



# COMUNE DI AREZZO

## Assessorato Urbanistica

Servizio Pianificazione Urbanistica e Governo del Territorio

Piano Strutturale  
2019



PS

## B Quadro conoscitivo

### B1 Relazione illustrativa - Indagini geologiche e idrauliche

**Sindaco**  
Alessandro Ghinelli

**Assessore all'Urbanistica**  
Marco Sacchetti

**Responsabile del Procedimento**  
Ing. Paolo Frescucci

RTI Raggruppamento Temporaneo di Professionisti

**Studio D:RH Architetti associati**

*Arch. Sergio Dinale*

**Criteria srl**

*Arch. Paolo Falqui*

**Arch. Luca Di Figlia**

**Dott. Pian.t. Matteo Scamporrino**

**Avv. Agostino Zanelli Quarantini**

# B1.2.1b

## Vingone - Fascicolo delle sezioni e profili idraulici

Garante dell'informazione e della partecipazione

**Dott.ssa Daniela Farsetti**

Dirigente Servizio Pianificazione Urbanistica  
**Ing. Paolo Frescucci**

Dirigente Servizio Ambiente  
**Ing. Giovanni Baldini**

Dirigente Servizio Progettazione Opere Pubbliche  
**Ing. Antonella Fabbianelli**

Dirigente Progetto per lo sviluppo delle attività economiche negli ambiti Edilizia e SUAP e promozione del territorio  
**Ing. Paolo Frescucci**

Direttore Ufficio Mobilità  
**Ing. Roberto Bernardini**

Direttore Ufficio Programmazione e Sviluppo Economico del Territorio  
**Dott.ssa Stefania Guidelli**

Direttore Ufficio Edilizia  
**Geom. Gianna Pezuoli**

**Ufficio del Piano**

Arch. Omero Angeli  
Dott.ssa Antonella Benocci  
Sig. Matteo Borri  
Dott.ssa Francesca Calabri  
Arch. Fulvia Comanducci  
Arch. Elisabetta Dreassi  
Geol. Alessandro Forzoni  
Geom. Valentina Mazzoni  
Dott. Vincenzo Oliva  
Arch. Laura Pagliai  
Ing. Deborah Romei  
Arch. Laura Rogialli  
Geol. Annalisa Romizi  
Pianificatore Territoriale Lorenzo Spadaccini  
Sig.ra Fiorenza Verdelli

**Gruppo di progettazione**

**Studio D:RH Architetti associati**

Arch. Sergio Dinale  
Arch. Paola Rigonat Hugues  
Arch. Enrico Robazza  
Arch. Kristiana D'Agnolo  
Dott. Pian.t. Giulio Brocco

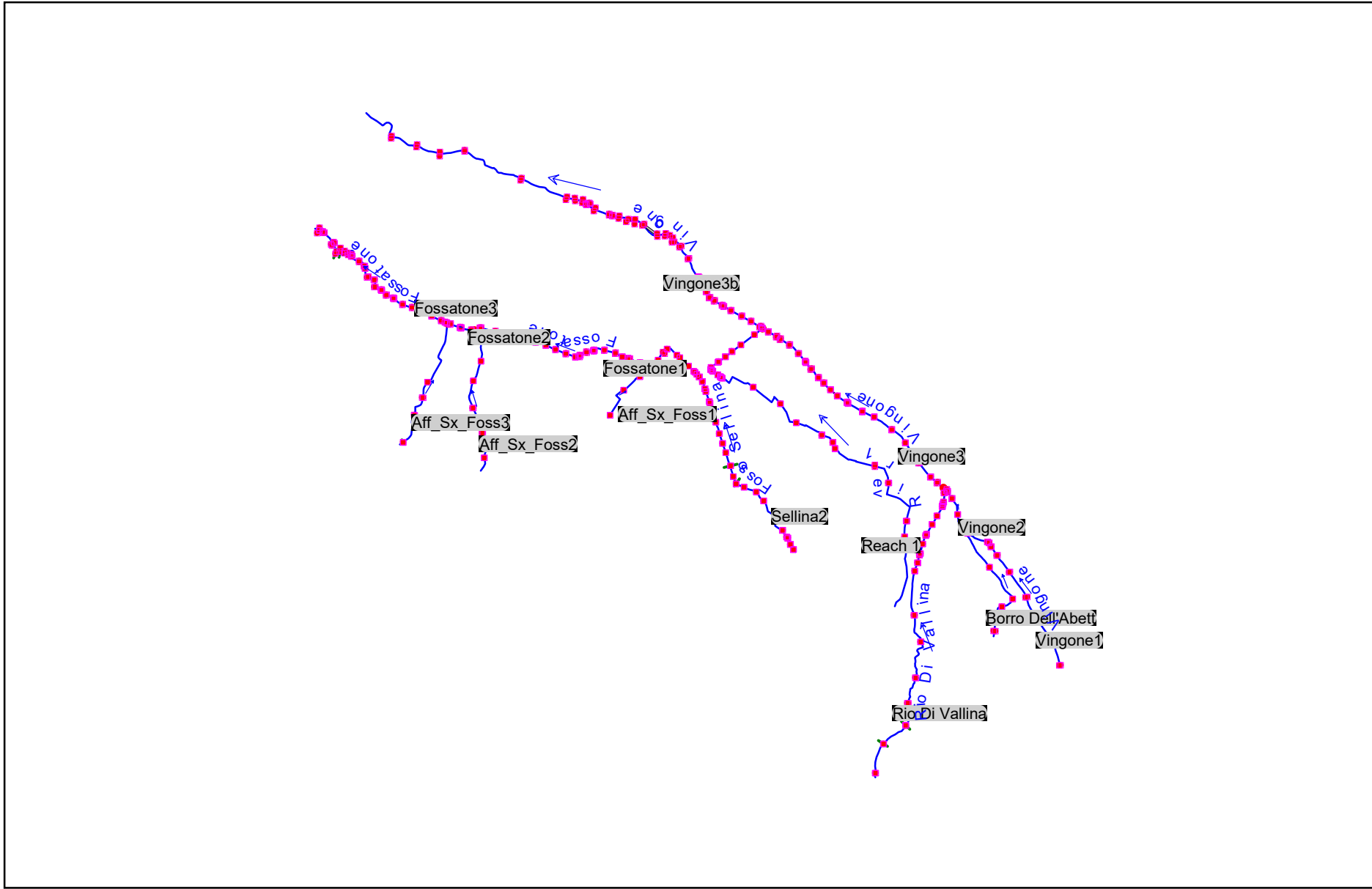
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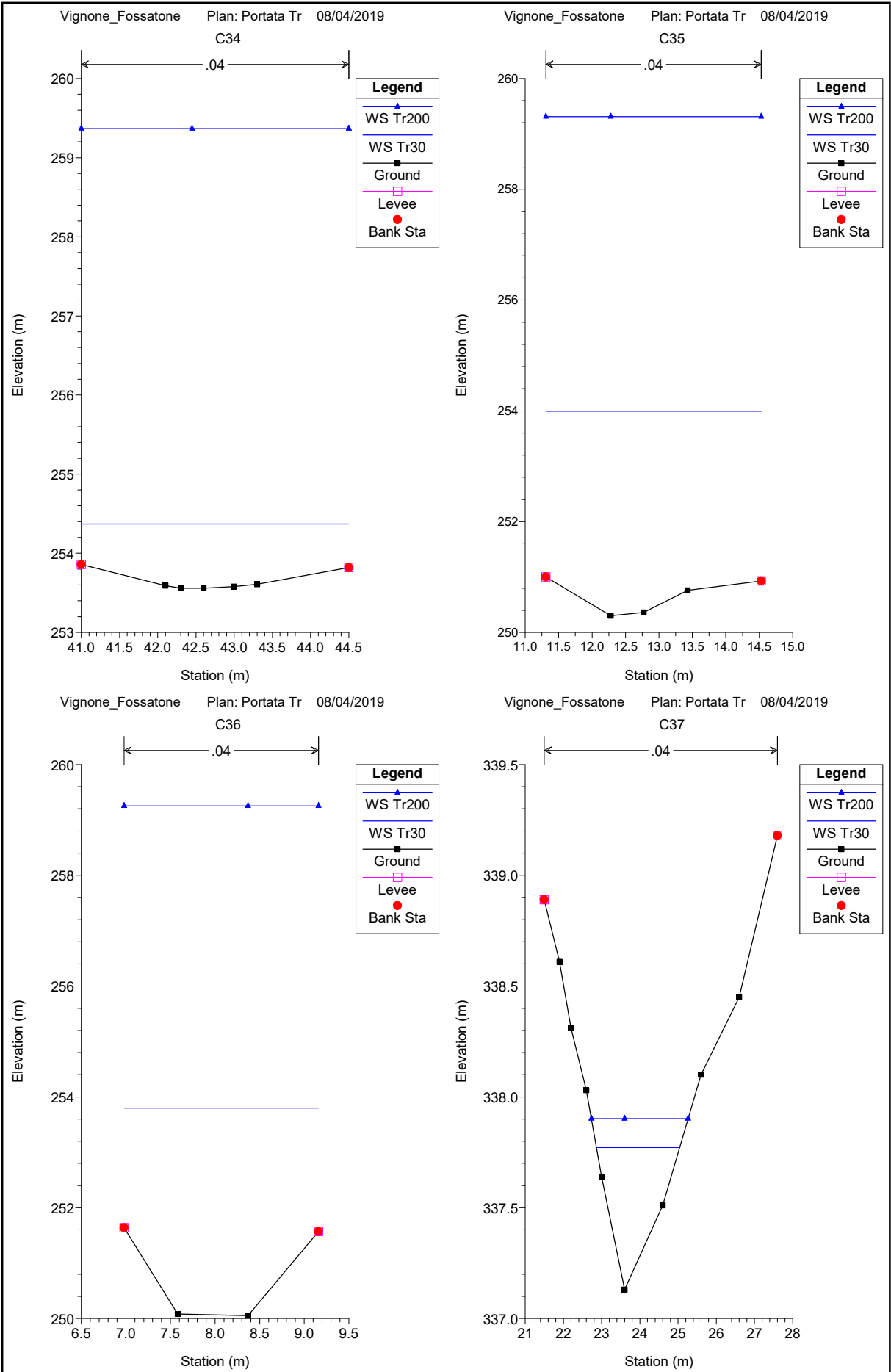
Arch. Paolo Falqui  
Ing. Paolo Bagliani  
Ing. Roberto Ledda  
Biol. Patrizia Carla Sechi  
Geol. Andrea Soriga  
Arch. Laura Zanini  
Dott.ssa Giulia Cubadda  
Dott. Riccardo Frau  
Arch. Veronica Saddi  
Ing. Gianfilippo Serra  
Dott. Vittorio Serra  
Dott.ssa Cinzia Marcella Orrù  
Arch. Salvatore Manca

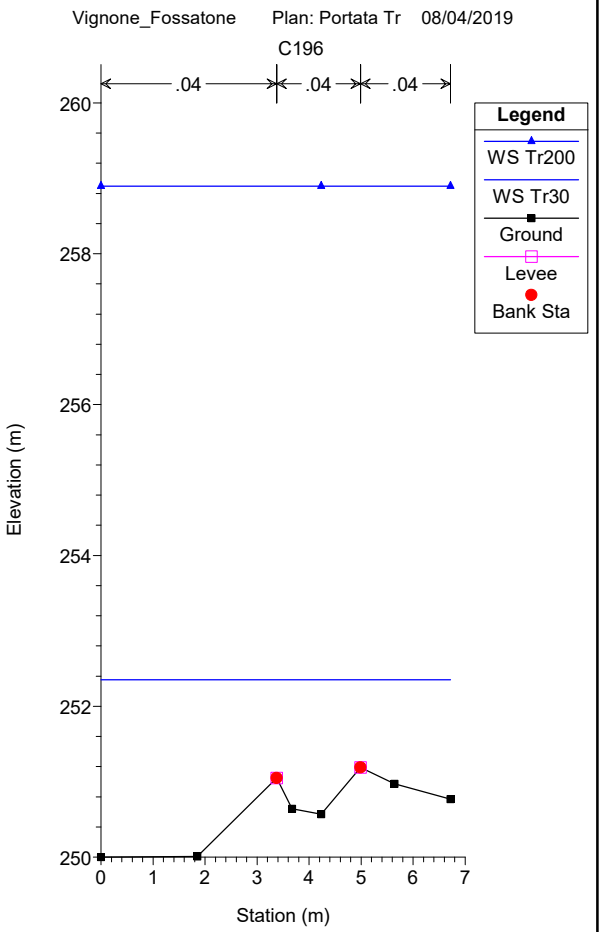
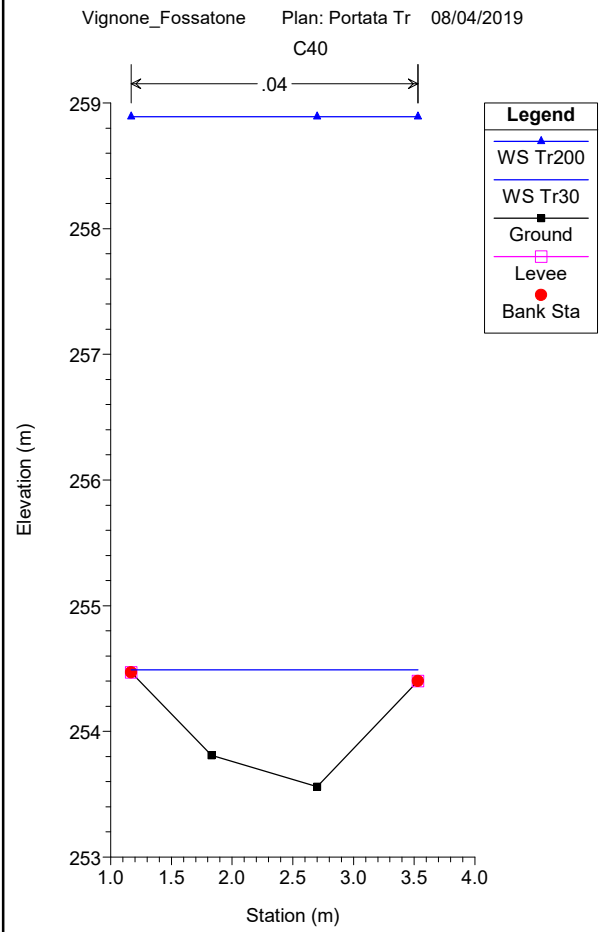
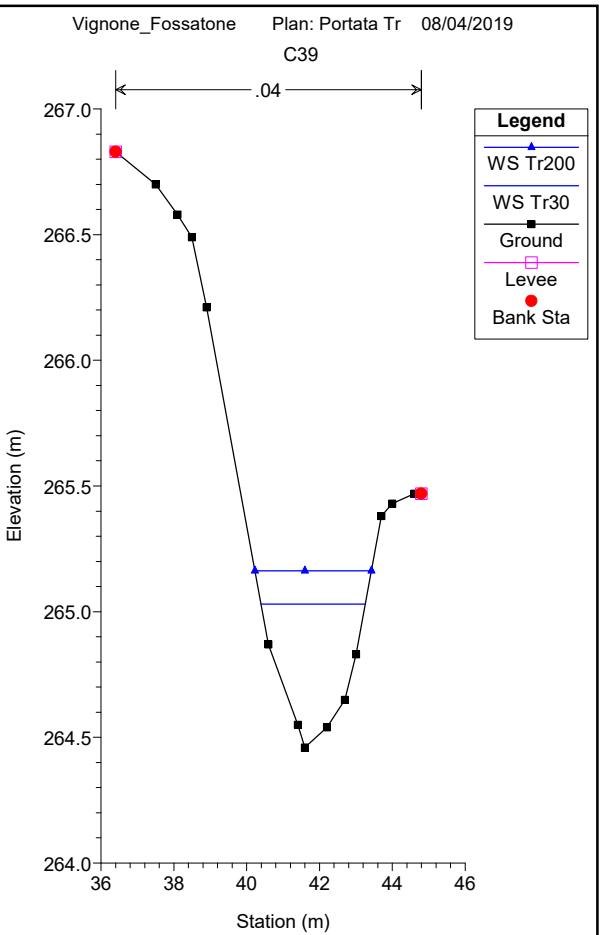
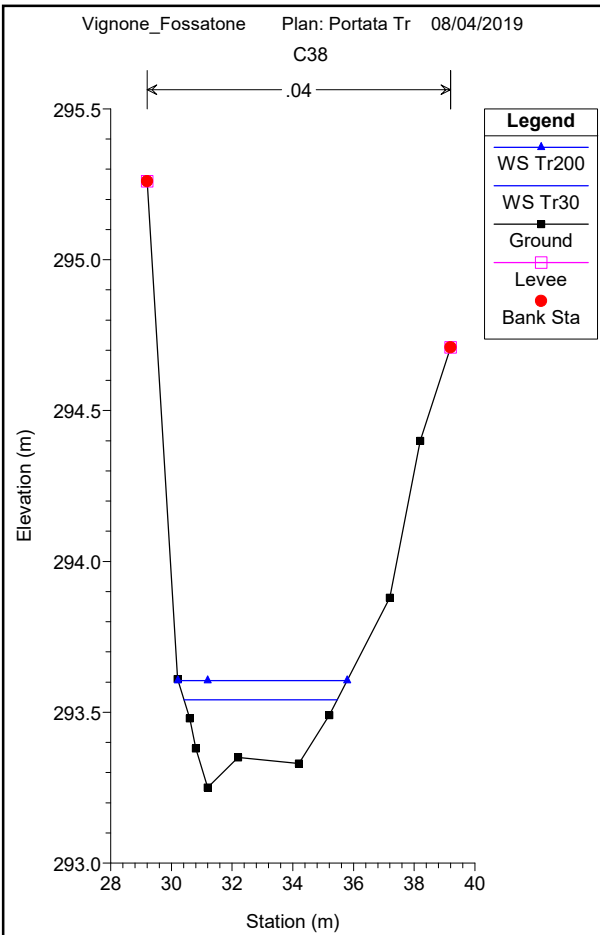
**Indagini geologiche e idrauliche**

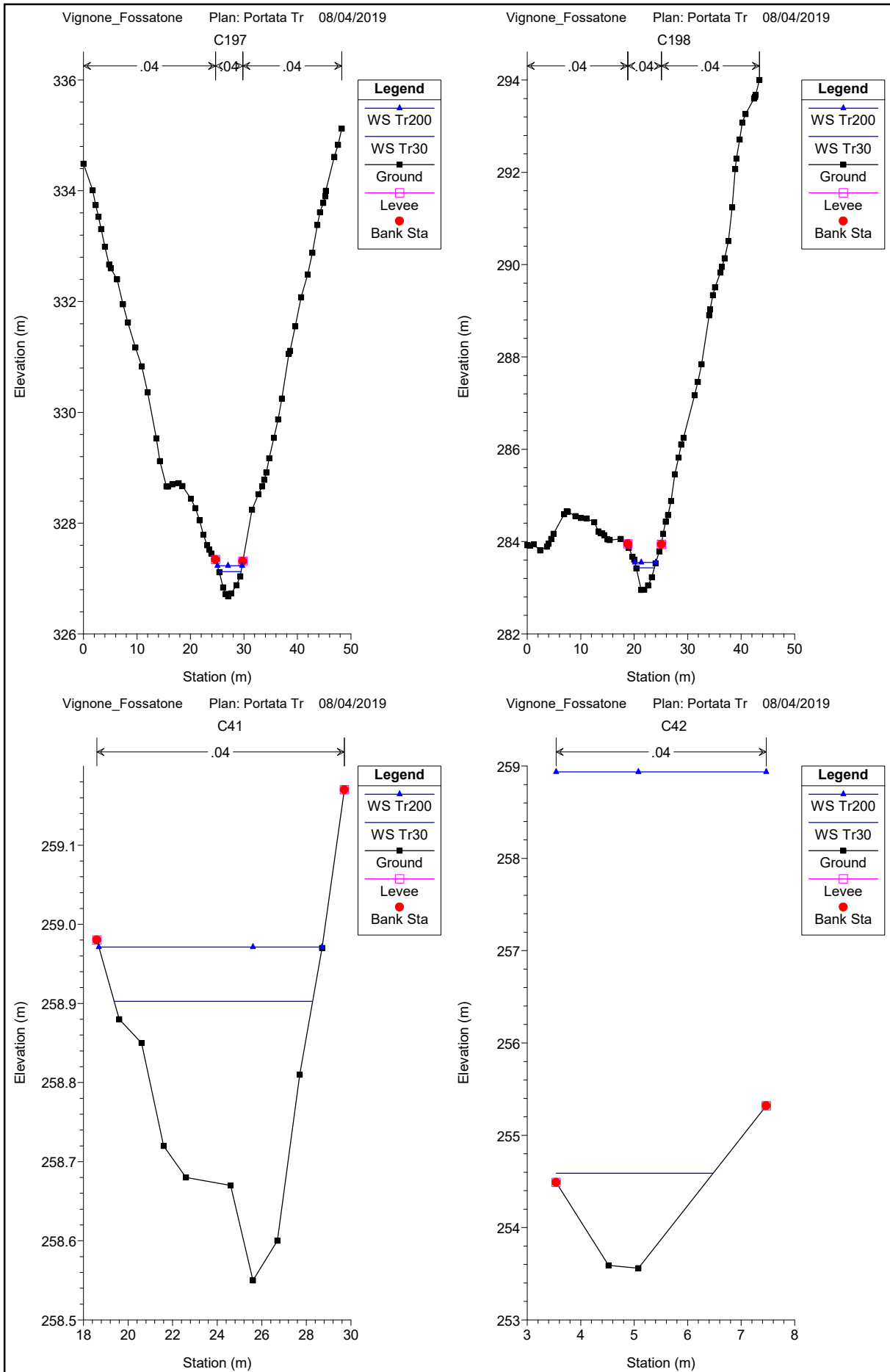
Geol. Maurizio Costa  
Geol. Antonio Pitzalis  
Ing. Nicola Buchignani (Prima STP)  
Ing. Pietro Chiavaccini  
Ing. Elisa Formica

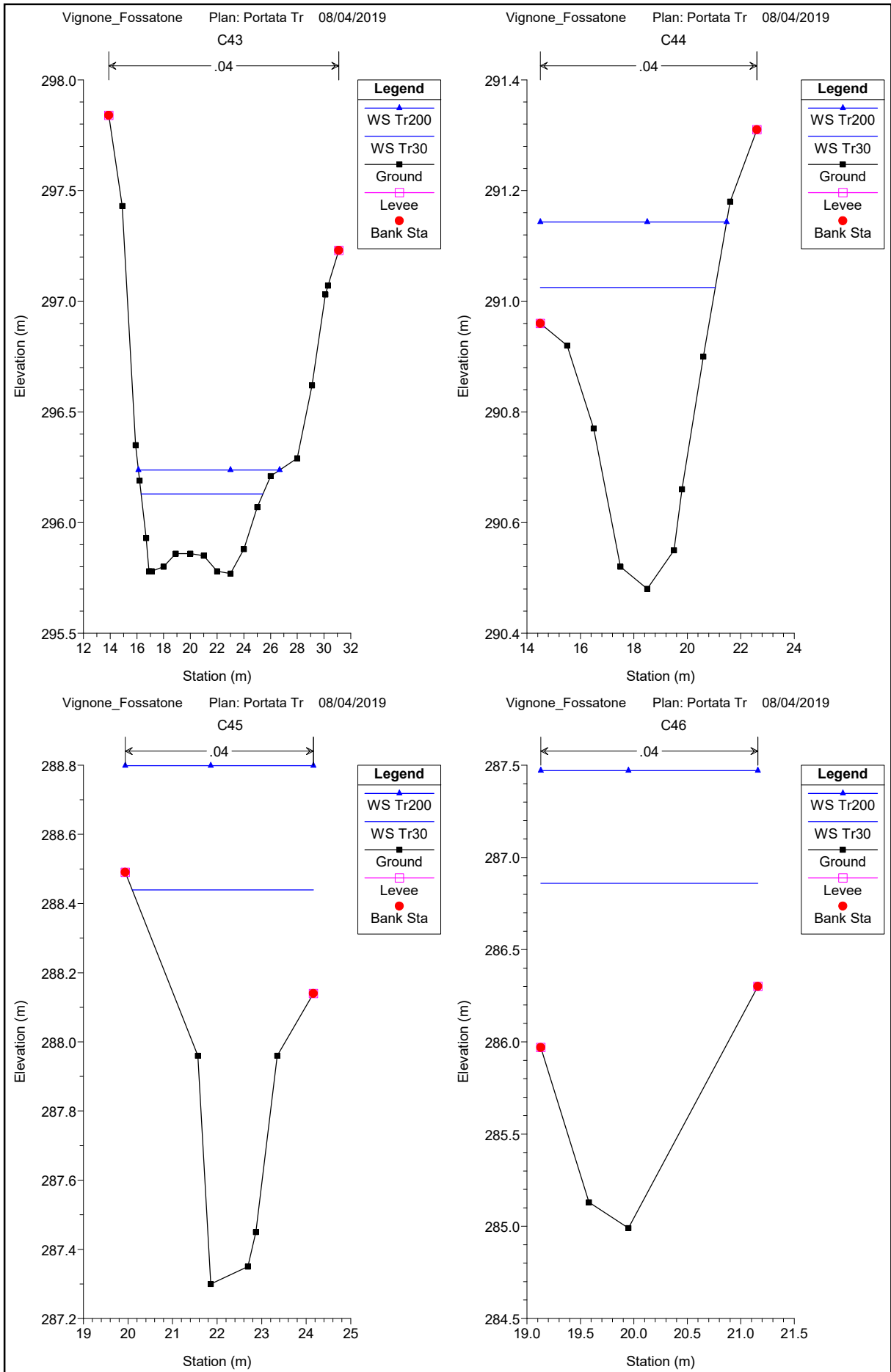
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**Arch. Luca Di Figlia**  
**Avv. Agostino Zanelli Quarantini**

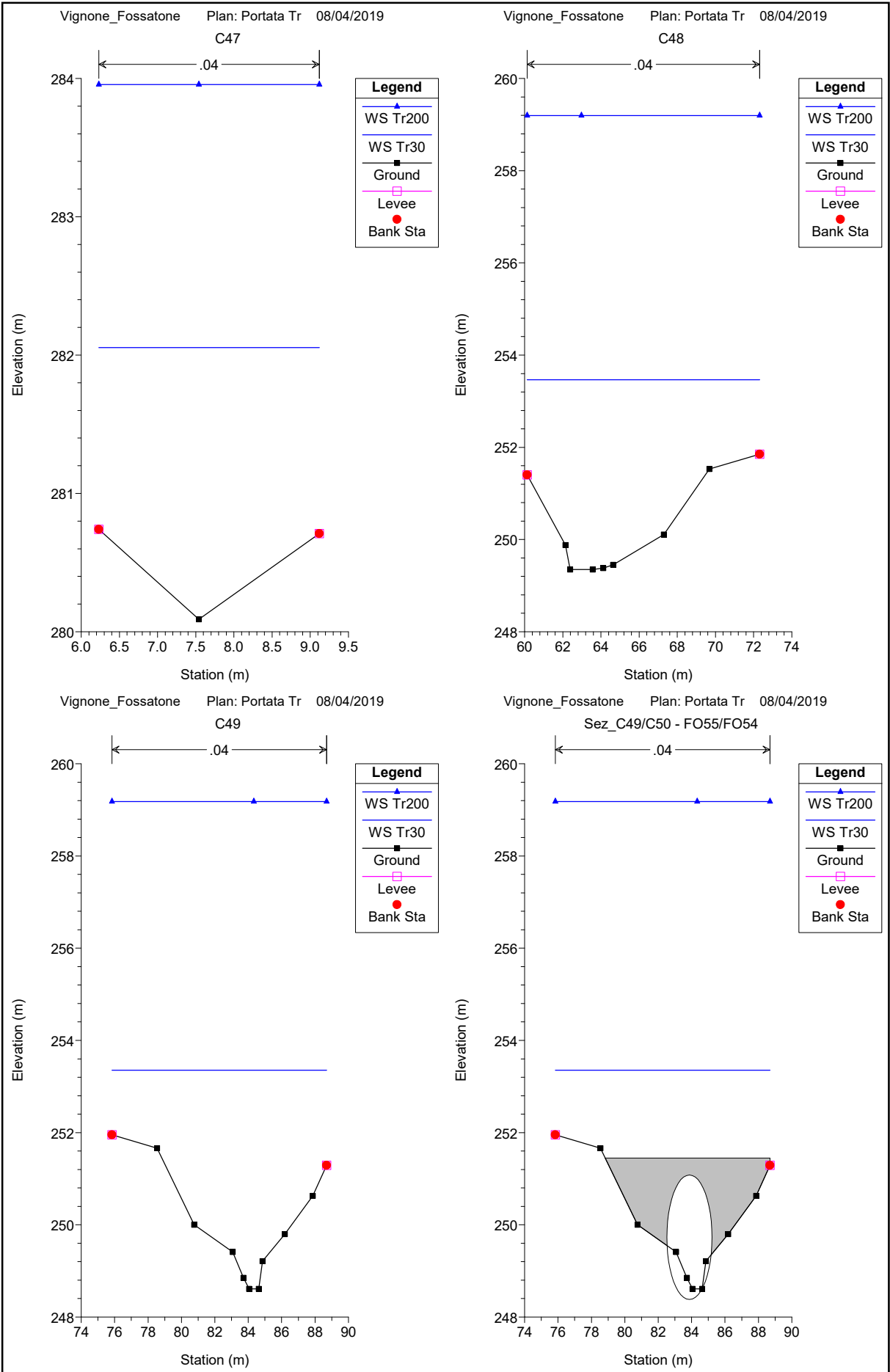




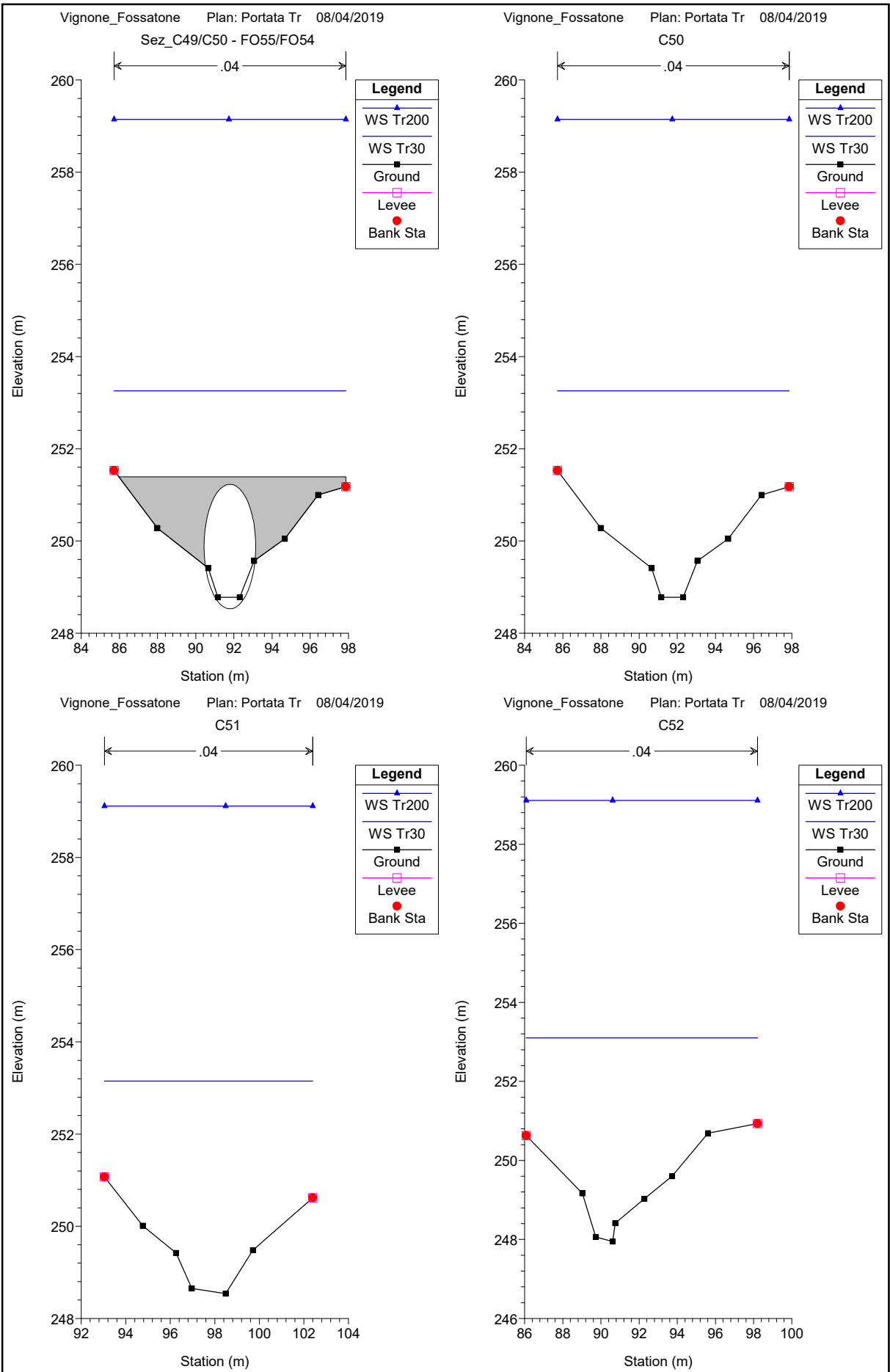


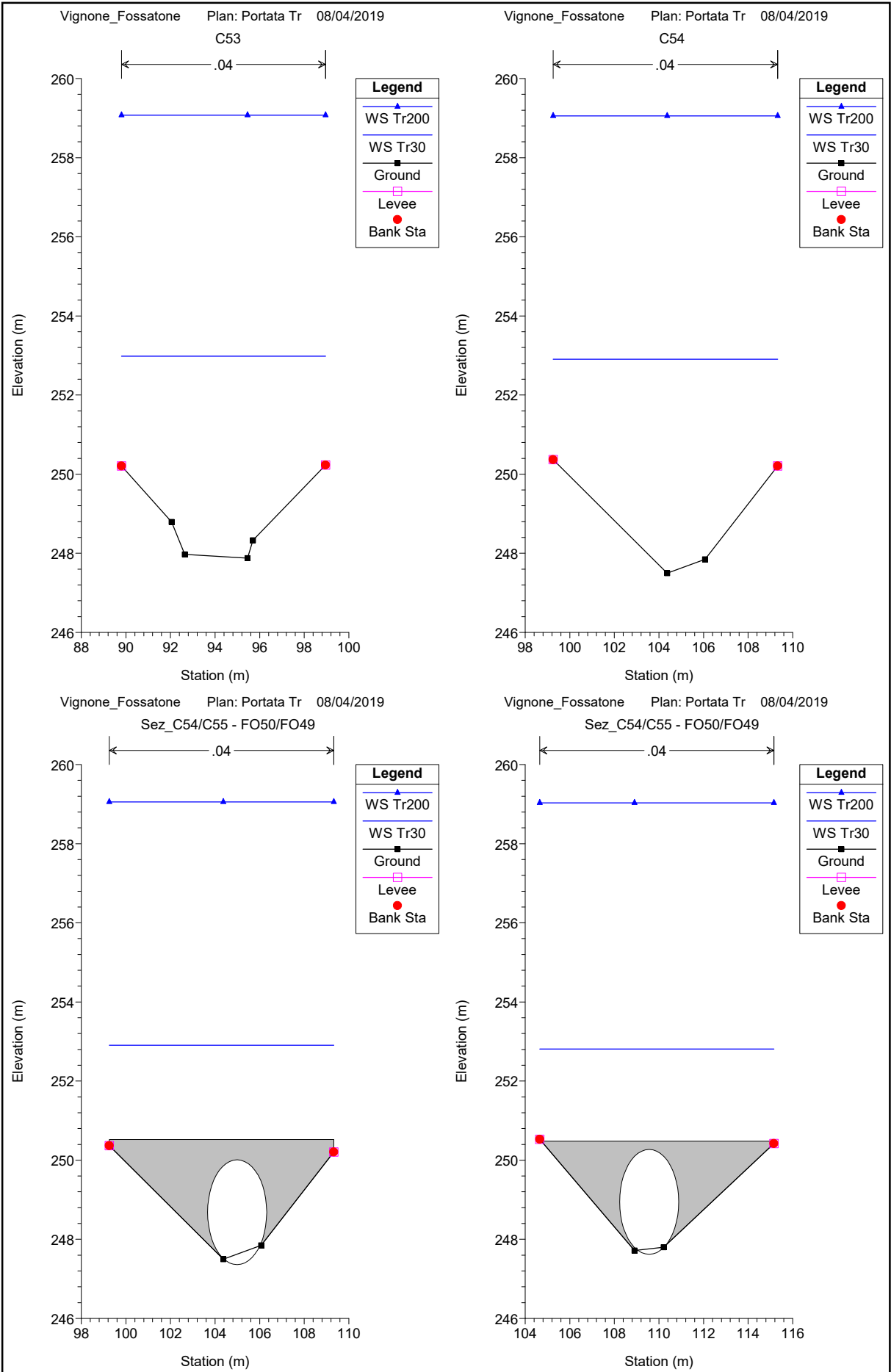


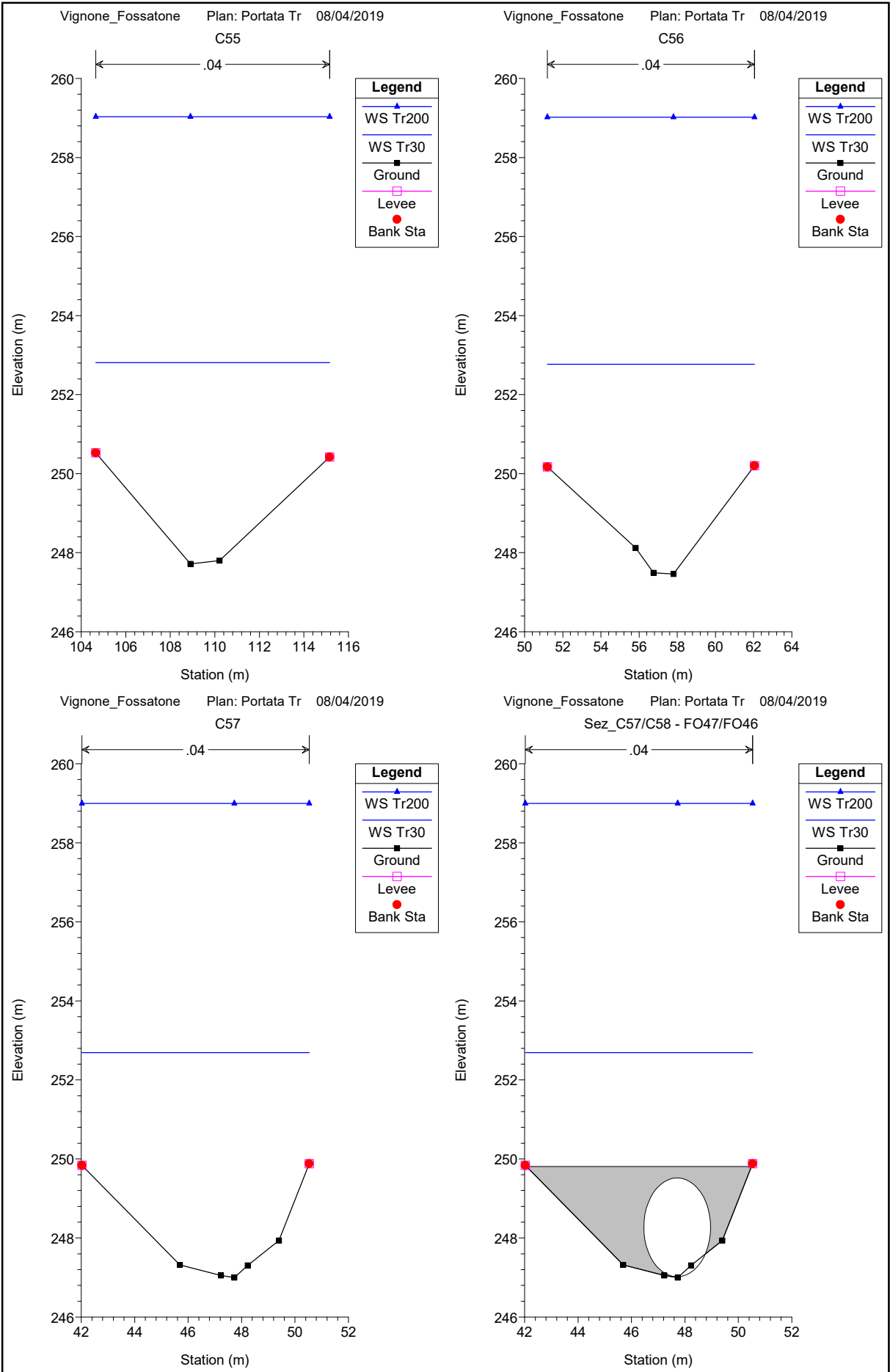




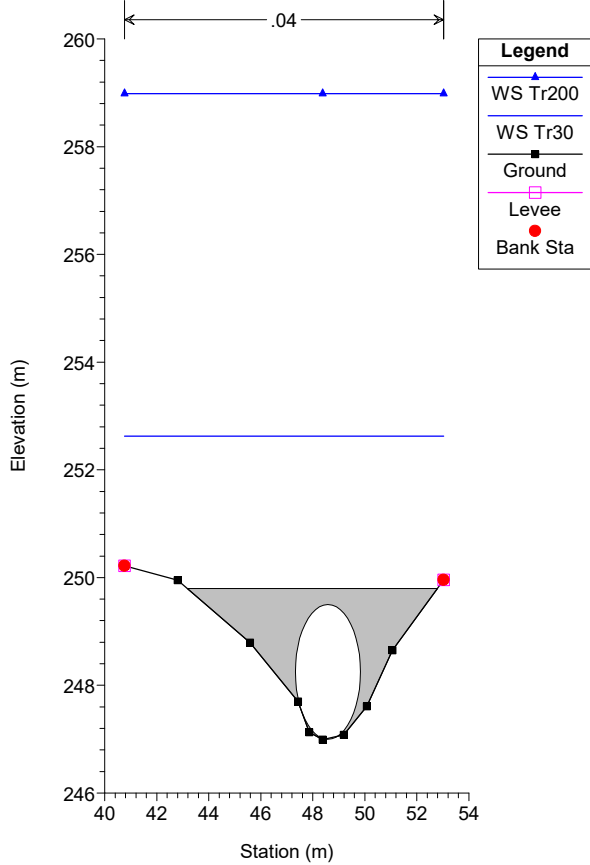




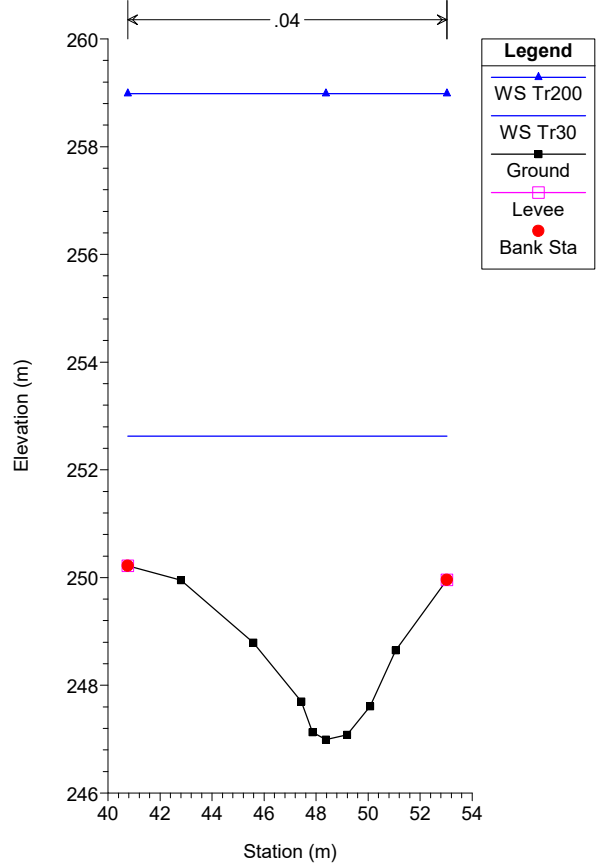




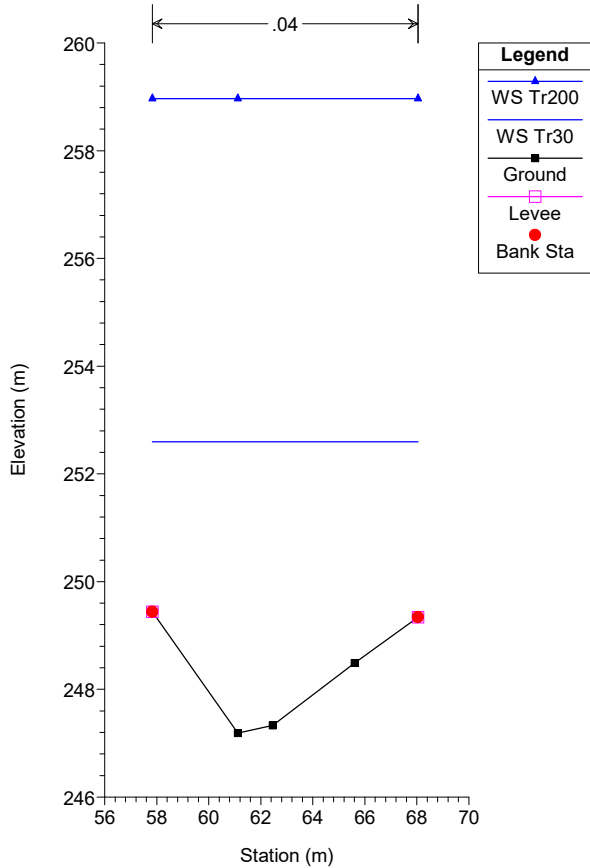
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Sez\_C57/C58 - FO47/FO46



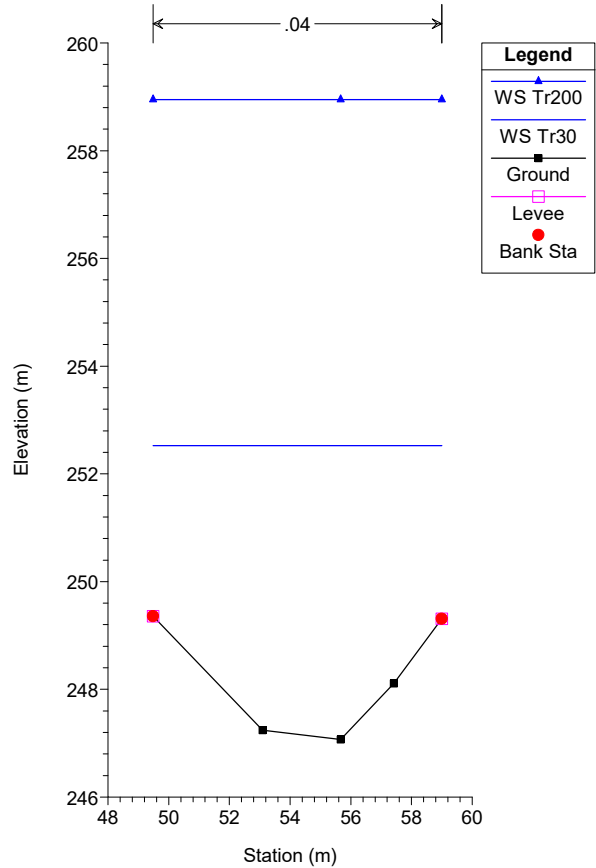
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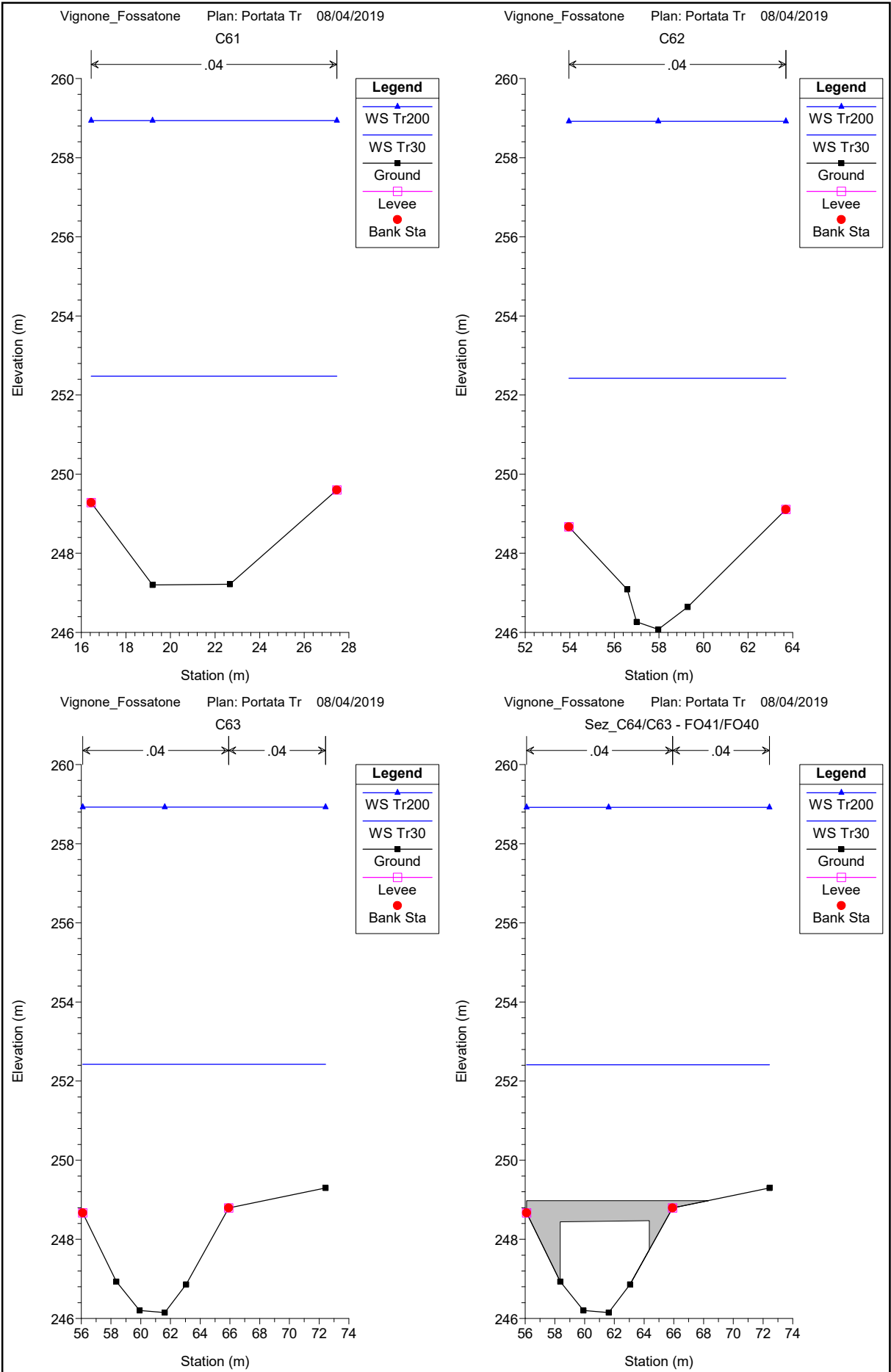


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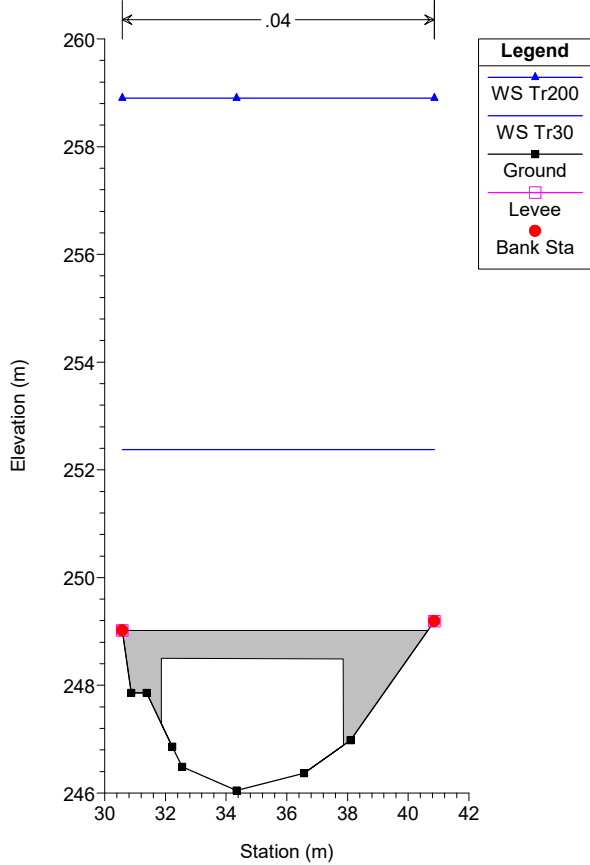


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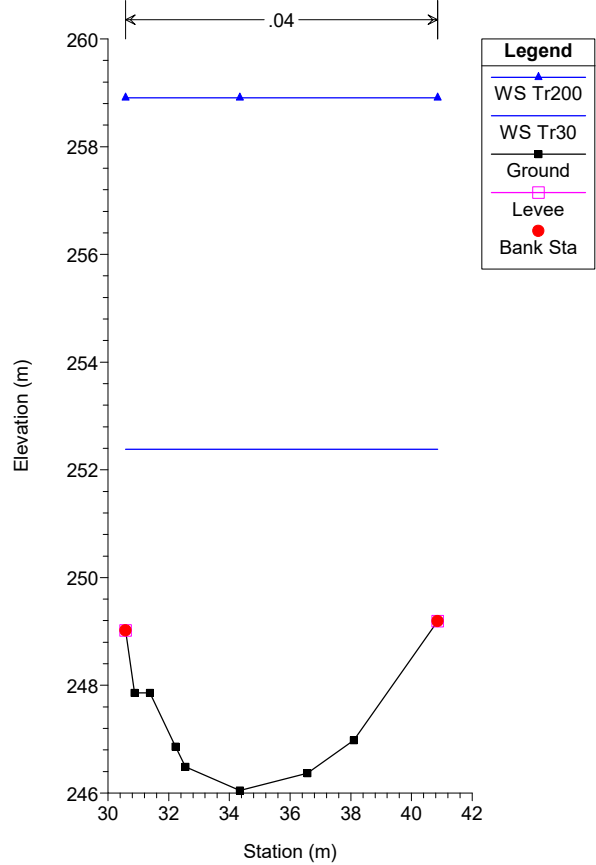




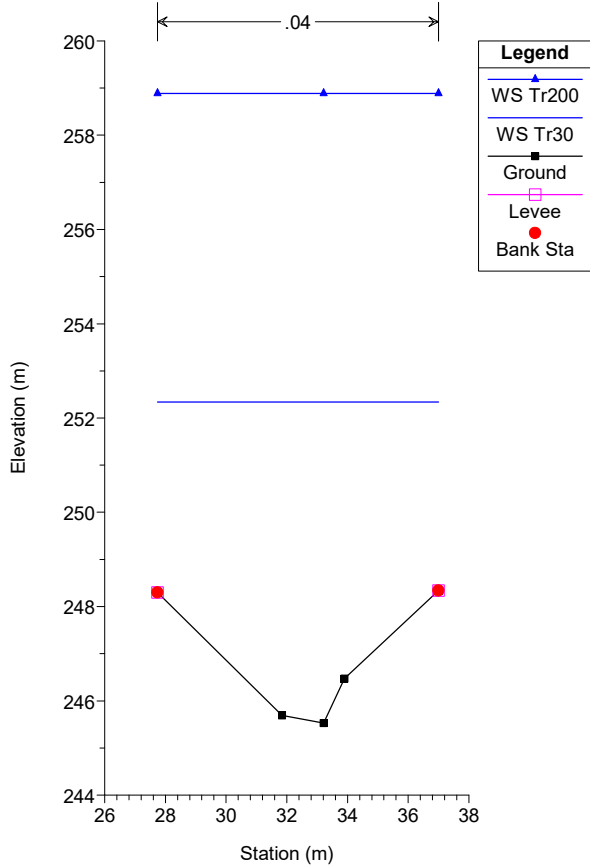
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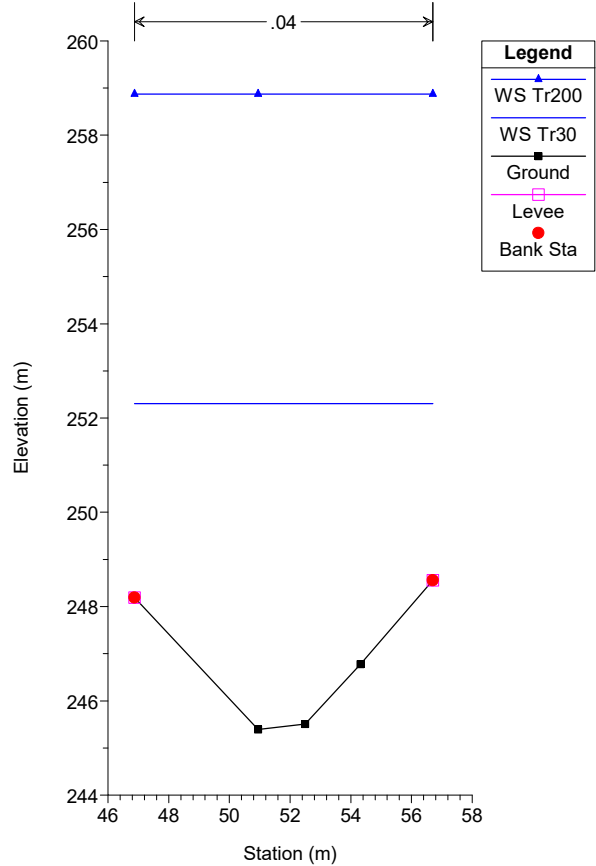
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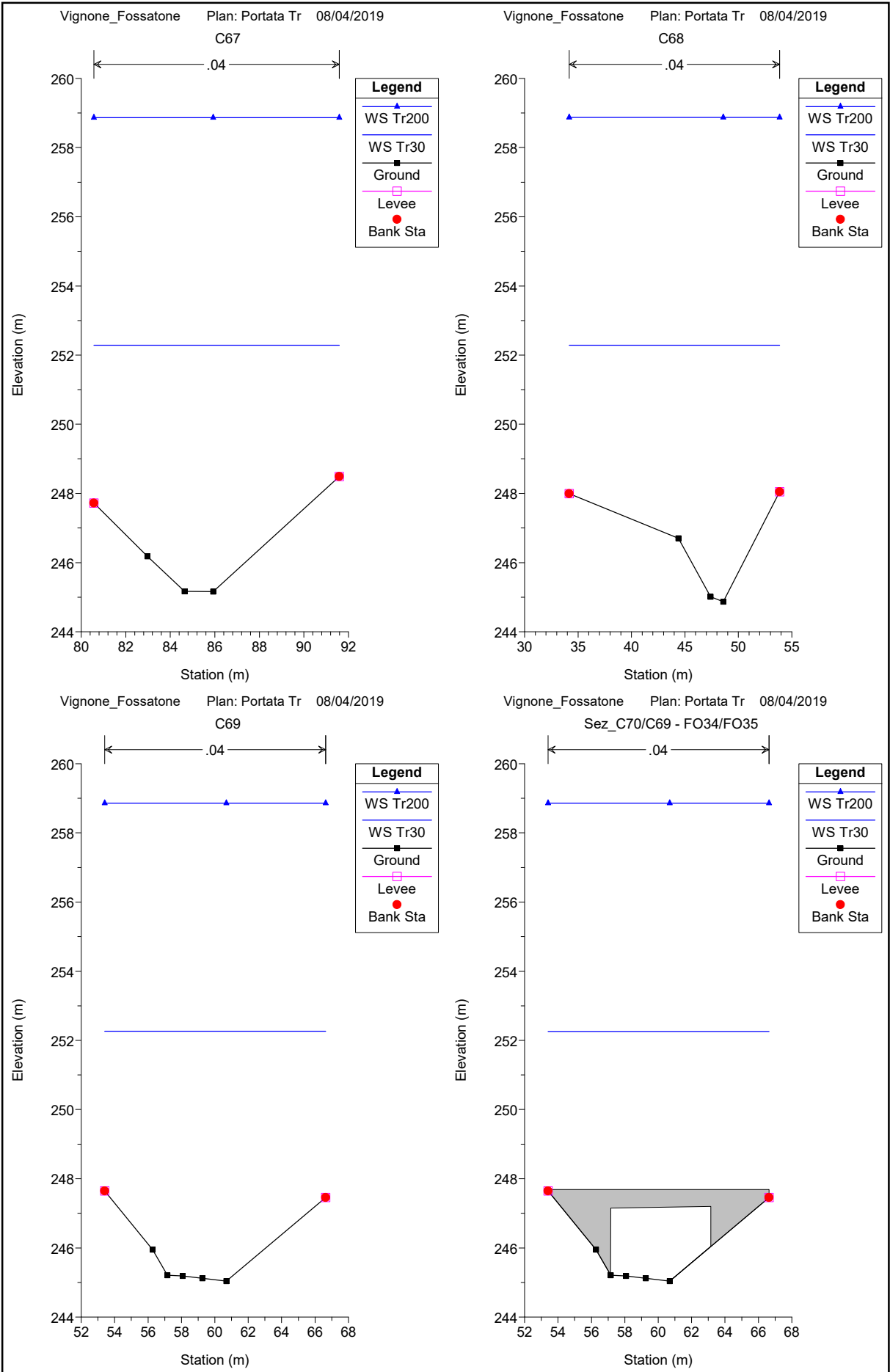


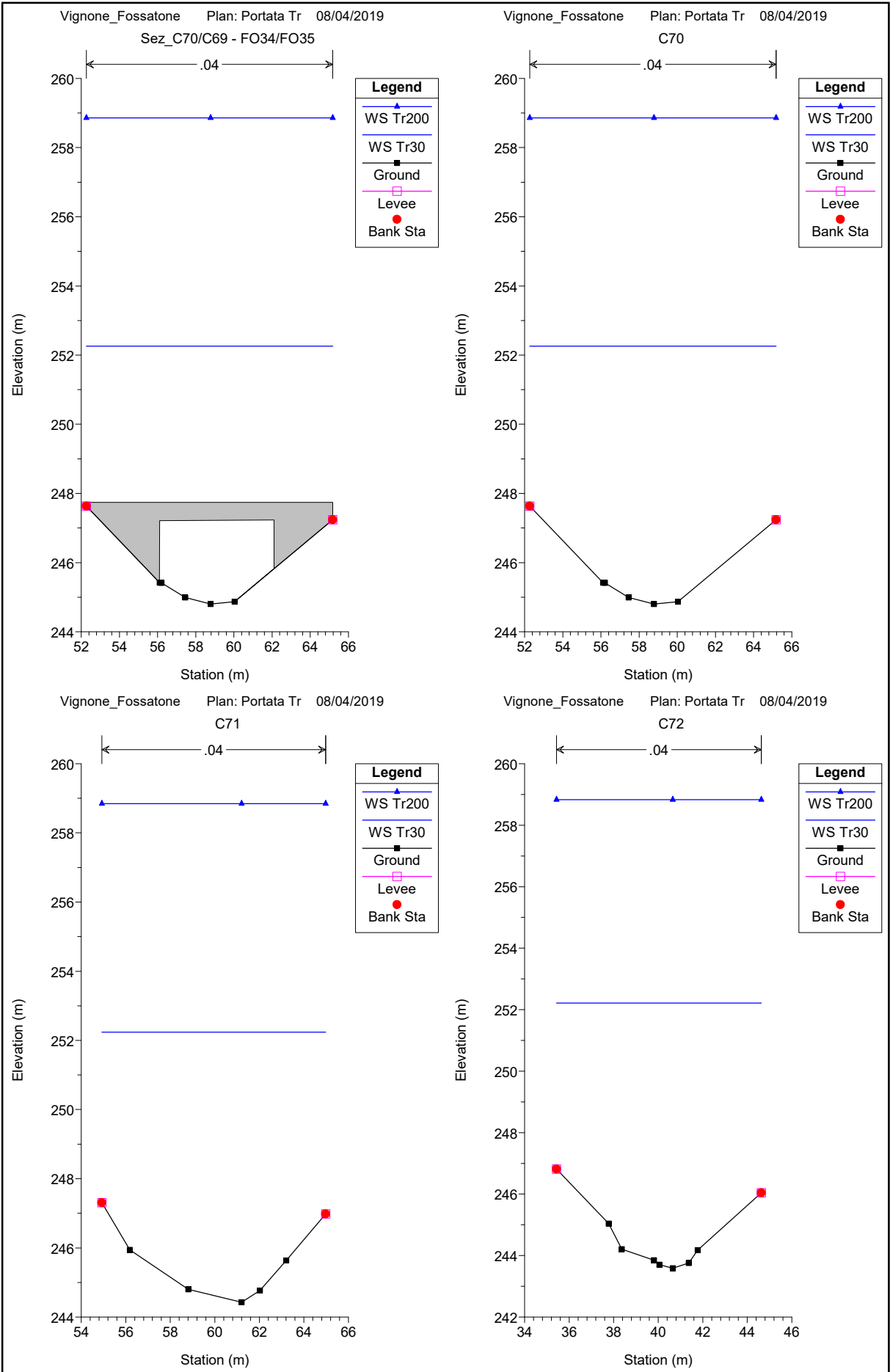
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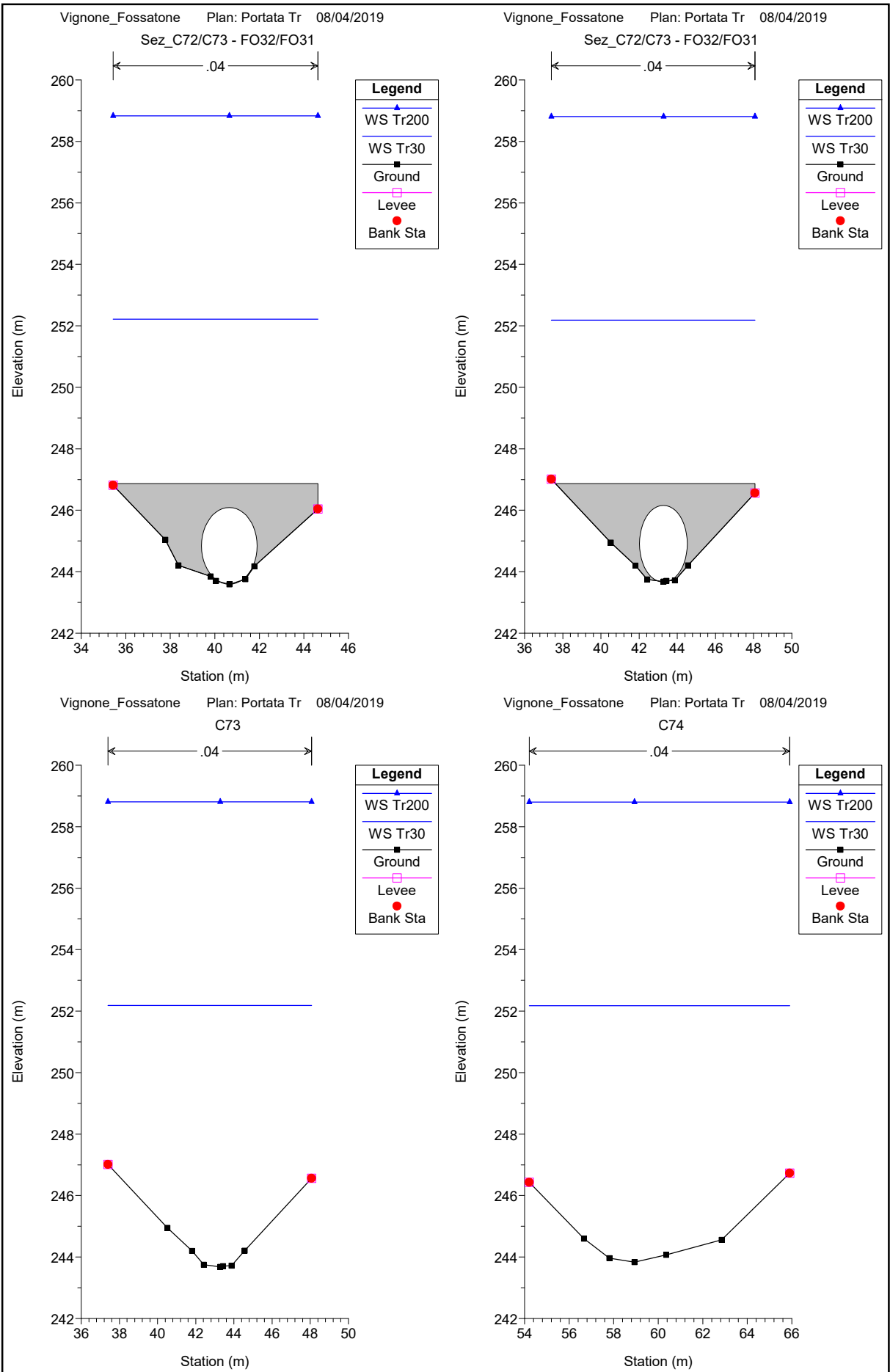
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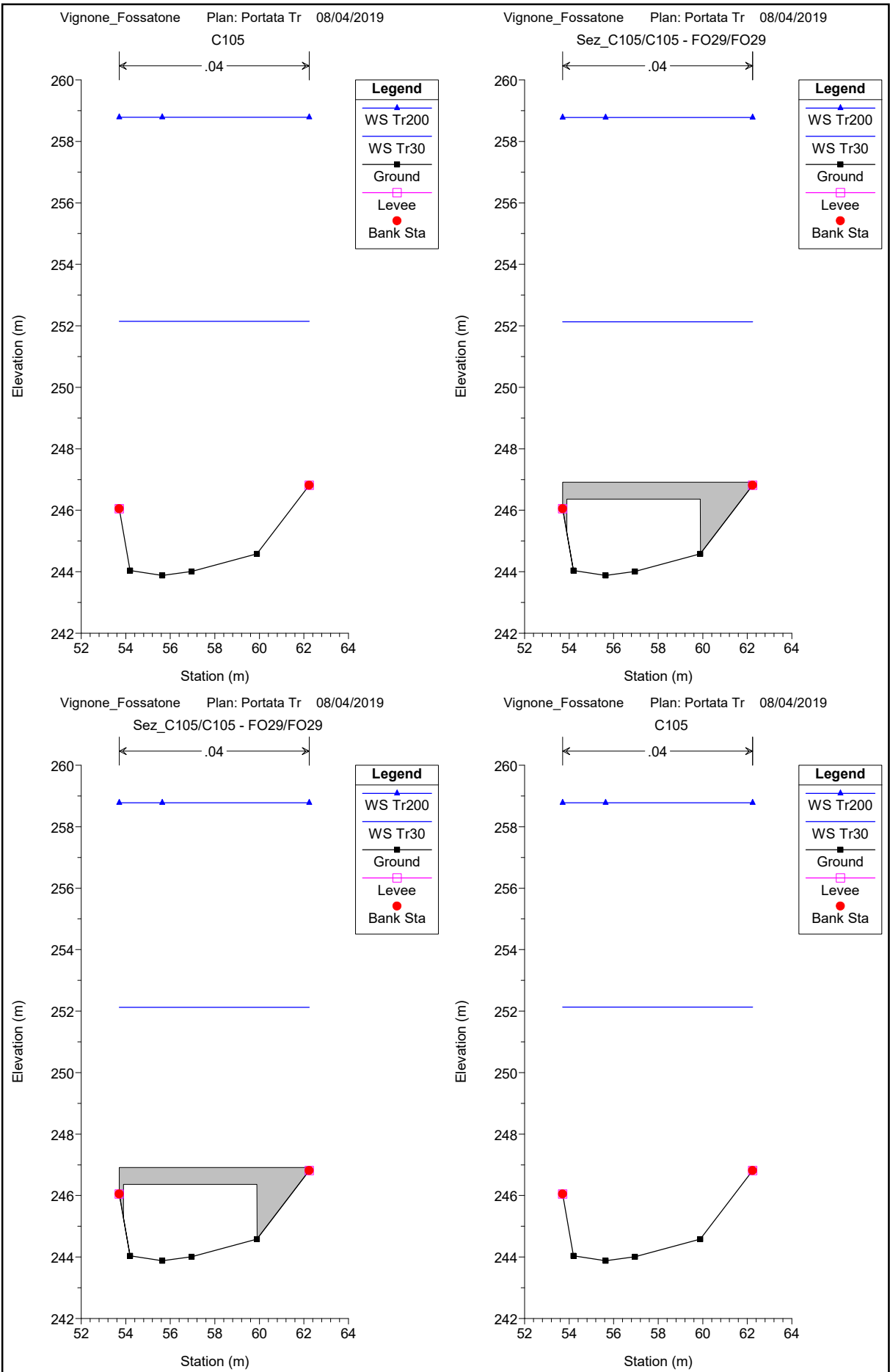


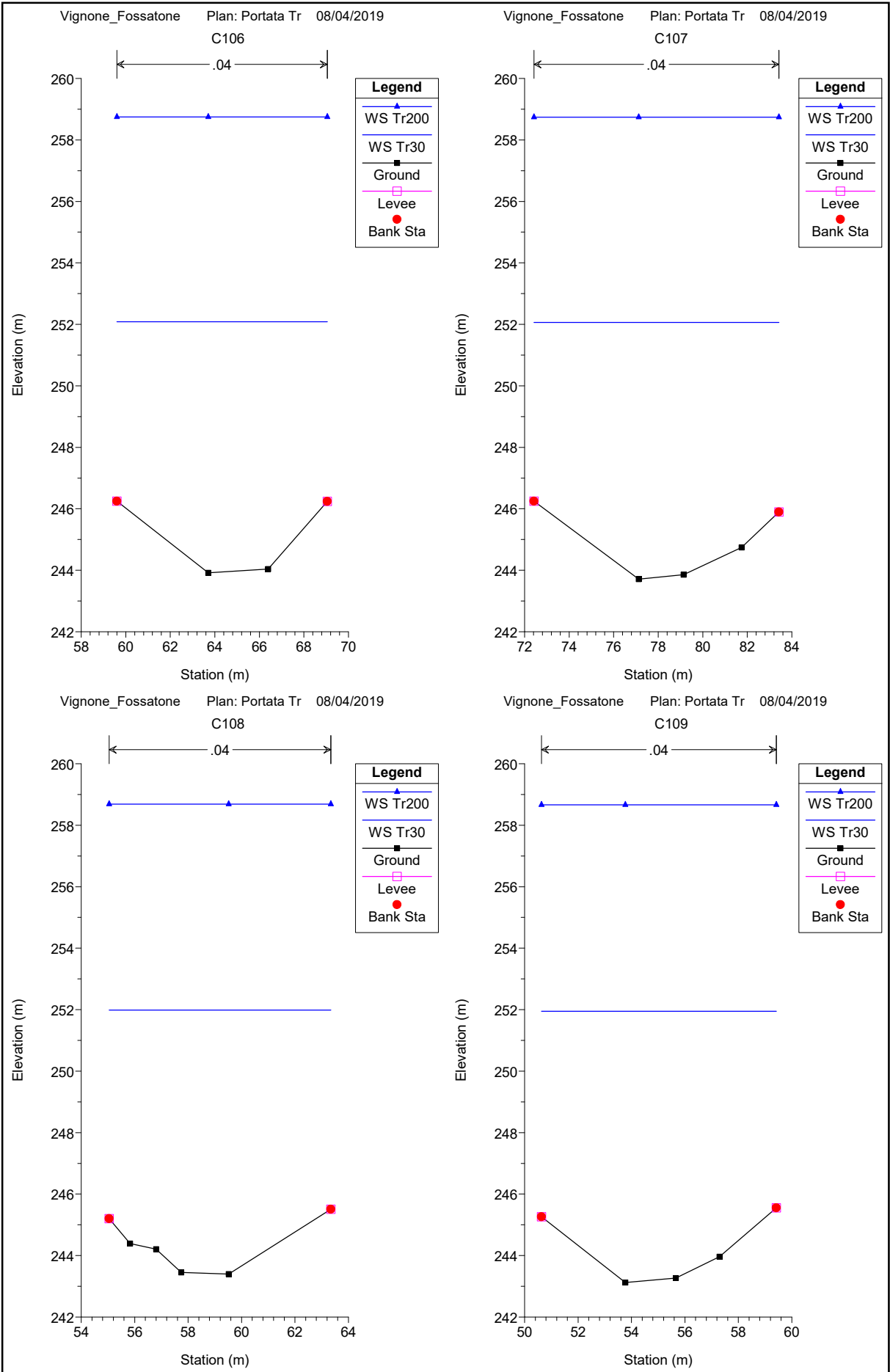


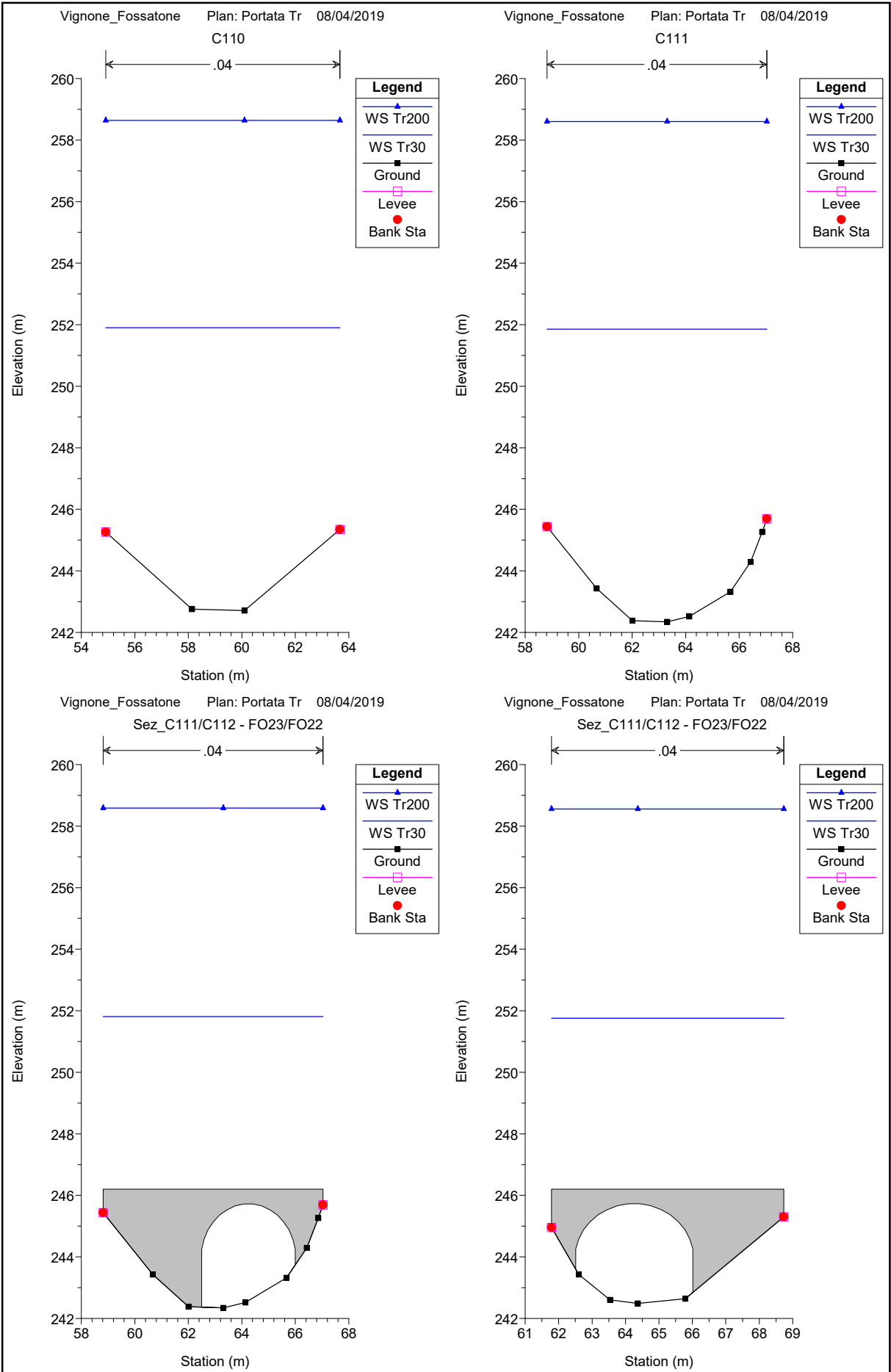


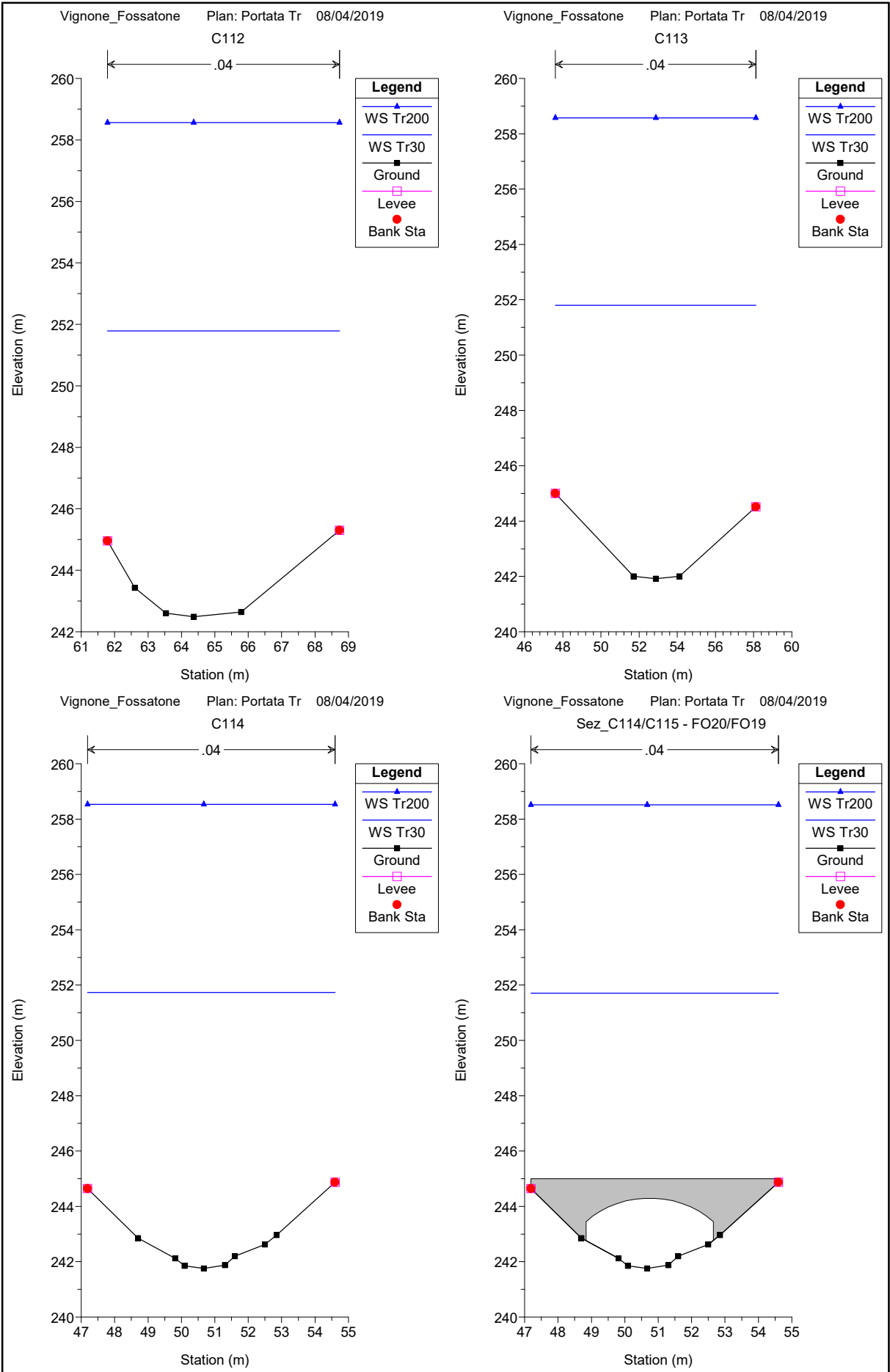




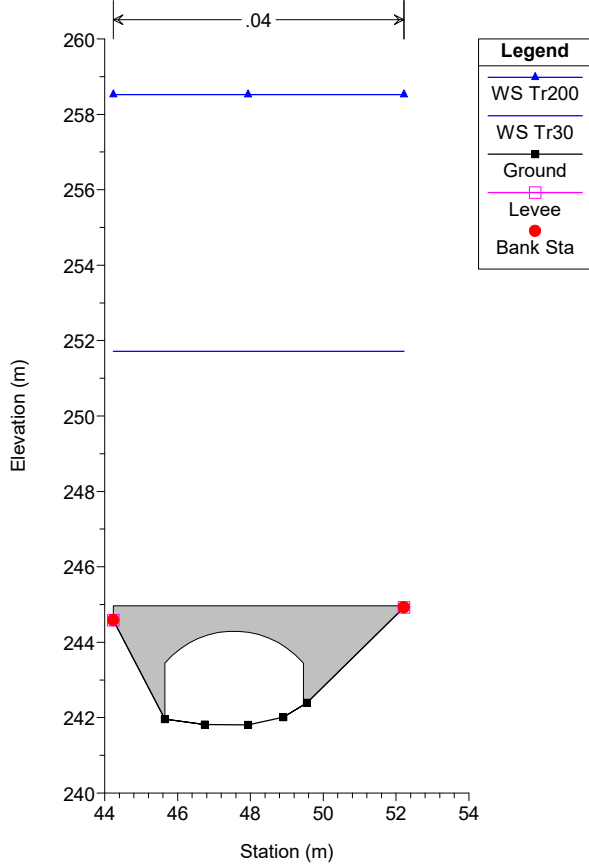




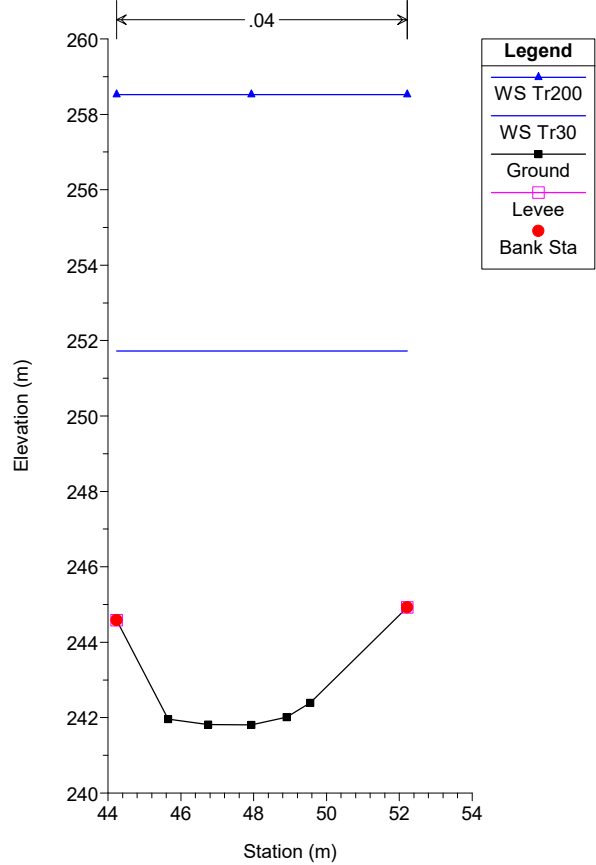




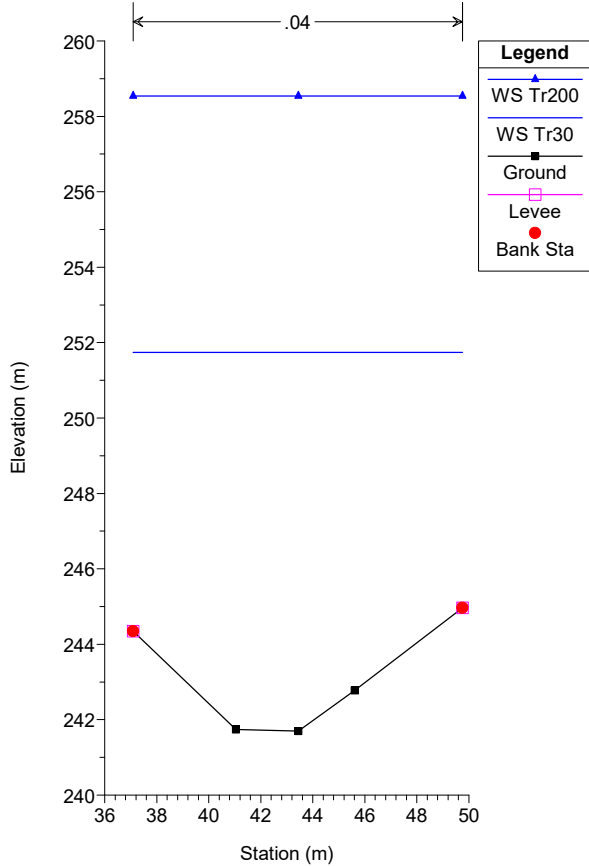
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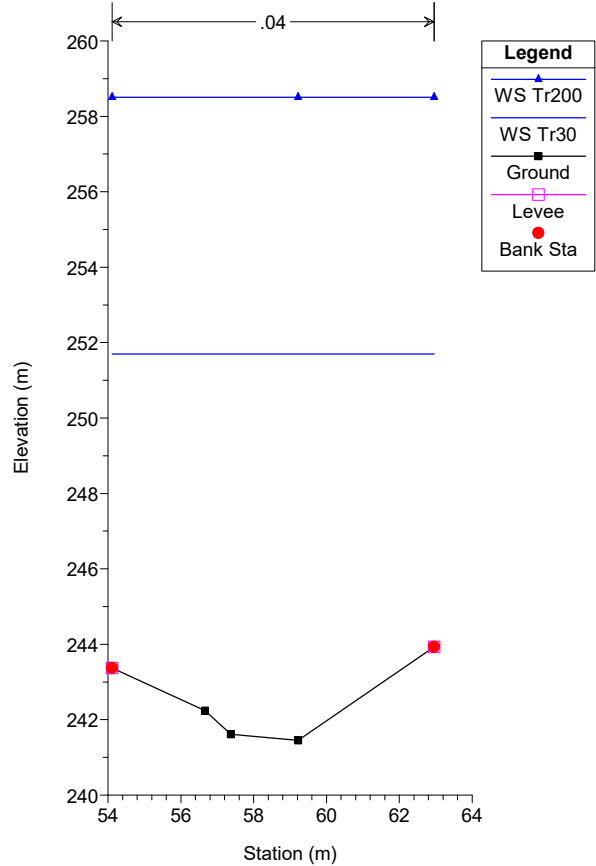
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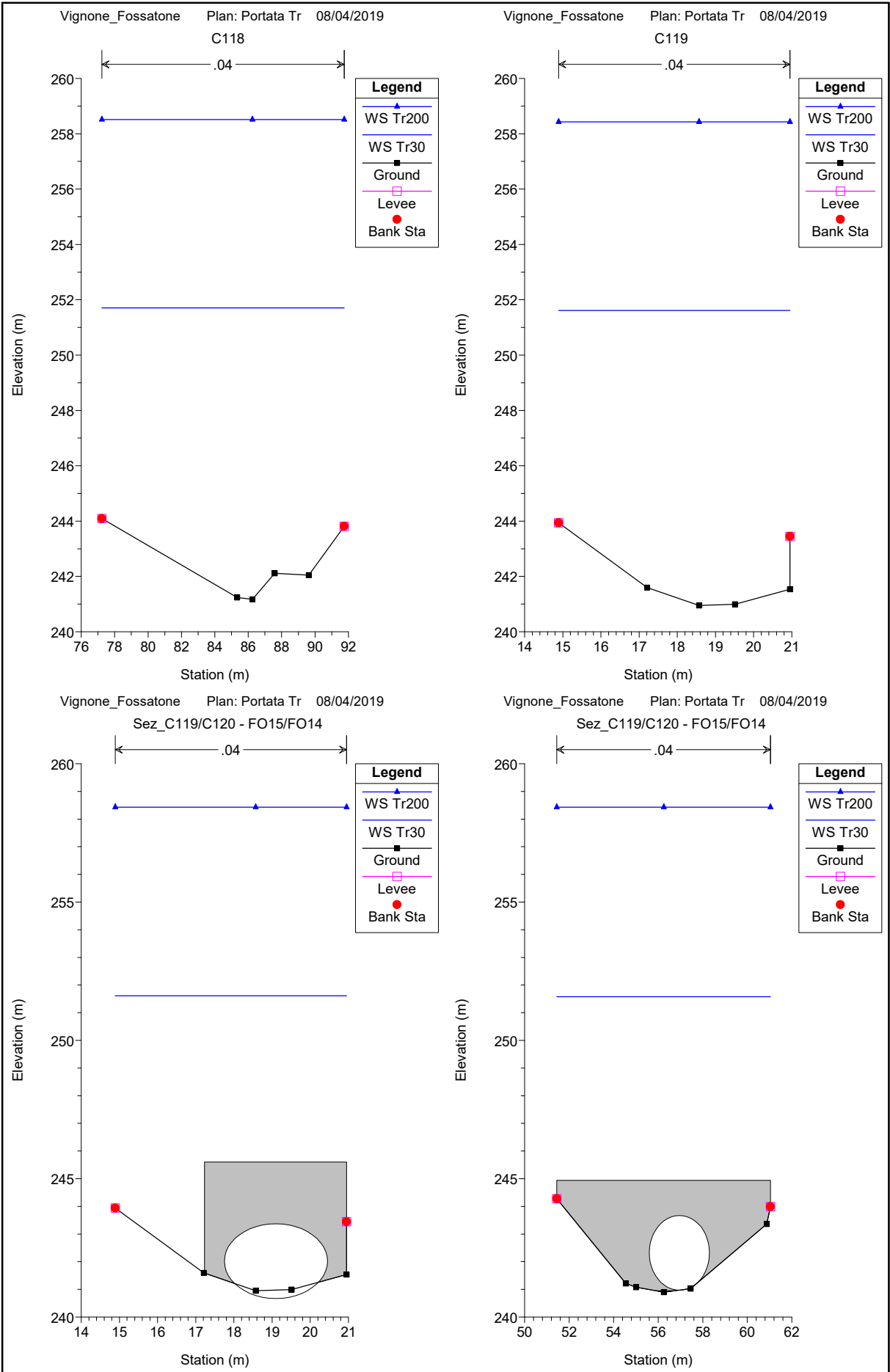


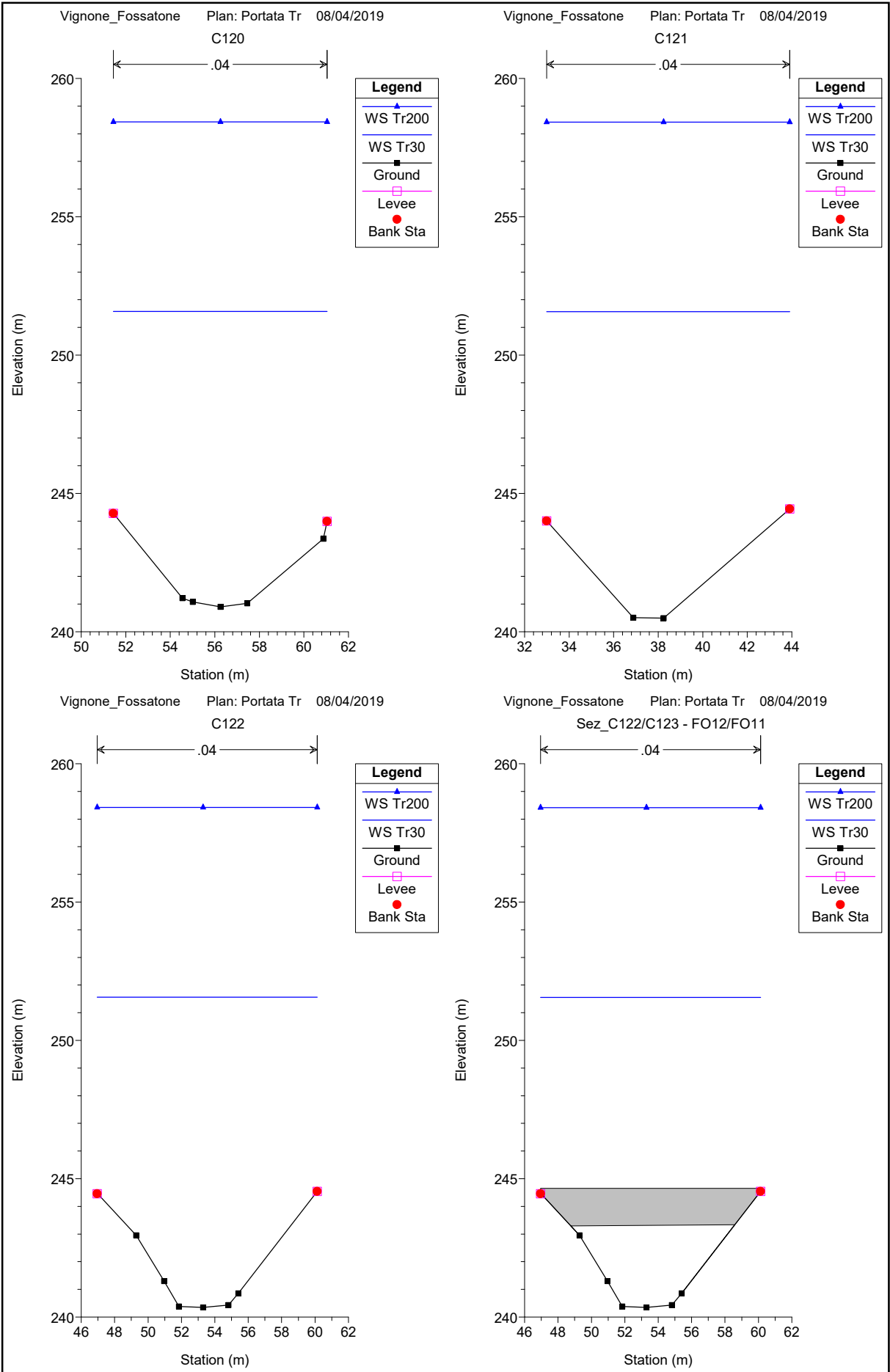
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C116



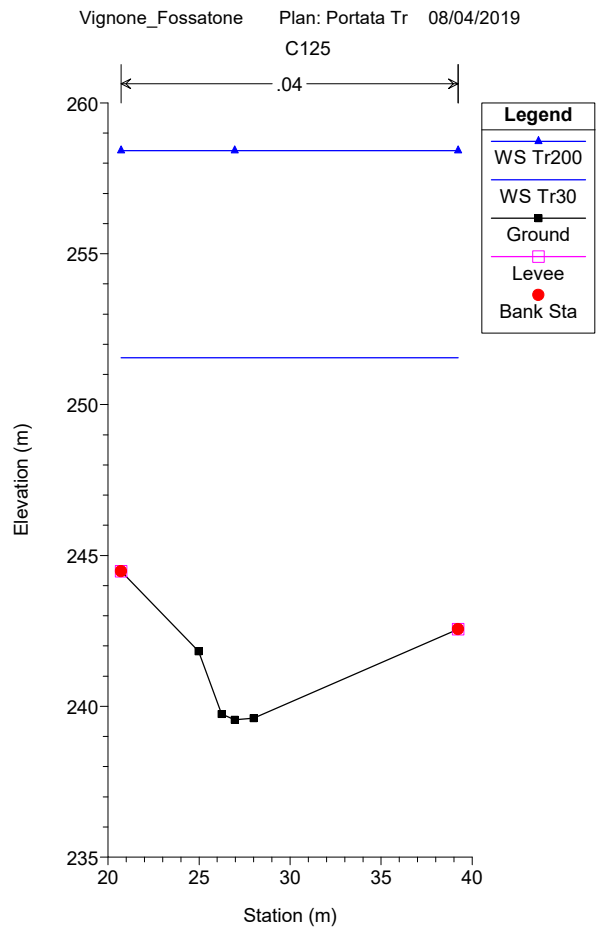
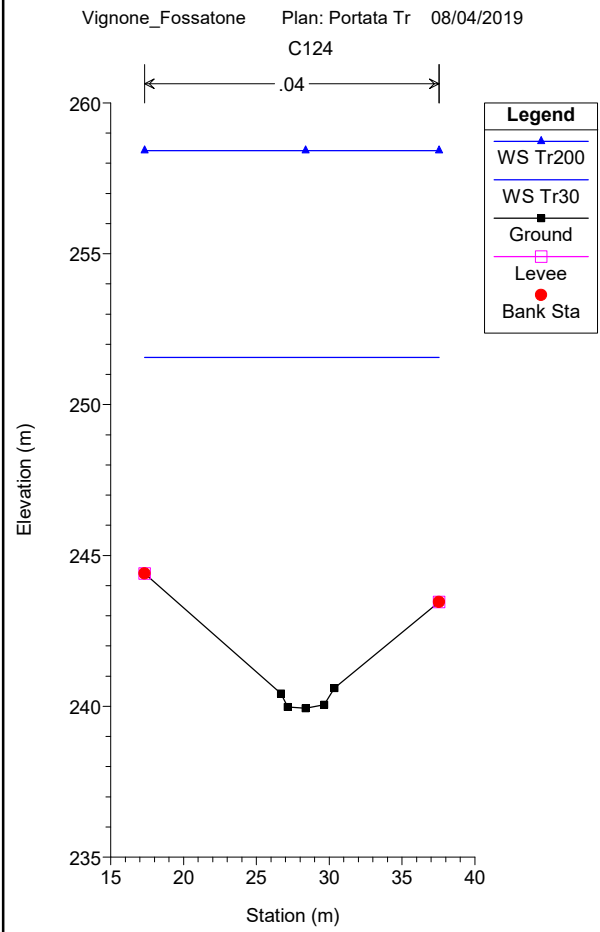
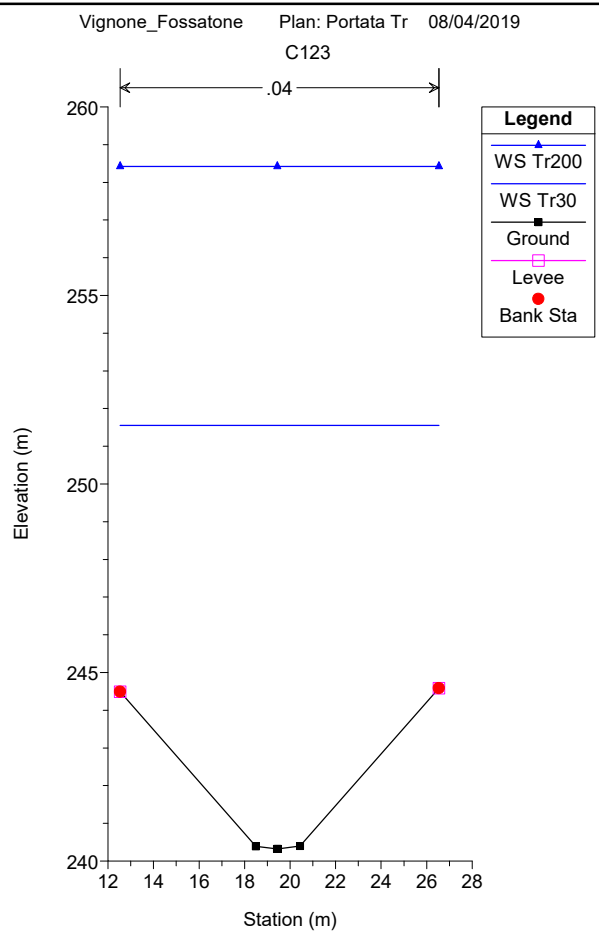
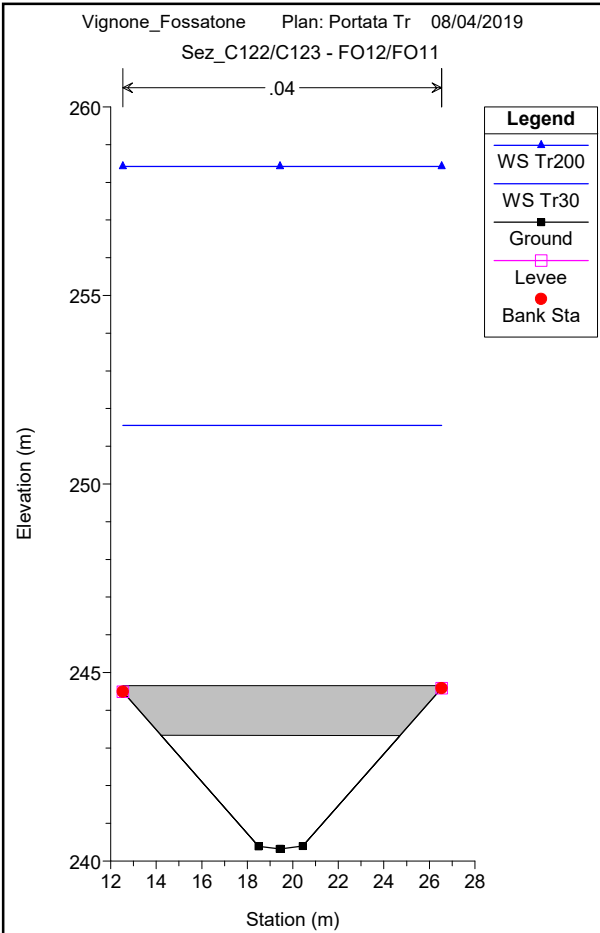
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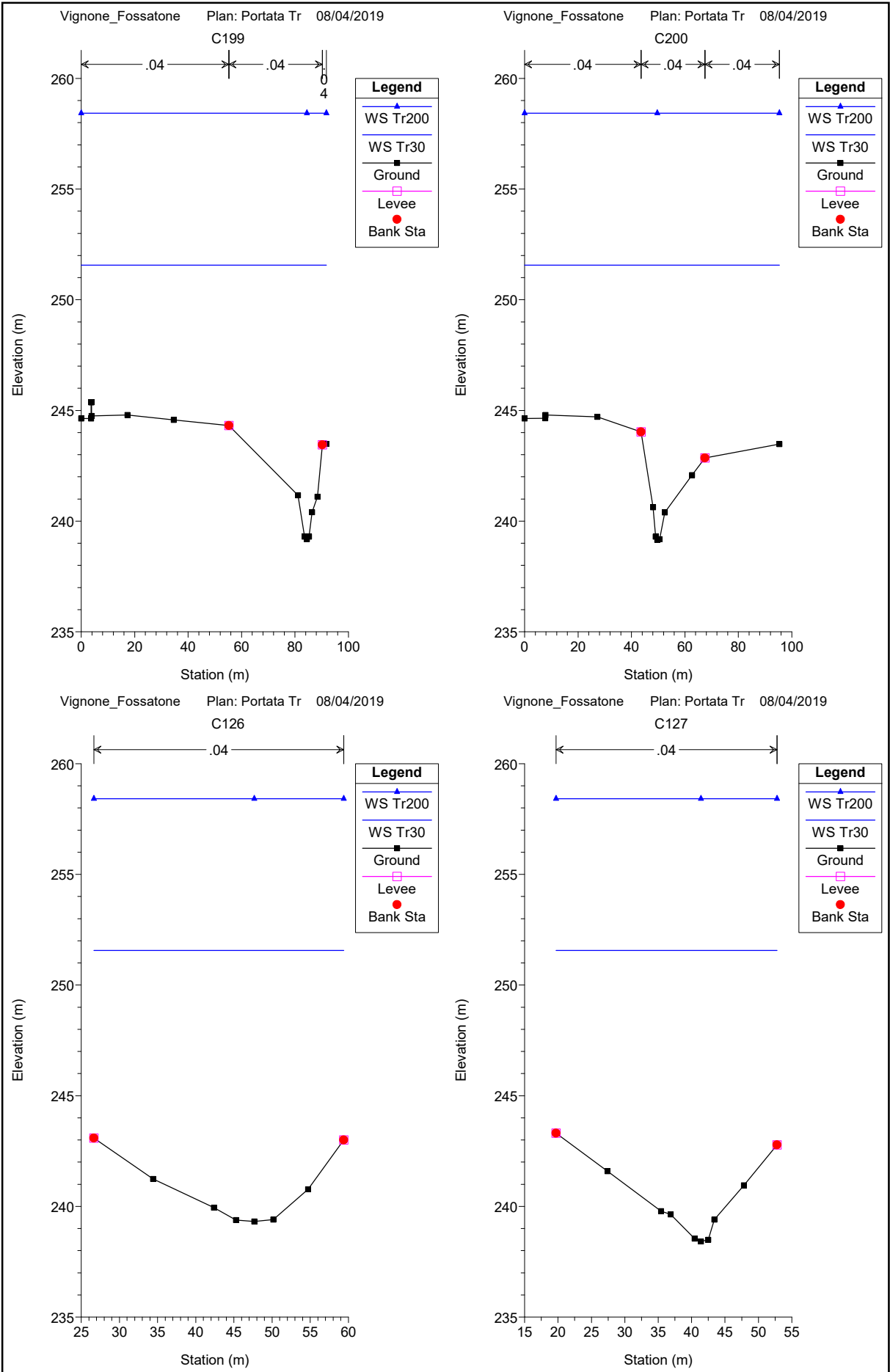


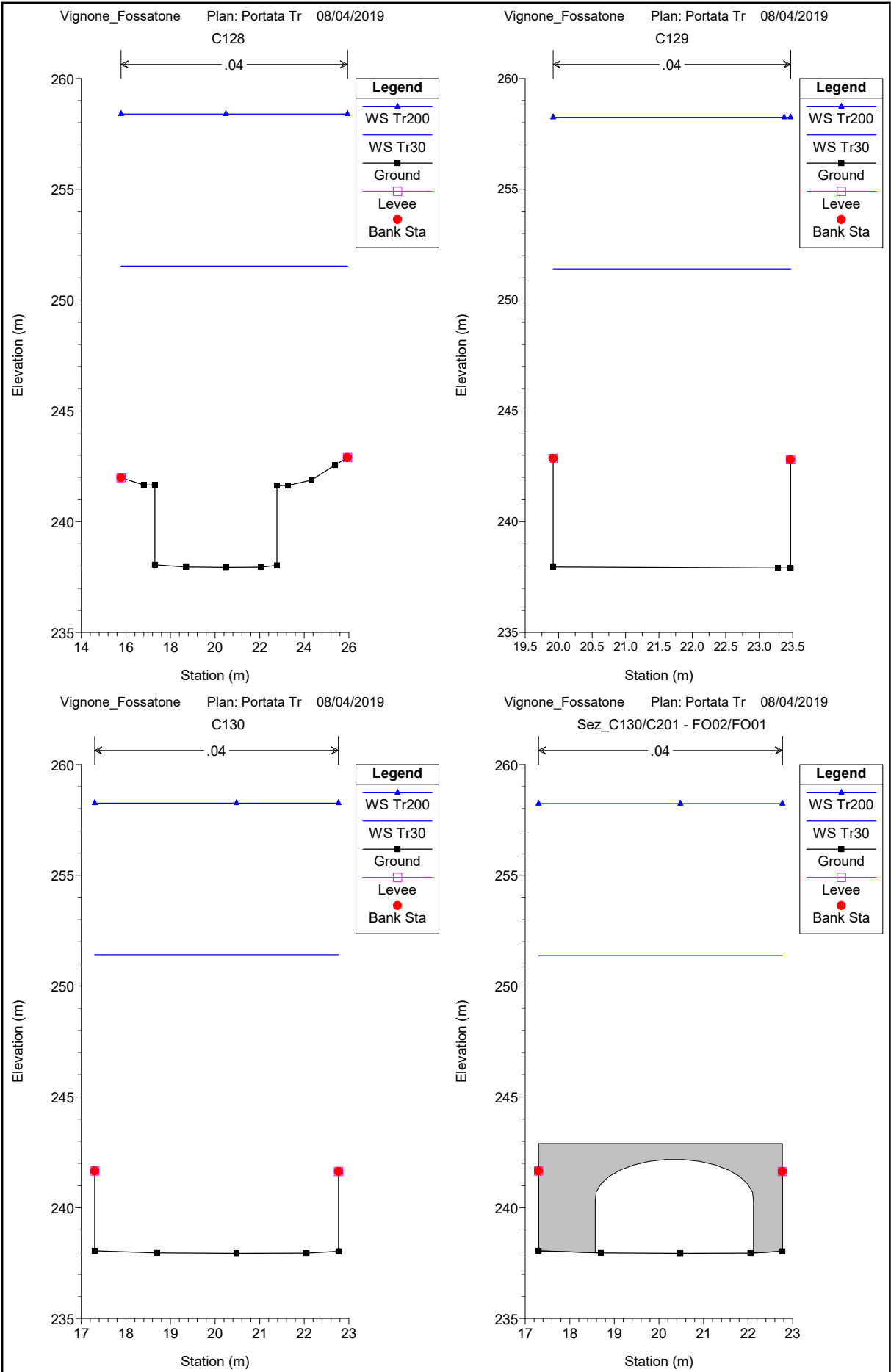


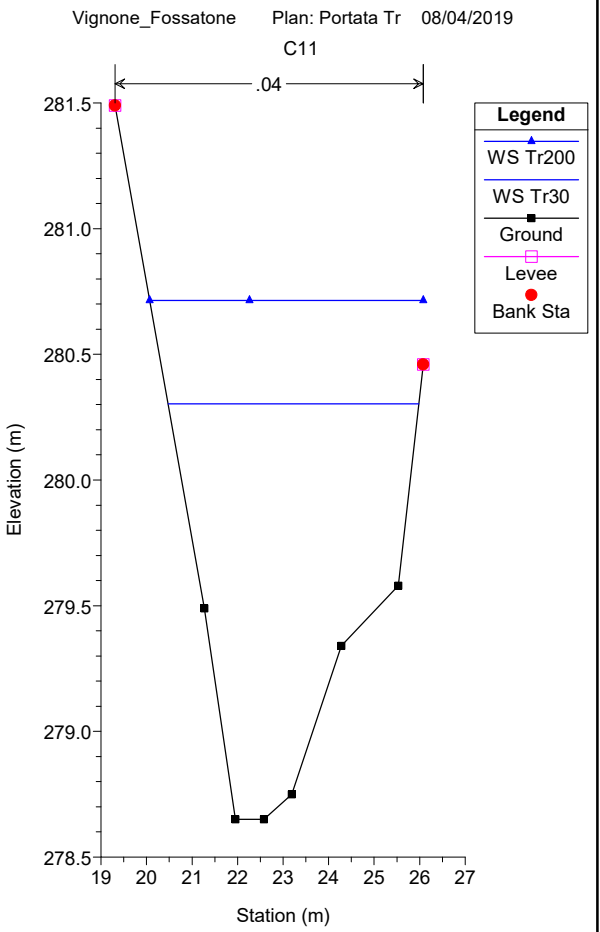
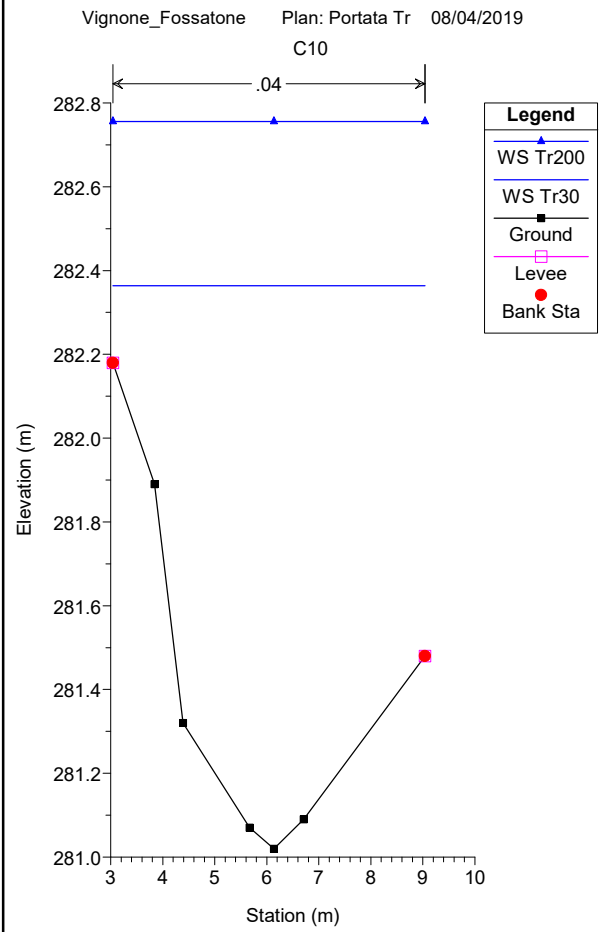
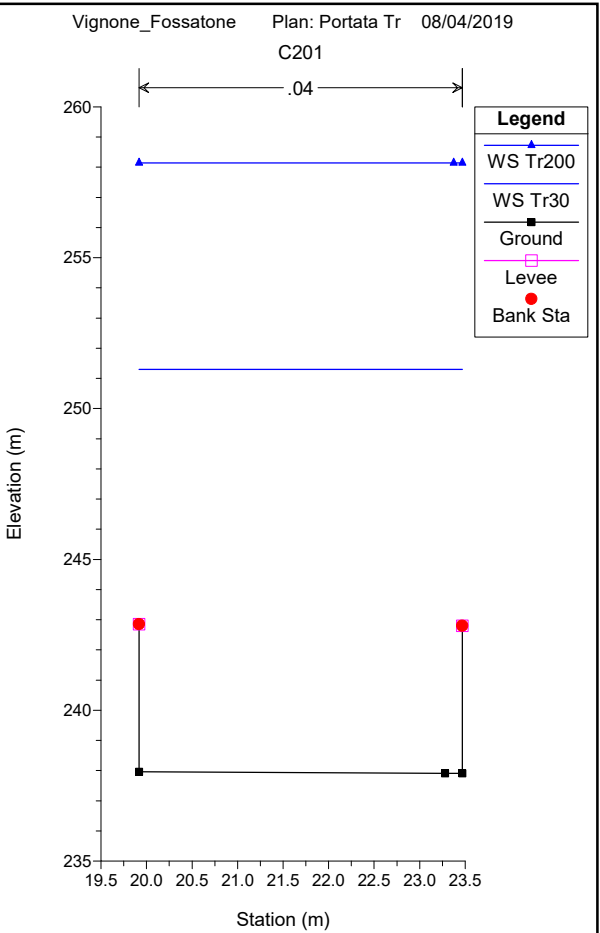
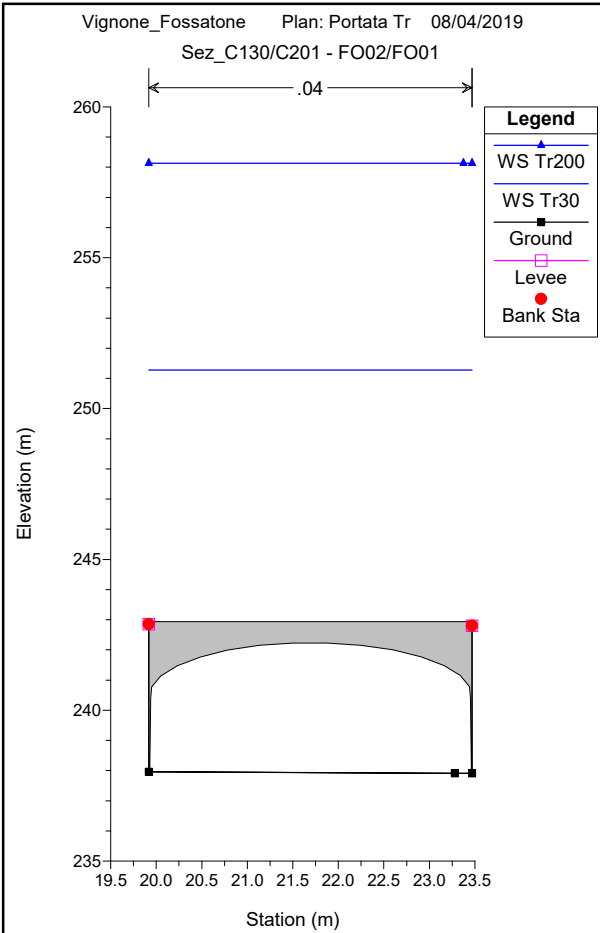


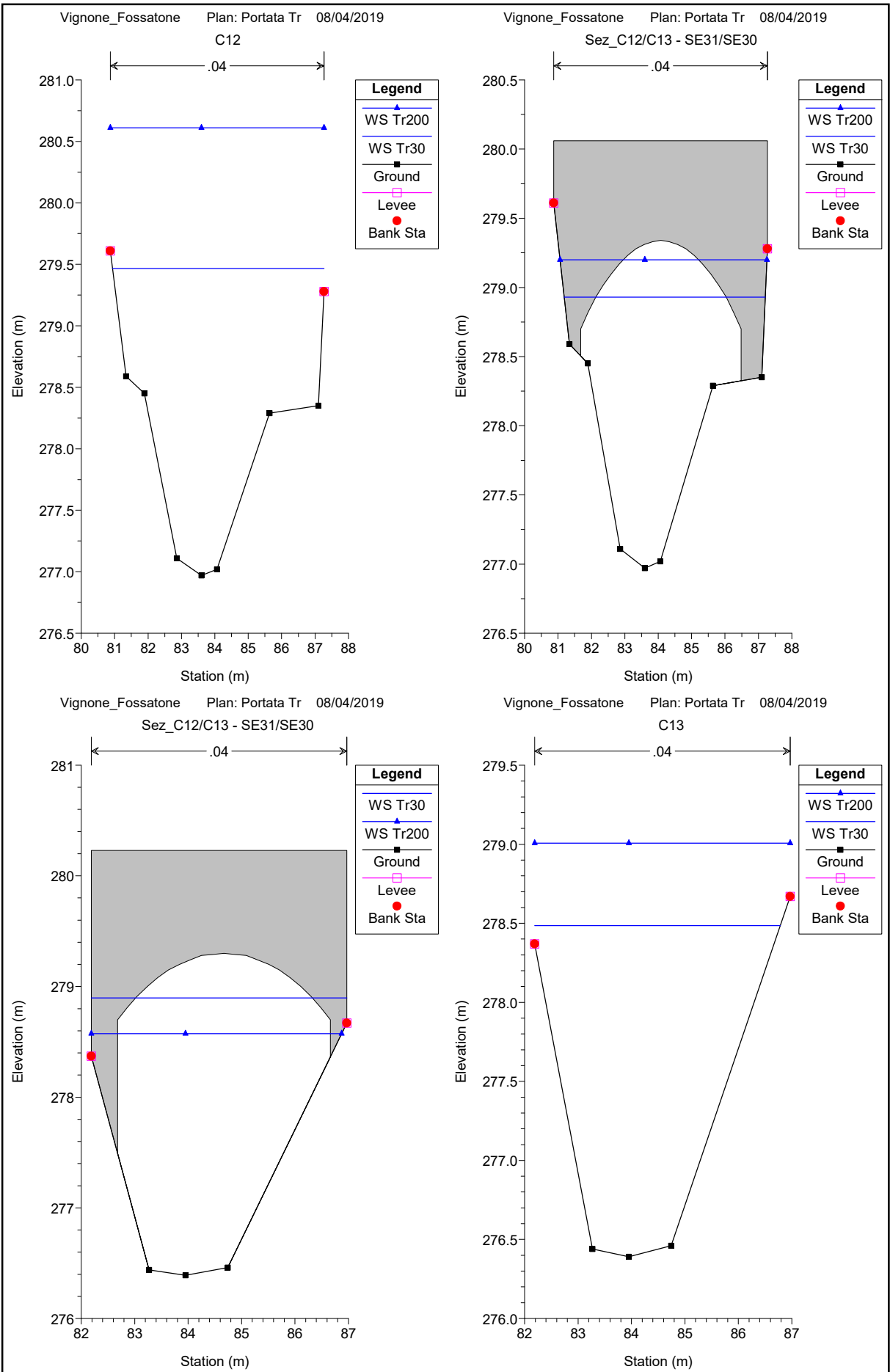


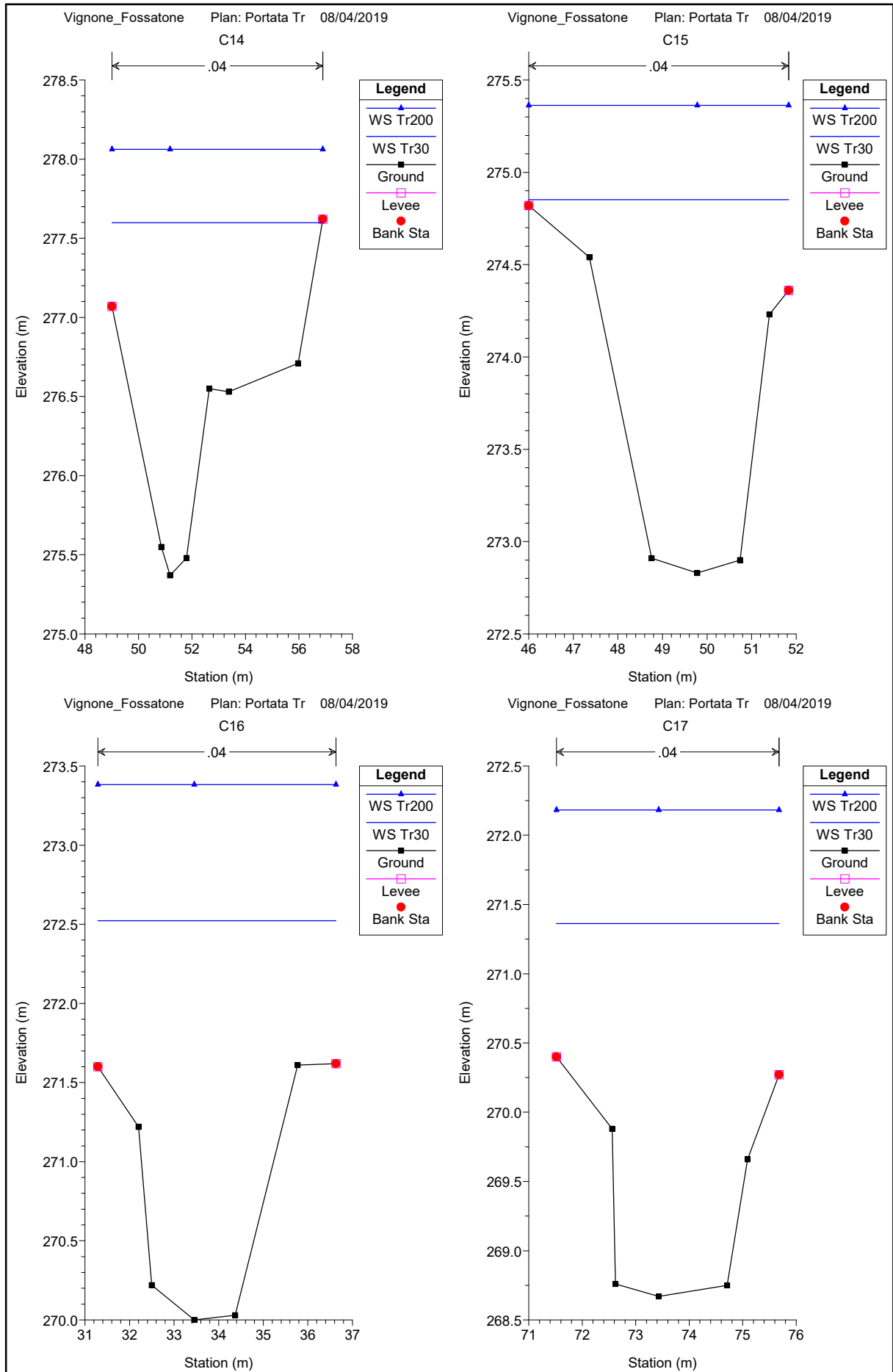


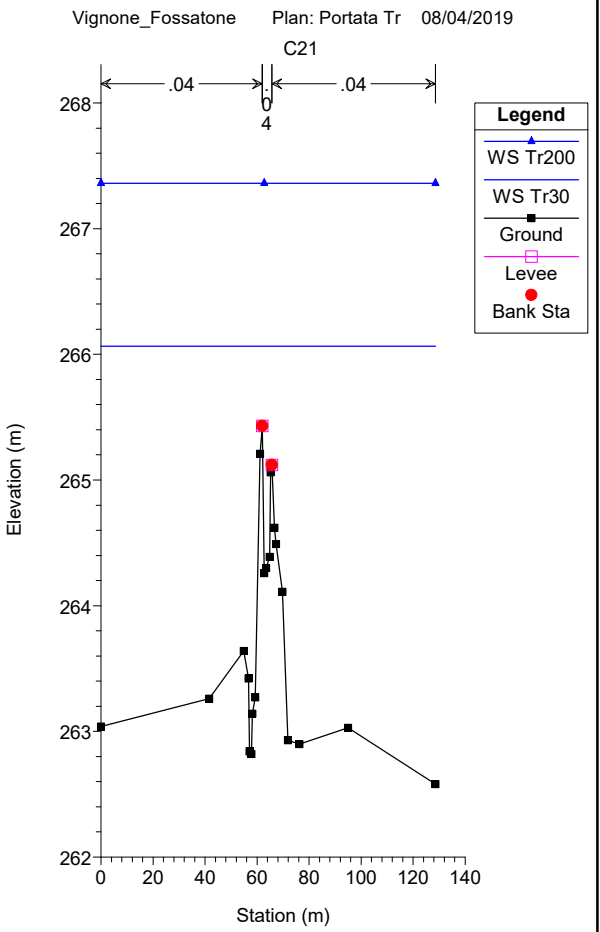
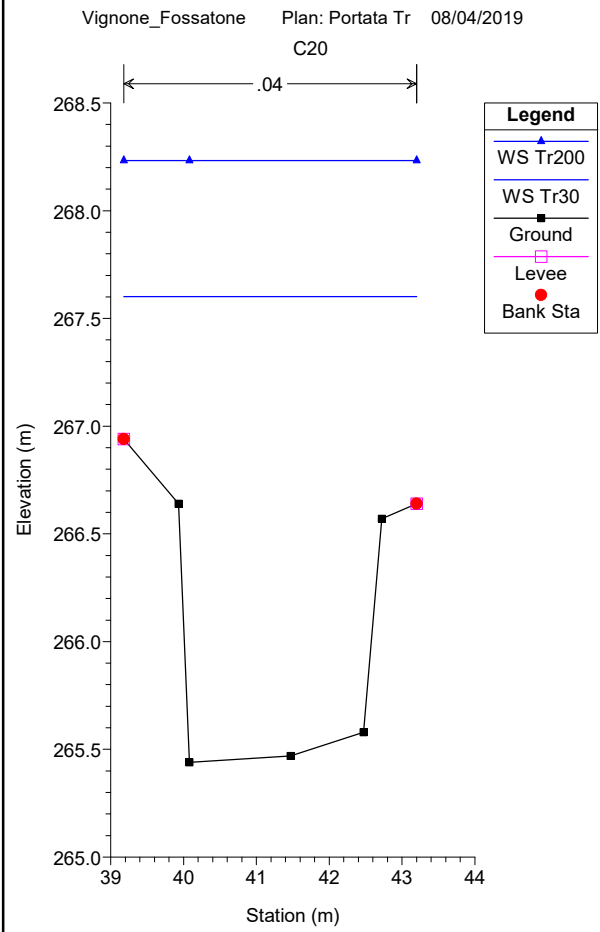
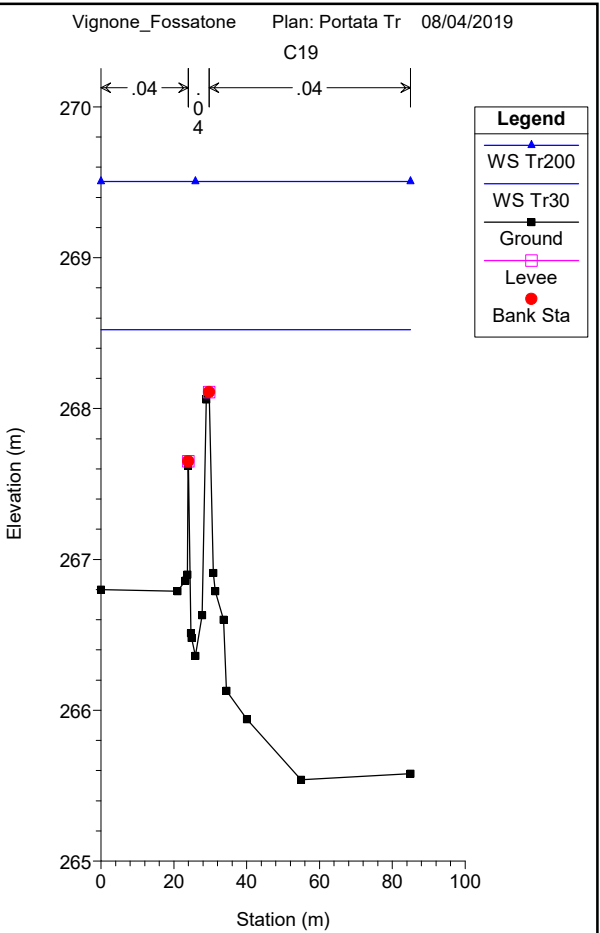
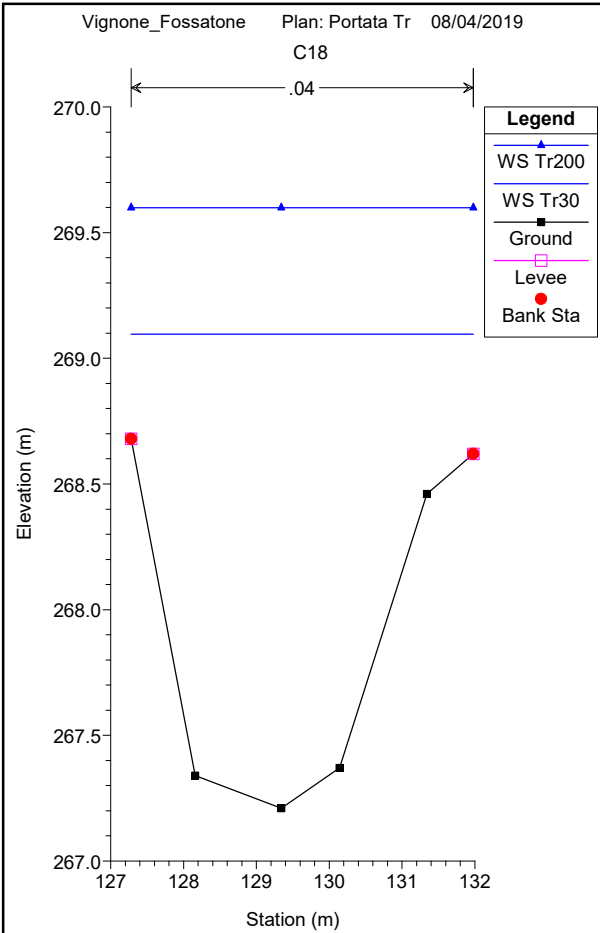




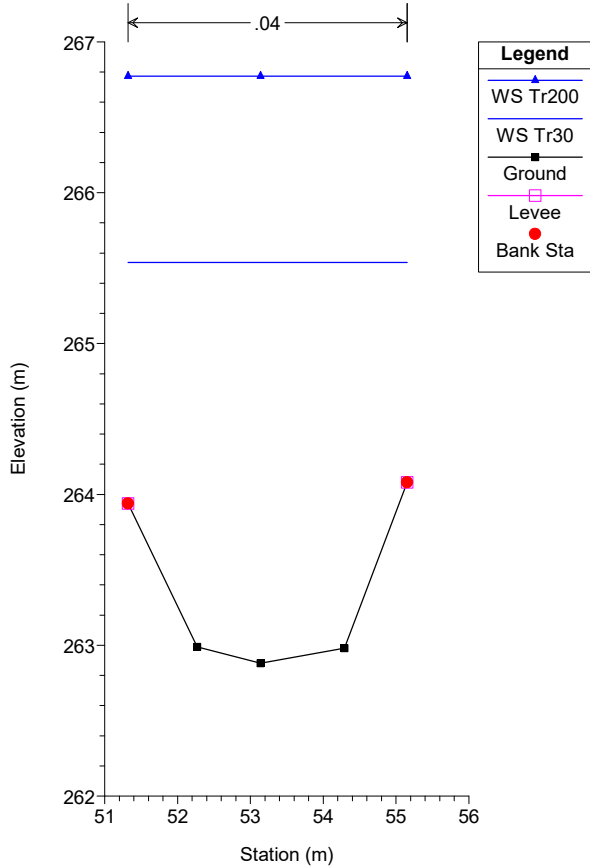




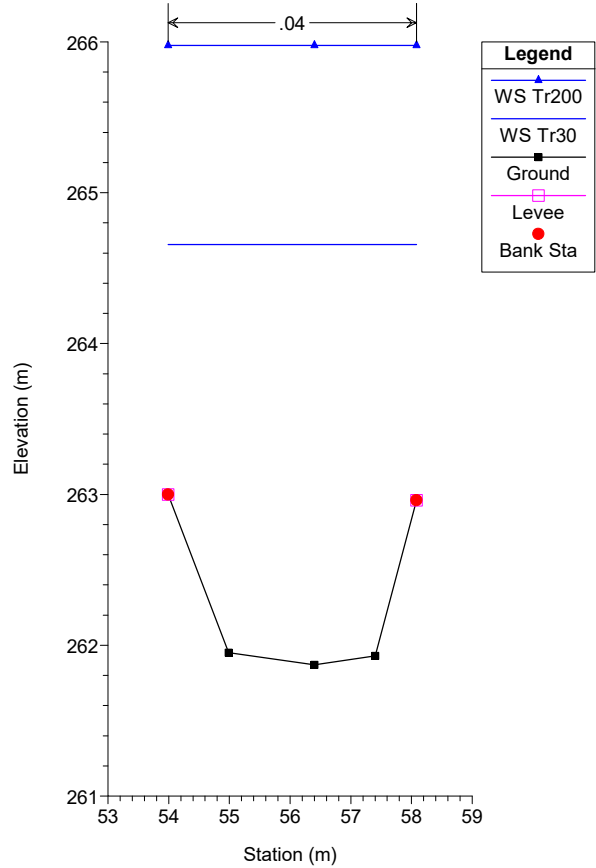




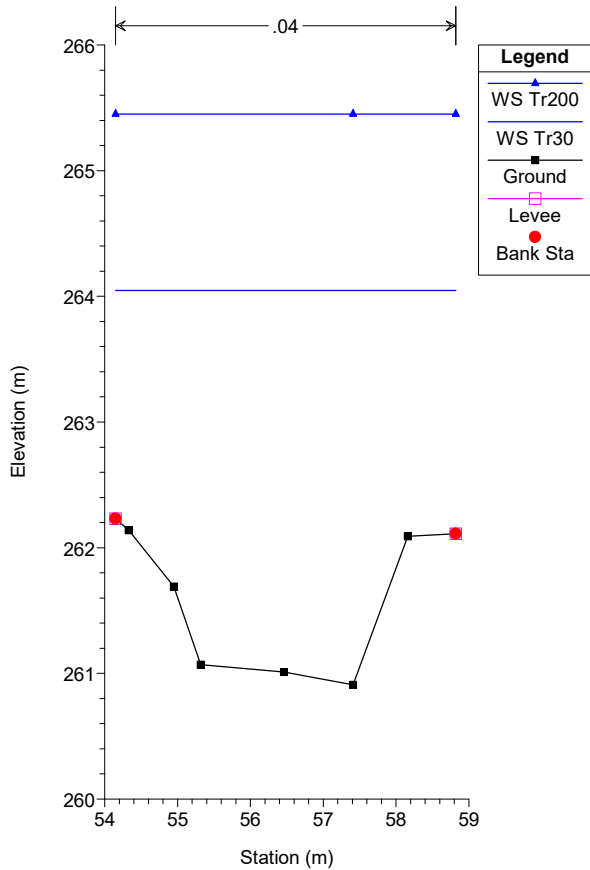
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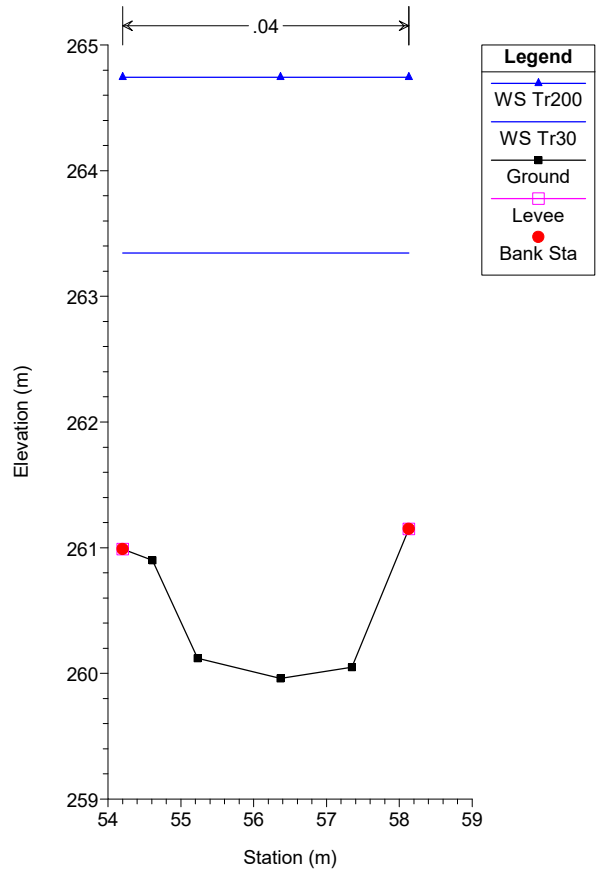
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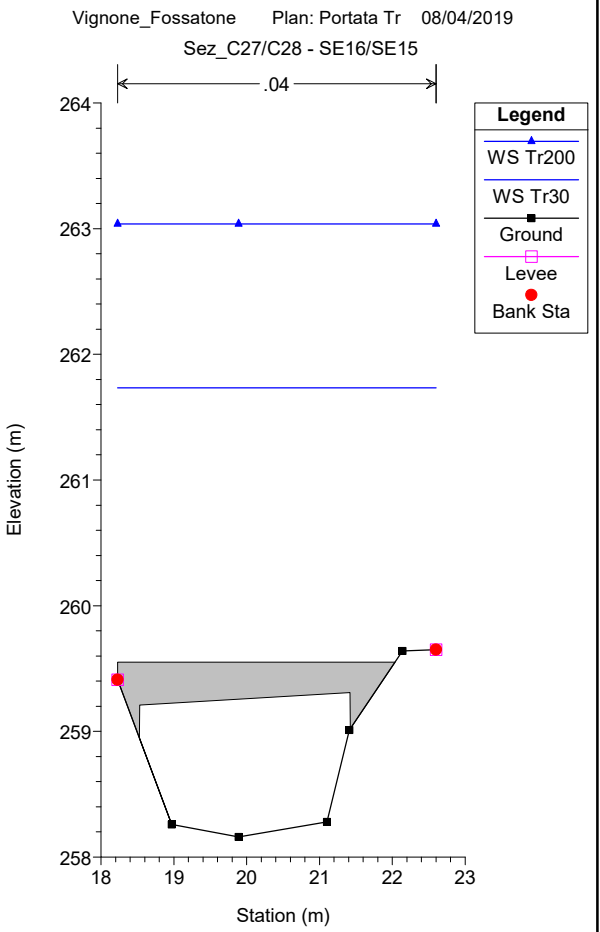
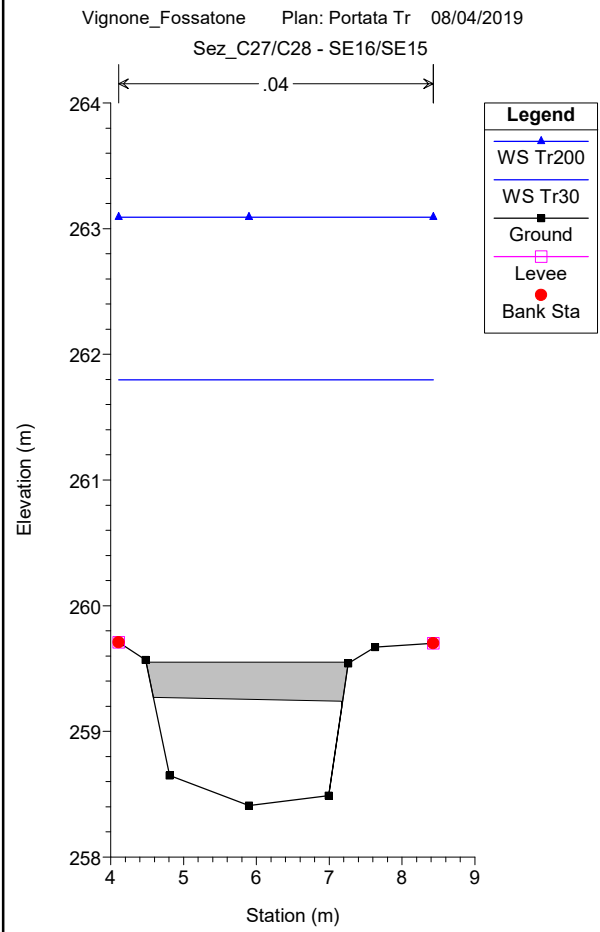
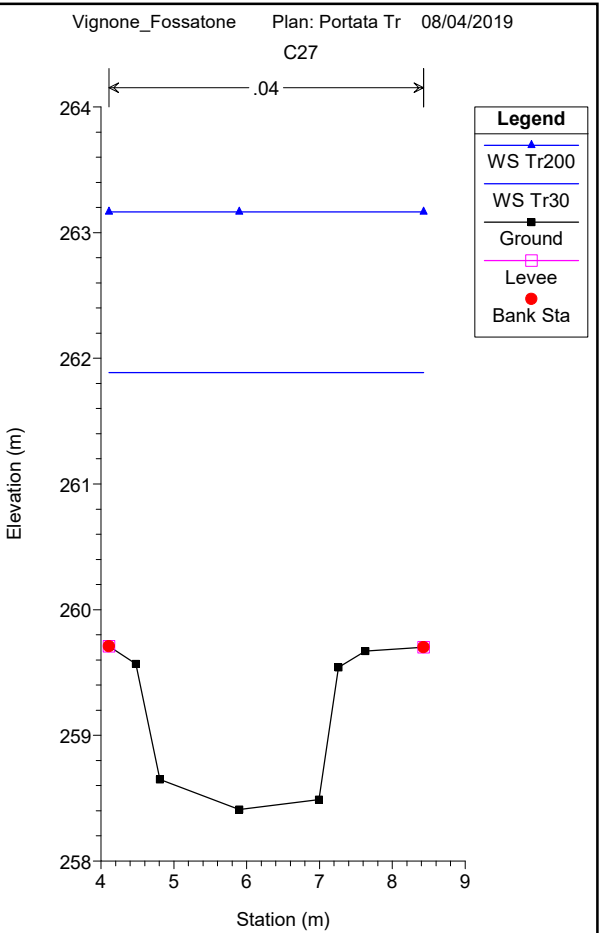
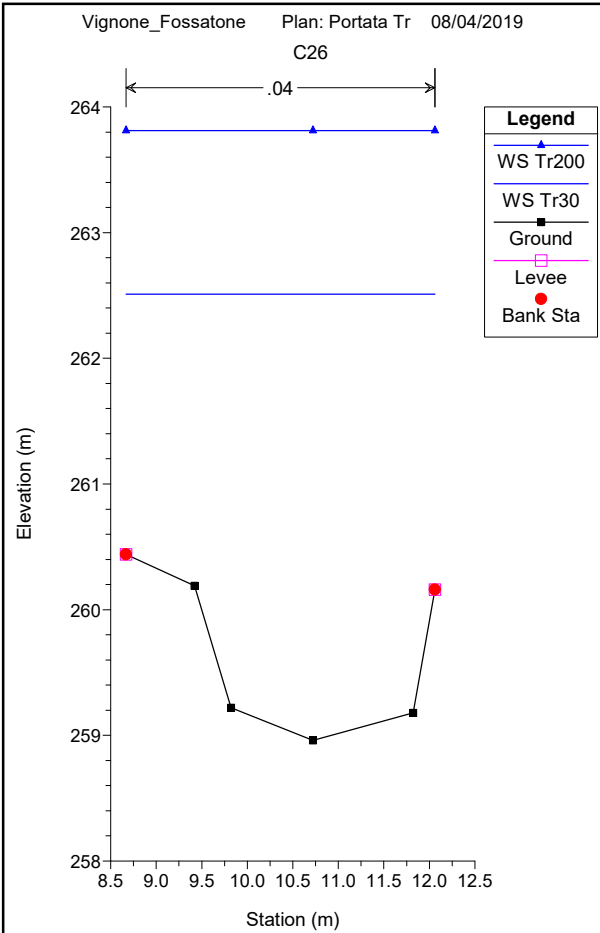
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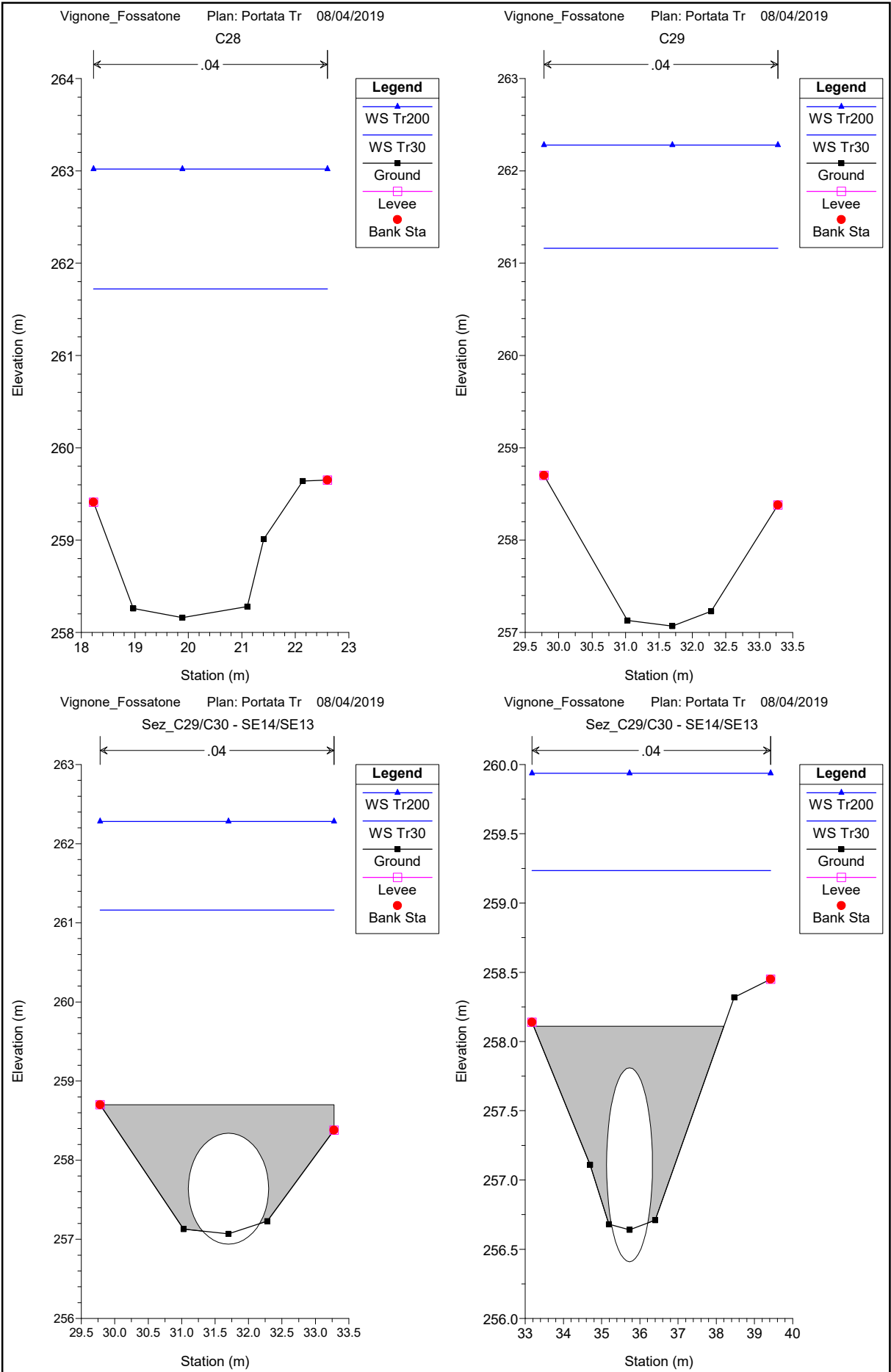


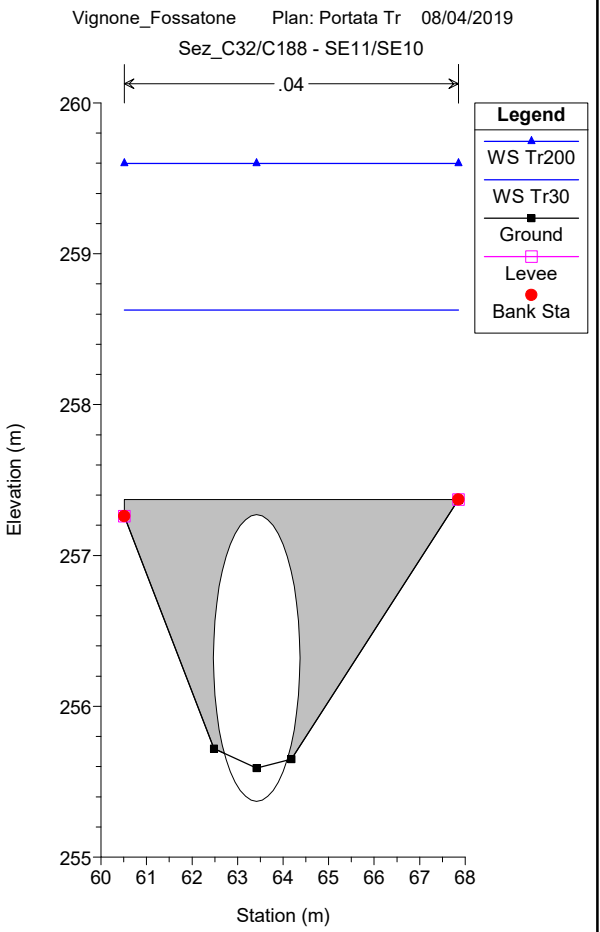
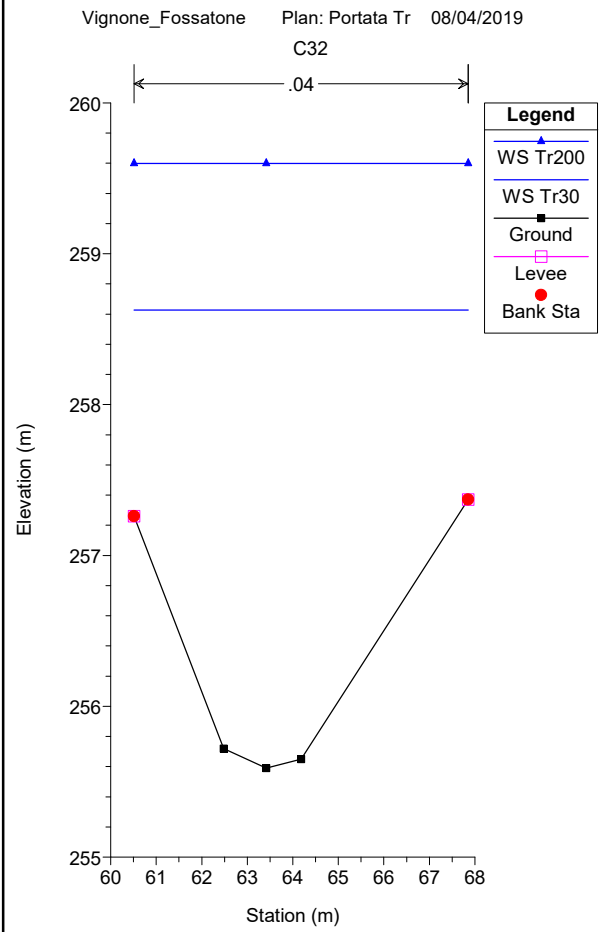
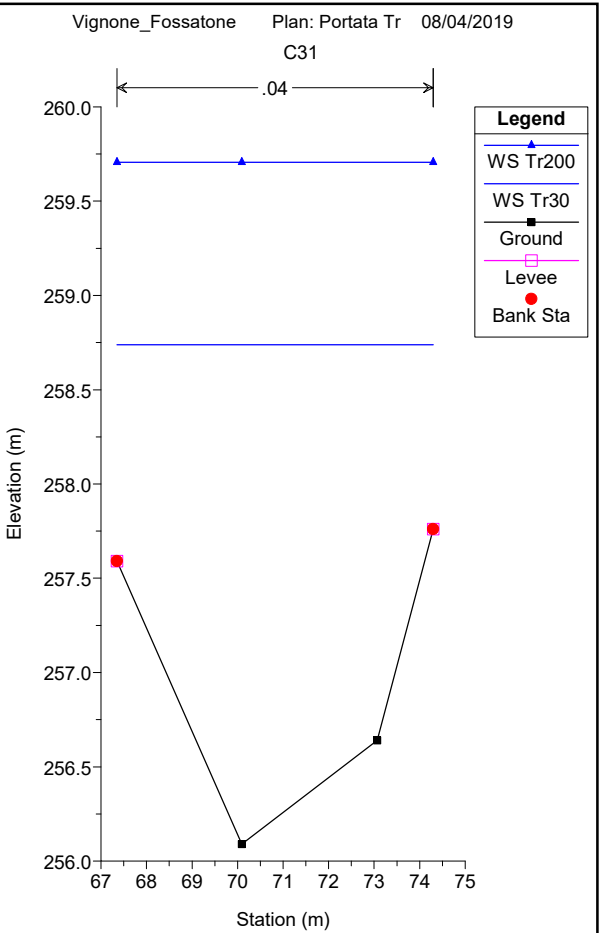
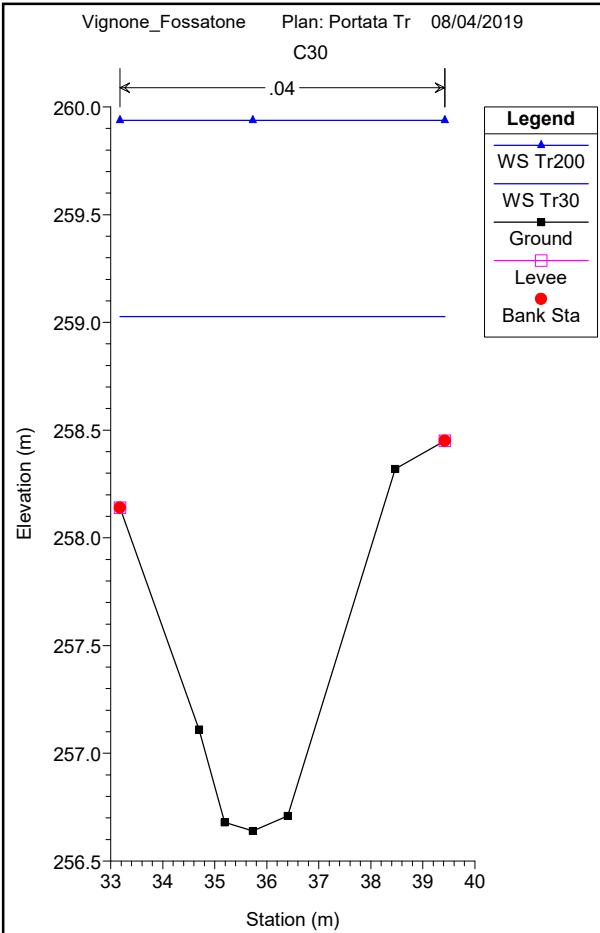
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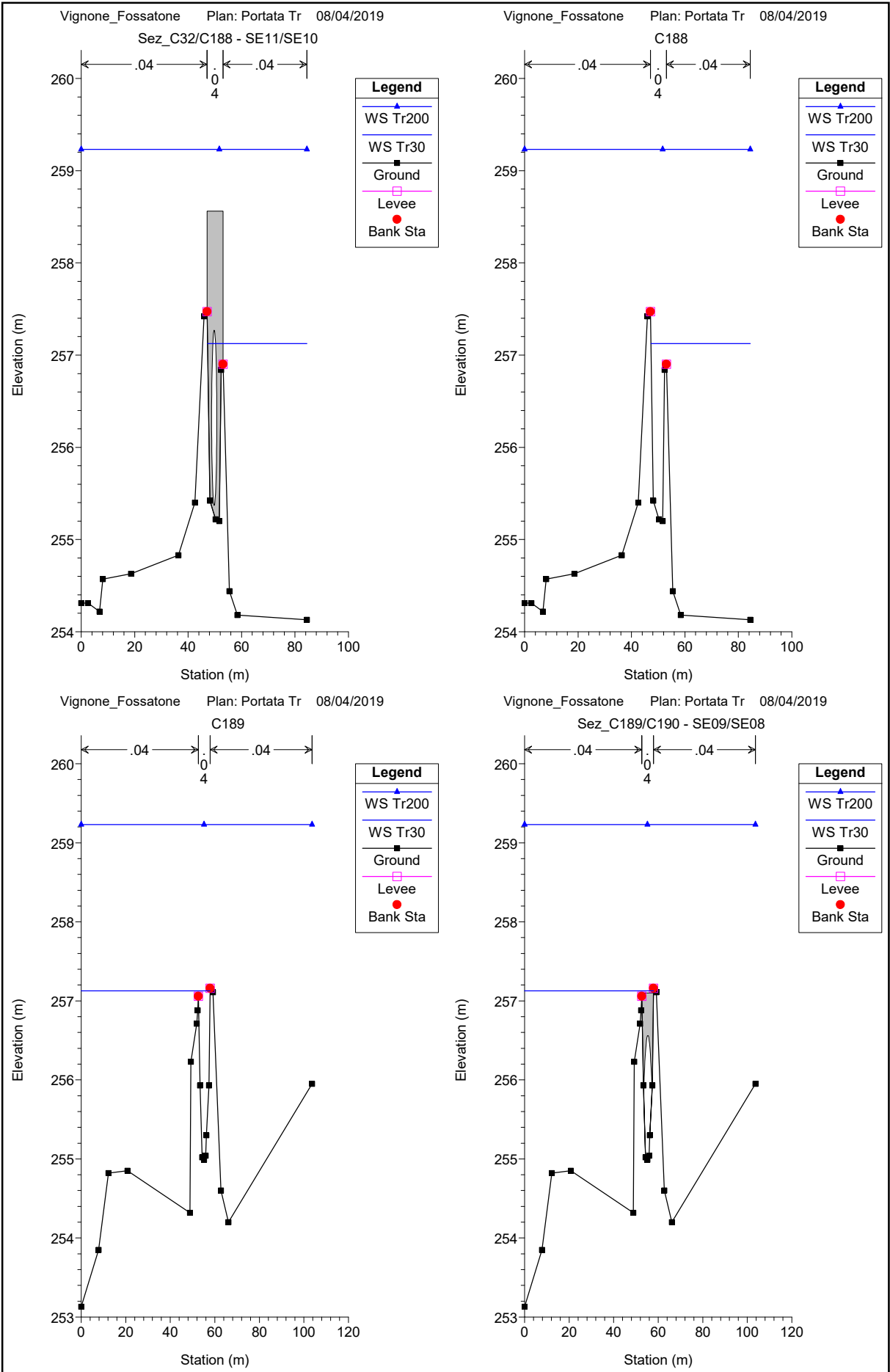


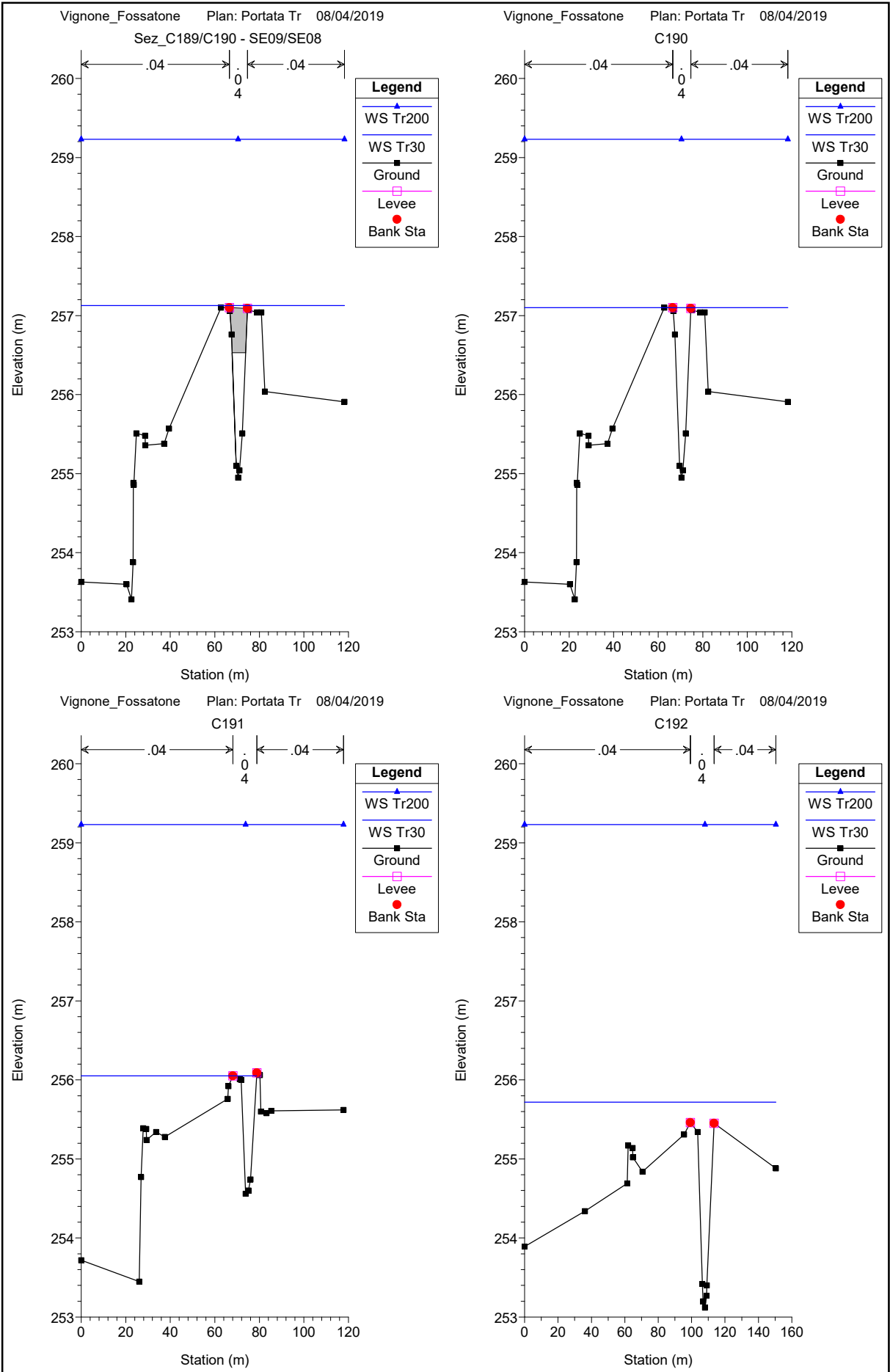


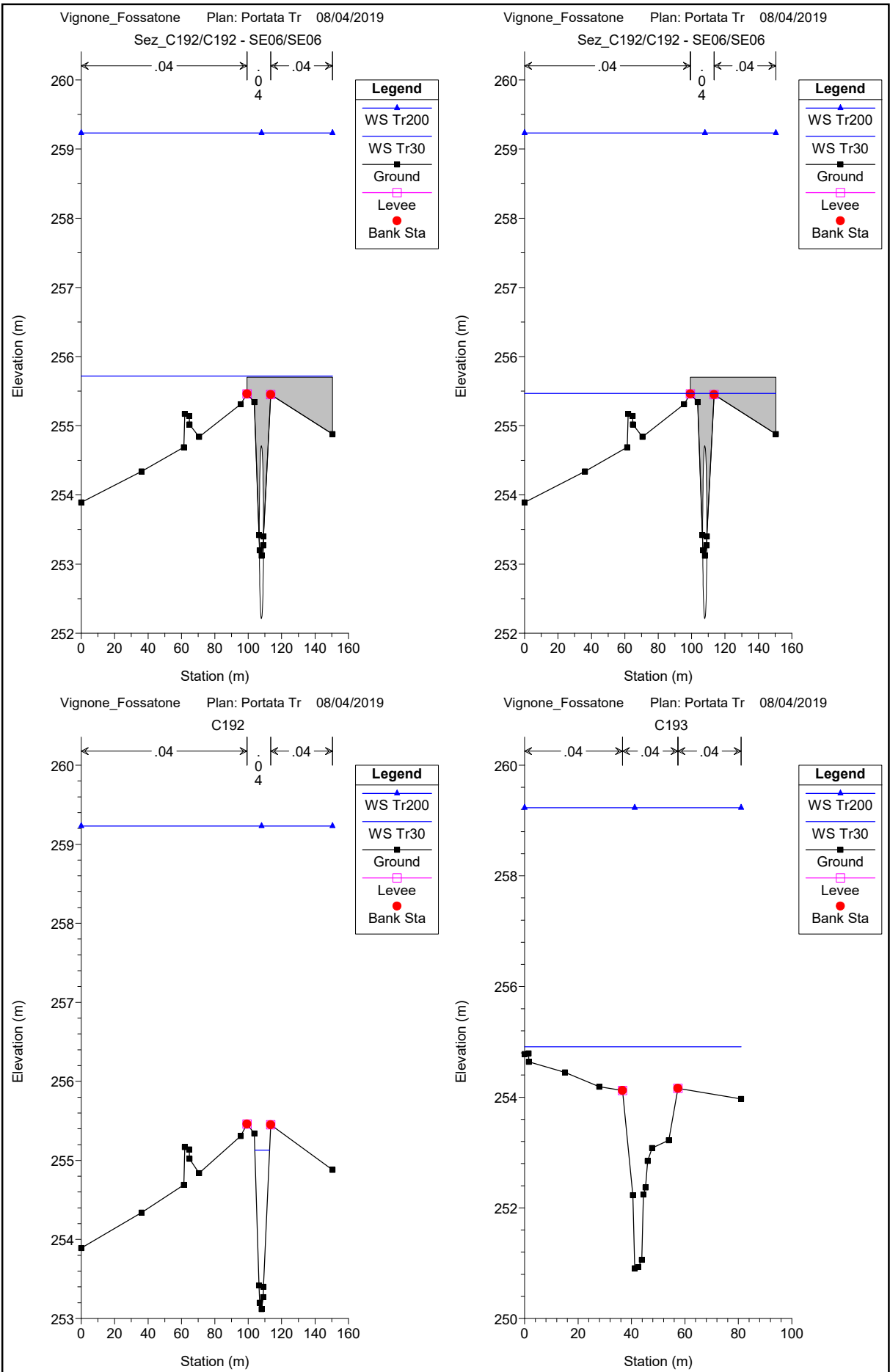




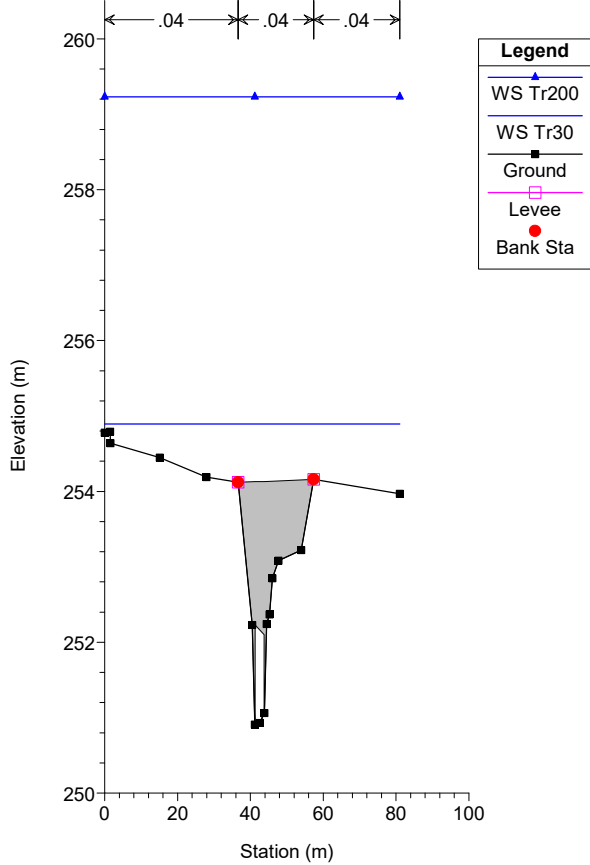




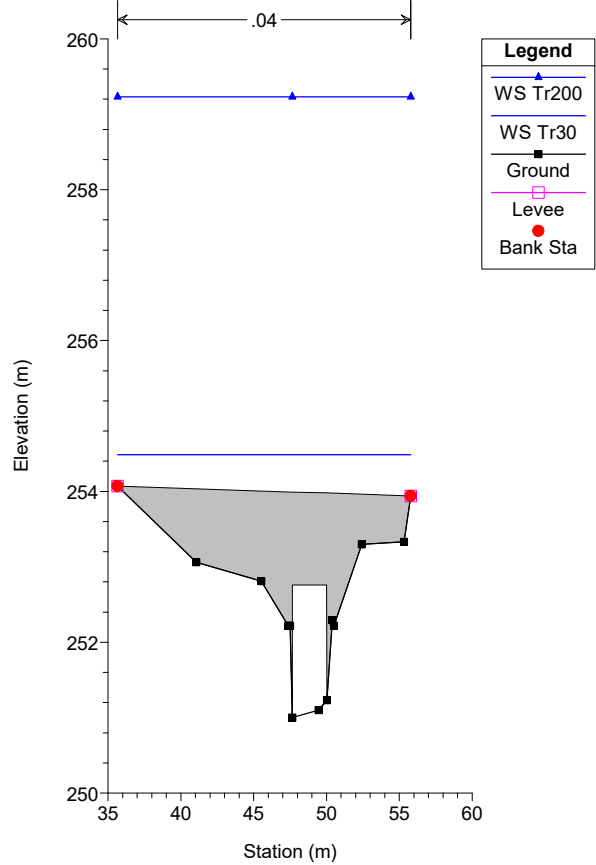




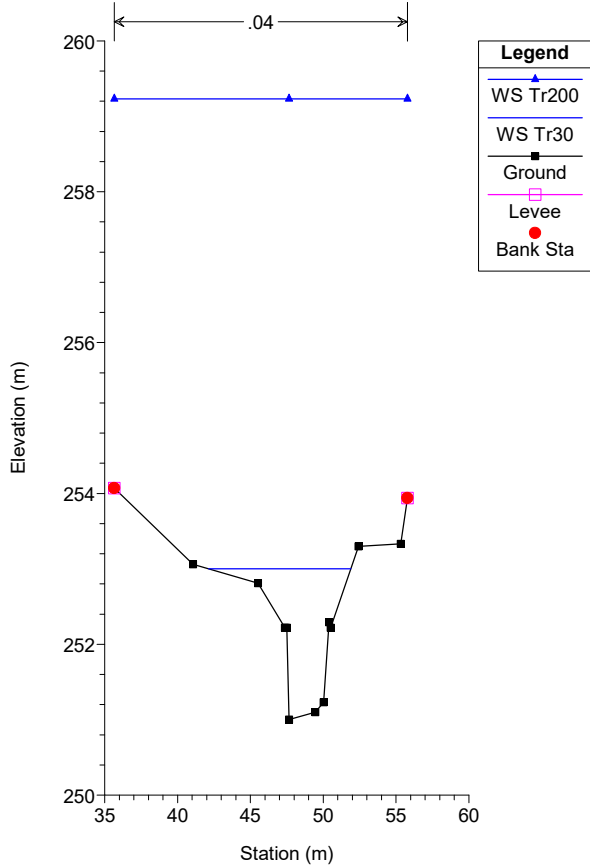
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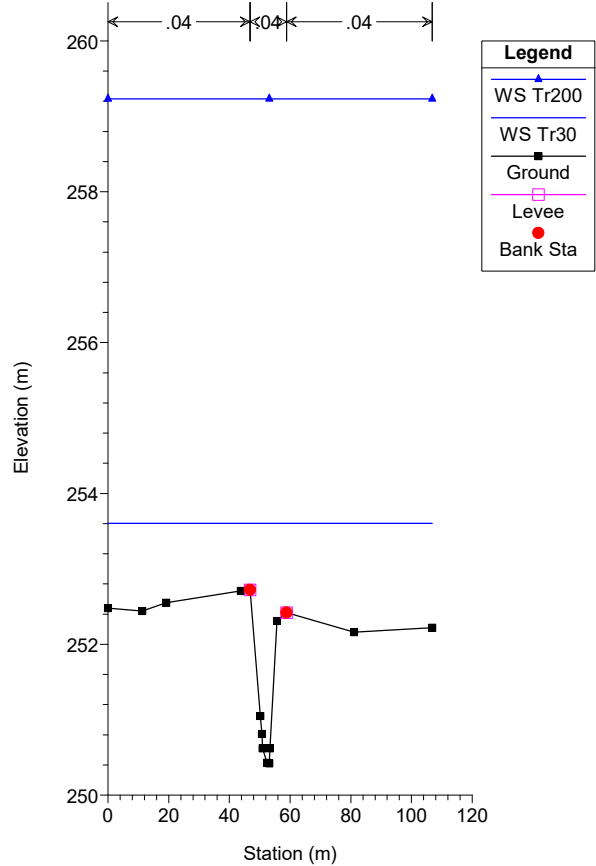
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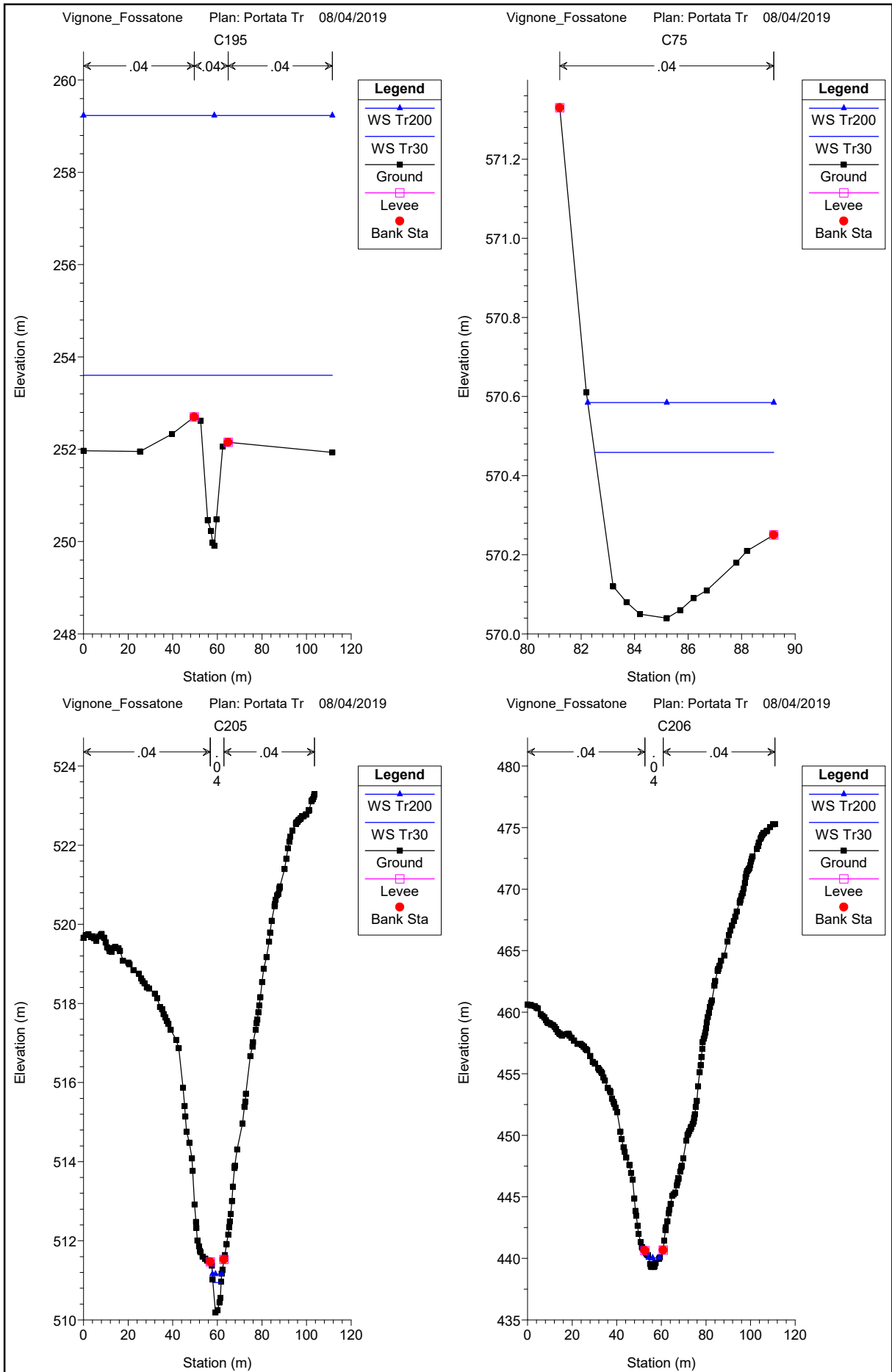


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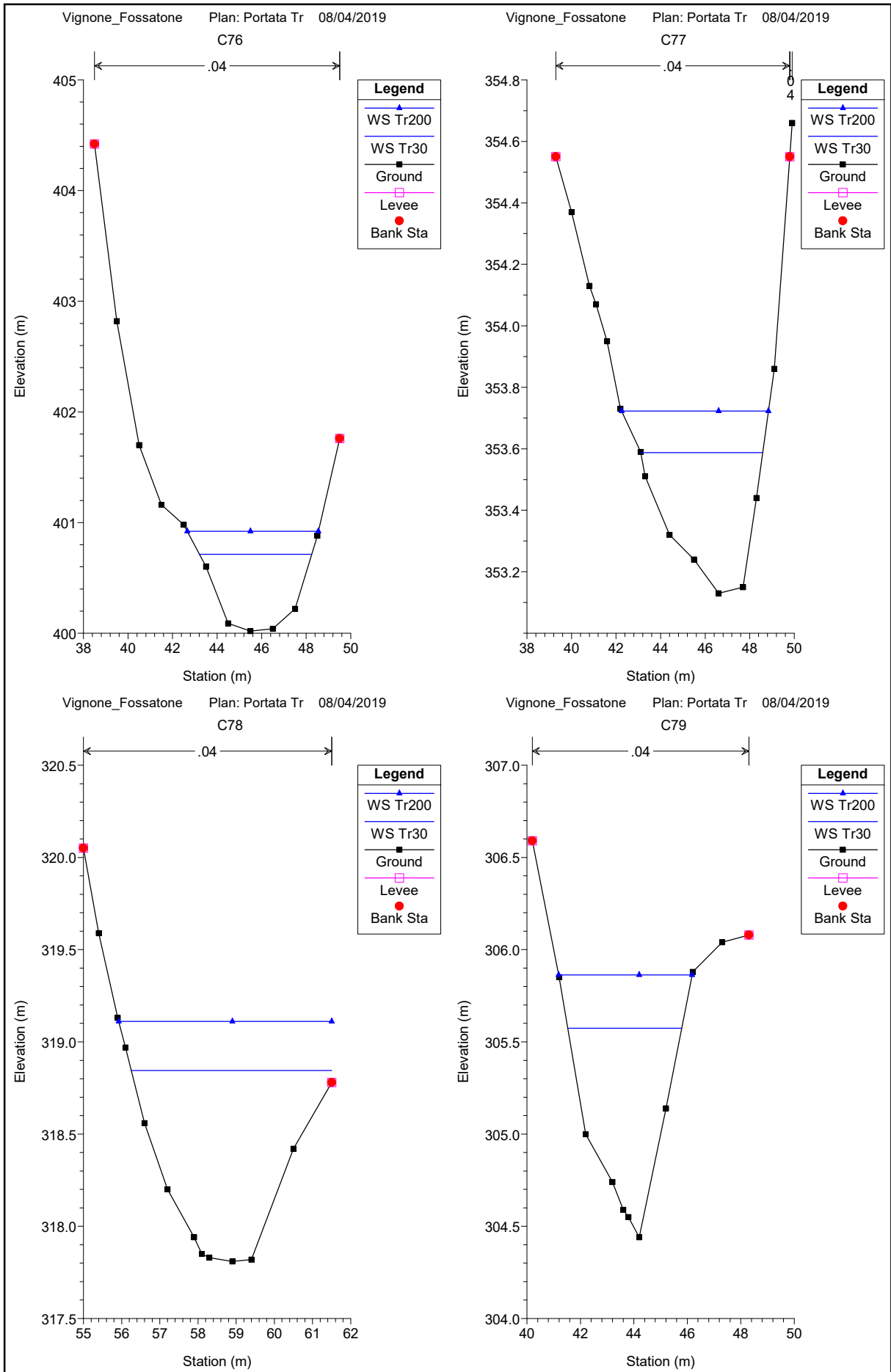


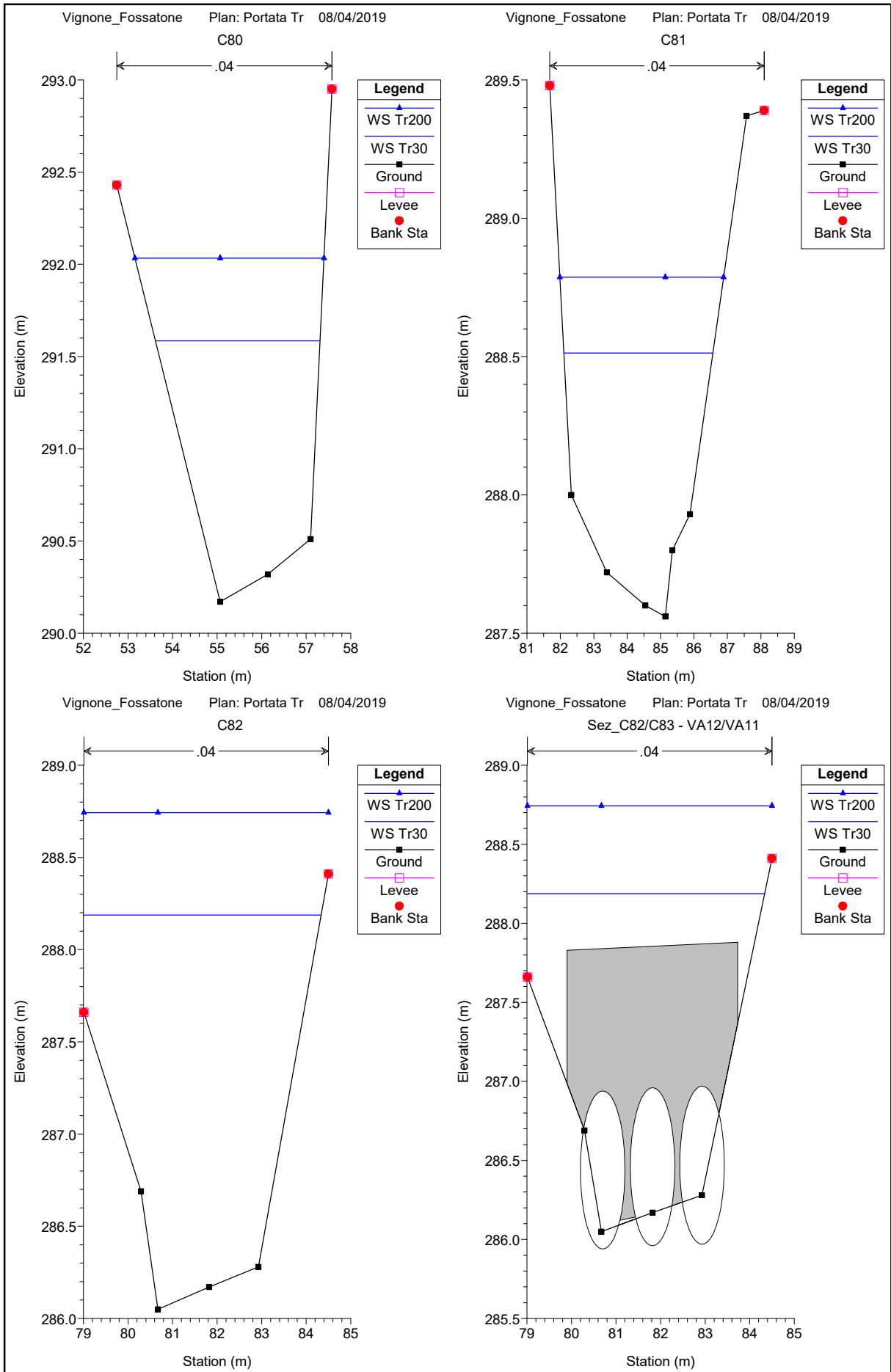
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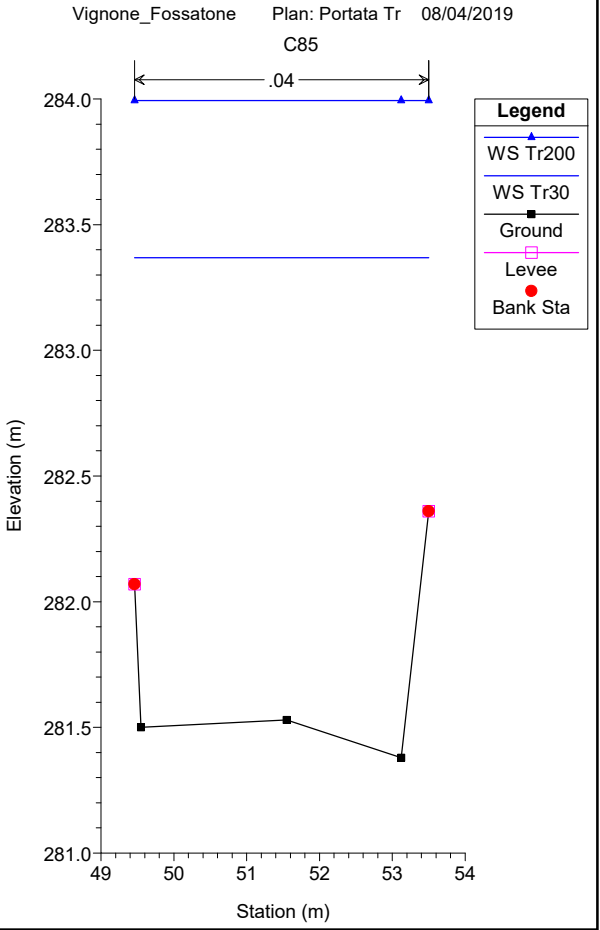
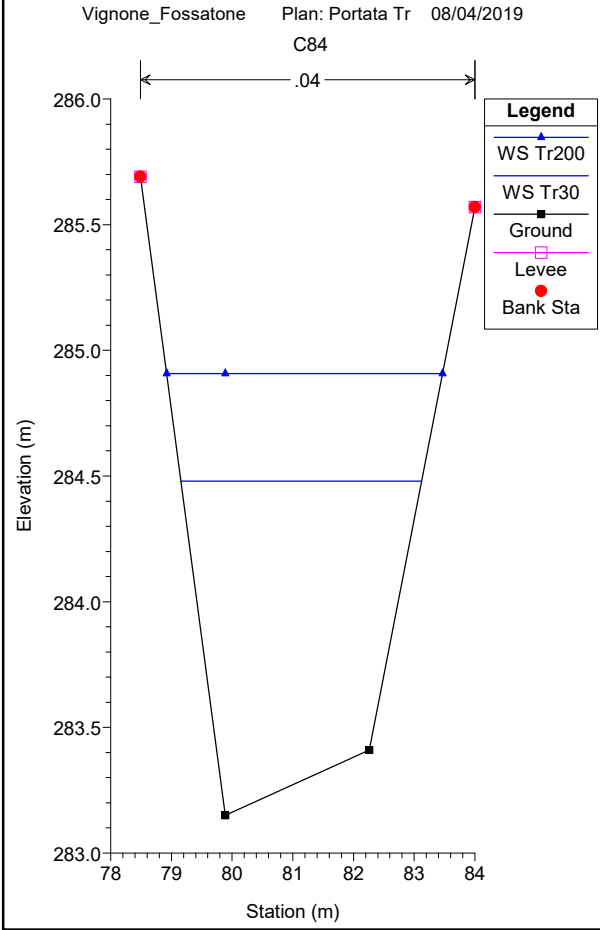
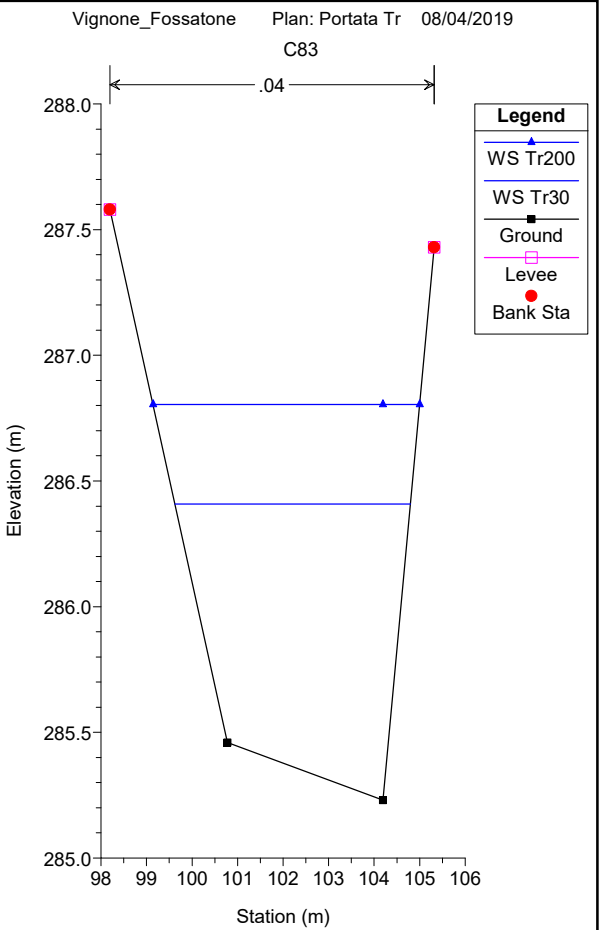
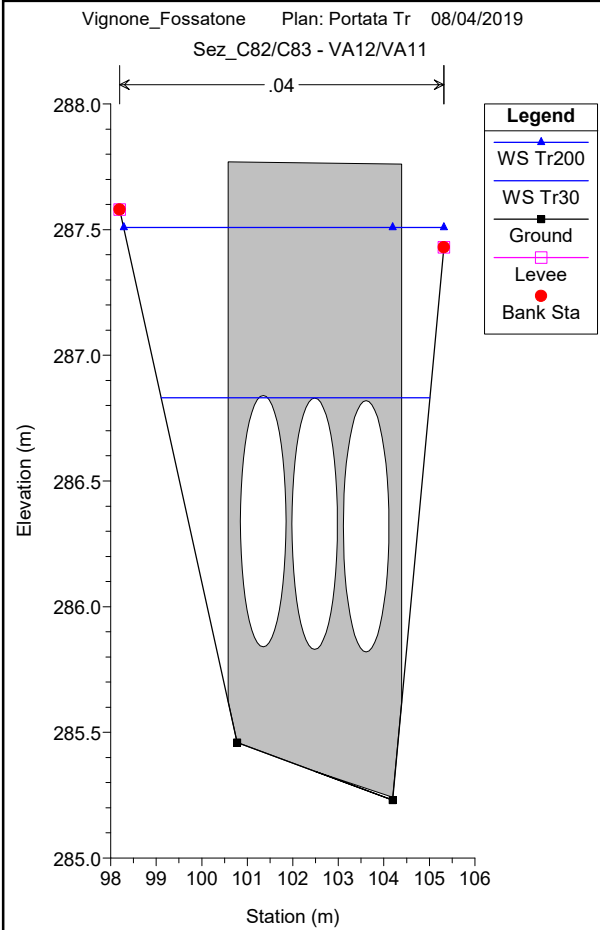


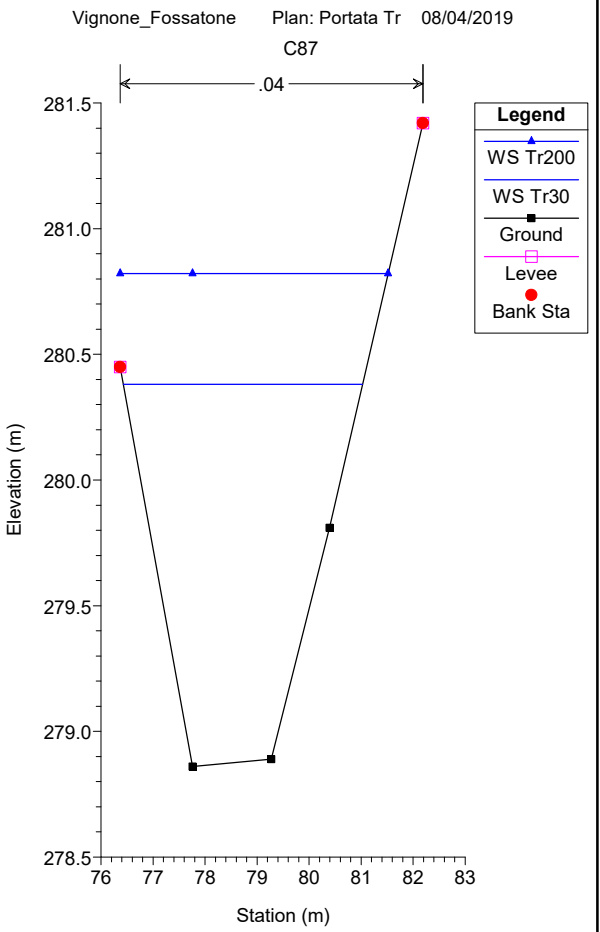
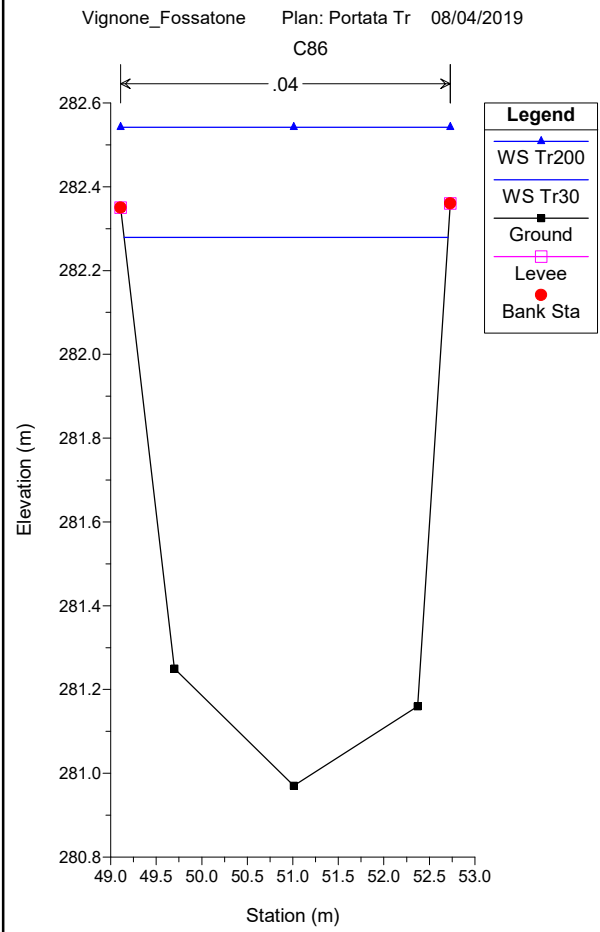
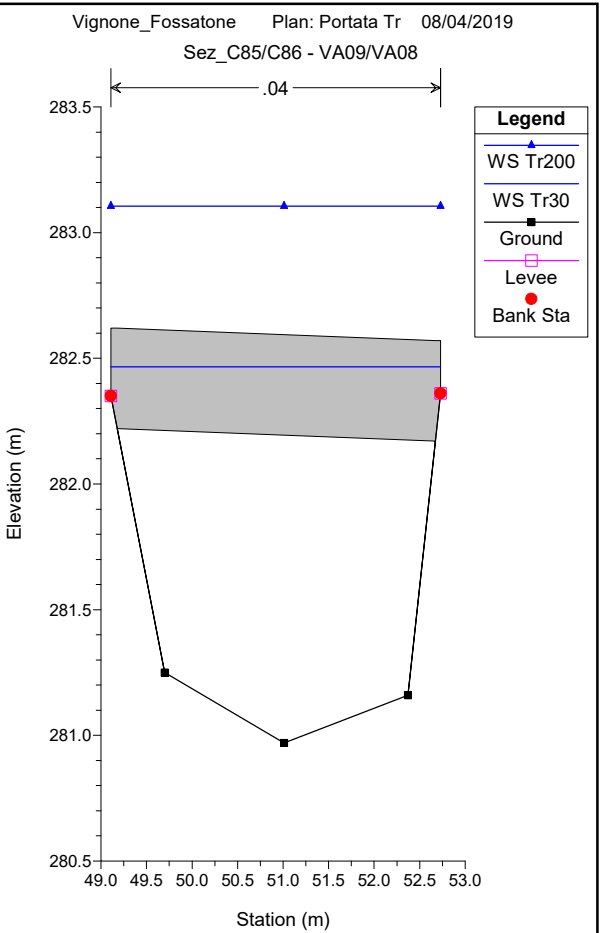
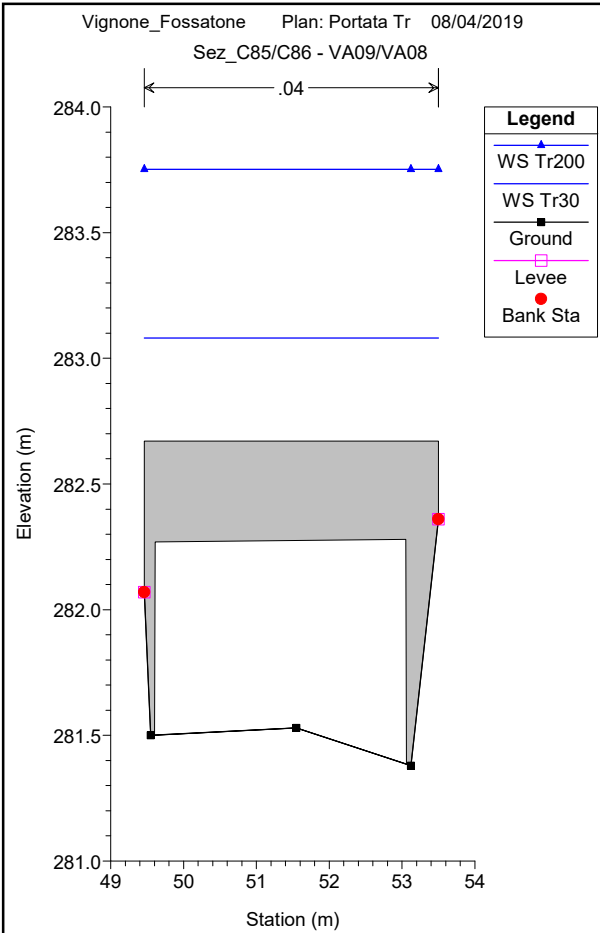


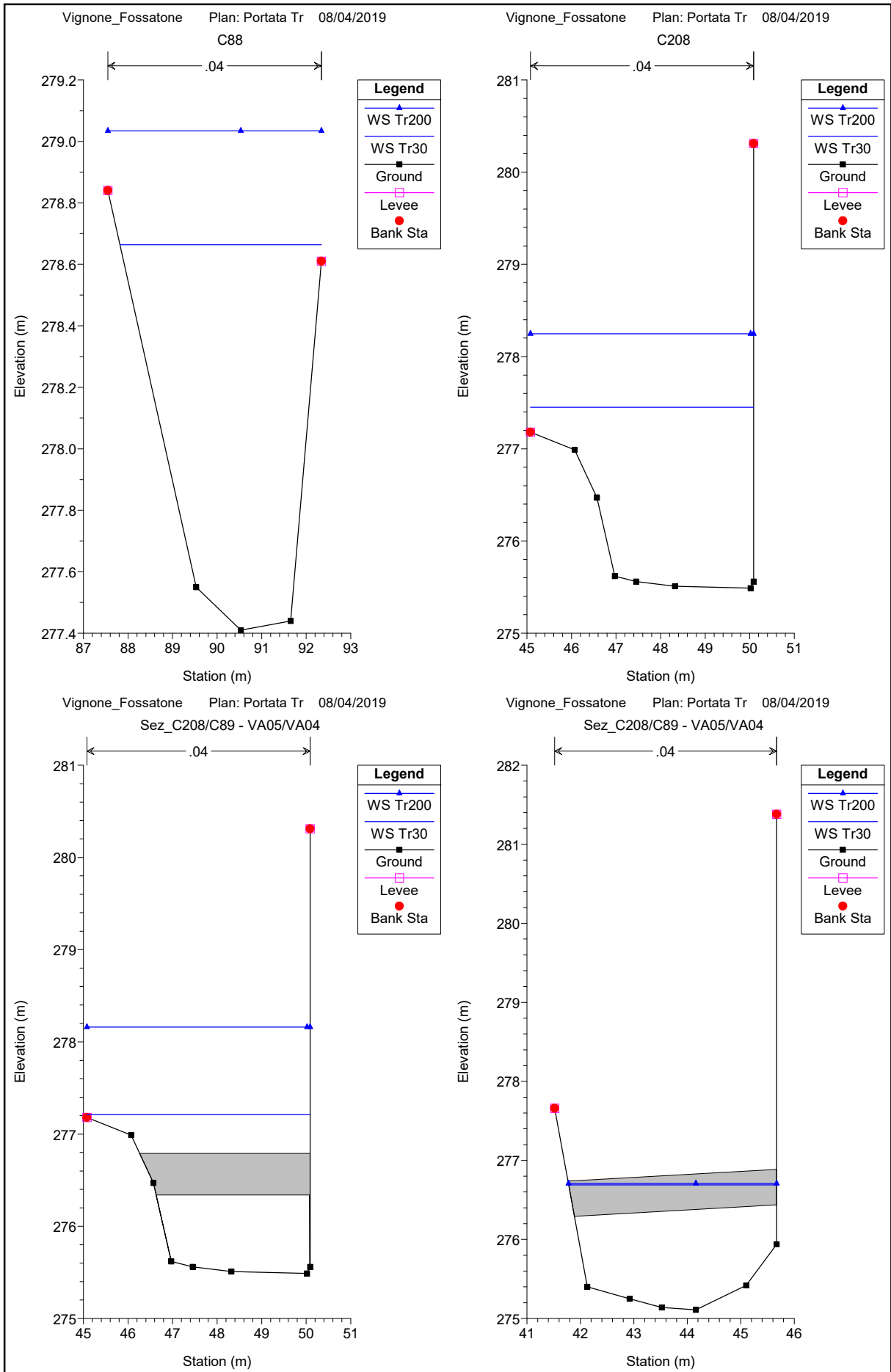


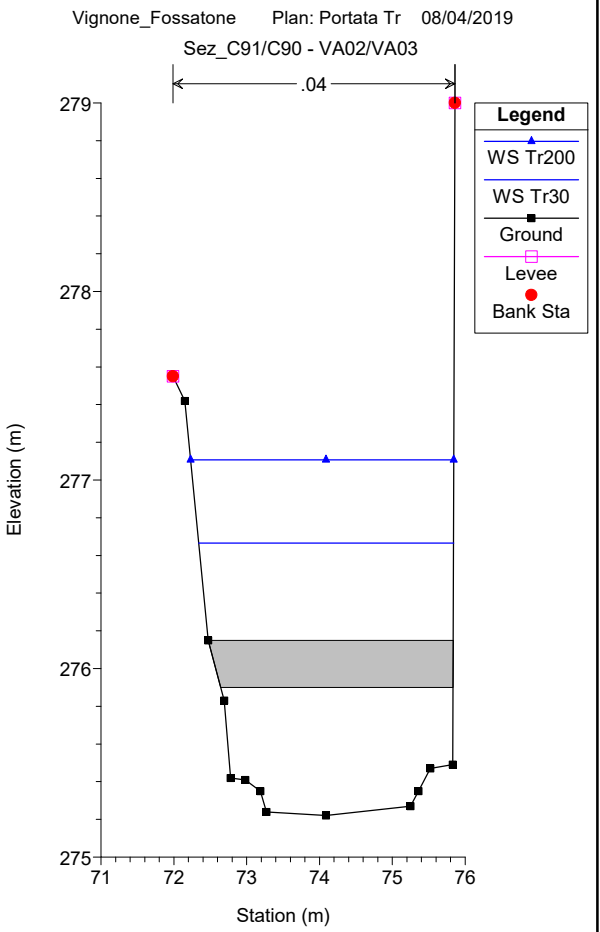
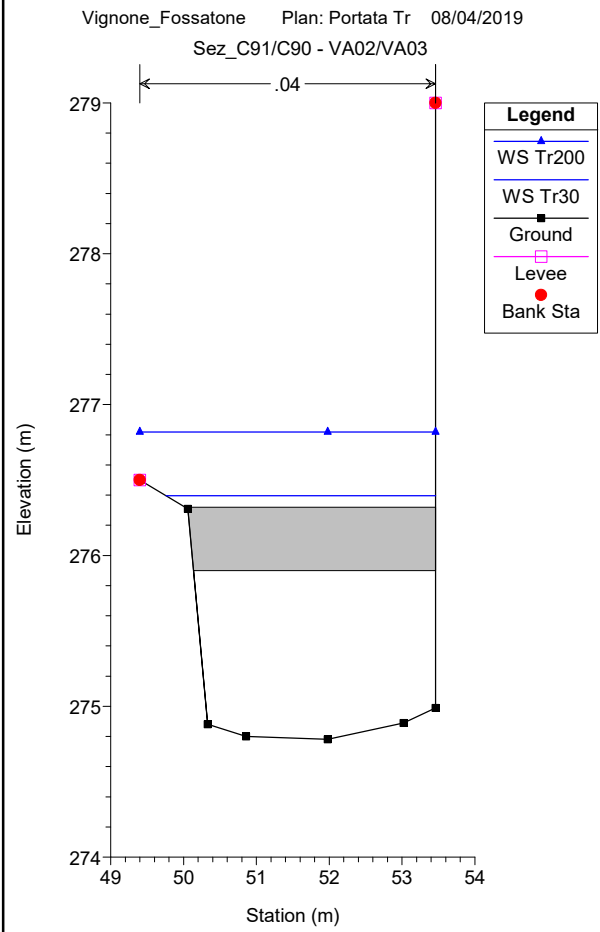
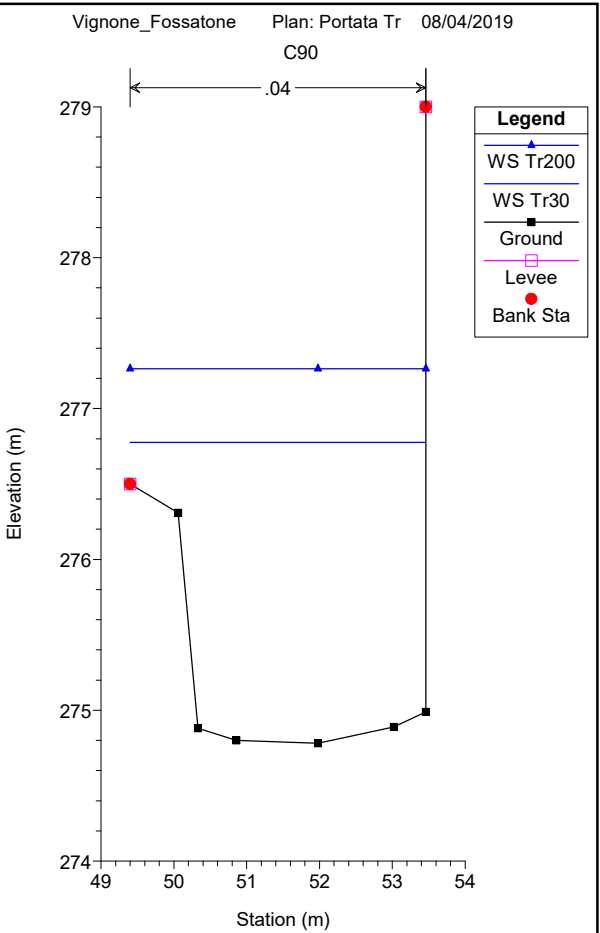
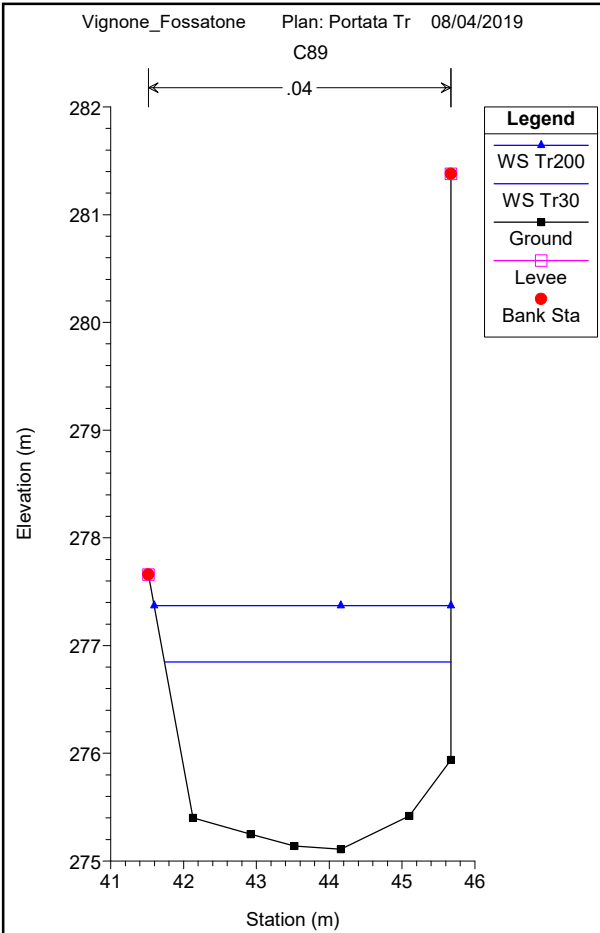


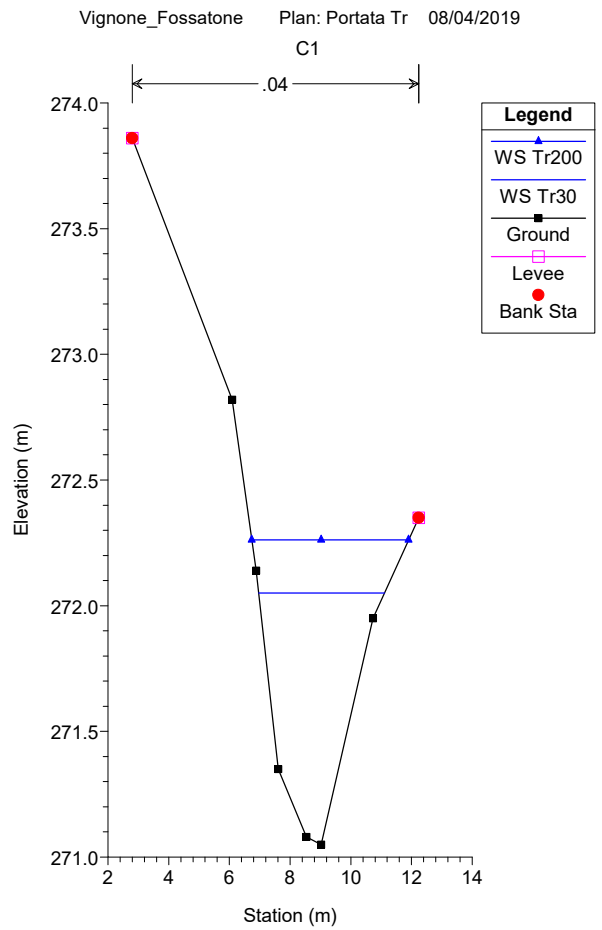
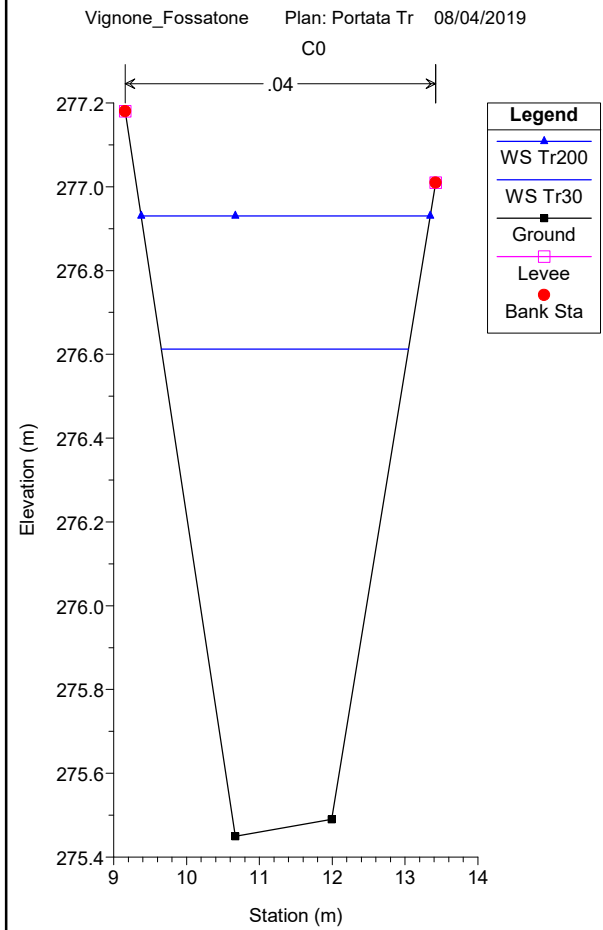
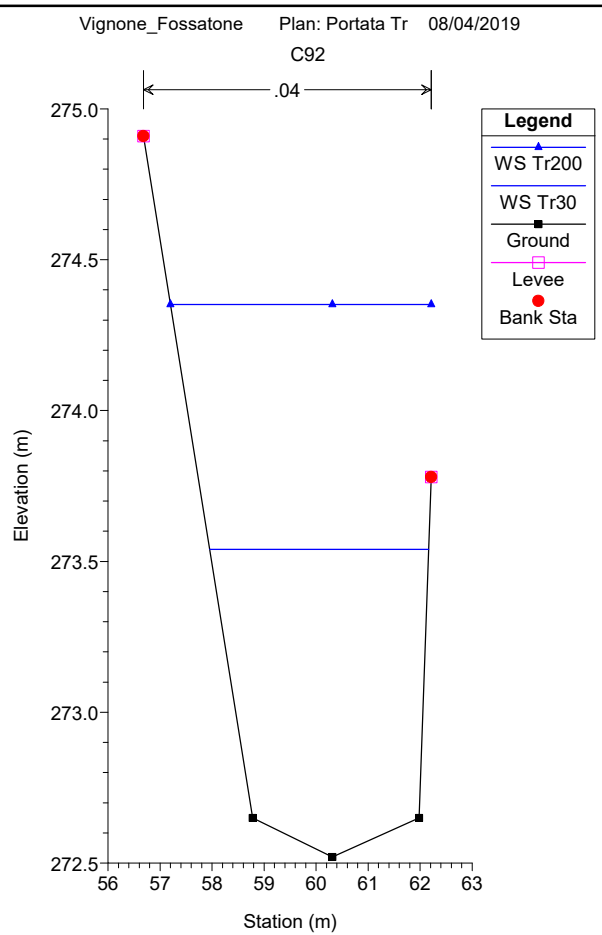
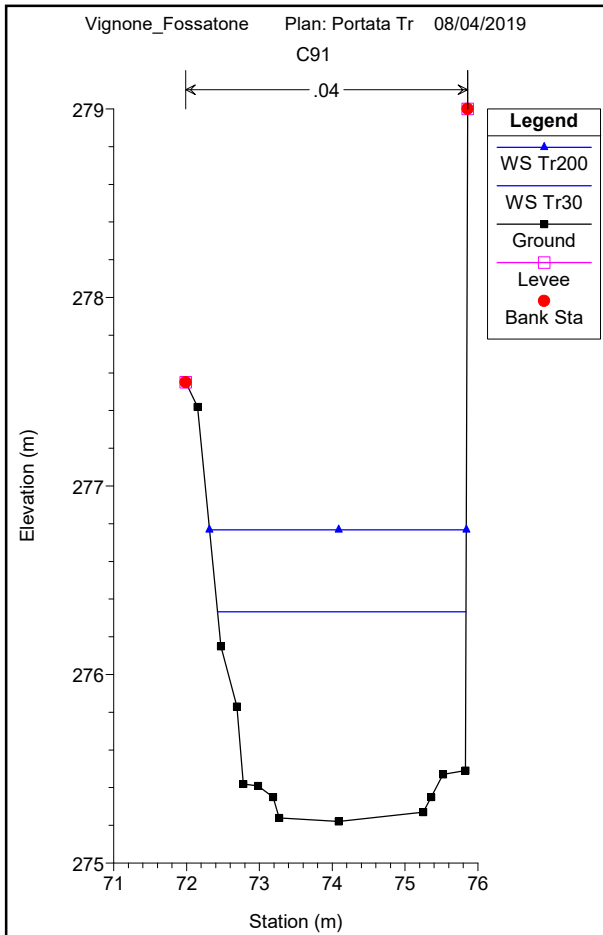


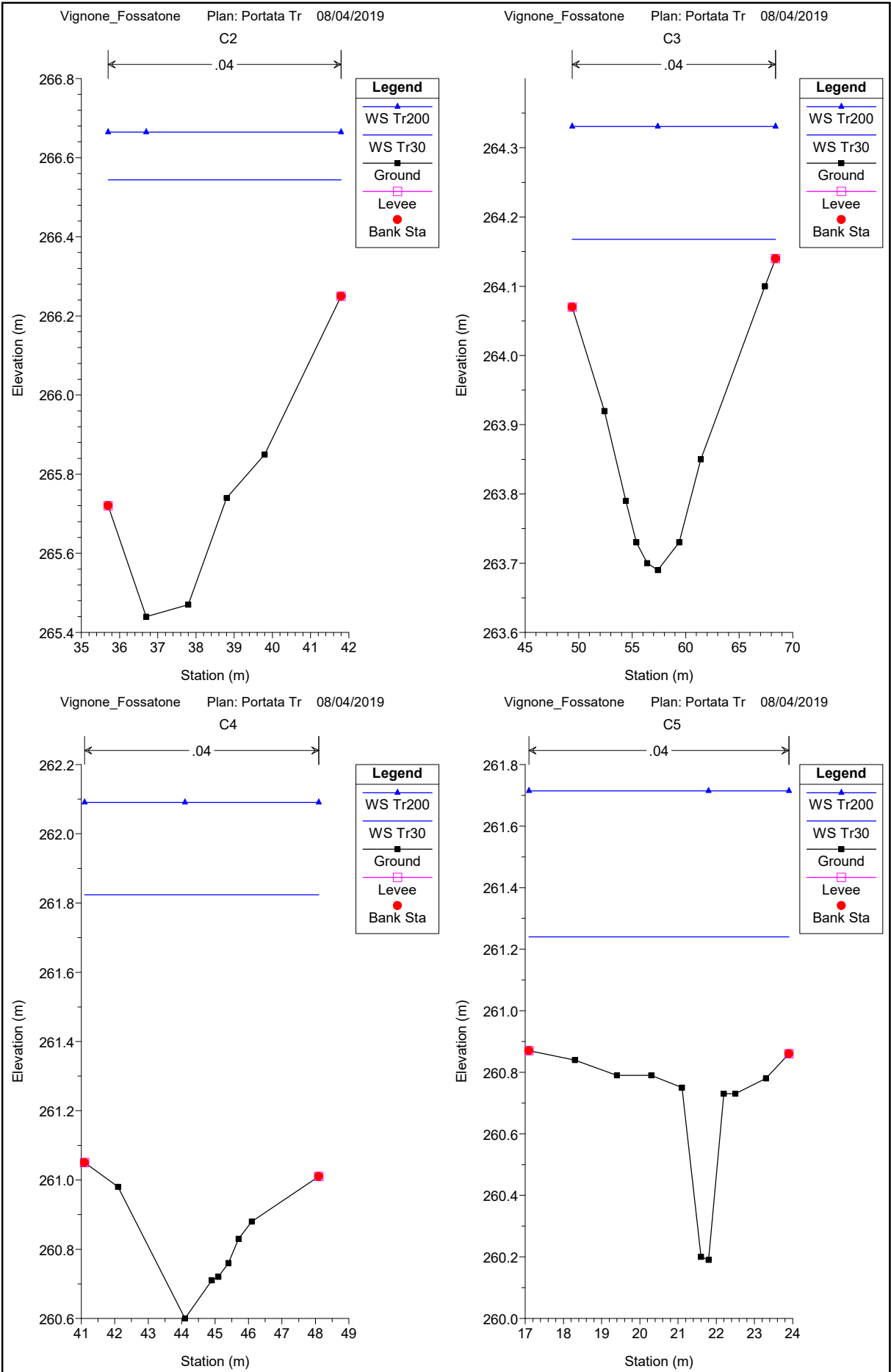




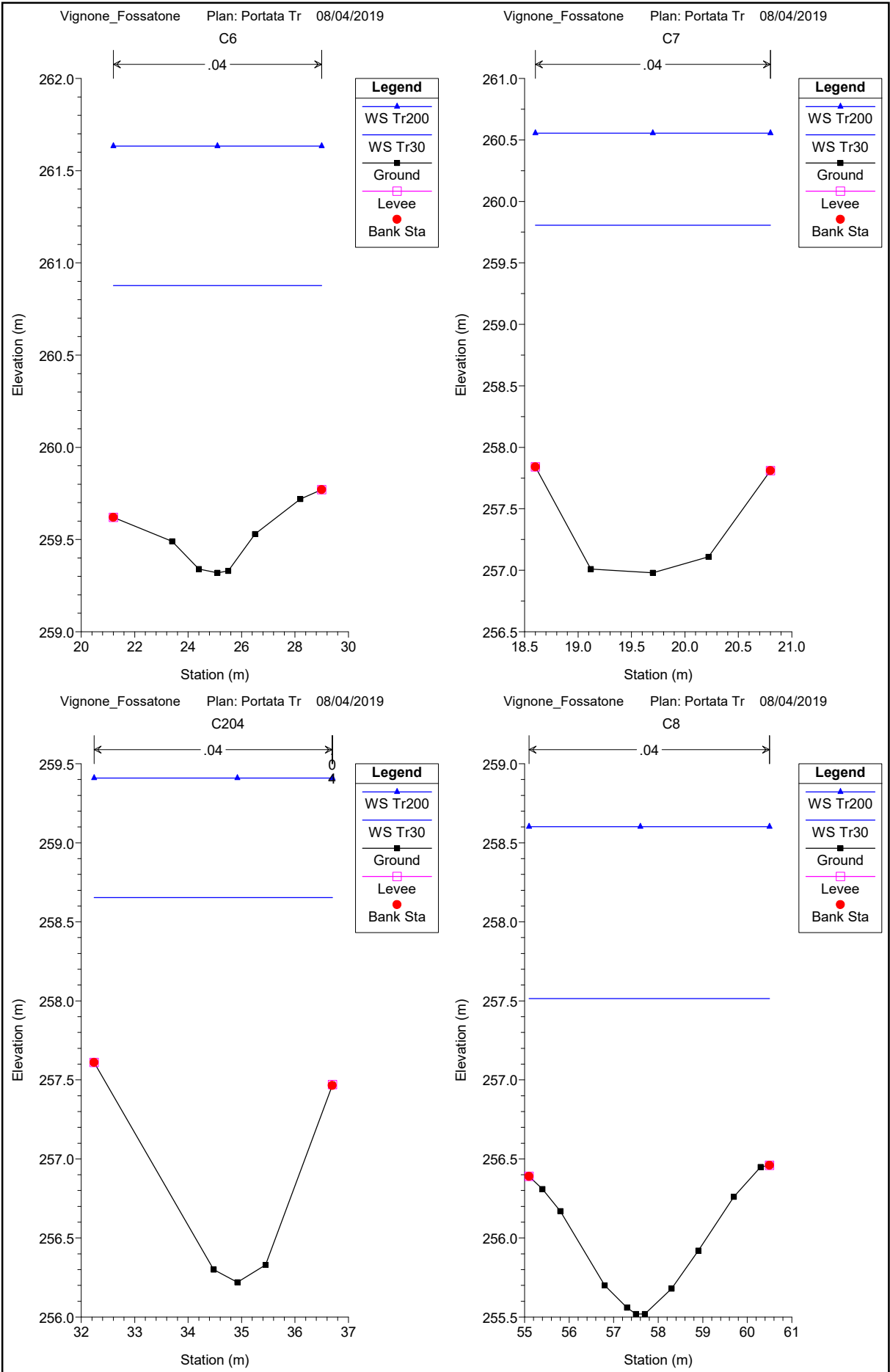


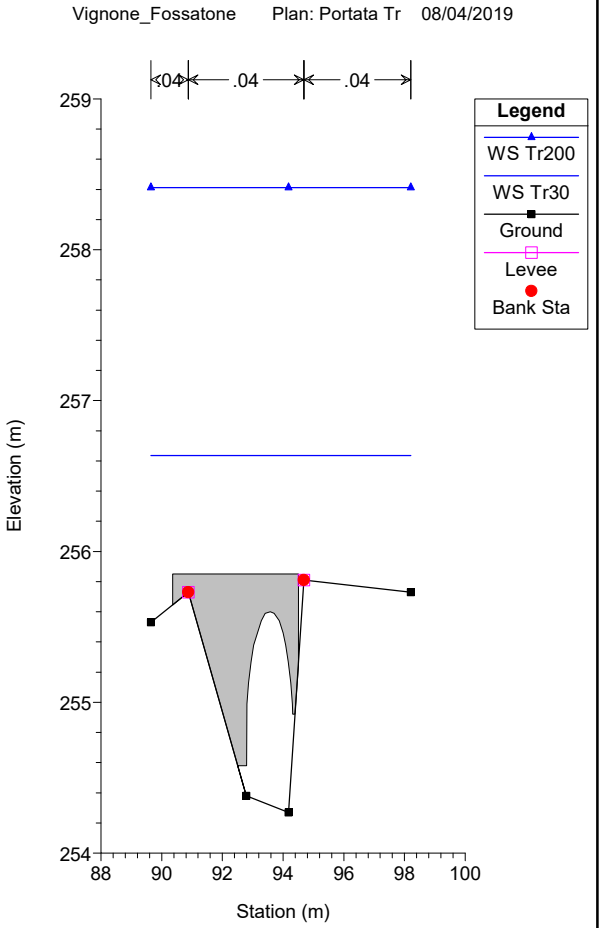
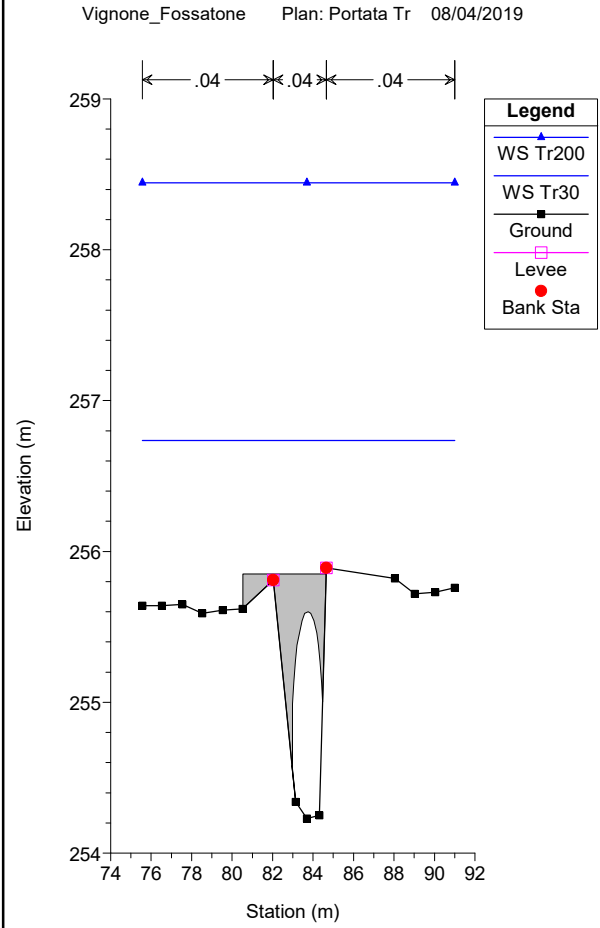
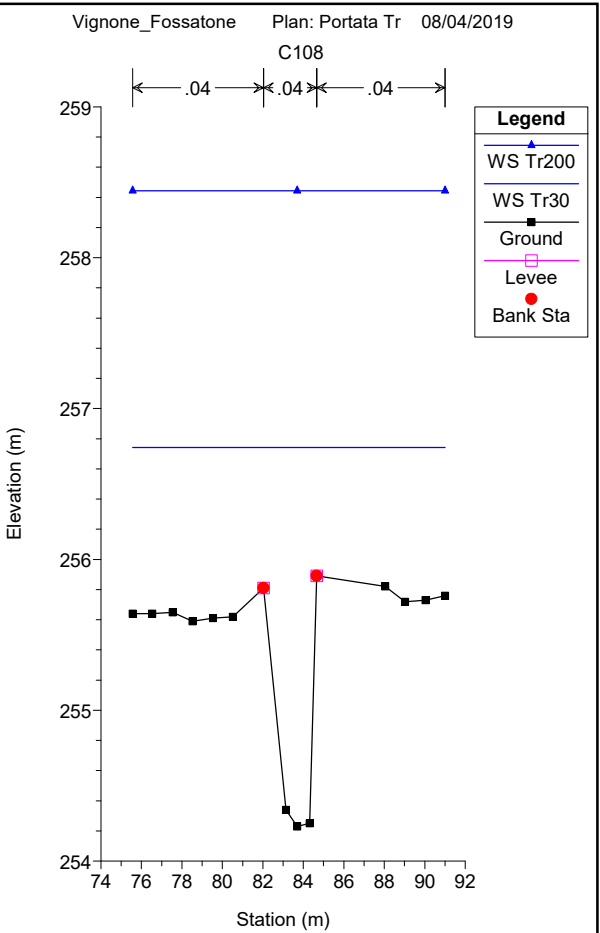
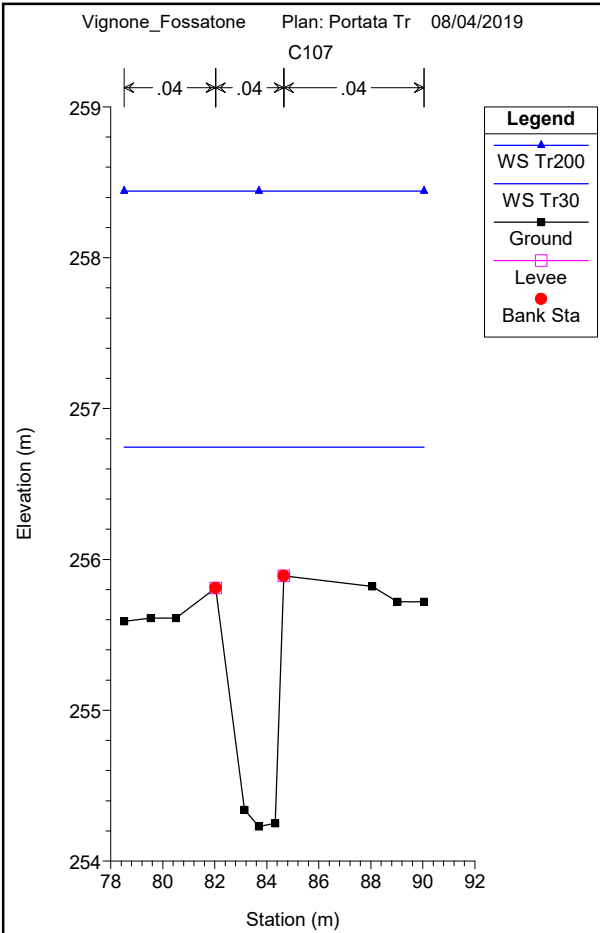


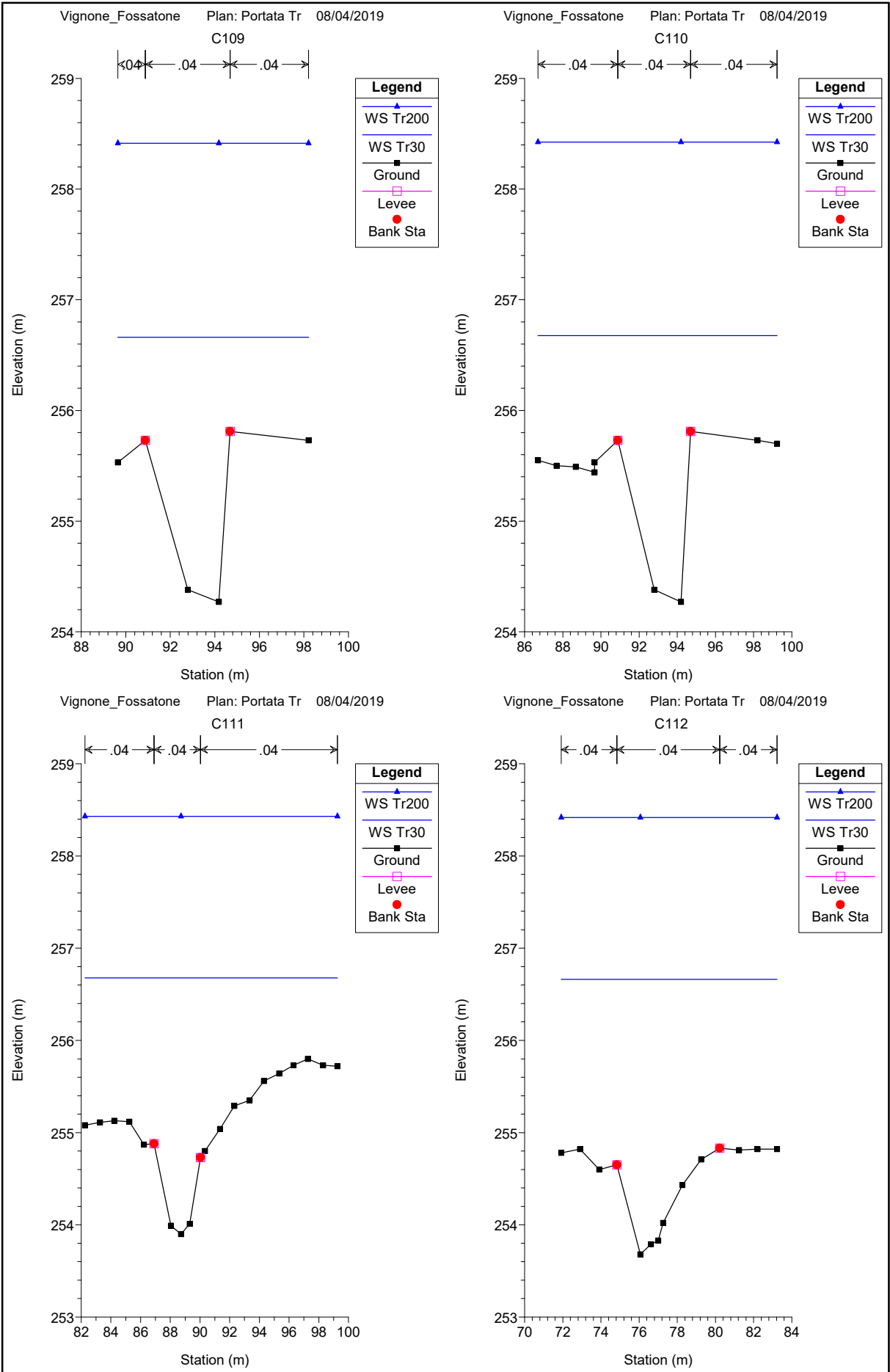


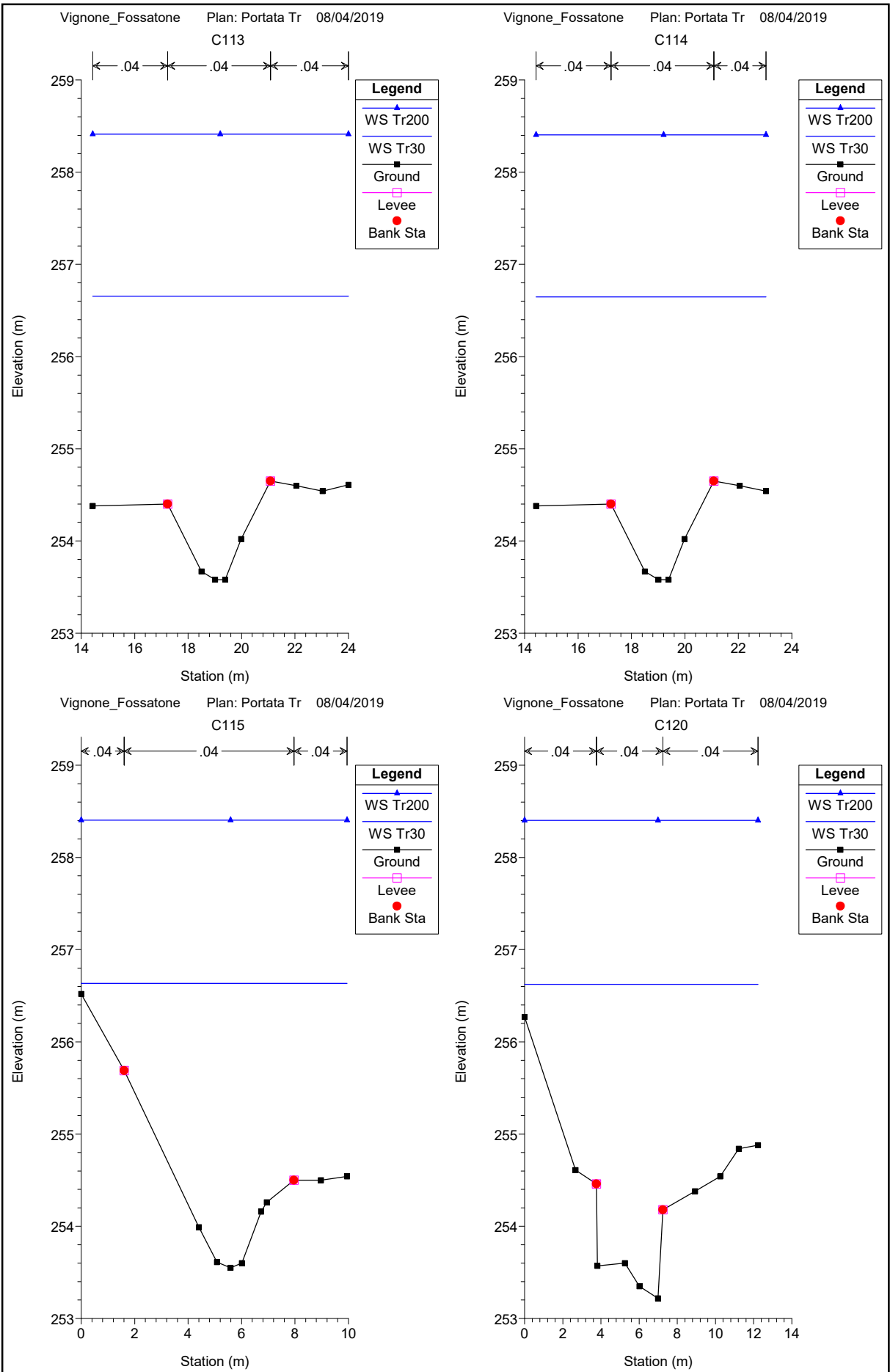


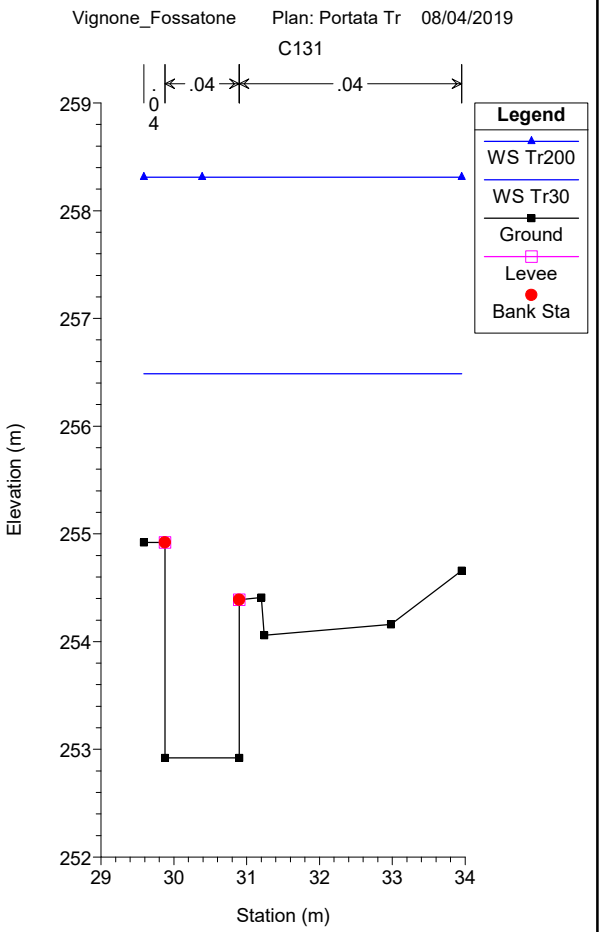
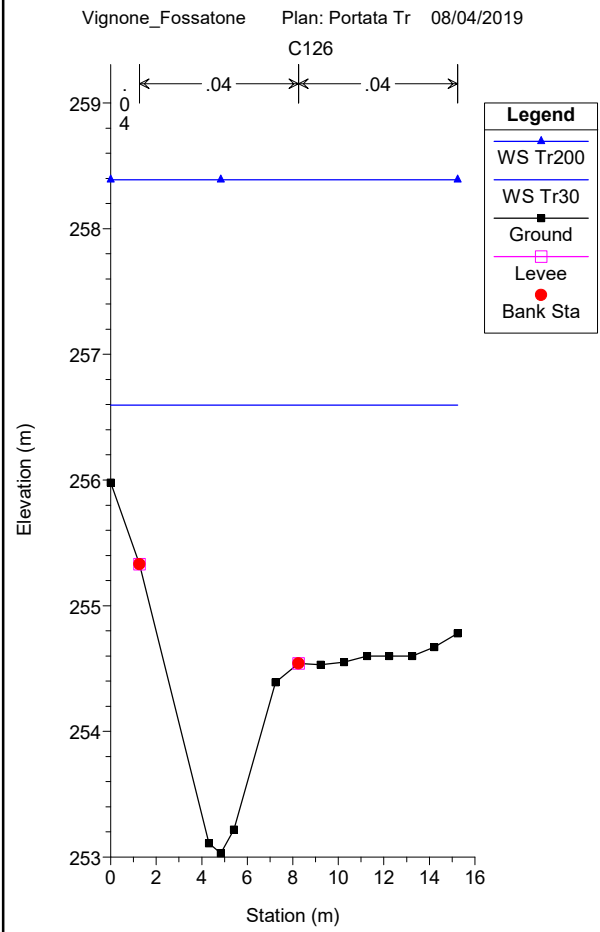
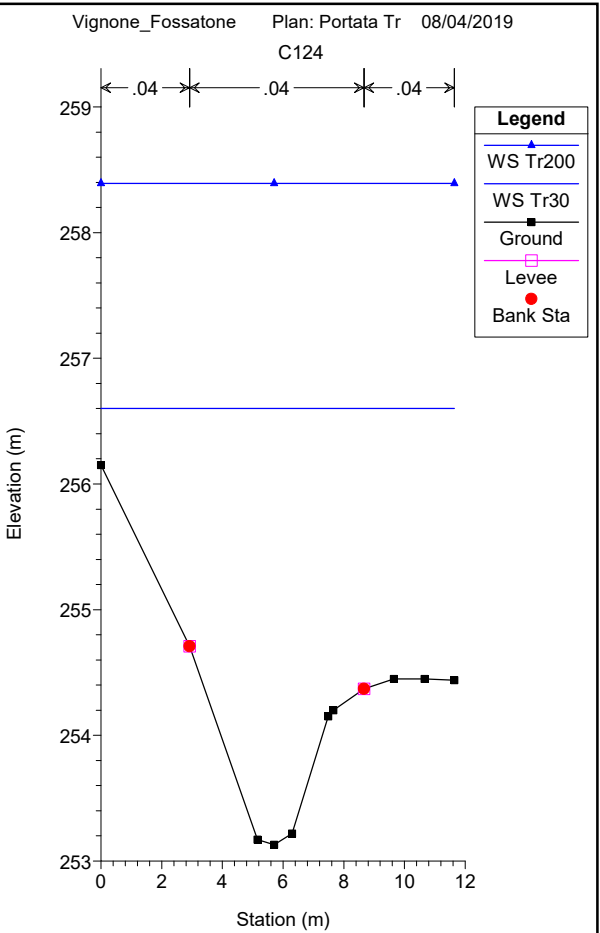
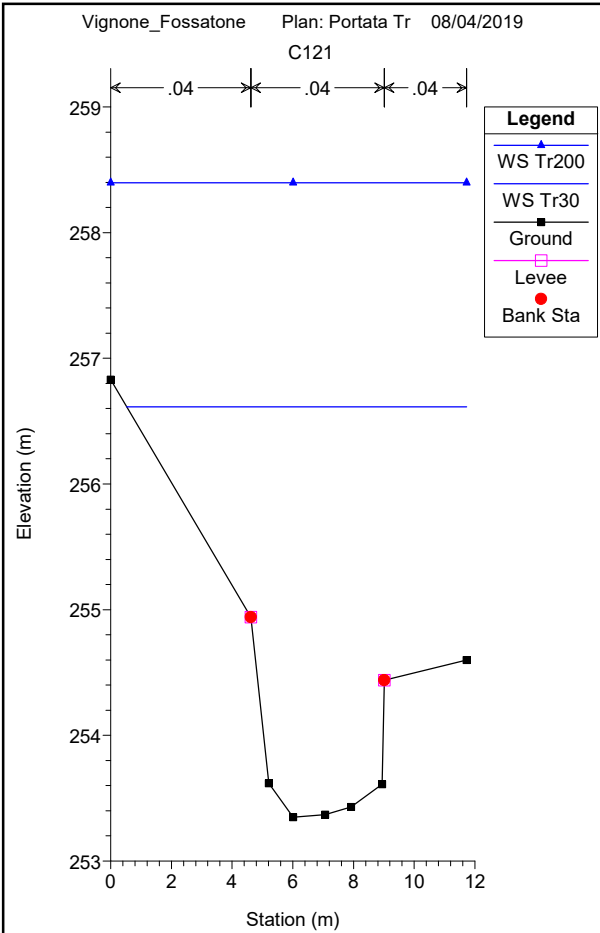


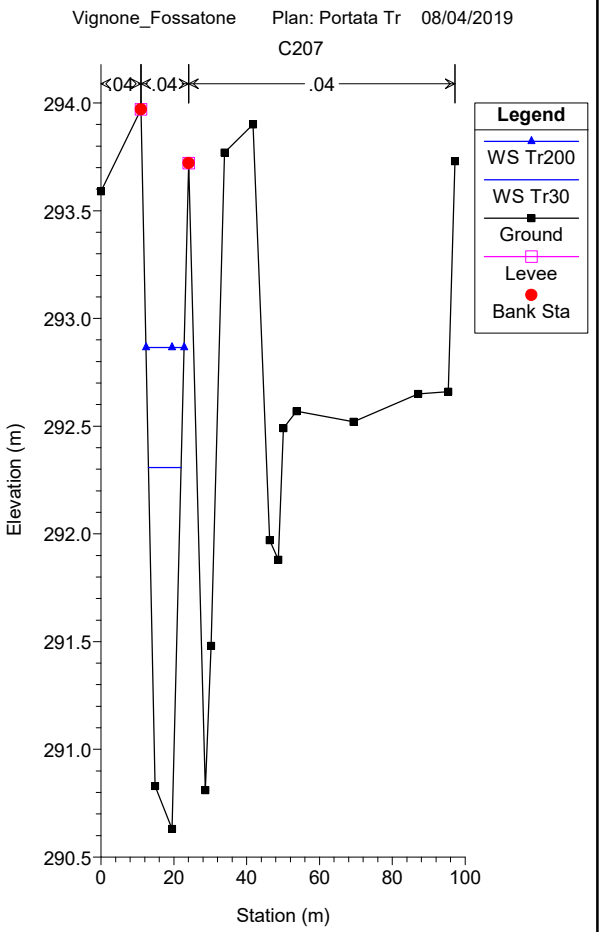
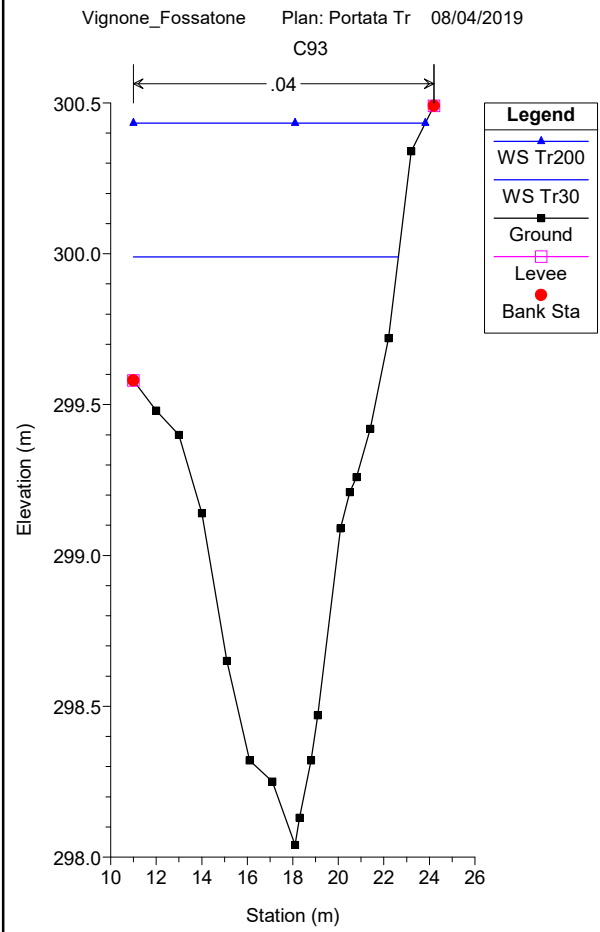
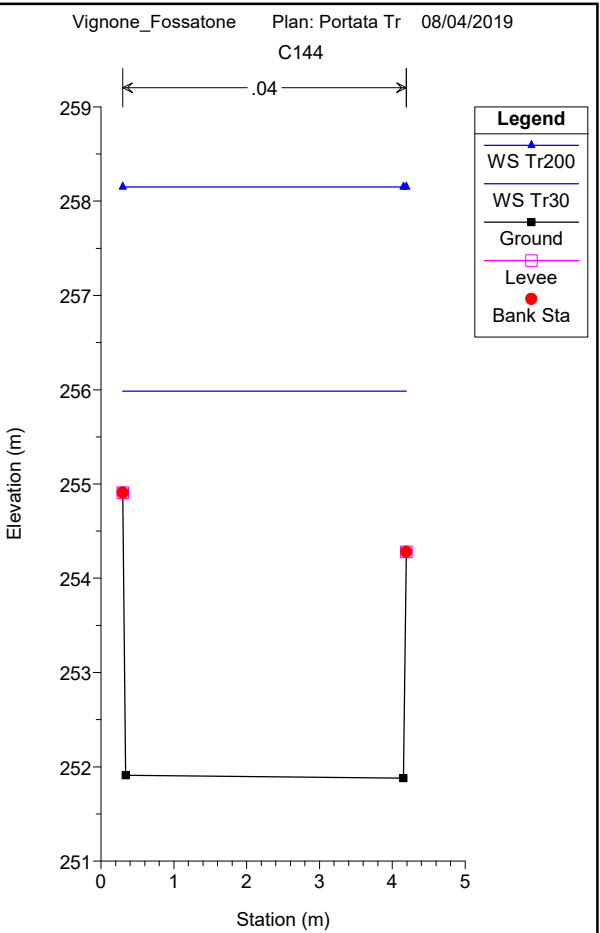
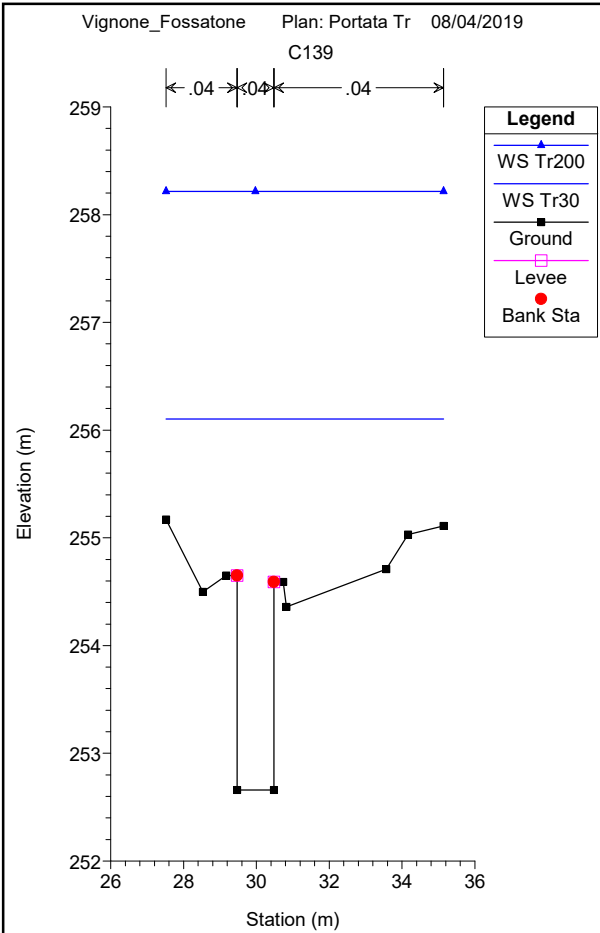


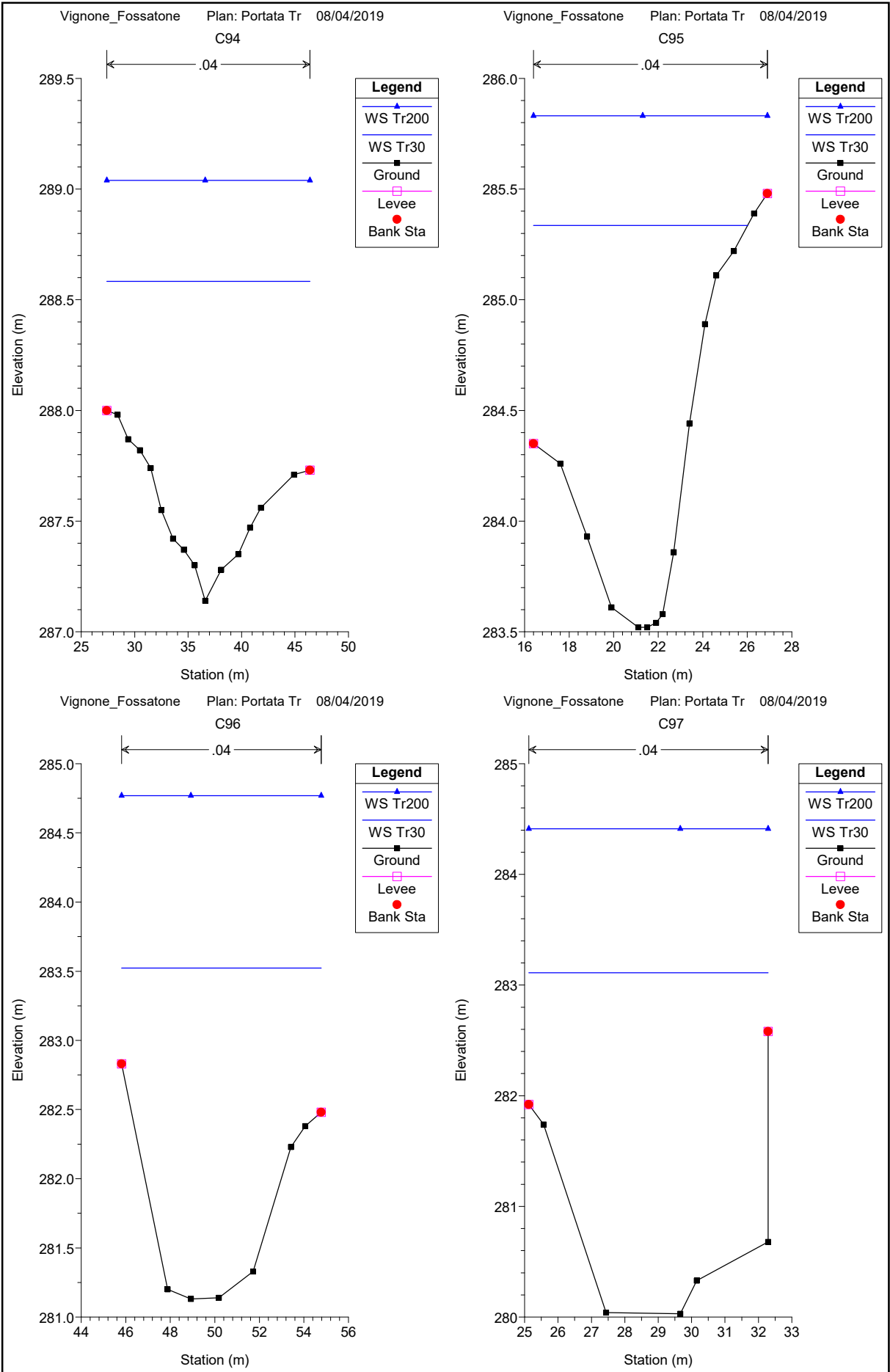


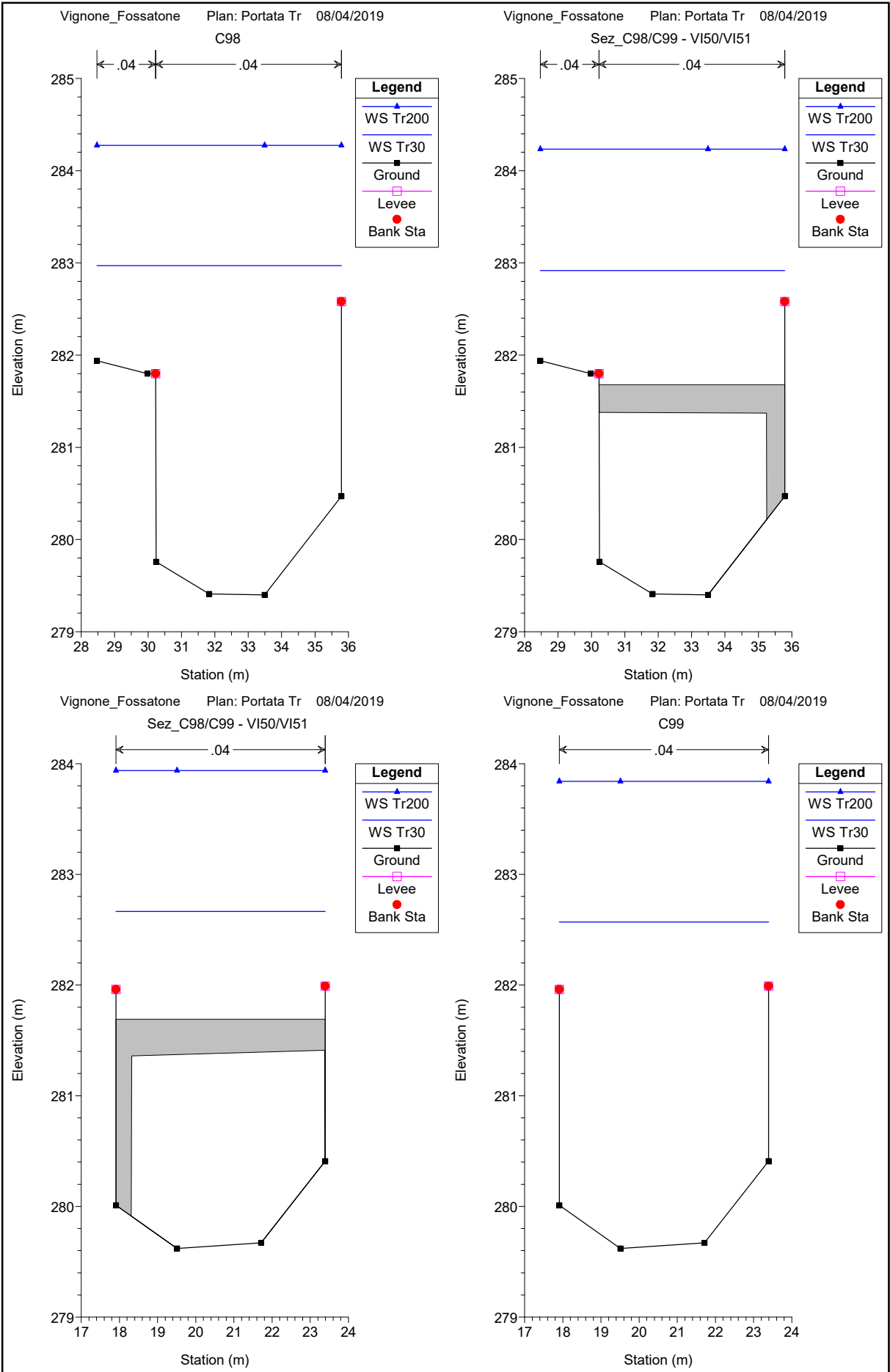




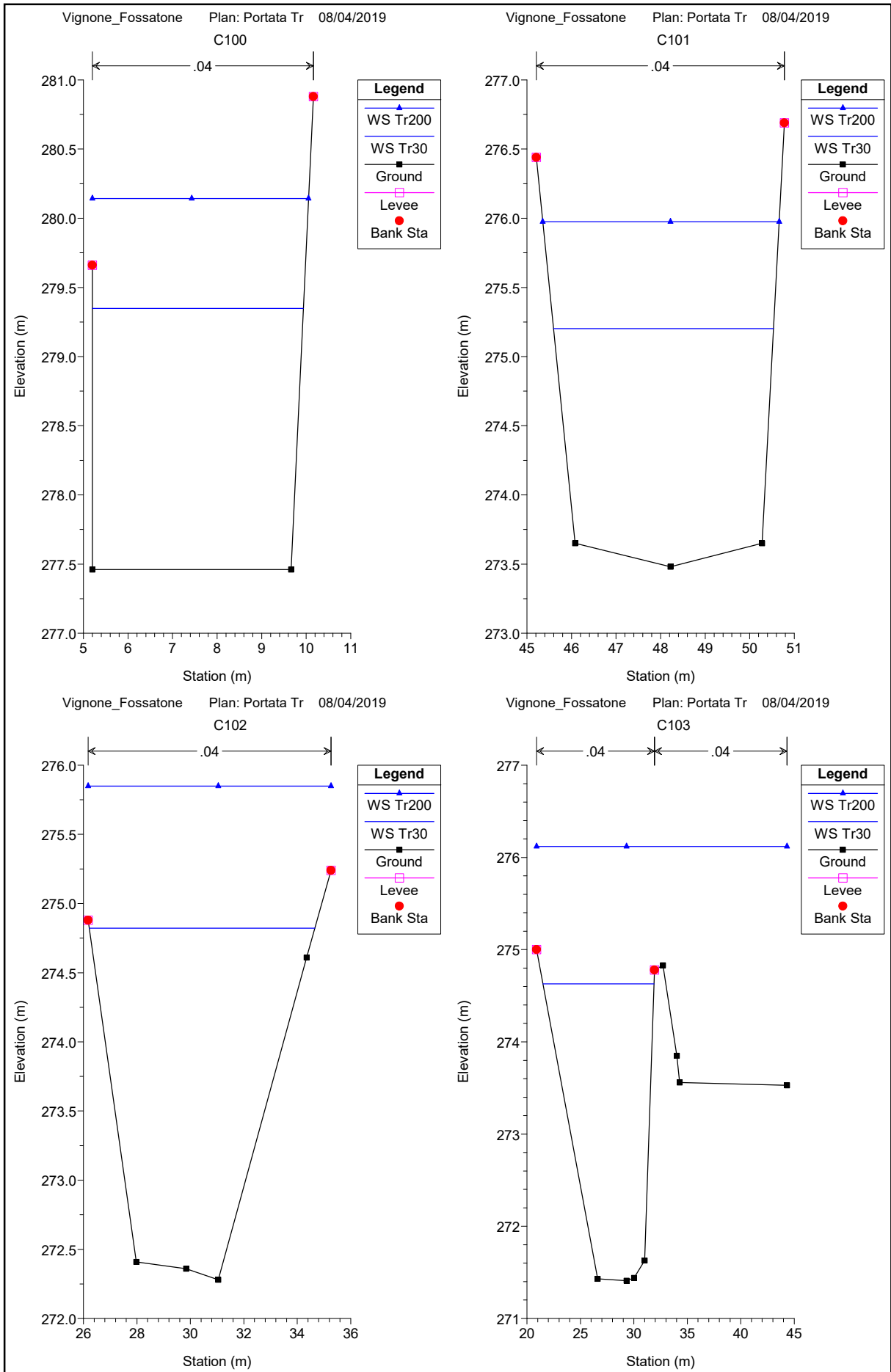


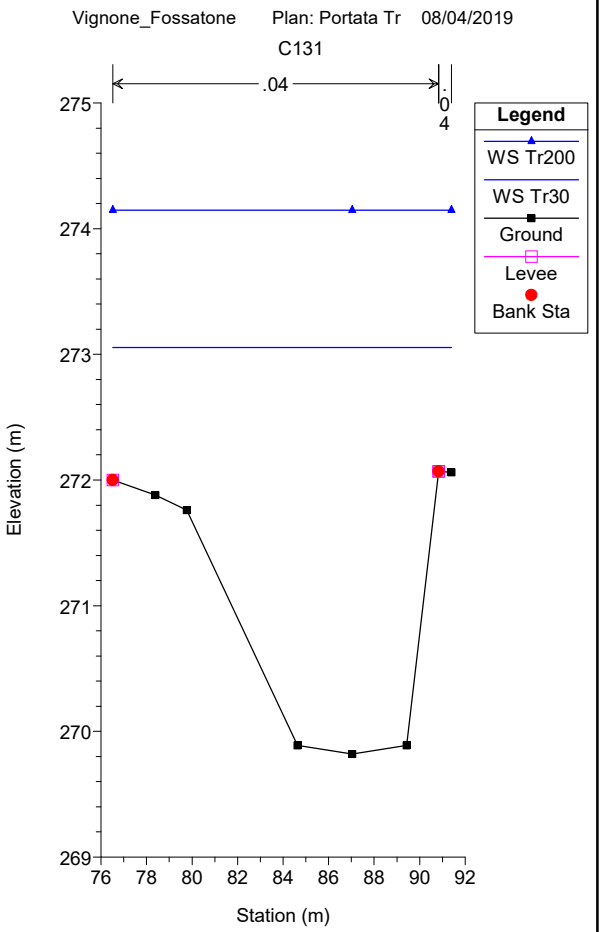
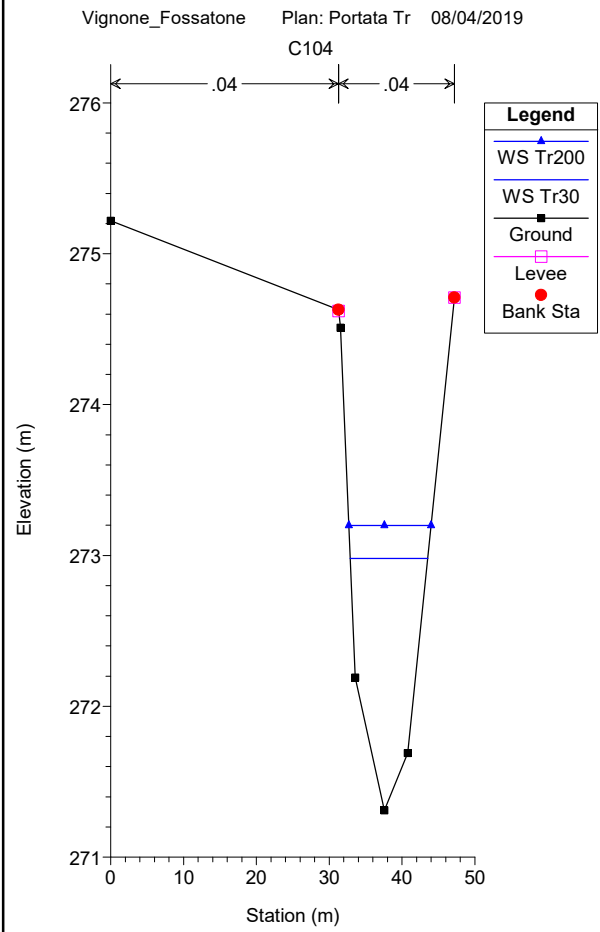
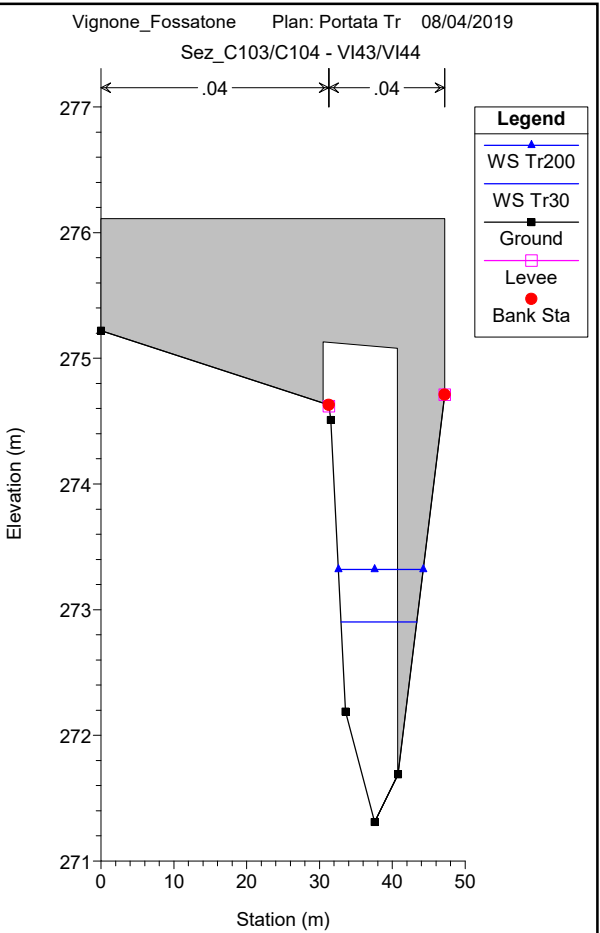
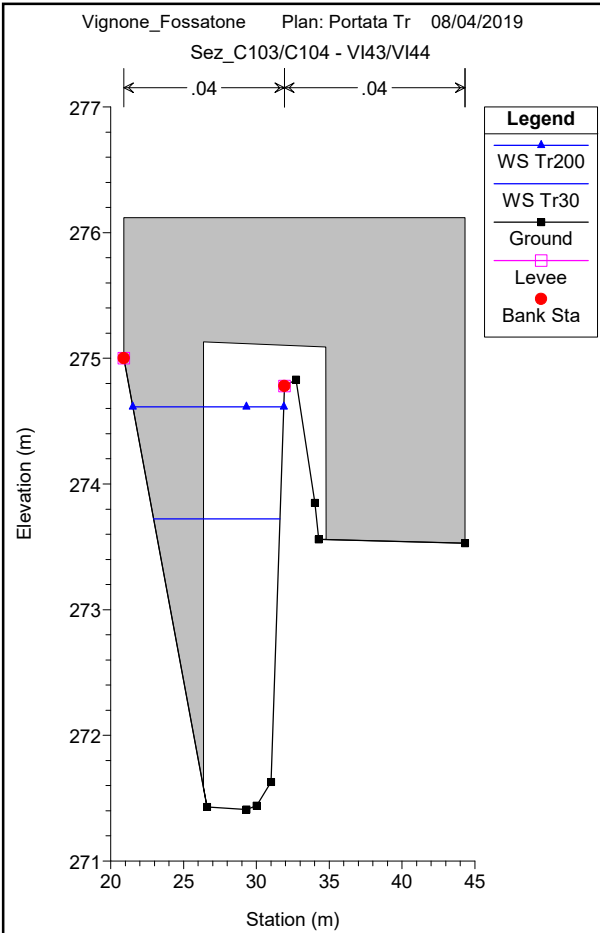


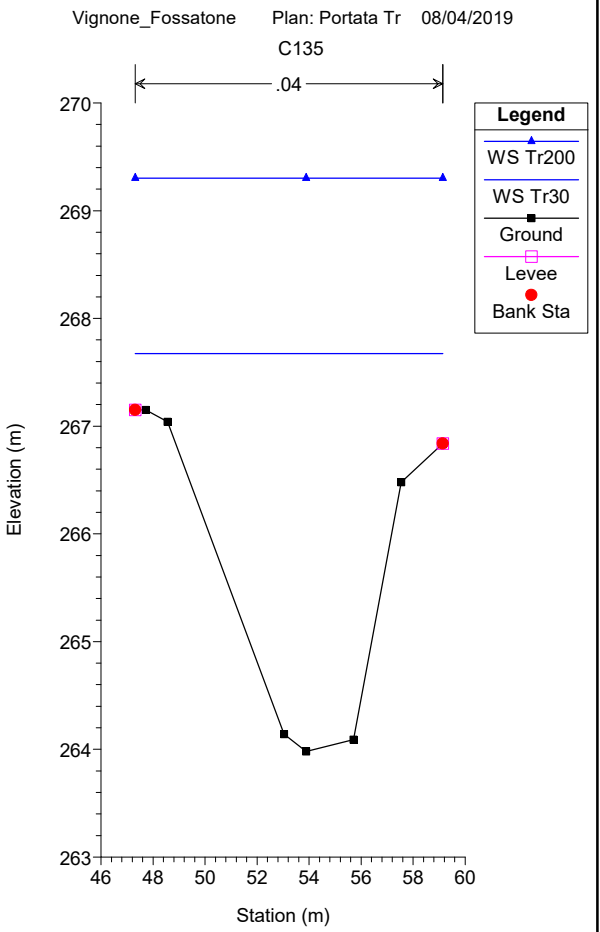
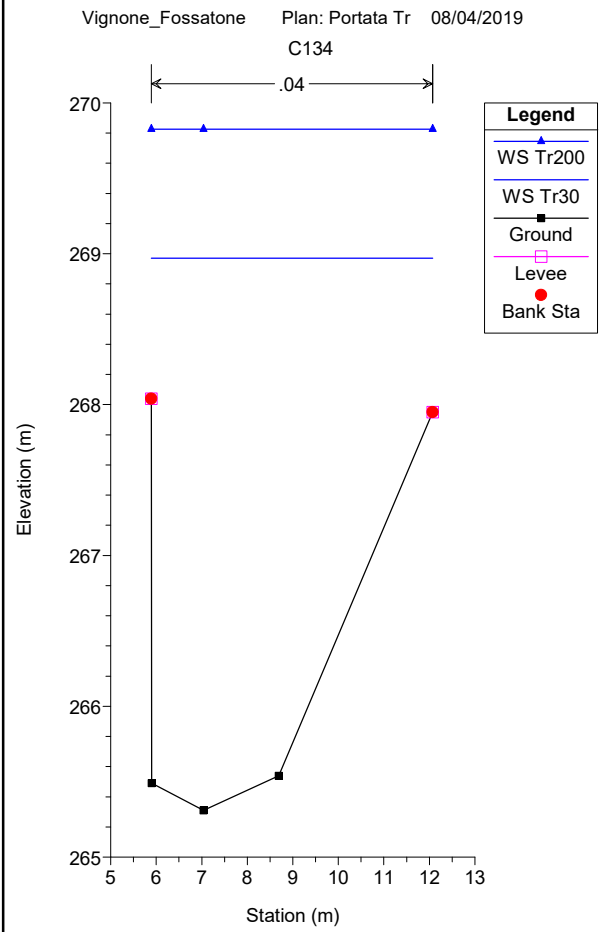
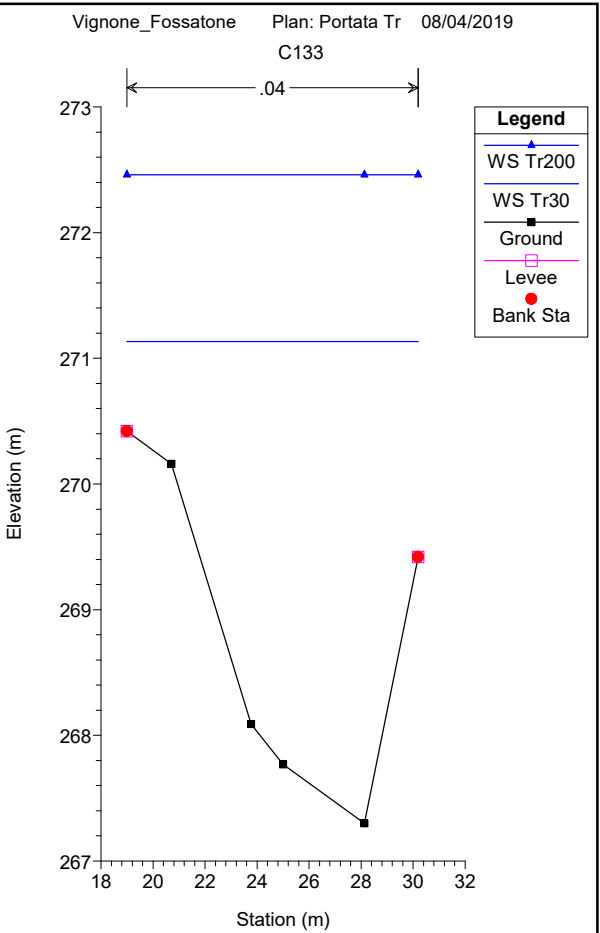
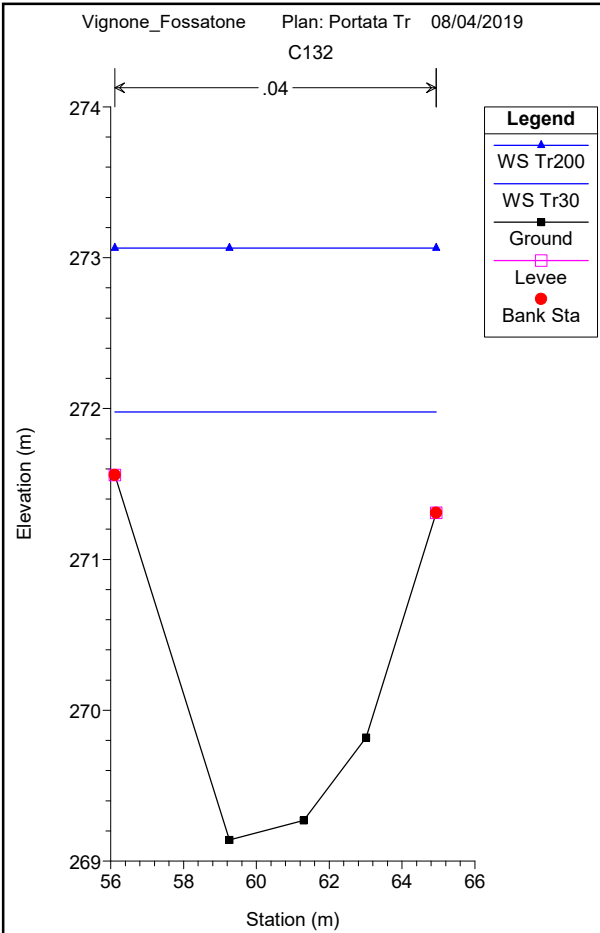


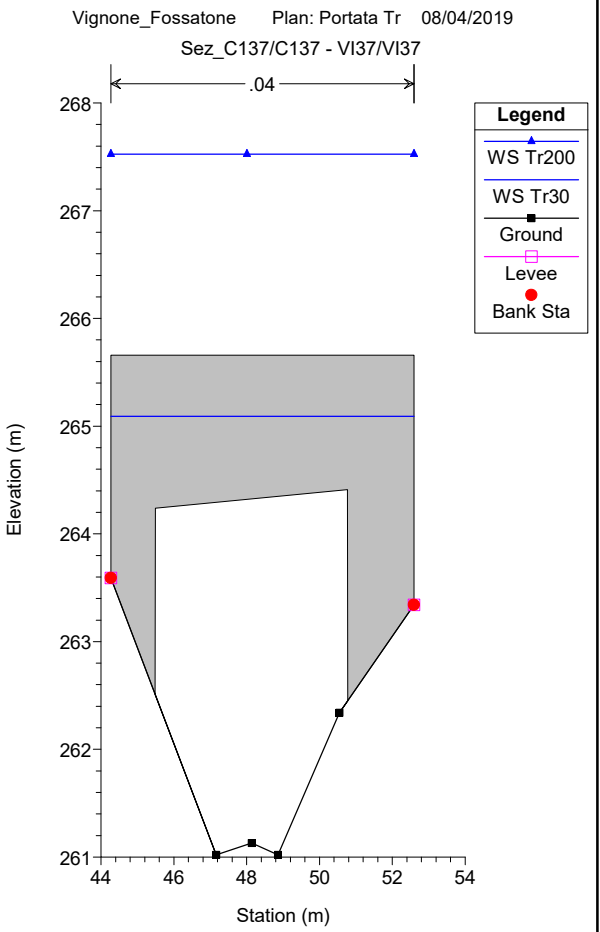
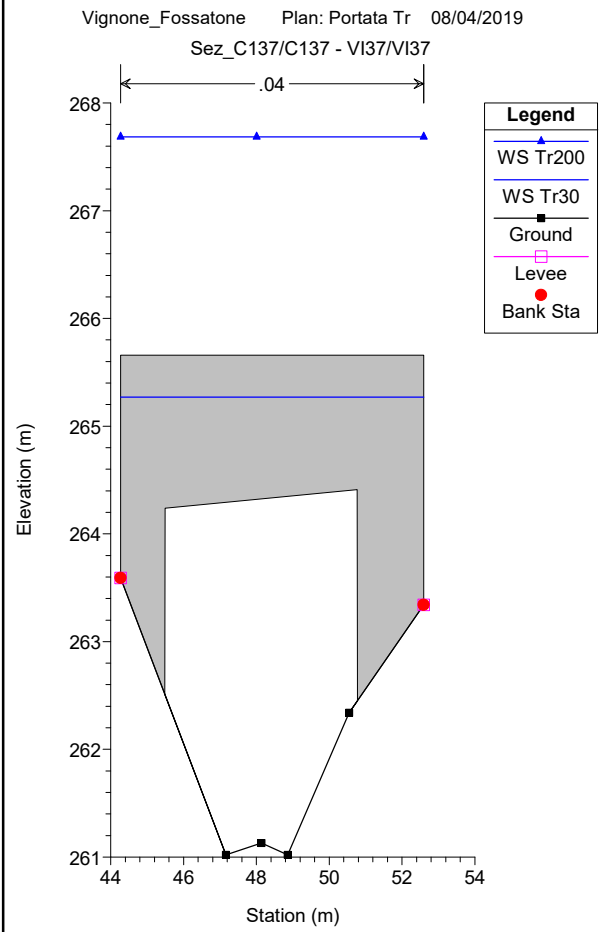
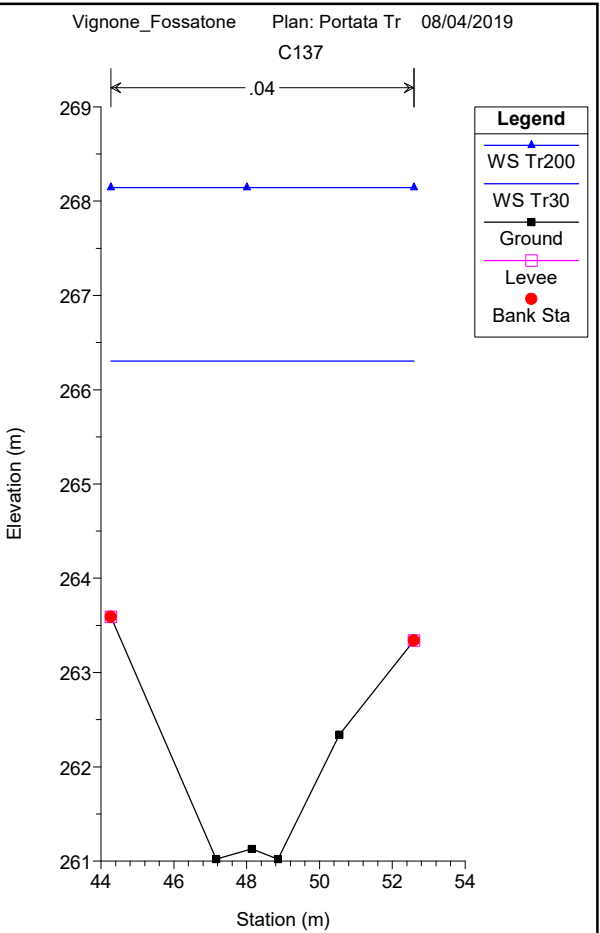
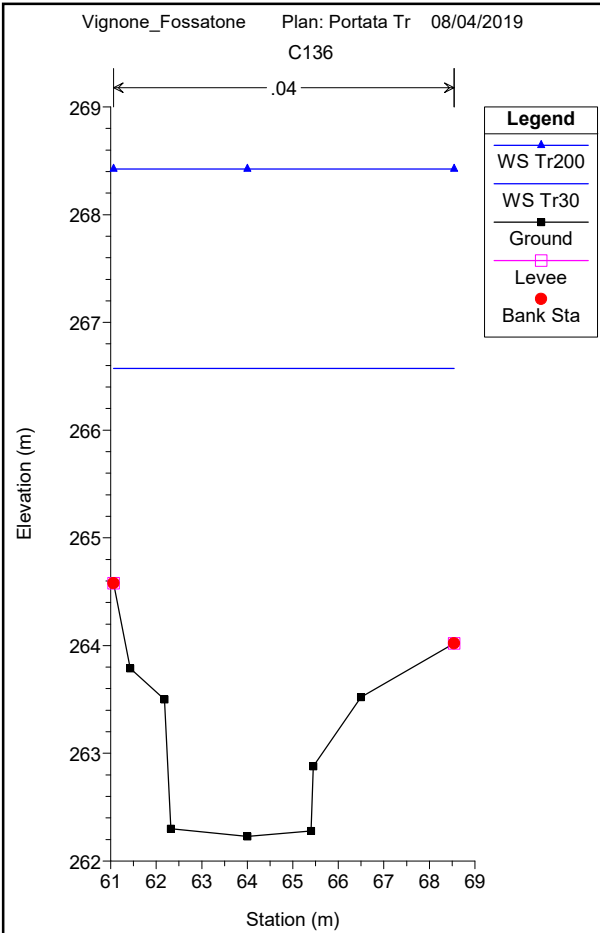


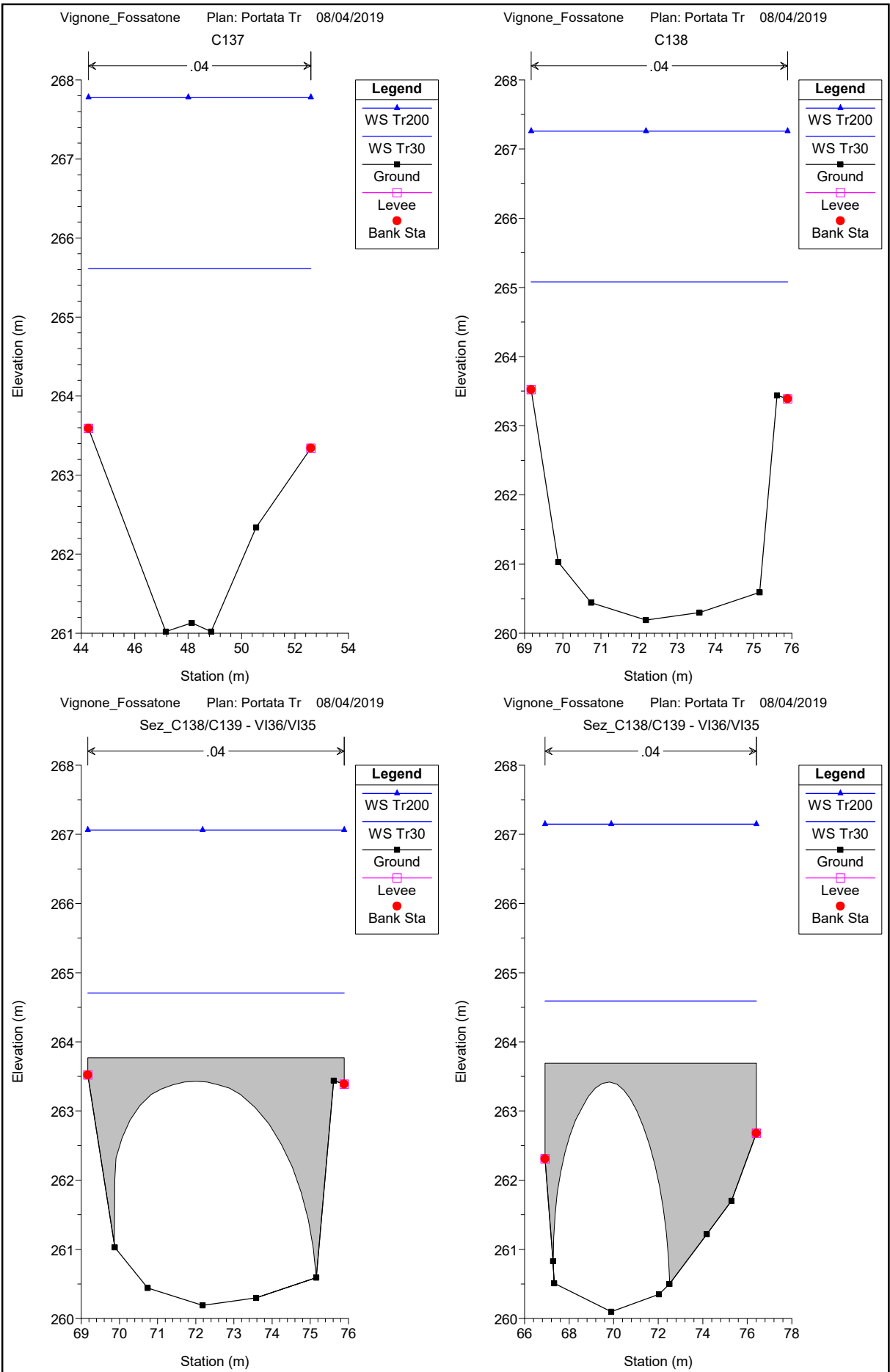


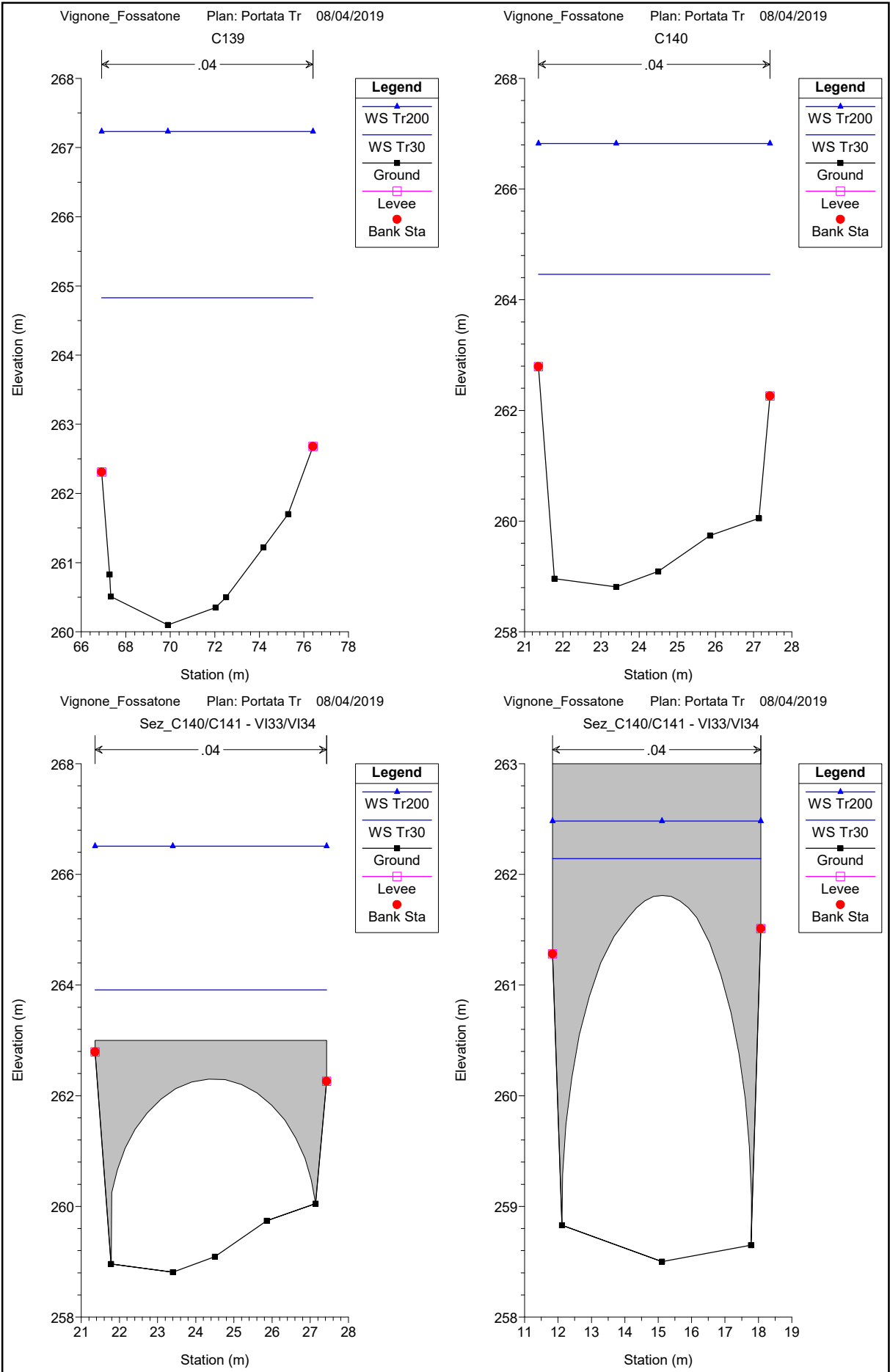


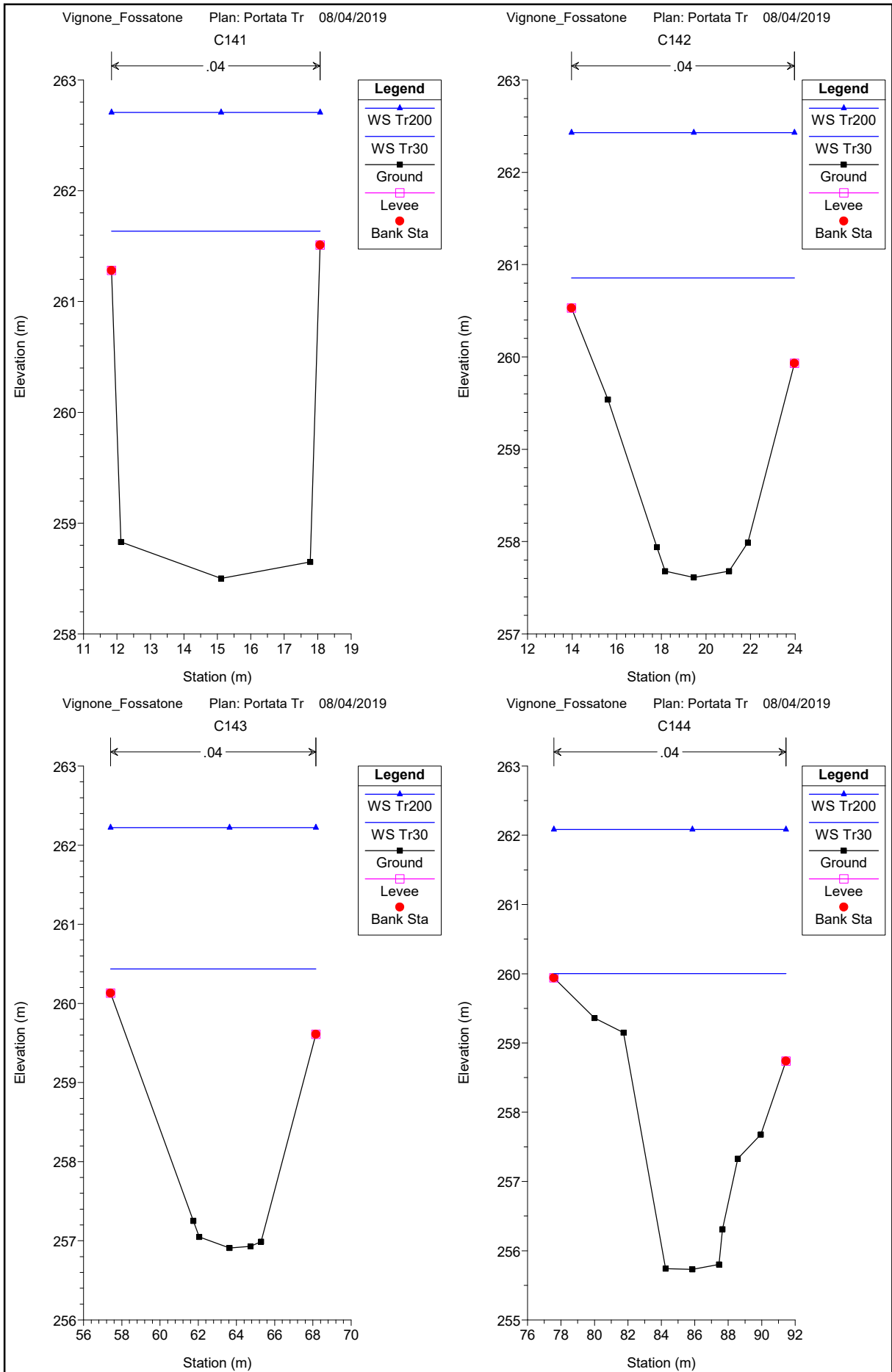


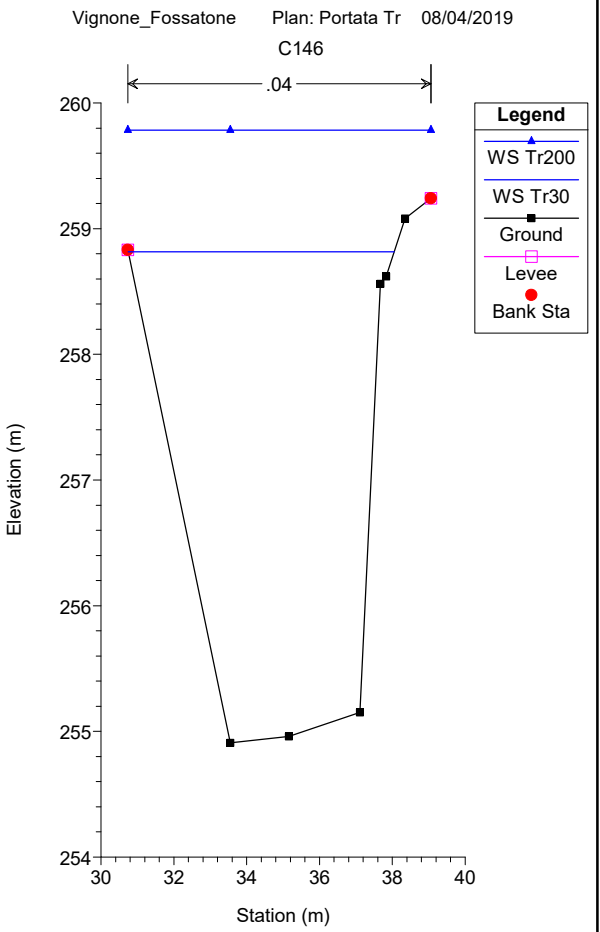
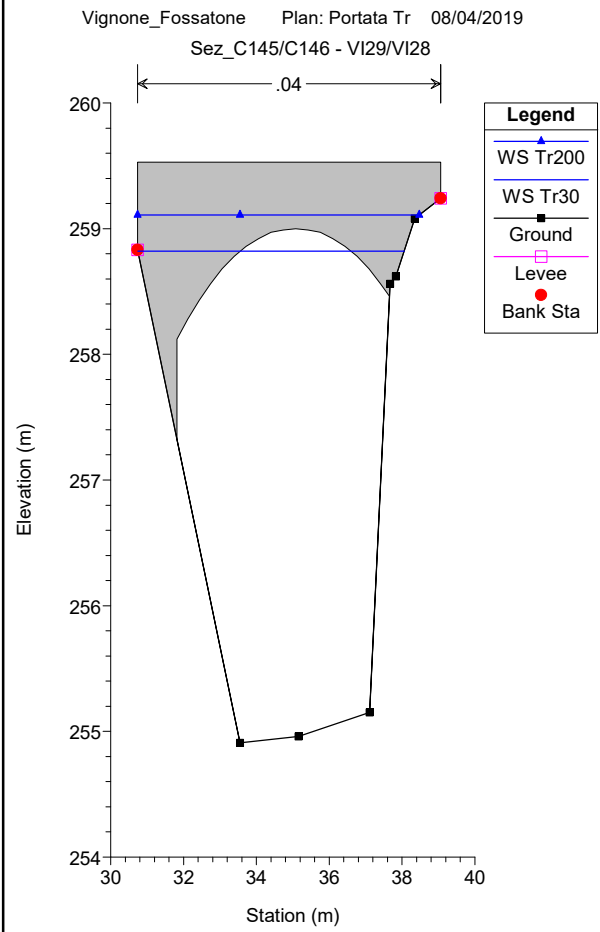
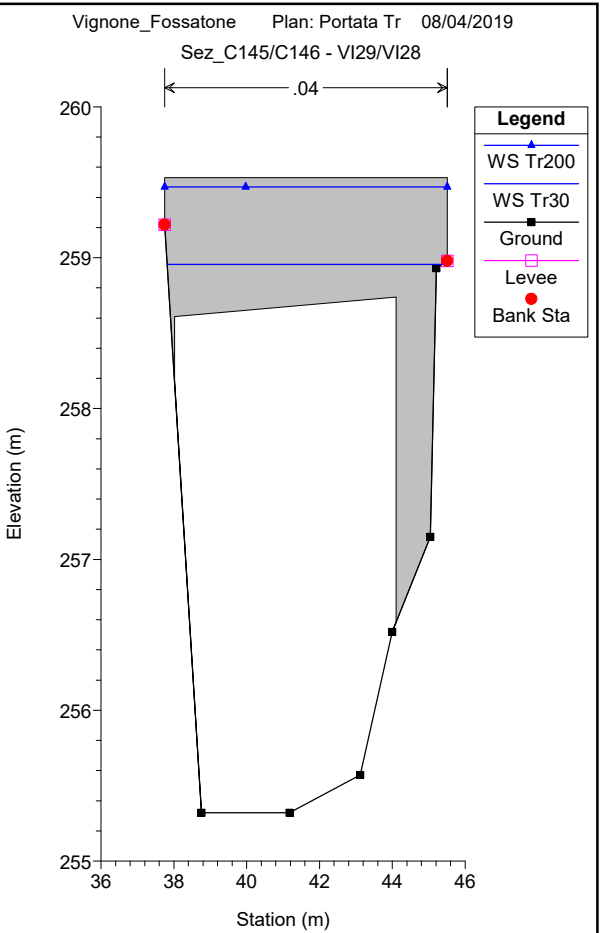
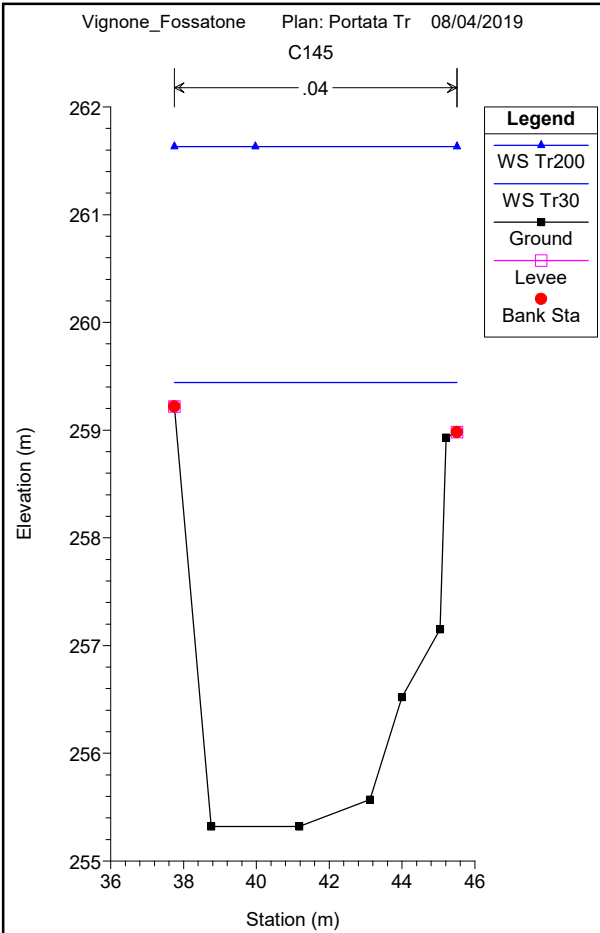




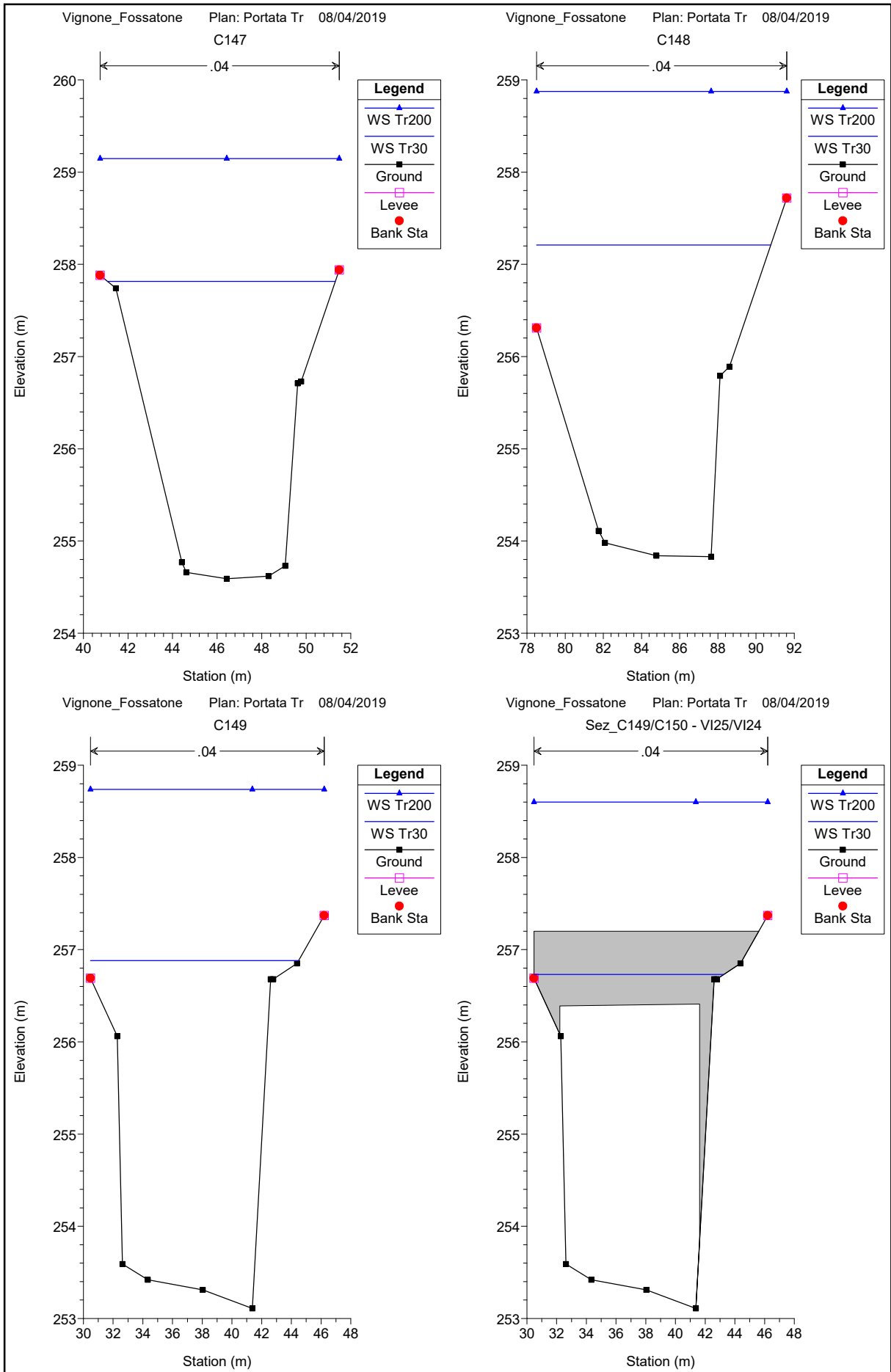


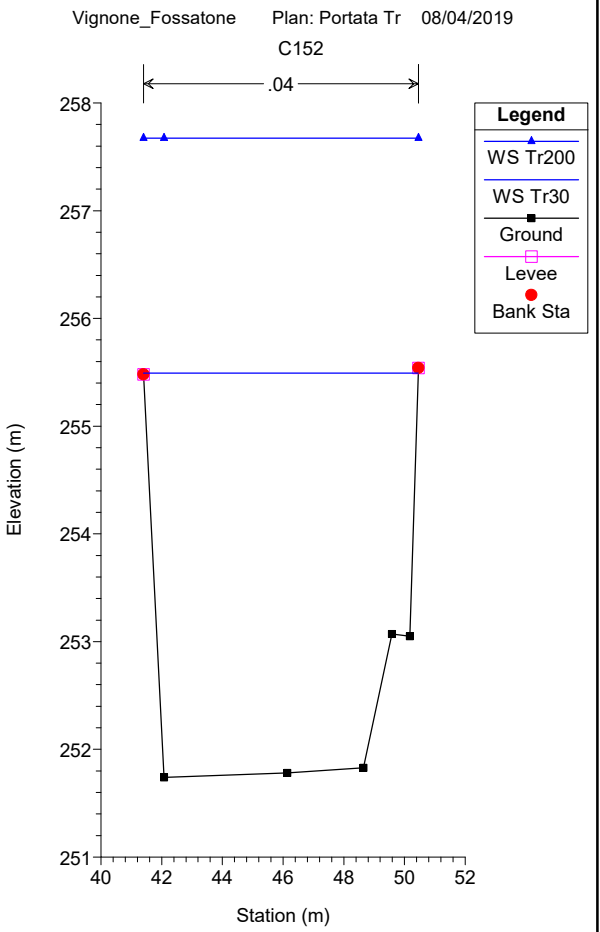
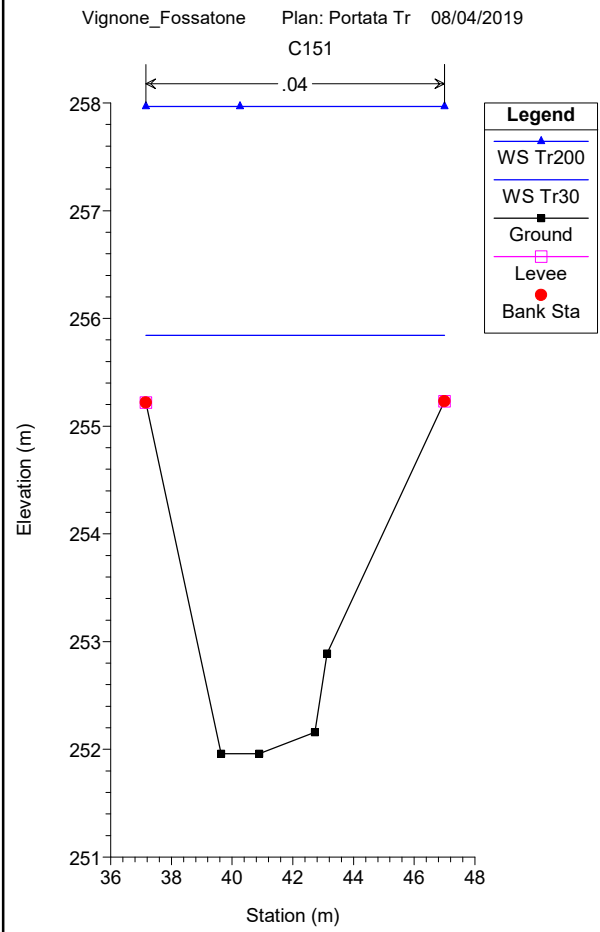
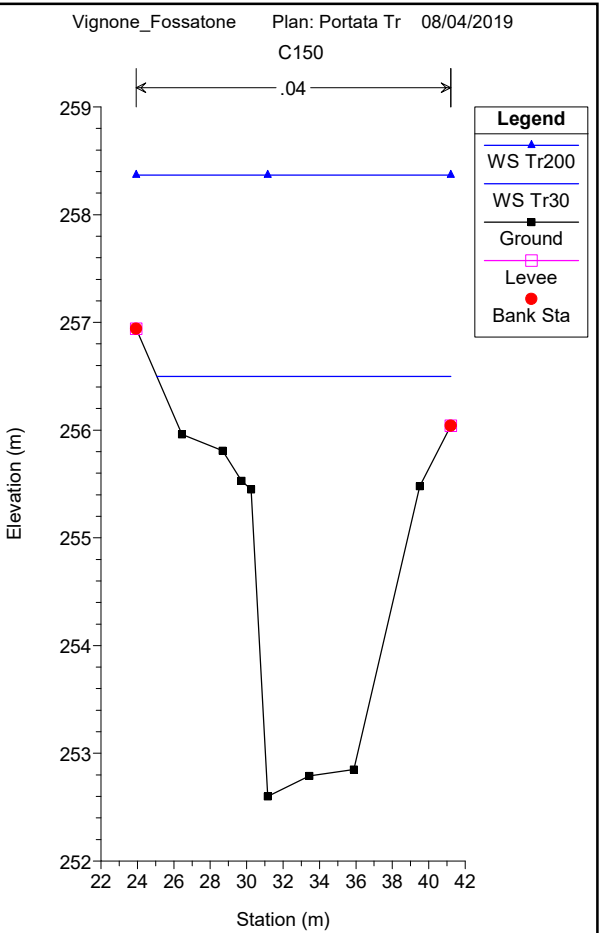
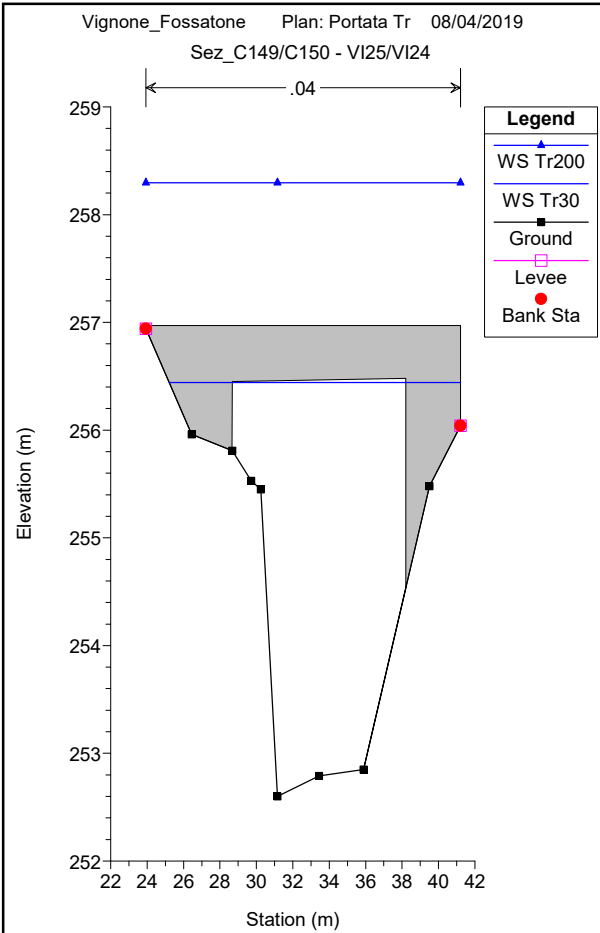


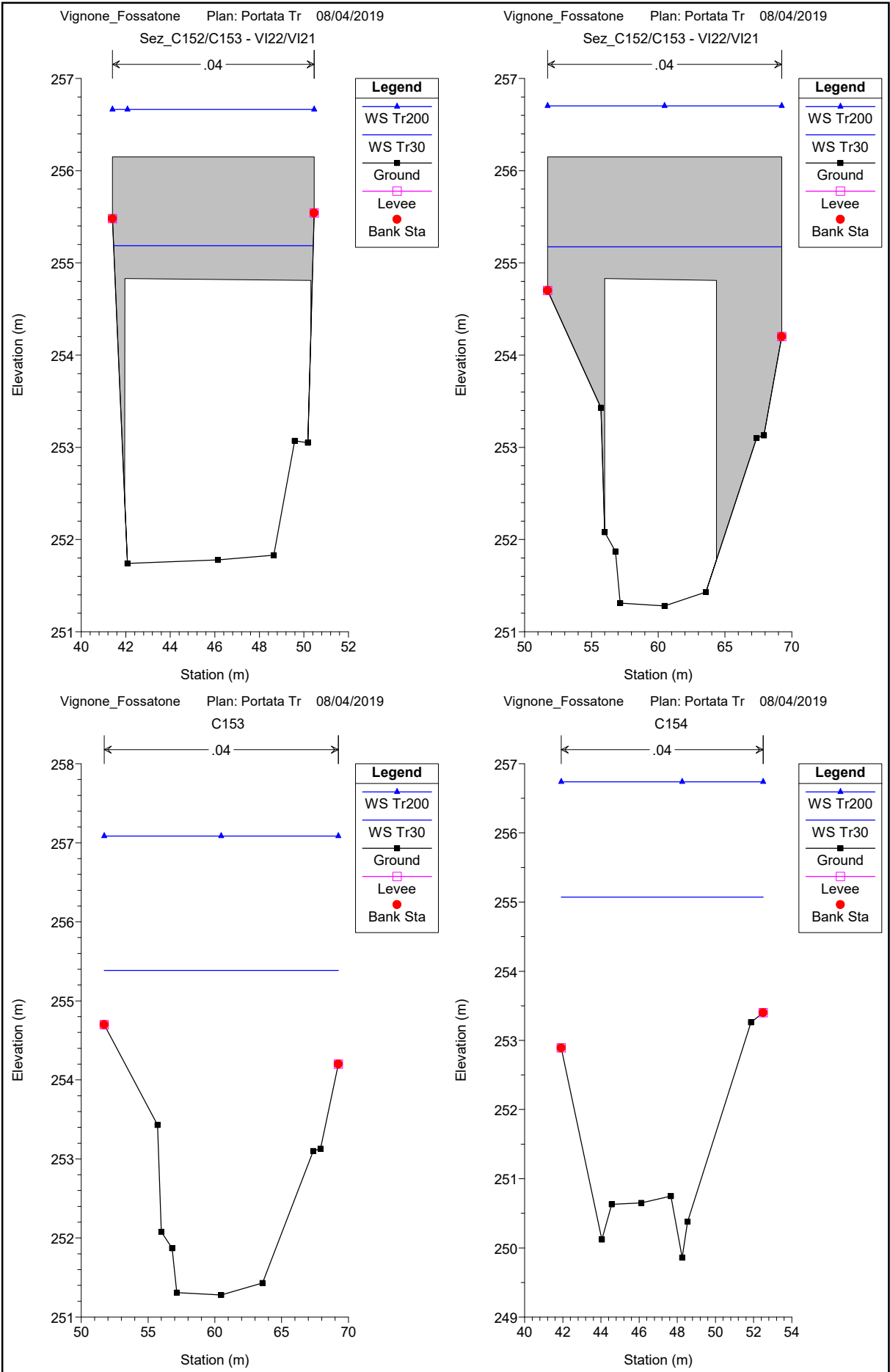


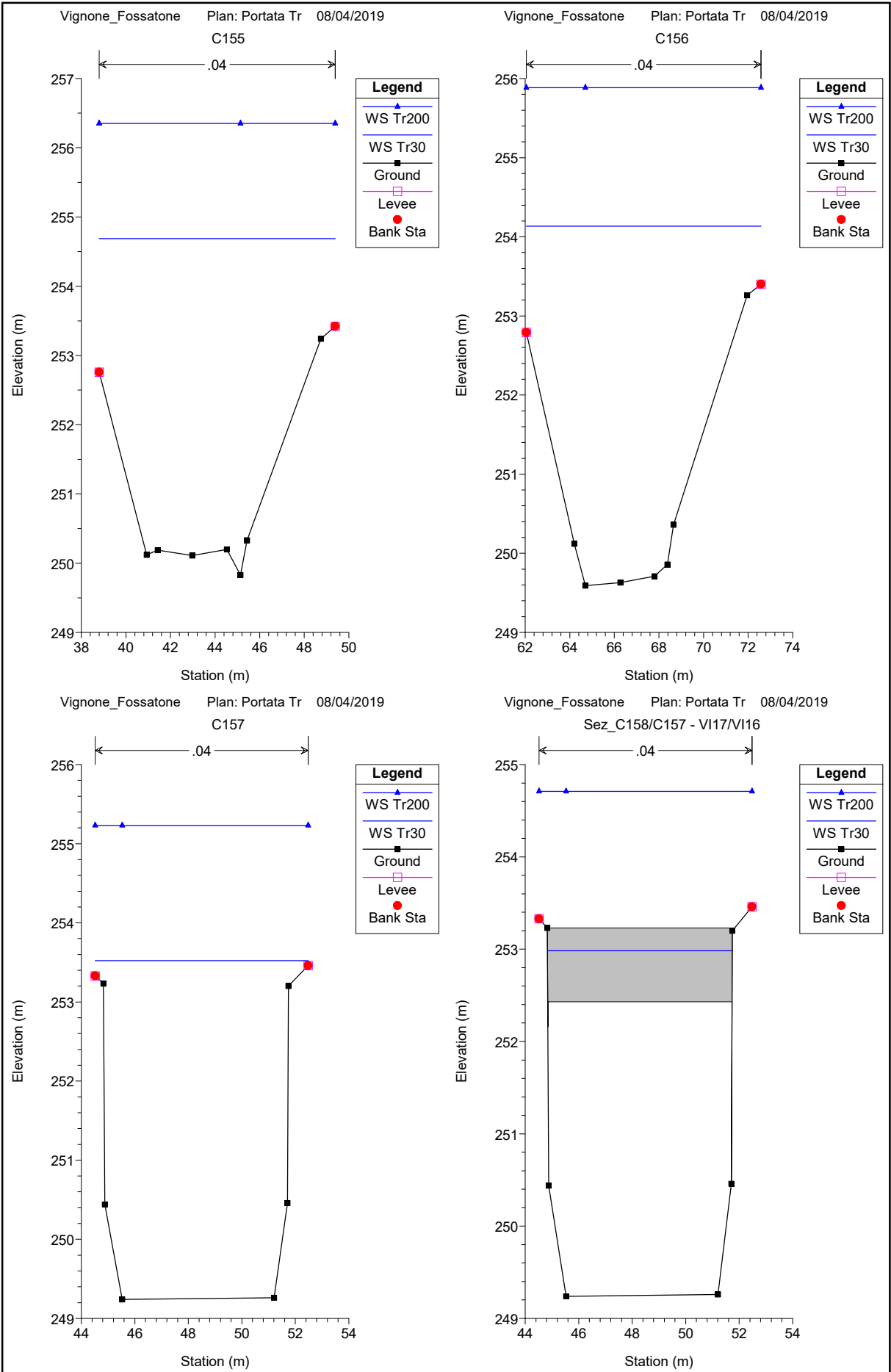


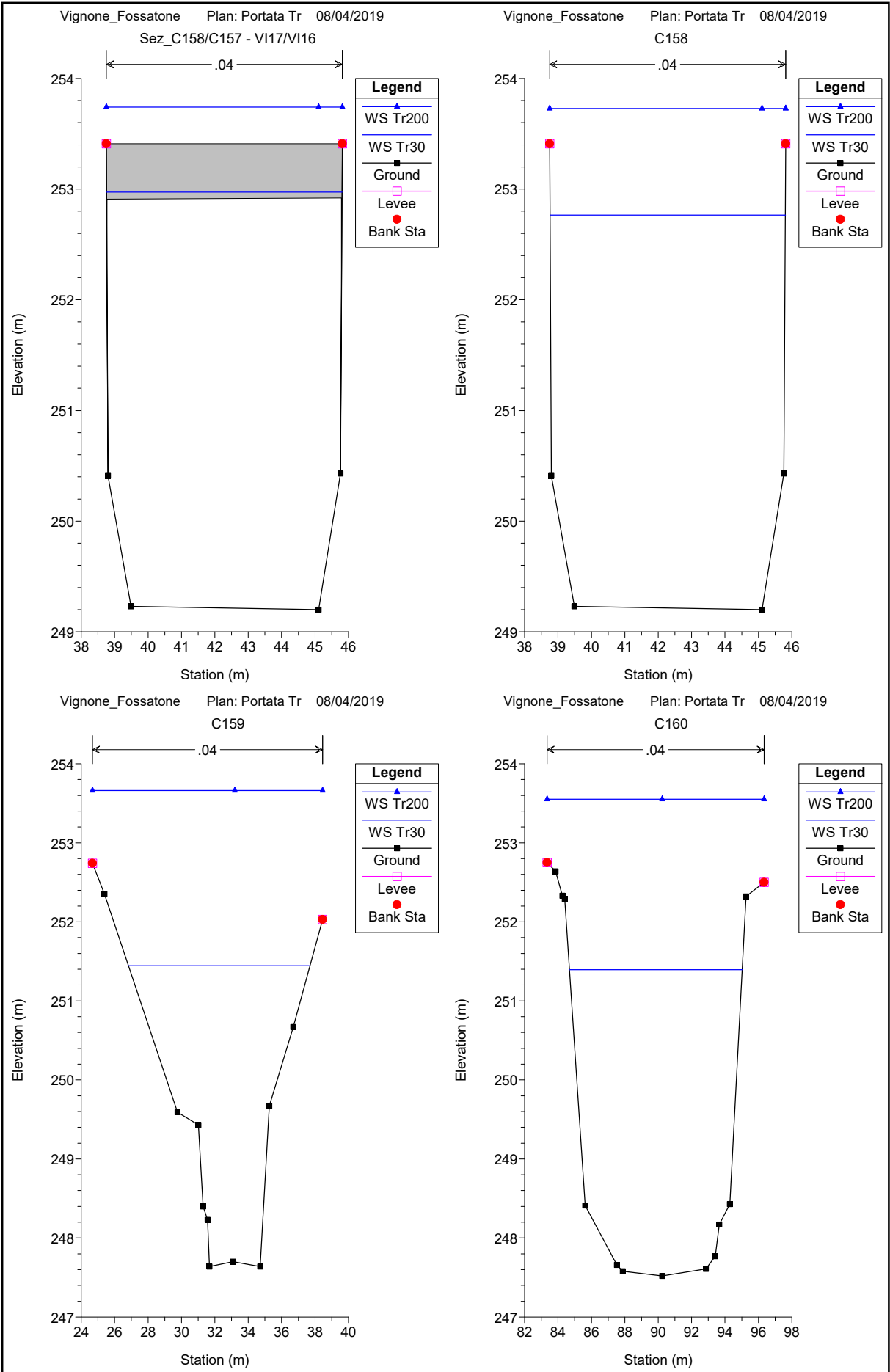


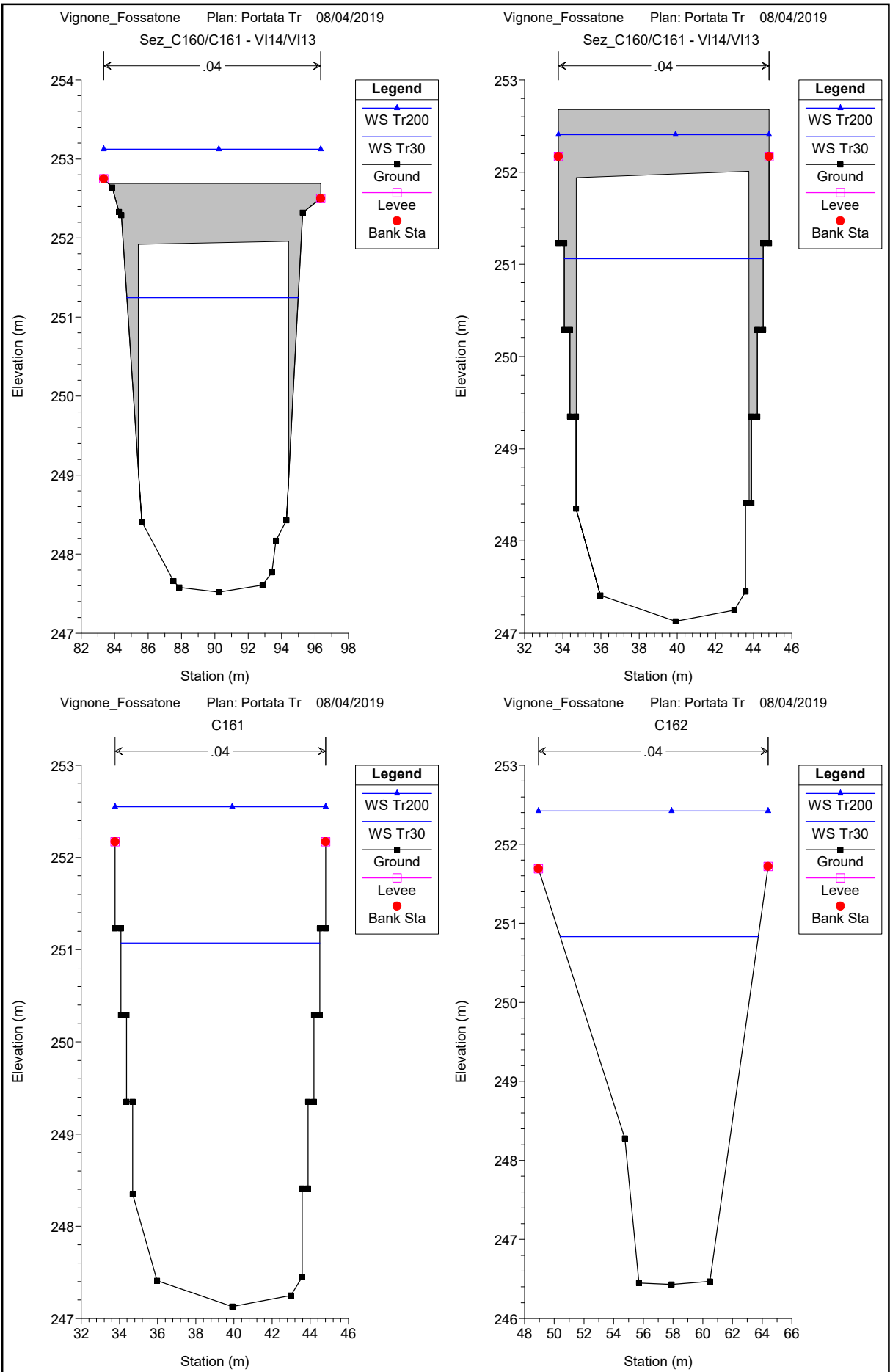


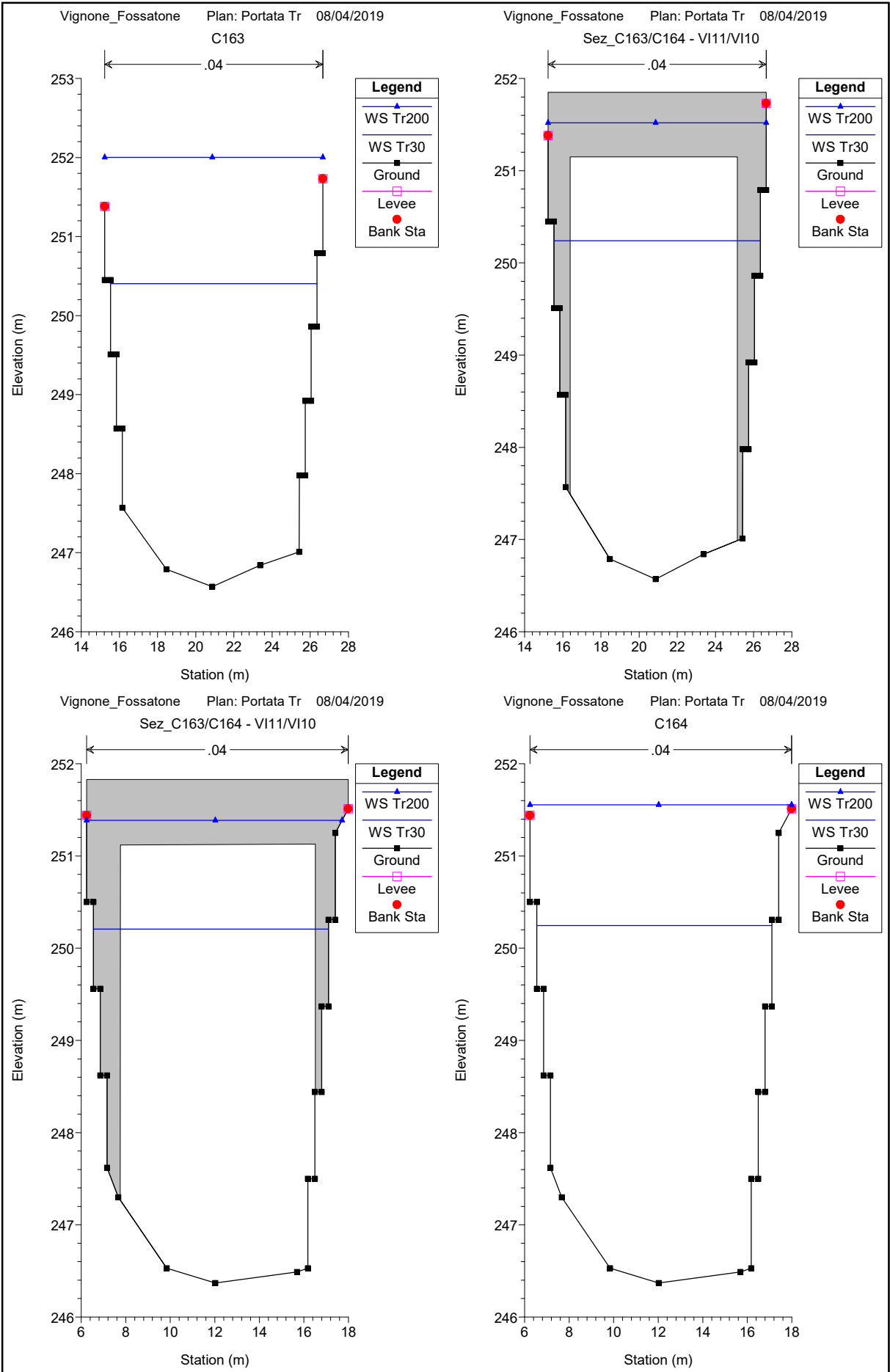


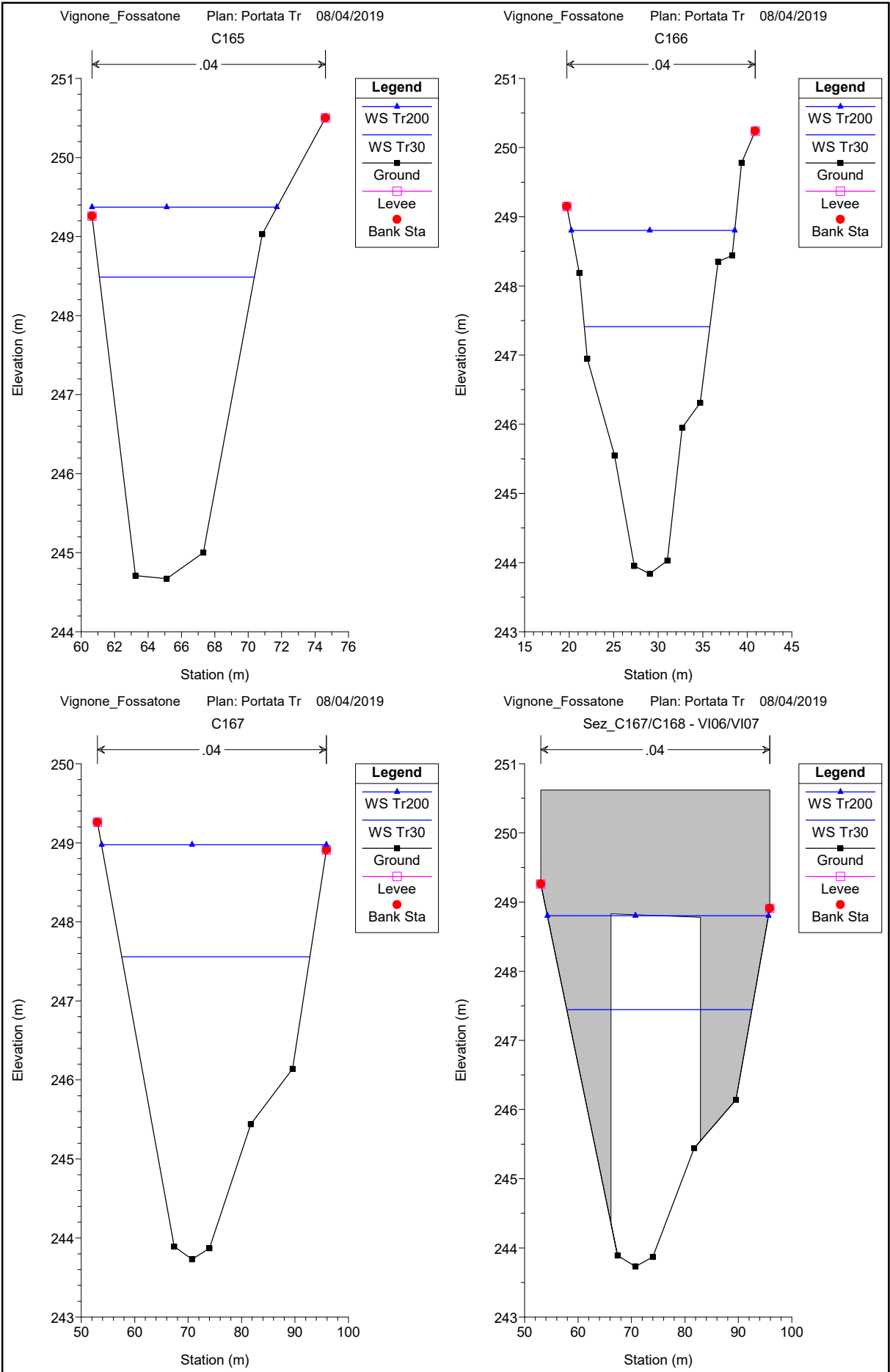




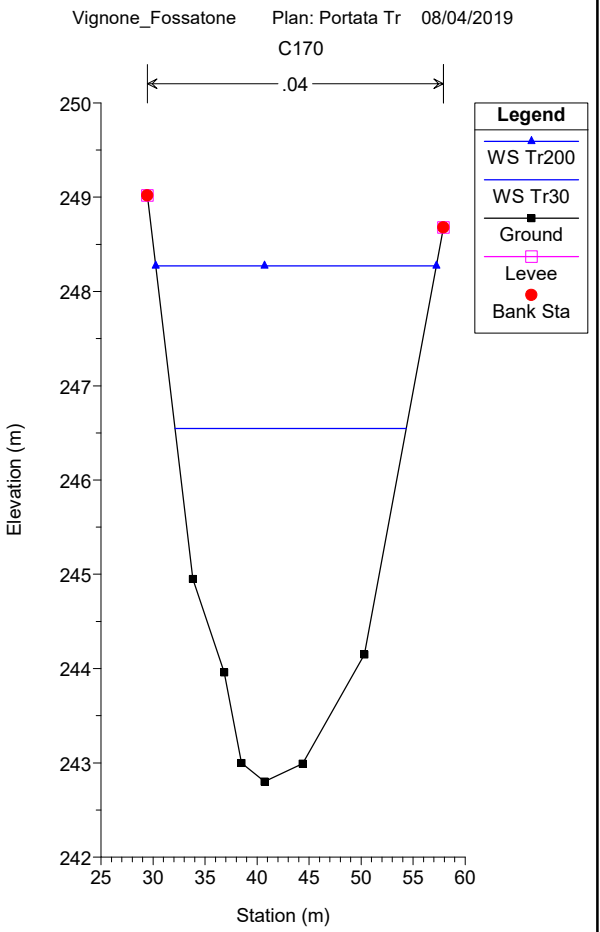
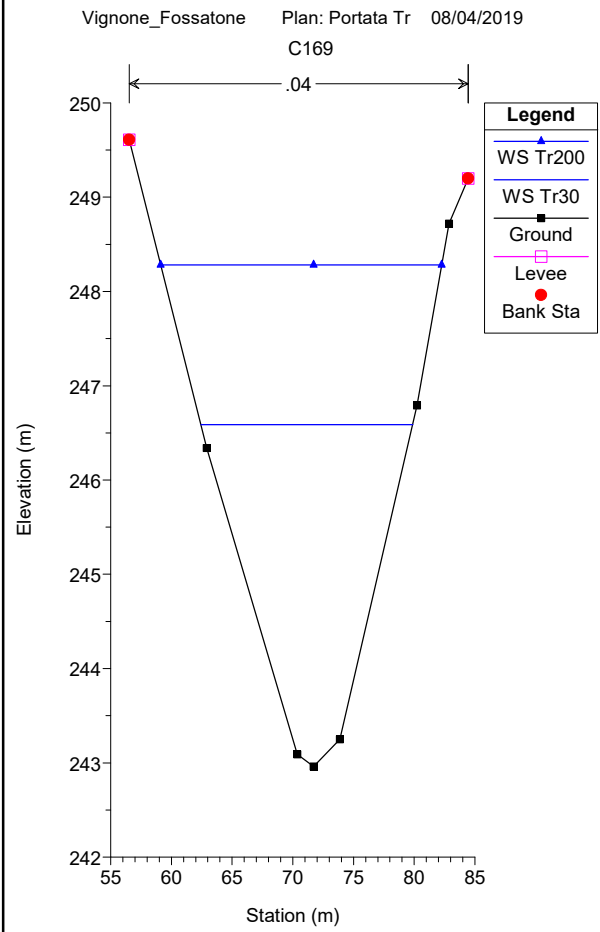
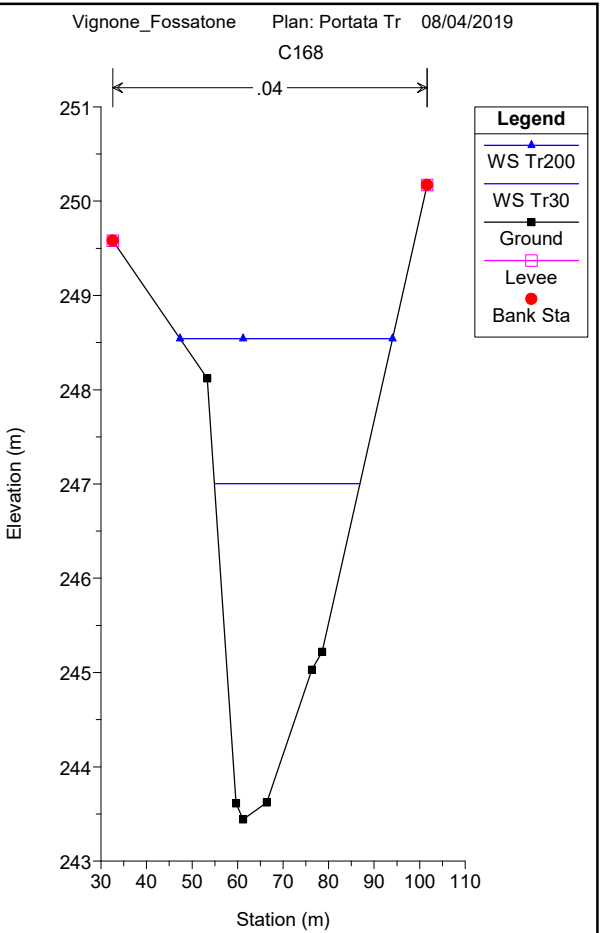
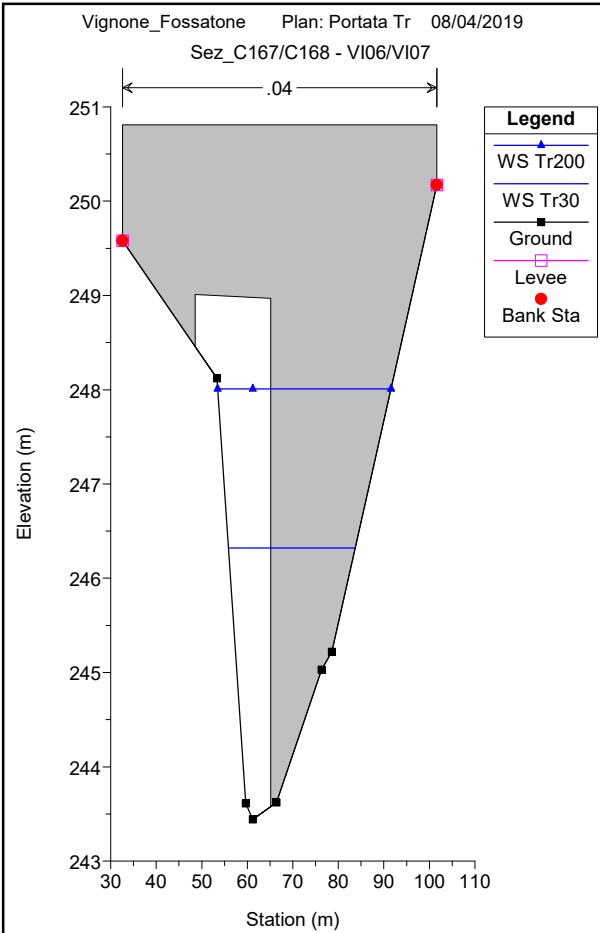


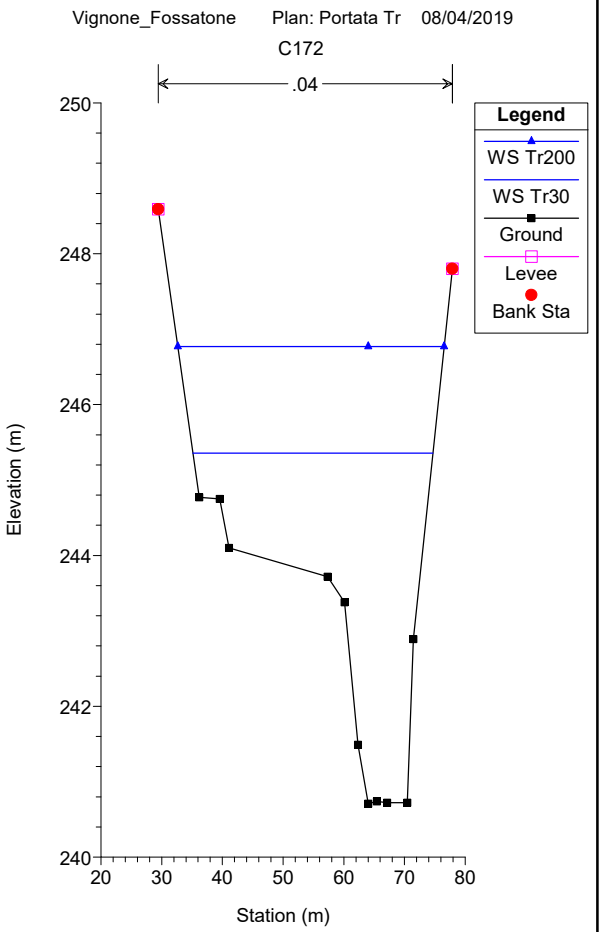
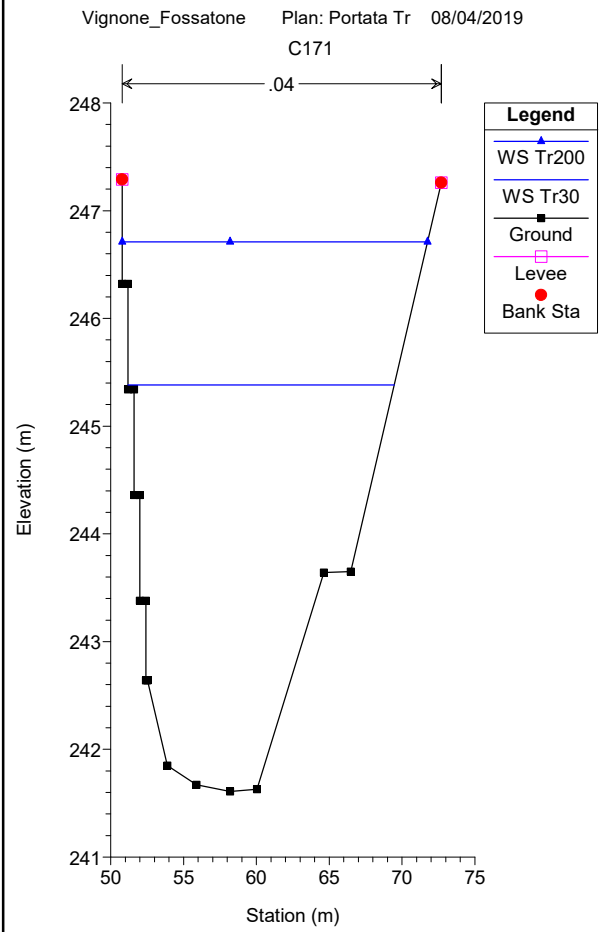
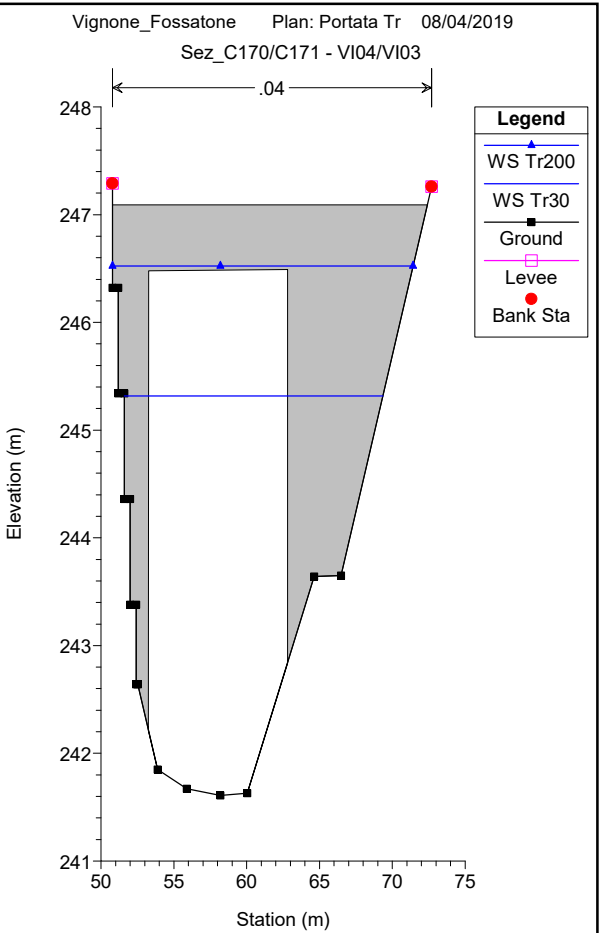
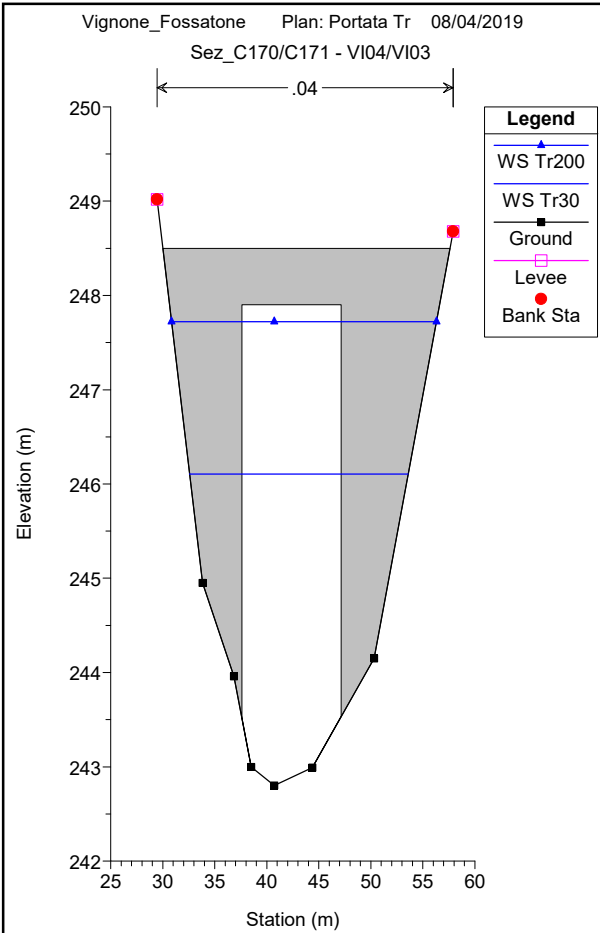


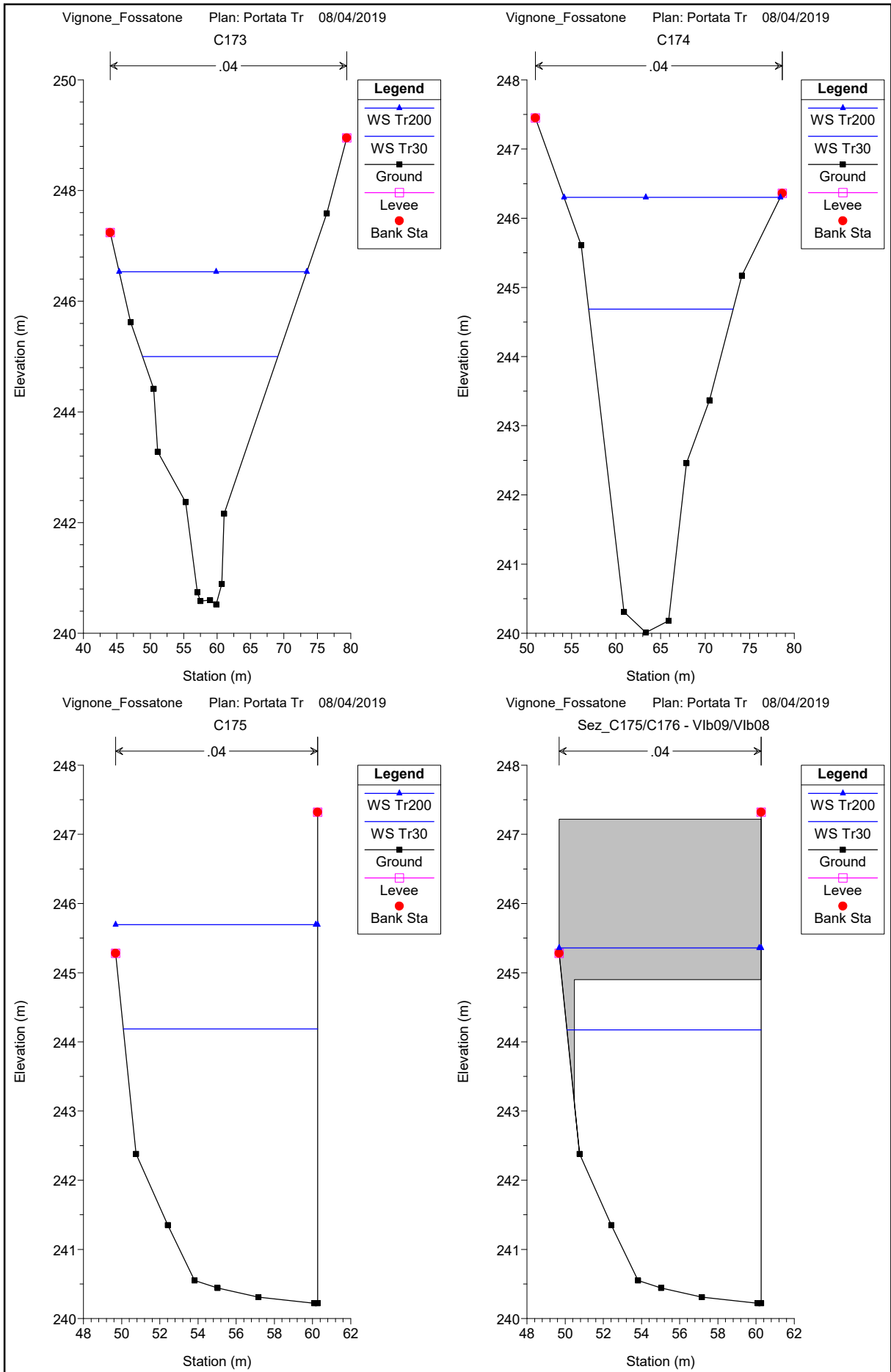


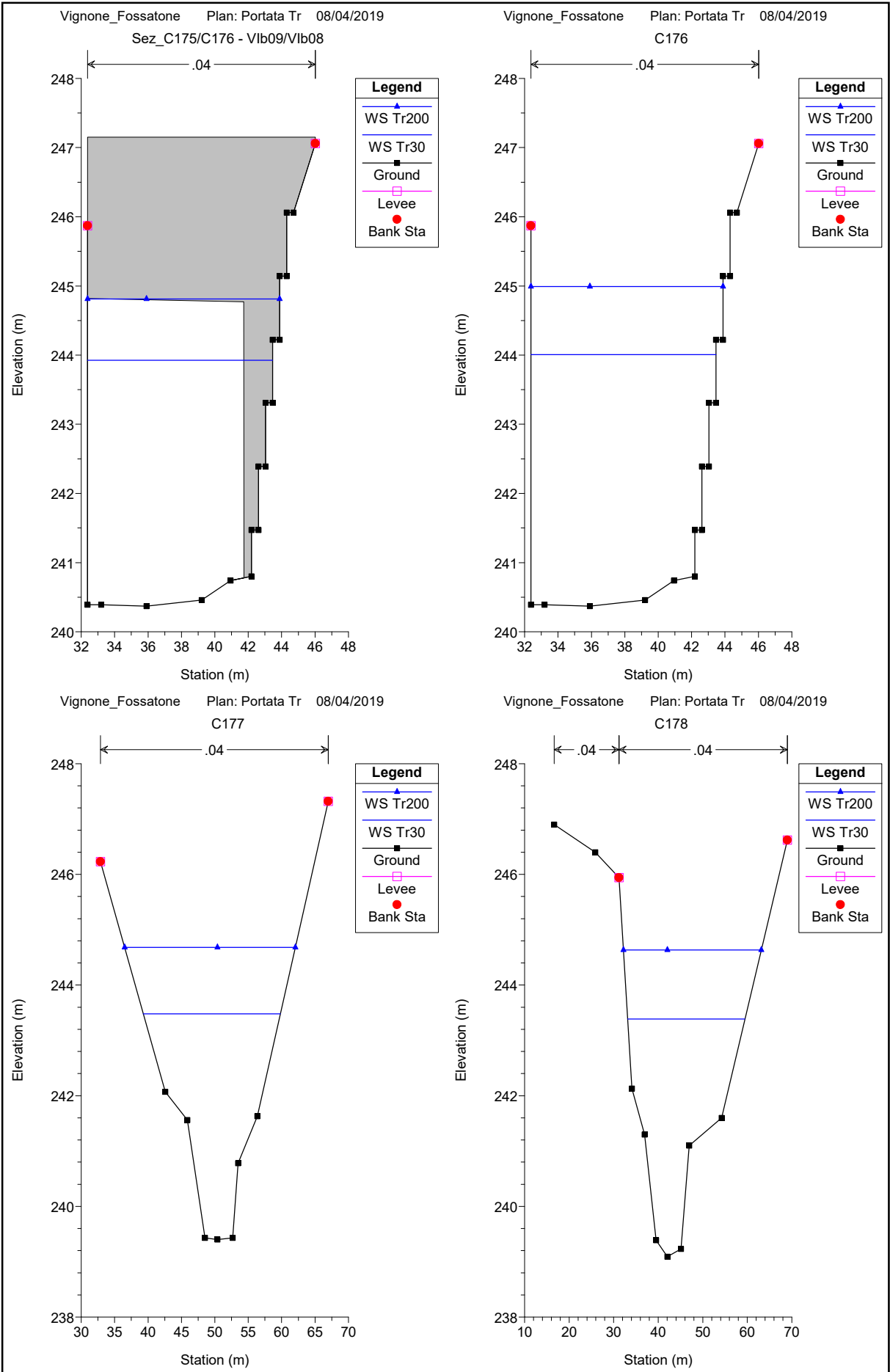


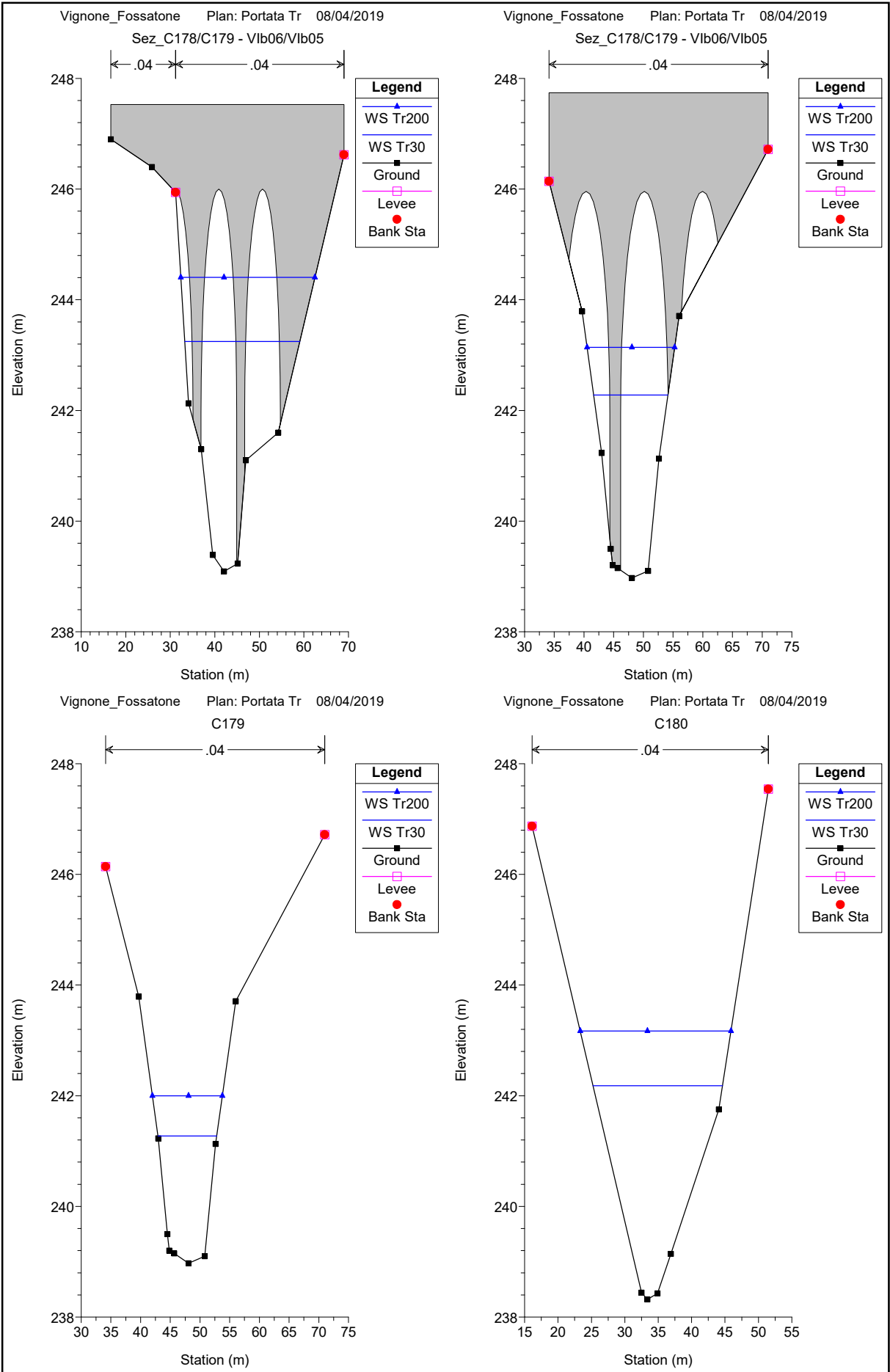


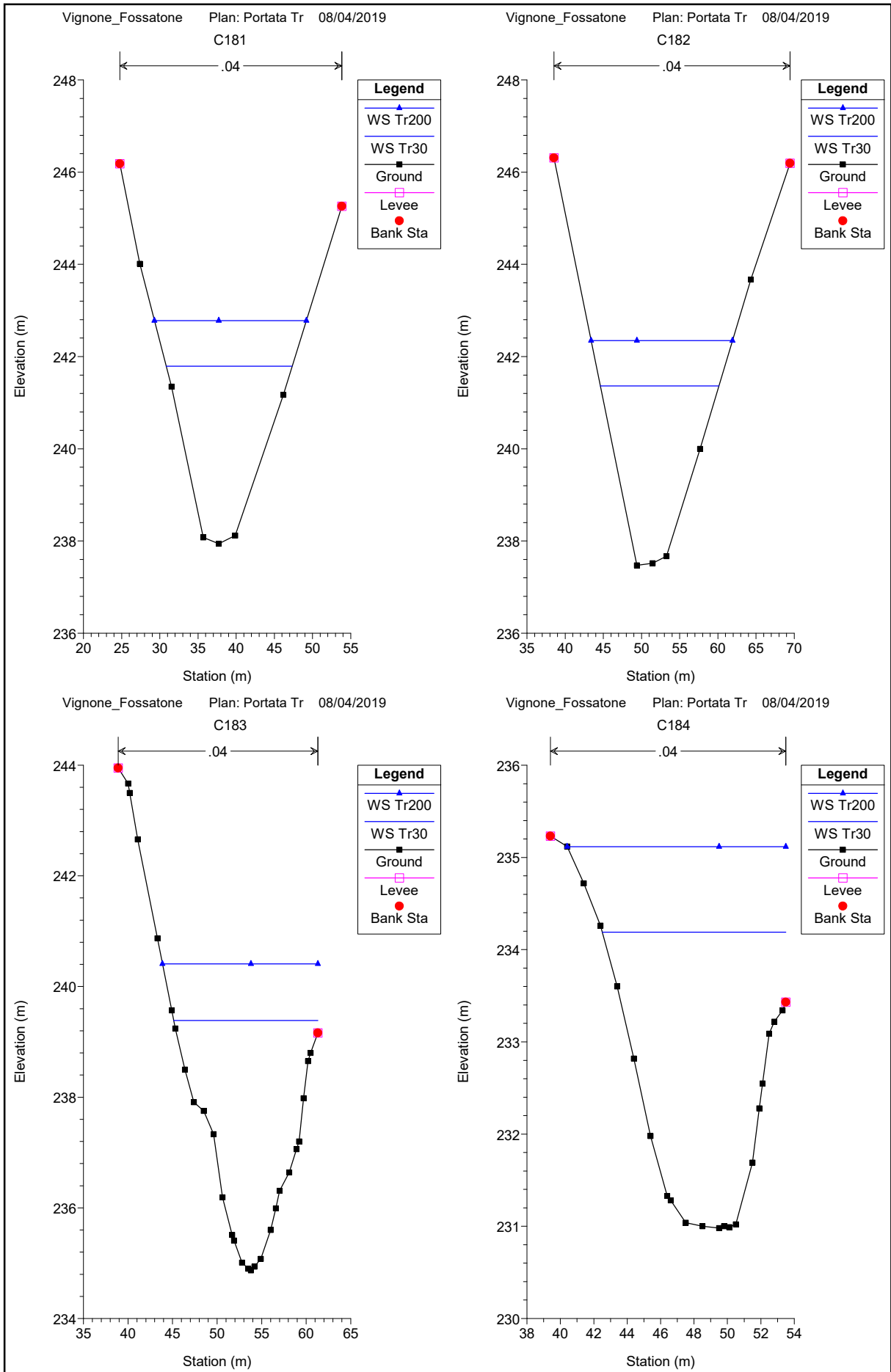


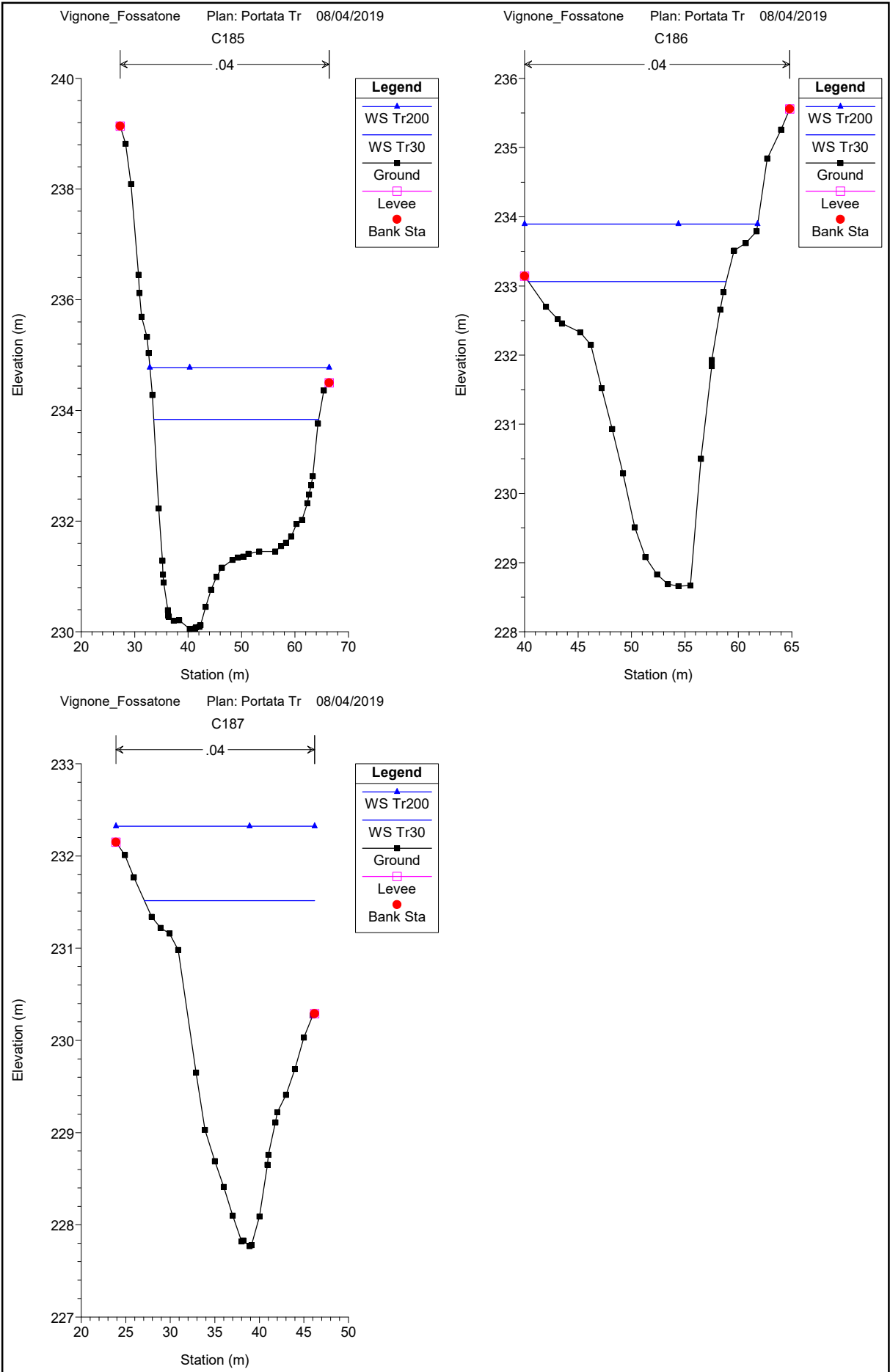






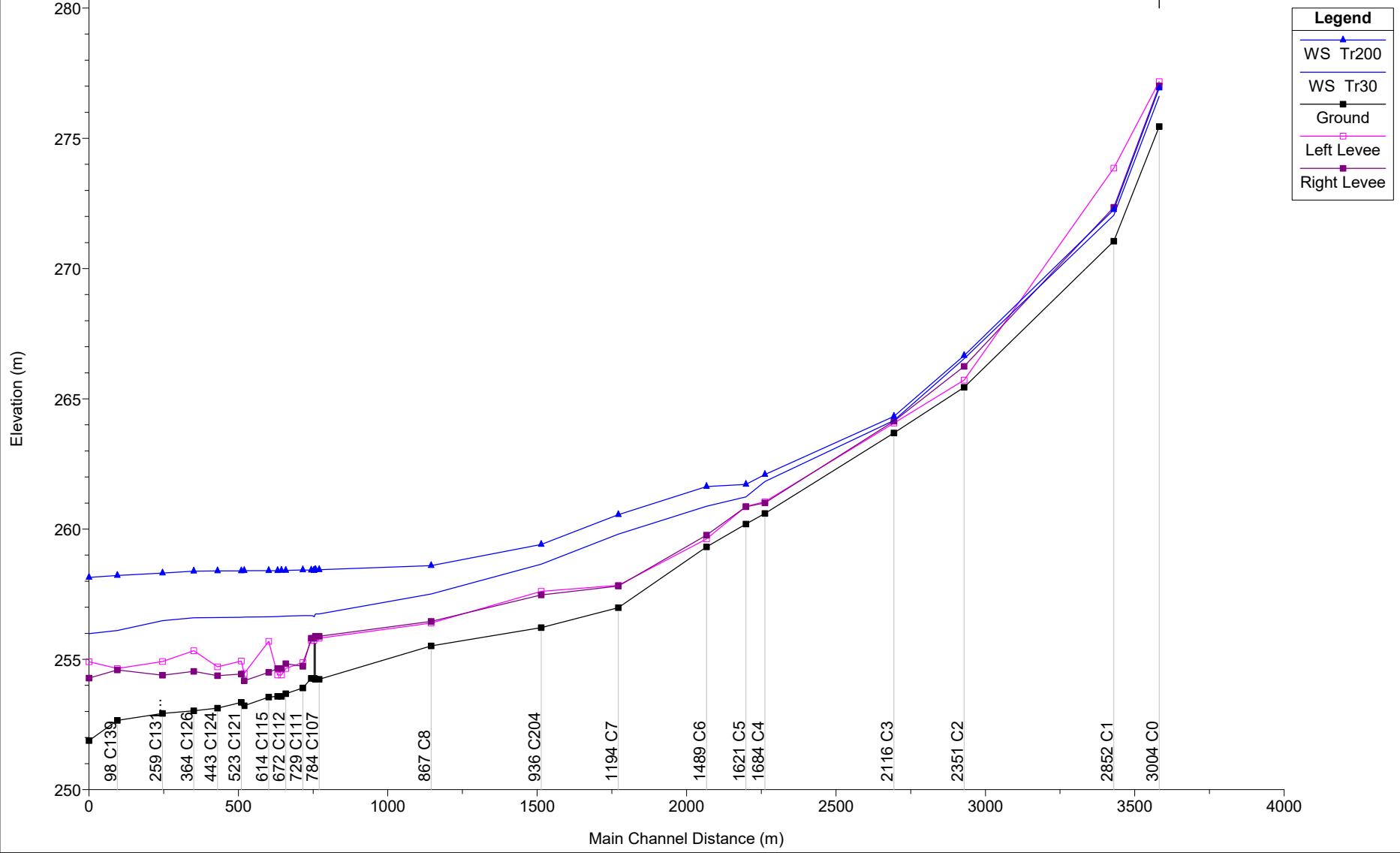






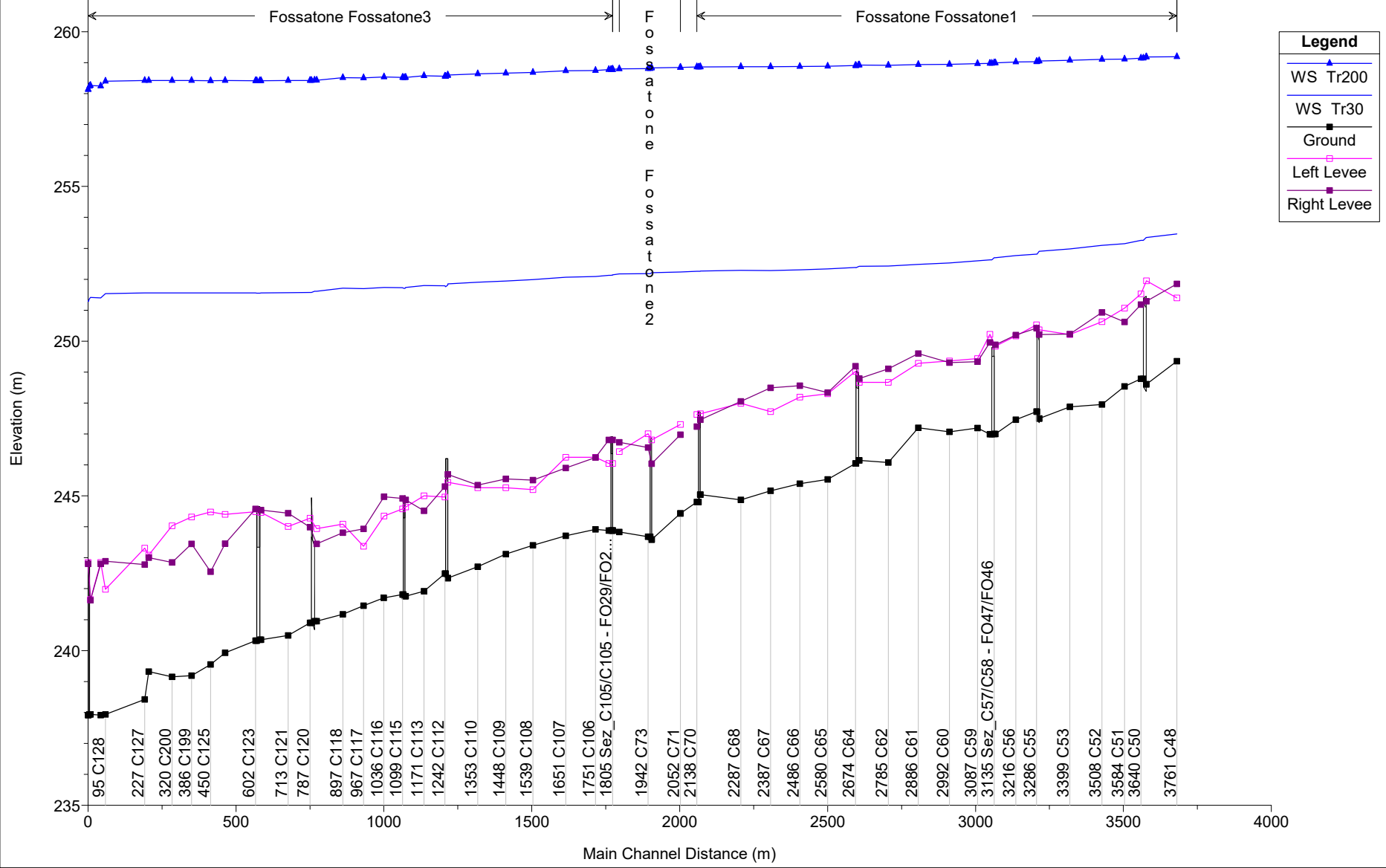
Vignone\_Fossatone Plan: Portata Tr 08/04/2019

River 1 Reach 1



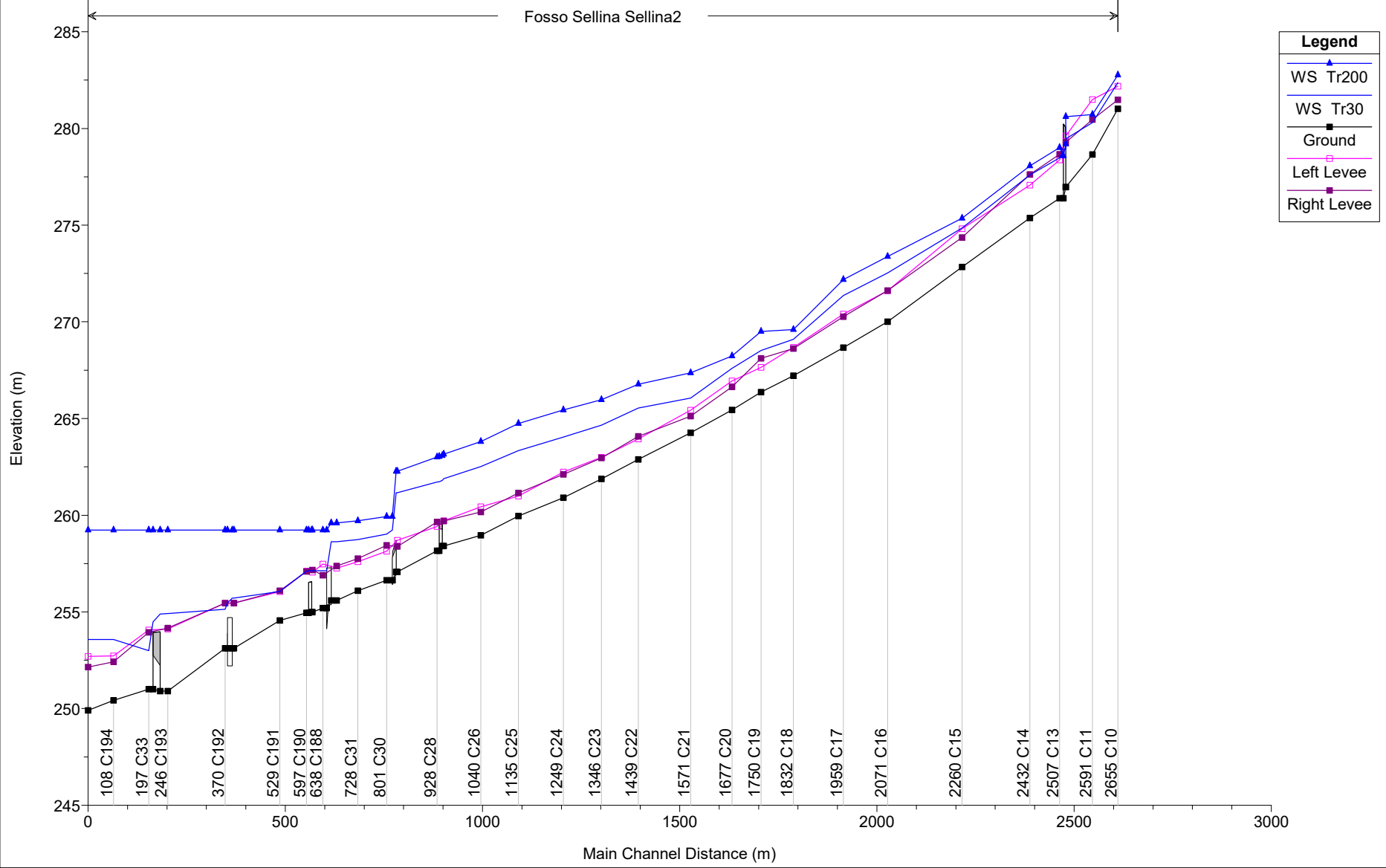


Vignone\_Fossatone Plan: Portata Tr 07/04/2019



Vignone\_Fossatone Plan: Portata Tr 07/04/2019

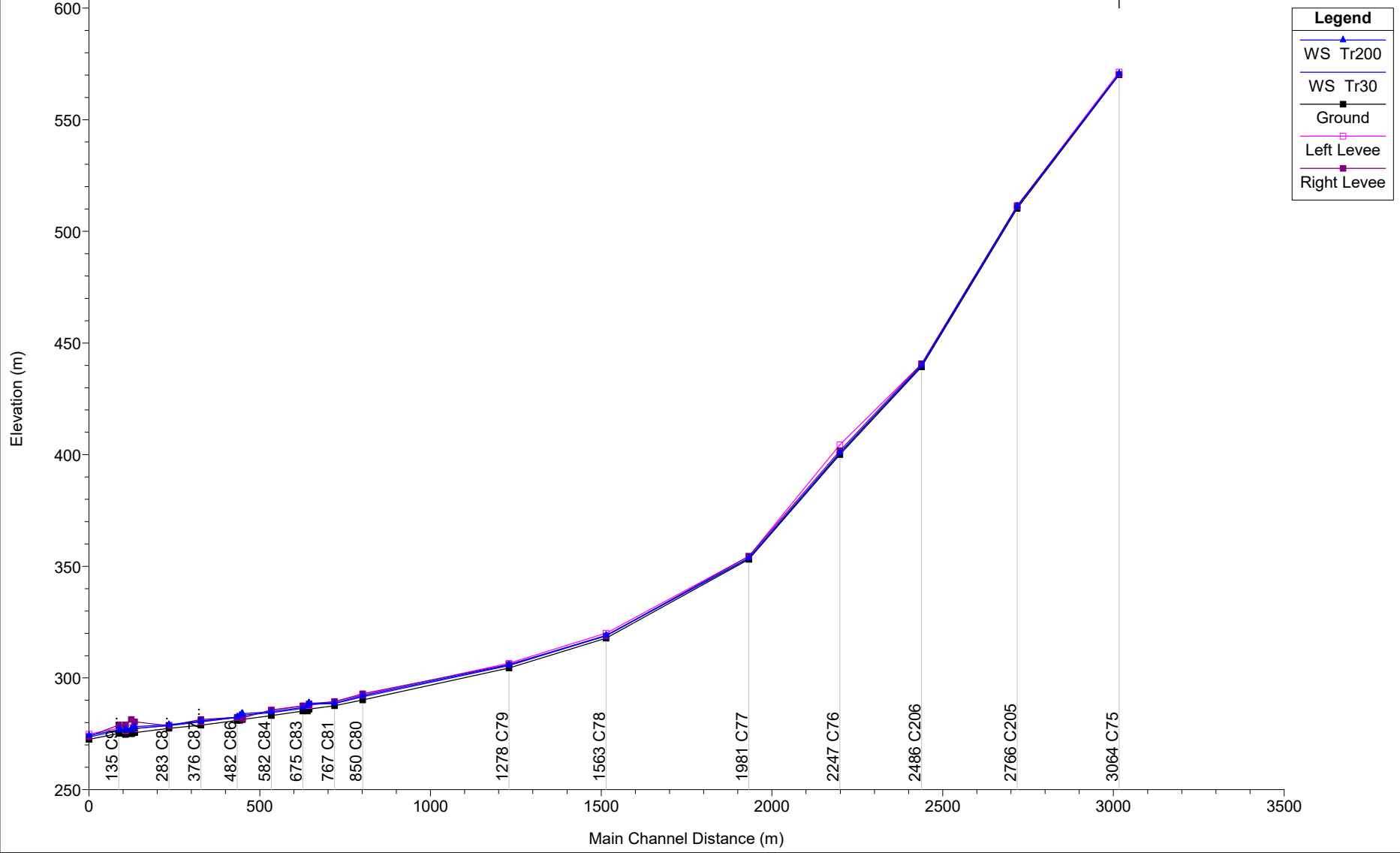
Fosso Sellina Sellina2



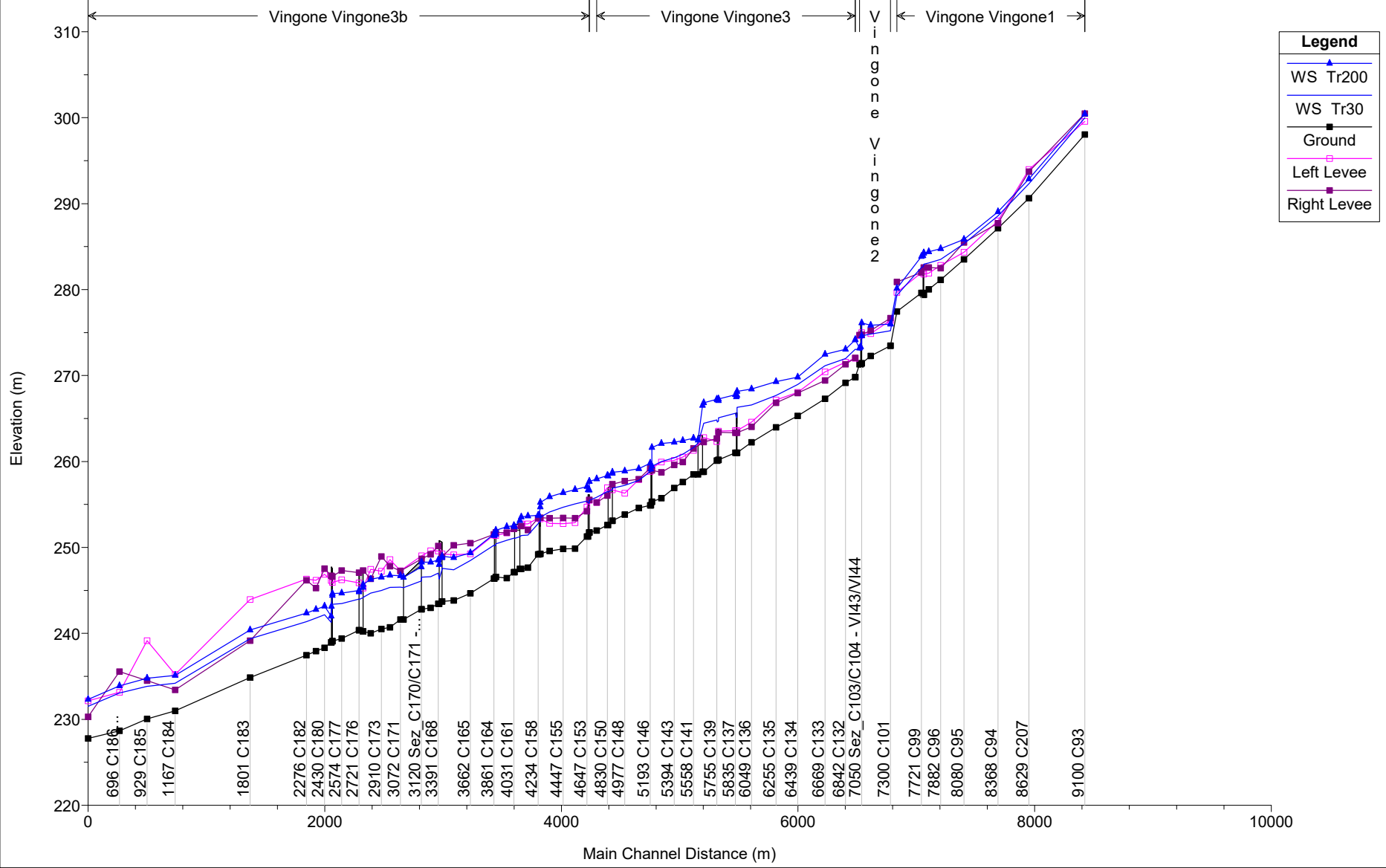
Legend	
WS Tr200	▲
WS Tr30	■
Ground	■
Left Levee	□
Right Levee	■

Vignone\_Fossatone Plan: Portata Tr 07/04/2019

Rio Di Vallina Rio Di Vallina



Vignone\_Fossatone Plan: Portata Tr 07/04/2019



Legend	
WS Tr200	▲
WS Tr30	●
Ground	■
Left Levee	□
Right Levee	■

HEC-RAS Plan: Portata Tr

River	Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Vingone	Vingone1	9100	Tr30	36.80	298.04	299.99	299.94	300.45	0.015021	3.00	12.28	11.64	0.93
Vingone	Vingone1	9100	Tr200	62.80	298.04	300.43	300.39	301.08	0.015565	3.56	17.63	12.82	0.97
Vingone	Vingone1	8629	Tr30	36.80	290.63	292.31	292.31	292.90	0.016992	3.42	10.76	8.97	1.00
Vingone	Vingone1	8629	Tr200	62.80	290.63	292.87	292.87	293.63	0.015967	3.88	16.19	10.50	1.00
Vingone	Vingone1	8368	Tr30	36.80	287.14	288.58	288.28	288.77	0.006093	1.89	19.50	19.00	0.59
Vingone	Vingone1	8368	Tr200	62.80	287.14	289.04	288.60	289.29	0.005527	2.23	28.16	19.00	0.59
Vingone	Vingone1	8080	Tr30	36.80	283.52	285.34	285.34	285.91	0.018284	3.34	11.00	9.61	1.00
Vingone	Vingone1	8080	Tr200	62.80	283.52	285.83	285.83	286.60	0.018013	3.89	16.14	10.50	1.00
Vingone	Vingone1	7882	Tr30	36.80	281.13	283.52	282.87	283.77	0.004811	2.21	16.63	8.97	0.52
Vingone	Vingone1	7882	Tr200	62.80	281.13	284.77	283.38	285.03	0.003274	2.26	27.81	8.97	0.41
Vingone	Vingone1	7782	Tr30	36.80	280.03	283.11	281.91	283.31	0.004106	1.98	18.57	7.16	0.39
Vingone	Vingone1	7782	Tr200	62.80	280.03	284.41	282.51	284.67	0.003903	2.25	27.87	7.16	0.36
Vingone	Vingone1	7739	Tr30	36.80	279.40	282.97	281.33	283.15	0.003417	1.89	20.26	7.32	0.33
Vingone	Vingone1	7739	Tr200	62.80	279.40	284.27	282.15	284.51	0.003427	2.21	29.80	7.32	0.33
Vingone	Vingone1	7730		Bridge									
Vingone	Vingone1	7721	Tr30	36.80	279.62	282.57	281.48	282.87	0.006991	2.44	15.09	5.48	0.47
Vingone	Vingone1	7721	Tr200	62.80	279.62	283.84	282.19	284.25	0.007430	2.85	22.06	5.48	0.45
Vingone	Vingone1	7513	Tr30	36.80	277.46	279.35	279.35	280.26	0.026878	4.24	8.68	4.74	1.00
Vingone	Vingone1	7513	Tr200	62.80	277.46	280.14	280.14	281.43	0.029497	5.03	12.49	4.85	1.00
Vingone	Vingone2	7300	Tr30	51.10	273.48	275.20	275.93	277.60	0.074742	6.86	7.45	4.94	1.78
Vingone	Vingone2	7300	Tr200	85.10	273.48	275.97	276.82	278.81	0.064992	7.46	11.41	5.31	1.63
Vingone	Vingone2	7133	Tr30	51.10	272.28	274.82	274.66	275.48	0.013672	3.59	14.24	8.43	0.88
Vingone	Vingone2	7133	Tr200	85.10	272.28	275.85	275.35	276.52	0.009465	3.63	23.44	9.08	0.72
Vingone	Vingone2	7057	Tr30	51.10	271.41	274.63	273.50	274.87	0.003644	2.18	23.49	10.40	0.46
Vingone	Vingone2	7057	Tr200	85.10	271.41	276.12	274.20	276.20	0.000795	1.32	69.62	23.42	0.22
Vingone	Vingone2	7050		Bridge									
Vingone	Vingone2	7040	Tr30	51.10	271.31	272.98	273.23	273.95	0.029373	4.36	11.71	10.64	1.33
Vingone	Vingone2	7040	Tr200	85.10	271.31	273.20	273.79	275.05	0.047898	6.03	14.12	11.30	1.72
Vingone	Vingone3	6925	Tr30	62.70	269.82	273.05	272.00	273.24	0.002374	1.90	33.42	14.87	0.40
Vingone	Vingone3	6925	Tr200	104.60	269.82	274.15	272.52	274.38	0.001953	2.14	49.70	14.87	0.37
Vingone	Vingone3	6842	Tr30	69.40	269.14	271.98	271.83	272.76	0.013650	3.93	17.67	8.83	0.89
Vingone	Vingone3	6842	Tr200	115.23	269.14	273.06	272.57	273.97	0.011212	4.23	27.26	8.83	0.77
Vingone	Vingone3	6669	Tr30	69.40	267.30	271.13	270.03	271.44	0.004116	2.43	28.50	11.19	0.49
Vingone	Vingone3	6669	Tr200	115.23	267.30	272.46	270.80	272.82	0.003477	2.66	43.34	11.19	0.43
Vingone	Vingone3	6439	Tr30	69.40	265.31	268.97	268.49	269.78	0.014421	3.97	17.47	6.18	0.75
Vingone	Vingone3	6439	Tr200	115.23	265.31	269.83	269.43	271.13	0.019827	5.06	22.75	6.18	0.84
Vingone	Vingone3	6255	Tr30	69.40	263.98	267.67	266.94	268.05	0.005817	2.70	25.72	11.82	0.58
Vingone	Vingone3	6255	Tr200	115.23	263.98	269.30	267.63	269.64	0.003221	2.56	44.98	11.82	0.42
Vingone	Vingone3	6049	Tr30	69.40	262.23	266.57	265.12	266.93	0.004988	2.64	26.34	7.48	0.45
Vingone	Vingone3	6049	Tr200	115.23	262.23	268.42	265.95	268.84	0.004563	2.87	40.17	7.48	0.40
Vingone	Vingone3	5925	Tr30	69.40	261.02	266.30	263.98	266.50	0.002091	1.97	35.32	8.32	0.30
Vingone	Vingone3	5925	Tr200	115.23	261.02	268.14	264.75	268.41	0.002300	2.28	50.62	8.32	0.29
Vingone	Vingone3	5885		Bridge									
Vingone	Vingone3	5835	Tr30	69.40	261.02	265.61	263.98	265.89	0.003337	2.35	29.59	8.32	0.40
Vingone	Vingone3	5835	Tr200	115.23	261.02	267.78	264.75	268.08	0.002681	2.42	47.62	8.32	0.32
Vingone	Vingone3	5768	Tr30	69.40	260.19	265.08	262.97	265.38	0.003849	2.43	28.53	6.72	0.38
Vingone	Vingone3	5768	Tr200	115.23	260.19	267.26	263.94	267.62	0.003785	2.67	43.17	6.72	0.34
Vingone	Vingone3	5760		Bridge									
Vingone	Vingone3	5755	Tr30	69.40	260.10	264.83	262.55	265.00	0.001688	1.82	38.23	9.49	0.29
Vingone	Vingone3	5755	Tr200	115.23	260.10	267.23	263.27	267.41	0.001380	1.89	61.07	9.49	0.24
Vingone	Vingone3	5645	Tr30	69.40	258.81	264.46	261.82	264.73	0.003461	2.29	30.26	6.07	0.33
Vingone	Vingone3	5645	Tr200	115.23	258.81	266.82	262.80	267.16	0.003728	2.58	44.61	6.07	0.30
Vingone	Vingone3	5620		Bridge									
Vingone	Vingone3	5558	Tr30	76.10	258.50	261.63	261.23	262.55	0.015912	4.24	17.94	6.23	0.80
Vingone	Vingone3	5558	Tr200	125.86	258.50	262.71	262.22	264.04	0.019036	5.11	24.62	6.23	0.82
Vingone	Vingone3	5467	Tr30	76.10	257.61	260.85	260.36	261.42	0.008374	3.34	22.81	10.00	0.71
Vingone	Vingone3	5467	Tr200	125.86	257.61	262.43	261.10	262.97	0.005322	3.26	38.55	10.00	0.53
Vingone	Vingone3	5394	Tr30	76.10	256.91	260.43	259.70	260.87	0.005944	2.93	25.95	10.74	0.60
Vingone	Vingone3	5394	Tr200	125.86	256.91	262.22	260.43	262.62	0.003490	2.79	45.14	10.74	0.43
Vingone	Vingone3	5286	Tr30	76.10	255.73	260.00	258.74	260.29	0.004264	2.38	31.99	13.88	0.50
Vingone	Vingone3	5286	Tr200	125.86	255.73	262.08	259.66	262.30	0.001795	2.07	60.91	13.88	0.32
Vingone	Vingone3	5207	Tr30	76.10	255.32	259.44	258.11	259.88	0.005820	2.93	26.01	7.76	0.51
Vingone	Vingone3	5207	Tr200	125.86	255.32	261.63	259.08	262.07	0.004316	2.93	43.00	7.76	0.40
Vingone	Vingone3	5200		Bridge									
Vingone	Vingone3	5193	Tr30	76.10	254.91	258.82	258.12	259.54	0.011706	3.77	20.21	7.30	0.72
Vingone	Vingone3	5193	Tr200	125.86	254.91	259.78	259.28	260.82	0.014034	4.50	27.97	8.32	0.78

HEC-RAS Plan: Portata Tr (Continued)

River	Reach	River Sta	Profile	Q Total (m <sup>3</sup> /s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m <sup>2</sup> )	Top Width (m)	Froude # Chl
Vingone	Vingone3	5096	Tr30	76.10	254.59	257.82	257.37	258.45	0.010469	3.52	21.59	10.23	0.77
Vingone	Vingone3	5096	Tr200	125.86	254.59	259.15	258.21	259.78	0.006926	3.51	35.87	10.73	0.61
Vingone	Vingone3	4977	Tr30	76.10	253.83	257.21	256.26	257.55	0.004714	2.59	29.35	12.27	0.54
Vingone	Vingone3	4977	Tr200	125.86	253.83	258.88	257.00	259.19	0.002732	2.47	50.95	13.10	0.40
Vingone	Vingone3	4872	Tr30	76.10	253.11	256.88	255.27	257.12	0.003242	2.15	35.37	14.02	0.43
Vingone	Vingone3	4872	Tr200	125.86	253.11	258.74	256.02	258.93	0.001662	1.96	64.18	15.75	0.31
Vingone	Vingone3	4850		Bridge									
Vingone	Vingone3	4830	Tr30	76.10	252.60	256.50	255.31	256.77	0.004394	2.32	32.79	16.15	0.52
Vingone	Vingone3	4830	Tr200	125.86	252.60	258.37	256.28	258.56	0.001630	1.94	64.82	17.28	0.32
Vingone	Vingone3	4740	Tr30	76.10	251.96	255.84	255.03	256.29	0.006175	2.97	25.62	9.84	0.59
Vingone	Vingone3	4740	Tr200	125.86	251.96	257.97	255.80	258.34	0.003310	2.71	46.52	9.84	0.40
Vingone	Vingone3b	4668	Tr30	89.10	251.74	255.49	254.24	255.93	0.005407	2.94	30.31	9.05	0.51
Vingone	Vingone3b	4668	Tr200	146.36	251.74	257.67	255.12	258.11	0.003845	2.92	50.09	9.06	0.40
Vingone	Vingone3b	4655		Bridge									
Vingone	Vingone3b	4647	Tr30	89.10	251.28	255.39	253.57	255.54	0.001516	1.73	51.52	17.52	0.32
Vingone	Vingone3b	4647	Tr200	146.36	251.28	257.08	254.31	257.25	0.001086	1.80	81.28	17.52	0.27
Vingone	Vingone3b	4547	Tr30	89.10	249.86	255.07	253.19	255.33	0.002761	2.24	39.80	10.58	0.37
Vingone	Vingone3b	4547	Tr200	146.36	249.86	256.74	254.01	257.07	0.002757	2.55	57.42	10.58	0.35
Vingone	Vingone3b	4447	Tr30	95.80	249.83	254.69	253.06	255.01	0.003381	2.53	37.94	10.59	0.43
Vingone	Vingone3b	4447	Tr200	156.99	249.83	256.35	253.93	256.76	0.003247	2.83	55.57	10.59	0.39
Vingone	Vingone3b	4331	Tr30	95.80	249.59	254.14	252.86	254.55	0.004641	2.85	33.63	10.53	0.51
Vingone	Vingone3b	4331	Tr200	156.99	249.59	255.88	253.77	256.35	0.003810	3.02	52.05	10.53	0.43
Vingone	Vingone3b	4254	Tr30	95.80	249.24	253.52	252.07	254.08	0.007540	3.32	28.84	7.96	0.56
Vingone	Vingone3b	4254	Tr200	156.99	249.24	255.23	253.13	255.93	0.007317	3.70	42.44	7.96	0.51
Vingone	Vingone3b	4240		Bridge									
Vingone	Vingone3b	4234	Tr30	95.80	249.20	252.76	252.01	253.58	0.011338	3.99	24.00	7.05	0.69
Vingone	Vingone3b	4234	Tr200	156.99	249.20	253.73	253.06	255.05	0.015905	5.10	30.81	7.07	0.78
Vingone	Vingone3b	4149	Tr30	95.80	247.64	251.44	251.37	252.39	0.017253	4.30	22.29	10.87	0.96
Vingone	Vingone3b	4149	Tr200	156.99	247.64	253.66	252.25	254.14	0.004559	3.07	51.20	13.79	0.51
Vingone	Vingone3b	4093	Tr30	95.80	247.52	251.39	250.05	251.80	0.004312	2.80	34.16	10.35	0.49
Vingone	Vingone3b	4093	Tr200	156.99	247.52	253.55	250.93	253.91	0.002813	2.63	59.64	12.99	0.39
Vingone	Vingone3b	4050		Bridge									
Vingone	Vingone3b	4031	Tr30	95.80	247.13	251.07	249.63	251.44	0.004380	2.69	35.56	10.42	0.47
Vingone	Vingone3b	4031	Tr200	156.99	247.13	252.55	250.51	253.02	0.004596	3.03	51.77	11.04	0.45
Vingone	Vingone3b	3969	Tr30	95.80	246.43	250.83	249.48	251.18	0.003945	2.60	36.87	13.33	0.50
Vingone	Vingone3b	3969	Tr200	156.99	246.43	252.42	250.41	252.76	0.002721	2.59	60.51	15.46	0.42
Vingone	Vingone3b	3878	Tr30	95.80	246.57	250.40	249.09	250.78	0.004636	2.74	35.02	10.81	0.49
Vingone	Vingone3b	3878	Tr200	156.99	246.57	252.00	249.94	252.45	0.004287	2.95	53.17	11.43	0.44
Vingone	Vingone3b	3870		Bridge									
Vingone	Vingone3b	3861	Tr30	95.80	246.37	250.25	248.88	250.62	0.004563	2.73	35.13	10.55	0.48
Vingone	Vingone3b	3861	Tr200	156.99	246.37	251.56	249.74	252.06	0.004954	3.15	49.77	11.75	0.49
Vingone	Vingone3b	3662	Tr30	95.80	244.67	248.49	247.98	249.27	0.010562	3.91	24.52	9.28	0.77
Vingone	Vingone3b	3662	Tr200	156.99	244.67	249.37	248.98	250.50	0.012984	4.70	33.38	11.08	0.86
Vingone	Vingone3b	3522	Tr30	95.80	243.84	247.41	246.94	247.94	0.007618	3.22	29.71	14.10	0.71
Vingone	Vingone3b	3522	Tr200	156.99	243.84	248.80	247.65	249.27	0.004707	3.04	51.70	18.34	0.58
Vingone	Vingone3b	3423	Tr30	95.80	243.73	247.56	245.82	247.63	0.000758	1.18	81.35	35.21	0.25
Vingone	Vingone3b	3423	Tr200	156.99	243.73	248.98	246.33	249.04	0.000468	1.15	136.26	42.08	0.20
Vingone	Vingone3b	3405		Bridge									
Vingone	Vingone3b	3391	Tr30	95.80	243.44	247.00	245.47	247.10	0.001137	1.38	69.59	31.95	0.30
Vingone	Vingone3b	3391	Tr200	156.99	243.44	248.54	245.98	248.62	0.000678	1.24	127.10	46.70	0.24
Vingone	Vingone3b	3326	Tr30	95.80	242.96	246.59	245.80	246.94	0.004712	2.64	36.33	17.44	0.58
Vingone	Vingone3b	3326	Tr200	156.99	242.96	248.28	246.52	248.53	0.002043	2.22	70.76	23.14	0.41
Vingone	Vingone3b	3249	Tr30	95.80	242.80	246.55	245.00	246.69	0.001455	1.69	56.72	22.22	0.34
Vingone	Vingone3b	3249	Tr200	156.99	242.80	248.27	245.59	248.40	0.000813	1.58	99.14	26.97	0.26
Vingone	Vingone3b	3120		Bridge									
Vingone	Vingone3b	3072	Tr30	106.30	241.61	245.38	244.12	245.64	0.002987	2.26	47.04	18.27	0.45
Vingone	Vingone3b	3072	Tr200	172.69	241.61	246.71	244.81	247.00	0.002319	2.37	72.99	20.96	0.40
Vingone	Vingone3b	2983	Tr30	106.30	240.71	245.36	243.31	245.44	0.001080	1.28	83.23	39.53	0.28
Vingone	Vingone3b	2983	Tr200	172.69	240.71	246.77	244.35	246.84	0.000557	1.22	142.13	43.87	0.22
Vingone	Vingone3b	2910	Tr30	106.30	240.52	245.00	243.92	245.28	0.003747	2.37	44.89	20.24	0.51
Vingone	Vingone3b	2910	Tr200	172.69	240.52	246.53	244.65	246.76	0.001981	2.10	82.29	28.09	0.39
Vingone	Vingone3b	2819	Tr30	106.30	240.01	244.69	243.22	244.98	0.003055	2.38	44.59	16.21	0.46
Vingone	Vingone3b	2819	Tr200	172.69	240.01	246.30	244.08	246.56	0.002219	2.27	76.19	24.28	0.41
Vingone	Vingone3b	2754	Tr30	106.30	240.22	244.19	243.05	244.69	0.005830	3.15	33.74	10.17	0.55
Vingone	Vingone3b	2754	Tr200	172.69	240.22	245.70	243.94	246.32	0.005441	3.49	49.48	10.57	0.52

HEC-RAS Plan: Portata Tr (Continued)

River	Reach	River Sta	Profile	Q Total (m <sup>3</sup> /s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m <sup>2</sup> )	Top Width (m)	Froude # Chl
Vingone	Vingone3b	2730		Bridge									
Vingone	Vingone3b	2721	Tr30	106.30	240.37	244.01	242.76	244.44	0.005179	2.90	36.67	11.08	0.51
Vingone	Vingone3b	2721	Tr200	172.69	240.37	244.99	243.61	245.66	0.006627	3.60	47.90	11.50	0.56
Vingone	Vingone3b	2574	Tr30	106.30	239.40	243.48	242.48	243.76	0.003631	2.36	45.02	20.51	0.51
Vingone	Vingone3b	2574	Tr200	172.69	239.40	244.68	243.17	244.97	0.002596	2.38	72.68	25.55	0.45
Vingone	Vingone3b	2496	Tr30	106.30	239.09	243.39	241.98	243.54	0.001686	1.71	62.08	26.34	0.36
Vingone	Vingone3b	2496	Tr200	172.69	239.09	244.63	242.55	244.79	0.001230	1.76	97.84	30.95	0.32
Vingone	Vingone3b	2490		Bridge									
Vingone	Vingone3b	2485	Tr30	106.30	238.97	241.27	241.87	243.20	0.036286	6.15	17.28	9.89	1.49
Vingone	Vingone3b	2485	Tr200	172.69	238.97	242.00	242.74	244.40	0.034985	6.86	25.16	11.77	1.50
Vingone	Vingone3b	2430	Tr30	106.30	238.32	242.18	241.30	242.51	0.004066	2.53	42.03	19.38	0.55
Vingone	Vingone3b	2430	Tr200	172.69	238.32	243.17	242.00	243.55	0.003514	2.75	62.75	22.57	0.53
Vingone	Vingone3b	2357	Tr30	106.30	237.94	241.79	240.89	242.18	0.004645	2.76	38.46	16.49	0.58
Vingone	Vingone3b	2357	Tr200	172.69	237.94	242.78	241.68	243.26	0.004416	3.06	56.41	19.88	0.58
Vingone	Vingone3b	2276	Tr30	106.30	237.47	241.36	240.50	241.79	0.005030	2.88	36.92	15.52	0.60
Vingone	Vingone3b	2276	Tr200	172.69	237.47	242.35	241.31	242.88	0.004875	3.22	53.66	18.51	0.60
Vingone	Vingone3b	1801	Tr30	106.30	234.87	239.38	238.23	239.72	0.003718	2.55	41.61	16.17	0.51
Vingone	Vingone3b	1801	Tr200	172.69	234.87	240.41	239.03	240.85	0.003677	2.94	58.82	17.43	0.51
Vingone	Vingone3b	1167	Tr30	110.60	230.98	234.19	234.19	235.27	0.016196	4.61	23.97	10.99	1.00
Vingone	Vingone3b	1167	Tr200	179.59	230.98	235.12	235.12	236.45	0.015896	5.12	35.08	13.09	1.00
Vingone	Vingone3b	929	Tr30	110.60	230.05	233.84	232.25	233.94	0.000991	1.40	79.16	30.88	0.28
Vingone	Vingone3b	929	Tr200	179.59	230.05	234.78	232.72	234.91	0.001016	1.64	109.45	33.56	0.29
Vingone	Vingone3b	696	Tr30	110.60	228.66	233.06	231.99	233.45	0.005490	2.77	39.86	18.50	0.60
Vingone	Vingone3b	696	Tr200	179.59	228.66	233.90	233.03	234.41	0.005715	3.17	56.59	21.80	0.63
Vingone	Vingone3b	431	Tr30	110.60	227.77	231.52	230.79	231.93	0.006000	2.85	38.74	19.11	0.64
Vingone	Vingone3b	431	Tr200	179.59	227.77	232.32	231.58	232.85	0.006007	3.23	55.64	22.30	0.65
River 1	Reach 1	3004	Tr30	7.50	275.45	276.61	276.61	277.01	0.023991	2.79	2.69	3.39	1.00
River 1	Reach 1	3004	Tr200	11.90	275.45	276.93	276.93	277.42	0.023001	3.08	3.86	3.97	1.00
River 1	Reach 1	2852	Tr30	7.50	271.05	272.05	272.18	272.53	0.036669	3.08	2.44	4.15	1.28
River 1	Reach 1	2852	Tr200	11.90	271.05	272.26	272.43	272.88	0.039789	3.48	3.42	5.17	1.37
River 1	Reach 1	2351	Tr30	7.50	265.44	266.56	266.29	266.68	0.006192	1.51	4.97	6.10	0.53
River 1	Reach 1	2351	Tr200	11.90	265.44	266.68	266.48	266.90	0.010492	2.10	5.66	6.10	0.70
River 1	Reach 1	2116	Tr30	7.50	263.69	264.15	264.14	264.26	0.020206	1.47	5.10	19.00	0.91
River 1	Reach 1	2116	Tr200	11.90	263.69	264.32	264.23	264.43	0.010243	1.43	8.30	19.00	0.69
River 1	Reach 1	1684	Tr30	7.50	260.60	261.85	261.34	261.91	0.002467	1.07	6.99	7.00	0.34
River 1	Reach 1	1684	Tr200	11.90	260.60	262.11	261.52	262.21	0.003079	1.35	8.83	7.00	0.38
River 1	Reach 1	1621	Tr30	7.50	260.69	261.28	261.28	261.53	0.023326	2.22	3.38	6.80	1.00
River 1	Reach 1	1621	Tr200	11.90	260.69	261.70	261.46	261.89	0.008802	1.91	6.23	6.80	0.64
River 1	Reach 1	1489	Tr30	7.50	259.32	260.88	259.98	260.90	0.000772	0.71	10.56	7.80	0.19
River 1	Reach 1	1489	Tr200	11.90	259.32	261.63	260.14	261.66	0.000532	0.72	16.46	7.80	0.16
River 1	Reach 1	1194	Tr30	13.00	256.98	259.81	258.76	260.08	0.011097	2.29	5.67	2.20	0.46
River 1	Reach 1	1194	Tr200	20.50	256.98	260.56	259.30	260.96	0.015285	2.80	7.31	2.20	0.49
River 1	Reach 1	936	Tr30	13.00	256.22	258.65	257.75	258.78	0.002723	1.57	8.31	4.46	0.37
River 1	Reach 1	936	Tr200	20.50	256.22	259.41	258.08	259.57	0.002530	1.76	11.68	4.46	0.35
River 1	Reach 1	867	Tr30	13.00	255.52	257.51	256.80	257.64	0.003541	1.55	8.40	5.40	0.40
River 1	Reach 1	867	Tr200	20.50	255.52	258.60	257.10	258.71	0.002078	1.44	14.27	5.40	0.28
River 1	Reach 1	784	Tr30	13.00	254.23	256.74	256.08	256.79	0.001503	1.05	14.18	11.52	0.24
River 1	Reach 1	784	Tr200	20.50	254.23	258.44	256.26	258.46	0.000274	0.67	33.74	11.52	0.11
River 1	Reach 1	771	Tr30	13.00	254.23	256.74	256.03	256.77	0.000854	0.80	18.40	15.45	0.18
River 1	Reach 1	771	Tr200	20.50	254.23	258.44	256.17	258.46	0.000139	0.48	44.70	15.45	0.08
River 1	Reach 1	766.5		Bridge									
River 1	Reach 1	766	Tr30	13.00	254.27	256.66	255.96	256.73	0.001887	1.32	11.55	8.56	0.31
River 1	Reach 1	766	Tr200	20.50	254.27	258.41	256.21	258.45	0.000396	0.94	26.56	8.56	0.16
River 1	Reach 1	757	Tr30	13.00	254.27	256.68	255.91	256.71	0.000979	0.95	16.14	12.53	0.22
River 1	Reach 1	757	Tr200	20.50	254.27	258.43	256.10	258.44	0.000185	0.64	38.07	12.53	0.11
River 1	Reach 1	729	Tr30	13.00	253.90	256.68	255.42	256.69	0.000251	0.64	26.46	17.01	0.13
River 1	Reach 1	729	Tr200	20.50	253.90	258.43	255.62	258.44	0.000064	0.46	56.23	17.01	0.07
River 1	Reach 1	672	Tr30	13.00	253.68	256.66	255.08	256.68	0.000236	0.64	24.04	11.30	0.13
River 1	Reach 1	672	Tr200	20.50	253.68	258.42	255.27	258.43	0.000095	0.59	43.88	11.30	0.09
River 1	Reach 1	657	Tr30	13.00	253.58	256.66	254.90	256.67	0.000258	0.71	22.65	9.57	0.14
River 1	Reach 1	657	Tr200	20.50	253.58	258.41	255.11	258.43	0.000124	0.69	39.46	9.57	0.10
River 1	Reach 1	644	Tr30	13.00	253.58	256.65	254.91	256.67	0.000314	0.78	20.56	8.60	0.15
River 1	Reach 1	644	Tr200	20.50	253.58	258.41	255.13	258.43	0.000152	0.76	35.68	8.60	0.12
River 1	Reach 1	614	Tr30	13.00	253.55	256.64	254.94	256.66	0.000340	0.74	19.66	9.95	0.16
River 1	Reach 1	614	Tr200	20.50	253.55	258.40	255.20	258.42	0.000124	0.65	37.25	9.95	0.10
River 1	Reach 1	532	Tr30	13.00	253.22	256.62	254.70	256.64	0.000187	0.56	26.81	12.23	0.10





HEC-RAS Plan: Portata Tr (Continued)

River	Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Fosso Sellina	Sellina2	2507	Tr30	22.90	276.39	278.49	278.49	279.17	0.023203	3.65	6.27	4.59	1.00
Fosso Sellina	Sellina2	2507	Tr200	37.00	276.39	279.01	279.01	279.92	0.024549	4.23	8.75	4.78	1.00
Fosso Sellina	Sellina2	2432	Tr30	22.90	275.37	277.60	277.33	277.90	0.009894	2.42	9.47	7.86	0.70
Fosso Sellina	Sellina2	2432	Tr200	37.00	275.37	278.06	277.70	278.47	0.009825	2.82	13.12	7.88	0.70
Fosso Sellina	Sellina2	2260	Tr30	22.90	272.83	274.85	274.84	275.43	0.022153	3.35	6.83	5.83	0.99
Fosso Sellina	Sellina2	2260	Tr200	37.00	272.83	275.36	275.29	276.09	0.020327	3.77	9.81	5.83	0.93
Fosso Sellina	Sellina2	2071	Tr30	22.90	270.00	272.52	272.01	272.83	0.008853	2.46	9.32	5.34	0.59
Fosso Sellina	Sellina2	2071	Tr200	37.00	270.00	273.38	272.48	273.74	0.007730	2.66	13.91	5.34	0.53
Fosso Sellina	Sellina2	1959	Tr30	22.90	268.67	271.36	270.76	271.73	0.010872	2.67	8.58	4.16	0.59
Fosso Sellina	Sellina2	1959	Tr200	37.00	268.67	272.18	271.31	272.67	0.011832	3.09	11.99	4.16	0.58
Fosso Sellina	Sellina2	1832	Tr30	22.90	267.21	269.10	269.10	269.76	0.023040	3.62	6.32	4.70	1.00
Fosso Sellina	Sellina2	1832	Tr200	37.00	267.21	269.60	269.60	270.52	0.025083	4.26	8.69	4.70	1.00
Fosso Sellina	Sellina2	1750	Tr30	27.40	266.36	268.52	267.65	268.52	0.000010	0.09	202.72	85.01	0.02
Fosso Sellina	Sellina2	1750	Tr200	44.30	266.36	269.51	267.65	269.51	0.000008	0.12	266.24	85.01	0.02
Fosso Sellina	Sellina2	1677	Tr30	27.40	265.44	267.60	267.60	268.44	0.030415	4.05	6.76	4.02	1.00
Fosso Sellina	Sellina2	1677	Tr200	44.30	265.44	268.23	268.23	269.39	0.033776	4.76	9.30	4.02	1.00
Fosso Sellina	Sellina2	1571	Tr30	27.40	264.26	266.06	265.12	266.06	0.000002	0.04	371.17	128.60	0.01
Fosso Sellina	Sellina2	1571	Tr200	44.30	264.26	267.36	265.12	267.36	0.000002	0.06	538.05	128.60	0.01
Fosso Sellina	Sellina2	1439	Tr30	27.40	262.88	265.54	264.93	266.01	0.012495	3.06	8.96	3.83	0.64
Fosso Sellina	Sellina2	1439	Tr200	44.30	262.88	266.77	265.59	267.31	0.011459	3.24	13.69	3.83	0.55
Fosso Sellina	Sellina2	1346	Tr30	27.40	261.87	264.66	263.80	265.02	0.008656	2.66	10.31	4.09	0.53
Fosso Sellina	Sellina2	1346	Tr200	44.30	261.87	265.98	264.43	266.38	0.007993	2.82	15.71	4.09	0.46
Fosso Sellina	Sellina2	1249	Tr30	27.40	260.91	264.05	262.96	264.30	0.005870	2.25	12.19	4.67	0.44
Fosso Sellina	Sellina2	1249	Tr200	44.30	260.91	265.45	263.53	265.73	0.005154	2.36	18.74	4.67	0.38
Fosso Sellina	Sellina2	1135	Tr30	27.40	259.96	263.34	262.02	263.61	0.006203	2.30	11.92	3.93	0.42
Fosso Sellina	Sellina2	1135	Tr200	44.30	259.96	264.74	262.66	265.07	0.006479	2.54	17.41	3.93	0.39
Fosso Sellina	Sellina2	1040	Tr30	27.40	258.96	262.51	261.35	262.87	0.009886	2.66	10.31	3.39	0.49
Fosso Sellina	Sellina2	1040	Tr200	44.30	258.96	263.81	262.06	264.27	0.010966	3.01	14.71	3.39	0.46
Fosso Sellina	Sellina2	945	Tr30	27.40	258.41	261.89	260.59	262.13	0.005833	2.19	12.53	4.32	0.41
Fosso Sellina	Sellina2	945	Tr200	44.30	258.41	263.16	261.19	263.47	0.006095	2.46	18.03	4.32	0.38
Fosso Sellina	Sellina2	930											
Fosso Sellina	Sellina2	928	Tr30	27.40	258.16	261.72	260.28	261.94	0.004762	2.07	13.25	4.37	0.38
Fosso Sellina	Sellina2	928	Tr200	44.30	258.16	263.01	260.88	263.29	0.005169	2.34	18.90	4.37	0.36
Fosso Sellina	Sellina2	828	Tr30	27.40	257.07	261.16	259.45	261.41	0.005800	2.20	12.47	3.50	0.37
Fosso Sellina	Sellina2	828	Tr200	44.30	257.07	262.27	260.14	262.64	0.008025	2.71	16.34	3.50	0.40
Fosso Sellina	Sellina2	815											
Fosso Sellina	Sellina2	801	Tr30	27.40	256.64	259.03	258.71	259.43	0.010864	2.80	9.77	6.24	0.72
Fosso Sellina	Sellina2	801	Tr200	44.30	256.64	259.94	259.19	260.36	0.007926	2.87	15.45	6.24	0.58
Fosso Sellina	Sellina2	728	Tr30	27.40	256.09	258.74	257.87	258.93	0.003734	1.93	14.17	6.95	0.43
Fosso Sellina	Sellina2	728	Tr200	44.30	256.09	259.71	258.31	259.94	0.003388	2.12	20.90	6.95	0.39
Fosso Sellina	Sellina2	674	Tr30	27.40	255.59	258.63	257.42	258.76	0.002272	1.61	17.05	7.34	0.34
Fosso Sellina	Sellina2	674	Tr200	44.30	255.59	259.60	257.85	259.77	0.002304	1.83	24.19	7.34	0.32
Fosso Sellina	Sellina2	650											
Fosso Sellina	Sellina2	638	Tr30	32.80	255.20	257.13	256.90	257.13	0.000057	0.19	97.30	37.20	0.05
Fosso Sellina	Sellina2	638	Tr200	52.60	255.20	259.23	256.90	259.23	0.000005	0.10	381.59	84.46	0.02
Fosso Sellina	Sellina2	612	Tr30	32.80	254.99	257.13	257.06	257.13	0.000029	0.14	142.39	57.91	0.04
Fosso Sellina	Sellina2	612	Tr200	52.60	254.99	259.23	257.06	259.23	0.000004	0.09	451.43	103.67	0.02
Fosso Sellina	Sellina2	600											
Fosso Sellina	Sellina2	597	Tr30	32.80	254.95	257.10	257.10	257.10	0.000031	0.14	178.15	118.16	0.04
Fosso Sellina	Sellina2	597	Tr200	52.60	254.95	259.23	257.10	259.23	0.000005	0.11	429.99	118.16	0.02
Fosso Sellina	Sellina2	529	Tr30	32.80	254.56	256.05	256.05	256.06	0.000147	0.21	95.90	78.77	0.09
Fosso Sellina	Sellina2	529	Tr200	52.60	254.56	259.23	256.05	259.23	0.000003	0.10	486.84	117.82	0.02
Fosso Sellina	Sellina2	413	Tr30	35.40	253.12	255.72	255.13	255.72	0.000086	0.25	150.19	150.47	0.07
Fosso Sellina	Sellina2	413	Tr200	5.40	253.12	259.23	253.92	259.23	0.000000	0.01	678.82	150.47	0.00
Fosso Sellina	Sellina2	400											
Fosso Sellina	Sellina2	370	Tr30	35.40	253.12	255.13	255.13	255.72	0.017099	3.39	10.44	8.86	1.00
Fosso Sellina	Sellina2	370	Tr200	5.40	253.12	259.23	253.92	259.23	0.000000	0.01	678.76	150.47	0.00
Fosso Sellina	Sellina2	246	Tr30	35.40	250.91	254.91	253.32	254.92	0.000211	0.56	83.19	81.06	0.12
Fosso Sellina	Sellina2	246	Tr200	5.40	250.91	259.23	251.68	259.23	0.000000	0.01	433.32	81.06	0.00
Fosso Sellina	Sellina2	220											
Fosso Sellina	Sellina2	197	Tr30	35.40	251.00	253.00	253.44	254.24	0.076222	4.93	7.18	9.76	1.83
Fosso Sellina	Sellina2	197	Tr200	5.40	251.00	259.23	251.87	259.23	0.000000	0.04	128.24	20.13	0.01
Fosso Sellina	Sellina2	108	Tr30	35.40	250.42	253.58	252.50	253.58	0.000079	0.33	135.68	106.85	0.07
Fosso Sellina	Sellina2	108	Tr200	5.40	250.42	259.23	251.23	259.23	0.000000	0.01	739.58	106.85	0.00
Fosso Sellina	Sellina2	43	Tr30	35.40	249.91	253.58	251.94	253.58	0.000036	0.24	176.43	111.60	0.05

HEC-RAS Plan: Portata Tr (Continued)

River	Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Fosso Sellina	Sellina2	43	Tr200	5.40	249.91	259.23	250.77	259.23	0.000000	0.01	807.42	111.60	0.00
Fossatone	Fossatone1	3761	Tr30	52.60	249.35	253.46	251.60	253.57	0.001211	1.44	36.56	12.17	0.27
Fossatone	Fossatone1	3761	Tr200	84.10	249.35	259.20	252.16	259.23	0.000174	0.79	106.33	12.17	0.09
Fossatone	Fossatone1	3658	Tr30	52.60	248.61	253.35	251.34	253.45	0.001093	1.36	38.59	12.85	0.25
Fossatone	Fossatone1	3658	Tr200	84.10	248.61	259.18	251.99	259.21	0.000148	0.74	113.50	12.85	0.08
Fossatone	Fossatone1	3650		Culvert									
Fossatone	Fossatone1	3640	Tr30	52.60	248.78	253.26	251.34	253.35	0.001061	1.38	38.21	12.15	0.25
Fossatone	Fossatone1	3640	Tr200	84.10	248.78	259.14	251.81	259.17	0.000161	0.77	109.72	12.15	0.08
Fossatone	Fossatone1	3584	Tr30	52.60	248.54	253.15	251.11	253.28	0.001473	1.60	32.88	9.36	0.27
Fossatone	Fossatone1	3584	Tr200	84.10	248.54	259.11	251.66	259.16	0.000298	0.95	88.69	9.36	0.10
Fossatone	Fossatone1	3508	Tr30	52.60	247.95	253.10	250.92	253.18	0.000888	1.27	41.40	12.12	0.22
Fossatone	Fossatone1	3508	Tr200	84.10	247.95	259.11	251.38	259.14	0.000150	0.74	114.27	12.12	0.08
Fossatone	Fossatone1	3399	Tr30	52.60	247.88	252.98	250.33	253.08	0.000989	1.38	38.03	9.16	0.22
Fossatone	Fossatone1	3399	Tr200	84.10	247.88	259.08	250.88	259.12	0.000262	0.90	93.86	9.16	0.09
Fossatone	Fossatone1	3295	Tr30	52.60	247.50	252.90	250.12	252.98	0.000757	1.26	41.75	10.06	0.20
Fossatone	Fossatone1	3295	Tr200	84.10	247.50	259.06	250.68	259.09	0.000194	0.81	103.66	10.06	0.08
Fossatone	Fossatone1	3290		Culvert									
Fossatone	Fossatone1	3286	Tr30	52.60	247.72	252.81	250.28	252.90	0.000820	1.30	40.60	10.51	0.21
Fossatone	Fossatone1	3286	Tr200	84.10	247.72	259.03	250.82	259.06	0.000180	0.79	105.98	10.51	0.08
Fossatone	Fossatone1	3216	Tr30	52.60	247.46	252.77	250.06	252.84	0.000684	1.20	43.67	10.86	0.19
Fossatone	Fossatone1	3216	Tr200	84.10	247.46	259.02	250.58	259.05	0.000157	0.75	111.60	10.86	0.08
Fossatone	Fossatone1	3147	Tr30	52.60	247.00	252.69	249.60	252.79	0.000886	1.34	39.35	8.50	0.20
Fossatone	Fossatone1	3147	Tr200	84.10	247.00	258.99	250.22	259.04	0.000277	0.91	92.90	8.50	0.09
Fossatone	Fossatone1	3135		Culvert									
Fossatone	Fossatone1	3129	Tr30	52.60	246.99	252.63	249.85	252.69	0.000580	1.10	47.64	12.27	0.18
Fossatone	Fossatone1	3129	Tr200	84.10	246.99	258.98	250.43	259.00	0.000115	0.67	125.61	12.27	0.07
Fossatone	Fossatone1	3087	Tr30	52.60	247.19	252.59	249.59	252.66	0.000632	1.17	44.95	10.22	0.18
Fossatone	Fossatone1	3087	Tr200	84.10	247.19	258.97	250.10	259.00	0.000168	0.76	110.10	10.22	0.07
Fossatone	Fossatone1	2992	Tr30	52.60	247.07	252.53	249.39	252.60	0.000664	1.20	43.75	9.51	0.18
Fossatone	Fossatone1	2992	Tr200	84.10	247.07	258.95	249.92	258.98	0.000194	0.80	104.81	9.51	0.08
Fossatone	Fossatone1	2886	Tr30	52.60	247.20	252.48	249.28	252.54	0.000482	1.06	49.48	11.02	0.16
Fossatone	Fossatone1	2886	Tr200	84.10	247.20	258.94	249.80	258.96	0.000129	0.70	120.64	11.02	0.07
Fossatone	Fossatone1	2785	Tr30	52.60	246.08	252.43	248.86	252.49	0.000524	1.09	48.42	9.73	0.16
Fossatone	Fossatone1	2785	Tr200	84.10	246.08	258.92	249.42	258.95	0.000168	0.75	111.58	9.73	0.07
Fossatone	Fossatone1	2687	Tr30	52.60	246.15	252.42	248.54	252.45	0.000181	0.77	73.90	16.35	0.11
Fossatone	Fossatone1	2687	Tr200	84.10	246.15	258.92	249.21	258.93	0.000042	0.50	180.20	16.35	0.05
Fossatone	Fossatone1	2680		Bridge									
Fossatone	Fossatone1	2674	Tr30	52.60	246.05	252.38	248.33	252.43	0.000366	0.96	54.86	10.28	0.13
Fossatone	Fossatone1	2674	Tr200	84.10	246.05	258.91	248.92	258.93	0.000130	0.69	121.90	10.28	0.06
Fossatone	Fossatone1	2580	Tr30	52.60	245.53	252.34	248.34	252.39	0.000465	1.04	50.78	9.26	0.14
Fossatone	Fossatone1	2580	Tr200	84.10	245.53	258.89	248.89	258.91	0.000174	0.75	111.42	9.26	0.07
Fossatone	Fossatone1	2486	Tr30	52.60	245.39	252.30	248.04	252.35	0.000362	0.95	55.31	9.82	0.13
Fossatone	Fossatone1	2486	Tr200	84.10	245.39	258.87	248.63	258.90	0.000139	0.70	119.82	9.82	0.06
Fossatone	Fossatone1	2387	Tr30	52.60	245.16	252.28	247.71	252.32	0.000246	0.82	63.91	11.02	0.11
Fossatone	Fossatone1	2387	Tr200	84.10	245.16	258.87	248.27	258.89	0.000096	0.62	136.46	11.02	0.06
Fossatone	Fossatone1	2287	Tr30	52.60	244.87	252.29	247.49	252.30	0.000065	0.48	109.28	19.68	0.07
Fossatone	Fossatone1	2287	Tr200	84.10	244.87	258.87	247.96	258.88	0.000020	0.35	238.86	19.68	0.03
Fossatone	Fossatone1	2150	Tr30	52.60	245.04	252.27	247.12	252.29	0.000124	0.64	82.47	13.22	0.08
Fossatone	Fossatone1	2150	Tr200	84.10	245.04	258.86	247.63	258.87	0.000052	0.50	169.66	13.22	0.04
Fossatone	Fossatone1	2145		Bridge									
Fossatone	Fossatone1	2138	Tr30	52.60	244.80	252.26	246.97	252.28	0.000124	0.64	82.49	12.91	0.08
Fossatone	Fossatone1	2138	Tr200	84.10	244.80	258.86	247.49	258.87	0.000054	0.50	167.68	12.91	0.04
Fossatone	Fossatone2	2052	Tr30	55.80	244.43	252.24	246.86	252.27	0.000233	0.82	68.40	10.05	0.10
Fossatone	Fossatone2	2052	Tr200	89.20	244.43	258.84	247.43	258.87	0.000117	0.66	134.81	10.05	0.06
Fossatone	Fossatone2	1954	Tr30	55.80	243.59	252.21	246.33	252.25	0.000249	0.82	67.95	9.20	0.10
Fossatone	Fossatone2	1954	Tr200	89.20	243.59	258.83	246.95	258.85	0.000139	0.69	128.83	9.20	0.06
Fossatone	Fossatone2	1950		Culvert									
Fossatone	Fossatone2	1942	Tr30	55.80	243.68	252.18	246.39	252.21	0.000178	0.73	76.00	10.67	0.09
Fossatone	Fossatone2	1942	Tr200	89.20	243.68	258.81	246.99	258.83	0.000093	0.61	146.68	10.67	0.05
Fossatone	Fossatone2	1845	Tr30	55.80	243.83	252.17	246.06	252.20	0.000126	0.65	85.96	11.70	0.08
Fossatone	Fossatone2	1845	Tr200	89.20	243.83	258.80	246.63	258.82	0.000067	0.55	163.52	11.70	0.05
Fossatone	Fossatone3	1809	Tr30	60.30	243.88	252.14	246.28	252.19	0.000348	0.94	64.25	8.53	0.11
Fossatone	Fossatone3	1809	Tr200	96.40	243.88	258.78	246.97	258.81	0.000201	0.80	120.87	8.53	0.07
Fossatone	Fossatone3	1805		Bridge									
Fossatone	Fossatone3	1790	Tr30	60.30	243.88	252.13	246.28	252.18	0.000350	0.94	64.13	8.53	0.11

HEC-RAS Plan: Portata Tr (Continued)

River	Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Fossatone	Fossatone3	1790	Tr200	96.40	243.88	258.78	246.97	258.81	0.000201	0.80	120.82	8.53	0.07
Fossatone	Fossatone3	1751	Tr30	79.30	243.92	252.09	246.71	252.15	0.000476	1.15	68.99	9.45	0.14
Fossatone	Fossatone3	1751	Tr200	126.90	243.92	258.75	247.43	258.80	0.000261	0.96	131.95	9.45	0.08
Fossatone	Fossatone3	1651	Tr30	79.30	243.71	252.06	246.40	252.11	0.000299	0.97	81.53	11.00	0.11
Fossatone	Fossatone3	1651	Tr200	126.90	243.71	258.74	247.04	258.77	0.000162	0.82	154.96	11.00	0.07
Fossatone	Fossatone3	1539	Tr30	79.30	243.40	251.99	246.27	252.06	0.000594	1.22	64.74	8.29	0.14
Fossatone	Fossatone3	1539	Tr200	126.90	243.40	258.69	247.06	258.74	0.000358	1.05	120.30	8.29	0.09
Fossatone	Fossatone3	1448	Tr30	79.30	243.12	251.95	246.03	252.01	0.000476	1.14	69.79	8.79	0.13
Fossatone	Fossatone3	1448	Tr200	126.90	243.12	258.66	246.78	258.71	0.000290	0.98	128.84	8.79	0.08
Fossatone	Fossatone3	1353	Tr30	79.30	242.71	251.90	245.77	251.97	0.000449	1.11	71.58	8.76	0.12
Fossatone	Fossatone3	1353	Tr200	126.90	242.71	258.64	246.51	258.69	0.000283	0.97	130.56	8.76	0.08
Fossatone	Fossatone3	1252	Tr30	79.30	242.34	251.85	245.47	251.92	0.000488	1.14	69.78	8.21	0.12
Fossatone	Fossatone3	1252	Tr200	126.90	242.34	258.60	246.26	258.65	0.000325	1.01	125.19	8.21	0.08
Fossatone	Fossatone3	1250		Bridge									
Fossatone	Fossatone3	1242	Tr30	79.30	242.49	251.79	245.78	251.88	0.000841	1.36	58.14	6.94	0.15
Fossatone	Fossatone3	1242	Tr200	126.90	242.49	258.56	246.65	258.64	0.000559	1.21	105.17	6.94	0.10
Fossatone	Fossatone3	1171	Tr30	79.30	241.92	251.80	244.84	251.84	0.000225	0.86	91.88	10.51	0.09
Fossatone	Fossatone3	1171	Tr200	126.90	241.92	258.58	245.52	258.61	0.000148	0.78	163.10	10.51	0.06
Fossatone	Fossatone3	1109	Tr30	79.30	241.76	251.74	245.20	251.81	0.000616	1.22	65.19	7.41	0.13
Fossatone	Fossatone3	1109	Tr200	126.90	241.76	258.53	246.05	258.59	0.000428	1.10	115.52	7.41	0.09
Fossatone	Fossatone3	1105		Bridge									
Fossatone	Fossatone3	1099	Tr30	79.30	241.81	251.73	244.90	251.79	0.000471	1.11	71.70	7.98	0.12
Fossatone	Fossatone3	1099	Tr200	126.90	241.81	258.53	245.70	258.58	0.000331	1.01	125.96	7.98	0.08
Fossatone	Fossatone3	1036	Tr30	79.30	241.70	251.74	244.45	251.76	0.000130	0.71	111.61	12.67	0.08
Fossatone	Fossatone3	1036	Tr200	126.90	241.70	258.54	245.10	258.56	0.000083	0.64	197.77	12.67	0.05
Fossatone	Fossatone3	967	Tr30	79.30	241.45	251.70	244.44	251.75	0.000326	0.97	82.04	8.84	0.10
Fossatone	Fossatone3	967	Tr200	126.90	241.45	258.51	245.18	258.55	0.000233	0.89	142.22	8.84	0.07
Fossatone	Fossatone3	897	Tr30	79.30	241.17	251.71	243.86	251.73	0.000080	0.59	134.49	14.50	0.06
Fossatone	Fossatone3	897	Tr200	126.90	241.17	258.52	244.42	258.53	0.000053	0.54	233.20	14.50	0.04
Fossatone	Fossatone3	809	Tr30	79.30	240.95	251.61	244.39	251.70	0.000989	1.33	59.48	6.06	0.14
Fossatone	Fossatone3	809	Tr200	126.90	240.95	258.43	245.35	258.51	0.000753	1.26	100.82	6.06	0.10
Fossatone	Fossatone3	800		Culvert									
Fossatone	Fossatone3	787	Tr30	79.30	240.90	251.58	243.92	251.61	0.000235	0.87	91.56	9.60	0.09
Fossatone	Fossatone3	787	Tr200	126.90	240.90	258.43	244.65	258.46	0.000171	0.81	157.34	9.60	0.06
Fossatone	Fossatone3	713	Tr30	79.30	240.49	251.57	243.81	251.60	0.000170	0.77	102.77	10.91	0.08
Fossatone	Fossatone3	713	Tr200	126.90	240.49	258.42	244.55	258.45	0.000119	0.71	177.56	10.91	0.06
Fossatone	Fossatone3	621	Tr30	79.30	240.35	251.56	243.32	251.58	0.000097	0.63	125.13	13.18	0.07
Fossatone	Fossatone3	621	Tr200	126.90	240.35	258.42	244.10	258.44	0.000067	0.59	215.52	13.18	0.05
Fossatone	Fossatone3	615		Bridge									
Fossatone	Fossatone3	602	Tr30	79.30	240.32	251.56	243.39	251.58	0.000084	0.60	131.37	14.00	0.06
Fossatone	Fossatone3	602	Tr200	126.90	240.32	258.42	244.13	258.43	0.000056	0.56	227.43	14.00	0.04
Fossatone	Fossatone3	499	Tr30	79.30	239.93	251.56	242.67	251.57	0.000028	0.40	196.26	20.21	0.04
Fossatone	Fossatone3	499	Tr200	126.90	239.93	258.42	243.27	258.43	0.000019	0.38	334.93	20.21	0.03
Fossatone	Fossatone3	450	Tr30	79.30	239.55	251.56	242.31	251.57	0.000032	0.42	188.03	18.50	0.04
Fossatone	Fossatone3	450	Tr200	126.90	239.55	258.42	242.89	258.43	0.000023	0.40	314.97	18.50	0.03
Fossatone	Fossatone3	386	Tr30	79.30	239.19	251.56	242.33	251.56	0.000001	0.13	724.96	91.76	0.01
Fossatone	Fossatone3	386	Tr200	126.90	239.19	258.42	242.87	258.42	0.000000	0.11	1354.58	91.76	0.01
Fossatone	Fossatone3	320	Tr30	79.30	239.15	251.56	242.16	251.56	0.000001	0.12	781.26	95.38	0.01
Fossatone	Fossatone3	320	Tr200	126.90	239.15	258.42	242.71	258.42	0.000000	0.11	1435.72	95.38	0.01
Fossatone	Fossatone3	241	Tr30	79.30	239.32	251.56	241.22	251.56	0.000006	0.23	351.56	32.71	0.02
Fossatone	Fossatone3	241	Tr200	126.90	239.32	258.42	241.67	258.42	0.000004	0.22	576.00	32.71	0.02
Fossatone	Fossatone3	227	Tr30	79.30	238.42	251.56	240.99	251.56	0.000006	0.22	355.59	33.06	0.02
Fossatone	Fossatone3	227	Tr200	126.90	238.42	258.42	241.52	258.42	0.000004	0.22	582.44	33.06	0.02
Fossatone	Fossatone3	95	Tr30	79.30	237.94	251.54	240.75	251.56	0.000143	0.67	119.10	10.16	0.06
Fossatone	Fossatone3	95	Tr200	126.90	237.94	258.40	242.20	258.42	0.000122	0.67	188.82	10.16	0.05
Fossatone	Fossatone3	79	Tr30	79.30	237.91	251.40	241.63	251.54	0.002946	1.66	47.81	3.55	0.14
Fossatone	Fossatone3	79	Tr200	126.90	237.91	258.24	243.01	258.40	0.002966	1.76	72.10	3.55	0.12
Fossatone	Fossatone3	44	Tr30	79.30	237.94	251.41	240.74	251.47	0.000713	1.08	73.53	5.47	0.09
Fossatone	Fossatone3	44	Tr200	126.90	237.94	258.26	241.77	258.33	0.000712	1.14	111.00	5.47	0.08
Fossatone	Fossatone3	40		Bridge									
Fossatone	Fossatone3	36	Tr30	79.30	237.91	251.30	241.63	251.44	0.003000	1.67	47.43	3.55	0.15
Fossatone	Fossatone3	36	Tr200	126.90	237.91	258.14	243.01	258.30	0.003000	1.77	71.73	3.55	0.13
Borro Dell'Abett	Borro Dell'Abett	1236	Tr30	4.60	295.77	296.13	296.16	296.31	0.033039	1.88	2.45	9.11	1.15
Borro Dell'Abett	Borro Dell'Abett	1236	Tr200	7.50	295.77	296.24	296.29	296.47	0.033017	2.15	3.49	10.57	1.19
Borro Dell'Abett	Borro Dell'Abett	1099	Tr30	4.60	290.48	291.02	291.09	291.29	0.040643	2.27	2.03	6.55	1.30
Borro Dell'Abett	Borro Dell'Abett	1099	Tr200	7.50	290.48	291.14	291.24	291.50	0.039728	2.65	2.83	6.97	1.33

HEC-RAS Plan: Portata Tr (Continued)

River	Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Borro DellAbett	Borro DellAbett	974	Tr30	4.60	287.30	288.44	288.34	288.63	0.016960	1.94	2.37	4.06	0.81
Borro DellAbett	Borro DellAbett	974	Tr200	7.50	287.30	288.80	288.56	288.99	0.010624	1.93	3.88	4.22	0.64
Borro DellAbett	Borro DellAbett	842	Tr30	4.60	284.99	286.86	286.32	287.00	0.009118	1.69	2.72	2.03	0.47
Borro DellAbett	Borro DellAbett	842	Tr200	7.50	284.99	287.47	286.64	287.65	0.009512	1.89	3.96	2.03	0.43
Borro DellAbett	Borro DellAbett	452	Tr30	4.60	280.09	282.05	281.04	282.10	0.001950	0.97	4.76	2.89	0.24
Borro DellAbett	Borro DellAbett	452	Tr200	7.50	280.09	283.96	281.29	283.98	0.000786	0.73	10.26	2.89	0.12
Aff_Sx_Foss3	Aff_Sx_Foss3	1187	Tr30	4.50	326.68	327.13	327.35	327.91	0.140185	3.92	1.15	4.11	2.37
Aff_Sx_Foss3	Aff_Sx_Foss3	1187	Tr200	7.20	326.68	327.23	327.53	328.27	0.140233	4.51	1.60	4.61	2.45
Aff_Sx_Foss3	Aff_Sx_Foss3	886	Tr30	4.50	282.95	283.43	283.70	284.36	0.149399	4.28	1.05	3.39	2.45
Aff_Sx_Foss3	Aff_Sx_Foss3	886	Tr200	7.20	282.95	283.55	283.89	284.75	0.149100	4.86	1.48	3.92	2.52
Aff_Sx_Foss3	Aff_Sx_Foss3	685	Tr30	4.50	258.55	258.90	259.01	259.26	0.104406	2.66	1.69	8.90	1.95
Aff_Sx_Foss3	Aff_Sx_Foss3	685	Tr200	7.20	258.55	258.97	259.12	259.45	0.105770	3.07	2.34	10.02	2.03
Aff_Sx_Foss3	Aff_Sx_Foss3	684	Tr30	4.50	253.56	254.59	254.59	254.90	0.025233	2.47	1.82	2.94	1.00
Aff_Sx_Foss3	Aff_Sx_Foss3	684	Tr200	7.20	253.56	258.94	254.83	258.94	0.000149	0.39	18.54	3.93	0.06
Aff_Sx_Foss2	Aff_Sx_Foss2	691	Tr30	3.20	337.13	337.77	338.05	338.70	0.150052	4.27	0.75	2.18	2.32
Aff_Sx_Foss2	Aff_Sx_Foss2	691	Tr200	5.10	337.13	337.90	338.25	339.09	0.150052	4.83	1.06	2.53	2.39
Aff_Sx_Foss2	Aff_Sx_Foss2	690	Tr30	3.20	293.25	293.54	293.71	294.18	0.204436	3.55	0.90	5.05	2.68
Aff_Sx_Foss2	Aff_Sx_Foss2	690	Tr200	5.10	293.25	293.61	293.83	294.47	0.205361	4.11	1.24	5.58	2.79
Aff_Sx_Foss2	Aff_Sx_Foss2	689	Tr30	3.20	264.46	265.03	265.19	265.53	0.069214	3.12	1.02	2.86	1.67
Aff_Sx_Foss2	Aff_Sx_Foss2	689	Tr200	5.10	264.46	265.16	265.37	265.81	0.068955	3.57	1.43	3.20	1.71
Aff_Sx_Foss2	Aff_Sx_Foss2	688	Tr30	3.20	253.56	254.49	254.49	254.77	0.027476	2.37	1.35	2.36	1.00
Aff_Sx_Foss2	Aff_Sx_Foss2	688	Tr200	5.10	253.56	258.89	254.70	258.90	0.000309	0.43	11.74	2.36	0.06
Aff_Sx_Foss2	Aff_Sx_Foss2	485	Tr30	3.20	250.57	252.35	251.05	252.35	0.000100	0.29	12.08	6.72	0.07
Aff_Sx_Foss2	Aff_Sx_Foss2	485	Tr200	5.10	250.57	258.89	251.05	258.90	0.000003	0.15	56.06	6.72	0.02
Aff_Sx_Foss1	Aff_Sx_Foss1	655	Tr30	6.40	253.56	254.37	254.37	254.72	0.025461	2.61	2.45	3.50	1.00
Aff_Sx_Foss1	Aff_Sx_Foss1	655	Tr200	10.20	253.56	259.33	254.62	259.35	0.000280	0.51	19.82	3.50	0.07
Aff_Sx_Foss1	Aff_Sx_Foss1	335	Tr30	6.40	250.30	253.81	251.39	253.83	0.000559	0.63	10.17	3.22	0.11
Aff_Sx_Foss1	Aff_Sx_Foss1	335	Tr200	10.20	250.30	259.28	251.66	259.28	0.000141	0.37	27.78	3.22	0.04
Aff_Sx_Foss1	Aff_Sx_Foss1	130	Tr30	6.40	251.25	253.47	252.33	253.57	0.004568	1.40	4.57	2.18	0.31
Aff_Sx_Foss1	Aff_Sx_Foss1	130	Tr200	10.20	251.25	259.21	252.68	259.23	0.000591	0.60	17.09	2.18	0.07