Direzione Progettazione e Realizzazione Lavori

E78 GROSSETO - FANO
Tratto Nodo di Arezzo – Selci – Lama (E45) – Palazzo del Pero – Completamento

PROGETTO DEFINITIVO

FI 509

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STUDI E INDAGINI

Idrologia e idraulica

Relazione idraulica attraversamenti minori (tombini)

CODICE PROGETTO	NOME FILE	REVISIONE	SCALA
PROGETTO: DPAN259 / LIV.PROG: D / ANNO: 21	T00ID00IDRRE03_A		
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D					
C					
B					
A	Emissione	Maggio '22	Capponi	Panfili	Guiducci

INDICE

1. PREMESSA 2
2. RIFERIMENTI NORMATIVI 3
3. ATTRAVERSAMENTI IDRAULICI MINORI E NTC2018 4
4. ANALISI IDRAULICHE DI SUPPORTO ALLA RISOLUZIONE DELLE INTERFERENZE CON IL RETICOLO IDROGRAFICO 5
4.1. ANALISI NUMERICHE IN REGIME DI MOTO VARIO 5
4.2. AREA DI STUDIO E TRATTI DEI CORSI D'ACQUA MODELLATI 6
4.2.1. Modello idraulico "TORRENTE VINGONE – FOSSO SELLINA" 7
4.2.2. Modello idraulico "RIO DELL'OLMO - RIO DI SANT'ANTONIO – RIO DI RIOLO" 12
4.2.3. Modello idraulico "RIO DELLE QUERCE – FOSSO AV 43922" 17
4.2.4. Modello idraulico "TORRENTE LOTA - TORRENTE VINGONE (2) – FOSSO AV 20123" 21

Appendice 1: Outputs grafici e numerici delle simulazioni 1D+2D effettuate in regime di moto vario con il software Hec-Ras

1. PREMESSA

Scopo della presente relazione è quello di descrivere le analisi e le verifiche idrauliche condotte nell'ambito del progetto definitivo relativo all'intervento "*E 78 Grosseto – Fano, Tratto Nodo di Arezzo - Selci - Lama (E 45) – Palazzo del Pero - Completamento*".

Il presente studio va esaminato congiuntamente all'elaborato T00 ID 00 IDR RE 01 *"Relazione idrologica"*, nell'ambito della quale si sono sviluppati i modelli concettuali utili alla definizione delle portate di riferimento.

In particolare, il presente studio idraulico teso a fornire un'analisi delle interazioni tra le opere viarie e i corsi d'acqua secondari con esse interferenti, valutando l'adeguatezza dei manufatti di attraversamento, in progetto, sia in termini di sezione idraulica sia di franco di sicurezza rispetto all'intradosso del manufatto.

2. RIFERIMENTI NORMATIVI

L'infrastruttura stradale in progetto, sotto il profilo idraulico, deve soddisfare le prescrizioni previste dal seguente quadro normativo vigente:

- Regio Decreto 25 luglio 1904, n°523 "Testo unico delle disposizioni di legge intorno alle opere idrauliche delle diverse categorie"
- Norme Tecniche per le Costruzioni 2018 DM 17 gennaio 2018_5.1 Ponti_5.1.2.3. Compatibilità idraulica;
- Circolare n.7 del 21 gennaio 2019_ Istruzioni per l'applicazione dell'aggiornamento Norme tecniche per le costruzioni di cui al decreto ministeriale 17 gennaio 2018_C 5.1.2.3 Compatibilità Idraulica;
- Piano di Gestione del Rischio Alluvioni (PGRA) dell'Autorità di Bacino Distrettuale dell'Appennino Settentrionale di cui alla Direttiva 2007/60/CE, recepita con D.Lgs. 49/2010, approvato con delibera del Comitato Istituzionale n. 235 del 3 marzo 2016;
- L.R. n.41 24/07/2018.

3. ATTRAVERSAMENTI IDRAULICI MINORI E NTC2018

L'infrastruttura in progetto prevede l'attraversamento del reticolo idrografico interferente mediante opere trasversali che sono state dimensionate ai sensi delle NTC2018 con riferimento a portate di picco duecentennali (punto 5.1.2.3). Per i tombini si fa riferimento alla Circolare n.7 del 21 gennaio 2019 "Istruzioni per l'applicazione dell'aggiornamento NTC 2018 DM 17 gennaio 2018" ove si specifica che:

"*nel caso di funzionamento a superficie libera, il tirante idrico non dovrà superare i 2/3 dell'altezza della sezione garantendo comunque un franco minimo di 0,50 m;*

[…] - il calcolo idraulico è da sviluppare prendendo in considerazione le condizioni che si realizzano nel tratto del corso a d'acqua valle del tombino;

[…] - il massimo rigurgito previsto a monte del tombino deve garantire il rispetto del franco idraulico nel tratto del corso a d'acqua a monte;

- nel caso sia da temersi l'ostruzione anche parziale del manufatto da parte dei detriti galleggianti trasportati dalla corrente, è da disporre immediatamente a monte una varice presidiata da una griglia che consenta il passaggio di elementi caratterizzati da dimensioni non superiori alla metà della larghezza del tombino; in alternativa il tombino è da dimensionare assumendo che la sezione efficace ai fini del deflusso delle acque sia ridotta almeno alla metà di quella effettiva […]

- i tratti del corso d'acqua immediatamente prospicienti l'imbocco e lo sbocco del manufatto devono essere protetti da fenomeni di scalzamento e/o erosione, e opportune soluzioni tecniche sono da adottare per evitare i fenomeni di sifonamento.

4. ANALISI IDRAULICHE DI SUPPORTO ALLA RISOLUZIONE DELLE INTERFERENZE CON IL RETICOLO IDROGRAFICO

La risoluzione delle interferenze tra l'infrastruttura stradale di progetto ed il reticolo idrografico sono state condotte, previa analisi idrologica (vedi elaborato T00 ID 00 IDR RE 01), mediante l'implementazione di modelli numerici di propagazione delle piene in alveo ed extra alveo di tipo accoppiato 1D+2D in regime di moto vario.

In tali modelli, oltre alle opere di attraversamento dei corsi d'acqua interferiti, sono stati implementati anche i tombini posti extra alveo, in area golenale, ritenuti necessari al fine di garantire la "trasparenza idraulica" dell'infrastruttura stradale di progetto rispetto alla propagazione delle piene, ai fini della compatibilità idraulica degli interventi e della verifica di non incremento di rischio idraulico in altre aree imposto dalla normativa vigente di settore.

Per quanto concerne la verifica ai sensi delle NTC degli attraversamenti dei corsi d'acqua appartenenti al reticolo idrografico regionale, premesso che tutti gli attraversamenti delle aste idriche interferenti che sono state investigate rientrano nella categoria "tombini" ("*manufatto totalmente rivestito in sezione,…, in grado di condurre complessivamente portate fino a 50 m3/s*"), quindi nell'ambito di applicazione della Circolare, i risultati mostrano il soddisfacimento della prescrizione di legge circa la sussistenza di un franco maggiore di 50 cm e/o di un terzo dell'altezza rispetto alla portata idraulica TR = 200 anni.

4.1. ANALISI NUMERICHE IN REGIME DI MOTO VARIO

Rimandando all'indirizzo internet http://www.hec.usace.army.mil per l'esaustiva trattazione dei principi teorici sui quali si basa la soluzione numerica delle equazioni di moto e di continuità che regolano il processo di moto (in particolare alle pubblicazioni "*Hydraulic Reference Manual*", "*User's Manual*" e "*Two-Dimensional Modeling User's Manual*"), si riportano di seguito alcuni brevi cenni di come viene effettuata la modellazione numerica 2D dal software Hec-Ras v.5 o v.6.

Il programma risolve sia le equazioni 2D di diffusione dell'onda o quelle complete di Saint Venant. Il risolutore delle equazioni di moto bidimensionale utilizza un algoritmo implicito ai volumi finiti. Tale algoritmo di soluzione, oltre a consentire passi temporali di calcolo maggiori rispetto ai metodi espliciti, presenta miglioramenti in termini di stabilità e robustezza rispetto alle tradizionali tecniche differenziali di soluzione basate su metodi a elementi finiti.

Il software è stato progettato per utilizzare mesh computazionali strutturate o non strutturate. Ciò significa che le celle computazionali possono essere variabili e presentare forme triangolari, quadrate, rettangolari, pentagonali, esagonali, ettagonali oppure ottagonali.

Ogni cella e ogni faccia della cella, per tutta la maglia di calcolo, è pre-processata al fine di calcolare le tabelle di proprietà idrauliche basate sul DTM di base, che mantiene la propria risoluzione spaziale generalmente, come in questo caso, superiore a quella della mesh (Figura 4-1).

Nella Figura 4-1 è illustrato uno schema della maglia di calcolo sovrapposta ad un DTM avente maggior risoluzione spaziale della mesh. Le celle computazionali sono rappresentate dalle linee

nere spesse. Il centro delle celle di calcolo è rappresentato dai nodi neri e sono i punti in cui vengono calcolati per ogni cella il livello idrico e la portata. La curva altezza/volume viene calcolata nella fase di pre-processing per ogni cella sulla base del DTM sottostante. Ogni faccia della cella è una sezione trasversale dettagliata basata anch'essa sul terreno sottostante. Questo metodo di rappresentazione delle celle permette all'acqua di spostarsi tra celle contigue in base ai dati morfologici sottostanti. Pertanto, un piccolo canale che attraversa le celle e le cui dimensioni sono molto più piccole della dimensione della mesh viene comunque rappresentato tramite le curve altezza/volume oltreché dalle proprietà idrauliche delle facce. Ciò significa che l'acqua scorre tra le celle più grandi ma comunque il deflusso si concentra inizialmente nelle zone più depresse.

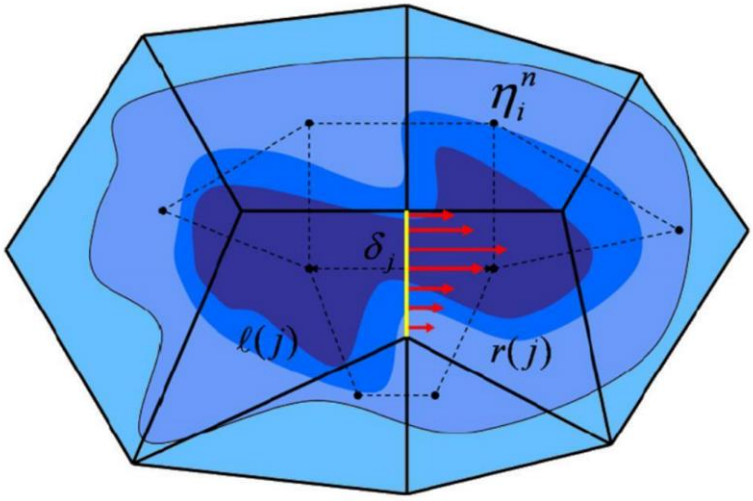


Figura 4-1: schema concettuale dell'algoritmo a volumi finiti adottato dal software Hec-Ras 2D.

Nell'ambiente RAS Mapper, il software Hec-Ras consente di effettuare la perimetrazione delle aree allagabili, la mappatura delle varie grandezze idrauliche (tra cui velocità, sforzi tangenziali, ecc…) l'animazione della propagazione della piena nel tempo. La mappatura delle aree allagate si basa sul DTM e ne mantiene la risoluzione: ciò significa che la reale superficie bagnata sarà basata sui dettagli morfologici del terreno sottostante e non sulla dimensione della cella di calcolo. Le celle, quindi, possono anche essere parzialmente bagnate/asciutte.

4.2. AREA DI STUDIO E TRATTI DEI CORSI D'ACQUA MODELLATI

I modelli numerici implementati (di tipo accoppiato 1D in alveo e puramente 2D extra-alveo, in regime di moto vario), ed i corsi d'acqua analizzati sono i seguenti:

- **Torrente Vingone – Fosso Sellina;**
- **Rio dell'Olmo – Rio di Sant'Antonio – Rio di Riolo;**
- **Rio delle Querce - fosso AV 43922;**
- **Torrente Lota – Torrente Vingone (2) – fosso AV20123.**

La geometria degli alvei è stata ricavata dai rilievi topografici strumentali effettuati a supporto del presente progetto, integrati con le sezioni trasversali desunte dagli studi idraulici redatti a supporto del nuovo Piano Strutturale e Piano Operativo del Comune di Arezzo.

Al fine di aumentare la precisione della soluzione numerica, alle sezioni disponibili sono state aggiunte sezioni interpolate.

Su ciascuna sezione è stata individuata la quota di "sfioro" (quote del massimo contenimento delle acque in alveo), sia in destra che in sinistra idraulica, necessaria al software per il corretto accoppiamento del modello monodimensionale dell'alveo inciso con quello bidimensionale delle aree golenali. Gli sfioratori laterali di connessione sono modellati come soglie a stramazzo.

La caratterizzazione geometrica delle aree 2D è stata implementata a partire dai dati Lidar, risalenti agli anni 2008-2010, messi a disposizione dalla Regione Toscana, aventi una risoluzione spaziale di 1m x 1m. Le aree 2D sono state discretizzate con celle di calcolo di dimensioni variabili aventi mediamente una superficie pari a circa 90 mq. La mesh di calcolo è stata strutturata in modo tale da allineare le facce delle celle alle principali discontinuità morfologiche presenti all'interno del dominio di calcolo allo scopo di ottenere una maggiore accuratezza dei risultati.

Di seguito si riporta un estratto dei risultati delle analisi condotte, rimandando all'Appendice 1 per la consultazione degli outputs grafici e numerici di dettaglio.

4.2.1. Modello idraulico "TORRENTE VINGONE – FOSSO SELLINA"

4.2.1.1. Descrizione, scabrezze, condizioni al contorno e durata critica

I tratti dei corsi d'acqua modellati sono:

- **Torrente Vingone**: dalla sezione posta circa 300 m a monte dalla località Gragnone, alla sezione posta in prossimità dell'immissione nel Canale Maestro della Chiana, per una lunghezza complessiva di circa 9 Km.
- Rio Valtina: dalla sezione posta in prossimità della località Caselle, fino alla confluenza con il Torrente Vingone, per una lunghezza complessiva di 1.4 Km.
- **Fosso Sellina**-Fossatone: dalla sezione posta in località San Marco, alla sezione posta in corrispondenza dell'immissione nel Canale Maestro della Chiana, per una lunghezza complessiva di circa 6.5 Km.
- N° 2 fossi minori appartenenti al reticolo di acque basse: il primo, denominato "fosso 1", da località Bagnoro all'immissione nel torrente Vingone, per una lunghezza complessiva di circa 3.6 km; il secondo, denominato "fosso 2", dalla sezione posta a monte dell'attraversamento della E78 in prossimità del distributore di carburante fino all'inizio del tratto tombato in prossimità della zona industriale San Lazzaro, per una lunghezza complessiva di circa 260 m.

Per quanto riguarda le scabrezze medie attribuibili ai corsi d'acqua sulla base dello stato dei luoghi e coerentemente ai normali valori proposti in letteratura[1], si è assunto, con riferimento al valore del coefficiente *n* di Manning:

- Vingone: $n = 0.04\ m^{-1/3}s$
- Valtina: $n = 0.03\ m^{-1/3}\ s$
- Sellina - Fossatone: $n = 0.03 \div 0.04\ m^{-1/3}\ s$
- Fossi minori: $n = 0.04\ m^{-1/3}\ s$

[1] *Manuale di Ingegneria Civile - Volume I .Ed.Zanichellli/Esac.*

Per quanto riguarda la scabrezza extra-alveo adottata nella modellazione idraulica bidimensionale del cosiddetto "*overland flow*", si è fatto riferimento alla tabella seguente, sempre tratta dalla letteratura di settore: il valore del coefficiente *n* di Manning assunto è costante e pari a 0.10 $m^{-1/3}s$.

Table 1. Overland Flow Manning's n Roughness Values[1]

Surface	n-value
Dense turf	0.17 - 0.80
Bermuda and dense grass, dense vegetation	0.17 - 0.48
Shrubs and forest litter, pasture	0.30 - 0.40
Average grass cover	0.20 - 0.40
Poor grass cover on rough surface	0.20 - 0.30
Short prairie grass	0.10 - 0.20
Sparse vegetation	0.05 - 0.13
Sparse rangeland with debris	
0% cover	0.09 - 0.34
20 % cover	0.05 - 0.25
Plowed or tilled fields	
Fallow - no residue	0.008 - 0.012
Conventional tillage	0.06 - 0.22
Chisel plow	0.06 - 0.16
Fall disking	0.30 - 0.50
No till - no residue	0.04 - 0.10
No till (20 - 40% residue cover)	0.07 - 0.17
No till (60 - 100% residue cover)	0.17 - 0.47
Open ground with debris	0.10 - 0.20
Shallow glow on asphalt or concrete (0.25" to 1.0")	0.10 - 0.15
Fallow fields	0.08 - 0.12
Open ground, no debris	0.04 - 0.10
Asphalt or concrete	0.02 - 0.05

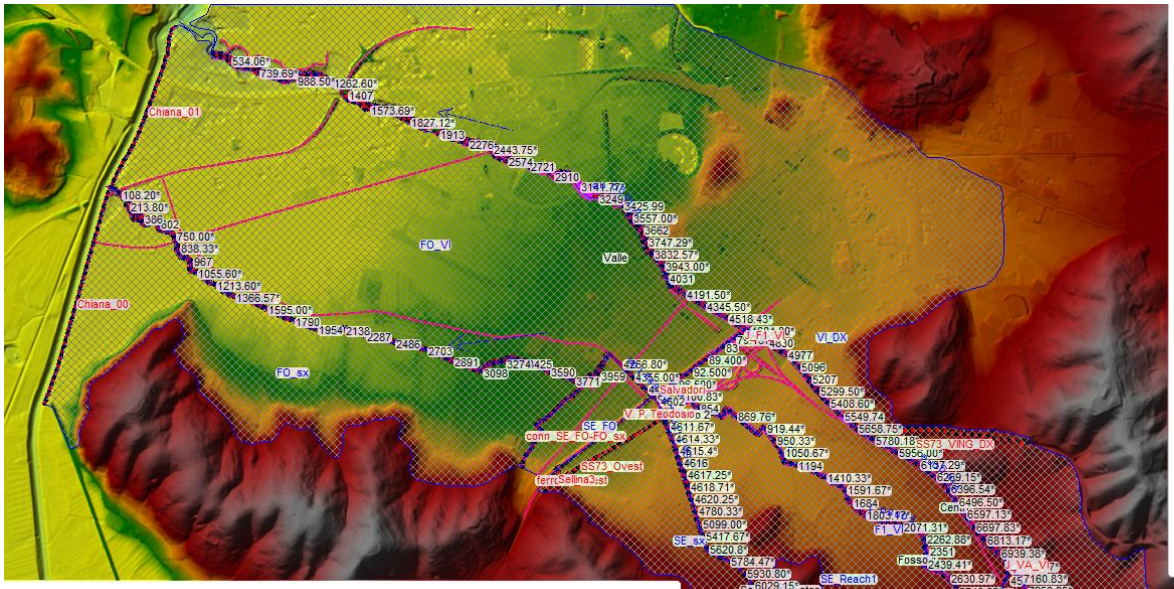
[1]Adapted from COE, HEC-1 Manual, 1990 and the COE, Technical Engineering and Design Guide, No. 19, 1997 with modifications.

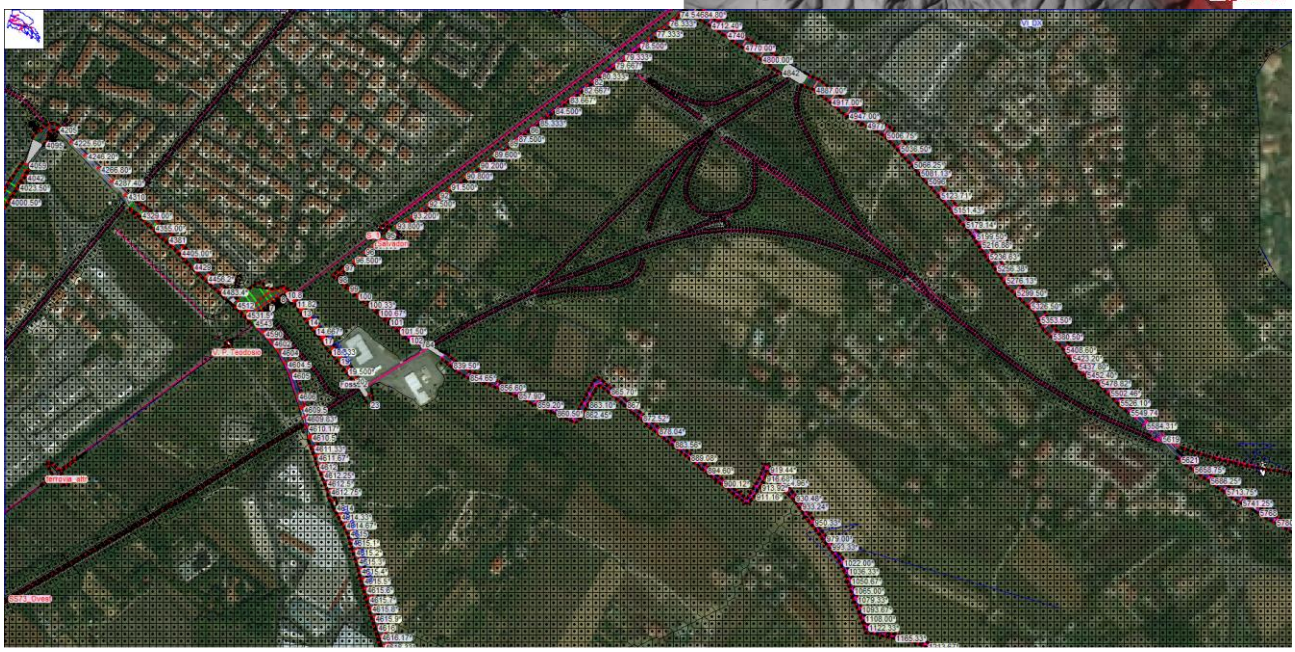
Figura 4-2: Valori di scabrezza al variare del tipo di copertura per "overland flow"

Le condizioni al contorno di monte sono costituite dagli idrogrammi desunti dall'analisi idrologica (vedi elaborato T00 ID 00 IDR RE 01). Quelle di valle sono sufficientemente distanti in modo da non poter influenzare i risultati di calcolo nei tratti di interesse.

La durata critica del F. Sellina è pari a 1 h, quella del T. Vingone è pari a 2 h.

4.2.1.2. Planimetrie e profili modello idraulico





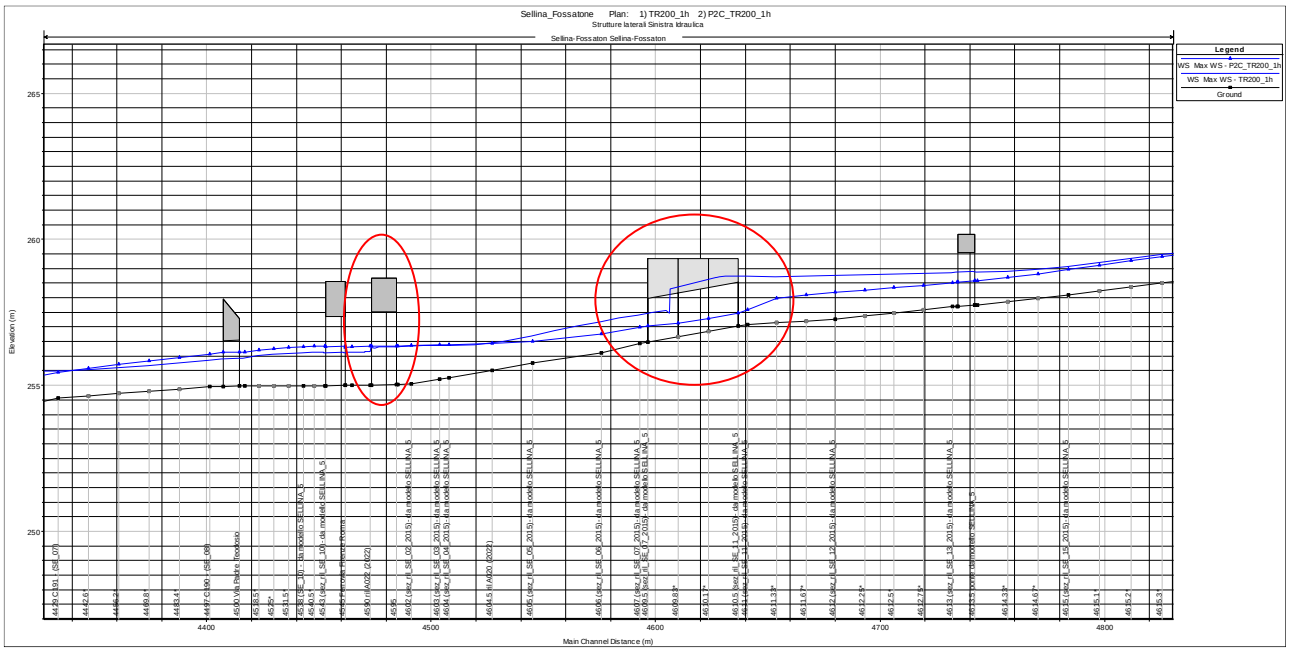


Figura 4-3: profilo longitudinale F Sellina – TR200 – attuale vs progetto

Figura 4-4: profilo longitudinale T. Vingone – TR200 – attuale vs progetto

4.2.1.3. Confronto aree allagabili stato attuale – stato di progetto e verifica di non incremento di rischio in altre aree

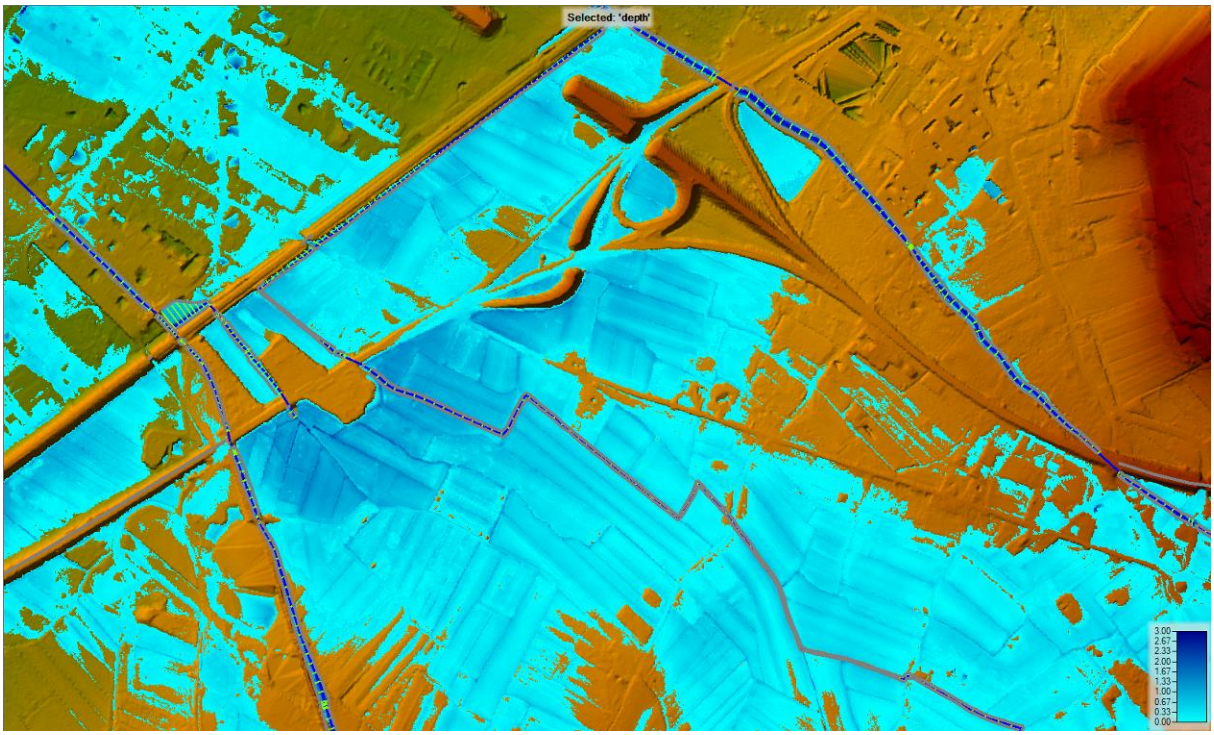


Figura 4-5: inviluppo aree allagabili TR200 – stato attuale

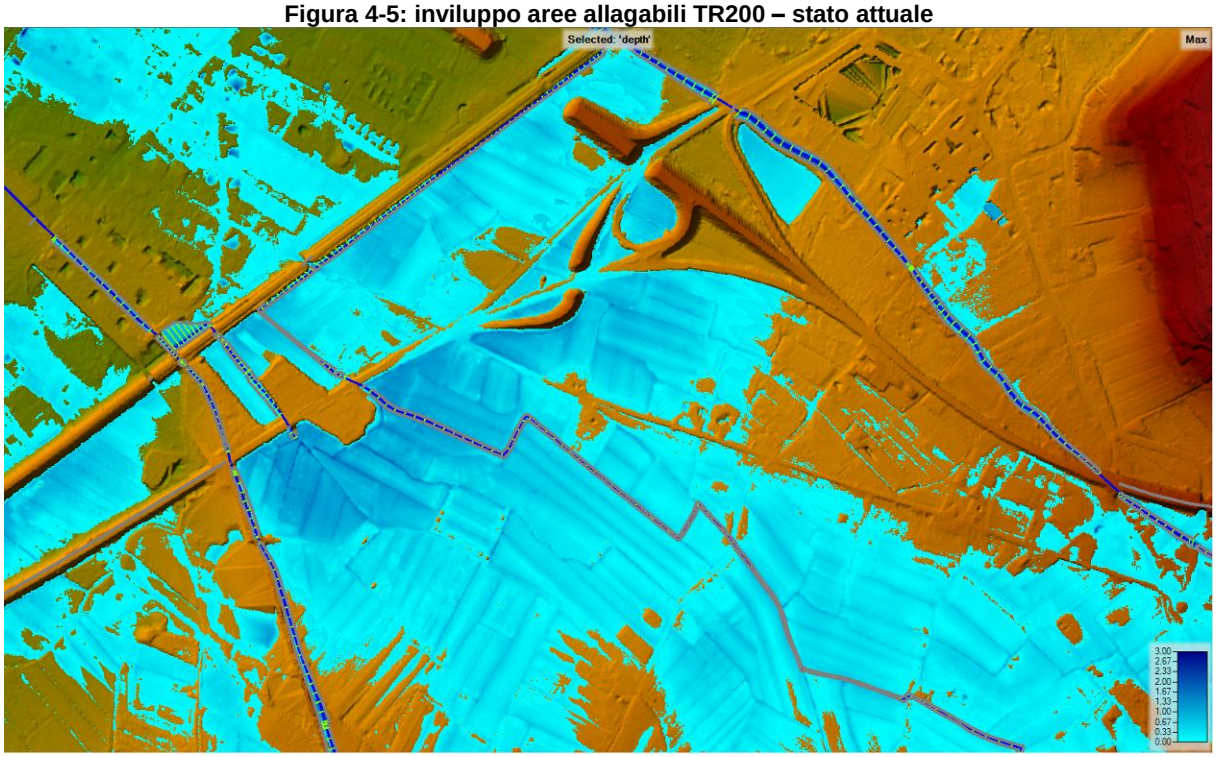


Figura 4-6: inviluppo aree allagabili TR200 – stato di progetto

4.2.1.4. Verifica rispetto franco idraulico minimo in corrispondenza degli attraversamenti di progetto

Tabella 4-1: verifica rispetto franco idraulico minimo in corrispondenza degli attraversamenti di progetto

Corso d'acqua	Tombino / sez Hec-Ras	dimensioni B (m)	dimensioni H (m)	Quota intradosso (m s.l.m.)	Tirante TR200 (m s.l.m.)	Franco (m)	Franco min richiesto (m)
Sellina	**4610.5-4609.5**	3.5	1.5	258.53	257.47	1.06	0.5
Sellina	**4595**	3.5	2.5	257.52	256.35	1.17	0.83
Vingone (*prolungamento tombino esistente)	**5618.88-5549.74**	6	4	262.63	261.36	1.27*	1.33

4.2.2. Modello idraulico "RIO DELL'OLMO - RIO DI SANT'ANTONIO – RIO DI RIOLO"

4.2.2.1. Descrizione, scabrezze, condizioni al contorno e durata critica

I tratti dei corsi d'acqua modellati sono:

- **Rio dell'Olmo:** dalla sezione posta circa 55 m a valle dell'attraversamento della linea ferroviaria Firenze-Roma in località Ripa dell'Olmo, alla sezione posta circa 90 m a monte dell'immissione nel Canale Maestro della Chiana, per una lunghezza complessiva di circa 2.4 Km.
- **Rio di Sant'Antonio:** dalla sezione posta circa 165 m a monte dell'attraversamento delle SR 71 Umbro-Casentinese-Romagnola in località Sant'Anastasio, fino alla sezione posta circa 660 m a valle dell'attraversamento della linea ferroviaria Firenze-Roma, per una lunghezza complessiva di circa 1.4 Km.
- **Rio di Riolo**: dalla sezione posta in località Pieve a Quarto, alla sezione posta 14 m a valle dell'attraversamento della linea ferroviaria Firenze-Roma, per una lunghezza complessiva di circa 1.0 Km.

Per quanto riguarda le scabrezze medie attribuibili ai corsi d'acqua sulla base dello stato dei luoghi e coerentemente ai normali valori proposti in letteratura[2], si è assunto, con riferimento al valore del coefficiente *n* di Manning:

- Olmo: $n = 0.03 \div 0.045$ $m^{-1/3}s$
- Sant'Antonio: $n = 0.025 \div 0.04$ $m^{-1/3}s$
- Riolo: $n = 0.035 \div 0.04$ $m^{-1/3}s$

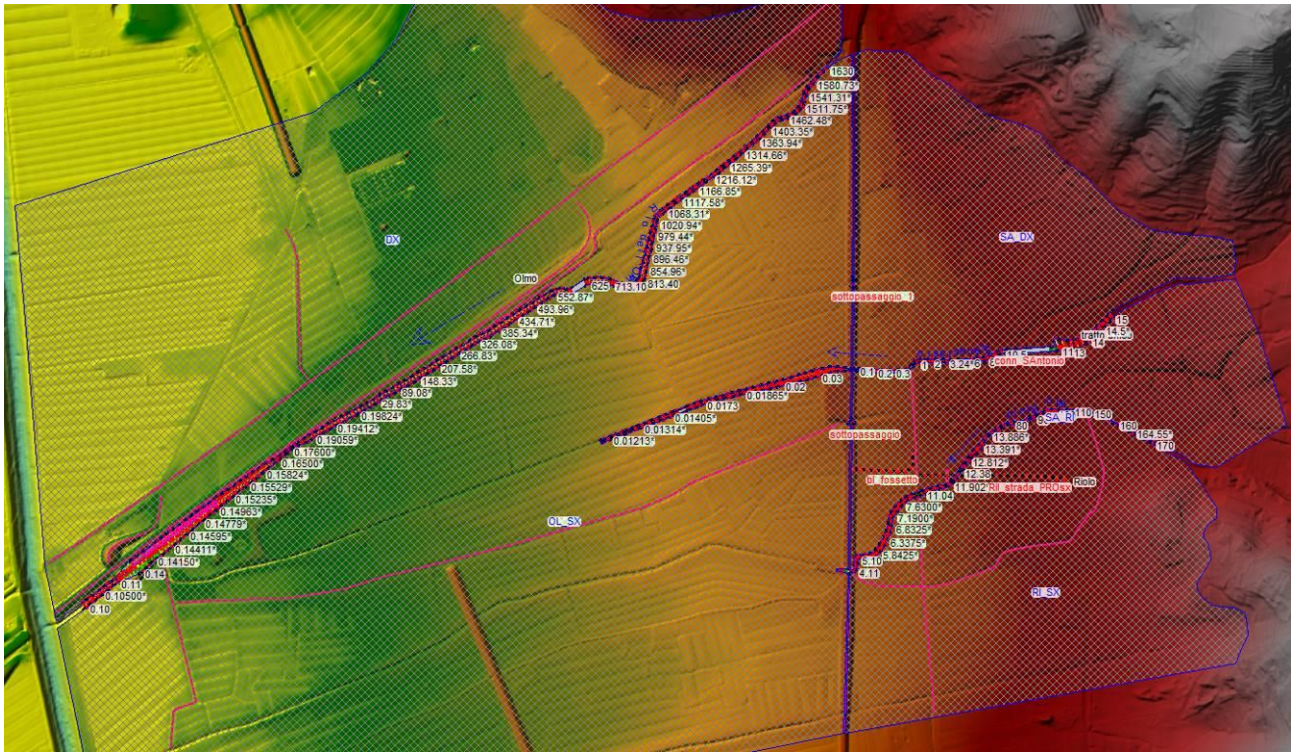
[2] *Manuale di Ingegneria Civile - Volume I .Ed.Zanichellli/Esac.*

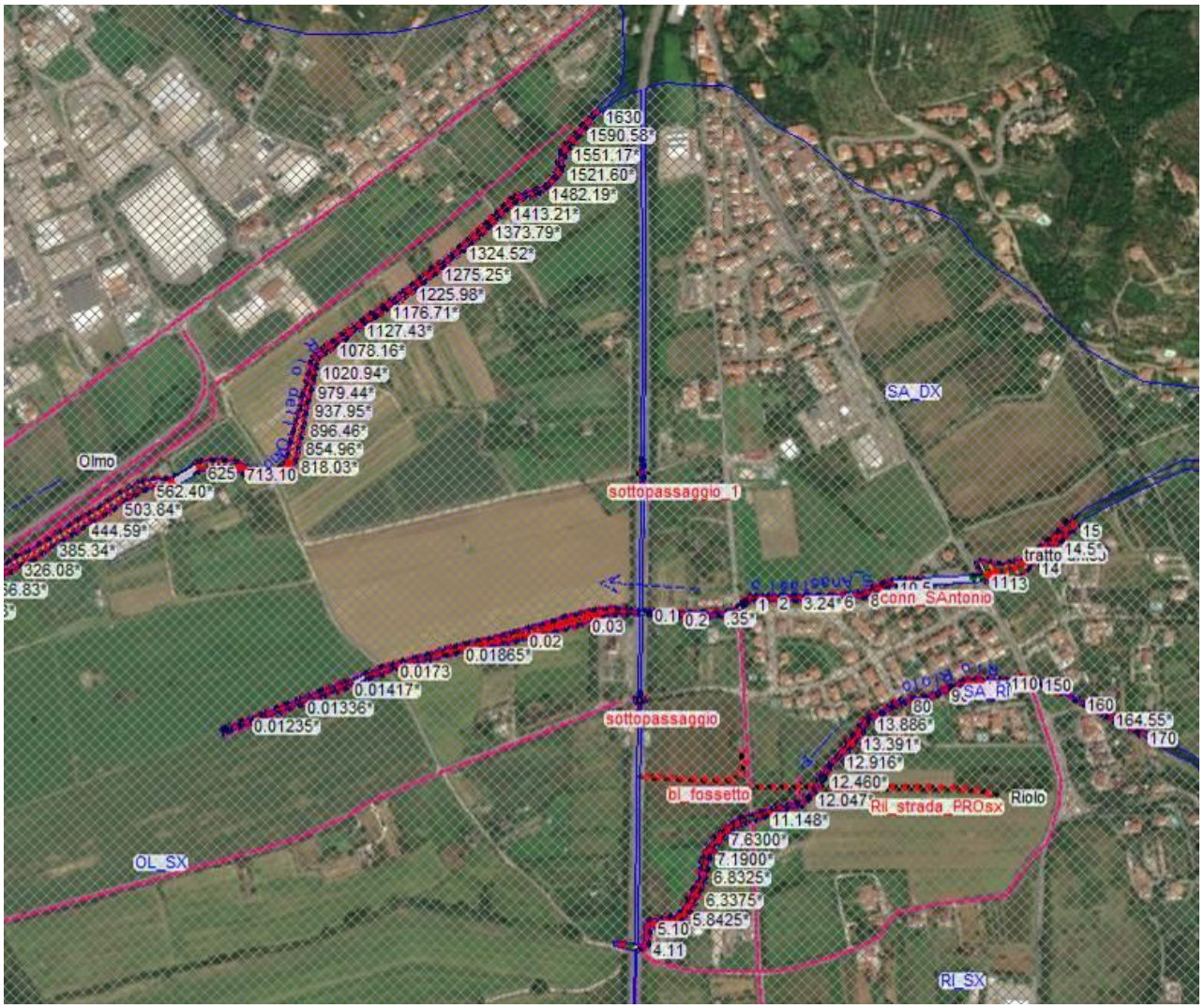
Per quanto riguarda la scabrezza extra-alveo adottata nella modellazione idraulica bidimensionale del cosiddetto "*overland flow*", si è fatto riferimento alla tabella di Figura 4-2 tratta dalla letteratura di settore: il valore del coefficiente *n* di Manning assunto è pari a 0.10 $m^{-1/3}s$.

Le condizioni al contorno di monte sono costituite dagli idrogrammi desunti dall'analisi idrologica (vedi elaborato T00 ID 00 IDR RE 01). Come condizioni al contorno di valle sono state assunte le altezze di moto uniforme.

Le durate critiche del Rio dell'Olmo e del Rio di Sant'Antonio sono pari a 30 min, quella del Rio di Riolo è pari a 1 ora.

4.2.2.2. Planimetrie e profili modello idraulico




1630
1590.58*
1551.17*
1521.60*
1482.19*
1413.21*
1373.79*
1324.52*
1275.25*
1225.98*
1176.71*
1127.43*
1078.16*
1020.94*
979.44*
937.95*
896.46*
854.96*
818.03*
713.10
625
Olmo
562.40*
503.84*
444.59*
385.34*
326.08*
SA_DX
sottopassaggio_1
15
14.5
14
1113
8conn_SAntonio
3.24*6
0.1
0.2
.35*
0.03
0.02
0.01865*
0.0173
0.01417*
0.01336*
0.01235*
sottopassaggio
9SA_RI
110
150
160
164.55*
170
80
13.886*
13.391*
12.916*
12.460*
12.047*
Ril_strada_PROsx
Riolo
ol_fossetto
11.148*
7.6300*
7.1900*
6.8325*
6.3375*
5.8425*
5.10
4.11
OL_SX
RI_SX

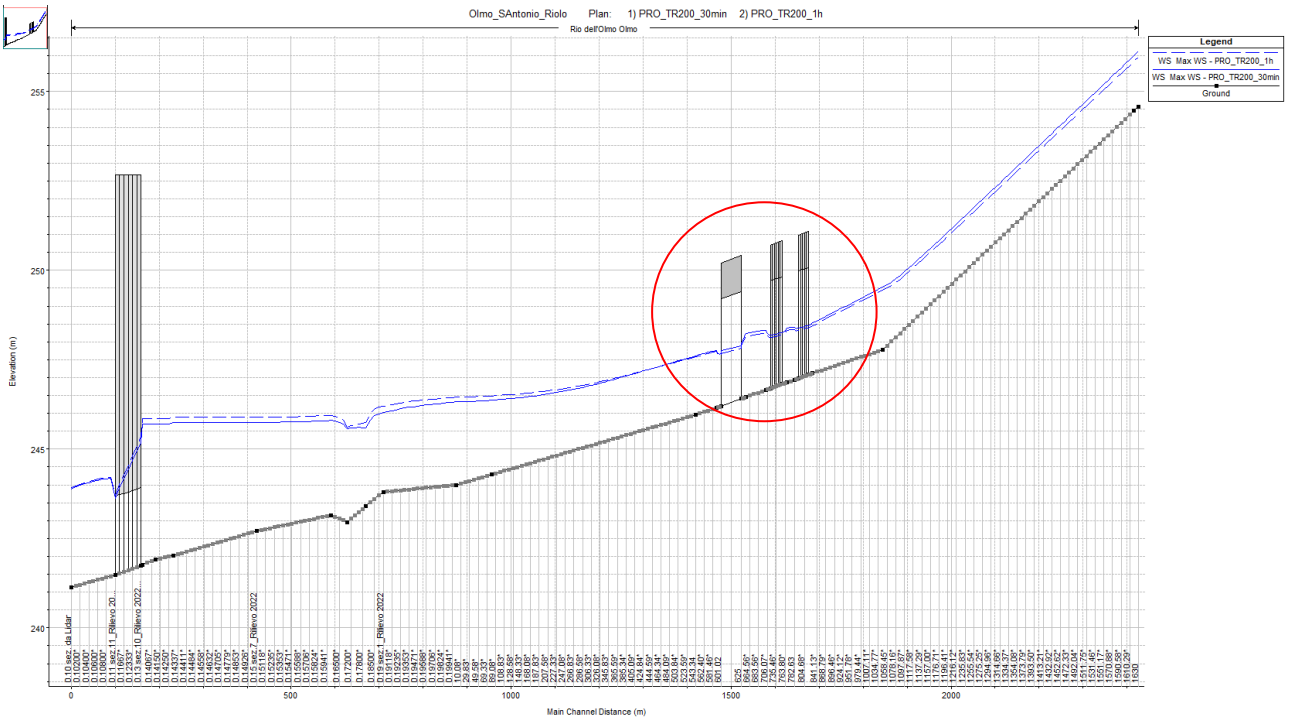


Figura 4-7: profilo longitudinale Rio dell'Olmo – TR200 – configurazione di progetto

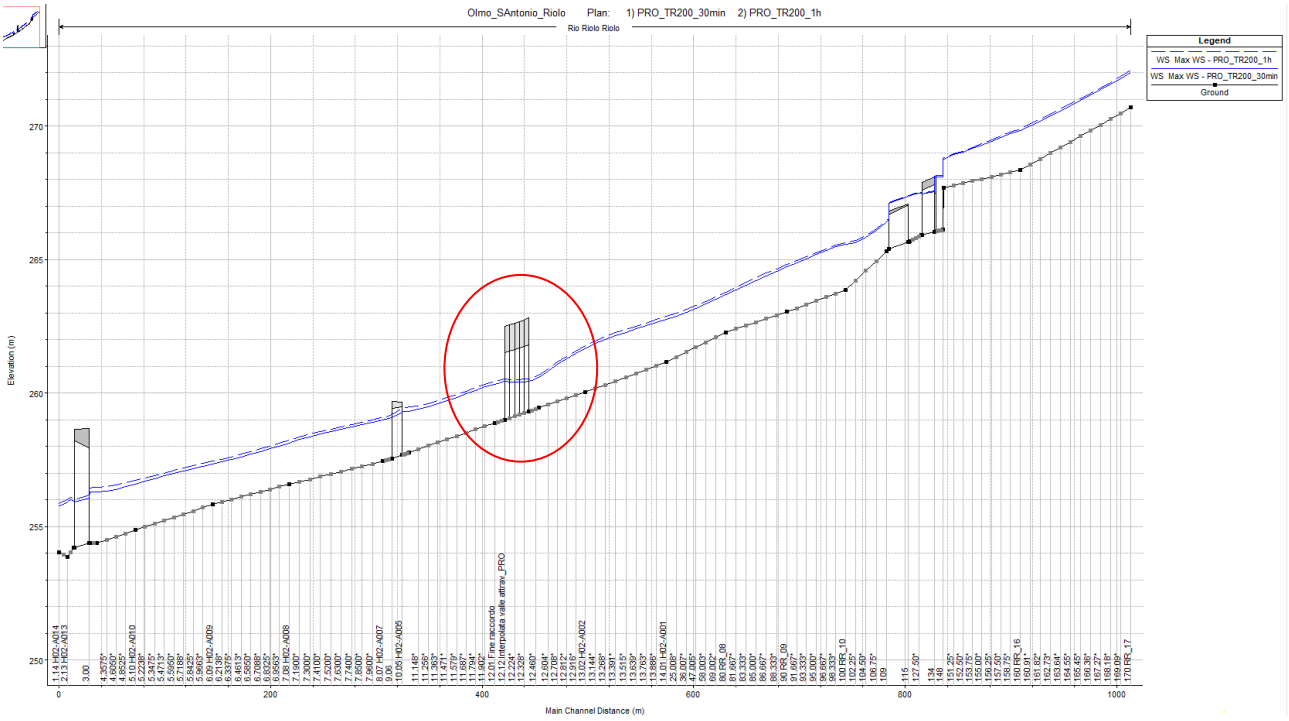


Figura 4-8: profilo longitudinale Rio di Riolo – TR200 – configurazione di progetto

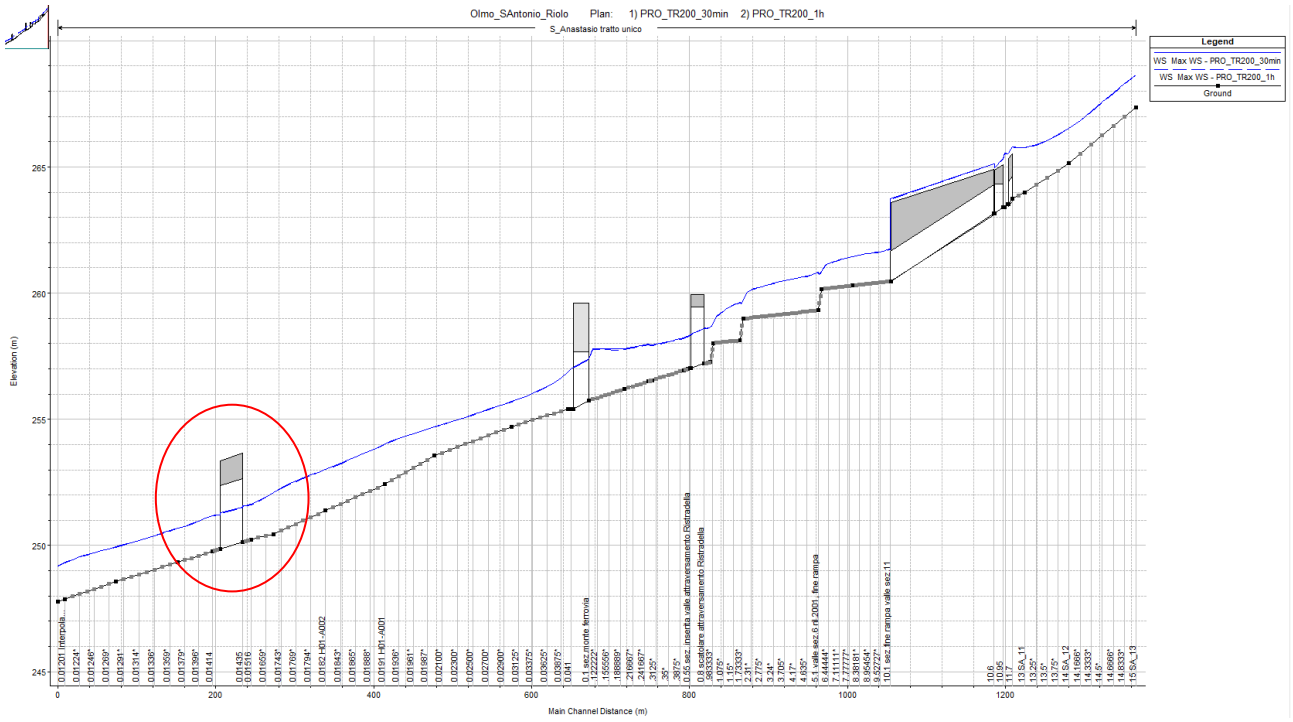


Figura 4-9: profilo longitudinale Rio di Sant'Antonio – TR200 – configurazione di progetto

4.2.2.3. Confronto aree allagabili stato attuale – stato di progetto e verifica di non incremento di rischio in altre aree

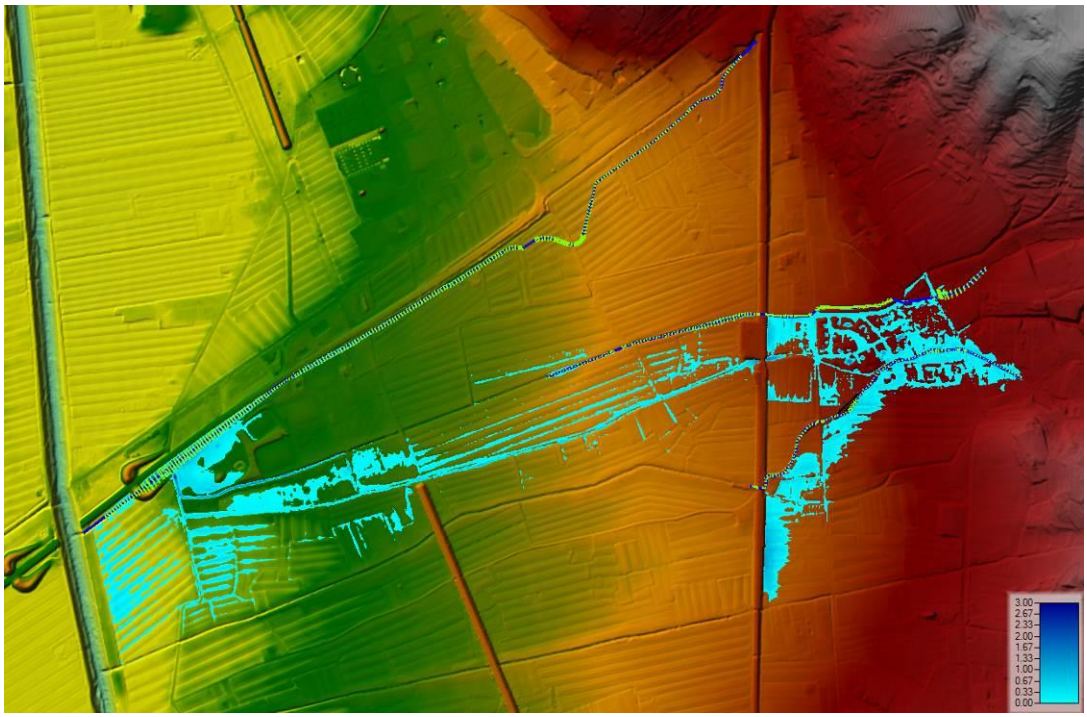


Figura 4-10: inviluppo aree allagabili TR200 – stato di progetto

Per la consultazione delle aree allagabili allo stato attuale, da confrontare con i risultati ottenuti nella configurazione di progetto, si rimanda al PGRA oppure alla cartografia di Piano Strutturale e di Piano Operativo vigenti del Comune di Arezzo.

4.2.2.4. Verifica rispetto franco idraulico minimo in corrispondenza degli attraversamenti di progetto

Tabella 4-2: verifica rispetto franco idraulico minimo in corrispondenza degli attraversamenti di progetto

Corso d'acqua	Tombino / sez Hec-Ras	Dimensioni B (m)	Dimensioni H (m)	Quota intradosso (m s.l.m.)	Tirante TR200 (m s.l.m.)	Franco (m)	Franco min richiesto (m)
Riolo	sez. 12.38- 12.12	4	2.5	261.8	260.53	1.27	0.83
Olmo	sez-813.40-791.60	4.5	3	250.08	248.46	1.62	1.00
Olmo	sez. 757.82-713.10	4.5	3	249.82	248.26	1.56	1.00
Olmo	625	4.5	3	249.41	247.95	1.46	1.00
S. Antonio	0.01435	4	2.5	252.65	251.57	1.08	0.83

4.2.3. Modello idraulico "RIO DELLE QUERCE – FOSSO AV 43922"

4.2.3.1. Descrizione, scabrezze, condizioni al contorno e durata critica

I tratti dei corsi d'acqua modellati sono:

- **Rio delle Querce:** dalla sezione posta circa 350 m a monte dell'attraversamento della linea ferroviaria Firenze-Roma lungo il confine Nord dell'area industriale in località San Zeno, alla sezione posta circa 130 m a valle della Strada Comunale di San Zeno, per una lunghezza complessiva di circa 600 m.
- **Fosso AV 43922:** denominato "affluente", dalla sezione posta circa in località San Zeno circa 80 m a monte del sottopassaggio della linea Ferroviaria Firenze- Roma, fino alla confluenza con il Rio delle Querce, per una lunghezza complessiva di circa 160 m.

Per quanto riguarda le scabrezze medie attribuibili ai corsi d'acqua sulla base dello stato dei luoghi e coerentemente ai normali valori proposti in letteratura[3], si è assunto, con riferimento al valore del coefficiente *n* di Manning:

- Querce: $n = 0.03 \div 0.04$ $m^{-1/3}s$
- Fosso AV 43922: $n = 0.03 \div 0.04$ $m^{-1/3}s$

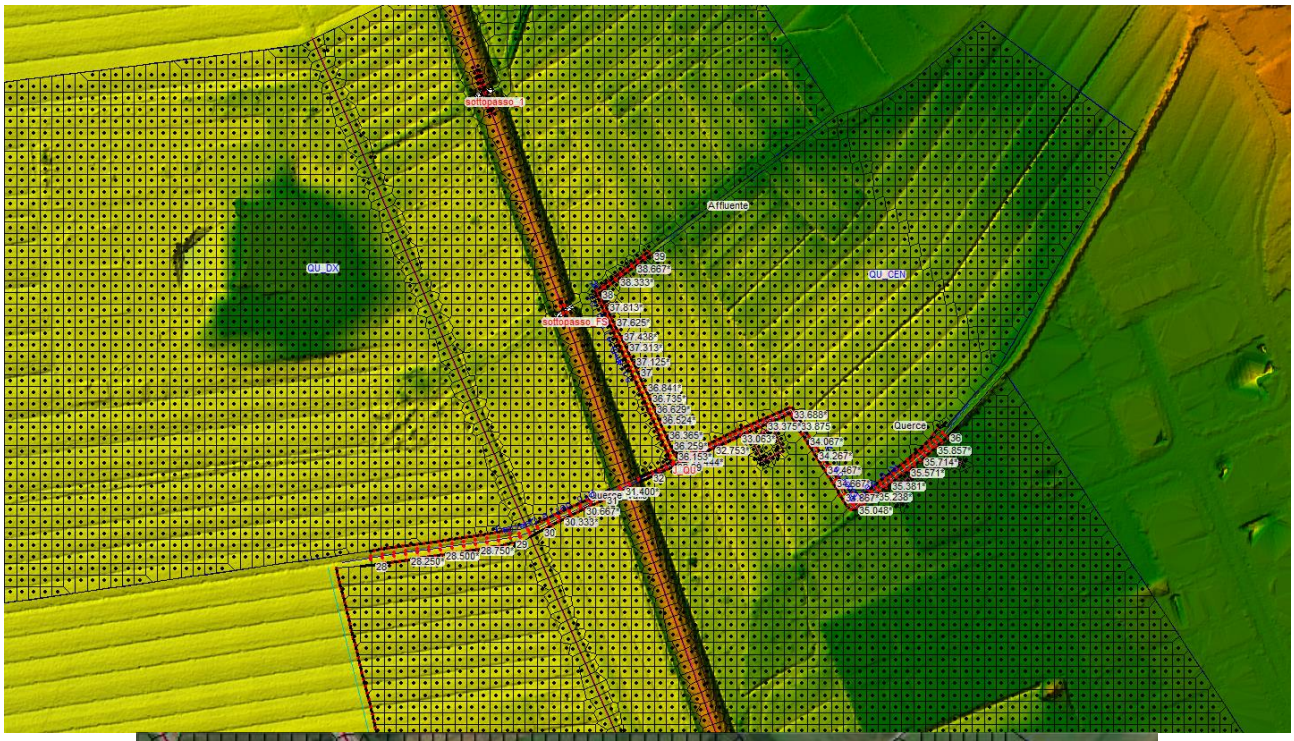
Per quanto riguarda la scabrezza extra-alveo adottata nella modellazione idraulica bidimensionale del cosiddetto "*overland flow*", si è fatto riferimento alla tabella di Figura 4-2 tratta dalla letteratura di settore: il valore del coefficiente *n* di Manning assunto è pari a 0.06 $m^{-1/3}s$.

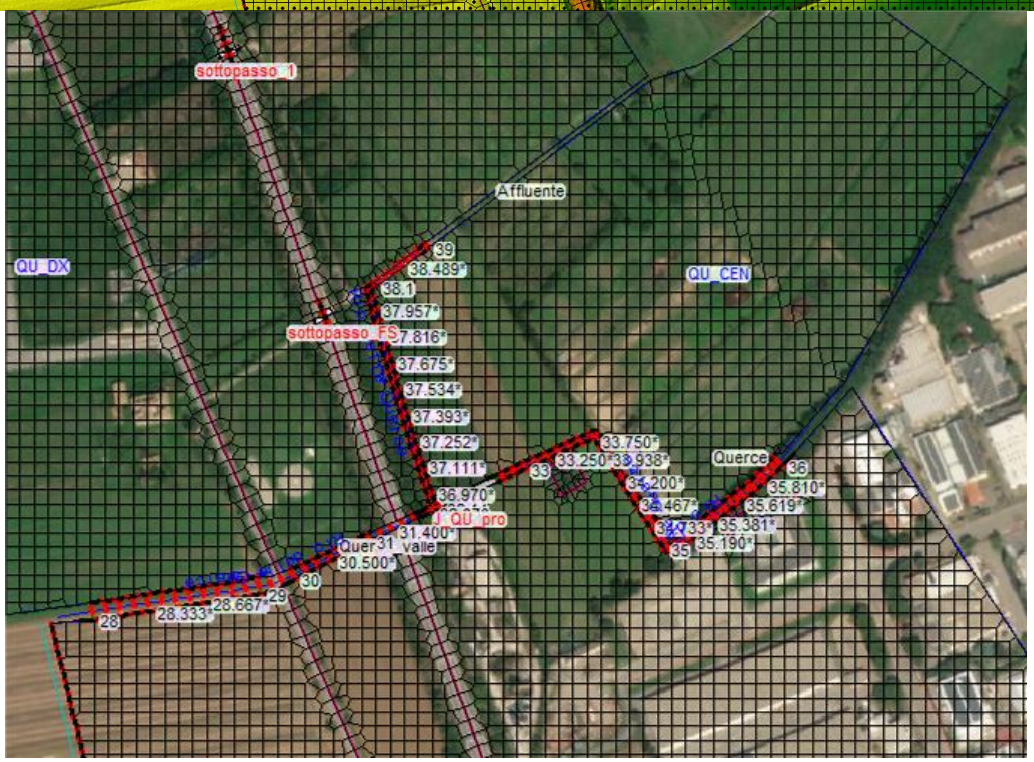
Le condizioni al contorno di monte sono costituite dagli idrogrammi desunti dall'analisi idrologica (vedi elaborato T00 ID 00 IDR RE 01). Come condizione al contorno di valle è stata assunta l'altezza di moto uniforme.

[3] *Manuale di Ingegneria Civile - Volume I .Ed.Zanichellli/Esac.*

La durata critica del Rio delle Querce è pari a 30 min.

4.2.3.2. Planimetrie e profili modello idraulico





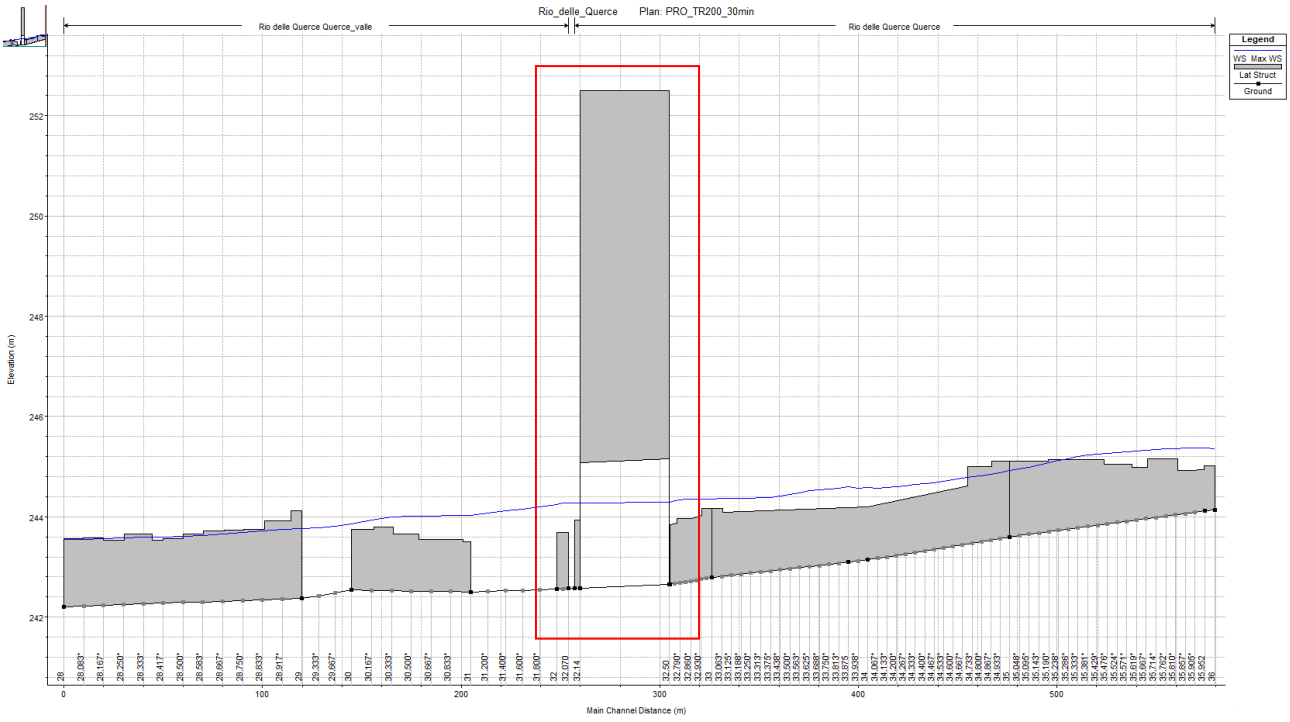


Figura 4-11: profilo longitudinale Rio delle Querce – TR200 – configurazione di progetto

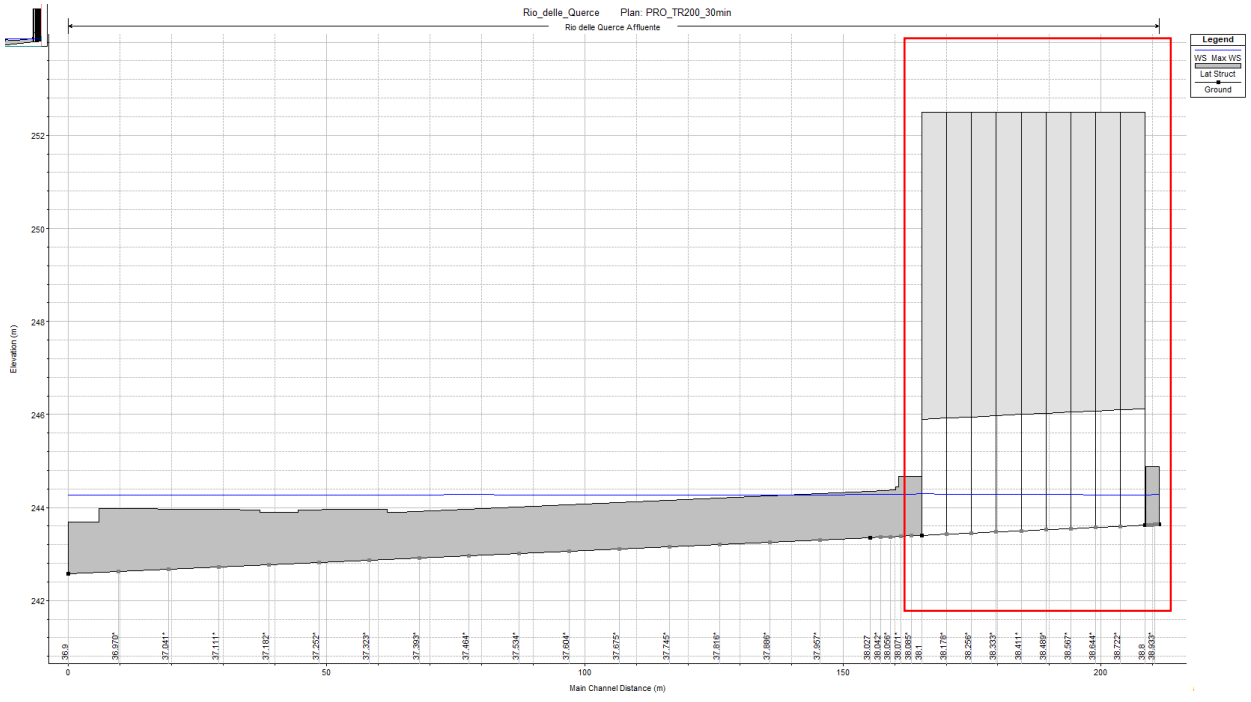


Figura 4-12: profilo longitudinale fosso AV 43922 – TR200 – configurazione di progetto

4.2.3.3. Confronto aree allagabili stato attuale – stato di progetto e verifica di non incremento di rischio in altre aree

Il confronto tra la Figura 4-13 e Figura 4-14 evidenzia che le aree allagabili per TR = 200 anni subiscono, tra stato attuale e progetto, locali variazioni, sia in riduzione che in aumento, che riguardano tuttavia aree agricole e che pertanto non danno luogo ad incrementi di rischio idraulico.

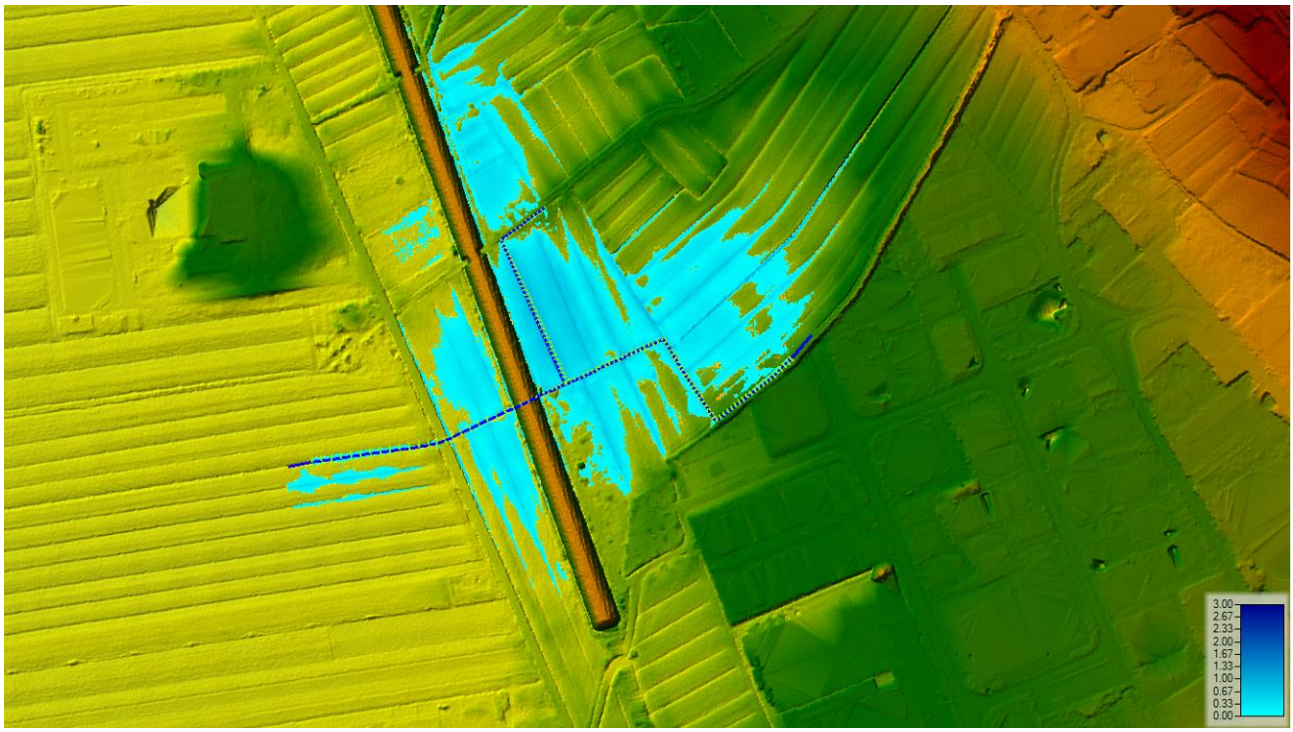


Figura 4-13: inviluppo aree allagabili TR200 – stato attuale

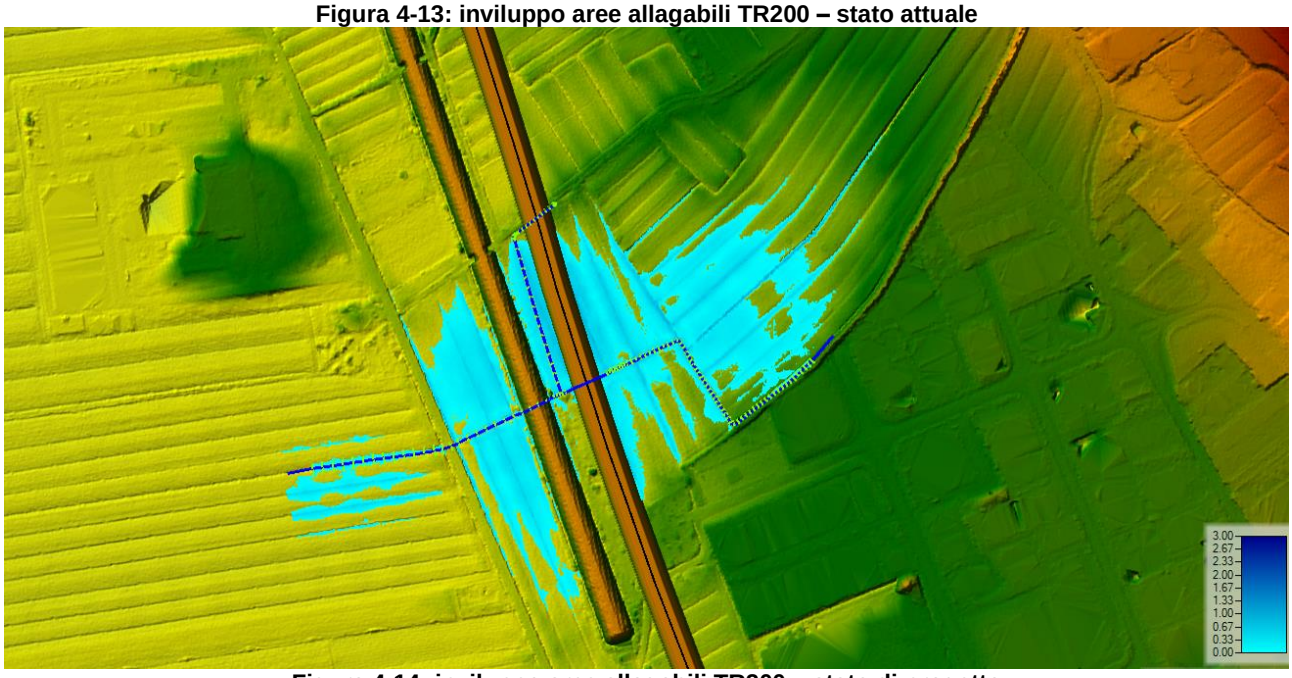


Figura 4-14: inviluppo aree allagabili TR200 – stato di progetto

4.2.3.4. Verifica rispetto franco idraulico minimo in corrispondenza degli attraversamenti di progetto

Tabella 4-3: verifica rispetto franco idraulico minimo in corrispondenza degli attraversamenti di progetto

Corso d'acqua	Tombino / sez Hec-Ras	Dimensioni B (m)	Dimensioni H (m)	Quota intradosso (m s.l.m.)	Tirante TR200 (m s.l.m.)	Franco (m)	Franco min richiesto (m)
Querce	32.50	3.5	2.5	245.15	244.29	0.86	0.83
Fosso AV 43922	sez.38.8-38.1	3.5	2.5	246.12	244.27	1.85	0.83

4.2.4. Modello idraulico "TORRENTE LOTA - TORRENTE VINGONE (2) – FOSSO AV 20123"

4.2.4.1. Descrizione, scabrezze, condizioni al contorno e durata critica

I tratti dei corsi d'acqua modellati sono:

- **Torrente Lota**: dalla sezione posta circa 250 m a monte dell'attraversamento della linea ferroviaria Direttissima Firenze-Roma, alla sezione posta subito a monte dell'attraversamento del raccordo autostradale Arezzo-Battifolle in località Ponte a Chiani, per una lunghezza complessiva di circa 700 m.
- **Torrente Vingone (2):** dalla sezione posta in località Ponte alla Nave, alla sezione posta in corrispondenza dell'immissione nel Torrente Lota, per una lunghezza complessiva di circa 700 m.
- **Fosso AV20123**: denominato "fosso 1", da località Il Prato all'immissione nel Torrente Lota, per una lunghezza complessiva di circa 400 m.

Per quanto riguarda le scabrezze medie attribuibili ai corsi d'acqua sulla base dello stato dei luoghi e coerentemente ai normali valori proposti in letteratura[4], si è assunto, con riferimento al valore del coefficiente *n* di Manning:

- Lota: $n = 0.03 \div 0.045$ $m^{-1/3}$ s
- Vingone (2): $n = 0.03 \div 0.045$ $m^{-1/3}$ s
- Fosso AV20123: $n = 0.03 \div 0.045$ $m^{-1/3}$ s

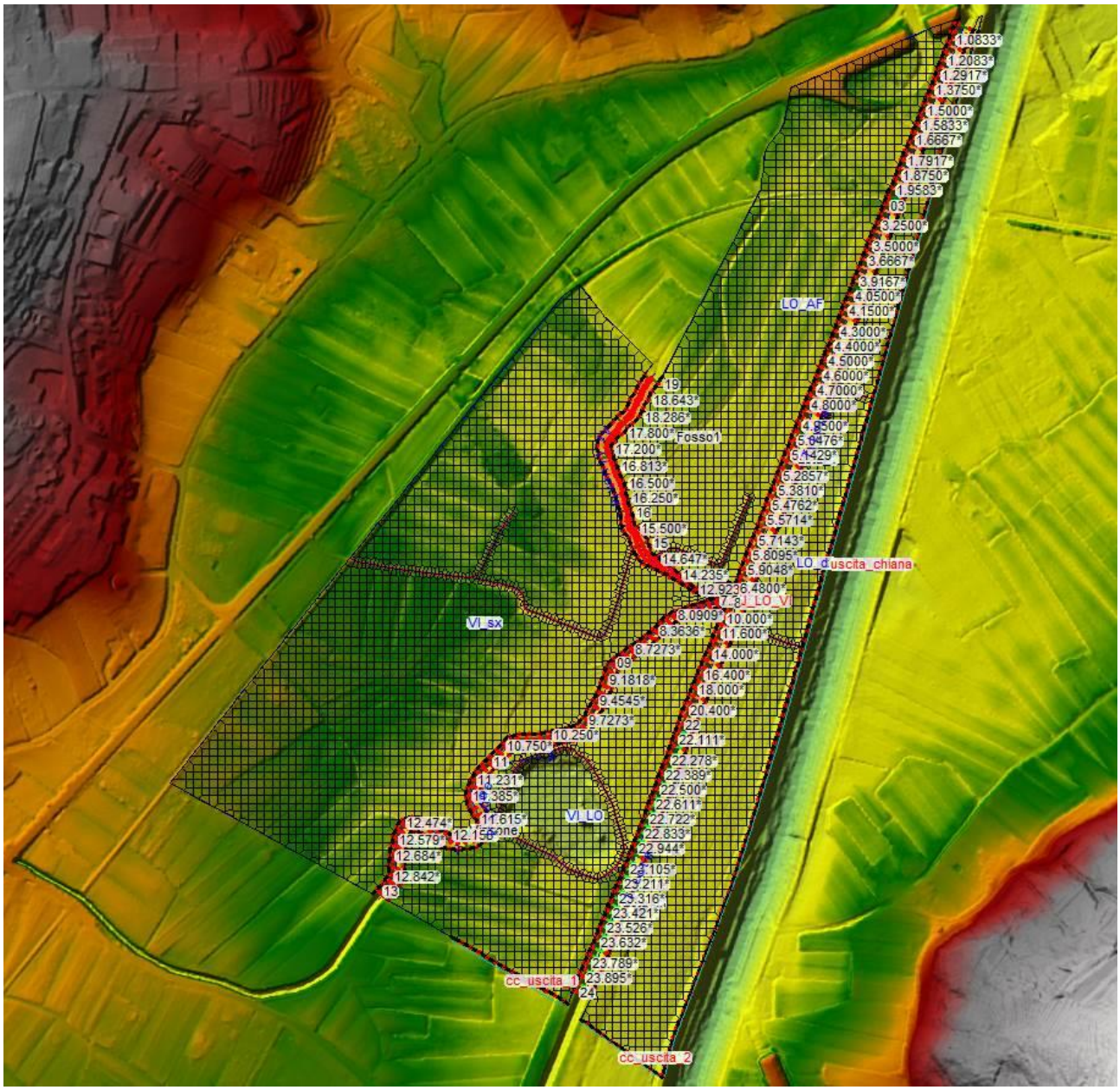
Per quanto riguarda la scabrezza extra-alveo adottata nella modellazione idraulica bidimensionale del cosiddetto "*overland flow*", si è fatto riferimento alla tabella di Figura 4-2 tratta dalla letteratura di settore: il valore del coefficiente *n* di Manning assunto è pari a 0.10 $m^{-1/3}$s.

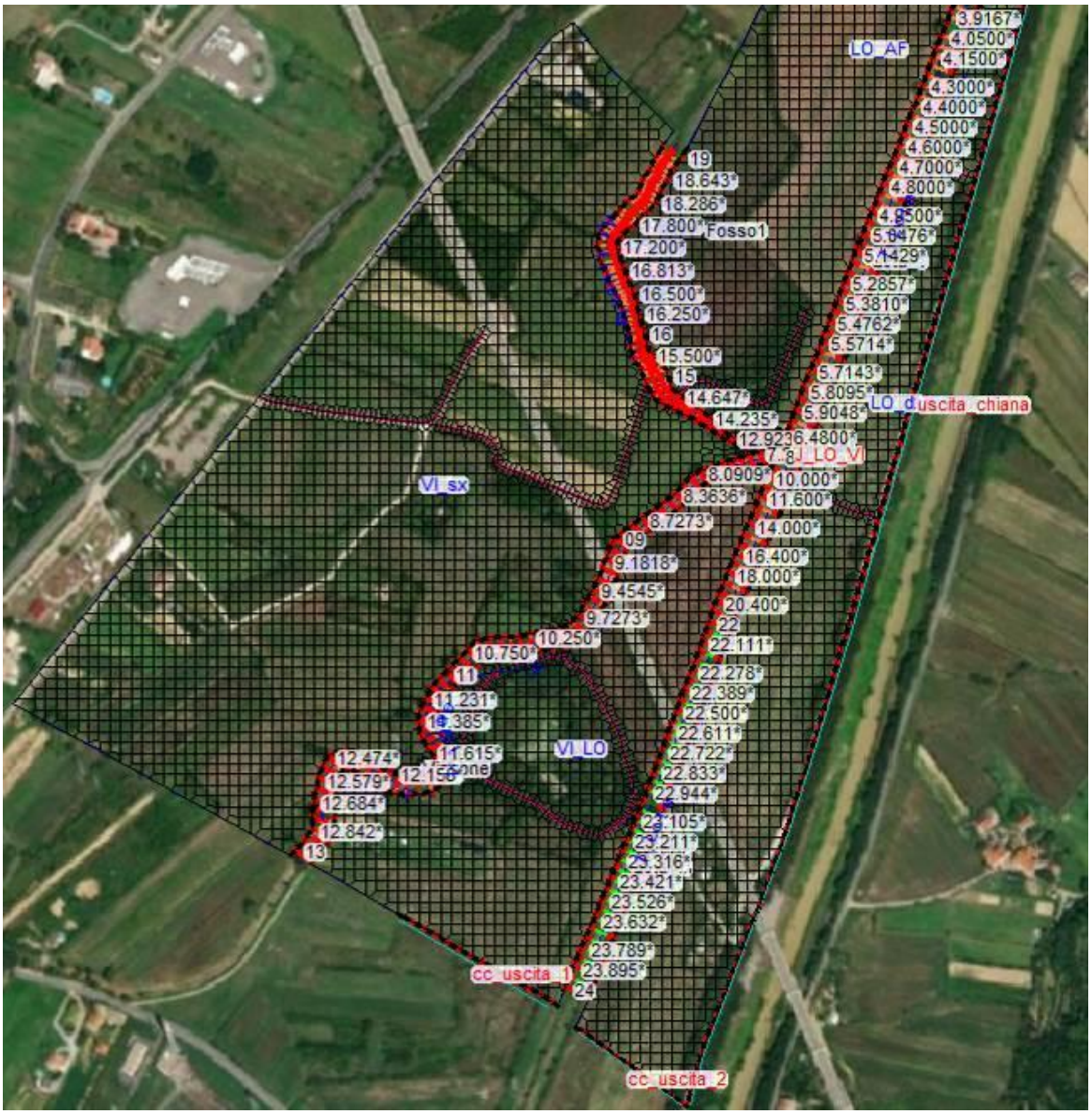
[4] *Manuale di Ingegneria Civile - Volume I .Ed.Zanichellli/Esac.*

Le condizioni al contorno di monte sono costituite dagli idrogrammi desunti dall'analisi idrologica (vedi elaborato T00 ID 00 IDR RE 01). Come condizione al contorno di valle è stata assunta l'altezza di moto uniforme.

La durata critica del sistema è pari a 1 ora.

4.2.4.2. Planimetrie e profili modello idraulico





Nelle figure che seguono, contenenti i profili longitudinali dei corsi d'acqua investigati, è indicata l'ubicazione planimetrica del viadotto di progetto. Detto viadotto non è stato inserito nel modello numerico come impalcato ma solo come pile e spalle del DTM associato alla configurazione geometrica di progetto stanti le quote dell'impalcato stesso, molto superiori a quelle del piano campagna (vedi Tabella 4-4).

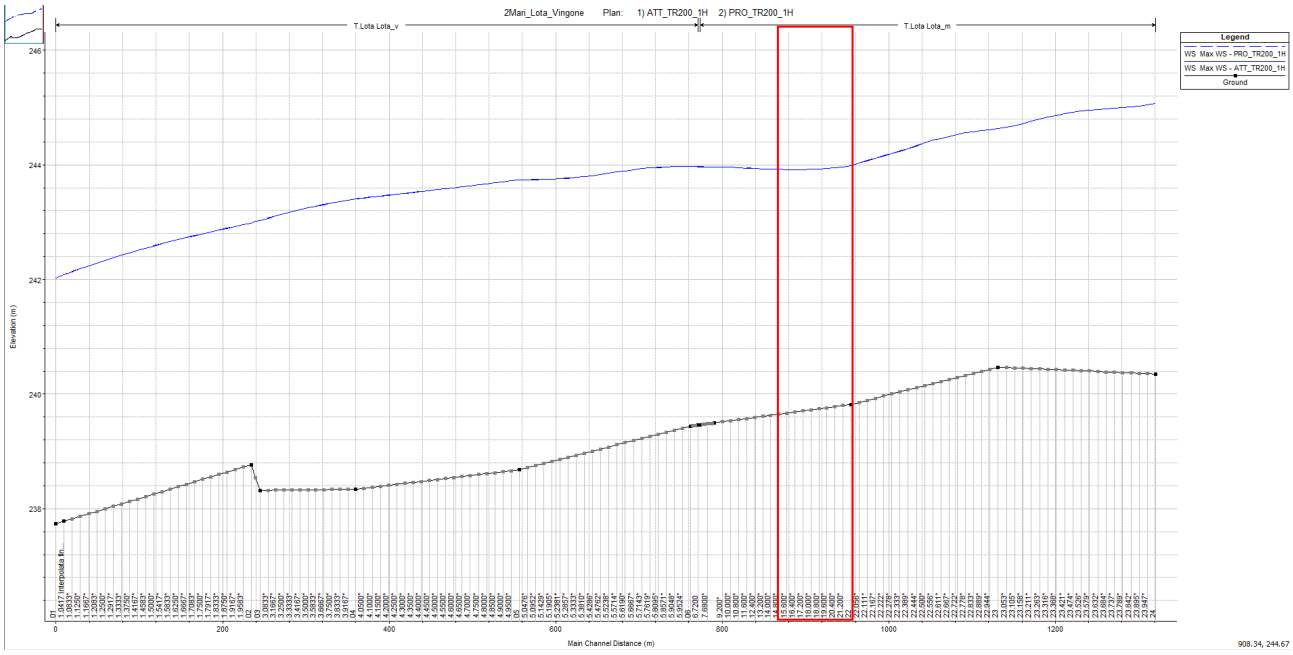


Figura 4-15: profilo longitudinale T. Lota – TR200 – attuale vs progetto

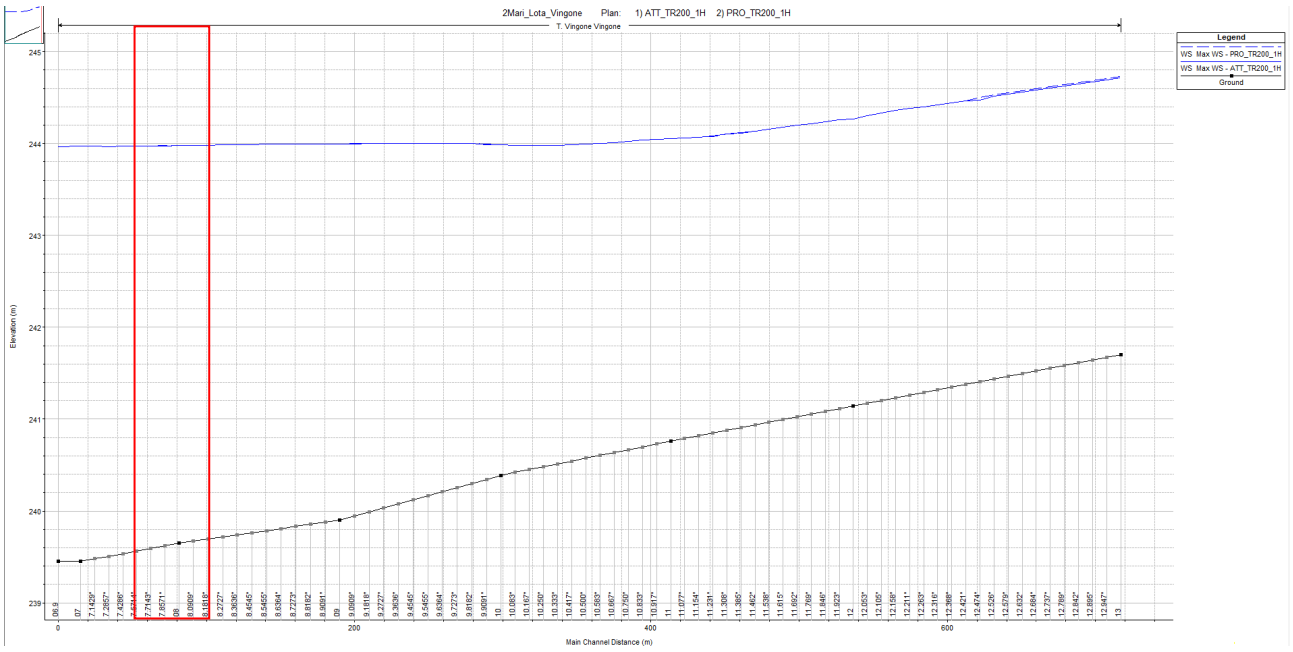


Figura 4-16: profilo longitudinale T. Vingone (2) - TR200 - attuale vs progetto

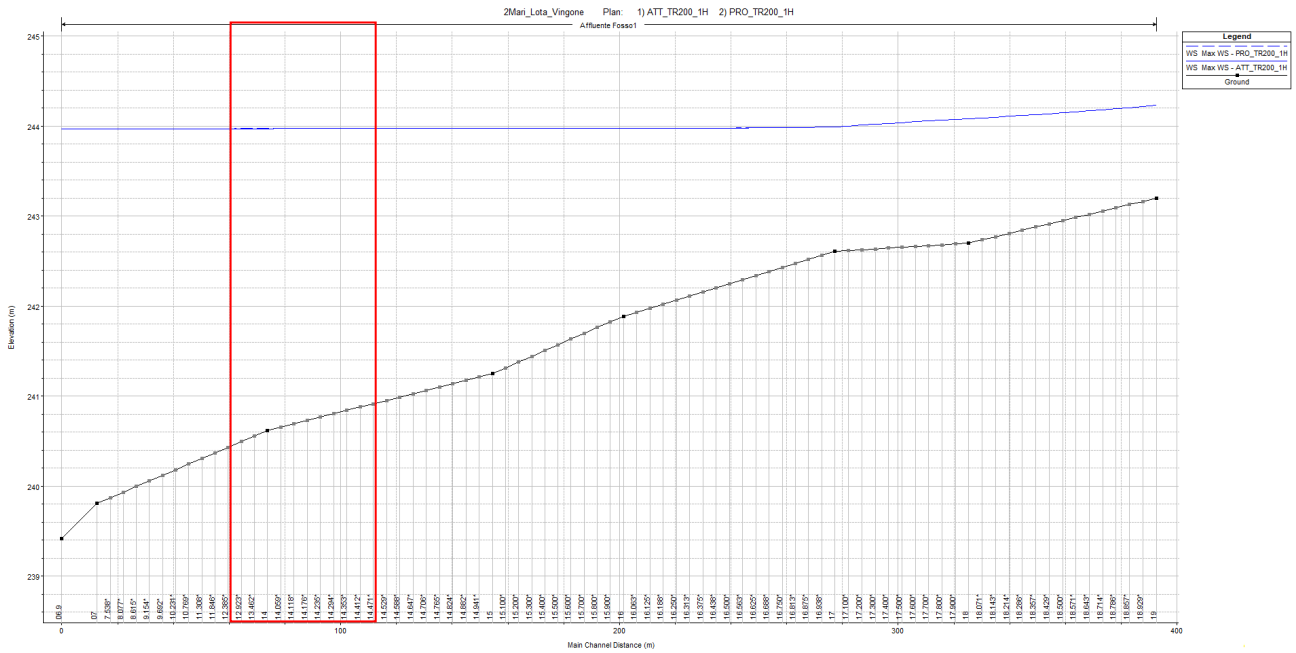


Figura 4-17: profilo longitudinale F.so AV20123 – TR200 – attuale vs progetto

4.2.4.3. Confronto aree allagabili stato attuale – stato di progetto e verifica di non incremento di rischio in altre aree

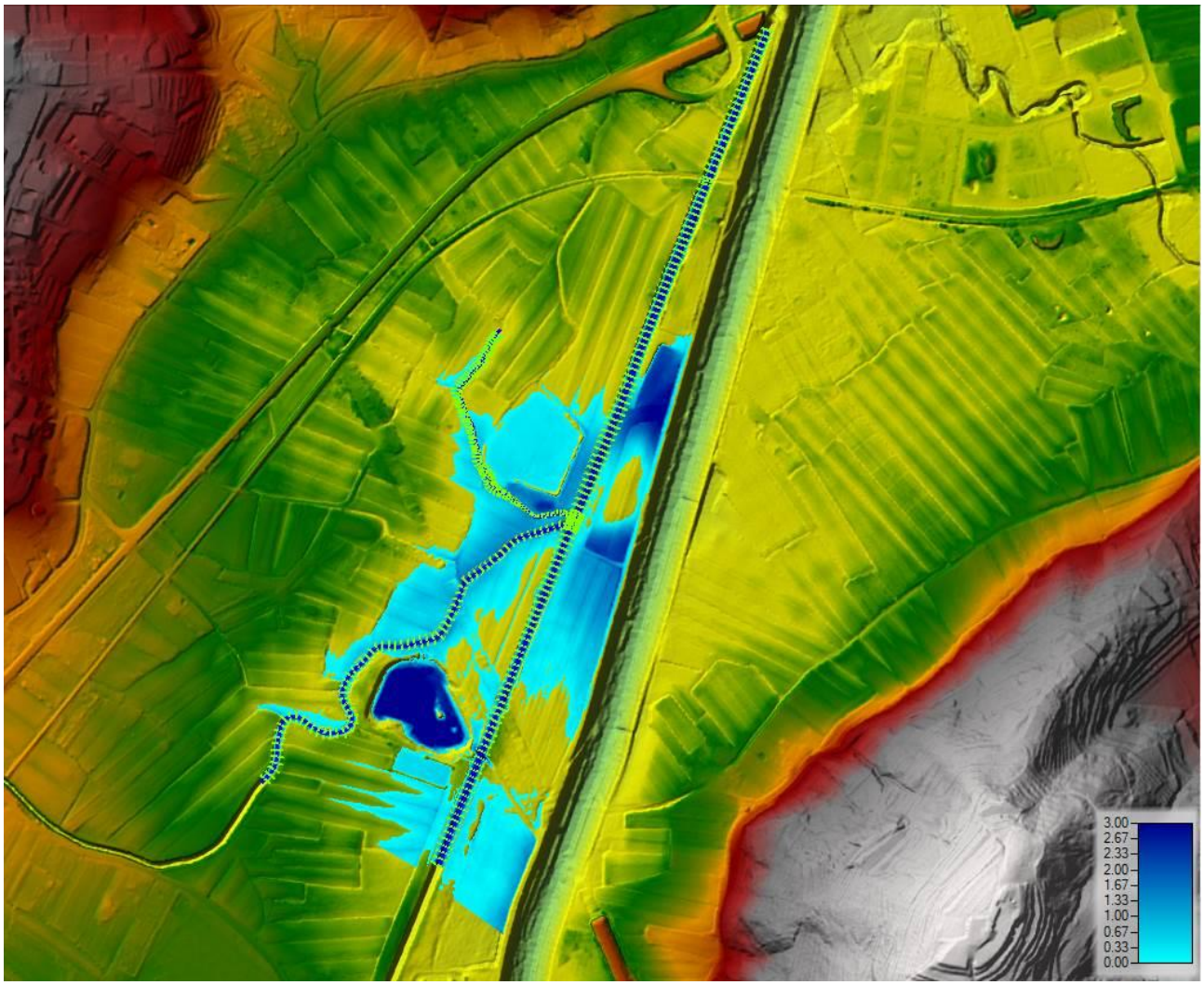


Figura 4-18: inviluppo aree allagabili TR200 – stato attuale

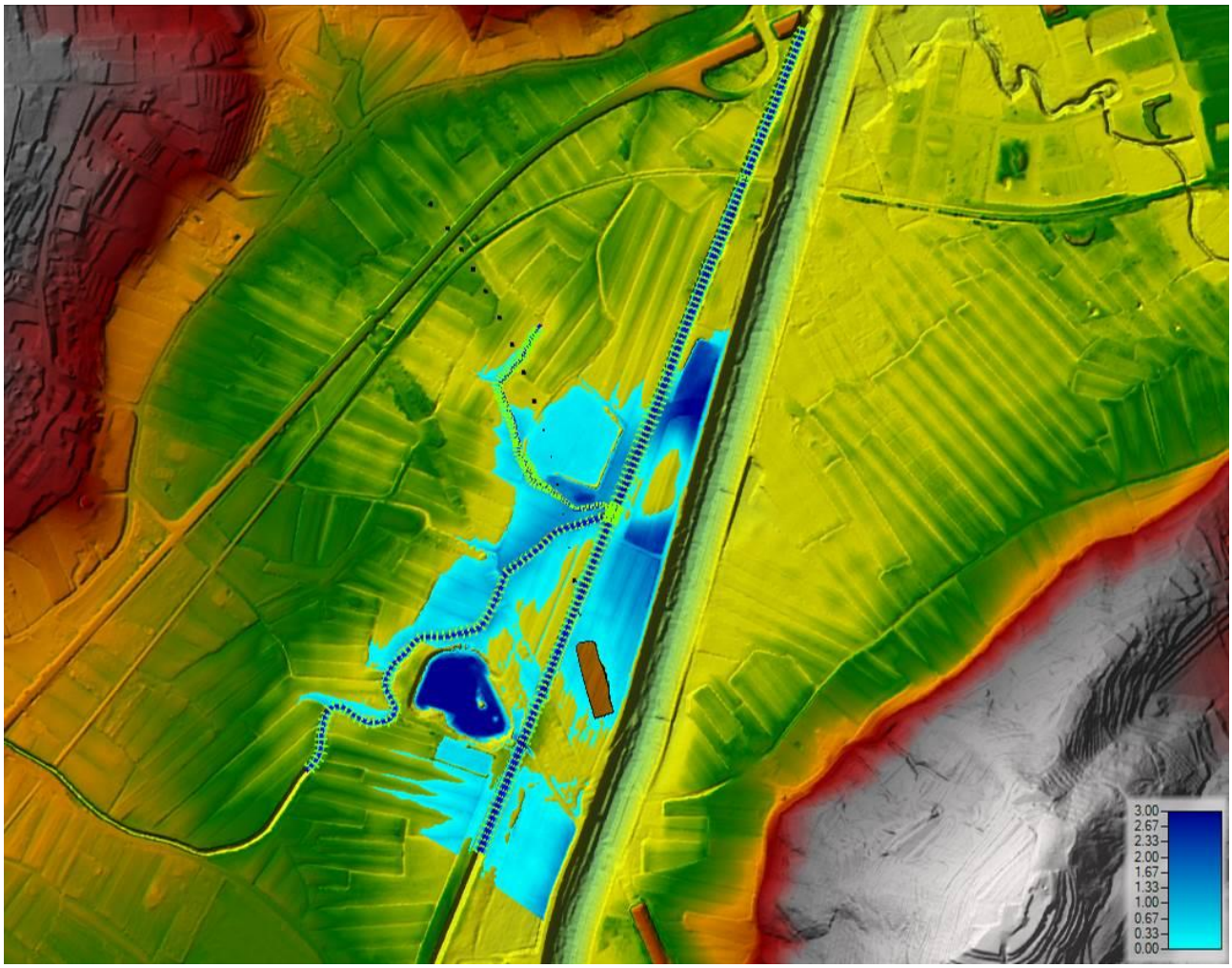


Figura 4-19: inviluppo aree allagabili TR200 – stato di progetto

4.2.4.4. Verifica rispetto franco idraulico minimo in corrispondenza degli attraversamenti di progetto

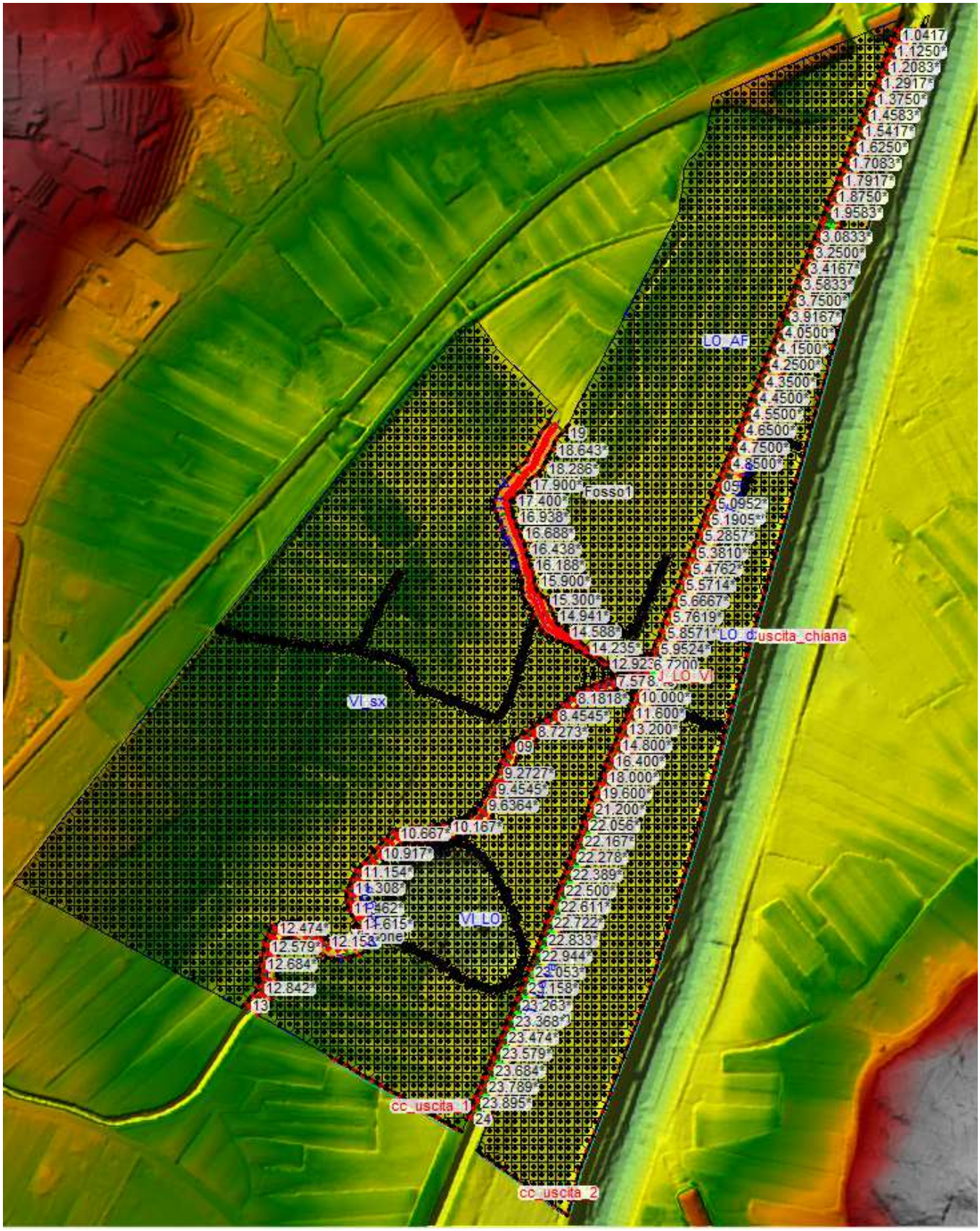
Tabella 4-4: verifica rispetto franco idraulico minimo in corrispondenza degli attraversamenti di progetto

Corso d'acqua	Tombino / sez Hec-Ras	dimensioni B (m)	dimensioni H (m)	Quota intradosso (m s.l.m.)	Tirante TR200 (m s.l.m.)	Franco (m)
Lota	**sez. 22**	viadotto		247.59	243.99	3.60
Vingone	**sez. 8.1818***	viadotto		248.36	243.98	4.38
Affluente_Fosso1	**sez.14.471***	viadotto		248.98	243.98	5.00

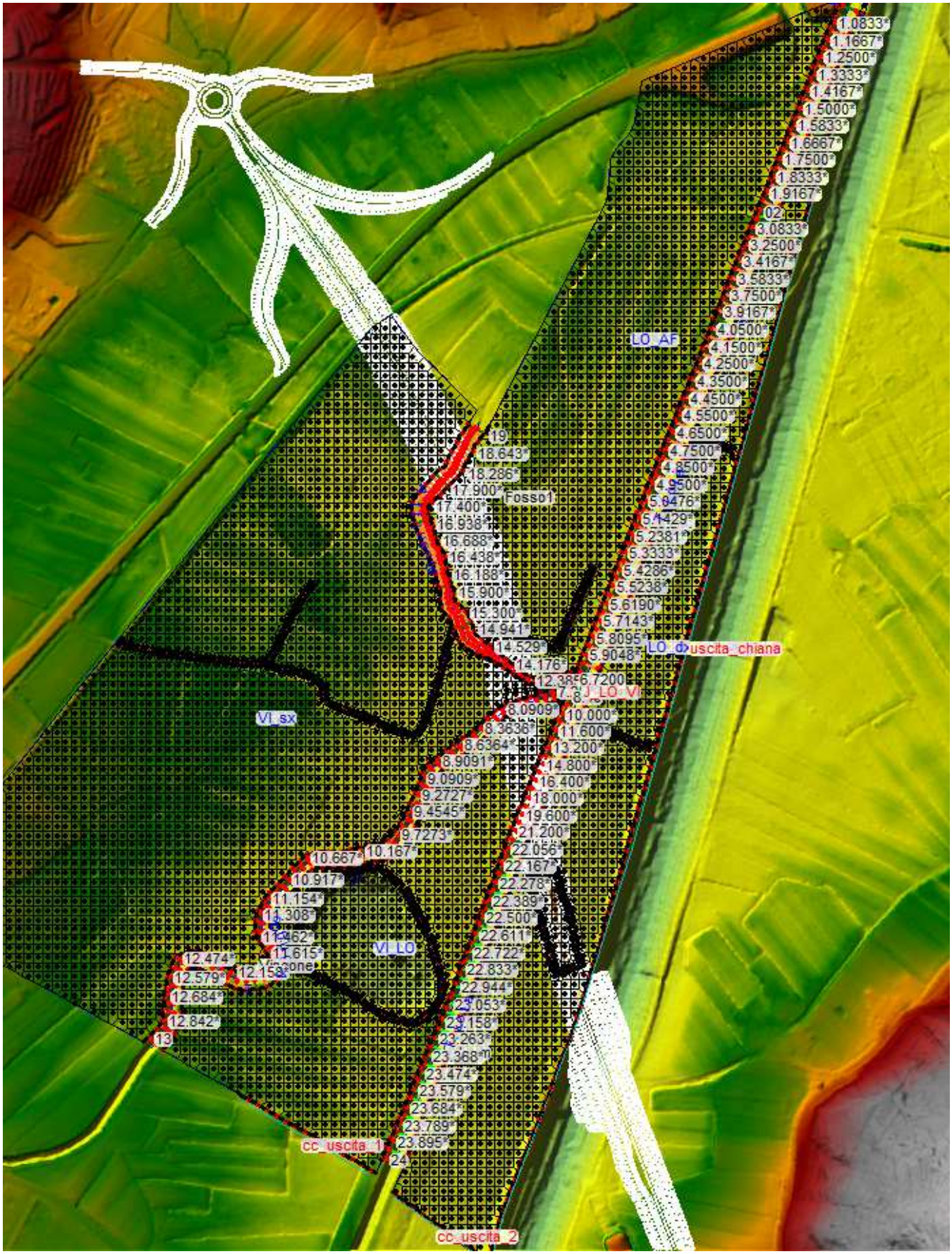
Appendice 1: Outputs grafici e numerici delle simulazioni 1D+2D effettuate in regime di moto vario con il software Hec-Ras

TORRENTE LOTA
TORRENTE VINGONE (2)
Fosso AV20123

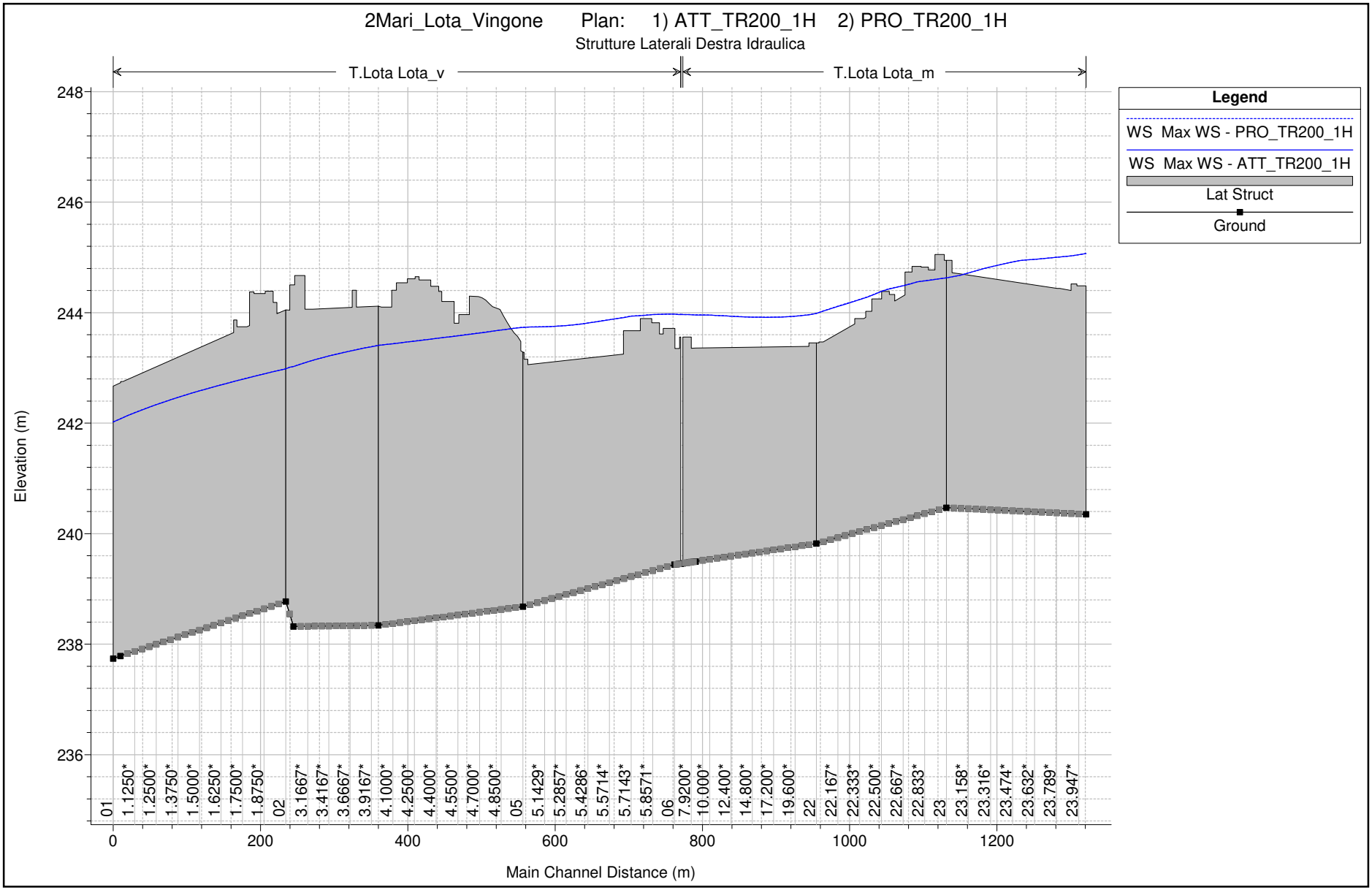
Planimetria Stato Attuale



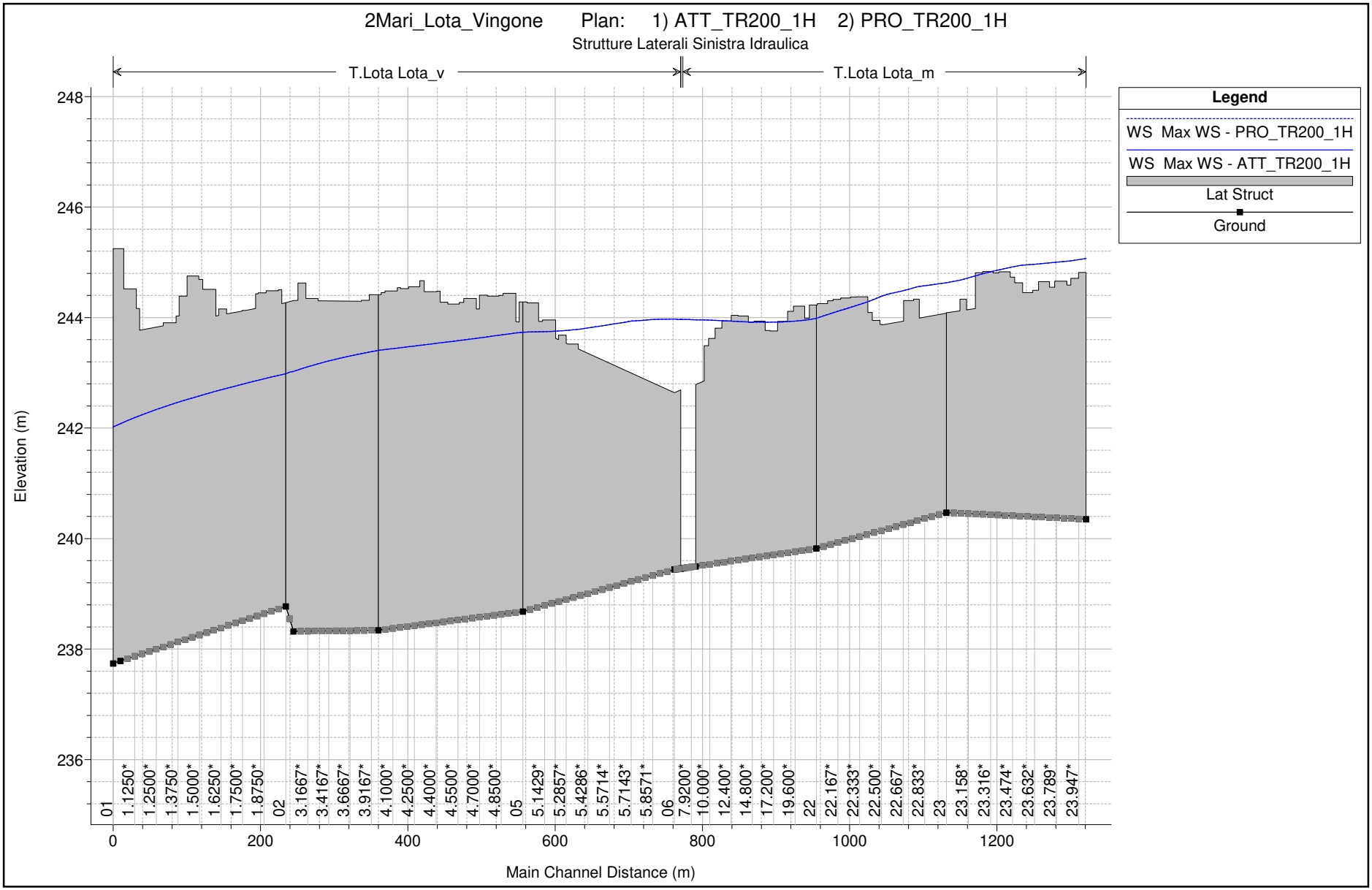
Planimetria Stato di Progetto



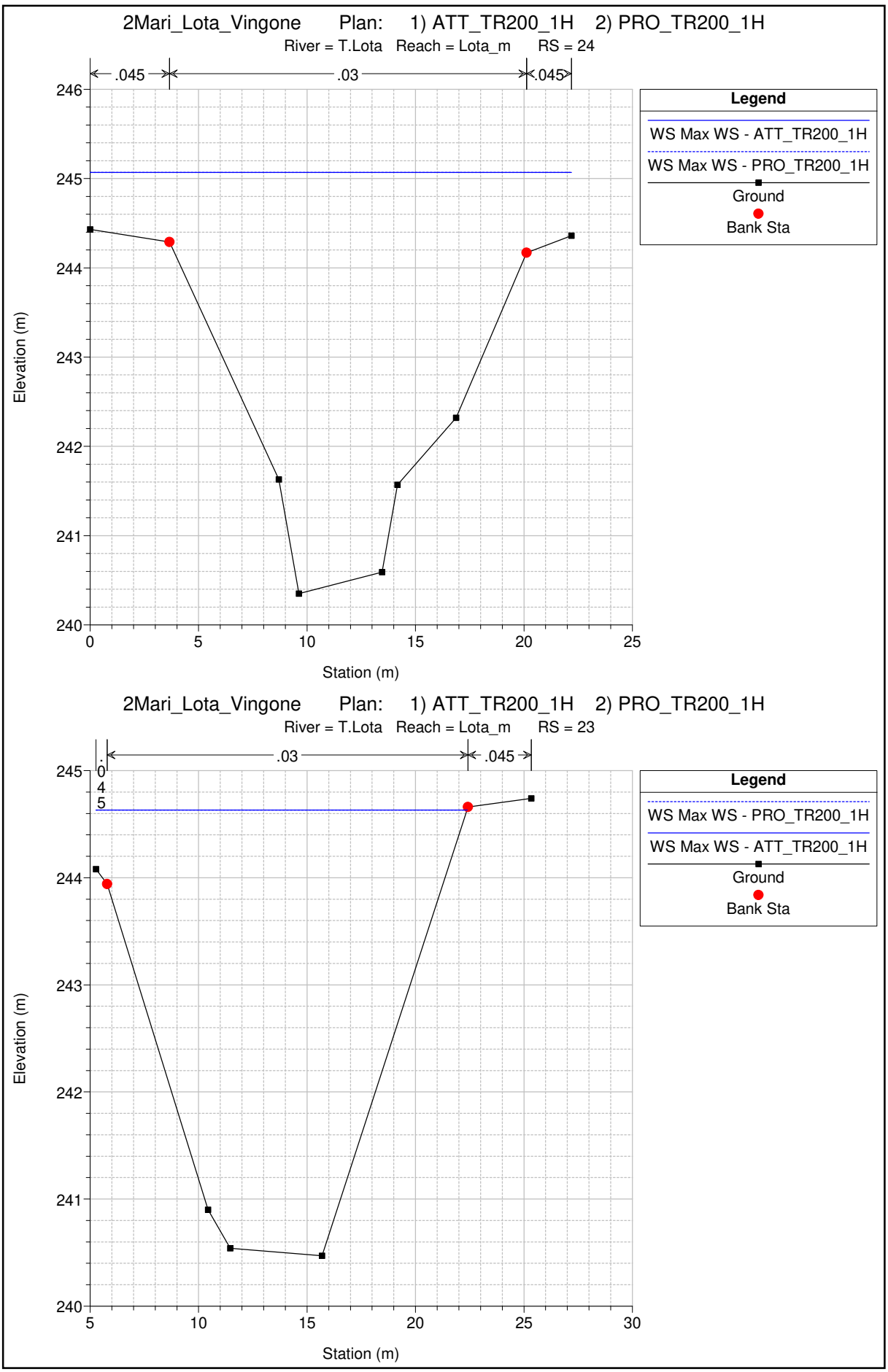
TORRENTE
LOTA

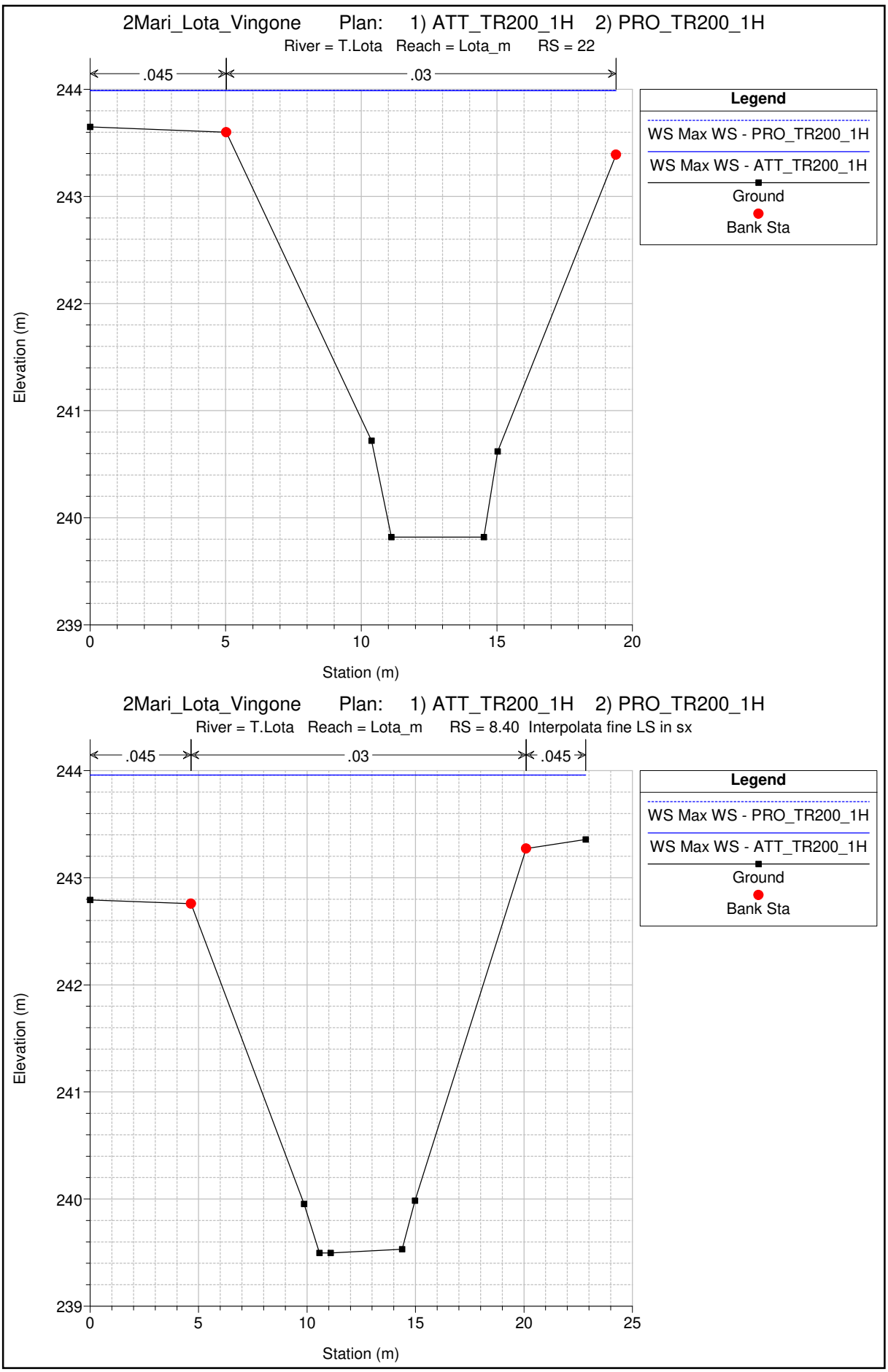


1 cm Horiz. = 75 m 1 cm Vert. = 1 m



1 cm Horiz. = 75 m 1 cm Vert. = 1 m


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T.Lota Reach = Lota_m RS = 24
.045
.03
.045
Legend
WS Max WS - ATT_TR200_1H
WS Max WS - PRO_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T.Lota Reach = Lota_m RS = 23
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)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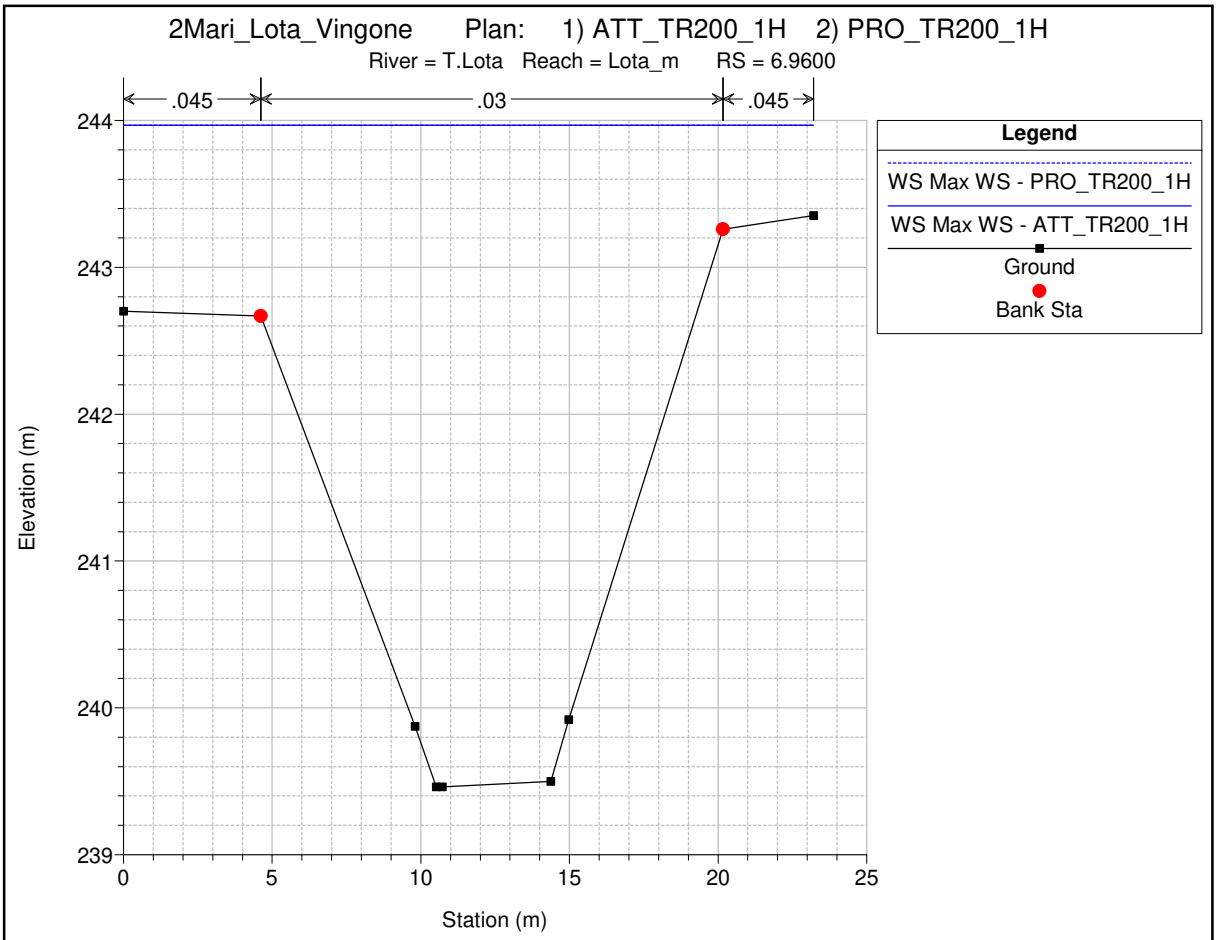
.045
.03
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T.Lota Reach = Lota_m RS = 8.40 Interpolata fine LS in sx
.045
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)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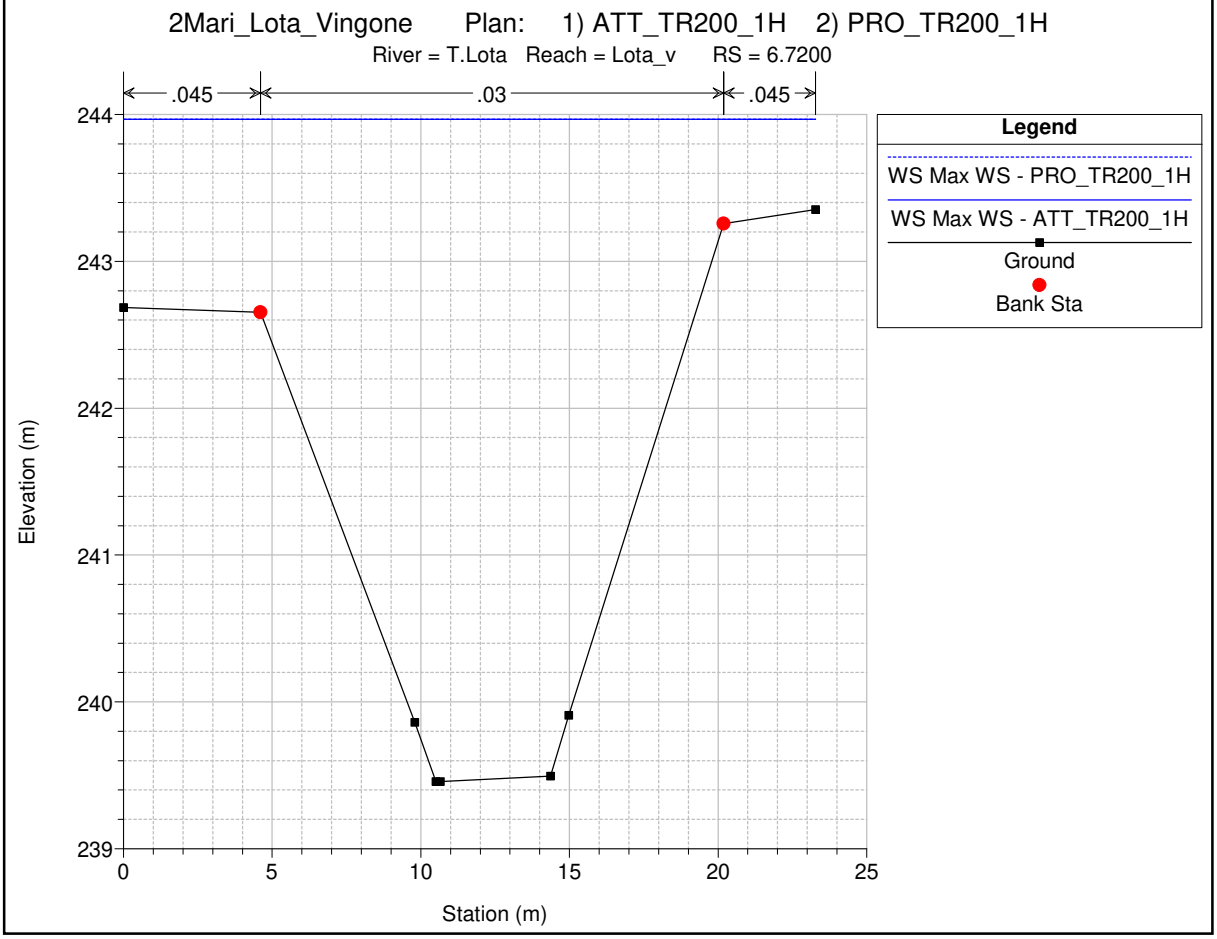
.045
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
244
243
242
241
240
239
0
5
10
15
20
25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.03
.045
Legend
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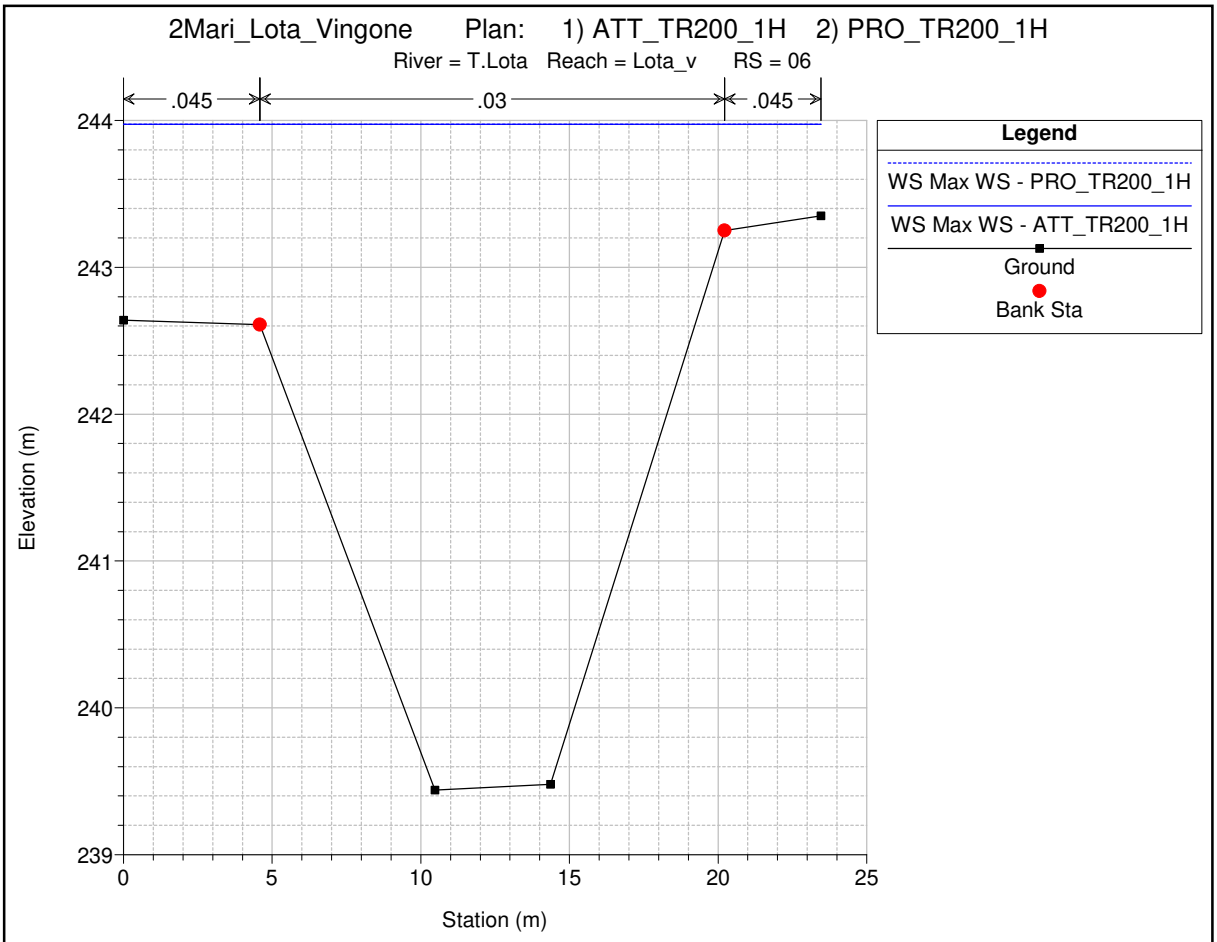
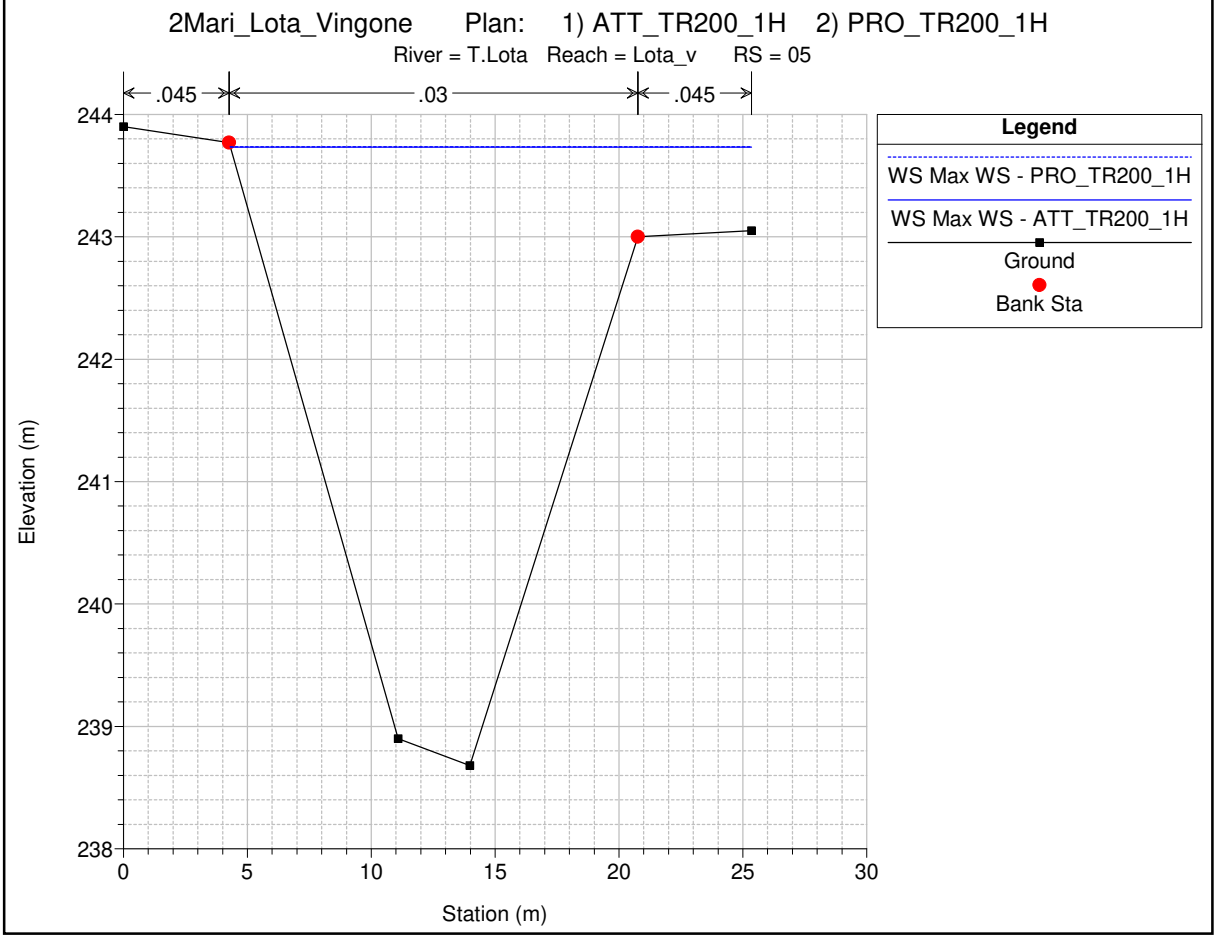
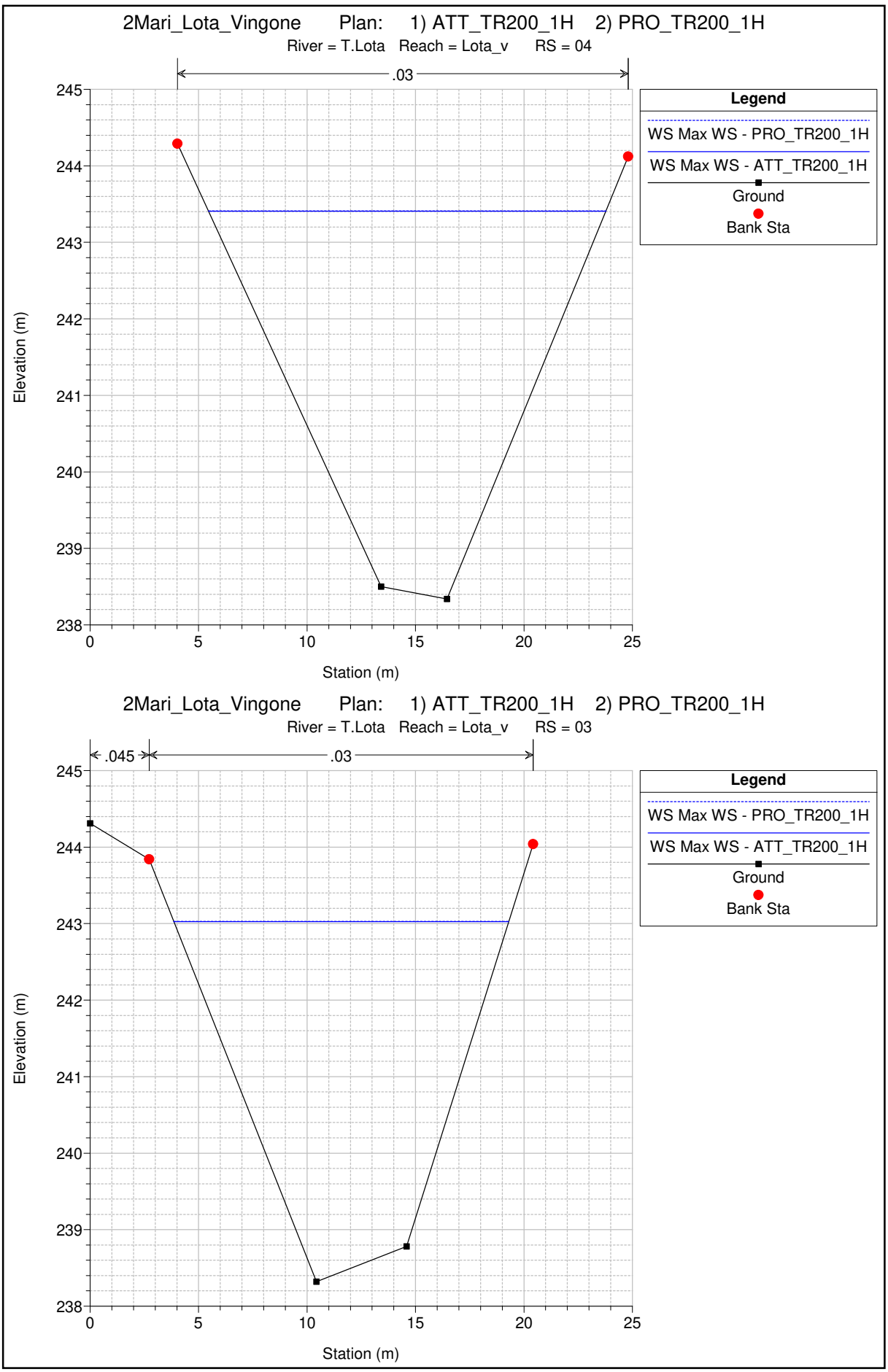
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
244
243
242
241
240
239
0
5
10
15
20
25


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T.Lota Reach = Lota_v RS = 06
.045
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
244
243
242
241
240
239
0
5
10
15
20
25


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T.Lota Reach = Lota_v RS = 05
.045
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
244
243
242
241
240
239
238
0
5
10
15
20
25
30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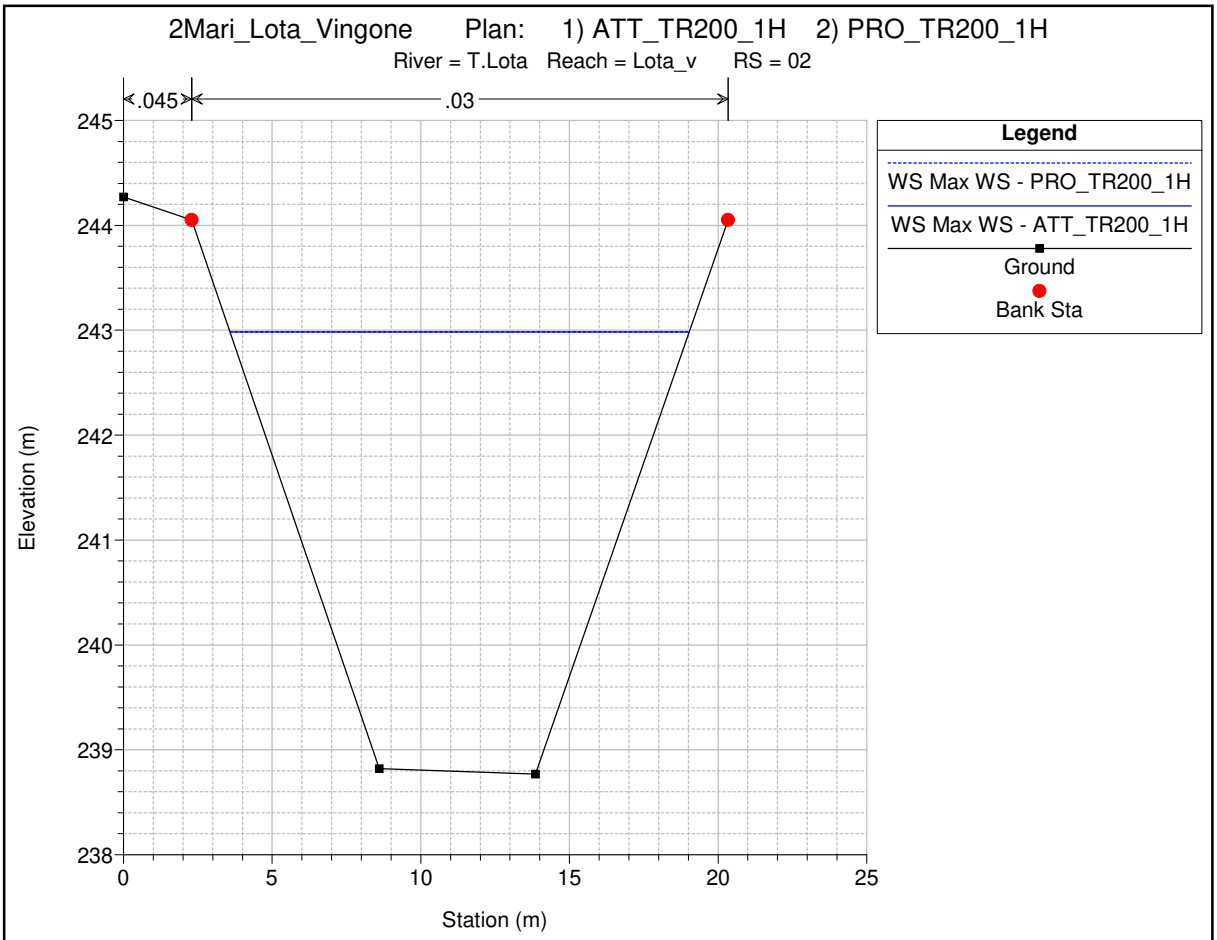
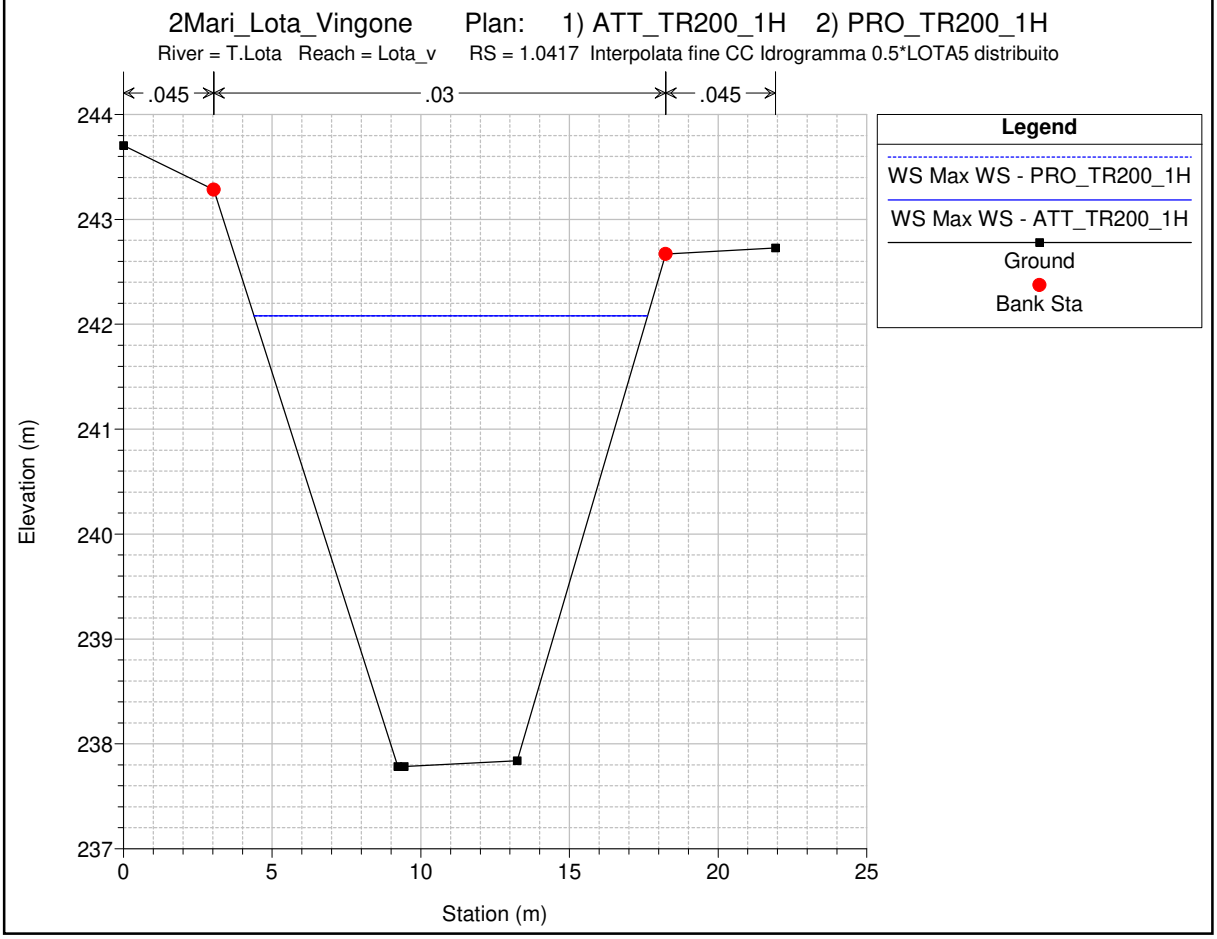
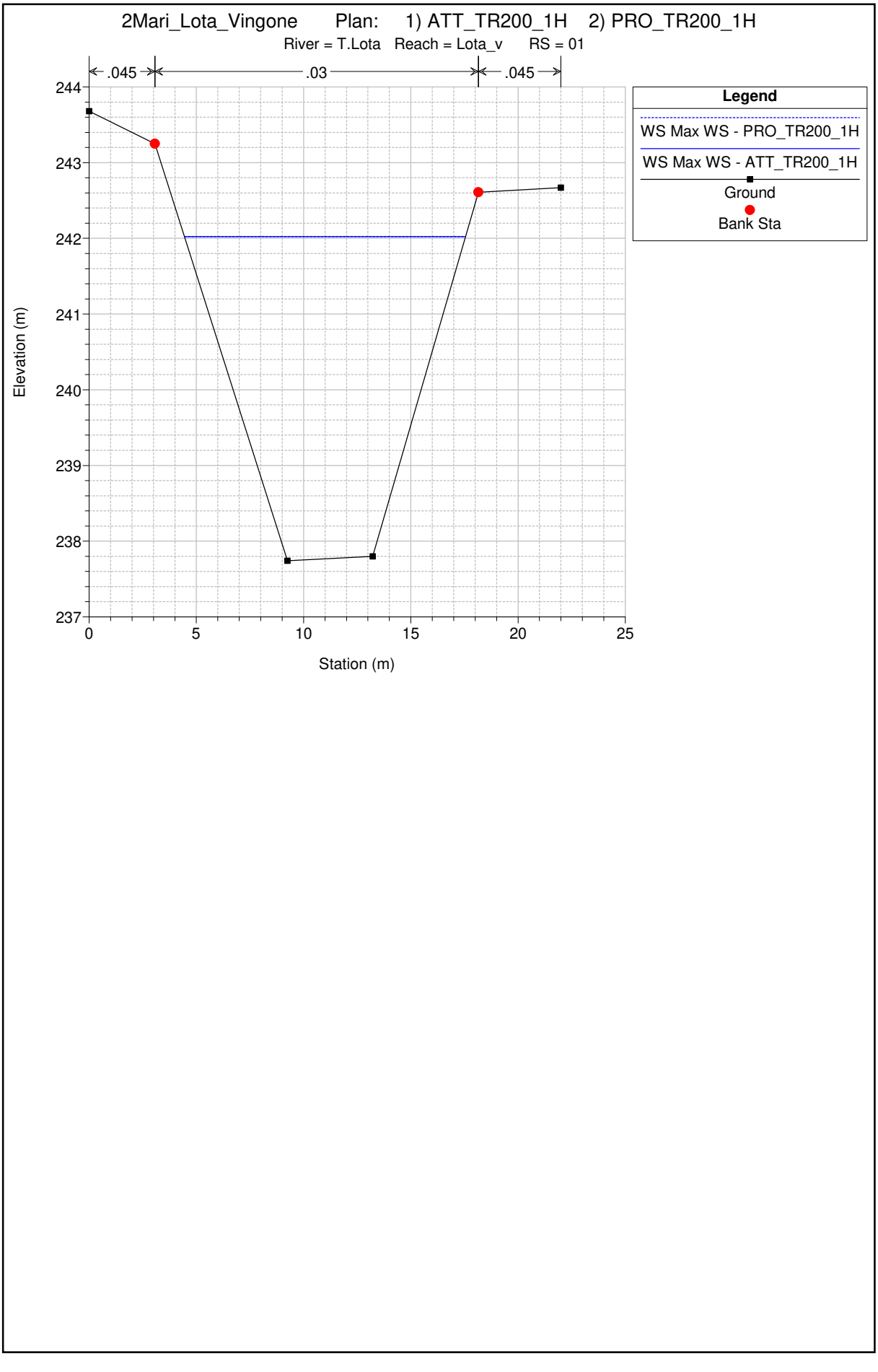
.03
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T.Lota Reach = Lota_v RS = 03
.045
.03
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T.Lota Reach = Lota_v RS = 02
.045
.03
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
245
244
243
242
241
240
239
238
0
5
10
15
20
25


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T.Lota Reach = Lota_v RS = 1.0417 Interpolata fine CC Idrogramma 0.5*LOTA5 distribuito
.045
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
244
243
242
241
240
239
238
237
0
5
10
15
20
25


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T.Lota Reach = Lota_v RS = 01
.045
.03
.045
244
243
242
241
240
239
238
237
Elevation (m)
0
5
10
15
20
25
Station (m)
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta

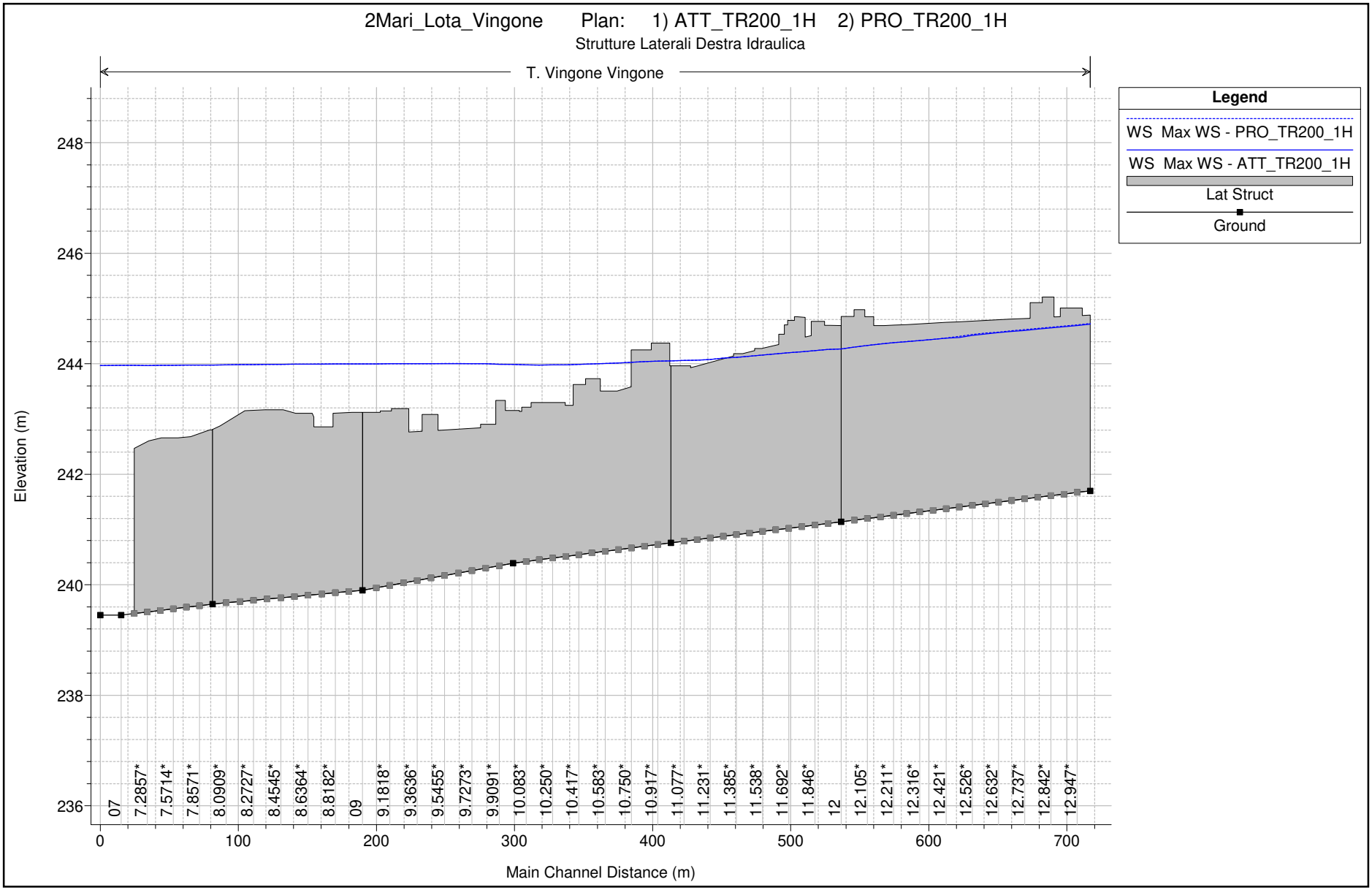
HEC-RAS Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Lota_m	24	Max WS	ATT_TR200_1H	171.93	240.35	245.07		245.65	0.002929	3.42	53.48	22.19	0.63
Lota_m	24	Max WS	PRO_TR200_1H	171.93	240.35	245.07		245.65	0.002929	3.42	53.48	22.19	0.63
Lota_m	23.99			Lat Struct									
Lota_m	23.98			Lat Struct									
Lota_m	23	Max WS	ATT_TR200_1H	153.86	240.47	244.63		245.21	0.003116	3.37	45.96	17.10	0.65
Lota_m	23	Max WS	PRO_TR200_1H	153.79	240.47	244.63		245.21	0.003111	3.37	45.97	17.10	0.65
Lota_m	22.99			Lat Struct									
Lota_m	22.98			Lat Struct									
Lota_m	22	Max WS	ATT_TR200_1H	141.20	239.82	243.99		244.70	0.004573	3.75	39.11	19.40	0.74
Lota_m	22	Max WS	PRO_TR200_1H	141.45	239.82	243.99		244.70	0.004580	3.76	39.14	19.40	0.74
Lota_m	21.99			Lat Struct									
Lota_m	21.98			Lat Struct									
Lota_m	8.40	Max WS	ATT_TR200_1H	115.63	239.50	243.96		244.22	0.001241	2.31	55.21	22.85	0.42
Lota_m	8.40	Max WS	PRO_TR200_1H	115.54	239.50	243.96		244.22	0.001237	2.30	55.24	22.85	0.42
Lota_m	6.9600	Max WS	ATT_TR200_1H	111.24	239.46	243.97		244.19	0.001047	2.15	57.18	23.22	0.39
Lota_m	6.9600	Max WS	PRO_TR200_1H	110.14	239.46	243.97		244.19	0.001025	2.13	57.22	23.22	0.38
Lota_v	6.7200	Max WS	ATT_TR200_1H	149.60	239.46	243.97		244.37	0.001869	2.88	57.48	23.28	0.52
Lota_v	6.7200	Max WS	PRO_TR200_1H	149.16	239.46	243.97		244.37	0.001855	2.87	57.52	23.28	0.51
Lota_v	6.719			Lat Struct									
Lota_v	6.718			Lat Struct									
Lota_v	06	Max WS	ATT_TR200_1H	148.91	239.44	243.97		244.36	0.001764	2.82	58.55	23.46	0.50
Lota_v	06	Max WS	PRO_TR200_1H	150.08	239.44	243.97		244.37	0.001790	2.84	58.57	23.46	0.51
Lota_v	05	Max WS	ATT_TR200_1H	133.72	238.68	243.73		244.08	0.001710	2.61	53.58	21.04	0.48
Lota_v	05	Max WS	PRO_TR200_1H	133.83	238.68	243.74		244.08	0.001709	2.61	53.62	21.04	0.48
Lota_v	4.99			Lat Struct									
Lota_v	4.98			Lat Struct									
Lota_v	04	Max WS	ATT_TR200_1H	134.19	238.34	243.41		243.73	0.001688	2.52	53.21	18.32	0.47
Lota_v	04	Max WS	PRO_TR200_1H	134.27	238.34	243.41		243.73	0.001687	2.52	53.24	18.32	0.47
Lota_v	3.99			Lat Struct									
Lota_v	3.98			Lat Struct									
Lota_v	03	Max WS	ATT_TR200_1H	134.70	238.32	243.03		243.50	0.002661	3.06	44.08	15.44	0.58
Lota_v	03	Max WS	PRO_TR200_1H	134.81	238.32	243.03		243.50	0.002662	3.06	44.10	15.44	0.58
Lota_v	02	Max WS	ATT_TR200_1H	134.75	238.77	242.98		243.48	0.002779	3.11	43.38	15.45	0.59
Lota_v	02	Max WS	PRO_TR200_1H	134.85	238.77	242.99		243.48	0.002778	3.11	43.41	15.46	0.59
Lota_v	1.99			Lat Struct									
Lota_v	1.98			Lat Struct									
Lota_v	1.0417	Max WS	ATT_TR200_1H	136.00	237.78	242.08		242.77	0.004231	3.69	36.84	13.24	0.71
Lota_v	1.0417	Max WS	PRO_TR200_1H	136.10	237.78	242.08		242.78	0.004231	3.69	36.86	13.24	0.71
Lota_v	01	Max WS	ATT_TR200_1H	136.00	237.74	242.02	241.35	242.74	0.004400	3.75	36.29	13.10	0.72
Lota_v	01	Max WS	PRO_TR200_1H	136.10	237.74	242.02	241.35	242.74	0.004400	3.75	36.31	13.10	0.72

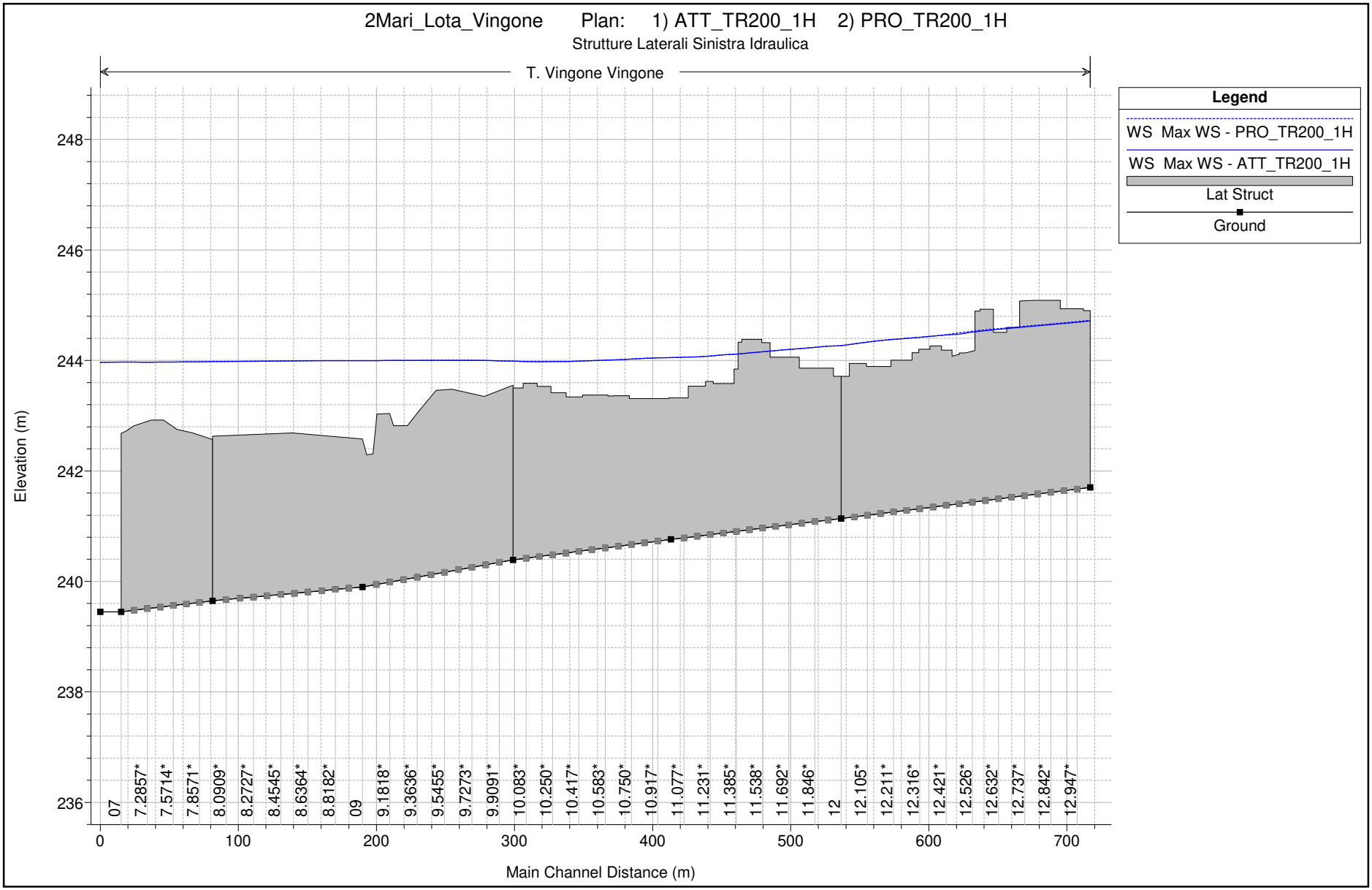
HEC-RAS Profile: Max WS

Reach	River Sta	Profile	Plan	Q US	Q Leaving Total	Q DS	Q Weir	Q Gates	Wr Top Wdth	Weir Max Depth	Weir Avg Depth	Min El Weir Flow	E.G. US.	W.S. US.	E.G. DS	W.S. DS
				(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)
Lota_m	23.99	Max WS	ATT_TR200_1H	171.93	10.43	153.86	10.43		165.54	0.63	0.38	244.40	245.65	245.07	245.21	244.63
Lota_m	23.99	Max WS	PRO_TR200_1H	171.93	10.45	153.79	10.45		165.63	0.63	0.38	244.40	245.65	245.07	245.21	244.63
Lota_m	23.98	Max WS	ATT_TR200_1H	171.93	4.92	153.86	4.92		167.40	0.59	0.36	244.09	245.65	245.07	245.21	244.63
Lota_m	23.98	Max WS	PRO_TR200_1H	171.93	4.89	153.79	4.89		167.50	0.59	0.36	244.09	245.65	245.07	245.21	244.63
Lota_m	22.99	Max WS	ATT_TR200_1H	153.86	6.12	141.20	6.12		120.86	0.56	0.32	243.46	245.21	244.63	244.70	243.99
Lota_m	22.99	Max WS	PRO_TR200_1H	153.79	5.40	141.45	5.40		120.86	0.56	0.33	243.46	245.21	244.63	244.70	243.99
Lota_m	22.98	Max WS	ATT_TR200_1H	153.86	5.06	141.20	5.06		106.64	0.57	0.46	243.87	245.21	244.63	244.70	243.99
Lota_m	22.98	Max WS	PRO_TR200_1H	153.79	4.92	141.45	4.92		106.66	0.57	0.46	243.87	245.21	244.63	244.70	243.99
Lota_m	21.99	Max WS	ATT_TR200_1H	141.20	20.84	111.24	20.84		181.36	0.61	0.55	243.36	244.70	243.99	244.19	243.97
Lota_m	21.99	Max WS	PRO_TR200_1H	141.45	20.87	110.14	20.87		181.36	0.61	0.55	243.36	244.70	243.99	244.19	243.97
Lota_m	21.98	Max WS	ATT_TR200_1H	141.20	1.24	115.63	1.24		72.50	1.17	0.32	242.79	244.70	243.99	244.22	243.96
Lota_m	21.98	Max WS	PRO_TR200_1H	141.45	1.33	115.54	1.33		73.53	1.17	0.31	242.79	244.70	243.99	244.22	243.96
Lota_v	6.719	Max WS	ATT_TR200_1H	149.60	19.49	133.72	19.49		213.55	0.68	0.50	243.06	244.37	243.97	244.08	243.73
Lota_v	6.719	Max WS	PRO_TR200_1H	149.16	19.57	133.83	19.57		213.55	0.68	0.50	243.06	244.37	243.97	244.08	243.74
Lota_v	6.718	Max WS	ATT_TR200_1H	149.60	4.64	133.72	4.64		169.56	1.33	0.79	242.64	244.37	243.97	244.08	243.73
Lota_v	6.718	Max WS	PRO_TR200_1H	149.16	4.71	133.83	4.71		169.56	1.33	0.79	242.64	244.37	243.97	244.08	243.74
Lota_v	4.99	Max WS	ATT_TR200_1H	133.72	0.44	134.19	0.44		17.18	0.44	0.19	243.29	244.08	243.73	243.73	243.41
Lota_v	4.99	Max WS	PRO_TR200_1H	133.83	0.45	134.27	0.45		17.27	0.45	0.19	243.29	244.08	243.74	243.73	243.41
Lota_v	4.98	Max WS	ATT_TR200_1H	133.72	0.00	134.19	0.00					243.92	244.08	243.73	243.73	243.41
Lota_v	4.98	Max WS	PRO_TR200_1H	133.83	0.00	134.27	0.00					243.92	244.08	243.74	243.73	243.41
Lota_v	3.99	Max WS	ATT_TR200_1H	134.19	0.00	134.75	0.00					244.05	243.73	243.41	243.48	242.98
Lota_v	3.99	Max WS	PRO_TR200_1H	134.27	0.00	134.85	0.00					244.05	243.73	243.41	243.48	242.99
Lota_v	3.98	Max WS	ATT_TR200_1H	134.19	0.00	134.75	0.00					244.27	243.73	243.41	243.48	242.98
Lota_v	3.98	Max WS	PRO_TR200_1H	134.27	0.00	134.85	0.00					244.27	243.73	243.41	243.48	242.99
Lota_v	1.99	Max WS	ATT_TR200_1H	134.75	0.00	136.00	0.00					242.67	243.48	242.98	242.74	242.02
Lota_v	1.99	Max WS	PRO_TR200_1H	134.85	0.00	136.10	0.00					242.67	243.48	242.99	242.74	242.02
Lota_v	1.98	Max WS	ATT_TR200_1H	134.75	0.00	136.00	0.00		0.00	0.04	0.02	243.77	243.48	242.98	242.74	242.02
Lota_v	1.98	Max WS	PRO_TR200_1H	134.85	0.00	136.10	0.00		0.00	0.04	0.02	243.77	243.48	242.99	242.74	242.02

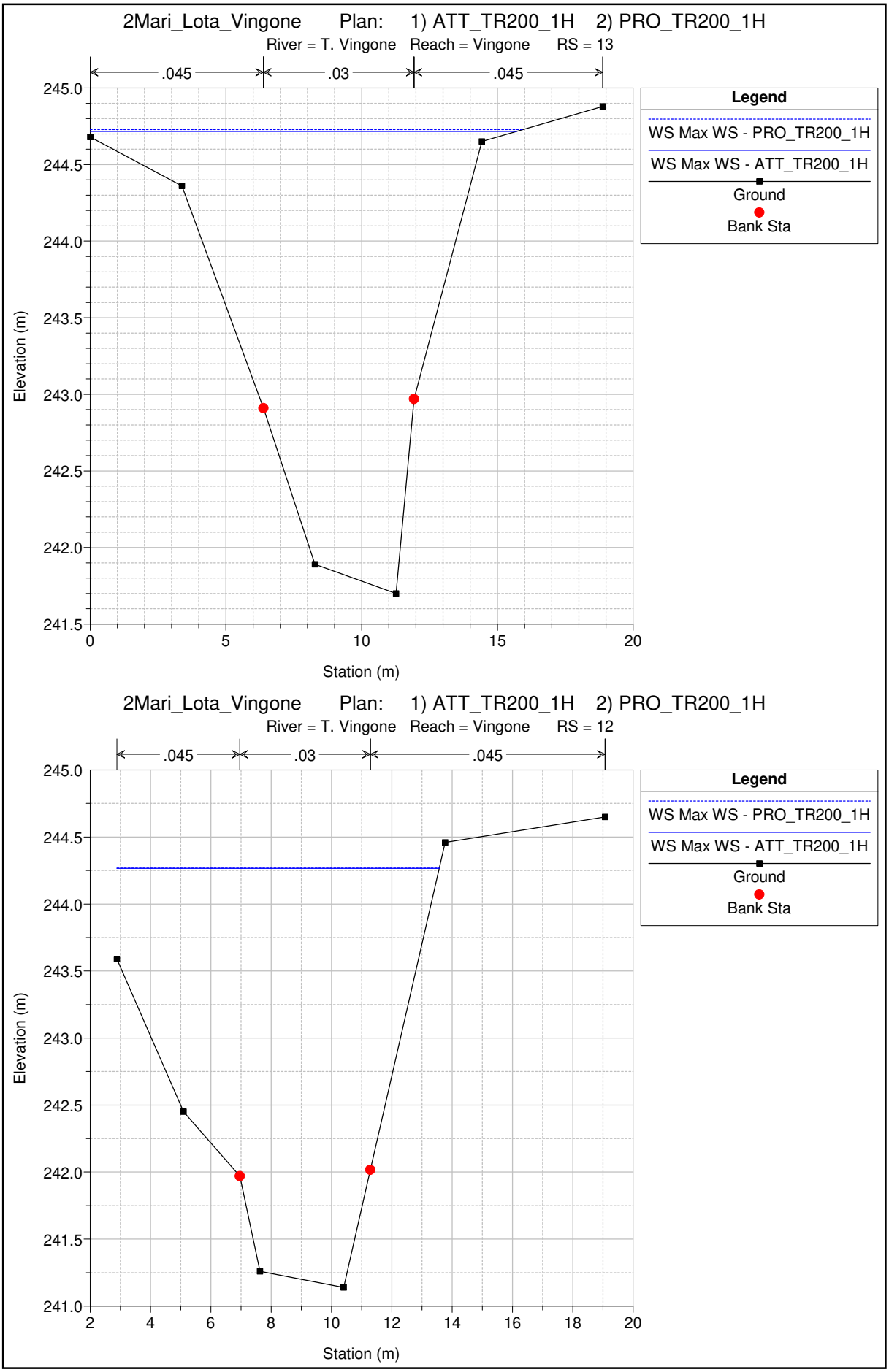
TORRENTE
VINGONE (2)

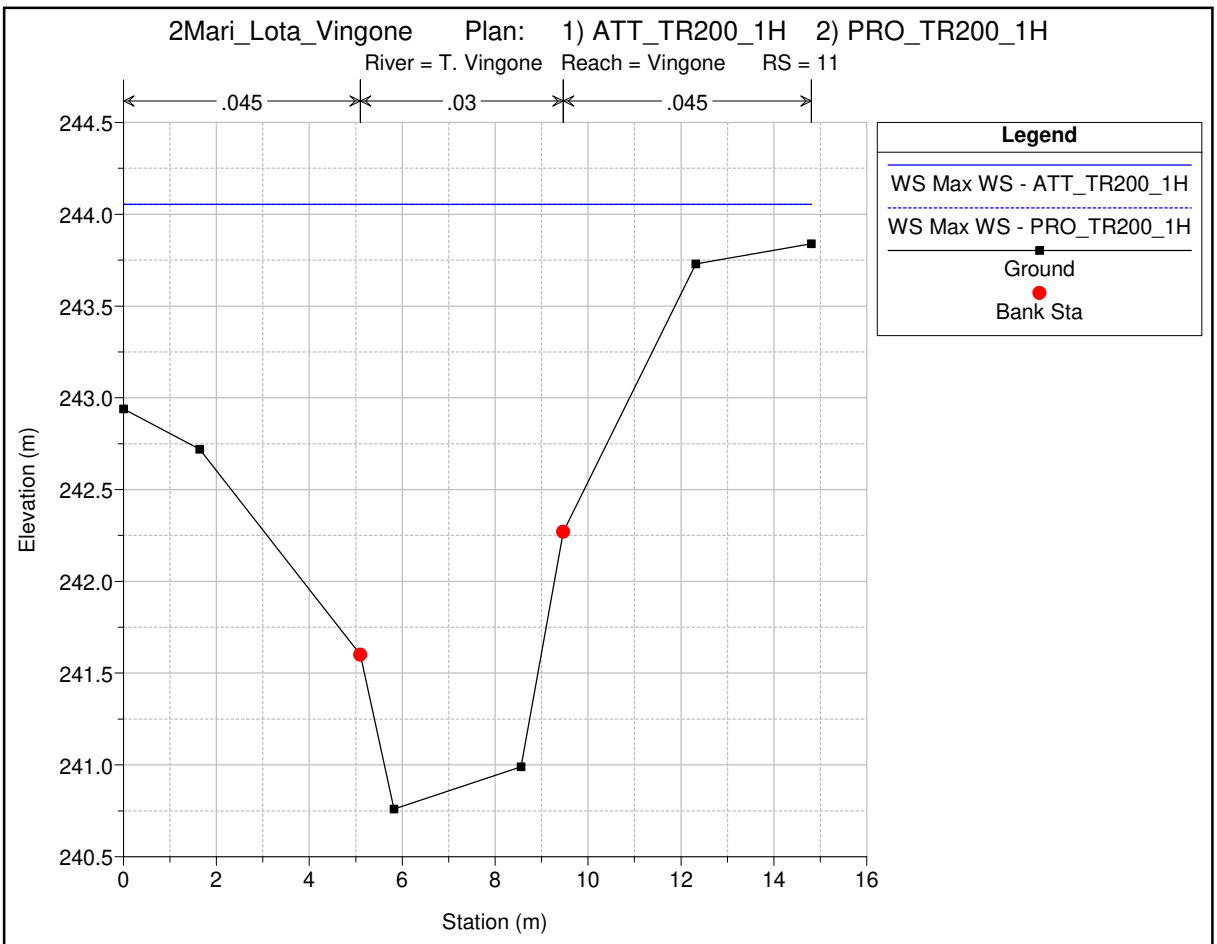


1 cm Horiz. = 40 m 1 cm Vert. = 1 m



1 cm Horiz. = 40 m 1 cm Vert. = 1 m


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T. Vingone Reach = Vingone RS = 13
.045
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T. Vingone Reach = Vingone RS = 12
.045
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T. Vingone Reach = Vingone RS = 11
.045
.03
.045
Legend
WS Max WS - ATT_TR200_1H
WS Max WS - PRO_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
244.5
244.0
243.5
243.0
242.5
242.0
241.5
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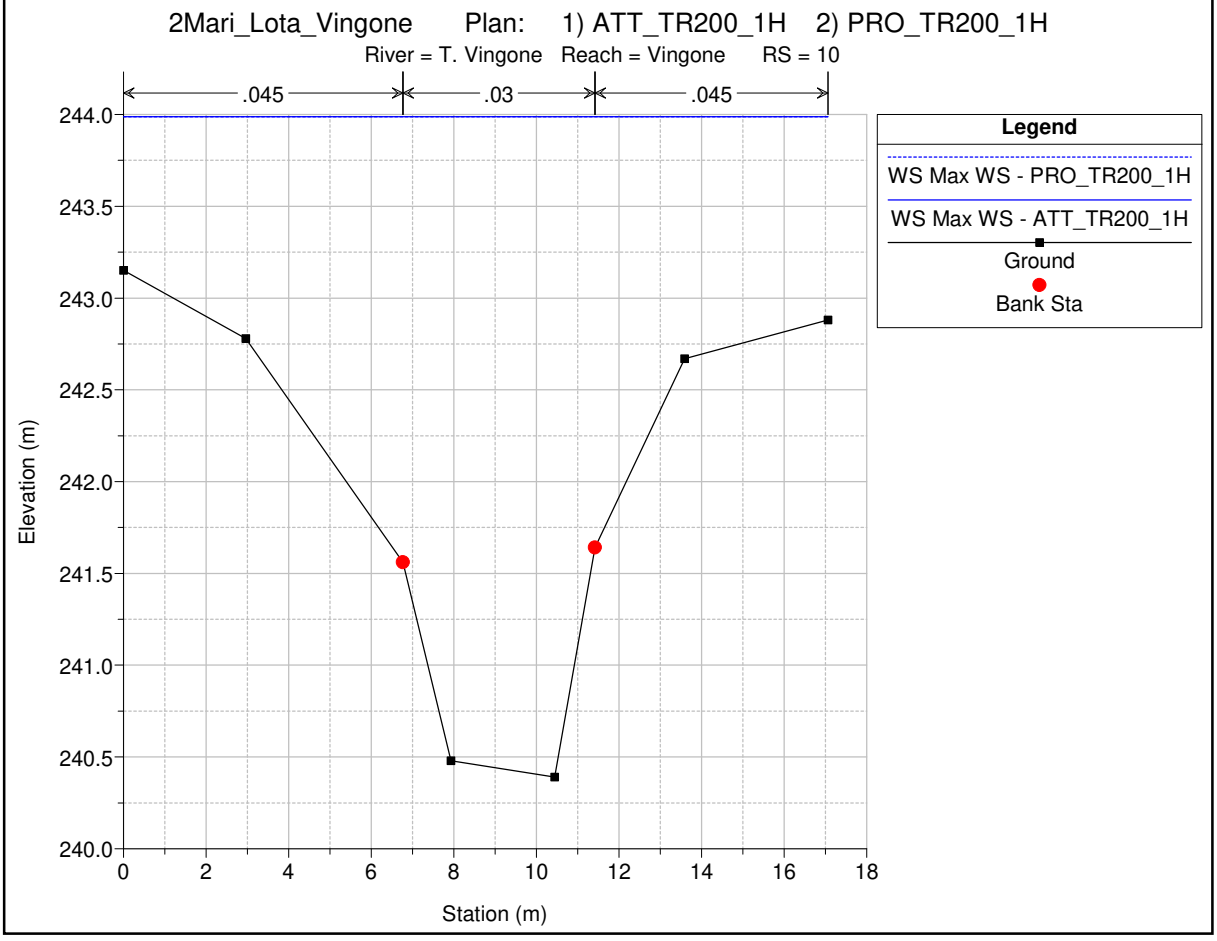
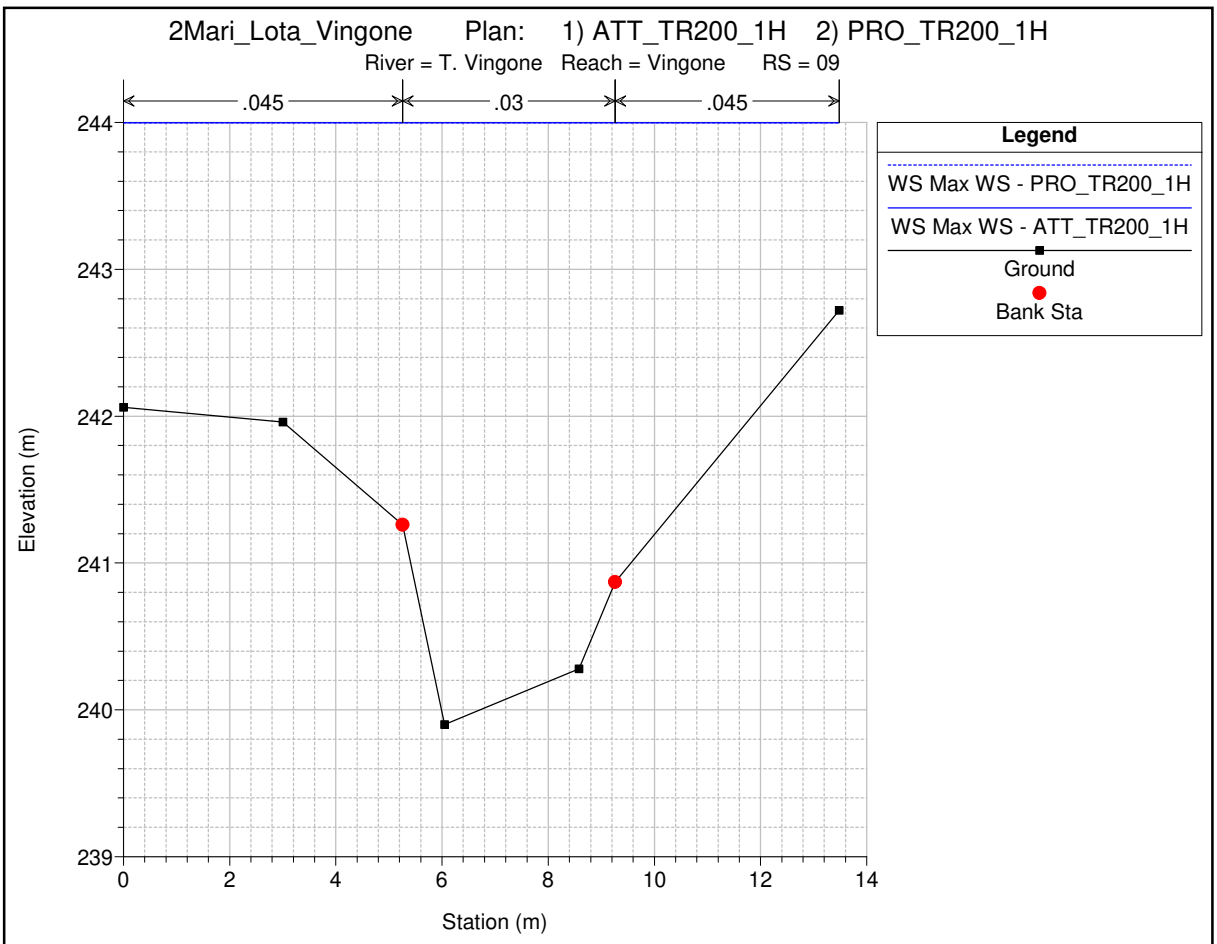
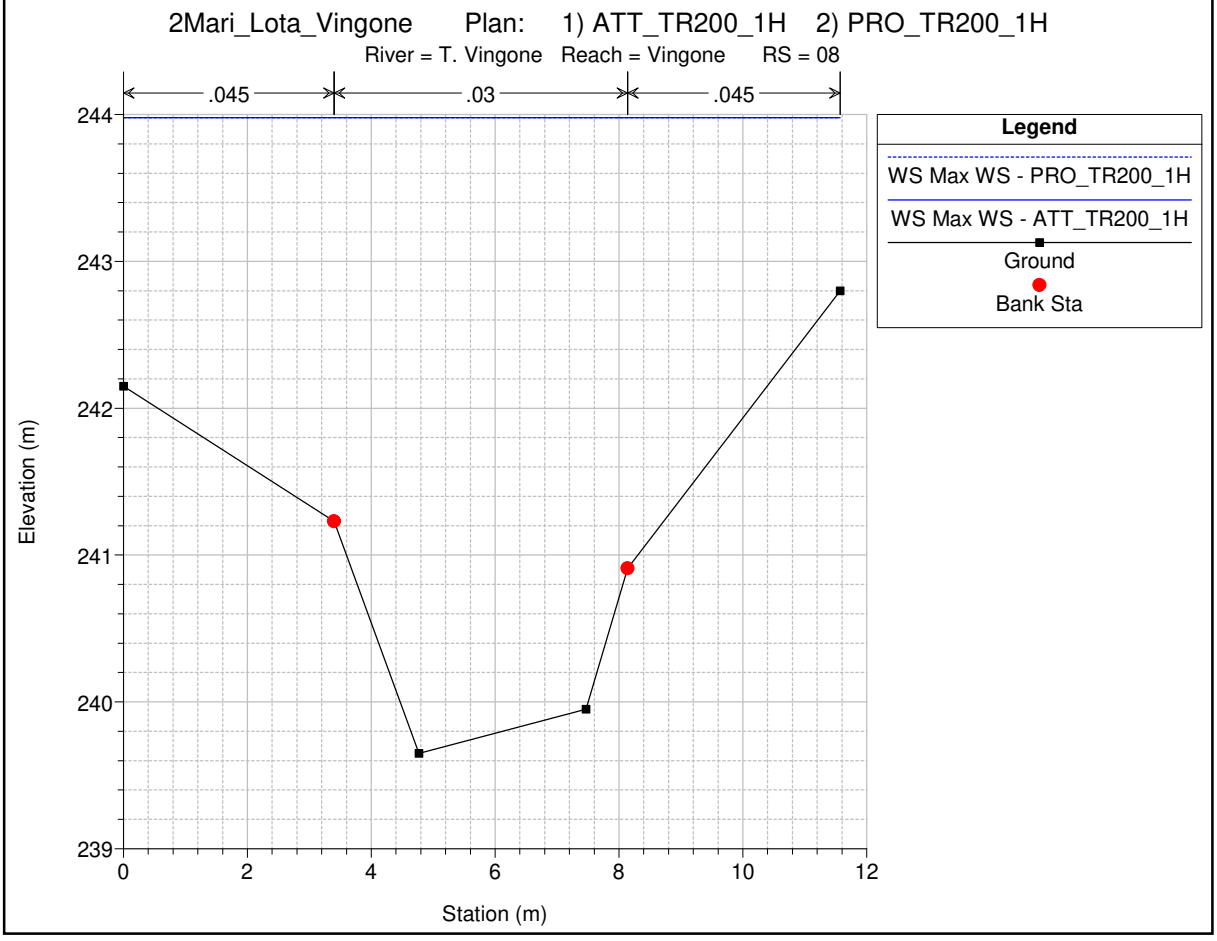
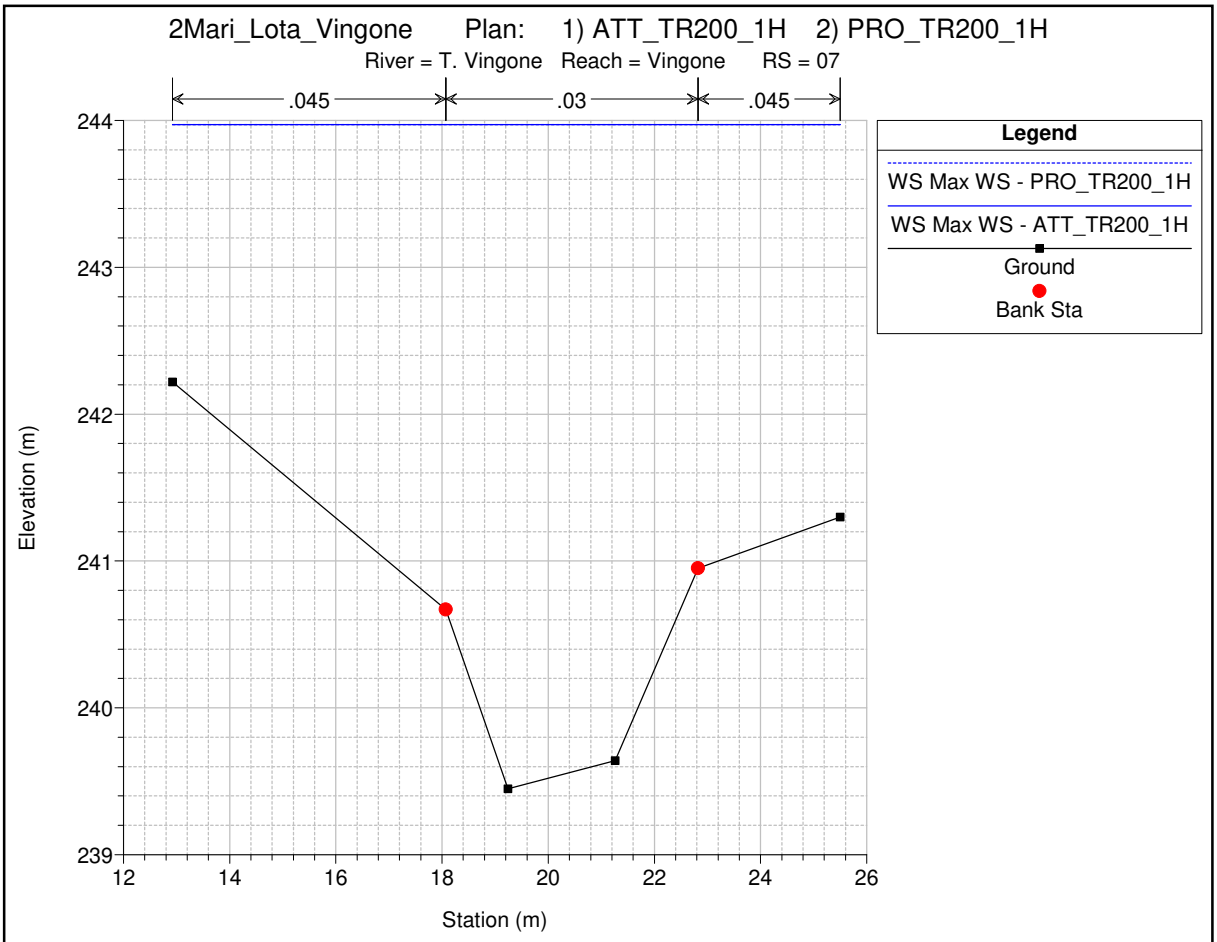
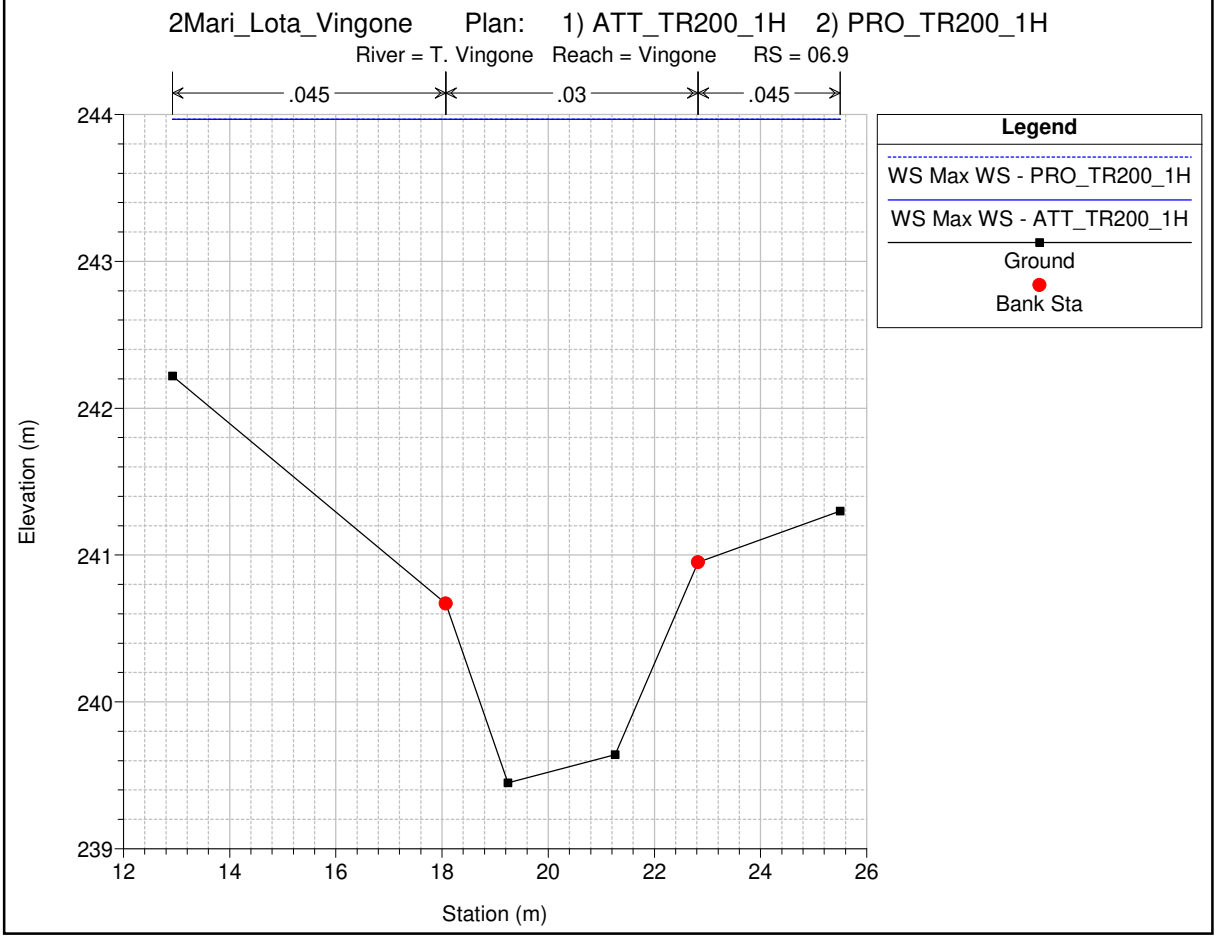
0
2
4
6
8
10
12
14
16


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T. Vingone Reach = Vingone RS = 10
.045
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
244.0
243.5
243.0
242.5
242.0
241.5
241.0
240.5
240.0
0
2
4
6
8
10
12
14
16
18


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T. Vingone Reach = Vingone RS = 09
.045
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
244
243
242
241
240
239
0
2
4
6
8
10
12
14


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T. Vingone Reach = Vingone RS = 08
.045
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
244
243
242
241
240
239
0
2
4
6
8
10
12


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T. Vingone Reach = Vingone RS = 07
.045
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
244
243
242
241
240
239
12
14
16
18
20
22
24
26


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = T. Vingone Reach = Vingone RS = 06.9
.045
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
244
243
242
241
240
239
12
14
16
18
20
22
24
26

HEC-RAS River: T. Vingone Reach: Vingone Profile: Max WS

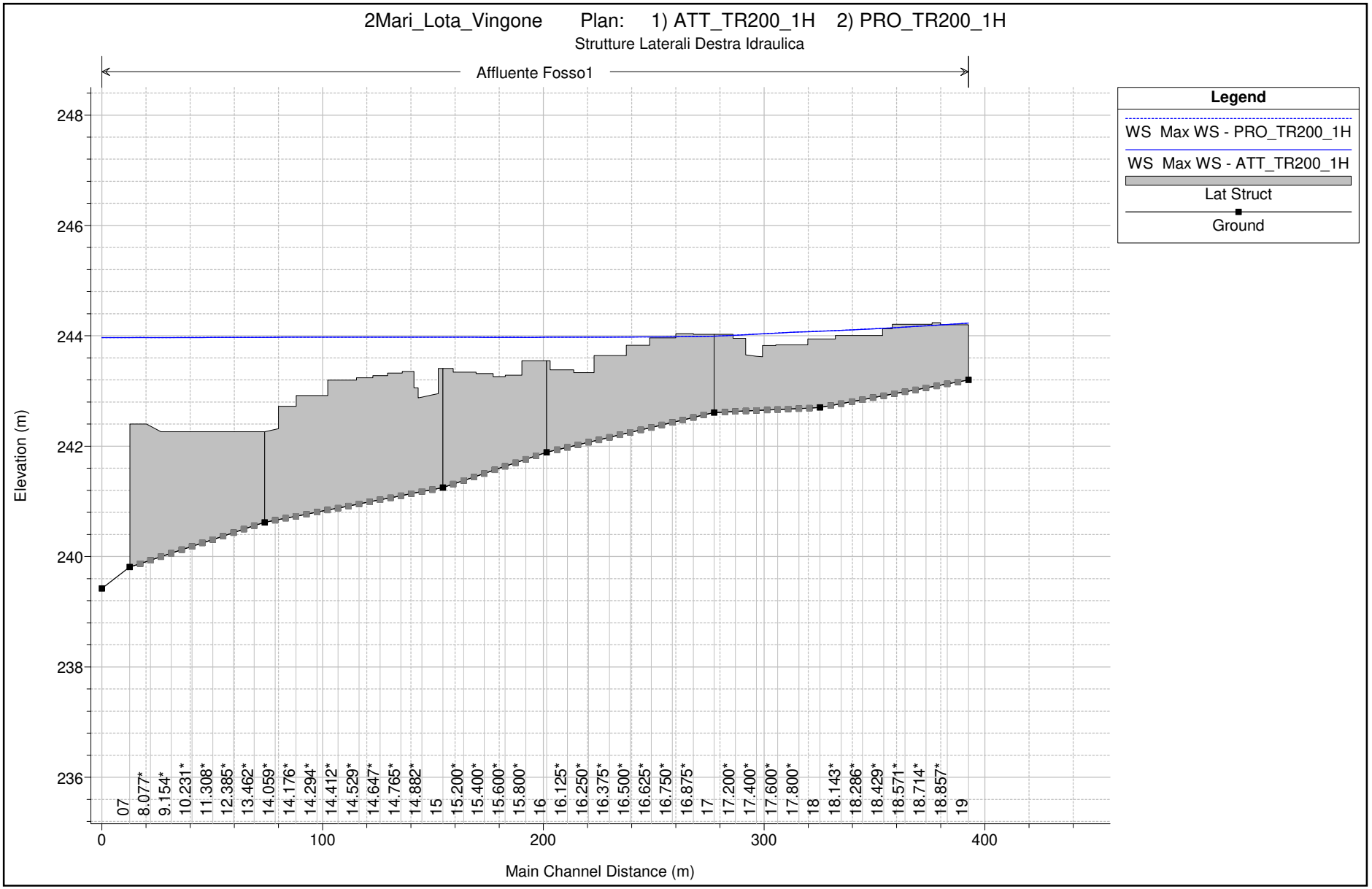
Reach	River Sta	Profile	Plan	Q US	Q Leaving Total	Q DS	Q Weir	Q Gates	Wr Top Wdth	Weir Max Depth	Weir Avg Depth	Min El Weir Flow	E.G. US.	W.S. US.	E.G. DS	W.S. DS
				(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)
Vingone	12.99	Max WS	ATT_TR200_1H	51.30	0.00	51.25	0.00					244.69	245.17	244.72	244.68	244.27
Vingone	12.99	Max WS	PRO_TR200_1H	51.17	0.00	51.35	0.00					244.69	245.17	244.73	244.68	244.27
Vingone	12.98	Max WS	ATT_TR200_1H	51.30	2.21	51.25	2.21		115.34	0.58	0.32	243.71	245.17	244.72	244.68	244.27
Vingone	12.98	Max WS	PRO_TR200_1H	51.17	-1.16	51.35	-1.16		124.73	0.58	0.33	243.71	245.17	244.73	244.68	244.27
Vingone	11.99	Max WS	ATT_TR200_1H	51.25	0.02	50.06	0.02		36.17	0.15	0.08	243.93	244.68	244.27	244.36	244.05
Vingone	11.99	Max WS	PRO_TR200_1H	51.35	-0.38	50.29	-0.38		36.14	0.18	0.11	243.93	244.68	244.27	244.37	244.05
Vingone	11.98	Max WS	ATT_TR200_1H	51.25	-0.45	46.02	-0.45		209.32	0.74	0.54	243.31	244.68	244.27	244.14	243.99
Vingone	11.98	Max WS	PRO_TR200_1H	51.35	0.16	46.27	0.16		209.32	0.74	0.55	243.31	244.68	244.27	244.15	243.99
Vingone	10.99	Max WS	ATT_TR200_1H	50.06	9.15	36.96	9.15		194.13	1.24	0.82	242.76	244.36	244.05	244.08	244.00
Vingone	10.99	Max WS	PRO_TR200_1H	50.29	7.50	36.77	7.50		194.13	1.24	0.83	242.76	244.37	244.05	244.08	244.00
Vingone	9.98	Max WS	ATT_TR200_1H	46.02	19.81	31.03	19.81		214.15	1.71	1.11	242.29	244.14	243.99	244.04	243.98
Vingone	9.98	Max WS	PRO_TR200_1H	46.27	18.82	31.03	18.82		214.15	1.71	1.11	242.29	244.15	243.99	244.04	243.98
Vingone	8.99	Max WS	ATT_TR200_1H	36.96	7.17	31.03	7.17		105.67	1.17	0.92	242.81	244.08	244.00	244.04	243.98
Vingone	8.99	Max WS	PRO_TR200_1H	36.77	6.59	31.03	6.59		105.67	1.17	0.92	242.81	244.08	244.00	244.04	243.98
Vingone	7.99	Max WS	ATT_TR200_1H	31.03	9.55	31.22	9.55		56.54	1.50	1.31	242.47	244.04	243.98	244.02	243.97
Vingone	7.99	Max WS	PRO_TR200_1H	31.03	9.44	30.97	9.44		56.54	1.50	1.31	242.47	244.04	243.98	244.02	243.97
Vingone	7.98	Max WS	ATT_TR200_1H	31.03	10.17	31.16	10.17		68.58	1.41	1.20	242.57	244.04	243.98	244.02	243.97
Vingone	7.98	Max WS	PRO_TR200_1H	31.03	10.16	30.90	10.16		68.58	1.41	1.20	242.57	244.04	243.98	244.02	243.97

HEC-RAS River: T. Vingone Reach: Vingone Profile: Max WS

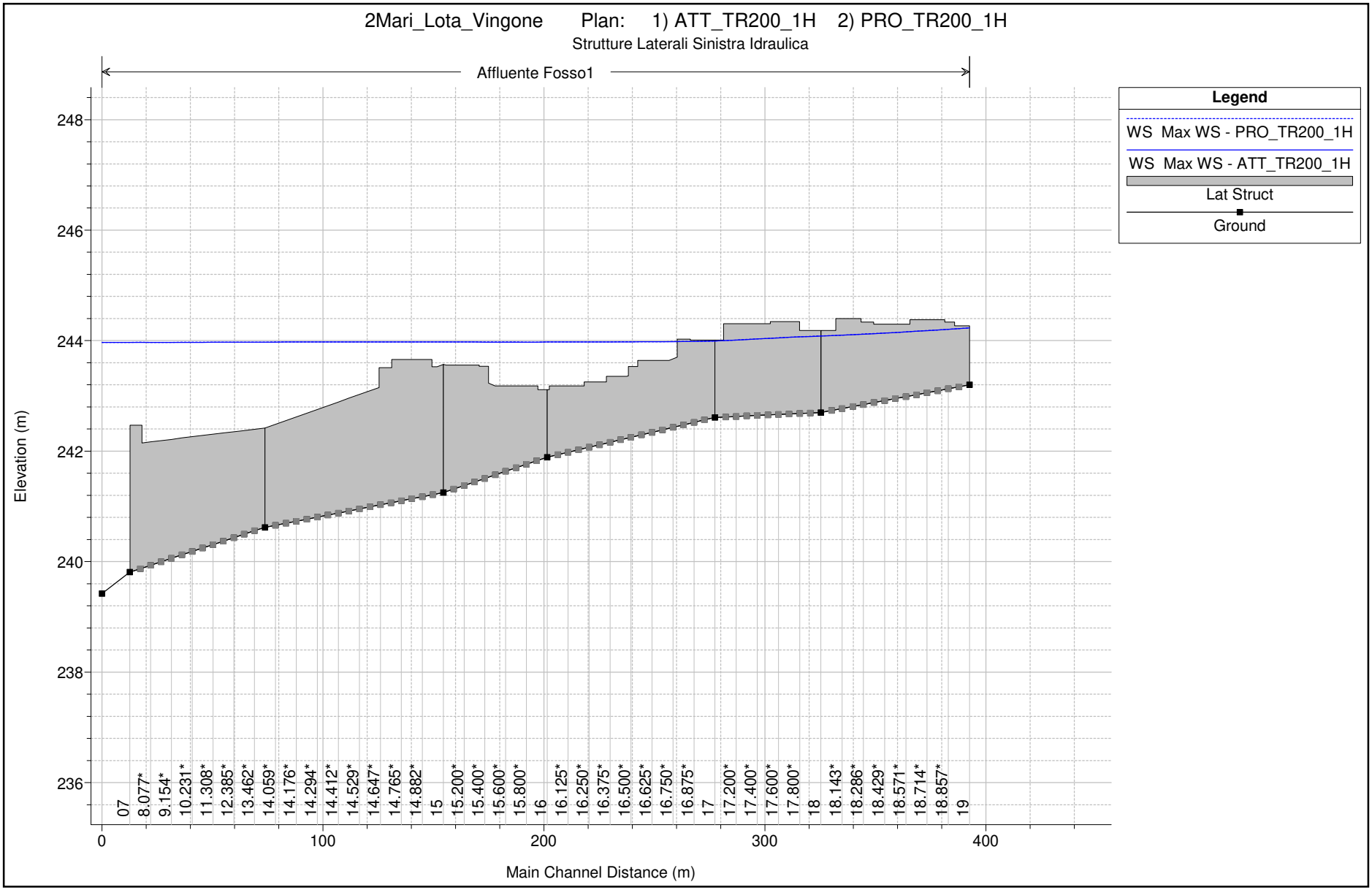
Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Vingone	13	Max WS	ATT_TR200_1H	51.30	241.70	244.72		245.17	0.003031	3.14	20.92	15.71	0.62
Vingone	13	Max WS	PRO_TR200_1H	51.17	241.70	244.73		245.17	0.002964	3.11	21.11	15.94	0.61
Vingone	12.99			Lat Struct									
Vingone	12.98			Lat Struct									
Vingone	12	Max WS	ATT_TR200_1H	51.25	241.14	244.27		244.68	0.002585	3.15	21.83	10.69	0.59
Vingone	12	Max WS	PRO_TR200_1H	51.35	241.14	244.27		244.68	0.002593	3.15	21.84	10.69	0.59
Vingone	11.99			Lat Struct									
Vingone	11.98			Lat Struct									
Vingone	11	Max WS	ATT_TR200_1H	50.06	240.76	244.05		244.36	0.002213	2.81	25.21	14.81	0.52
Vingone	11	Max WS	PRO_TR200_1H	50.29	240.76	244.05		244.37	0.002234	2.82	25.21	14.81	0.52
Vingone	10.99			Lat Struct									
Vingone	10	Max WS	ATT_TR200_1H	46.02	240.39	243.99		244.14	0.001014	2.05	33.40	17.06	0.36
Vingone	10	Max WS	PRO_TR200_1H	46.27	240.39	243.99		244.15	0.001024	2.06	33.42	17.06	0.36
Vingone	9.98			Lat Struct									
Vingone	09	Max WS	ATT_TR200_1H	36.96	239.90	244.00		244.08	0.000505	1.55	35.56	13.48	0.26
Vingone	09	Max WS	PRO_TR200_1H	36.77	239.90	244.00		244.08	0.000500	1.54	35.57	13.48	0.25
Vingone	8.99			Lat Struct									
Vingone	08	Max WS	ATT_TR200_1H	31.03	239.65	243.98		244.04	0.000319	1.27	33.56	11.57	0.20
Vingone	08	Max WS	PRO_TR200_1H	31.03	239.65	243.98		244.04	0.000319	1.26	33.56	11.57	0.20
Vingone	7.99			Lat Struct									
Vingone	7.98			Lat Struct									
Vingone	07	Max WS	ATT_TR200_1H	31.16	239.45	243.97		244.02	0.000224	1.12	39.90	12.58	0.18
Vingone	07	Max WS	PRO_TR200_1H	30.90	239.45	243.97		244.02	0.000220	1.11	39.91	12.58	0.18
Vingone	06.9	Max WS	ATT_TR200_1H	30.74	239.45	243.97		244.01	0.000219	1.10	39.83	12.58	0.17
Vingone	06.9	Max WS	PRO_TR200_1H	31.16	239.45	243.97		244.02	0.000225	1.12	39.85	12.58	0.18

FOSSO

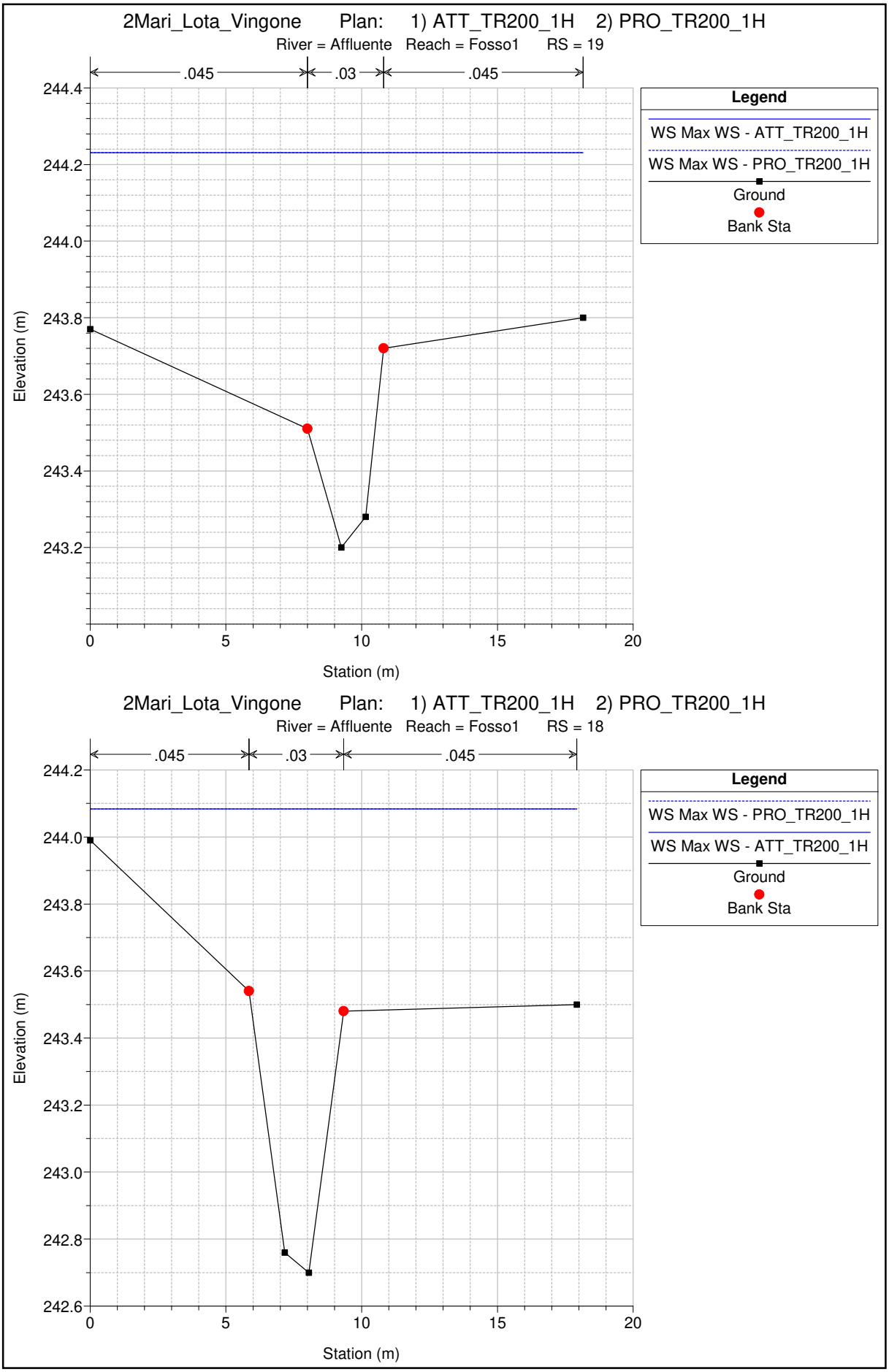
AV20123



1 cm Horiz. = 25 m 1 cm Vert. = 1 m



1 cm Horiz. = 25 m 1 cm Vert. = 1 m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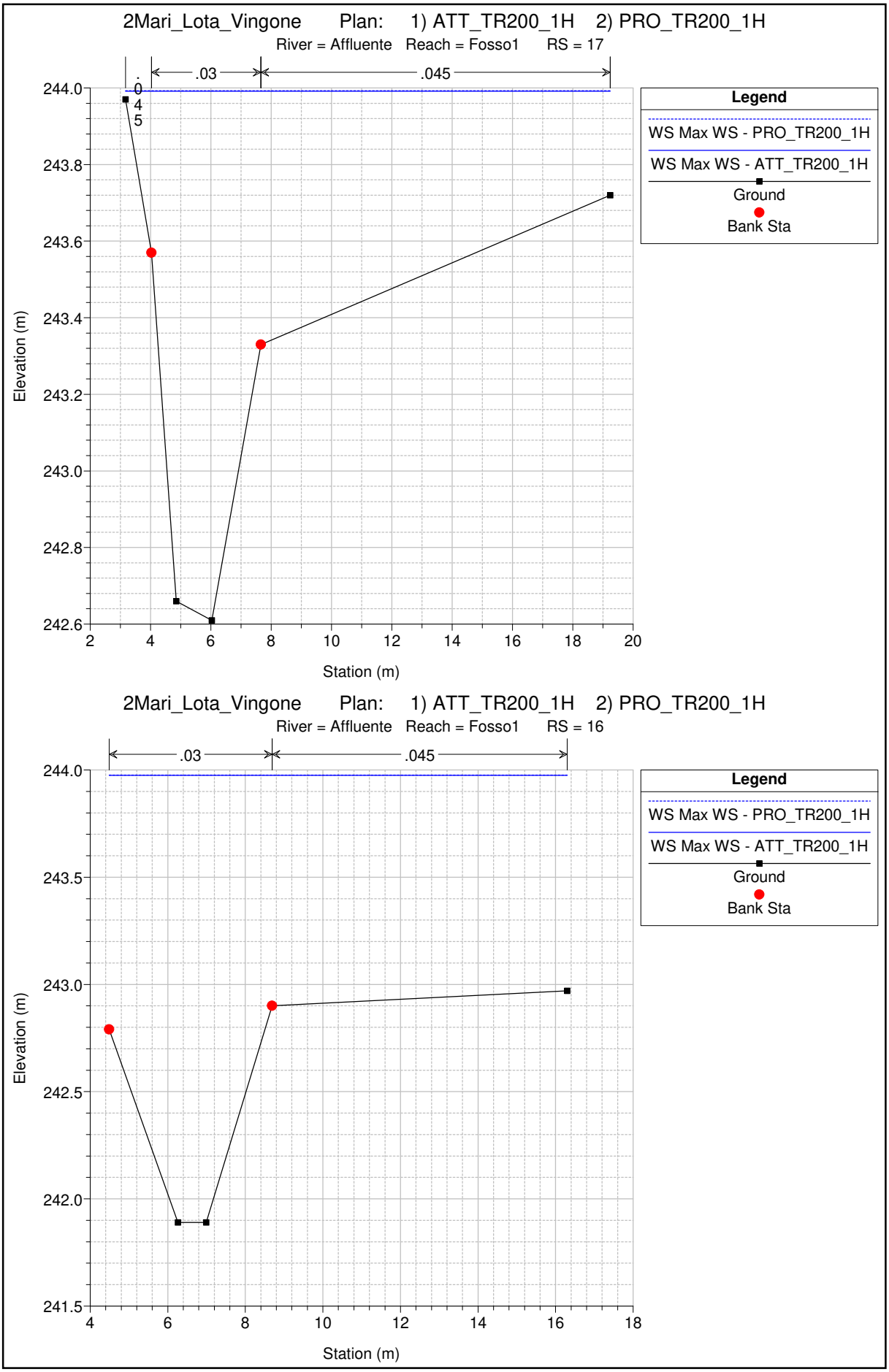
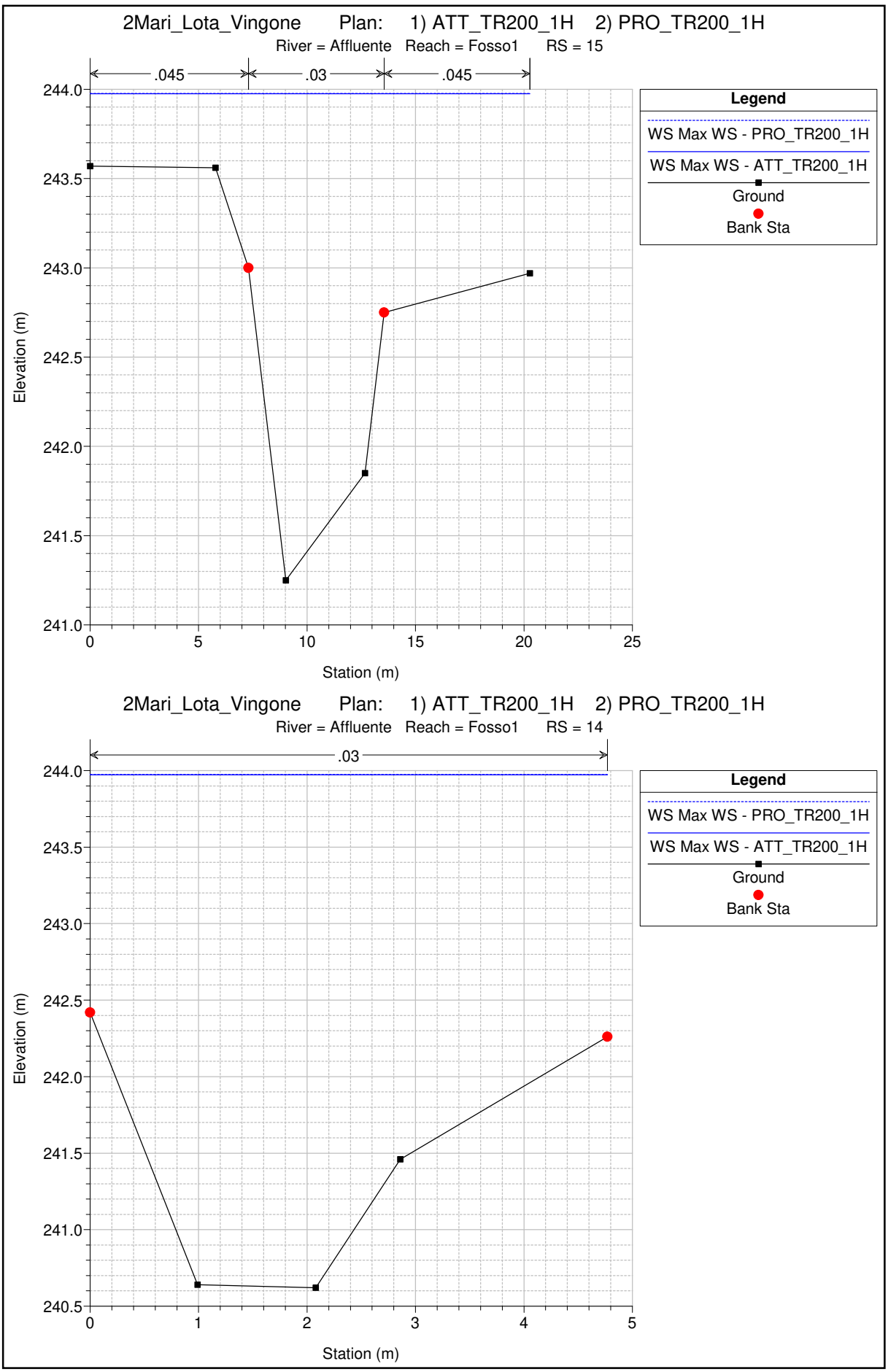
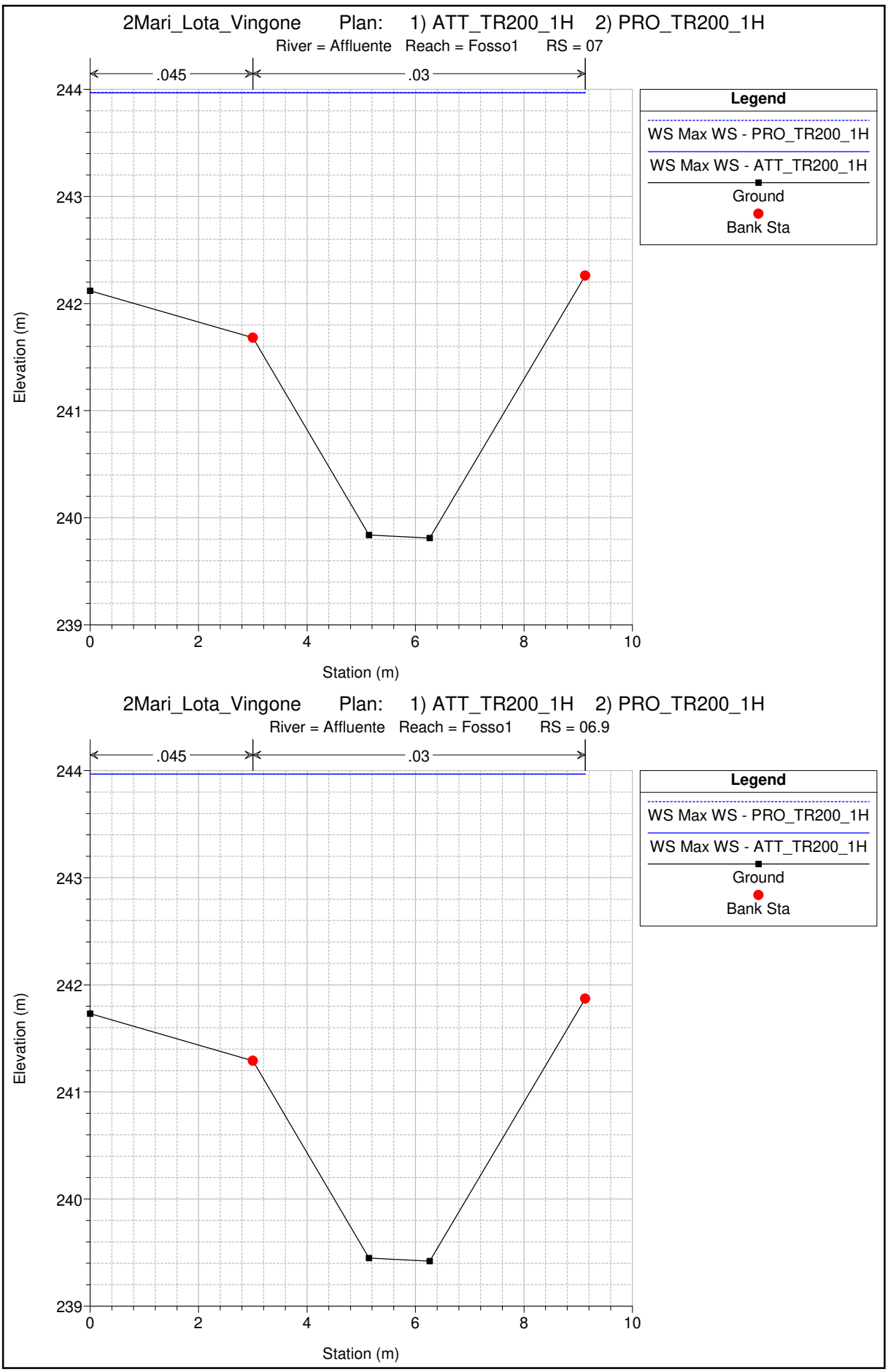
River = Affluente Reach = Fosso1 RS = 19
.045
.03
.045
Legend
WS Max WS - ATT_TR200_1H
WS Max WS - PRO_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = Affluente Reach = Fosso1 RS = 18
.045
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = Affluente Reach = Fosso1 RS = 17
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = Affluente Reach = Fosso1 RS = 16
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = Affluente Reach = Fosso1 RS = 15
.045
.03
.045
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = Affluente Reach = Fosso1 RS = 14
.03
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)


2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = Affluente Reach = Fosso1 RS = 07
.045
.03
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)
2Mari_Lota_Vingone Plan: 1) ATT_TR200_1H 2) PRO_TR200_1H
River = Affluente Reach = Fosso1 RS = 06.9
.045
.03
Legend
WS Max WS - PRO_TR200_1H
WS Max WS - ATT_TR200_1H
Ground
Bank Sta
Elevation (m)
Station (m)

HEC-RAS River: Affluente Reach: Fosso1 Profile: Max WS

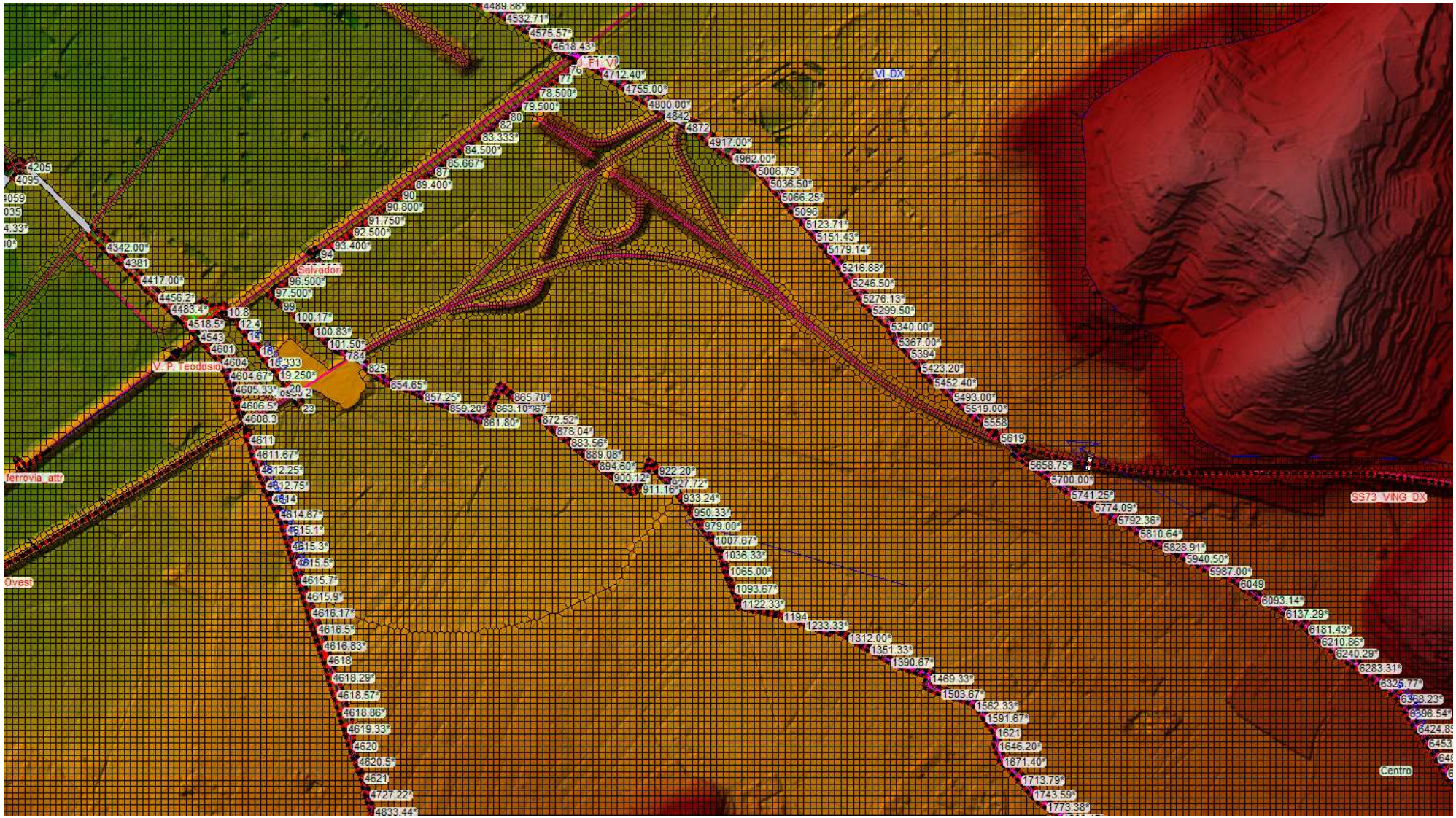
Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Fosso1	19	Max WS	ATT_TR200_1H	9.05	243.20	244.23		244.28	0.002304	1.41	10.66	18.16	0.48
Fosso1	19	Max WS	PRO_TR200_1H	9.03	243.20	244.23		244.28	0.002293	1.41	10.66	18.16	0.48
Fosso1	18.99			Lat Struct									
Fosso1	18.98			Lat Struct									
Fosso1	18	Max WS	ATT_TR200_1H	8.80	242.70	244.08		244.14	0.001681	1.32	10.67	17.92	0.41
Fosso1	18	Max WS	PRO_TR200_1H	8.83	242.70	244.08		244.14	0.001689	1.32	10.68	17.92	0.41
Fosso1	17.98			Lat Struct									
Fosso1	17	Max WS	ATT_TR200_1H	8.43	242.61	243.99		244.06	0.001759	1.35	9.58	16.07	0.41
Fosso1	17	Max WS	PRO_TR200_1H	8.45	242.61	243.99		244.06	0.001762	1.35	9.59	16.07	0.41
Fosso1	16.99			Lat Struct									
Fosso1	16.98			Lat Struct									
Fosso1	16	Max WS	ATT_TR200_1H	7.92	241.89	243.97		243.99	0.000332	0.69	15.01	11.81	0.17
Fosso1	16	Max WS	PRO_TR200_1H	7.95	241.89	243.98		243.99	0.000334	0.69	15.02	11.81	0.17
Fosso1	15.99			Lat Struct									
Fosso1	15.98			Lat Struct									
Fosso1	15	Max WS	ATT_TR200_1H	7.68	241.25	243.98		243.98	0.000076	0.43	24.44	20.27	0.09
Fosso1	15	Max WS	PRO_TR200_1H	7.64	241.25	243.98		243.98	0.000075	0.43	24.46	20.27	0.09
Fosso1	14.99			Lat Struct									
Fosso1	14.98			Lat Struct									
Fosso1	14	Max WS	ATT_TR200_1H	4.96	240.62	243.97		243.98	0.000103	0.40	12.39	4.77	0.08
Fosso1	14	Max WS	PRO_TR200_1H	4.97	240.62	243.97		243.98	0.000103	0.40	12.39	4.77	0.08
Fosso1	13.99			Lat Struct									
Fosso1	13.98			Lat Struct									
Fosso1	07	Max WS	ATT_TR200_1H	7.58	239.81	243.97		243.97	0.000036	0.33	26.11	9.13	0.06
Fosso1	07	Max WS	PRO_TR200_1H	7.89	239.81	243.97		243.97	0.000039	0.34	26.14	9.13	0.06
Fosso1	06.9	Max WS	ATT_TR200_1H	7.62	239.42	243.97		243.97	0.000026	0.29	29.67	9.13	0.05
Fosso1	06.9	Max WS	PRO_TR200_1H	7.86	239.42	243.97		243.97	0.000028	0.30	29.69	9.13	0.05

HEC-RAS River: Affluente Reach: Fosso1 Profile: Max WS

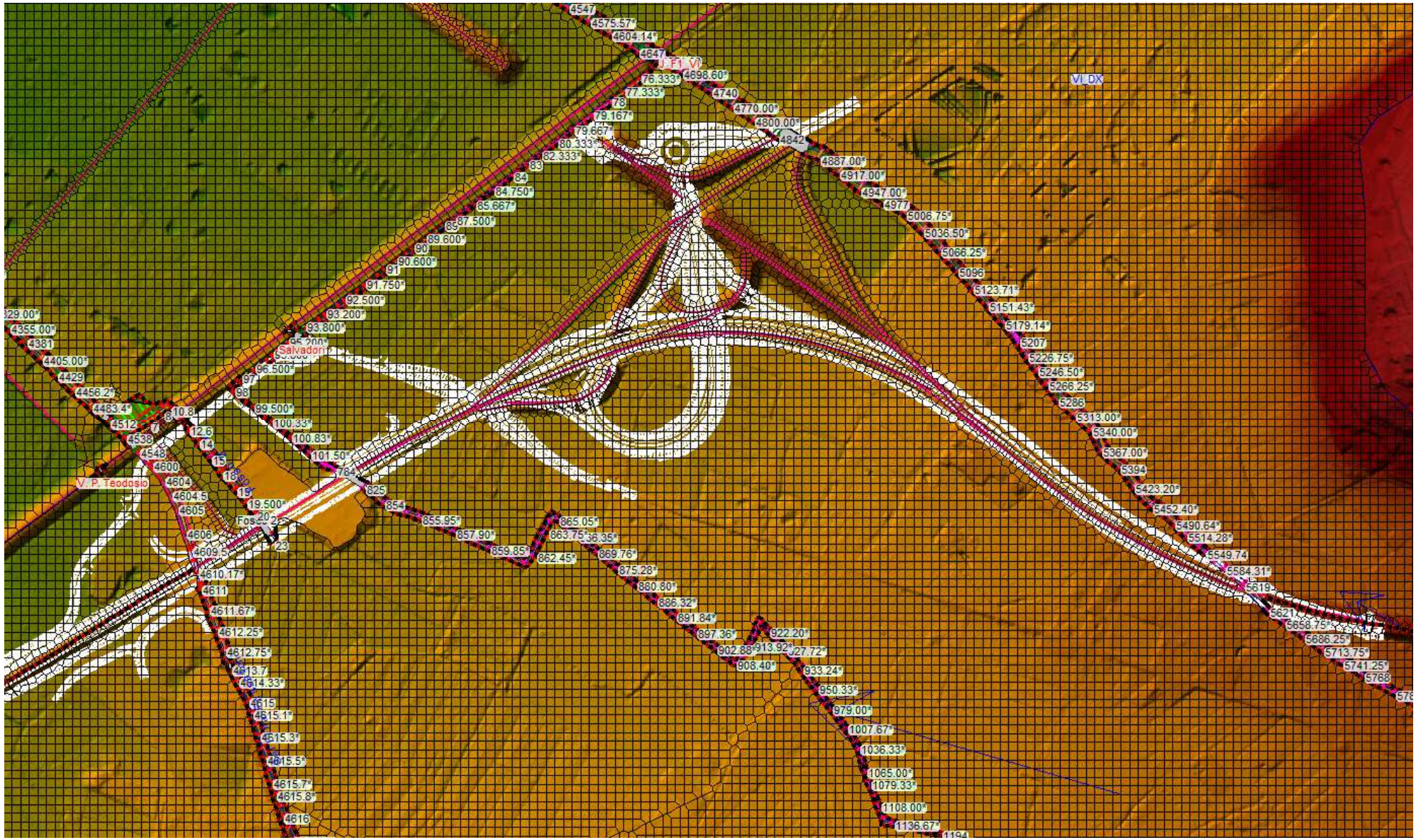
Reach	River Sta	Profile	Plan	Q US	Q Leaving Total	Q DS	Q Weir	Q Gates	Wr Top Wdth	Weir Max Depth	Weir Avg Depth	Min El Weir Flow	E.G. US.	W.S. US.	E.G. DS	W.S. DS
				(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)
Fosso1	18.99	Max WS	ATT_TR200_1H	9.05	0.71	8.43	0.71		91.77	0.42	0.16	243.62	244.28	244.23	244.06	243.99
Fosso1	18.99	Max WS	PRO_TR200_1H	9.03	0.59	8.45	0.59		91.77	0.42	0.16	243.62	244.28	244.23	244.06	243.99
Fosso1	18.98	Max WS	ATT_TR200_1H	9.05	0.00	8.80	0.00					244.19	244.28	244.23	244.14	244.08
Fosso1	18.98	Max WS	PRO_TR200_1H	9.03	0.00	8.83	0.00					244.19	244.28	244.23	244.14	244.08
Fosso1	17.98	Max WS	ATT_TR200_1H	8.80	0.00	8.43	0.00					244.01	244.14	244.08	244.06	243.99
Fosso1	17.98	Max WS	PRO_TR200_1H	8.83	0.00	8.45	0.00					244.01	244.14	244.08	244.06	243.99
Fosso1	16.99	Max WS	ATT_TR200_1H	8.43	1.48	7.92	1.48		56.88	0.64	0.33	243.33	244.06	243.99	243.99	243.97
Fosso1	16.99	Max WS	PRO_TR200_1H	8.45	1.44	7.95	1.44		56.88	0.64	0.33	243.33	244.06	243.99	243.99	243.98
Fosso1	16.98	Max WS	ATT_TR200_1H	8.43	2.74	7.92	2.74		59.10	0.86	0.59	243.11	244.06	243.99	243.99	243.97
Fosso1	16.98	Max WS	PRO_TR200_1H	8.45	2.64	7.95	2.64		59.10	0.86	0.59	243.11	244.06	243.99	243.99	243.98
Fosso1	15.99	Max WS	ATT_TR200_1H	7.92	2.58	7.68	2.58		49.25	0.71	0.61	243.26	243.99	243.97	243.98	243.98
Fosso1	15.99	Max WS	PRO_TR200_1H	7.95	2.54	7.64	2.54		49.25	0.71	0.61	243.26	243.99	243.98	243.98	243.98
Fosso1	15.98	Max WS	ATT_TR200_1H	7.92	2.52	7.68	2.52		46.05	0.86	0.62	243.11	243.99	243.97	243.98	243.98
Fosso1	15.98	Max WS	PRO_TR200_1H	7.95	2.43	7.64	2.43		46.05	0.86	0.62	243.11	243.99	243.98	243.98	243.98
Fosso1	14.99	Max WS	ATT_TR200_1H	7.68	8.03	4.96	8.03		85.48	1.71	0.93	242.26	243.98	243.98	243.98	243.97
Fosso1	14.99	Max WS	PRO_TR200_1H	7.64	7.82	4.97	7.82		85.48	1.71	0.93	242.26	243.98	243.98	243.98	243.97
Fosso1	14.98	Max WS	ATT_TR200_1H	7.68	9.32	4.96	9.32		76.47	1.55	0.93	242.42	243.98	243.98	243.98	243.97
Fosso1	14.98	Max WS	PRO_TR200_1H	7.64	9.29	4.97	9.29		76.47	1.55	0.94	242.42	243.98	243.98	243.98	243.97
Fosso1	13.99	Max WS	ATT_TR200_1H	4.96	12.85	7.58	12.85		62.45	1.71	1.69	242.26	243.98	243.97	243.97	243.97
Fosso1	13.99	Max WS	PRO_TR200_1H	4.97	12.93	7.89	12.93		62.45	1.71	1.69	242.26	243.98	243.97	243.97	243.97
Fosso1	13.98	Max WS	ATT_TR200_1H	4.96	13.78	7.58	13.78		60.10	1.82	1.67	242.15	243.98	243.97	243.97	243.97
Fosso1	13.98	Max WS	PRO_TR200_1H	4.97	13.85	7.89	13.85		60.10	1.82	1.68	242.15	243.98	243.97	243.97	243.97

TORRENTE VINGONE
FOSSO SELLINA

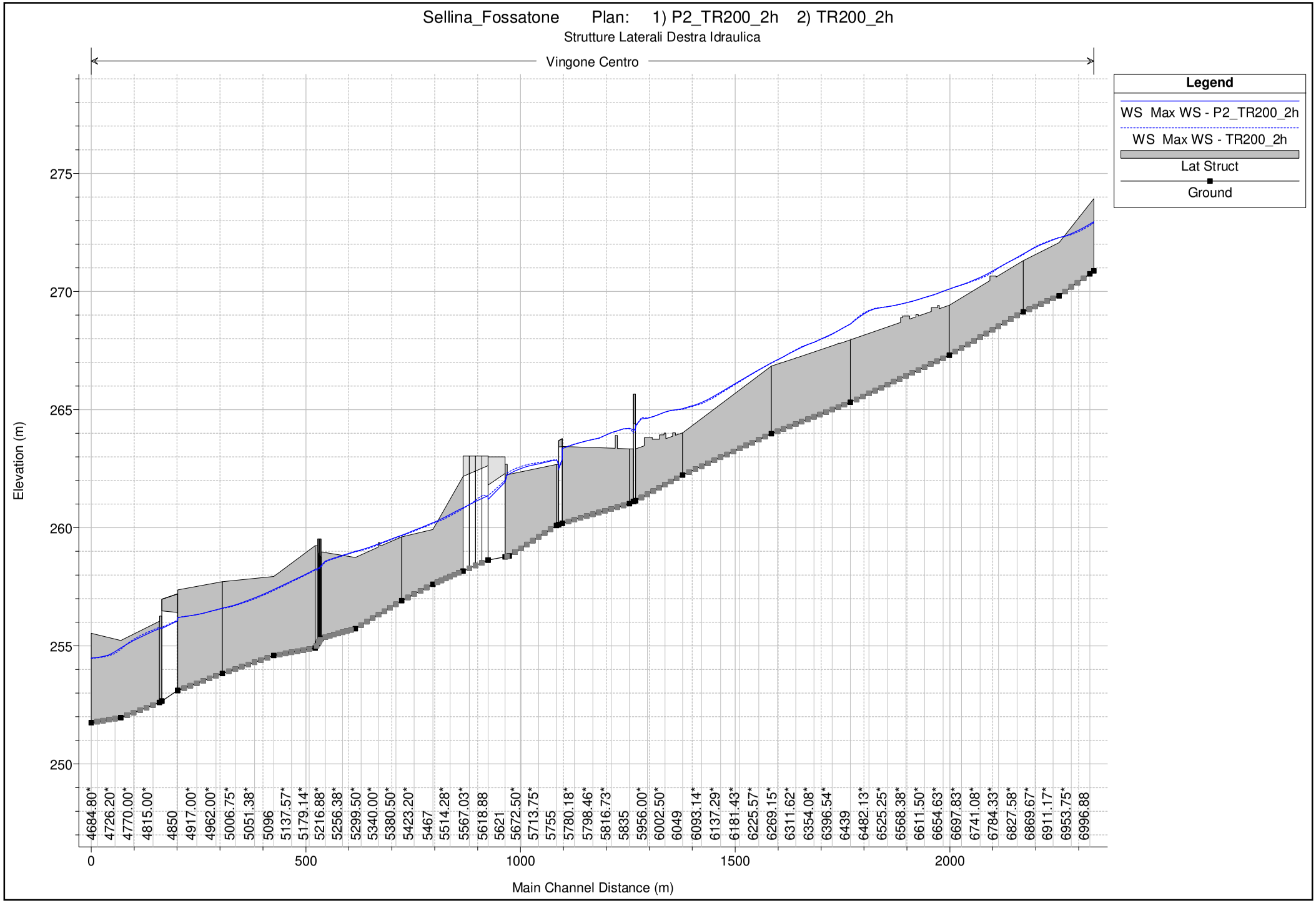
Planimetria Stato Attuale



Planimetria Stato di Progetto



TORRENTE
VINGONE
(tratto Vingone_Centro)



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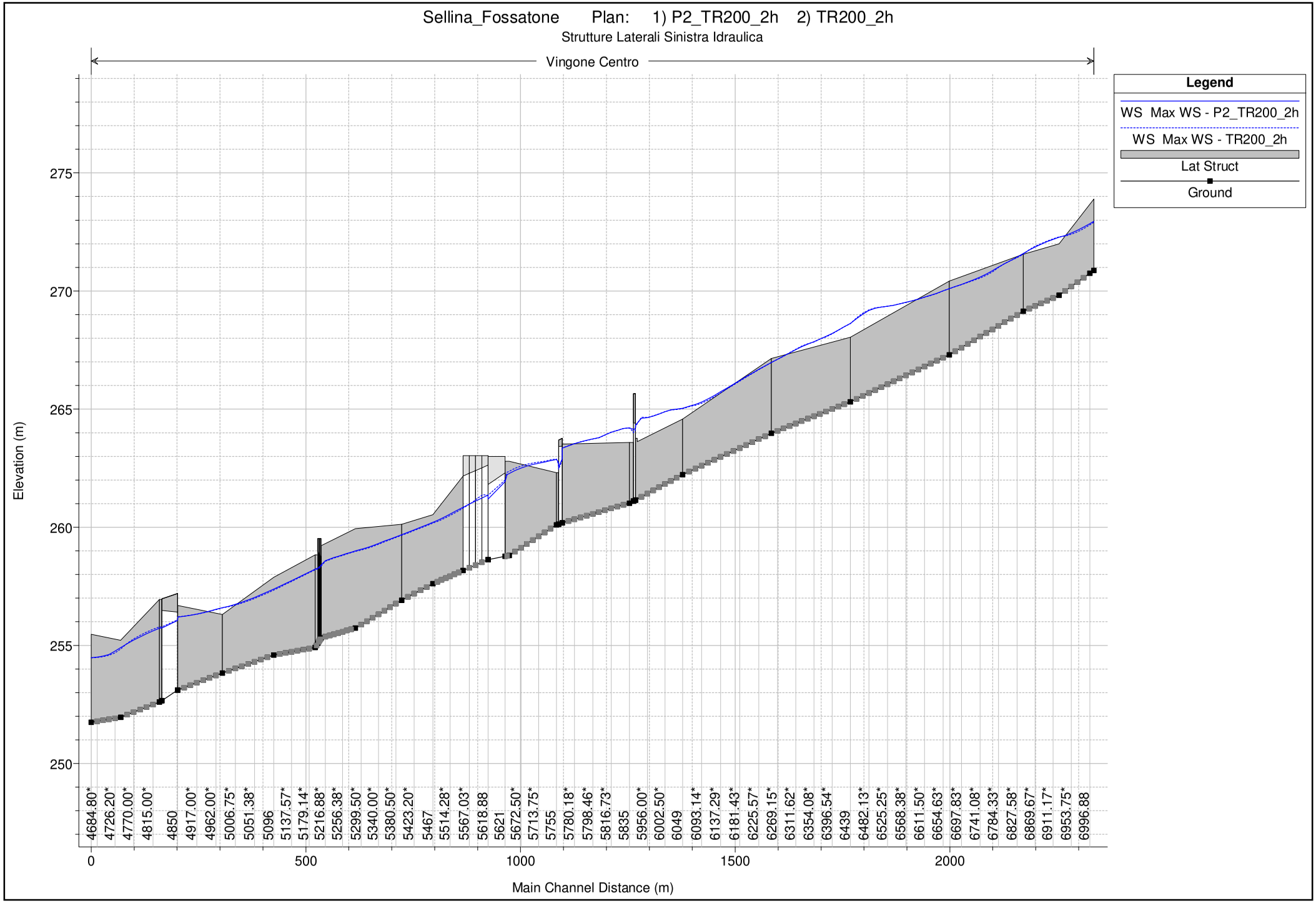
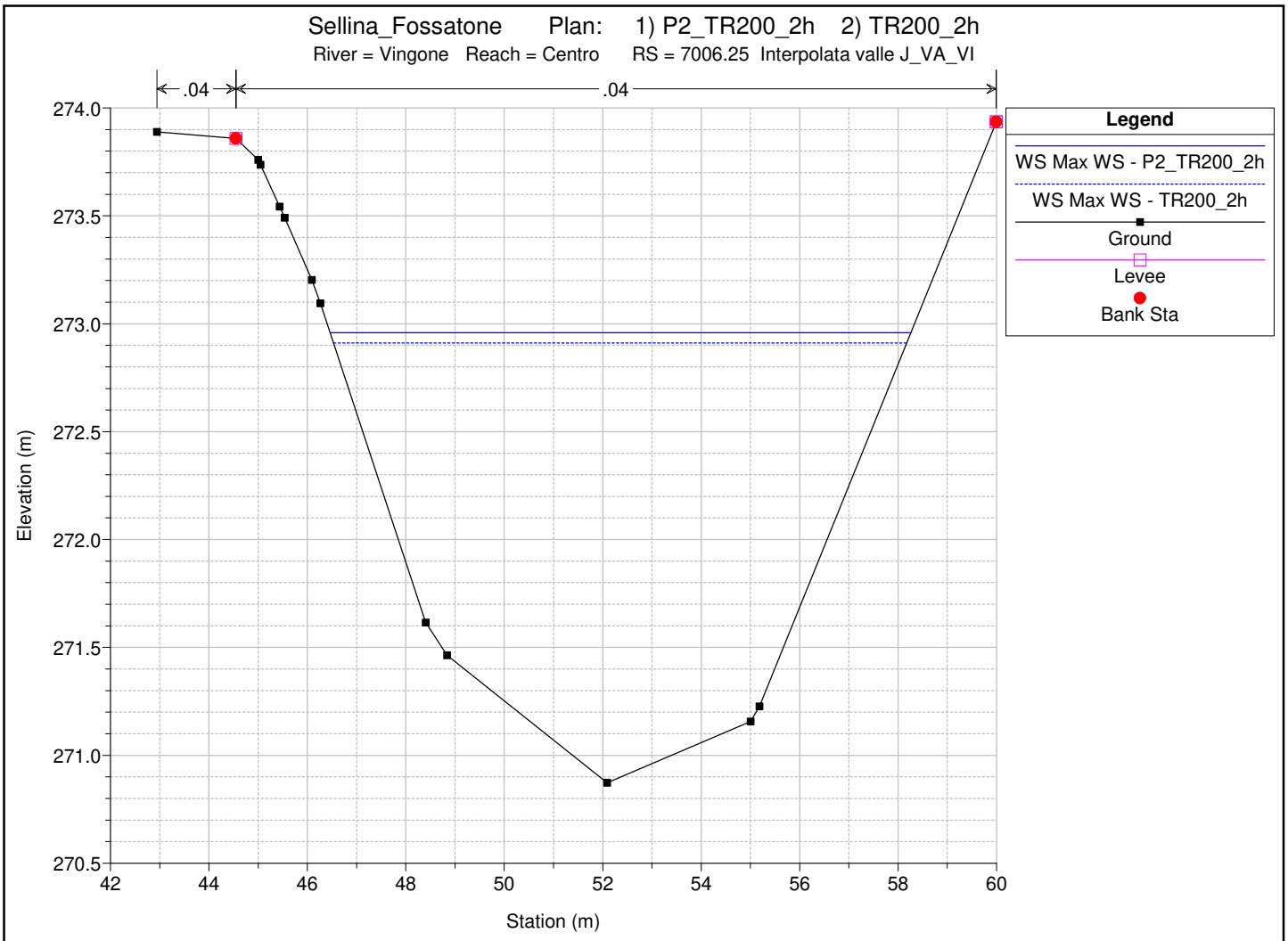
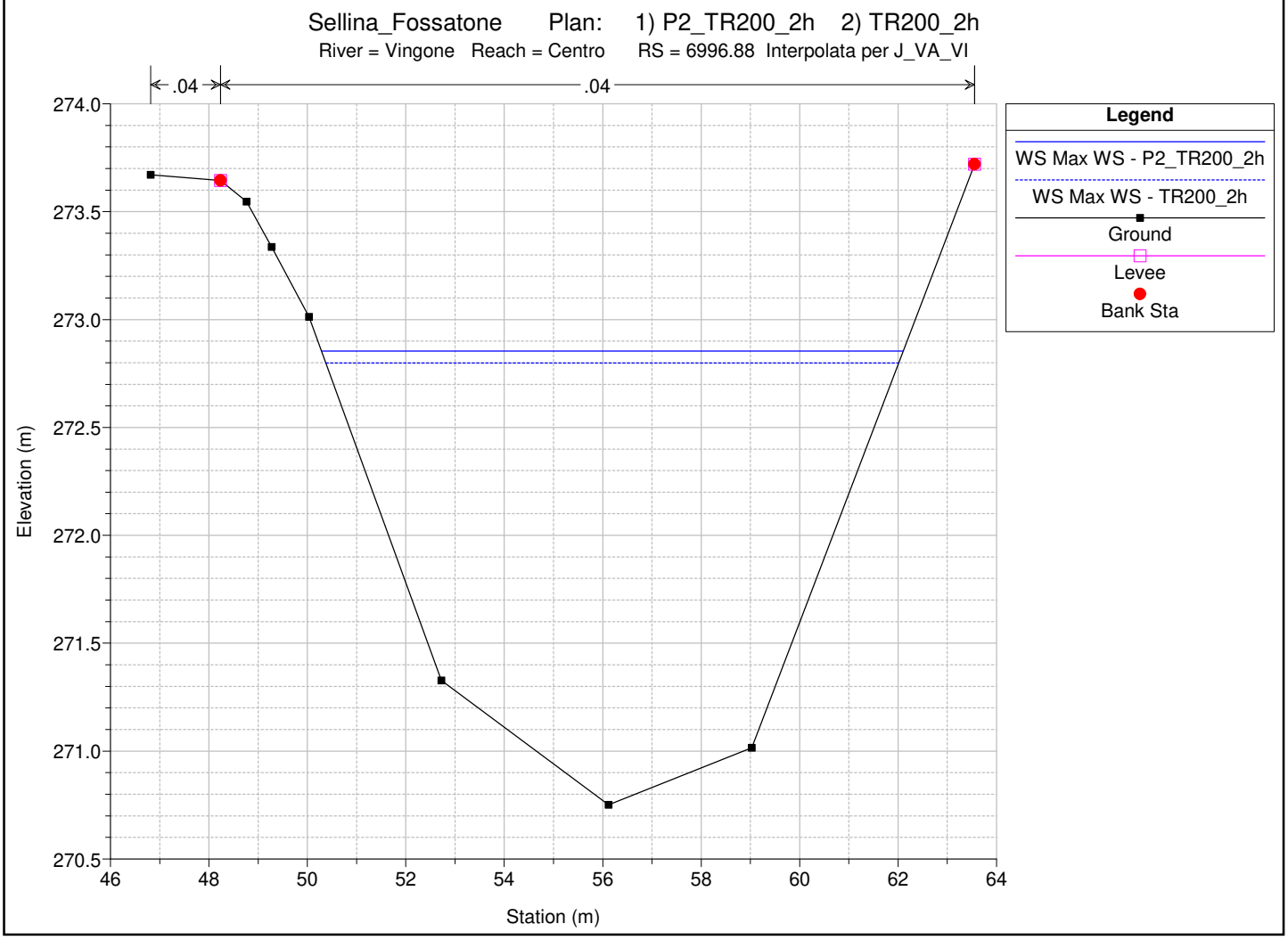
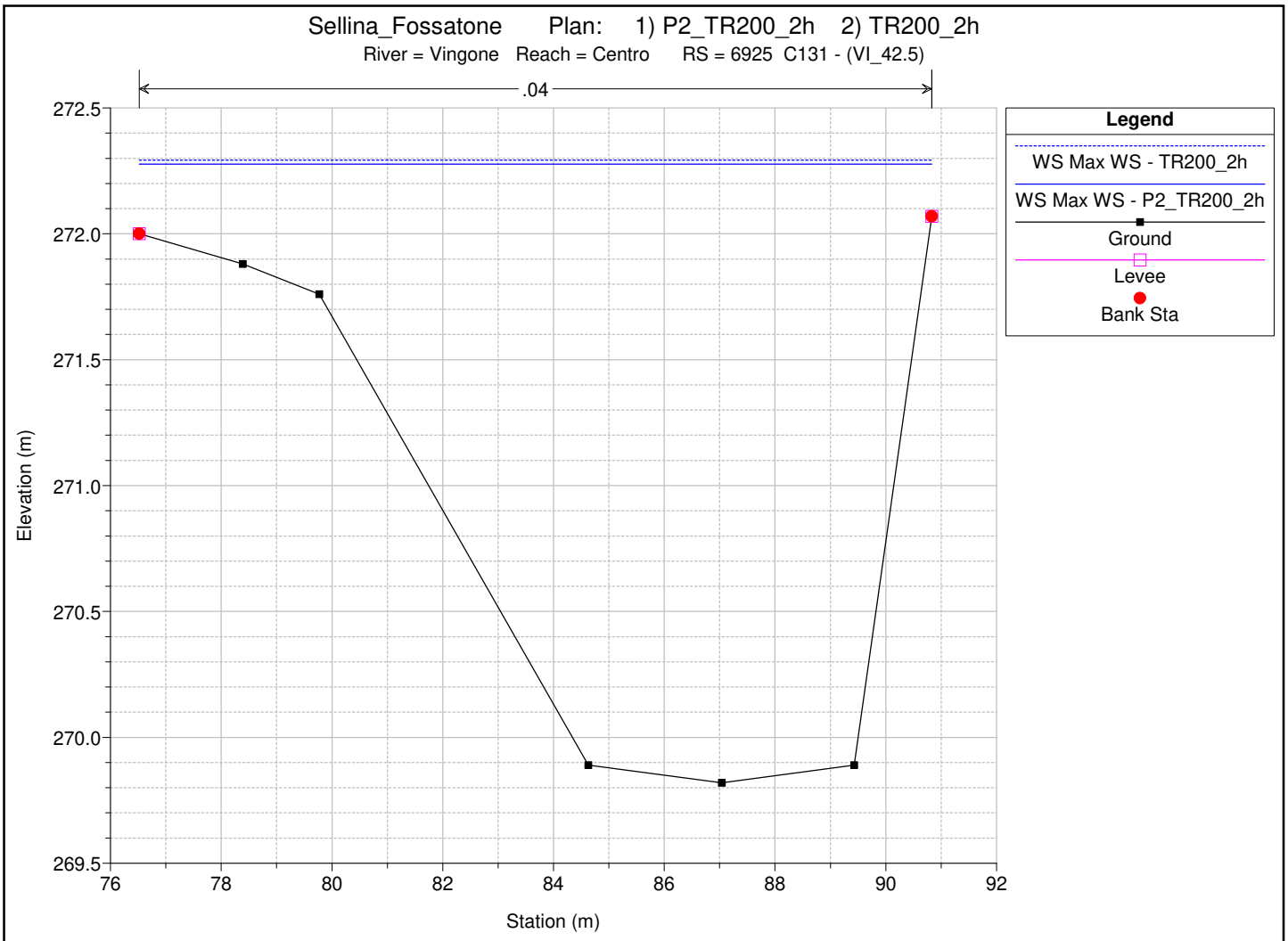
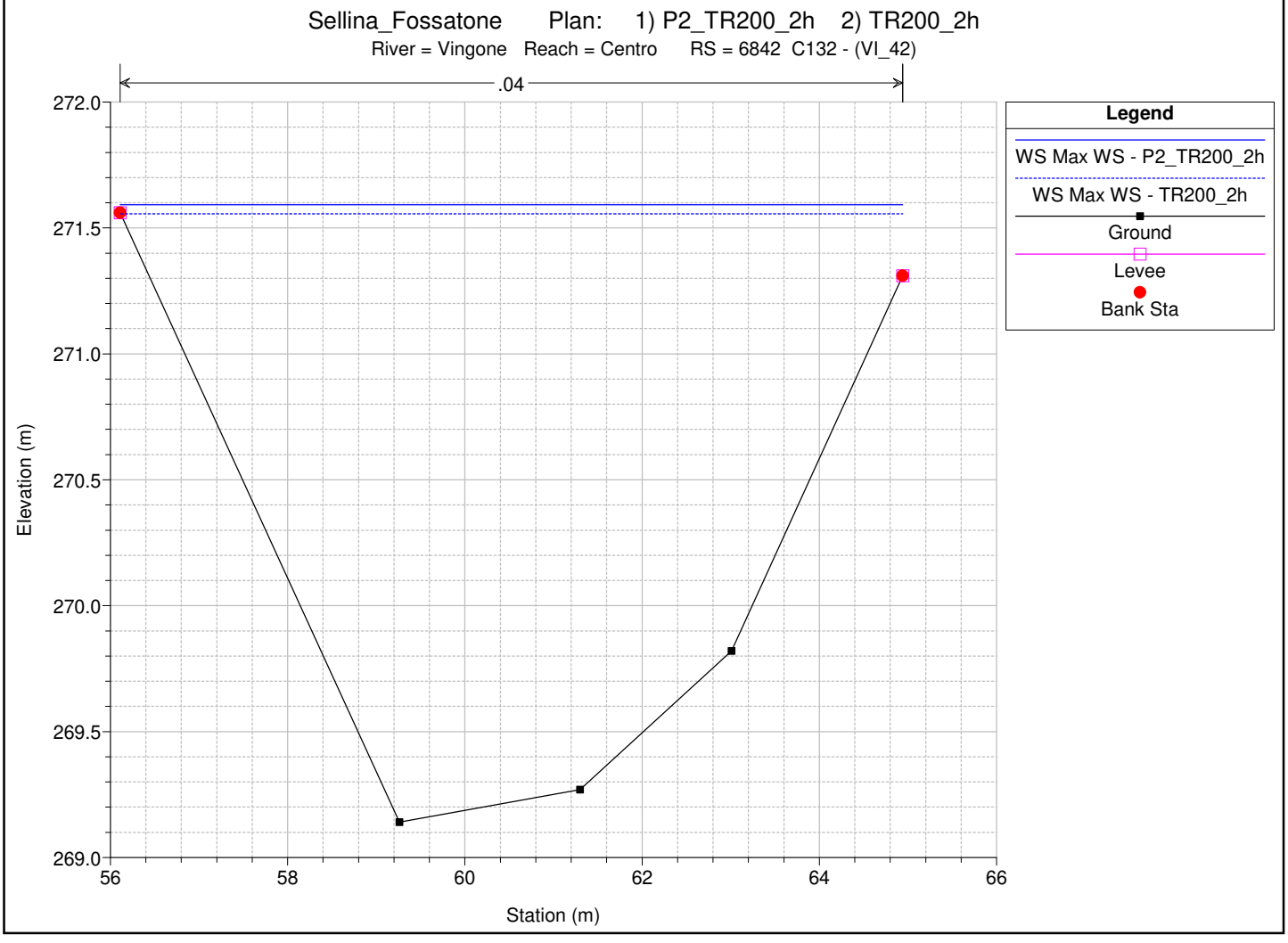


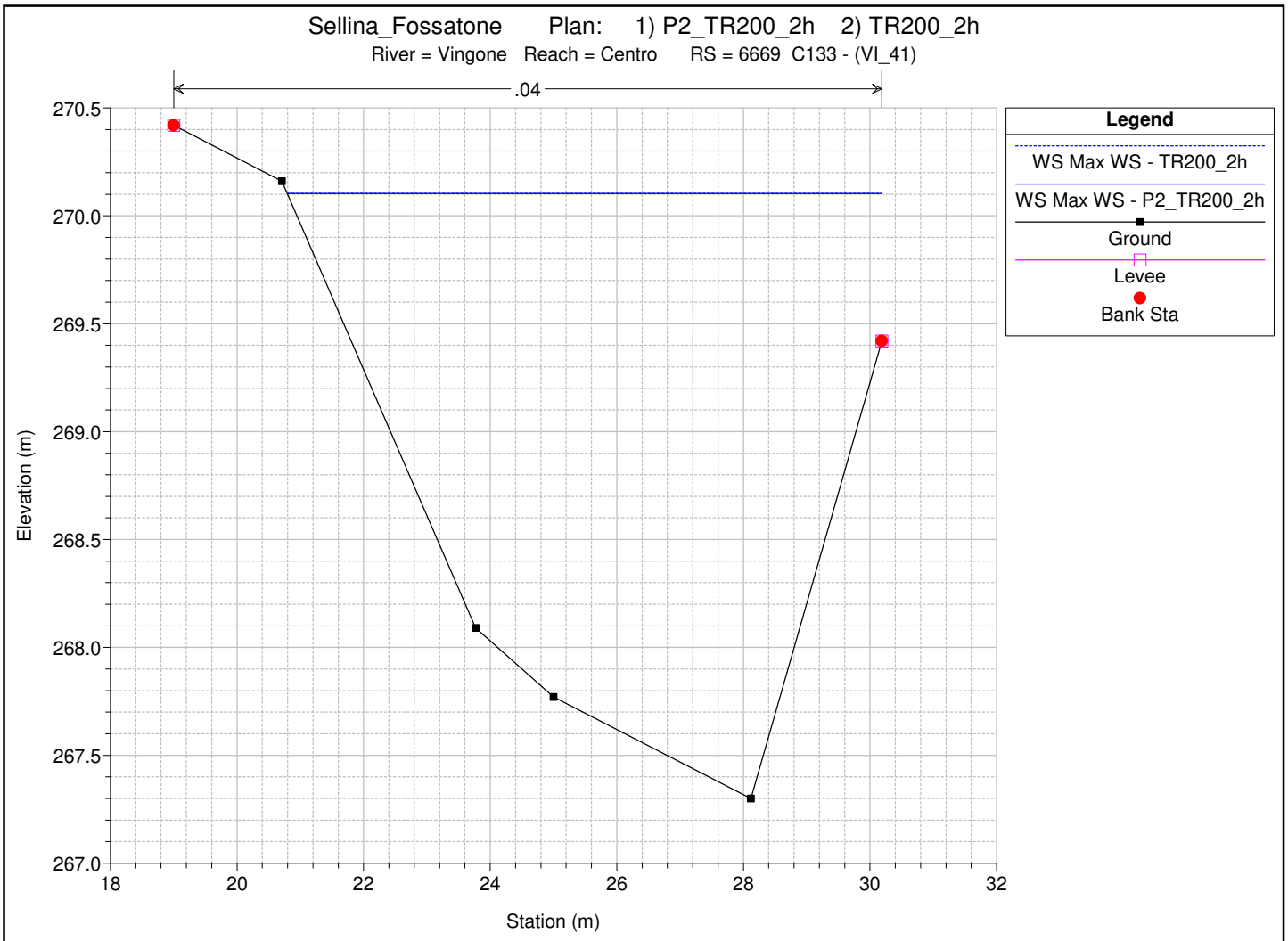
1 cm Horiz. = 110 m 1 cm Vert. = 2 m

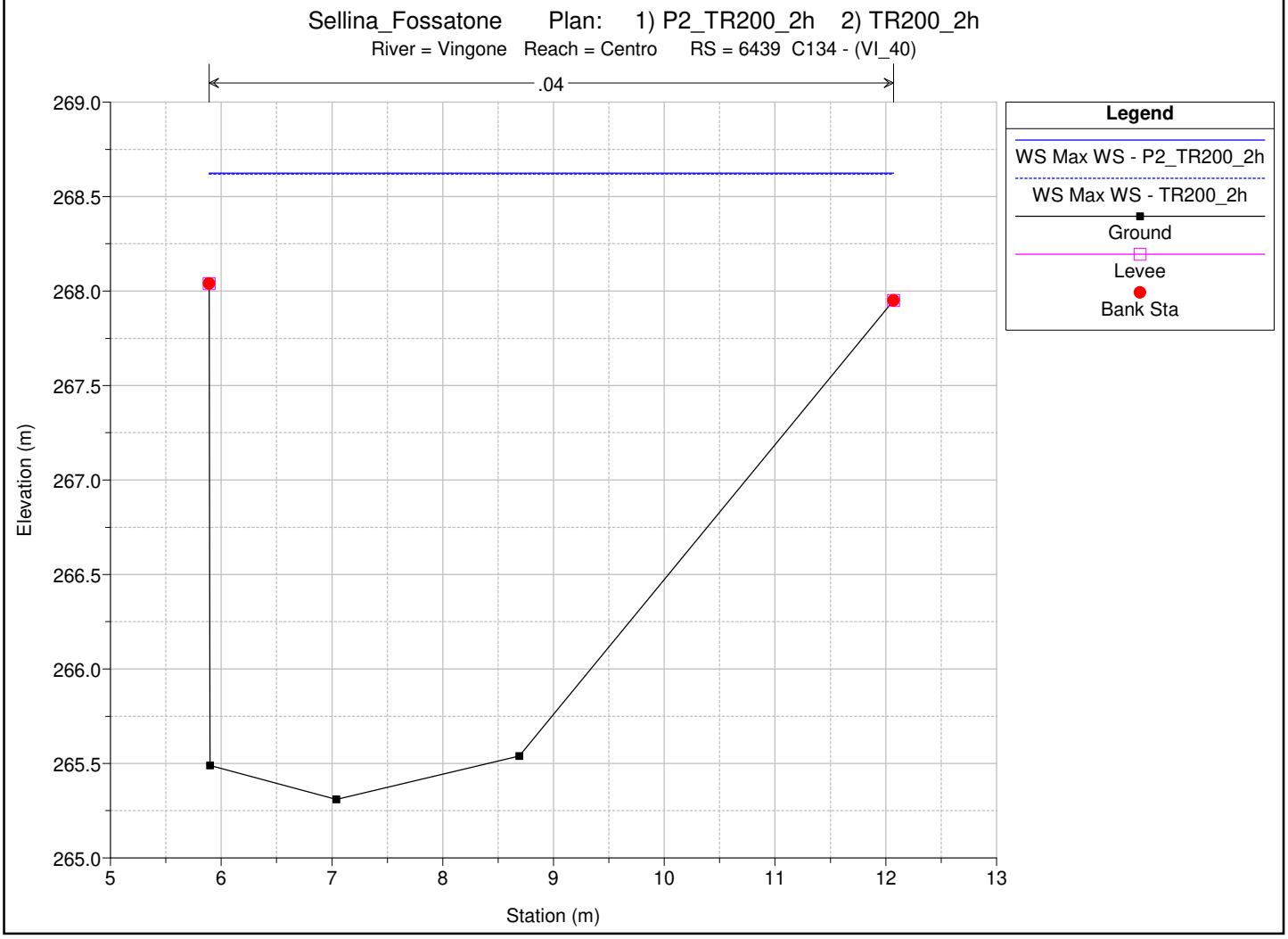

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 7006.25 Interpolata valle J_VA_VI
.04
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
274.0
273.5
273.0
272.5
272.0
271.5
271.0
270.5
42
44
46
48
50
52
54
56
58
60


Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 6996.88 Interpolata per J_VA_VI
.04
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
274.0
273.5
273.0
272.5
272.0
271.5
271.0
270.5
46
48
50
52
54
56
58
60
62
64


Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 6925 C131 - (VI_42.5)
.04
Legend
WS Max WS - TR200_2h
WS Max WS - P2_TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
272.5
272.0
271.5
271.0
270.5
270.0
269.5
76
78
80
82
84
86
88
90
92

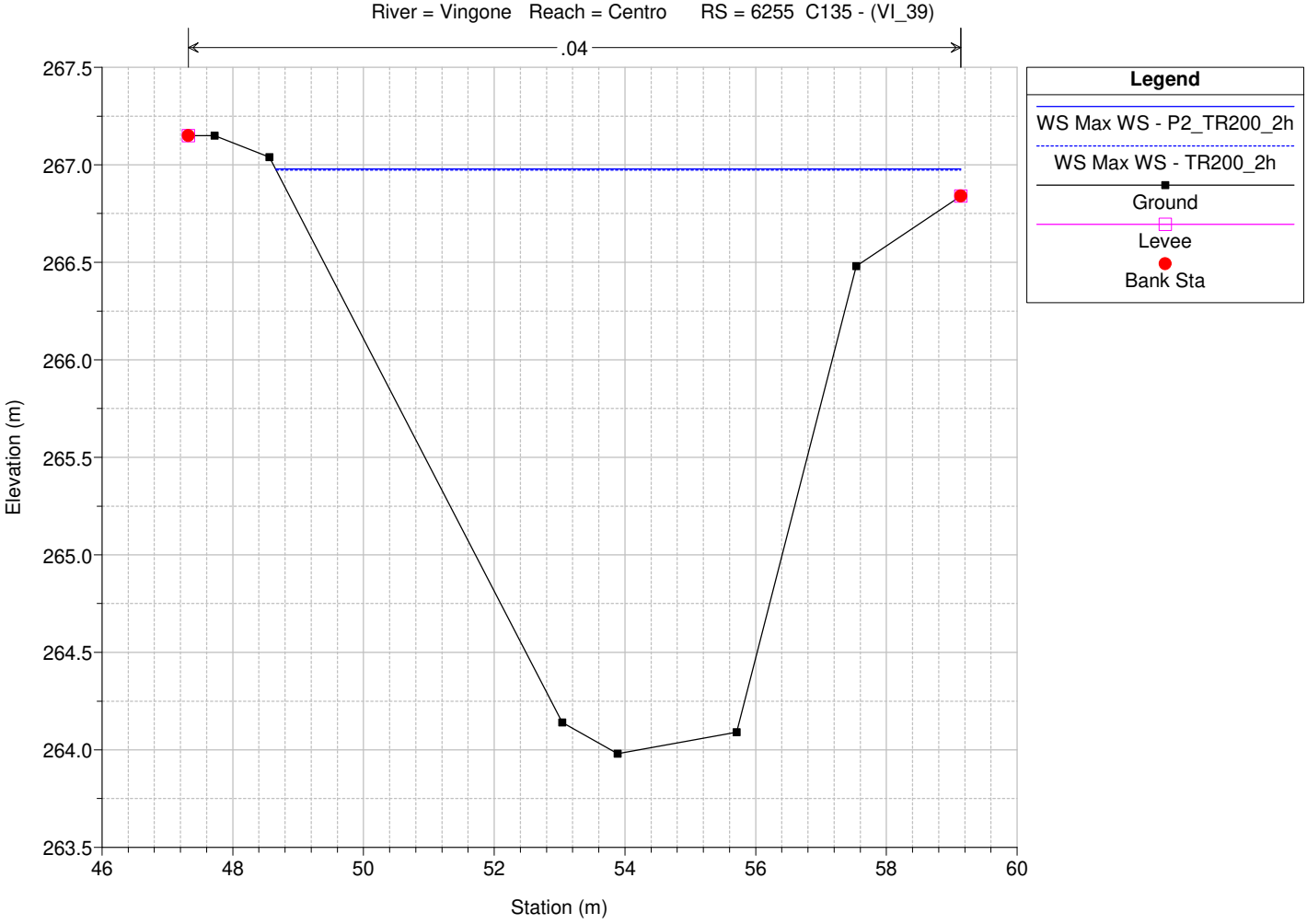

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 6842 C132 - (VI_42)
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
272.0
271.5
271.0
270.5
270.0
269.5
269.0
56
58
60
62
64
66


Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 6669 C133 - (VI_41)
.04
Legend
WS Max WS - TR200_2h
WS Max WS - P2_TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
270.5
270.0
269.5
269.0
268.5
268.0
267.5
267.0
18
20
22
24
26
28
30
32


Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 6439 C134 - (VI_40)
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
269.0
268.5
268.0
267.5
267.0
266.5
266.0
265.5
265.0
5
6
7
8
9
10
11
12
13

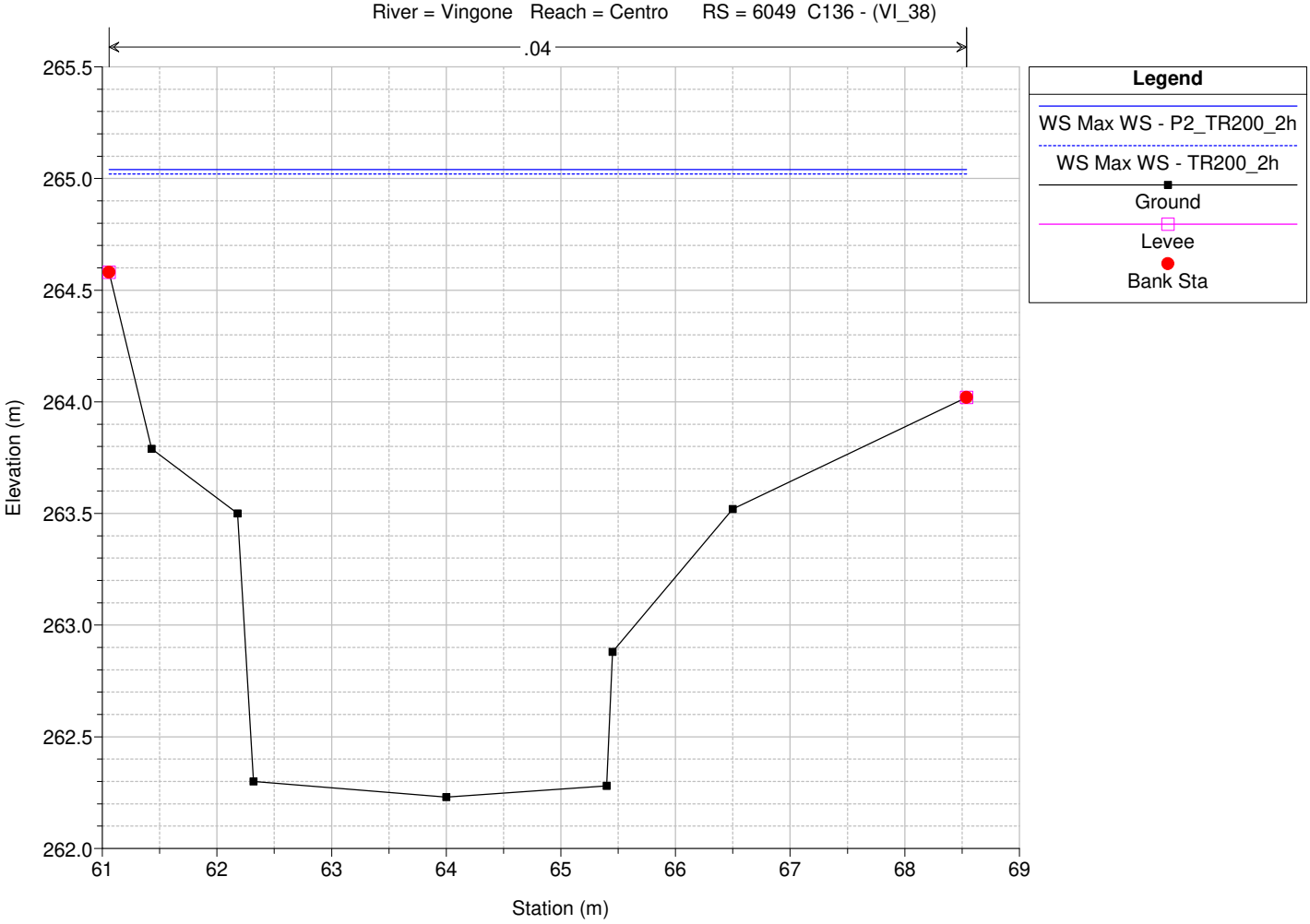
Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h

River = Vingone Reach = Centro RS = 6255 C135 - (VI_39)



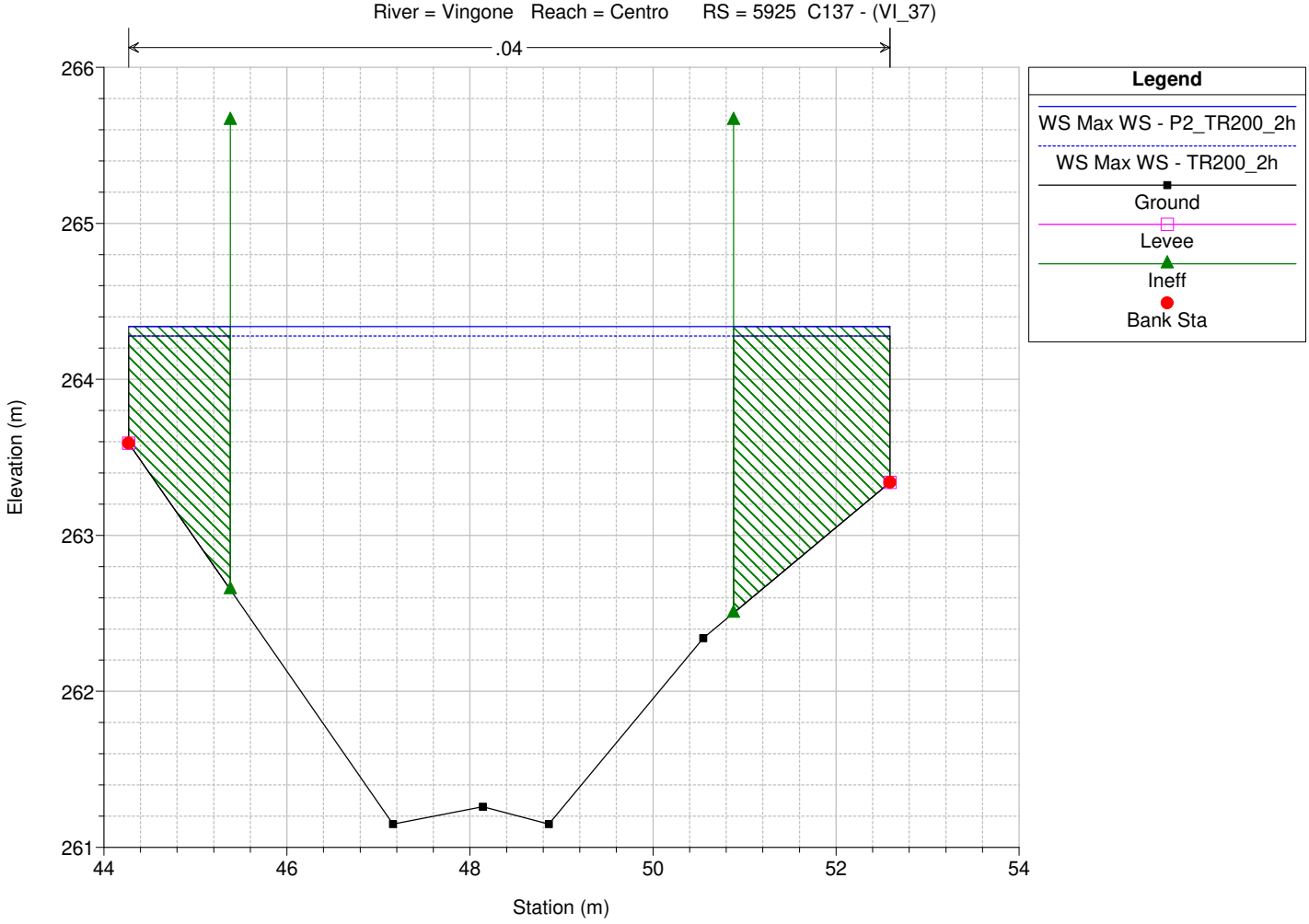
Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h

River = Vingone Reach = Centro RS = 6049 C136 - (VI_38)



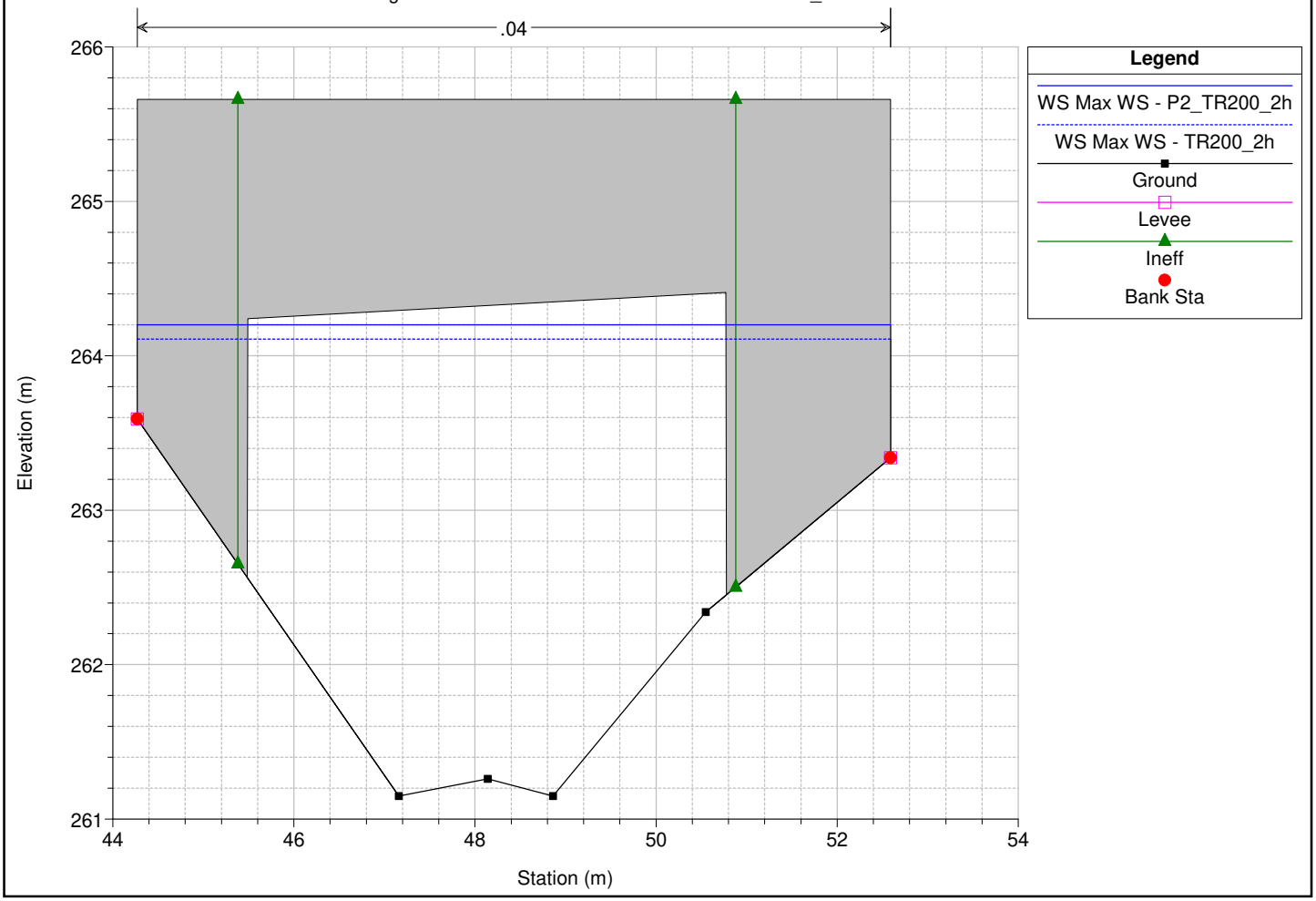
Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h

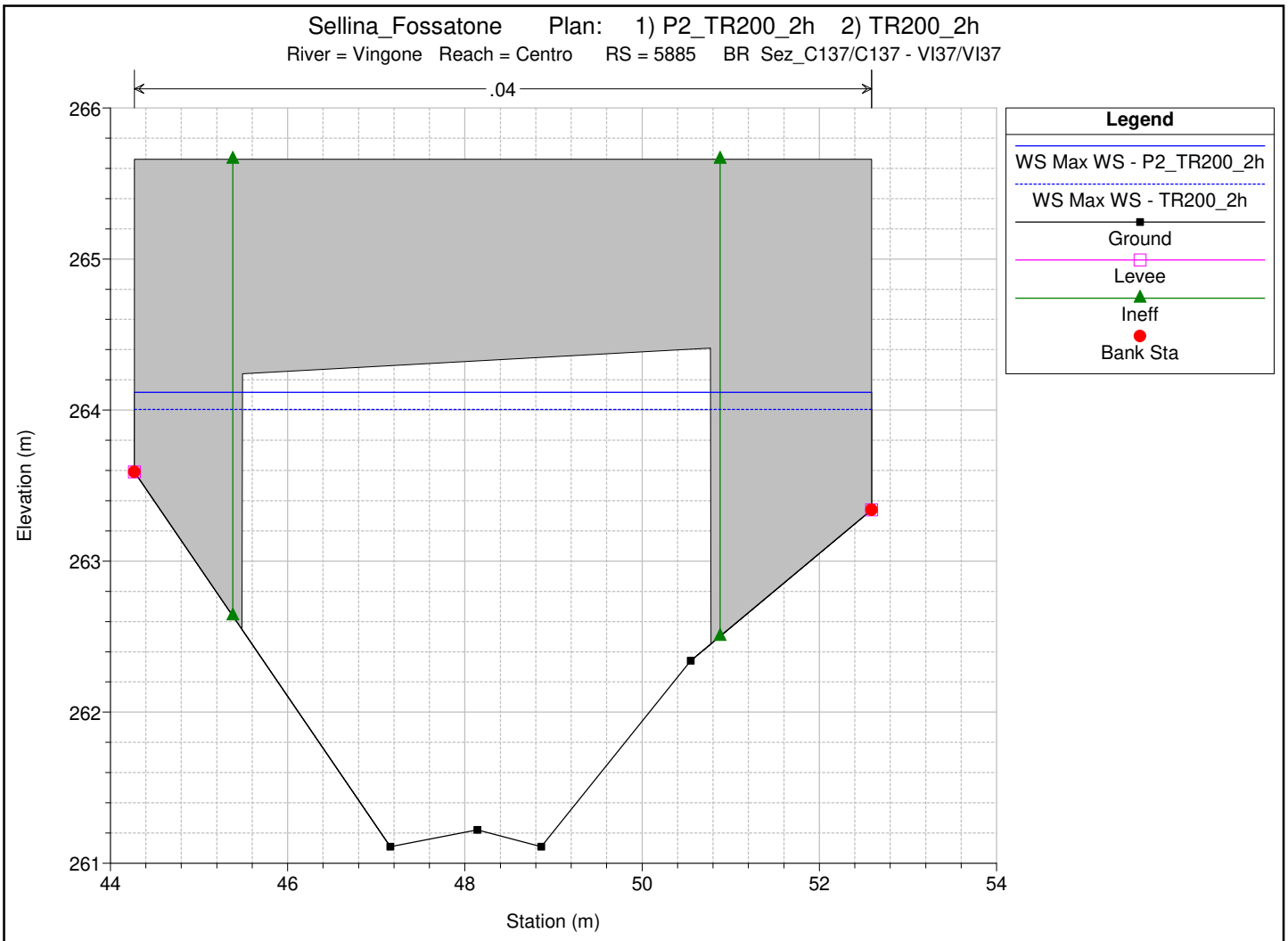
River = Vingone Reach = Centro RS = 5925 C137 - (VI_37)

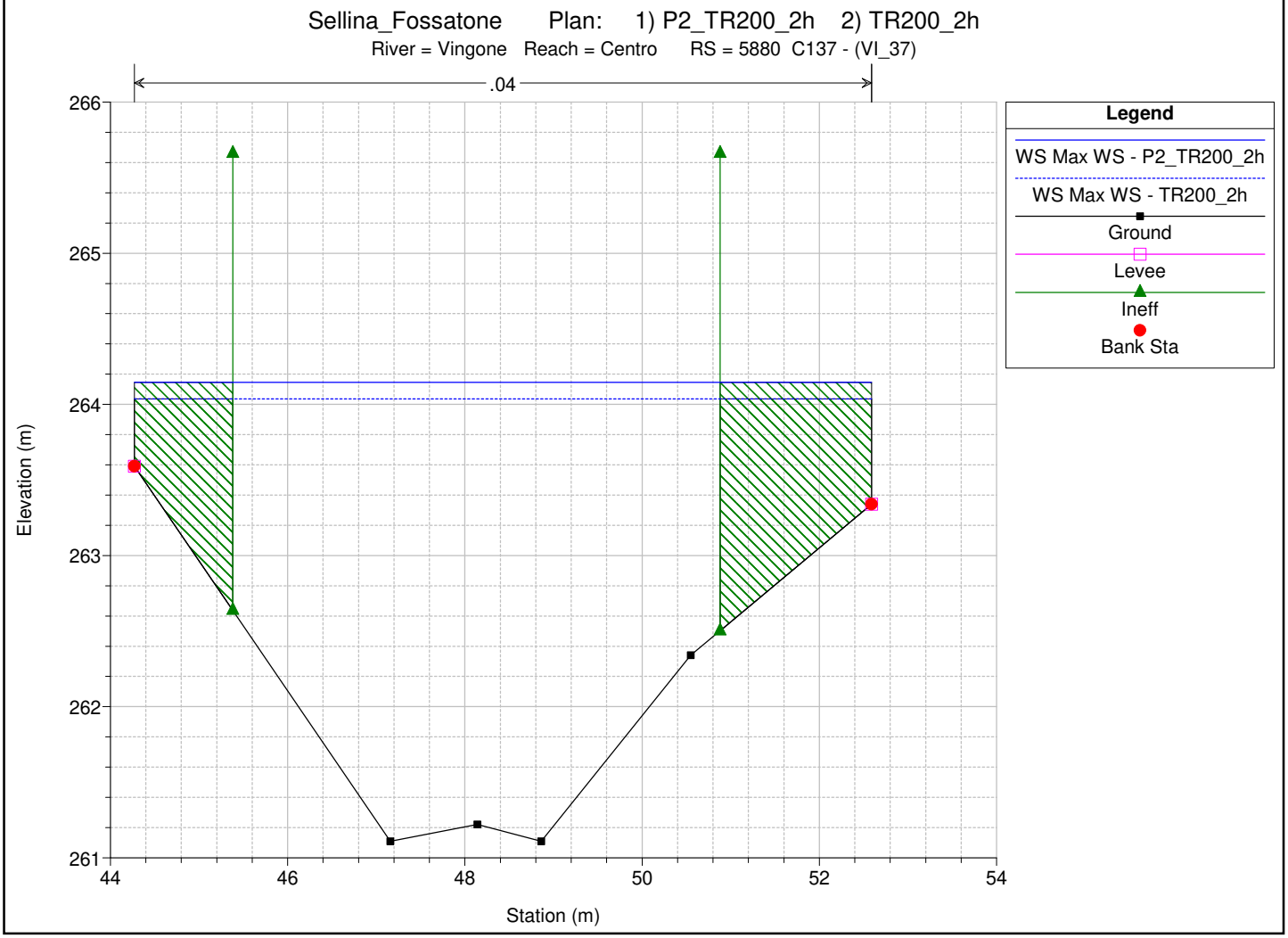


Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h

River = Vingone Reach = Centro RS = 5885 BR Sez_C137/C137 - VI37/VI37

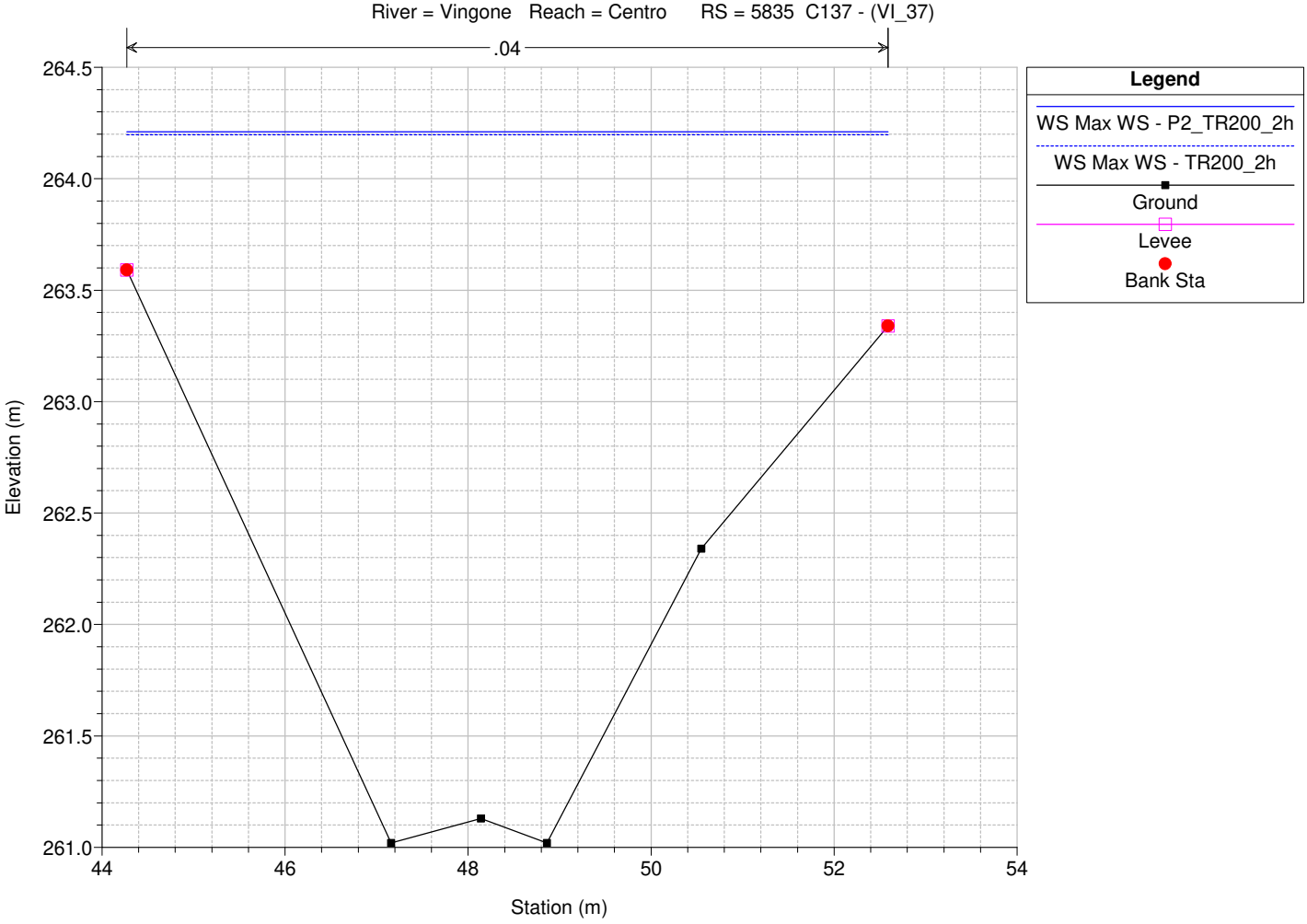



Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5885 BR Sez_C137/C137 - VI37/VI37
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
266
265
264
263
262
261
44
46
48
50
52
54


Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5880 C137 - (VI_37)
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
266
265
264
263
262
261
44
46
48
50
52
54

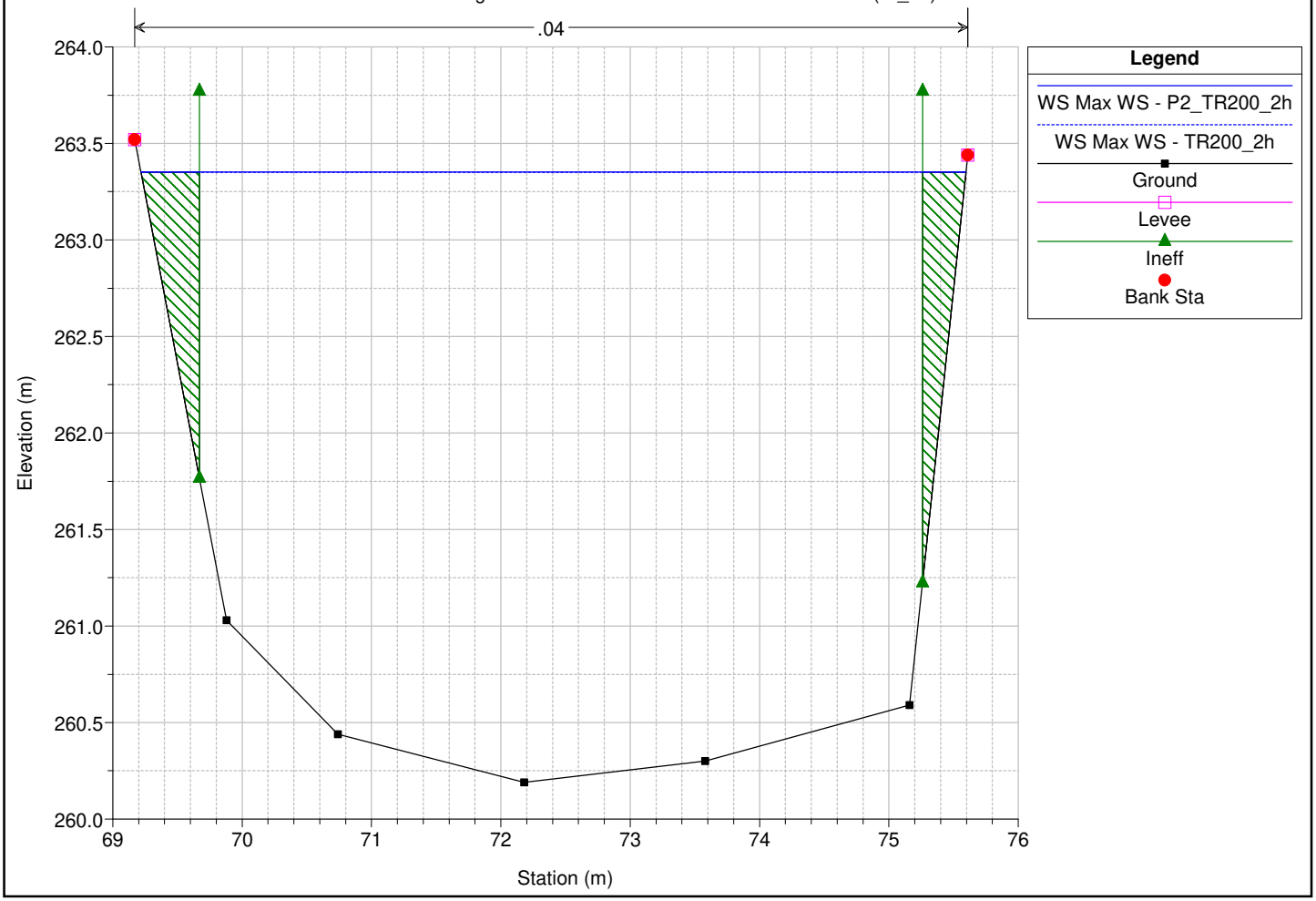
Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h

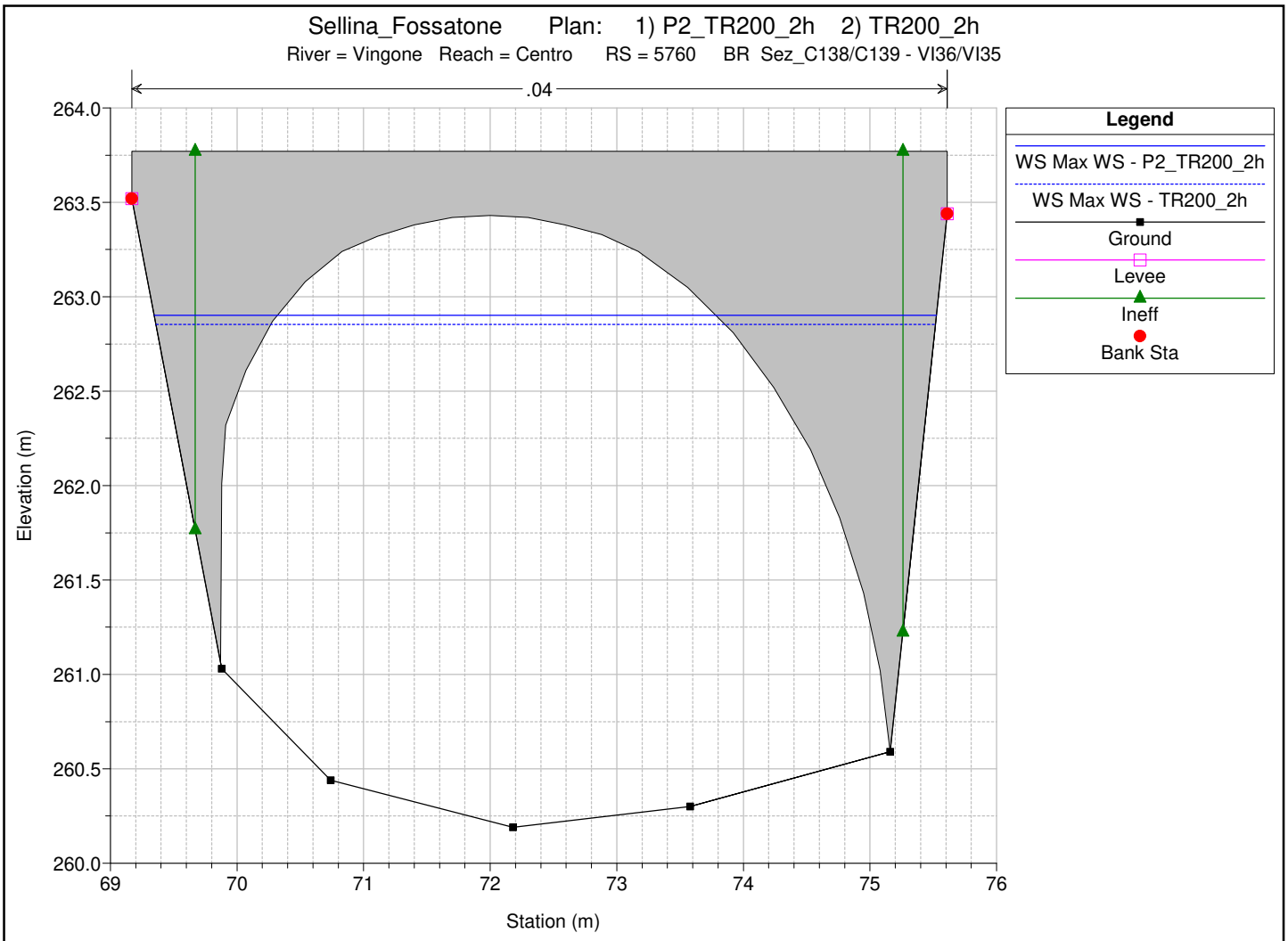
River = Vingone Reach = Centro RS = 5835 C137 - (VI_37)

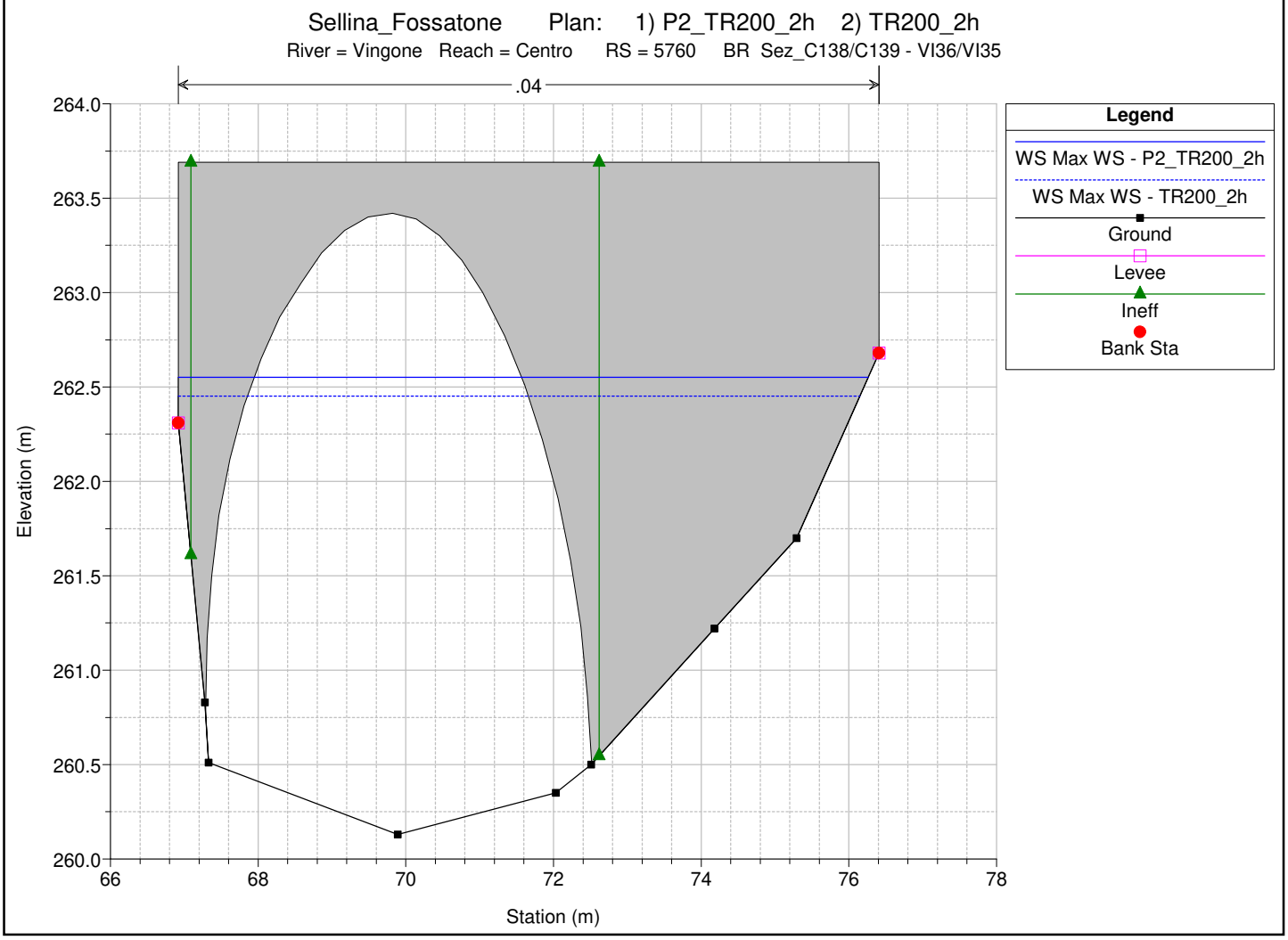


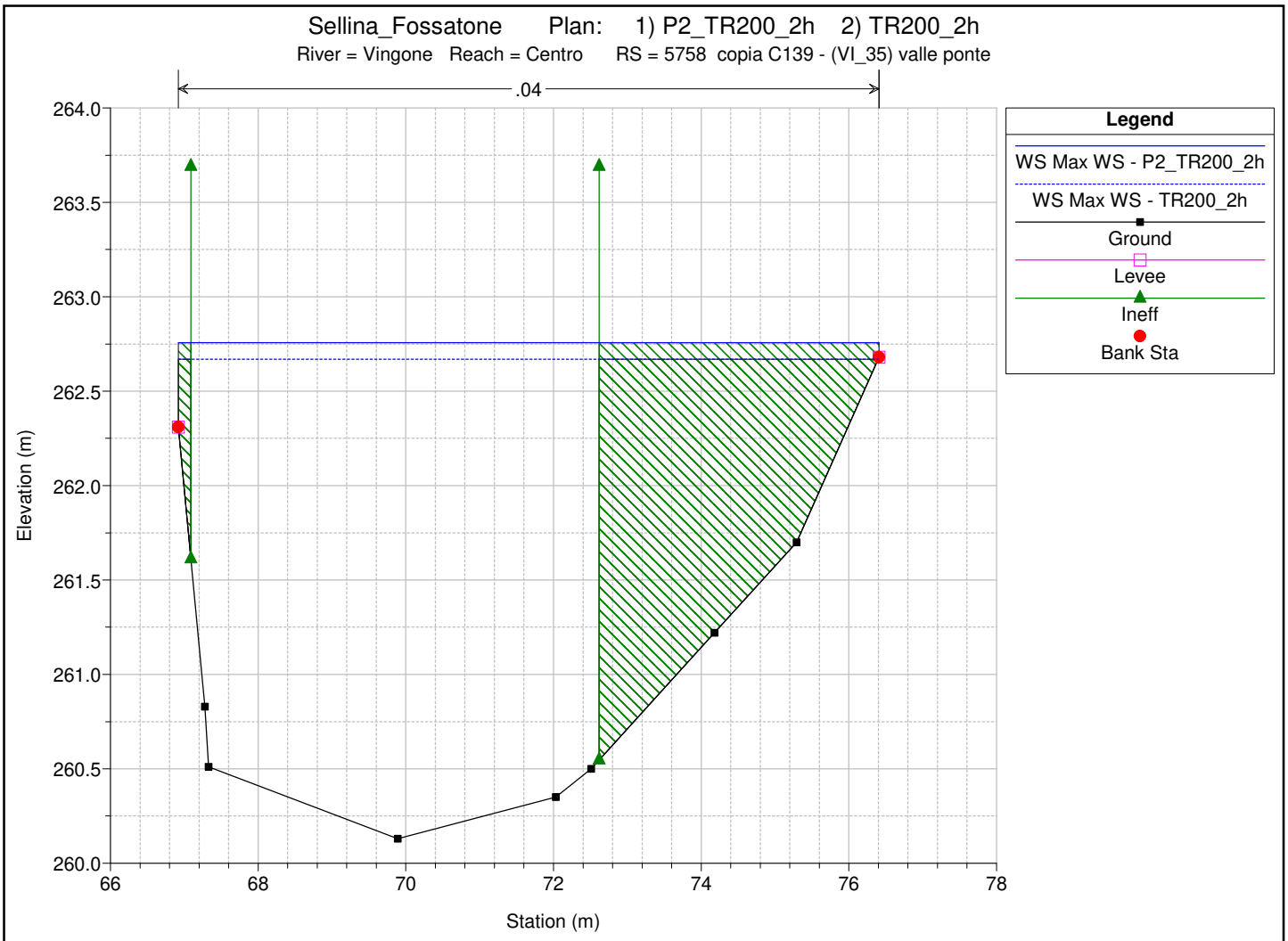
Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h

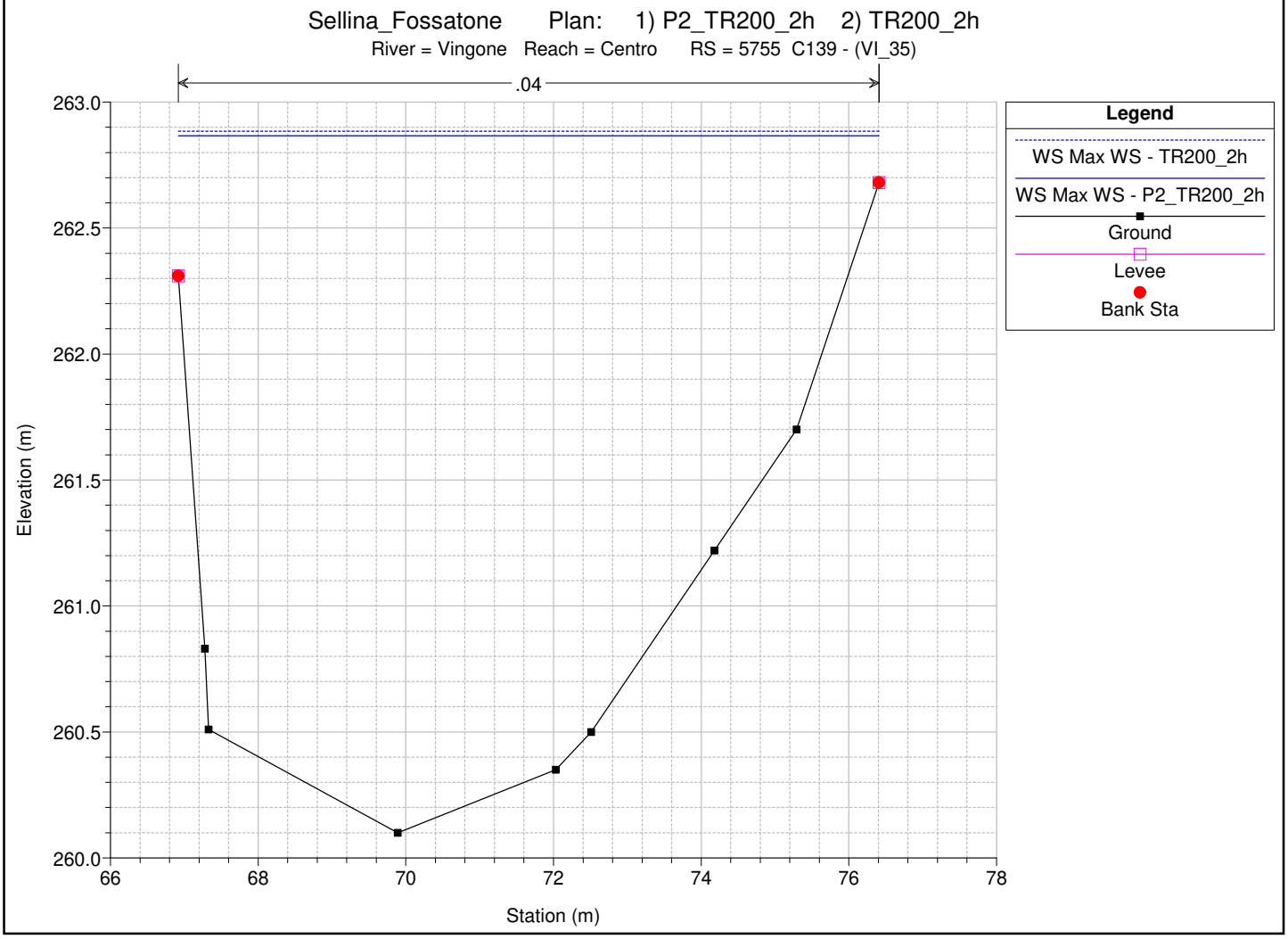
River = Vingone Reach = Centro RS = 5768 C138 - (VI_36)




Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5760 BR Sez_C138/C139 - VI36/VI35
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
264.0
263.5
263.0
262.5
262.0
261.5
261.0
260.5
260.0
69
70
71
72
73
74
75
76

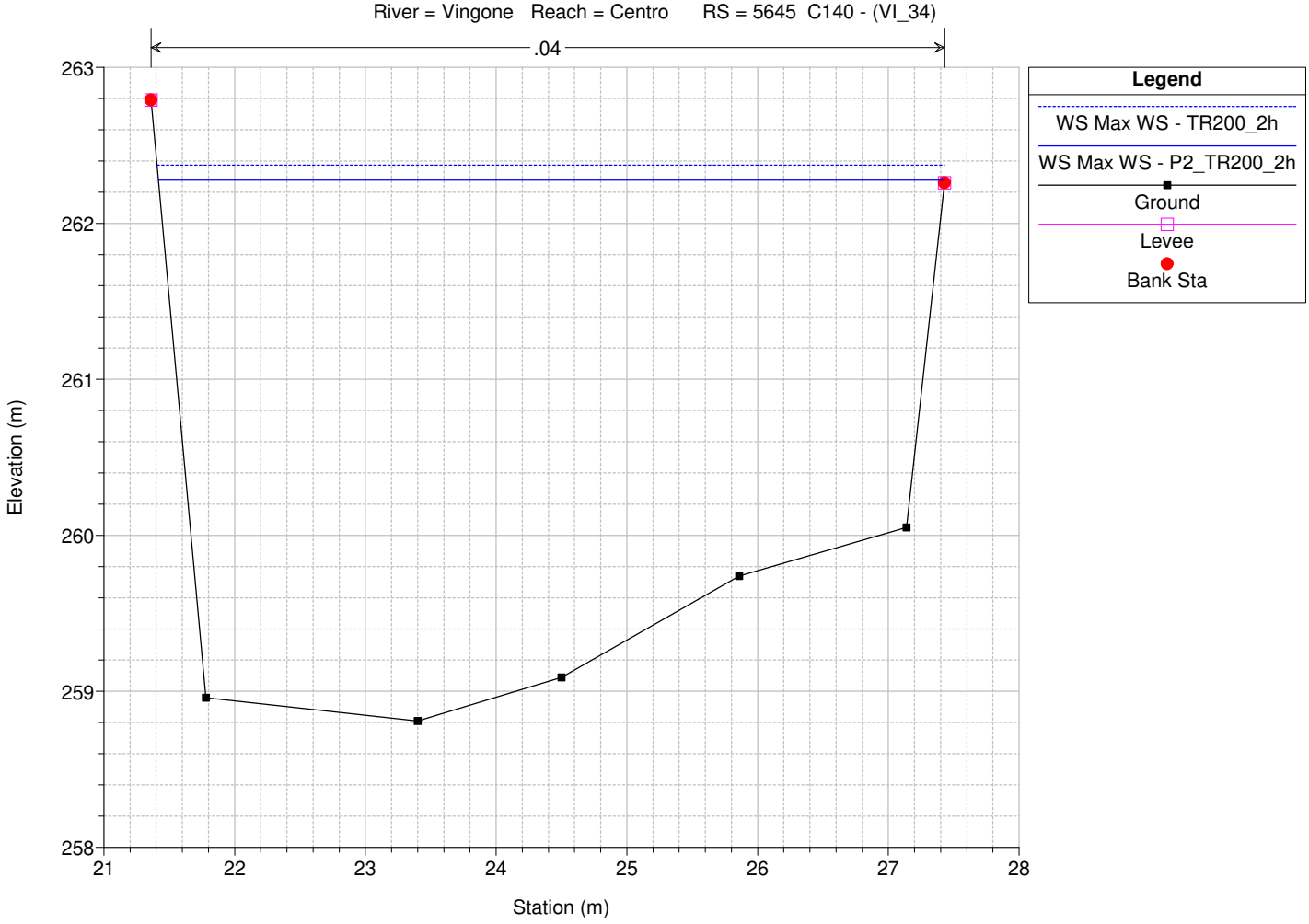

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5760 BR Sez_C138/C139 - VI36/VI35
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
264.0
263.5
263.0
262.5
262.0
261.5
261.0
260.5
260.0
66
68
70
72
74
76
78


Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5758 copia C139 - (VI_35) valle ponte
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
264.0
263.5
263.0
262.5
262.0
261.5
261.0
260.5
260.0
66
68
70
72
74
76
78


Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5755 C139 - (VI_35)
.04
Legend
WS Max WS - TR200_2h
WS Max WS - P2_TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
263.0
262.5
262.0
261.5
261.0
260.5
260.0
66
68
70
72
74
76
78

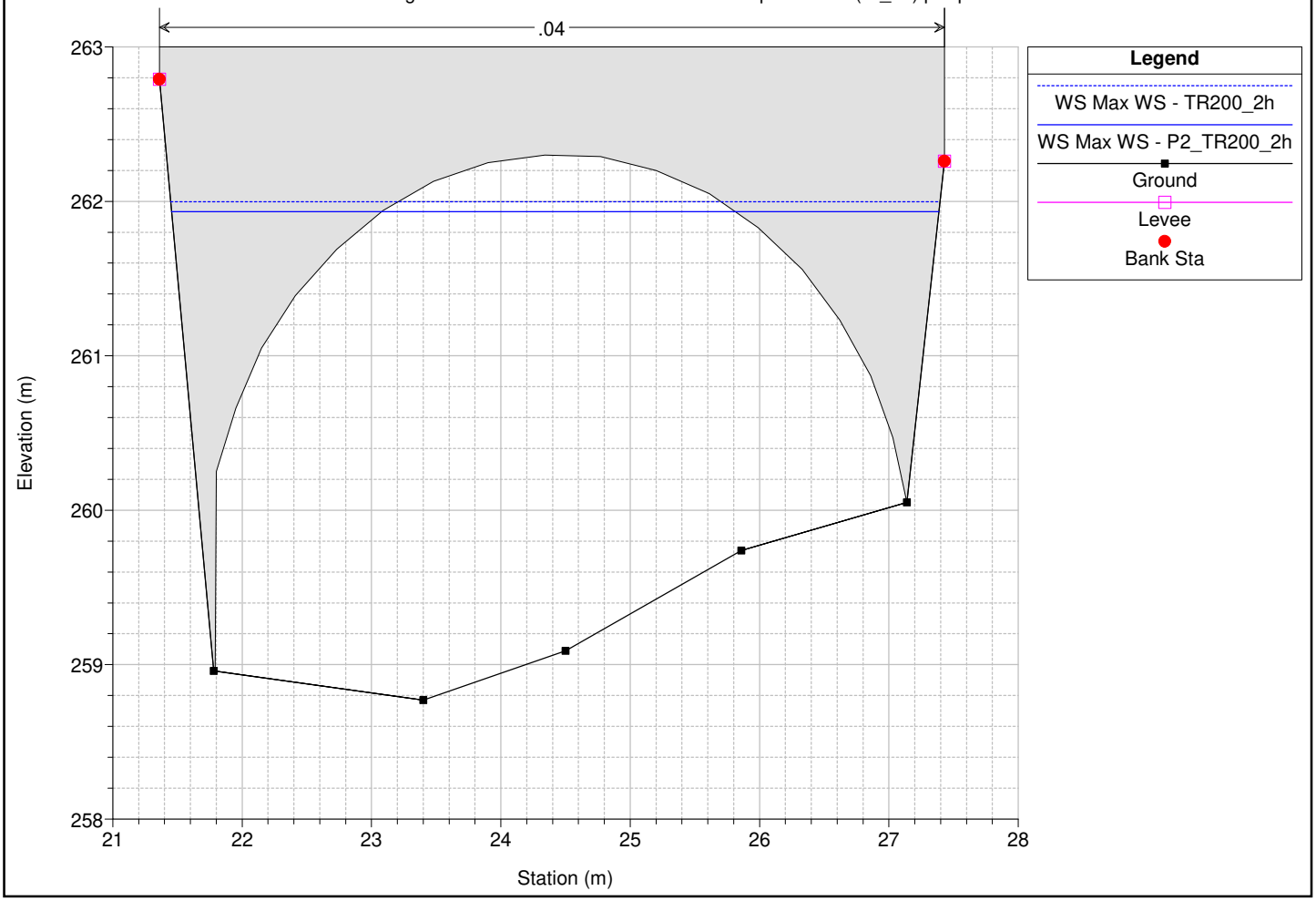
Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h

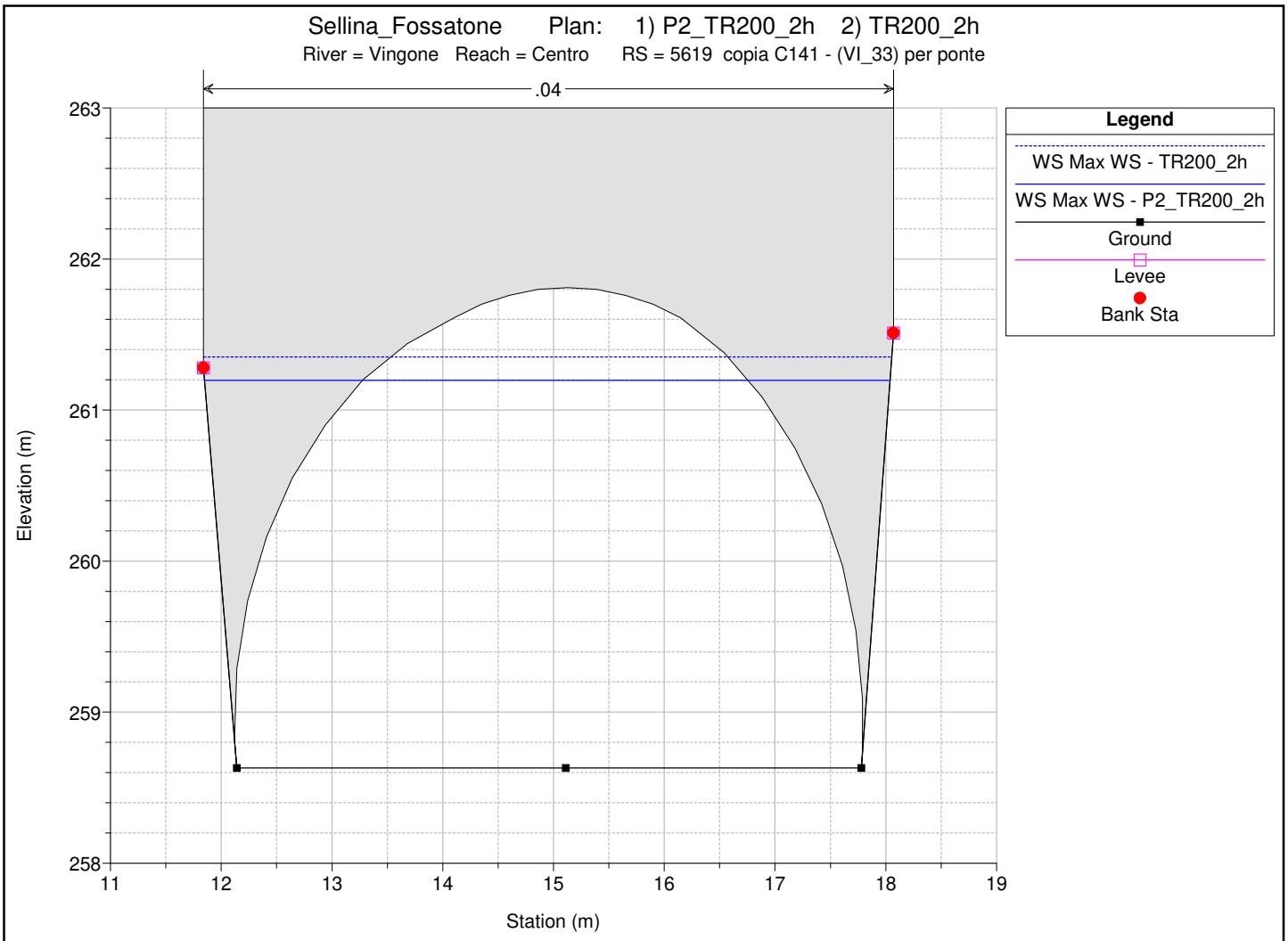
River = Vingone Reach = Centro RS = 5645 C140 - (VI_34)

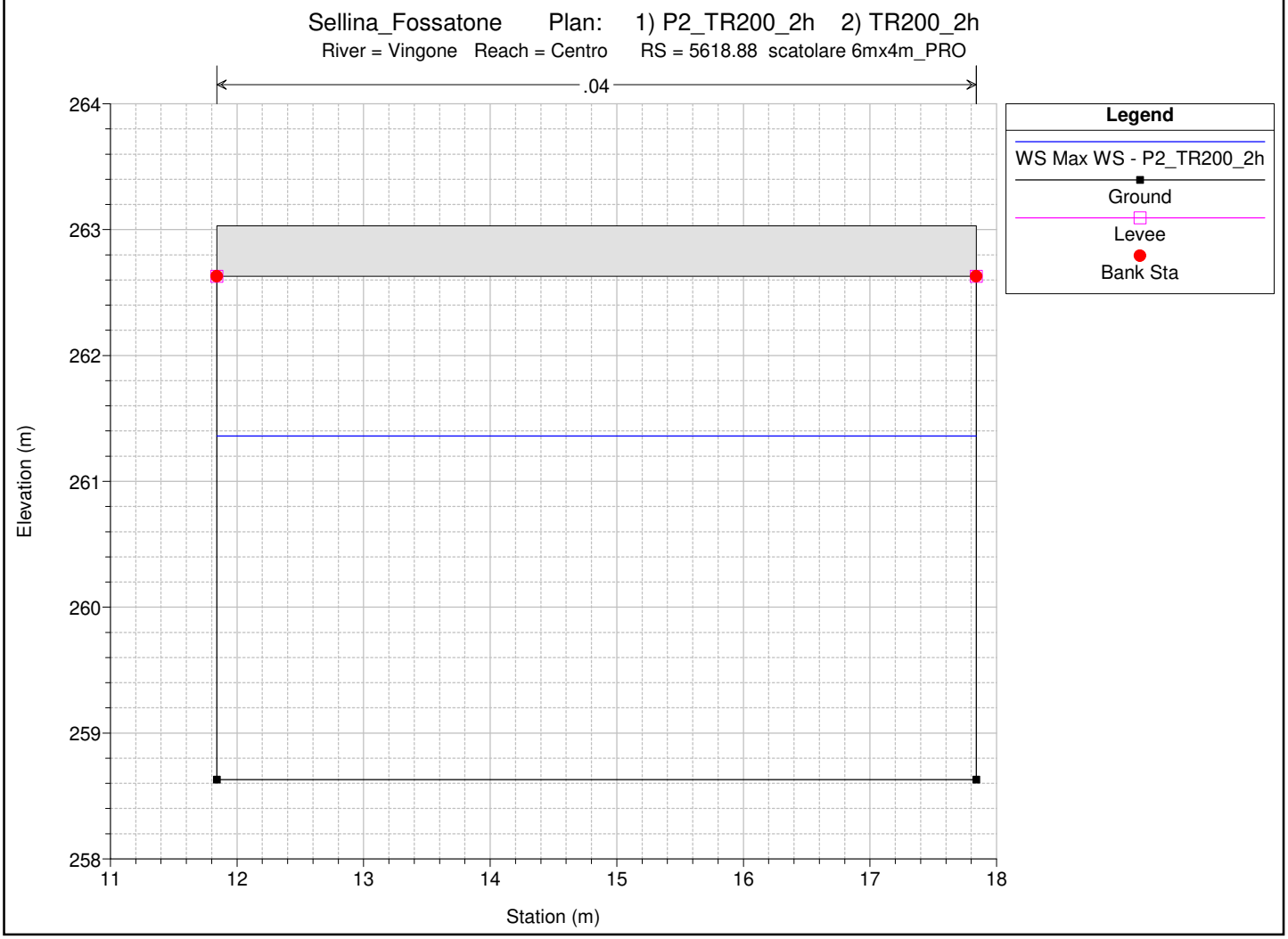


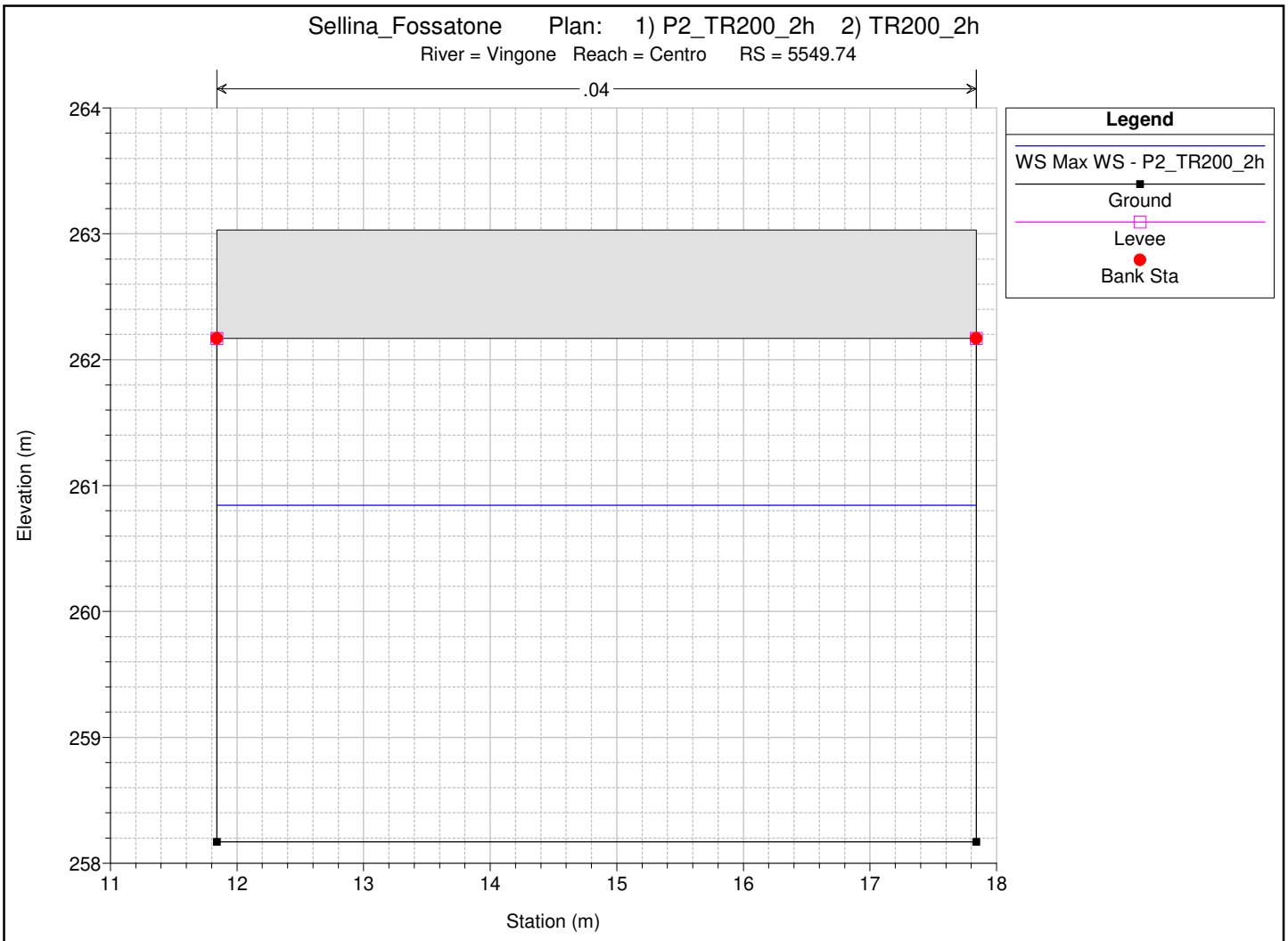
Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h

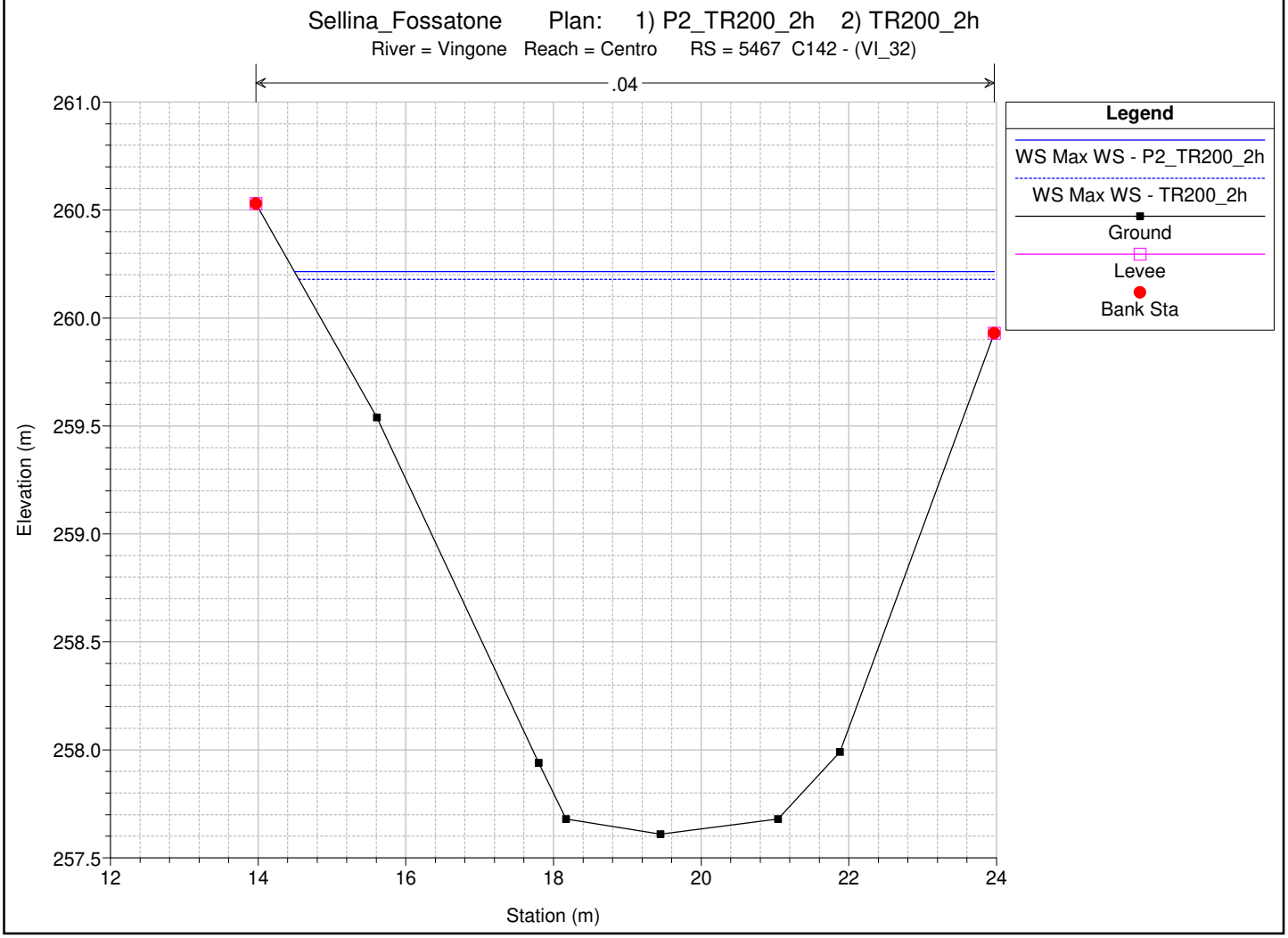
River = Vingone Reach = Centro RS = 5621 copia C140 - (VI_34) per ponte

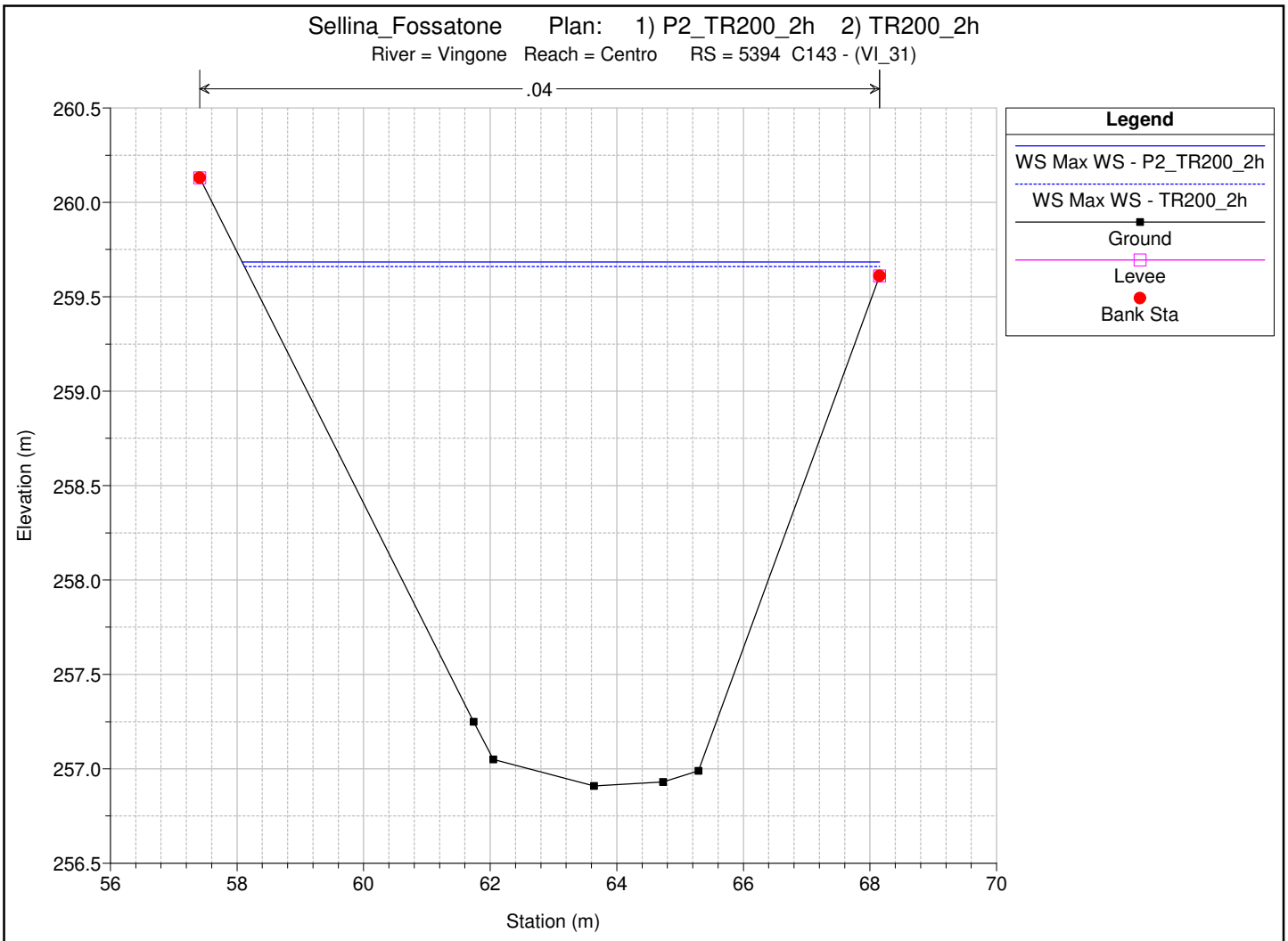


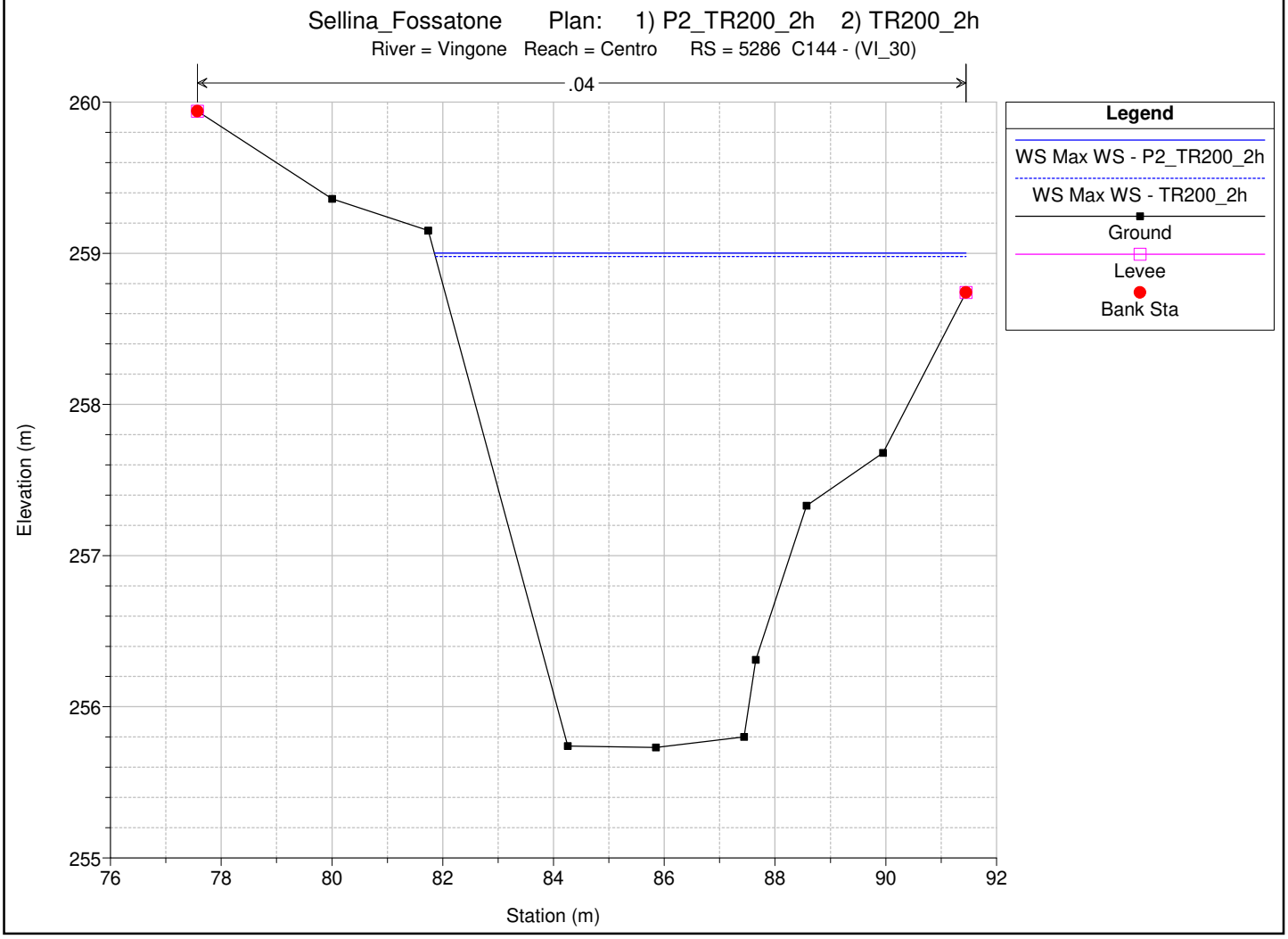

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5619 copia C141 - (VI_33) per ponte
.04
Legend
WS Max WS - TR200_2h
WS Max WS - P2_TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
263
262
261
260
259
258
11
12
13
14
15
16
17
18
19

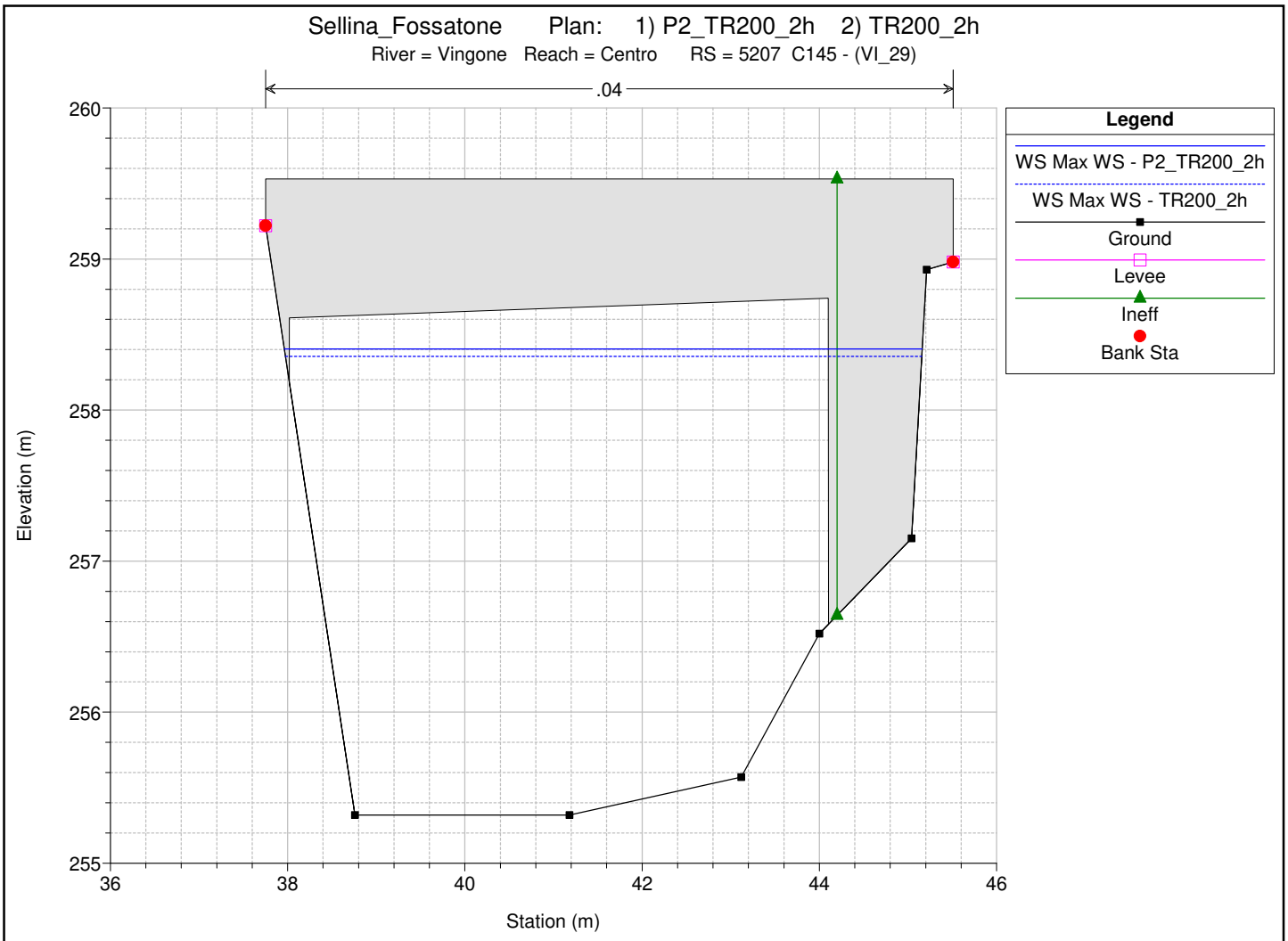

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5618.88 scatolare 6mx4m_PRO
.04
Legend
WS Max WS - P2_TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
264
263
262
261
260
259
258
11
12
13
14
15
16
17
18

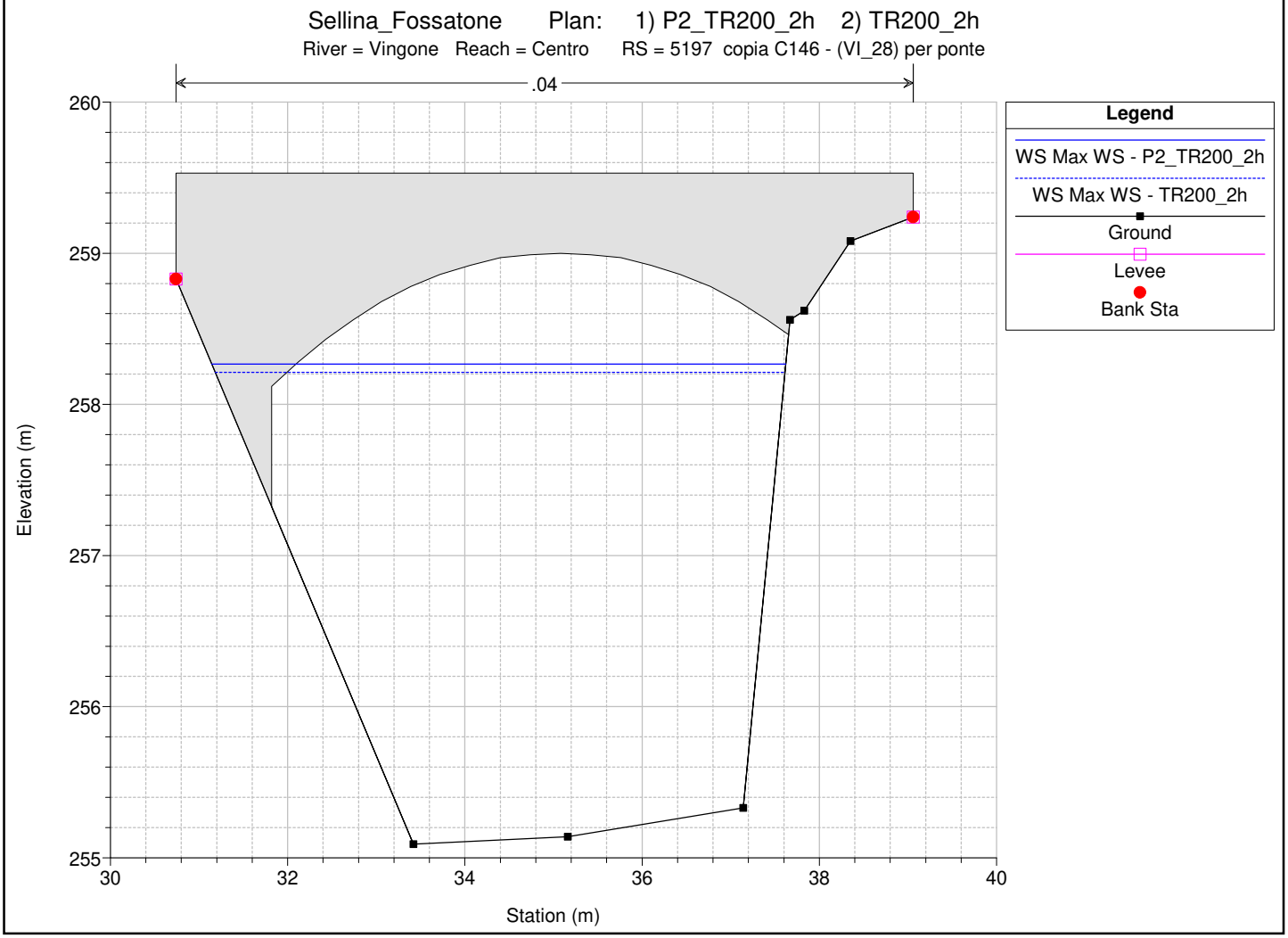

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5549.74
.04
Legend
WS Max WS - P2_TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
264
263
262
261
260
259
258
11
12
13
14
15
16
17
18

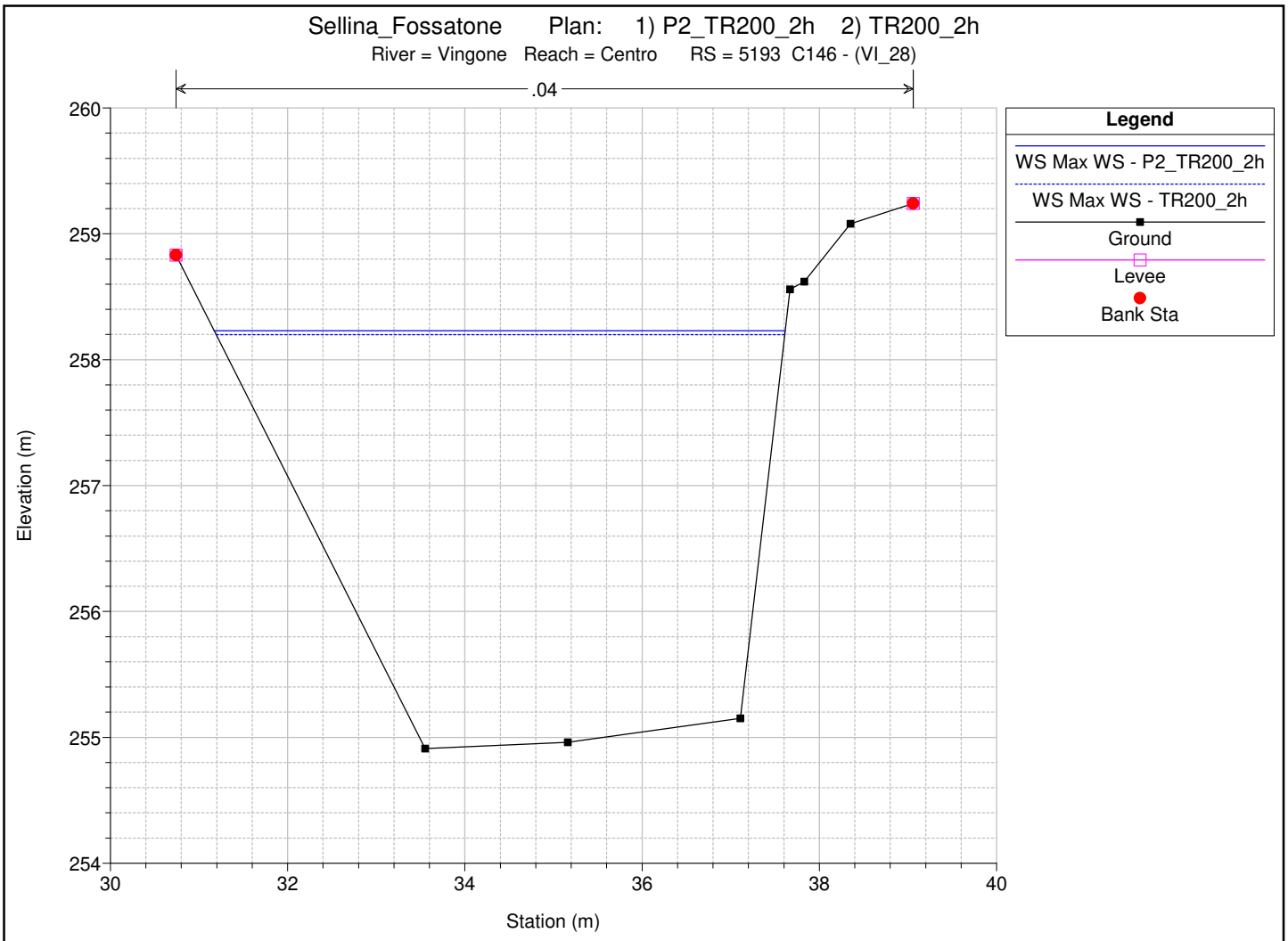

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5467 C142 - (VI_32)
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
261.0
260.5
260.0
259.5
259.0
258.5
258.0
257.5
12
14
16
18
20
22
24

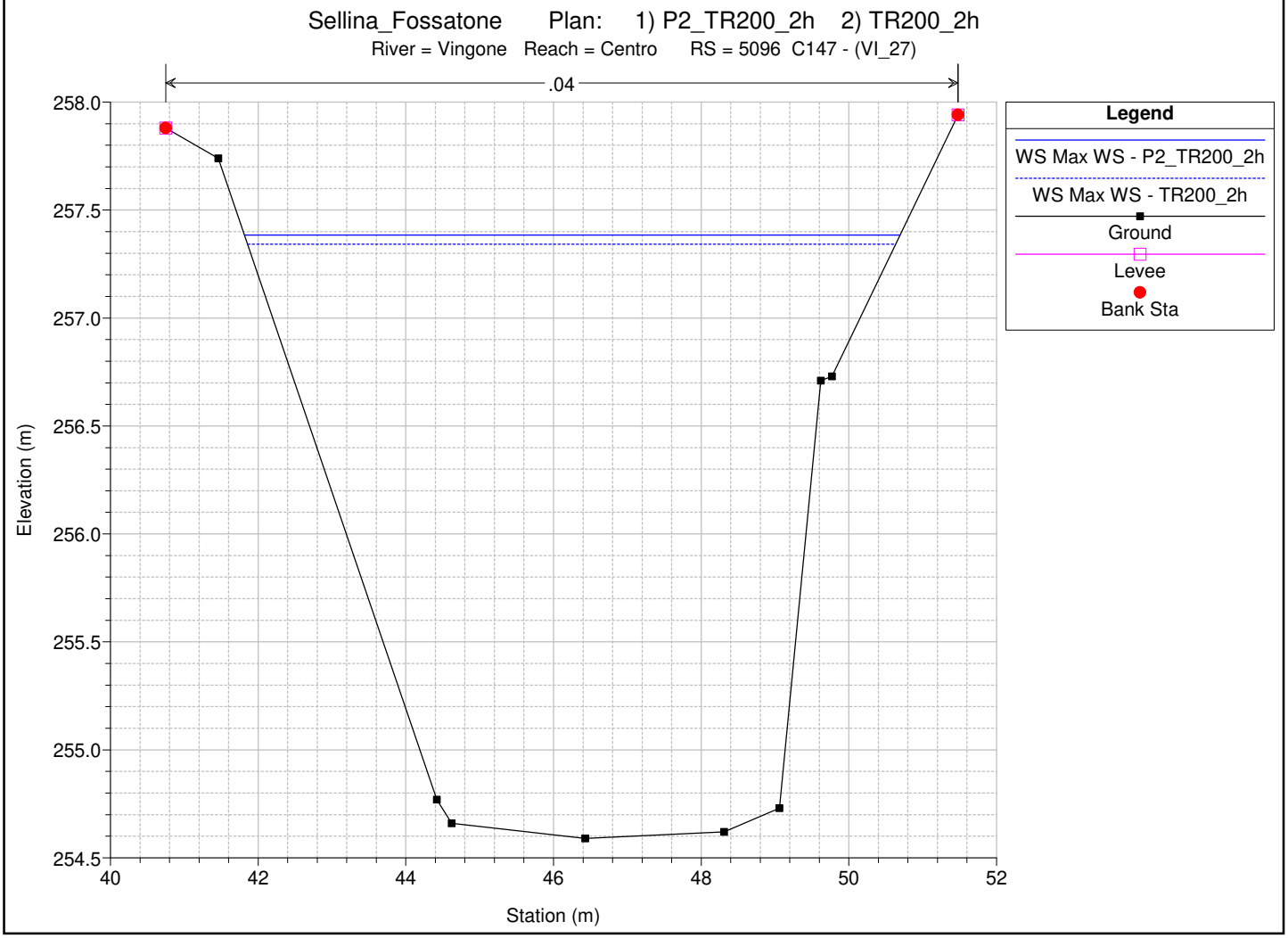

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5394 C143 - (VI_31)
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
260.5
260.0
259.5
259.0
258.5
258.0
257.5
257.0
256.5
56
58
60
62
64
66
68
70

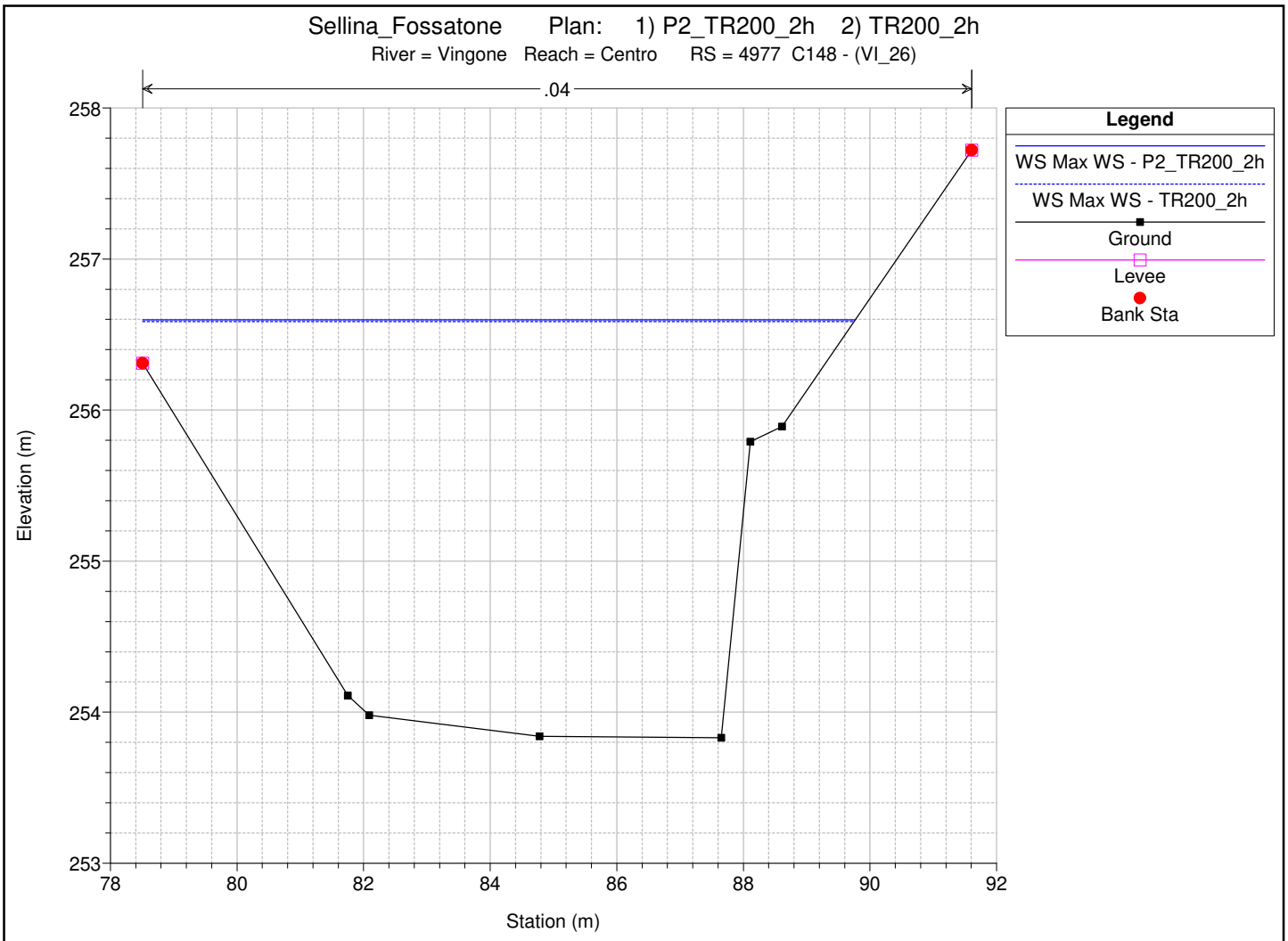

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5286 C144 - (VI_30)
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
260
259
258
257
256
255
76
78
80
82
84
86
88
90
92

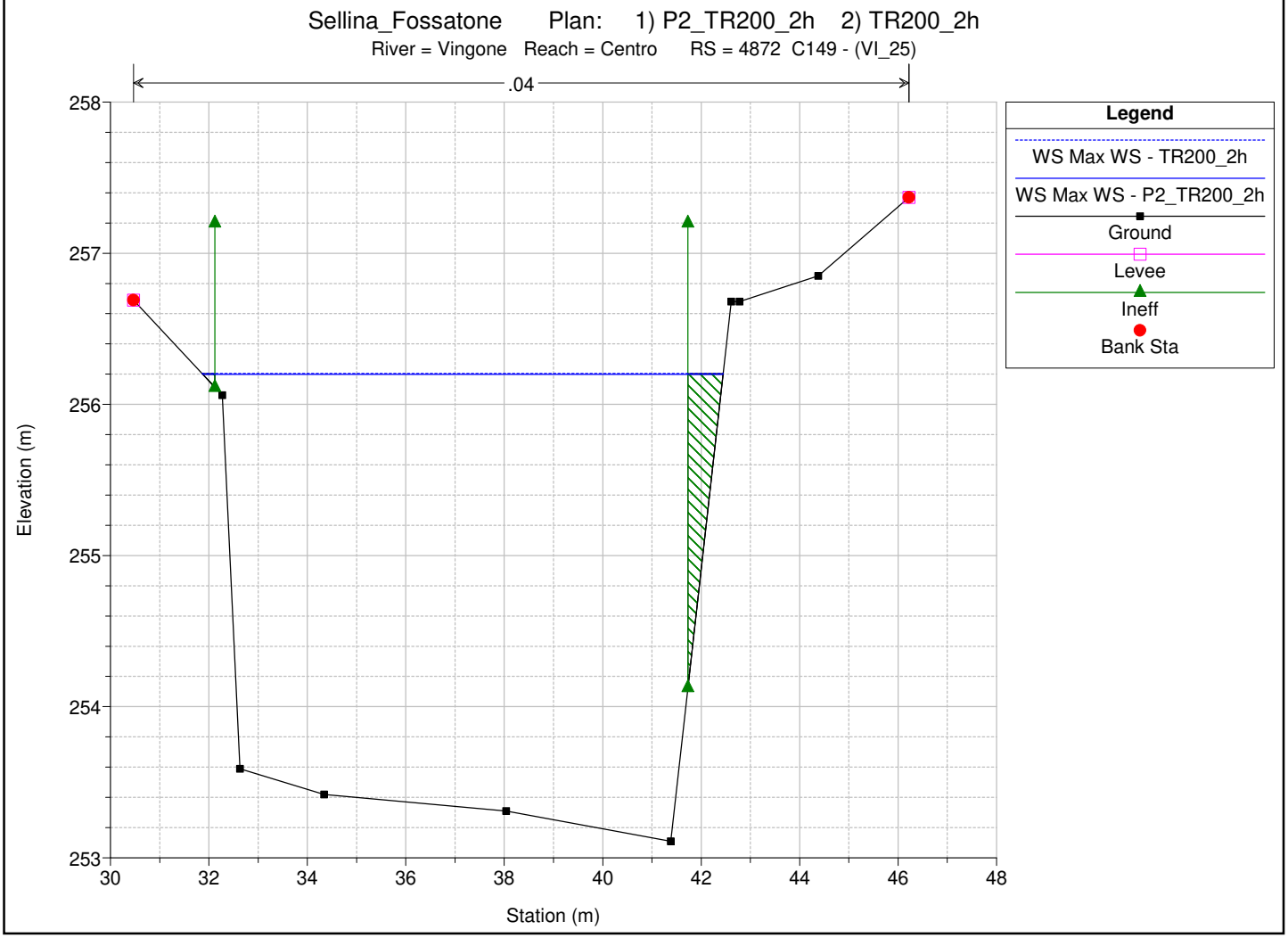

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5207 C145 - (VI_29)
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
260
259
258
257
256
255
36
38
40
42
44
46

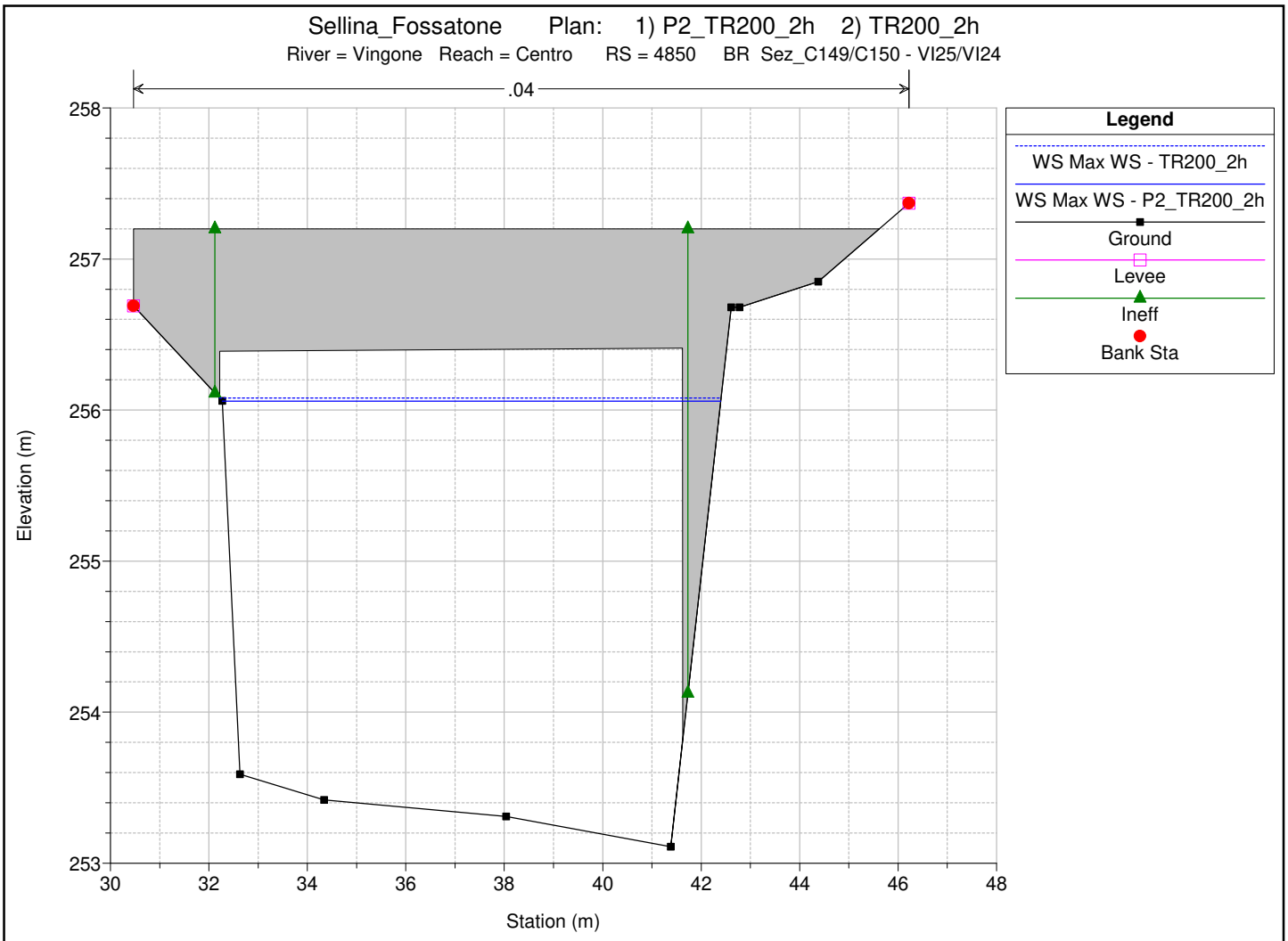

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5197 copia C146 - (VI_28) per ponte
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
260
259
258
257
256
255
30
32
34
36
38
40

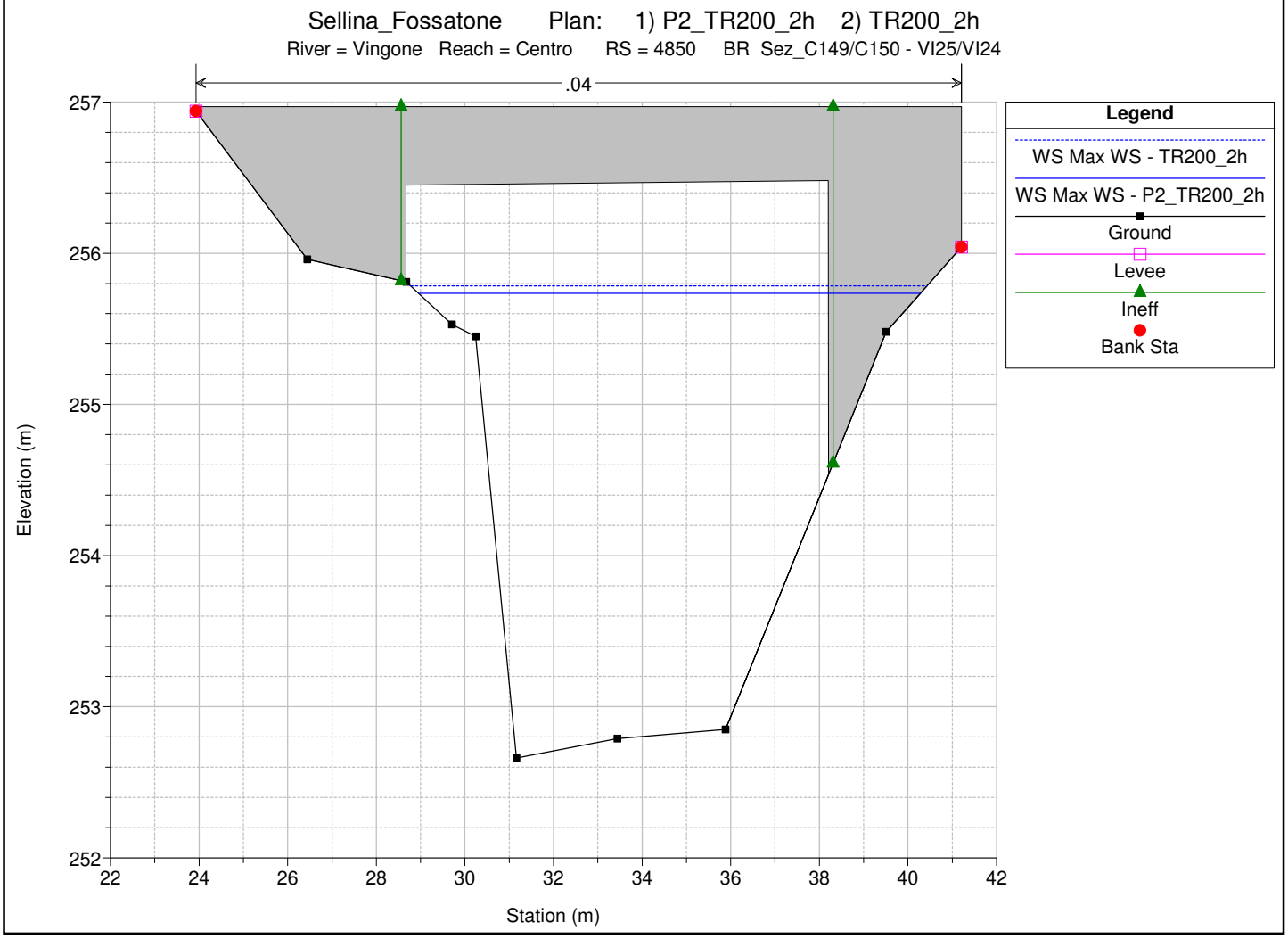

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5193 C146 - (VI_28)
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
260
259
258
257
256
255
254
30
32
34
36
38
40

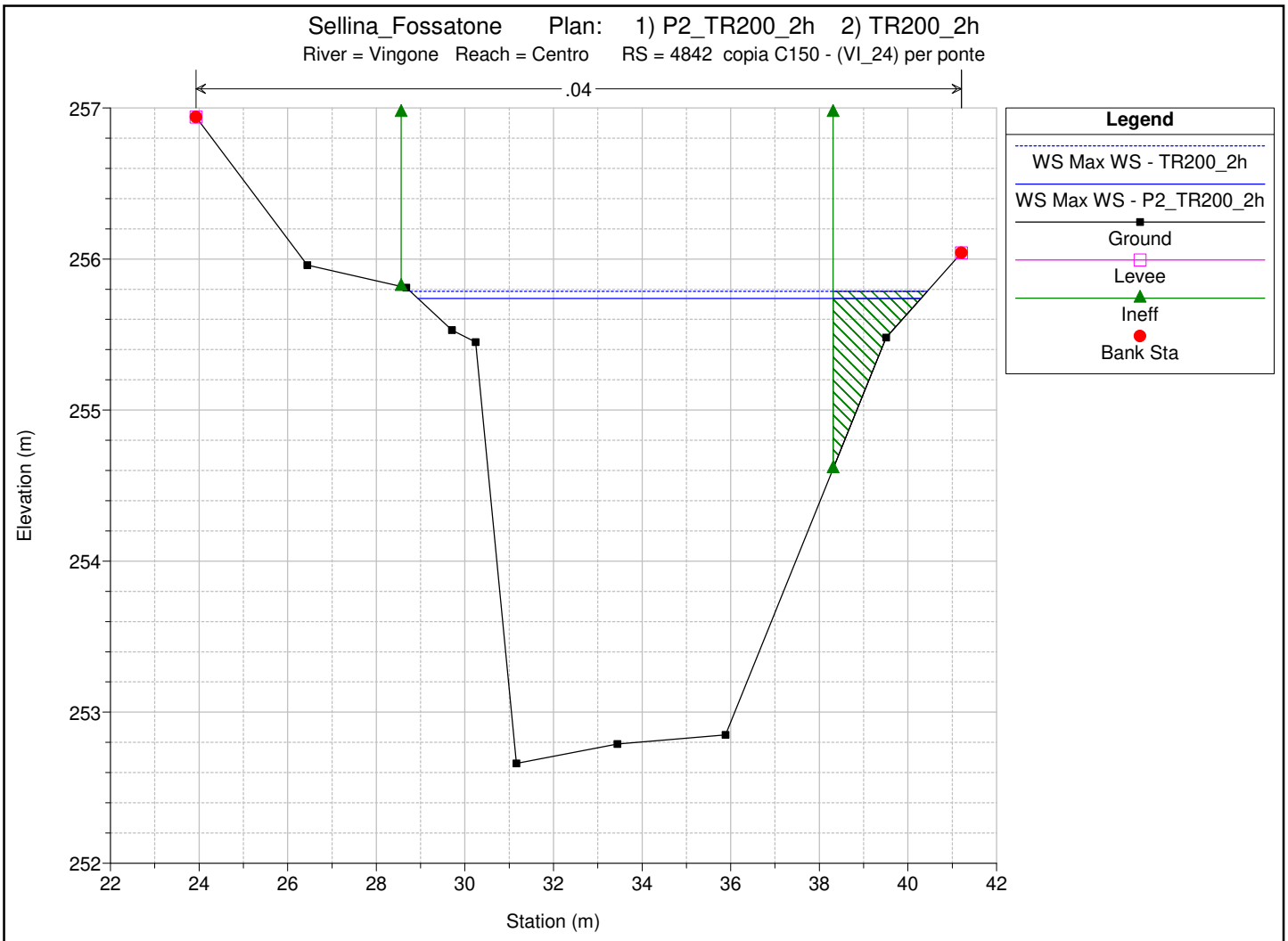

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 5096 C147 - (VI_27)
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
258.0
257.5
257.0
256.5
256.0
255.5
255.0
254.5
40
42
44
46
48
50
52

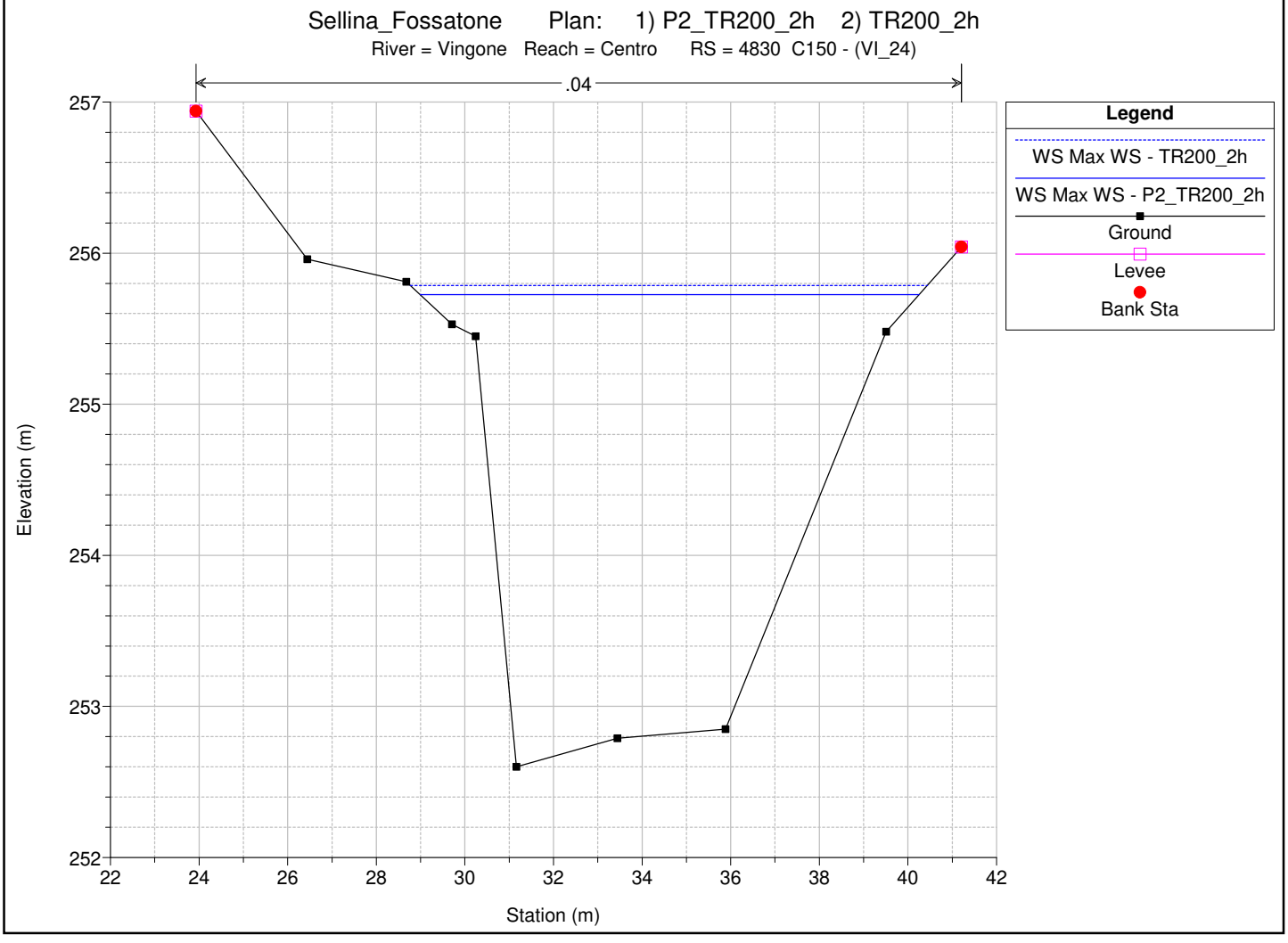

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 4977 C148 - (VI_26)
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
258
257
256
255
254
253
78
80
82
84
86
88
90
92

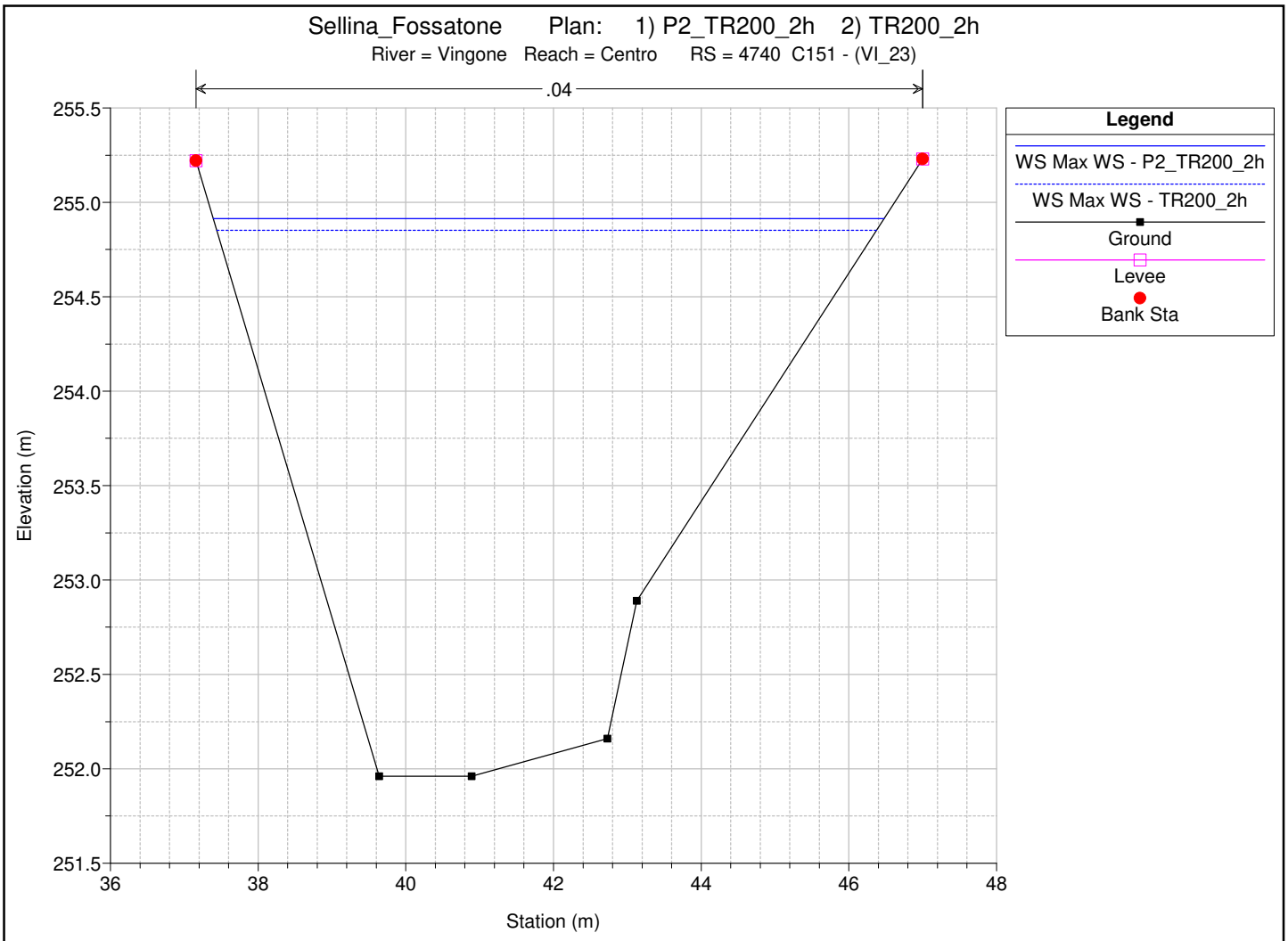

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 4872 C149 - (VI_25)
.04
Legend
WS Max WS - TR200_2h
WS Max WS - P2_TR200_2h
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
258
257
256
255
254
253
30
32
34
36
38
40
42
44
46
48

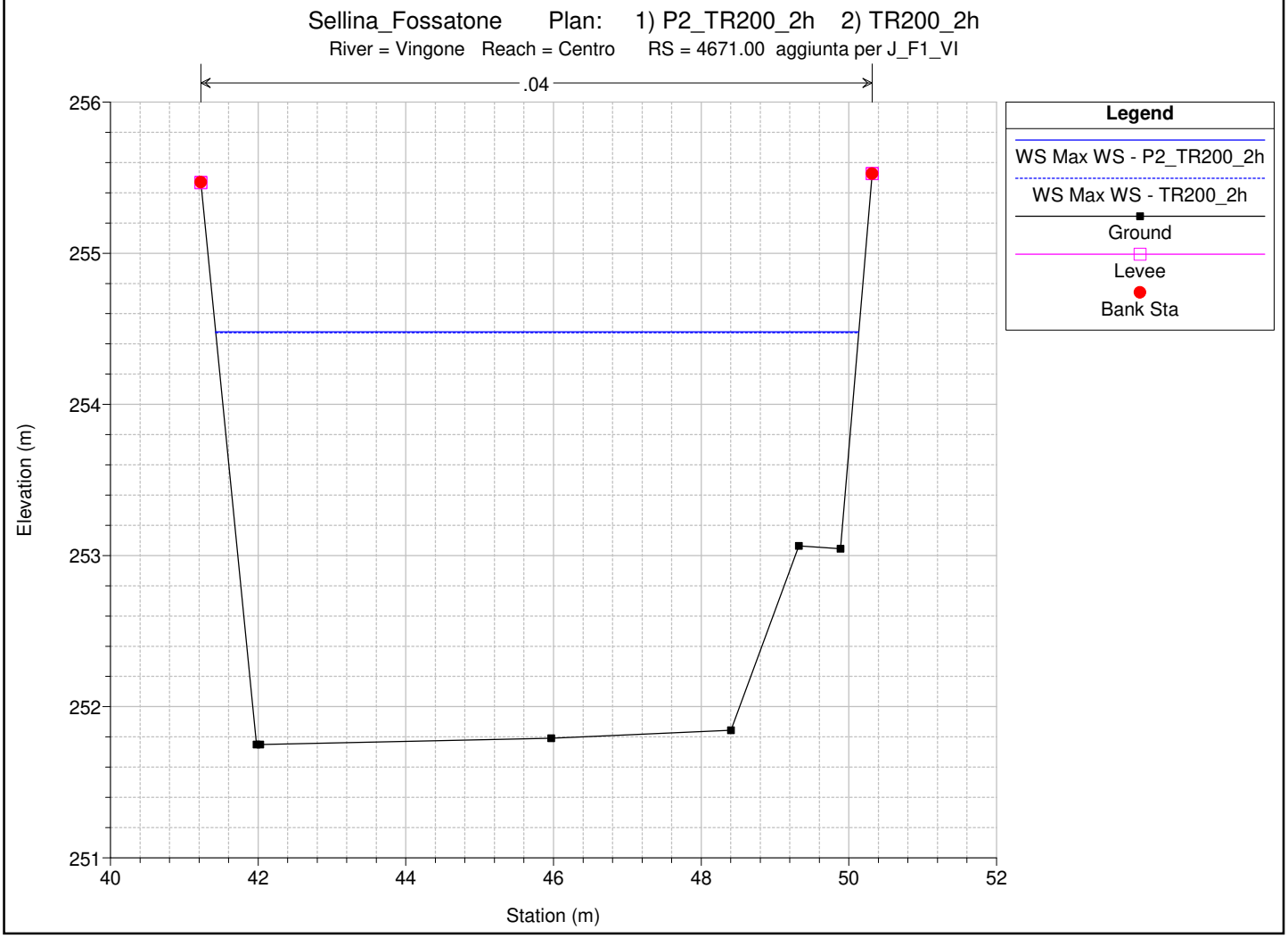

Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 4850 BR Sez_C149/C150 - VI25/VI24
.04
Legend
WS Max WS - TR200_2h
WS Max WS - P2_TR200_2h
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
258
257
256
255
254
253
30
32
34
36
38
40
42
44
46
48


Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 4850 BR Sez_C149/C150 - VI25/VI24
.04
Legend
WS Max WS - TR200_2h
WS Max WS - P2_TR200_2h
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
257
256
255
254
253
252
22
24
26
28
30
32
34
36
38
40
42


Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 4842 copia C150 - (VI_24) per ponte
.04
Legend
WS Max WS - TR200_2h
WS Max WS - P2_TR200_2h
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
257
256
255
254
253
252
22
24
26
28
30
32
34
36
38
40
42


Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 4830 C150 - (VI_24)
.04
Legend
WS Max WS - TR200_2h
WS Max WS - P2_TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
257
256
255
254
253
252
22
24
26
28
30
32
34
36
38
40
42


Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 4740 C151 - (VI_23)
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
255.5
255.0
254.5
254.0
253.5
253.0
252.5
252.0
251.5
36
38
40
42
44
46
48


Sellina_Fossatone Plan: 1) P2_TR200_2h 2) TR200_2h
River = Vingone Reach = Centro RS = 4671.00 aggiunta per J_F1_VI
.04
Legend
WS Max WS - P2_TR200_2h
WS Max WS - TR200_2h
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
256
255
254
253
252
251
40
42
44
46
48
50
52

HEC-RAS River: Vingone Reach: Centro Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Centro	7006.25	Max WS	P2_TR200_2h	51.35	270.87	272.96	272.79	273.46	0.011280	3.13	16.38	11.80	0.85
Centro	7006.25	Max WS	TR200_2h	51.23	270.87	272.91	272.79	273.44	0.012363	3.24	15.83	11.64	0.89
Centro	7006.24			Lat Struct									
Centro	7006.23			Lat Struct									
Centro	6996.88	Max WS	P2_TR200_2h	51.20	270.75	272.85	272.67	273.34	0.010815	3.09	16.59	11.82	0.83
Centro	6996.88	Max WS	TR200_2h	51.11	270.75	272.80	272.67	273.32	0.012064	3.21	15.93	11.63	0.88
Centro	6925	Max WS	P2_TR200_2h	50.55	269.82	272.28	271.69	272.55	0.005892	2.32	21.76	14.31	0.60
Centro	6925	Max WS	TR200_2h	50.64	269.82	272.29	271.68	272.56	0.005739	2.30	21.98	14.31	0.59
Centro	6842	Max WS	P2_TR200_2h	45.07	269.14	271.59	271.34	272.10	0.010711	3.16	14.26	8.83	0.79
Centro	6842	Max WS	TR200_2h	44.56	269.14	271.56	271.33	272.08	0.011173	3.20	13.95	8.82	0.81
Centro	6841.99			Lat Struct									
Centro	6841.98			Lat Struct									
Centro	6669	Max WS	P2_TR200_2h	44.52	267.30	270.10	269.51	270.44	0.006274	2.57	17.29	9.40	0.61
Centro	6669	Max WS	TR200_2h	44.62	267.30	270.10	269.51	270.44	0.006298	2.58	17.30	9.40	0.61
Centro	6668.99			Lat Struct									
Centro	6668.98			Lat Struct									
Centro	6439	Max WS	P2_TR200_2h	48.88	265.31	268.62	268.00	269.14	0.010187	3.19	15.32	6.18	0.65
Centro	6439	Max WS	TR200_2h	47.61	265.31	268.62	267.97	269.11	0.009711	3.11	15.29	6.18	0.63
Centro	6438.99			Lat Struct									
Centro	6438.98			Lat Struct									
Centro	6255	Max WS	P2_TR200_2h	53.73	263.98	266.98	266.57	267.45	0.009527	3.04	17.67	10.48	0.75
Centro	6255	Max WS	TR200_2h	52.99	263.98	266.97	266.55	267.43	0.009353	3.01	17.61	10.48	0.74
Centro	6254.99			Lat Struct									
Centro	6254.98			Lat Struct									
Centro	6049	Max WS	P2_TR200_2h	37.67	262.23	265.04	264.42	265.37	0.007186	2.53	14.87	7.48	0.57
Centro	6049	Max WS	TR200_2h	39.30	262.23	265.02	264.46	265.38	0.008061	2.67	14.72	7.48	0.61
Centro	6048.99			Lat Struct									
Centro	6048.98			Lat Struct									
Centro	5925	Max WS	P2_TR200_2h	45.17	261.15	264.34	263.57	264.82	0.005096	3.08	14.68	8.32	0.60
Centro	5925	Max WS	TR200_2h	44.82	261.15	264.28	263.56	264.77	0.005413	3.12	14.34	8.32	0.62
Centro	5885			Bridge									
Centro	5880	Max WS	P2_TR200_2h	45.17	261.11	264.15	263.55	264.69	0.006348	3.28	13.77	8.32	0.66
Centro	5880	Max WS	TR200_2h	44.86	261.11	264.04	263.54	264.63	0.007269	3.41	13.17	8.32	0.70
Centro	5879.99			Lat Struct									
Centro	5879.98			Lat Struct									
Centro	5835	Max WS	P2_TR200_2h	44.19	261.02	264.21	263.47	264.52	0.005393	2.47	17.91	8.32	0.54
Centro	5835	Max WS	TR200_2h	43.50	261.02	264.20	263.45	264.50	0.005319	2.44	17.79	8.32	0.53
Centro	5834.99			Lat Struct									
Centro	5834.98			Lat Struct									
Centro	5768	Max WS	P2_TR200_2h	43.27	260.19	263.35	262.28	263.71	0.003658	2.67	16.22	6.38	0.50
Centro	5768	Max WS	TR200_2h	43.13	260.19	263.35	262.28	263.71	0.003637	2.66	16.22	6.38	0.50
Centro	5760			Bridge									
Centro	5758	Max WS	P2_TR200_2h	43.27	260.13	262.76	262.18	263.29	0.006371	3.23	13.38	9.49	0.66
Centro	5758	Max WS	TR200_2h	42.84	260.13	262.67	262.17	263.23	0.007065	3.32	12.90	9.48	0.69
Centro	5757.99			Lat Struct									
Centro	5757.98			Lat Struct									
Centro	5755	Max WS	P2_TR200_2h	43.83	260.10	262.87	262.03	263.12	0.004305	2.23	19.63	9.49	0.50
Centro	5755	Max WS	TR200_2h	43.62	260.10	262.88	262.03	263.13	0.004158	2.20	19.80	9.49	0.49
Centro	5754.99			Lat Struct									
Centro	5754.98			Lat Struct									
Centro	5645	Max WS	P2_TR200_2h	45.08	258.81	262.28	261.18	262.63	0.006393	2.65	17.03	6.01	0.50
Centro	5645	Max WS	TR200_2h	44.10	258.81	262.37	261.16	262.69	0.005605	2.51	17.60	6.02	0.47

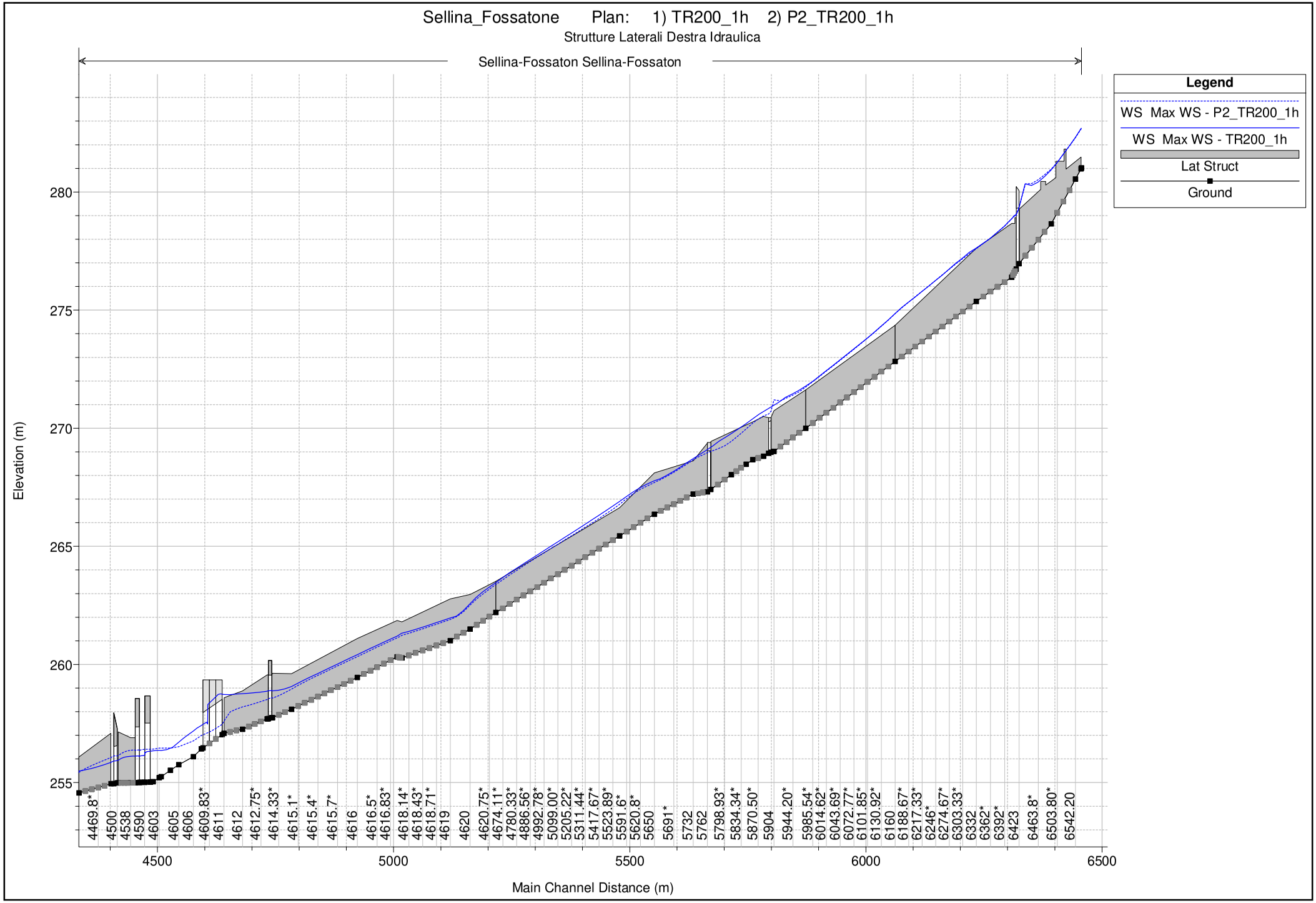
HEC-RAS River: Vingone Reach: Centro Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Centro	5621	Max WS	P2_TR200_2h	45.41	258.77	261.93	261.16	262.59	0.018215	3.60	12.61	2.73	0.65
Centro	5621	Max WS	TR200_2h	44.45	258.77	262.00	261.14	262.61	0.017237	3.48	12.77	2.49	0.62
Centro	5619	Max WS	P2_TR200_2h	46.00	258.63	261.20	260.49	261.83	0.016830	3.53	13.02	3.48	0.70
Centro	5619	Max WS	TR200_2h	45.05	258.63	261.35	260.53	261.95	0.016025	3.41	13.20	3.04	0.66
Centro	5618.88	Max WS	P2_TR200_2h	46.00	258.63	261.36	260.45	261.76	0.007834	2.81	16.38	6.00	0.54
Centro	5558	Max WS	TR200_2h	45.63	258.50	261.05	260.49	261.57	0.010572	3.19	14.29	6.16	0.67
Centro	5549.74	Max WS	P2_TR200_2h	46.89	258.17	260.84	260.01	261.28	0.008606	2.92	16.05	6.00	0.57
Centro	5549.73			Lat Struct									
Centro	5549.72			Lat Struct									
Centro	5467	Max WS	P2_TR200_2h	47.88	257.61	260.22	259.79	260.64	0.008210	2.90	16.50	9.48	0.70
Centro	5467	Max WS	TR200_2h	47.00	257.61	260.18	259.77	260.61	0.008373	2.91	16.16	9.42	0.71
Centro	5394	Max WS	P2_TR200_2h	49.12	256.91	259.68	259.14	260.06	0.006864	2.72	18.04	10.07	0.65
Centro	5394	Max WS	TR200_2h	48.20	256.91	259.66	259.12	260.03	0.006871	2.71	17.79	10.03	0.65
Centro	5393.99			Lat Struct									
Centro	5393.98			Lat Struct									
Centro	5286	Max WS	P2_TR200_2h	50.09	255.73	259.00	258.19	259.32	0.005338	2.49	20.14	9.60	0.55
Centro	5286	Max WS	TR200_2h	49.37	255.73	258.98	258.17	259.29	0.005340	2.48	19.94	9.58	0.55
Centro	5207	Max WS	P2_TR200_2h	51.57	255.32	258.40	257.58	258.89	0.008528	3.09	16.70	6.08	0.56
Centro	5207	Max WS	TR200_2h	50.80	255.32	258.36	257.56	258.85	0.008680	3.10	16.40	6.08	0.57
Centro	5197	Max WS	P2_TR200_2h	51.69	255.09	258.27	257.59	258.84	0.010742	3.34	15.47	5.53	0.60
Centro	5197	Max WS	TR200_2h	50.92	255.09	258.21	257.57	258.79	0.010894	3.36	15.17	5.62	0.61
Centro	5196.99			Lat Struct									
Centro	5196.98			Lat Struct									
Centro	5193	Max WS	P2_TR200_2h	51.78	254.91	258.23	257.48	258.75	0.009440	3.19	16.23	6.45	0.64
Centro	5193	Max WS	TR200_2h	51.02	254.91	258.20	257.46	258.72	0.009476	3.18	16.02	6.42	0.64
Centro	5192.99			Lat Struct									
Centro	5192.98			Lat Struct									
Centro	5096	Max WS	P2_TR200_2h	53.25	254.59	257.38	256.83	257.86	0.008630	3.04	17.53	8.88	0.69
Centro	5096	Max WS	TR200_2h	52.51	254.59	257.34	256.81	257.82	0.008882	3.06	17.15	8.78	0.70
Centro	4977	Max WS	P2_TR200_2h	54.53	253.83	256.60	255.81	256.91	0.005281	2.46	22.13	11.26	0.56
Centro	4977	Max WS	TR200_2h	53.90	253.83	256.59	255.79	256.89	0.005249	2.45	21.99	11.24	0.56
Centro	4976.99			Lat Struct									
Centro	4976.98			Lat Struct									
Centro	4872	Max WS	P2_TR200_2h	55.54	253.11	256.20	254.90	256.42	0.002586	2.10	26.48	10.57	0.40
Centro	4872	Max WS	TR200_2h	54.97	253.11	256.20	254.89	256.42	0.002515	2.07	26.54	10.59	0.40
Centro	4850			Bridge									
Centro	4842	Max WS	P2_TR200_2h	55.54	252.66	255.74	254.87	256.11	0.005623	2.69	20.63	11.35	0.58
Centro	4842	Max WS	TR200_2h	54.97	252.66	255.79	254.87	256.13	0.005231	2.61	21.08	11.67	0.56
Centro	4841.99			Lat Struct									
Centro	4841.98			Lat Struct									
Centro	4830	Max WS	P2_TR200_2h	55.62	252.60	255.73	254.89	256.07	0.006190	2.59	21.51	11.26	0.60
Centro	4830	Max WS	TR200_2h	55.06	252.60	255.79	254.88	256.10	0.005667	2.48	22.22	11.67	0.57
Centro	4829.99			Lat Struct									
Centro	4829.98			Lat Struct									
Centro	4740	Max WS	P2_TR200_2h	56.95	251.96	254.91	254.62	255.51	0.011606	3.43	16.61	9.08	0.81
Centro	4740	Max WS	TR200_2h	56.38	251.96	254.85	254.61	255.48	0.012460	3.51	16.05	8.93	0.84
Centro	4671.00	Max WS	P2_TR200_2h	46.19	251.75	254.48	253.46	254.73	0.004047	2.21	20.90	8.71	0.46
Centro	4671.00	Max WS	TR200_2h	46.05	251.75	254.47	253.46	254.72	0.004056	2.21	20.84	8.71	0.46

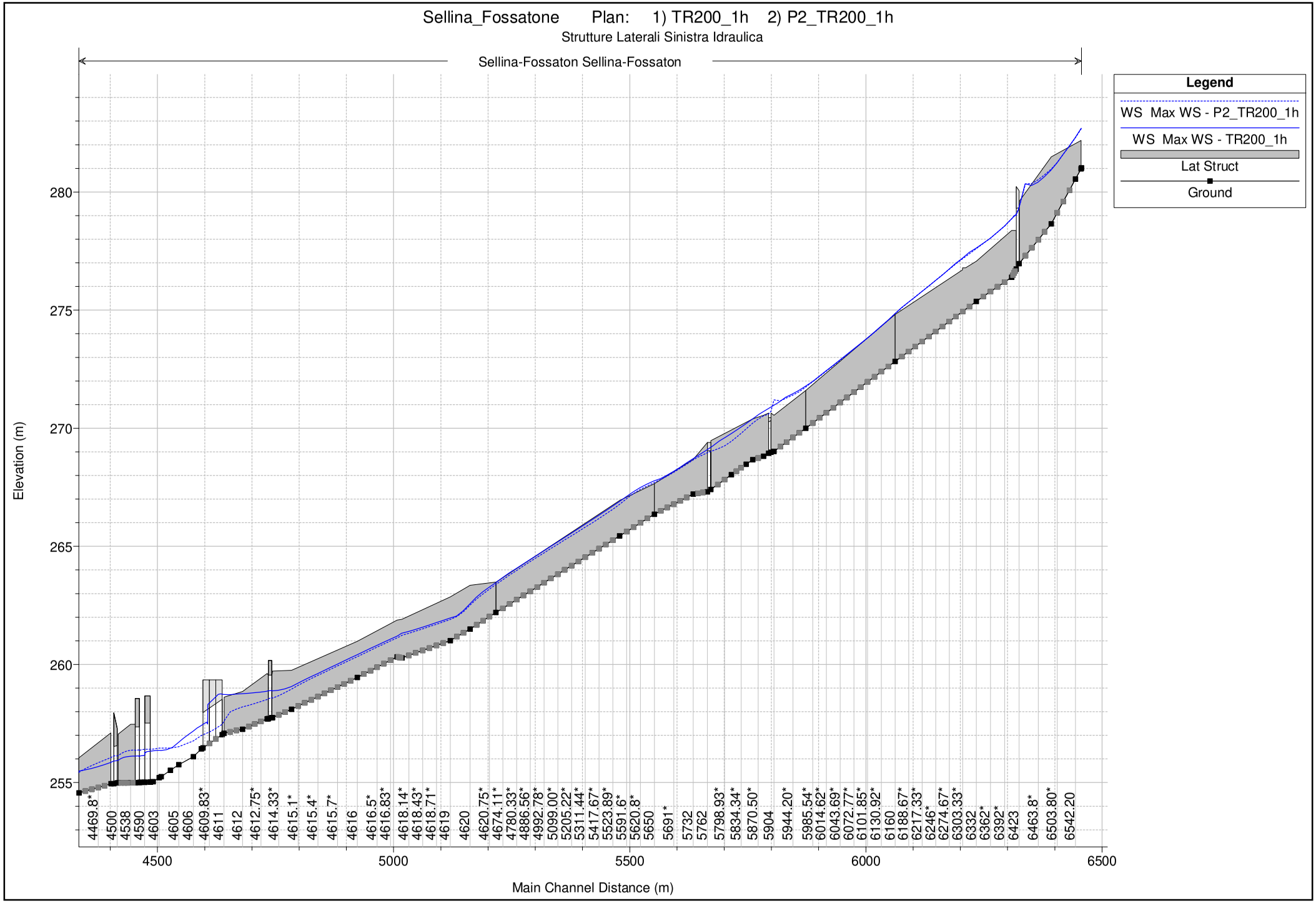
HEC-RAS River: Vingone Reach: Centro Profile: Max WS

Reach	River Sta	Profile	Plan	Q US	Q Leaving Total	Q DS	Q Weir	Q Gates	Wr Top Wdth	Weir Max Depth	Weir Avg Depth	Min El Weir Flow	E.G. US.	W.S. US.	E.G. DS	W.S. DS
				(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)
Centro	7006.24	Max WS	P2_TR200_2h	51.35	2.28	45.07	2.28		99.86	0.28	0.18	271.56	273.46	272.96	272.10	271.59
Centro	7006.24	Max WS	TR200_2h	51.23	2.59	44.56	2.59		98.32	0.29	0.20	271.56	273.44	272.91	272.08	271.56
Centro	7006.23	Max WS	P2_TR200_2h	51.35	3.54	45.07	3.54		94.85	0.30	0.26	271.31	273.46	272.96	272.10	271.59
Centro	7006.23	Max WS	TR200_2h	51.23	3.87	44.56	3.87		94.13	0.33	0.27	271.31	273.44	272.91	272.08	271.56
Centro	6841.99	Max WS	P2_TR200_2h	45.07	2.72	44.52	2.72		171.52	0.71	0.42	269.42	272.10	271.59	270.44	270.10
Centro	6841.99	Max WS	TR200_2h	44.56	2.21	44.62	2.21		171.52	0.71	0.40	269.42	272.08	271.56	270.44	270.10
Centro	6841.98	Max WS	P2_TR200_2h	45.07	0.01	44.52	0.01		8.09	0.03	0.02	270.42	272.10	271.59	270.44	270.10
Centro	6841.98	Max WS	TR200_2h	44.56	0.00	44.62	0.00					270.42	272.08	271.56	270.44	270.10
Centro	6668.99	Max WS	P2_TR200_2h	44.52	-14.65	48.88	-14.65		230.39	1.19	0.80	267.95	270.44	270.10	269.14	268.62
Centro	6668.99	Max WS	TR200_2h	44.62	-14.03	47.61	-14.03		230.39	1.20	0.80	267.95	270.44	270.10	269.11	268.62
Centro	6668.98	Max WS	P2_TR200_2h	44.52	13.73	48.88	13.73		155.22	0.69	0.43	268.04	270.44	270.10	269.14	268.62
Centro	6668.98	Max WS	TR200_2h	44.62	14.38	47.61	14.38		153.89	0.72	0.45	268.04	270.44	270.10	269.11	268.62
Centro	6438.99	Max WS	P2_TR200_2h	48.88	-16.61	53.73	-16.61		186.11	0.80	0.53	266.84	269.14	268.62	267.45	266.98
Centro	6438.99	Max WS	TR200_2h	47.61	-16.68	52.99	-16.68		186.11	0.80	0.53	266.84	269.11	268.62	267.43	266.97
Centro	6438.98	Max WS	P2_TR200_2h	48.88	6.90	53.73	6.90		145.73	0.58	0.28	267.15	269.14	268.62	267.45	266.98
Centro	6438.98	Max WS	TR200_2h	47.61	6.79	52.99	6.79		145.97	0.58	0.28	267.15	269.11	268.62	267.43	266.97
Centro	6254.99	Max WS	P2_TR200_2h	53.73	16.04	37.67	16.04		205.97	1.02	0.50	264.02	267.45	266.98	265.37	265.04
Centro	6254.99	Max WS	TR200_2h	52.99	14.41	39.30	14.41		205.97	1.00	0.46	264.02	267.43	266.97	265.38	265.02
Centro	6254.98	Max WS	P2_TR200_2h	53.73	2.04	37.67	2.04		129.46	0.46	0.15	264.58	267.45	266.98	265.37	265.04
Centro	6254.98	Max WS	TR200_2h	52.99	1.58	39.30	1.58		97.45	0.44	0.15	264.58	267.43	266.97	265.38	265.02
Centro	6048.99	Max WS	P2_TR200_2h	37.67	-12.91	45.17	-12.91		111.79	1.33	1.06	263.34	265.37	265.04	264.82	264.34
Centro	6048.99	Max WS	TR200_2h	39.30	-11.22	44.82	-11.22		111.79	1.33	1.05	263.34	265.38	265.02	264.78	264.28
Centro	6048.98	Max WS	P2_TR200_2h	37.67	6.62	45.17	6.62		109.34	0.90	0.70	263.62	265.37	265.04	264.82	264.34
Centro	6048.98	Max WS	TR200_2h	39.30	6.86	44.82	6.86		109.34	0.95	0.70	263.62	265.38	265.02	264.78	264.28
Centro	5879.99	Max WS	P2_TR200_2h	45.17	-0.75	44.19	-0.75		9.19	0.87	0.87	263.34	264.69	264.15	264.52	264.21
Centro	5879.99	Max WS	TR200_2h	44.86	-1.89	43.50	-1.89		9.19	0.88	0.88	263.34	264.63	264.04	264.50	264.20
Centro	5879.98	Max WS	P2_TR200_2h	45.17	1.17	44.19	1.17		9.19	0.62	0.59	263.59	264.69	264.15	264.52	264.21
Centro	5879.98	Max WS	TR200_2h	44.86	0.98	43.50	0.98		9.19	0.61	0.53	263.59	264.63	264.04	264.50	264.20
Centro	5834.99	Max WS	P2_TR200_2h	44.19	-14.98	43.27	-14.98		152.36	1.23	0.55	263.34	264.52	264.21	263.71	263.35
Centro	5834.99	Max WS	TR200_2h	43.50	-15.23	43.13	-15.23		152.36	1.21	0.55	263.34	264.50	264.20	263.71	263.35
Centro	5834.98	Max WS	P2_TR200_2h	44.19	7.52	43.27	7.52		129.20	0.62	0.32	263.52	264.52	264.21	263.71	263.35
Centro	5834.98	Max WS	TR200_2h	43.50	7.46	43.13	7.46		129.82	0.61	0.32	263.52	264.50	264.20	263.71	263.35
Centro	5757.99	Max WS	P2_TR200_2h	43.27	-0.12	43.83	-0.12		4.88	0.19	0.19	262.68	263.29	262.76	263.12	262.87
Centro	5757.99	Max WS	TR200_2h	42.84	-0.13	43.62	-0.13		4.88	0.21	0.21	262.68	263.23	262.67	263.13	262.88
Centro	5757.98	Max WS	P2_TR200_2h	43.27	-0.36	43.83	-0.36		4.88	0.55	0.54	262.31	263.29	262.76	263.12	262.87
Centro	5757.98	Max WS	TR200_2h	42.84	-0.49	43.62	-0.49		4.88	0.54	0.54	262.31	263.23	262.67	263.13	262.88
Centro	5754.99	Max WS	P2_TR200_2h	43.83	-1.51	45.41	-1.51		111.56	0.29	0.21	262.26	263.12	262.87	262.59	261.93
Centro	5754.99	Max WS	TR200_2h	43.62	-1.49	44.45	-1.49		111.87	0.32	0.26	262.26	263.13	262.88	262.62	262.00
Centro	5754.98	Max WS	P2_TR200_2h	43.83	1.00	45.41	1.00		67.64	0.56	0.29	262.31	263.12	262.87	262.59	261.93
Centro	5754.98	Max WS	TR200_2h	43.62	1.69	44.45	1.69		75.42	0.57	0.30	262.31	263.13	262.88	262.62	262.00
Centro	5618.99	Max WS	TR200_2h	45.05	0.00	45.63	0.00					261.51	261.95	261.35	261.57	261.05
Centro	5618.98	Max WS	TR200_2h	45.05	0.00	45.63	0.00					261.28	261.95	261.35	261.57	261.05
Centro	5557.99	Max WS	TR200_2h	45.63	-0.36	48.20	-0.36		97.19	0.27	0.16	259.61	261.57	261.05	260.03	259.66
Centro	5557.98	Max WS	TR200_2h	45.63	0.00	48.20	0.00					260.13	261.57	261.05	260.03	259.66
Centro	5549.73	Max WS	P2_TR200_2h	46.89	-0.38	49.12	-0.38		84.50	0.32	0.19	259.61	261.28	260.84	260.06	259.68
Centro	5549.72	Max WS	P2_TR200_2h	46.89	0.00	49.12	0.00					260.13	261.28	260.84	260.06	259.68
Centro	5393.99	Max WS	P2_TR200_2h	49.12	0.02	51.57	0.02		166.70	0.31	0.13	258.74	260.06	259.68	258.89	258.41
Centro	5393.99	Max WS	TR200_2h	48.20	-0.04	50.80	-0.04		157.44	0.28	0.11	258.74	260.03	259.66	258.85	258.36
Centro	5393.98	Max WS	P2_TR200_2h	49.12	0.00	51.57	0.00					259.22	260.06	259.68	258.89	258.41
Centro	5393.98	Max WS	TR200_2h	48.20	0.00	50.80	0.00					259.22	260.03	259.66	258.85	258.36
Centro	5196.99	Max WS	P2_TR200_2h	51.69	0.00	51.78	0.00					259.24	258.84	258.27	258.75	258.23
Centro	5196.99	Max WS	TR200_2h	50.92	0.00	51.02	0.00					259.24	258.79	258.21	258.72	258.20
Centro	5196.98	Max WS	P2_TR200_2h	51.69	0.00	51.78	0.00					258.83	258.84	258.27	258.75	258.23
Centro	5196.98	Max WS	TR200_2h	50.92	0.00	51.02	0.00					258.83	258.79	258.21	258.72	258.20
Centro	5192.99	Max WS	P2_TR200_2h	51.78	0.00	54.53	0.00					257.72	258.75	258.23	256.91	256.60
Centro	5192.99	Max WS	TR200_2h	51.02	0.00	53.90	0.00					257.72	258.72	258.20	256.89	256.59
Centro	5192.98	Max WS	P2_TR200_2h	51.78	0.56	54.53	0.56		34.65	0.29	0.13	256.31	258.75	258.23	256.91	256.60
Centro	5192.98	Max WS	TR200_2h	51.02	0.46	53.90	0.46		29.97	0.28	0.13	256.31	258.72	258.20	256.89	256.59
Centro	4976.99	Max WS	P2_TR200_2h	54.53	0.00	55.54	0.00					257.37	256.91	256.60	256.42	256.20
Centro	4976.99	Max WS	TR200_2h	53.90	0.00	54.97	0.00					257.37	256.89	256.59	256.42	256.20
Centro	4976.98	Max WS	P2_TR200_2h	54.53	0.59	55.54	0.59		34.26	0.29	0.14	256.31	256.91	256.60	256.42	256.20
Centro	4976.98	Max WS	TR200_2h	53.90	0.53	54.97	0.53		33.19	0.28	0.14	256.31	256.89	256.59	256.42	256.20
Centro	4841.99	Max WS	P2_TR200_2h	55.54	0.00	55.62	0.00					256.04	256.11	255.74	256.07	255.73
Centro	4841.99	Max WS	TR200_2h	54.97	0.00	55.06	0.00					256.04	256.13	255.79	256.10	255.79
Centro	4841.98	Max WS	P2_TR200_2h	55.54	0.00	55.62	0.00					256.94	256.11	255.74	256.07	255.73
Centro	4841.98	Max WS	TR200_2h	54.97	0.00	55.06	0.00					256.94	256.13	255.79	256.10	255.79
Centro	4829.99	Max WS	P2_TR200_2h	55.62	0.00	46.19	0.00					255.23	256.07	255.73	254.73	254.48
Centro	4829.99	Max WS	TR200_2h	55.06	0.00	46.05	0.00					255.23	256.10	255.79	254.72	254.47
Centro	4829.98	Max WS	P2_TR200_2h	55.62	-1.55	46.19	-1.55		71.15	0.29	0.18	255.22	256.07	255.73	254.73	254.48
Centro	4829.98	Max WS	TR200_2h	55.06	-2.00	46.05	-2.00		73.01	0.32	0.20	255.22	256.10	255.79	254.72	254.47

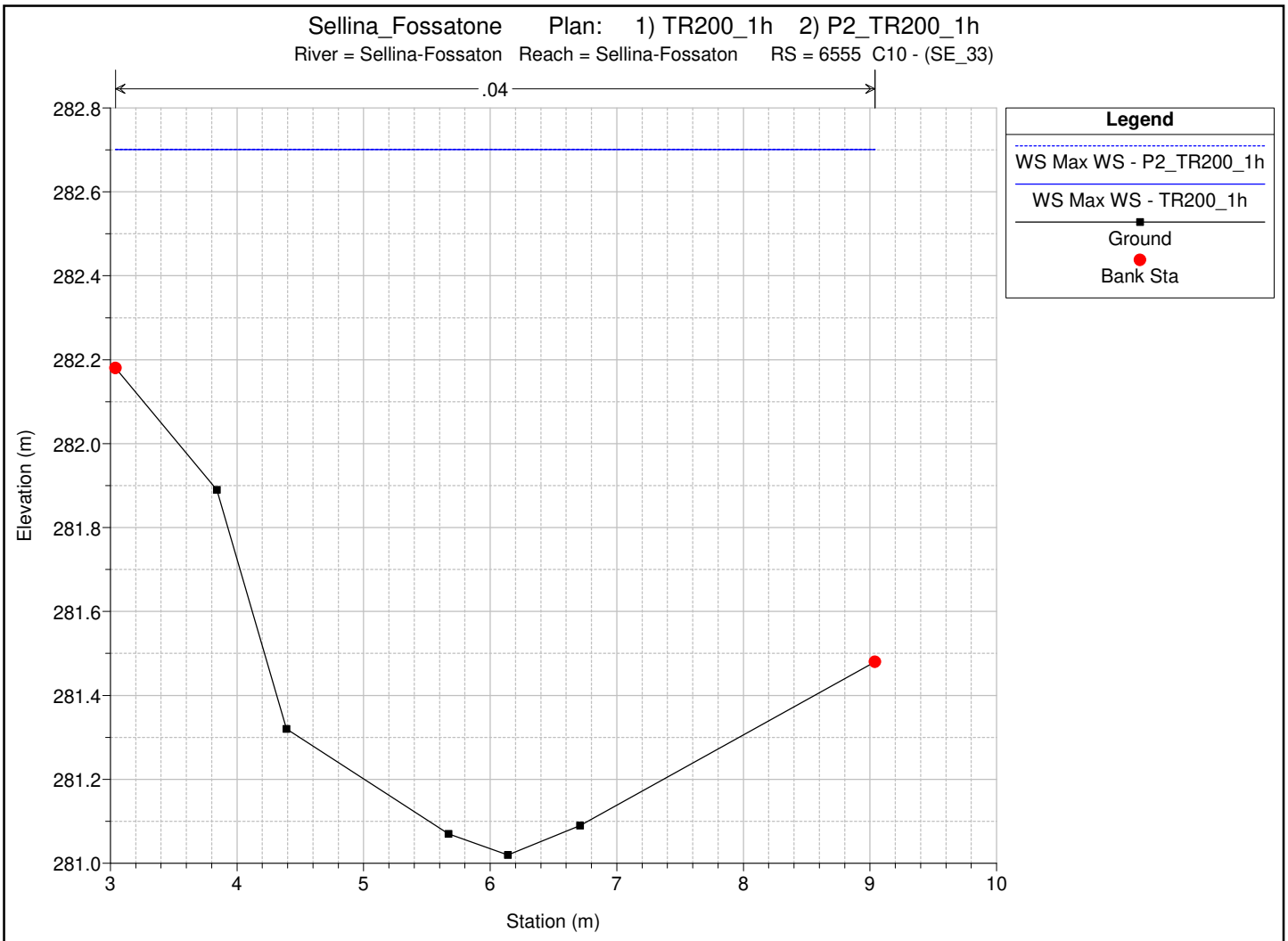
FOSSO
SELLINA

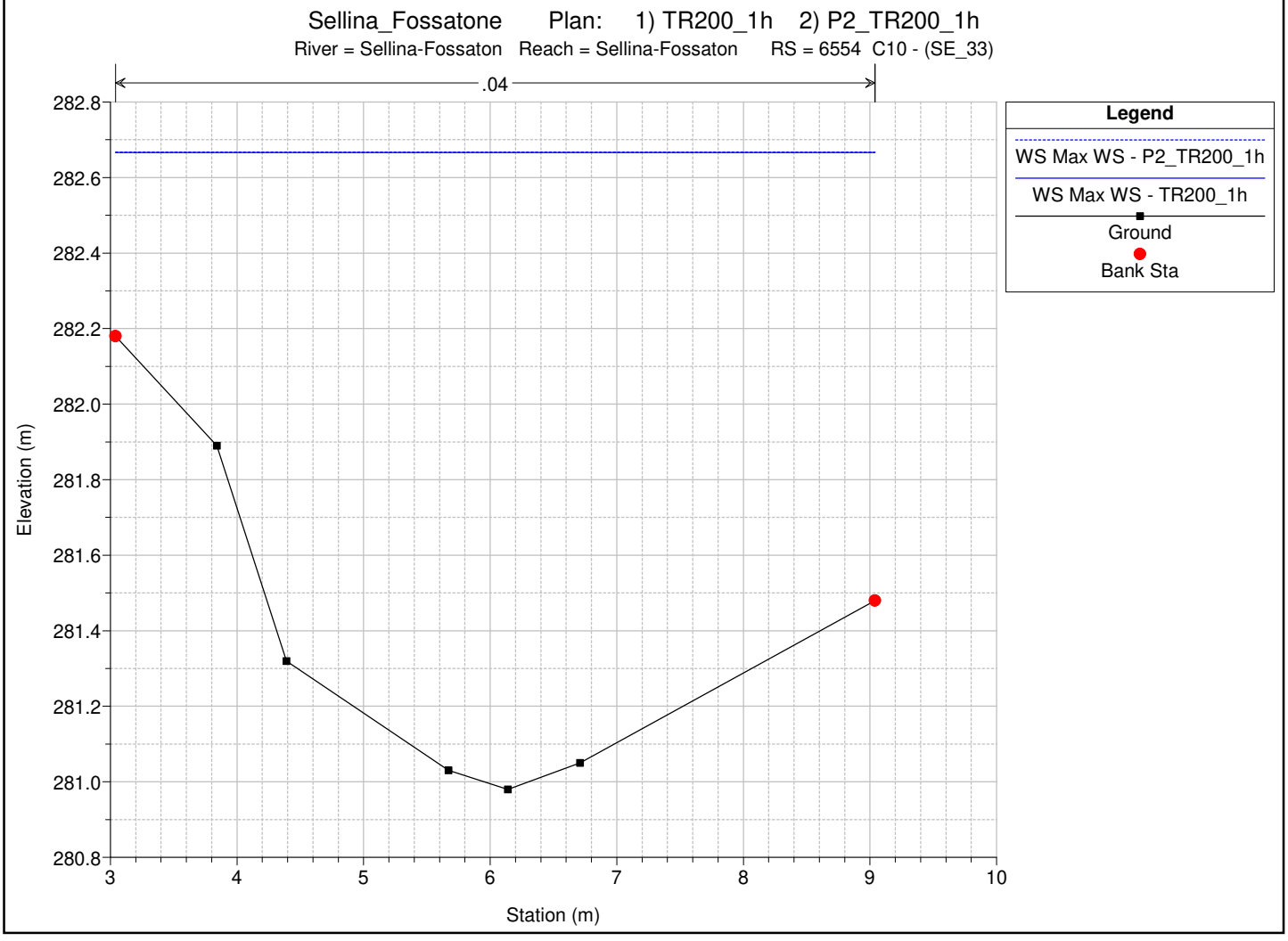


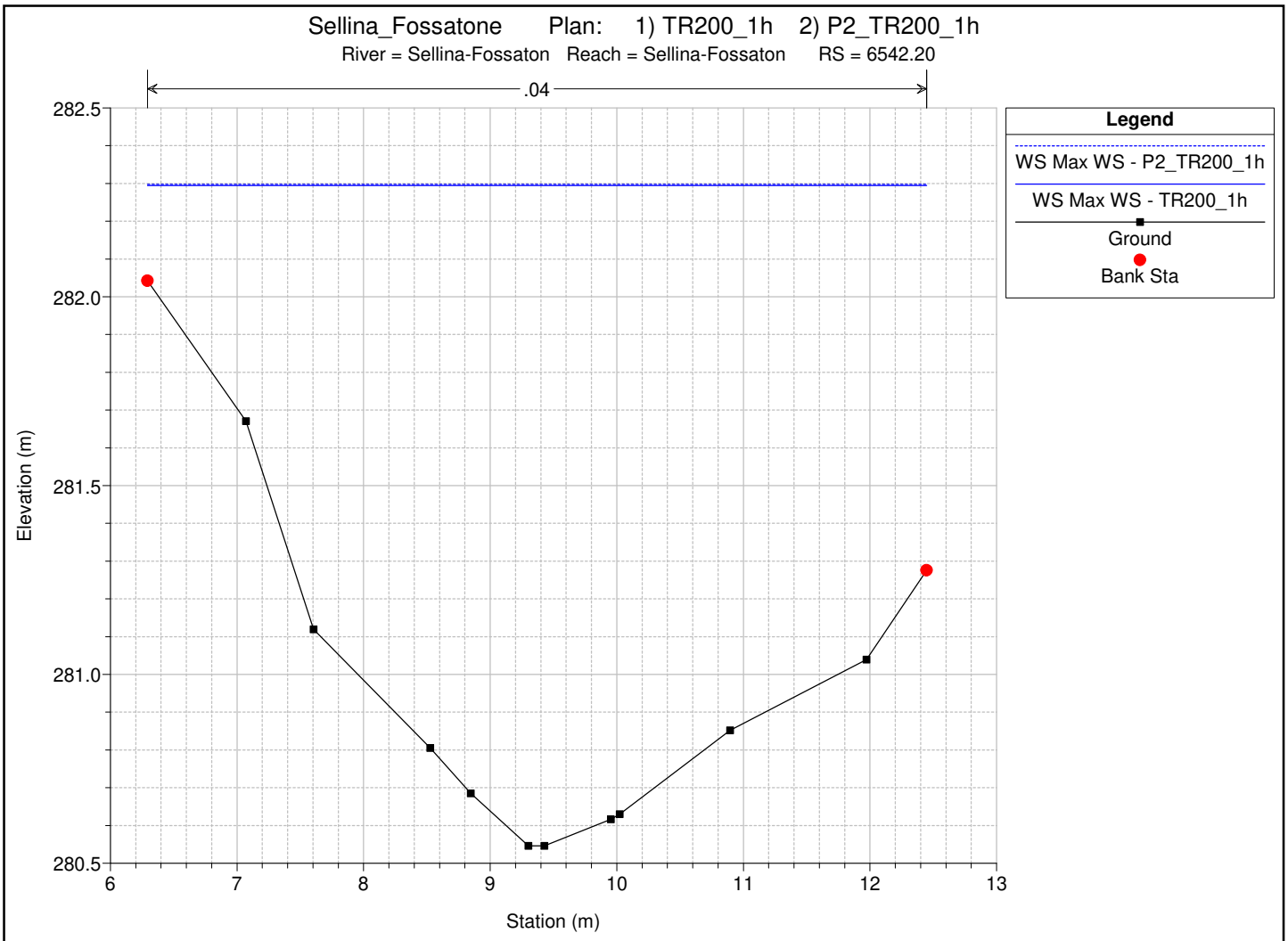
1 cm Horiz. = 100 m 1 cm Vert. = 2 m

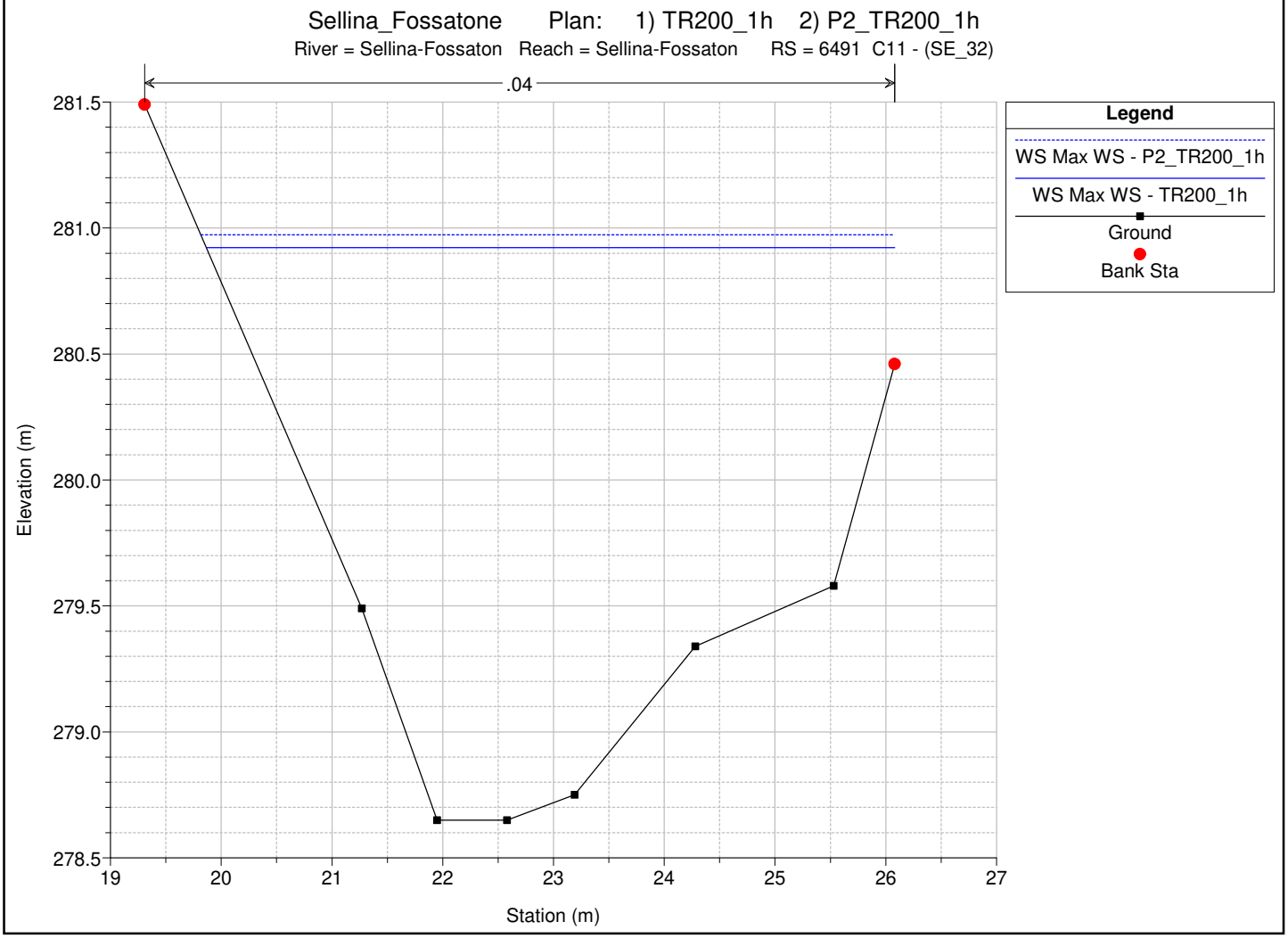


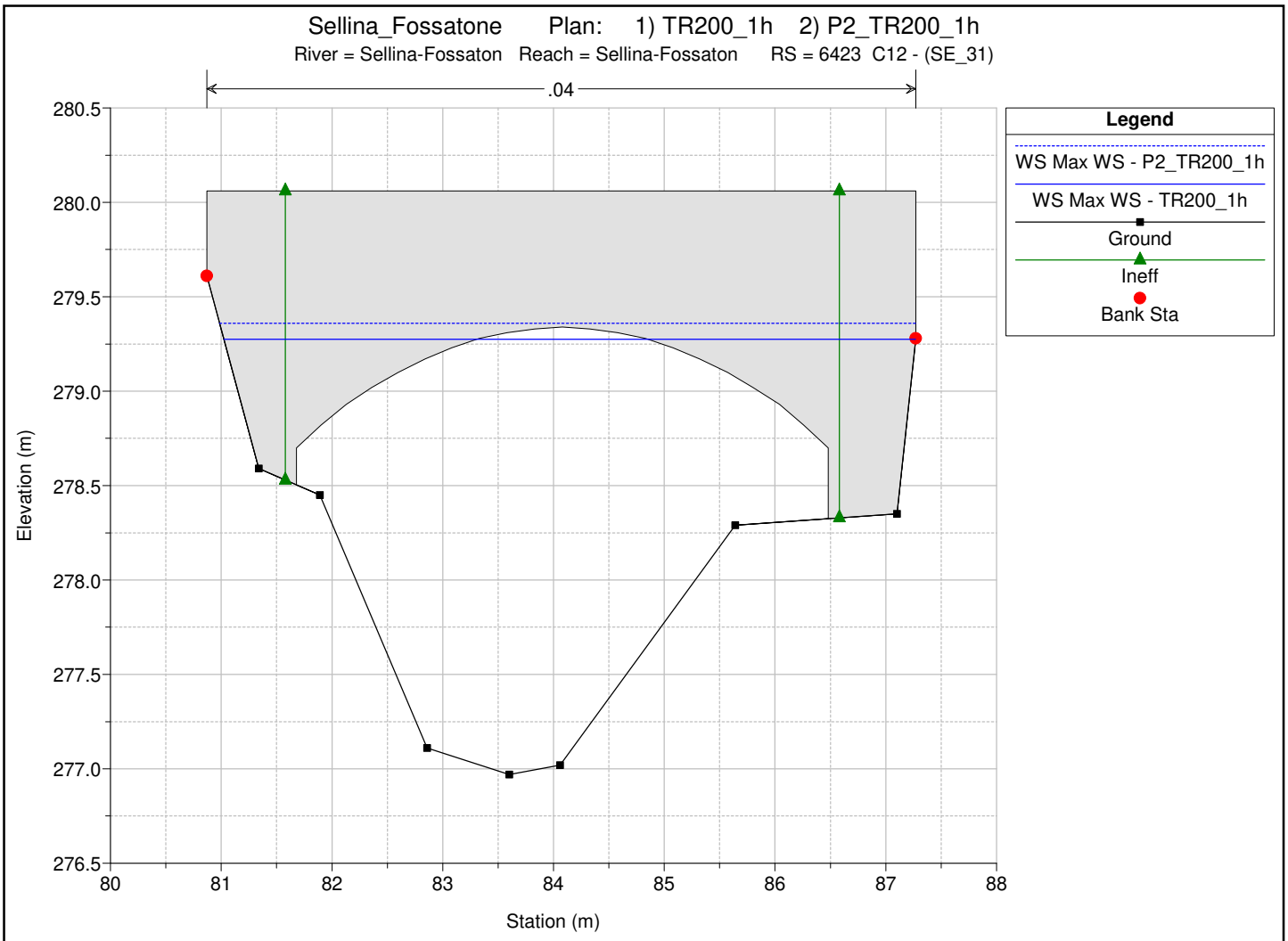
1 cm Horiz. = 100 m 1 cm Vert. = 2 m

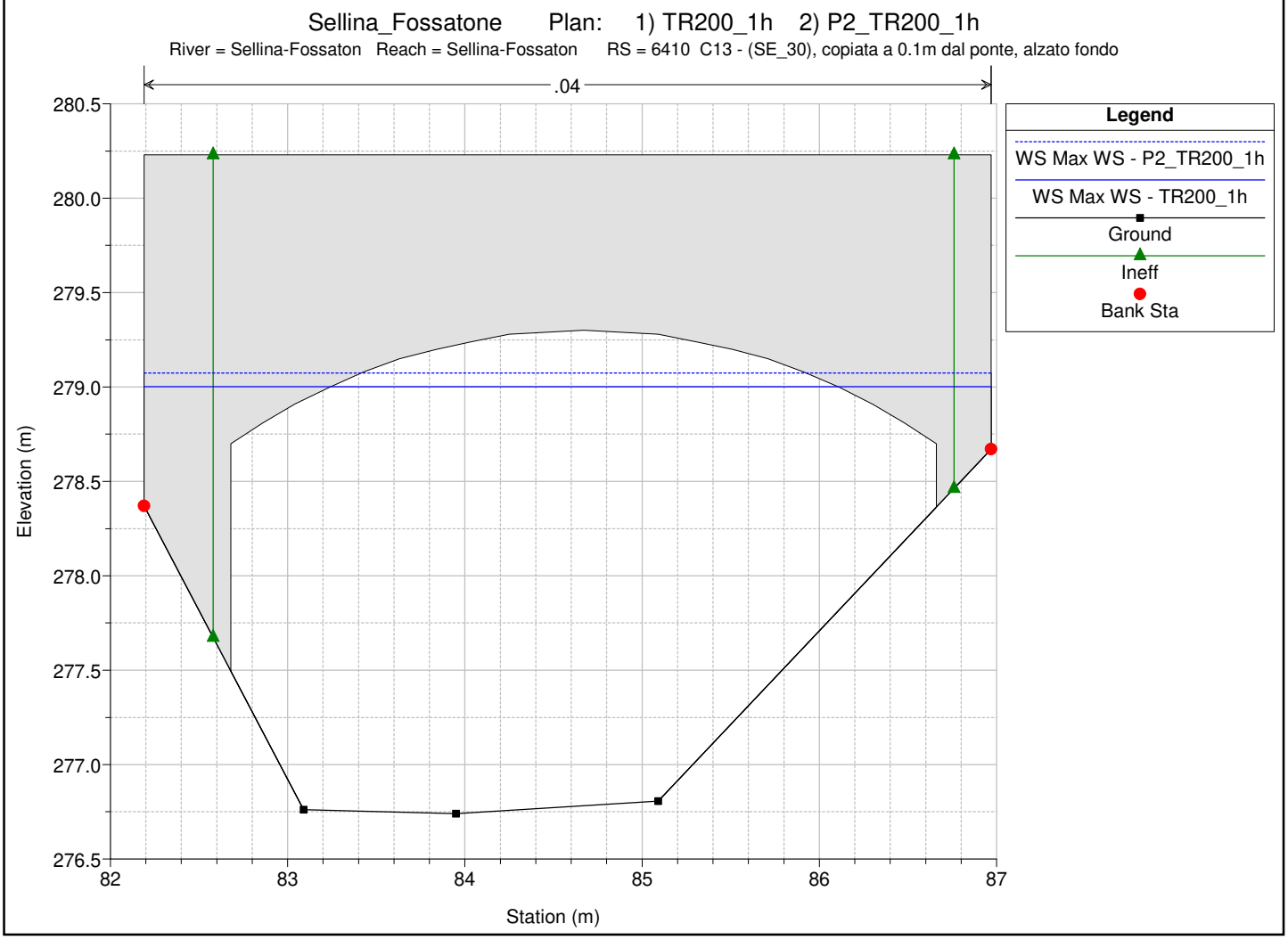

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 6555 C10 - (SE_33)
.04
Legend
WS Max WS - P2_TR200_1h
WS Max WS - TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
282.8
282.6
282.4
282.2
282.0
281.8
281.6
281.4
281.2
281.0
3
4
5
6
7
8
9
10

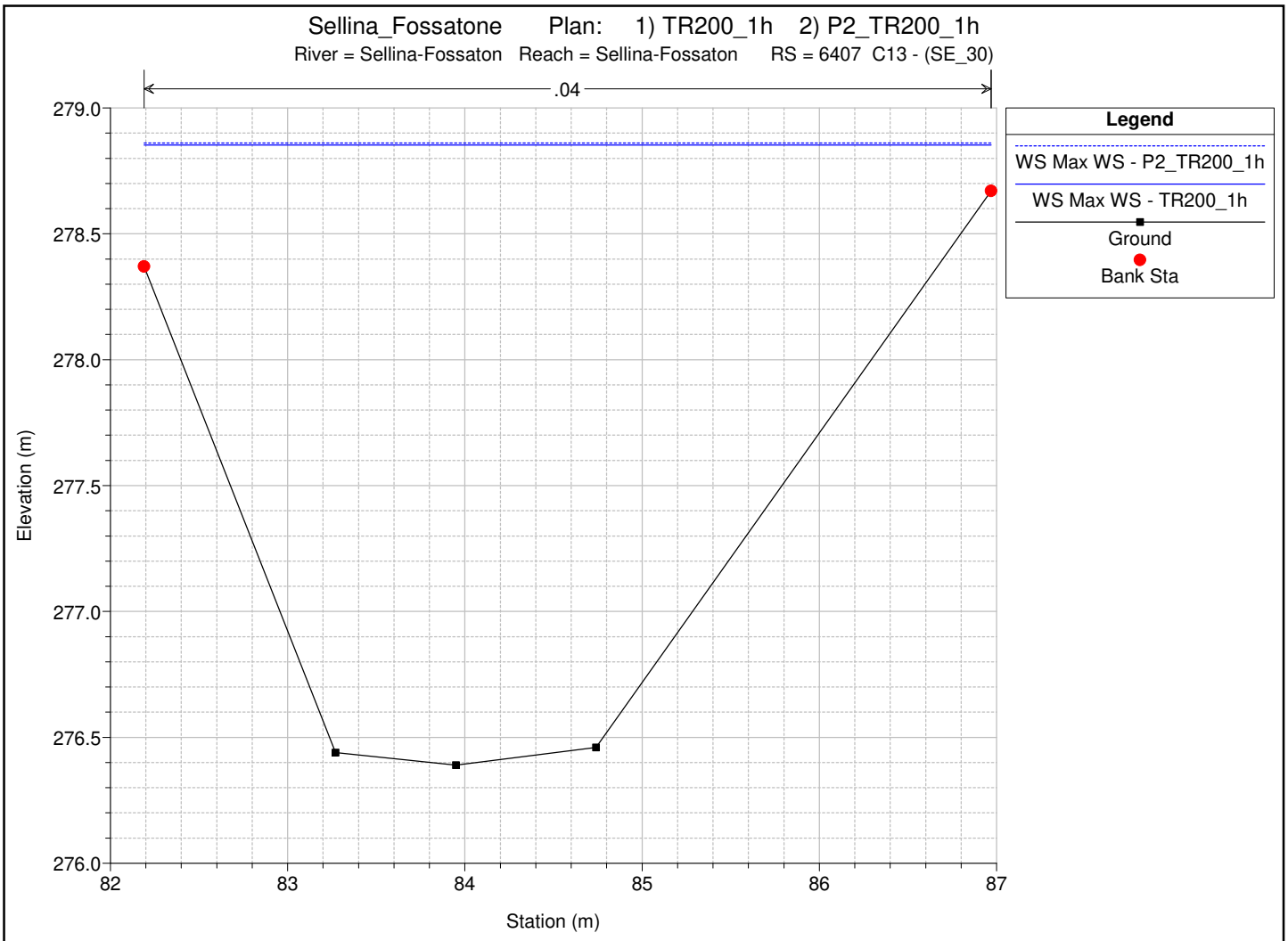

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 6554 C10 - (SE_33)
.04
Legend
WS Max WS - P2_TR200_1h
WS Max WS - TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
282.8
282.6
282.4
282.2
282.0
281.8
281.6
281.4
281.2
281.0
280.8
3
4
5
6
7
8
9
10

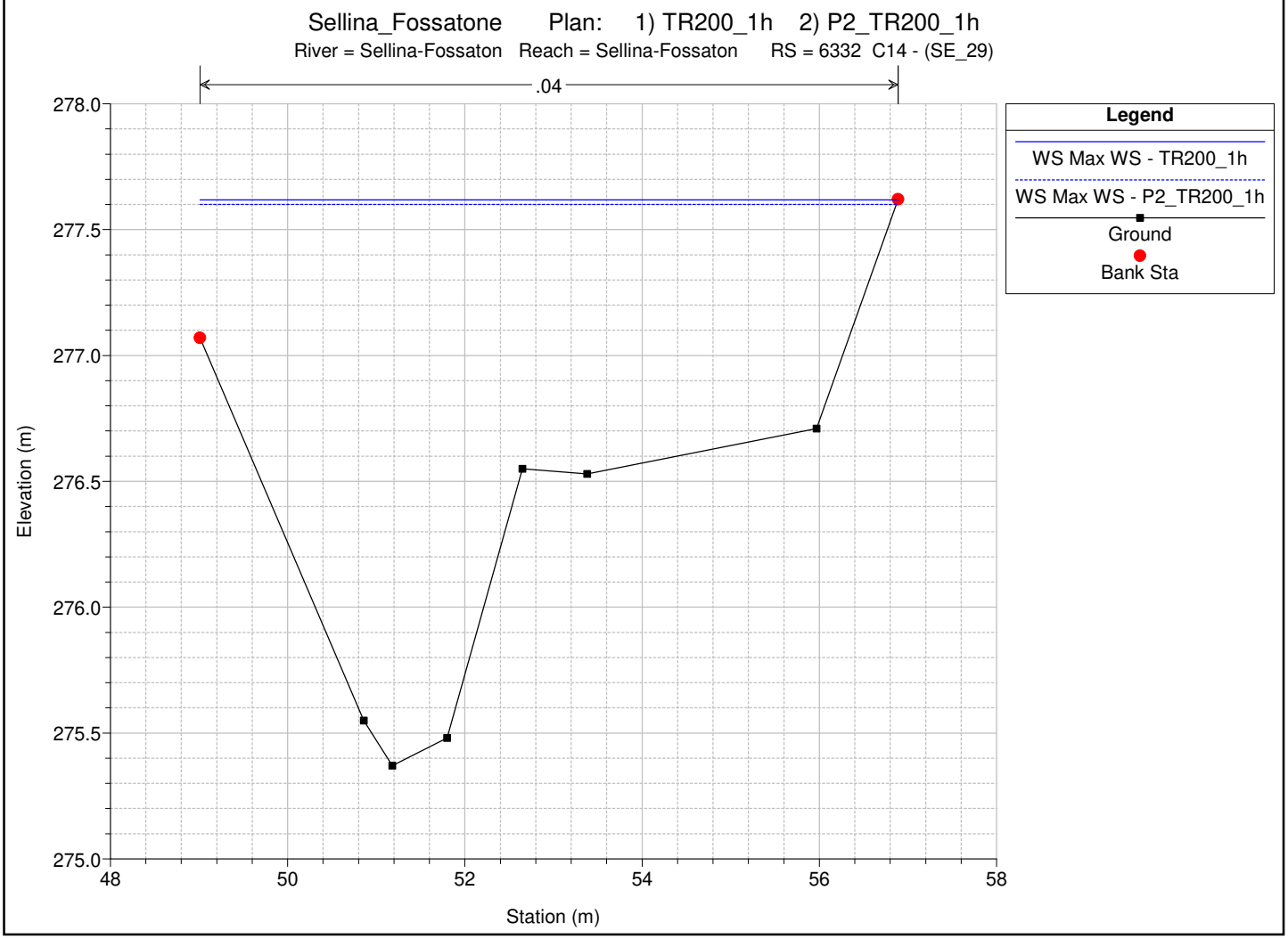

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 6542.20
.04
Legend
WS Max WS - P2_TR200_1h
WS Max WS - TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
282.5
282.0
281.5
281.0
280.5
6
7
8
9
10
11
12
13

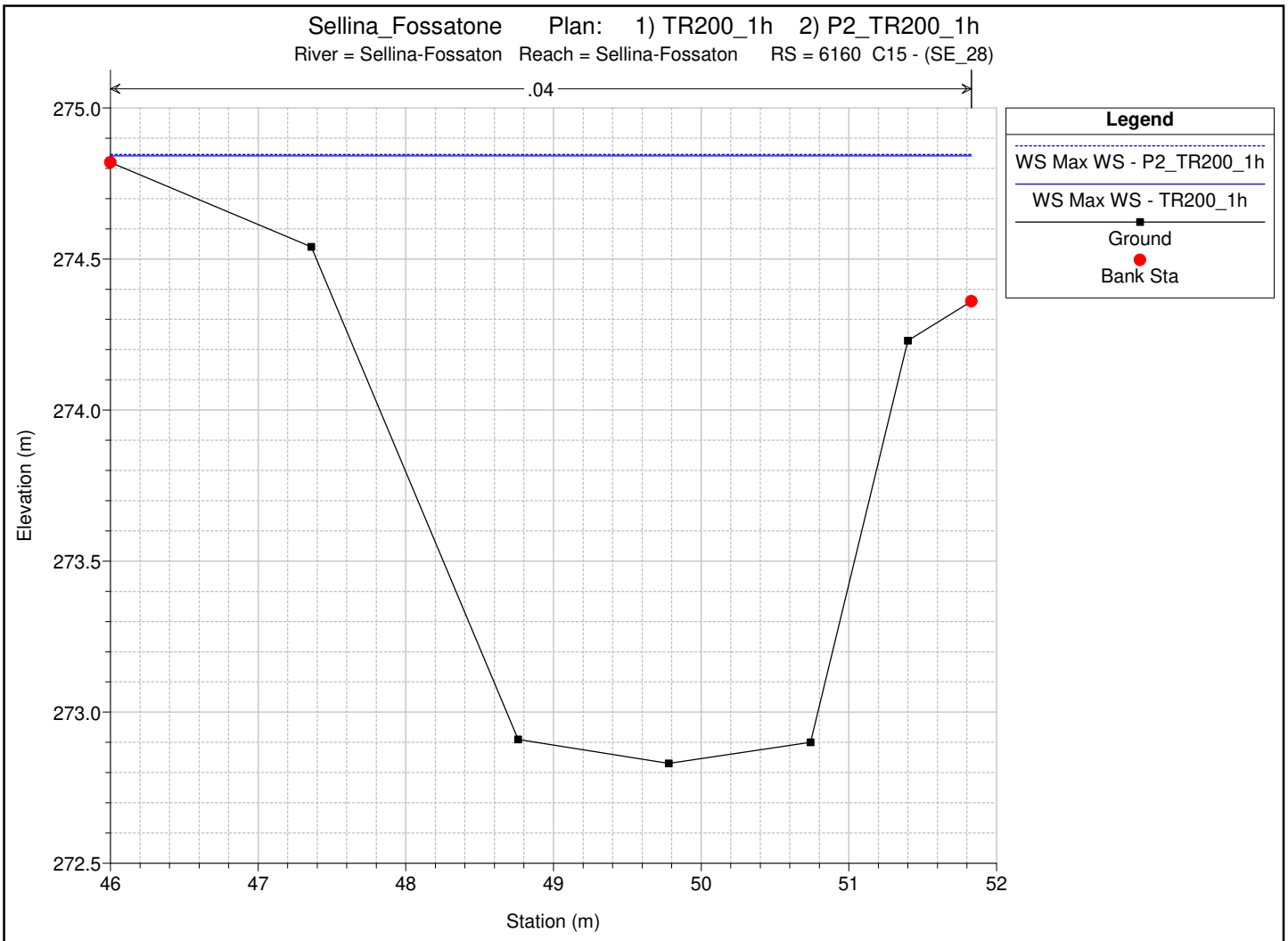

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 6491 C11 - (SE_32)
.04
Legend
WS Max WS - P2_TR200_1h
WS Max WS - TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
281.5
281.0
280.5
280.0
279.5
279.0
278.5
19
20
21
22
23
24
25
26
27

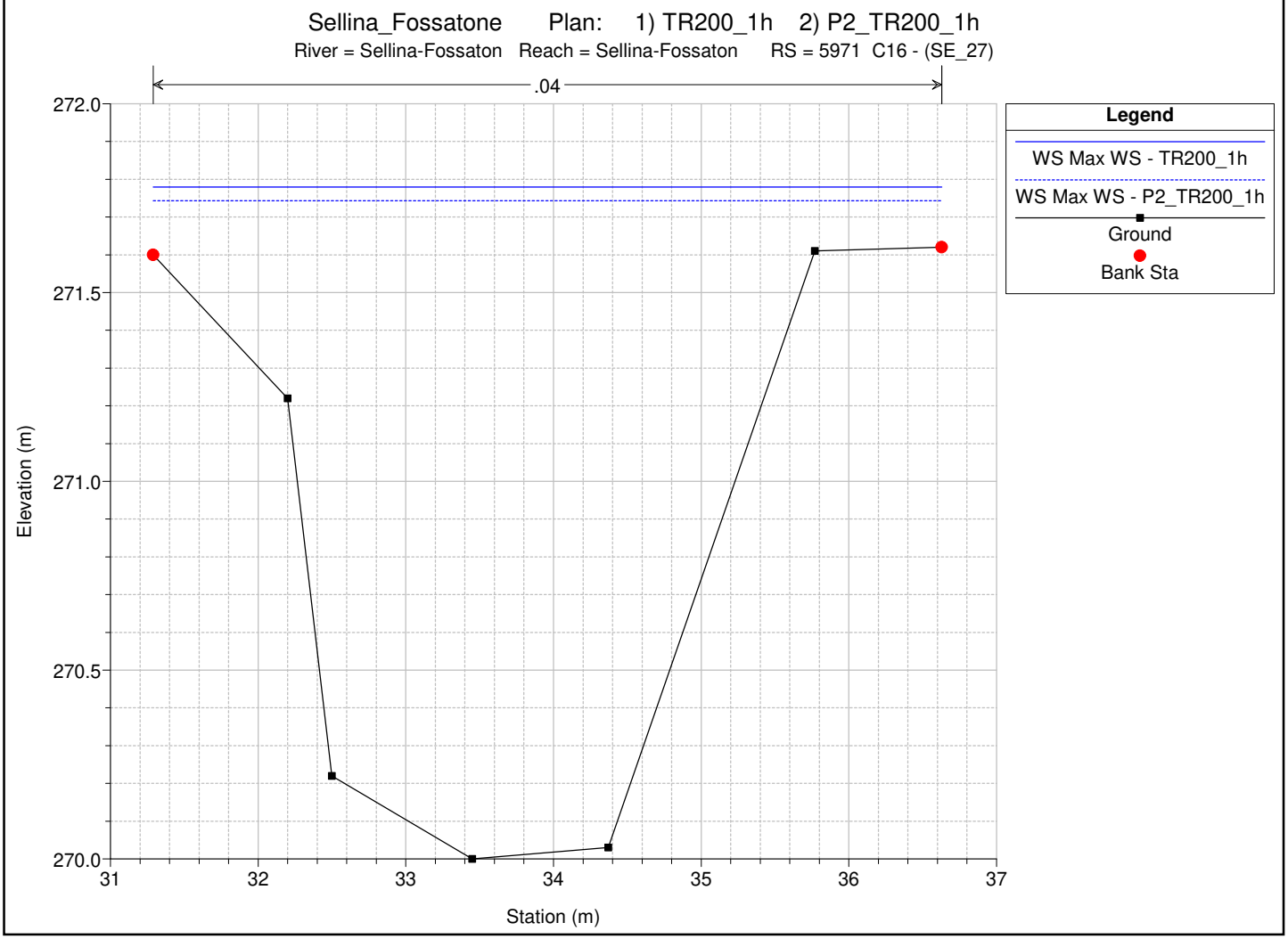

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 6423 C12 - (SE_31)
.04
Legend
WS Max WS - P2_TR200_1h
WS Max WS - TR200_1h
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
280.5
280.0
279.5
279.0
278.5
278.0
277.5
277.0
276.5
80
81
82
83
84
85
86
87
88

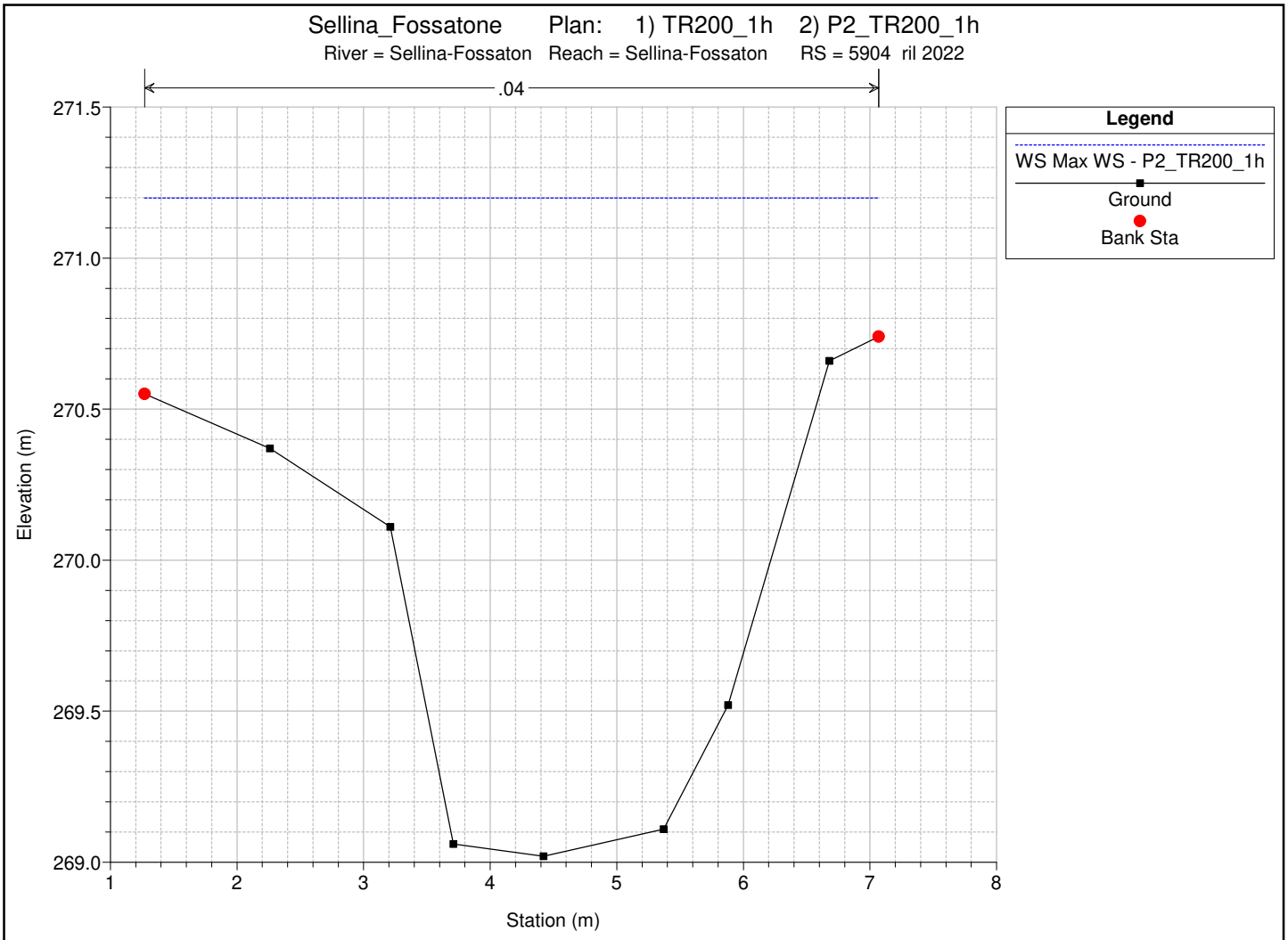

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 6410 C13 - (SE_30), copiata a 0.1m dal ponte, alzato fondo
.04
Legend
WS Max WS - P2_TR200_1h
WS Max WS - TR200_1h
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
280.5
280.0
279.5
279.0
278.5
278.0
277.5
277.0
276.5
82
83
84
85
86
87

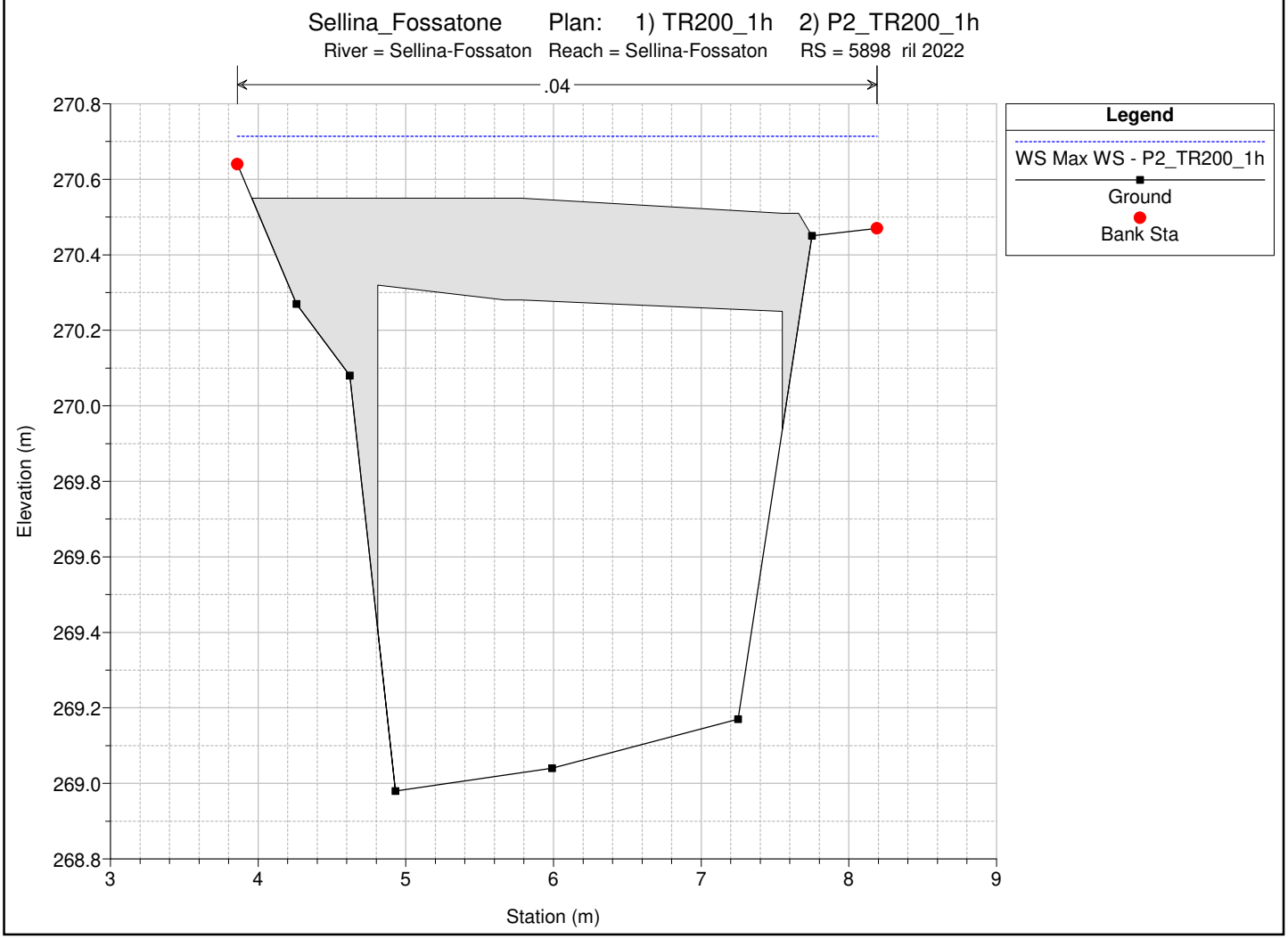

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 6407 C13 - (SE_30)
.04
Legend
WS Max WS - P2_TR200_1h
WS Max WS - TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
279.0
278.5
278.0
277.5
277.0
276.5
276.0
82
83
84
85
86
87

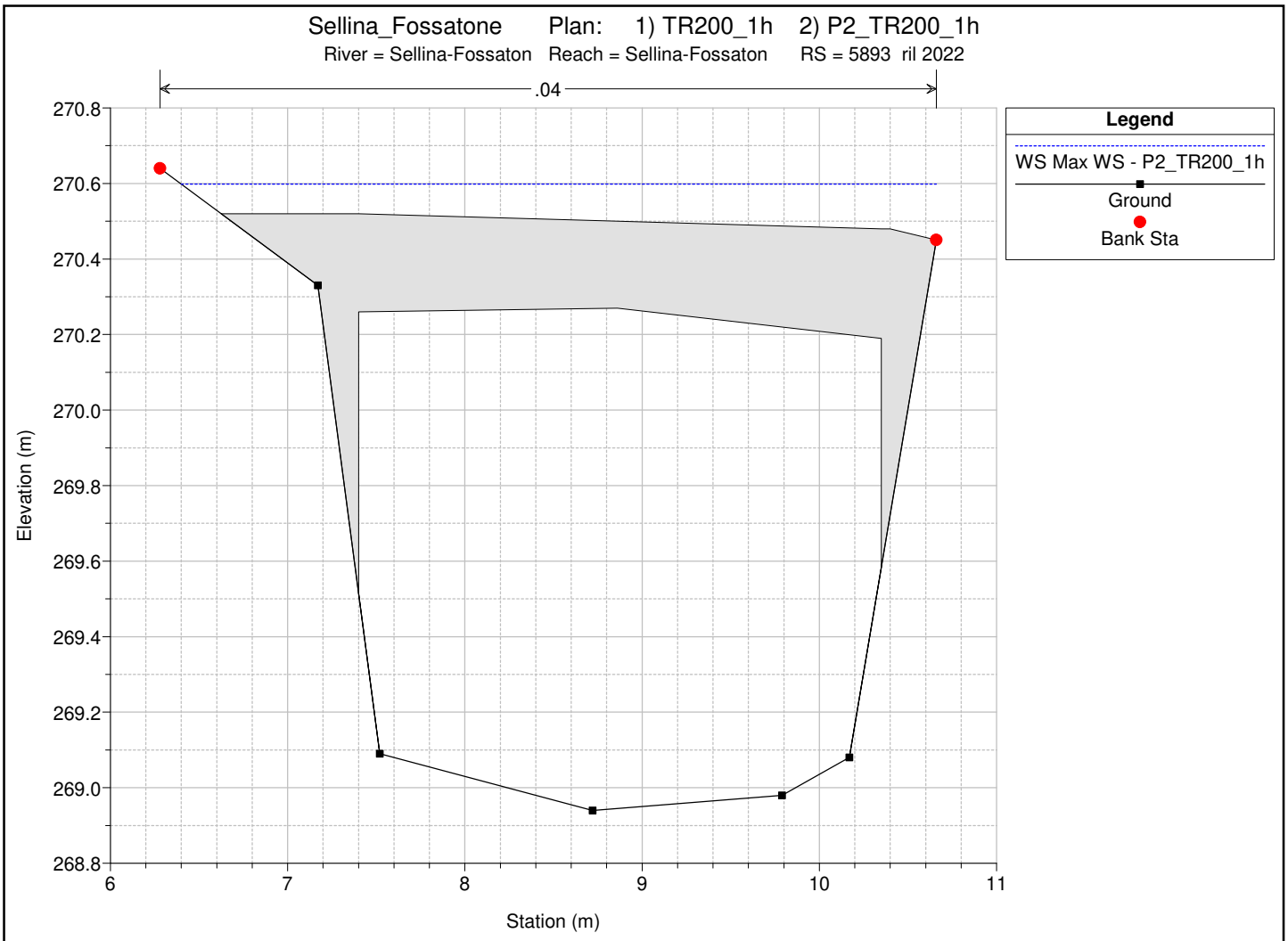

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 6332 C14 - (SE_29)
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
278.0
277.5
277.0
276.5
276.0
275.5
275.0
48
50
52
54
56
58

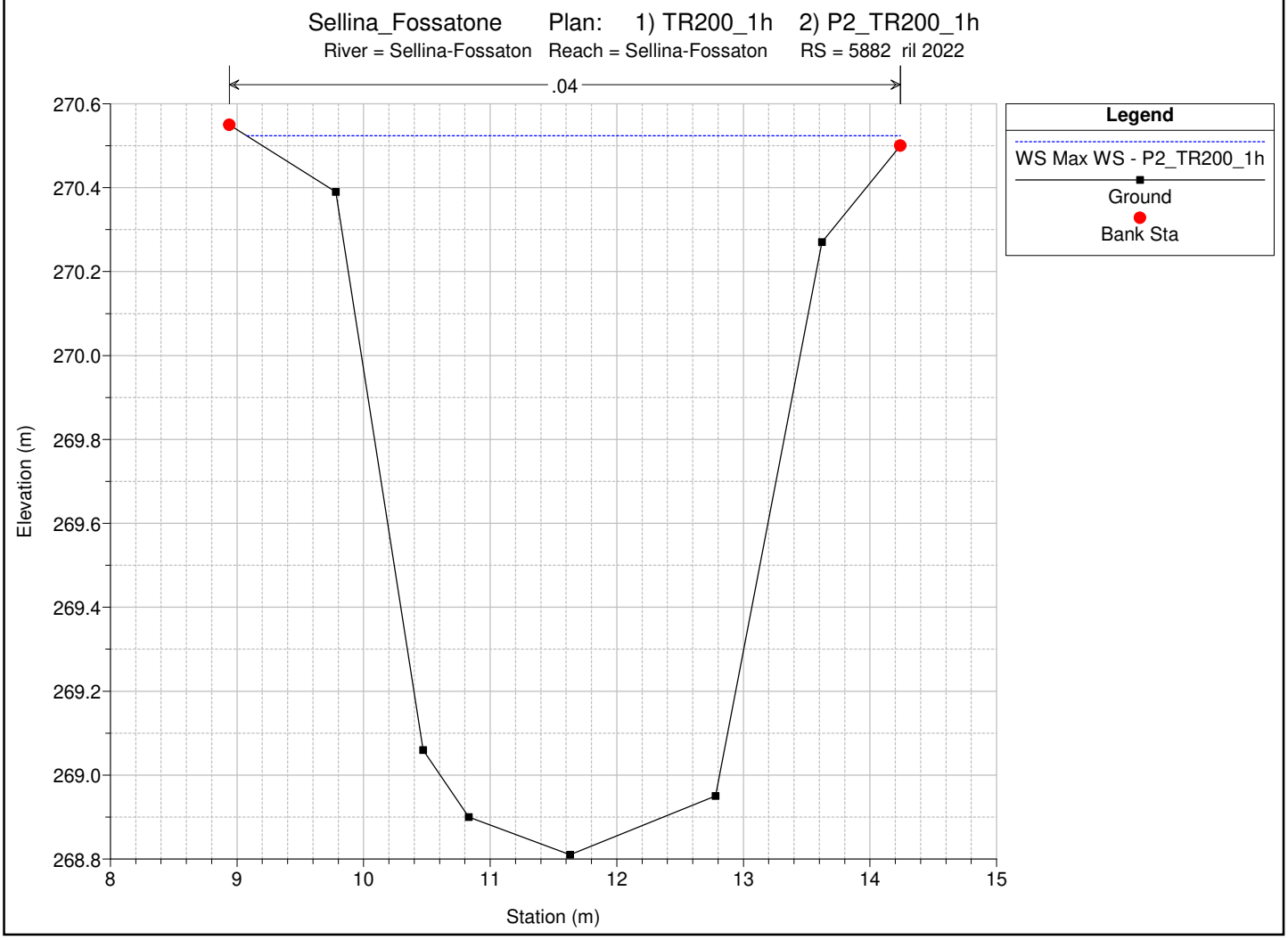

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 6160 C15 - (SE_28)
.04
Legend
WS Max WS - P2_TR200_1h
WS Max WS - TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
275.0
274.5
274.0
273.5
273.0
272.5
46
47
48
49
50
51
52

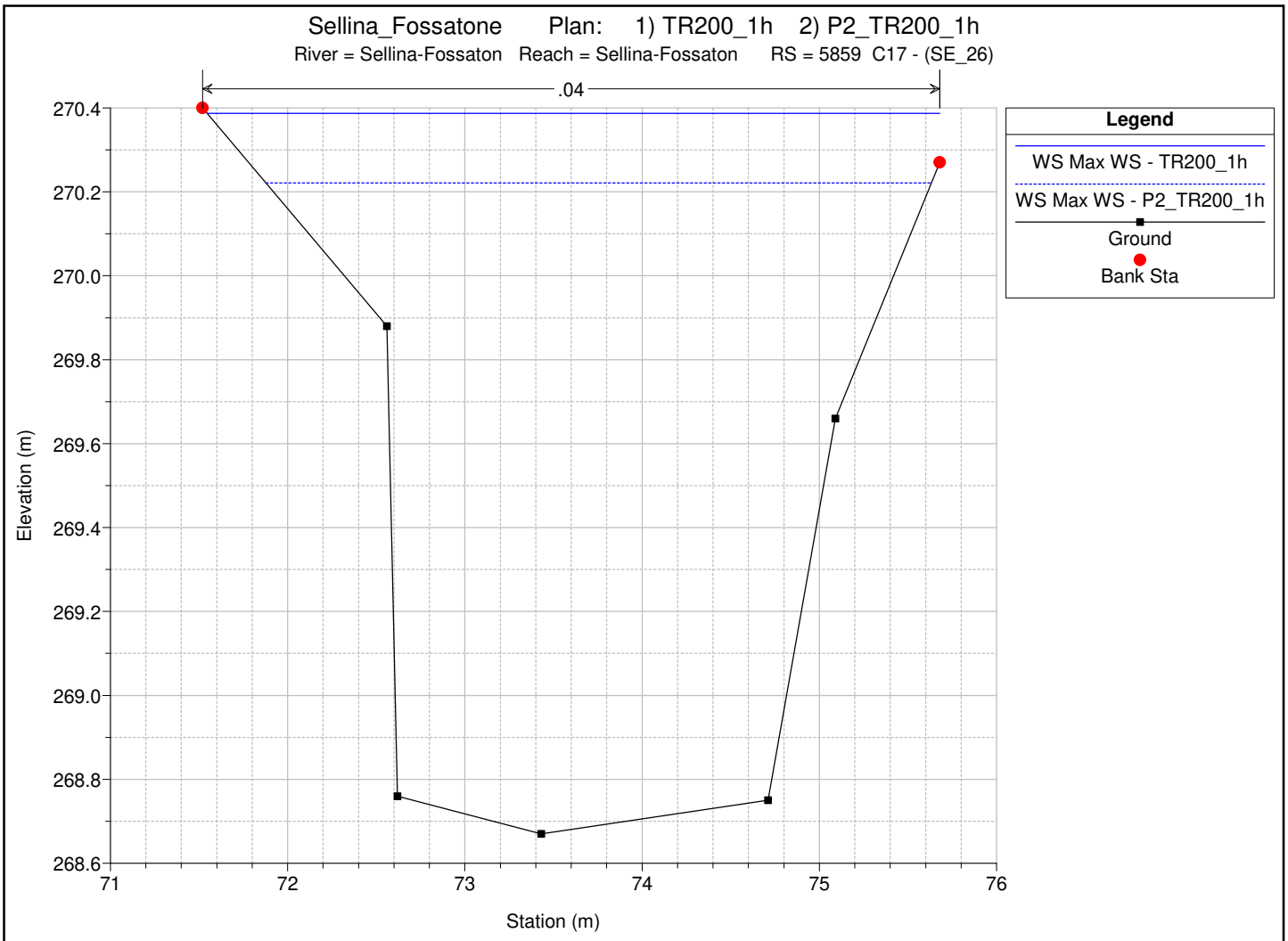

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 5971 C16 - (SE_27)
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
272.0
271.5
271.0
270.5
270.0
31
32
33
34
35
36
37

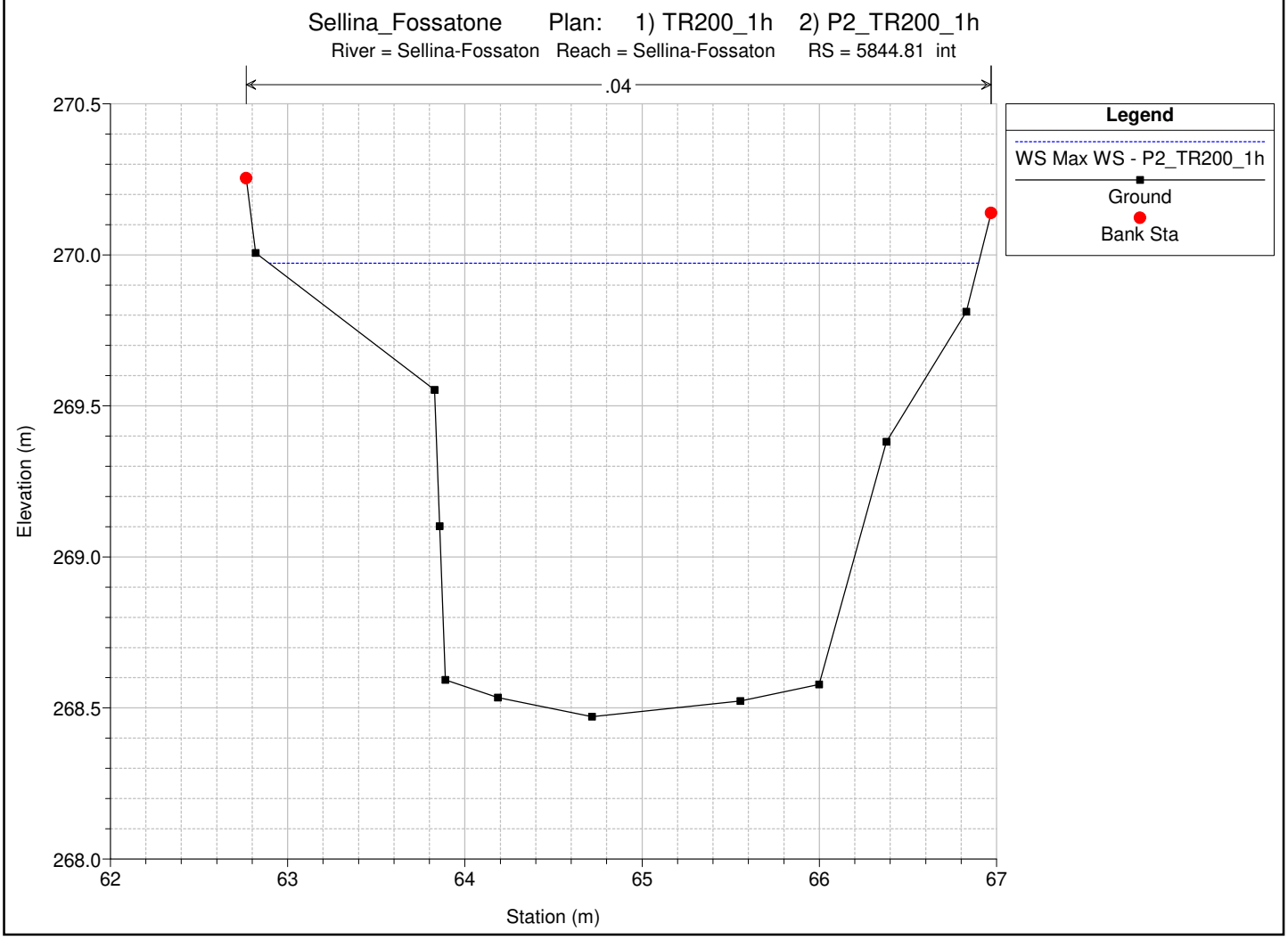

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 5904 ril 2022
.04
Legend
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
271.5
271.0
270.5
270.0
269.5
269.0
1
2
3
4
5
6
7
8

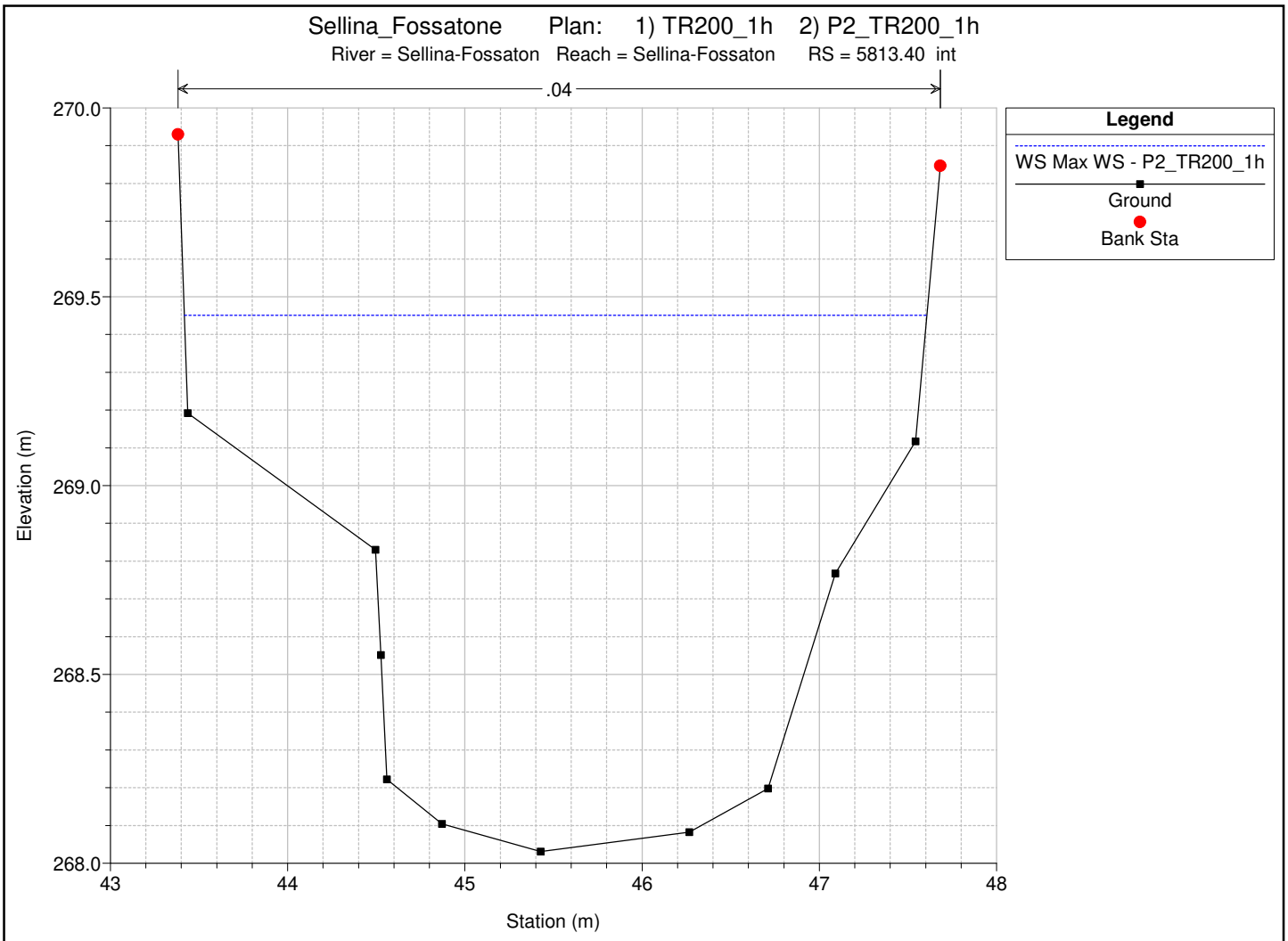

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 5898 ril 2022
.04
Legend
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
270.8
270.6
270.4
270.2
270.0
269.8
269.6
269.4
269.2
269.0
268.8
3
4
5
6
7
8
9

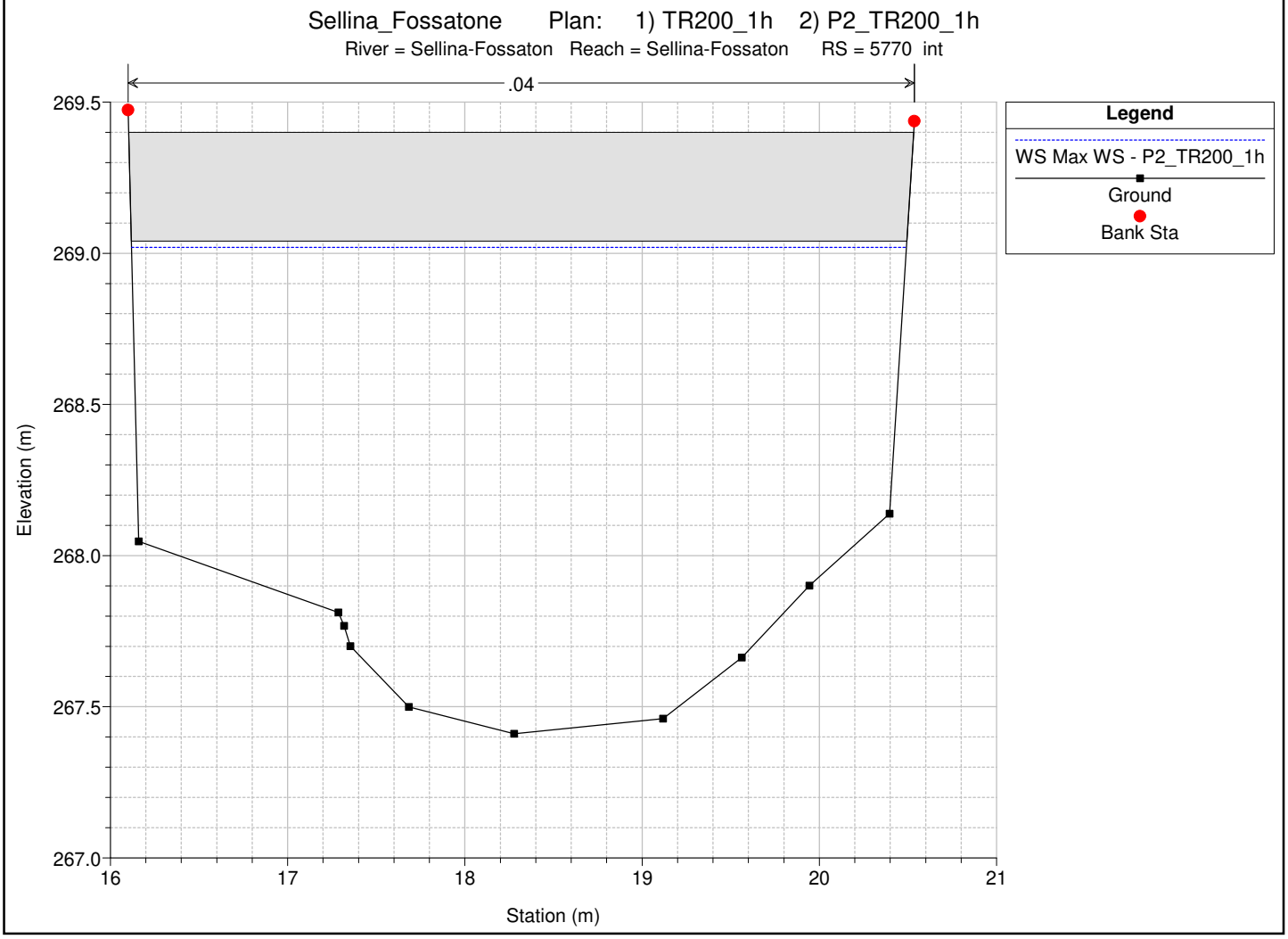

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 5893 ril 2022
.04
Legend
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
270.8
270.6
270.4
270.2
270.0
269.8
269.6
269.4
269.2
269.0
268.8
6
7
8
9
10
11

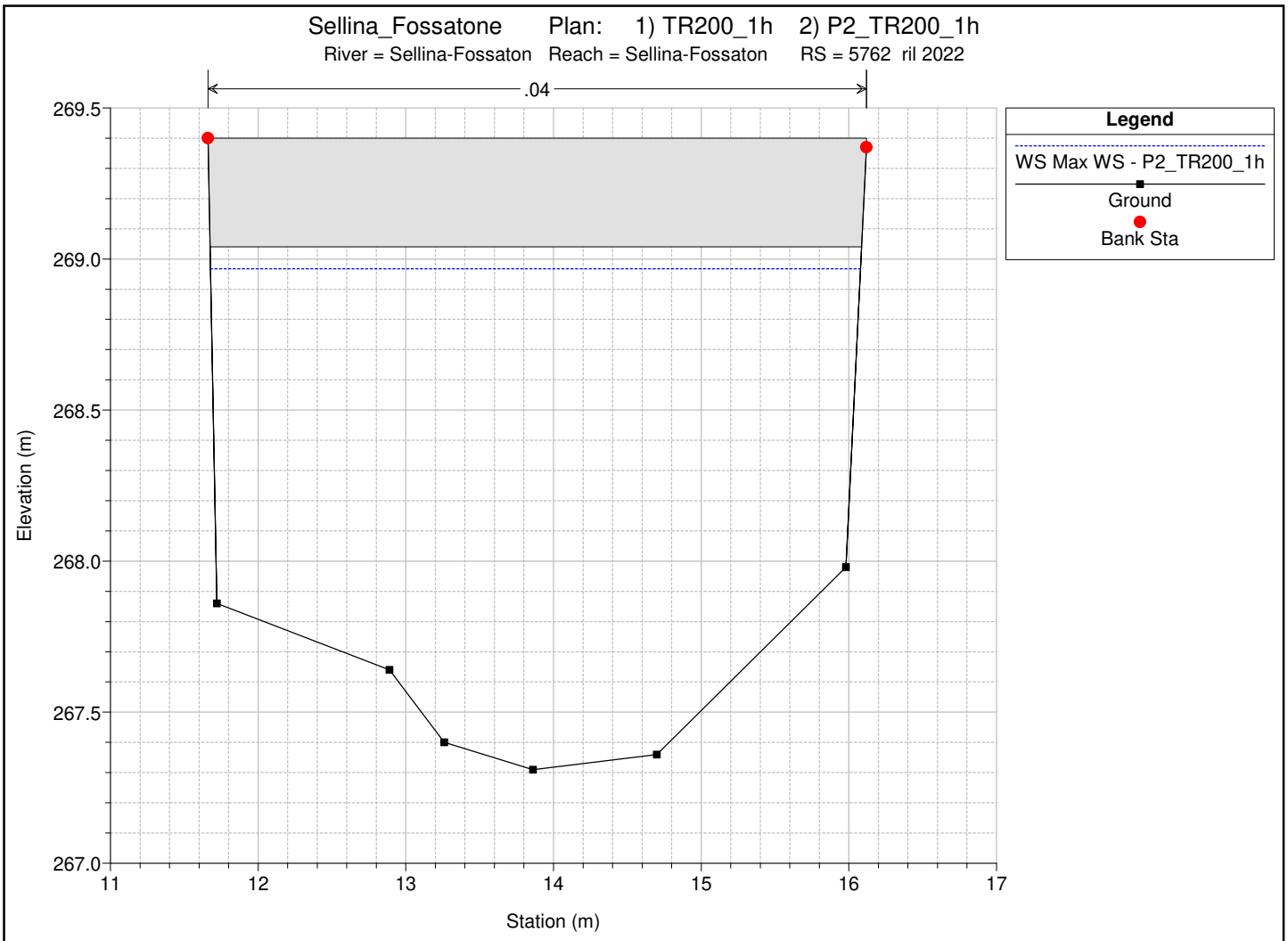

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 5882 ril 2022
.04
Legend
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
270.6
270.4
270.2
270.0
269.8
269.6
269.4
269.2
269.0
268.8
8
9
10
11
12
13
14
15

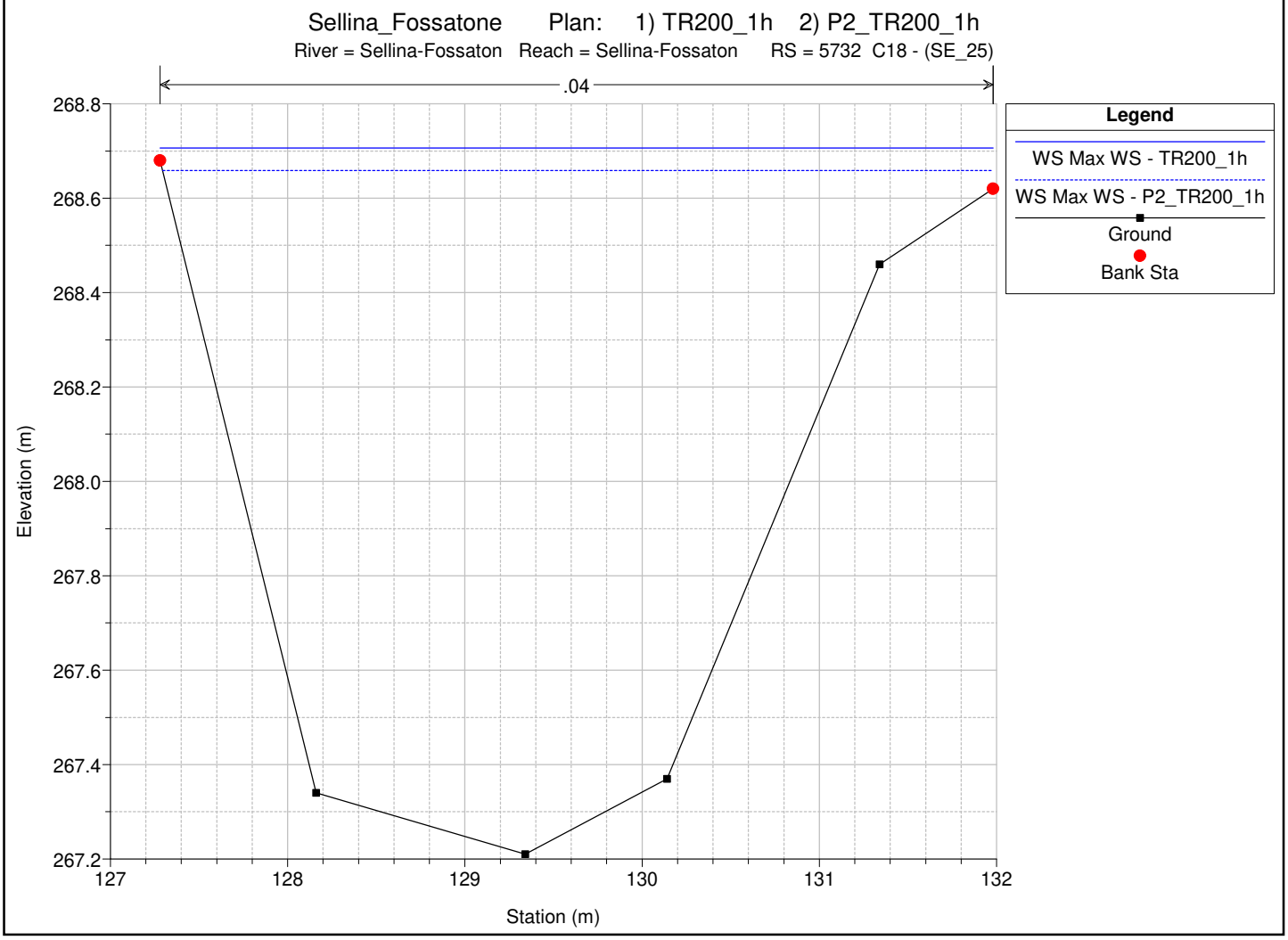

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 5859 C17 - (SE_26)
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
270.4
270.2
270.0
269.8
269.6
269.4
269.2
269.0
268.8
268.6
71
72
73
74
75
76

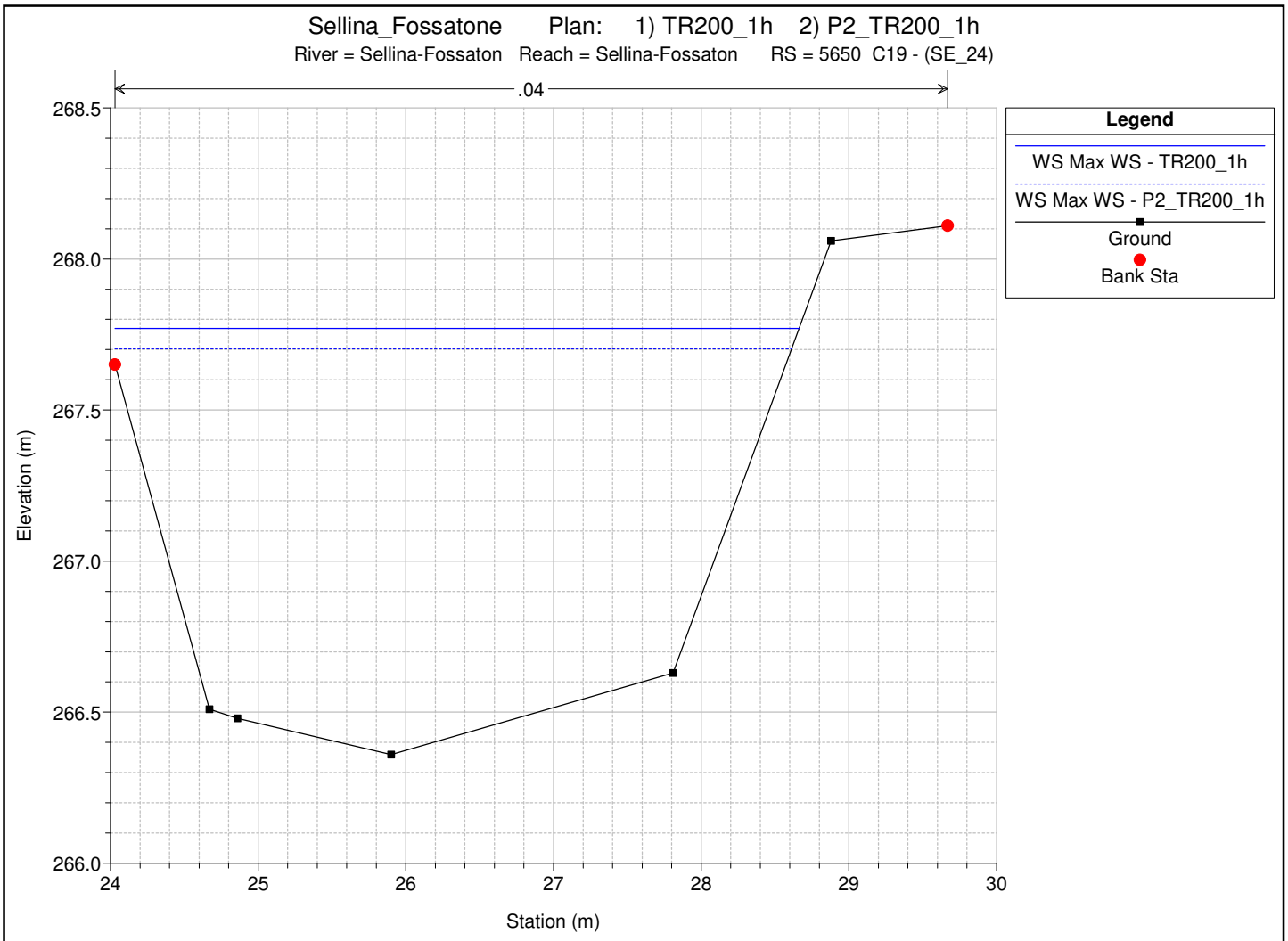

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 5844.81 int
.04
Legend
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
270.5
270.0
269.5
269.0
268.5
268.0
62
63
64
65
66
67

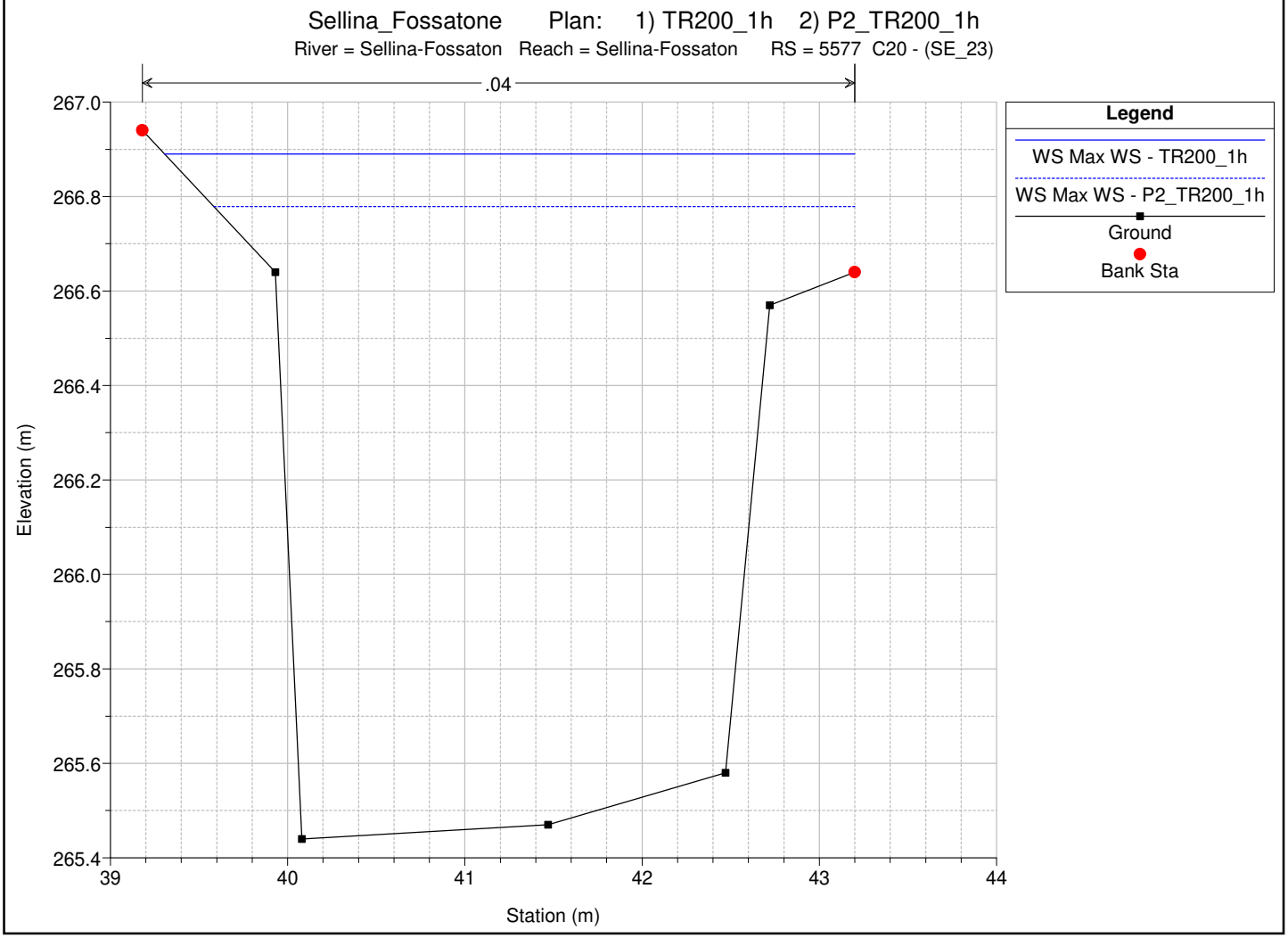

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 5813.40 int
.04
Legend
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
270.0
269.5
269.0
268.5
268.0
43
44
45
46
47
48

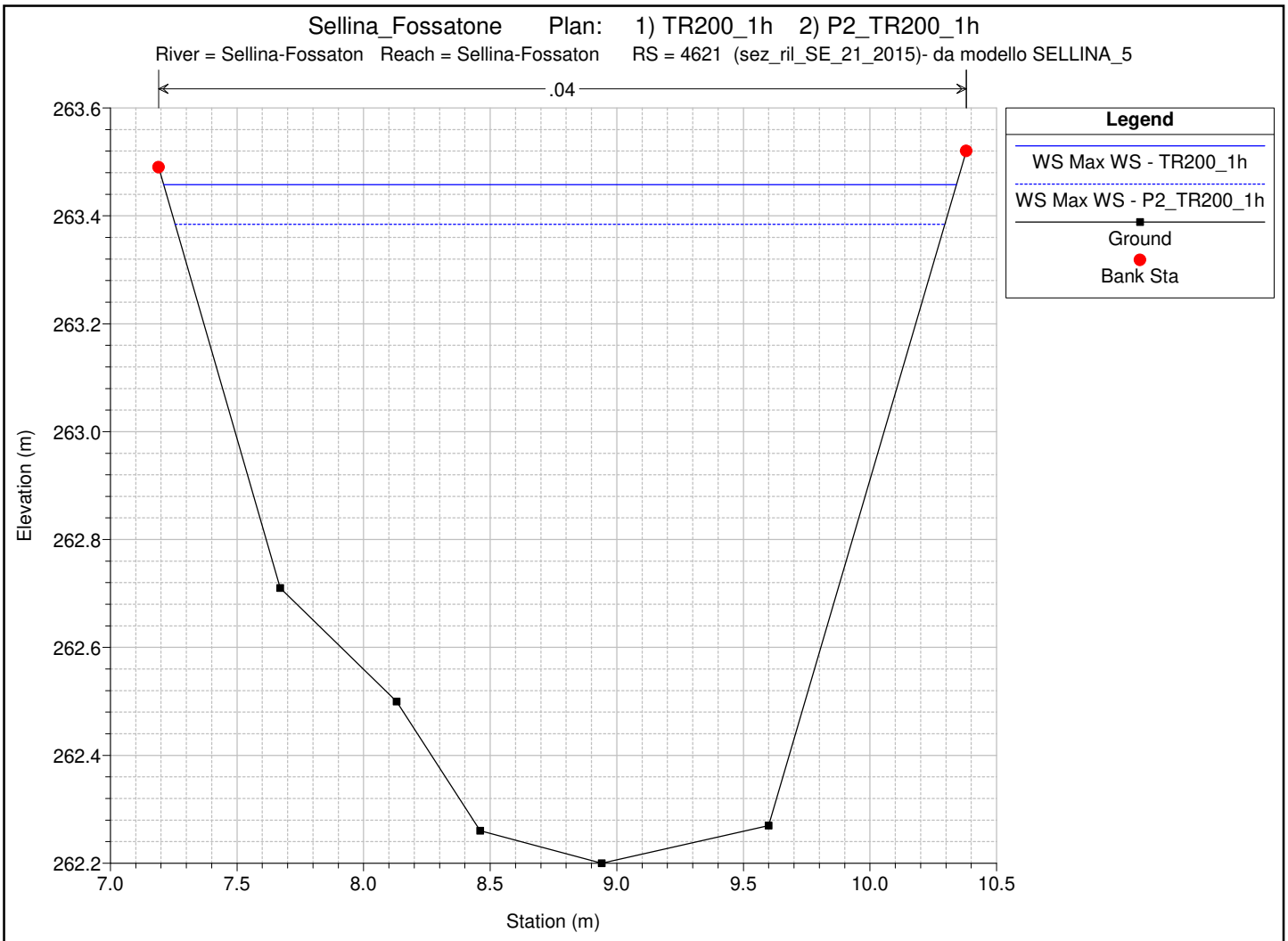

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 5770 int
.04
Legend
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
269.5
269.0
268.5
268.0
267.5
267.0
16
17
18
19
20
21

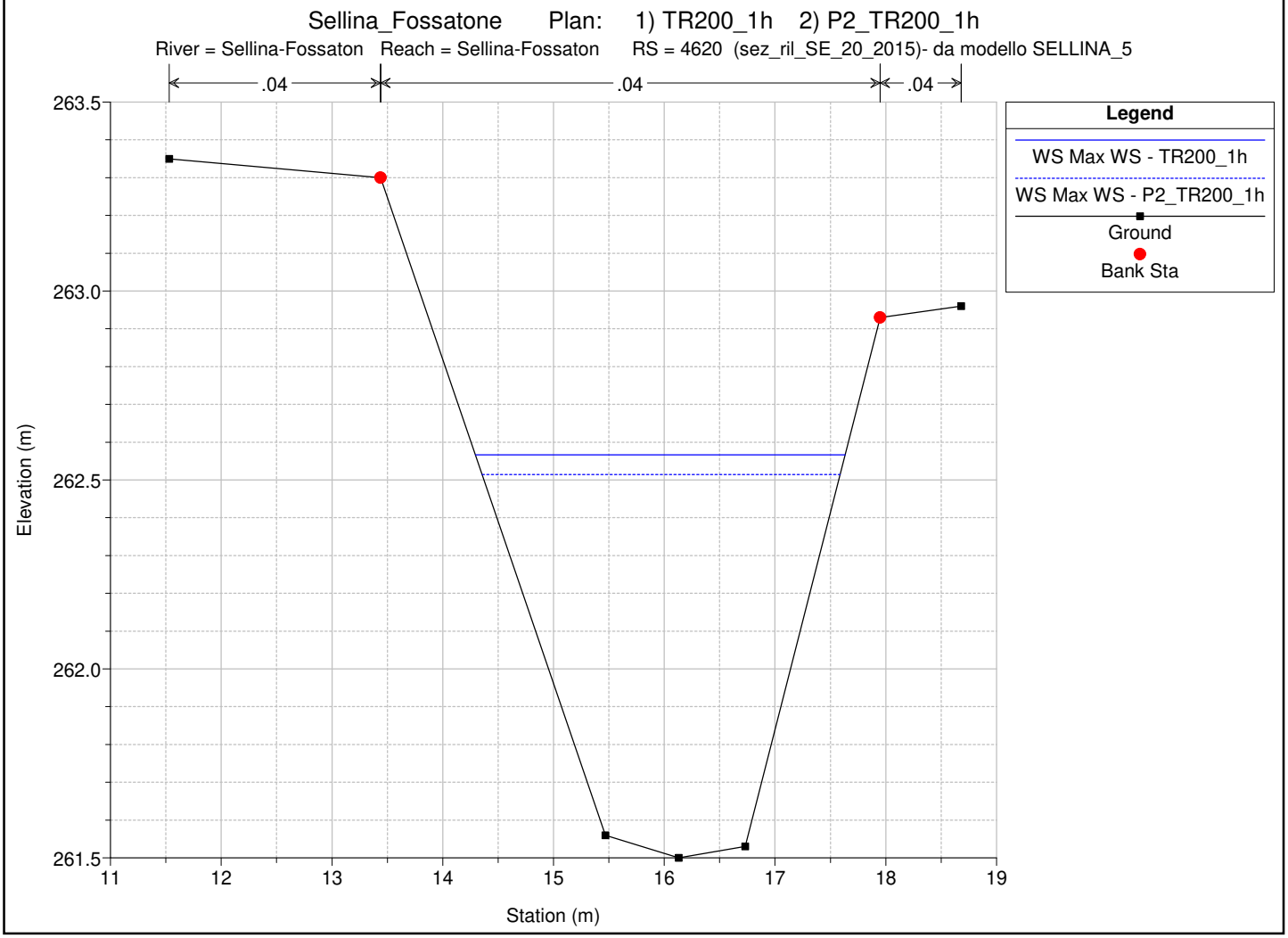

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 5762 ril 2022
.04
Legend
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
269.5
269.0
268.5
268.0
267.5
267.0
11
12
13
14
15
16
17

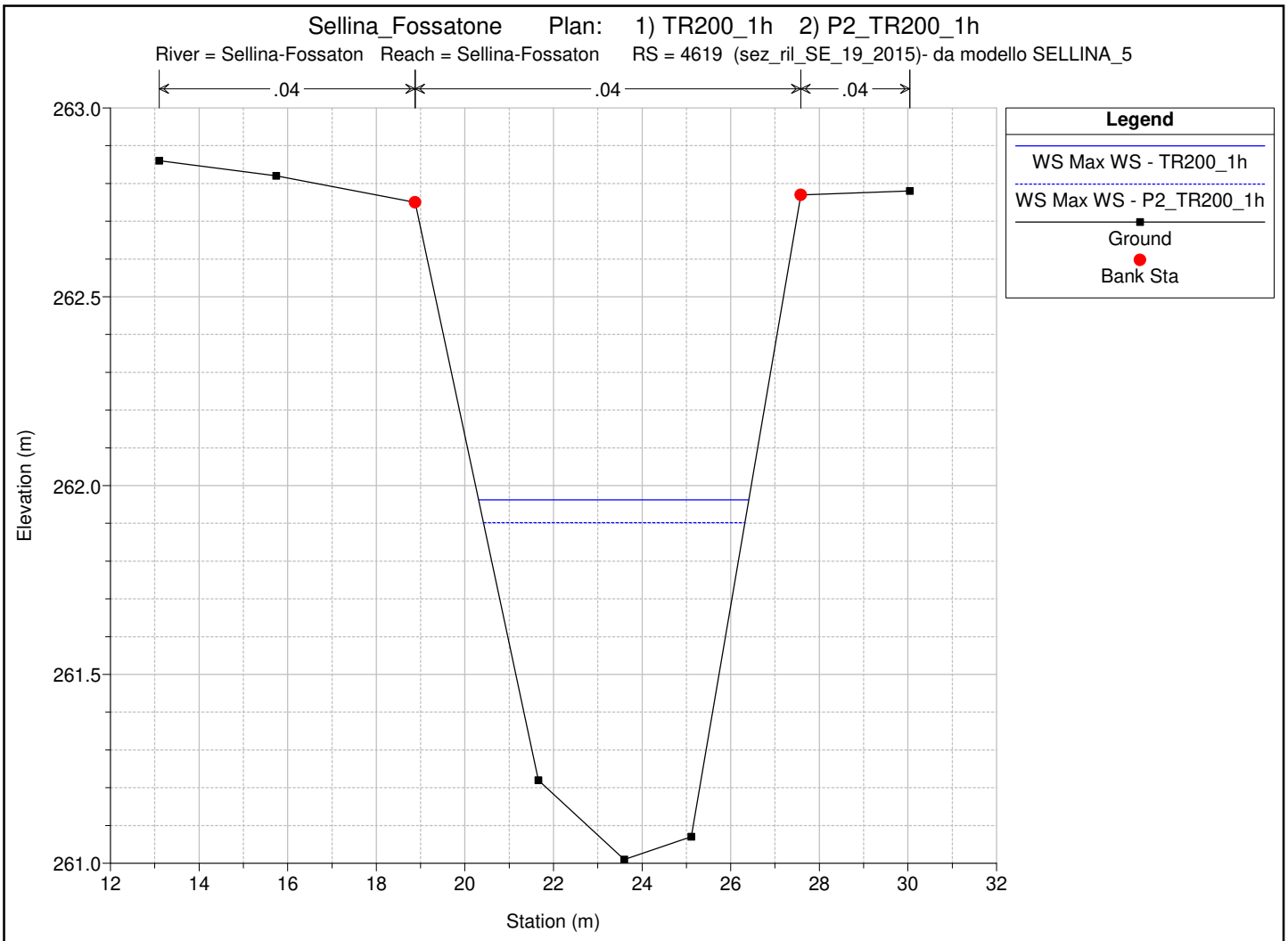

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 5732 C18 - (SE_25)
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
268.8
268.6
268.4
268.2
268.0
267.8
267.6
267.4
267.2
127
128
129
130
131
132

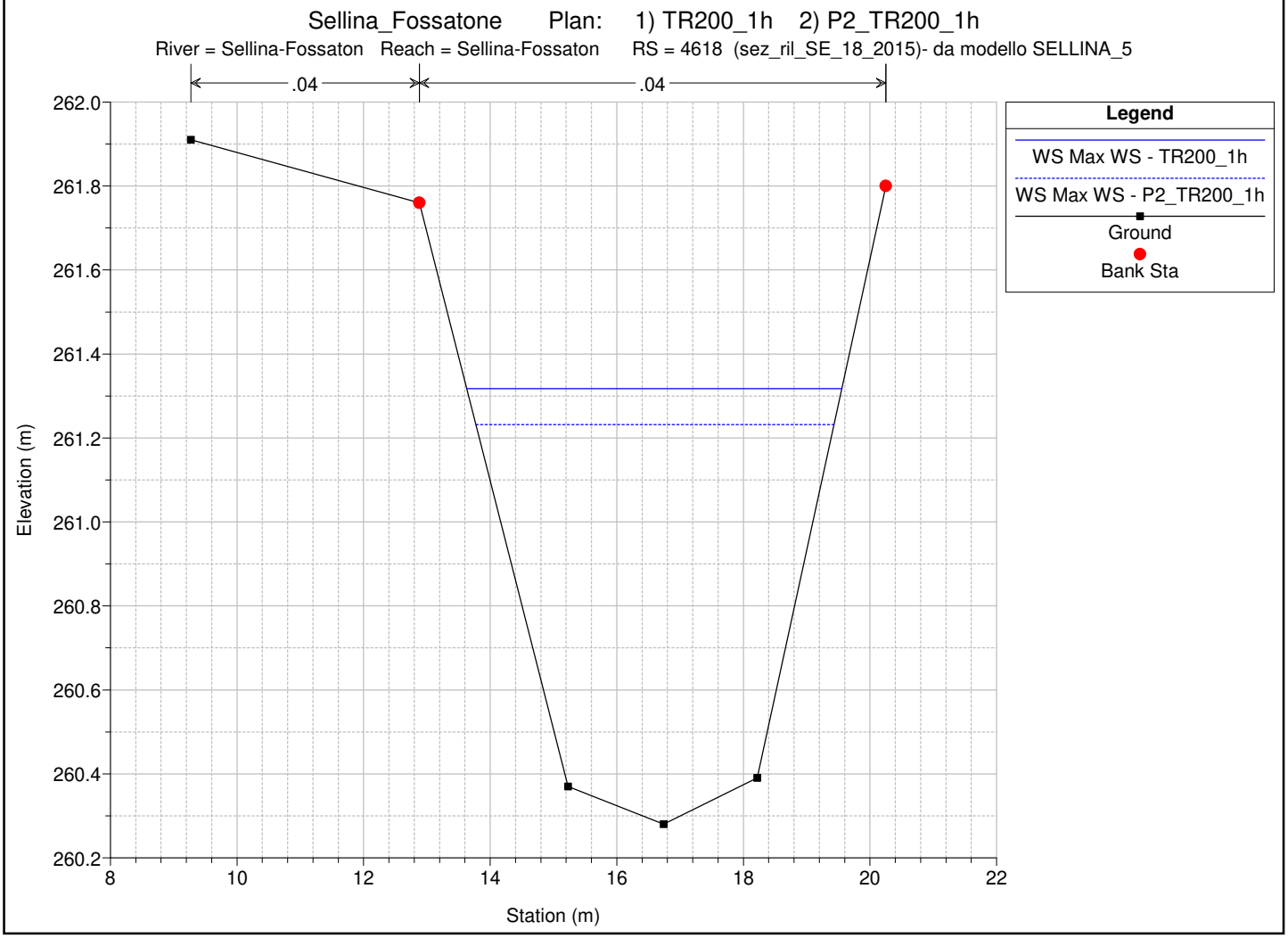

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 5650 C19 - (SE_24)
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
268.5
268.0
267.5
267.0
266.5
266.0
24
25
26
27
28
29
30

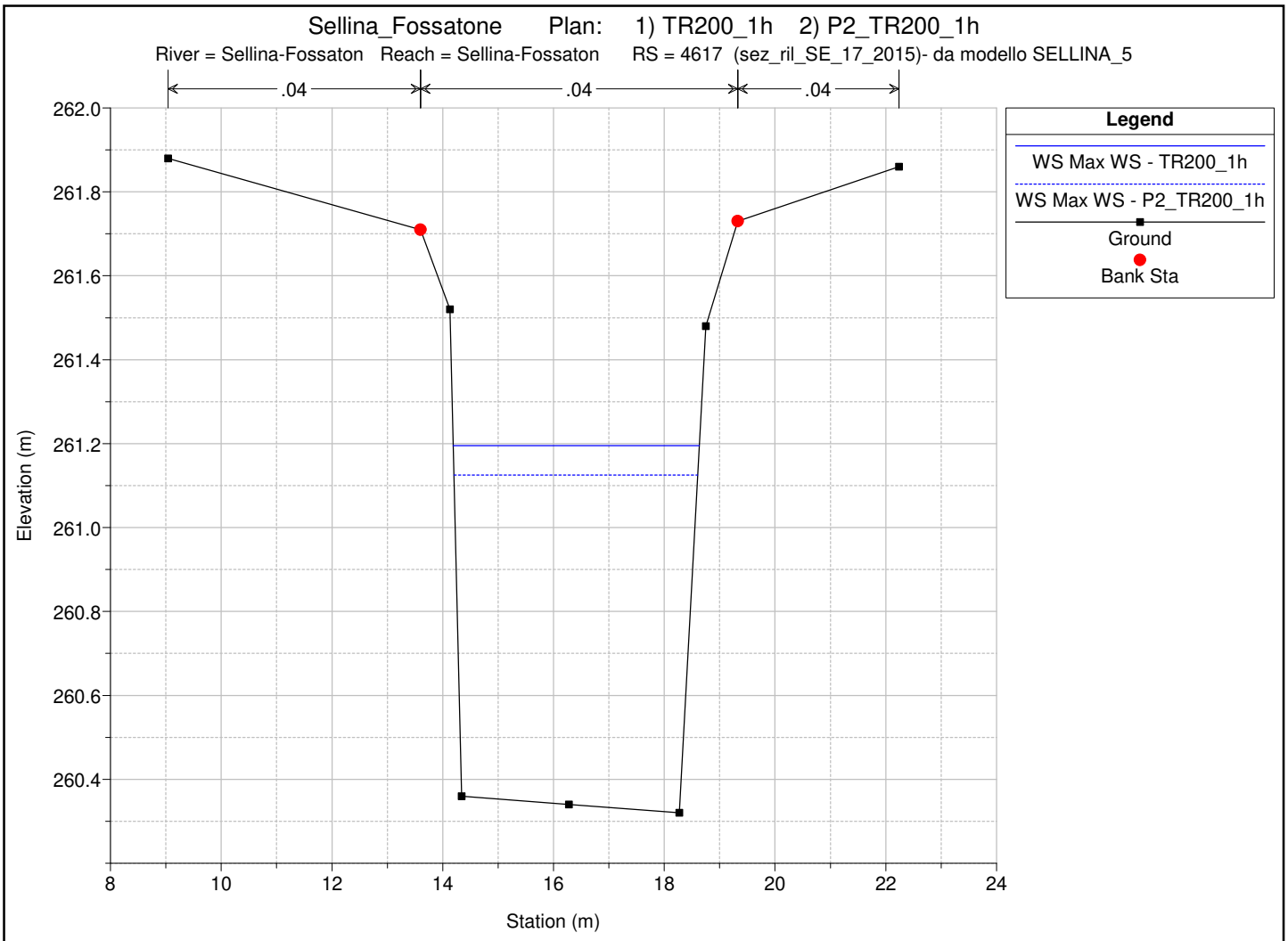

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 5577 C20 - (SE_23)
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
267.0
266.8
266.6
266.4
266.2
266.0
265.8
265.6
265.4
39
40
41
42
43
44

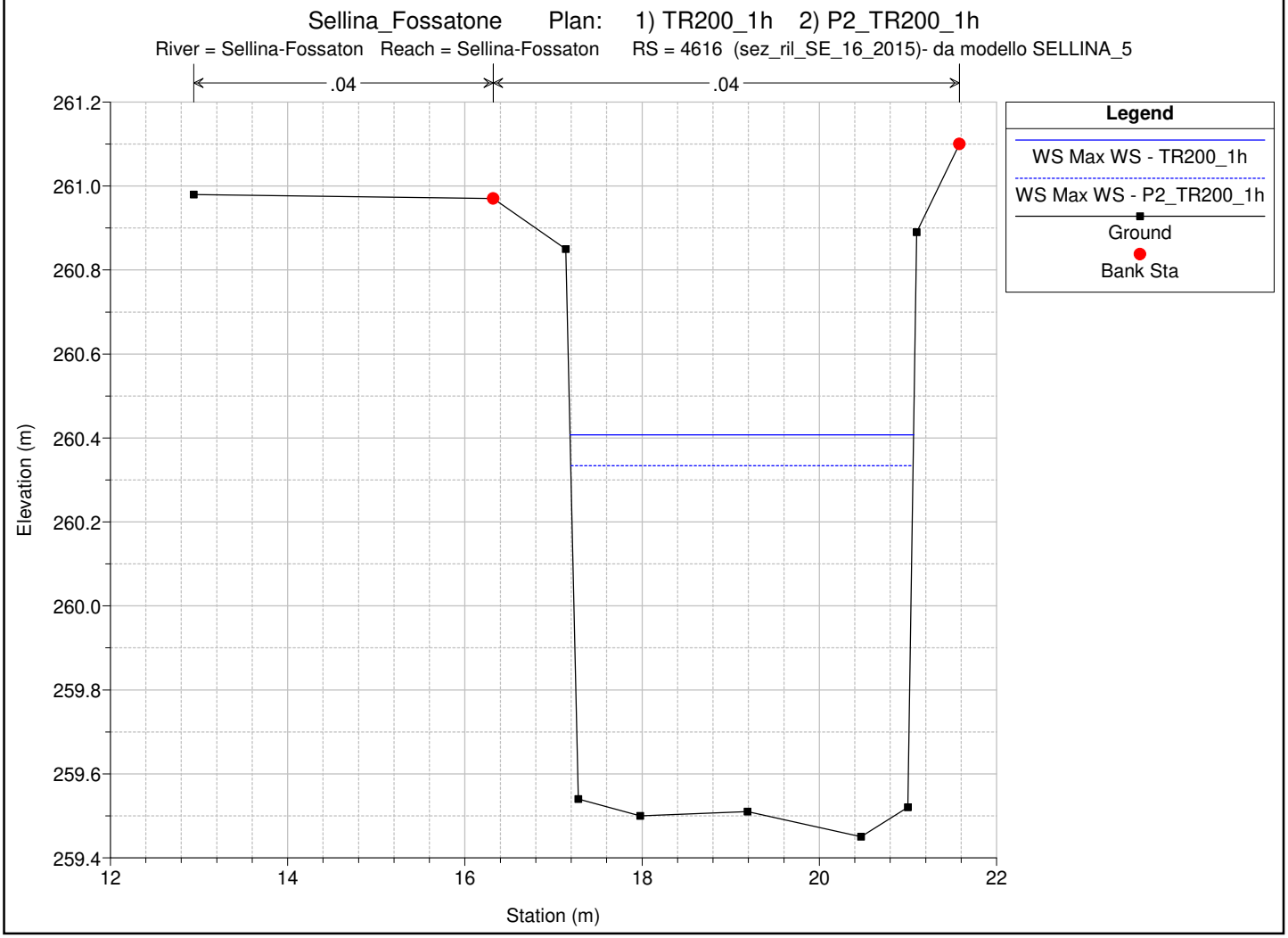

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4621 (sez_ril_SE_21_2015)- da modello SELLINA_5
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
263.6
263.4
263.2
263.0
262.8
262.6
262.4
262.2
7.0
7.5
8.0
8.5
9.0
9.5
10.0
10.5

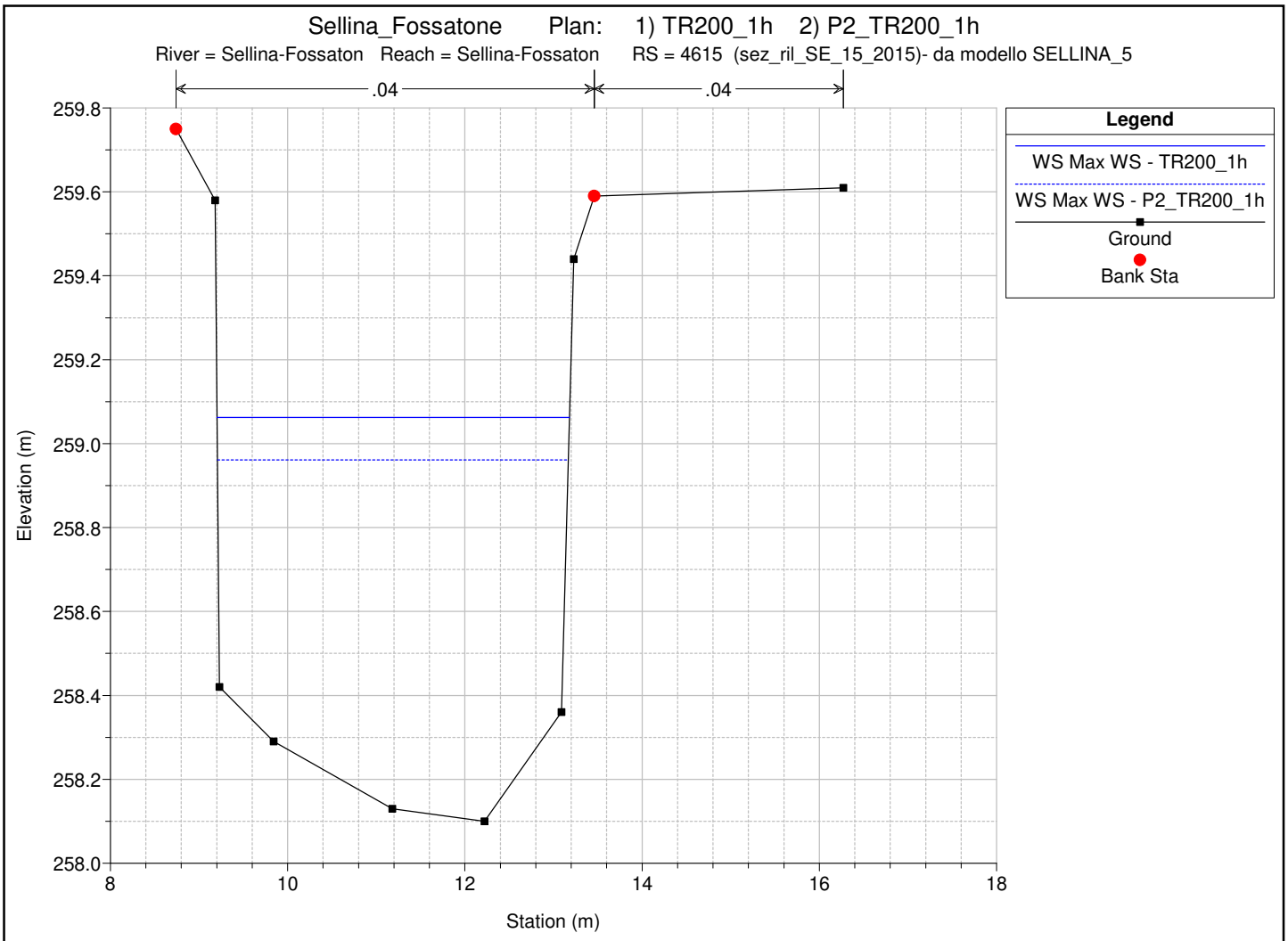

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4620 (sez_ril_SE_20_2015)- da modello SELLINA_5
.04
.04
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
263.5
263.0
262.5
262.0
261.5
11
12
13
14
15
16
17
18
19

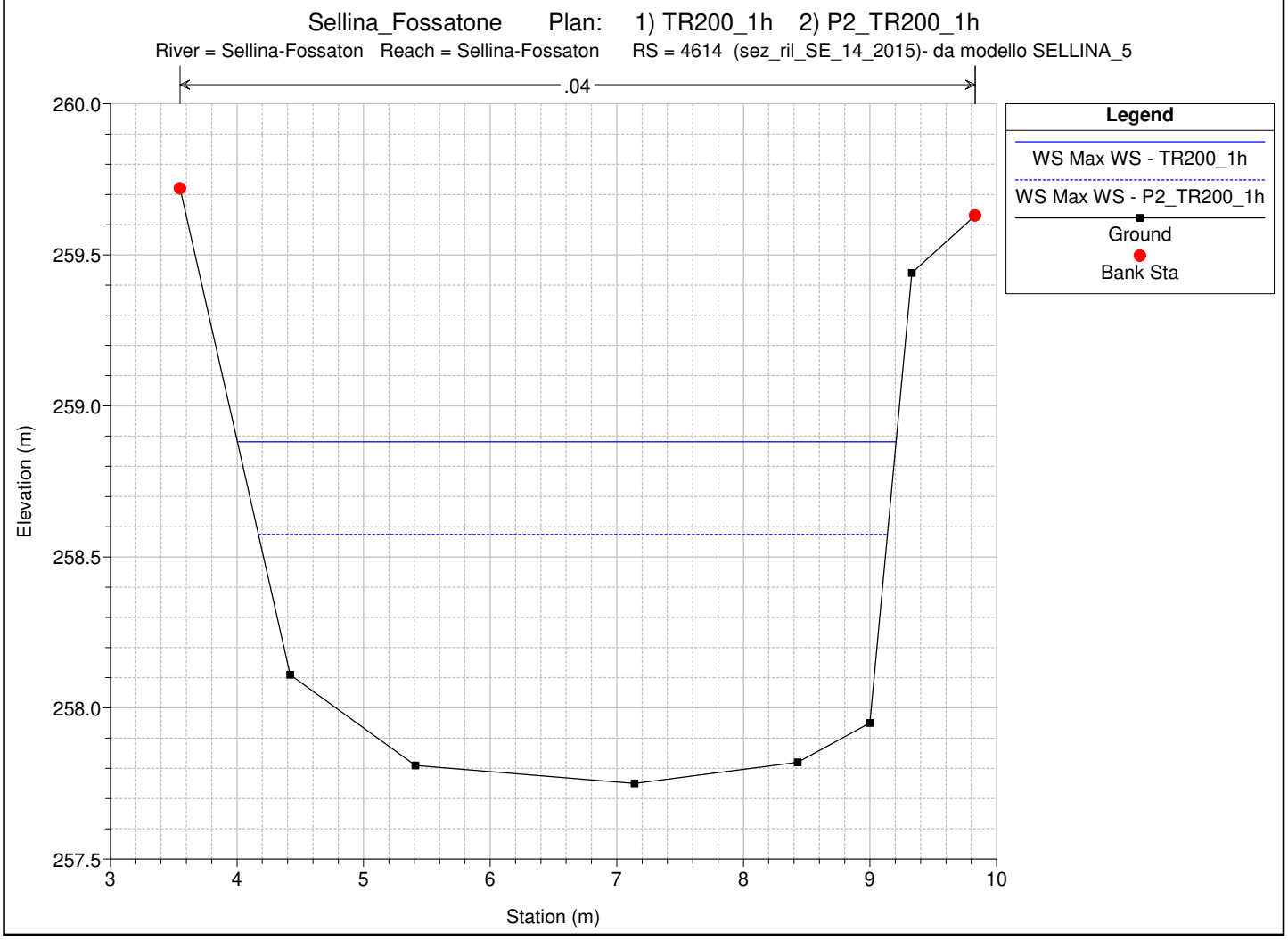

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4619 (sez_ril_SE_19_2015)- da modello SELLINA_5
.04
.04
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
263.0
262.5
262.0
261.5
261.0
12
14
16
18
20
22
24
26
28
30
32

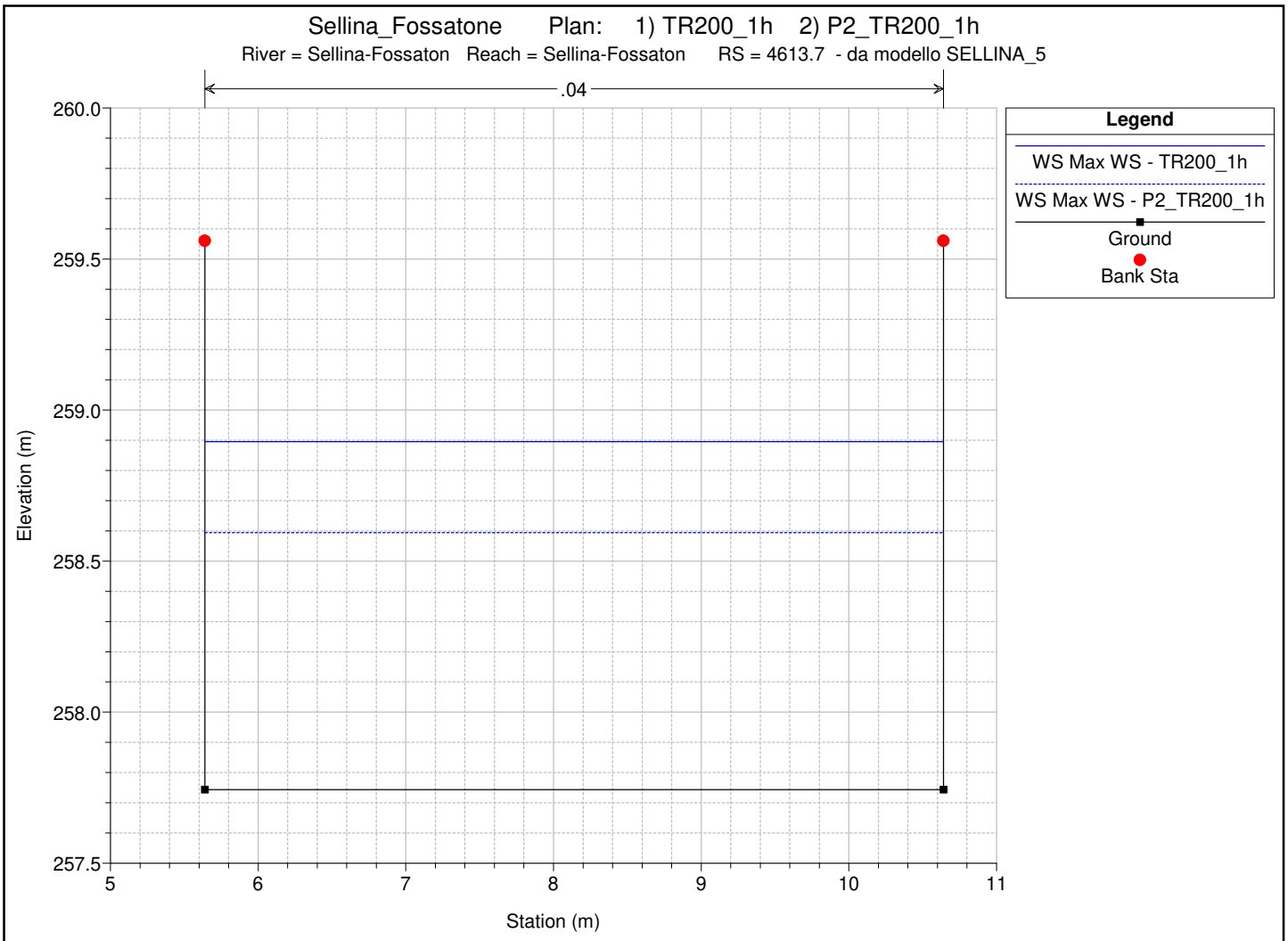

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4618 (sez_ril_SE_18_2015)- da modello SELLINA_5
.04
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
262.0
261.8
261.6
261.4
261.2
261.0
260.8
260.6
260.4
260.2
8
10
12
14
16
18
20
22

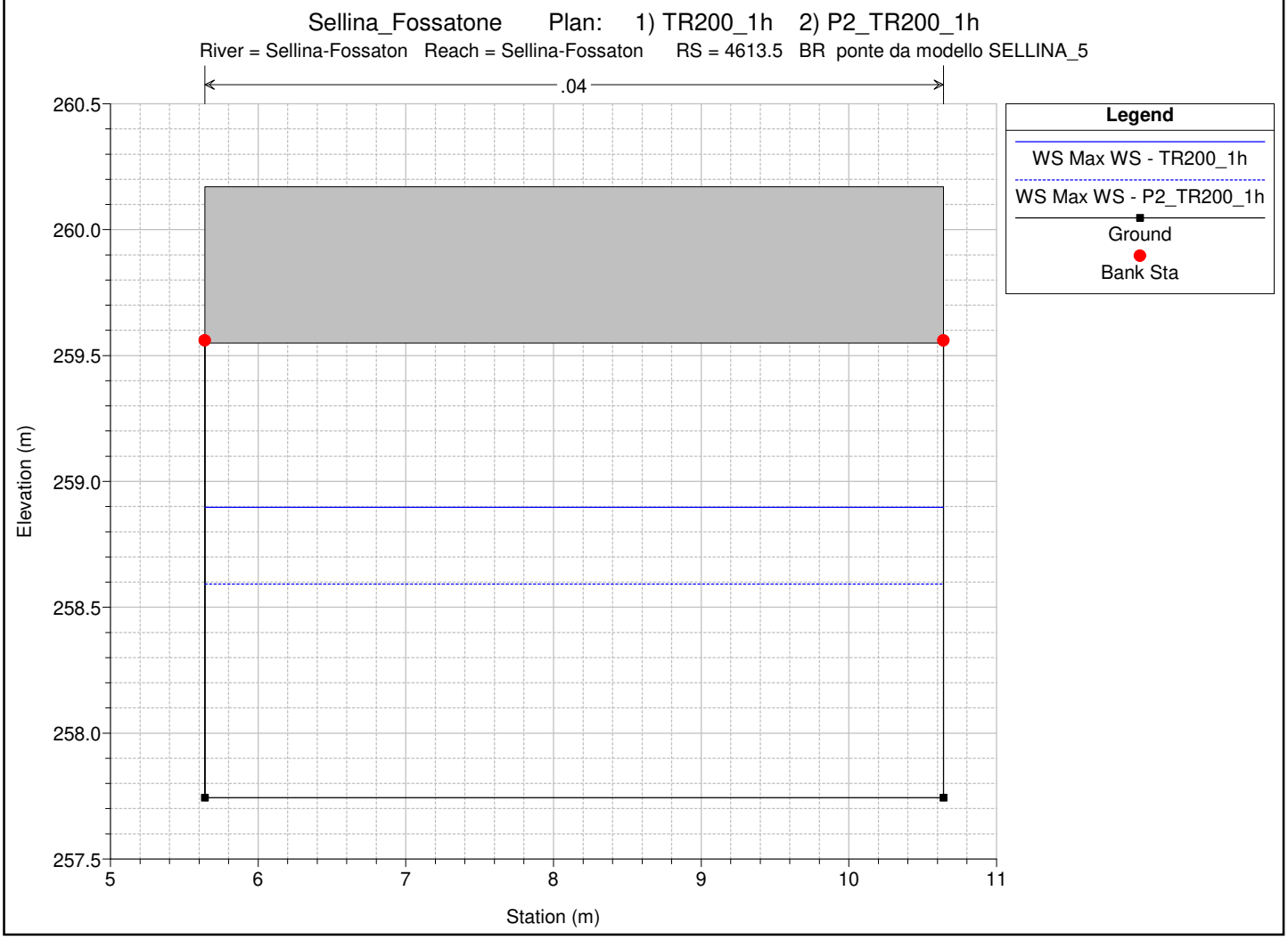

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4617 (sez_ril_SE_17_2015)- da modello SELLINA_5
.04
.04
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
262.0
261.8
261.6
261.4
261.2
261.0
260.8
260.6
260.4
8
10
12
14
16
18
20
22
24

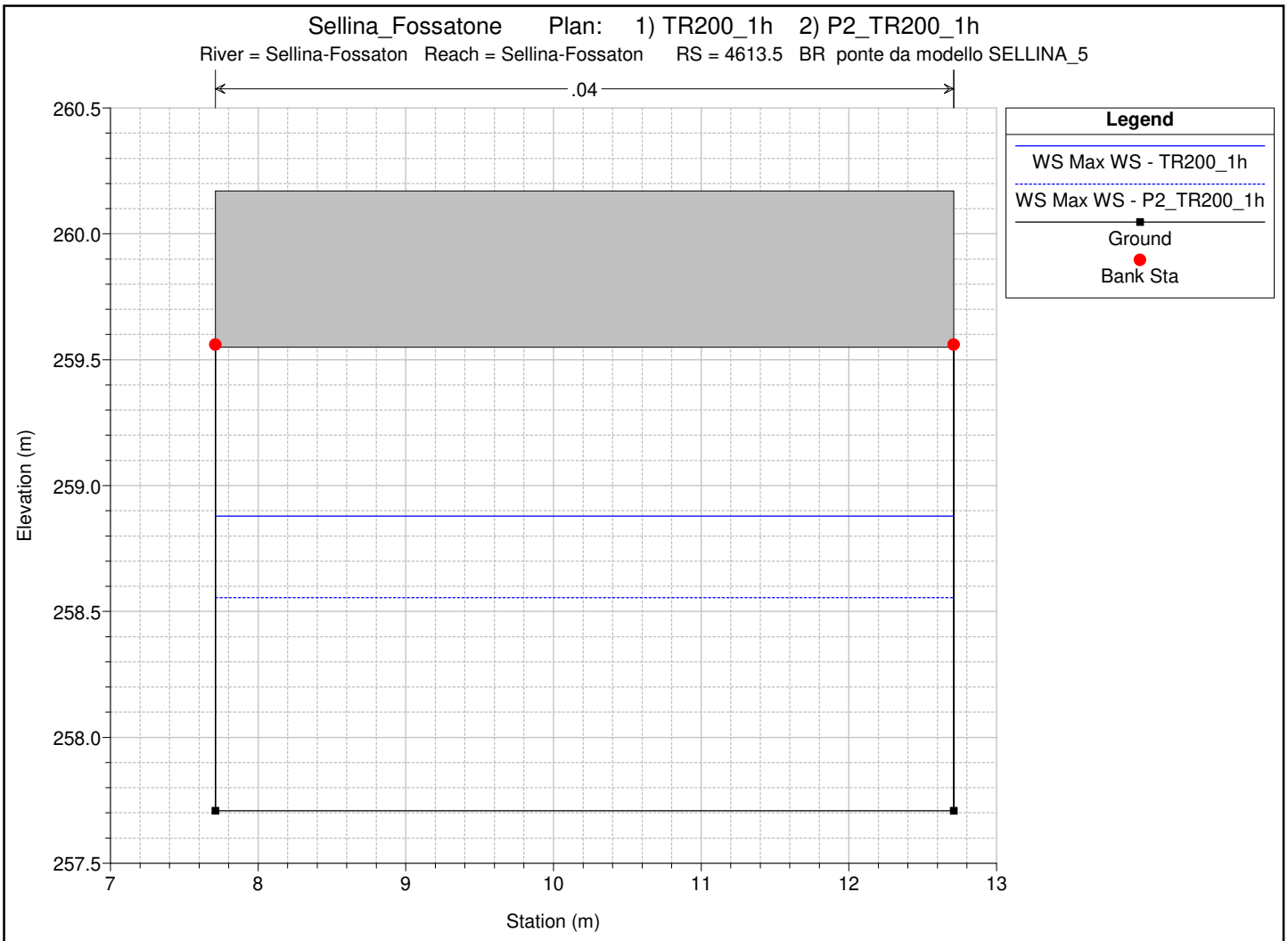

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4616 (sez_ril_SE_16_2015)- da modello SELLINA_5
.04
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
261.2
261.0
260.8
260.6
260.4
260.2
260.0
259.8
259.6
259.4
12
14
16
18
20
22

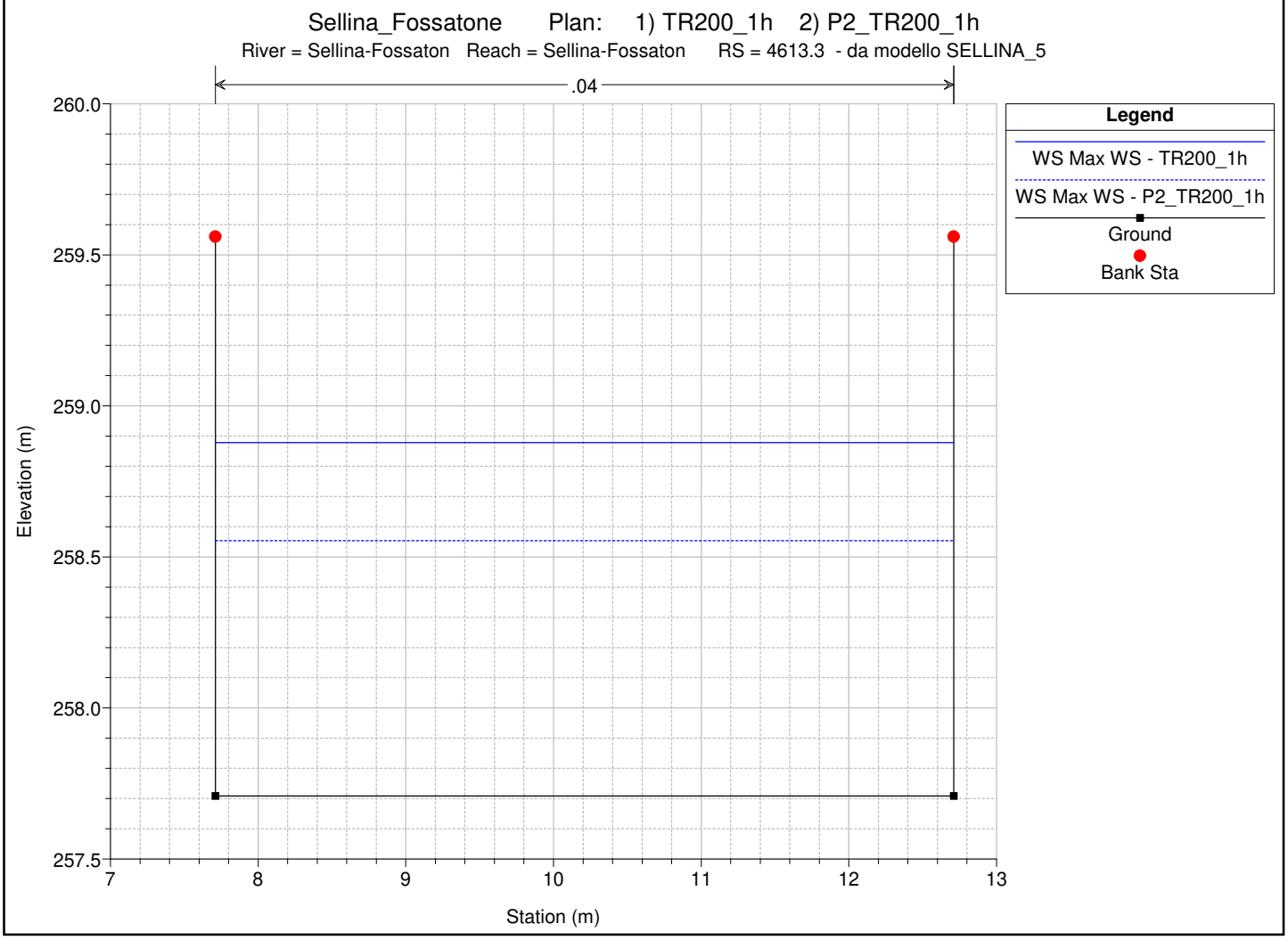

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4615 (sez_ril_SE_15_2015)- da modello SELLINA_5
.04
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
259.8
259.6
259.4
259.2
259.0
258.8
258.6
258.4
258.2
258.0
8
10
12
14
16
18

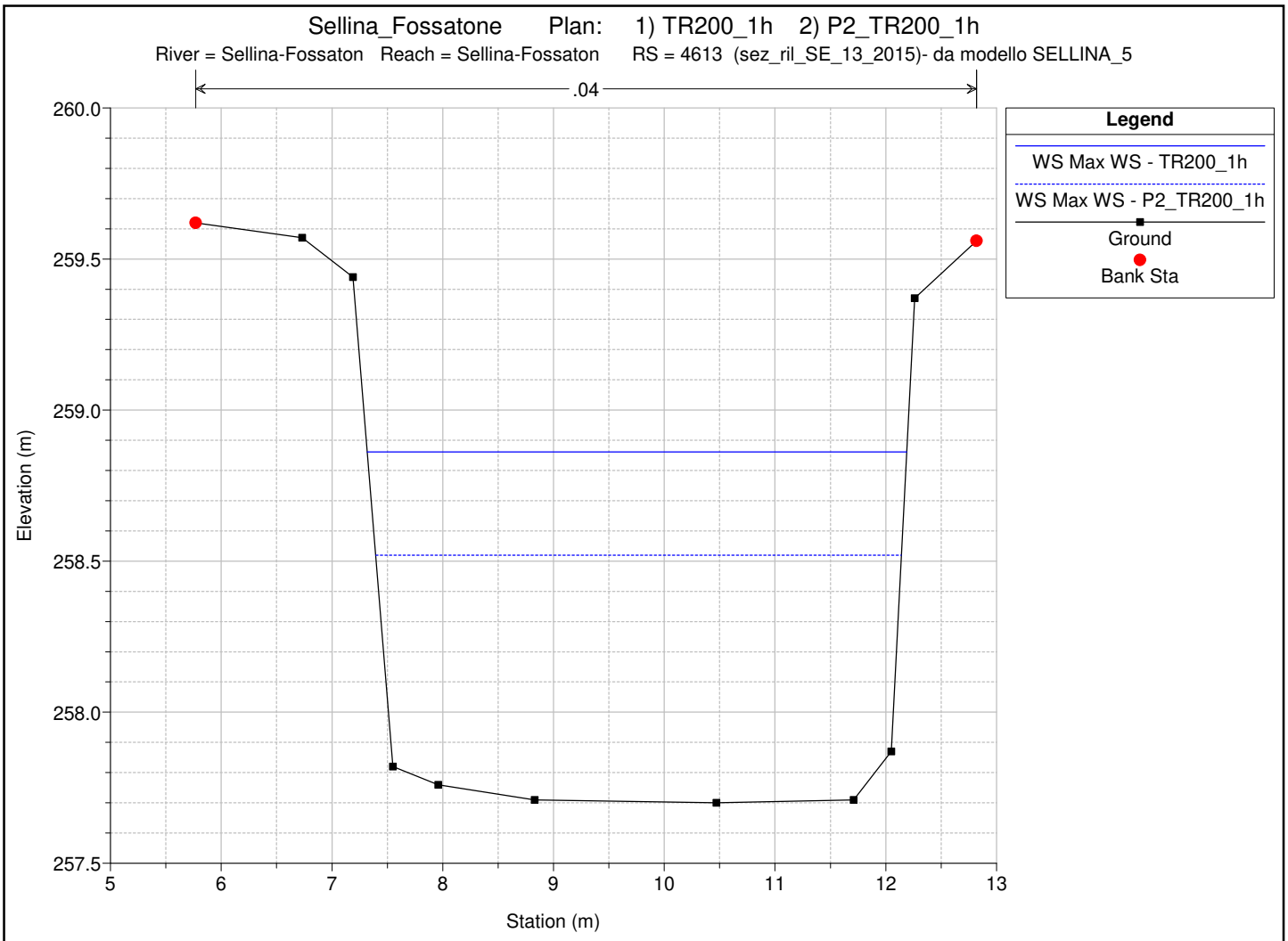

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4614 (sez_ril_SE_14_2015)- da modello SELLINA_5
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
260.0
259.5
259.0
258.5
258.0
257.5
3
4
5
6
7
8
9
10

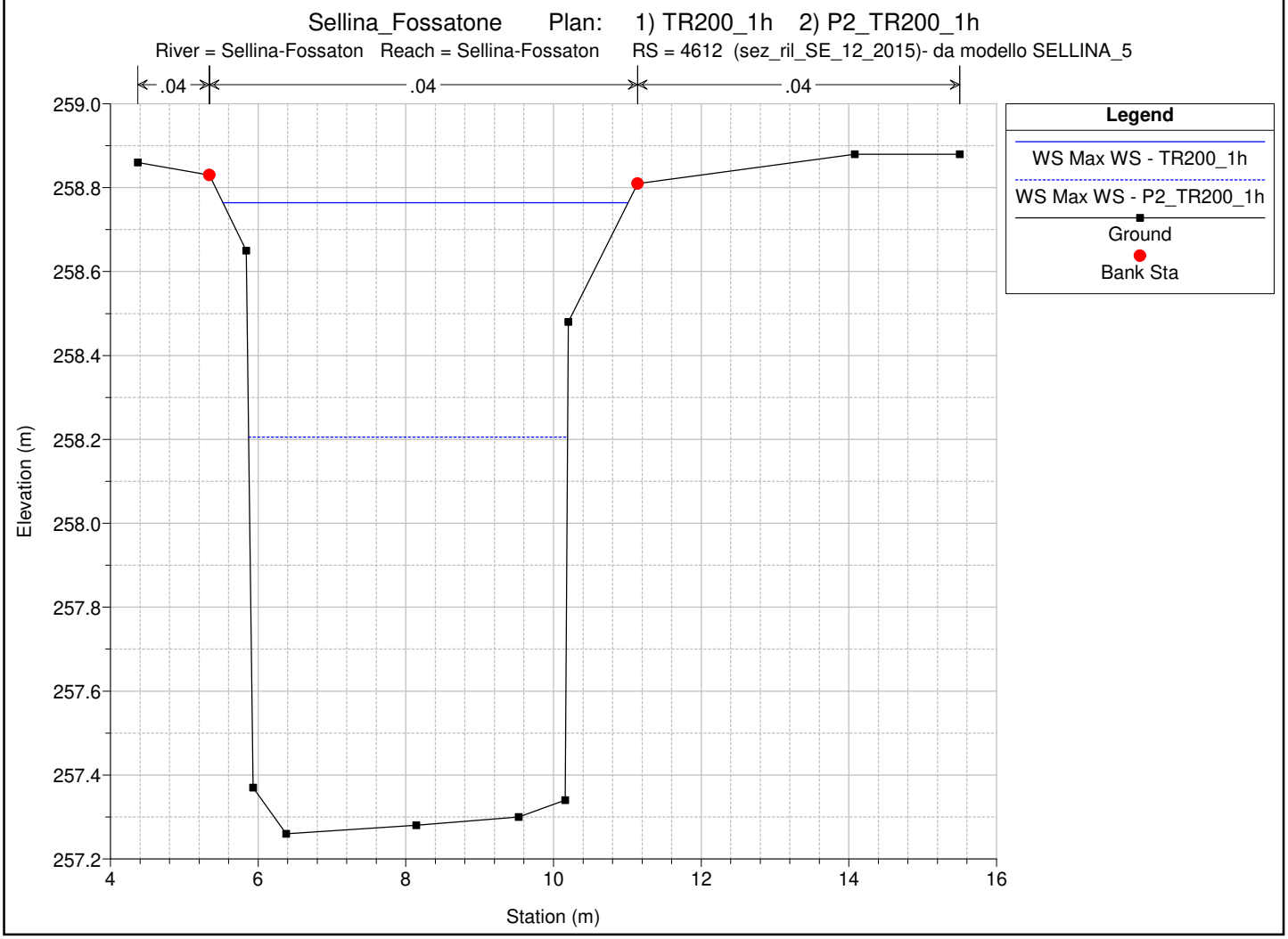

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4613.7 - da modello SELLINA_5
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
260.0
259.5
259.0
258.5
258.0
257.5
5
6
7
8
9
10
11

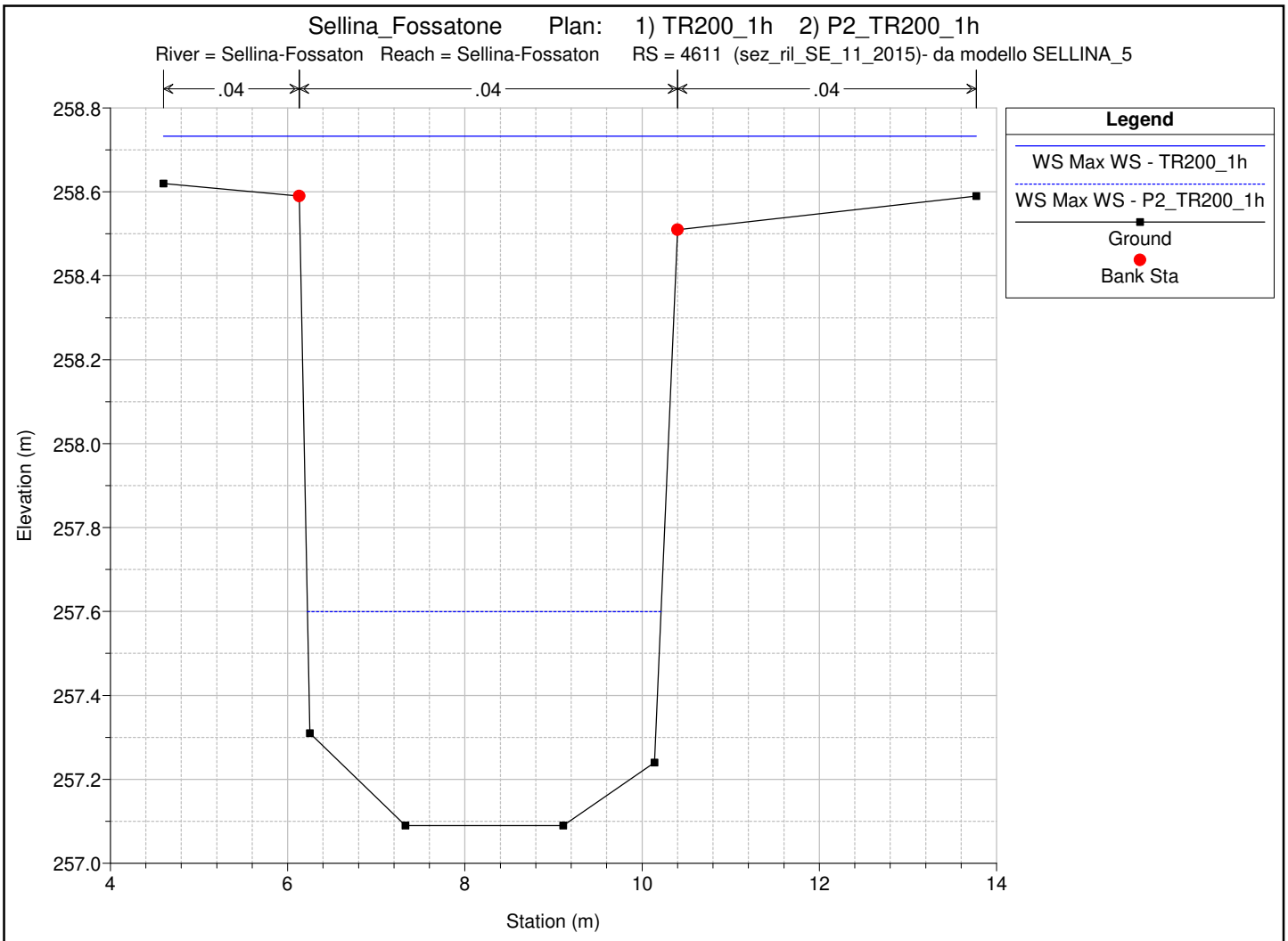

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4613.5 BR ponte da modello SELLINA_5
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
260.5
260.0
259.5
259.0
258.5
258.0
257.5
5
6
7
8
9
10
11

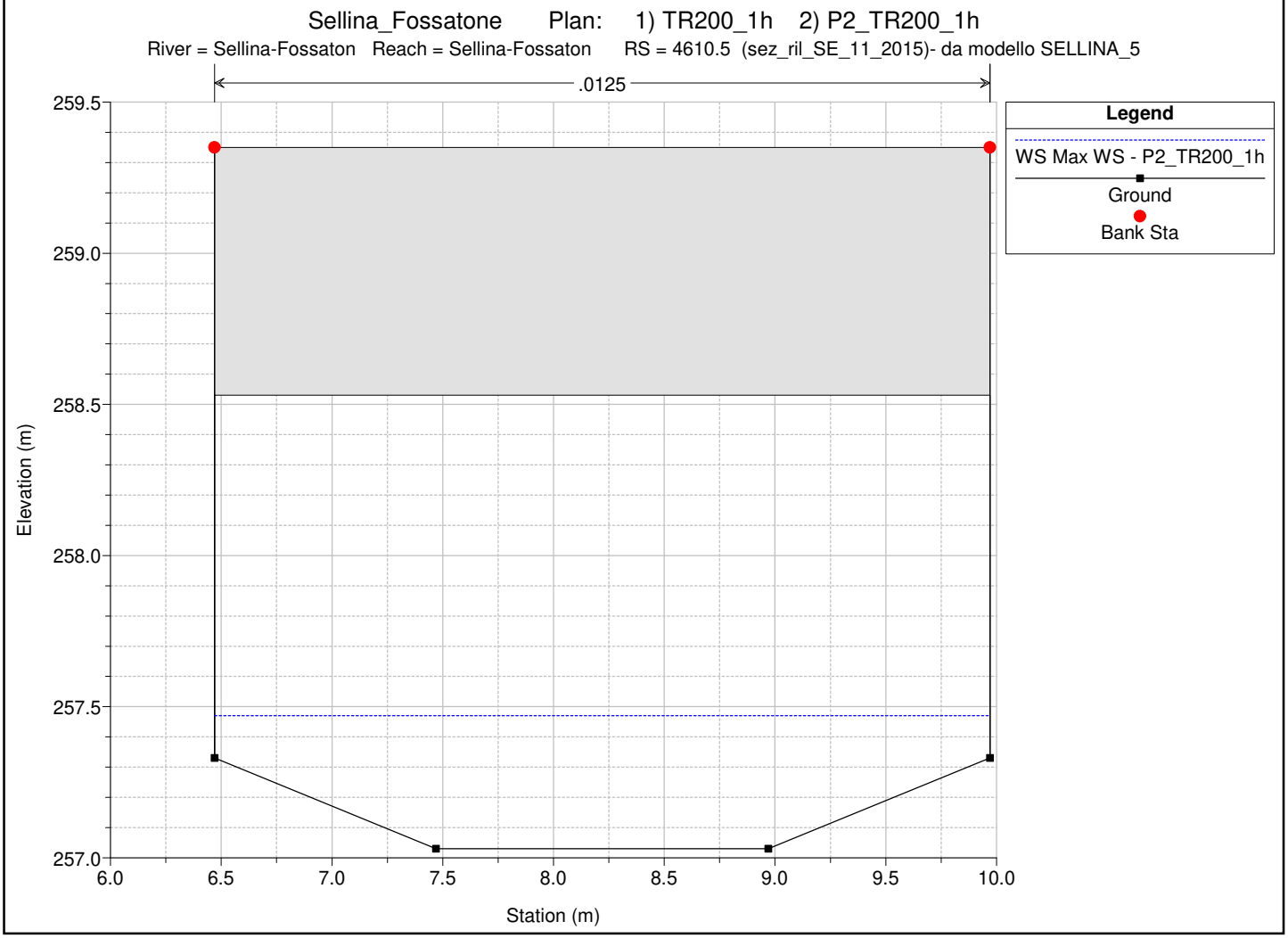

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4613.5 BR ponte da modello SELLINA_5
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
260.5
260.0
259.5
259.0
258.5
258.0
257.5
7
8
9
10
11
12
13
Station (m)

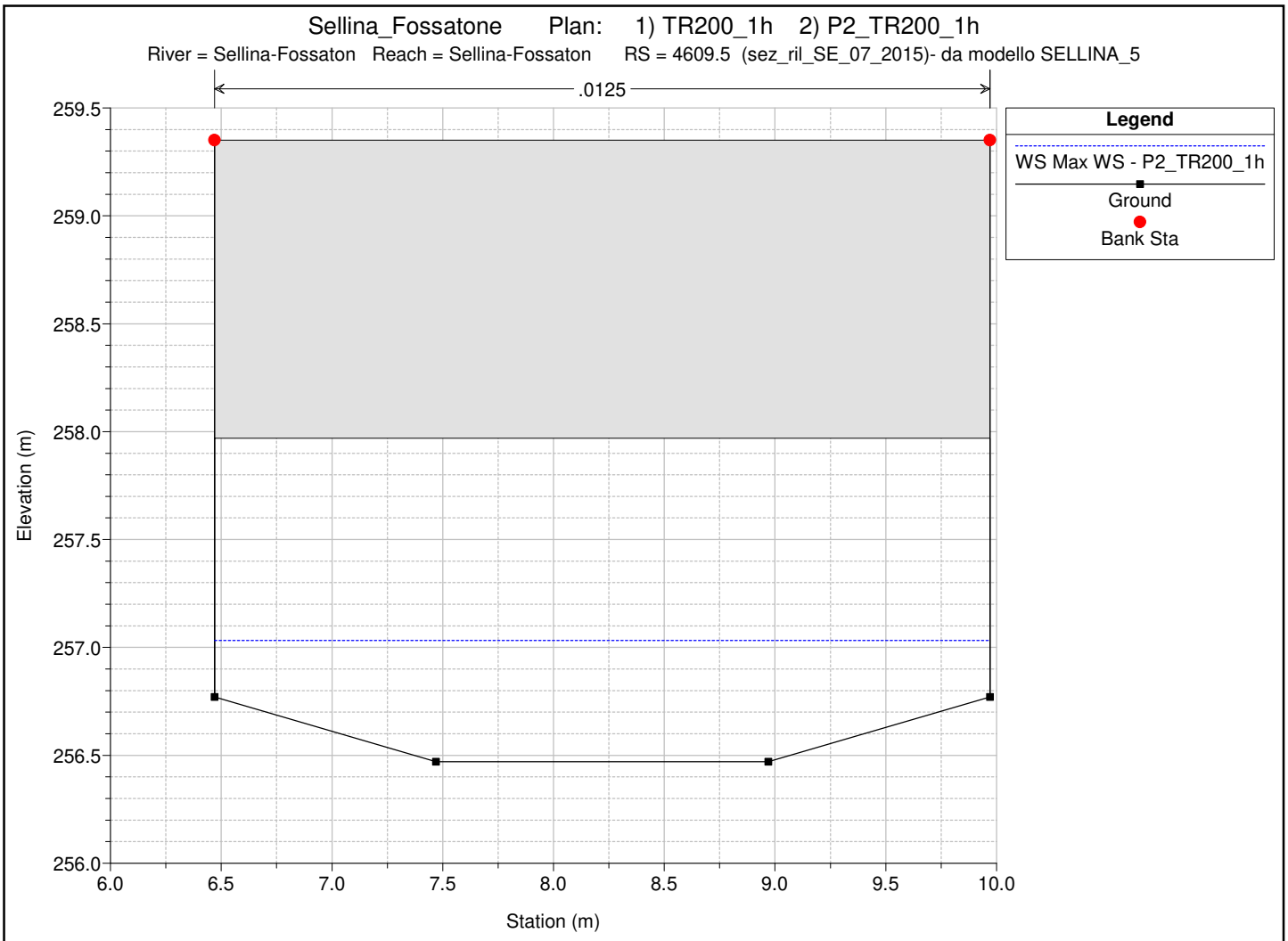

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4613.3 - da modello SELLINA_5
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
260.0
259.5
259.0
258.5
258.0
257.5
7
8
9
10
11
12
13
Station (m)

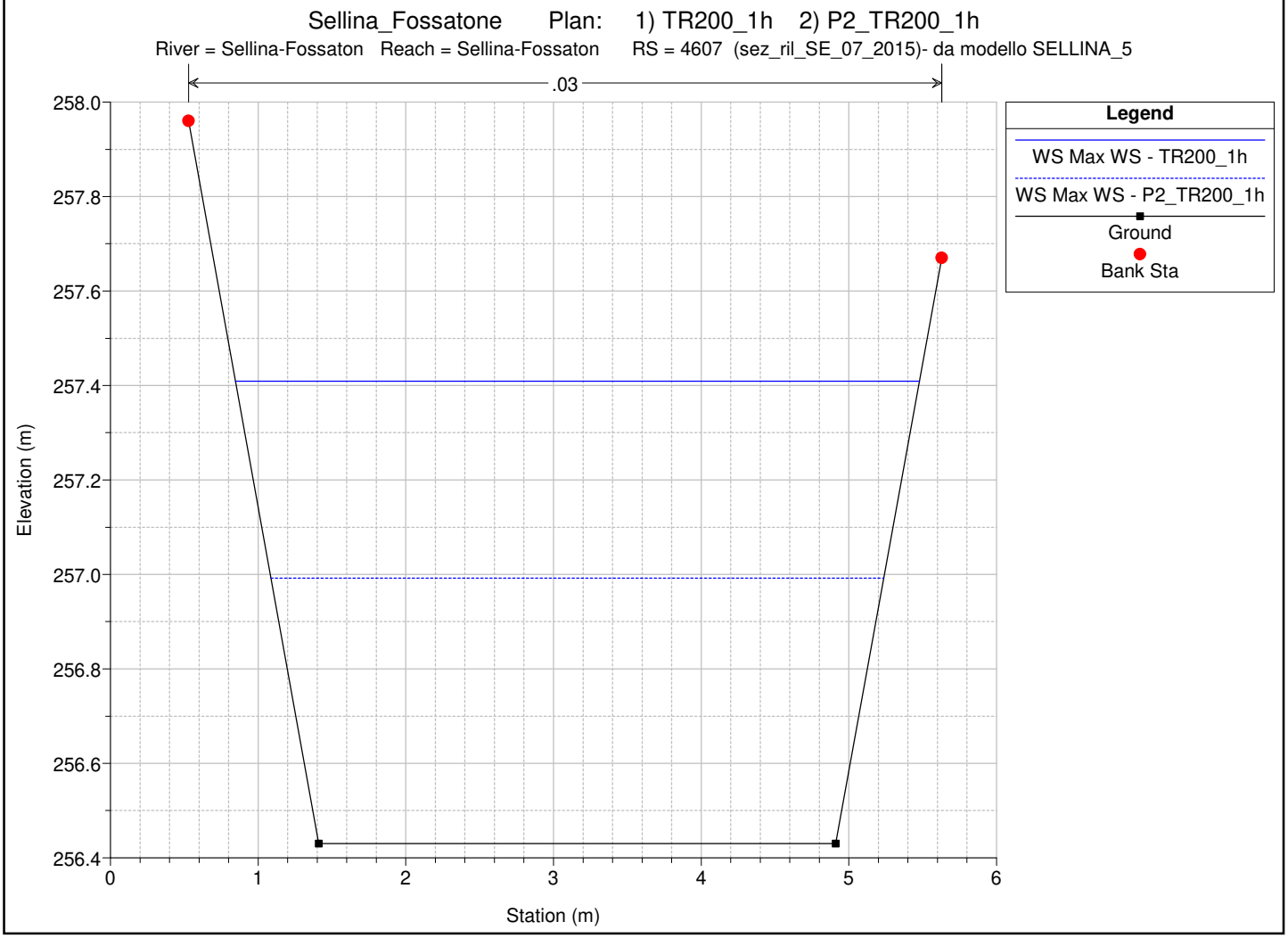

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4613 (sez_ril_SE_13_2015)- da modello SELLINA_5
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
260.0
259.5
259.0
258.5
258.0
257.5
5
6
7
8
9
10
11
12
13

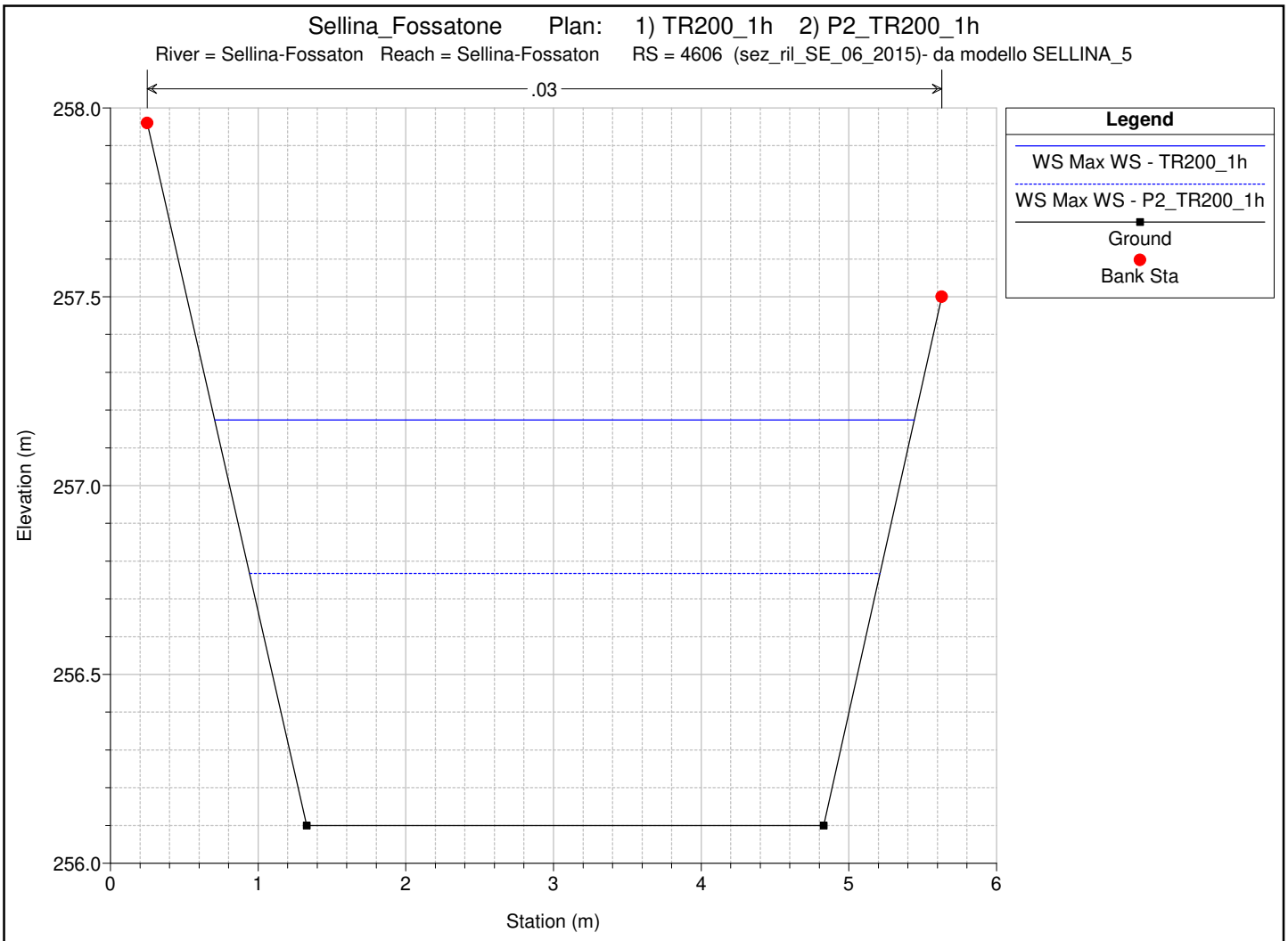

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4612 (sez_ril_SE_12_2015)- da modello SELLINA_5
.04
.04
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
259.0
258.8
258.6
258.4
258.2
258.0
257.8
257.6
257.4
257.2
4
6
8
10
12
14
16

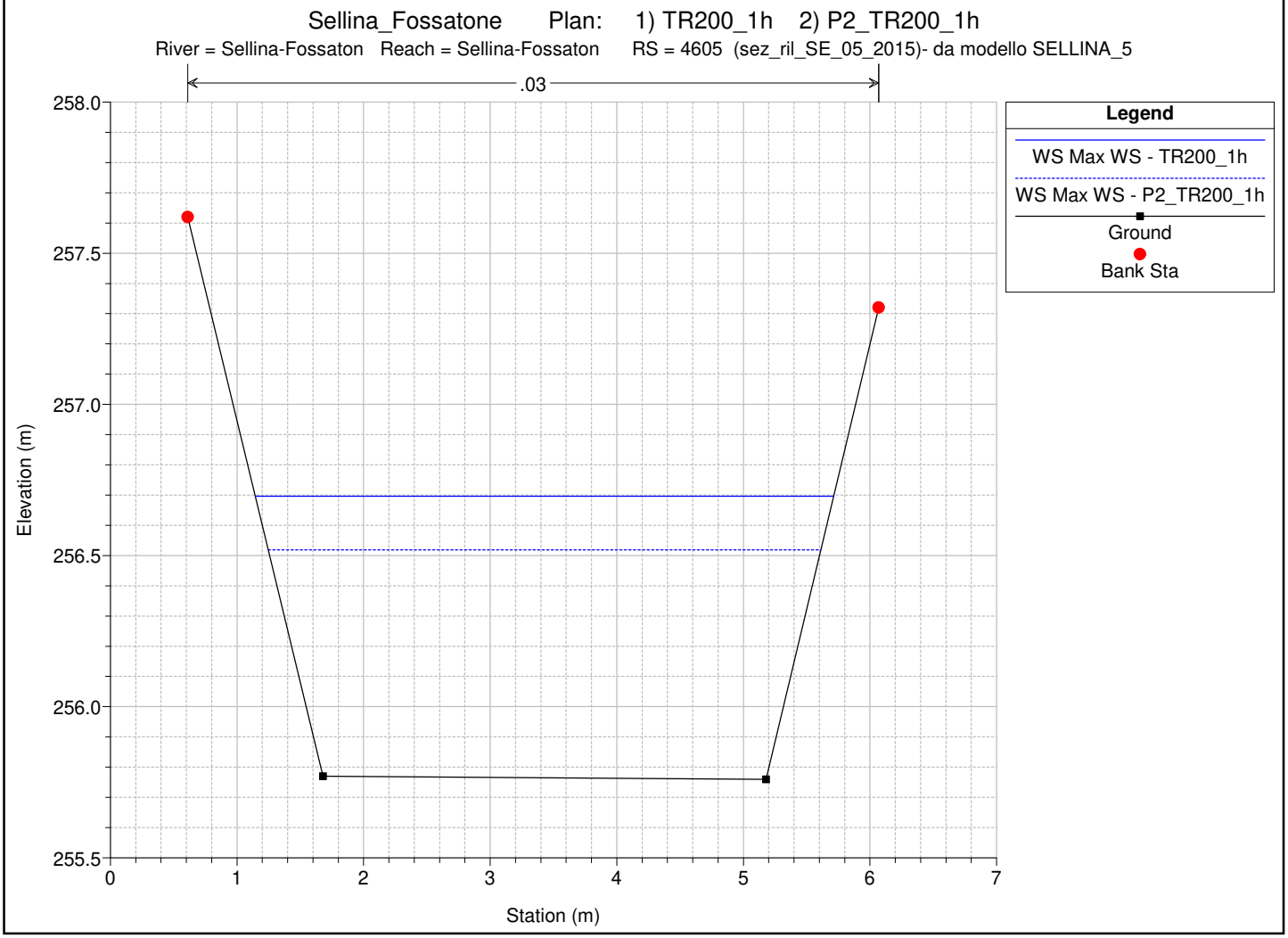

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4611 (sez_ril_SE_11_2015)- da modello SELLINA_5
.04
.04
.04
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
258.8
258.6
258.4
258.2
258.0
257.8
257.6
257.4
257.2
257.0
4
6
8
10
12
14

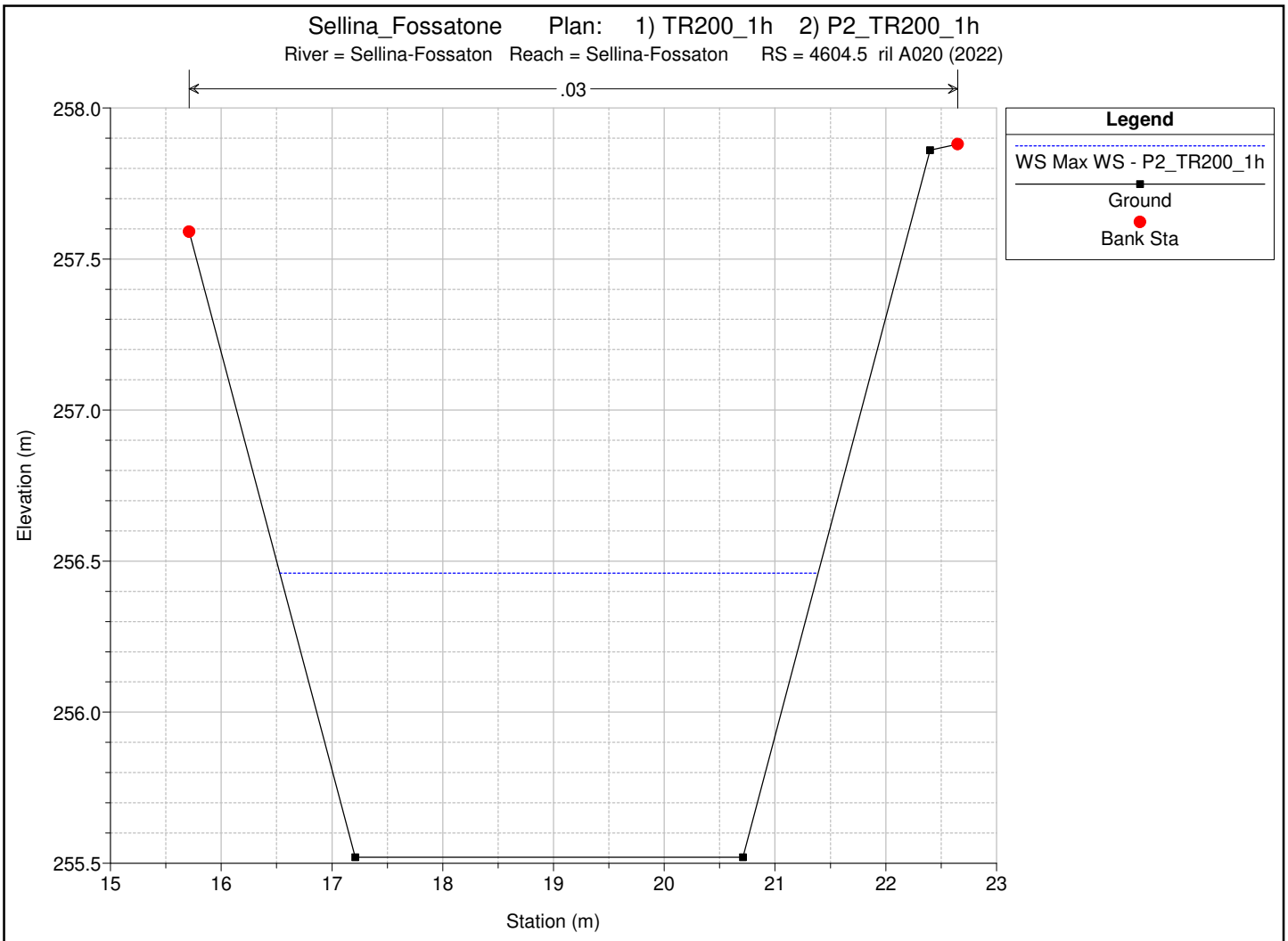

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4610.5 (sez_ril_SE_11_2015)- da modello SELLINA_5
.0125
Legend
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
259.5
259.0
258.5
258.0
257.5
257.0
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5
10.0

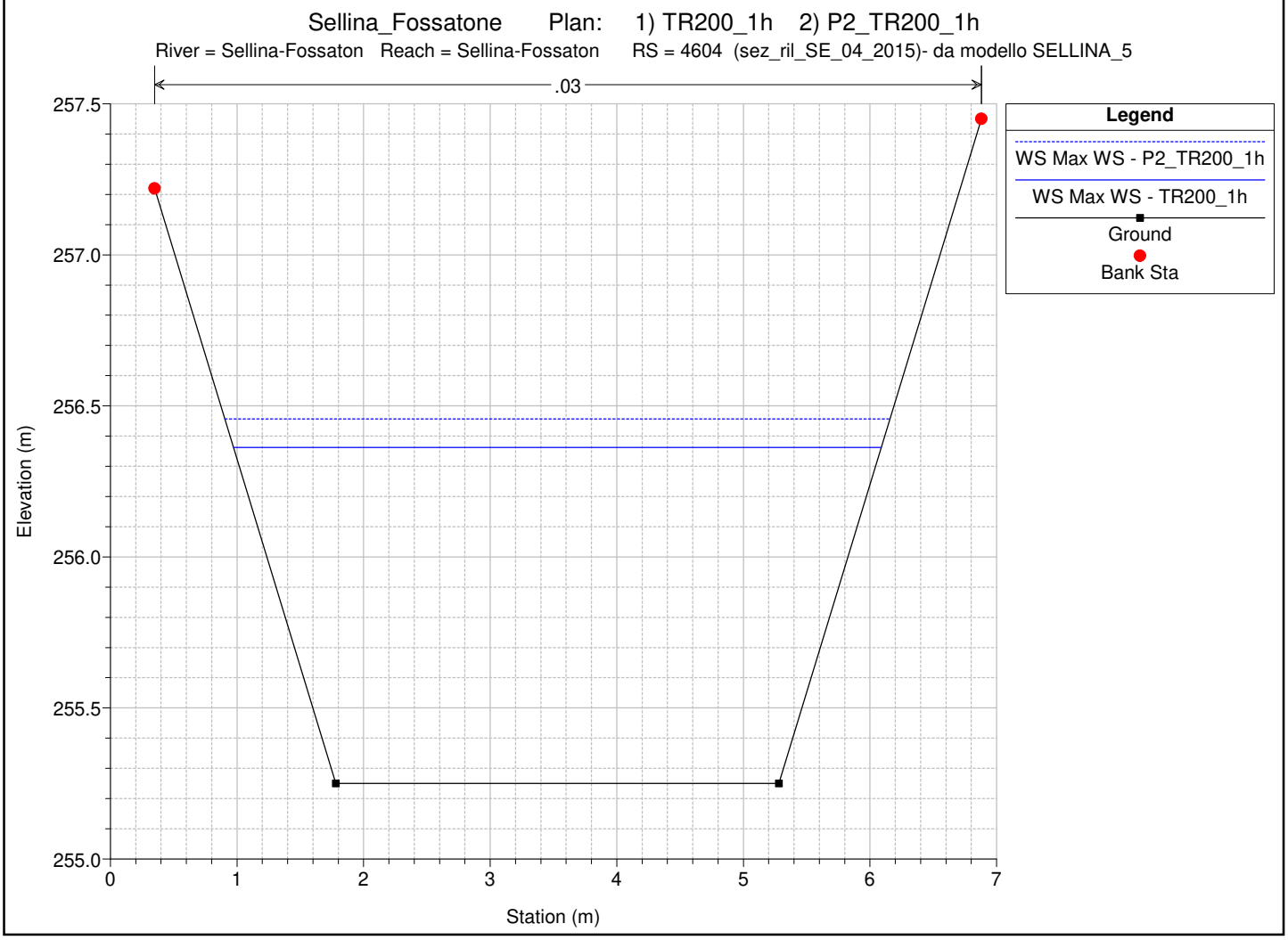

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4609.5 (sez_ril_SE_07_2015)- da modello SELLINA_5
.0125
Legend
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
259.5
259.0
258.5
258.0
257.5
257.0
256.5
256.0
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5
10.0


Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4607 (sez_ril_SE_07_2015)- da modello SELLINA_5
.03
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
258.0
257.8
257.6
257.4
257.2
257.0
256.8
256.6
256.4
0
1
2
3
4
5
6


Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4606 (sez_ril_SE_06_2015)- da modello SELLINA_5
.03
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
258.0
257.5
257.0
256.5
256.0
0
1
2
3
4
5
6

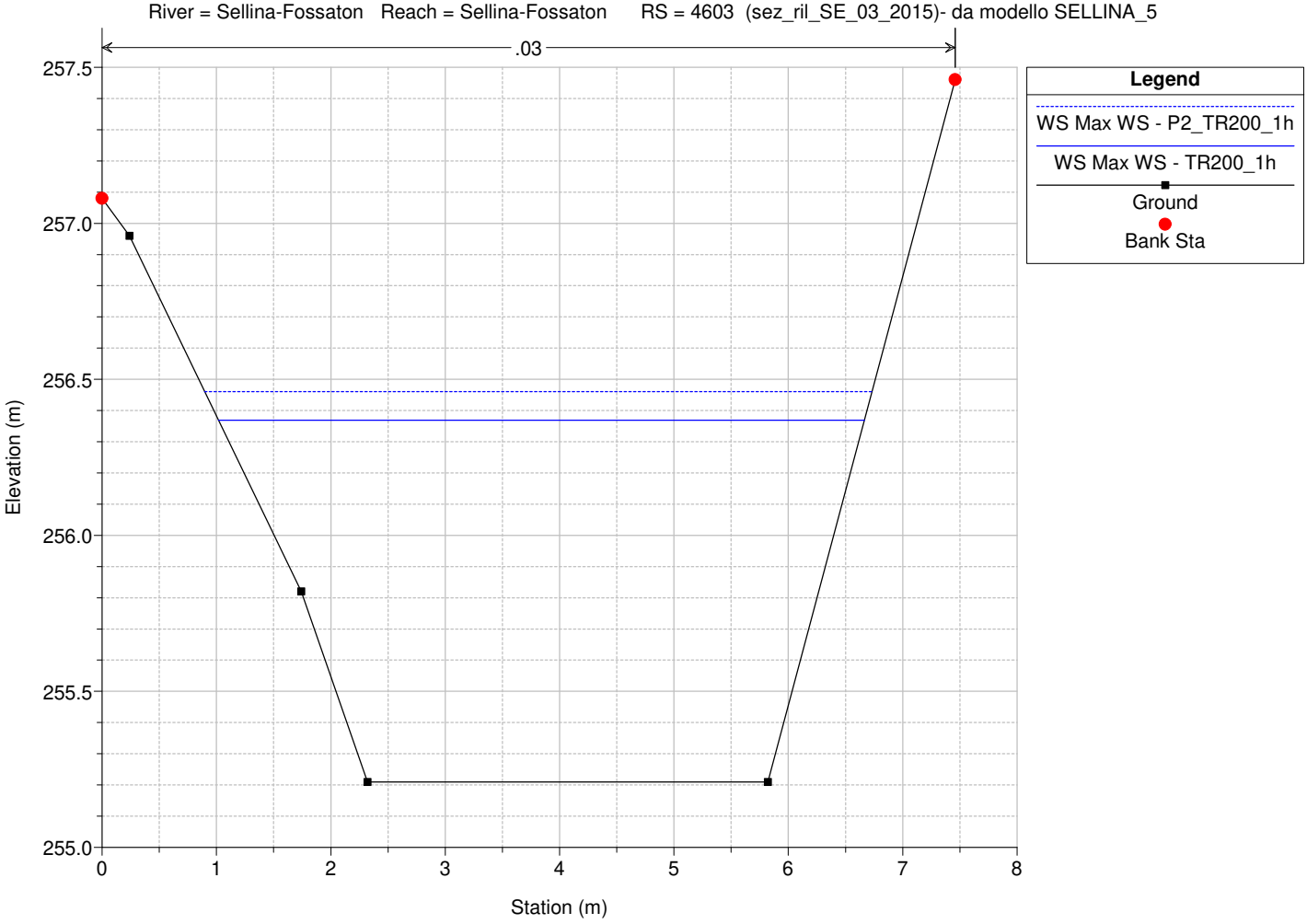

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4605 (sez_ril_SE_05_2015)- da modello SELLINA_5
.03
Legend
WS Max WS - TR200_1h
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
258.0
257.5
257.0
256.5
256.0
255.5
0
1
2
3
4
5
6
7


Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4604.5 ril A020 (2022)
.03
Legend
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
258.0
257.5
257.0
256.5
256.0
255.5
15
16
17
18
19
20
21
22
23


Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4604 (sez_ril_SE_04_2015)- da modello SELLINA_5
.03
Legend
WS Max WS - P2_TR200_1h
WS Max WS - TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
257.5
257.0
256.5
256.0
255.5
255.0
0
1
2
3
4
5
6
7

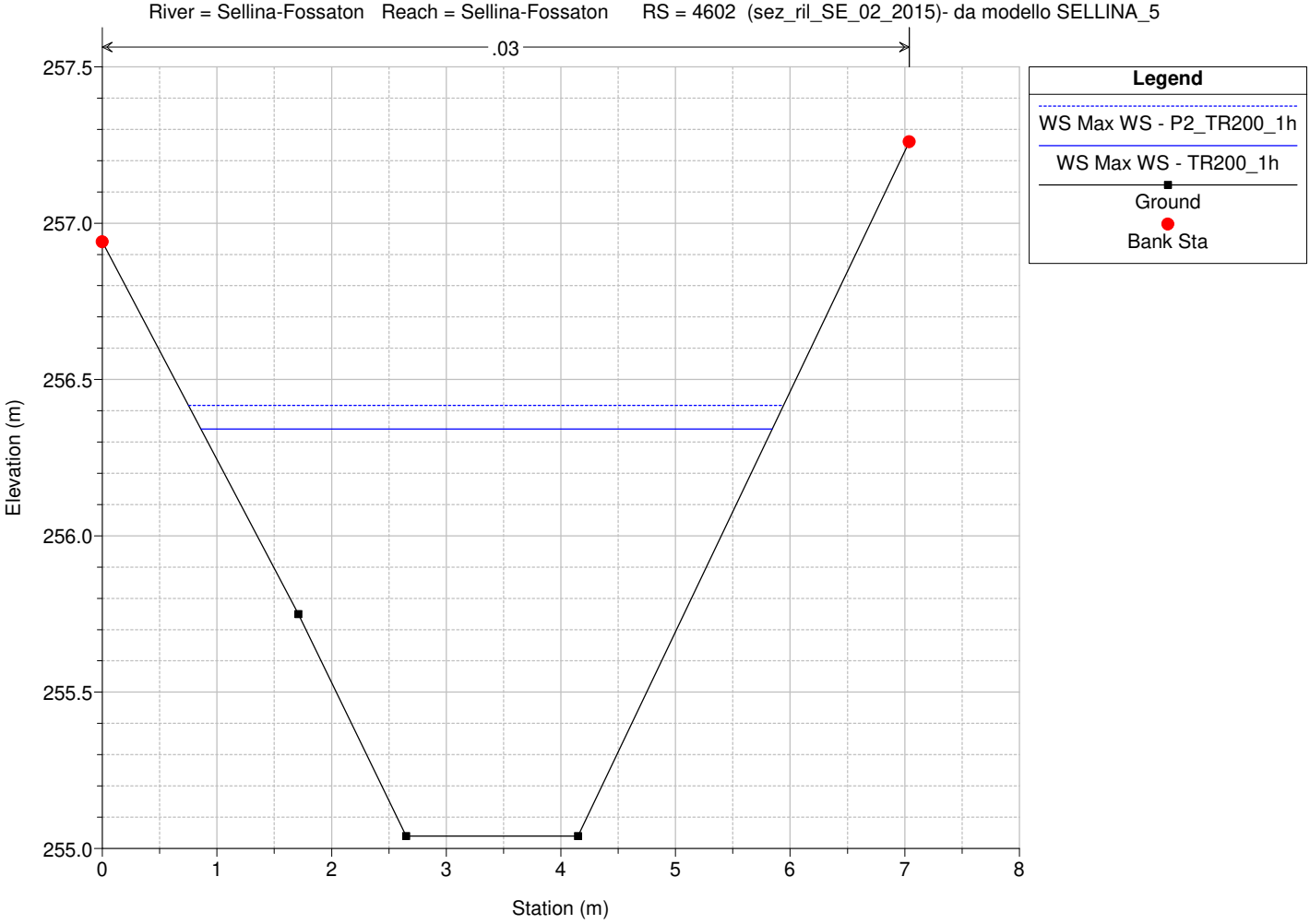
Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h

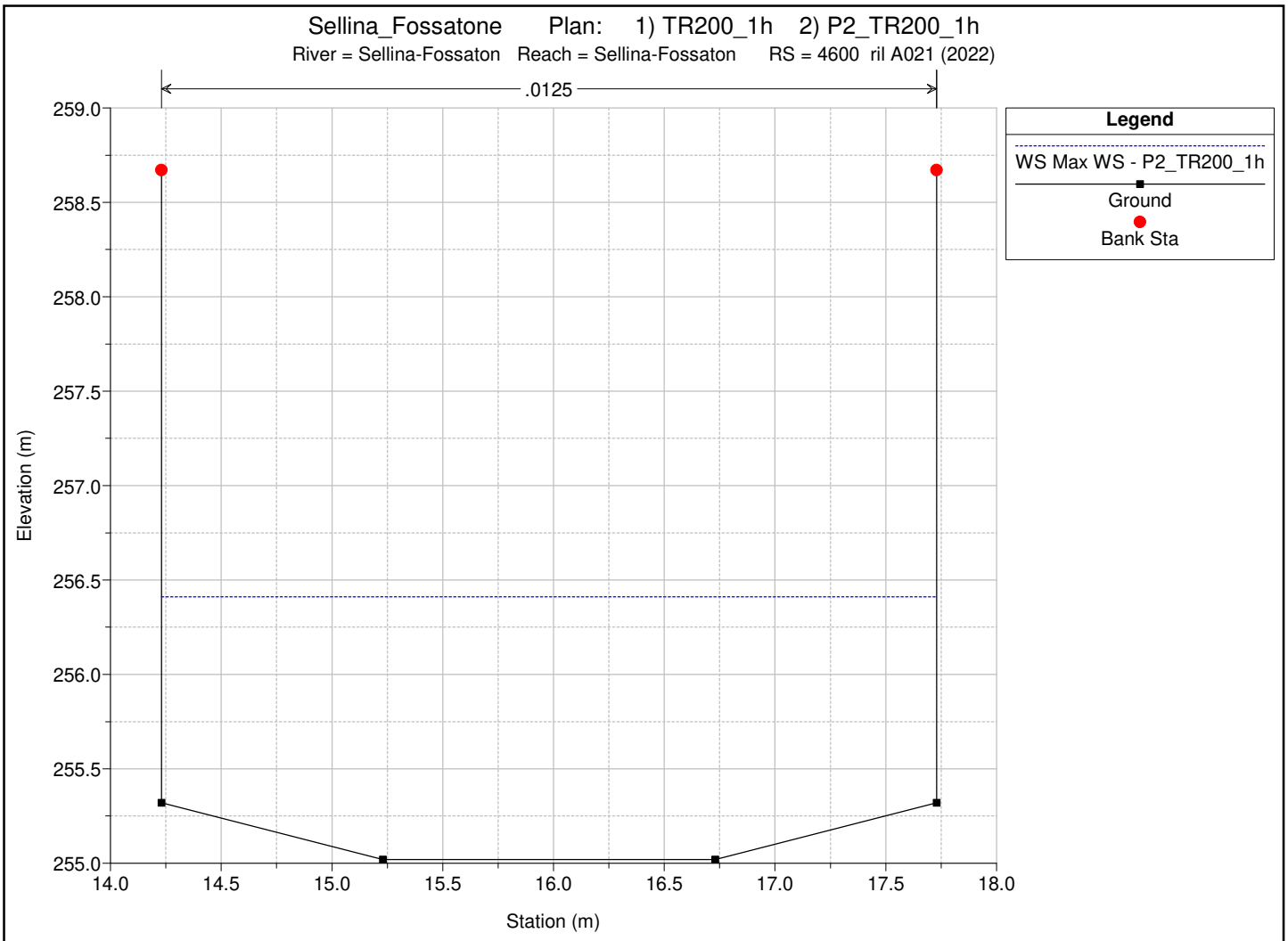
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4603 (sez_ril_SE_03_2015)- da modello SELLINA_5

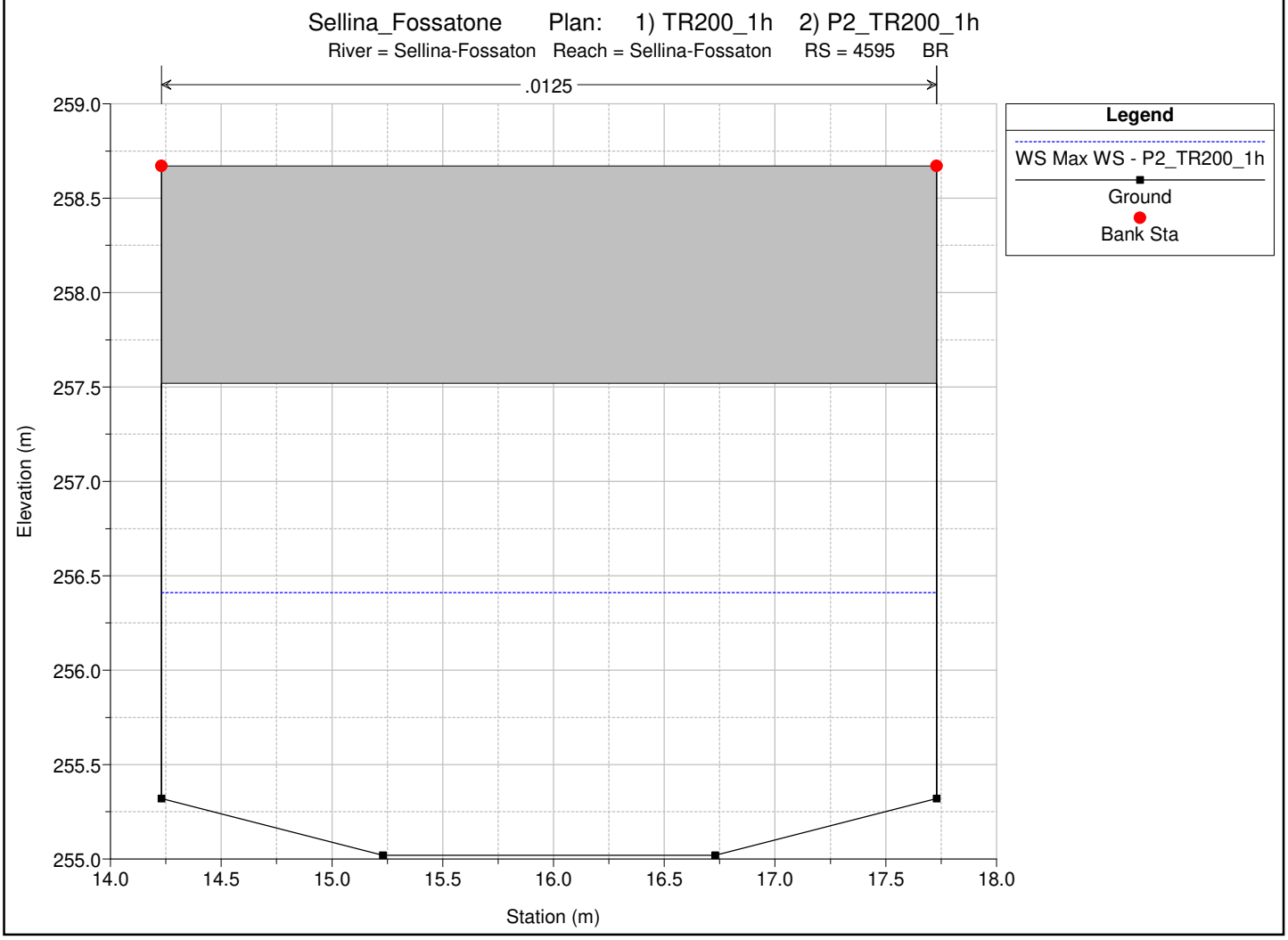


Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h

River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4602 (sez_ril_SE_02_2015)- da modello SELLINA_5

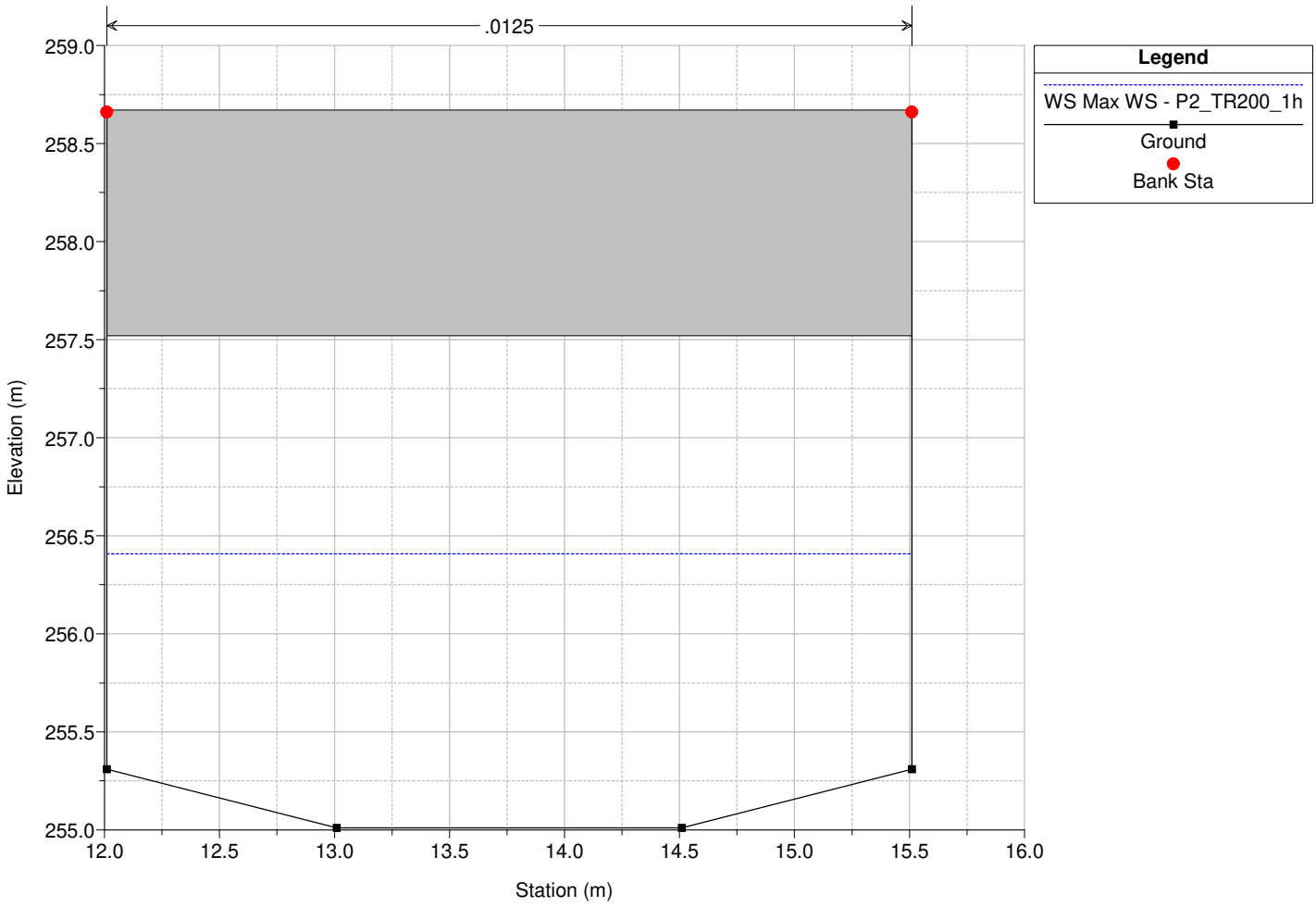



Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4600 ril A021 (2022)
.0125
Legend
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
259.0
258.5
258.0
257.5
257.0
256.5
256.0
255.5
255.0
14.0
14.5
15.0
15.5
16.0
16.5
17.0
17.5
18.0


Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4595 BR
.0125
Legend
WS Max WS - P2_TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
259.0
258.5
258.0
257.5
257.0
256.5
256.0
255.5
255.0
14.0
14.5
15.0
15.5
16.0
16.5
17.0
17.5
18.0

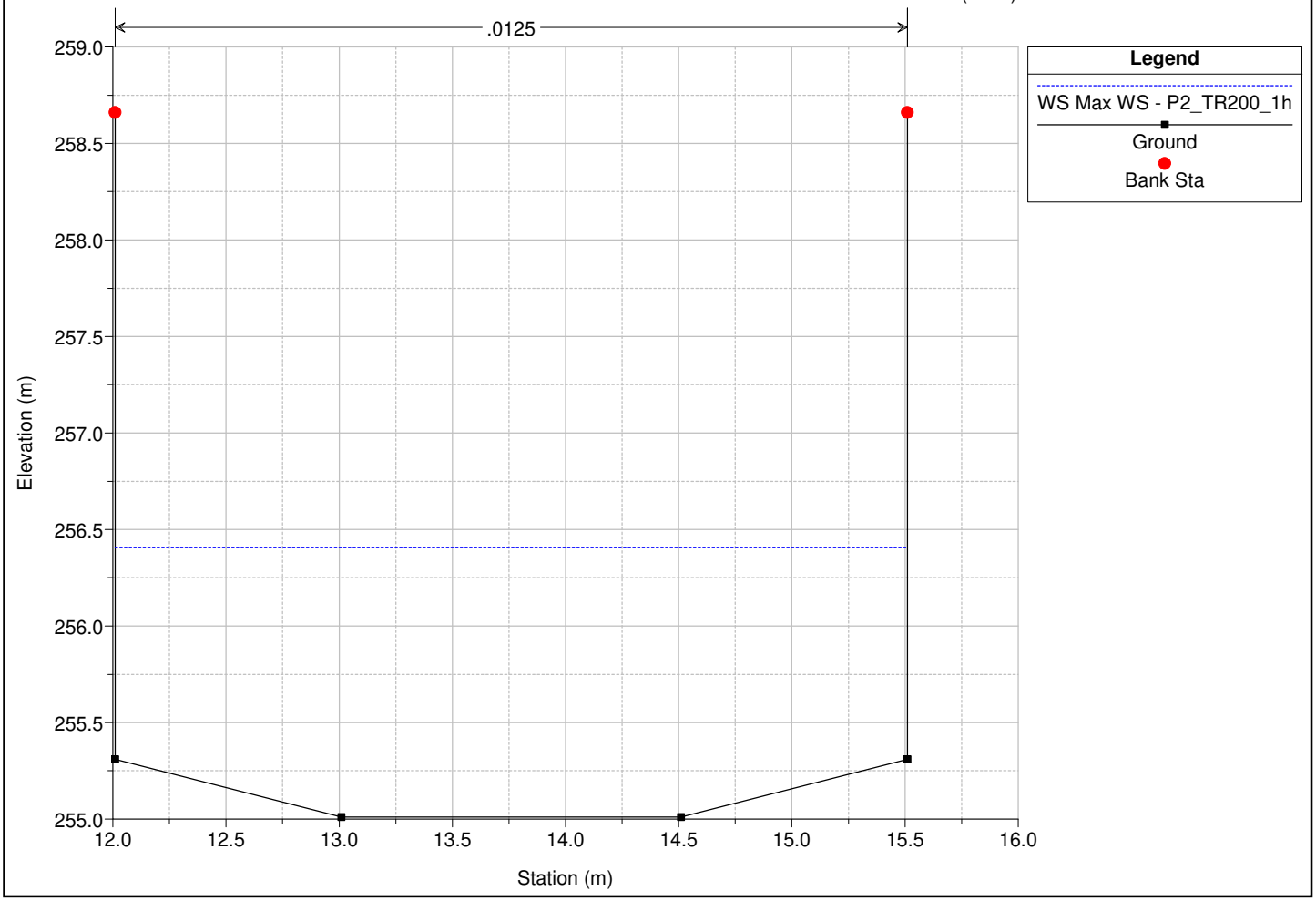
Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h

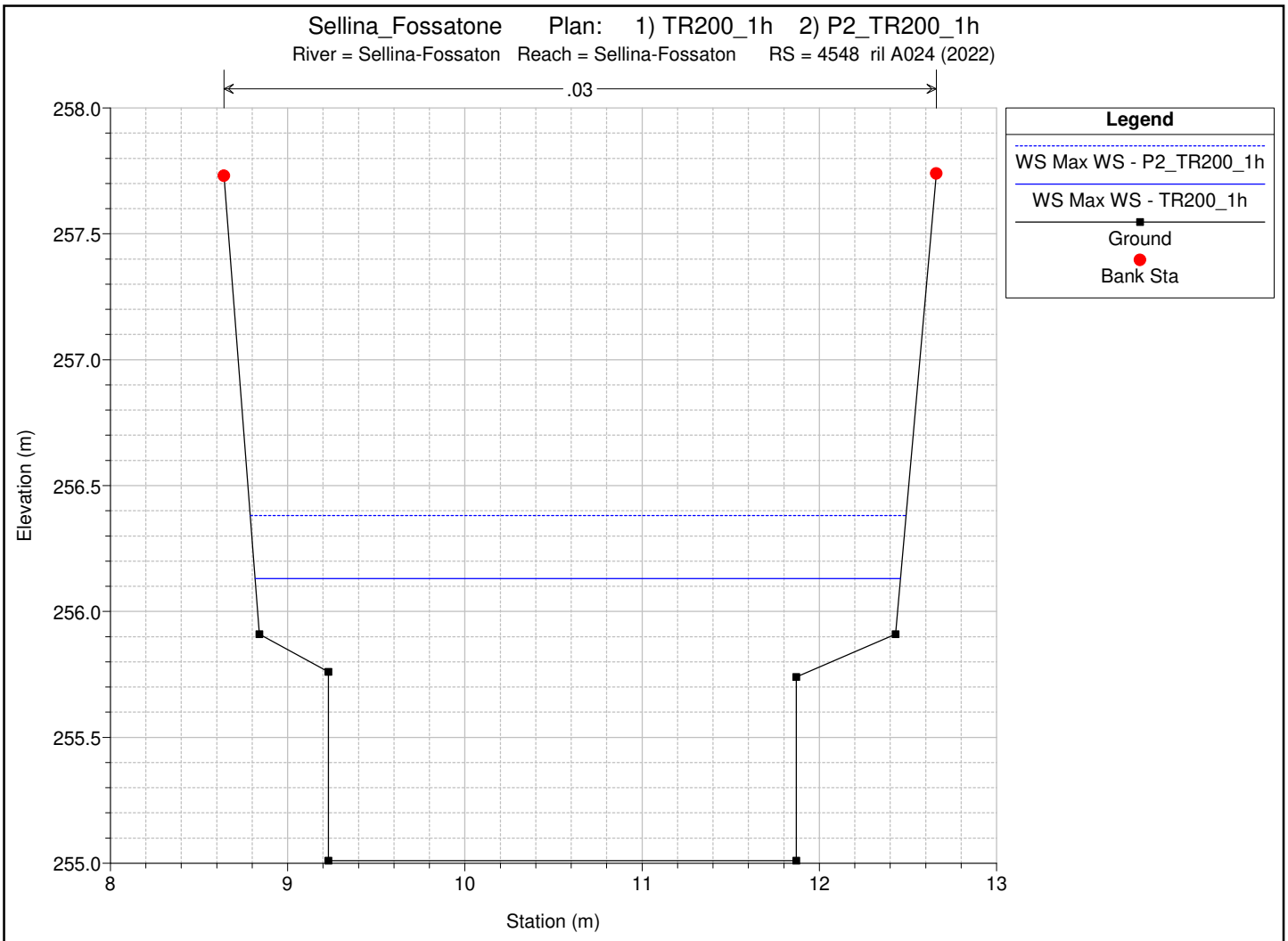
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4595 BR

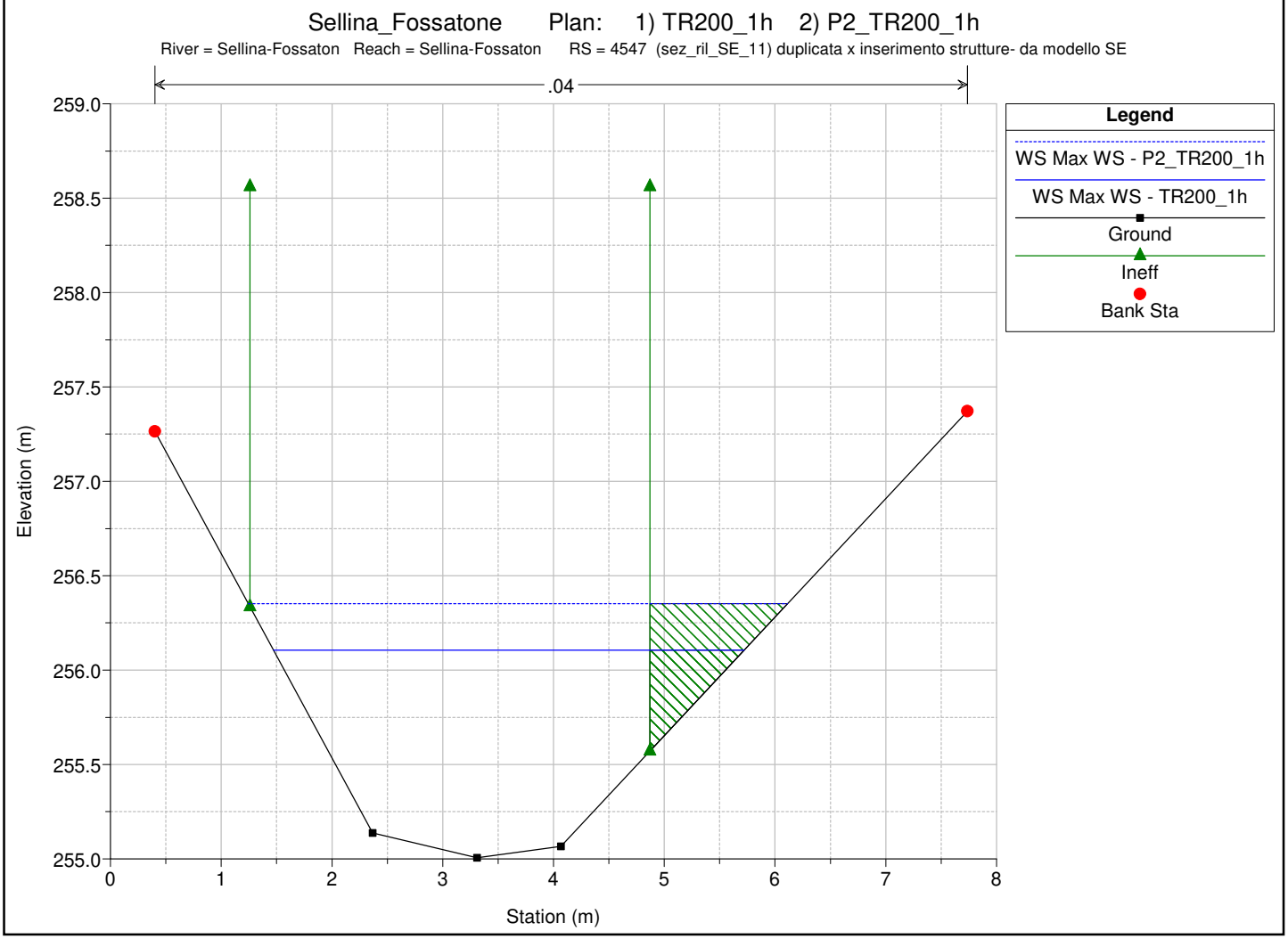


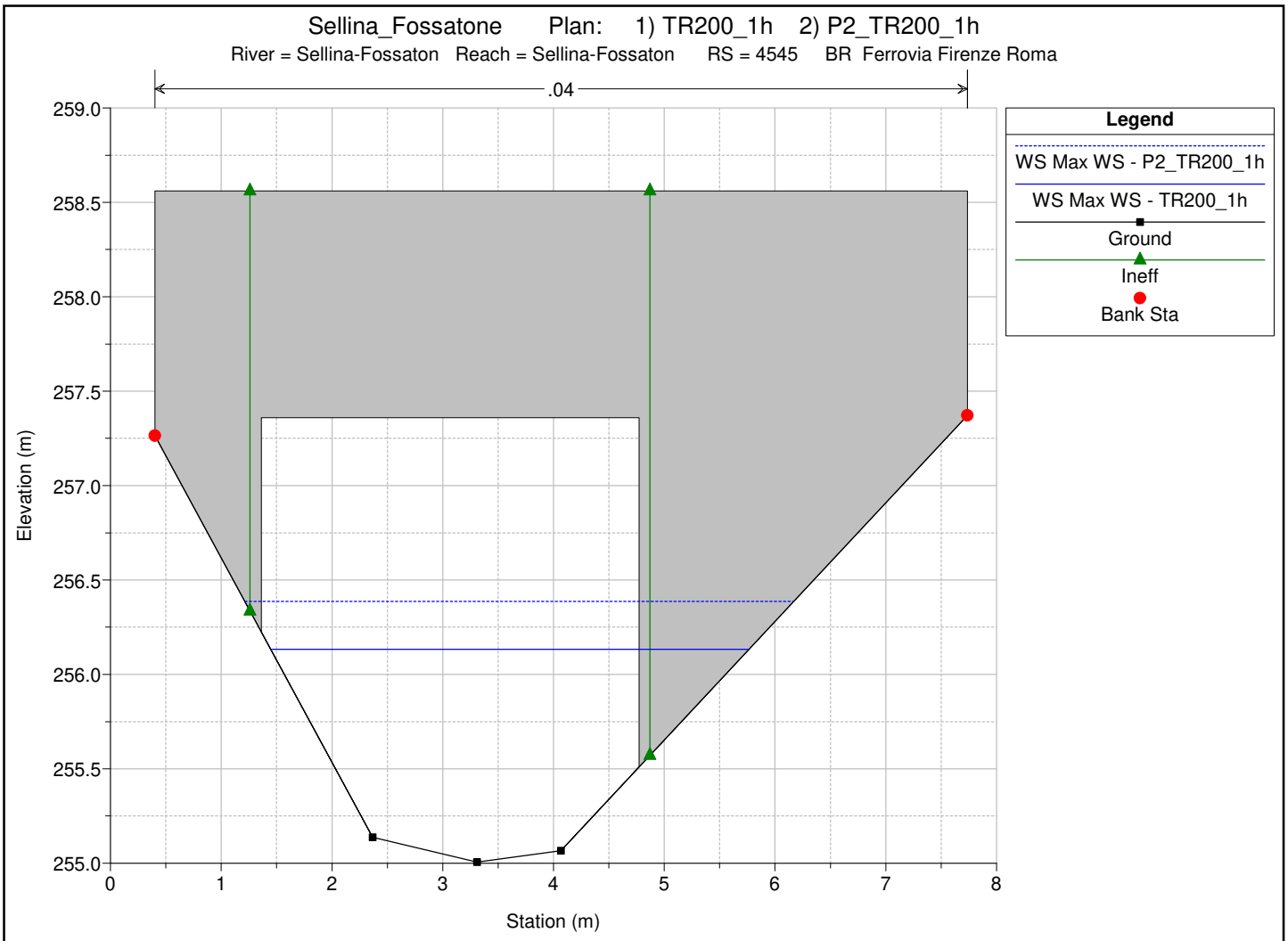
Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h

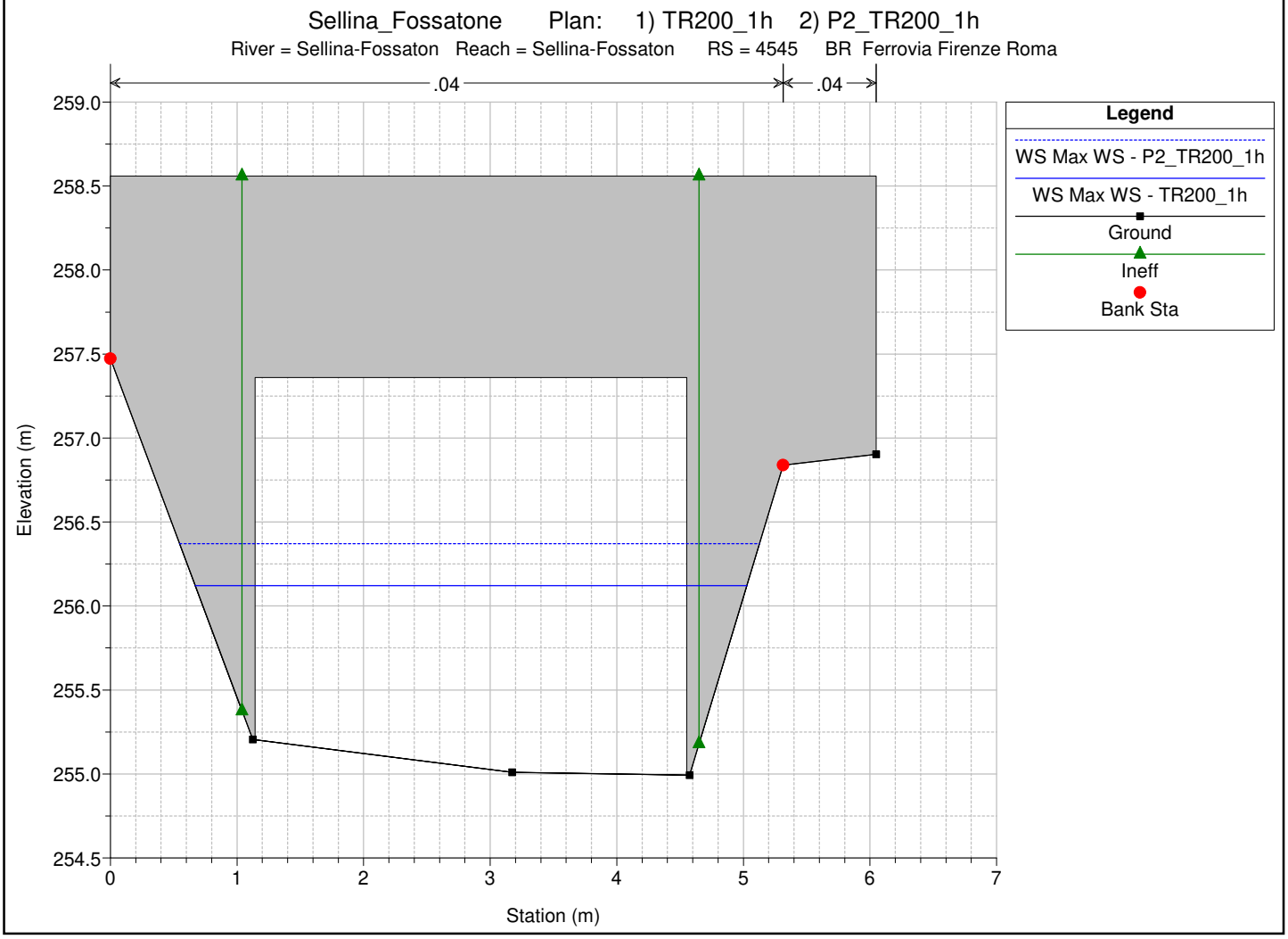
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4590 ril A022 (2022)




Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4548 ril A024 (2022)
.03
Legend
WS Max WS - P2_TR200_1h
WS Max WS - TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
258.0
257.5
257.0
256.5
256.0
255.5
255.0
8
9
10
11
12
13

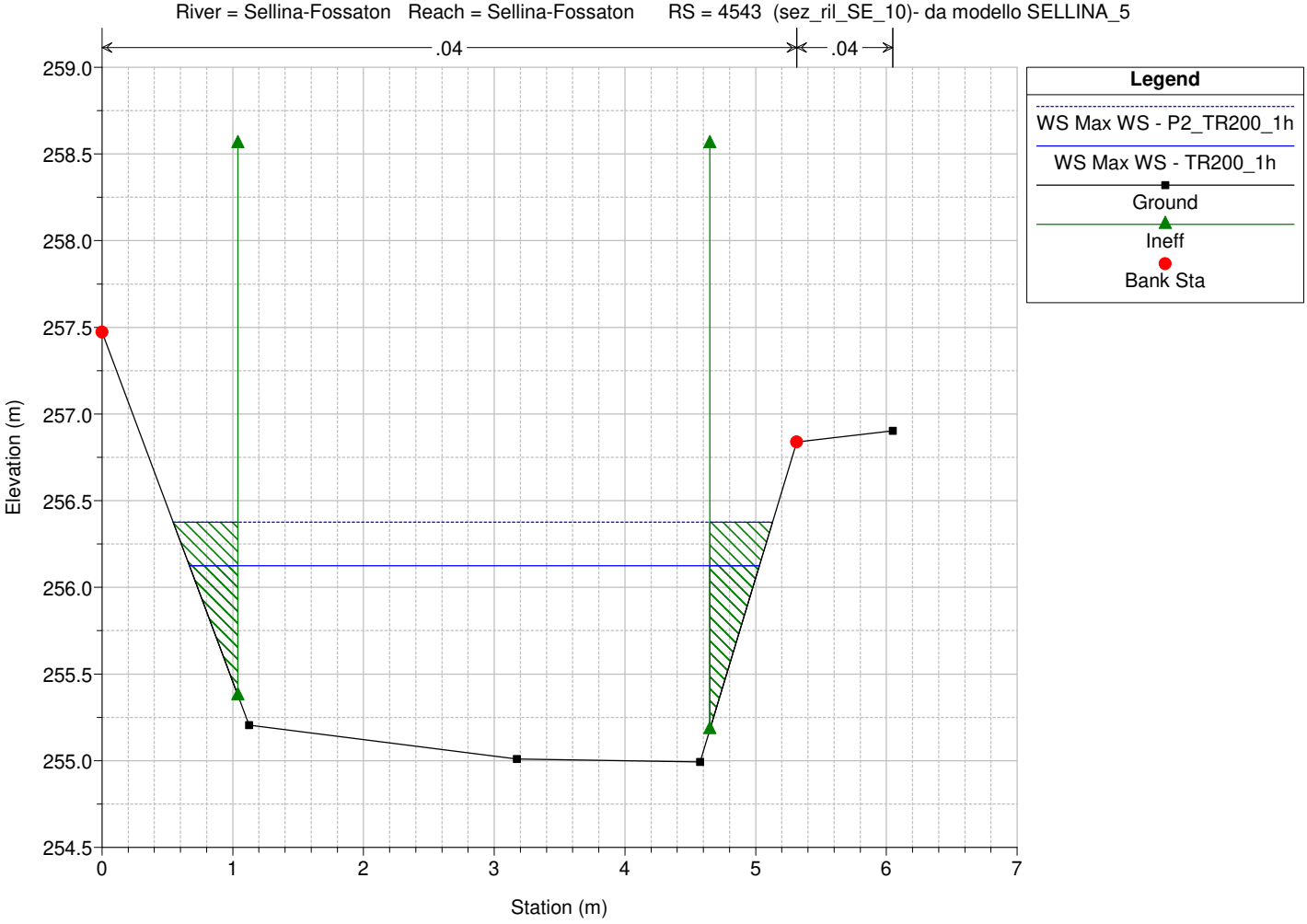

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4547 (sez_ril_SE_11) duplicata x inserimento strutture- da modello SE
.04
Legend
WS Max WS - P2_TR200_1h
WS Max WS - TR200_1h
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
259.0
258.5
258.0
257.5
257.0
256.5
256.0
255.5
255.0
0
1
2
3
4
5
6
7
8


Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4545 BR Ferrovia Firenze Roma
.04
Legend
WS Max WS - P2_TR200_1h
WS Max WS - TR200_1h
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)


Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4545 BR Ferrovia Firenze Roma
.04
.04
Legend
WS Max WS - P2_TR200_1h
WS Max WS - TR200_1h
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)

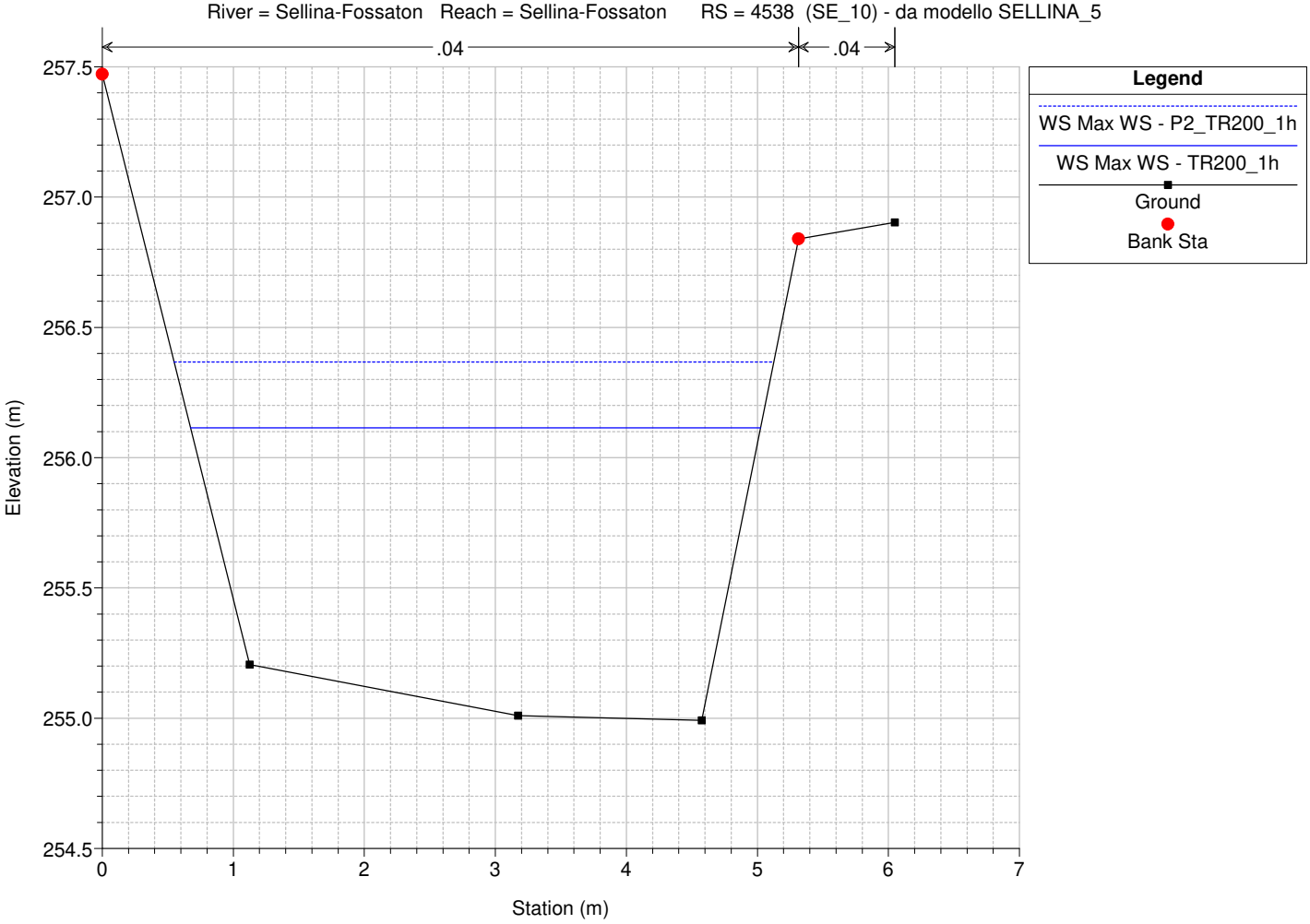
Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h

River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4543 (sez_ril_SE_10)- da modello SELLINA_5



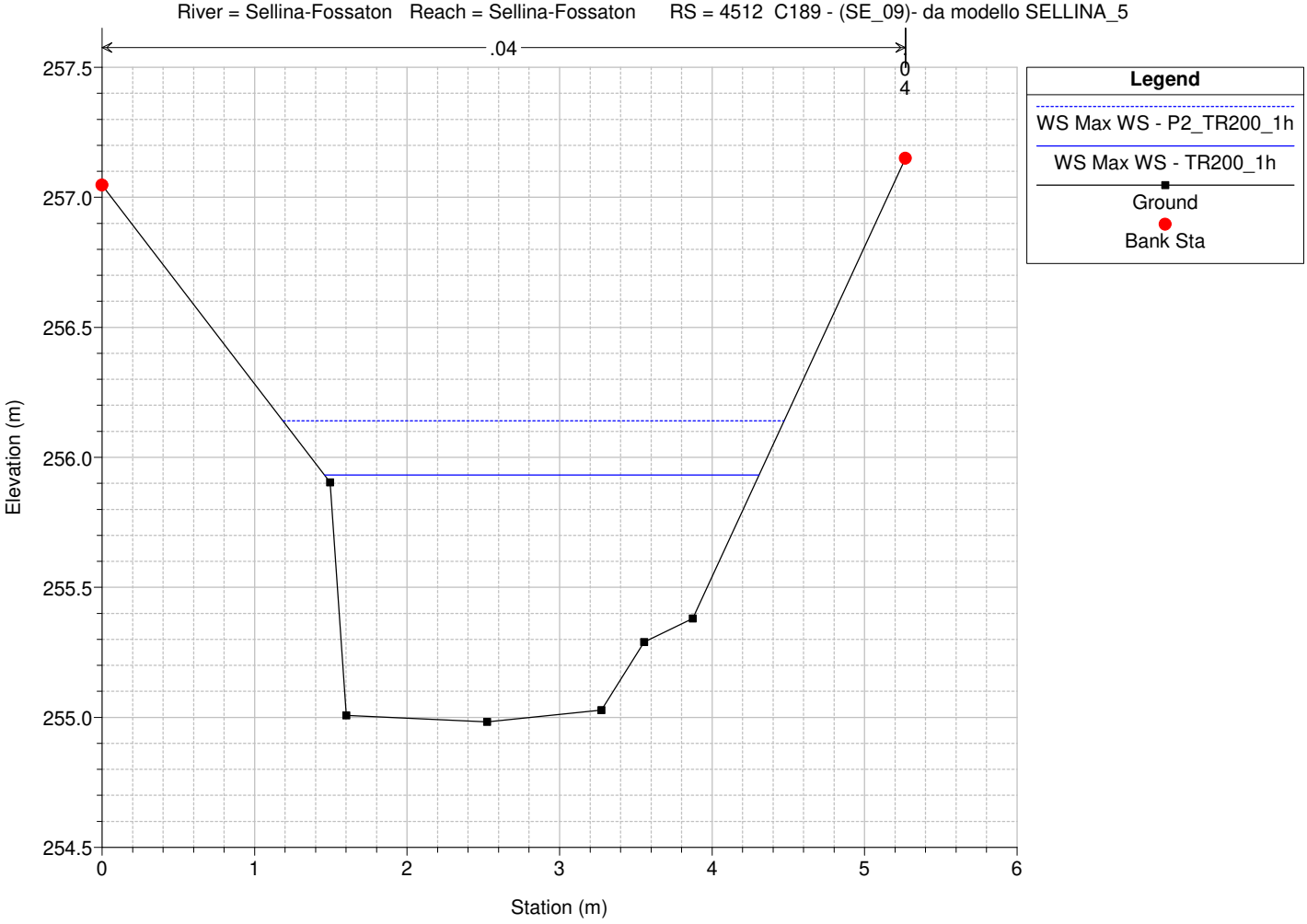
Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h

River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4538 (SE_10) - da modello SELLINA_5



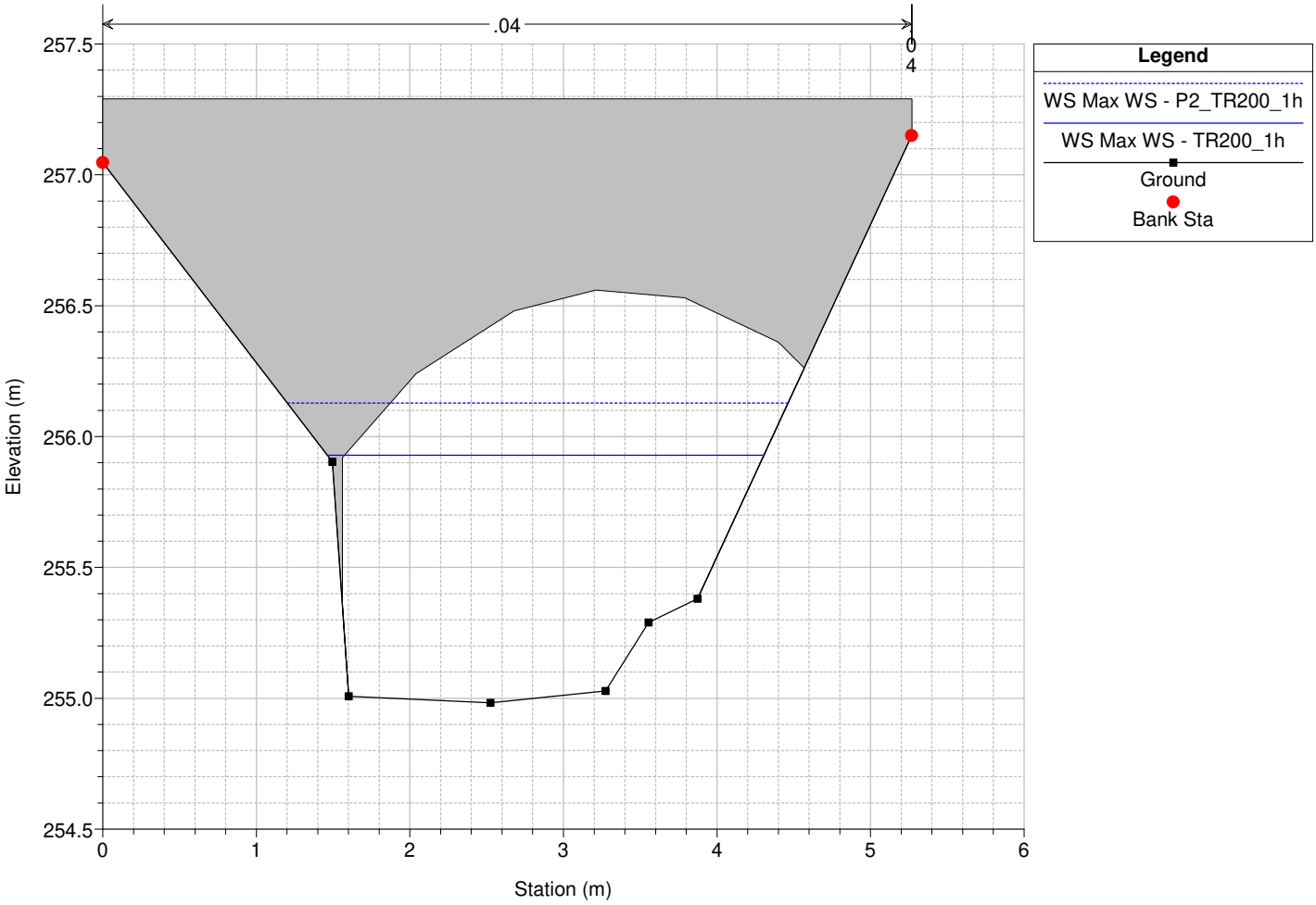
Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h

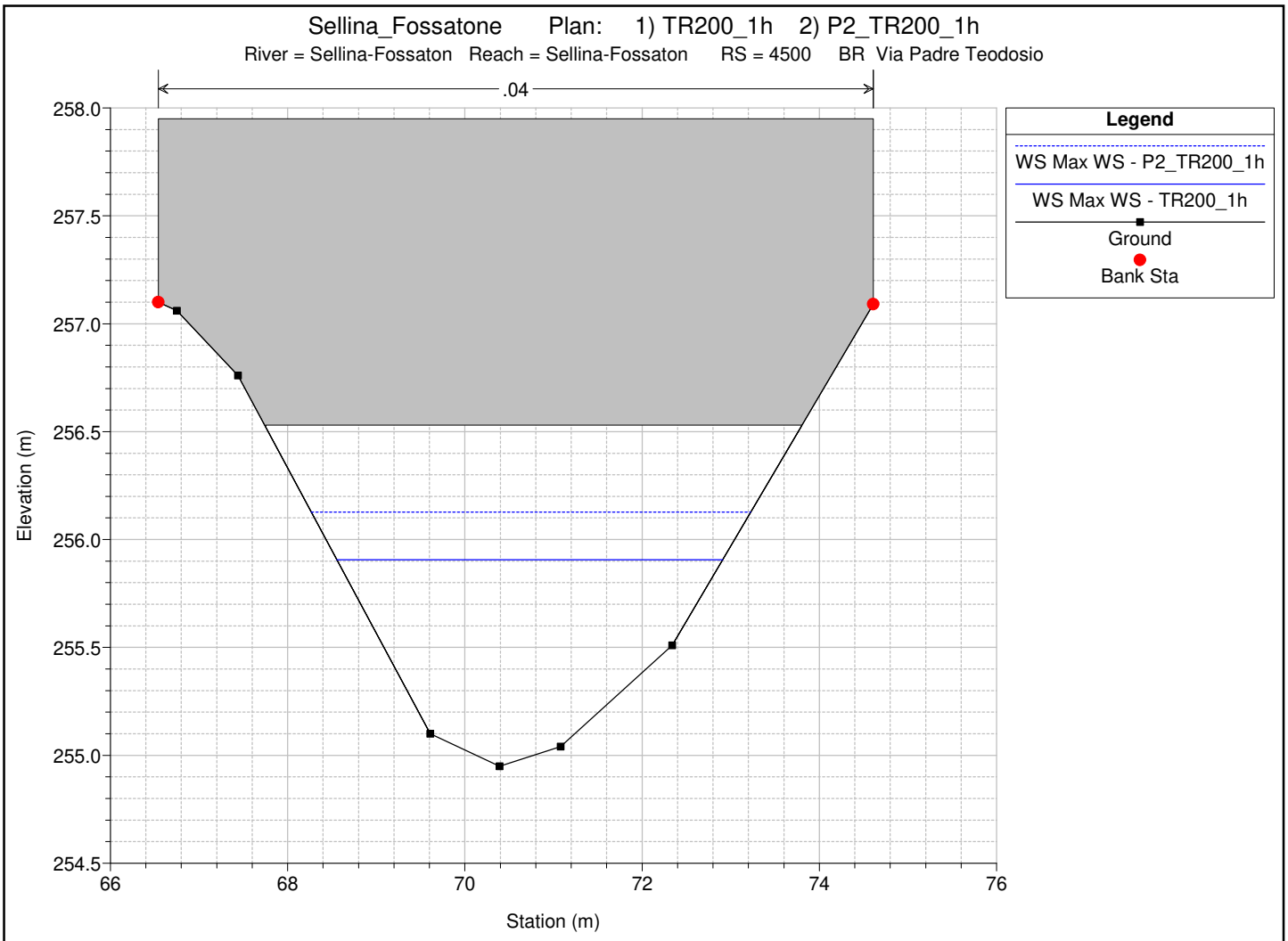
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4512 C189 - (SE_09)- da modello SELLINA_5

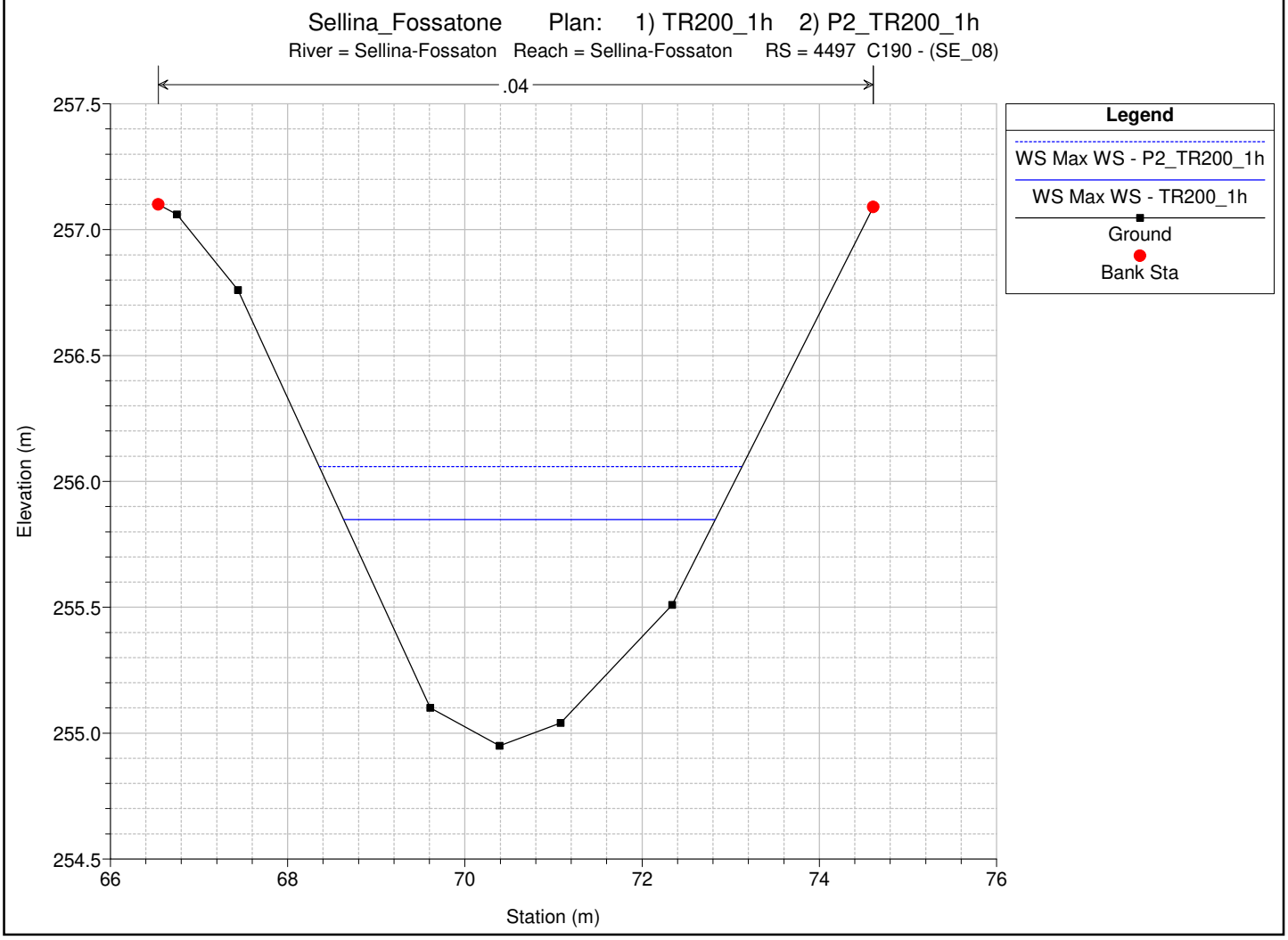


Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h

River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4500 BR Via Padre Teodosio

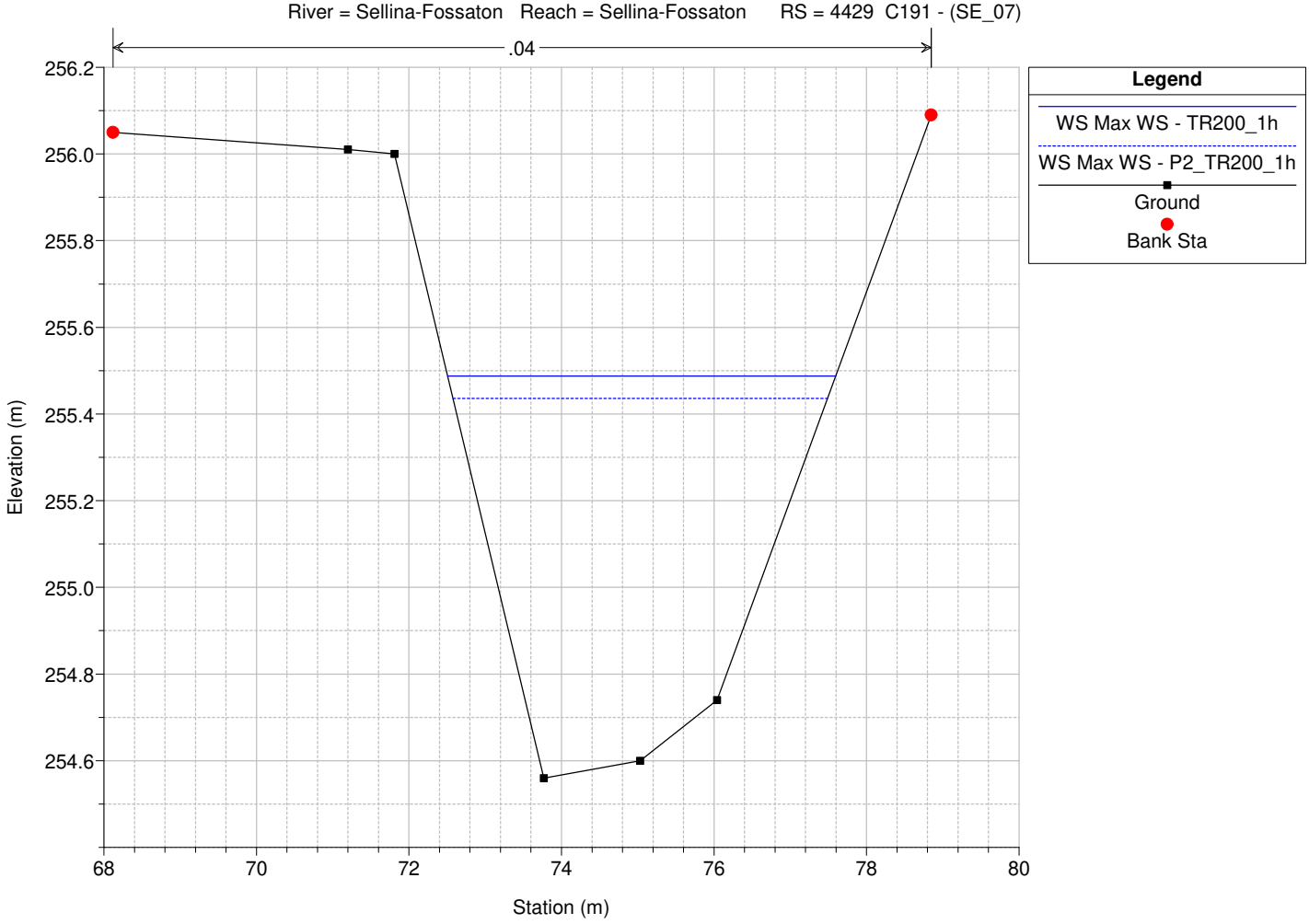



Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4500 BR Via Padre Teodosio
.04
Legend
WS Max WS - P2_TR200_1h
WS Max WS - TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
258.0
257.5
257.0
256.5
256.0
255.5
255.0
254.5
66
68
70
72
74
76


Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h
River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4497 C190 - (SE_08)
.04
Legend
WS Max WS - P2_TR200_1h
WS Max WS - TR200_1h
Ground
Bank Sta
Elevation (m)
Station (m)
257.5
257.0
256.5
256.0
255.5
255.0
254.5
66
68
70
72
74
76

Sellina_Fossatone Plan: 1) TR200_1h 2) P2_TR200_1h

River = Sellina-Fossaton Reach = Sellina-Fossaton RS = 4429 C191 - (SE_07)



HEC-RAS Locations: User Defined Profile: Max WS

River	Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
					(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Sellina-Fossaton	Sellina-Fossaton	6555	Max WS	TR200_1h	37.00	281.02	282.70	282.93	283.77	0.033713	4.58	8.08	6.00	1.26
Sellina-Fossaton	Sellina-Fossaton	6555	Max WS	P2_TR200_1h	37.00	281.02	282.70	282.93	283.77	0.033634	4.58	8.08	6.00	1.26
Sellina-Fossaton	Sellina-Fossaton	6554	Max WS	TR200_1h	37.01	280.98	282.67	282.91	283.76	0.034703	4.63	7.99	6.00	1.28
Sellina-Fossaton	Sellina-Fossaton	6554	Max WS	P2_TR200_1h	37.00	280.98	282.67	282.91	283.76	0.034630	4.63	7.99	6.00	1.28
Sellina-Fossaton	Sellina-Fossaton	6549			Lat Struct									
Sellina-Fossaton	Sellina-Fossaton	6548			Lat Struct									
Sellina-Fossaton	Sellina-Fossaton	6542.2	Max WS	TR200_1h	32.90	280.55	282.29	282.44	283.18	0.027974	4.17	7.90	6.15	1.17
Sellina-Fossaton	Sellina-Fossaton	6542.2	Max WS	P2_TR200_1h	32.89	280.55	282.30	282.44	283.18	0.027803	4.16	7.91	6.15	1.17
Sellina-Fossaton	Sellina-Fossaton	6491	Max WS	TR200_1h	36.22	278.65	280.92	280.92	281.68	0.020120	3.84	9.42	6.21	1.00
Sellina-Fossaton	Sellina-Fossaton	6491	Max WS	P2_TR200_1h	36.23	278.65	280.97	280.92	281.68	0.018374	3.72	9.74	6.26	0.95
Sellina-Fossaton	Sellina-Fossaton	6423	Max WS	TR200_1h	32.02	276.97	279.28	279.13	280.36	0.055673	4.62	6.93	1.55	0.97
Sellina-Fossaton	Sellina-Fossaton	6423	Max WS	P2_TR200_1h	31.08	276.97	279.36	279.11	280.37	0.061707	4.44	6.99		0.92
Sellina-Fossaton	Sellina-Fossaton	6410	Max WS	TR200_1h	32.02	276.74	279.00	278.90	279.98	0.033867	4.38	7.31	2.86	0.93
Sellina-Fossaton	Sellina-Fossaton	6410	Max WS	P2_TR200_1h	31.06	276.74	279.07	278.88	279.95	0.031098	4.14	7.50	2.51	0.87
Sellina-Fossaton	Sellina-Fossaton	6409.9			Lat Struct									
Sellina-Fossaton	Sellina-Fossaton	6409.8			Lat Struct									
Sellina-Fossaton	Sellina-Fossaton	6407	Max WS	TR200_1h	31.59	276.39	278.85	278.82	279.65	0.022775	3.94	8.01	4.78	0.97
Sellina-Fossaton	Sellina-Fossaton	6407	Max WS	P2_TR200_1h	30.72	276.39	278.86	278.79	279.60	0.021231	3.82	8.05	4.78	0.94
Sellina-Fossaton	Sellina-Fossaton	6332	Max WS	TR200_1h	28.57	275.37	277.62	277.49	278.07	0.014679	2.97	9.63	7.88	0.86
Sellina-Fossaton	Sellina-Fossaton	6332	Max WS	P2_TR200_1h	28.01	275.37	277.60	277.48	278.05	0.014751	2.95	9.48	7.86	0.86
Sellina-Fossaton	Sellina-Fossaton	6160	Max WS	TR200_1h	21.59	272.83	274.84	274.79	275.36	0.020214	3.19	6.77	5.83	0.95
Sellina-Fossaton	Sellina-Fossaton	6160	Max WS	P2_TR200_1h	20.93	272.83	274.85	274.75	275.33	0.018777	3.08	6.80	5.83	0.91
Sellina-Fossaton	Sellina-Fossaton	6149			Lat Struct									
Sellina-Fossaton	Sellina-Fossaton	6148			Lat Struct									
Sellina-Fossaton	Sellina-Fossaton	5971	Max WS	TR200_1h	13.33	270.00	271.78	271.58	272.10	0.014883	2.49	5.35	5.34	0.80
Sellina-Fossaton	Sellina-Fossaton	5971	Max WS	P2_TR200_1h	12.90	270.00	271.74	271.55	272.06	0.015516	2.50	5.16	5.34	0.81
Sellina-Fossaton	Sellina-Fossaton	5904	Max WS	P2_TR200_1h	11.01	269.02	271.20	270.46	271.29	0.003150	1.37	8.05	5.80	0.37
Sellina-Fossaton	Sellina-Fossaton	5898	Max WS	P2_TR200_1h	10.20	268.98	270.71	270.25	271.05	0.048039	2.58	3.96	4.33	0.63
Sellina-Fossaton	Sellina-Fossaton	5893	Max WS	P2_TR200_1h	10.20	268.94	270.60	270.09	270.93	0.046971	2.55	4.00	4.26	0.63
Sellina-Fossaton	Sellina-Fossaton	5882	Max WS	P2_TR200_1h	9.89	268.81	270.52	270.03	270.71	0.008139	1.89	5.23	5.16	0.60
Sellina-Fossaton	Sellina-Fossaton	5859	Max WS	TR200_1h	11.08	268.67	270.39	270.13	270.69	0.014974	2.45	4.52	4.13	0.75
Sellina-Fossaton	Sellina-Fossaton	5859	Max WS	P2_TR200_1h	9.87	268.67	270.22	270.02	270.55	0.017725	2.55	3.86	3.76	0.80
Sellina-Fossaton	Sellina-Fossaton	5844.81	Max WS	P2_TR200_1h	9.87	268.47	269.97	269.82	270.30	0.017841	2.55	3.87	4.01	0.83
Sellina-Fossaton	Sellina-Fossaton	5813.40	Max WS	P2_TR200_1h	9.87	268.03	269.45	269.30	269.75	0.015148	2.43	4.06	4.19	0.79
Sellina-Fossaton	Sellina-Fossaton	5770	Max WS	P2_TR200_1h	9.88	267.41	269.02	268.52	269.17	0.005706	1.74	5.68	4.37	0.49
Sellina-Fossaton	Sellina-Fossaton	5762	Max WS	P2_TR200_1h	9.88	267.31	268.97	268.39	269.10	0.004844	1.64	6.03	4.40	0.45
Sellina-Fossaton	Sellina-Fossaton	5732	Max WS	TR200_1h	10.52	267.21	268.71	268.51	268.99	0.012905	2.34	4.49	4.70	0.76
Sellina-Fossaton	Sellina-Fossaton	5732	Max WS	P2_TR200_1h	9.87	267.21	268.66	268.46	268.93	0.013175	2.31	4.27	4.69	0.77
Sellina-Fossaton	Sellina-Fossaton	5650	Max WS	TR200_1h	10.35	266.36	267.77	267.46	267.99	0.008735	2.07	5.01	4.63	0.63
Sellina-Fossaton	Sellina-Fossaton	5650	Max WS	P2_TR200_1h	9.82	266.36	267.70	267.43	267.93	0.009373	2.09	4.70	4.58	0.66
Sellina-Fossaton	Sellina-Fossaton	5577	Max WS	TR200_1h	9.18	265.44	266.89	266.65	267.17	0.015785	2.35	3.91	3.90	0.75
Sellina-Fossaton	Sellina-Fossaton	5577	Max WS	P2_TR200_1h	8.11	265.44	266.78	266.51	267.05	0.016370	2.33	3.49	3.62	0.76
Sellina-Fossaton	Sellina-Fossaton	4621	Max WS	TR200_1h	6.19	262.20	263.46	263.29	263.71	0.014765	2.24	2.76	3.13	0.76
Sellina-Fossaton	Sellina-Fossaton	4621	Max WS	P2_TR200_1h	5.46	262.20	263.38	263.22	263.62	0.014462	2.16	2.53	3.04	0.75
Sellina-Fossaton	Sellina-Fossaton	4620.9			Lat Struct									
Sellina-Fossaton	Sellina-Fossaton	4620.8			Lat Struct									
Sellina-Fossaton	Sellina-Fossaton	4620	Max WS	TR200_1h	6.19	261.50	262.57	262.56	262.91	0.023155	2.61	2.37	3.34	0.99
Sellina-Fossaton	Sellina-Fossaton	4620	Max WS	P2_TR200_1h	5.46	261.50	262.51	262.49	262.83	0.021987	2.48	2.20	3.23	0.96
Sellina-Fossaton	Sellina-Fossaton	4619	Max WS	TR200_1h	6.19	261.01	261.96	261.72	262.08	0.006765	1.50	4.11	6.09	0.58
Sellina-Fossaton	Sellina-Fossaton	4619	Max WS	P2_TR200_1h	5.46	261.01	261.90	261.68	262.01	0.006816	1.45	3.75	5.90	0.58
Sellina-Fossaton	Sellina-Fossaton	4618	Max WS	TR200_1h	6.19	260.28	261.32	261.02	261.42	0.005590	1.43	4.33	5.93	0.53
Sellina-Fossaton	Sellina-Fossaton	4618	Max WS	P2_TR200_1h	5.46	260.28	261.23	260.97	261.34	0.006097	1.42	3.84	5.66	0.55
Sellina-Fossaton	Sellina-Fossaton	4617	Max WS	TR200_1h	6.19	260.32	261.20	260.96	261.35	0.008907	1.73	3.58	4.44	0.61
Sellina-Fossaton	Sellina-Fossaton	4617	Max WS	P2_TR200_1h	5.45	260.32	261.12	260.91	261.27	0.009055	1.67	3.27	4.40	0.62
Sellina-Fossaton	Sellina-Fossaton	4616	Max WS	TR200_1h	6.19	259.45	260.41	260.15	260.57	0.009474	1.79	3.46	3.88	0.60
Sellina-Fossaton	Sellina-Fossaton	4616	Max WS	P2_TR200_1h	5.45	259.45	260.33	260.10	260.48	0.009476	1.72	3.17	3.86	0.61
Sellina-Fossaton	Sellina-Fossaton	4615	Max WS	TR200_1h	6.19	258.10	259.06	258.85	259.24	0.010243	1.86	3.33	3.98	0.65
Sellina-Fossaton	Sellina-Fossaton	4615	Max WS	P2_TR200_1h	5.46	258.10	258.96	258.80	259.14	0.011610	1.87	2.92	3.96	0.69
Sellina-Fossaton	Sellina-Fossaton	4614	Max WS	TR200_1h	6.19	257.75	258.88	258.40	258.96	0.003326	1.22	5.06	5.20	0.40
Sellina-Fossaton	Sellina-Fossaton	4614	Max WS	P2_TR200_1h	5.45	257.75	258.57	258.36	258.70	0.007671	1.56	3.50	4.97	0.59
Sellina-Fossaton	Sellina-Fossaton	4613.7	Max WS	TR200_1h	6.19	257.74	258.90	258.28	258.95	0.002540	1.08	5.75	5.00	0.32
Sellina-Fossaton	Sellina-Fossaton	4613.7	Max WS	P2_TR200_1h	5.45	257.74	258.59	258.24	258.68	0.004835	1.28	4.25	5.00	0.44
Sellina-Fossaton	Sellina-Fossaton	4613.5			Bridge									
Sellina-Fossaton	Sellina-Fossaton	4613.3	Max WS	TR200_1h	6.19	257.71	258.88	258.25	258.94	0.002422	1.06	5.85	5.00	0.31
Sellina-Fossaton	Sellina-Fossaton	4613.3	Max WS	P2_TR200_1h	5.45	257.71	258.55	258.20	258.64	0.004924	1.29	4.22	5.00	0.45

HEC-RAS Locations: User Defined Profile: Max WS (Continued)

River	Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
					(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Sellina-Fossaton	Sellina-Fossaton	4613.09			Lat Struct									
Sellina-Fossaton	Sellina-Fossaton	4613.08			Lat Struct									
Sellina-Fossaton	Sellina-Fossaton	4613	Max WS	TR200_1h	6.19	257.70	258.86	258.30	258.93	0.002921	1.17	5.30	4.87	0.36
Sellina-Fossaton	Sellina-Fossaton	4613	Max WS	P2_TR200_1h	5.46	257.70	258.52	258.26	258.63	0.006742	1.49	3.66	4.75	0.54
Sellina-Fossaton	Sellina-Fossaton	4612	Max WS	TR200_1h	6.19	257.26	258.76	257.89	258.81	0.001891	0.96	6.48	5.49	0.28
Sellina-Fossaton	Sellina-Fossaton	4612	Max WS	P2_TR200_1h	5.46	257.26	258.21	257.84	258.30	0.005428	1.39	3.91	4.32	0.47
Sellina-Fossaton	Sellina-Fossaton	4611	Max WS	TR200_1h	5.26	257.09	258.73	257.71	258.76	0.000971	0.78	7.32	9.17	0.20
Sellina-Fossaton	Sellina-Fossaton	4611	Max WS	P2_TR200_1h	5.45	257.09	257.60	257.73	258.07	0.050621	3.02	1.80	3.99	1.44
Sellina-Fossaton	Sellina-Fossaton	4610.5	Max WS	P2_TR200_1h	5.45	257.03	257.47	257.74	258.46	0.013764	4.40	1.24	3.50	2.36
Sellina-Fossaton	Sellina-Fossaton	4609.5	Max WS	P2_TR200_1h	5.46	256.47	257.03	257.19	257.58	0.005585	3.27	1.67	3.50	1.52
Sellina-Fossaton	Sellina-Fossaton	4607	Max WS	TR200_1h	3.32	256.58	257.41	257.28	257.55	0.011644	1.67	1.98	3.57	0.72
Sellina-Fossaton	Sellina-Fossaton	4607	Max WS	P2_TR200_1h	5.46	256.43	256.99	257.03	257.32	0.016876	2.54	2.15	4.15	1.12
Sellina-Fossaton	Sellina-Fossaton	4606	Max WS	TR200_1h	3.32	256.43	257.17	257.10	257.34	0.015134	1.82	1.83	3.62	0.82
Sellina-Fossaton	Sellina-Fossaton	4606	Max WS	P2_TR200_1h	5.46	256.10	256.77	256.71	256.99	0.009681	2.11	2.59	4.27	0.86
Sellina-Fossaton	Sellina-Fossaton	4605	Max WS	TR200_1h	3.32	256.02	256.70	256.66	256.87	0.017937	1.87	1.78	3.95	0.89
Sellina-Fossaton	Sellina-Fossaton	4605	Max WS	P2_TR200_1h	5.46	255.76	256.52	256.37	256.69	0.006519	1.84	2.96	4.37	0.71
Sellina-Fossaton	Sellina-Fossaton	4604.5	Max WS	P2_TR200_1h	5.45	255.52	256.46	256.12	256.56	0.002923	1.39	3.93	4.86	0.49
Sellina-Fossaton	Sellina-Fossaton	4604	Max WS	TR200_1h	3.32	255.25	256.36	255.93	256.42	0.003385	1.06	3.12	4.27	0.40
Sellina-Fossaton	Sellina-Fossaton	4604	Max WS	P2_TR200_1h	5.45	255.25	256.46	255.85	256.51	0.001262	1.03	5.28	5.25	0.33
Sellina-Fossaton	Sellina-Fossaton	4603	Max WS	TR200_1h	3.32	255.21	256.37	255.91	256.41	0.002237	0.87	3.80	5.24	0.33
Sellina-Fossaton	Sellina-Fossaton	4603	Max WS	P2_TR200_1h	5.45	255.21	256.46	255.81	256.51	0.001034	0.95	5.76	5.83	0.30
Sellina-Fossaton	Sellina-Fossaton	4602	Max WS	TR200_1h	3.32	255.04	256.34	255.81	256.38	0.002129	0.88	3.78	4.92	0.32
Sellina-Fossaton	Sellina-Fossaton	4602	Max WS	P2_TR200_1h	5.45	255.04	256.42	255.90	256.49	0.001872	1.19	4.58	5.19	0.40
Sellina-Fossaton	Sellina-Fossaton	4600	Max WS	P2_TR200_1h	5.45	255.02	256.41	255.74	256.48	0.000305	1.19	4.57	3.50	0.33
Sellina-Fossaton	Sellina-Fossaton	4590	Max WS	P2_TR200_1h	5.46	255.01	256.41	255.73	256.48	0.000300	1.19	4.59	3.50	0.33
Sellina-Fossaton	Sellina-Fossaton	4548*	Max WS	TR200_1h	3.32	255.01	256.13	255.69	256.19	0.003226	1.04	3.18	4.31	0.39
Sellina-Fossaton	Sellina-Fossaton	4548*	Max WS	P2_TR200_1h	5.45	255.01	256.38	255.79	256.47	0.002540	1.31	4.17	3.70	0.39
Sellina-Fossaton	Sellina-Fossaton	4547	Max WS	TR200_1h	3.32	255.01	256.11	255.68	256.17	0.003384	1.16	2.85	4.25	0.41
Sellina-Fossaton	Sellina-Fossaton	4547	Max WS	P2_TR200_1h	5.45	255.01	256.35	255.89	256.46	0.004189	1.47	3.71	4.87	0.46
Sellina-Fossaton	Sellina-Fossaton	4545			Bridge									
Sellina-Fossaton	Sellina-Fossaton	4543	Max WS	TR200_1h	3.32	254.99	256.12	255.51	256.16	0.001234	0.87	3.81	4.36	0.27
Sellina-Fossaton	Sellina-Fossaton	4543	Max WS	P2_TR200_1h	5.46	254.99	256.38	255.69	256.44	0.001639	1.16	4.71	4.58	0.32
Sellina-Fossaton	Sellina-Fossaton	4540.9			Lat Struct									
Sellina-Fossaton	Sellina-Fossaton	4540.8			Lat Struct									
Sellina-Fossaton	Sellina-Fossaton	4538	Max WS	TR200_1h	3.32	254.99	256.11	255.51	256.15	0.001645	0.81	4.08	4.35	0.27
Sellina-Fossaton	Sellina-Fossaton	4538	Max WS	P2_TR200_1h	5.46	254.99	256.37	255.68	256.42	0.002231	1.05	5.21	4.58	0.31
Sellina-Fossaton	Sellina-Fossaton	4512	Max WS	TR200_1h	3.32	254.98	255.93	255.67	256.05	0.009007	1.55	2.14	2.85	0.57
Sellina-Fossaton	Sellina-Fossaton	4512	Max WS	P2_TR200_1h	5.46	254.98	256.14	255.89	256.34	0.012286	1.96	2.78	3.29	0.68
Sellina-Fossaton	Sellina-Fossaton	4500			Bridge									
Sellina-Fossaton	Sellina-Fossaton	4497	Max WS	TR200_1h	3.32	254.95	255.85	255.64	255.95	0.007374	1.38	2.40	4.20	0.58
Sellina-Fossaton	Sellina-Fossaton	4497	Max WS	P2_TR200_1h	5.46	254.95	256.06	255.83	256.19	0.007981	1.63	3.35	4.77	0.62
Sellina-Fossaton	Sellina-Fossaton	4489			Lat Struct									
Sellina-Fossaton	Sellina-Fossaton	4488			Lat Struct									
Sellina-Fossaton	Sellina-Fossaton	4429	Max WS	TR200_1h	3.32	254.56	255.49	255.16	255.54	0.003846	1.06	3.14	5.09	0.43
Sellina-Fossaton	Sellina-Fossaton	4429	Max WS	P2_TR200_1h	5.45	254.56	255.44	255.34	255.62	0.013200	1.90	2.88	4.91	0.79

HEC-RAS Locations: User Defined Profile: Max WS

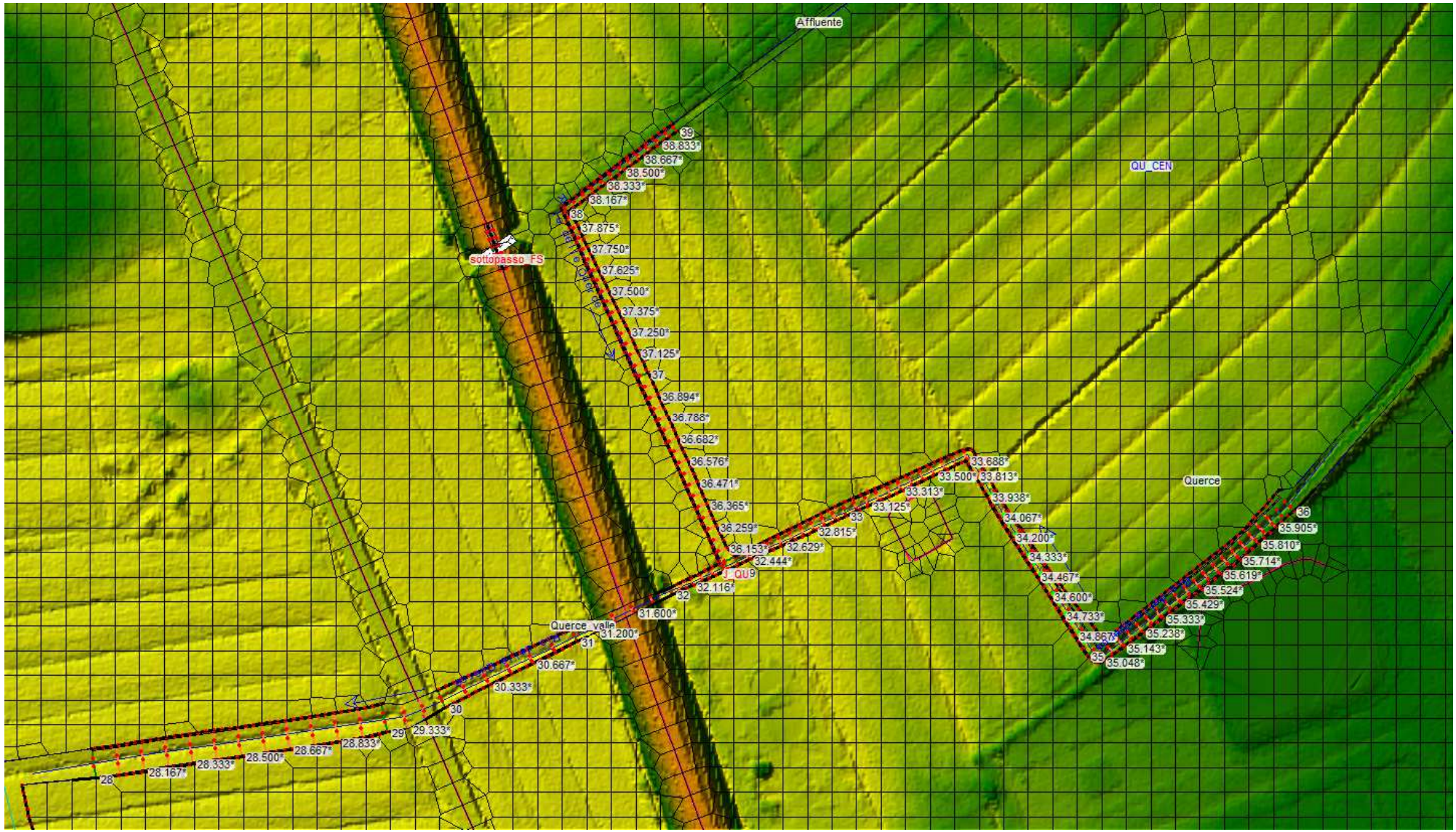
River	Reach	River Sta	Profile	Plan	Q US	Q Leaving Total	Q DS	Q Weir	Q Gates	Wr Top Wdth	Weir Max Depth	Weir Avg Depth	Min El Weir Flow	E.G. US.	W.S. US.	E.G. DS	W.S. DS
					(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)
Sellina-Fossaton	Sellina-Fossaton	6549	Max WS	TR200_1h	37.01	3.91	32.02	3.91		130.68	1.18	0.56	279.28	283.76	282.66	280.37	279.30
Sellina-Fossaton	Sellina-Fossaton	6549	Max WS	P2_TR200_1h	37.00	4.35	31.08	4.35		130.68	1.18	0.61	279.28	283.75	282.66	280.37	279.38
Sellina-Fossaton	Sellina-Fossaton	6548	Max WS	TR200_1h	37.01	-0.22	32.02	-0.22		72.31	0.49	0.29	279.61	283.76	282.66	280.37	279.30
Sellina-Fossaton	Sellina-Fossaton	6548	Max WS	P2_TR200_1h	37.00	-0.13	31.08	-0.13		77.33	0.50	0.28	279.61	283.76	282.66	280.37	279.39
Sellina-Fossaton	Sellina-Fossaton	6409.9	Max WS	TR200_1h	32.02	5.55	21.59	5.55		249.62	0.83	0.24	274.36	279.97	279.00	275.36	274.84
Sellina-Fossaton	Sellina-Fossaton	6409.9	Max WS	P2_TR200_1h	31.06	5.49	20.93	5.49		254.71	0.86	0.25	274.36	279.94	279.07	275.33	274.85
Sellina-Fossaton	Sellina-Fossaton	6409.8	Max WS	TR200_1h	32.02	3.33	21.59	3.33		256.16	0.65	0.39	274.82	279.97	279.00	275.36	274.84
Sellina-Fossaton	Sellina-Fossaton	6409.8	Max WS	P2_TR200_1h	31.06	3.73	20.93	3.73		256.16	0.70	0.39	274.82	279.94	279.07	275.33	274.85
Sellina-Fossaton	Sellina-Fossaton	6149	Max WS	TR200_1h	21.59	9.37	11.08	9.37		301.08	0.48	0.22	270.27	275.36	274.84	270.69	270.39
Sellina-Fossaton	Sellina-Fossaton	6149	Max WS	P2_TR200_1h	20.93	7.27	12.90	7.27		188.67	0.48	0.25	271.62	275.33	274.84	272.06	271.74
Sellina-Fossaton	Sellina-Fossaton	6148	Max WS	TR200_1h	21.59	0.14	11.08	0.14		230.30	0.41	0.12	270.40	275.36	274.84	270.69	270.39
Sellina-Fossaton	Sellina-Fossaton	6148	Max WS	P2_TR200_1h	20.93	0.76	12.90	0.76		119.49	0.14	0.07	271.60	275.33	274.84	272.06	271.74
Sellina-Fossaton	Sellina-Fossaton	5970	Max WS	P2_TR200_1h	12.90	-3.53	10.20	-3.53		74.59	0.73	0.35	270.55	272.06	271.74	271.05	270.72
Sellina-Fossaton	Sellina-Fossaton	5969	Max WS	P2_TR200_1h	12.90	2.12	10.20	2.12		72.59	0.46	0.21	270.47	272.06	271.74	271.06	270.73
Sellina-Fossaton	Sellina-Fossaton	5891	Max WS	P2_TR200_1h	10.20	0.34	9.88	0.34		23.44	0.15	0.05	269.44	270.93	270.60	269.18	269.02
Sellina-Fossaton	Sellina-Fossaton	5890	Max WS	P2_TR200_1h	10.20	-0.06	9.88	-0.06		12.69	0.12	0.06	269.48	270.93	270.60	269.18	269.02
Sellina-Fossaton	Sellina-Fossaton	5761	Max WS	P2_TR200_1h	9.88	3.61	5.46	3.61		187.45	0.14	0.05	263.52	269.10	268.97	263.62	263.39
Sellina-Fossaton	Sellina-Fossaton	5760	Max WS	P2_TR200_1h	9.88	0.02	9.82	0.02		17.79	0.05	0.02	267.65	269.10	268.97	267.93	267.70
Sellina-Fossaton	Sellina-Fossaton	5648	Max WS	P2_TR200_1h	9.82	0.79	5.46	0.79		48.60	0.06	0.05	263.49	267.92	267.70	263.62	263.39
Sellina-Fossaton	Sellina-Fossaton	4620.9	Max WS	TR200_1h	6.19	0.00	6.19	0.00					259.56	263.71	263.46	258.95	258.89
Sellina-Fossaton	Sellina-Fossaton	4620.9	Max WS	P2_TR200_1h	5.46	0.00	5.45	0.00					259.56	263.62	263.38	258.68	258.59
Sellina-Fossaton	Sellina-Fossaton	4620.8	Max WS	TR200_1h	6.19	0.00	6.19	0.00					259.56	263.71	263.46	258.95	258.89
Sellina-Fossaton	Sellina-Fossaton	4620.8	Max WS	P2_TR200_1h	5.46	0.00	5.45	0.00					259.56	263.62	263.38	258.68	258.59
Sellina-Fossaton	Sellina-Fossaton	4613.09	Max WS	TR200_1h	6.19	1.62	3.32	1.62		33.04	0.20	0.10	258.55	258.94	258.88	258.77	258.70
Sellina-Fossaton	Sellina-Fossaton	4613.09	Max WS	P2_TR200_1h	5.45	0.00	5.45	0.00					258.59	258.64	258.55	258.07	257.61
Sellina-Fossaton	Sellina-Fossaton	4613.08	Max WS	TR200_1h	6.19	1.24	3.32	1.24		31.08	0.15	0.09	258.59	258.94	258.88	258.77	258.70
Sellina-Fossaton	Sellina-Fossaton	4613.08	Max WS	P2_TR200_1h	5.45	0.00	5.45	0.00					258.62	258.64	258.55	258.07	257.61
Sellina-Fossaton	Sellina-Fossaton	4540.9	Max WS	TR200_1h	3.32	0.00	3.32	0.00					256.90	256.16	256.12	256.06	255.93
Sellina-Fossaton	Sellina-Fossaton	4540.9	Max WS	P2_TR200_1h	5.46	0.00	5.46	0.00					256.90	256.44	256.38	256.34	256.14
Sellina-Fossaton	Sellina-Fossaton	4540.8	Max WS	TR200_1h	3.32	0.00	3.32	0.00					257.05	256.16	256.12	256.06	255.93
Sellina-Fossaton	Sellina-Fossaton	4540.8	Max WS	P2_TR200_1h	5.46	0.00	5.46	0.00					257.05	256.44	256.38	256.34	256.14
Sellina-Fossaton	Sellina-Fossaton	4489	Max WS	TR200_1h	3.32	0.40	2.88	0.40		66.96	0.14	0.07	255.31	255.95	255.85	255.46	255.45
Sellina-Fossaton	Sellina-Fossaton	4489	Max WS	P2_TR200_1h	5.46	0.00	5.46	0.00					255.31	256.19	256.06	254.67	254.55
Sellina-Fossaton	Sellina-Fossaton	4488	Max WS	TR200_1h	3.32	0.00	2.88	0.00		23.37	0.06	0.03	255.39	255.94	255.85	255.46	255.45
Sellina-Fossaton	Sellina-Fossaton	4488	Max WS	P2_TR200_1h	5.46	0.00	5.46	0.00					255.39	256.19	256.06	254.67	254.55

RIO DELLE QUERCE

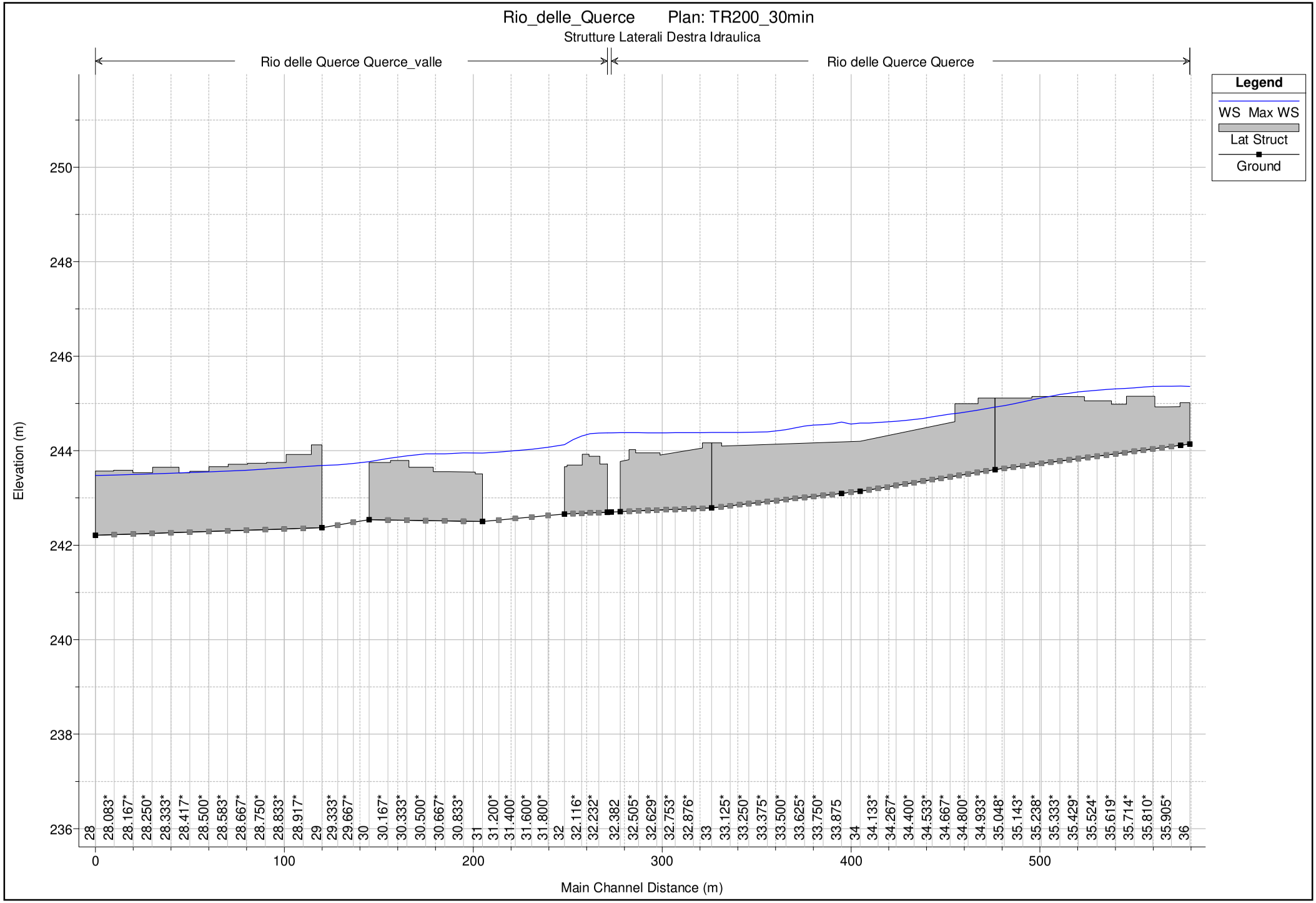
Affluente in destra (AV43922)

Stato Attuale

Planimetria Stato Attuale



RIO
delle
QUERCE



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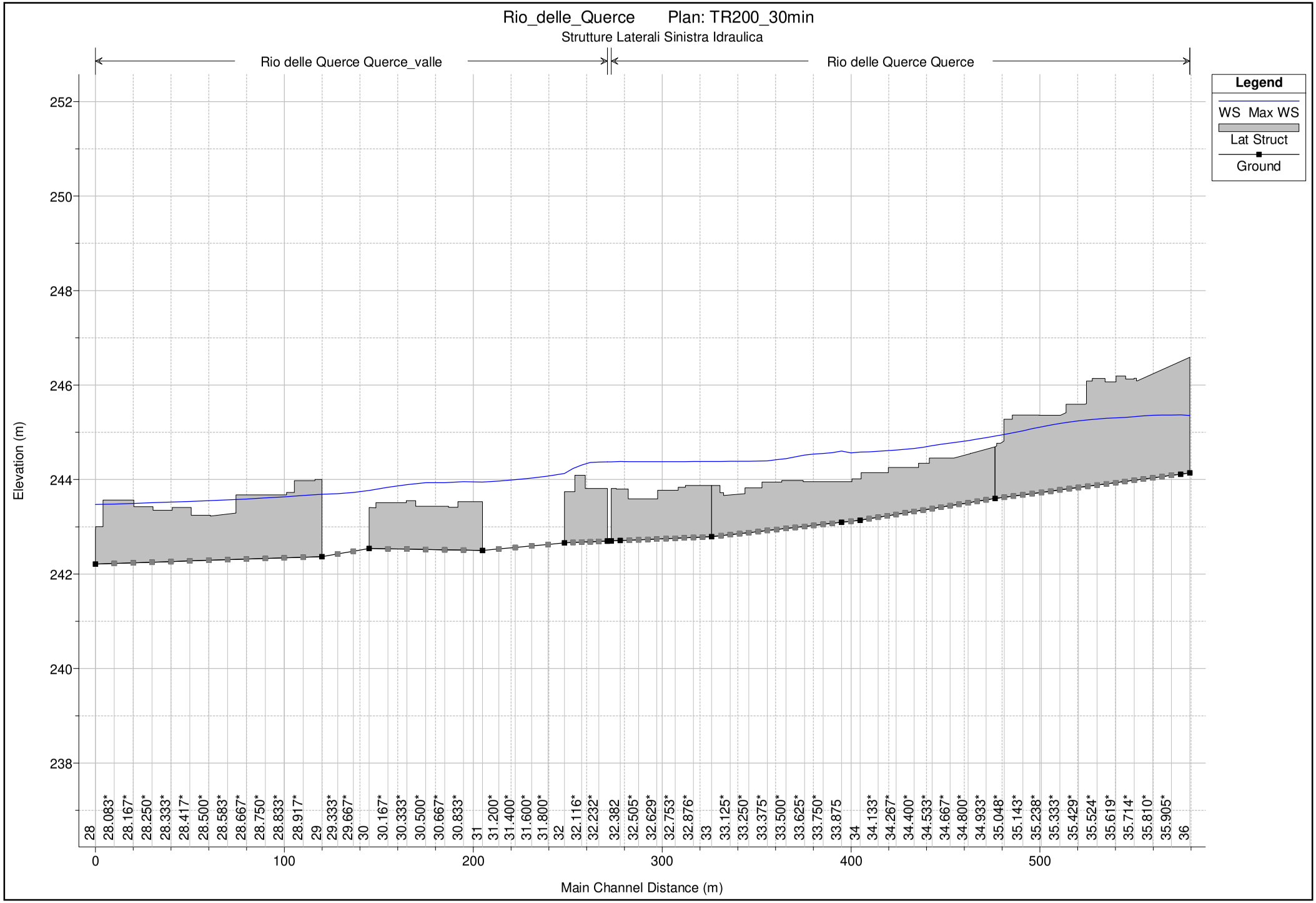
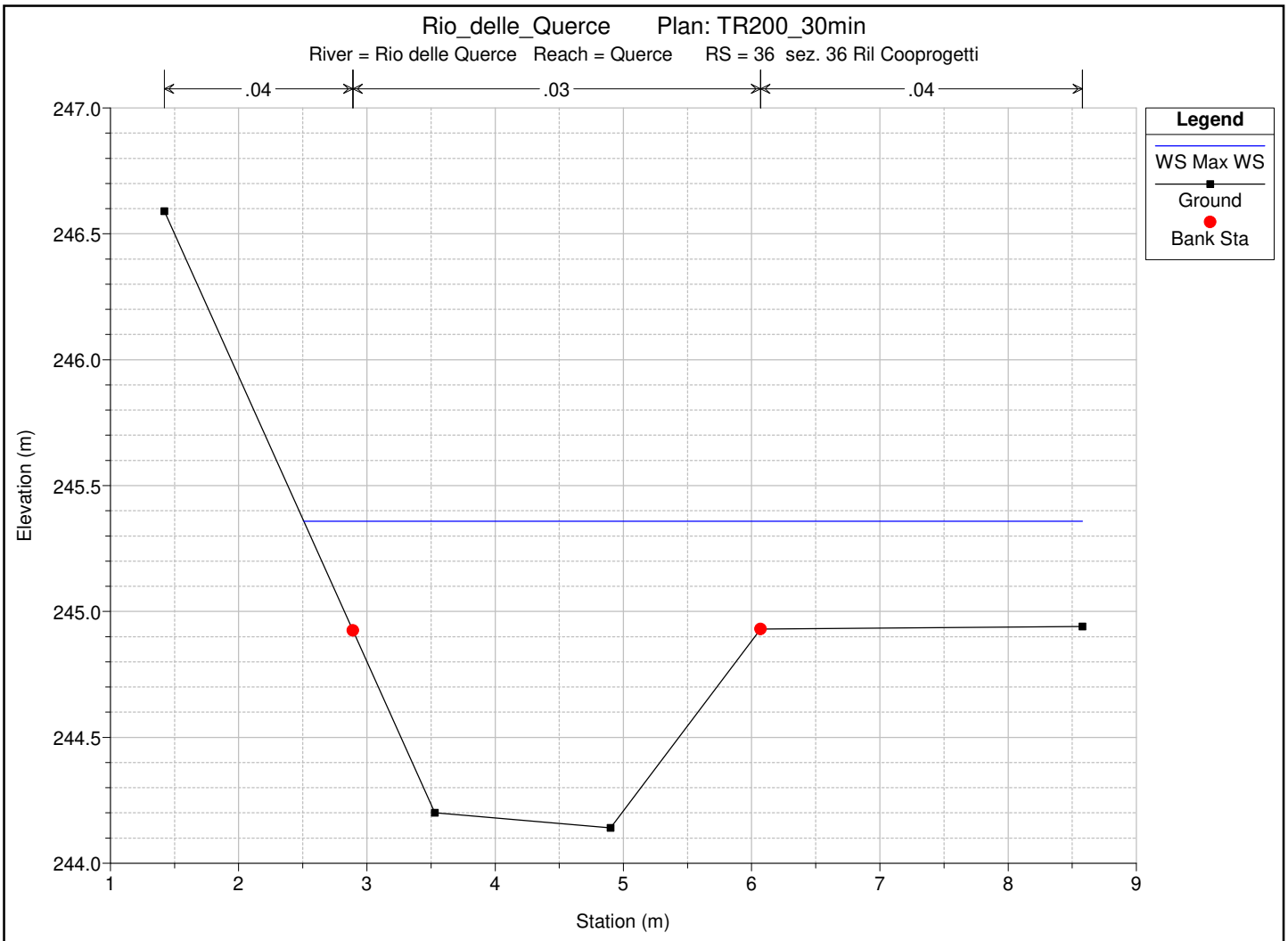


1 cm Horiz. = 25 m 1 cm Vert. = 1 m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.03
.04
Legend
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Ground
Bank Sta
Elevation (m)
Station (m)
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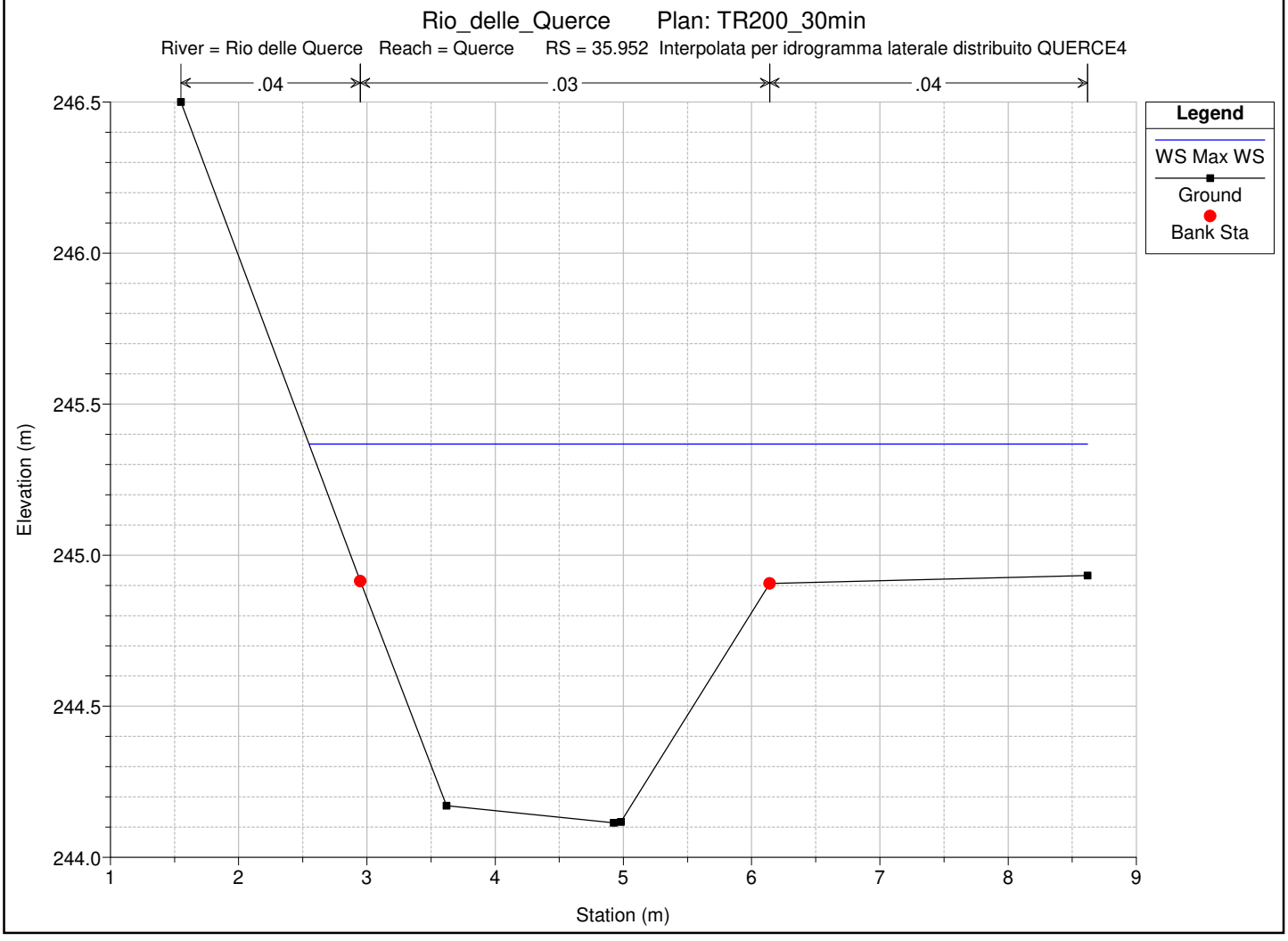
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.04
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
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2
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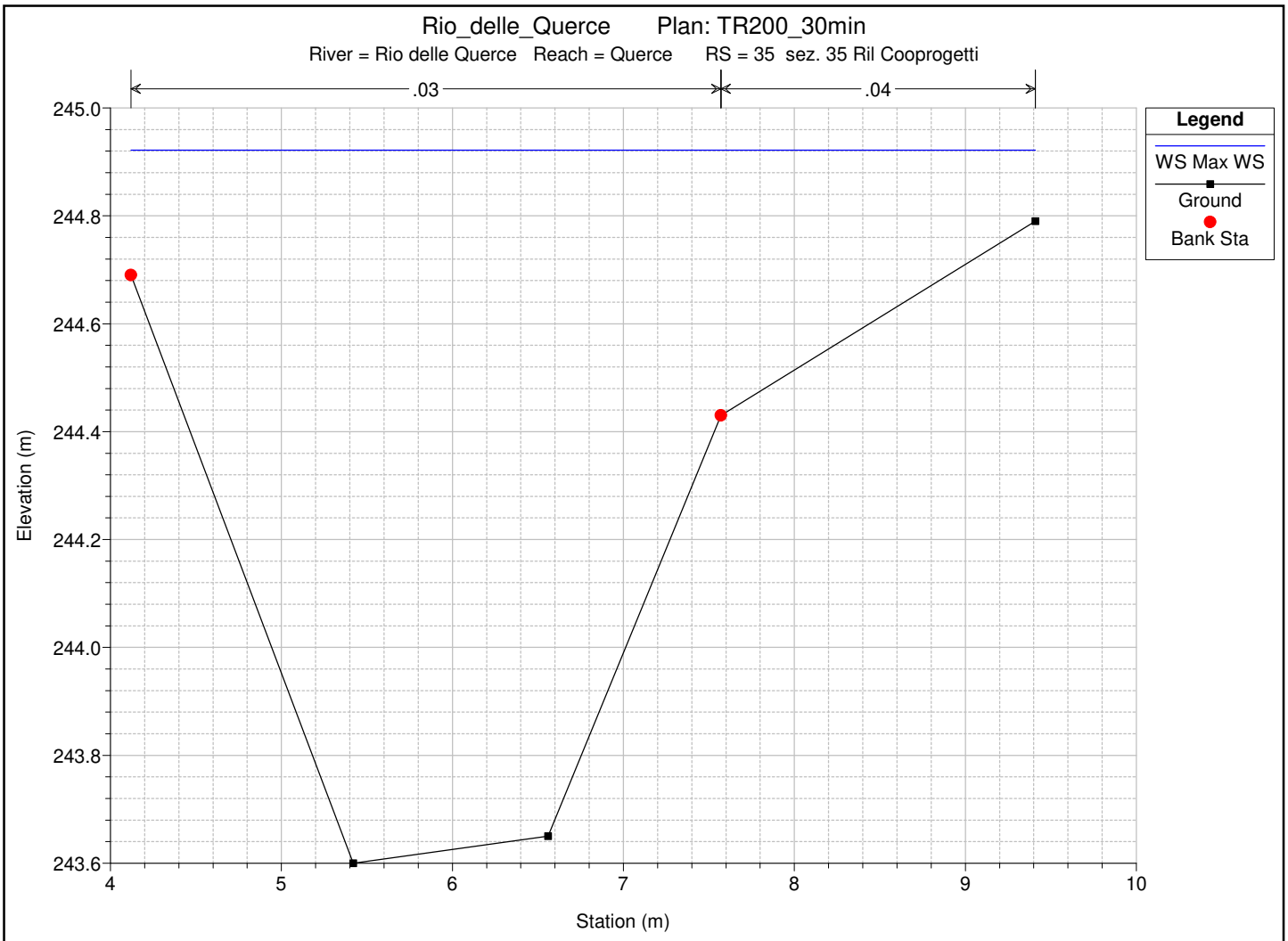
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.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
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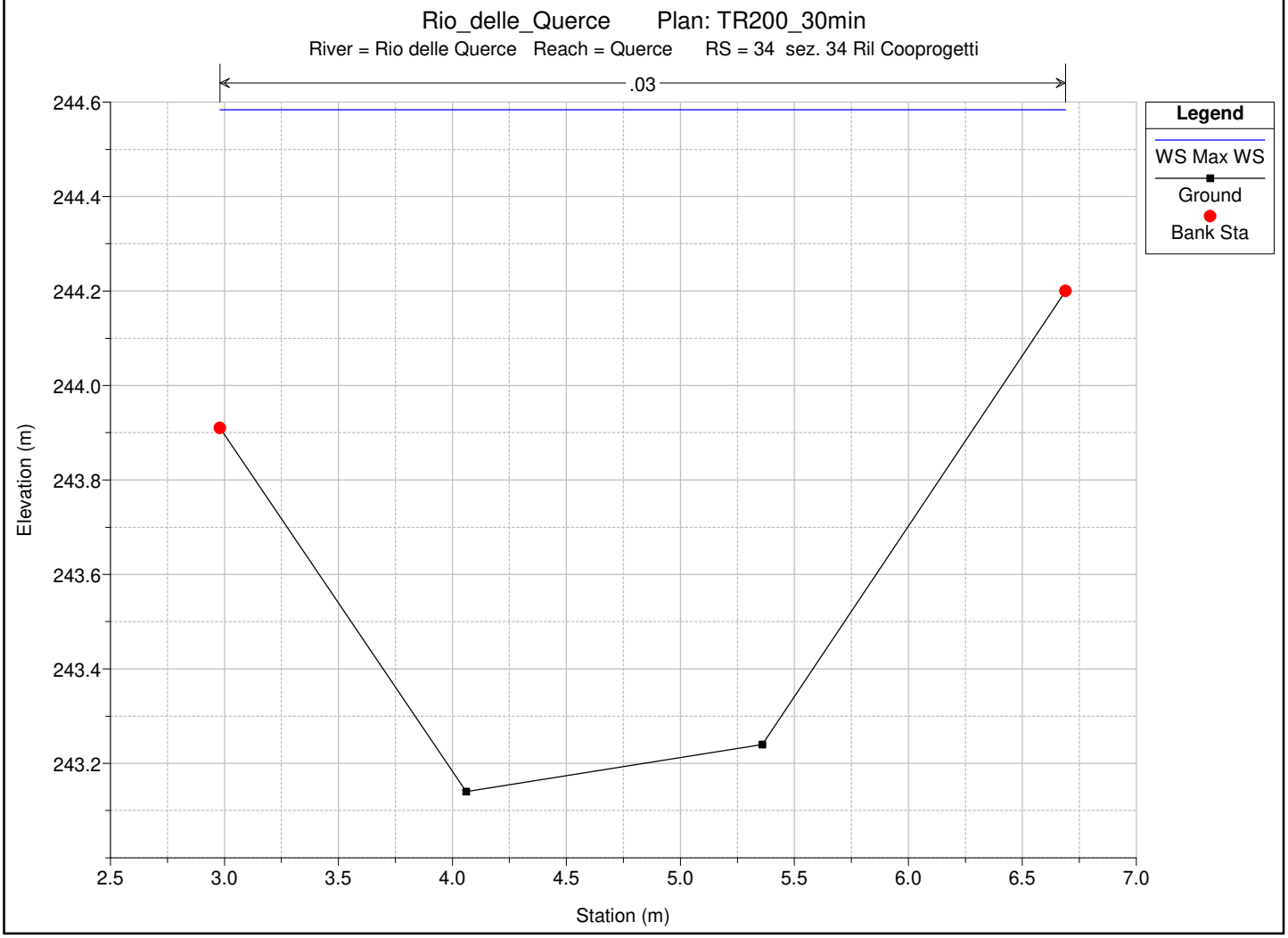
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.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
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244.2
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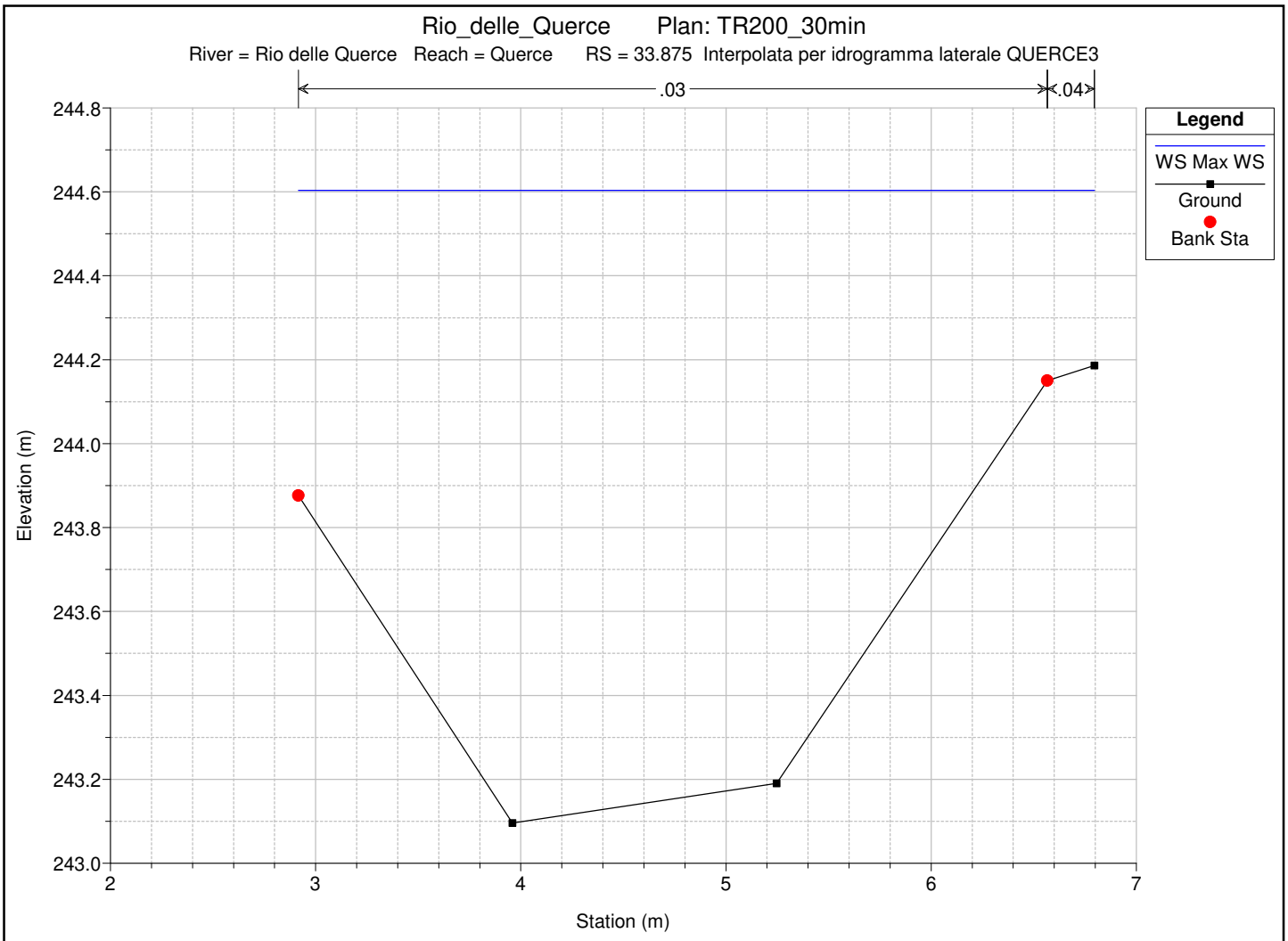
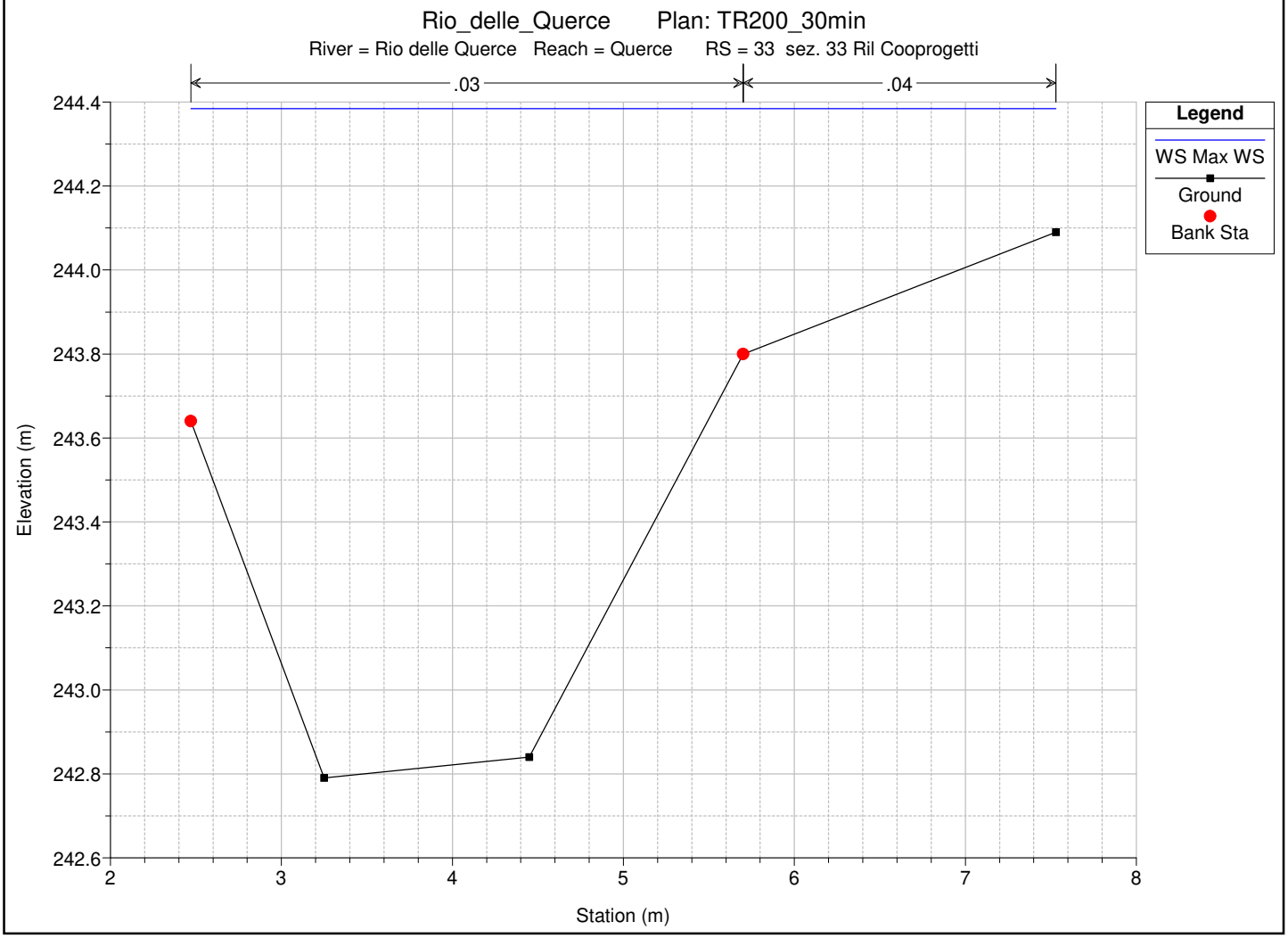
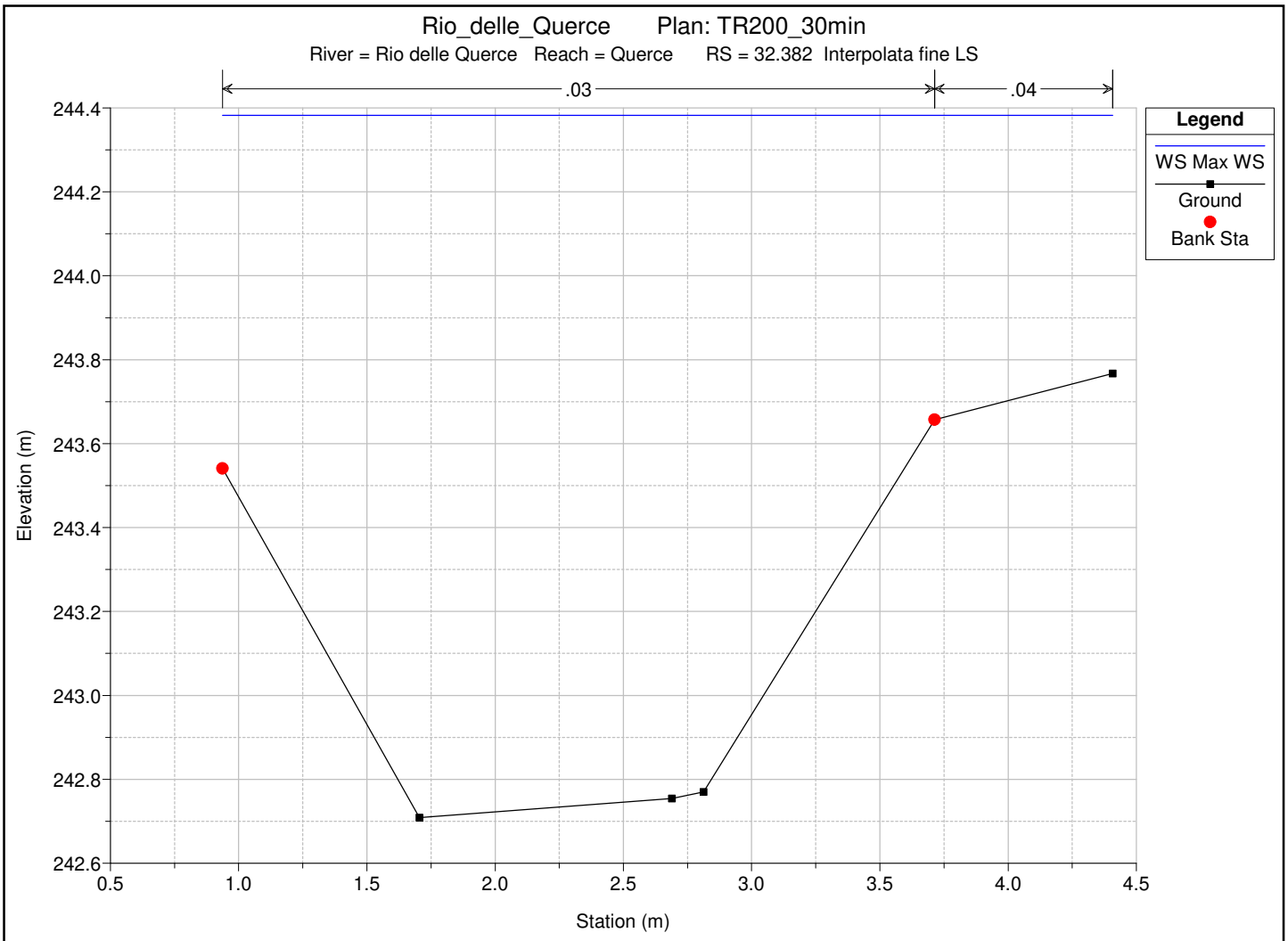
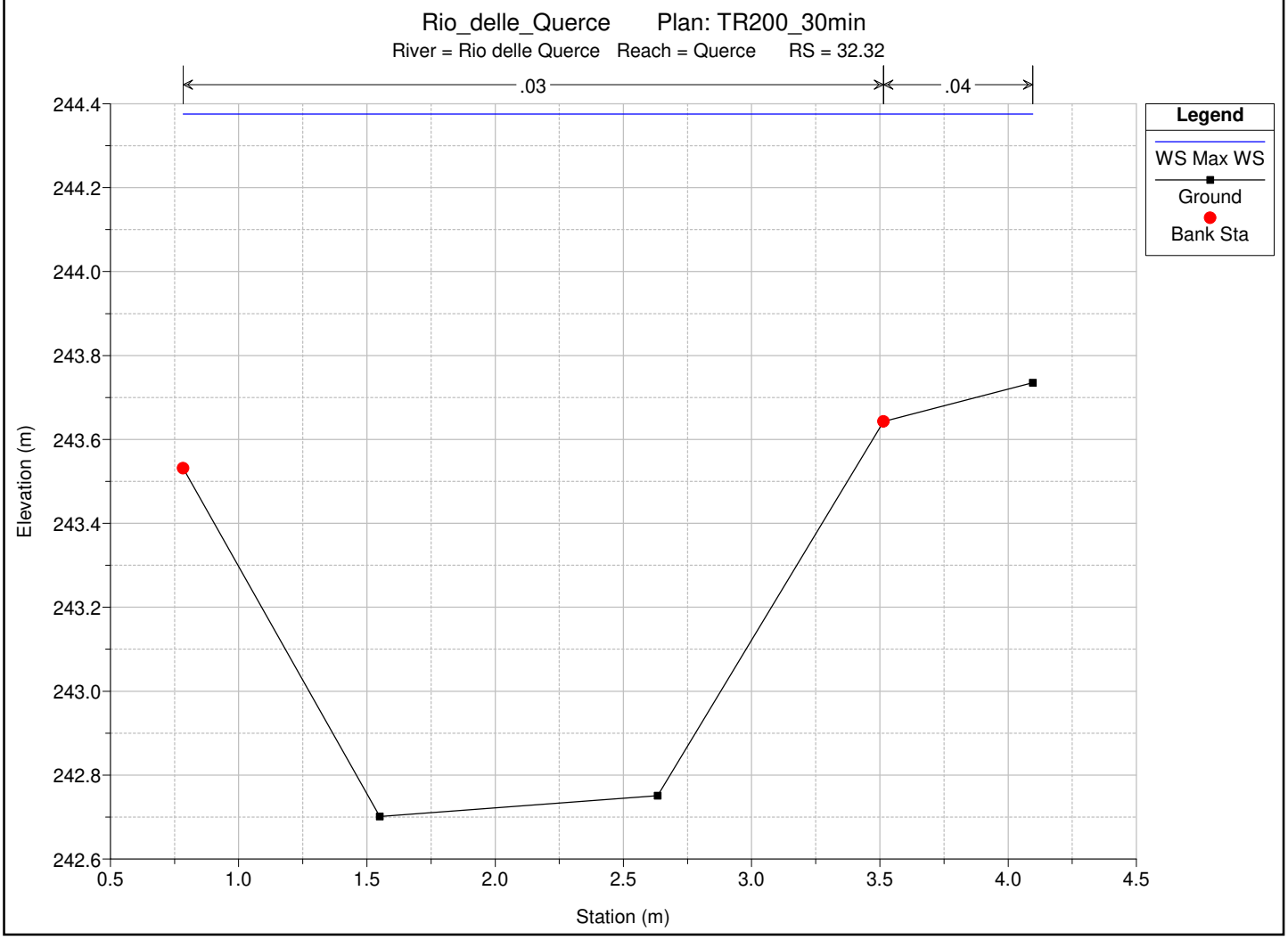
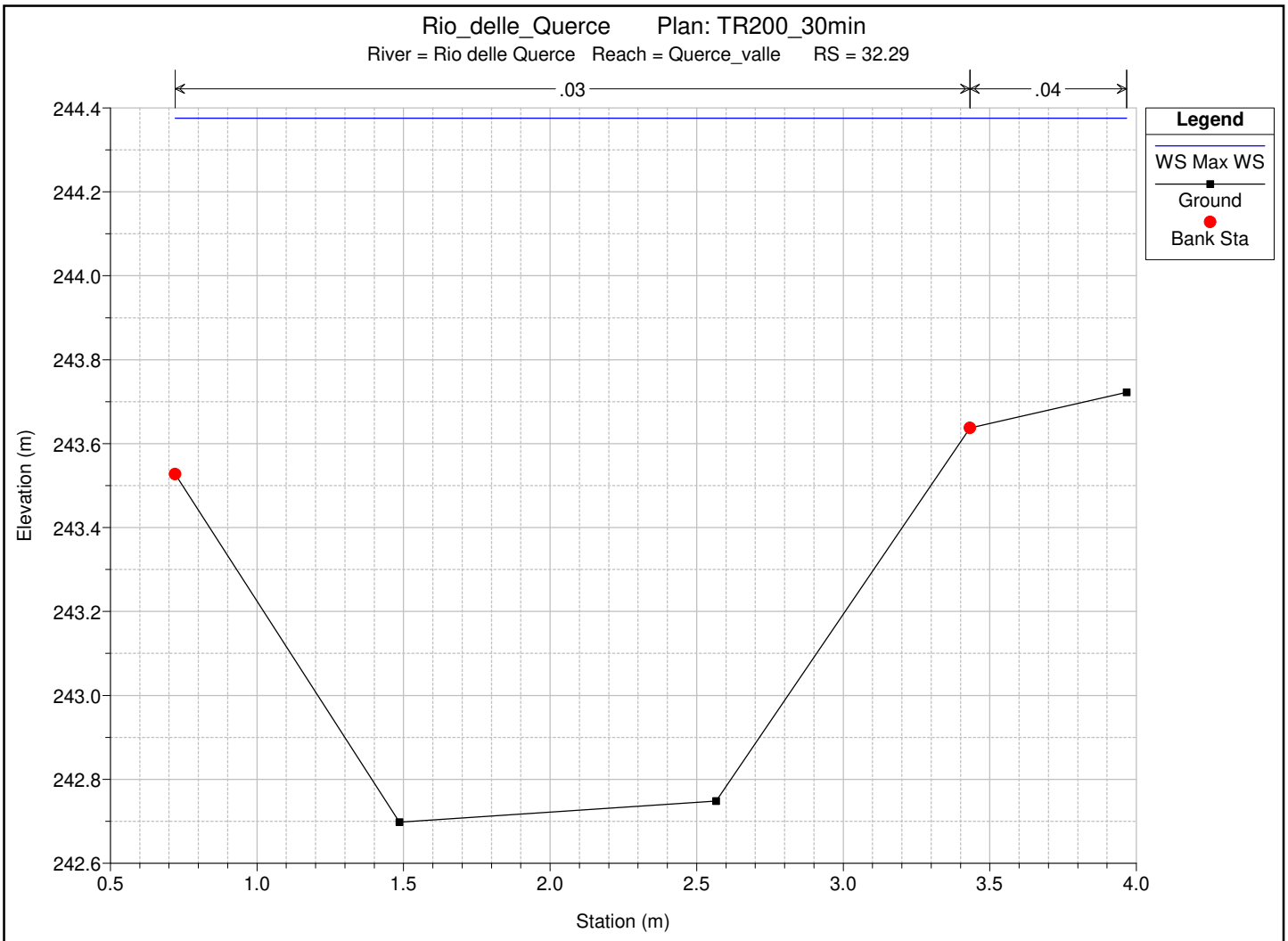
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0

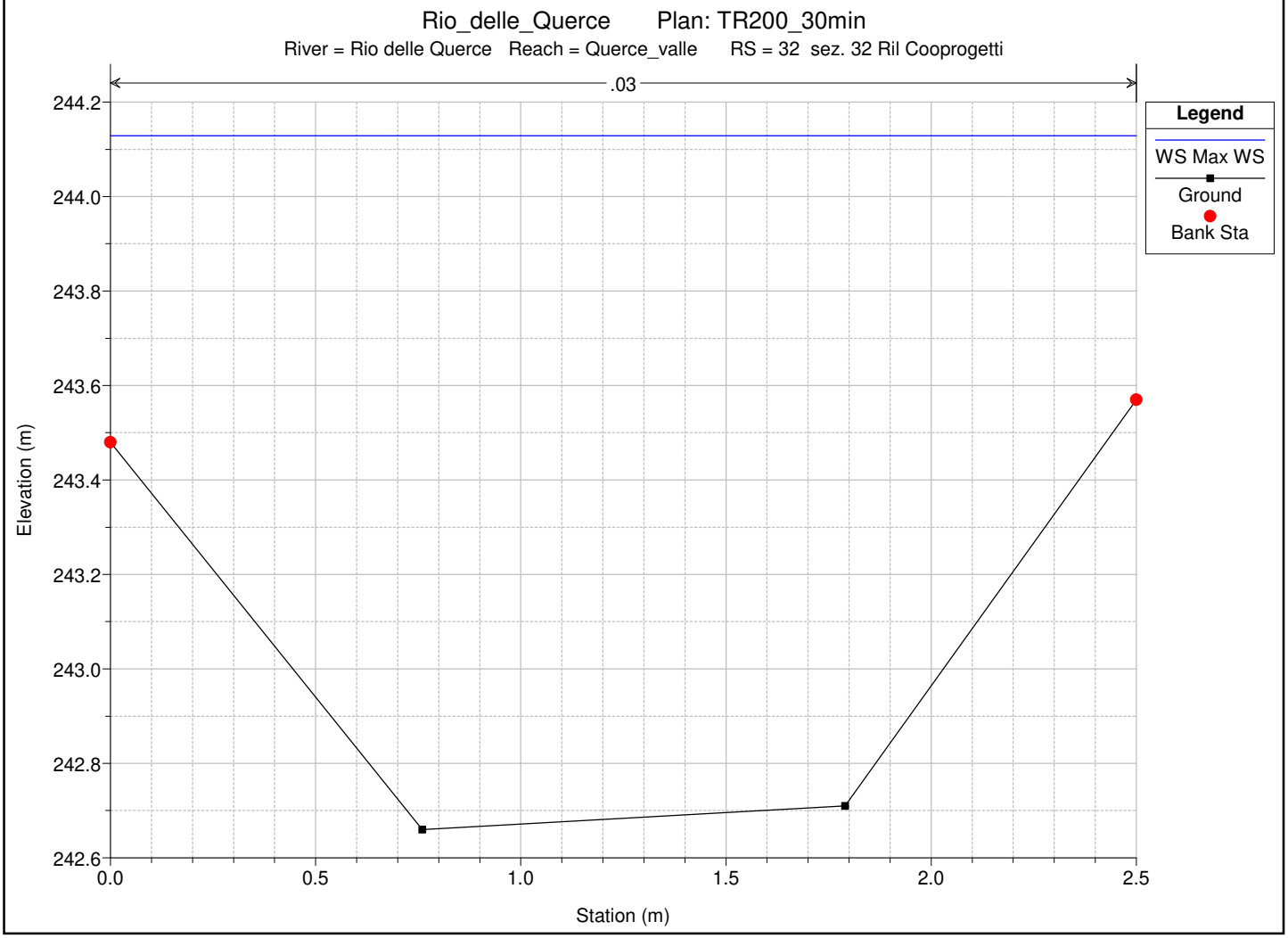

Rio_delle_Querce Plan: TR200_30min
River = Rio delle Querce Reach = Querce RS = 33.875 Interpolata per idrogramma laterale QUERCE3
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.8
244.6
244.4
244.2
244.0
243.8
243.6
243.4
243.2
243.0
2
3
4
5
6
7

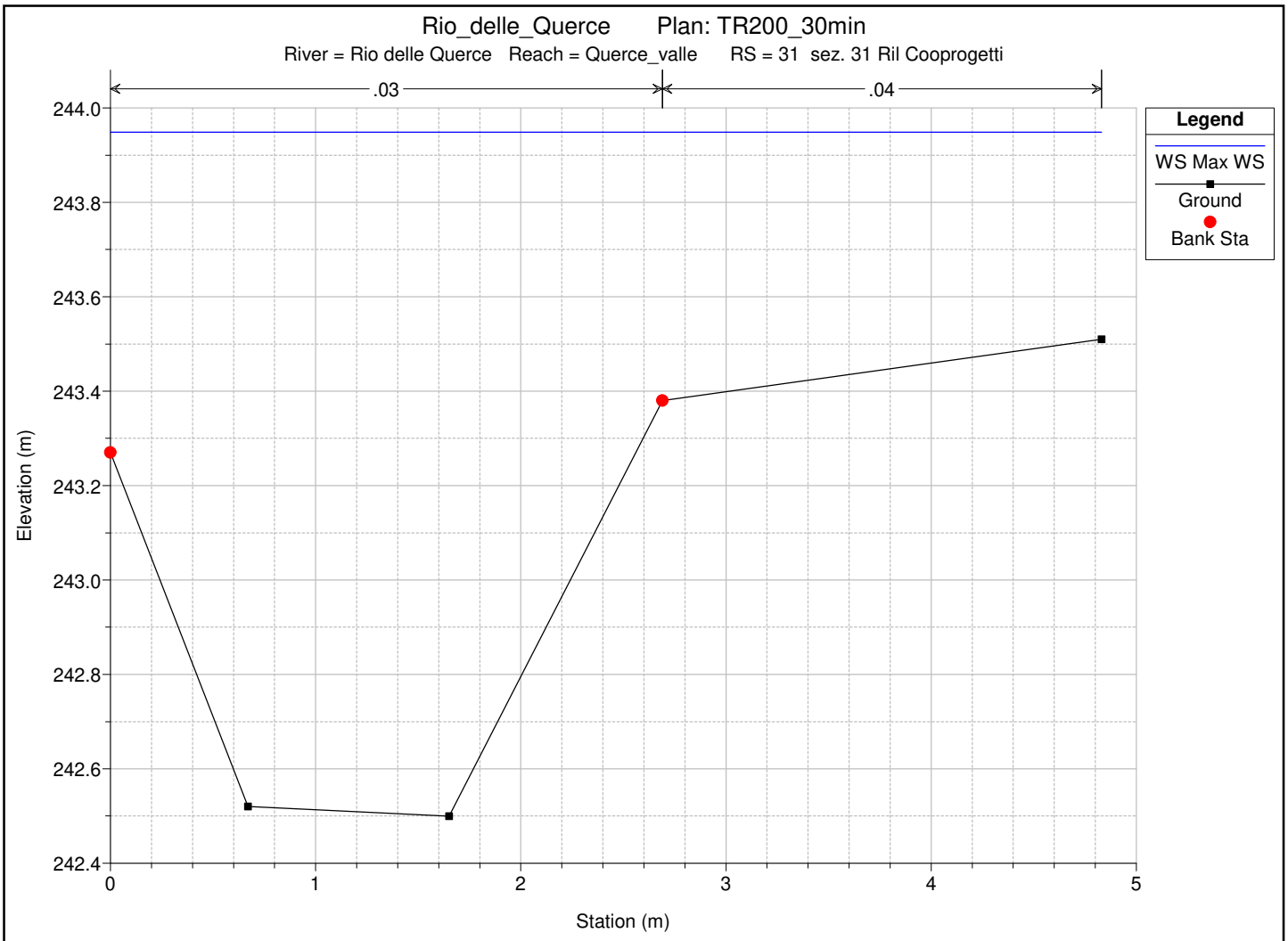

Rio_delle_Querce Plan: TR200_30min
River = Rio delle Querce Reach = Querce RS = 33 sez. 33 Ril Cooprogetti
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.4
244.2
244.0
243.8
243.6
243.4
243.2
243.0
242.8
242.6
2
3
4
5
6
7
8

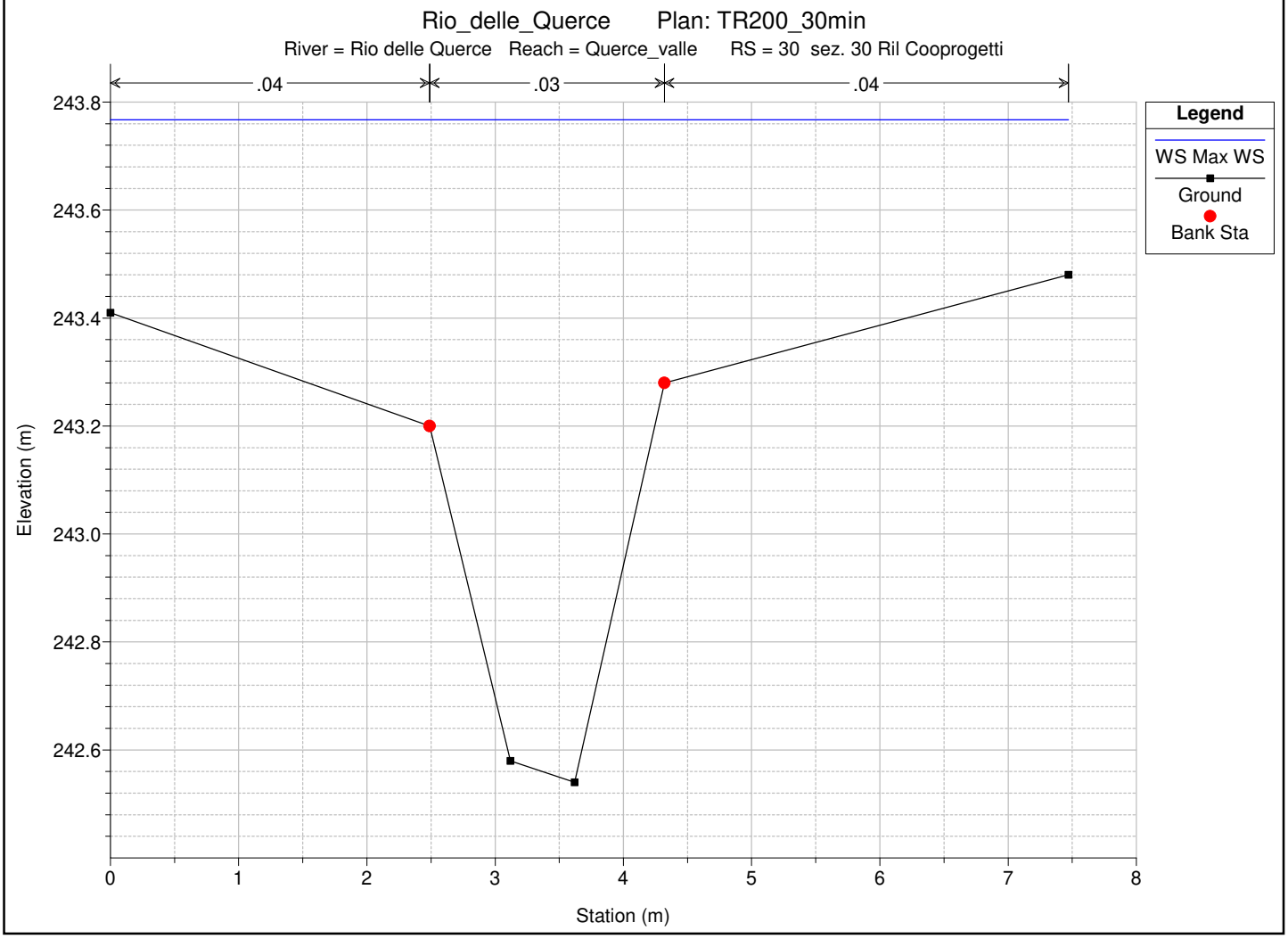

Rio_delle_Querce Plan: TR200_30min
River = Rio delle Querce Reach = Querce RS = 32.382 Interpolata fine LS
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.4
244.2
244.0
243.8
243.6
243.4
243.2
243.0
242.8
242.6
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

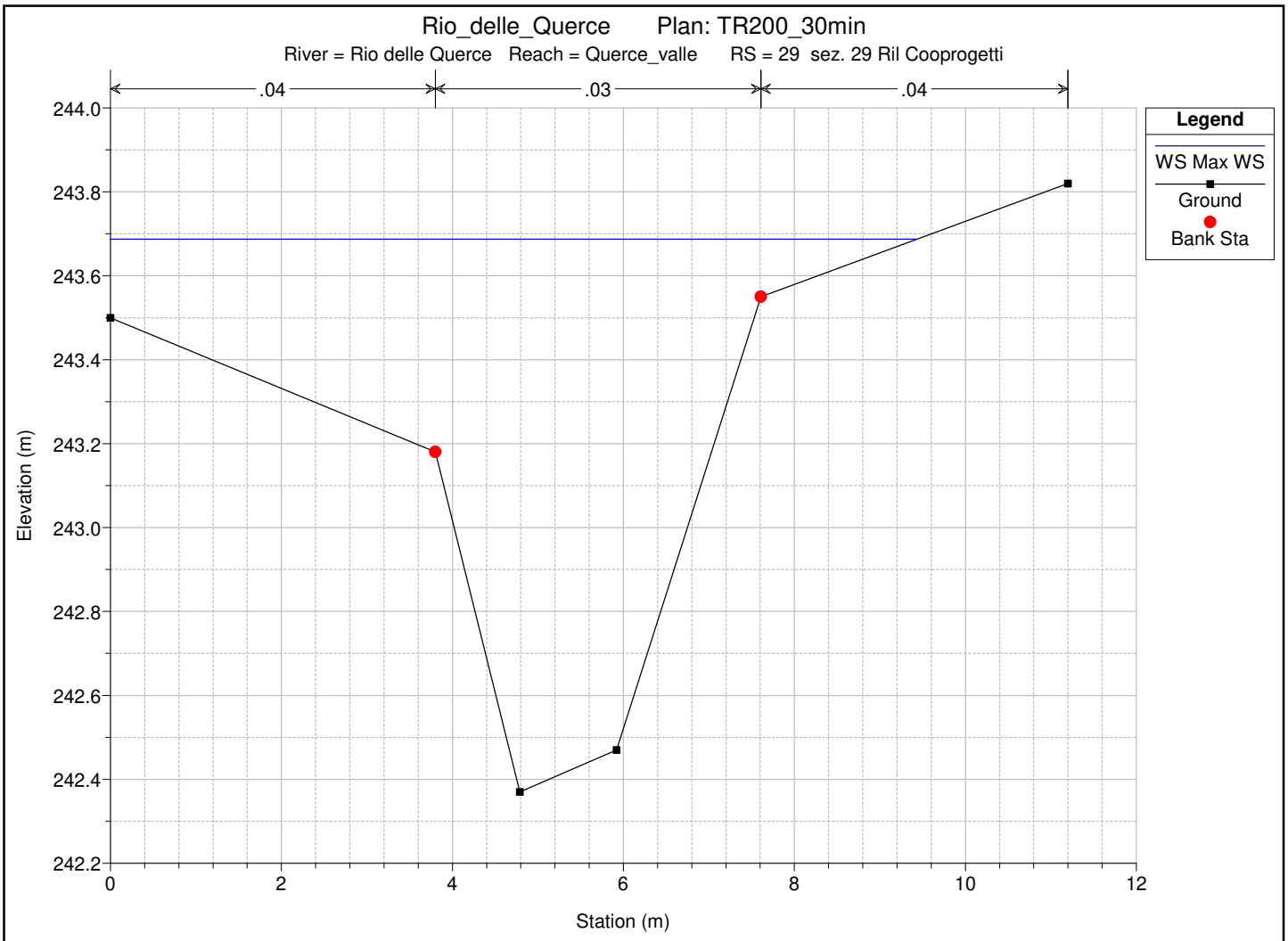

Rio_delle_Querce Plan: TR200_30min
River = Rio delle Querce Reach = Querce RS = 32.32
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.4
244.2
244.0
243.8
243.6
243.4
243.2
243.0
242.8
242.6
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5

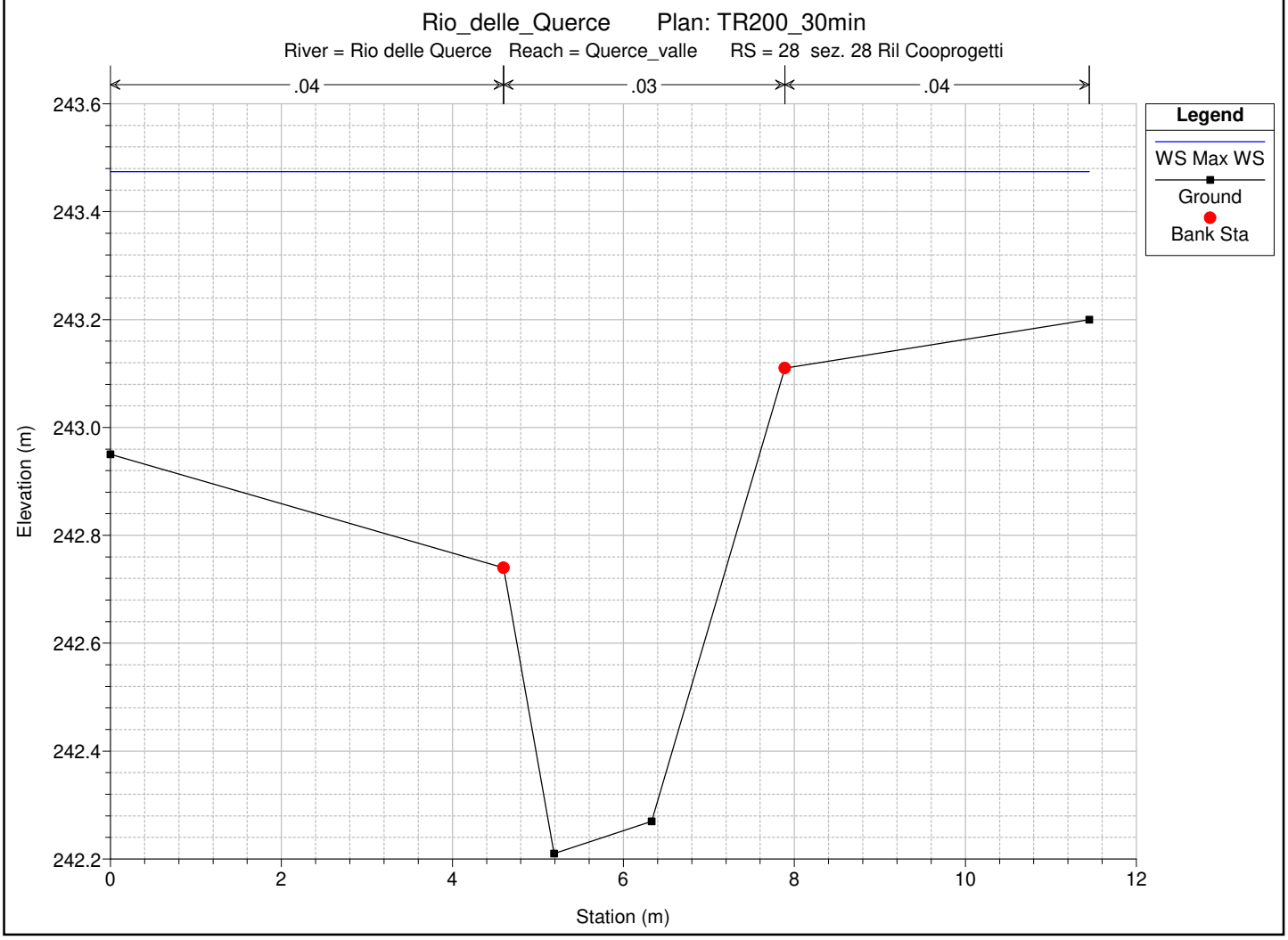

Rio_delle_Querce Plan: TR200_30min
River = Rio delle Querce Reach = Querce_valle RS = 32.29
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.4
244.2
244.0
243.8
243.6
243.4
243.2
243.0
242.8
242.6
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0


Rio_delle_Querce Plan: TR200_30min
River = Rio delle Querce Reach = Querce_valle RS = 32 sez. 32 Ril Cooprogetti
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.2
244.0
243.8
243.6
243.4
243.2
243.0
242.8
242.6
0.0
0.5
1.0
1.5
2.0
2.5


Rio_delle_Querce Plan: TR200_30min
River = Rio delle Querce Reach = Querce_valle RS = 31 sez. 31 Ril Cooprogetti
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.0
243.8
243.6
243.4
243.2
243.0
242.8
242.6
242.4
0
1
2
3
4
5


Rio_delle_Querce Plan: TR200_30min
River = Rio delle Querce Reach = Querce_valle RS = 30 sez. 30 Ril Cooprogetti
.04
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
243.8
243.6
243.4
243.2
243.0
242.8
242.6
0
1
2
3
4
5
6
7
8


Rio_delle_Querce Plan: TR200_30min
River = Rio delle Querce Reach = Querce_valle RS = 29 sez. 29 Ril Cooprogetti
.04
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.0
243.8
243.6
243.4
243.2
243.0
242.8
242.6
242.4
242.2
0
2
4
6
8
10
12


Rio_delle_Querce Plan: TR200_30min
River = Rio delle Querce Reach = Querce_valle RS = 28 sez. 28 Ril Cooprogetti
.04
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
243.6
243.4
243.2
243.0
242.8
242.6
242.4
242.2
0
2
4
6
8
10
12

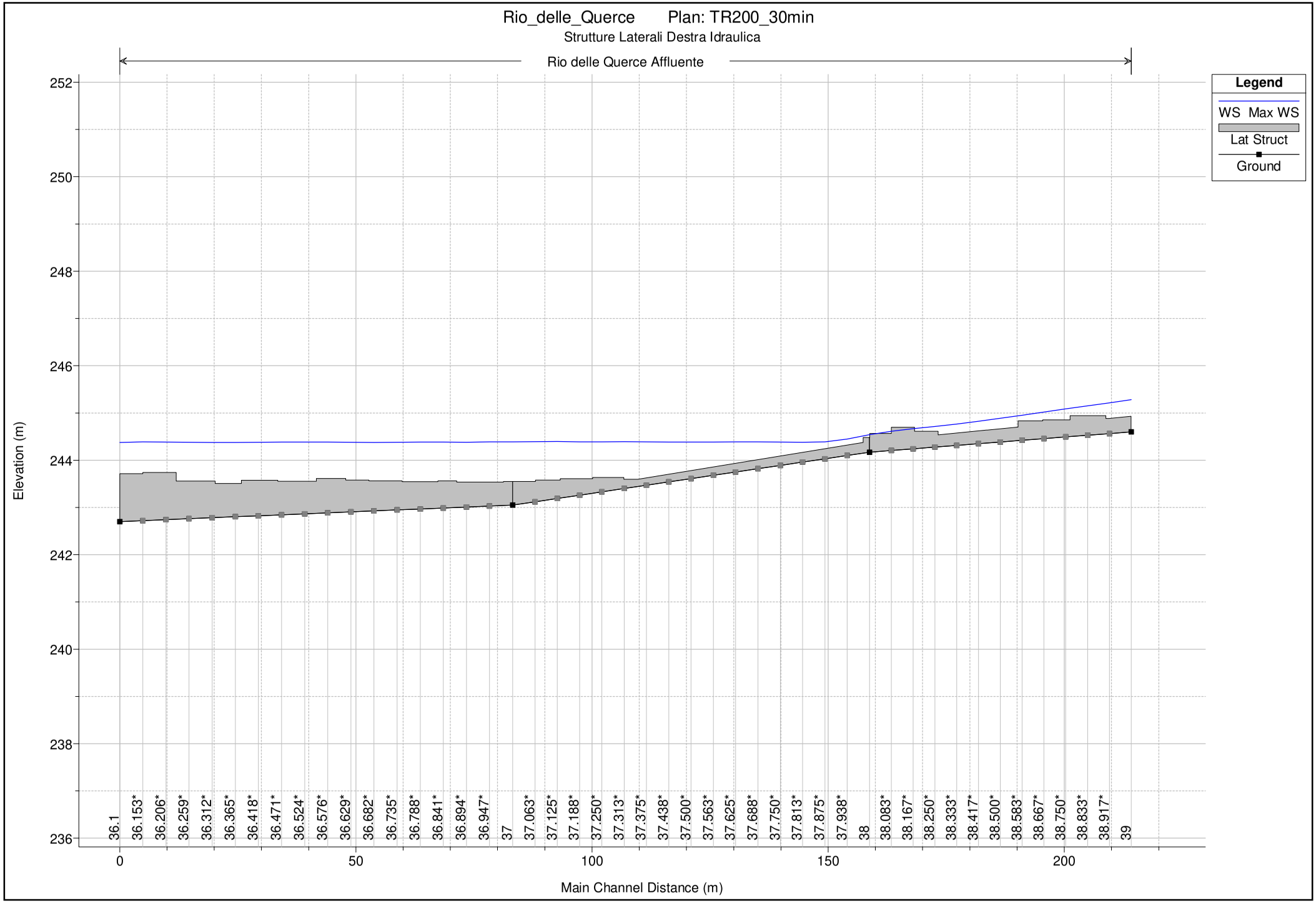
HEC-RAS Plan: TR200_30min Profile: Max WS

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Querce	36	Max WS	4.03	244.14	245.36	244.97	245.42	0.001472	1.13	4.24	6.07	0.36
Querce	35.999		Lat Struct									
Querce	35.998		Lat Struct									
Querce	35.952	Max WS	3.74	244.11	245.37	244.87	245.41	0.001124	1.01	4.42	6.07	0.32
Querce	35	Max WS	8.62	243.60	244.92	244.84	245.20	0.007218	2.39	3.95	5.29	0.77
Querce	34.999		Lat Struct									
Querce	34.998		Lat Struct									
Querce	34	Max WS	6.93	243.14	244.58	244.18	244.73	0.003641	1.69	4.10	3.71	0.51
Querce	33.875	Max WS	6.46	243.10	244.60	244.11	244.72	0.002467	1.50	4.38	3.88	0.44
Querce	33	Max WS	4.79	242.79	244.38	243.70	244.44	0.001226	1.07	4.93	5.06	0.30
Querce	32.999		Lat Struct									
Querce	32.998		Lat Struct									
Querce	32.382	Max WS	3.75	242.71	244.38	243.56	244.42	0.000915	0.93	4.31	3.47	0.25
Querce	32.32	Max WS	3.13	242.70	244.38	243.48	244.41	0.000673	0.79	4.19	3.31	0.21
Querce_valle	32.29	Max WS	4.06	242.70	244.38	243.59	244.43	0.001153	1.04	4.15	3.25	0.28
Querce_valle	32.289		Lat Struct									
Querce_valle	32.288		Lat Struct									
Querce_valle	32	Max WS	6.96	242.66	244.13	243.85	244.40	0.008312	2.33	2.99	2.50	0.68
Querce_valle	31	Max WS	6.13	242.50	243.95	243.64	244.07	0.003413	1.66	4.24	4.83	0.49
Querce_valle	30.999		Lat Struct									
Querce_valle	30.998		Lat Struct									
Querce_valle	30	Max WS	6.05	242.54	243.77	243.69	243.92	0.005943	2.08	4.13	7.47	0.68
Querce_valle	29	Max WS	6.01	242.37	243.69	243.43	243.79	0.002726	1.48	4.92	9.43	0.50
Querce_valle	28.999		Lat Struct									
Querce_valle	28.998		Lat Struct									
Querce_valle	28	Max WS	5.76	242.21	243.47	243.12	243.52	0.001301	1.09	7.25	11.45	0.35

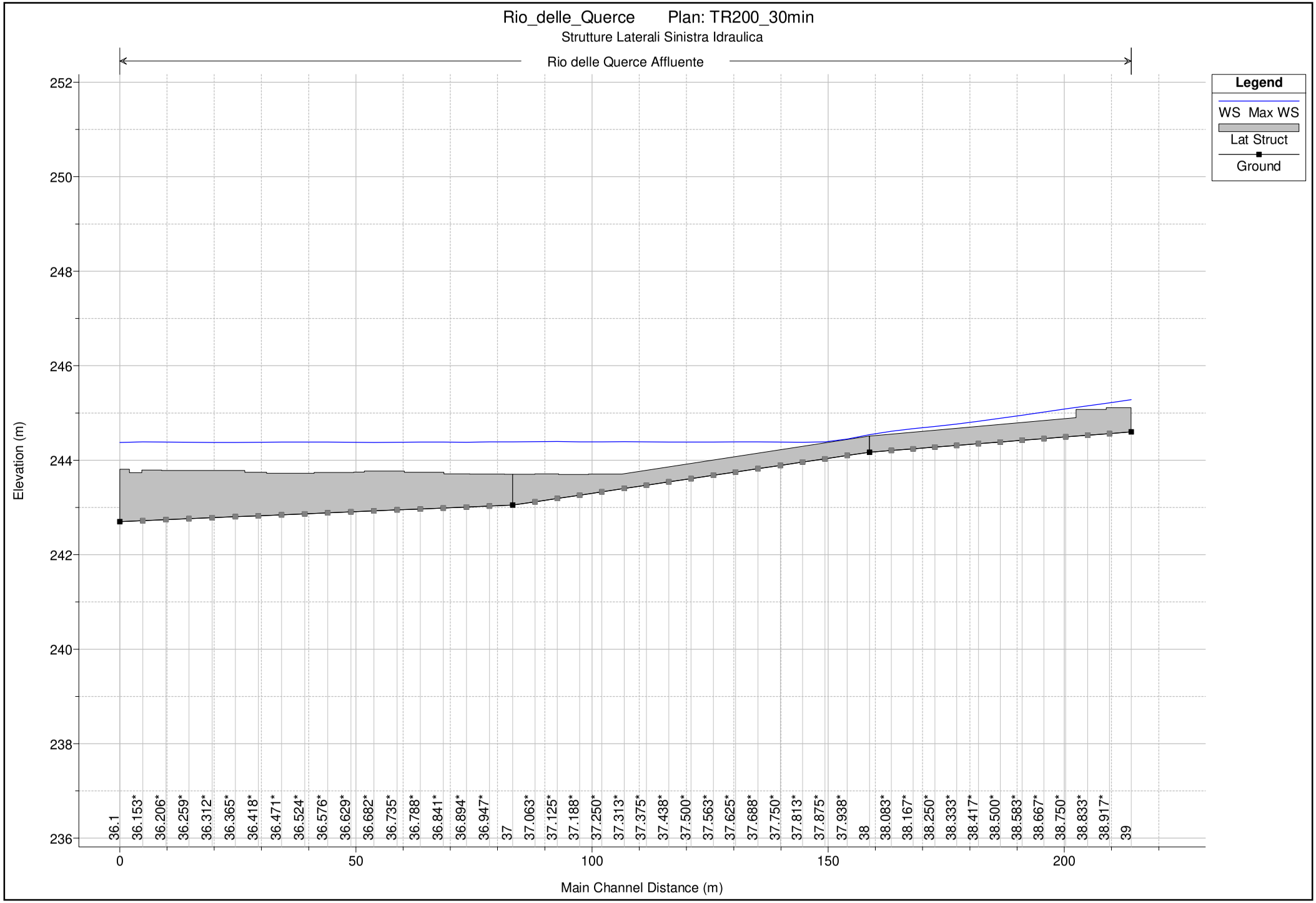
HEC-RAS Plan: TR200_30min Profile: Max WS

Reach	River Sta	Profile	Q US	Q Leaving Total	Q DS	Q Weir	Q Gates	Wr Top Wdth	Weir Max Depth	Weir Avg Depth	Min El Weir Flow	E.G. US.	W.S. US.	E.G. DS	W.S. DS
			(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)
Querce	35.999	Max WS	4.03	2.45	8.62	2.45		73.18	0.44	0.24	244.93	245.42	245.36	245.20	244.92
Querce	35.998	Max WS	4.03	-0.09	8.62	-0.09		7.04	0.23	0.19	244.69	245.42	245.36	245.20	244.92
Querce	34.999	Max WS	8.62	2.42	4.79	2.42		131.57	0.42	0.30	244.10	245.20	244.92	244.44	244.38
Querce	34.998	Max WS	8.62	3.25	4.79	3.25		147.08	0.72	0.47	243.66	245.20	244.92	244.44	244.38
Querce	32.999	Max WS	4.79	1.75	3.75	1.75		48.59	0.61	0.40	243.77	244.44	244.38	244.42	244.38
Querce	32.998	Max WS	4.79	1.72	3.13	1.72		53.03	0.79	0.62	243.59	244.44	244.38	244.41	244.38
Querce_valle	32.289	Max WS	4.06	-1.02	6.96	-1.02		22.68	0.68	0.58	243.66	244.43	244.38	244.40	244.13
Querce_valle	32.288	Max WS	4.06	-0.36	6.96	-0.36		22.70	0.56	0.45	243.74	244.43	244.38	244.40	244.13
Querce_valle	30.999	Max WS	6.13	-0.16	6.05	-0.16		59.71	0.44	0.27	243.51	244.07	243.95	243.92	243.77
Querce_valle	30.998	Max WS	6.13	-1.17	6.05	-1.17		60.11	0.53	0.43	243.40	244.07	243.95	243.92	243.77
Querce_valle	28.999	Max WS	6.01	0.00	5.76	0.00		3.89	0.01	0.00	243.53	243.79	243.69	243.52	243.47
Querce_valle	28.998	Max WS	6.01	0.45	5.76	0.45		57.99	0.52	0.22	242.95	243.79	243.69	243.52	243.47

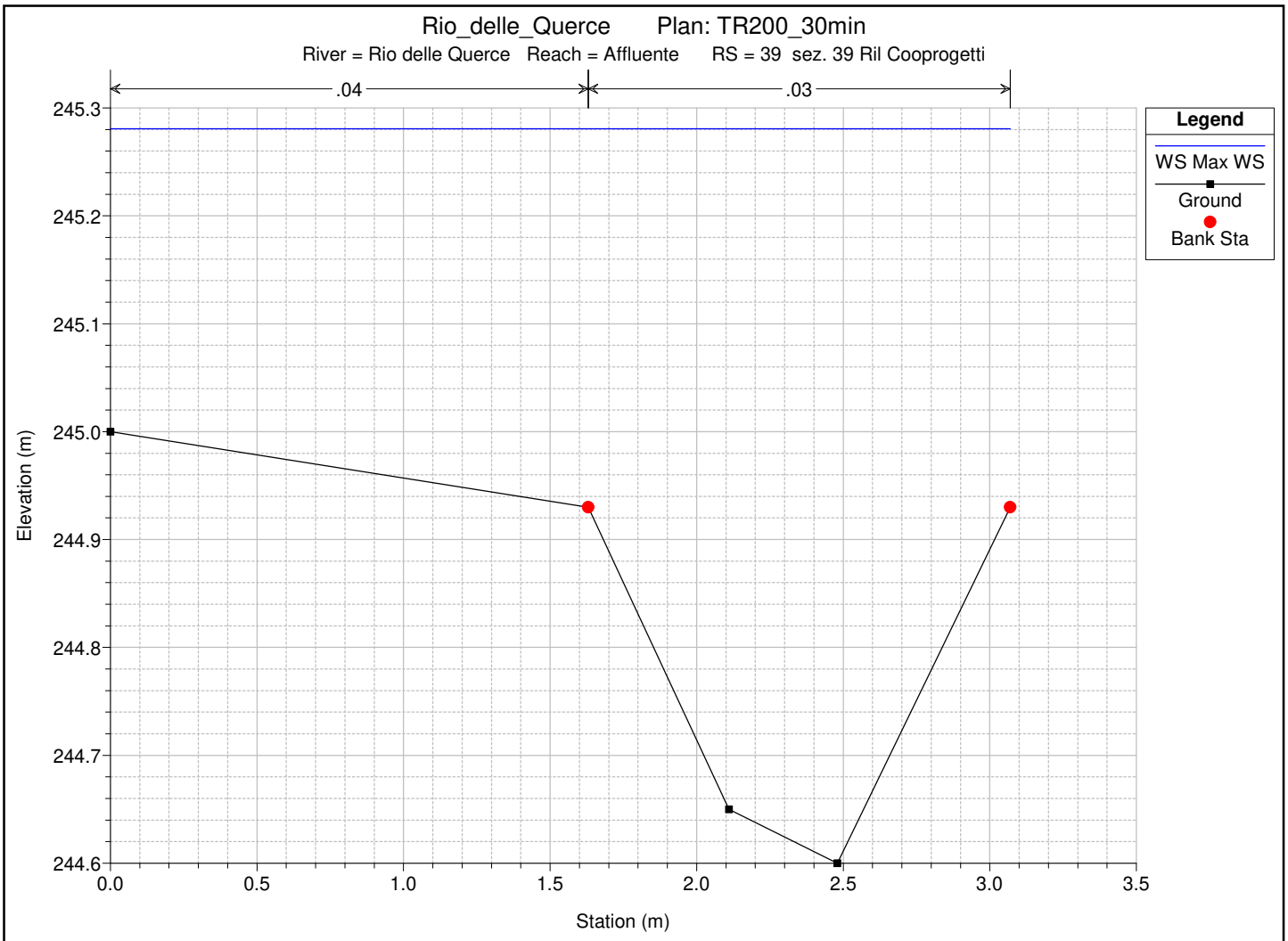
Affluente
in
destra
(AV43922)

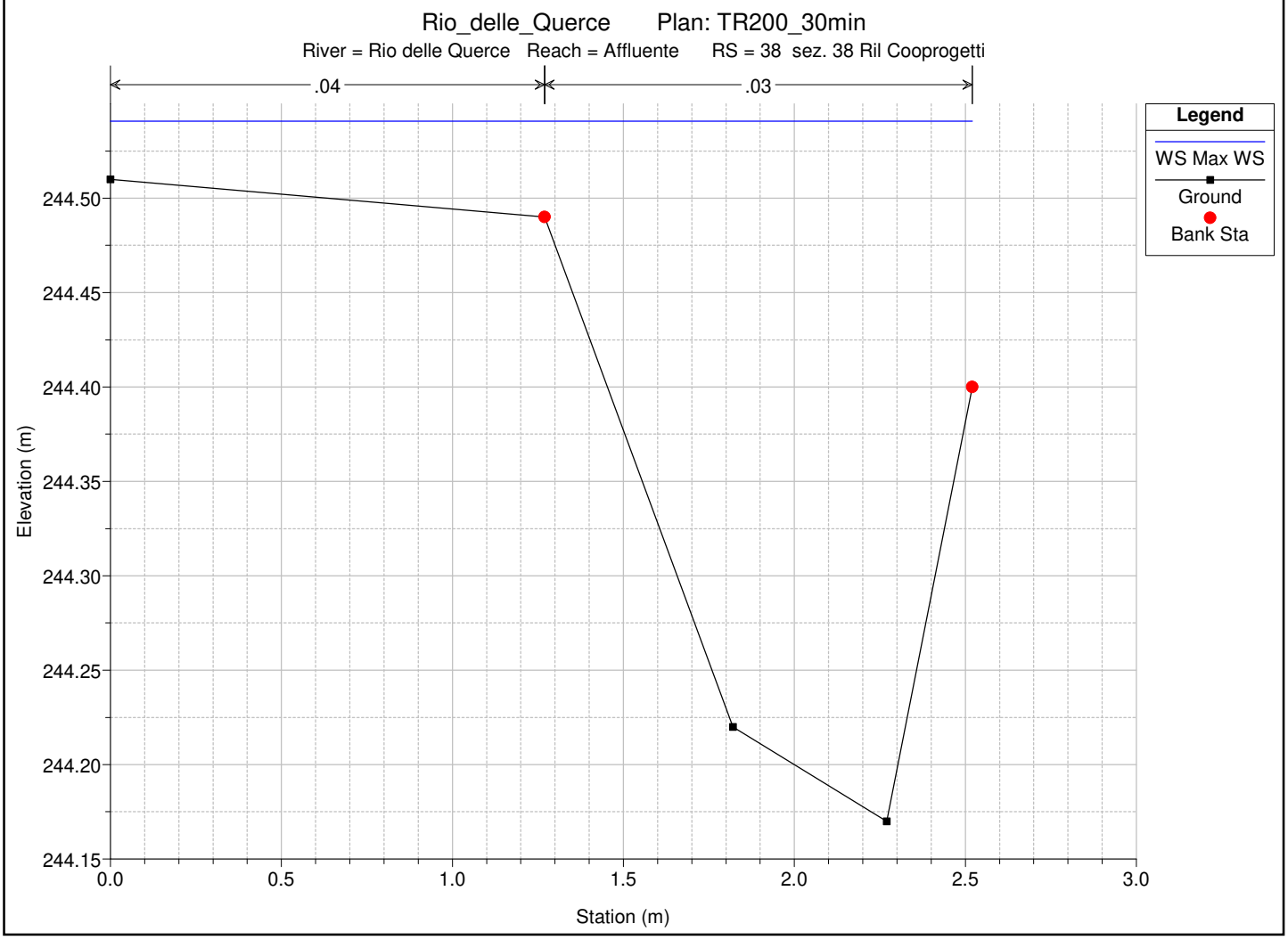


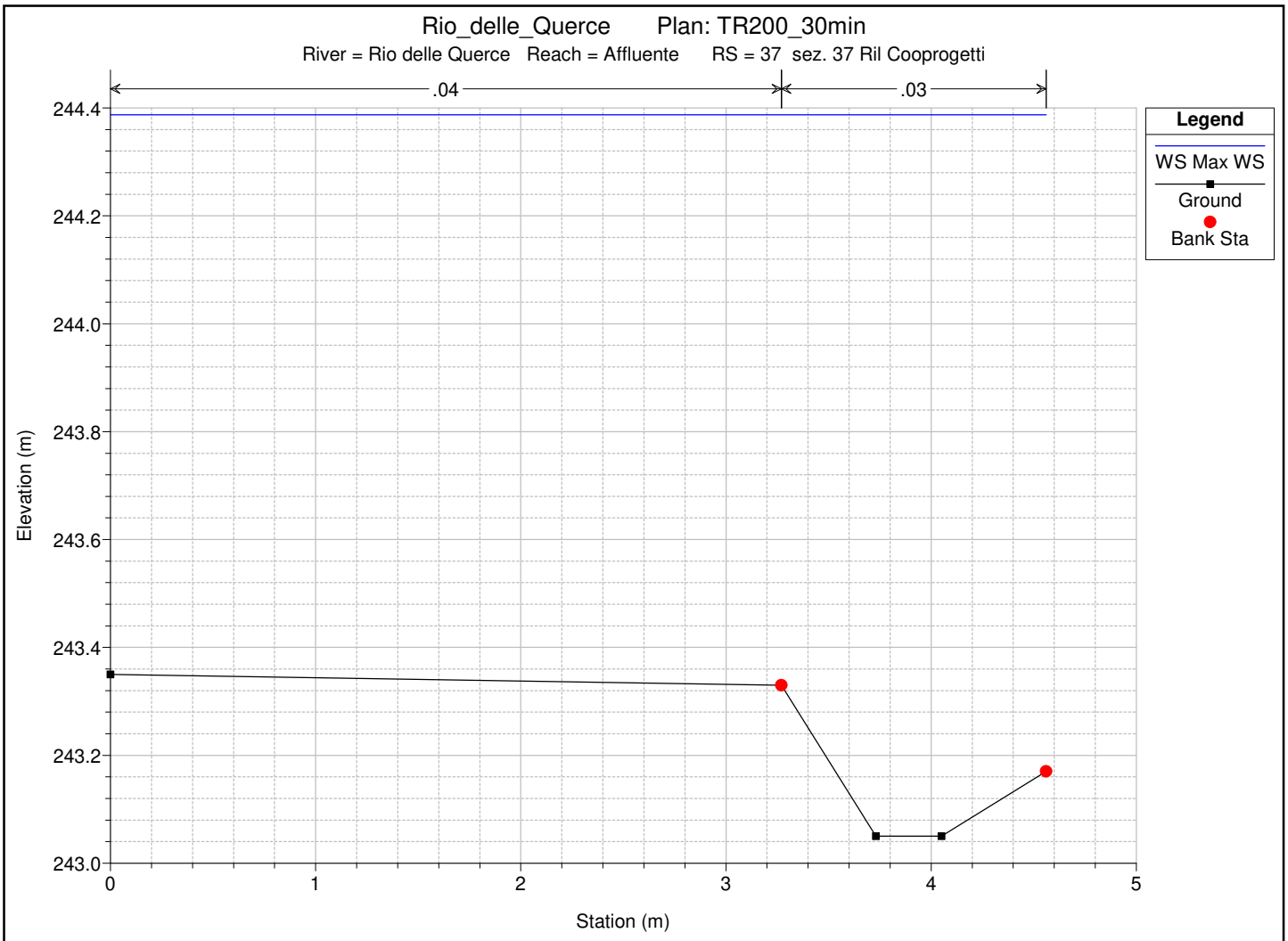
1 cm Horiz. = 10 m 1 cm Vert. = 1 m

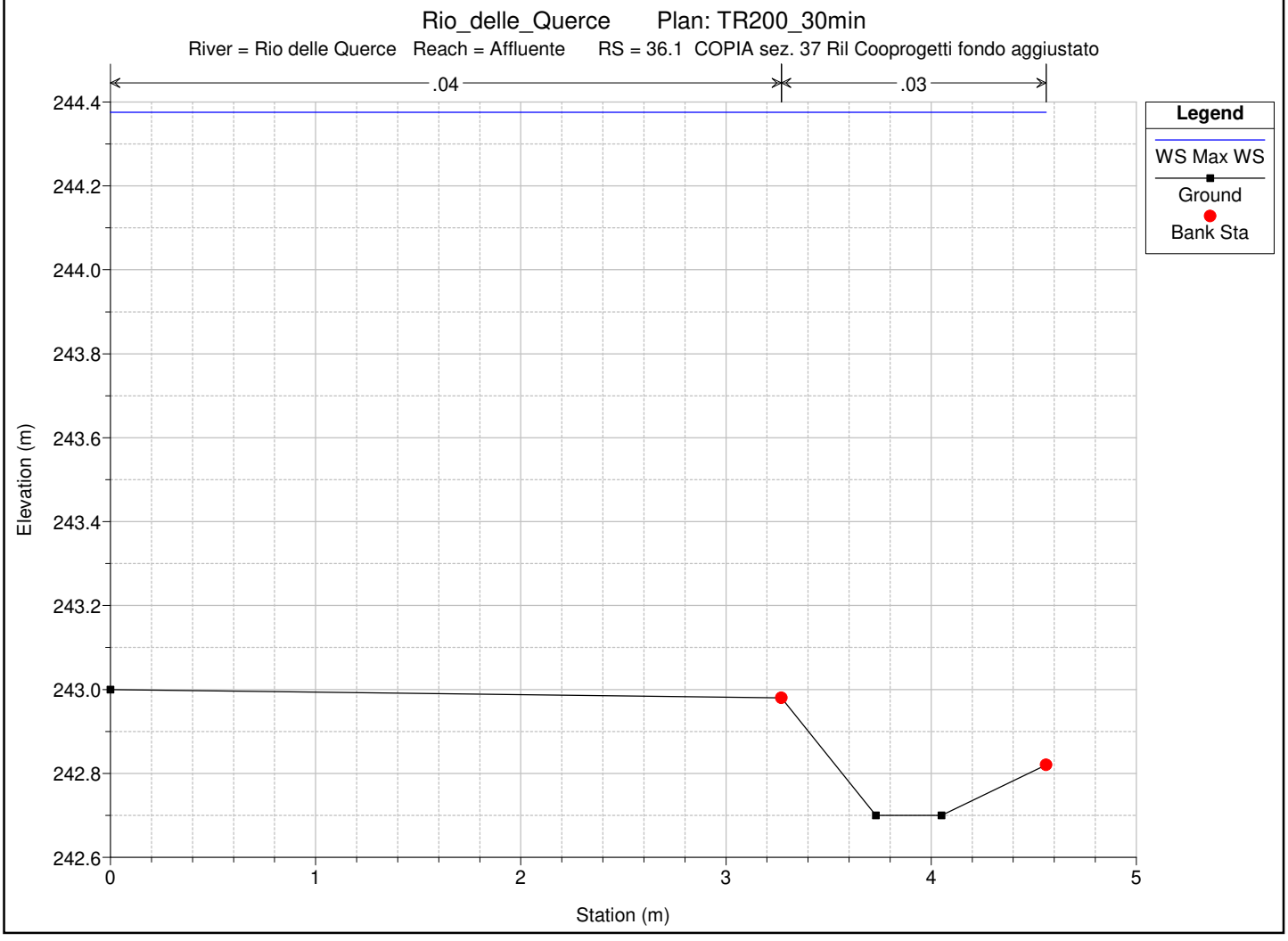


1 cm Horiz. = 10 m 1 cm Vert. = 1 m


Rio_delle_Querce Plan: TR200_30min
River = Rio delle Querce Reach = Affluente RS = 39 sez. 39 Ril Cooprogetti
.04
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
245.3
245.2
245.1
245.0
244.9
244.8
244.7
244.6
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Station (m)


Rio_delle_Querce Plan: TR200_30min
River = Rio delle Querce Reach = Affluente RS = 38 sez. 38 Ril Cooprogetti
.04
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
244.50
244.45
244.40
244.35
244.30
244.25
244.20
244.15
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Station (m)


Rio_delle_Querce Plan: TR200_30min
River = Rio delle Querce Reach = Affluente RS = 37 sez. 37 Ril Cooprogetti
.04
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
244.4
244.2
244.0
243.8
243.6
243.4
243.2
243.0
0
1
2
3
4
5
Station (m)


Rio_delle_Querce Plan: TR200_30min
River = Rio delle Querce Reach = Affluente RS = 36.1 COPIA sez. 37 Ril Cooprogetti fondo aggiustato
.04
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
244.4
244.2
244.0
243.8
243.6
243.4
243.2
243.0
242.8
242.6
0
1
2
3
4
5
Station (m)

HEC-RAS Plan: TR200_30min River: Rio delle Querce Reach: Affluente Profile: Max WS

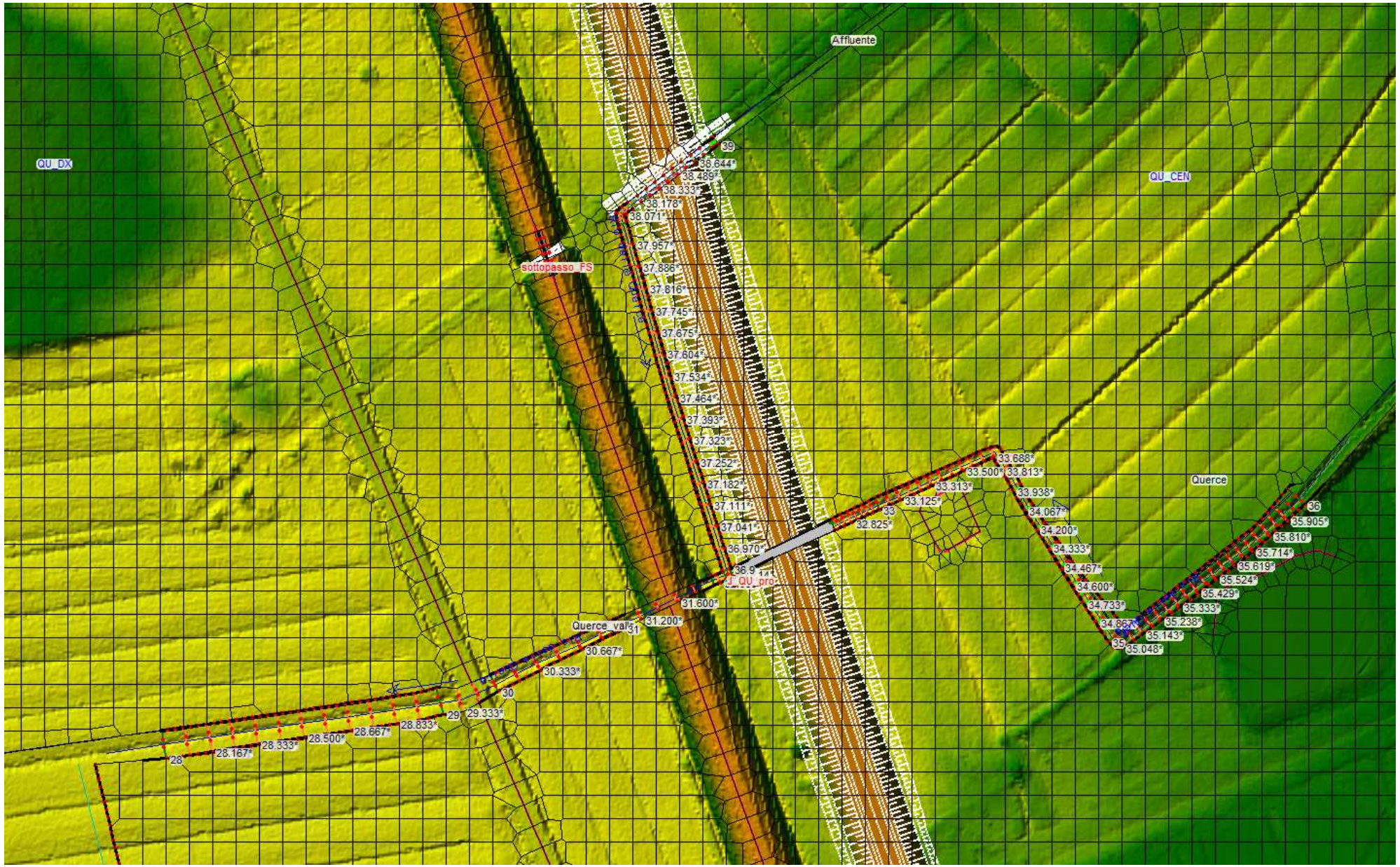
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Affluente	39	Max WS	2.38	244.60	245.28	245.29	245.48	0.014852	2.21	1.30	3.07	0.96
Affluente	38.999		Lat Struct									
Affluente	38.998		Lat Struct									
Affluente	38	Max WS	0.55	244.17	244.54	244.57	244.67	0.019563	1.64	0.37	2.52	1.03
Affluente	37.999		Lat Struct									
Affluente	37.998		Lat Struct									
Affluente	37	Max WS	0.80	243.05	244.39	243.45	244.39	0.000050	0.17	5.06	4.56	0.05
Affluente	36.999		Lat Struct									
Affluente	36.998		Lat Struct									
Affluente	36.1	Max WS	0.94	242.70	244.38	243.12	244.38	0.000032	0.15	6.60	4.56	0.04

HEC-RAS Plan: TR200_30min River: Rio delle Querce Reach: Affluente Profile: Max WS

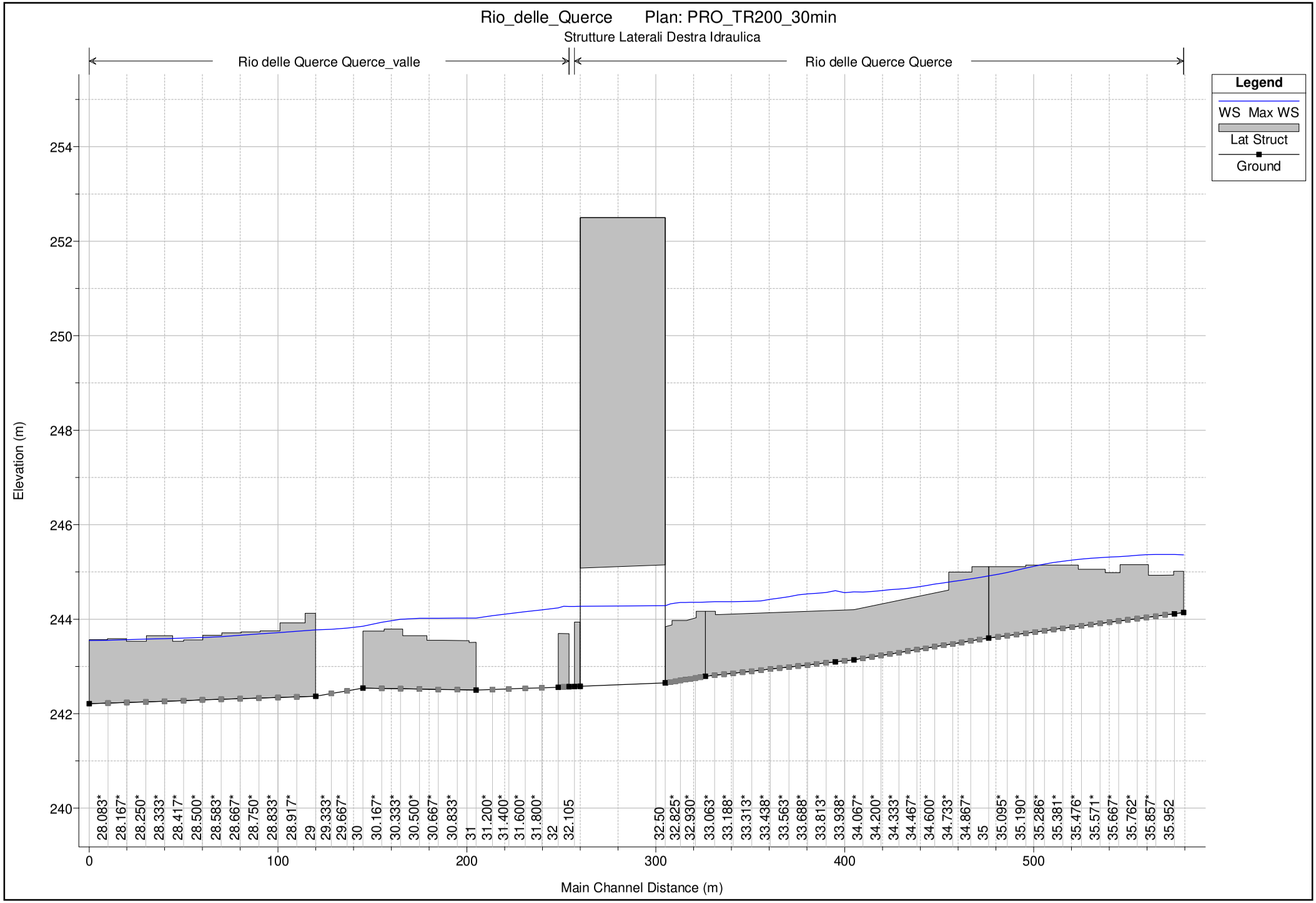
Reach	River Sta	Profile	Q US	Q Leaving Total	Q DS	Q Weir	Q Gates	Wr Top Wdth	Weir Max Depth	Weir Avg Depth	Min El Weir Flow	E.G. US.	W.S. US.	E.G. DS	W.S. DS
			(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)
Affluente	38.999	Max WS	2.38	0.97	0.55	0.97		50.44	0.35	0.19	244.48	245.48	245.28	244.67	244.54
Affluente	38.998	Max WS	2.38	0.60	0.55	0.60		55.55	0.22	0.11	244.51	245.48	245.28	244.67	244.54
Affluente	37.999	Max WS	0.55	5.53	0.80	5.53		76.43	0.84	0.54	243.55	244.67	244.54	244.39	244.39
Affluente	37.998	Max WS	0.55	-0.10	0.80	-0.10		73.77	0.70	0.42	243.70	244.67	244.54	244.39	244.39
Affluente	36.999	Max WS	0.80	8.65	0.94	8.65		83.18	0.87	0.80	243.51	244.39	244.39	244.38	244.38
Affluente	36.998	Max WS	0.80	2.71	0.94	2.71		83.52	0.68	0.63	243.70	244.39	244.39	244.38	244.38

Stato
di
Progetto

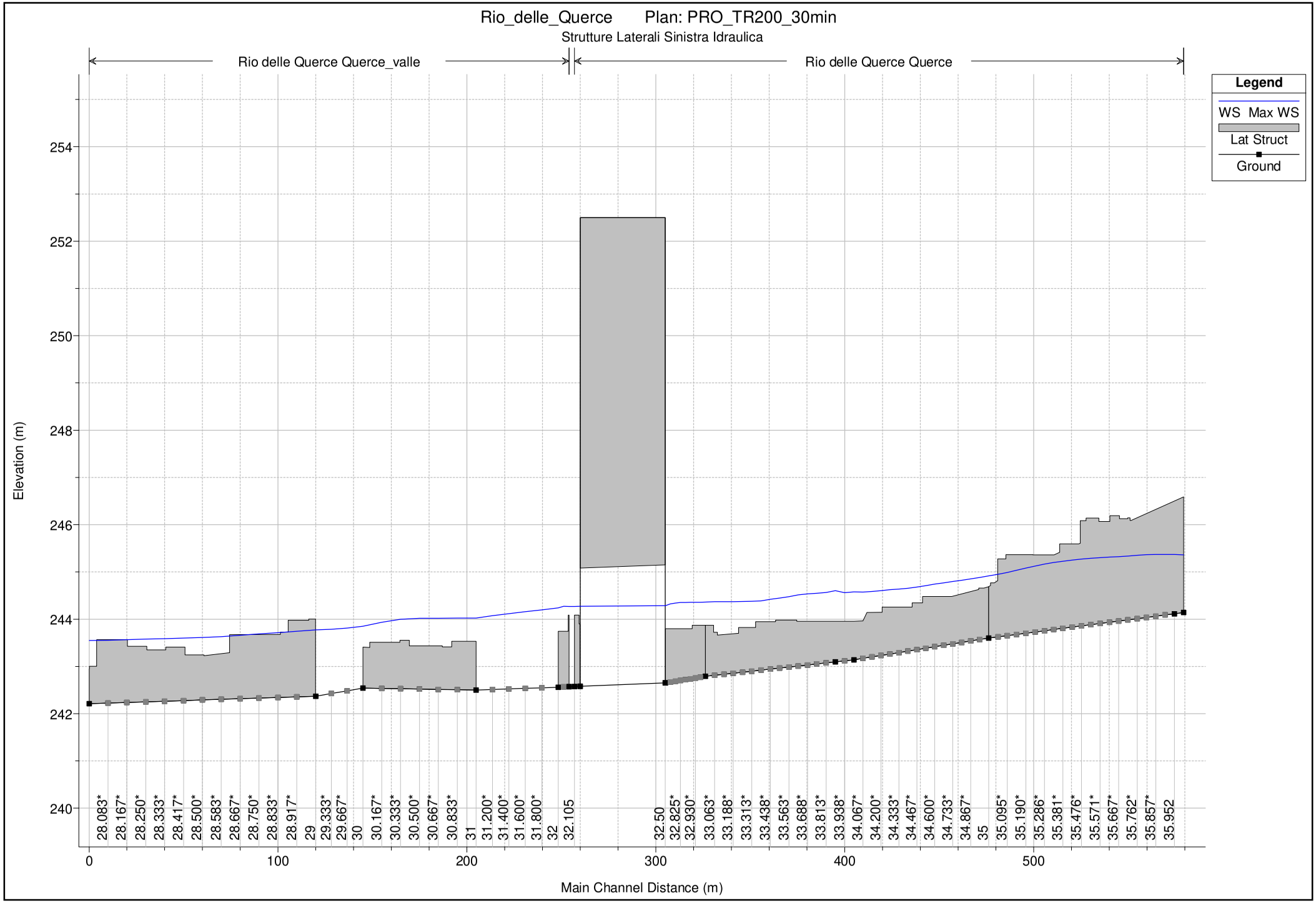
Planimetria Stato di Progetto



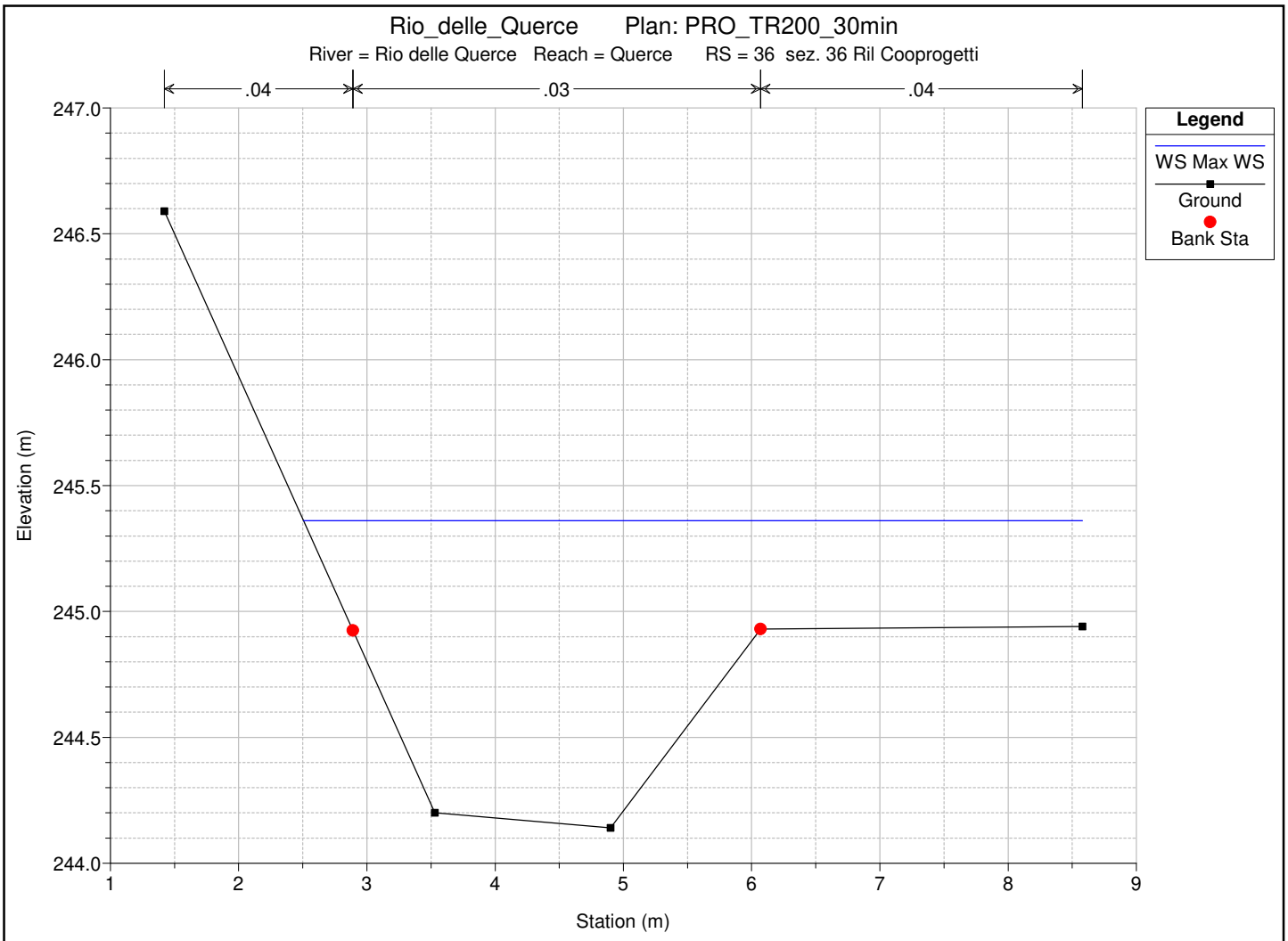
RIO
delle
QUERCE

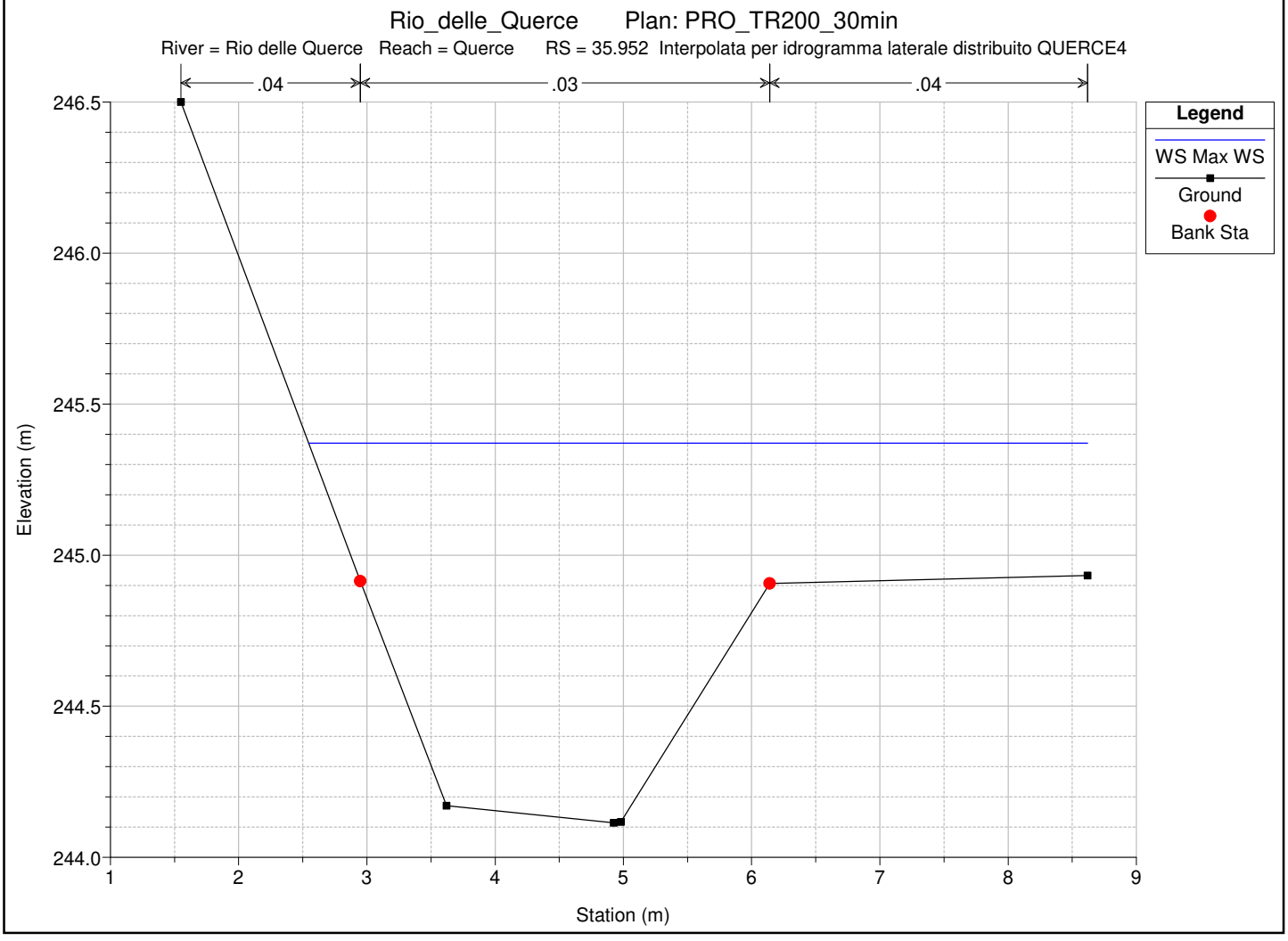


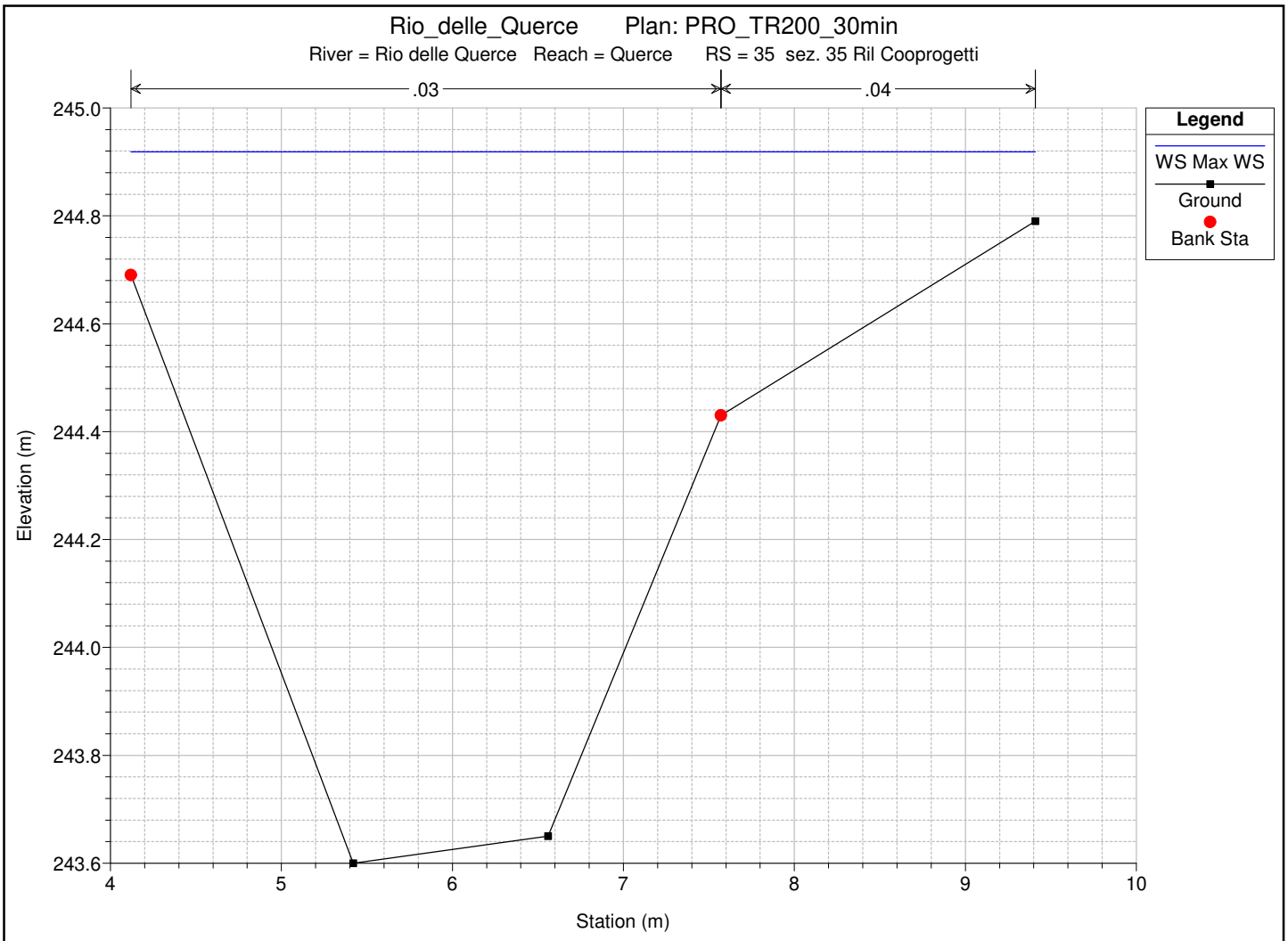
1 cm Horiz. = 25 m 1 cm Vert. = 1 m

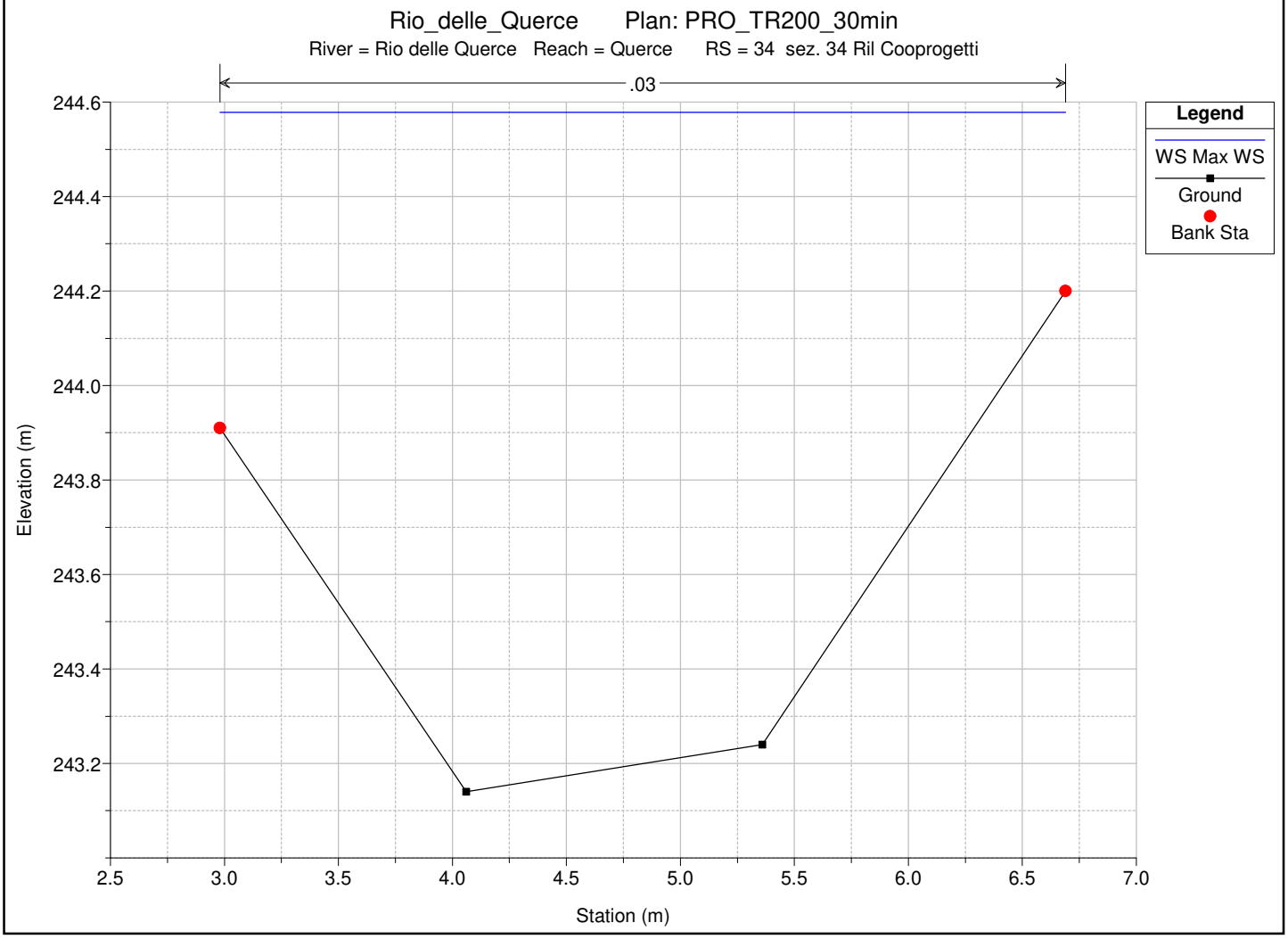


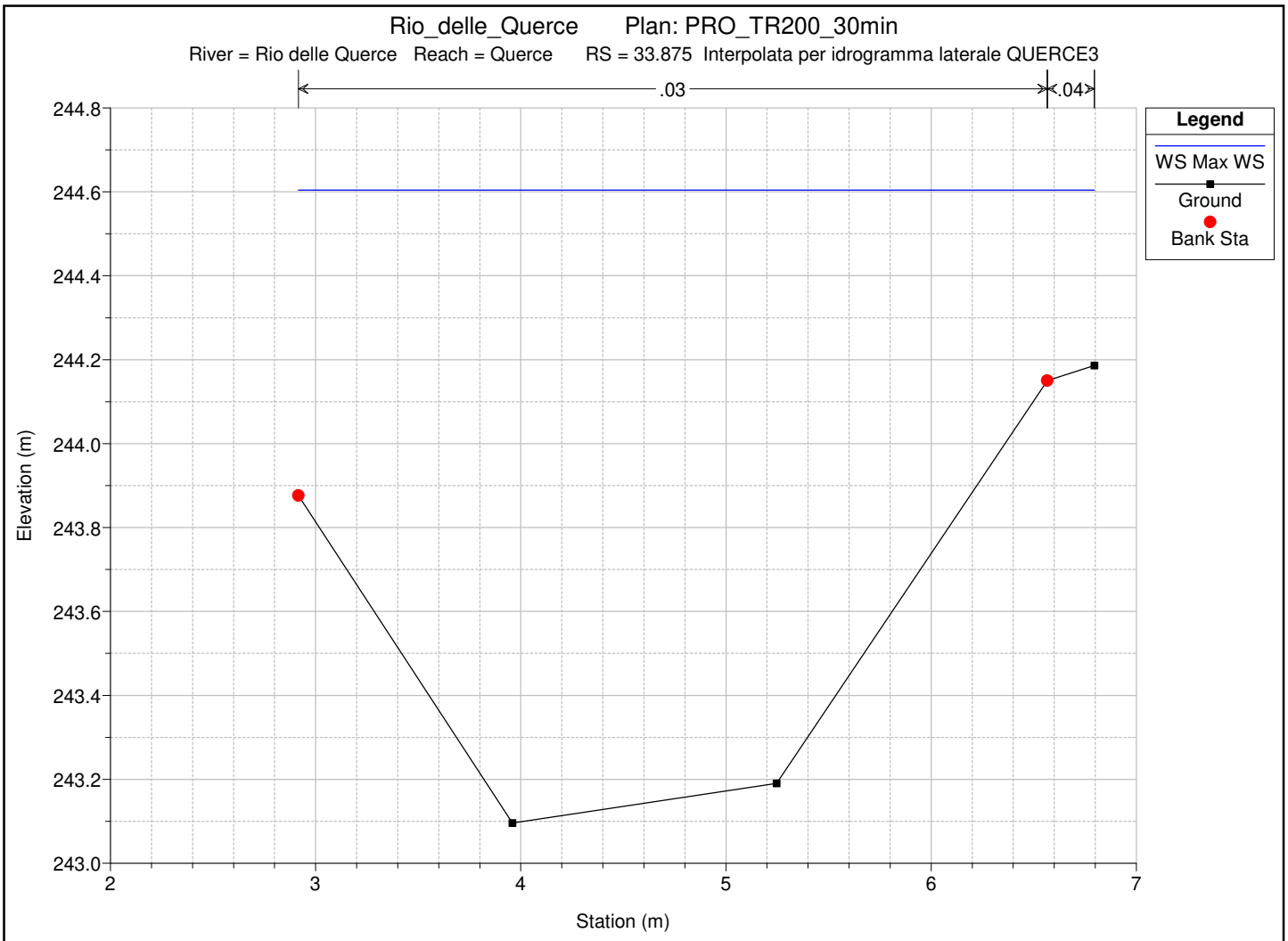
1 cm Horiz. = 25 m 1 cm Vert. = 1 m

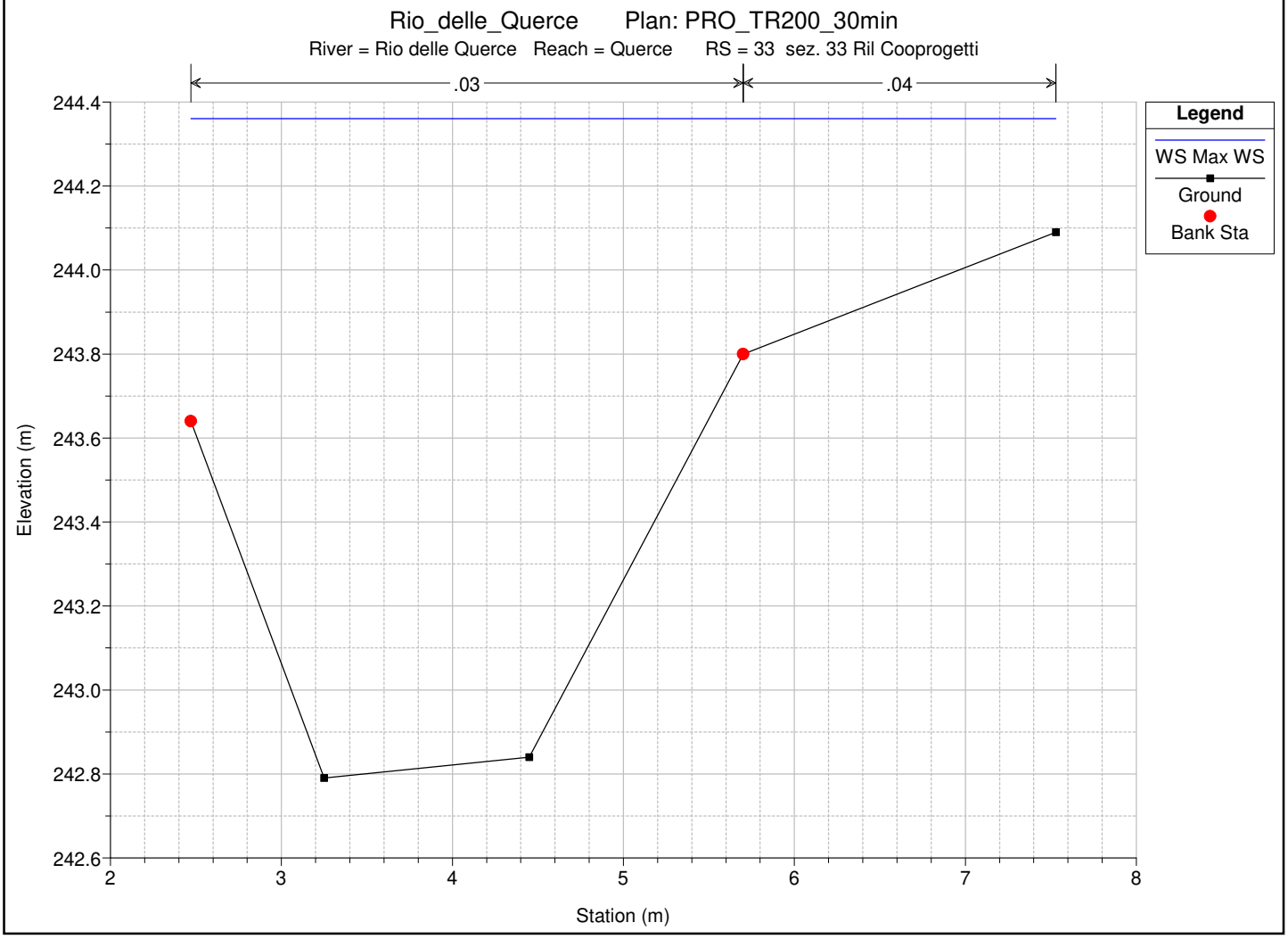

Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce RS = 36 sez. 36 Ril Cooprogetti
.04
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
247.0
246.5
246.0
245.5
245.0
244.5
244.0
1
2
3
4
5
6
7
8
9

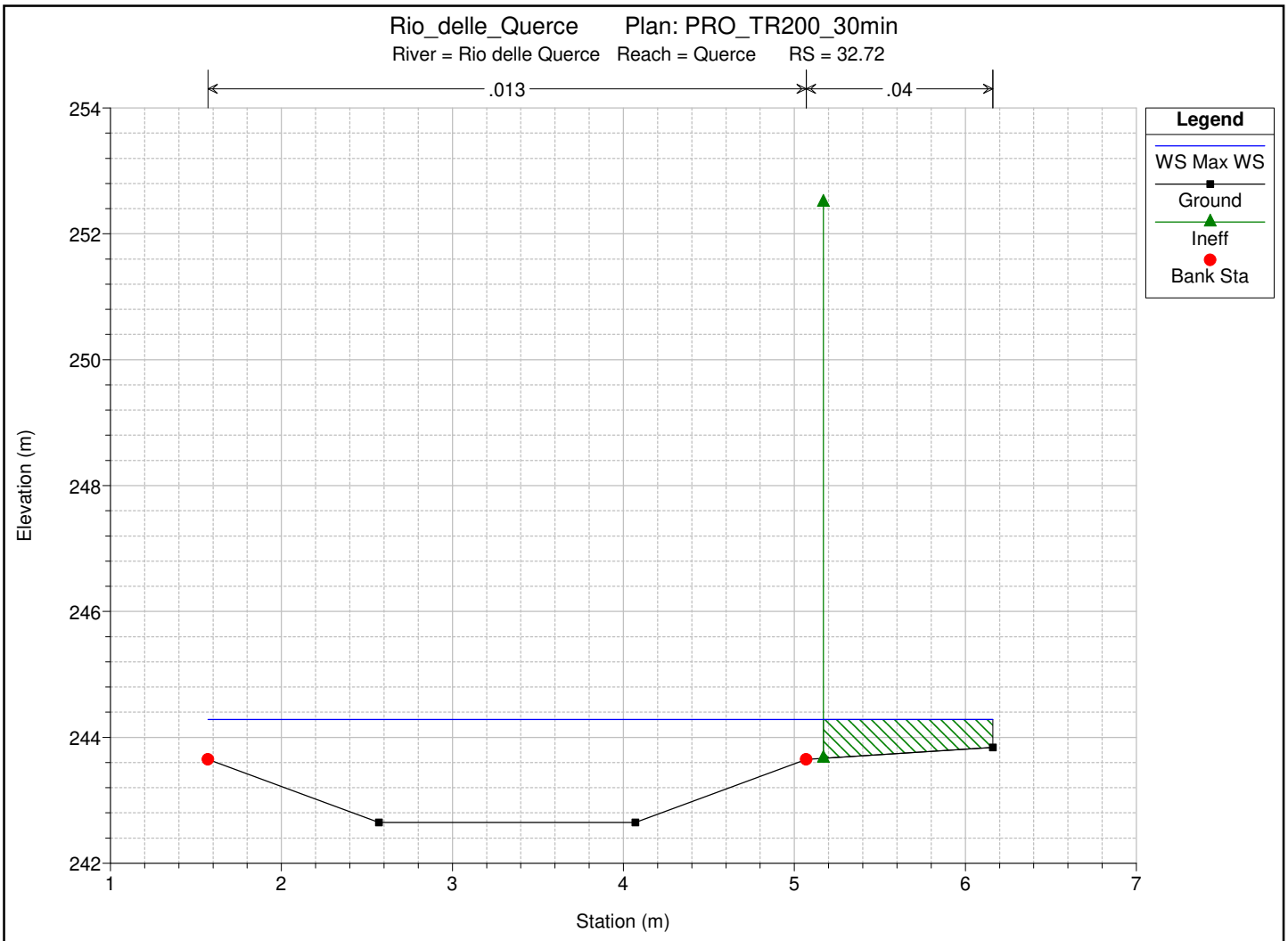

Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce RS = 35.952 Interpolata per idrogramma laterale distribuito QUERCE4
.04
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
246.5
246.0
245.5
245.0
244.5
244.0
1
2
3
4
5
6
7
8
9

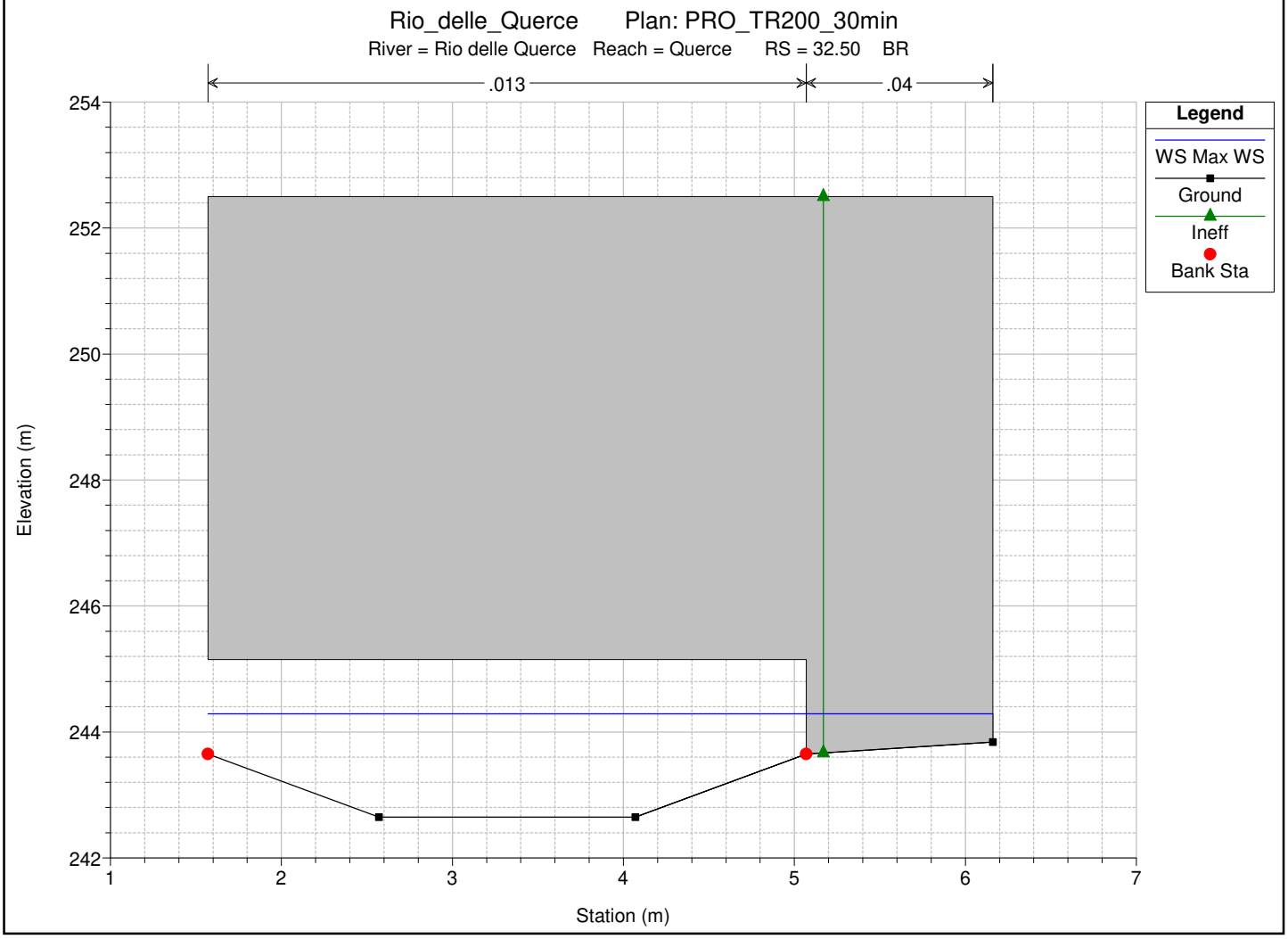

Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce RS = 35 sez. 35 Ril Cooprogetti
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
245.0
244.8
244.6
244.4
244.2
244.0
243.8
243.6
4
5
6
7
8
9
10

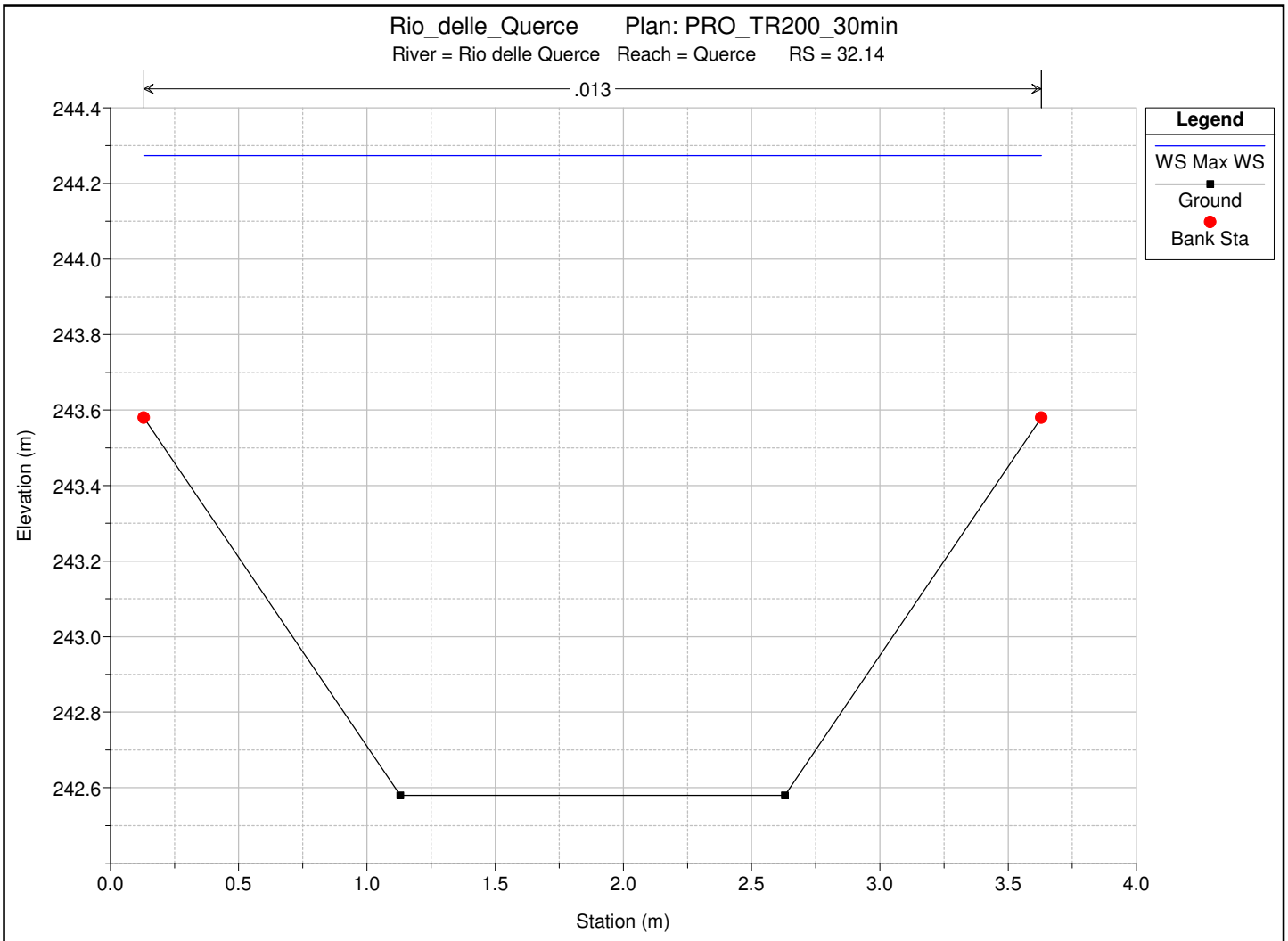

Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce RS = 34 sez. 34 Ril Cooprogetti
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.6
244.4
244.2
244.0
243.8
243.6
243.4
243.2
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0

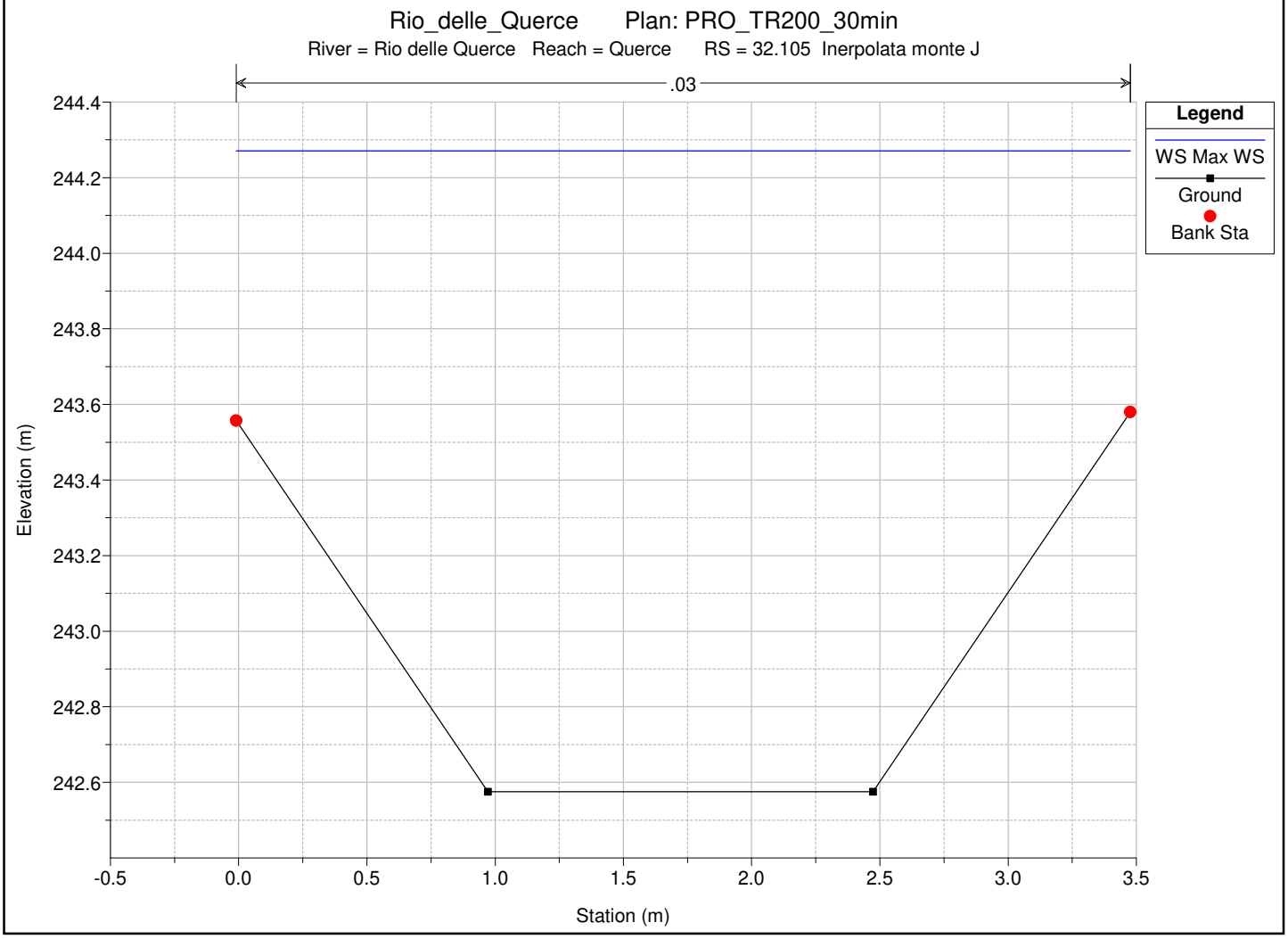

Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce RS = 33.875 Interpolata per idrogramma laterale QUERCE3
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.8
244.6
244.4
244.2
244.0
243.8
243.6
243.4
243.2
243.0
2
3
4
5
6
7

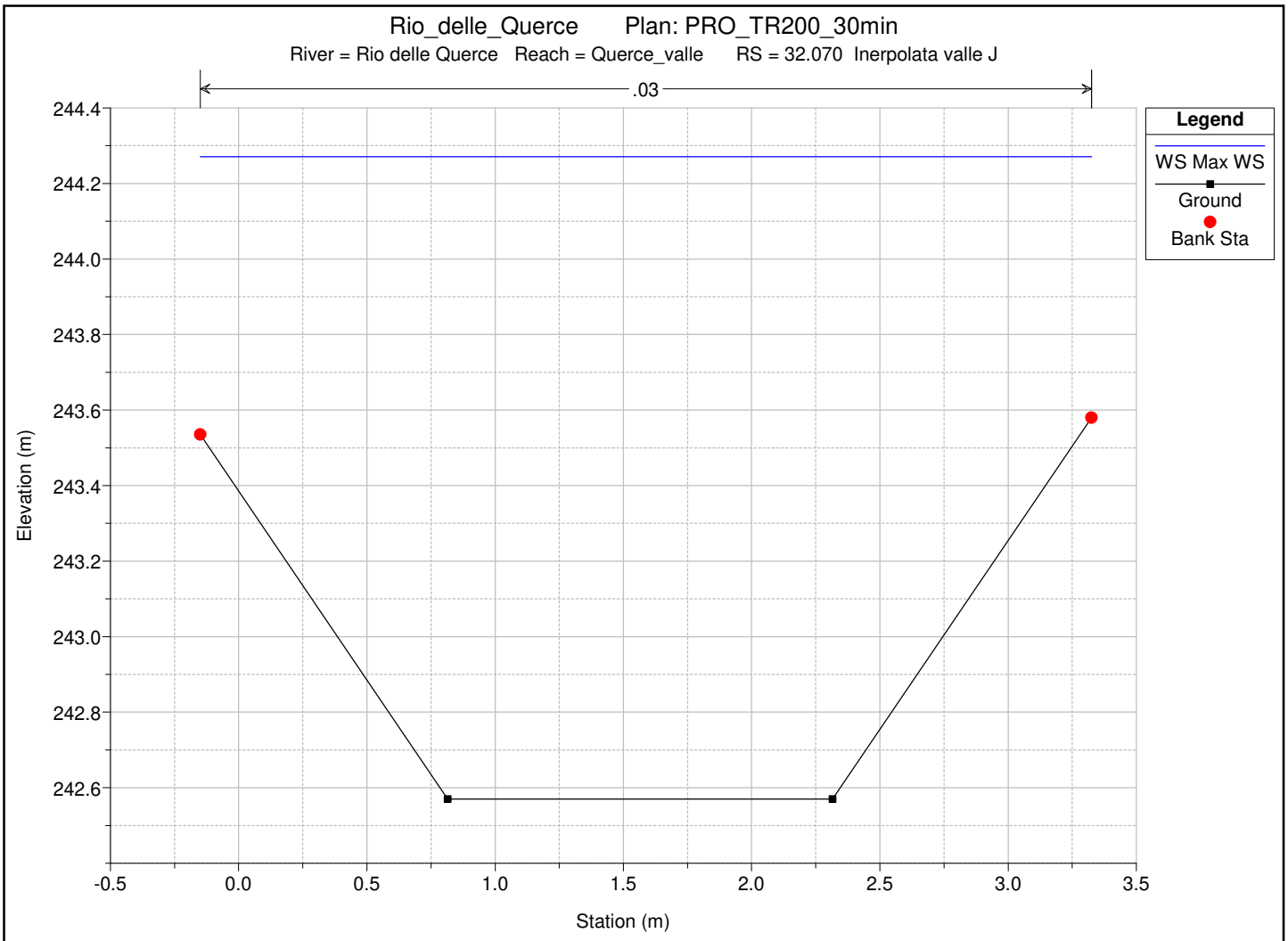

Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce RS = 33 sez. 33 Ril Cooprogetti
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.4
244.2
244.0
243.8
243.6
243.4
243.2
243.0
242.8
242.6
2
3
4
5
6
7
8

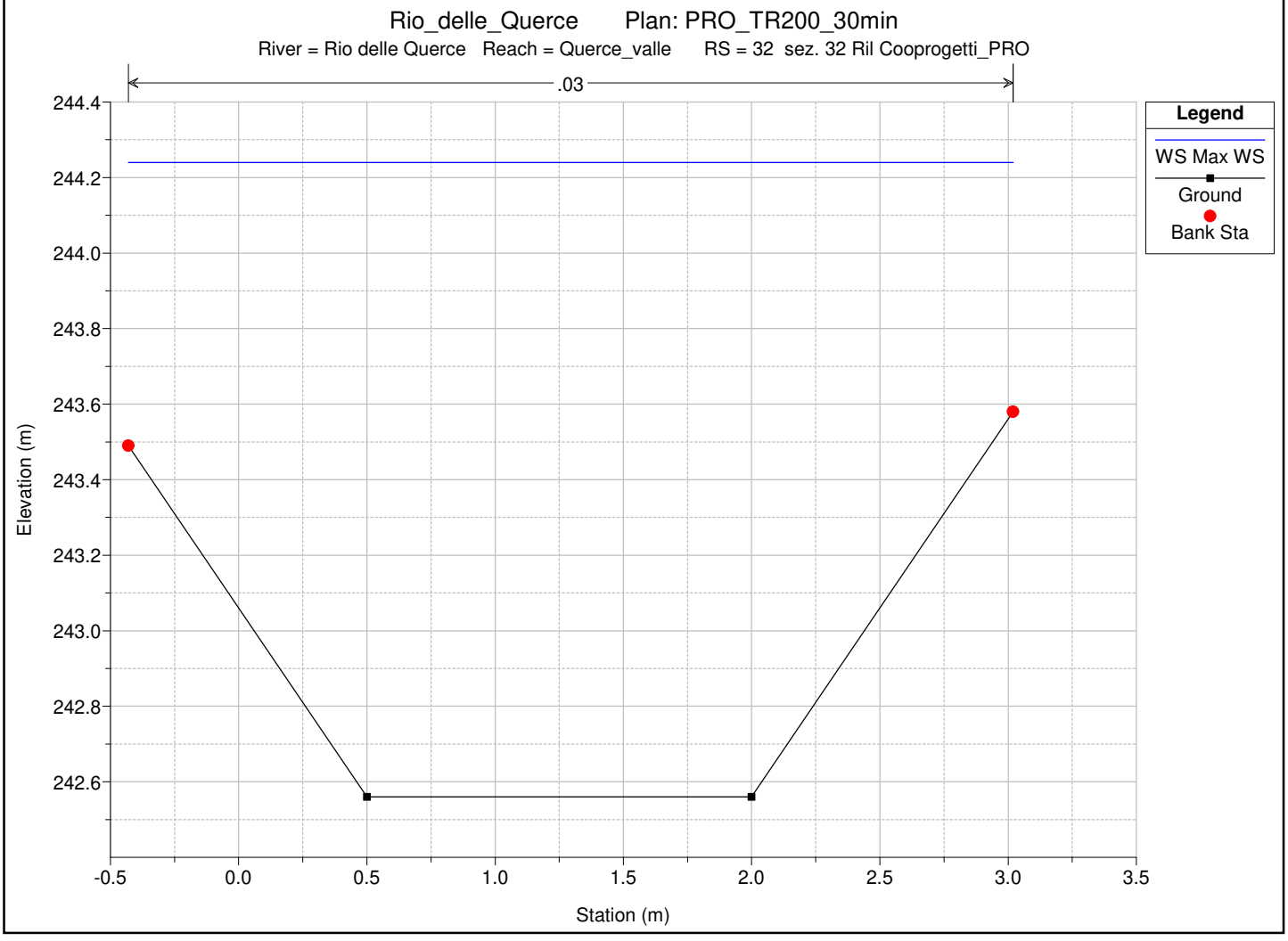

Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce RS = 32.72
.013
.04
Legend
WS Max WS
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
254
252
250
248
246
244
242
1
2
3
4
5
6
7

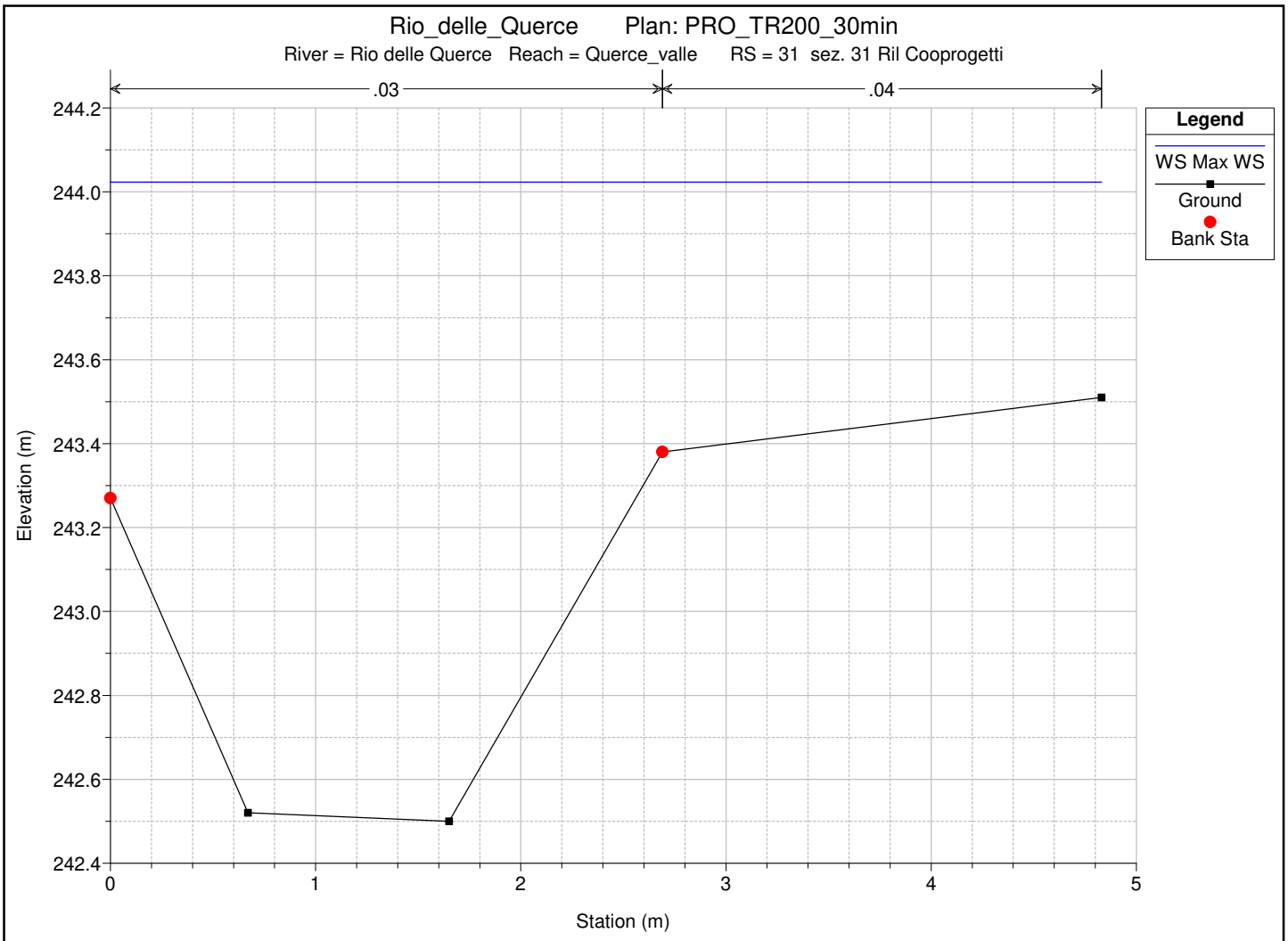

Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce RS = 32.50 BR
.013
.04
Legend
WS Max WS
Ground
Ineff
Bank Sta
Elevation (m)
Station (m)
254
252
250
248
246
244
242
1
2
3
4
5
6
7

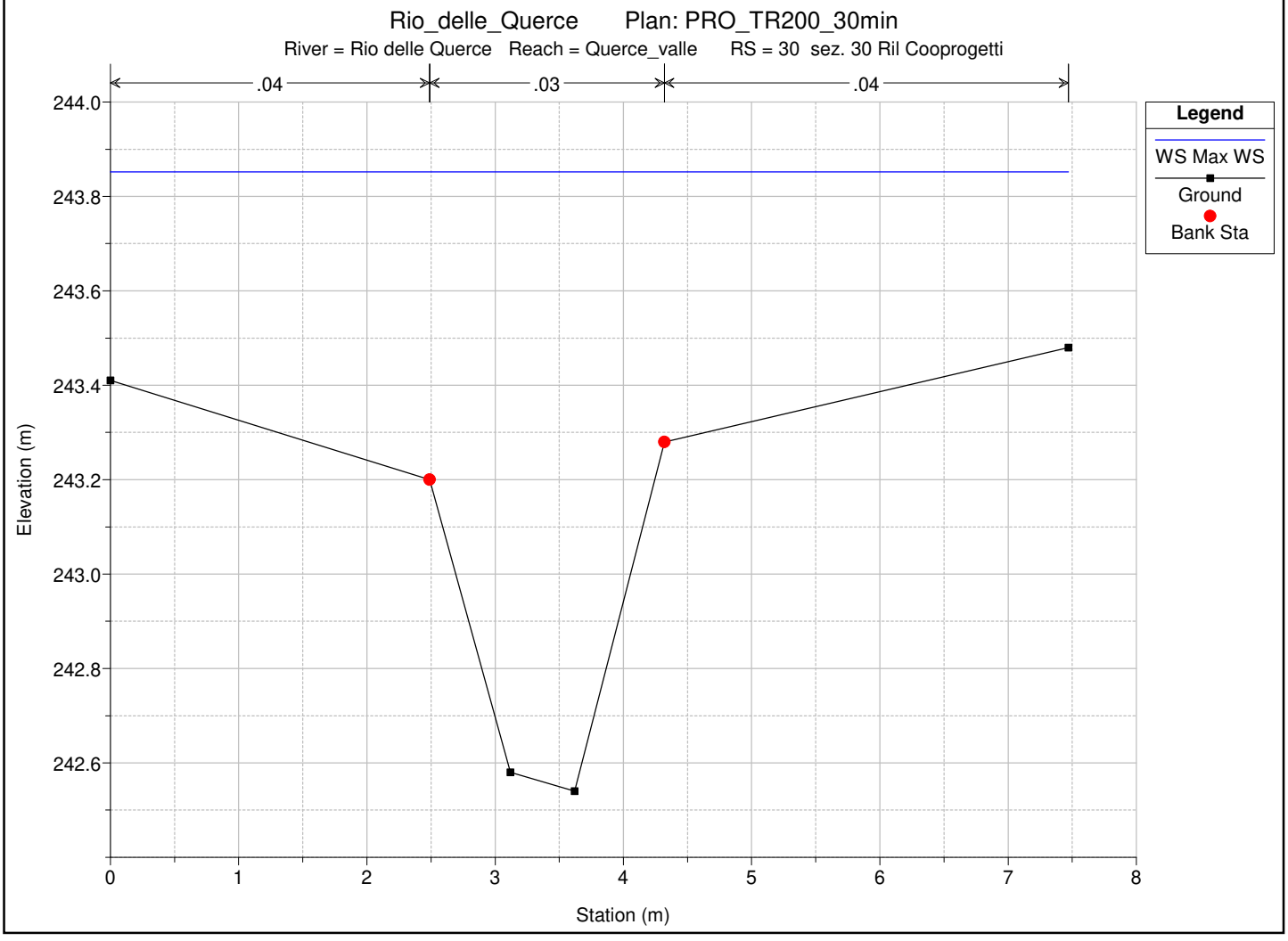

Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce RS = 32.14
.013
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.4
244.2
244.0
243.8
243.6
243.4
243.2
243.0
242.8
242.6
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0

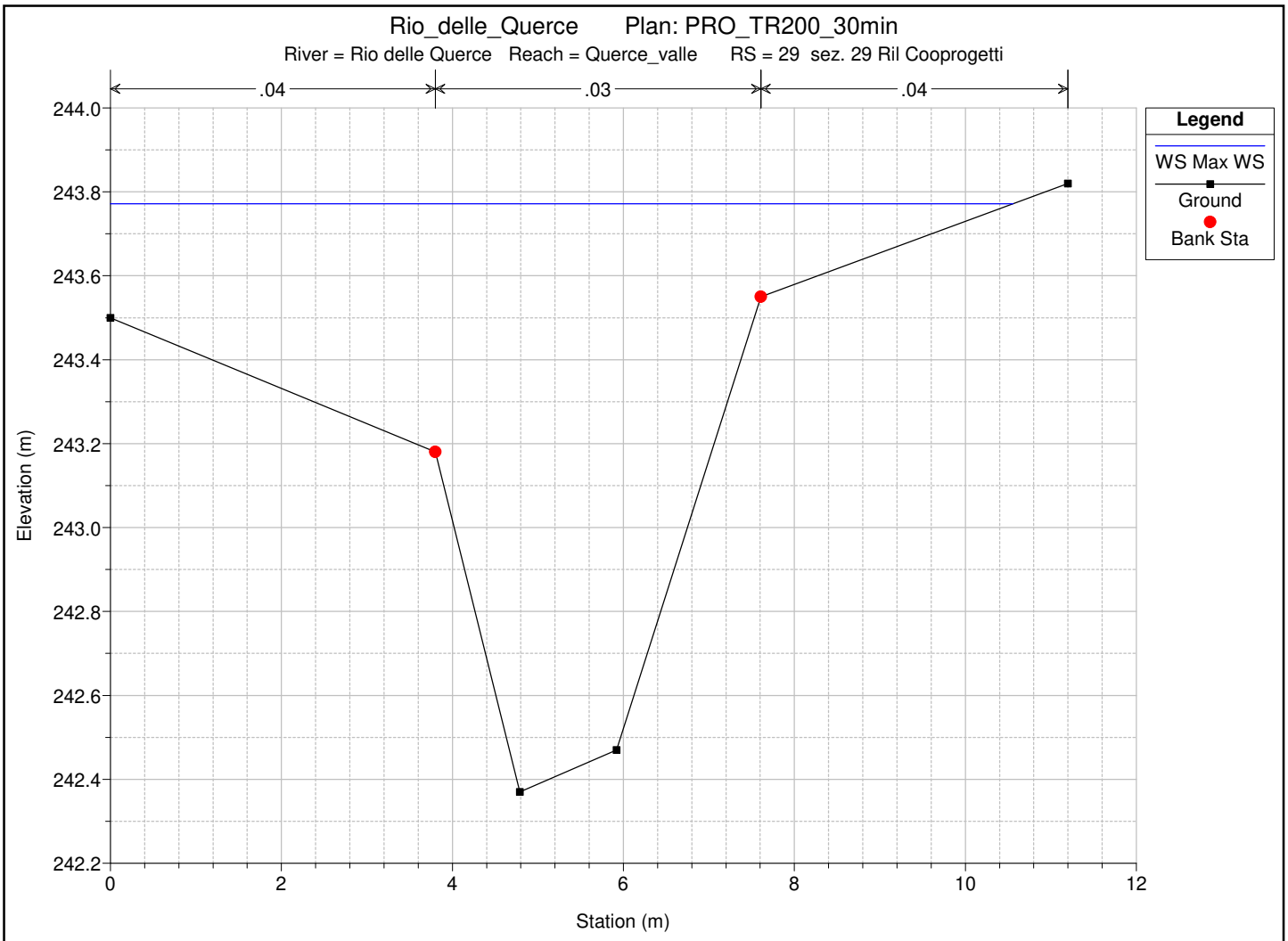

Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce RS = 32.105 Inerpolata monte J
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.4
244.2
244.0
243.8
243.6
243.4
243.2
243.0
242.8
242.6
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5

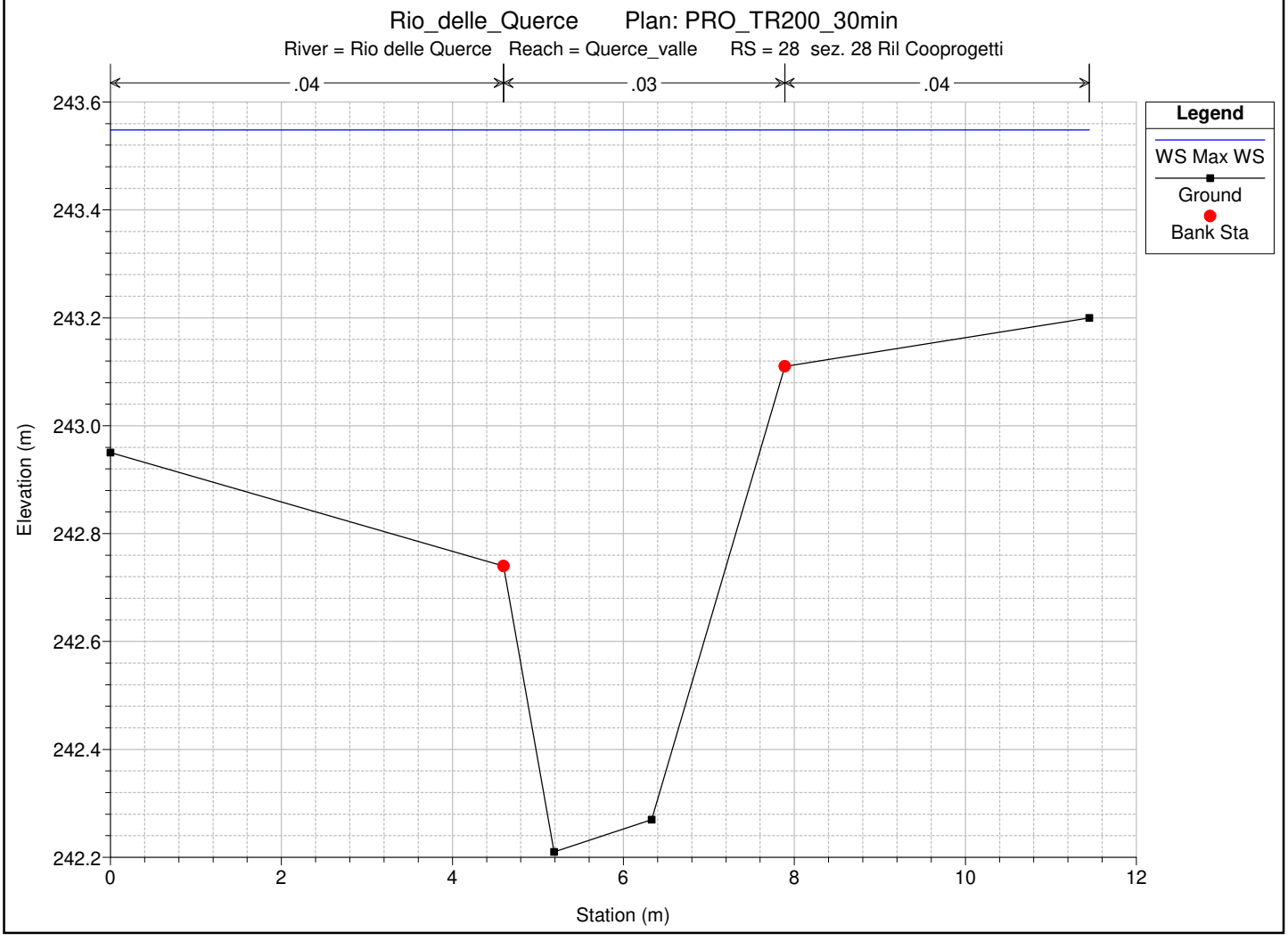

Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce_valle RS = 32.070 Inerpolata valle J
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.4
244.2
244.0
243.8
243.6
243.4
243.2
243.0
242.8
242.6
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce_valle RS = 32 sez. 32 Ril Cooprogetti_PRO
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.4
244.2
244.0
243.8
243.6
243.4
243.2
243.0
242.8
242.6
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5


Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce_valle RS = 31 sez. 31 Ril Cooprogetti
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce_valle RS = 30 sez. 30 Ril Cooprogetti
.04
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce_valle RS = 29 sez. 29 Ril Cooprogetti
.04
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.0
243.8
243.6
243.4
243.2
243.0
242.8
242.6
242.4
242.2
0
2
4
6
8
10
12


Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Querce_valle RS = 28 sez. 28 Ril Cooprogetti
.04
.03
.04
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
243.6
243.4
243.2
243.0
242.8
242.6
242.4
242.2
0
2
4
6
8
10
12

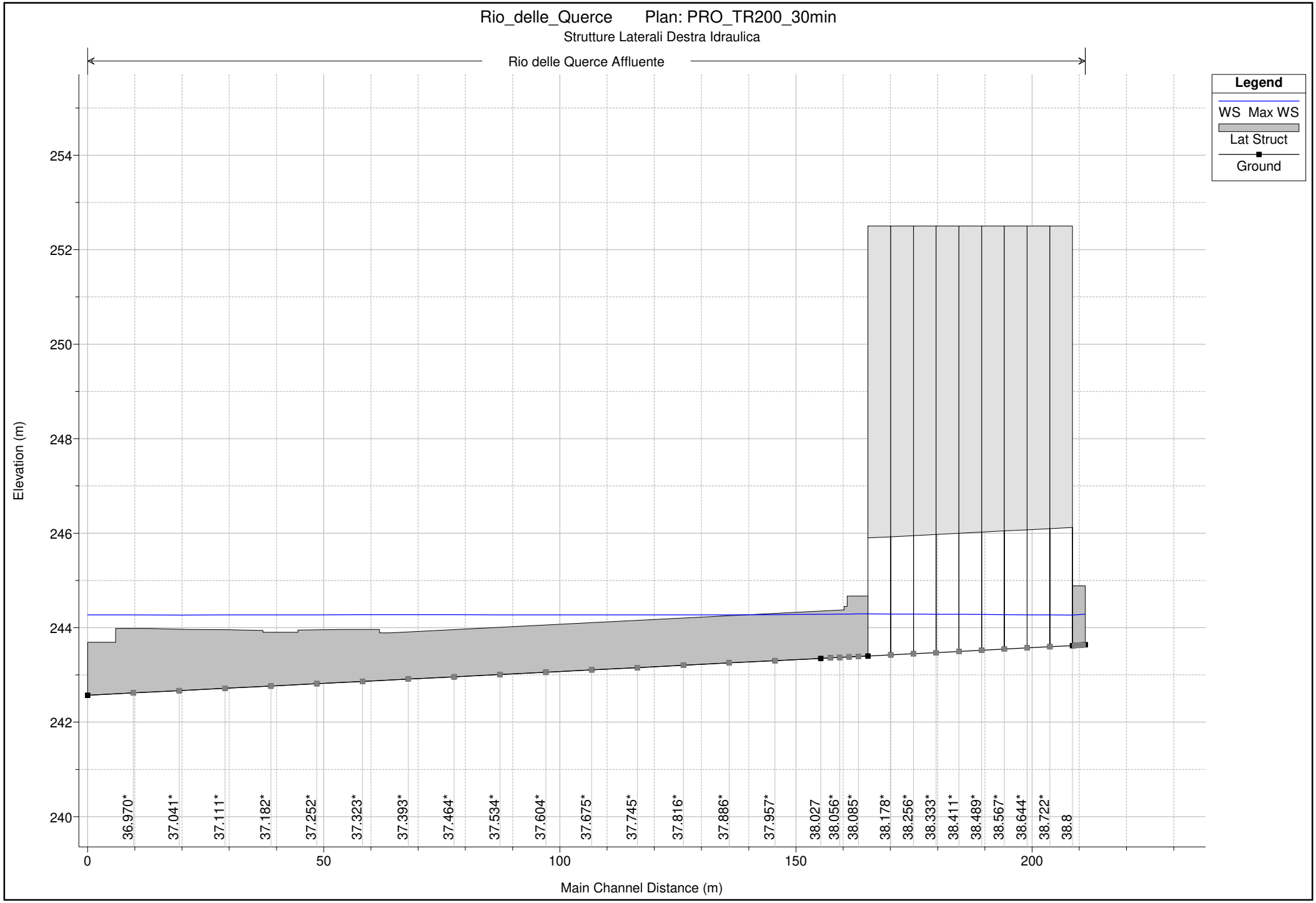
HEC-RAS Plan: PRO_TR200_30min Profile: Max WS

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Querce	36	Max WS	4.03	244.14	245.36	244.97	245.42	0.001454	1.12	4.26	6.07	0.36
Querce	35.999		Lat Struct									
Querce	35.998		Lat Struct									
Querce	35.952	Max WS	3.74	244.11	245.37	244.87	245.42	0.001107	1.00	4.44	6.07	0.32
Querce	35	Max WS	8.54	243.60	244.92	244.84	245.19	0.007180	2.38	3.93	5.29	0.77
Querce	34.999		Lat Struct									
Querce	34.998		Lat Struct									
Querce	34	Max WS	6.87	243.14	244.58	244.18	244.72	0.003625	1.68	4.08	3.71	0.51
Querce	33.875	Max WS	6.54	243.10	244.60	244.11	244.72	0.002527	1.52	4.38	3.88	0.45
Querce	33	Max WS	5.63	242.79	244.36	243.78	244.44	0.001803	1.29	4.81	5.06	0.37
Querce	32.99		Lat Struct									
Querce	32.98		Lat Struct									
Querce	32.72	Max WS	7.07	242.65	244.28	243.68	244.40	0.000403	1.49	4.78	4.59	0.41
Querce	32.50		Bridge									
Querce	32.14	Max WS	7.07	242.58	244.27	243.61	244.38	0.000424	1.44	4.93	3.50	0.39
Querce	32.13		Lat Struct									
Querce	32.12		Lat Struct									
Querce	32.105	Max WS	6.93	242.58	244.27	243.60	244.37	0.002170	1.41	4.93	3.49	0.38
Querce_valle	32.070	Max WS	8.14	242.57	244.27	243.68	244.41	0.002979	1.65	4.93	3.48	0.44
Querce_valle	32.069		Lat Struct									
Querce_valle	32.068		Lat Struct									
Querce_valle	32	Max WS	8.87	242.56	244.24	243.71	244.41	0.003719	1.83	4.84	3.45	0.49
Querce_valle	31	Max WS	7.39	242.50	244.02	243.72	244.18	0.003991	1.85	4.60	4.83	0.53
Querce_valle	30.999		Lat Struct									
Querce_valle	30.998		Lat Struct									
Querce_valle	30	Max WS	7.62	242.54	243.85	243.77	244.03	0.006315	2.27	4.76	7.47	0.71
Querce_valle	29	Max WS	7.60	242.37	243.77	243.55	243.89	0.002998	1.65	5.77	10.56	0.53
Querce_valle	28.999		Lat Struct									
Querce_valle	28.998		Lat Struct									
Querce_valle	28	Max WS	6.74	242.21	243.55	243.18	243.60	0.001302	1.15	8.10	11.45	0.36

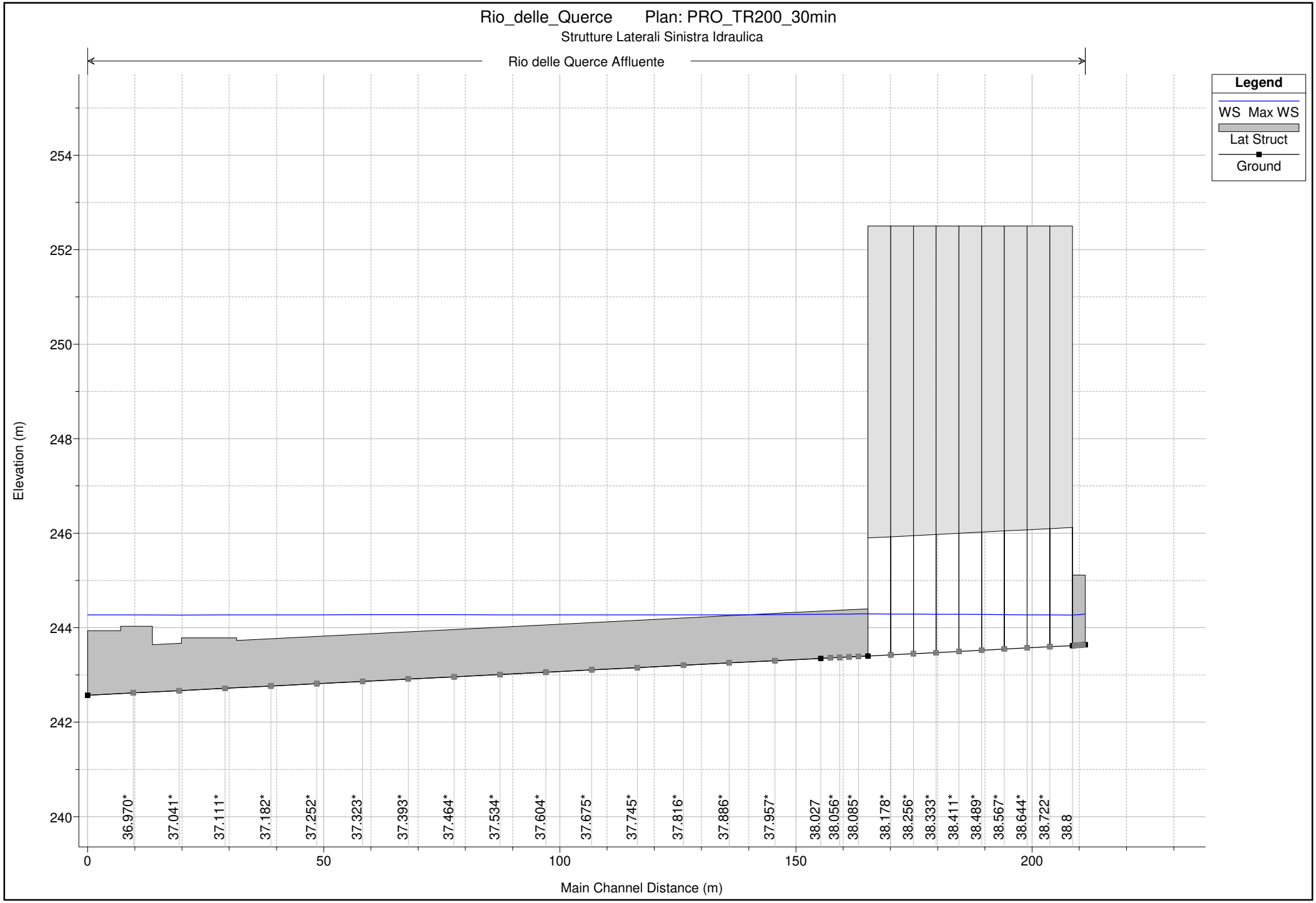
HEC-RAS Plan: PRO_TR200_30min Profile: Max WS

Reach	River Sta	Profile	Q US	Q Leaving Total	Q DS	Q Weir	Q Gates	Wr Top Wdth	Weir Max Depth	Weir Avg Depth	Min El Weir Flow	E.G. US.	W.S. US.	E.G. DS	W.S. DS
			(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)
Querce	35.999	Max WS	4.03	2.53	8.54	2.53		83.08	0.44	0.22	244.93	245.42	245.36	245.19	244.92
Querce	35.998	Max WS	4.03	-0.07	8.54	-0.07		7.04	0.23	0.18	244.69	245.42	245.36	245.19	244.92
Querce	34.999	Max WS	8.54	2.39	5.63	2.39		131.57	0.42	0.29	244.10	245.19	244.92	244.44	244.36
Querce	34.998	Max WS	8.54	4.92	5.63	4.92		147.08	0.71	0.47	243.66	245.19	244.92	244.44	244.36
Querce	32.99	Max WS	5.63	-0.22	7.07	-0.22		21.47	0.52	0.35	243.84	244.44	244.36	244.40	244.28
Querce	32.98	Max WS	5.63	0.70	7.07	0.70		21.04	0.56	0.53	243.80	244.44	244.36	244.40	244.28
Querce	32.13	Max WS	7.07	0.10	6.93	0.10		2.85	0.34	0.34	243.94	244.38	244.27	244.37	244.27
Querce	32.12	Max WS	7.07	0.07	6.93	0.07		2.93	0.37	0.21	243.90	244.38	244.27	244.37	244.27
Querce_valle	32.069	Max WS	8.14	0.22	8.87	0.22		5.87	0.58	0.57	243.69	244.41	244.27	244.41	244.24
Querce_valle	32.068	Max WS	8.14	0.40	8.87	0.40		5.72	0.53	0.49	243.74	244.41	244.27	244.41	244.24
Querce_valle	30.999	Max WS	7.39	0.23	7.62	0.23		59.71	0.52	0.35	243.51	244.18	244.02	244.03	243.85
Querce_valle	30.998	Max WS	7.39	-0.40	7.62	-0.40		60.11	0.61	0.52	243.40	244.18	244.02	244.03	243.85
Querce_valle	28.999	Max WS	7.60	0.01	6.74	0.01		36.61	0.07	0.04	243.53	243.89	243.77	243.60	243.55
Querce_valle	28.998	Max WS	7.60	1.16	6.74	1.16		102.38	0.60	0.17	242.95	243.89	243.77	243.60	243.55

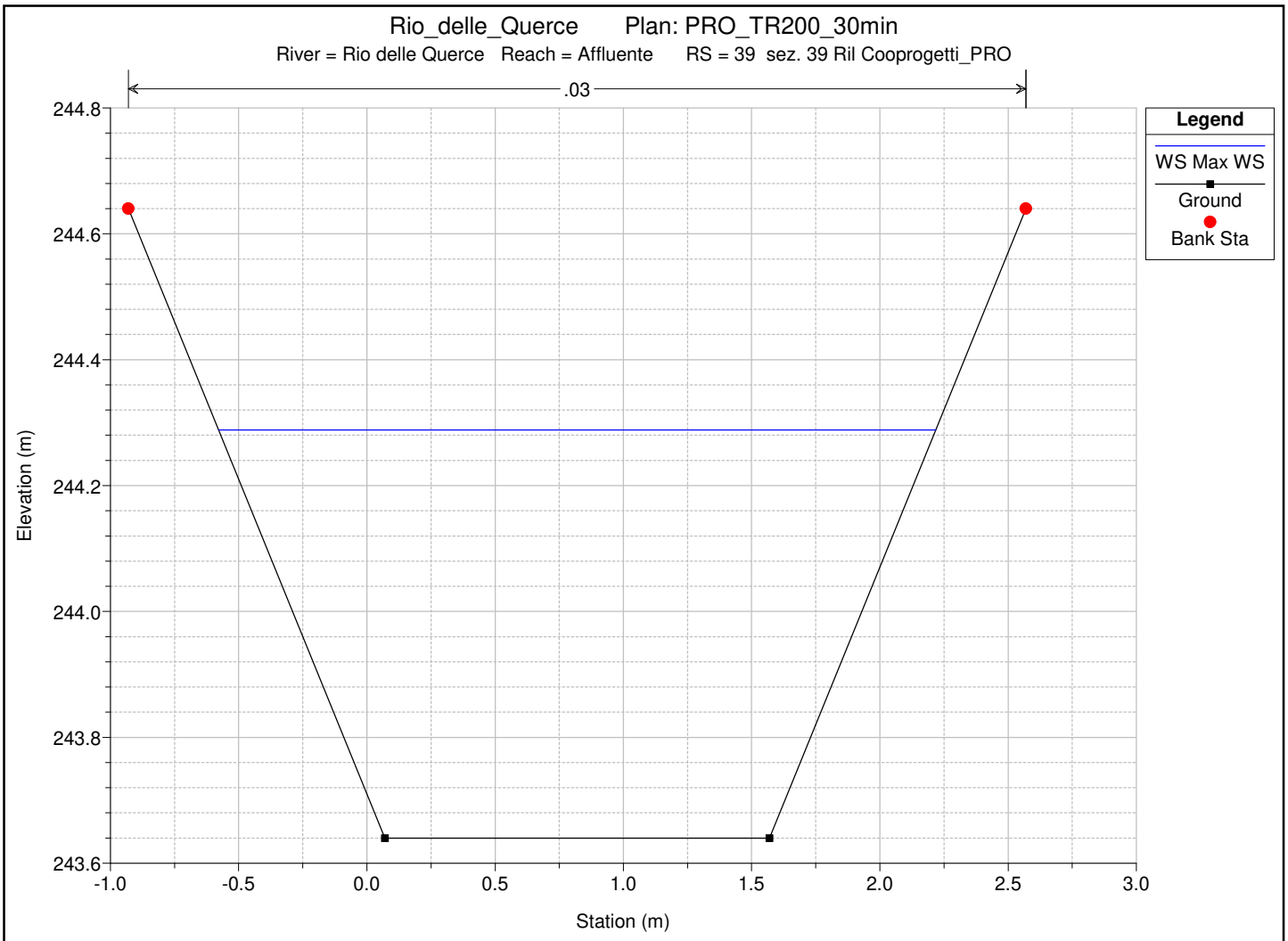
Affluente
in
destra
(AV43922)

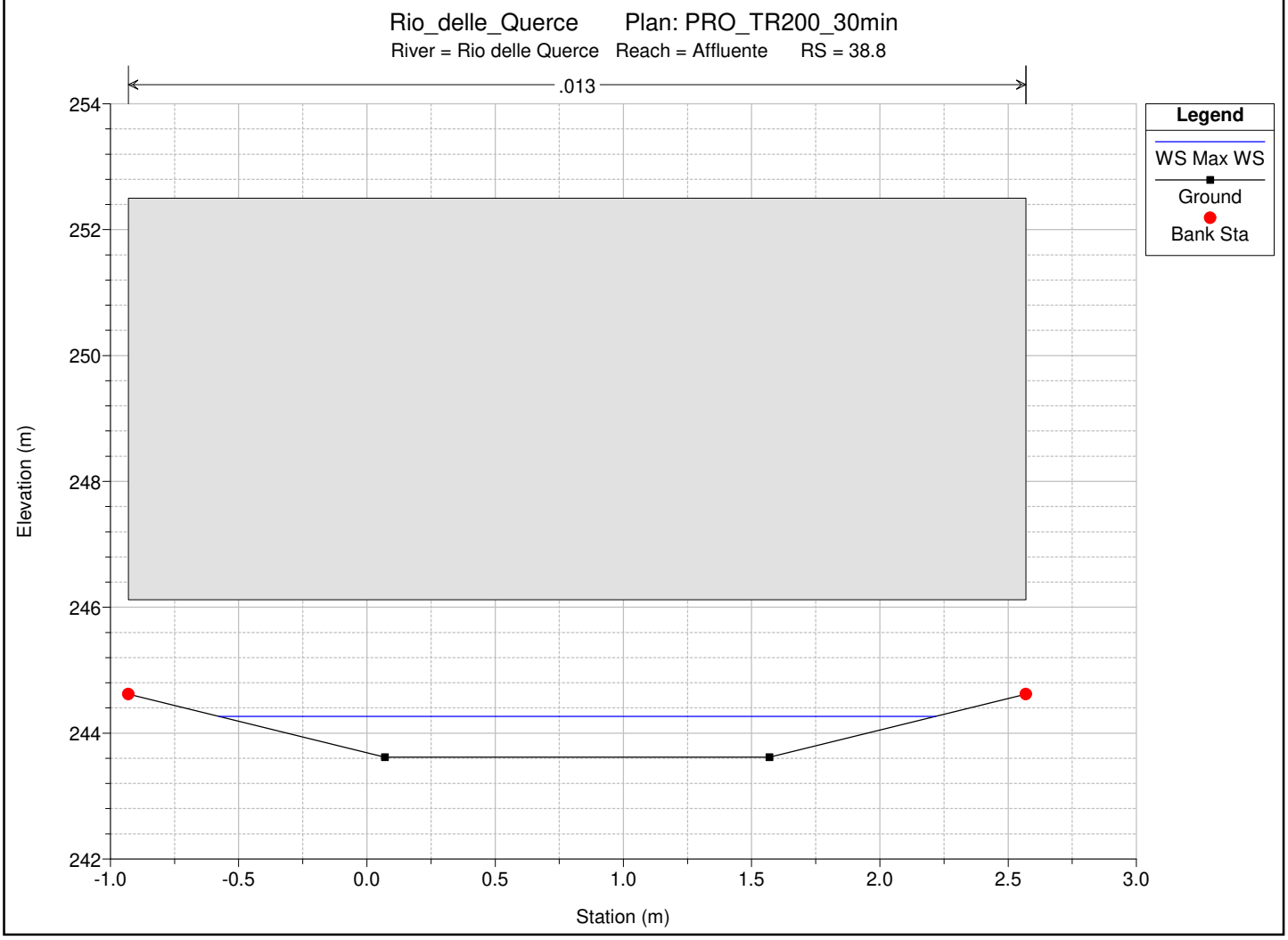


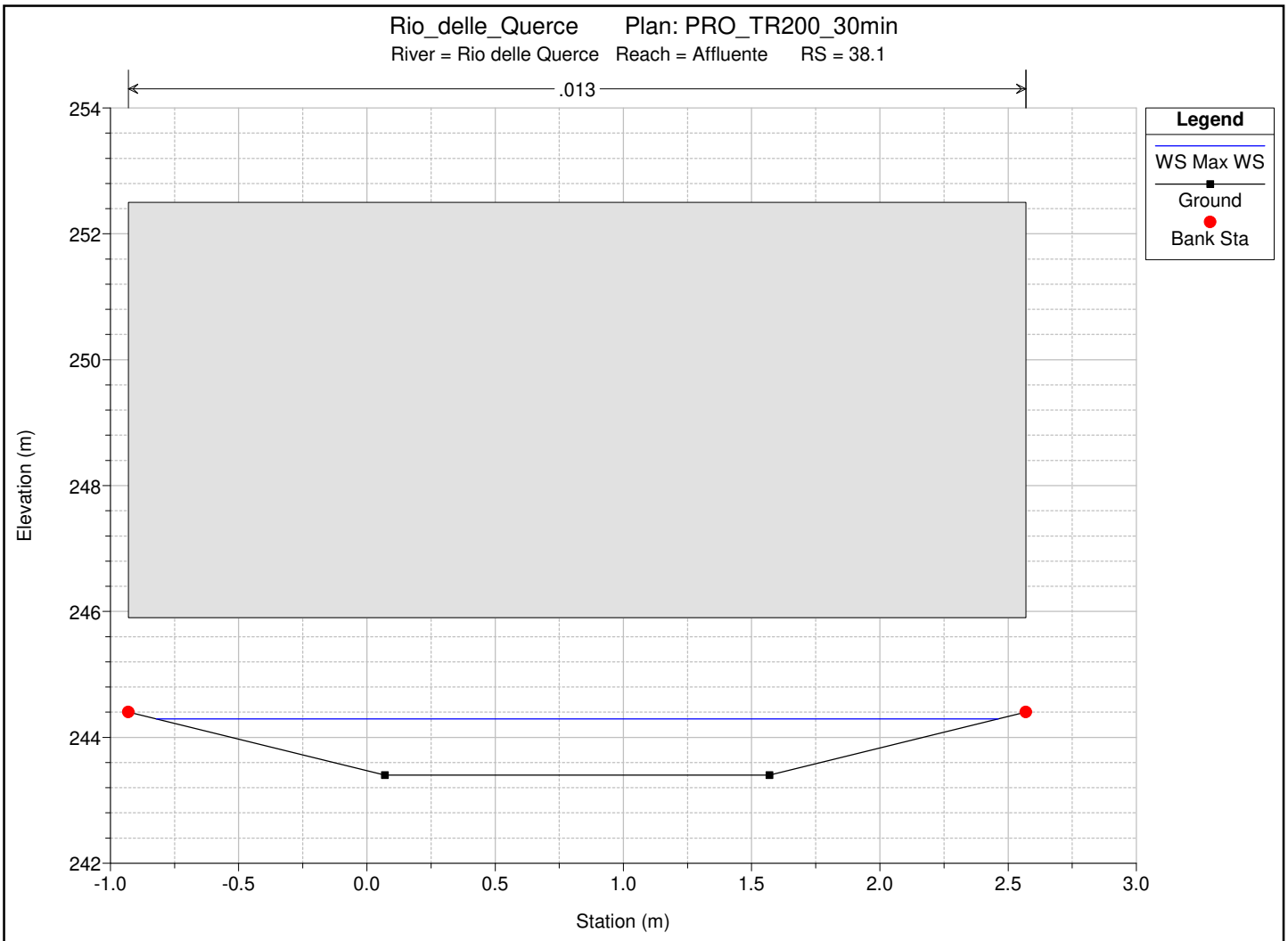
1 cm Horiz. = 10 m 1 cm Vert. = 1 m

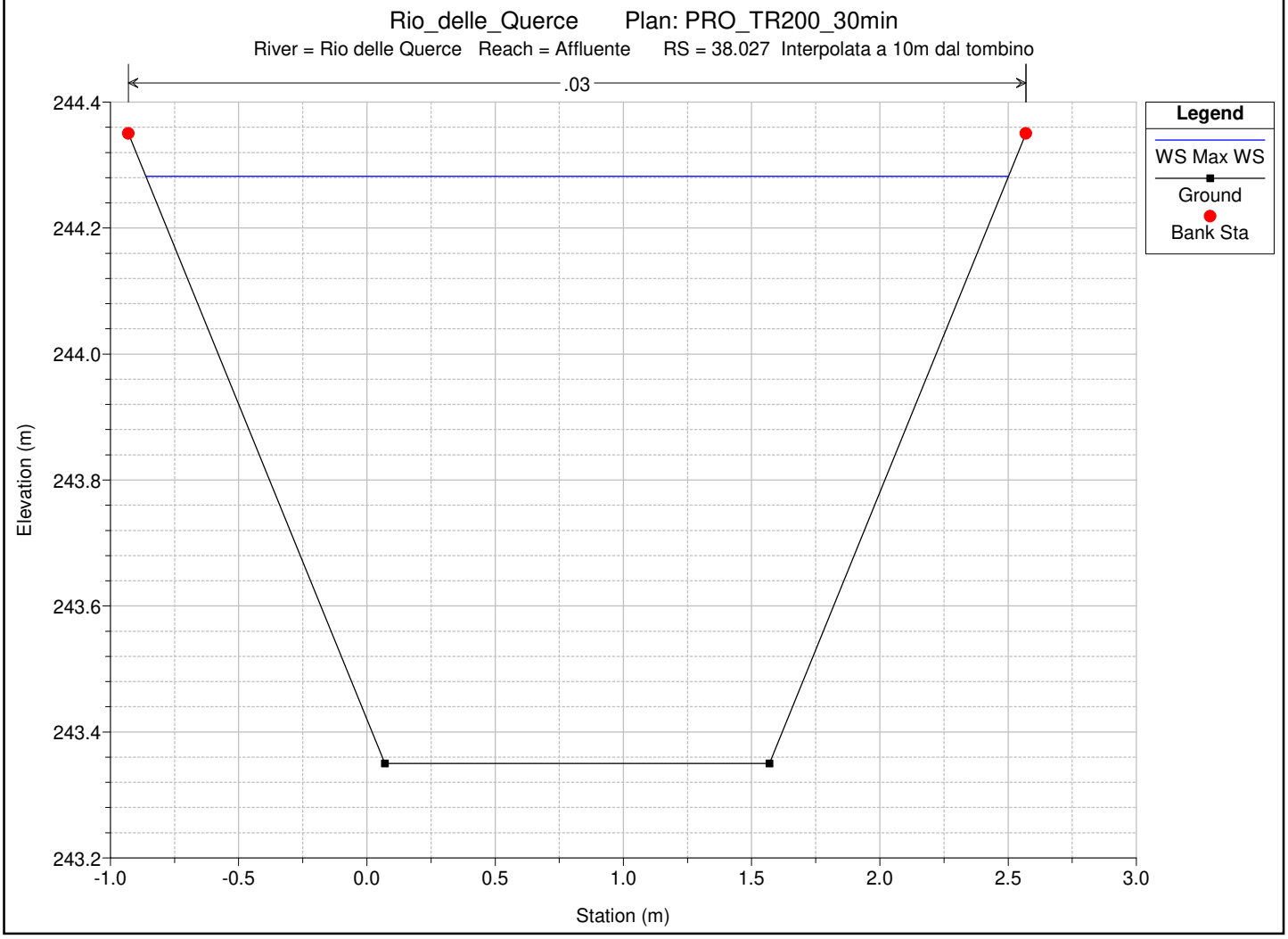


1 cm Horiz. = 10 m 1 cm Vert. = 1 m


Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Affluente RS = 39 sez. 39 Ril Cooprogetti_PRO
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.8
244.6
244.4
244.2
244.0
243.8
243.6
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0

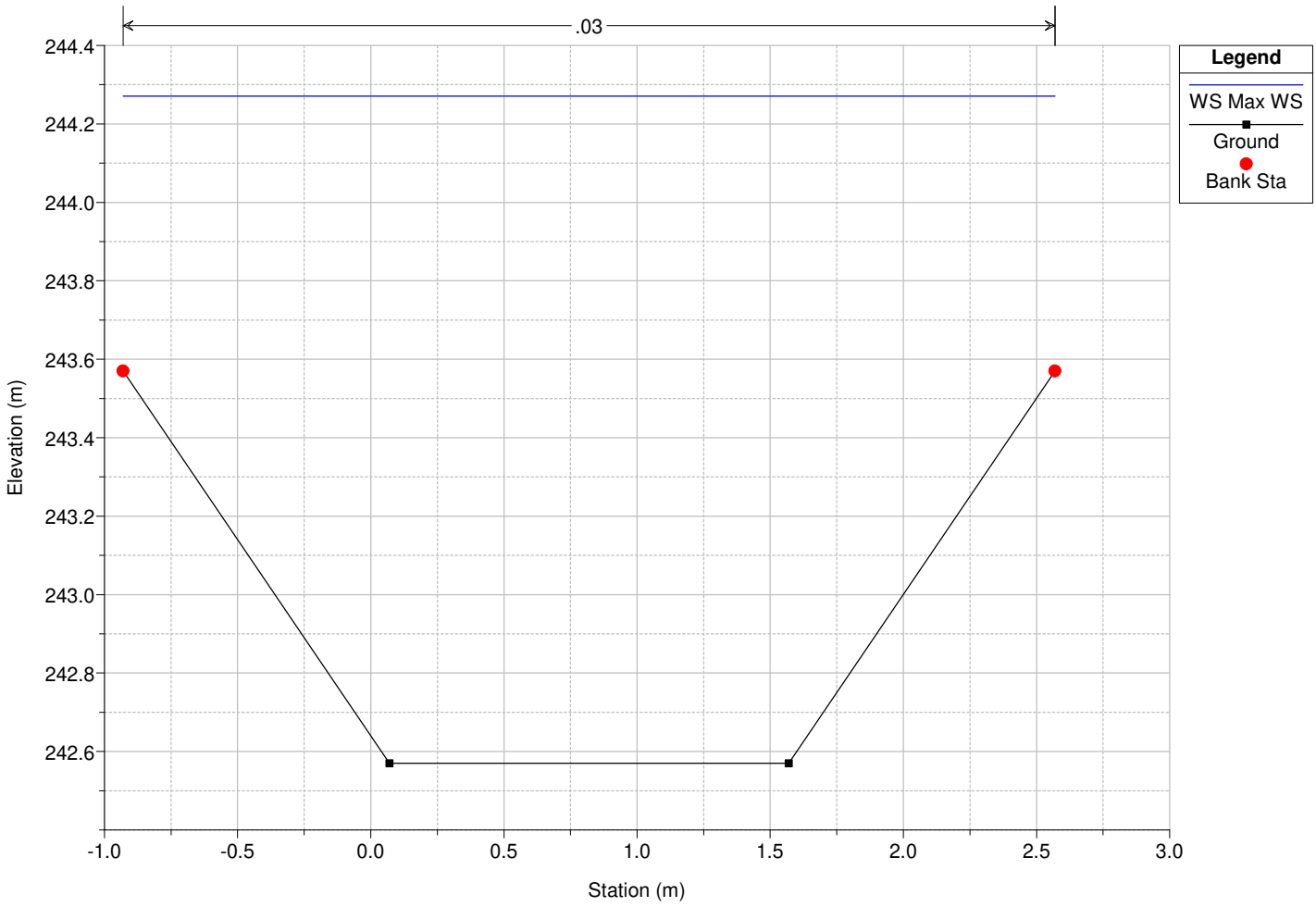

Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Affluente RS = 38.8
.013
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
254
252
250
248
246
244
242
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0


Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Affluente RS = 38.1
.013
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
254
252
250
248
246
244
242
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0


Rio_delle_Querce Plan: PRO_TR200_30min
River = Rio delle Querce Reach = Affluente RS = 38.027 Interpolata a 10m dal tombino
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
244.4
244.2
244.0
243.8
243.6
243.4
243.2
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0

Rio_delle_Querce Plan: PRO_TR200_30min

River = Rio delle Querce Reach = Affluente RS = 36.9



HEC-RAS Plan: PRO_TR200_30min River: Rio delle Querce Reach: Affluente Profile: Max WS

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Affluente	39	Max WS	2.36	243.64	244.29	244.19	244.43	0.008271	1.69	1.39	2.80	0.77
Affluente	38.999		Lat Struct									
Affluente	38.998		Lat Struct									
Affluente	38.8	Max WS	2.35	243.62	244.27	244.18	244.41	0.001552	1.69	1.39	2.80	0.77
Affluente	38.1	Max WS	1.93	243.40	244.29	243.89	244.33	0.000323	0.91	2.13	3.28	0.36
Affluente	38.099		Lat Struct									
Affluente	38.098		Lat Struct									
Affluente	38.027	Max WS	1.94	243.35	244.28	243.84	244.32	0.001466	0.85	2.27	3.36	0.33
Affluente	36.9	Max WS	1.21	242.57	244.27	242.94	244.27	0.000065	0.24	4.95	3.50	0.07

HEC-RAS Plan: PRO_TR200_30min River: Rio delle Querce Reach: Affluente Profile: Max WS

Reach	River Sta	Profile	Q US	Q Leaving Total	Q DS	Q Weir	Q Gates	Wr Top Wdth	Weir Max Depth	Weir Avg Depth	Min El Weir Flow	E.G. US.	W.S. US.	E.G. DS	W.S. DS
			(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)
Affluente	38.999	Max WS	2.36	0.00	2.35	0.00					244.88	244.43	244.29	244.41	244.27
Affluente	38.998	Max WS	2.36	0.00	2.35	0.00					245.11	244.43	244.29	244.41	244.27
Affluente	38.099	Max WS	1.93	4.05	1.21	4.05		139.91	0.58	0.26	243.69	244.33	244.29	244.27	244.27
Affluente	38.098	Max WS	1.93	4.94	1.21	4.94		139.77	0.63	0.31	243.64	244.33	244.29	244.27	244.27