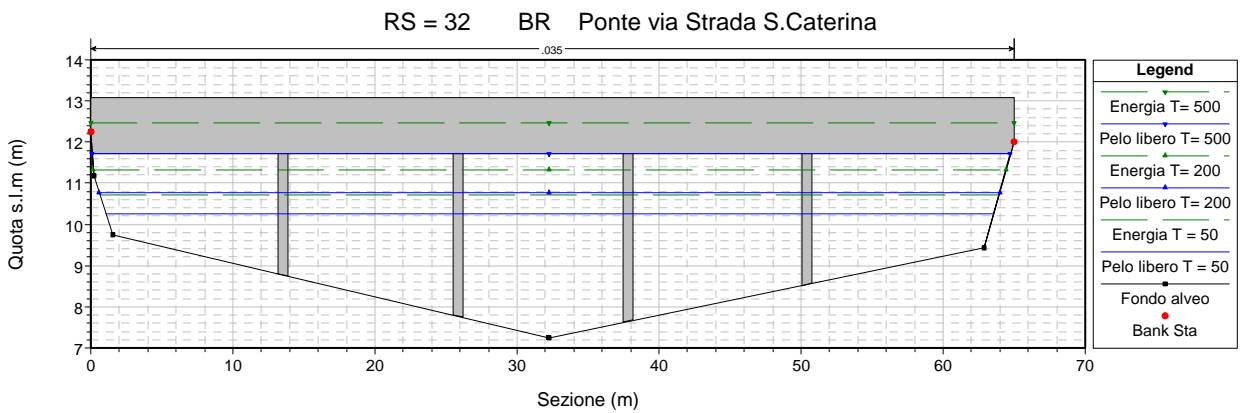
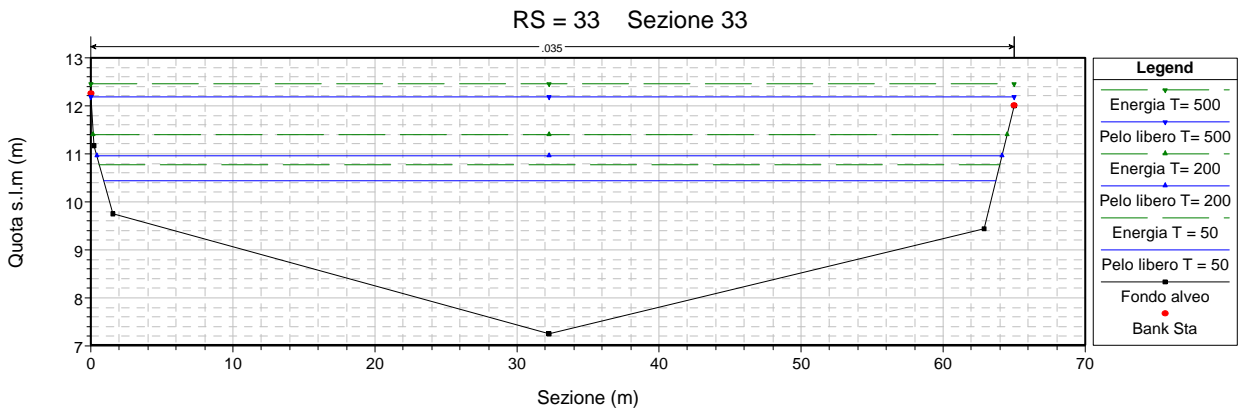
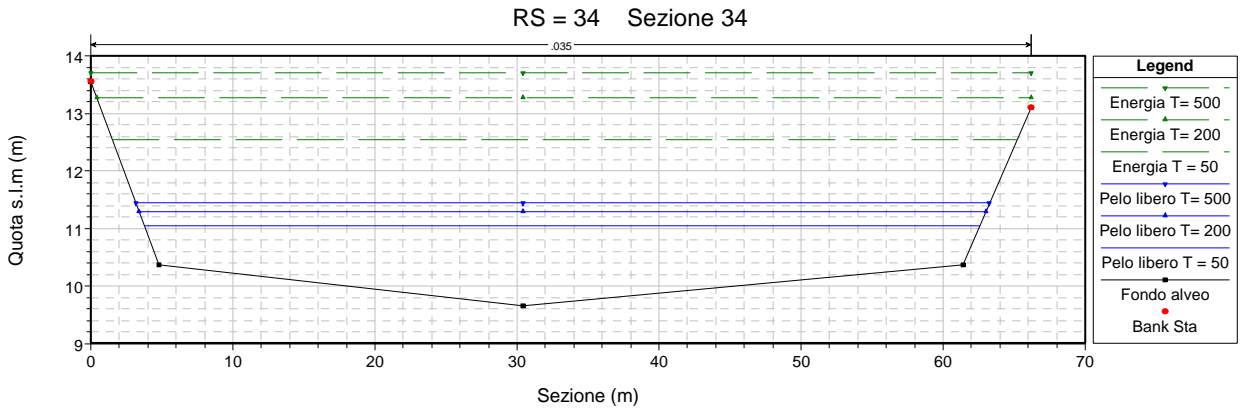
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



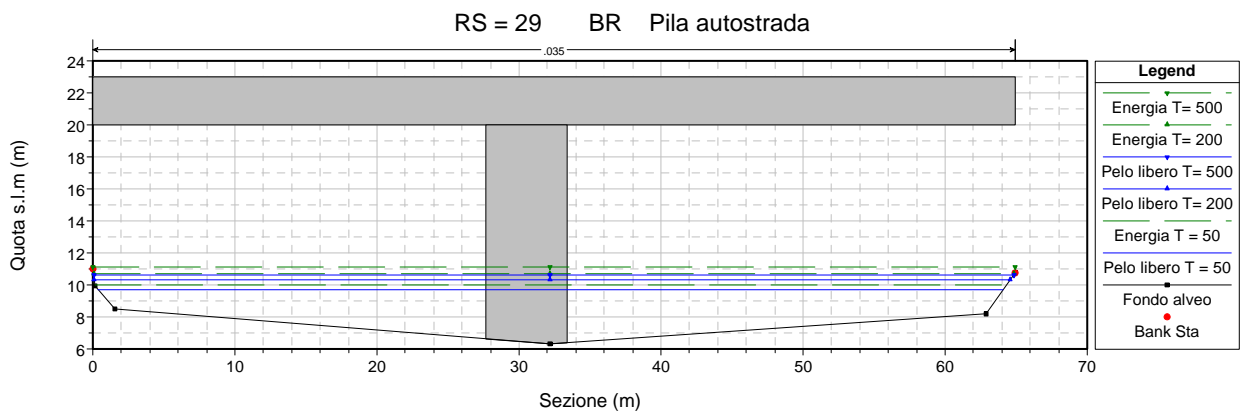
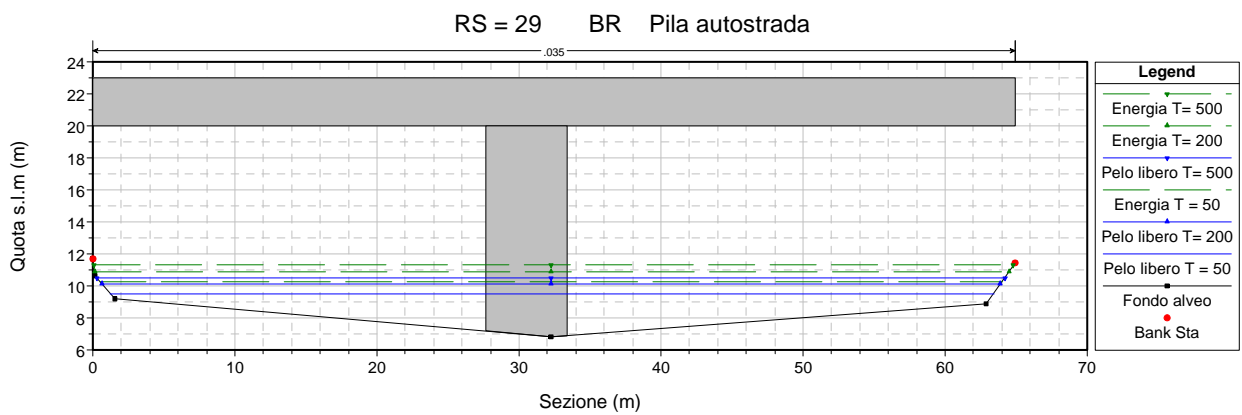
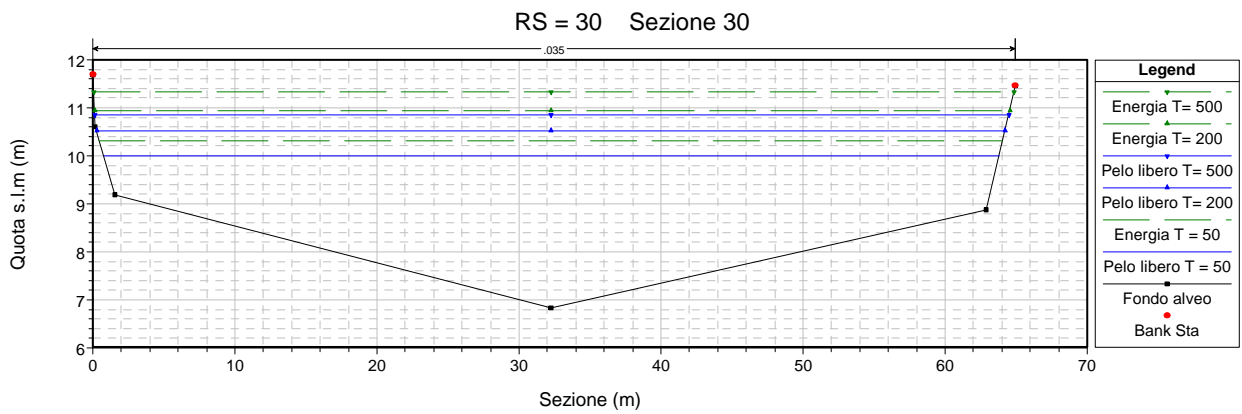
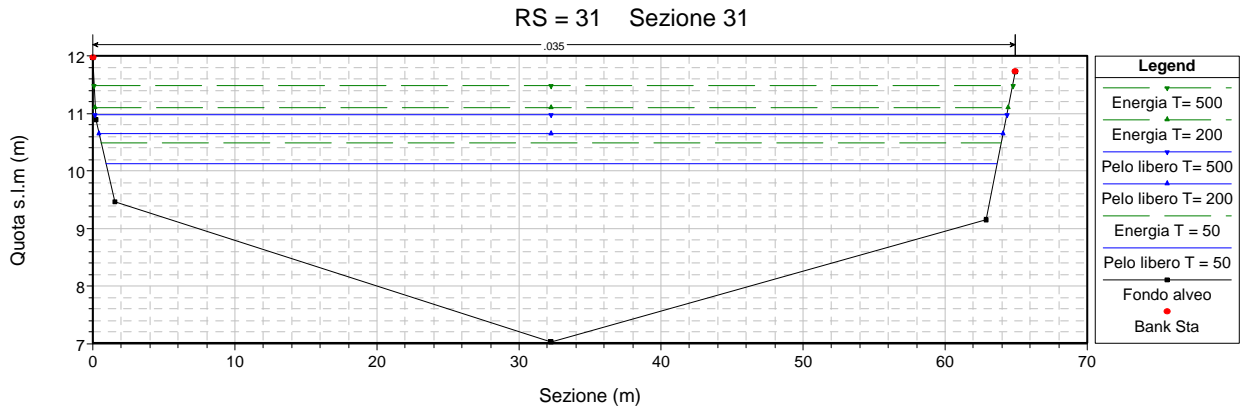
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



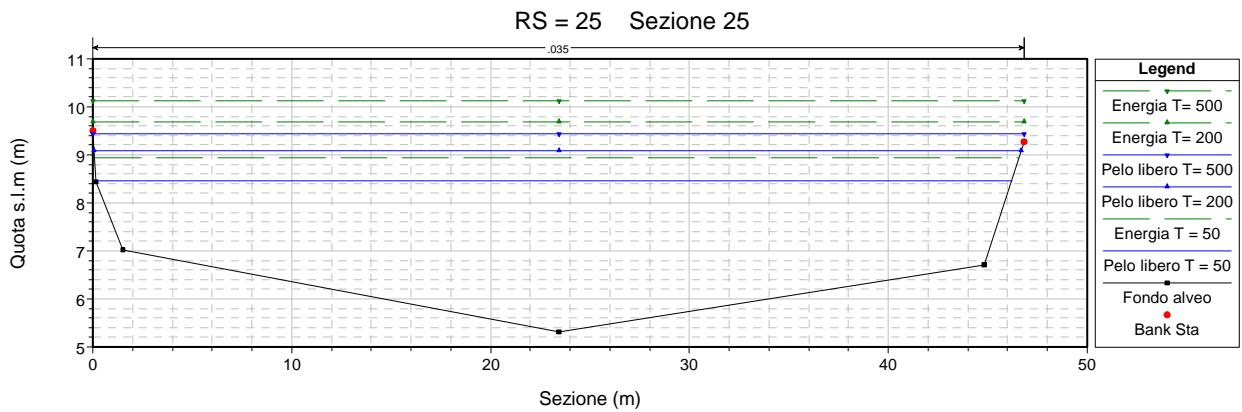
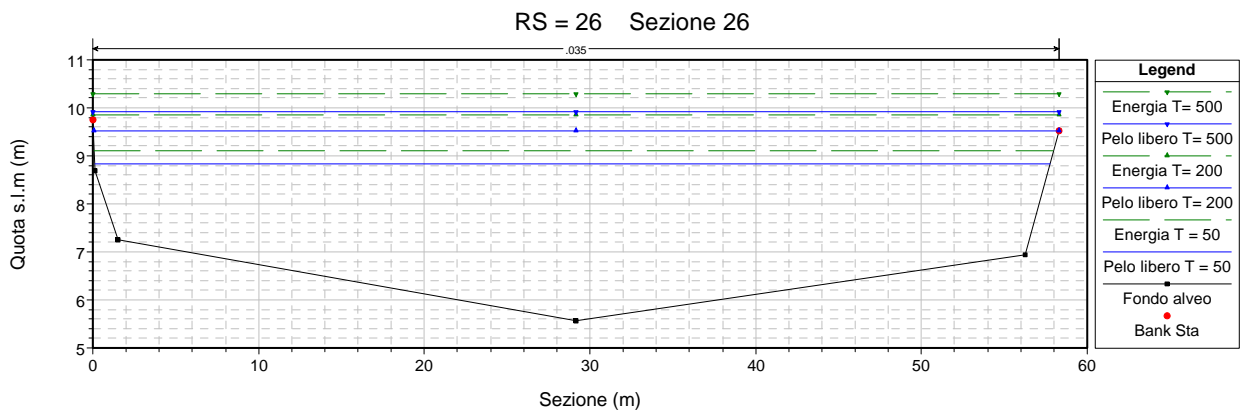
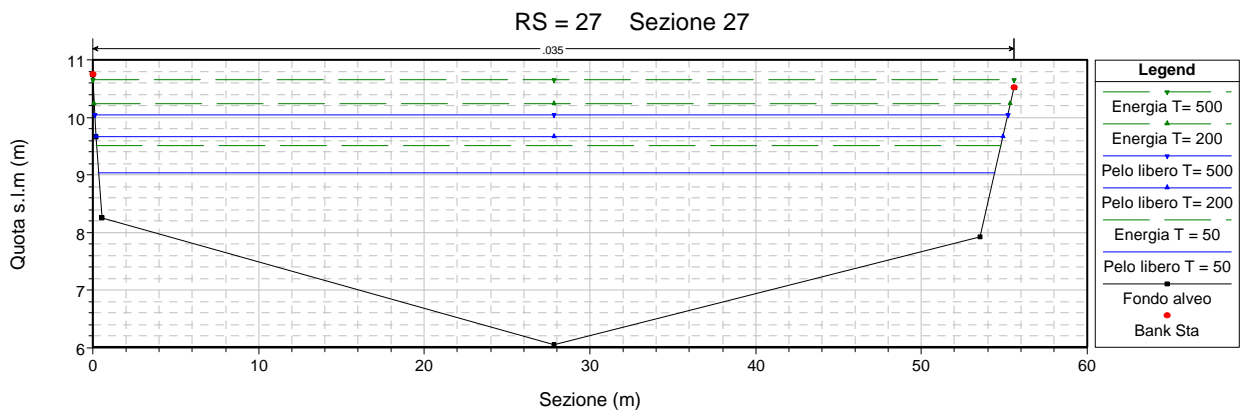
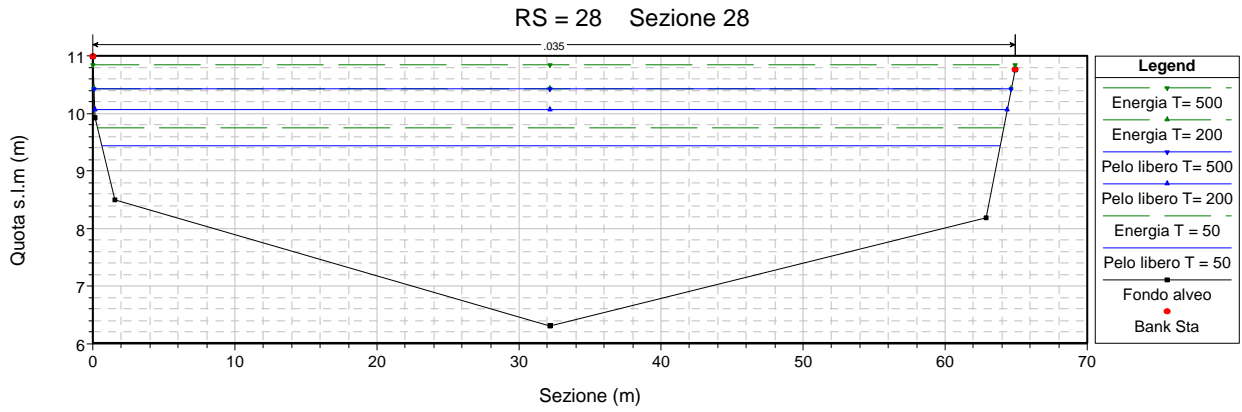
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



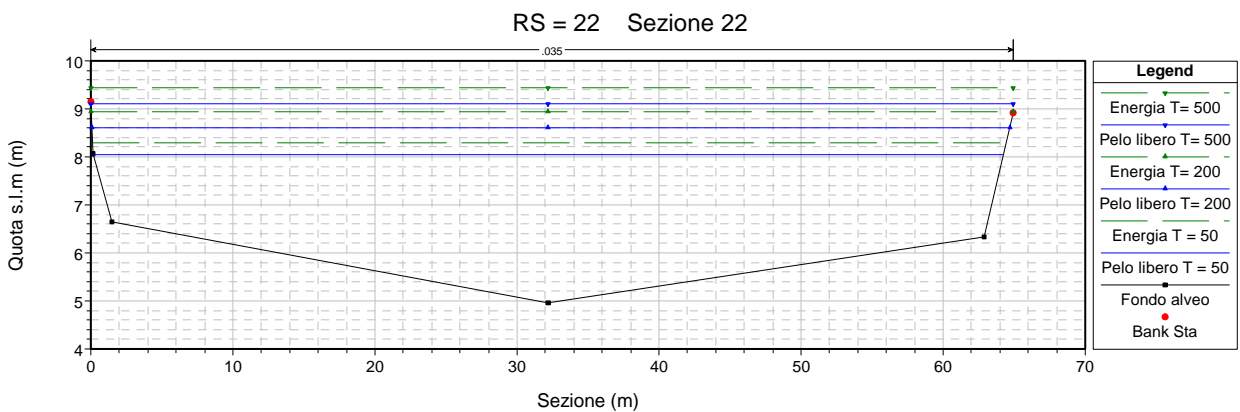
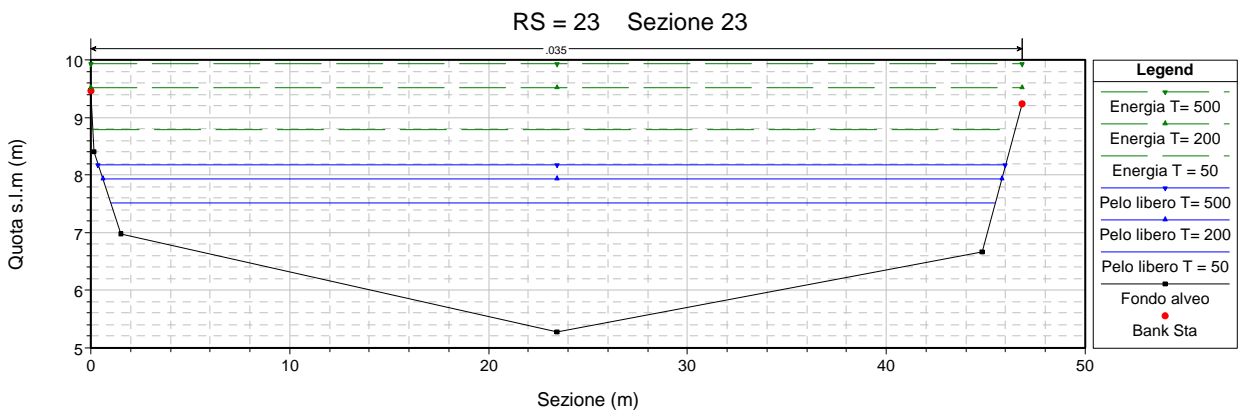
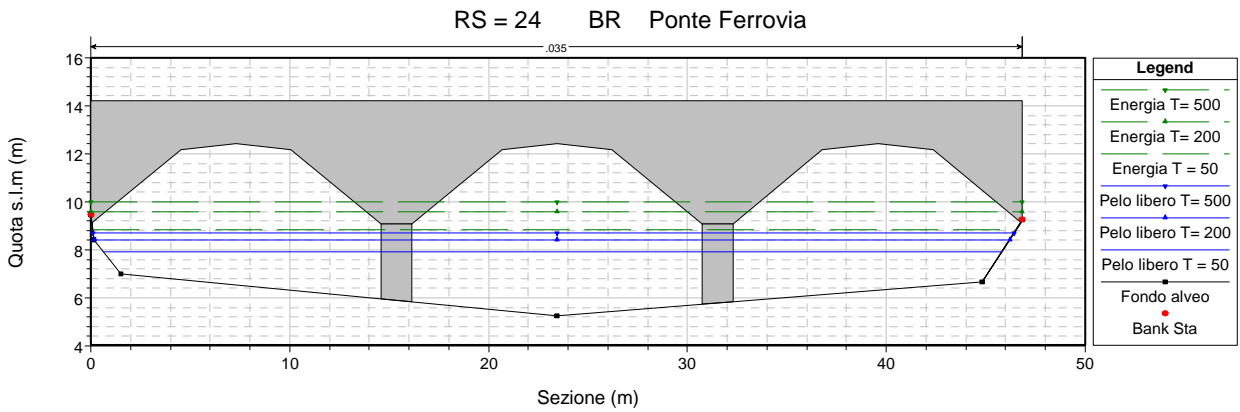
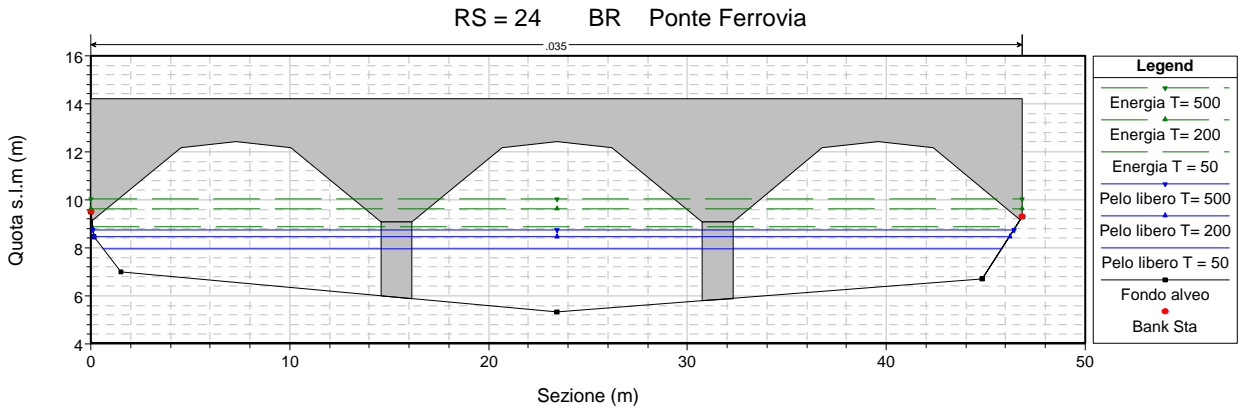
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



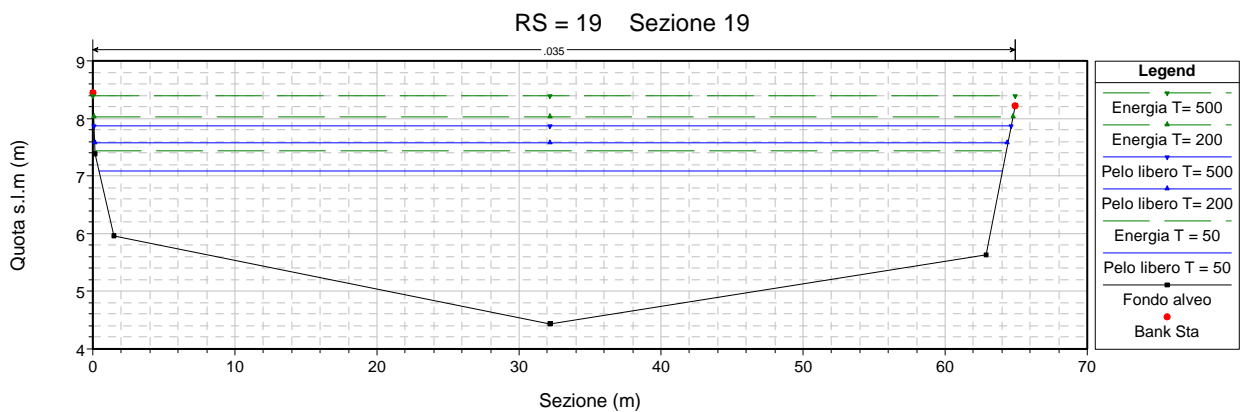
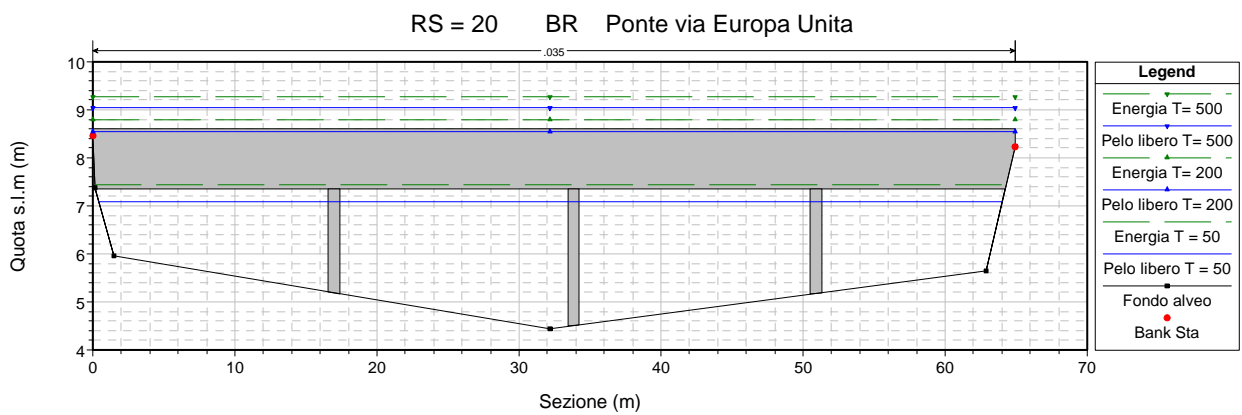
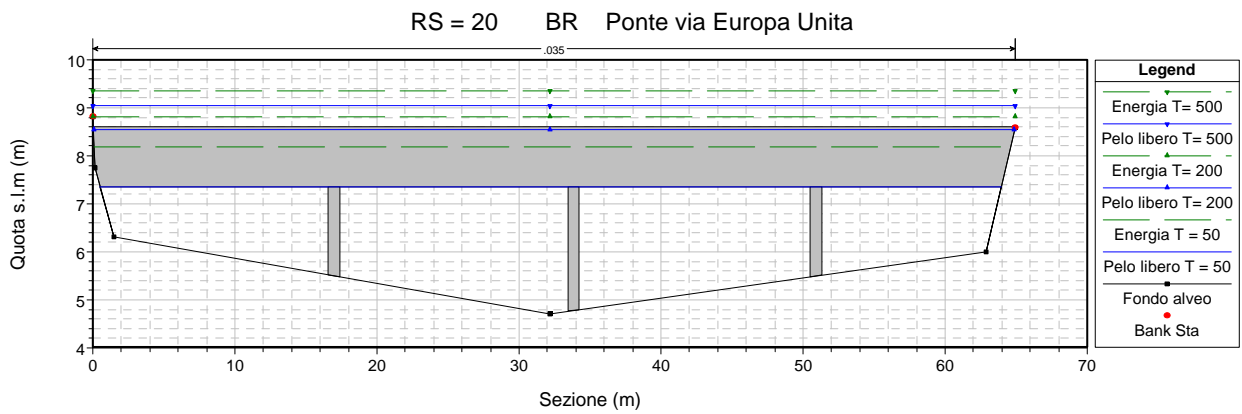
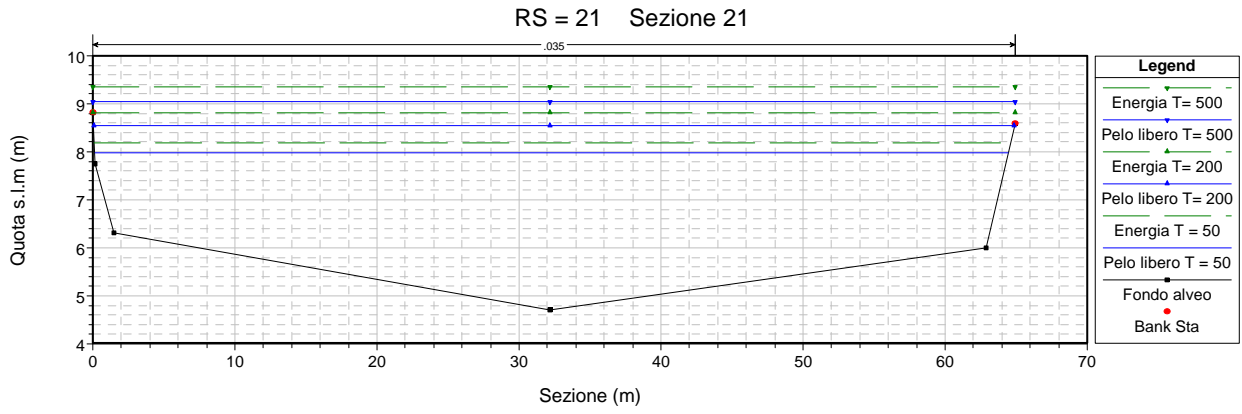
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



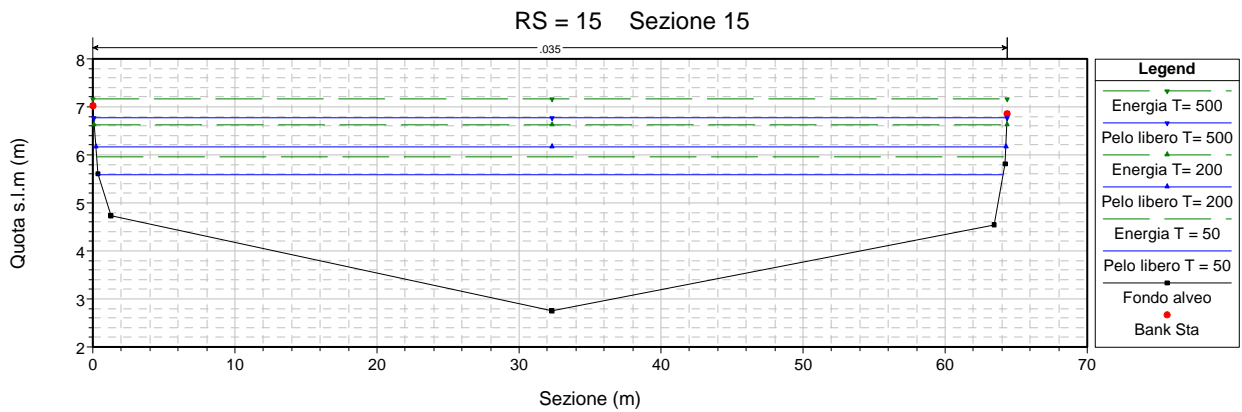
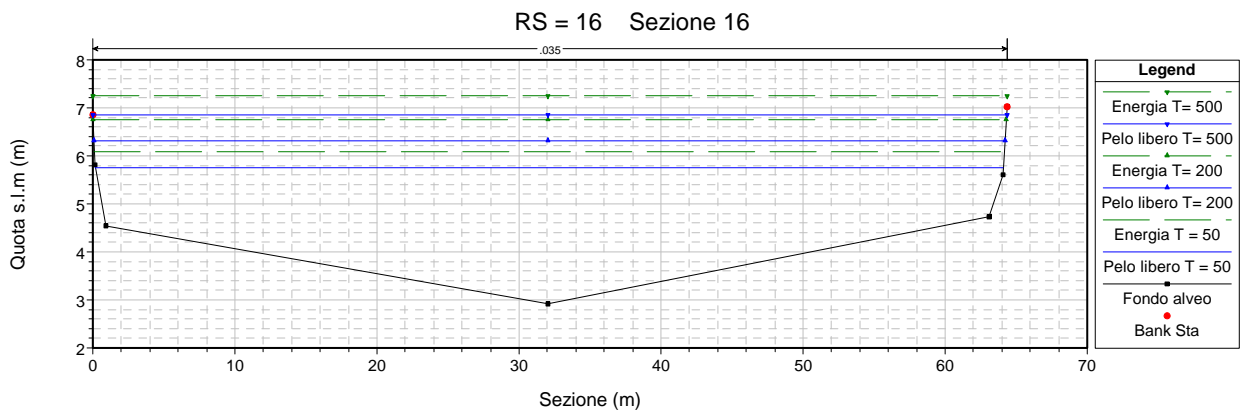
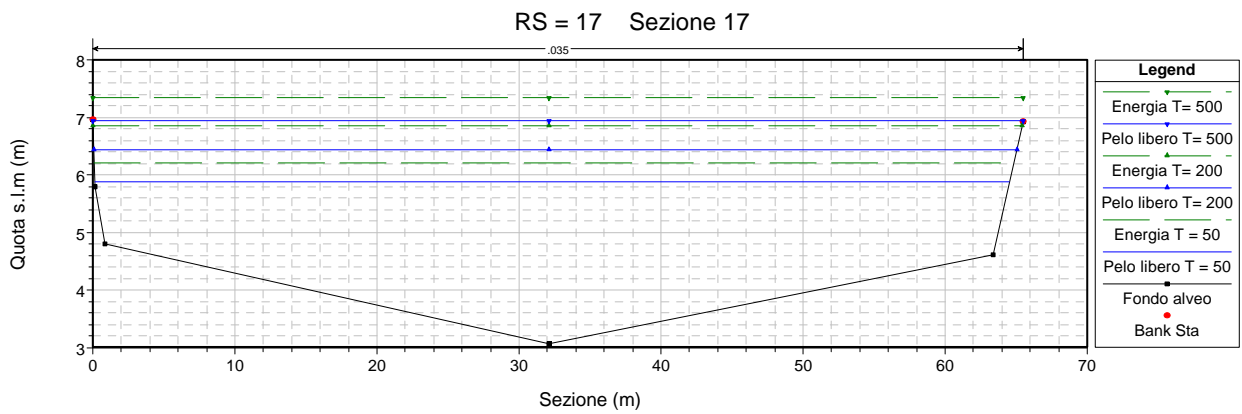
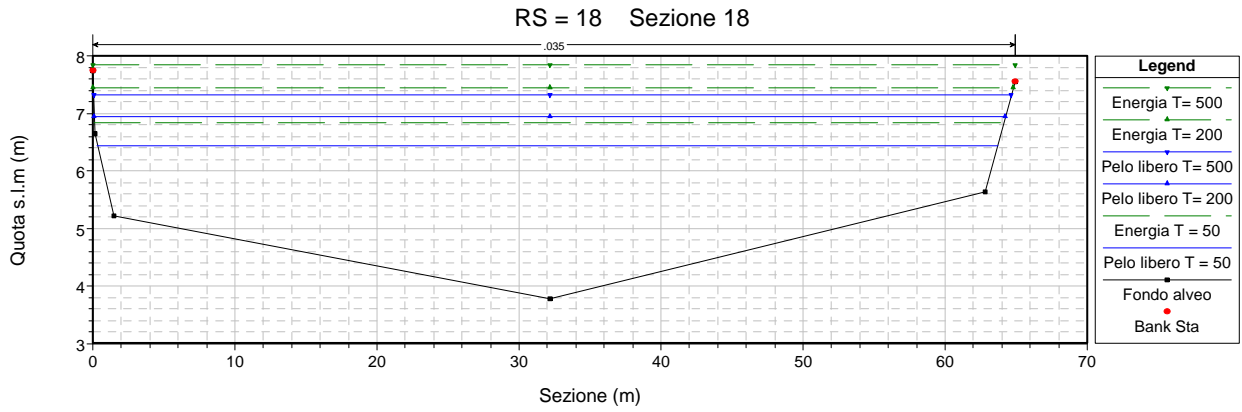
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



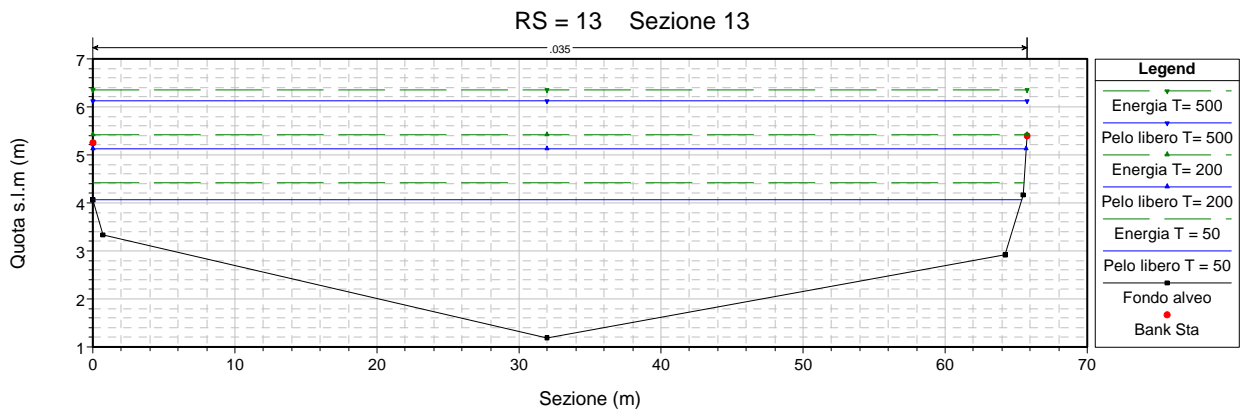
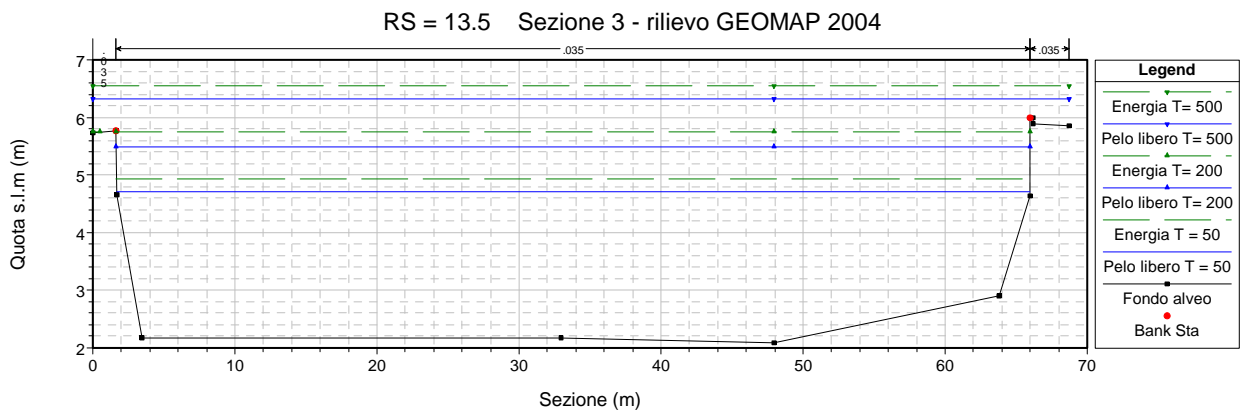
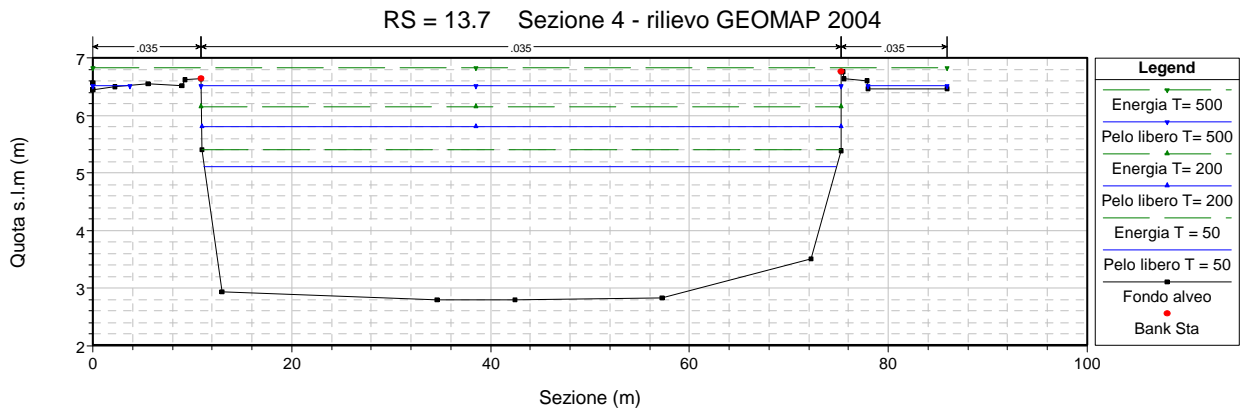
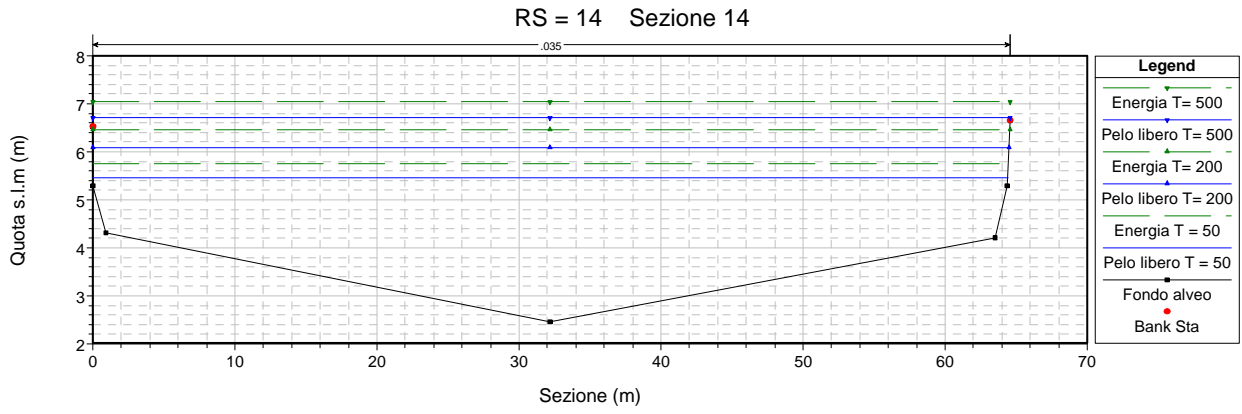
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



# Torrente Merula dalla foce a loc. Case Castellana

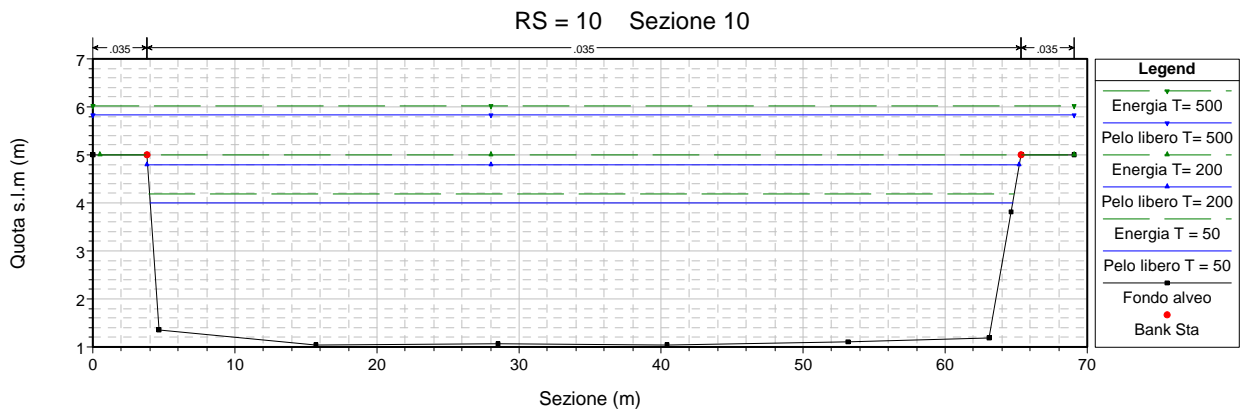
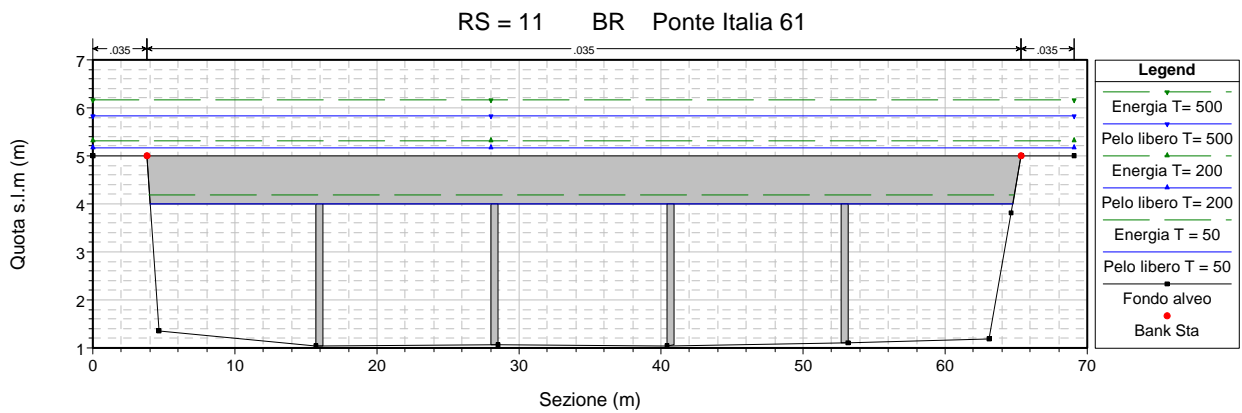
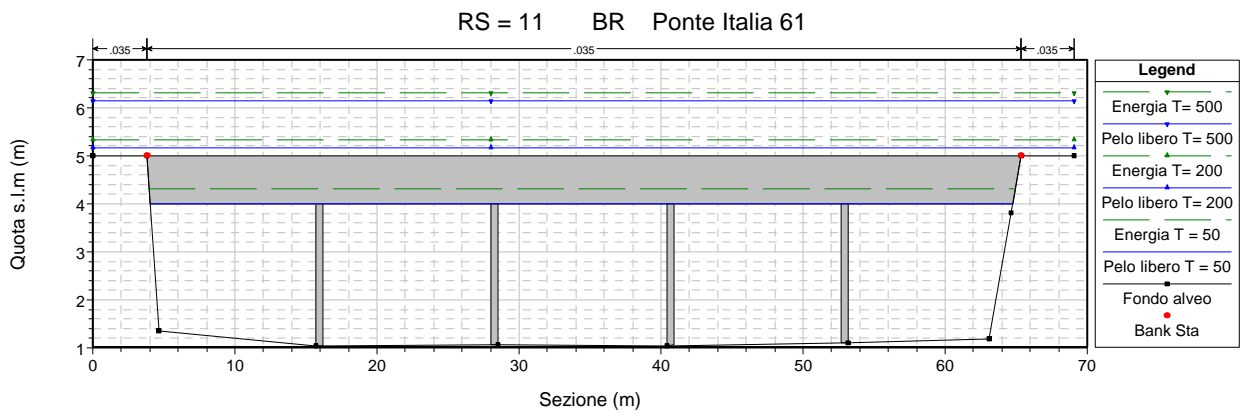
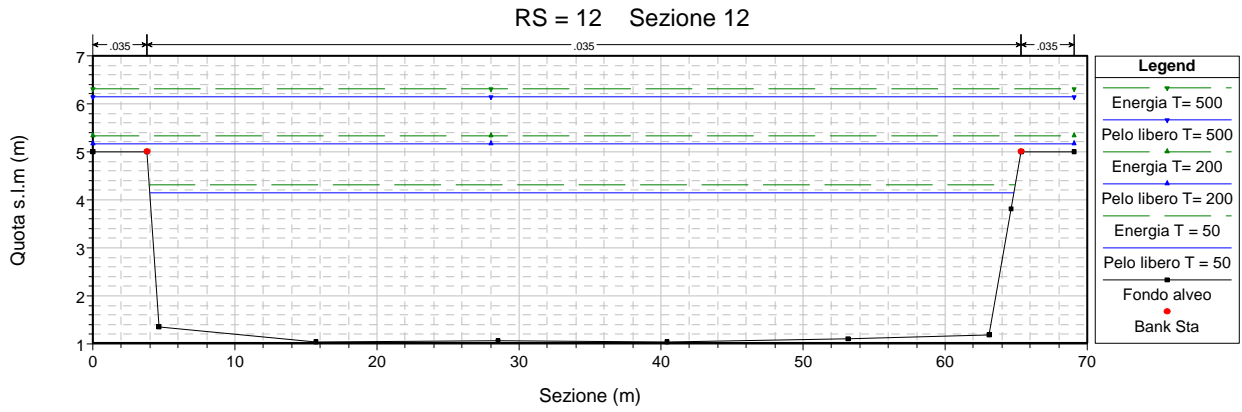
## Sezioni trasversali – dalla sez 1 alla sez 101.1





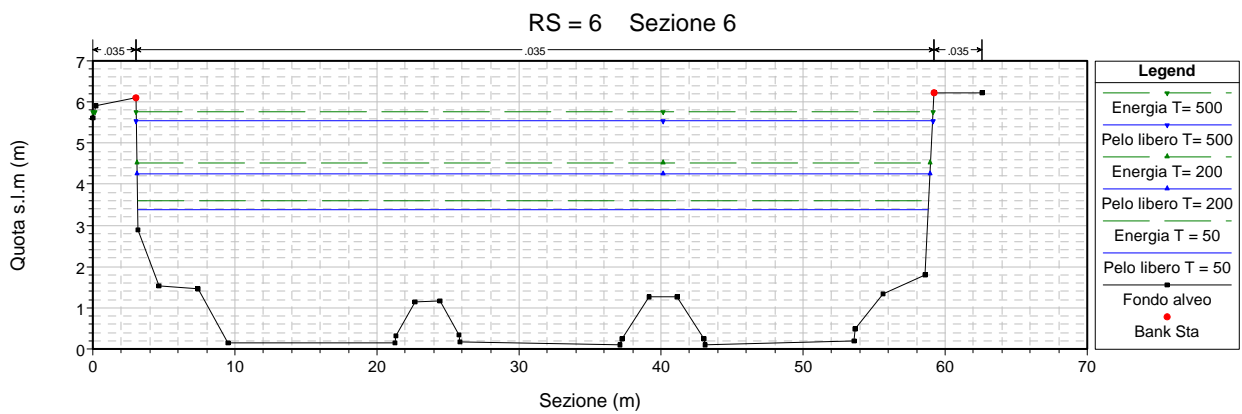
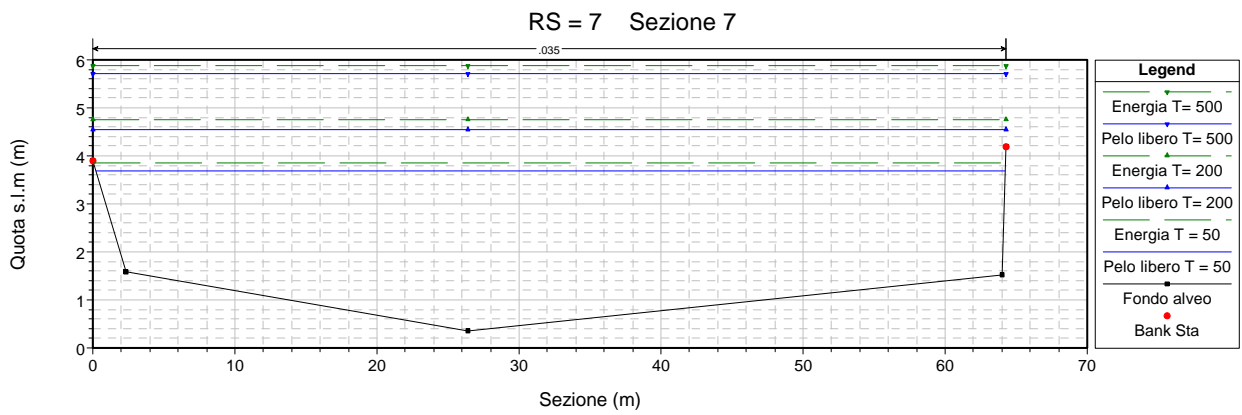
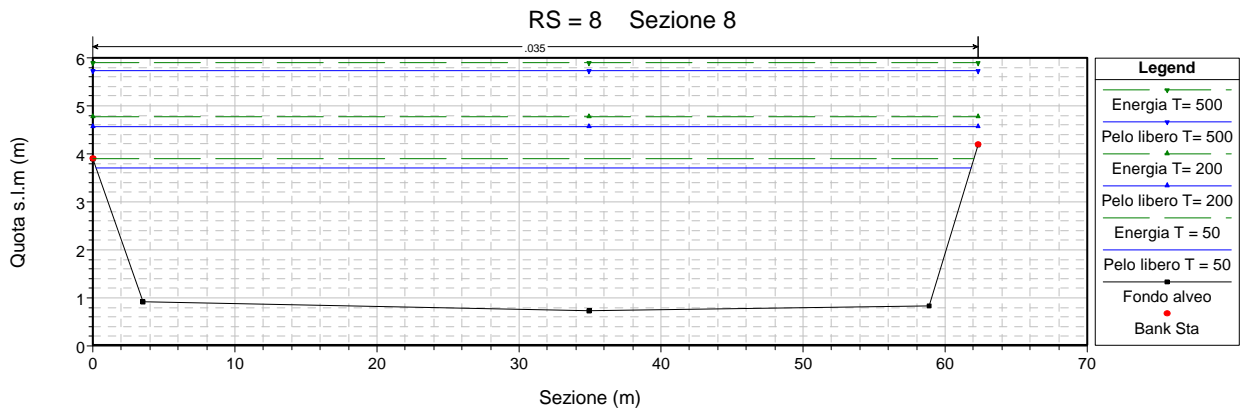
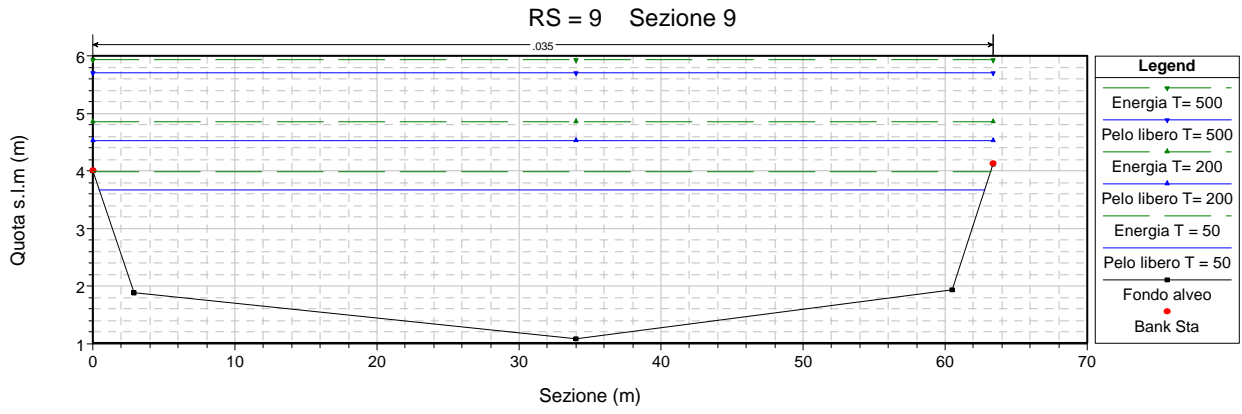
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



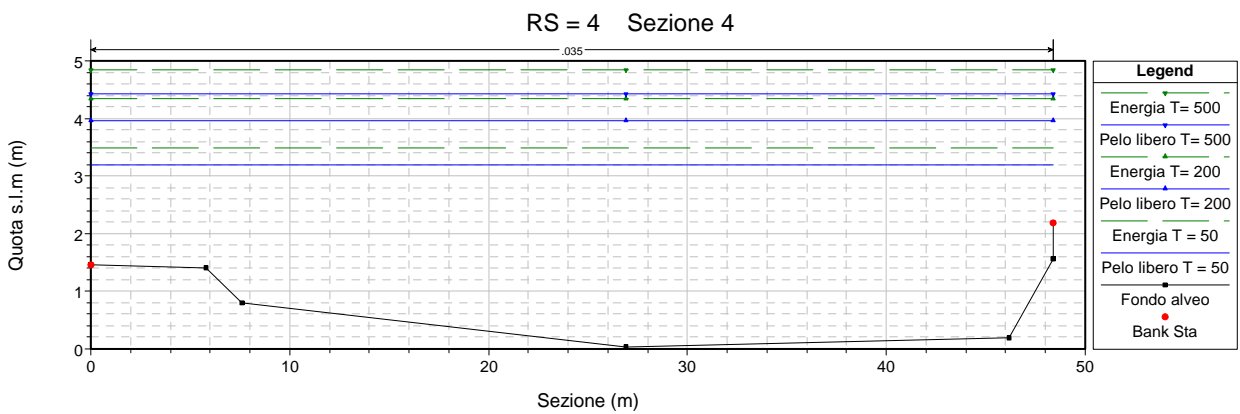
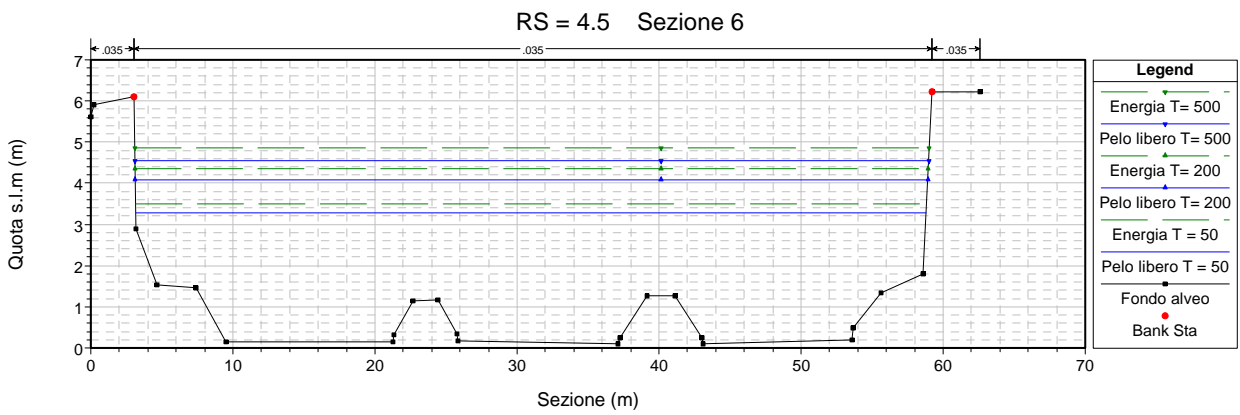
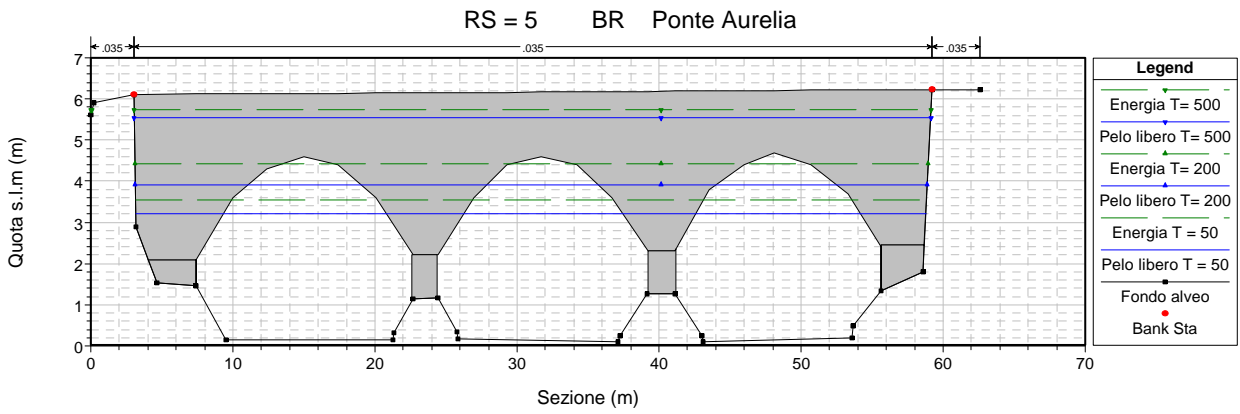
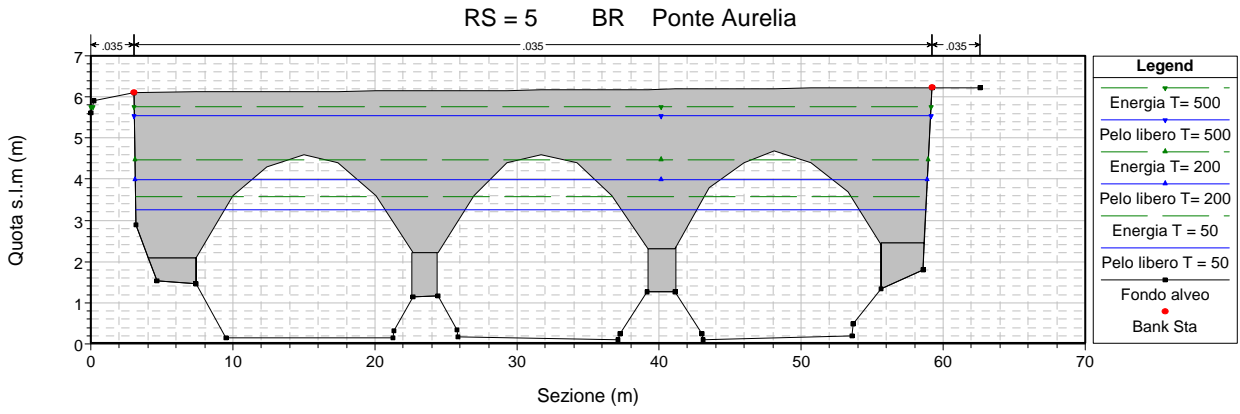
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



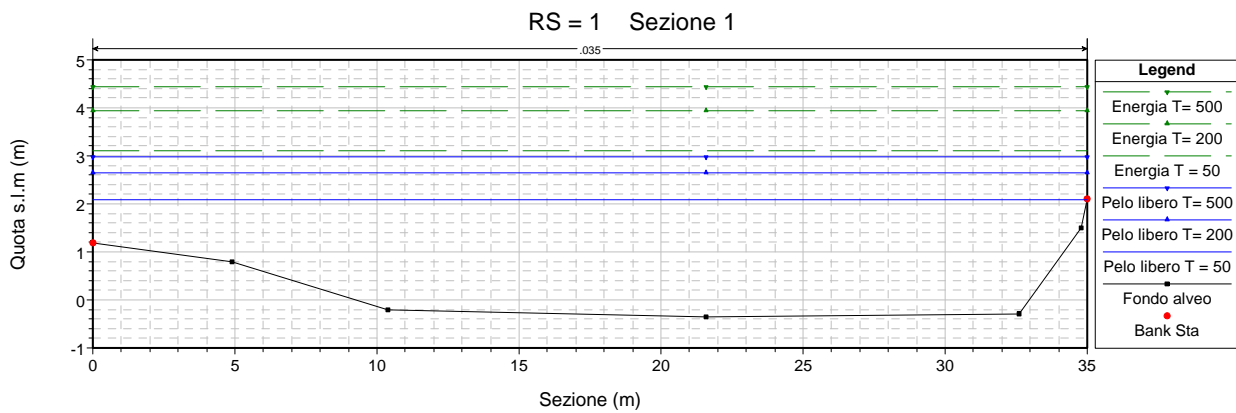
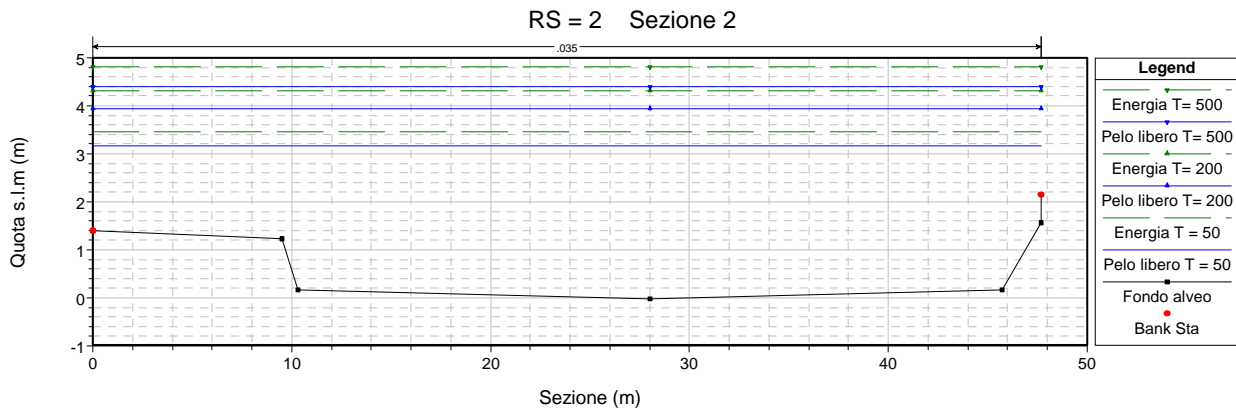
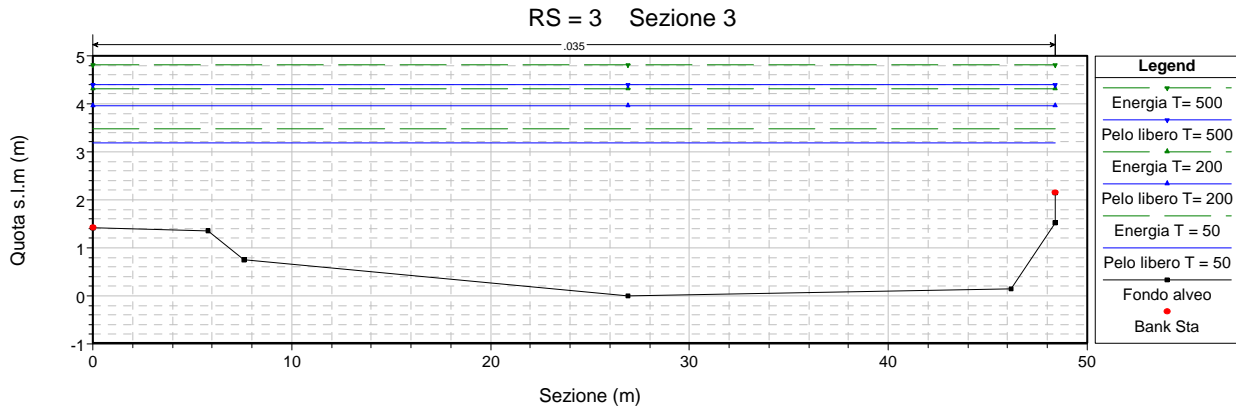
# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



# Torrente Merula dalla foce a loc. Case Castellana

## Sezioni trasversali – dalla sez 1 alla sez 101.1



# **TABELLE DELLE GRANDEZZE IDRAULICHE**

PER LE PORTATE

**T=50, 200, 500 ANNI**

## **TORRENTE MERULA**

Dalla foce a loc. Case Castellana

Dalla sez. 1 alla sez. 101.1



**Torrente Merula dalla foce alla loc. Case Castellana**  
**T=50 anni**

Sezioni	Portata totale (m3/s)	Fondo alveo (m)	Argine sinistro (m)	Argine destro (m)	Pelo libero (m)	Profondità critica (m)	Energia (m2)	Velocità (m/s)	Area bagnata (m2)	N° Froude
101.1	190	77.07	79.99	79.5	78.7	78.7	79.32	3.47	54.74	1
101	190	76.03	77.87	77.78	77.16	77.71	79.18	6.31	30.13	2.39
100	190	71.98	73.71	73.11	74.19	74.19	74.8	3.56	57.87	0.87
99.1	190	72.22	74.64	74.02	73.06	73.39	74.17	4.66	40.77	1.89
99	190	71.29	73.25	73.04	72.36	72.91	74.1	5.85	32.5	2.1
98.1	190	68.61	69.91	69.73	69.91	69.91	70.39	3.16	63.33	0.97
98	190	67.34	69.91	69.73	68.89	69.33	70.3	5.26	36.1	1.75
97.1	190	65.68	68.32	67.66	67.46	67.46	68.11	3.58	53.01	1.01
97	190	64.1	66.52	65.97	65.76	66.4	67.96	6.56	28.95	2.18
96	190	62.33	64.61	64.17	64.51	64.51	65.15	3.59	54.81	0.97
95.1	190	59.18	62.69	62.58	62.13	60.97	62.26	1.63	116.44	0.39
95.05	Culvert									
95	190	59.18	62.69	62.58	61.2	60.96	61.64	2.94	64.7	0.8
94.1	190	56.57	59.79	63.9	58.08	58.08	58.7	3.49	54.49	1.01
94	190	54.92	59.79	63.9	56.08	56.72	58.52	6.92	27.45	2.59
93.1	190	54.65	58.23	56.68	55.86	55.86	56.36	3.13	60.69	1.01
93	190	53.79	58.23	56.68	55.19	55.53	56.3	4.66	40.77	1.69
92.21	190	52.92	53.68	53.55	53.67	53.67	53.98	2.4	76.49	1.01
92.2	190	51.41	53.68	53.55	52.23	52.7	53.85	5.64	33.71	2.18
92.11	190	51.33	54.61	53.55	52.25	52.61	53.47	4.9	38.76	1.83
92.1	190	50.94	54.61	53.55	51.94	52.38	53.43	5.42	35.05	2.07
91.21	190	49.07	50.37	53.85	50.25	50.25	50.71	3	63.23	1.01
91.2	190	47.6	50.37	53.85	48.19	48.74	50.53	6.78	28.03	3.05
91.11	190	47.5	49.85	49.86	48.22	48.68	49.8	5.57	34.14	2.18
91.01	190	46.84	49.85	49.86	47.9	48.42	49.77	6.05	31.4	2.41
90	190	45	47.73	57.09	47.17	46.85	47.5	2.54	74.66	0.7
89.1	190	44.78	47.93	48.51	46.03	46.03	46.53	3.12	60.82	1.01
89	190	42.05	47.93	48.51	43.64	44.35	46.31	7.24	26.26	2.59
88	190	41.73	46.23	45.18	43.97	43.98	44.68	3.72	51.11	1.01
85.2	190	41.22	45.06	45	43.83	43.01	44.01	1.84	103.37	0.43
85.1	Bridge									
85	190	41.22	45.06	45	43.8	43.01	43.98	1.87	101.54	0.44
84.1	320	41.42	44.77	43.81	43.11	43.11	43.73	3.48	91.9	1
84	320	38.71	44.77	43.81	39.62	40.52	43.41	8.63	37.1	3.05
83	320	38.07	41.4	42.27	40.63	40.25	41.06	2.88	111.09	0.7
82	320	36.75	40.99	40.09	38.97	38.8	39.53	3.3	96.9	0.86
81.1	320	36.12	39.68	39.2	38.07	38.07	38.71	3.53	90.56	1.01
81	320	35.83	39.68	39.2	38.27	37.64	38.57	2.44	131.04	0.59
80.1	320	34.65	37.78	37.75	36.38	36.38	37.12	3.82	83.85	1
80	320	34	37.78	37.75	35.17	35.73	37.02	6.02	53.17	1.85
79.1	320	33.86	36.67	39.16	35.5	35.5	36.15	3.57	89.69	1.01
79	320	32.13	36.67	39.16	33.17	33.89	35.94	7.37	43.4	2.57
78	320	31.29	36.21	34.98	34.08	33.8	34.61	3.22	99.51	0.8
77	320	30.39	35.61	37.99	33.31	33.15	33.87	3.32	96.48	0.87
76	320	30.55	34.36	36.65	32.59	32.26	32.95	2.67	120.04	0.7
75.1	320	29.71	33.25	33.61	31.32	31.32	32.01	3.67	87.17	1.01
75	320	28.29	33.25	33.61	29.84	30.41	31.87	6.32	50.66	2.21
74	320	28.02	32.24	32.5	29.81	29.81	30.51	3.71	86.35	1.01
73	320	27.21	31.4	32.56	29.91	29.11	30.13	2.05	156.23	0.47





19	320	4.44	8.45	8.22	7.09	6.51	7.44	2.61	122.58	0.6
18	320	3.78	7.74	7.55	6.44	6	6.85	2.81	113.85	0.67
17	320	3.07	6.95	6.93	5.88	5.27	6.21	2.55	125.49	0.58
16	320	2.92	6.86	7.02	5.75	5.16	6.09	2.59	123.61	0.59
15	320	2.76	7.02	6.86	5.58	5.08	5.95	2.72	117.56	0.64
14	320	2.46	6.53	6.65	5.46	4.75	5.76	2.41	132.87	0.54
13.7	320	2.8	6.63	6.75	5.11	4.35	5.4	2.39	133.65	0.53
13.5	320	2.08	5.77	6	4.71	3.66	4.94	2.09	153.33	0.43
13	320	1.18	5.25	5.39	4.07	3.51	4.41	2.61	122.6	0.61
12	320	1.05	4.99	4.99	4.14	2.55	4.3	1.77	181.22	0.33
11	Bridge									
10	320	1.05	4.99	4.99	4.01	2.55	4.18	1.85	172.91	0.35
9	320	1.09	4	4.12	3.68	2.95	3.99	2.47	129.63	0.55
8	320	0.73	3.89	4.18	3.71	2.29	3.9	1.88	169.86	0.36
7	320	0.35	3.9	4.19	3.69	2.34	3.86	1.87	171.43	0.36
6	320	0.1	6.1	6.23	3.39	2.02	3.59	2.03	158.02	0.38
5	Bridge									
4.5	320	0.1	6.1	6.23	3.28	2.02	3.5	2.1	152.04	0.41
4	320	0.04	1.46	2.19	3.2	2.1	3.5	2.42	132.2	0.47
3	320	-0.01	1.41	2.14	3.18	2.05	3.47	2.39	133.81	0.46
2	320	-0.03	1.4	2.14	3.17	2.01	3.46	2.38	134.27	0.45
1	320	-0.36	1.19	2.11	2.07	2.07	3.1	4.5	71.17	1.01

**Torrente Merula dalla foce alla loc. Case Castellana**  
**T=200 anni**

Sezioni	Portata totale (m3/s)	Fondo alveo (m)	Argine sinistro (m)	Argine destro (m)	Pelo libero (m)	Profondità critica (m)	Energia (m2)	Velocità (m/s)	Area bagnata (m2)	N° Froude
101.1	280	77.07	79.99	79.5	79.07	79.07	79.86	3.93	71.19	1
101	280	76.03	77.87	77.78	77.43	78.08	79.71	6.69	41.86	2.16
100	280	71.98	73.71	73.11	74.56	74.56	75.34	4.06	75.79	0.9
99.1	280	72.22	74.64	74.02	73.23	73.66	74.68	5.34	52.48	1.94
99	280	71.29	73.25	73.04	72.63	73.22	74.63	6.27	44.62	2.11
98.1	280	68.61	69.91	69.73	70.19	70.19	70.8	3.57	82.69	0.97
98	280	67.34	69.91	69.73	69.29	69.77	70.71	5.28	53	1.55
97.1	280	65.68	68.32	67.66	68.03	68.03	68.65	3.54	85.57	0.84
97	280	64.1	66.52	65.97	66.15	66.86	68.48	6.76	41.5	1.91
96	280	62.33	64.61	64.17	64.91	64.9	65.69	4	73.73	0.95
95.1	280	59.18	62.69	62.58	62.55	61.39	62.74	1.92	145.96	0.44
95.05	Culvert									
95	280	59.18	62.69	62.58	61.6	61.38	62.15	3.3	84.76	0.84
94.1	280	56.57	59.79	63.9	58.45	58.45	59.24	3.94	71.14	1.01
94	280	54.92	59.79	63.9	56.36	57.11	59.05	7.26	38.57	2.38
93.1	280	54.65	58.23	56.68	56.16	56.16	56.8	3.53	79.42	1.01
93	280	53.79	58.23	56.68	55.47	55.84	56.74	4.99	56.11	1.63
92.21	280	52.92	53.68	53.55	53.85	53.85	54.26	2.74	99.68	1.01
92.2	280	51.41	53.68	53.55	52.56	53.04	54.15	5.58	50.2	1.79
92.11	280	51.33	54.61	53.55	52.52	52.99	53.92	5.24	53.43	1.7
92.1	280	50.94	54.61	53.55	52.21	52.71	53.88	5.74	48.82	1.9
91.21	280	49.07	50.37	53.85	50.53	50.53	51.11	3.38	83.11	1
91.2	280	47.6	50.37	53.85	48.39	49.04	50.92	7.04	39.8	2.69
91.11	280	47.5	49.85	49.86	48.45	49	50.33	6.09	46.01	2.08
91.01	280	46.84	49.85	49.86	48.13	48.75	50.31	6.54	42.82	2.27
90	280	45	47.73	57.09	47.51	47.19	47.96	2.97	94.32	0.76
89.1	280	44.78	47.93	48.51	46.33	46.33	46.96	3.49	80.16	1.01
89	280	42.05	47.93	48.51	43.96	44.72	46.73	7.38	37.94	2.48
88	280	41.73	46.23	45.18	44.46	44.46	45.27	4	70.05	1.01
85.2	280	41.22	45.06	45	44.29	43.33	44.53	2.18	128.46	0.46
85.1	Bridge									
85	280	41.22	45.06	45	44.24	43.33	44.5	2.22	126.21	0.47
84.1	460	41.42	44.77	43.81	43.45	43.45	44.23	3.92	117.27	1
84	460	38.71	44.77	43.81	39.95	40.98	43.92	8.83	52.11	2.67
83	460	38.07	41.4	42.27	41.16	40.64	41.66	3.15	145.86	0.69
82	460	36.75	40.99	40.09	39.24	39.21	40.06	4.02	114.42	0.99
81.1	460	36.12	39.68	39.2	38.53	38.42	39.23	3.7	124.4	0.92
81	460	35.83	39.68	39.2	38.74	38.06	39.13	2.77	166.02	0.6
80.1	460	34.65	37.78	37.75	36.8	36.8	37.73	4.28	107.54	1
80	460	34	37.78	37.75	35.55	36.17	37.61	6.37	72.2	1.73
79.1	460	33.86	36.67	39.16	35.85	35.86	36.67	4.01	114.82	1.01
79	460	32.13	36.67	39.16	33.45	34.26	36.46	7.68	59.88	2.49
78	460	31.29	36.21	34.98	34.5	34.26	35.18	3.66	125.56	0.84
77	460	30.39	35.61	37.99	33.79	33.57	34.43	3.56	129.27	0.86
76	460	30.55	34.36	36.65	33.12	32.59	33.51	2.78	165.47	0.71
75.1	460	29.71	33.25	33.61	31.7	31.7	32.56	4.13	111.46	1.01
75	460	28.29	33.25	33.61	30.13	30.8	32.42	6.69	68.73	2.01
74	460	28.02	32.24	32.5	30.21	30.19	31.07	4.11	112.02	0.99
73	460	27.21	31.4	32.56	30.4	29.44	30.68	2.35	195.65	0.49



19	460	4.44	8.45	8.22	7.57	6.9	8.03	3.01	152.96	0.62
18	460	3.78	7.74	7.55	6.93	6.39	7.45	3.17	145.26	0.67
17	460	3.07	6.95	6.93	6.43	5.65	6.85	2.85	161.23	0.58
16	460	2.92	6.86	7.02	6.32	5.54	6.74	2.87	160.15	0.58
15	460	2.76	7.02	6.86	6.18	5.46	6.62	2.95	155.94	0.6
14	460	2.46	6.53	6.65	6.09	5.12	6.45	2.65	173.28	0.52
13.7	460	2.8	6.63	6.75	5.8	4.74	6.14	2.58	178.03	0.5
13.5	460	2.08	5.77	6	5.49	4.04	5.75	2.26	203.12	0.41
13	460	1.18	5.25	5.39	5.12	3.89	5.41	2.4	191.42	0.45
12	460	1.05	4.99	4.99	5.16	2.94	5.34	1.89	244.63	0.3
11	Bridge									
10	460	1.05	4.99	4.99	4.79	2.94	5.01	2.09	220.46	0.35
9	460	1.09	4	4.12	4.53	3.35	4.85	2.51	183.3	0.47
8	460	0.73	3.89	4.18	4.56	2.69	4.77	2.07	222.17	0.35
7	460	0.35	3.9	4.19	4.53	2.72	4.75	2.04	225.98	0.35
6	460	0.1	6.1	6.23	4.26	2.44	4.51	2.22	206.78	0.37
5	Bridge									
4.5	460	0.1	6.1	6.23	4.07	2.44	4.35	2.34	196.31	0.4
4	460	0.04	1.46	2.19	3.97	2.56	4.34	2.72	169.34	0.46
3	460	-0.01	1.41	2.14	3.95	2.51	4.32	2.69	171.02	0.46
2	460	-0.03	1.4	2.14	3.94	2.48	4.31	2.69	170.8	0.45
1	460	-0.36	1.19	2.11	2.64	2.64	3.94	5.05	91.02	1

**Torrente Merula dalla foce alla loc. Case Castellana**  
**T=500 anni**

Sezioni	Portata totale (m3/s)	Fondo alveo (m)	Argine sinistro (m)	Argine destro (m)	Pelo libero (m)	Profondità critica (m)	Energia (m2)	Velocità (m/s)	Area bagnata (m2)	N° Froude
101.1	340	77.07	79.99	79.5	79.29	79.29	80.18	4.18	81.36	1
101	340	76.03	77.87	77.78	77.6	78.31	80.03	6.9	49.28	2.06
100	340	71.98	73.71	73.11	74.78	74.78	75.66	4.34	86.4	0.91
99.1	340	72.22	74.64	74.02	73.34	73.82	75.01	5.73	59.38	1.96
99	340	71.29	73.25	73.04	72.76	73.39	74.95	6.56	51.86	2.15
98.1	340	68.61	69.91	69.73	70.39	70.39	71.05	3.73	97.34	0.95
98	340	67.34	69.91	69.73	69.52	69.95	70.97	5.33	63.81	1.47
97.1	340	65.68	68.32	67.66	68.23	68.23	68.89	3.71	102.1	0.84
97	340	64.1	66.52	65.97	66.43	67.13	68.73	6.73	50.88	1.74
96	340	62.33	64.61	64.17	65.19	65.19	66	4.12	88.56	0.91
95.1	340	59.18	62.69	62.58	62.77	61.62	62.99	2.08	165.52	0.46
95.05	Culvert									
95	340	59.18	62.69	62.58	61.84	61.62	62.45	3.46	98.39	0.85
94.1	340	56.57	59.79	63.9	58.67	58.67	59.56	4.17	81.47	1
94	340	54.92	59.79	63.9	56.54	57.34	59.37	7.45	45.61	2.25
93.1	340	54.65	58.23	56.68	56.34	56.34	57.05	3.74	90.95	1.01
93	340	53.79	58.23	56.68	55.63	56.02	56.99	5.15	66.01	1.57
92.21	340	52.92	53.68	53.55	53.97	53.97	54.42	2.91	114.79	0.99
92.2	340	51.41	53.68	53.55	52.79	53.24	54.32	5.47	62.17	1.6
92.11	340	51.33	54.61	53.55	52.7	53.2	54.15	5.34	63.69	1.61
92.1	340	50.94	54.61	53.55	52.38	52.97	54.12	5.84	58.19	1.8
91.21	340	49.07	50.37	53.85	50.7	50.7	51.35	3.57	96.3	0.99
91.2	340	47.6	50.37	53.85	48.53	49.23	51.15	7.18	47.36	2.54
91.11	340	47.5	49.85	49.86	48.59	49.2	50.63	6.32	53.79	2.02
91.01	340	46.84	49.85	49.86	48.28	48.96	50.6	6.75	50.39	2.18
90	340	45	47.73	57.09	47.7	47.42	48.22	3.21	106.06	0.78
89.1	340	44.78	47.93	48.51	46.52	46.52	47.21	3.69	92.15	1.01
89	340	42.05	47.93	48.51	44.13	44.93	46.99	7.5	45.36	2.4
88	340	41.73	46.23	45.18	44.74	44.74	45.59	4.1	82.99	1.01
85.2	340	41.22	45.06	45	44.55	43.52	44.83	2.38	143.06	0.47
85.1	Bridge									
85	340	41.22	45.06	45	44.5	43.52	44.8	2.42	140.41	0.49
84.1	550	41.42	44.77	43.81	43.65	43.65	44.53	4.16	132.35	1
84	550	38.71	44.77	43.81	40.14	41.25	44.21	8.94	61.55	2.51
83	550	38.07	41.4	42.27	41.42	40.87	41.99	3.35	164.02	0.7
82	550	36.75	40.99	40.09	39.44	39.44	40.38	4.27	128.72	1.01
81.1	550	36.12	39.68	39.2	38.83	38.62	39.54	3.75	146.77	0.86
81	550	35.83	39.68	39.2	39.02	38.27	39.46	2.94	187.03	0.6
80.1	550	34.65	37.78	37.75	37.03	37.03	38.08	4.54	121.17	1
80	550	34	37.78	37.75	35.76	36.41	37.97	6.58	83.62	1.69
79.1	550	33.86	36.67	39.16	36.06	36.06	36.98	4.25	129.44	1.01
79	550	32.13	36.67	39.16	33.62	34.48	36.75	7.84	70.11	2.37
78	550	31.29	36.21	34.98	34.72	34.5	35.51	3.93	139.95	0.86
77	550	30.39	35.61	37.99	33.97	33.83	34.72	3.83	143.65	0.91
76	550	30.55	34.36	36.65	33.37	32.76	33.78	2.84	193.81	0.69
75.1	550	29.71	33.25	33.61	31.92	31.92	32.89	4.37	125.87	1.01
75	550	28.29	33.25	33.61	30.31	31.03	32.74	6.91	79.64	1.93
74	550	28.02	32.24	32.5	30.46	30.42	31.4	4.29	128.07	0.97
73	550	27.21	31.4	32.56	30.68	29.63	31	2.51	219.34	0.5



19	550	4.44	8.45	8.22	7.86	7.12	8.39	3.2	172.05	0.63
18	550	3.78	7.74	7.55	7.32	6.61	7.85	3.24	169.8	0.64
17	550	3.07	6.95	6.93	6.93	5.88	7.34	2.84	193.97	0.53
16	550	2.92	6.86	7.02	6.85	5.76	7.26	2.83	194.37	0.52
15	550	2.76	7.02	6.86	6.76	5.68	7.17	2.84	193.6	0.52
14	550	2.46	6.53	6.65	6.71	5.34	7.05	2.58	213.21	0.45
13.7	550	2.8	6.63	6.75	6.52	4.97	6.83	2.45	224.66	0.42
13.5	550	2.08	5.77	6	6.32	4.27	6.55	2.14	258.95	0.34
13	550	1.18	5.25	5.39	6.12	4.12	6.35	2.14	257.35	0.34
12	550	1.05	4.99	4.99	6.14	3.17	6.31	1.79	312.74	0.26
11	Bridge									
10	550	1.05	4.99	4.99	5.84	3.17	6.02	1.92	291.58	0.28
9	550	1.09	4	4.12	5.71	3.58	5.94	2.13	258.14	0.34
8	550	0.73	3.89	4.18	5.72	2.93	5.9	1.87	294.8	0.27
7	550	0.35	3.9	4.19	5.71	2.94	5.88	1.82	301.72	0.27
6	550	0.1	6.1	6.23	5.55	2.68	5.75	1.97	279.02	0.28
5	Bridge									
4.5	550	0.1	6.1	6.23	4.54	2.68	4.85	2.47	222.51	0.4
4	550	0.04	1.46	2.19	4.42	2.83	4.84	2.87	191.34	0.46
3	550	-0.01	1.41	2.14	4.41	2.78	4.82	2.85	193.05	0.46
2	550	-0.03	1.4	2.14	4.39	2.74	4.81	2.86	192.45	0.45
1	550	-0.36	1.19	2.11	2.97	2.97	4.44	5.36	102.64	1

# **PROFILI DI RIGURGITO**

PER LE PORTATE

**T=50, 200, 500 ANNI**

## **TORRENTE MERULA**

Da loc. Casa Castellana a Stellanello

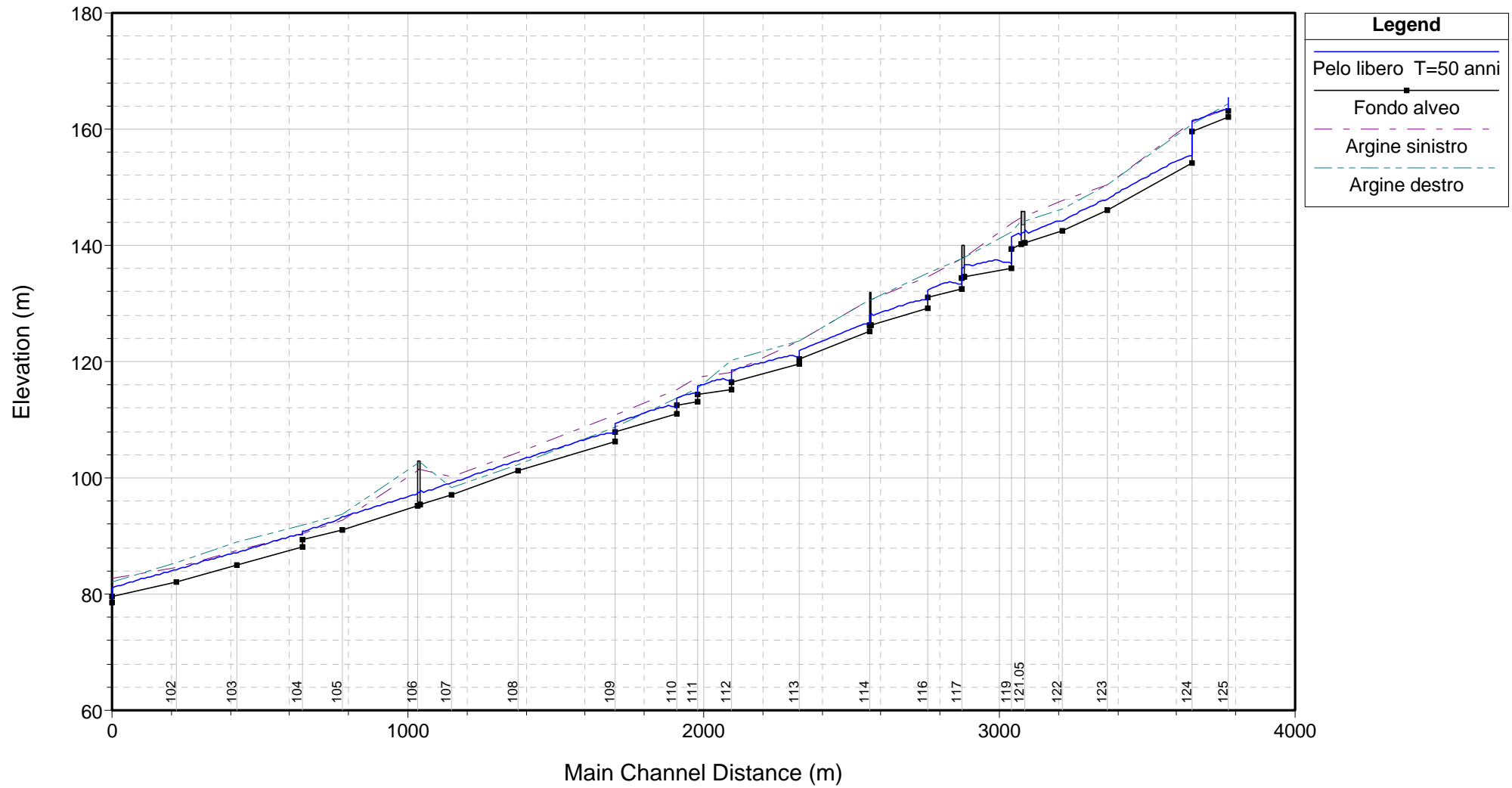
**Dalla sez. 101 alla sez. 125.1**





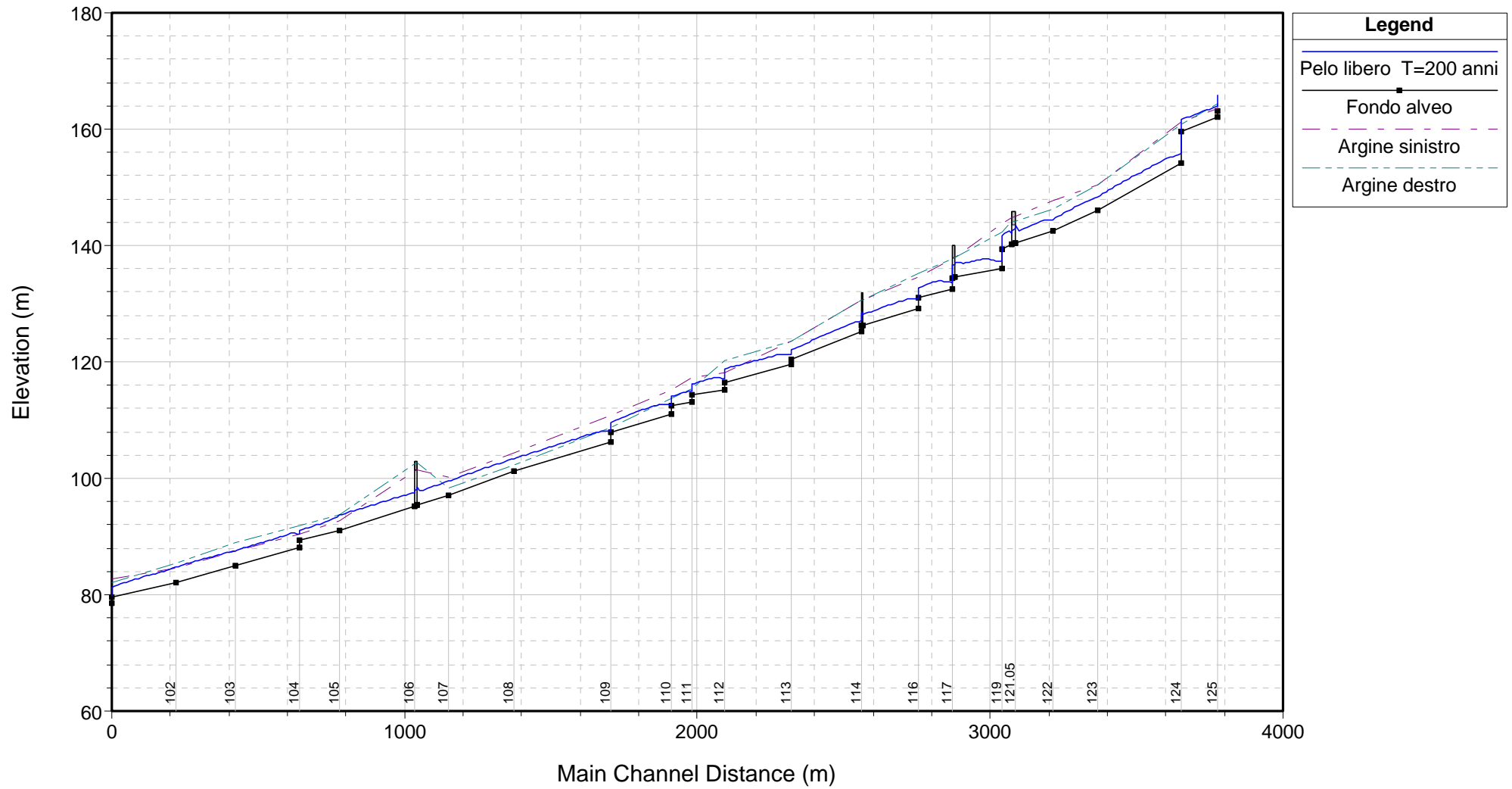
# Torrente Merula da loc. Case Castellana a Stellanello

Profilo idraulico – dalla sez 101 alla sez 125.1



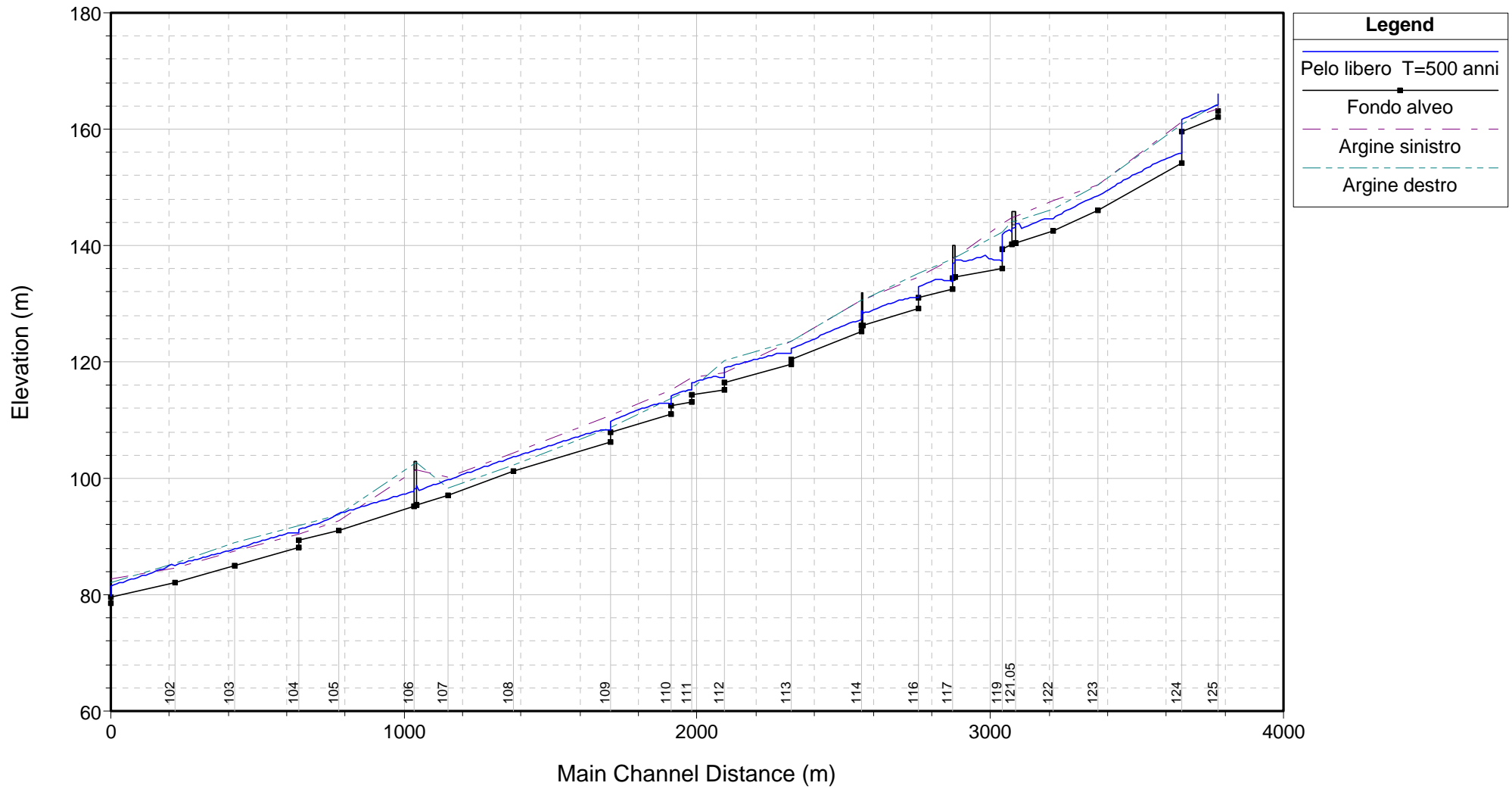
# Torrente Merula da loc. Case Castellana a Stellanello

Profilo idraulico – dalla sez 101 alla sez 125.1



# Torrente Merula da loc. Case Castellana a Stellanello

Profilo idraulico – dalla sez 101 alla sez 125.1



# **SEZIONI IDRAULICHE**

PER LE PORTATE

**T=50, 200, 500 ANNI**

## **TORRENTE MERULA**

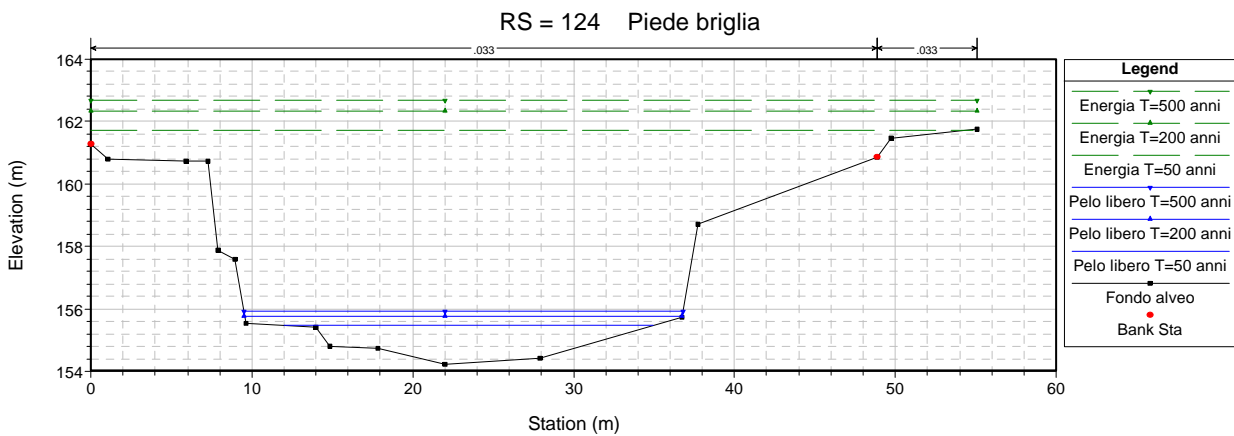
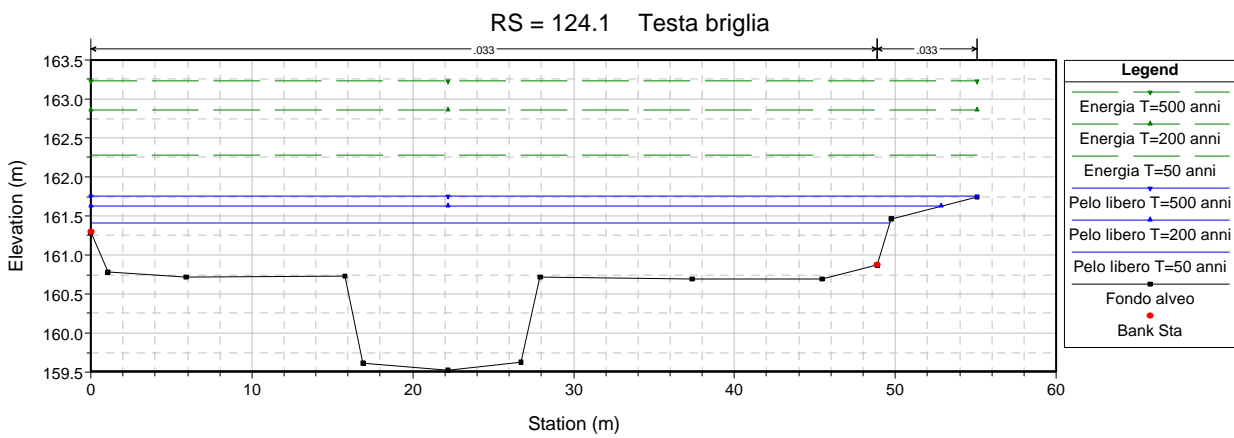
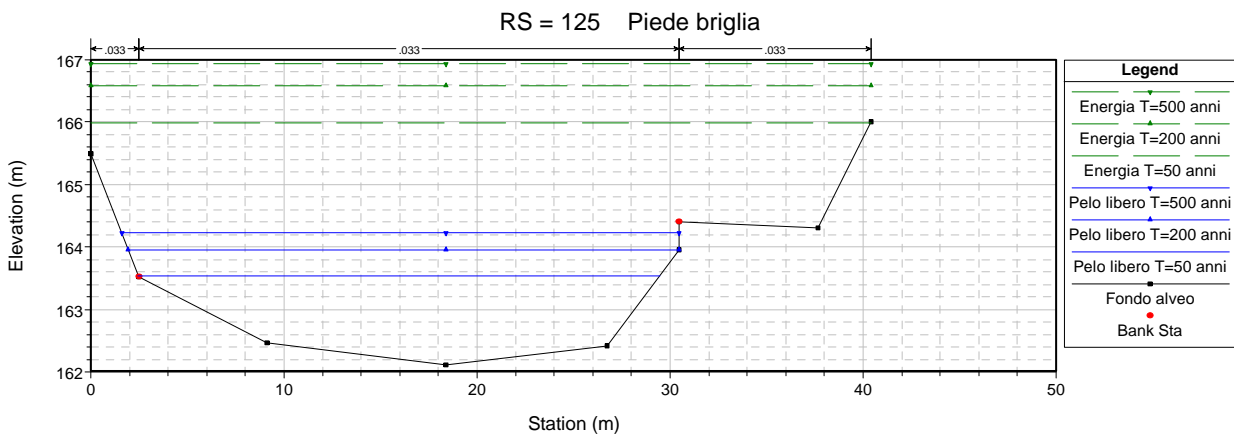
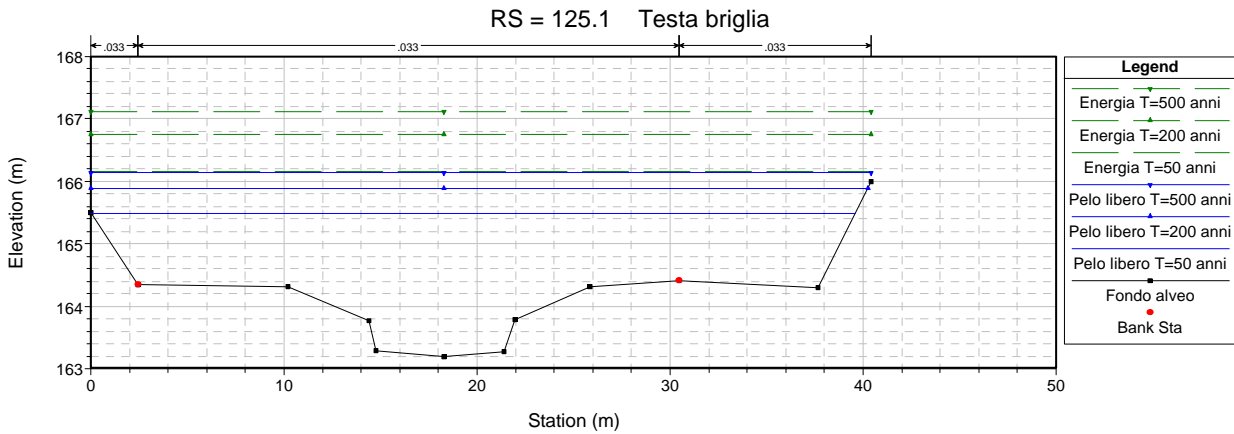
Da loc. Casa Castellana a Stellanello

**Dalla sez. 101 alla sez. 125.1**



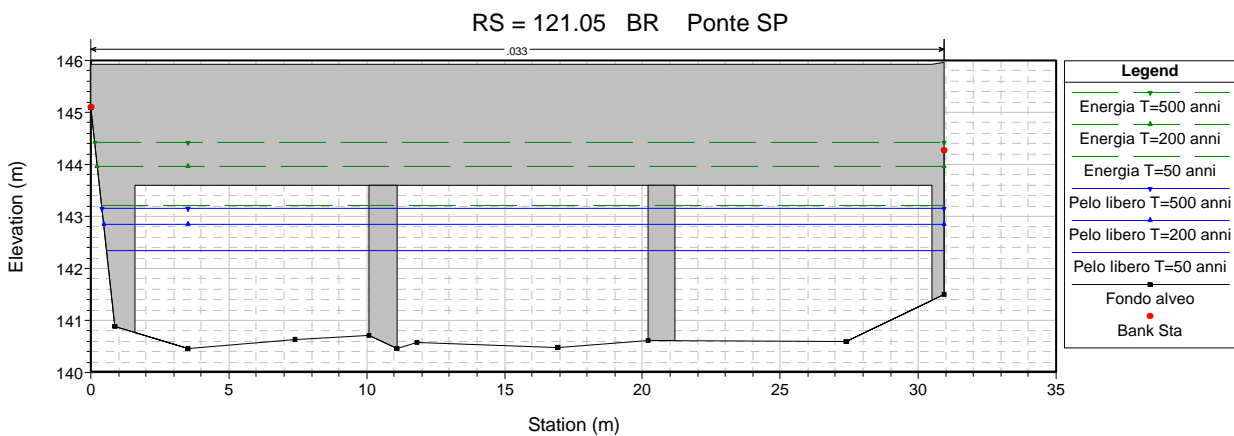
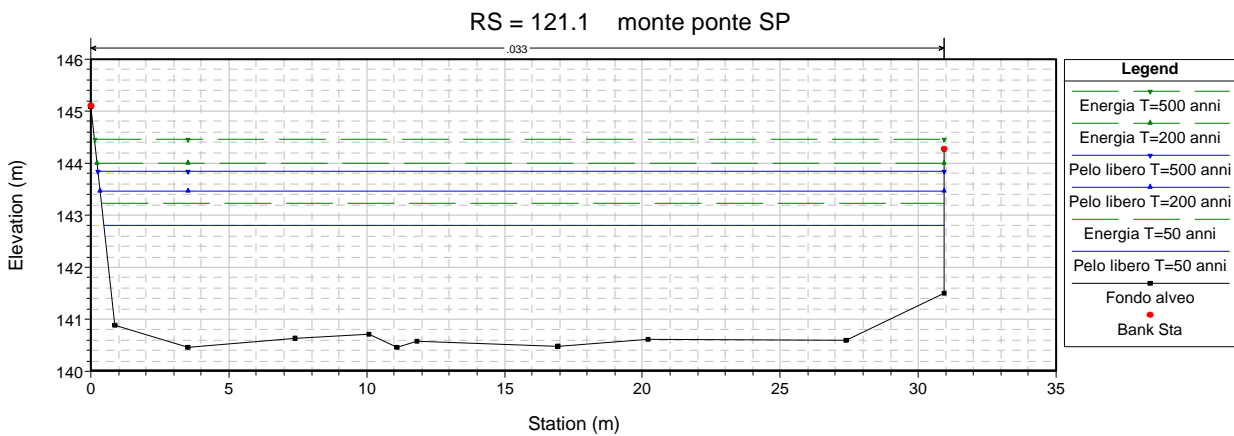
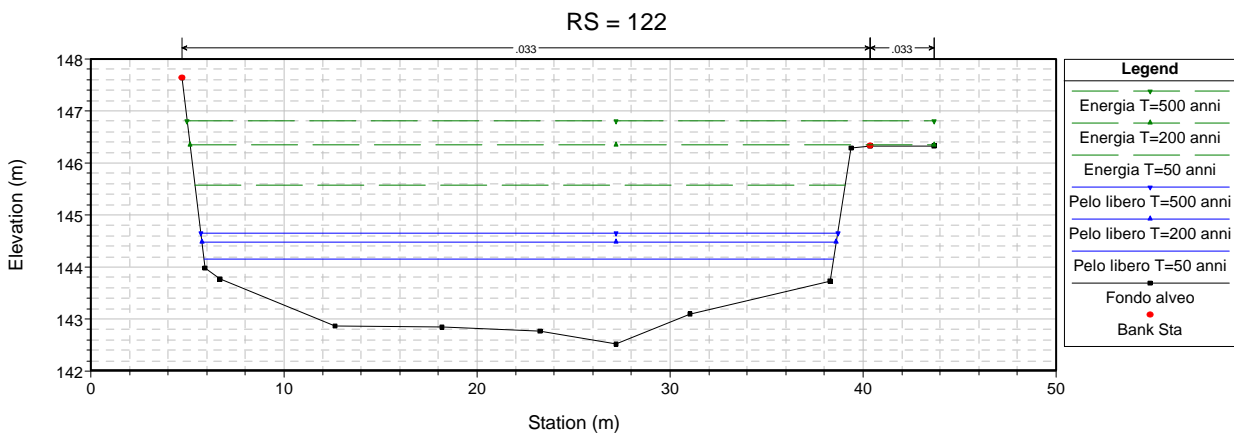
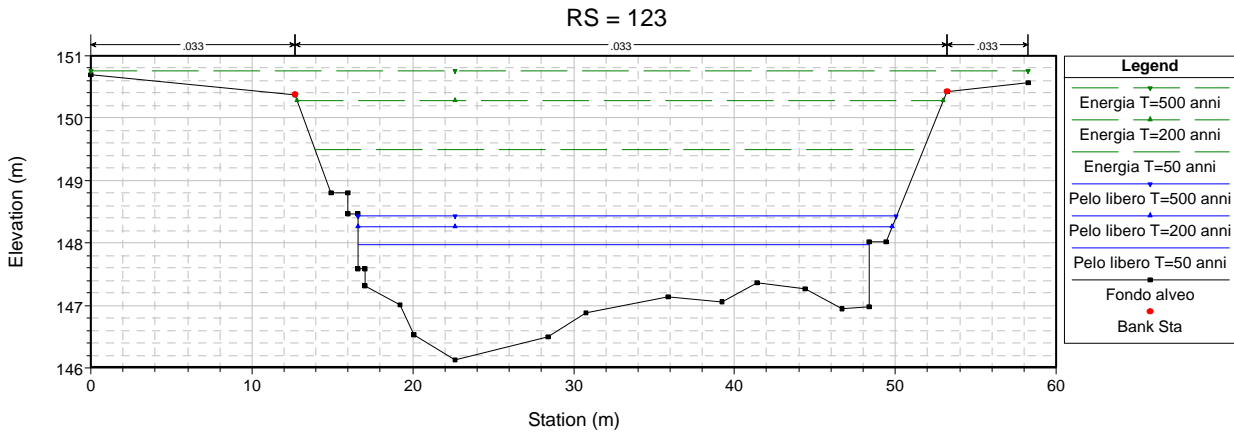
# Torrente Merula da loc. Case Castellana a Stellanello

## Sezioni trasversali – dalla sez 101 alla sez 125.1



# Torrente Merula da loc. Case Castellana a Stellanello

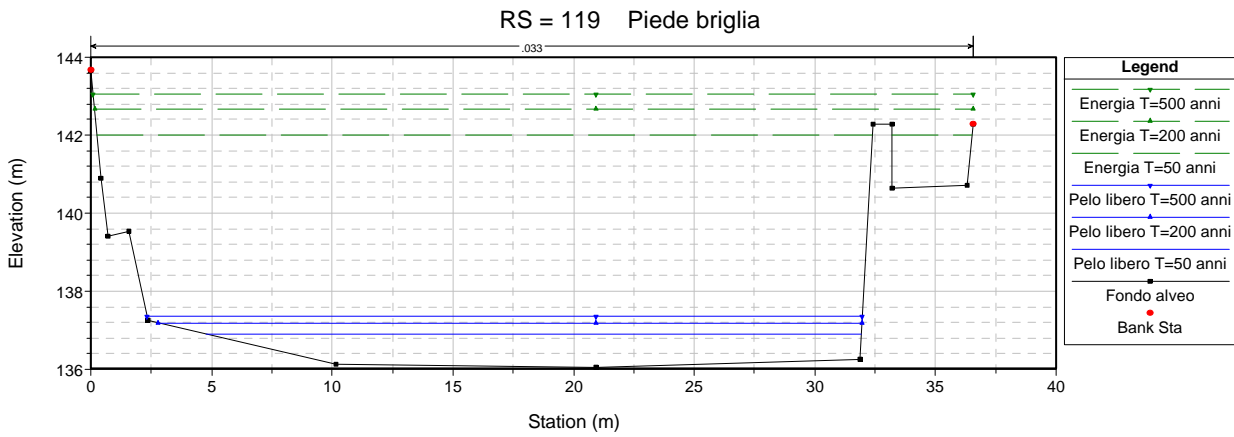
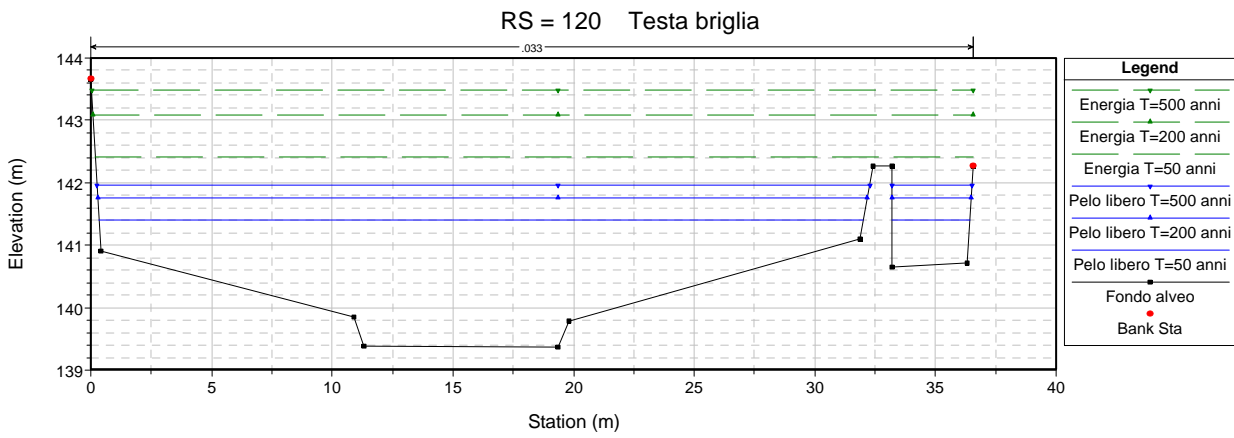
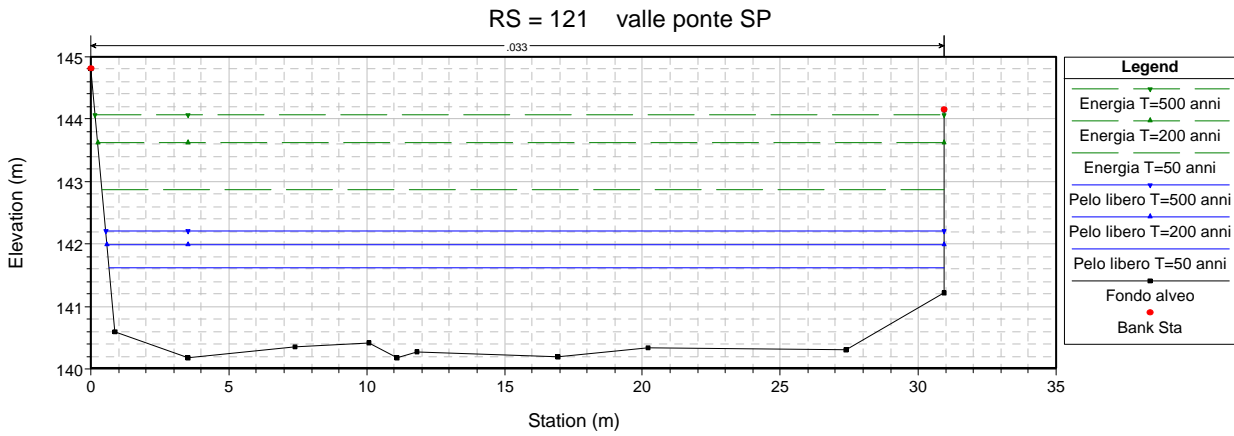
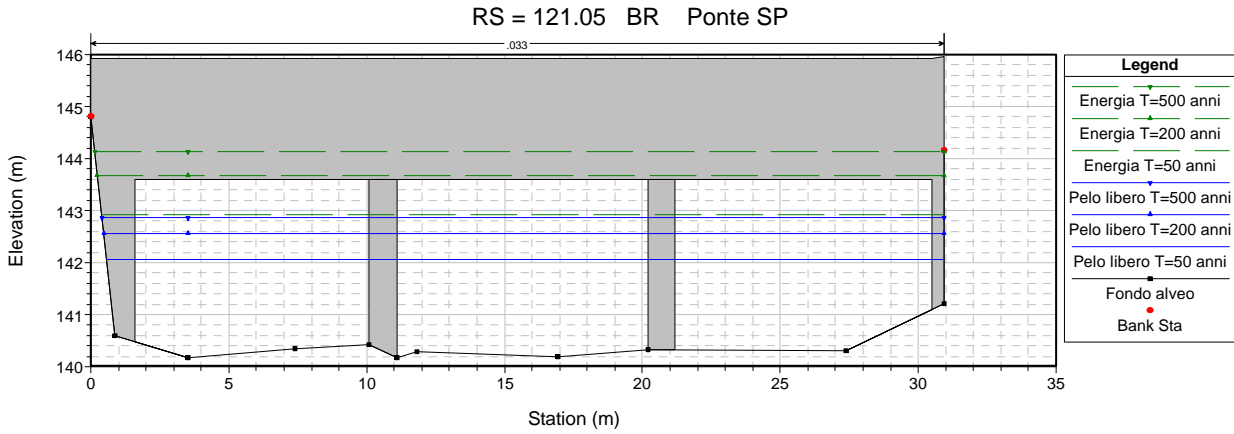
## Sezioni trasversali – dalla sez 101 alla sez 125.1





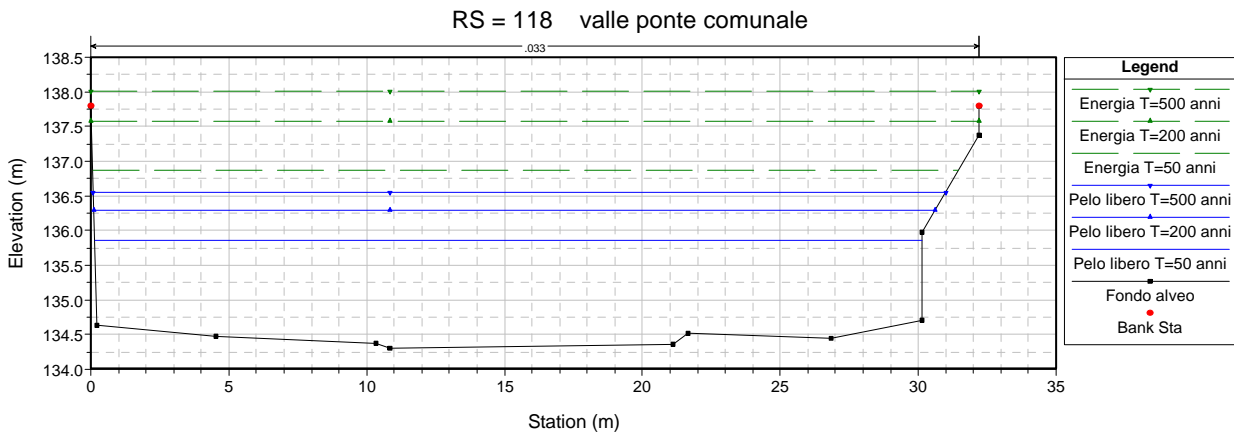
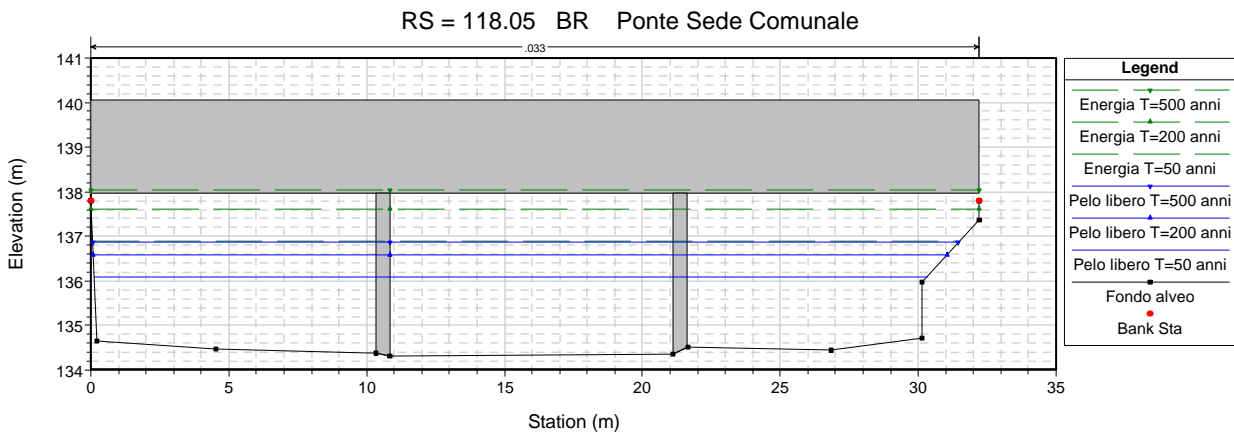
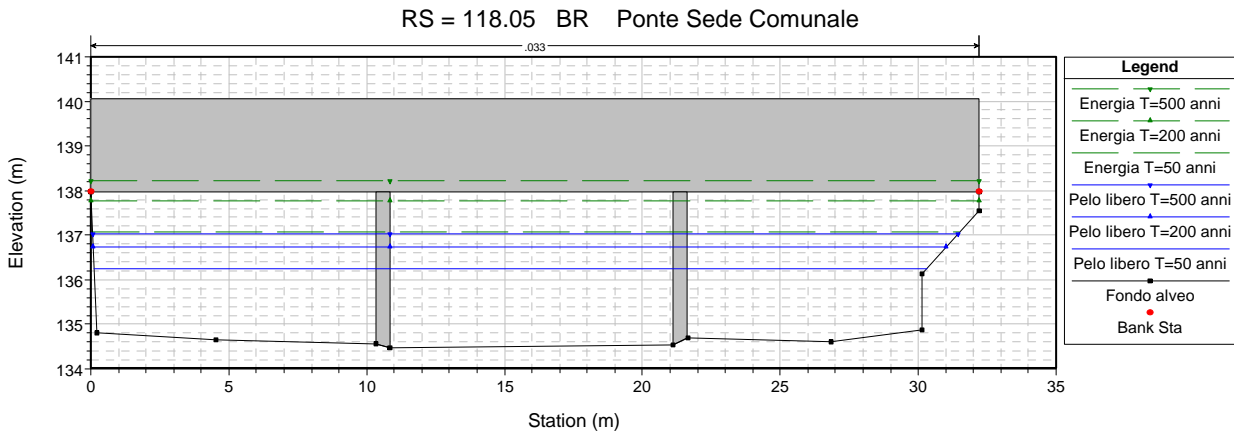
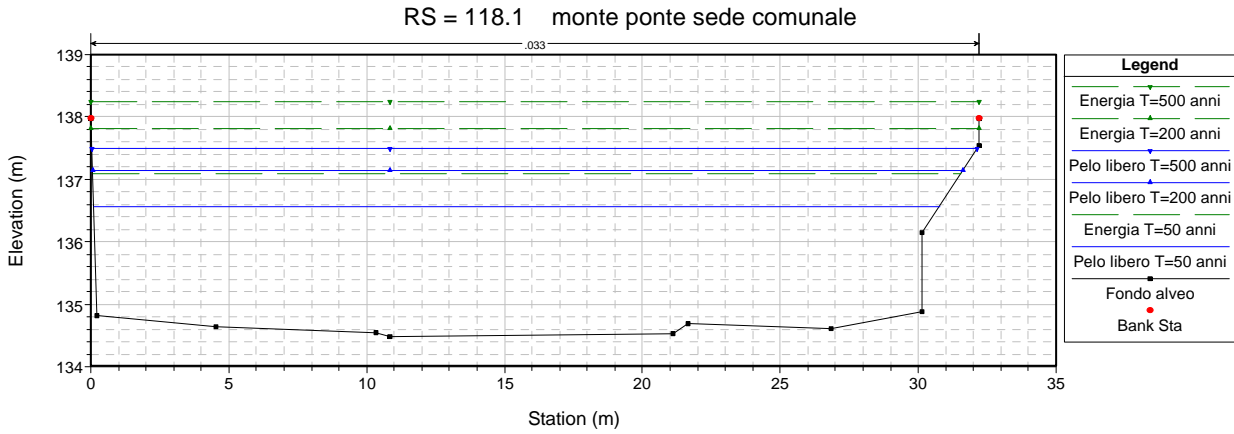
# Torrente Merula da loc. Case Castellana a Stellanello

## Sezioni trasversali – dalla sez 101 alla sez 125.1



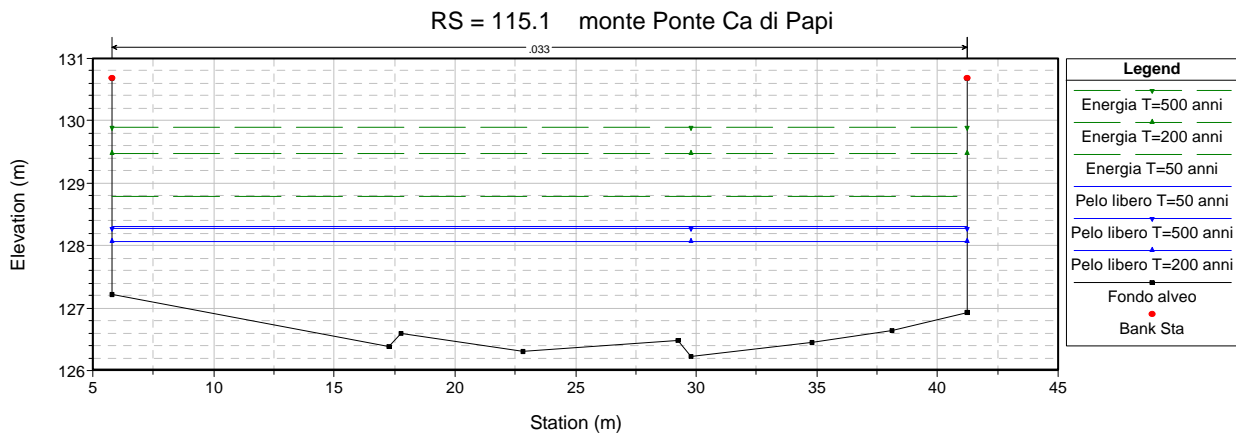
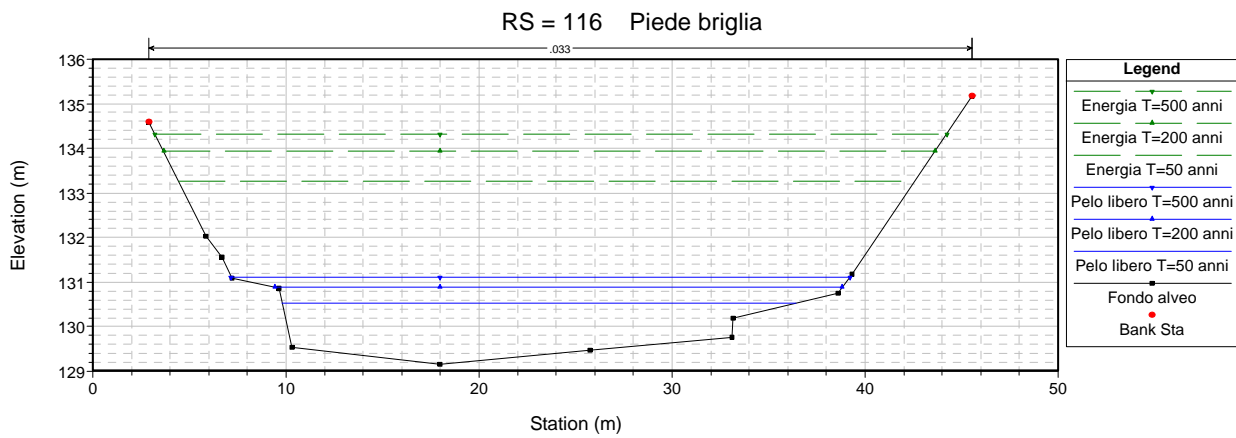
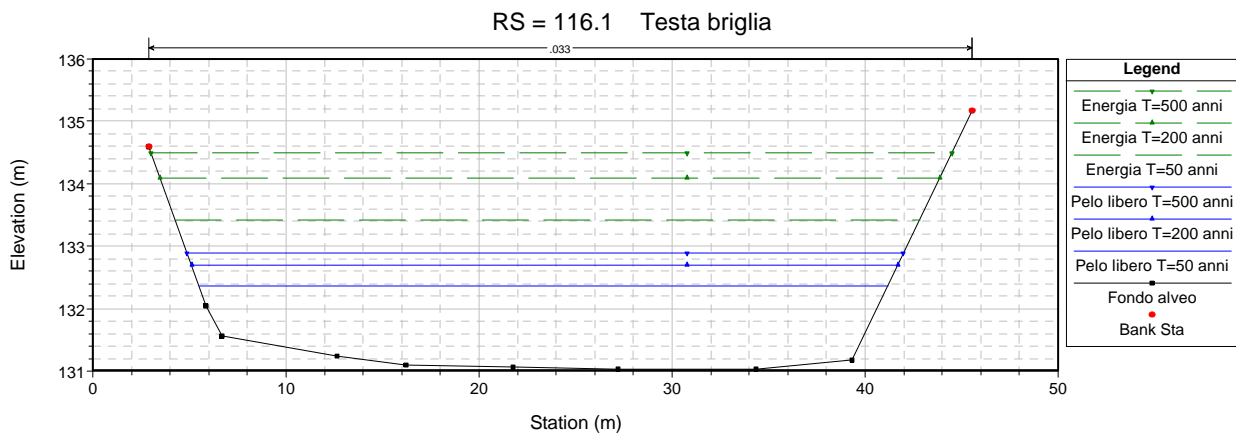
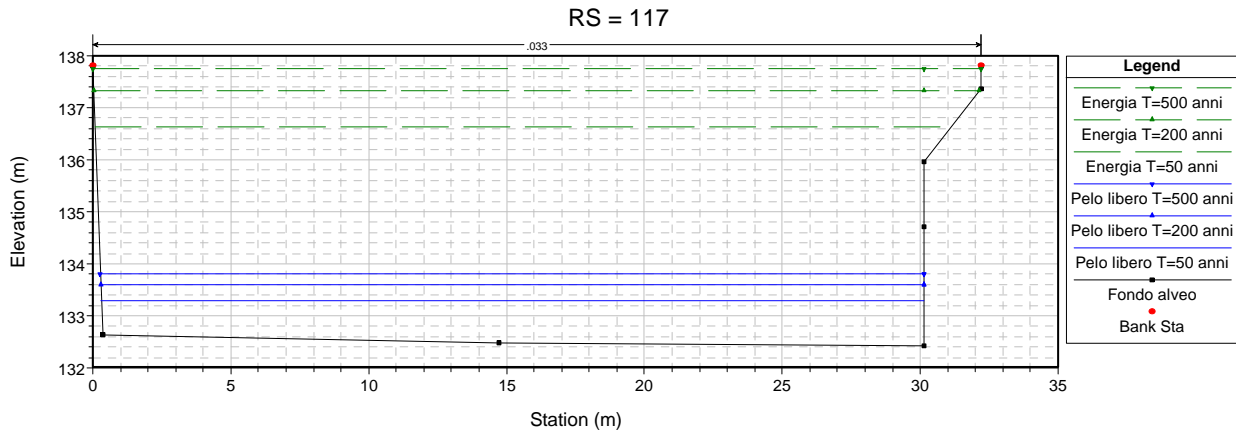
# Torrente Merula da loc. Case Castellana a Stellanello

## Sezioni trasversali – dalla sez 101 alla sez 125.1



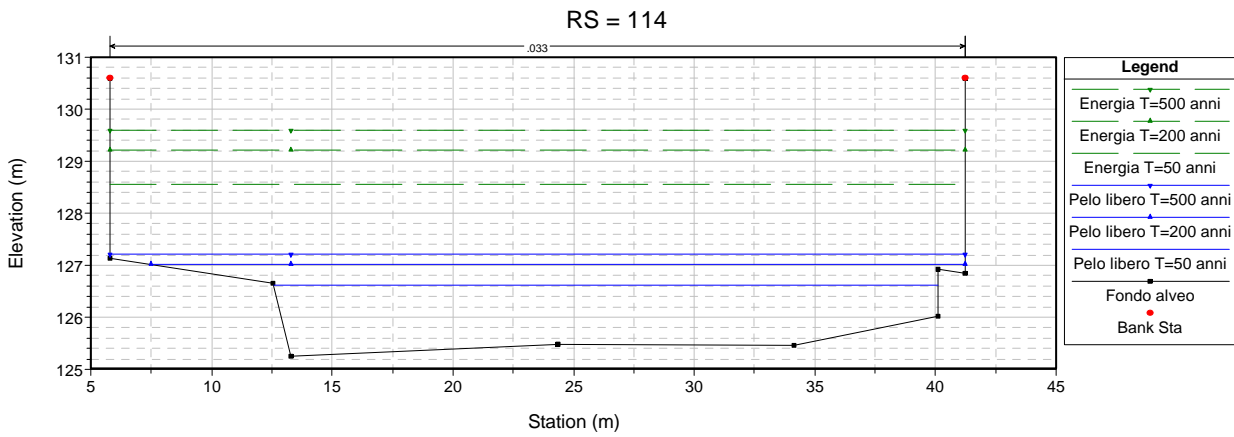
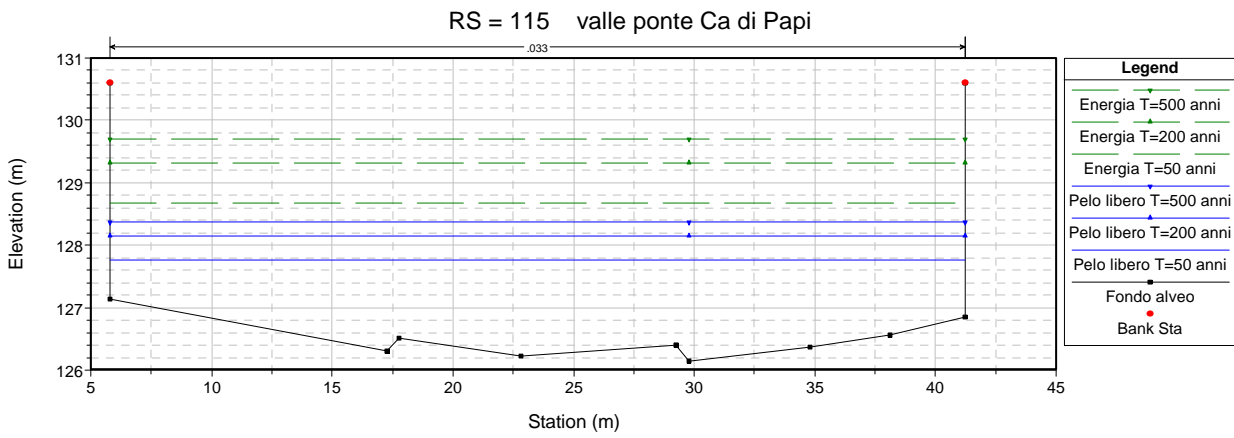
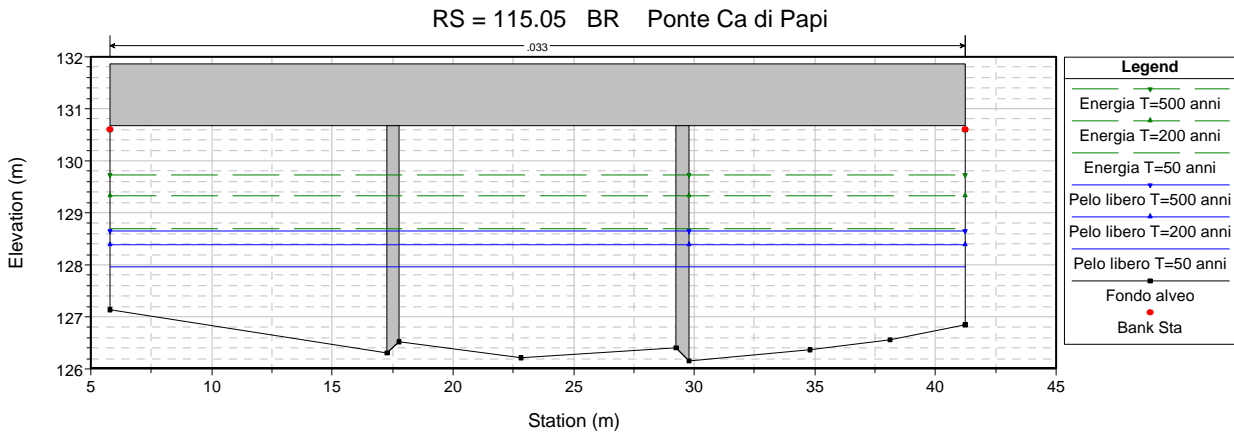
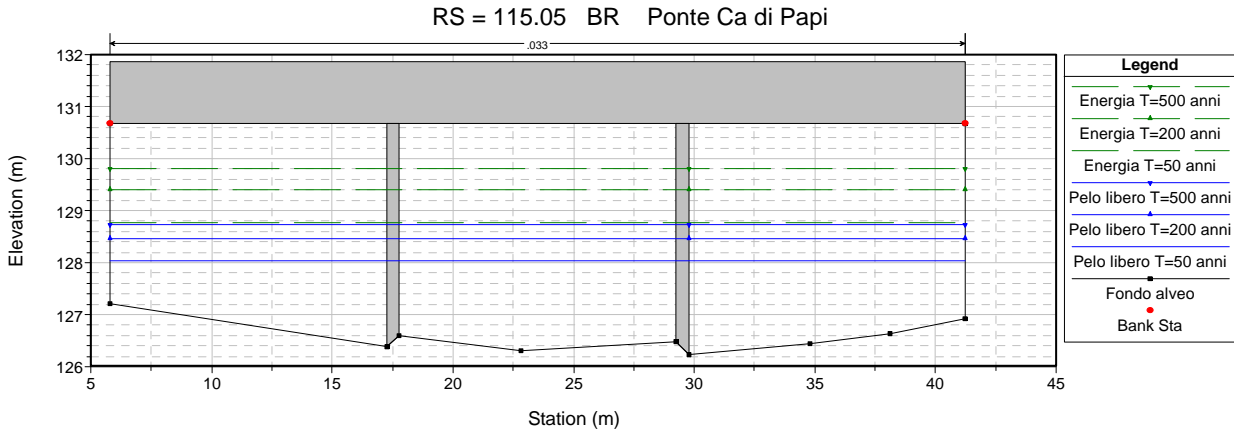
# Torrente Merula da loc. Case Castellana a Stellanello

## Sezioni trasversali – dalla sez 101 alla sez 125.1



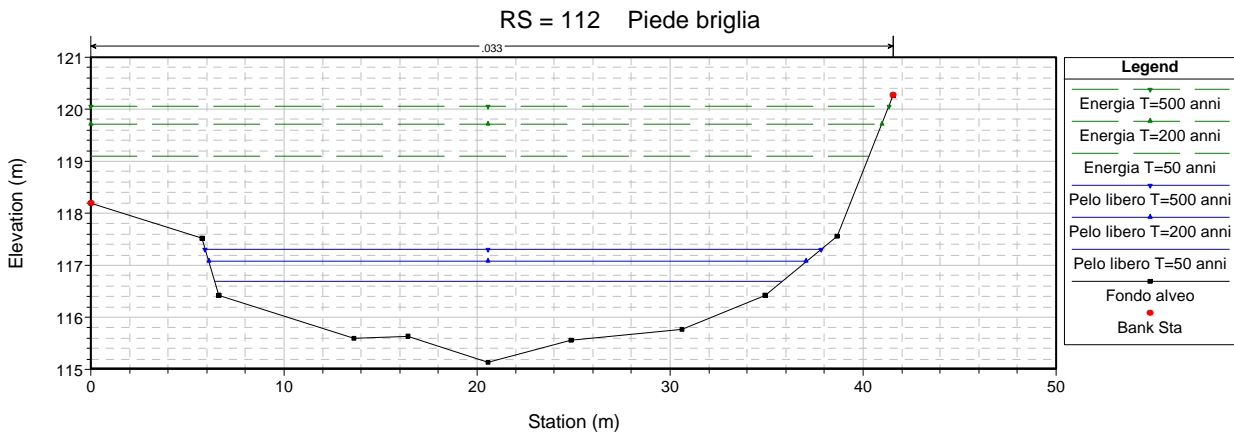
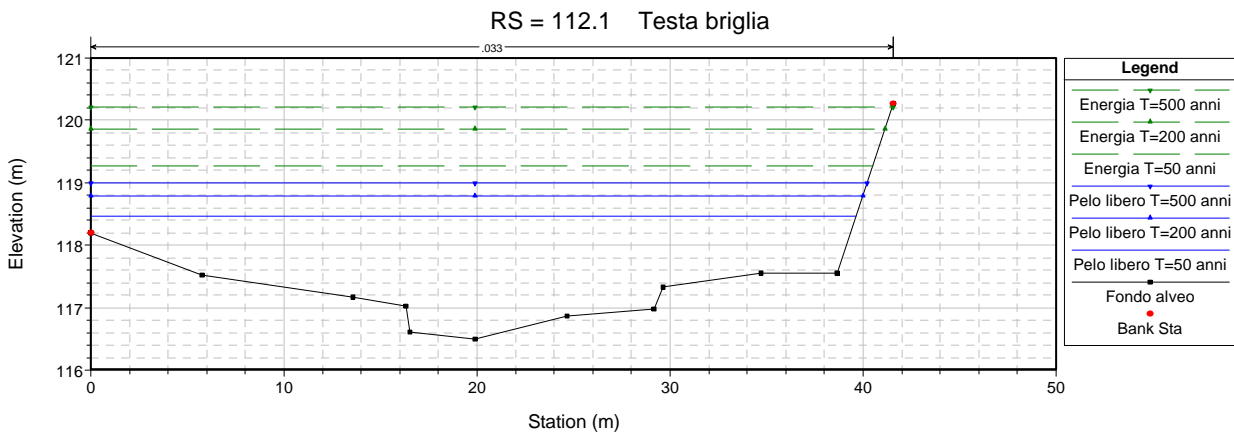
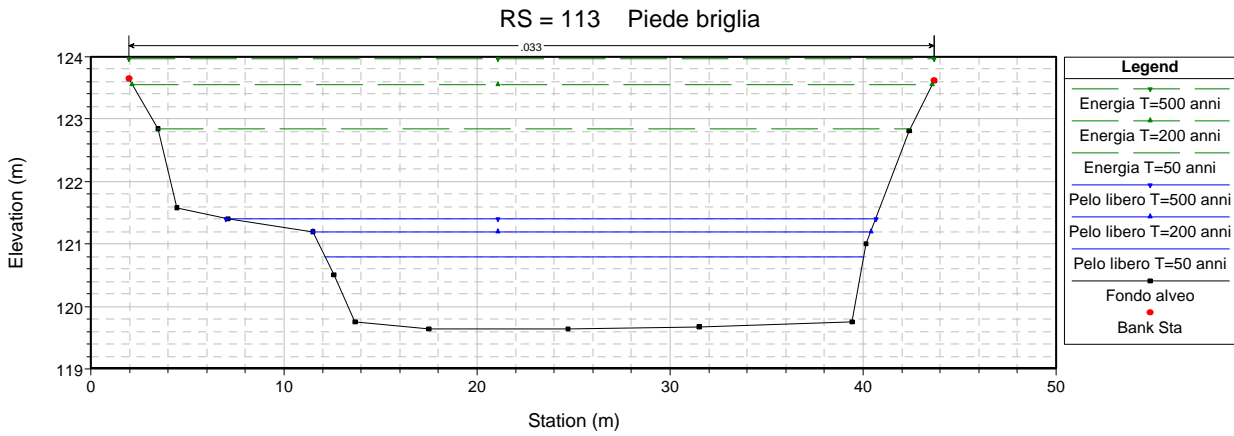
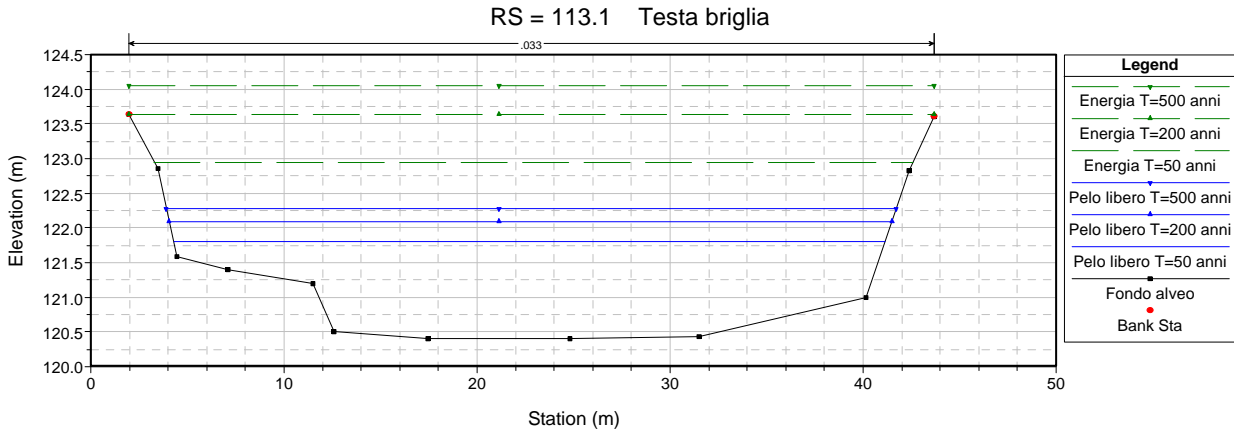
# Torrente Merula da loc. Case Castellana a Stellanello

## Sezioni trasversali – dalla sez 101 alla sez 125.1



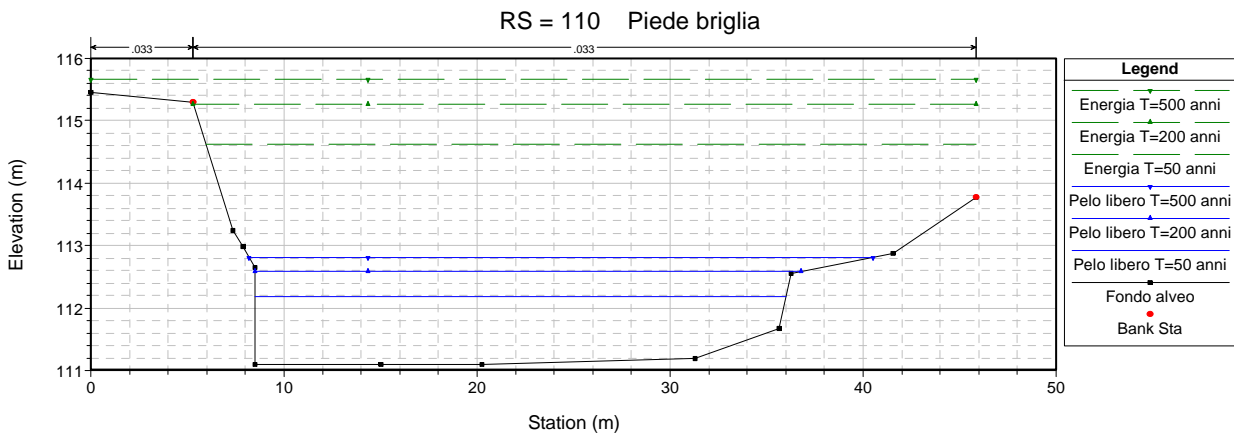
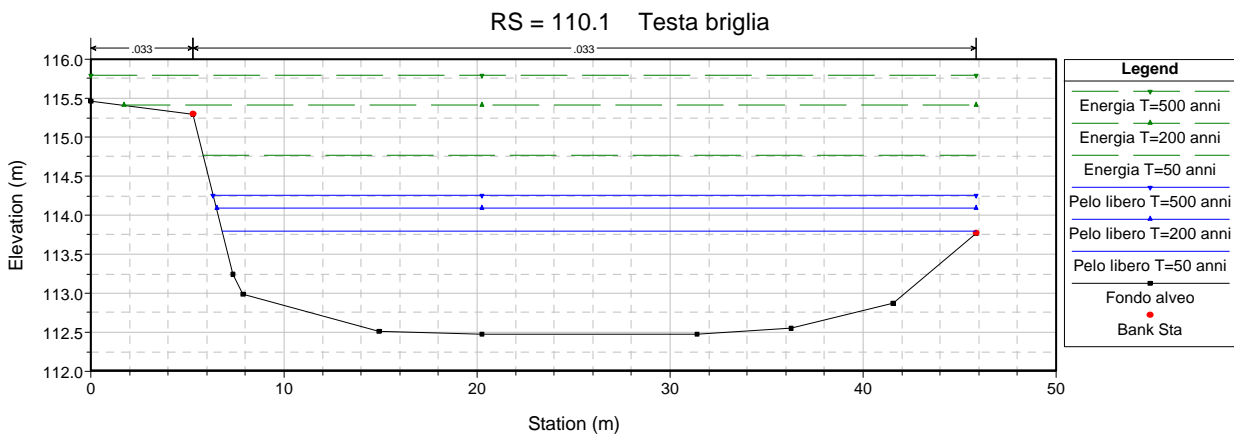
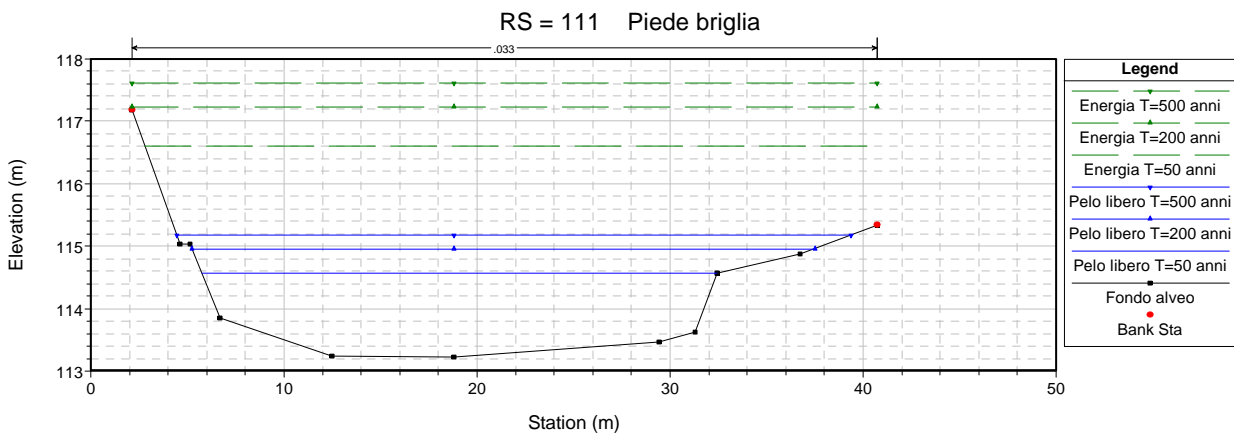
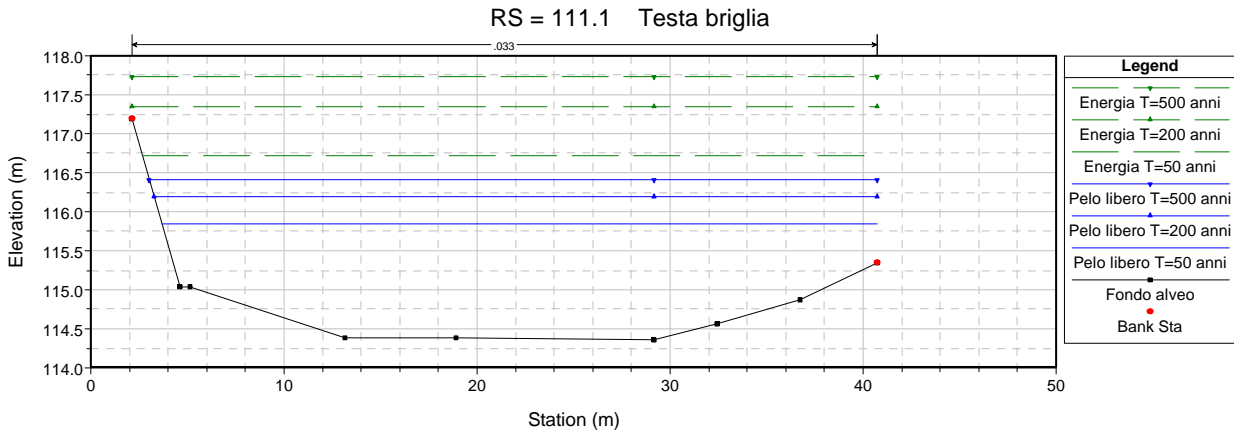
# Torrente Merula da loc. Case Castellana a Stellanello

## Sezioni trasversali – dalla sez 101 alla sez 125.1



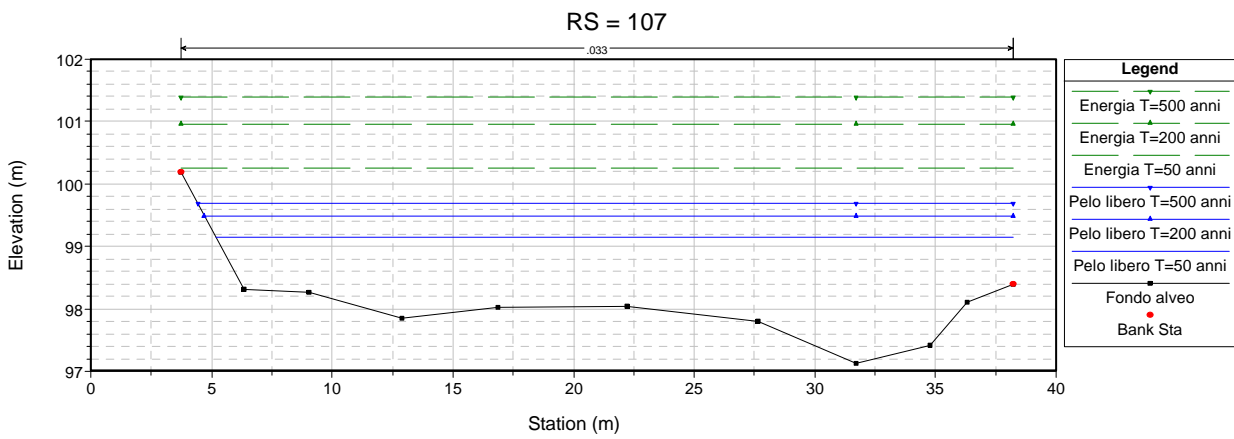
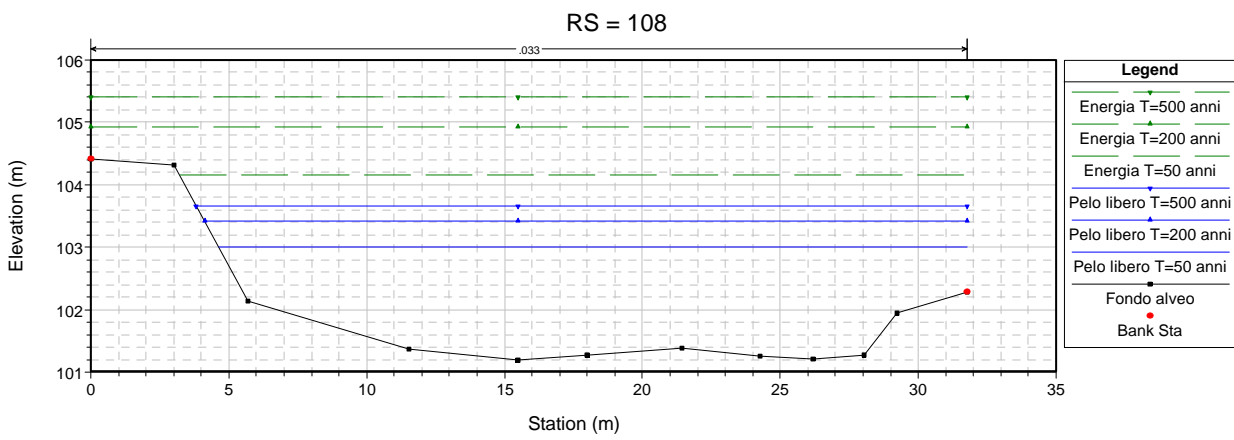
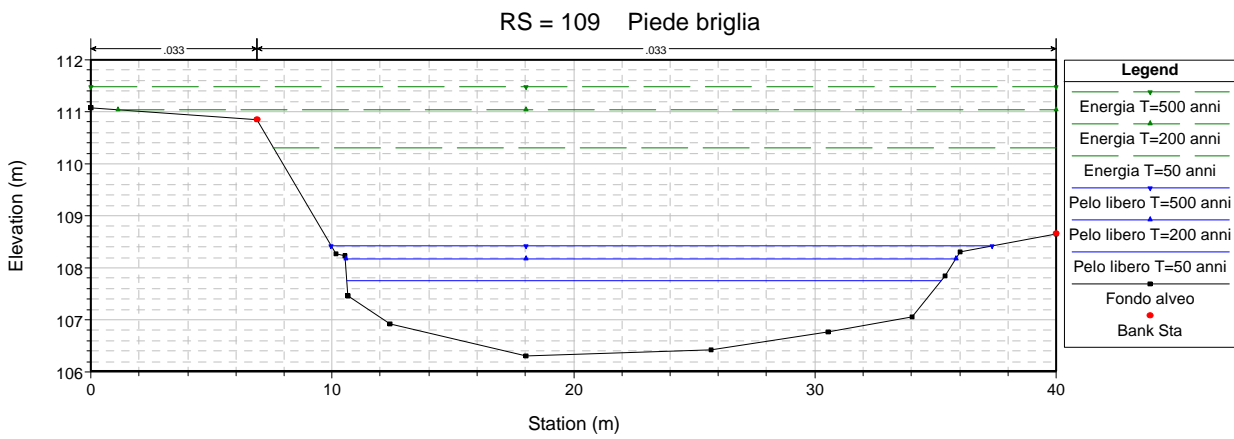
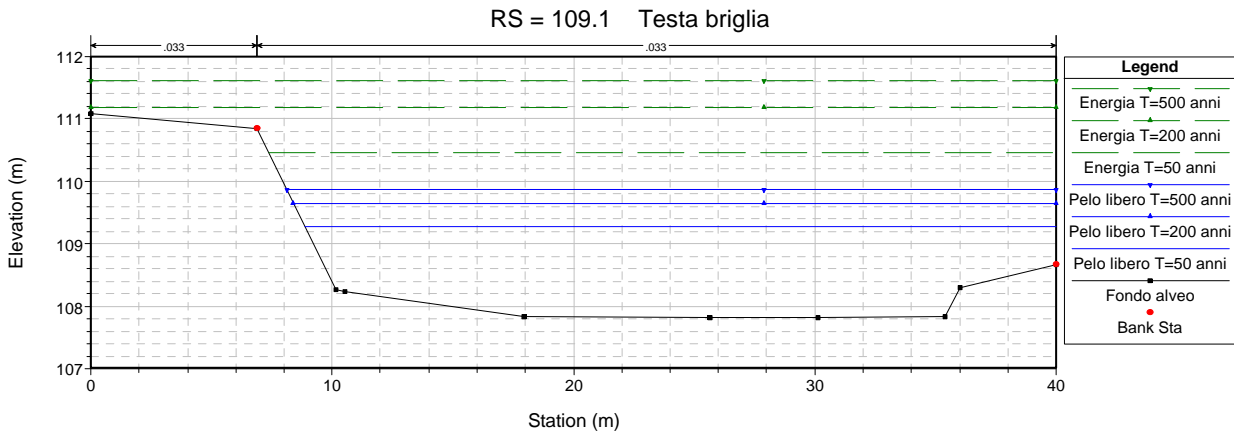
# Torrente Merula da loc. Case Castellana a Stellanello

## Sezioni trasversali – dalla sez 101 alla sez 125.1



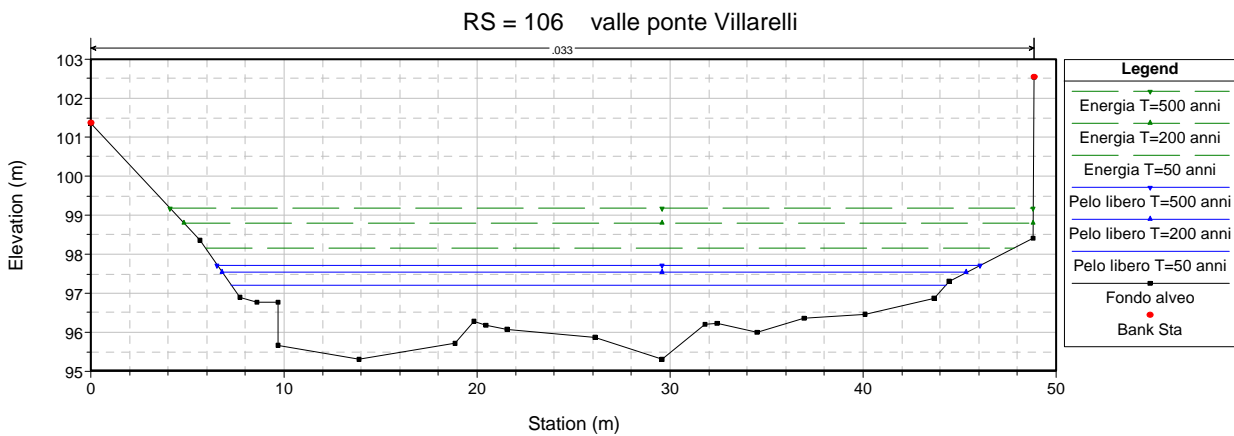
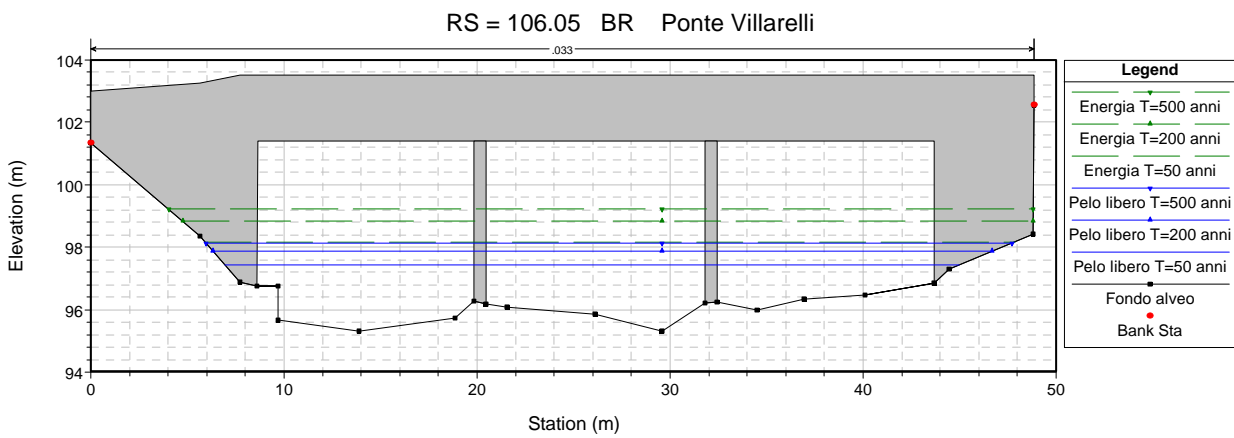
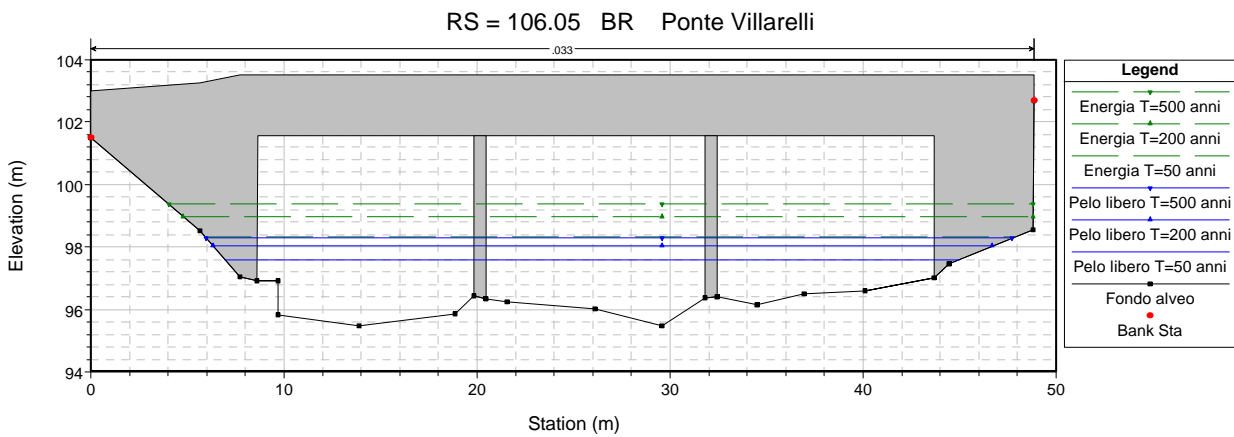
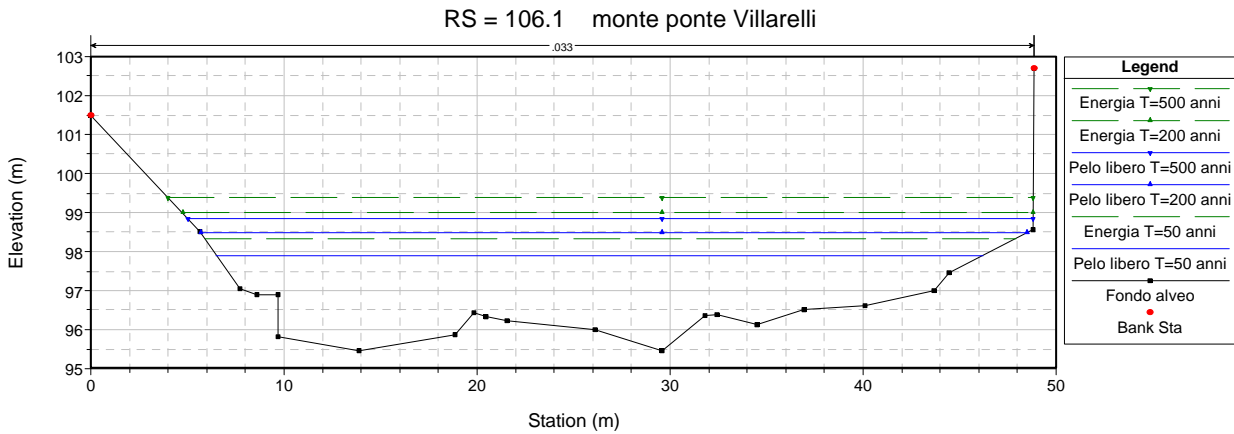
# Torrente Merula da loc. Case Castellana a Stellanello

## Sezioni trasversali – dalla sez 101 alla sez 125.1



# Torrente Merula da loc. Case Castellana a Stellanello

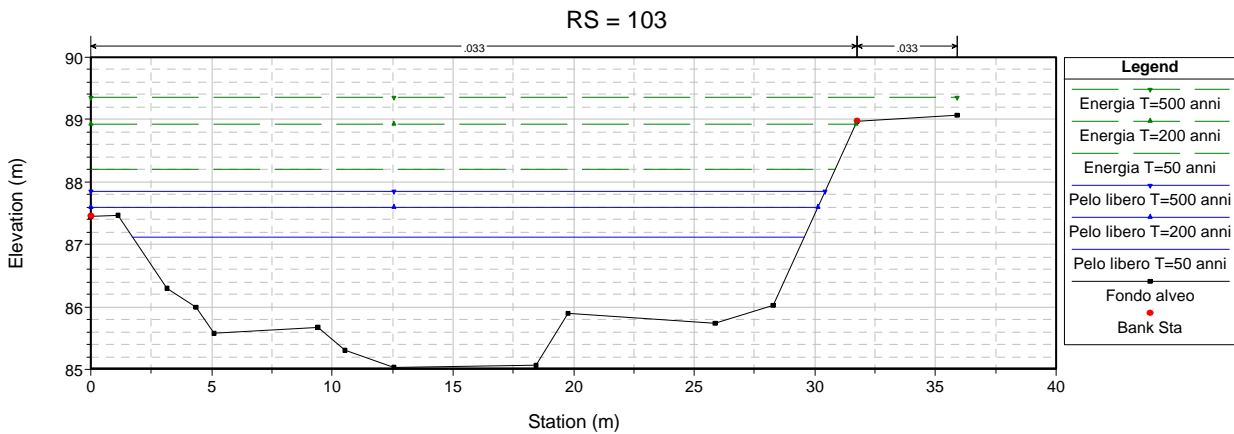
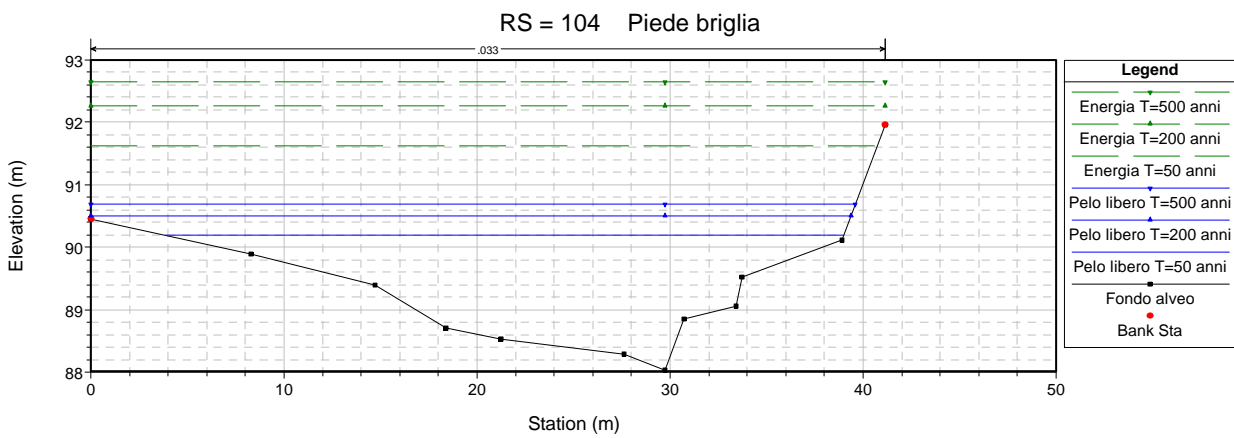
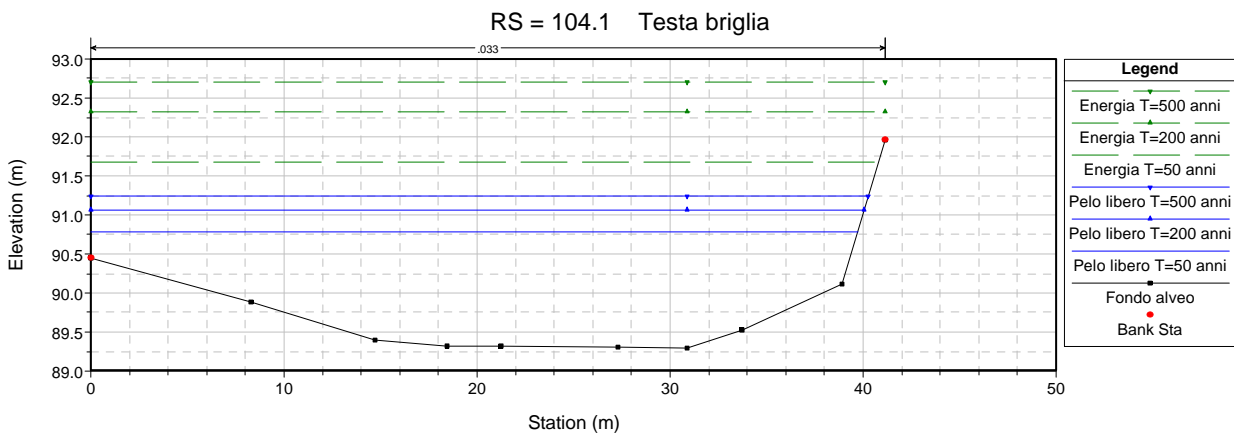
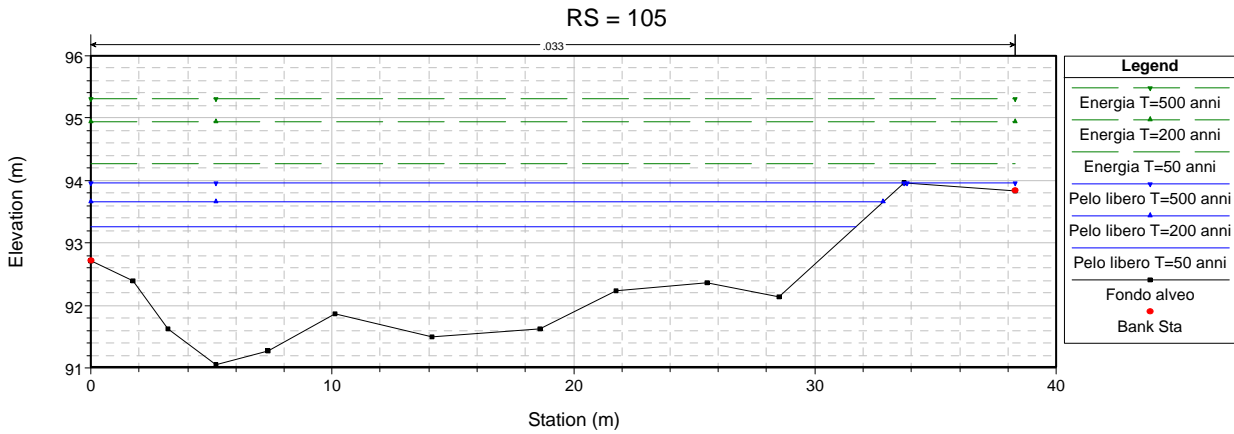
## Sezioni trasversali – dalla sez 101 alla sez 125.1





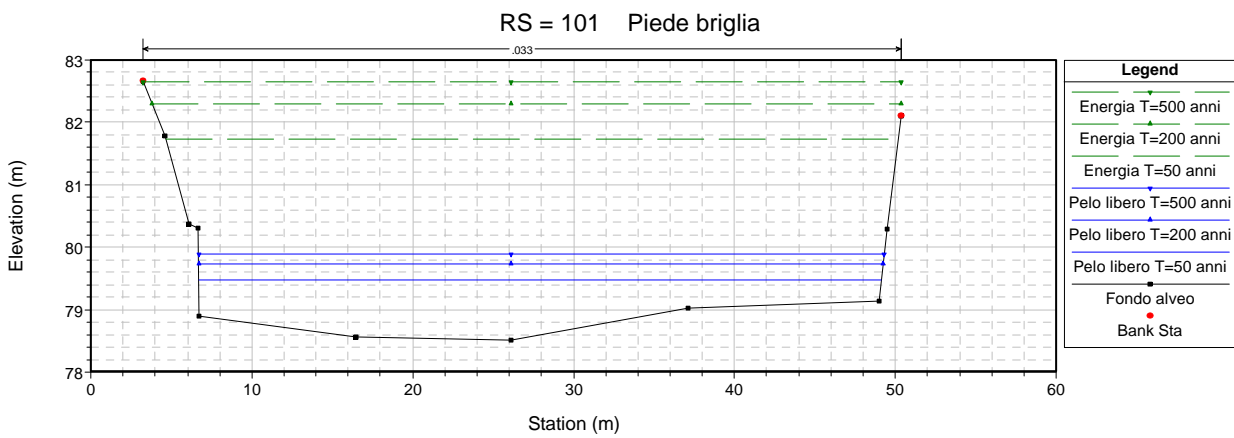
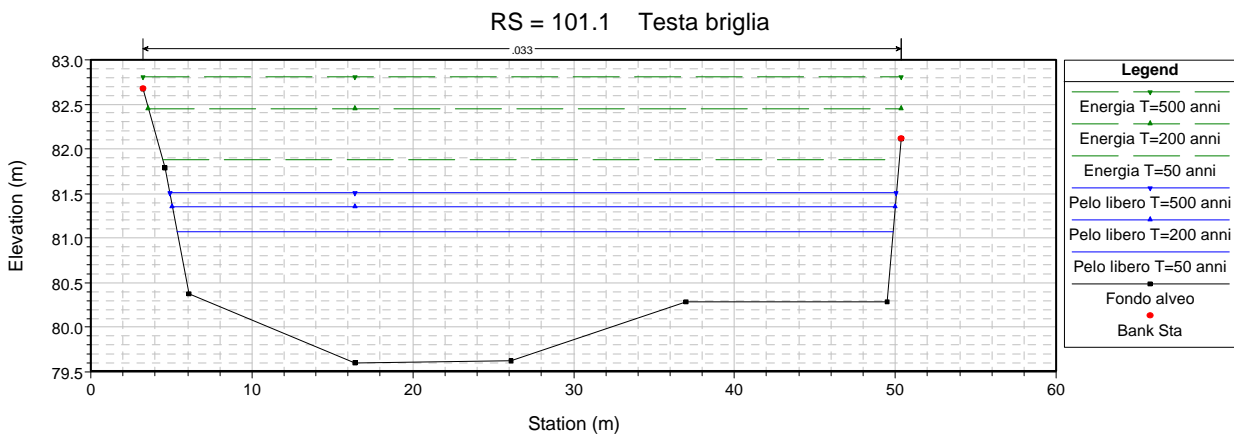
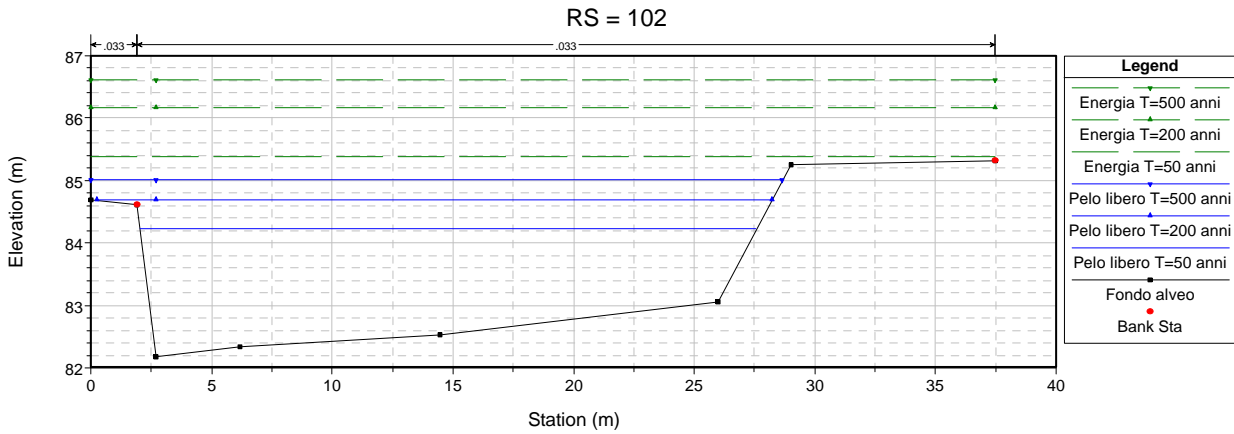
# Torrente Merula da loc. Case Castellana a Stellanello

## Sezioni trasversali – dalla sez 101 alla sez 125.1



# Torrente Merula da loc. Case Castellana a Stellanello

## Sezioni trasversali – dalla sez 101 alla sez 125.1



# **TABELLE DELLE GRANDEZZE IDRAULICHE**

PER LE PORTATE

**T=50, 200, 500 ANNI**

## **TORRENTE MERULA**

Da loc. Casa Castellana a Stellanello

**Dalla sez. 101 alla sez. 125.1**



**Torrente Merula da loc. Case Castellana a Stellanello**  
**T=50 anni**

Sezioni	Portata totale (m3/s)	Fondo alveo (m)	Argine sinistro (m)	Argine destro (m)	Pelo libero (m)	Profondità critica (m)	Energia (m2)	Velocità (m/s)	Area bagnata (m2)	N° Froude
125.1	190	163.19	164.34	164.41	165.49	165.49	166.16	3.78	53.27	0.98
125	190	162.12	163.52	164.41	163.54	164.24	165.99	6.93	27.42	2.2
124.1	190	159.52	161.29	160.87	161.41	161.62	162.28	4.14	45.98	1.37
124	190	154.22	161.29	160.87	155.47	156.56	161.74	11.09	17.13	4.1
123	190	146.13	150.37	150.43	147.97	148.42	149.49	5.47	34.73	1.67
122	190	142.51	147.64	146.32	144.16	144.57	145.58	5.27	36.04	1.6
121.1	190	140.46	145.09	144.27	142.81	142.23	143.24	2.9	65.63	0.63
121.05	Bridge									
121	190	140.17	144.8	144.15	141.62	141.94	142.87	4.96	38.32	1.41
120	190	139.37	143.67	142.27	141.4	141.63	142.42	4.48	42.38	1.3
119	190	136.06	143.67	142.27	136.91	137.9	142.01	10.01	18.99	3.82
118.1	190	134.48	137.97	137.97	136.57	136.21	137.1	3.22	58.95	0.74
118.05	Bridge									
118	190	134.31	137.8	137.8	135.87	136.04	136.87	4.44	42.83	1.19
117	190	132.42	137.8	137.8	133.29	134.11	136.63	8.1	23.46	2.92
116.1	190	131.04	134.59	135.17	132.37	132.63	133.42	4.55	41.79	1.34
116	190	129.15	134.59	135.17	130.53	131.3	133.25	7.32	25.97	2.36
115.1	190	126.23	130.68	130.68	128.31	128	128.8	3.08	61.63	0.75
115.05	Bridge									
115	190	126.15	130.6	130.6	127.76	127.92	128.67	4.22	45.05	1.19
114	190	125.25	130.6	130.6	126.62	127.23	128.56	6.18	30.74	1.87
113.1	190	120.41	123.64	123.61	121.81	122.12	122.95	4.74	40.11	1.45
113	190	119.64	123.64	123.61	120.79	121.48	122.85	6.36	29.88	1.96
112.1	190	116.49	118.2	120.26	118.46	118.58	119.26	3.96	48	1.15
112	190	115.14	118.2	120.26	116.7	117.39	119.1	6.87	27.66	2.26
111.1	190	114.36	117.19	115.34	115.85	115.99	116.72	4.13	46	1.18
111	190	113.22	117.19	115.34	114.56	115.22	116.6	6.33	30.04	1.9
110.1	190	112.47	115.3	113.77	113.79	114.02	114.77	4.38	43.42	1.32
110	190	111.09	115.3	113.77	112.18	112.94	114.62	6.92	27.47	2.21
109.1	190	107.82	110.84	108.66	109.28	109.57	110.46	4.81	39.49	1.36
109	190	106.31	110.84	108.66	107.74	108.54	110.32	7.1	26.74	2.18
108	190	101.2	104.42	102.28	103	103.24	104.15	4.75	40.02	1.25
107	190	97.13	100.19	98.4	99.15	99.41	100.25	4.65	40.9	1.33
106.1	190	95.46	101.5	102.7	97.91	97.56	98.34	2.92	65.04	0.73
106.05	Bridge									
106	190	95.31	101.35	102.55	97.22	97.42	98.15	4.29	44.29	1.25
105	190	91.05	92.72	93.83	93.26	93.45	94.27	4.44	42.82	1.22
104.1	190	89.3	90.45	91.96	90.79	90.97	91.68	4.2	45.28	1.25
104	190	88.03	90.45	91.96	90.19	90.62	91.62	5.31	35.81	1.68
103	190	85.04	87.45	88.98	87.12	87.33	88.21	4.62	41.09	1.22
102	190	82.17	84.62	85.32	84.23	84.45	85.38	4.77	39.87	1.22
101.1	190	79.6	82.67	82.11	81.07	81.23	81.88	3.97	47.81	1.22
101	190	78.52	82.67	82.11	79.47	80.06	81.73	6.65	28.56	2.59

**Torrente Merula da loc. Case Castellana a Stellanello**  
**T=200 anni**

Sezioni	Portata totale (m3/s)	Fondo alveo (m)	Argine sinistro (m)	Argine destro (m)	Pelo libero (m)	Profondità critica (m)	Energia (m2)	Velocità (m/s)	Area bagnata (m2)	N° Froude
125.1	280	163.19	164.34	164.41	165.88	165.88	166.76	4.31	68.96	1
125	280	162.12	163.52	164.41	163.96	164.81	166.58	7.17	39.12	1.94
124.1	280	159.52	161.29	160.87	161.63	161.98	162.86	4.93	57.27	1.46
124	280	154.22	161.29	160.87	155.76	157.06	162.33	11.35	24.66	3.81
123	280	146.13	150.37	150.43	148.27	148.89	150.28	6.28	44.56	1.73
122	280	142.51	147.64	146.32	144.47	145.02	146.34	6.06	46.21	1.63
121.1	280	140.46	145.09	144.27	143.46	142.7	144.01	3.28	85.41	0.63
121.05	Bridge									
121	280	140.17	144.8	144.15	141.99	142.41	143.62	5.66	49.47	1.42
120	280	139.37	143.67	142.27	141.75	142.05	143.08	5.1	54.87	1.3
119	280	136.06	143.67	142.27	137.19	138.37	142.66	10.36	27.03	3.44
118.1	280	134.48	137.97	137.97	137.15	136.69	137.82	3.64	76.89	0.74
118.05	Bridge									
118	280	134.31	137.8	137.8	136.29	136.52	137.58	5.03	55.68	1.19
117	280	132.42	137.8	137.8	133.6	134.58	137.33	8.56	32.72	2.61
116.1	280	131.04	134.59	135.17	132.69	133.06	134.09	5.24	53.42	1.38
116	280	129.15	134.59	135.17	130.89	131.76	133.93	7.72	36.27	2.22
115.1	280	126.23	130.68	130.68	128.07	128.42	129.48	5.26	53.21	1.37
115.05	Bridge									
115	280	126.15	130.6	130.6	128.14	128.34	129.31	4.79	58.45	1.19
114	280	125.25	130.6	130.6	127.01	127.65	129.21	6.57	42.63	1.87
113.1	280	120.41	123.64	123.61	122.1	122.53	123.63	5.49	51	1.5
113	280	119.64	123.64	123.61	121.19	121.92	123.55	6.8	41.15	1.82
112.1	280	116.49	118.2	120.26	118.79	118.97	119.86	4.58	61.17	1.18
112	280	115.14	118.2	120.26	117.07	117.89	119.7	7.19	38.95	2.05
111.1	280	114.36	117.19	115.34	116.19	116.41	117.35	4.77	58.7	1.22
111	280	113.22	117.19	115.34	114.96	115.66	117.24	6.68	41.9	1.87
110.1	280	112.47	115.3	113.77	114.09	114.42	115.41	5.09	54.97	1.38
110	280	111.09	115.3	113.77	112.58	113.41	115.27	7.26	38.55	1.99
109.1	280	107.82	110.84	108.66	109.65	110.04	111.18	5.48	51.07	1.38
109	280	106.31	110.84	108.66	108.17	109.05	111.04	7.51	37.27	1.98
108	280	101.2	104.42	102.28	103.41	103.75	104.93	5.46	51.24	1.28
107	280	97.13	100.19	98.4	99.49	99.85	100.96	5.37	52.13	1.37
106.1	280	95.46	101.5	102.7	98.48	97.98	98.99	3.15	88.76	0.7
106.05	Bridge									
106	280	95.31	101.35	102.55	97.54	97.84	98.8	4.97	56.31	1.31
105	280	91.05	92.72	93.83	93.66	94	94.95	5.02	55.75	1.23
104.1	280	89.3	90.45	91.96	91.07	91.37	92.32	4.95	56.57	1.33
104	280	88.03	90.45	91.96	90.51	91.02	92.26	5.87	47.66	1.7
103	280	85.04	87.45	88.98	87.59	87.85	88.93	5.13	54.56	1.22
102	280	82.17	84.62	85.32	84.69	85.01	86.17	5.4	51.95	1.23
101.1	280	79.6	82.67	82.11	81.35	81.59	82.45	4.64	60.36	1.28
101	280	78.52	82.67	82.11	79.73	80.45	82.3	7.1	39.42	2.36

**Torrente Merula da loc. Case Castellana a Stellanello**  
**T=500 anni**

Sezioni	Portata totale (m3/s)	Fondo alveo (m)	Argine sinistro (m)	Argine destro (m)	Pelo libero (m)	Profondità critica (m)	Energia (m2)	Velocità (m/s)	Area bagnata (m2)	N° Froude
125.1	340	163.19	164.34	164.41	166.14	166.14	167.11	4.56	79.31	0.99
125	340	162.12	163.52	164.41	164.23	165.1	166.94	7.3	46.8	1.81
124.1	340	159.52	161.29	160.87	161.75	162.18	163.23	5.4	63.91	1.52
124	340	154.22	161.29	160.87	155.94	157.36	162.69	11.52	29.52	3.54
123	340	146.13	150.37	150.43	148.44	149.15	150.76	6.75	50.33	1.76
122	340	142.51	147.64	146.32	144.66	145.29	146.8	6.48	52.46	1.64
121.1	340	140.46	145.09	144.27	143.84	142.99	144.47	3.5	97.13	0.63
121.05	Bridge									
121	340	140.17	144.8	144.15	142.21	142.7	144.07	6.05	56.23	1.42
120	340	139.37	143.67	142.27	141.96	142.33	143.48	5.46	62.26	1.31
119	340	136.06	143.67	142.27	137.37	138.66	143.06	10.57	32.16	3.24
118.1	340	134.48	137.97	137.97	137.49	136.98	138.25	3.87	87.92	0.75
118.05	Bridge									
118	340	134.31	137.8	137.8	136.55	136.81	138.01	5.34	63.67	1.19
117	340	132.42	137.8	137.8	133.8	134.87	137.75	8.81	38.61	2.47
116.1	340	131.04	134.59	135.17	132.88	133.31	134.49	5.62	60.5	1.4
116	340	129.15	134.59	135.17	131.1	132.04	134.33	7.96	42.72	2.2
115.1	340	126.23	130.68	130.68	128.27	128.67	129.89	5.64	60.25	1.38
115.05	Bridge									
115	340	126.15	130.6	130.6	128.37	128.6	129.7	5.11	66.57	1.19
114	340	125.25	130.6	130.6	127.22	127.91	129.59	6.83	49.8	1.84
113.1	340	120.41	123.64	123.61	122.27	122.78	124.05	5.91	57.56	1.53
113	340	119.64	123.64	123.61	121.41	122.18	123.97	7.09	47.97	1.9
112.1	340	116.49	118.2	120.26	119	119.21	120.22	4.89	69.52	1.19
112	340	115.14	118.2	120.26	117.3	118.17	120.06	7.37	46.16	1.95
111.1	340	114.36	117.19	115.34	116.41	116.66	117.73	5.08	66.87	1.22
111	340	113.22	117.19	115.34	115.18	115.9	117.61	6.91	49.23	1.86
110.1	340	112.47	115.3	113.77	114.26	114.66	115.8	5.5	61.84	1.4
110	340	111.09	115.3	113.77	112.81	113.68	115.67	7.49	45.39	2.02
109.1	340	107.82	110.84	108.66	109.87	110.31	111.61	5.84	58.23	1.38
109	340	106.31	110.84	108.66	108.42	109.33	111.48	7.75	43.89	1.95
108	340	101.2	104.42	102.28	103.66	104.06	105.4	5.84	58.2	1.29
107	340	97.13	100.19	98.4	99.69	100.13	101.39	5.78	58.87	1.4
106.1	340	95.46	101.5	102.7	98.83	98.25	99.38	3.27	103.99	0.68
106.05	Bridge									
106	340	95.31	101.35	102.55	97.71	98.09	99.19	5.38	63.25	1.36
105	340	91.05	92.72	93.83	93.97	94.24	95.31	5.15	66.07	1.25
104.1	340	89.3	90.45	91.96	91.24	91.6	92.7	5.35	63.51	1.36
104	340	88.03	90.45	91.96	90.69	91.26	92.65	6.21	54.78	1.68
103	340	85.04	87.45	88.98	87.85	88.14	89.36	5.46	62.28	1.22
102	340	82.17	84.62	85.32	85.01	85.48	86.61	5.62	61	1.19
101.1	340	79.6	82.67	82.11	81.51	81.81	82.81	5.05	67.34	1.32
101	340	78.52	82.67	82.11	79.88	80.68	82.66	7.37	46.11	2.26