COMUNE DI BIBBONA

Provincia di Livorno

Fosso della Madonna Sistemazione e casse di espansione
Interventi strutturali atti alla messa in sicurezza previa progettazione a scala di Bacino.

(Completamento L.265/95 Sistemazione idraulica del Fosso della Madonna in Comune di Bibbona)

CUP : J58G0600006001

PROGETTO DEFINITIVO

RELAZIONE IDRAULICA

Il Responsabile del Procedimento
Direttore Generale del Consorzio di Bonifica
Dott. Ing. Roberto Benvenuto

Progettista
Dott. Ing. Simone Chionchini

Collaboratori
Ufficio Staff Consorzio di Bonifica
Geom. Angela Nencioni
Dott. Ing. Elisa Totti

DATA	ELABORATO
Giugno 2017	3.1

1. PREMESSA

La presente relazione idraulica costituisce elaborato progettuale redatto, su incarico del Consorzio di Bonifica Toscana Costa, nell'ambito del progetto di sistemazione idraulica del Fosso della Madonna, nel Comune di Bibbona, e realizzazione di nuova cassa di espansione a servizio dello stesso.

Per il progetto suddetto, l'Ufficio Tecnico del Genio Civile di Area vasta Livorno-Lucca-Pisa ha rilasciato l'omologazione ai soli fini idraulici, ai sensi dell'art. 57 del R.D. 523/1904 e art. 12 ella L.R. 91/98.

Preso atto del suddetto progetto omologato ai fini idraulici, il documento in oggetto dettaglia i principali elementi della modellazione idraulica del tratto terminale del Fosso della Madonna, prendendo in considerazione il tratto compreso tra la sezione 139 e la sezione 103, prossima allo sbocco a mare, così come indicate nella Tav. Planimetria generale, descrivendo i criteri di messa a punto del modello e fornendo una descrizione dei risultati in diversi scenari di verifica.

Lo studio idraulico è stato effettuato assumendo le stime idrologiche condotte in un precedente studio idrologico a scala di bacino, redatto dal Prof. Ing. Stefano Pagliara nel 2006 e posto a base anche del progetto idraulico omologato. Visto il lungo tempo intercorso dalla redazione del suddetto progetto omologato, il Prof. Pagliara ha effettuato un controllo circa la coerenza dei risultati idrologici ottenuti in tale progetto a seguito del più recente aggiornamento del database dei dati pluviometrici estremi fino al 2012 effettuata dalla Regione Toscana. A seguito di tale controllo, il Prof. Pagliara ha confermato i risultati delle elaborazioni dei dati idrologici, così come condotte nel progetto omologato ai fini idraulici. Si allega al progetto i risultati ottenuti da detta elaborazione.

Inoltre, la modellazione idraulica dello stato attuale si basa sul rilievo topografico fornito dal Geom. Righi, aggiornato a seguito di una prima campagna di rilievo nel 2011 ed una successiva nel 2016.

A valle delle verifiche idrauliche condotte, sono state determinate le criticità idrauliche allo stato attuale nel tratto esaminato del corso d'acqua, con riferimento alla portata con tempo di ritorno duecentennale, e nell'ipotesi di funzionamento della cassa di espansione avente le caratteristiche definite nel progetto definitivo omologato ai fini idraulici.

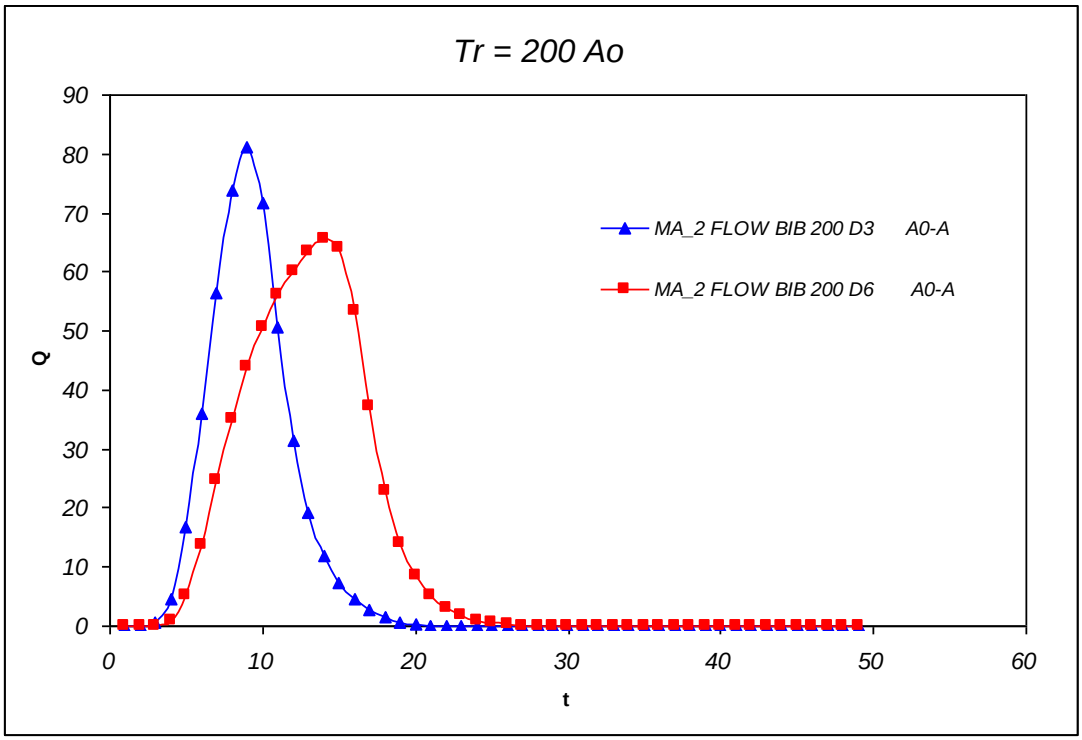
In base alle criticità riscontrate, sono stati individuati e dettagliati gli interventi di messa in sicurezza del corso d'acqua, con particolare riferimento al tratto oggetto del presente incarico, ovvero il tratto compreso tra la sezione 140, a monte della cassa di laminazione, e la sezione 112, subito a monte del ponte sulla S.P. Vecchia Aurelia.

2. DATI IDROLOGICI

Si riportano di seguito gli idrogrammi di piena in ingresso utilizzati per le varie simulazioni, estratti dal Progetto definitivo omologato ai fini idraulici:

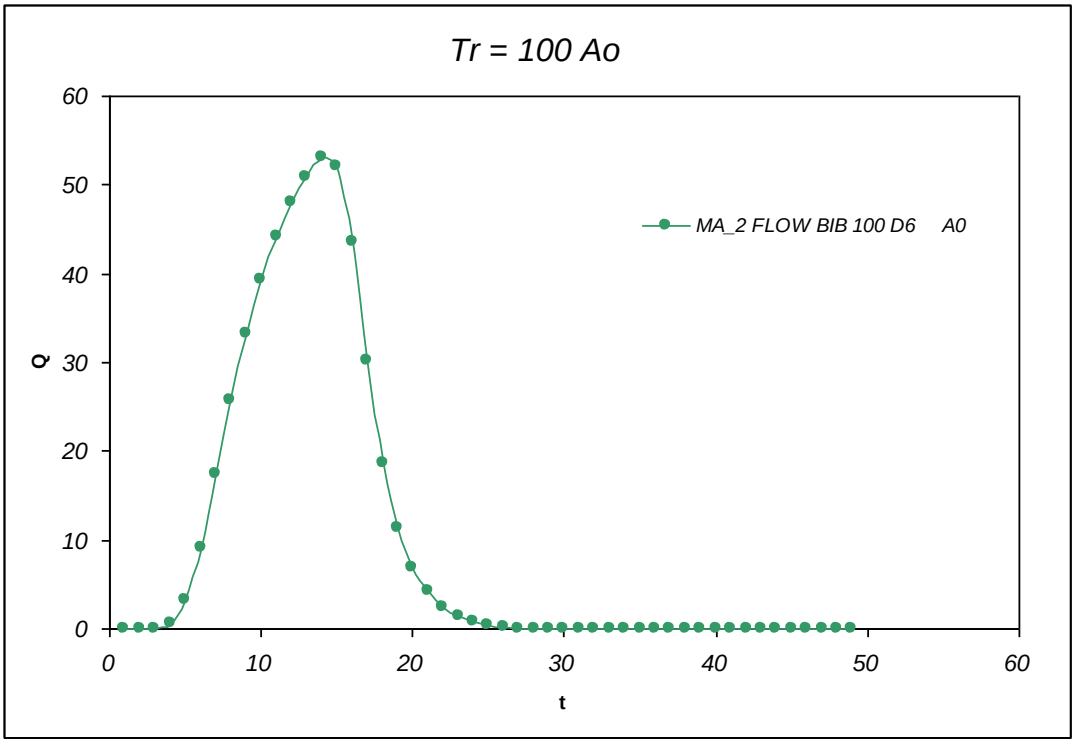
- Idrogramma di piena per Tr=200 anni, durata 3 ore (Tr200d3a0)
- Idrogramma di piena per Tr=200 anni, durata 6 ore (Tr200d6a0)

MA_2 FLOW BIB *200 D3* A0-A		MA_2 FLOW BIB *200 D6* A0-A
t	***Q(mc/s)***	***Q(mc/s)***
01:00	0	0
01:30	0	0
02:00	0.478	0.018
02:30	4.597	1.041
03:00	16.638	5.283
03:30	35.929	13.763
04:00	56.496	24.587
04:30	73.696	35.03
05:00	81.112	43.806
05:30	71.787	50.765
06:00	50.708	56.134
06:30	31.38	60.23
07:00	19.311	63.344
07:30	11.883	65.717
08:00	7.313	63.97
08:30	4.485	53.503
09:00	2.661	37.081
09:30	1.496	22.868
10:00	0.759	13.991
10:30	0.293	8.518
11:00	0	5.143
11:30	0	3.06
12:00	0	1.775
12:30	0	0.982
13:00	0	0.491
13:30	0	0.188
14:00	0	0
14:30	0	0
15:00	0	0
16:00	0	0
17:00	0	0


Tr = 200 Ao
90
80
70
60
50
40
30
20
10
0
Q
0
10
20
30
40
50
60
t
MA_2 FLOW BIB 200 D3 A0-A
MA_2 FLOW BIB 200 D6 A0-A

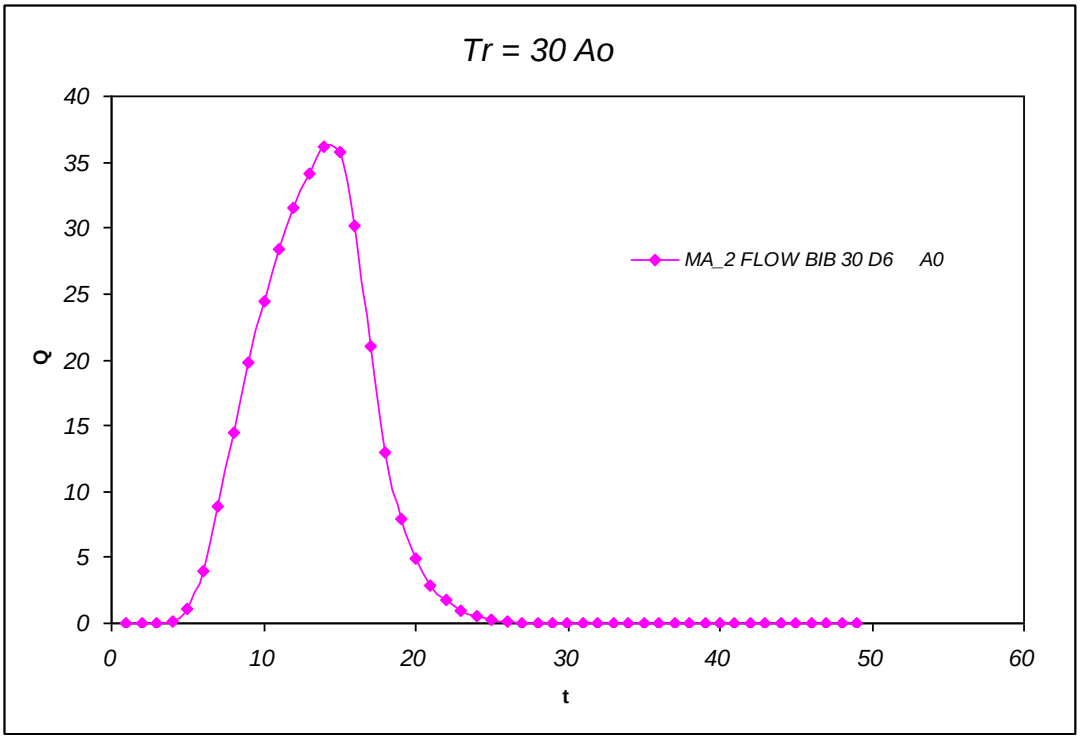
- Idrogramma di piena per Tr=100 anni, durata 6 ore (Tr100d6a0)

MA_2 FLOW BIB ***100 D6*** A0	
t	***Q(mc/s)***
01:00	0
01:30	0
02:00	0
02:30	0.554
03:00	3.215
03:30	9.126
04:00	17.358
04:30	25.837
05:00	33.27
05:30	39.358
06:00	44.186
06:30	47.959
07:00	50.891
07:30	53.171
08:00	52.011
08:30	43.617
09:00	30.267
09:30	18.673
10:00	11.43
10:30	6.962
11:00	4.206
11:30	2.505
12:00	1.455
12:30	0.805
13:00	0.404
13:30	0.155
14:00	0
14:30	0
15:00	0
16:00	0
17:00	0



- Idrogramma di piena per Tr=30 anni, durata 6 ore (Tr30d6a0)

MA_2 FLOW BIB ***30 D6*** A0	
t	***Q(mc/s)***
01:00	0
01:30	0
02:00	0
02:30	0.138
03:00	1.142
03:30	4.017
04:00	8.82
04:30	14.451
05:00	19.824
05:30	24.505
06:00	28.409
06:30	31.595
07:00	34.168
07:30	36.24
08:00	35.824
08:30	30.215
09:00	21.017
09:30	12.976
10:00	7.95
10:30	4.848
11:00	2.933
11:30	1.75
12:00	1.018
12:30	0.565
13:00	0.284
13:30	0.109
14:00	0
14:30	0
15:00	0
16:00	0
17:00	0



Per il dettaglio dello studio idrologico si rimanda allo studio idrologico di cui al progetto omologato ai fini idraulici.

3. MODELLAZIONE IDRAULICA

La modellazione idraulica è stata eseguita utilizzando il programma HEC-RAS (vers. 4.1.0), elaborato dall'Hydrologic Engineering Center's dell'US Army Corps of Engineers, utilizzando modelli a moto permanente e, dove necessario, modelli a moto vario monodimensionale.

Come detto in precedenza, lo studio idraulico è stato condotto sulla base di un precedente studio idrologico redatto dal Prof. Ing. Stefano Pagliara e posto a base anche del progetto omologato ai soli fini idraulici.

In particolare sono state assunte le seguenti portate di progetto:

- Evento critico che massimizza il picco di piena in alveo con tempo di ritorno 200 anni, corrispondente all'evento pluviometrico di durata 3 ore → Q = 81.11 mc/s;
- Evento critico che massimizza i volumi da invasare nella cassa con tempo di ritorno 200 anni, corrispondente all'evento pluviometrico di durata 6 ore → Q = 65.72 mc/s.

La modellazione, sia relativa allo stato attuale che di progetto, è stata condotta considerando per la cassa e le relative opere di sfioro, regolazione e scarico, le stesse caratteristiche geometriche del progetto omologato ai fini idraulici, ovvero:

- cassa di espansione suddivisa in due settori: quello di monte (cassa 1) avente quota di fondo a +23m s.l.m; il settore di valle (cassa 1), con quota fondo cassa di +20.7 m s.l.m;
- sfioratore laterale superficiale di ingresso cassa, avente quota +24.30m s.l.m;
- opera di regolazione tra i due settori della cassa costituito da uno sfioratore superficiale avente quota a +24.00m s.l.m.;
- sfioratore di sicurezza, posta in corrispondenza dell'opera di scarico della cassa, con quota a +24.30m s.l.m.

Rispetto al modello precedente relativo al progetto idraulico omologato sono stati introdotti:

- scarico di fondo in corrispondenza dell'organo di regolazione tra i due settori della cassa, costituito da una condotta a sezione circolare con diametro 80 cm;
- scarico di fondo in corrispondenza dell'opera di restituzione del settore 2 della cassa, costituito anch'esso da una condotta a sezione circolare con diametro 80 cm.

Ai fini della valutazione dei battenti massimi all'interno dei due settori della cassa, è stato preso in considerazione anche il caso in cui siano completamente occlusi entrambi gli scarichi di fondo suddetti, così che le portate defluiscono solo per tracimazione.

Inoltre, sono state schematizzate sul corso d'acqua a valle dello sfioratore in ingresso, tre soglie di fondo con geometria come da progetto omologato, poste ad intervalli di circa 40 m, per fissare l'altezza liquida nel fosso in corrispondenza dello sfioratore e così garantire la prevista derivazione.

Nella rappresentazione del tracciato del corso d'acqua è stata considerata poi rettifica del Fosso della Madonna tra la sezione 138.9 e la sezione 133.

Sono state quindi effettuate le seguenti simulazioni, con modellazione come di seguito indicata:

- SIMULAZIONE N.1: Studio idraulico relativo allo stato attuale del fosso:
  - Sezioni attuali del corso d'acqua nel tratto compreso tra la sezione 144.1 e la sezione 103.
  - portata di progetto con tempo di ritorno duecentennale che massimizza il picco di piena nel corso d'acqua;
  - portate defluenti a valle dello sfioratore laterale laminate a seguito di funzionamento della cassa di espansione (la portata è stata ricavata dalla simulazione n. 2.a di seguito riportata);
  - condizioni di moto permanente.

  Questa simulazione ha permesso di individuare le criticità presenti sull'asta idraulica ed i conseguenti interventi di adeguamento.

- SIMULAZIONE N.2: Studio idraulico relativo allo stato di progetto del fosso, in condizioni di moto vario:

  2.a) Evento critico duecentennale che massimizza il picco di piena:
  - Portata in alveo con tempo di ritorno duecentennale che massimizza il picco di piena nel corso d'acqua;
  - Sezioni di progetto del corso d'acqua nel tratto compreso tra la sezione 144.1 e la sezione 103;
  - portate laminate per effetto della cassa di espansione;

  2.b) Evento critico duecentennale che massimizza il volume da invasare:

  2) Portata con tempo di ritorno duecentennale che massimizza il volume da invasare nella cassa di espansione;
  - Sezioni di progetto del corso d'acqua nel tratto compreso tra la sezione 144.1 e la sezione 103;
  - portate laminate per effetto della cassa di espansione.

  Con queste simulazioni sono stati esaminati le condizioni di deflusso del fosso ed il regime di funzionamento della cassa, verificando che non ci fossero modifiche sostanziali di tale regime rispetto ai risultati di cui al progetto idraulico omologato.

- SIMULAZIONE N.3: Studio idraulico relativo allo stato di progetto del fosso, in condizioni di moto permanente:

  3.a) Evento critico duecentennale che massimizza il picco di piena:
  - Sezioni di progetto del corso d'acqua nel tratto compreso tra la sezione 144.1 e la sezione 103;

- Portata in alveo a monte della cassa con tempo di ritorno duecentennale che massimizza il picco di piena nel corso d'acqua;
- Portata massima, ridotta per effetto della laminazione della cassa, defluente in alveo a valle della cassa stessa, relativa all'evento critico duecentennale (portata dedotta dalla simulazione n. 2.a);

3.b) Evento critico duecentennale che massimizza il volume da invasare nella cassa:

- Sezioni di progetto del corso d'acqua nel tratto compreso tra la sezione 144.1 e la sezione 103;
- Portata in alveo a monte della cassa con tempo di ritorno duecentennale che massimizza il volume da invasare nella cassa di espansione;
- Portata massima, ridotta per effetto della laminazione della cassa, defluente in alveo a valle della cassa stessa, relativa all'evento critico duecentennale (portata dedotta dalla simulazione n. 2.b).

Anche questa simulazione è stata utilizzata per verificare le condizioni di deflusso nel fosso.

4. RISULTATI DELLA MODELLAZIONE IDRAULICA RELATIVA ALLO STATO ATTUALE

La modellazione idraulica (simulazione n.1) è stata condotta considerando i seguenti valori di portata:

- Sez. 144.1 (sezione iniziale del tratto esaminato): Q = 81.11 mc/s;
- Sez. 137 (sezione in corrispondenza dello sfioratore): Q = 40.59 mc/s;
- Sez. 113 (in prossimità dell'immissione del Fosso degli Alberelli): Q = 48.29 mc/s

Dalla modellazione sono emerse le seguenti criticità idrauliche, qui riportate sinteticamente e rimandando agli allegati per il dettaglio dei risultati:

- alcuni tratti con sezioni insufficienti al deflusso della portata duecentennale;
- tratti aventi sezioni in grado di consentire il deflusso della portata duecentennale ma con franco di sicurezza inferiore ad 1 m;
- ponti (o ponticelli) in corrispondenza delle sezioni 142, 121, 120 (franco di sicurezza inferiore a 1m), 116, 111 (ponte su Vecchia Aurelia, franco di sicurezza inferiore a 1m), 108 (ponte su FF.SS., sezione insufficiente al deflusso).

Pertanto si confermano sostanzialmente le criticità idrauliche individuate nel progetto omologato.
Nell'Allegato 1 sono riportati i risultati della modellazione effettuata.

5. RISULTATI DELLA MODELLAZIONE IDRAULICA RELATIVA AL FUNZIONAMENTO DELLA CASSA DI ESPANSIONE

Si riporta di seguito una sintesi dei risultati delle simulazioni a moto vario relativamente al funzionamento della cassa di espansione, rimandando agli allegati per il dettaglio degli output delle simulazioni stesse.
A seguito degli interventi di progetto sul tratto esaminato del Fosso della Madonna ed alla luce del nuovo rilievo topografico risulta:

SIMULAZIONE N.2: STATO DI PROGETTO DEL FOSSO, CONDIZIONI DI MOTO VARIO:

2.a) Evento critico duecentennale che massimizza il picco di piena:

- La portata di picco in corrispondenza della sez. 144.1 è di 81.11 mc/s
- La portata massima defluente a valle della cassa risulta di 40.04 mc/s.

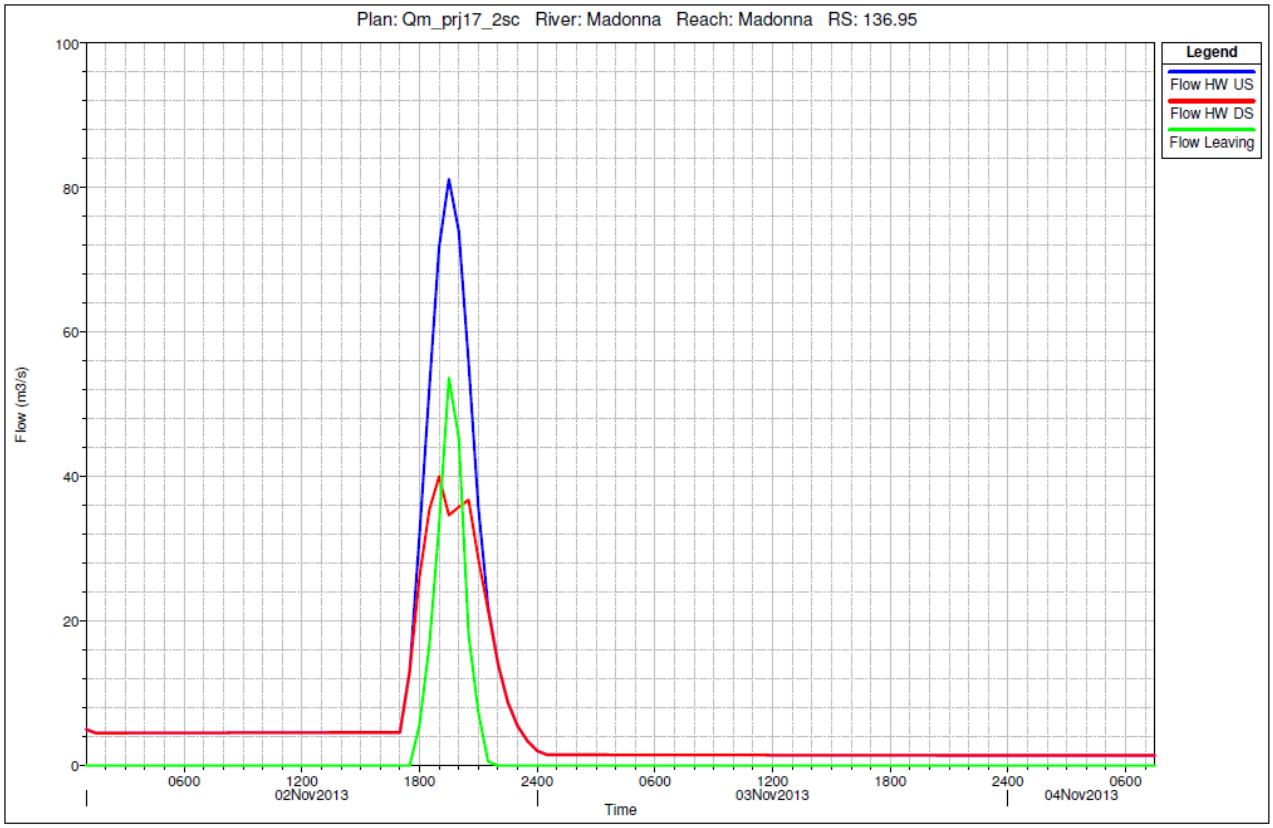


Fig. 1 – Sfioratore in ingresso prima cassa, evento critico che massimizza il picco di piena

- La quota massima di riempimento del primo settore della cassa è di 25.04 m s.l.m.
  Considerando la curva di esaurimento, si ha che il tempo di svuotamento del settore 1 risulta di circa 62.5 ore, pari a circa 2.5 giorni.

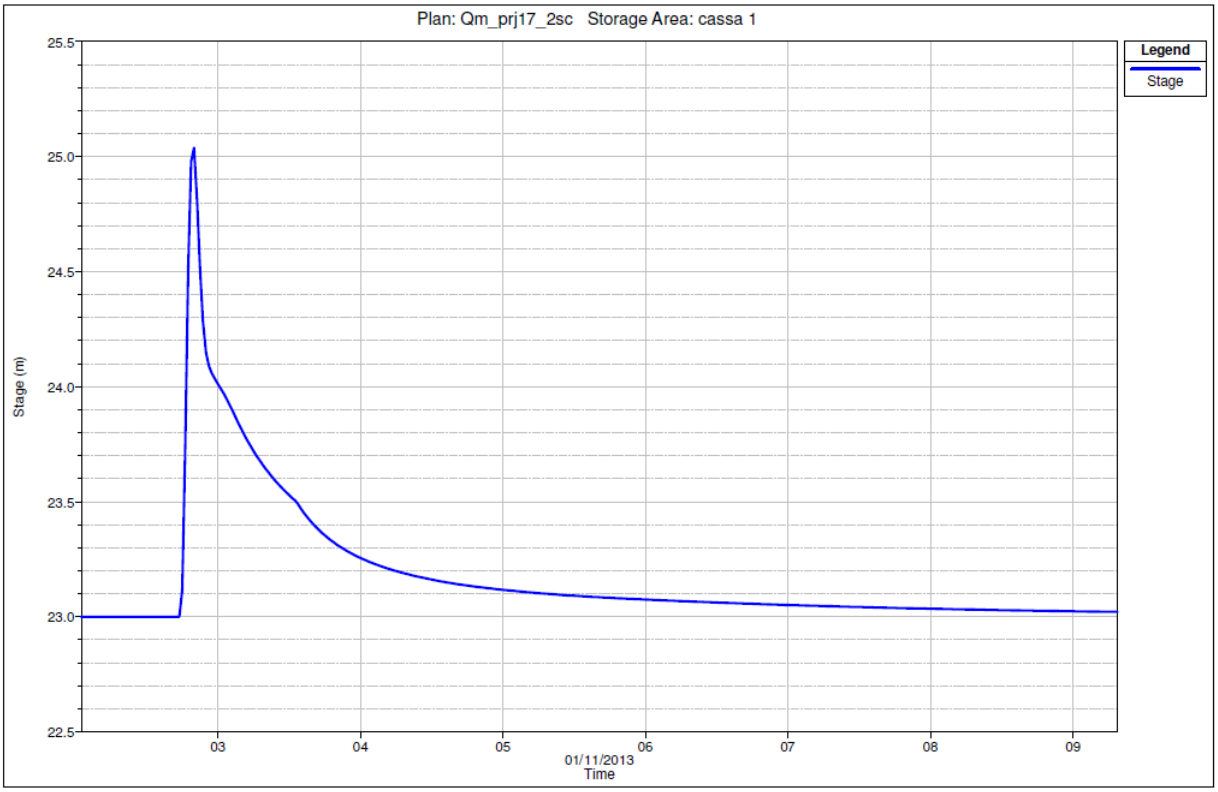


Fig. 2 – Curva d'invaso primo settore della cassa, evento critico duecentennale che massimizza il picco di piena

- La quota massima di riempimento del secondo settore della cassa è di 24.09 m s.l.m. Considerando la curva di esaurimento, si ha che il tempo di svuotamento del settore 2 risulta di circa 149.5 ore pari a circa 6 giorni.

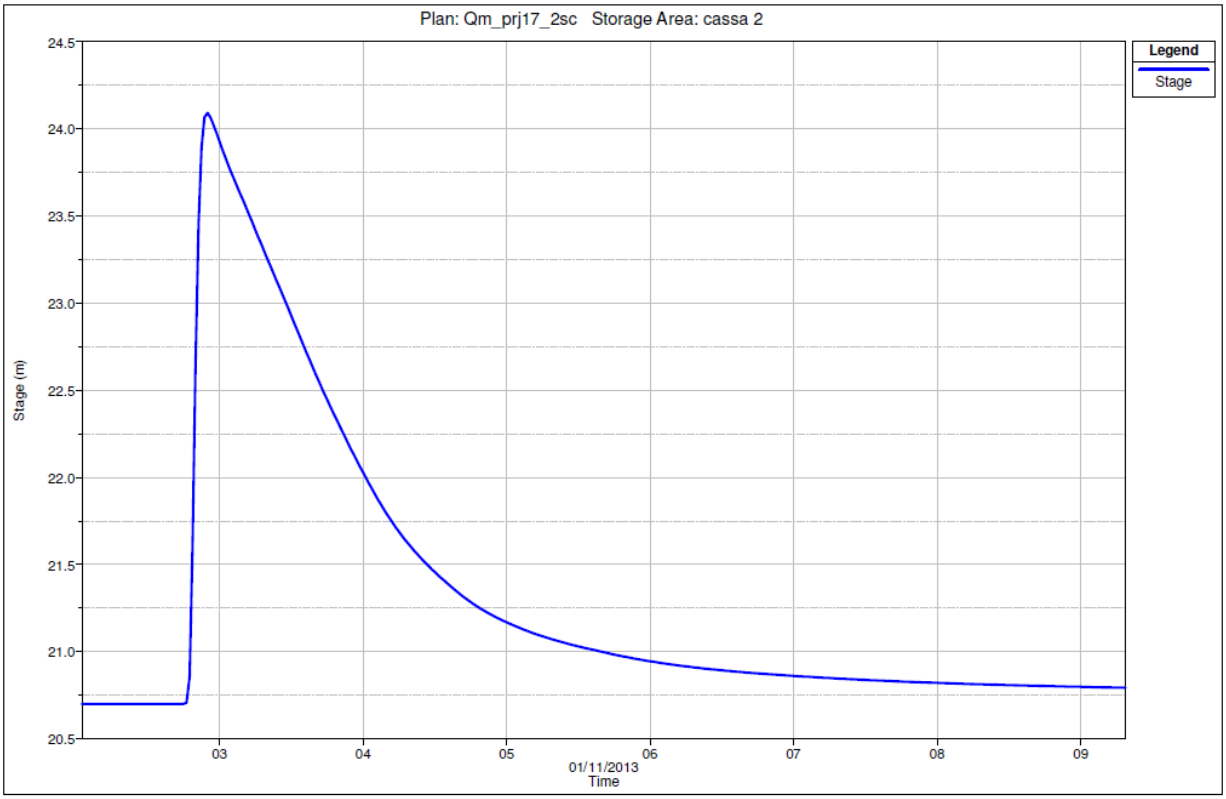


Fig. 3 – Curva d'invaso secondo settore della cassa, evento critico che massimizza il picco di piena

2.b) Evento critico duecentennale che massimizza il volume da invasare:

– La portata massima defluente a valle della cassa risulta di 38.42 mc/s.

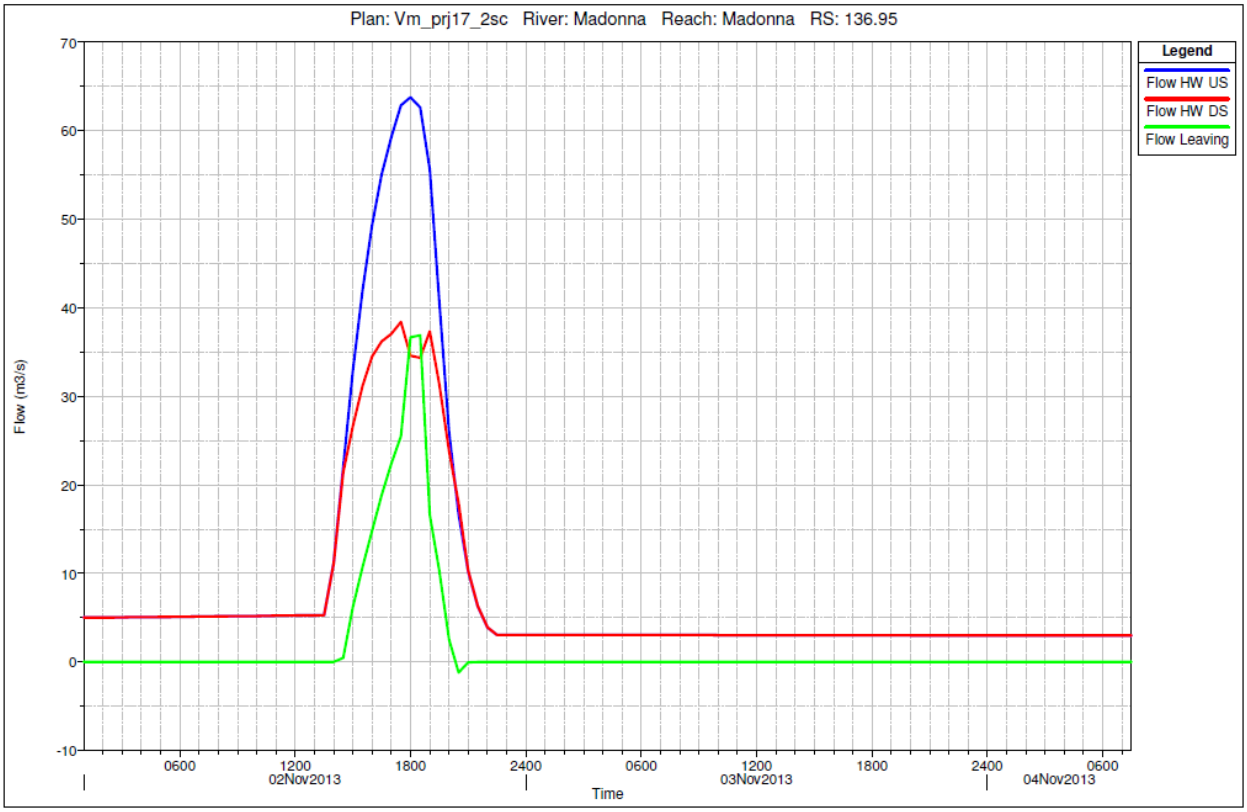


Fig. 4 – Sfioratore in ingresso prima cassa, evento critico che massimizza il volume da invasare

– La quota massima di riempimento del primo settore della cassa è di 24.81 m s.l.m.

Considerando la curva di esaurimento, si ha che il tempo di svuotamento del settore 1 risulta di circa 65.5 ore, pari a circa 2.5 giorni.

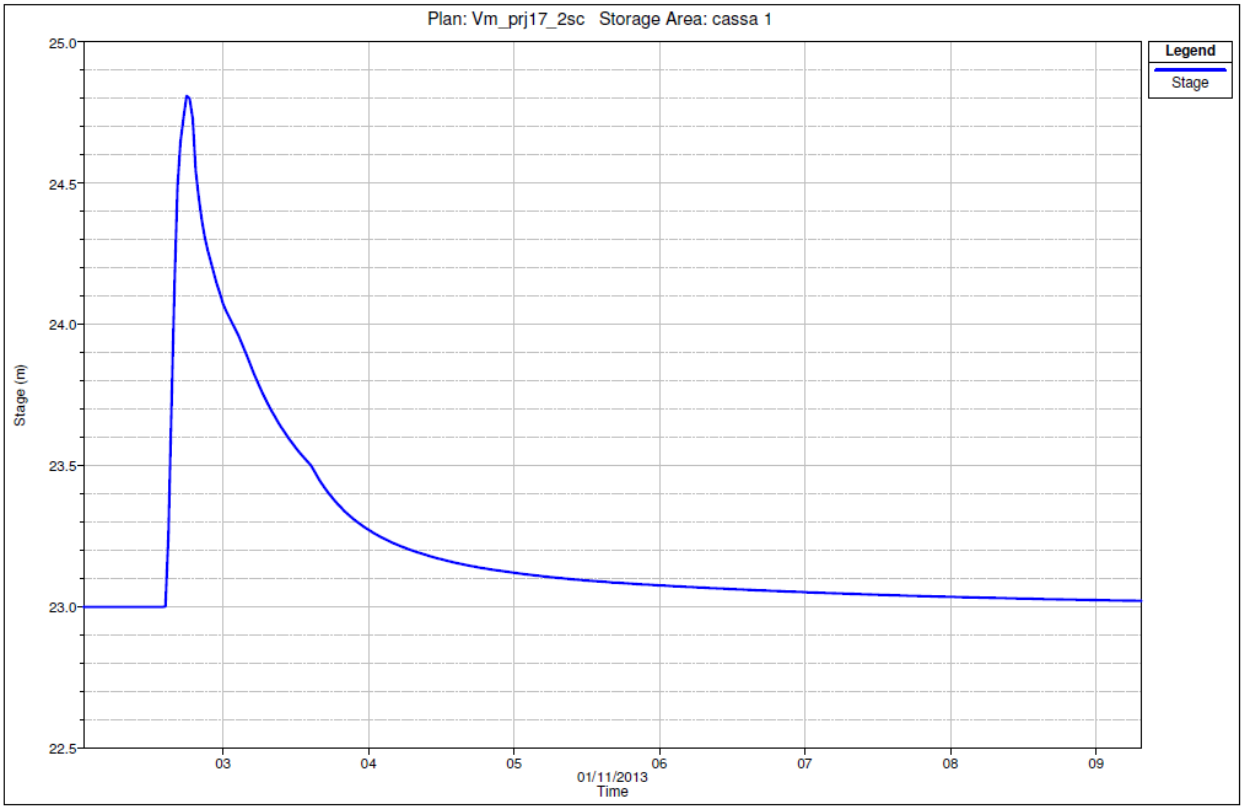


Fig. 5 – Curva d'invaso primo settore della cassa, evento critico duecentennale che massimizza il volume da invasare

- La quota massima di riempimento del secondo settore della cassa è di 24.44 m s.l.m.

  Considerando la curva di esaurimento, si ha che il tempo di svuotamento del settore 2 risulta di circa 154 ore, pari a circa 6.5 giorni.

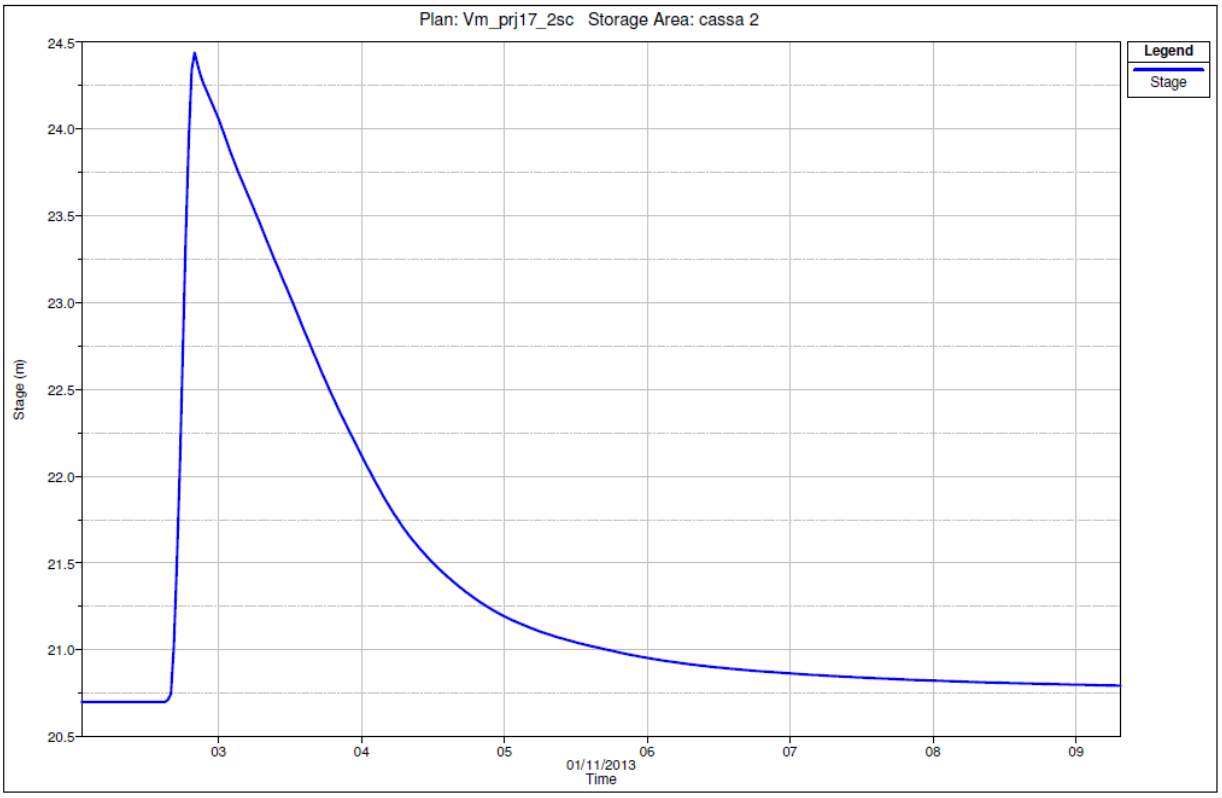


Fig. 6 – Curva d'invaso secondo settore della cassa, evento critico che massimizza il volume da invasare

– Nell'ipotesi di completa occlusione sia dello scarico di fondo in corrispondenza del regolatore che di quello in corrispondenza del settore 2 della cassa, la quota massima di riempimento del primo settore risulta di 24.85 m s.l.m., mentre la quota massima di riempimento del secondo settore risulta di 24.27m s.l.m..

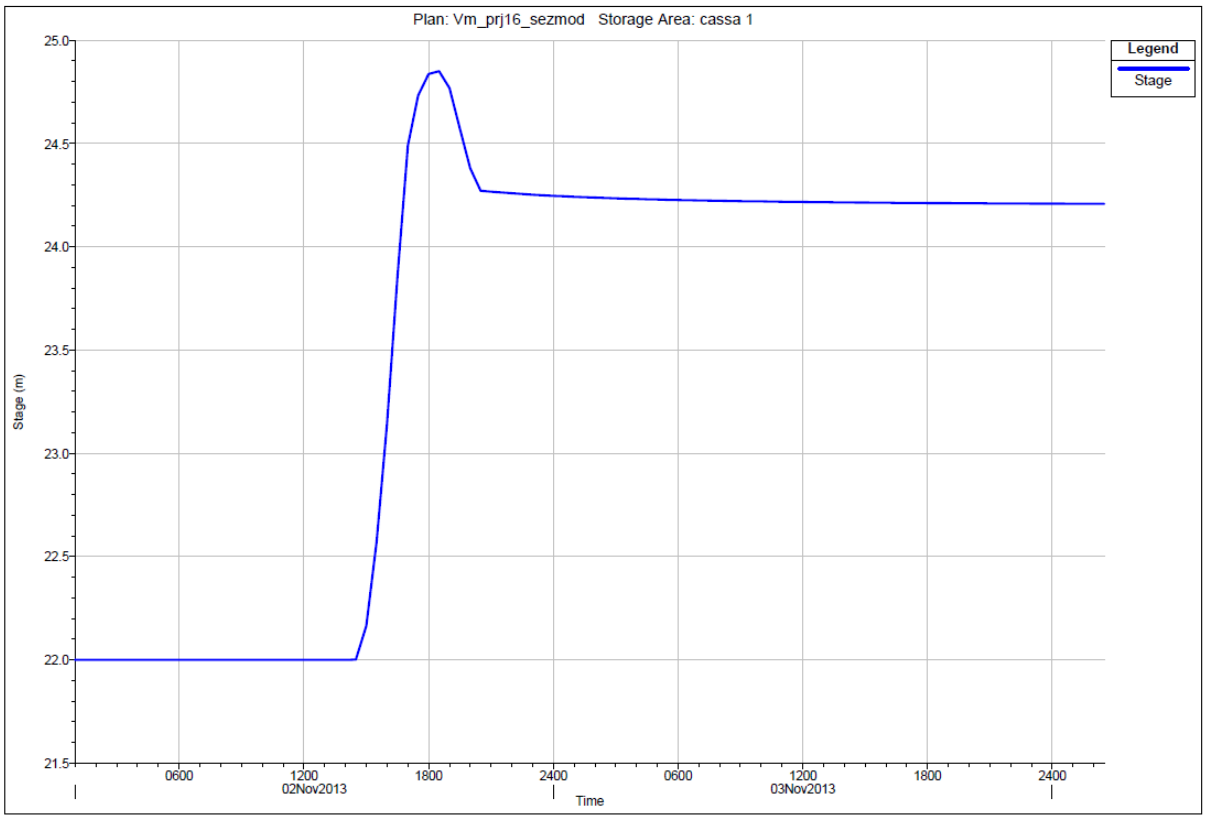


Fig. 7 – Curva d'invaso primo settore della cassa, evento critico duecentennale che massimizza il volume da invasare, scarichi di fondo occlusi

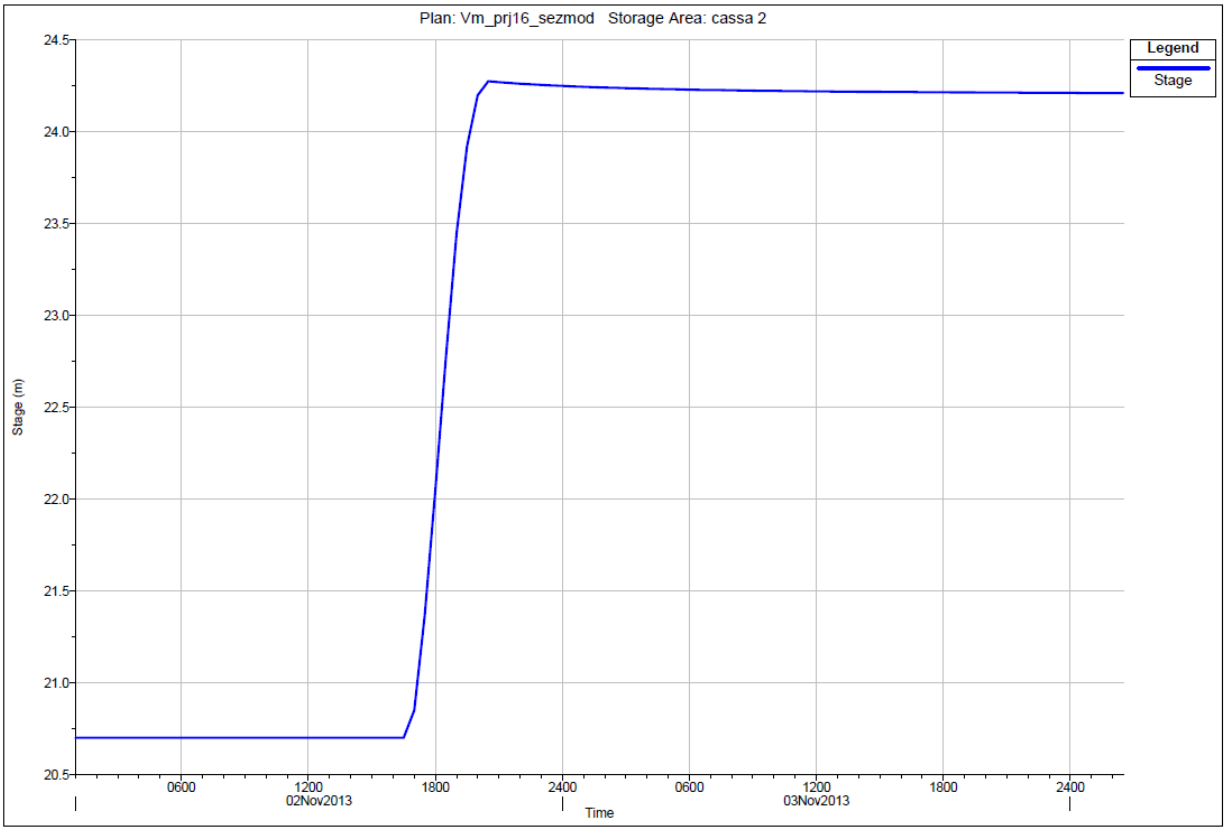


Fig. 8 – Curva d'invaso secondo settore della cassa, evento critico duecentennale che massimizza il volume da invasare, scarichi di fondo occlusi

Tenendo di conto nella modellazione della presenza dello scarico di fondo, si ha che il volume complessivo massimo sottratto all'onda di piena ammonta a circa 319.830 mc., così suddiviso:

settore 1: circa 74.150 mc per una superficie dello specchio d'acqua di circa 5 ha

settore 2: circa 245.680 mc per una superficie dello specchio d'acqua di circa 7.25 ha.

Pertanto, la quota prevista per gli argini perimetrali della cassa, indicata negli elaborati grafici del presente progetto , garantirà un franco di circa 1 m sui livelli massimi ipotizzati.

Negli Allegati 2 e 3 si riportano il dettaglio dei risultati delle simulazioni.

6. RISULTATI DELLA MODELLAZIONE IDRAULICA RELATIVA ALLO STATO DI PROGETTO DEL CORSO D'ACQUA

La modellazione idraulica (simulazione n.3) è stata condotta considerando i seguenti valori di portata:

- Simulazione 3.a: Evento critico duecentennale che massimizza il picco di piena:
  - Sez. 144.1 (sezione iniziale del tratto esaminato): Q = 81.11 mc/s;
  - Sez. 137 (sezione in corrispondenza dello sfioratore): Q = 40.04 mc/s;
  - Sez. 113.3 (in prossimità dell'immissione del Fosso degli Alberelli): Q = 48.24 mc/s
- Simulazione 3.b: Evento critico duecentennale che massimizza il volume da invasare nella cassa:
  - Sez. 144.1 (sezione iniziale del tratto esaminato): Q = 65.72 mc/s;
  - Sez. 137 (sezione in corrispondenza dello sfioratore): Q = 38.42 mc/s;
  - Sez. 113.3 (in prossimità dell'immissione del Fosso degli Alberelli): Q = 46.12 mc/s

Il dettaglio dei risultati delle simulazioni è riportato negli Allegati 4 e 5.

Alla luce del nuovo rilievo topografico, delle criticità idrauliche e sulla base di quanto già indicato nel progetto omologato, sono stati individuati e dettagliati gli interventi di risagomatura e rialzamento arginale sul corso d'acqua necessari affinché la portata avente tempo di ritorno duecentennale sia contenuta in alveo, con particolare riferimento al tratto del Fosso della Madonna compreso tra la sezione 139 e la sezione 112.

Qualora possibile, gli interventi suddetti sono stati progettati in modo da consentire condizioni di deflusso con un franco di sicurezza di almeno 1 m: tale obbiettivo è stato ricercato essenzialmente laddove lo permettessero l'inserimento nel contesto ambientale (presenza di ostacoli od altri vincoli) e comunque sempre che i livelli idrici fossero tali da consentire il raggiungimento di tale obbiettivo con limitati "riporti" di terreno. Così facendo, si ha che nel tratto a monte della cassa di laminazione la portata di progetto risulta contenuta in alveo, mentre nel tratto a valle della cassa risulta verificato un franco di sicurezza di 1 m, salvo singolarità in prossimità dei ponti esistenti, a causa del profilo di rigurgito generato dagli stessi.

Nella definizione degli interventi, si è tenuto conto, poi, della vetustà di quei ponti (o ponticelli) per i quali si sono evidenziati criticità per il deflusso della portata duecentennale, limitando per quanto possibile gli interventi che possono causare scalsamento delle fondazioni o delle spallette, al fine di non comprometterne la stabilità.

Relativamente agli interventi sul corso d'acqua si prevede pertanto:

- una risagomatura del tratto a monte della cassa di laminazione fino alla sezione 139, al fine di contenere l'evento di piena con tempo di ritorno di 200 anni con un franco di sicurezza di 1 m;
- demolizione delle briglie ubicate tra la sezione 138.9 e la sezione 133;
- rettifica del Fosso della Madonna tra la sezione 138.9 e la sezione 133;
- risagomatura d'alveo nel tratto compreso tra la sezione 127 e la sezione 122, che consente il deflusso in alveo della portata di 40 mc/s con un franco di sicurezza di almeno 1 m;
- risagomatura d'alveo e localizzati rialzamenti arginali del tratto compreso tra la sezione 119 e la sezione 114, con franco di sicurezza di 1 m rispetto al deflusso della portata di progetto;
- riprofilatura del fondo alveo in corrispondenza dei ponti sulle sezioni 121, 120 ed opere di protezione spondale con massi da scogliera;
- risagomatura dell'alveo, rialzamento arginale ed opere di protezione spondale con massi da scogliera in corrispondenza del ponticello sulla sezione 116, al fine del contenimento della portata defluente a valle della cassa;
- demolizione e ricostruzione del ponticello alla sezione 116, con sezione utile 5.00m x 3.50m al fine di consentire il deflusso della massima portata di progetto con un franco di 1m.

7. CONCLUSIONI

I rilievi topografici effettuati sul Fosso della Madonna nel 2011 e nel 2016 mostrano che il corso d'acqua ha subito, rispetto al rilievo del 2006, a base del progetto omologato, alcune limitate modifiche di pendenza e di geometria delle sezioni trasversali, a seguito del regime di deflusso.

Per quanto riguarda il funzionamento della cassa di espansione i risultati delle modellazioni confermano che:

- la portata massima defluente a valle della cassa risulta compatibile con la capacità di deflusso dei ponti (o ponticelli) presenti;
- il volume complessivo massimo invasato nella cassa ammonta a circa 319.830 mc;
- le quote dei livelli idrici di riempimento dei due settori della cassa risultano tali da avere un franco di sicurezza rispetto alla sommità degli argini perimetrali di circa 1 m, anche nell'ipotesi di completa occlusione dello scarico di fondo in corrispondenza dell'organo regolatore tra i due settori della cassa e dello scarico di fondo in corrispondenza dell'opera di restituzione del settore 2 della cassa.

Sulla base della modellazione idraulica svolta, sono stati individuati gli interventi di risagomatura e rialzamento arginale sul corso d'acqua, necessari affinché la portata avente tempo di ritorno duecentennale sia contenuta in alveo, ove possibile, con franco di sicurezza di 1 m.

Inoltre, secondo quanto già indicato nel progetto omologato, sarà realizzata la rettifica d'alveo nel tratto subito a valle del nuovo sfioratore della cassa di laminazione.

Per maggiori dettagli sugli interventi previsti su l corso d'acqua nel tratto esaminato si rimanda agli elaborati grafici facenti parte del presente progetto.

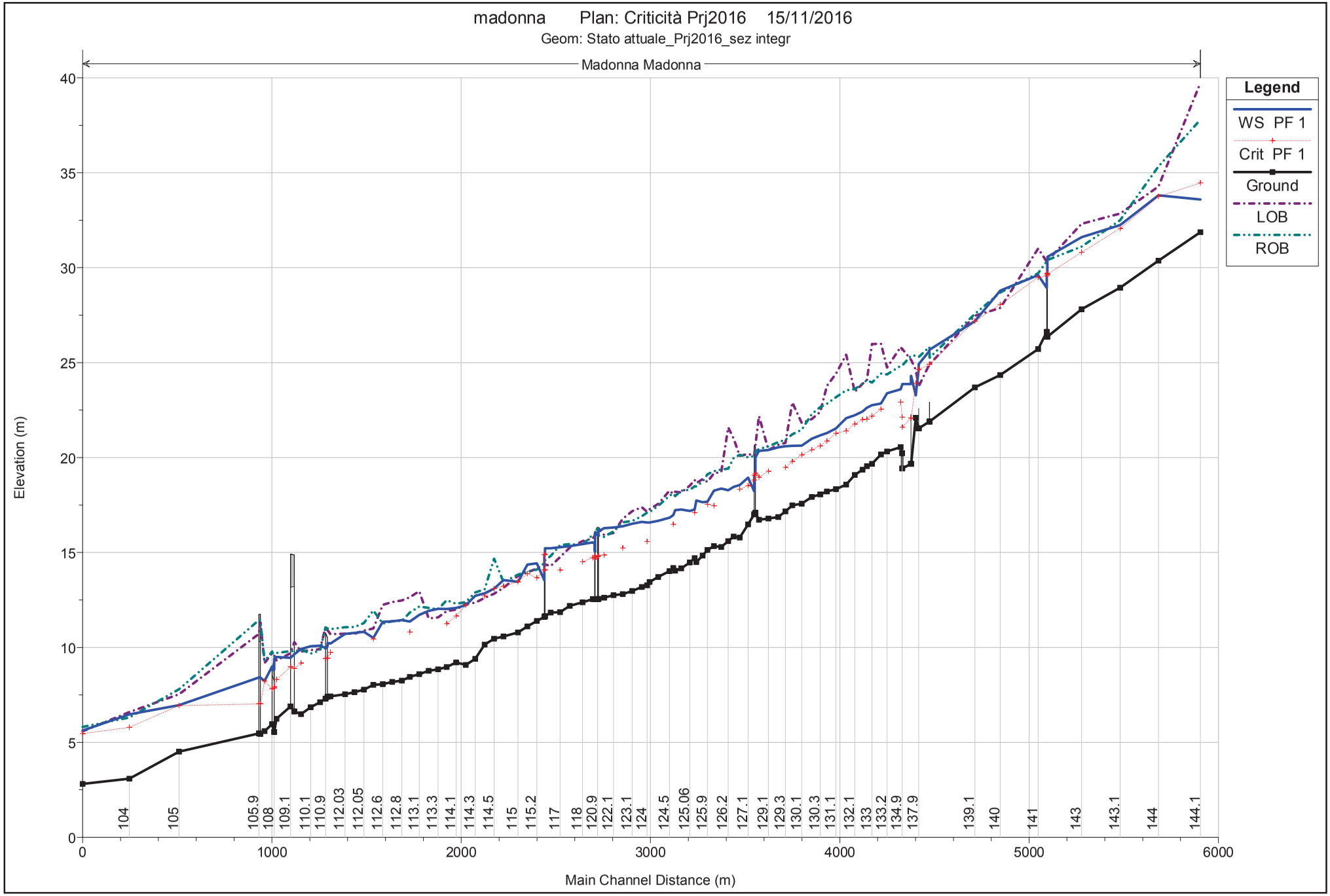
Il Tecnico

Dott. Ing. Simone Chionchini

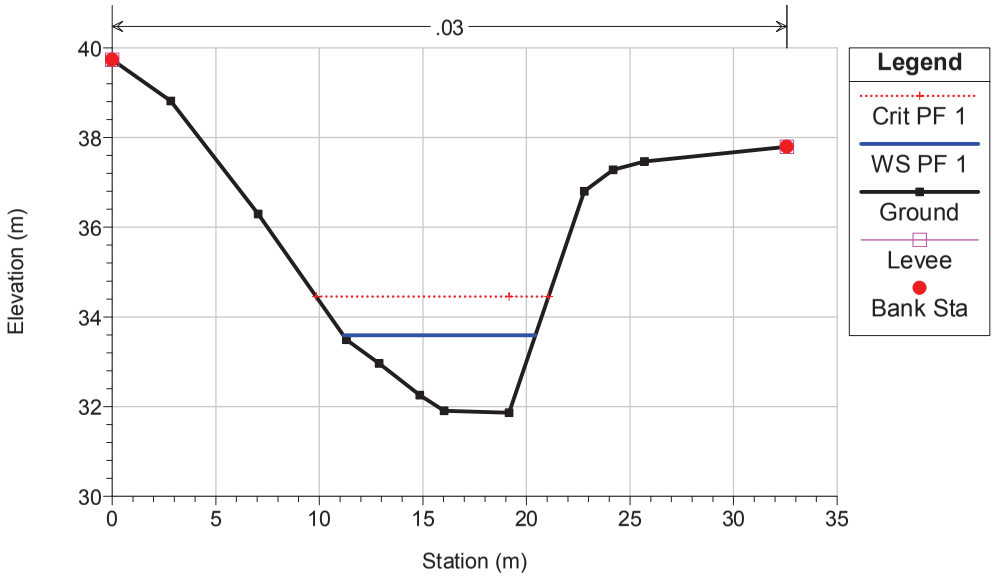
ALLEGATO 1

SIMULAZIONE 1:

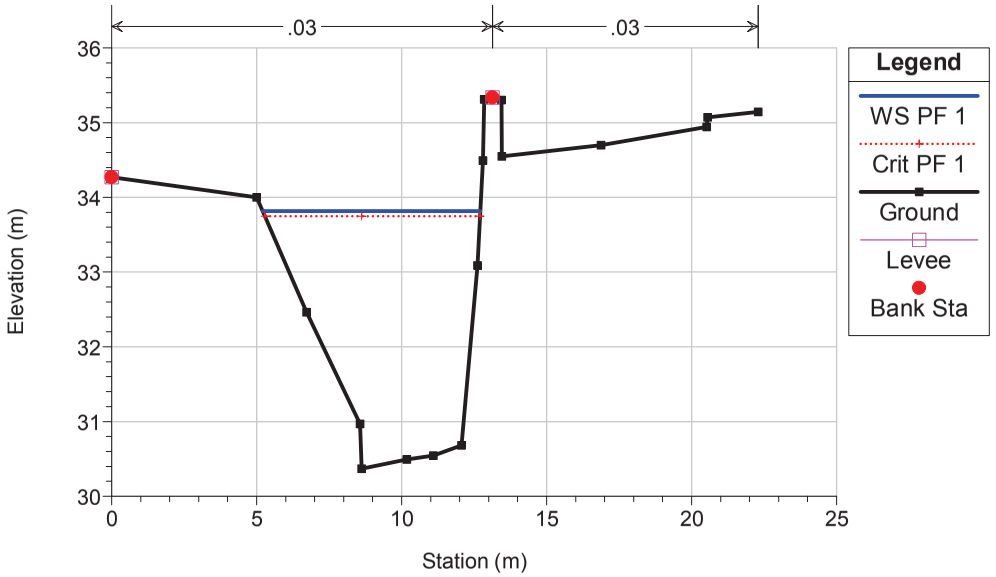
VERIFICA IDRAULICA A MOTO PERMANENTE DEL FOSSO DELLA MADONNA ALLO STATO ATTUALE, CON FUNZIONAMENTO DELLE CASSE DI ESPANSIONE


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
Madonna Madonna
Legend
WS PF 1
Crit PF 1
Ground
LOB
ROB
Elevation (m)
Main Channel Distance (m)
0
5
10
15
20
25
30
35
40
0
1000
2000
3000
4000
5000
6000
104
105
105.9
108
109.1
110.1
110.9
112.03
112.05
112.6
112.8
113.1
113.3
114.1
114.3
114.5
115
115.2
117
118
120.9
122.1
123.1
124
124.5
125.06
125.9
126.2
127.1
129.1
129.3
130.1
130.3
131.1
132.1
133
133.2
134.9
137.9
139.1
140
141
143
143.1
144
144.1

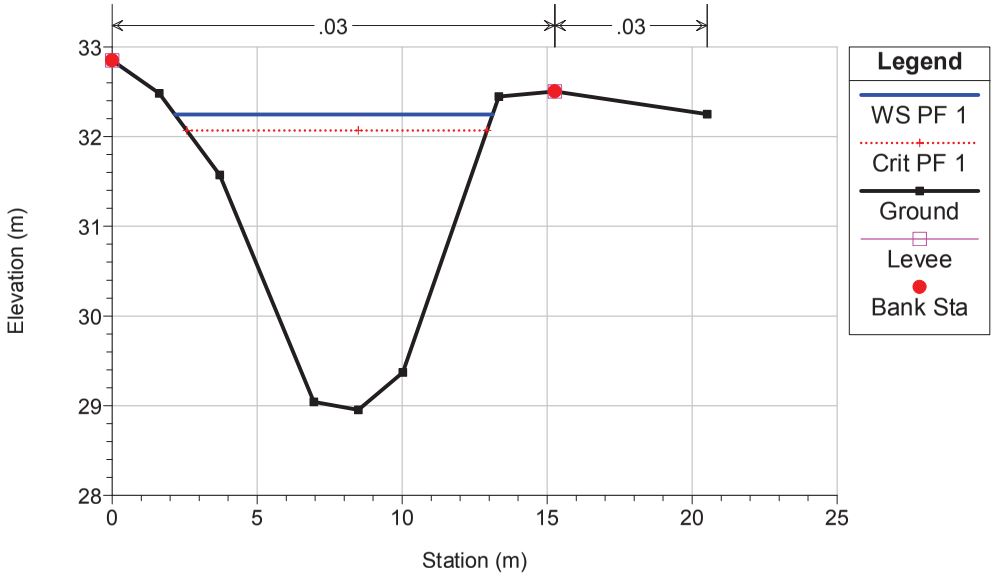
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 144.1



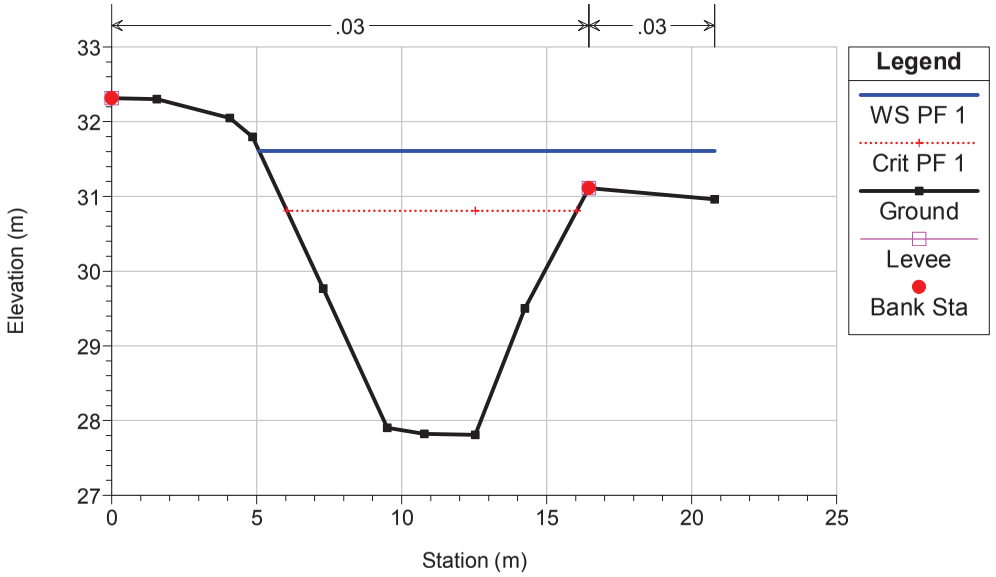
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 144

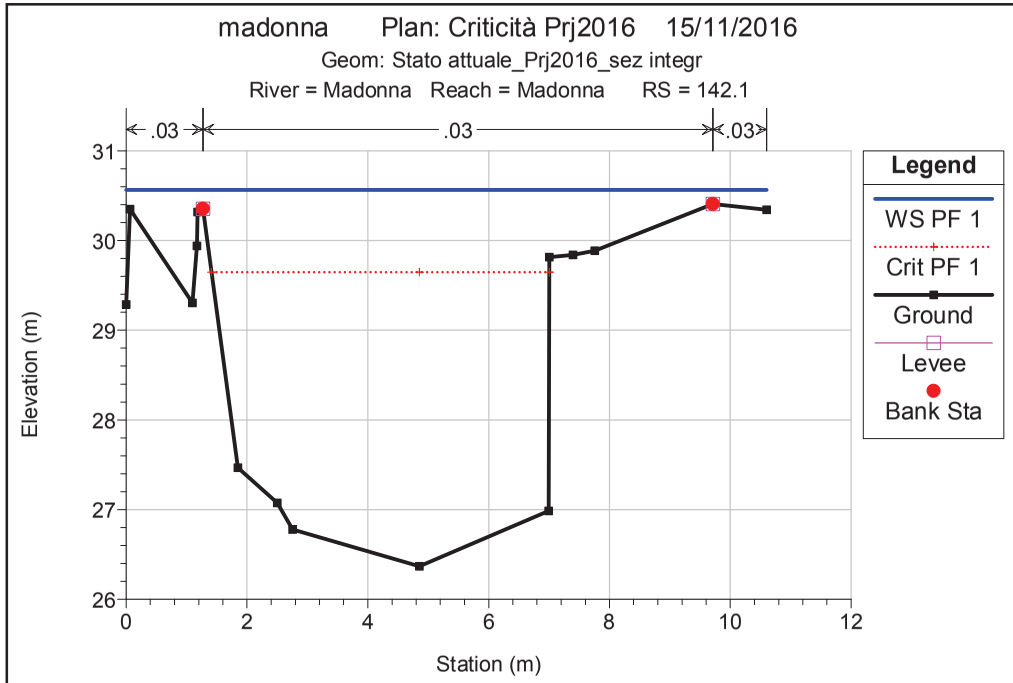


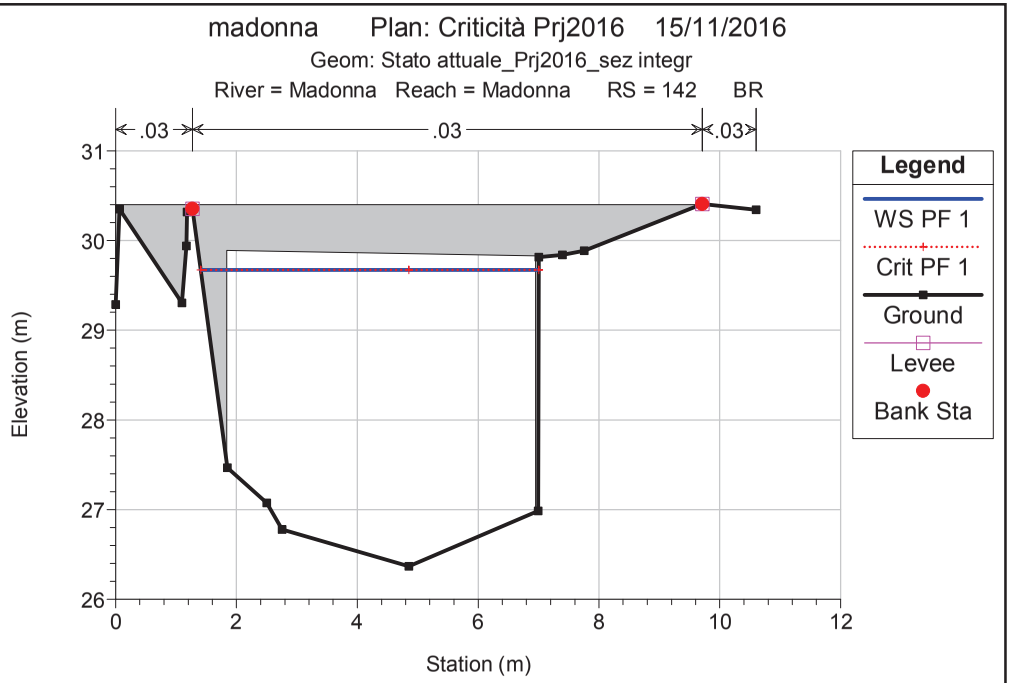
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 143.1

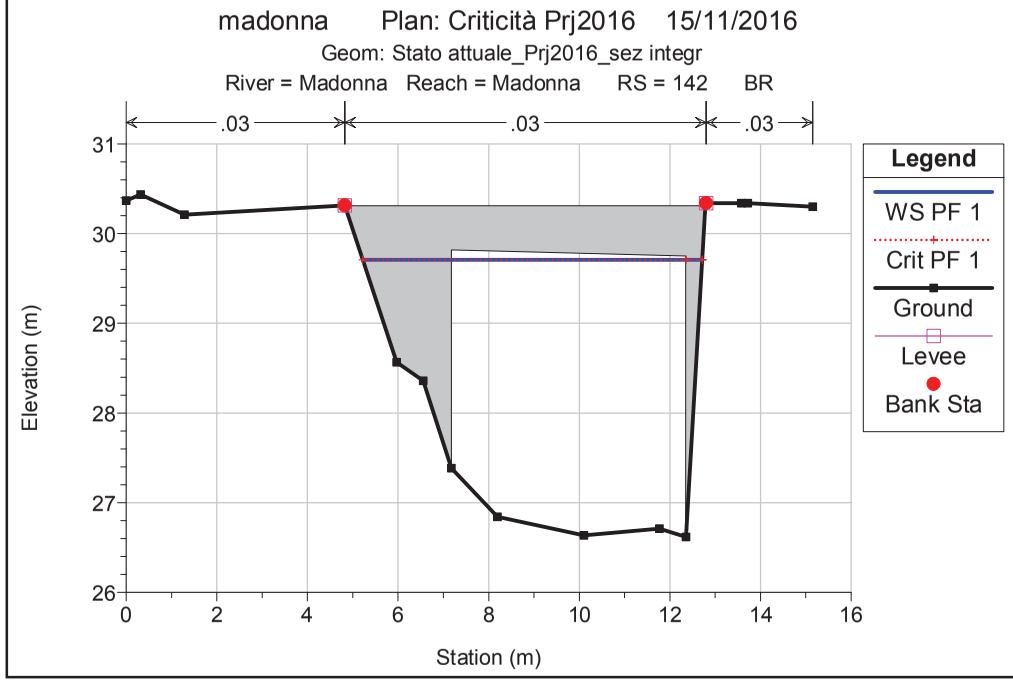


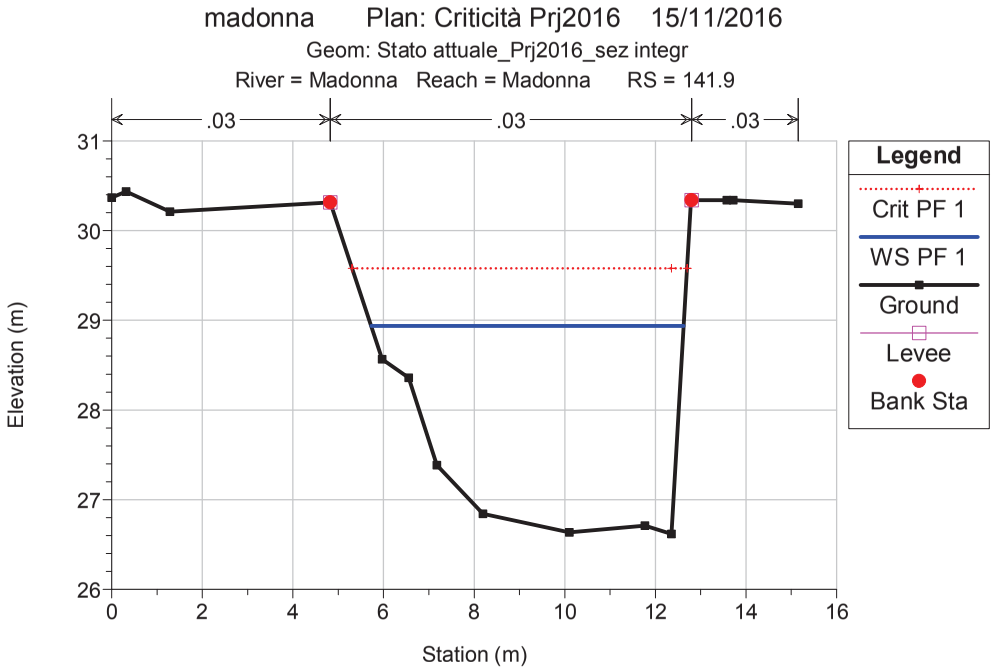
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 143

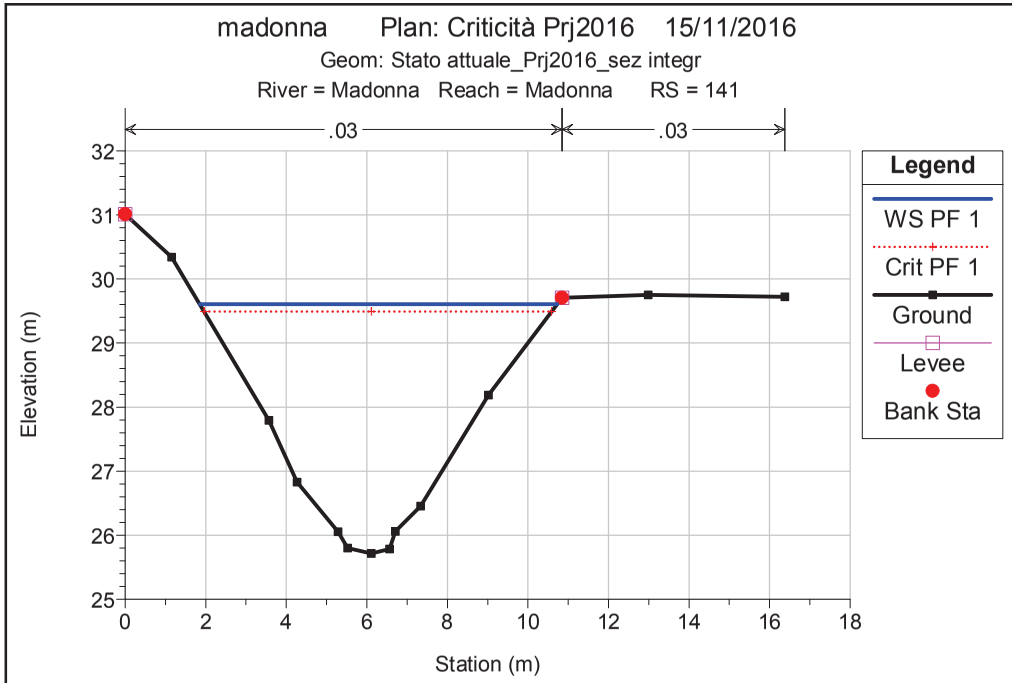


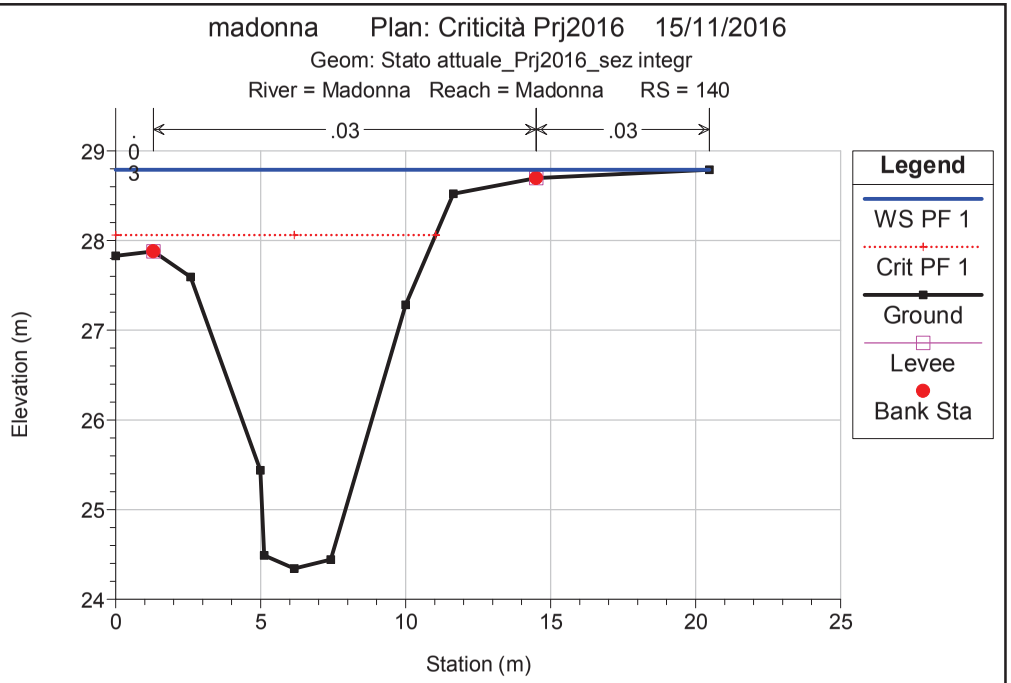

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 142.1
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

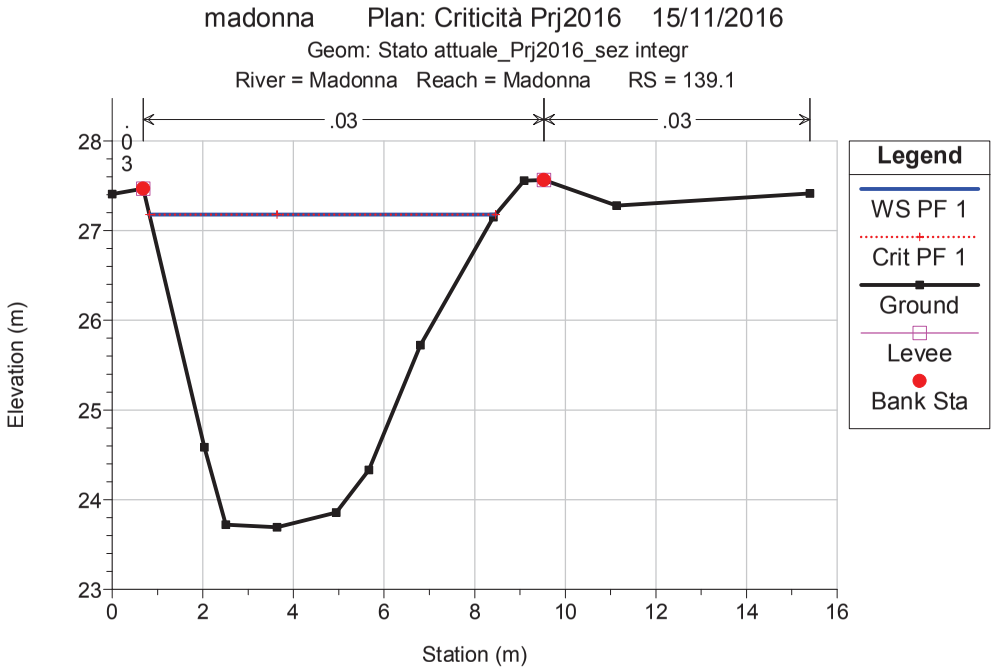

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 142 BR
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

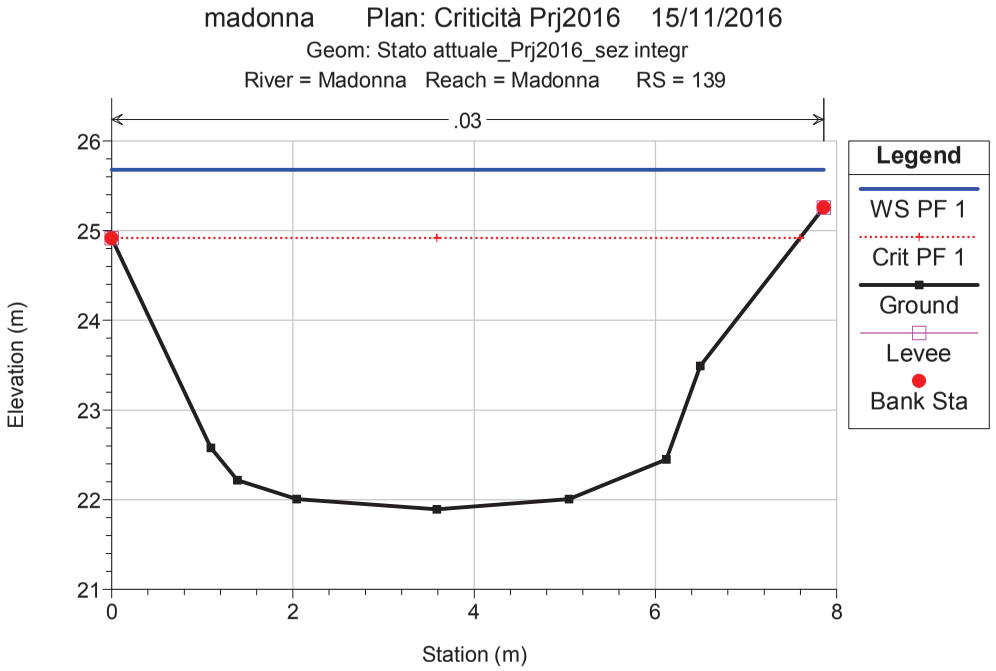

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 142 BR
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 141.9
.03
.03
.03
Legend
Crit PF 1
WS PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 141
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 140
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

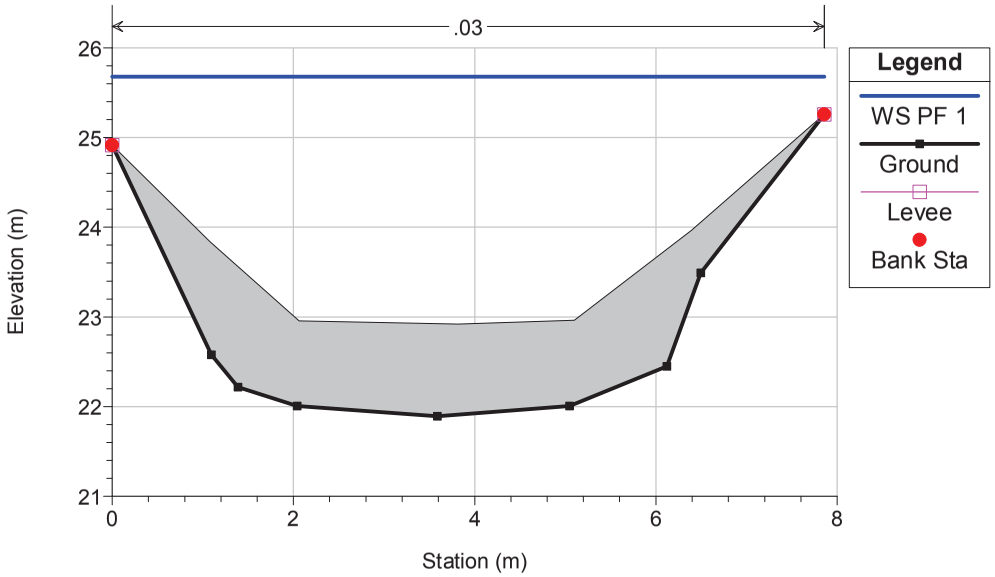

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 139.1
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 139
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

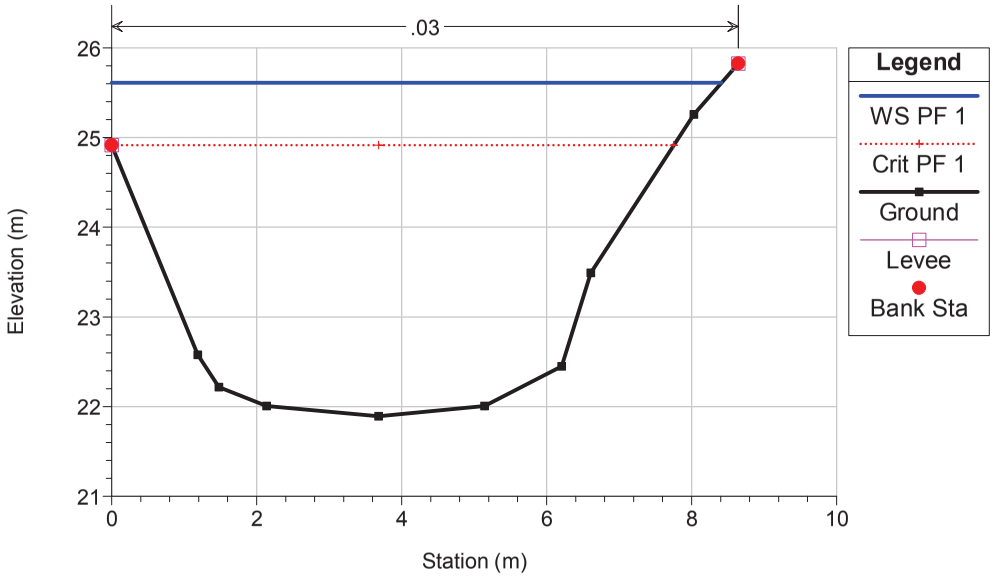
River = Madonna Reach = Madonna RS = 138.95 IS



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

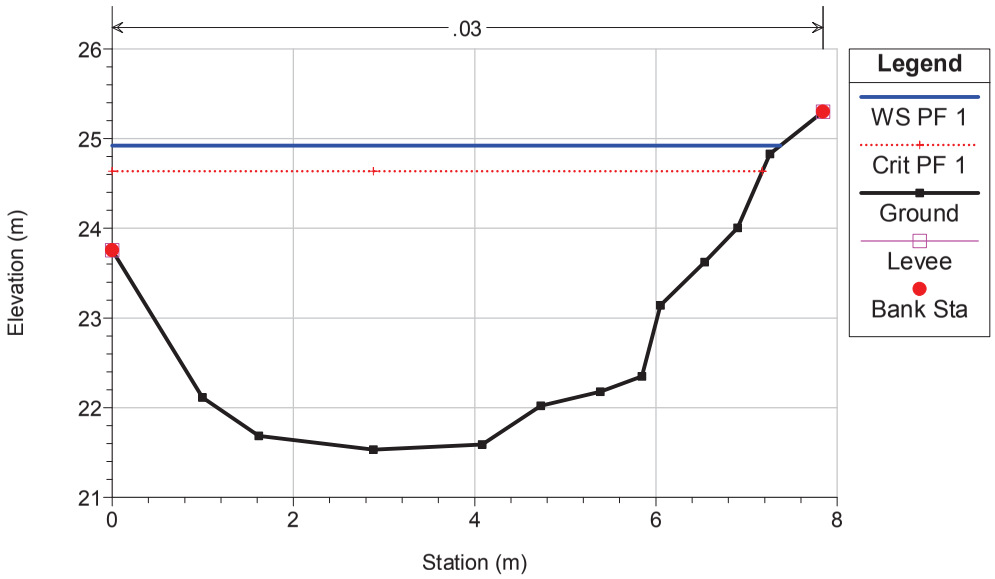
River = Madonna Reach = Madonna RS = 138.9



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

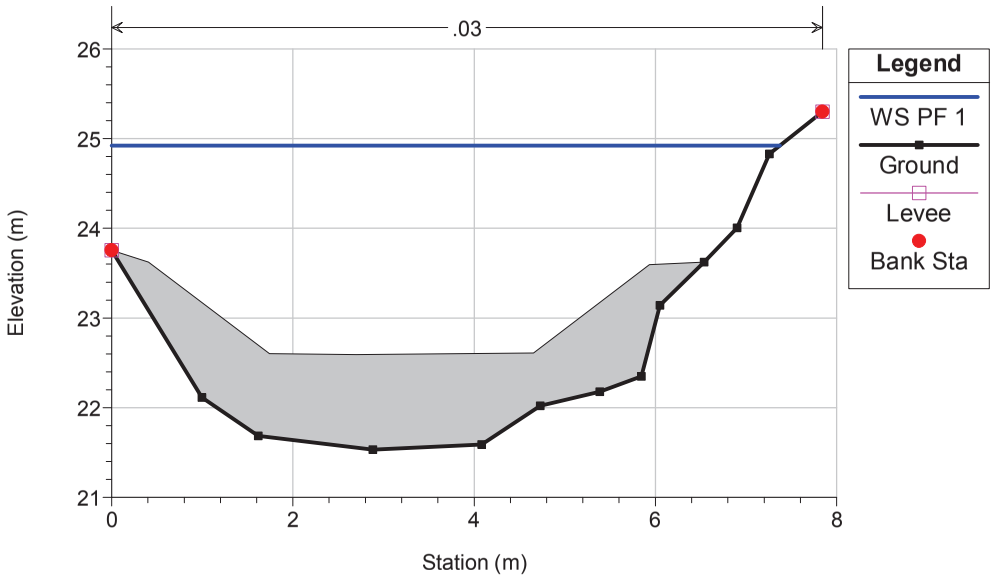
River = Madonna Reach = Madonna RS = 138



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

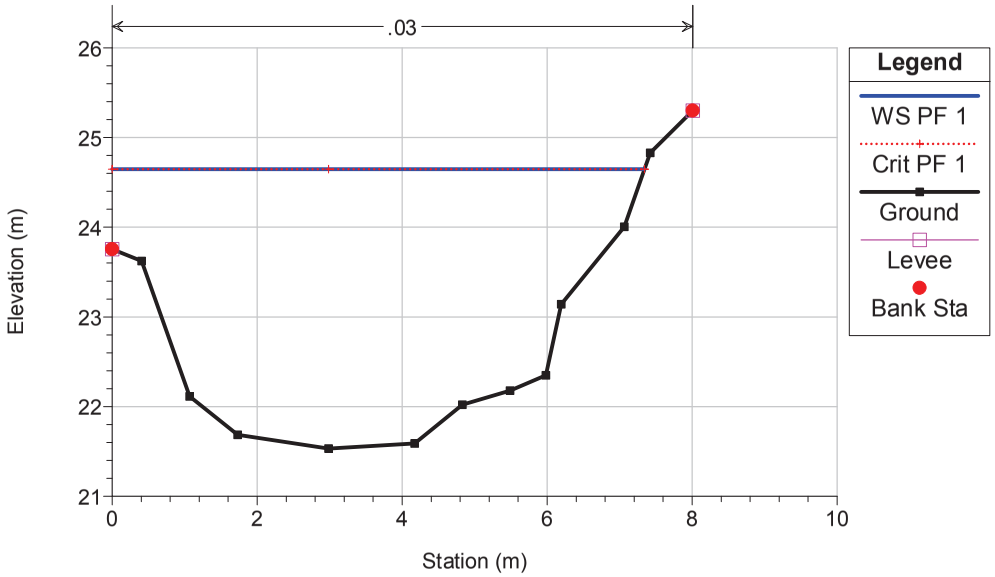
River = Madonna Reach = Madonna RS = 137.95 IS



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

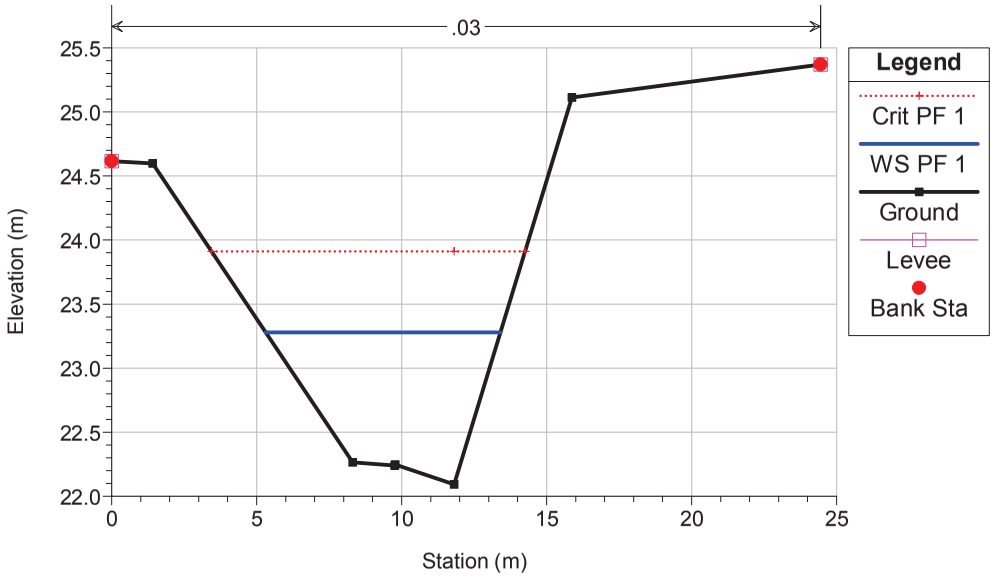
River = Madonna Reach = Madonna RS = 137.9



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

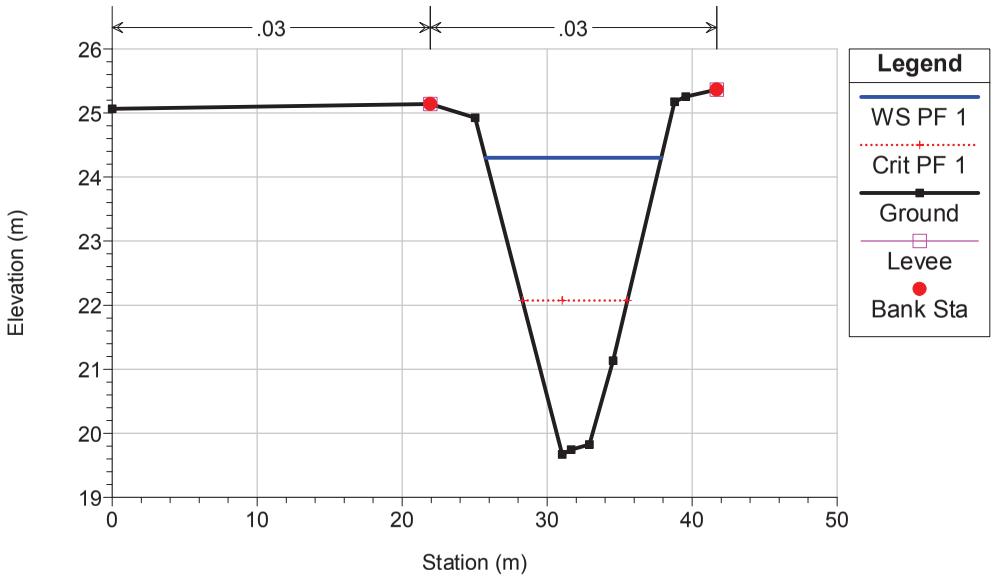
River = Madonna Reach = Madonna RS = 137



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

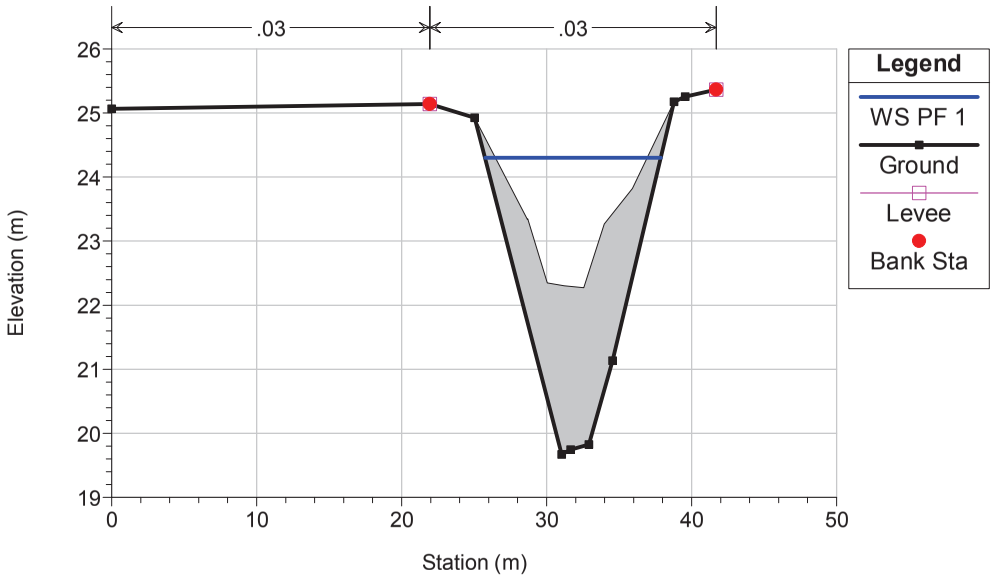
River = Madonna Reach = Madonna RS = 136

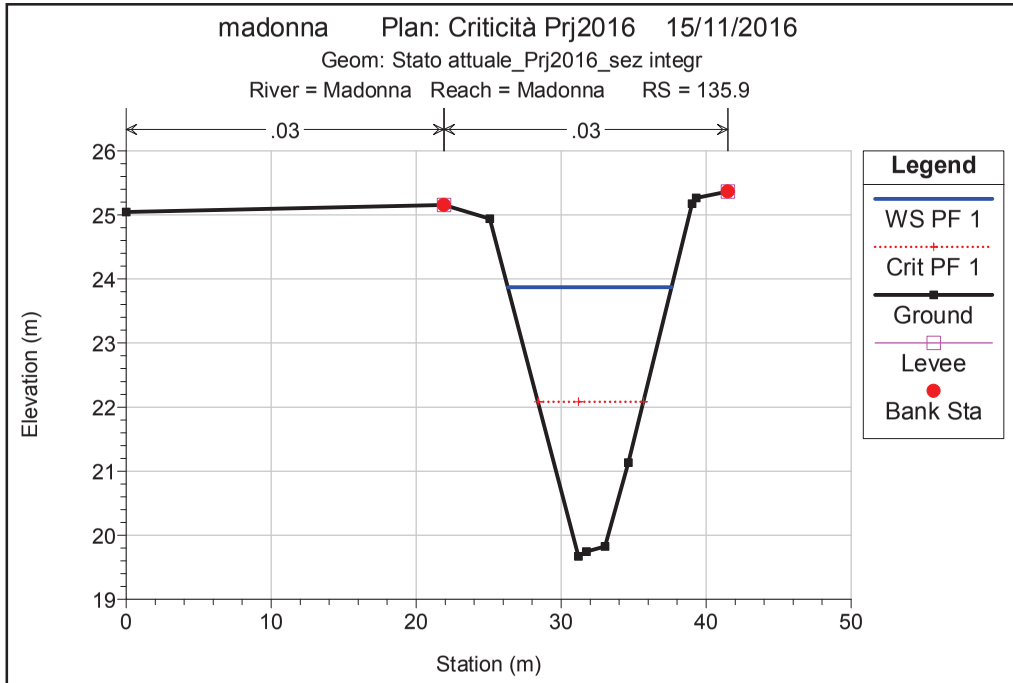


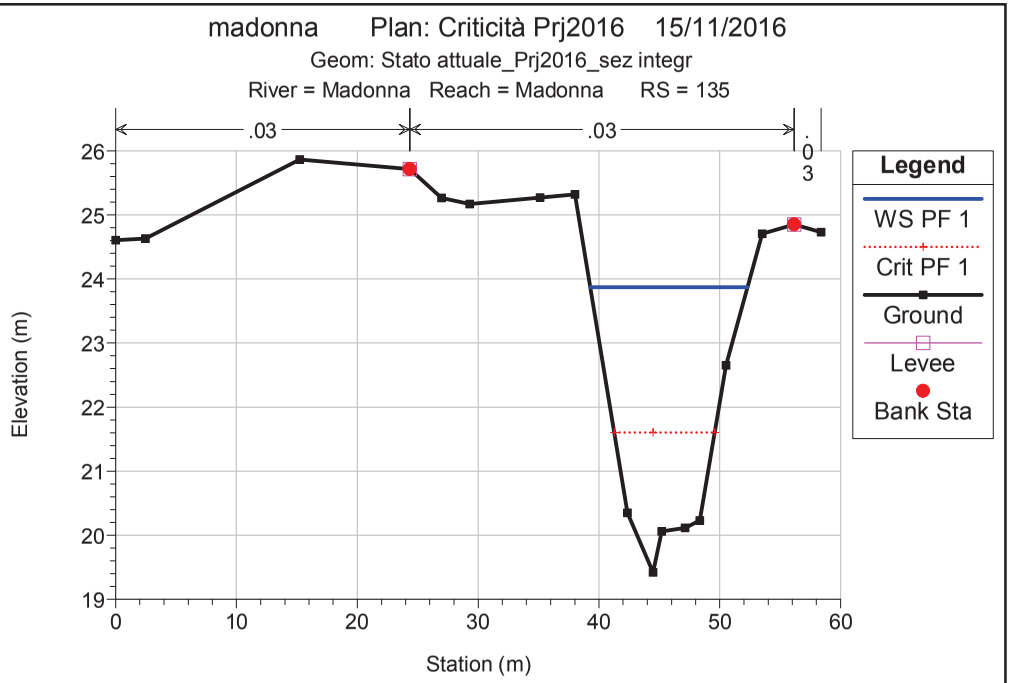
madonna Plan: Criticità Prj2016 15/11/2016

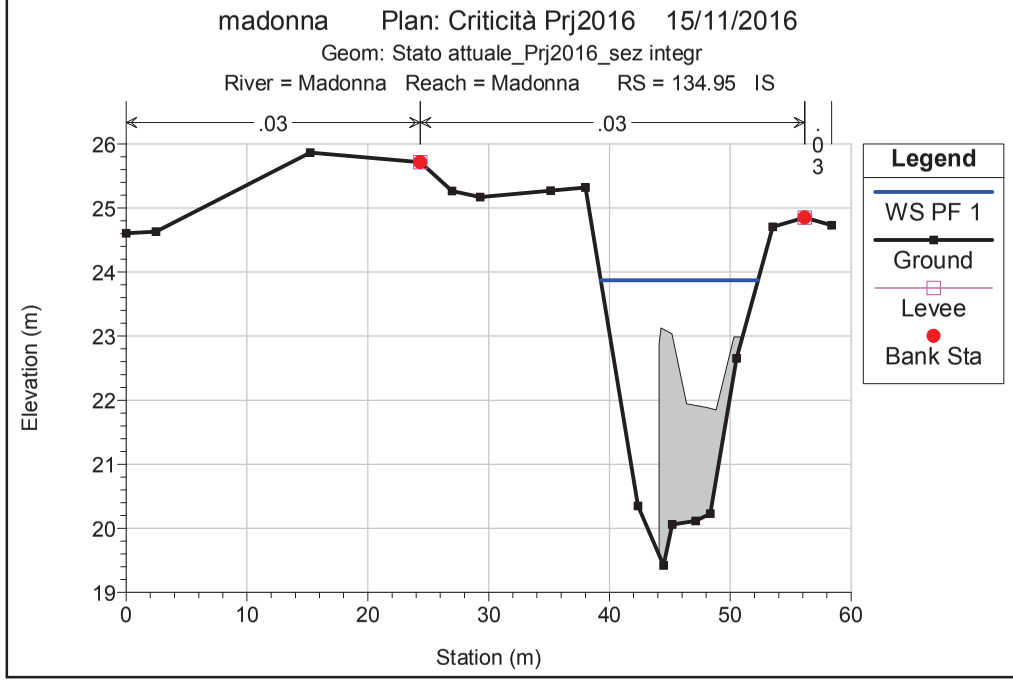
Geom: Stato attuale_Prj2016_sez integr

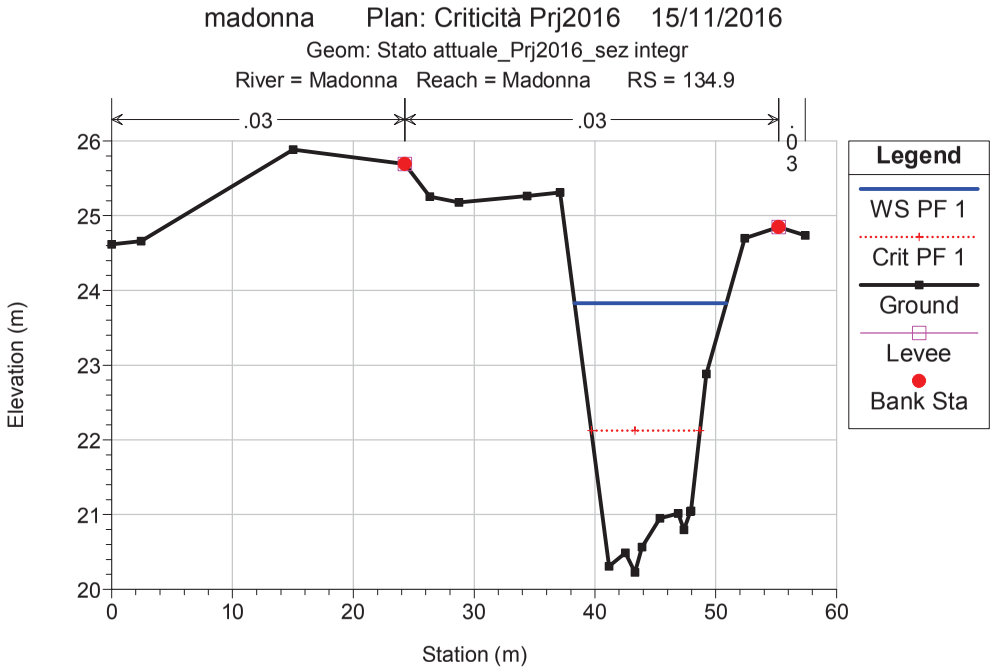
River = Madonna Reach = Madonna RS = 135.95 IS



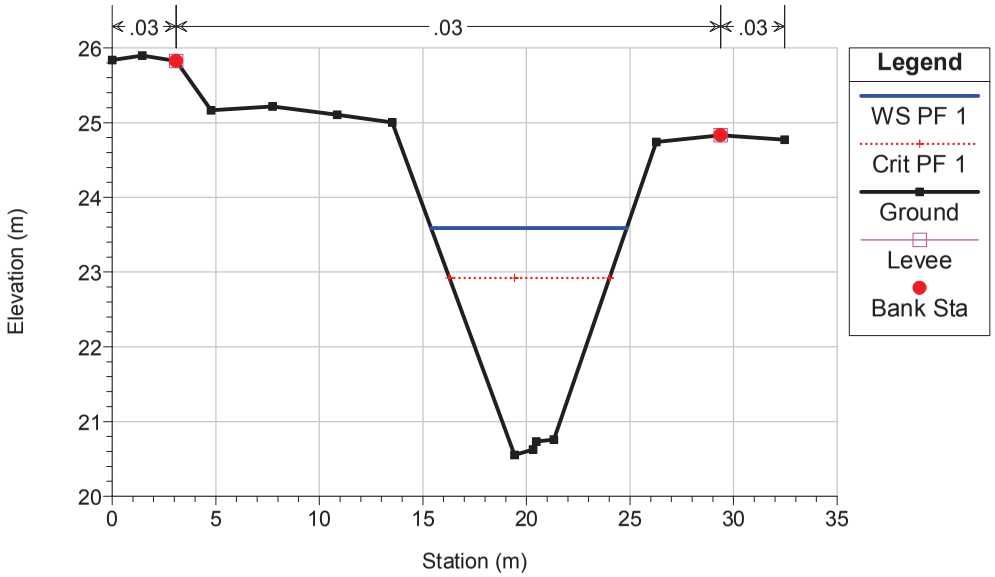

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 135.9
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 135
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

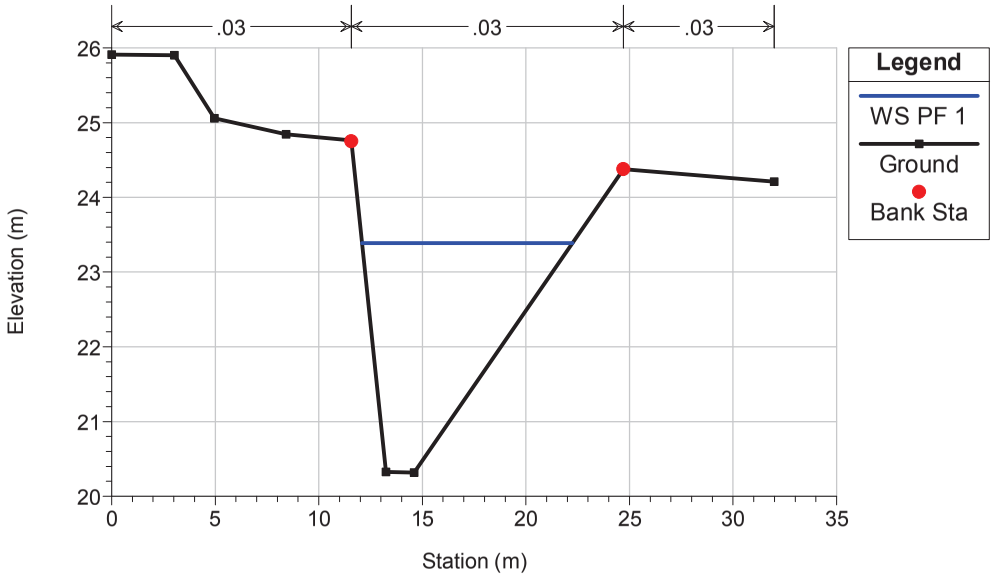

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 134.95 IS
.03
.03
Legend
WS PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 134.9
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

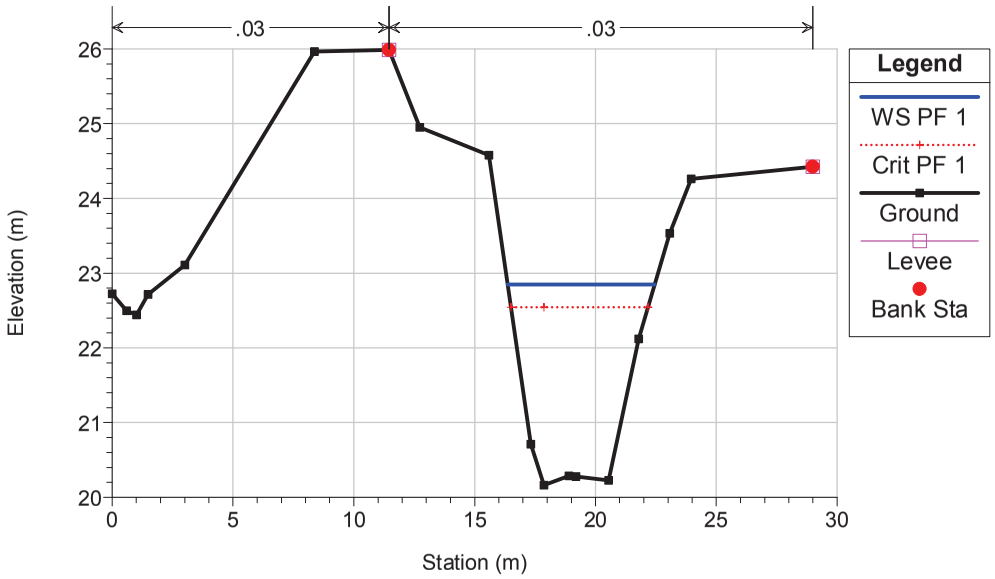
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 134



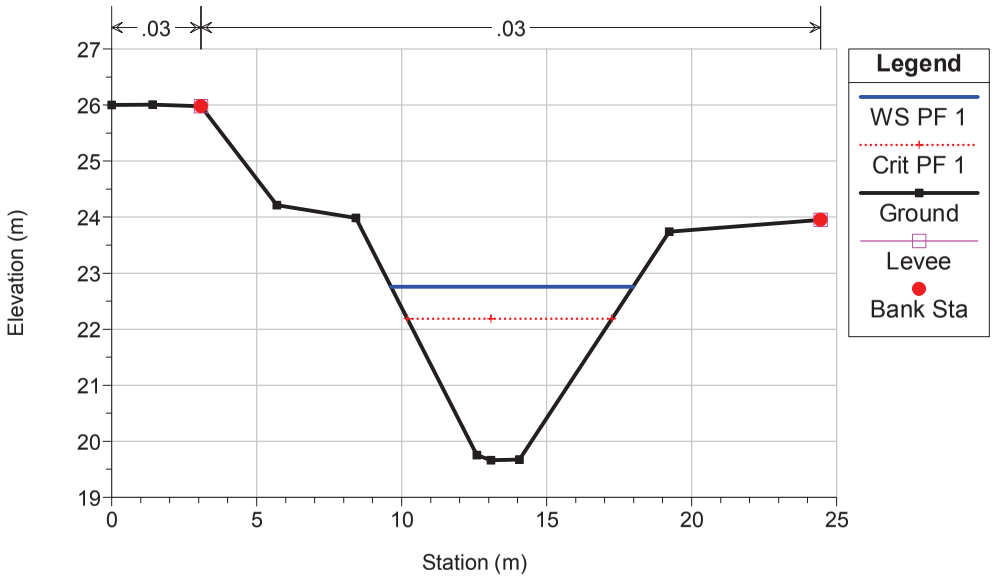
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 133.2



madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 133.11



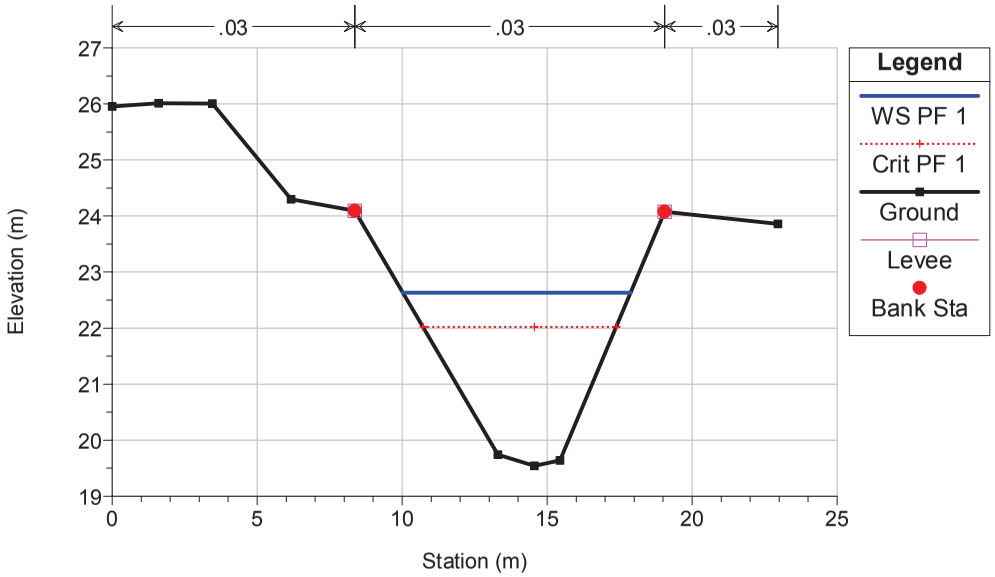
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 133



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

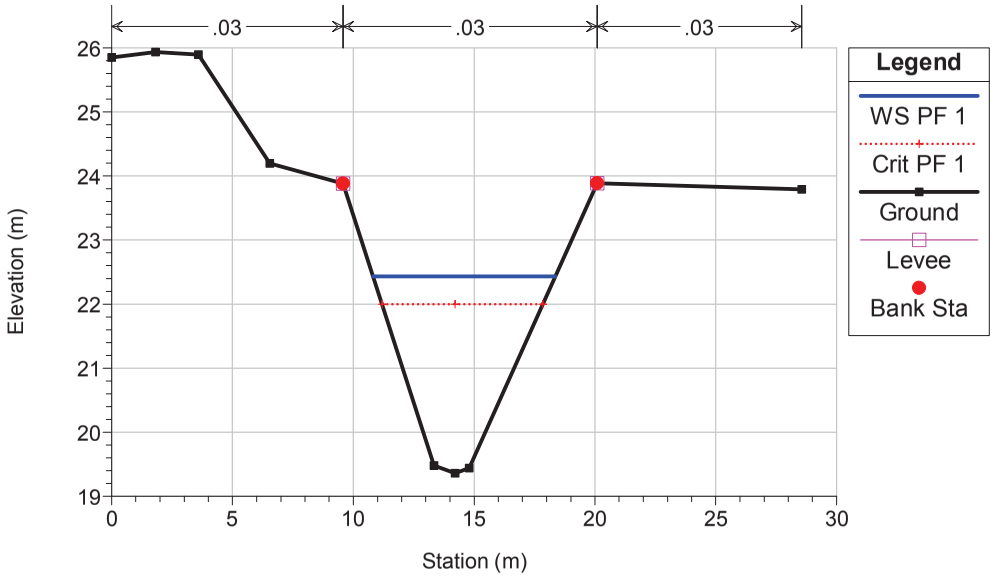
River = Madonna Reach = Madonna RS = 132.3



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

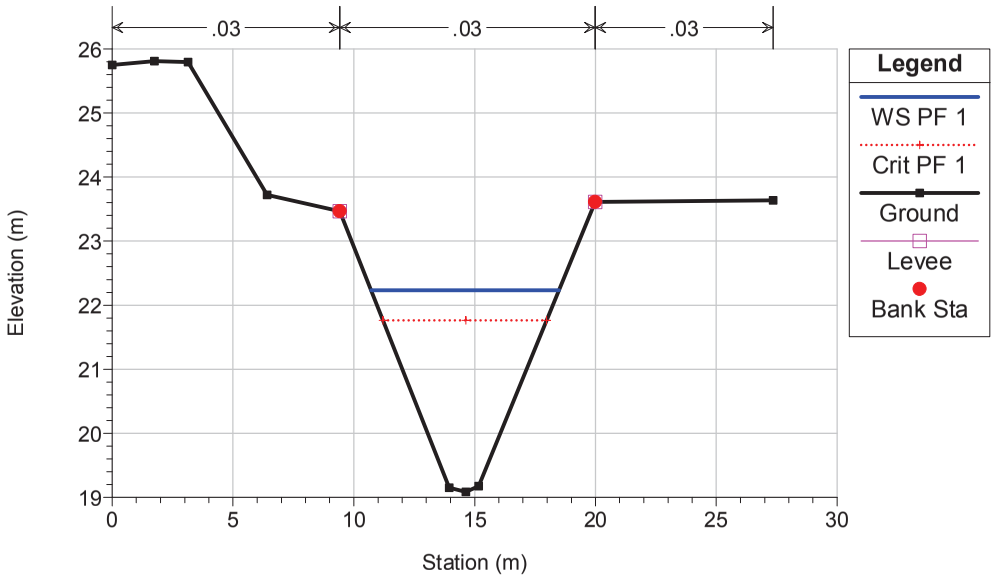
River = Madonna Reach = Madonna RS = 132.2



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

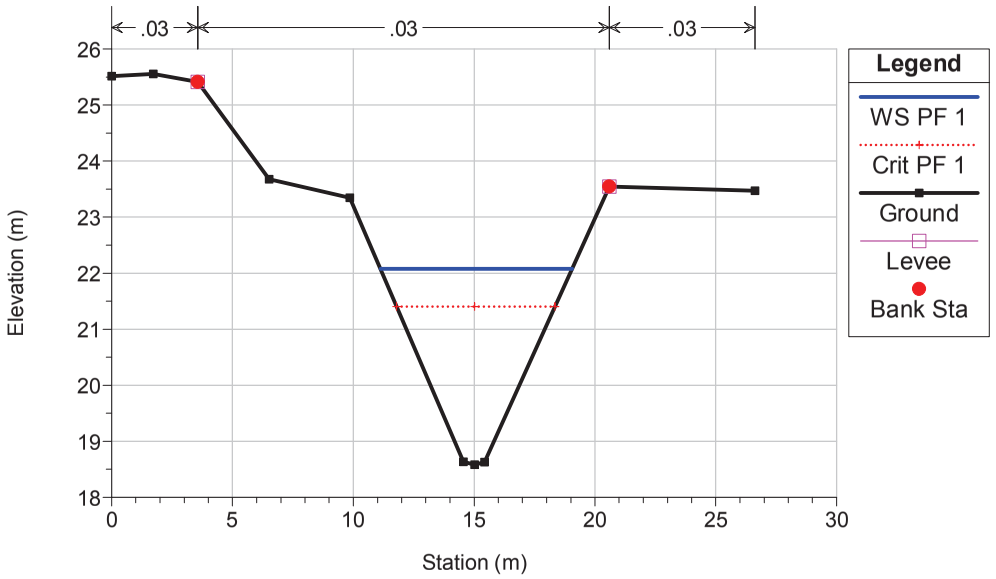
River = Madonna Reach = Madonna RS = 132.1

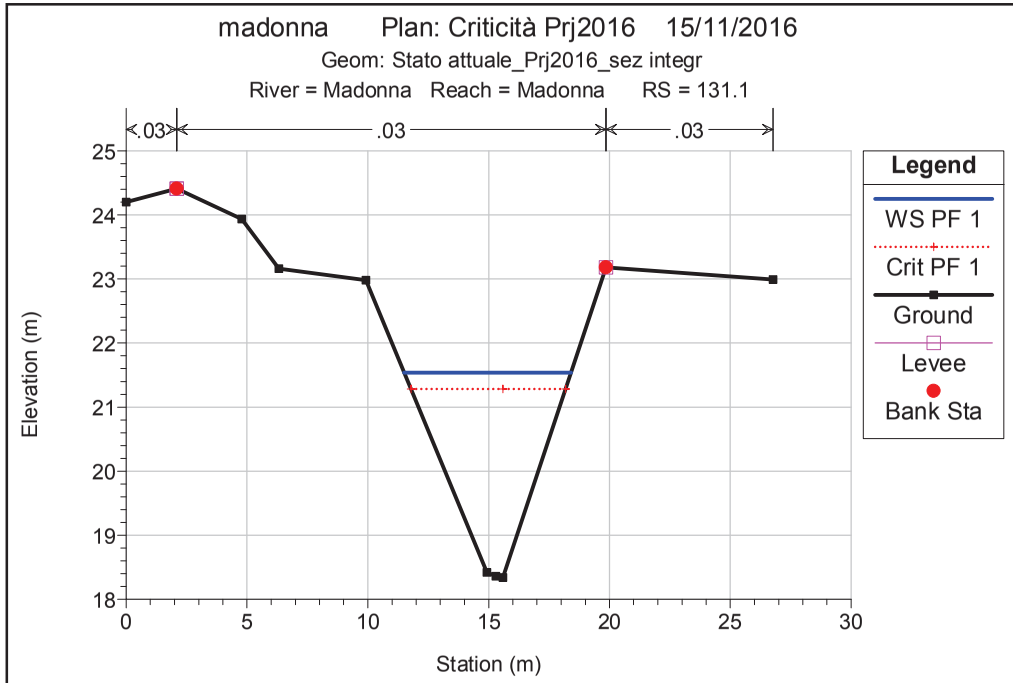


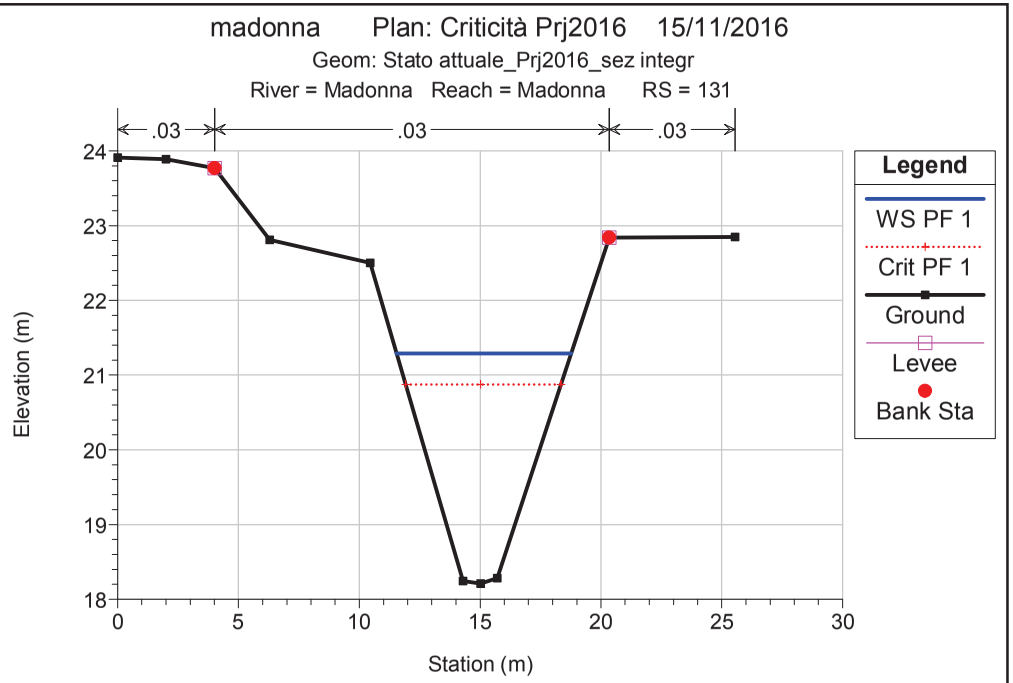
madonna Plan: Criticità Prj2016 15/11/2016

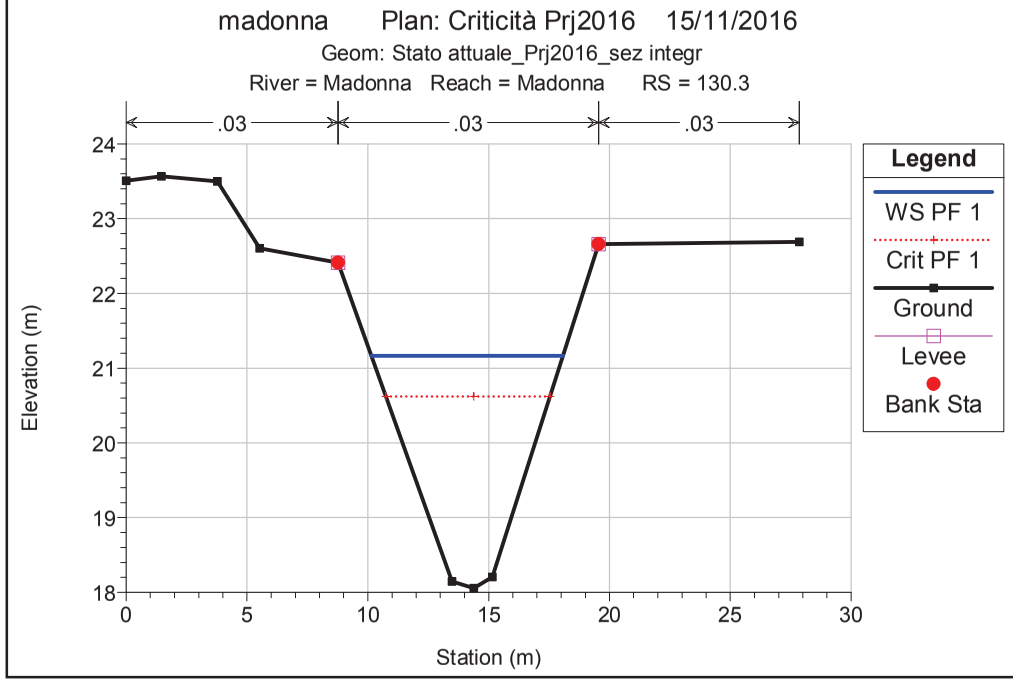
Geom: Stato attuale_Prj2016_sez integr

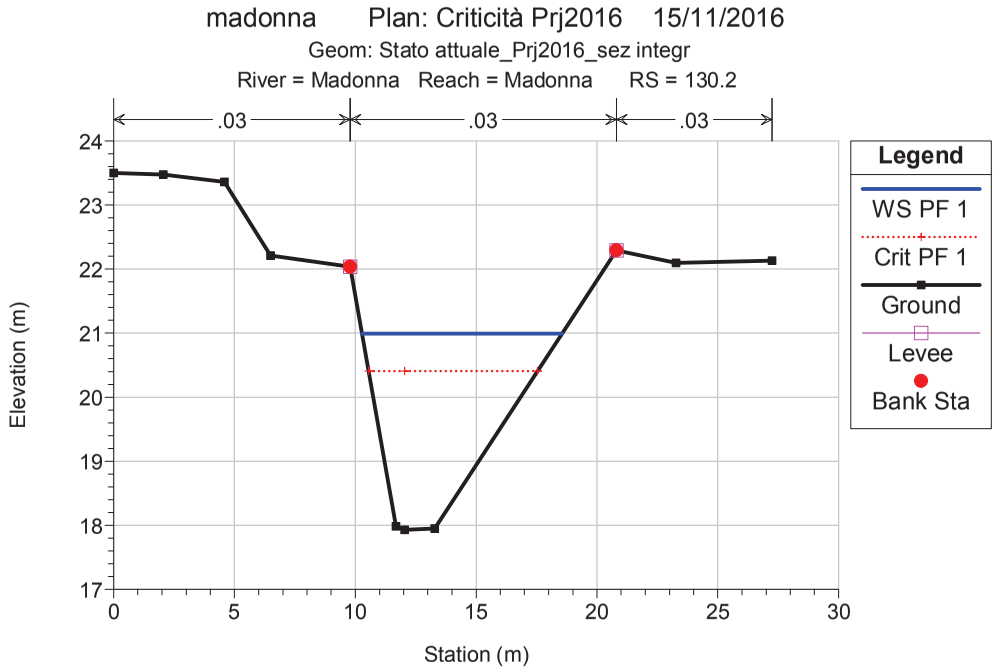
River = Madonna Reach = Madonna RS = 132




madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 131.1
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 131
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

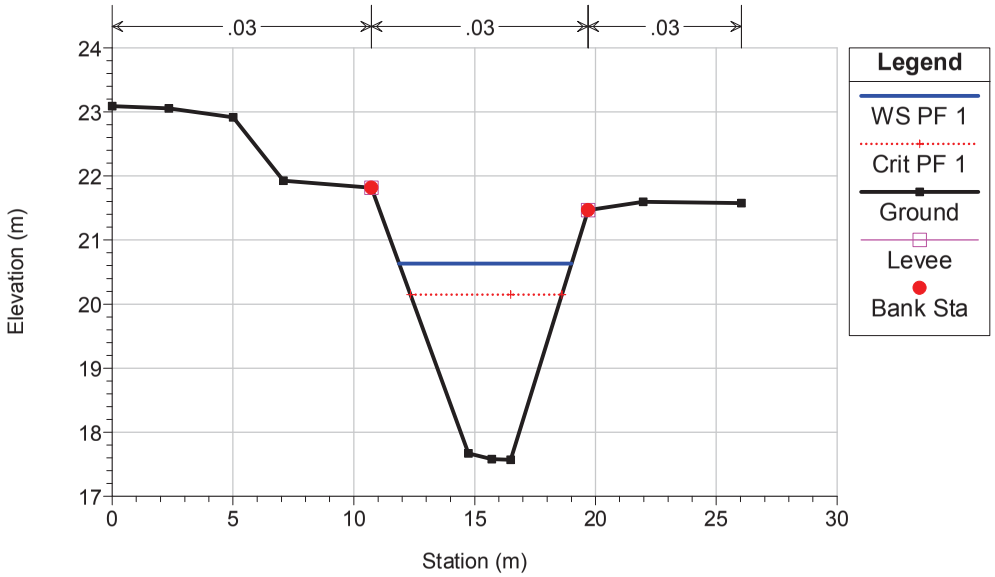

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 130.3
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 130.2
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

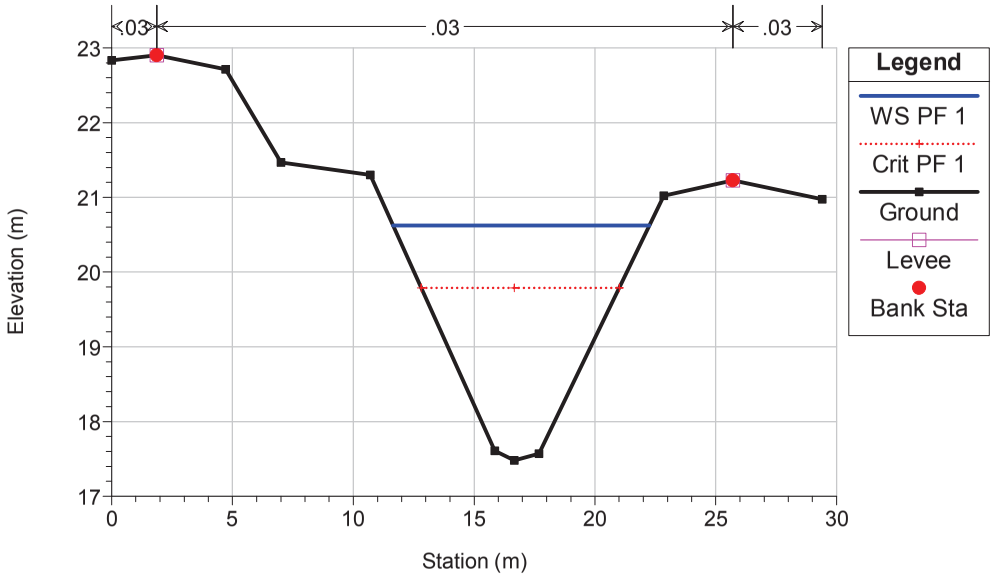
River = Madonna Reach = Madonna RS = 130.1



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

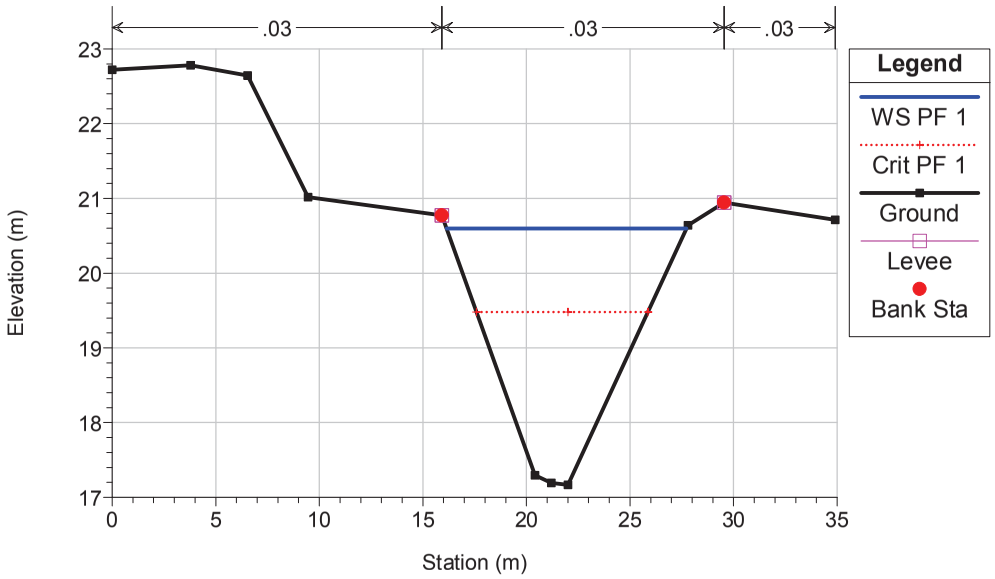
River = Madonna Reach = Madonna RS = 130



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

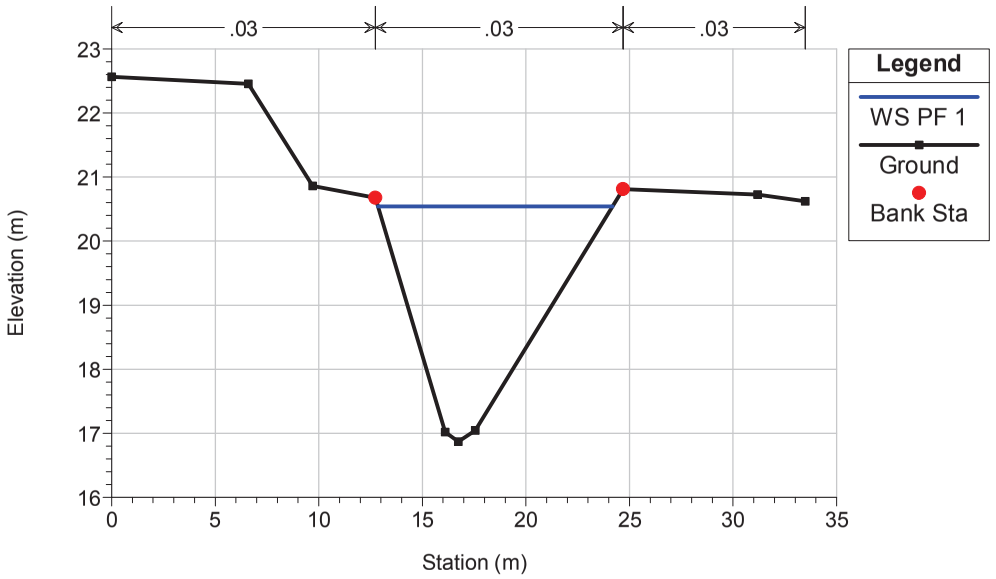
River = Madonna Reach = Madonna RS = 129.3



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

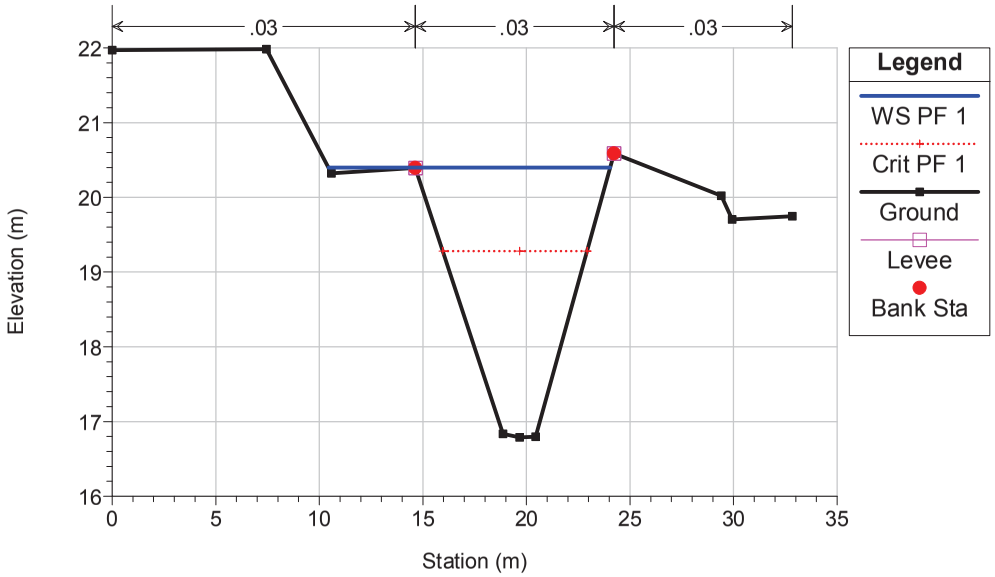
River = Madonna Reach = Madonna RS = 129.2



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

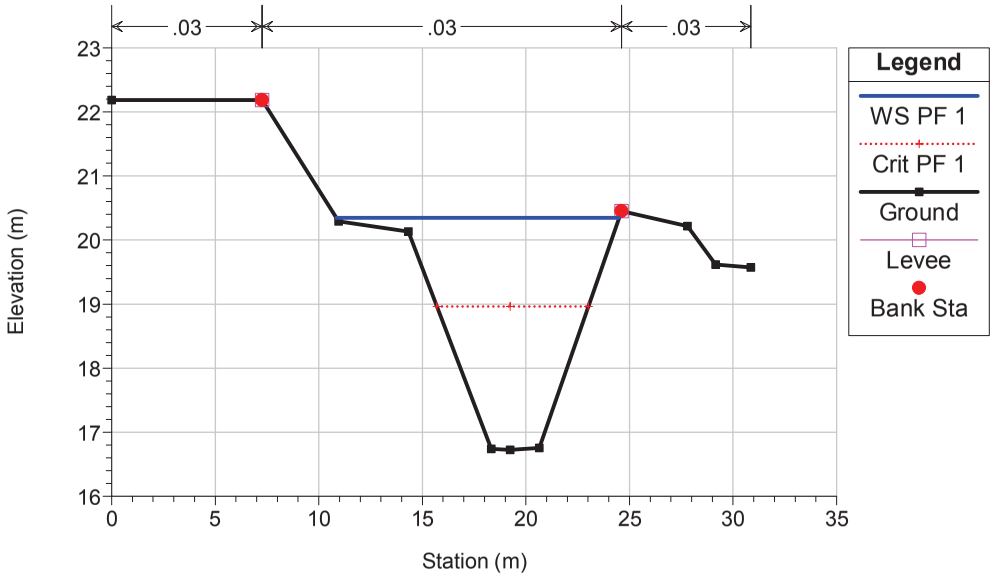
River = Madonna Reach = Madonna RS = 129.1



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

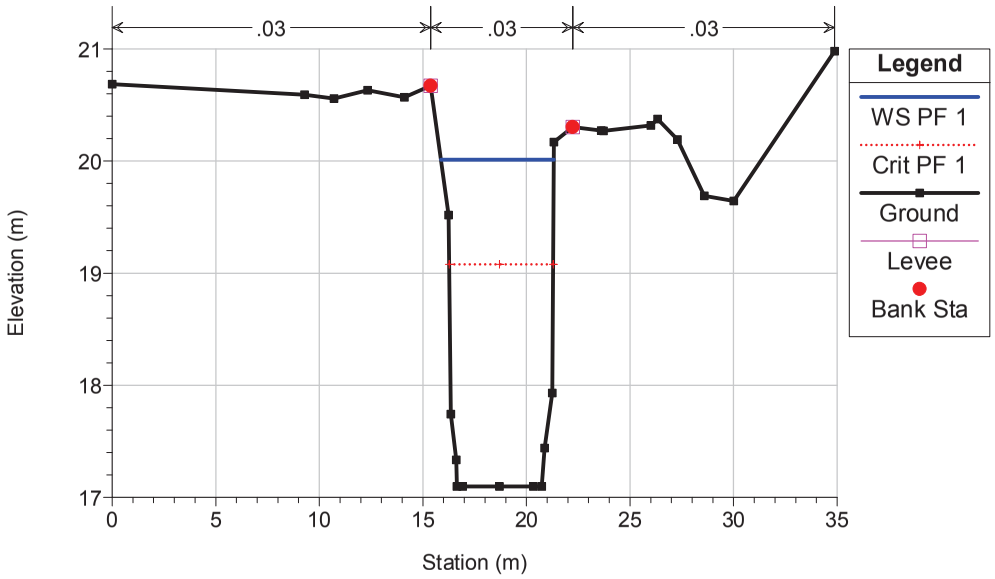
River = Madonna Reach = Madonna RS = 129



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

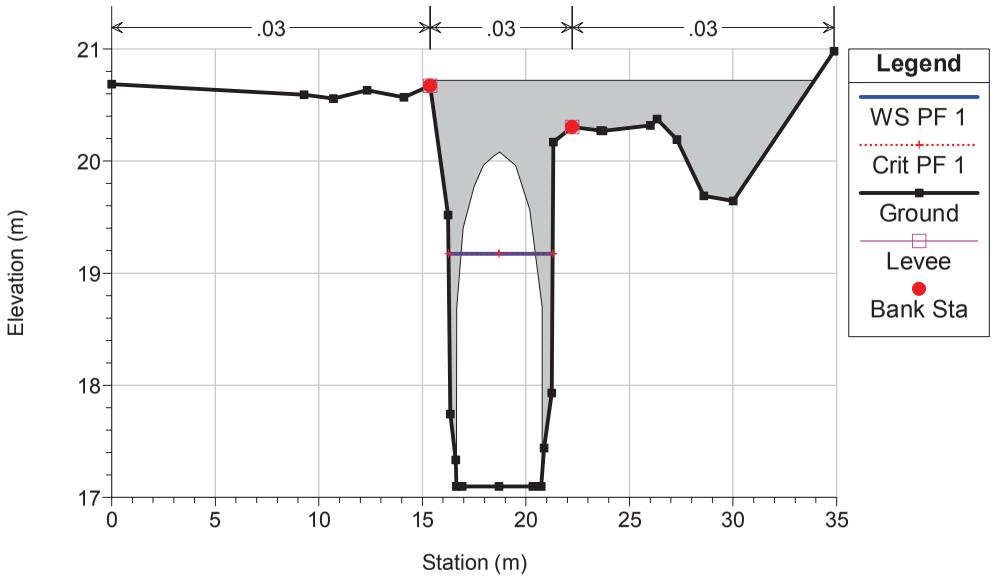
River = Madonna Reach = Madonna RS = 128.1

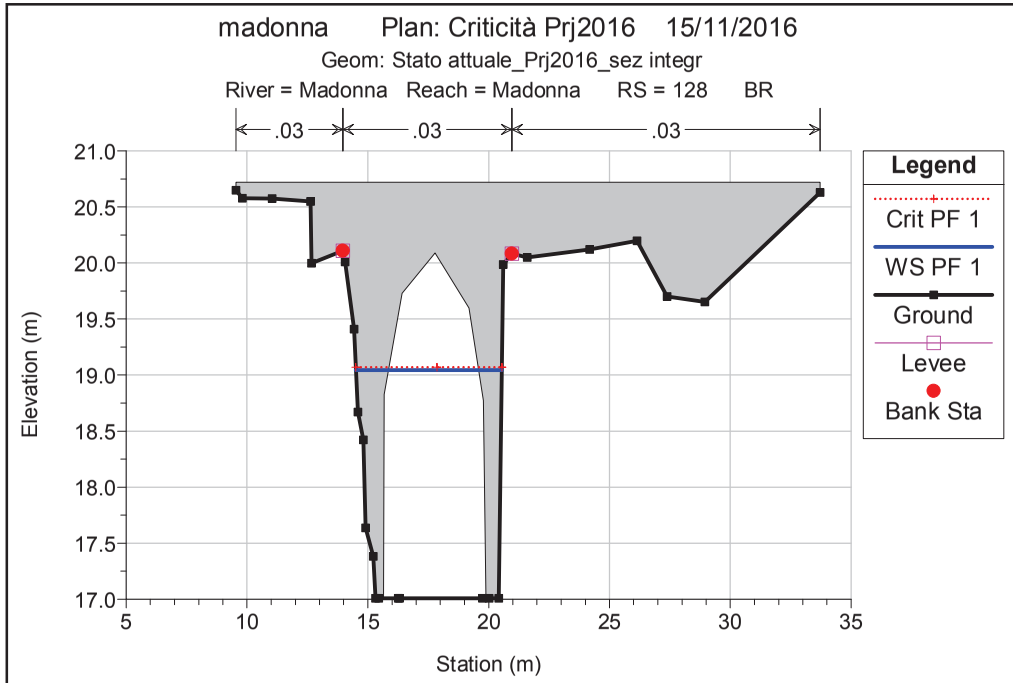


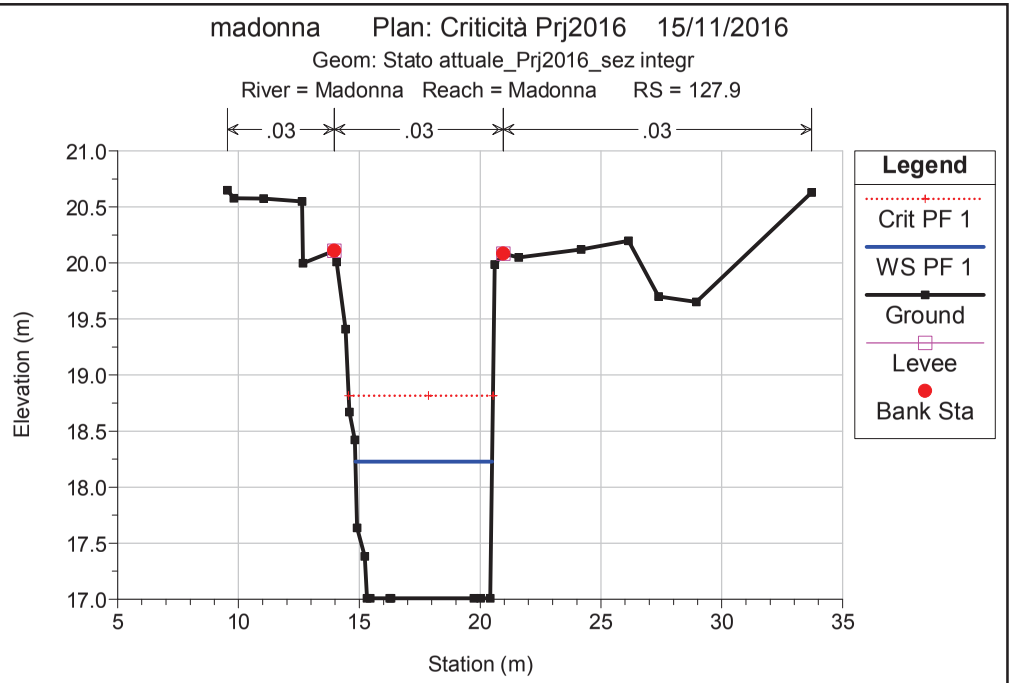
madonna Plan: Criticità Prj2016 15/11/2016

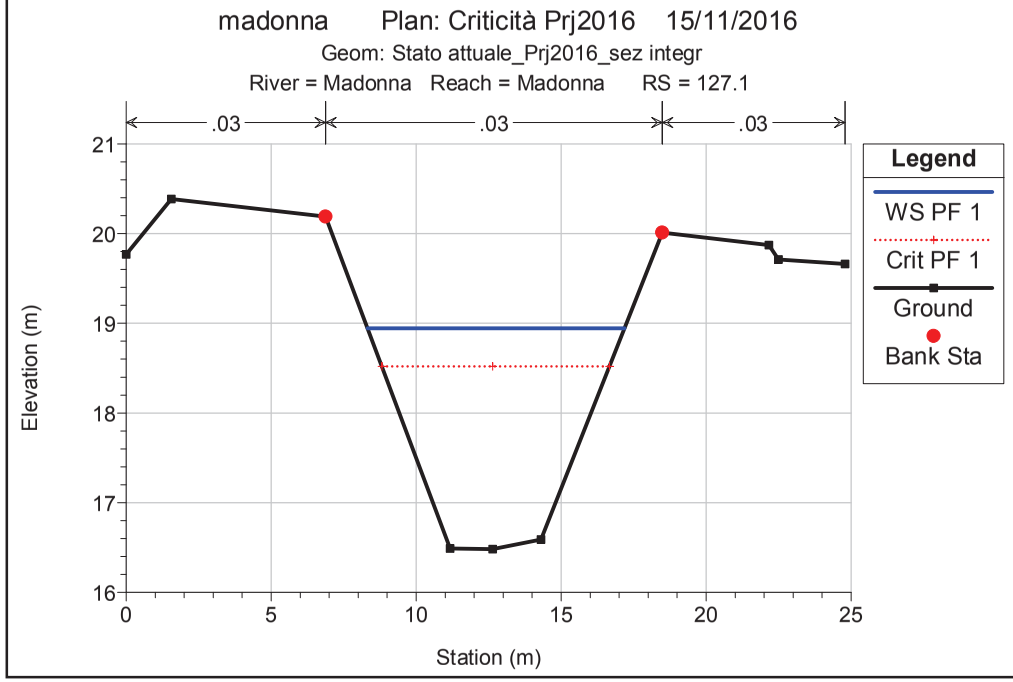
Geom: Stato attuale_Prj2016_sez integr

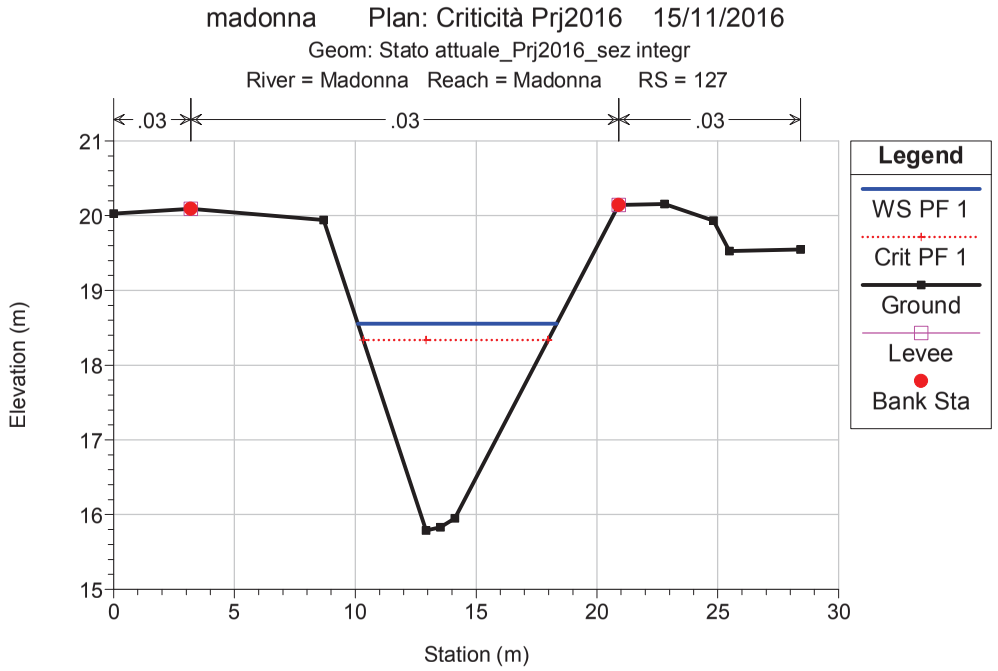
River = Madonna Reach = Madonna RS = 128 BR

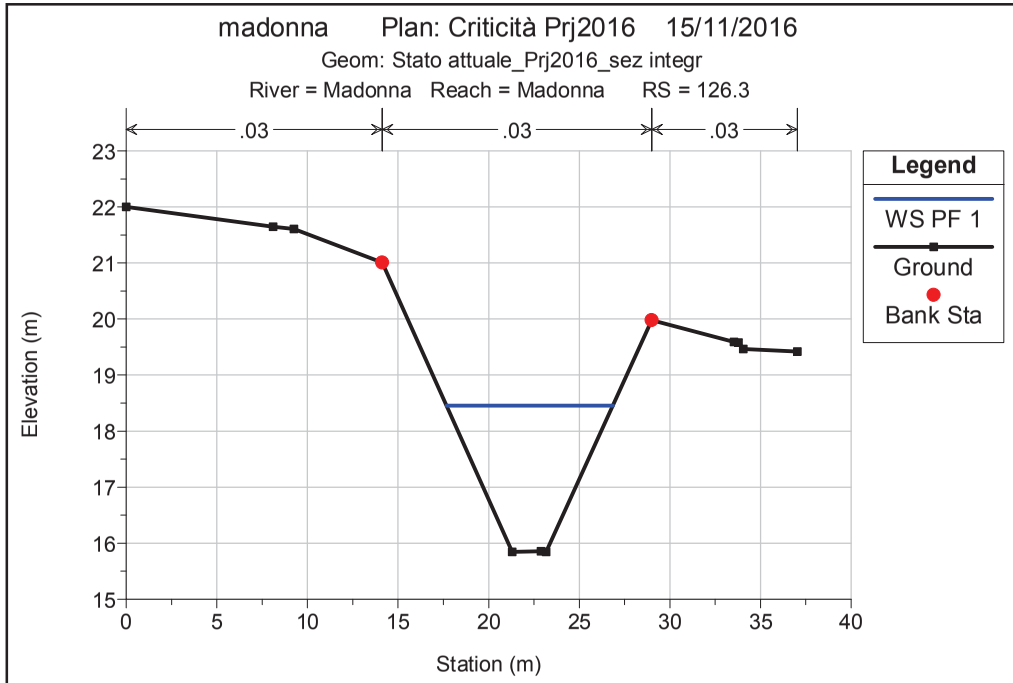


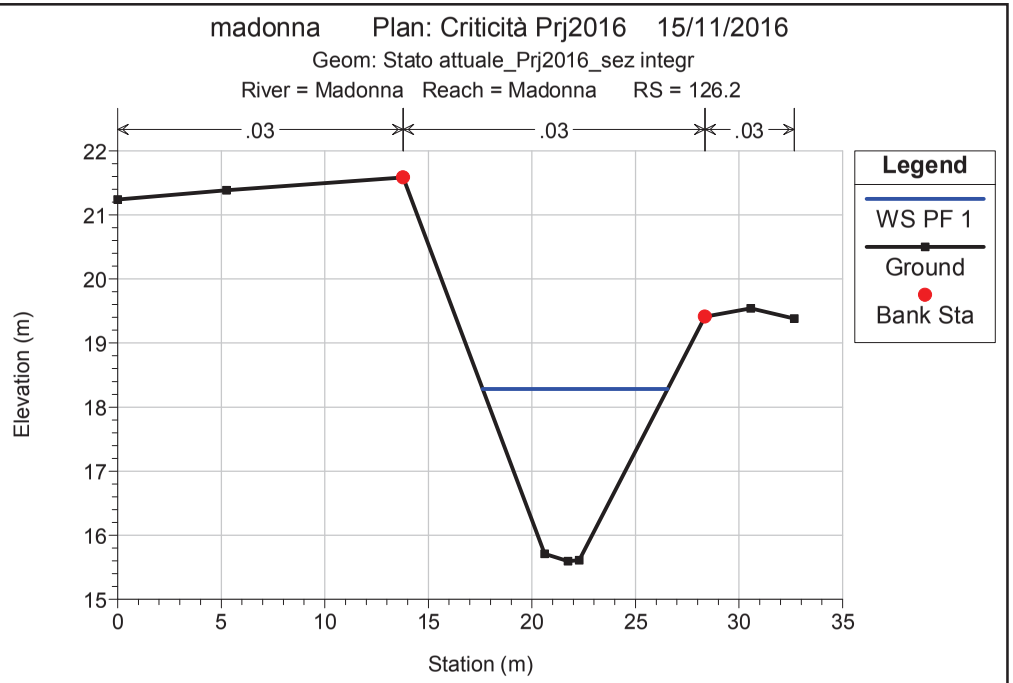

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 128 BR
.03
.03
.03
Legend
Crit PF 1
WS PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

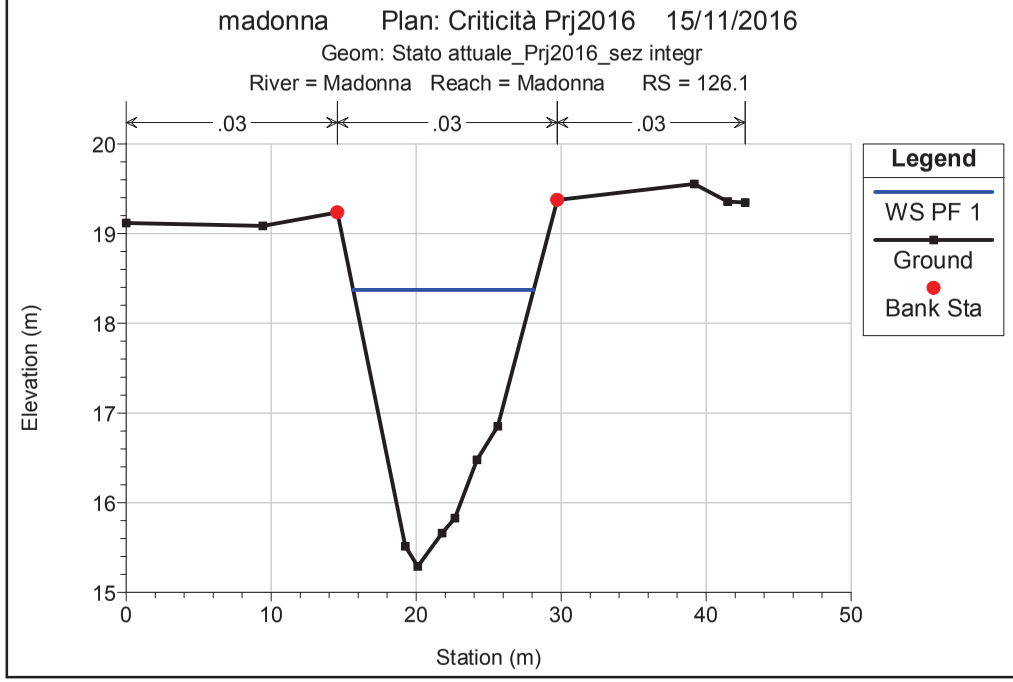

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 127.9
.03
.03
.03
Legend
Crit PF 1
WS PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

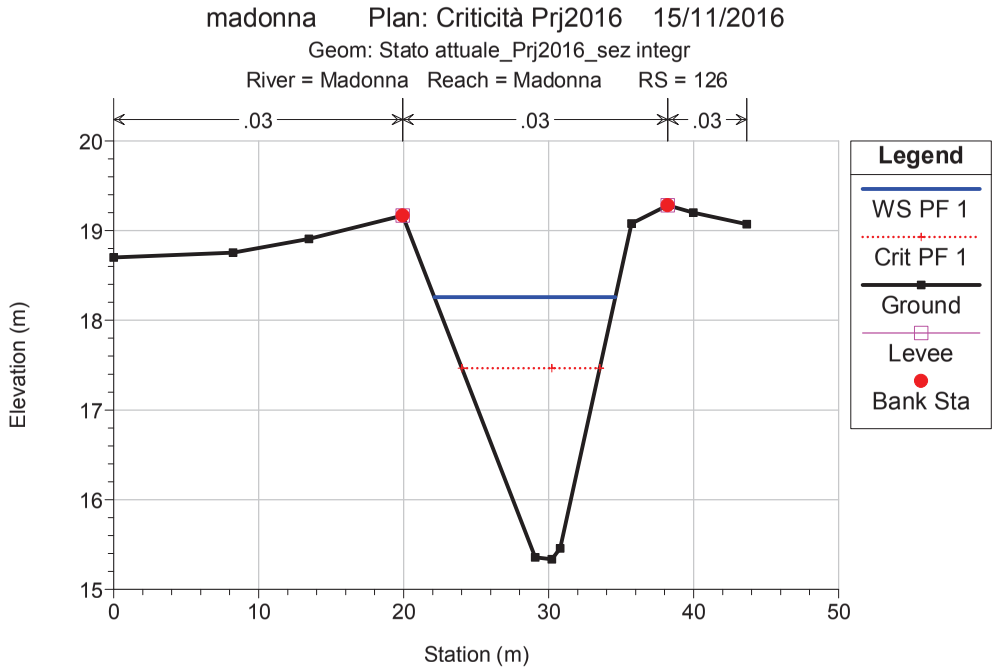

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 127.1
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

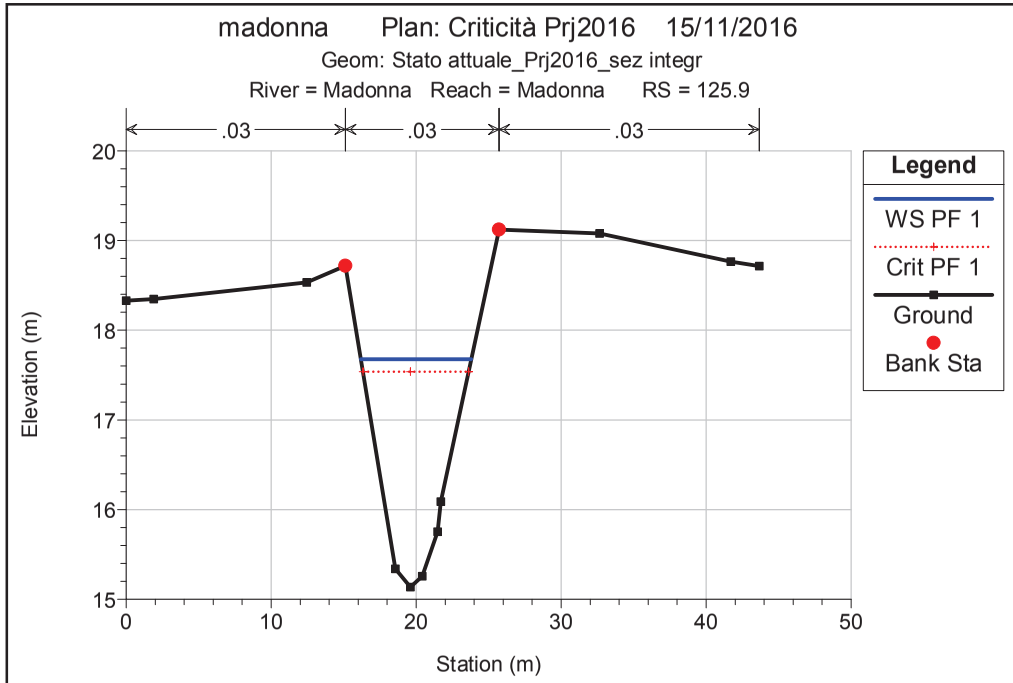

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 127
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

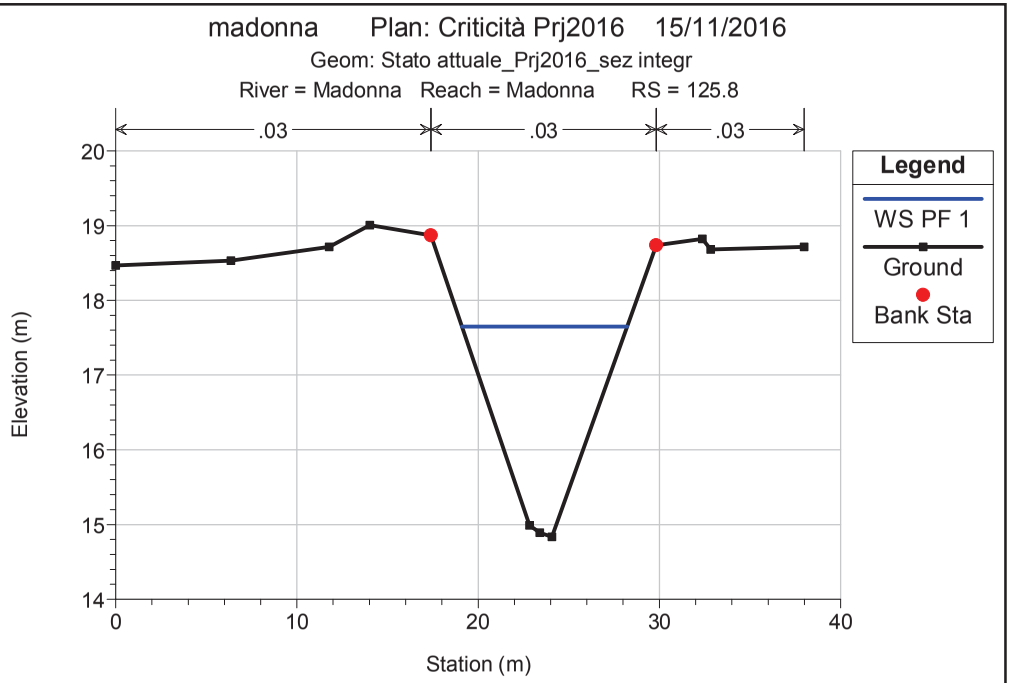

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 126.3
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

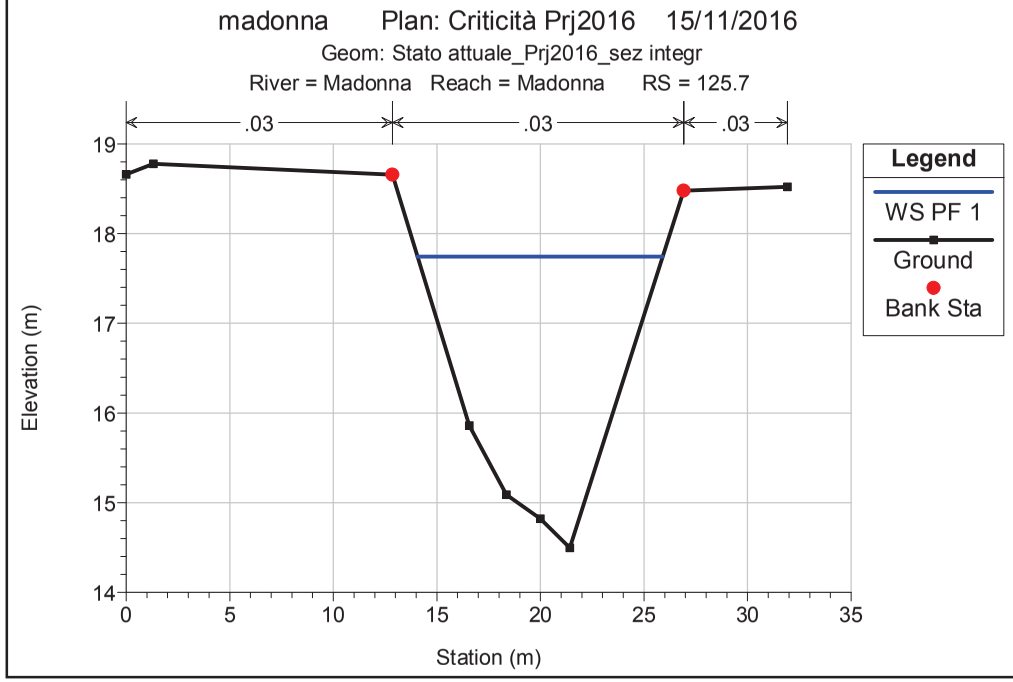

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 126.2
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

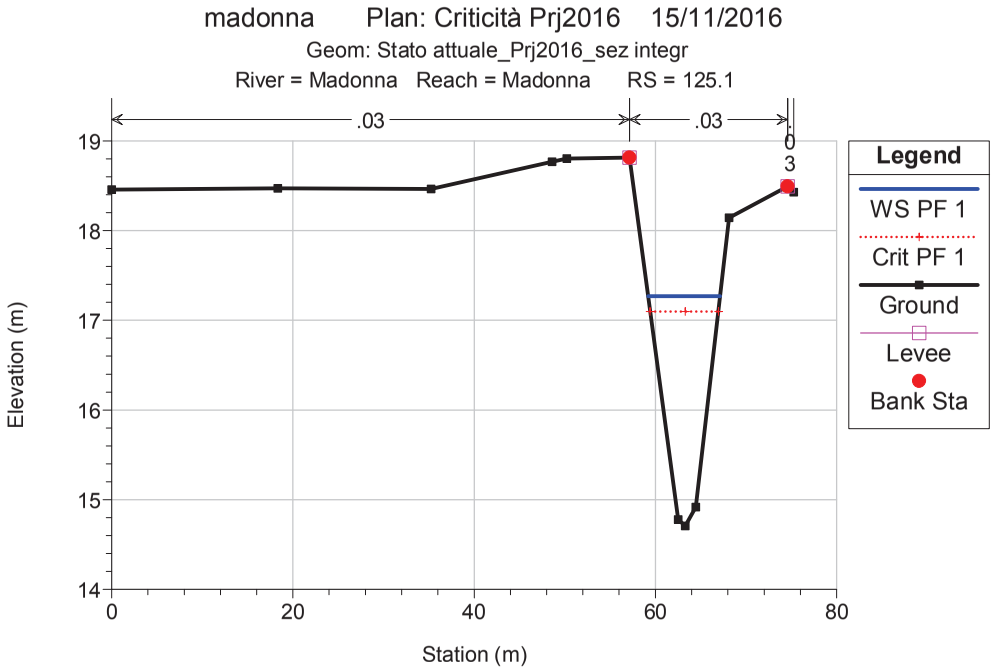

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 126.1
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

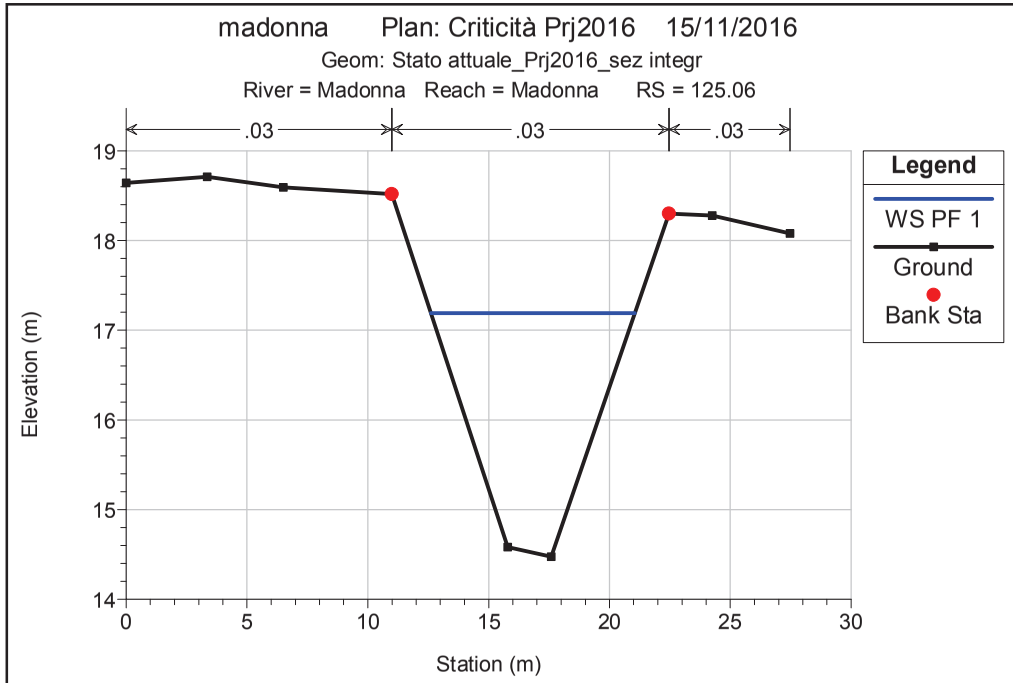

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 126
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

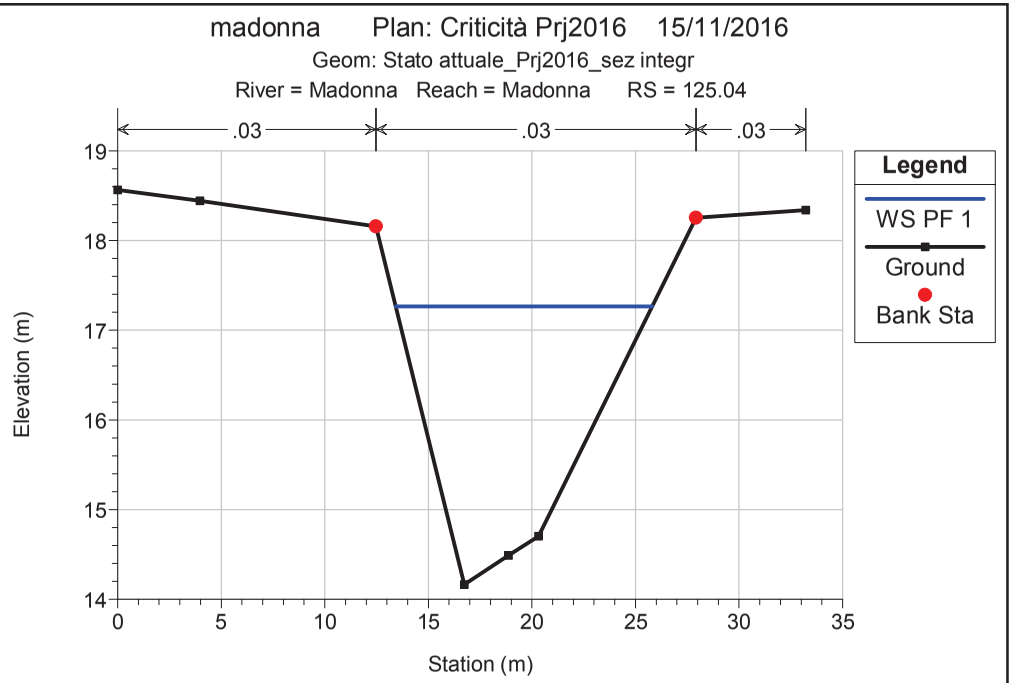

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 125.9
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

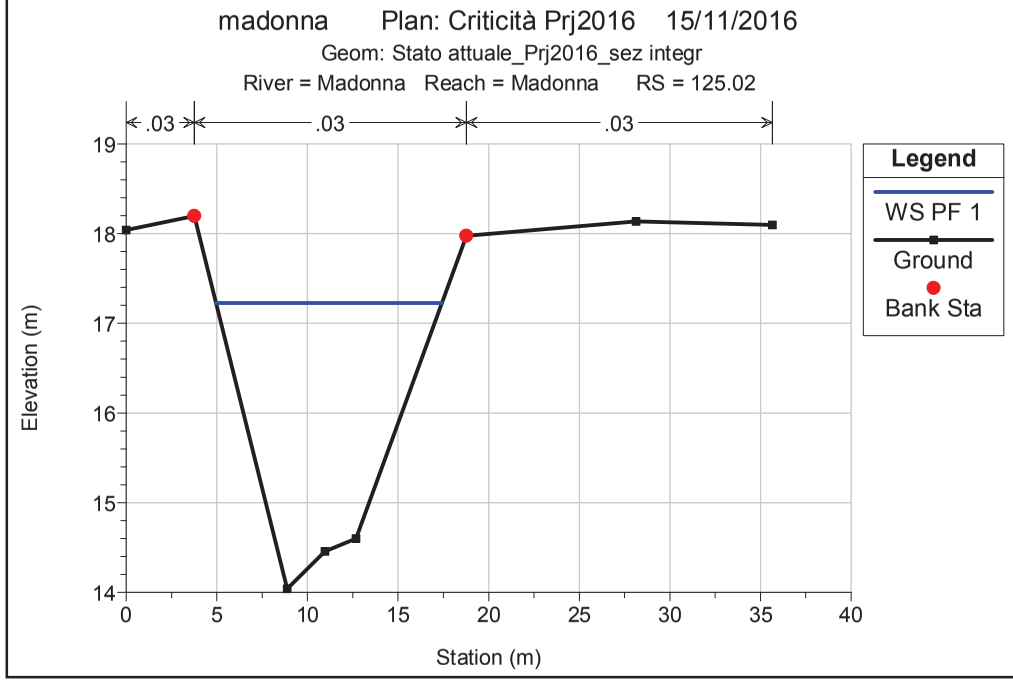

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 125.8
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

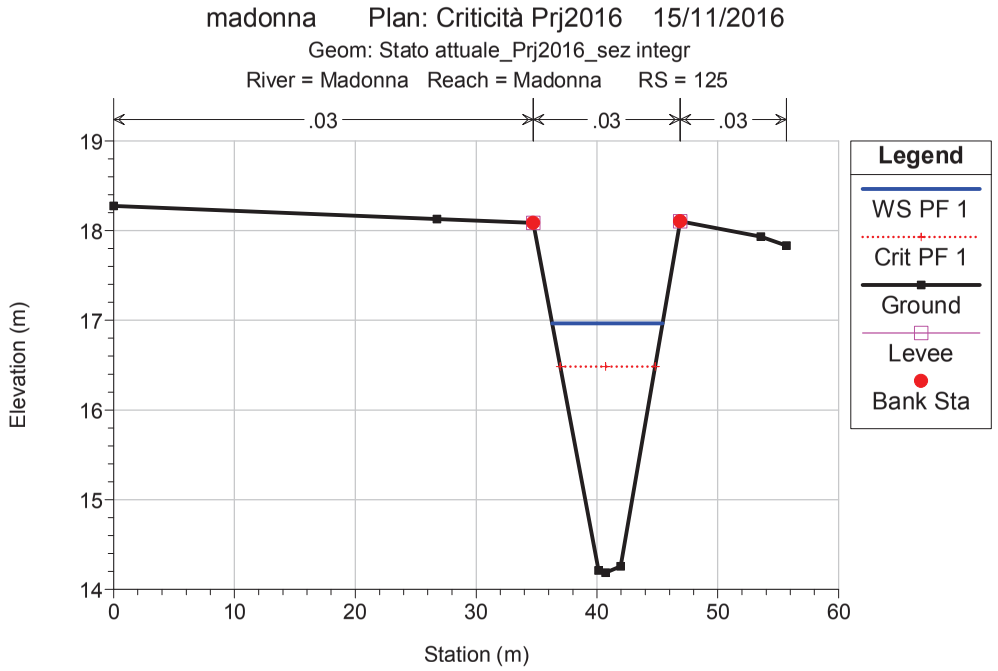

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 125.7
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

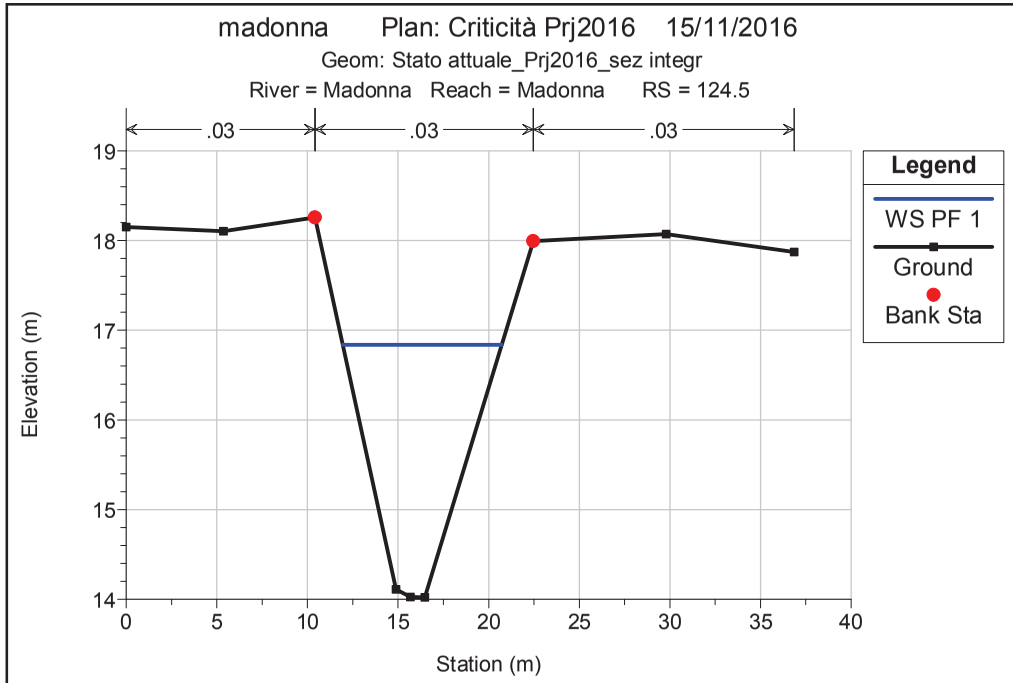

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 125.1
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

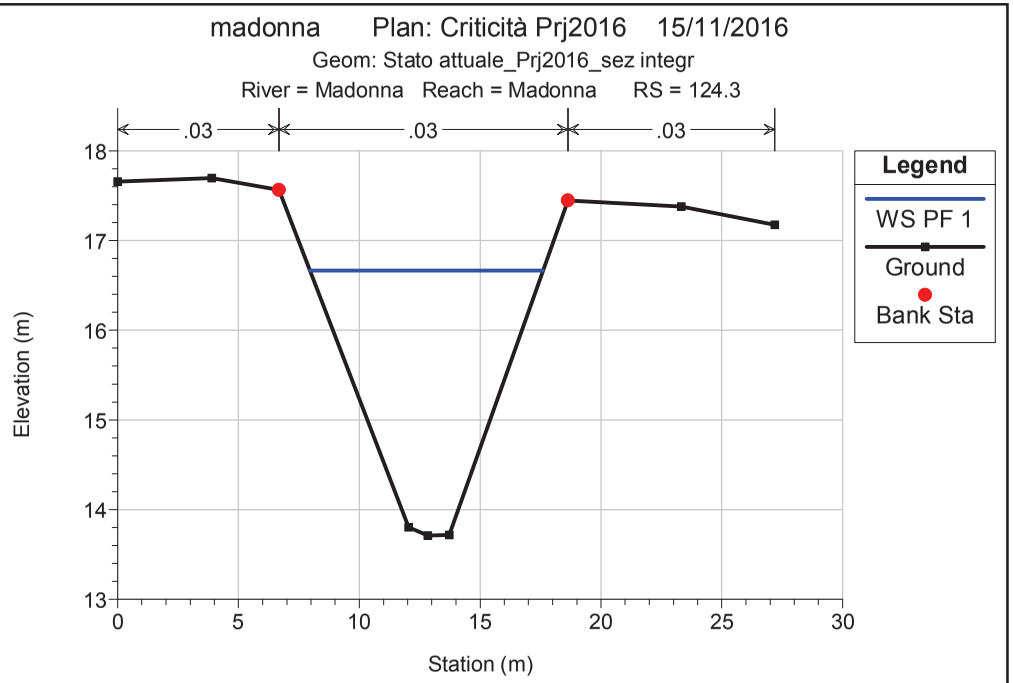

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 125.06
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

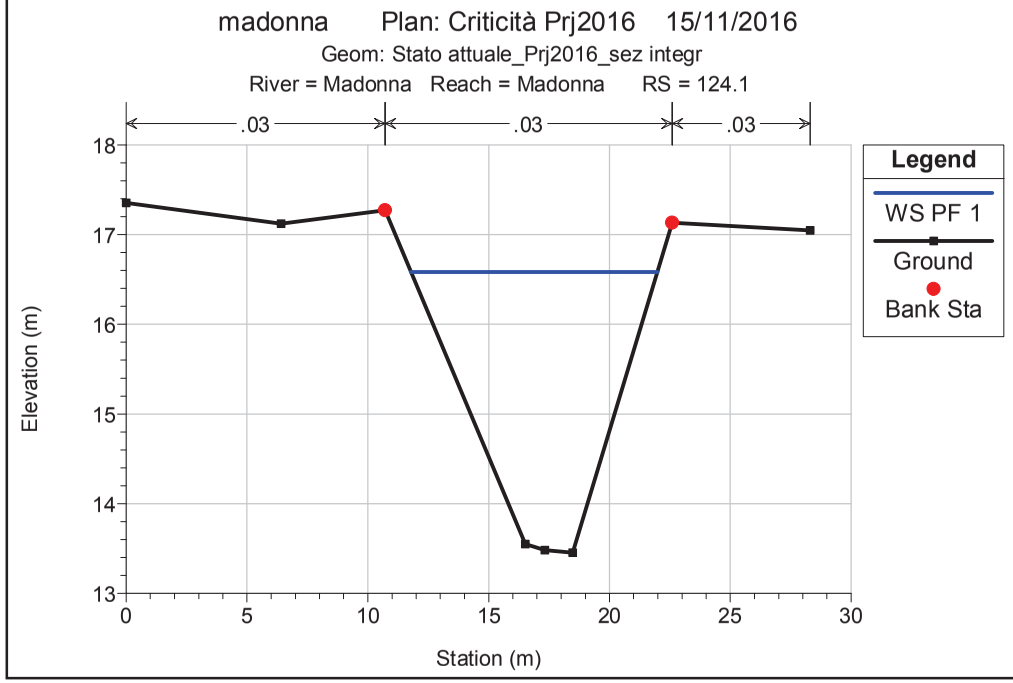

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 125.04
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

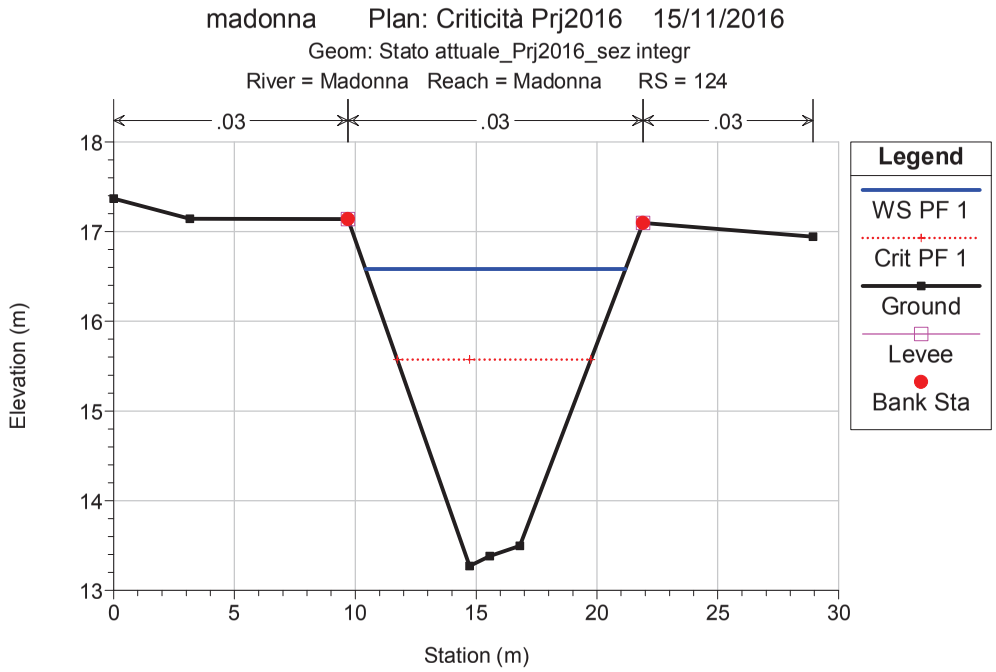

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 125.02
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 125
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

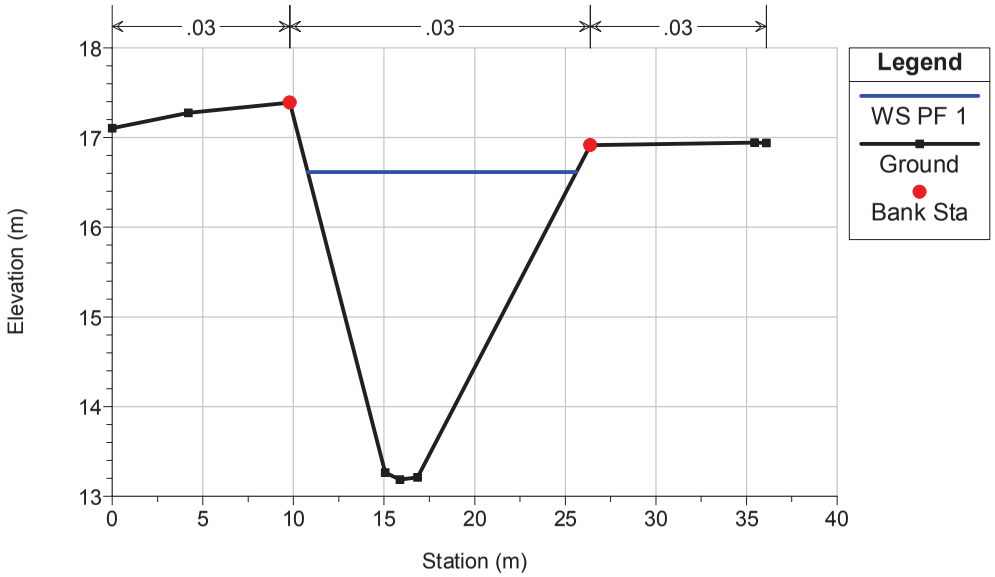

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 124.5
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 124.3
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

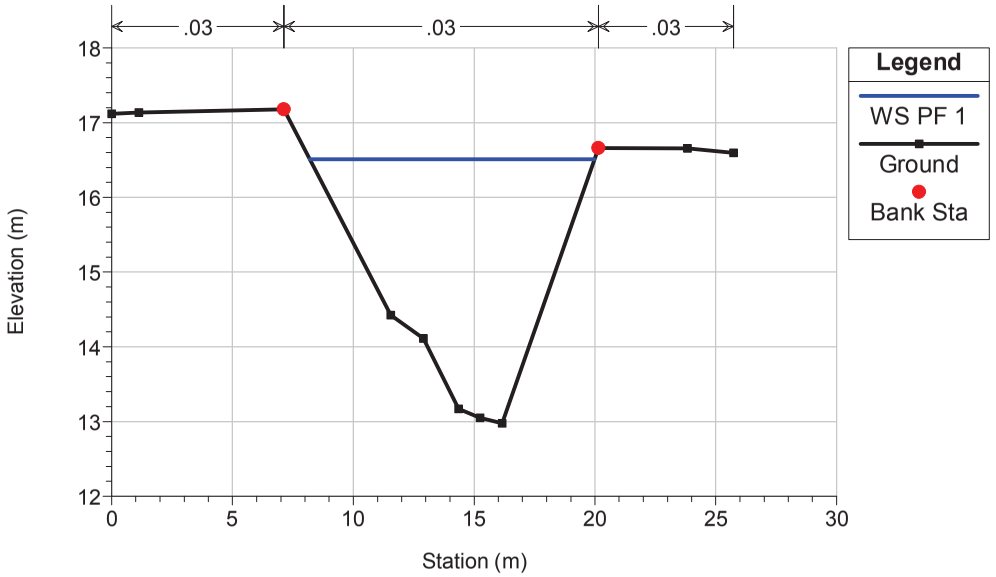

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 124.1
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 124
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

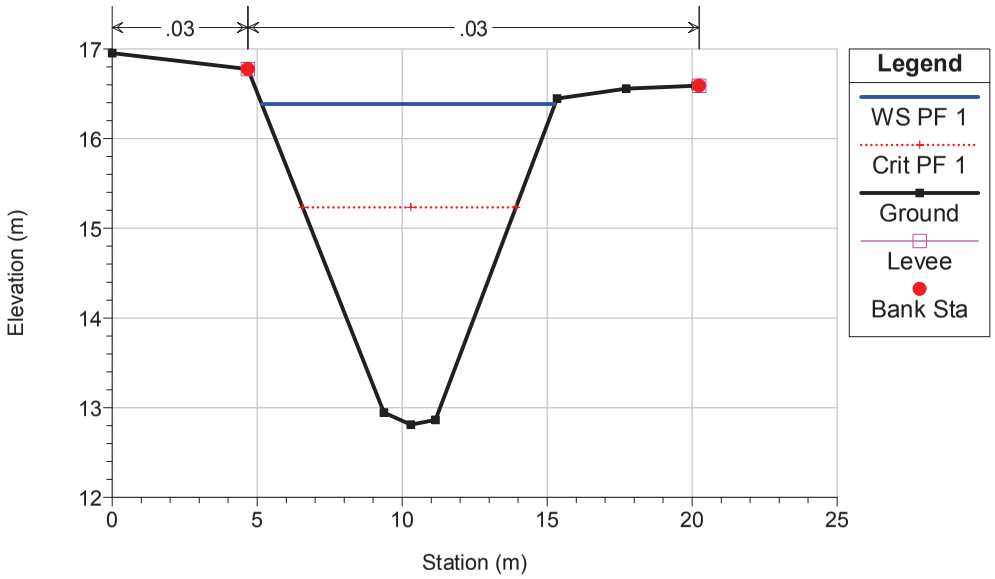
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 123.2



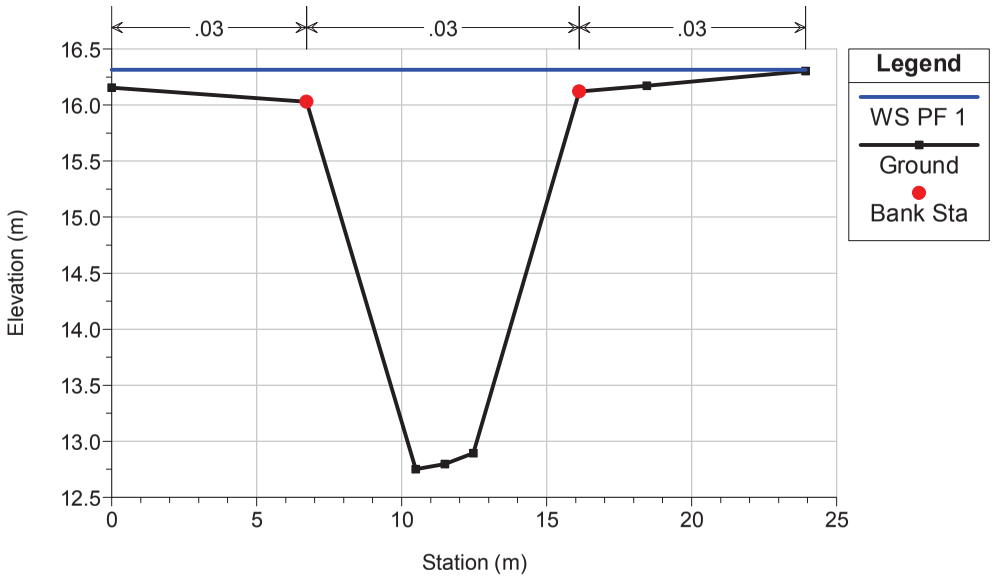
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 123.1

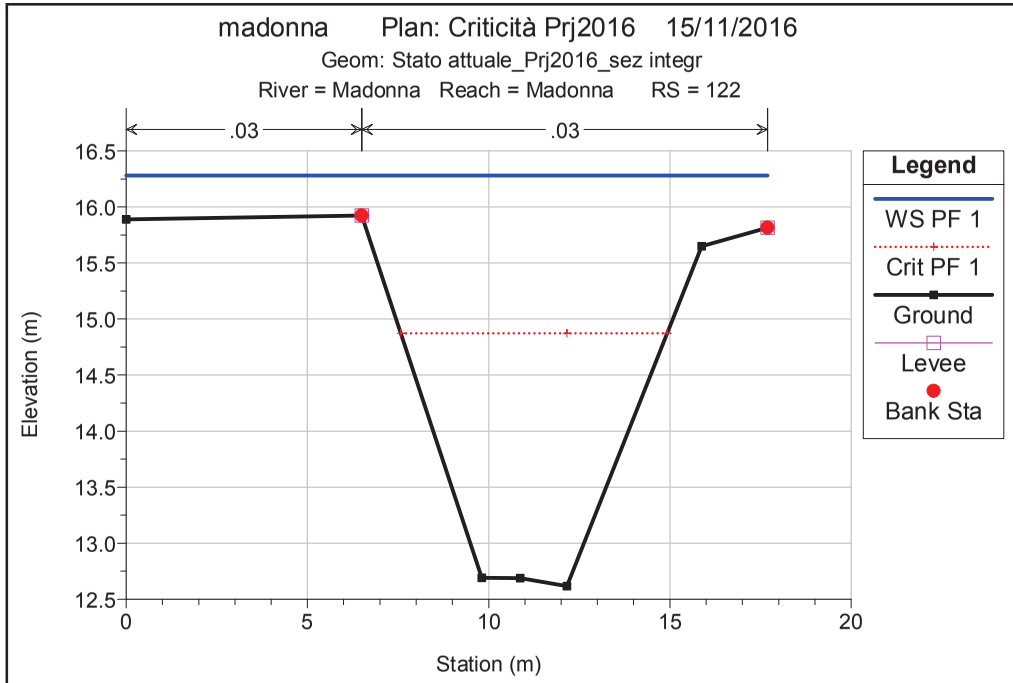


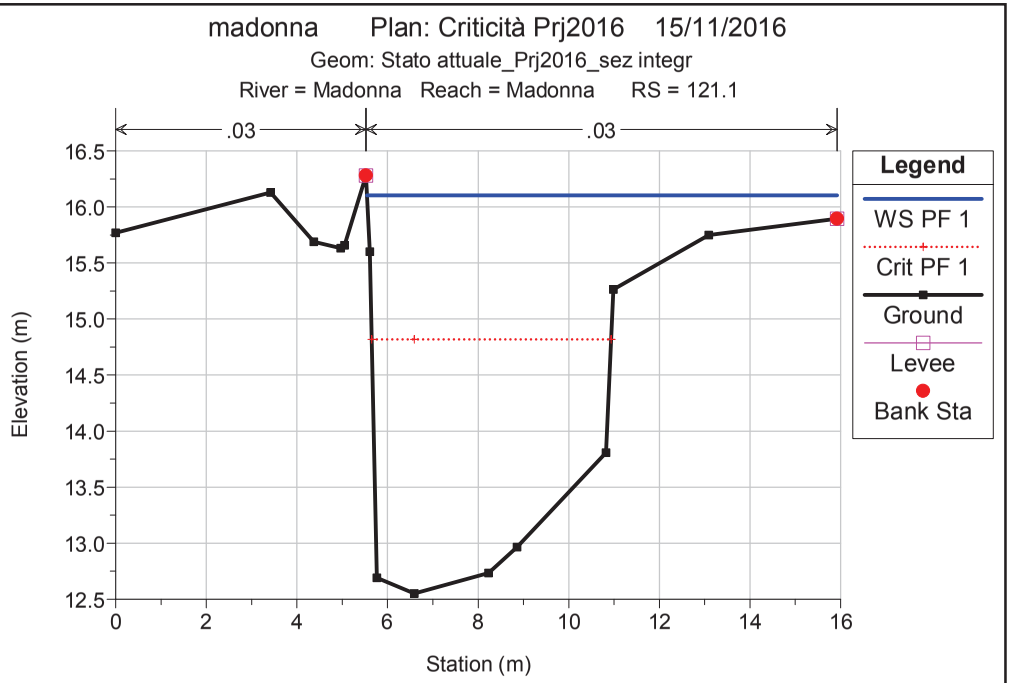
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 123

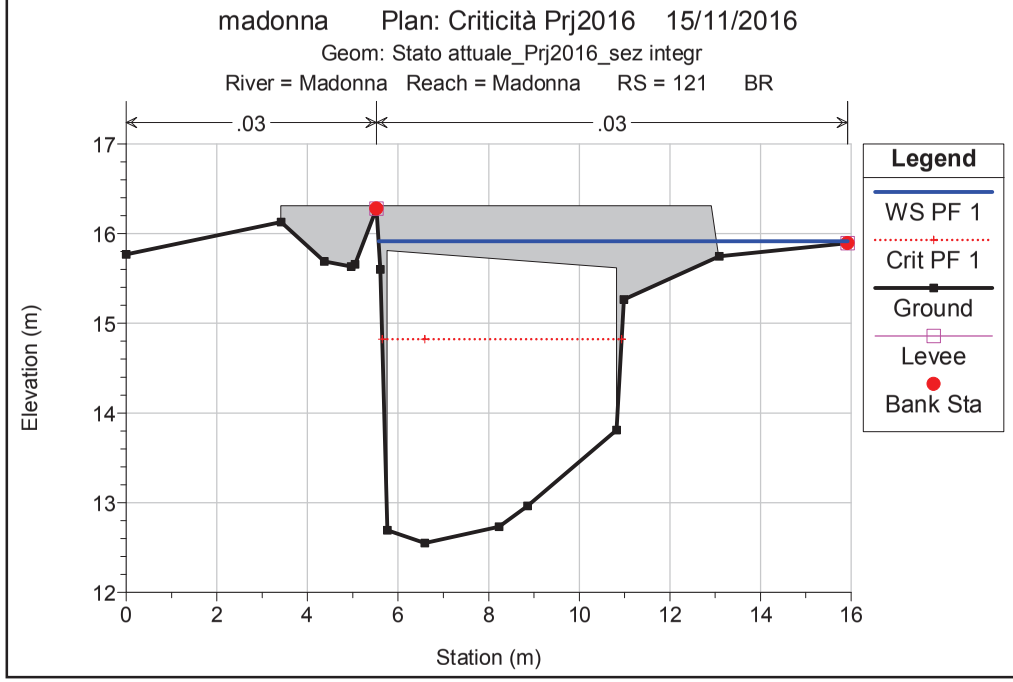


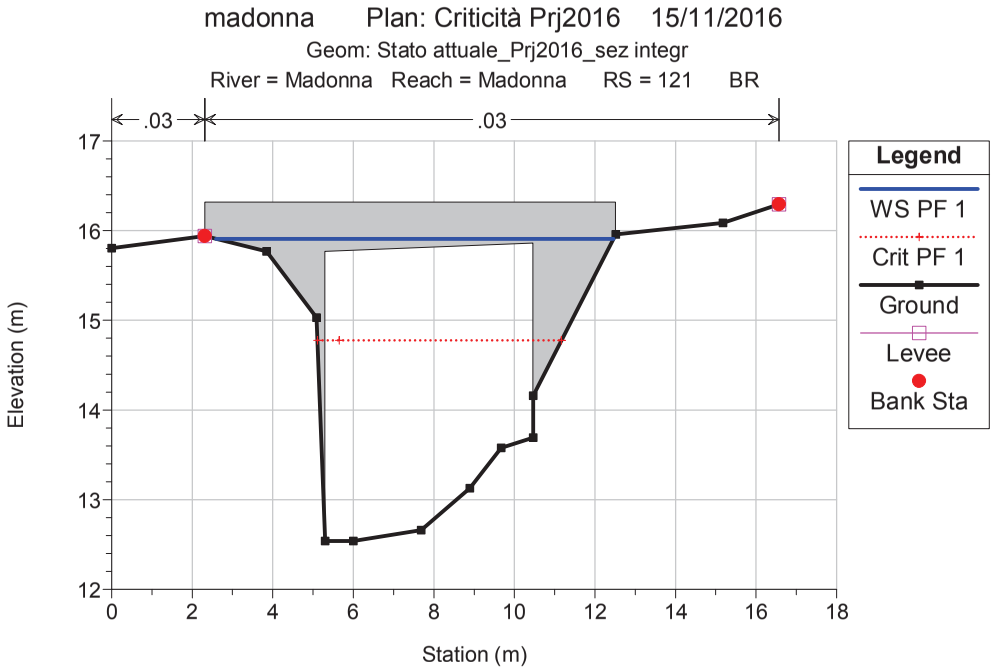
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 122.1



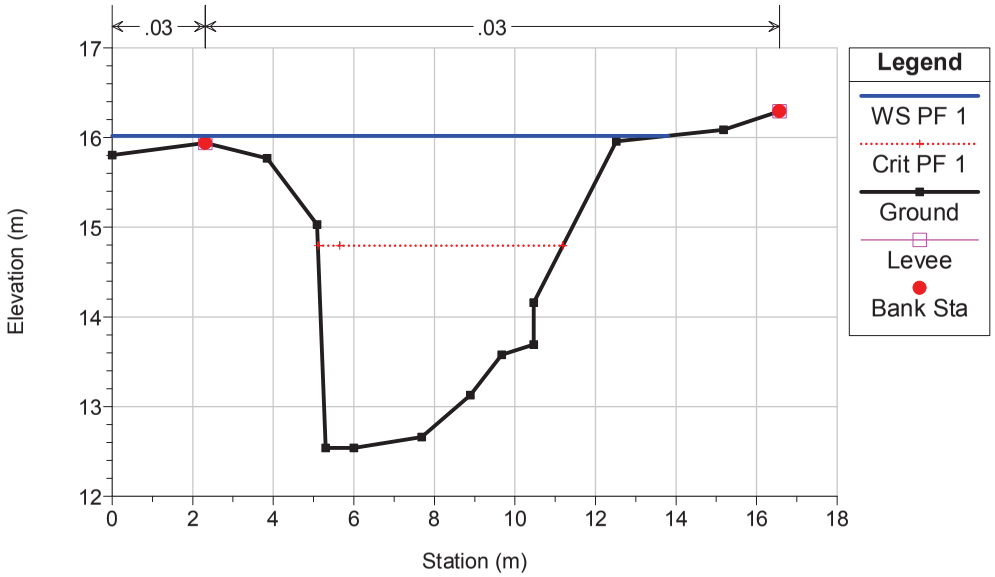

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 122
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 121.1
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

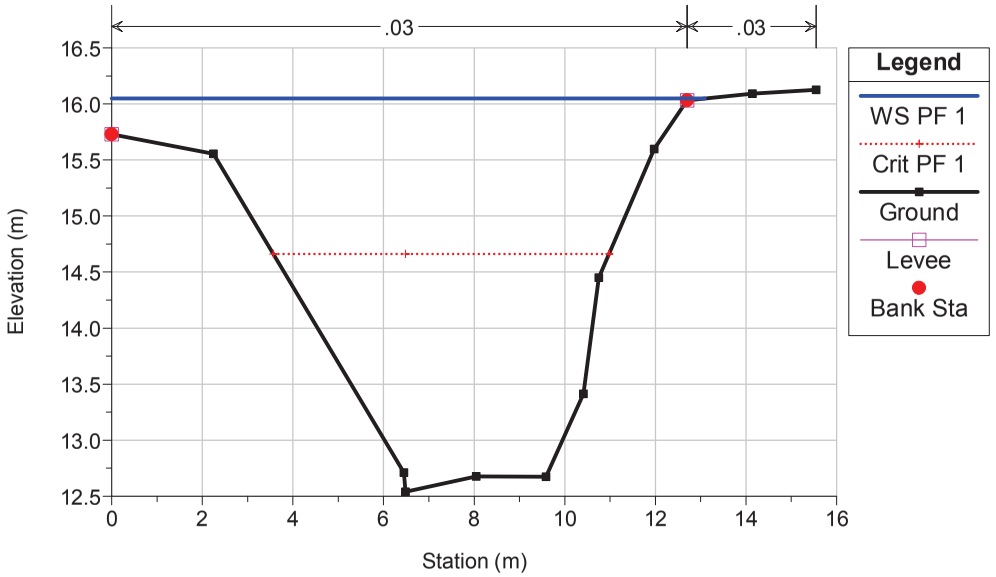

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 121 BR
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 121 BR
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

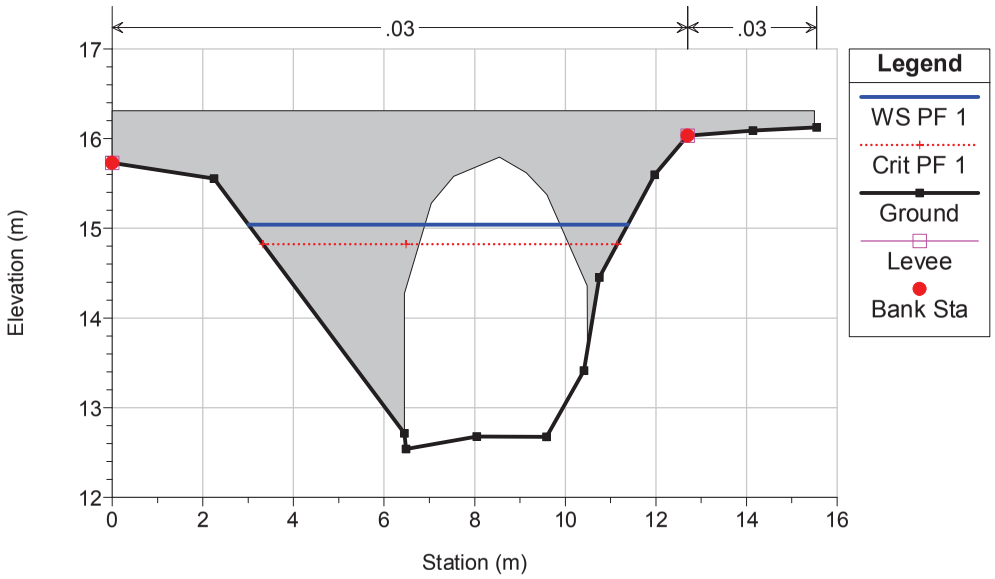
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 120.9



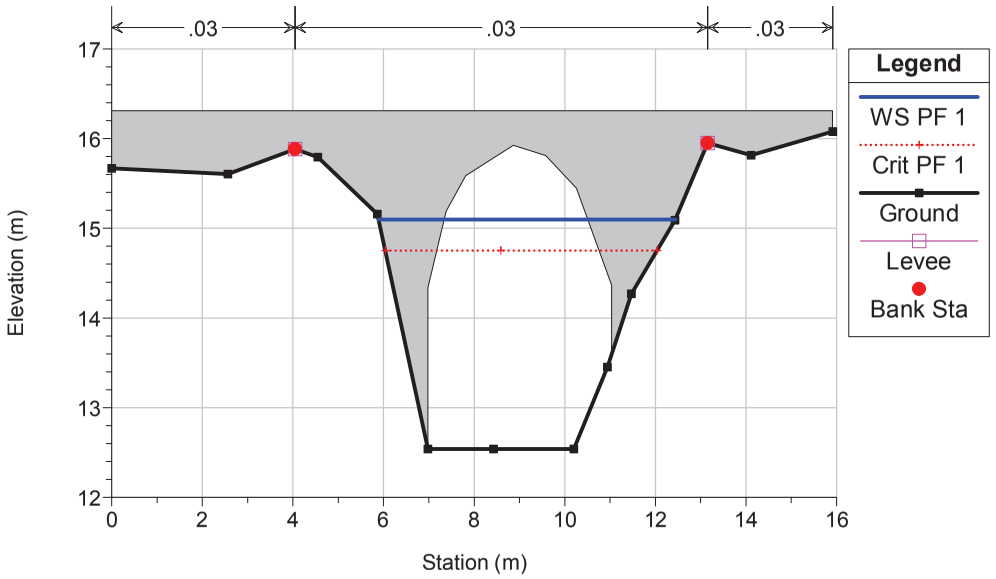
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 120.1

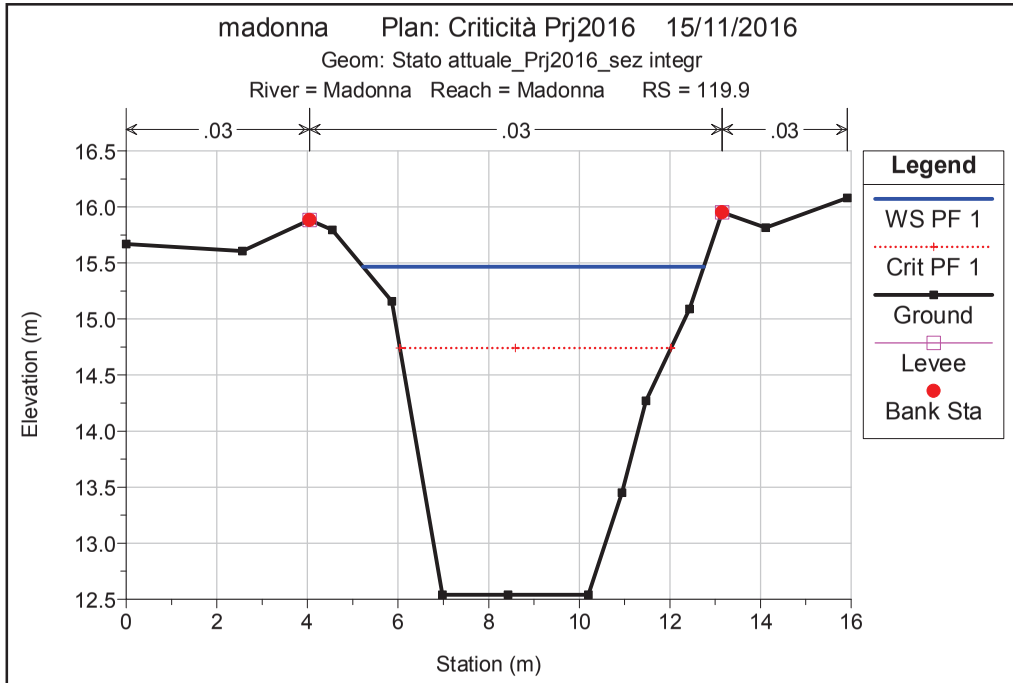


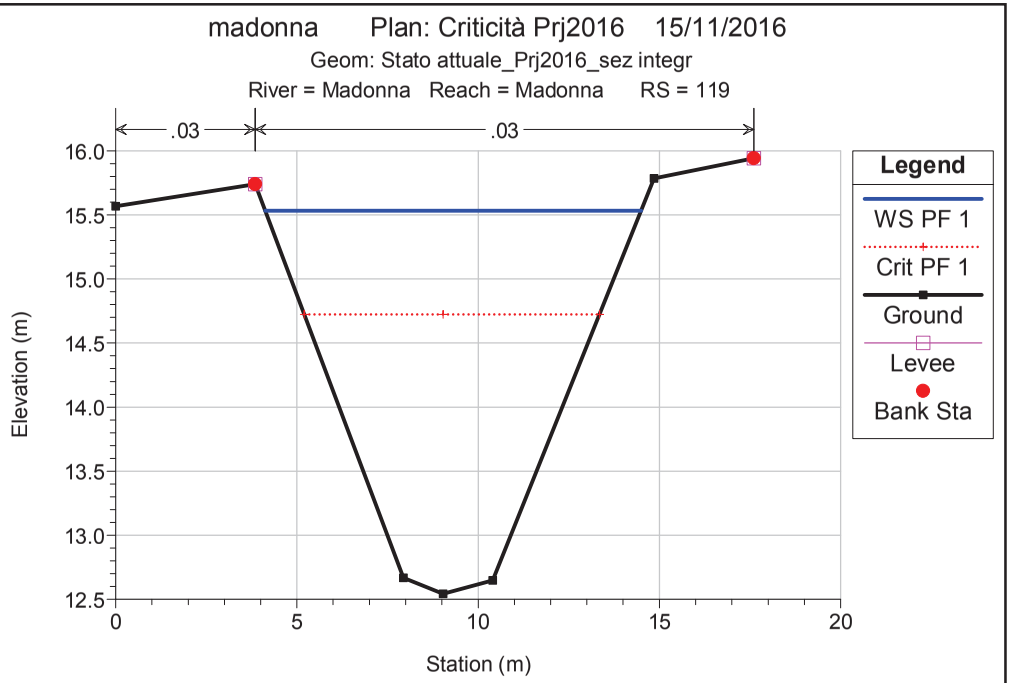
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 120 BR

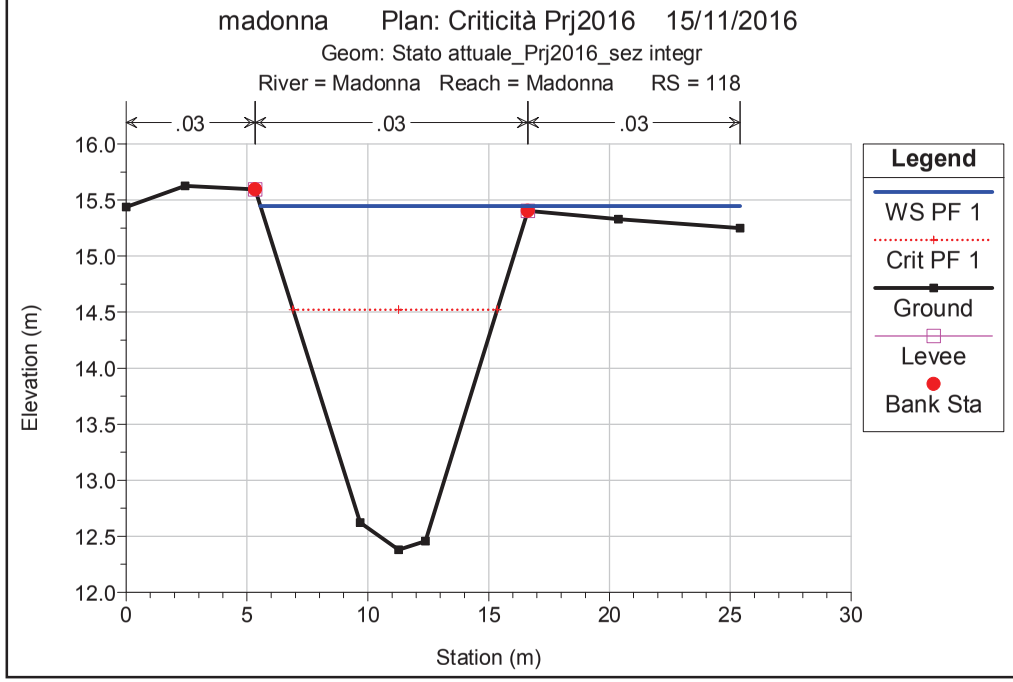


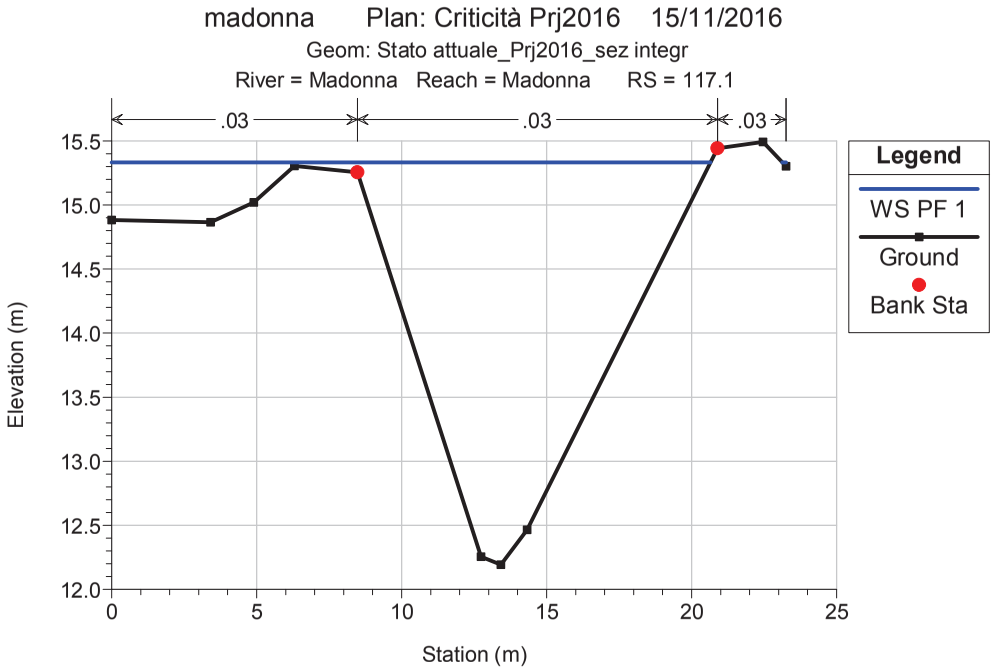
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 120 BR

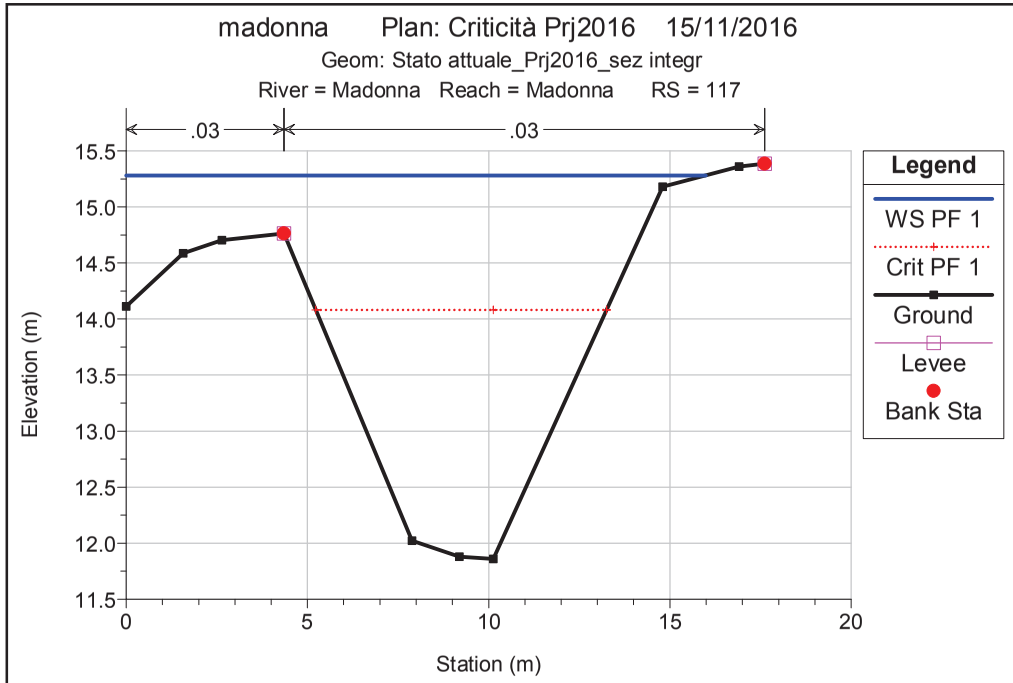


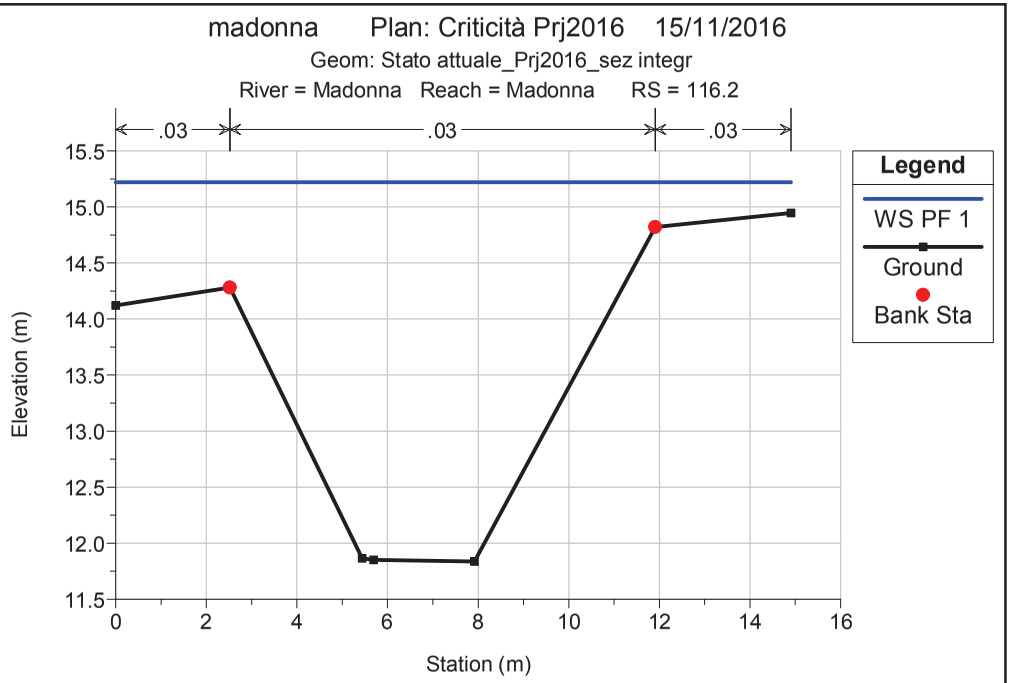

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 119.9
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

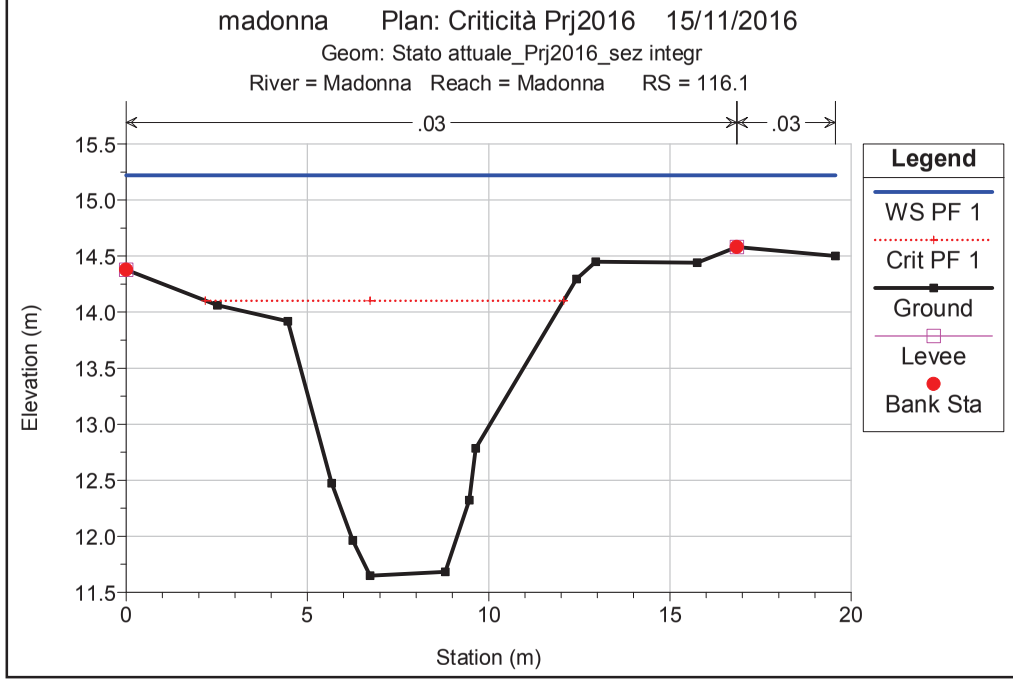

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 119
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

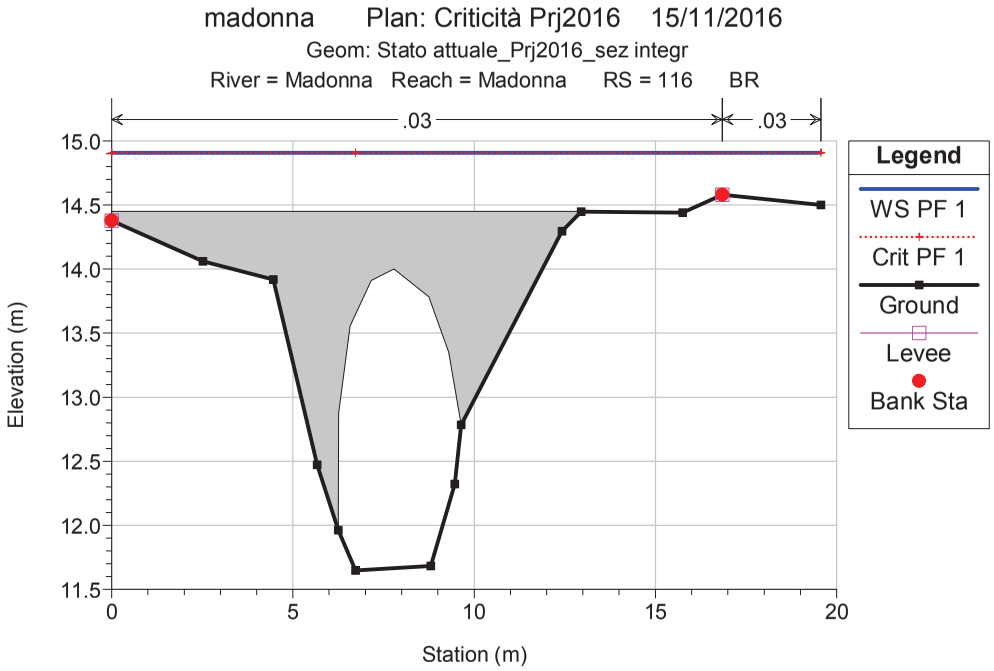

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 118
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

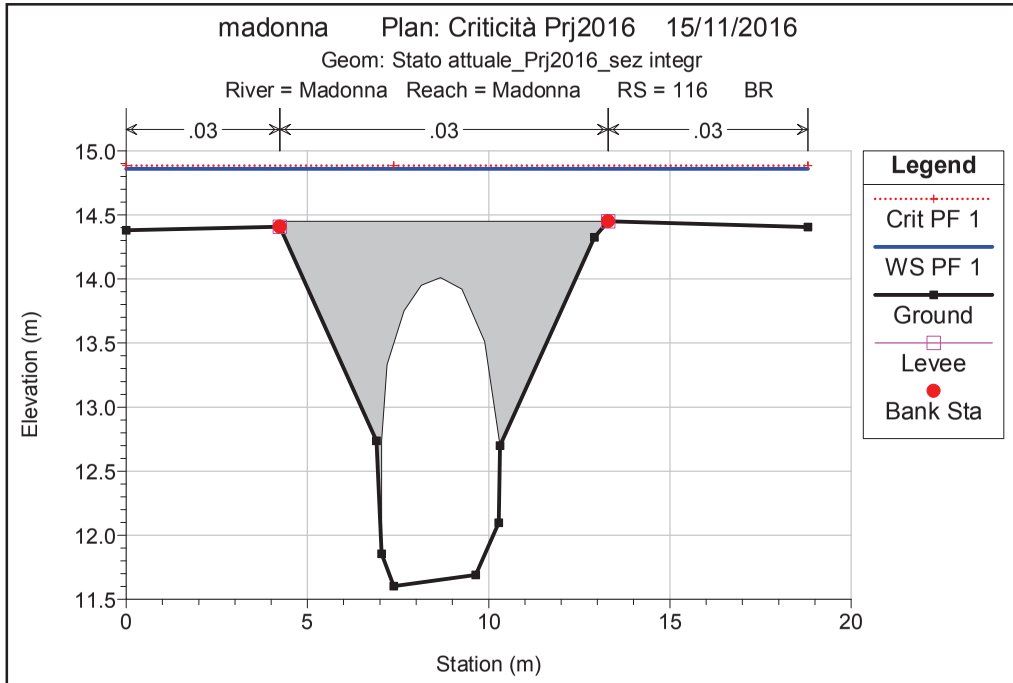

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 117.1
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

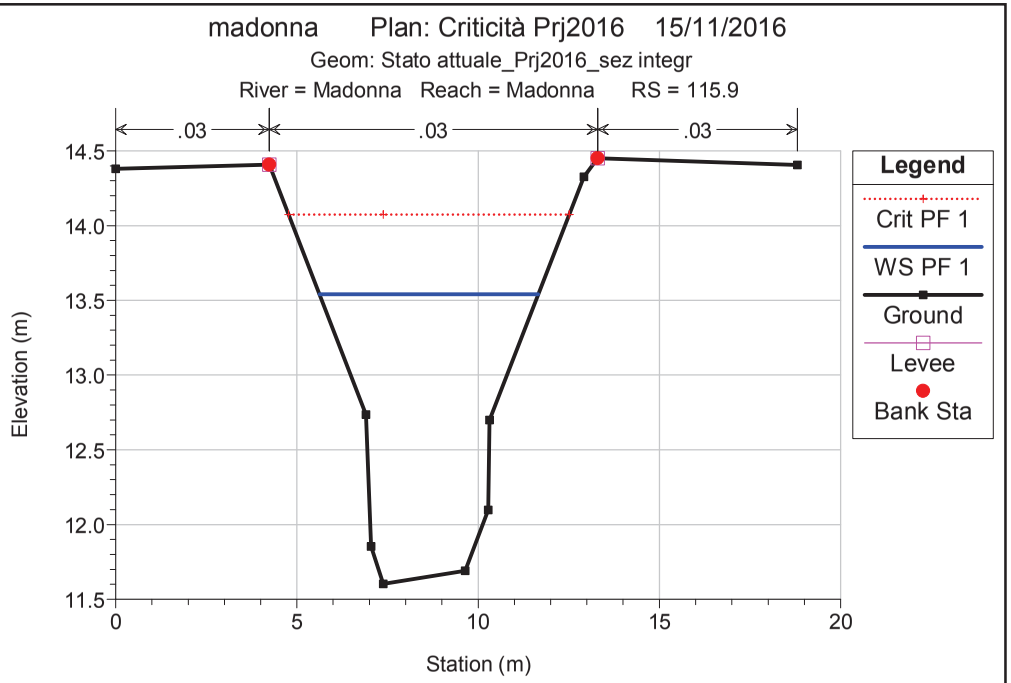

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 117
.03
.03
Elevation (m)
Station (m)
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta

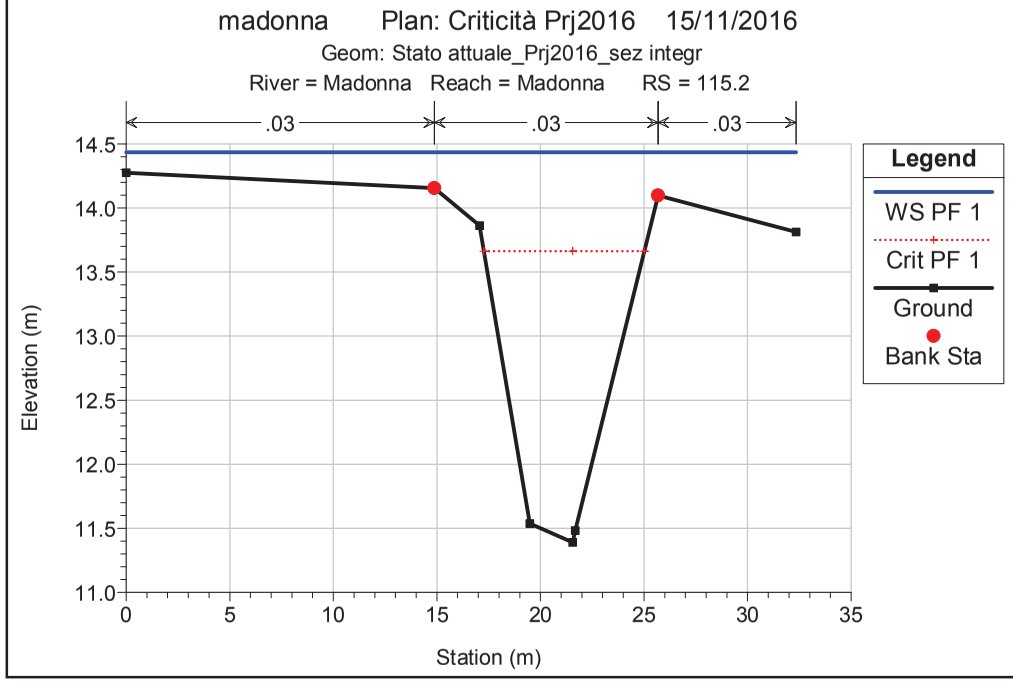

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 116.2
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS PF 1
Ground
Bank Sta

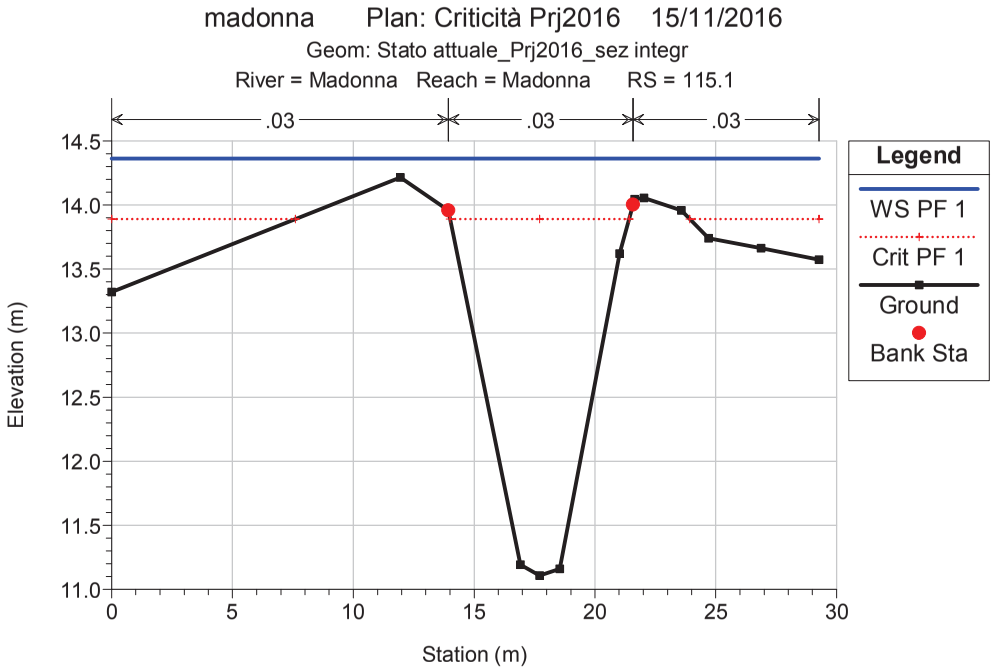

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 116.1
.03
.03
Elevation (m)
Station (m)
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 116 BR
.03
.03
Elevation (m)
Station (m)
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta

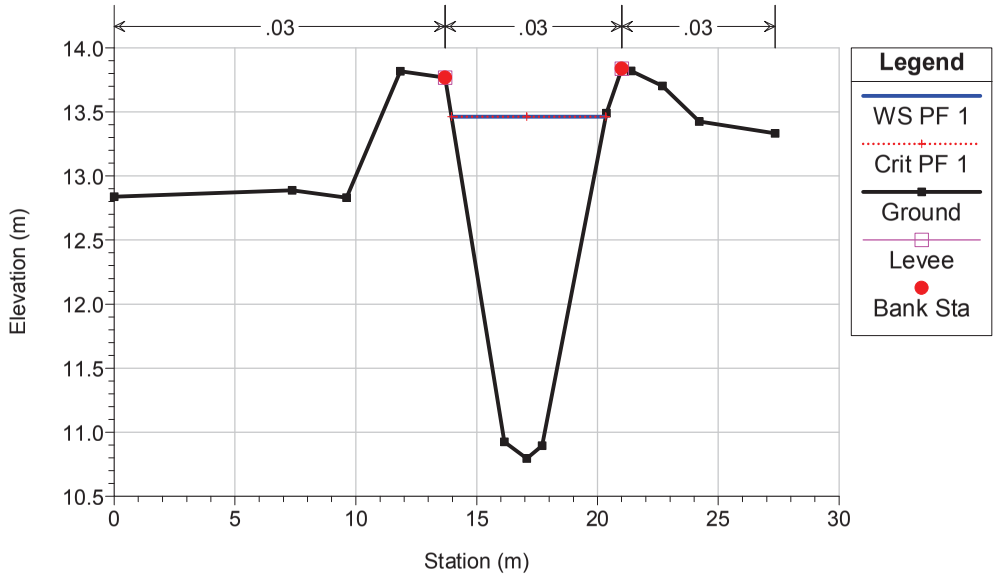

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 116 BR
.03
.03
.03
Legend
Crit PF 1
WS PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 115.9
.03
.03
.03
Legend
Crit PF 1
WS PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

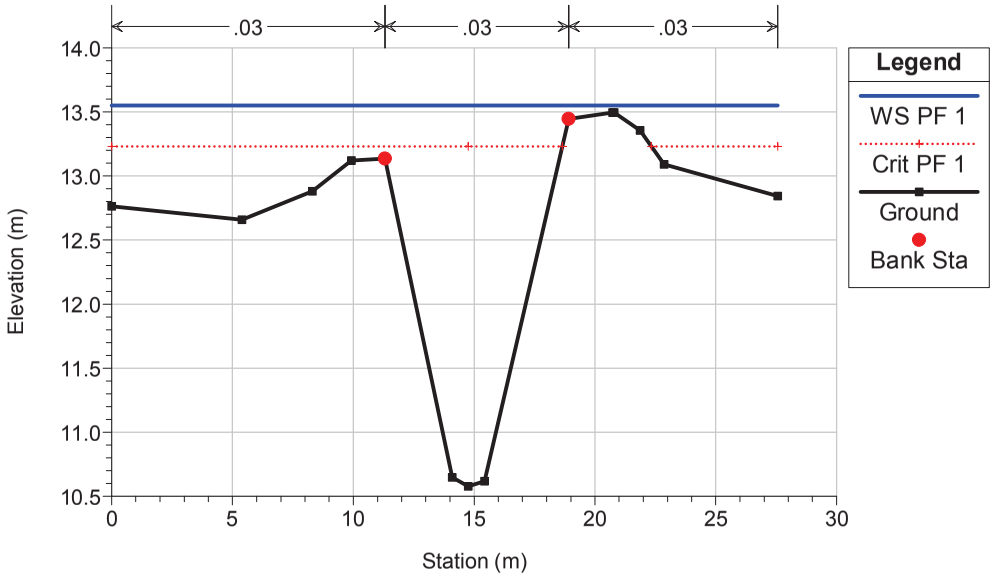

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 115.2
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 115.1
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

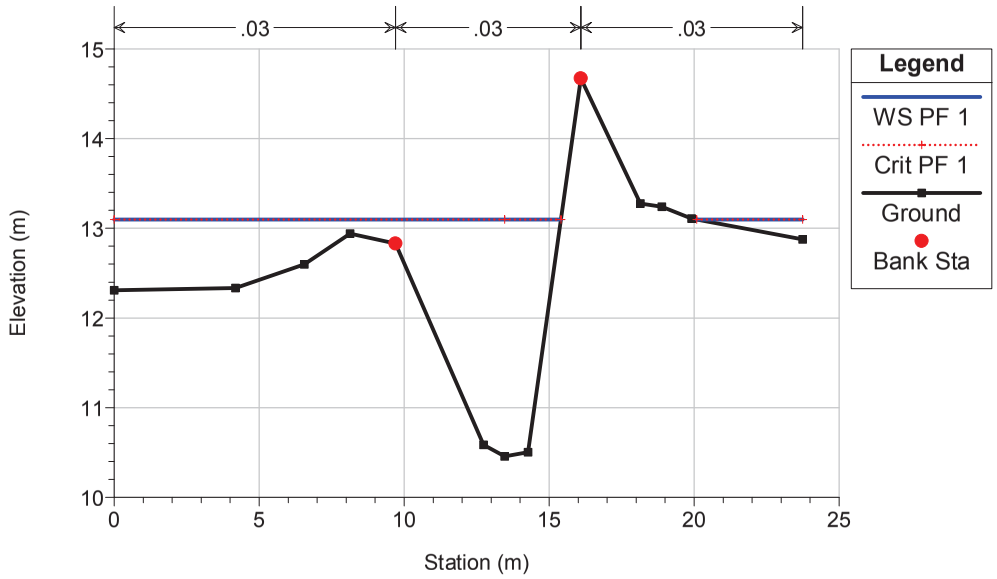
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 115



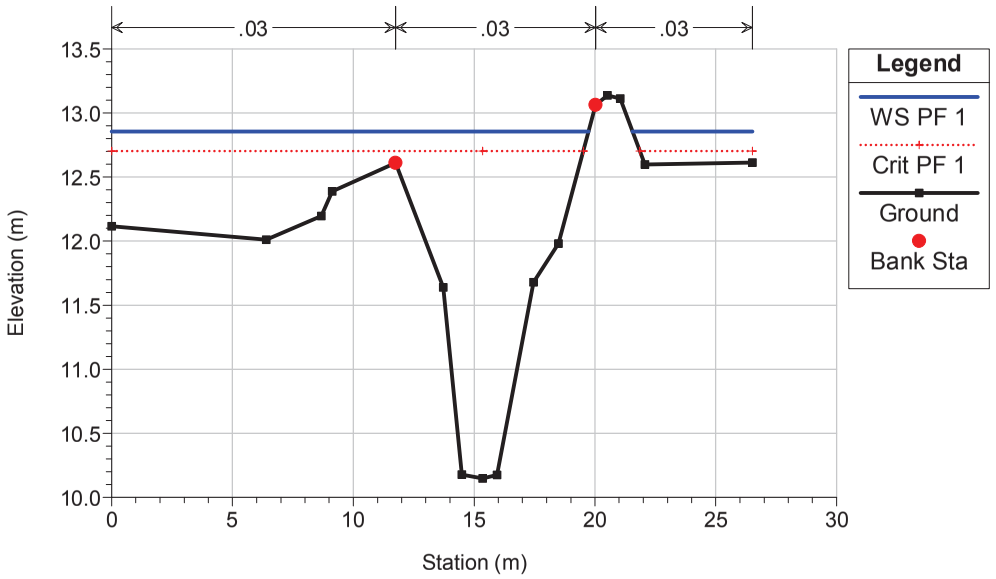
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 114.6

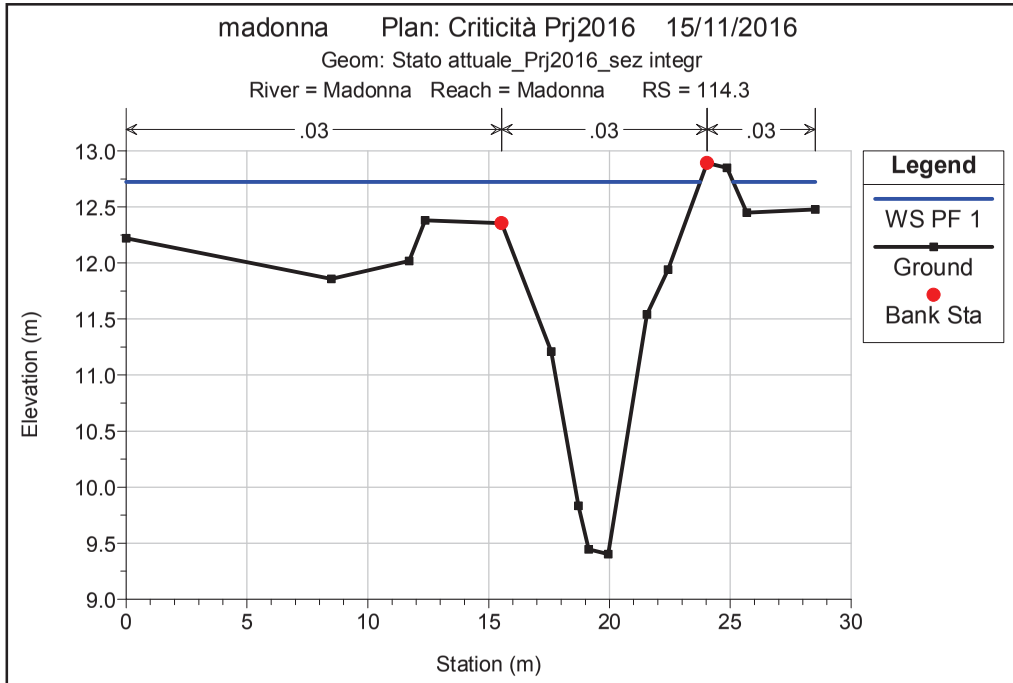


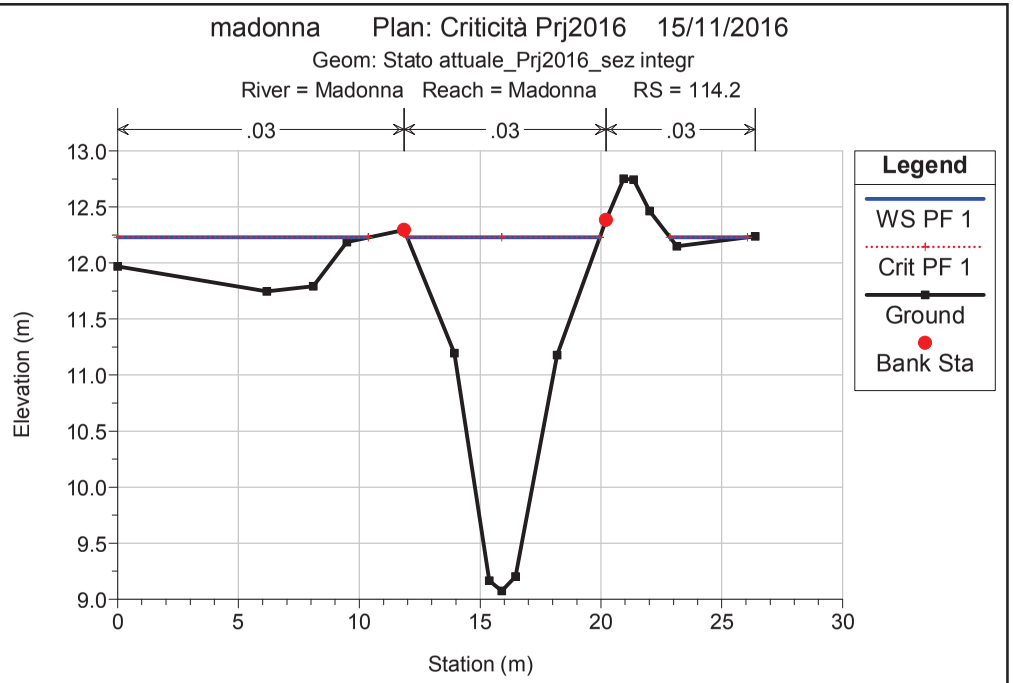
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 114.5

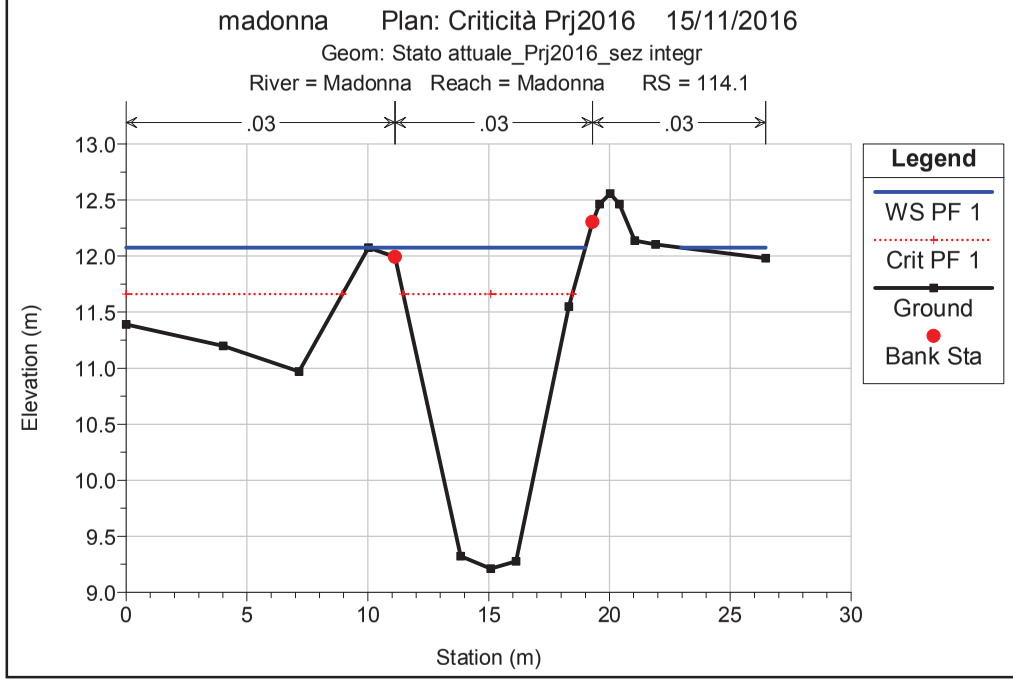


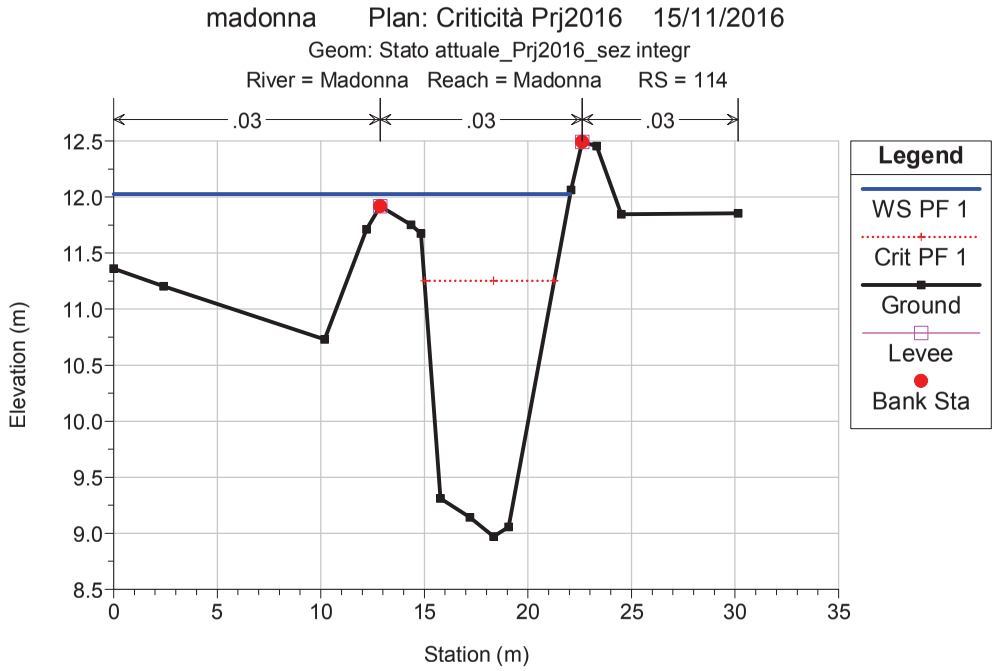
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 114.4

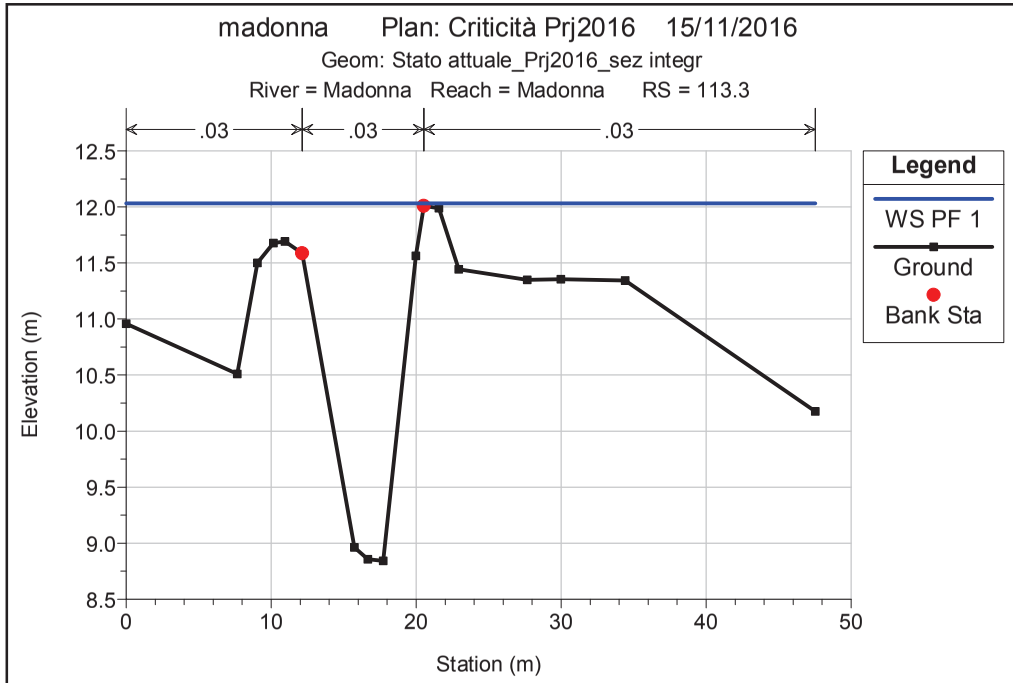


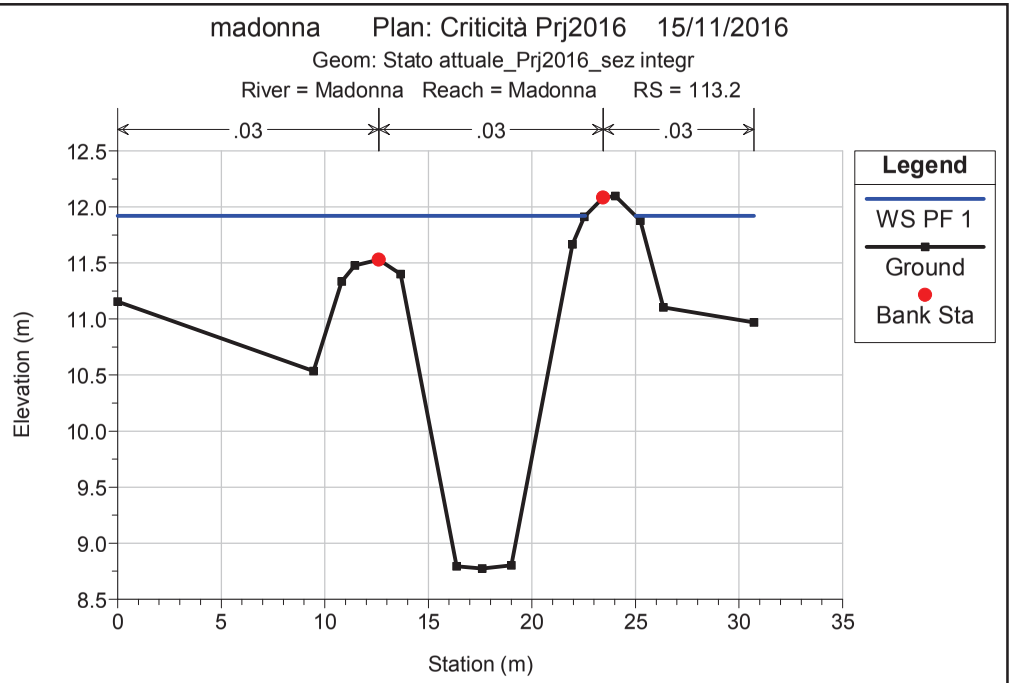

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 114.3
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

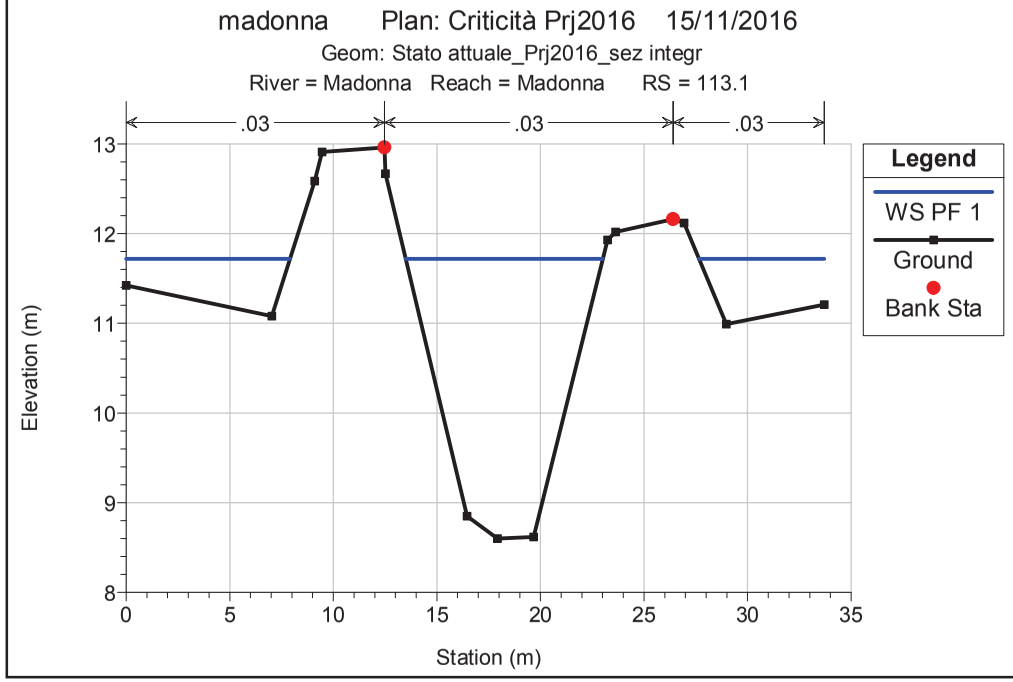

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 114.2
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

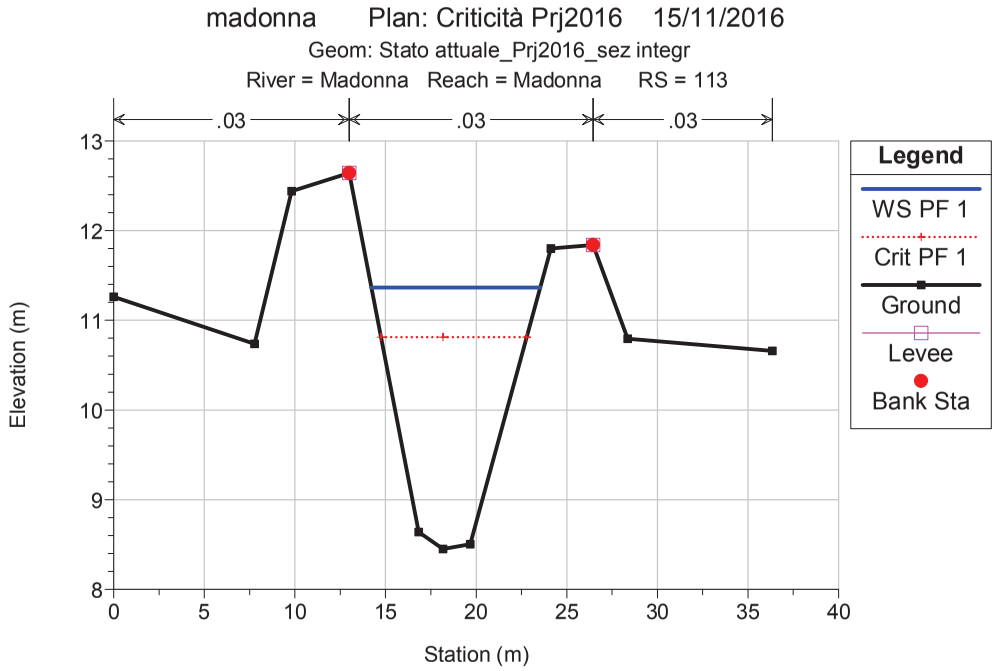

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 114.1
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 114
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

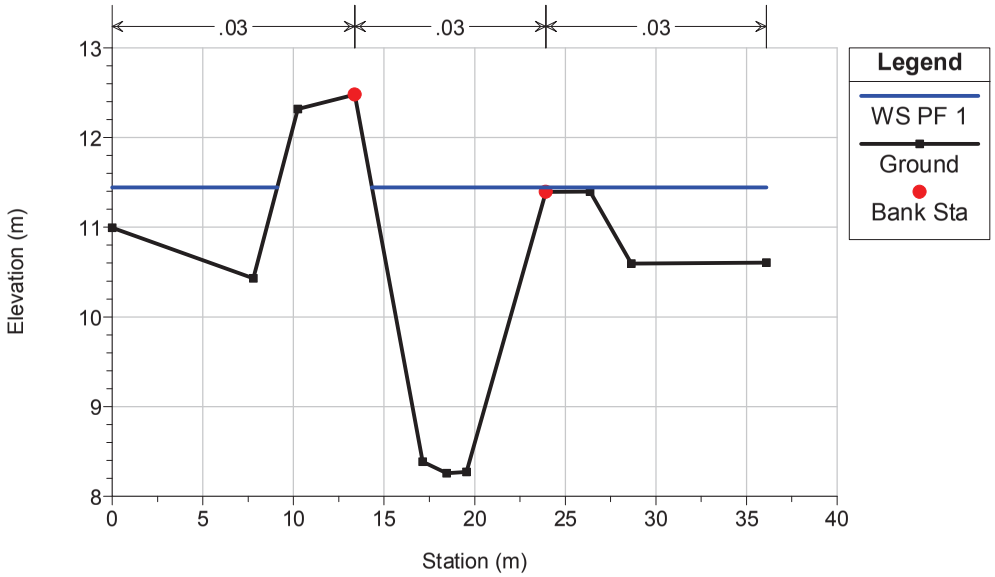

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 113.3
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 113.2
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

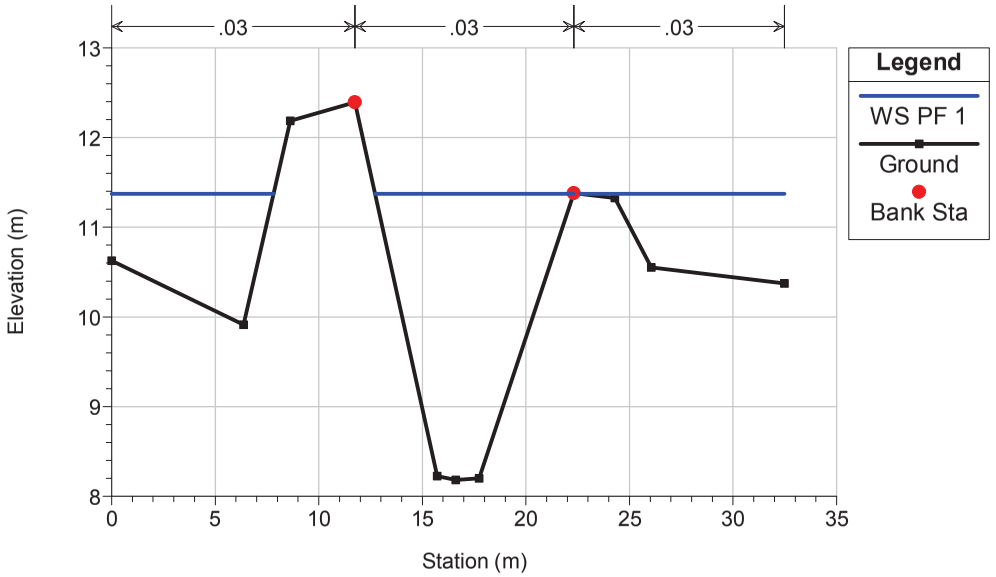

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 113.1
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 113
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

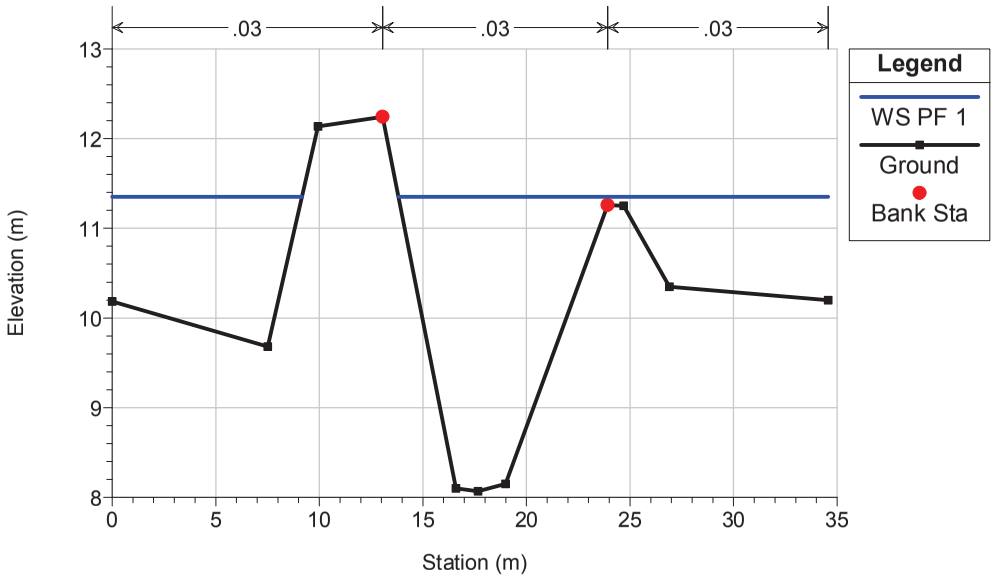
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 112.8



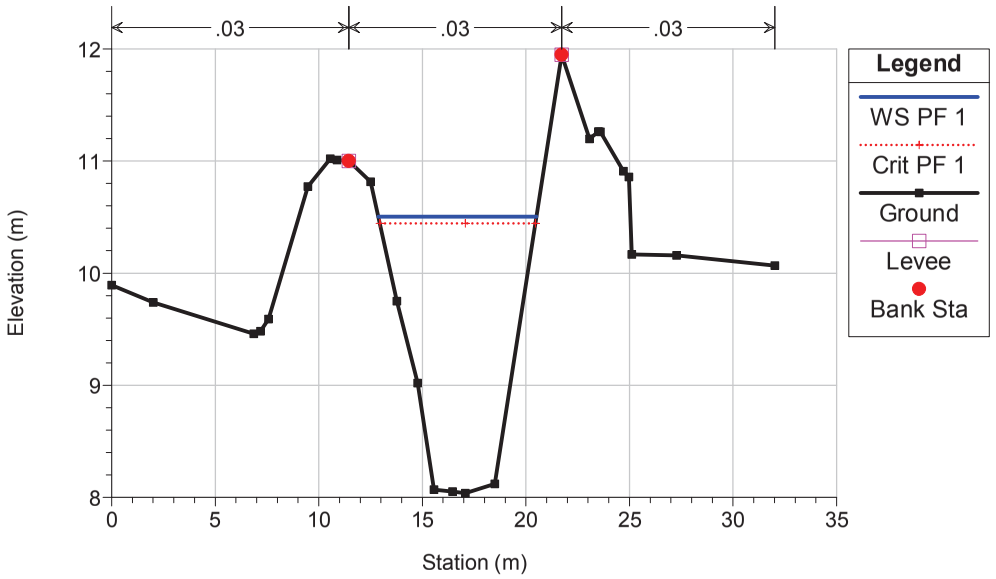
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 112.7



madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 112.6



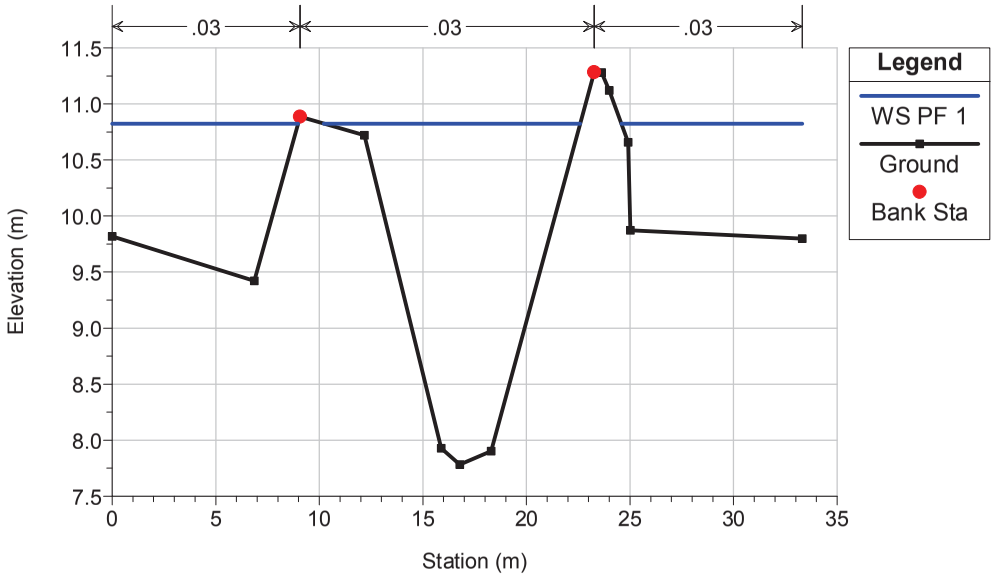
madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 112.1



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

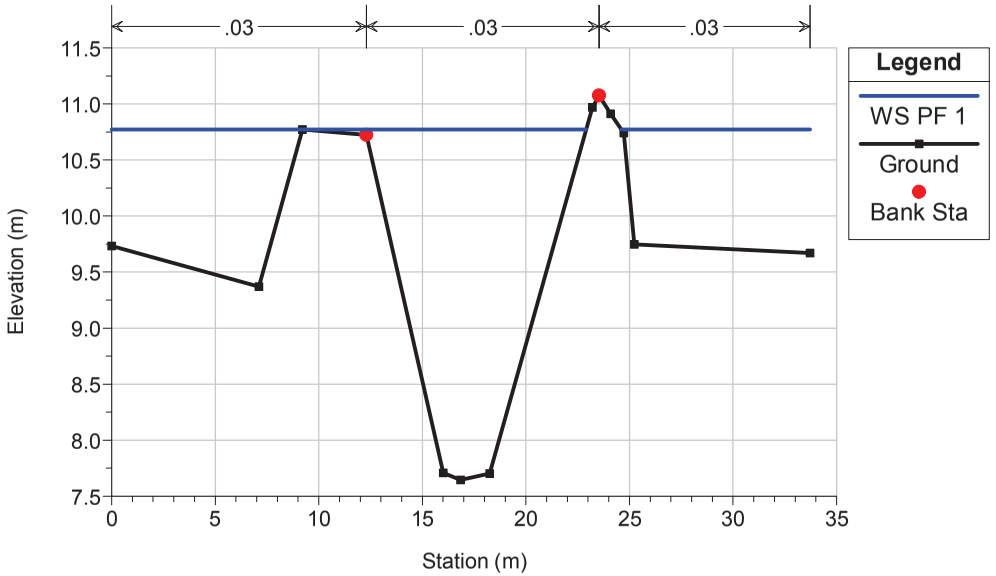
River = Madonna Reach = Madonna RS = 112.05



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

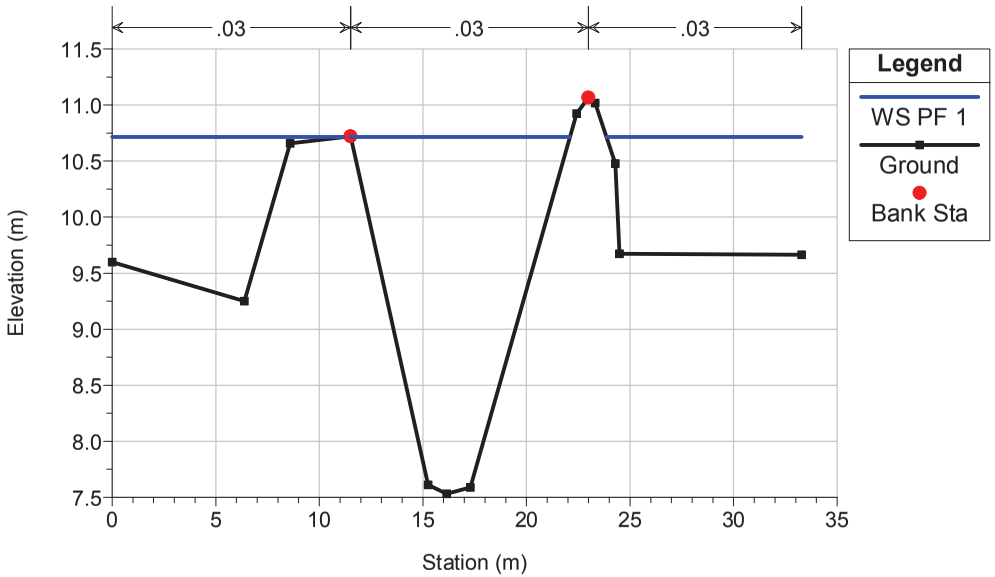
River = Madonna Reach = Madonna RS = 112.04



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

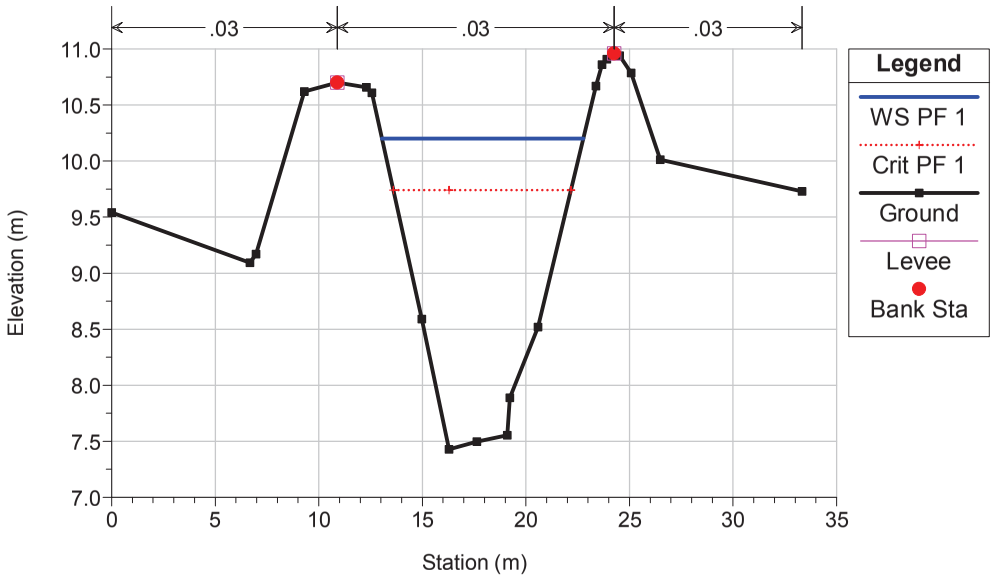
River = Madonna Reach = Madonna RS = 112.03

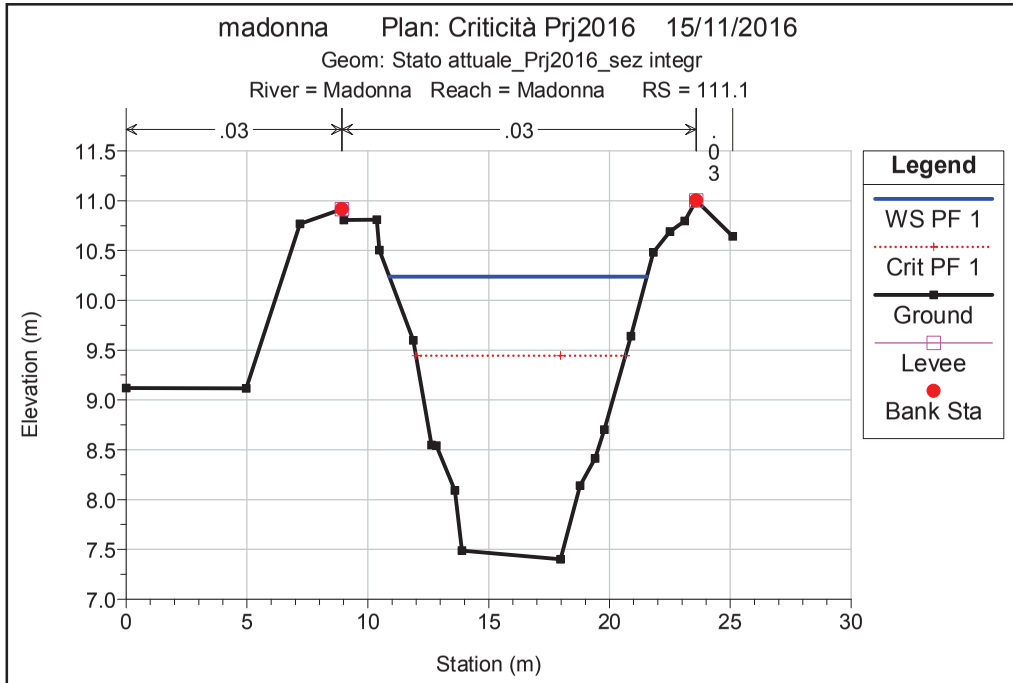


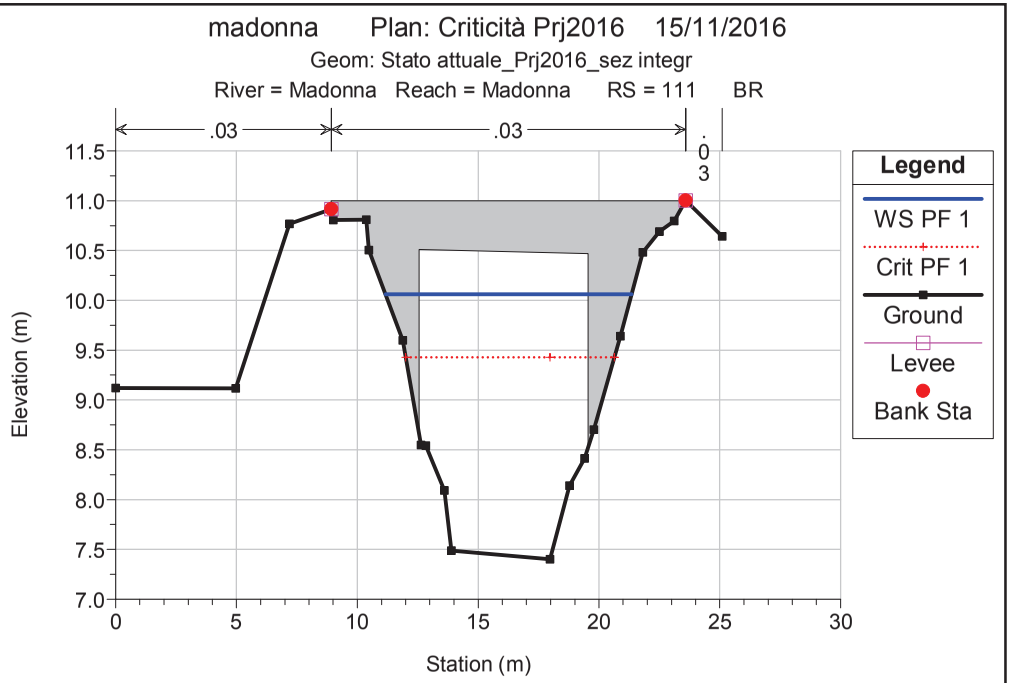
madonna Plan: Criticità Prj2016 15/11/2016

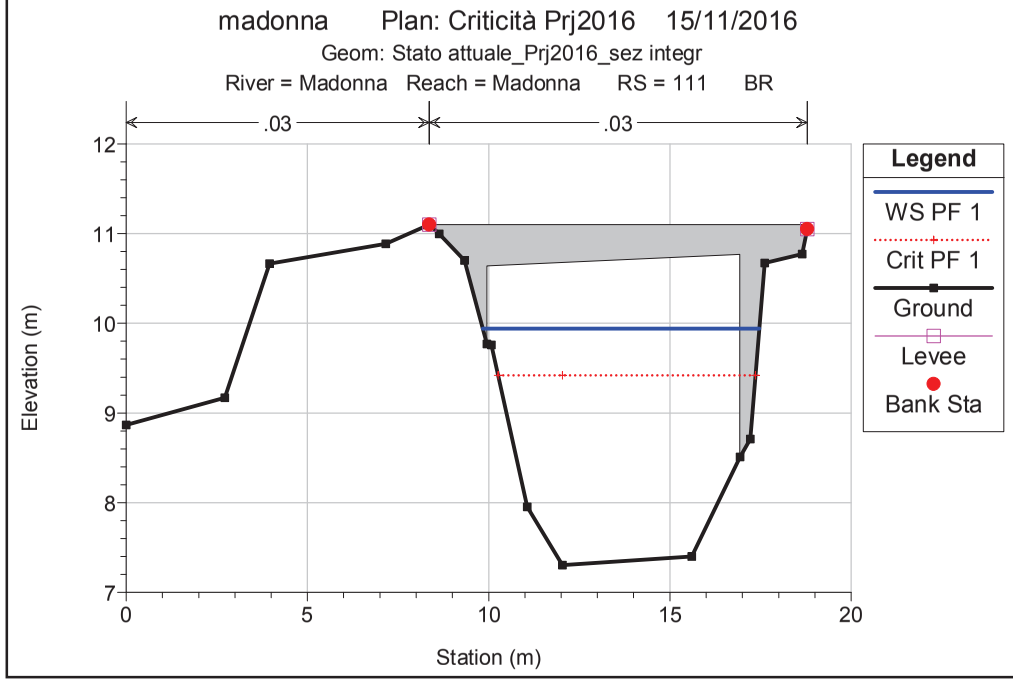
Geom: Stato attuale_Prj2016_sez integr

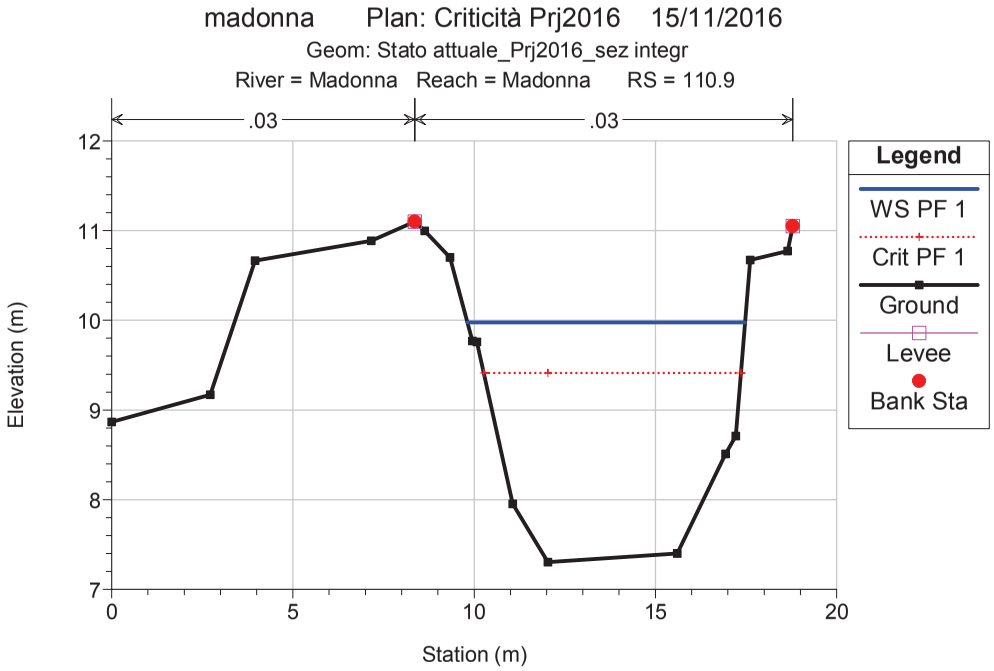
River = Madonna Reach = Madonna RS = 112




madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 111.1
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 111 BR
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

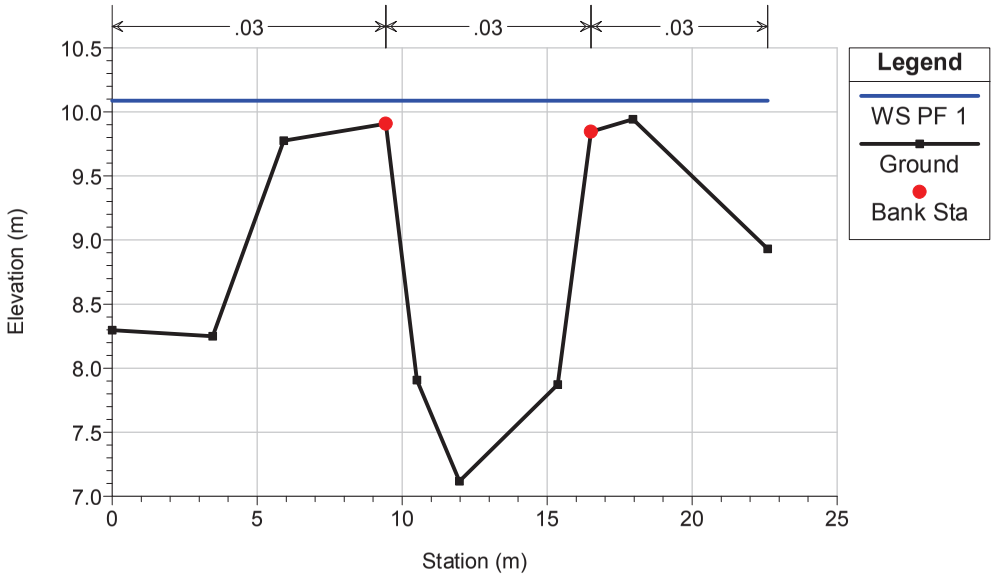

madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 111 BR
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Criticità Prj2016 15/11/2016
Geom: Stato attuale_Prj2016_sez integr
River = Madonna Reach = Madonna RS = 110.9
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

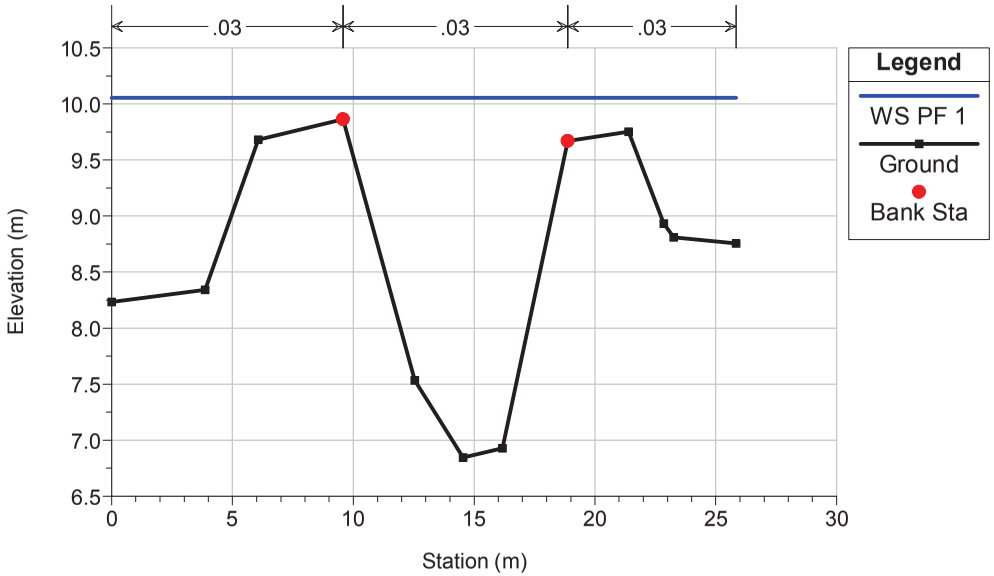
River = Madonna Reach = Madonna RS = 110.2



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

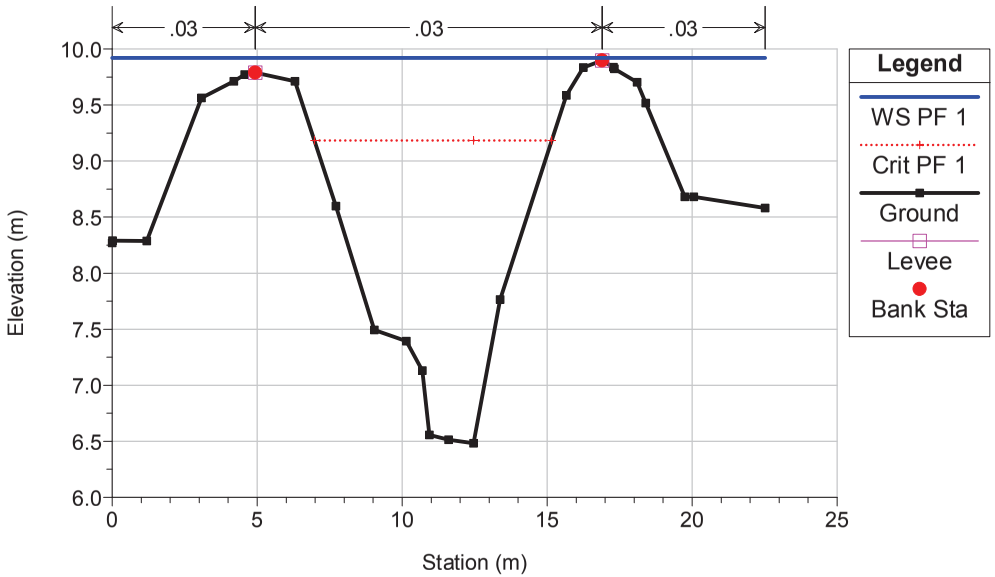
River = Madonna Reach = Madonna RS = 110.1



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

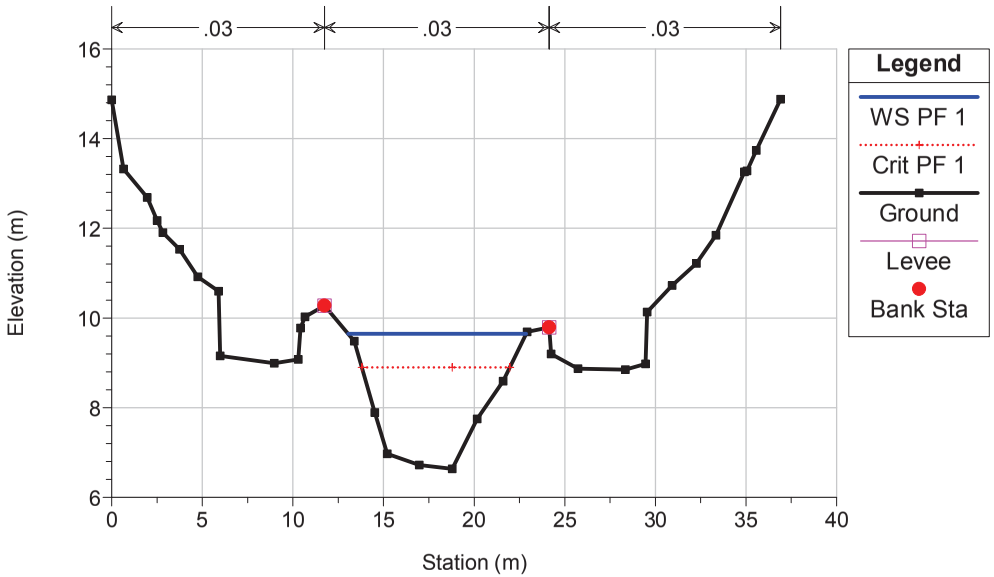
River = Madonna Reach = Madonna RS = 110



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

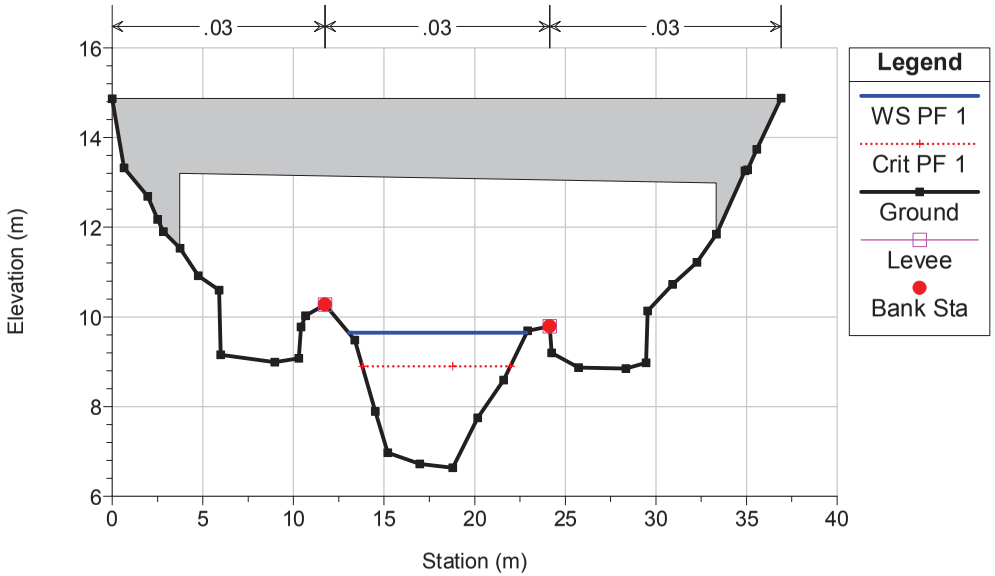
River = Madonna Reach = Madonna RS = 109.3



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

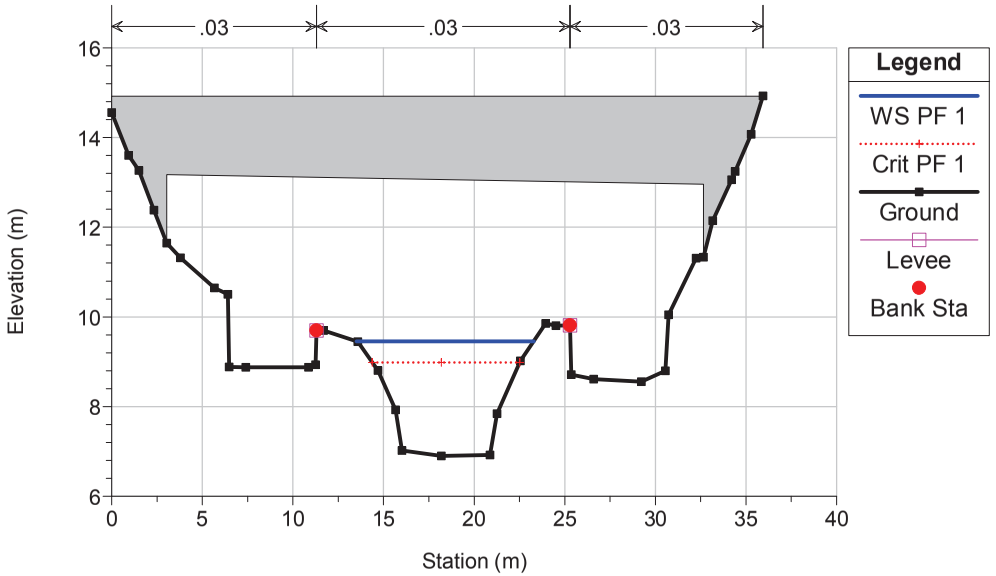
River = Madonna Reach = Madonna RS = 109.2 BR



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

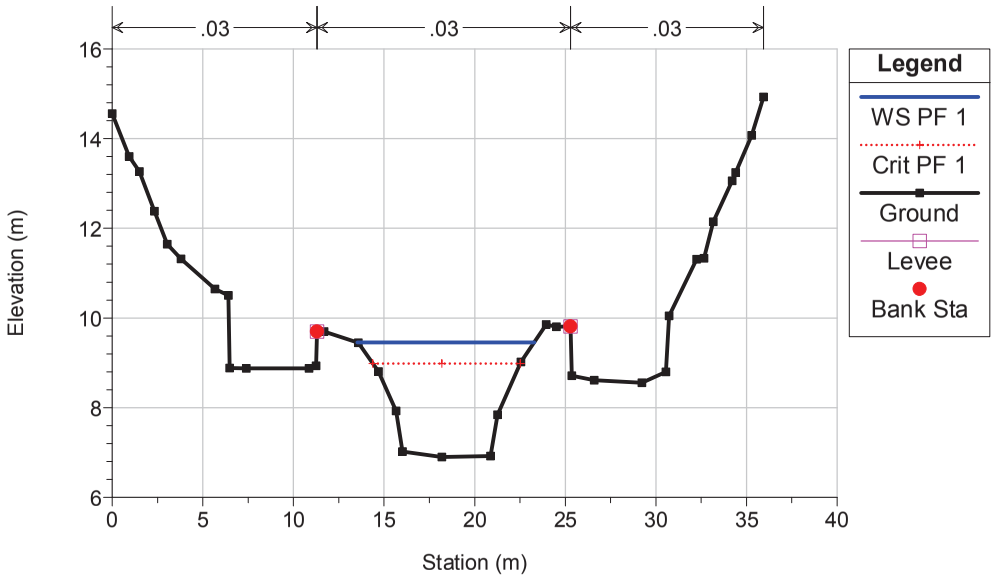
River = Madonna Reach = Madonna RS = 109.2 BR



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

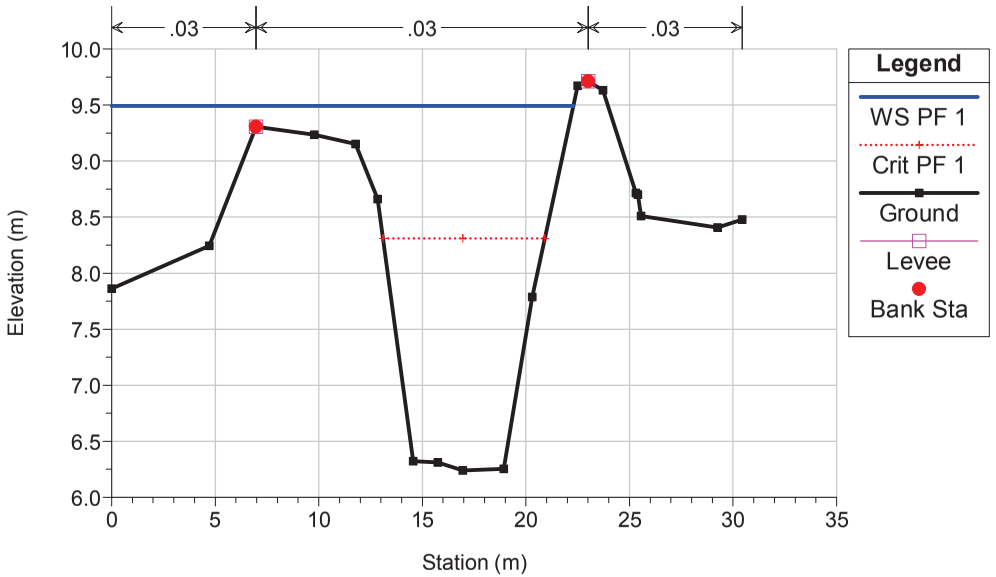
River = Madonna Reach = Madonna RS = 109.1



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

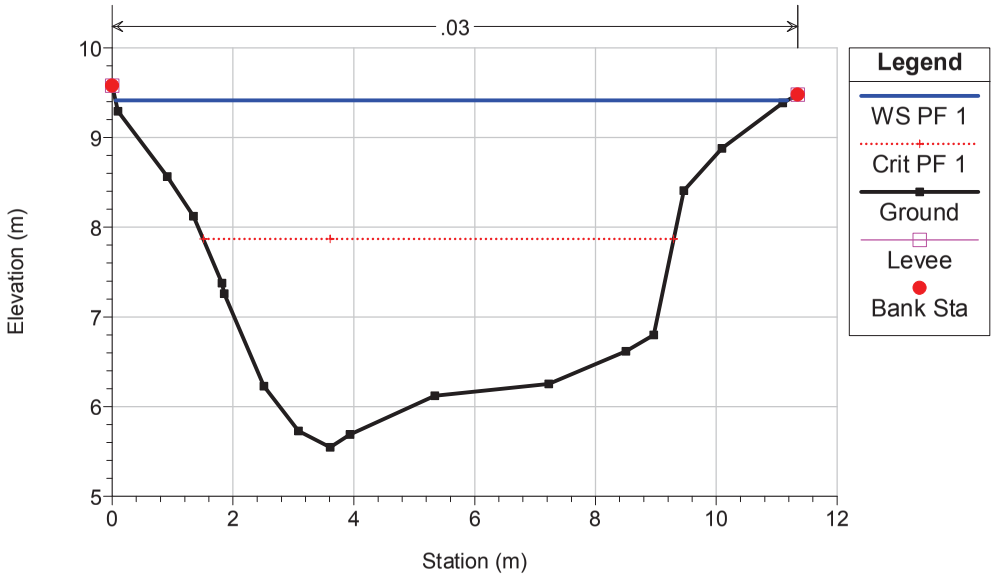
River = Madonna Reach = Madonna RS = 109



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

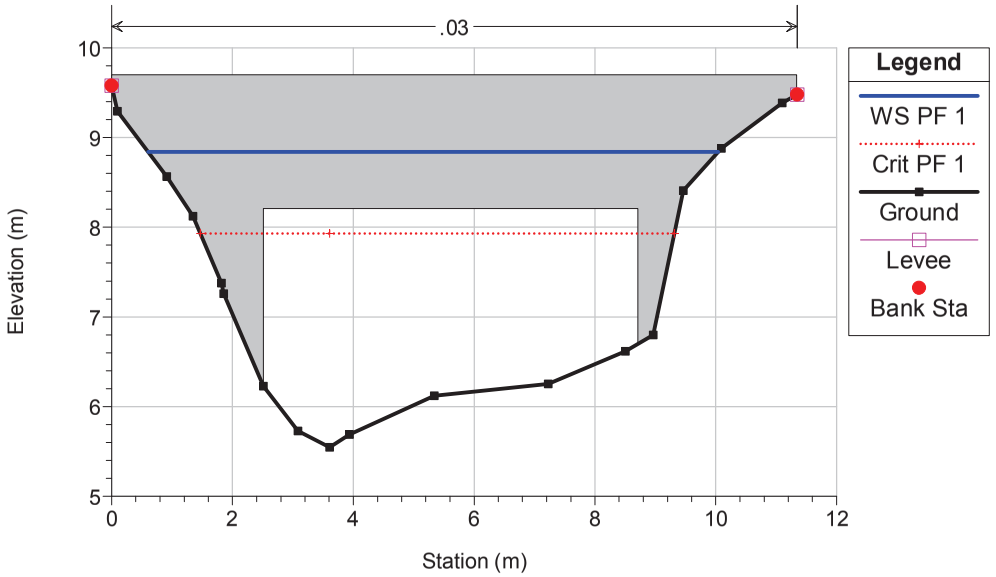
River = Madonna Reach = Madonna RS = 108.1



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

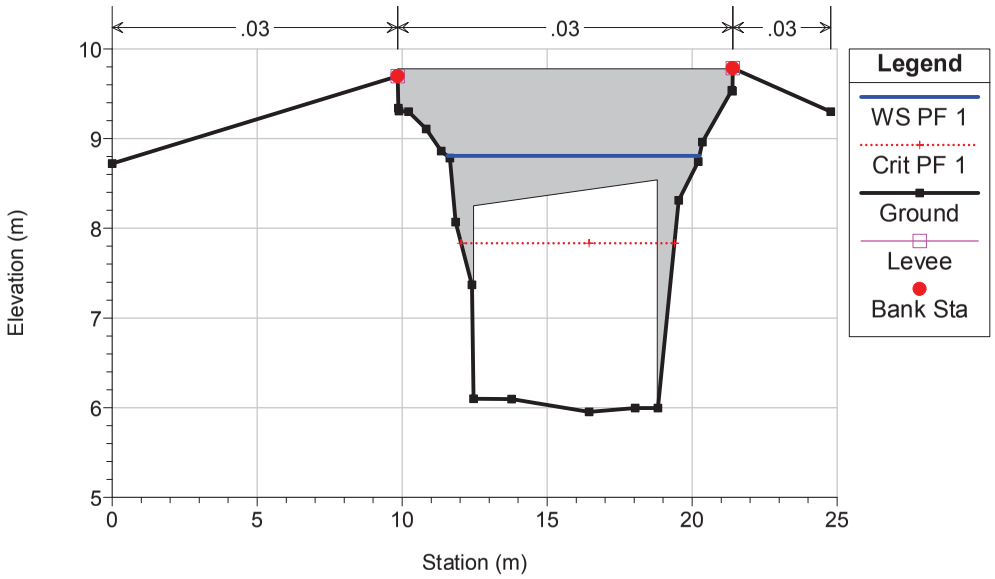
River = Madonna Reach = Madonna RS = 108 BR



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

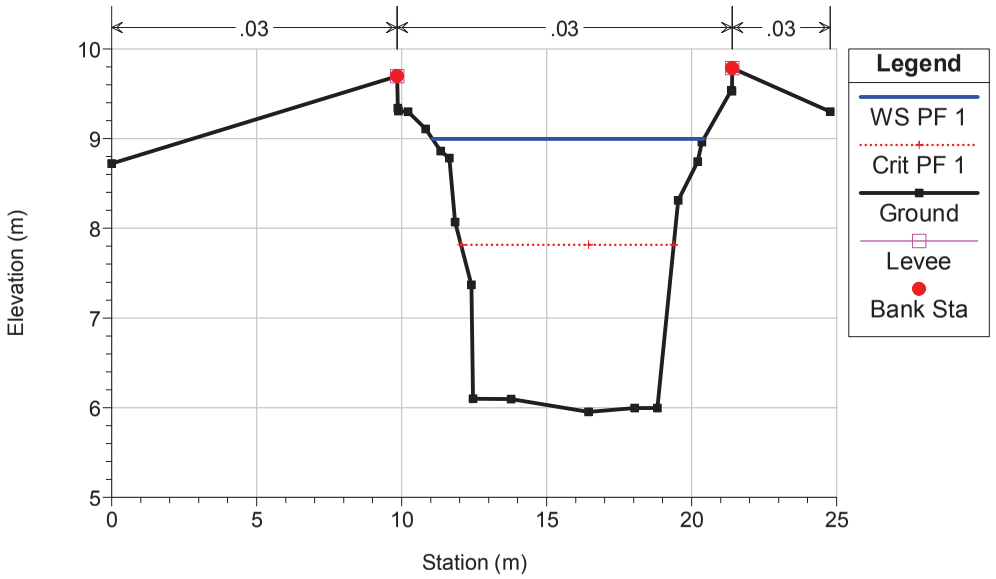
River = Madonna Reach = Madonna RS = 108 BR



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

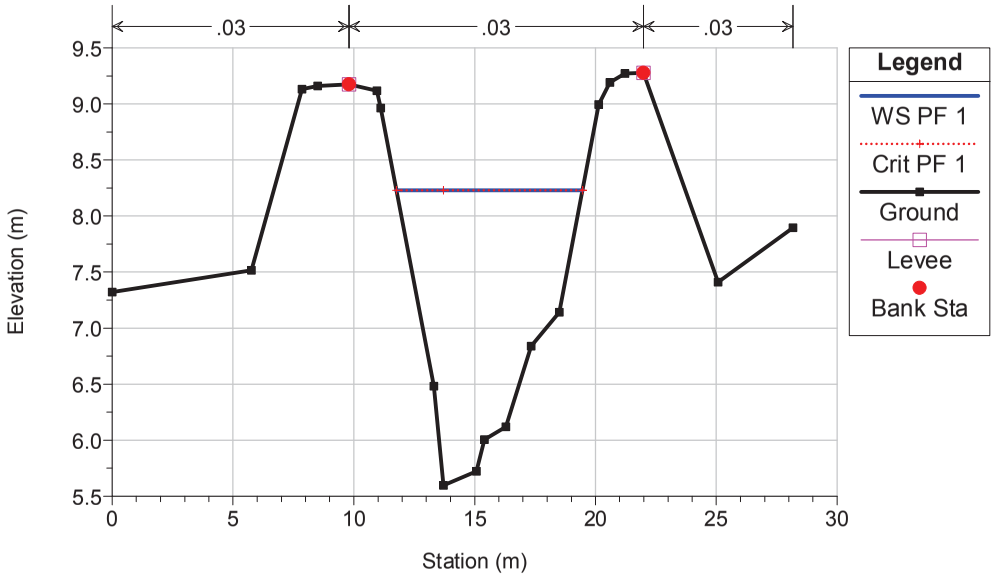
River = Madonna Reach = Madonna RS = 107.9



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

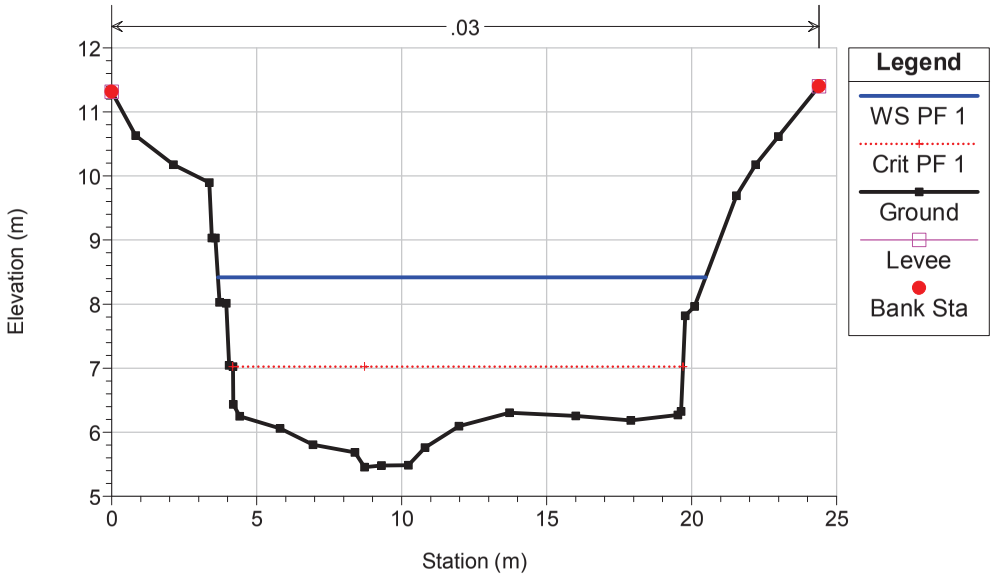
River = Madonna Reach = Madonna RS = 107



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

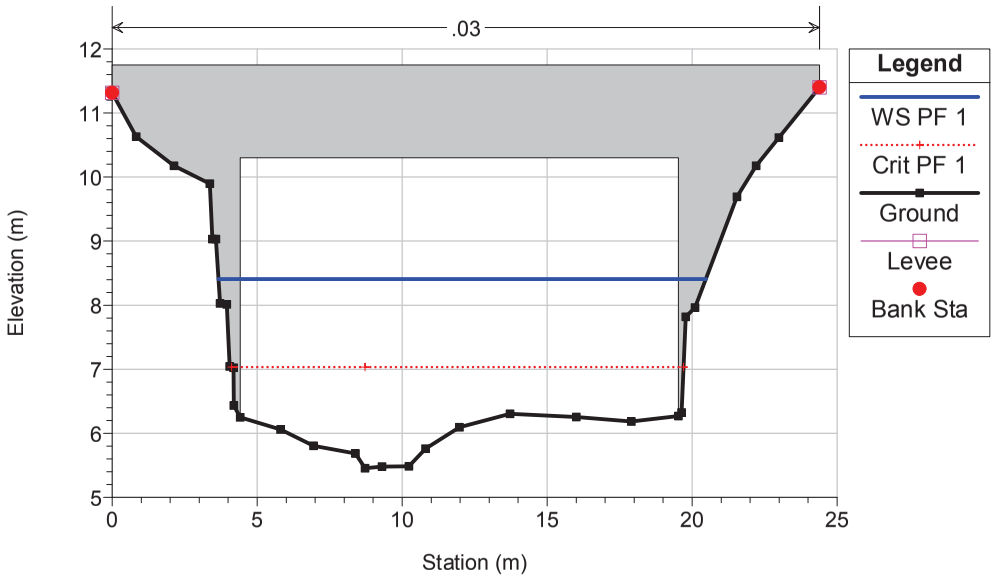
River = Madonna Reach = Madonna RS = 106.1



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

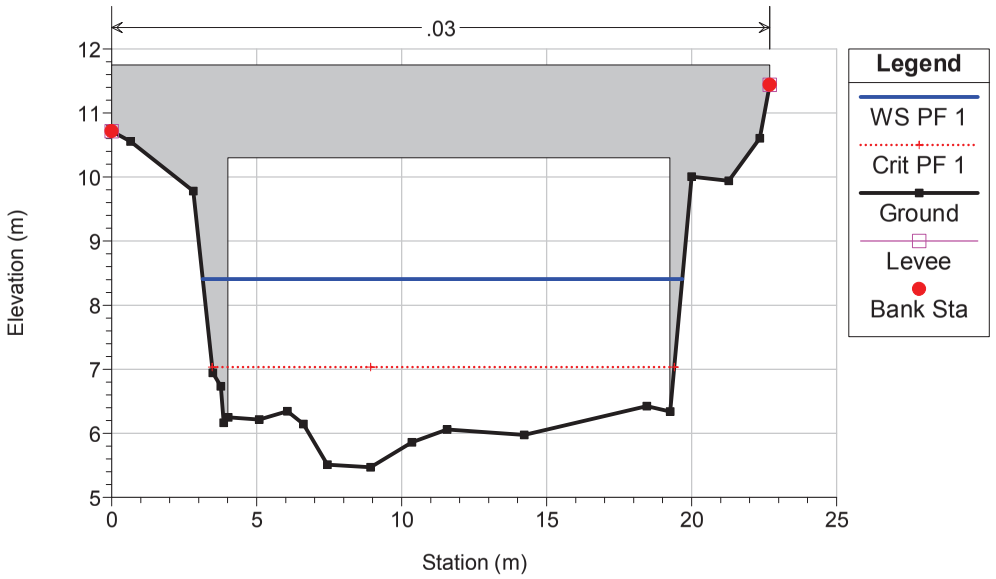
River = Madonna Reach = Madonna RS = 106 BR



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

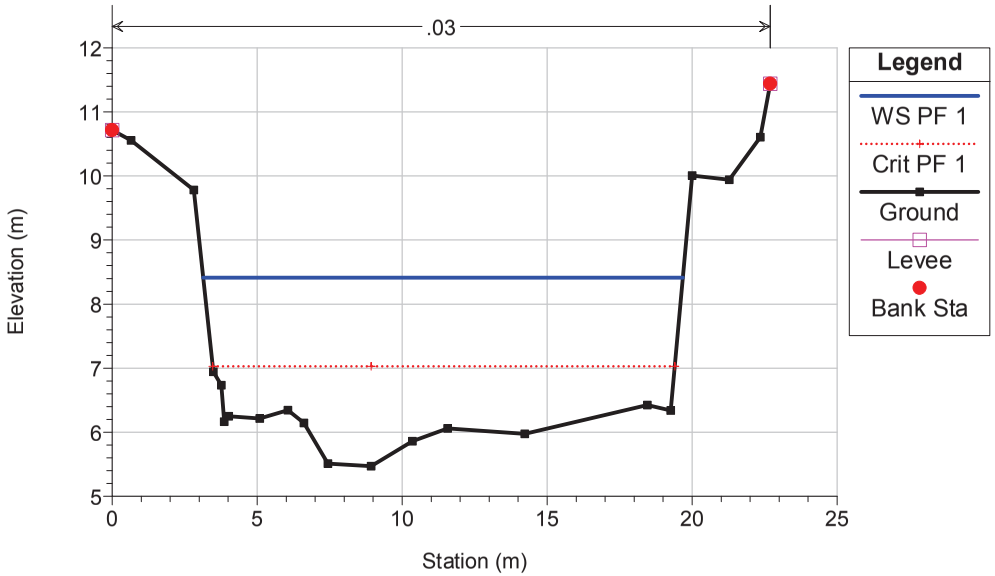
River = Madonna Reach = Madonna RS = 106 BR



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

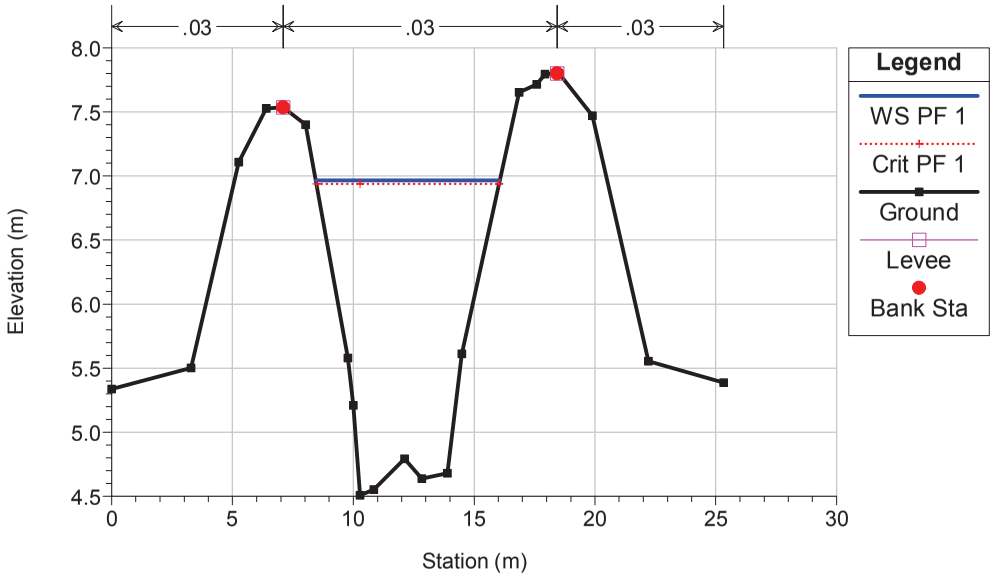
River = Madonna Reach = Madonna RS = 105.9



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

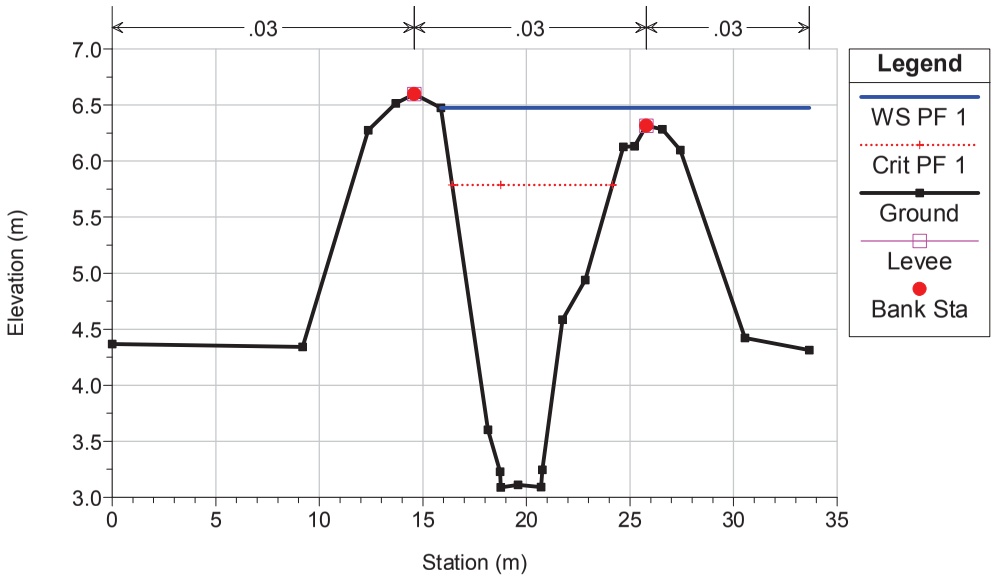
River = Madonna Reach = Madonna RS = 105



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

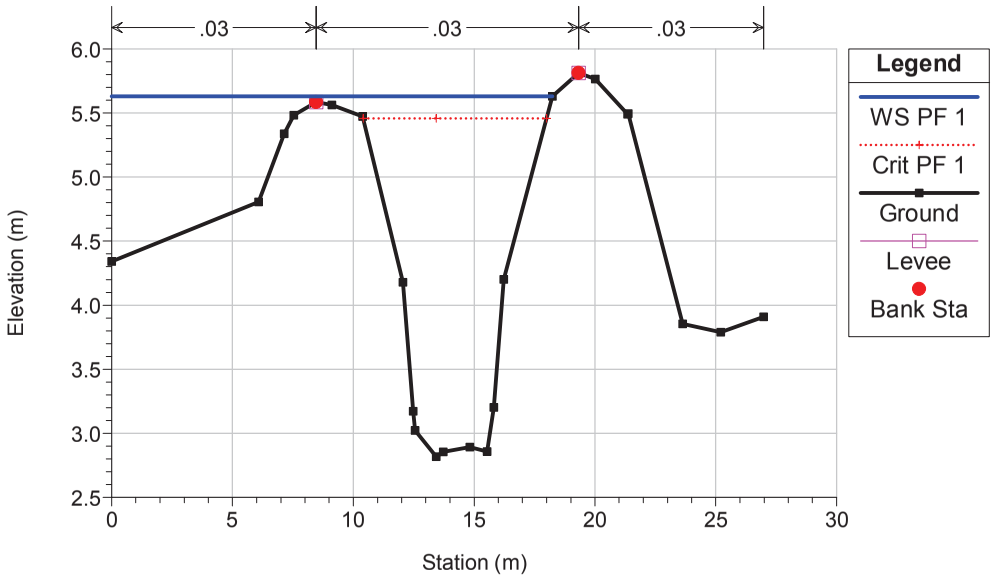
River = Madonna Reach = Madonna RS = 104



madonna Plan: Criticità Prj2016 15/11/2016

Geom: Stato attuale_Prj2016_sez integr

River = Madonna Reach = Madonna RS = 103



Legenda della tabella di dati relativi alle sezioni	
Reach	Corso d'acqua in esame
River Station	Sezione trasversale
Q Total	Portate del corso d'acqua nella sezione
Min ch elev	Elevazione minima del fondo
W.S. Elev	Elevazione del pelo liquido della corrente
Crit. W.S.	Elevazione dell'altezza critica
E. G. Elev	Elevazione della linea dell'energia totale
E.G Slope	Pendenza della linea dell'energia totale
Vel. Chnl	Velocità dell'acqua nel canale
Flow Area	Sezione liquida della corrente
Top Width	Larghezza in bocca della sezione
Froude#Chl	Numero di Froude della sezione
Legenda del profilo longitudinale del tratto	
WS MAX	Massima altezza del pelo libero raggiunta durante la simulazione
LOB	Profilo dell'argine sinistro
ROB	Profilo dell'argine destro
Legenda dei dati relativi allo sfioratore	
Flow HW US	Idrogramma di piena a monte dello sfioratore
Flow HW DS	Idrogramma di piena a valle dello sfioratore
Legenda della tabella di dati relativi all'area di invaso	
W.S. Elev	Quota del pelo libero (battente) nell'area
Net Flux	Portata in ingresso nell'area
SA Area	Superficie dell'area di invaso
SA Volume	Volume invasato nell'area
Legenda del grafico relativo all'area di invaso	
Stage	Quota del pelo libero (battente) nell'area

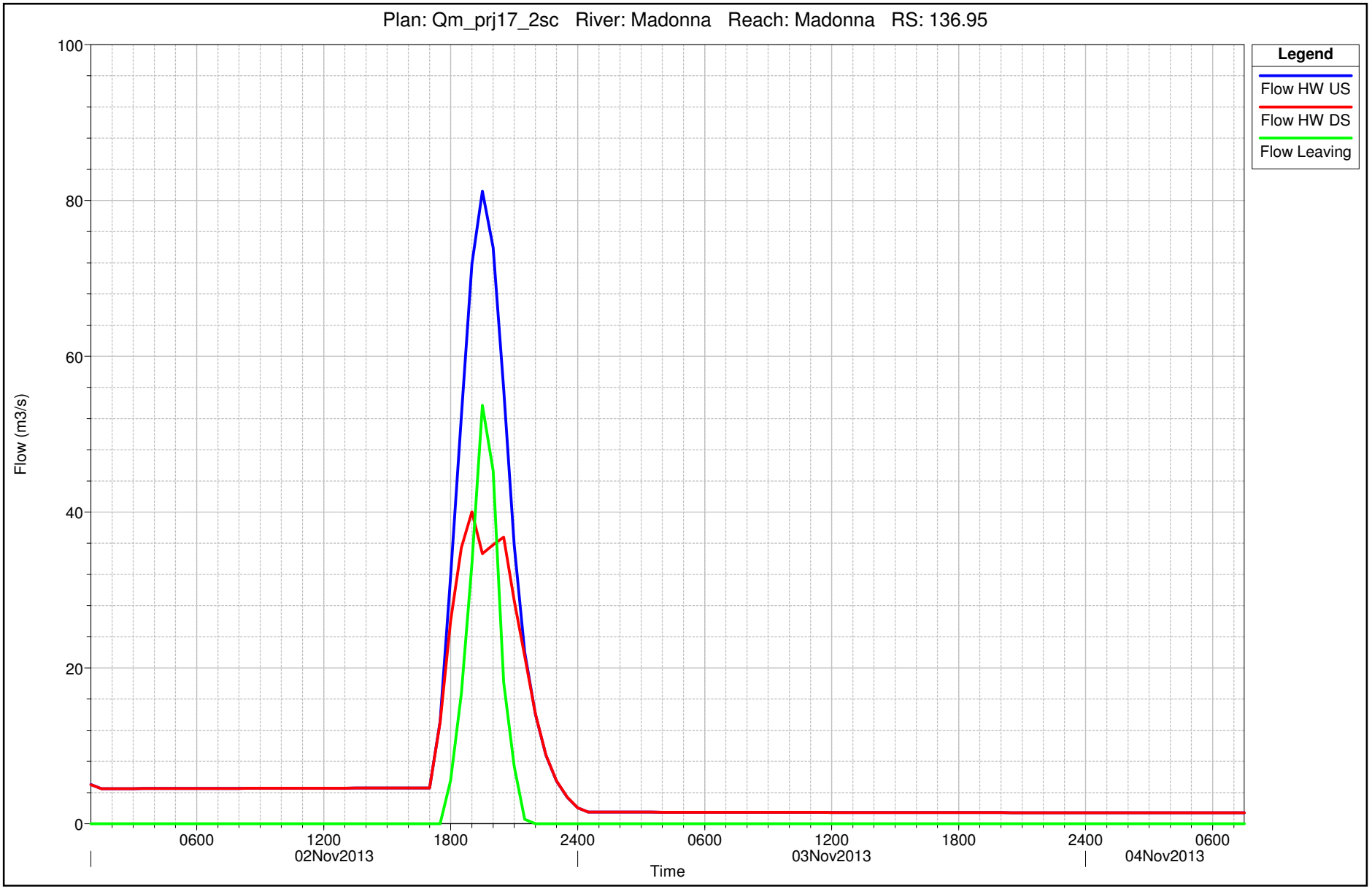
ALLEGATO 2

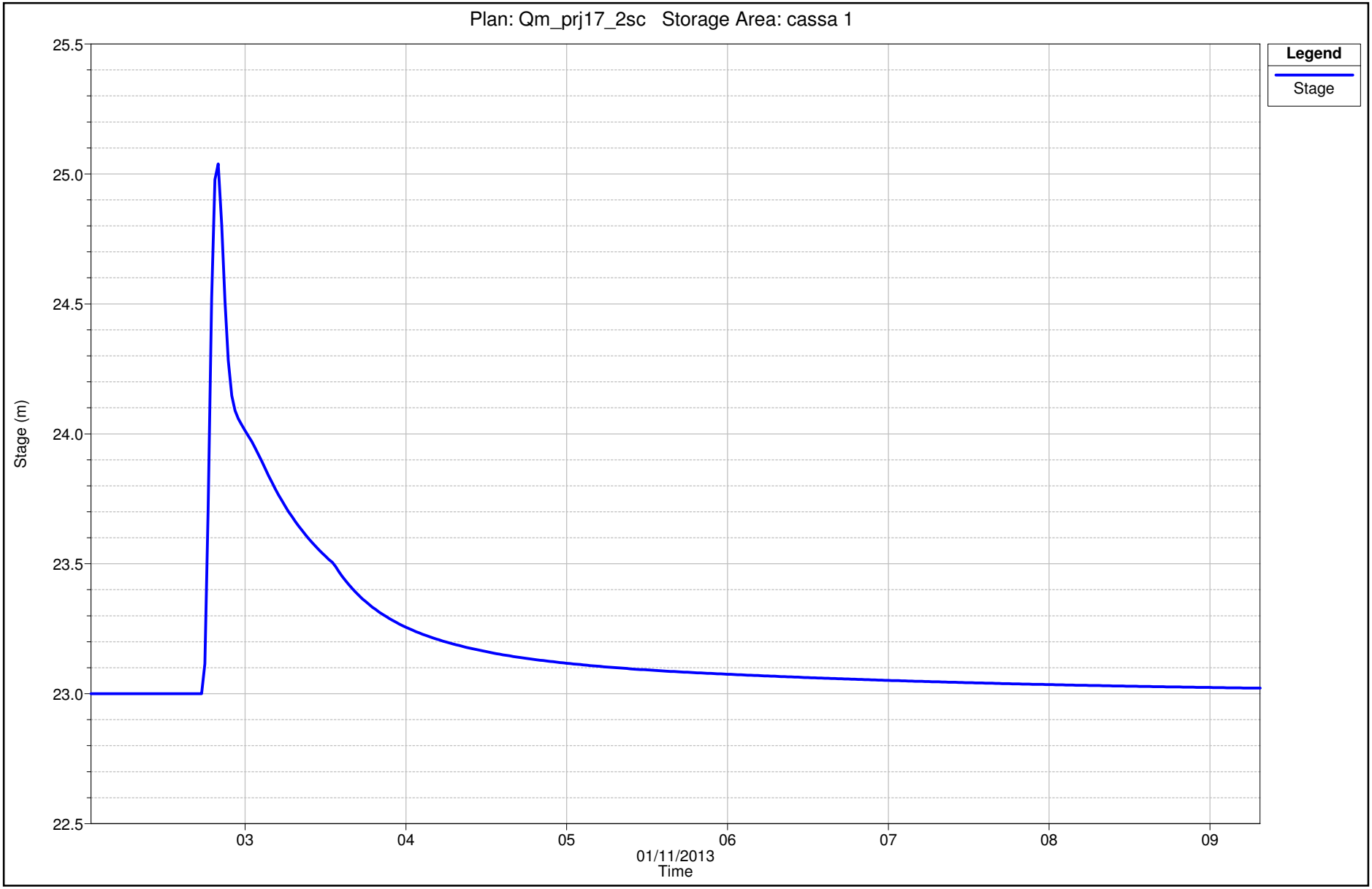
SIMULAZIONE 2a:

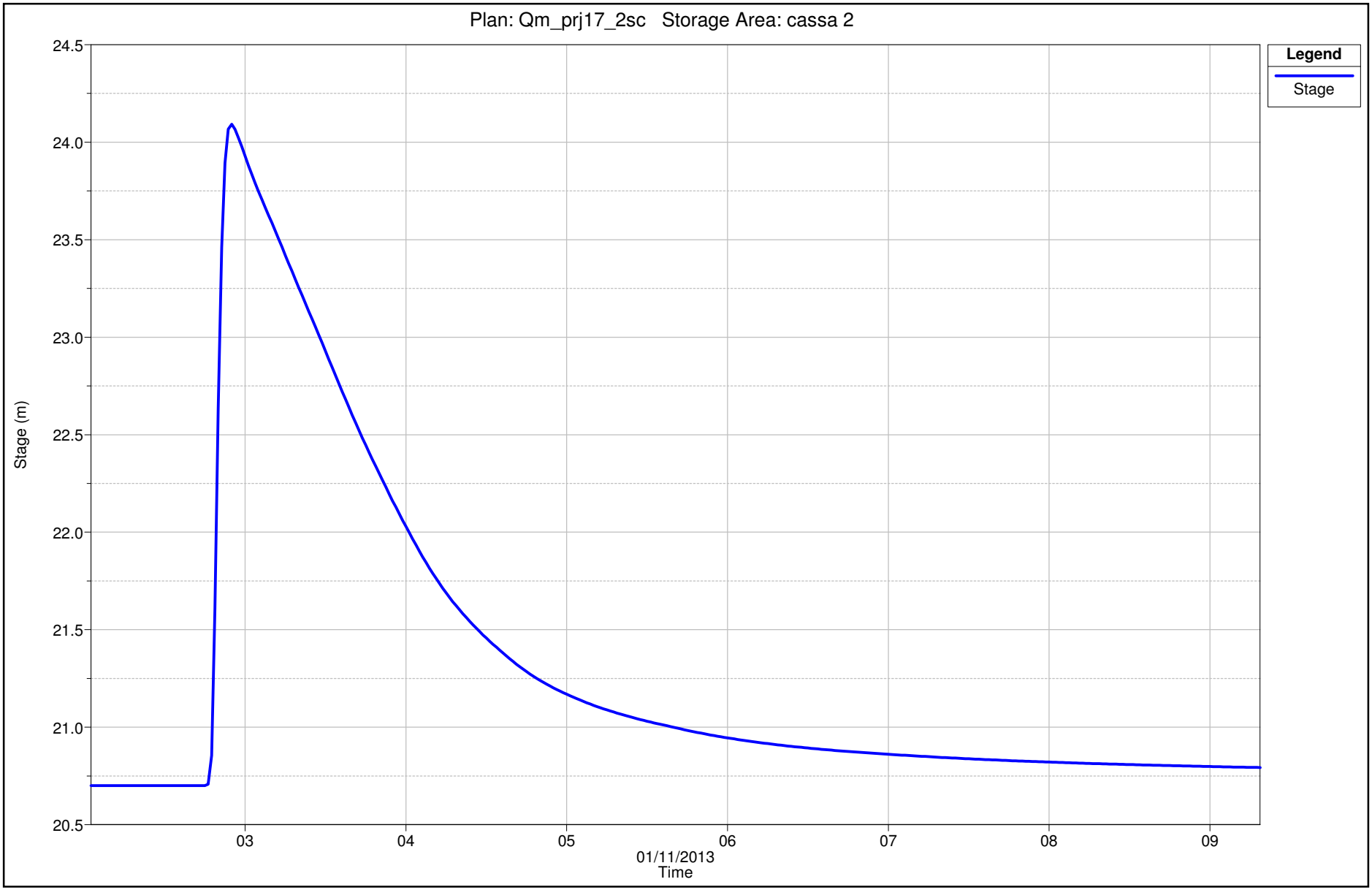
VERIFICA IDRAULICA A MOTO VARIO DEL FOSSO DELLA MADONNA ALLO STATO DI PROGETTO, EVENTO CRITICO DUECENTENNALE CHE MASSIMIZZA IL PICCO DI PIENA

- LEGENDA
- IDROGRAMMA DI PIENA IN CORRISPONDENZA DELLO SFIORATORE LATERALE DI INGRESSO ALLA CASSA DI ESPANSIONE
- CURVA D'INVASO PRIMO SETTORE CASSA DI ESPANSIONE
- CURVA D'INVASO SECONDO SETTORE CASSA DI ESPANSIONE
- TABELLA DI OUTPUT PROFILO LIQUIDO
- PROFILO LONGITUDINALE
- SEZIONI TRASVERSALI

Legenda della tabella di dati relativi alle sezioni	
Reach	Corso d'acqua in esame
River Station	Sezione trasversale
Q Total	Portate del corso d'acqua nella sezione
Min ch elev	Elevazione minima del fondo
W.S. Elev	Elevazione del pelo liquido della corrente
Crit. W.S.	Elevazione dell'altezza critica
E. G. Elev	Elevazione della linea dell'energia totale
E.G Slope	Pendenza della linea dell'energia totale
Vel. Chnl	Velocità dell'acqua nel canale
Flow Area	Sezione liquida della corrente
Top Width	Larghezza in bocca della sezione
Froude#Chl	Numero di Froude della sezione
Legenda del profilo longitudinale del tratto	
WS MAX	Massima altezza del pelo libero raggiunta durante la simulazione
LOB	Profilo dell'argine sinistro
ROB	Profilo dell'argine destro
Legenda dei dati relativi allo sfioratore	
Flow HW US	Idrogramma di piena a monte dello sfioratore
Flow HW DS	Idrogramma di piena a valle dello sfioratore
Legenda della tabella di dati relativi all'area di invaso	
W.S. Elev	Quota del pelo libero (battente) nell'area
Net Flux	Portata in ingresso nell'area
SA Area	Superficie dell'area di invaso
SA Volume	Volume invasato nell'area
Legenda del grafico relativo all'area di invaso	
Stage	Quota del pelo libero (battente) nell'area


Plan: Qm_prj17_2sc River: Madonna Reach: Madonna RS: 136.95
Legend
Flow HW US
Flow HW DS
Flow Leaving
Flow (m3/s)
100
80
60
40
20
0
0600
1200
1800
2400
0600
1200
1800
2400
0600
02Nov2013
03Nov2013
04Nov2013
Time


Plan: Qm_prj17_2sc Storage Area: cassa 1
Legend
Stage
Stage (m)
25.5
25.0
24.5
24.0
23.5
23.0
22.5
03
04
05
06
07
08
09
01/11/2013
Time


Plan: Qm_prj17_2sc Storage Area: cassa 2
Legend
Stage
Stage (m)
24.5
24.0
23.5
23.0
22.5
22.0
21.5
21.0
20.5
03
04
05
06
07
08
09
01/11/2013
Time

HEC-RAS Plan: Qm_prj17_2sc River: Madonna Reach: Madonna Profile: Max WS

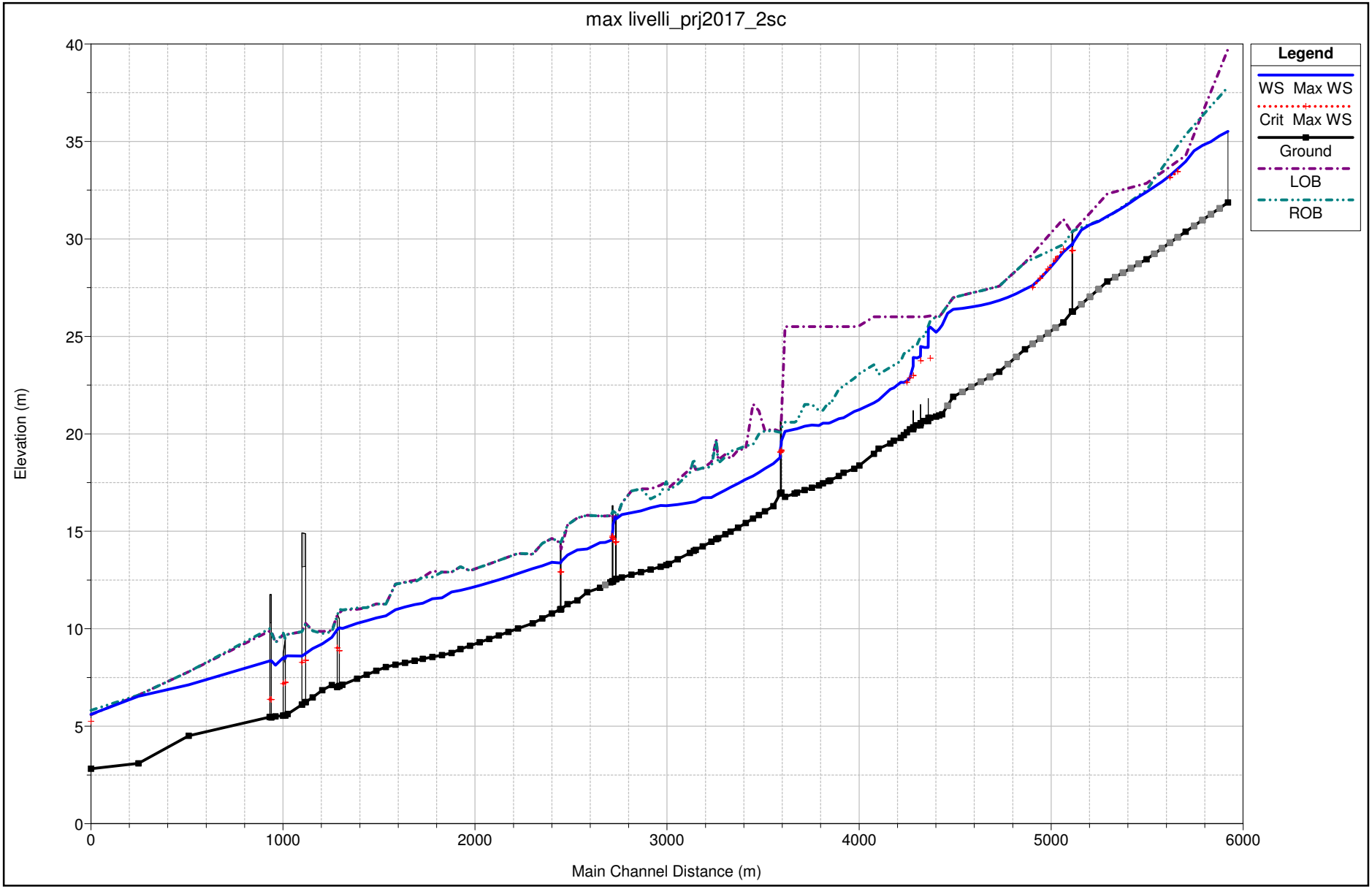
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev
			(m3/s)	(m)	(m)	(m)	(m)
Madonna	144.1	Max WS	81.11	31.87	35.52		35.83
Madonna	144	Max WS	80.95	30.37	33.97		34.92
Madonna	143.1	Max WS	80.86	28.95	32.41		33.05
Madonna	143	Max WS	80.76	27.81	31.16		31.79
Madonna	142.1	Max WS	80.70	26.27	29.77	29.43	30.95
Madonna	142		Bridge				
Madonna	141.9	Max WS	80.70	26.27	29.72		30.89
Madonna	141	Max WS	80.69	25.71	29.33	29.48	30.53
Madonna	140	Max WS	80.58	24.34	27.42		28.11
Madonna	139.1	Max WS	79.51	23.18	26.85		27.39
Madonna	138.9	Max WS	77.47	21.90	26.38		26.66
Madonna	138	Max WS	77.94	21.00	25.58		26.56
Madonna	137	Max WS	77.61	20.94	25.36		26.50
Madonna	136.95		Lat Struct				
Madonna	136.8	Max WS	66.57	20.88	25.21		26.11
Madonna	135.6	Max WS	41.28	20.82	25.47	23.88	25.75
Madonna	133.130		Inl Struct				
Madonna	133.12	Max WS	44.17	20.65	24.43		24.88
Madonna	133.116	Max WS	42.89	20.55	24.47	23.74	24.73
Madonna	133.1155		Inl Struct				
Madonna	133.115	Max WS	42.89	20.44	23.90		24.27
Madonna	133.114	Max WS	42.07	20.34	23.92	23.00	24.16
Madonna	133.112		Inl Struct				
Madonna	133.11	Max WS	42.07	20.23	22.87	22.87	23.67
Madonna	133.10	Max WS	41.81	20.08	22.71	22.65	23.44
Madonna	133.09	Max WS	41.58	19.94	22.64		23.23
Madonna	133	Max WS	41.38	19.79	22.64		23.10
Madonna	132.9	Max WS	41.07	19.65	22.36		22.89
Madonna	132.8	Max WS	40.97	19.50	22.29		22.77
Madonna	132.7	Max WS	40.84	19.24	21.73		22.41
Madonna	132	Max WS	40.79	18.98	21.58		22.17
Madonna	131.6	Max WS	40.63	18.38	21.24		21.67
Madonna	131	Max WS	40.52	18.21	21.14		21.54
Madonna	130.5	Max WS	40.48	18.00	20.82		21.27
Madonna	130.45	Max WS	40.45	17.83	20.77		21.15
Madonna	130.4	Max WS	40.39	17.61	20.57		20.96
Madonna	130.36	Max WS	40.35	17.57	20.54		20.92
Madonna	130.35		Lat Struct				
Madonna	130.3	Max WS	42.29	17.46	20.55		20.79
Madonna	130	Max WS	42.27	17.36	20.43		20.74
Madonna	129.8	Max WS	42.11	17.23	20.44		20.64
Madonna	129.7	Max WS	42.07	17.11	20.40		20.58
Madonna	129.2	Max WS	41.89	16.98	20.25		20.50
Madonna	129.1	Max WS	41.88	16.93	20.23		20.47
Madonna	129	Max WS	41.84	16.77	20.13		20.36
Madonna	128.1	Max WS	41.84	16.98	19.63	19.16	20.37
Madonna	128		Bridge				
Madonna	127.9	Max WS	41.84	16.93	18.78	19.08	20.23
Madonna	127.1	Max WS	41.82	16.29	18.47		18.95
Madonna	127	Max WS	41.79	16.02	18.21		18.68
Madonna	126.3	Max WS	41.78	15.83	18.02		18.49
Madonna	126.2	Max WS	41.75	15.65	17.83		18.31
Madonna	126.1	Max WS	41.74	15.43	17.66		18.09
Madonna	126	Max WS	41.72	15.18	17.45		17.87
Madonna	125.9	Max WS	41.71	14.98	17.26		17.67

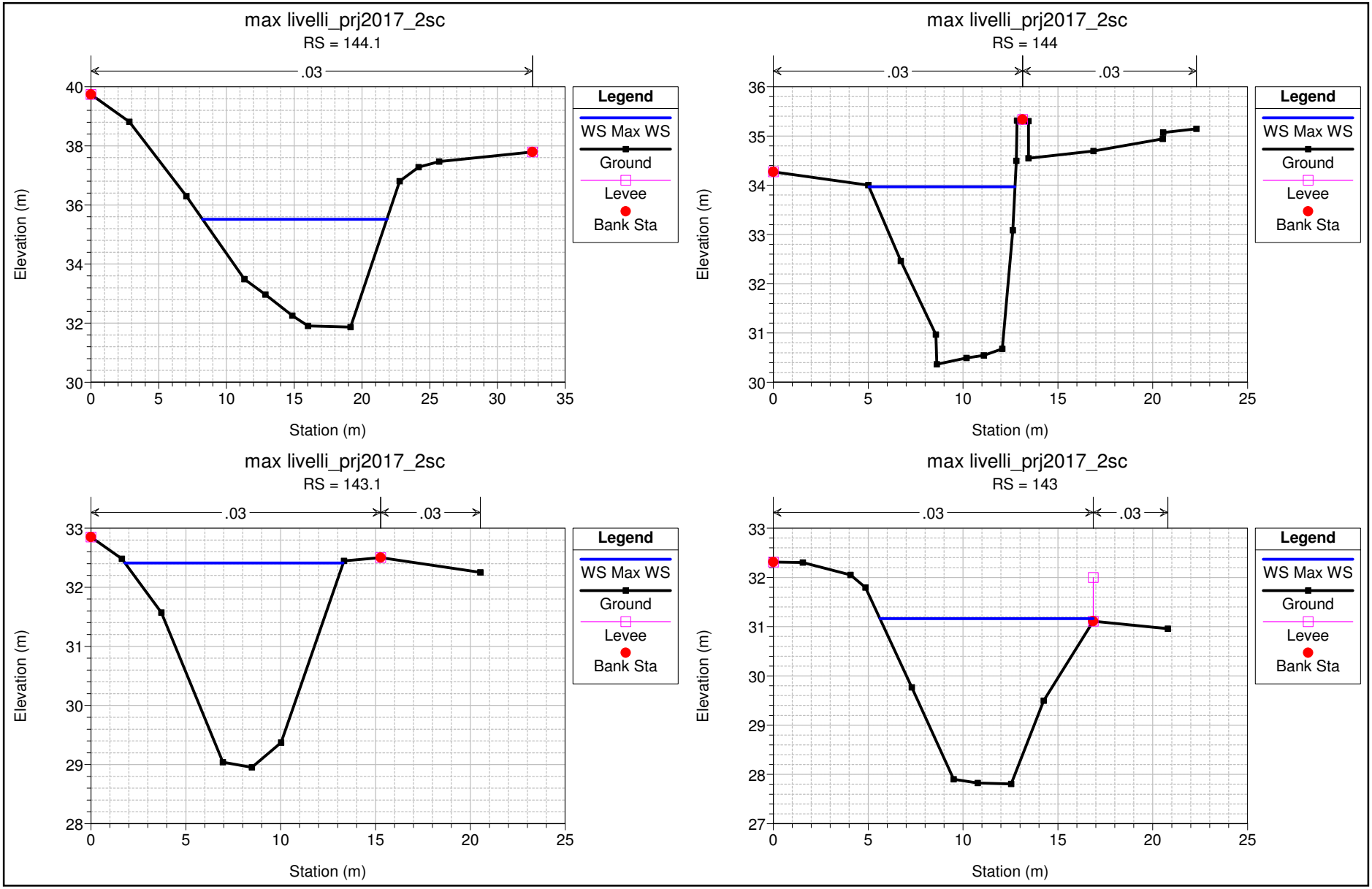
HEC-RAS Plan: Qm_prj17_2sc River: Madonna Reach: Madonna Profile: Max WS (Continued)

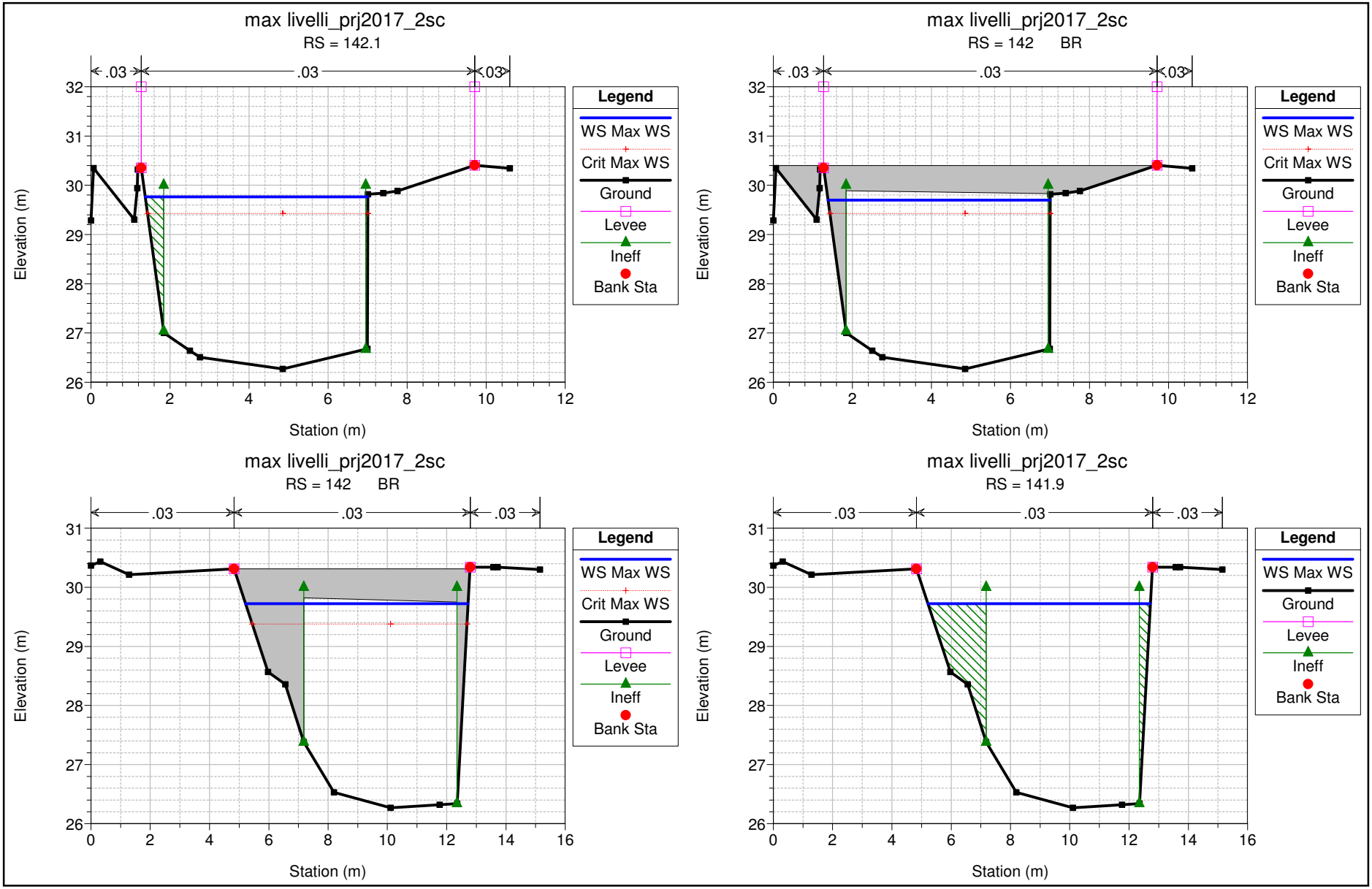
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev
			(m3/s)	(m)	(m)	(m)	(m)
Madonna	125.8	Max WS	41.71	14.85	17.12		17.54
Madonna	125.7	Max WS	41.68	14.65	16.92		17.34
Madonna	125.1	Max WS	41.68	14.60	16.88		17.29
Madonna	125.06	Max WS	41.68	14.47	16.73		17.15
Madonna	125.04	Max WS	41.65	14.23	16.72		16.96
Madonna	125.02	Max WS	41.65	14.05	16.53		16.85
Madonna	125	Max WS	41.64	14.00	16.51		16.81
Madonna	124.5	Max WS	41.64	13.89	16.46		16.75
Madonna	124.3	Max WS	41.61	13.56	16.37		16.58
Madonna	124.1	Max WS	41.60	13.32	16.32		16.50
Madonna	124	Max WS	41.60	13.26	16.31		16.48
Madonna	123.2	Max WS	41.58	13.18	16.33		16.44
Madonna	123.1	Max WS	41.57	13.04	16.20		16.37
Madonna	123	Max WS	41.55	12.90	16.05		16.28
Madonna	122.1	Max WS	41.55	12.77	15.95		16.18
Madonna	122	Max WS	41.54	12.63	15.86		16.07
Madonna	121.1	Max WS	41.54	12.55	15.64	14.46	15.99
Madonna	121		Bridge				
Madonna	120.9	Max WS	41.56	12.55	15.72		15.98
Madonna	120.1	Max WS	41.56	12.43	15.32	14.64	15.97
Madonna	120		Bridge				
Madonna	119.9	Max WS	41.56	12.43	14.61	14.76	15.87
Madonna	119	Max WS	41.56	12.38	14.53		15.13
Madonna	118	Max WS	41.54	12.10	14.42		14.77
Madonna	117.1	Max WS	41.52	11.88	14.09		14.49
Madonna	117	Max WS	41.50	11.45	14.04		14.30
Madonna	116.2	Max WS	41.51	11.26	13.79		14.15
Madonna	116.1	Max WS	41.50	11.00	13.45	12.92	14.03
Madonna	116		Bridge				
Madonna	115.9	Max WS	41.45	11.00	13.37		13.99
Madonna	115.2	Max WS	41.49	10.78	13.41		13.81
Madonna	115.1	Max WS	41.44	10.53	13.23		13.60
Madonna	115	Max WS	41.44	10.28	13.08		13.41
Madonna	114.6	Max WS	41.44	10.01	12.83		13.15
Madonna	114.5	Max WS	41.43	9.84	12.66		12.99
Madonna	114.4	Max WS	41.43	9.66	12.51		12.82
Madonna	114.3	Max WS	41.43	9.48	12.36		12.66
Madonna	114.2	Max WS	41.42	9.31	12.22		12.51
Madonna	114.1	Max WS	41.42	9.13	12.09		12.37
Madonna	114	Max WS	41.42	8.96	11.97		12.24
Madonna	113.3	Max WS	41.42	8.76	11.89		12.13
Madonna	113.2	Max WS	41.42	8.65	11.58		11.97
Madonna	113.1	Max WS	41.41	8.55	11.54		11.80
Madonna	113	Max WS	41.41	8.46	11.30		11.65
Madonna	112.8	Max WS	41.41	8.36	11.24		11.51
Madonna	112.7	Max WS	41.41	8.25	11.12		11.38
Madonna	112.6	Max WS	41.40	8.15	10.97		11.25
Madonna	112.1	Max WS	41.40	8.04	10.67		11.07
Madonna	112.05	Max WS	41.40	7.84	10.55		10.87
Madonna	112.04	Max WS	41.40	7.64	10.41		10.70
Madonna	112.03	Max WS	41.39	7.44	10.28		10.56
Madonna	112	Max WS	41.39	7.13	10.02		10.33
Madonna	111.1	Max WS	41.39	7.06	10.05	8.88	10.29
Madonna	111		Bridge				
Madonna	110.9	Max WS	41.39	7.02	9.96		10.27

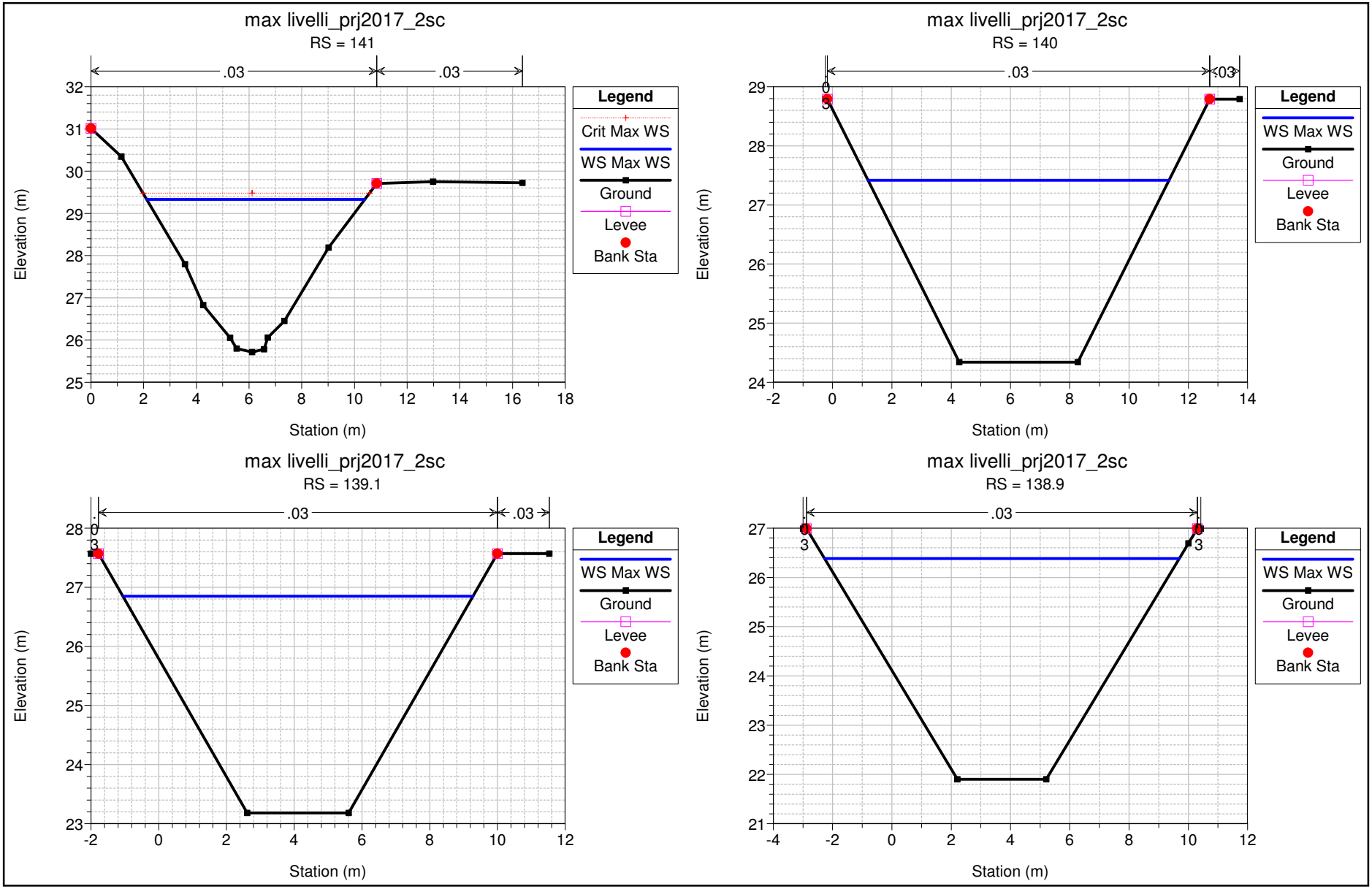
HEC-RAS Plan: Qm_prj17_2sc River: Madonna Reach: Madonna Profile: Max WS (Continued)

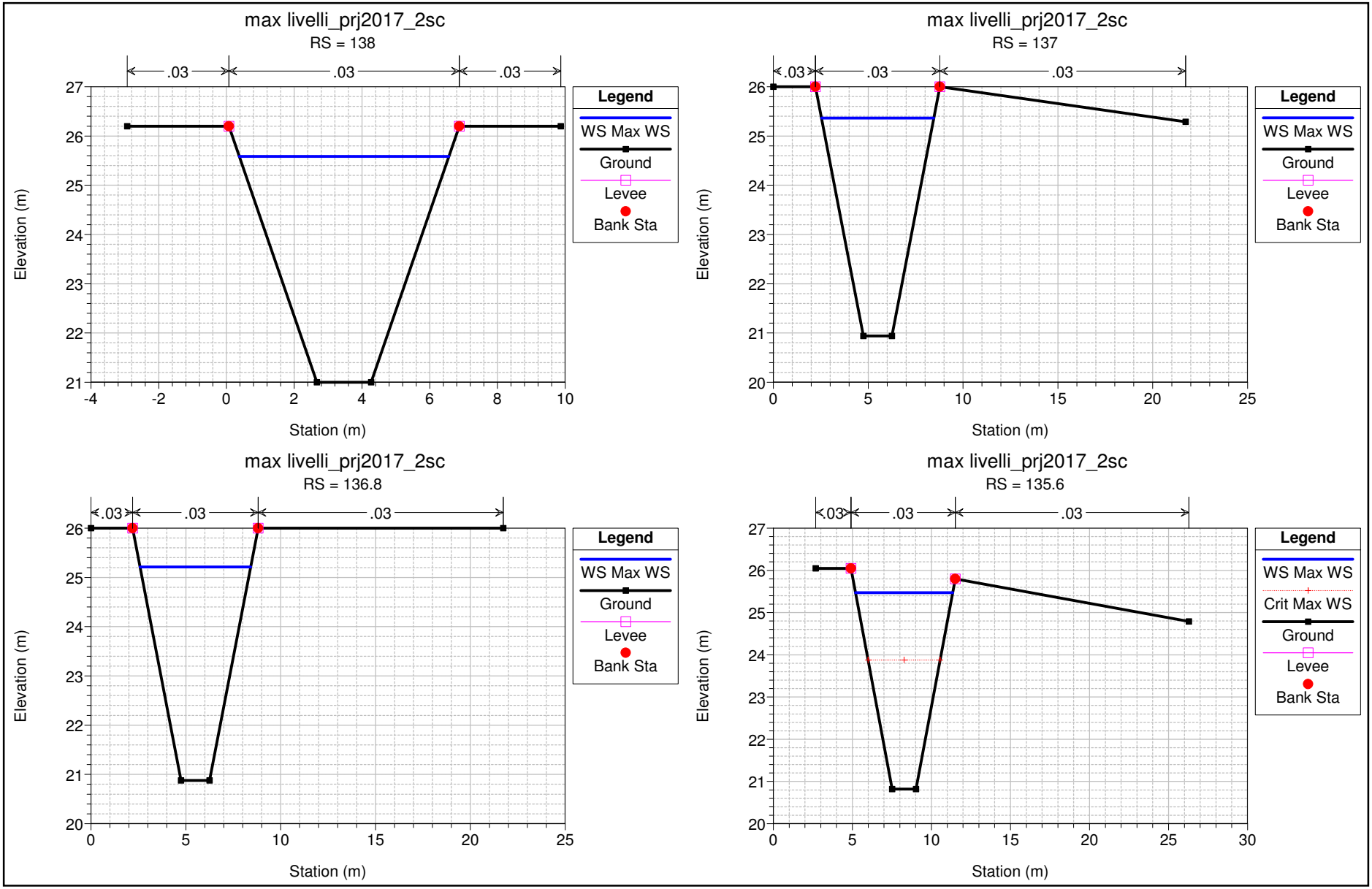
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev
			(m3/s)	(m)	(m)	(m)	(m)
Madonna	110.2	Max WS	41.39	7.12	9.56		10.21
Madonna	110.1	Max WS	41.39	6.85	9.23		9.80
Madonna	110	Max WS	41.38	6.48	8.98		9.46
Madonna	109.3	Max WS	41.37	6.24	8.73	8.39	9.25
Madonna	109.2		Bridge				
Madonna	109.1	Max WS	41.37	6.11	8.60		9.13
Madonna	109	Max WS	41.36	5.62	8.61		8.79
Madonna	108.1	Max WS	41.36	5.55	8.58	7.25	8.77
Madonna	108		Bridge				
Madonna	107.9	Max WS	41.34	5.54	8.51		8.72
Madonna	107	Max WS	41.27	5.50	8.13		8.59
Madonna	106.1	Max WS	41.31	5.46	8.36	6.37	8.40
Madonna	106		Bridge				
Madonna	105.9	Max WS	41.31	5.47	8.35		8.40
Madonna	105	Max WS	41.30	4.51	7.12		7.52
Madonna	104	Max WS	41.30	3.09	6.53		6.73
Madonna	103	Max WS	41.29	2.82	5.61	5.26	5.83

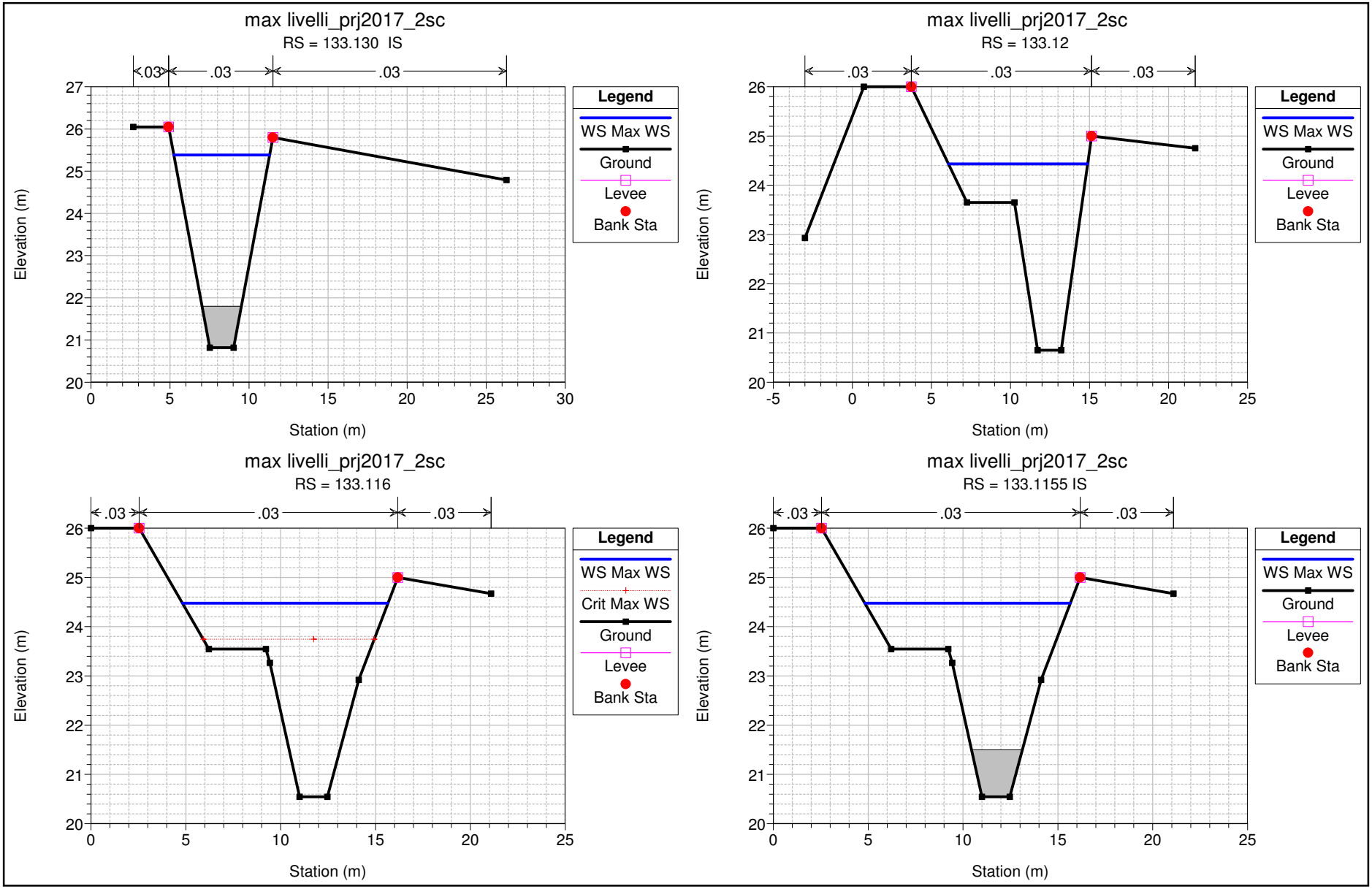

max livelli_prj2017_2sc
Legend
WS Max WS
Crit Max WS
Ground
LOB
ROB
Elevation (m)
Main Channel Distance (m)
0
5
10
15
20
25
30
35
40
0
1000
2000
3000
4000
5000
6000

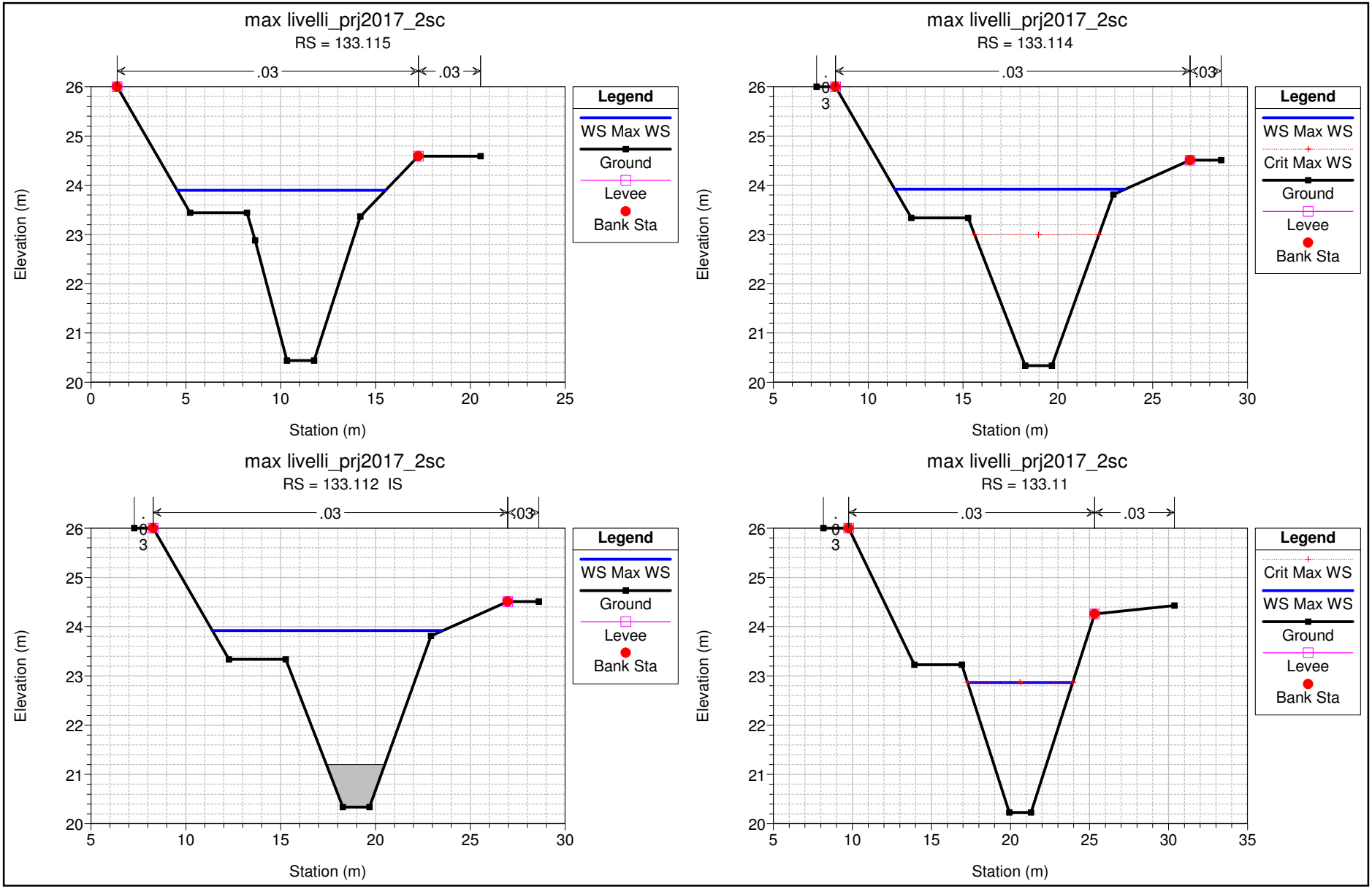

max livelli_prj2017_2sc
RS = 144.1
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 144
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 143.1
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 143
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

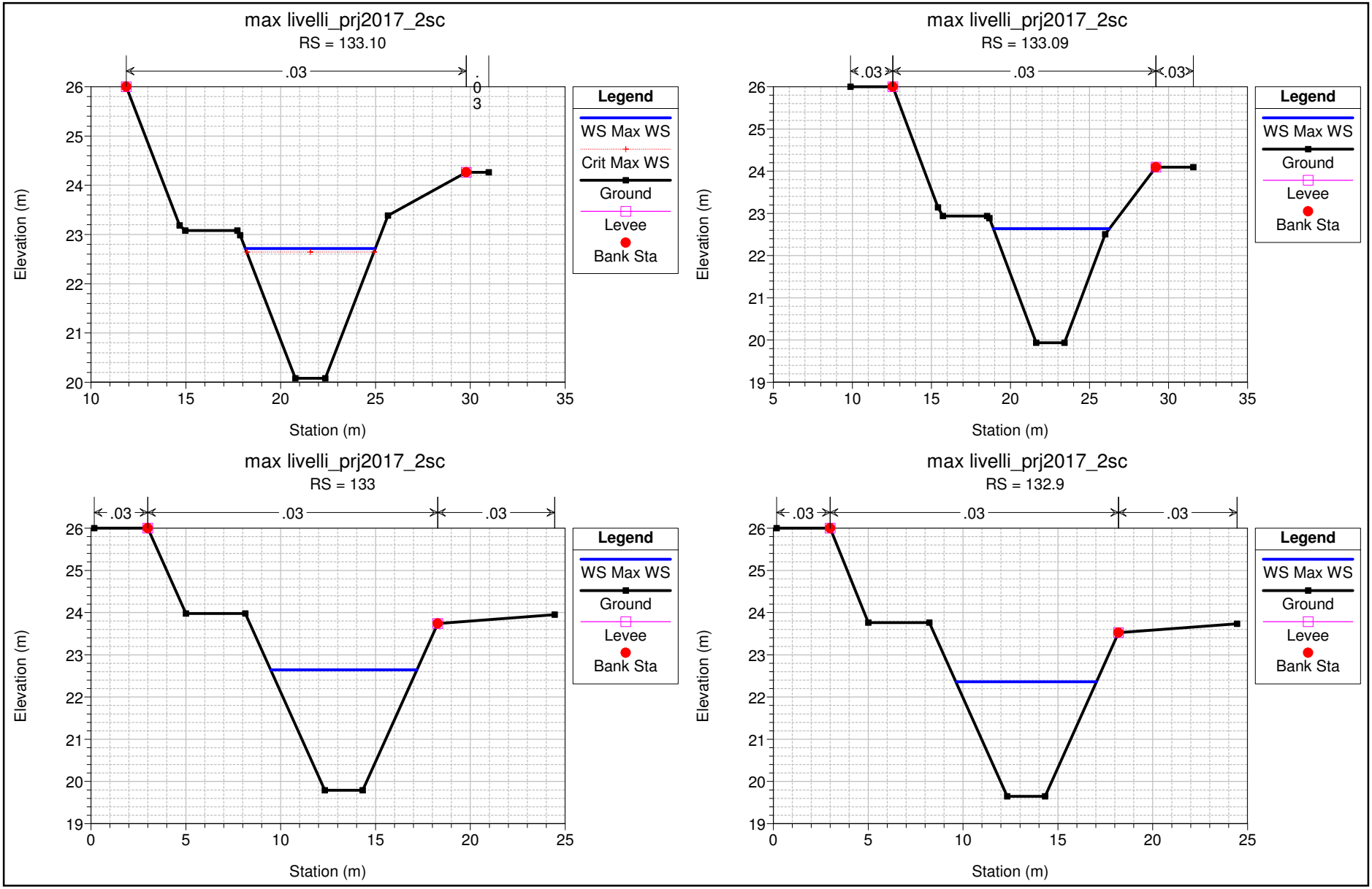

max livelli_prj2017_2sc
RS = 142.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max livelli_prj2017_2sc
RS = 142 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max livelli_prj2017_2sc
RS = 142 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max livelli_prj2017_2sc
RS = 141.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Ineff
Bank Sta

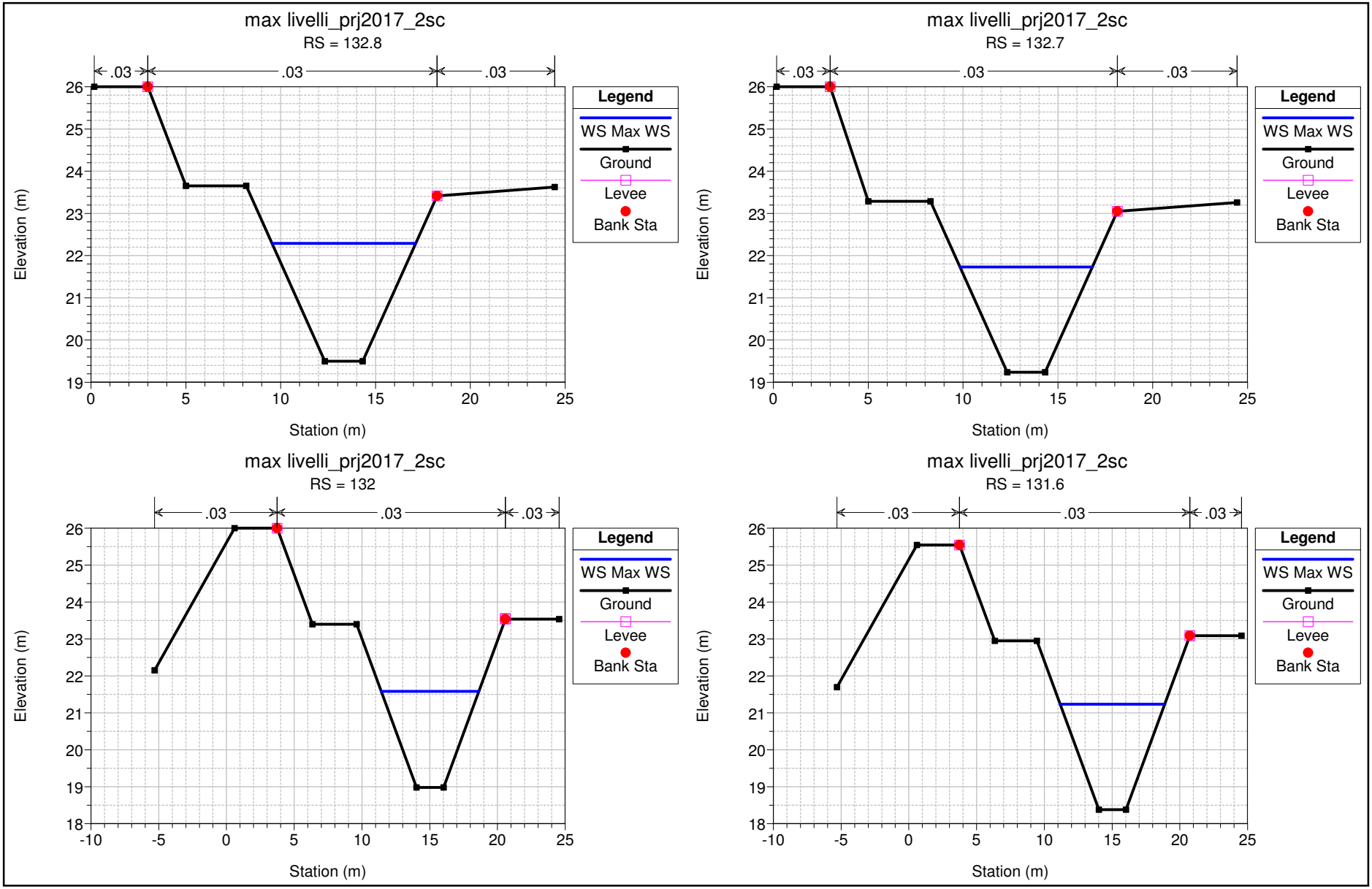

max livelli_prj2017_2sc
RS = 141
.03
.03
Elevation (m)
Station (m)
Legend
Crit Max WS
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 140
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 139.1
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 138.9
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

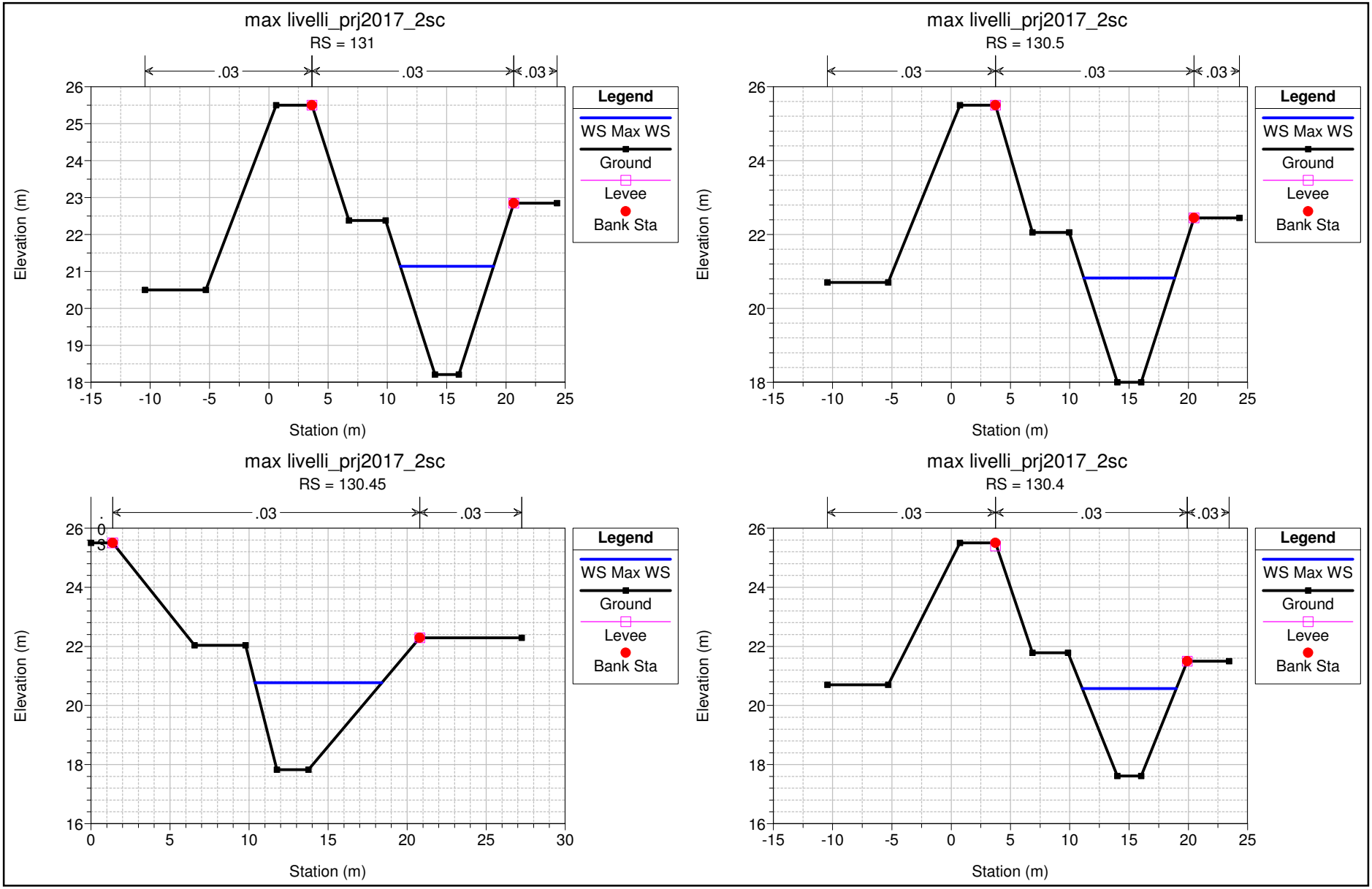

max livelli_prj2017_2sc
RS = 138
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 137
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 136.8
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 135.6
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta

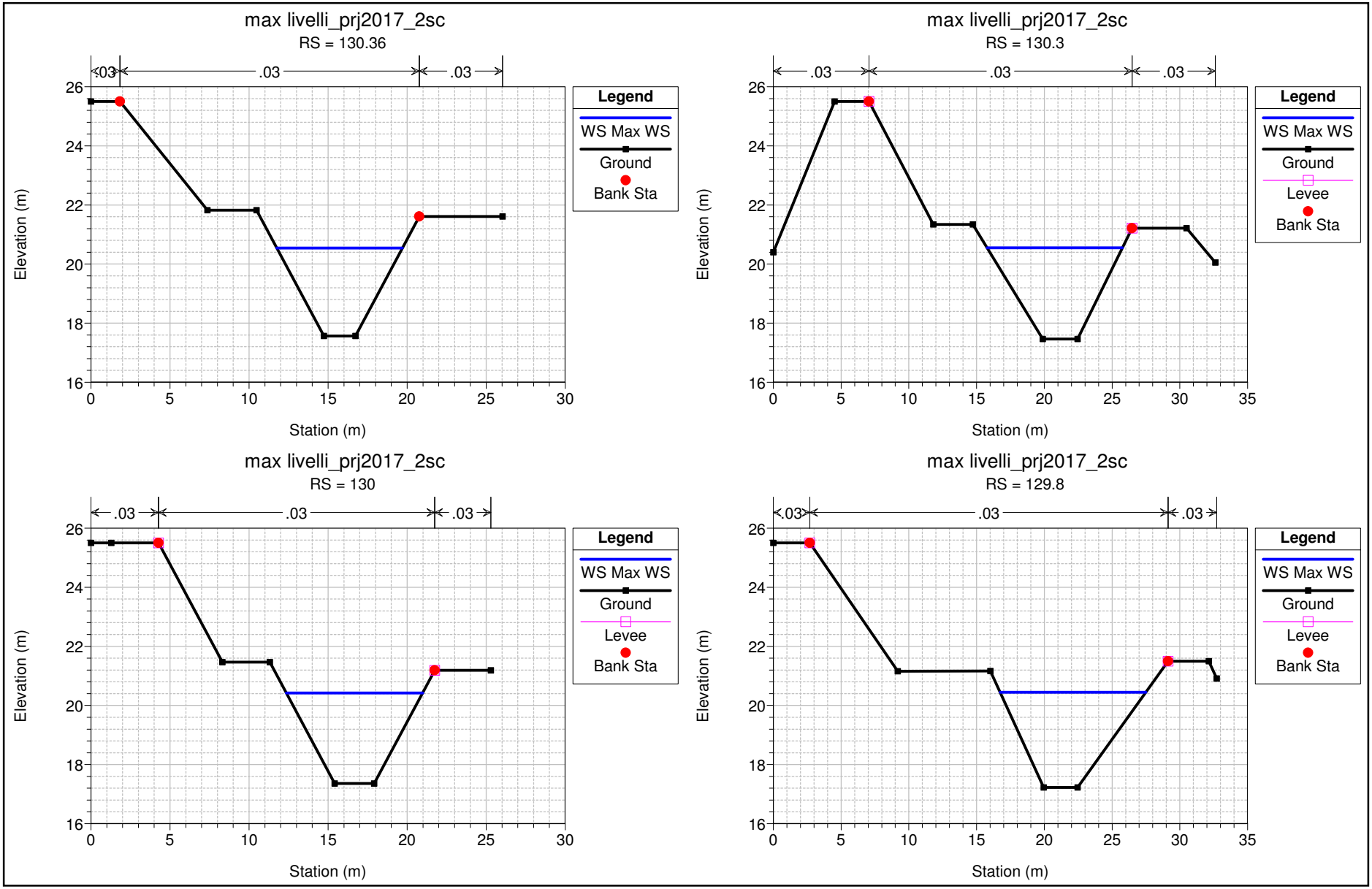

max livelli_prj2017_2sc
RS = 133.130 IS
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 133.12
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 133.116
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 133.1155 IS
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

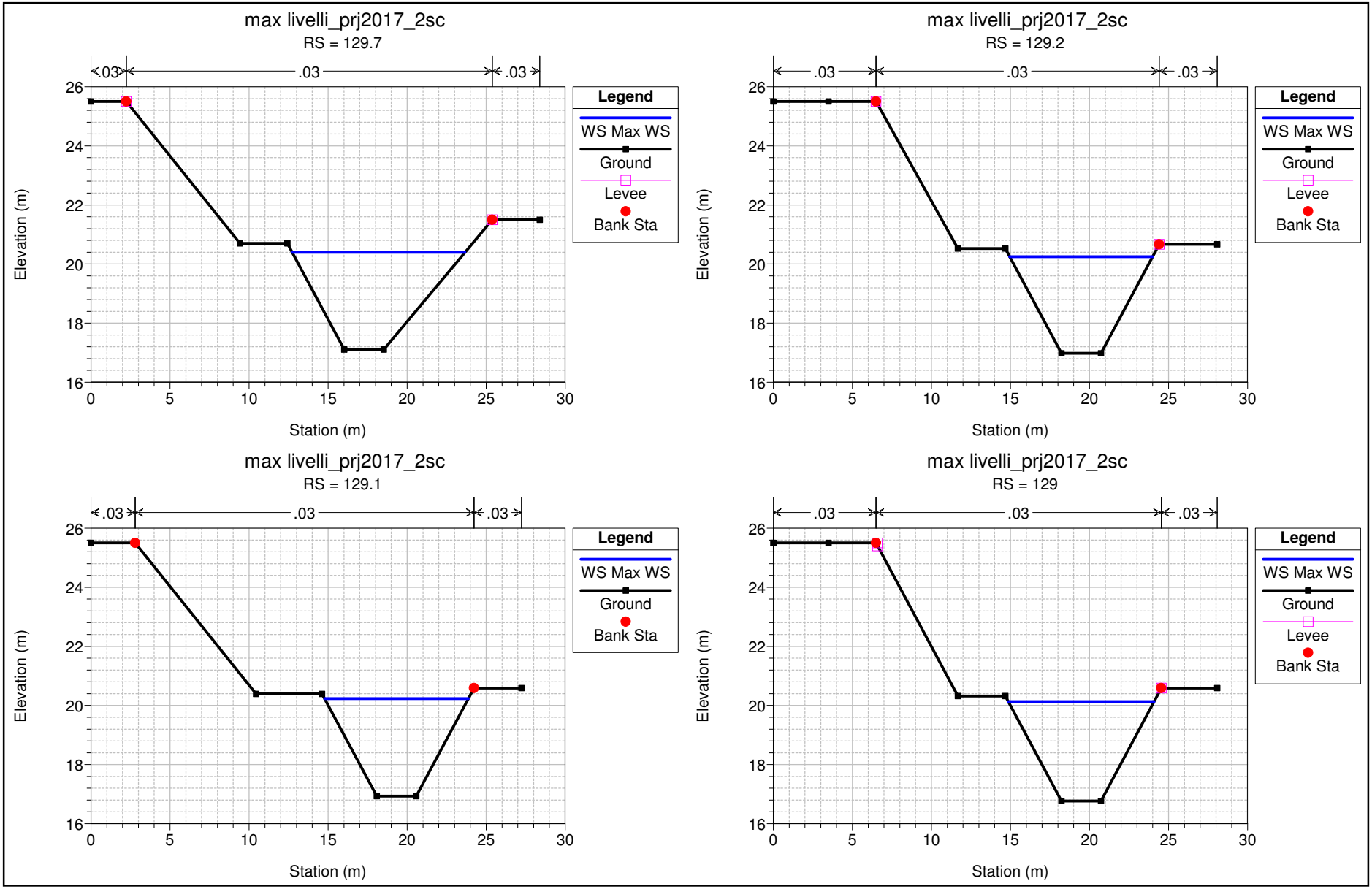

max livelli_prj2017_2sc
RS = 133.115
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 133.114
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 133.112 IS
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 133.11
.03
.03
Elevation (m)
Station (m)
Legend
Crit Max WS
WS Max WS
Ground
Levee
Bank Sta

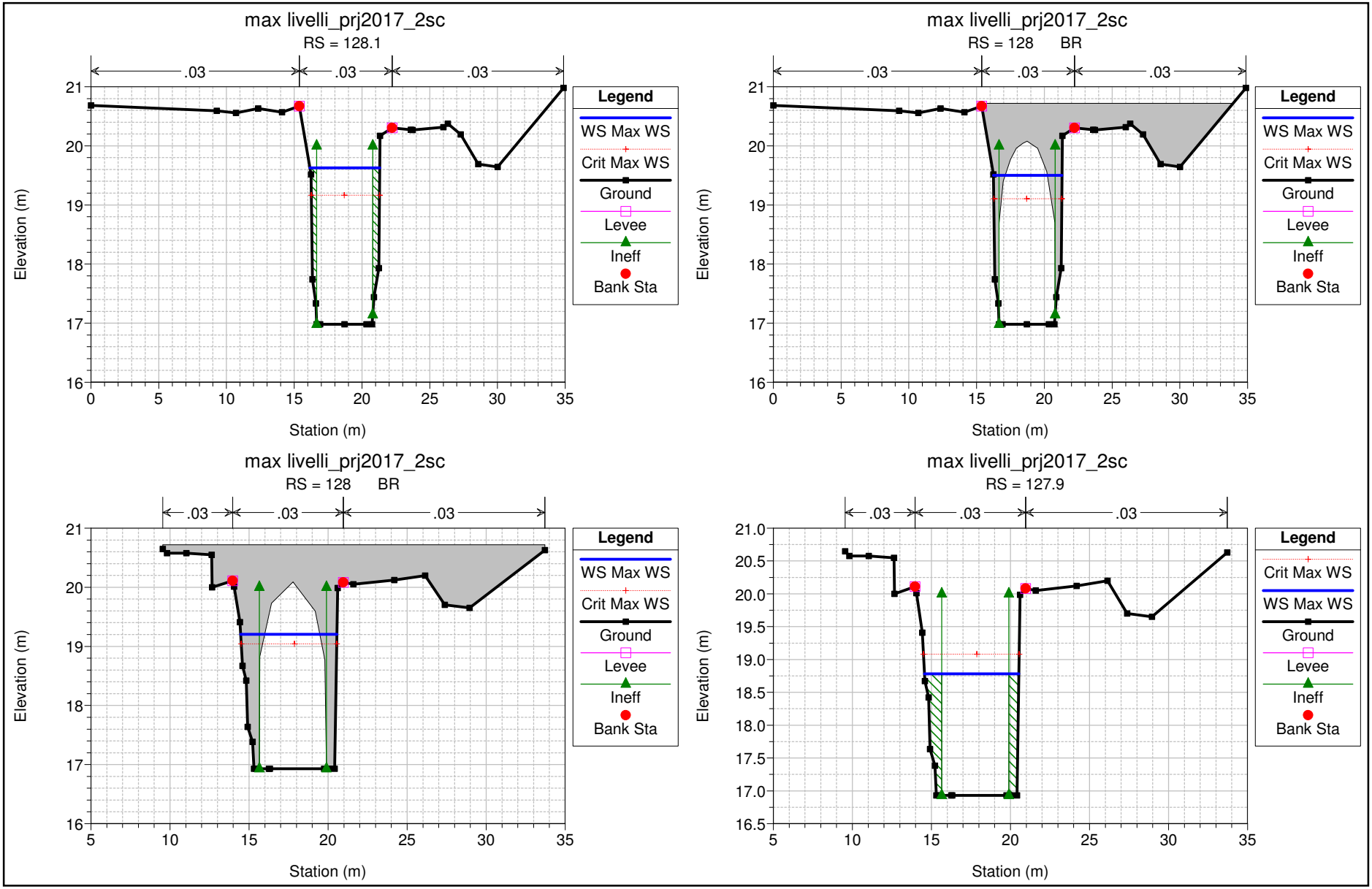

max livelli_prj2017_2sc
RS = 133.10
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 133.09
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 133
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 132.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

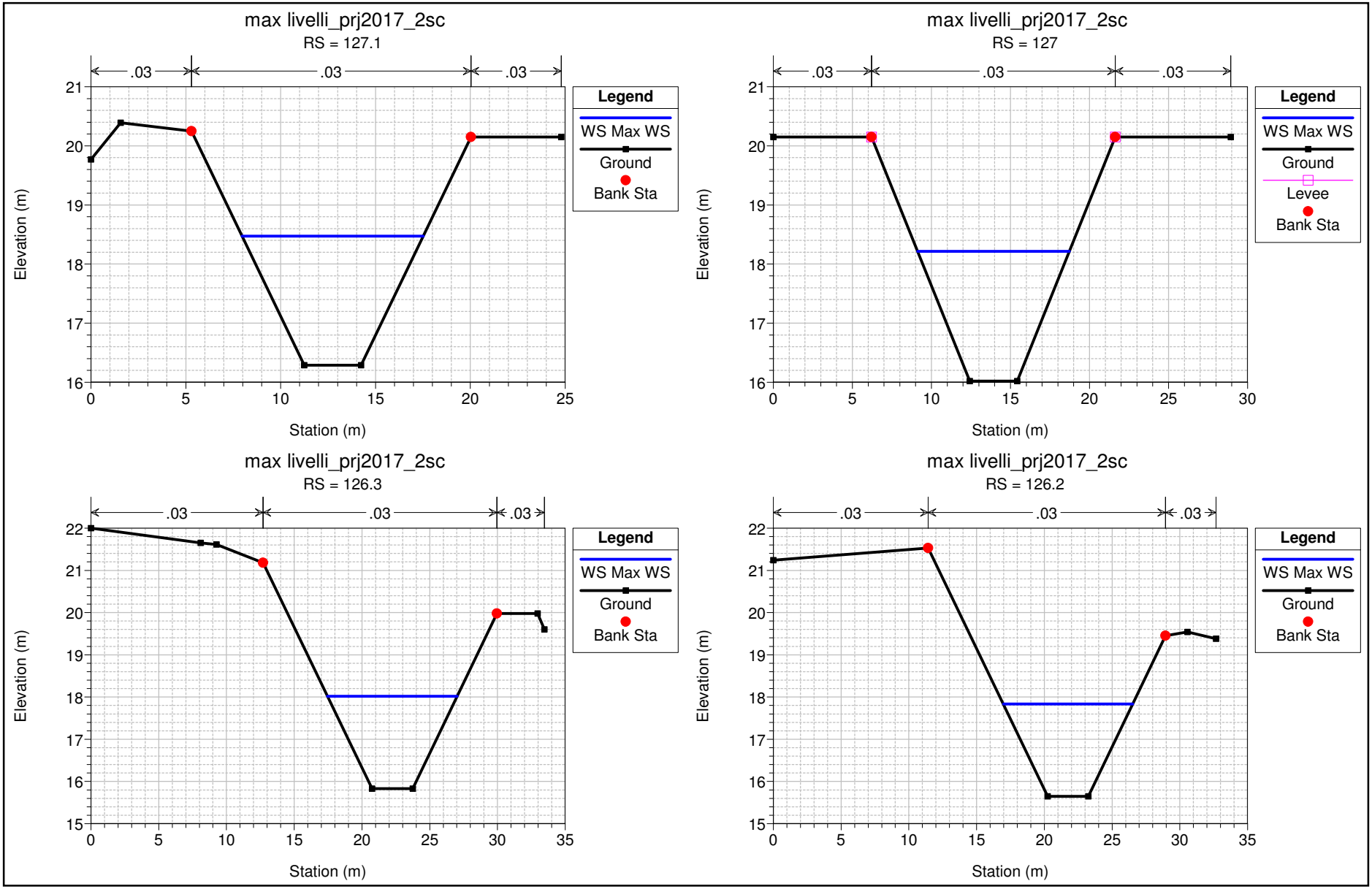

max livelli_prj2017_2sc
RS = 132.8
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 132.7
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 132
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 131.6
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

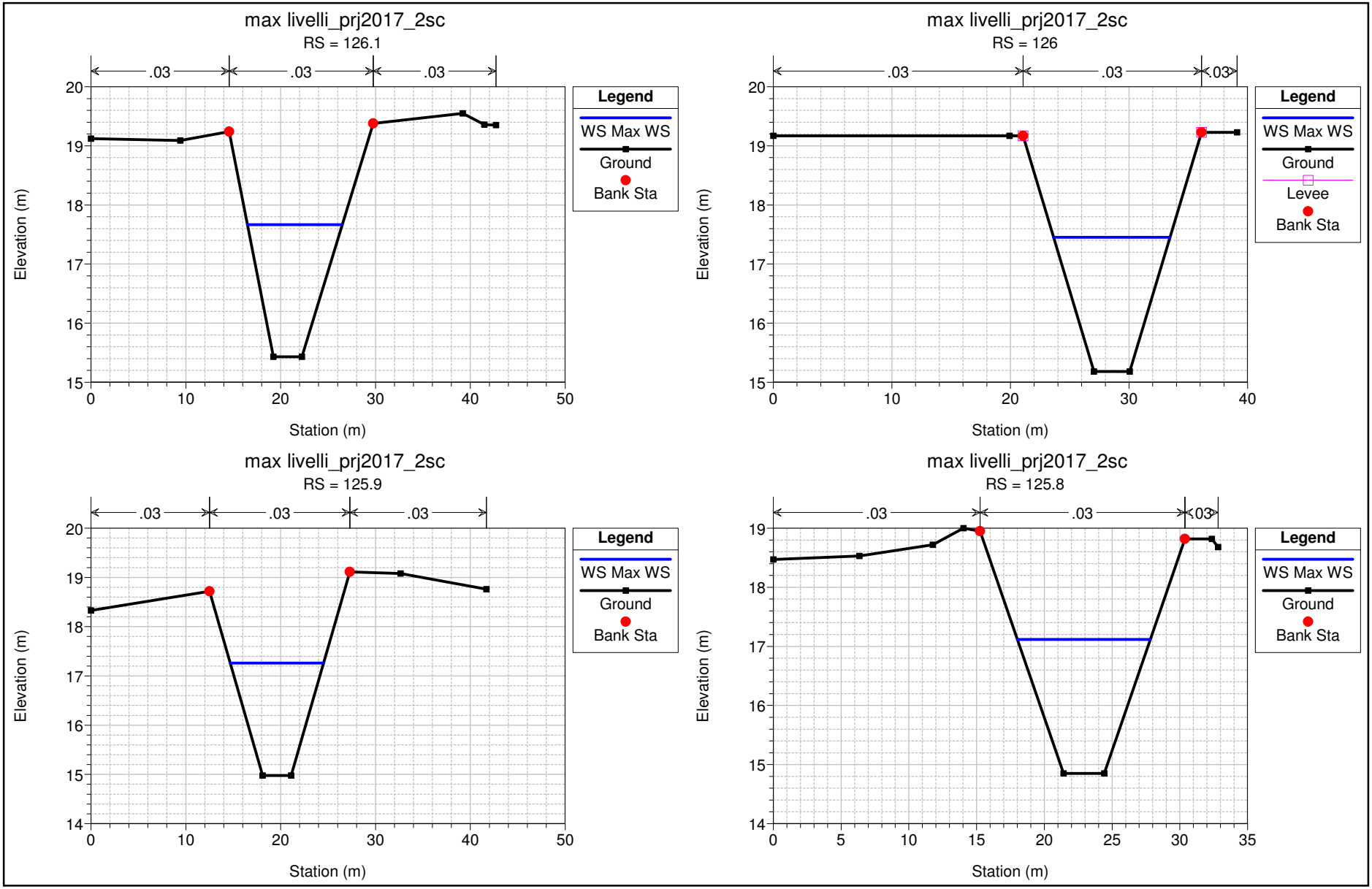

max livelli_prj2017_2sc
RS = 131
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 130.5
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 130.45
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 130.4
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

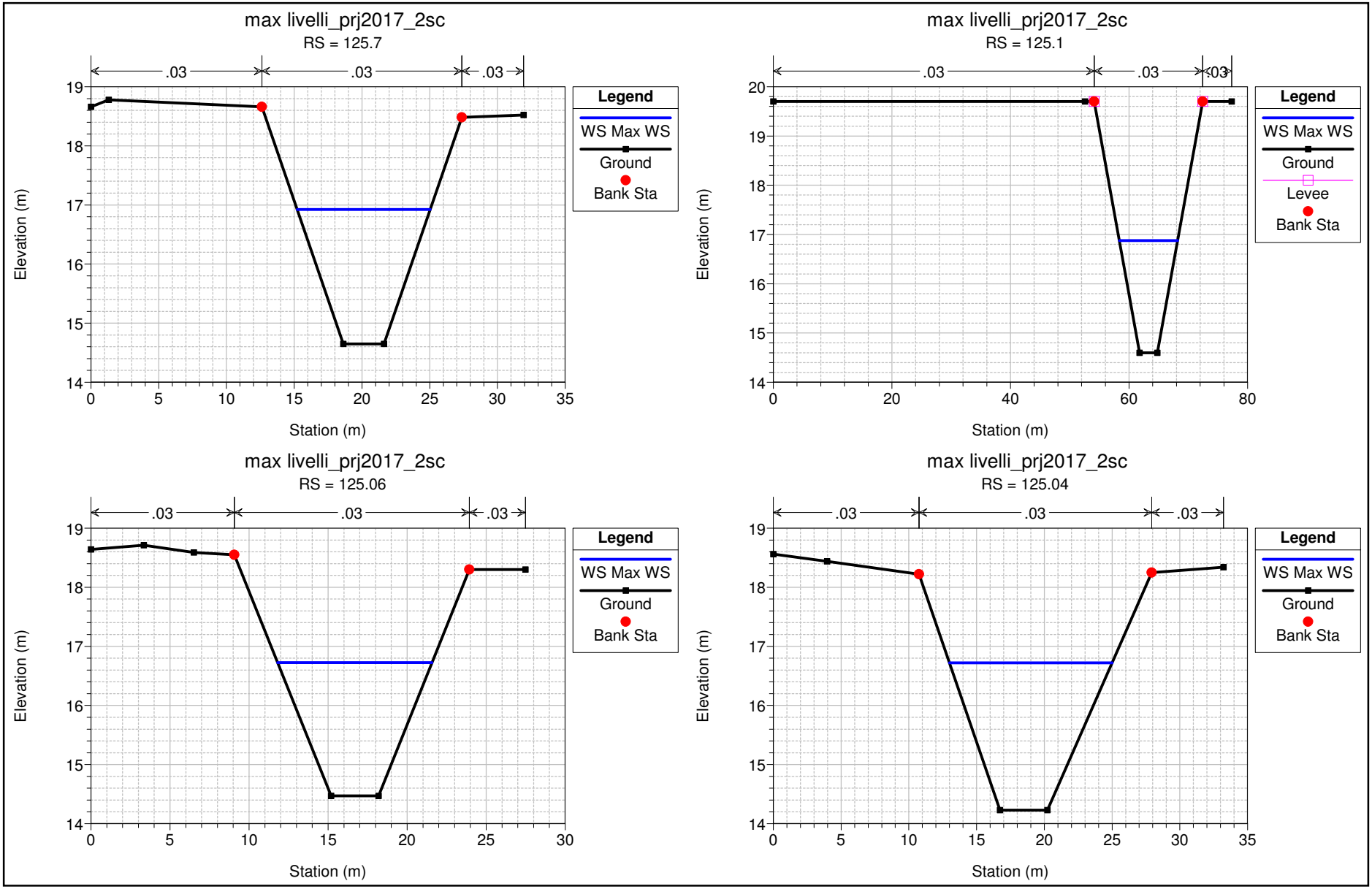

max livelli_prj2017_2sc
RS = 130.36
.03
.03
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 130.3
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 130
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 129.8
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

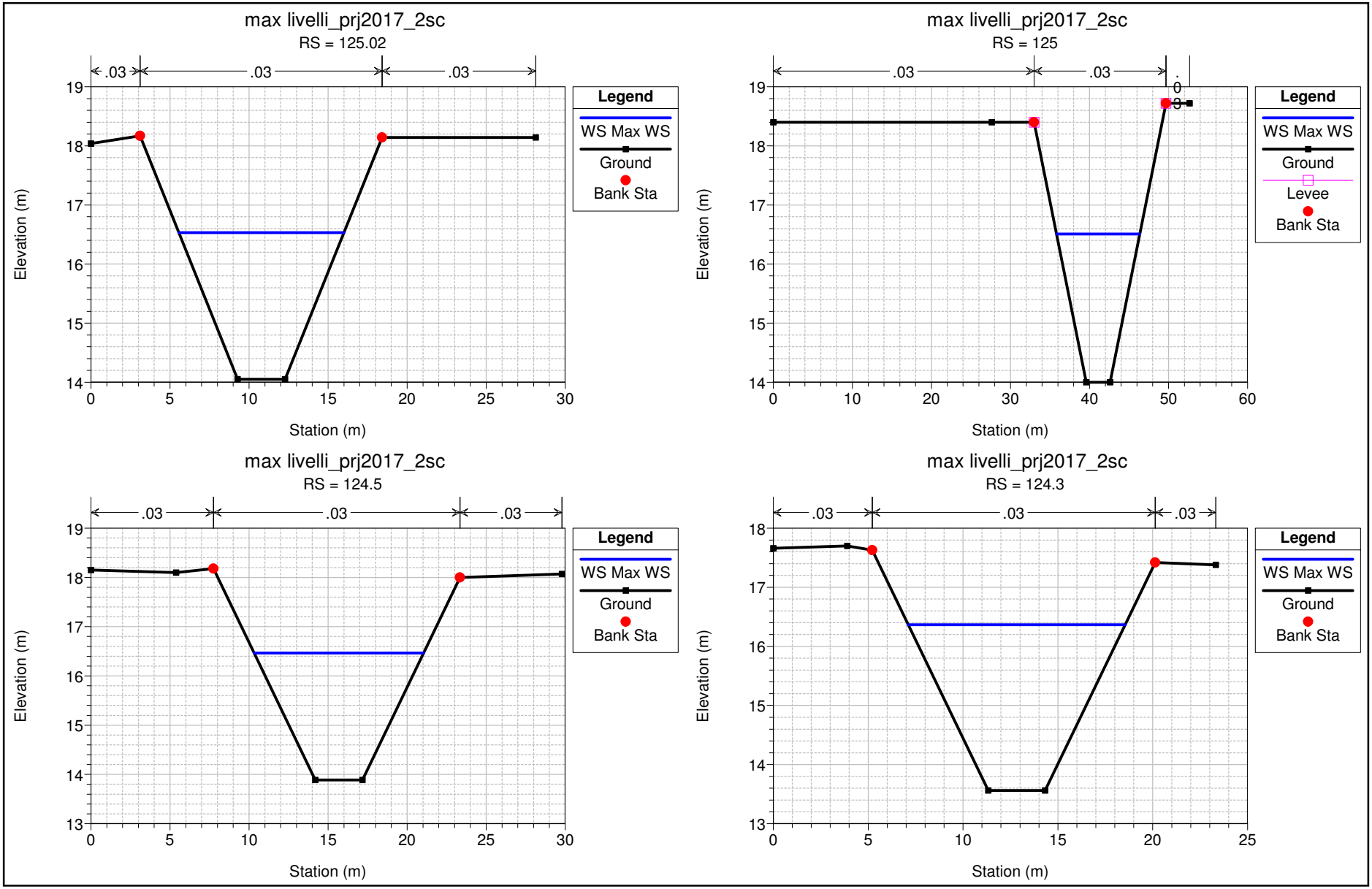

max livelli_prj2017_2sc
RS = 129.7
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 129.2
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 129.1
.03
.03
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 129
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

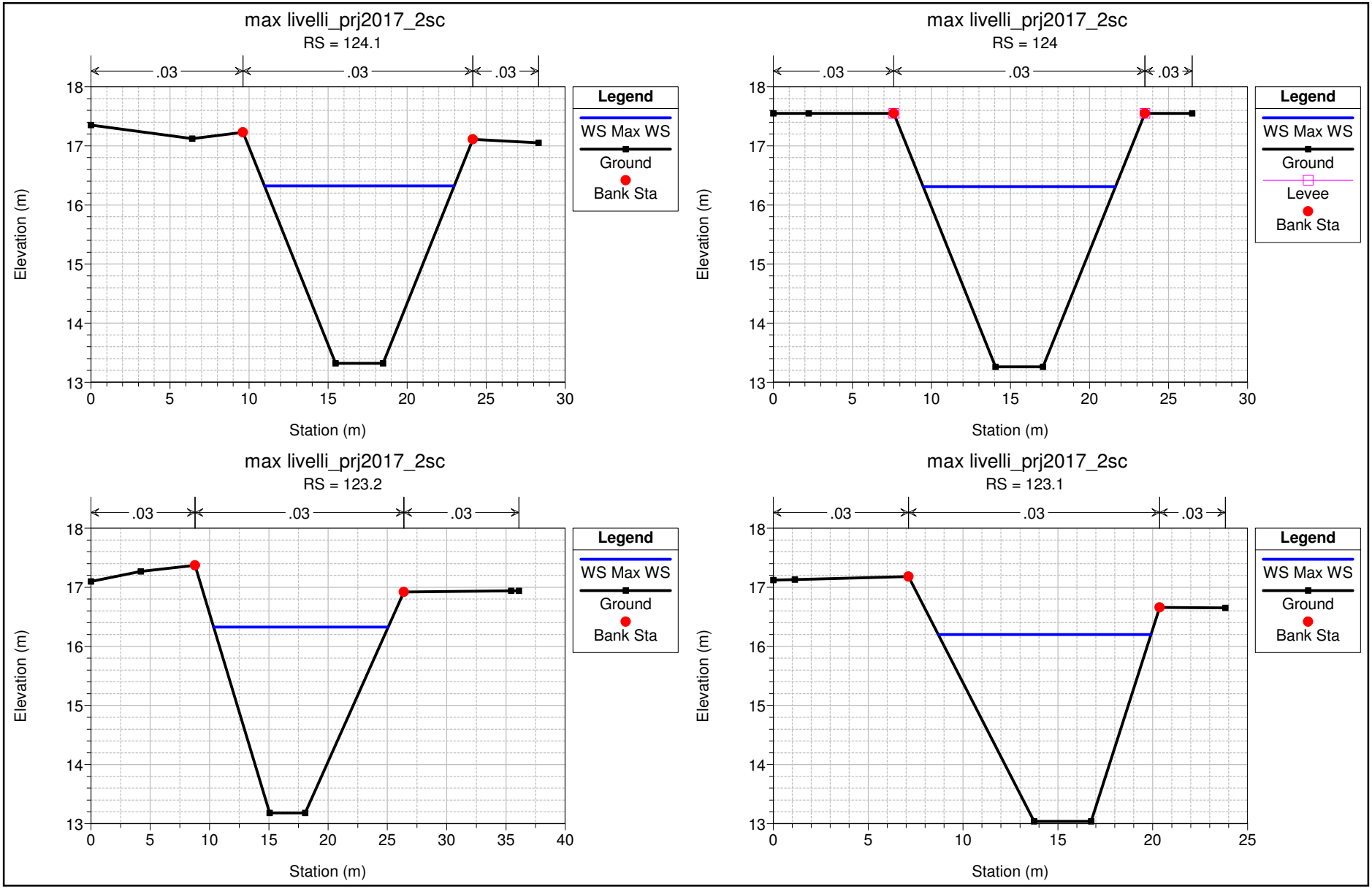

max livelli_prj2017_2sc
RS = 128.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max livelli_prj2017_2sc
RS = 128 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max livelli_prj2017_2sc
RS = 128 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max livelli_prj2017_2sc
RS = 127.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
Crit Max WS
WS Max WS
Ground
Levee
Ineff
Bank Sta

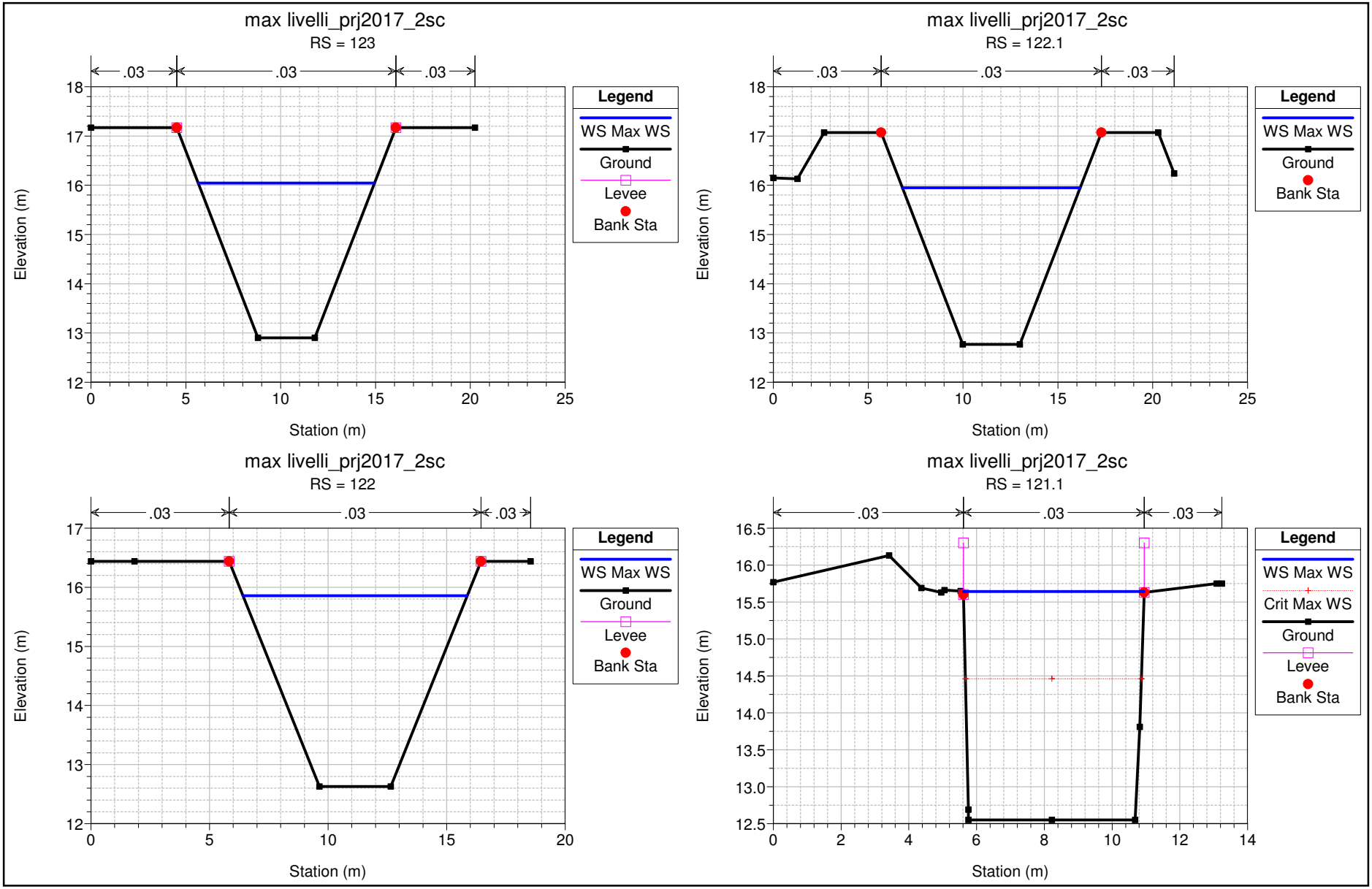

max livelli_prj2017_2sc
RS = 127.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max livelli_prj2017_2sc
RS = 127
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 126.3
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max livelli_prj2017_2sc
RS = 126.2
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta

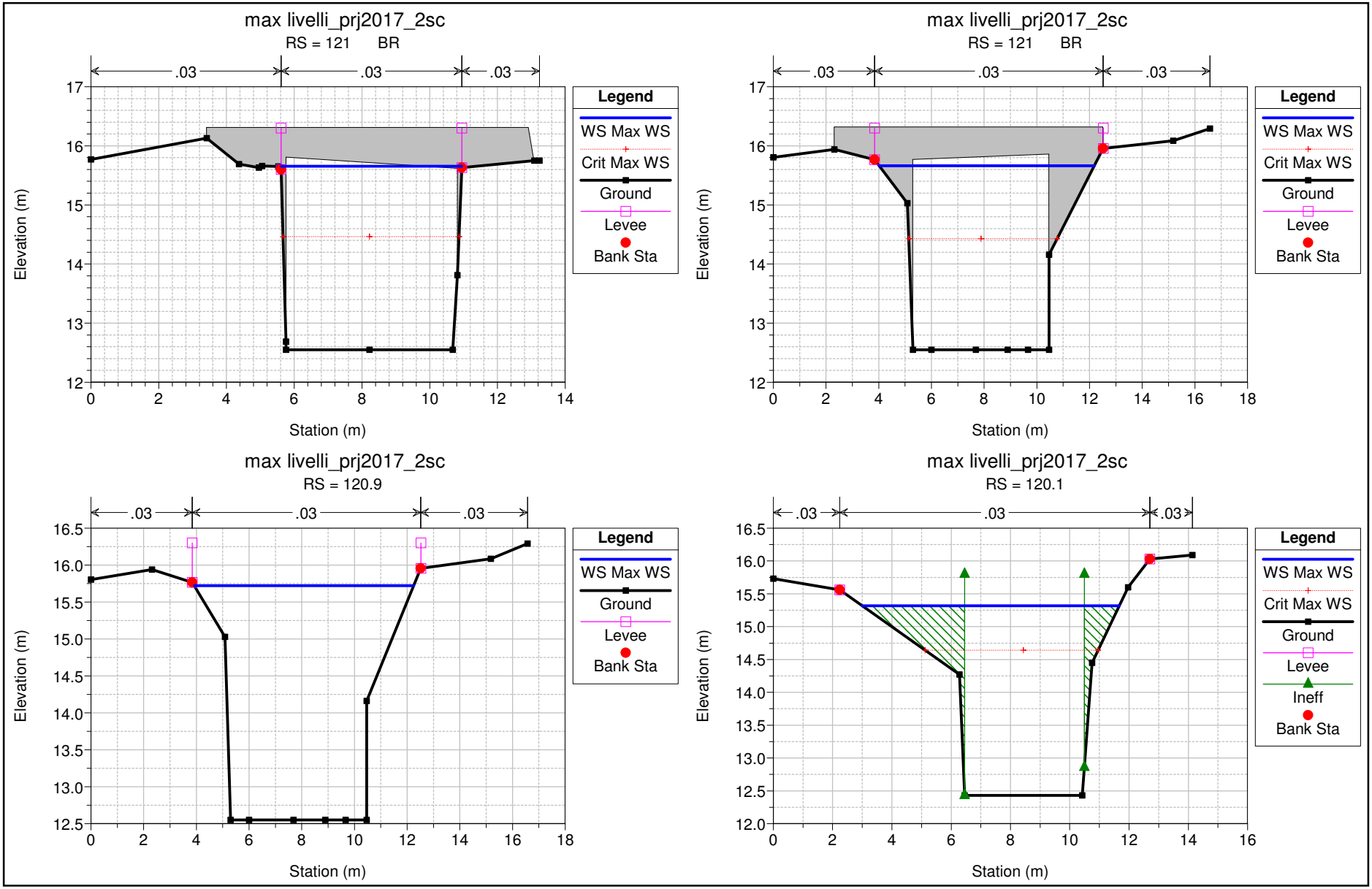

max livelli_prj2017_2sc
RS = 126.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max livelli_prj2017_2sc
RS = 126
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 125.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max livelli_prj2017_2sc
RS = 125.8
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta

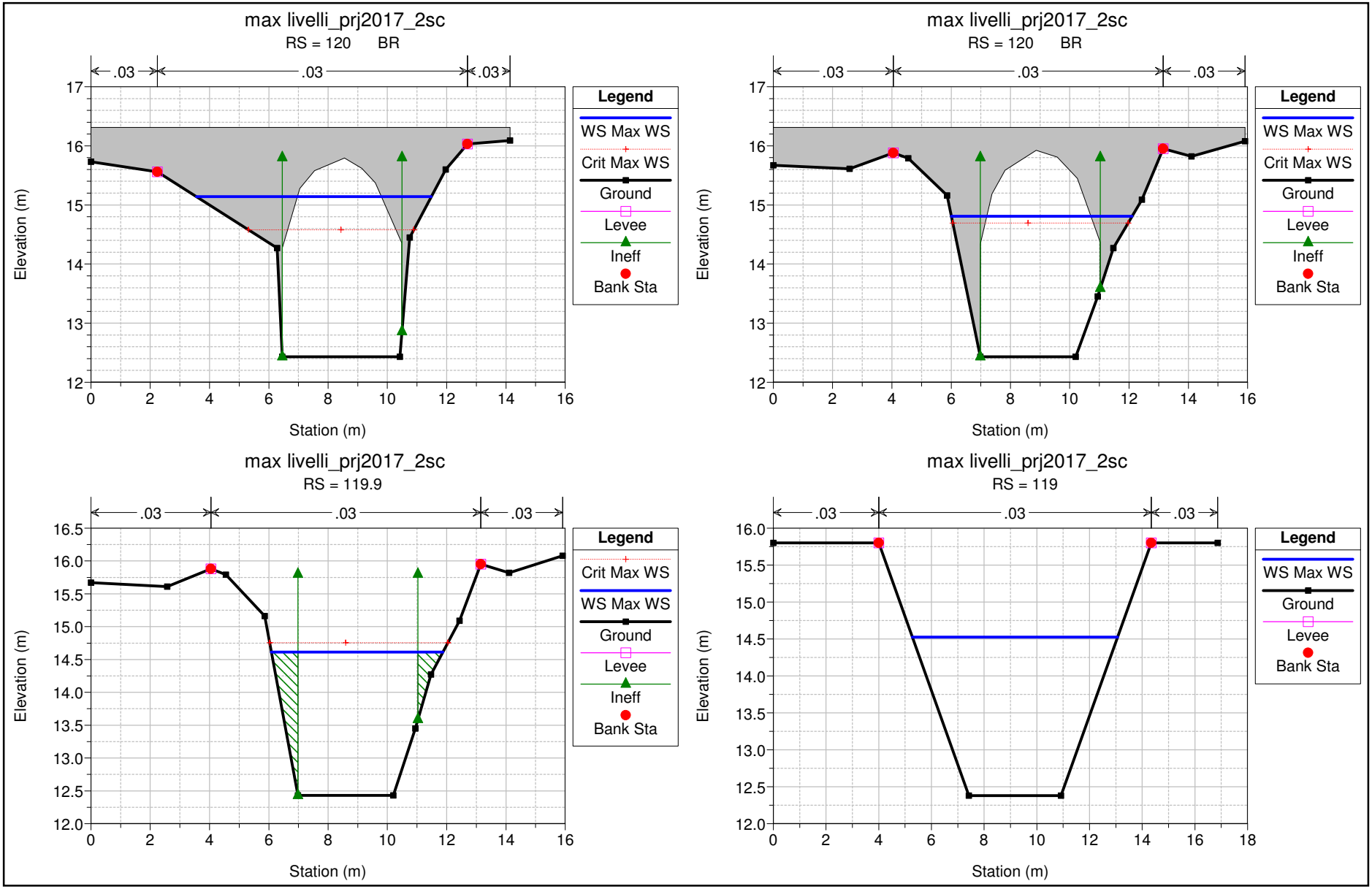

max livelli_prj2017_2sc
RS = 125.7
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max livelli_prj2017_2sc
RS = 125.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 125.06
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max livelli_prj2017_2sc
RS = 125.04
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta

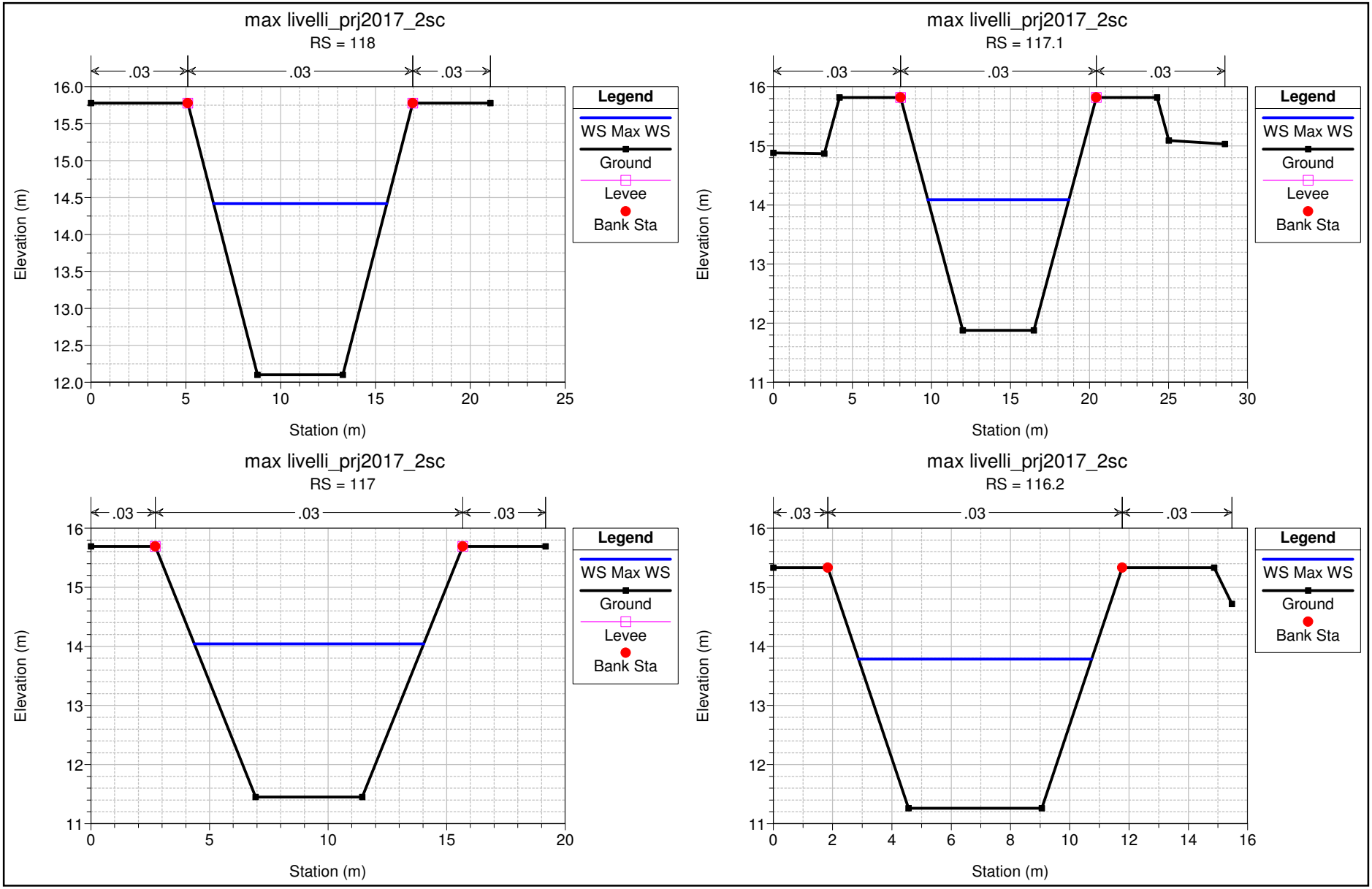

max livelli_prj2017_2sc
RS = 125.02
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max livelli_prj2017_2sc
RS = 125
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 124.5
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max livelli_prj2017_2sc
RS = 124.3
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta

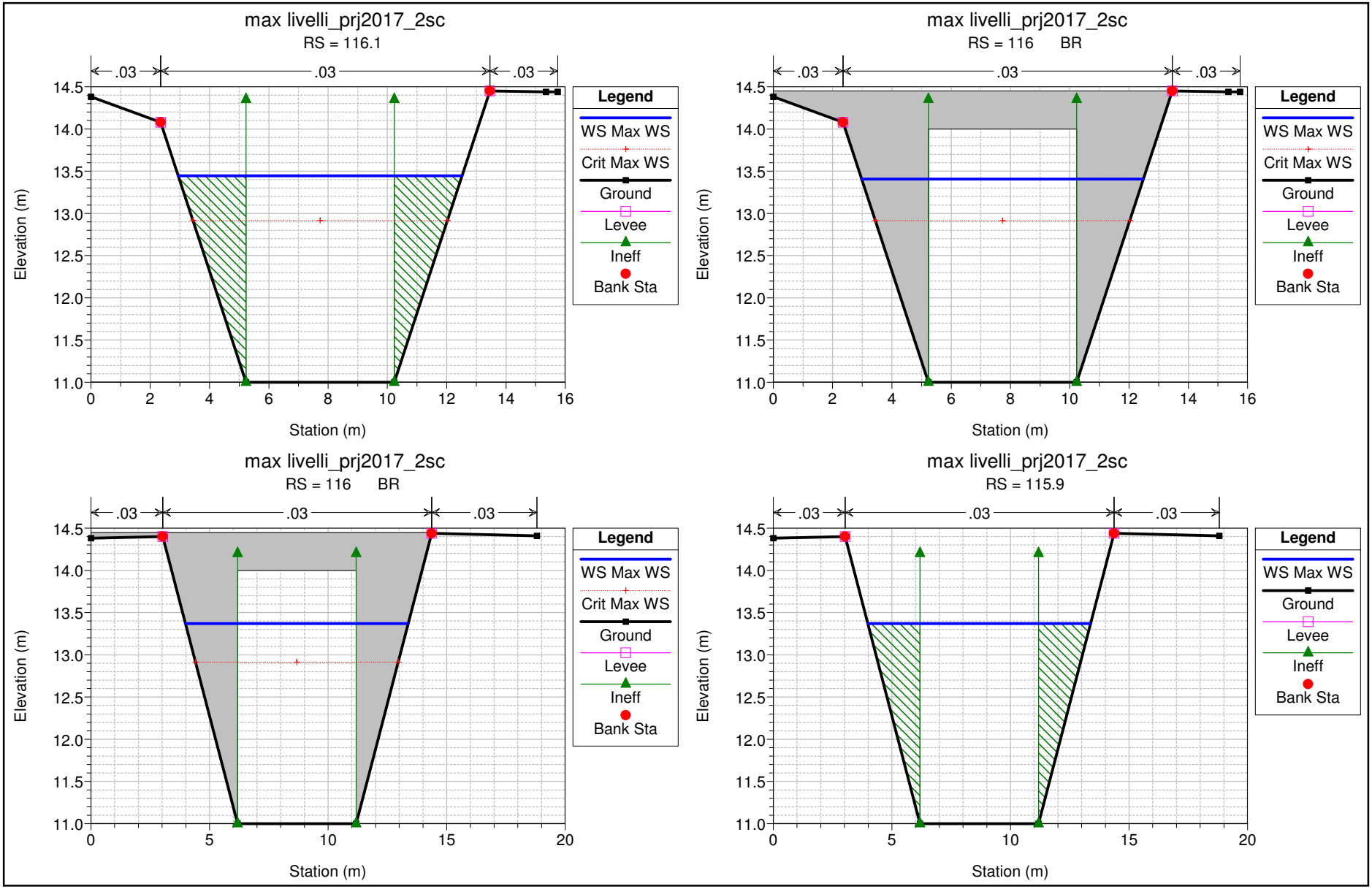

max livelli_prj2017_2sc
RS = 124.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max livelli_prj2017_2sc
RS = 124
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 123.2
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max livelli_prj2017_2sc
RS = 123.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta

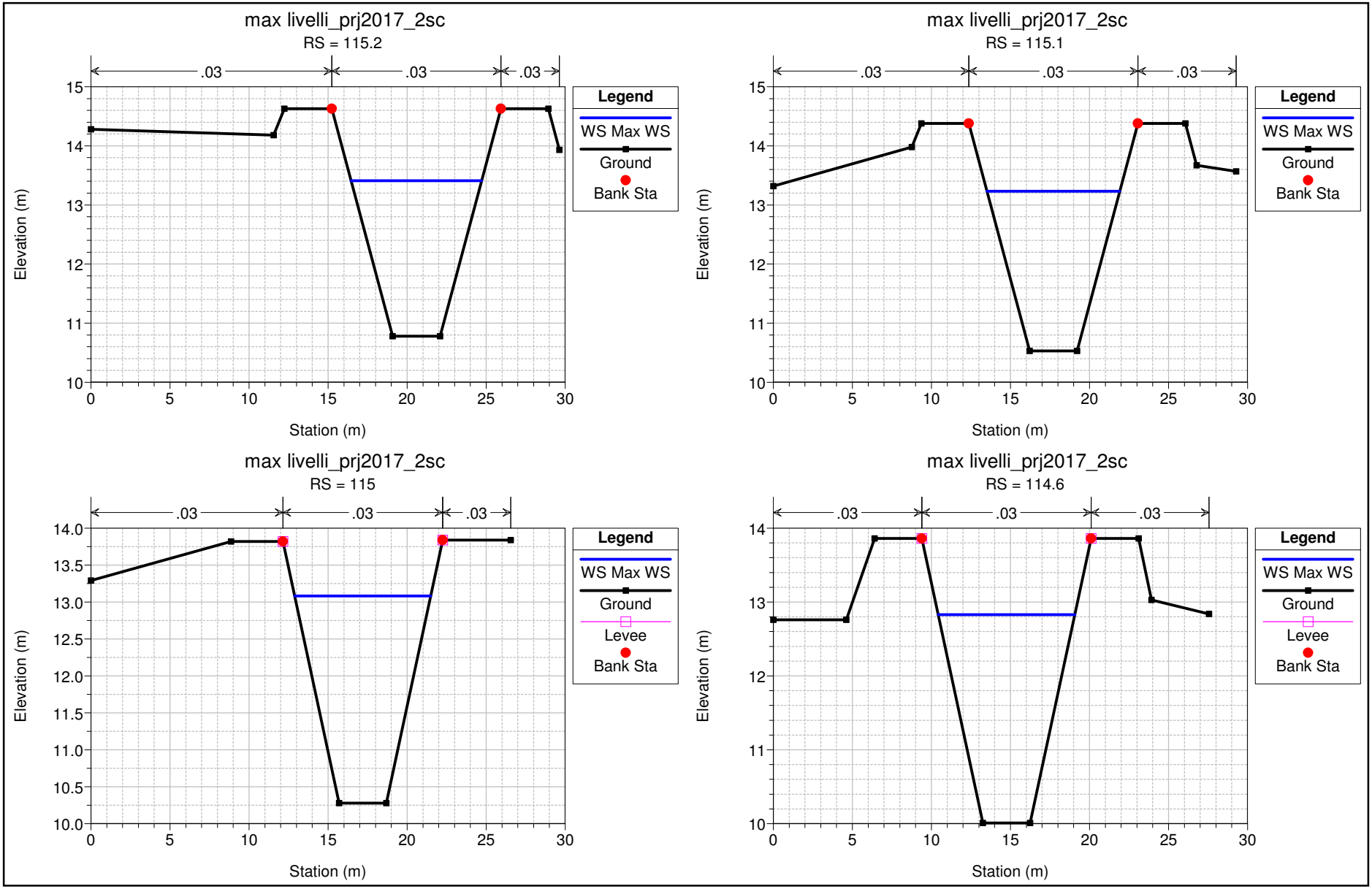

max livelli_prj2017_2sc
RS = 123
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 122.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max livelli_prj2017_2sc
RS = 122
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 121.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta

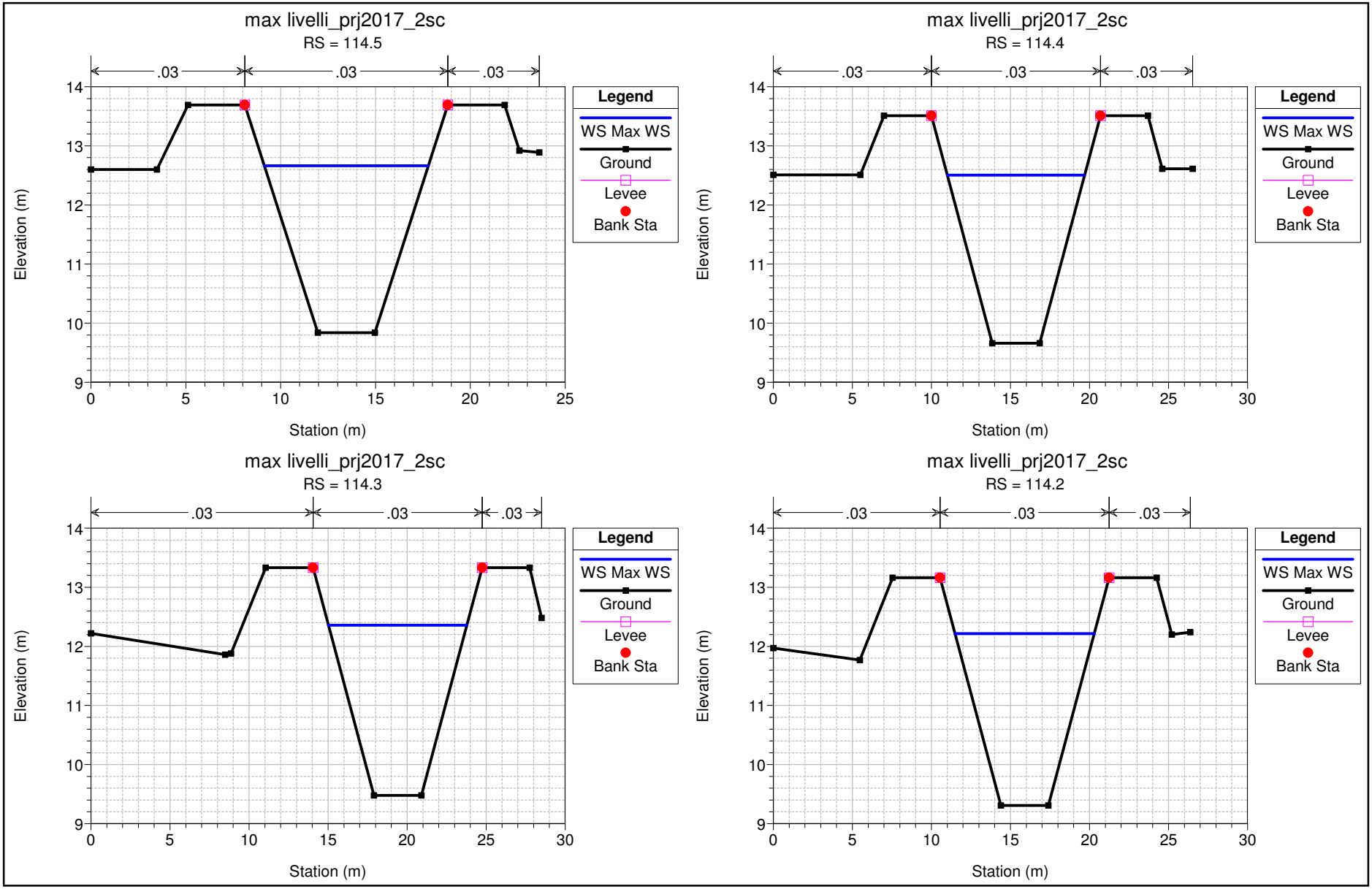

max livelli_prj2017_2sc
RS = 121 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 121 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 120.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 120.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta

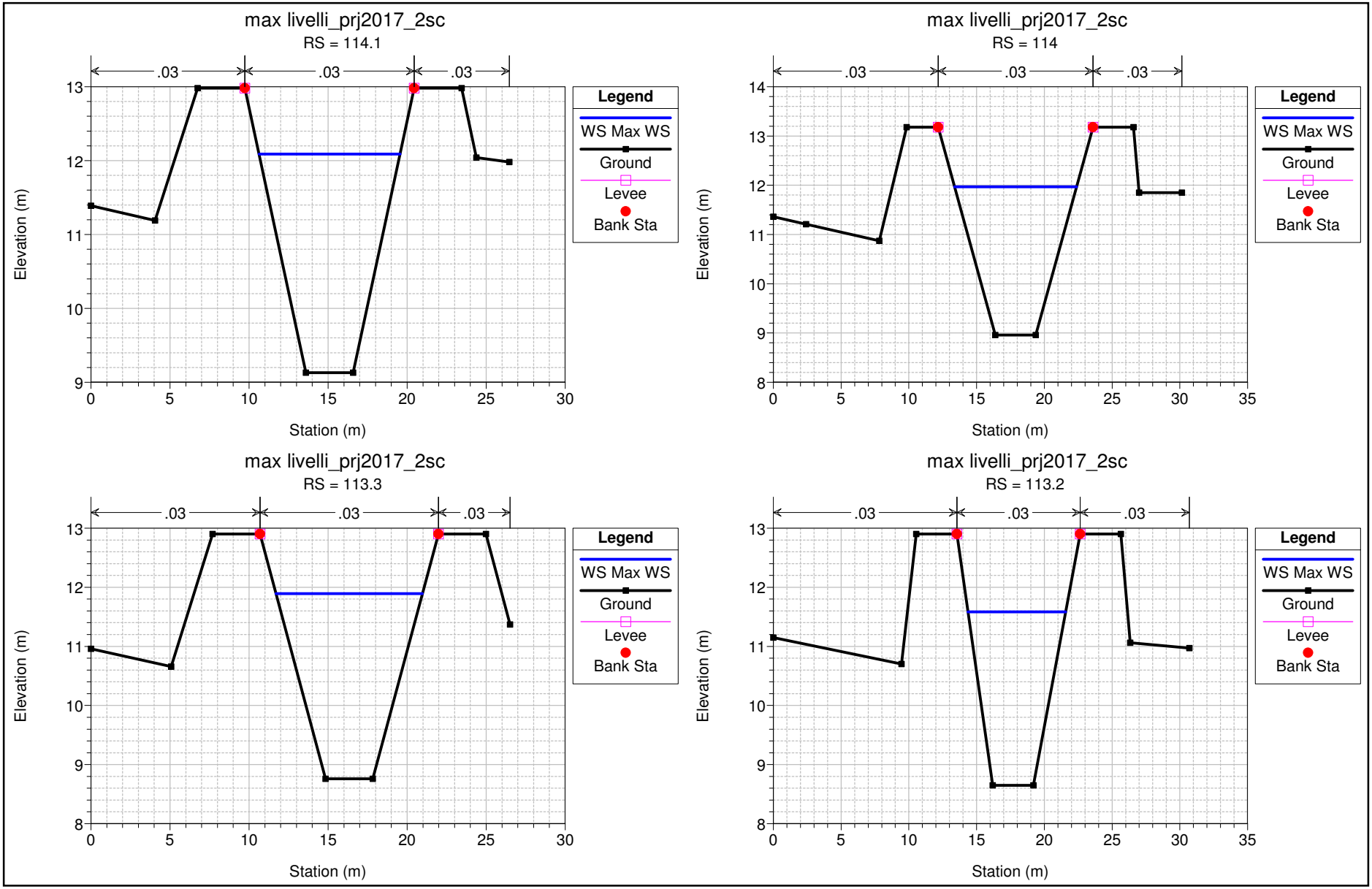

max livelli_prj2017_2sc
RS = 120 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max livelli_prj2017_2sc
RS = 120 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max livelli_prj2017_2sc
RS = 119.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
Crit Max WS
WS Max WS
Ground
Levee
Ineff
Bank Sta
max livelli_prj2017_2sc
RS = 119
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

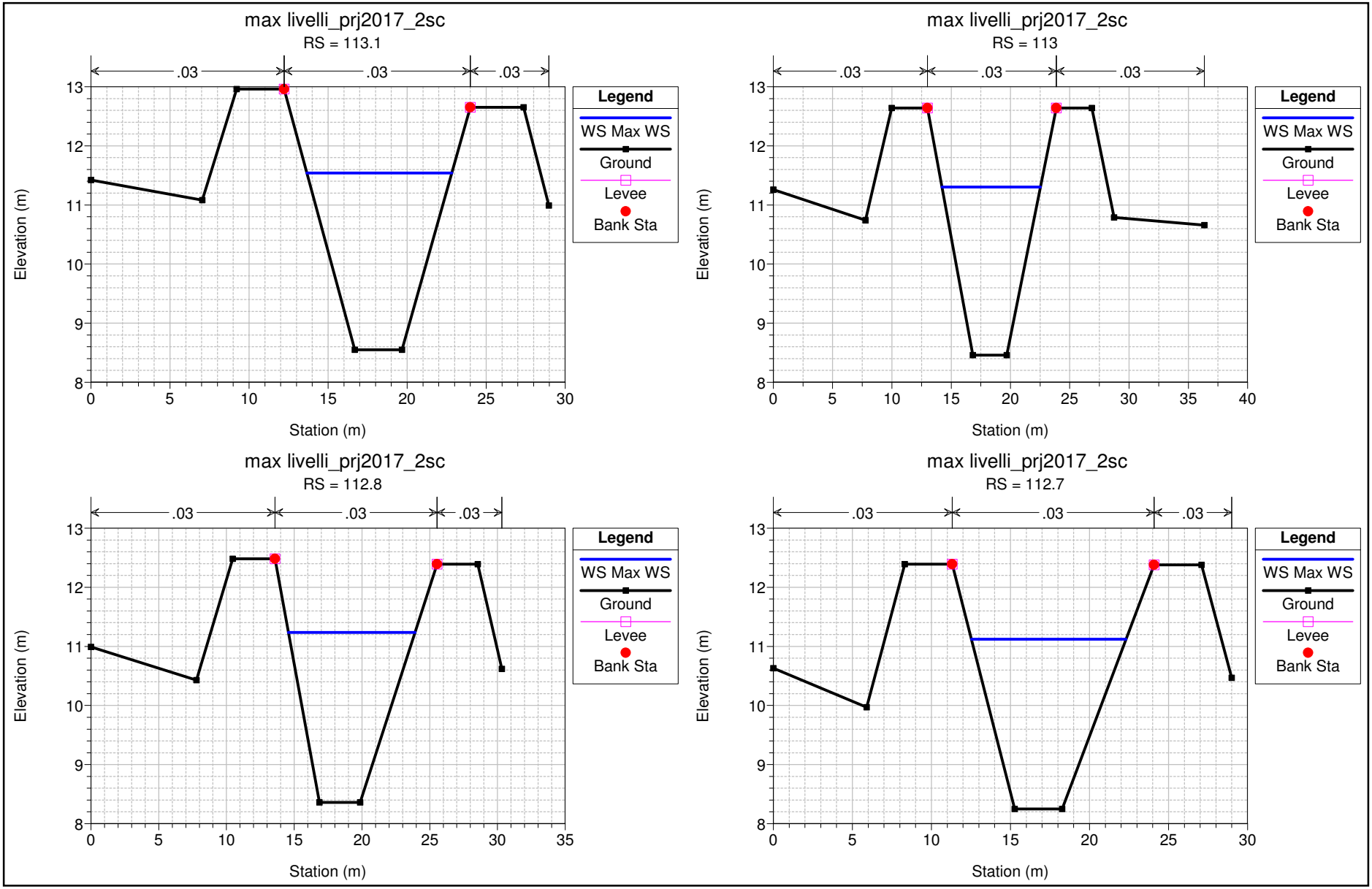

max livelli_prj2017_2sc
RS = 118
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 117.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 117
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 116.2
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta

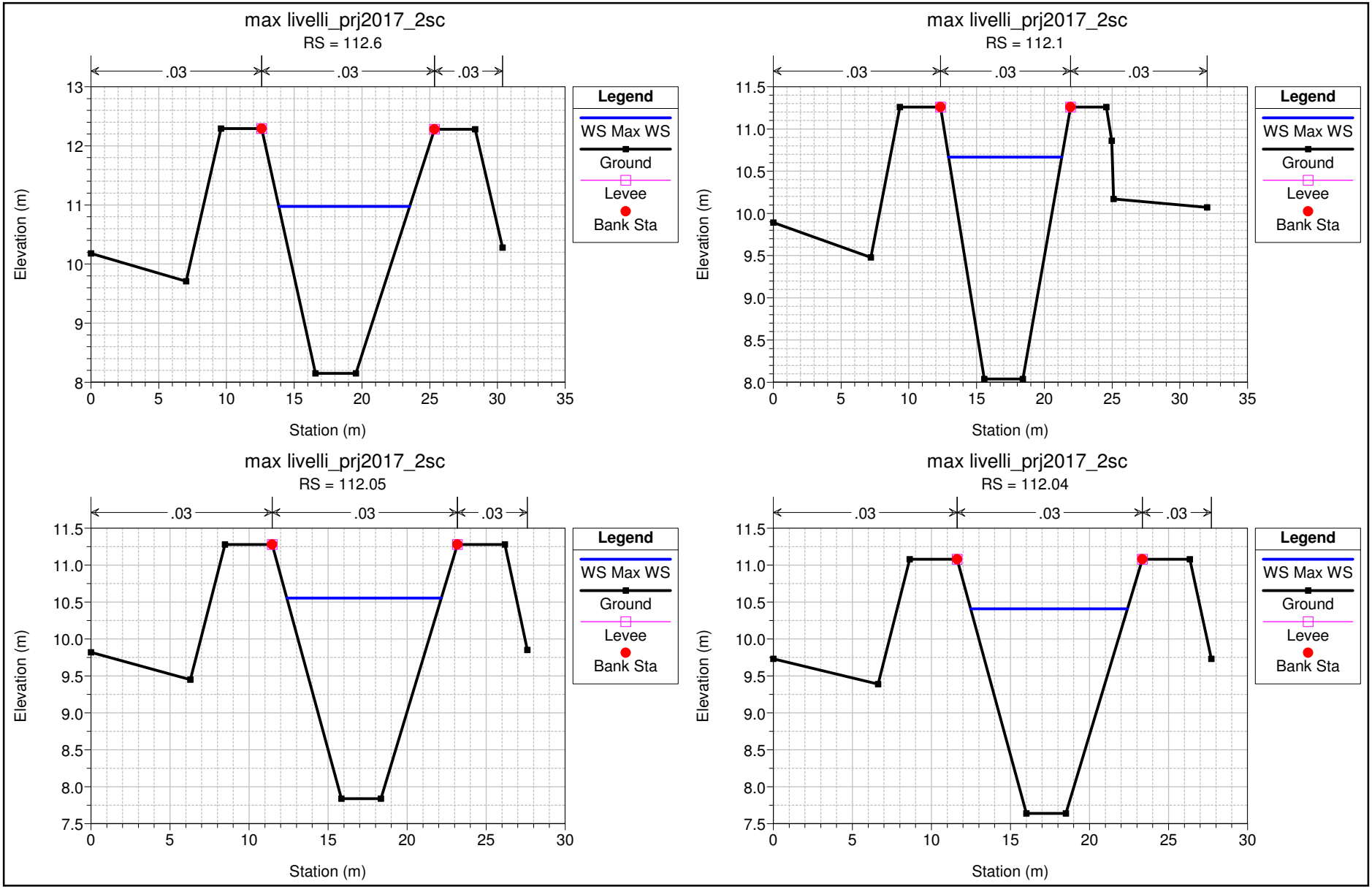

max livelli_prj2017_2sc
RS = 116.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max livelli_prj2017_2sc
RS = 116 BR
max livelli_prj2017_2sc
RS = 116 BR
max livelli_prj2017_2sc
RS = 115.9

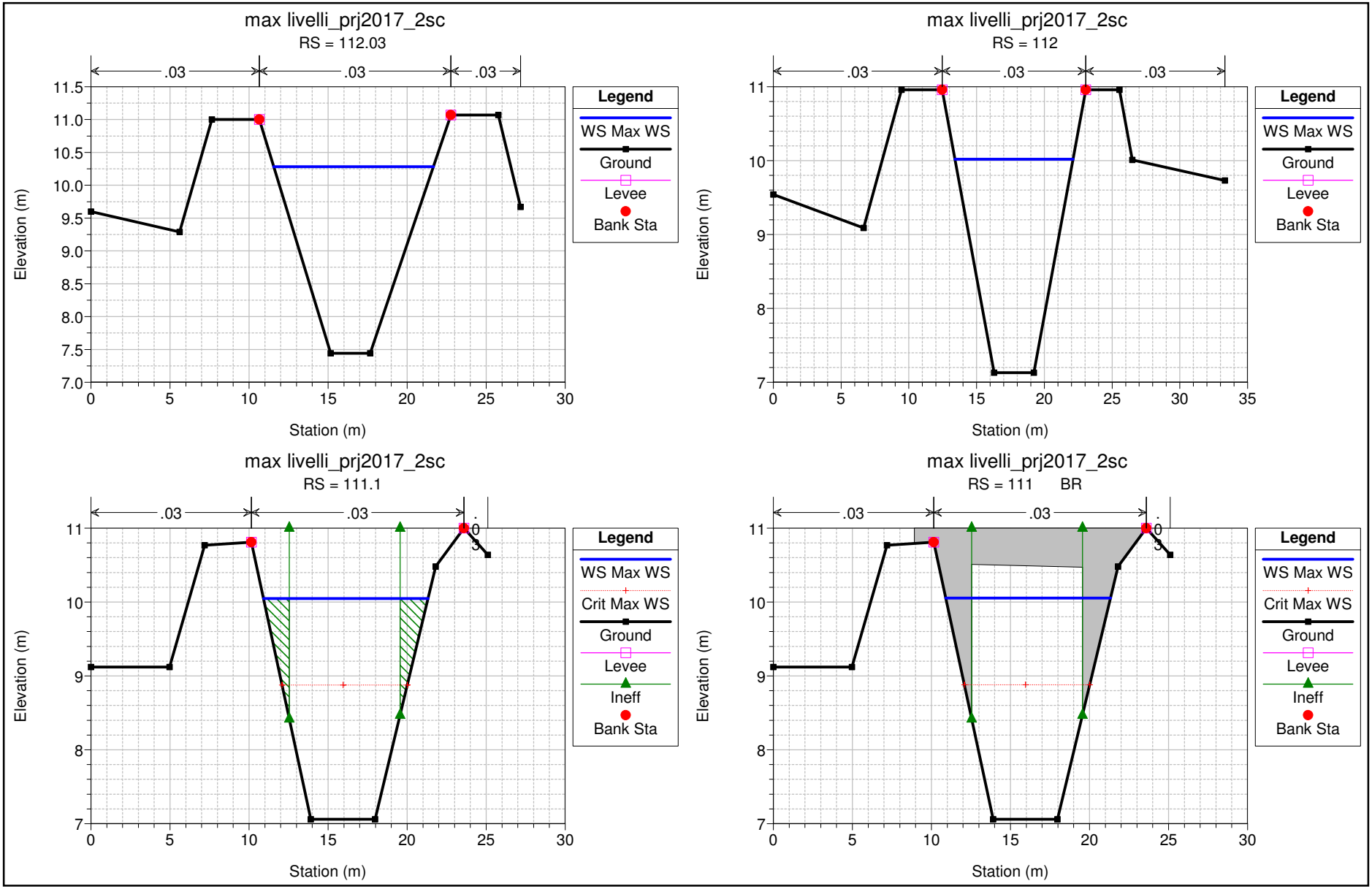

max livelli_prj2017_2sc
RS = 115.2
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max livelli_prj2017_2sc
RS = 115.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max livelli_prj2017_2sc
RS = 115
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 114.6
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

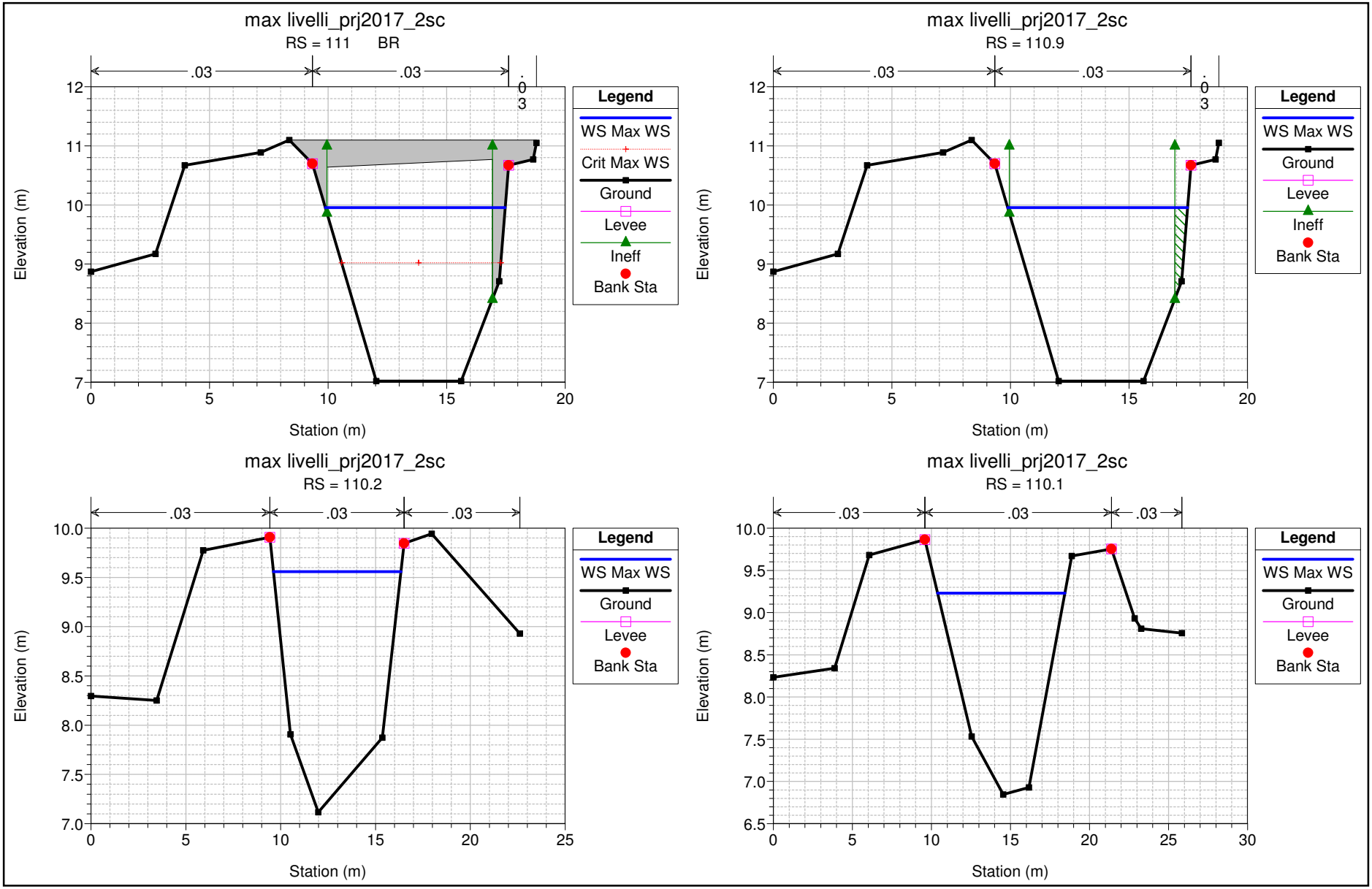

max livelli_prj2017_2sc
RS = 114.5
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 114.4
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 114.3
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 114.2
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

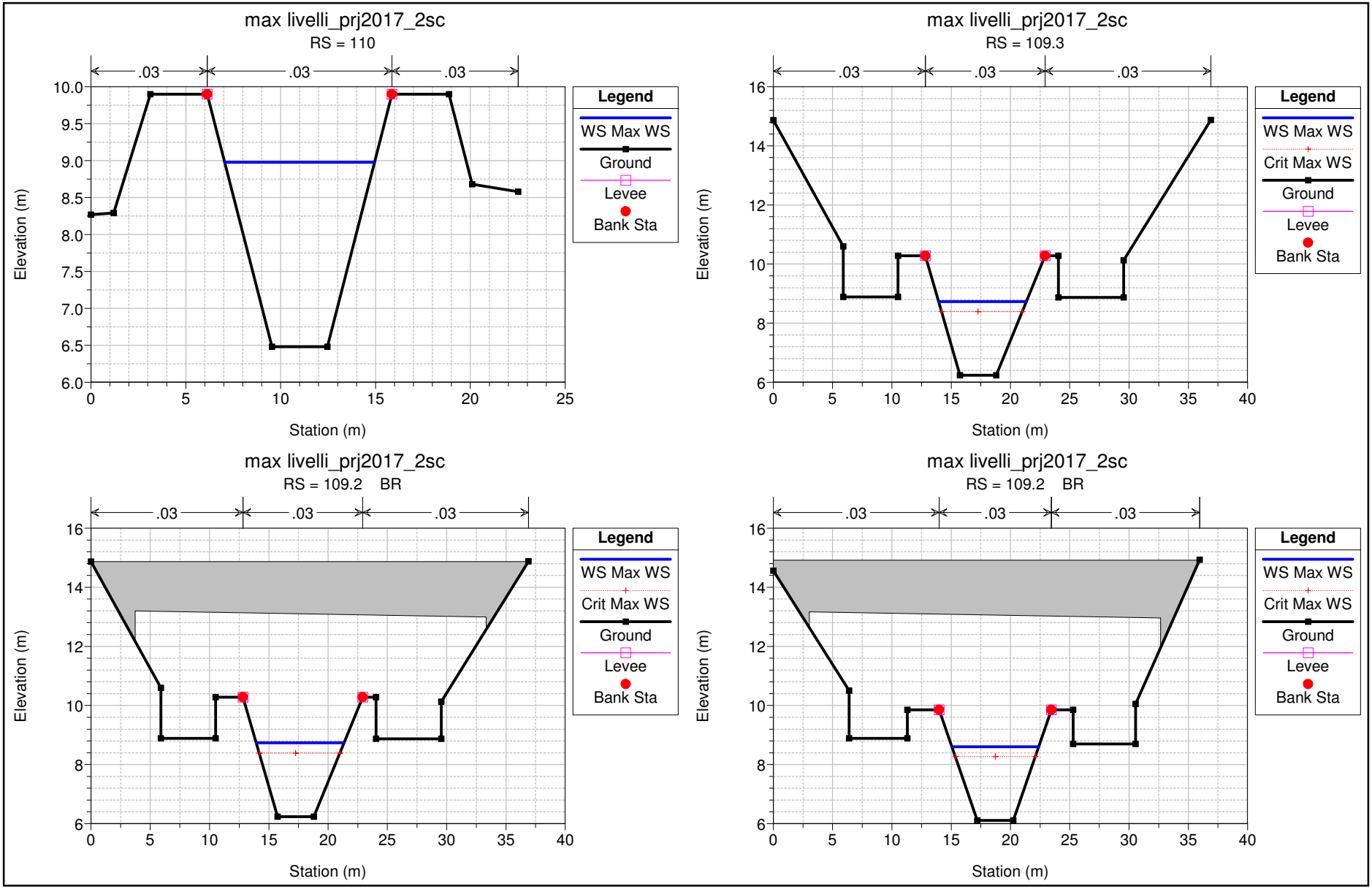

max livelli_prj2017_2sc
RS = 114.1
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 114
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 113.3
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 113.2
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

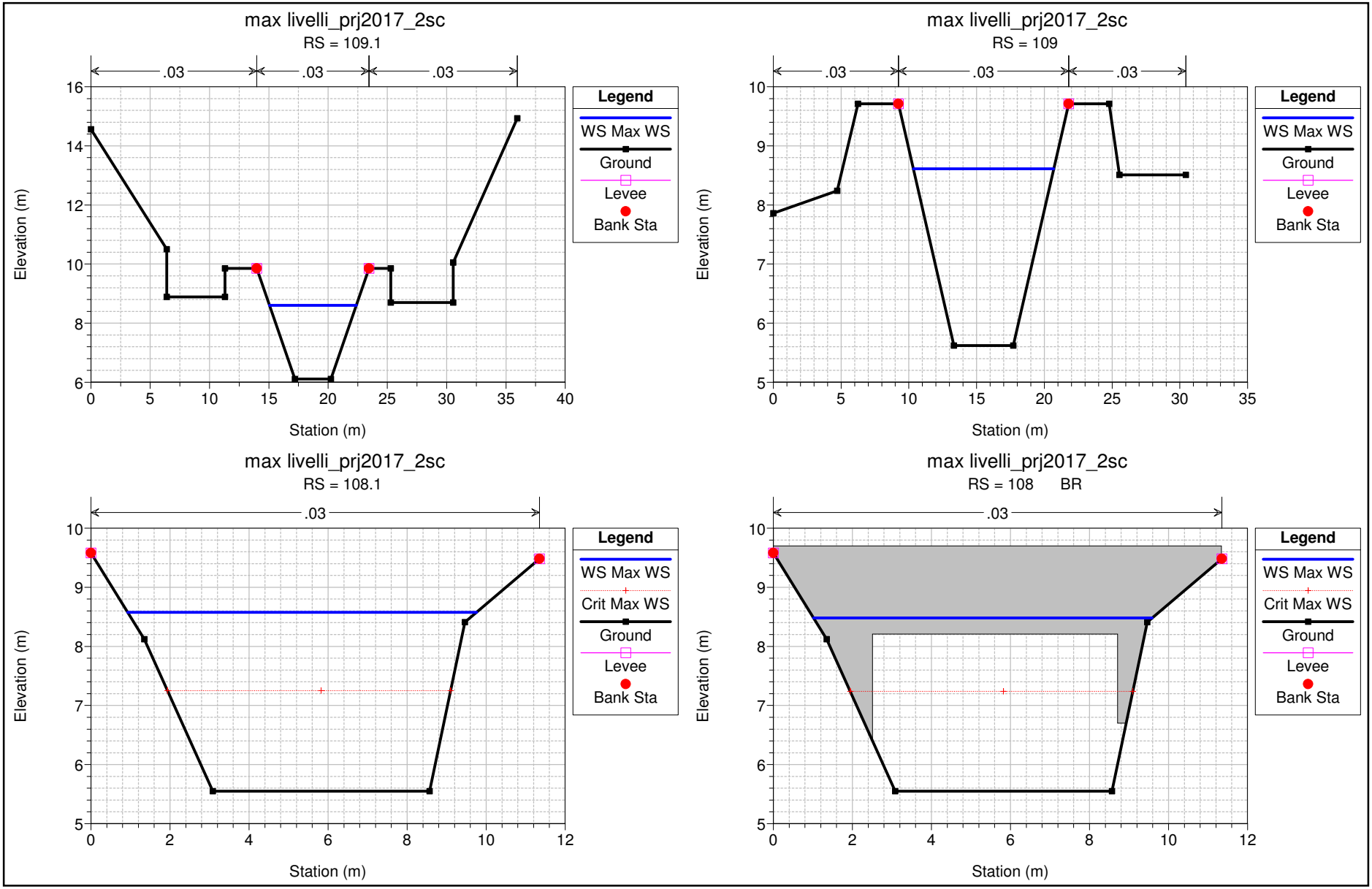

max livelli_prj2017_2sc
RS = 113.1
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 113
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 112.8
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 112.7
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

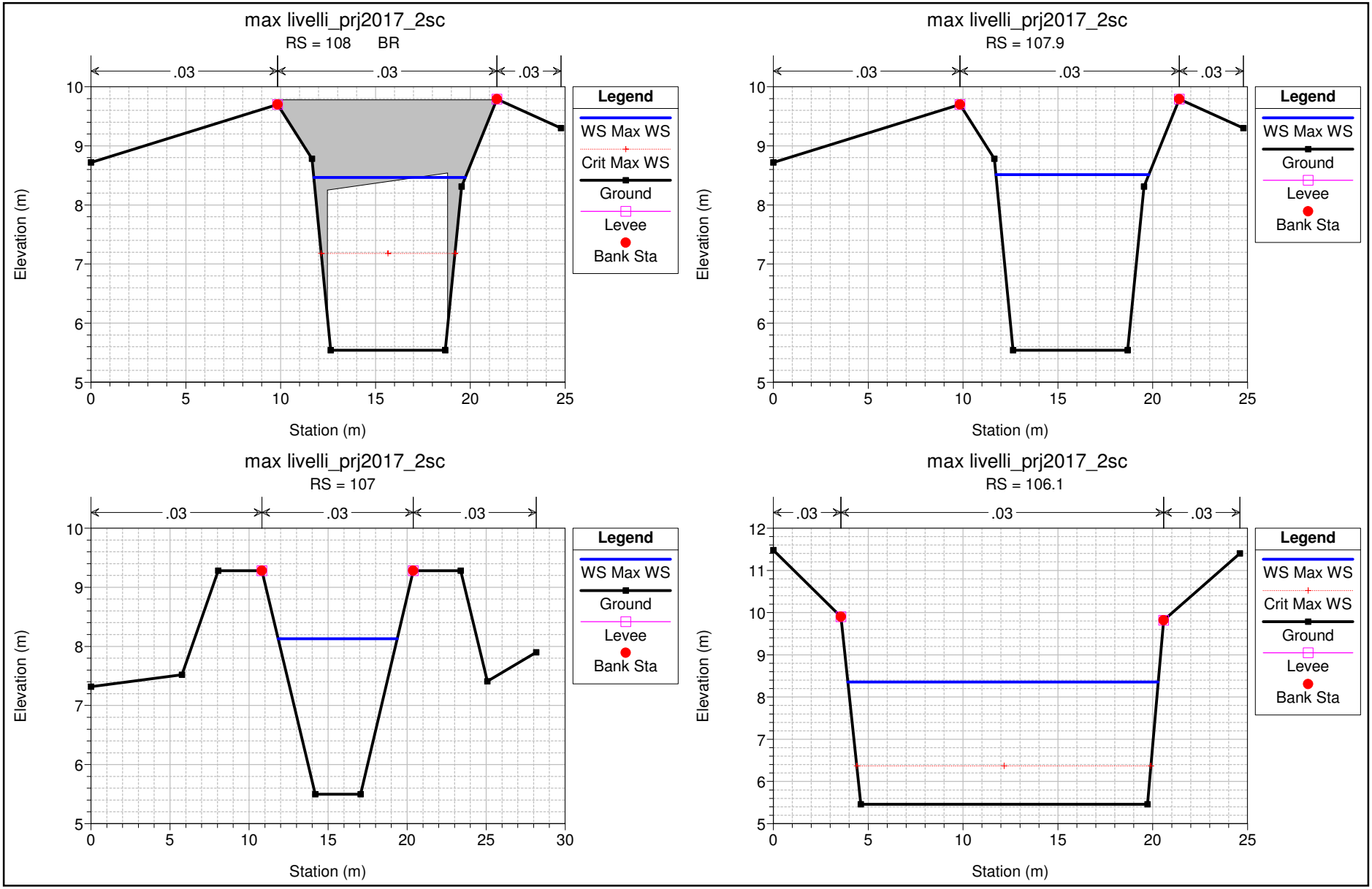

max livelli_prj2017_2sc
RS = 112.6
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 112.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 112.05
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 112.04
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

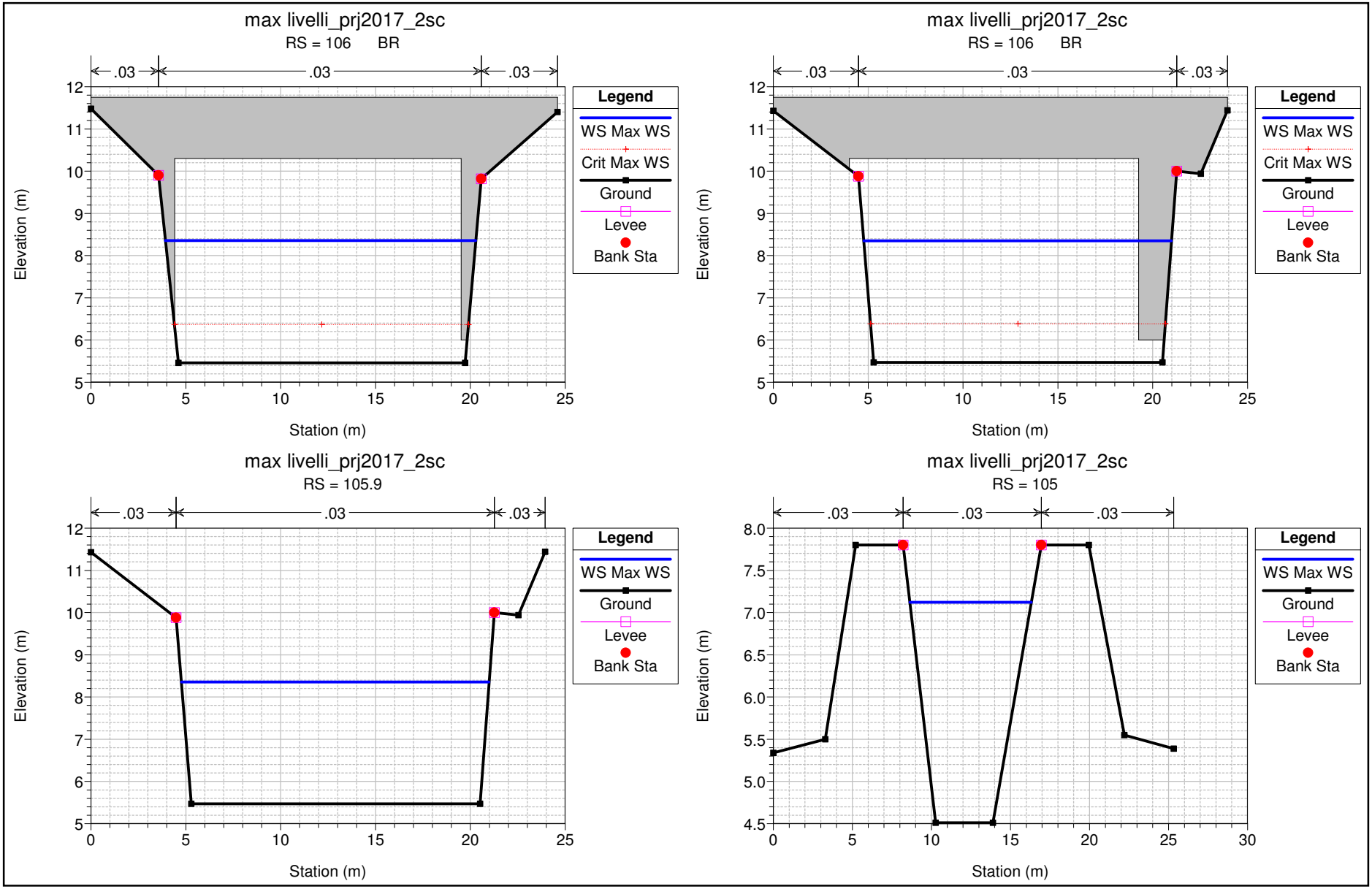

max livelli_prj2017_2sc
RS = 112.03
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 112
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 111.1
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max livelli_prj2017_2sc
RS = 111 BR
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta

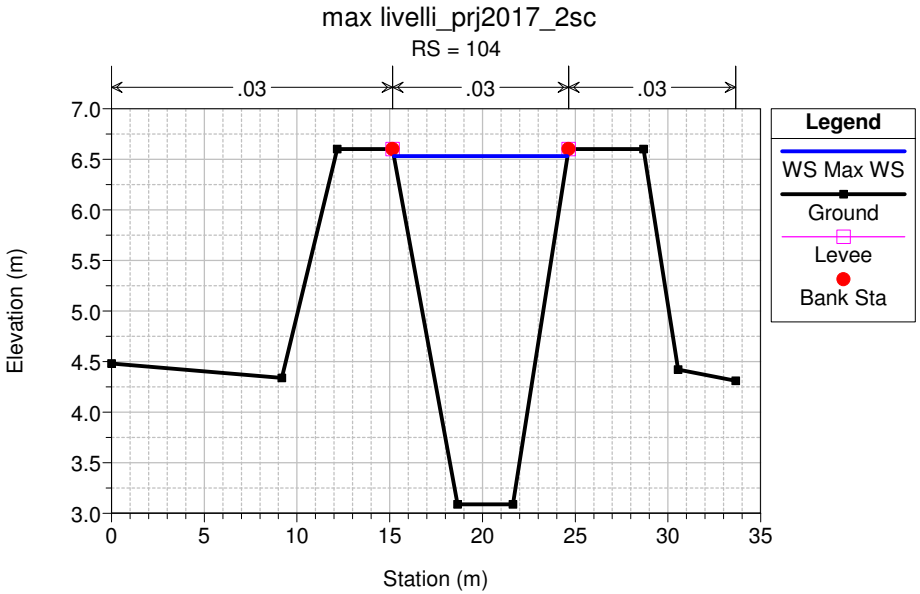

max livelli_prj2017_2sc
RS = 111 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max livelli_prj2017_2sc
RS = 110.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Ineff
Bank Sta
max livelli_prj2017_2sc
RS = 110.2
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 110.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

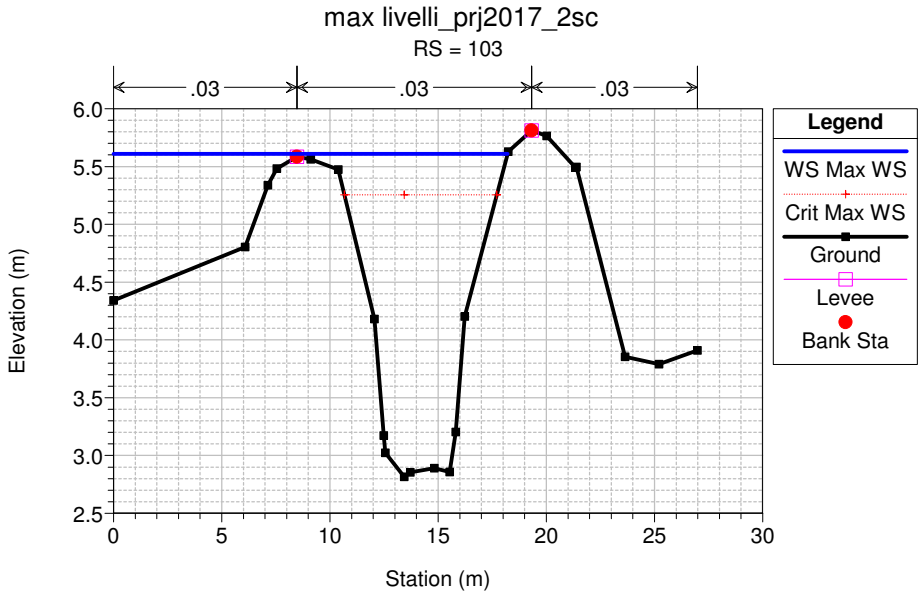

max livelli_prj2017_2sc
RS = 110
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 109.3
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 109.2 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 109.2 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta


max livelli_prj2017_2sc
RS = 109.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 109
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 108.1
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 108 BR
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta


max livelli_prj2017_2sc
RS = 108 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 107.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 107
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max livelli_prj2017_2sc
RS = 106.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta


max livelli_prj2017_2sc
RS = 106 BR
.03
.03
.03
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 106 BR
.03
.03
.03
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 105.9
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max livelli_prj2017_2sc
RS = 105
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


max livelli_prj2017_2sc
RS = 104
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

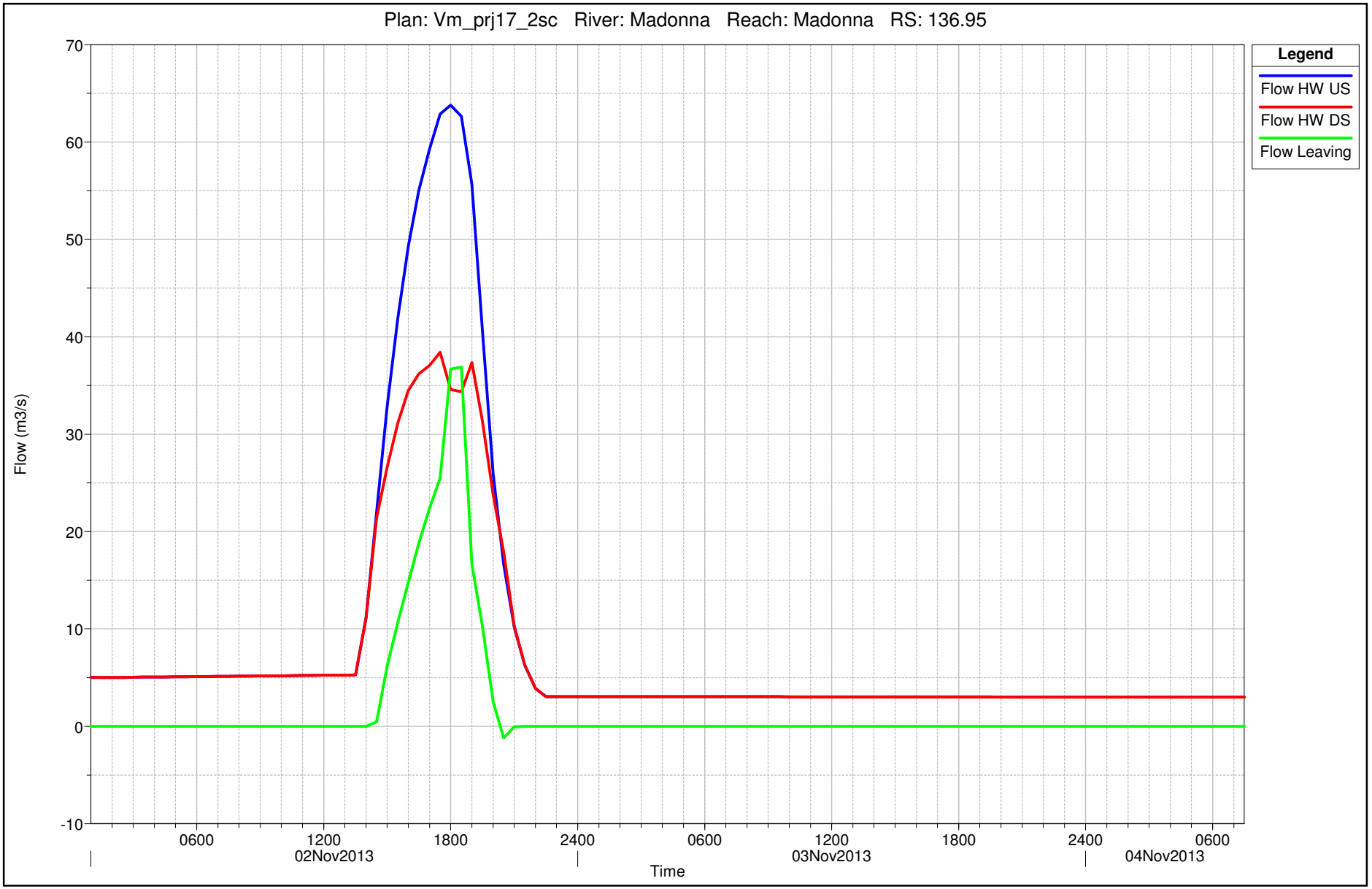

max livelli_prj2017_2sc
RS = 103
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta

ALLEGATO 3

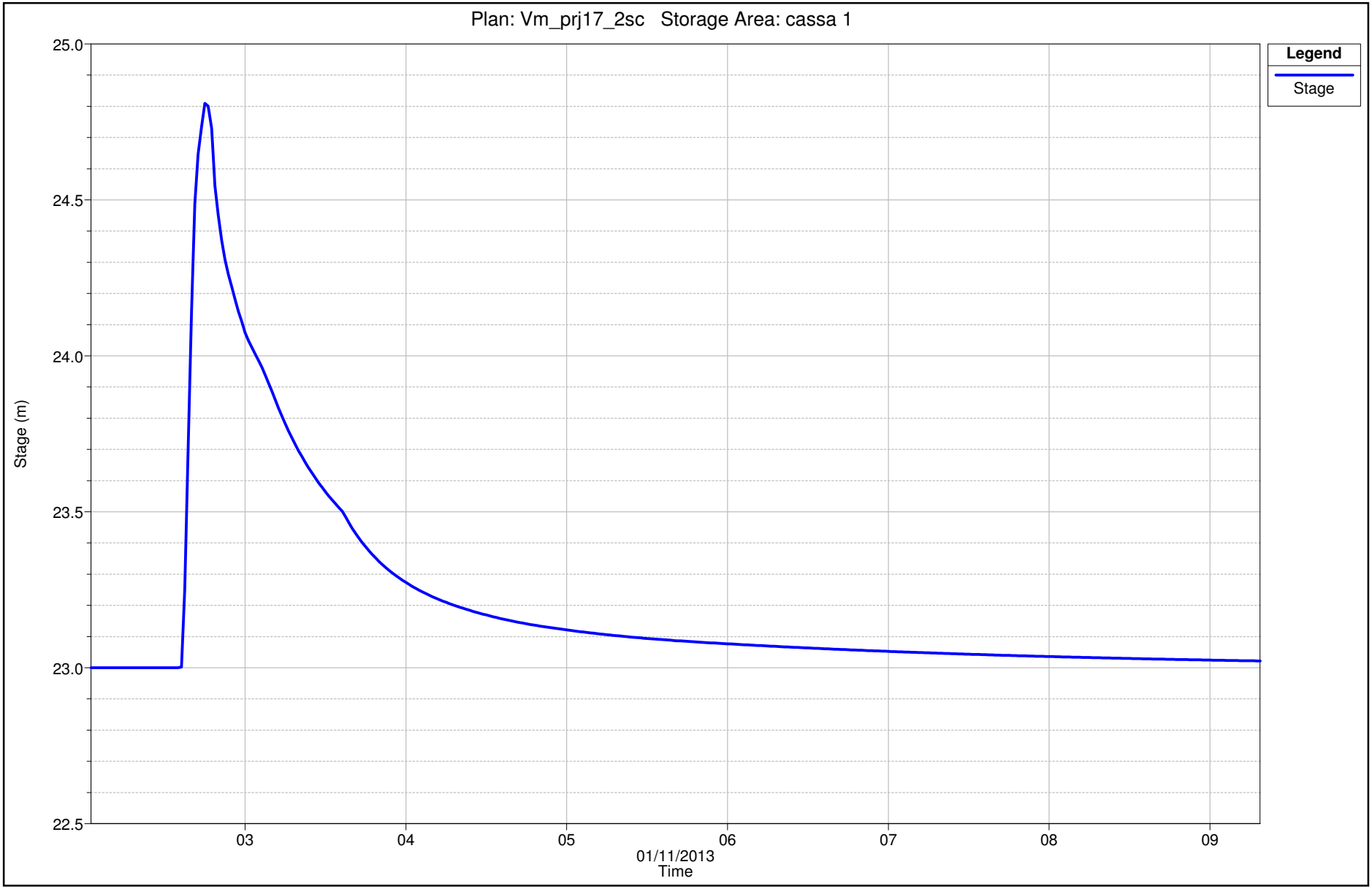
VERIFICA IDRAULICA A MOTO VARIO DEL FOSSO DELLA MADONNA ALLO STATO DI PROGETTO, EVENTO CRITICO DUECENTENNALE CHE MASSIMIZZA IL VOLUME DA INVASARE NELLA CASSA

- LEGENDA
- IDROGRAMMA DI PIENA IN CORRISPONDENZA DELLO SFIORATORE LATERALE DI INGRESSO ALLA CASSA DI ESPANSIONE
- CURVA D'INVASO PRIMO SETTORE CASSA DI ESPANSIONE
- CURVA D'INVASO SECONDO SETTORE CASSA DI ESPANSIONE
- TABELLA DI OUTPUT PROFILO LIQUIDO
- PROFILO LONGITUDINALE
- SEZIONI TRASVERSALI

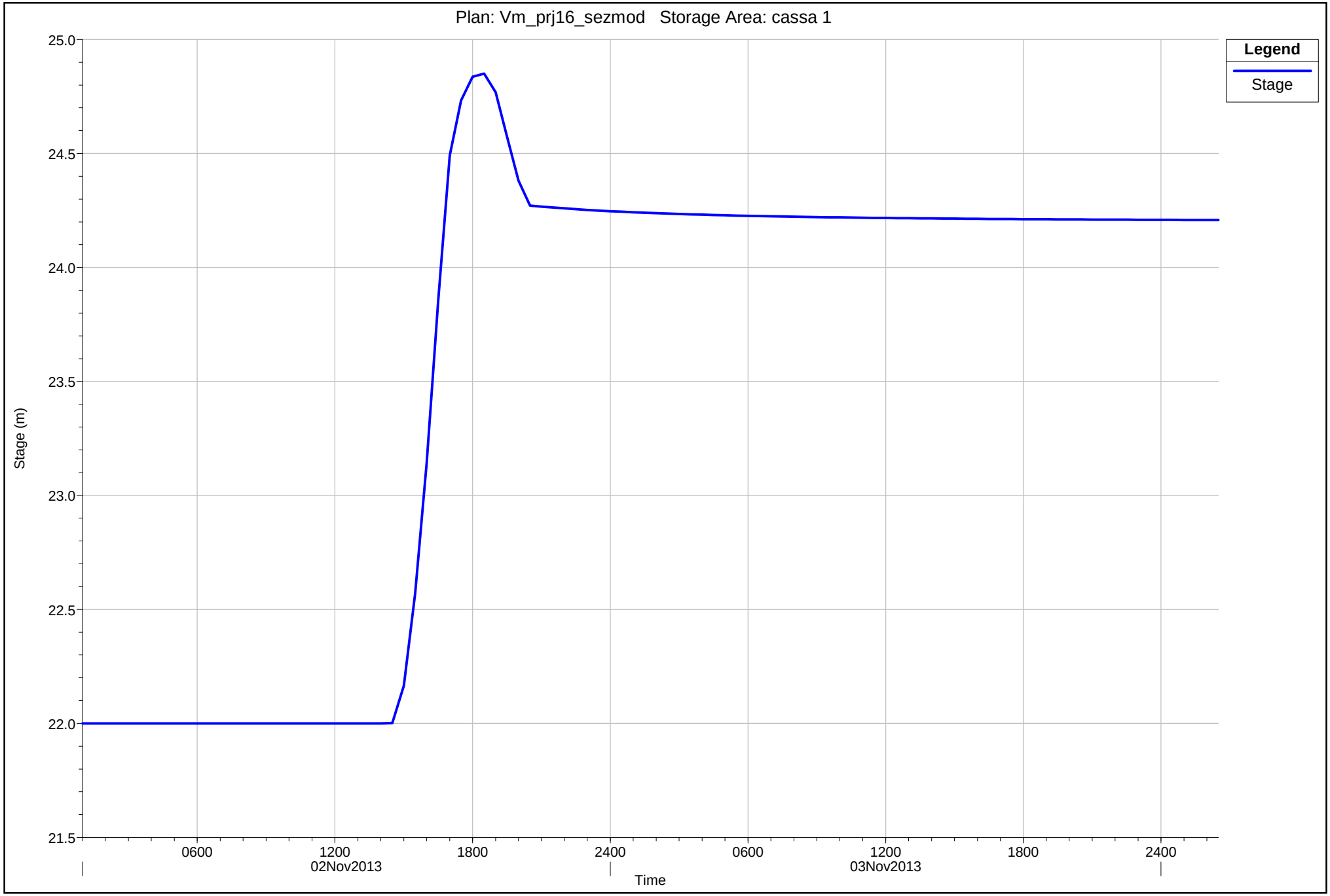
Legenda della tabella di dati relativi alle sezioni	
Reach	Corso d'acqua in esame
River Station	Sezione trasversale
Q Total	Portate del corso d'acqua nella sezione
Min ch elev	Elevazione minima del fondo
W.S. Elev	Elevazione del pelo liquido della corrente
Crit. W.S.	Elevazione dell'altezza critica
E. G. Elev	Elevazione della linea dell'energia totale
E.G Slope	Pendenza della linea dell'energia totale
Vel. Chnl	Velocità dell'acqua nel canale
Flow Area	Sezione liquida della corrente
Top Width	Larghezza in bocca della sezione
Froude#Chl	Numero di Froude della sezione
Legenda del profilo longitudinale del tratto	
WS MAX	Massima altezza del pelo libero raggiunta durante la simulazione
LOB	Profilo dell'argine sinistro
ROB	Profilo dell'argine destro
Legenda dei dati relativi allo sfioratore	
Flow HW US	Idrogramma di piena a monte dello sfioratore
Flow HW DS	Idrogramma di piena a valle dello sfioratore
Legenda della tabella di dati relativi all'area di invaso	
W.S. Elev	Quota del pelo libero (battente) nell'area
Net Flux	Portata in ingresso nell'area
SA Area	Superficie dell'area di invaso
SA Volume	Volume invasato nell'area
Legenda del grafico relativo all'area di invaso	
Stage	Quota del pelo libero (battente) nell'area


Plan: Vm_prj17_2sc River: Madonna Reach: Madonna RS: 136.95
Legend
Flow HW US
Flow HW DS
Flow Leaving
Flow (m3/s)
70
60
50
40
30
20
10
0
-10
0600
1200
1800
2400
0600
1200
1800
2400
0600
02Nov2013
03Nov2013
04Nov2013
Time

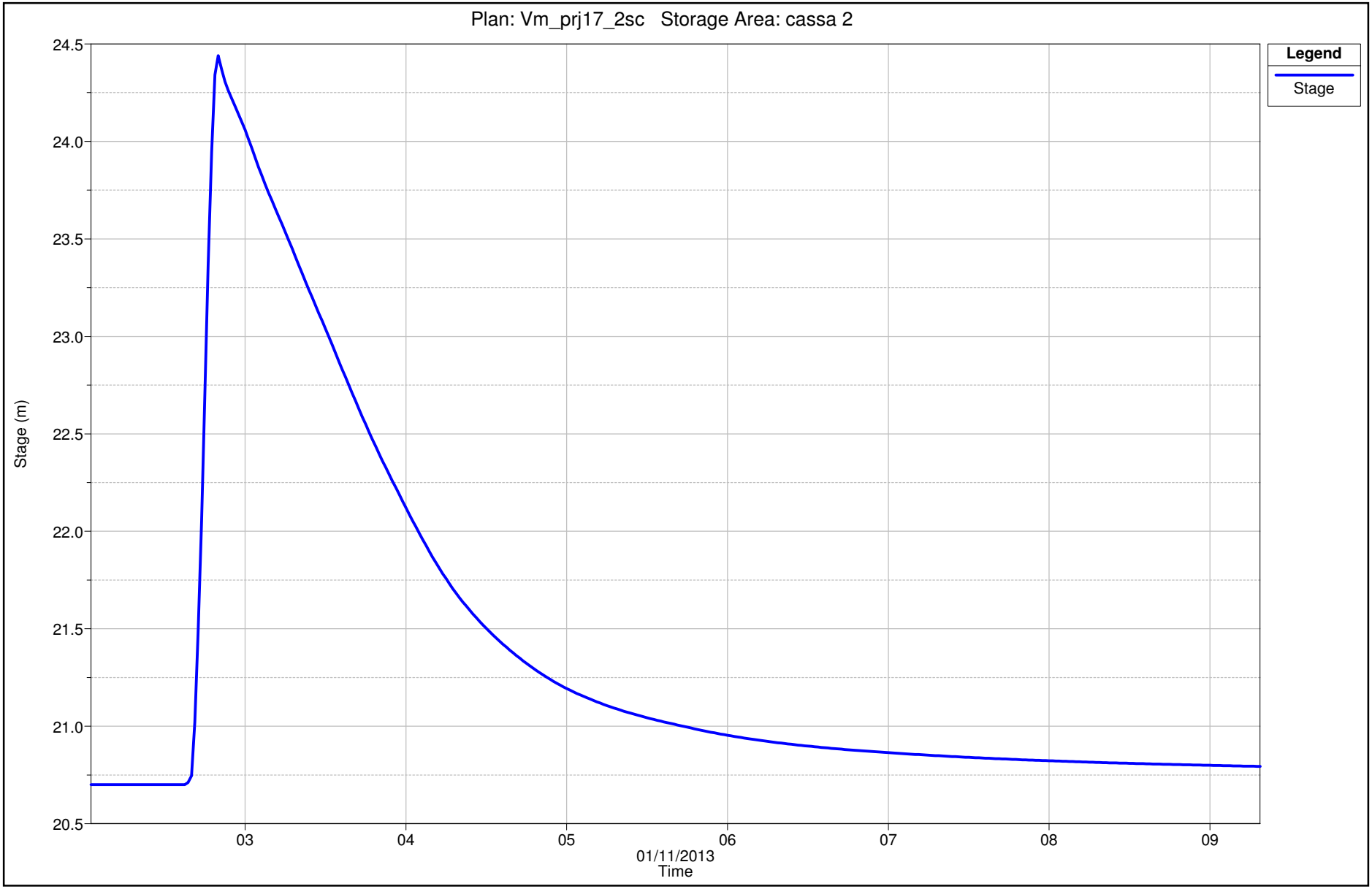
CURVA D'INVASO CASSA 1, con scarichi di fondo



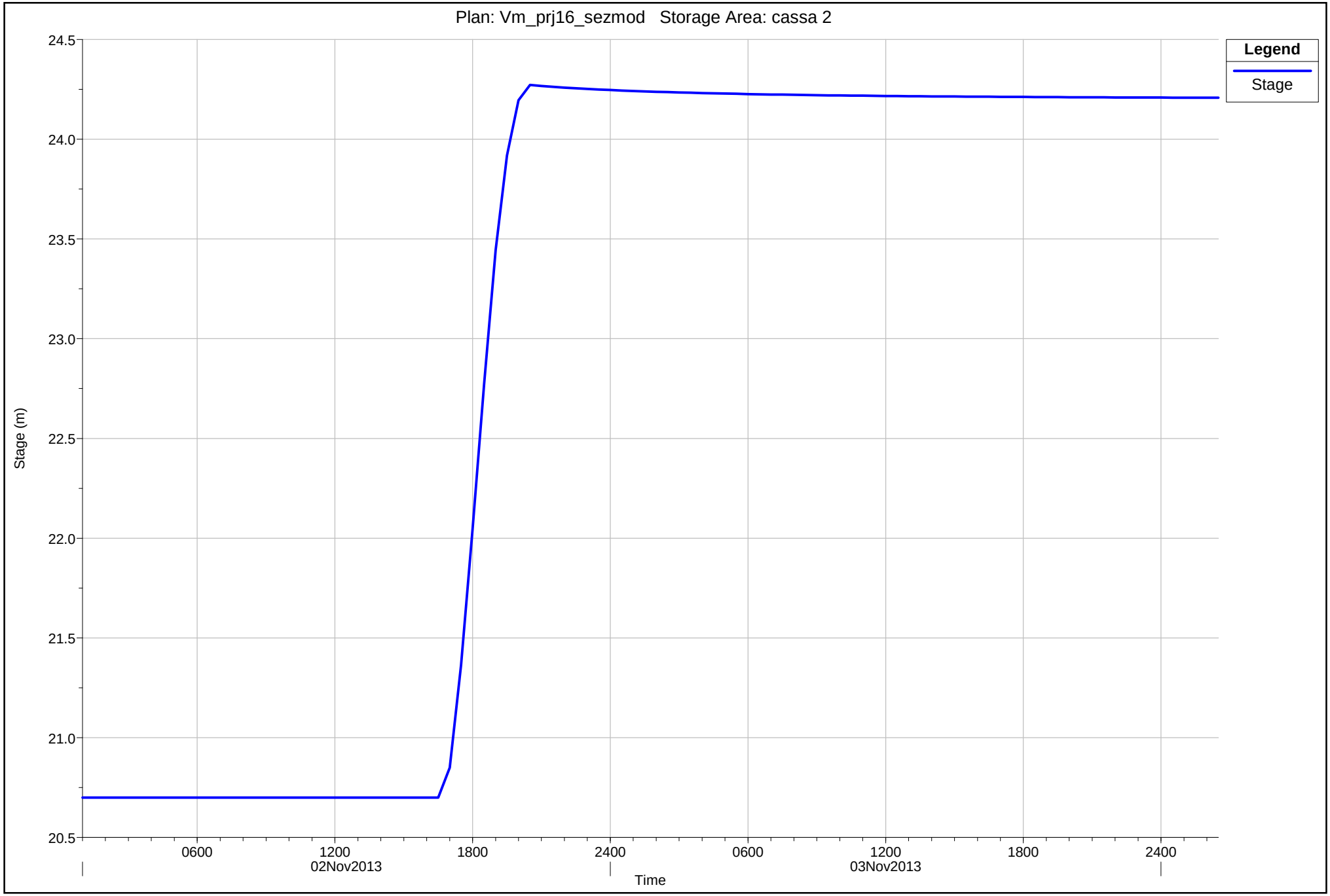
CURVA D'INVASO CASSA 1, senza scarichi di fondo



CURVA D'INVASO CASSA 2, con scarichi di fondo



CURVA D'INVASO CASSA 2, senza scarichi di fondo



HEC-RAS Plan: Vm_prj17_2sc River: Madonna Reach: Madonna Profile: Max WS

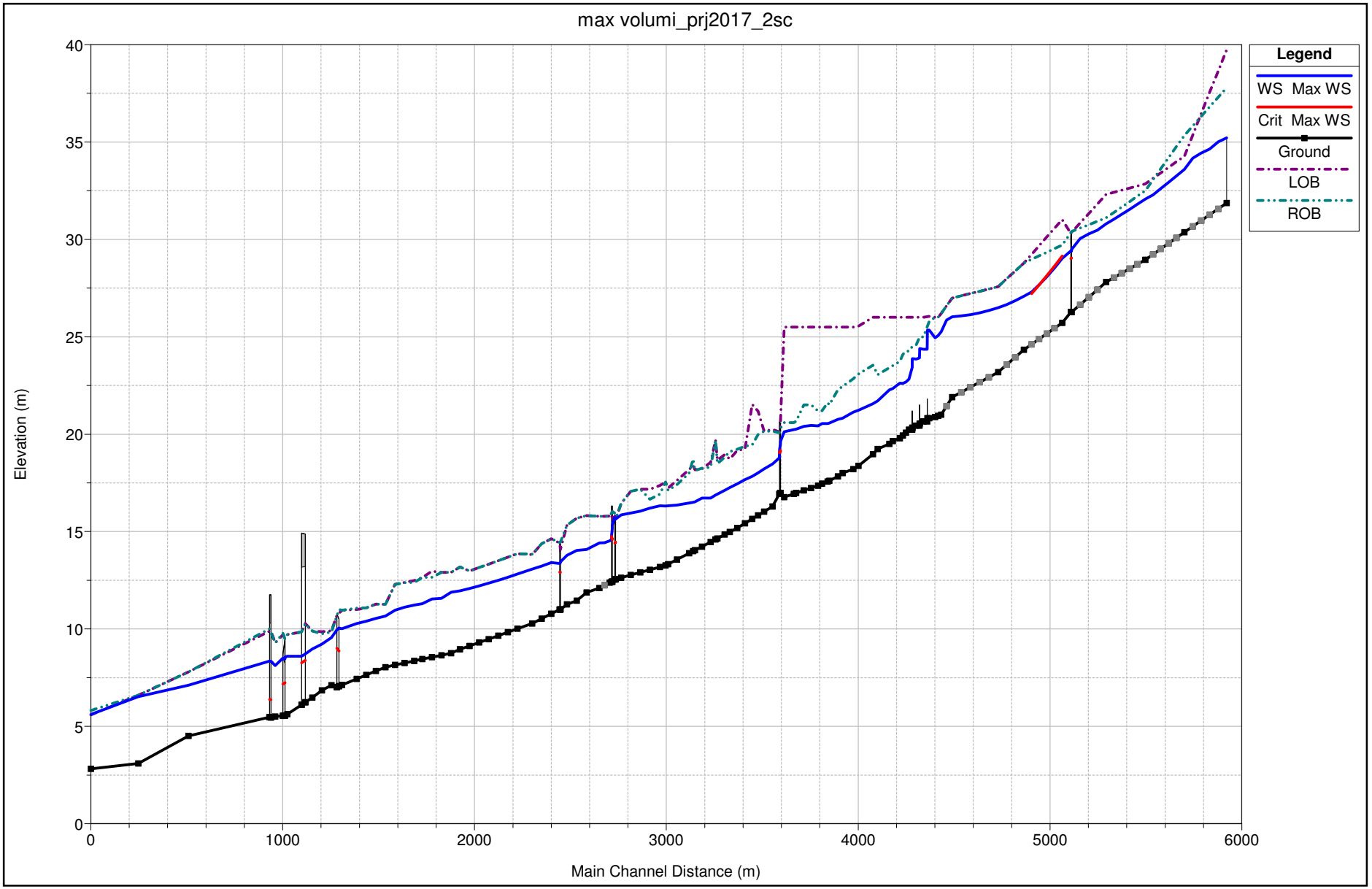
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev
			(m3/s)	(m)	(m)	(m)	(m)
Madonna	144.1	Max WS	65.72	31.87	35.21		35.48
Madonna	144.08*	Max WS	65.70	31.57	35.01		35.37
Madonna	144.06*	Max WS	65.68	31.27	34.64		35.19
Madonna	144.04*	Max WS	65.67	30.97	34.44		34.91
Madonna	144.02*	Max WS	65.67	30.67	34.17		34.67
Madonna	144	Max WS	65.66	30.37	33.60		34.46
Madonna	143.82*	Max WS	65.66	30.08	33.26		34.08
Madonna	143.64*	Max WS	65.66	29.80	32.94		33.71
Madonna	143.46*	Max WS	65.65	29.52	32.61		33.35
Madonna	143.28*	Max WS	65.65	29.23	32.29		33.01
Madonna	143.1	Max WS	65.64	28.95	32.07		32.67
Madonna	143.08*	Max WS	65.64	28.72	31.80		32.43
Madonna	143.06*	Max WS	65.64	28.50	31.55		32.18
Madonna	143.04*	Max WS	65.63	28.27	31.29		31.92
Madonna	143.02*	Max WS	65.63	28.04	31.04		31.66
Madonna	143	Max WS	65.62	27.81	30.80		31.41
Madonna	142.775*	Max WS	65.62	27.42	30.47		31.13
Madonna	142.55*	Max WS	65.62	27.04	30.29		30.82
Madonna	142.325*	Max WS	65.62	26.66	30.04		30.58
Madonna	142.1	Max WS	65.62	26.27	29.48	29.05	30.42
Madonna	142		Bridge				
Madonna	141.9	Max WS	65.62	26.27	29.41		30.36
Madonna	141	Max WS	65.62	25.71	29.03	29.14	30.12
Madonna	140.8*	Max WS	65.62	25.44	28.54	28.64	29.59
Madonna	140.6*	Max WS	65.61	25.16	28.08	28.14	29.08
Madonna	140.4*	Max WS	65.61	24.89	27.67	27.66	28.59
Madonna	140.2*	Max WS	65.61	24.61	27.30	27.22	28.13
Madonna	140	Max WS	65.52	24.34	27.08		27.72
Madonna	139.7*	Max WS	65.49	23.95	26.85		27.45
Madonna	139.4*	Max WS	65.50	23.57	26.65		27.21
Madonna	139.1	Max WS	65.46	23.18	26.50		27.00
Madonna	139.06*	Max WS	65.47	22.92	26.35		26.80
Madonna	139.02*	Max WS	65.46	22.67	26.23		26.63
Madonna	138.98*	Max WS	65.41	22.41	26.14		26.49
Madonna	138.94*	Max WS	65.27	22.16	26.08		26.37
Madonna	138.9	Max WS	65.15	21.90	26.03		26.28
Madonna	138.45*	Max WS	65.11	21.45	25.86		26.21
Madonna	138	Max WS	65.02	21.00	25.26		26.11
Madonna	137	Max WS	64.57	20.94	25.07		26.05
Madonna	136.95		Lat Struct				
Madonna	136.8	Max WS	60.28	20.88	24.95		25.84
Madonna	135.6	Max WS	41.68	20.82	25.34	23.89	25.65
Madonna	133.130		Inl Struct				
Madonna	133.12	Max WS	40.26	20.65	24.36		24.76
Madonna	133.116	Max WS	40.27	20.55	24.40	23.43	24.64
Madonna	133.1155		Inl Struct				
Madonna	133.115	Max WS	40.24	20.44	23.85		24.21
Madonna	133.114	Max WS	40.29	20.34	23.87	22.94	24.11
Madonna	133.112		Inl Struct				
Madonna	133.11	Max WS	40.23	20.23	22.82	22.81	23.60
Madonna	133.10	Max WS	40.16	20.08	22.68		23.38
Madonna	133.09	Max WS	40.13	19.94	22.61		23.18
Madonna	133	Max WS	40.13	19.79	22.62		23.06
Madonna	132.9	Max WS	40.11	19.65	22.34		22.86
Madonna	132.8	Max WS	40.10	19.50	22.27		22.74

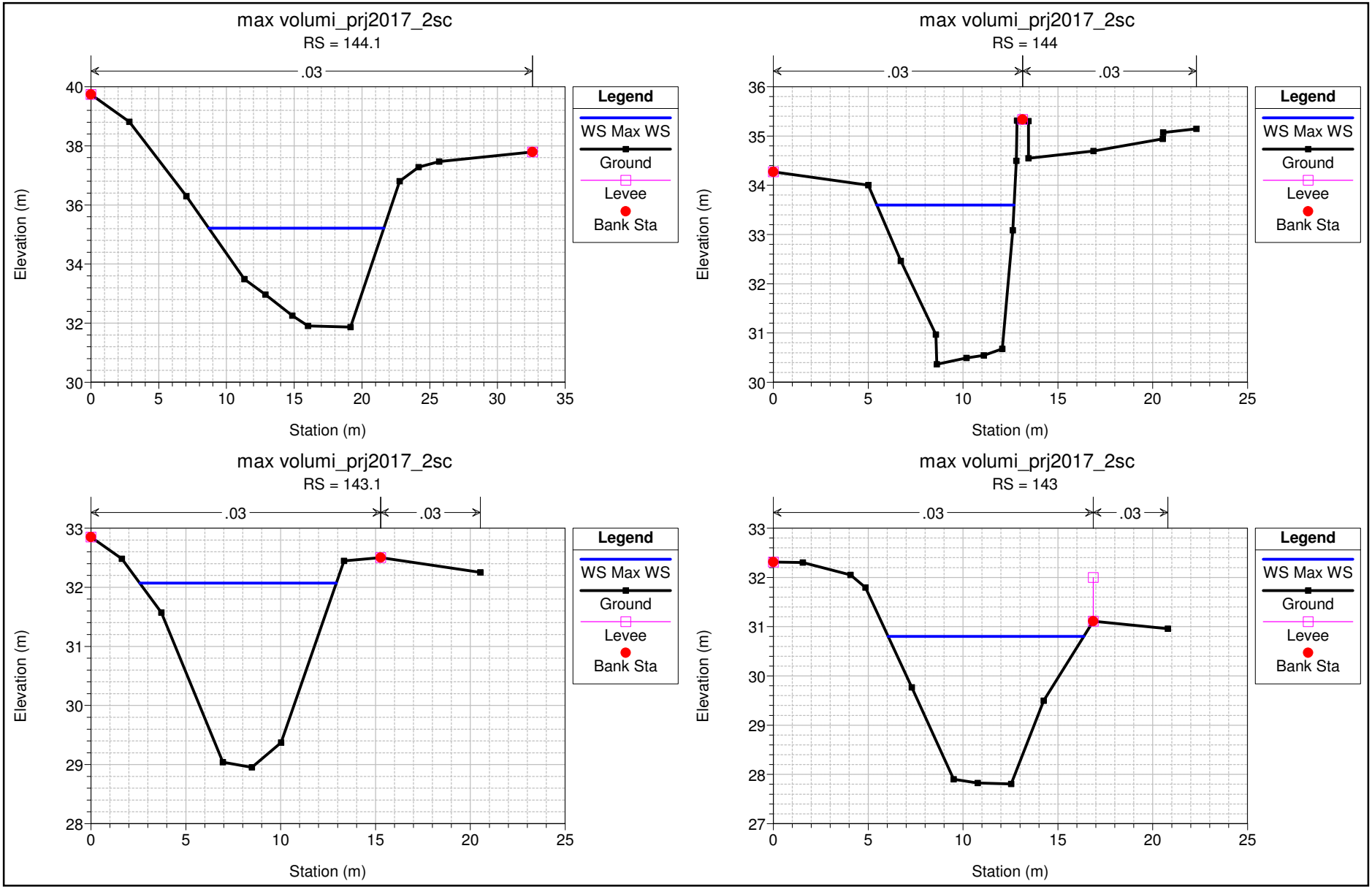
HEC-RAS Plan: Vm_prj17_2sc River: Madonna Reach: Madonna Profile: Max WS (Continued)

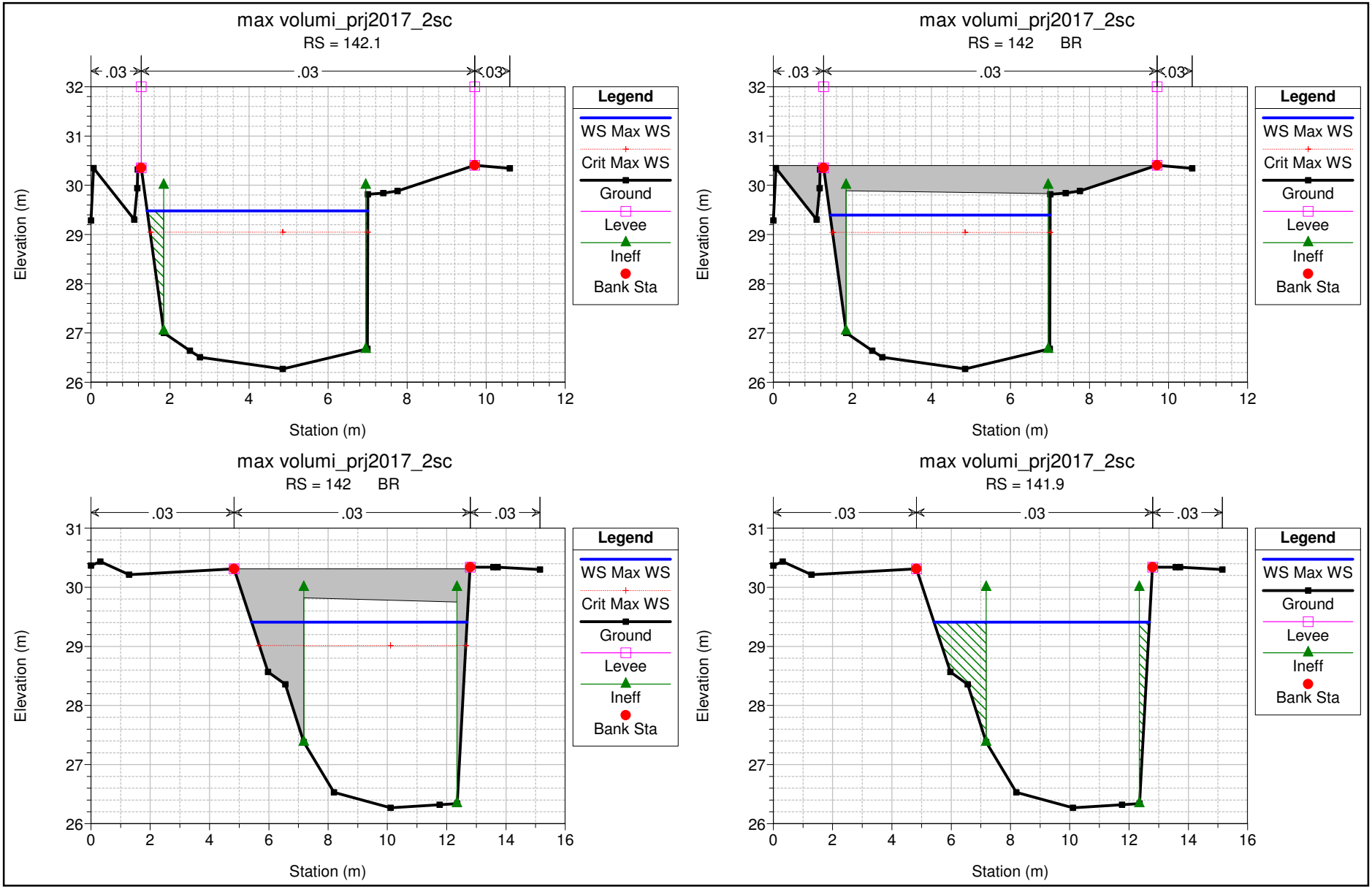
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev
			(m3/s)	(m)	(m)	(m)	(m)
Madonna	132.7	Max WS	40.10	19.24	21.71		22.38
Madonna	132	Max WS	40.03	18.98	21.57		22.15
Madonna	131.6	Max WS	40.03	18.38	21.23		21.65
Madonna	131	Max WS	40.02	18.21	21.13		21.53
Madonna	130.5	Max WS	40.01	18.00	20.82		21.26
Madonna	130.45	Max WS	40.00	17.83	20.76		21.14
Madonna	130.4	Max WS	39.97	17.61	20.58		20.95
Madonna	130.36	Max WS	39.97	17.57	20.54		20.92
Madonna	130.35		Lat Struct				
Madonna	130.3	Max WS	41.92	17.46	20.55		20.79
Madonna	130	Max WS	41.91	17.36	20.43		20.74
Madonna	129.8	Max WS	41.86	17.23	20.45		20.64
Madonna	129.7	Max WS	41.85	17.11	20.40		20.58
Madonna	129.2	Max WS	41.84	16.98	20.25		20.50
Madonna	129.1	Max WS	41.84	16.93	20.23		20.47
Madonna	129	Max WS	41.82	16.77	20.13		20.36
Madonna	128.1	Max WS	41.82	16.98	19.62	19.17	20.37
Madonna	128		Bridge				
Madonna	127.9	Max WS	41.81	16.93	18.78	19.07	20.23
Madonna	127.1	Max WS	41.81	16.29	18.48		18.95
Madonna	127	Max WS	41.81	16.02	18.22		18.68
Madonna	126.3	Max WS	41.80	15.83	18.02		18.49
Madonna	126.2	Max WS	41.79	15.65	17.83		18.31
Madonna	126.1	Max WS	41.79	15.43	17.67		18.09
Madonna	126	Max WS	41.77	15.18	17.45		17.87
Madonna	125.9	Max WS	41.77	14.98	17.26		17.68
Madonna	125.8	Max WS	41.76	14.85	17.12		17.54
Madonna	125.7	Max WS	41.74	14.65	16.92		17.34
Madonna	125.1	Max WS	41.74	14.60	16.87		17.29
Madonna	125.06	Max WS	41.71	14.47	16.72		17.15
Madonna	125.04	Max WS	41.66	14.23	16.72		16.96
Madonna	125.02	Max WS	41.65	14.05	16.53		16.85
Madonna	125	Max WS	41.61	14.00	16.50		16.81
Madonna	124.5	Max WS	41.60	13.89	16.46		16.75
Madonna	124.3	Max WS	41.54	13.56	16.37		16.58
Madonna	124.1	Max WS	41.54	13.32	16.32		16.50
Madonna	124	Max WS	41.54	13.26	16.31		16.47
Madonna	123.2	Max WS	41.53	13.18	16.33		16.44
Madonna	123.1	Max WS	41.52	13.04	16.20		16.37
Madonna	123	Max WS	41.51	12.90	16.04		16.28
Madonna	122.1	Max WS	41.50	12.77	15.95		16.17
Madonna	122	Max WS	41.49	12.63	15.85		16.07
Madonna	121.1	Max WS	41.13	12.55	15.64	14.45	15.98
Madonna	121		Bridge				
Madonna	120.9	Max WS	41.51	12.55	15.72		15.97
Madonna	120.1	Max WS	41.51	12.43	15.31	14.64	15.96
Madonna	120		Bridge				
Madonna	119.9	Max WS	41.50	12.43	14.61	14.75	15.87
Madonna	119	Max WS	41.50	12.38	14.52		15.12
Madonna	118.5*	Max WS	41.47	12.24	14.43		14.91
Madonna	118	Max WS	41.47	12.10	14.41		14.77
Madonna	117.1	Max WS	41.39	11.88	14.08		14.48
Madonna	117	Max WS	41.39	11.45	14.04		14.30
Madonna	116.2	Max WS	41.35	11.26	13.78		14.14
Madonna	116.1	Max WS	41.35	11.00	13.44	12.91	14.03

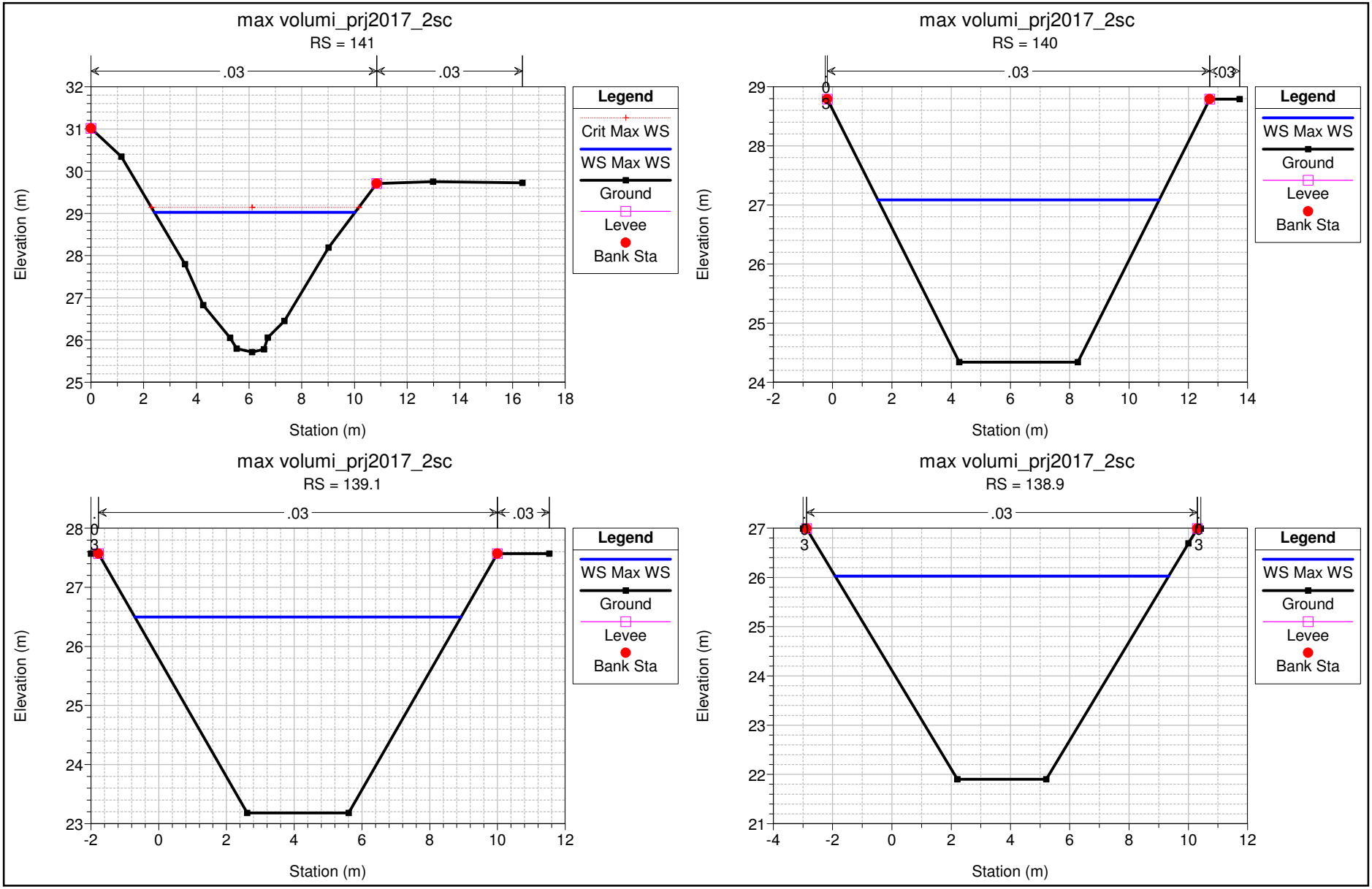
HEC-RAS Plan: Vm_prj17_2sc River: Madonna Reach: Madonna Profile: Max WS (Continued)

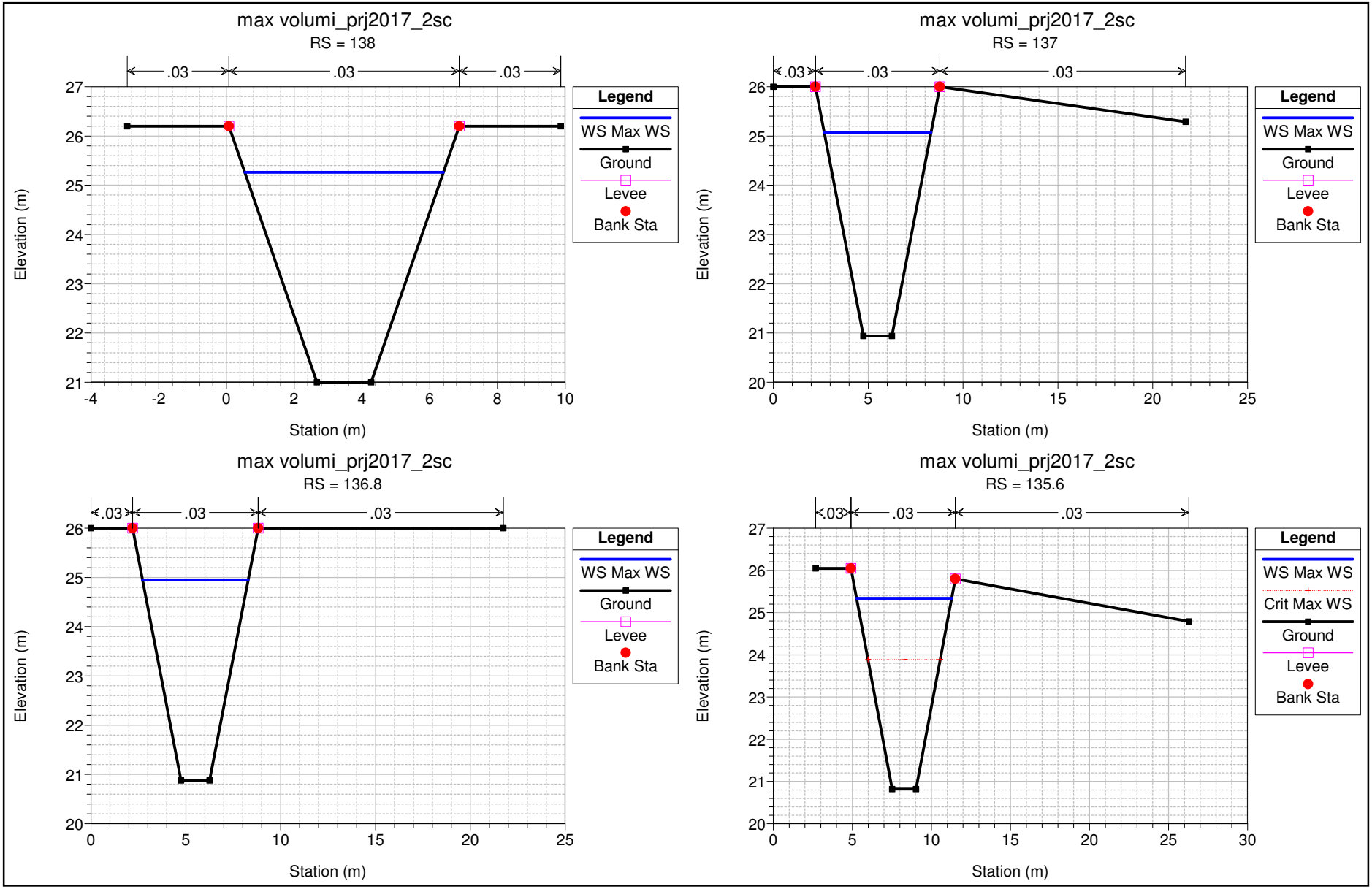
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev
			(m3/s)	(m)	(m)	(m)	(m)
Madonna	116		Bridge				
Madonna	115.9	Max WS	41.35	11.00	13.37		13.99
Madonna	115.2	Max WS	41.34	10.78	13.41		13.81
Madonna	115.1	Max WS	41.33	10.53	13.23		13.59
Madonna	115	Max WS	41.32	10.28	13.08		13.41
Madonna	114.6	Max WS	41.30	10.01	12.82		13.15
Madonna	114.5	Max WS	41.29	9.84	12.66		12.98
Madonna	114.4	Max WS	41.29	9.66	12.50		12.82
Madonna	114.3	Max WS	41.27	9.48	12.35		12.66
Madonna	114.2	Max WS	41.26	9.31	12.21		12.51
Madonna	114.1	Max WS	41.25	9.13	12.08		12.36
Madonna	114	Max WS	41.25	8.96	11.96		12.23
Madonna	113.3	Max WS	41.24	8.76	11.88		12.12
Madonna	113.2	Max WS	41.23	8.65	11.58		11.97
Madonna	113.1	Max WS	41.23	8.55	11.53		11.80
Madonna	113	Max WS	41.22	8.46	11.30		11.64
Madonna	112.8	Max WS	41.21	8.36	11.23		11.51
Madonna	112.7	Max WS	41.21	8.25	11.11		11.37
Madonna	112.6	Max WS	41.20	8.15	10.97		11.24
Madonna	112.1	Max WS	41.20	8.04	10.66		11.06
Madonna	112.05	Max WS	41.19	7.84	10.55		10.86
Madonna	112.04	Max WS	41.18	7.64	10.40		10.70
Madonna	112.03	Max WS	41.18	7.44	10.28		10.55
Madonna	112	Max WS	41.17	7.13	10.01		10.32
Madonna	111.1	Max WS	41.18	7.06	10.04	8.87	10.28
Madonna	111		Bridge				
Madonna	110.9	Max WS	41.17	7.02	9.95		10.26
Madonna	110.2	Max WS	41.17	7.12	9.55		10.20
Madonna	110.1	Max WS	41.17	6.85	9.22		9.80
Madonna	110	Max WS	41.16	6.48	8.97		9.45
Madonna	109.3	Max WS	41.16	6.24	8.72	8.39	9.24
Madonna	109.2		Bridge				
Madonna	109.1	Max WS	41.14	6.11	8.59		9.12
Madonna	109	Max WS	41.13	5.62	8.60		8.78
Madonna	108.1	Max WS	41.13	5.55	8.57	7.24	8.76
Madonna	108		Bridge				
Madonna	107.9	Max WS	41.11	5.54	8.50		8.71
Madonna	107	Max WS	41.06	5.50	8.12		8.58
Madonna	106.1	Max WS	41.07	5.46	8.35	6.37	8.39
Madonna	106		Bridge				
Madonna	105.9	Max WS	41.07	5.47	8.34		8.39
Madonna	105	Max WS	41.06	4.51	7.12		7.51
Madonna	104	Max WS	41.06	3.09	6.53		6.72
Madonna	103	Max WS	41.06	2.82	5.61	5.25	5.82

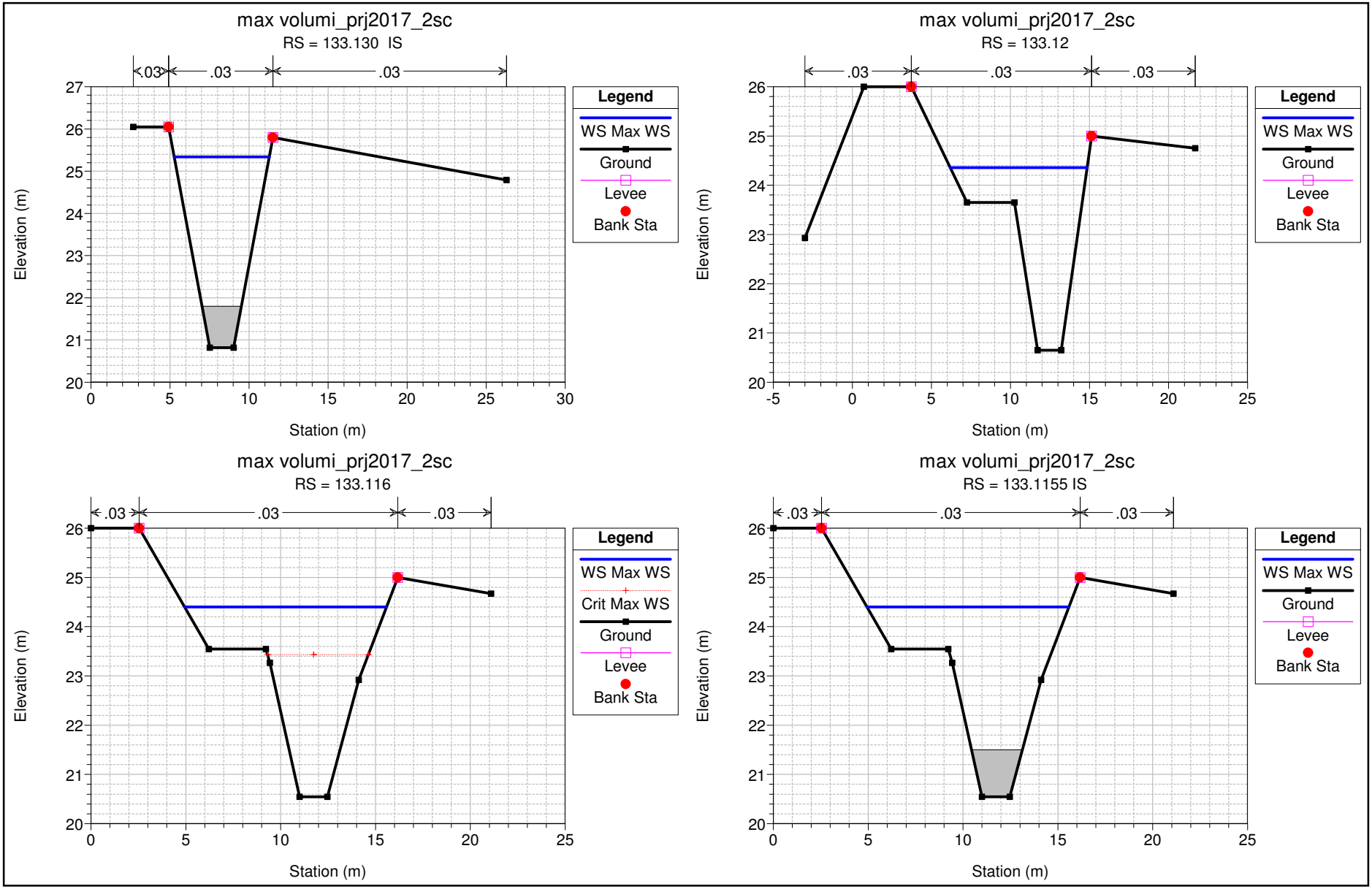

max volumi_prj2017_2sc
Legend
WS Max WS
Crit Max WS
Ground
LOB
ROB
Elevation (m)
Main Channel Distance (m)
0
5
10
15
20
25
30
35
40
0
1000
2000
3000
4000
5000
6000

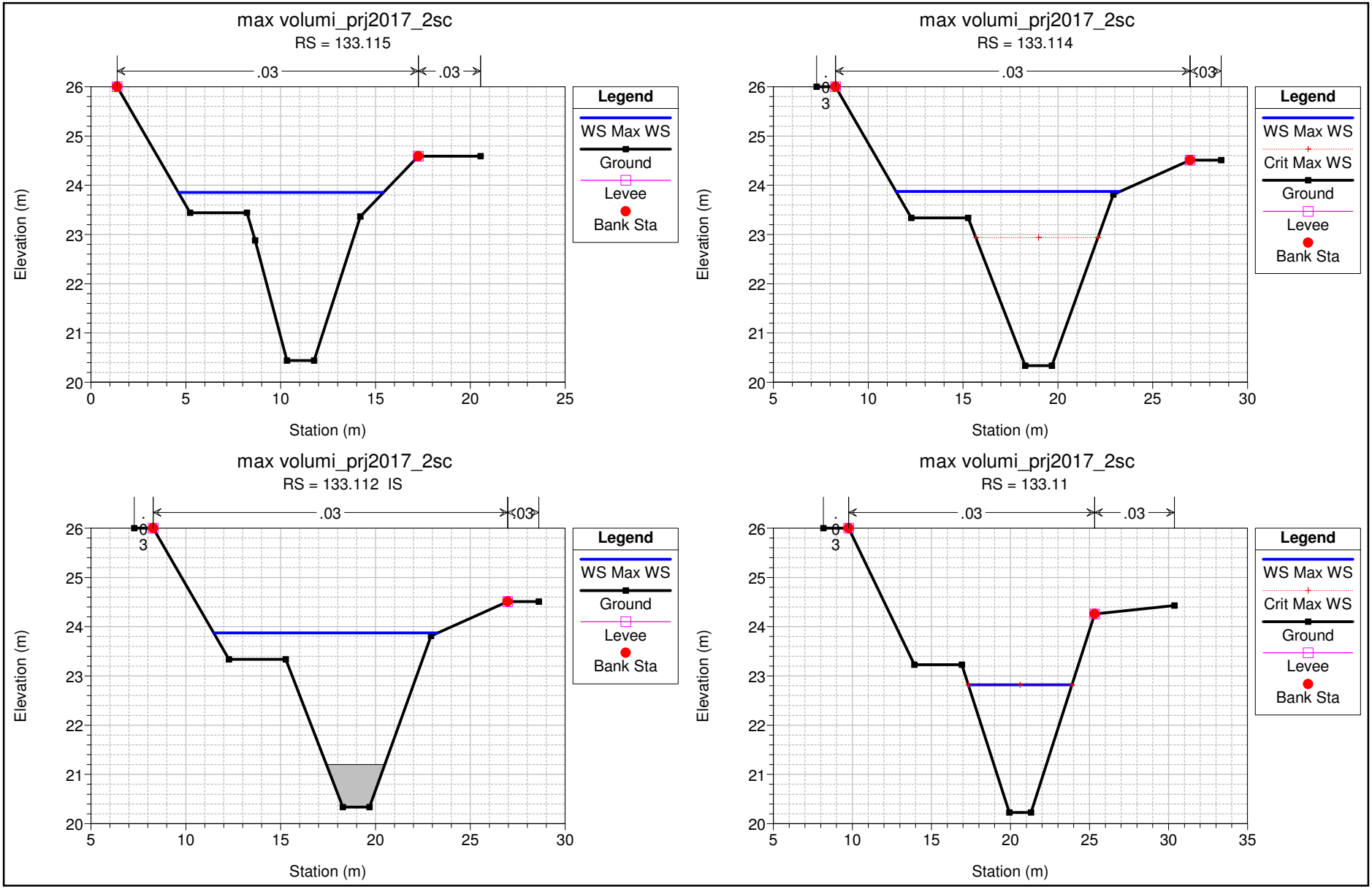

max volumi_prj2017_2sc
RS = 144.1
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 144
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 143.1
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 143
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

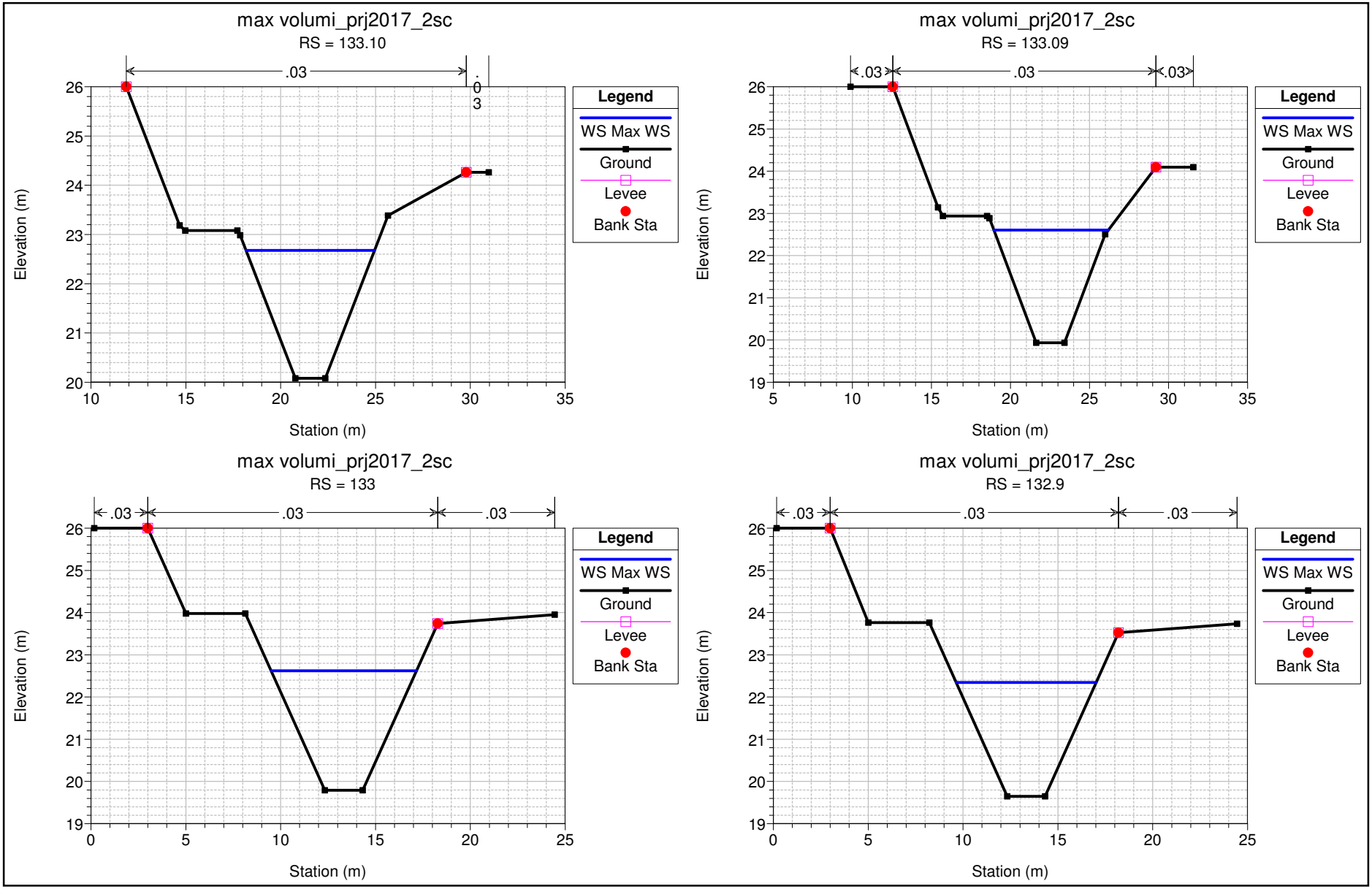

max volumi_prj2017_2sc
RS = 142.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max volumi_prj2017_2sc
RS = 142 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max volumi_prj2017_2sc
RS = 142 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max volumi_prj2017_2sc
RS = 141.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Ineff
Bank Sta

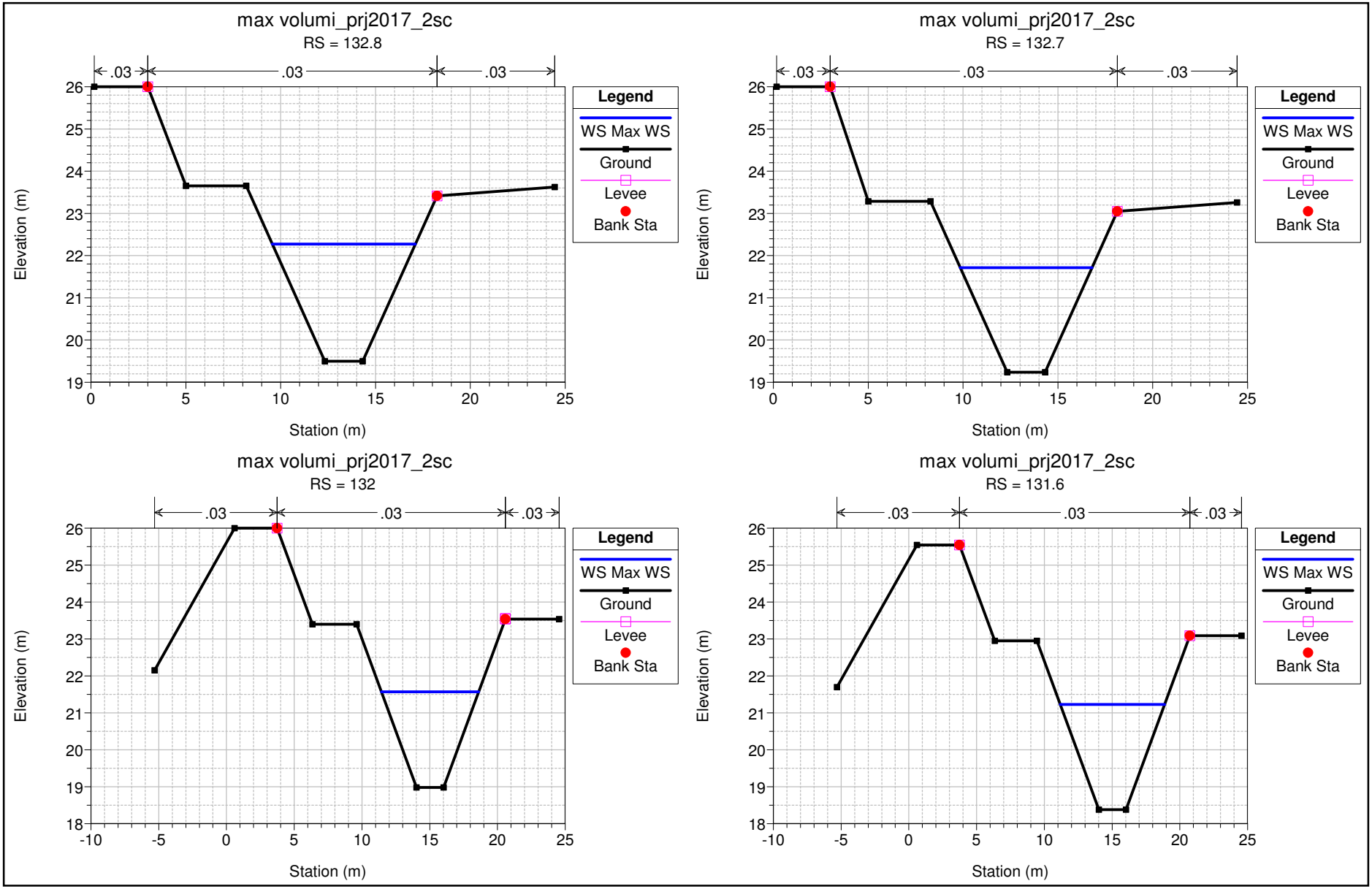

max volumi_prj2017_2sc
RS = 141
.03
.03
Elevation (m)
Station (m)
Legend
Crit Max WS
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 140
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 139.1
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 138.9
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

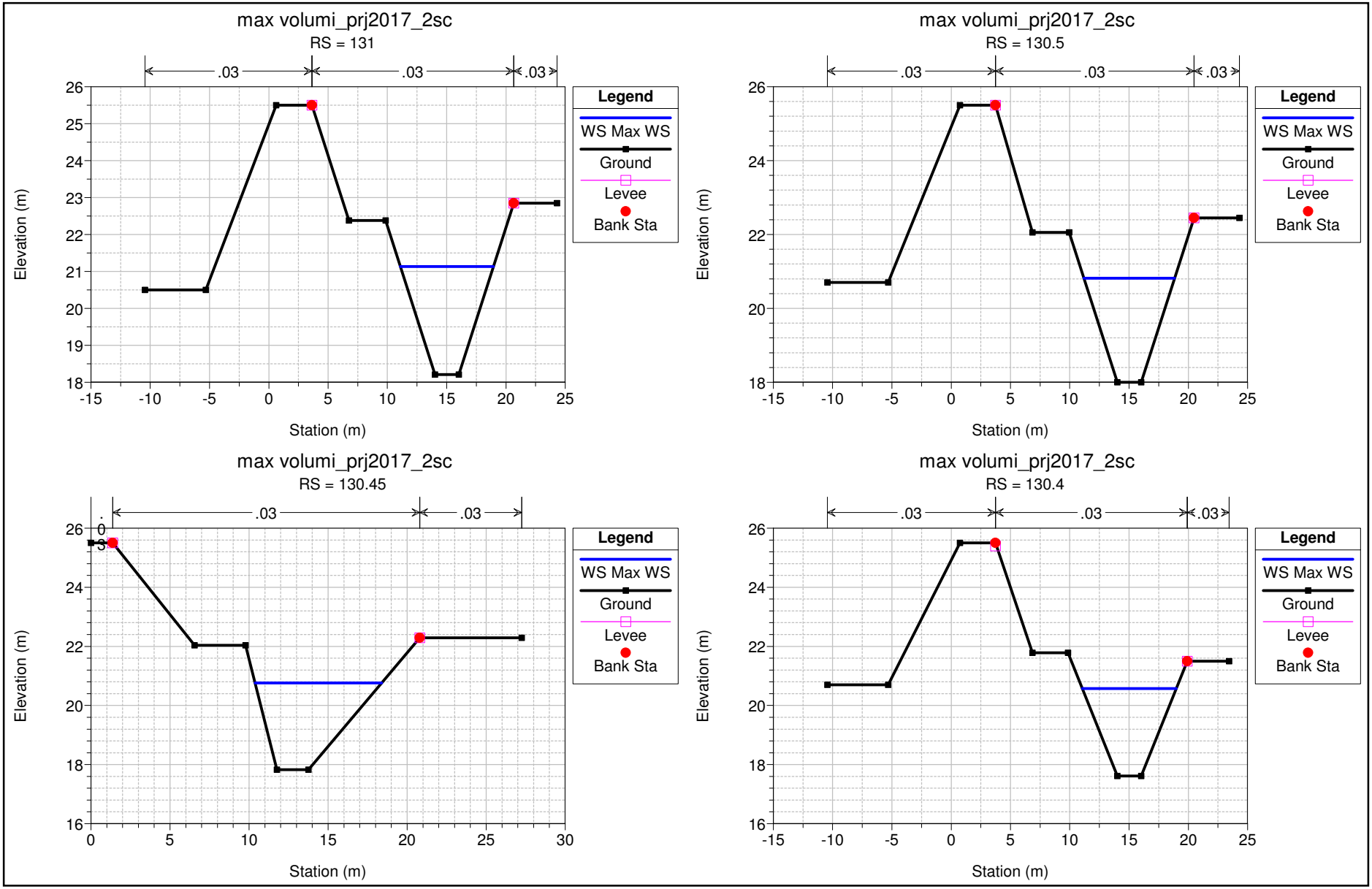

max volumi_prj2017_2sc
RS = 138
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 137
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 136.8
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 135.6
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta

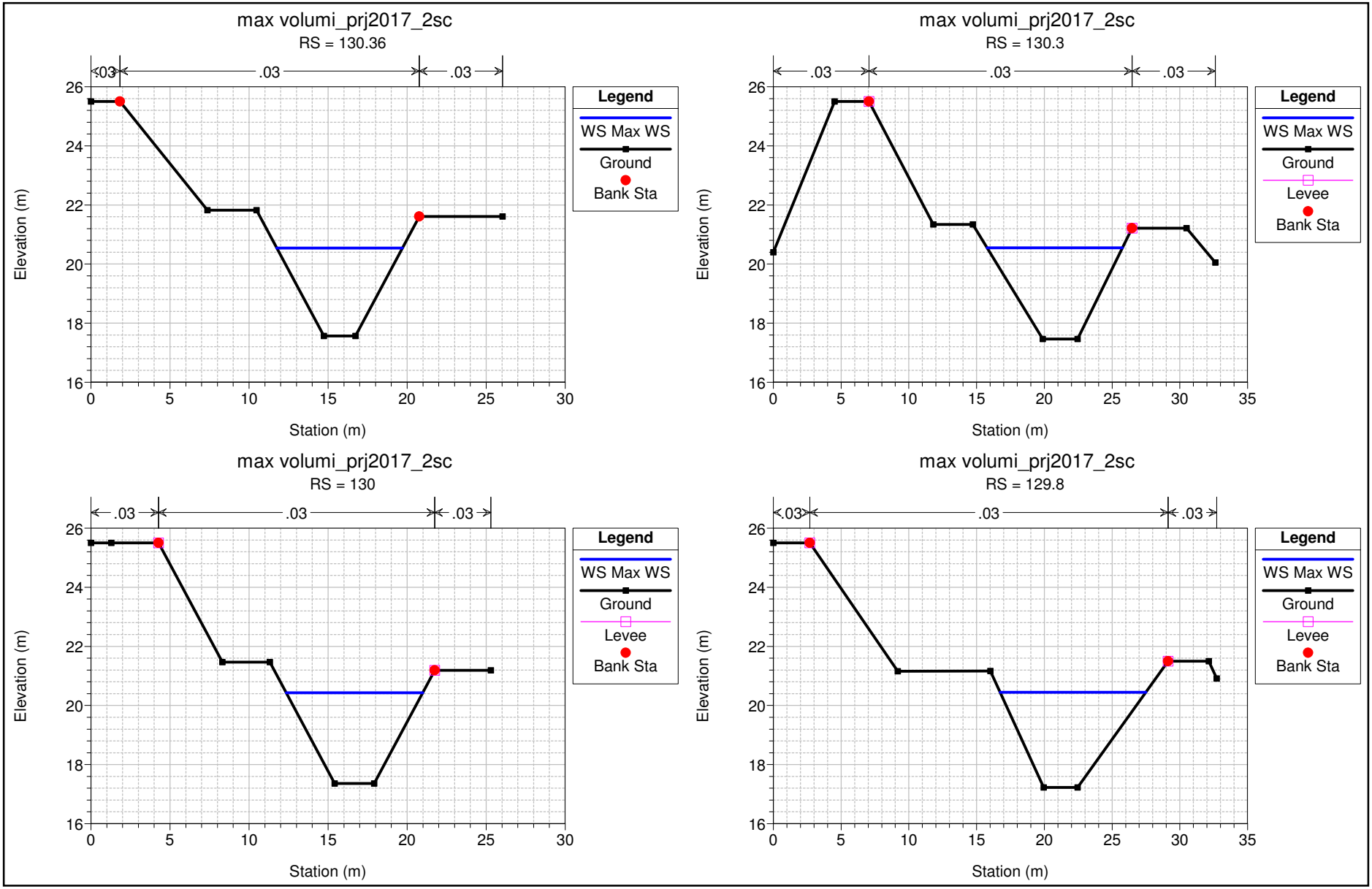

max volumi_prj2017_2sc
RS = 133.130 IS
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 133.12
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 133.116
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 133.1155 IS
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

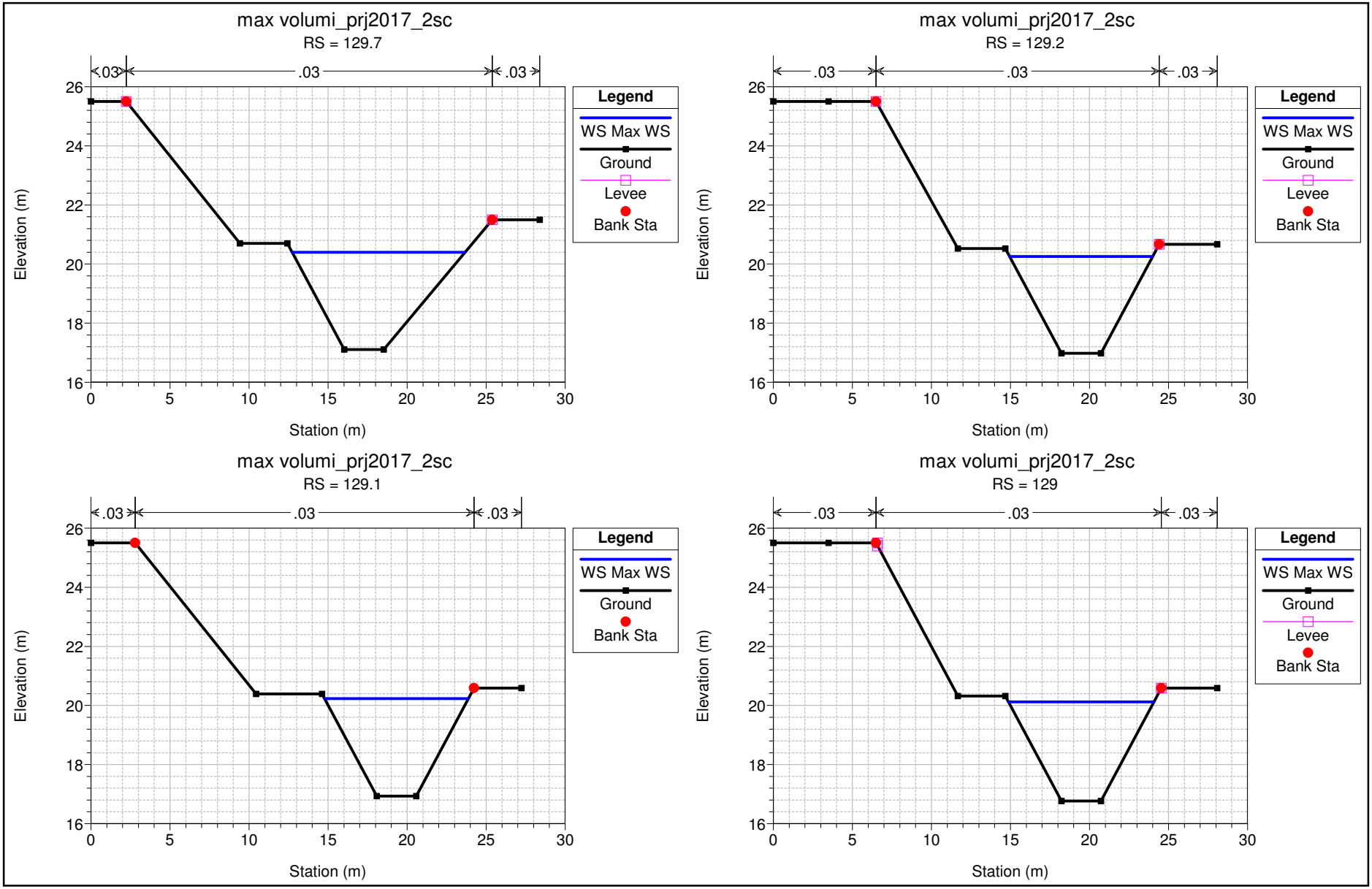

max volumi_prj2017_2sc
RS = 133.115
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 133.114
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 133.112 IS
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 133.11
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta

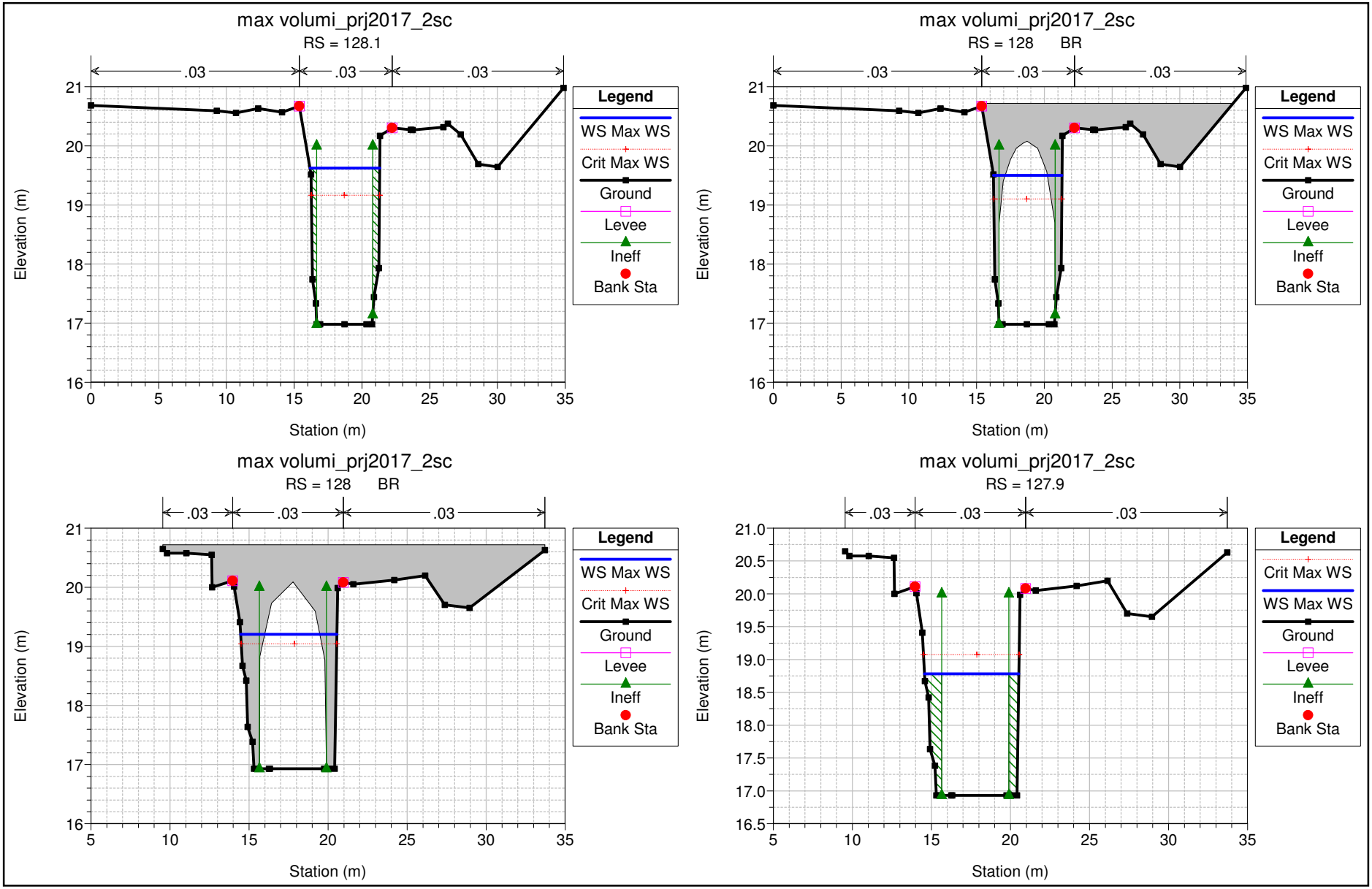

max volumi_prj2017_2sc
RS = 133.10
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 133.09
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 133
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 132.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

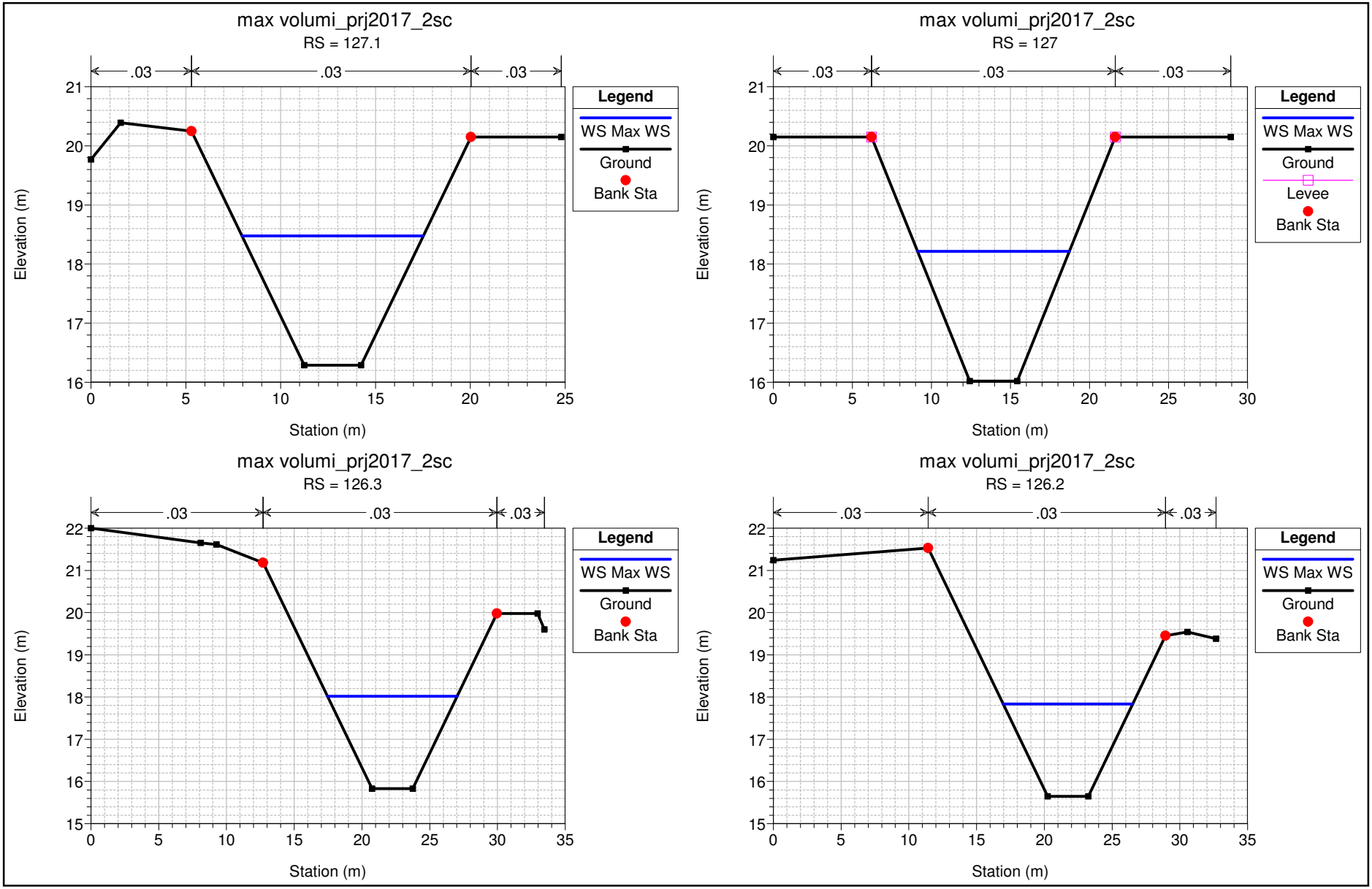

max volumi_prj2017_2sc
RS = 132.8
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 132.7
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 132
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 131.6
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

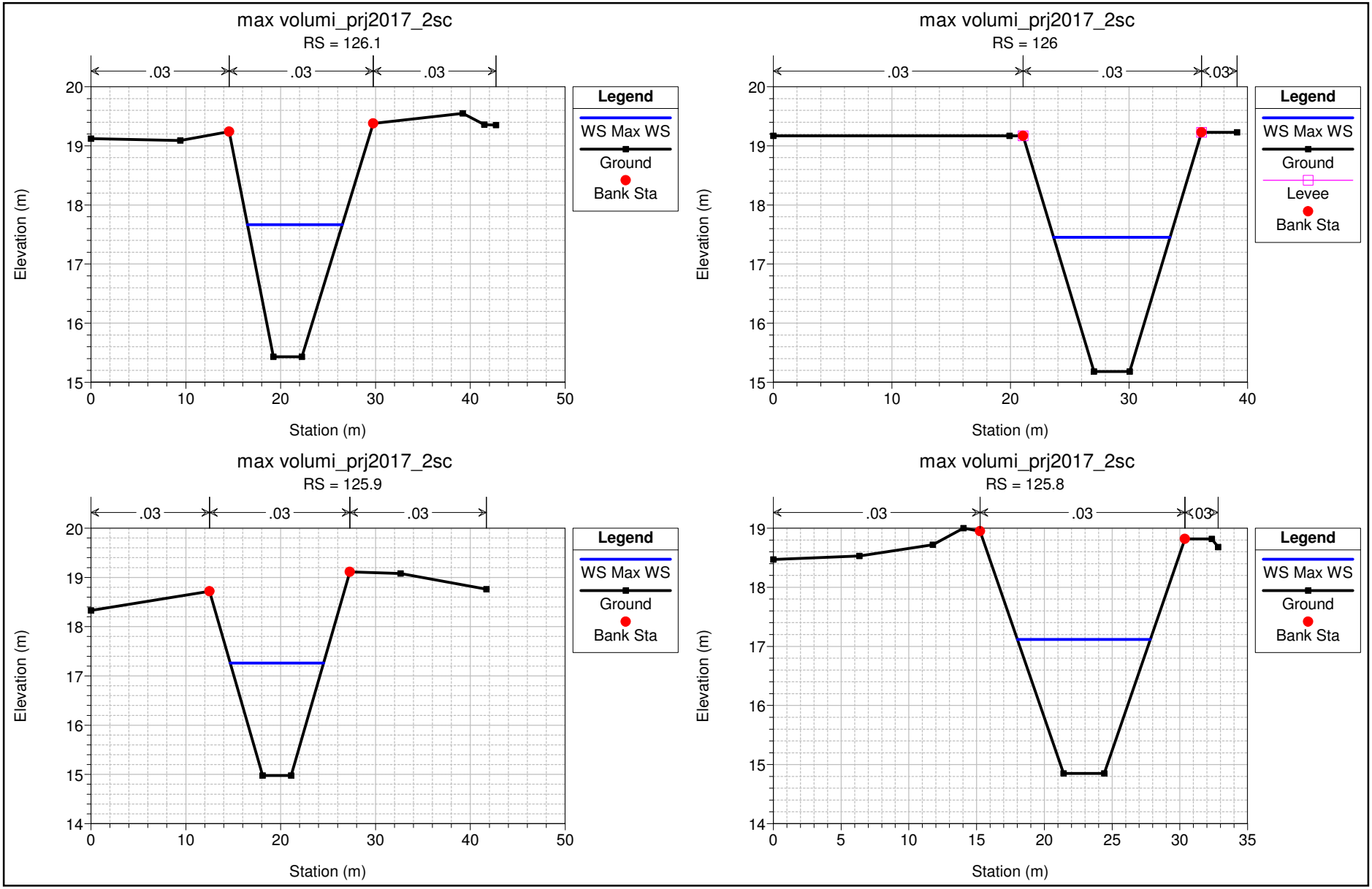

max volumi_prj2017_2sc
RS = 131
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 130.5
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 130.45
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 130.4
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

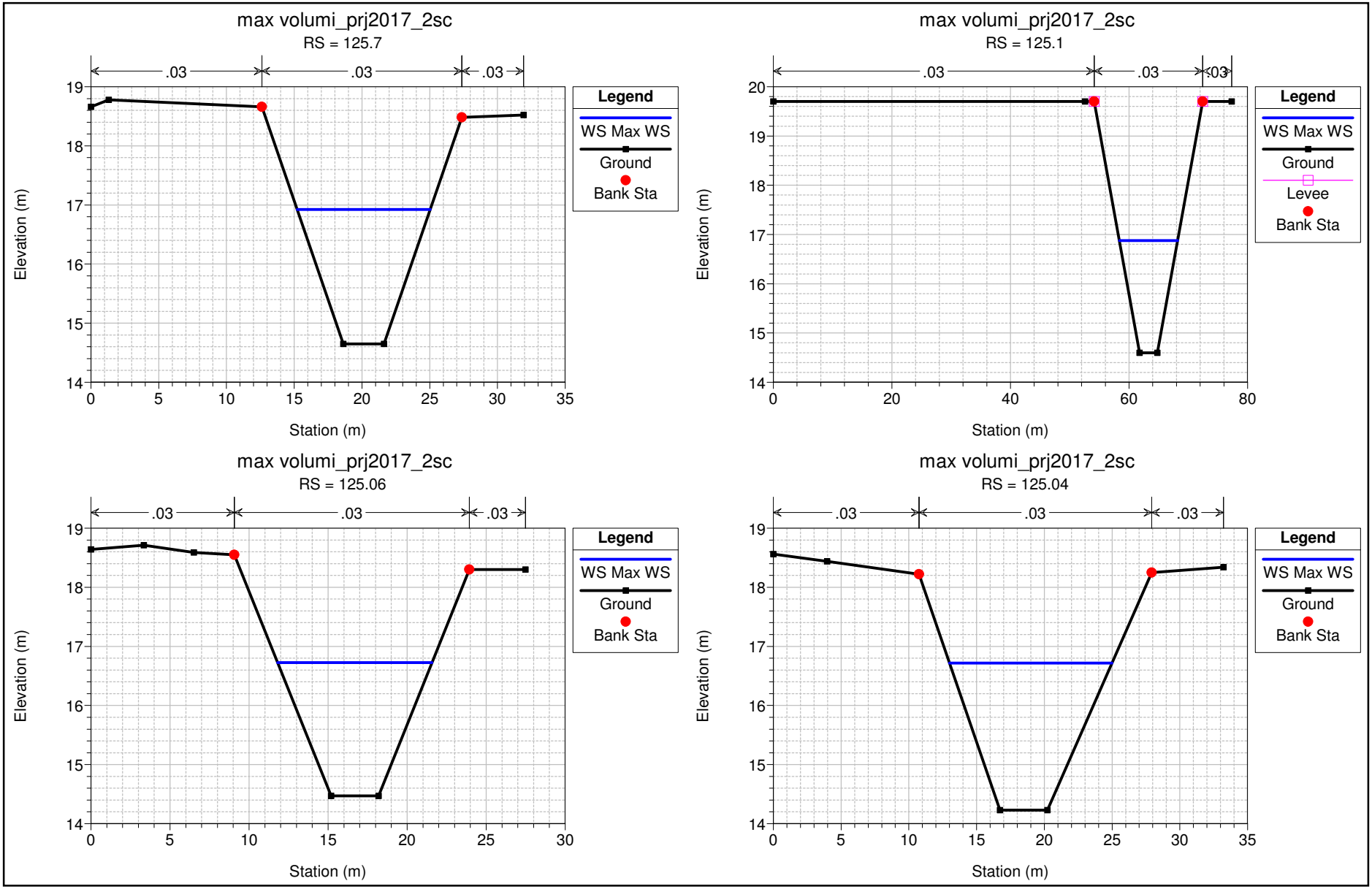

max volumi_prj2017_2sc
RS = 130.36
.03
.03
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 130.3
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 130
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 129.8
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

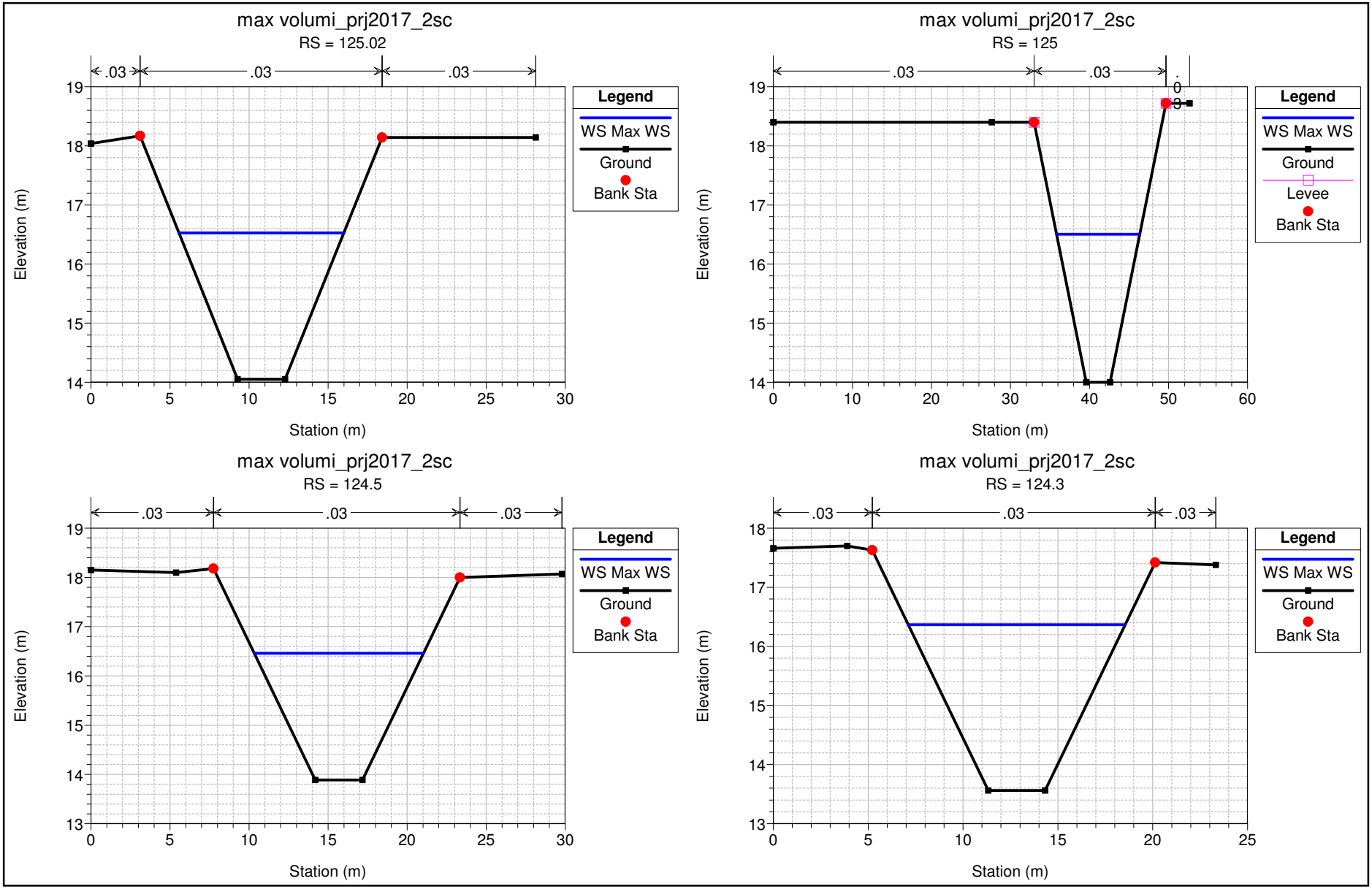

max volumi_prj2017_2sc
RS = 129.7
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 129.2
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 129.1
.03
.03
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 129
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

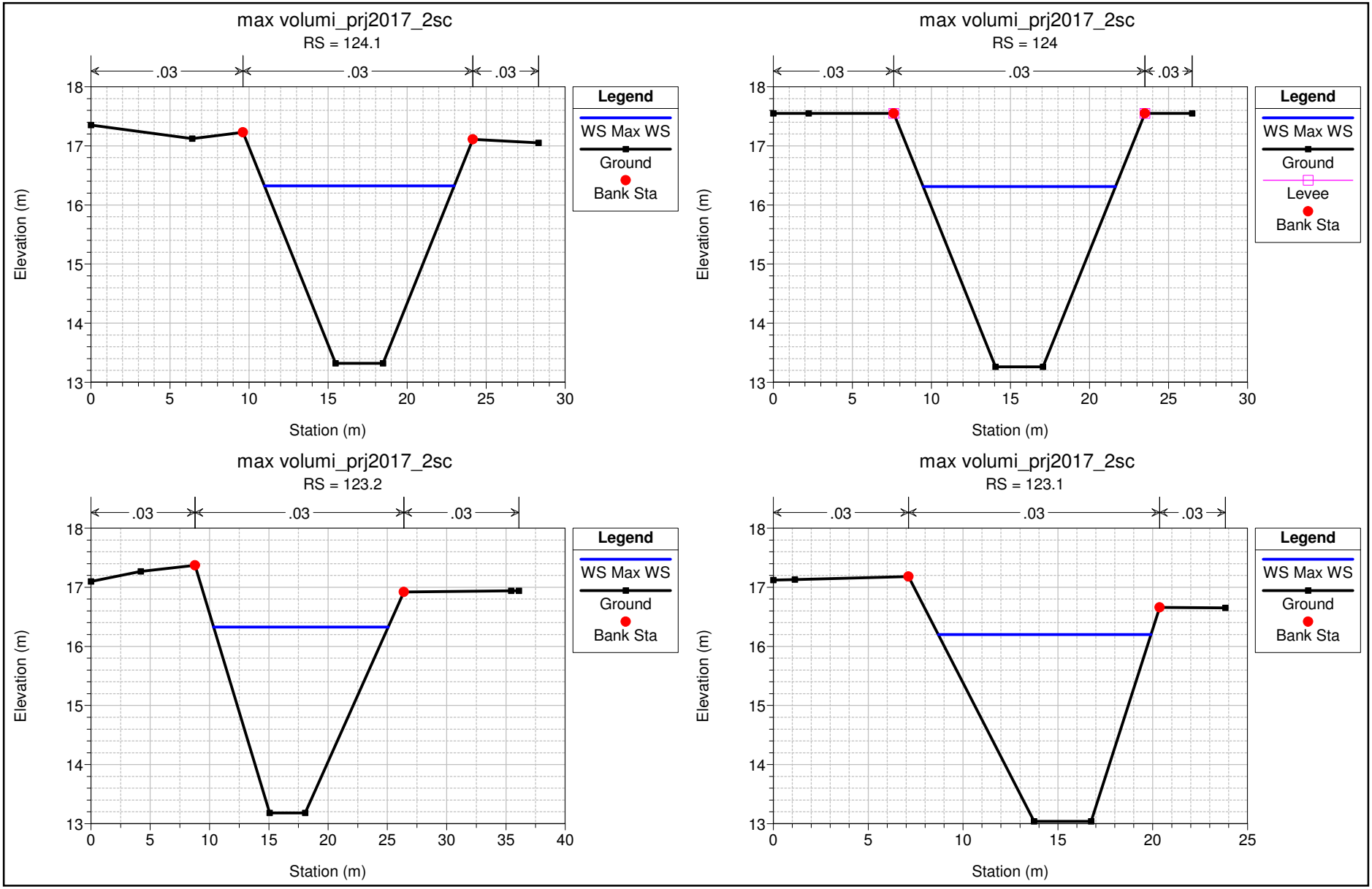

max volumi_prj2017_2sc
RS = 128.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max volumi_prj2017_2sc
RS = 128 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max volumi_prj2017_2sc
RS = 128 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max volumi_prj2017_2sc
RS = 127.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
Crit Max WS
WS Max WS
Ground
Levee
Ineff
Bank Sta

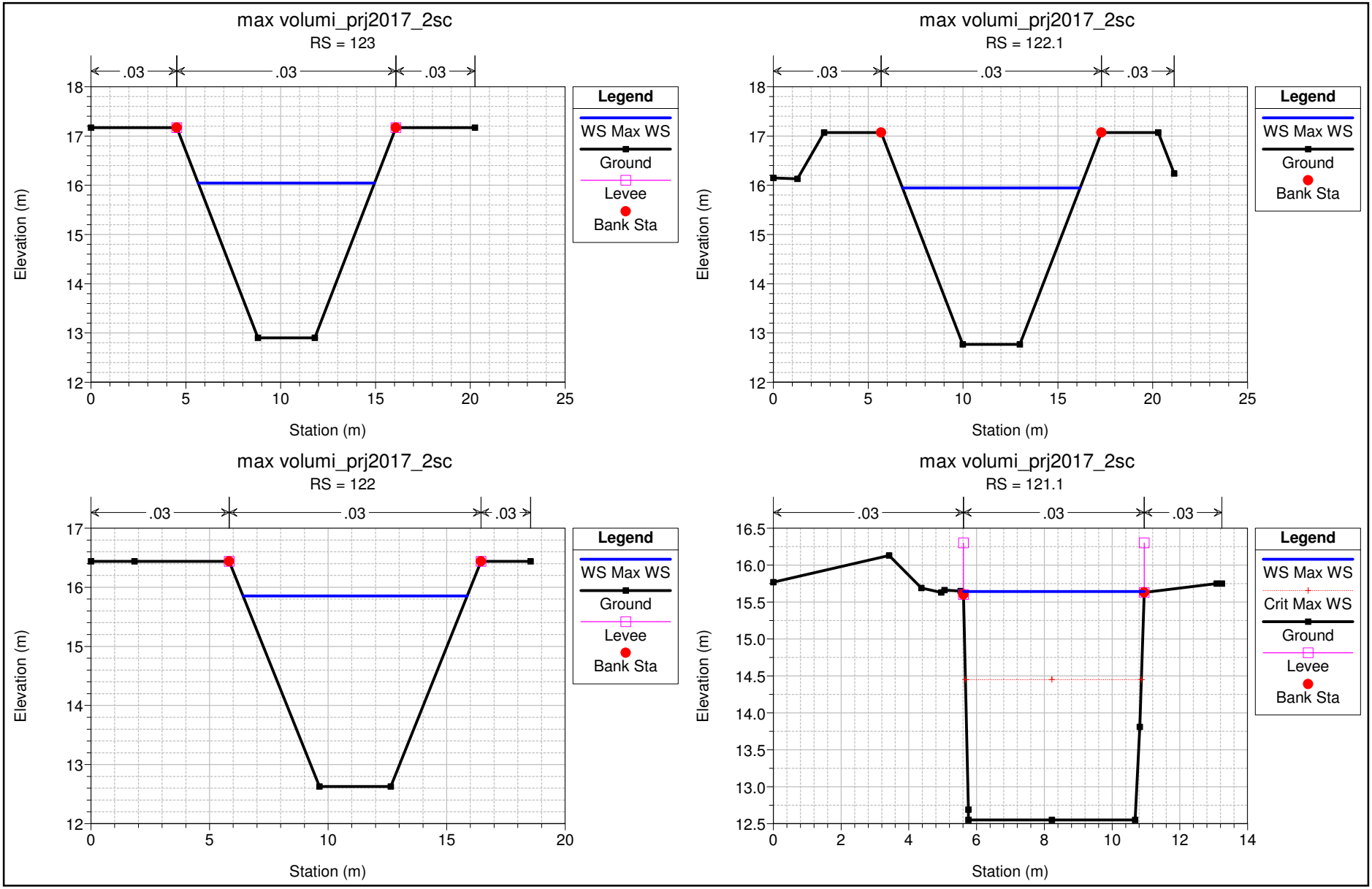

max volumi_prj2017_2sc
RS = 127.1
.03
.03
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 127
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 126.3
.03
.03
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 126.2
.03
.03
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

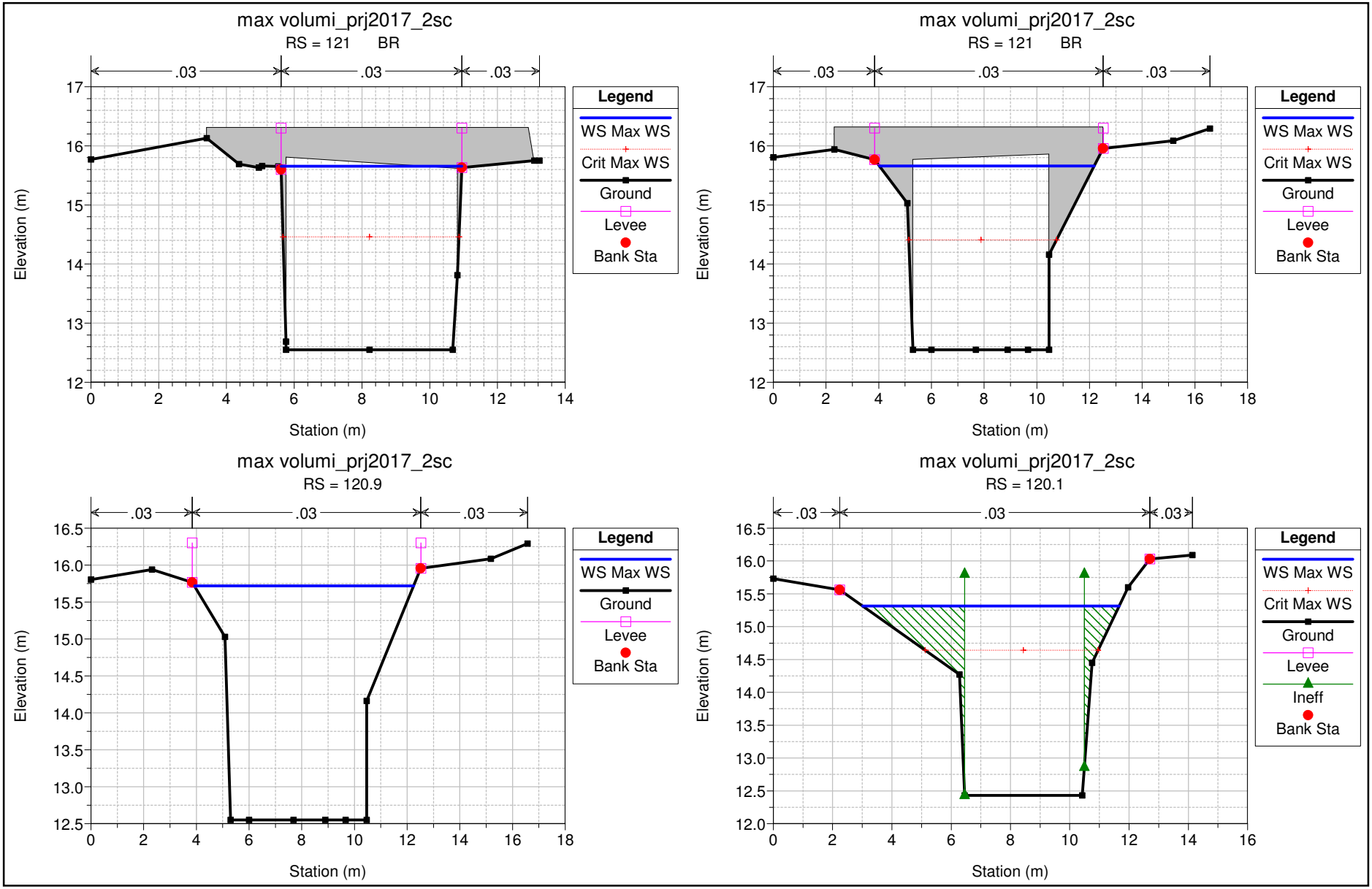

max volumi_prj2017_2sc
RS = 126.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max volumi_prj2017_2sc
RS = 126
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 125.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max volumi_prj2017_2sc
RS = 125.8
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta

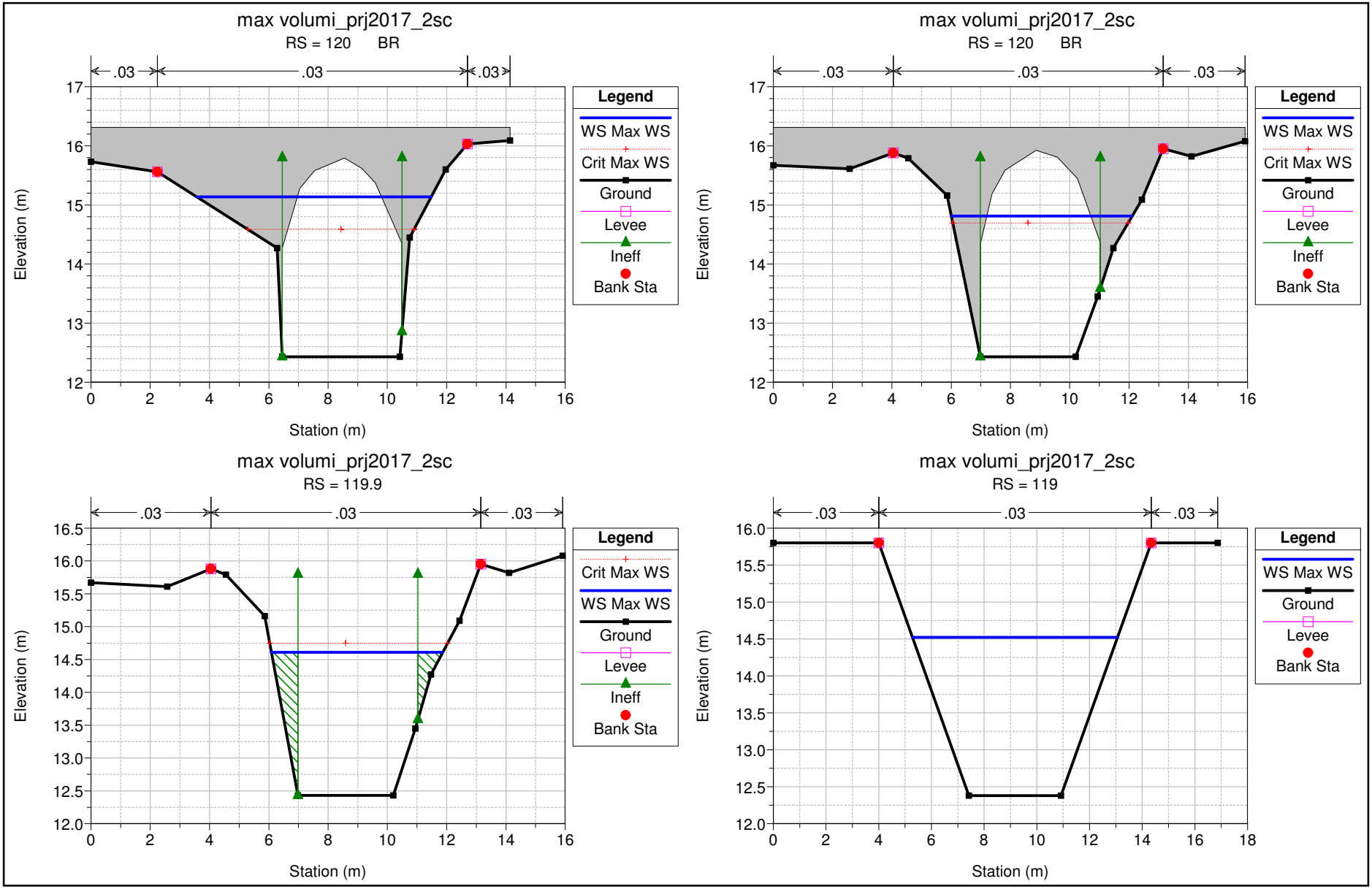

max volumi_prj2017_2sc
RS = 125.7
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max volumi_prj2017_2sc
RS = 125.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 125.06
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max volumi_prj2017_2sc
RS = 125.04
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta

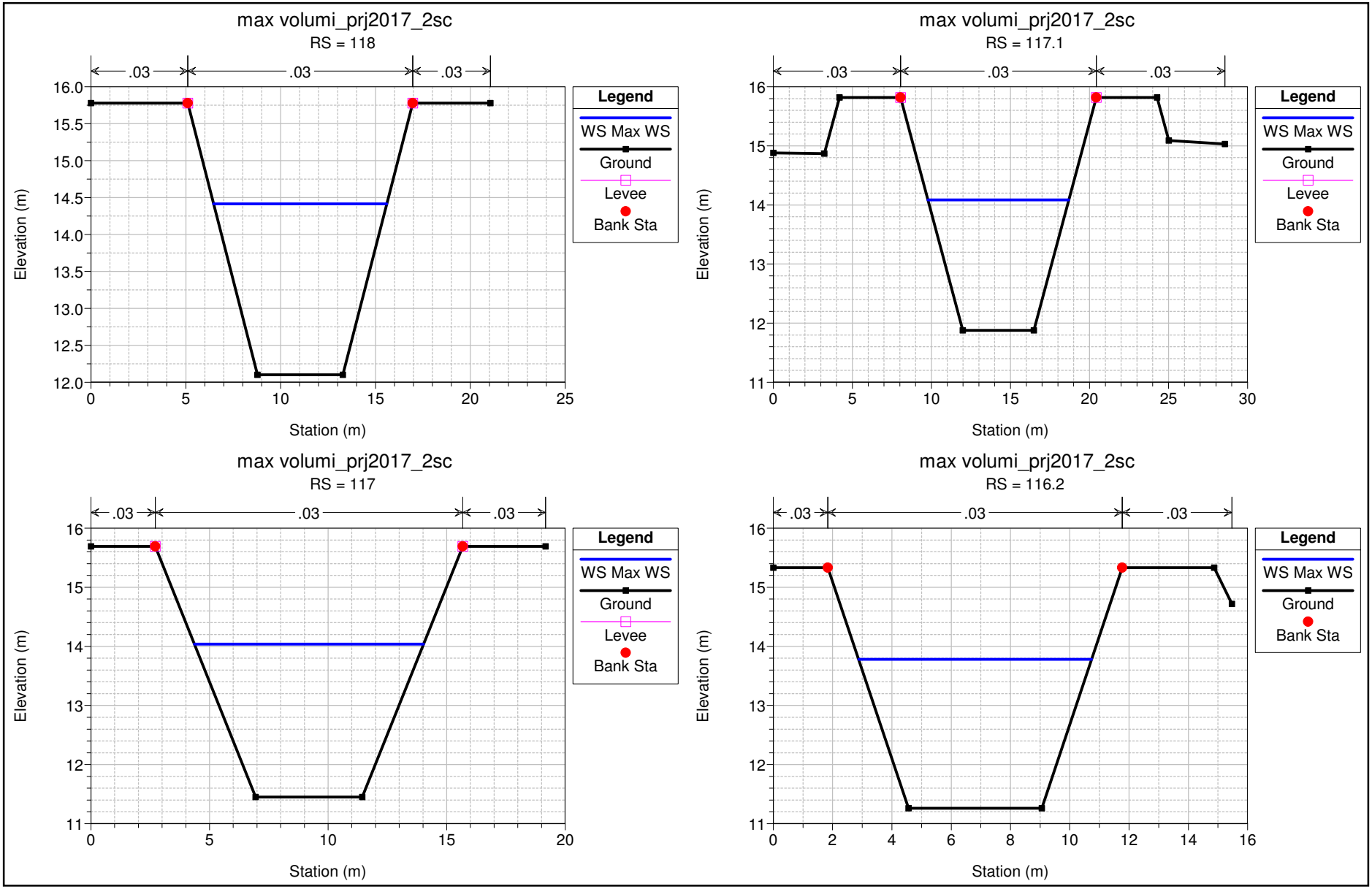

max volumi_prj2017_2sc
RS = 125.02
.03
.03
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 125
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 124.5
.03
.03
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 124.3
.03
.03
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

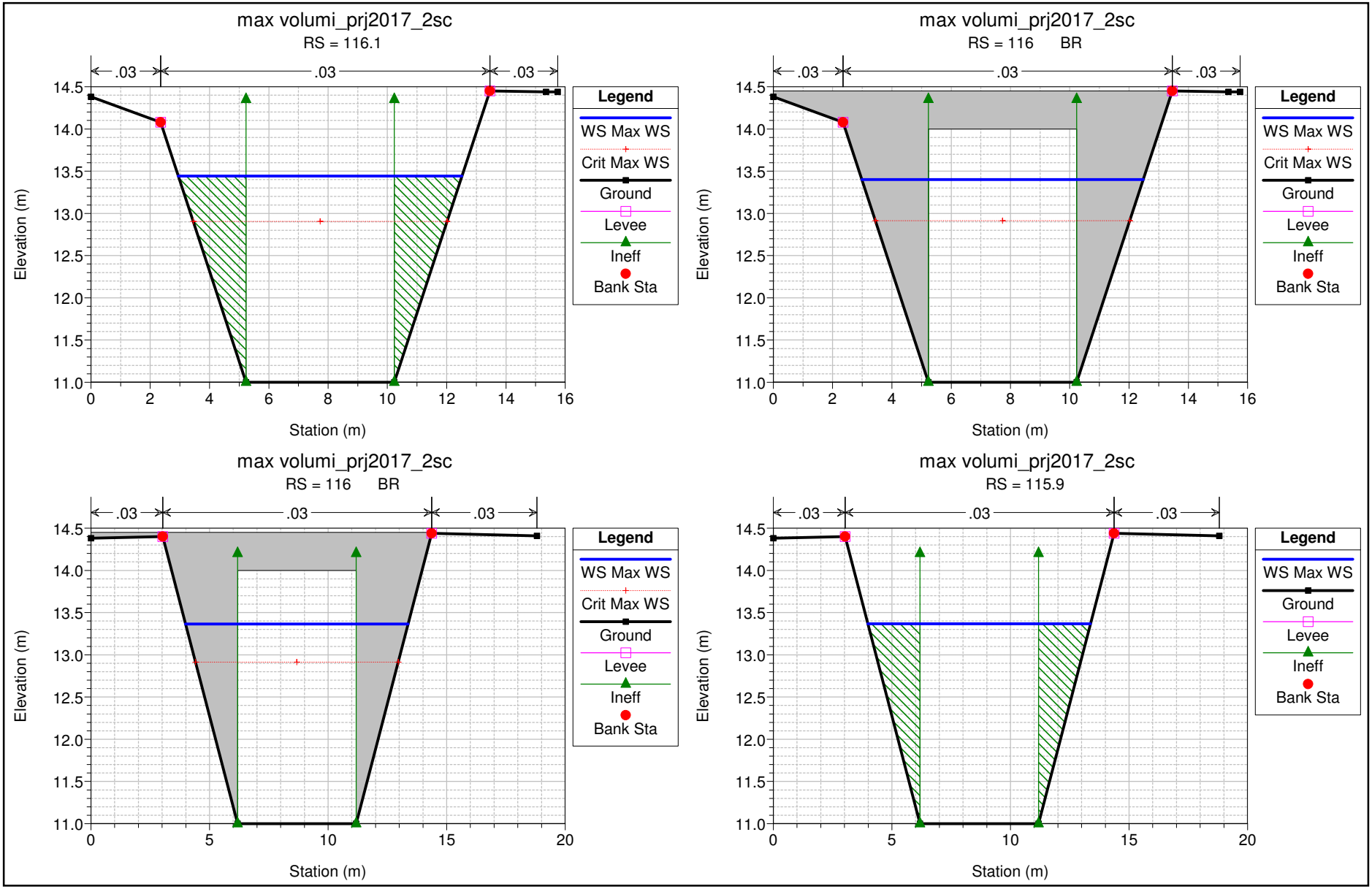

max volumi_prj2017_2sc
RS = 124.1
.03
.03
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 124
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 123.2
.03
.03
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 123.1
.03
.03
.03
Legend
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)

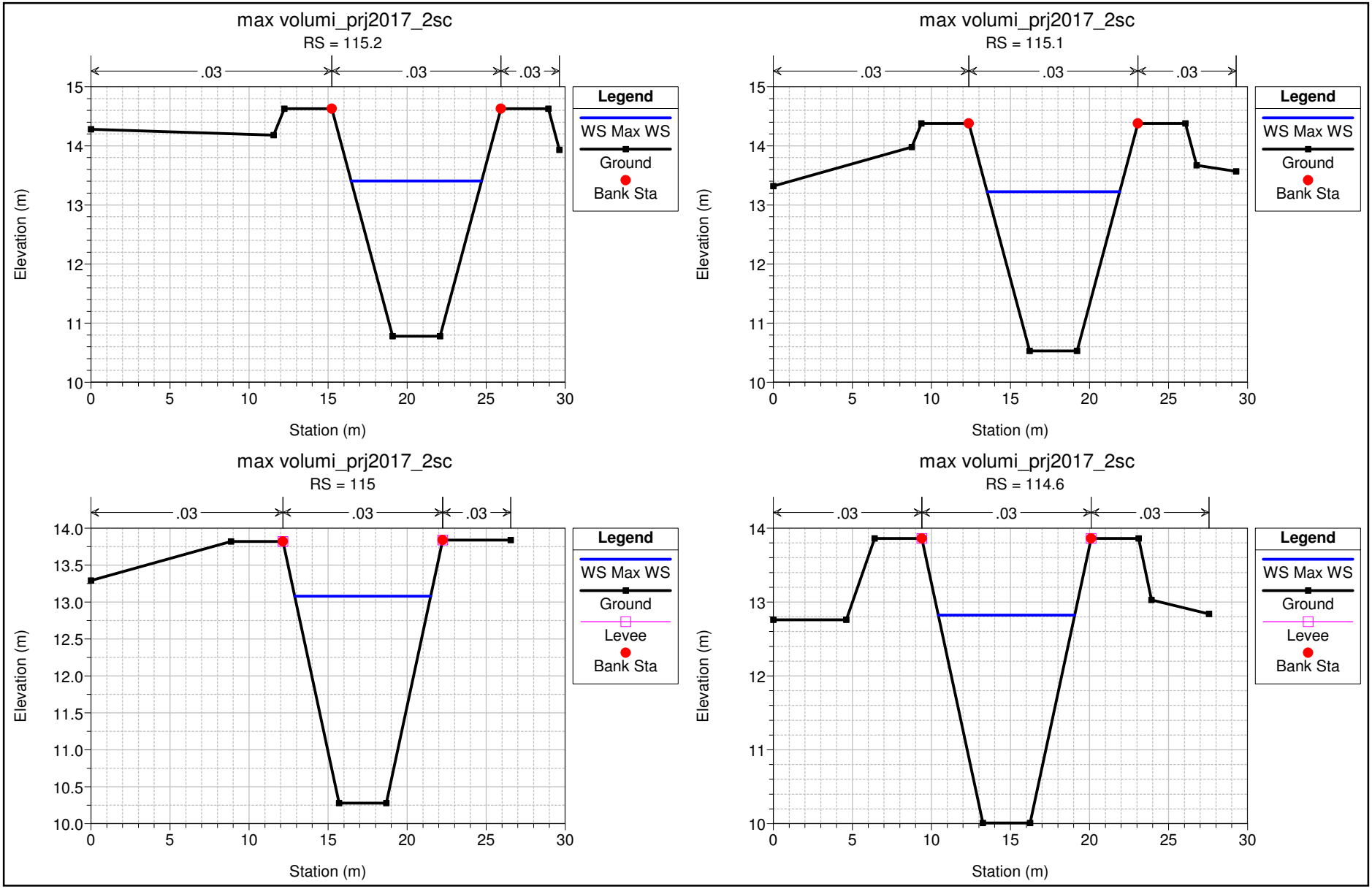

max volumi_prj2017_2sc
RS = 123
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 122.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max volumi_prj2017_2sc
RS = 122
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 121.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta

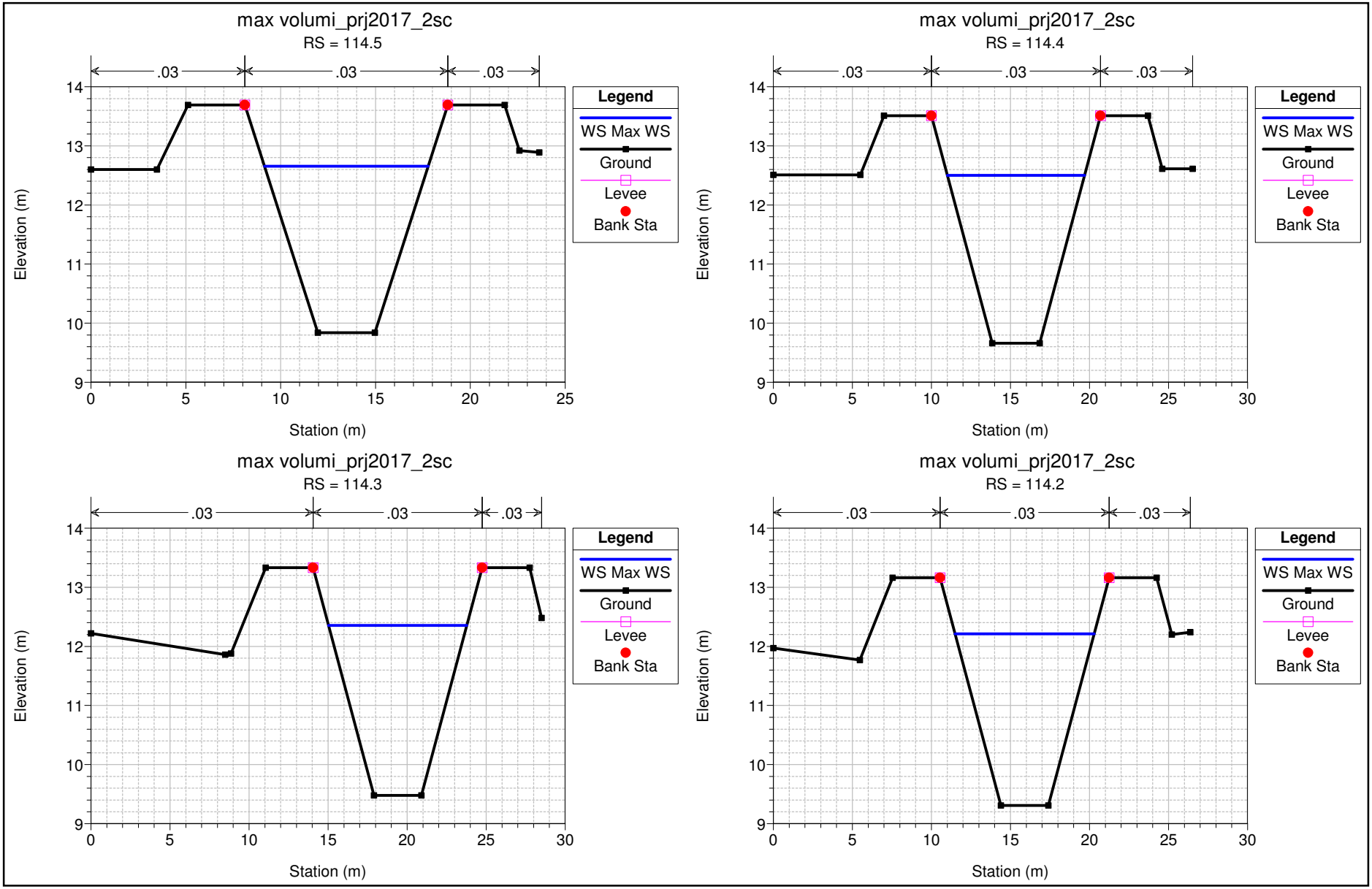

max volumi_prj2017_2sc
RS = 121 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 121 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 120.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 120.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta

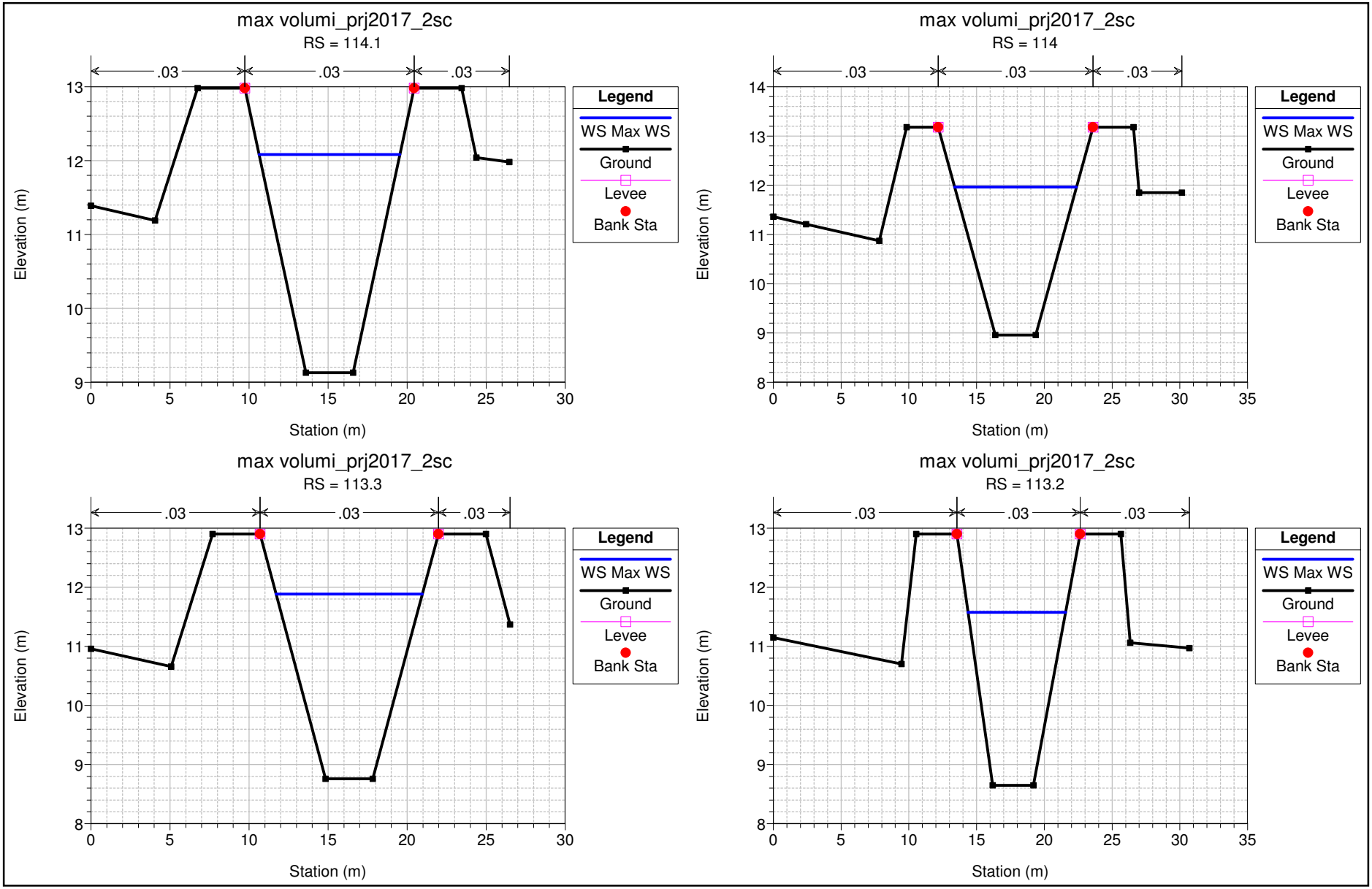

max volumi_prj2017_2sc
RS = 120 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max volumi_prj2017_2sc
RS = 120 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max volumi_prj2017_2sc
RS = 119.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
Crit Max WS
WS Max WS
Ground
Levee
Ineff
Bank Sta
max volumi_prj2017_2sc
RS = 119
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

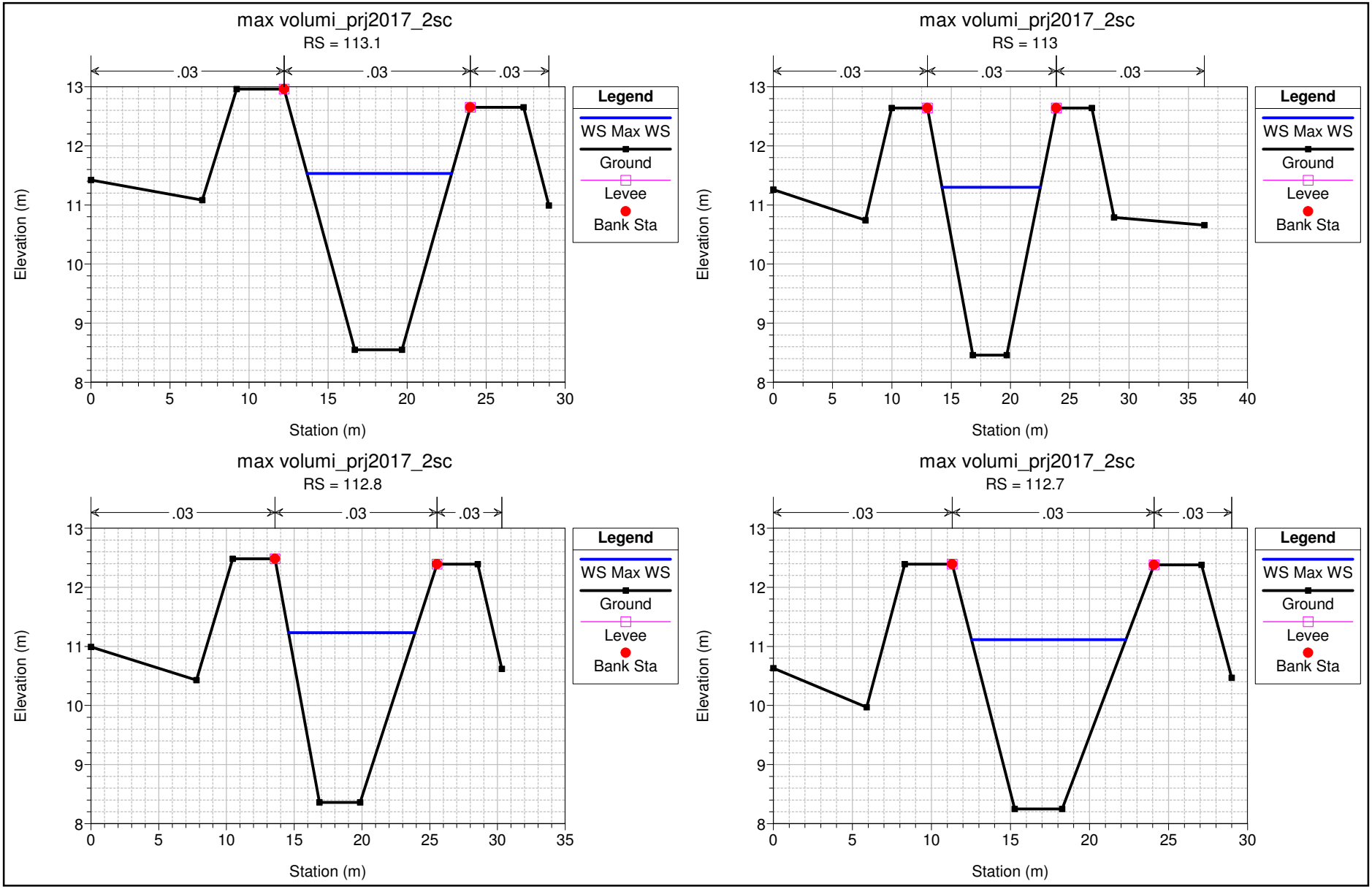

max volumi_prj2017_2sc
RS = 118
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 117.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 117
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 116.2
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta

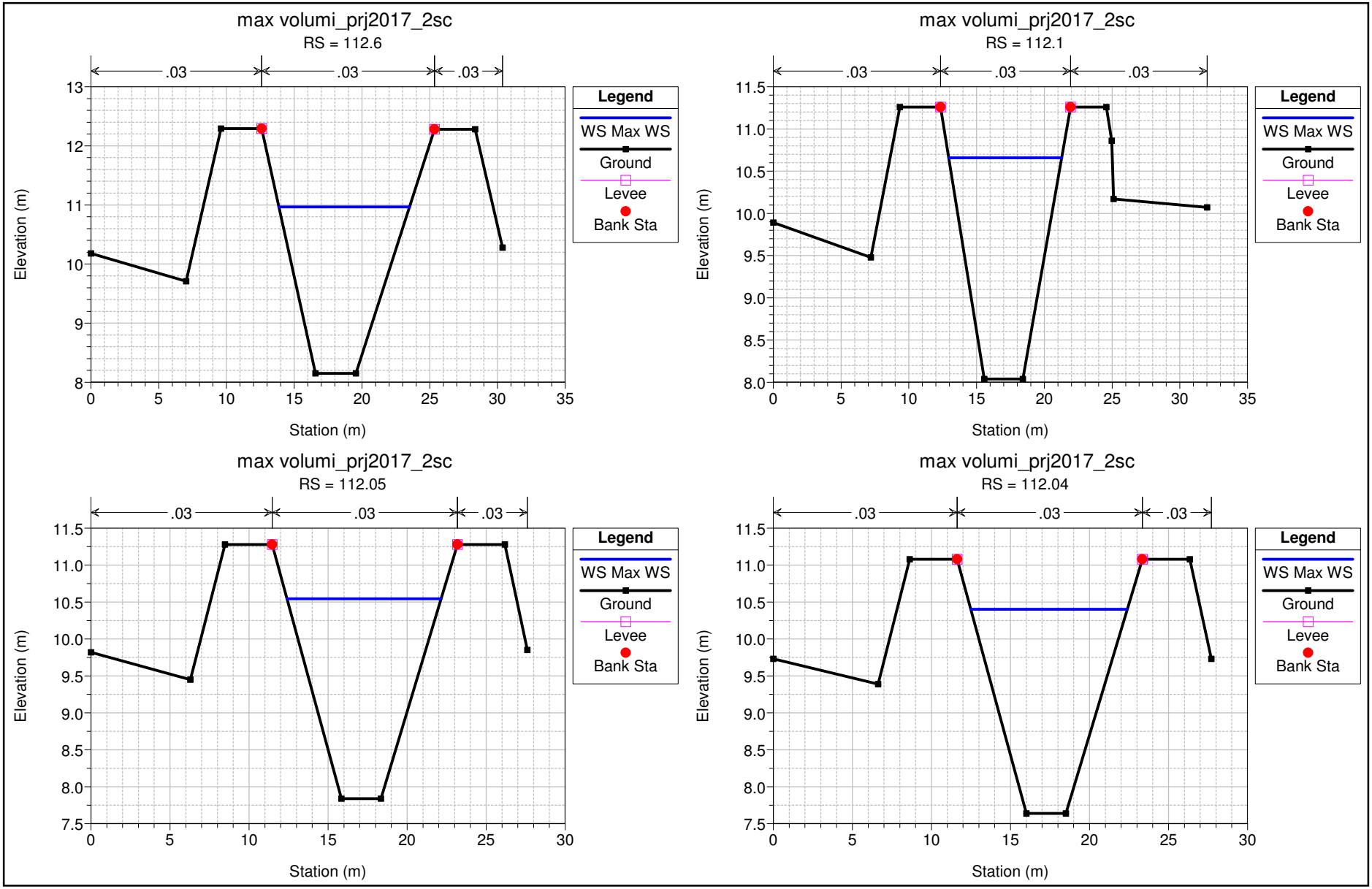

max volumi_prj2017_2sc
RS = 116.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max volumi_prj2017_2sc
RS = 116 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max volumi_prj2017_2sc
RS = 116 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max volumi_prj2017_2sc
RS = 115.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Ineff
Bank Sta

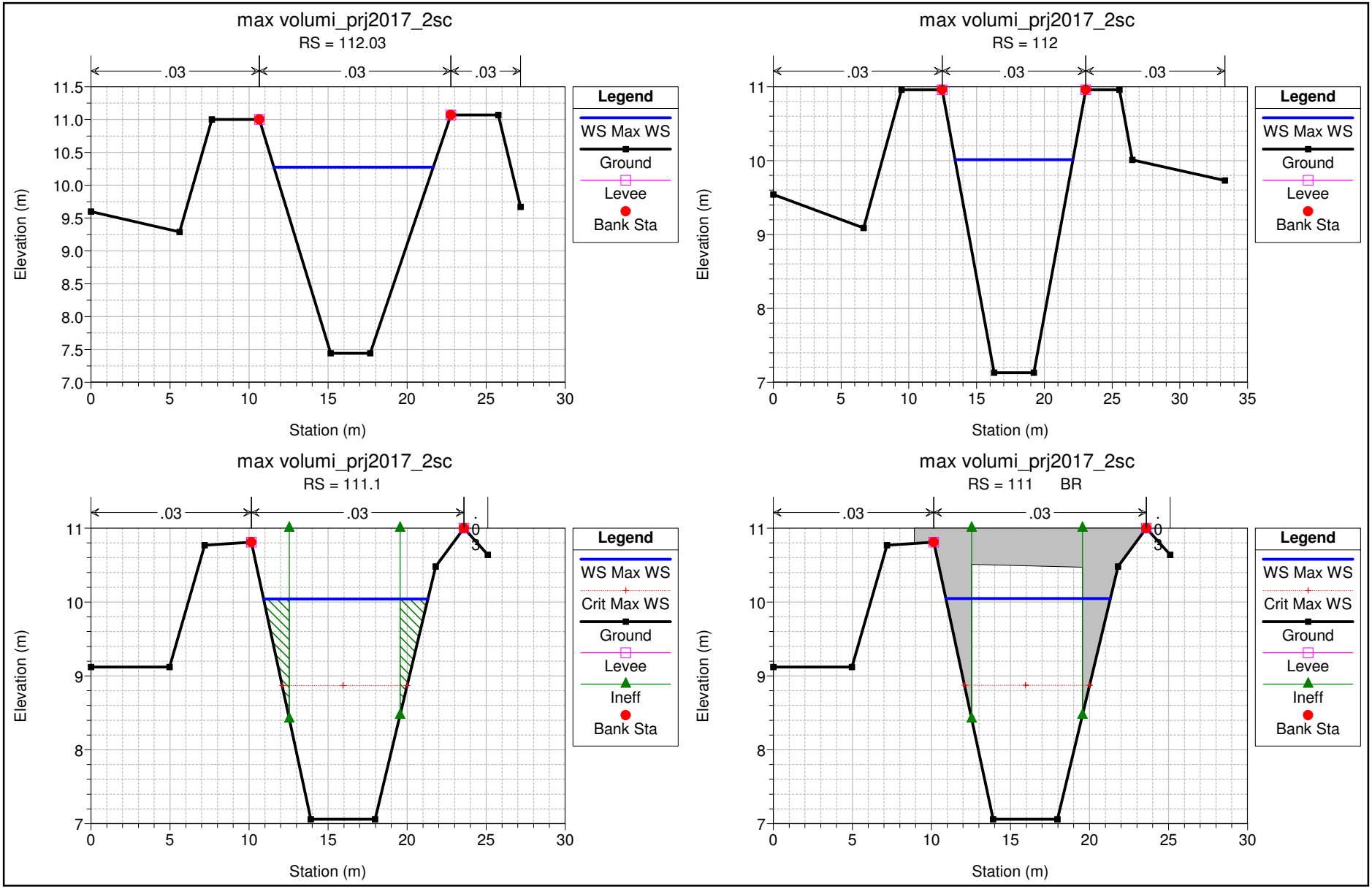

max volumi_prj2017_2sc
RS = 115.2
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max volumi_prj2017_2sc
RS = 115.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Bank Sta
max volumi_prj2017_2sc
RS = 115
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 114.6
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

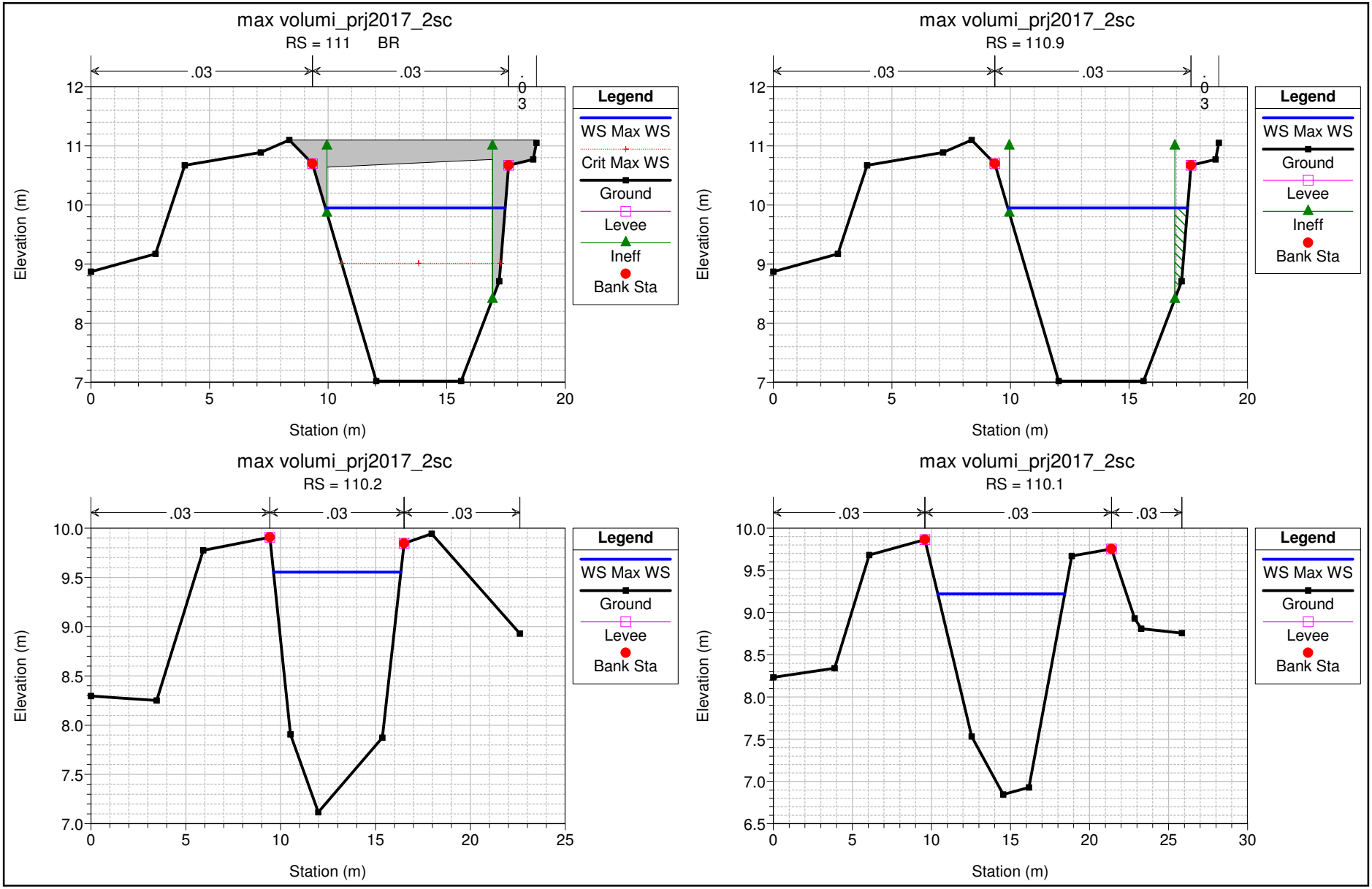

max volumi_prj2017_2sc
RS = 114.5
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 114.4
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 114.3
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 114.2
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

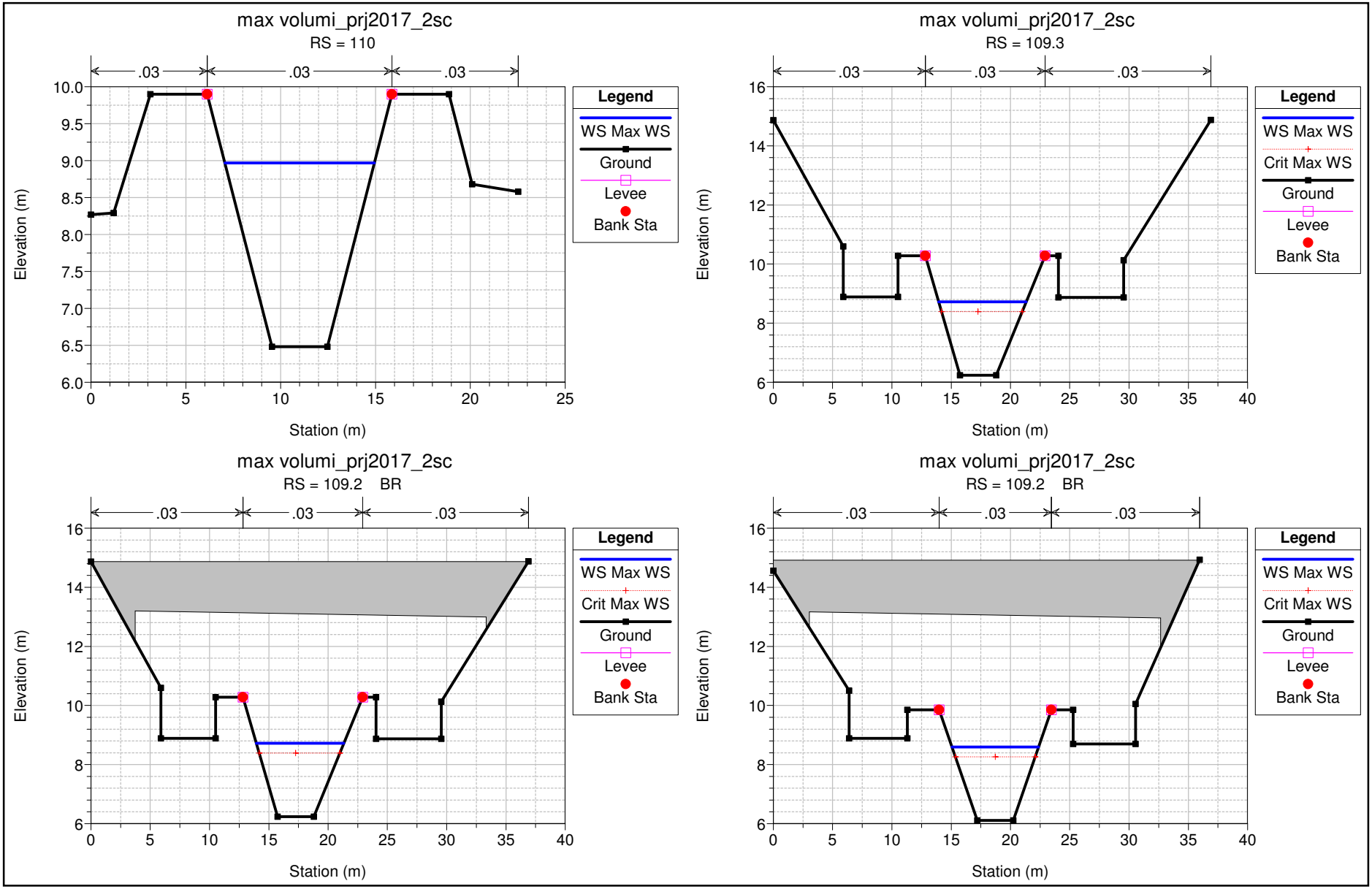

max volumi_prj2017_2sc
RS = 114.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 114
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 113.3
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 113.2
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

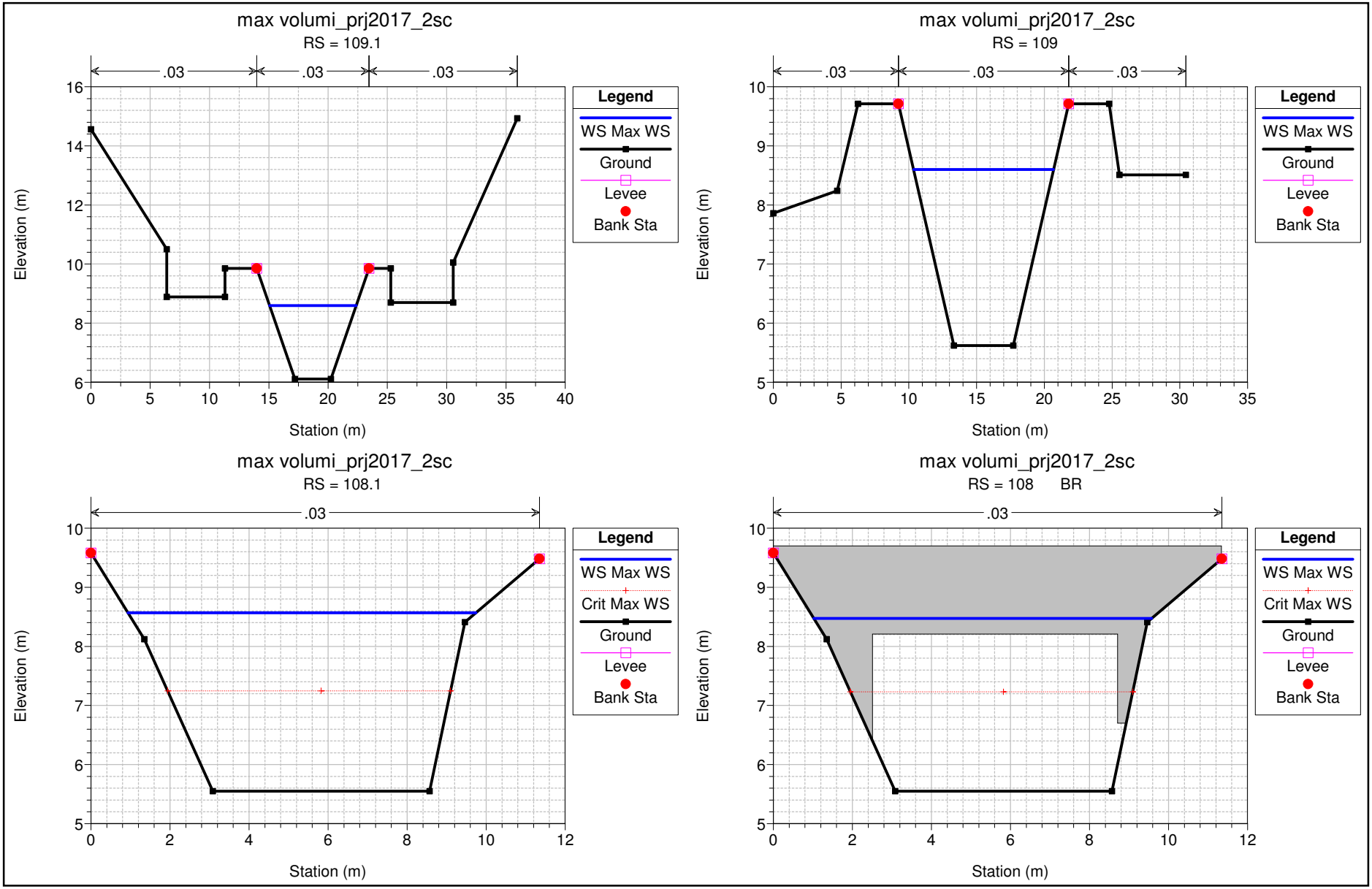

max volumi_prj2017_2sc
RS = 113.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 113
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 112.8
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 112.7
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

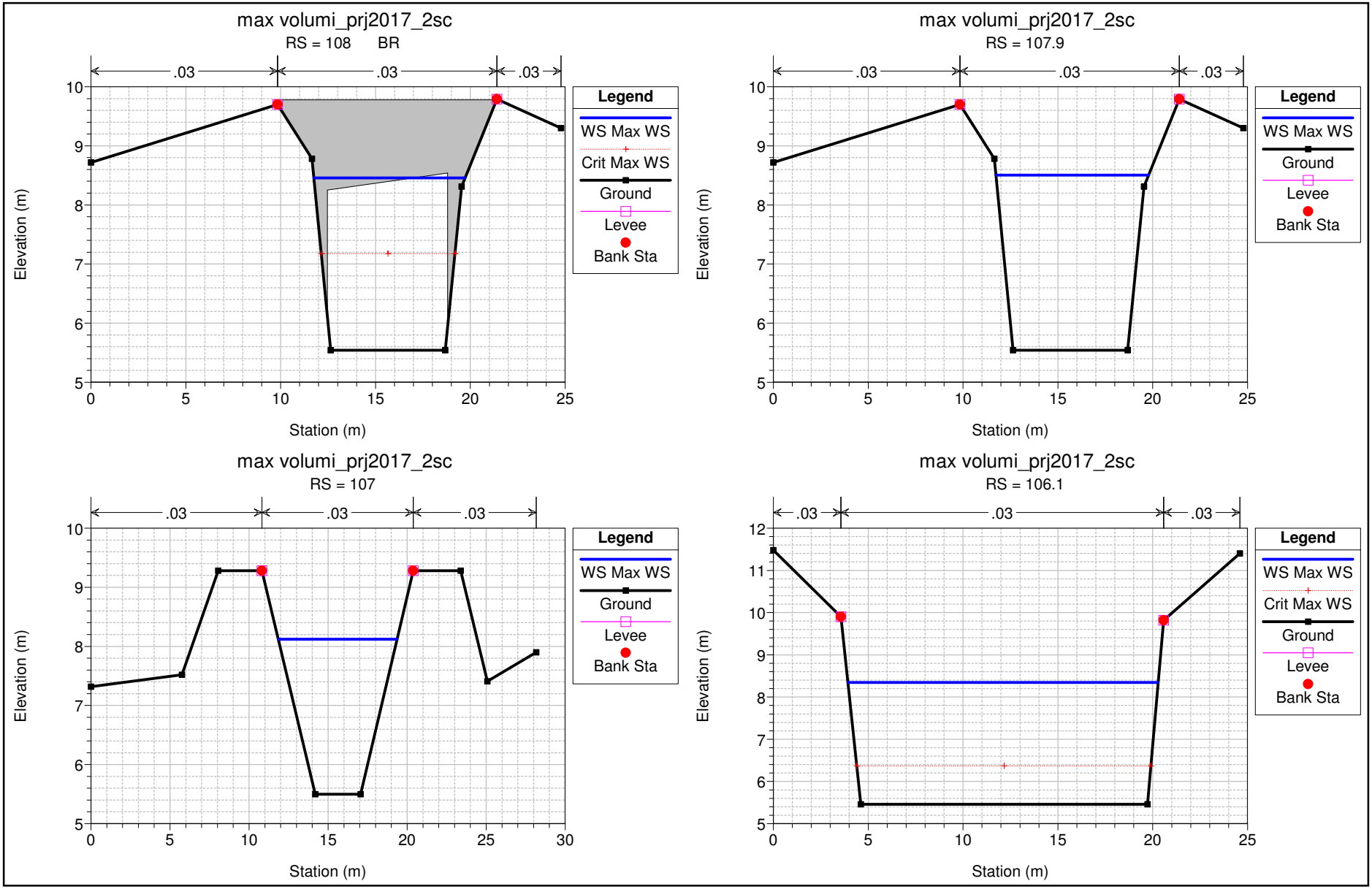

max volumi_prj2017_2sc
RS = 112.6
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 112.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 112.05
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 112.04
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

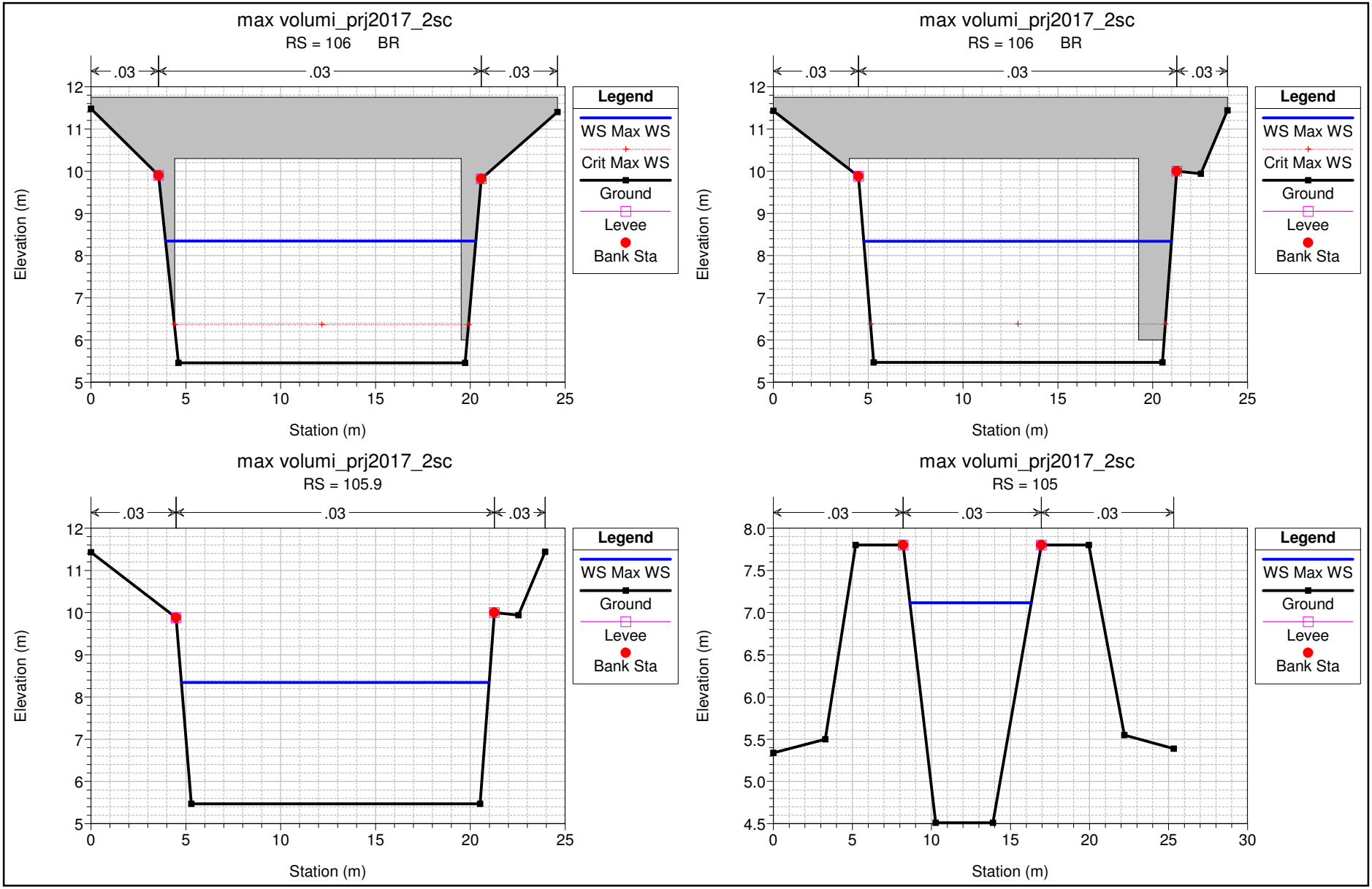

max volumi_prj2017_2sc
RS = 112.03
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 112
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 111.1
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
max volumi_prj2017_2sc
RS = 111 BR
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta

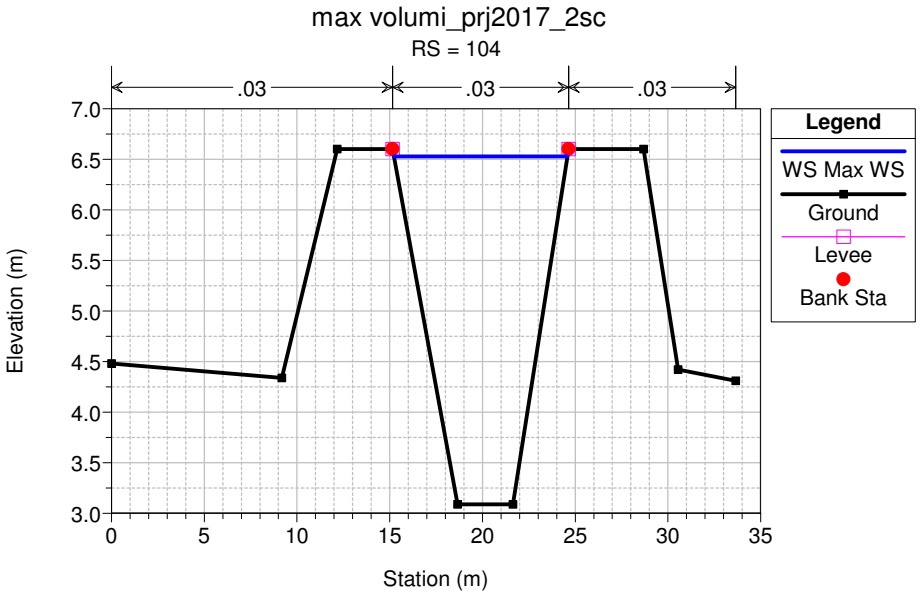

max volumi_prj2017_2sc
RS = 111 BR
.03
.03
.03
Legend
WS Max WS
Crit Max WS
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 110.9
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 110.2
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 110.1
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

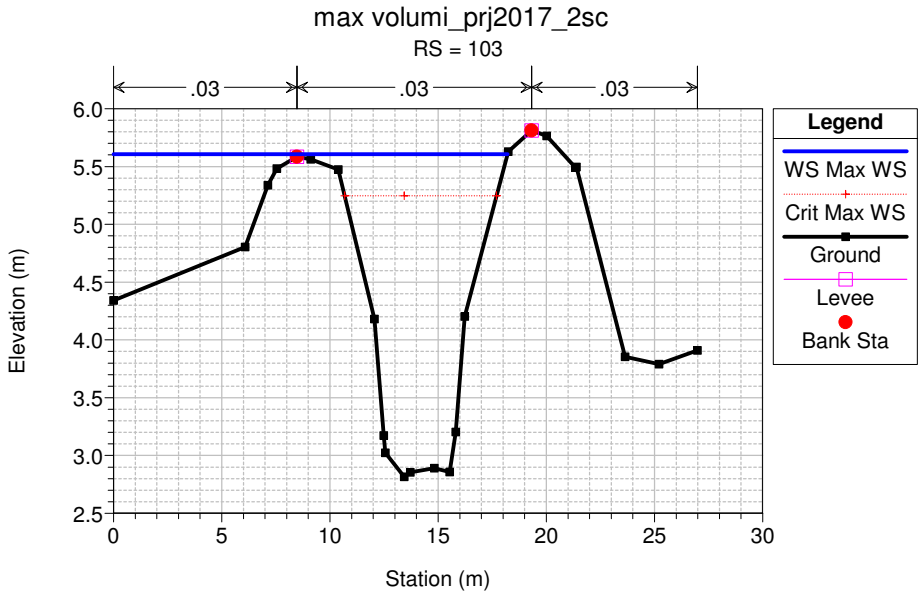

max volumi_prj2017_2sc
RS = 110
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 109.3
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 109.2 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 109.2 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta


max volumi_prj2017_2sc
RS = 109.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 109
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 108.1
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 108 BR
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta


max volumi_prj2017_2sc
RS = 108 BR
.03
.03
.03
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 107.9
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 107
.03
.03
.03
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
max volumi_prj2017_2sc
RS = 106.1
.03
.03
.03
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


max volumi_prj2017_2sc
RS = 106 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 106 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 105.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
max volumi_prj2017_2sc
RS = 105
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


max volumi_prj2017_2sc
RS = 104
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


max volumi_prj2017_2sc
RS = 103
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Crit Max WS
Ground
Levee
Bank Sta

ALLEGATO 4

VERIFICA IDRAULICA A MOTO PERMANENTE DEL FOSSO DELLA MADONNA ALLO STATO DI PROGETTO, EVENTO CRITICO DUECENTENNALE CHE MASSIMIZZA PICCO DI PIENA

- LEGENDA
- TABELLA DI OUTPUT PROFILO LIQUIDO
- PROFILO LONGITUDINALE
- SEZIONI TRASVERSALI

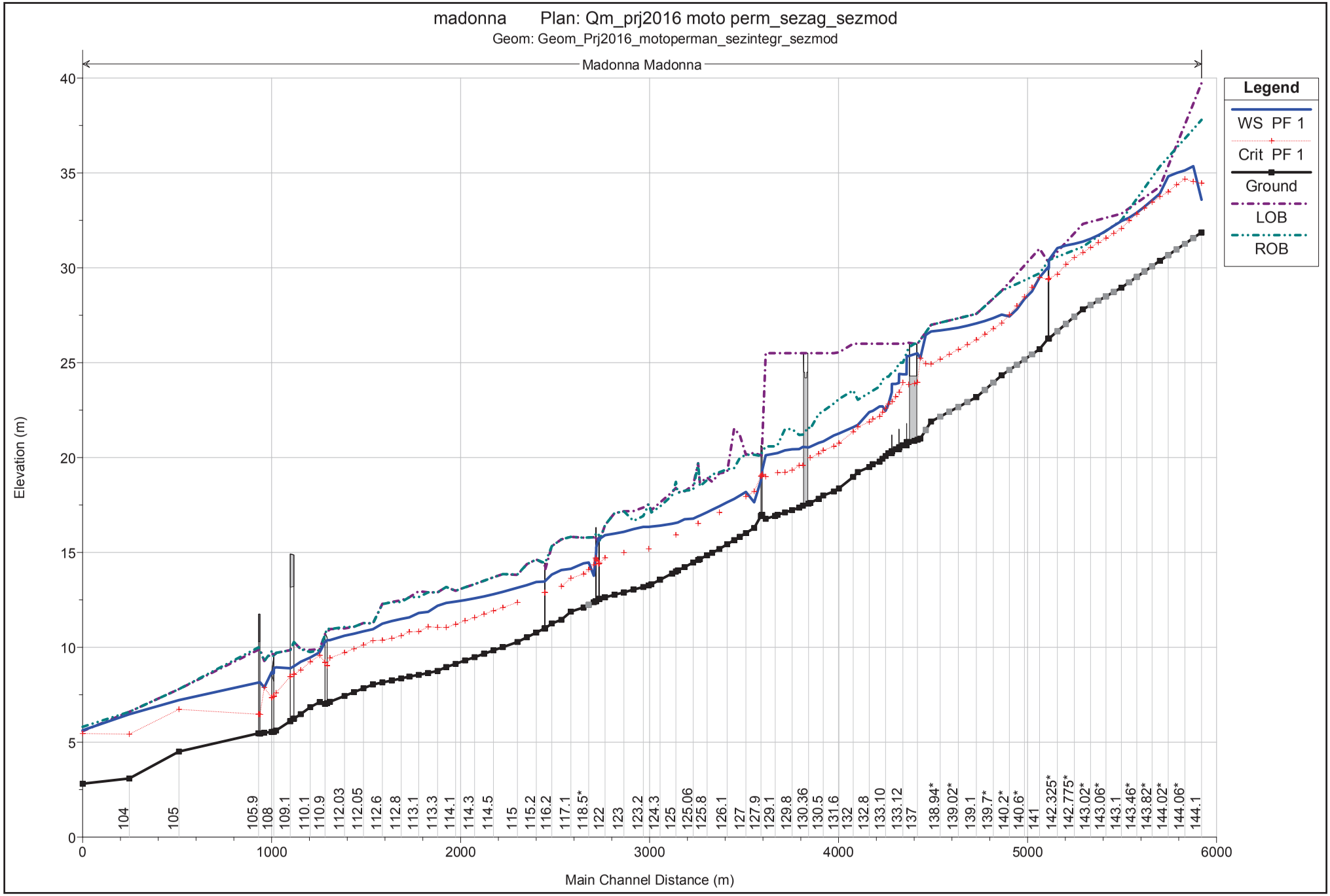
Legenda della tabella di dati relativi alle sezioni	
Reach	Corso d'acqua in esame
River Station	Sezione trasversale
Q Total	Portate del corso d'acqua nella sezione
Min ch elev	Elevazione minima del fondo
W.S. Elev	Elevazione del pelo liquido della corrente
Crit. W.S.	Elevazione dell'altezza critica
E. G. Elev	Elevazione della linea dell'energia totale
E.G Slope	Pendenza della linea dell'energia totale
Vel. Chnl	Velocità dell'acqua nel canale
Flow Area	Sezione liquida della corrente
Top Width	Larghezza in bocca della sezione
Froude#Chl	Numero di Froude della sezione
Legenda del profilo longitudinale del tratto	
WS MAX	Massima altezza del pelo libero raggiunta durante la simulazione
LOB	Profilo dell'argine sinistro
ROB	Profilo dell'argine destro
Legenda dei dati relativi allo sfioratore	
Flow HW US	Idrogramma di piena a monte dello sfioratore
Flow HW DS	Idrogramma di piena a valle dello sfioratore
Legenda della tabella di dati relativi all'area di invaso	
W.S. Elev	Quota del pelo libero (battente) nell'area
Net Flux	Portata in ingresso nell'area
SA Area	Superficie dell'area di invaso
SA Volume	Volume invasato nell'area
Legenda del grafico relativo all'area di invaso	
Stage	Quota del pelo libero (battente) nell'area

HEC-RAS Plan: Qm_perm_prj16 River: Madonna Reach: Madonna Profile: PF 1

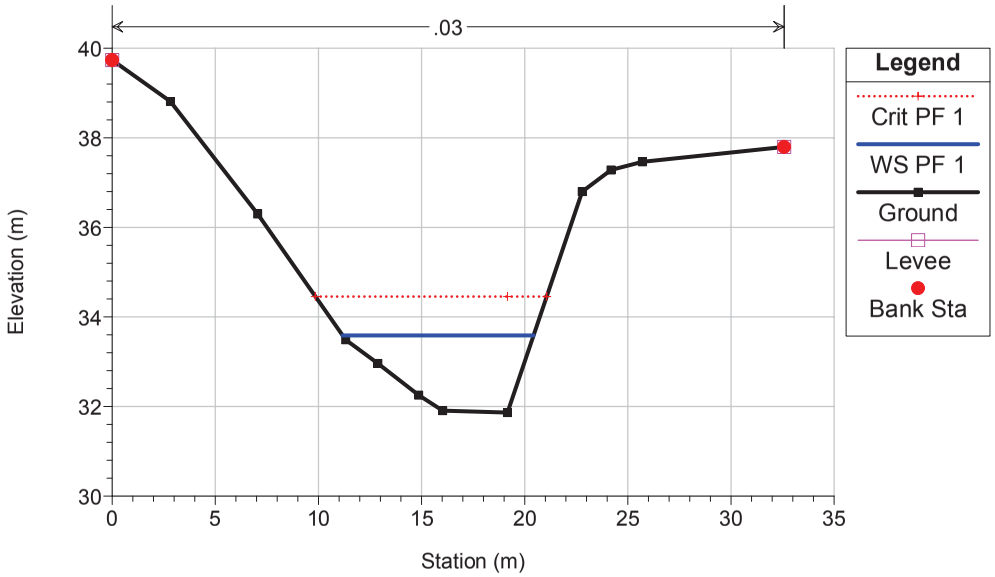
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev
			(m3/s)	(m)	(m)	(m)	(m)
Madonna	144.1	PF 1	81.10	31.87	33.59	34.46	36.52
Madonna	144	PF 1	81.10	30.37	33.91	33.75	34.91
Madonna	143.1	PF 1	81.10	28.95	32.46	32.07	33.07
Madonna	143	PF 1	81.10	27.81	31.38	30.81	31.90
Madonna	142.1	PF 1	81.10	26.27	30.41	29.44	31.17
Madonna	142		Bridge				
Madonna	141.9	PF 1	81.10	26.27	30.04	29.39	31.01
Madonna	141	PF 1	81.10	25.71	29.49	29.49	30.53
Madonna	140	PF 1	81.10	24.34	27.53	27.09	28.17
Madonna	139.1	PF 1	81.10	23.18	27.07	26.21	27.54
Madonna	138.9	PF 1	81.10	21.90	26.65	24.93	26.89
Madonna	138	PF 1	81.10	21.00	25.24	25.24	26.59
Madonna	137	PF 1	40.54	20.94	25.49	23.96	25.78
Madonna	136.95		Lat Struct				
Madonna	136.8	PF 1	40.54	20.88	25.45	23.90	25.73
Madonna	135.6	PF 1	40.54	20.82	25.35	23.85	25.63
Madonna	133.130		Inl Struct				
Madonna	133.12	PF 1	40.54	20.65	24.38	23.95	24.78
Madonna	133.116	PF 1	40.54	20.55	24.41	23.44	24.65
Madonna	133.1155		Inl Struct				
Madonna	133.115	PF 1	40.54	20.44	23.88	23.21	24.22
Madonna	133.114	PF 1	40.54	20.34	23.88	22.95	24.12
Madonna	133.112		Inl Struct				
Madonna	133.11	PF 1	40.54	20.23	22.83	22.83	23.61
Madonna	133.10	PF 1	40.54	20.08	22.46	22.60	23.40
Madonna	133.09	PF 1	40.54	19.94	22.70	22.39	23.23
Madonna	133	PF 1	40.54	19.79	22.69	22.17	23.11
Madonna	132.9	PF 1	40.54	19.65	22.46	22.03	22.92
Madonna	132.8	PF 1	40.54	19.50	22.40	21.88	22.81
Madonna	132.7	PF 1	40.54	19.24	21.72	21.62	22.40
Madonna	132	PF 1	40.54	18.98	21.60	21.36	22.17
Madonna	131.6	PF 1	40.54	18.38	21.27	20.76	21.69
Madonna	131	PF 1	40.54	18.21	21.16	20.59	21.55
Madonna	130.5	PF 1	40.54	18.00	20.85	20.38	21.29
Madonna	130.45	PF 1	40.54	17.83	20.77	20.20	21.16
Madonna	130.4	PF 1	40.54	17.61	20.57	19.99	20.96
Madonna	130.36	PF 1	40.54	17.57	20.54		20.92
Madonna	130.35		Lat Struct				
Madonna	130.3	PF 1	40.54	17.46	20.56	19.58	20.78
Madonna	130	PF 1	40.54	17.36	20.45	19.59	20.73
Madonna	129.8	PF 1	40.54	17.23	20.43	19.34	20.62
Madonna	129.7	PF 1	40.54	17.11	20.38	19.22	20.56
Madonna	129.2	PF 1	40.54	16.98	20.24	19.20	20.48
Madonna	129.1	PF 1	40.54	16.93	20.22		20.45
Madonna	129	PF 1	40.54	16.77	20.12	19.00	20.34
Madonna	128.1	PF 1	40.54	16.98	19.32	19.12	20.21
Madonna	128		Bridge				
Madonna	127.9	PF 1	40.54	16.93	18.80	19.03	20.13
Madonna	127.1	PF 1	40.54	16.29	17.64	18.22	19.45
Madonna	127	PF 1	40.54	16.02	18.19	17.95	18.64
Madonna	126.3	PF 1	40.54	15.83	18.00		18.45
Madonna	126.2	PF 1	40.54	15.65	17.82		18.27
Madonna	126.1	PF 1	40.54	15.43	17.64		18.05
Madonna	126	PF 1	40.54	15.18	17.44	17.11	17.84
Madonna	125.9	PF 1	40.54	14.98	17.25		17.65
Madonna	125.8	PF 1	40.54	14.85	17.12		17.51
Madonna	125.7	PF 1	40.54	14.65	16.94		17.33
Madonna	125.1	PF 1	40.54	14.60	16.90	16.53	17.28
Madonna	125.06	PF 1	40.54	14.47	16.78		17.16
Madonna	125.04	PF 1	40.54	14.23	16.75		16.97
Madonna	125.02	PF 1	40.54	14.05	16.58		16.86
Madonna	125	PF 1	40.54	14.00	16.56	15.93	16.83
Madonna	124.5	PF 1	40.54	13.89	16.51		16.77
Madonna	124.3	PF 1	40.54	13.56	16.41		16.61
Madonna	124.1	PF 1	40.54	13.32	16.36		16.52
Madonna	124	PF 1	40.54	13.26	16.35	15.19	16.50
Madonna	123.2	PF 1	40.54	13.18	16.35		16.45
Madonna	123.1	PF 1	40.54	13.04	16.23		16.39
Madonna	123	PF 1	40.54	12.90	16.08	14.99	16.30

HEC-RAS Plan: Qm_perm_prj16 River: Madonna Reach: Madonna Profile: PF 1 (Continued)

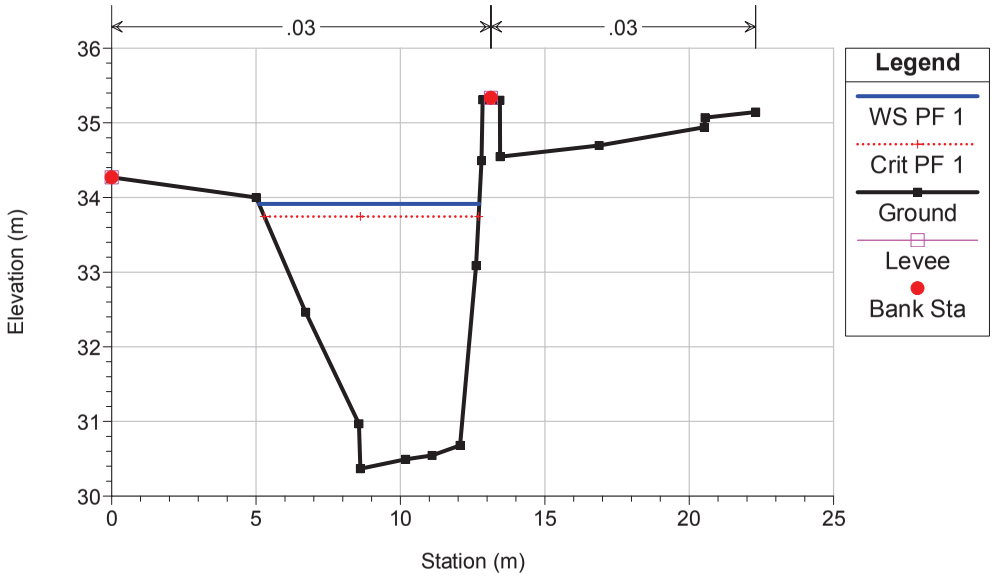
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev
			(m3/s)	(m)	(m)	(m)	(m)
Madonna	122.1	PF 1	40.54	12.77	15.99		16.20
Madonna	122	PF 1	40.54	12.63	15.91	14.72	16.11
Madonna	121.1	PF 1	40.54	12.55	15.71	14.44	16.03
Madonna	121		Bridge				
Madonna	120.9	PF 1	40.54	12.55	15.75	14.41	15.98
Madonna	120.1	PF 1	40.54	12.43	15.27	14.61	15.91
Madonna	120		Bridge				
Madonna	119.9	PF 1	40.54	12.43	14.72	14.72	15.80
Madonna	119	PF 1	40.54	12.38	13.77	14.35	15.59
Madonna	118	PF 1	40.54	12.10	14.43	13.86	14.76
Madonna	117.1	PF 1	40.54	11.88	14.14	13.64	14.50
Madonna	117	PF 1	40.54	11.45	14.07	13.21	14.31
Madonna	116.2	PF 1	40.54	11.26	13.84		14.16
Madonna	116.1	PF 1	40.54	11.00	13.50	12.89	14.03
Madonna	116		Bridge				
Madonna	115.9	PF 1	40.54	11.00	13.47	12.89	14.02
Madonna	115.2	PF 1	40.54	10.78	13.44		13.81
Madonna	115.1	PF 1	40.54	10.53	13.28		13.61
Madonna	115	PF 1	40.54	10.28	13.14	12.37	13.44
Madonna	114.6	PF 1	40.54	10.01	12.93	12.10	13.21
Madonna	114.5	PF 1	40.54	9.84	12.80	11.93	13.07
Madonna	114.4	PF 1	40.54	9.66	12.68	11.75	12.94
Madonna	114.3	PF 1	40.54	9.48	12.58	11.57	12.82
Madonna	114.2	PF 1	40.54	9.31	12.49	11.40	12.71
Madonna	114.1	PF 1	40.54	9.13	12.41	11.22	12.61
Madonna	114	PF 1	40.54	8.96	12.34	11.05	12.52
Madonna	113.3	PF 1	48.24	8.76	12.19	11.06	12.43
Madonna	113.2	PF 1	48.24	8.65	11.87	11.08	12.28
Madonna	113.1	PF 1	48.24	8.55	11.81	10.83	12.09
Madonna	113	PF 1	48.24	8.46	11.58	10.82	11.93
Madonna	112.8	PF 1	48.24	8.36	11.50	10.62	11.79
Madonna	112.7	PF 1	48.24	8.25	11.38	10.47	11.65
Madonna	112.6	PF 1	48.24	8.15	11.25	10.37	11.53
Madonna	112.1	PF 1	48.24	8.04	10.95	10.36	11.36
Madonna	112.05	PF 1	48.24	7.84	10.85	10.12	11.15
Madonna	112.04	PF 1	48.24	7.64	10.72	9.92	11.01
Madonna	112.03	PF 1	48.24	7.44	10.61	9.72	10.87
Madonna	112	PF 1	48.24	7.13	10.38	9.44	10.67
Madonna	111.1	PF 1	48.24	7.06	10.37	9.04	10.64
Madonna	111		Bridge				
Madonna	110.9	PF 1	48.24	7.02	10.28	9.21	10.61
Madonna	110.2	PF 1	48.24	7.12	9.74	9.58	10.47
Madonna	110.1	PF 1	48.24	6.85	9.47	9.24	10.05
Madonna	110	PF 1	48.24	6.48	9.24	8.80	9.72
Madonna	109.3	PF 1	48.24	6.24	9.00	8.58	9.52
Madonna	109.2		Bridge				
Madonna	109.1	PF 1	48.24	6.11	8.90	8.46	9.41
Madonna	109	PF 1	48.24	5.62	8.95	7.60	9.13
Madonna	108.1	PF 1	48.24	5.55	8.91	7.42	9.11
Madonna	108		Bridge				
Madonna	107.9	PF 1	48.24	5.54	8.70	7.35	8.94
Madonna	107	PF 1	48.24	5.50	7.89	7.89	8.72
Madonna	106.1	PF 1	48.24	5.46	8.16	6.47	8.22
Madonna	106		Bridge				
Madonna	105.9	PF 1	48.24	5.47	8.15	6.47	8.22
Madonna	105	PF 1	48.24	4.51	7.22	6.73	7.71
Madonna	104	PF 1	48.24	3.09	6.47	5.43	6.75
Madonna	103	PF 1	48.24	2.82	5.63	5.46	5.91


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
Madonna Madonna
Legend
WS PF 1
Crit PF 1
Ground
LOB
ROB
Elevation (m)
Main Channel Distance (m)
0
5
10
15
20
25
30
35
40
0
1000
2000
3000
4000
5000
6000
104
105
105.9
108
109.1
110.1
110.9
112.03
112.05
112.6
112.8
113.1
113.3
114.1
114.3
114.5
115
115.2
116.2
117.1
118.5*
122
123
123.2
124.3
125
125.06
125.8
126.1
127
127.9
129.1
129.8
130.36
130.5
131.6
132
132.8
133.10
133.12
137
138.94*
139.02*
139.1
139.7*
140.2*
140.6*
141
142.325*
142.775*
143.02*
143.06*
143.1
143.46*
143.82*
144.02*
144.06*
144.1

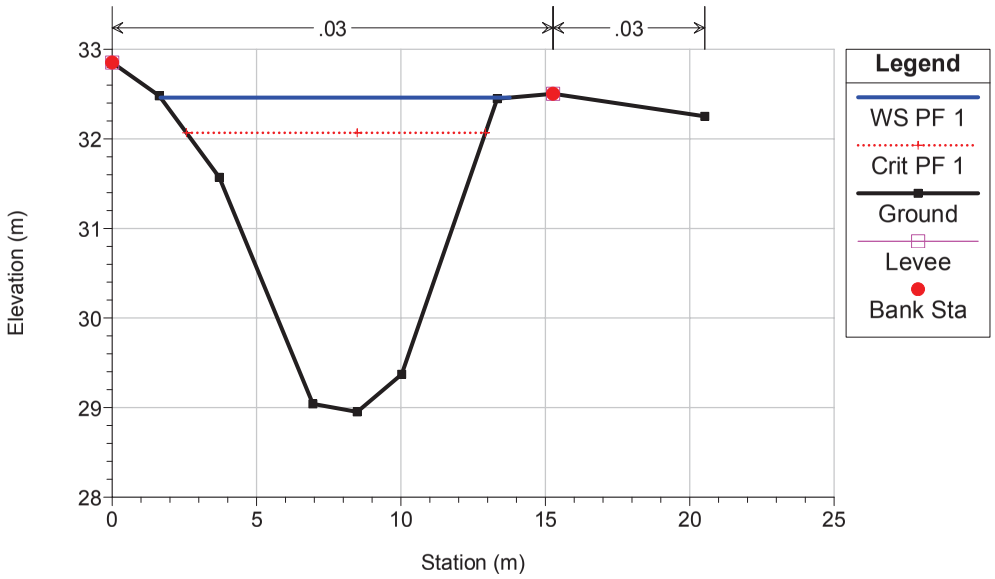
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 144.1



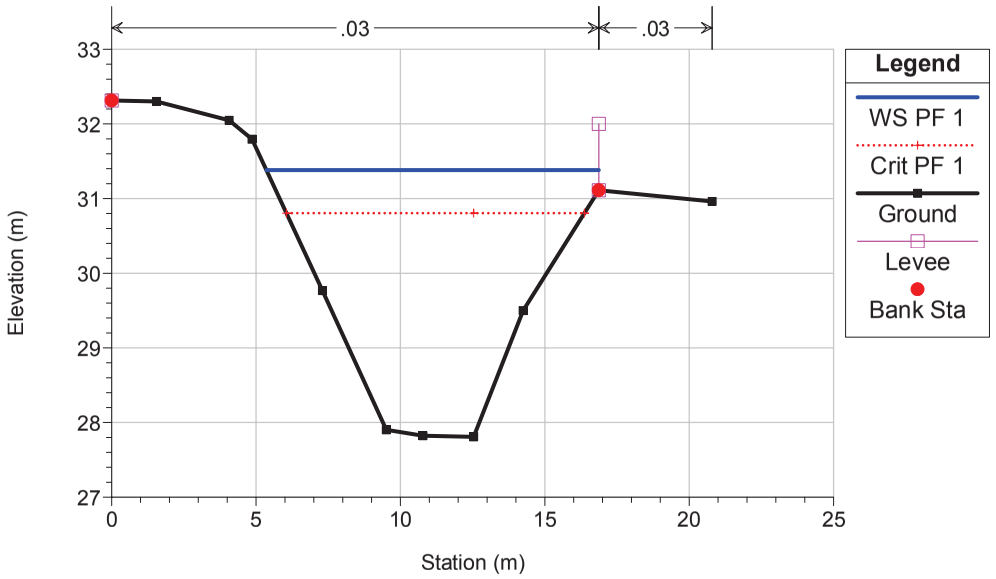
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 144



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 143.1



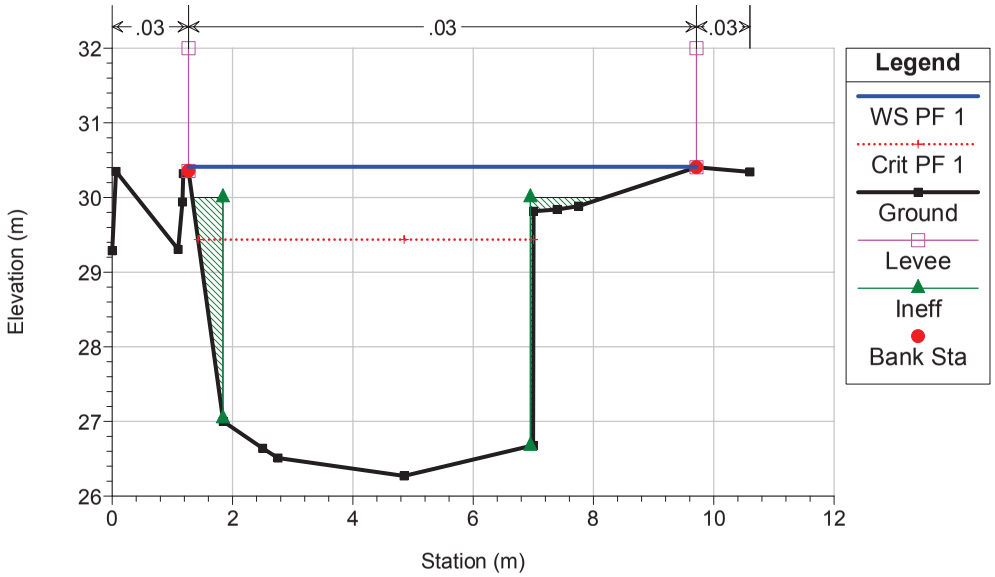
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 143



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

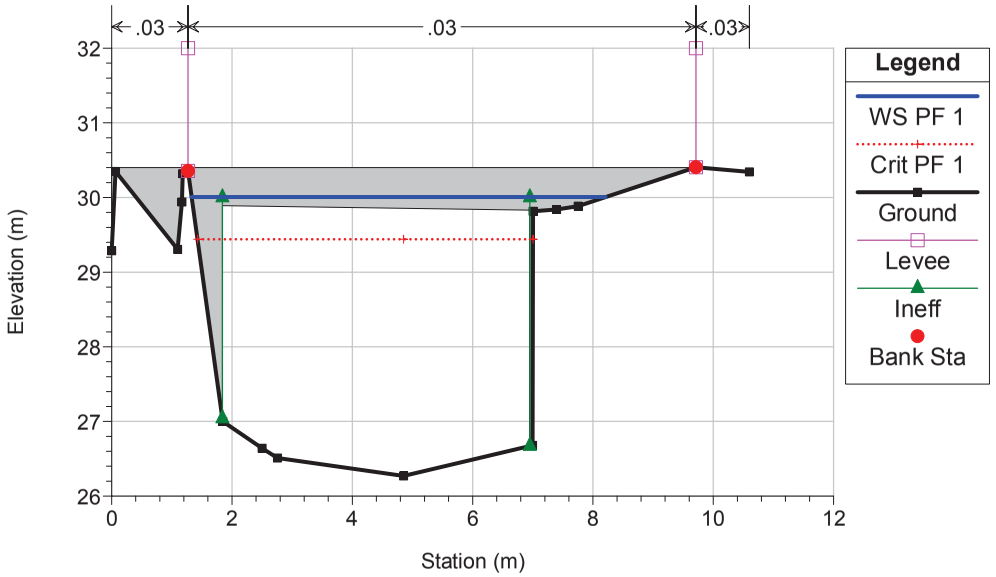
River = Madonna Reach = Madonna RS = 142.1



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

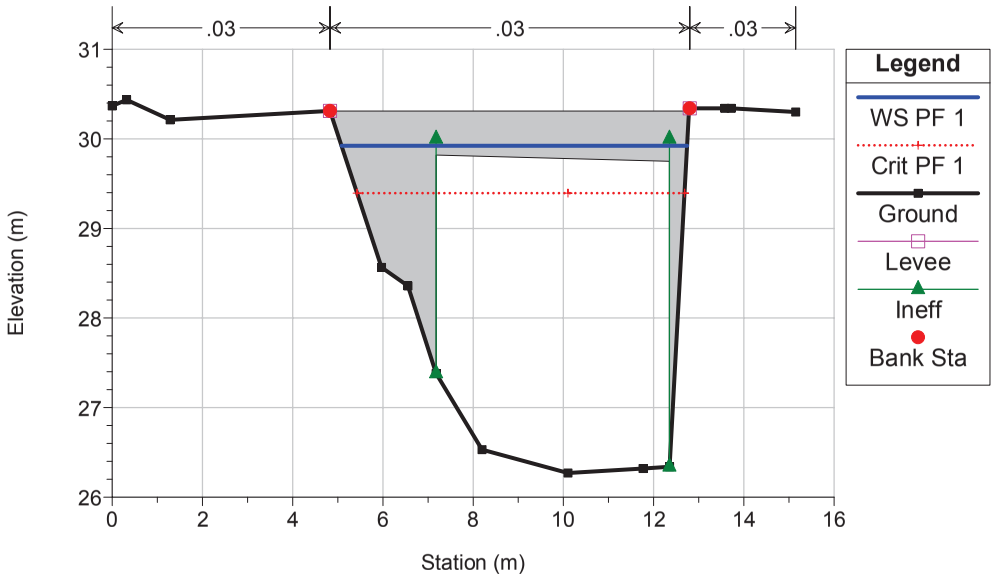
River = Madonna Reach = Madonna RS = 142 BR



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

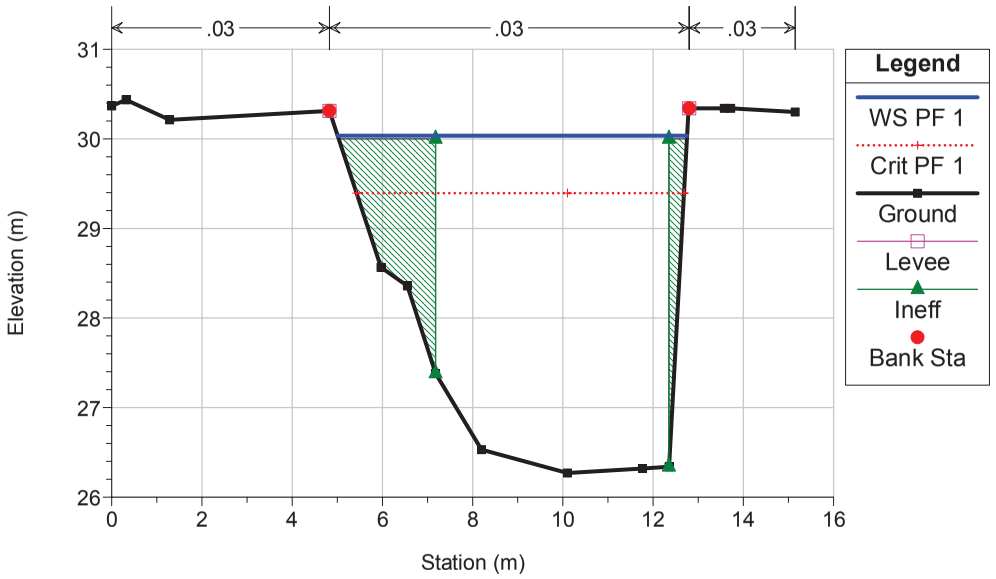
River = Madonna Reach = Madonna RS = 142 BR



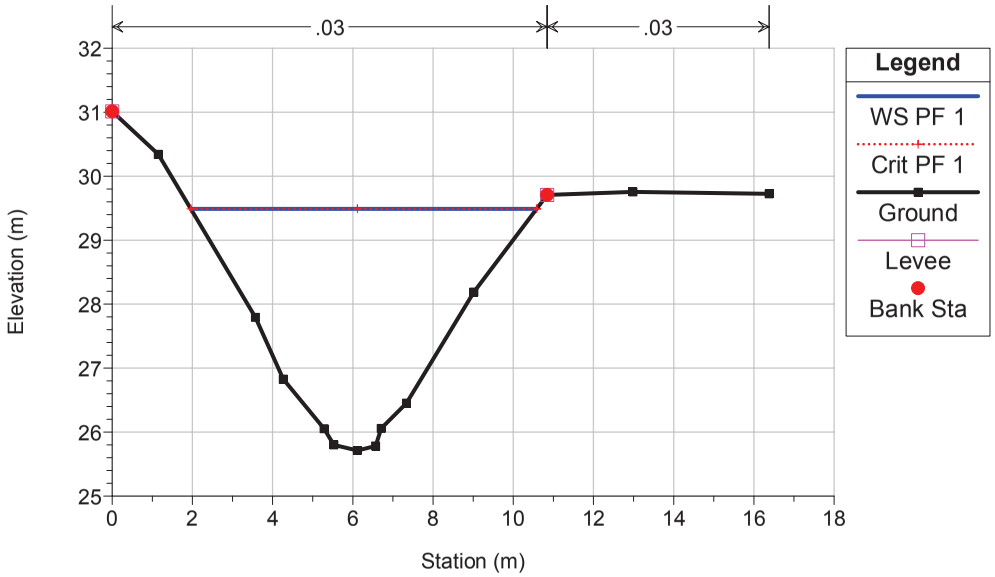
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

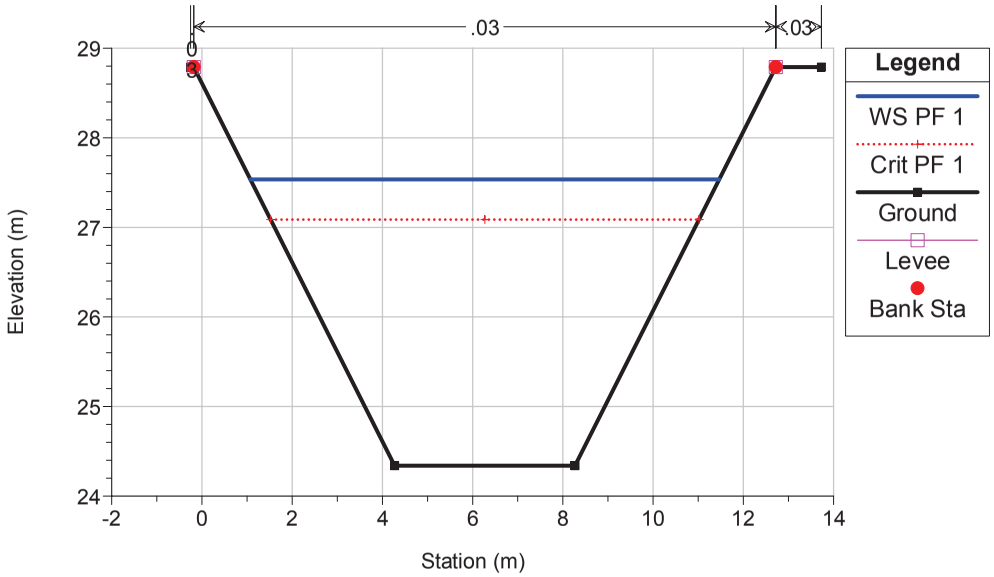
River = Madonna Reach = Madonna RS = 141.9



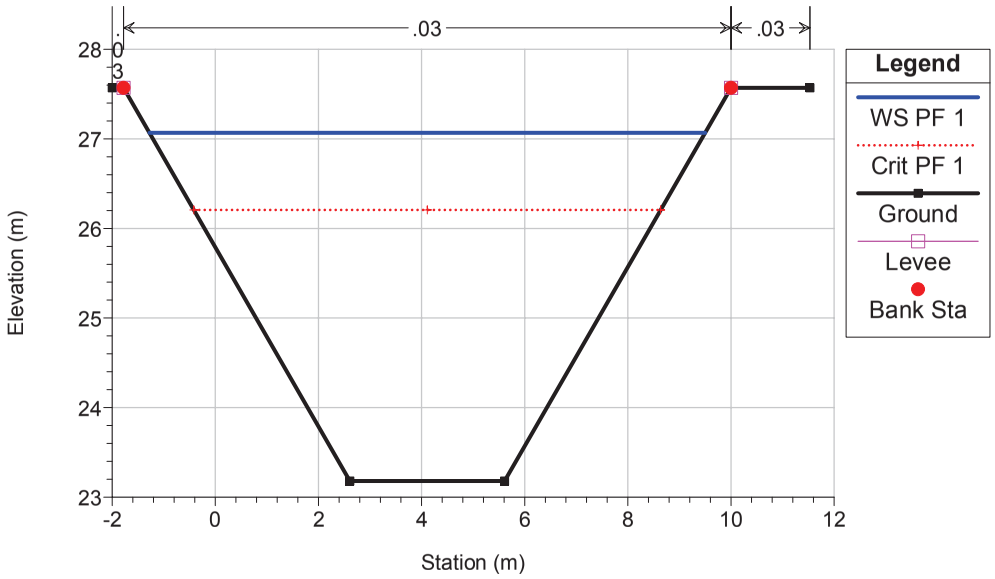
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 141



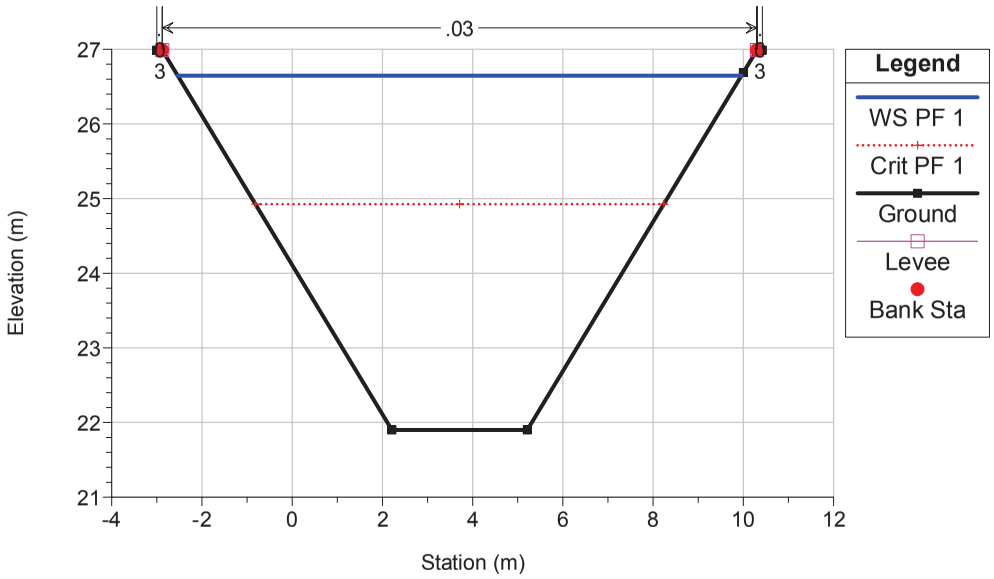
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 140



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 139.1



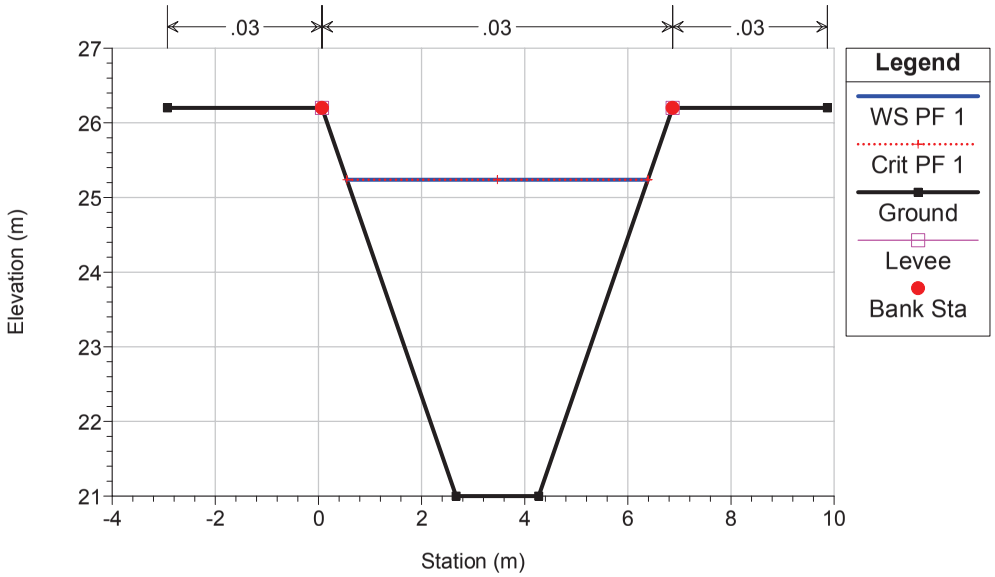
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 138.9



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

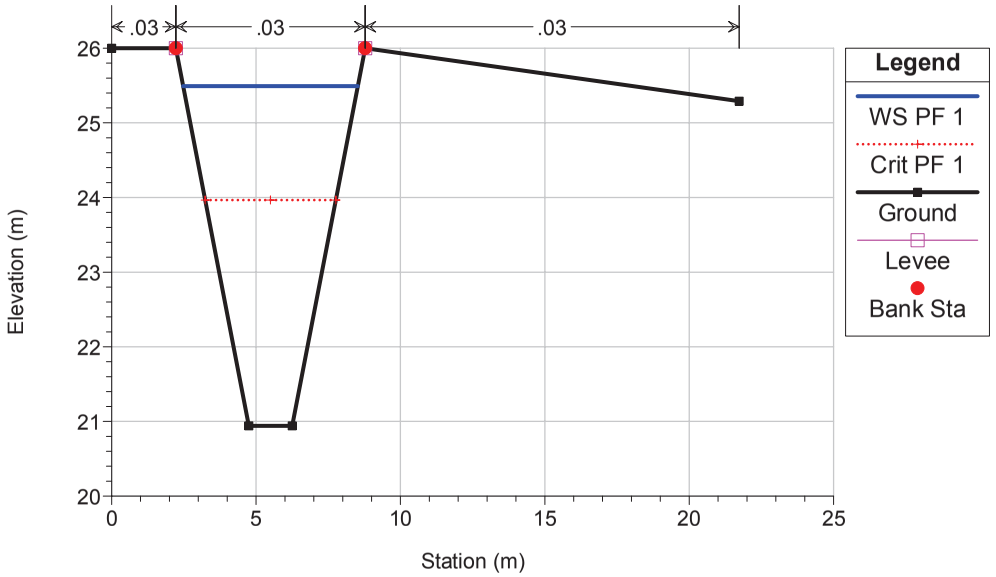
River = Madonna Reach = Madonna RS = 138



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

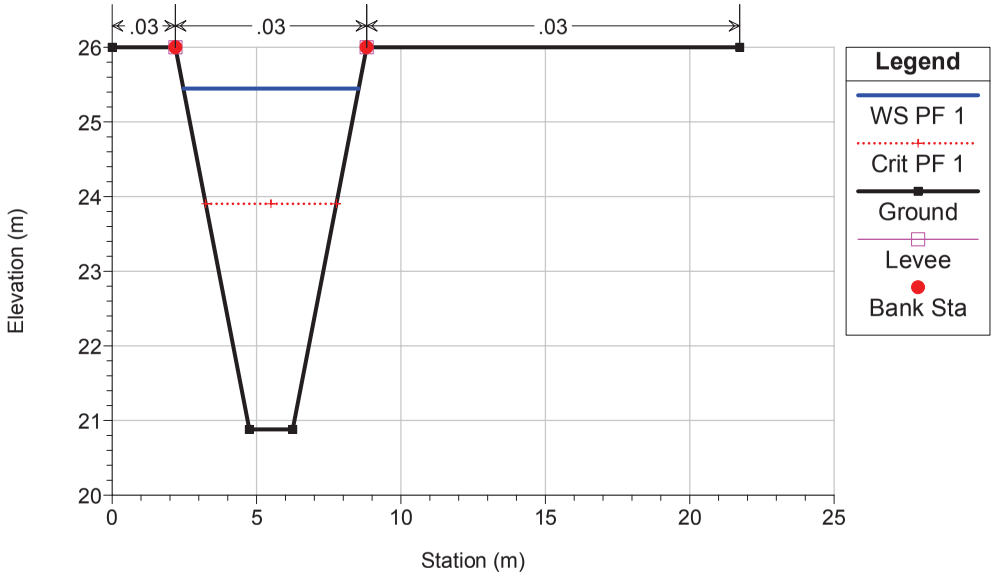
River = Madonna Reach = Madonna RS = 137



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

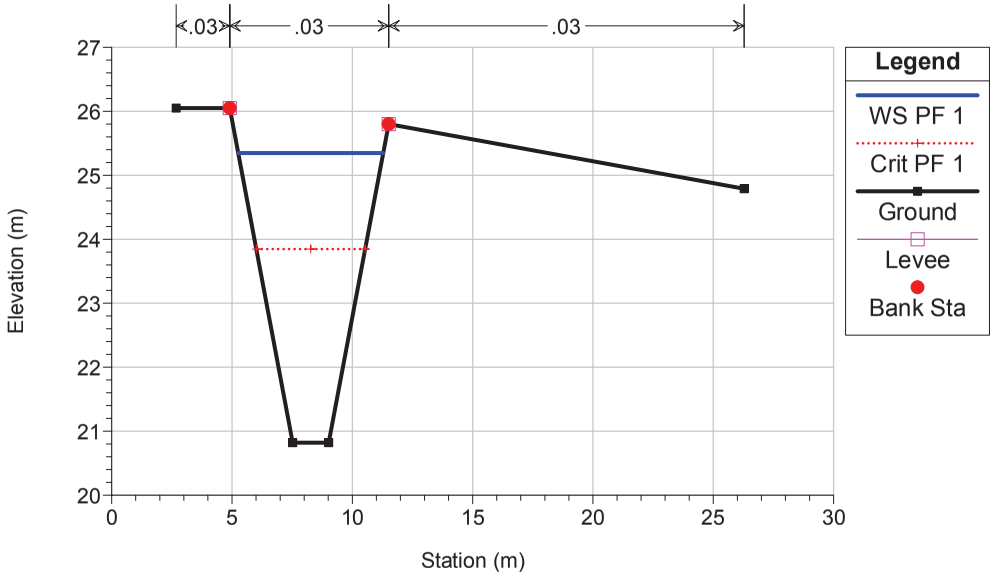
River = Madonna Reach = Madonna RS = 136.8

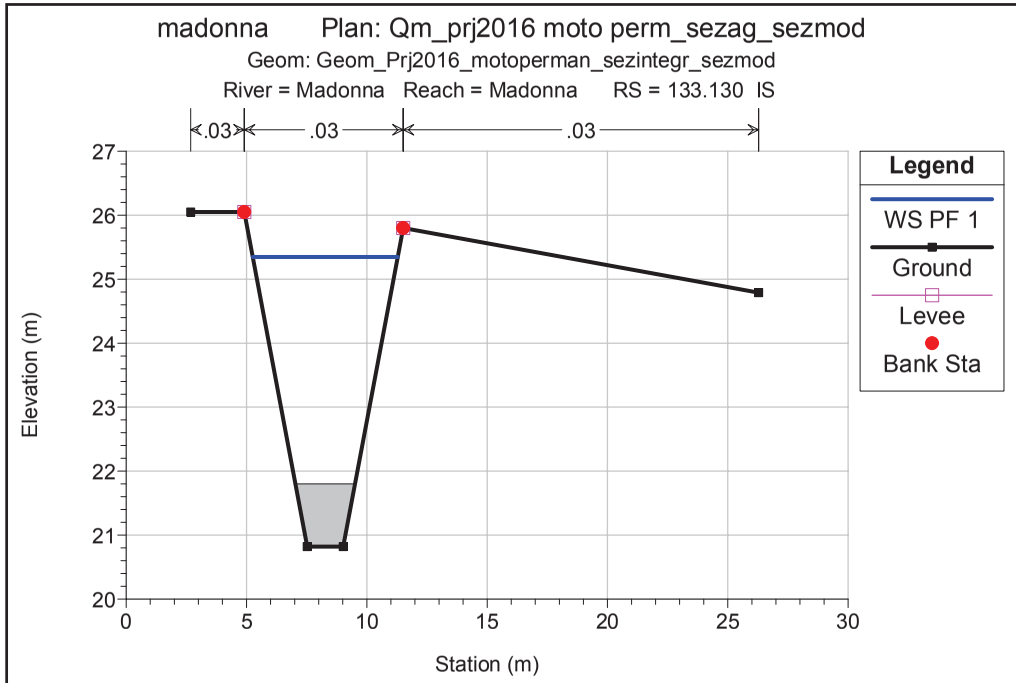


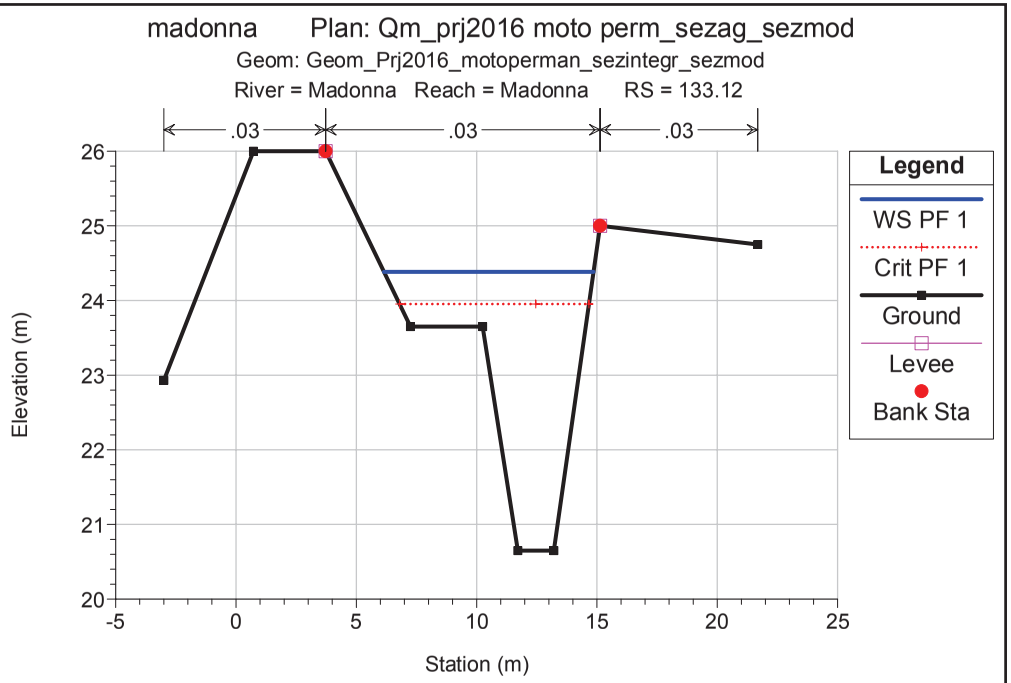
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

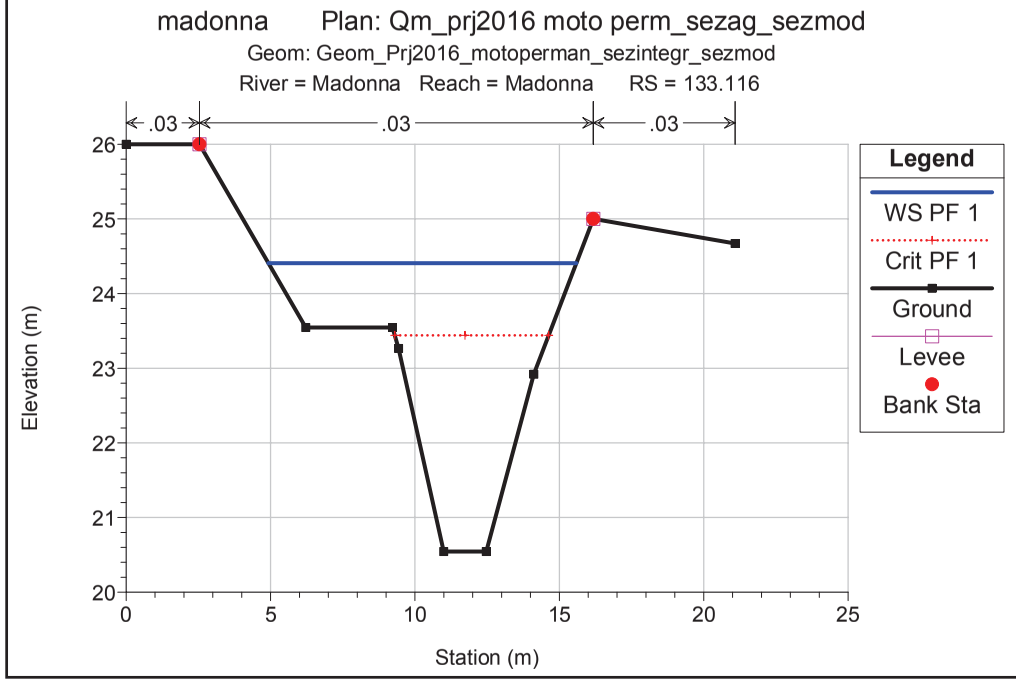
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

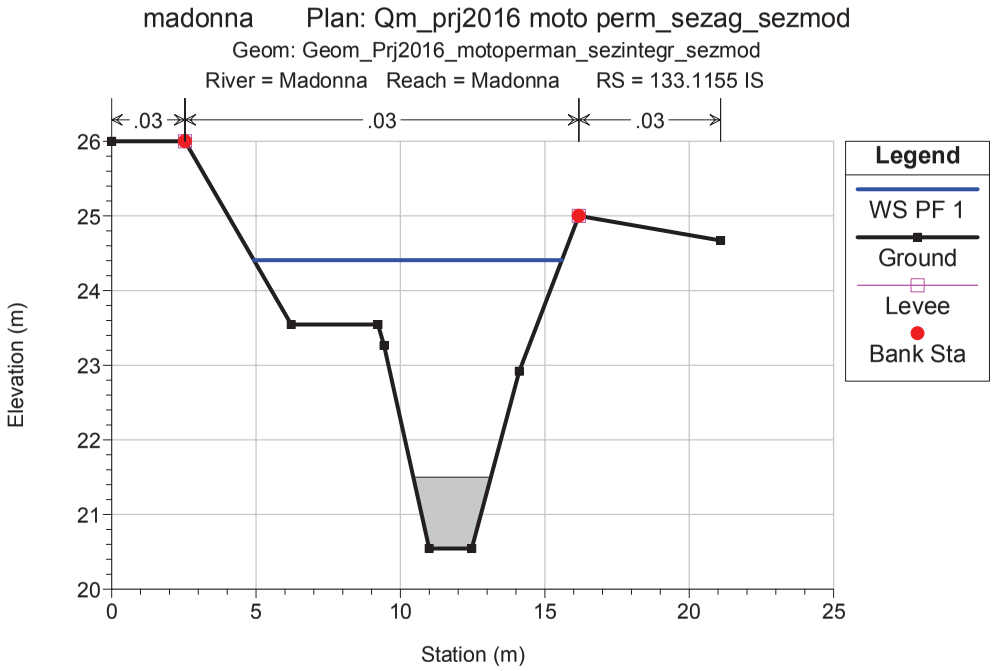
River = Madonna Reach = Madonna RS = 135.6

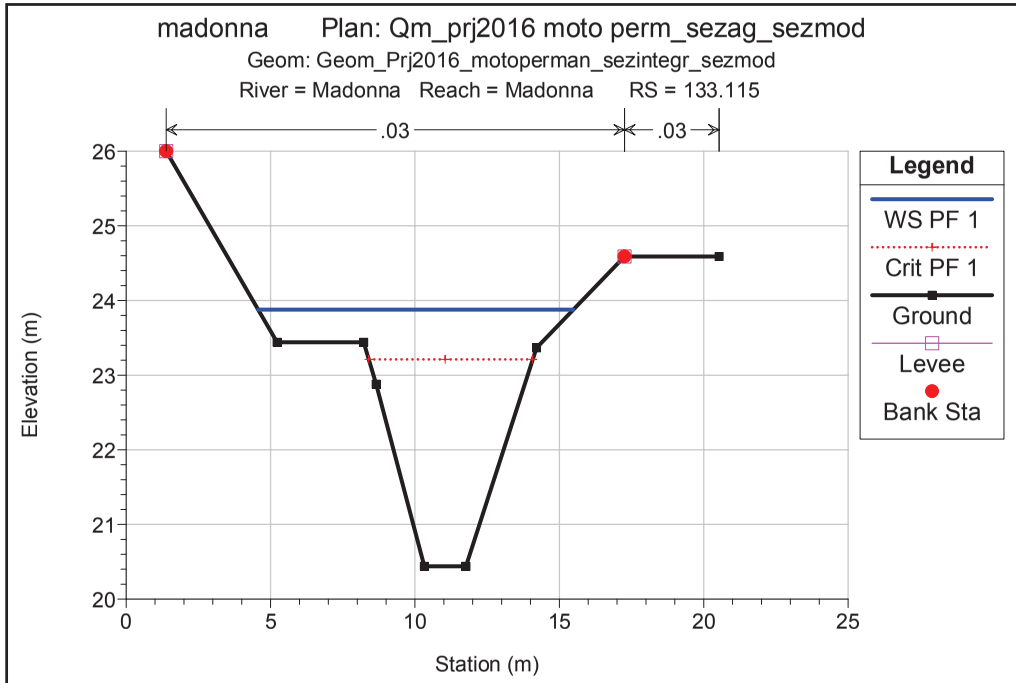


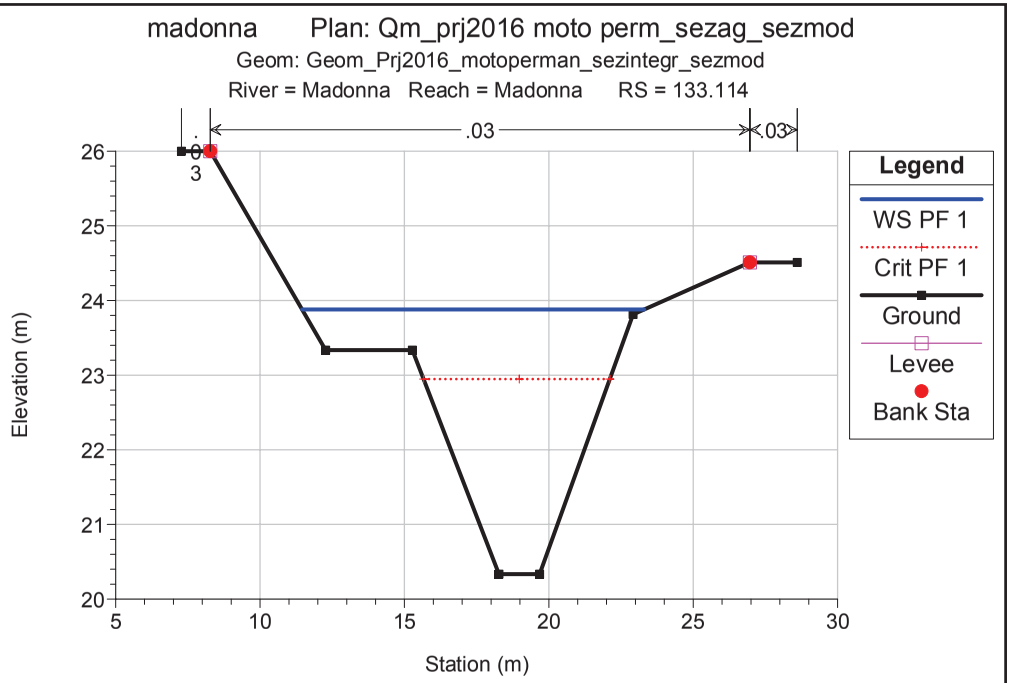

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 133.130 IS
.03
.03
.03
Legend
WS PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

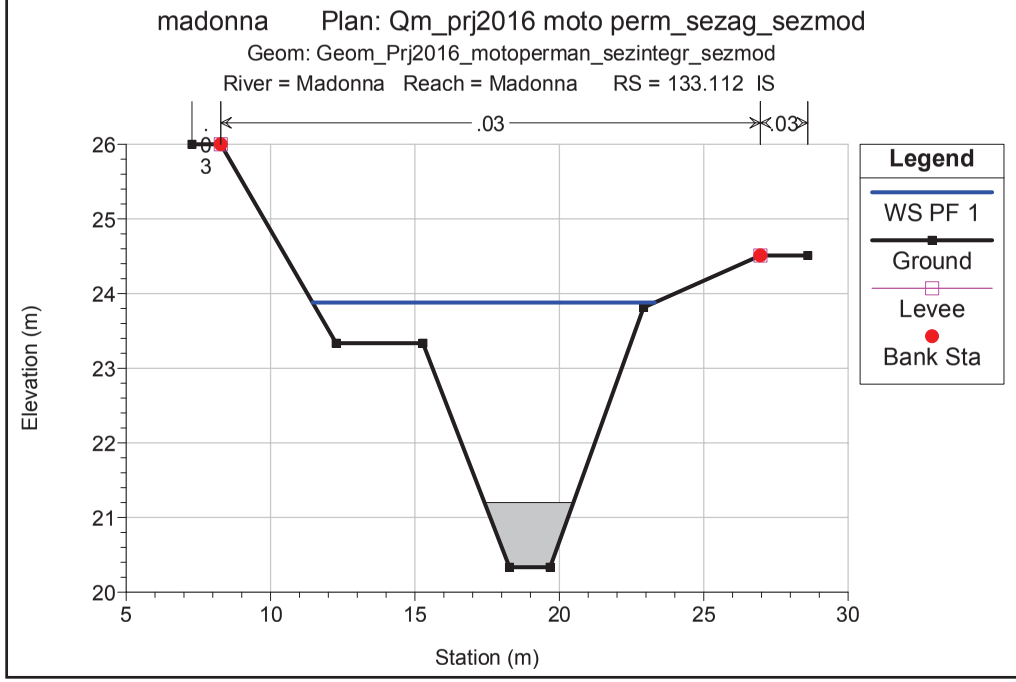

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 133.12
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

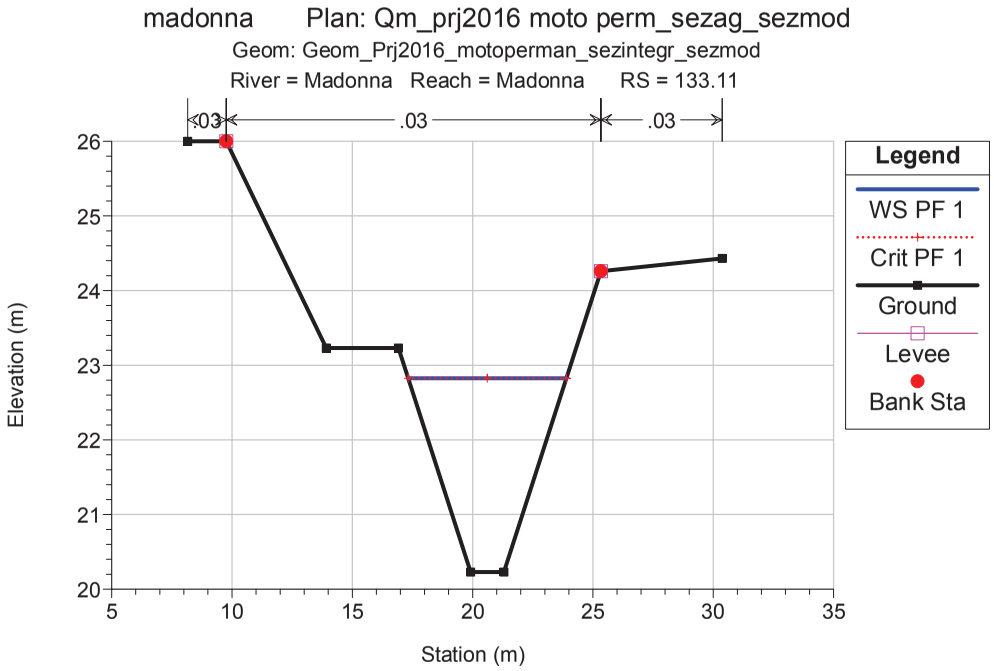

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 133.116
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

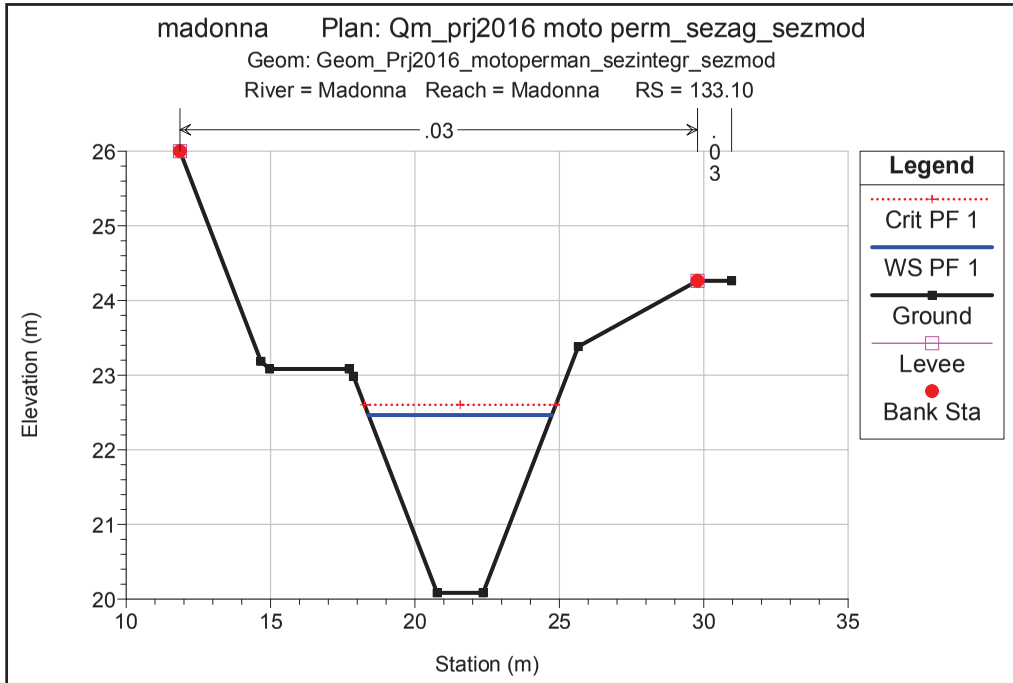

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 133.1155 IS
.03
.03
.03
Legend
WS PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

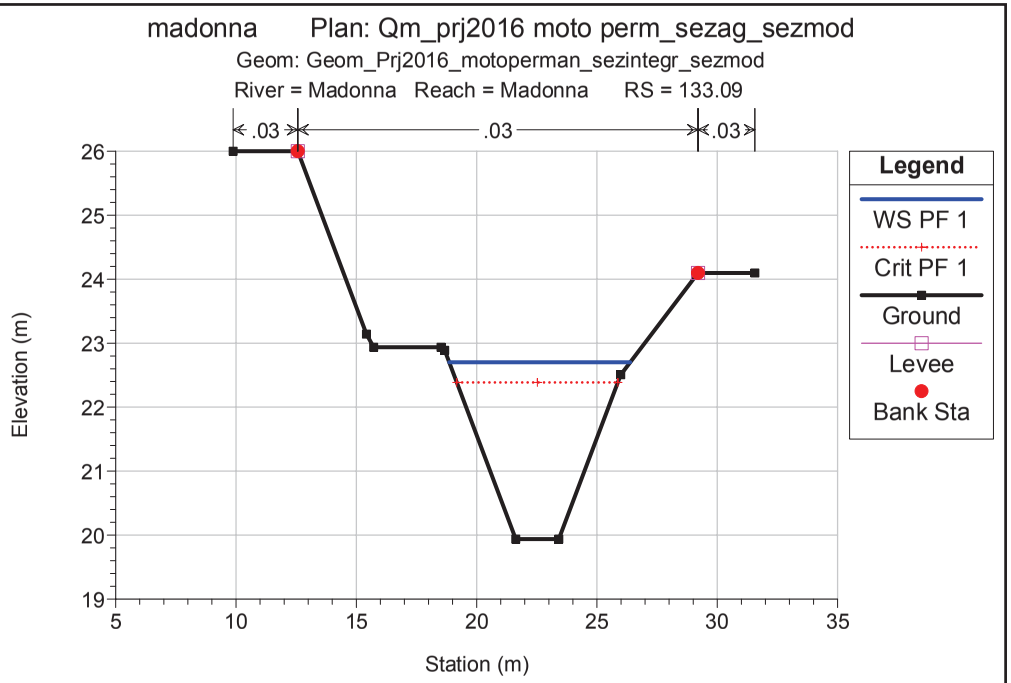

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 133.115
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

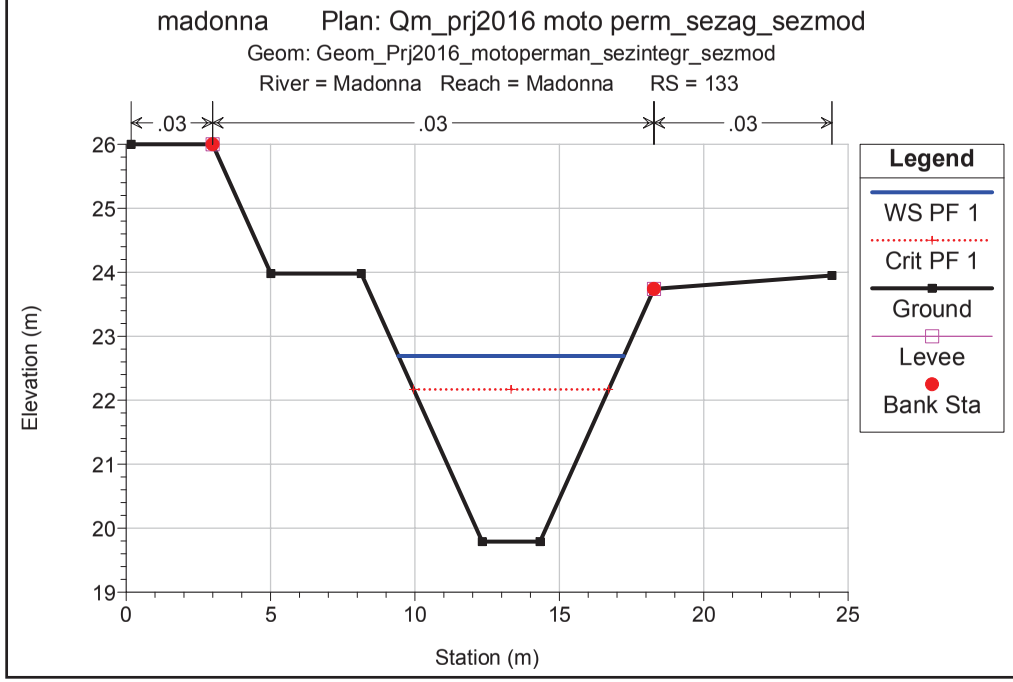

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 133.114
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

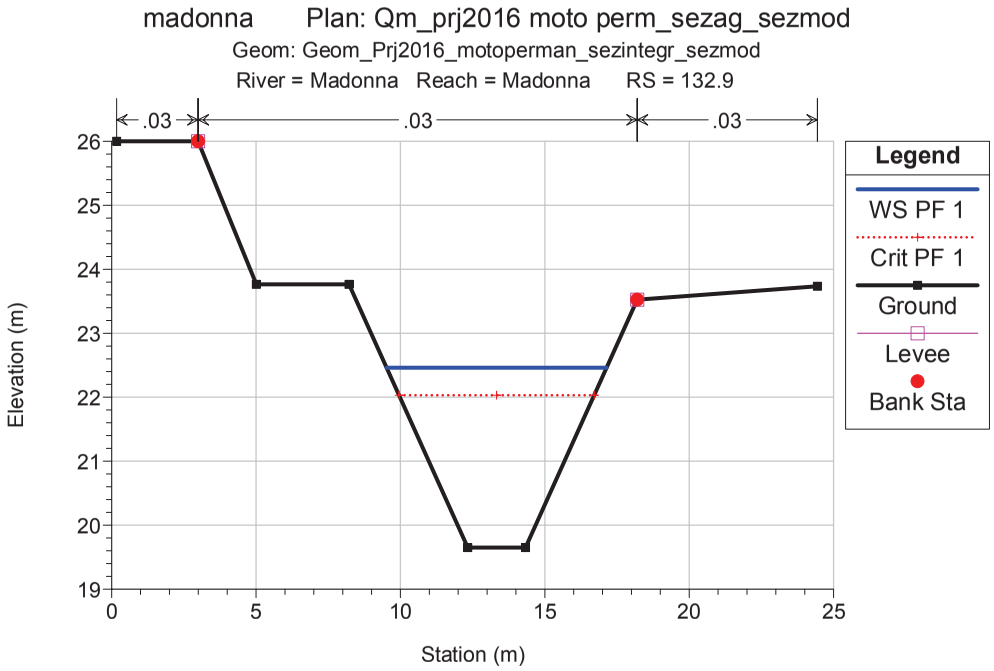

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 133.112 IS
.03
.03
Legend
WS PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

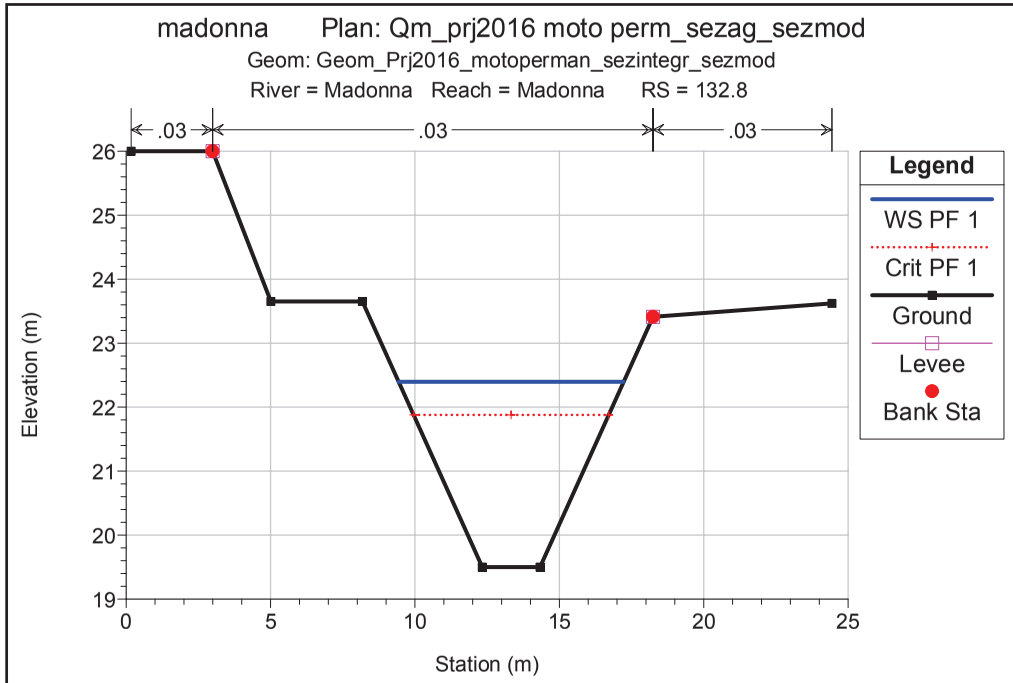

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 133.11
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

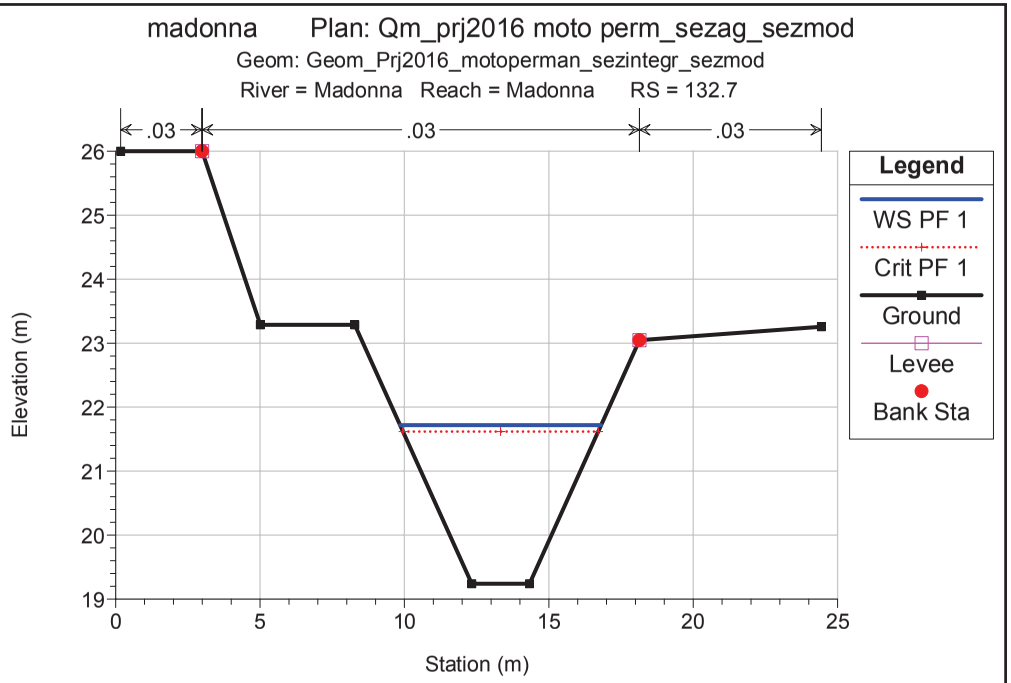

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 133.10
.03
.03
Legend
Crit PF 1
WS PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

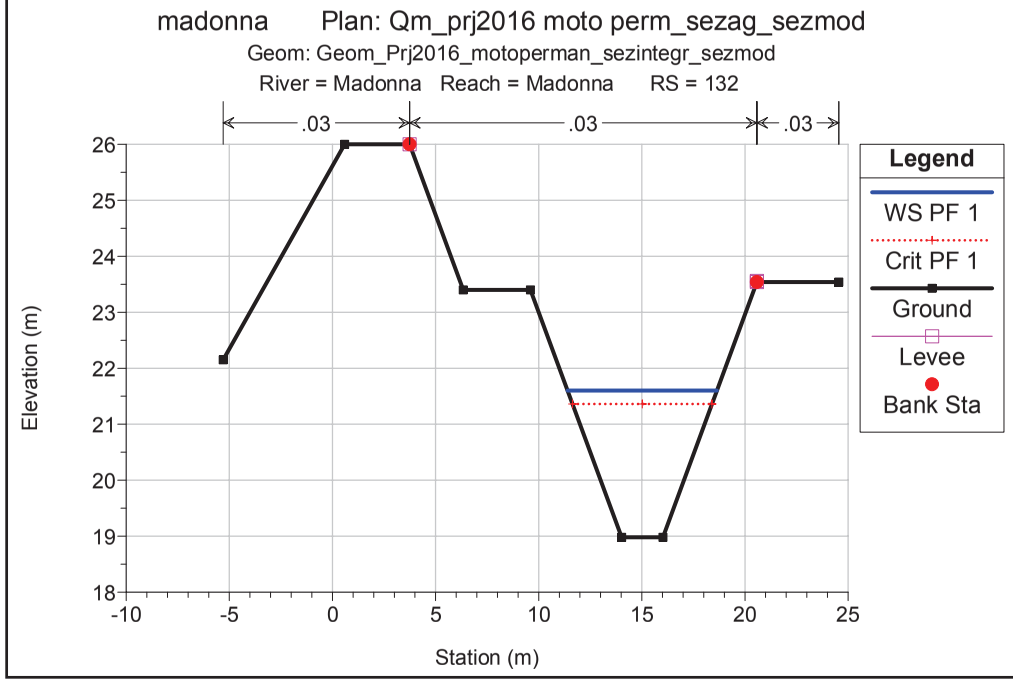

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 133.09
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

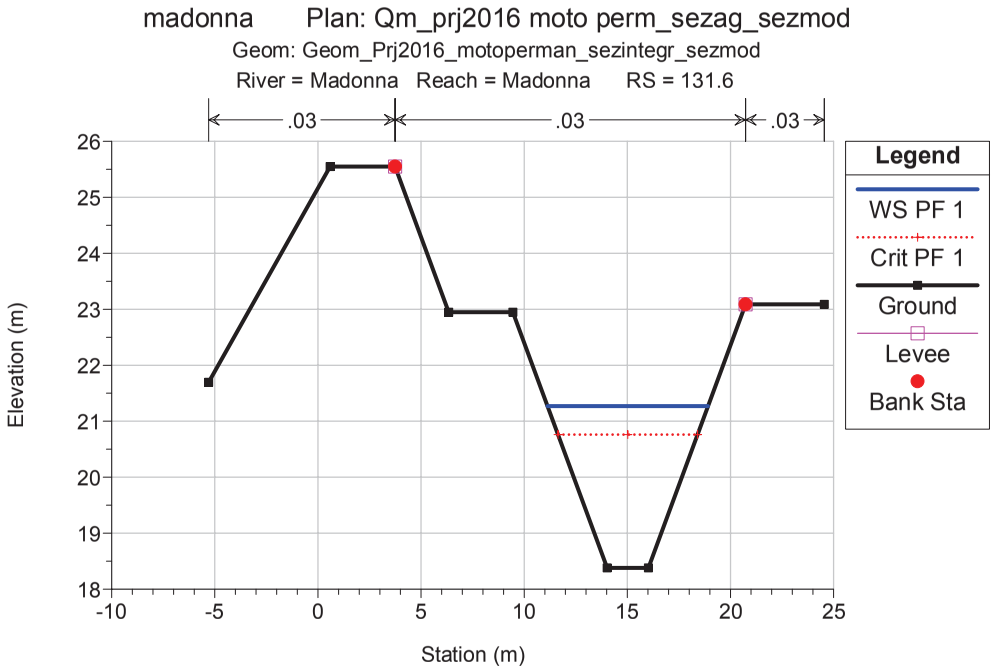

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 133
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

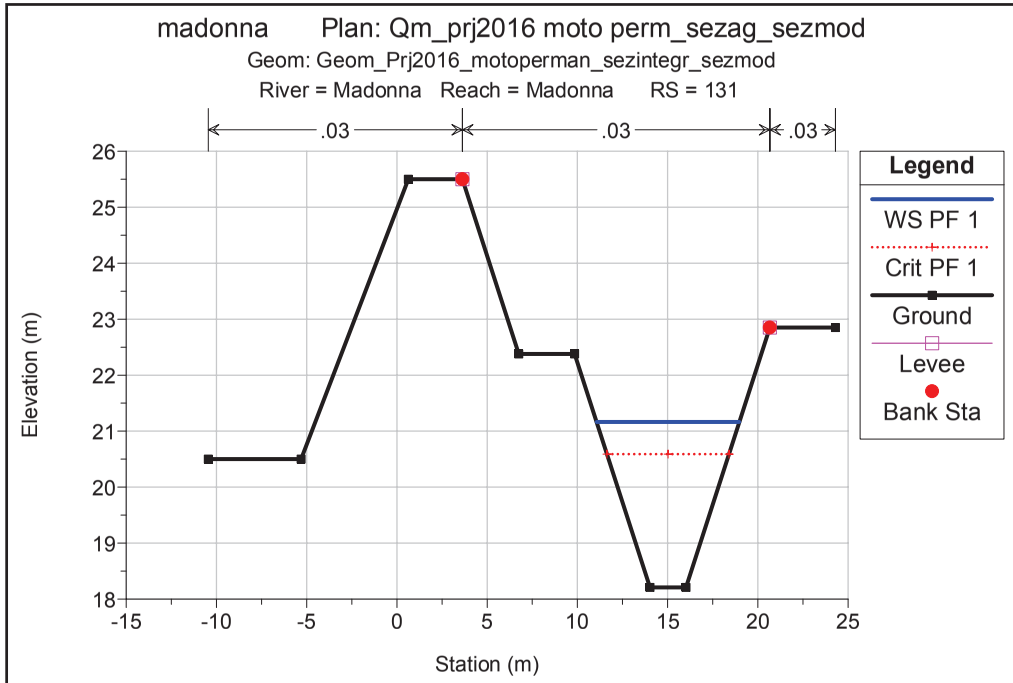

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 132.9
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

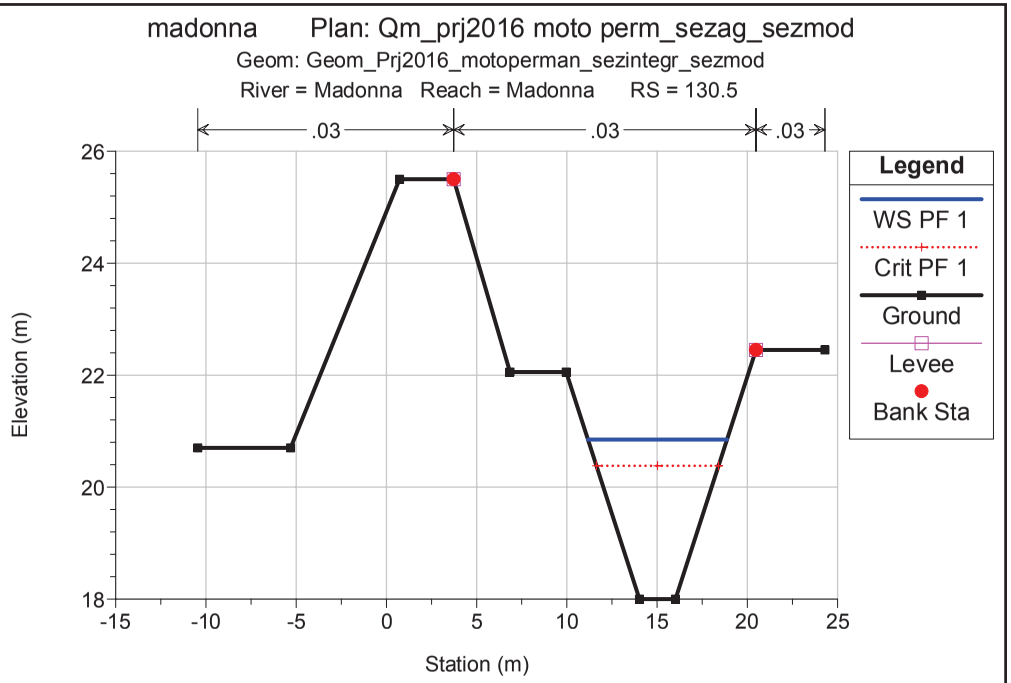

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 132.8
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

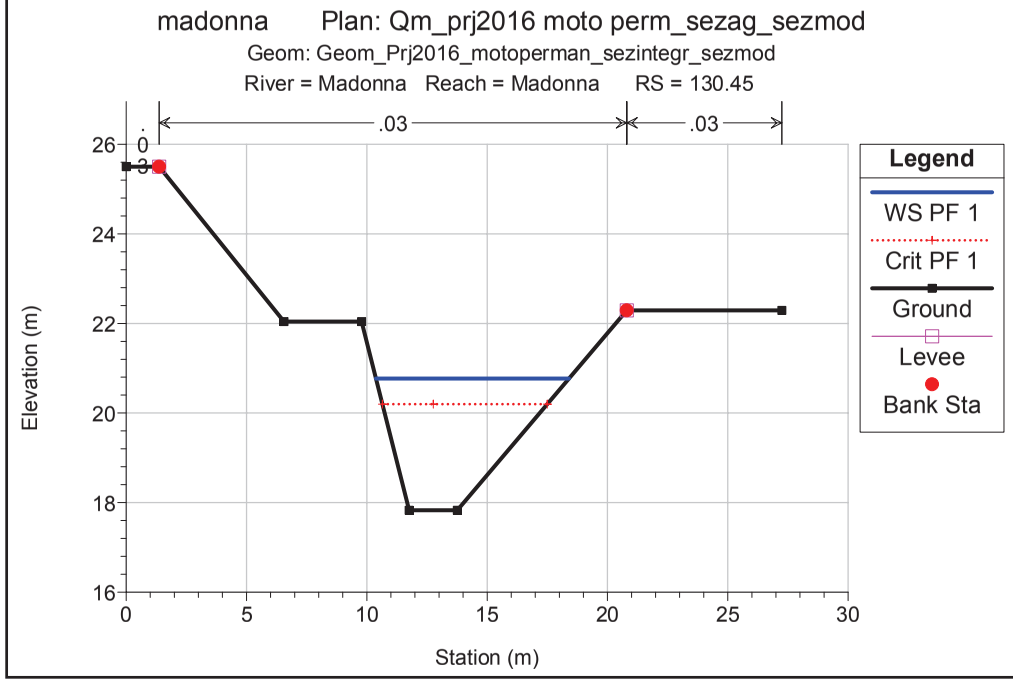

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 132.7
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

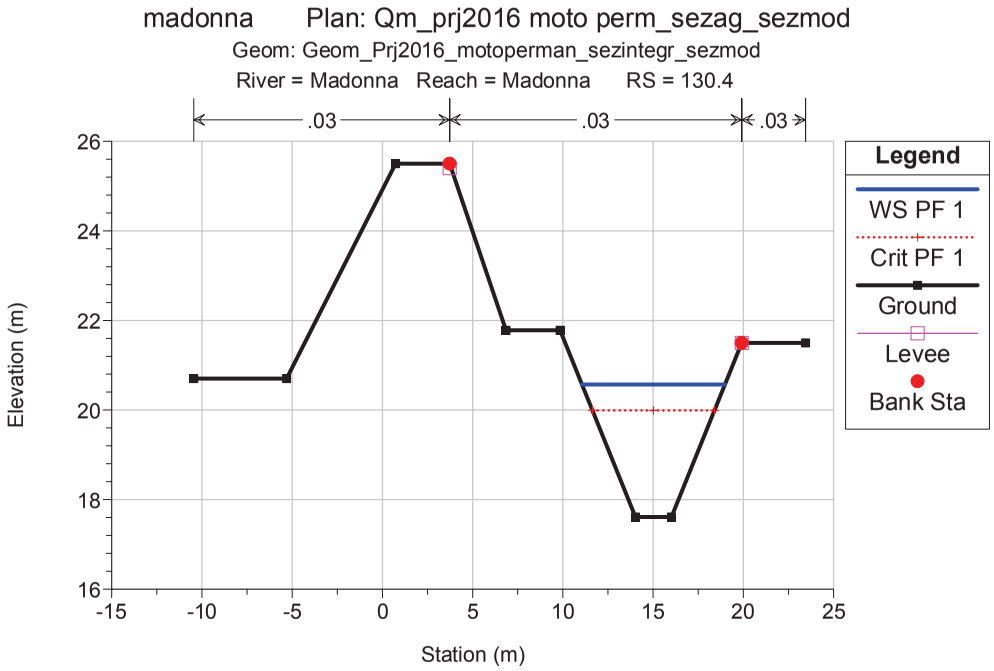

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 132
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

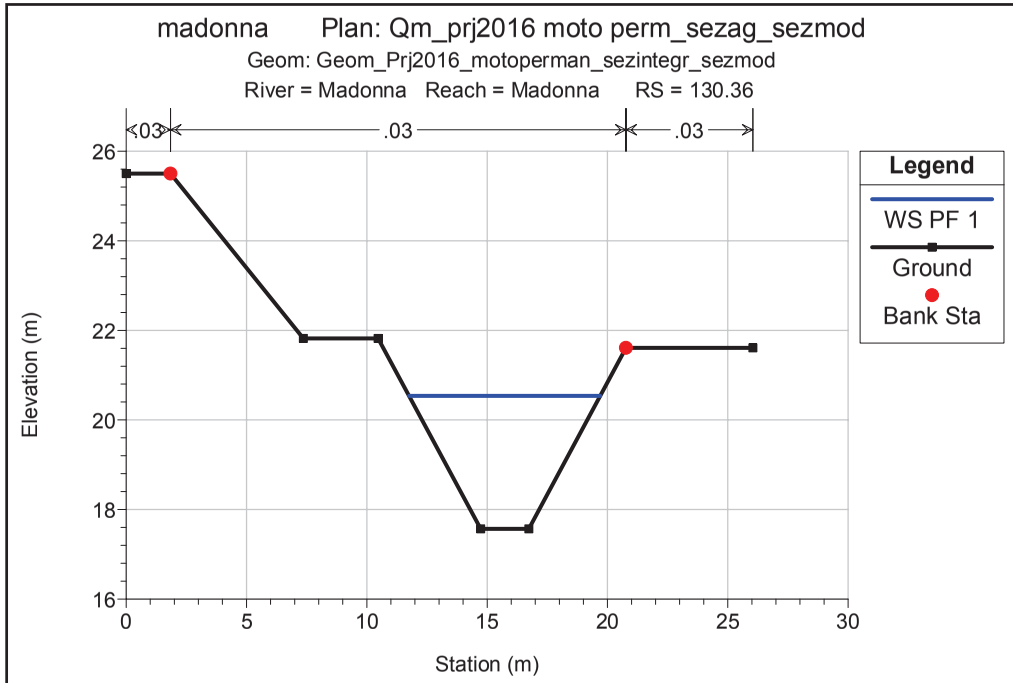

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 131.6
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

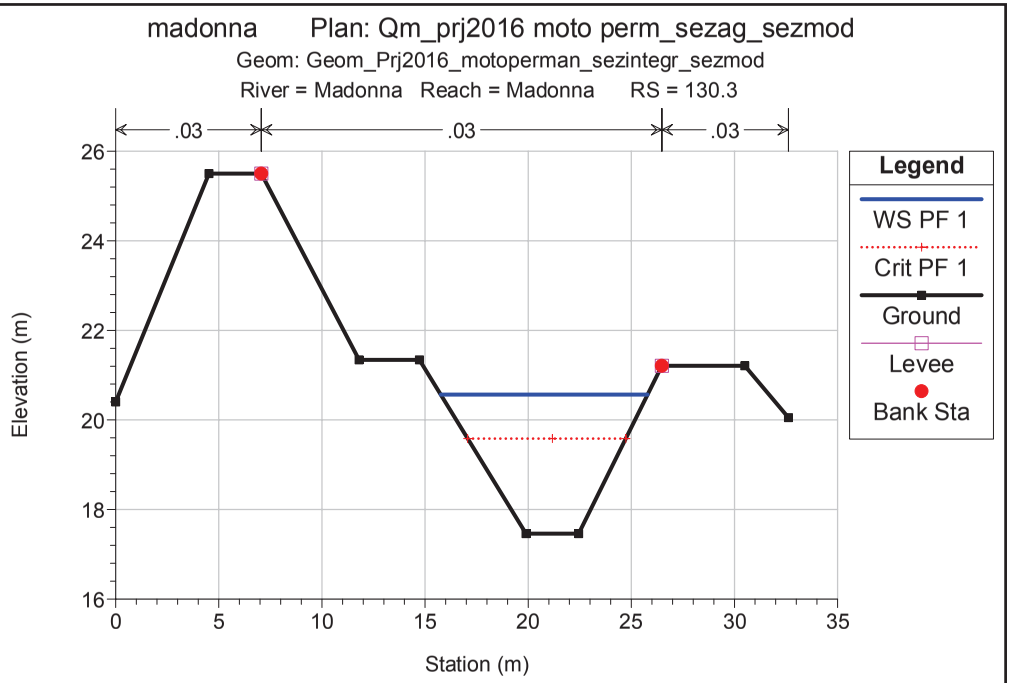

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 131
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

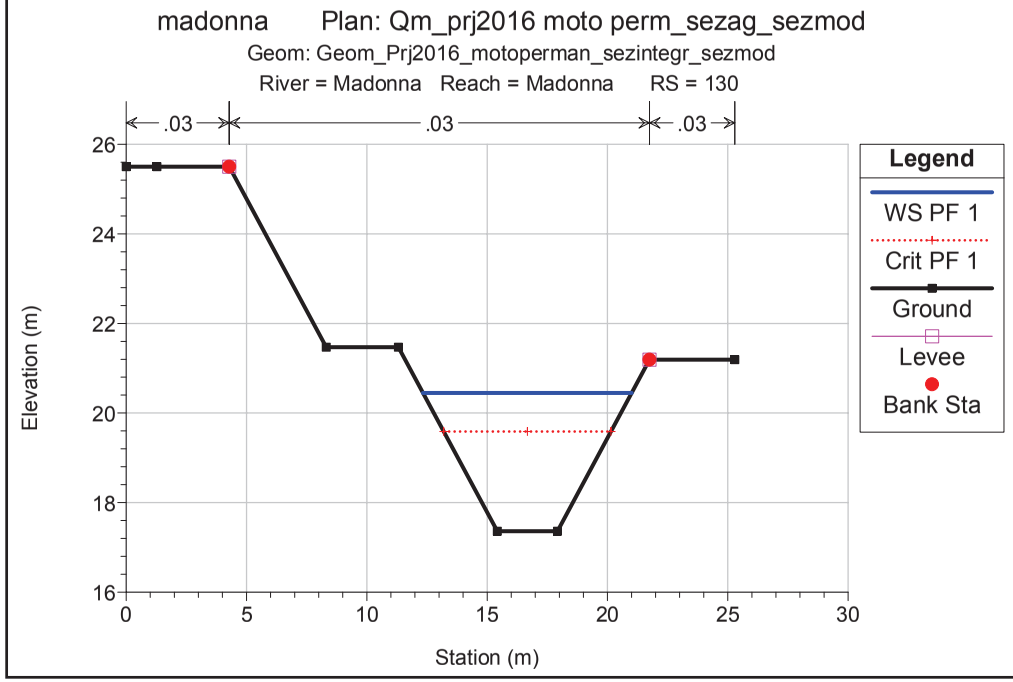

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 130.5
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

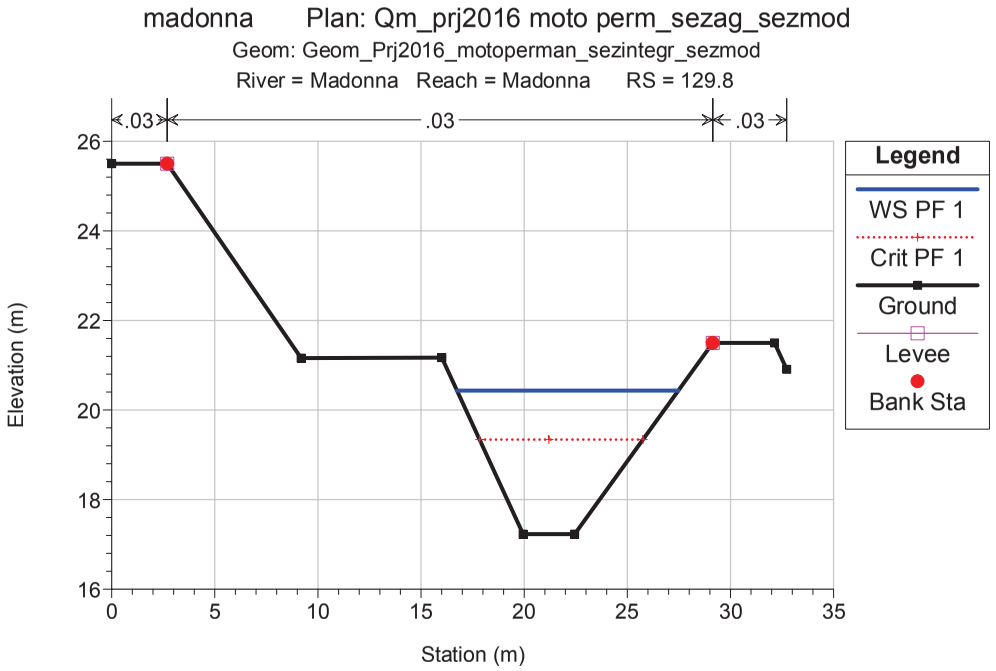

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 130.45
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

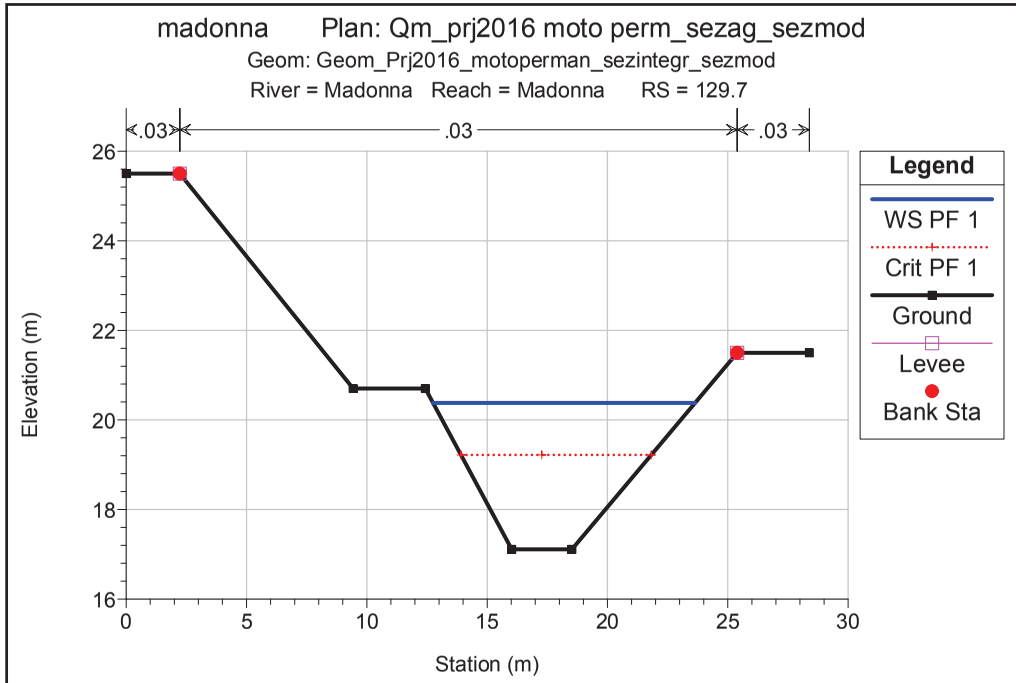

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 130.4
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

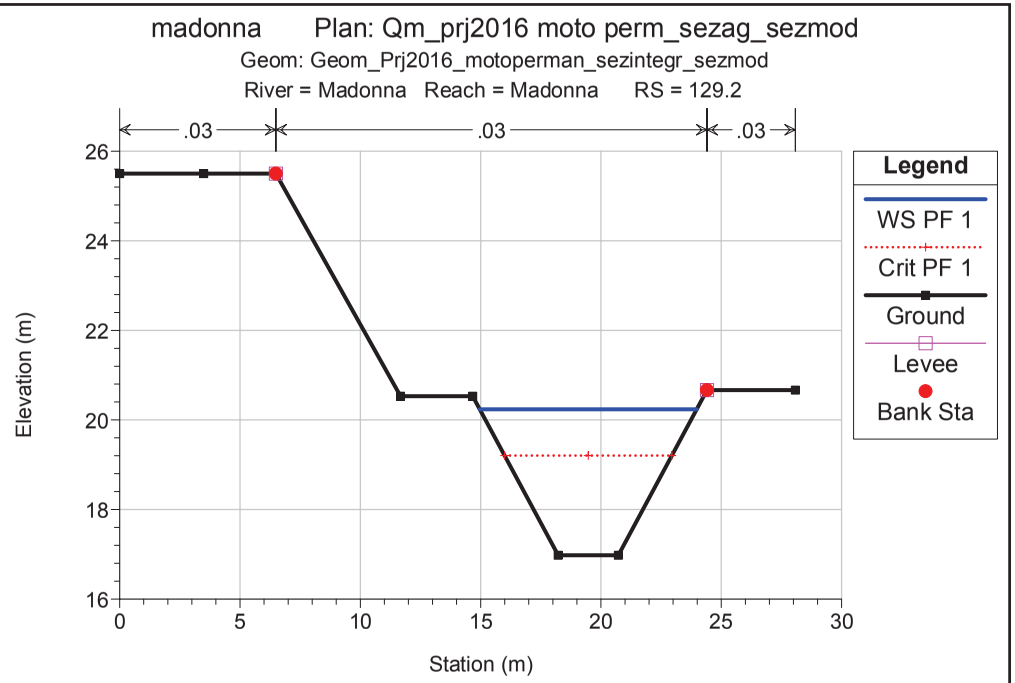

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 130.36
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

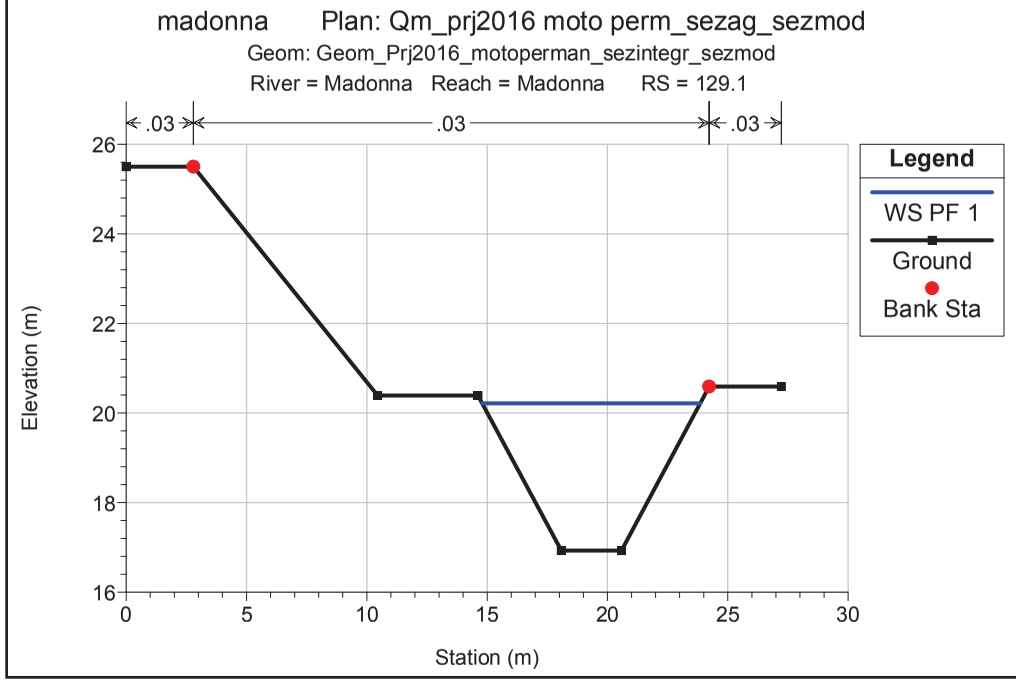

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 130.3
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

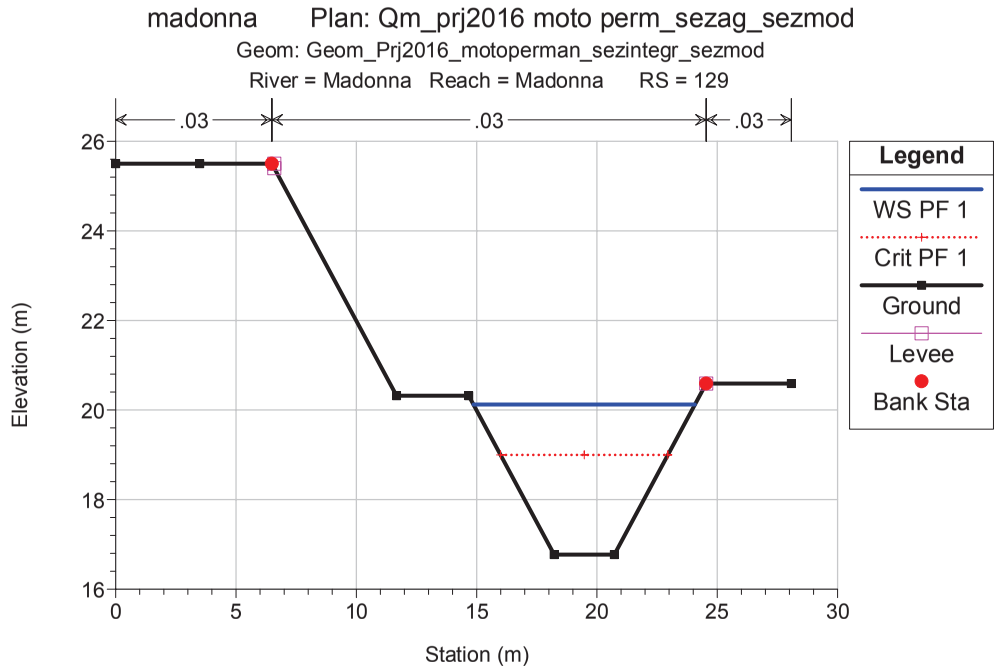

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 130
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 129.8
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 129.7
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
16
18
20
22
24
26
0
5
10
15
20
25
30


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 129.2
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
16
18
20
22
24
26
0
5
10
15
20
25
30

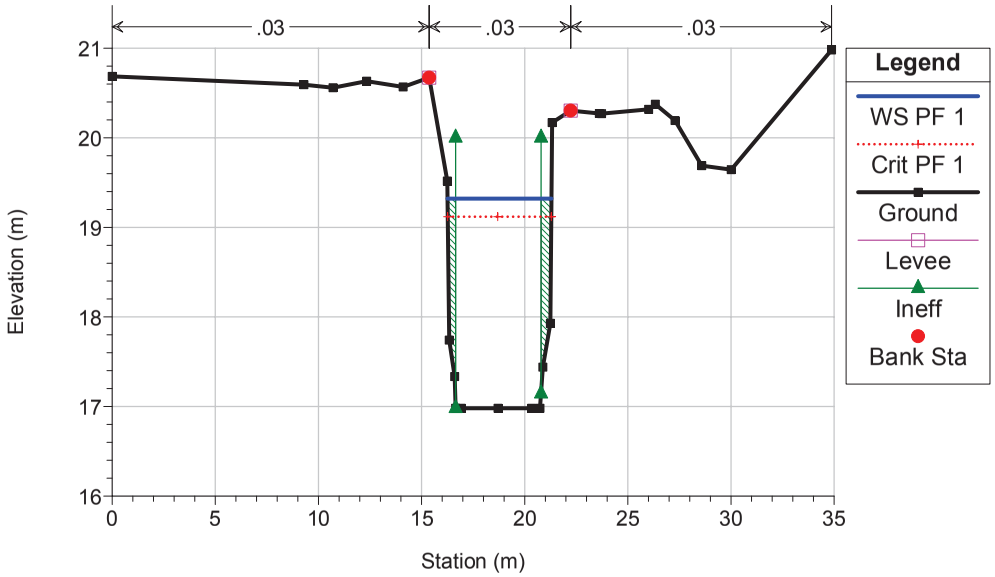

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 129.1
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)
16
18
20
22
24
26
0
5
10
15
20
25
30


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 129
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
16
18
20
22
24
26
0
5
10
15
20
25
30

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

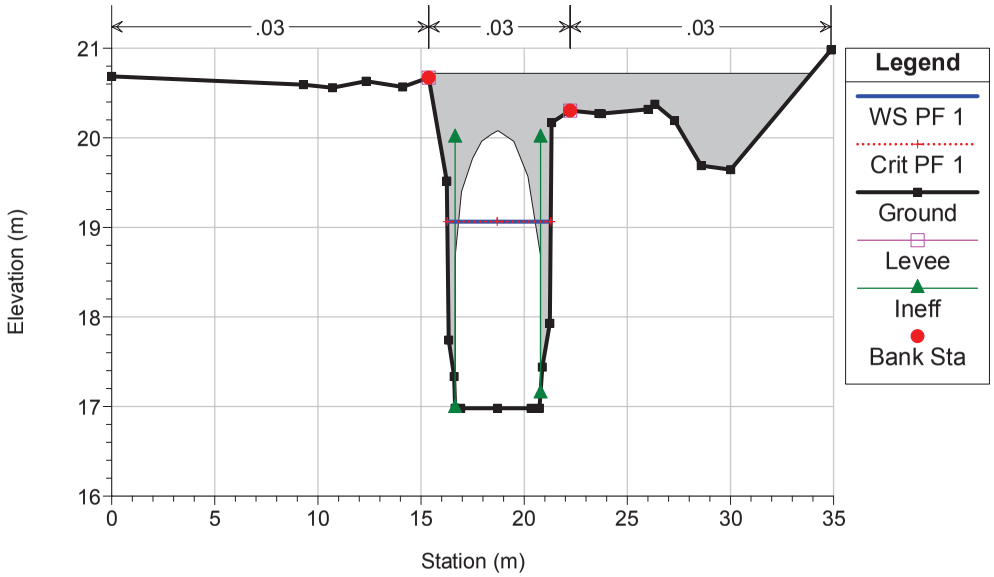
River = Madonna Reach = Madonna RS = 128.1



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

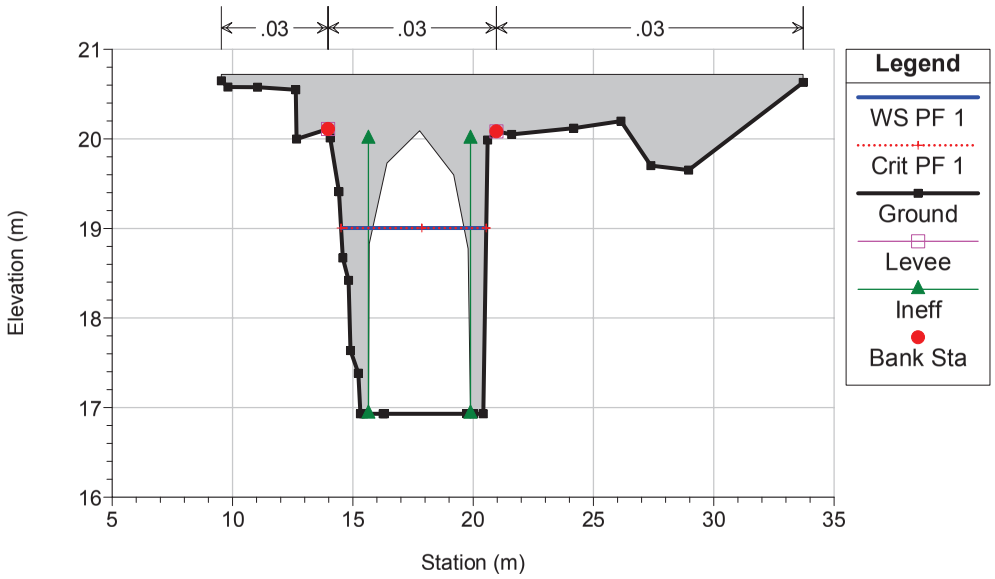
River = Madonna Reach = Madonna RS = 128 BR



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

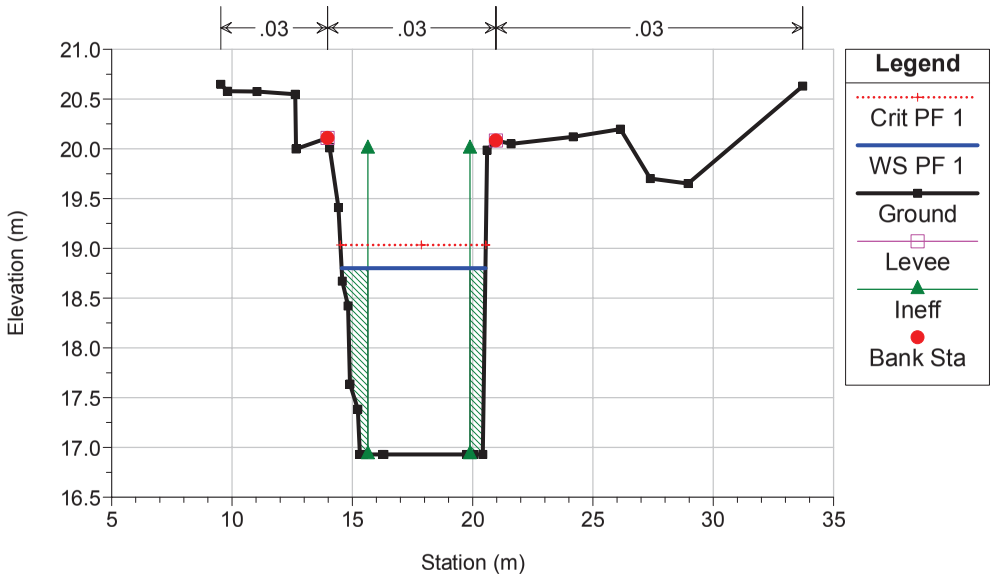
River = Madonna Reach = Madonna RS = 128 BR



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

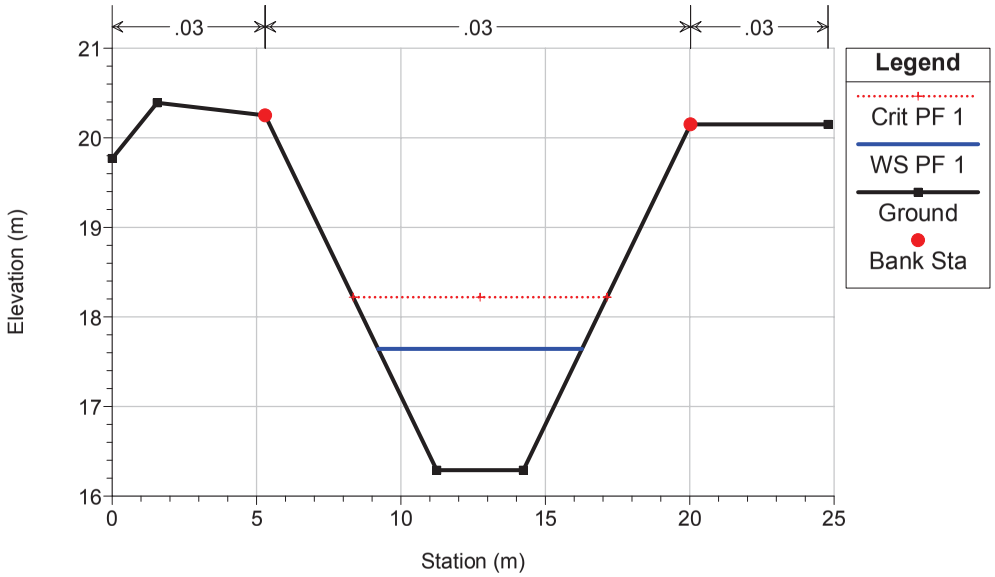
River = Madonna Reach = Madonna RS = 127.9



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

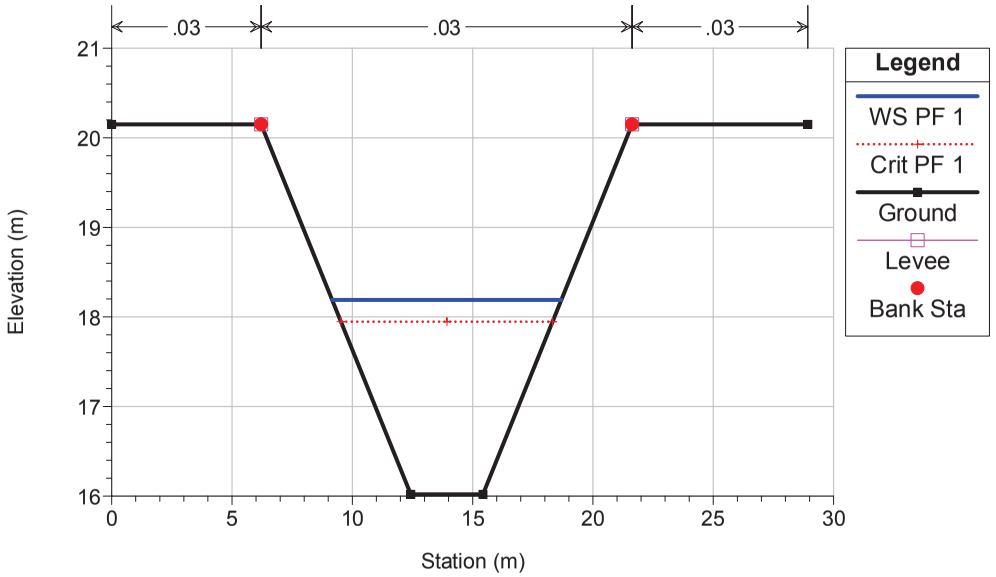
River = Madonna Reach = Madonna RS = 127.1



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

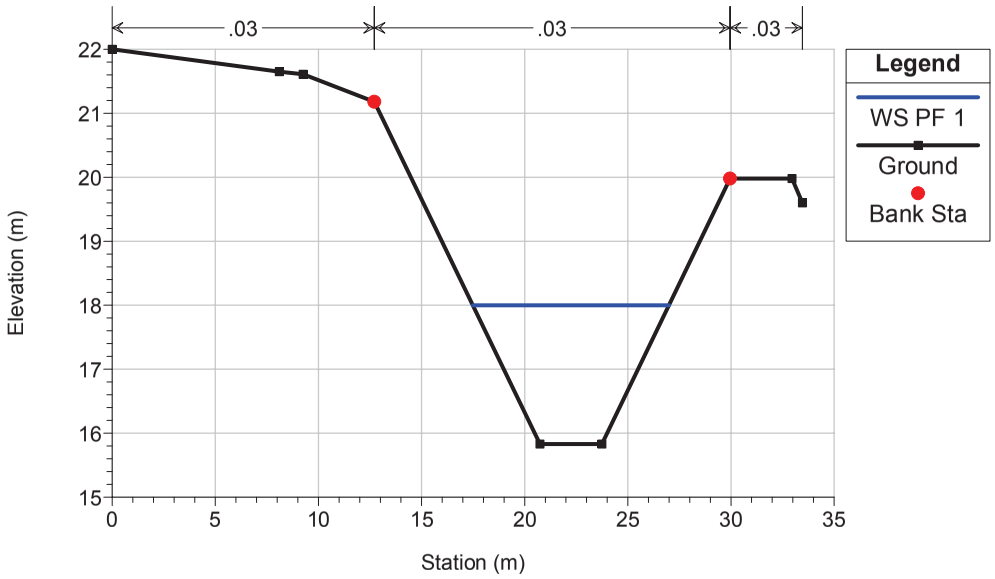
River = Madonna Reach = Madonna RS = 127



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

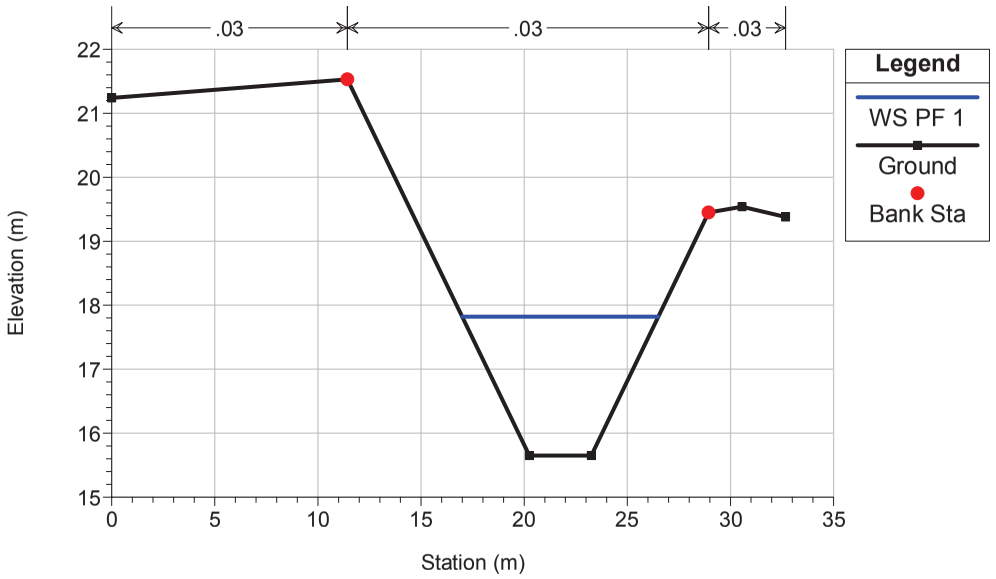
River = Madonna Reach = Madonna RS = 126.3

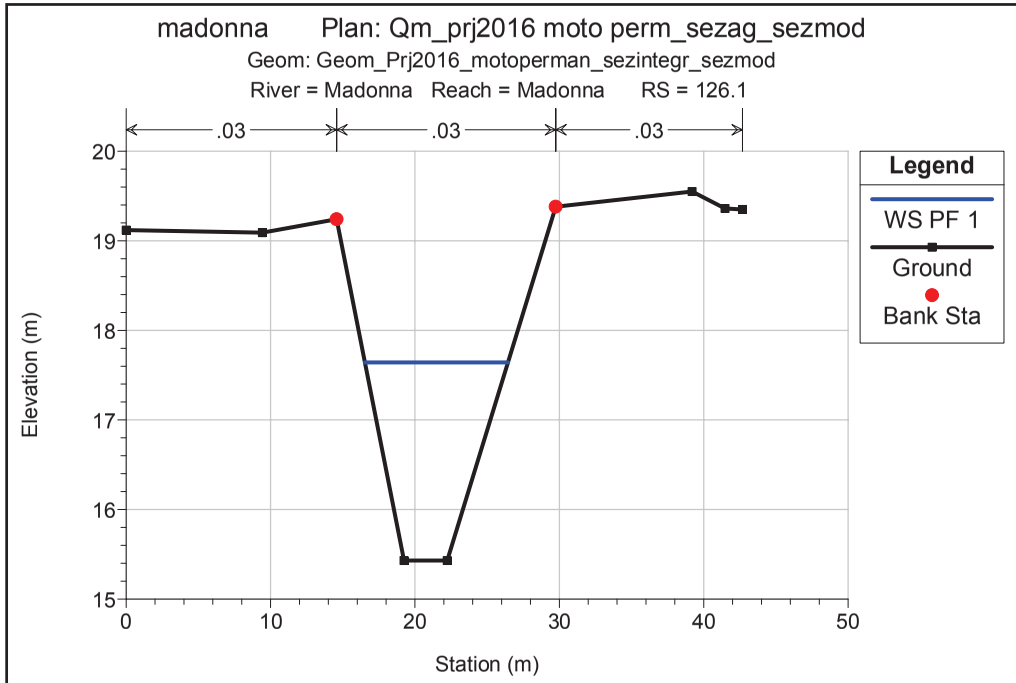


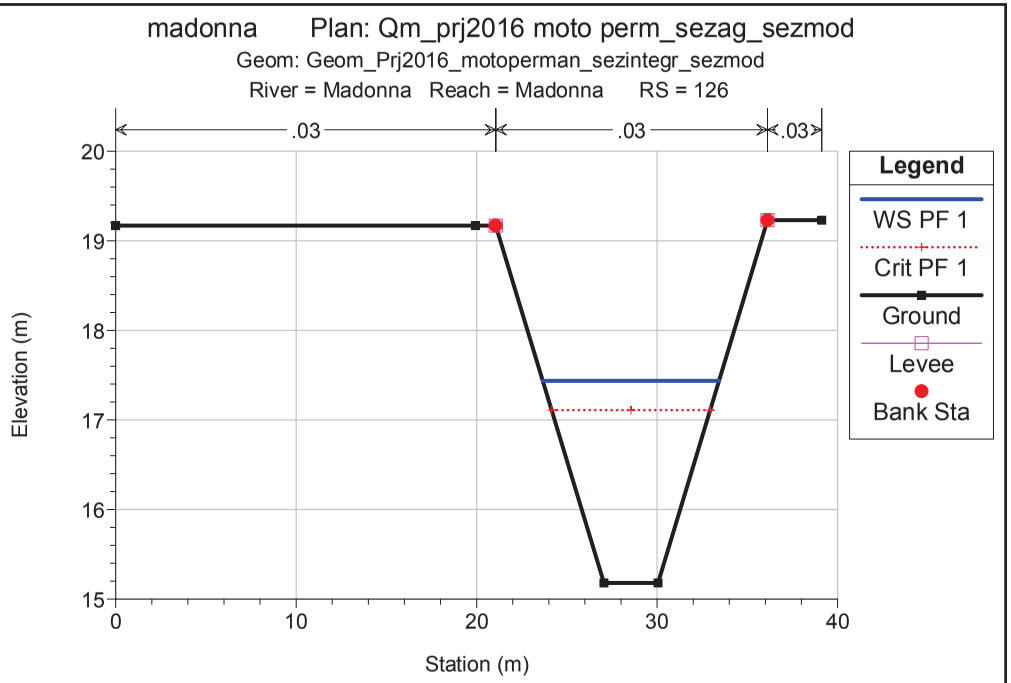
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

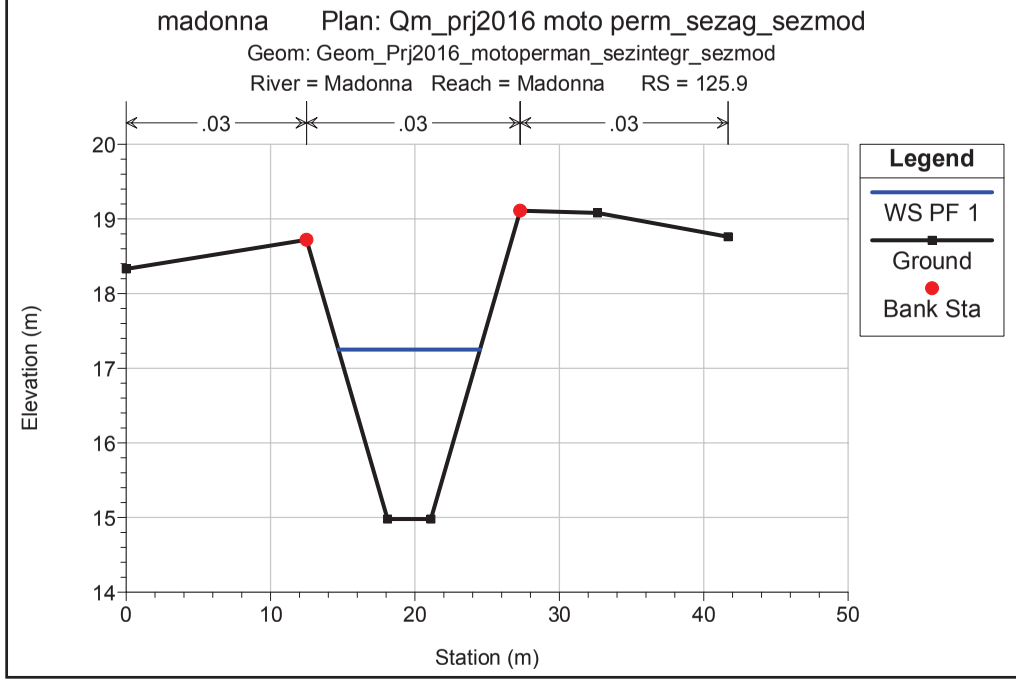
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

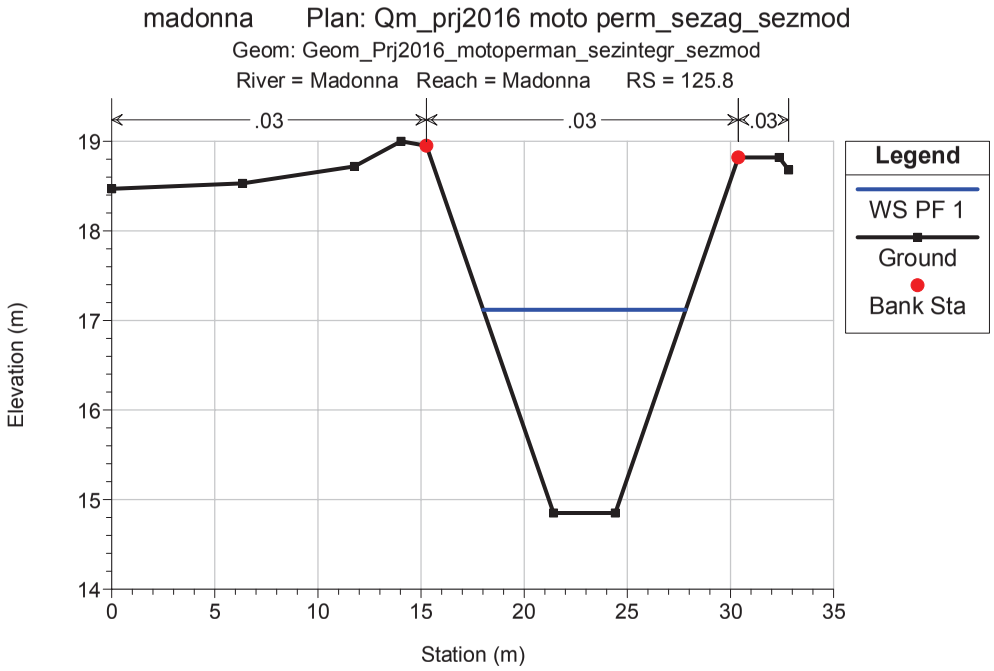
River = Madonna Reach = Madonna RS = 126.2

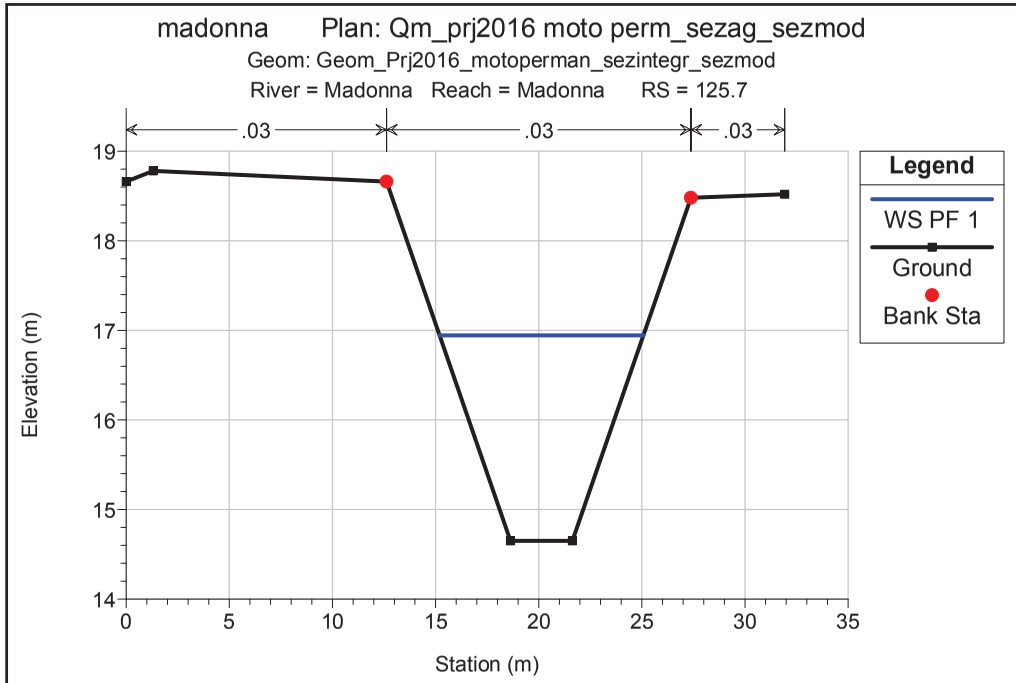


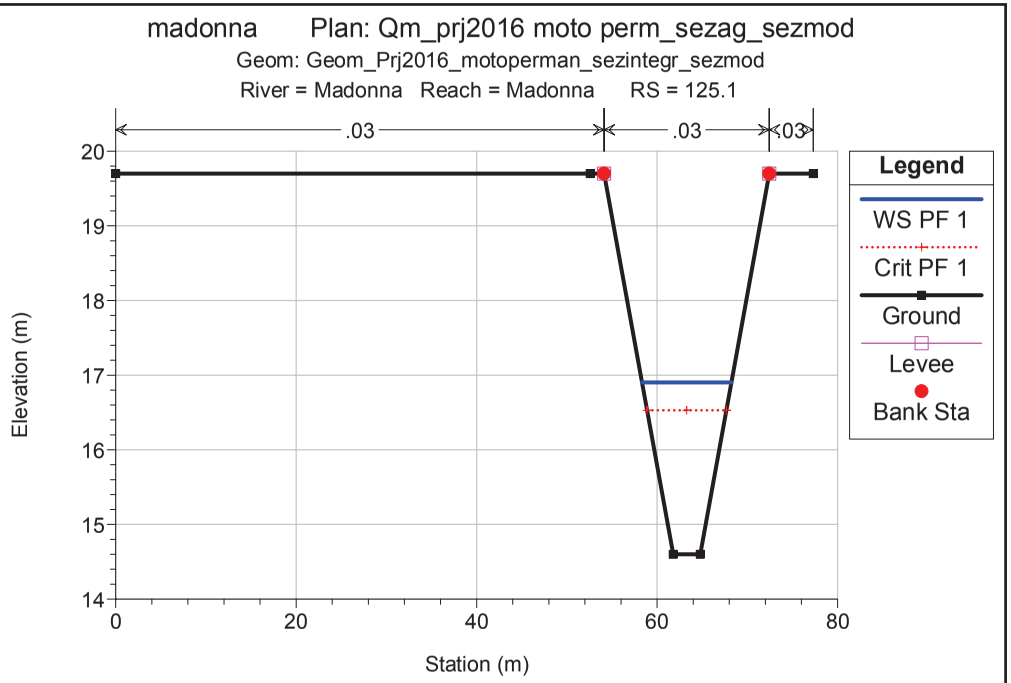

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 126.1
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

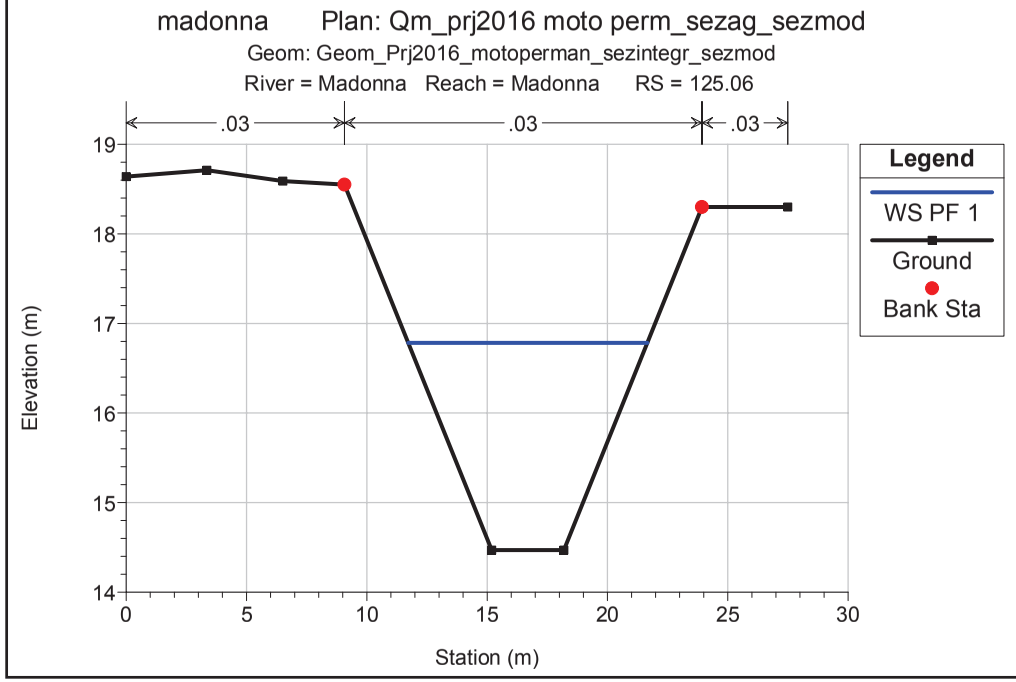

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 126
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

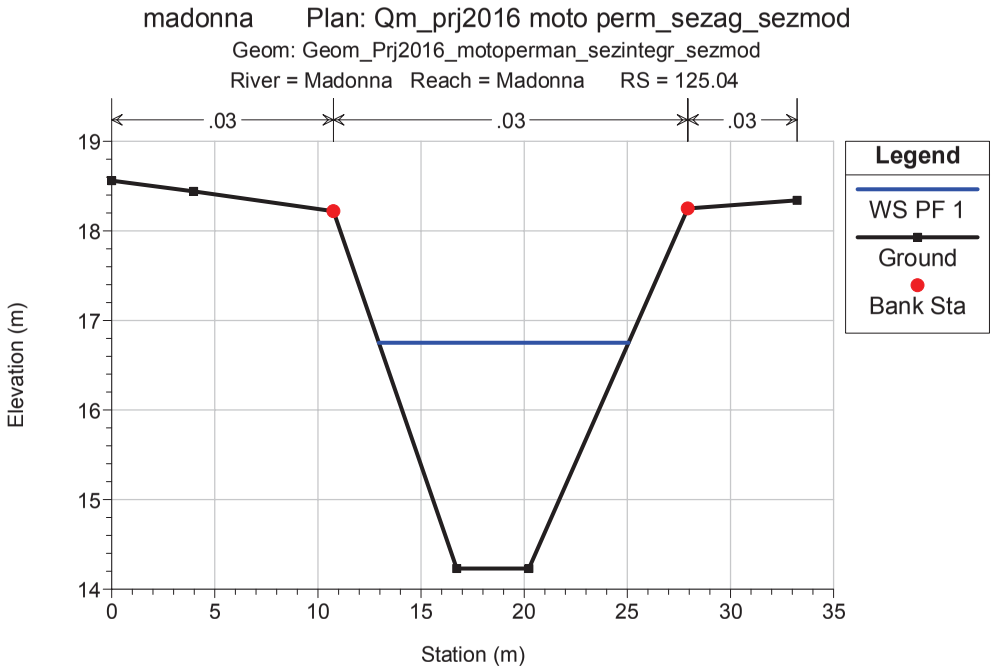

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 125.9
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 125.8
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 125.7
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 125.1
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

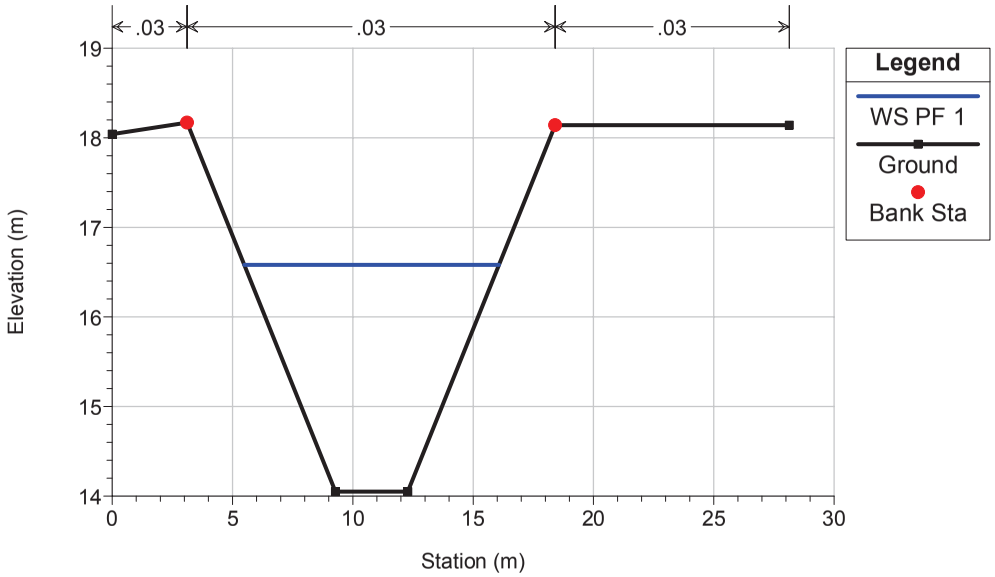

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 125.06
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 125.04
.03
.03
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (m)
Station (m)

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

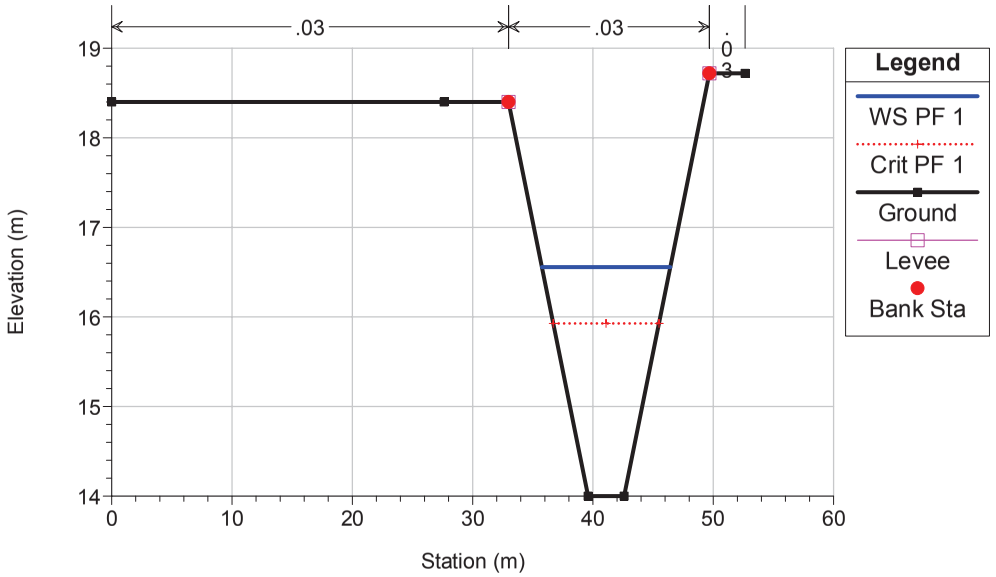
River = Madonna Reach = Madonna RS = 125.02



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

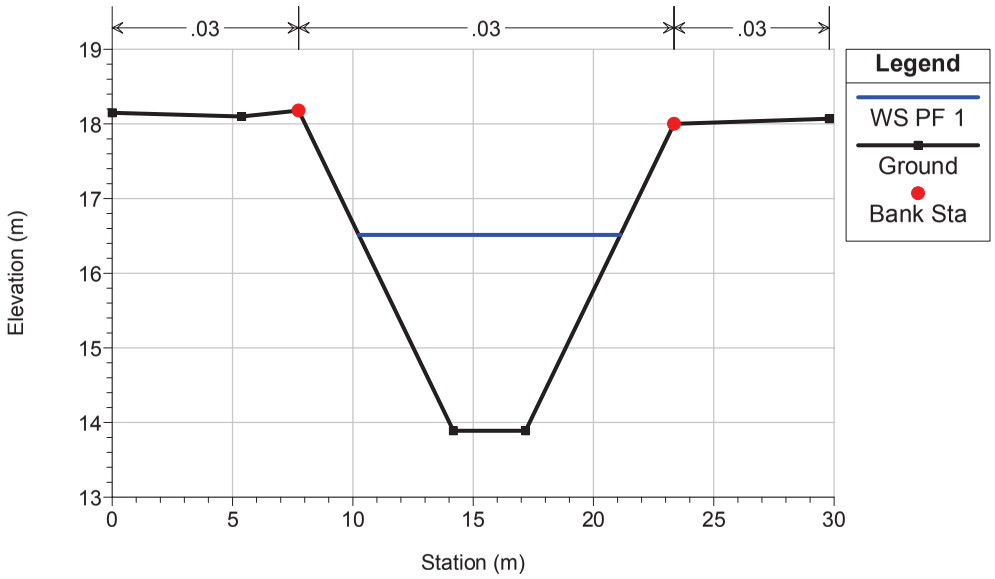
River = Madonna Reach = Madonna RS = 125



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

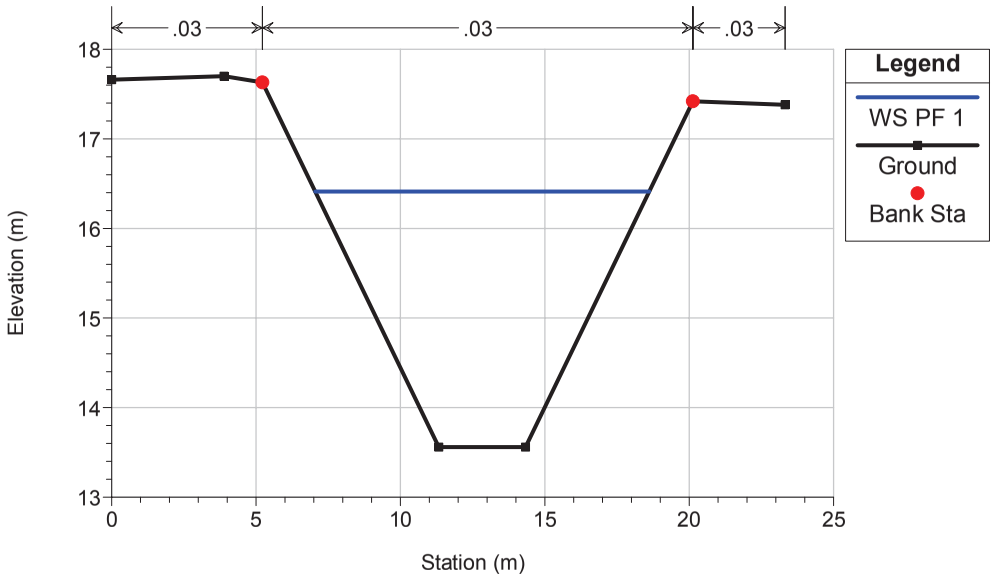
River = Madonna Reach = Madonna RS = 124.5



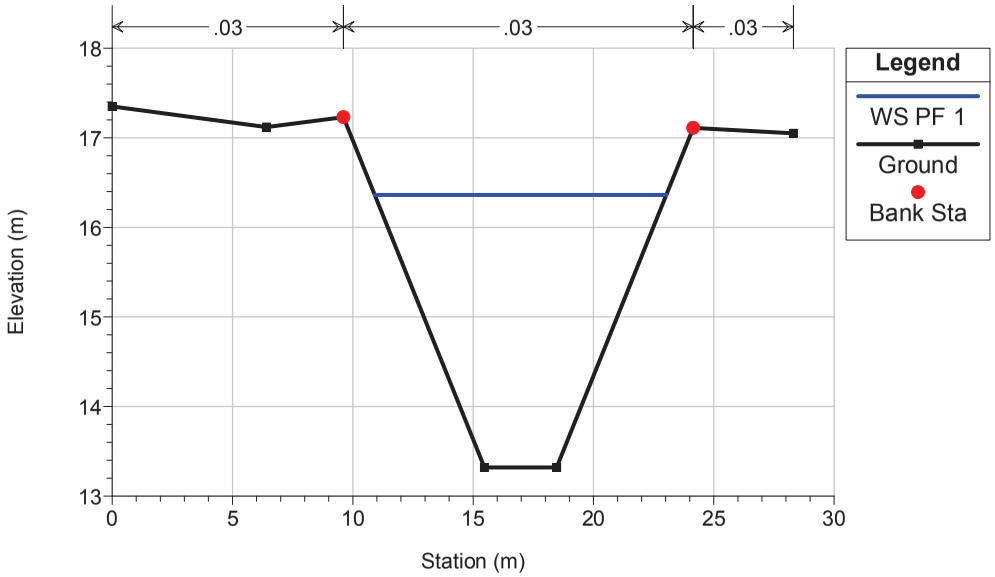
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

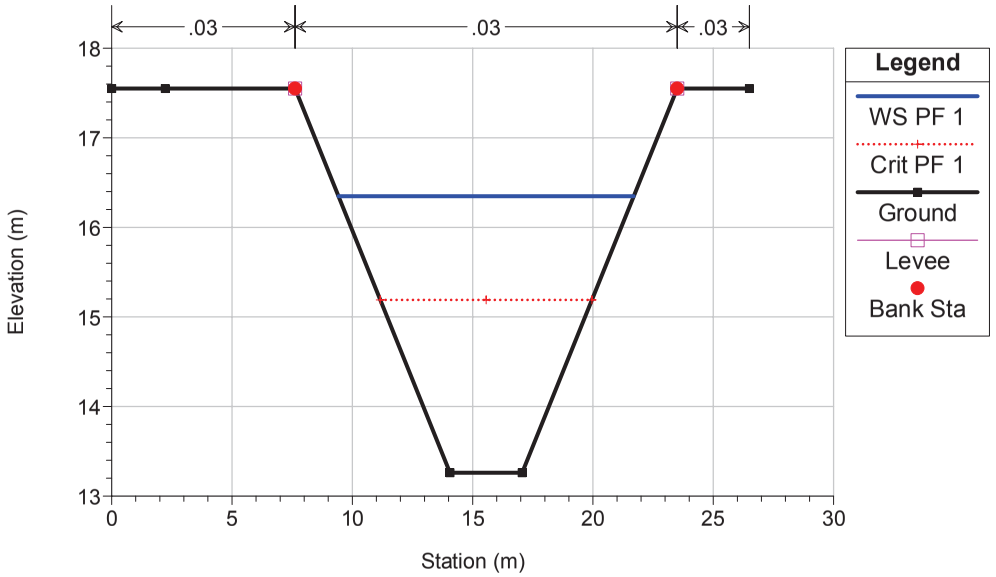
River = Madonna Reach = Madonna RS = 124.3



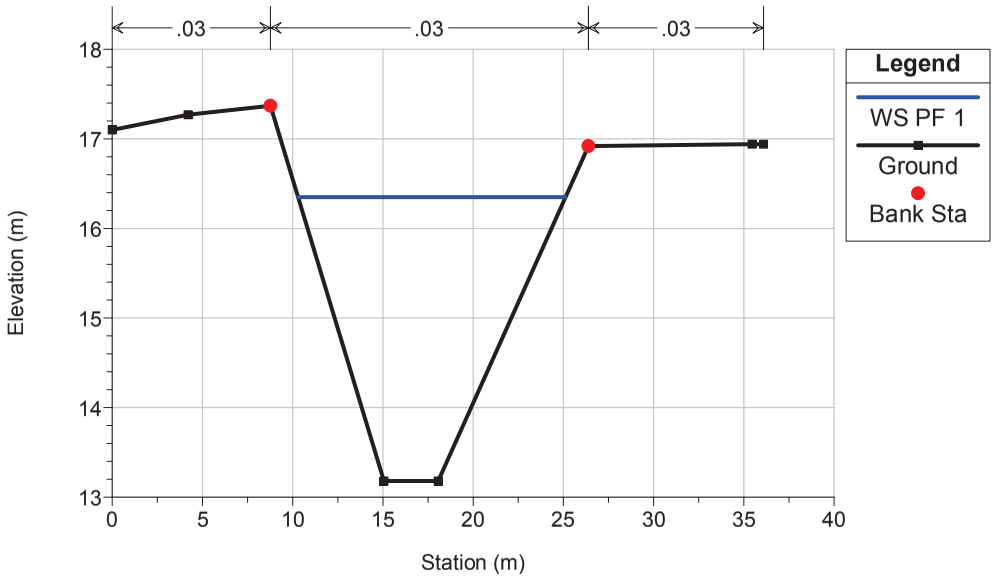
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 124.1



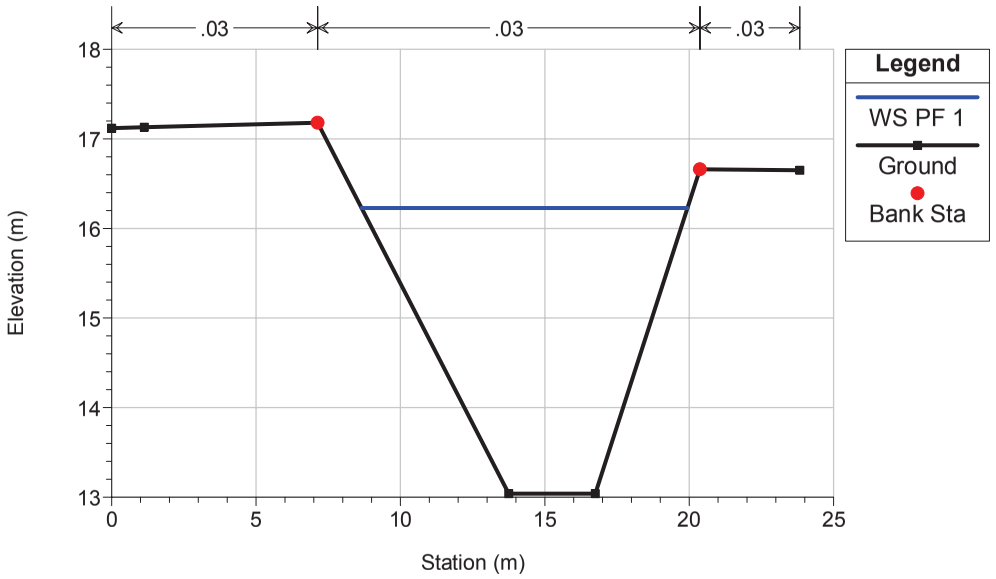
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 124



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 123.2



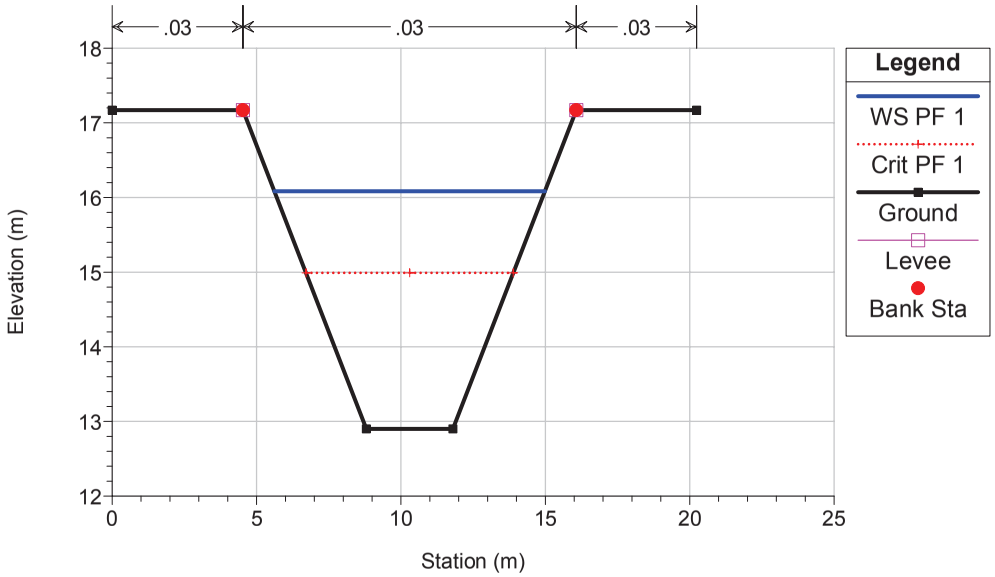
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 123.1



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

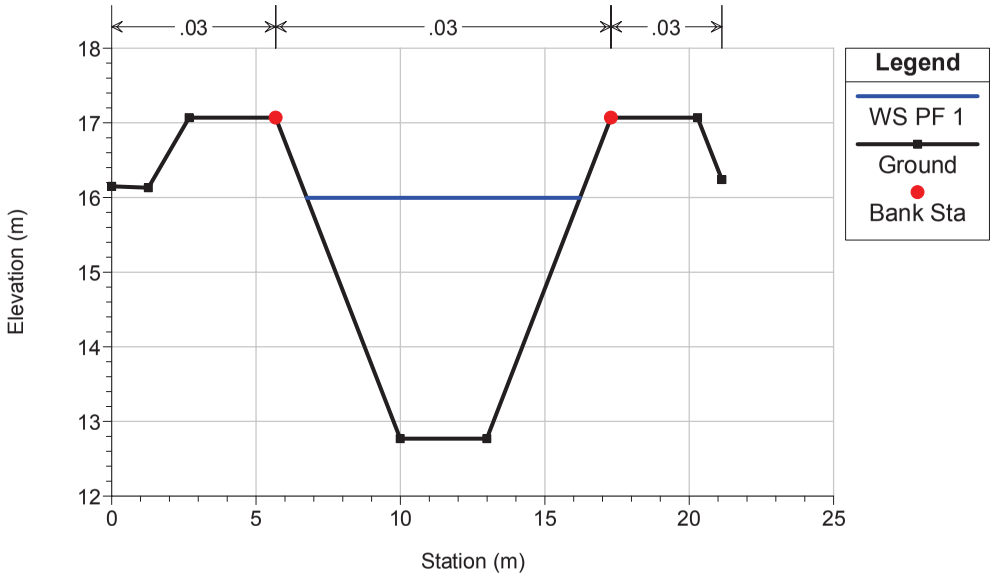
River = Madonna Reach = Madonna RS = 123



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

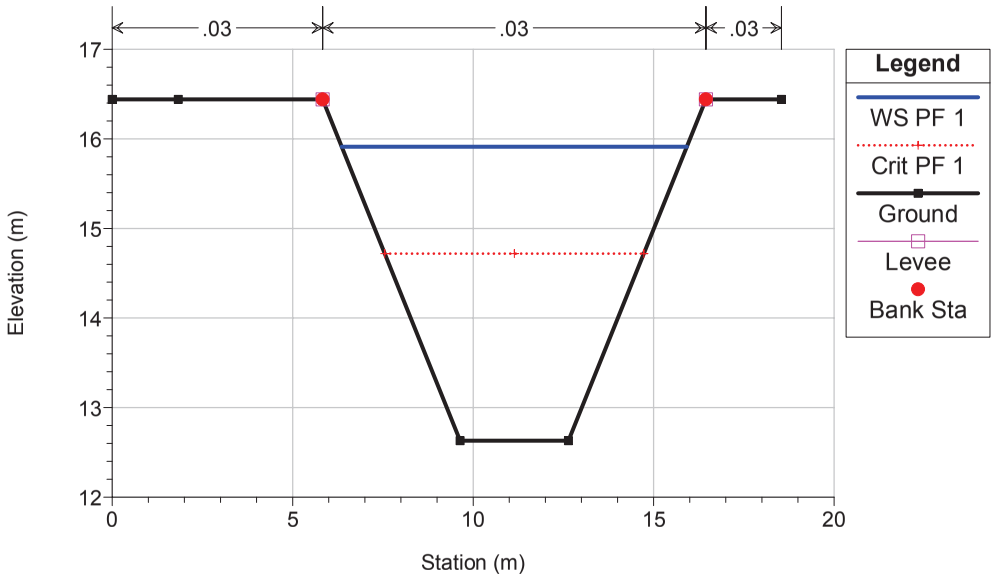
River = Madonna Reach = Madonna RS = 122.1



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

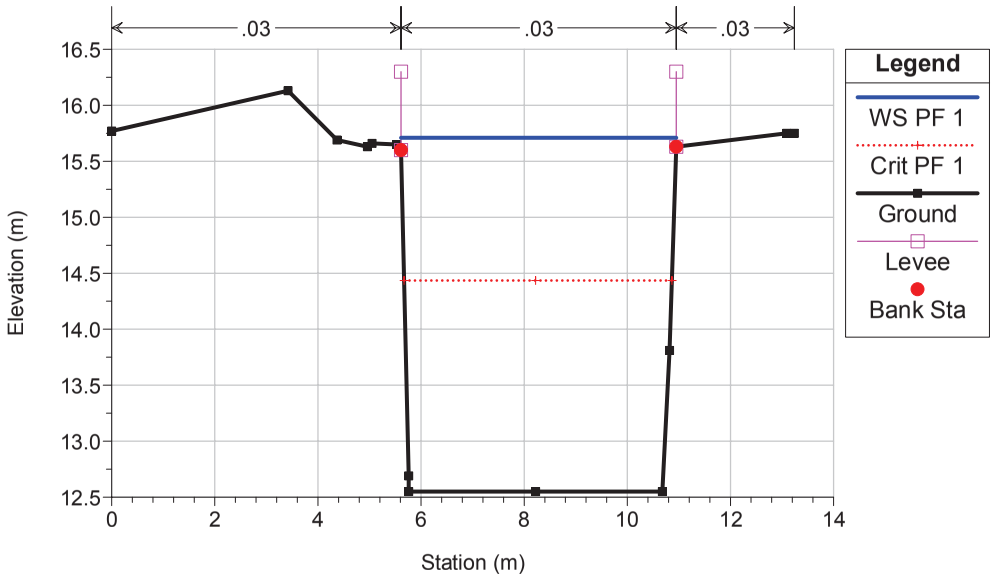
River = Madonna Reach = Madonna RS = 122

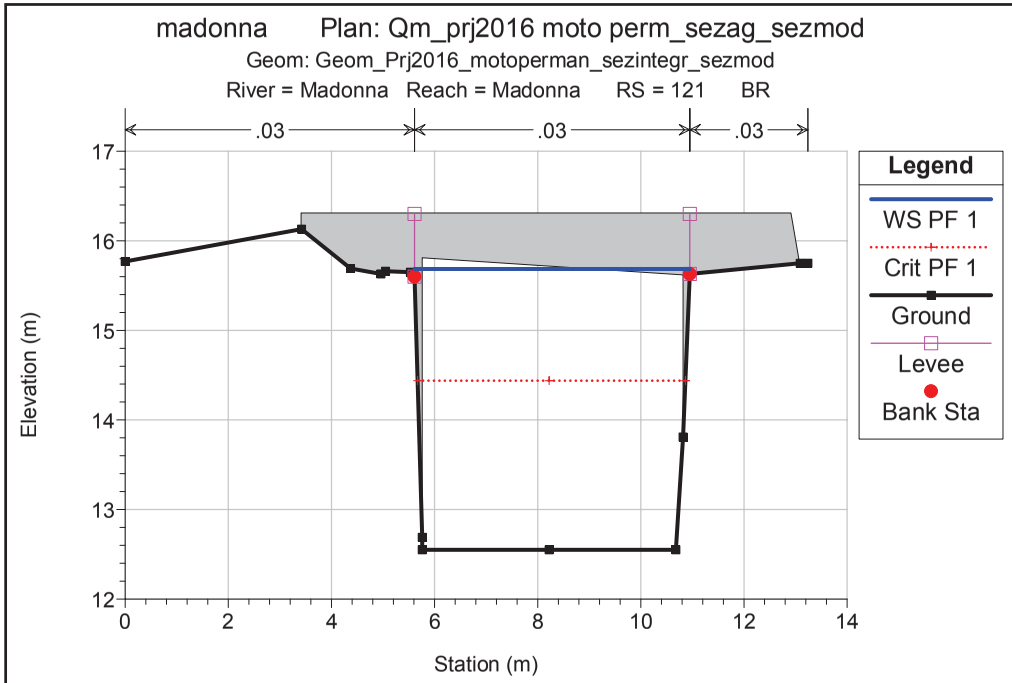


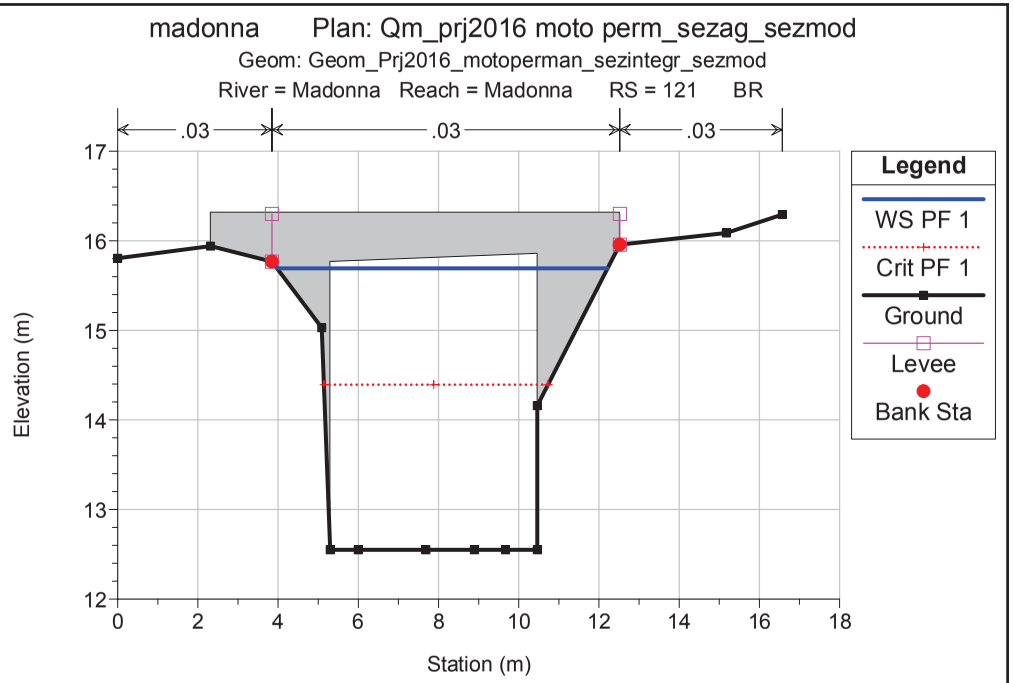
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

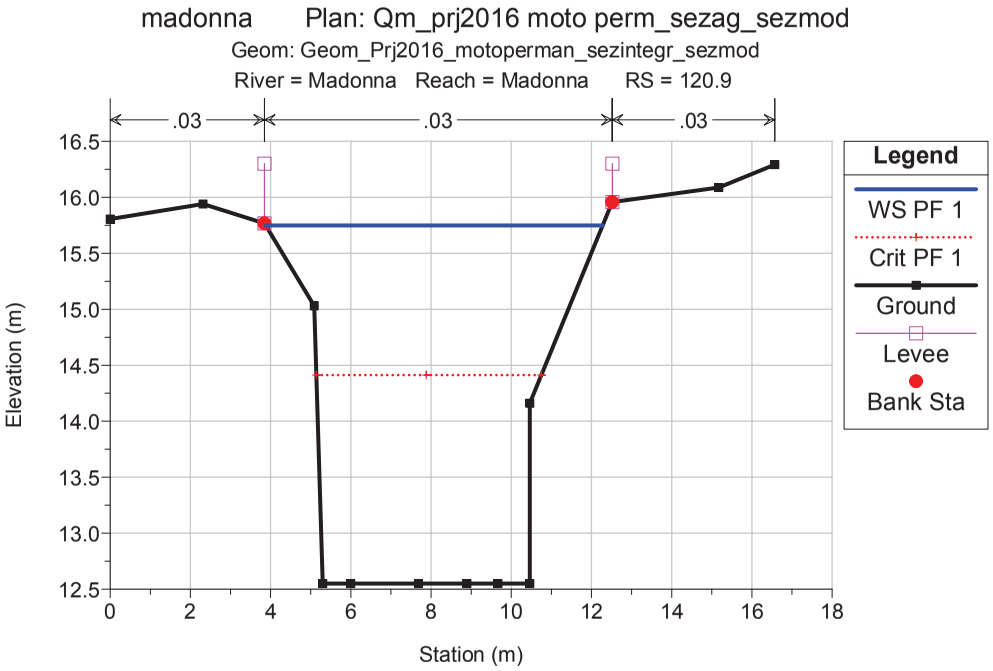
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

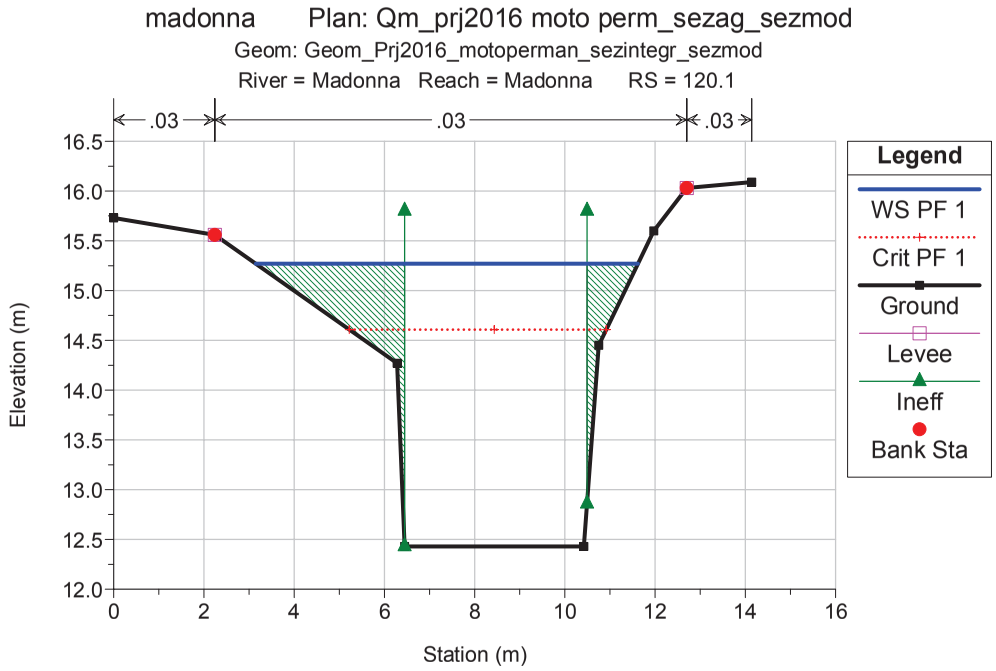
River = Madonna Reach = Madonna RS = 121.1

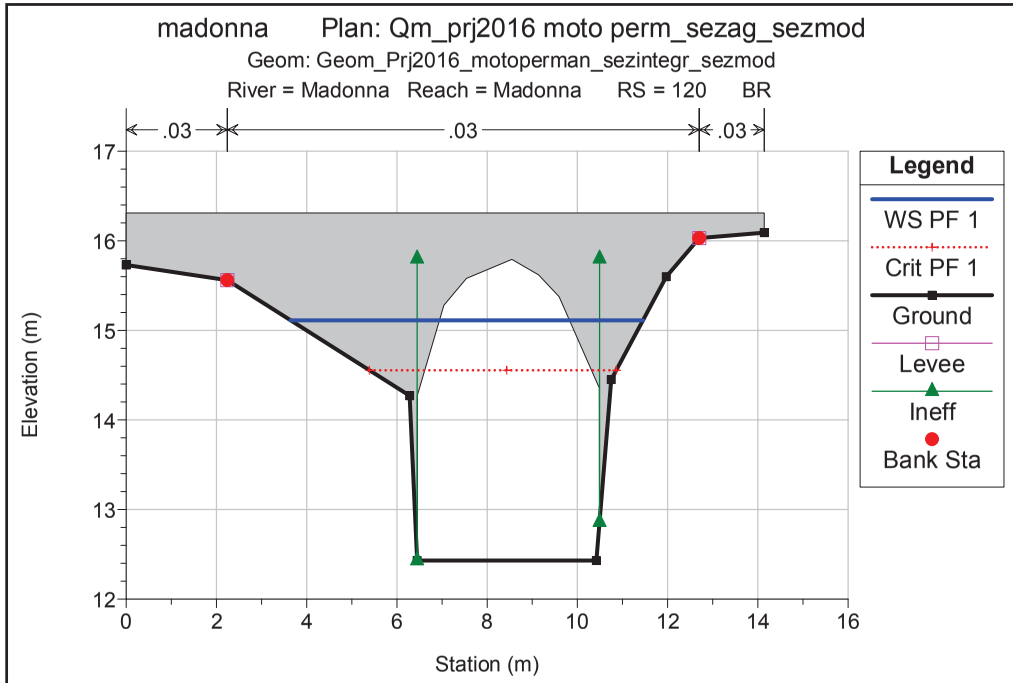


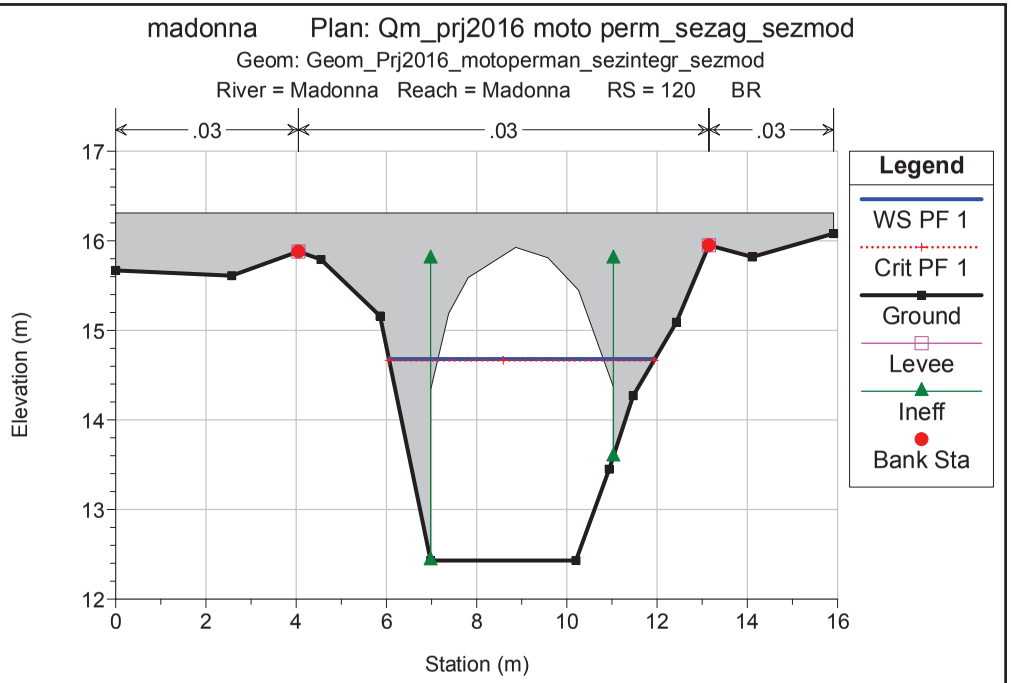

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 121 BR
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

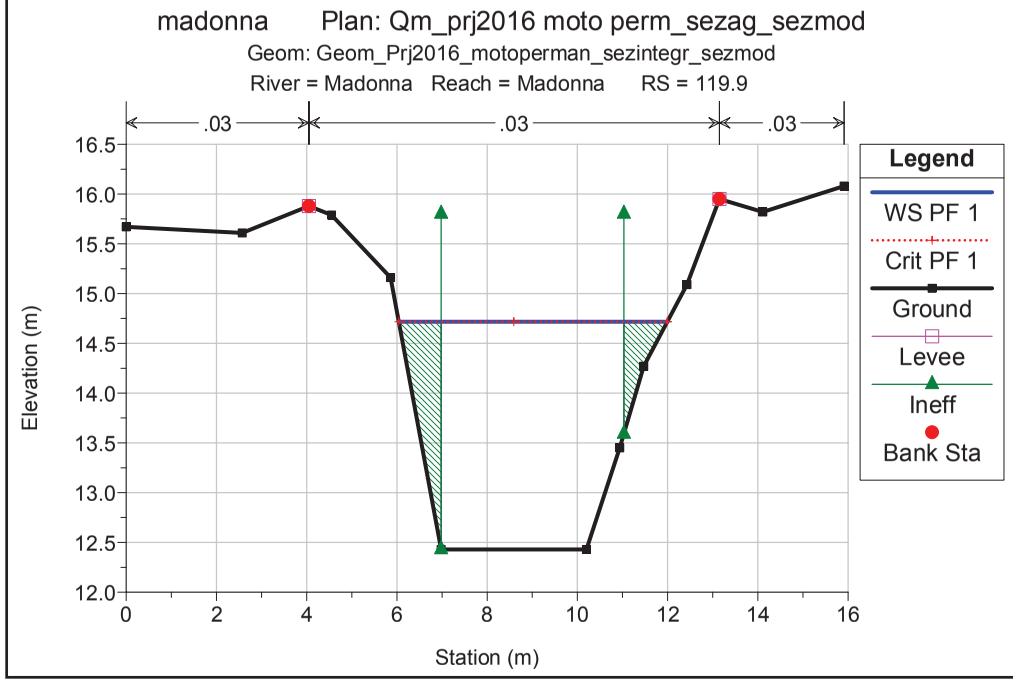

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 121 BR
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

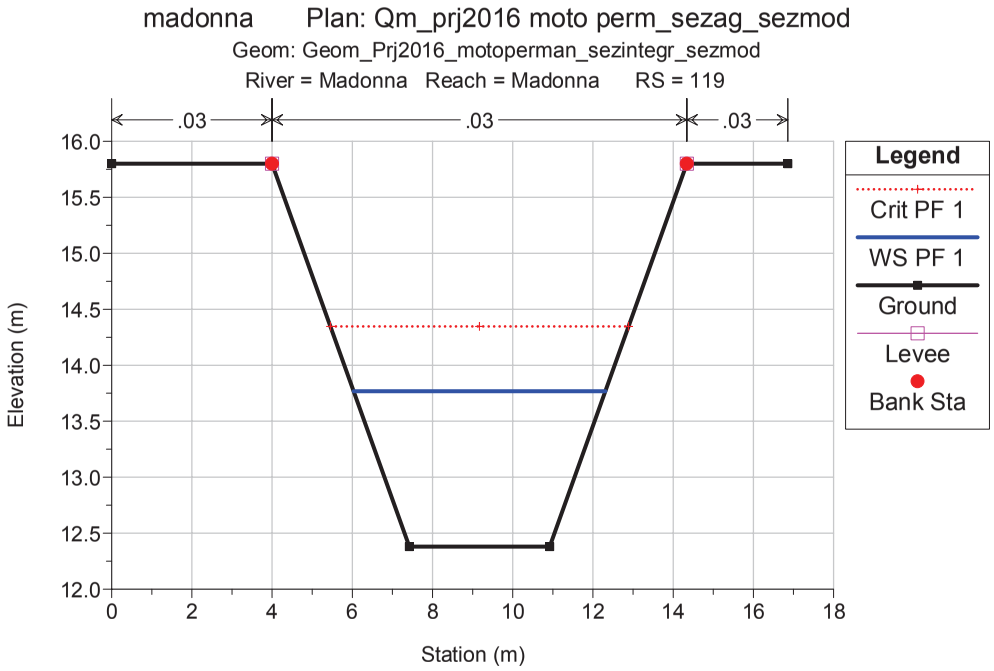

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 120.9
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 120.1
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 120 BR
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 120 BR
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)

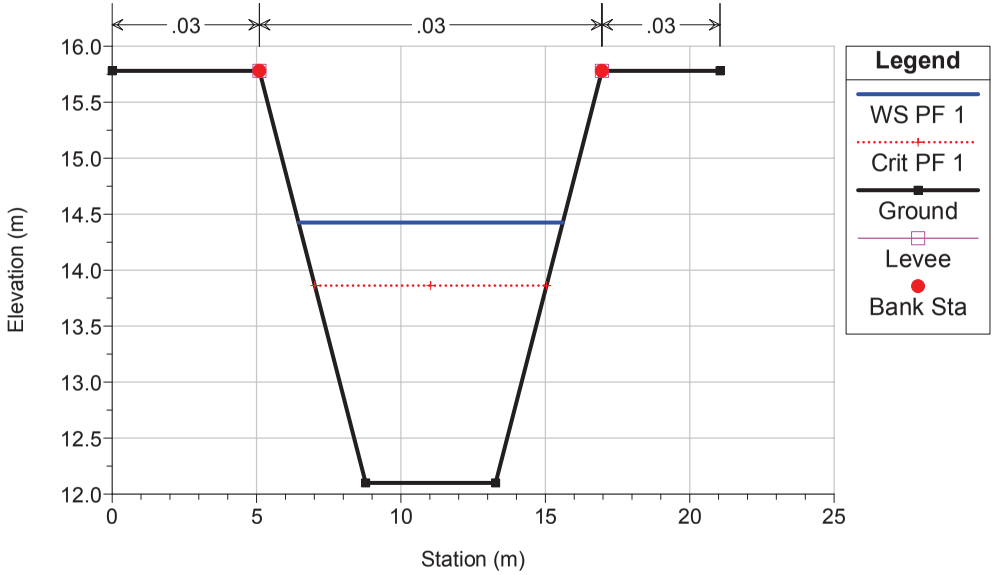

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 119.9
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 119
.03
.03
.03
Legend
Crit PF 1
WS PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

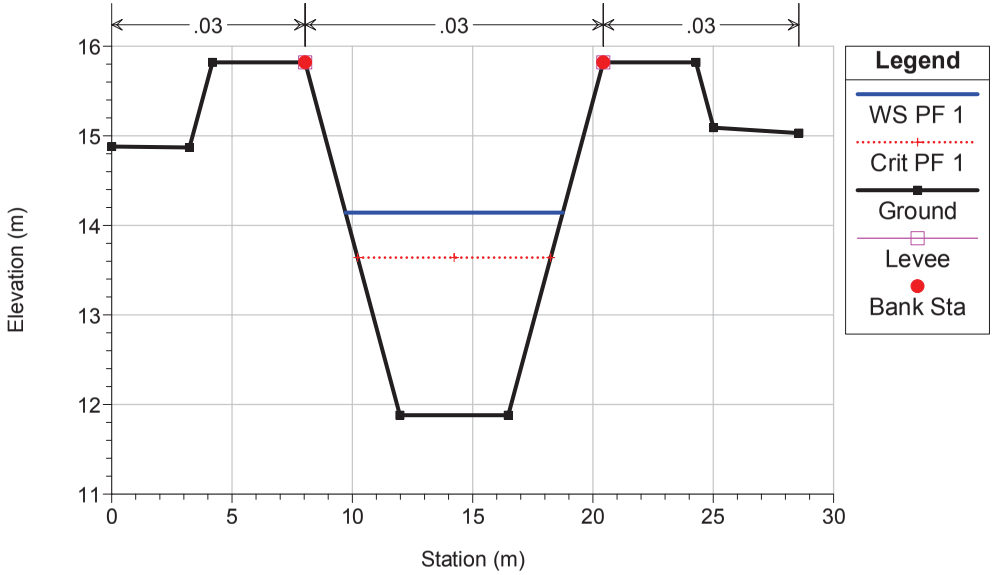
River = Madonna Reach = Madonna RS = 118



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

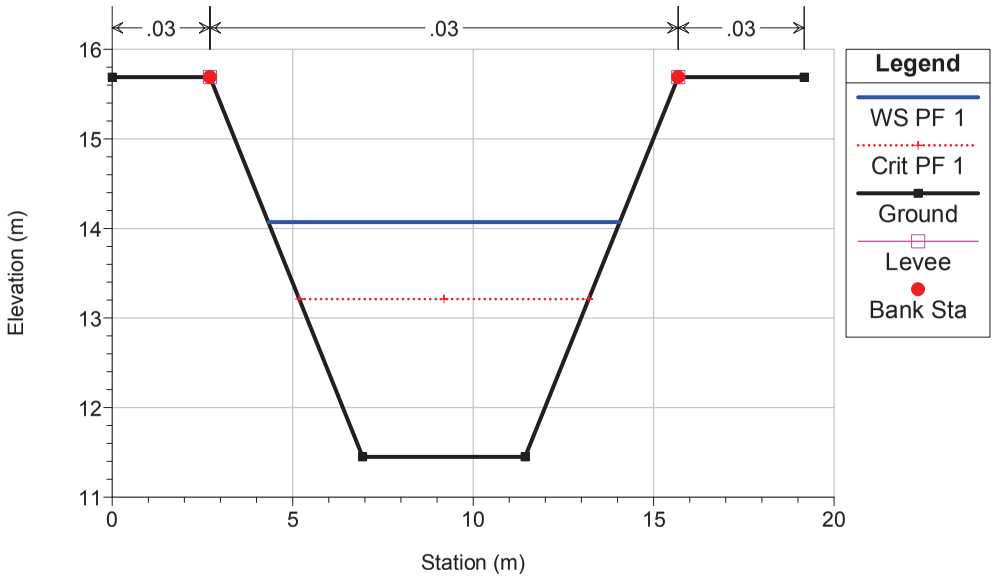
River = Madonna Reach = Madonna RS = 117.1



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

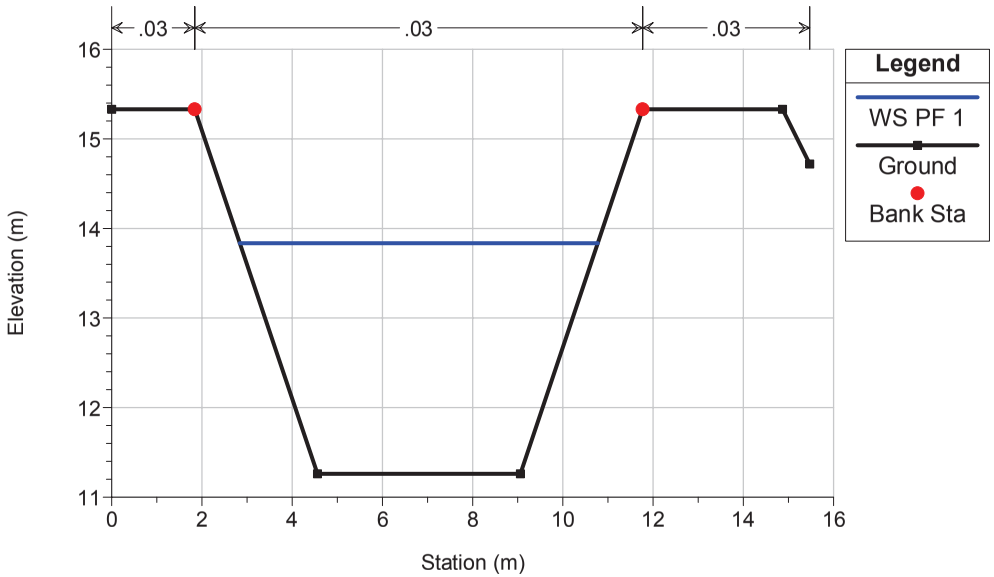
River = Madonna Reach = Madonna RS = 117

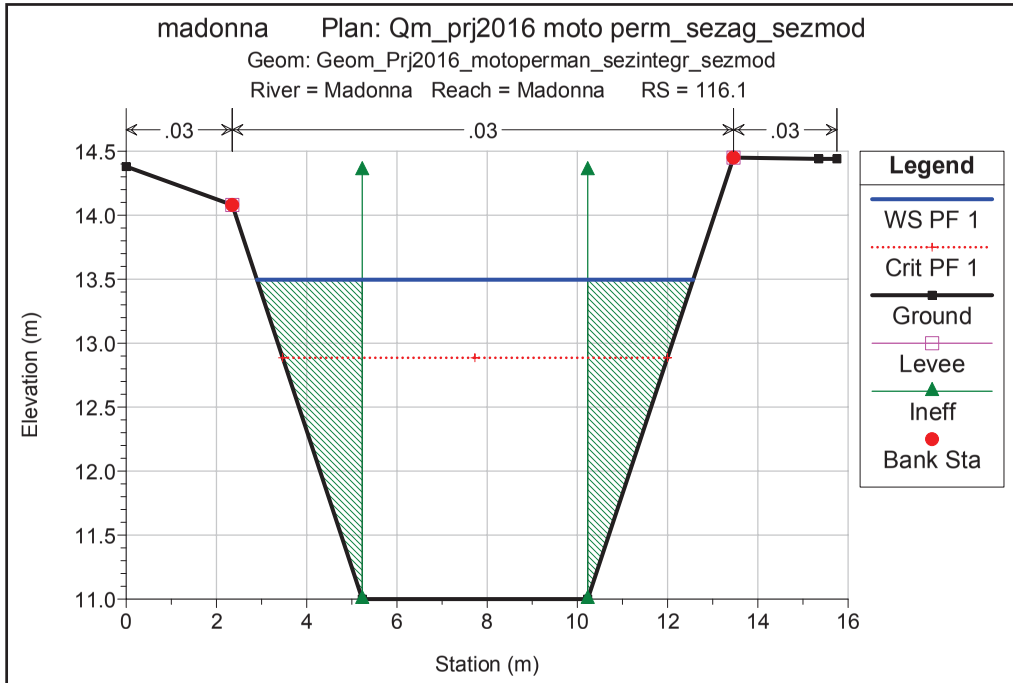


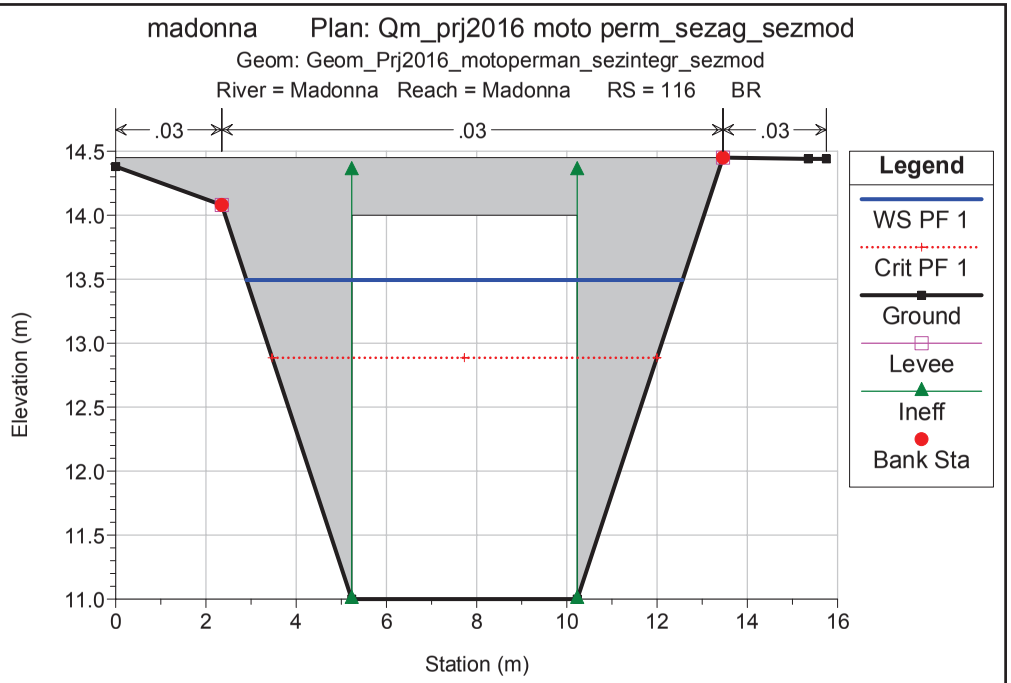
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

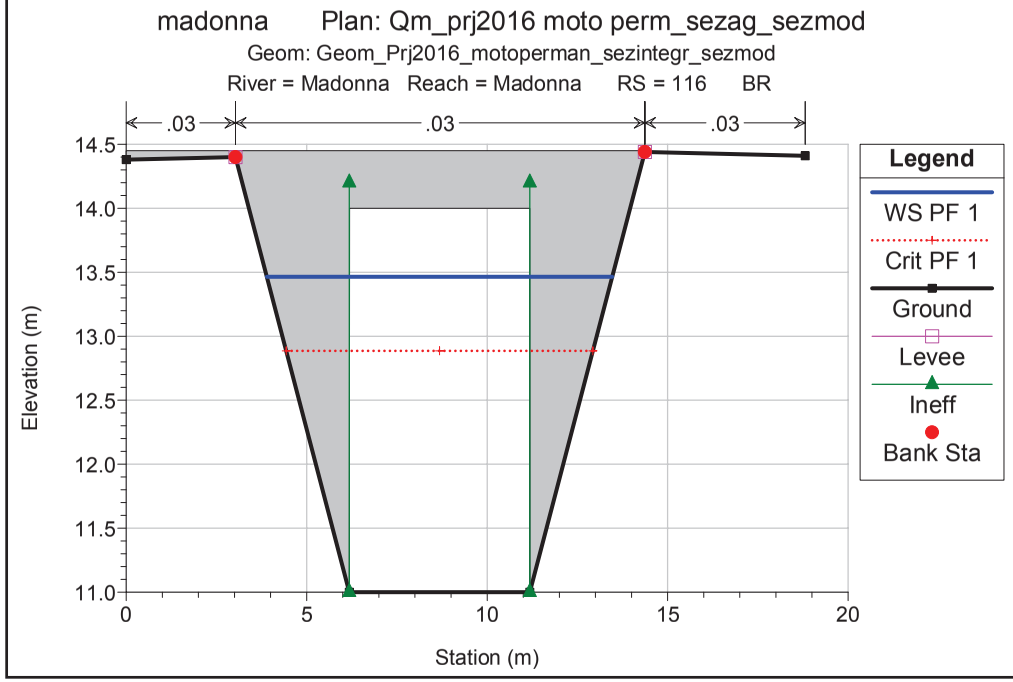
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

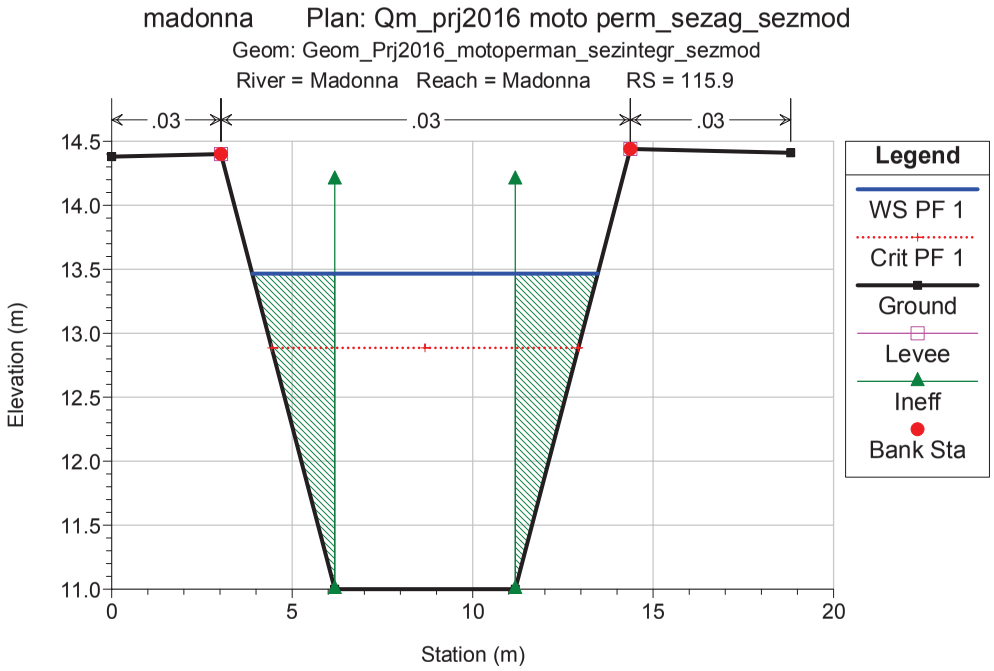
River = Madonna Reach = Madonna RS = 116.2




madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 116.1
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 116 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta

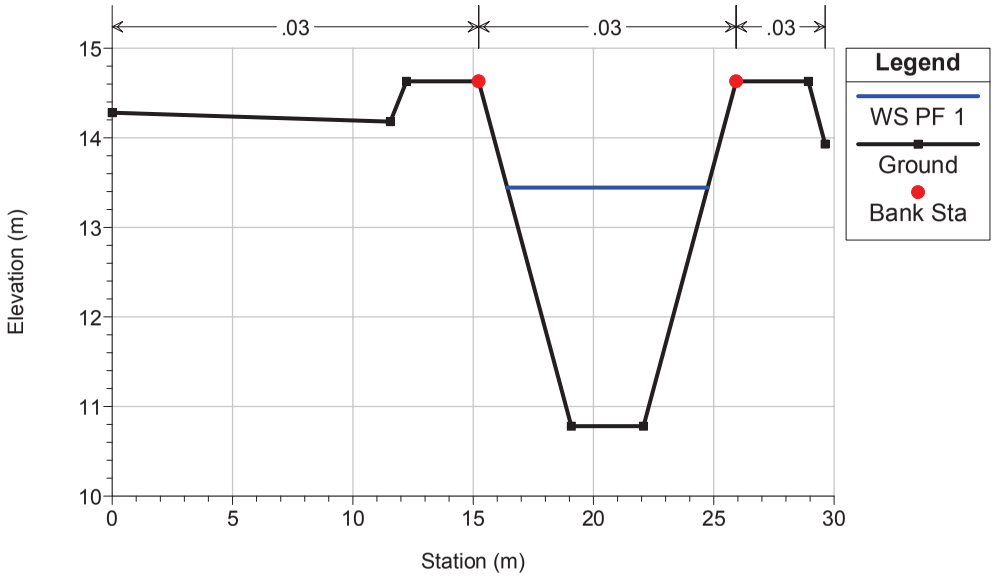

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 116 BR
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 115.9
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

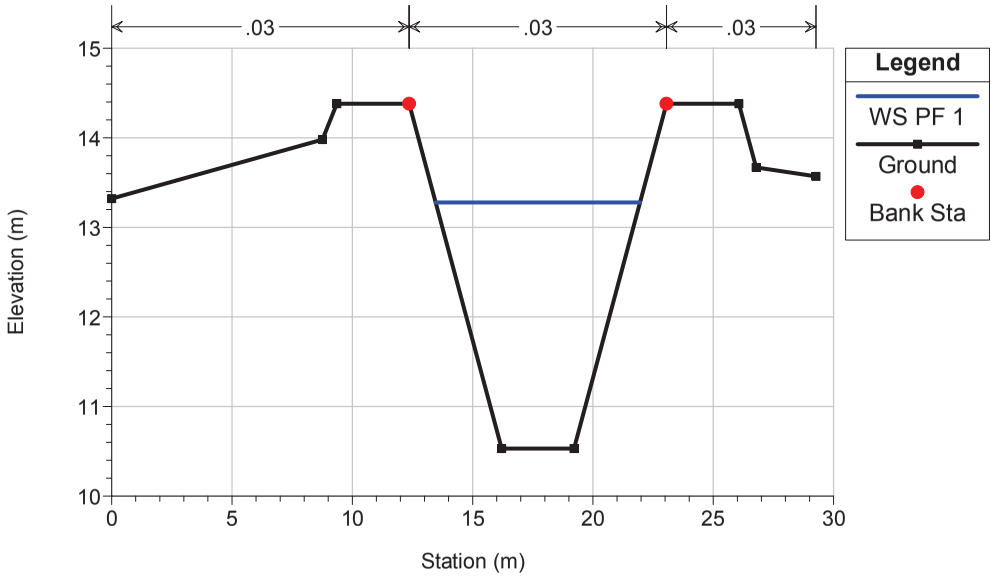
River = Madonna Reach = Madonna RS = 115.2



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

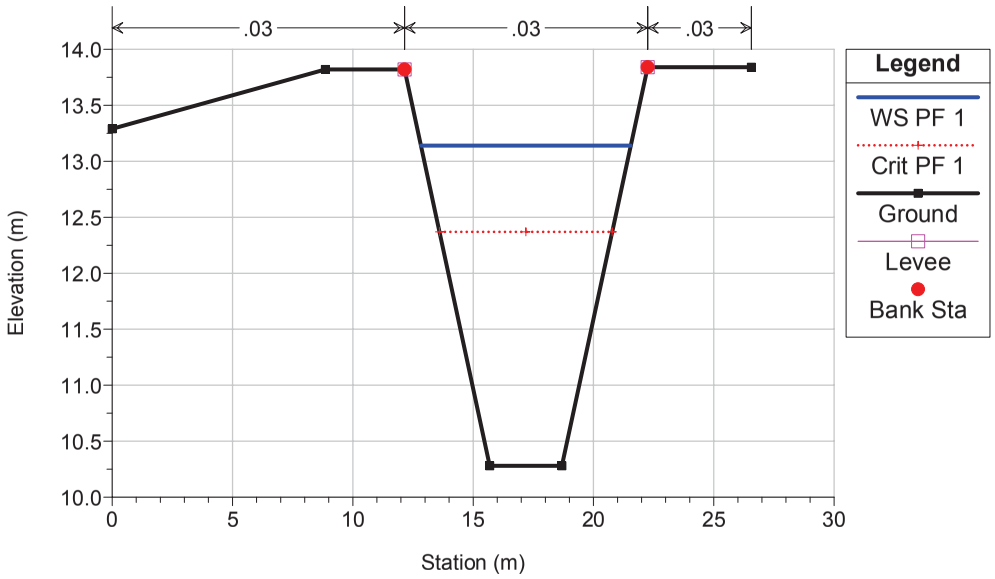
River = Madonna Reach = Madonna RS = 115.1



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

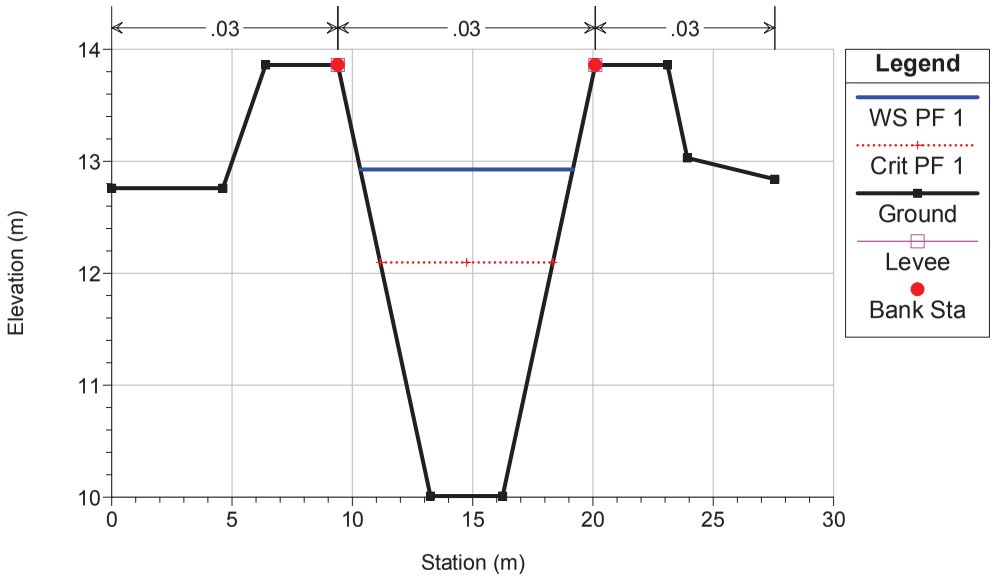
River = Madonna Reach = Madonna RS = 115

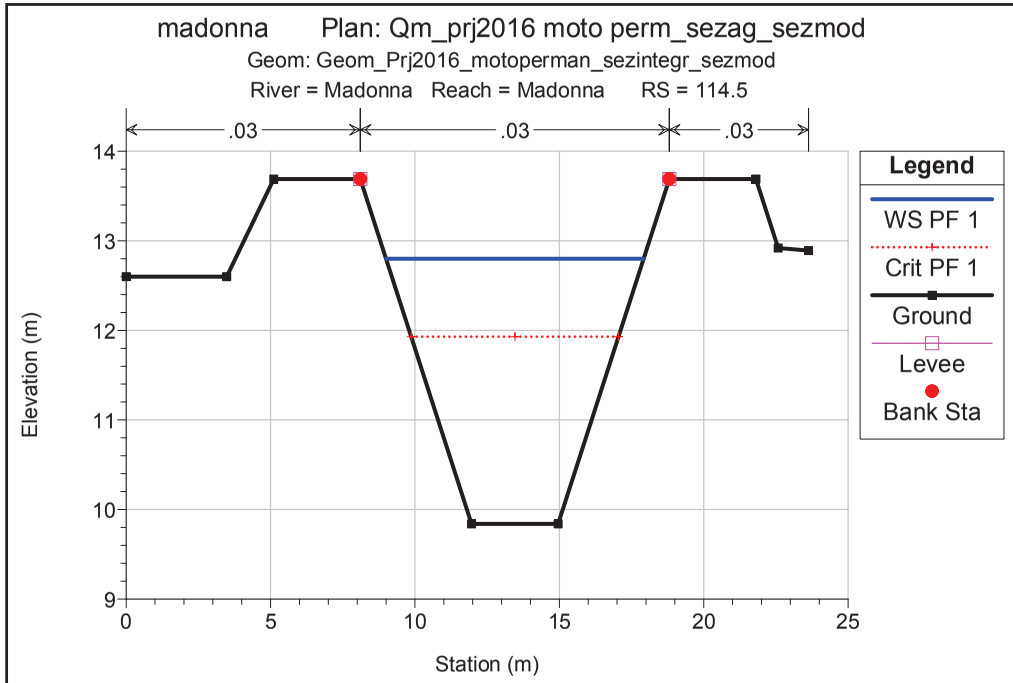


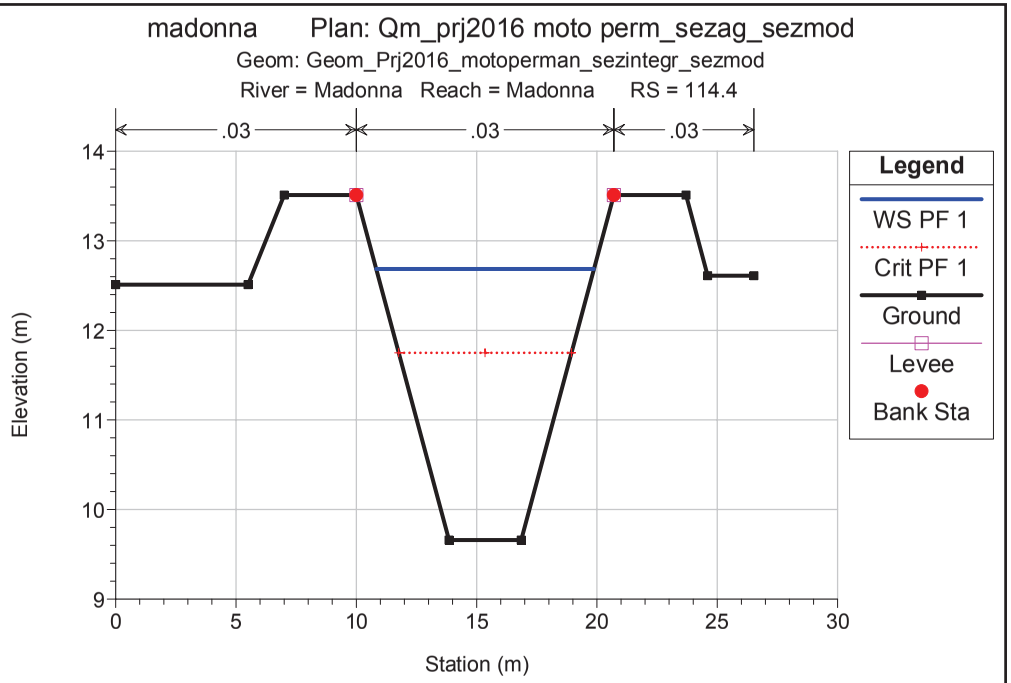
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

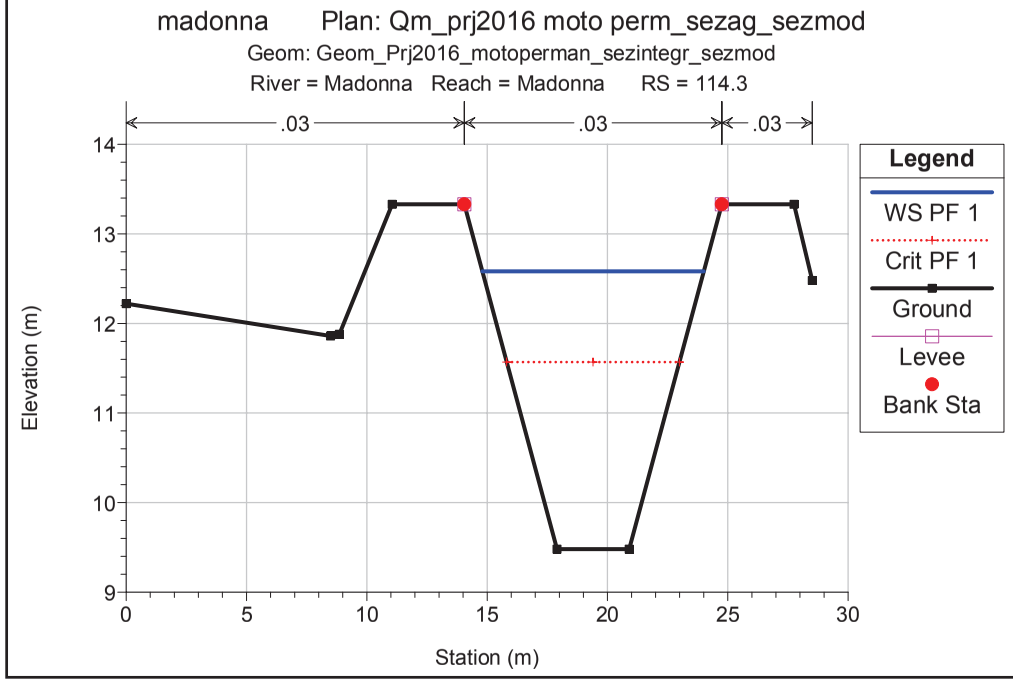
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

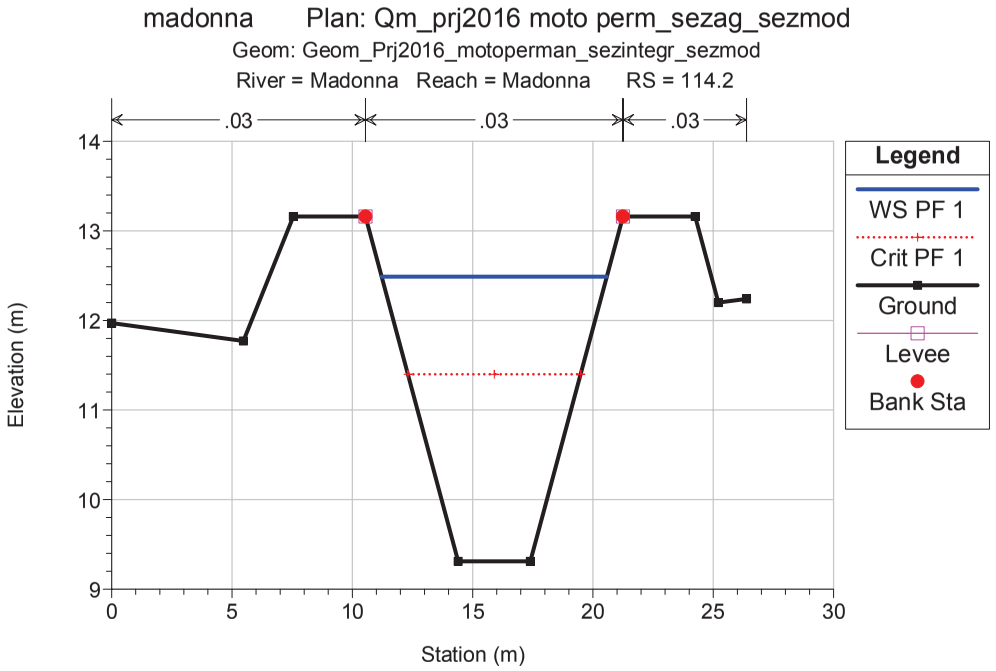
River = Madonna Reach = Madonna RS = 114.6




madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 114.5
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 114.4
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

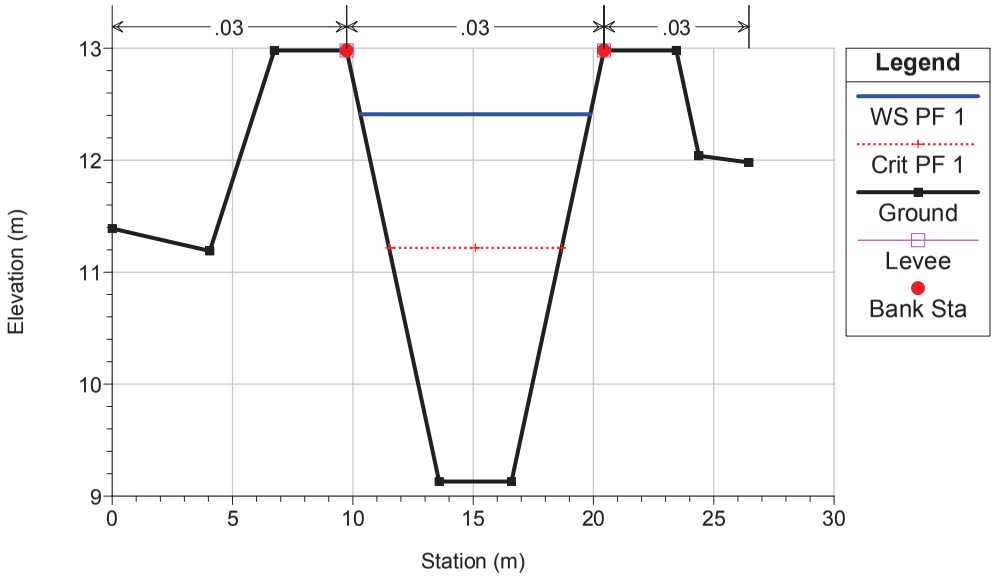

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 114.3
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 114.2
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

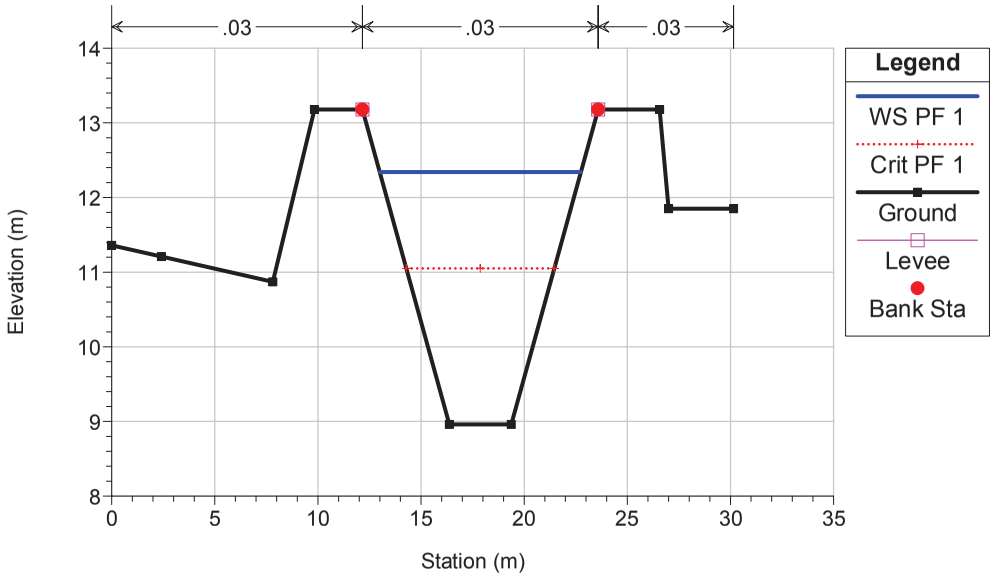
River = Madonna Reach = Madonna RS = 114.1



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

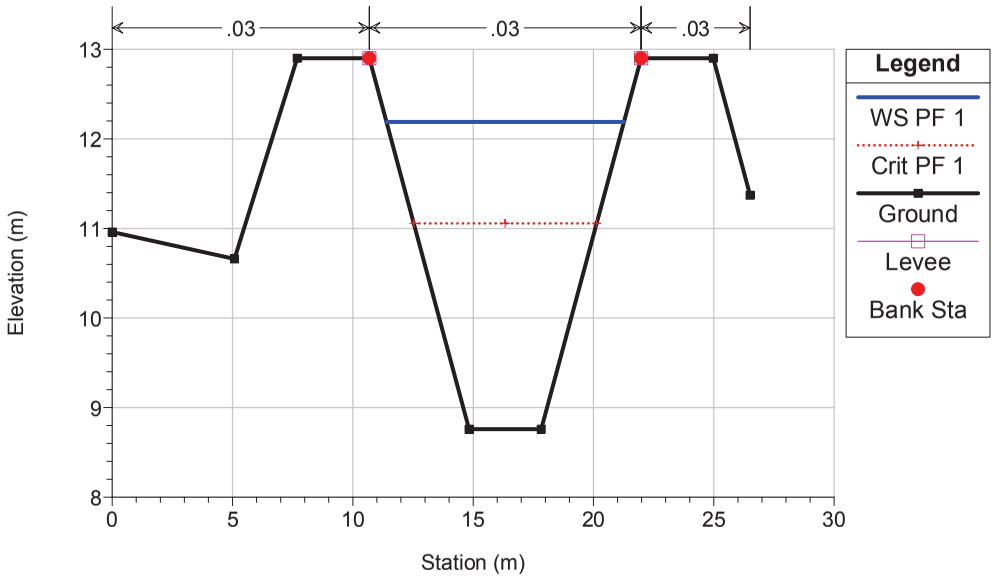
River = Madonna Reach = Madonna RS = 114



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

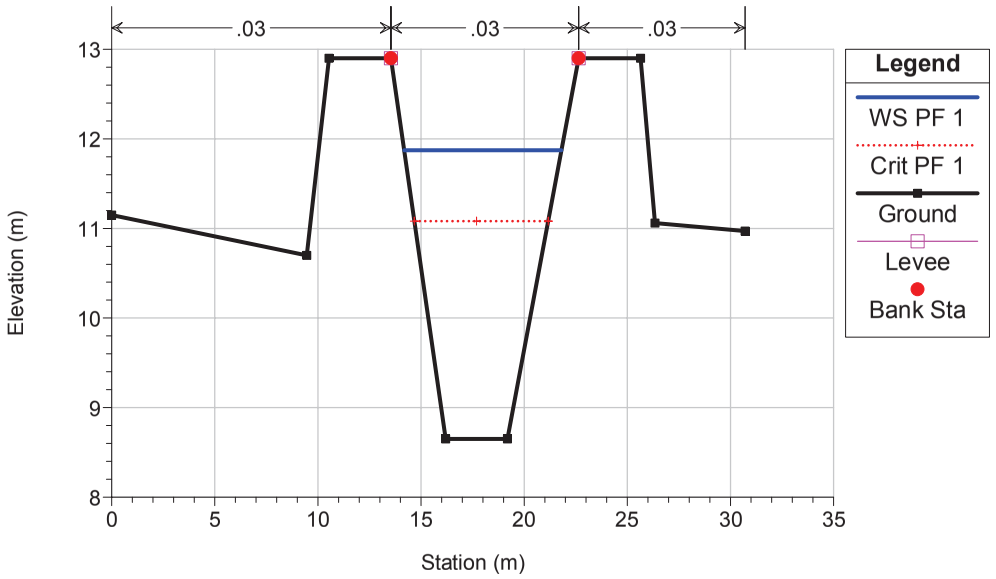
River = Madonna Reach = Madonna RS = 113.3



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

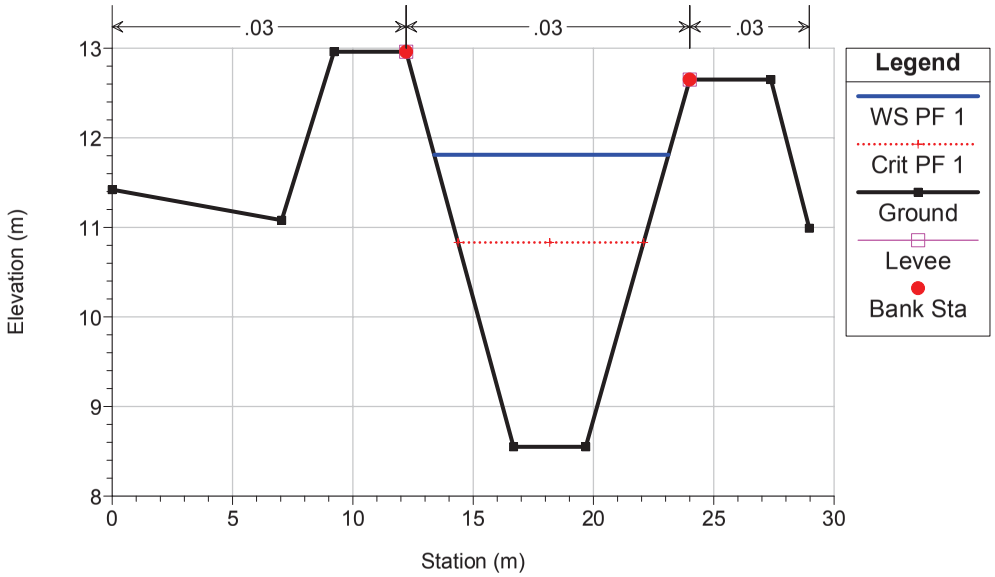
River = Madonna Reach = Madonna RS = 113.2



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

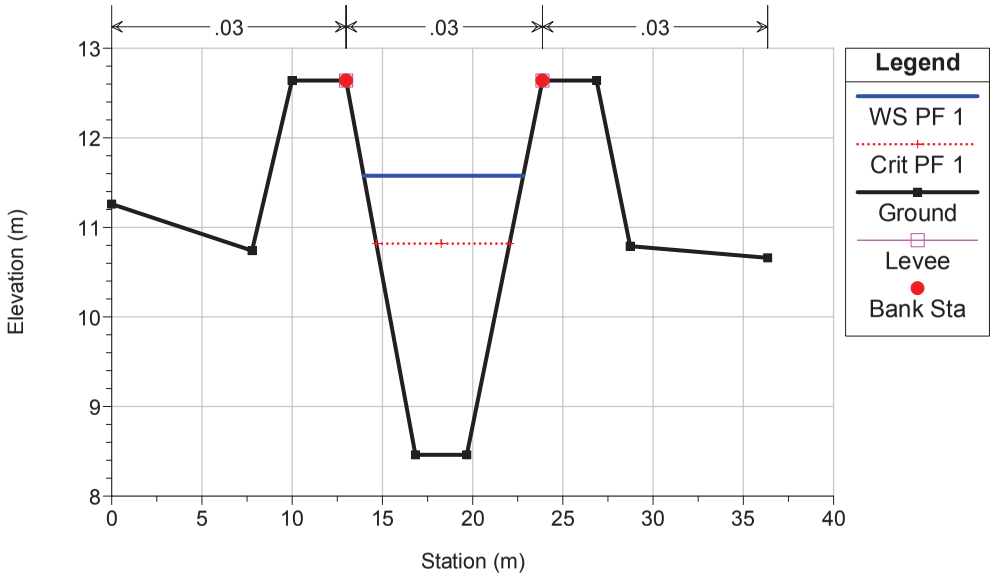
River = Madonna Reach = Madonna RS = 113.1



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

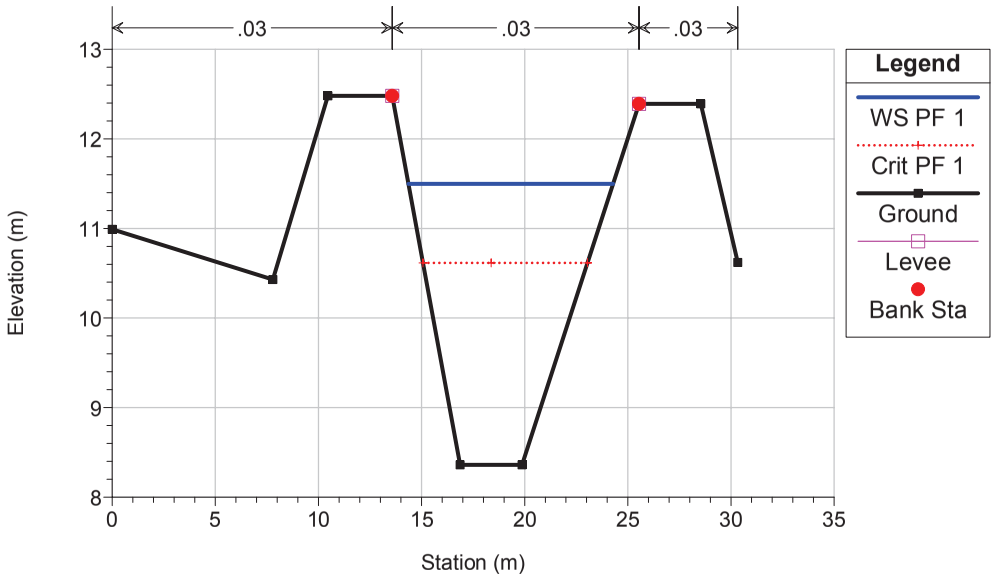
River = Madonna Reach = Madonna RS = 113



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

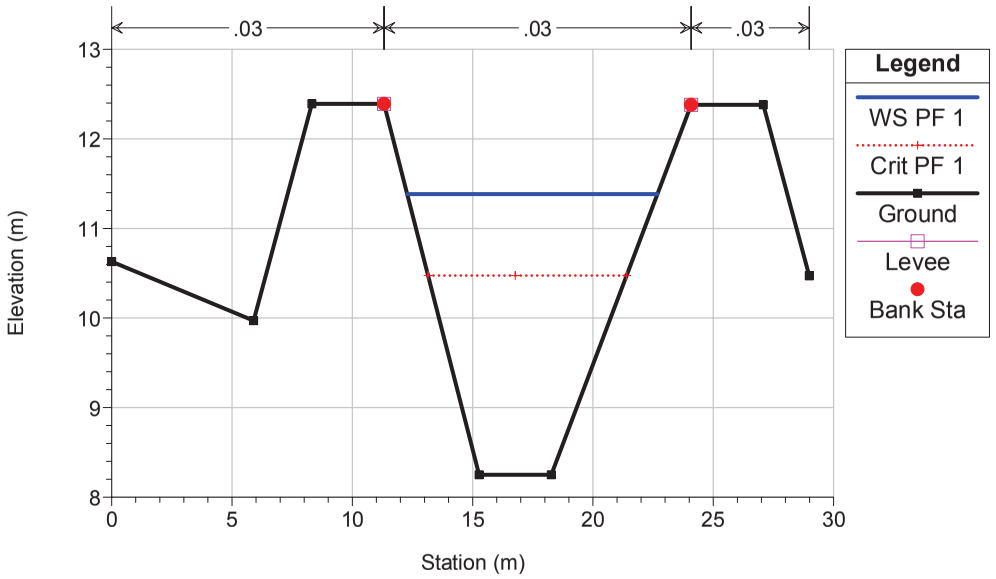
River = Madonna Reach = Madonna RS = 112.8



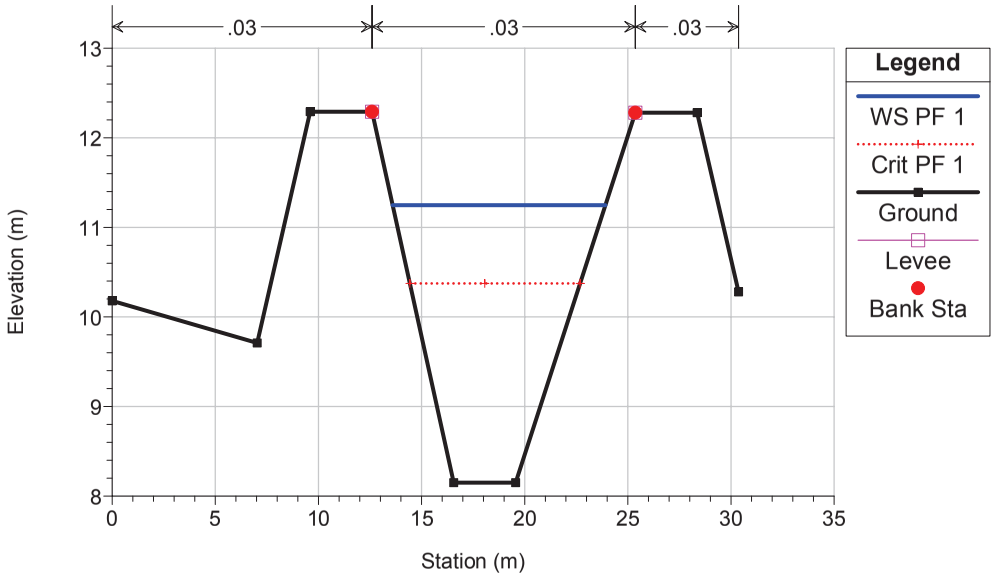
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

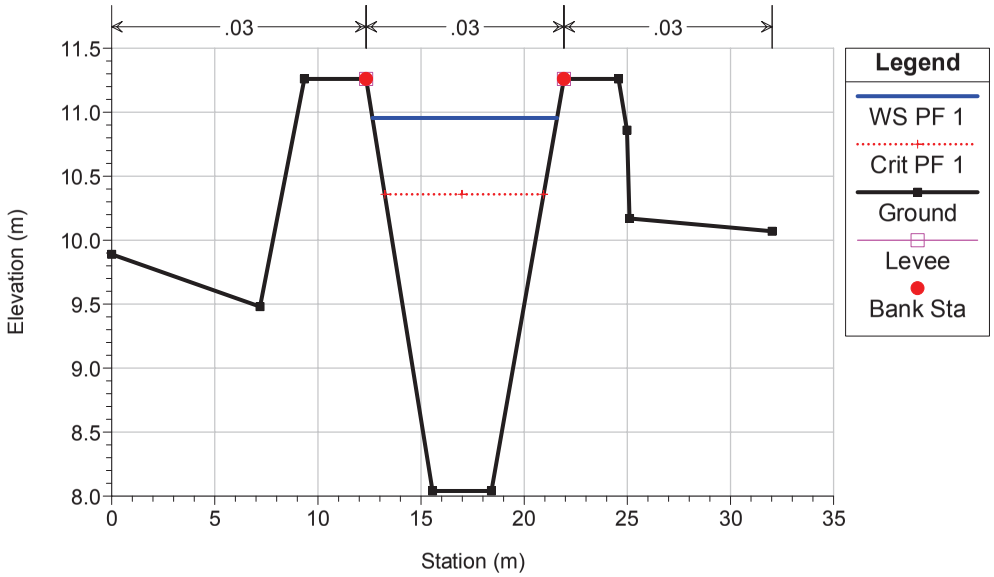
River = Madonna Reach = Madonna RS = 112.7



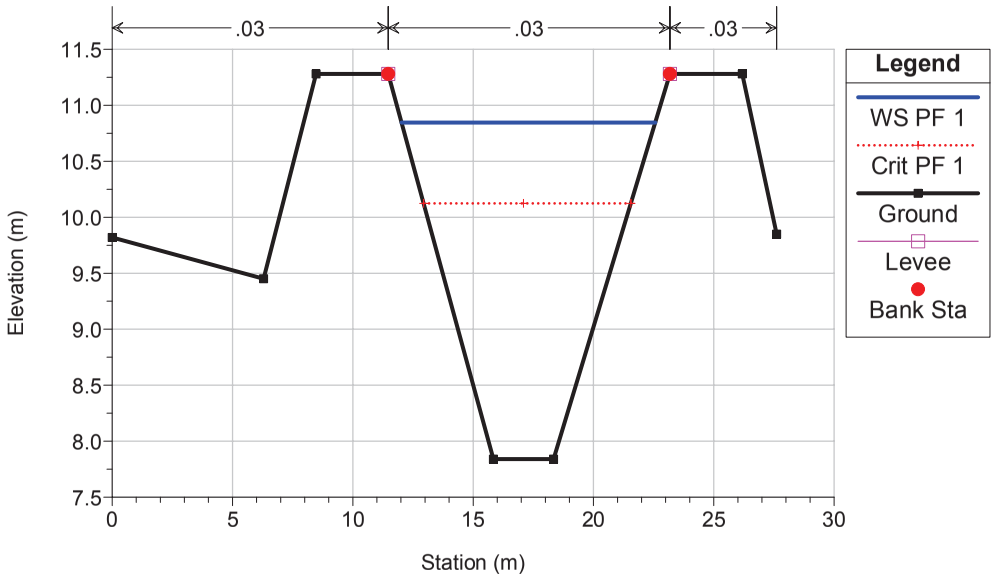
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 112.6



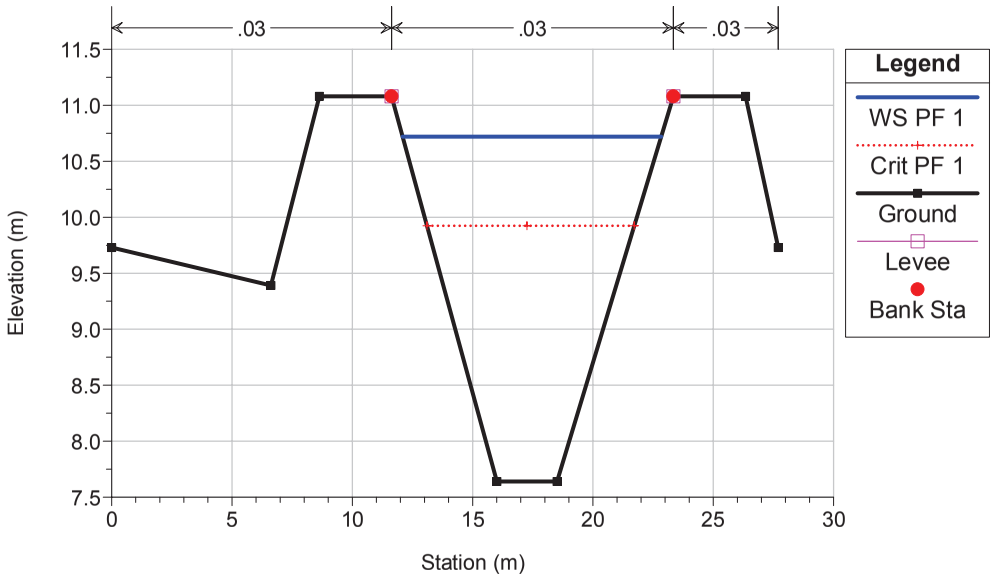
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 112.1

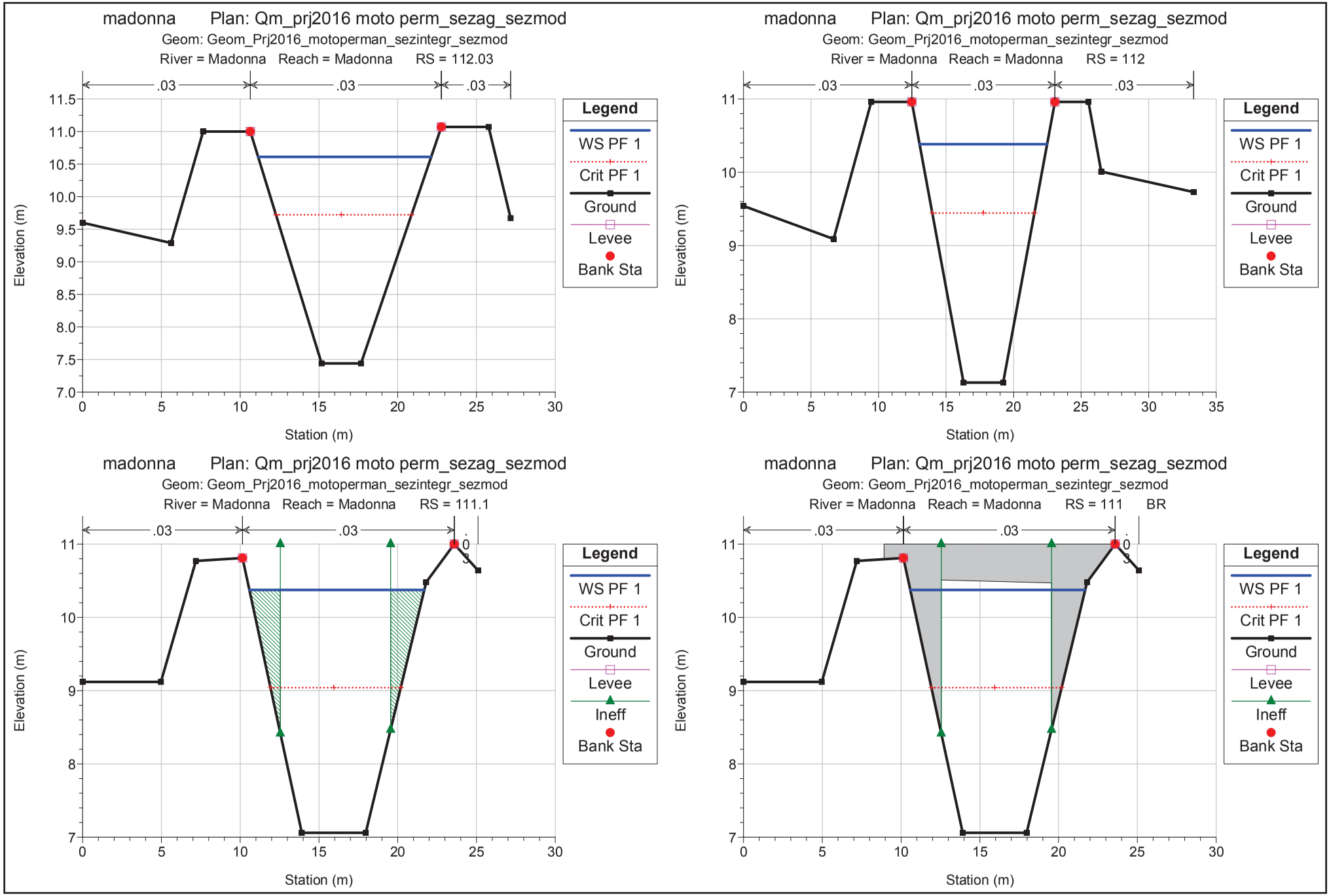


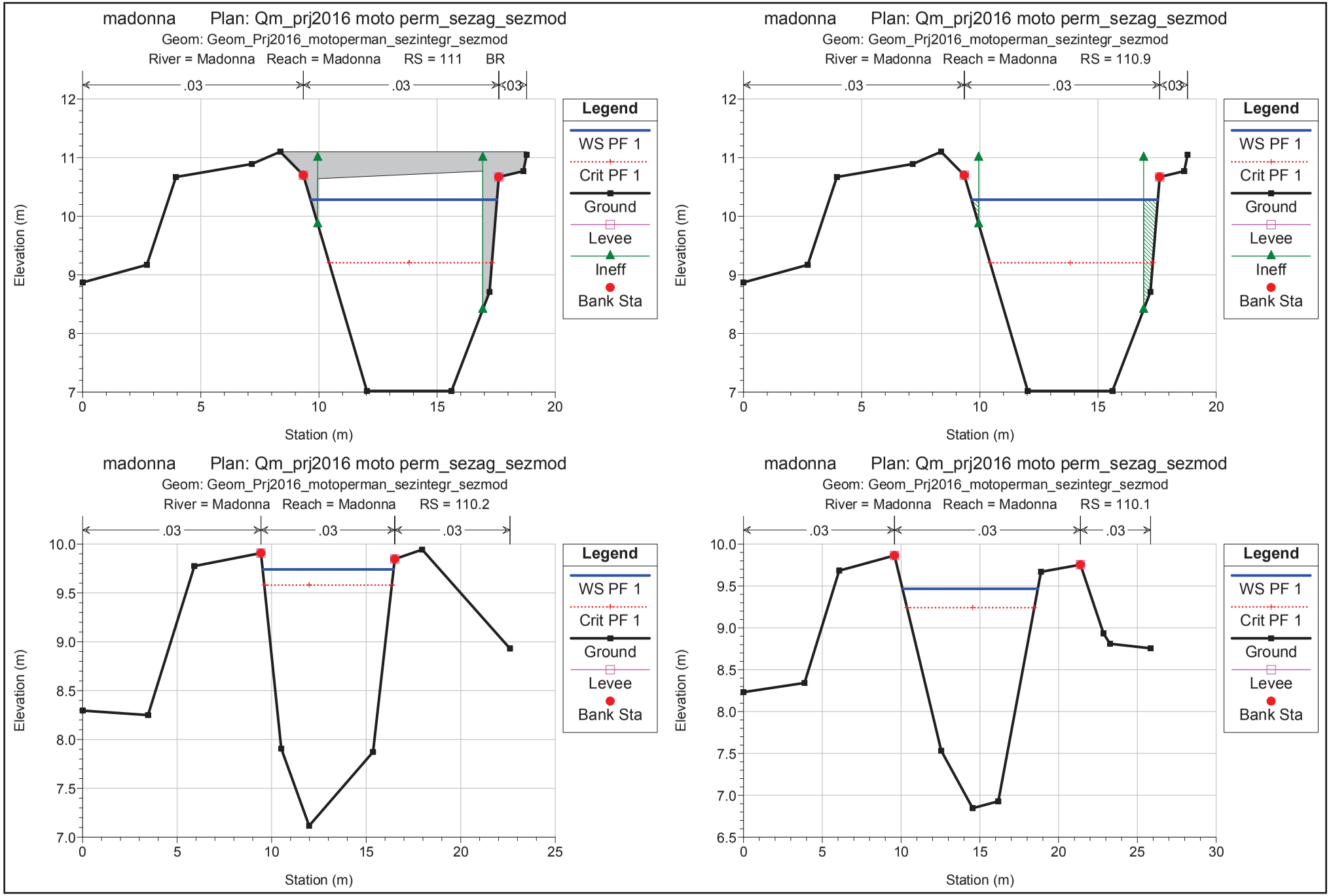
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 112.05



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 112.04



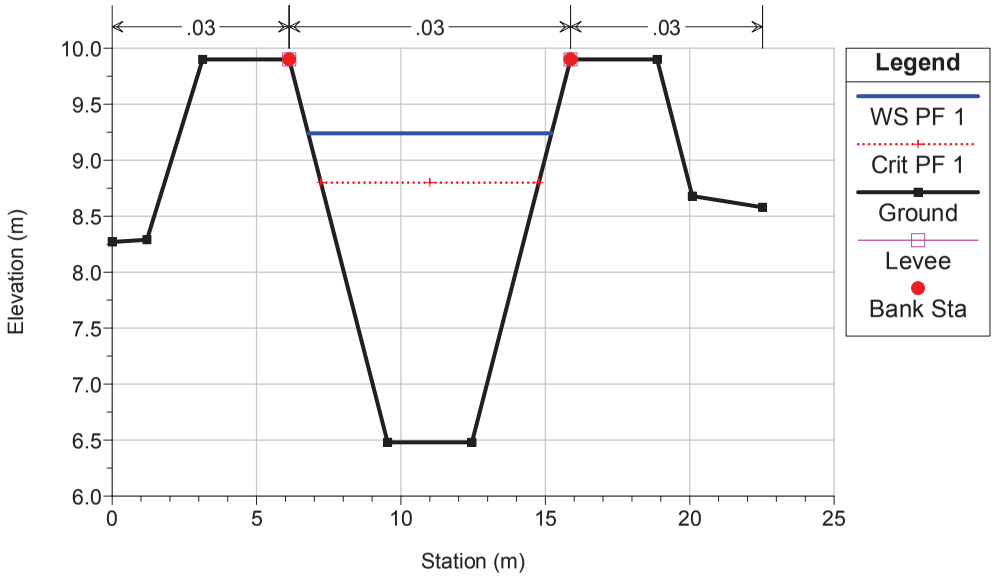

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 112.03
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 112
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 111.1
.03
.03
Elevation (m)
Station (m)
Legend
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 111 BR
.03
.03
Elevation (m)
Station (m)
Legend
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 111 BR
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 110.9
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 110.2
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 110.1
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

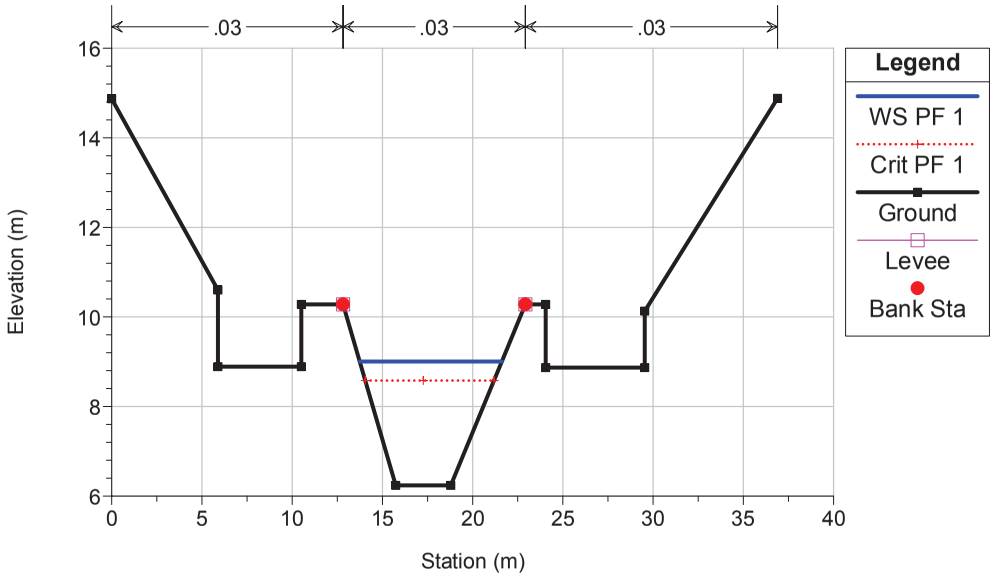
River = Madonna Reach = Madonna RS = 110



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

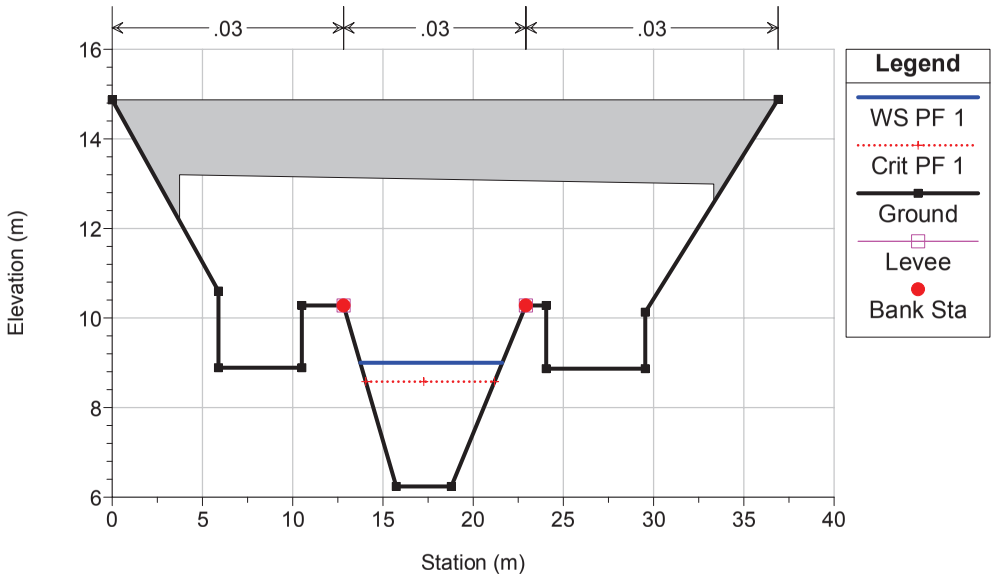
River = Madonna Reach = Madonna RS = 109.3



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

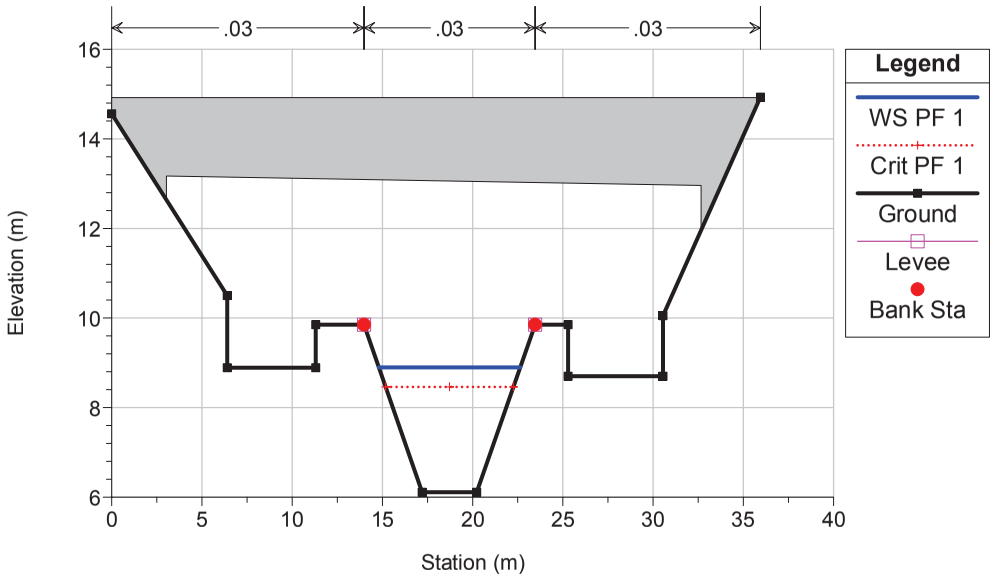
River = Madonna Reach = Madonna RS = 109.2 BR

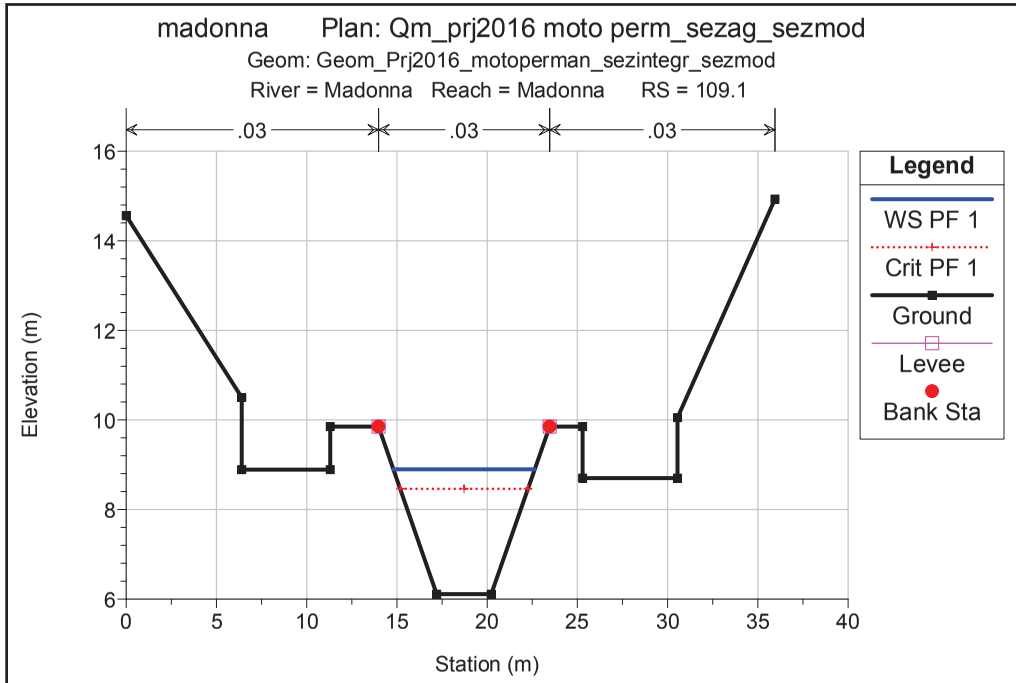


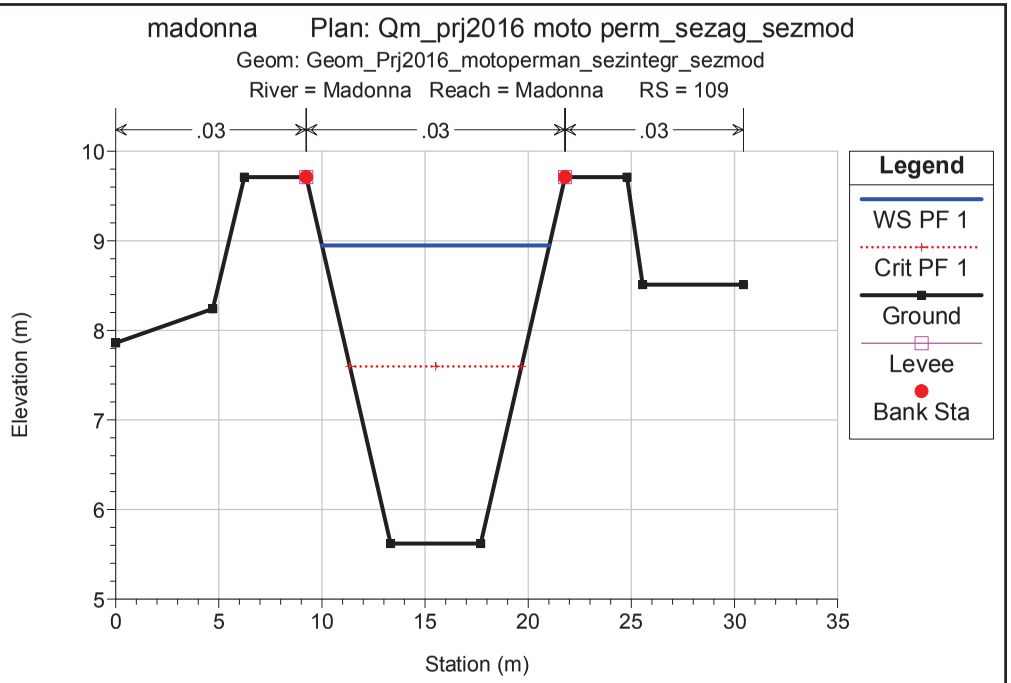
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

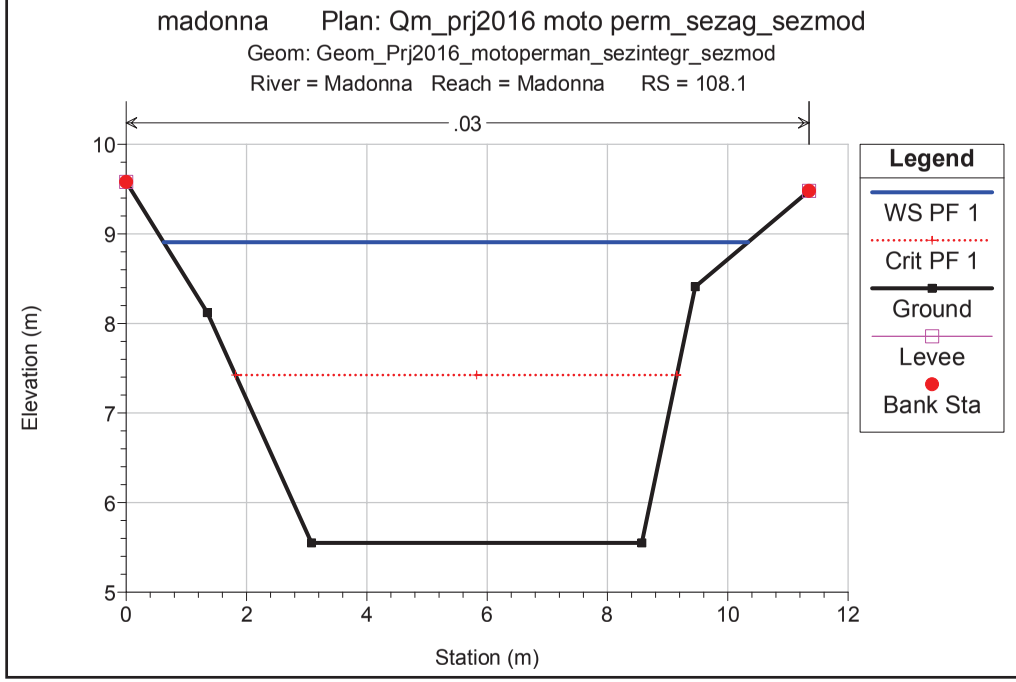
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

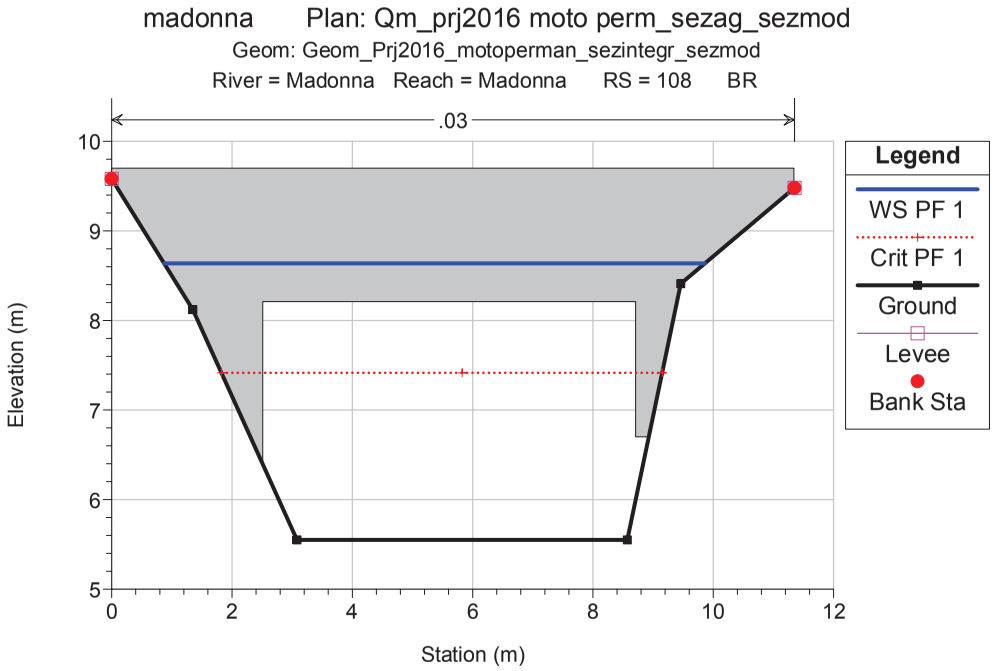
River = Madonna Reach = Madonna RS = 109.2 BR




madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 109.1
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 109
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

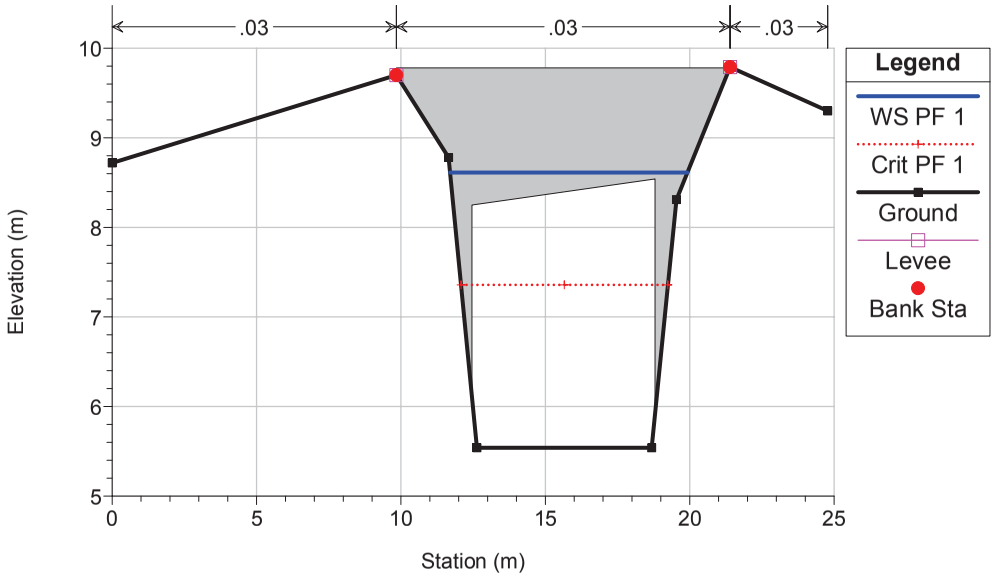

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 108.1
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 108 BR
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

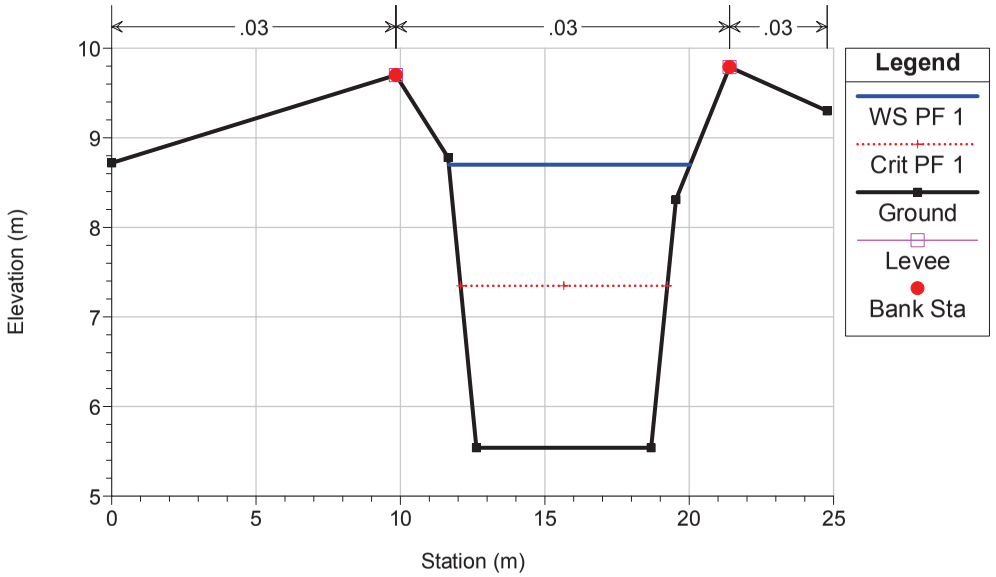
River = Madonna Reach = Madonna RS = 108 BR



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

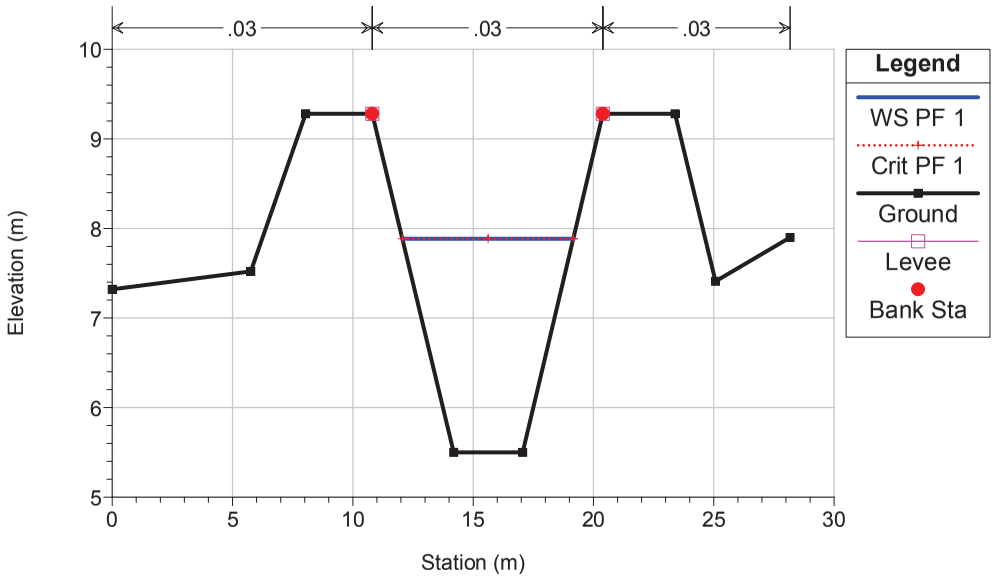
River = Madonna Reach = Madonna RS = 107.9



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

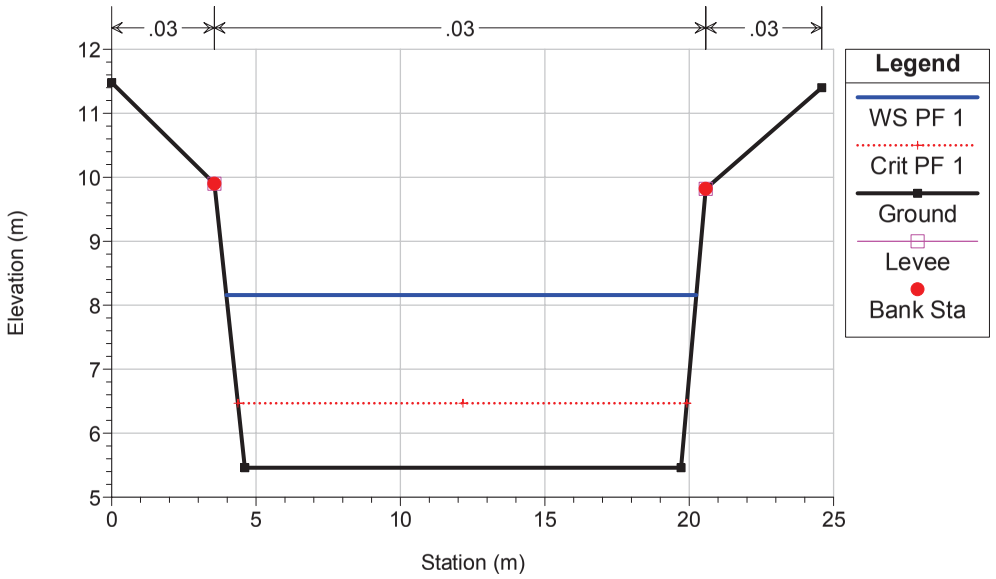
River = Madonna Reach = Madonna RS = 107



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

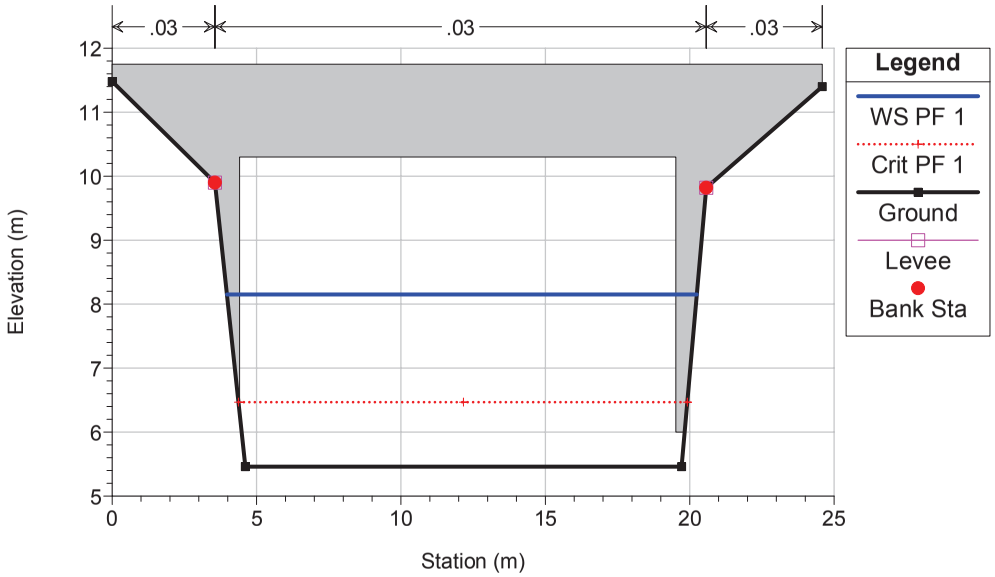
River = Madonna Reach = Madonna RS = 106.1



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

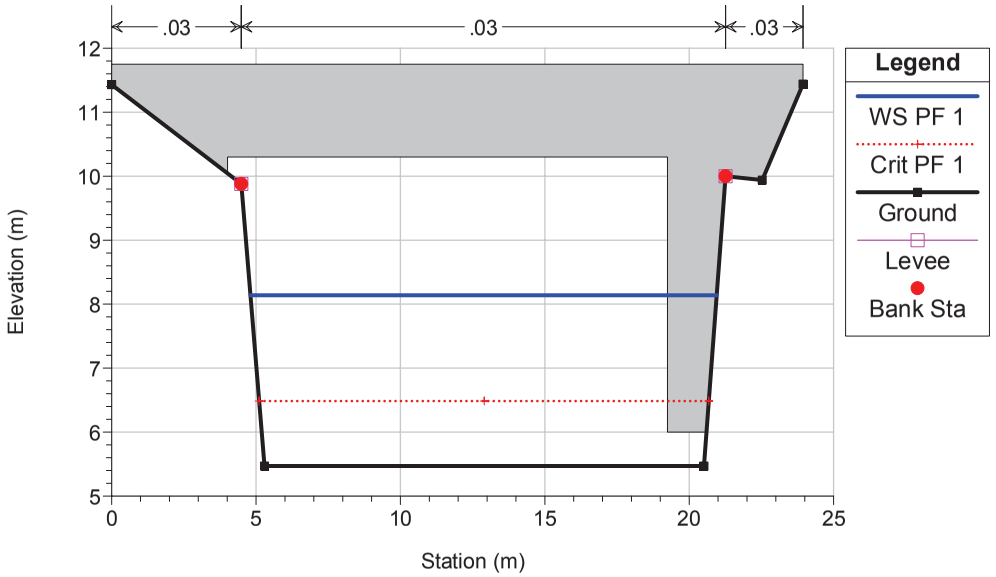
River = Madonna Reach = Madonna RS = 106 BR



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

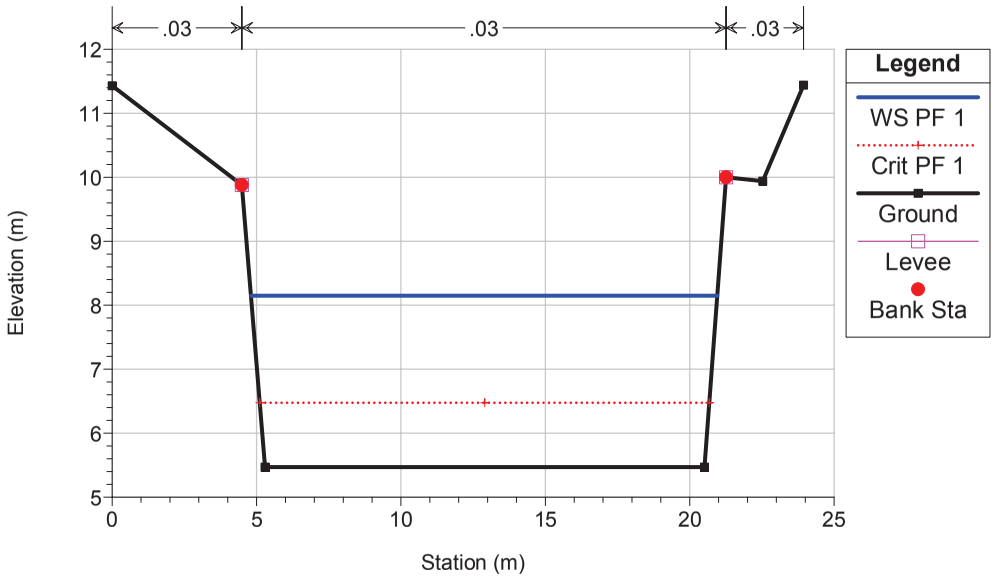
River = Madonna Reach = Madonna RS = 106 BR



madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

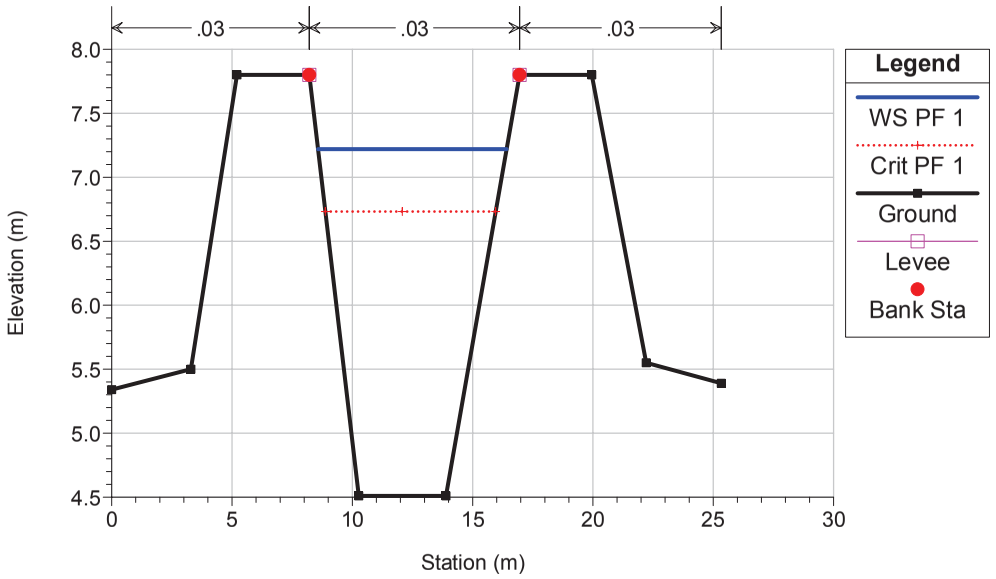
River = Madonna Reach = Madonna RS = 105.9

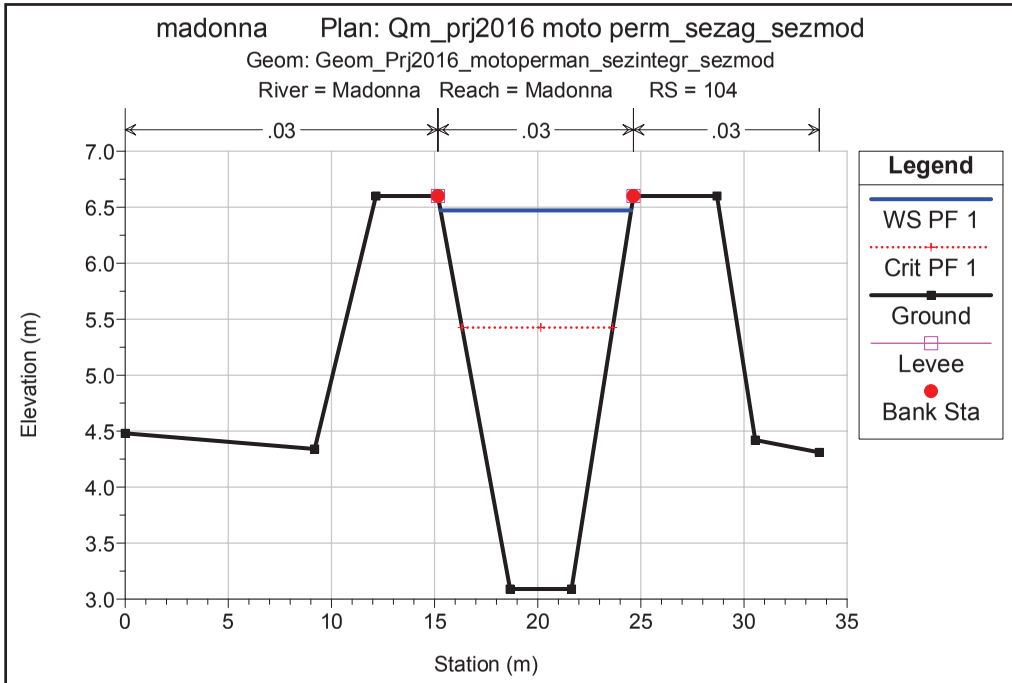


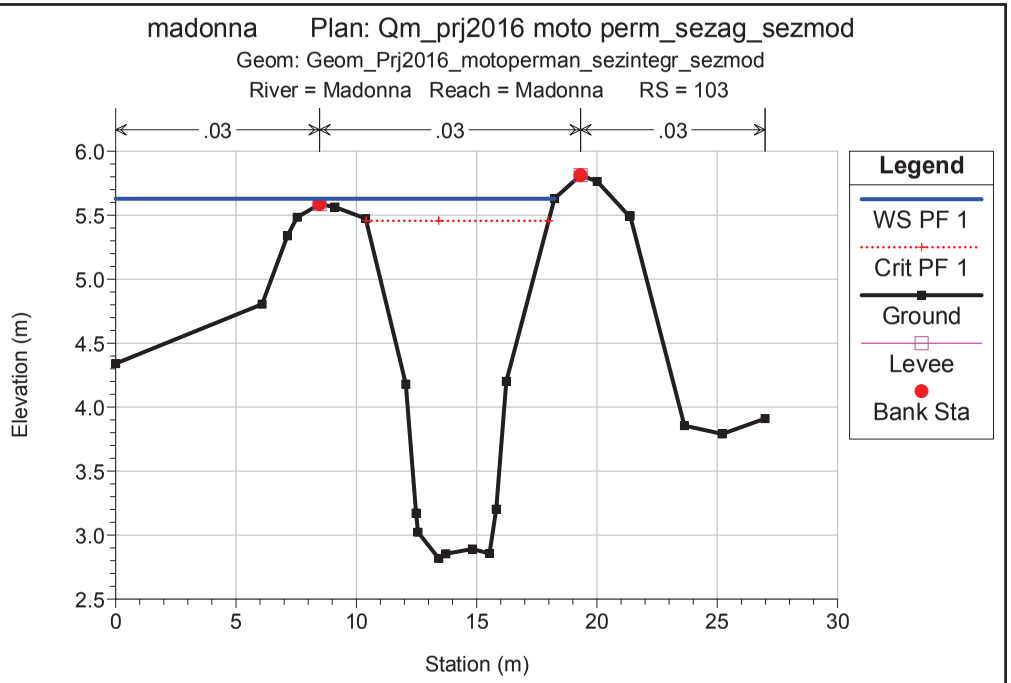
madonna Plan: Qm_prj2016 moto perm_sezag_sezmod

Geom: Geom_Prj2016_motoperman_sezintegr_sezmod

River = Madonna Reach = Madonna RS = 105




madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 104
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta


madonna Plan: Qm_prj2016 moto perm_sezag_sezmod
Geom: Geom_Prj2016_motoperman_sezintegr_sezmod
River = Madonna Reach = Madonna RS = 103
.03
.03
.03
Elevation (m)
Station (m)
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta

ALLEGATO 5

VERIFICA IDRAULICA A MOTO PERMANENTE DEL FOSSO DELLA MADONNA ALLO STATO DI PROGETTO, EVENTO CRITICO DUECENTENNALE CHE MASSIMIZZA IL VOLUME DA INVASARE

- LEGENDA
- TABELLA DI OUTPUT PROFILO LIQUIDO
- PROFILO LONGITUDINALE
- SEZIONI TRASVERSALI

Legenda della tabella di dati relativi alle sezioni	
Reach	Corso d'acqua in esame
River Station	Sezione trasversale
Q Total	Portate del corso d'acqua nella sezione
Min ch elev	Elevazione minima del fondo
W.S. Elev	Elevazione del pelo liquido della corrente
Crit. W.S.	Elevazione dell'altezza critica
E. G. Elev	Elevazione della linea dell'energia totale
E.G Slope	Pendenza della linea dell'energia totale
Vel. Chnl	Velocità dell'acqua nel canale
Flow Area	Sezione liquida della corrente
Top Width	Larghezza in bocca della sezione
Froude#Chl	Numero di Froude della sezione
Legenda del profilo longitudinale del tratto	
WS MAX	Massima altezza del pelo libero raggiunta durante la simulazione
LOB	Profilo dell'argine sinistro
ROB	Profilo dell'argine destro
Legenda dei dati relativi allo sfioratore	
Flow HW US	Idrogramma di piena a monte dello sfioratore
Flow HW DS	Idrogramma di piena a valle dello sfioratore
Legenda della tabella di dati relativi all'area di invaso	
W.S. Elev	Quota del pelo libero (battente) nell'area
Net Flux	Portata in ingresso nell'area
SA Area	Superficie dell'area di invaso
SA Volume	Volume invasato nell'area
Legenda del grafico relativo all'area di invaso	
Stage	Quota del pelo libero (battente) nell'area

HEC-RAS Plan: Vmax Tr200perm River: Madonna Reach: Madonna Profile: PF 1

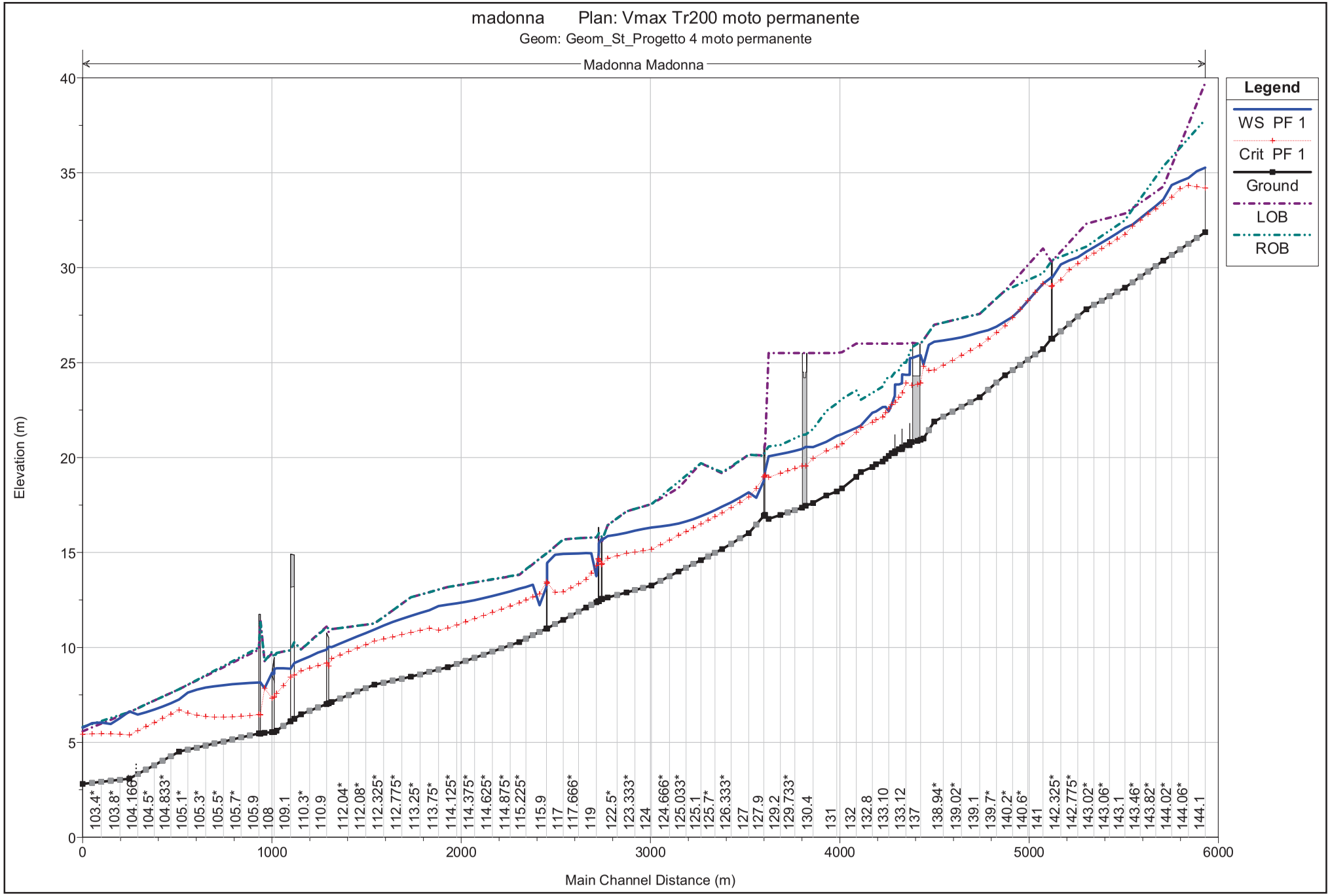
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev
			(m3/s)	(m)	(m)	(m)	(m)
Madonna	144.1	PF 1	65.72	31.87	35.27	34.20	35.52
Madonna	144.08*	PF 1	65.72	31.57	35.08	34.27	35.41
Madonna	144.06*	PF 1	65.72	31.27	34.72	34.33	35.22
Madonna	144.04*	PF 1	65.72	30.97	34.55	34.15	34.96
Madonna	144.02*	PF 1	65.72	30.67	34.35	33.71	34.77
Madonna	144	PF 1	65.72	30.37	33.59	33.40	34.46
Madonna	143.82*	PF 1	65.72	30.08	33.25	33.09	34.08
Madonna	143.64*	PF 1	65.72	29.80	32.92	32.82	33.71
Madonna	143.46*	PF 1	65.72	29.52	32.60	32.51	33.35
Madonna	143.28*	PF 1	65.72	29.23	32.27	32.19	33.01
Madonna	143.1	PF 1	65.72	28.95	32.09	31.75	32.68
Madonna	143.08*	PF 1	65.72	28.72	31.82	31.50	32.43
Madonna	143.06*	PF 1	65.72	28.50	31.56	31.26	32.19
Madonna	143.04*	PF 1	65.72	28.27	31.32	31.01	31.94
Madonna	143.02*	PF 1	65.72	28.04	31.07	30.76	31.69
Madonna	143	PF 1	65.72	27.81	30.85	30.50	31.44
Madonna	142.775*	PF 1	65.72	27.42	30.55	30.22	31.17
Madonna	142.55*	PF 1	65.72	27.04	30.39	29.89	30.88
Madonna	142.325*	PF 1	65.72	26.66	30.17	29.35	30.66
Madonna	142.1	PF 1	65.72	26.27	29.48	29.05	30.42
Madonna	142		Bridge				
Madonna	141.9	PF 1	65.72	26.27	29.49	29.01	30.39
Madonna	141	PF 1	65.72	25.71	29.15	29.15	30.11
Madonna	140.8*	PF 1	65.72	25.44	28.71	28.71	29.68
Madonna	140.6*	PF 1	65.72	25.16	28.24	28.26	29.25
Madonna	140.4*	PF 1	65.72	24.89	27.79	27.81	28.81
Madonna	140.2*	PF 1	65.72	24.61	27.41	27.37	28.37
Madonna	140	PF 1	65.72	24.34	27.17	26.93	27.96
Madonna	139.7*	PF 1	65.72	23.95	26.89	26.59	27.61
Madonna	139.4*	PF 1	65.72	23.57	26.70	26.24	27.30
Madonna	139.1	PF 1	65.72	23.18	26.60	25.89	27.05
Madonna	139.06*	PF 1	65.72	22.92	26.45	25.63	26.87
Madonna	139.02*	PF 1	65.72	22.67	26.33	25.38	26.70
Madonna	138.98*	PF 1	65.72	22.41	26.24	25.12	26.56
Madonna	138.94*	PF 1	65.72	22.16	26.16	24.86	26.44
Madonna	138.9	PF 1	65.72	21.90	26.10	24.61	26.34
Madonna	138.45*	PF 1	65.72	21.45	25.93	24.58	26.27
Madonna	138	PF 1	65.72	21.00	24.90	24.81	26.05
Madonna	137	PF 1	39.54	20.94	25.40	23.93	25.68
Madonna	136.95		Lat Struct				
Madonna	136.8	PF 1	39.54	20.88	25.35	23.87	25.64
Madonna	135.6	PF 1	39.54	20.82	25.24	23.81	25.54
Madonna	133.130		Inl Struct				
Madonna	133.12	PF 1	39.54	20.65	24.36	23.93	24.75
Madonna	133.116	PF 1	39.54	20.55	24.38	23.41	24.62
Madonna	133.1155		Inl Struct				
Madonna	133.115	PF 1	39.54	20.44	23.85	23.18	24.19
Madonna	133.114	PF 1	39.54	20.34	23.85	22.92	24.08
Madonna	133.112		Inl Struct				
Madonna	133.11	PF 1	39.54	20.23	22.80	22.80	23.57
Madonna	133.10	PF 1	39.54	20.08	22.44	22.57	23.36
Madonna	133.09	PF 1	39.54	19.94	22.67	22.36	23.19
Madonna	133	PF 1	39.54	19.79	22.66	22.14	23.07
Madonna	132.9	PF 1	39.54	19.65	22.43	22.00	22.88
Madonna	132.8	PF 1	39.54	19.50	22.36	21.85	22.77
Madonna	132.7	PF 1	39.54	19.24	21.69	21.59	22.36
Madonna	132	PF 1	39.54	18.98	21.57	21.33	22.13
Madonna	131.6	PF 1	39.54	18.38	21.24	20.73	21.65
Madonna	131	PF 1	39.54	18.21	21.14	20.56	21.52
Madonna	130.5	PF 1	39.54	18.00	20.83	20.35	21.26
Madonna	130.4	PF 1	39.54	17.61	20.55	19.96	20.93
Madonna	130.35		Lat Struct				
Madonna	130.3	PF 1	39.54	17.46	20.56	19.56	20.77
Madonna	130	PF 1	39.54	17.36	20.45	19.56	20.72
Madonna	129.733*	PF 1	39.54	17.23	20.36	19.43	20.61
Madonna	129.466*	PF 1	39.54	17.11	20.27	19.30	20.52
Madonna	129.2	PF 1	39.54	16.98	20.19	19.17	20.42
Madonna	129	PF 1	39.54	16.77	20.06	18.97	20.28
Madonna	128.1	PF 1	39.54	16.98	19.27	19.08	20.16
Madonna	128		Bridge				

HEC-RAS Plan: Vmax Tr200perm River: Madonna Reach: Madonna Profile: PF 1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev
			(m3/s)	(m)	(m)	(m)	(m)
Madonna	127.9	PF 1	39.54	16.93	18.78	19.00	20.08
Madonna	127.45*	PF 1	39.54	16.48	17.88	18.36	19.41
Madonna	127	PF 1	39.54	16.02	18.16	17.92	18.61
Madonna	126.666*	PF 1	39.54	15.74	17.89	17.64	18.34
Madonna	126.333*	PF 1	39.54	15.46	17.64	17.36	18.07
Madonna	126	PF 1	39.54	15.18	17.42	17.08	17.81
Madonna	125.7*	PF 1	39.54	14.99	17.23	16.89	17.62
Madonna	125.4*	PF 1	39.54	14.79	17.06	16.70	17.44
Madonna	125.1	PF 1	39.54	14.60	16.91	16.50	17.27
Madonna	125.066*	PF 1	39.54	14.40	16.76	16.30	17.09
Madonna	125.033*	PF 1	39.54	14.20	16.63	16.10	16.94
Madonna	125	PF 1	39.54	14.00	16.53	15.90	16.80
Madonna	124.666*	PF 1	39.54	13.75	16.44	15.66	16.66
Madonna	124.333*	PF 1	39.54	13.51	16.37	15.41	16.55
Madonna	124	PF 1	39.54	13.26	16.32	15.17	16.47
Madonna	123.666*	PF 1	39.54	13.14	16.24	15.09	16.40
Madonna	123.333*	PF 1	39.54	13.02	16.15	15.02	16.33
Madonna	123	PF 1	39.54	12.90	16.04	14.96	16.25
Madonna	122.5*	PF 1	39.54	12.77	15.94	14.83	16.15
Madonna	122	PF 1	39.54	12.63	15.86	14.69	16.06
Madonna	121.1	PF 1	39.54	12.55	15.66	14.41	15.97
Madonna	121		Bridge				
Madonna	120.9	PF 1	39.54	12.55	15.70	14.38	15.94
Madonna	120.1	PF 1	39.54	12.43	15.49	14.57	15.87
Madonna	120		Bridge				
Madonna	119.9	PF 1	39.54	12.43	14.68	14.68	15.75
Madonna	119	PF 1	39.54	12.38	13.75	14.32	15.53
Madonna	118.5*	PF 1	39.54	12.24	14.95	13.92	15.14
Madonna	118	PF 1	39.54	12.10	14.97	13.58	15.09
Madonna	117.666*	PF 1	39.54	11.88	14.95	13.36	15.05
Madonna	117.333*	PF 1	39.54	11.67	14.94	13.14	15.02
Madonna	117	PF 1	39.54	11.45	14.92	12.93	14.99
Madonna	116.55*	PF 1	39.54	11.22	14.88	12.91	14.97
Madonna	116.1	PF 1	39.54	11.00	14.45	13.42	14.87
Madonna	116		Bridge				
Madonna	115.9	PF 1	39.54	11.00	13.19	13.46	14.74
Madonna	115.675*	PF 1	39.54	10.82	12.22	12.82	14.10
Madonna	115.45*	PF 1	39.54	10.64	13.30	12.66	13.66
Madonna	115.225*	PF 1	39.54	10.46	13.19	12.50	13.52
Madonna	115	PF 1	39.54	10.28	13.09	12.34	13.39
Madonna	114.875*	PF 1	39.54	10.12	12.95	12.18	13.24
Madonna	114.75*	PF 1	39.54	9.95	12.82	12.01	13.10
Madonna	114.625*	PF 1	39.54	9.78	12.70	11.85	12.97
Madonna	114.5*	PF 1	39.54	9.62	12.59	11.68	12.85
Madonna	114.375*	PF 1	39.54	9.45	12.49	11.52	12.73
Madonna	114.25*	PF 1	39.54	9.29	12.40	11.35	12.62
Madonna	114.125*	PF 1	39.54	9.13	12.32	11.19	12.53
Madonna	114	PF 1	39.54	8.96	12.25	11.02	12.44
Madonna	113.75*	PF 1	39.54	8.83	12.18	10.91	12.36
Madonna	113.5*	PF 1	47.24	8.71	11.96	11.01	12.25
Madonna	113.25*	PF 1	47.24	8.58	11.81	10.90	12.12
Madonna	113	PF 1	47.24	8.46	11.66	10.79	11.97
Madonna	112.775*	PF 1	47.24	8.35	11.50	10.68	11.83
Madonna	112.55*	PF 1	47.24	8.25	11.34	10.56	11.68
Madonna	112.325*	PF 1	47.24	8.14	11.15	10.45	11.51
Madonna	112.1	PF 1	47.24	8.04	10.94	10.33	11.33
Madonna	112.08*	PF 1	47.24	7.86	10.76	10.15	11.15
Madonna	112.06*	PF 1	47.24	7.68	10.57	9.97	10.97
Madonna	112.04*	PF 1	47.24	7.49	10.39	9.78	10.79
Madonna	112.02*	PF 1	47.24	7.31	10.21	9.60	10.60
Madonna	112	PF 1	47.24	7.13	10.02	9.42	10.42
Madonna	111.1	PF 1	47.24	7.06	10.04	9.02	10.36
Madonna	111		Bridge				
Madonna	110.9	PF 1	47.24	7.02	9.88	9.18	10.32
Madonna	110.6*	PF 1	47.24	6.84	9.73	9.05	10.14
Madonna	110.3*	PF 1	47.24	6.66	9.52	8.91	9.95
Madonna	110	PF 1	47.24	6.48	9.34	8.77	9.75
Madonna	109.3	PF 1	47.24	6.24	9.18	8.55	9.60
Madonna	109.2		Bridge				
Madonna	109.1	PF 1	47.24	6.11	8.88	8.43	9.39

HEC-RAS Plan: Vmax Tr200perm River: Madonna Reach: Madonna Profile: PF 1 (Continued)

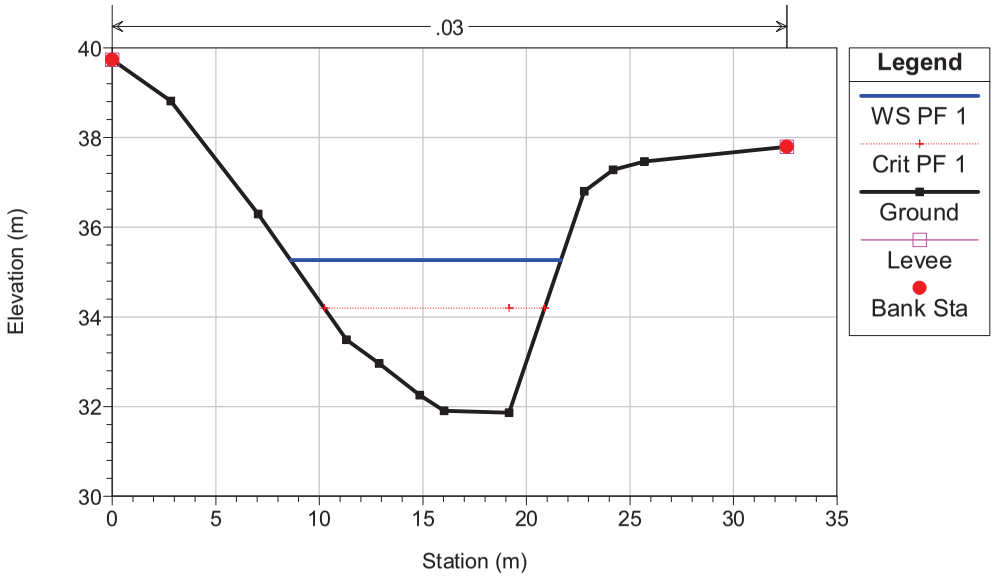
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev
			(m3/s)	(m)	(m)	(m)	(m)
Madonna	109.05*	PF 1	47.24	5.86	8.90	7.98	9.19
Madonna	109	PF 1	47.24	5.62	8.90	7.57	9.08
Madonna	108.1	PF 1	47.24	5.55	8.86	7.40	9.06
Madonna	108		Bridge				
Madonna	107.9	PF 1	47.24	5.54	8.67	7.32	8.90
Madonna	107	PF 1	47.24	5.50	7.86	7.86	8.69
Madonna	106.1	PF 1	47.24	5.46	8.17	6.45	8.23
Madonna	106		Bridge				
Madonna	105.9	PF 1	47.24	5.47	8.16	6.46	8.22
Madonna	105.8*	PF 1	47.24	5.36	8.13	6.41	8.20
Madonna	105.7*	PF 1	47.24	5.26	8.10	6.37	8.17
Madonna	105.6*	PF 1	47.24	5.15	8.06	6.35	8.15
Madonna	105.5*	PF 1	47.24	5.04	8.01	6.33	8.12
Madonna	105.4*	PF 1	47.24	4.94	7.96	6.34	8.08
Madonna	105.3*	PF 1	47.24	4.83	7.88	6.37	8.03
Madonna	105.2*	PF 1	47.24	4.72	7.78	6.43	7.97
Madonna	105.1*	PF 1	47.24	4.62	7.62	6.54	7.88
Madonna	105	PF 1	47.24	4.51	7.25	6.70	7.71
Madonna	104.833*	PF 1	47.24	4.27	7.06	6.49	7.50
Madonna	104.666*	PF 1	47.24	4.04	6.89	6.27	7.31
Madonna	104.5*	PF 1	47.24	3.80	6.73	6.05	7.12
Madonna	104.333*	PF 1	47.24	3.56	6.58	5.83	6.95
Madonna	104.166*	PF 1	47.24	3.33	6.47	5.62	6.79
Madonna	104	PF 1	47.24	3.09	6.63	5.40	6.67
Madonna	103.8*	PF 1	47.24	3.03	6.28	5.43	6.60
Madonna	103.6*	PF 1	47.24	2.98	5.96	5.45	6.40
Madonna	103.4*	PF 1	47.24	2.93	6.04	5.46	6.17
Madonna	103.2*	PF 1	47.24	2.87	6.01	5.45	6.09
Madonna	103	PF 1	47.24	2.82	5.77	5.43	5.98


madonna Plan: Vmax Tr200 moto permanente
Geom: Geom_St_Progetto 4 moto permanente
Madonna Madonna
Legend
WS PF 1
Crit PF 1
Ground
LOB
ROB
Elevation (m)
Main Channel Distance (m)
0
5
10
15
20
25
30
35
40
0
1000
2000
3000
4000
5000
6000
103.4*
103.8*
104.166
104.5*
104.833*
105.1*
105.3*
105.5*
105.7*
105.9
108
109.1
110.3*
110.9
112.04*
112.08*
112.325*
112.775*
113.25*
113.75*
114.125*
114.375*
114.625*
114.875*
115.225*
115.9
117
117.666*
119
122.5*
123.333*
124
124.666*
125.033*
125.1
125.7*
126.333*
127
127.9
129.2
129.733*
130.4
131
132
132.8
133.10
133.12
137
138.94*
139.02*
139.1
139.7*
140.2*
140.6*
141
142.325*
142.775*
143.02*
143.06*
143.1
143.46*
143.82*
144.02*
144.06*
144.1

madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

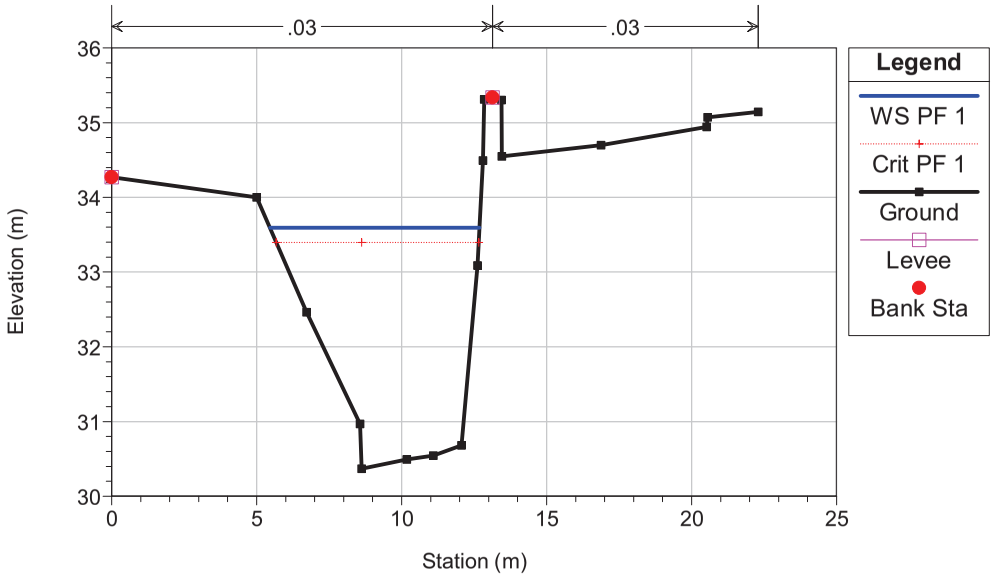
RS = 144.1



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

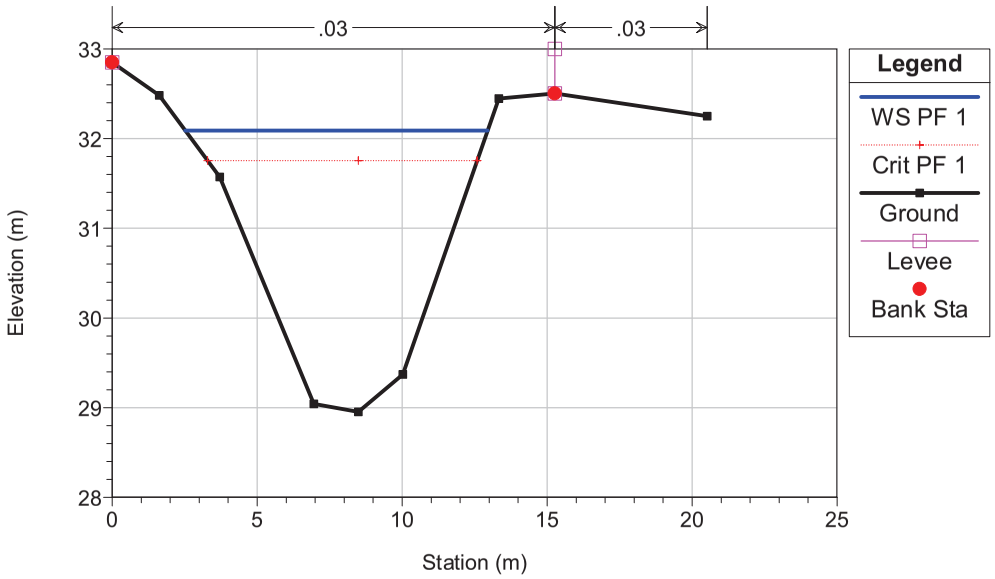
RS = 144



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

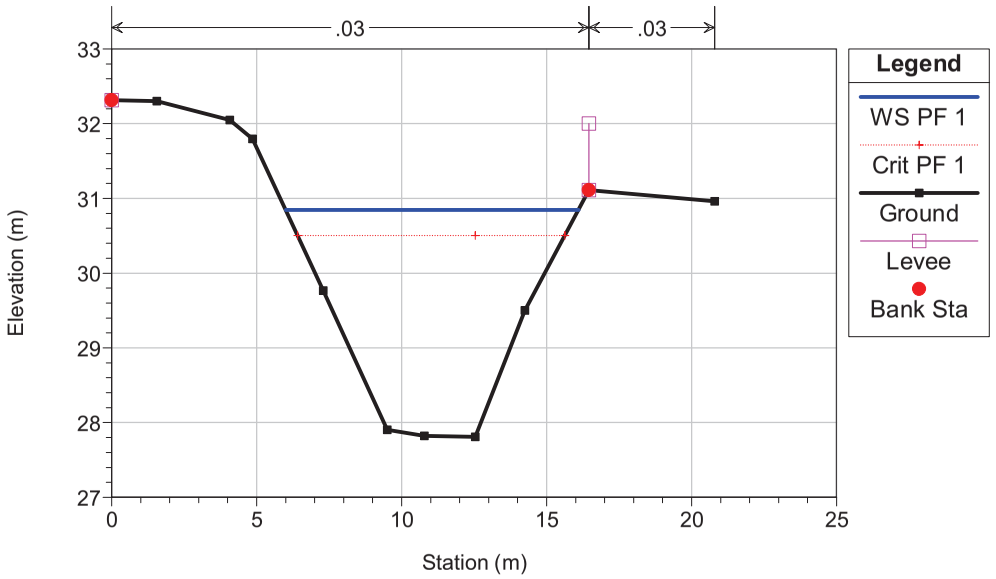
RS = 143.1



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

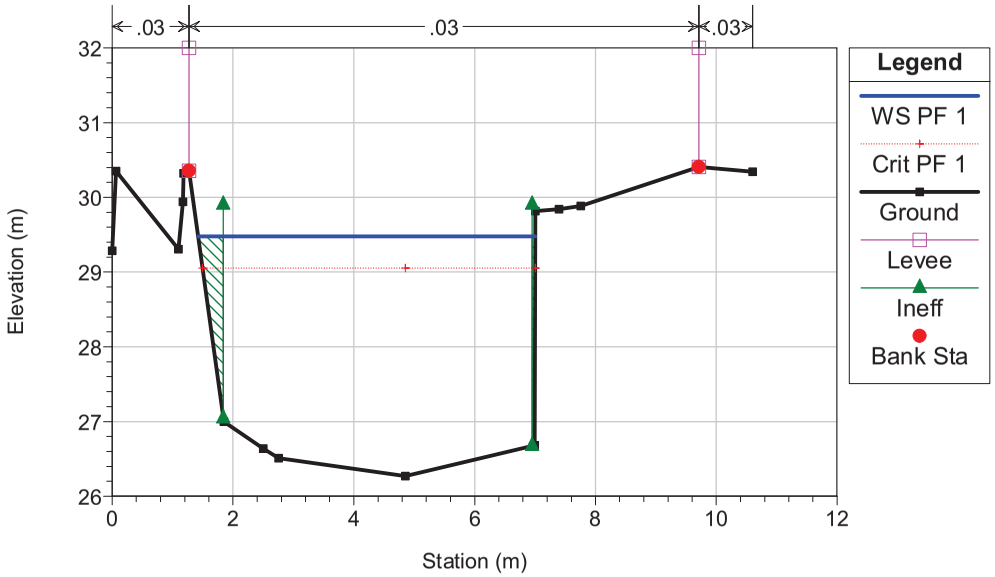
RS = 143



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

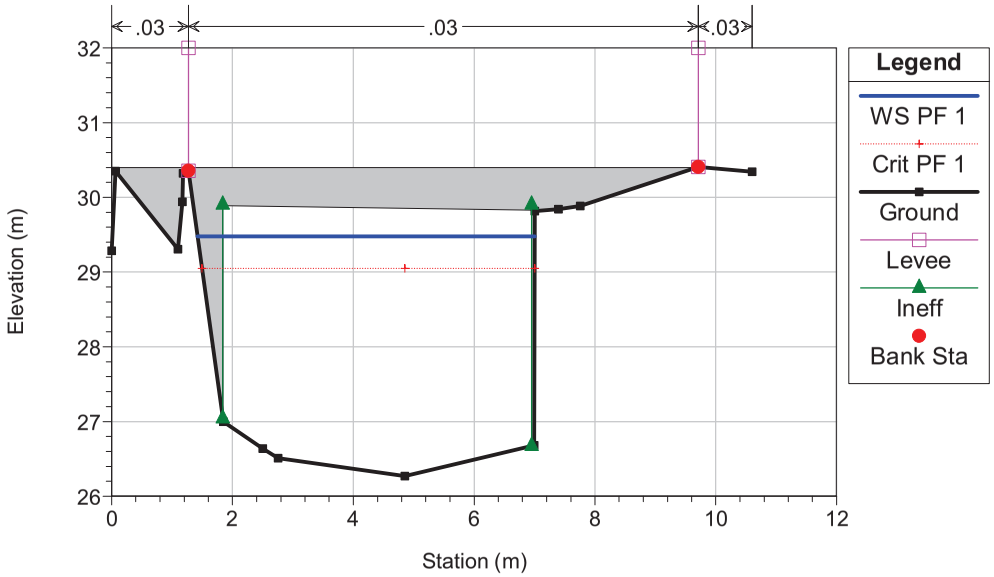
RS = 142.1



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

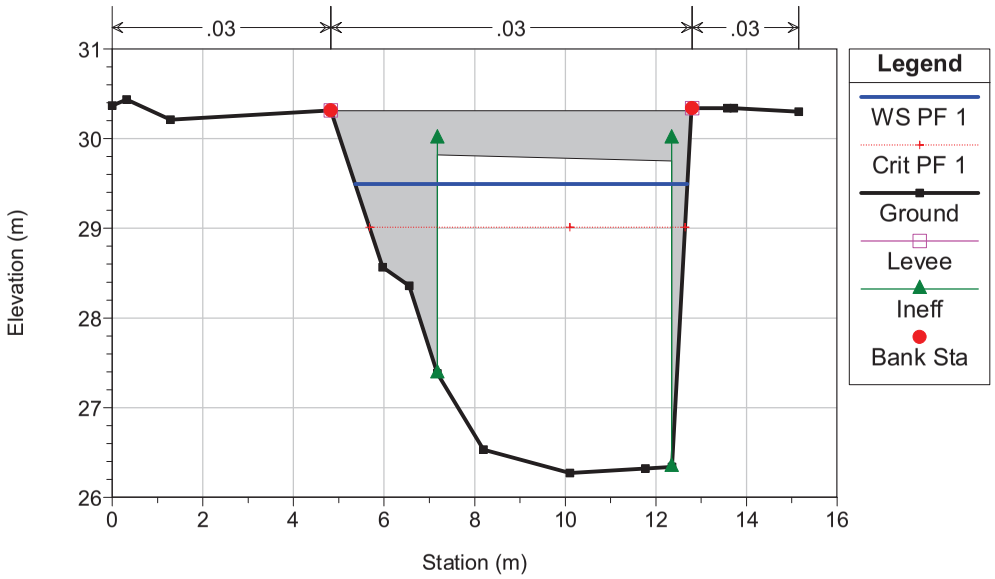
RS = 142 BR



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

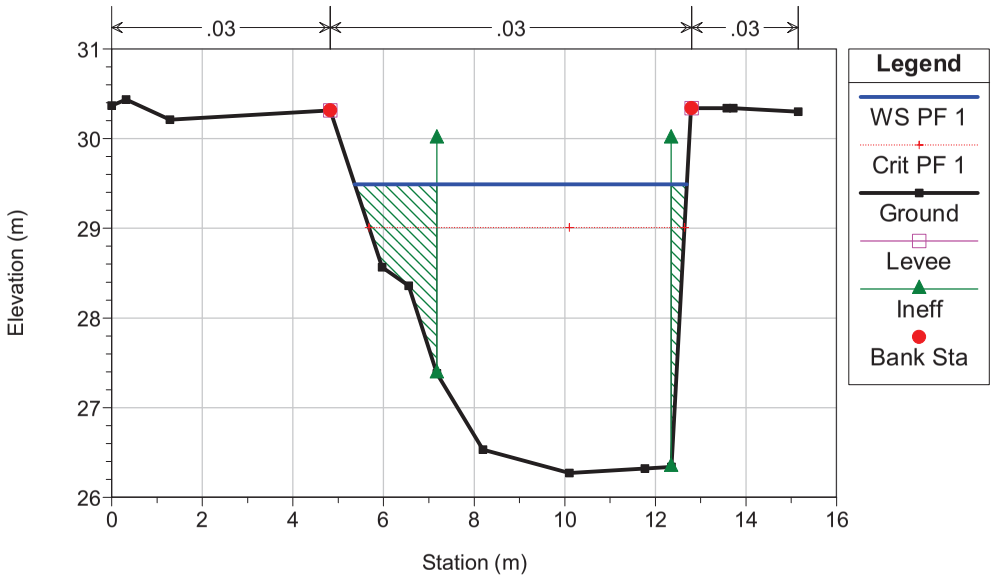
RS = 142 BR



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

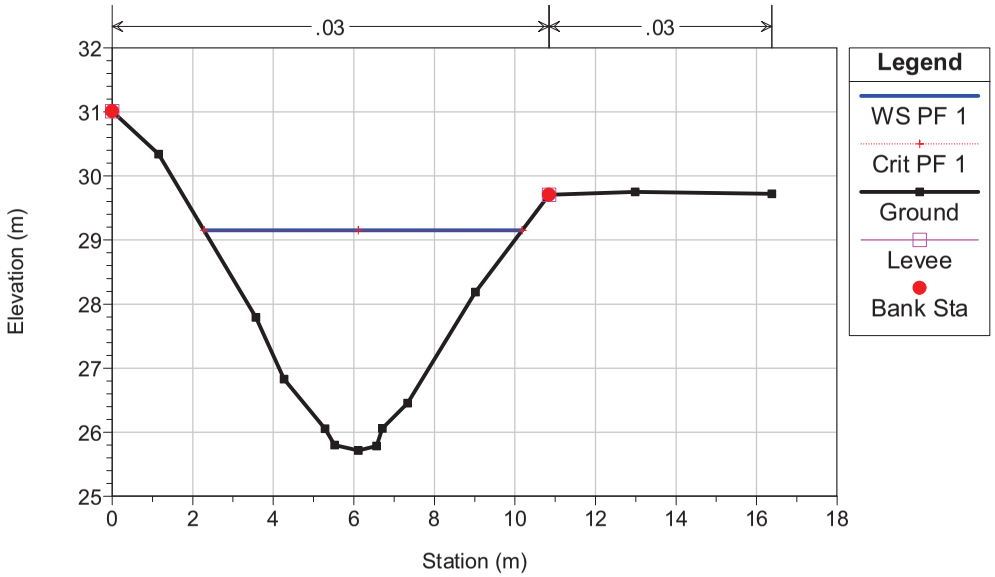
RS = 141.9



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

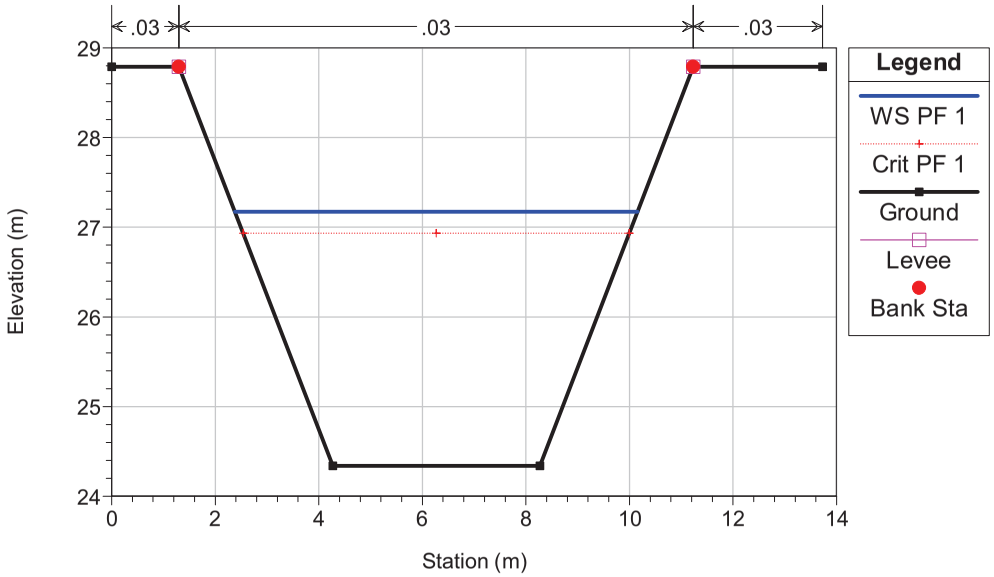
RS = 141



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

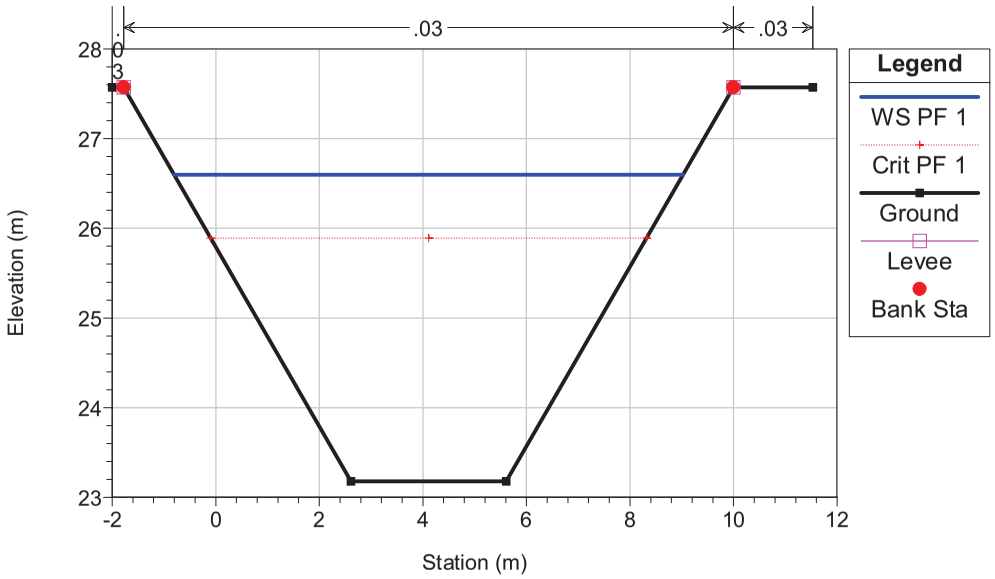
RS = 140



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

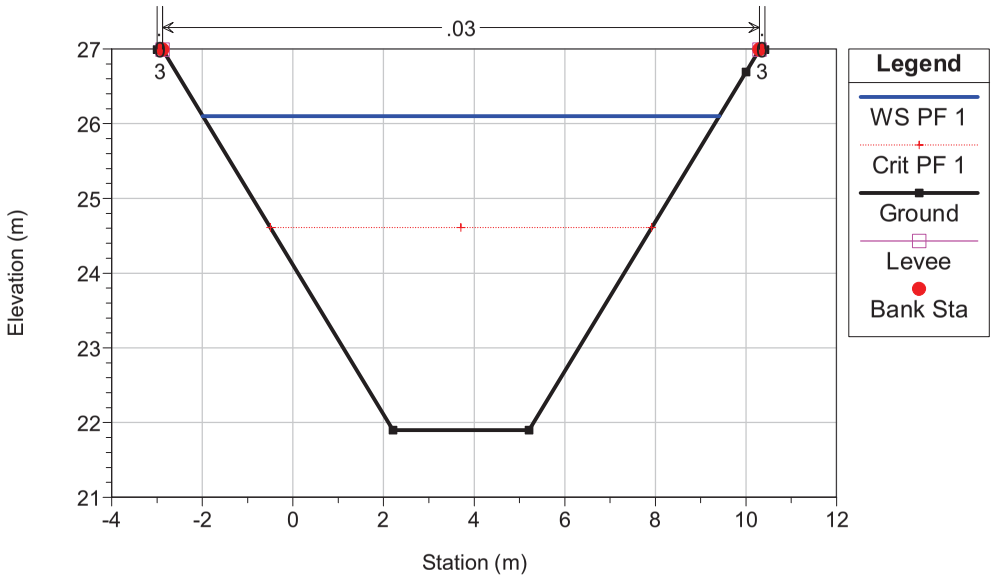
RS = 139.1



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

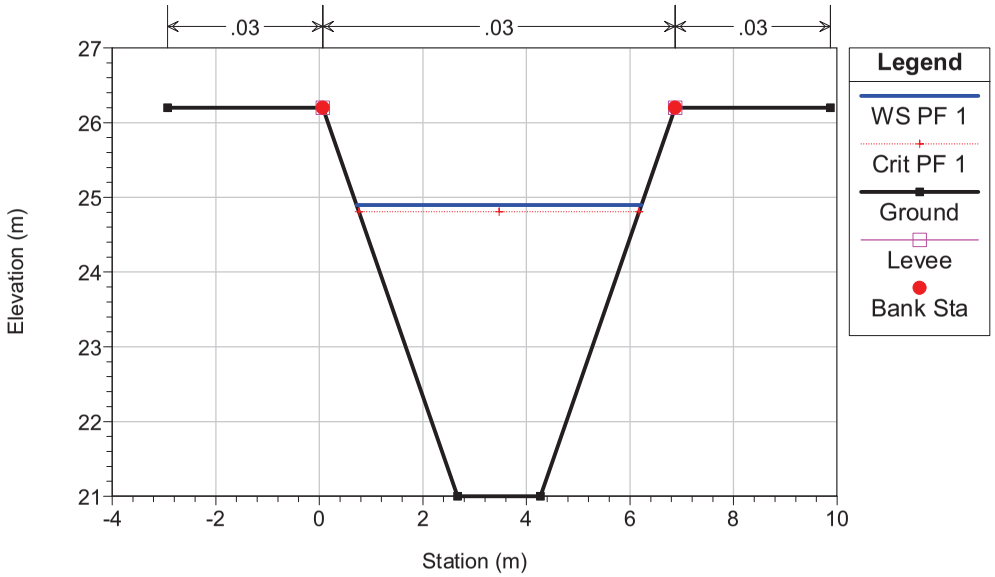
RS = 138.9



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

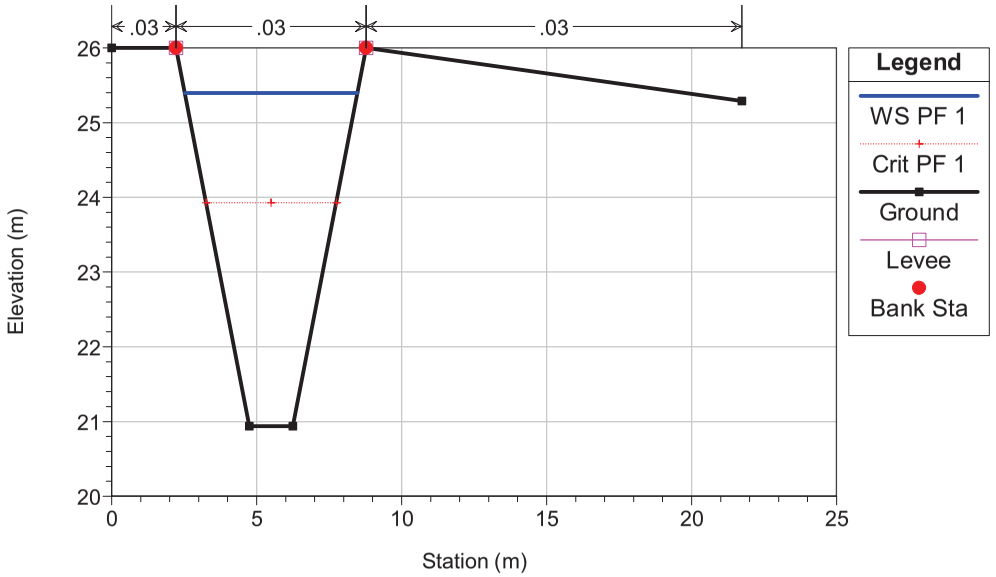
RS = 138



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

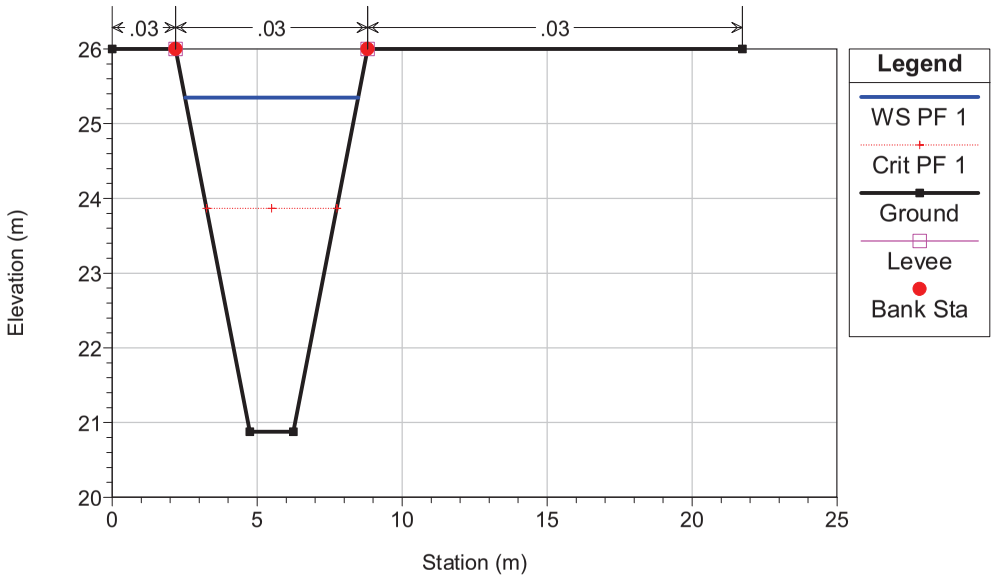
RS = 137



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

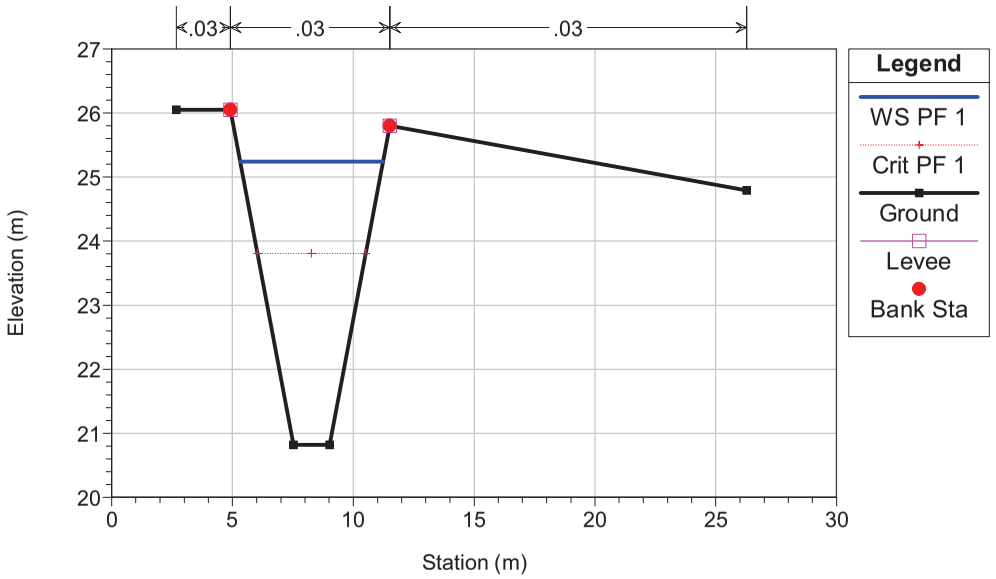
RS = 136.8



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

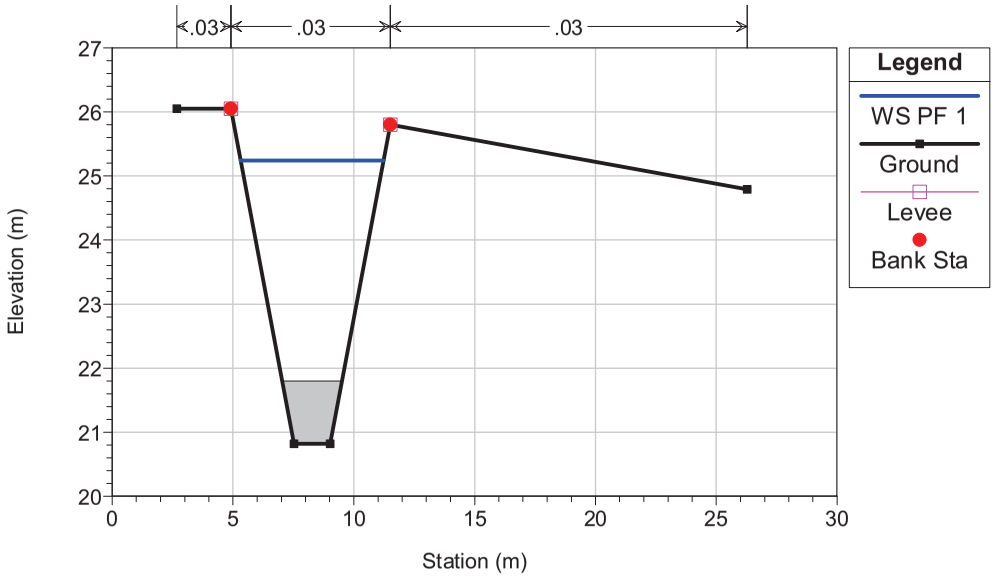
RS = 135.6



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

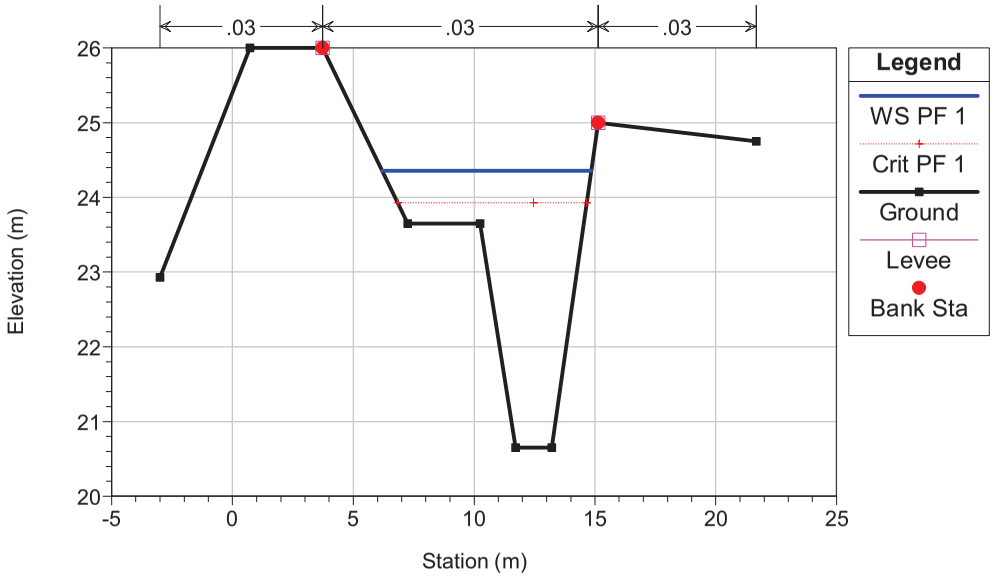
RS = 133.130 IS



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

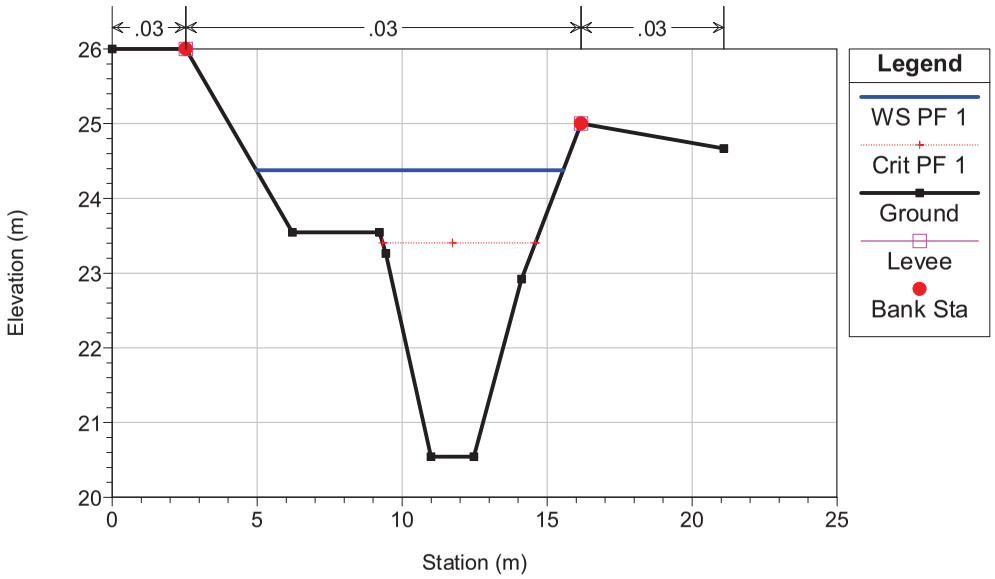
RS = 133.12



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

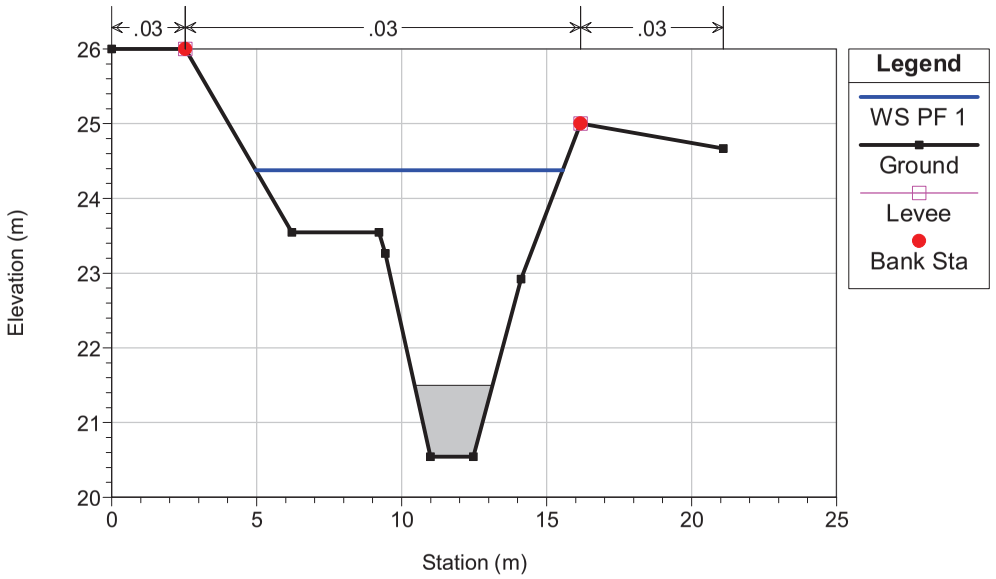
RS = 133.116



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

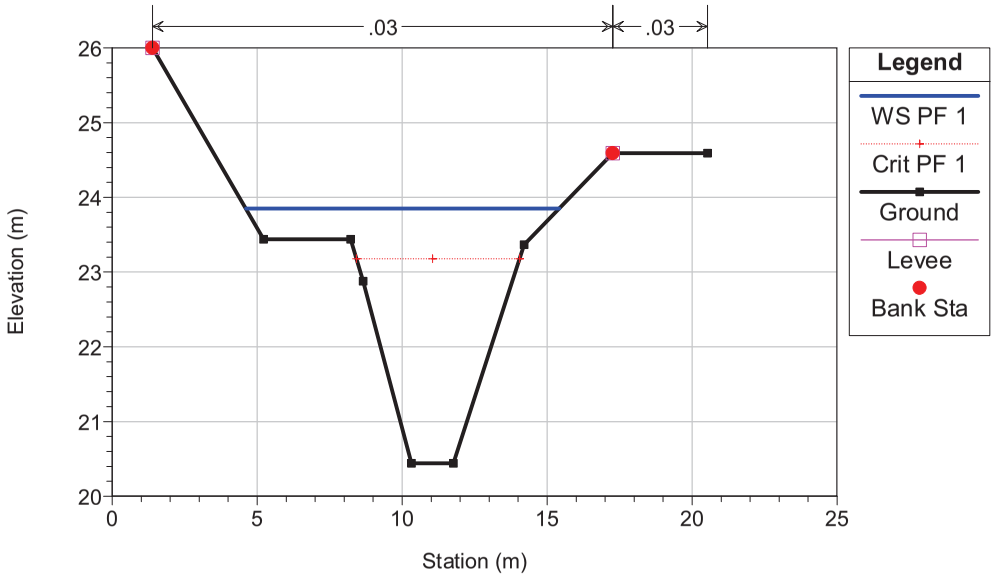
RS = 133.1155 IS



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

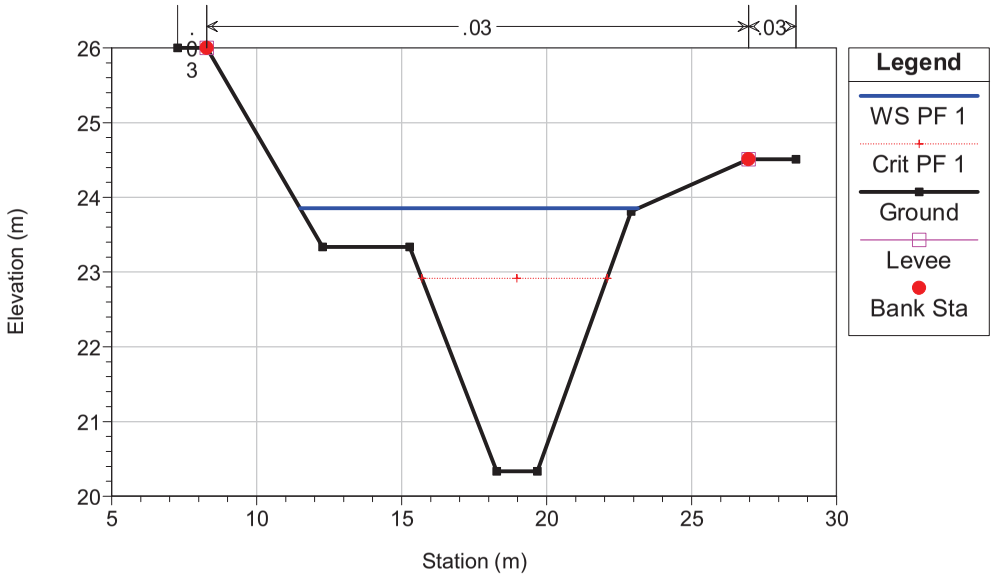
RS = 133.115



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

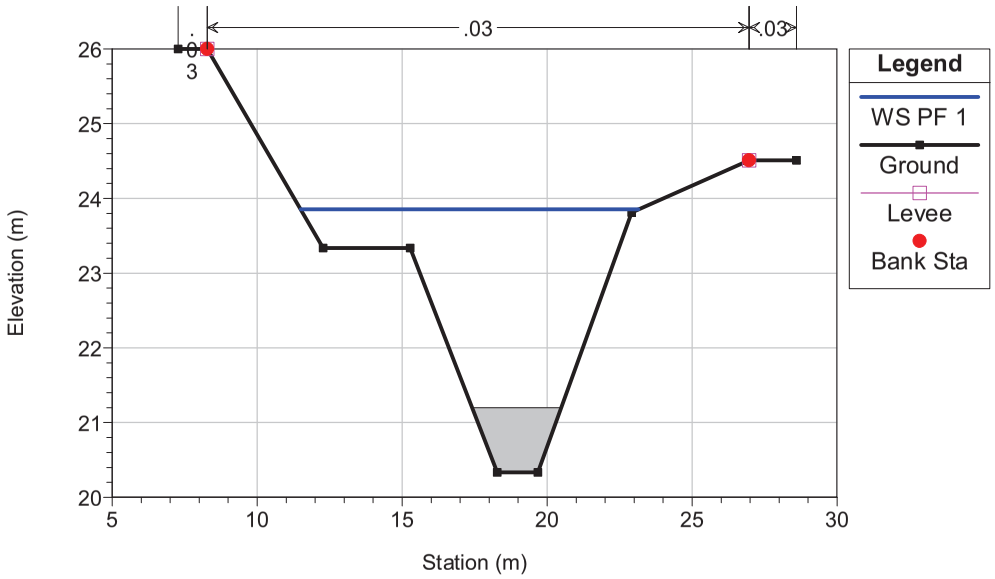
RS = 133.114



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

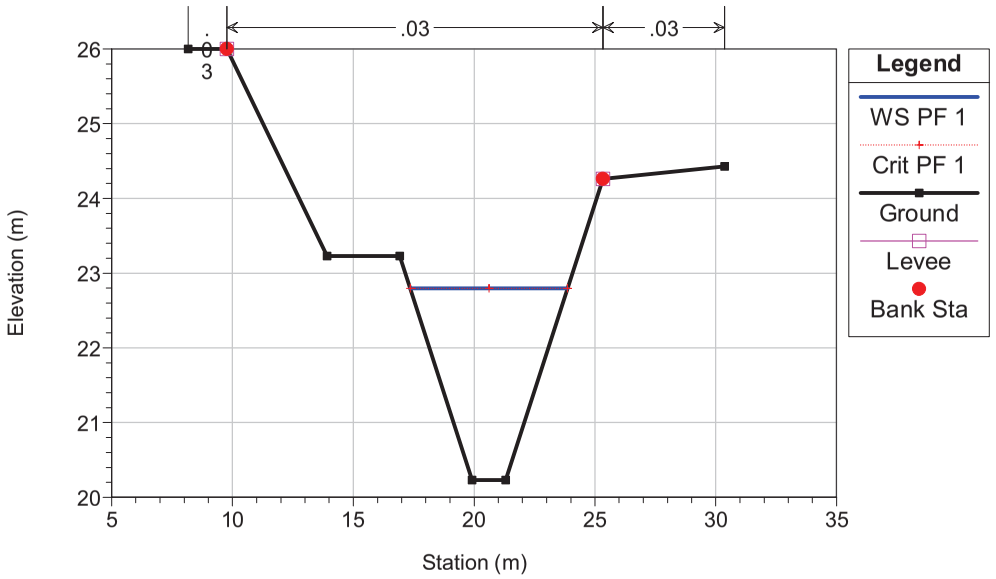
RS = 133.112 IS



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

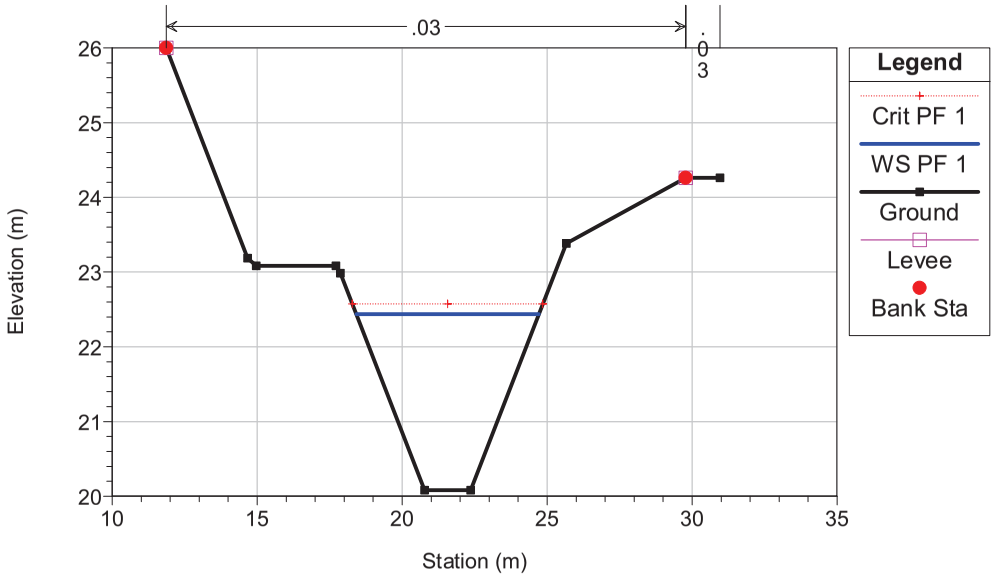
RS = 133.11



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

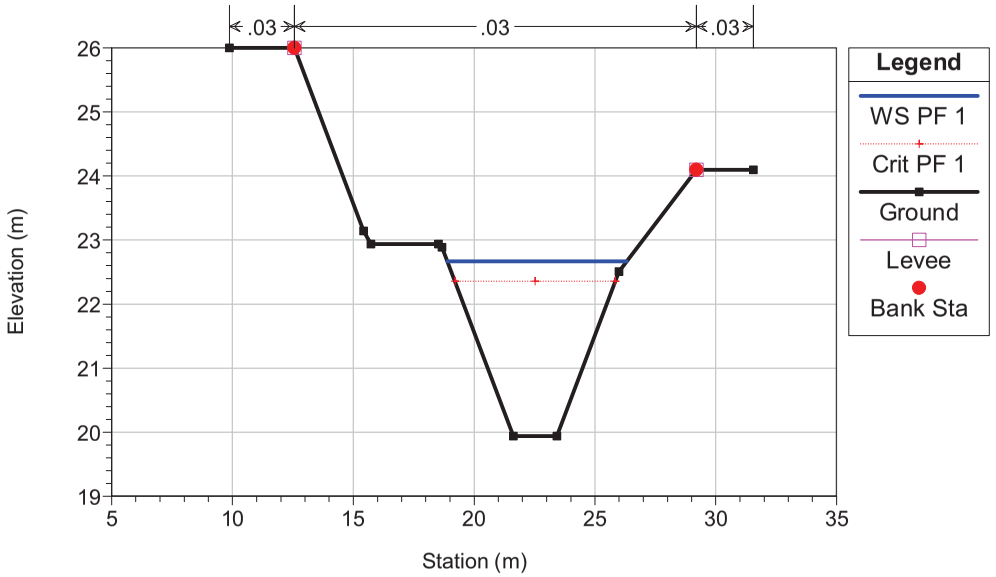
RS = 133.10



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

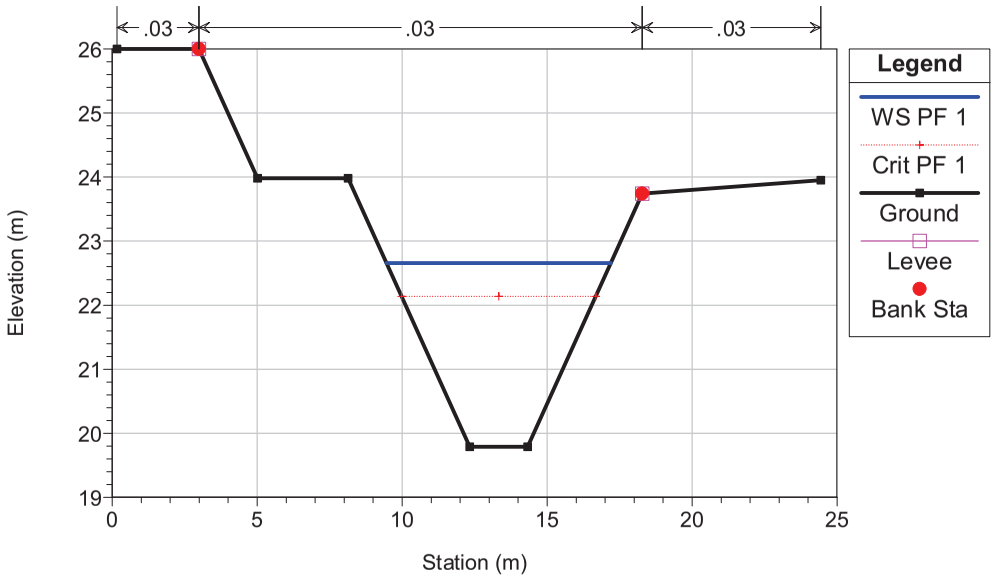
RS = 133.09



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

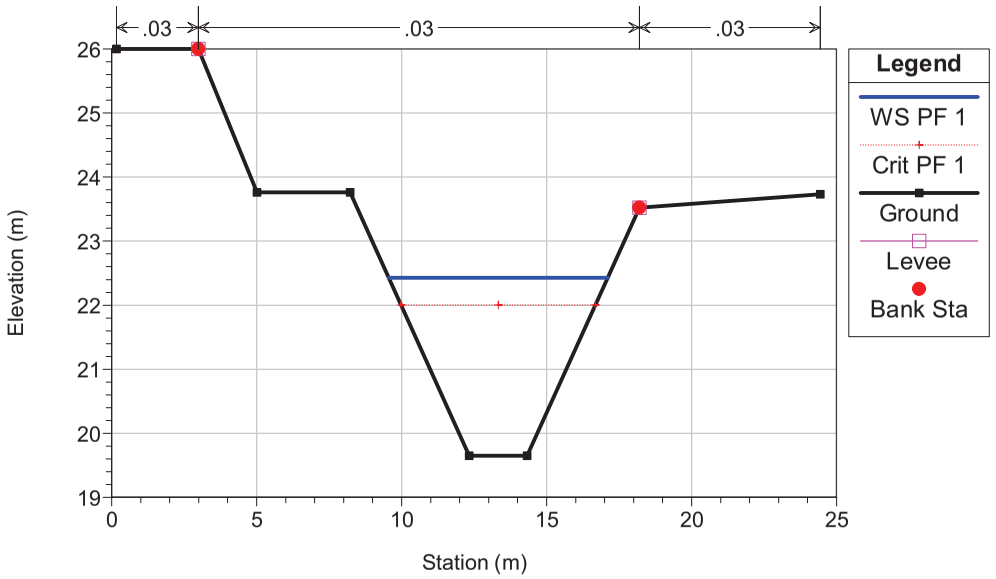
RS = 133



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

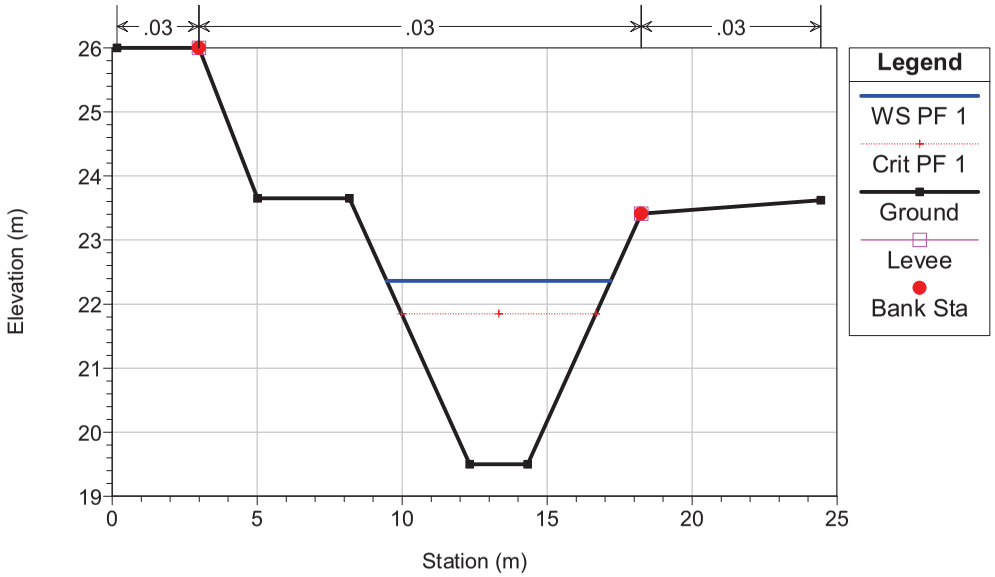
RS = 132.9



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

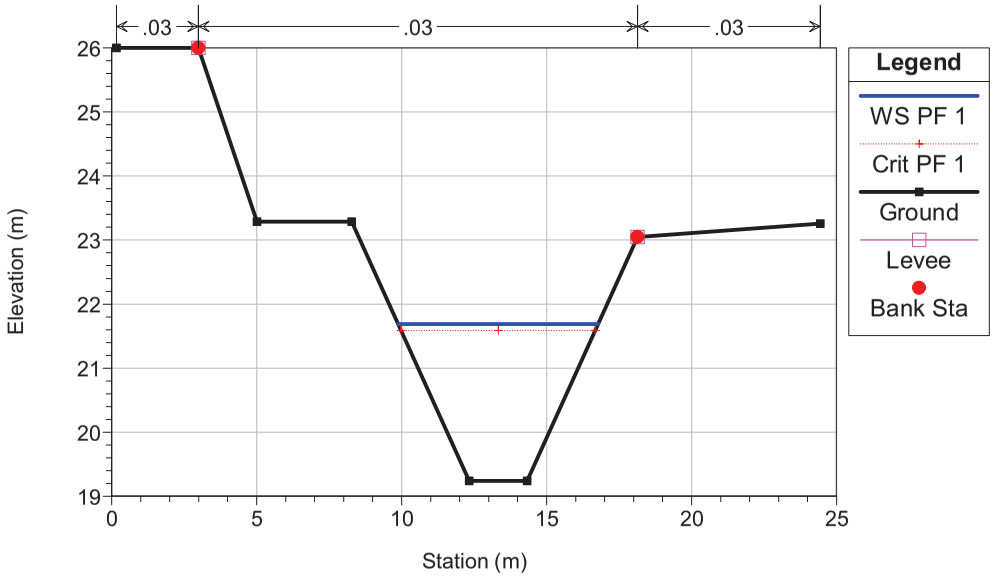
RS = 132.8



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

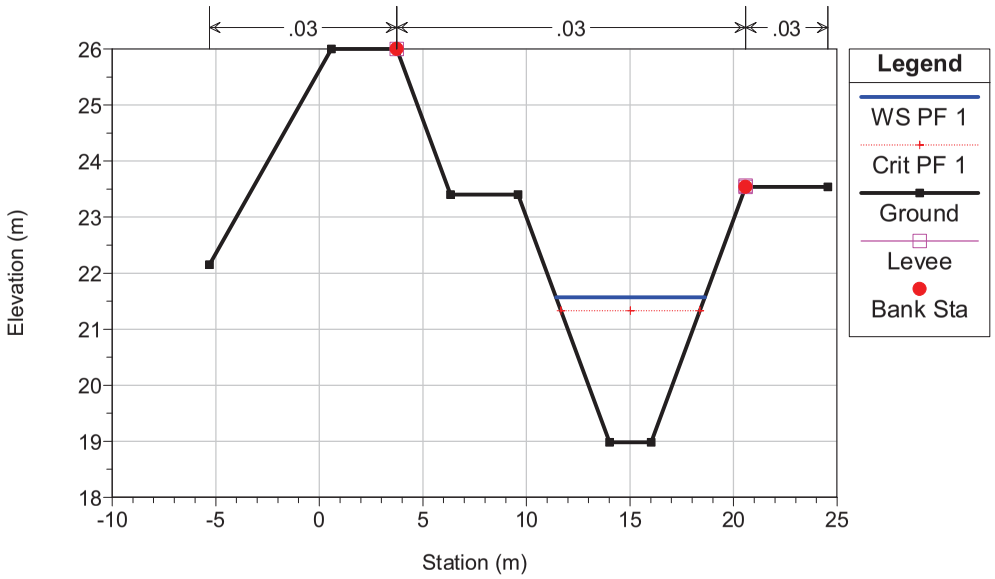
RS = 132.7



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

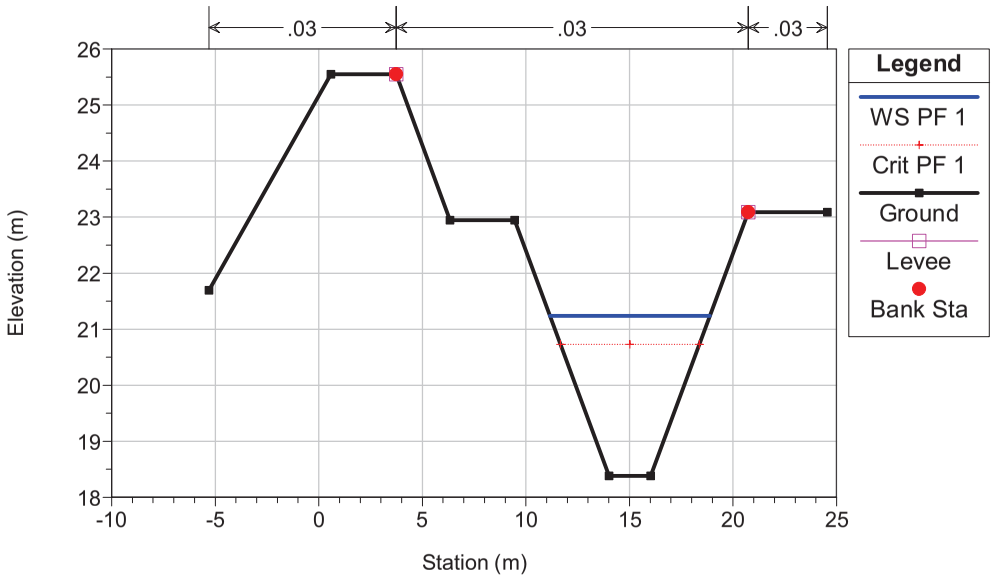
RS = 132



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

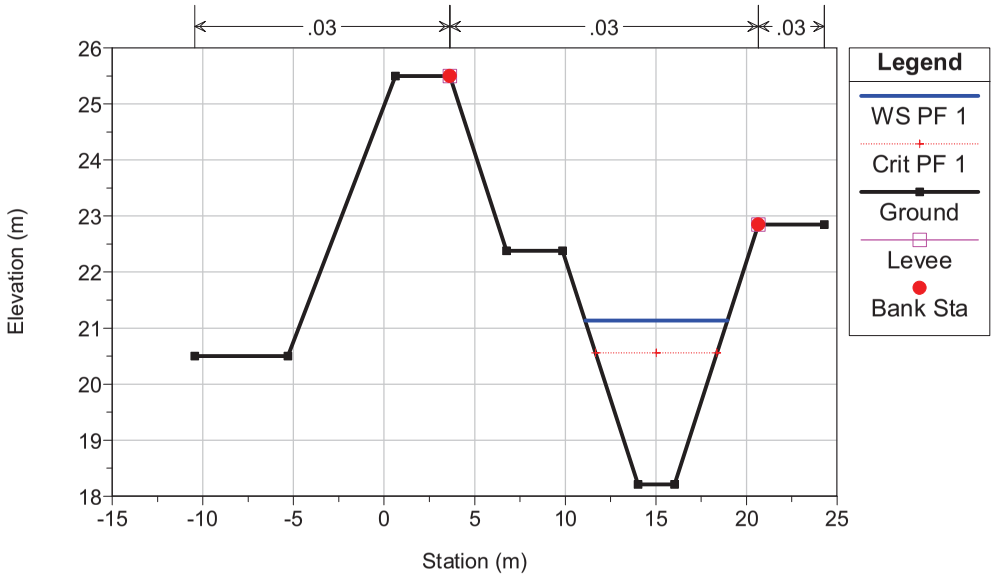
RS = 131.6



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

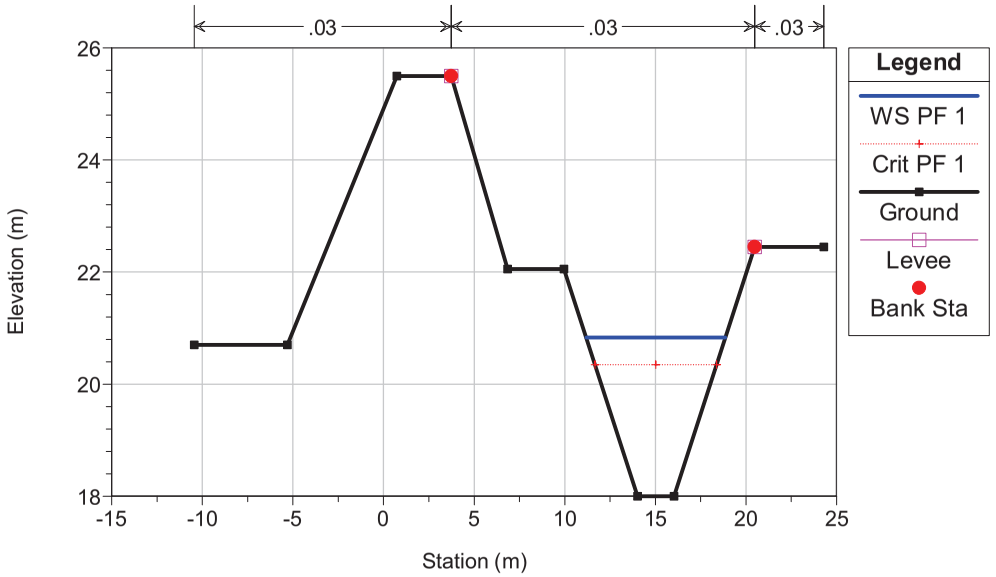
RS = 131



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

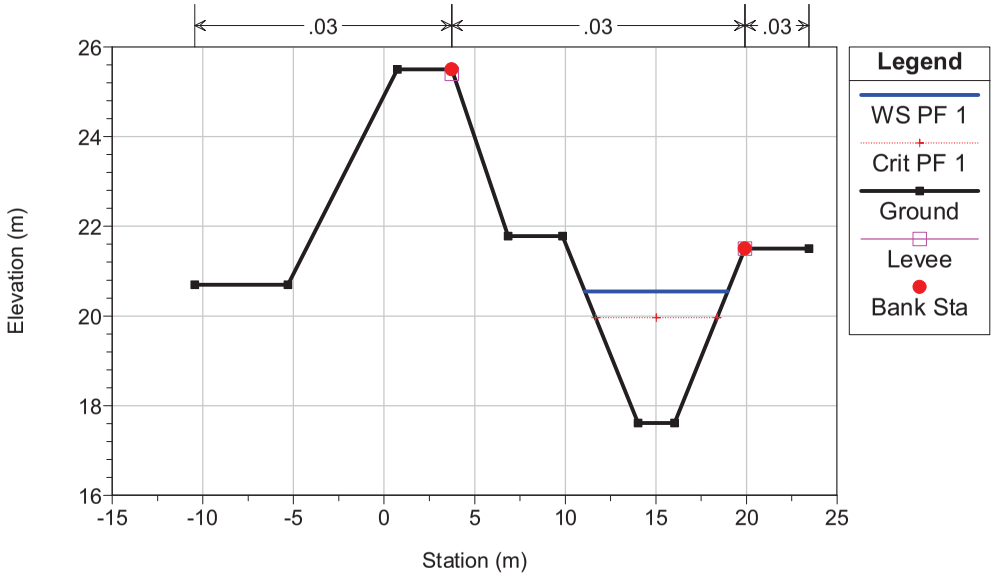
RS = 130.5



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

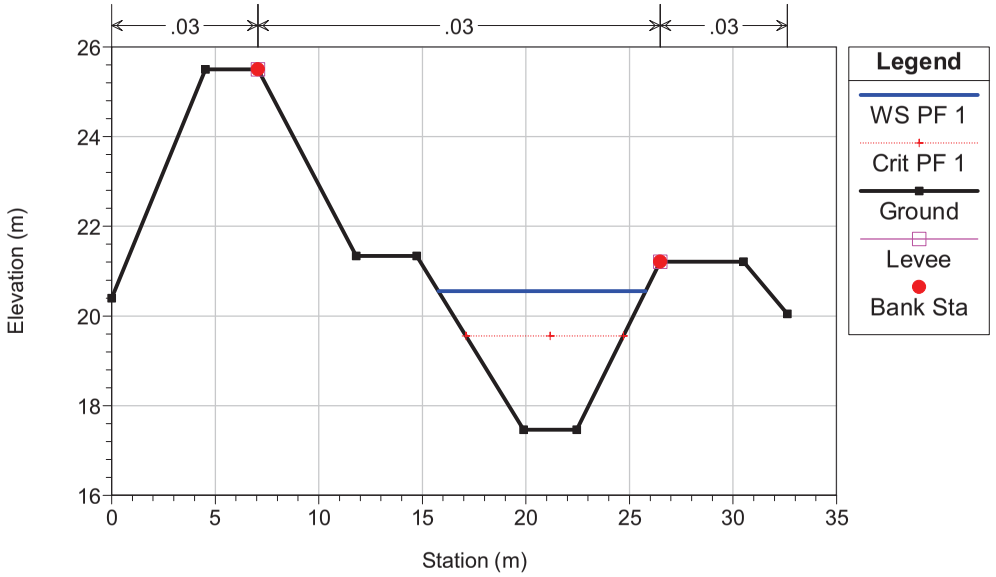
RS = 130.4



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

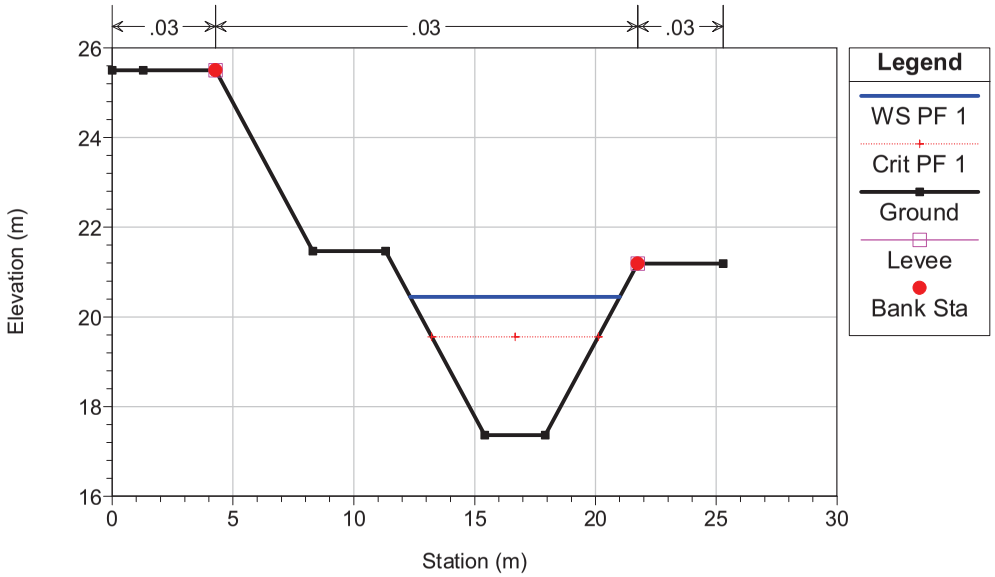
RS = 130.3



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

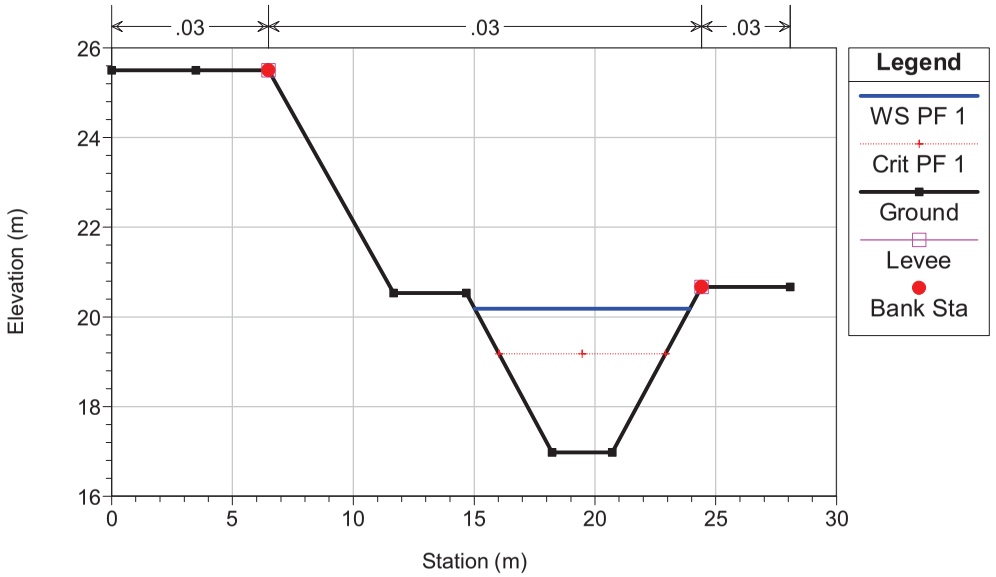
RS = 130



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

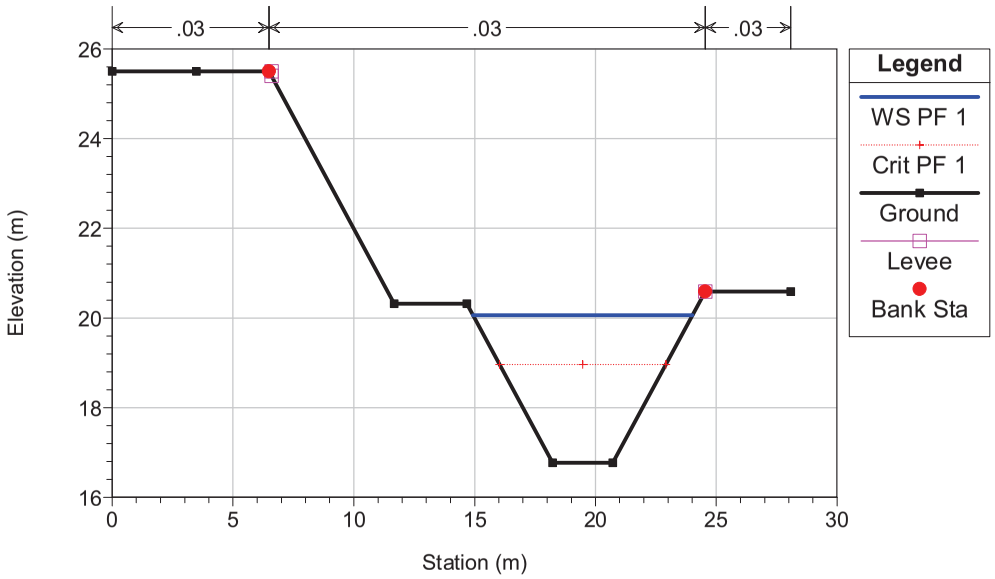
RS = 129.2



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

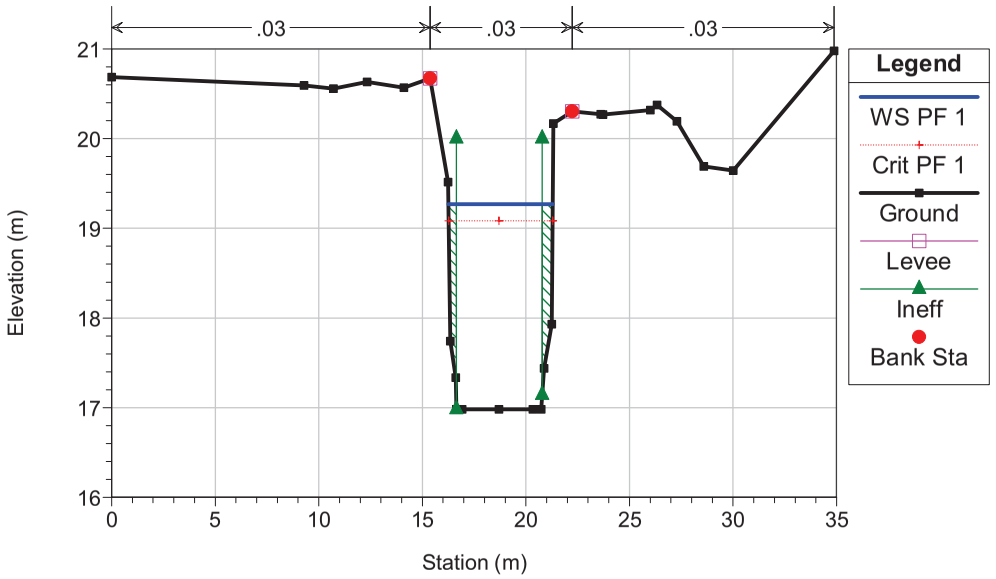
RS = 129



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

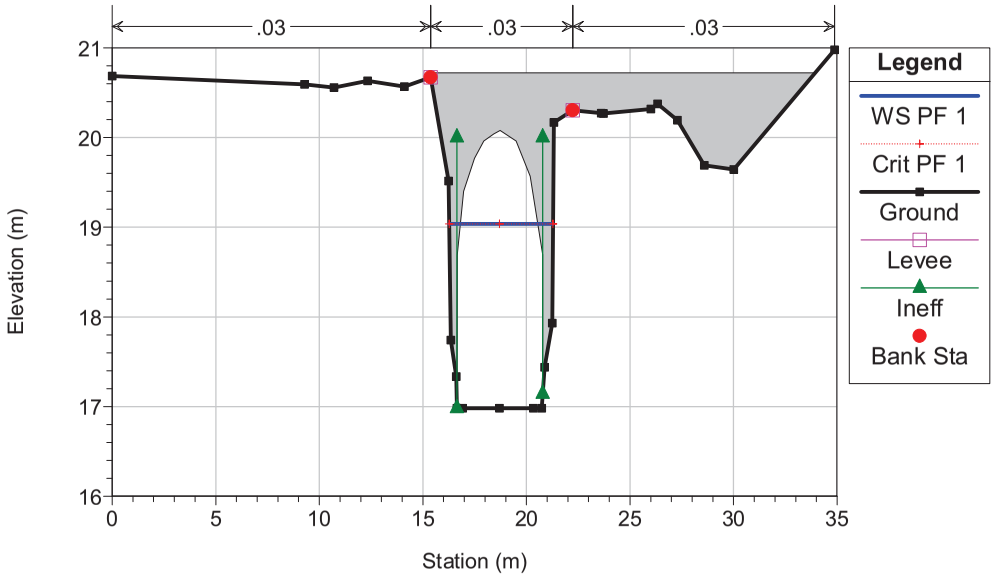
RS = 128.1



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

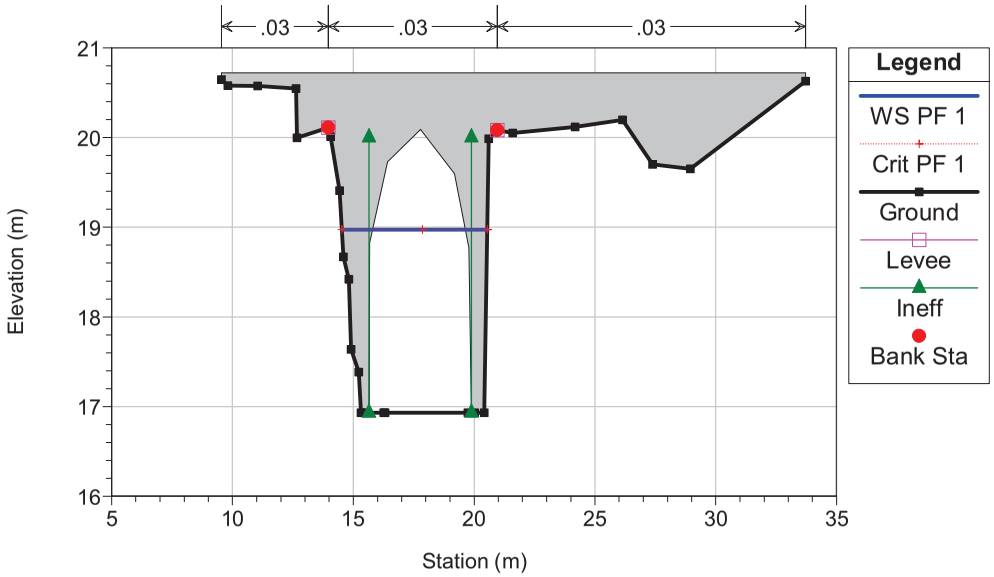
RS = 128 BR



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

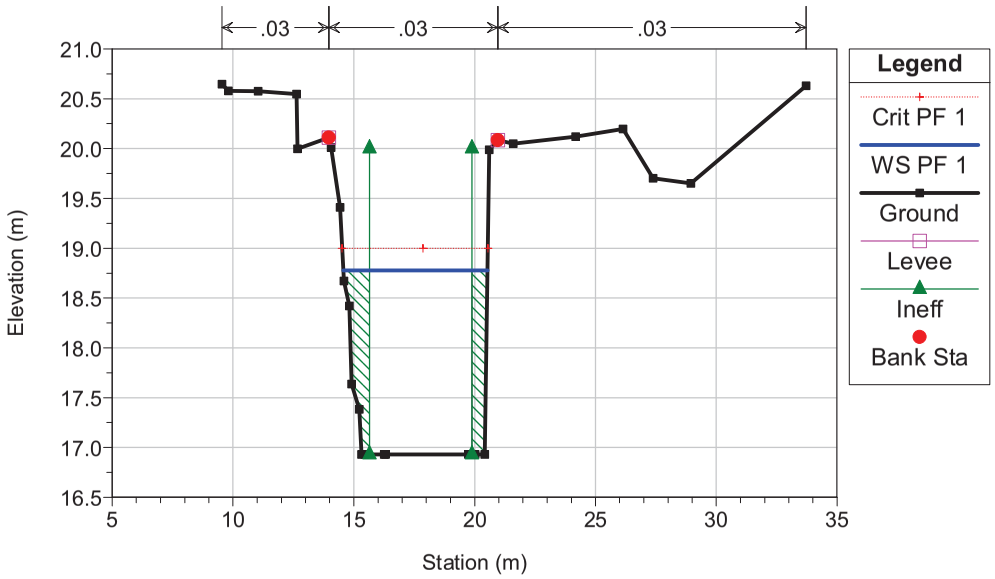
RS = 128 BR



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

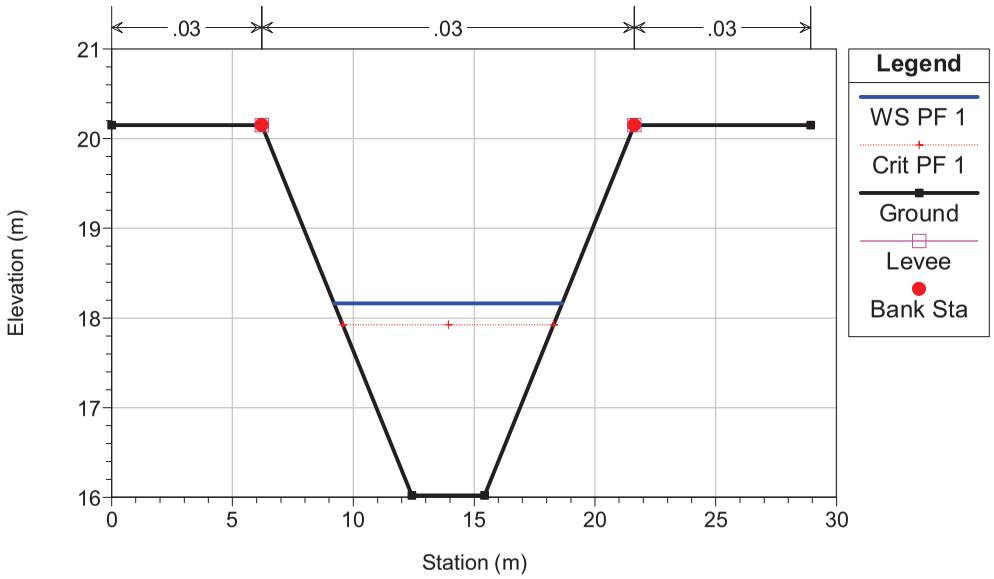
RS = 127.9



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

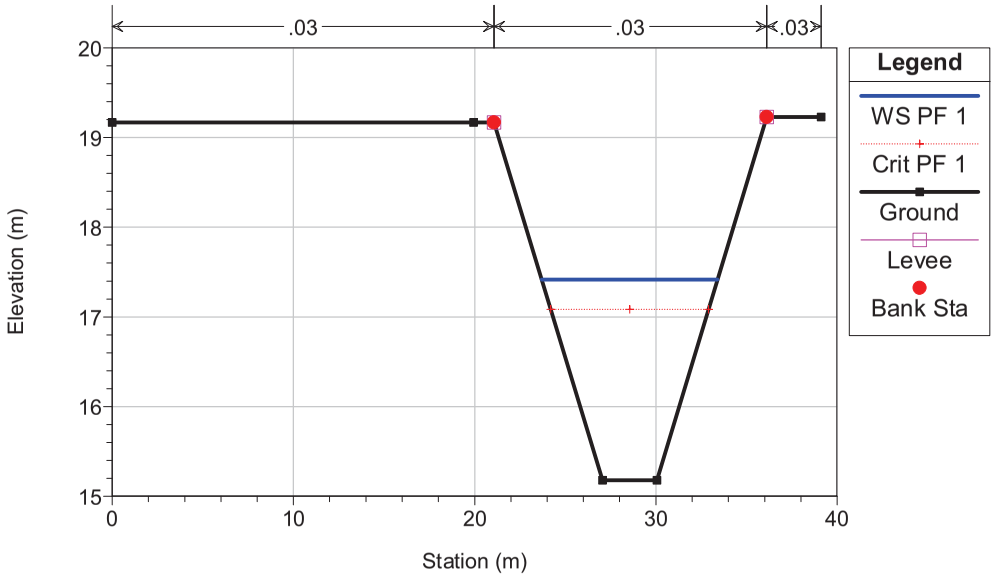
RS = 127



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

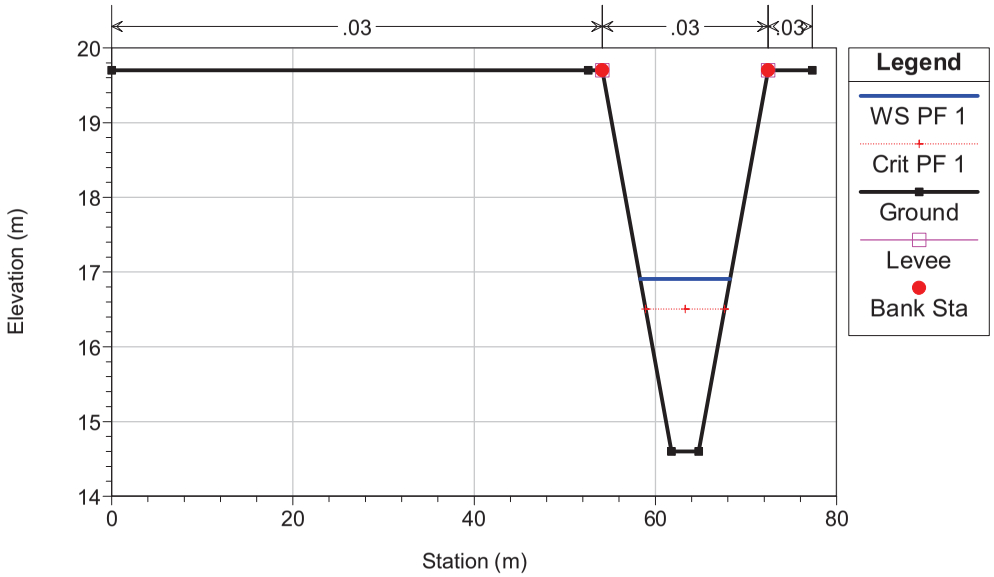
RS = 126



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

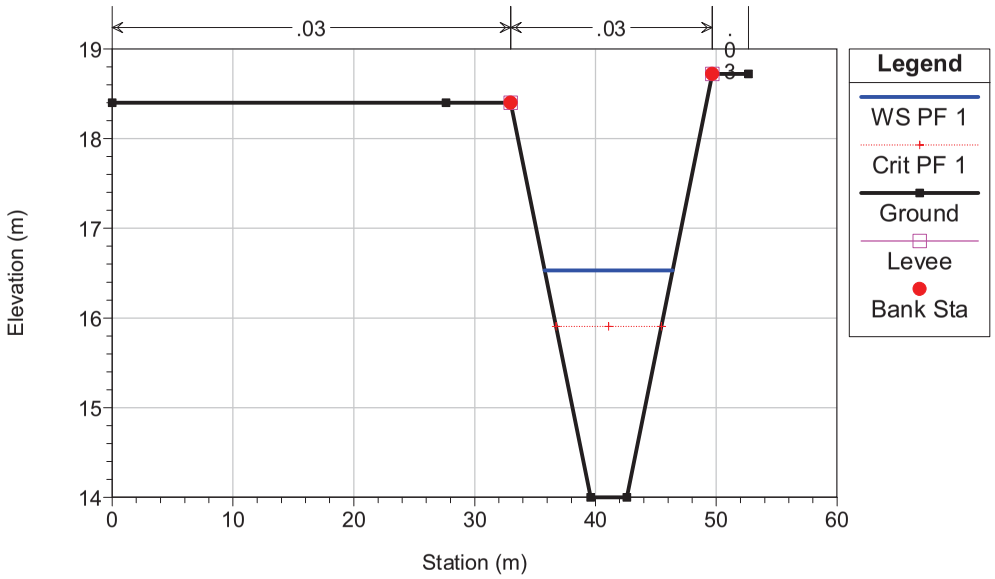
RS = 125.1



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

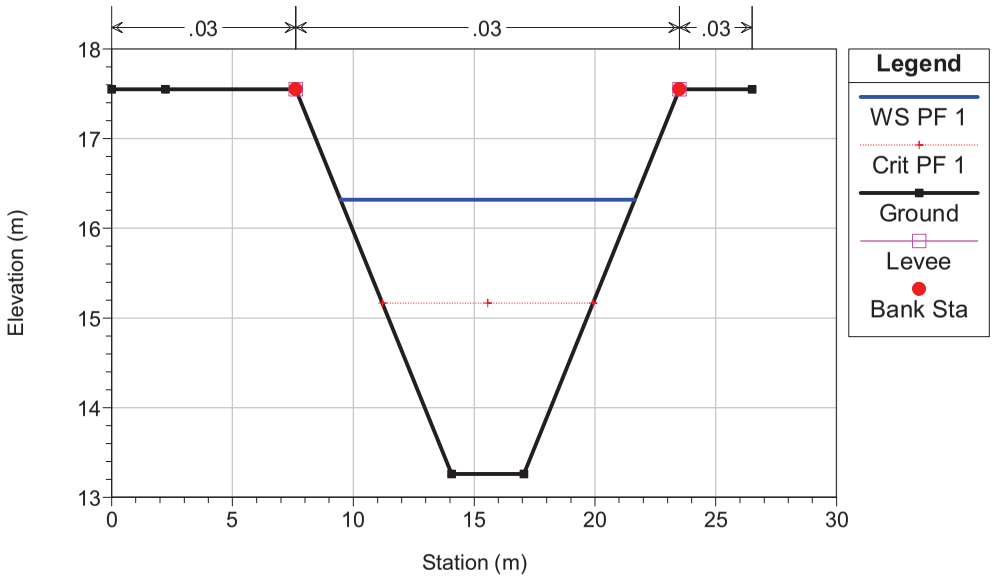
RS = 125



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

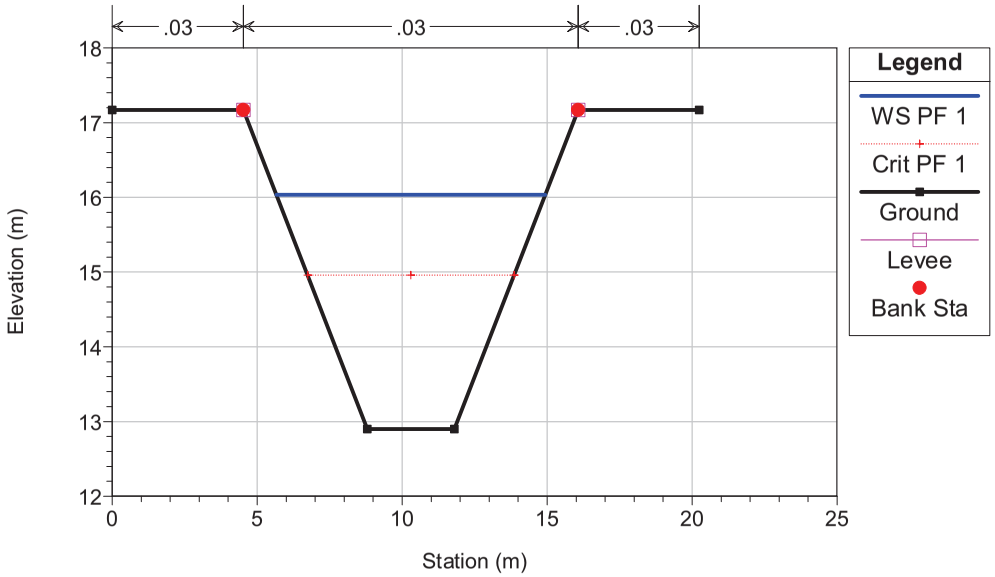
RS = 124



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

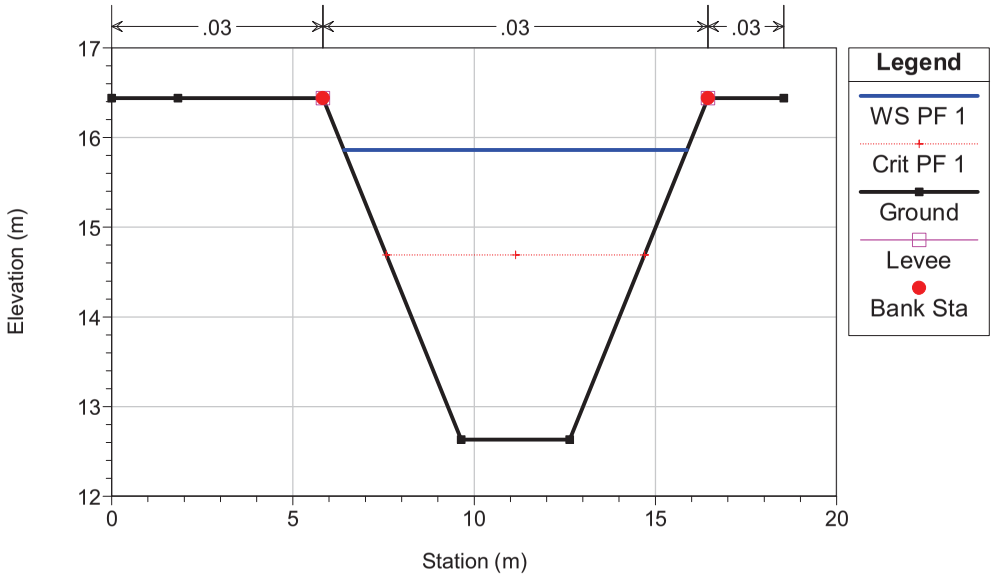
RS = 123



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

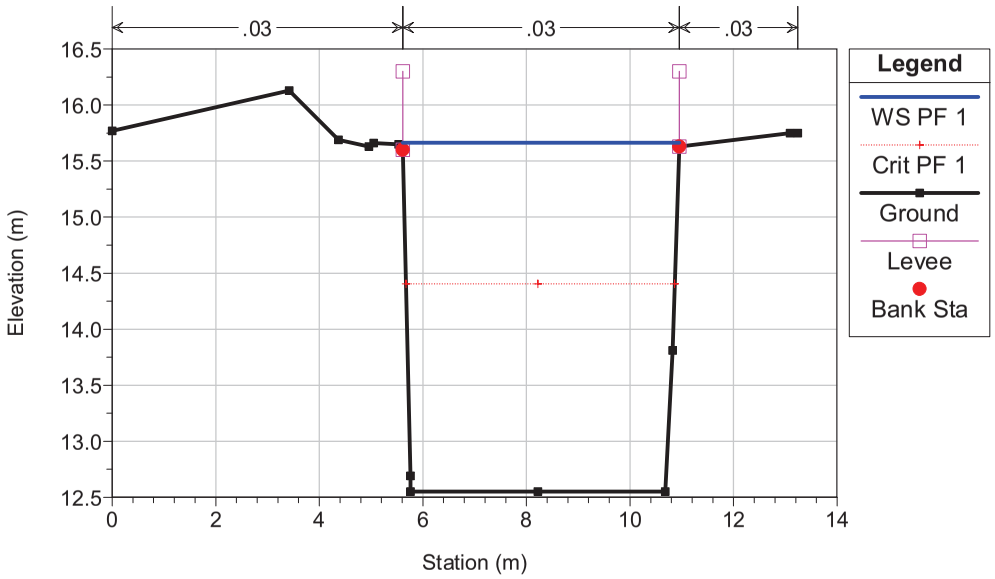
RS = 122



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

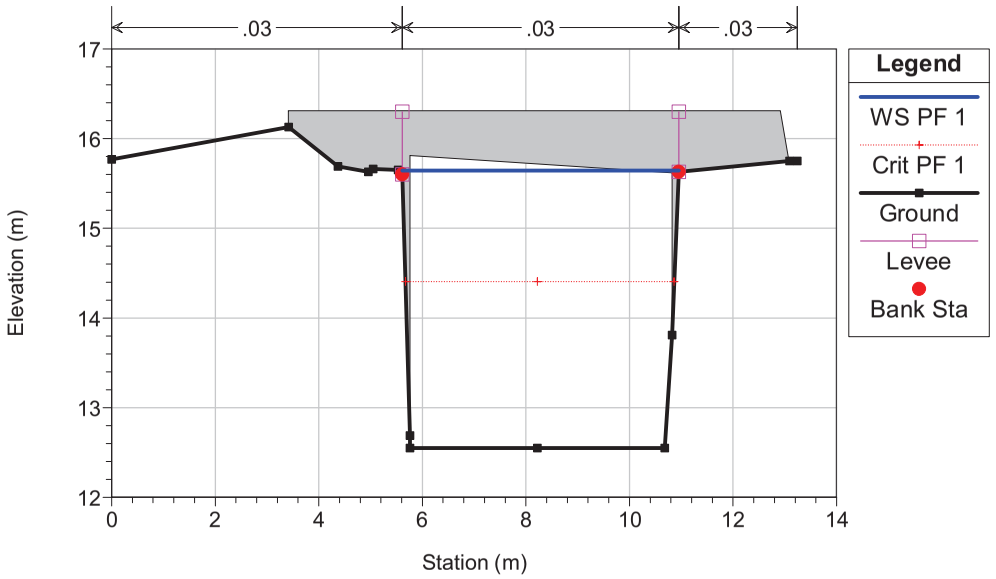
RS = 121.1

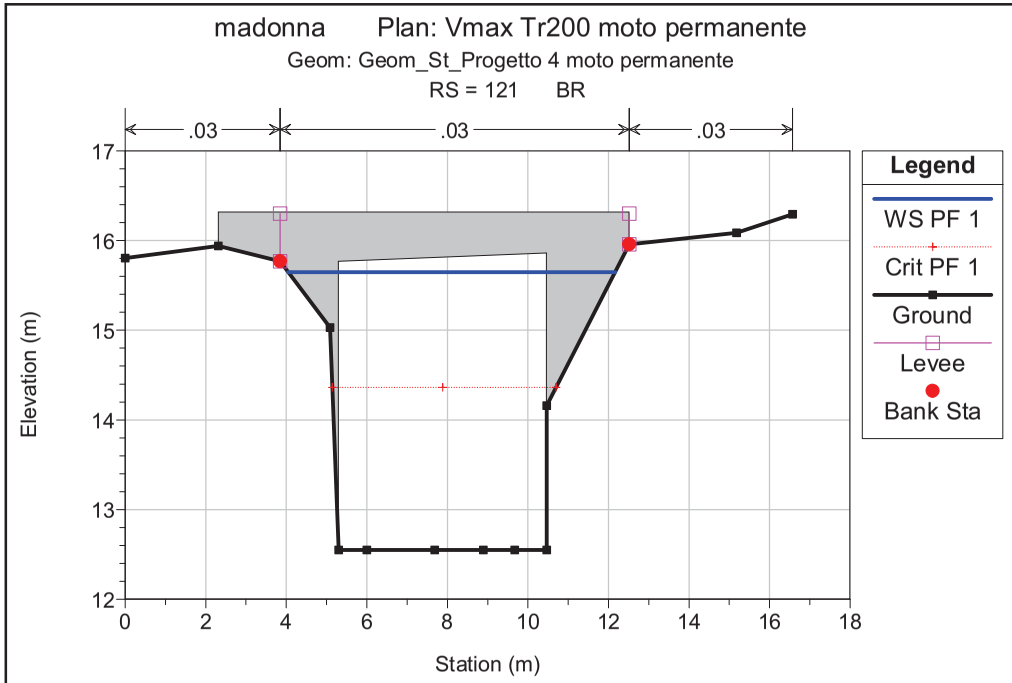


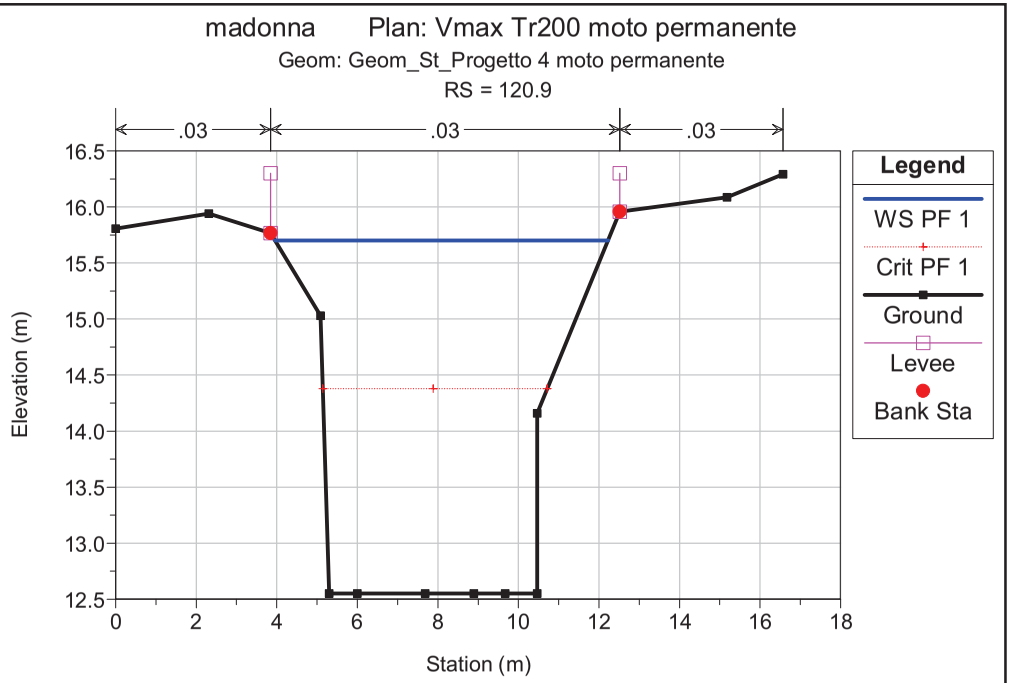
madonna Plan: Vmax Tr200 moto permanente

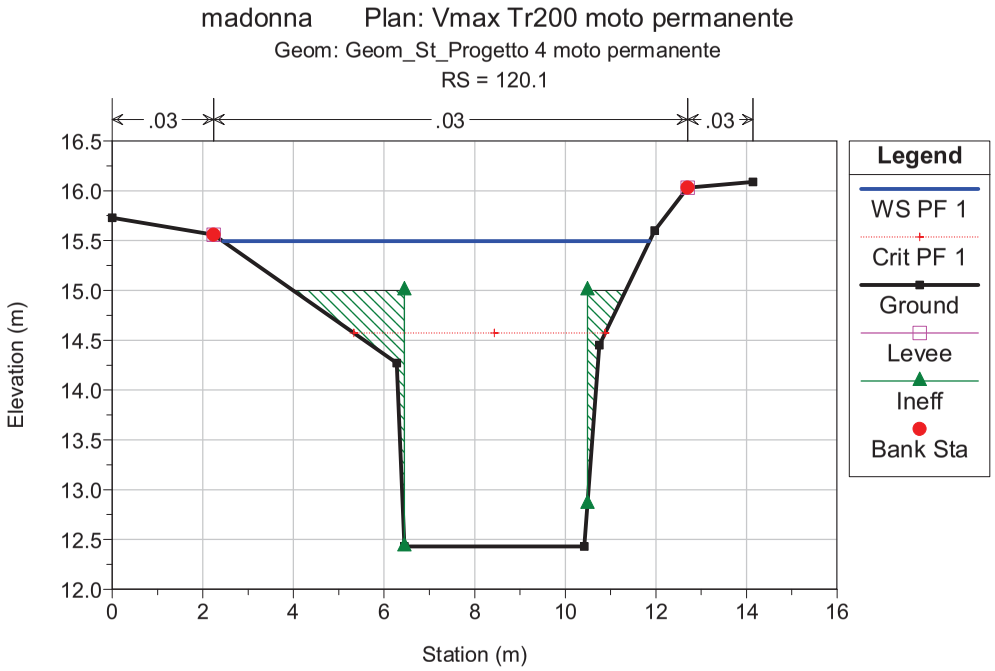
Geom: Geom_St_Progetto 4 moto permanente

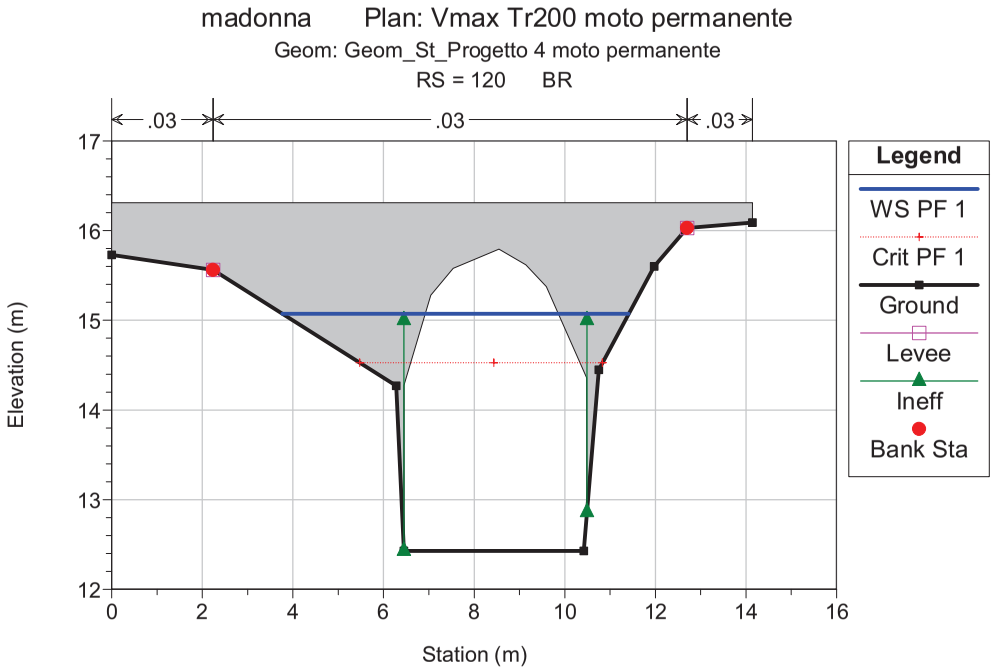
RS = 121 BR




madonna Plan: Vmax Tr200 moto permanente
Geom: Geom_St_Progetto 4 moto permanente
RS = 121 BR
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Vmax Tr200 moto permanente
Geom: Geom_St_Progetto 4 moto permanente
RS = 120.9
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

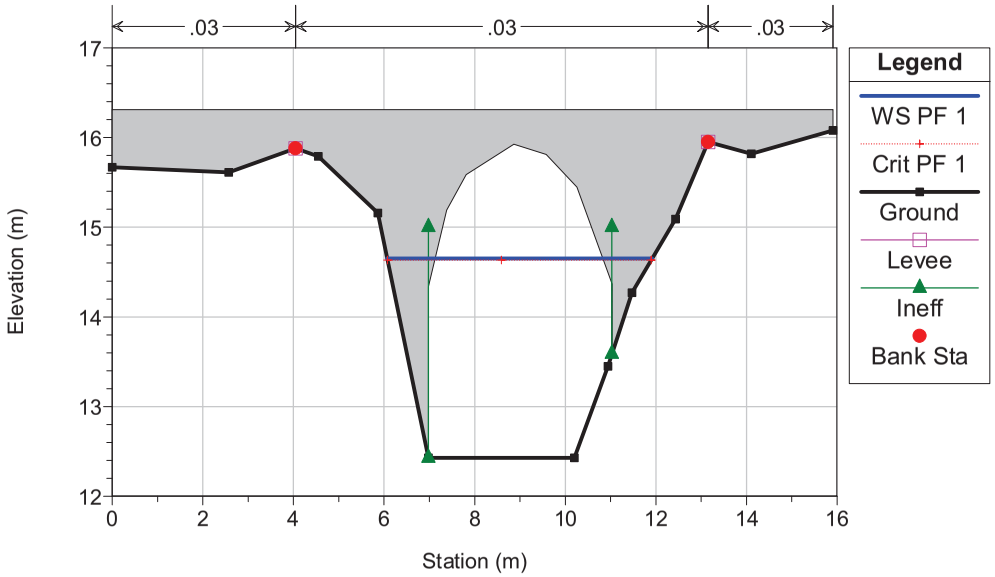

madonna Plan: Vmax Tr200 moto permanente
Geom: Geom_St_Progetto 4 moto permanente
RS = 120.1
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)


madonna Plan: Vmax Tr200 moto permanente
Geom: Geom_St_Progetto 4 moto permanente
RS = 120 BR
.03
.03
.03
Legend
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta
Elevation (m)
Station (m)

madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

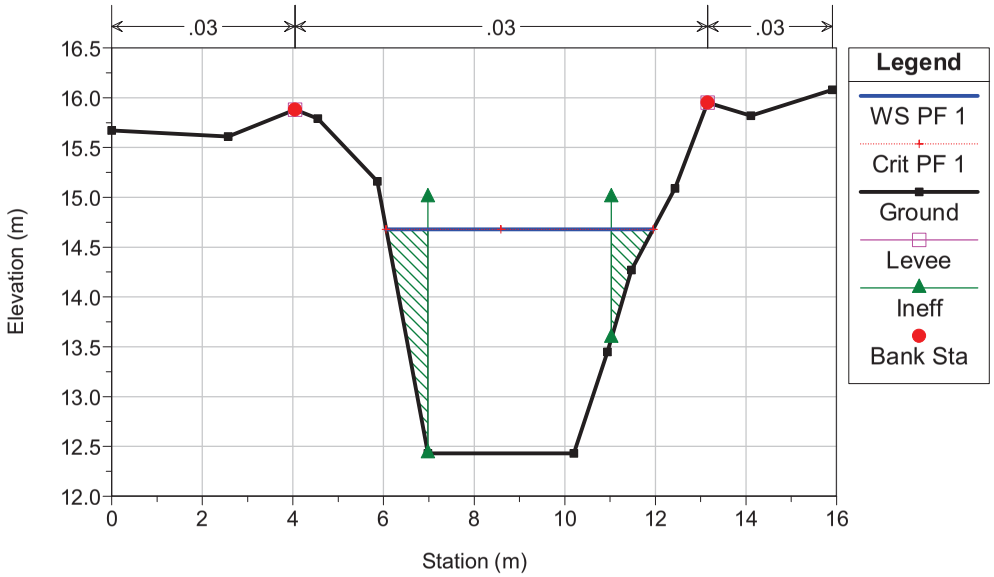
RS = 120 BR



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

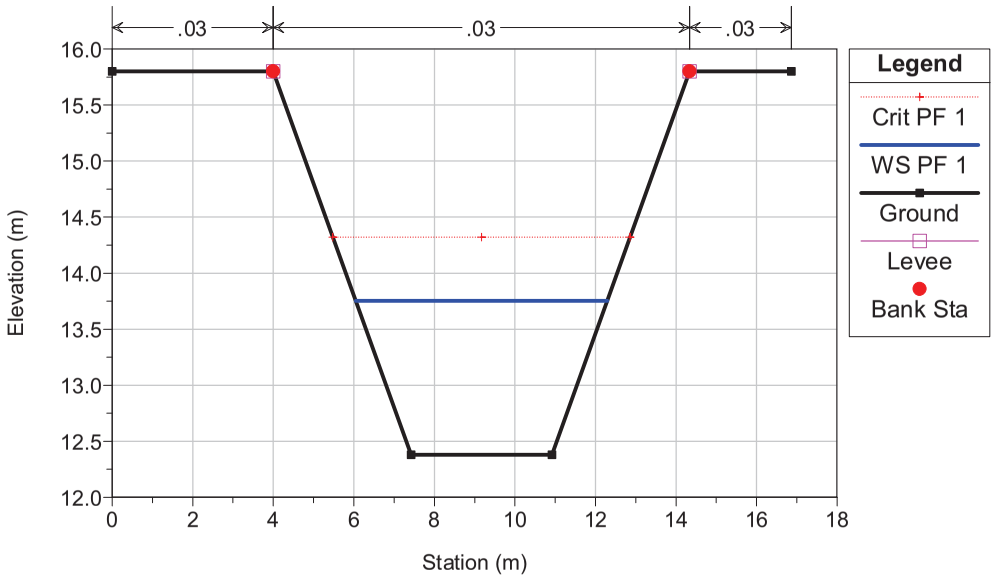
RS = 119.9



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

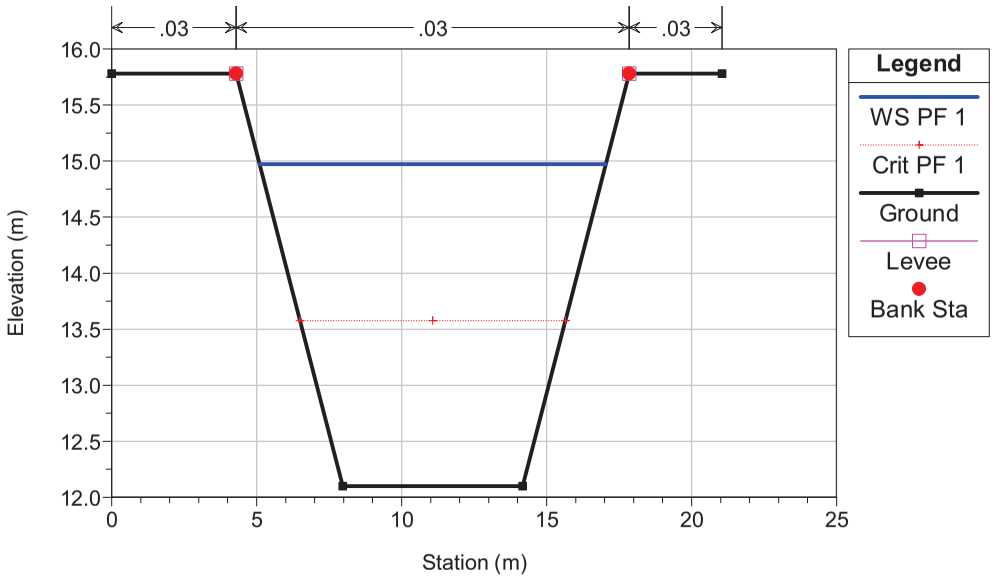
RS = 119



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

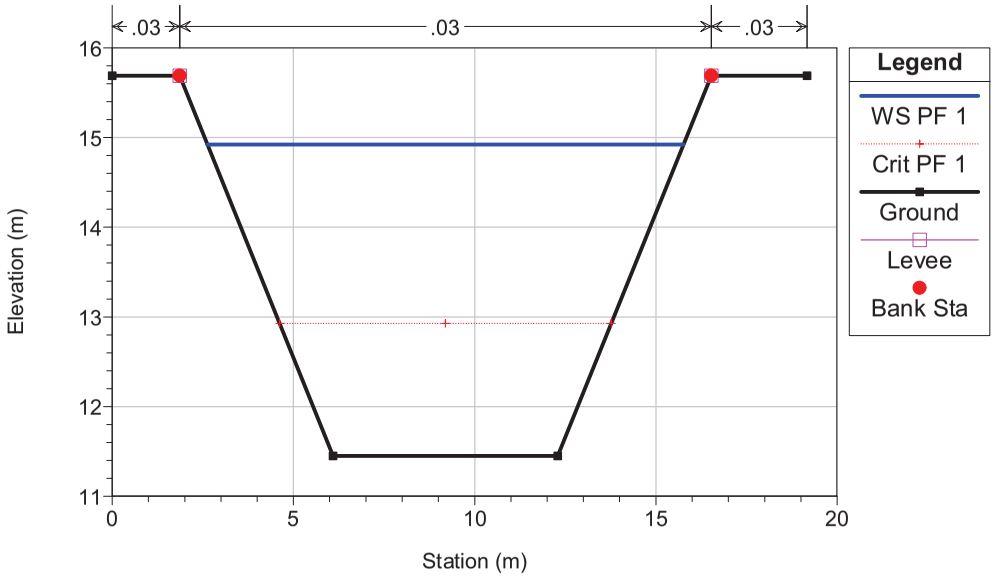
RS = 118



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

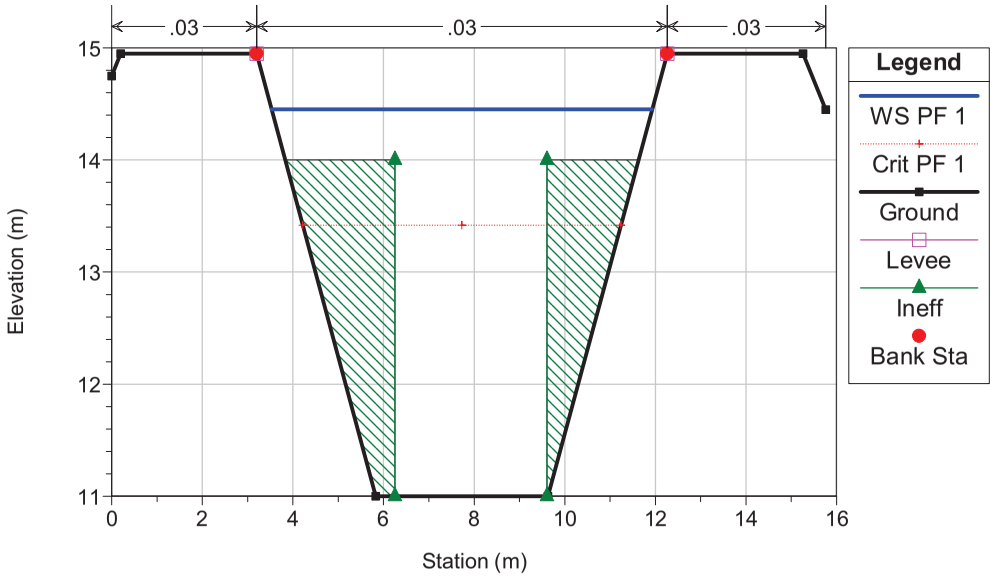
RS = 117



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

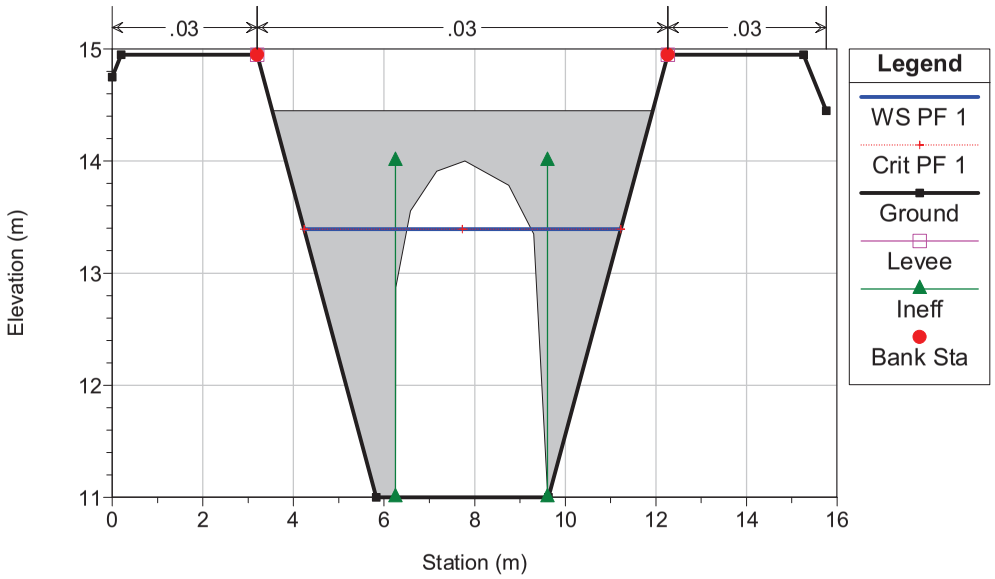
RS = 116.1



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

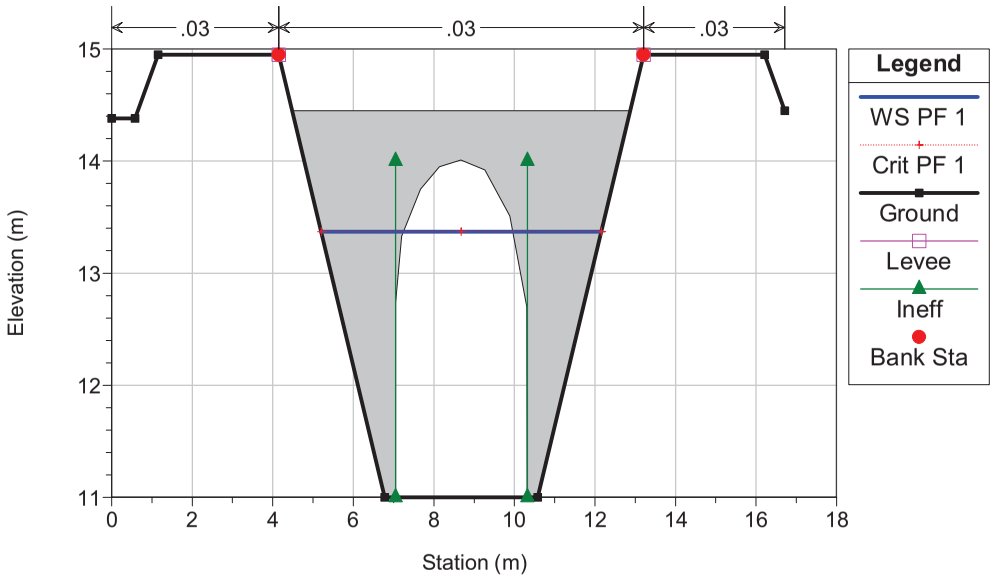
RS = 116 BR



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

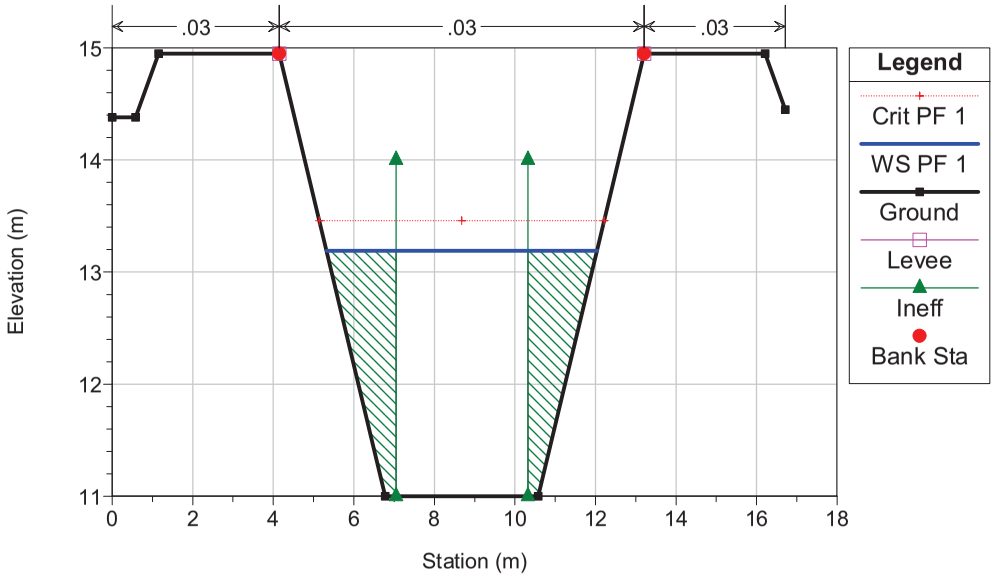
RS = 116 BR



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

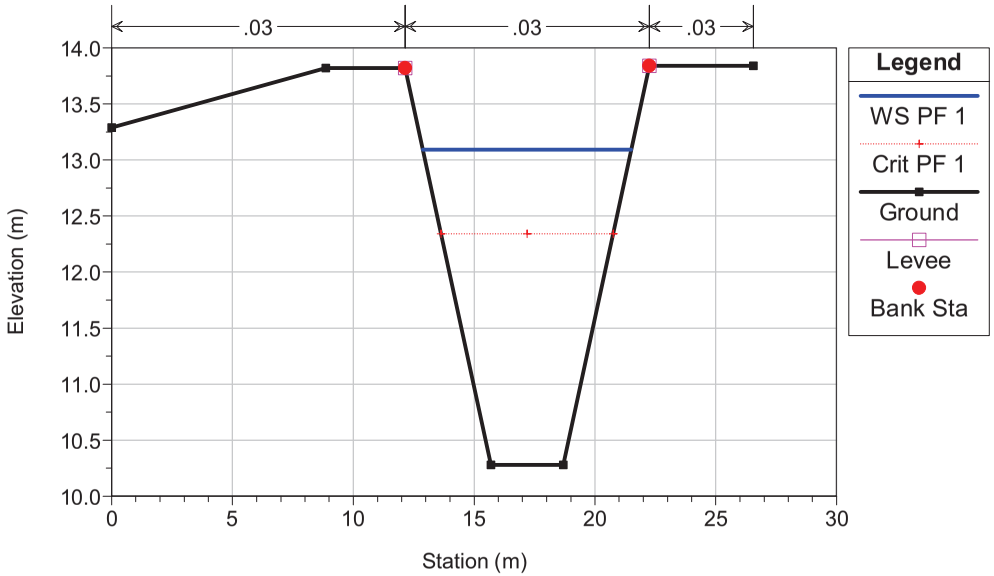
RS = 115.9



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

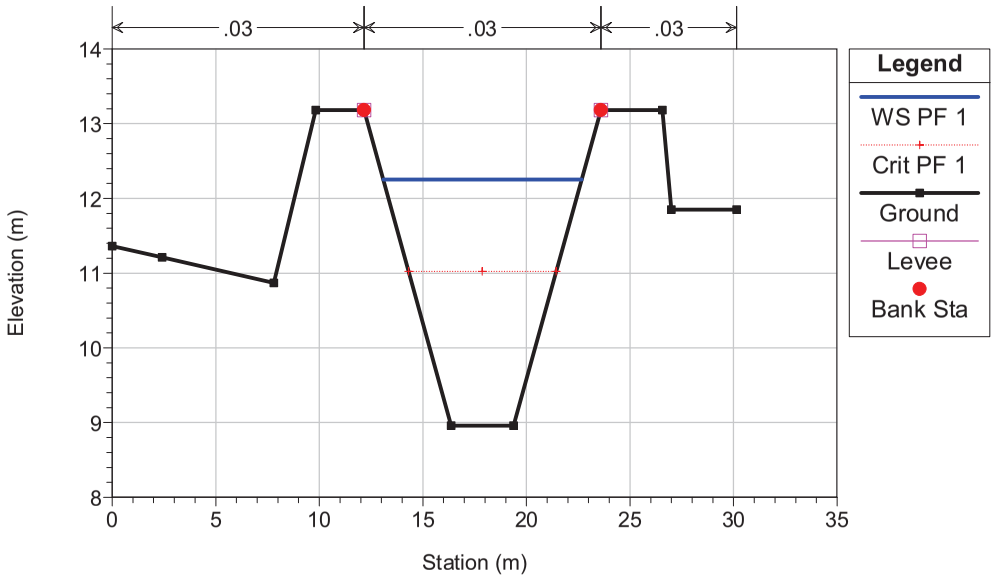
RS = 115



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

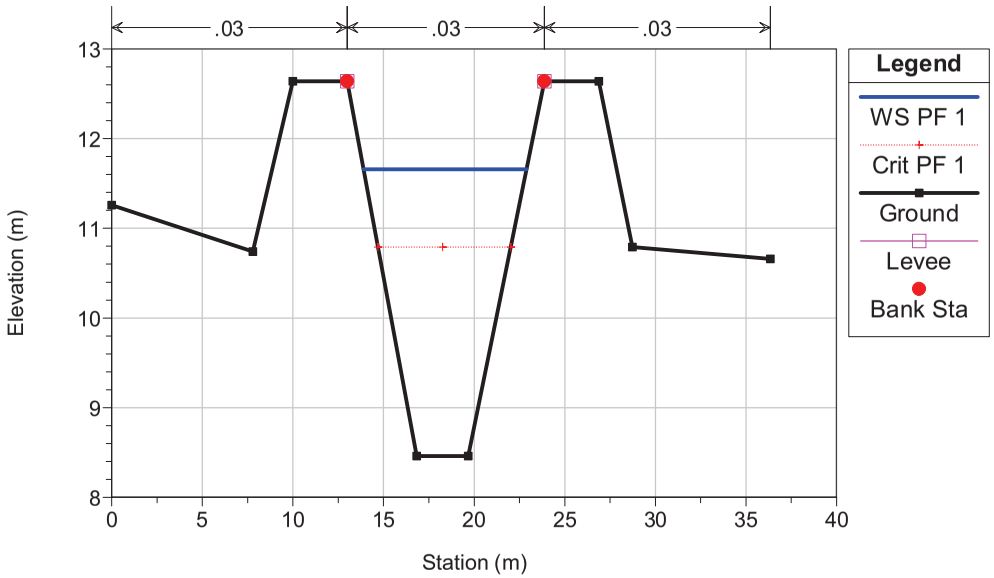
RS = 114



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

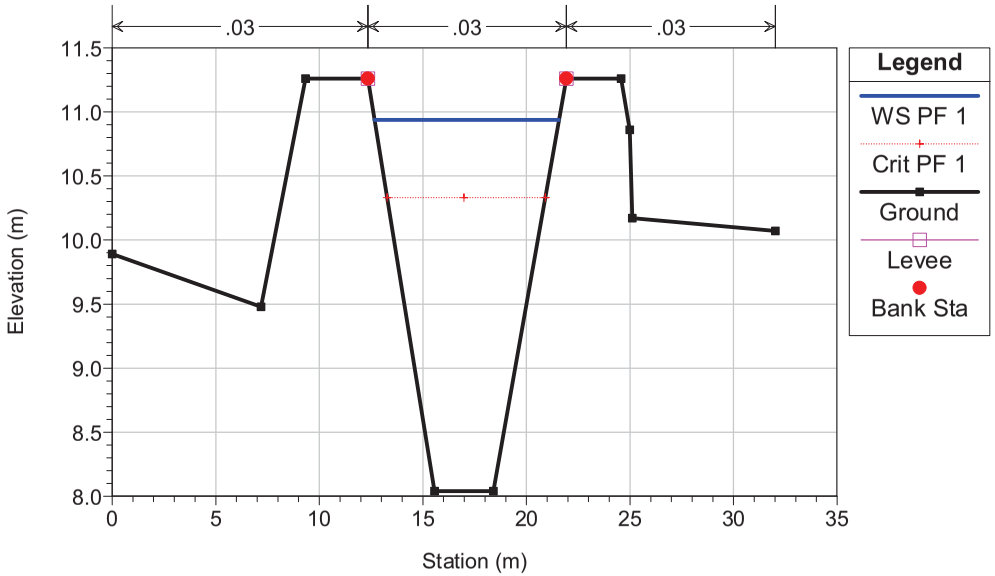
RS = 113



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

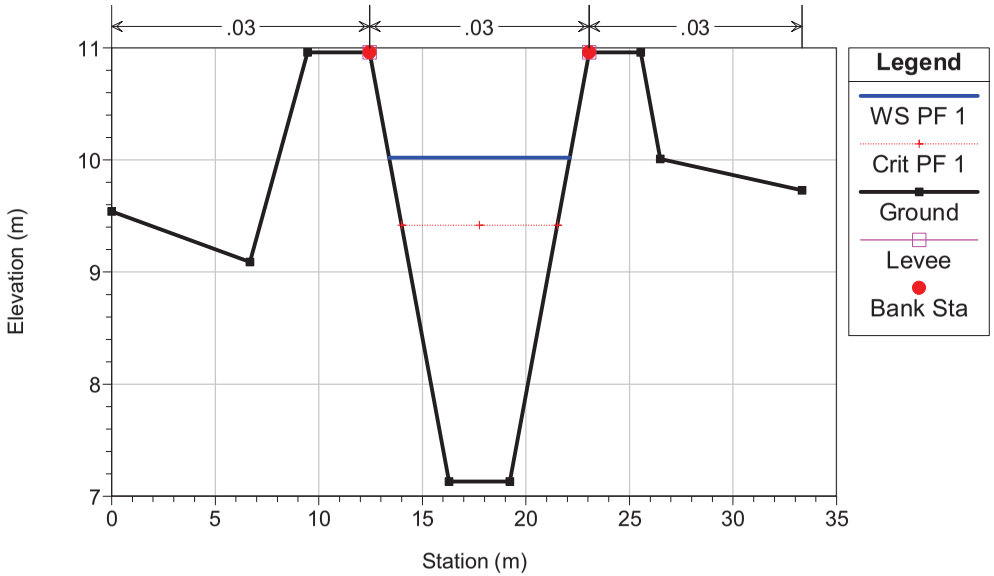
RS = 112.1



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

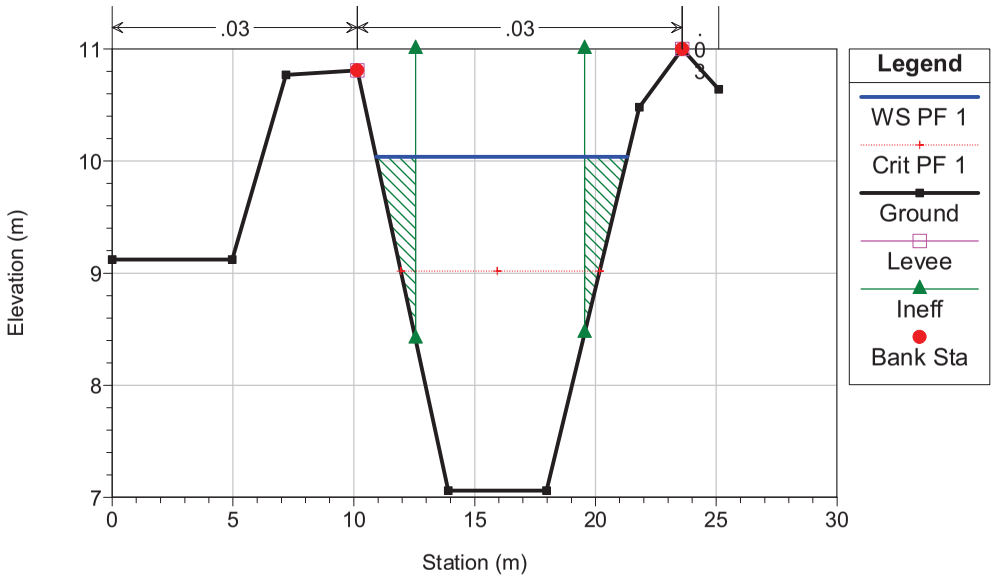
RS = 112



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

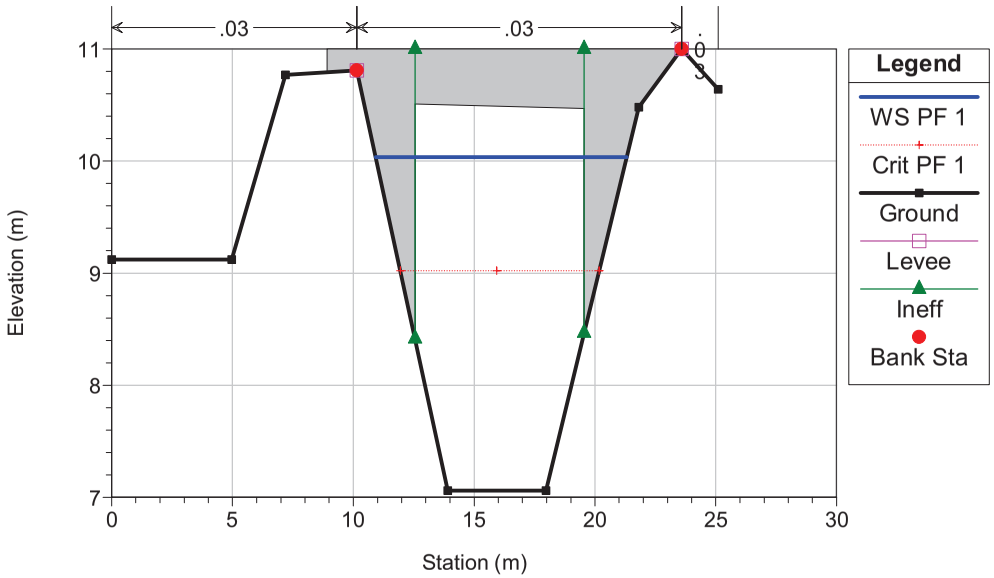
RS = 111.1



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

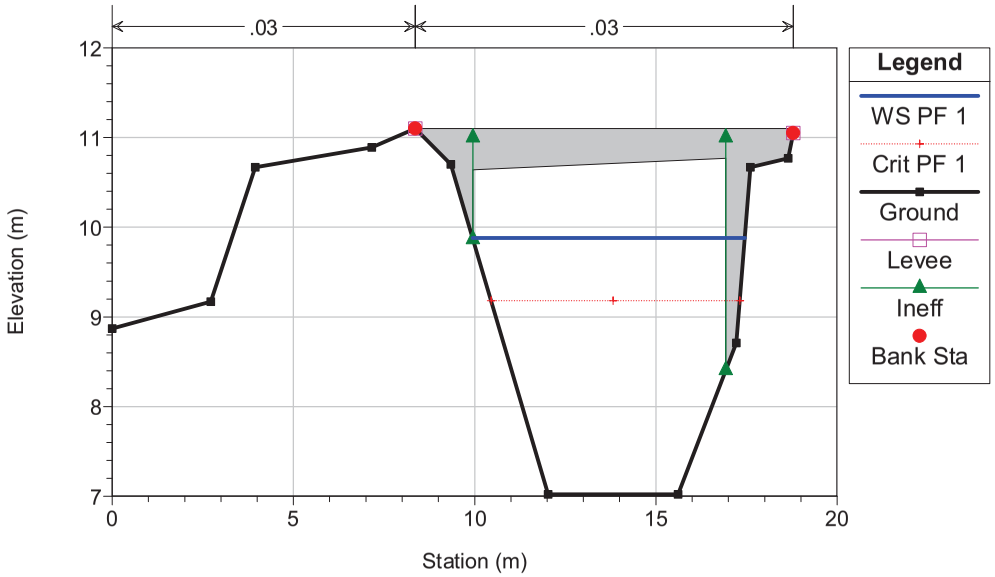
RS = 111 BR



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

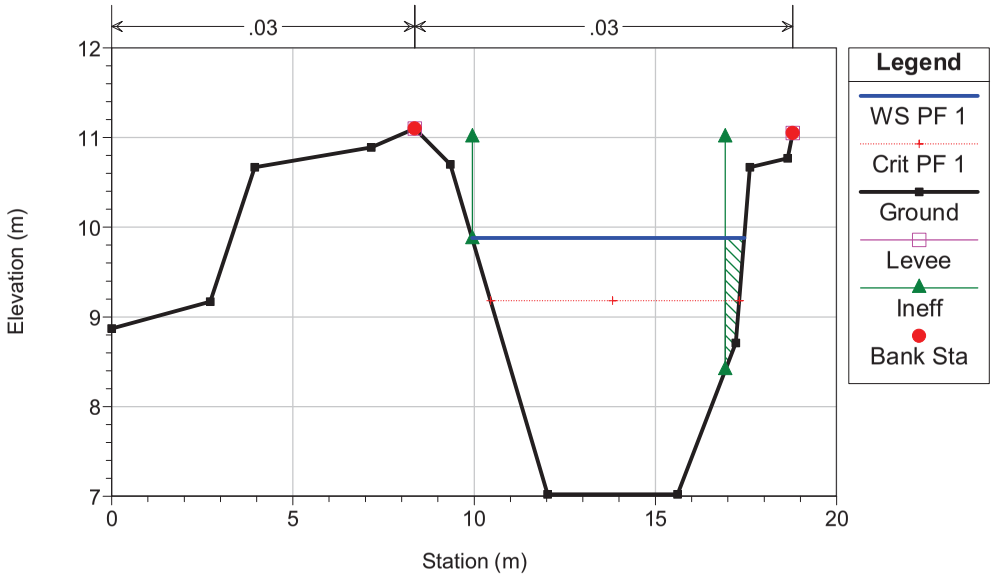
RS = 111 BR



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

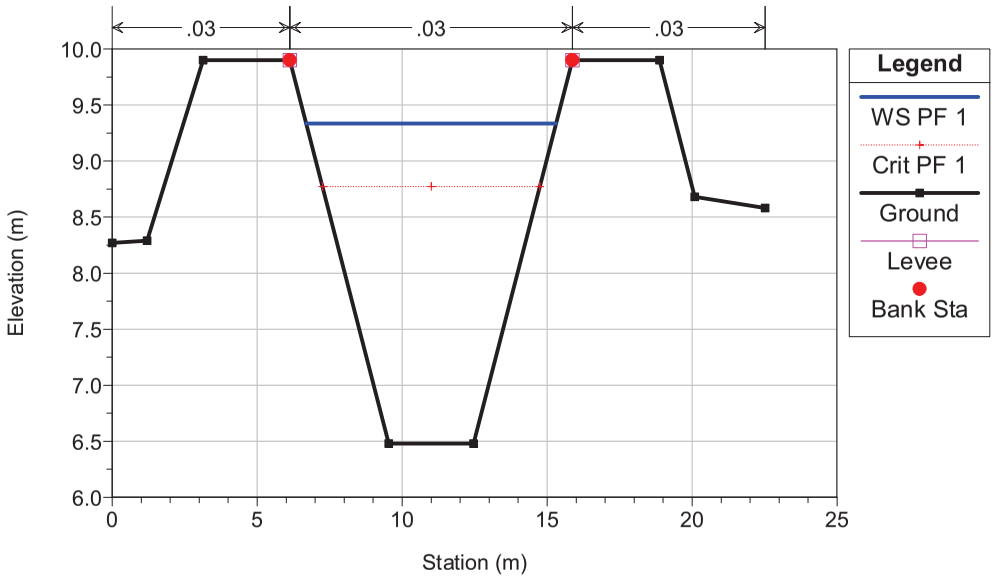
RS = 110.9



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

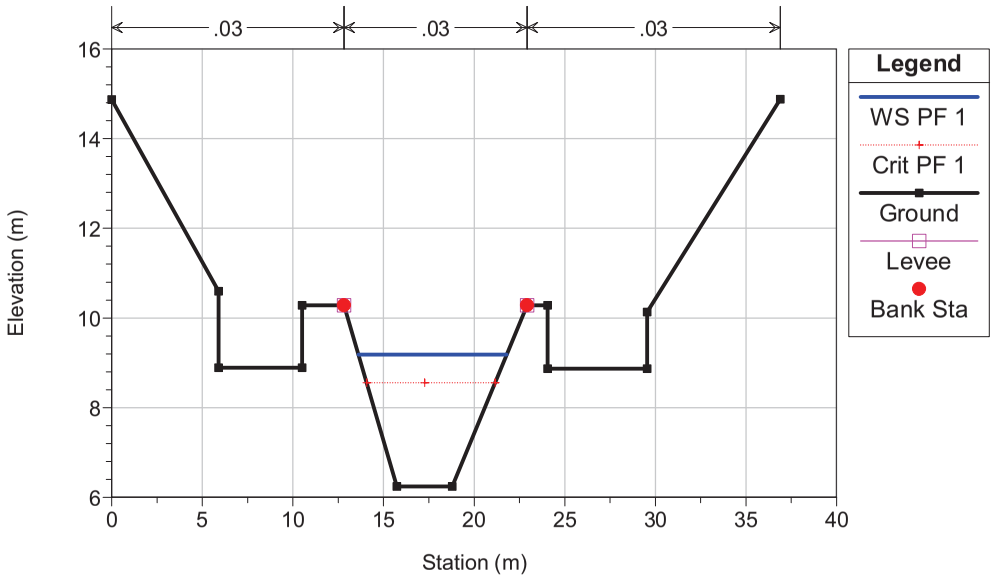
RS = 110



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

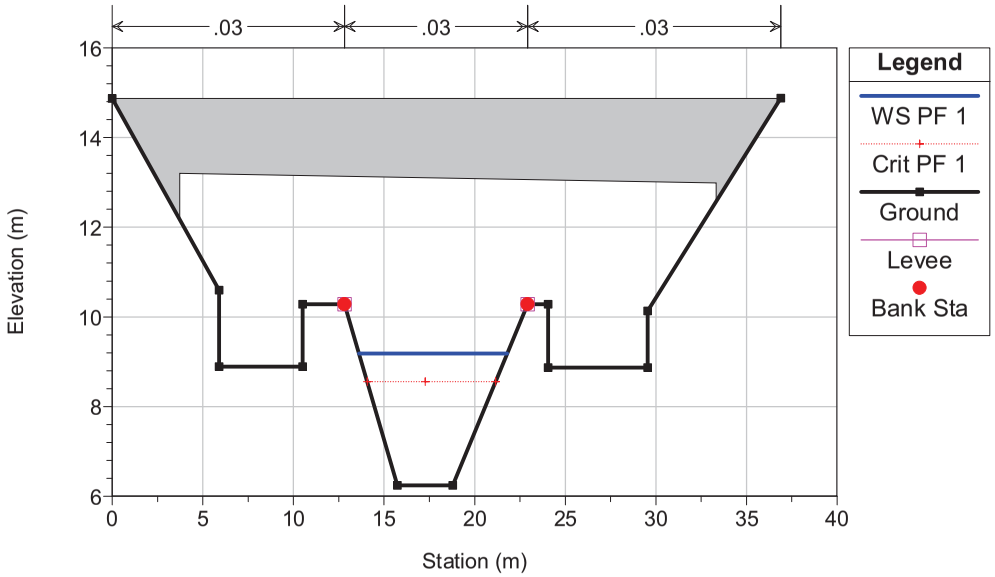
RS = 109.3



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

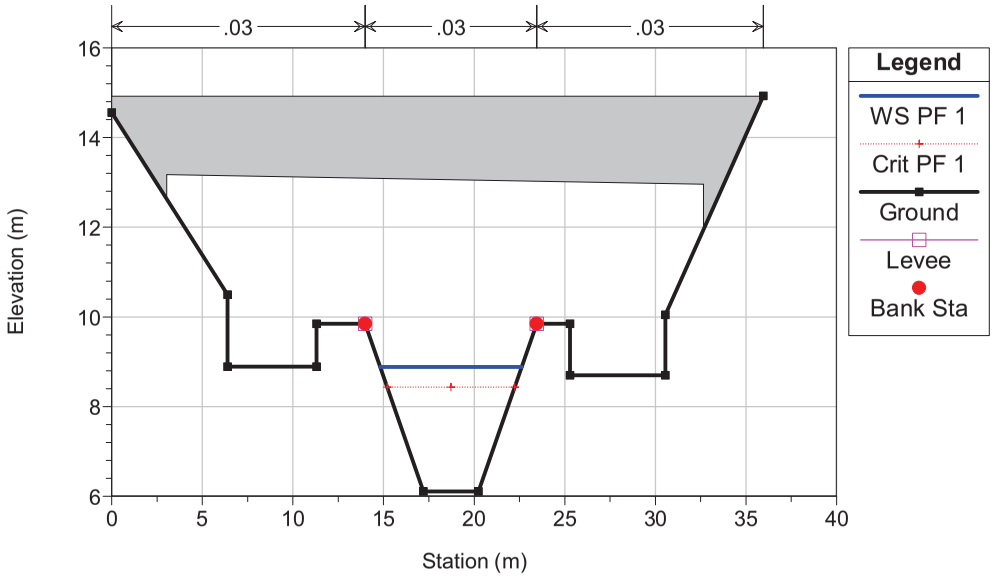
RS = 109.2 BR



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

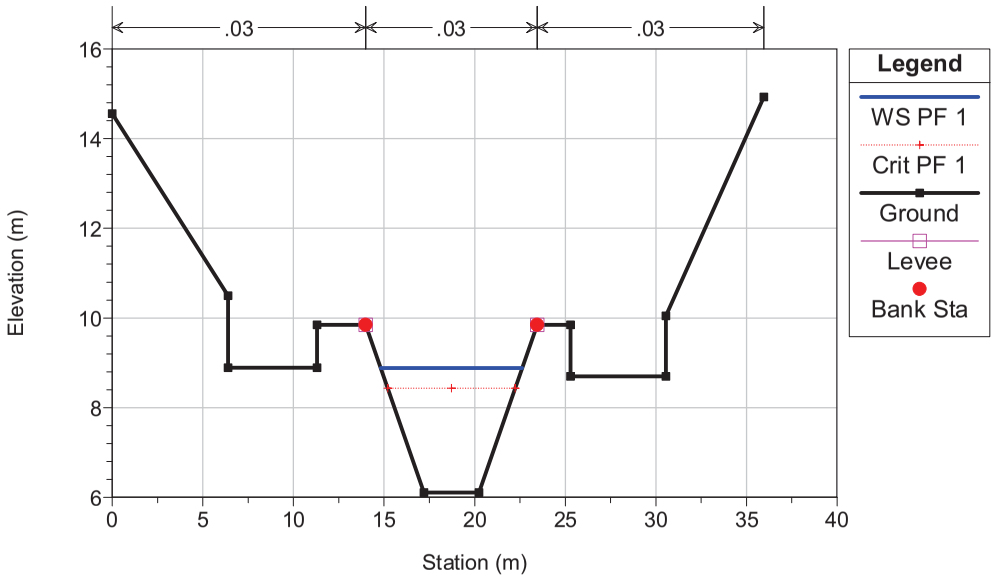
RS = 109.2 BR



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

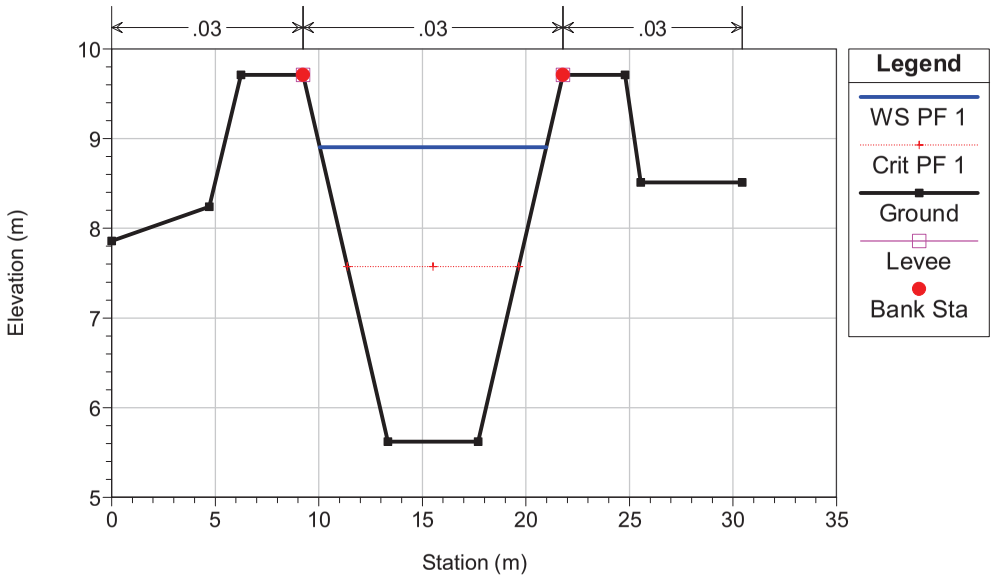
RS = 109.1



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

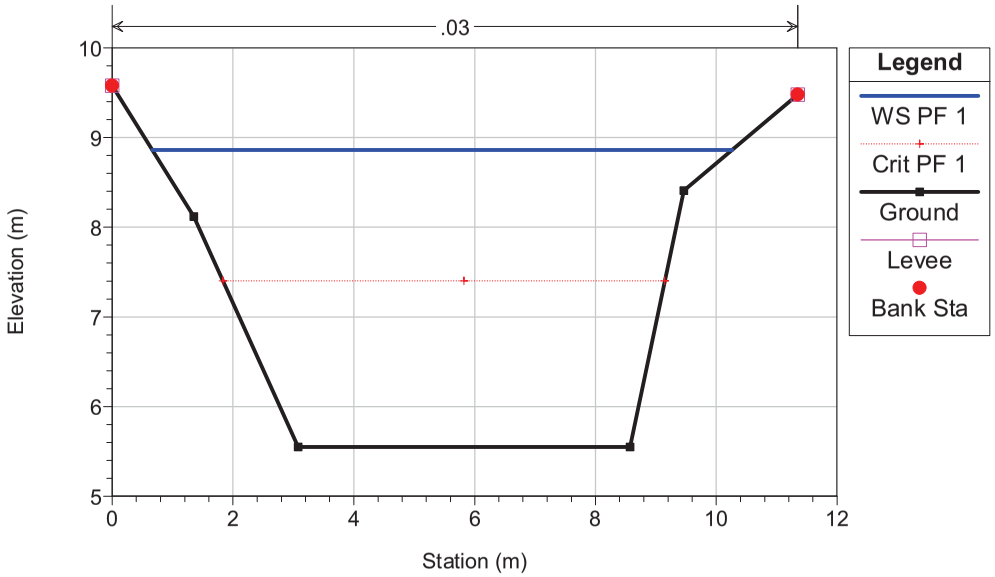
RS = 109



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

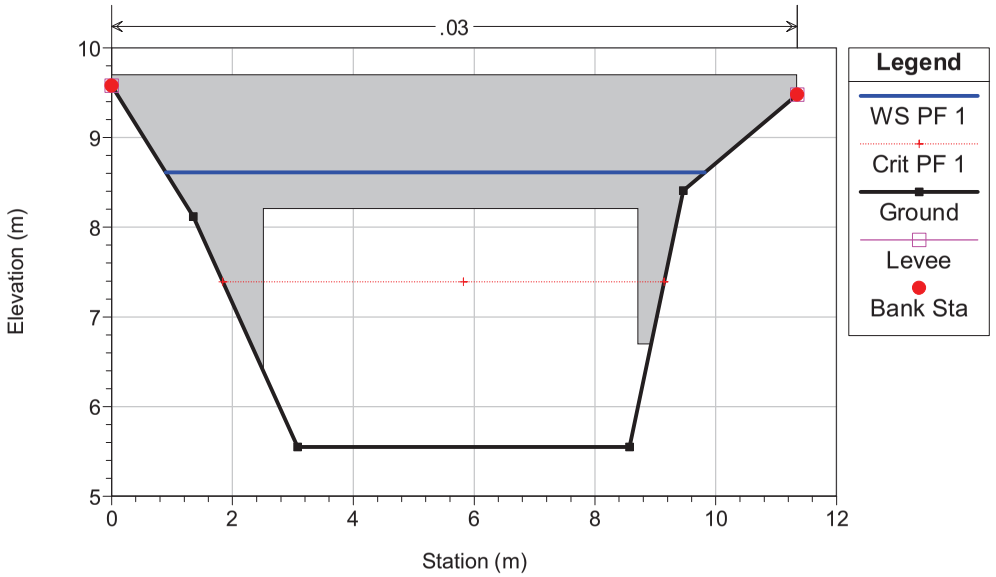
RS = 108.1



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

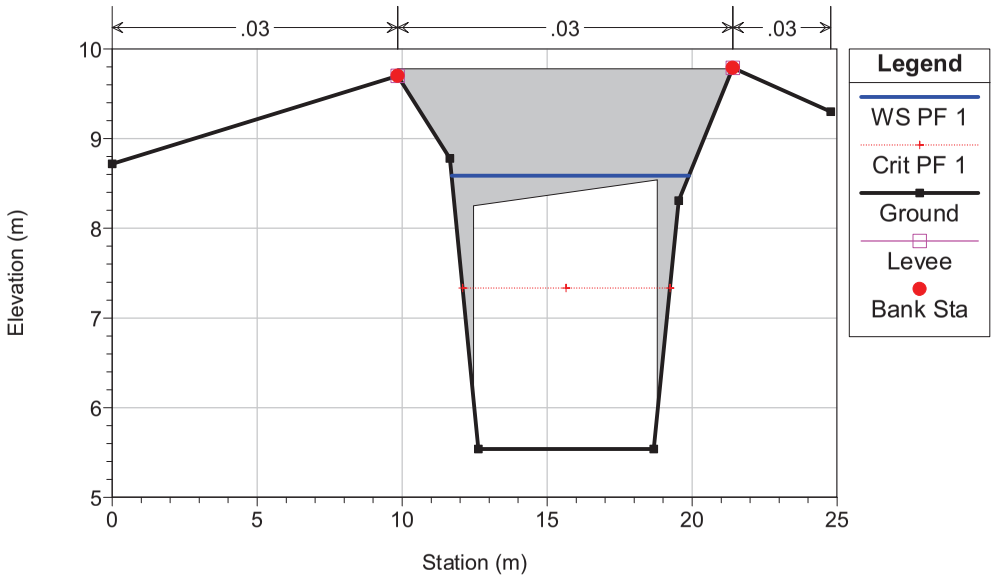
RS = 108 BR



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

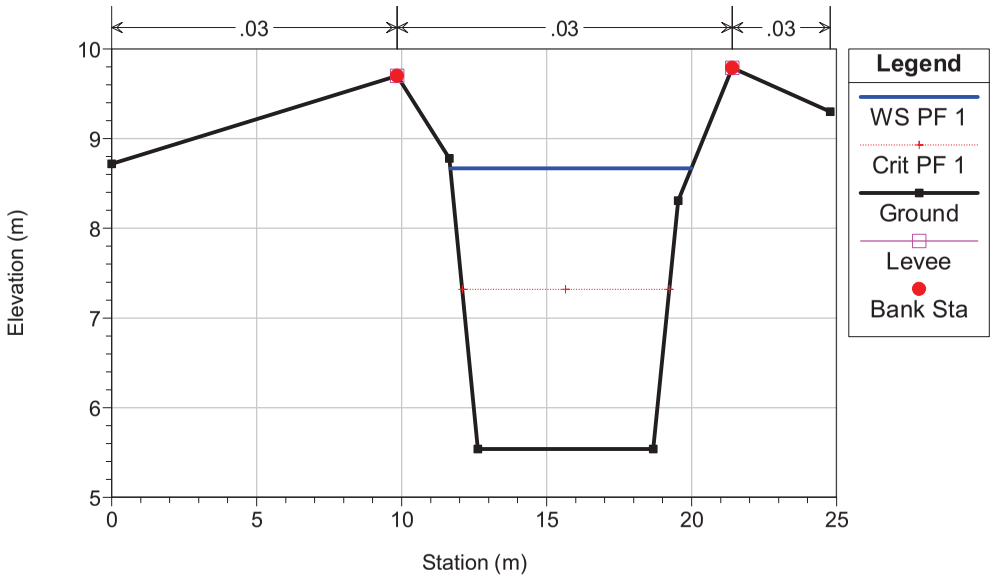
RS = 108 BR



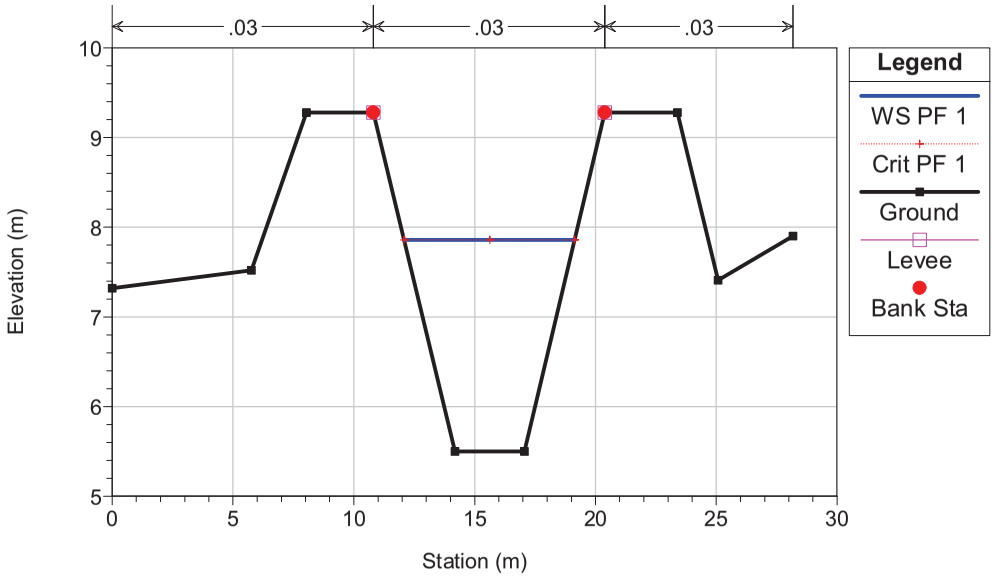
madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

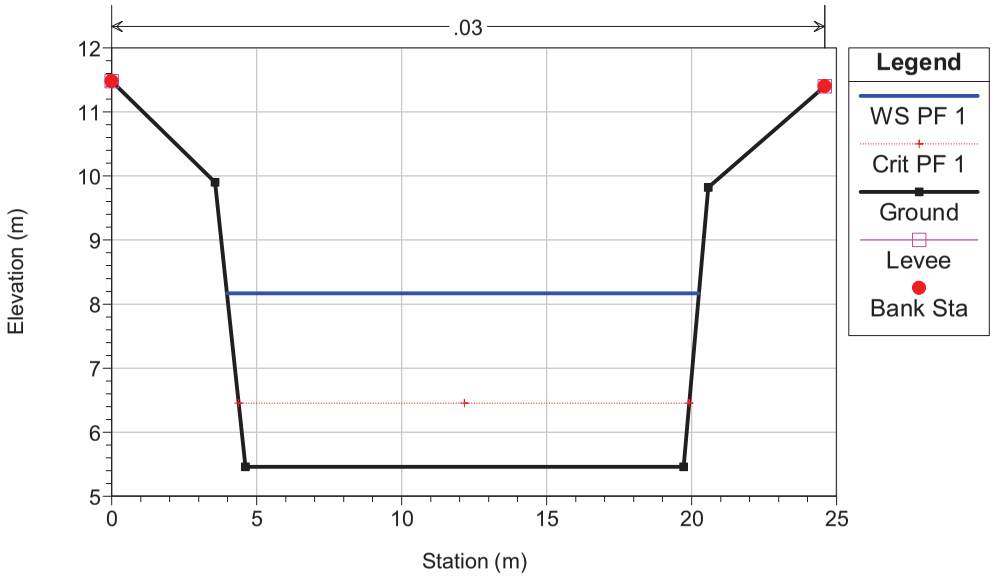
RS = 107.9



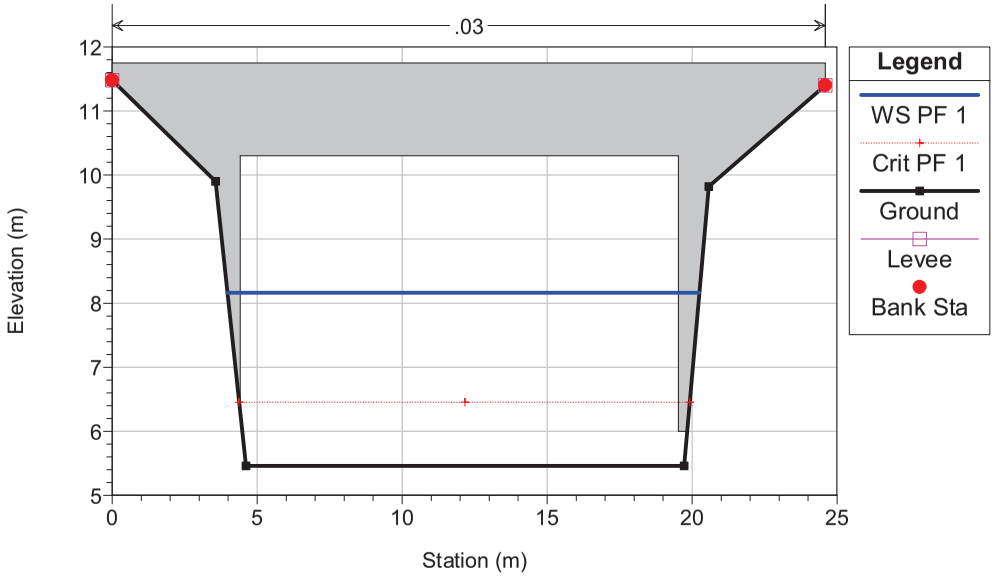
madonna Plan: Vmax Tr200 moto permanente
Geom: Geom_St_Progetto 4 moto permanente
RS = 107



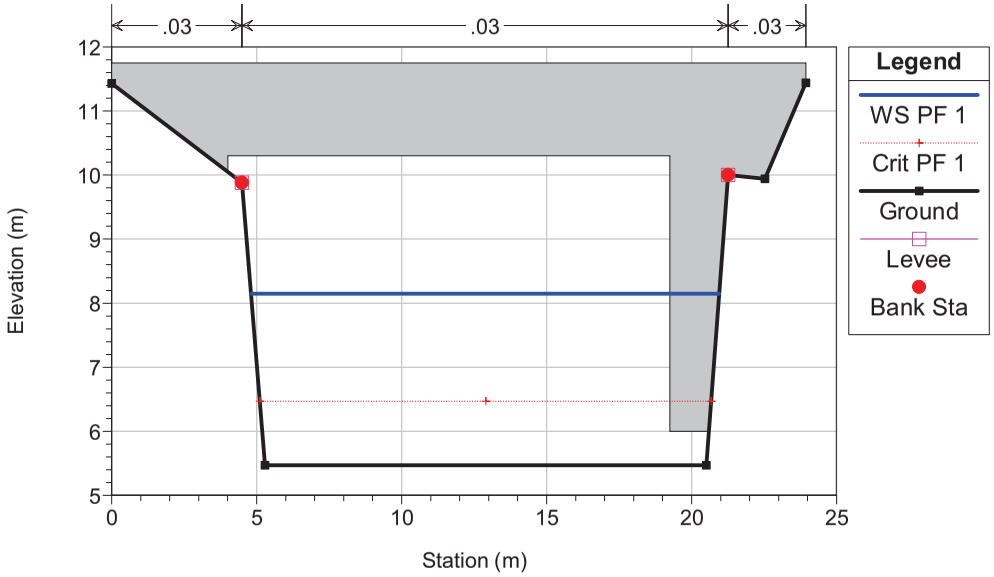
madonna Plan: Vmax Tr200 moto permanente
Geom: Geom_St_Progetto 4 moto permanente
RS = 106.1



madonna Plan: Vmax Tr200 moto permanente
Geom: Geom_St_Progetto 4 moto permanente
RS = 106 BR



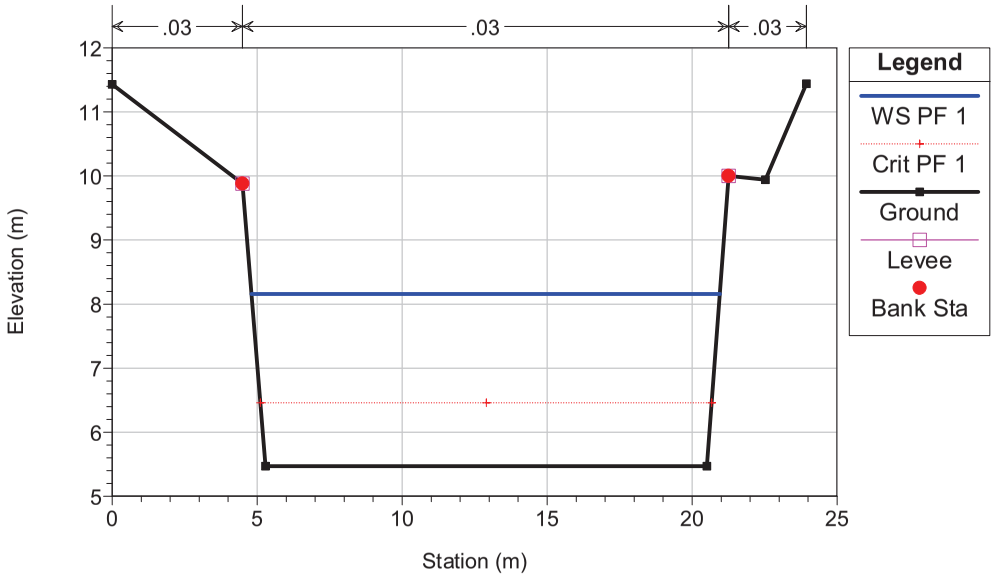
madonna Plan: Vmax Tr200 moto permanente
Geom: Geom_St_Progetto 4 moto permanente
RS = 106 BR



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

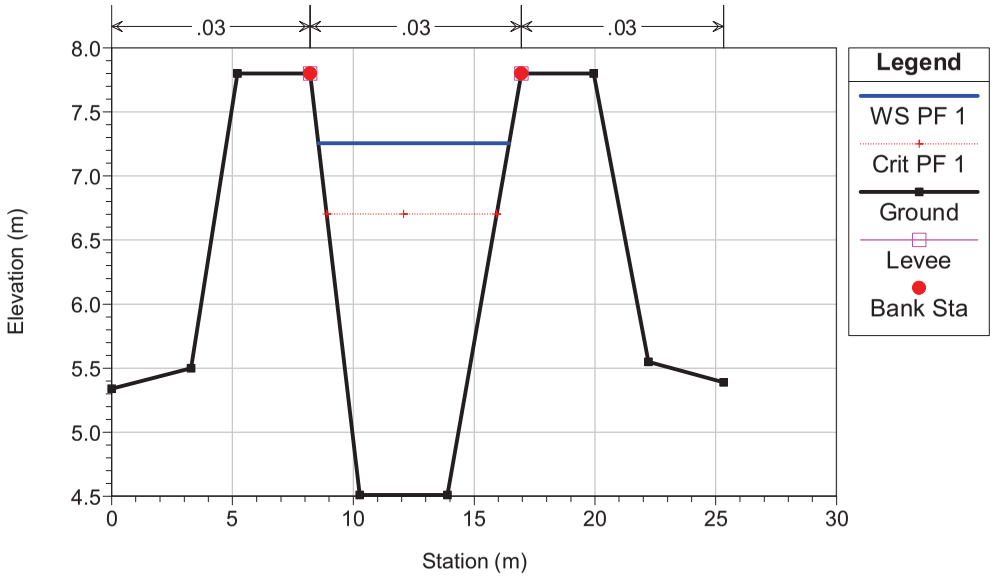
RS = 105.9



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

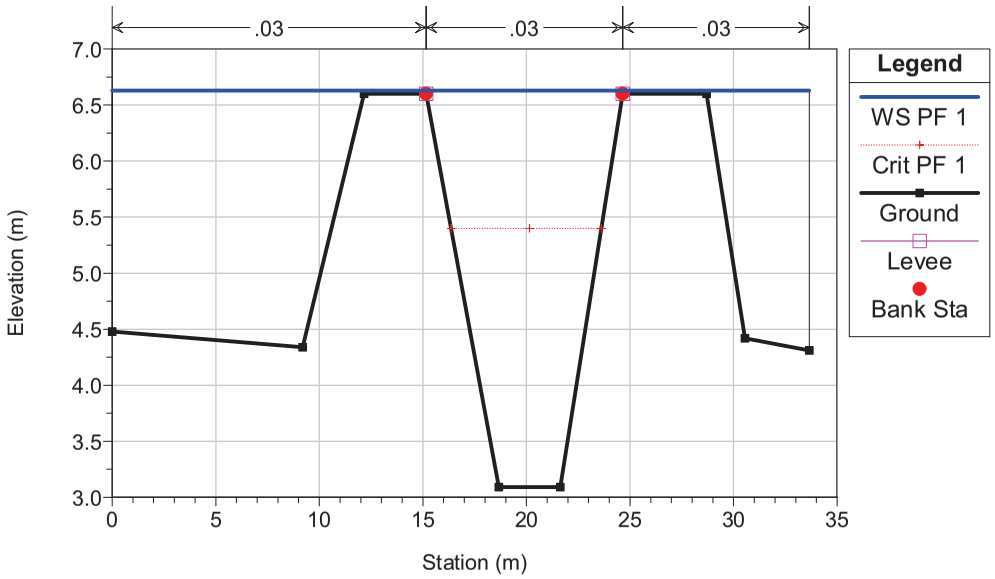
RS = 105



madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

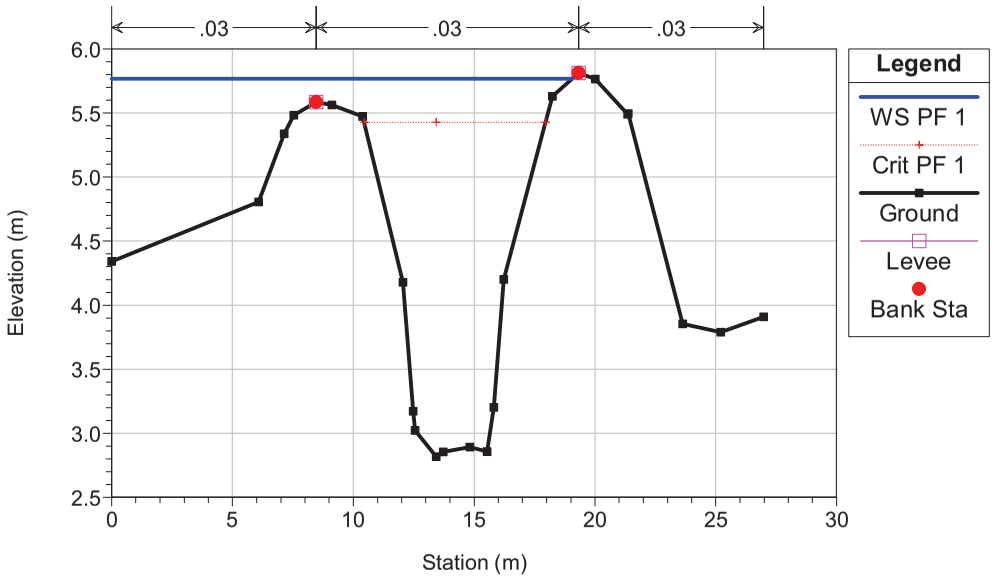
RS = 104



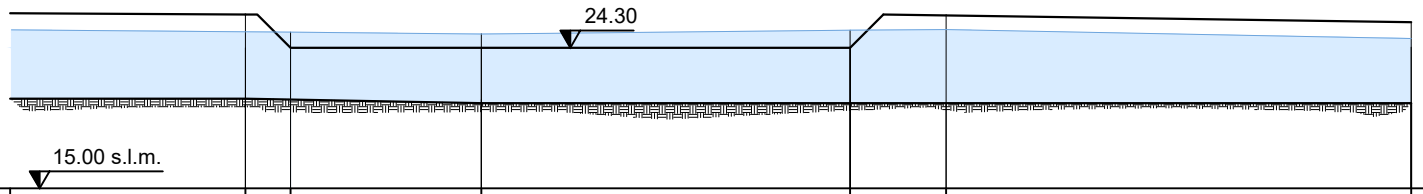
madonna Plan: Vmax Tr200 moto permanente

Geom: Geom_St_Progetto 4 moto permanente

RS = 103

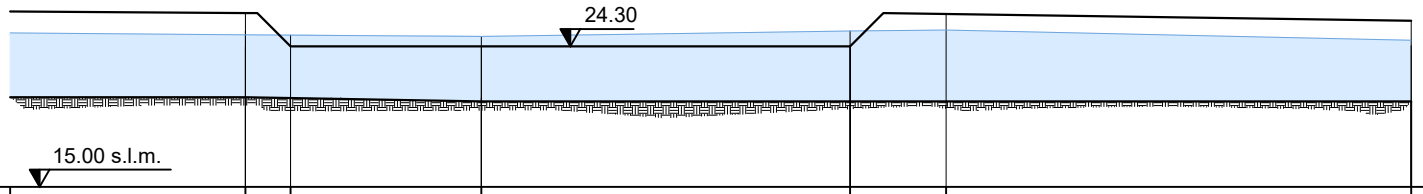


Profilo liquido sullo sfioratore per l'evento critico che massimalizza il picco di piena.



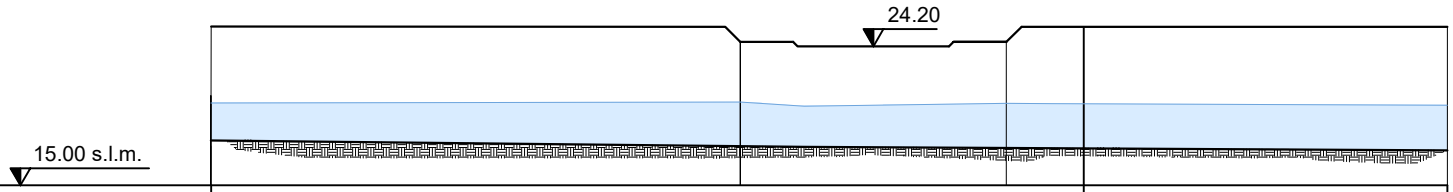
Sezione	137		136.8		135.6		133.12
Quota fondo alveo	20.94		20.88		20.82		20.65
Quota argine Sx	26.50	24.30	24.30	24.30	26.50		26.00
Tr =200 D3	25.36	25.34	25.21	25.43	25.47		24.43

Profilo liquido sullo sfioratore per l'evento critico che massimalizza i volumi da immagazzinare.



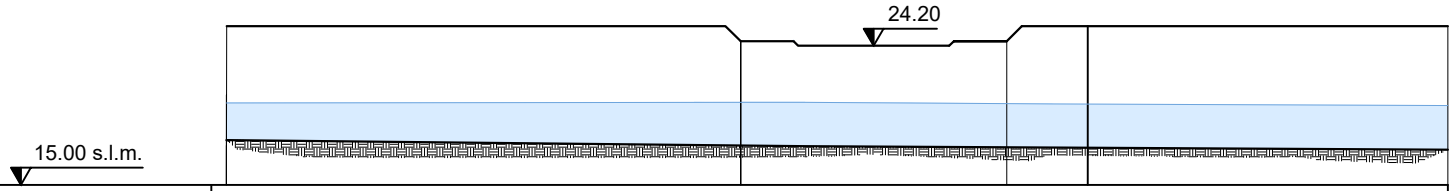
Sezione	137		136.8		135.6		133.12
Quota fondo alveo	20.94		20.88		20.82		20.65
Quota argine Sx	26.50	24.30	24.30	24.30	26.50		26.00
Tr =200 D6	25.07	25.04	24.95	25.28	25.34		24.34

Profilo liquido sul restitutore per l'evento critico che massimalizza il picco di piena.



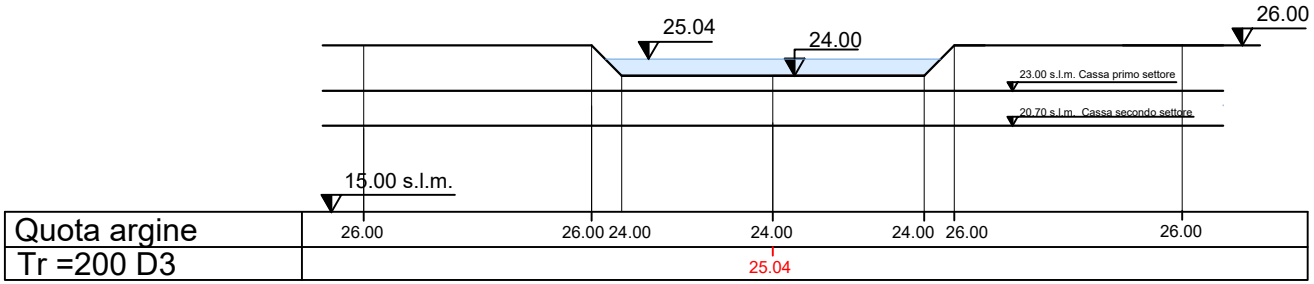
Sezione	130.4			130.3
Quota fondo alveo	17.61			17.46
Quota argine Sx	25.50	24.50	24.50	25.50
Tr =200 D3	20.57	20.54	20.55	20.55

Profilo liquido sul restitutore per l'evento critico che massimalizza i volumi da immagazzinare.



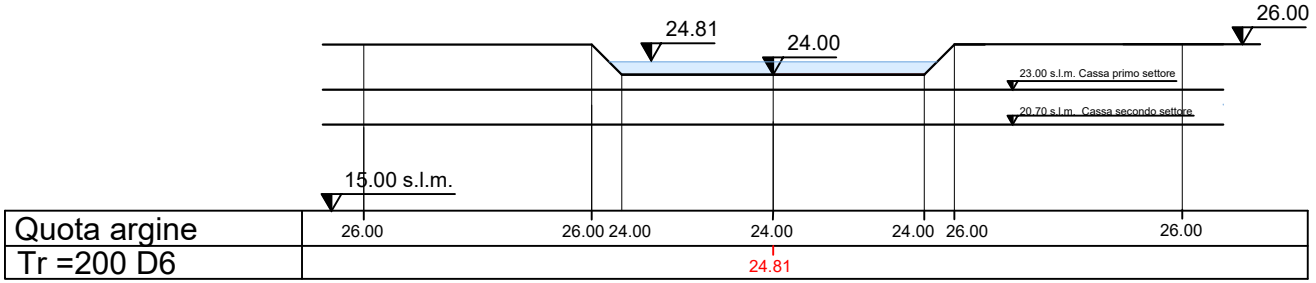
Sezione	130.4			130.3
Quota fondo alveo	17.61			17.46
Quota argine Sx	25.50	24.50	24.50	25.50
Tr =200 D6	20.58	20.55	20.55	20.55

Quota massima livello liquido sul regolatore tra le due casse per l'evento critico che massimalizza il picco di piena



Quota argine	26.00	26.00 24.00	24.00	24.00	26.00	26.00
Tr =200 D3			25.04			

Quota massima livello liquido sul regolatore tra le due casse per l'evento critico che massimalizza i volumi da immagazzinare.



Quota argine	26.00	26.00 24.00	24.00	24.00	26.00	26.00
Tr =200 D6			24.81			