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CANALE S. NICOLO' – MEDELANA (OC92)

PROGETTO ESECUTIVO



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Mims
Ministero delle infrastrutture
e della mobilità sostenibili

**Ripristino delle condizioni di stabilità arginale del canale
San Nicolò –Medelana (OC92)**
CUP: J96G20000500001

**PNRR-M2C4-I4.1-A2-1: Ripristino della piena funzionalità idraulica
del canale S. Nicolò Medelana**

RELAZIONI

RELAZIONE IDRAULICA

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IL PROGETTISTA
(Dott. Ing. Elisa Maniezzo)



IL RESPONSABILE DEL PROCEDIMENTO
(Dott. Ing. Marco Volpin)



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ALLEGATO A1: Output Hec-Ras stato di fatto

ALLEGATO A2: Output Hec-Ras stato di progetto

ALLEGATO A3: Output Hec-Ras stato di progetto STRALCIO FUNZIONALE



2. NORMATIVA DI RIFERIMENTO

Le Normative di riferimento adottate sono le seguenti:

- D.M. 17 gennaio 2018 “Nuove Norme Tecniche per le Costruzioni”
- Circ. Ministero delle infrastrutture e dei trasporti n.7 del 21 gennaio 2019, “Istruzioni per l'applicazione dell'aggiornamento delle “Norme Tecniche per le Costruzioni” di cui al DM del 17 gennaio 2018”.
- D.P.R. 6 giugno 2001, n. 380; “Testo unico delle disposizioni legislative e regolamentari in materia edilizia”.
- LEGGE REGIONALE N. 19 DEL 30-10-2008 REGIONE EMILIA-ROMAGNA NORME PER LA RIDUZIONE DEL RISCHIO SISMICO
- D.Lgs. 50/2016. Attuazione delle direttive 2014/23/UE, 2014/24/UE e 2014/25/UE sull'aggiudicazione dei contratti di concessione, sugli appalti pubblici e sulle procedure d'appalto degli enti erogatori nei settori dell'acqua, dell'energia, dei trasporti e dei servizi postali, nonché per il riordino della disciplina vigente in materia di contratti pubblici relativi a lavori, servizi e forniture. (16G00062) (GU Serie Generale n.91 del 19-4-2016 – Suppl. Ordinario n. 10);
- D.Lgs. 42/2004. Codice dei beni culturali del paesaggio;
- Decreto del Min. delle Infrastrutture 14/01/2008. Approvazione delle nuove norme tecniche per le costruzioni;
- D.Lgs. 81/2008. Testo unico sulla sicurezza;
- D.Lgs. 152/2006. Norme in materia ambientale;
- L.R. Emilia Romagna 9/99 sulla Valutazione di Impatto Ambientale;
- L.R. Emilia Romagna 31/2002. Disciplina generale dell'edilizia;
- D.M. 161/2012. Regolamento recante la disciplina dell'utilizzazione delle terre e rocce da scavo;
- L. 177/2012. Modifiche al decreto legislativo 9 aprile 2008, n. 81, in materia di sicurezza sul lavoro per la bonifica degli ordigni bellici;
- D.P.R. 327 del 8/06/2001 Testo Unico sulle procedure espropriative per pubblica utilità;
- L.R. Emilia Romagna n. 37 del 19/12/2002. Disposizioni regionali sugli espropri.

3. PREMESSA

La presente relazione si inserisce nel **Progetto Esecutivo** denominato “**Ripristino delle condizioni di stabilità arginale del canale San Nicolò – Medelana**”.

Il canale San Nicolò Medelana è una importante opera di difesa idraulica e di derivazione irrigua inserita nel territorio ferrarese nel sistema Po di Volano - Navigabile. E' un cavo pensile, posto pochi chilometri a sud est dal capoluogo estense, a sezione trapezia, lungo circa 14,6 chilometri, per la maggioranza del proprio corso dominante rispetto al territorio attraversato. La realizzazione, che risale agli anni 30 dello scorso secolo, nella propria primaria funzione, rispondeva alla duplice necessità di porre in sicurezza il sistema Burana-Volano, scolmando le portate effluenti nel primo tronco del Po di Volano attraverso un collegamento tra il Po di Primaro in località San Nicolò e il Po di Volano stesso a valle della traversa Valpagliaro in località Medelana, e consentire la derivazione irrigua per il fitto reticolo che il canale è andato ad intersecare.

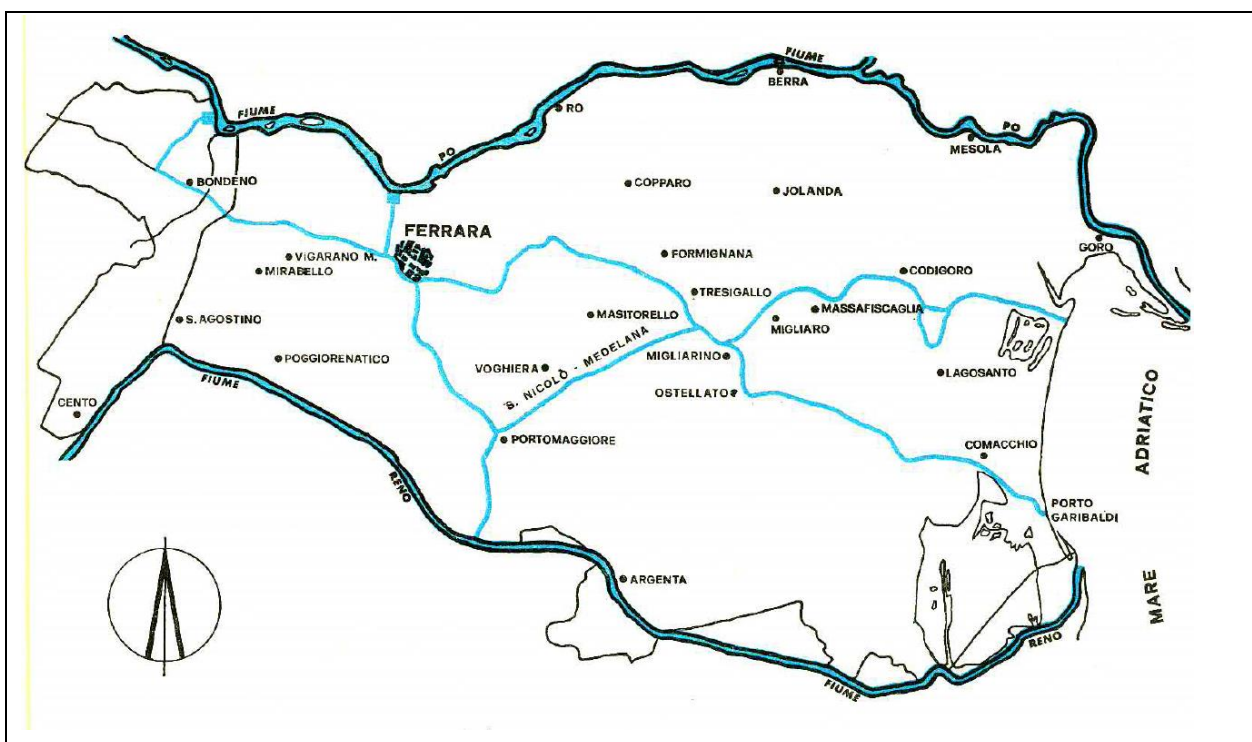


Figura 1. Il canale San Nicolò Medelana nel sistema idraulico principale del Ferrarese.

Purtroppo, come è noto, il canale è rimasto pressoché inutilizzato sin dal 1938, data delle sua ultimazione, a causa di difetti di tenuta lungo buona parte del suo sviluppo imputabile alla elevata permeabilità di arginature e fondo alveo.

Negli anni 80 del secolo scorso, per valorizzare ed utilizzare l'opera, sono stati progettati e realizzati degli interventi di impermeabilizzazione del fondo e delle sponde mediante un rivestimento in calcestruzzo.



Nonostante gli interventi di rivestimento ed impermeabilizzazione delle sponde, ultimati nel 2000, il canale ha presentato anche negli anni successivi e presenta tutt'ora problematiche di tenuta, riscontrate già in fase di collaudo nel 2003.

A seguito delle indagini e della analisi condotte, si sono riscontrate criticità legate alla carente impermeabilizzazione del canale affiancata dalla variabilità litologica dei corpi arginali e dell'immediato sottosuolo con presenza anche importante di limi sabbio e sabbie limose che possono generare importanti fenomeni di instabilità, filtrazione e sifonamento dei corpi arginali.

Il Progetto Esecutivo prevede di realizzare una nuova impermeabilizzazione del Canale mediante la realizzazione di un materasso flessibile in calcestruzzo di spessore 10cm da sovrapporre all'attuale rivestimento.

La presente relazione tratta delle verifiche idrauliche del Canale San Nicolò – Medelana.

4. PROGETTO E STRALCI FUNZIONALI

L'intervento complessivo si svilupperà a partire dall'opera di modulazione di San Nicolò (prog. 0+000) fino alla Sez. 73 (prog. 14+600) in prossimità della Chiusa Medelana per una lunghezza complessiva di **14.600 metri**.

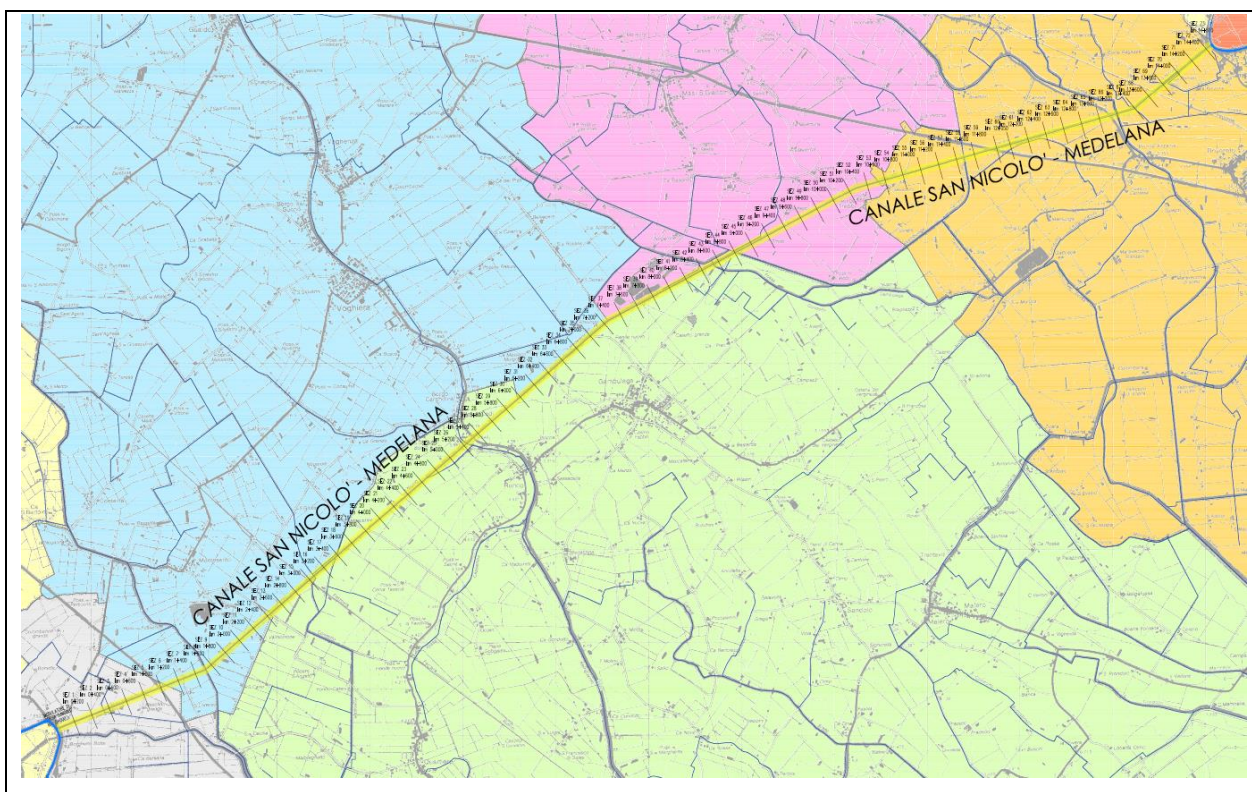


Figura 2. Tracciato del canale San Nicolò Medelana

Le **prestazioni** che si intendo raggiungere con gli interventi di progetto sono le seguenti:

- 1) come **opera di derivazione** si potrà contare sull'innalzamento delle quote irrigue:
 - Nel I Tronco (da San Nicolò prog. 0+000 alla Chiusa Rostra prog. 7+156.66) la quota irrigua di progetto sarà pari a **+12,80 m** (+2,80 mslm);
 - Nel II Tronco (dalla Chiusa Rostra prog. 7+156.66 alla chiusa Medelana prog. 14+600) la quota irrigua di progetto sarà pari a **+11,90 m** (+1.90 mslm)
- 2) In condizioni di emergenza si potrà utilizzare come **scolmatore** con le seguenti condizioni:
 - Portata massima **27 mc/s** e condizione di valle in corrispondenza della chiusa Medelana **+12,50 m** (+2.50 mslm)



Il presente Progetto Esecutivo rappresenta il **Primo Stralcio Funzionale** e prevede di realizzare l'intervento di progetto dalla Sez. 25 (prog. 5+000) alla Sez. 73 (prog. 14+600) per una lunghezza complessiva di **9.600 metri**.

Si è scelto di intervenire partendo dal tratto di valle poiché è quello dove storicamente si sono verificate le problematiche maggiori.

Al termine della realizzazione degli interventi di progetto previsti per il Primo Stralcio Funzionale sarà possibile raggiungere le seguenti prestazioni:

- 1) Come opera di derivazione
 - Nel I Tronco (da San Nicolò alla Chiusa Rostra) la quota irrigua di progetto sarà pari a **+12,50 m** (+2.80 mslm)
 - Nel II Tronco (dalla Chiusa Rostra a Medelana) la quota irrigua di progetto sarà pari a **+11,90 m** (+1.90 mslm)
- 2) Come scolmatore con le seguenti condizioni
 - Portata massima 27 mc/s e condizione di valle **+11,50 m** (+1.50 mslm)

Come si dimostrerà nel prosieguo della relazione, la messa in opera parziale del rivestimento non consente di raggiungere le prestazioni a scolmatore e di derivazione indicate come "Obiettivi Intervento Complessivo". Per raggiungere tali valori sarà necessario completare l'intero intervento, ovvero i restanti 5.000 metri tra l'opera di modulazione di San Nicolò (prog. 0+000) e la Sez. 25 (prog. 5+000).

5. CANALE S. NICOLO' MEDELANA – STATO DI FATTO

Il canale San Nicolò Medelana è un canale artificiale a sezione trapezia con base minore circa 10 metri e sponde con pendenza 2/3, lungo 14.6 chilometri, per la maggioranza del proprio corso dominante rispetto al territorio attraversato.

Il Canale ha una pendenza di 8cm/km da San Nicolò verso Medelana ed è suddiviso in due tronchi separati dall'Opera Chiusa Rostra che si trova circa a metà del tracciato alla progressiva 7+156.66.

Allo stato attuale il canale risulta rivestito sul fondo e sulle sponde con una lastra di calcestruzzo di spessore medio pari a 15cm caratterizzata dalle problematiche di permeabilità ed ammaloramento dei giunti ampiamente descritte negli elaborati di progetto.

Le sponde hanno un'altezza di circa 3.70 metri rispetto al fondo canale ed il rivestimento non raggiunge mai la sommità arginale in quanto è stato progettato per avere un franco di 50cm rispetto al livello di massima piena. L'altezza del rivestimento è pari a circa 3.40 metri rispetto al fondo canale.

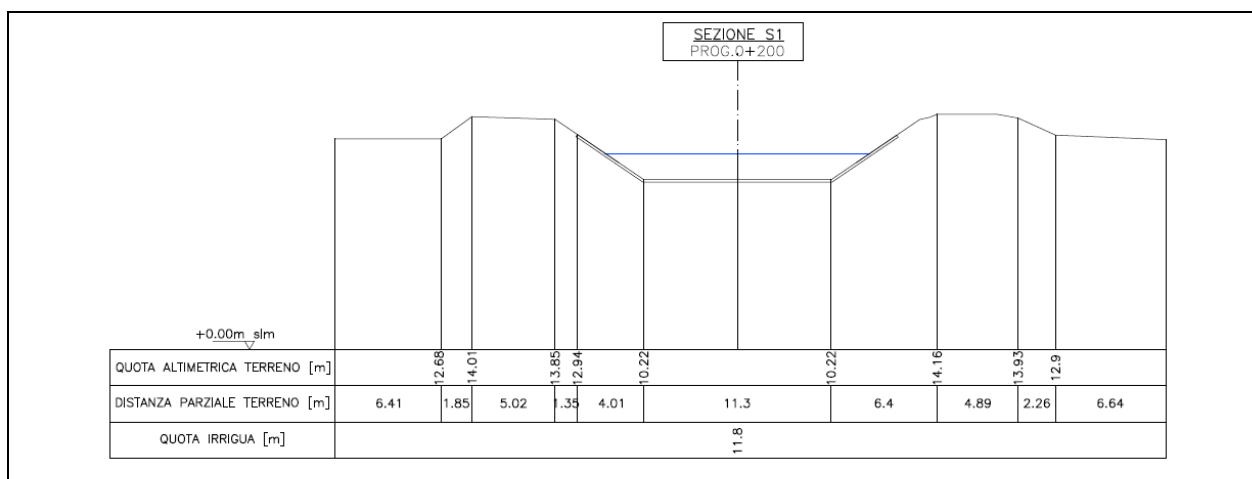


Figura 3: Sezione Stato di Fatto

Il funzionamento come **opera di derivazione** prevede la totale chiusura della paratoie della Chiusa Rostra generando in questo modo due tronchi indipendenti. I livelli irrigui di progetto del 1982 erano i seguenti:

I Tronco da San Nicolò a Chiusa Rostra	+12.94m
II Tronco da Chiusa Rostra a Medelana	+12.56m

Nel progetto di rivestimento del canale del 1982 l'obiettivo da raggiungere per il funzionamento a scolmatore era la capacità di smaltire una portata di **27 mc/s** con una condizione di valle pari a **+12.50m** corrispondente al livello massimo del Po di Volano alla chiusa Medelana.

Le caratteristiche idrauliche della sezione di progetto sono riportate nella figura seguente

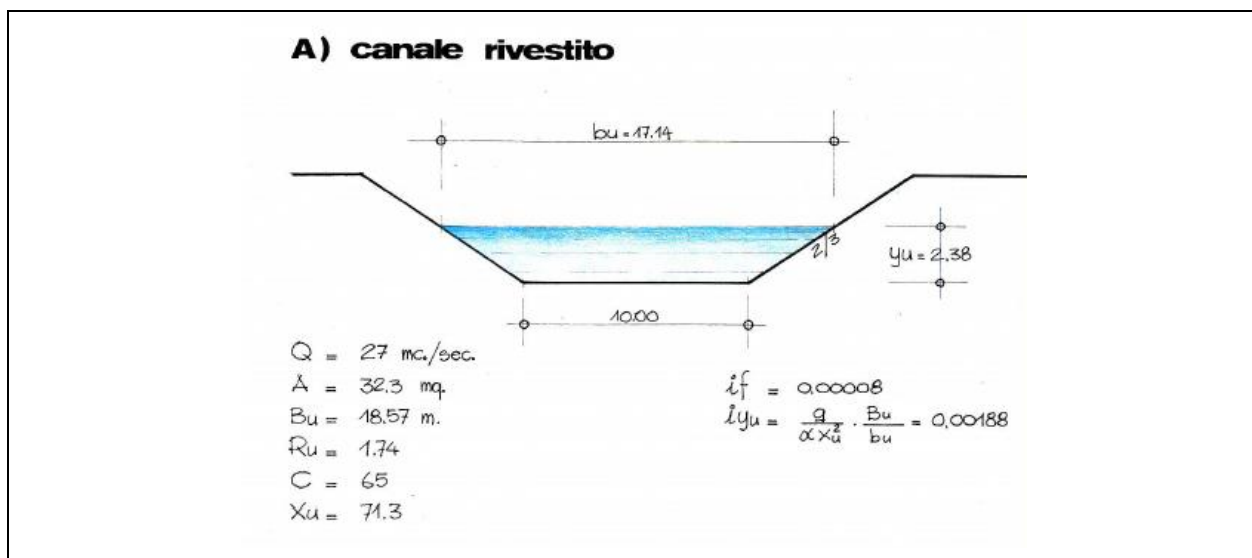
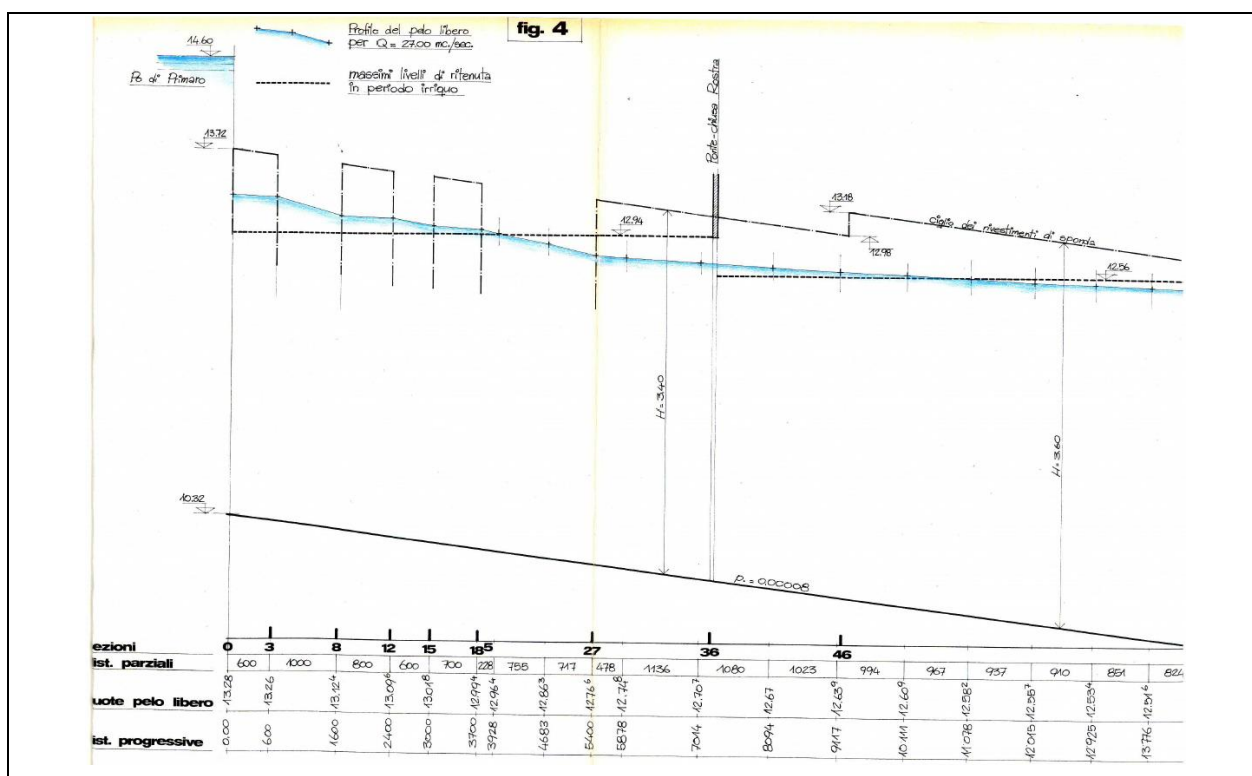


Figura 4: Dati idraulici progetto 1982

I profili idraulici di progetto sono riportati nella figura seguente, da cui si evince che imposta la condizione di valle di +12.50 con una portata di 27 mc/s, il livello di monte in corrispondenza dell'opera di modulazione San Nicolò è pari a **+13.28 m**, il livello a monte della Chiusa Rostra è pari a **+12.70m**.



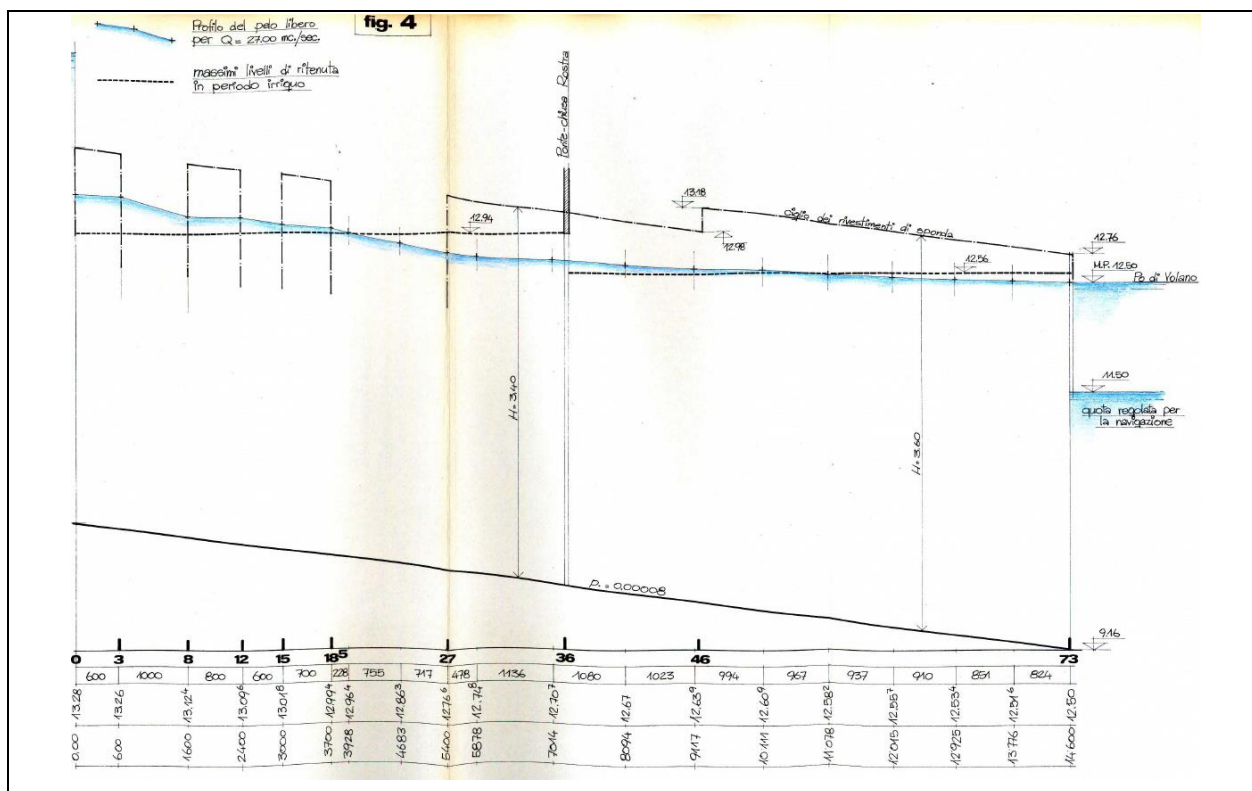


Figura 5: Profilo idraulico progetto 1982

Come è noto nonostante gli interventi di rivestimento ed impermeabilizzazione delle sponde, ultimati nel 2000, il canale ha presentato anche negli anni successivi e presenta tutt'ora problematiche di tenuta, riscontrate già in fase di collaudo nel 2003.

Alla luce delle ulteriori indagini ed analisi condotte nel 2010 il Consiglio di Amministrazione, con delibera n.76 del 15 aprile 2010, impone delle limitazioni funzionali all'opera in attesa di definire le azioni risolutive.

Attualmente il Canale San Nicolò – Medelana viene utilizzato solamente come opera di derivazione con i seguenti livelli irrigui:

I Tronco da San Nicolò a Chiusa Rostra	+11.80m
II Tronco da Chiusa Rostra a Medelana	+10.90m

6. INTERVENTO DI PROGETTO

L'obiettivo del progetto è quello di ripristinare la corretta impermeabilizzazione dell'alveo per tutta la lunghezza dell'opera al fine poterla utilizzare per lo scopo originario, ovvero sia come opera di **derivazione** che come **scolmatore**, migliorando di fatto anche la gestione della risorsa idrica e riducendo le perdite.

Gli interventi consistono nella realizzazione di un nuovo rivestimento in **calcestruzzo impermeabile** dello spessore di **10cm** da porre in opera sopra il rivestimento esistente portandolo fino alla sommità arginale.

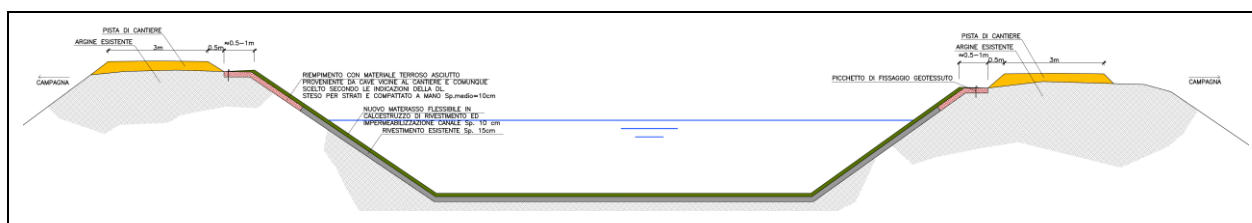


Figura 6: Sezione tipologica del Canale Stato di Progetto

L'intervento complessivo si svilupperà a partire dall'opera di modulazione di San Nicolò (prog. 0+000) fino alla Sez. 73 (prog. 14+600) in prossimità della Chiusa Medelana per una lunghezza complessiva di **14.600 metri**.

Il Primo Stralcio Funzionale prevede di intervenire dalla Sez. 25 (prog. 5+000) alla Sez. 73 (prog. 14+600) per una lunghezza complessiva di **9.600 metri**.

Nel presente studio idraulico si procederà pertanto nel seguente modo:

1. Determinazione del profilo di rigurgito idraulico dello **Stato di Fatto** (sez. con rivestimento attuale) imponendo portate e condizioni al contorno del progetto 1982 per verificare la corrispondenza dei livelli idraulici raggiunti e validare il modello di calcolo da impiegare per lo Stato di Progetto
2. Determinazione del profilo di rigurgito idraulico dello **Stato di Progetto** (sez. con rivestimento di progetto) ➡ obiettivo: verificare la compatibilità geometrica tra livello idraulico di progetto e sezione rivestita e determinare i livelli idraulici di progetto per le verifiche di stabilità (ved. Relazione di Calcolo)
3. Determinazione del profilo di rigurgito idraulico dello **Stato di Progetto Primo Stralcio** (sez. con rivestimento esistente dalla 1 alla 25 e sez. con rivestimento di progetto dalla 25 alla 73) ➡ obiettivo: identificare il livello idraulico che garantisca compatibilità geometrica con il rivestimento esistente e determinare i livelli idraulici di progetto primo stralcio per le verifiche di stabilità in particolare per le sezioni non interessate dagli interventi del primo stralcio (ved. Relazione di Calcolo).

7. VERIFICHE IDRAULICHE

7.1 Modellazione del canale

A partire dal rilievo topografico condotto, è stato possibile modellare la struttura del canale in ambiente Hec-Ras.

Hec-Ras è un software che consente di eseguire i calcoli di flusso stazionario mono e bidimensionale, nonché di eseguire calcoli di trasporto di fondo o modellazioni idrologiche di temperatura /qualità dell'acqua.

Ciò premesso, si è proceduto con l'inserimento della geometria dell'opera all'interno della sezione "Geometric data"; tale sezione comprende sia le 73 sezioni trasversali del canale e le 21 opere d'arte interferenti.

Il coefficiente di scabrezza utilizzato per il calcestruzzo esistente e per quello di progetto è il medesimo, pertanto i modelli di calcolo si differenziano tra di loro per la geometria della sezione trasversale, che sarà quella attuale o quella di progetto in base alla simulazione condotta.

Di seguito si riportano alcuni dati di calcolo di esempio e rimandando all'allegato per la trattazione completa.

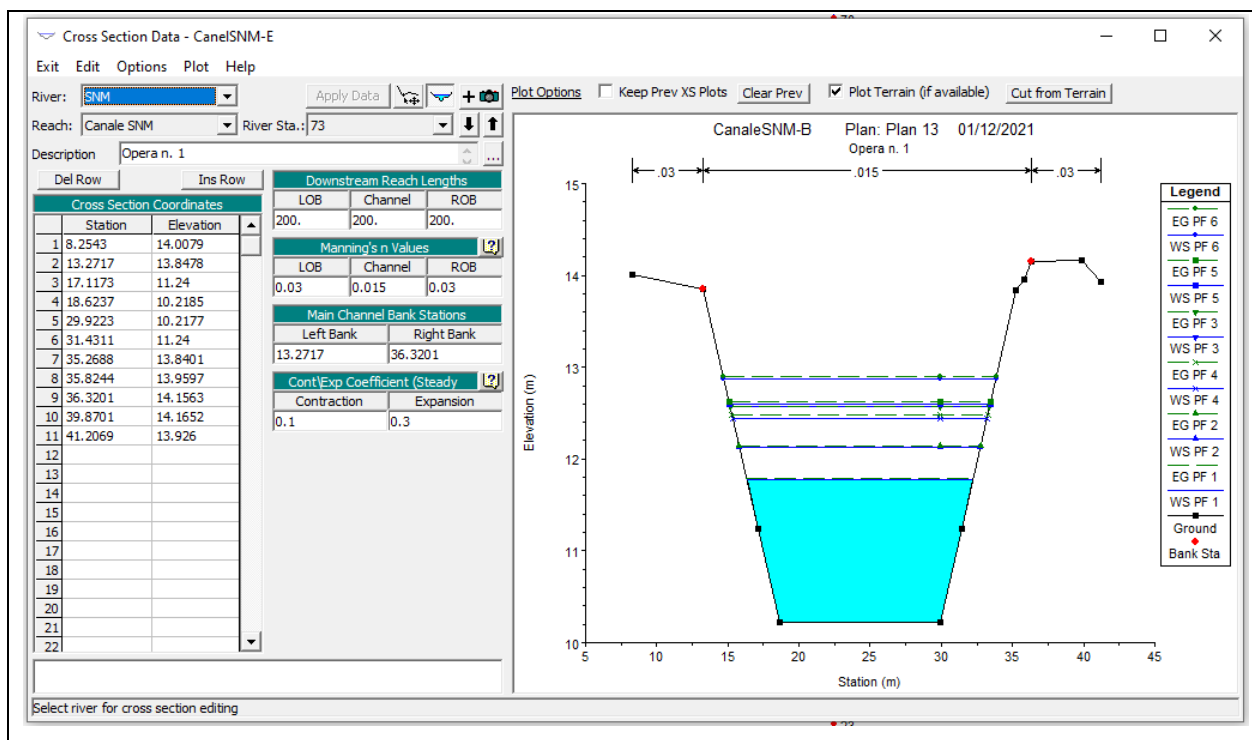


Figura 7: Esempio di sezione trasversale inserita

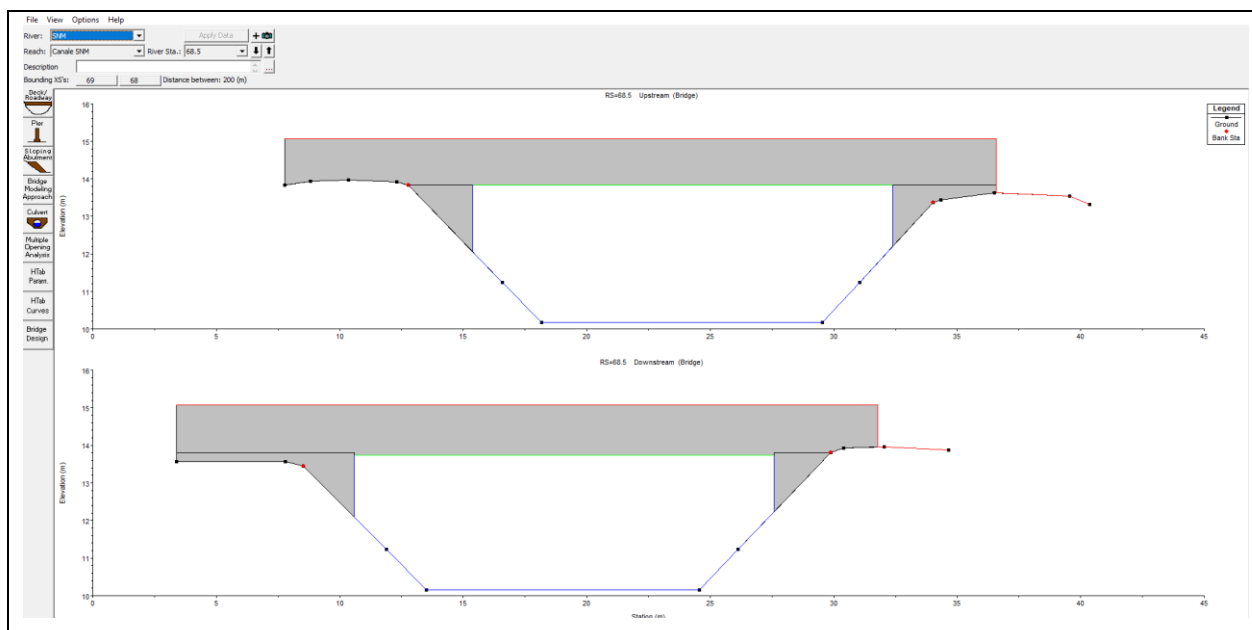


Figura 8: Esempio di Opera interferente inserita

7.2 Stato di fatto

Per prima cosa si è proceduto con la modellazione del canale nelle sue condizioni di stato attuale (rif. rilievo topografico) a cui sono state assegnate le prestazioni richieste nel progetto del 1982, in modo da testare la bontà delle informazioni disponibili e la correttezza della modellazione.

Ipotesi progetto 1982:

Portata di progetto $Q=27 \text{ mc/s}$

Livello idrico di Valle (rif. Po di Volano) $h_v=12.50\text{m}$

Scabrezza sezioni rivestite (Gauckler-Strikler) $C=65$

Lo studio del 1982 ha fornito il profilo idraulico riportato in Figura 5.

Di seguito si riportano i risultati ottenuti in Hec – Ras dalla modellazione della sopra citata condizione:

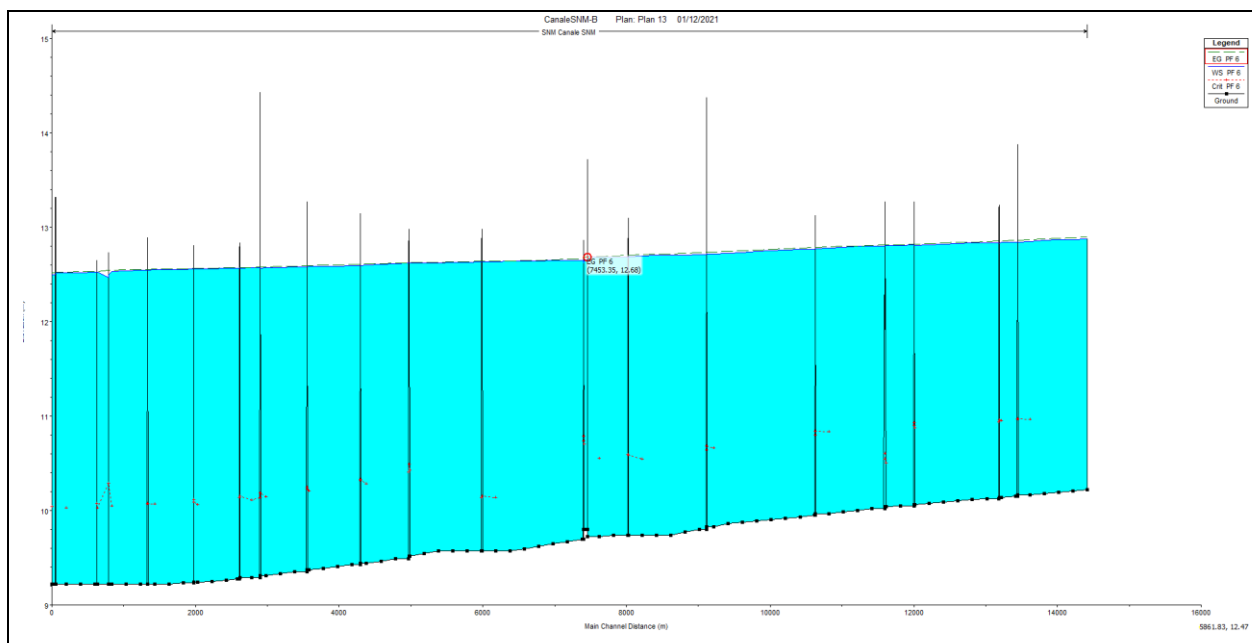


Figura 9: Profilo idraulico Hec-Ras – Stato di Fatto

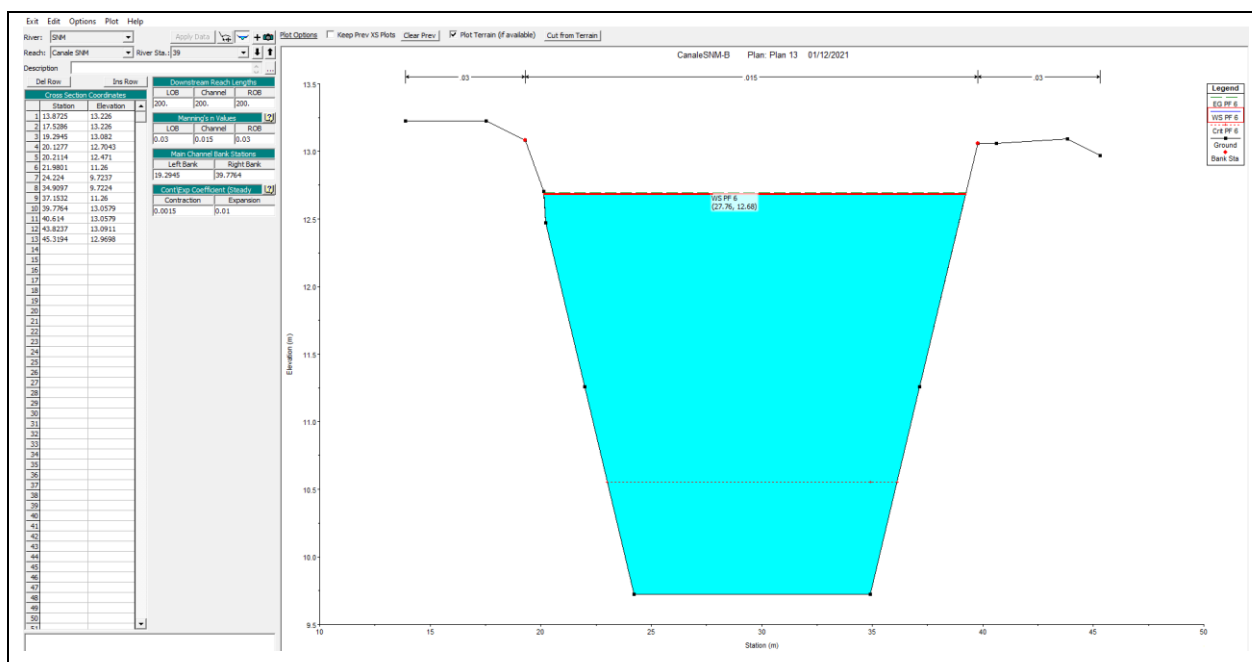


Figura 10: Risultato sezione idraulica a monte della Chiusa Rostra – Stato di Fatto

Prendendo a riferimento il livello idrico ottenuto nella sezione a monte della Chiusa Rostra si ha:

- Progetto 1982 – livello idrico +12.70m
- Progetto 2021 – livello idrico +12.68m

Il modello di calcolo si può ritenere **validato**.



7.3 Stato di progetto

Si è proceduto con la modellazione del canale in condizioni di stato di progetto, ipotizzando dunque la presenza del nuovo rivestimento con materasso flessibile in calcestruzzo per tutte le 73 sezioni.

Sono state analizzate 6 prestazioni idrauliche in crescendo dalla attuale limitazione funzionale fino al raggiungimento degli obiettivi di progetto (Ipotesi 6).

Questo consente di poter validare anche condizioni intermedie rispetto agli obiettivi ultimi del progetto e consentire al Consorzio maggiore flessibilità di utilizzo.

Ipotesi 1

Portata di progetto $Q=10$ mc/s

Livello idrico di Valle (rif. Po di Volano) $h_v=11.50$ m

Scabrezza sezioni rivestite (Gauckler-Strikler) $C=65$

Ipotesi 2

Portata di progetto $Q=10$ mc/s

Livello idrico di Valle (rif. Po di Volano) $h_v=12.00$ m

Scabrezza sezioni rivestite (Gauckler-Strikler) $C=65$

Ipotesi 3

Portata di progetto $Q=10$ mc/s

Livello idrico di Valle (rif. Po di Volano) $h_v=12.50$ m

Scabrezza sezioni rivestite (Gauckler-Strikler) $C=65$

Ipotesi 4

Portata di progetto $Q=27$ mc/s

Livello idrico di Valle (rif. Po di Volano) $h_v=11.50$ m

Scabrezza sezioni rivestite (Gauckler-Strikler) $C=65$

Ipotesi 5

Portata di progetto $Q=27$ mc/s

Livello idrico di Valle (rif. Po di Volano) $h_v=12.00$ m

Scabrezza sezioni rivestite (Gauckler-Strikler) $C=65$

Ipotesi 6

Portata di progetto $Q=27$ mc/s

Livello idrico di Valle (rif. Po di Volano) $h_v=12.50$ m

Scabrezza sezioni rivestite (Gauckler-Strikler) $C=65$



Nel seguito si riportano, a titolo esemplificativo e non esaustivo, alcune immagini relative ai risultati ottenuti. Maggiori indicazioni sono riportate in Allegato A alla presente relazione.

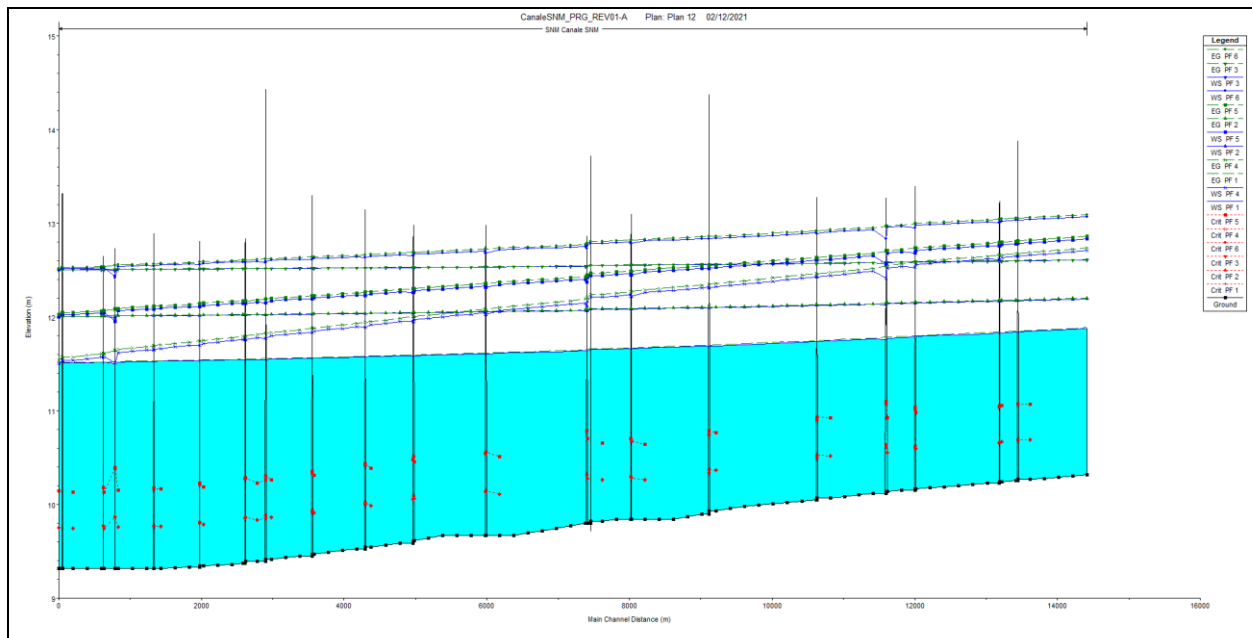


Figura 11: Profili idraulici Stato di Progetto

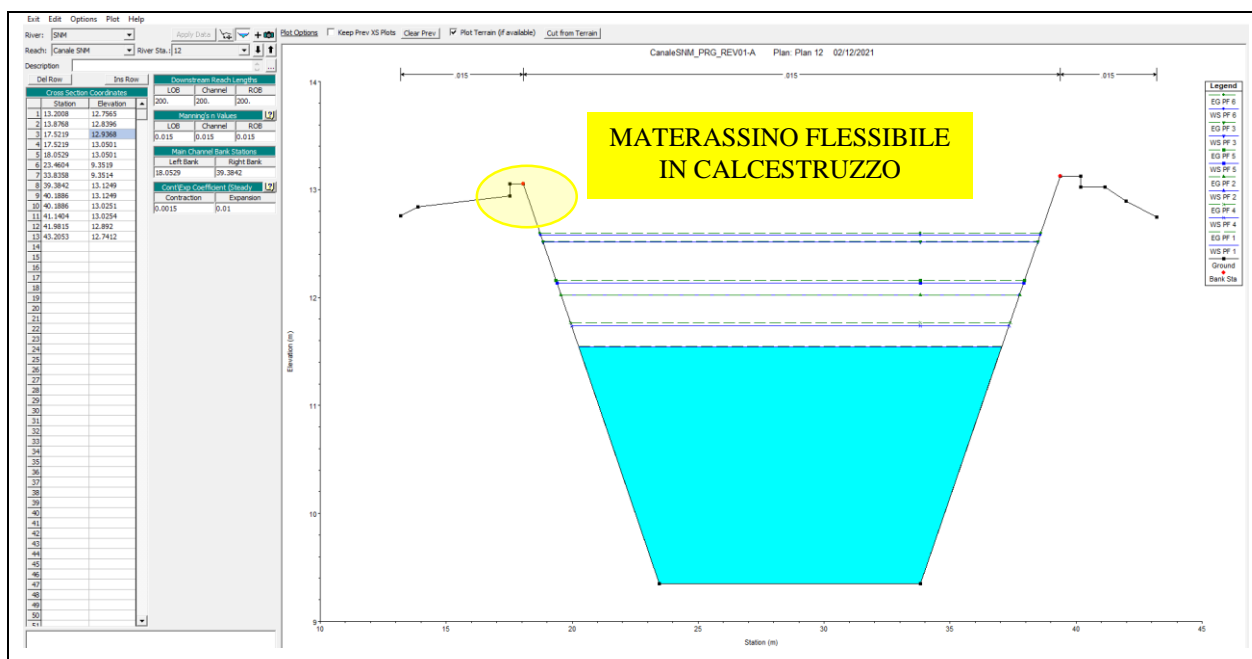


Figura 12: Sezione valle del canale con ipotesi progettuale 6

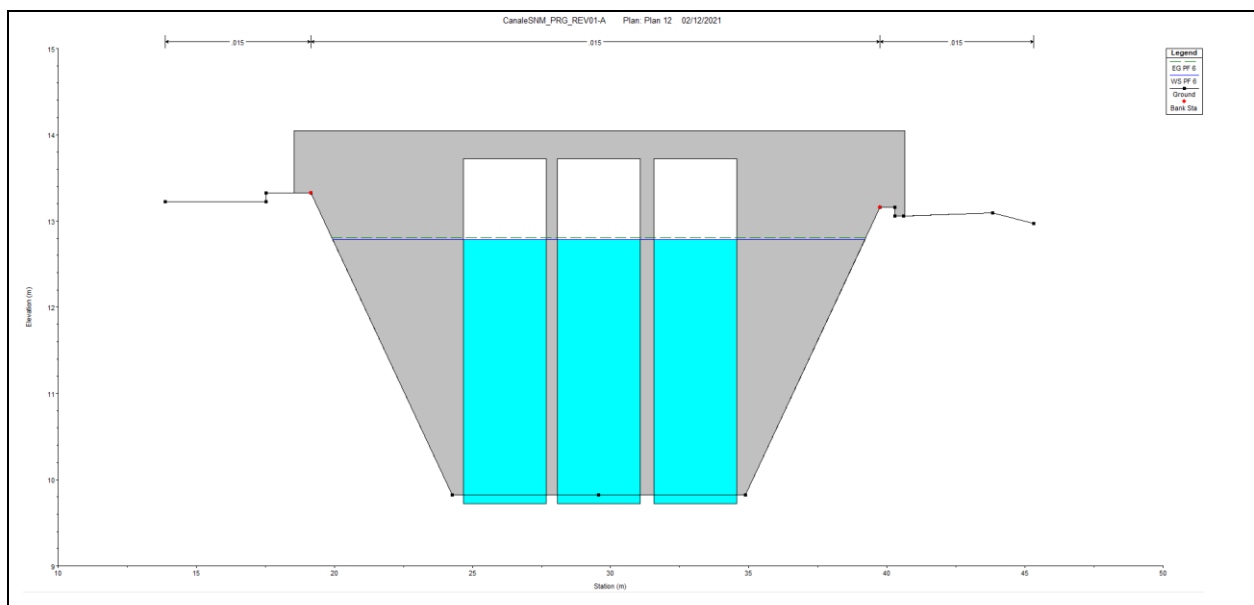


Figura 13: Sezione in corrispondenza della Chiusa Rostra

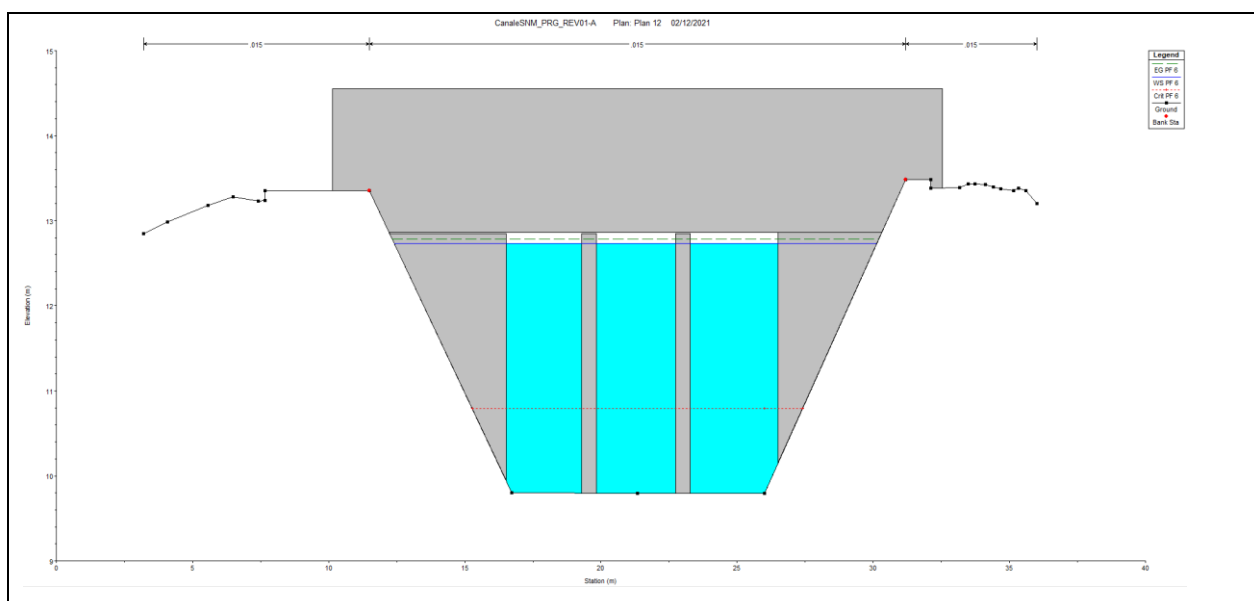


Figura 14: Ponte a valle della Chiusa Rostra

In tutte le ipotesi di progetto i livelli idraulici sono compatibili con la geometria delle sezioni trasversali e con l'altezza del rivestimento —► dal punto di vista idraulico gli obiettivi di progetto sono stati raggiunti, è consentito l'uso come scolmatore a piena portata fino ad un livello del Po di Volano misurato in corrispondenza della Chiusa Medelana non superiore a +12.50 m (+2.50 m.s.l.m.).

Si conferma anche compatibilità dei livelli di progetto per l'uso come opera di derivazione pari a:

I Tronco da San Nicolò a Chiusa Rostra **+12.80m**

II Tronco da Chiusa Rostra a Medelana **+11.90m**

7.4 Stato di progetto Primo Stralcio

Si è proceduto con la modellazione del canale in condizioni dello stato di progetto primo stralcio funzionale, ipotizzando dunque la presenza del nuovo rivestimento con materasso flessibile in calcestruzzo solo tra la sezione 25 e la sezione 73. Le rimanenti sezioni hanno rivestimento e geometria dello Stato di Fatto.

L'altezza del rivestimento attuale condiziona la massima capacità di invaso. La quota idraulica di progetto nell'Ipotesi 6 descritta al capitolo precedente risulta pari a + 13.07m e supererebbe la quota dell'attuale rivestimento pari a +12.94. E' necessario imporre delle limitazioni funzionali all'opera a fronte del completamento del primo stralcio fino a che non si provvederà all'esecuzione completa del progetto esecutivo.

Ipotesi di progetto con Limitazione funzionale primo stralcio:

Portata di progetto $Q=27$ mc/s

Livello idrico di Valle (rif. Po di Volano) $h_v=11.50$ m

Scabrezza sezioni rivestite (Gauckler-Strikler) $C=65$

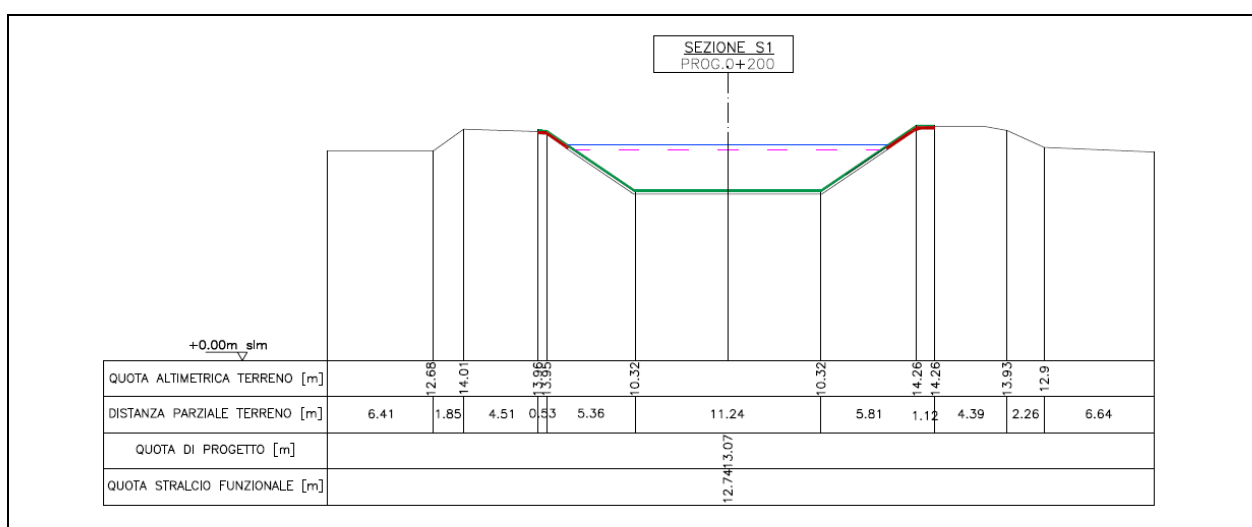


Figura 15: Limitazioni funzionali Primo Stralcio

Il livello del profilo di rigurgito in corrispondenza della sezione iniziale è pari a +12.74, compatibile con la geometria del rivestimento esistente sebbene con un franco molto modesto pari a 20cm ➔ **dal punto di vista idraulico gli obiettivi di progetto per il primo stralcio funzionale sono stati raggiunti imponendo la limitazione di utilizzo a scolmatore a piena portata solamente se il livello del Po di Volano misurato in corrispondenza della Chiusa Medelana è inferiore a +11.50 m (+1.50 m.s.l.m.).**

Per livelli maggiori è consentito solo l'uso irriguo; l'assenza del rivestimento di progetto fino alla sezione 25 comporta che la verifica della compatibilità idraulica dei livelli irrigui deve essere svolta nei confronti



del rivestimento esistente e pertanto viene imposta una limitazione d'uso nel I tronco, i livelli di progetto del primo stralcio sono i seguenti:

I Tronco da San Nicolò a Chiusa Rostra	+12.50m
II Tronco da Chiusa Rostra a Medelana	+11.90m

HEC-RAS HEC-RAS 6.1.0 September 2021
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```

X      X  XXXXXX   XXXX      XXXX      XX      XXXX
X      X  X        X      X      X      X  X      X
X      X  X        X        X      X      X      X
XXXXXXXX XXXX      X        XXX XXXX      XXXXXX      XXXX
X      X  X        X        X      X      X      X      X
X      X  X        X      X      X      X      X      X
X      X  XXXXXX   XXXX      X      X      X      X      XXXXX

```

PROJECT DATA

Project Title: CanaleSNM-B
Project File : CanaleSNM-B.prj
Run Date and Time: 01/12/2021 17:47:20

Project in SI units

PLAN DATA

Plan Title: Plan 13
Plan File : C:\Users\Tecnico1\Documents\CanaleSNM-B.p13

Geometry Title: CanelSNM-E
Geometry File : C:\Users\Tecnico1\Documents\CanaleSNM-B.g11

Flow Title : CanaleSNM-A
Flow File : C:\Users\Tecnico1\Documents\CanaleSNM-B.f02

Plan Summary Information:

Number of: Cross Sections	=	75	Multiple Openings	=	0
Culverts	=	0	Inline Structures	=	2
Bridges	=	18	Lateral Structures	=	0

Computational Information

Water surface calculation tolerance	=	0.003
Critical depth calculation tolerance	=	0.003
Maximum number of iterations	=	20
Maximum difference tolerance	=	0.1
Flow tolerance factor	=	0.001

Computation Options

Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only

Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: CanaleSNM-A
Flow File : C:\Users\Tecnico1\Documents\CanaleSNM-B.f02

Flow Data (m3/s)

River	Reach	RS	PF 1	PF 2
PF 3	PF 4	PF 5	PF 6	
SNM	Canale SNM	73	10	10
10	27	27	27	

Boundary Conditions

River	Reach	Profile	Upstream
Downstream			
SNM	Canale SNM	PF 1	
Known WS = 11.5			
SNM	Canale SNM	PF 2	
Known WS = 12			
SNM	Canale SNM	PF 3	
Known WS = 12.5			
SNM	Canale SNM	PF 4	
Known WS = 11.5			
SNM	Canale SNM	PF 5	
Known WS = 12			
SNM	Canale SNM	PF 6	
Known WS = 12.5			

Inline Structure Gate Openings

River = SNM

Reach = Canale SNM RS = 38.8

Gate = Gate #1

# Open	Open	Ht	# Open	Open	Ht	# Open	Open	Ht	# Open	Open	Ht	# Open	Open	Ht
4		3	4		3	4		3	4		3	4		3
4		3												

River = SNM

Reach = Canale SNM RS = 1.5

Gate = Gate #1

# Open	Open	Ht	# Open	Open	Ht	# Open	Open	Ht	# Open	Open	Ht	# Open	Open	Ht
4		3	4		3	4		3	4		3	4		3

GEOMETRY DATA

Geometry Title: CanelSNM-E

Geometry File : C:\Users\Tecnico1\Documents\CanaleSNM-B.g11

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 73

INPUT

Description: Opera n. 1

Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.2543	14.0079	13.2717	13.8478	17.1173	11.24	18.6237	10.2185	29.9223	10.2177
31.4311	11.24	35.2688	13.8401	35.8244	13.9597	36.3201	14.1563	39.8701	14.1652
41.2069	13.926								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.2543	.03	13.2717	.015	36.3201	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	13.2717	36.3201		200	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.78	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.77	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.10
E.G. Slope (m/m)	0.000037	Area (m2)		21.10
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.88	Top Width (m)		15.88
Vel Total (m/s)	0.47	Avg. Vel. (m/s)		0.47
Max Chl Dpth (m)	1.55	Hydr. Depth (m)		1.33
Conv. Total (m3/s)	1635.1	Conv. (m3/s)		1635.1

Length Wtd. (m)	200.00	Wetted Per. (m)		16.83
Min Ch El (m)	10.22	Shear (N/m2)		0.46
Alpha	1.00	Stream Power (N/m s)		0.22
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	88.96	372.11
69.47				
C & E Loss (m)	0.00	Cum SA (1000 m2)	96.15	228.40
76.23				

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.14	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.13	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		26.97
E.G. Slope (m/m)	0.000018	Area (m2)		26.97
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.94	Top Width (m)		16.94
Vel Total (m/s)	0.37	Avg. Vel. (m/s)		0.37
Max Chl Dpth (m)	1.91	Hydr. Depth (m)		1.59
Conv. Total (m3/s)	2344.7	Conv. (m3/s)		2344.7
Length Wtd. (m)	200.00	Wetted Per. (m)		18.11
Min Ch El (m)	10.22	Shear (N/m2)		0.27
Alpha	1.00	Stream Power (N/m s)		0.10
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	135.06	478.85
106.25				
C & E Loss (m)	0.00	Cum SA (1000 m2)	111.18	244.49
90.66				

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.65
E.G. Slope (m/m)	0.000009	Area (m2)		34.65
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.23	Top Width (m)		18.23
Vel Total (m/s)	0.29	Avg. Vel. (m/s)		0.29
Max Chl Dpth (m)	2.35	Hydr. Depth (m)		1.90
Conv. Total (m3/s)	3370.4	Conv. (m3/s)		3370.4
Length Wtd. (m)	200.00	Wetted Per. (m)		19.67
Min Ch El (m)	10.22	Shear (N/m2)		0.15
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	191.04	601.28
151.56				
C & E Loss (m)	0.00	Cum SA (1000 m2)	125.73	259.75
104.03				

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.48	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.45	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.49
E.G. Slope (m/m)	0.000077	Area (m2)		32.49
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.87	Top Width (m)		17.87
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83
Max Chl Dpth (m)	2.23	Hydr. Depth (m)		1.82
Conv. Total (m3/s)	3071.3	Conv. (m3/s)		3071.3

Length Wtd. (m)	200.00	Wetted Per. (m)		19.24
Min Ch El (m)	10.22	Shear (N/m2)		1.28
Alpha	1.00	Stream Power (N/m s)		1.06
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	125.96	463.18
101.38				
C & E Loss (m)	0.00	Cum SA (1000 m2)	108.69	242.34
88.89				

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.63	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.60	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.27
E.G. Slope (m/m)	0.000061	Area (m2)		35.27
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.32	Top Width (m)		18.32
Vel Total (m/s)	0.77	Avg. Vel. (m/s)		0.77
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.92
Conv. Total (m3/s)	3456.9	Conv. (m3/s)		3456.9
Length Wtd. (m)	200.00	Wetted Per. (m)		19.79
Min Ch El (m)	10.22	Shear (N/m2)		1.07
Alpha	1.00	Stream Power (N/m s)		0.82
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	159.98	537.60
128.00				
C & E Loss (m)	0.00	Cum SA (1000 m2)	118.88	252.85
97.60				

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.90	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.87	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	1.24	40.42
0.75				
E.G. Slope (m/m)	0.000041	Area (m2)	1.24	40.42
0.75				
Q Total (m3/s)	27.00	Flow (m3/s)	0.08	26.88
0.04				
Top Width (m)	31.81	Top Width (m)	6.67	19.14
6.00				
Vel Total (m/s)	0.64	Avg. Vel. (m/s)	0.07	0.67
0.05				
Max Chl Dpth (m)	2.66	Hydr. Depth (m)	0.19	2.11
0.12				
Conv. Total (m3/s)	4219.3	Conv. (m3/s)	13.2	4200.1
6.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.92	20.77
6.25				
Min Ch El (m)	10.22	Shear (N/m2)	0.07	0.78
0.05				
Alpha	1.09	Stream Power (N/m s)	0.00	0.52
0.00				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	208.45	640.23
167.11				
C & E Loss (m)	0.00	Cum SA (1000 m2)	130.70	259.60
109.13				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 72

INPUT

Description:

Station Elevation Data		num=		14					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.0247	14.0242	11.3461	14.0844	13.7461	14.1547	15.0912	14.0932	19.3475	11.21
20.8304	10.2055	31.9516	10.2048	33.8544	11.5484	36.9311	13.7208	37.8542	13.7796
38.3287	13.9015	38.6744	13.9761	42.2032	13.9966	44.4359	13.5221		

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
11.0247	.03	15.0912	.015	38.6744	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.

Expan.	15.0912	38.6744	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.77	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	11.76	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		20.83
0.04				
E.G. Slope (m/m)	0.000038	Area (m2)		20.83
0.04				
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
0.00				
Top Width (m)	16.28	Top Width (m)		15.63
0.65				
Vel Total (m/s)	0.48	Avg. Vel. (m/s)		0.48
0.03				
Max Chl Dpth (m)	1.56	Hydr. Depth (m)		1.33
0.06				
Conv. Total (m3/s)	1616.1	Conv. (m3/s)		1615.9
0.2				
Length Wtd. (m)	200.00	Wetted Per. (m)		16.60
0.70				
Min Ch El (m)	10.20	Shear (N/m2)		0.47
0.02				
Alpha	1.00	Stream Power (N/m s)		0.23
0.00				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	88.96	367.92
69.47				
C & E Loss (m)	0.00	Cum SA (1000 m2)	96.15	225.25
76.17				

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.13	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	12.12	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		26.68
0.61				
E.G. Slope (m/m)	0.000018	Area (m2)		26.68
0.61				

Q Total (m3/s)	10.00	Flow (m3/s)	9.97
0.03			
Top Width (m)	19.17	Top Width (m)	16.67
2.50			
Vel Total (m/s)	0.37	Avg. Vel. (m/s)	0.37
0.05			
Max Chl Dpth (m)	1.92	Hydr. Depth (m)	1.60
0.24			
Conv. Total (m3/s)	2330.5	Conv. (m3/s)	2322.9
7.6			
Length Wtd. (m)	200.00	Wetted Per. (m)	17.87
2.69			
Min Ch El (m)	10.20	Shear (N/m2)	0.27
0.04			
Alpha	1.04	Stream Power (N/m s)	0.10
0.00			
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	135.06
106.19			473.49
C & E Loss (m)	0.00	Cum SA (1000 m2)	111.18
90.40			241.13

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	3.00	34.28
2.57				
E.G. Slope (m/m)	0.000009	Area (m2)	3.00	34.28
2.57				
Q Total (m3/s)	10.00	Flow (m3/s)	0.14	9.74
0.12				
Top Width (m)	33.71	Top Width (m)	8.58	17.94
7.19				
Vel Total (m/s)	0.25	Avg. Vel. (m/s)	0.05	0.28
0.05				
Max Chl Dpth (m)	2.36	Hydr. Depth (m)	0.35	1.91
0.36				
Conv. Total (m3/s)	3427.9	Conv. (m3/s)	47.8	3338.7
41.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.04	19.42
7.64				
Min Ch El (m)	10.20	Shear (N/m2)	0.03	0.15
0.03				
Alpha	1.25	Stream Power (N/m s)	0.00	0.04
0.00				

Frctn Loss (m)	0.00	Cum Volume (1000 m3)	190.74	594.38
151.30				
C & E Loss (m)	0.00	Cum SA (1000 m2)	124.87	256.13
103.31				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.47	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.43	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	1.86	31.91
1.63				
E.G. Slope (m/m)	0.000078	Area (m2)	1.86	31.91
1.63				
Q Total (m3/s)	27.00	Flow (m3/s)	0.20	26.61
0.19				
Top Width (m)	32.19	Top Width (m)	8.36	17.56
6.27				
Vel Total (m/s)	0.76	Avg. Vel. (m/s)	0.11	0.83
0.12				
Max Chl Dpth (m)	2.23	Hydr. Depth (m)	0.22	1.82
0.26				
Conv. Total (m3/s)	3054.7	Conv. (m3/s)	22.3	3010.9
21.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.65	18.95
6.57				
Min Ch El (m)	10.20	Shear (N/m2)	0.16	1.29
0.19				
Alpha	1.18	Stream Power (N/m s)	0.02	1.08
0.02				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	125.77	456.74
101.21				
C & E Loss (m)	0.00	Cum SA (1000 m2)	107.85	238.80
88.26				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.62	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.59	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	3.20	34.72
2.74				
E.G. Slope (m/m)	0.000060	Area (m2)	3.20	34.72
2.74				
Q Total (m3/s)	27.00	Flow (m3/s)	0.41	26.24
0.35				
Top Width (m)	33.89	Top Width (m)	8.62	18.01
7.25				
Vel Total (m/s)	0.66	Avg. Vel. (m/s)	0.13	0.76
0.13				
Max Chl Dpth (m)	2.38	Hydr. Depth (m)	0.37	1.93
0.38				
Conv. Total (m3/s)	3499.1	Conv. (m3/s)	53.2	3400.1
45.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.12	19.50
7.73				
Min Ch El (m)	10.20	Shear (N/m2)	0.21	1.04
0.21				
Alpha	1.26	Stream Power (N/m s)	0.03	0.79
0.03				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	159.66	530.60
127.73				
C & E Loss (m)	0.00	Cum SA (1000 m2)	118.02	249.22
96.87				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.89	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.87	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.68	39.87
4.88				
E.G. Slope (m/m)	0.000038	Area (m2)	5.68	39.87
4.88				
Q Total (m3/s)	27.00	Flow (m3/s)	0.80	25.52
0.67				
Top Width (m)	35.93	Top Width (m)	9.09	18.82
8.01				

Vel Total (m/s)	0.54	Avg. Vel. (m/s)	0.14	0.64
0.14				
Max Chl Dpth (m)	2.66	Hydr. Depth (m)	0.62	2.12
0.61				
Conv. Total (m3/s)	4383.2	Conv. (m3/s)	130.4	4143.4
109.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.94	20.49
8.82				
Min Ch El (m)	10.20	Shear (N/m2)	0.21	0.72
0.21				
Alpha	1.35	Stream Power (N/m s)	0.03	0.46
0.03				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	207.76	632.20
166.55				
C & E Loss (m)	0.00	Cum SA (1000 m2)	129.12	255.81
107.72				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 71

INPUT

Description:

Station Elevation Data	num=	13									
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev											
9.0545 13.8827 10.3965 14.0515 10.864 14.0941 12.8476 13.9338 13.2729 13.7382											
16.9859 11.23 18.5216 10.1926 29.7052 10.1918 31.1846 11.23 34.7509 13.7327											
36.2672 14.059 39.7812 14.059 41.5387 13.8966											

Manning's n Values	num=	3			
Sta n Val Sta n Val Sta n Val					
9.0545 .03 12.8476 .015 34.7509 .03					

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
12.8476	34.7509	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.77	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.76	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)	1.51	21.05
1.66				
E.G. Slope (m/m)	0.000035	Area (m2)	1.51	21.05
1.66				
Q Total (m3/s)	10.00	Flow (m3/s)	0.12	9.74
0.14				
Top Width (m)	27.10	Top Width (m)	5.89	15.73
5.48				
Vel Total (m/s)	0.41	Avg. Vel. (m/s)	0.08	0.46
0.09				
Max Chl Dpth (m)	1.56	Hydr. Depth (m)	0.26	1.34
0.30				
Conv. Total (m3/s)	1681.2	Conv. (m3/s)	19.6	1637.4
24.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.24	16.70
5.74				
Min Ch El (m)	10.19	Shear (N/m2)	0.08	0.44
0.10				
Alpha	1.22	Stream Power (N/m s)	0.01	0.20
0.01				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	88.81	363.73
69.30				
C & E Loss (m)	0.00	Cum SA (1000 m2)	95.56	222.12
75.55				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.13	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.12	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	3.77	27.00
4.20				
E.G. Slope (m/m)	0.000016	Area (m2)	3.77	27.00
4.20				
Q Total (m3/s)	10.00	Flow (m3/s)	0.32	9.32
0.36				
Top Width (m)	30.78	Top Width (m)	6.44	16.79
7.55				
Vel Total (m/s)	0.29	Avg. Vel. (m/s)	0.09	0.35
0.08				
Max Chl Dpth (m)	1.93	Hydr. Depth (m)	0.59	1.61
0.56				
Conv. Total (m3/s)	2531.2	Conv. (m3/s)	81.3	2359.9
90.1				

Length Wtd. (m) 8.14	200.00	Wetted Per. (m)	7.26	17.99
Min Ch El (m) 0.08	10.19	Shear (N/m2)	0.08	0.23
Alpha 0.01	1.37	Stream Power (N/m s)	0.01	0.08
Frctn Loss (m) 105.70	0.00	Cum Volume (1000 m3)	134.68	468.12
C & E Loss (m) 89.40	0.00	Cum SA (1000 m2)	110.54	237.78

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m) Right OB	12.57	Element	Left OB	Channel
Vel Head (m) 0.030	0.00	Wt. n-Val.	0.030	0.015
W.S. Elev (m) 200.00	12.56	Reach Len. (m)	200.00	200.00
Crit W.S. (m) 7.71		Flow Area (m2)	6.76	34.69
E.G. Slope (m/m) 7.71	0.000007	Area (m2)	6.76	34.69
Q Total (m3/s) 0.59	10.00	Flow (m3/s)	0.51	8.91
Top Width (m) 8.37	33.54	Top Width (m)	7.09	18.07
Vel Total (m/s) 0.08	0.20	Avg. Vel. (m/s)	0.08	0.26
Max Chl Dpth (m) 0.92	2.37	Hydr. Depth (m)	0.95	1.92
Conv. Total (m3/s) 223.4	3806.4	Conv. (m3/s)	193.3	3389.7
Length Wtd. (m) 9.51	200.00	Wetted Per. (m)	8.49	19.55
Min Ch El (m) 0.05	10.19	Shear (N/m2)	0.05	0.12
Alpha 0.00	1.43	Stream Power (N/m s)	0.00	0.03
Frctn Loss (m) 150.27	0.00	Cum Volume (1000 m3)	189.77	587.48
C & E Loss (m) 101.75	0.00	Cum SA (1000 m2)	123.31	252.53

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.45	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.42	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.78	32.20
6.56				
E.G. Slope (m/m)	0.000064	Area (m2)	5.78	32.20
6.56				
Q Total (m3/s)	27.00	Flow (m3/s)	1.23	24.36
1.41				
Top Width (m)	32.67	Top Width (m)	6.89	17.67
8.11				
Vel Total (m/s)	0.61	Avg. Vel. (m/s)	0.21	0.76
0.21				
Max Chl Dpth (m)	2.23	Hydr. Depth (m)	0.84	1.82
0.81				
Conv. Total (m3/s)	3375.9	Conv. (m3/s)	153.9	3045.8
176.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.11	19.06
9.08				
Min Ch El (m)	10.19	Shear (N/m2)	0.45	1.06
0.45				
Alpha	1.42	Stream Power (N/m s)	0.10	0.80
0.10				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	125.01	450.33
100.39				
C & E Loss (m)	0.00	Cum SA (1000 m2)	106.33	235.28
86.82				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.90	35.07
7.88				

E.G. Slope (m/m)	0.000049	Area (m2)	6.90	35.07
7.88				
Q Total (m3/s)	27.00	Flow (m3/s)	1.39	24.00
1.61				
Top Width (m)	33.67	Top Width (m)	7.12	18.13
8.41				
Vel Total (m/s)	0.54	Avg. Vel. (m/s)	0.20	0.68
0.20				
Max Chl Dpth (m)	2.39	Hydr. Depth (m)	0.97	1.93
0.94				
Conv. Total (m3/s)	3873.2	Conv. (m3/s)	199.5	3442.8
230.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.55	19.62
9.58				
Min Ch El (m)	10.19	Shear (N/m2)	0.38	0.85
0.39				
Alpha	1.44	Stream Power (N/m s)	0.08	0.58
0.08				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	158.65	523.62
126.67				
C & E Loss (m)	0.00	Cum SA (1000 m2)	116.45	245.60
95.30				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.88	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.87	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.97	40.28
10.32				
E.G. Slope (m/m)	0.000031	Area (m2)	8.97	40.28
10.32				
Q Total (m3/s)	27.00	Flow (m3/s)	1.63	23.47
1.91				
Top Width (m)	35.43	Top Width (m)	7.54	18.95
8.94				
Vel Total (m/s)	0.45	Avg. Vel. (m/s)	0.18	0.58
0.18				
Max Chl Dpth (m)	2.67	Hydr. Depth (m)	1.19	2.13
1.16				
Conv. Total (m3/s)	4829.7	Conv. (m3/s)	290.9	4197.4
341.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.34	20.61
10.45				

Min Ch El (m)	10.19	Shear (N/m2)	0.29	0.60
0.30				
Alpha	1.46	Stream Power (N/m s)	0.05	0.35
0.06				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	206.29	624.18
165.03				
C & E Loss (m)	0.00	Cum SA (1000 m2)	127.46	252.03
106.03				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 70

INPUT										
Description:										
Station Elevation Data				num=	13					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
12.0727	13.7347	13.029	13.8531	16.4864	13.7903	17.1381	13.5325	20.6583	11.19	
22.1767	10.1796	33.5871	10.1789	35.0379	11.19	38.8129	13.8211	40.3373	14.052	
43.5317	14.0614	44.8566	13.854	46.339	13.819					
Manning's n Values				num=	3					
Sta	n Val	Sta	n Val	Sta	n Val					
12.0727	.03	16.4864	.015	38.8129	.03					

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	16.4864	38.8129		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.76	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.75	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	1.49	21.54
0.60				
E.G. Slope (m/m)	0.000035	Area (m2)	1.49	21.54
0.60				
Q Total (m3/s)	10.00	Flow (m3/s)	0.09	9.88
0.03				
Top Width (m)	29.96	Top Width (m)	8.84	16.02
5.09				

Vel Total (m/s)	0.42	Avg. Vel. (m/s)	0.06	0.46
0.05				
Max Chl Dpth (m)	1.57	Hydr. Depth (m)	0.17	1.34
0.12				
Conv. Total (m3/s)	1701.7	Conv. (m3/s)	15.1	1682.0
4.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.98	16.99
5.17				
Min Ch El (m)	10.18	Shear (N/m2)	0.06	0.43
0.04				
Alpha	1.16	Stream Power (N/m s)	0.00	0.20
0.00				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	88.51	359.47
69.08				
C & E Loss (m)	0.00	Cum SA (1000 m2)	94.08	218.94
74.50				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.13	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.12	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	4.88	27.67
3.25				
E.G. Slope (m/m)	0.000015	Area (m2)	4.88	27.67
3.25				
Q Total (m3/s)	10.00	Flow (m3/s)	0.39	9.39
0.23				
Top Width (m)	34.23	Top Width (m)	9.45	17.11
7.67				
Vel Total (m/s)	0.28	Avg. Vel. (m/s)	0.08	0.34
0.07				
Max Chl Dpth (m)	1.94	Hydr. Depth (m)	0.52	1.62
0.42				
Conv. Total (m3/s)	2589.3	Conv. (m3/s)	100.5	2430.0
58.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.05	18.31
8.15				
Min Ch El (m)	10.18	Shear (N/m2)	0.07	0.22
0.06				
Alpha	1.39	Stream Power (N/m s)	0.01	0.07
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	133.82	462.65
104.96				

C & E Loss (m)	0.00	Cum SA (1000 m2)	108.95	234.39
87.88				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	9.22	35.53
6.82				
E.G. Slope (m/m)	0.000006	Area (m2)	9.22	35.53
6.82				
Q Total (m3/s)	10.00	Flow (m3/s)	0.68	8.86
0.46				
Top Width (m)	37.04	Top Width (m)	10.17	18.41
8.47				
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.07	0.25
0.07				
Max Chl Dpth (m)	2.38	Hydr. Depth (m)	0.91	1.93
0.81				
Conv. Total (m3/s)	3939.2	Conv. (m3/s)	267.7	3489.1
182.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.34	19.88
9.51				
Min Ch El (m)	10.18	Shear (N/m2)	0.05	0.11
0.05				
Alpha	1.48	Stream Power (N/m s)	0.00	0.03
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	188.17	580.46
148.82				
C & E Loss (m)	0.00	Cum SA (1000 m2)	121.58	248.88
100.07				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.44	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.41	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	7.72	32.82
5.58				
E.G. Slope (m/m)	0.000061	Area (m2)	7.72	32.82
5.58				
Q Total (m3/s)	27.00	Flow (m3/s)	1.60	24.35
1.05				
Top Width (m)	36.09	Top Width (m)	9.92	17.97
8.20				
Vel Total (m/s)	0.59	Avg. Vel. (m/s)	0.21	0.74
0.19				
Max Chl Dpth (m)	2.23	Hydr. Depth (m)	0.78	1.83
0.68				
Conv. Total (m3/s)	3450.2	Conv. (m3/s)	204.3	3111.2
134.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.91	19.35
9.05				
Min Ch El (m)	10.18	Shear (N/m2)	0.42	1.02
0.37				
Alpha	1.46	Stream Power (N/m s)	0.09	0.76
0.07				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	123.66	443.83
99.18				
C & E Loss (m)	0.00	Cum SA (1000 m2)	104.64	231.71
85.19				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	9.36	35.79
6.94				
E.G. Slope (m/m)	0.000046	Area (m2)	9.36	35.79
6.94				
Q Total (m3/s)	27.00	Flow (m3/s)	1.85	23.88
1.27				
Top Width (m)	37.13	Top Width (m)	10.19	18.45
8.49				
Vel Total (m/s)	0.52	Avg. Vel. (m/s)	0.20	0.67
0.18				

Max Chl Dpth (m)	2.40	Hydr. Depth (m)	0.92	1.94
0.82				
Conv. Total (m3/s)	3985.6	Conv. (m3/s)	273.8	3524.8
187.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.38	19.93
9.55				
Min Ch El (m)	10.18	Shear (N/m2)	0.37	0.81
0.33				
Alpha	1.48	Stream Power (N/m s)	0.07	0.54
0.06				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	157.02	516.54
125.18				
C & E Loss (m)	0.00	Cum SA (1000 m2)	114.71	241.94
93.61				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.87	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.86	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	12.32	41.16
9.43				
E.G. Slope (m/m)	0.000029	Area (m2)	12.32	41.16
9.43				
Q Total (m3/s)	27.00	Flow (m3/s)	2.23	23.19
1.58				
Top Width (m)	38.94	Top Width (m)	10.65	19.29
9.00				
Vel Total (m/s)	0.43	Avg. Vel. (m/s)	0.18	0.56
0.17				
Max Chl Dpth (m)	2.68	Hydr. Depth (m)	1.16	2.13
1.05				
Conv. Total (m3/s)	5012.9	Conv. (m3/s)	413.4	4305.3
294.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.21	20.94
10.42				
Min Ch El (m)	10.18	Shear (N/m2)	0.29	0.56
0.26				
Alpha	1.50	Stream Power (N/m s)	0.05	0.32
0.04				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	204.16	616.04
163.06				
C & E Loss (m)	0.00	Cum SA (1000 m2)	125.64	248.21
104.24				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 69

INPUT

Description:

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.7781	13.8282	8.8099	13.9313	10.3625	13.9725	12.3006	13.9164	12.7634	13.8271
16.5926	11.24	18.1813	10.1667	29.5347	10.1659	31.0413	11.24	34.0225	13.3653
34.3427	13.4318	36.5016	13.629	39.5623	13.539	40.3634	13.3221		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.7781	.03	12.7634	.015	34.0225	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							

12.7634	34.0225	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.75	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.74	Reach Len. (m)	168.76	168.76
168.76				
Crit W.S. (m)	10.59	Flow Area (m2)	0.21	21.47
0.33				
E.G. Slope (m/m)	0.000035	Area (m2)	0.21	21.47
0.33				
Q Total (m3/s)	10.00	Flow (m3/s)	0.01	9.98
0.02				
Top Width (m)	23.82	Top Width (m)	4.97	15.90
2.95				
Vel Total (m/s)	0.45	Avg. Vel. (m/s)	0.02	0.46
0.05				
Max Chl Dpth (m)	1.58	Hydr. Depth (m)	0.04	1.35
0.11				
Conv. Total (m3/s)	1683.6	Conv. (m3/s)	0.9	1680.2
2.5				
Length Wtd. (m)	168.76	Wetted Per. (m)	5.13	16.88
3.06				

Min Ch El (m)	10.17	Shear (N/m2)	0.01	0.44
0.04				
Alpha	1.05	Stream Power (N/m s)	0.00	0.20
0.00				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	88.34	355.17
68.98				
C & E Loss (m)	0.00	Cum SA (1000 m2)	92.70	215.75
73.69				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.12	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.12	Reach Len. (m)	168.76	168.76
168.76				
Crit W.S. (m)	10.59	Flow Area (m2)	2.16	27.62
1.54				
E.G. Slope (m/m)	0.000016	Area (m2)	2.16	27.62
1.54				
Q Total (m3/s)	10.00	Flow (m3/s)	0.14	9.75
0.11				
Top Width (m)	25.95	Top Width (m)	5.47	16.97
3.50				
Vel Total (m/s)	0.32	Avg. Vel. (m/s)	0.07	0.35
0.07				
Max Chl Dpth (m)	1.95	Hydr. Depth (m)	0.40	1.63
0.44				
Conv. Total (m3/s)	2494.2	Conv. (m3/s)	36.0	2431.5
26.7				
Length Wtd. (m)	168.76	Wetted Per. (m)	6.13	18.19
4.10				
Min Ch El (m)	10.17	Shear (N/m2)	0.06	0.24
0.06				
Alpha	1.19	Stream Power (N/m s)	0.00	0.08
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	133.11	457.12
104.48				
C & E Loss (m)	0.00	Cum SA (1000 m2)	107.46	230.98
86.76				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.56	Reach Len. (m)	168.76	168.76
168.76				
Crit W.S. (m)	10.59	Flow Area (m2)	4.73	35.44
3.24				
E.G. Slope (m/m)	0.000007	Area (m2)	4.73	35.44
3.24				
Q Total (m3/s)	10.00	Flow (m3/s)	0.32	9.47
0.21				
Top Width (m)	28.48	Top Width (m)	6.07	18.26
4.15				
Vel Total (m/s)	0.23	Avg. Vel. (m/s)	0.07	0.27
0.06				
Max Chl Dpth (m)	2.39	Hydr. Depth (m)	0.78	1.94
0.78				
Conv. Total (m3/s)	3684.2	Conv. (m3/s)	117.7	3488.9
77.5				
Length Wtd. (m)	168.76	Wetted Per. (m)	7.32	19.75
5.33				
Min Ch El (m)	10.17	Shear (N/m2)	0.05	0.13
0.04				
Alpha	1.28	Stream Power (N/m s)	0.00	0.03
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	186.78	573.36
147.81				
C & E Loss (m)	0.00	Cum SA (1000 m2)	119.96	245.21
98.81				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.43	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.39	Reach Len. (m)	168.76	168.76
168.76				
Crit W.S. (m)	10.97	Flow Area (m2)	3.74	32.45
2.57				
E.G. Slope (m/m)	0.000071	Area (m2)	3.74	32.45
2.57				

Q Total (m3/s)	27.00	Flow (m3/s)	0.70	25.83
0.47				
Top Width (m)	27.53	Top Width (m)	5.84	17.78
3.91				
Vel Total (m/s)	0.70	Avg. Vel. (m/s)	0.19	0.80
0.18				
Max Chl Dpth (m)	2.23	Hydr. Depth (m)	0.64	1.83
0.66				
Conv. Total (m3/s)	3211.7	Conv. (m3/s)	83.0	3072.7
56.0				
Length Wtd. (m)	168.76	Wetted Per. (m)	6.88	19.17
4.87				
Min Ch El (m)	10.17	Shear (N/m2)	0.38	1.17
0.37				
Alpha	1.25	Stream Power (N/m s)	0.07	0.93
0.07				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	122.51	437.30
98.37				
C & E Loss (m)	0.00	Cum SA (1000 m2)	103.07	228.14
83.98				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.56	Reach Len. (m)	168.76	168.76
168.76				
Crit W.S. (m)	10.97	Flow Area (m2)	4.73	35.46
3.24				
E.G. Slope (m/m)	0.000054	Area (m2)	4.73	35.46
3.24				
Q Total (m3/s)	27.00	Flow (m3/s)	0.86	25.57
0.57				
Top Width (m)	28.48	Top Width (m)	6.07	18.26
4.15				
Vel Total (m/s)	0.62	Avg. Vel. (m/s)	0.18	0.72
0.18				
Max Chl Dpth (m)	2.40	Hydr. Depth (m)	0.78	1.94
0.78				
Conv. Total (m3/s)	3686.9	Conv. (m3/s)	117.9	3491.3
77.6				
Length Wtd. (m)	168.76	Wetted Per. (m)	7.33	19.76
5.33				
Min Ch El (m)	10.17	Shear (N/m2)	0.34	0.94
0.32				

Alpha 0.06	1.28	Stream Power (N/m s)	0.06	0.68
Frctn Loss (m) 124.16	0.01	Cum Volume (1000 m3)	155.61	509.41
C & E Loss (m) 92.35	0.00	Cum SA (1000 m2)	113.09	238.27

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m) Right OB	12.87	Element	Left OB	Channel
Vel Head (m) 0.030	0.02	Wt. n-Val.	0.030	0.015
W.S. Elev (m) 168.76	12.85	Reach Len. (m)	168.76	168.76
Crit W.S. (m) 4.51	10.97	Flow Area (m2)	6.54	40.86
E.G. Slope (m/m) 4.51	0.000035	Area (m2)	6.54	40.86
Q Total (m3/s) 0.72	27.00	Flow (m3/s)	1.11	25.17
Top Width (m) 4.58	30.13	Top Width (m)	6.46	19.09
Vel Total (m/s) 0.16	0.52	Avg. Vel. (m/s)	0.17	0.62
Max Chl Dpth (m) 0.98	2.68	Hydr. Depth (m)	1.01	2.14
Conv. Total (m3/s) 122.3	4587.6	Conv. (m3/s)	189.3	4276.1
Length Wtd. (m) 6.14	168.76	Wetted Per. (m)	8.10	20.77
Min Ch El (m) 0.25	10.17	Shear (N/m2)	0.27	0.67
Alpha 0.04	1.31	Stream Power (N/m s)	0.05	0.41
Frctn Loss (m) 161.66	0.01	Cum Volume (1000 m3)	202.27	607.84
C & E Loss (m) 102.88	0.00	Cum SA (1000 m2)	123.93	244.37

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 68.5

INPUT

Description:

Distance from Upstream XS = 168.76

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
7.43 15.08 13.83 36.58 15.08 13.83

Upstream Bridge Cross Section Data

Station Elevation Data num= 14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
7.7781 13.8282 8.8099 13.9313 10.3625 13.9725 12.3006 13.9164 12.7634 13.8271
16.5926 11.24 18.1813 10.1667 29.5347 10.1659 31.0413 11.24 34.0225 13.3653
34.3427 13.4318 36.5016 13.629 39.5623 13.539 40.3634 13.3221

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
7.7781 .03 12.7634 .015 34.0225 .03

Bank Sta: Left Right Coeff Contr. Expan.
12.7634 34.0225 .0015 .01

Downstream Deck/Roadway Coordinates

num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
2.629 15.08 13.74 31.78 15.08 13.74

Downstream Bridge Cross Section Data

Station Elevation Data num= 11
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
3.3828 13.5619 7.7999 13.5619 8.5361 13.4477 11.8881 11.23 13.5149 10.1537
24.5684 10.153 26.1331 11.23 29.8837 13.8115 30.4051 13.9273 32.0475 13.9621
34.6509 13.8786

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
3.3828 .03 8.5361 .015 29.8837 .03

Bank Sta: Left Right Coeff Contr. Expan.
8.5361 29.8837 .0015 .01

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
Downstream Embankment side slope = 2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =

Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2		
Sta	Elev	Sta	Elev	
7.43	13.83	15.39	13.83	
Downstream	num=	2		
Sta	Elev	Sta	Elev	
2.63	13.8	10.59	13.8	

Abutment Data

Upstream	num=	2		
Sta	Elev	Sta	Elev	
32.39	13.83	36.58	13.83	
Downstream	num=	2		
Sta	Elev	Sta	Elev	
27.59	13.8	31.78	13.8	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.75	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.74	E.G. Elev (m)	11.75
11.75			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.74
11.74			
Q Bridge (m3/s)	9.98	Crit W.S. (m)	10.59
10.58			
Q Weir (m3/s)		Max Chl Dpth (m)	1.57
1.58			
Weir Sta Lft (m)		Vel Total (m/s)	0.46
0.47			
Weir Sta Rgt (m)		Flow Area (m2)	21.87
21.25			
Weir Submerg		Froude # Chl	0.13

0.13			
Weir Max Depth (m)		Specif Force (m3)	16.36
16.28			
Min El Weir Flow (m)	11.70	Hydr Depth (m)	0.92
1.18			
Min El Prs (m)	13.83	W.P. Total (m)	25.02
19.06			
Delta EG (m)	0.01	Conv. Total (m3/s)	1672.0
1656.5			
Delta WS (m)	0.01	Top Width (m)	23.78
18.05			
BR Open Area (m2)	55.00	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.47	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.31
0.40			
BR Sel Method	Energy only	Power Total (N/m s)	0.14
0.19			

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.12	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.12	E.G. Elev (m)	12.12
12.12			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.11
12.11			
Q Bridge (m3/s)	9.75	Crit W.S. (m)	10.59
10.58			
Q Weir (m3/s)		Max Chl Dpth (m)	1.95
1.96			
Weir Sta Lft (m)		Vel Total (m/s)	0.32
0.34			
Weir Sta Rgt (m)		Flow Area (m2)	31.25
29.25			
Weir Submerg		Froude # Chl	0.09
0.09			
Weir Max Depth (m)		Specif Force (m3)	26.23
25.65			
Min El Weir Flow (m)	11.70	Hydr Depth (m)	1.21
1.31			
Min El Prs (m)	13.83	W.P. Total (m)	28.35
23.97			
Delta EG (m)	0.00	Conv. Total (m3/s)	2491.5
2435.9			
Delta WS (m)	0.00	Top Width (m)	25.84
22.26			
BR Open Area (m2)	55.00	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.36	C & E Loss (m)	0.00

0.00			
BR Sluice Coef		Shear Total (N/m2)	0.17
0.20			
BR Sel Method	Energy only	Power Total (N/m s)	0.06
0.07			

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.56	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.56	E.G. Elev (m)	12.56
12.56			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.56
12.56			
Q Bridge (m3/s)	9.48	Crit W.S. (m)	10.59
10.58			
Q Weir (m3/s)		Max Chl Dpth (m)	2.39
2.41			
Weir Sta Lft (m)		Vel Total (m/s)	0.23
0.25			
Weir Sta Rgt (m)		Flow Area (m2)	43.10
39.52			
Weir Submerg		Froude # Chl	0.06
0.06			
Weir Max Depth (m)		Specif Force (m3)	42.69
40.87			
Min El Weir Flow (m)	11.70	Hydr Depth (m)	1.58
1.65			
Min El Prs (m)	13.83	W.P. Total (m)	31.74
27.34			
Delta EG (m)	0.00	Conv. Total (m3/s)	3713.0
3599.5			
Delta WS (m)	0.00	Top Width (m)	27.22
23.98			
BR Open Area (m2)	55.00	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.27	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.10
0.11			
BR Sel Method	Energy only	Power Total (N/m s)	0.02
0.03			

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.43	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.39	E.G. Elev (m)	12.41

12.41			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.38
12.38			
Q Bridge (m3/s)	25.86	Crit W.S. (m)	10.97
10.97			
Q Weir (m3/s)		Max Chl Dpth (m)	2.22
2.23			
Weir Sta Lft (m)		Vel Total (m/s)	0.70
0.77			
Weir Sta Rgt (m)		Flow Area (m2)	38.31
35.29			
Weir Submerg		Froude # Chl	0.19
0.19			
Weir Max Depth (m)		Specif Force (m3)	37.35
36.11			
Min El Weir Flow (m)	11.70	Hydr Depth (m)	1.43
1.53			
Min El Prs (m)	13.83	W.P. Total (m)	30.42
25.69			
Delta EG (m)	0.01	Conv. Total (m3/s)	3202.5
3106.0			
Delta WS (m)	0.02	Top Width (m)	26.72
23.13			
BR Open Area (m2)	55.00	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.81	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.88
1.02			
BR Sel Method	Energy only	Power Total (N/m s)	0.62
0.78			

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.59	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.56	E.G. Elev (m)	12.58
12.58			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.55
12.55			
Q Bridge (m3/s)	25.59	Crit W.S. (m)	10.97
10.97			
Q Weir (m3/s)		Max Chl Dpth (m)	2.39
2.40			
Weir Sta Lft (m)		Vel Total (m/s)	0.63
0.69			
Weir Sta Rgt (m)		Flow Area (m2)	42.89
39.29			
Weir Submerg		Froude # Chl	0.16
0.17			
Weir Max Depth (m)		Specif Force (m3)	44.03

42.24			
Min El Weir Flow (m)	11.70	Hydr Depth (m)	1.58
1.64			
Min El Prs (m)	13.83	W.P. Total (m)	31.68
27.25			
Delta EG (m)	0.01	Conv. Total (m3/s)	3690.8
3572.2			
Delta WS (m)	0.01	Top Width (m)	27.20
23.94			
BR Open Area (m2)	55.00	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.74	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.71
0.81			
BR Sel Method	Energy only	Power Total (N/m s)	0.45
0.56			

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.87	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.85	E.G. Elev (m)	12.86
12.86			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.84
12.84			
Q Bridge (m3/s)	25.18	Crit W.S. (m)	10.97
10.97			
Q Weir (m3/s)		Max Chl Dpth (m)	2.68
2.69			
Weir Sta Lft (m)		Vel Total (m/s)	0.53
0.58			
Weir Sta Rgt (m)		Flow Area (m2)	50.96
46.50			
Weir Submerg		Froude # Chl	0.13
0.14			
Weir Max Depth (m)		Specif Force (m3)	57.45
54.49			
Min El Weir Flow (m)	11.70	Hydr Depth (m)	1.82
1.84			
Min El Prs (m)	13.83	W.P. Total (m)	33.86
29.92			
Delta EG (m)	0.01	Conv. Total (m3/s)	4586.1
4426.9			
Delta WS (m)	0.01	Top Width (m)	28.02
25.32			
BR Open Area (m2)	55.00	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.63	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.51

0.57			
BR Sel Method	Energy only	Power Total (N/m s)	0.27
0.33			

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 68

INPUT
 Description:
 Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3.3828	13.5619	7.7999	13.5619	8.5361	13.4477	11.8881	11.23	13.5149	10.1537
24.5684	10.153	26.1331	11.23	29.8837	13.8115	30.4051	13.9273	32.0475	13.9621
34.6509	13.8786								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3.3828	.03	8.5361	.015	29.8837	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan.

8.5361	29.8837	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.75	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	11.73	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.19
0.05				
E.G. Slope (m/m)	0.000037	Area (m2)		21.19
0.05				
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
0.00				
Top Width (m)	17.99	Top Width (m)		15.74
2.25				
Vel Total (m/s)	0.47	Avg. Vel. (m/s)		0.47
0.01				
Max Chl Dpth (m)	1.58	Hydr. Depth (m)		1.35
0.02				
Conv. Total (m3/s)	1654.7	Conv. (m3/s)		1654.6
0.1				
Length Wtd. (m)	200.00	Wetted Per. (m)		16.71
2.29				
Min Ch El (m)	10.15	Shear (N/m2)		0.45

0.01				
Alpha	1.00	Stream Power (N/m s)		0.21
0.00				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	88.31	350.90
68.93				
C & E Loss (m)	0.00	Cum SA (1000 m2)	91.85	212.58
73.12				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.12	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	12.11	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		27.34
1.90				
E.G. Slope (m/m)	0.000017	Area (m2)		27.34
1.90				
Q Total (m3/s)	10.00	Flow (m3/s)		9.88
0.12				
Top Width (m)	22.30	Top Width (m)		16.86
5.43				
Vel Total (m/s)	0.34	Avg. Vel. (m/s)		0.36
0.06				
Max Chl Dpth (m)	1.96	Hydr. Depth (m)		1.62
0.35				
Conv. Total (m3/s)	2433.3	Conv. (m3/s)		2403.6
29.7				
Length Wtd. (m)	200.00	Wetted Per. (m)		18.06
5.93				
Min Ch El (m)	10.15	Shear (N/m2)		0.25
0.05				
Alpha	1.10	Stream Power (N/m s)		0.09
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	132.74	451.61
104.16				
C & E Loss (m)	0.00	Cum SA (1000 m2)	106.52	227.60
86.01				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	0.08	35.16
4.52				
E.G. Slope (m/m)	0.000008	Area (m2)	0.08	35.16
4.52				
Q Total (m3/s)	10.00	Flow (m3/s)	0.00	9.69
0.31				
Top Width (m)	25.16	Top Width (m)	0.65	18.18
6.33				
Vel Total (m/s)	0.25	Avg. Vel. (m/s)	0.02	0.28
0.07				
Max Chl Dpth (m)	2.41	Hydr. Depth (m)	0.12	1.93
0.72				
Conv. Total (m3/s)	3563.9	Conv. (m3/s)	0.5	3454.5
108.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	0.93	19.66
7.38				
Min Ch El (m)	10.15	Shear (N/m2)	0.01	0.14
0.05				
Alpha	1.17	Stream Power (N/m s)	0.00	0.04
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	185.96	566.31
147.13				
C & E Loss (m)	0.00	Cum SA (1000 m2)	118.90	241.69
97.92				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.41	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.38	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	0.00	31.91
3.41				
E.G. Slope (m/m)	0.000077	Area (m2)	0.00	31.91
3.41				
Q Total (m3/s)	27.00	Flow (m3/s)	0.00	26.37

0.63				
Top Width (m)	23.77	Top Width (m)	0.16	17.64
5.96				
Vel Total (m/s)	0.76	Avg. Vel. (m/s)	0.02	0.83
0.18				
Max Chl Dpth (m)	2.22	Hydr. Depth (m)	0.03	1.81
0.57				
Conv. Total (m3/s)	3076.5	Conv. (m3/s)	0.0	3004.7
71.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	0.23	19.01
6.79				
Min Ch El (m)	10.15	Shear (N/m2)	0.02	1.27
0.38				
Alpha	1.14	Stream Power (N/m s)	0.00	1.05
0.07				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	121.88	430.86
97.83				
C & E Loss (m)	0.00	Cum SA (1000 m2)	102.06	224.66
83.14				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	0.07	34.97
4.46				
E.G. Slope (m/m)	0.000058	Area (m2)	0.07	34.97
4.46				
Q Total (m3/s)	27.00	Flow (m3/s)	0.00	26.18
0.81				
Top Width (m)	25.08	Top Width (m)	0.62	18.15
6.31				
Vel Total (m/s)	0.68	Avg. Vel. (m/s)	0.05	0.75
0.18				
Max Chl Dpth (m)	2.40	Hydr. Depth (m)	0.11	1.93
0.71				
Conv. Total (m3/s)	3534.0	Conv. (m3/s)	0.4	3427.1
106.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	0.89	19.62
7.34				
Min Ch El (m)	10.15	Shear (N/m2)	0.05	1.02
0.35				
Alpha	1.17	Stream Power (N/m s)	0.00	0.76

0.06				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	154.80	502.38
123.48				
C & E Loss (m)	0.00	Cum SA (1000 m2)	112.03	234.75
91.46				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.86	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.84	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	0.37	40.42
6.39				
E.G. Slope (m/m)	0.000038	Area (m2)	0.37	40.42
6.39				
Q Total (m3/s)	27.00	Flow (m3/s)	0.02	25.88
1.10				
Top Width (m)	27.34	Top Width (m)	1.42	19.02
6.89				
Vel Total (m/s)	0.57	Avg. Vel. (m/s)	0.07	0.64
0.17				
Max Chl Dpth (m)	2.69	Hydr. Depth (m)	0.26	2.13
0.93				
Conv. Total (m3/s)	4397.9	Conv. (m3/s)	4.0	4214.7
179.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	2.04	20.67
8.29				
Min Ch El (m)	10.15	Shear (N/m2)	0.07	0.72
0.28				
Alpha	1.20	Stream Power (N/m s)	0.00	0.46
0.05				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	201.15	599.77
160.71				
C & E Loss (m)	0.00	Cum SA (1000 m2)	122.78	240.76
101.90				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 67

INPUT

Description:

Station Elevation Data	num=	15
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
7.0987 13.4793 7.6054 13.6348 11.7226 13.6444 12.1722 13.5978 12.5625 13.4813		
12.9207 13.2047 13.3597 12.7817 15.5862 11.25 17.1987 10.1407 28.2523 10.14		
29.8593 11.25 32.8331 13.304 33.7181 13.4376 35.7586 13.4683 37.894 13.2374		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
7.0987 .03 12.5625 .015 32.8331 .03		

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr.
Expan.		
12.5625 32.8331	200 200 200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.74	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.73	Reach Len. (m)	25.22	25.22
25.22				
Crit W.S. (m)	10.57	Flow Area (m2)	1.28	21.22
2.56				
E.G. Slope (m/m)	0.000033	Area (m2)	1.28	21.22
2.56				
Q Total (m3/s)	10.00	Flow (m3/s)	0.11	9.62
0.27				
Top Width (m)	25.44	Top Width (m)	4.14	15.66
5.64				
Vel Total (m/s)	0.40	Avg. Vel. (m/s)	0.08	0.45
0.11				
Max Chl Dpth (m)	1.59	Hydr. Depth (m)	0.31	1.35
0.45				
Conv. Total (m3/s)	1728.3	Conv. (m3/s)	18.4	1662.8
47.1				
Length Wtd. (m)	25.22	Wetted Per. (m)	4.53	16.65
6.26				
Min Ch El (m)	10.14	Shear (N/m2)	0.09	0.42
0.13				
Alpha	1.24	Stream Power (N/m s)	0.01	0.19
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	88.18	346.65
68.66				
C & E Loss (m)	0.00	Cum SA (1000 m2)	91.44	209.44
72.33				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.12	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.11	Reach Len. (m)	25.22	25.22
25.22				
Crit W.S. (m)	10.57	Flow Area (m2)	2.98	27.41
4.86				
E.G. Slope (m/m)	0.000015	Area (m2)	2.98	27.41
4.86				
Q Total (m3/s)	10.00	Flow (m3/s)	0.25	9.29
0.47				
Top Width (m)	27.94	Top Width (m)	4.78	16.77
6.39				
Vel Total (m/s)	0.28	Avg. Vel. (m/s)	0.08	0.34
0.10				
Max Chl Dpth (m)	1.97	Hydr. Depth (m)	0.62	1.63
0.76				
Conv. Total (m3/s)	2604.6	Conv. (m3/s)	64.8	2418.5
121.3				
Length Wtd. (m)	25.22	Wetted Per. (m)	5.66	18.00
7.48				
Min Ch El (m)	10.14	Shear (N/m2)	0.08	0.22
0.09				
Alpha	1.33	Stream Power (N/m s)	0.01	0.07
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	132.45	446.13
103.49				
C & E Loss (m)	0.00	Cum SA (1000 m2)	106.04	224.24
84.82				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.56	Reach Len. (m)	25.22	25.22

25.22				
Crit W.S. (m)	10.57	Flow Area (m2)	5.29	35.20
7.91				
E.G. Slope (m/m)	0.000007	Area (m2)	5.29	35.20
7.91				
Q Total (m3/s)	10.00	Flow (m3/s)	0.38	8.99
0.63				
Top Width (m)	30.88	Top Width (m)	5.54	18.07
7.27				
Vel Total (m/s)	0.21	Avg. Vel. (m/s)	0.07	0.26
0.08				
Max Chl Dpth (m)	2.42	Hydr. Depth (m)	0.96	1.95
1.09				
Conv. Total (m3/s)	3860.8	Conv. (m3/s)	146.6	3470.7
243.6				
Length Wtd. (m)	25.22	Wetted Per. (m)	6.99	19.57
8.92				
Min Ch El (m)	10.14	Shear (N/m2)	0.05	0.12
0.06				
Alpha	1.39	Stream Power (N/m s)	0.00	0.03
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	185.43	559.28
145.88				
C & E Loss (m)	0.00	Cum SA (1000 m2)	118.28	238.07
96.56				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.40	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.37	Reach Len. (m)	25.22	25.22
25.22				
Crit W.S. (m)	10.95	Flow Area (m2)	4.27	31.83
6.57				
E.G. Slope (m/m)	0.000067	Area (m2)	4.27	31.83
6.57				
Q Total (m3/s)	27.00	Flow (m3/s)	0.89	24.58
1.53				
Top Width (m)	29.64	Top Width (m)	5.22	17.52
6.90				
Vel Total (m/s)	0.63	Avg. Vel. (m/s)	0.21	0.77
0.23				
Max Chl Dpth (m)	2.23	Hydr. Depth (m)	0.82	1.82
0.95				
Conv. Total (m3/s)	3299.6	Conv. (m3/s)	108.5	3003.7

187.4				
Length Wtd. (m)	25.22	Wetted Per. (m)	6.43	18.91
8.31				
Min Ch El (m)	10.14	Shear (N/m2)	0.44	1.11
0.52				
Alpha	1.37	Stream Power (N/m s)	0.09	0.85
0.12				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	121.45	424.48
96.83				
C & E Loss (m)	0.00	Cum SA (1000 m2)	101.53	221.15
81.85				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.54	Reach Len. (m)	25.22	25.22
25.22				
Crit W.S. (m)	10.95	Flow Area (m2)	5.21	34.92
7.80				
E.G. Slope (m/m)	0.000050	Area (m2)	5.21	34.92
7.80				
Q Total (m3/s)	27.00	Flow (m3/s)	1.01	24.30
1.69				
Top Width (m)	30.78	Top Width (m)	5.51	18.02
7.24				
Vel Total (m/s)	0.56	Avg. Vel. (m/s)	0.19	0.70
0.22				
Max Chl Dpth (m)	2.40	Hydr. Depth (m)	0.94	1.94
1.08				
Conv. Total (m3/s)	3813.0	Conv. (m3/s)	143.2	3431.0
238.7				
Length Wtd. (m)	25.22	Wetted Per. (m)	6.94	19.52
8.87				
Min Ch El (m)	10.14	Shear (N/m2)	0.37	0.88
0.43				
Alpha	1.39	Stream Power (N/m s)	0.07	0.61
0.09				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	154.28	495.39
122.26				
C & E Loss (m)	0.00	Cum SA (1000 m2)	111.42	231.13
90.10				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.85	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.84	Reach Len. (m)	25.22	25.22
25.22				
Crit W.S. (m)	10.95	Flow Area (m2)	6.91	40.39
10.03				
E.G. Slope (m/m)	0.000032	Area (m2)	6.91	40.39
10.03				
Q Total (m3/s)	27.00	Flow (m3/s)	1.20	23.88
1.92				
Top Width (m)	32.70	Top Width (m)	6.02	18.86
7.82				
Vel Total (m/s)	0.47	Avg. Vel. (m/s)	0.17	0.59
0.19				
Max Chl Dpth (m)	2.70	Hydr. Depth (m)	1.15	2.14
1.28				
Conv. Total (m3/s)	4776.6	Conv. (m3/s)	212.3	4225.1
339.2				
Length Wtd. (m)	25.22	Wetted Per. (m)	7.82	20.54
9.82				
Min Ch El (m)	10.14	Shear (N/m2)	0.28	0.62
0.32				
Alpha	1.41	Stream Power (N/m s)	0.05	0.36
0.06				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	200.42	591.69
159.07				
C & E Loss (m)	0.00	Cum SA (1000 m2)	122.04	236.98
100.42				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 66.5

INPUT

Description:

Distance from Upstream XS = 25.22

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num=	2								
Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
8.8258	13.8	13.01	37.054	13.8	13.01				

Upstream Bridge Cross Section Data

Station Elevation Data	num=	15							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.0987	13.4793	7.6054	13.6348	11.7226	13.6444	12.1722	13.5978	12.5625	13.4813
12.9207	13.2047	13.3597	12.7817	15.5862	11.25	17.1987	10.1407	28.2523	10.14
29.8593	11.25	32.8331	13.304	33.7181	13.4376	35.7586	13.4683	37.894	13.2374

Manning's n Values	num=	3			
Sta	n Val	Sta	n Val	Sta	n Val
7.0987	.03	12.5625	.015	32.8331	.03

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	12.5625	32.8331		.0015	.01

Downstream Deck/Roadway Coordinates

num=	2								
Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
11.27	13.8	12.9	39.5027	13.8	12.9				

Downstream Bridge Cross Section Data

Station Elevation Data	num=	15							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.6427	13.1969	8.98	13.5803	11.2654	13.2958	14.1663	13.2958	14.9137	13.2036
17.9016	11.26	19.6422	10.1278	30.796	10.1271	32.4502	11.26	35.8813	13.61
36.7414	13.6601	38.2901	13.6947	39	13.6029	40.0439	13.6446	40.557	13.5157

Manning's n Values	num=	3			
Sta	n Val	Sta	n Val	Sta	n Val
7.6427	.03	14.9137	.015	35.8813	.03

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	14.9137	35.8813		.0015	.01

Upstream Embankment side slope	=	1.9 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.9 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
8.82	13.02	16.85	13.02
Downstream	num=	2	

Sta	Elev	Sta	Elev
11.2746	13.02	19.2	13.02

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
28.85	13.02	37.05	13.02
Downstream	num=	2	
Sta	Elev	Sta	Elev
31.2	12.94	39.5	12.94

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

- Add Friction component to Momentum
- Do not add Weight component to Momentum
- Class B flow critical depth computations use critical depth inside the bridge at the upstream end
- Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.74	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.73	E.G. Elev (m)	11.74
11.74			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.73
11.73			
Q Bridge (m3/s)	9.58	Crit W.S. (m)	10.57
10.55			
Q Weir (m3/s)		Max Chl Dpth (m)	1.59
1.60			
Weir Sta Lft (m)		Vel Total (m/s)	0.44
0.38			
Weir Sta Rgt (m)		Flow Area (m2)	22.66
26.15			
Weir Submerg		Froude # Chl	0.13
0.12			
Weir Max Depth (m)		Specif Force (m3)	16.15
17.94			
Min El Weir Flow (m)	11.23	Hydr Depth (m)	1.04
1.10			
Min El Prs (m)	13.01	W.P. Total (m)	25.49
28.33			
Delta EG (m)	0.01	Conv. Total (m3/s)	1547.2
1660.1			

Delta WS (m)	0.01	Top Width (m)	21.77
23.76			
BR Open Area (m2)	33.15	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.51	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.36
0.33			
BR Sel Method	Energy only	Power Total (N/m s)	0.16
0.13			

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)		Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.11	E.G. Elev (m)	12.12
12.12			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.11
12.11			
Q Bridge (m3/s)	9.18	Crit W.S. (m)	10.57
10.55			
Q Weir (m3/s)		Max Chl Dpth (m)	1.97
1.98			
Weir Sta Lft (m)		Vel Total (m/s)	0.32
0.28			
Weir Sta Rgt (m)		Flow Area (m2)	31.26
35.47			
Weir Submerg		Froude # Chl	0.09
0.08			
Weir Max Depth (m)		Specif Force (m3)	26.32
29.58			
Min El Weir Flow (m)	11.23	Hydr Depth (m)	1.35
1.42			
Min El Prs (m)	13.01	W.P. Total (m)	28.61
31.37			
Delta EG (m)	0.00	Conv. Total (m3/s)	2246.6
2410.4			
Delta WS (m)	0.00	Top Width (m)	23.17
25.05			
BR Open Area (m2)	33.15	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.39	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.21
0.19			
BR Sel Method	Energy only	Power Total (N/m s)	0.07
0.05			

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.56	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.56	E.G. Elev (m)	12.56
12.56			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.56
12.56			
Q Bridge (m3/s)	8.78	Crit W.S. (m)	10.57
10.55			
Q Weir (m3/s)		Max Chl Dpth (m)	2.42
2.43			
Weir Sta Lft (m)		Vel Total (m/s)	0.24
0.21			
Weir Sta Rgt (m)		Flow Area (m2)	42.02
47.04			
Weir Submerg		Froude # Chl	0.06
0.06			
Weir Max Depth (m)		Specif Force (m3)	42.63
47.95			
Min El Weir Flow (m)	11.23	Hydr Depth (m)	1.69
1.77			
Min El Prs (m)	13.01	W.P. Total (m)	32.28
34.94			
Delta EG (m)	0.00	Conv. Total (m3/s)	3190.7
3416.1			
Delta WS (m)	0.00	Top Width (m)	24.81
26.57			
BR Open Area (m2)	33.15	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.30	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.13
0.11			
BR Sel Method	Energy only	Power Total (N/m s)	0.03
0.02			

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.40	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.37	E.G. Elev (m)	12.39
12.39			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.36
12.36			
Q Bridge (m3/s)	24.16	Crit W.S. (m)	10.96
10.94			
Q Weir (m3/s)		Max Chl Dpth (m)	2.22
2.24			
Weir Sta Lft (m)		Vel Total (m/s)	0.73
0.64			

Weir Sta Rgt (m)		Flow Area (m2)	37.11
41.92			
Weir Submerg		Froude # Ch1	0.20
0.18			
Weir Max Depth (m)		Specif Force (m3)	36.74
41.12			
Min El Weir Flow (m)	11.23	Hydr Depth (m)	1.54
1.62			
Min El Prs (m)	13.01	W.P. Total (m)	30.64
33.39			
Delta EG (m)	0.01	Conv. Total (m3/s)	2752.9
2962.5			
Delta WS (m)	0.01	Top Width (m)	24.07
25.91			
BR Open Area (m2)	33.15	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.91	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.14
1.02			
BR Sel Method	Energy only	Power Total (N/m s)	0.83
0.66			

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)		Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.54	E.G. Elev (m)	12.56
12.56			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.53
12.54			
Q Bridge (m3/s)	23.76	Crit W.S. (m)	10.96
10.94			
Q Weir (m3/s)		Max Ch1 Dpth (m)	2.39
2.41			
Weir Sta Lft (m)		Vel Total (m/s)	0.65
0.58			
Weir Sta Rgt (m)		Flow Area (m2)	41.40
46.49			
Weir Submerg		Froude # Ch1	0.17
0.16			
Weir Max Depth (m)		Specif Force (m3)	43.41
48.63			
Min El Weir Flow (m)	11.23	Hydr Depth (m)	1.68
1.75			
Min El Prs (m)	13.01	W.P. Total (m)	32.08
34.78			
Delta EG (m)	0.01	Conv. Total (m3/s)	3135.2
3367.4			
Delta WS (m)	0.01	Top Width (m)	24.72
26.51			

BR Open Area (m2)	33.15	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.83	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.94
0.84			
BR Sel Method	Energy only	Power Total (N/m s)	0.61
0.49			

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.85	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.84	E.G. Elev (m)	12.85
12.85			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.83
12.83			
Q Bridge (m3/s)	23.14	Crit W.S. (m)	10.96
10.94			
Q Weir (m3/s)		Max Chl Dpth (m)	2.69
2.71			
Weir Sta Lft (m)		Vel Total (m/s)	0.55
0.50			
Weir Sta Rgt (m)		Flow Area (m2)	48.95
54.52			
Weir Submerg		Froude # Chl	0.14
0.13			
Weir Max Depth (m)		Specif Force (m3)	56.59
63.36			
Min El Weir Flow (m)	11.23	Hydr Depth (m)	1.90
1.98			
Min El Prs (m)	13.01	W.P. Total (m)	34.52
37.15			
Delta EG (m)	0.01	Conv. Total (m3/s)	3827.3
4099.5			
Delta WS (m)	0.00	Top Width (m)	25.81
27.51			
BR Open Area (m2)	33.15	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.72	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.69
0.62			
BR Sel Method	Energy only	Power Total (N/m s)	0.38
0.31			

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 66

INPUT

Description:

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.6427	13.1969	8.98	13.5803	11.2654	13.2958	14.1663	13.2958	14.9137	13.2036
17.9016	11.26	19.6422	10.1278	30.796	10.1271	32.4502	11.26	35.8813	13.61
36.7414	13.6601	38.2901	13.6947	39	13.6029	40.0439	13.6446	40.557	13.5157

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.6427	.03	14.9137	.015	35.8813	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	14.9137	35.8813	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.73	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.72	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	3.87	21.63
3.16				
E.G. Slope (m/m)	0.000029	Area (m2)	3.87	21.63
3.16				
Q Total (m3/s)	10.00	Flow (m3/s)	0.48	9.18
0.34				
Top Width (m)	27.68	Top Width (m)	5.79	15.94
5.95				
Vel Total (m/s)	0.35	Avg. Vel. (m/s)	0.12	0.42
0.11				
Max Chl Dpth (m)	1.60	Hydr. Depth (m)	0.67	1.36
0.53				
Conv. Total (m3/s)	1851.5	Conv. (m3/s)	89.3	1698.9
63.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.72	16.91
6.78				
Min Ch El (m)	10.13	Shear (N/m2)	0.16	0.37
0.13				
Alpha	1.37	Stream Power (N/m s)	0.02	0.16
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	87.47	342.60
68.05				
C & E Loss (m)	0.00	Cum SA (1000 m2)	90.33	206.66
71.15				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.11	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.11	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.19	27.97
5.61				
E.G. Slope (m/m)	0.000013	Area (m2)	6.19	27.97
5.61				
Q Total (m3/s)	10.00	Flow (m3/s)	0.64	8.84
0.52				
Top Width (m)	30.14	Top Width (m)	6.27	17.09
6.78				
Vel Total (m/s)	0.25	Avg. Vel. (m/s)	0.10	0.32
0.09				
Max Chl Dpth (m)	1.98	Hydr. Depth (m)	0.99	1.64
0.83				
Conv. Total (m3/s)	2800.1	Conv. (m3/s)	178.0	2475.5
146.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.73	18.29
8.07				
Min Ch El (m)	10.13	Shear (N/m2)	0.10	0.19
0.09				
Alpha	1.41	Stream Power (N/m s)	0.01	0.06
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	131.30	440.99
102.39				
C & E Loss (m)	0.00	Cum SA (1000 m2)	104.83	221.35
83.48				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)	9.13	35.95
8.86				
E.G. Slope (m/m)	0.000006	Area (m2)	9.13	35.95
8.86				
Q Total (m3/s)	10.00	Flow (m3/s)	0.75	8.58
0.68				
Top Width (m)	33.01	Top Width (m)	6.84	18.44
7.74				
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.08	0.24
0.08				
Max Chl Dpth (m)	2.43	Hydr. Depth (m)	1.34	1.95
1.15				
Conv. Total (m3/s)	4143.4	Conv. (m3/s)	309.8	3553.1
280.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.89	19.91
9.58				
Min Ch El (m)	10.13	Shear (N/m2)	0.06	0.10
0.05				
Alpha	1.45	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	183.71	552.81
144.14				
C & E Loss (m)	0.00	Cum SA (1000 m2)	116.95	235.04
95.02				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.38	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.36	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	7.80	32.34
7.37				
E.G. Slope (m/m)	0.000059	Area (m2)	7.80	32.34
7.37				
Q Total (m3/s)	27.00	Flow (m3/s)	1.90	23.44
1.66				
Top Width (m)	31.74	Top Width (m)	6.59	17.84
7.31				
Vel Total (m/s)	0.57	Avg. Vel. (m/s)	0.24	0.72
0.23				
Max Chl Dpth (m)	2.23	Hydr. Depth (m)	1.18	1.81
1.01				
Conv. Total (m3/s)	3517.9	Conv. (m3/s)	247.9	3053.6
216.4				

Length Wtd. (m)	200.00	Wetted Per. (m)	8.38	19.19
8.91				
Min Ch El (m)	10.13	Shear (N/m2)	0.54	0.97
0.48				
Alpha	1.43	Stream Power (N/m s)	0.13	0.71
0.11				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	119.98	418.60
95.38				
C & E Loss (m)	0.00	Cum SA (1000 m2)	100.25	218.18
80.40				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.98	35.54
8.69				
E.G. Slope (m/m)	0.000044	Area (m2)	8.98	35.54
8.69				
Q Total (m3/s)	27.00	Flow (m3/s)	2.01	23.18
1.81				
Top Width (m)	32.87	Top Width (m)	6.81	18.37
7.69				
Vel Total (m/s)	0.51	Avg. Vel. (m/s)	0.22	0.65
0.21				
Max Chl Dpth (m)	2.41	Hydr. Depth (m)	1.32	1.93
1.13				
Conv. Total (m3/s)	4071.2	Conv. (m3/s)	302.6	3495.6
273.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.84	19.83
9.51				
Min Ch El (m)	10.13	Shear (N/m2)	0.44	0.77
0.39				
Alpha	1.44	Stream Power (N/m s)	0.10	0.50
0.08				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	152.58	488.98
120.54				
C & E Loss (m)	0.00	Cum SA (1000 m2)	110.09	228.12
88.58				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.85	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.83	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	11.07	41.16
11.09				
E.G. Slope (m/m)	0.000028	Area (m2)	11.07	41.16
11.09				
Q Total (m3/s)	27.00	Flow (m3/s)	2.15	22.83
2.03				
Top Width (m)	34.78	Top Width (m)	7.19	19.27
8.33				
Vel Total (m/s)	0.43	Avg. Vel. (m/s)	0.19	0.55
0.18				
Max Chl Dpth (m)	2.71	Hydr. Depth (m)	1.54	2.14
1.33				
Conv. Total (m3/s)	5099.5	Conv. (m3/s)	405.5	4311.0
382.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.62	20.91
10.51				
Min Ch El (m)	10.13	Shear (N/m2)	0.32	0.54
0.29				
Alpha	1.46	Stream Power (N/m s)	0.06	0.30
0.05				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	198.32	584.37
156.88				
C & E Loss (m)	0.00	Cum SA (1000 m2)	120.64	233.87
98.77				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 65

INPUT

Description:

Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.8146	13.877	15.3208	13.8143	15.7842	13.6949	19.0879	11.27	20.6617	10.1149

32.2059 10.1141 33.8146 11.27 36.9676 13.5356 40.179 13.5356 42.5877 13.6221
 43.0624 13.4873

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 10.8146 .03 15.7842 .015 36.9676 .03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan.
 15.7842 36.9676 200 200 200 .0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.73	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.72	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.79	22.12
10.27				
E.G. Slope (m/m)	0.000020	Area (m2)	5.79	22.12
10.27				
Q Total (m3/s)	10.00	Flow (m3/s)	0.67	7.84
1.49				
Top Width (m)	32.08	Top Width (m)	6.90	15.97
9.20				
Vel Total (m/s)	0.26	Avg. Vel. (m/s)	0.12	0.35
0.14				
Max Chl Dpth (m)	1.64	Hydr. Depth (m)	0.84	1.38
1.12				
Conv. Total (m3/s)	2240.9	Conv. (m3/s)	151.2	1756.5
333.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.35	17.02
10.69				
Min Ch El (m)	10.11	Shear (N/m2)	0.14	0.25
0.19				
Alpha	1.49	Stream Power (N/m s)	0.02	0.09
0.03				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	86.51	338.22
66.71				
C & E Loss (m)	0.00	Cum SA (1000 m2)	89.06	203.46
69.63				

Warning: Divided flow computed for this cross-section.
 Warning: The cross-section end points had to be extended vertically for the
 computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.11	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.11	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.55	28.48
13.92				
E.G. Slope (m/m)	0.000009	Area (m2)	8.55	28.48
13.92				
Q Total (m3/s)	10.00	Flow (m3/s)	0.80	7.64
1.56				
Top Width (m)	34.19	Top Width (m)	7.40	17.03
9.75				
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.09	0.27
0.11				
Max Chl Dpth (m)	2.03	Hydr. Depth (m)	1.15	1.67
1.43				
Conv. Total (m3/s)	3335.0	Conv. (m3/s)	268.0	2547.4
519.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.37	18.33
11.74				
Min Ch El (m)	10.11	Shear (N/m2)	0.08	0.14
0.10				
Alpha	1.49	Stream Power (N/m s)	0.01	0.04
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	129.82	435.35
100.43				
C & E Loss (m)	0.00	Cum SA (1000 m2)	103.46	217.93
81.83				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	12.00	36.41
18.44				
E.G. Slope (m/m)	0.000004	Area (m2)	12.00	36.41
18.44				
Q Total (m3/s)	10.00	Flow (m3/s)	0.90	7.50
1.60				
Top Width (m)	36.64	Top Width (m)	7.99	18.27
10.38				

Vel Total (m/s)	0.15	Avg. Vel. (m/s)	0.07	0.21
0.09				
Max Chl Dpth (m)	2.48	Hydr. Depth (m)	1.50	1.99
1.78				
Conv. Total (m3/s)	4849.2	Conv. (m3/s)	436.0	3636.1
777.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.55	19.86
12.97				
Min Ch El (m)	10.11	Shear (N/m2)	0.05	0.08
0.06				
Alpha	1.50	Stream Power (N/m s)	0.00	0.02
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	181.59	545.57
141.41				
C & E Loss (m)	0.00	Cum SA (1000 m2)	115.47	231.37
93.21				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.37	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.36	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.43	32.80
16.39				
E.G. Slope (m/m)	0.000042	Area (m2)	10.43	32.80
16.39				
Q Total (m3/s)	27.00	Flow (m3/s)	2.33	20.39
4.28				
Top Width (m)	35.55	Top Width (m)	7.73	17.72
10.10				
Vel Total (m/s)	0.45	Avg. Vel. (m/s)	0.22	0.62
0.26				
Max Chl Dpth (m)	2.28	Hydr. Depth (m)	1.35	1.85
1.62				
Conv. Total (m3/s)	4141.9	Conv. (m3/s)	356.9	3128.0
657.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.02	19.18
12.42				
Min Ch El (m)	10.11	Shear (N/m2)	0.43	0.71
0.55				
Alpha	1.50	Stream Power (N/m s)	0.10	0.44
0.14				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	118.16	412.09
93.00				

C & E Loss (m)	0.00	Cum SA (1000 m2)	98.81	214.63
78.66				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	11.82	35.98
18.20				
E.G. Slope (m/m)	0.000032	Area (m2)	11.82	35.98
18.20				
Q Total (m3/s)	27.00	Flow (m3/s)	2.42	20.26
4.32				
Top Width (m)	36.51	Top Width (m)	7.96	18.21
10.35				
Vel Total (m/s)	0.41	Avg. Vel. (m/s)	0.20	0.56
0.24				
Max Chl Dpth (m)	2.46	Hydr. Depth (m)	1.48	1.98
1.76				
Conv. Total (m3/s)	4764.3	Conv. (m3/s)	426.5	3575.2
762.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.49	19.78
12.91				
Min Ch El (m)	10.11	Shear (N/m2)	0.35	0.57
0.44				
Alpha	1.50	Stream Power (N/m s)	0.07	0.32
0.11				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	150.50	481.83
117.86				
C & E Loss (m)	0.00	Cum SA (1000 m2)	108.62	224.46
86.77				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.84	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.83	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	14.26	41.56
21.36				
E.G. Slope (m/m)	0.000021	Area (m2)	14.26	41.56
21.36				
Q Total (m3/s)	27.00	Flow (m3/s)	2.54	20.09
4.37				
Top Width (m)	38.15	Top Width (m)	8.35	19.03
10.77				
Vel Total (m/s)	0.35	Avg. Vel. (m/s)	0.18	0.48
0.20				
Max Chl Dpth (m)	2.75	Hydr. Depth (m)	1.71	2.18
1.98				
Conv. Total (m3/s)	5908.1	Conv. (m3/s)	555.7	4396.0
956.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.28	20.80
13.72				
Min Ch El (m)	10.11	Shear (N/m2)	0.26	0.41
0.32				
Alpha	1.50	Stream Power (N/m s)	0.05	0.20
0.07				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	195.79	576.10
153.63				
C & E Loss (m)	0.00	Cum SA (1000 m2)	119.08	230.04
96.86				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 64

INPUT

Description:

Station Elevation Data				num=	17				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.2828	13.505	12.8166	13.4499	13.7105	13.5363	15.0801	13.4787	16.0749	13.4499
16.7922	13.2796	16.99	13.1949	17.4759	12.7405	19.518	11.27	21.1401	10.1019
32.6	10.1012	34.2491	11.27	37.187	13.3524	38.2786	13.462	39.9629	13.5003
41.8923	13.5167	42.9871	13.435						

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
11.2828	.03	16.0749	.015	37.187	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.
Expan.					
16.0749	37.187	200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.72	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.72	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	9.23	22.18
4.28				
E.G. Slope (m/m)	0.000021	Area (m2)	9.23	22.18
4.28				
Q Total (m3/s)	10.00	Flow (m3/s)	1.36	8.13
0.51				
Top Width (m)	29.03	Top Width (m)	8.06	15.98
4.98				
Vel Total (m/s)	0.28	Avg. Vel. (m/s)	0.15	0.37
0.12				
Max Chl Dpth (m)	1.72	Hydr. Depth (m)	1.15	1.39
0.86				
Conv. Total (m3/s)	2168.1	Conv. (m3/s)	294.5	1763.7
109.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.87	17.02
6.32				
Min Ch El (m)	10.10	Shear (N/m2)	0.20	0.27
0.14				
Alpha	1.44	Stream Power (N/m s)	0.03	0.10
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	85.01	333.79
65.25				
C & E Loss (m)	0.00	Cum SA (1000 m2)	87.56	200.27
68.22				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.11	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.11	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	12.50	28.59

6.35				
E.G. Slope (m/m)	0.000010	Area (m2)	12.50	28.59
6.35				
Q Total (m3/s)	10.00	Flow (m3/s)	1.41	8.00
0.59				
Top Width (m)	31.53	Top Width (m)	8.76	17.07
5.69				
Vel Total (m/s)	0.21	Avg. Vel. (m/s)	0.11	0.28
0.09				
Max Chl Dpth (m)	2.11	Hydr. Depth (m)	1.43	1.67
1.11				
Conv. Total (m3/s)	3201.8	Conv. (m3/s)	452.2	2560.6
189.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.05	18.35
7.52				
Min Ch El (m)	10.10	Shear (N/m2)	0.11	0.15
0.08				
Alpha	1.46	Stream Power (N/m s)	0.01	0.04
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	127.72	429.64
98.41				
C & E Loss (m)	0.00	Cum SA (1000 m2)	101.84	214.52
80.28				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.62	36.55
9.10				
E.G. Slope (m/m)	0.000005	Area (m2)	16.62	36.55
9.10				
Q Total (m3/s)	10.00	Flow (m3/s)	1.45	7.89
0.66				
Top Width (m)	34.42	Top Width (m)	9.57	18.33
6.52				
Vel Total (m/s)	0.16	Avg. Vel. (m/s)	0.09	0.22
0.07				
Max Chl Dpth (m)	2.56	Hydr. Depth (m)	1.74	1.99
1.40				
Conv. Total (m3/s)	4635.0	Conv. (m3/s)	672.7	3654.8
307.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.43	19.90

8.91				
Min Ch El (m)	10.10	Shear (N/m2)	0.06	0.08
0.05				
Alpha	1.48	Stream Power (N/m s)	0.01	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	178.73	538.28
138.65				
C & E Loss (m)	0.00	Cum SA (1000 m2)	113.71	227.71
91.52				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.36	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.35	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	14.65	32.76
7.77				
E.G. Slope (m/m)	0.000047	Area (m2)	14.65	32.76
7.77				
Q Total (m3/s)	27.00	Flow (m3/s)	3.88	21.42
1.71				
Top Width (m)	33.07	Top Width (m)	9.19	17.74
6.13				
Vel Total (m/s)	0.49	Avg. Vel. (m/s)	0.26	0.65
0.22				
Max Chl Dpth (m)	2.35	Hydr. Depth (m)	1.59	1.85
1.27				
Conv. Total (m3/s)	3933.4	Conv. (m3/s)	564.5	3120.5
248.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.79	19.18
8.26				
Min Ch El (m)	10.10	Shear (N/m2)	0.57	0.79
0.43				
Alpha	1.47	Stream Power (N/m s)	0.15	0.52
0.10				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	115.65	405.53
90.59				
C & E Loss (m)	0.00	Cum SA (1000 m2)	97.12	211.08
77.04				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the

computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.33	35.99
8.90				
E.G. Slope (m/m)	0.000036	Area (m2)	16.33	35.99
8.90				
Q Total (m3/s)	27.00	Flow (m3/s)	3.91	21.31
1.78				
Top Width (m)	34.22	Top Width (m)	9.52	18.24
6.46				
Vel Total (m/s)	0.44	Avg. Vel. (m/s)	0.24	0.59
0.20				
Max Chl Dpth (m)	2.53	Hydr. Depth (m)	1.72	1.97
1.38				
Conv. Total (m3/s)	4528.8	Conv. (m3/s)	656.3	3574.1
298.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.34	19.80
8.82				
Min Ch El (m)	10.10	Shear (N/m2)	0.46	0.63
0.35				
Alpha	1.48	Stream Power (N/m s)	0.11	0.38
0.07				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	147.69	474.63
115.15				
C & E Loss (m)	0.00	Cum SA (1000 m2)	106.87	220.81
85.09				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.84	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.83	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	19.29	41.64
10.94				
E.G. Slope (m/m)	0.000023	Area (m2)	19.29	41.64

10.94				
Q Total (m3/s)	27.00	Flow (m3/s)	3.96	21.15
1.89				
Top Width (m)	36.14	Top Width (m)	10.06	19.06
7.02				
Vel Total (m/s)	0.38	Avg. Vel. (m/s)	0.21	0.51
0.17				
Max Chl Dpth (m)	2.83	Hydr. Depth (m)	1.92	2.18
1.56				
Conv. Total (m3/s)	5625.8	Conv. (m3/s)	825.7	4406.6
393.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.26	20.82
9.75				
Min Ch El (m)	10.10	Shear (N/m2)	0.33	0.45
0.25				
Alpha	1.49	Stream Power (N/m s)	0.07	0.23
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	192.43	567.78
150.40				
C & E Loss (m)	0.00	Cum SA (1000 m2)	117.24	226.23
95.08				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 63

INPUT

Description:

Station Elevation Data				num=	17
Sta	Elev	Sta	Elev	Sta	Elev
9.3115	13.7004	10.8696	13.6482	11.7974	13.5961
18.619	11.25	20.2095	10.089	31.8568	10.0883
35.6612	12.913	35.7639	13.0157	36.0418	13.227
37.047	13.482	41.7604	13.7176		

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
9.3115	.03	15.5745	.015	36.386	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.	15.5745	36.386	200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.72	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.71	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	4.07	22.52
2.38				
E.G. Slope (m/m)	0.000027	Area (m2)	4.07	22.52
2.38				
Q Total (m3/s)	10.00	Flow (m3/s)	0.46	9.30
0.24				
Top Width (m)	27.39	Top Width (m)	6.68	16.12
4.59				
Vel Total (m/s)	0.35	Avg. Vel. (m/s)	0.11	0.41
0.10				
Max Chl Dpth (m)	1.62	Hydr. Depth (m)	0.61	1.40
0.52				
Conv. Total (m3/s)	1933.4	Conv. (m3/s)	88.5	1798.4
46.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.71	17.17
5.29				
Min Ch El (m)	10.09	Shear (N/m2)	0.14	0.34
0.12				
Alpha	1.34	Stream Power (N/m s)	0.02	0.14
0.01				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	83.67	329.33
64.59				
C & E Loss (m)	0.00	Cum SA (1000 m2)	86.09	197.06
67.26				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.11	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.10	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.79	29.04
4.29				
E.G. Slope (m/m)	0.000012	Area (m2)	6.79	29.04
4.29				
Q Total (m3/s)	10.00	Flow (m3/s)	0.65	8.97
0.38				
Top Width (m)	29.55	Top Width (m)	7.20	17.20
5.15				

Vel Total (m/s)	0.25	Avg. Vel. (m/s)	0.10	0.31
0.09				
Max Chl Dpth (m)	2.01	Hydr. Depth (m)	0.94	1.69
0.83				
Conv. Total (m3/s)	2915.2	Conv. (m3/s)	190.9	2614.6
109.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.76	18.50
6.37				
Min Ch El (m)	10.09	Shear (N/m2)	0.09	0.18
0.08				
Alpha	1.39	Stream Power (N/m s)	0.01	0.06
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	125.79	423.88
97.34				
C & E Loss (m)	0.00	Cum SA (1000 m2)	100.25	211.10
79.20				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.17	37.09
6.76				
E.G. Slope (m/m)	0.000005	Area (m2)	10.17	37.09
6.76				
Q Total (m3/s)	10.00	Flow (m3/s)	0.80	8.71
0.49				
Top Width (m)	32.04	Top Width (m)	7.80	18.44
5.80				
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.08	0.23
0.07				
Max Chl Dpth (m)	2.47	Hydr. Depth (m)	1.31	2.01
1.17				
Conv. Total (m3/s)	4279.9	Conv. (m3/s)	344.1	3727.5
208.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.96	20.04
7.61				
Min Ch El (m)	10.09	Shear (N/m2)	0.05	0.10
0.05				
Alpha	1.42	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	176.05	530.91
137.07				

C & E Loss (m)	0.00	Cum SA (1000 m2)	111.97	224.04
90.29				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.35	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.33	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.45	33.01
5.49				
E.G. Slope (m/m)	0.000057	Area (m2)	8.45	33.01
5.49				
Q Total (m3/s)	27.00	Flow (m3/s)	1.99	23.83
1.18				
Top Width (m)	30.80	Top Width (m)	7.50	17.82
5.48				
Vel Total (m/s)	0.58	Avg. Vel. (m/s)	0.24	0.72
0.21				
Max Chl Dpth (m)	2.24	Hydr. Depth (m)	1.13	1.85
1.00				
Conv. Total (m3/s)	3569.2	Conv. (m3/s)	263.3	3150.1
155.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.36	19.28
6.99				
Min Ch El (m)	10.09	Shear (N/m2)	0.51	0.96
0.44				
Alpha	1.41	Stream Power (N/m s)	0.12	0.69
0.09				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	113.34	398.96
89.26				
C & E Loss (m)	0.00	Cum SA (1000 m2)	95.45	207.52
75.88				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	9.85	36.33
6.52				
E.G. Slope (m/m)	0.000042	Area (m2)	9.85	36.33
6.52				
Q Total (m3/s)	27.00	Flow (m3/s)	2.14	23.57
1.29				
Top Width (m)	31.81	Top Width (m)	7.74	18.33
5.74				
Vel Total (m/s)	0.51	Avg. Vel. (m/s)	0.22	0.65
0.20				
Max Chl Dpth (m)	2.42	Hydr. Depth (m)	1.27	1.98
1.14				
Conv. Total (m3/s)	4144.7	Conv. (m3/s)	328.6	3618.0
198.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.85	19.90
7.50				
Min Ch El (m)	10.09	Shear (N/m2)	0.42	0.76
0.36				
Alpha	1.42	Stream Power (N/m s)	0.09	0.49
0.07				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	145.07	467.40
113.60				
C & E Loss (m)	0.00	Cum SA (1000 m2)	105.14	217.16
83.87				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.83	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.82	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	12.29	42.08
8.35				
E.G. Slope (m/m)	0.000027	Area (m2)	12.29	42.08
8.35				
Q Total (m3/s)	27.00	Flow (m3/s)	2.34	23.21
1.45				
Top Width (m)	33.48	Top Width (m)	8.15	19.14
6.18				
Vel Total (m/s)	0.43	Avg. Vel. (m/s)	0.19	0.55
0.17				

Max Chl Dpth (m)	2.73	Hydr. Depth (m)	1.51	2.20
1.35				
Conv. Total (m3/s)	5199.0	Conv. (m3/s)	450.4	4469.9
278.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.66	20.93
8.34				
Min Ch El (m)	10.09	Shear (N/m2)	0.30	0.53
0.26				
Alpha	1.44	Stream Power (N/m s)	0.06	0.29
0.05				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	189.27	559.41
148.48				
C & E Loss (m)	0.00	Cum SA (1000 m2)	115.42	222.41
93.76				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 62

INPUT

Description:

Station Elevation Data	num=	11								
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev										
9.0003 13.7188 11.463 13.7353 14.9447 13.5989 18.0631 11.28 19.6813 10.0766										
31.3612 10.0759 33.099 11.28 36.259 13.4695 40.9824 13.7275 41.9461 13.58										
42.4235 13.4026										

Manning's n Values	num=	3			
Sta n Val Sta n Val Sta n Val					
9.0003 .03 14.9447 .015 36.259 .03					

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
14.9447	36.259	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.71	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.70	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	1.78	22.71
1.64				

E.G. Slope (m/m)	0.000029	Area (m2)	1.78	22.71
1.64				
Q Total (m3/s)	10.00	Flow (m3/s)	0.17	9.70
0.13				
Top Width (m)	25.40	Top Width (m)	4.17	16.22
5.02				
Vel Total (m/s)	0.38	Avg. Vel. (m/s)	0.09	0.43
0.08				
Max Chl Dpth (m)	1.63	Hydr. Depth (m)	0.43	1.40
0.33				
Conv. Total (m3/s)	1872.9	Conv. (m3/s)	31.1	1817.1
24.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	4.67	17.27
5.38				
Min Ch El (m)	10.08	Shear (N/m2)	0.11	0.37
0.08				
Alpha	1.21	Stream Power (N/m s)	0.01	0.16
0.01				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	83.09	324.80
64.18				
C & E Loss (m)	0.00	Cum SA (1000 m2)	85.00	193.82
66.30				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.10	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.10	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	3.61	29.33
3.73				
E.G. Slope (m/m)	0.000013	Area (m2)	3.61	29.33
3.73				
Q Total (m3/s)	10.00	Flow (m3/s)	0.30	9.39
0.31				
Top Width (m)	28.02	Top Width (m)	5.11	17.32
5.59				
Vel Total (m/s)	0.27	Avg. Vel. (m/s)	0.08	0.32
0.08				
Max Chl Dpth (m)	2.02	Hydr. Depth (m)	0.71	1.69
0.67				
Conv. Total (m3/s)	2818.7	Conv. (m3/s)	85.0	2647.6
86.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.09	18.62
6.47				

Min Ch El (m)	10.08	Shear (N/m2)	0.07	0.19
0.07				
Alpha	1.30	Stream Power (N/m s)	0.01	0.06
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	124.75	418.04
96.54				
C & E Loss (m)	0.00	Cum SA (1000 m2)	99.02	207.64
78.12				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.18	37.47
6.42				
E.G. Slope (m/m)	0.000006	Area (m2)	6.18	37.47
6.42				
Q Total (m3/s)	10.00	Flow (m3/s)	0.43	9.12
0.46				
Top Width (m)	31.03	Top Width (m)	6.20	18.58
6.25				
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.07	0.24
0.07				
Max Chl Dpth (m)	2.48	Hydr. Depth (m)	1.00	2.02
1.03				
Conv. Total (m3/s)	4141.0	Conv. (m3/s)	177.4	3774.6
189.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.73	20.18
7.72				
Min Ch El (m)	10.08	Shear (N/m2)	0.05	0.11
0.05				
Alpha	1.36	Stream Power (N/m s)	0.00	0.03
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	174.42	523.46
135.75				
C & E Loss (m)	0.00	Cum SA (1000 m2)	110.57	220.33
89.08				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.34	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.31	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	4.77	33.11
4.96				
E.G. Slope (m/m)	0.000063	Area (m2)	4.77	33.11
4.96				
Q Total (m3/s)	27.00	Flow (m3/s)	0.99	24.98
1.03				
Top Width (m)	29.45	Top Width (m)	5.63	17.92
5.90				
Vel Total (m/s)	0.63	Avg. Vel. (m/s)	0.21	0.75
0.21				
Max Chl Dpth (m)	2.24	Hydr. Depth (m)	0.85	1.85
0.84				
Conv. Total (m3/s)	3412.9	Conv. (m3/s)	124.5	3157.6
130.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.87	19.36
7.06				
Min Ch El (m)	10.08	Shear (N/m2)	0.43	1.05
0.43				
Alpha	1.33	Stream Power (N/m s)	0.09	0.79
0.09				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	112.02	392.34
88.22				
C & E Loss (m)	0.00	Cum SA (1000 m2)	94.14	203.95
74.74				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.50	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.86	36.53
6.10				
E.G. Slope (m/m)	0.000046	Area (m2)	5.86	36.53
6.10				

Q Total (m3/s)	27.00	Flow (m3/s)	1.12	24.69
1.19				
Top Width (m)	30.69	Top Width (m)	6.08	18.44
6.17				
Vel Total (m/s)	0.56	Avg. Vel. (m/s)	0.19	0.68
0.20				
Max Chl Dpth (m)	2.43	Hydr. Depth (m)	0.96	1.98
0.99				
Conv. Total (m3/s)	3978.9	Conv. (m3/s)	165.3	3637.9
175.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.54	20.00
7.58				
Min Ch El (m)	10.08	Shear (N/m2)	0.35	0.82
0.36				
Alpha	1.36	Stream Power (N/m s)	0.07	0.56
0.07				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	143.50	460.12
112.34				
C & E Loss (m)	0.00	Cum SA (1000 m2)	103.76	213.48
82.68				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.83	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.81	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	7.87	42.39
8.09				
E.G. Slope (m/m)	0.000029	Area (m2)	7.87	42.39
8.09				
Q Total (m3/s)	27.00	Flow (m3/s)	1.33	24.26
1.41				
Top Width (m)	32.76	Top Width (m)	6.83	19.31
6.62				
Vel Total (m/s)	0.46	Avg. Vel. (m/s)	0.17	0.57
0.17				
Max Chl Dpth (m)	2.74	Hydr. Depth (m)	1.15	2.20
1.22				
Conv. Total (m3/s)	5012.5	Conv. (m3/s)	246.1	4504.4
261.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.66	21.07
8.44				
Min Ch El (m)	10.08	Shear (N/m2)	0.26	0.57
0.27				

Alpha	1.39	Stream Power (N/m s)	0.04	0.33
0.05				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	187.26	550.96
146.83				
C & E Loss (m)	0.00	Cum SA (1000 m2)	113.92	218.57
92.48				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 61

INPUT

Description:

Station	Elevation	Data	num=	32						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	13.4523	3.4016	13.4523	4.3286	13.3825	4.674	13.1825	4.674	13.3825	
4.9226	13.0294	4.9226	13.1825	5.1667	12.8472	5.1667	13.0294	5.4154	12.6806	
5.4154	12.8472	5.6548	12.514	5.6548	12.6806	5.8897	12.337	5.8897	12.514	
6.1522	12.1704	6.1522	12.337	6.3962	11.9882	6.3962	12.1704	6.6403	11.8164	
6.6403	11.9882	6.889	11.6602	6.889	11.8164	7.1376	11.4832	7.1376	11.6602	
7.3863	11.4832	9.4126	10.0642	20.4568	10.0635	22.2535	11.31	25.5968	13.6295	
31.8363	13.5626	32.611	13.4153							

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
0	.03	4.3286	.015
		25.5968	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	4.3286	25.5968		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.71	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	11.70	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.49	Flow Area (m2)		21.92
7.61				
E.G. Slope (m/m)	0.000028	Area (m2)		21.92
7.61				
Q Total (m3/s)	10.00	Flow (m3/s)		9.09
0.91				

Top Width (m)	28.77	Top Width (m)		15.87
12.90				
Vel Total (m/s)	0.34	Avg. Vel. (m/s)		0.41
0.12				
Max Chl Dpth (m)	1.64	Hydr. Depth (m)		1.38
0.59				
Conv. Total (m3/s)	1886.8	Conv. (m3/s)		1715.5
171.3				
Length Wtd. (m)	8.95	Wetted Per. (m)		17.23
13.71				
Min Ch El (m)	10.06	Shear (N/m2)		0.35
0.15				
Alpha	1.38	Stream Power (N/m s)		0.15
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	82.91	320.34
63.26				
C & E Loss (m)	0.00	Cum SA (1000 m2)	84.58	190.62
64.51				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.10	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	12.10	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.49	Flow Area (m2)		28.47
12.85				
E.G. Slope (m/m)	0.000012	Area (m2)		28.47
12.85				
Q Total (m3/s)	10.00	Flow (m3/s)		8.63
1.37				
Top Width (m)	30.46	Top Width (m)		17.02
13.44				
Vel Total (m/s)	0.24	Avg. Vel. (m/s)		0.30
0.11				
Max Chl Dpth (m)	2.03	Hydr. Depth (m)		1.67
0.96				
Conv. Total (m3/s)	2848.7	Conv. (m3/s)		2458.3
390.4				
Length Wtd. (m)	8.95	Wetted Per. (m)		19.31
14.78				
Min Ch El (m)	10.06	Shear (N/m2)		0.18

0.11				
Alpha	1.38	Stream Power (N/m s)		0.05
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	124.39	412.26
94.88				
C & E Loss (m)	0.00	Cum SA (1000 m2)	98.50	204.21
76.22				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	12.55	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.49	Flow Area (m2)		36.50
19.10				
E.G. Slope (m/m)	0.000006	Area (m2)		36.50
19.10				
Q Total (m3/s)	10.00	Flow (m3/s)		8.28
1.72				
Top Width (m)	32.38	Top Width (m)		18.33
14.05				
Vel Total (m/s)	0.18	Avg. Vel. (m/s)		0.23
0.09				
Max Chl Dpth (m)	2.49	Hydr. Depth (m)		1.99
1.36				
Conv. Total (m3/s)	4160.0	Conv. (m3/s)		3443.4
716.5				
Length Wtd. (m)	8.95	Wetted Per. (m)		21.68
15.99				
Min Ch El (m)	10.06	Shear (N/m2)		0.10
0.07				
Alpha	1.36	Stream Power (N/m s)		0.02
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	173.80	516.06
133.20				
C & E Loss (m)	0.00	Cum SA (1000 m2)	109.95	216.64
87.05				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.33	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	12.31	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.88	Flow Area (m2)		32.07
15.68				
E.G. Slope (m/m)	0.000062	Area (m2)		32.07
15.68				
Q Total (m3/s)	27.00	Flow (m3/s)		22.81
4.19				
Top Width (m)	31.34	Top Width (m)		17.62
13.72				
Vel Total (m/s)	0.57	Avg. Vel. (m/s)		0.71
0.27				
Max Chl Dpth (m)	2.24	Hydr. Depth (m)		1.82
1.14				
Conv. Total (m3/s)	3422.3	Conv. (m3/s)		2891.8
530.6				
Length Wtd. (m)	8.95	Wetted Per. (m)		20.40
15.34				
Min Ch El (m)	10.06	Shear (N/m2)		0.96
0.62				
Alpha	1.37	Stream Power (N/m s)		0.68
0.17				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	111.55	385.83
86.15				
C & E Loss (m)	0.00	Cum SA (1000 m2)	93.58	200.40
72.78				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.02	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	12.50	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.88	Flow Area (m2)		35.48
18.31				
E.G. Slope (m/m)	0.000046	Area (m2)		35.48
18.31				
Q Total (m3/s)	27.00	Flow (m3/s)		22.45
4.55				
Top Width (m)	32.14	Top Width (m)		18.17
13.97				
Vel Total (m/s)	0.50	Avg. Vel. (m/s)		0.63
0.25				
Max Chl Dpth (m)	2.43	Hydr. Depth (m)		1.95
1.31				
Conv. Total (m3/s)	3986.6	Conv. (m3/s)		3314.2
672.4				
Length Wtd. (m)	8.95	Wetted Per. (m)		21.39
15.84				
Min Ch El (m)	10.06	Shear (N/m2)		0.75
0.52				
Alpha	1.36	Stream Power (N/m s)		0.47
0.13				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	142.91	452.92
109.90				
C & E Loss (m)	0.00	Cum SA (1000 m2)	103.15	209.82
80.66				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.82	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	12.81	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.88	Flow Area (m2)		41.31
22.76				
E.G. Slope (m/m)	0.000029	Area (m2)		41.31
22.76				
Q Total (m3/s)	27.00	Flow (m3/s)		21.96
5.04				
Top Width (m)	33.46	Top Width (m)		19.06

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
0 .03 4.3286 .015 25.5968 .03		

Bank Sta: Left Right	Coeff Contr.	Expan.
4.3286 25.5968	.0015	.01

Downstream Deck/Roadway Coordinates
num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
17.83 13.55 12.83 39.03 13.55 12.83

Downstream Bridge Cross Section Data
Station Elevation Data num= 13
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
11.7989 13.5854 14.0193 13.6641 16.5231 13.5224 17.5536 13.4475 20.5733 11.31
22.3508 10.0518 33.8137 10.0511 35.6533 11.31 38.6794 13.3809 39.1044 13.4416
40.0226 13.5023 42.1057 13.5024 44.4809 13.3051

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
11.7989 .03 17.5536 .015 38.6794 .03		

Bank Sta: Left Right	Coeff Contr.	Expan.
17.5536 38.6794	.0015	.01

Upstream Embankment side slope	=	1.4 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.4 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data
Upstream num= 2
Sta Elev Sta Elev
4.54 12.83 8.76 12.83
Downstream num= 2
Sta Elev Sta Elev
17.83 12.83 22.06 12.83

Abutment Data
Upstream num= 2
Sta Elev Sta Elev
20.67 12.83 25.73 12.83
Downstream num= 2
Sta Elev Sta Elev
33.96 12.83 39.03 12.83

Number of Piers = 2

Pier Data
 Pier Station Upstream= 12.43 Downstream= 25.73
 Upstream num= 2
 Width Elev Width Elev
 .5 10.05 .5 12.85128
 Downstream num= 2
 Width Elev Width Elev
 .5 10.05 .5 12.83

Pier Data
 Pier Station Upstream= 17.61 Downstream= 30.7739
 Upstream num= 2
 Width Elev Width Elev
 .5 10.06 .5 13.2
 Downstream num= 2
 Width Elev Width Elev
 .5 10.06 .5 13.2

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
 inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.71	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.70	E.G. Elev (m)	11.71
11.71			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.70
11.70			
Q Bridge (m3/s)	8.63	Crit W.S. (m)	10.52
10.50			
Q Weir (m3/s)		Max Chl Dpth (m)	1.63
1.65			
Weir Sta Lft (m)		Vel Total (m/s)	0.40
0.29			
Weir Sta Rgt (m)		Flow Area (m2)	25.21
34.99			
Weir Submerg		Froude # Chl	0.12
0.09			
Weir Max Depth (m)		Specif Force (m3)	17.02

24.38			
Min El Weir Flow (m)	11.09	Hydr Depth (m)	1.06
1.25			
Min El Prs (m)	12.82	W.P. Total (m)	33.99
40.50			
Delta EG (m)	0.01	Conv. Total (m3/s)	1241.6
1604.3			
Delta WS (m)	0.00	Top Width (m)	23.81
27.96			
BR Open Area (m2)	29.90	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.49	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.47
0.33			
BR Sel Method	Energy only	Power Total (N/m s)	0.19
0.09			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.10	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.10	E.G. Elev (m)	12.10
12.10			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.10
12.10			
Q Bridge (m3/s)	7.87	Crit W.S. (m)	10.52
10.50			
Q Weir (m3/s)		Max Chl Dpth (m)	2.03
2.05			
Weir Sta Lft (m)		Vel Total (m/s)	0.29
0.22			
Weir Sta Rgt (m)		Flow Area (m2)	34.84
46.37			
Weir Submerg		Froude # Chl	0.08
0.06			
Weir Max Depth (m)		Specif Force (m3)	28.88
40.43			
Min El Weir Flow (m)	11.09	Hydr Depth (m)	1.43
1.58			
Min El Prs (m)	12.82	W.P. Total (m)	37.46
45.26			
Delta EG (m)	0.00	Conv. Total (m3/s)	1827.0
2301.1			
Delta WS (m)	0.00	Top Width (m)	24.34
29.32			
BR Open Area (m2)	29.90	Frctn Loss (m)	0.00

0.00	BR Open Vel (m/s)	0.36	C & E Loss (m)	0.00
0.00	BR Sluice Coef		Shear Total (N/m2)	0.27
0.19	BR Sel Method	Energy only	Power Total (N/m s)	0.08
0.04				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.55	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.55	E.G. Elev (m)	12.55
12.55			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.55
12.55			
Q Bridge (m3/s)	7.23	Crit W.S. (m)	10.52
10.50			
Q Weir (m3/s)		Max Chl Dpth (m)	2.49
2.50			
Weir Sta Lft (m)		Vel Total (m/s)	0.22
0.17			
Weir Sta Rgt (m)		Flow Area (m2)	46.06
60.04			
Weir Submerg		Froude # Chl	0.05
0.04			
Weir Max Depth (m)		Specif Force (m3)	47.20
64.51			
Min El Weir Flow (m)	11.09	Hydr Depth (m)	1.85
1.94			
Min El Prs (m)	12.82	W.P. Total (m)	41.41
50.69			
Delta EG (m)	0.00	Conv. Total (m3/s)	2586.6
3197.7			
Delta WS (m)	0.00	Top Width (m)	24.96
30.88			
BR Open Area (m2)	29.90	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.27	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.16
0.11			
BR Sel Method	Energy only	Power Total (N/m s)	0.04
0.02			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.33	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.31	E.G. Elev (m)	12.33
12.33			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.30
12.31			
Q Bridge (m3/s)	20.42	Crit W.S. (m)	10.93
10.91			
Q Weir (m3/s)		Max Chl Dpth (m)	2.23
2.26			
Weir Sta Lft (m)		Vel Total (m/s)	0.68
0.51			
Weir Sta Rgt (m)		Flow Area (m2)	39.78
52.65			
Weir Submerg		Froude # Chl	0.18
0.14			
Weir Max Depth (m)		Specif Force (m3)	38.12
52.19			
Min El Weir Flow (m)	11.09	Hydr Depth (m)	1.62
1.75			
Min El Prs (m)	12.82	W.P. Total (m)	39.21
47.79			
Delta EG (m)	0.01	Conv. Total (m3/s)	2152.5
2706.0			
Delta WS (m)	0.01	Top Width (m)	24.62
30.05			
BR Open Area (m2)	29.90	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.84	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.57
1.08			
BR Sel Method	Energy only	Power Total (N/m s)	1.06
0.55			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.51	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.50	E.G. Elev (m)	12.51

12.51			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.49
12.50			
Q Bridge (m3/s)	19.73	Crit W.S. (m)	10.93
10.91			
Q Weir (m3/s)		Max Chl Dpth (m)	2.43
2.45			
Weir Sta Lft (m)		Vel Total (m/s)	0.61
0.46			
Weir Sta Rgt (m)		Flow Area (m2)	44.53
58.39			
Weir Submerg		Froude # Chl	0.15
0.12			
Weir Max Depth (m)		Specif Force (m3)	45.98
62.53			
Min El Weir Flow (m)	11.09	Hydr Depth (m)	1.79
1.90			
Min El Prs (m)	12.82	W.P. Total (m)	40.88
50.05			
Delta EG (m)	0.01	Conv. Total (m3/s)	2479.0
3086.9			
Delta WS (m)	0.00	Top Width (m)	24.88
30.70			
BR Open Area (m2)	29.90	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.75	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.27
0.88			
BR Sel Method	Energy only	Power Total (N/m s)	0.77
0.40			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.82	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.81	E.G. Elev (m)	12.82
12.82			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.81
12.81			
Q Bridge (m3/s)	18.77	Crit W.S. (m)	10.93
10.91			
Q Weir (m3/s)		Max Chl Dpth (m)	2.74
2.76			
Weir Sta Lft (m)		Vel Total (m/s)	0.51
0.40			
Weir Sta Rgt (m)		Flow Area (m2)	52.44

68.14	Weir Submerg		Froude # Ch1	0.12
0.10	Weir Max Depth (m)		Specif Force (m3)	60.97
82.07	Min El Weir Flow (m)	11.09	Hydr Depth (m)	2.07
2.15	Min El Prs (m)	12.82	W.P. Total (m)	43.61
53.79	Delta EG (m)	0.01	Conv. Total (m3/s)	3047.1
3753.9	Delta WS (m)	0.00	Top Width (m)	25.30
31.77	BR Open Area (m2)	29.90	Frctn Loss (m)	0.00
0.01	BR Open Vel (m/s)	0.63	C & E Loss (m)	0.00
0.00	BR Sluice Coef		Shear Total (N/m2)	0.93
0.64	BR Sel Method	Energy only	Power Total (N/m s)	0.48
0.25				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 60

INPUT

Description:

Station Elevation Data	num=	13
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
11.7989 13.5854 14.0193 13.6641 16.5231 13.5224 17.5536 13.4475 20.5733 11.31		
22.3508 10.0518 33.8137 10.0511 35.6533 11.31 38.6794 13.3809 39.1044 13.4416		
40.0226 13.5023 42.1057 13.5024 44.4809 13.3051		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
11.7989 .03 17.5536 .015 38.6794 .03		

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr.
Expan.		
17.5536 38.6794	200 200 200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.70	Element	Left OB	Channel
---------------	-------	---------	---------	---------

Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.70	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.85	22.76
8.13				
E.G. Slope (m/m)	0.000018	Area (m2)	8.85	22.76
8.13				
Q Total (m3/s)	10.00	Flow (m3/s)	1.16	7.82
1.02				
Top Width (m)	33.24	Top Width (m)	8.52	16.19
8.52				
Vel Total (m/s)	0.25	Avg. Vel. (m/s)	0.13	0.34
0.13				
Max Chl Dpth (m)	1.65	Hydr. Depth (m)	1.04	1.41
0.95				
Conv. Total (m3/s)	2336.1	Conv. (m3/s)	271.7	1826.6
237.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.02	17.23
9.87				
Min Ch El (m)	10.05	Shear (N/m2)	0.16	0.24
0.15				
Alpha	1.51	Stream Power (N/m s)	0.02	0.08
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	81.24	316.29
61.64				
C & E Loss (m)	0.00	Cum SA (1000 m2)	82.98	187.92
62.75				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.10	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.10	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	12.39	29.45
11.66				
E.G. Slope (m/m)	0.000008	Area (m2)	12.39	29.45
11.66				
Q Total (m3/s)	10.00	Flow (m3/s)	1.26	7.59
1.15				
Top Width (m)	35.76	Top Width (m)	9.22	17.34
9.20				
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.10	0.26

0.10				
Max Chl Dpth (m)	2.05	Hydr. Depth (m)	1.34	1.70
1.27				
Conv. Total (m3/s)	3509.9	Conv. (m3/s)	441.7	2665.3
402.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.21	18.62
11.06				
Min Ch El (m)	10.05	Shear (N/m2)	0.09	0.13
0.08				
Alpha	1.51	Stream Power (N/m s)	0.01	0.03
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	122.05	407.11
92.53				
C & E Loss (m)	0.00	Cum SA (1000 m2)	96.77	201.40
74.33				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.77	37.64
16.03				
E.G. Slope (m/m)	0.000004	Area (m2)	16.77	37.64
16.03				
Q Total (m3/s)	10.00	Flow (m3/s)	1.33	7.43
1.24				
Top Width (m)	38.62	Top Width (m)	10.01	18.65
9.97				
Vel Total (m/s)	0.14	Avg. Vel. (m/s)	0.08	0.20
0.08				
Max Chl Dpth (m)	2.50	Hydr. Depth (m)	1.68	2.02
1.61				
Conv. Total (m3/s)	5108.3	Conv. (m3/s)	677.0	3797.8
633.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.58	20.22
12.41				
Min Ch El (m)	10.05	Shear (N/m2)	0.05	0.07
0.05				
Alpha	1.52	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	170.64	509.60
129.96				
C & E Loss (m)	0.00	Cum SA (1000 m2)	108.07	213.71

85.01

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.32	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.30	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	14.31	33.04
13.57				
E.G. Slope (m/m)	0.000042	Area (m2)	14.31	33.04
13.57				
Q Total (m3/s)	27.00	Flow (m3/s)	3.49	20.29
3.23				
Top Width (m)	37.04	Top Width (m)	9.57	17.93
9.54				
Vel Total (m/s)	0.44	Avg. Vel. (m/s)	0.24	0.61
0.24				
Max Chl Dpth (m)	2.25	Hydr. Depth (m)	1.50	1.84
1.42				
Conv. Total (m3/s)	4190.9	Conv. (m3/s)	541.5	3148.8
500.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.83	19.34
11.66				
Min Ch El (m)	10.05	Shear (N/m2)	0.49	0.70
0.47				
Alpha	1.52	Stream Power (N/m s)	0.12	0.43
0.11				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	108.84	380.09
83.41				
C & E Loss (m)	0.00	Cum SA (1000 m2)	91.77	197.53
70.82				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.50	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015

0.030				
W.S. Elev (m)	12.49	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.17	36.53
15.43				
E.G. Slope (m/m)	0.000031	Area (m2)	16.17	36.53
15.43				
Q Total (m3/s)	27.00	Flow (m3/s)	3.56	20.12
3.32				
Top Width (m)	38.25	Top Width (m)	9.90	18.48
9.87				
Vel Total (m/s)	0.40	Avg. Vel. (m/s)	0.22	0.55
0.22				
Max Chl Dpth (m)	2.44	Hydr. Depth (m)	1.63	1.98
1.56				
Conv. Total (m3/s)	4882.5	Conv. (m3/s)	643.5	3638.2
600.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.40	20.01
12.23				
Min Ch El (m)	10.05	Shear (N/m2)	0.39	0.55
0.38				
Alpha	1.52	Stream Power (N/m s)	0.09	0.30
0.08				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	139.86	446.63
106.78				
C & E Loss (m)	0.00	Cum SA (1000 m2)	101.28	206.90
78.64				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.82	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.81	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	19.38	42.49
18.62				
E.G. Slope (m/m)	0.000019	Area (m2)	19.38	42.49
18.62				
Q Total (m3/s)	27.00	Flow (m3/s)	3.65	19.90
3.45				
Top Width (m)	40.23	Top Width (m)	10.45	19.38
10.40				
Vel Total (m/s)	0.34	Avg. Vel. (m/s)	0.19	0.47
0.19				
Max Chl Dpth (m)	2.76	Hydr. Depth (m)	1.85	2.19

1.79				
Conv. Total (m3/s)	6126.3	Conv. (m3/s)	828.2	4515.8
782.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.35	21.11
13.17				
Min Ch El (m)	10.05	Shear (N/m2)	0.28	0.38
0.27				
Alpha	1.52	Stream Power (N/m s)	0.05	0.18
0.05				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	182.81	535.37
139.97				
C & E Loss (m)	0.00	Cum SA (1000 m2)	111.27	211.73
88.25				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 59

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.2994	13.2671	14.676	13.4157	16.0111	13.4157	18.7872	13.1961	21.5207	11.23
23.1764	10.0392	34.8921	10.0381	36.6325	11.23	38.6375	12.6029	38.6933	12.8821
38.9725	13.1533	39.3714	13.3607	39.4831	13.3766	39.7544	13.3766	42.11	13.4408
42.7243	13.4567	44.57	13.3532						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
13.2994	.03	18.7872	.015	39.3714	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	18.7872	39.3714		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.70	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.70	Reach Len. (m)	16.89	16.89
16.89				
Crit W.S. (m)	10.22	Flow Area (m2)	17.59	23.34
12.88				

E.G. Slope (m/m)	0.000011	Area (m2)	17.59	23.34
12.88				
Q Total (m3/s)	10.00	Flow (m3/s)	2.34	6.19
1.47				
Top Width (m)	37.32	Top Width (m)	10.65	16.44
10.23				
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.13	0.27
0.11				
Max Chl Dpth (m)	2.16	Hydr. Depth (m)	1.65	1.42
1.26				
Conv. Total (m3/s)	3048.8	Conv. (m3/s)	713.1	1886.5
449.2				
Length Wtd. (m)	16.89	Wetted Per. (m)	13.12	17.49
12.03				
Min Ch El (m)	10.04	Shear (N/m2)	0.14	0.14
0.11				
Alpha	1.43	Stream Power (N/m s)	0.02	0.04
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	78.60	311.68
59.54				
C & E Loss (m)	0.00	Cum SA (1000 m2)	81.06	184.66
60.88				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.10	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.10	Reach Len. (m)	16.89	16.89
16.89				
Crit W.S. (m)	10.22	Flow Area (m2)	21.99	30.14
17.10				
E.G. Slope (m/m)	0.000005	Area (m2)	21.99	30.14
17.10				
Q Total (m3/s)	10.00	Flow (m3/s)	2.22	6.24
1.54				
Top Width (m)	39.81	Top Width (m)	11.32	17.58
10.90				
Vel Total (m/s)	0.14	Avg. Vel. (m/s)	0.10	0.21
0.09				
Max Chl Dpth (m)	2.56	Hydr. Depth (m)	1.94	1.71
1.57				
Conv. Total (m3/s)	4397.7	Conv. (m3/s)	976.0	2744.9

676.8				
Length Wtd. (m)	16.89	Wetted Per. (m)	14.31	18.88
13.21				
Min Ch El (m)	10.04	Shear (N/m2)	0.08	0.08
0.07				
Alpha	1.45	Stream Power (N/m s)	0.01	0.02
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	118.61	401.15
89.66				
C & E Loss (m)	0.00	Cum SA (1000 m2)	94.71	197.91
72.32				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.55	Reach Len. (m)	16.89	16.89
16.89				
Crit W.S. (m)	10.22	Flow Area (m2)	27.31	38.44
22.24				
E.G. Slope (m/m)	0.000003	Area (m2)	27.31	38.44
22.24				
Q Total (m3/s)	10.00	Flow (m3/s)	2.13	6.29
1.58				
Top Width (m)	42.65	Top Width (m)	12.09	18.88
11.68				
Vel Total (m/s)	0.11	Avg. Vel. (m/s)	0.08	0.16
0.07				
Max Chl Dpth (m)	3.01	Hydr. Depth (m)	2.26	2.04
1.90				
Conv. Total (m3/s)	6203.5	Conv. (m3/s)	1319.6	3901.1
982.8				
Length Wtd. (m)	16.89	Wetted Per. (m)	15.65	20.47
14.56				
Min Ch El (m)	10.04	Shear (N/m2)	0.04	0.05
0.04				
Alpha	1.47	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	166.23	502.00
126.13				
C & E Loss (m)	0.00	Cum SA (1000 m2)	105.86	209.95
82.85				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.31	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.30	Reach Len. (m)	16.89	16.89
16.89				
Crit W.S. (m)	10.51	Flow Area (m2)	24.32	33.77
19.35				
E.G. Slope (m/m)	0.000027	Area (m2)	24.32	33.77
19.35				
Q Total (m3/s)	27.00	Flow (m3/s)	5.87	16.91
4.22				
Top Width (m)	41.08	Top Width (m)	11.67	18.16
11.25				
Vel Total (m/s)	0.35	Avg. Vel. (m/s)	0.24	0.50
0.22				
Max Chl Dpth (m)	2.76	Hydr. Depth (m)	2.08	1.86
1.72				
Conv. Total (m3/s)	5168.3	Conv. (m3/s)	1123.5	3237.5
807.3				
Length Wtd. (m)	16.89	Wetted Per. (m)	14.91	19.59
13.82				
Min Ch El (m)	10.04	Shear (N/m2)	0.44	0.46
0.37				
Alpha	1.46	Stream Power (N/m s)	0.11	0.23
0.08				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	104.98	373.41
80.11				
C & E Loss (m)	0.00	Cum SA (1000 m2)	89.65	193.92
68.74				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.50	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.49	Reach Len. (m)	16.89	16.89
16.89				
Crit W.S. (m)	10.51	Flow Area (m2)	26.59	37.31
21.54				
E.G. Slope (m/m)	0.000021	Area (m2)	26.59	37.31
21.54				
Q Total (m3/s)	27.00	Flow (m3/s)	5.77	16.96
4.26				
Top Width (m)	42.27	Top Width (m)	11.99	18.71
11.57				
Vel Total (m/s)	0.32	Avg. Vel. (m/s)	0.22	0.45
0.20				
Max Chl Dpth (m)	2.95	Hydr. Depth (m)	2.22	1.99
1.86				
Conv. Total (m3/s)	5948.7	Conv. (m3/s)	1271.5	3737.5
939.6				
Length Wtd. (m)	16.89	Wetted Per. (m)	15.48	20.26
14.39				
Min Ch El (m)	10.04	Shear (N/m2)	0.35	0.37
0.30				
Alpha	1.46	Stream Power (N/m s)	0.08	0.17
0.06				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	135.58	439.25
103.08				
C & E Loss (m)	0.00	Cum SA (1000 m2)	99.09	203.18
76.50				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.81	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.81	Reach Len. (m)	16.89	16.89
16.89				
Crit W.S. (m)	10.51	Flow Area (m2)	30.45	43.32
25.27				
E.G. Slope (m/m)	0.000013	Area (m2)	30.45	43.32

25.27				
Q Total (m3/s)	27.00	Flow (m3/s)	5.62	17.06
4.31				
Top Width (m)	43.98	Top Width (m)	12.52	19.35
12.11				
Vel Total (m/s)	0.27	Avg. Vel. (m/s)	0.18	0.39
0.17				
Max Chl Dpth (m)	3.27	Hydr. Depth (m)	2.43	2.24
2.09				
Conv. Total (m3/s)	7358.9	Conv. (m3/s)	1532.9	4650.2
1175.8				
Length Wtd. (m)	16.89	Wetted Per. (m)	16.41	21.20
15.32				
Min Ch El (m)	10.04	Shear (N/m2)	0.24	0.27
0.22				
Alpha	1.48	Stream Power (N/m s)	0.05	0.11
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	177.83	526.79
135.58				
C & E Loss (m)	0.00	Cum SA (1000 m2)	108.97	207.85
86.00				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 58.5

INPUT

Description:

Distance from Upstream XS = 16.89

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
15.45	13.4	11.92	40.45	13.4	11.92				

Upstream Bridge Cross Section Data

Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.2994	13.2671	14.676	13.4157	16.0111	13.4157	18.7872	13.1961	21.5207	11.23
23.1764	10.0392	34.8921	10.0381	36.6325	11.23	38.6375	12.6029	38.6933	12.8821
38.9725	13.1533	39.3714	13.3607	39.4831	13.3766	39.7544	13.3766	42.11	13.4408
42.7243	13.4567	44.57	13.3532						

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
13.2994	.03	18.7872	.015
39.3714	.03		

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	18.7872	39.3714		.0015	.01

Downstream Deck/Roadway	Coordinates								
num=	2								
Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
13.16	13.4	11.92	38.17	13.4	11.92				

Downstream Bridge Cross Section Data									
Station Elevation Data	num=	10							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.8144	13.1041	13.9394	13.0502	16.3053	13.1215	19.2971	11.19	21.1075	10.0212
32.5214	10.0202	34.2786	11.19	36.9669	12.9797	38.4892	13.0687	40.3888	13.0414

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
11.8144	.03	16.3053	.015
36.9669	.03		

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	16.3053	36.9669		.0015	.01

Upstream Embankment side slope	=	5 horiz. to 1.0 vertical
Downstream Embankment side slope	=	5 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data			
Upstream	num=	2	
Sta	Elev	Sta	Elev
15.46	11.92	24.06	11.92
Downstream	num=	2	
Sta	Elev	Sta	Elev
13.16	11.92	21.77	11.92

Abutment Data			
Upstream	num=	2	
Sta	Elev	Sta	Elev
34.26	11.92	40.45	11.92
Downstream	num=	2	
Sta	Elev	Sta	Elev
31.97	11.92	38.16	11.92

Number of Piers = 1

Pier Data

Pier Station Upstream= 29.07 Downstream= 26.78

Upstream num= 2
 Width Elev Width Elev
 1 10.14 1 11.92

Downstream num= 2
 Width Elev Width Elev
 1 10.14 1 11.92

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
 inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.70	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.70	E.G. Elev (m)	11.70
11.70			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.70
11.69			
Q Bridge (m3/s)	4.61	Crit W.S. (m)	10.23
10.24			
Q Weir (m3/s)		Max Chl Dpth (m)	1.66
1.67			
Weir Sta Lft (m)		Vel Total (m/s)	0.22
0.24			
Weir Sta Rgt (m)		Flow Area (m2)	45.70
41.41			
Weir Submerg		Froude # Chl	0.07
0.08			
Weir Max Depth (m)		Specif Force (m3)	37.80
33.96			
Min El Weir Flow (m)	9.54	Hydr Depth (m)	1.52
1.46			
Min El Prs (m)	11.92	W.P. Total (m)	40.97
39.44			
Delta EG (m)	0.00	Conv. Total (m3/s)	2152.9
1939.5			
Delta WS (m)	0.00	Top Width (m)	30.07
28.41			

BR Open Area (m2)	17.31	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.30	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.24
0.27			
BR Sel Method	Energy only	Power Total (N/m s)	0.05
0.07			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.10	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.10	E.G. Elev (m)	12.10
12.10			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.10
12.10			
Q Bridge (m3/s)	3.48	Crit W.S. (m)	10.23
10.24			
Q Weir (m3/s)		Max Chl Dpth (m)	2.06
2.08			
Weir Sta Lft (m)		Vel Total (m/s)	0.18
0.19			
Weir Sta Rgt (m)		Flow Area (m2)	56.39
51.52			
Weir Submerg		Froude # Chl	0.04
0.04			
Weir Max Depth (m)		Specif Force (m3)	58.34
52.67			
Min El Weir Flow (m)	9.54	Hydr Depth (m)	2.54
2.46			
Min El Prs (m)	11.92	W.P. Total (m)	53.44
52.22			
Delta EG (m)	0.00	Conv. Total (m3/s)	2534.0
2250.3			
Delta WS (m)	0.00	Top Width (m)	22.23
20.90			
BR Open Area (m2)	17.31	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.20	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.16
0.19			
BR Sel Method	Energy only	Power Total (N/m s)	0.03
0.04			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.55	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.55	E.G. Elev (m)	12.55
12.55			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.55
12.55			
Q Bridge (m3/s)	2.77	Crit W.S. (m)	10.23
10.24			
Q Weir (m3/s)		Max Chl Dpth (m)	2.51
2.53			
Weir Sta Lft (m)		Vel Total (m/s)	0.15
0.16			
Weir Sta Rgt (m)		Flow Area (m2)	66.85
61.47			
Weir Submerg		Froude # Chl	0.03
0.03			
Weir Max Depth (m)		Specif Force (m3)	86.32
78.33			
Min El Weir Flow (m)	9.54	Hydr Depth (m)	2.81
2.69			
Min El Prs (m)	11.92	W.P. Total (m)	56.14
55.26			
Delta EG (m)	0.00	Conv. Total (m3/s)	3183.6
2823.0			
Delta WS (m)	0.00	Top Width (m)	23.77
22.83			
BR Open Area (m2)	17.31	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.16	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.12
0.14			
BR Sel Method	Energy only	Power Total (N/m s)	0.02
0.02			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.31	Element	Inside BR US
Inside BR DS			

W.S. US. (m)	12.30	E.G. Elev (m)	12.31
12.31			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.30
12.29			
Q Bridge (m3/s)	8.47	Crit W.S. (m)	10.54
10.60			
Q Weir (m3/s)		Max Chl Dpth (m)	2.26
2.27			
Weir Sta Lft (m)		Vel Total (m/s)	0.44
0.48			
Weir Sta Rgt (m)		Flow Area (m2)	60.94
55.77			
Weir Submerg		Froude # Chl	0.09
0.10			
Weir Max Depth (m)		Specif Force (m3)	71.20
64.51			
Min El Weir Flow (m)	9.54	Hydr Depth (m)	2.66
2.56			
Min El Prs (m)	11.92	W.P. Total (m)	54.64
53.55			
Delta EG (m)	0.01	Conv. Total (m3/s)	2809.7
2488.6			
Delta WS (m)	0.01	Top Width (m)	22.91
21.75			
BR Open Area (m2)	17.31	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.49	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.01
1.20			
BR Sel Method	Energy only	Power Total (N/m s)	0.45
0.58			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.50	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.49	E.G. Elev (m)	12.50
12.50			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.49
12.49			
Q Bridge (m3/s)	7.70	Crit W.S. (m)	10.54
10.60			
Q Weir (m3/s)		Max Chl Dpth (m)	2.45
2.47			
Weir Sta Lft (m)		Vel Total (m/s)	0.41
0.45			

Weir Sta Rgt (m)		Flow Area (m2)	65.39
60.03			
Weir Submerg		Froude # Ch1	0.08
0.09			
Weir Max Depth (m)		Specif Force (m3)	83.23
75.54			
Min El Weir Flow (m)	9.54	Hydr Depth (m)	2.78
2.66			
Min El Prs (m)	11.92	W.P. Total (m)	55.78
54.84			
Delta EG (m)	0.01	Conv. Total (m3/s)	3089.8
2736.9			
Delta WS (m)	0.01	Top Width (m)	23.56
22.56			
BR Open Area (m2)	17.31	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.45	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.88
1.04			
BR Sel Method	Energy only	Power Total (N/m s)	0.36
0.47			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.81	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.81	E.G. Elev (m)	12.81
12.81			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.80
12.80			
Q Bridge (m3/s)	6.64	Crit W.S. (m)	10.54
10.60			
Q Weir (m3/s)		Max Ch1 Dpth (m)	2.77
2.78			
Weir Sta Lft (m)		Vel Total (m/s)	0.37
0.40			
Weir Sta Rgt (m)		Flow Area (m2)	72.99
67.37			
Weir Submerg		Froude # Ch1	0.07
0.08			
Weir Max Depth (m)		Specif Force (m3)	104.90
95.50			
Min El Weir Flow (m)	9.54	Hydr Depth (m)	2.96
2.77			
Min El Prs (m)	11.92	W.P. Total (m)	57.65
57.36			

Delta EG (m)	0.01	Conv. Total (m3/s)	3587.2
3166.4			
Delta WS (m)	0.01	Top Width (m)	24.62
24.31			
BR Open Area (m2)	17.31	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.38	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.70
0.84			
BR Sel Method	Energy only	Power Total (N/m s)	0.26
0.34			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 58

INPUT

Description:

Station Elevation Data				num=	10
Sta	Elev	Sta	Elev	Sta	Elev
11.8144	13.1041	13.9394	13.0502	16.3053	13.1215
19.2971	11.19	21.1075	10.0212	32.5214	10.0202
34.2786	11.19	36.9669	12.9797	38.4892	13.0687
40.3888	13.0414				

Manning's n Values			num=	3
Sta	n Val	Sta	n Val	Sta
11.8144	.03	16.3053	.015	36.9669
				.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	16.3053	36.9669		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.70	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.69	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	14.76	23.35
11.20				
E.G. Slope (m/m)	0.000013	Area (m2)	14.76	23.35
11.20				
Q Total (m3/s)	10.00	Flow (m3/s)	2.01	6.69

1.30				
Top Width (m)	35.71	Top Width (m)	9.21	16.51
9.99				
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.14	0.29
0.12				
Max Chl Dpth (m)	2.51	Hydr. Depth (m)	1.60	1.41
1.12				
Conv. Total (m3/s)	2817.0	Conv. (m3/s)	566.7	1885.2
365.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.94	17.51
11.59				
Min Ch El (m)	10.02	Shear (N/m2)	0.15	0.16
0.12				
Alpha	1.47	Stream Power (N/m s)	0.02	0.05
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	75.59	307.83
57.26				
C & E Loss (m)	0.00	Cum SA (1000 m2)	79.19	182.11
58.87				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.10	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.09	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	18.61	30.22
15.41				
E.G. Slope (m/m)	0.000006	Area (m2)	18.61	30.22
15.41				
Q Total (m3/s)	10.00	Flow (m3/s)	1.90	6.70
1.40				
Top Width (m)	38.64	Top Width (m)	9.95	17.74
10.94				
Vel Total (m/s)	0.16	Avg. Vel. (m/s)	0.10	0.22
0.09				
Max Chl Dpth (m)	2.91	Hydr. Depth (m)	1.87	1.70
1.41				
Conv. Total (m3/s)	4102.2	Conv. (m3/s)	780.4	2747.6
574.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.18	18.98
13.03				
Min Ch El (m)	10.02	Shear (N/m2)	0.08	0.09
0.07				
Alpha	1.49	Stream Power (N/m s)	0.01	0.02

0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	114.82	396.42
86.54				
C & E Loss (m)	0.00	Cum SA (1000 m2)	92.69	196.18
70.13				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	23.34	38.63
20.65				
E.G. Slope (m/m)	0.000003	Area (m2)	23.34	38.63
20.65				
Q Total (m3/s)	10.00	Flow (m3/s)	1.82	6.70
1.48				
Top Width (m)	41.96	Top Width (m)	10.79	19.13
12.03				
Vel Total (m/s)	0.12	Avg. Vel. (m/s)	0.08	0.17
0.07				
Max Chl Dpth (m)	3.37	Hydr. Depth (m)	2.16	2.02
1.72				
Conv. Total (m3/s)	5839.4	Conv. (m3/s)	1063.7	3911.3
864.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	14.60	20.64
14.67				
Min Ch El (m)	10.02	Shear (N/m2)	0.05	0.05
0.04				
Alpha	1.50	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	161.48	496.44
121.97				
C & E Loss (m)	0.00	Cum SA (1000 m2)	103.67	208.09
80.45				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.30	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.29	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	20.56	33.70
17.56				
E.G. Slope (m/m)	0.000032	Area (m2)	20.56	33.70
17.56				
Q Total (m3/s)	27.00	Flow (m3/s)	5.03	18.09
3.88				
Top Width (m)	40.04	Top Width (m)	10.31	18.33
11.40				
Vel Total (m/s)	0.38	Avg. Vel. (m/s)	0.24	0.54
0.22				
Max Chl Dpth (m)	3.10	Hydr. Depth (m)	1.99	1.84
1.54				
Conv. Total (m3/s)	4799.6	Conv. (m3/s)	894.7	3215.1
689.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.78	19.68
13.72				
Min Ch El (m)	10.02	Shear (N/m2)	0.46	0.53
0.40				
Alpha	1.49	Stream Power (N/m s)	0.11	0.29
0.09				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	100.78	368.33
76.56				
C & E Loss (m)	0.00	Cum SA (1000 m2)	87.56	192.14
66.46				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.49	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.48	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	22.60	37.32
19.82				
E.G. Slope (m/m)	0.000024	Area (m2)	22.60	37.32
19.82				
Q Total (m3/s)	27.00	Flow (m3/s)	4.95	18.09
3.97				
Top Width (m)	41.46	Top Width (m)	10.67	18.92

11.87				
Vel Total (m/s)	0.34	Avg. Vel. (m/s)	0.22	0.48
0.20				
Max Chl Dpth (m)	3.30	Hydr. Depth (m)	2.12	1.97
1.67				
Conv. Total (m3/s)	5558.6	Conv. (m3/s)	1018.2	3723.3
817.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	14.38	20.39
14.42				
Min Ch El (m)	10.02	Shear (N/m2)	0.36	0.42
0.32				
Alpha	1.50	Stream Power (N/m s)	0.08	0.21
0.06				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	130.98	433.82
99.07				
C & E Loss (m)	0.00	Cum SA (1000 m2)	96.93	201.34
74.13				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.81	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.80	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	26.09	43.50
23.73				
E.G. Slope (m/m)	0.000015	Area (m2)	26.09	43.50
23.73				
Q Total (m3/s)	27.00	Flow (m3/s)	4.84	18.12
4.04				
Top Width (m)	44.16	Top Width (m)	11.25	19.89
13.02				
Vel Total (m/s)	0.29	Avg. Vel. (m/s)	0.19	0.42
0.17				
Max Chl Dpth (m)	3.62	Hydr. Depth (m)	2.32	2.19
1.82				
Conv. Total (m3/s)	6900.1	Conv. (m3/s)	1237.4	4631.4
1031.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	15.37	21.55
15.94				
Min Ch El (m)	10.02	Shear (N/m2)	0.25	0.30
0.22				
Alpha	1.52	Stream Power (N/m s)	0.05	0.13
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	172.52	520.76

130.80				
C & E Loss (m)	0.00	Cum SA (1000 m2)	106.70	205.92
83.41				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 57

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14.7165	13.2463	15.6433	13.3607	18.1535	13.2922	19.4215	13.113	22.3527	11.21
24.2115	10.0033	35.5801	10.0022	37.3881	11.21	39.3788	12.5397	39.4906	12.8379
39.6557	12.9976	40.2256	13.1946	40.3907	13.3065	40.6783	13.3384	41.0511	13.3597
45.2997	13.1819								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
14.7165	.03	19.4215	.015	40.2256	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
Expan.

19.4215	40.2256	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.69	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.69	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	18.38	23.52
11.83				
E.G. Slope (m/m)	0.000011	Area (m2)	18.38	23.52
11.83				
Q Total (m3/s)	10.00	Flow (m3/s)	2.40	6.25
1.35				
Top Width (m)	36.91	Top Width (m)	11.47	16.50
8.95				
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.13	0.27
0.11				
Max Chl Dpth (m)	2.57	Hydr. Depth (m)	1.60	1.43
1.32				

Conv. Total (m3/s)	3054.3	Conv. (m3/s)	733.4	1908.8
412.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	14.04	17.51
11.07				
Min Ch El (m)	10.00	Shear (N/m2)	0.14	0.14
0.11				
Alpha	1.44	Stream Power (N/m s)	0.02	0.04
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	72.27	303.14
54.96				
C & E Loss (m)	0.00	Cum SA (1000 m2)	77.12	178.80
56.98				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.09	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.09	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	23.17	30.40
15.57				
E.G. Slope (m/m)	0.000005	Area (m2)	23.17	30.40
15.57				
Q Total (m3/s)	10.00	Flow (m3/s)	2.31	6.31
1.38				
Top Width (m)	39.68	Top Width (m)	12.31	17.72
9.65				
Vel Total (m/s)	0.14	Avg. Vel. (m/s)	0.10	0.21
0.09				
Max Chl Dpth (m)	2.98	Hydr. Depth (m)	1.88	1.72
1.61				
Conv. Total (m3/s)	4398.9	Conv. (m3/s)	1015.2	2775.6
608.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	15.37	18.97
12.28				
Min Ch El (m)	10.00	Shear (N/m2)	0.08	0.08
0.06				
Alpha	1.46	Stream Power (N/m s)	0.01	0.02
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	110.65	390.35
83.45				
C & E Loss (m)	0.00	Cum SA (1000 m2)	90.47	192.64

68.07

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	29.00	38.81
20.16				
E.G. Slope (m/m)	0.000003	Area (m2)	29.00	38.81
20.16				
Q Total (m3/s)	10.00	Flow (m3/s)	2.24	6.36
1.40				
Top Width (m)	42.80	Top Width (m)	13.26	19.09
10.44				
Vel Total (m/s)	0.11	Avg. Vel. (m/s)	0.08	0.16
0.07				
Max Chl Dpth (m)	3.43	Hydr. Depth (m)	2.19	2.03
1.93				
Conv. Total (m3/s)	6201.6	Conv. (m3/s)	1386.8	3943.4
871.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	16.88	20.62
13.65				
Min Ch El (m)	10.00	Shear (N/m2)	0.04	0.05
0.04				
Alpha	1.48	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	156.25	488.70
117.89				
C & E Loss (m)	0.00	Cum SA (1000 m2)	101.27	204.27
78.20				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.29	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.28	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	25.53	33.81
17.42				
E.G. Slope (m/m)	0.000028	Area (m2)	25.53	33.81
17.42				
Q Total (m3/s)	27.00	Flow (m3/s)	6.14	17.10
3.76				
Top Width (m)	40.97	Top Width (m)	12.70	18.29
9.98				
Vel Total (m/s)	0.35	Avg. Vel. (m/s)	0.24	0.51
0.22				
Max Chl Dpth (m)	3.16	Hydr. Depth (m)	2.01	1.85
1.75				
Conv. Total (m3/s)	5109.0	Conv. (m3/s)	1162.3	3234.9
711.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	16.00	19.66
12.84				
Min Ch El (m)	10.00	Shear (N/m2)	0.44	0.47
0.37				
Alpha	1.47	Stream Power (N/m s)	0.11	0.24
0.08				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	96.17	361.58
73.06				
C & E Loss (m)	0.00	Cum SA (1000 m2)	85.26	188.48
64.32				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.49	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.48	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	28.06	37.45
19.41				

E.G. Slope (m/m)	0.000021	Area (m2)	28.06	37.45
19.41				
Q Total (m3/s)	27.00	Flow (m3/s)	6.06	17.15
3.79				
Top Width (m)	42.32	Top Width (m)	13.11	18.89
10.32				
Vel Total (m/s)	0.32	Avg. Vel. (m/s)	0.22	0.46
0.20				
Max Chl Dpth (m)	3.36	Hydr. Depth (m)	2.14	1.98
1.88				
Conv. Total (m3/s)	5898.4	Conv. (m3/s)	1324.9	3746.5
827.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	16.65	20.37
13.43				
Min Ch El (m)	10.00	Shear (N/m2)	0.35	0.38
0.30				
Alpha	1.47	Stream Power (N/m s)	0.07	0.17
0.06				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	125.91	426.34
95.15				
C & E Loss (m)	0.00	Cum SA (1000 m2)	94.56	197.56
71.91				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.80	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.80	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	32.35	43.60
22.80				
E.G. Slope (m/m)	0.000014	Area (m2)	32.35	43.60
22.80				
Q Total (m3/s)	27.00	Flow (m3/s)	5.94	17.25
3.81				
Top Width (m)	44.22	Top Width (m)	13.78	19.57
10.88				
Vel Total (m/s)	0.27	Avg. Vel. (m/s)	0.18	0.40
0.17				
Max Chl Dpth (m)	3.68	Hydr. Depth (m)	2.35	2.23
2.10				
Conv. Total (m3/s)	7323.9	Conv. (m3/s)	1612.1	4679.3

1032.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	17.70	21.34
14.39				
Min Ch El (m)	10.00	Shear (N/m2)	0.24	0.27
0.21				
Alpha	1.49	Stream Power (N/m s)	0.04	0.11
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	166.68	512.05
126.15				
C & E Loss (m)	0.00	Cum SA (1000 m2)	104.19	201.97
81.03				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 56

INPUT

Description:

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.6055	13.1333	12.4057	13.2208	14.6271	13.1886	15.4727	12.9464	15.8829	12.4812
17.9708	11.2	19.9505	9.9852	30.0353	9.9843	31.9894	11.2	34.0241	12.4657
34.3369	12.7784	34.7974	13.1866	35.3012	13.3517	36.9548	13.3436	38.9095	13.2915
40.9734	13.1528								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.6055	.03	14.6271	.015	34.7974	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	14.6271	34.7974		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.69	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.68	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.68	21.78

2.84				
E.G. Slope (m/m)	0.000026	Area (m2)	5.68	21.78
2.84				
Q Total (m3/s)	10.00	Flow (m3/s)	0.75	8.94
0.31				
Top Width (m)	27.24	Top Width (m)	7.01	15.58
4.65				
Vel Total (m/s)	0.33	Avg. Vel. (m/s)	0.13	0.41
0.11				
Max Chl Dpth (m)	1.70	Hydr. Depth (m)	0.81	1.40
0.61				
Conv. Total (m3/s)	1951.0	Conv. (m3/s)	146.5	1744.7
59.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.34	16.54
5.66				
Min Ch El (m)	9.98	Shear (N/m2)	0.18	0.34
0.13				
Alpha	1.40	Stream Power (N/m s)	0.02	0.14
0.01				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	69.87	298.61
53.49				
C & E Loss (m)	0.00	Cum SA (1000 m2)	75.27	175.60
55.62				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.09	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.09	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.68	28.39
4.89				
E.G. Slope (m/m)	0.000011	Area (m2)	8.68	28.39
4.89				
Q Total (m3/s)	10.00	Flow (m3/s)	0.92	8.65
0.44				
Top Width (m)	30.08	Top Width (m)	7.74	16.90
5.45				
Vel Total (m/s)	0.24	Avg. Vel. (m/s)	0.11	0.30
0.09				
Max Chl Dpth (m)	2.10	Hydr. Depth (m)	1.12	1.68
0.90				
Conv. Total (m3/s)	2955.7	Conv. (m3/s)	270.8	2555.8
129.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.58	18.09

6.96				
Min Ch El (m)	9.98	Shear (N/m2)	0.10	0.18
0.08				
Alpha	1.44	Stream Power (N/m s)	0.01	0.05
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	107.46	384.47
81.40				
C & E Loss (m)	0.00	Cum SA (1000 m2)	88.46	189.18
66.56				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	12.41	36.48
7.60				
E.G. Slope (m/m)	0.000005	Area (m2)	12.41	36.48
7.60				
Q Total (m3/s)	10.00	Flow (m3/s)	1.03	8.42
0.54				
Top Width (m)	33.18	Top Width (m)	8.56	18.28
6.34				
Vel Total (m/s)	0.18	Avg. Vel. (m/s)	0.08	0.23
0.07				
Max Chl Dpth (m)	2.56	Hydr. Depth (m)	1.45	2.00
1.20				
Conv. Total (m3/s)	4344.9	Conv. (m3/s)	449.2	3659.3
236.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.98	19.76
8.42				
Min Ch El (m)	9.98	Shear (N/m2)	0.06	0.10
0.05				
Alpha	1.46	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	152.11	481.17
115.11				
C & E Loss (m)	0.00	Cum SA (1000 m2)	99.08	200.53
76.52				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the

computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.28	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.26	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.02	31.31
5.85				
E.G. Slope (m/m)	0.000062	Area (m2)	10.02	31.31
5.85				
Q Total (m3/s)	27.00	Flow (m3/s)	2.61	23.09
1.30				
Top Width (m)	31.27	Top Width (m)	8.04	17.45
5.78				
Vel Total (m/s)	0.57	Avg. Vel. (m/s)	0.26	0.74
0.22				
Max Chl Dpth (m)	2.28	Hydr. Depth (m)	1.25	1.79
1.01				
Conv. Total (m3/s)	3437.0	Conv. (m3/s)	332.3	2939.5
165.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.10	18.74
7.50				
Min Ch El (m)	9.98	Shear (N/m2)	0.60	1.01
0.47				
Alpha	1.45	Stream Power (N/m s)	0.16	0.75
0.10				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	92.62	355.07
70.73				
C & E Loss (m)	0.00	Cum SA (1000 m2)	83.18	184.90
62.75				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.48	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.46	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	11.68	34.90
7.05				
E.G. Slope (m/m)	0.000044	Area (m2)	11.68	34.90

7.05				
Q Total (m3/s)	27.00	Flow (m3/s)	2.75	22.83
1.42				
Top Width (m)	32.68	Top Width (m)	8.40	18.10
6.17				
Vel Total (m/s)	0.50	Avg. Vel. (m/s)	0.24	0.65
0.20				
Max Chl Dpth (m)	2.48	Hydr. Depth (m)	1.39	1.93
1.14				
Conv. Total (m3/s)	4054.7	Conv. (m3/s)	412.4	3428.6
213.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.71	19.51
8.15				
Min Ch El (m)	9.98	Shear (N/m2)	0.47	0.78
0.38				
Alpha	1.46	Stream Power (N/m s)	0.11	0.51
0.08				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	121.94	419.11
92.50				
C & E Loss (m)	0.00	Cum SA (1000 m2)	92.40	193.86
70.26				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.80	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.79	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	14.51	40.89
9.16				
E.G. Slope (m/m)	0.000027	Area (m2)	14.51	40.89
9.16				
Q Total (m3/s)	27.00	Flow (m3/s)	2.90	22.51
1.59				
Top Width (m)	34.53	Top Width (m)	8.99	18.73
6.81				
Vel Total (m/s)	0.42	Avg. Vel. (m/s)	0.20	0.55
0.17				
Max Chl Dpth (m)	2.80	Hydr. Depth (m)	1.61	2.18
1.35				
Conv. Total (m3/s)	5194.7	Conv. (m3/s)	558.0	4331.6
305.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.70	20.42
9.19				
Min Ch El (m)	9.98	Shear (N/m2)	0.33	0.53

0.26				
Alpha	1.48	Stream Power (N/m s)	0.07	0.29
0.05				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	161.99	503.60
122.95				
C & E Loss (m)	0.00	Cum SA (1000 m2)	101.92	198.14
79.26				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 55

INPUT
Description:
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.9963	13.1214	12.647	13.2688	15.976	11.23	18.0378	9.9673	28.1466	9.9664
30.1048	11.23	32.1784	12.5682	32.6211	13.0001	32.8813	13.1804	33.5202	13.3951
34.5413	13.42	34.9539	13.3463	37.2608	13.3798	38.2128	13.2597	39.3712	13.2318

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.9963	.03	12.647	.015	32.8813	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	12.647	32.8813		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.68	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.68	Reach Len. (m)	187.00	187.00
187.00				
Crit W.S. (m)	10.42	Flow Area (m2)	4.47	21.94
2.82				
E.G. Slope (m/m)	0.000027	Area (m2)	4.47	21.94
2.82				
Q Total (m3/s)	10.00	Flow (m3/s)	0.59	9.13
0.27				
Top Width (m)	26.91	Top Width (m)	5.29	15.55
6.07				
Vel Total (m/s)	0.34	Avg. Vel. (m/s)	0.13	0.42

0.10				
Max Chl Dpth (m)	1.71	Hydr. Depth (m)	0.84	1.41
0.46				
Conv. Total (m3/s)	1933.5	Conv. (m3/s)	115.0	1765.7
52.8				
Length Wtd. (m)	187.00	Wetted Per. (m)	6.60	16.54
6.69				
Min Ch El (m)	9.97	Shear (N/m2)	0.18	0.35
0.11				
Alpha	1.36	Stream Power (N/m s)	0.02	0.14
0.01				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	68.85	294.24
52.93				
C & E Loss (m)	0.00	Cum SA (1000 m2)	74.04	172.48
54.55				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.09	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.09	Reach Len. (m)	187.00	187.00
187.00				
Crit W.S. (m)	10.42	Flow Area (m2)	6.80	28.58
5.52				
E.G. Slope (m/m)	0.000012	Area (m2)	6.80	28.58
5.52				
Q Total (m3/s)	10.00	Flow (m3/s)	0.70	8.82
0.48				
Top Width (m)	30.00	Top Width (m)	6.06	16.85
7.08				
Vel Total (m/s)	0.24	Avg. Vel. (m/s)	0.10	0.31
0.09				
Max Chl Dpth (m)	2.12	Hydr. Depth (m)	1.12	1.70
0.78				
Conv. Total (m3/s)	2932.4	Conv. (m3/s)	205.4	2585.7
141.3				
Length Wtd. (m)	187.00	Wetted Per. (m)	7.88	18.08
8.19				
Min Ch El (m)	9.97	Shear (N/m2)	0.10	0.18
0.08				
Alpha	1.42	Stream Power (N/m s)	0.01	0.06
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	105.91	378.78
80.36				
C & E Loss (m)	0.00	Cum SA (1000 m2)	87.08	185.80

65.31

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.55	Reach Len. (m)	187.00	187.00
187.00				
Crit W.S. (m)	10.42	Flow Area (m2)	9.78	36.67
9.04				
E.G. Slope (m/m)	0.000005	Area (m2)	9.78	36.67
9.04				
Q Total (m3/s)	10.00	Flow (m3/s)	0.78	8.56
0.66				
Top Width (m)	33.46	Top Width (m)	6.92	18.32
8.22				
Vel Total (m/s)	0.18	Avg. Vel. (m/s)	0.08	0.23
0.07				
Max Chl Dpth (m)	2.58	Hydr. Depth (m)	1.41	2.00
1.10				
Conv. Total (m3/s)	4306.5	Conv. (m3/s)	336.9	3685.7
283.8				
Length Wtd. (m)	187.00	Wetted Per. (m)	9.31	19.81
9.88				
Min Ch El (m)	9.97	Shear (N/m2)	0.06	0.10
0.05				
Alpha	1.46	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	149.89	473.86
113.45				
C & E Loss (m)	0.00	Cum SA (1000 m2)	97.54	196.87
75.06				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.27	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015

0.030				
W.S. Elev (m)	12.25	Reach Len. (m)	187.00	187.00
187.00				
Crit W.S. (m)	10.84	Flow Area (m2)	7.78	31.29
6.67				
E.G. Slope (m/m)	0.000064	Area (m2)	7.78	31.29
6.67				
Q Total (m3/s)	27.00	Flow (m3/s)	1.98	23.54
1.48				
Top Width (m)	31.19	Top Width (m)	6.36	17.36
7.47				
Vel Total (m/s)	0.59	Avg. Vel. (m/s)	0.25	0.75
0.22				
Max Chl Dpth (m)	2.28	Hydr. Depth (m)	1.22	1.80
0.89				
Conv. Total (m3/s)	3375.9	Conv. (m3/s)	247.1	2943.6
185.3				
Length Wtd. (m)	187.00	Wetted Per. (m)	8.37	18.67
8.77				
Min Ch El (m)	9.97	Shear (N/m2)	0.58	1.05
0.48				
Alpha	1.44	Stream Power (N/m s)	0.15	0.79
0.11				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	90.84	348.81
69.48				
C & E Loss (m)	0.00	Cum SA (1000 m2)	81.74	181.42
61.42				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.47	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.45	Reach Len. (m)	187.00	187.00
187.00				
Crit W.S. (m)	10.84	Flow Area (m2)	9.13	34.93
8.26				
E.G. Slope (m/m)	0.000046	Area (m2)	9.13	34.93
8.26				
Q Total (m3/s)	27.00	Flow (m3/s)	2.07	23.24
1.69				
Top Width (m)	32.74	Top Width (m)	6.74	18.01
7.98				
Vel Total (m/s)	0.52	Avg. Vel. (m/s)	0.23	0.67
0.20				
Max Chl Dpth (m)	2.48	Hydr. Depth (m)	1.35	1.94

1.04				
Conv. Total (m3/s)	3998.9	Conv. (m3/s)	306.9	3441.5
250.4				
Length Wtd. (m)	187.00	Wetted Per. (m)	9.01	19.45
9.53				
Min Ch El (m)	9.97	Shear (N/m2)	0.45	0.80
0.39				
Alpha	1.45	Stream Power (N/m s)	0.10	0.53
0.08				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	119.86	412.12
90.97				
C & E Loss (m)	0.00	Cum SA (1000 m2)	90.89	190.25
68.85				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.79	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.78	Reach Len. (m)	187.00	187.00
187.00				
Crit W.S. (m)	10.84	Flow Area (m2)	11.45	41.03
11.02				
E.G. Slope (m/m)	0.000028	Area (m2)	11.45	41.03
11.02				
Q Total (m3/s)	27.00	Flow (m3/s)	2.20	22.83
1.97				
Top Width (m)	35.10	Top Width (m)	7.36	18.95
8.79				
Vel Total (m/s)	0.43	Avg. Vel. (m/s)	0.19	0.56
0.18				
Max Chl Dpth (m)	2.81	Hydr. Depth (m)	1.56	2.16
1.25				
Conv. Total (m3/s)	5120.6	Conv. (m3/s)	416.6	4329.9
374.1				
Length Wtd. (m)	187.00	Wetted Per. (m)	10.04	20.60
10.73				
Min Ch El (m)	9.97	Shear (N/m2)	0.31	0.54
0.28				
Alpha	1.48	Stream Power (N/m s)	0.06	0.30
0.05				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	159.40	495.41
120.93				
C & E Loss (m)	0.00	Cum SA (1000 m2)	100.28	194.37
77.70				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream
conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 54.5

INPUT

Description:

Distance from Upstream XS = 187

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num=	2						
Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord
11.74	15.11	12.69	34.31	15.11	12.69		

Upstream Bridge Cross Section Data

Station	Elevation	Data	num=	15						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
7.9963	13.1214	12.647	13.2688	15.976	11.23	18.0378	9.9673	28.1466	9.9664	
30.1048	11.23	32.1784	12.5682	32.6211	13.0001	32.8813	13.1804	33.5202	13.3951	
34.5413	13.42	34.9539	13.3463	37.2608	13.3798	38.2128	13.2597	39.3712	13.2318	

Manning's n Values

num=	3			
Sta	n Val	Sta	n Val	Sta
7.9963	.03	12.647	.015	32.8813

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	12.647	32.8813	.0015	.01	

Downstream Deck/Roadway Coordinates

num=	2						
Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord
4.09	15.11	12.69	26.66	15.11	12.69		

Downstream Bridge Cross Section Data

Station	Elevation	Data	num=	12						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
9.0915	13.2824	11.9724	13.3607	14.3477	13.3032	17.3882	11.24	19.2902	9.9494	
29.5384	9.9484	31.5735	11.24	35.1775	13.5273	36.2881	13.5793	38.5127	13.5276	
42.7252	13.5276	47.5335	13.2757							

Manning's n Values

num=	3			
Sta	n Val	Sta	n Val	Sta
9.0915	.03	14.3477	.015	35.1775

Bank Sta:	Left	Right	Coeff Contr.	Expan.
	14.3477	35.1775	.0015	.01

Upstream Embankment side slope	=	1.87 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.87 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth

inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.68	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.68	E.G. Elev (m)	11.68
11.68			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.67
11.67			
Q Bridge (m3/s)	9.14	Crit W.S. (m)	10.42
10.40			
Q Weir (m3/s)		Max Chl Dpth (m)	1.71
1.72			
Weir Sta Lft (m)		Vel Total (m/s)	0.34
0.38			
Weir Sta Rgt (m)		Flow Area (m2)	29.09
26.38			
Weir Submerg		Froude # Chl	0.11
0.10			
Weir Max Depth (m)		Specif Force (m3)	20.53
19.93			
Min El Weir Flow (m)	10.48	Hydr Depth (m)	1.08
1.26			
Min El Prs (m)	12.69	W.P. Total (m)	29.77
28.75			
Delta EG (m)	0.01	Conv. Total (m3/s)	1922.4

1672.5			
Delta WS (m)	0.01	Top Width (m)	26.88
20.93			
BR Open Area (m2)	29.33	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.57	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.26
0.32			
BR Sel Method	Energy only	Power Total (N/m s)	0.09
0.12			

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)		Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.09	E.G. Elev (m)	12.09
12.09			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.08
12.08			
Q Bridge (m3/s)	8.82	Crit W.S. (m)	10.42
10.40			
Q Weir (m3/s)		Max Chl Dpth (m)	2.12
2.14			
Weir Sta Lft (m)		Vel Total (m/s)	0.24
0.28			
Weir Sta Rgt (m)		Flow Area (m2)	40.83
35.45			
Weir Submerg		Froude # Chl	0.08
0.07			
Weir Max Depth (m)		Specif Force (m3)	34.81
32.56			
Min El Weir Flow (m)	10.48	Hydr Depth (m)	1.36
1.54			
Min El Prs (m)	12.69	W.P. Total (m)	34.12
33.31			
Delta EG (m)	0.00	Conv. Total (m3/s)	2926.4
2445.0			
Delta WS (m)	0.00	Top Width (m)	29.98
23.07			
BR Open Area (m2)	29.33	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.42	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.14
0.17			
BR Sel Method	Energy only	Power Total (N/m s)	0.03
0.05			

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.55	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.55	E.G. Elev (m)	12.55
12.55			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.55
12.55			
Q Bridge (m3/s)	8.56	Crit W.S. (m)	10.42
10.40			
Q Weir (m3/s)		Max Chl Dpth (m)	2.58
2.60			
Weir Sta Lft (m)		Vel Total (m/s)	0.18
0.21			
Weir Sta Rgt (m)		Flow Area (m2)	55.45
46.67			
Weir Submerg		Froude # Chl	0.05
0.05			
Weir Max Depth (m)		Specif Force (m3)	56.87
51.38			
Min El Weir Flow (m)	10.48	Hydr Depth (m)	1.66
1.83			
Min El Prs (m)	12.69	W.P. Total (m)	38.99
38.46			
Delta EG (m)	0.00	Conv. Total (m3/s)	4303.1
3468.4			
Delta WS (m)	0.00	Top Width (m)	33.45
25.55			
BR Open Area (m2)	29.33	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.31	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.08
0.10			
BR Sel Method	Energy only	Power Total (N/m s)	0.01
0.02			

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.27	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.25	E.G. Elev (m)	12.26
12.26			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.23
12.23			
Q Bridge (m3/s)	23.56	Crit W.S. (m)	10.84
10.80			
Q Weir (m3/s)		Max Chl Dpth (m)	2.27
2.28			
Weir Sta Lft (m)		Vel Total (m/s)	0.60

0.70			
Weir Sta Rgt (m)		Flow Area (m2)	45.36
38.83			
Weir Submerg		Froude # Ch1	0.18
0.16			
Weir Max Depth (m)		Specif Force (m3)	42.82
39.69			
Min El Weir Flow (m)	10.48	Hydr Depth (m)	1.46
1.63			
Min El Prs (m)	12.69	W.P. Total (m)	35.69
34.92			
Delta EG (m)	0.01	Conv. Total (m3/s)	3339.7
2746.1			
Delta WS (m)	0.02	Top Width (m)	31.10
23.84			
BR Open Area (m2)	29.33	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	1.03	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.81
1.05			
BR Sel Method	Energy only	Power Total (N/m s)	0.48
0.73			

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)		Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.45	E.G. Elev (m)	12.46
12.46			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.44
12.44			
Q Bridge (m3/s)	23.25	Crit W.S. (m)	10.84
10.80			
Q Weir (m3/s)		Max Ch1 Dpth (m)	2.48
2.49			
Weir Sta Lft (m)		Vel Total (m/s)	0.52
0.61			
Weir Sta Rgt (m)		Flow Area (m2)	52.04
43.96			
Weir Submerg		Froude # Ch1	0.15
0.14			
Weir Max Depth (m)		Specif Force (m3)	52.78
48.15			
Min El Weir Flow (m)	10.48	Hydr Depth (m)	1.59
1.76			
Min El Prs (m)	12.69	W.P. Total (m)	37.90
37.26			
Delta EG (m)	0.01	Conv. Total (m3/s)	3971.0
3215.3			
Delta WS (m)	0.01	Top Width (m)	32.67

24.97			
BR Open Area (m2)	29.33	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.91	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.62
0.82			
BR Sel Method	Energy only	Power Total (N/m s)	0.32
0.50			

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.79	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.78	E.G. Elev (m)	12.79
12.79			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.77
12.77			
Q Bridge (m3/s)	20.80	Crit W.S. (m)	10.84
10.80			
Q Weir (m3/s)		Max Chl Dpth (m)	2.81
2.82			
Weir Sta Lft (m)		Vel Total (m/s)	0.44
0.53			
Weir Sta Rgt (m)		Flow Area (m2)	61.71
51.32			
Weir Submerg		Froude # Chl	0.09
0.11			
Weir Max Depth (m)		Specif Force (m3)	71.48
63.77			
Min El Weir Flow (m)	10.48	Hydr Depth (m)	3.83
4.50			
Min El Prs (m)	12.69	W.P. Total (m)	59.74
55.50			
Delta EG (m)	0.01	Conv. Total (m3/s)	3422.1
3113.4			
Delta WS (m)	0.01	Top Width (m)	16.13
11.41			
BR Open Area (m2)	29.33	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.71	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.63
0.68			
BR Sel Method	Energy only	Power Total (N/m s)	0.28
0.36			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 54

INPUT

Description:

Station	Elevation	Data	num=	12							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.0915	13.2824	11.9724	13.3607	14.3477	13.3032	17.3882	11.24	19.2902	9.9494		
29.5384	9.9484	31.5735	11.24	35.1775	13.5273	36.2881	13.5793	38.5127	13.5276		
42.7252	13.5276	47.5335	13.2757								

Manning's n	Values	num=	3								
Sta	n Val	Sta	n Val	Sta	n Val						
9.0915	.03	14.3477	.015	35.1775	.03						

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.		
Expan.										
	14.3477	35.1775		200	200	200	.0015	.01		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.68	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	11.67	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	4.22	22.16
E.G. Slope (m/m)	0.000028	Area (m2)	4.22	22.16
Q Total (m3/s)	10.00	Flow (m3/s)	0.52	9.48
Top Width (m)	20.93	Top Width (m)	5.43	15.50
Vel Total (m/s)	0.38	Avg. Vel. (m/s)	0.12	0.43
Max Chl Dpth (m)	1.72	Hydr. Depth (m)	0.78	1.43
Conv. Total (m3/s)	1895.4	Conv. (m3/s)	98.6	1796.8
Length Wtd. (m)	200.00	Wetted Per. (m)	7.17	16.53
Min Ch El (m)	9.95	Shear (N/m2)	0.16	0.37
Alpha	1.21	Stream Power (N/m s)	0.02	0.16
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	67.96	289.85

52.39				
C & E Loss (m)	0.00	Cum SA (1000 m2)	72.98	169.38
53.40				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.09	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.08	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.63	28.83
E.G. Slope (m/m)	0.000013	Area (m2)	6.63	28.83
Q Total (m3/s)	10.00	Flow (m3/s)	0.66	9.34
Top Width (m)	23.07	Top Width (m)	6.31	16.76
Vel Total (m/s)	0.28	Avg. Vel. (m/s)	0.10	0.32
Max Chl Dpth (m)	2.14	Hydr. Depth (m)	1.05	1.72
Conv. Total (m3/s)	2813.2	Conv. (m3/s)	186.0	2627.1
Length Wtd. (m)	200.00	Wetted Per. (m)	8.57	18.03
Min Ch El (m)	9.95	Shear (N/m2)	0.10	0.20
Alpha	1.24	Stream Power (N/m s)	0.01	0.06
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	104.56	373.06
79.31				
C & E Loss (m)	0.00	Cum SA (1000 m2)	85.87	182.43
63.97				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.55	Element	Left OB	Channel
---------------	-------	---------	---------	---------

Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	9.78	36.88
E.G. Slope (m/m)	0.000006	Area (m2)	9.78	36.88
Q Total (m3/s)	10.00	Flow (m3/s)	0.78	9.22
Top Width (m)	25.54	Top Width (m)	7.38	18.16
Vel Total (m/s)	0.21	Avg. Vel. (m/s)	0.08	0.25
Max Chl Dpth (m)	2.60	Hydr. Depth (m)	1.33	2.03
Conv. Total (m3/s)	4050.0	Conv. (m3/s)	317.3	3732.8
Length Wtd. (m)	200.00	Wetted Per. (m)	10.20	19.72
Min Ch El (m)	9.95	Shear (N/m2)	0.06	0.11
Alpha	1.26	Stream Power (N/m s)	0.00	0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	147.93	466.52
111.74				
C & E Loss (m)	0.00	Cum SA (1000 m2)	96.15	193.21
73.51				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.26	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.23	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	7.55	31.26
E.G. Slope (m/m)	0.000072	Area (m2)	7.55	31.26
Q Total (m3/s)	27.00	Flow (m3/s)	1.90	25.10
Top Width (m)	23.84	Top Width (m)	6.64	17.19
Vel Total (m/s)	0.70	Avg. Vel. (m/s)	0.25	0.80

Max Chl Dpth (m)	2.28	Hydr. Depth (m)	1.14	1.82
Conv. Total (m3/s)	3173.1	Conv. (m3/s)	222.8	2950.3
Length Wtd. (m)	200.00	Wetted Per. (m)	9.08	18.56
Min Ch El (m)	9.95	Shear (N/m2)	0.59	1.20
Alpha	1.25	Stream Power (N/m s)	0.15	0.96
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	89.29	342.57
68.23				
C & E Loss (m)	0.00	Cum SA (1000 m2)	80.47	177.96
60.01				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.46	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.44	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	9.00	34.94
E.G. Slope (m/m)	0.000052	Area (m2)	9.00	34.94
Q Total (m3/s)	27.00	Flow (m3/s)	2.04	24.96
Top Width (m)	24.97	Top Width (m)	7.13	17.84
Vel Total (m/s)	0.61	Avg. Vel. (m/s)	0.23	0.71
Max Chl Dpth (m)	2.49	Hydr. Depth (m)	1.26	1.96
Conv. Total (m3/s)	3740.9	Conv. (m3/s)	283.2	3457.6
Length Wtd. (m)	200.00	Wetted Per. (m)	9.82	19.32
Min Ch El (m)	9.95	Shear (N/m2)	0.47	0.92
Alpha	1.26	Stream Power (N/m s)	0.11	0.66
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	118.04	405.15
89.41				
C & E Loss (m)	0.00	Cum SA (1000 m2)	89.54	186.65

67.34

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.79	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.77	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	11.49	41.02
E.G. Slope (m/m)	0.000033	Area (m2)	11.49	41.02
Q Total (m3/s)	27.00	Flow (m3/s)	2.25	24.75
Top Width (m)	26.75	Top Width (m)	7.90	18.85
Vel Total (m/s)	0.51	Avg. Vel. (m/s)	0.20	0.60
Max Chl Dpth (m)	2.82	Hydr. Depth (m)	1.45	2.18
Conv. Total (m3/s)	4732.8	Conv. (m3/s)	394.8	4338.0
Length Wtd. (m)	200.00	Wetted Per. (m)	10.99	20.53
Min Ch El (m)	9.95	Shear (N/m2)	0.33	0.64
Alpha	1.27	Stream Power (N/m s)	0.07	0.38
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	157.11	487.38
118.85				
C & E Loss (m)	0.00	Cum SA (1000 m2)	98.83	192.48
76.03				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 53

INPUT

Description: Opera 6

Station Elevation Data				num=	16				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.6281	13.1091	10.0881	13.2515	12.7076	13.2156	15.7868	11.25	17.8491	9.9335
27.85	9.9329	29.9899	11.25	31.9359	12.4478	32.1683	12.6801	32.3	12.9667
32.5401	13.0983	33.0204	13.2145	33.3148	13.2532	33.8493	13.2532	34.1979	13.2377
38.346	13.0321								

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
7.6281	.03	12.7076	.015	32.5401	.03

Bank Sta:	Left	Right	Lengths:			Left Channel	Right	Coeff Contr.	
Expan.									
	12.7076	32.5401				200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.67	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.66	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	3.58	22.10
1.02				
E.G. Slope (m/m)	0.000028	Area (m2)	3.58	22.10
1.02				
Q Total (m3/s)	10.00	Flow (m3/s)	0.44	9.48
0.08				
Top Width (m)	22.20	Top Width (m)	4.75	15.53
1.92				
Vel Total (m/s)	0.37	Avg. Vel. (m/s)	0.12	0.43
0.08				
Max Chl Dpth (m)	1.73	Hydr. Depth (m)	0.75	1.42
0.53				
Conv. Total (m3/s)	1888.2	Conv. (m3/s)	83.3	1789.1
15.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.11	16.52
3.26				
Min Ch El (m)	9.93	Shear (N/m2)	0.16	0.37
0.09				
Alpha	1.25	Stream Power (N/m s)	0.02	0.16
0.01				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	67.18	285.43
52.29				
C & E Loss (m)	0.00	Cum SA (1000 m2)	71.97	166.27
53.21				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.09	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.08	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.67	28.84
1.98				
E.G. Slope (m/m)	0.000013	Area (m2)	5.67	28.84
1.98				
Q Total (m3/s)	10.00	Flow (m3/s)	0.56	9.30
0.13				
Top Width (m)	24.93	Top Width (m)	5.41	16.86
2.67				
Vel Total (m/s)	0.27	Avg. Vel. (m/s)	0.10	0.32
0.07				
Max Chl Dpth (m)	2.15	Hydr. Depth (m)	1.05	1.71
0.74				
Conv. Total (m3/s)	2821.8	Conv. (m3/s)	159.4	2624.5
37.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.31	18.09
4.53				
Min Ch El (m)	9.93	Shear (N/m2)	0.10	0.20
0.05				
Alpha	1.30	Stream Power (N/m s)	0.01	0.06
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	103.33	367.30
79.12				
C & E Loss (m)	0.00	Cum SA (1000 m2)	84.70	179.07
63.70				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.40	36.98
3.41				

E.G. Slope (m/m)	0.000006	Area (m2)	8.40	36.98
3.41				
Q Total (m3/s)	10.00	Flow (m3/s)	0.66	9.15
0.19				
Top Width (m)	28.19	Top Width (m)	6.41	18.27
3.51				
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.08	0.25
0.06				
Max Chl Dpth (m)	2.61	Hydr. Depth (m)	1.31	2.02
0.97				
Conv. Total (m3/s)	4089.1	Conv. (m3/s)	269.9	3741.0
78.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.88	19.79
5.95				
Min Ch El (m)	9.93	Shear (N/m2)	0.06	0.11
0.03				
Alpha	1.34	Stream Power (N/m s)	0.00	0.03
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	146.11	459.14
111.40				
C & E Loss (m)	0.00	Cum SA (1000 m2)	94.77	189.57
73.16				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.24	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.21	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.40	31.08
2.34				
E.G. Slope (m/m)	0.000073	Area (m2)	6.40	31.08
2.34				
Q Total (m3/s)	27.00	Flow (m3/s)	1.60	24.99
0.41				
Top Width (m)	25.87	Top Width (m)	5.69	17.27
2.91				
Vel Total (m/s)	0.68	Avg. Vel. (m/s)	0.25	0.80
0.17				
Max Chl Dpth (m)	2.28	Hydr. Depth (m)	1.12	1.80
0.81				
Conv. Total (m3/s)	3155.0	Conv. (m3/s)	187.5	2920.0
47.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.76	18.59
4.94				

Min Ch El (m)	9.93	Shear (N/m2)	0.59	1.20
0.34				
Alpha	1.31	Stream Power (N/m s)	0.15	0.97
0.06				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	87.90	336.34
67.99				
C & E Loss (m)	0.00	Cum SA (1000 m2)	79.24	174.51
59.72				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.45	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.43	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	7.67	34.87
3.01				
E.G. Slope (m/m)	0.000052	Area (m2)	7.67	34.87
3.01				
Q Total (m3/s)	27.00	Flow (m3/s)	1.72	24.80
0.48				
Top Width (m)	27.41	Top Width (m)	6.15	17.96
3.30				
Vel Total (m/s)	0.59	Avg. Vel. (m/s)	0.22	0.71
0.16				
Max Chl Dpth (m)	2.49	Hydr. Depth (m)	1.25	1.94
0.91				
Conv. Total (m3/s)	3742.3	Conv. (m3/s)	238.9	3437.0
66.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.49	19.39
5.60				
Min Ch El (m)	9.93	Shear (N/m2)	0.46	0.92
0.27				
Alpha	1.33	Stream Power (N/m s)	0.10	0.65
0.04				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	116.37	398.17
89.11				
C & E Loss (m)	0.00	Cum SA (1000 m2)	88.21	183.07
67.01				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.78	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.76	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	9.85	41.04
4.22				
E.G. Slope (m/m)	0.000032	Area (m2)	9.85	41.04
4.22				
Q Total (m3/s)	27.00	Flow (m3/s)	1.88	24.53
0.59				
Top Width (m)	29.57	Top Width (m)	6.88	18.79
3.91				
Vel Total (m/s)	0.49	Avg. Vel. (m/s)	0.19	0.60
0.14				
Max Chl Dpth (m)	2.83	Hydr. Depth (m)	1.43	2.18
1.08				
Conv. Total (m3/s)	4787.2	Conv. (m3/s)	333.8	4349.3
104.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.62	20.48
6.62				
Min Ch El (m)	9.93	Shear (N/m2)	0.32	0.63
0.20				
Alpha	1.36	Stream Power (N/m s)	0.06	0.37
0.03				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	154.98	479.17
118.43				
C & E Loss (m)	0.00	Cum SA (1000 m2)	97.35	188.71
75.64				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 52

INPUT

Description:

Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.0545	13.1916	12.4092	13.203	12.9813	13.1687	15.1668	13.1916	18.2766	11.28
20.4889	9.9201	30.4647	9.9194	32.5192	11.28	34.6743	12.7072	34.7901	12.9222
34.939	13.1427	35.0713	13.2419	35.3911	13.2915	35.5841	13.3411	35.8709	13.3522

40.697 13.1284 41.322 12.9997

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
12.0545 .03 15.1668 .015 34.939 .03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
Expan. 15.1668 34.939 200 200 200 .0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.67	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.66	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	2.95	22.11
4.14				
E.G. Slope (m/m)	0.000026	Area (m2)	2.95	22.11
4.14				
Q Total (m3/s)	10.00	Flow (m3/s)	0.28	9.23
0.50				
Top Width (m)	28.23	Top Width (m)	6.80	15.43
6.00				
Vel Total (m/s)	0.34	Avg. Vel. (m/s)	0.09	0.42
0.12				
Max Chl Dpth (m)	1.74	Hydr. Depth (m)	0.43	1.43
0.69				
Conv. Total (m3/s)	1945.9	Conv. (m3/s)	53.5	1795.4
97.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.34	16.45
7.00				
Min Ch El (m)	9.92	Shear (N/m2)	0.10	0.35
0.15				
Alpha	1.38	Stream Power (N/m s)	0.01	0.15
0.02				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	66.53	281.01
51.78				
C & E Loss (m)	0.00	Cum SA (1000 m2)	70.81	163.18
52.41				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.08	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.08	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.96	28.86
6.85				
E.G. Slope (m/m)	0.000011	Area (m2)	5.96	28.86
6.85				
Q Total (m3/s)	10.00	Flow (m3/s)	0.52	8.82
0.66				
Top Width (m)	31.28	Top Width (m)	7.56	16.75
6.97				
Vel Total (m/s)	0.24	Avg. Vel. (m/s)	0.09	0.31
0.10				
Max Chl Dpth (m)	2.16	Hydr. Depth (m)	0.79	1.72
0.98				
Conv. Total (m3/s)	2988.2	Conv. (m3/s)	155.2	2634.7
198.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.62	18.01
8.48				
Min Ch El (m)	9.92	Shear (N/m2)	0.08	0.18
0.09				
Alpha	1.45	Stream Power (N/m s)	0.01	0.05
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	102.17	361.52
78.23				
C & E Loss (m)	0.00	Cum SA (1000 m2)	83.40	175.71
62.74				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	9.71	36.97
10.34				
E.G. Slope (m/m)	0.000005	Area (m2)	9.71	36.97
10.34				
Q Total (m3/s)	10.00	Flow (m3/s)	0.71	8.50
0.79				
Top Width (m)	34.94	Top Width (m)	8.69	18.21
8.05				
Vel Total (m/s)	0.18	Avg. Vel. (m/s)	0.07	0.23

0.08				
Max Chl Dpth (m)	2.62	Hydr. Depth (m)	1.12	2.03
1.28				
Conv. Total (m3/s)	4405.0	Conv. (m3/s)	310.9	3744.6
349.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.31	19.74
10.12				
Min Ch El (m)	9.92	Shear (N/m2)	0.05	0.09
0.05				
Alpha	1.49	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	144.30	451.74
110.02				
C & E Loss (m)	0.00	Cum SA (1000 m2)	93.26	185.92
72.00				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.23	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.20	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.91	30.96
7.73				
E.G. Slope (m/m)	0.000065	Area (m2)	6.91	30.96
7.73				
Q Total (m3/s)	27.00	Flow (m3/s)	1.56	23.54
1.90				
Top Width (m)	32.19	Top Width (m)	7.79	17.14
7.26				
Vel Total (m/s)	0.59	Avg. Vel. (m/s)	0.23	0.76
0.25				
Max Chl Dpth (m)	2.28	Hydr. Depth (m)	0.89	1.81
1.07				
Conv. Total (m3/s)	3339.0	Conv. (m3/s)	192.8	2911.7
234.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.01	18.47
8.92				
Min Ch El (m)	9.92	Shear (N/m2)	0.49	1.07
0.56				
Alpha	1.46	Stream Power (N/m s)	0.11	0.82
0.14				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	86.57	330.13
66.98				
C & E Loss (m)	0.00	Cum SA (1000 m2)	77.89	171.07

58.70

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.44	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.42	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.67	34.77
9.37				
E.G. Slope (m/m)	0.000045	Area (m2)	8.67	34.77
9.37				
Q Total (m3/s)	27.00	Flow (m3/s)	1.79	23.15
2.06				
Top Width (m)	33.95	Top Width (m)	8.37	17.82
7.76				
Vel Total (m/s)	0.51	Avg. Vel. (m/s)	0.21	0.67
0.22				
Max Chl Dpth (m)	2.50	Hydr. Depth (m)	1.04	1.95
1.21				
Conv. Total (m3/s)	4005.8	Conv. (m3/s)	265.6	3434.5
305.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.85	19.28
9.69				
Min Ch El (m)	9.92	Shear (N/m2)	0.39	0.80
0.43				
Alpha	1.48	Stream Power (N/m s)	0.08	0.53
0.09				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	114.74	391.21
87.87				
C & E Loss (m)	0.00	Cum SA (1000 m2)	86.76	179.49
65.90				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.77	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015

0.030				
W.S. Elev (m)	12.76	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	11.66	40.99
12.14				
E.G. Slope (m/m)	0.000027	Area (m2)	11.66	40.99
12.14				
Q Total (m3/s)	27.00	Flow (m3/s)	2.09	22.64
2.27				
Top Width (m)	36.64	Top Width (m)	9.26	18.83
8.55				
Vel Total (m/s)	0.42	Avg. Vel. (m/s)	0.18	0.55
0.19				
Max Chl Dpth (m)	2.84	Hydr. Depth (m)	1.26	2.18
1.42				
Conv. Total (m3/s)	5171.0	Conv. (m3/s)	400.4	4335.4
435.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.14	20.51
10.88				
Min Ch El (m)	9.92	Shear (N/m2)	0.28	0.53
0.30				
Alpha	1.50	Stream Power (N/m s)	0.05	0.30
0.06				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	152.83	470.97
116.79				
C & E Loss (m)	0.00	Cum SA (1000 m2)	95.74	184.95
74.40				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 51

INPUT

Description:

Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.6938	13.1175	9.8664	13.4467	11.6666	13.4469	13.2629	13.3739	14.0142	13.0904
14.8792	12.3778	16.5732	11.32	18.8368	9.9066	28.7972	9.906	30.9879	11.32
32.9398	12.5799	33.1868	12.8974	33.4338	13.1443	34.0073	13.2943	34.4219	13.3296
36.4717	13.3035	37.4686	13.2946	37.9539	13.2064	39.5419	13.2417		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.6938	.03	13.2629	.015	34.0073	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.

Expan.	13.2629	34.0073	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.66	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.65	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	1.26	22.21
1.80				
E.G. Slope (m/m)	0.000029	Area (m2)	1.26	22.21
1.80				
Q Total (m3/s)	10.00	Flow (m3/s)	0.09	9.72
0.19				
Top Width (m)	23.74	Top Width (m)	4.81	15.46
3.46				
Vel Total (m/s)	0.40	Avg. Vel. (m/s)	0.07	0.44
0.11				
Max Chl Dpth (m)	1.75	Hydr. Depth (m)	0.26	1.44
0.52				
Conv. Total (m3/s)	1858.2	Conv. (m3/s)	16.3	1806.3
35.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	5.15	16.48
3.94				
Min Ch El (m)	9.91	Shear (N/m2)	0.07	0.38
0.13				
Alpha	1.19	Stream Power (N/m s)	0.00	0.17
0.01				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	66.11	276.57
51.18				
C & E Loss (m)	0.00	Cum SA (1000 m2)	69.65	160.09
51.47				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.08	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.08	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	3.47	29.03
3.96				

E.G. Slope (m/m)	0.000013	Area (m2)	3.47	29.03
3.96				
Q Total (m3/s)	10.00	Flow (m3/s)	0.27	9.40
0.33				
Top Width (m)	28.05	Top Width (m)	5.64	16.80
5.61				
Vel Total (m/s)	0.27	Avg. Vel. (m/s)	0.08	0.32
0.08				
Max Chl Dpth (m)	2.17	Hydr. Depth (m)	0.61	1.73
0.71				
Conv. Total (m3/s)	2825.9	Conv. (m3/s)	75.9	2656.2
93.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.51	18.06
6.62				
Min Ch El (m)	9.91	Shear (N/m2)	0.07	0.20
0.07				
Alpha	1.31	Stream Power (N/m s)	0.01	0.06
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	101.22	355.74
77.15				
C & E Loss (m)	0.00	Cum SA (1000 m2)	82.08	172.36
61.48				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.31	37.19
6.82				
E.G. Slope (m/m)	0.000006	Area (m2)	6.31	37.19
6.82				
Q Total (m3/s)	10.00	Flow (m3/s)	0.43	9.09
0.48				
Top Width (m)	31.43	Top Width (m)	6.56	18.20
6.67				
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.07	0.24
0.07				
Max Chl Dpth (m)	2.64	Hydr. Depth (m)	0.96	2.04
1.02				
Conv. Total (m3/s)	4160.3	Conv. (m3/s)	179.3	3780.8
200.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.00	19.74
8.25				

Min Ch El (m)	9.91	Shear (N/m2)	0.04	0.11
0.05				
Alpha	1.38	Stream Power (N/m s)	0.00	0.03
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	142.70	444.33
108.31				
C & E Loss (m)	0.00	Cum SA (1000 m2)	91.74	182.28
70.53				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.22	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.18	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	4.08	30.85
4.57				
E.G. Slope (m/m)	0.000075	Area (m2)	4.08	30.85
4.57				
Q Total (m3/s)	27.00	Flow (m3/s)	0.84	25.16
1.00				
Top Width (m)	28.84	Top Width (m)	5.85	17.13
5.85				
Vel Total (m/s)	0.68	Avg. Vel. (m/s)	0.21	0.82
0.22				
Max Chl Dpth (m)	2.28	Hydr. Depth (m)	0.70	1.80
0.78				
Conv. Total (m3/s)	3107.7	Conv. (m3/s)	96.3	2896.5
114.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.85	18.46
6.99				
Min Ch El (m)	9.91	Shear (N/m2)	0.44	1.24
0.48				
Alpha	1.33	Stream Power (N/m s)	0.09	1.01
0.11				
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	85.47	323.95
65.75				
C & E Loss (m)	0.00	Cum SA (1000 m2)	76.52	167.64
57.39				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.43	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.41	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.44	34.77
5.94				
E.G. Slope (m/m)	0.000052	Area (m2)	5.44	34.77
5.94				
Q Total (m3/s)	27.00	Flow (m3/s)	1.05	24.76
1.19				
Top Width (m)	30.49	Top Width (m)	6.30	17.83
6.37				
Vel Total (m/s)	0.58	Avg. Vel. (m/s)	0.19	0.71
0.20				
Max Chl Dpth (m)	2.50	Hydr. Depth (m)	0.86	1.95
0.93				
Conv. Total (m3/s)	3745.2	Conv. (m3/s)	145.6	3433.9
165.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.57	19.29
7.78				
Min Ch El (m)	9.91	Shear (N/m2)	0.37	0.92
0.39				
Alpha	1.37	Stream Power (N/m s)	0.07	0.65
0.08				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	113.33	384.25
86.34				
C & E Loss (m)	0.00	Cum SA (1000 m2)	85.29	175.93
64.49				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.77	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.75	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	7.73	41.05
8.27				
E.G. Slope (m/m)	0.000031	Area (m2)	7.73	41.05
8.27				

Q Total (m3/s)	27.00	Flow (m3/s)	1.32	24.23
1.45				
Top Width (m)	32.77	Top Width (m)	6.97	18.65
7.15				
Vel Total (m/s)	0.47	Avg. Vel. (m/s)	0.17	0.59
0.18				
Max Chl Dpth (m)	2.85	Hydr. Depth (m)	1.11	2.20
1.16				
Conv. Total (m3/s)	4867.3	Conv. (m3/s)	238.3	4368.1
260.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.68	20.36
8.98				
Min Ch El (m)	9.91	Shear (N/m2)	0.27	0.61
0.28				
Alpha	1.41	Stream Power (N/m s)	0.05	0.36
0.05				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	150.89	462.76
114.75				
C & E Loss (m)	0.00	Cum SA (1000 m2)	94.12	181.20
72.83				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 50

INPUT

Description:

Station Elevation Data		num=		15					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6.0099	13.0715	7.5778	13.3439	9.0108	13.4642	11.551	13.4642	12.1661	13.3769
13.2234	13.0006	13.3436	12.7363	15.5492	11.32	17.7711	9.8932	27.7325	9.8925
29.8824	11.32	32.9634	13.3656	34.3334	13.3775	37.5717	13.317	37.9978	13.2728

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
6.0099	.03	12.1661	.015	32.9634	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
12.1661	32.9634	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.66	Element	Left OB	Channel
Right OB				

Vel Head (m) 0.030	0.01	Wt. n-Val.	0.030	0.015
W.S. Elev (m) 200.00	11.65	Reach Len. (m)	200.00	200.00
Crit W.S. (m) 0.93		Flow Area (m2)	0.31	22.18
E.G. Slope (m/m) 0.93	0.000030	Area (m2)	0.31	22.18
Q Total (m3/s) 0.07	10.00	Flow (m3/s)	0.02	9.91
Top Width (m) 3.37	19.91	Top Width (m)	1.20	15.33
Vel Total (m/s) 0.07	0.43	Avg. Vel. (m/s)	0.06	0.45
Max Chl Dpth (m) 0.28	1.75	Hydr. Depth (m)	0.26	1.45
Conv. Total (m3/s) 12.7	1826.6	Conv. (m3/s)	3.6	1810.4
Length Wtd. (m) 3.56	200.00	Wetted Per. (m)	1.52	16.38
Min Ch El (m) 0.08	9.89	Shear (N/m2)	0.06	0.40
Alpha 0.01	1.09	Stream Power (N/m s)	0.00	0.18
Frctn Loss (m) 50.91	0.01	Cum Volume (1000 m3)	65.95	272.13
C & E Loss (m) 50.79	0.00	Cum SA (1000 m2)	69.05	157.01

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m) Right OB	12.08	Element	Left OB	Channel
Vel Head (m) 0.030	0.01	Wt. n-Val.	0.030	0.015
W.S. Elev (m) 200.00	12.07	Reach Len. (m)	200.00	200.00
Crit W.S. (m) 2.69		Flow Area (m2)	1.86	29.00
E.G. Slope (m/m) 2.69	0.000013	Area (m2)	1.86	29.00
Q Total (m3/s) 0.18	10.00	Flow (m3/s)	0.12	9.70
Top Width (m) 6.04	26.90	Top Width (m)	4.22	16.64
Vel Total (m/s) 0.07	0.30	Avg. Vel. (m/s)	0.06	0.33
Max Chl Dpth (m) 0.45	2.18	Hydr. Depth (m)	0.44	1.74

Conv. Total (m3/s)	2744.8	Conv. (m3/s)	31.6	2663.3
50.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	5.10	17.94
6.46				
Min Ch El (m)	9.89	Shear (N/m2)	0.05	0.21
0.05				
Alpha	1.22	Stream Power (N/m s)	0.00	0.07
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	100.69	349.93
76.49				
C & E Loss (m)	0.00	Cum SA (1000 m2)	81.10	169.01
60.31				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	3.95	37.11
5.79				
E.G. Slope (m/m)	0.000006	Area (m2)	3.95	37.11
5.79				
Q Total (m3/s)	10.00	Flow (m3/s)	0.24	9.38
0.38				
Top Width (m)	30.12	Top Width (m)	4.88	18.07
7.17				
Vel Total (m/s)	0.21	Avg. Vel. (m/s)	0.06	0.25
0.07				
Max Chl Dpth (m)	2.65	Hydr. Depth (m)	0.81	2.05
0.81				
Conv. Total (m3/s)	4028.9	Conv. (m3/s)	95.6	3779.7
153.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.40	19.65
8.17				
Min Ch El (m)	9.89	Shear (N/m2)	0.04	0.11
0.04				
Alpha	1.32	Stream Power (N/m s)	0.00	0.03
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	141.67	436.90
107.05				
C & E Loss (m)	0.00	Cum SA (1000 m2)	90.59	178.65
69.15				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.20	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.16	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	2.24	30.52
3.26				
E.G. Slope (m/m)	0.000083	Area (m2)	2.24	30.52
3.26				
Q Total (m3/s)	27.00	Flow (m3/s)	0.38	26.02
0.60				
Top Width (m)	27.60	Top Width (m)	4.31	16.92
6.38				
Vel Total (m/s)	0.75	Avg. Vel. (m/s)	0.17	0.85
0.18				
Max Chl Dpth (m)	2.27	Hydr. Depth (m)	0.52	1.80
0.51				
Conv. Total (m3/s)	2972.4	Conv. (m3/s)	42.1	2864.5
65.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	5.32	18.27
6.91				
Min Ch El (m)	9.89	Shear (N/m2)	0.34	1.35
0.38				
Alpha	1.25	Stream Power (N/m s)	0.06	1.15
0.07				
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	84.84	317.82
64.97				
C & E Loss (m)	0.00	Cum SA (1000 m2)	75.51	164.24
56.16				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.42	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.39	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)	3.26	34.50
4.77				
E.G. Slope (m/m)	0.000056	Area (m2)	3.26	34.50
4.77				
Q Total (m3/s)	27.00	Flow (m3/s)	0.55	25.58
0.87				
Top Width (m)	29.01	Top Width (m)	4.57	17.62
6.81				
Vel Total (m/s)	0.63	Avg. Vel. (m/s)	0.17	0.74
0.18				
Max Chl Dpth (m)	2.50	Hydr. Depth (m)	0.71	1.96
0.70				
Conv. Total (m3/s)	3599.0	Conv. (m3/s)	73.2	3409.5
116.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	5.91	19.11
7.64				
Min Ch El (m)	9.89	Shear (N/m2)	0.30	1.00
0.34				
Alpha	1.30	Stream Power (N/m s)	0.05	0.74
0.06				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	112.45	377.32
85.27				
C & E Loss (m)	0.00	Cum SA (1000 m2)	84.21	172.38
63.17				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.76	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.74	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	4.99	40.84
7.30				
E.G. Slope (m/m)	0.000033	Area (m2)	4.99	40.84
7.30				
Q Total (m3/s)	27.00	Flow (m3/s)	0.76	25.01
1.23				
Top Width (m)	31.71	Top Width (m)	5.31	18.69
7.71				
Vel Total (m/s)	0.51	Avg. Vel. (m/s)	0.15	0.61
0.17				
Max Chl Dpth (m)	2.85	Hydr. Depth (m)	0.94	2.19
0.95				
Conv. Total (m3/s)	4671.3	Conv. (m3/s)	131.7	4327.1
212.6				

Length Wtd. (m)	200.00	Wetted Per. (m)	7.08	20.39
8.95				
Min Ch El (m)	9.89	Shear (N/m2)	0.23	0.66
0.27				
Alpha	1.35	Stream Power (N/m s)	0.04	0.40
0.04				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	149.62	454.57
113.19				
C & E Loss (m)	0.00	Cum SA (1000 m2)	92.89	177.47
71.34				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 49

INPUT

Description:

Station Elevation Data				num=	26				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6.1878	13.2676	8.6556	13.3672	9.1701	13.4707	9.5248	13.4592	10.0511	13.3563
11.8064	13.3687	12.8394	13.0587	13.0688	12.9352	13.1374	12.6835	15.1875	11.3
17.292	9.8798	27.4036	9.8791	29.6333	11.3	31.599	12.5527	31.6714	12.6974
31.7898	12.9276	31.9872	13.0263	32.2372	13.1578	32.4806	13.1512	32.9017	13.0986
33.8772	13.1913	34.3772	13.1716	34.8838	13.2439	35.2325	13.2373	38.7572	13.1241
39.7208	12.9916								

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
6.1878	.03	11.8064	.015	32.2372	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	11.8064	32.2372		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.65	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.64	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		22.54
E.G. Slope (m/m)	0.000029	Area (m2)		22.54

Q Total (m3/s)	10.00	Flow (m3/s)	10.00	
Top Width (m)	15.49	Top Width (m)	15.49	
Vel Total (m/s)	0.44	Avg. Vel. (m/s)	0.44	
Max Chl Dpth (m)	1.76	Hydr. Depth (m)	1.46	
Conv. Total (m3/s)	1847.7	Conv. (m3/s)	1847.7	
Length Wtd. (m)	200.00	Wetted Per. (m)	16.54	
Min Ch El (m)	9.88	Shear (N/m2)	0.39	
Alpha	1.00	Stream Power (N/m s)	0.17	
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	65.92	267.66
50.82				
C & E Loss (m)	0.00	Cum SA (1000 m2)	68.93	153.93
50.45				

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.08	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.07	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	0.02	29.47
E.G. Slope (m/m)	0.000014	Area (m2)	0.02	29.47
Q Total (m3/s)	10.00	Flow (m3/s)	0.00	10.00
Top Width (m)	17.72	Top Width (m)	0.93	16.80
Vel Total (m/s)	0.34	Avg. Vel. (m/s)	0.01	0.34
Max Chl Dpth (m)	2.19	Hydr. Depth (m)	0.03	1.75
Conv. Total (m3/s)	2719.4	Conv. (m3/s)	0.1	2719.3
Length Wtd. (m)	200.00	Wetted Per. (m)	0.94	18.10
Min Ch El (m)	9.88	Shear (N/m2)	0.00	0.22
Alpha	1.00	Stream Power (N/m s)	0.00	0.07
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	100.50	344.08

76.22				
C & E Loss (m)	0.00	Cum SA (1000 m2)	80.58	165.67
59.71				

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	1.70	37.67
0.33				
E.G. Slope (m/m)	0.000007	Area (m2)	1.70	37.67
0.33				
Q Total (m3/s)	10.00	Flow (m3/s)	0.07	9.92
0.01				
Top Width (m)	25.11	Top Width (m)	4.57	18.22
2.32				
Vel Total (m/s)	0.25	Avg. Vel. (m/s)	0.04	0.26
0.02				
Max Chl Dpth (m)	2.66	Hydr. Depth (m)	0.37	2.07
0.14				
Conv. Total (m3/s)	3885.5	Conv. (m3/s)	27.8	3854.9
2.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	4.99	19.81
2.50				
Min Ch El (m)	9.88	Shear (N/m2)	0.02	0.12
0.01				
Alpha	1.08	Stream Power (N/m s)	0.00	0.03
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	141.11	429.42
106.44				
C & E Loss (m)	0.00	Cum SA (1000 m2)	89.65	175.02
68.20				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.18	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.	0.030	0.015

W.S. Elev (m)	12.14	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	0.14	30.71
E.G. Slope (m/m)	0.000088	Area (m2)	0.14	30.71
Q Total (m3/s)	27.00	Flow (m3/s)	0.01	26.99
Top Width (m)	19.25	Top Width (m)	2.23	17.02
Vel Total (m/s)	0.88	Avg. Vel. (m/s)	0.05	0.88
Max Chl Dpth (m)	2.26	Hydr. Depth (m)	0.06	1.80
Conv. Total (m3/s)	2884.2	Conv. (m3/s)	0.7	2883.4
Length Wtd. (m)	200.00	Wetted Per. (m)	2.26	18.37
Min Ch El (m)	9.88	Shear (N/m2)	0.05	1.44
Alpha	1.01	Stream Power (N/m s)	0.00	1.26
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	84.60	311.69
64.64				
C & E Loss (m)	0.00	Cum SA (1000 m2)	74.86	160.84
55.53				

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.41	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.38	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	1.00	34.80
0.00				
E.G. Slope (m/m)	0.000061	Area (m2)	1.00	34.80
0.00				
Q Total (m3/s)	27.00	Flow (m3/s)	0.10	26.90
0.00				
Top Width (m)	23.71	Top Width (m)	4.22	17.74
1.75				
Vel Total (m/s)	0.75	Avg. Vel. (m/s)	0.10	0.77
0.00				
Max Chl Dpth (m)	2.50	Hydr. Depth (m)	0.24	1.96
0.00				
Conv. Total (m3/s)	3457.7	Conv. (m3/s)	12.4	3445.3

0.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	4.44	19.23
1.75				
Min Ch El (m)	9.88	Shear (N/m2)	0.13	1.08
0.00				
Alpha	1.05	Stream Power (N/m s)	0.01	0.84
0.00				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	112.03	370.39
84.79				
C & E Loss (m)	0.00	Cum SA (1000 m2)	83.33	168.85
62.31				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.75	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.73	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	2.64	41.26
0.83				
E.G. Slope (m/m)	0.000036	Area (m2)	2.64	41.26
0.83				
Q Total (m3/s)	27.00	Flow (m3/s)	0.32	26.61
0.07				
Top Width (m)	26.40	Top Width (m)	5.00	18.57
2.83				
Vel Total (m/s)	0.60	Avg. Vel. (m/s)	0.12	0.64
0.08				
Max Chl Dpth (m)	2.85	Hydr. Depth (m)	0.53	2.22
0.29				
Conv. Total (m3/s)	4470.5	Conv. (m3/s)	52.8	4406.5
11.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	5.66	20.35
3.24				
Min Ch El (m)	9.88	Shear (N/m2)	0.17	0.73
0.09				
Alpha	1.13	Stream Power (N/m s)	0.02	0.47
0.01				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	148.85	446.36
112.38				
C & E Loss (m)	0.00	Cum SA (1000 m2)	91.86	173.75
70.28				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 48

INPUT

Description:

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.3427	2.0574	13.3427	3.4663	13.4407	5.1547	13.2312	7.9102	11.37
10.1433	9.8617	20.0692	9.8602	22.5232	11.37	25.9427	13.4739	27.2184	13.5782
29.4802	13.5669	31.1161	13.6122	31.7125	13.511	32.579	13.286	34.9421	13.3647
38.5292	13.3765								

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	5.1547	.015	25.9427	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	5.1547	25.9427		200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.65	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.63	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		22.50
E.G. Slope (m/m)	0.000029	Area (m2)		22.50
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.44	Top Width (m)		15.44
Vel Total (m/s)	0.44	Avg. Vel. (m/s)		0.44
Max Chl Dpth (m)	1.77	Hydr. Depth (m)		1.46
Conv. Total (m3/s)	1845.4	Conv. (m3/s)		1845.4
Length Wtd. (m)	200.00	Wetted Per. (m)		16.48
Min Ch El (m)	9.86	Shear (N/m2)		0.39

Alpha	1.00	Stream Power (N/m s)		0.17
Frctn Loss (m) 50.82	0.01	Cum Volume (1000 m3)	65.92	263.16
C & E Loss (m) 50.45	0.00	Cum SA (1000 m2)	68.93	150.83

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m) Right OB	12.07	Element	Left OB	Channel
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m) 200.00	12.07	Reach Len. (m)	200.00	200.00
Crit W.S. (m)		Flow Area (m2)		29.46
E.G. Slope (m/m)	0.000014	Area (m2)		29.46
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.78	Top Width (m)		16.78
Vel Total (m/s)	0.34	Avg. Vel. (m/s)		0.34
Max Chl Dpth (m)	2.21	Hydr. Depth (m)		1.76
Conv. Total (m3/s)	2720.1	Conv. (m3/s)		2720.1
Length Wtd. (m)	200.00	Wetted Per. (m)		18.08
Min Ch El (m)	9.86	Shear (N/m2)		0.22
Alpha	1.00	Stream Power (N/m s)		0.07
Frctn Loss (m) 76.22	0.00	Cum Volume (1000 m3)	100.50	338.19
C & E Loss (m) 59.71	0.00	Cum SA (1000 m2)	80.49	162.31

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m) Right OB	12.54	Element	Left OB	Channel
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m) 200.00	12.54	Reach Len. (m)	200.00	200.00

Crit W.S. (m)		Flow Area (m2)		37.68
E.G. Slope (m/m)	0.000007	Area (m2)		37.68
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.24	Top Width (m)		18.24
Vel Total (m/s)	0.27	Avg. Vel. (m/s)		0.27
Max Chl Dpth (m)	2.68	Hydr. Depth (m)		2.07
Conv. Total (m3/s)	3856.5	Conv. (m3/s)		3856.5
Length Wtd. (m)	200.00	Wetted Per. (m)		19.81
Min Ch El (m)	9.86	Shear (N/m2)		0.13
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	140.94	421.88
106.40				
C & E Loss (m)	0.00	Cum SA (1000 m2)	89.19	171.37
67.96				

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.16	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.12	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		30.43
E.G. Slope (m/m)	0.000090	Area (m2)		30.43
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	16.96	Top Width (m)		16.96
Vel Total (m/s)	0.89	Avg. Vel. (m/s)		0.89
Max Chl Dpth (m)	2.26	Hydr. Depth (m)		1.79
Conv. Total (m3/s)	2847.9	Conv. (m3/s)		2847.9
Length Wtd. (m)	200.00	Wetted Per. (m)		18.29
Min Ch El (m)	9.86	Shear (N/m2)		1.47

Alpha	1.00	Stream Power (N/m s)		1.30
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	84.58	305.58
64.64				
C & E Loss (m)	0.00	Cum SA (1000 m2)	74.63	157.44
55.53				

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.40	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.37	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.60
E.G. Slope (m/m)	0.000062	Area (m2)		34.60
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.71	Top Width (m)		17.71
Vel Total (m/s)	0.78	Avg. Vel. (m/s)		0.78
Max Chl Dpth (m)	2.51	Hydr. Depth (m)		1.95
Conv. Total (m3/s)	3418.7	Conv. (m3/s)		3418.7
Length Wtd. (m)	200.00	Wetted Per. (m)		19.18
Min Ch El (m)	9.86	Shear (N/m2)		1.10
Alpha	1.00	Stream Power (N/m s)		0.86
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	111.93	363.45
84.79				
C & E Loss (m)	0.00	Cum SA (1000 m2)	82.90	165.30
62.14				

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.75	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.72	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)		41.16
E.G. Slope (m/m)	0.000038	Area (m2)		41.16
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.82	Top Width (m)		18.82
Vel Total (m/s)	0.66	Avg. Vel. (m/s)		0.66
Max Chl Dpth (m)	2.86	Hydr. Depth (m)		2.19
Conv. Total (m3/s)	4366.5	Conv. (m3/s)		4366.5
Length Wtd. (m)	200.00	Wetted Per. (m)		20.51
Min Ch El (m)	9.86	Shear (N/m2)		0.75
Alpha	1.00	Stream Power (N/m s)		0.49
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	148.59	438.12
112.30				
C & E Loss (m)	0.00	Cum SA (1000 m2)	91.36	170.01
70.00				

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 47

INPUT

Description:

Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.3642	13.8709	12.1018	13.9021	13.0504	13.9896	14.758	13.9458	16.1445	13.9896
17.3981	14.1288	18.4555	12.8165	20.4422	11.36	22.527	9.8315	33.2262	9.8299
35.6156	11.36	37.8984	12.8219	38.1182	13.1295	39.418	13.7196	40.0235	13.8271
40.9529	13.8648	43.5961	13.8852	44.0076	13.9417	45.3039	14.0292	49.4045	14.1706

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.3642	.03	17.3981	.015	40.0235	.03

Bank	Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.	17.3981	40.0235	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.64	Element	Left OB	Channel
---------------	-------	---------	---------	---------

Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.63	Reach Len. (m)	97.50	97.50
97.50				
Crit W.S. (m)	10.27	Flow Area (m2)		24.00
E.G. Slope (m/m)	0.000025	Area (m2)		24.00
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.97	Top Width (m)		15.97
Vel Total (m/s)	0.42	Avg. Vel. (m/s)		0.42
Max Chl Dpth (m)	1.80	Hydr. Depth (m)		1.50
Conv. Total (m3/s)	2007.1	Conv. (m3/s)		2007.1
Length Wtd. (m)	97.50	Wetted Per. (m)		17.08
Min Ch El (m)	9.83	Shear (N/m2)		0.34
Alpha	1.00	Stream Power (N/m s)		0.14
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	65.92	258.51
50.82				
C & E Loss (m)	0.00	Cum SA (1000 m2)	68.93	147.69
50.45				

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.07	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.07	Reach Len. (m)	97.50	97.50
97.50				
Crit W.S. (m)	10.27	Flow Area (m2)	0.26	31.22
E.G. Slope (m/m)	0.000012	Area (m2)	0.26	31.22
Q Total (m3/s)	10.00	Flow (m3/s)	0.01	9.99
Top Width (m)	19.55	Top Width (m)	2.31	17.24
Vel Total (m/s)	0.32	Avg. Vel. (m/s)	0.02	0.32
Max Chl Dpth (m)	2.24	Hydr. Depth (m)	0.11	1.81
Conv. Total (m3/s)	2939.0	Conv. (m3/s)	1.9	2937.1

Length Wtd. (m)	97.50	Wetted Per. (m)	2.54	18.62
Min Ch El (m)	9.83	Shear (N/m2)	0.01	0.19
Alpha	1.01	Stream Power (N/m s)	0.00	0.06
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	100.47	332.12
76.22				
C & E Loss (m)	0.00	Cum SA (1000 m2)	80.26	158.91
59.71				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.54	Reach Len. (m)	97.50	97.50
97.50				
Crit W.S. (m)	10.27	Flow Area (m2)	1.87	39.66
E.G. Slope (m/m)	0.000006	Area (m2)	1.87	39.66
Q Total (m3/s)	10.00	Flow (m3/s)	0.08	9.92
Top Width (m)	22.79	Top Width (m)	4.18	18.61
Vel Total (m/s)	0.24	Avg. Vel. (m/s)	0.04	0.25
Max Chl Dpth (m)	2.71	Hydr. Depth (m)	0.45	2.13
Conv. Total (m3/s)	4164.9	Conv. (m3/s)	32.5	4132.4
Length Wtd. (m)	97.50	Wetted Per. (m)	4.95	20.29
Min Ch El (m)	9.83	Shear (N/m2)	0.02	0.11
Alpha	1.07	Stream Power (N/m s)	0.00	0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	140.75	414.15
106.40				
C & E Loss (m)	0.00	Cum SA (1000 m2)	88.77	167.69
67.96				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.15	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.11	Reach Len. (m)	97.50	97.50
97.50				
Crit W.S. (m)	10.66	Flow Area (m2)	0.38	32.02
E.G. Slope (m/m)	0.000078	Area (m2)	0.38	32.02
Q Total (m3/s)	27.00	Flow (m3/s)	0.03	26.97
Top Width (m)	20.16	Top Width (m)	2.78	17.37
Vel Total (m/s)	0.83	Avg. Vel. (m/s)	0.07	0.84
Max Chl Dpth (m)	2.28	Hydr. Depth (m)	0.14	1.84
Conv. Total (m3/s)	3048.8	Conv. (m3/s)	3.1	3045.7
Length Wtd. (m)	97.50	Wetted Per. (m)	3.07	18.79
Min Ch El (m)	9.83	Shear (N/m2)	0.09	1.31
Alpha	1.02	Stream Power (N/m s)	0.01	1.10
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	84.55	299.34
64.64				
C & E Loss (m)	0.00	Cum SA (1000 m2)	74.35	154.01
55.53				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.39	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.36	Reach Len. (m)	97.50	97.50
97.50				
Crit W.S. (m)	10.66	Flow Area (m2)	1.17	36.37

E.G. Slope (m/m)	0.000054	Area (m2)	1.17	36.37
Q Total (m3/s)	27.00	Flow (m3/s)	0.12	26.88
Top Width (m)	21.71	Top Width (m)	3.61	18.09
Vel Total (m/s)	0.72	Avg. Vel. (m/s)	0.10	0.74
Max Chl Dpth (m)	2.53	Hydr. Depth (m)	0.32	2.01
Conv. Total (m3/s)	3671.1	Conv. (m3/s)	16.7	3654.5
Length Wtd. (m)	97.50	Wetted Per. (m)	4.18	19.66
Min Ch El (m)	9.83	Shear (N/m2)	0.15	0.98
Alpha	1.05	Stream Power (N/m s)	0.02	0.73
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	111.81	356.36
84.79				
C & E Loss (m)	0.00	Cum SA (1000 m2)	82.54	161.72
62.14				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.74	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.72	Reach Len. (m)	97.50	97.50
97.50				
Crit W.S. (m)	10.66	Flow Area (m2)	2.69	43.13
E.G. Slope (m/m)	0.000033	Area (m2)	2.69	43.13
Q Total (m3/s)	27.00	Flow (m3/s)	0.31	26.69
Top Width (m)	23.97	Top Width (m)	4.82	19.15
Vel Total (m/s)	0.59	Avg. Vel. (m/s)	0.11	0.62
Max Chl Dpth (m)	2.89	Hydr. Depth (m)	0.56	2.25
Conv. Total (m3/s)	4707.9	Conv. (m3/s)	53.7	4654.2
Length Wtd. (m)	97.50	Wetted Per. (m)	5.80	20.94

Min Ch El (m)	9.83	Shear (N/m2)	0.15	0.66
Alpha	1.09	Stream Power (N/m s)	0.02	0.41
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	148.32	429.69
112.30				
C & E Loss (m)	0.00	Cum SA (1000 m2)	90.87	166.21
70.00				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 46.5

INPUT

Description:

Distance from Upstream XS = 97.5

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
14.8	15.46	14.37	41.81	15.46	14.37				

Upstream Bridge Cross Section Data

Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.3642	13.8709	12.1018	13.9021	13.0504	13.9896	14.758	13.9458	16.1445	13.9896
17.3981	14.1288	18.4555	12.8165	20.4422	11.36	22.527	9.8315	33.2262	9.8299
35.6156	11.36	37.8984	12.8219	38.1182	13.1295	39.418	13.7196	40.0235	13.8271
40.9529	13.8648	43.5961	13.8852	44.0076	13.9417	45.3039	14.0292	49.4045	14.1706

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.3642	.03	17.3981	.015	40.0235	.03

Bank	Sta: Left	Right	Coeff	Contr.	Expan.
	17.3981	40.0235	.0015		.01

Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
4.73	15.47	14.37	31.73	15.47	14.37				

Downstream Bridge Cross Section Data

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	14.1921	2.8482	14.1921	6.1804	13.9129	7.6835	13.4636	8.0757	13.3633
8.1578	13.2448	8.2399	12.9438	10.3904	11.29	12.3261	9.8013	23.4249	9.7996
25.5181	11.29	28.568	13.4616	29.0195	13.5883	31.0744	13.803	32.0986	13.8591
36.9403	14.136								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	6.1804	.015	29.0195	.03

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	6.1804	29.0195		.0015	.01

Upstream Embankment side slope = 1.6 horiz. to 1.0 vertical
Downstream Embankment side slope = 1.6 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Piers = 2

Pier Data

Pier Station	Upstream=	Downstream=
	22.36	12.29
Upstream num=	2	
Width Elev	Width Elev	
.4 9.91	.4 14.37	
Downstream num=	2	
Width Elev	Width Elev	
.4 10.14	.4 14.37	

Pier Data

Pier Station	Upstream=	Downstream=
	33.97	23.9
Upstream num=	2	
Width Elev	Width Elev	
.4 9.94	.4 14.37	
Downstream num=	2	
Width Elev	Width Elev	
.4 10.14	.4 14.37	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth

inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.64	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.63	E.G. Elev (m)	11.64
11.64			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.63
11.63			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.27
10.24			
Q Weir (m3/s)		Max Chl Dpth (m)	1.80
1.83			
Weir Sta Lft (m)		Vel Total (m/s)	0.44
0.43			
Weir Sta Rgt (m)		Flow Area (m2)	22.74
23.48			
Weir Submerg		Froude # Chl	0.11
0.11			
Weir Max Depth (m)		Specif Force (m3)	19.62
20.63			
Min El Weir Flow (m)	13.84	Hydr Depth (m)	1.50
1.54			
Min El Prs (m)	14.37	W.P. Total (m)	22.07
22.74			
Delta EG (m)	0.01	Conv. Total (m3/s)	1546.4
1599.4			
Delta WS (m)	0.01	Top Width (m)	15.15
15.24			
BR Open Area (m2)	76.50	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.44	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.42
0.40			
BR Sel Method	Energy only	Power Total (N/m s)	0.19
0.17			

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.07	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.07	E.G. Elev (m)	12.07
12.07			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.06
12.06			
Q Bridge (m3/s)	9.99	Crit W.S. (m)	10.27
10.24			

Q Weir (m3/s)		Max Chl Dpth (m)	2.23
2.26			
Weir Sta Lft (m)		Vel Total (m/s)	0.33
0.33			
Weir Sta Rgt (m)		Flow Area (m2)	29.89
30.40			
Weir Submerg		Froude # Chl	0.08
0.08			
Weir Max Depth (m)		Specif Force (m3)	30.96
32.27			
Min El Weir Flow (m)	13.84	Hydr Depth (m)	1.60
1.85			
Min El Prs (m)	14.37	W.P. Total (m)	27.89
25.96			
Delta EG (m)	0.00	Conv. Total (m3/s)	2193.9
2251.3			
Delta WS (m)	0.00	Top Width (m)	18.72
16.42			
BR Open Area (m2)	76.50	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.34	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.22
0.23			
BR Sel Method	Energy only	Power Total (N/m s)	0.07
0.07			

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)		Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.54	E.G. Elev (m)	12.54
12.54			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.54
12.54			
Q Bridge (m3/s)	9.89	Crit W.S. (m)	10.27
10.24			
Q Weir (m3/s)		Max Chl Dpth (m)	2.71
2.74			
Weir Sta Lft (m)		Vel Total (m/s)	0.25
0.26			
Weir Sta Rgt (m)		Flow Area (m2)	39.57
38.44			
Weir Submerg		Froude # Chl	0.06
0.06			
Weir Max Depth (m)		Specif Force (m3)	47.20
48.40			
Min El Weir Flow (m)	13.84	Hydr Depth (m)	1.80
2.17			
Min El Prs (m)	14.37	W.P. Total (m)	33.87
29.43			

Delta EG (m)	0.00	Conv. Total (m3/s)	3033.1
3061.8			
Delta WS (m)	0.00	Top Width (m)	21.98
17.70			
BR Open Area (m2)	76.50	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.26	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.12
0.14			
BR Sel Method	Energy only	Power Total (N/m s)	0.03
0.04			

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.15	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.11	E.G. Elev (m)	12.14
12.14			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.10
12.10			
Q Bridge (m3/s)	26.97	Crit W.S. (m)	10.68
10.64			
Q Weir (m3/s)		Max Chl Dpth (m)	2.27
2.30			
Weir Sta Lft (m)		Vel Total (m/s)	0.88
0.87			
Weir Sta Rgt (m)		Flow Area (m2)	30.53
30.97			
Weir Submerg		Froude # Chl	0.21
0.20			
Weir Max Depth (m)		Specif Force (m3)	34.08
35.40			
Min El Weir Flow (m)	13.84	Hydr Depth (m)	1.59
1.88			
Min El Prs (m)	14.37	W.P. Total (m)	28.52
26.21			
Delta EG (m)	0.02	Conv. Total (m3/s)	2248.6
2307.0			
Delta WS (m)	0.02	Top Width (m)	19.17
16.51			
BR Open Area (m2)	76.50	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.89	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.51
1.59			
BR Sel Method	Energy only	Power Total (N/m s)	1.34
1.38			

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.39	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.36	E.G. Elev (m)	12.38
12.38			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.35
12.35			
Q Bridge (m3/s)	26.84	Crit W.S. (m)	10.68
10.64			
Q Weir (m3/s)		Max Chl Dpth (m)	2.52
2.55			
Weir Sta Lft (m)		Vel Total (m/s)	0.76
0.77			
Weir Sta Rgt (m)		Flow Area (m2)	35.55
35.16			
Weir Submerg		Froude # Chl	0.18
0.17			
Weir Max Depth (m)		Specif Force (m3)	42.01
43.34			
Min El Weir Flow (m)	13.84	Hydr Depth (m)	1.71
2.05			
Min El Prs (m)	14.37	W.P. Total (m)	31.64
28.05			
Delta EG (m)	0.01	Conv. Total (m3/s)	2680.1
2725.5			
Delta WS (m)	0.01	Top Width (m)	20.84
17.19			
BR Open Area (m2)	76.50	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.78	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.12
1.21			
BR Sel Method	Energy only	Power Total (N/m s)	0.85
0.93			

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.74	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.72	E.G. Elev (m)	12.74
12.73			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.71
12.71			
Q Bridge (m3/s)	26.58	Crit W.S. (m)	10.68
10.64			
Q Weir (m3/s)		Max Chl Dpth (m)	2.88
2.91			

Weir Sta Lft (m)		Vel Total (m/s)	0.62
0.65			
Weir Sta Rgt (m)		Flow Area (m2)	43.61
41.64			
Weir Submerg		Froude # Ch1	0.14
0.14			
Weir Max Depth (m)		Specif Force (m3)	56.14
57.06			
Min El Weir Flow (m)	13.84	Hydr Depth (m)	1.89
2.29			
Min El Prs (m)	14.37	W.P. Total (m)	36.04
30.74			
Delta EG (m)	0.01	Conv. Total (m3/s)	3391.6
3397.8			
Delta WS (m)	0.01	Top Width (m)	23.13
18.18			
BR Open Area (m2)	76.50	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.65	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.75
0.84			
BR Sel Method	Energy only	Power Total (N/m s)	0.47
0.54			

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 46

INPUT

Description:

Station Elevation Data		num= 16									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	14.1921	2.8482	14.1921	6.1804	13.9129	7.6835	13.4636	8.0757	13.3633		
8.1578	13.2448	8.2399	12.9438	10.3904	11.29	12.3261	9.8013	23.4249	9.7996		
25.5181	11.29	28.568	13.4616	29.0195	13.5883	31.0744	13.803	32.0986	13.8591		
36.9403	14.136										

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.03	6.1804	.015	29.0195	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	6.1804	29.0195		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.63	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.63	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		24.76
E.G. Slope (m/m)	0.000023	Area (m2)		24.76
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.03	Top Width (m)		16.03
Vel Total (m/s)	0.40	Avg. Vel. (m/s)		0.40
Max Chl Dpth (m)	1.83	Hydr. Depth (m)		1.54
Conv. Total (m3/s)	2100.8	Conv. (m3/s)		2100.8
Length Wtd. (m)	200.00	Wetted Per. (m)		17.24
Min Ch El (m)	9.80	Shear (N/m2)		0.32
Alpha	1.00	Stream Power (N/m s)		0.13
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	65.92	253.76
50.82				
C & E Loss (m)	0.00	Cum SA (1000 m2)	68.93	144.58
50.45				

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.07	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.06	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.03
E.G. Slope (m/m)	0.000011	Area (m2)		32.03
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.22	Top Width (m)		17.22
Vel Total (m/s)	0.31	Avg. Vel. (m/s)		0.31
Max Chl Dpth (m)	2.26	Hydr. Depth (m)		1.86
Conv. Total (m3/s)	3056.4	Conv. (m3/s)		3056.4

Length Wtd. (m)	200.00	Wetted Per. (m)		18.71
Min Ch El (m)	9.80	Shear (N/m2)		0.18
Alpha	1.00	Stream Power (N/m s)		0.06
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	100.45	325.96
76.22				
C & E Loss (m)	0.00	Cum SA (1000 m2)	80.03	155.54
59.71				

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		40.46
E.G. Slope (m/m)	0.000005	Area (m2)		40.46
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.49	Top Width (m)		18.49
Vel Total (m/s)	0.25	Avg. Vel. (m/s)		0.25
Max Chl Dpth (m)	2.74	Hydr. Depth (m)		2.19
Conv. Total (m3/s)	4272.1	Conv. (m3/s)		4272.1
Length Wtd. (m)	200.00	Wetted Per. (m)		20.30
Min Ch El (m)	9.80	Shear (N/m2)		0.11
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	140.56	406.34
106.40				
C & E Loss (m)	0.00	Cum SA (1000 m2)	88.35	164.06
67.96				

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.13	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.09	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.54
E.G. Slope (m/m)	0.000075	Area (m2)		32.54
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.30	Top Width (m)		17.30
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83
Max Chl Dpth (m)	2.29	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3126.6	Conv. (m3/s)		3126.6
Length Wtd. (m)	200.00	Wetted Per. (m)		18.81
Min Ch El (m)	9.80	Shear (N/m2)		1.27
Alpha	1.00	Stream Power (N/m s)		1.05
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	84.51	293.05
64.64				
C & E Loss (m)	0.00	Cum SA (1000 m2)	74.08	150.63
55.53				

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.37	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.34	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		36.97
E.G. Slope (m/m)	0.000052	Area (m2)		36.97
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.98	Top Width (m)		17.98
Vel Total (m/s)	0.73	Avg. Vel. (m/s)		0.73
Max Chl Dpth (m)	2.54	Hydr. Depth (m)		2.06
Conv. Total (m3/s)	3755.8	Conv. (m3/s)		3755.8

Length Wtd. (m)	200.00	Wetted Per. (m)	19.65	
Min Ch El (m)	9.80	Shear (N/m2)	0.95	
Alpha	1.00	Stream Power (N/m s)	0.70	
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	111.70	349.21
84.79				
C & E Loss (m)	0.00	Cum SA (1000 m2)	82.18	158.20
62.14				

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.73	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.015	
W.S. Elev (m)	12.71	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	43.77	
E.G. Slope (m/m)	0.000032	Area (m2)	43.77	
Q Total (m3/s)	27.00	Flow (m3/s)	27.00	
Top Width (m)	18.97	Top Width (m)	18.97	
Vel Total (m/s)	0.62	Avg. Vel. (m/s)	0.62	
Max Chl Dpth (m)	2.91	Hydr. Depth (m)	2.31	
Conv. Total (m3/s)	4776.9	Conv. (m3/s)	4776.9	
Length Wtd. (m)	200.00	Wetted Per. (m)	20.89	
Min Ch El (m)	9.80	Shear (N/m2)	0.66	
Alpha	1.00	Stream Power (N/m s)	0.40	
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	148.05	421.22
112.30				
C & E Loss (m)	0.00	Cum SA (1000 m2)	90.39	162.48
70.00				

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 45

INPUT

Description:

Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.1084	3.0077	13.2882	3.9165	13.9261	4.9996	13.7818	5.4882	13.7097
5.9688	13.6937	7.1783	13.7017	8.7305	13.6993	9.1846	13.7441	9.3752	13.8114
9.8294	13.6656	10.6307	13.2594	13.1715	11.35	15.2724	9.7711	26.3748	9.7694
28.5906	11.35	30.5977	12.7817	30.6038	12.9457	30.6949	13.0792	30.9925	13.1885
31.284	13.2917	31.5209	13.3342	32.7983	13.5355	34.5535	13.6023	37.8426	13.5784
38.2678	13.7302	38.6686	13.6027	38.863	13.5238				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	9.3752	.015	32.7983	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
Expan.

9.3752	32.7983	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.63	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.62	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		25.23
E.G. Slope (m/m)	0.000021	Area (m2)		25.23
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.16	Top Width (m)		16.16
Vel Total (m/s)	0.40	Avg. Vel. (m/s)		0.40
Max Chl Dpth (m)	1.85	Hydr. Depth (m)		1.56
Conv. Total (m3/s)	2157.1	Conv. (m3/s)		2157.1
Length Wtd. (m)	200.00	Wetted Per. (m)		17.37
Min Ch El (m)	9.77	Shear (N/m2)		0.31
Alpha	1.00	Stream Power (N/m s)		0.12
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	65.92	248.76
50.82				
C & E Loss (m)	0.00	Cum SA (1000 m2)	68.93	141.36
50.45				

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.07	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.06	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.60
E.G. Slope (m/m)	0.000010	Area (m2)		32.60
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.36	Top Width (m)		17.36
Vel Total (m/s)	0.31	Avg. Vel. (m/s)		0.31
Max Chl Dpth (m)	2.29	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3130.7	Conv. (m3/s)		3130.7
Length Wtd. (m)	200.00	Wetted Per. (m)		18.86
Min Ch El (m)	9.77	Shear (N/m2)		0.17
Alpha	1.00	Stream Power (N/m s)		0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	100.45	319.50
76.22				
C & E Loss (m)	0.00	Cum SA (1000 m2)	80.03	152.09
59.71				

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		41.12
E.G. Slope (m/m)	0.000005	Area (m2)		41.12
Q Total (m3/s)	10.00	Flow (m3/s)		10.00

Top Width (m)	18.65	Top Width (m)		18.65
Vel Total (m/s)	0.24	Avg. Vel. (m/s)		0.24
Max Chl Dpth (m)	2.76	Hydr. Depth (m)		2.20
Conv. Total (m3/s)	4365.0	Conv. (m3/s)		4365.0
Length Wtd. (m)	200.00	Wetted Per. (m)		20.46
Min Ch El (m)	9.77	Shear (N/m2)		0.10
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	140.56	398.18
106.40				
C & E Loss (m)	0.00	Cum SA (1000 m2)	88.35	160.35
67.96				

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.11	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.08	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.91
E.G. Slope (m/m)	0.000072	Area (m2)		32.91
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.41	Top Width (m)		17.41
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.31	Hydr. Depth (m)		1.89
Conv. Total (m3/s)	3172.7	Conv. (m3/s)		3172.7
Length Wtd. (m)	200.00	Wetted Per. (m)		18.92
Min Ch El (m)	9.77	Shear (N/m2)		1.24
Alpha	1.00	Stream Power (N/m s)		1.01
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	84.51	286.51
64.64				
C & E Loss (m)	0.00	Cum SA (1000 m2)	74.08	147.16
55.53				

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.36	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.33	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.44
E.G. Slope (m/m)	0.000050	Area (m2)		37.44
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.11	Top Width (m)		18.11
Vel Total (m/s)	0.72	Avg. Vel. (m/s)		0.72
Max Chl Dpth (m)	2.56	Hydr. Depth (m)		2.07
Conv. Total (m3/s)	3819.4	Conv. (m3/s)		3819.4
Length Wtd. (m)	200.00	Wetted Per. (m)		19.78
Min Ch El (m)	9.77	Shear (N/m2)		0.93
Alpha	1.00	Stream Power (N/m s)		0.67
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	111.70	341.77
84.79				
C & E Loss (m)	0.00	Cum SA (1000 m2)	82.18	154.59
62.14				

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.72	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	12.71	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		44.36
0.02				
E.G. Slope (m/m)	0.000031	Area (m2)		44.36
0.02				
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
0.00				

Top Width (m)	19.95	Top Width (m)	19.12
0.83			
Vel Total (m/s)	0.61	Avg. Vel. (m/s)	0.61
0.02			
Max Chl Dpth (m)	2.94	Hydr. Depth (m)	2.32
0.03			
Conv. Total (m3/s)	4862.1	Conv. (m3/s)	4862.0
0.1			
Length Wtd. (m)	200.00	Wetted Per. (m)	21.04
0.84			
Min Ch El (m)	9.77	Shear (N/m2)	0.64
0.01			
Alpha	1.00	Stream Power (N/m s)	0.39
0.00			
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	148.05
112.30			412.41
C & E Loss (m)	0.00	Cum SA (1000 m2)	90.39
69.92			158.67

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 44

INPUT

Description:

Station Elevation Data	num=	16									
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev											
12.9744 13.2472 15.6986 13.4013 16.0718 13.4444 18.4335 13.3885 19.3076 13.258											
22.0053 11.3 24.1535 9.7408 35.1956 9.74 37.3805 11.3 39.1282 12.5479											
39.4308 12.906 39.9063 13.2394 40.4251 13.3381 42.053 13.4806 43.5413 13.4806											
45.7601 13.3015											

Manning's n Values	num=	3				
Sta n Val Sta n Val Sta n Val						
12.9744 .03 19.3076 .015 39.9063 .03						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
19.3076	39.9063	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.62	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	11.62	Reach Len. (m)	200.00	200.00

200.00				
Crit W.S. (m)		Flow Area (m2)	1.39	25.62
E.G. Slope (m/m)	0.000020	Area (m2)	1.39	25.62
Q Total (m3/s)	10.00	Flow (m3/s)	0.08	9.92
Top Width (m)	22.57	Top Width (m)	6.32	16.26
Vel Total (m/s)	0.37	Avg. Vel. (m/s)	0.05	0.39
Max Chl Dpth (m)	1.88	Hydr. Depth (m)	0.22	1.58
Conv. Total (m3/s)	2221.6	Conv. (m3/s)	16.7	2204.9
Length Wtd. (m)	200.00	Wetted Per. (m)	6.41	17.47
Min Ch El (m)	9.74	Shear (N/m2)	0.04	0.29
Alpha	1.09	Stream Power (N/m s)	0.00	0.11
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	65.78	243.68
50.82				
C & E Loss (m)	0.00	Cum SA (1000 m2)	68.30	138.11
50.45				

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.06	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.06	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.26	33.08
0.63				
E.G. Slope (m/m)	0.000009	Area (m2)	5.26	33.08
0.63				
Q Total (m3/s)	10.00	Flow (m3/s)	0.32	9.66
0.02				
Top Width (m)	30.96	Top Width (m)	10.84	17.49
2.63				
Vel Total (m/s)	0.26	Avg. Vel. (m/s)	0.06	0.29
0.04				
Max Chl Dpth (m)	2.32	Hydr. Depth (m)	0.49	1.89
0.24				
Conv. Total (m3/s)	3307.9	Conv. (m3/s)	105.9	3194.3
7.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.20	18.98

2.77				
Min Ch El (m)	9.74	Shear (N/m2)	0.04	0.16
0.02				
Alpha	1.25	Stream Power (N/m s)	0.00	0.05
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	99.92	312.93
76.16				
C & E Loss (m)	0.00	Cum SA (1000 m2)	78.94	148.60
59.45				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.60	41.68
2.66				
E.G. Slope (m/m)	0.000004	Area (m2)	10.60	41.68
2.66				
Q Total (m3/s)	10.00	Flow (m3/s)	0.65	9.25
0.10				
Top Width (m)	36.63	Top Width (m)	11.69	18.80
6.14				
Vel Total (m/s)	0.18	Avg. Vel. (m/s)	0.06	0.22
0.04				
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	0.91	2.22
0.43				
Conv. Total (m3/s)	4807.2	Conv. (m3/s)	313.9	4444.7
48.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.65	20.60
6.52				
Min Ch El (m)	9.74	Shear (N/m2)	0.04	0.09
0.02				
Alpha	1.38	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	139.51	389.90
106.14				
C & E Loss (m)	0.00	Cum SA (1000 m2)	87.18	156.60
67.35				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the

computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.10	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.07	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.36	33.24
0.65				
E.G. Slope (m/m)	0.000066	Area (m2)	5.36	33.24
0.65				
Q Total (m3/s)	27.00	Flow (m3/s)	0.88	26.05
0.07				
Top Width (m)	31.04	Top Width (m)	10.85	17.51
2.68				
Vel Total (m/s)	0.69	Avg. Vel. (m/s)	0.16	0.78
0.10				
Max Chl Dpth (m)	2.33	Hydr. Depth (m)	0.49	1.90
0.24				
Conv. Total (m3/s)	3333.3	Conv. (m3/s)	109.0	3216.1
8.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.23	19.01
2.82				
Min Ch El (m)	9.74	Shear (N/m2)	0.31	1.12
0.15				
Alpha	1.25	Stream Power (N/m s)	0.05	0.88
0.02				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	83.97	279.89
64.58				
C & E Loss (m)	0.00	Cum SA (1000 m2)	73.00	143.66
55.26				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.35	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.33	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.25	37.90
1.55				
E.G. Slope (m/m)	0.000043	Area (m2)	8.25	37.90

1.55				
Q Total (m3/s)	27.00	Flow (m3/s)	1.40	25.43
0.17				
Top Width (m)	33.88	Top Width (m)	11.32	18.24
4.32				
Vel Total (m/s)	0.57	Avg. Vel. (m/s)	0.17	0.67
0.11				
Max Chl Dpth (m)	2.59	Hydr. Depth (m)	0.73	2.08
0.36				
Conv. Total (m3/s)	4120.9	Conv. (m3/s)	213.8	3881.8
25.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.02	19.91
4.55				
Min Ch El (m)	9.74	Shear (N/m2)	0.29	0.80
0.14				
Alpha	1.33	Stream Power (N/m s)	0.05	0.54
0.02				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	110.87	334.24
84.64				
C & E Loss (m)	0.00	Cum SA (1000 m2)	81.05	150.96
61.70				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.72	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.70	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	12.62	44.94
3.74				
E.G. Slope (m/m)	0.000025	Area (m2)	12.62	44.94
3.74				
Q Total (m3/s)	27.00	Flow (m3/s)	2.03	24.57
0.40				
Top Width (m)	37.74	Top Width (m)	12.00	19.19
6.55				
Vel Total (m/s)	0.44	Avg. Vel. (m/s)	0.16	0.55
0.11				
Max Chl Dpth (m)	2.97	Hydr. Depth (m)	1.05	2.34
0.57				
Conv. Total (m3/s)	5445.1	Conv. (m3/s)	409.1	4954.9
81.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.17	21.13
7.13				
Min Ch El (m)	9.74	Shear (N/m2)	0.23	0.51

0.13				
Alpha	1.41	Stream Power (N/m s)	0.04	0.28
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	146.79	403.48
111.92				
C & E Loss (m)	0.00	Cum SA (1000 m2)	89.19	154.84
69.18				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 43

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.4423	13.3874	12.8126	13.452	15.09	13.3654	15.9422	13.187	16.3608	12.9305
16.6062	12.6663	18.502	11.33	20.7576	9.74	31.8809	9.74	34.0874	11.33
36.7984	13.2836	37.6016	13.3775	38.5521	13.4351	40.3481	13.4665	41.0998	13.3883
41.9291	13.3727								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
10.4423	.03	15.9422	.015	36.7984	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	15.9422	36.7984		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.62	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	11.61	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	2.23	25.77
E.G. Slope (m/m)	0.000020	Area (m2)	2.23	25.77
Q Total (m3/s)	10.00	Flow (m3/s)	0.16	9.84
Top Width (m)	22.42	Top Width (m)	6.04	16.38

Vel Total (m/s)	0.36	Avg. Vel. (m/s)	0.07	0.38
Max Chl Dpth (m)	1.87	Hydr. Depth (m)	0.37	1.57
Conv. Total (m3/s)	2253.2	Conv. (m3/s)	36.6	2216.6
Length Wtd. (m)	200.00	Wetted Per. (m)	6.47	17.58
Min Ch El (m)	9.74	Shear (N/m2)	0.07	0.28
Alpha	1.12	Stream Power (N/m s)	0.00	0.11
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	65.42	238.54
50.82				
C & E Loss (m)	0.00	Cum SA (1000 m2)	67.06	134.85
50.45				

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.06	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.06	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.83	33.33
1.29				
E.G. Slope (m/m)	0.000009	Area (m2)	5.83	33.33
1.29				
Q Total (m3/s)	10.00	Flow (m3/s)	0.41	9.53
0.06				
Top Width (m)	30.29	Top Width (m)	8.71	17.63
3.96				
Vel Total (m/s)	0.25	Avg. Vel. (m/s)	0.07	0.29
0.04				
Max Chl Dpth (m)	2.32	Hydr. Depth (m)	0.67	1.89
0.33				
Conv. Total (m3/s)	3377.5	Conv. (m3/s)	139.5	3218.8
19.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.59	19.11
4.40				
Min Ch El (m)	9.74	Shear (N/m2)	0.05	0.15
0.03				
Alpha	1.28	Stream Power (N/m s)	0.00	0.04
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	98.81	306.29
75.96				
C & E Loss (m)	0.00	Cum SA (1000 m2)	76.99	145.09
58.79				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.11	42.01
3.46				
E.G. Slope (m/m)	0.000004	Area (m2)	10.11	42.01
3.46				
Q Total (m3/s)	10.00	Flow (m3/s)	0.66	9.18
0.16				
Top Width (m)	33.46	Top Width (m)	9.33	18.96
5.17				
Vel Total (m/s)	0.18	Avg. Vel. (m/s)	0.07	0.22
0.05				
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	1.08	2.22
0.67				
Conv. Total (m3/s)	4882.6	Conv. (m3/s)	321.7	4482.5
78.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.85	20.75
6.18				
Min Ch El (m)	9.74	Shear (N/m2)	0.04	0.08
0.02				
Alpha	1.36	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	137.43	381.53
105.53				
C & E Loss (m)	0.00	Cum SA (1000 m2)	85.08	152.82
66.22				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.09	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				

W.S. Elev (m)	12.06	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.82	33.31
1.29				
E.G. Slope (m/m)	0.000064	Area (m2)	5.82	33.31
1.29				
Q Total (m3/s)	27.00	Flow (m3/s)	1.11	25.73
0.15				
Top Width (m)	30.29	Top Width (m)	8.71	17.63
3.95				
Vel Total (m/s)	0.67	Avg. Vel. (m/s)	0.19	0.77
0.12				
Max Chl Dpth (m)	2.32	Hydr. Depth (m)	0.67	1.89
0.33				
Conv. Total (m3/s)	3373.9	Conv. (m3/s)	139.1	3215.8
19.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.59	19.11
4.39				
Min Ch El (m)	9.74	Shear (N/m2)	0.38	1.09
0.18				
Alpha	1.28	Stream Power (N/m s)	0.07	0.85
0.02				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	82.86	273.24
64.39				
C & E Loss (m)	0.00	Cum SA (1000 m2)	71.04	140.15
54.60				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.34	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.32	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.17	38.07
2.43				
E.G. Slope (m/m)	0.000042	Area (m2)	8.17	38.07
2.43				
Q Total (m3/s)	27.00	Flow (m3/s)	1.51	25.18
0.31				
Top Width (m)	32.05	Top Width (m)	9.05	18.37
4.63				
Vel Total (m/s)	0.55	Avg. Vel. (m/s)	0.18	0.66
0.13				
Max Chl Dpth (m)	2.58	Hydr. Depth (m)	0.90	2.07
0.52				

Conv. Total (m3/s)	4177.2	Conv. (m3/s)	233.7	3896.0
47.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.29	20.02
5.39				
Min Ch El (m)	9.74	Shear (N/m2)	0.33	0.78
0.18				
Alpha	1.33	Stream Power (N/m s)	0.06	0.52
0.02				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	109.23	326.64
84.24				
C & E Loss (m)	0.00	Cum SA (1000 m2)	79.01	147.30
60.81				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.71	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.70	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	11.69	45.23
4.36				
E.G. Slope (m/m)	0.000024	Area (m2)	11.69	45.23
4.36				
Q Total (m3/s)	27.00	Flow (m3/s)	1.96	24.50
0.53				
Top Width (m)	34.56	Top Width (m)	9.55	19.41
5.60				
Vel Total (m/s)	0.44	Avg. Vel. (m/s)	0.17	0.54
0.12				
Max Chl Dpth (m)	2.96	Hydr. Depth (m)	1.23	2.33
0.78				
Conv. Total (m3/s)	5485.9	Conv. (m3/s)	399.0	4978.8
108.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.29	21.31
6.80				
Min Ch El (m)	9.74	Shear (N/m2)	0.25	0.50
0.15				
Alpha	1.38	Stream Power (N/m s)	0.04	0.27
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	144.36	394.46
111.11				
C & E Loss (m)	0.00	Cum SA (1000 m2)	87.04	150.98
67.97				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 42

INPUT

Description:

Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.7843	13.0995	11.7388	13.2992	13.4938	13.3586	15.9208	13.2561	16.3042	13.2021
16.5527	13.0834	16.8119	12.7648	17.0387	12.5597	18.7962	11.33	21.0686	9.74
32.4513	9.74	34.4973	11.33	36.8904	13.1898	37.6268	13.3203	38.9925	13.3937
40.3942	13.3832	42.1619	13.2274						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
10.7843	.03	16.5527	.015	36.8904	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.

Expan.

16.5527	36.8904	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.62	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.61	Reach Len. (m)	190.00	190.00
190.00				
Crit W.S. (m)	10.16	Flow Area (m2)	6.31	26.05
0.58				
E.G. Slope (m/m)	0.000017	Area (m2)	6.31	26.05
0.58				
Q Total (m3/s)	10.00	Flow (m3/s)	0.68	9.30
0.02				
Top Width (m)	28.55	Top Width (m)	8.13	16.46
3.96				
Vel Total (m/s)	0.30	Avg. Vel. (m/s)	0.11	0.36
0.04				
Max Chl Dpth (m)	1.87	Hydr. Depth (m)	0.78	1.58
0.15				
Conv. Total (m3/s)	2418.4	Conv. (m3/s)	165.2	2248.0
5.1				
Length Wtd. (m)	190.00	Wetted Per. (m)	9.06	17.70
4.27				
Min Ch El (m)	9.74	Shear (N/m2)	0.12	0.25

0.02				
Alpha	1.29	Stream Power (N/m s)	0.01	0.09
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	64.57	233.36
50.76				
C & E Loss (m)	0.00	Cum SA (1000 m2)	65.65	131.57
50.05				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.06	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.06	Reach Len. (m)	190.00	190.00
190.00				
Crit W.S. (m)	10.16	Flow Area (m2)	10.11	33.67
2.88				
E.G. Slope (m/m)	0.000008	Area (m2)	10.11	33.67
2.88				
Q Total (m3/s)	10.00	Flow (m3/s)	0.91	8.94
0.15				
Top Width (m)	32.39	Top Width (m)	8.92	17.68
5.79				
Vel Total (m/s)	0.21	Avg. Vel. (m/s)	0.09	0.27
0.05				
Max Chl Dpth (m)	2.32	Hydr. Depth (m)	1.13	1.90
0.50				
Conv. Total (m3/s)	3649.6	Conv. (m3/s)	330.4	3264.1
55.2				
Length Wtd. (m)	190.00	Wetted Per. (m)	10.42	19.20
6.61				
Min Ch El (m)	9.74	Shear (N/m2)	0.07	0.13
0.03				
Alpha	1.39	Stream Power (N/m s)	0.01	0.03
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	97.22	299.59
75.55				
C & E Loss (m)	0.00	Cum SA (1000 m2)	75.23	141.56
57.81				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.53	Reach Len. (m)	190.00	190.00
190.00				
Crit W.S. (m)	10.16	Flow Area (m2)	14.55	42.38
5.93				
E.G. Slope (m/m)	0.000004	Area (m2)	14.55	42.38
5.93				
Q Total (m3/s)	10.00	Flow (m3/s)	1.06	8.64
0.30				
Top Width (m)	35.79	Top Width (m)	9.77	18.97
7.05				
Vel Total (m/s)	0.16	Avg. Vel. (m/s)	0.07	0.20
0.05				
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	1.49	2.23
0.84				
Conv. Total (m3/s)	5251.4	Conv. (m3/s)	555.8	4539.3
156.3				
Length Wtd. (m)	190.00	Wetted Per. (m)	11.87	20.80
8.44				
Min Ch El (m)	9.74	Shear (N/m2)	0.04	0.07
0.02				
Alpha	1.45	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	134.97	373.09
104.59				
C & E Loss (m)	0.00	Cum SA (1000 m2)	83.17	149.03
65.00				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.07	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.05	Reach Len. (m)	190.00	190.00
190.00				
Crit W.S. (m)	10.55	Flow Area (m2)	10.05	33.54
2.84				
E.G. Slope (m/m)	0.000055	Area (m2)	10.05	33.54
2.84				
Q Total (m3/s)	27.00	Flow (m3/s)	2.44	24.16
0.40				
Top Width (m)	32.34	Top Width (m)	8.91	17.66
5.77				
Vel Total (m/s)	0.58	Avg. Vel. (m/s)	0.24	0.72
0.14				
Max Chl Dpth (m)	2.31	Hydr. Depth (m)	1.13	1.90
0.49				
Conv. Total (m3/s)	3627.7	Conv. (m3/s)	327.4	3246.4
54.0				
Length Wtd. (m)	190.00	Wetted Per. (m)	10.40	19.18
6.58				
Min Ch El (m)	9.74	Shear (N/m2)	0.52	0.95
0.23				
Alpha	1.39	Stream Power (N/m s)	0.13	0.68
0.03				
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	81.27	266.56
63.97				
C & E Loss (m)	0.00	Cum SA (1000 m2)	69.28	136.62
53.62				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.33	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.32	Reach Len. (m)	190.00	190.00
190.00				
Crit W.S. (m)	10.55	Flow Area (m2)	12.50	38.36
4.48				
E.G. Slope (m/m)	0.000036	Area (m2)	12.50	38.36
4.48				
Q Total (m3/s)	27.00	Flow (m3/s)	2.69	23.68
0.63				
Top Width (m)	34.25	Top Width (m)	9.39	18.38

6.48				
Vel Total (m/s)	0.49	Avg. Vel. (m/s)	0.22	0.62
0.14				
Max Chl Dpth (m)	2.58	Hydr. Depth (m)	1.33	2.09
0.69				
Conv. Total (m3/s)	4490.5	Conv. (m3/s)	447.7	3938.1
104.8				
Length Wtd. (m)	190.00	Wetted Per. (m)	11.21	20.08
7.61				
Min Ch El (m)	9.74	Shear (N/m2)	0.40	0.68
0.21				
Alpha	1.42	Stream Power (N/m s)	0.09	0.42
0.03				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	107.16	319.00
83.55				
C & E Loss (m)	0.00	Cum SA (1000 m2)	77.17	143.62
59.70				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.71	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.70	Reach Len. (m)	190.00	190.00
190.00				
Crit W.S. (m)	10.55	Flow Area (m2)	16.20	45.55
7.14				
E.G. Slope (m/m)	0.000021	Area (m2)	16.20	45.55
7.14				
Q Total (m3/s)	27.00	Flow (m3/s)	2.96	23.11
0.93				
Top Width (m)	36.96	Top Width (m)	10.07	19.37
7.52				
Vel Total (m/s)	0.39	Avg. Vel. (m/s)	0.18	0.51
0.13				
Max Chl Dpth (m)	2.96	Hydr. Depth (m)	1.61	2.35
0.95				
Conv. Total (m3/s)	5884.4	Conv. (m3/s)	646.0	5036.1
202.3				
Length Wtd. (m)	190.00	Wetted Per. (m)	12.37	21.33
9.10				
Min Ch El (m)	9.74	Shear (N/m2)	0.27	0.44
0.16				

Alpha	1.46	Stream Power (N/m s)	0.05	0.22
0.02				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	141.57	385.39
109.96				
C & E Loss (m)	0.00	Cum SA (1000 m2)	85.08	147.10
66.65				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 41.5

INPUT

Description:

Distance from Upstream XS = 190

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
15.49	13.47	12.66	37.46	13.47	12.66				

Upstream Bridge Cross Section Data

Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.7843	13.0995	11.7388	13.2992	13.4938	13.3586	15.9208	13.2561	16.3042	13.2021
16.5527	13.0834	16.8119	12.7648	17.0387	12.5597	18.7962	11.33	21.0686	9.74
32.4513	9.74	34.4973	11.33	36.8904	13.1898	37.6268	13.3203	38.9925	13.3937
40.3942	13.3832	42.1619	13.2274						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
10.7843	.03	16.5527	.015	36.8904	.03

Bank Sta: Left Right Coeff Contr. Expan.

16.5527	36.8904	.0015	.01
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Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
15.95	13.47	12.67	37.93	13.47	12.67				

Downstream Bridge Cross Section Data

Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	12.8365	11.1437	13.1503	16.313	13.3525	17.4441	12.6453	21.7215	9.74
32.57	9.74	36.7523	12.6445	37.655	13.2714	40.2341	13.2177	53.6107	12.6105

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	16.313	.015	37.655	.03

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	16.313	37.655		.0015	.01

Upstream Embankment side slope = 1.5 horiz. to 1.0 vertical
Downstream Embankment side slope = 1.5 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
15.49	12.66	20.62	12.66
Downstream	num=	2	
Sta	Elev	Sta	Elev
15.95	12.66	21.09	12.66

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
33.01	12.66	37.46	12.66
Downstream	num=	2	
Sta	Elev	Sta	Elev
33.48	12.66	37.93	12.66

Number of Piers = 2

Pier Data

Pier Station	Upstream=	24.06	Downstream=	24.53
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.84	.4	12.66	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.84	.4	12.66	

Pier Data

Pier Station	Upstream=	29.56	Downstream=	30.03
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.74	.4	12.66	
Downstream	num=	2		

Width	Elev	Width	Elev
.4	9.74	.4	12.66

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.62	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.61	E.G. Elev (m)	11.61
11.61			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.60
11.60			
Q Bridge (m3/s)	8.92	Crit W.S. (m)	10.18
10.20			
Q Weir (m3/s)		Max Chl Dpth (m)	1.86
1.86			
Weir Sta Lft (m)		Vel Total (m/s)	0.35
0.47			
Weir Sta Rgt (m)		Flow Area (m2)	28.23
21.15			
Weir Submerg		Froude # Chl	0.10
0.11			
Weir Max Depth (m)		Specif Force (m3)	23.19
19.84			
Min El Weir Flow (m)	12.61	Hydr Depth (m)	1.20
1.82			
Min El Prs (m)	12.66	W.P. Total (m)	35.48
22.02			
Delta EG (m)	0.01	Conv. Total (m3/s)	1558.8
1371.9			
Delta WS (m)	0.01	Top Width (m)	23.57
11.59			
BR Open Area (m2)	33.62	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.42	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.32
0.50			

BR Sel Method	Energy only	Power Total (N/m s)	0.11
0.24			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.06	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.06	E.G. Elev (m)	12.06
12.06			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.05
12.05			
Q Bridge (m3/s)	8.28	Crit W.S. (m)	10.18
10.20			
Q Weir (m3/s)		Max Chl Dpth (m)	2.31
2.31			
Weir Sta Lft (m)		Vel Total (m/s)	0.25
0.38			
Weir Sta Rgt (m)		Flow Area (m2)	39.57
26.36			
Weir Submerg		Froude # Chl	0.07
0.08			
Weir Max Depth (m)		Specif Force (m3)	38.28
30.44			
Min El Weir Flow (m)	12.61	Hydr Depth (m)	1.51
2.27			
Min El Prs (m)	12.66	W.P. Total (m)	41.98
24.72			
Delta EG (m)	0.00	Conv. Total (m3/s)	2236.6
1834.2			
Delta WS (m)	0.00	Top Width (m)	26.29
11.59			
BR Open Area (m2)	33.62	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.31	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.18
0.31			
BR Sel Method	Energy only	Power Total (N/m s)	0.05
0.12			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.53	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.53	E.G. Elev (m)	12.53
12.53			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.53
12.53			
Q Bridge (m3/s)	7.69	Crit W.S. (m)	10.18
10.20			
Q Weir (m3/s)		Max Chl Dpth (m)	2.79
2.79			
Weir Sta Lft (m)		Vel Total (m/s)	0.19
0.31			
Weir Sta Rgt (m)		Flow Area (m2)	52.61
31.89			
Weir Submerg		Froude # Chl	0.05
0.06			
Weir Max Depth (m)		Specif Force (m3)	60.14
44.27			
Min El Weir Flow (m)	12.61	Hydr Depth (m)	1.85
2.75			
Min El Prs (m)	12.66	W.P. Total (m)	48.13
27.59			
Delta EG (m)	0.00	Conv. Total (m3/s)	3070.9
2342.0			
Delta WS (m)	0.00	Top Width (m)	28.41
11.59			
BR Open Area (m2)	33.62	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.24	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.11
0.21			
BR Sel Method	Energy only	Power Total (N/m s)	0.02
0.06			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.07	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.05	E.G. Elev (m)	12.06
12.06			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.03
12.00			
Q Bridge (m3/s)	22.47	Crit W.S. (m)	10.59
10.60			

Q Weir (m3/s)		Max Chl Dpth (m)	2.29
2.26			
Weir Sta Lft (m)		Vel Total (m/s)	0.70
1.05			
Weir Sta Rgt (m)		Flow Area (m2)	38.82
25.78			
Weir Submerg		Froude # Chl	0.18
0.22			
Weir Max Depth (m)		Specif Force (m3)	39.01
31.63			
Min El Weir Flow (m)	12.61	Hydr Depth (m)	1.48
2.22			
Min El Prs (m)	12.66	W.P. Total (m)	41.62
24.42			
Delta EG (m)	0.02	Conv. Total (m3/s)	2190.2
1781.8			
Delta WS (m)	0.03	Top Width (m)	26.16
11.59			
BR Open Area (m2)	33.62	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.87	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.39
2.38			
BR Sel Method	Energy only	Power Total (N/m s)	0.97
2.49			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.33	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.32	E.G. Elev (m)	12.32
12.32			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.30
12.28			
Q Bridge (m3/s)	21.50	Crit W.S. (m)	10.59
10.60			
Q Weir (m3/s)		Max Chl Dpth (m)	2.56
2.54			
Weir Sta Lft (m)		Vel Total (m/s)	0.58
0.93			
Weir Sta Rgt (m)		Flow Area (m2)	46.21
29.01			
Weir Submerg		Froude # Chl	0.15
0.19			
Weir Max Depth (m)		Specif Force (m3)	50.38
38.93			

Min El Weir Flow (m)	12.61	Hydr Depth (m)	1.69
2.50			
Min El Prs (m)	12.66	W.P. Total (m)	45.17
26.09			
Delta EG (m)	0.01	Conv. Total (m3/s)	2655.2
2075.2			
Delta WS (m)	0.02	Top Width (m)	27.39
11.59			
BR Open Area (m2)	33.62	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.74	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.04
1.85			
BR Sel Method	Energy only	Power Total (N/m s)	0.61
1.72			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.71	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.70	E.G. Elev (m)	12.70
12.70			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.69
12.67			
Q Bridge (m3/s)	18.99	Crit W.S. (m)	10.59
10.60			
Q Weir (m3/s)		Max Chl Dpth (m)	2.95
2.93			
Weir Sta Lft (m)		Vel Total (m/s)	0.48
0.80			
Weir Sta Rgt (m)		Flow Area (m2)	56.82
33.63			
Weir Submerg		Froude # Chl	0.10
0.19			
Weir Max Depth (m)		Specif Force (m3)	69.98
50.76			
Min El Weir Flow (m)	12.61	Hydr Depth (m)	3.24
1.63			
Min El Prs (m)	12.66	W.P. Total (m)	61.61
37.51			
Delta EG (m)	0.01	Conv. Total (m3/s)	2833.2
2131.4			
Delta WS (m)	0.02	Top Width (m)	17.55
20.66			
BR Open Area (m2)	33.62	Frctn Loss (m)	0.00
0.00			

BR Open Vel (m/s)	0.57	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.82
1.41			
BR Sel Method	Energy only	Power Total (N/m s)	0.39
1.13			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 41

INPUT
 Description: Opera 8
 Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	12.8365	11.1437	13.1503	16.313	13.3525	17.4441	12.6453	21.7215	9.74
32.57	9.74	36.7523	12.6445	37.655	13.2714	40.2341	13.2177	53.6107	12.6105

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	16.313	.015	37.655	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan.

16.313	37.655	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.60	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		25.28
E.G. Slope (m/m)	0.000021	Area (m2)		25.28
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.28	Top Width (m)		16.28
Vel Total (m/s)	0.40	Avg. Vel. (m/s)		0.40
Max Chl Dpth (m)	1.86	Hydr. Depth (m)		1.55

Conv. Total (m3/s)	2159.4	Conv. (m3/s)		2159.4
Length Wtd. (m)	200.00	Wetted Per. (m)		17.43
Min Ch El (m)	9.74	Shear (N/m2)		0.30
Alpha	1.00	Stream Power (N/m s)		0.12
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	63.36	228.63
50.65				
C & E Loss (m)	0.00	Cum SA (1000 m2)	64.08	128.77
49.30				

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.06	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.05	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.89
E.G. Slope (m/m)	0.000010	Area (m2)		32.89
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.59	Top Width (m)		17.59
Vel Total (m/s)	0.30	Avg. Vel. (m/s)		0.30
Max Chl Dpth (m)	2.31	Hydr. Depth (m)		1.87
Conv. Total (m3/s)	3158.8	Conv. (m3/s)		3158.8
Length Wtd. (m)	200.00	Wetted Per. (m)		19.02
Min Ch El (m)	9.74	Shear (N/m2)		0.17
Alpha	1.00	Stream Power (N/m s)		0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	95.28	293.58
74.99				
C & E Loss (m)	0.00	Cum SA (1000 m2)	73.51	138.65
56.70				

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		41.60
E.G. Slope (m/m)	0.000005	Area (m2)		41.60
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.97	Top Width (m)		18.97
Vel Total (m/s)	0.24	Avg. Vel. (m/s)		0.24
Max Chl Dpth (m)	2.79	Hydr. Depth (m)		2.19
Conv. Total (m3/s)	4416.6	Conv. (m3/s)		4416.6
Length Wtd. (m)	200.00	Wetted Per. (m)		20.71
Min Ch El (m)	9.74	Shear (N/m2)		0.10
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	132.17	365.67
103.45				
C & E Loss (m)	0.00	Cum SA (1000 m2)	81.29	145.99
63.64				

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.06	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.02	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.31
E.G. Slope (m/m)	0.000077	Area (m2)		32.31
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.49	Top Width (m)		17.49
Vel Total (m/s)	0.84	Avg. Vel. (m/s)		0.84
Max Chl Dpth (m)	2.28	Hydr. Depth (m)		1.85

Conv. Total (m3/s)	3079.2	Conv. (m3/s)		3079.2
Length Wtd. (m)	200.00	Wetted Per. (m)		18.90
Min Ch El (m)	9.74	Shear (N/m2)		1.29
Alpha	1.00	Stream Power (N/m s)		1.08
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	79.36	260.60
63.44				
C & E Loss (m)	0.00	Cum SA (1000 m2)	67.57	133.71
52.52				

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.32	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.30	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.24
E.G. Slope (m/m)	0.000051	Area (m2)		37.24
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.29	Top Width (m)		18.29
Vel Total (m/s)	0.72	Avg. Vel. (m/s)		0.72
Max Chl Dpth (m)	2.56	Hydr. Depth (m)		2.04
Conv. Total (m3/s)	3773.2	Conv. (m3/s)		3773.2
Length Wtd. (m)	200.00	Wetted Per. (m)		19.88
Min Ch El (m)	9.74	Shear (N/m2)		0.94
Alpha	1.00	Stream Power (N/m s)		0.68
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	104.77	312.24
82.70				
C & E Loss (m)	0.00	Cum SA (1000 m2)	75.36	140.64
58.45				

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.70	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	12.68	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		44.53
0.06				
E.G. Slope (m/m)	0.000031	Area (m2)		44.53
0.06				
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
0.00				
Top Width (m)	21.00	Top Width (m)		19.42
1.58				
Vel Total (m/s)	0.61	Avg. Vel. (m/s)		0.61
0.02				
Max Chl Dpth (m)	2.94	Hydr. Depth (m)		2.29
0.04				
Conv. Total (m3/s)	4861.5	Conv. (m3/s)		4861.3
0.2				
Length Wtd. (m)	200.00	Wetted Per. (m)		21.25
1.66				
Min Ch El (m)	9.74	Shear (N/m2)		0.63
0.01				
Alpha	1.00	Stream Power (N/m s)		0.38
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	138.46	377.50
108.59				
C & E Loss (m)	0.00	Cum SA (1000 m2)	83.14	145.11
65.20				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 40

INPUT

Description:

Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.5101	13.2149	16.1458	13.3732	17.3336	13.362	17.9661	13.1373	18.2126	13.1597
18.3807	13.0925	18.4815	12.9132	18.6609	12.6556	20.6672	11.3	22.9761	9.74
33.2873	9.74	35.7359	11.3	37.7209	12.5646	37.9237	12.9422	38.2035	13.0191
38.6721	13.117	40.9546	13.2576	41.9618	13.1806	42.3907	13.2439	43.1531	13.2159
44.2162	13.2019	44.6922	12.9387						

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
12.5101 .03 17.9661 .015 38.6721 .03		

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr.
Expan.		
17.9661 38.6721	200 200 200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.60	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.55	24.49
5.12				
E.G. Slope (m/m)	0.000018	Area (m2)	6.55	24.49
5.12				
Q Total (m3/s)	10.00	Flow (m3/s)	0.68	8.78
0.54				
Top Width (m)	32.31	Top Width (m)	9.48	15.99
6.84				
Vel Total (m/s)	0.28	Avg. Vel. (m/s)	0.10	0.36
0.11				
Max Chl Dpth (m)	1.86	Hydr. Depth (m)	0.69	1.53
0.75				
Conv. Total (m3/s)	2362.6	Conv. (m3/s)	160.5	2074.3
127.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.38	17.10
7.89				
Min Ch El (m)	9.74	Shear (N/m2)	0.11	0.25
0.11				
Alpha	1.49	Stream Power (N/m s)	0.01	0.09
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	62.70	223.65
50.14				
C & E Loss (m)	0.00	Cum SA (1000 m2)	63.13	125.55
48.62				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.06	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015

0.030				
W.S. Elev (m)	12.05	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	11.01	32.02
8.36				
E.G. Slope (m/m)	0.000007	Area (m2)	11.01	32.02
8.36				
Q Total (m3/s)	10.00	Flow (m3/s)	0.96	8.33
0.72				
Top Width (m)	35.23	Top Width (m)	10.32	17.37
7.54				
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.09	0.26
0.09				
Max Chl Dpth (m)	2.31	Hydr. Depth (m)	1.07	1.84
1.11				
Conv. Total (m3/s)	3662.1	Conv. (m3/s)	350.8	3049.3
262.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.79	18.75
9.18				
Min Ch El (m)	9.74	Shear (N/m2)	0.07	0.12
0.07				
Alpha	1.52	Stream Power (N/m s)	0.01	0.03
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	94.17	287.09
74.16				
C & E Loss (m)	0.00	Cum SA (1000 m2)	72.48	135.15
55.95				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.15	40.65
12.14				
E.G. Slope (m/m)	0.000004	Area (m2)	16.15	40.65
12.14				
Q Total (m3/s)	10.00	Flow (m3/s)	1.15	8.02
0.83				
Top Width (m)	38.32	Top Width (m)	11.22	18.82
8.28				
Vel Total (m/s)	0.15	Avg. Vel. (m/s)	0.07	0.20
0.07				
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	1.44	2.16

1.47				
Conv. Total (m3/s)	5336.7	Conv. (m3/s)	613.4	4278.7
444.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.28	20.49
10.54				
Min Ch El (m)	9.74	Shear (N/m2)	0.04	0.07
0.04				
Alpha	1.53	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	130.55	357.45
102.23				
C & E Loss (m)	0.00	Cum SA (1000 m2)	80.17	142.21
62.81				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.02	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.67	31.44
8.11				
E.G. Slope (m/m)	0.000058	Area (m2)	10.67	31.44
8.11				
Q Total (m3/s)	27.00	Flow (m3/s)	2.54	22.56
1.90				
Top Width (m)	35.02	Top Width (m)	10.26	17.27
7.49				
Vel Total (m/s)	0.54	Avg. Vel. (m/s)	0.24	0.72
0.23				
Max Chl Dpth (m)	2.28	Hydr. Depth (m)	1.04	1.82
1.08				
Conv. Total (m3/s)	3556.8	Conv. (m3/s)	334.7	2971.3
250.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.69	18.63
9.08				
Min Ch El (m)	9.74	Shear (N/m2)	0.52	0.95
0.50				
Alpha	1.52	Stream Power (N/m s)	0.12	0.68
0.12				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	78.29	254.22
62.63				
C & E Loss (m)	0.00	Cum SA (1000 m2)	66.54	130.24
51.77				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.31	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.30	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	13.60	36.36
10.26				
E.G. Slope (m/m)	0.000036	Area (m2)	13.60	36.36
10.26				
Q Total (m3/s)	27.00	Flow (m3/s)	2.88	22.01
2.11				
Top Width (m)	36.82	Top Width (m)	10.79	18.11
7.92				
Vel Total (m/s)	0.45	Avg. Vel. (m/s)	0.21	0.61
0.21				
Max Chl Dpth (m)	2.56	Hydr. Depth (m)	1.26	2.01
1.29				
Conv. Total (m3/s)	4483.4	Conv. (m3/s)	478.0	3654.8
350.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.56	19.64
9.87				
Min Ch El (m)	9.74	Shear (N/m2)	0.39	0.66
0.37				
Alpha	1.53	Stream Power (N/m s)	0.08	0.40
0.08				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	103.41	304.88
81.67				
C & E Loss (m)	0.00	Cum SA (1000 m2)	74.29	137.00
57.66				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.70	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.69	Reach Len. (m)	200.00	200.00

200.00				
Crit W.S. (m)		Flow Area (m2)	17.92	43.60
13.44				
E.G. Slope (m/m)	0.000021	Area (m2)	17.92	43.60
13.44				
Q Total (m3/s)	27.00	Flow (m3/s)	3.22	21.45
2.32				
Top Width (m)	39.18	Top Width (m)	11.51	19.15
8.52				
Vel Total (m/s)	0.36	Avg. Vel. (m/s)	0.18	0.49
0.17				
Max Chl Dpth (m)	2.95	Hydr. Depth (m)	1.56	2.28
1.58				
Conv. Total (m3/s)	5963.0	Conv. (m3/s)	711.9	4738.3
512.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.77	20.95
10.98				
Min Ch El (m)	9.74	Shear (N/m2)	0.26	0.42
0.25				
Alpha	1.53	Stream Power (N/m s)	0.05	0.21
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	136.67	368.69
107.24				
C & E Loss (m)	0.00	Cum SA (1000 m2)	81.99	141.26
64.19				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 39

INPUT

Description:

Station Elevation Data	num=	13							
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev									
13.8725 13.226 17.5286 13.226 19.2945 13.082 20.1277 12.7043 20.2114 12.471									
21.9801 11.26 24.224 9.7237 34.9097 9.7224 37.1532 11.26 39.7764 13.0579									
40.614 13.0579 43.8237 13.0911 45.3194 12.9698									

Manning's n Values	num=	3		
Sta n Val Sta n Val Sta n Val				
13.8725 .03 19.2945 .015 39.7764 .03				

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr.
Expan.		
19.2945 39.7764	200 200 200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.60	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.16	Flow Area (m2)	9.18	25.20
6.64				
E.G. Slope (m/m)	0.000015	Area (m2)	9.18	25.20
6.64				
Q Total (m3/s)	10.00	Flow (m3/s)	1.01	8.30
0.70				
Top Width (m)	34.89	Top Width (m)	10.62	16.17
8.10				
Vel Total (m/s)	0.24	Avg. Vel. (m/s)	0.11	0.33
0.10				
Max Chl Dpth (m)	1.88	Hydr. Depth (m)	0.86	1.56
0.82				
Conv. Total (m3/s)	2598.6	Conv. (m3/s)	261.4	2156.4
180.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.64	17.33
8.99				
Min Ch El (m)	9.72	Shear (N/m2)	0.11	0.21
0.11				
Alpha	1.55	Stream Power (N/m s)	0.01	0.07
0.01				
Frctn Loss (m)		Cum Volume (1000 m3)	61.13	218.68
48.96				
C & E Loss (m)		Cum SA (1000 m2)	61.12	122.33
47.12				

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.05	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.05	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.16	Flow Area (m2)	14.19	32.81
10.47				
E.G. Slope (m/m)	0.000006	Area (m2)	14.19	32.81
10.47				
Q Total (m3/s)	10.00	Flow (m3/s)	1.25	7.88
0.88				
Top Width (m)	37.84	Top Width (m)	11.53	17.49
8.82				
Vel Total (m/s)	0.17	Avg. Vel. (m/s)	0.09	0.24

0.08				
Max Chl Dpth (m)	2.33	Hydr. Depth (m)	1.23	1.88
1.19				
Conv. Total (m3/s)	4008.6	Conv. (m3/s)	499.1	3156.8
352.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.10	18.93
10.30				
Min Ch El (m)	9.72	Shear (N/m2)	0.07	0.11
0.06				
Alpha	1.55	Stream Power (N/m s)	0.01	0.03
0.01				
Frctn Loss (m)		Cum Volume (1000 m3)	91.65	280.61
72.27				
C & E Loss (m)		Cum SA (1000 m2)	70.29	131.67
54.31				

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.16	Flow Area (m2)	19.93	41.50
14.86				
E.G. Slope (m/m)	0.000003	Area (m2)	19.93	41.50
14.86				
Q Total (m3/s)	10.00	Flow (m3/s)	1.40	7.60
1.00				
Top Width (m)	40.88	Top Width (m)	12.48	18.82
9.59				
Vel Total (m/s)	0.13	Avg. Vel. (m/s)	0.07	0.18
0.07				
Max Chl Dpth (m)	2.81	Hydr. Depth (m)	1.60	2.21
1.55				
Conv. Total (m3/s)	5813.2	Conv. (m3/s)	815.6	4415.7
581.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	14.65	20.58
11.67				
Min Ch El (m)	9.72	Shear (N/m2)	0.04	0.06
0.04				
Alpha	1.55	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)		Cum Volume (1000 m3)	126.94	349.23
99.53				
C & E Loss (m)		Cum SA (1000 m2)	77.80	138.45
61.03				

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.01	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.55	Flow Area (m2)	13.75	32.13
10.12				
E.G. Slope (m/m)	0.000049	Area (m2)	13.75	32.13
10.12				
Q Total (m3/s)	27.00	Flow (m3/s)	3.32	21.34
2.34				
Top Width (m)	37.58	Top Width (m)	11.45	17.37
8.76				
Vel Total (m/s)	0.48	Avg. Vel. (m/s)	0.24	0.66
0.23				
Max Chl Dpth (m)	2.29	Hydr. Depth (m)	1.20	1.85
1.16				
Conv. Total (m3/s)	3875.6	Conv. (m3/s)	476.2	3063.3
336.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.97	18.79
10.18				
Min Ch El (m)	9.72	Shear (N/m2)	0.50	0.81
0.47				
Alpha	1.55	Stream Power (N/m s)	0.12	0.54
0.11				
Frctn Loss (m)		Cum Volume (1000 m3)	75.85	247.86
60.81				
C & E Loss (m)		Cum SA (1000 m2)	64.37	126.77
50.15				

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.31	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.29	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.55	Flow Area (m2)	17.04	37.13
12.65				
E.G. Slope (m/m)	0.000031	Area (m2)	17.04	37.13
12.65				
Q Total (m3/s)	27.00	Flow (m3/s)	3.60	20.84
2.56				
Top Width (m)	39.41	Top Width (m)	12.01	18.19
9.21				
Vel Total (m/s)	0.40	Avg. Vel. (m/s)	0.21	0.56

0.20				
Max Chl Dpth (m)	2.57	Hydr. Depth (m)	1.42	2.04
1.37				
Conv. Total (m3/s)	4879.8	Conv. (m3/s)	651.2	3765.8
462.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.88	19.79
10.99				
Min Ch El (m)	9.72	Shear (N/m2)	0.37	0.56
0.35				
Alpha	1.55	Stream Power (N/m s)	0.08	0.32
0.07				
Frctn Loss (m)		Cum Volume (1000 m3)	100.35	297.53
79.38				
C & E Loss (m)		Cum SA (1000 m2)	72.01	133.37
55.95				

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.69	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.68	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.55	Flow Area (m2)	21.87	44.41
16.36				
E.G. Slope (m/m)	0.000017	Area (m2)	21.87	44.41
16.36				
Q Total (m3/s)	27.00	Flow (m3/s)	3.89	20.35
2.77				
Top Width (m)	41.79	Top Width (m)	12.79	19.10
9.91				
Vel Total (m/s)	0.33	Avg. Vel. (m/s)	0.18	0.46
0.17				
Max Chl Dpth (m)	2.96	Hydr. Depth (m)	1.71	2.33
1.65				
Conv. Total (m3/s)	6470.4	Conv. (m3/s)	931.3	4875.6
663.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	15.14	21.01
12.19				
Min Ch El (m)	9.72	Shear (N/m2)	0.25	0.36
0.23				
Alpha	1.55	Stream Power (N/m s)	0.04	0.17
0.04				
Frctn Loss (m)		Cum Volume (1000 m3)	132.69	359.89
104.26				
C & E Loss (m)		Cum SA (1000 m2)	79.56	137.43
62.35				

INLINE STRUCTURE

RIVER: SNM
 REACH: Canale SNM RS: 38.8

INPUT

Description:

Distance from Upstream XS = 156.65
 Deck/Roadway Width = 5
 Weir Coefficient = 1.4
 Weir Embankment Coordinates num = 2
 Sta Elev Sta Elev
 18.53 14.05 40.65 14.05

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins =
 Weir crest shape = Broad Crested

INLINE STRUCTURE GATE Gate #1
 Height = 4
 Width = 3
 Invert = 9.72
 Gate Type = Sluice Slice Coefficient = .6
 Weir Coefficient = 1.67
 Weir crest shape = Broad Crested
 Number of Gate Openings = 3
 Sta Sta Sta
 26.16 29.58 33.07

INLINE STRUCTURE OUTPUT Profile #PF 1 Gate Group: Gate #1

E.G. Elev (m)	11.60	Weir Sta Lft (m)	0.00
W.S. Elev (m)	11.60	Weir Sta Rgt (m)	55.86
Q Total (m3/s)	10.00	Min El Weir Flow (m)	10.09
Q Weir (m3/s)	5.39	Wr Top Wdth (m)	18.74
Q Gates (m3/s)	4.61	Weir Max Depth (m)	1.51
Q Culv (m3/s)		Weir Avg Depth (m)	0.85
Q Inline RC (m3/s)		Weir Flow Area (m2)	15.91
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	1.402
Q Breach (m3/s)		Weir Submerg	1.00
Breach Avg Velocity (m/s)		Q Gate Group (m3/s)	4.61
Breach Flow Area (m2)		Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	5.64
Breach Bottom El (m)		Gate Submerg	0.99
Breach SSL (m)		Gate Invert (m)	9.72
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 2 Gate Group: Gate #1

E.G. Elev (m)	12.05	Weir Sta Lft (m)	0.00
W.S. Elev (m)	12.05	Weir Sta Rgt (m)	55.86
Q Total (m3/s)	10.00	Min El Weir Flow (m)	10.09
Q Weir (m3/s)	5.73	Wr Top Wdth (m)	20.36
Q Gates (m3/s)	4.27	Weir Max Depth (m)	1.96
Q Culv (m3/s)		Weir Avg Depth (m)	1.21
Q Inline RC (m3/s)		Weir Flow Area (m2)	24.71
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	1.402
Q Breach (m3/s)		Weir Submerg	1.00
Breach Avg Velocity (m/s)		Q Gate Group (m3/s)	4.27
Breach Flow Area (m2)		Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	7.00
Breach Bottom El (m)		Gate Submerg	1.00
Breach SSL (m)		Gate Invert (m)	9.72
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 3 Gate Group: Gate #1

E.G. Elev (m)	12.53	Weir Sta Lft (m)	0.00
W.S. Elev (m)	12.53	Weir Sta Rgt (m)	55.86
Q Total (m3/s)	10.00	Min El Weir Flow (m)	10.09
Q Weir (m3/s)	6.05	Wr Top Wdth (m)	22.07
Q Gates (m3/s)	3.95	Weir Max Depth (m)	2.44
Q Culv (m3/s)		Weir Avg Depth (m)	1.58
Q Inline RC (m3/s)		Weir Flow Area (m2)	34.82
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	1.402
Q Breach (m3/s)		Weir Submerg	1.00
Breach Avg Velocity (m/s)		Q Gate Group (m3/s)	3.95
Breach Flow Area (m2)		Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	8.43
Breach Bottom El (m)		Gate Submerg	1.00
Breach SSL (m)		Gate Invert (m)	9.72
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 4 Gate Group: Gate #1

E.G. Elev (m)	12.03	Weir Sta Lft (m)	0.00
W.S. Elev (m)	12.01	Weir Sta Rgt (m)	55.86
Q Total (m3/s)	27.00	Min El Weir Flow (m)	10.09
Q Weir (m3/s)	13.69	Wr Top Wdth (m)	20.28
Q Gates (m3/s)	13.31	Weir Max Depth (m)	1.94
Q Culv (m3/s)		Weir Avg Depth (m)	1.20
Q Inline RC (m3/s)		Weir Flow Area (m2)	24.24
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	1.402
Q Breach (m3/s)		Weir Submerg	0.99
Breach Avg Velocity (m/s)		Q Gate Group (m3/s)	13.31
Breach Flow Area (m2)		Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	6.88

Breach Bottom El (m)	Gate Submerg	0.97
Breach SSL (m)	Gate Invert (m)	9.72
Breach SSR (m)	Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 5 Gate Group: Gate #1

E.G. Elev (m)	12.31	Weir Sta Lft (m)	0.00
W.S. Elev (m)	12.29	Weir Sta Rgt (m)	55.86
Q Total (m3/s)	27.00	Min El Weir Flow (m)	10.09
Q Weir (m3/s)	15.77	Wr Top Wdth (m)	21.27
Q Gates (m3/s)	11.23	Weir Max Depth (m)	2.22
Q Culv (m3/s)		Weir Avg Depth (m)	1.41
Q Inline RC (m3/s)		Weir Flow Area (m2)	29.96
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	1.402
Q Breach (m3/s)		Weir Submerg	0.99
Breach Avg Velocity (m/s)		Q Gate Group (m3/s)	11.23
Breach Flow Area (m2)		Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	7.72
Breach Bottom El (m)		Gate Submerg	0.98
Breach SSL (m)		Gate Invert (m)	9.72
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 6 Gate Group: Gate #1

E.G. Elev (m)	12.69	Weir Sta Lft (m)	0.00
W.S. Elev (m)	12.68	Weir Sta Rgt (m)	55.86
Q Total (m3/s)	27.00	Min El Weir Flow (m)	10.09
Q Weir (m3/s)	16.16	Wr Top Wdth (m)	22.73
Q Gates (m3/s)	10.84	Weir Max Depth (m)	2.60
Q Culv (m3/s)		Weir Avg Depth (m)	1.69
Q Inline RC (m3/s)		Weir Flow Area (m2)	38.42
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	1.402
Q Breach (m3/s)		Weir Submerg	0.99
Breach Avg Velocity (m/s)		Q Gate Group (m3/s)	10.84
Breach Flow Area (m2)		Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	8.89
Breach Bottom El (m)		Gate Submerg	0.99
Breach SSL (m)		Gate Invert (m)	9.72
Breach SSR (m)		Gate Weir Coef	3.020

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 38.7

INPUT

Description:
 Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3.1998	12.8459	4.0819	12.9823	5.5591	13.1833	6.4958	13.2833	7.4143	13.2287
7.66	13.2377	7.66	13.356	11.4946	13.356	16.7243	9.7981	21.3334	9.7975
26.0125	9.7972	31.1787	13.4831	32.1048	13.4831	32.1048	13.384	33.1614	13.3875
33.4901	13.4313	33.7267	13.4357	34.1211	13.4269	34.4104	13.3963	34.6821	13.3744
35.1441	13.3521	35.3282	13.3828	35.6043	13.3521	36.0162	13.2032		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3.1998	.03	11.4946	.015	31.1787	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	11.4946	31.1787		35	35	35	.1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.59	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.27	Flow Area (m2)		21.28
E.G. Slope (m/m)	0.000033	Area (m2)		21.28
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	14.44	Top Width (m)		14.44
Vel Total (m/s)	0.47	Avg. Vel. (m/s)		0.47
Max Chl Dpth (m)	1.79	Hydr. Depth (m)		1.47
Conv. Total (m3/s)	1748.0	Conv. (m3/s)		1748.0
Length Wtd. (m)	8.95	Wetted Per. (m)		15.57
Min Ch El (m)	9.80	Shear (N/m2)		0.44
Alpha	1.00	Stream Power (N/m s)		0.21
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	61.13	211.69
48.96				
C & E Loss (m)	0.00	Cum SA (1000 m2)	60.06	119.27
46.31				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.05	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.04	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.27	Flow Area (m2)		28.11
E.G. Slope (m/m)	0.000015	Area (m2)		28.11
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.74	Top Width (m)		15.74
Vel Total (m/s)	0.36	Avg. Vel. (m/s)		0.36
Max Chl Dpth (m)	2.25	Hydr. Depth (m)		1.79
Conv. Total (m3/s)	2605.4	Conv. (m3/s)		2605.4
Length Wtd. (m)	8.95	Wetted Per. (m)		17.15
Min Ch El (m)	9.80	Shear (N/m2)		0.24
Alpha	1.00	Stream Power (N/m s)		0.08
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	91.65	270.88
72.27				
C & E Loss (m)	0.00	Cum SA (1000 m2)	69.14	128.35
53.43				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.27	Flow Area (m2)		36.02
E.G. Slope (m/m)	0.000007	Area (m2)		36.02

Q Total (m3/s)	10.00	Flow (m3/s)	10.00	
Top Width (m)	17.12	Top Width (m)	17.12	
Vel Total (m/s)	0.28	Avg. Vel. (m/s)	0.28	
Max Chl Dpth (m)	2.73	Hydr. Depth (m)	2.10	
Conv. Total (m3/s)	3700.1	Conv. (m3/s)	3700.1	
Length Wtd. (m)	8.95	Wetted Per. (m)	18.83	
Min Ch El (m)	9.80	Shear (N/m2)	0.14	
Alpha	1.00	Stream Power (N/m s)	0.04	
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	126.94	336.40
99.53				
C & E Loss (m)	0.00	Cum SA (1000 m2)	76.55	134.86
60.07				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.05	Wt. n-Val.		0.015
W.S. Elev (m)	11.97	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.70	Flow Area (m2)		26.98
E.G. Slope (m/m)	0.000121	Area (m2)		26.98
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	15.53	Top Width (m)		15.53
Vel Total (m/s)	1.00	Avg. Vel. (m/s)		1.00
Max Chl Dpth (m)	2.17	Hydr. Depth (m)		1.74
Conv. Total (m3/s)	2456.8	Conv. (m3/s)		2456.8
Length Wtd. (m)	8.95	Wetted Per. (m)		16.90
Min Ch El (m)	9.80	Shear (N/m2)		1.89

Alpha	1.00	Stream Power (N/m s)		1.89
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	75.85	238.35
60.81				
C & E Loss (m)	0.01	Cum SA (1000 m2)	63.23	123.48
49.27				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.30	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.26	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.70	Flow Area (m2)		31.64
E.G. Slope (m/m)	0.000077	Area (m2)		31.64
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	16.37	Top Width (m)		16.37
Vel Total (m/s)	0.85	Avg. Vel. (m/s)		0.85
Max Chl Dpth (m)	2.47	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3080.9	Conv. (m3/s)		3080.9
Length Wtd. (m)	8.95	Wetted Per. (m)		17.92
Min Ch El (m)	9.80	Shear (N/m2)		1.33
Alpha	1.00	Stream Power (N/m s)		1.13
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	100.35	286.23
79.38				
C & E Loss (m)	0.00	Cum SA (1000 m2)	70.81	129.91
55.03				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.68	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.66	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.70	Flow Area (m2)		38.32
E.G. Slope (m/m)	0.000045	Area (m2)		38.32
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.50	Top Width (m)		17.50
Vel Total (m/s)	0.70	Avg. Vel. (m/s)		0.70
Max Chl Dpth (m)	2.86	Hydr. Depth (m)		2.19
Conv. Total (m3/s)	4036.4	Conv. (m3/s)		4036.4
Length Wtd. (m)	8.95	Wetted Per. (m)		19.30
Min Ch El (m)	9.80	Shear (N/m2)		0.87
Alpha	1.00	Stream Power (N/m s)		0.61
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	132.69	346.00
104.26				
C & E Loss (m)	0.00	Cum SA (1000 m2)	78.28	133.77
61.35				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 38.4

INPUT

Description:

Distance from Upstream XS = 8.95

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
10.14	14.55	12.86		32.55	14.55	12.86			

Upstream Bridge Cross Section Data

Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3.1998	12.8459	4.0819	12.9823	5.5591	13.1833	6.4958	13.2833	7.4143	13.2287
7.66	13.2377	7.66	13.356	11.4946	13.356	16.7243	9.7981	21.3334	9.7975
26.0125	9.7972	31.1787	13.4831	32.1048	13.4831	32.1048	13.384	33.1614	13.3875
33.4901	13.4313	33.7267	13.4357	34.1211	13.4269	34.4104	13.3963	34.6821	13.3744
35.1441	13.3521	35.3282	13.3828	35.6043	13.3521	36.0162	13.2032		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3.1998	.03	11.4946	.015	31.1787	.03

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	11.4946	31.1787		.1	.3

Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
10.14	14.55	12.86	32.55	14.55	12.86

Downstream Bridge Cross Section Data

Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3.1998	12.8459	4.0819	12.9823	5.5591	13.1833	6.4958	13.2833	7.4143	13.2287
8.16	13.256	8.6238	13.3106	8.9512	13.2015	9.0785	13.1105	9.1876	12.9378
9.3513	12.8378	10.073	12.5195	12.9467	12.3377	12.974	12.2286	15.1327	10.76
16.6935	9.6981	26.0441	9.6969	27.5341	10.76	30.1383	12.618	30.2917	12.9904
30.4538	13.0999	30.6335	13.1438	30.7518	13.1657	30.8686	13.2824	31.3025	13.3393
31.6048	13.3831	31.8459	13.3831	33.1614	13.3875	33.4901	13.4313	33.7267	13.4357
34.1211	13.4269	34.4104	13.3963	34.6821	13.3744	35.1441	13.3521	35.3282	13.3828
35.6043	13.3521	36.0162	13.2032						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3.1998	.03	8.9512	.015	30.8686	.03

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	8.9512	30.8686		.0015	.01

Upstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev

10.14	12.85	16.51	12.85
Downstream	num=	2	
Sta	Elev	Sta	Elev
10.14	12.85	16.51	12.85

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
26.51	12.86	32.54	12.86
Downstream	num=	2	
Sta	Elev	Sta	Elev
26.51	12.86	32.54	12.86

Number of Piers = 2

Pier Data

Pier Station	Upstream=	19.56	Downstream=	19.56
Upstream	num=	2		
Width	Elev	Width	Elev	
.55	9.69	.55	12.85	
Downstream	num=	2		
Width	Elev	Width	Elev	
.55	9.69	.55	12.85	

Pier Data

Pier Station	Upstream=	23.01	Downstream=	23.01
Upstream	num=	2		
Width	Elev	Width	Elev	
.55	9.69	.55	12.85	
Downstream	num=	2		
Width	Elev	Width	Elev	
.55	9.69	.55	12.85	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.60	Element	Inside BR US
Inside BR DS			

W.S. US. (m)	11.59	E.G. Elev (m)	11.60
11.60			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.58
11.59			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.31
10.21			
Q Weir (m3/s)		Max Chl Dpth (m)	1.78
1.89			
Weir Sta Lft (m)		Vel Total (m/s)	0.63
0.40			
Weir Sta Rgt (m)		Flow Area (m2)	15.77
24.99			
Weir Submerg		Froude # Chl	0.15
0.11			
Weir Max Depth (m)		Specif Force (m3)	14.63
20.36			
Min El Weir Flow (m)	12.85	Hydr Depth (m)	1.77
1.38			
Min El Prs (m)	12.86	W.P. Total (m)	19.26
32.18			
Delta EG (m)	0.01	Conv. Total (m3/s)	920.0
1218.0			
Delta WS (m)	0.00	Top Width (m)	8.90
18.12			
BR Open Area (m2)	27.21	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.63	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.95
0.51			
BR Sel Method	Energy only	Power Total (N/m s)	0.60
0.21			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.05	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.04	E.G. Elev (m)	12.05
12.05			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.04
12.04			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.31
10.21			
Q Weir (m3/s)		Max Chl Dpth (m)	2.24
2.34			
Weir Sta Lft (m)		Vel Total (m/s)	0.50
0.30			

Weir Sta Rgt (m)		Flow Area (m2)	19.82
33.52			
Weir Submerg		Froude # Ch1	0.11
0.08			
Weir Max Depth (m)		Specif Force (m3)	22.60
33.51			
Min El Weir Flow (m)	12.85	Hydr Depth (m)	2.23
1.72			
Min El Prs (m)	12.86	W.P. Total (m)	21.99
37.46			
Delta EG (m)	0.00	Conv. Total (m3/s)	1233.3
1717.8			
Delta WS (m)	0.00	Top Width (m)	8.90
19.49			
BR Open Area (m2)	27.21	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.50	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.58
0.30			
BR Sel Method	Energy only	Power Total (N/m s)	0.29
0.09			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.53	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.53	E.G. Elev (m)	12.53
12.53			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.52
12.52			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.31
10.21			
Q Weir (m3/s)		Max Ch1 Dpth (m)	2.72
2.83			
Weir Sta Lft (m)		Vel Total (m/s)	0.41
0.23			
Weir Sta Rgt (m)		Flow Area (m2)	24.13
43.27			
Weir Submerg		Froude # Ch1	0.08
0.05			
Weir Max Depth (m)		Specif Force (m3)	33.14
51.92			
Min El Weir Flow (m)	12.85	Hydr Depth (m)	2.71
2.06			
Min El Prs (m)	12.86	W.P. Total (m)	24.89
43.16			

Delta EG (m)	0.00	Conv. Total (m3/s)	1575.3
2310.4			
Delta WS (m)	0.00	Top Width (m)	8.90
21.02			
BR Open Area (m2)	27.21	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.41	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.38
0.18			
BR Sel Method	Energy only	Power Total (N/m s)	0.16
0.04			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

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1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.02	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.97	E.G. Elev (m)	12.02
12.00			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.91
11.95			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.79
10.74			
Q Weir (m3/s)		Max Chl Dpth (m)	2.11
2.25			
Weir Sta Lft (m)		Vel Total (m/s)	1.45
0.85			
Weir Sta Rgt (m)		Flow Area (m2)	18.68
31.73			
Weir Submerg		Froude # Chl	0.32
0.22			
Weir Max Depth (m)		Specif Force (m3)	23.60
32.70			
Min El Weir Flow (m)	12.85	Hydr Depth (m)	2.10
1.65			
Min El Prs (m)	12.86	W.P. Total (m)	21.22
36.38			
Delta EG (m)	0.03	Conv. Total (m3/s)	1144.2
1610.7			
Delta WS (m)	0.02	Top Width (m)	8.90
19.21			
BR Open Area (m2)	27.21	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	1.45	C & E Loss (m)	0.02

0.00			
BR Sluice Coef		Shear Total (N/m2)	4.81
2.40			
BR Sel Method	Energy only	Power Total (N/m s)	6.95
2.04			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.30	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.26	E.G. Elev (m)	12.30
12.28			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.21
12.25			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.79
10.74			
Q Weir (m3/s)		Max Chl Dpth (m)	2.42
2.55			
Weir Sta Lft (m)		Vel Total (m/s)	1.26
0.72			
Weir Sta Rgt (m)		Flow Area (m2)	21.40
37.58			
Weir Submerg		Froude # Chl	0.26
0.18			
Weir Max Depth (m)		Specif Force (m3)	29.22
42.61			
Min El Weir Flow (m)	12.85	Hydr Depth (m)	2.40
1.87			
Min El Prs (m)	12.86	W.P. Total (m)	23.06
39.84			
Delta EG (m)	0.03	Conv. Total (m3/s)	1357.7
1963.2			
Delta WS (m)	0.01	Top Width (m)	8.90
20.11			
BR Open Area (m2)	27.21	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	1.26	C & E Loss (m)	0.01
0.00			
BR Sluice Coef		Shear Total (N/m2)	3.60
1.75			
BR Sel Method	Energy only	Power Total (N/m s)	4.54
1.26			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.68	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.66	E.G. Elev (m)	12.68
12.67			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.62
12.65			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.79
10.74			
Q Weir (m3/s)		Max Chl Dpth (m)	2.82
2.95			
Weir Sta Lft (m)		Vel Total (m/s)	1.08
0.59			
Weir Sta Rgt (m)		Flow Area (m2)	25.02
45.88			
Weir Submerg		Froude # Chl	0.21
0.14			
Weir Max Depth (m)		Specif Force (m3)	38.15
58.85			
Min El Weir Flow (m)	12.85	Hydr Depth (m)	2.81
2.12			
Min El Prs (m)	12.86	W.P. Total (m)	25.49
45.00			
Delta EG (m)	0.02	Conv. Total (m3/s)	1647.1
2456.5			
Delta WS (m)	0.01	Top Width (m)	8.90
21.67			
BR Open Area (m2)	27.21	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	1.08	C & E Loss (m)	0.01
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.59
1.21			
BR Sel Method	Energy only	Power Total (N/m s)	2.79
0.71			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 38

INPUT

Description:

Station	Elevation	Data	num=	37							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3.1998	12.8459	4.0819	12.9823	5.5591	13.1833	6.4958	13.2833	7.4143	13.2287		
8.16	13.256	8.6238	13.3106	8.9512	13.2015	9.0785	13.1105	9.1876	12.9378		
9.3513	12.8378	10.073	12.5195	12.9467	12.3377	12.974	12.2286	15.1327	10.76		
16.6935	9.6981	26.0441	9.6969	27.5341	10.76	30.1383	12.618	30.2917	12.9904		
30.4538	13.0999	30.6335	13.1438	30.7518	13.1657	30.8686	13.2824	31.3025	13.3393		
31.6048	13.3831	31.8459	13.3831	33.1614	13.3875	33.4901	13.4313	33.7267	13.4357		
34.1211	13.4269	34.4104	13.3963	34.6821	13.3744	35.1441	13.3521	35.3282	13.3828		
35.6043	13.3521	36.0162	13.2032								

Manning's n	Values	num=	3			
Sta	n Val	Sta	n Val	Sta	n Val	
3.1998	.03	8.9512	.015	30.8686	.03	

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	8.9512	30.8686		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.59	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	0.98	22.82
7.29				
E.G. Slope (m/m)	0.000022	Area (m2)	0.98	22.82
7.29				
Q Total (m3/s)	10.00	Flow (m3/s)	0.07	8.95
0.98				
Top Width (m)	24.00	Top Width (m)	1.59	14.78
7.63				
Vel Total (m/s)	0.32	Avg. Vel. (m/s)	0.07	0.39
0.13				
Max Chl Dpth (m)	1.89	Hydr. Depth (m)	0.62	1.54
0.96				
Conv. Total (m3/s)	2156.3	Conv. (m3/s)	14.7	1930.6
211.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	3.24	15.97
9.02				
Min Ch El (m)	9.70	Shear (N/m2)	0.06	0.30
0.17				
Alpha	1.35	Stream Power (N/m s)	0.00	0.12
0.02				

Frctn Loss (m)	0.00	Cum Volume (1000 m3)	61.11	211.03
48.79				
C & E Loss (m)	0.00	Cum SA (1000 m2)	60.03	118.87
46.13				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.05	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.04	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	1.83	29.82
10.93				
E.G. Slope (m/m)	0.000010	Area (m2)	1.83	29.82
10.93				
Q Total (m3/s)	10.00	Flow (m3/s)	0.10	8.73
1.16				
Top Width (m)	26.67	Top Width (m)	2.17	16.08
8.42				
Vel Total (m/s)	0.23	Avg. Vel. (m/s)	0.06	0.29
0.11				
Max Chl Dpth (m)	2.35	Hydr. Depth (m)	0.84	1.85
1.30				
Conv. Total (m3/s)	3241.2	Conv. (m3/s)	33.8	2830.2
377.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	4.44	17.56
10.38				
Min Ch El (m)	9.70	Shear (N/m2)	0.04	0.16
0.10				
Alpha	1.38	Stream Power (N/m s)	0.00	0.05
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	91.61	270.03
72.02				
C & E Loss (m)	0.00	Cum SA (1000 m2)	69.09	127.93
53.23				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	3.02	38.12
15.19				
E.G. Slope (m/m)	0.000005	Area (m2)	3.02	38.12
15.19				
Q Total (m3/s)	10.00	Flow (m3/s)	0.15	8.48
1.37				
Top Width (m)	31.99	Top Width (m)	2.79	19.95
9.26				
Vel Total (m/s)	0.18	Avg. Vel. (m/s)	0.05	0.22
0.09				
Max Chl Dpth (m)	2.83	Hydr. Depth (m)	1.08	1.91
1.64				
Conv. Total (m3/s)	4362.4	Conv. (m3/s)	66.0	3698.0
598.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	5.70	21.72
11.83				
Min Ch El (m)	9.70	Shear (N/m2)	0.03	0.09
0.07				
Alpha	1.37	Stream Power (N/m s)	0.00	0.02
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	126.87	335.34
99.17				
C & E Loss (m)	0.00	Cum SA (1000 m2)	76.49	134.39
59.85				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.99	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.96	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	1.65	28.44
10.21				
E.G. Slope (m/m)	0.000080	Area (m2)	1.65	28.44
10.21				
Q Total (m3/s)	27.00	Flow (m3/s)	0.26	23.67
3.06				
Top Width (m)	26.16	Top Width (m)	2.06	15.84
8.27				

Vel Total (m/s)	0.67	Avg. Vel. (m/s)	0.16	0.83
0.30				
Max Chl Dpth (m)	2.26	Hydr. Depth (m)	0.80	1.80
1.23				
Conv. Total (m3/s)	3017.9	Conv. (m3/s)	29.4	2646.1
342.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	4.21	17.25
10.12				
Min Ch El (m)	9.70	Shear (N/m2)	0.31	1.29
0.79				
Alpha	1.38	Stream Power (N/m s)	0.05	1.08
0.24				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	75.81	237.54
60.57				
C & E Loss (m)	0.00	Cum SA (1000 m2)	63.18	123.07
49.07				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.27	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.25	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	2.31	33.25
12.73				
E.G. Slope (m/m)	0.000050	Area (m2)	2.31	33.25
12.73				
Q Total (m3/s)	27.00	Flow (m3/s)	0.33	23.37
3.31				
Top Width (m)	27.88	Top Width (m)	2.44	16.66
8.79				
Vel Total (m/s)	0.56	Avg. Vel. (m/s)	0.14	0.70
0.26				
Max Chl Dpth (m)	2.56	Hydr. Depth (m)	0.95	2.00
1.45				
Conv. Total (m3/s)	3818.3	Conv. (m3/s)	46.2	3304.4
467.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	4.99	18.27
11.01				
Min Ch El (m)	9.70	Shear (N/m2)	0.23	0.89
0.57				
Alpha	1.39	Stream Power (N/m s)	0.03	0.63
0.15				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	100.29	285.30
79.08				

C & E Loss (m)	0.00	Cum SA (1000 m2)	70.75	129.49
54.82				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.66	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.65	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	3.38	40.66
16.37				
E.G. Slope (m/m)	0.000032	Area (m2)	3.38	40.66
16.37				
Q Total (m3/s)	27.00	Flow (m3/s)	0.43	22.83
3.74				
Top Width (m)	32.80	Top Width (m)	2.95	20.37
9.48				
Vel Total (m/s)	0.45	Avg. Vel. (m/s)	0.13	0.56
0.23				
Max Chl Dpth (m)	2.95	Hydr. Depth (m)	1.15	2.00
1.73				
Conv. Total (m3/s)	4794.0	Conv. (m3/s)	76.7	4053.7
663.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.03	22.23
12.20				
Min Ch El (m)	9.70	Shear (N/m2)	0.17	0.57
0.42				
Alpha	1.37	Stream Power (N/m s)	0.02	0.32
0.10				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	132.61	344.88
103.88				
C & E Loss (m)	0.00	Cum SA (1000 m2)	78.21	133.30
61.13				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 37

INPUT

Description:

Station Elevation Data		num=		20					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.9031	13.2109	9.2779	13.3264	10.2351	13.3985	11.5121	13.3264	12.7435	13.3937
13.3403	13.3264	13.7684	13.1148	14.0405	12.8142	16.957	10.74	18.4576	9.6727
29.0134	9.6714	30.5626	10.74	33.4561	12.7359	33.8313	13.2933	34.3002	13.3454
35.162	13.3561	35.8967	13.304	37.0132	13.3405	38.3946	13.3354	39.1084	13.3667

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
7.9031	.03	13.3403	.015	33.8313	.03

Bank Sta:	Left	Right	Lengths:		Left Channel	Right	Coeff Contr.	
Expan.	13.3403	33.8313	200	200	200	.0015	.01	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.59	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	4.25	25.46
7.92				
E.G. Slope (m/m)	0.000015	Area (m2)	4.25	25.46
7.92				
Q Total (m3/s)	10.00	Flow (m3/s)	0.43	8.61
0.96				
Top Width (m)	27.91	Top Width (m)	4.85	16.03
7.03				
Vel Total (m/s)	0.27	Avg. Vel. (m/s)	0.10	0.34
0.12				
Max Chl Dpth (m)	1.92	Hydr. Depth (m)	0.88	1.59
1.13				
Conv. Total (m3/s)	2557.0	Conv. (m3/s)	109.5	2201.3
246.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.25	17.23
8.79				
Min Ch El (m)	9.67	Shear (N/m2)	0.10	0.22
0.14				
Alpha	1.42	Stream Power (N/m s)	0.01	0.07
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	60.59	206.20
47.27				
C & E Loss (m)	0.00	Cum SA (1000 m2)	59.38	115.79
44.66				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.04	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.64	33.03
11.26				
E.G. Slope (m/m)	0.000007	Area (m2)	6.64	33.03
11.26				
Q Total (m3/s)	10.00	Flow (m3/s)	0.53	8.41
1.06				
Top Width (m)	30.68	Top Width (m)	5.70	17.32
7.66				
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.08	0.25
0.09				
Max Chl Dpth (m)	2.37	Hydr. Depth (m)	1.17	1.91
1.47				
Conv. Total (m3/s)	3811.7	Conv. (m3/s)	201.3	3204.8
405.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.67	18.82
10.02				
Min Ch El (m)	9.67	Shear (N/m2)	0.06	0.12
0.08				
Alpha	1.45	Stream Power (N/m s)	0.00	0.03
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	90.76	263.74
69.80				
C & E Loss (m)	0.00	Cum SA (1000 m2)	68.30	124.59
51.62				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	9.61	41.72

15.18				
E.G. Slope (m/m)	0.000003	Area (m2)	9.61	41.72
15.18				
Q Total (m3/s)	10.00	Flow (m3/s)	0.61	8.27
1.12				
Top Width (m)	34.01	Top Width (m)	6.61	18.70
8.70				
Vel Total (m/s)	0.15	Avg. Vel. (m/s)	0.06	0.20
0.07				
Max Chl Dpth (m)	2.85	Hydr. Depth (m)	1.45	2.23
1.75				
Conv. Total (m3/s)	5401.0	Conv. (m3/s)	330.5	4466.6
603.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.18	20.50
11.65				
Min Ch El (m)	9.67	Shear (N/m2)	0.04	0.07
0.04				
Alpha	1.48	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	125.61	327.36
96.14				
C & E Loss (m)	0.00	Cum SA (1000 m2)	75.55	130.53
58.05				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.97	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.95	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.13	31.47
10.57				
E.G. Slope (m/m)	0.000058	Area (m2)	6.13	31.47
10.57				
Q Total (m3/s)	27.00	Flow (m3/s)	1.38	22.79
2.83				
Top Width (m)	30.13	Top Width (m)	5.53	17.06
7.53				
Vel Total (m/s)	0.56	Avg. Vel. (m/s)	0.22	0.72
0.27				
Max Chl Dpth (m)	2.28	Hydr. Depth (m)	1.11	1.84
1.40				
Conv. Total (m3/s)	3541.3	Conv. (m3/s)	180.7	2989.6
371.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.38	18.50

9.77				
Min Ch El (m)	9.67	Shear (N/m2)	0.47	0.97
0.62				
Alpha	1.44	Stream Power (N/m s)	0.11	0.70
0.16				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	75.03	231.54
58.49				
C & E Loss (m)	0.00	Cum SA (1000 m2)	62.42	119.78
47.49				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.27	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.25	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	7.87	36.69
12.88				
E.G. Slope (m/m)	0.000037	Area (m2)	7.87	36.69
12.88				
Q Total (m3/s)	27.00	Flow (m3/s)	1.53	22.53
2.94				
Top Width (m)	32.07	Top Width (m)	6.09	17.92
8.06				
Vel Total (m/s)	0.47	Avg. Vel. (m/s)	0.19	0.61
0.23				
Max Chl Dpth (m)	2.58	Hydr. Depth (m)	1.29	2.05
1.60				
Conv. Total (m3/s)	4461.2	Conv. (m3/s)	252.7	3722.1
486.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.32	19.54
10.68				
Min Ch El (m)	9.67	Shear (N/m2)	0.34	0.67
0.43				
Alpha	1.46	Stream Power (N/m s)	0.07	0.41
0.10				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	99.28	278.30
76.52				
C & E Loss (m)	0.00	Cum SA (1000 m2)	69.90	126.03
53.14				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the

computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.66	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.65	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.45	44.06
16.28				
E.G. Slope (m/m)	0.000021	Area (m2)	10.45	44.06
16.28				
Q Total (m3/s)	27.00	Flow (m3/s)	1.70	22.25
3.05				
Top Width (m)	34.88	Top Width (m)	6.84	19.05
8.99				
Vel Total (m/s)	0.38	Avg. Vel. (m/s)	0.16	0.50
0.19				
Max Chl Dpth (m)	2.98	Hydr. Depth (m)	1.53	2.31
1.81				
Conv. Total (m3/s)	5854.7	Conv. (m3/s)	369.2	4823.7
661.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.57	20.93
12.09				
Min Ch El (m)	9.67	Shear (N/m2)	0.23	0.44
0.28				
Alpha	1.48	Stream Power (N/m s)	0.04	0.22
0.05				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	131.23	336.41
100.61				
C & E Loss (m)	0.00	Cum SA (1000 m2)	77.23	129.35
59.28				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 36

INPUT

Description:

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18.9939	13.0055	20.3392	13.1866	21.3196	13.2193	22.2182	13.2357	23.9665	13.1376		
24.2362	13.105	27.5781	10.72	29.0813	9.6472	39.7613	9.6458	41.2852	10.72		

44.8763 13.2513 49.0977 13.285 49.5105 13.3429 50.1509 13.3197 50.5907 13.1809
 51.2158 13.0036

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 18.9939 .03 24.2362 .015 44.8763 .03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan.
 24.2362 44.8763 200 200 200 .0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.59	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	9.31	26.00
6.30				
E.G. Slope (m/m)	0.000014	Area (m2)	9.31	26.00
6.30				
Q Total (m3/s)	10.00	Flow (m3/s)	0.96	8.36
0.68				
Top Width (m)	33.92	Top Width (m)	11.77	16.15
6.00				
Vel Total (m/s)	0.24	Avg. Vel. (m/s)	0.10	0.32
0.11				
Max Chl Dpth (m)	1.94	Hydr. Depth (m)	0.79	1.61
1.05				
Conv. Total (m3/s)	2711.9	Conv. (m3/s)	259.1	2267.7
185.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.20	17.38
7.62				
Min Ch El (m)	9.65	Shear (N/m2)	0.10	0.20
0.11				
Alpha	1.53	Stream Power (N/m s)	0.01	0.06
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	59.23	201.05
45.85				
C & E Loss (m)	0.00	Cum SA (1000 m2)	57.72	112.57
43.36				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.04	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	15.07	33.66
9.19				
E.G. Slope (m/m)	0.000006	Area (m2)	15.07	33.66
9.19				
Q Total (m3/s)	10.00	Flow (m3/s)	1.27	7.97
0.76				
Top Width (m)	37.65	Top Width (m)	13.54	17.43
6.68				
Vel Total (m/s)	0.17	Avg. Vel. (m/s)	0.08	0.24
0.08				
Max Chl Dpth (m)	2.40	Hydr. Depth (m)	1.11	1.93
1.38				
Conv. Total (m3/s)	4126.3	Conv. (m3/s)	523.1	3290.1
313.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	14.19	18.96
8.89				
Min Ch El (m)	9.65	Shear (N/m2)	0.06	0.10
0.06				
Alpha	1.55	Stream Power (N/m s)	0.01	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	88.59	257.07
67.75				
C & E Loss (m)	0.00	Cum SA (1000 m2)	66.38	121.11
50.19				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	22.09	42.40
12.59				
E.G. Slope (m/m)	0.000003	Area (m2)	22.09	42.40
12.59				
Q Total (m3/s)	10.00	Flow (m3/s)	1.50	7.69
0.81				
Top Width (m)	41.97	Top Width (m)	15.77	18.79
7.40				

Vel Total (m/s)	0.13	Avg. Vel. (m/s)	0.07	0.18
0.06				
Max Chl Dpth (m)	2.88	Hydr. Depth (m)	1.40	2.26
1.70				
Conv. Total (m3/s)	5940.7	Conv. (m3/s)	889.3	4570.0
481.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	16.64	20.63
10.24				
Min Ch El (m)	9.65	Shear (N/m2)	0.04	0.06
0.03				
Alpha	1.57	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	122.44	318.95
93.36				
C & E Loss (m)	0.00	Cum SA (1000 m2)	73.31	126.78
56.44				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.96	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.94	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	13.77	31.97
8.55				
E.G. Slope (m/m)	0.000051	Area (m2)	13.77	31.97
8.55				
Q Total (m3/s)	27.00	Flow (m3/s)	3.27	21.72
2.01				
Top Width (m)	36.85	Top Width (m)	13.15	17.16
6.53				
Vel Total (m/s)	0.50	Avg. Vel. (m/s)	0.24	0.68
0.24				
Max Chl Dpth (m)	2.30	Hydr. Depth (m)	1.05	1.86
1.31				
Conv. Total (m3/s)	3799.1	Conv. (m3/s)	459.4	3056.4
283.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.76	18.62
8.62				
Min Ch El (m)	9.65	Shear (N/m2)	0.50	0.85
0.49				
Alpha	1.55	Stream Power (N/m s)	0.12	0.58
0.12				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	73.04	225.20
56.58				

C & E Loss (m)	0.00	Cum SA (1000 m2)	60.55	116.36
46.09				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.26	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.25	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	17.92	37.28
10.59				
E.G. Slope (m/m)	0.000031	Area (m2)	17.92	37.28
10.59				
Q Total (m3/s)	27.00	Flow (m3/s)	3.72	21.16
2.11				
Top Width (m)	39.34	Top Width (m)	14.34	18.01
6.98				
Vel Total (m/s)	0.41	Avg. Vel. (m/s)	0.21	0.57
0.20				
Max Chl Dpth (m)	2.60	Hydr. Depth (m)	1.25	2.07
1.52				
Conv. Total (m3/s)	4857.3	Conv. (m3/s)	670.0	3807.1
380.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	15.09	19.67
9.47				
Min Ch El (m)	9.65	Shear (N/m2)	0.36	0.57
0.34				
Alpha	1.55	Stream Power (N/m s)	0.07	0.33
0.07				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	96.70	270.91
74.17				
C & E Loss (m)	0.00	Cum SA (1000 m2)	67.85	122.44
51.63				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.65	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.65	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	24.19	44.72
13.50				
E.G. Slope (m/m)	0.000018	Area (m2)	24.19	44.72
13.50				
Q Total (m3/s)	27.00	Flow (m3/s)	3.96	20.80
2.24				
Top Width (m)	45.01	Top Width (m)	18.29	19.14
7.58				
Vel Total (m/s)	0.33	Avg. Vel. (m/s)	0.16	0.47
0.17				
Max Chl Dpth (m)	3.00	Hydr. Depth (m)	1.32	2.34
1.78				
Conv. Total (m3/s)	6395.3	Conv. (m3/s)	938.6	4927.1
529.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	19.26	21.05
10.58				
Min Ch El (m)	9.65	Shear (N/m2)	0.22	0.37
0.22				
Alpha	1.61	Stream Power (N/m s)	0.04	0.17
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	127.77	327.53
97.63				
C & E Loss (m)	0.00	Cum SA (1000 m2)	74.72	125.54
57.63				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 35

INPUT

Description:

Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.1151	13.123	13.6448	13.3162	15.2228	13.4289	17.4064	13.3391	18.0602	13.2151
18.3082	13.1024	21.5487	10.72	23.0426	9.6217	33.6565	9.6203	35.2041	10.72
37.9419	12.6653	38.1244	12.9922	38.3563	13.1633	38.9313	13.2971	40.1953	13.2967
42.5758	13.2267	44.9594	13.0167	45.4566	12.9466				

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12.1151	.03	18.0602	.015	38.3563	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.
Expan.					
18.0602	38.3563	200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	7.26	26.13
5.00				
E.G. Slope (m/m)	0.000015	Area (m2)	7.26	26.13
5.00				
Q Total (m3/s)	10.00	Flow (m3/s)	0.72	8.82
0.46				
Top Width (m)	32.42	Top Width (m)	9.39	16.04
6.99				
Vel Total (m/s)	0.26	Avg. Vel. (m/s)	0.10	0.34
0.09				
Max Chl Dpth (m)	1.96	Hydr. Depth (m)	0.77	1.63
0.71				
Conv. Total (m3/s)	2598.4	Conv. (m3/s)	187.0	2292.4
119.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.67	17.31
8.27				
Min Ch El (m)	9.62	Shear (N/m2)	0.10	0.22
0.09				
Alpha	1.50	Stream Power (N/m s)	0.01	0.07
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	57.57	195.84
44.72				
C & E Loss (m)	0.00	Cum SA (1000 m2)	55.60	109.36
42.06				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.04	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	11.68	33.76

8.36				
E.G. Slope (m/m)	0.000006	Area (m2)	11.68	33.76
8.36				
Q Total (m3/s)	10.00	Flow (m3/s)	0.97	8.38
0.64				
Top Width (m)	34.95	Top Width (m)	9.93	17.31
7.71				
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.08	0.25
0.08				
Max Chl Dpth (m)	2.42	Hydr. Depth (m)	1.18	1.95
1.09				
Conv. Total (m3/s)	3957.5	Conv. (m3/s)	385.7	3317.2
254.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.84	18.87
9.58				
Min Ch El (m)	9.62	Shear (N/m2)	0.06	0.11
0.05				
Alpha	1.53	Stream Power (N/m s)	0.01	0.03
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	85.92	250.33
66.00				
C & E Loss (m)	0.00	Cum SA (1000 m2)	64.03	117.64
48.75				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.62	42.45
12.27				
E.G. Slope (m/m)	0.000003	Area (m2)	16.62	42.45
12.27				
Q Total (m3/s)	10.00	Flow (m3/s)	1.14	8.08
0.78				
Top Width (m)	37.62	Top Width (m)	10.51	18.65
8.46				
Vel Total (m/s)	0.14	Avg. Vel. (m/s)	0.07	0.19
0.06				
Max Chl Dpth (m)	2.90	Hydr. Depth (m)	1.58	2.28
1.45				
Conv. Total (m3/s)	5685.9	Conv. (m3/s)	650.0	4594.9
441.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.07	20.52

10.96				
Min Ch El (m)	9.62	Shear (N/m2)	0.04	0.06
0.03				
Alpha	1.53	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	118.57	310.46
90.87				
C & E Loss (m)	0.00	Cum SA (1000 m2)	70.68	123.03
54.86				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.95	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.93	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.60	31.88
7.53				
E.G. Slope (m/m)	0.000056	Area (m2)	10.60	31.88
7.53				
Q Total (m3/s)	27.00	Flow (m3/s)	2.49	22.87
1.63				
Top Width (m)	34.34	Top Width (m)	9.80	17.00
7.54				
Vel Total (m/s)	0.54	Avg. Vel. (m/s)	0.24	0.72
0.22				
Max Chl Dpth (m)	2.31	Hydr. Depth (m)	1.08	1.88
1.00				
Conv. Total (m3/s)	3607.1	Conv. (m3/s)	333.3	3055.4
218.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.56	18.50
9.27				
Min Ch El (m)	9.62	Shear (N/m2)	0.50	0.95
0.45				
Alpha	1.52	Stream Power (N/m s)	0.12	0.68
0.10				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	70.60	218.81
54.97				
C & E Loss (m)	0.00	Cum SA (1000 m2)	58.26	112.94
44.68				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the

computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.25	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.24	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	13.66	37.23
9.92				
E.G. Slope (m/m)	0.000034	Area (m2)	13.66	37.23
9.92				
Q Total (m3/s)	27.00	Flow (m3/s)	2.84	22.26
1.90				
Top Width (m)	36.04	Top Width (m)	10.17	17.85
8.02				
Vel Total (m/s)	0.44	Avg. Vel. (m/s)	0.21	0.60
0.19				
Max Chl Dpth (m)	2.62	Hydr. Depth (m)	1.34	2.09
1.24				
Conv. Total (m3/s)	4627.2	Conv. (m3/s)	487.3	3814.5
325.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.34	19.55
10.15				
Min Ch El (m)	9.62	Shear (N/m2)	0.37	0.64
0.33				
Alpha	1.53	Stream Power (N/m s)	0.08	0.38
0.06				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	93.54	263.46
72.12				
C & E Loss (m)	0.00	Cum SA (1000 m2)	65.40	118.85
50.13				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.65	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.64	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	17.87	44.68
13.28				
E.G. Slope (m/m)	0.000019	Area (m2)	17.87	44.68

13.28				
Q Total (m3/s)	27.00	Flow (m3/s)	3.17	21.67
2.16				
Top Width (m)	38.27	Top Width (m)	10.65	18.97
8.65				
Vel Total (m/s)	0.36	Avg. Vel. (m/s)	0.18	0.48
0.16				
Max Chl Dpth (m)	3.02	Hydr. Depth (m)	1.68	2.35
1.54				
Conv. Total (m3/s)	6154.2	Conv. (m3/s)	722.5	4938.6
493.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.38	20.93
11.30				
Min Ch El (m)	9.62	Shear (N/m2)	0.25	0.40
0.22				
Alpha	1.53	Stream Power (N/m s)	0.04	0.20
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	123.56	318.59
94.95				
C & E Loss (m)	0.00	Cum SA (1000 m2)	71.82	121.72
56.00				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 34

INPUT

Description:

Station Elevation Data		num=		19						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
13.8322	13.202	16.1163	13.4847	17.683	13.3961	19.6246	13.2774	23.0892	10.73	
24.6312	9.5962	35.3412	9.5948	36.8758	10.73	39.2928	12.5178	39.5374	12.7735	
39.7719	13.0516	39.9984	13.1867	40.4289	13.2708	41.5074	13.3217	42.1993	13.3115	
43.7292	13.2914	44.706	13.2202	45.3978	13.1999	46.5679	13.0168			

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
13.8322	.03	19.6246	.015	39.9984	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	19.6246	39.9984		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	12.39	26.59
4.60				
E.G. Slope (m/m)	0.000012	Area (m2)	12.39	26.59
4.60				
Q Total (m3/s)	10.00	Flow (m3/s)	1.32	8.24
0.44				
Top Width (m)	32.16	Top Width (m)	11.74	16.09
4.34				
Vel Total (m/s)	0.23	Avg. Vel. (m/s)	0.11	0.31
0.10				
Max Chl Dpth (m)	2.51	Hydr. Depth (m)	1.06	1.65
1.06				
Conv. Total (m3/s)	2856.5	Conv. (m3/s)	377.3	2352.8
126.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	14.20	17.40
6.14				
Min Ch El (m)	9.59	Shear (N/m2)	0.10	0.18
0.09				
Alpha	1.54	Stream Power (N/m s)	0.01	0.06
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	55.61	190.57
43.76				
C & E Loss (m)	0.00	Cum SA (1000 m2)	53.49	106.14
40.93				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.04	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	17.91	34.26
6.74				
E.G. Slope (m/m)	0.000006	Area (m2)	17.91	34.26
6.74				
Q Total (m3/s)	10.00	Flow (m3/s)	1.55	7.96
0.50				
Top Width (m)	34.66	Top Width (m)	12.33	17.34
5.00				

Vel Total (m/s)	0.17	Avg. Vel. (m/s)	0.09	0.23
0.07				
Max Chl Dpth (m)	2.97	Hydr. Depth (m)	1.45	1.98
1.35				
Conv. Total (m3/s)	4261.9	Conv. (m3/s)	660.1	3390.7
211.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	15.41	18.94
7.41				
Min Ch El (m)	9.59	Shear (N/m2)	0.06	0.10
0.05				
Alpha	1.54	Stream Power (N/m s)	0.01	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	82.96	243.53
64.49				
C & E Loss (m)	0.00	Cum SA (1000 m2)	61.80	114.17
47.48				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	24.03	42.97
9.33				
E.G. Slope (m/m)	0.000003	Area (m2)	24.03	42.97
9.33				
Q Total (m3/s)	10.00	Flow (m3/s)	1.70	7.77
0.54				
Top Width (m)	37.30	Top Width (m)	12.95	18.65
5.70				
Vel Total (m/s)	0.13	Avg. Vel. (m/s)	0.07	0.18
0.06				
Max Chl Dpth (m)	3.45	Hydr. Depth (m)	1.85	2.30
1.64				
Conv. Total (m3/s)	6026.6	Conv. (m3/s)	1021.6	4680.3
324.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	16.68	20.57
8.74				
Min Ch El (m)	9.59	Shear (N/m2)	0.04	0.06
0.03				
Alpha	1.54	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	114.50	301.92
88.71				

C & E Loss (m)	0.00	Cum SA (1000 m2)	68.33	119.30
53.44				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.94	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.92	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.49	32.27
6.17				
E.G. Slope (m/m)	0.000048	Area (m2)	16.49	32.27
6.17				
Q Total (m3/s)	27.00	Flow (m3/s)	4.05	21.64
1.30				
Top Width (m)	34.03	Top Width (m)	12.18	17.02
4.83				
Vel Total (m/s)	0.49	Avg. Vel. (m/s)	0.25	0.67
0.21				
Max Chl Dpth (m)	2.85	Hydr. Depth (m)	1.35	1.90
1.28				
Conv. Total (m3/s)	3882.9	Conv. (m3/s)	583.1	3112.1
187.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	15.10	18.55
7.09				
Min Ch El (m)	9.59	Shear (N/m2)	0.52	0.82
0.41				
Alpha	1.54	Stream Power (N/m s)	0.13	0.55
0.09				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	67.90	212.40
53.60				
C & E Loss (m)	0.00	Cum SA (1000 m2)	56.06	109.54
43.44				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.25	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.23	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	20.33	37.67
7.74				
E.G. Slope (m/m)	0.000030	Area (m2)	20.33	37.67
7.74				
Q Total (m3/s)	27.00	Flow (m3/s)	4.36	21.25
1.39				
Top Width (m)	35.72	Top Width (m)	12.58	17.86
5.28				
Vel Total (m/s)	0.41	Avg. Vel. (m/s)	0.21	0.56
0.18				
Max Chl Dpth (m)	3.16	Hydr. Depth (m)	1.62	2.11
1.47				
Conv. Total (m3/s)	4934.4	Conv. (m3/s)	797.6	3883.4
253.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	15.92	19.60
7.94				
Min Ch El (m)	9.59	Shear (N/m2)	0.37	0.56
0.29				
Alpha	1.54	Stream Power (N/m s)	0.08	0.32
0.05				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	90.14	255.97
70.36				
C & E Loss (m)	0.00	Cum SA (1000 m2)	63.13	115.28
48.80				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.65	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.64	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	25.54	45.15
10.00				
E.G. Slope (m/m)	0.000017	Area (m2)	25.54	45.15
10.00				
Q Total (m3/s)	27.00	Flow (m3/s)	4.64	20.88
1.48				
Top Width (m)	37.89	Top Width (m)	13.10	18.92
5.87				
Vel Total (m/s)	0.33	Avg. Vel. (m/s)	0.18	0.46
0.15				

Max Chl Dpth (m)	3.57	Hydr. Depth (m)	1.95	2.39
1.70				
Conv. Total (m3/s)	6498.4	Conv. (m3/s)	1117.4	5025.1
356.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	16.99	20.93
9.06				
Min Ch El (m)	9.59	Shear (N/m2)	0.25	0.37
0.19				
Alpha	1.54	Stream Power (N/m s)	0.05	0.17
0.03				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	119.22	309.61
92.63				
C & E Loss (m)	0.00	Cum SA (1000 m2)	69.45	117.94
54.55				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 33

INPUT

Description:

Station Elevation Data	num=	18									
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev											
14.0787 12.8764 14.6403 13.0685 15.0542 13.0833 17.1619 13.2321 18.6251 13.2173											
19.8959 13.1401 23.423 10.73 25.1196 9.5707 35.6574 9.57 37.2774 10.7446											
39.9214 12.6616 40.148 12.9673 40.6121 13.1383 40.8425 13.1941 41.698 13.2688											
44.0041 13.2521 45.4253 13.1628 46.8659 12.973											

Manning's n Values	num=	3			
Sta n Val Sta n Val Sta n Val					
14.0787 .03 19.8959 .015 40.6121 .03					

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr.
Expan.		
19.8959 40.6121	200 200 200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	15.51	26.91

12.73				
E.G. Slope (m/m)	0.000009	Area (m2)	15.51	26.91
12.73				
Q Total (m3/s)	10.00	Flow (m3/s)	1.61	6.98
1.41				
Top Width (m)	36.41	Top Width (m)	12.32	16.25
7.84				
Vel Total (m/s)	0.18	Avg. Vel. (m/s)	0.10	0.26
0.11				
Max Chl Dpth (m)	2.51	Hydr. Depth (m)	1.26	1.66
1.62				
Conv. Total (m3/s)	3420.8	Conv. (m3/s)	550.2	2388.0
482.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	14.13	17.52
10.50				
Min Ch El (m)	9.57	Shear (N/m2)	0.09	0.13
0.10				
Alpha	1.53	Stream Power (N/m s)	0.01	0.03
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	52.82	185.22
42.03				
C & E Loss (m)	0.00	Cum SA (1000 m2)	51.09	102.91
39.71				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.04	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	21.31	34.67
16.48				
E.G. Slope (m/m)	0.000004	Area (m2)	21.31	34.67
16.48				
Q Total (m3/s)	10.00	Flow (m3/s)	1.76	6.86
1.37				
Top Width (m)	38.99	Top Width (m)	12.95	17.55
8.49				
Vel Total (m/s)	0.14	Avg. Vel. (m/s)	0.08	0.20
0.08				
Max Chl Dpth (m)	2.97	Hydr. Depth (m)	1.65	1.97
1.94				
Conv. Total (m3/s)	5008.6	Conv. (m3/s)	883.6	3437.0
687.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	15.36	19.12

11.76				
Min Ch El (m)	9.57	Shear (N/m2)	0.05	0.07
0.05				
Alpha	1.53	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	79.03	236.64
62.17				
C & E Loss (m)	0.00	Cum SA (1000 m2)	59.28	110.68
46.13				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	27.74	43.50
20.76				
E.G. Slope (m/m)	0.000002	Area (m2)	27.74	43.50
20.76				
Q Total (m3/s)	10.00	Flow (m3/s)	1.86	6.79
1.35				
Top Width (m)	41.72	Top Width (m)	13.60	18.93
9.19				
Vel Total (m/s)	0.11	Avg. Vel. (m/s)	0.07	0.16
0.06				
Max Chl Dpth (m)	3.45	Hydr. Depth (m)	2.04	2.30
2.26				
Conv. Total (m3/s)	6981.6	Conv. (m3/s)	1298.6	4742.0
941.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	16.66	20.80
13.09				
Min Ch El (m)	9.57	Shear (N/m2)	0.03	0.04
0.03				
Alpha	1.52	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	109.33	293.27
85.70				
C & E Loss (m)	0.00	Cum SA (1000 m2)	65.68	115.55
51.95				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the

computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.93	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.92	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	19.81	32.63
15.50				
E.G. Slope (m/m)	0.000035	Area (m2)	19.81	32.63
15.50				
Q Total (m3/s)	27.00	Flow (m3/s)	4.68	18.59
3.73				
Top Width (m)	38.34	Top Width (m)	12.79	17.22
8.33				
Vel Total (m/s)	0.40	Avg. Vel. (m/s)	0.24	0.57
0.24				
Max Chl Dpth (m)	2.85	Hydr. Depth (m)	1.55	1.89
1.86				
Conv. Total (m3/s)	4577.3	Conv. (m3/s)	792.8	3152.1
632.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	15.05	18.71
11.44				
Min Ch El (m)	9.57	Shear (N/m2)	0.45	0.60
0.46				
Alpha	1.53	Stream Power (N/m s)	0.11	0.34
0.11				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	64.27	205.91
51.43				
C & E Loss (m)	0.00	Cum SA (1000 m2)	53.56	106.11
42.13				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.24	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.23	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	23.84	38.12
18.15				
E.G. Slope (m/m)	0.000022	Area (m2)	23.84	38.12

18.15				
Q Total (m3/s)	27.00	Flow (m3/s)	4.88	18.44
3.68				
Top Width (m)	40.08	Top Width (m)	13.21	18.10
8.77				
Vel Total (m/s)	0.34	Avg. Vel. (m/s)	0.20	0.48
0.20				
Max Chl Dpth (m)	3.16	Hydr. Depth (m)	1.81	2.11
2.07				
Conv. Total (m3/s)	5760.0	Conv. (m3/s)	1041.8	3933.6
784.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	15.88	19.79
12.29				
Min Ch El (m)	9.57	Shear (N/m2)	0.32	0.42
0.32				
Alpha	1.52	Stream Power (N/m s)	0.07	0.20
0.06				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	85.72	248.39
67.77				
C & E Loss (m)	0.00	Cum SA (1000 m2)	60.55	111.68
47.40				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.64	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.64	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	29.32	45.71
21.83				
E.G. Slope (m/m)	0.000013	Area (m2)	29.32	45.71
21.83				
Q Total (m3/s)	27.00	Flow (m3/s)	5.07	18.31
3.63				
Top Width (m)	42.37	Top Width (m)	13.76	19.26
9.35				
Vel Total (m/s)	0.28	Avg. Vel. (m/s)	0.17	0.40
0.17				
Max Chl Dpth (m)	3.57	Hydr. Depth (m)	2.13	2.37
2.33				
Conv. Total (m3/s)	7500.1	Conv. (m3/s)	1407.2	5085.6
1007.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	16.97	21.20
13.41				
Min Ch El (m)	9.57	Shear (N/m2)	0.22	0.27

0.21				
Alpha	1.52	Stream Power (N/m s)	0.04	0.11
0.03				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	113.73	300.53
89.44				
C & E Loss (m)	0.00	Cum SA (1000 m2)	66.76	114.12
53.03				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 32

INPUT

Description:

Station Elevation Data		num=		18							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.8712	12.9796	15.9743	13.1659	17.9142	13.1527	18.9185	13.0296	22.1264	10.75		
23.7869	9.57	34.321	9.57	35.9897	10.75	38.4495	12.4895	39.1162	13.1512		
39.5671	13.2868	40.4953	13.3757	41.3198	13.371	42.483	13.3711	42.7821	13.3662		
43.4195	13.2633	44.2811	13.2701	45.1598	13.0694						

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
13.8712	.03	18.9185	.015	39.1162	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	18.9185	39.1162		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.58	Reach Len. (m)	191.00	191.00
191.00				
Crit W.S. (m)	9.88	Flow Area (m2)	19.21	26.85
15.45				
E.G. Slope (m/m)	0.000007	Area (m2)	19.21	26.85
15.45				
Q Total (m3/s)	10.00	Flow (m3/s)	2.09	6.28
1.63				
Top Width (m)	36.77	Top Width (m)	11.44	16.20
9.13				

Vel Total (m/s)	0.16	Avg. Vel. (m/s)	0.11	0.23
0.11				
Max Chl Dpth (m)	2.46	Hydr. Depth (m)	1.68	1.66
1.69				
Conv. Total (m3/s)	3795.3	Conv. (m3/s)	794.4	2382.8
618.1				
Length Wtd. (m)	191.00	Wetted Per. (m)	13.90	17.48
11.75				
Min Ch El (m)	9.57	Shear (N/m2)	0.09	0.10
0.09				
Alpha	1.46	Stream Power (N/m s)	0.01	0.02
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	49.35	179.84
39.21				
C & E Loss (m)	0.00	Cum SA (1000 m2)	48.71	99.66
38.02				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.04	Reach Len. (m)	191.00	191.00
191.00				
Crit W.S. (m)	9.88	Flow Area (m2)	24.59	34.59
19.80				
E.G. Slope (m/m)	0.000003	Area (m2)	24.59	34.59
19.80				
Q Total (m3/s)	10.00	Flow (m3/s)	2.09	6.31
1.60				
Top Width (m)	39.31	Top Width (m)	11.97	17.50
9.83				
Vel Total (m/s)	0.13	Avg. Vel. (m/s)	0.08	0.18
0.08				
Max Chl Dpth (m)	2.92	Hydr. Depth (m)	2.05	1.98
2.01				
Conv. Total (m3/s)	5438.1	Conv. (m3/s)	1136.1	3430.1
871.9				
Length Wtd. (m)	191.00	Wetted Per. (m)	15.07	19.07
13.05				
Min Ch El (m)	9.57	Shear (N/m2)	0.05	0.06
0.05				
Alpha	1.47	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	74.44	229.71
58.54				

C & E Loss (m)	0.00	Cum SA (1000 m2)	56.78	107.18
44.30				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	191.00	191.00
191.00				
Crit W.S. (m)	9.88	Flow Area (m2)	30.55	43.39
24.74				
E.G. Slope (m/m)	0.000002	Area (m2)	30.55	43.39
24.74				
Q Total (m3/s)	10.00	Flow (m3/s)	2.06	6.35
1.59				
Top Width (m)	42.22	Top Width (m)	12.79	18.85
10.58				
Vel Total (m/s)	0.10	Avg. Vel. (m/s)	0.07	0.15
0.06				
Max Chl Dpth (m)	3.41	Hydr. Depth (m)	2.39	2.30
2.34				
Conv. Total (m3/s)	7450.2	Conv. (m3/s)	1534.6	4733.3
1182.3				
Length Wtd. (m)	191.00	Wetted Per. (m)	16.51	20.73
14.42				
Min Ch El (m)	9.57	Shear (N/m2)	0.03	0.04
0.03				
Alpha	1.48	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	103.50	284.59
81.15				
C & E Loss (m)	0.00	Cum SA (1000 m2)	63.04	111.77
49.98				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.93	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.92	Reach Len. (m)	191.00	191.00
191.00				
Crit W.S. (m)	10.14	Flow Area (m2)	23.15	32.50
18.63				
E.G. Slope (m/m)	0.000029	Area (m2)	23.15	32.50
18.63				
Q Total (m3/s)	27.00	Flow (m3/s)	5.65	17.01
4.34				
Top Width (m)	38.64	Top Width (m)	11.83	17.16
9.65				
Vel Total (m/s)	0.36	Avg. Vel. (m/s)	0.24	0.52
0.23				
Max Chl Dpth (m)	2.80	Hydr. Depth (m)	1.96	1.89
1.93				
Conv. Total (m3/s)	4980.8	Conv. (m3/s)	1041.9	3137.5
801.4				
Length Wtd. (m)	191.00	Wetted Per. (m)	14.76	18.65
12.71				
Min Ch El (m)	9.57	Shear (N/m2)	0.45	0.50
0.42				
Alpha	1.47	Stream Power (N/m s)	0.11	0.26
0.10				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	59.97	199.39
48.02				
C & E Loss (m)	0.00	Cum SA (1000 m2)	51.10	102.68
40.33				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.24	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.23	Reach Len. (m)	191.00	191.00
191.00				
Crit W.S. (m)	10.14	Flow Area (m2)	26.90	37.99
21.71				
E.G. Slope (m/m)	0.000019	Area (m2)	26.90	37.99
21.71				
Q Total (m3/s)	27.00	Flow (m3/s)	5.63	17.07
4.31				
Top Width (m)	40.36	Top Width (m)	12.20	18.04

10.13				
Vel Total (m/s)	0.31	Avg. Vel. (m/s)	0.21	0.45
0.20				
Max Chl Dpth (m)	3.11	Hydr. Depth (m)	2.21	2.11
2.14				
Conv. Total (m3/s)	6200.9	Conv. (m3/s)	1292.1	3919.7
989.2				
Length Wtd. (m)	191.00	Wetted Per. (m)	15.55	19.73
13.59				
Min Ch El (m)	9.57	Shear (N/m2)	0.32	0.36
0.30				
Alpha	1.47	Stream Power (N/m s)	0.07	0.16
0.06				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	80.65	240.78
63.78				
C & E Loss (m)	0.00	Cum SA (1000 m2)	58.01	108.07
45.51				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.64	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.64	Reach Len. (m)	191.00	191.00
191.00				
Crit W.S. (m)	10.14	Flow Area (m2)	32.03	45.57
25.97				
E.G. Slope (m/m)	0.000011	Area (m2)	32.03	45.57
25.97				
Q Total (m3/s)	27.00	Flow (m3/s)	5.53	17.19
4.27				
Top Width (m)	42.95	Top Width (m)	13.06	19.13
10.75				
Vel Total (m/s)	0.26	Avg. Vel. (m/s)	0.17	0.38
0.16				
Max Chl Dpth (m)	3.52	Hydr. Depth (m)	2.45	2.38
2.41				
Conv. Total (m3/s)	7973.0	Conv. (m3/s)	1633.9	5076.8
1262.3				
Length Wtd. (m)	191.00	Wetted Per. (m)	16.92	21.09
14.74				
Min Ch El (m)	9.57	Shear (N/m2)	0.21	0.24
0.20				
Alpha	1.49	Stream Power (N/m s)	0.04	0.09
0.03				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	107.60	291.40

84.66				
C & E Loss (m)	0.00	Cum SA (1000 m2)	64.08	110.28
51.02				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 31.5

INPUT
Description: \
Distance from Upstream XS = 191
Deck/Roadway Width = 5
Weir Coefficient = 1.4
Upstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 17.81 14.1 12.38 40.36 14.1 12.38

Upstream Bridge Cross Section Data
Station Elevation Data num= 18
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 13.8712 12.9796 15.9743 13.1659 17.9142 13.1527 18.9185 13.0296 22.1264 10.75
 23.7869 9.57 34.321 9.57 35.9897 10.75 38.4495 12.4895 39.1162 13.1512
 39.5671 13.2868 40.4953 13.3757 41.3198 13.371 42.483 13.3711 42.7821 13.3662
 43.4195 13.2633 44.2811 13.2701 45.1598 13.0694

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 13.8712 .03 18.9185 .015 39.1162 .03

Bank Sta: Left Right Coeff Contr. Expan.
 18.9185 39.1162 .0015 .01

Downstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 19.08 14.22 12.49 41.63 14.22 12.49

Downstream Bridge Cross Section Data
Station Elevation Data num= 23
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 14.8649 12.7945 15.1611 12.8833 15.6202 12.8537 16.1565 12.799 16.7153 12.8933
 17.0056 12.9078 17.8257 12.9006 18.4426 12.8643 18.7909 12.9513 19.132 13.0021

19.3279	13.0021	19.6908	12.9659	23.2958	10.75	25.0196	9.57	35.6829	9.57
37.5033	10.75	40.9564	12.9883	41.8237	12.9883	42.9488	12.8667	43.3665	12.9109
43.8283	12.8912	46.61	12.8407	47.2974	12.7907				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
14.8649	.03	19.6908	.015	40.9564	.03

Bank	Sta: Left	Right	Coeff	Contr.	Expan.
	19.6908	40.9564		.0015	.01

Upstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
17.81	12.38	22.78	12.38
Downstream	num=	2	
Sta	Elev	Sta	Elev
19.08	12.49	24.06	12.49

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
35.38	12.38	40.36	12.38
Downstream	num=	2	
Sta	Elev	Sta	Elev
36.65	12.49	41.64	12.49

Number of Piers = 2

Pier Data

Pier Station	Upstream=	26.38	Downstream=	27.65
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.57	.5	12.37	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.57	.5	12.49	

Pier Data

Pier Station	Upstream=	31.73	Downstream=	33
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.57	.5	12.38	
Downstream	num=	2		

Width	Elev	Width	Elev
.5	9.57	.5	12.49

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.58	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.58	E.G. Elev (m)	11.58
11.58			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.58
11.58			
Q Bridge (m3/s)	5.15	Crit W.S. (m)	9.89
9.85			
Q Weir (m3/s)		Max Chl Dpth (m)	2.01
2.01			
Weir Sta Lft (m)		Vel Total (m/s)	0.17
0.17			
Weir Sta Rgt (m)		Flow Area (m2)	57.15
57.77			
Weir Submerg		Froude # Chl	0.05
0.05			
Weir Max Depth (m)		Specif Force (m3)	54.40
53.14			
Min El Weir Flow (m)	9.51	Hydr Depth (m)	1.78
1.62			
Min El Prs (m)	12.38	W.P. Total (m)	48.28
50.81			
Delta EG (m)	0.00	Conv. Total (m3/s)	2906.9
2904.6			
Delta WS (m)	0.00	Top Width (m)	32.16
35.71			
BR Open Area (m2)	31.84	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.23	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.14
0.13			

BR Sel Method	Energy only	Power Total (N/m s)	0.02
0.02			

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.04	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.04	E.G. Elev (m)	12.04
12.04			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.04
12.04			
Q Bridge (m3/s)	4.96	Crit W.S. (m)	9.89
9.85			
Q Weir (m3/s)		Max Chl Dpth (m)	2.47
2.47			
Weir Sta Lft (m)		Vel Total (m/s)	0.14
0.13			
Weir Sta Rgt (m)		Flow Area (m2)	72.24
74.85			
Weir Submerg		Froude # Chl	0.04
0.04			
Weir Max Depth (m)		Specif Force (m3)	84.11
83.58			
Min El Weir Flow (m)	9.51	Hydr Depth (m)	2.16
1.94			
Min El Prs (m)	12.38	W.P. Total (m)	53.51
57.43			
Delta EG (m)	0.00	Conv. Total (m3/s)	3982.4
4052.4			
Delta WS (m)	0.00	Top Width (m)	33.41
38.49			
BR Open Area (m2)	31.84	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.18	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.08
0.08			
BR Sel Method	Energy only	Power Total (N/m s)	0.01
0.01			

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.52	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.52	E.G. Elev (m)	12.52
12.52			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.52
12.52			

Q Bridge (m3/s)	4.02	Crit W.S. (m)	9.89
9.85			
Q Weir (m3/s)		Max Chl Dpth (m)	2.95
2.95			
Weir Sta Lft (m)		Vel Total (m/s)	0.11
0.11			
Weir Sta Rgt (m)		Flow Area (m2)	87.13
93.84			
Weir Submerg		Froude # Chl	0.02
0.02			
Weir Max Depth (m)		Specif Force (m3)	122.94
124.44			
Min El Weir Flow (m)	9.51	Hydr Depth (m)	3.73
3.15			
Min El Prs (m)	12.38	W.P. Total (m)	70.97
75.79			
Delta EG (m)	0.00	Conv. Total (m3/s)	4538.5
4886.7			
Delta WS (m)	0.00	Top Width (m)	23.37
29.83			
BR Open Area (m2)	31.84	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.13	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.06
0.05			
BR Sel Method	Energy only	Power Total (N/m s)	0.01
0.01			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.93	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.92	E.G. Elev (m)	11.92
11.92			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.91
11.91			
Q Bridge (m3/s)	13.53	Crit W.S. (m)	10.15
10.14			
Q Weir (m3/s)		Max Chl Dpth (m)	2.34
2.34			
Weir Sta Lft (m)		Vel Total (m/s)	0.40
0.39			
Weir Sta Rgt (m)		Flow Area (m2)	68.02
70.02			
Weir Submerg		Froude # Chl	0.11
0.11			

Weir Max Depth (m)		Specif Force (m3)	76.22
75.38			
Min El Weir Flow (m)	9.51	Hydr Depth (m)	2.06
1.86			
Min El Prs (m)	12.38	W.P. Total (m)	52.07
55.61			
Delta EG (m)	0.01	Conv. Total (m3/s)	3675.7
3720.9			
Delta WS (m)	0.01	Top Width (m)	33.06
37.72			
BR Open Area (m2)	31.84	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.51	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.69
0.65			
BR Sel Method	Energy only	Power Total (N/m s)	0.27
0.25			

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.24	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.23	E.G. Elev (m)	12.23
12.23			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.22
12.23			
Q Bridge (m3/s)	13.20	Crit W.S. (m)	10.15
10.14			
Q Weir (m3/s)		Max Chl Dpth (m)	2.65
2.65			
Weir Sta Lft (m)		Vel Total (m/s)	0.34
0.33			
Weir Sta Rgt (m)		Flow Area (m2)	78.55
82.18			
Weir Submerg		Froude # Chl	0.09
0.08			
Weir Max Depth (m)		Specif Force (m3)	99.09
99.13			
Min El Weir Flow (m)	9.51	Hydr Depth (m)	2.32
2.07			
Min El Prs (m)	12.38	W.P. Total (m)	55.65
60.13			
Delta EG (m)	0.01	Conv. Total (m3/s)	4449.9
4564.7			
Delta WS (m)	0.00	Top Width (m)	33.91
39.62			
BR Open Area (m2)	31.84	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.44	C & E Loss (m)	0.00
0.00			

BR Sluice Coef		Shear Total (N/m2)	0.51
0.47			
BR Sel Method	Energy only	Power Total (N/m s)	0.18
0.15			

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.64	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.64	E.G. Elev (m)	12.64
12.64			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.63
12.63			
Q Bridge (m3/s)	10.44	Crit W.S. (m)	10.15
10.14			
Q Weir (m3/s)		Max Chl Dpth (m)	3.06
3.06			
Weir Sta Lft (m)		Vel Total (m/s)	0.30
0.28			
Weir Sta Rgt (m)		Flow Area (m2)	89.77
97.26			
Weir Submerg		Froude # Chl	0.06
0.05			
Weir Max Depth (m)		Specif Force (m3)	133.56
135.84			
Min El Weir Flow (m)	9.51	Hydr Depth (m)	3.77
2.98			
Min El Prs (m)	12.38	W.P. Total (m)	71.69
78.90			
Delta EG (m)	0.00	Conv. Total (m3/s)	4713.7
5061.5			
Delta WS (m)	0.00	Top Width (m)	23.81
32.63			
BR Open Area (m2)	31.84	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.33	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.40
0.34			
BR Sel Method	Energy only	Power Total (N/m s)	0.12
0.10			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 31

INPUT

Description: Opera 11

Opera 11

Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14.8649	12.7945	15.1611	12.8833	15.6202	12.8537	16.1565	12.799	16.7153	12.8933
17.0056	12.9078	17.8257	12.9006	18.4426	12.8643	18.7909	12.9513	19.132	13.0021
19.3279	13.0021	19.6908	12.9659	23.2958	10.75	25.0196	9.57	35.6829	9.57
37.5033	10.75	40.9564	12.9883	41.8237	12.9883	42.9488	12.8667	43.3665	12.9109
43.8283	12.8912	46.61	12.8407	47.2974	12.7907				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
14.8649	.03	19.6908	.015	40.9564	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.

Expan.

19.6908	40.9564	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.93	27.50
28.20				
E.G. Slope (m/m)	0.000007	Area (m2)	6.93	27.50
28.20				
Q Total (m3/s)	10.00	Flow (m3/s)	0.53	6.35
3.13				
Top Width (m)	40.94	Top Width (m)	6.85	16.83
17.27				
Vel Total (m/s)	0.16	Avg. Vel. (m/s)	0.08	0.23
0.11				
Max Chl Dpth (m)	2.07	Hydr. Depth (m)	1.01	1.63
1.63				
Conv. Total (m3/s)	3829.7	Conv. (m3/s)	202.2	2430.5
1196.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.45	18.02
19.62				
Min Ch El (m)	9.57	Shear (N/m2)	0.05	0.10
0.10				
Alpha	1.49	Stream Power (N/m s)	0.00	0.02
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	45.59	174.91
36.04				
C & E Loss (m)	0.00	Cum SA (1000 m2)	46.45	96.89

36.14

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.04	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.35	35.59
36.52				
E.G. Slope (m/m)	0.000003	Area (m2)	10.35	35.59
36.52				
Q Total (m3/s)	10.00	Flow (m3/s)	0.63	6.29
3.08				
Top Width (m)	45.18	Top Width (m)	8.01	18.29
18.89				
Vel Total (m/s)	0.12	Avg. Vel. (m/s)	0.06	0.18
0.08				
Max Chl Dpth (m)	2.53	Hydr. Depth (m)	1.29	1.95
1.93				
Conv. Total (m3/s)	5581.7	Conv. (m3/s)	349.1	3513.6
1719.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.16	19.75
21.77				
Min Ch El (m)	9.57	Shear (N/m2)	0.03	0.06
0.05				
Alpha	1.50	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	69.62	223.48
54.47				
C & E Loss (m)	0.00	Cum SA (1000 m2)	54.41	104.28
42.27				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015

0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	14.53	44.82
46.09				
E.G. Slope (m/m)	0.000002	Area (m2)	14.53	44.82
46.09				
Q Total (m3/s)	10.00	Flow (m3/s)	0.71	6.25
3.04				
Top Width (m)	49.65	Top Width (m)	9.24	19.82
20.59				
Vel Total (m/s)	0.09	Avg. Vel. (m/s)	0.05	0.14
0.07				
Max Chl Dpth (m)	3.01	Hydr. Depth (m)	1.57	2.26
2.24				
Conv. Total (m3/s)	7789.5	Conv. (m3/s)	551.0	4866.7
2371.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.97	21.56
24.02				
Min Ch El (m)	9.57	Shear (N/m2)	0.02	0.03
0.03				
Alpha	1.52	Stream Power (N/m s)	0.00	0.00
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	97.49	277.08
76.07				
C & E Loss (m)	0.00	Cum SA (1000 m2)	60.50	109.93
47.80				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.92	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.91	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	9.35	33.29
34.15				
E.G. Slope (m/m)	0.000028	Area (m2)	9.35	33.29
34.15				
Q Total (m3/s)	27.00	Flow (m3/s)	1.62	17.03
8.35				
Top Width (m)	44.01	Top Width (m)	7.69	17.88
18.44				
Vel Total (m/s)	0.35	Avg. Vel. (m/s)	0.17	0.51
0.24				
Max Chl Dpth (m)	2.40	Hydr. Depth (m)	1.22	1.86

1.85				
Conv. Total (m3/s)	5064.4	Conv. (m3/s)	304.2	3194.8
1565.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.69	19.27
21.18				
Min Ch El (m)	9.57	Shear (N/m2)	0.27	0.48
0.45				
Alpha	1.50	Stream Power (N/m s)	0.05	0.25
0.11				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	55.44	193.52
44.20				
C & E Loss (m)	0.00	Cum SA (1000 m2)	48.76	99.81
38.34				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.23	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.22	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	11.89	39.07
40.12				
E.G. Slope (m/m)	0.000018	Area (m2)	11.89	39.07
40.12				
Q Total (m3/s)	27.00	Flow (m3/s)	1.78	16.94
8.28				
Top Width (m)	46.91	Top Width (m)	8.49	18.88
19.54				
Vel Total (m/s)	0.30	Avg. Vel. (m/s)	0.15	0.43
0.21				
Max Chl Dpth (m)	2.72	Hydr. Depth (m)	1.40	2.07
2.05				
Conv. Total (m3/s)	6390.6	Conv. (m3/s)	421.2	4010.7
1958.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.86	20.45
22.64				
Min Ch El (m)	9.57	Shear (N/m2)	0.19	0.33
0.31				
Alpha	1.51	Stream Power (N/m s)	0.03	0.15
0.06				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	75.37	233.99
59.32				
C & E Loss (m)	0.00	Cum SA (1000 m2)	55.59	105.12
43.42				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.64	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.63	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	15.61	47.06
48.41				
E.G. Slope (m/m)	0.000011	Area (m2)	15.61	47.06
48.41				
Q Total (m3/s)	27.00	Flow (m3/s)	1.82	16.93
8.25				
Top Width (m)	52.71	Top Width (m)	11.55	20.18
20.98				
Vel Total (m/s)	0.24	Avg. Vel. (m/s)	0.12	0.36
0.17				
Max Chl Dpth (m)	3.12	Hydr. Depth (m)	1.35	2.33
2.31				
Conv. Total (m3/s)	8310.3	Conv. (m3/s)	561.1	5211.1
2538.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	14.46	21.98
24.54				
Min Ch El (m)	9.57	Shear (N/m2)	0.11	0.22
0.20				
Alpha	1.54	Stream Power (N/m s)	0.01	0.08
0.03				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	101.30	283.68
79.33				
C & E Loss (m)	0.00	Cum SA (1000 m2)	61.48	108.41
48.80				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 30

INPUT

Description:

Station Elevation Data				num=	24				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14.9274	12.9364	15.626	13.0546	16.436	13.0676	16.8572	13.1842	17.57	13.1518
17.9199	13.0935	18.5614	13.1583	19.401	13.1065	23.0744	10.75	24.9139	9.57
34.8147	9.57	36.4719	10.75	39.9672	13.2387	40.2435	13.2794	41.2758	13.3037
41.8493	13.3027	42.0485	13.3465	42.6658	13.3306	42.9127	13.3027	43.1198	13.2788
43.4743	13.255	44.0726	13.2191	44.3913	13.1873	44.5546	13.1515		

Manning's n Values		num=	3
Sta	n Val	Sta	n Val
14.9274	.03	19.401	.015
		39.9672	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	19.401	39.9672		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	13.61	25.79
11.67				
E.G. Slope (m/m)	0.000010	Area (m2)	13.61	25.79
11.67				
Q Total (m3/s)	10.00	Flow (m3/s)	1.46	7.19
1.35				
Top Width (m)	35.28	Top Width (m)	11.76	15.84
7.68				
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.11	0.28
0.12				
Max Chl Dpth (m)	2.17	Hydr. Depth (m)	1.16	1.63
1.52				
Conv. Total (m3/s)	3149.2	Conv. (m3/s)	458.7	2264.3
426.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.38	17.07
10.18				
Min Ch El (m)	9.57	Shear (N/m2)	0.10	0.15
0.11				
Alpha	1.55	Stream Power (N/m s)	0.01	0.04
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	43.53	169.58
32.05				
C & E Loss (m)	0.00	Cum SA (1000 m2)	44.59	93.63
33.64				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the

computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.04	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	19.22	33.42
15.41				
E.G. Slope (m/m)	0.000005	Area (m2)	19.22	33.42
15.41				
Q Total (m3/s)	10.00	Flow (m3/s)	1.64	7.03
1.33				
Top Width (m)	38.28	Top Width (m)	12.56	17.21
8.50				
Vel Total (m/s)	0.15	Avg. Vel. (m/s)	0.09	0.21
0.09				
Max Chl Dpth (m)	2.63	Hydr. Depth (m)	1.53	1.94
1.81				
Conv. Total (m3/s)	4664.9	Conv. (m3/s)	764.0	3279.5
621.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	14.77	18.72
11.58				
Min Ch El (m)	9.57	Shear (N/m2)	0.06	0.08
0.06				
Alpha	1.54	Stream Power (N/m s)	0.00	0.02
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	66.66	216.58
49.27				
C & E Loss (m)	0.00	Cum SA (1000 m2)	52.36	100.73
39.53				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	25.52	42.12
19.74				
E.G. Slope (m/m)	0.000002	Area (m2)	25.52	42.12

19.74				
Q Total (m3/s)	10.00	Flow (m3/s)	1.75	6.93
1.32				
Top Width (m)	41.42	Top Width (m)	13.41	18.65
9.36				
Vel Total (m/s)	0.11	Avg. Vel. (m/s)	0.07	0.16
0.07				
Max Chl Dpth (m)	3.12	Hydr. Depth (m)	1.90	2.26
2.11				
Conv. Total (m3/s)	6562.9	Conv. (m3/s)	1150.8	4545.0
867.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	16.23	20.45
13.05				
Min Ch El (m)	9.57	Shear (N/m2)	0.04	0.05
0.03				
Alpha	1.54	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	93.49	268.39
69.48				
C & E Loss (m)	0.00	Cum SA (1000 m2)	58.24	106.08
44.80				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.91	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.90	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	17.51	31.08
14.25				
E.G. Slope (m/m)	0.000042	Area (m2)	17.51	31.08
14.25				
Q Total (m3/s)	27.00	Flow (m3/s)	4.30	19.09
3.61				
Top Width (m)	37.38	Top Width (m)	12.32	16.80
8.26				
Vel Total (m/s)	0.43	Avg. Vel. (m/s)	0.25	0.61
0.25				
Max Chl Dpth (m)	2.50	Hydr. Depth (m)	1.42	1.85
1.73				
Conv. Total (m3/s)	4183.0	Conv. (m3/s)	666.3	2957.4
559.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	14.35	18.23
11.16				
Min Ch El (m)	9.57	Shear (N/m2)	0.50	0.70

0.52				
Alpha	1.54	Stream Power (N/m s)	0.12	0.43
0.13				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	52.75	187.08
39.36				
C & E Loss (m)	0.00	Cum SA (1000 m2)	46.76	96.34
35.68				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.23	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.22	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	21.53	36.59
16.98				
E.G. Slope (m/m)	0.000026	Area (m2)	21.53	36.59
16.98				
Q Total (m3/s)	27.00	Flow (m3/s)	4.56	18.86
3.58				
Top Width (m)	39.45	Top Width (m)	12.88	17.74
8.82				
Vel Total (m/s)	0.36	Avg. Vel. (m/s)	0.21	0.52
0.21				
Max Chl Dpth (m)	2.81	Hydr. Depth (m)	1.67	2.06
1.92				
Conv. Total (m3/s)	5336.5	Conv. (m3/s)	900.6	3727.7
708.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	15.31	19.37
12.13				
Min Ch El (m)	9.57	Shear (N/m2)	0.35	0.47
0.35				
Alpha	1.54	Stream Power (N/m s)	0.07	0.24
0.07				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	72.03	226.42
53.61				
C & E Loss (m)	0.00	Cum SA (1000 m2)	53.46	101.46
40.59				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.64	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.63	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	26.99	44.15
20.76				
E.G. Slope (m/m)	0.000015	Area (m2)	26.99	44.15
20.76				
Q Total (m3/s)	27.00	Flow (m3/s)	4.77	18.66
3.57				
Top Width (m)	42.23	Top Width (m)	13.71	18.97
9.55				
Vel Total (m/s)	0.29	Avg. Vel. (m/s)	0.18	0.42
0.17				
Max Chl Dpth (m)	3.23	Hydr. Depth (m)	1.97	2.33
2.17				
Conv. Total (m3/s)	7023.8	Conv. (m3/s)	1240.9	4855.2
927.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	16.66	20.84
13.38				
Min Ch El (m)	9.57	Shear (N/m2)	0.23	0.31
0.22				
Alpha	1.54	Stream Power (N/m s)	0.04	0.13
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	97.04	274.56
72.41				
C & E Loss (m)	0.00	Cum SA (1000 m2)	58.95	104.50
45.75				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 29

INPUT

Description:

Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15.7202	12.7828	16.4739	12.8357	17.5054	12.915	18.1667	12.9295	18.7304	12.8712
19.3136	12.8842	19.657	12.9101	20.0911	12.8324	20.2855	12.7741	23.5224	10.6
25.0559	9.57	35.8164	9.57	37.3801	10.6	40.7458	12.8169	41.7997	12.8169
42.714	12.8115	43.1452	12.8115						

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
15.7202 .03	20.2855 .015	40.7458 .03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
20.2855	40.7458	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	22.94	27.59
13.31				
E.G. Slope (m/m)	0.000007	Area (m2)	22.94	27.59
13.31				
Q Total (m3/s)	10.00	Flow (m3/s)	2.54	6.30
1.16				
Top Width (m)	41.44	Top Width (m)	13.04	16.79
11.61				
Vel Total (m/s)	0.16	Avg. Vel. (m/s)	0.11	0.23
0.09				
Max Chl Dpth (m)	3.17	Hydr. Depth (m)	1.76	1.64
1.15				
Conv. Total (m3/s)	3884.1	Conv. (m3/s)	987.2	2446.2
450.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	15.63	18.00
12.99				
Min Ch El (m)	9.57	Shear (N/m2)	0.10	0.10
0.07				
Alpha	1.50	Stream Power (N/m s)	0.01	0.02
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	39.88	164.24
29.55				
C & E Loss (m)	0.00	Cum SA (1000 m2)	42.11	90.36
31.71				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.04	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	29.15	35.67
18.88				
E.G. Slope (m/m)	0.000003	Area (m2)	29.15	35.67
18.88				
Q Total (m3/s)	10.00	Flow (m3/s)	2.45	6.23
1.32				
Top Width (m)	44.55	Top Width (m)	13.85	18.18
12.53				
Vel Total (m/s)	0.12	Avg. Vel. (m/s)	0.08	0.17
0.07				
Max Chl Dpth (m)	3.63	Hydr. Depth (m)	2.11	1.96
1.51				
Conv. Total (m3/s)	5679.8	Conv. (m3/s)	1391.1	3537.4
751.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	17.02	19.67
14.48				
Min Ch El (m)	9.57	Shear (N/m2)	0.05	0.06
0.04				
Alpha	1.50	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	61.83	209.67
45.85				
C & E Loss (m)	0.00	Cum SA (1000 m2)	49.72	97.19
37.43				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	36.07	44.85
25.19				
E.G. Slope (m/m)	0.000002	Area (m2)	36.07	44.85
25.19				

Q Total (m3/s)	10.00	Flow (m3/s)	2.38	6.19
1.44				
Top Width (m)	47.80	Top Width (m)	14.69	19.63
13.48				
Vel Total (m/s)	0.09	Avg. Vel. (m/s)	0.07	0.14
0.06				
Max Chl Dpth (m)	4.12	Hydr. Depth (m)	2.46	2.28
1.87				
Conv. Total (m3/s)	7906.8	Conv. (m3/s)	1878.4	4893.4
1135.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	18.48	21.42
16.04				
Min Ch El (m)	9.57	Shear (N/m2)	0.03	0.03
0.02				
Alpha	1.50	Stream Power (N/m s)	0.00	0.00
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	87.33	259.69
64.99				
C & E Loss (m)	0.00	Cum SA (1000 m2)	55.43	102.25
42.52				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.91	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.90	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	27.24	33.17
17.16				
E.G. Slope (m/m)	0.000028	Area (m2)	27.24	33.17
17.16				
Q Total (m3/s)	27.00	Flow (m3/s)	6.68	16.86
3.46				
Top Width (m)	43.61	Top Width (m)	13.60	17.76
12.25				
Vel Total (m/s)	0.35	Avg. Vel. (m/s)	0.25	0.51
0.20				
Max Chl Dpth (m)	3.49	Hydr. Depth (m)	2.00	1.87
1.40				
Conv. Total (m3/s)	5105.6	Conv. (m3/s)	1263.2	3188.3
654.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	16.60	19.16

14.03				
Min Ch El (m)	9.57	Shear (N/m2)	0.45	0.47
0.34				
Alpha	1.50	Stream Power (N/m s)	0.11	0.24
0.07				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	48.28	180.66
36.22				
C & E Loss (m)	0.00	Cum SA (1000 m2)	44.17	92.89
33.62				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.22	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.22	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	31.68	39.00
21.18				
E.G. Slope (m/m)	0.000017	Area (m2)	31.68	39.00
21.18				
Q Total (m3/s)	27.00	Flow (m3/s)	6.53	16.77
3.70				
Top Width (m)	45.76	Top Width (m)	14.16	18.72
12.88				
Vel Total (m/s)	0.29	Avg. Vel. (m/s)	0.21	0.43
0.17				
Max Chl Dpth (m)	3.81	Hydr. Depth (m)	2.24	2.08
1.64				
Conv. Total (m3/s)	6467.4	Conv. (m3/s)	1564.9	4016.6
885.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	17.56	20.32
15.06				
Min Ch El (m)	9.57	Shear (N/m2)	0.31	0.33
0.24				
Alpha	1.50	Stream Power (N/m s)	0.06	0.14
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	66.71	218.86
49.80				
C & E Loss (m)	0.00	Cum SA (1000 m2)	50.75	97.81
38.41				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.63	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.63	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	37.67	46.98
26.71				
E.G. Slope (m/m)	0.000010	Area (m2)	37.67	46.98
26.71				
Q Total (m3/s)	27.00	Flow (m3/s)	6.39	16.83
3.78				
Top Width (m)	50.06	Top Width (m)	15.08	19.96
15.02				
Vel Total (m/s)	0.24	Avg. Vel. (m/s)	0.17	0.36
0.14				
Max Chl Dpth (m)	4.23	Hydr. Depth (m)	2.50	2.35
1.78				
Conv. Total (m3/s)	8379.0	Conv. (m3/s)	1982.6	5224.4
1172.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	18.99	21.81
17.69				
Min Ch El (m)	9.57	Shear (N/m2)	0.20	0.22
0.15				
Alpha	1.53	Stream Power (N/m s)	0.03	0.08
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	90.58	265.45
67.66				
C & E Loss (m)	0.00	Cum SA (1000 m2)	56.07	100.61
43.29				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 28

INPUT

Description:

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2.9442	12.9894	4.0425	13.2292	6.0901	13.2846	8.2297	13.2585	8.6181	13.2538
12.3183	10.71	13.9765	9.57	24.4653	9.5693	26.0853	10.71	29.7164	13.2669
30.9792	13.3213	32.496	13.3432	33.9747	13.1918	34.8893	13.0403	35.4757	12.9156

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2.9442	.03	8.6181	.015	29.7164	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	8.6181	29.7164		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.000	0.015
0.030				
W.S. Elev (m)	11.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	0.00	26.71
10.39				
E.G. Slope (m/m)	0.000014	Area (m2)	0.00	26.71
10.39				
Q Total (m3/s)	10.00	Flow (m3/s)	0.00	8.76
1.24				
Top Width (m)	25.47	Top Width (m)	0.02	16.24
9.22				
Vel Total (m/s)	0.27	Avg. Vel. (m/s)	0.00	0.33
0.12				
Max Chl Dpth (m)	2.00	Hydr. Depth (m)	0.00	1.65
1.13				
Conv. Total (m3/s)	2696.4	Conv. (m3/s)	0.0	2361.8
334.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	0.03	17.49
10.95				
Min Ch El (m)	9.57	Shear (N/m2)		0.21
0.13				
Alpha	1.32	Stream Power (N/m s)		0.07
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	37.58	158.81
27.18				
C & E Loss (m)	0.00	Cum SA (1000 m2)	40.80	87.06
29.63				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.03	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	0.23	34.56
14.89				
E.G. Slope (m/m)	0.000006	Area (m2)	0.23	34.56
14.89				
Q Total (m3/s)	10.00	Flow (m3/s)	0.01	8.59
1.40				
Top Width (m)	28.71	Top Width (m)	0.97	17.57
10.17				
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.02	0.25
0.09				
Max Chl Dpth (m)	2.46	Hydr. Depth (m)	0.24	1.97
1.46				
Conv. Total (m3/s)	3981.1	Conv. (m3/s)	2.1	3420.0
559.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	1.56	19.12
12.47				
Min Ch El (m)	9.57	Shear (N/m2)	0.01	0.11
0.07				
Alpha	1.34	Stream Power (N/m s)	0.00	0.03
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	58.89	202.64
42.47				
C & E Loss (m)	0.00	Cum SA (1000 m2)	48.23	93.62
35.16				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)	0.95	43.45
20.08				
E.G. Slope (m/m)	0.000003	Area (m2)	0.95	43.45
20.08				
Q Total (m3/s)	10.00	Flow (m3/s)	0.03	8.46
1.52				
Top Width (m)	32.11	Top Width (m)	1.98	18.97
11.16				
Vel Total (m/s)	0.16	Avg. Vel. (m/s)	0.03	0.19
0.08				
Max Chl Dpth (m)	2.95	Hydr. Depth (m)	0.48	2.29
1.80				
Conv. Total (m3/s)	5593.5	Conv. (m3/s)	14.2	4730.5
848.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	3.16	20.82
14.06				
Min Ch El (m)	9.57	Shear (N/m2)	0.01	0.07
0.04				
Alpha	1.37	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	83.63	250.86
60.46				
C & E Loss (m)	0.00	Cum SA (1000 m2)	53.76	98.39
40.05				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.90	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.87	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	0.10	31.80
13.30				
E.G. Slope (m/m)	0.000059	Area (m2)	0.10	31.80
13.30				
Q Total (m3/s)	27.00	Flow (m3/s)	0.01	23.33
3.66				
Top Width (m)	27.60	Top Width (m)	0.65	17.11
9.84				
Vel Total (m/s)	0.60	Avg. Vel. (m/s)	0.05	0.73
0.28				
Max Chl Dpth (m)	2.30	Hydr. Depth (m)	0.16	1.86
1.35				
Conv. Total (m3/s)	3512.2	Conv. (m3/s)	0.7	3035.4
476.1				

Length Wtd. (m)	200.00	Wetted Per. (m)	1.03	18.56
11.94				
Min Ch El (m)	9.57	Shear (N/m2)	0.06	0.99
0.65				
Alpha	1.33	Stream Power (N/m s)	0.00	0.73
0.18				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	45.54	174.16
33.17				
C & E Loss (m)	0.00	Cum SA (1000 m2)	42.74	89.40
31.42				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.22	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.20	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	0.42	37.56
16.63				
E.G. Slope (m/m)	0.000036	Area (m2)	0.42	37.56
16.63				
Q Total (m3/s)	27.00	Flow (m3/s)	0.03	23.06
3.91				
Top Width (m)	29.88	Top Width (m)	1.32	18.05
10.51				
Vel Total (m/s)	0.49	Avg. Vel. (m/s)	0.07	0.61
0.24				
Max Chl Dpth (m)	2.63	Hydr. Depth (m)	0.32	2.08
1.58				
Conv. Total (m3/s)	4506.6	Conv. (m3/s)	4.8	3849.1
652.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	2.11	19.70
13.02				
Min Ch El (m)	9.57	Shear (N/m2)	0.07	0.67
0.45				
Alpha	1.35	Stream Power (N/m s)	0.00	0.41
0.11				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	63.50	211.21
46.02				
C & E Loss (m)	0.00	Cum SA (1000 m2)	49.20	94.13
36.07				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.63	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.62	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	1.16	45.36
21.20				
E.G. Slope (m/m)	0.000021	Area (m2)	1.16	45.36
21.20				
Q Total (m3/s)	27.00	Flow (m3/s)	0.08	22.77
4.15				
Top Width (m)	32.80	Top Width (m)	2.18	19.26
11.36				
Vel Total (m/s)	0.40	Avg. Vel. (m/s)	0.07	0.50
0.20				
Max Chl Dpth (m)	3.05	Hydr. Depth (m)	0.53	2.36
1.87				
Conv. Total (m3/s)	5959.3	Conv. (m3/s)	18.4	5025.5
915.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	3.48	21.17
14.39				
Min Ch El (m)	9.57	Shear (N/m2)	0.07	0.43
0.30				
Alpha	1.37	Stream Power (N/m s)	0.00	0.22
0.06				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	86.69	256.21
62.87				
C & E Loss (m)	0.00	Cum SA (1000 m2)	54.35	96.68
40.65				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 27

INPUT

Description:

Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.0516	13.0334	12.4277	13.1172	14.0822	13.1809	16.4138	13.2328	17.2092	13.0176

17.3791	12.8028	20.4475	10.72	22.1809	9.5434	32.7727	9.5419	34.1184	10.72
34.9258	11.4269	35.1785	11.4638	37.3788	13.0227	37.915	13.1706	38.25	13.2145
40.4441	13.2392	41.8086	12.9928	42.6112	12.8201				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12.0516	.03	17.2092	.015	37.3788	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	17.2092	37.3788		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.59	26.84
9.92				
E.G. Slope (m/m)	0.000011	Area (m2)	10.59	26.84
9.92				
Q Total (m3/s)	10.00	Flow (m3/s)	1.14	7.76
1.10				
Top Width (m)	32.67	Top Width (m)	8.92	16.13
7.63				
Vel Total (m/s)	0.21	Avg. Vel. (m/s)	0.11	0.29
0.11				
Max Chl Dpth (m)	2.03	Hydr. Depth (m)	1.19	1.66
1.30				
Conv. Total (m3/s)	3068.6	Conv. (m3/s)	350.8	2380.5
337.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.70	17.49
9.63				
Min Ch El (m)	9.54	Shear (N/m2)	0.10	0.16
0.11				
Alpha	1.51	Stream Power (N/m s)	0.01	0.05
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	36.52	153.46
25.15				
C & E Loss (m)	0.00	Cum SA (1000 m2)	39.91	83.83
27.95				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.03	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	14.97	34.66
13.69				
E.G. Slope (m/m)	0.000005	Area (m2)	14.97	34.66
13.69				
Q Total (m3/s)	10.00	Flow (m3/s)	1.26	7.58
1.16				
Top Width (m)	35.94	Top Width (m)	9.91	17.47
8.55				
Vel Total (m/s)	0.16	Avg. Vel. (m/s)	0.08	0.22
0.08				
Max Chl Dpth (m)	2.49	Hydr. Depth (m)	1.51	1.98
1.60				
Conv. Total (m3/s)	4527.6	Conv. (m3/s)	570.3	3433.8
523.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.26	19.13
11.14				
Min Ch El (m)	9.54	Shear (N/m2)	0.06	0.09
0.06				
Alpha	1.53	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	57.37	195.72
39.61				
C & E Loss (m)	0.00	Cum SA (1000 m2)	47.14	90.12
33.29				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	20.05	43.50
18.09				
E.G. Slope (m/m)	0.000002	Area (m2)	20.05	43.50
18.09				
Q Total (m3/s)	10.00	Flow (m3/s)	1.34	7.46
1.20				
Top Width (m)	39.42	Top Width (m)	10.95	18.87

9.60				
Vel Total (m/s)	0.12	Avg. Vel. (m/s)	0.07	0.17
0.07				
Max Chl Dpth (m)	2.98	Hydr. Depth (m)	1.83	2.30
1.88				
Conv. Total (m3/s)	6350.3	Conv. (m3/s)	853.5	4736.6
760.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.90	20.83
12.78				
Min Ch El (m)	9.54	Shear (N/m2)	0.04	0.05
0.03				
Alpha	1.54	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	81.53	242.17
56.65				
C & E Loss (m)	0.00	Cum SA (1000 m2)	52.47	94.61
37.98				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.89	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.87	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	13.39	31.85
12.32				
E.G. Slope (m/m)	0.000046	Area (m2)	13.39	31.85
12.32				
Q Total (m3/s)	27.00	Flow (m3/s)	3.31	20.62
3.07				
Top Width (m)	34.80	Top Width (m)	9.57	17.00
8.23				
Vel Total (m/s)	0.47	Avg. Vel. (m/s)	0.25	0.65
0.25				
Max Chl Dpth (m)	2.33	Hydr. Depth (m)	1.40	1.87
1.50				
Conv. Total (m3/s)	3986.5	Conv. (m3/s)	488.0	3044.6
453.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.72	18.56
10.61				
Min Ch El (m)	9.54	Shear (N/m2)	0.51	0.77
0.52				
Alpha	1.52	Stream Power (N/m s)	0.13	0.50
0.13				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	44.19	167.79

30.61				
C & E Loss (m)	0.00	Cum SA (1000 m2)	41.72	85.99
29.61				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.21	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.20	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.66	37.61
15.14				
E.G. Slope (m/m)	0.000028	Area (m2)	16.66	37.61
15.14				
Q Total (m3/s)	27.00	Flow (m3/s)	3.49	20.35
3.17				
Top Width (m)	37.11	Top Width (m)	10.27	17.95
8.89				
Vel Total (m/s)	0.39	Avg. Vel. (m/s)	0.21	0.54
0.21				
Max Chl Dpth (m)	2.66	Hydr. Depth (m)	1.62	2.10
1.70				
Conv. Total (m3/s)	5119.1	Conv. (m3/s)	661.2	3857.5
600.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.82	19.71
11.68				
Min Ch El (m)	9.54	Shear (N/m2)	0.35	0.52
0.35				
Alpha	1.53	Stream Power (N/m s)	0.07	0.28
0.07				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	61.79	203.69
42.84				
C & E Loss (m)	0.00	Cum SA (1000 m2)	48.04	90.53
34.14				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.63	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.62	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	21.15	45.39
19.06				
E.G. Slope (m/m)	0.000016	Area (m2)	21.15	45.39
19.06				
Q Total (m3/s)	27.00	Flow (m3/s)	3.67	20.09
3.24				
Top Width (m)	40.22	Top Width (m)	11.17	19.16
9.90				
Vel Total (m/s)	0.32	Avg. Vel. (m/s)	0.17	0.44
0.17				
Max Chl Dpth (m)	3.08	Hydr. Depth (m)	1.89	2.37
1.93				
Conv. Total (m3/s)	6759.3	Conv. (m3/s)	918.3	5029.1
811.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	14.23	21.18
13.19				
Min Ch El (m)	9.54	Shear (N/m2)	0.23	0.34
0.23				
Alpha	1.54	Stream Power (N/m s)	0.04	0.15
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	84.46	247.14
58.84				
C & E Loss (m)	0.00	Cum SA (1000 m2)	53.01	92.84
38.53				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 26

INPUT

Description: Opera 12

Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
23.9058	13.0337	25.6605	12.9775	26.7529	13.0049	28.7054	13.051	29.1788	13.224
29.4246	13.2877	29.725	13.2968	30.0072	13.1967	30.5898	13.0237	30.6808	12.8963
30.8474	12.506	33.5107	10.73	35.3311	9.5161	45.7955	9.5146	47.6735	10.73
51.7161	13.3461	52.7332	13.0895	53.9651	13.104	54.5489	13.0225	56.0928	12.9849

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
23.9058	.03	30.0072	.015	51.7161	.03

Bank Sta:	Left	Right	Lengths:			Left Channel	Right	Coeff Contr.	
Expan.	30.00	72	51.71	61		200	200	200	
								.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.57	Reach Len. (m)	6.00	6.00
6.00				
Crit W.S. (m)	9.96	Flow Area (m2)	26.66	27.88
4.78				
E.G. Slope (m/m)	0.000008	Area (m2)	26.66	27.88
4.78				
Q Total (m3/s)	10.00	Flow (m3/s)	2.71	6.97
0.32				
Top Width (m)	45.28	Top Width (m)	21.71	16.71
6.86				
Vel Total (m/s)	0.17	Avg. Vel. (m/s)	0.10	0.25
0.07				
Max Chl Dpth (m)	2.05	Hydr. Depth (m)	1.23	1.67
0.70				
Conv. Total (m3/s)	3578.0	Conv. (m3/s)	969.9	2493.6
114.5				
Length Wtd. (m)	6.00	Wetted Per. (m)	23.38	17.94
7.85				
Min Ch El (m)	9.51	Shear (N/m2)	0.09	0.12
0.05				
Alpha	1.64	Stream Power (N/m s)	0.01	0.03
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	32.80	147.99
23.68				
C & E Loss (m)	0.00	Cum SA (1000 m2)	36.85	80.54
26.50				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.03	Reach Len. (m)	6.00	6.00
6.00				

Crit W.S. (m)	9.96	Flow Area (m2)	36.93	35.99
8.14				
E.G. Slope (m/m)	0.000003	Area (m2)	36.93	35.99
8.14				
Q Total (m3/s)	10.00	Flow (m3/s)	2.95	6.59
0.46				
Top Width (m)	48.12	Top Width (m)	22.41	18.13
7.58				
Vel Total (m/s)	0.12	Avg. Vel. (m/s)	0.08	0.18
0.06				
Max Chl Dpth (m)	2.52	Hydr. Depth (m)	1.65	1.99
1.07				
Conv. Total (m3/s)	5455.4	Conv. (m3/s)	1610.5	3594.1
250.9				
Length Wtd. (m)	6.00	Wetted Per. (m)	24.69	19.64
9.17				
Min Ch El (m)	9.51	Shear (N/m2)	0.05	0.06
0.03				
Alpha	1.58	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	52.18	188.66
37.43				
C & E Loss (m)	0.00	Cum SA (1000 m2)	43.91	86.56
31.67				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	6.00	6.00
6.00				
Crit W.S. (m)	9.96	Flow Area (m2)	48.02	45.18
12.02				
E.G. Slope (m/m)	0.000002	Area (m2)	48.02	45.18
12.02				
Q Total (m3/s)	10.00	Flow (m3/s)	3.08	6.36
0.56				
Top Width (m)	51.06	Top Width (m)	23.14	19.60
8.33				
Vel Total (m/s)	0.10	Avg. Vel. (m/s)	0.06	0.14
0.05				
Max Chl Dpth (m)	3.00	Hydr. Depth (m)	2.08	2.31

1.44				
Conv. Total (m3/s)	7799.6	Conv. (m3/s)	2406.1	4956.7
436.8				
Length Wtd. (m)	6.00	Wetted Per. (m)	26.05	21.40
10.55				
Min Ch El (m)	9.51	Shear (N/m2)	0.03	0.03
0.02				
Alpha	1.55	Stream Power (N/m s)	0.00	0.00
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	74.72	233.30
53.64				
C & E Loss (m)	0.00	Cum SA (1000 m2)	49.06	90.76
36.18				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.88	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.87	Reach Len. (m)	6.00	6.00
6.00				
Crit W.S. (m)	10.43	Flow Area (m2)	33.28	33.06
6.92				
E.G. Slope (m/m)	0.000032	Area (m2)	33.28	33.06
6.92				
Q Total (m3/s)	27.00	Flow (m3/s)	7.79	18.09
1.12				
Top Width (m)	47.12	Top Width (m)	22.16	17.63
7.33				
Vel Total (m/s)	0.37	Avg. Vel. (m/s)	0.23	0.55
0.16				
Max Chl Dpth (m)	2.35	Hydr. Depth (m)	1.50	1.88
0.94				
Conv. Total (m3/s)	4752.6	Conv. (m3/s)	1370.6	3184.0
198.0				
Length Wtd. (m)	6.00	Wetted Per. (m)	24.23	19.04
8.70				
Min Ch El (m)	9.51	Shear (N/m2)	0.43	0.55
0.25				
Alpha	1.60	Stream Power (N/m s)	0.10	0.30
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	39.53	161.30
28.69				

C & E Loss (m)	0.00	Cum SA (1000 m2)	38.55	82.53
28.05				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.21	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.20	Reach Len. (m)	6.00	6.00
6.00				
Crit W.S. (m)	10.43	Flow Area (m2)	40.70	39.06
9.43				
E.G. Slope (m/m)	0.000019	Area (m2)	40.70	39.06
9.43				
Q Total (m3/s)	27.00	Flow (m3/s)	8.12	17.53
1.35				
Top Width (m)	49.13	Top Width (m)	22.66	18.64
7.84				
Vel Total (m/s)	0.30	Avg. Vel. (m/s)	0.20	0.45
0.14				
Max Chl Dpth (m)	2.69	Hydr. Depth (m)	1.80	2.10
1.20				
Conv. Total (m3/s)	6215.7	Conv. (m3/s)	1869.5	4036.4
309.8				
Length Wtd. (m)	6.00	Wetted Per. (m)	25.15	20.24
9.65				
Min Ch El (m)	9.51	Shear (N/m2)	0.30	0.36
0.18				
Alpha	1.57	Stream Power (N/m s)	0.06	0.16
0.03				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	56.05	196.02
40.38				
C & E Loss (m)	0.00	Cum SA (1000 m2)	44.75	86.87
32.46				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

		Element	Left OB	Channel
E.G. Elev (m)	12.62			
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.62	Reach Len. (m)	6.00	6.00
6.00				
Crit W.S. (m)	10.43	Flow Area (m2)	50.34	47.15
12.86				
E.G. Slope (m/m)	0.000010	Area (m2)	50.34	47.15
12.86				
Q Total (m3/s)	27.00	Flow (m3/s)	8.37	17.08
1.56				
Top Width (m)	51.57	Top Width (m)	23.28	19.79
8.49				
Vel Total (m/s)	0.24	Avg. Vel. (m/s)	0.17	0.36
0.12				
Max Chl Dpth (m)	3.10	Hydr. Depth (m)	2.16	2.38
1.52				
Conv. Total (m3/s)	8338.9	Conv. (m3/s)	2584.5	5274.1
480.3				
Length Wtd. (m)	6.00	Wetted Per. (m)	26.33	21.69
10.84				
Min Ch El (m)	9.51	Shear (N/m2)	0.20	0.22
0.12				
Alpha	1.54	Stream Power (N/m s)	0.03	0.08
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	77.31	237.88
55.65				
C & E Loss (m)	0.00	Cum SA (1000 m2)	49.57	88.95
36.69				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 25.5

INPUT

Description: \

Distance from Upstream XS = 6

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
30.11	14.21	12.54	51.42	14.21	12.54				

Upstream Bridge Cross Section Data

Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
23.9058	13.0337	25.6605	12.9775	26.7529	13.0049	28.7054	13.051	29.1788	13.224
29.4246	13.2877	29.725	13.2968	30.0072	13.1967	30.5898	13.0237	30.6808	12.8963
30.8474	12.506	33.5107	10.73	35.3311	9.5161	45.7955	9.5146	47.6735	10.73
51.7161	13.3461	52.7332	13.0895	53.9651	13.104	54.5489	13.0225	56.0928	12.9849

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
23.9058	.03	30.0072	.015	51.7161	.03

Bank Sta: Left Right Coeff Contr. Expan.

30.0072	51.7161	.0015	.01
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Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
16.66	14.2	12.54	37.96	14.2	12.54				

Downstream Bridge Cross Section Data

Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.3523	13.0208	12.8532	13.0362	13.3346	13.1194	13.6215	13.1379	14.3158	13.1472
14.9004	13.0918	15.2706	13.0825	16.2555	13.176	16.4097	13.1669	19.9865	10.74
21.8306	9.4888	32.5248	9.4873	34.2863	10.74	37.6208	13.1114	38.1565	13.1392
39.7496	13.1348	40.3073	13.1409	41.6661	12.8934	42.4878	12.7292		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12.3523	.03	16.4097	.015	37.6208	.03

Bank Sta: Left Right Coeff Contr. Expan.

16.4097	37.6208	.0015	.01
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Upstream Embankment side slope = 1.8 horiz. to 1.0 vertical

Downstream Embankment side slope = 1.8 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Energy head used in spillway design =

Spillway height used in design =

Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev
-----	------	-----	------

30.11	12.54	34.78	12.54
Downstream	num=	2	
Sta	Elev	Sta	Elev
16.66	12.54	21.33	12.54

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
47.29	12.54	51.42	12.54
Downstream	num=	2	
Sta	Elev	Sta	Elev
33.83	12.54	37.96	12.54

Number of Piers = 2

Pier Data

Pier Station	Upstream=	38.13	Downstream=	24.68
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.52	.5	12.54	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.52	.5	12.54	

Pier Data

Pier Station	Upstream=	43.94	Downstream=	30.48
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.52	.5	12.54	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.52	.5	12.54	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.57	Element	Inside BR US
Inside BR DS			

W.S. US. (m)	11.57	E.G. Elev (m)	11.57
11.57			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.57
11.57			
Q Bridge (m3/s)	5.83	Crit W.S. (m)	9.99
9.95			
Q Weir (m3/s)		Max Chl Dpth (m)	2.05
2.08			
Weir Sta Lft (m)		Vel Total (m/s)	0.18
0.22			
Weir Sta Rgt (m)		Flow Area (m2)	54.23
45.90			
Weir Submerg		Froude # Chl	0.06
0.07			
Weir Max Depth (m)		Specif Force (m3)	41.62
39.24			
Min El Weir Flow (m)	10.28	Hydr Depth (m)	1.35
1.50			
Min El Prs (m)	12.54	W.P. Total (m)	54.11
45.85			
Delta EG (m)	0.00	Conv. Total (m3/s)	2599.7
2307.3			
Delta WS (m)	0.00	Top Width (m)	40.08
30.67			
BR Open Area (m2)	33.99	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.26	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.15
0.18			
BR Sel Method	Energy only	Power Total (N/m s)	0.03
0.04			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.03	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.03	E.G. Elev (m)	12.03
12.03			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.03
12.03			
Q Bridge (m3/s)	5.17	Crit W.S. (m)	9.99
9.95			
Q Weir (m3/s)		Max Chl Dpth (m)	2.52
2.55			
Weir Sta Lft (m)		Vel Total (m/s)	0.14
0.16			

Weir Sta Rgt (m)		Flow Area (m2)	73.23
60.71			
Weir Submerg		Froude # Ch1	0.04
0.04			
Weir Max Depth (m)		Specif Force (m3)	71.23
63.99			
Min El Weir Flow (m)	10.28	Hydr Depth (m)	1.76
1.85			
Min El Prs (m)	12.54	W.P. Total (m)	59.54
51.96			
Delta EG (m)	0.00	Conv. Total (m3/s)	3857.1
3265.7			
Delta WS (m)	0.00	Top Width (m)	41.50
32.86			
BR Open Area (m2)	33.99	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.18	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.08
0.11			
BR Sel Method	Energy only	Power Total (N/m s)	0.01
0.02			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.52	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.52	E.G. Elev (m)	12.52
12.52			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.52
12.52			
Q Bridge (m3/s)	4.69	Crit W.S. (m)	9.99
9.95			
Q Weir (m3/s)		Max Ch1 Dpth (m)	3.00
3.03			
Weir Sta Lft (m)		Vel Total (m/s)	0.11
0.13			
Weir Sta Rgt (m)		Flow Area (m2)	93.79
77.27			
Weir Submerg		Froude # Ch1	0.03
0.03			
Weir Max Depth (m)		Specif Force (m3)	111.81
97.50			
Min El Weir Flow (m)	10.28	Hydr Depth (m)	2.18
2.20			
Min El Prs (m)	12.54	W.P. Total (m)	65.20
58.35			

Delta EG (m)	0.00	Conv. Total (m3/s)	5356.3
4400.6			
Delta WS (m)	0.00	Top Width (m)	42.98
35.15			
BR Open Area (m2)	33.99	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.14	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.05
0.07			
BR Sel Method	Energy only	Power Total (N/m s)	0.01
0.01			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.88	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.87	E.G. Elev (m)	11.88
11.88			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.87
11.86			
Q Bridge (m3/s)	14.52	Crit W.S. (m)	10.49
10.40			
Q Weir (m3/s)		Max Chl Dpth (m)	2.35
2.38			
Weir Sta Lft (m)		Vel Total (m/s)	0.41
0.49			
Weir Sta Rgt (m)		Flow Area (m2)	66.46
55.23			
Weir Submerg		Froude # Chl	0.12
0.14			
Weir Max Depth (m)		Specif Force (m3)	60.84
55.49			
Min El Weir Flow (m)	10.28	Hydr Depth (m)	1.62
1.72			
Min El Prs (m)	12.54	W.P. Total (m)	57.62
49.75			
Delta EG (m)	0.01	Conv. Total (m3/s)	3393.3
2903.8			
Delta WS (m)	0.02	Top Width (m)	41.00
32.07			
BR Open Area (m2)	33.99	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.55	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.72
0.94			

BR Sel Method	Energy only	Power Total (N/m s)	0.29
0.46			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.21	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.20	E.G. Elev (m)	12.21
12.21			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.20
12.20			
Q Bridge (m3/s)	13.48	Crit W.S. (m)	10.49
10.40			
Q Weir (m3/s)		Max Chl Dpth (m)	2.69
2.71			
Weir Sta Lft (m)		Vel Total (m/s)	0.34
0.41			
Weir Sta Rgt (m)		Flow Area (m2)	80.21
66.16			
Weir Submerg		Froude # Chl	0.09
0.11			
Weir Max Depth (m)		Specif Force (m3)	84.89
75.42			
Min El Weir Flow (m)	10.28	Hydr Depth (m)	1.91
1.97			
Min El Prs (m)	12.54	W.P. Total (m)	61.48
54.11			
Delta EG (m)	0.01	Conv. Total (m3/s)	4351.4
3632.2			
Delta WS (m)	0.01	Top Width (m)	42.00
33.63			
BR Open Area (m2)	33.99	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.45	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.49
0.66			
BR Sel Method	Energy only	Power Total (N/m s)	0.17
0.27			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.62	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.62	E.G. Elev (m)	12.62
12.62			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.62
12.62			
Q Bridge (m3/s)	10.74	Crit W.S. (m)	10.49
10.40			
Q Weir (m3/s)		Max Chl Dpth (m)	3.11
3.13			
Weir Sta Lft (m)		Vel Total (m/s)	0.28
0.34			
Weir Sta Rgt (m)		Flow Area (m2)	97.20
79.86			
Weir Submerg		Froude # Chl	0.05
0.06			
Weir Max Depth (m)		Specif Force (m3)	122.07
106.06			
Min El Weir Flow (m)	10.28	Hydr Depth (m)	3.06
3.31			
Min El Prs (m)	12.54	W.P. Total (m)	77.40
70.68			
Delta EG (m)	0.00	Conv. Total (m3/s)	5091.2
4048.4			
Delta WS (m)	0.01	Top Width (m)	31.77
24.11			
BR Open Area (m2)	33.99	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.32	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.35
0.49			
BR Sel Method	Energy only	Power Total (N/m s)	0.10
0.17			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 25

INPUT

Description:

Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.3523	13.0208	12.8532	13.0362	13.3346	13.1194	13.6215	13.1379	14.3158	13.1472

14.9004	13.0918	15.2706	13.0825	16.2555	13.176	16.4097	13.1669	19.9865	10.74
21.8306	9.4888	32.5248	9.4873	34.2863	10.74	37.6208	13.1114	38.1565	13.1392
39.7496	13.1348	40.3073	13.1409	41.6661	12.8934	42.4878	12.7292		

Manning's n Values			num= 3		
Sta	n Val	Sta	n Val	Sta	n Val
12.3523	.03	16.4097	.015	37.6208	.03

Bank Sta:	Left	Right	Lengths:			Left Channel	Right	Coeff Contr.	
Expan.									
	16.4097	37.6208		200	200	200		.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	11.30	28.40
11.35				
E.G. Slope (m/m)	0.000009	Area (m2)	11.30	28.40
11.35				
Q Total (m3/s)	10.00	Flow (m3/s)	1.15	7.73
1.12				
Top Width (m)	35.83	Top Width (m)	9.22	16.67
9.94				
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.10	0.27
0.10				
Max Chl Dpth (m)	2.08	Hydr. Depth (m)	1.22	1.70
1.14				
Conv. Total (m3/s)	3322.6	Conv. (m3/s)	380.7	2569.3
372.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.11	17.97
11.62				
Min Ch El (m)	9.49	Shear (N/m2)	0.09	0.14
0.09				
Alpha	1.55	Stream Power (N/m s)	0.01	0.04
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	30.41	142.84
21.46				
C & E Loss (m)	0.00	Cum SA (1000 m2)	34.90	77.74
24.54				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.03	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	15.84	36.51
16.28				
E.G. Slope (m/m)	0.000004	Area (m2)	15.84	36.51
16.28				
Q Total (m3/s)	10.00	Flow (m3/s)	1.25	7.50
1.26				
Top Width (m)	39.38	Top Width (m)	10.23	18.02
11.13				
Vel Total (m/s)	0.15	Avg. Vel. (m/s)	0.08	0.21
0.08				
Max Chl Dpth (m)	2.54	Hydr. Depth (m)	1.55	2.03
1.46				
Conv. Total (m3/s)	4914.7	Conv. (m3/s)	612.4	3683.8
618.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.69	19.61
13.37				
Min Ch El (m)	9.49	Shear (N/m2)	0.05	0.08
0.05				
Alpha	1.56	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	48.83	182.17
34.24				
C & E Loss (m)	0.00	Cum SA (1000 m2)	41.76	83.62
29.48				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	21.08	45.64
22.01				
E.G. Slope (m/m)	0.000002	Area (m2)	21.08	45.64
22.01				
Q Total (m3/s)	10.00	Flow (m3/s)	1.32	7.32
1.36				
Top Width (m)	43.07	Top Width (m)	11.27	19.42

12.37				
Vel Total (m/s)	0.11	Avg. Vel. (m/s)	0.06	0.16
0.06				
Max Chl Dpth (m)	3.03	Hydr. Depth (m)	1.87	2.35
1.78				
Conv. Total (m3/s)	6901.1	Conv. (m3/s)	909.1	5053.2
938.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	14.33	21.32
15.20				
Min Ch El (m)	9.49	Shear (N/m2)	0.03	0.04
0.03				
Alpha	1.57	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	70.27	225.35
49.32				
C & E Loss (m)	0.00	Cum SA (1000 m2)	46.70	87.69
33.74				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.87	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.85	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	14.06	33.35
14.34				
E.G. Slope (m/m)	0.000040	Area (m2)	14.06	33.35
14.34				
Q Total (m3/s)	27.00	Flow (m3/s)	3.27	20.45
3.27				
Top Width (m)	38.03	Top Width (m)	9.85	17.51
10.68				
Vel Total (m/s)	0.44	Avg. Vel. (m/s)	0.23	0.61
0.23				
Max Chl Dpth (m)	2.37	Hydr. Depth (m)	1.43	1.91
1.34				
Conv. Total (m3/s)	4272.9	Conv. (m3/s)	518.1	3236.8
518.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.09	18.99
12.71				
Min Ch El (m)	9.49	Shear (N/m2)	0.46	0.69
0.44				
Alpha	1.56	Stream Power (N/m s)	0.11	0.42
0.10				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	36.54	155.33

25.87				
C & E Loss (m)	0.00	Cum SA (1000 m2)	36.47	79.64
25.94				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.20	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.19	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	17.49	39.41
18.08				
E.G. Slope (m/m)	0.000024	Area (m2)	17.49	39.41
18.08				
Q Total (m3/s)	27.00	Flow (m3/s)	3.43	20.07
3.50				
Top Width (m)	40.58	Top Width (m)	10.57	18.48
11.53				
Vel Total (m/s)	0.36	Avg. Vel. (m/s)	0.20	0.51
0.19				
Max Chl Dpth (m)	2.70	Hydr. Depth (m)	1.66	2.13
1.57				
Conv. Total (m3/s)	5524.3	Conv. (m3/s)	702.7	4106.1
715.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.22	20.17
13.97				
Min Ch El (m)	9.49	Shear (N/m2)	0.31	0.46
0.30				
Alpha	1.56	Stream Power (N/m s)	0.06	0.23
0.06				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	52.35	189.06
36.83				
C & E Loss (m)	0.00	Cum SA (1000 m2)	42.53	83.89
30.19				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.62	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.61	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	22.15	47.48
23.19				
E.G. Slope (m/m)	0.000014	Area (m2)	22.15	47.48
23.19				
Q Total (m3/s)	27.00	Flow (m3/s)	3.59	19.69
3.72				
Top Width (m)	43.79	Top Width (m)	11.48	19.69
12.62				
Vel Total (m/s)	0.29	Avg. Vel. (m/s)	0.16	0.41
0.16				
Max Chl Dpth (m)	3.13	Hydr. Depth (m)	1.93	2.41
1.84				
Conv. Total (m3/s)	7324.9	Conv. (m3/s)	973.2	5343.1
1008.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	14.64	21.65
15.55				
Min Ch El (m)	9.49	Shear (N/m2)	0.20	0.29
0.20				
Alpha	1.57	Stream Power (N/m s)	0.03	0.12
0.03				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	72.64	229.73
51.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	47.17	87.03
34.20				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 24

INPUT

Description:

Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.3044	13.2031	9.4739	13.3402	10.1978	13.381	11.5641	13.33	12.237	13.3096
12.4817	13.3198	12.9711	13.2587	13.1343	13.2281	16.7842	10.75	18.6782	9.4641
29.047	9.4631	30.9084	10.75	34.4377	13.1899	35.0532	13.2515	36.3916	13.2682
36.8458	13.3265	37.35	13.2266	38.4835	13.1557	39.1585	13.0058		

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.3044	.03	13.1343	.015	34.4377	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
13.1343	34.4377	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	2.93	28.14
4.36				
E.G. Slope (m/m)	0.000014	Area (m2)	2.93	28.14
4.36				
Q Total (m3/s)	10.00	Flow (m3/s)	0.22	9.37
0.41				
Top Width (m)	26.94	Top Width (m)	5.40	16.49
5.05				
Vel Total (m/s)	0.28	Avg. Vel. (m/s)	0.08	0.33
0.09				
Max Chl Dpth (m)	2.10	Hydr. Depth (m)	0.54	1.71
0.86				
Conv. Total (m3/s)	2719.6	Conv. (m3/s)	59.9	2547.6
112.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.10	17.79
6.44				
Min Ch El (m)	9.46	Shear (N/m2)	0.06	0.21
0.09				
Alpha	1.31	Stream Power (N/m s)	0.00	0.07
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	28.99	137.19
19.89				
C & E Loss (m)	0.00	Cum SA (1000 m2)	33.43	74.42
23.04				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.03	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)	5.66	36.21
6.90				
E.G. Slope (m/m)	0.000006	Area (m2)	5.66	36.21
6.90				
Q Total (m3/s)	10.00	Flow (m3/s)	0.39	9.08
0.53				
Top Width (m)	29.88	Top Width (m)	6.23	17.86
5.79				
Vel Total (m/s)	0.21	Avg. Vel. (m/s)	0.07	0.25
0.08				
Max Chl Dpth (m)	2.57	Hydr. Depth (m)	0.91	2.03
1.19				
Conv. Total (m3/s)	4021.8	Conv. (m3/s)	156.2	3653.1
212.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.53	19.45
7.78				
Min Ch El (m)	9.46	Shear (N/m2)	0.05	0.11
0.05				
Alpha	1.37	Stream Power (N/m s)	0.00	0.03
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	46.68	174.90
31.92				
C & E Loss (m)	0.00	Cum SA (1000 m2)	40.12	80.03
27.79				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.92	45.28
9.92				
E.G. Slope (m/m)	0.000003	Area (m2)	8.92	45.28
9.92				
Q Total (m3/s)	10.00	Flow (m3/s)	0.52	8.86
0.62				
Top Width (m)	32.93	Top Width (m)	7.09	19.28
6.55				
Vel Total (m/s)	0.16	Avg. Vel. (m/s)	0.06	0.20
0.06				
Max Chl Dpth (m)	3.05	Hydr. Depth (m)	1.26	2.35
1.51				
Conv. Total (m3/s)	5653.4	Conv. (m3/s)	295.3	5009.9
348.2				

Length Wtd. (m) 9.17	200.00	Wetted Per. (m)	9.01	21.18
Min Ch El (m) 0.03	9.46	Shear (N/m2)	0.03	0.07
Alpha 0.00	1.41	Stream Power (N/m s)	0.00	0.01
Frctn Loss (m) 46.13	0.00	Cum Volume (1000 m3)	67.27	216.26
C & E Loss (m) 31.85	0.00	Cum SA (1000 m2)	44.87	83.82

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m) Right OB	11.86	Element	Left OB	Channel
Vel Head (m) 0.030	0.03	Wt. n-Val.	0.030	0.015
W.S. Elev (m) 200.00	11.83	Reach Len. (m)	200.00	200.00
Crit W.S. (m) 5.79		Flow Area (m2)	4.47	32.74
E.G. Slope (m/m) 5.79	0.000062	Area (m2)	4.47	32.74
Q Total (m3/s) 1.31	27.00	Flow (m3/s)	0.87	24.82
Top Width (m) 5.48	28.64	Top Width (m)	5.88	17.28
Vel Total (m/s) 0.23	0.63	Avg. Vel. (m/s)	0.20	0.76
Max Chl Dpth (m) 1.06	2.37	Hydr. Depth (m)	0.76	1.89
Conv. Total (m3/s) 166.8	3442.7	Conv. (m3/s)	111.1	3164.8
Length Wtd. (m) 7.22	200.00	Wetted Per. (m)	6.93	18.75
Min Ch El (m) 0.48	9.46	Shear (N/m2)	0.39	1.05
Alpha 0.11	1.35	Stream Power (N/m s)	0.08	0.80
Frctn Loss (m) 23.86	0.01	Cum Volume (1000 m3)	34.69	148.72
C & E Loss (m) 24.33	0.00	Cum SA (1000 m2)	34.90	76.16

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.19	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.18	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.60	38.87
7.77				
E.G. Slope (m/m)	0.000036	Area (m2)	6.60	38.87
7.77				
Q Total (m3/s)	27.00	Flow (m3/s)	1.17	24.33
1.51				
Top Width (m)	30.80	Top Width (m)	6.49	18.29
6.02				
Vel Total (m/s)	0.51	Avg. Vel. (m/s)	0.18	0.63
0.19				
Max Chl Dpth (m)	2.71	Hydr. Depth (m)	1.02	2.13
1.29				
Conv. Total (m3/s)	4483.7	Conv. (m3/s)	194.0	4039.6
250.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.97	19.97
8.20				
Min Ch El (m)	9.46	Shear (N/m2)	0.29	0.69
0.34				
Alpha	1.39	Stream Power (N/m s)	0.05	0.43
0.07				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	49.94	181.24
34.25				
C & E Loss (m)	0.00	Cum SA (1000 m2)	40.83	80.22
28.43				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.62	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.60	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	9.54	46.97
10.49				

E.G. Slope (m/m)	0.000020	Area (m2)	9.54	46.97
10.49				
Q Total (m3/s)	27.00	Flow (m3/s)	1.47	23.84
1.70				
Top Width (m)	33.47	Top Width (m)	7.25	19.54
6.68				
Vel Total (m/s)	0.40	Avg. Vel. (m/s)	0.15	0.51
0.16				
Max Chl Dpth (m)	3.14	Hydr. Depth (m)	1.32	2.40
1.57				
Conv. Total (m3/s)	5975.3	Conv. (m3/s)	324.3	5275.1
375.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.27	21.48
9.42				
Min Ch El (m)	9.46	Shear (N/m2)	0.21	0.44
0.22				
Alpha	1.42	Stream Power (N/m s)	0.03	0.22
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	69.47	220.29
47.73				
C & E Loss (m)	0.00	Cum SA (1000 m2)	45.30	83.10
32.27				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 23

INPUT

Description:

Station Elevation Data		num=		16					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.6894	13.1462	14.2256	13.2925	15.8557	13.2441	17.2944	13.2198	20.9181	10.72
22.7658	9.4454	33.262	9.4444	35.0562	10.72	38.491	13.1621	38.8657	13.227
39.8827	13.2531	40.842	13.2481	41.5414	13.278	42.1678	13.1931	42.9321	13.1881
43.6865	13.1581								

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
12.6894	.03	17.2944	.015	38.491	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	17.2944	38.491		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.56	Reach Len. (m)	84.00	84.00
84.00				
Crit W.S. (m)	9.89	Flow Area (m2)	1.80	28.52
1.79				
E.G. Slope (m/m)	0.000014	Area (m2)	1.80	28.52
1.79				
Q Total (m3/s)	10.00	Flow (m3/s)	0.07	9.82
0.11				
Top Width (m)	30.79	Top Width (m)	9.41	16.53
4.85				
Vel Total (m/s)	0.31	Avg. Vel. (m/s)	0.04	0.34
0.06				
Max Chl Dpth (m)	2.11	Hydr. Depth (m)	0.19	1.73
0.37				
Conv. Total (m3/s)	2646.7	Conv. (m3/s)	19.6	2598.1
29.0				
Length Wtd. (m)	84.00	Wetted Per. (m)	9.60	17.86
5.31				
Min Ch El (m)	9.44	Shear (N/m2)	0.03	0.22
0.05				
Alpha	1.20	Stream Power (N/m s)	0.00	0.08
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	28.51	131.52
19.28				
C & E Loss (m)	0.00	Cum SA (1000 m2)	31.95	71.12
22.05				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.03	Reach Len. (m)	84.00	84.00
84.00				
Crit W.S. (m)	9.89	Flow Area (m2)	6.47	36.63
4.29				
E.G. Slope (m/m)	0.000006	Area (m2)	6.47	36.63
4.29				

Q Total (m3/s)	10.00	Flow (m3/s)	0.38	9.36
0.26				
Top Width (m)	33.99	Top Width (m)	10.39	17.87
5.73				
Vel Total (m/s)	0.21	Avg. Vel. (m/s)	0.06	0.26
0.06				
Max Chl Dpth (m)	2.58	Hydr. Depth (m)	0.62	2.05
0.75				
Conv. Total (m3/s)	3973.0	Conv. (m3/s)	149.9	3717.9
105.2				
Length Wtd. (m)	84.00	Wetted Per. (m)	11.15	19.50
6.79				
Min Ch El (m)	9.44	Shear (N/m2)	0.04	0.12
0.04				
Alpha	1.38	Stream Power (N/m s)	0.00	0.03
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	45.46	167.62
30.80				
C & E Loss (m)	0.00	Cum SA (1000 m2)	38.46	76.46
26.63				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	84.00	84.00
84.00				
Crit W.S. (m)	9.89	Flow Area (m2)	11.79	45.72
7.32				
E.G. Slope (m/m)	0.000003	Area (m2)	11.79	45.72
7.32				
Q Total (m3/s)	10.00	Flow (m3/s)	0.66	8.95
0.39				
Top Width (m)	37.31	Top Width (m)	11.39	19.27
6.65				
Vel Total (m/s)	0.15	Avg. Vel. (m/s)	0.06	0.20
0.05				
Max Chl Dpth (m)	3.07	Hydr. Depth (m)	1.04	2.37
1.10				
Conv. Total (m3/s)	5683.1	Conv. (m3/s)	373.0	5086.1
223.9				
Length Wtd. (m)	84.00	Wetted Per. (m)	12.76	21.21

8.32				
Min Ch El (m)	9.44	Shear (N/m2)	0.03	0.07
0.03				
Alpha	1.45	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	65.20	207.16
44.40				
C & E Loss (m)	0.00	Cum SA (1000 m2)	43.02	79.96
30.53				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.85	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.82	Reach Len. (m)	84.00	84.00
84.00				
Crit W.S. (m)	10.29	Flow Area (m2)	4.31	32.91
3.12				
E.G. Slope (m/m)	0.000065	Area (m2)	4.31	32.91
3.12				
Q Total (m3/s)	27.00	Flow (m3/s)	0.64	25.82
0.54				
Top Width (m)	32.55	Top Width (m)	9.95	17.27
5.33				
Vel Total (m/s)	0.67	Avg. Vel. (m/s)	0.15	0.78
0.17				
Max Chl Dpth (m)	2.37	Hydr. Depth (m)	0.43	1.91
0.58				
Conv. Total (m3/s)	3337.2	Conv. (m3/s)	79.7	3191.3
66.2				
Length Wtd. (m)	84.00	Wetted Per. (m)	10.45	18.76
6.12				
Min Ch El (m)	9.44	Shear (N/m2)	0.26	1.13
0.33				
Alpha	1.32	Stream Power (N/m s)	0.04	0.88
0.06				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	33.81	142.15
22.97				
C & E Loss (m)	0.00	Cum SA (1000 m2)	33.31	72.71
23.25				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.19	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.17	Reach Len. (m)	84.00	84.00
84.00				
Crit W.S. (m)	10.29	Flow Area (m2)	7.94	39.17
5.11				
E.G. Slope (m/m)	0.000037	Area (m2)	7.94	39.17
5.11				
Q Total (m3/s)	27.00	Flow (m3/s)	1.25	24.92
0.82				
Top Width (m)	34.94	Top Width (m)	10.67	18.27
6.00				
Vel Total (m/s)	0.52	Avg. Vel. (m/s)	0.16	0.64
0.16				
Max Chl Dpth (m)	2.72	Hydr. Depth (m)	0.74	2.14
0.85				
Conv. Total (m3/s)	4429.5	Conv. (m3/s)	205.6	4088.7
135.2				
Length Wtd. (m)	84.00	Wetted Per. (m)	11.61	19.99
7.23				
Min Ch El (m)	9.44	Shear (N/m2)	0.25	0.71
0.26				
Alpha	1.41	Stream Power (N/m s)	0.04	0.45
0.04				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	48.49	173.43
32.96				
C & E Loss (m)	0.00	Cum SA (1000 m2)	39.11	76.56
27.23				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

		Element	Left OB	Channel
E.G. Elev (m)	12.61			
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.60	Reach Len. (m)	84.00	84.00
84.00				
Crit W.S. (m)	10.29	Flow Area (m2)	12.76	47.34
7.88				
E.G. Slope (m/m)	0.000020	Area (m2)	12.76	47.34
7.88				
Q Total (m3/s)	27.00	Flow (m3/s)	1.88	24.00
1.12				
Top Width (m)	37.88	Top Width (m)	11.57	19.51
6.81				
Vel Total (m/s)	0.40	Avg. Vel. (m/s)	0.15	0.51
0.14				
Max Chl Dpth (m)	3.16	Hydr. Depth (m)	1.10	2.43
1.16				
Conv. Total (m3/s)	6009.5	Conv. (m3/s)	419.1	5342.2
248.2				
Length Wtd. (m)	84.00	Wetted Per. (m)	13.04	21.50
8.58				
Min Ch El (m)	9.44	Shear (N/m2)	0.19	0.44
0.18				
Alpha	1.46	Stream Power (N/m s)	0.03	0.22
0.03				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	67.24	210.85
45.89				
C & E Loss (m)	0.00	Cum SA (1000 m2)	43.42	79.20
30.92				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 22.5

INPUT

Description: \

Distance from Upstream XS = 84

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord

16.76 14.76 12.79 39.28 14.76 12.79

Upstream Bridge Cross Section Data

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.6894	13.1462	14.2256	13.2925	15.8557	13.2441	17.2944	13.2198	20.9181	10.72
22.7658	9.4454	33.262	9.4444	35.0562	10.72	38.491	13.1621	38.8657	13.227
39.8827	13.2531	40.842	13.2481	41.5414	13.278	42.1678	13.1931	42.9321	13.1881
43.6865	13.1581								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12.6894	.03	17.2944	.015	38.491	.03

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	17.2944	38.491		.0015	.01

Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
13.62	14.76	12.79	36.14	14.76	12.79

Downstream Bridge Cross Section Data

Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.5526	13.0992	10.164	13.1996	11.4306	13.284	12.6971	13.3051	13.5595	13.3508
14.2637	13.2767	14.5818	13.0575	14.728	12.8469	17.7796	10.72	19.6353	9.4267
30.0344	9.4257	31.9259	10.72	34.7103	12.6253	34.8931	12.9183	35.0537	13.0789
35.3962	13.2269	35.9373	13.3917	36.3875	13.477	37.0513	13.5065	40.4105	13.4501
40.8499	13.4653	41.4408	13.3441	41.956	13.132				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.5526	.03	14.728	.015	34.8931	.03

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	14.728	34.8931		.0015	.01

Upstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev
16.76	12.79	21.73	12.79

Downstream num= 2

Sta	Elev	Sta	Elev
-----	------	-----	------

13.62 12.79 18.59 12.79

Abutment Data

Upstream num= 2
Sta Elev Sta Elev
34.22 12.79 39.28 12.79
Downstream num= 2
Sta Elev Sta Elev
31.09 12.79 36.15 12.79

Number of Piers = 2

Pier Data

Pier Station Upstream= 25.25 Downstream= 22.11
Upstream num= 2
Width Elev Width Elev
.5 9.55 .5 12.79
Downstream num= 2
Width Elev Width Elev
.5 9.55 .5 12.79

Pier Data

Pier Station Upstream= 30.7 Downstream= 27.56
Upstream num= 2
Width Elev Width Elev
.5 9.53 .5 12.79
Downstream num= 2
Width Elev Width Elev
.5 9.53 .5 12.79

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.56	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.56	E.G. Elev (m)	11.56
11.56			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.55

11.55			
Q Bridge (m3/s)	9.71	Crit W.S. (m)	9.92
9.90			
Q Weir (m3/s)		Max Chl Dpth (m)	2.11
2.13			
Weir Sta Lft (m)		Vel Total (m/s)	0.37
0.38			
Weir Sta Rgt (m)		Flow Area (m2)	27.04
26.59			
Weir Submerg		Froude # Chl	0.09
0.09			
Weir Max Depth (m)		Specif Force (m3)	25.18
25.57			
Min El Weir Flow (m)	11.10	Hydr Depth (m)	1.05
1.25			
Min El Prs (m)	12.79	W.P. Total (m)	38.06
33.87			
Delta EG (m)	0.00	Conv. Total (m3/s)	1629.7
1646.6			
Delta WS (m)	0.00	Top Width (m)	25.73
21.32			
BR Open Area (m2)	37.74	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.41	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.26
0.28			
BR Sel Method	Energy only	Power Total (N/m s)	0.10
0.11			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.03	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.03	E.G. Elev (m)	12.03
12.03			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.03
12.03			
Q Bridge (m3/s)	8.91	Crit W.S. (m)	9.92
9.90			
Q Weir (m3/s)		Max Chl Dpth (m)	2.58
2.60			
Weir Sta Lft (m)		Vel Total (m/s)	0.25
0.27			
Weir Sta Rgt (m)		Flow Area (m2)	39.67
37.12			
Weir Submerg		Froude # Chl	0.06

0.06			
Weir Max Depth (m)		Specif Force (m3)	40.83
40.51			
Min El Weir Flow (m)	11.10	Hydr Depth (m)	1.44
1.60			
Min El Prs (m)	12.79	W.P. Total (m)	43.94
39.71			
Delta EG (m)	0.00	Conv. Total (m3/s)	2326.8
2282.4			
Delta WS (m)	0.00	Top Width (m)	27.60
23.14			
BR Open Area (m2)	37.74	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.31	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.16
0.18			
BR Sel Method	Energy only	Power Total (N/m s)	0.04
0.05			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.52	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.52	E.G. Elev (m)	12.52
12.52			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.52
12.52			
Q Bridge (m3/s)	8.13	Crit W.S. (m)	9.92
9.90			
Q Weir (m3/s)		Max Chl Dpth (m)	3.07
3.09			
Weir Sta Lft (m)		Vel Total (m/s)	0.19
0.20			
Weir Sta Rgt (m)		Flow Area (m2)	53.68
48.93			
Weir Submerg		Froude # Chl	0.04
0.05			
Weir Max Depth (m)		Specif Force (m3)	63.60
61.50			
Min El Weir Flow (m)	11.10	Hydr Depth (m)	1.82
1.95			
Min El Prs (m)	12.79	W.P. Total (m)	50.03
45.76			
Delta EG (m)	0.00	Conv. Total (m3/s)	3191.7
3043.5			
Delta WS (m)	0.00	Top Width (m)	29.53

25.03	BR Open Area (m2)	37.74	Frctn Loss (m)	0.00
0.00	BR Open Vel (m/s)	0.24	C & E Loss (m)	0.00
0.00	BR Sluice Coef		Shear Total (N/m2)	0.10
0.11	BR Sel Method	Energy only	Power Total (N/m s)	0.02
0.02				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.85	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.82	E.G. Elev (m)	11.84
11.84			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.79
11.79			
Q Bridge (m3/s)	25.13	Crit W.S. (m)	10.33
10.32			
Q Weir (m3/s)		Max Chl Dpth (m)	2.35
2.37			
Weir Sta Lft (m)		Vel Total (m/s)	0.81
0.85			
Weir Sta Rgt (m)		Flow Area (m2)	33.38
31.82			
Weir Submerg		Froude # Chl	0.20
0.20			
Weir Max Depth (m)		Specif Force (m3)	34.58
34.71			
Min El Weir Flow (m)	11.10	Hydr Depth (m)	1.25
1.43			
Min El Prs (m)	12.79	W.P. Total (m)	41.06
36.83			
Delta EG (m)	0.02	Conv. Total (m3/s)	1966.6
1955.1			
Delta WS (m)	0.02	Top Width (m)	26.69
22.24			
BR Open Area (m2)	37.74	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.96	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.50
1.62			
BR Sel Method	Energy only	Power Total (N/m s)	1.22
1.37			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.19	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.17	E.G. Elev (m)	12.18
12.18			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.16
12.15			
Q Bridge (m3/s)	23.47	Crit W.S. (m)	10.33
10.32			
Q Weir (m3/s)		Max Chl Dpth (m)	2.71
2.73			
Weir Sta Lft (m)		Vel Total (m/s)	0.62
0.67			
Weir Sta Rgt (m)		Flow Area (m2)	43.29
40.09			
Weir Submerg		Froude # Chl	0.15
0.16			
Weir Max Depth (m)		Specif Force (m3)	47.87
47.16			
Min El Weir Flow (m)	11.10	Hydr Depth (m)	1.54
1.70			
Min El Prs (m)	12.79	W.P. Total (m)	45.55
41.27			
Delta EG (m)	0.01	Conv. Total (m3/s)	2542.6
2470.1			
Delta WS (m)	0.01	Top Width (m)	28.11
23.63			
BR Open Area (m2)	37.74	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.77	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.05
1.14			
BR Sel Method	Energy only	Power Total (N/m s)	0.66
0.77			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.61	Element	Inside BR US
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Inside BR DS			
W.S. US. (m)	12.60	E.G. Elev (m)	12.61
12.61			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.59
12.59			
Q Bridge (m3/s)	21.66	Crit W.S. (m)	10.33
10.32			
Q Weir (m3/s)		Max Chl Dpth (m)	3.15
3.17			
Weir Sta Lft (m)		Vel Total (m/s)	0.48
0.53			
Weir Sta Rgt (m)		Flow Area (m2)	55.99
50.83			
Weir Submerg		Froude # Chl	0.11
0.12			
Weir Max Depth (m)		Specif Force (m3)	69.15
66.65			
Min El Weir Flow (m)	11.10	Hydr Depth (m)	1.88
2.01			
Min El Prs (m)	12.79	W.P. Total (m)	51.00
46.69			
Delta EG (m)	0.01	Conv. Total (m3/s)	3341.2
3169.0			
Delta WS (m)	0.01	Top Width (m)	29.84
25.32			
BR Open Area (m2)	37.74	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.61	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.70
0.77			
BR Sel Method	Energy only	Power Total (N/m s)	0.34
0.41			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 22

INPUT

Description:

Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.5526	13.0992	10.164	13.1996	11.4306	13.284	12.6971	13.3051	13.5595	13.3508
14.2637	13.2767	14.5818	13.0575	14.728	12.8469	17.7796	10.72	19.6353	9.4267
30.0344	9.4257	31.9259	10.72	34.7103	12.6253	34.8931	12.9183	35.0537	13.0789
35.3962	13.2269	35.9373	13.3917	36.3875	13.477	37.0513	13.5065	40.4105	13.4501

40.8499 13.4653 41.4408 13.3441 41.956 13.132

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
9.5526 .03 14.728 .015 34.8931 .03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
Expan. 14.728 34.8931 200 200 200 .0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	2.75	28.64
0.16				
E.G. Slope (m/m)	0.000014	Area (m2)	2.75	28.64
0.16				
Q Total (m3/s)	10.00	Flow (m3/s)	0.18	9.82
0.00				
Top Width (m)	26.38	Top Width (m)	6.60	16.55
3.22				
Vel Total (m/s)	0.32	Avg. Vel. (m/s)	0.07	0.34
0.02				
Max Chl Dpth (m)	2.13	Hydr. Depth (m)	0.42	1.73
0.05				
Conv. Total (m3/s)	2663.1	Conv. (m3/s)	47.9	2614.6
0.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.31	17.88
3.30				
Min Ch El (m)	9.43	Shear (N/m2)	0.05	0.22
0.01				
Alpha	1.15	Stream Power (N/m s)	0.00	0.08
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	28.05	126.31
19.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	30.39	68.33
21.26				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.03	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.03	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.10	36.81
1.90				
E.G. Slope (m/m)	0.000006	Area (m2)	6.10	36.81
1.90				
Q Total (m3/s)	10.00	Flow (m3/s)	0.40	9.51
0.09				
Top Width (m)	29.57	Top Width (m)	7.50	17.93
4.14				
Vel Total (m/s)	0.22	Avg. Vel. (m/s)	0.07	0.26
0.05				
Max Chl Dpth (m)	2.60	Hydr. Depth (m)	0.81	2.05
0.46				
Conv. Total (m3/s)	3935.7	Conv. (m3/s)	158.9	3742.6
34.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.81	19.55
4.81				
Min Ch El (m)	9.43	Shear (N/m2)	0.04	0.12
0.03				
Alpha	1.28	Stream Power (N/m s)	0.00	0.03
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	44.21	161.06
30.22				
C & E Loss (m)	0.00	Cum SA (1000 m2)	36.71	73.54
25.67				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.00	45.95
4.16				
E.G. Slope (m/m)	0.000003	Area (m2)	10.00	45.95
4.16				
Q Total (m3/s)	10.00	Flow (m3/s)	0.59	9.22
0.19				
Top Width (m)	32.88	Top Width (m)	8.44	19.35
5.09				
Vel Total (m/s)	0.17	Avg. Vel. (m/s)	0.06	0.20

0.05				
Max Chl Dpth (m)	3.09	Hydr. Depth (m)	1.19	2.38
0.82				
Conv. Total (m3/s)	5548.9	Conv. (m3/s)	325.8	5118.5
104.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.35	21.27
6.37				
Min Ch El (m)	9.43	Shear (N/m2)	0.03	0.07
0.02				
Alpha	1.35	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	63.05	199.13
43.30				
C & E Loss (m)	0.00	Cum SA (1000 m2)	41.08	76.90
29.38				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.82	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.79	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	4.40	32.72
0.99				
E.G. Slope (m/m)	0.000068	Area (m2)	4.40	32.72
0.99				
Q Total (m3/s)	27.00	Flow (m3/s)	0.81	26.09
0.11				
Top Width (m)	28.00	Top Width (m)	7.06	17.25
3.69				
Vel Total (m/s)	0.71	Avg. Vel. (m/s)	0.18	0.80
0.11				
Max Chl Dpth (m)	2.37	Hydr. Depth (m)	0.62	1.90
0.27				
Conv. Total (m3/s)	3275.4	Conv. (m3/s)	97.9	3164.6
12.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.07	18.73
4.07				
Min Ch El (m)	9.43	Shear (N/m2)	0.36	1.16
0.16				
Alpha	1.23	Stream Power (N/m s)	0.07	0.93
0.02				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	32.95	136.25
22.59				
C & E Loss (m)	0.00	Cum SA (1000 m2)	31.65	69.85

22.37

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.17	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.15	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	7.08	39.14
2.45				
E.G. Slope (m/m)	0.000039	Area (m2)	7.08	39.14
2.45				
Q Total (m3/s)	27.00	Flow (m3/s)	1.23	25.46
0.31				
Top Width (m)	30.44	Top Width (m)	7.75	18.30
4.39				
Vel Total (m/s)	0.55	Avg. Vel. (m/s)	0.17	0.65
0.13				
Max Chl Dpth (m)	2.73	Hydr. Depth (m)	0.91	2.14
0.56				
Conv. Total (m3/s)	4329.9	Conv. (m3/s)	197.8	4082.7
49.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.21	20.00
5.22				
Min Ch El (m)	9.43	Shear (N/m2)	0.29	0.75
0.18				
Alpha	1.30	Stream Power (N/m s)	0.05	0.49
0.02				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	47.00	166.49
32.25				
C & E Loss (m)	0.00	Cum SA (1000 m2)	37.31	73.60
26.21				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015

0.030				
W.S. Elev (m)	12.59	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.66	47.44
4.56				
E.G. Slope (m/m)	0.000021	Area (m2)	10.66	47.44
4.56				
Q Total (m3/s)	27.00	Flow (m3/s)	1.65	24.80
0.55				
Top Width (m)	33.39	Top Width (m)	8.59	19.57
5.24				
Vel Total (m/s)	0.43	Avg. Vel. (m/s)	0.15	0.52
0.12				
Max Chl Dpth (m)	3.17	Hydr. Depth (m)	1.24	2.42
0.87				
Conv. Total (m3/s)	5828.7	Conv. (m3/s)	356.5	5353.5
118.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.60	21.54
6.61				
Min Ch El (m)	9.43	Shear (N/m2)	0.21	0.46
0.15				
Alpha	1.36	Stream Power (N/m s)	0.03	0.24
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	64.93	202.59
44.69				
C & E Loss (m)	0.00	Cum SA (1000 m2)	41.44	76.11
29.74				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 21

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.8047	13.1806	10.3863	13.2696	13.0655	13.2456	13.4596	13.1979	13.6758	13.1244
17.2019	10.71	19.1035	9.4079	29.1088	9.407	31.0268	10.71	34.1183	12.8102
34.5605	13.2073	34.9277	13.4021	35.4374	13.522	37.509	13.5224	39.1205	13.4325
39.7474	13.3884								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.8047	.03	13.6758	.015	34.5605	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.

Expan.	13.6758	34.5605	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	2.05	28.15
4.38				
E.G. Slope (m/m)	0.000014	Area (m2)	2.05	28.15
4.38				
Q Total (m3/s)	10.00	Flow (m3/s)	0.12	9.52
0.36				
Top Width (m)	28.89	Top Width (m)	5.59	16.29
7.01				
Vel Total (m/s)	0.29	Avg. Vel. (m/s)	0.06	0.34
0.08				
Max Chl Dpth (m)	2.14	Hydr. Depth (m)	0.37	1.73
0.63				
Conv. Total (m3/s)	2695.3	Conv. (m3/s)	31.4	2566.2
97.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.58	17.61
8.01				
Min Ch El (m)	9.41	Shear (N/m2)	0.04	0.22
0.07				
Alpha	1.31	Stream Power (N/m s)	0.00	0.07
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	27.57	120.63
18.65				
C & E Loss (m)	0.00	Cum SA (1000 m2)	29.17	65.04
20.24				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.02	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	4.93	36.22
7.90				

E.G. Slope (m/m)	0.000006	Area (m2)	4.93	36.22
7.90				
Q Total (m3/s)	10.00	Flow (m3/s)	0.29	9.13
0.58				
Top Width (m)	32.02	Top Width (m)	6.53	17.68
7.81				
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.06	0.25
0.07				
Max Chl Dpth (m)	2.62	Hydr. Depth (m)	0.75	2.05
1.01				
Conv. Total (m3/s)	4027.3	Conv. (m3/s)	118.0	3675.0
234.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.10	19.29
9.42				
Min Ch El (m)	9.41	Shear (N/m2)	0.04	0.11
0.05				
Alpha	1.40	Stream Power (N/m s)	0.00	0.03
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	43.11	153.75
29.24				
C & E Loss (m)	0.00	Cum SA (1000 m2)	35.30	69.98
24.47				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.37	45.25
11.94				
E.G. Slope (m/m)	0.000003	Area (m2)	8.37	45.25
11.94				
Q Total (m3/s)	10.00	Flow (m3/s)	0.44	8.81
0.74				
Top Width (m)	35.25	Top Width (m)	7.50	19.12
8.64				
Vel Total (m/s)	0.15	Avg. Vel. (m/s)	0.05	0.19
0.06				
Max Chl Dpth (m)	3.11	Hydr. Depth (m)	1.12	2.37
1.38				
Conv. Total (m3/s)	5704.1	Conv. (m3/s)	253.4	5027.2
423.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.67	21.04
10.87				

Min Ch El (m)	9.41	Shear (N/m2)	0.03	0.06
0.03				
Alpha	1.45	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	61.21	190.01
41.69				
C & E Loss (m)	0.00	Cum SA (1000 m2)	39.48	73.06
28.01				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.81	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.78	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	3.40	32.01
6.05				
E.G. Slope (m/m)	0.000067	Area (m2)	3.40	32.01
6.05				
Q Total (m3/s)	27.00	Flow (m3/s)	0.55	25.15
1.29				
Top Width (m)	30.41	Top Width (m)	6.05	16.97
7.40				
Vel Total (m/s)	0.65	Avg. Vel. (m/s)	0.16	0.79
0.21				
Max Chl Dpth (m)	2.37	Hydr. Depth (m)	0.56	1.89
0.82				
Conv. Total (m3/s)	3309.9	Conv. (m3/s)	68.0	3083.4
158.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.32	18.43
8.70				
Min Ch El (m)	9.41	Shear (N/m2)	0.30	1.13
0.45				
Alpha	1.36	Stream Power (N/m s)	0.05	0.89
0.10				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	32.17	129.78
21.89				
C & E Loss (m)	0.00	Cum SA (1000 m2)	30.34	66.43
21.26				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.17	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.15	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.75	38.43
8.88				
E.G. Slope (m/m)	0.000037	Area (m2)	5.75	38.43
8.88				
Q Total (m3/s)	27.00	Flow (m3/s)	0.90	24.40
1.69				
Top Width (m)	32.83	Top Width (m)	6.77	18.04
8.02				
Vel Total (m/s)	0.51	Avg. Vel. (m/s)	0.16	0.63
0.19				
Max Chl Dpth (m)	2.74	Hydr. Depth (m)	0.85	2.13
1.11				
Conv. Total (m3/s)	4420.9	Conv. (m3/s)	147.8	3995.5
277.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.50	19.73
9.79				
Min Ch El (m)	9.41	Shear (N/m2)	0.25	0.71
0.33				
Alpha	1.42	Stream Power (N/m s)	0.04	0.45
0.06				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	45.72	158.73
31.11				
C & E Loss (m)	0.00	Cum SA (1000 m2)	35.86	69.96
24.97				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.59	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.93	46.68
12.58				
E.G. Slope (m/m)	0.000020	Area (m2)	8.93	46.68
12.58				

Q Total (m3/s)	27.00	Flow (m3/s)	1.25	23.69
2.06				
Top Width (m)	35.74	Top Width (m)	7.64	19.34
8.76				
Vel Total (m/s)	0.40	Avg. Vel. (m/s)	0.14	0.51
0.16				
Max Chl Dpth (m)	3.18	Hydr. Depth (m)	1.17	2.41
1.44				
Conv. Total (m3/s)	5984.5	Conv. (m3/s)	277.8	5250.4
456.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.91	21.30
11.09				
Min Ch El (m)	9.41	Shear (N/m2)	0.18	0.44
0.23				
Alpha	1.46	Stream Power (N/m s)	0.03	0.22
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	62.97	193.18
42.98				
C & E Loss (m)	0.00	Cum SA (1000 m2)	39.82	72.22
28.34				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 20

INPUT

Description:

Station Elevation Data		num=	16						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.0188	13.152	13.3653	13.2126	16.3339	13.2397	17.0789	12.931	17.0857	12.817
20.1062	10.71	21.9997	9.3892	32.6236	9.3882	34.4874	10.71	37.417	12.7877
37.6952	13.06	37.8807	13.1469	38.2648	13.2168	38.9777	13.2863	41.0556	13.2806
42.7944	13.1821								

Manning's n Values		num=	3		
Sta	n Val	Sta	n Val	Sta	n Val
12.0188	.03	17.0857	.015	37.417	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	17.0857	37.417		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.55	Element	Left OB	Channel
---------------	-------	---------	---------	---------

Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.15	29.56
2.44				
E.G. Slope (m/m)	0.000012	Area (m2)	6.15	29.56
2.44				
Q Total (m3/s)	10.00	Flow (m3/s)	0.52	9.34
0.14				
Top Width (m)	31.64	Top Width (m)	8.81	16.76
6.06				
Vel Total (m/s)	0.26	Avg. Vel. (m/s)	0.08	0.32
0.06				
Max Chl Dpth (m)	2.16	Hydr. Depth (m)	0.70	1.76
0.40				
Conv. Total (m3/s)	2924.4	Conv. (m3/s)	152.1	2730.1
42.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.62	18.13
6.52				
Min Ch El (m)	9.39	Shear (N/m2)	0.07	0.19
0.04				
Alpha	1.36	Stream Power (N/m s)	0.01	0.06
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	26.75	114.86
17.97				
C & E Loss (m)	0.00	Cum SA (1000 m2)	27.73	61.74
18.93				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.02	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.57	37.87
5.56				
E.G. Slope (m/m)	0.000005	Area (m2)	10.57	37.87
5.56				
Q Total (m3/s)	10.00	Flow (m3/s)	0.78	8.89
0.33				
Top Width (m)	34.91	Top Width (m)	9.77	18.12
7.03				
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.07	0.23

0.06				
Max Chl Dpth (m)	2.64	Hydr. Depth (m)	1.08	2.09
0.79				
Conv. Total (m3/s)	4375.8	Conv. (m3/s)	340.0	3891.5
144.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.16	19.78
8.08				
Min Ch El (m)	9.39	Shear (N/m2)	0.05	0.10
0.04				
Alpha	1.45	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	41.56	146.35
27.89				
C & E Loss (m)	0.00	Cum SA (1000 m2)	33.67	66.40
22.99				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	15.61	47.11
9.26				
E.G. Slope (m/m)	0.000003	Area (m2)	15.61	47.11
9.26				
Q Total (m3/s)	10.00	Flow (m3/s)	0.96	8.56
0.48				
Top Width (m)	38.29	Top Width (m)	10.75	19.51
8.03				
Vel Total (m/s)	0.14	Avg. Vel. (m/s)	0.06	0.18
0.05				
Max Chl Dpth (m)	3.13	Hydr. Depth (m)	1.45	2.41
1.15				
Conv. Total (m3/s)	6194.0	Conv. (m3/s)	595.6	5299.1
299.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.75	21.49
9.69				
Min Ch El (m)	9.39	Shear (N/m2)	0.03	0.06
0.02				
Alpha	1.49	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	58.81	180.78
39.57				
C & E Loss (m)	0.00	Cum SA (1000 m2)	37.66	69.19

26.34

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.80	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.77	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.19	33.41
3.86				
E.G. Slope (m/m)	0.000057	Area (m2)	8.19	33.41
3.86				
Q Total (m3/s)	27.00	Flow (m3/s)	1.76	24.60
0.64				
Top Width (m)	33.19	Top Width (m)	9.27	17.40
6.52				
Vel Total (m/s)	0.59	Avg. Vel. (m/s)	0.22	0.74
0.17				
Max Chl Dpth (m)	2.38	Hydr. Depth (m)	0.88	1.92
0.59				
Conv. Total (m3/s)	3573.4	Conv. (m3/s)	233.5	3255.5
84.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.35	18.91
7.26				
Min Ch El (m)	9.39	Shear (N/m2)	0.44	0.99
0.30				
Alpha	1.41	Stream Power (N/m s)	0.10	0.73
0.05				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	31.01	123.23
20.89				
C & E Loss (m)	0.00	Cum SA (1000 m2)	28.81	62.99
19.87				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.16	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015

0.030				
W.S. Elev (m)	12.14	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	11.76	40.06
6.42				
E.G. Slope (m/m)	0.000032	Area (m2)	11.76	40.06
6.42				
Q Total (m3/s)	27.00	Flow (m3/s)	2.24	23.76
1.00				
Top Width (m)	35.74	Top Width (m)	10.01	18.46
7.28				
Vel Total (m/s)	0.46	Avg. Vel. (m/s)	0.19	0.59
0.16				
Max Chl Dpth (m)	2.76	Hydr. Depth (m)	1.18	2.17
0.88				
Conv. Total (m3/s)	4790.6	Conv. (m3/s)	396.8	4216.0
177.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.55	20.20
8.48				
Min Ch El (m)	9.39	Shear (N/m2)	0.32	0.62
0.24				
Alpha	1.46	Stream Power (N/m s)	0.06	0.37
0.04				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	43.97	150.88
29.58				
C & E Loss (m)	0.00	Cum SA (1000 m2)	34.18	66.31
23.44				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.59	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.40	48.53
9.85				
E.G. Slope (m/m)	0.000017	Area (m2)	16.40	48.53
9.85				
Q Total (m3/s)	27.00	Flow (m3/s)	2.66	22.99
1.36				
Top Width (m)	38.79	Top Width (m)	10.89	19.72
8.18				
Vel Total (m/s)	0.36	Avg. Vel. (m/s)	0.16	0.47
0.14				
Max Chl Dpth (m)	3.20	Hydr. Depth (m)	1.51	2.46

1.20				
Conv. Total (m3/s)	6490.2	Conv. (m3/s)	638.5	5525.4
326.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.99	21.74
9.93				
Min Ch El (m)	9.39	Shear (N/m2)	0.21	0.38
0.17				
Alpha	1.49	Stream Power (N/m s)	0.03	0.18
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	60.44	183.65
40.74				
C & E Loss (m)	0.00	Cum SA (1000 m2)	37.97	68.32
26.64				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 19

INPUT										
Description: Opera 14										
Station Elevation Data				num=	17					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
9.8283	13.3719	10.5685	13.3517	11.3253	13.2982	11.9598	13.3135	13.7869	13.3288	
14.2456	13.2447	14.5514	13.1071	14.6431	12.9696	17.8132	10.76	19.8067	9.3705	
30.3945	9.3695	32.3115	10.76	35.2127	12.8643	35.4984	13.1212	36.0721	13.3527	
36.9246	13.4737	40.8149	13.5846							

Manning's n Values				num=	3					
Sta	n Val	Sta	n Val	Sta	n Val					
9.8283	.03	14.6431	.015	36.0721	.03					

Bank Sta:	Left	Right	Lengths:		Left Channel	Right	Coeff Contr.			
Expan.										
	14.6431	36.0721			200	200	200	.0015	.01	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.54	Reach Len. (m)	25.00	25.00
25.00				
Crit W.S. (m)	9.81	Flow Area (m2)	4.77	29.68
2.83				

E.G. Slope (m/m)	0.000012	Area (m2)	4.77	29.68
2.83				
Q Total (m3/s)	10.00	Flow (m3/s)	0.41	9.40
0.18				
Top Width (m)	28.76	Top Width (m)	6.00	16.71
6.05				
Vel Total (m/s)	0.27	Avg. Vel. (m/s)	0.09	0.32
0.06				
Max Chl Dpth (m)	2.18	Hydr. Depth (m)	0.80	1.78
0.47				
Conv. Total (m3/s)	2926.4	Conv. (m3/s)	121.2	2752.2
53.0				
Length Wtd. (m)	25.00	Wetted Per. (m)	7.17	18.10
6.69				
Min Ch El (m)	9.37	Shear (N/m2)	0.08	0.19
0.05				
Alpha	1.32	Stream Power (N/m s)	0.01	0.06
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	25.65	108.94
17.44				
C & E Loss (m)	0.00	Cum SA (1000 m2)	26.25	58.39
17.72				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.02	Reach Len. (m)	25.00	25.00
25.00				
Crit W.S. (m)	9.81	Flow Area (m2)	7.87	37.98
5.95				
E.G. Slope (m/m)	0.000005	Area (m2)	7.87	37.98
5.95				
Q Total (m3/s)	10.00	Flow (m3/s)	0.57	9.07
0.37				
Top Width (m)	32.10	Top Width (m)	7.00	18.05
7.05				
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.07	0.24
0.06				
Max Chl Dpth (m)	2.65	Hydr. Depth (m)	1.13	2.10
0.84				
Conv. Total (m3/s)	4320.2	Conv. (m3/s)	244.6	3916.3

159.3				
Length Wtd. (m)	25.00	Wetted Per. (m)	8.76	19.74
8.28				
Min Ch El (m)	9.37	Shear (N/m2)	0.05	0.10
0.04				
Alpha	1.40	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	39.72	138.76
26.74				
C & E Loss (m)	0.00	Cum SA (1000 m2)	32.00	62.78
21.58				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	25.00	25.00
25.00				
Crit W.S. (m)	9.81	Flow Area (m2)	11.57	47.19
9.67				
E.G. Slope (m/m)	0.000003	Area (m2)	11.57	47.19
9.67				
Q Total (m3/s)	10.00	Flow (m3/s)	0.68	8.79
0.52				
Top Width (m)	35.54	Top Width (m)	8.03	19.43
8.07				
Vel Total (m/s)	0.15	Avg. Vel. (m/s)	0.06	0.19
0.05				
Max Chl Dpth (m)	3.14	Hydr. Depth (m)	1.44	2.43
1.20				
Conv. Total (m3/s)	6055.6	Conv. (m3/s)	414.3	5324.0
317.2				
Length Wtd. (m)	25.00	Wetted Per. (m)	10.39	21.44
9.90				
Min Ch El (m)	9.37	Shear (N/m2)	0.03	0.06
0.03				
Alpha	1.45	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	56.09	171.35
37.68				
C & E Loss (m)	0.00	Cum SA (1000 m2)	35.78	65.30
24.73				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.79	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.76	Reach Len. (m)	25.00	25.00
25.00				
Crit W.S. (m)	10.21	Flow Area (m2)	6.11	33.34
4.18				
E.G. Slope (m/m)	0.000059	Area (m2)	6.11	33.34
4.18				
Q Total (m3/s)	27.00	Flow (m3/s)	1.32	24.95
0.73				
Top Width (m)	30.26	Top Width (m)	6.45	17.31
6.50				
Vel Total (m/s)	0.62	Avg. Vel. (m/s)	0.22	0.75
0.17				
Max Chl Dpth (m)	2.39	Hydr. Depth (m)	0.95	1.93
0.64				
Conv. Total (m3/s)	3519.2	Conv. (m3/s)	171.9	3252.3
95.0				
Length Wtd. (m)	25.00	Wetted Per. (m)	7.88	18.84
7.41				
Min Ch El (m)	9.37	Shear (N/m2)	0.45	1.02
0.33				
Alpha	1.36	Stream Power (N/m s)	0.10	0.76
0.06				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	29.58	116.56
20.09				
C & E Loss (m)	0.00	Cum SA (1000 m2)	27.24	59.52
18.57				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.15	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.14	Reach Len. (m)	25.00	25.00
25.00				
Crit W.S. (m)	10.21	Flow Area (m2)	8.68	40.05
6.77				
E.G. Slope (m/m)	0.000033	Area (m2)	8.68	40.05
6.77				
Q Total (m3/s)	27.00	Flow (m3/s)	1.61	24.29
1.10				
Top Width (m)	32.89	Top Width (m)	7.24	18.37
7.29				
Vel Total (m/s)	0.49	Avg. Vel. (m/s)	0.19	0.61
0.16				
Max Chl Dpth (m)	2.77	Hydr. Depth (m)	1.20	2.18
0.93				
Conv. Total (m3/s)	4694.7	Conv. (m3/s)	279.9	4223.2
191.6				
Length Wtd. (m)	25.00	Wetted Per. (m)	9.13	20.14
8.65				
Min Ch El (m)	9.37	Shear (N/m2)	0.31	0.65
0.25				
Alpha	1.41	Stream Power (N/m s)	0.06	0.39
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	41.93	142.87
28.26				
C & E Loss (m)	0.00	Cum SA (1000 m2)	32.46	62.63
21.99				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.58	Reach Len. (m)	25.00	25.00
25.00				
Crit W.S. (m)	10.21	Flow Area (m2)	12.13	48.54
10.23				
E.G. Slope (m/m)	0.000018	Area (m2)	12.13	48.54

10.23				
Q Total (m3/s)	27.00	Flow (m3/s)	1.89	23.65
1.47				
Top Width (m)	36.02	Top Width (m)	8.17	19.63
8.22				
Vel Total (m/s)	0.38	Avg. Vel. (m/s)	0.16	0.49
0.14				
Max Chl Dpth (m)	3.21	Hydr. Depth (m)	1.48	2.47
1.25				
Conv. Total (m3/s)	6323.0	Conv. (m3/s)	441.7	5538.1
343.2				
Length Wtd. (m)	25.00	Wetted Per. (m)	10.62	21.68
10.13				
Min Ch El (m)	9.37	Shear (N/m2)	0.20	0.40
0.18				
Alpha	1.45	Stream Power (N/m s)	0.03	0.20
0.03				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	57.58	173.95
38.73				
C & E Loss (m)	0.00	Cum SA (1000 m2)	36.06	64.38
25.00				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 18.5

INPUT
Description: \
Distance from Upstream XS = 25
Deck/Roadway Width = 5
Weir Coefficient = 1.4
Upstream Deck/Roadway Coordinates
num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
14.13 14.46 12.56 36.05 14.46 12.56

Upstream Bridge Cross Section Data
Station Elevation Data num= 17
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
9.8283 13.3719 10.5685 13.3517 11.3253 13.2982 11.9598 13.3135 13.7869 13.3288
14.2456 13.2447 14.5514 13.1071 14.6431 12.9696 17.8132 10.76 19.8067 9.3705
30.3945 9.3695 32.3115 10.76 35.2127 12.8643 35.4984 13.1212 36.0721 13.3527
36.9246 13.4737 40.8149 13.5846

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 9.8283 .03 14.6431 .015 36.0721 .03

Bank Sta: Left Right Coeff Contr. Expan.
 14.6431 36.0721 .0015 .01

Downstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 17.43 14.46 12.56 39.39 14.46 12.56

Downstream Bridge Cross Section Data
 Station Elevation Data num= 16
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 13.0717 13.1055 14.7704 13.295 15.4462 13.3401 17.2484 13.2418 17.7419 13.1434
 17.9877 13.0083 18.1515 12.8404 21.1358 10.72 23.062 9.3514 33.6036 9.3504
 35.5848 10.72 38.8908 13.0054 40.5159 13.0433 41.716 12.9756 42.2573 12.908
 43.3658 12.8491

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 13.0717 .03 17.7419 .015 38.8908 .03

Bank Sta: Left Right Coeff Contr. Expan.
 17.7419 38.8908 .0015 .01

Upstream Embankment side slope = 1.8 horiz. to 1.0 vertical
 Downstream Embankment side slope = 1.8 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins =
 Energy head used in spillway design =
 Spillway height used in design =
 Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data
 Upstream num= 2
 Sta Elev Sta Elev
 14.13 12.56 18.45 12.56
 Downstream num= 2
 Sta Elev Sta Elev
 17.43 12.56 21.75 12.56

Abutment Data
 Upstream num= 2
 Sta Elev Sta Elev
 31.45 12.56 36.02 12.56
 Downstream num= 2
 Sta Elev Sta Elev
 34.75 12.56 39.35 12.56

Number of Piers = 2

Pier Data

Pier Station	Upstream=	22.35	Downstream=	25.65
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.37	.4	12.56	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.37	.4	12.56	

Pier Data

Pier Station	Upstream=	27.65	Downstream=	30.95
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.37	.4	12.56	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.37	.4	12.56	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.55	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.54	E.G. Elev (m)	11.55
11.55			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.54
11.54			
Q Bridge (m3/s)	9.10	Crit W.S. (m)	9.83
9.82			
Q Weir (m3/s)		Max Chl Dpth (m)	2.17
2.19			
Weir Sta Lft (m)		Vel Total (m/s)	0.30
0.29			
Weir Sta Rgt (m)		Flow Area (m2)	33.05
34.87			
Weir Submerg		Froude # Chl	0.08

0.08			
Weir Max Depth (m)		Specif Force (m3)	30.06
31.59			
Min El Weir Flow (m)	10.59	Hydr Depth (m)	1.36
1.40			
Min El Prs (m)	12.56	W.P. Total (m)	37.93
39.12			
Delta EG (m)	0.00	Conv. Total (m3/s)	1936.6
2010.3			
Delta WS (m)	0.00	Top Width (m)	24.24
24.83			
BR Open Area (m2)	37.87	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.36	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.23
0.22			
BR Sel Method	Energy only	Power Total (N/m s)	0.07
0.06			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.03	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.02	E.G. Elev (m)	12.02
12.02			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.02
12.02			
Q Bridge (m3/s)	8.51	Crit W.S. (m)	9.83
9.82			
Q Weir (m3/s)		Max Chl Dpth (m)	2.65
2.67			
Weir Sta Lft (m)		Vel Total (m/s)	0.22
0.21			
Weir Sta Rgt (m)		Flow Area (m2)	45.12
47.22			
Weir Submerg		Froude # Chl	0.05
0.05			
Weir Max Depth (m)		Specif Force (m3)	48.63
51.08			
Min El Weir Flow (m)	10.59	Hydr Depth (m)	1.72
1.76			
Min El Prs (m)	12.56	W.P. Total (m)	43.97
45.17			
Delta EG (m)	0.00	Conv. Total (m3/s)	2709.8
2819.6			
Delta WS (m)	0.00	Top Width (m)	26.24

26.83			
BR Open Area (m2)	37.87	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.27	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.14
0.13			
BR Sel Method	Energy only	Power Total (N/m s)	0.03
0.03			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.52	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.51	E.G. Elev (m)	12.52
12.52			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.51
12.51			
Q Bridge (m3/s)	7.98	Crit W.S. (m)	9.83
9.82			
Q Weir (m3/s)		Max Chl Dpth (m)	3.14
3.16			
Weir Sta Lft (m)		Vel Total (m/s)	0.17
0.16			
Weir Sta Rgt (m)		Flow Area (m2)	58.54
60.92			
Weir Submerg		Froude # Chl	0.04
0.04			
Weir Max Depth (m)		Specif Force (m3)	74.03
77.59			
Min El Weir Flow (m)	10.59	Hydr Depth (m)	2.07
2.11			
Min El Prs (m)	12.56	W.P. Total (m)	50.19
51.39			
Delta EG (m)	0.00	Conv. Total (m3/s)	3614.1
3763.7			
Delta WS (m)	0.00	Top Width (m)	28.30
28.89			
BR Open Area (m2)	37.87	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.21	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.09
0.08			
BR Sel Method	Energy only	Power Total (N/m s)	0.01
0.01			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.79	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.76	E.G. Elev (m)	11.78
11.78			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.75
11.75			
Q Bridge (m3/s)	23.86	Crit W.S. (m)	10.25
10.23			
Q Weir (m3/s)		Max Chl Dpth (m)	2.38
2.40			
Weir Sta Lft (m)		Vel Total (m/s)	0.71
0.67			
Weir Sta Rgt (m)		Flow Area (m2)	38.18
40.17			
Weir Submerg		Froude # Chl	0.18
0.17			
Weir Max Depth (m)		Specif Force (m3)	39.29
41.20			
Min El Weir Flow (m)	10.59	Hydr Depth (m)	1.52
1.56			
Min El Prs (m)	12.56	W.P. Total (m)	40.55
41.78			
Delta EG (m)	0.02	Conv. Total (m3/s)	2259.4
2351.9			
Delta WS (m)	0.02	Top Width (m)	25.11
25.71			
BR Open Area (m2)	37.87	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.85	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.32
1.24			
BR Sel Method	Energy only	Power Total (N/m s)	0.93
0.84			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.15	Element	Inside BR US
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Inside BR DS			
W.S. US. (m)	12.14	E.G. Elev (m)	12.15
12.15			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.13
12.13			
Q Bridge (m3/s)	22.64	Crit W.S. (m)	10.25
10.23			
Q Weir (m3/s)		Max Chl Dpth (m)	2.76
2.78			
Weir Sta Lft (m)		Vel Total (m/s)	0.56
0.54			
Weir Sta Rgt (m)		Flow Area (m2)	48.01
50.21			
Weir Submerg		Froude # Chl	0.14
0.13			
Weir Max Depth (m)		Specif Force (m3)	55.19
57.87			
Min El Weir Flow (m)	10.59	Hydr Depth (m)	1.80
1.84			
Min El Prs (m)	12.56	W.P. Total (m)	45.35
46.56			
Delta EG (m)	0.01	Conv. Total (m3/s)	2901.2
3021.9			
Delta WS (m)	0.01	Top Width (m)	26.70
27.29			
BR Open Area (m2)	37.87	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.69	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.90
0.84			
BR Sel Method	Energy only	Power Total (N/m s)	0.51
0.45			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.59	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.58	E.G. Elev (m)	12.59
12.59			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.58
12.58			
Q Bridge (m3/s)	20.23	Crit W.S. (m)	10.25
10.23			
Q Weir (m3/s)		Max Chl Dpth (m)	3.21
3.23			
Weir Sta Lft (m)		Vel Total (m/s)	0.45

0.43			
Weir Sta Rgt (m)		Flow Area (m2)	60.19
62.62			
Weir Submerg		Froude # Ch1	0.09
0.08			
Weir Max Depth (m)		Specif Force (m3)	79.14
82.84			
Min El Weir Flow (m)	10.59	Hydr Depth (m)	3.67
3.69			
Min El Prs (m)	12.56	W.P. Total (m)	63.11
64.31			
Delta EG (m)	0.01	Conv. Total (m3/s)	3125.8
3278.6			
Delta WS (m)	0.01	Top Width (m)	16.38
16.97			
BR Open Area (m2)	37.87	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.53	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.70
0.65			
BR Sel Method	Energy only	Power Total (N/m s)	0.31
0.28			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 18

INPUT

Description:

Station Elevation Data	num=	16
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
13.0717 13.1055 14.7704 13.295 15.4462 13.3401 17.2484 13.2418 17.7419 13.1434		
17.9877 13.0083 18.1515 12.8404 21.1358 10.72 23.062 9.3514 33.6036 9.3504		
35.5848 10.72 38.8908 13.0054 40.5159 13.0433 41.716 12.9756 42.2573 12.908		
43.3658 12.8491		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
13.0717 .03 17.7419 .015 38.8908 .03		

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr.
Expan.		
17.7419 38.8908	200 200 200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	7.47	29.95
1.69				
E.G. Slope (m/m)	0.000011	Area (m2)	7.47	29.95
1.69				
Q Total (m3/s)	10.00	Flow (m3/s)	0.65	9.25
0.10				
Top Width (m)	29.42	Top Width (m)	9.91	16.79
2.71				
Vel Total (m/s)	0.26	Avg. Vel. (m/s)	0.09	0.31
0.06				
Max Chl Dpth (m)	2.19	Hydr. Depth (m)	0.75	1.78
0.62				
Conv. Total (m3/s)	3011.6	Conv. (m3/s)	195.8	2785.2
30.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.70	18.18
4.23				
Min Ch El (m)	9.35	Shear (N/m2)	0.08	0.18
0.04				
Alpha	1.36	Stream Power (N/m s)	0.01	0.06
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	24.23	103.39
17.07				
C & E Loss (m)	0.00	Cum SA (1000 m2)	24.37	55.51
17.09				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.02	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	12.45	38.32
3.24				
E.G. Slope (m/m)	0.000005	Area (m2)	12.45	38.32
3.24				
Q Total (m3/s)	10.00	Flow (m3/s)	0.94	8.90
0.16				

Top Width (m)	32.79	Top Width (m)	10.88	18.16
3.75				
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.08	0.23
0.05				
Max Chl Dpth (m)	2.67	Hydr. Depth (m)	1.14	2.11
0.86				
Conv. Total (m3/s)	4453.4	Conv. (m3/s)	419.1	3961.6
72.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.26	19.85
5.85				
Min Ch El (m)	9.35	Shear (N/m2)	0.05	0.10
0.03				
Alpha	1.41	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	37.35	131.80
26.02				
C & E Loss (m)	0.00	Cum SA (1000 m2)	29.93	59.76
20.74				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	18.05	47.61
5.34				
E.G. Slope (m/m)	0.000003	Area (m2)	18.05	47.61
5.34				
Q Total (m3/s)	10.00	Flow (m3/s)	1.15	8.62
0.23				
Top Width (m)	36.25	Top Width (m)	11.88	19.57
4.81				
Vel Total (m/s)	0.14	Avg. Vel. (m/s)	0.06	0.18
0.04				
Max Chl Dpth (m)	3.16	Hydr. Depth (m)	1.52	2.43
1.11				
Conv. Total (m3/s)	6241.2	Conv. (m3/s)	717.4	5382.0
141.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.86	21.56
7.52				
Min Ch El (m)	9.35	Shear (N/m2)	0.03	0.06
0.02				
Alpha	1.45	Stream Power (N/m s)	0.00	0.01
0.00				

Frctn Loss (m)	0.00	Cum Volume (1000 m3)	52.66	162.87
36.49				
C & E Loss (m)	0.00	Cum SA (1000 m2)	33.51	62.14
23.68				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.77	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.74	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	9.52	33.41
2.28				
E.G. Slope (m/m)	0.000057	Area (m2)	9.52	33.41
2.28				
Q Total (m3/s)	27.00	Flow (m3/s)	2.12	24.53
0.34				
Top Width (m)	30.84	Top Width (m)	10.32	17.37
3.15				
Vel Total (m/s)	0.60	Avg. Vel. (m/s)	0.22	0.73
0.15				
Max Chl Dpth (m)	2.39	Hydr. Depth (m)	0.92	1.92
0.73				
Conv. Total (m3/s)	3585.5	Conv. (m3/s)	281.8	3258.0
45.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.36	18.88
4.92				
Min Ch El (m)	9.35	Shear (N/m2)	0.47	0.98
0.26				
Alpha	1.39	Stream Power (N/m s)	0.10	0.72
0.04				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	27.76	110.41
19.58				
C & E Loss (m)	0.00	Cum SA (1000 m2)	25.28	56.57
17.84				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.14	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.13	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	13.62	40.27
3.65				
E.G. Slope (m/m)	0.000031	Area (m2)	13.62	40.27
3.65				
Q Total (m3/s)	27.00	Flow (m3/s)	2.68	23.84
0.48				
Top Width (m)	33.54	Top Width (m)	11.10	18.47
3.98				
Vel Total (m/s)	0.47	Avg. Vel. (m/s)	0.20	0.59
0.13				
Max Chl Dpth (m)	2.78	Hydr. Depth (m)	1.23	2.18
0.92				
Conv. Total (m3/s)	4813.4	Conv. (m3/s)	477.9	4250.3
85.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.61	20.22
6.21				
Min Ch El (m)	9.35	Shear (N/m2)	0.33	0.61
0.18				
Alpha	1.42	Stream Power (N/m s)	0.07	0.36
0.02				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	39.33	135.58
27.45				
C & E Loss (m)	0.00	Cum SA (1000 m2)	30.34	59.58
21.10				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	18.81	48.87
5.65				
E.G. Slope (m/m)	0.000017	Area (m2)	18.81	48.87
5.65				
Q Total (m3/s)	27.00	Flow (m3/s)	3.16	23.20
0.64				
Top Width (m)	36.70	Top Width (m)	12.00	19.75
4.95				

Vel Total (m/s)	0.37	Avg. Vel. (m/s)	0.17	0.47
0.11				
Max Chl Dpth (m)	3.23	Hydr. Depth (m)	1.57	2.47
1.14				
Conv. Total (m3/s)	6496.0	Conv. (m3/s)	761.0	5582.1
152.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	14.07	21.79
7.74				
Min Ch El (m)	9.35	Shear (N/m2)	0.23	0.38
0.12				
Alpha	1.46	Stream Power (N/m s)	0.04	0.18
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	54.00	165.29
37.47				
C & E Loss (m)	0.00	Cum SA (1000 m2)	33.76	62.46
23.92				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 17

INPUT

Description:

Station Elevation Data		num=		14					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.424	13.1058	10.8222	13.1483	12.2475	13.1602	14.8022	13.1071	18.3344	10.74
20.435	9.3323	31.21	9.3313	33.0588	10.74	36.0312	13.0049	36.3224	13.1067
37.3802	13.22	38.6894	13.2498	40.2636	13.0694	41.1409	12.9015		

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
10.424	.03	14.8022	.015	36.3224	.03

Bank Sta:	Left	Right	Lengths: Left Channel		Right	Coeff Contr.	
Expan.							
	14.8022	36.3224	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.54	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)	4.92	30.62
1.94				
E.G. Slope (m/m)	0.000011	Area (m2)	4.92	30.62
1.94				
Q Total (m3/s)	10.00	Flow (m3/s)	0.40	9.48
0.12				
Top Width (m)	26.55	Top Width (m)	6.87	16.97
2.72				
Vel Total (m/s)	0.27	Avg. Vel. (m/s)	0.08	0.31
0.06				
Max Chl Dpth (m)	2.21	Hydr. Depth (m)	0.72	1.80
0.72				
Conv. Total (m3/s)	3025.9	Conv. (m3/s)	119.8	2869.0
37.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.89	18.38
4.50				
Min Ch El (m)	9.33	Shear (N/m2)	0.07	0.18
0.05				
Alpha	1.28	Stream Power (N/m s)	0.01	0.06
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	22.99	97.33
16.71				
C & E Loss (m)	0.00	Cum SA (1000 m2)	22.69	52.13
16.55				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.02	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.48	39.10
3.47				
E.G. Slope (m/m)	0.000005	Area (m2)	8.48	39.10
3.47				
Q Total (m3/s)	10.00	Flow (m3/s)	0.59	9.23
0.18				
Top Width (m)	29.90	Top Width (m)	7.96	18.31
3.63				
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.07	0.24
0.05				
Max Chl Dpth (m)	2.69	Hydr. Depth (m)	1.07	2.13
0.96				
Conv. Total (m3/s)	4410.8	Conv. (m3/s)	261.2	4069.6
80.0				

Length Wtd. (m) 6.01	200.00	Wetted Per. (m)	9.56	20.04
Min Ch El (m) 0.03	9.33	Shear (N/m2)	0.04	0.10
Alpha 0.00	1.35	Stream Power (N/m s)	0.00	0.02
Frctn Loss (m) 25.35	0.00	Cum Volume (1000 m3)	35.26	124.06
C & E Loss (m) 20.01	0.00	Cum SA (1000 m2)	28.04	56.11

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m) Right OB	12.51	Element	Left OB	Channel
Vel Head (m) 0.030	0.00	Wt. n-Val.	0.030	0.015
W.S. Elev (m) 200.00	12.51	Reach Len. (m)	200.00	200.00
Crit W.S. (m) 5.48		Flow Area (m2)	12.68	48.46
E.G. Slope (m/m) 5.48	0.000003	Area (m2)	12.68	48.46
Q Total (m3/s) 0.24	10.00	Flow (m3/s)	0.75	9.01
Top Width (m) 4.56	33.34	Top Width (m)	9.08	19.70
Vel Total (m/s) 0.04	0.15	Avg. Vel. (m/s)	0.06	0.19
Max Chl Dpth (m) 1.20	3.18	Hydr. Depth (m)	1.40	2.46
Conv. Total (m3/s) 147.6	6118.8	Conv. (m3/s)	457.3	5513.9
Length Wtd. (m) 7.56	200.00	Wetted Per. (m)	11.27	21.74
Min Ch El (m) 0.02	9.33	Shear (N/m2)	0.03	0.06
Alpha 0.00	1.40	Stream Power (N/m s)	0.00	0.01
Frctn Loss (m) 35.40	0.00	Cum Volume (1000 m3)	49.59	153.26
C & E Loss (m) 22.74	0.00	Cum SA (1000 m2)	31.42	58.21

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.76	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.73	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	6.28	33.93
2.50				
E.G. Slope (m/m)	0.000058	Area (m2)	6.28	33.93
2.50				
Q Total (m3/s)	27.00	Flow (m3/s)	1.30	25.31
0.39				
Top Width (m)	27.89	Top Width (m)	7.31	17.51
3.08				
Vel Total (m/s)	0.63	Avg. Vel. (m/s)	0.21	0.75
0.16				
Max Chl Dpth (m)	2.40	Hydr. Depth (m)	0.86	1.94
0.81				
Conv. Total (m3/s)	3546.5	Conv. (m3/s)	170.5	3324.4
51.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.55	19.04
5.10				
Min Ch El (m)	9.33	Shear (N/m2)	0.42	1.01
0.28				
Alpha	1.31	Stream Power (N/m s)	0.09	0.76
0.04				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	26.18	103.68
19.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	23.52	53.09
17.22				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.14	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.12	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	9.29	40.94
3.84				

E.G. Slope (m/m)	0.000033	Area (m2)	9.29	40.94
3.84				
Q Total (m3/s)	27.00	Flow (m3/s)	1.69	24.78
0.52				
Top Width (m)	30.60	Top Width (m)	8.19	18.59
3.82				
Vel Total (m/s)	0.50	Avg. Vel. (m/s)	0.18	0.61
0.14				
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	1.13	2.20
1.01				
Conv. Total (m3/s)	4733.3	Conv. (m3/s)	296.7	4344.9
91.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.91	20.38
6.33				
Min Ch El (m)	9.33	Shear (N/m2)	0.30	0.64
0.19				
Alpha	1.36	Stream Power (N/m s)	0.05	0.39
0.03				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	37.04	127.46
26.70				
C & E Loss (m)	0.00	Cum SA (1000 m2)	28.41	55.88
20.32				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	13.23	49.65
5.76				
E.G. Slope (m/m)	0.000018	Area (m2)	13.23	49.65
5.76				
Q Total (m3/s)	27.00	Flow (m3/s)	2.06	24.27
0.67				
Top Width (m)	33.76	Top Width (m)	9.21	19.86
4.68				
Vel Total (m/s)	0.39	Avg. Vel. (m/s)	0.16	0.49
0.12				
Max Chl Dpth (m)	3.24	Hydr. Depth (m)	1.44	2.50
1.23				
Conv. Total (m3/s)	6346.8	Conv. (m3/s)	484.7	5704.5
157.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.48	21.94
7.75				

Min Ch El (m)	9.33	Shear (N/m2)	0.20	0.40
0.13				
Alpha	1.40	Stream Power (N/m s)	0.03	0.20
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	50.80	155.44
36.33				
C & E Loss (m)	0.00	Cum SA (1000 m2)	31.64	58.50
22.96				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 16

INPUT

Description:

Station Elevation Data		num=		16					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.6972	12.9527	13.7064	13.0545	14.3855	12.9942	15.6906	13.0229	19.0989	10.75
21.2533	9.3132	31.6294	9.3122	33.663	10.75	36.7468	12.9303	36.9631	13.0384
37.3674	13.1183	37.6778	13.1418	39.7958	13.142	40.1767	13.0198	41.1336	12.9883
41.539	12.904								

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
11.6972	.03	15.6906	.015	36.9631	.03

Bank Sta:	Left	Right	Lengths:		Left Channel	Right	Coeff Contr.	
Expan.								
	15.6906	36.9631		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	11.54	Reach Len. (m)	79.00	79.00
79.00				
Crit W.S. (m)	9.76	Flow Area (m2)	11.34	30.31
E.G. Slope (m/m)	0.000010	Area (m2)	11.34	30.31
Q Total (m3/s)	10.00	Flow (m3/s)	1.24	8.76
Top Width (m)	25.44	Top Width (m)	8.58	16.86

Vel Total (m/s)	0.24	Avg. Vel. (m/s)	0.11	0.29
Max Chl Dpth (m)	2.23	Hydr. Depth (m)	1.32	1.80
Conv. Total (m3/s)	3236.3	Conv. (m3/s)	401.3	2835.0
Length Wtd. (m)	79.00	Wetted Per. (m)	10.36	18.24
Min Ch El (m)	9.31	Shear (N/m2)	0.10	0.16
Alpha	1.29	Stream Power (N/m s)	0.01	0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	21.37	91.24
16.51				
C & E Loss (m)	0.00	Cum SA (1000 m2)	21.15	48.75
16.28				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.02	Reach Len. (m)	79.00	79.00
79.00				
Crit W.S. (m)	9.76	Flow Area (m2)	15.72	38.76
E.G. Slope (m/m)	0.000005	Area (m2)	15.72	38.76
Q Total (m3/s)	10.00	Flow (m3/s)	1.35	8.65
Top Width (m)	27.90	Top Width (m)	9.64	18.26
Vel Total (m/s)	0.18	Avg. Vel. (m/s)	0.09	0.22
Max Chl Dpth (m)	2.71	Hydr. Depth (m)	1.63	2.12
Conv. Total (m3/s)	4650.7	Conv. (m3/s)	626.9	4023.8
Length Wtd. (m)	79.00	Wetted Per. (m)	12.00	19.94
Min Ch El (m)	9.31	Shear (N/m2)	0.06	0.09

Alpha	1.31	Stream Power (N/m s)	0.01	0.02
Frctn Loss (m) 25.00	0.00	Cum Volume (1000 m3)	32.84	116.27
C & E Loss (m) 19.64	0.00	Cum SA (1000 m2)	26.28	52.45

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m) Right OB	12.51	Element	Left OB	Channel
Vel Head (m) 0.030	0.00	Wt. n-Val.	0.030	0.015
W.S. Elev (m) 79.00	12.51	Reach Len. (m)	79.00	79.00
Crit W.S. (m) 0.01	9.76	Flow Area (m2)	20.74	48.12
E.G. Slope (m/m) 0.01	0.000002	Area (m2)	20.74	48.12
Q Total (m3/s) 0.00	10.00	Flow (m3/s)	1.43	8.57
Top Width (m) 0.26	30.68	Top Width (m)	10.73	19.70
Vel Total (m/s) 0.01	0.15	Avg. Vel. (m/s)	0.07	0.18
Max Chl Dpth (m) 0.05	3.20	Hydr. Depth (m)	1.93	2.44
Conv. Total (m3/s) 0.0	6368.8	Conv. (m3/s)	911.6	5457.1
Length Wtd. (m) 0.38	79.00	Wetted Per. (m)	13.69	21.69
Min Ch El (m) 0.00	9.31	Shear (N/m2)	0.04	0.05
Alpha 0.00	1.32	Stream Power (N/m s)	0.00	0.01
Frctn Loss (m) 34.85	0.00	Cum Volume (1000 m3)	46.25	143.60
C & E Loss (m) 22.26	0.00	Cum SA (1000 m2)	29.44	54.27

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the

computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.75	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	11.72	Reach Len. (m)	79.00	79.00
79.00				
Crit W.S. (m)	10.15	Flow Area (m2)	12.97	33.51
E.G. Slope (m/m)	0.000052	Area (m2)	12.97	33.51
Q Total (m3/s)	27.00	Flow (m3/s)	3.47	23.53
Top Width (m)	26.39	Top Width (m)	8.99	17.40
Vel Total (m/s)	0.58	Avg. Vel. (m/s)	0.27	0.70
Max Chl Dpth (m)	2.41	Hydr. Depth (m)	1.44	1.93
Conv. Total (m3/s)	3754.4	Conv. (m3/s)	482.8	3271.6
Length Wtd. (m)	79.00	Wetted Per. (m)	11.00	18.90
Min Ch El (m)	9.31	Shear (N/m2)	0.60	0.90
Alpha	1.30	Stream Power (N/m s)	0.16	0.63
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	24.26	96.93
18.85				
C & E Loss (m)	0.00	Cum SA (1000 m2)	21.89	49.59
16.91				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.13	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015

W.S. Elev (m)	12.12	Reach Len. (m)	79.00	79.00
79.00				
Crit W.S. (m)	10.15	Flow Area (m2)	16.66	40.54
E.G. Slope (m/m)	0.000030	Area (m2)	16.66	40.54
Q Total (m3/s)	27.00	Flow (m3/s)	3.69	23.31
Top Width (m)	28.40	Top Width (m)	9.85	18.54
Vel Total (m/s)	0.47	Avg. Vel. (m/s)	0.22	0.58
Max Chl Dpth (m)	2.80	Hydr. Depth (m)	1.69	2.19
Conv. Total (m3/s)	4966.0	Conv. (m3/s)	678.4	4287.6
Length Wtd. (m)	79.00	Wetted Per. (m)	12.34	20.28
Min Ch El (m)	9.31	Shear (N/m2)	0.39	0.58
Alpha	1.31	Stream Power (N/m s)	0.09	0.33
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	34.45	119.31
26.31				
C & E Loss (m)	0.00	Cum SA (1000 m2)	26.61	52.16
19.94				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.57	Reach Len. (m)	79.00	79.00
79.00				
Crit W.S. (m)	10.15	Flow Area (m2)	21.36	49.26
0.03				
E.G. Slope (m/m)	0.000017	Area (m2)	21.36	49.26
0.03				
Q Total (m3/s)	27.00	Flow (m3/s)	3.89	23.11
0.00				
Top Width (m)	31.13	Top Width (m)	10.85	19.87
0.40				

Vel Total (m/s)	0.38	Avg. Vel. (m/s)	0.18	0.47
0.02				
Max Chl Dpth (m)	3.26	Hydr. Depth (m)	1.97	2.48
0.08				
Conv. Total (m3/s)	6589.1	Conv. (m3/s)	948.8	5640.2
0.2				
Length Wtd. (m)	79.00	Wetted Per. (m)	13.89	21.89
0.59				
Min Ch El (m)	9.31	Shear (N/m2)	0.25	0.37
0.01				
Alpha	1.32	Stream Power (N/m s)	0.05	0.17
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	47.34	145.54
35.75				
C & E Loss (m)	0.00	Cum SA (1000 m2)	29.64	54.53
22.45				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 15.5

INPUT
Description: \
Distance from Upstream XS = 79
Deck/Roadway Width = 5
Weir Coefficient = 1.4
Upstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 15.96 16.08 14.43 36.79 16.08 14.43

Upstream Bridge Cross Section Data
Station Elevation Data num= 16
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 11.6972 12.9527 13.7064 13.0545 14.3855 12.9942 15.6906 13.0229 19.0989 10.75
 21.2533 9.3132 31.6294 9.3122 33.663 10.75 36.7468 12.9303 36.9631 13.0384
 37.3674 13.1183 37.6778 13.1418 39.7958 13.142 40.1767 13.0198 41.1336 12.9883
 41.539 12.904

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 11.6972 .03 15.6906 .015 36.9631 .03

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	15.6906	36.9631		.0015	.01

Downstream Deck/Roadway Coordinates

num=	2				
Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
17.13	13.76	12.11	37.96	13.76	12.11

Downstream Bridge Cross Section Data

Station	Elevation	Data	num=	12					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.0258	13.1777	16.6834	13.1664	20.134	10.73	22.1676	9.2941	32.8568	9.2931
34.9671	10.73	37.6295	12.5427	37.9423	12.8364	38.3974	13.0184	38.8258	13.0612
40.6913	13.008	42.7161	12.8334						

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
12.0258	.03	16.6834	.015
		38.3974	.03

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	16.6834	38.3974		.0015	.01

Upstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
15.97	14.43	20.33	14.43
Downstream	num=	2	
Sta	Elev	Sta	Elev
17.14	12.11	21.49	12.11

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
32.83	14.43	36.79	14.43
Downstream	num=	2	
Sta	Elev	Sta	Elev
33.99	12.11	37.96	12.11

Number of Piers = 2

Pier Data

Pier Station	Upstream=	23.93	Downstream=	25.09
Upstream	num=	2		
Width	Elev	Width	Elev	

.4	9.41	.4	14.43
Downstream	num=	2	
Width	Elev	Width	Elev
.4	9.39	.4	12.11

Pier Data

Pier Station	Upstream=	29.22	Downstream=	30.39
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.41	.4	14.43	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.39	.4	12.11	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.54	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.54	E.G. Elev (m)	11.54
11.54			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.54
11.54			
Q Bridge (m3/s)	8.13	Crit W.S. (m)	9.78
9.77			
Q Weir (m3/s)		Max Chl Dpth (m)	2.22
2.25			
Weir Sta Lft (m)		Vel Total (m/s)	0.27
0.20			
Weir Sta Rgt (m)		Flow Area (m2)	36.55
50.29			
Weir Submerg		Froude # Chl	0.07
0.06			
Weir Max Depth (m)		Specif Force (m3)	36.45
47.48			
Min El Weir Flow (m)	9.71	Hydr Depth (m)	1.80
1.66			
Min El Prs (m)	14.43	W.P. Total (m)	34.39

46.79			
Delta EG (m)	0.00	Conv. Total (m3/s)	2137.5
2655.0			
Delta WS (m)	0.00	Top Width (m)	20.27
30.29			
BR Open Area (m2)	32.35	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.32	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.23
0.15			
BR Sel Method	Energy only	Power Total (N/m s)	0.06
0.03			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.02	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.02	E.G. Elev (m)	12.02
12.02			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.02
12.02			
Q Bridge (m3/s)	7.82	Crit W.S. (m)	9.78
9.77			
Q Weir (m3/s)		Max Chl Dpth (m)	2.71
2.73			
Weir Sta Lft (m)		Vel Total (m/s)	0.21
0.15			
Weir Sta Rgt (m)		Flow Area (m2)	46.57
65.28			
Weir Submerg		Froude # Chl	0.05
0.04			
Weir Max Depth (m)		Specif Force (m3)	56.38
75.19			
Min El Weir Flow (m)	9.71	Hydr Depth (m)	2.18
2.04			
Min El Prs (m)	14.43	W.P. Total (m)	38.93
52.62			
Delta EG (m)	0.00	Conv. Total (m3/s)	2879.8
3672.7			
Delta WS (m)	0.00	Top Width (m)	21.34
32.03			
BR Open Area (m2)	32.35	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.25	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.14

0.09	BR Sel Method	Energy only	Power Total (N/m s)	0.03
0.01				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.51	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.51	E.G. Elev (m)	12.51
12.51			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.51
12.51			
Q Bridge (m3/s)	7.54	Crit W.S. (m)	9.78
9.77			
Q Weir (m3/s)		Max Chl Dpth (m)	3.20
3.22			
Weir Sta Lft (m)		Vel Total (m/s)	0.17
0.13			
Weir Sta Rgt (m)		Flow Area (m2)	57.38
76.80			
Weir Submerg		Froude # Chl	0.04
0.02			
Weir Max Depth (m)		Specif Force (m3)	81.96
110.37			
Min El Weir Flow (m)	9.71	Hydr Depth (m)	2.53
3.47			
Min El Prs (m)	14.43	W.P. Total (m)	43.95
67.88			
Delta EG (m)	0.00	Conv. Total (m3/s)	3708.8
3891.2			
Delta WS (m)	0.00	Top Width (m)	22.68
22.10			
BR Open Area (m2)	32.35	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.23	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.09
0.07			
BR Sel Method	Energy only	Power Total (N/m s)	0.02
0.01			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.75	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.72	E.G. Elev (m)	11.74
11.74			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.71
11.73			
Q Bridge (m3/s)	21.63	Crit W.S. (m)	10.18
10.14			
Q Weir (m3/s)		Max Chl Dpth (m)	2.40
2.43			
Weir Sta Lft (m)		Vel Total (m/s)	0.67
0.48			
Weir Sta Rgt (m)		Flow Area (m2)	40.17
56.02			
Weir Submerg		Froude # Chl	0.17
0.13			
Weir Max Depth (m)		Specif Force (m3)	44.92
58.64			
Min El Weir Flow (m)	9.71	Hydr Depth (m)	1.94
1.81			
Min El Prs (m)	14.43	W.P. Total (m)	36.06
49.05			
Delta EG (m)	0.01	Conv. Total (m3/s)	2402.6
3036.3			
Delta WS (m)	0.00	Top Width (m)	20.66
30.97			
BR Open Area (m2)	32.35	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.79	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.38
0.89			
BR Sel Method	Energy only	Power Total (N/m s)	0.93
0.43			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.13	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.12	E.G. Elev (m)	12.13
12.13			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.11
12.12			
Q Bridge (m3/s)	20.98	Crit W.S. (m)	10.18

10.14			
Q Weir (m3/s)		Max Chl Dpth (m)	2.80
2.83			
Weir Sta Lft (m)		Vel Total (m/s)	0.56
0.39			
Weir Sta Rgt (m)		Flow Area (m2)	48.51
68.36			
Weir Submerg		Froude # Chl	0.13
0.08			
Weir Max Depth (m)		Specif Force (m3)	62.08
82.74			
Min El Weir Flow (m)	9.71	Hydr Depth (m)	2.25
3.31			
Min El Prs (m)	14.43	W.P. Total (m)	39.78
65.47			
Delta EG (m)	0.01	Conv. Total (m3/s)	3026.6
3387.3			
Delta WS (m)	0.00	Top Width (m)	21.54
20.68			
BR Open Area (m2)	32.35	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.66	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.95
0.65			
BR Sel Method	Energy only	Power Total (N/m s)	0.53
0.26			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.58	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.57	E.G. Elev (m)	12.58
12.58			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.57
12.57			
Q Bridge (m3/s)	20.29	Crit W.S. (m)	10.18
10.14			
Q Weir (m3/s)		Max Chl Dpth (m)	3.25
3.28			
Weir Sta Lft (m)		Vel Total (m/s)	0.46
0.35			
Weir Sta Rgt (m)		Flow Area (m2)	58.61
78.11			
Weir Submerg		Froude # Chl	0.10
0.06			
Weir Max Depth (m)		Specif Force (m3)	86.23

115.76			
Min El Weir Flow (m)	9.71	Hydr Depth (m)	2.56
3.50			
Min El Prs (m)	14.43	W.P. Total (m)	44.66
68.24			
Delta EG (m)	0.00	Conv. Total (m3/s)	3803.3
3972.3			
Delta WS (m)	0.00	Top Width (m)	22.94
22.31			
BR Open Area (m2)	32.35	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.63	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.65
0.52			
BR Sel Method	Energy only	Power Total (N/m s)	0.30
0.18			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 15

INPUT

Description:

Station Elevation Data				num=	12				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.0258	13.1777	16.6834	13.1664	20.134	10.73	22.1676	9.2941	32.8568	9.2931
34.9671	10.73	37.6295	12.5427	37.9423	12.8364	38.3974	13.0184	38.8258	13.0612
40.6913	13.008	42.7161	12.8334						

Manning's n Values				num=	3		
Sta	n Val	Sta	n Val	Sta	n Val		
12.0258	.03	16.6834	.015	38.3974	.03		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	16.6834	38.3974		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.54	Reach Len. (m)	164.00	164.00

164.00				
Crit W.S. (m)	9.75	Flow Area (m2)	14.47	31.25
10.14				
E.G. Slope (m/m)	0.000007	Area (m2)	14.47	31.25
10.14				
Q Total (m3/s)	10.00	Flow (m3/s)	1.45	7.70
0.85				
Top Width (m)	35.75	Top Width (m)	9.38	17.16
9.21				
Vel Total (m/s)	0.18	Avg. Vel. (m/s)	0.10	0.25
0.08				
Max Chl Dpth (m)	2.24	Hydr. Depth (m)	1.54	1.82
1.10				
Conv. Total (m3/s)	3827.6	Conv. (m3/s)	554.5	2947.8
325.2				
Length Wtd. (m)	164.00	Wetted Per. (m)	11.73	18.57
10.74				
Min Ch El (m)	9.29	Shear (N/m2)	0.08	0.11
0.06				
Alpha	1.52	Stream Power (N/m s)	0.01	0.03
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	18.73	85.62
15.31				
C & E Loss (m)	0.00	Cum SA (1000 m2)	19.34	45.89
15.18				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.02	Reach Len. (m)	164.00	164.00
164.00				
Crit W.S. (m)	9.75	Flow Area (m2)	19.17	39.85
14.81				
E.G. Slope (m/m)	0.000003	Area (m2)	19.17	39.85
14.81				
Q Total (m3/s)	10.00	Flow (m3/s)	1.48	7.51
1.01				
Top Width (m)	38.88	Top Width (m)	10.15	18.55
10.17				
Vel Total (m/s)	0.14	Avg. Vel. (m/s)	0.08	0.19
0.07				
Max Chl Dpth (m)	2.73	Hydr. Depth (m)	1.89	2.15
1.46				
Conv. Total (m3/s)	5551.7	Conv. (m3/s)	822.4	4170.6

558.7				
Length Wtd. (m)	164.00	Wetted Per. (m)	13.13	20.26
12.30				
Min Ch El (m)	9.29	Shear (N/m2)	0.05	0.06
0.04				
Alpha	1.53	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	29.29	109.24
23.24				
C & E Loss (m)	0.00	Cum SA (1000 m2)	24.29	49.46
18.44				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	164.00	164.00
164.00				
Crit W.S. (m)	9.75	Flow Area (m2)	24.37	49.35
20.06				
E.G. Slope (m/m)	0.000002	Area (m2)	24.37	49.35
20.06				
Q Total (m3/s)	10.00	Flow (m3/s)	1.50	7.38
1.12				
Top Width (m)	42.07	Top Width (m)	10.95	19.97
11.15				
Vel Total (m/s)	0.11	Avg. Vel. (m/s)	0.06	0.15
0.06				
Max Chl Dpth (m)	3.22	Hydr. Depth (m)	2.23	2.47
1.80				
Conv. Total (m3/s)	7640.3	Conv. (m3/s)	1145.6	5639.8
854.9				
Length Wtd. (m)	164.00	Wetted Per. (m)	14.56	21.99
13.89				
Min Ch El (m)	9.29	Shear (N/m2)	0.03	0.04
0.02				
Alpha	1.53	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	41.67	135.34
32.48				
C & E Loss (m)	0.00	Cum SA (1000 m2)	27.26	51.85
20.91				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.73	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.72	Reach Len. (m)	164.00	164.00
164.00				
Crit W.S. (m)	10.11	Flow Area (m2)	16.20	34.43
11.85				
E.G. Slope (m/m)	0.000037	Area (m2)	16.20	34.43
11.85				
Q Total (m3/s)	27.00	Flow (m3/s)	3.95	20.57
2.47				
Top Width (m)	36.94	Top Width (m)	9.67	17.69
9.58				
Vel Total (m/s)	0.43	Avg. Vel. (m/s)	0.24	0.60
0.21				
Max Chl Dpth (m)	2.43	Hydr. Depth (m)	1.68	1.95
1.24				
Conv. Total (m3/s)	4444.7	Conv. (m3/s)	650.5	3387.0
407.2				
Length Wtd. (m)	164.00	Wetted Per. (m)	12.26	19.21
11.33				
Min Ch El (m)	9.29	Shear (N/m2)	0.48	0.65
0.38				
Alpha	1.53	Stream Power (N/m s)	0.12	0.39
0.08				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	21.28	90.78
17.44				
C & E Loss (m)	0.00	Cum SA (1000 m2)	20.01	46.68
15.78				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.12	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.11	Reach Len. (m)	164.00	164.00
164.00				
Crit W.S. (m)	10.11	Flow Area (m2)	20.13	41.61

15.78				
E.G. Slope (m/m)	0.000021	Area (m2)	20.13	41.61
15.78				
Q Total (m3/s)	27.00	Flow (m3/s)	4.01	20.21
2.78				
Top Width (m)	39.49	Top Width (m)	10.31	18.82
10.36				
Vel Total (m/s)	0.35	Avg. Vel. (m/s)	0.20	0.49
0.18				
Max Chl Dpth (m)	2.82	Hydr. Depth (m)	1.95	2.21
1.52				
Conv. Total (m3/s)	5926.5	Conv. (m3/s)	880.5	4435.0
610.9				
Length Wtd. (m)	164.00	Wetted Per. (m)	13.40	20.59
12.60				
Min Ch El (m)	9.29	Shear (N/m2)	0.31	0.41
0.25				
Alpha	1.53	Stream Power (N/m s)	0.06	0.20
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	30.70	112.00
24.44				
C & E Loss (m)	0.00	Cum SA (1000 m2)	24.59	49.85
18.71				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.57	Reach Len. (m)	164.00	164.00
164.00				
Crit W.S. (m)	10.11	Flow Area (m2)	25.00	50.49
20.70				
E.G. Slope (m/m)	0.000012	Area (m2)	25.00	50.49
20.70				
Q Total (m3/s)	27.00	Flow (m3/s)	4.05	19.90
3.05				
Top Width (m)	42.43	Top Width (m)	11.04	20.13
11.26				
Vel Total (m/s)	0.28	Avg. Vel. (m/s)	0.16	0.39
0.15				
Max Chl Dpth (m)	3.28	Hydr. Depth (m)	2.26	2.51
1.84				
Conv. Total (m3/s)	7904.4	Conv. (m3/s)	1186.2	5825.4
892.8				
Length Wtd. (m)	164.00	Wetted Per. (m)	14.72	22.18

14.07				
Min Ch El (m)	9.29	Shear (N/m2)	0.19	0.26
0.17				
Alpha	1.53	Stream Power (N/m s)	0.03	0.10
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	42.63	137.15
33.29				
C & E Loss (m)	0.00	Cum SA (1000 m2)	27.44	52.08
21.09				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 14.5

INPUT
Description:
Distance from Upstream XS = 164
Deck/Roadway Width = 4
Weir Coefficient = 1.4
Upstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 13.87 14.05 12.7 41.95 14.05 12.7

Upstream Bridge Cross Section Data
Station Elevation Data num= 12
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 12.0258 13.1777 16.6834 13.1664 20.134 10.73 22.1676 9.2941 32.8568 9.2931
 34.9671 10.73 37.6295 12.5427 37.9423 12.8364 38.3974 13.0184 38.8258 13.0612
 40.6913 13.008 42.7161 12.8334

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 12.0258 .03 16.6834 .015 38.3974 .03

Bank Sta: Left Right Coeff Contr. Expan.
 16.6834 38.3974 .0015 .01

Downstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 13.87 14.05 12.7 41.95 14.05 12.7

Downstream Bridge Cross Section Data
Station Elevation Data num= 12
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

11.5336 12.964 13.5937 13.1716 14.7938 13.1271 16.7829 13.016 20.1964 10.74
 22.3936 9.275 32.7281 9.274 34.927 10.74 38.349 13.0214 40.5546 12.9834
 41.2584 12.8304 42.3447 12.7616

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 11.5336 .03 16.7829 .015 38.349 .03

Bank Sta: Left Right Coeff Contr. Expan.
 16.7829 38.349 .0015 .01

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins =
 Energy head used in spillway design =
 Spillway height used in design =
 Weir crest shape = Broad Crested

Number of Piers = 2

Pier Data
 Pier Station Upstream= 24.48 Downstream= 24.48
 Upstream num= 2
 Width Elev Width Elev
 .5 9.39 .5 12.7
 Downstream num= 2
 Width Elev Width Elev
 .5 9.39 .5 12.7

Pier Data
 Pier Station Upstream= 31.68 Downstream= 31.68
 Upstream num= 2
 Width Elev Width Elev
 .5 9.39 .5 12.7
 Downstream num= 2
 Width Elev Width Elev
 .5 9.39 .5 12.7

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
 inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.54	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.54	E.G. Elev (m)	11.54
11.54			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.54
11.54			
Q Bridge (m3/s)	7.00	Crit W.S. (m)	9.78
9.75			
Q Weir (m3/s)		Max Chl Dpth (m)	2.24
2.26			
Weir Sta Lft (m)		Vel Total (m/s)	0.19
0.22			
Weir Sta Rgt (m)		Flow Area (m2)	53.57
45.67			
Weir Submerg		Froude # Chl	0.06
0.06			
Weir Max Depth (m)		Specif Force (m3)	48.93
42.45			
Min El Weir Flow (m)	9.71	Hydr Depth (m)	1.54
1.53			
Min El Prs (m)	12.70	W.P. Total (m)	49.00
43.34			
Delta EG (m)	0.00	Conv. Total (m3/s)	2928.3
2615.2			
Delta WS (m)	0.00	Top Width (m)	34.75
29.83			
BR Open Area (m2)	49.58	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.24	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.13
0.15			
BR Sel Method	Energy only	Power Total (N/m s)	0.02
0.03			

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.02	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.02	E.G. Elev (m)	12.02
12.02			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.02
12.02			
Q Bridge (m3/s)	6.73	Crit W.S. (m)	9.78
9.75			
Q Weir (m3/s)		Max Chl Dpth (m)	2.73
2.74			

Weir Sta Lft (m)		Vel Total (m/s)	0.14
0.16			
Weir Sta Rgt (m)		Flow Area (m2)	71.08
60.83			
Weir Submerg		Froude # Ch1	0.04
0.04			
Weir Max Depth (m)		Specif Force (m3)	78.87
68.03			
Min El Weir Flow (m)	9.71	Hydr Depth (m)	1.88
1.84			
Min El Prs (m)	12.70	W.P. Total (m)	55.57
49.95			
Delta EG (m)	0.00	Conv. Total (m3/s)	4222.0
3752.1			
Delta WS (m)	0.00	Top Width (m)	37.87
33.00			
BR Open Area (m2)	49.58	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.18	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.07
0.08			
BR Sel Method	Energy only	Power Total (N/m s)	0.01
0.01			

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.51	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.51	E.G. Elev (m)	12.51
12.51			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.51
12.51			
Q Bridge (m3/s)	6.54	Crit W.S. (m)	9.78
9.75			
Q Weir (m3/s)		Max Ch1 Dpth (m)	3.22
3.24			
Weir Sta Lft (m)		Vel Total (m/s)	0.11
0.13			
Weir Sta Rgt (m)		Flow Area (m2)	90.56
77.92			
Weir Submerg		Froude # Ch1	0.03
0.03			
Weir Max Depth (m)		Specif Force (m3)	118.66
102.18			
Min El Weir Flow (m)	9.71	Hydr Depth (m)	2.20
2.15			
Min El Prs (m)	12.70	W.P. Total (m)	62.30
56.72			
Delta EG (m)	0.00	Conv. Total (m3/s)	5779.1
5127.5			

Delta WS (m)	0.00	Top Width (m)	41.07
36.24			
BR Open Area (m2)	49.58	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.14	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.04
0.05			
BR Sel Method	Energy only	Power Total (N/m s)	0.00
0.01			

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)		Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.72	E.G. Elev (m)	11.73
11.73			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.71
11.71			
Q Bridge (m3/s)	18.60	Crit W.S. (m)	10.15
10.14			
Q Weir (m3/s)		Max Chl Dpth (m)	2.42
2.43			
Weir Sta Lft (m)		Vel Total (m/s)	0.45
0.53			
Weir Sta Rgt (m)		Flow Area (m2)	59.82
50.93			
Weir Submerg		Froude # Chl	0.13
0.15			
Weir Max Depth (m)		Specif Force (m3)	60.12
52.15			
Min El Weir Flow (m)	9.71	Hydr Depth (m)	1.67
1.64			
Min El Prs (m)	12.70	W.P. Total (m)	51.41
45.71			
Delta EG (m)	0.01	Conv. Total (m3/s)	3377.3
2999.5			
Delta WS (m)	0.01	Top Width (m)	35.89
30.96			
BR Open Area (m2)	49.58	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.59	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.73
0.89			
BR Sel Method	Energy only	Power Total (N/m s)	0.33
0.47			

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.12	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.11	E.G. Elev (m)	12.12
12.12			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.11
12.11			
Q Bridge (m3/s)	18.06	Crit W.S. (m)	10.15
10.14			
Q Weir (m3/s)		Max Chl Dpth (m)	2.82
2.83			
Weir Sta Lft (m)		Vel Total (m/s)	0.36
0.42			
Weir Sta Rgt (m)		Flow Area (m2)	74.57
63.79			
Weir Submerg		Froude # Chl	0.10
0.11			
Weir Max Depth (m)		Specif Force (m3)	86.47
74.66			
Min El Weir Flow (m)	9.71	Hydr Depth (m)	1.94
1.90			
Min El Prs (m)	12.70	W.P. Total (m)	56.82
51.17			
Delta EG (m)	0.01	Conv. Total (m3/s)	4493.1
3983.9			
Delta WS (m)	0.01	Top Width (m)	38.47
33.58			
BR Open Area (m2)	49.58	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.47	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.46
0.56			
BR Sel Method	Energy only	Power Total (N/m s)	0.17
0.24			

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.58	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.57	E.G. Elev (m)	12.57
12.57			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.57
12.57			
Q Bridge (m3/s)	17.61	Crit W.S. (m)	10.15
10.14			
Q Weir (m3/s)		Max Chl Dpth (m)	3.27
3.29			
Weir Sta Lft (m)		Vel Total (m/s)	0.29
0.34			

Weir Sta Rgt (m)		Flow Area (m2)	92.85
79.88			
Weir Submerg		Froude # Ch1	0.08
0.09			
Weir Max Depth (m)		Specif Force (m3)	124.50
107.30			
Min El Weir Flow (m)	9.71	Hydr Depth (m)	2.24
2.18			
Min El Prs (m)	12.70	W.P. Total (m)	63.05
57.45			
Delta EG (m)	0.00	Conv. Total (m3/s)	5969.8
5290.9			
Delta WS (m)	0.00	Top Width (m)	41.42
36.59			
BR Open Area (m2)	49.58	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.37	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.30
0.36			
BR Sel Method	Energy only	Power Total (N/m s)	0.09
0.12			

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 14

INPUT

Description:

Station Elevation Data		num= 12									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.5336	12.964	13.5937	13.1716	14.7938	13.1271	16.7829	13.016	20.1964	10.74		
22.3936	9.275	32.7281	9.274	34.927	10.74	38.349	13.0214	40.5546	12.9834		
41.2584	12.8304	42.3447	12.7616								

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
11.5336	.03	16.7829	.015	38.349	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	16.7829	38.349		150	150	150	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				

W.S. Elev (m)	11.54	Reach Len. (m)	150.00	150.00
150.00				
Crit W.S. (m)		Flow Area (m2)	13.46	31.02
3.44				
E.G. Slope (m/m)	0.000008	Area (m2)	13.46	31.02
3.44				
Q Total (m3/s)	10.00	Flow (m3/s)	1.45	8.32
0.23				
Top Width (m)	30.83	Top Width (m)	9.36	17.12
4.35				
Vel Total (m/s)	0.21	Avg. Vel. (m/s)	0.11	0.27
0.07				
Max Chl Dpth (m)	2.26	Hydr. Depth (m)	1.44	1.81
0.79				
Conv. Total (m3/s)	3511.3	Conv. (m3/s)	508.0	2921.1
82.3				
Length Wtd. (m)	150.00	Wetted Per. (m)	11.17	18.48
5.64				
Min Ch El (m)	9.27	Shear (N/m2)	0.10	0.13
0.05				
Alpha	1.41	Stream Power (N/m s)	0.01	0.04
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	15.87	79.61
13.51				
C & E Loss (m)	0.00	Cum SA (1000 m2)	17.46	42.56
13.51				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.02	Reach Len. (m)	150.00	150.00
150.00				
Crit W.S. (m)		Flow Area (m2)	18.16	39.64
5.77				
E.G. Slope (m/m)	0.000004	Area (m2)	18.16	39.64
5.77				
Q Total (m3/s)	10.00	Flow (m3/s)	1.53	8.15
0.33				
Top Width (m)	33.99	Top Width (m)	10.10	18.56
5.33				
Vel Total (m/s)	0.16	Avg. Vel. (m/s)	0.08	0.21
0.06				
Max Chl Dpth (m)	2.74	Hydr. Depth (m)	1.80	2.14
1.08				

Conv. Total (m3/s)	5078.6	Conv. (m3/s)	774.8	4138.0
165.7				
Length Wtd. (m)	150.00	Wetted Per. (m)	12.53	20.22
7.22				
Min Ch El (m)	9.27	Shear (N/m2)	0.06	0.07
0.03				
Alpha	1.44	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	25.49	101.56
20.59				
C & E Loss (m)	0.00	Cum SA (1000 m2)	22.27	45.85
16.57				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	150.00	150.00
150.00				
Crit W.S. (m)		Flow Area (m2)	23.33	49.17
8.66				
E.G. Slope (m/m)	0.000002	Area (m2)	23.33	49.17
8.66				
Q Total (m3/s)	10.00	Flow (m3/s)	1.57	8.02
0.41				
Top Width (m)	37.23	Top Width (m)	10.85	20.05
6.34				
Vel Total (m/s)	0.12	Avg. Vel. (m/s)	0.07	0.16
0.05				
Max Chl Dpth (m)	3.24	Hydr. Depth (m)	2.15	2.45
1.36				
Conv. Total (m3/s)	6983.8	Conv. (m3/s)	1096.8	5602.5
284.6				
Length Wtd. (m)	150.00	Wetted Per. (m)	13.92	22.01
8.84				
Min Ch El (m)	9.27	Shear (N/m2)	0.03	0.04
0.02				
Alpha	1.46	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	36.83	125.81
28.85				
C & E Loss (m)	0.00	Cum SA (1000 m2)	25.08	47.95
18.85				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.72	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.71	Reach Len. (m)	150.00	150.00
150.00				
Crit W.S. (m)		Flow Area (m2)	15.08	33.99
4.21				
E.G. Slope (m/m)	0.000045	Area (m2)	15.08	33.99
4.21				
Q Total (m3/s)	27.00	Flow (m3/s)	4.00	22.28
0.73				
Top Width (m)	31.95	Top Width (m)	9.62	17.63
4.70				
Vel Total (m/s)	0.51	Avg. Vel. (m/s)	0.27	0.66
0.17				
Max Chl Dpth (m)	2.43	Hydr. Depth (m)	1.57	1.93
0.90				
Conv. Total (m3/s)	4033.3	Conv. (m3/s)	597.0	3327.9
108.3				
Length Wtd. (m)	150.00	Wetted Per. (m)	11.65	19.10
6.20				
Min Ch El (m)	9.27	Shear (N/m2)	0.57	0.78
0.30				
Alpha	1.42	Stream Power (N/m s)	0.15	0.51
0.05				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	18.08	84.17
15.34				
C & E Loss (m)	0.00	Cum SA (1000 m2)	18.08	43.25
14.03				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.12	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.11	Reach Len. (m)	150.00	150.00
150.00				

Crit W.S. (m)		Flow Area (m2)	19.04	41.27
6.25				
E.G. Slope (m/m)	0.000025	Area (m2)	19.04	41.27
6.25				
Q Total (m3/s)	27.00	Flow (m3/s)	4.15	21.93
0.92				
Top Width (m)	34.57	Top Width (m)	10.23	18.83
5.51				
Vel Total (m/s)	0.41	Avg. Vel. (m/s)	0.22	0.53
0.15				
Max Chl Dpth (m)	2.83	Hydr. Depth (m)	1.86	2.19
1.13				
Conv. Total (m3/s)	5393.7	Conv. (m3/s)	828.3	4381.2
184.2				
Length Wtd. (m)	150.00	Wetted Per. (m)	12.78	20.54
7.51				
Min Ch El (m)	9.27	Shear (N/m2)	0.37	0.49
0.20				
Alpha	1.44	Stream Power (N/m s)	0.08	0.26
0.03				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	26.72	103.98
21.61				
C & E Loss (m)	0.00	Cum SA (1000 m2)	22.53	46.18
16.81				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.56	Reach Len. (m)	150.00	150.00
150.00				
Crit W.S. (m)		Flow Area (m2)	23.90	50.23
8.99				
E.G. Slope (m/m)	0.000014	Area (m2)	23.90	50.23
8.99				
Q Total (m3/s)	27.00	Flow (m3/s)	4.25	21.63
1.12				
Top Width (m)	37.58	Top Width (m)	10.93	20.20
6.45				
Vel Total (m/s)	0.32	Avg. Vel. (m/s)	0.18	0.43
0.12				
Max Chl Dpth (m)	3.29	Hydr. Depth (m)	2.19	2.49
1.39				
Conv. Total (m3/s)	7206.1	Conv. (m3/s)	1134.1	5772.5
299.4				

Length Wtd. (m)	150.00	Wetted Per. (m)	14.07	22.20
9.01				
Min Ch El (m)	9.27	Shear (N/m2)	0.23	0.31
0.14				
Alpha	1.46	Stream Power (N/m s)	0.04	0.13
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	37.67	127.39
29.55				
C & E Loss (m)	0.00	Cum SA (1000 m2)	25.24	48.16
19.00				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 13

INPUT										
Description:										
Station Elevation Data				num=	13					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
12.8181	12.946	14.2061	13.0492	15.427	13.1039	16.4317	13.0835	17.3771	12.9927	
20.567	10.76	22.7077	9.2616	33.2284	9.2611	35.4422	10.76	38.2432	12.6564	
38.5355	13.0201	39.2975	13.04	42.8082	12.8908					
Manning's n Values				num=	3					
Sta	n Val	Sta	n Val	Sta	n Val					
12.8181	.03	17.3771	.015	38.5355	.03					
Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.										
Expan.										
	17.3771	38.5355		200	200	200		.0015		.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	14.36	31.42
10.77				
E.G. Slope (m/m)	0.000007	Area (m2)	14.36	31.42
10.77				
Q Total (m3/s)	10.00	Flow (m3/s)	1.38	7.71
0.91				

Top Width (m)	37.05	Top Width (m)	10.55	17.13
9.37				
Vel Total (m/s)	0.18	Avg. Vel. (m/s)	0.10	0.25
0.08				
Max Chl Dpth (m)	2.27	Hydr. Depth (m)	1.36	1.83
1.15				
Conv. Total (m3/s)	3860.5	Conv. (m3/s)	533.0	2978.0
349.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.22	18.54
11.21				
Min Ch El (m)	9.26	Shear (N/m2)	0.08	0.11
0.06				
Alpha	1.55	Stream Power (N/m s)	0.01	0.03
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	13.79	74.92
12.45				
C & E Loss (m)	0.00	Cum SA (1000 m2)	15.97	39.99
12.48				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.02	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	19.64	40.03
15.49				
E.G. Slope (m/m)	0.000003	Area (m2)	19.64	40.03
15.49				
Q Total (m3/s)	10.00	Flow (m3/s)	1.48	7.47
1.05				
Top Width (m)	40.03	Top Width (m)	11.33	18.53
10.17				
Vel Total (m/s)	0.13	Avg. Vel. (m/s)	0.08	0.19
0.07				
Max Chl Dpth (m)	2.76	Hydr. Depth (m)	1.73	2.16
1.52				
Conv. Total (m3/s)	5632.6	Conv. (m3/s)	836.0	4205.1
591.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.61	20.24
12.63				
Min Ch El (m)	9.26	Shear (N/m2)	0.04	0.06
0.04				
Alpha	1.54	Stream Power (N/m s)	0.00	0.01
0.00				

Frctn Loss (m)	0.00	Cum Volume (1000 m3)	22.65	95.58
19.00				
C & E Loss (m)	0.00	Cum SA (1000 m2)	20.66	43.07
15.41				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	25.43	49.54
20.72				
E.G. Slope (m/m)	0.000002	Area (m2)	25.43	49.54
20.72				
Q Total (m3/s)	10.00	Flow (m3/s)	1.55	7.30
1.15				
Top Width (m)	43.07	Top Width (m)	12.12	19.96
10.99				
Vel Total (m/s)	0.10	Avg. Vel. (m/s)	0.06	0.15
0.06				
Max Chl Dpth (m)	3.25	Hydr. Depth (m)	2.10	2.48
1.89				
Conv. Total (m3/s)	7773.1	Conv. (m3/s)	1203.2	5676.7
893.1				
Length Wtd. (m)	200.00	Wetted Per. (m)	15.04	21.99
14.08				
Min Ch El (m)	9.26	Shear (N/m2)	0.03	0.04
0.02				
Alpha	1.54	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	33.17	118.40
26.65				
C & E Loss (m)	0.00	Cum SA (1000 m2)	23.35	44.95
17.55				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.72	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.70	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.17	34.36
12.38				
E.G. Slope (m/m)	0.000037	Area (m2)	16.17	34.36
12.38				
Q Total (m3/s)	27.00	Flow (m3/s)	3.84	20.56
2.60				
Top Width (m)	38.09	Top Width (m)	10.82	17.62
9.65				
Vel Total (m/s)	0.43	Avg. Vel. (m/s)	0.24	0.60
0.21				
Max Chl Dpth (m)	2.44	Hydr. Depth (m)	1.49	1.95
1.28				
Conv. Total (m3/s)	4445.5	Conv. (m3/s)	632.8	3384.5
428.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.71	19.14
11.71				
Min Ch El (m)	9.26	Shear (N/m2)	0.46	0.65
0.38				
Alpha	1.55	Stream Power (N/m s)	0.11	0.39
0.08				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	15.74	79.04
14.09				
C & E Loss (m)	0.00	Cum SA (1000 m2)	16.55	40.61
12.95				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.11	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.10	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	20.63	41.66
16.38				
E.G. Slope (m/m)	0.000020	Area (m2)	20.63	41.66
16.38				
Q Total (m3/s)	27.00	Flow (m3/s)	4.04	20.07
2.89				
Top Width (m)	40.56	Top Width (m)	11.47	18.78
10.31				

Vel Total (m/s)	0.34	Avg. Vel. (m/s)	0.20	0.48
0.18				
Max Chl Dpth (m)	2.84	Hydr. Depth (m)	1.80	2.22
1.59				
Conv. Total (m3/s)	5985.7	Conv. (m3/s)	896.6	4448.3
640.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.86	20.55
12.89				
Min Ch El (m)	9.26	Shear (N/m2)	0.30	0.40
0.25				
Alpha	1.54	Stream Power (N/m s)	0.06	0.19
0.04				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	23.74	97.76
19.92				
C & E Loss (m)	0.00	Cum SA (1000 m2)	20.90	43.36
15.62				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	26.08	50.60
21.30				
E.G. Slope (m/m)	0.000011	Area (m2)	26.08	50.60
21.30				
Q Total (m3/s)	27.00	Flow (m3/s)	4.19	19.68
3.13				
Top Width (m)	43.40	Top Width (m)	12.21	20.12
11.08				
Vel Total (m/s)	0.28	Avg. Vel. (m/s)	0.16	0.39
0.15				
Max Chl Dpth (m)	3.30	Hydr. Depth (m)	2.14	2.52
1.92				
Conv. Total (m3/s)	8021.8	Conv. (m3/s)	1245.9	5847.3
928.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	15.19	22.17
14.24				
Min Ch El (m)	9.26	Shear (N/m2)	0.19	0.25
0.17				
Alpha	1.54	Stream Power (N/m s)	0.03	0.10
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	33.92	119.83
27.28				

C & E Loss (m)	0.00	Cum SA (1000 m2)	23.50	45.13
17.68				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 12

INPUT
Description:
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.2008	12.7565	13.8768	12.8396	18.0219	12.9501	21.2243	10.76	23.4295	9.2519
33.8665	9.2514	36.0813	10.76	38.8206	12.6153	38.9301	12.7005	39.1748	12.9588
39.6886	13.0249	41.1404	13.0254	41.9815	12.892	43.2053	12.7412		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
13.2008	.03	18.0219	.015	39.1748	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	18.0219	39.1748		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	14.38	31.44
7.01				
E.G. Slope (m/m)	0.000007	Area (m2)	14.38	31.44
7.01				
Q Total (m3/s)	10.00	Flow (m3/s)	1.40	8.04
0.57				
Top Width (m)	34.73	Top Width (m)	11.21	17.13
6.39				
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.10	0.26
0.08				
Max Chl Dpth (m)	2.28	Hydr. Depth (m)	1.28	1.84
1.10				
Conv. Total (m3/s)	3708.2	Conv. (m3/s)	517.4	2980.6
210.2				

Length Wtd. (m) 8.23	200.00	Wetted Per. (m)	12.81	18.54
Min Ch El (m) 0.06	9.25	Shear (N/m2)	0.08	0.12
Alpha 0.00	1.51	Stream Power (N/m s)	0.01	0.03
Frctn Loss (m) 10.67	0.00	Cum Volume (1000 m3)	10.91	68.64
C & E Loss (m) 10.90	0.00	Cum SA (1000 m2)	13.79	36.56

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m) Right OB	12.02	Element	Left OB	Channel
Vel Head (m) 0.030	0.00	Wt. n-Val.	0.030	0.015
W.S. Elev (m) 200.00	12.02	Reach Len. (m)	200.00	200.00
Crit W.S. (m) 10.28		Flow Area (m2)	19.99	40.07
E.G. Slope (m/m) 10.28	0.000003	Area (m2)	19.99	40.07
Q Total (m3/s) 0.66	10.00	Flow (m3/s)	1.55	7.79
Top Width (m) 7.12	37.67	Top Width (m)	12.00	18.55
Vel Total (m/s) 0.06	0.14	Avg. Vel. (m/s)	0.08	0.19
Max Chl Dpth (m) 1.44	2.77	Hydr. Depth (m)	1.67	2.16
Conv. Total (m3/s) 359.1	5404.8	Conv. (m3/s)	836.2	4209.5
Length Wtd. (m) 9.59	200.00	Wetted Per. (m)	14.22	20.26
Min Ch El (m) 0.04	9.25	Shear (N/m2)	0.05	0.07
Alpha 0.00	1.52	Stream Power (N/m s)	0.00	0.01
Frctn Loss (m) 16.42	0.00	Cum Volume (1000 m3)	18.69	87.57
C & E Loss (m) 13.68	0.00	Cum SA (1000 m2)	18.33	39.36

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	26.12	49.60
13.99				
E.G. Slope (m/m)	0.000002	Area (m2)	26.12	49.60
13.99				
Q Total (m3/s)	10.00	Flow (m3/s)	1.64	7.62
0.74				
Top Width (m)	40.68	Top Width (m)	12.80	20.00
7.87				
Vel Total (m/s)	0.11	Avg. Vel. (m/s)	0.06	0.15
0.05				
Max Chl Dpth (m)	3.26	Hydr. Depth (m)	2.04	2.48
1.78				
Conv. Total (m3/s)	7455.5	Conv. (m3/s)	1224.7	5682.8
548.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	15.66	22.01
10.98				
Min Ch El (m)	9.25	Shear (N/m2)	0.03	0.04
0.02				
Alpha	1.52	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	28.02	108.49
23.18				
C & E Loss (m)	0.00	Cum SA (1000 m2)	20.86	40.95
15.66				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.71	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.69	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.21	34.24
8.06				

E.G. Slope (m/m)	0.000041	Area (m2)	16.21	34.24
8.06				
Q Total (m3/s)	27.00	Flow (m3/s)	3.93	21.44
1.63				
Top Width (m)	35.71	Top Width (m)	11.47	17.60
6.63				
Vel Total (m/s)	0.46	Avg. Vel. (m/s)	0.24	0.63
0.20				
Max Chl Dpth (m)	2.44	Hydr. Depth (m)	1.41	1.95
1.22				
Conv. Total (m3/s)	4239.8	Conv. (m3/s)	616.8	3367.1
255.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.28	19.11
8.68				
Min Ch El (m)	9.25	Shear (N/m2)	0.49	0.71
0.37				
Alpha	1.51	Stream Power (N/m s)	0.12	0.45
0.07				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	12.50	72.18
12.05				
C & E Loss (m)	0.00	Cum SA (1000 m2)	14.32	37.08
11.33				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.11	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.10	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	20.99	41.61
10.88				
E.G. Slope (m/m)	0.000022	Area (m2)	20.99	41.61
10.88				
Q Total (m3/s)	27.00	Flow (m3/s)	4.23	20.94
1.83				
Top Width (m)	38.17	Top Width (m)	12.13	18.79
7.25				
Vel Total (m/s)	0.37	Avg. Vel. (m/s)	0.20	0.50
0.17				
Max Chl Dpth (m)	2.85	Hydr. Depth (m)	1.73	2.21
1.50				
Conv. Total (m3/s)	5724.4	Conv. (m3/s)	896.7	4439.7
388.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	14.46	20.55
9.82				

Min Ch El (m) 0.24	9.25	Shear (N/m2)	0.32	0.44
Alpha 0.04	1.52	Stream Power (N/m s)	0.06	0.22
Frctn Loss (m) 17.19	0.00	Cum Volume (1000 m3)	19.58	89.43
C & E Loss (m) 13.86	0.00	Cum SA (1000 m2)	18.54	39.61

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m) Right OB	12.57	Element	Left OB	Channel
Vel Head (m) 0.030	0.01	Wt. n-Val.	0.030	0.015
W.S. Elev (m) 200.00	12.56	Reach Len. (m)	200.00	200.00
Crit W.S. (m) 14.39		Flow Area (m2)	26.76	50.61
E.G. Slope (m/m) 14.39	0.000012	Area (m2)	26.76	50.61
Q Total (m3/s) 2.00	27.00	Flow (m3/s)	4.46	20.54
Top Width (m) 7.96	40.99	Top Width (m)	12.88	20.15
Vel Total (m/s) 0.14	0.29	Avg. Vel. (m/s)	0.17	0.41
Max Chl Dpth (m) 1.81	3.31	Hydr. Depth (m)	2.08	2.51
Conv. Total (m3/s) 569.1	7681.6	Conv. (m3/s)	1267.6	5844.9
Length Wtd. (m) 11.13	200.00	Wetted Per. (m)	15.80	22.19
Min Ch El (m) 0.16	9.25	Shear (N/m2)	0.21	0.28
Alpha 0.02	1.52	Stream Power (N/m s)	0.03	0.11
Frctn Loss (m) 23.71	0.00	Cum Volume (1000 m3)	28.64	109.71
C & E Loss (m) 15.78	0.00	Cum SA (1000 m2)	20.99	41.10

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 11

INPUT

Description:

Station Elevation Data	num=	14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
11.2173 12.8045 13.0207 13.0146 14.5873 13.0467 15.7657 13.027 16.7161 12.8898		
19.8613 10.75 22.0777 9.2422 32.4872 9.2417 34.7363 10.75 37.9927 12.9338		
38.8896 12.9666 40.0712 12.9666 41.2382 12.9146 41.778 12.8146		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
11.2173 .03 16.7161 .015 37.9927 .03		

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr.
Expan.		
16.7161 37.9927	200 200 200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.53	Reach Len. (m)	54.70	54.70
54.70				
Crit W.S. (m)	9.67	Flow Area (m2)	10.86	31.59
10.97				
E.G. Slope (m/m)	0.000007	Area (m2)	10.86	31.59
10.97				
Q Total (m3/s)	10.00	Flow (m3/s)	0.98	7.99
1.03				
Top Width (m)	33.76	Top Width (m)	8.94	17.19
7.63				
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.09	0.25
0.09				
Max Chl Dpth (m)	2.48	Hydr. Depth (m)	1.21	1.84
1.44				
Conv. Total (m3/s)	3754.0	Conv. (m3/s)	369.0	2999.5
385.6				
Length Wtd. (m)	54.70	Wetted Per. (m)	10.56	18.59
10.13				
Min Ch El (m)	9.24	Shear (N/m2)	0.07	0.12
0.08				
Alpha	1.51	Stream Power (N/m s)	0.01	0.03
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	8.39	62.33
8.87				

C & E Loss (m)	0.00	Cum SA (1000 m2)	11.78	33.13
9.50				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.02	Reach Len. (m)	54.70	54.70
54.70				
Crit W.S. (m)	9.67	Flow Area (m2)	15.41	40.27
14.90				
E.G. Slope (m/m)	0.000003	Area (m2)	15.41	40.27
14.90				
Q Total (m3/s)	10.00	Flow (m3/s)	1.12	7.81
1.08				
Top Width (m)	37.01	Top Width (m)	9.81	18.62
8.58				
Vel Total (m/s)	0.14	Avg. Vel. (m/s)	0.07	0.19
0.07				
Max Chl Dpth (m)	2.96	Hydr. Depth (m)	1.57	2.16
1.74				
Conv. Total (m3/s)	5424.9	Conv. (m3/s)	605.4	4235.6
583.9				
Length Wtd. (m)	54.70	Wetted Per. (m)	12.03	20.32
11.69				
Min Ch El (m)	9.24	Shear (N/m2)	0.04	0.07
0.04				
Alpha	1.52	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	15.15	79.54
13.90				
C & E Loss (m)	0.00	Cum SA (1000 m2)	16.15	35.64
12.11				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	54.70	54.70
54.70				
Crit W.S. (m)	9.67	Flow Area (m2)	20.48	49.85
19.38				
E.G. Slope (m/m)	0.000002	Area (m2)	20.48	49.85
19.38				
Q Total (m3/s)	10.00	Flow (m3/s)	1.21	7.68
1.12				
Top Width (m)	40.33	Top Width (m)	10.69	20.09
9.55				
Vel Total (m/s)	0.11	Avg. Vel. (m/s)	0.06	0.15
0.06				
Max Chl Dpth (m)	3.46	Hydr. Depth (m)	1.92	2.48
2.03				
Conv. Total (m3/s)	7447.8	Conv. (m3/s)	899.2	5716.8
831.7				
Length Wtd. (m)	54.70	Wetted Per. (m)	13.54	22.09
13.27				
Min Ch El (m)	9.24	Shear (N/m2)	0.03	0.04
0.03				
Alpha	1.53	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	23.36	98.55
19.84				
C & E Loss (m)	0.00	Cum SA (1000 m2)	18.51	36.94
13.92				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.70	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.69	Reach Len. (m)	54.70	54.70
54.70				
Crit W.S. (m)	10.06	Flow Area (m2)	12.27	34.29

12.18				
E.G. Slope (m/m)	0.000040	Area (m2)	12.27	34.29
12.18				
Q Total (m3/s)	27.00	Flow (m3/s)	2.79	21.39
2.82				
Top Width (m)	34.80	Top Width (m)	9.22	17.65
7.93				
Vel Total (m/s)	0.46	Avg. Vel. (m/s)	0.23	0.62
0.23				
Max Chl Dpth (m)	2.63	Hydr. Depth (m)	1.33	1.94
1.53				
Conv. Total (m3/s)	4254.7	Conv. (m3/s)	438.9	3371.4
444.3				
Length Wtd. (m)	54.70	Wetted Per. (m)	11.03	19.14
10.63				
Min Ch El (m)	9.24	Shear (N/m2)	0.44	0.71
0.45				
Alpha	1.51	Stream Power (N/m s)	0.10	0.44
0.10				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	9.66	65.33
10.03				
C & E Loss (m)	0.00	Cum SA (1000 m2)	12.25	33.56
9.87				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.11	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.09	Reach Len. (m)	54.70	54.70
54.70				
Crit W.S. (m)	10.06	Flow Area (m2)	16.18	41.74
15.58				
E.G. Slope (m/m)	0.000022	Area (m2)	16.18	41.74
15.58				
Q Total (m3/s)	27.00	Flow (m3/s)	3.06	21.02
2.92				
Top Width (m)	37.54	Top Width (m)	9.95	18.86
8.73				
Vel Total (m/s)	0.37	Avg. Vel. (m/s)	0.19	0.50
0.19				
Max Chl Dpth (m)	3.04	Hydr. Depth (m)	1.63	2.21
1.78				

Conv. Total (m3/s)	5724.9	Conv. (m3/s)	648.6	4456.1
620.2				
Length Wtd. (m)	54.70	Wetted Per. (m)	12.27	20.60
11.94				
Min Ch El (m)	9.24	Shear (N/m2)	0.29	0.44
0.28				
Alpha	1.52	Stream Power (N/m s)	0.05	0.22
0.05				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	15.86	81.10
14.54				
C & E Loss (m)	0.00	Cum SA (1000 m2)	16.33	35.84
12.26				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.56	Reach Len. (m)	54.70	54.70
54.70				
Crit W.S. (m)	10.06	Flow Area (m2)	20.99	50.81
19.84				
E.G. Slope (m/m)	0.000012	Area (m2)	20.99	50.81
19.84				
Q Total (m3/s)	27.00	Flow (m3/s)	3.28	20.70
3.02				
Top Width (m)	40.65	Top Width (m)	10.78	20.23
9.64				
Vel Total (m/s)	0.29	Avg. Vel. (m/s)	0.16	0.41
0.15				
Max Chl Dpth (m)	3.50	Hydr. Depth (m)	1.95	2.51
2.06				
Conv. Total (m3/s)	7661.4	Conv. (m3/s)	930.5	5872.6
858.3				
Length Wtd. (m)	54.70	Wetted Per. (m)	13.69	22.26
13.42				
Min Ch El (m)	9.24	Shear (N/m2)	0.19	0.28
0.18				
Alpha	1.53	Stream Power (N/m s)	0.03	0.11
0.03				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	23.87	99.57
20.29				
C & E Loss (m)	0.00	Cum SA (1000 m2)	18.63	37.07

14.02

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 10.5

INPUT

Description:

Distance from Upstream XS = 54.7

Deck/Roadway Width = 4

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
16.48	14.12	12.38	38.03	14.12	12.38				

Upstream Bridge Cross Section Data

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.2173	12.8045	13.0207	13.0146	14.5873	13.0467	15.7657	13.027	16.7161	12.8898
19.8613	10.75	22.0777	9.2422	32.4872	9.2417	34.7363	10.75	37.9927	12.9338
38.8896	12.9666	40.0712	12.9666	41.2382	12.9146	41.778	12.8146		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.2173	.03	16.7161	.015	37.9927	.03

Bank Sta: Left Right Coeff Contr. Expan.

16.7161	37.9927	.0015	.01
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Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
16.4	14.2	12.38	37.95	14.2	12.38				

Downstream Bridge Cross Section Data

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.2406	12.7458	12.3129	12.9484	14.5562	13.0021	16.6558	12.9485	19.7782	10.77
21.9821	9.2324	32.4186	9.2319	34.6596	10.77	37.5561	12.7579	37.6287	12.989
38.0647	13.1409	39.9559	13.1998	42.3096	13.1153				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.2406	.03	16.6558	.015	37.6287	.03

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	16.6558	37.6287		.0015	.01

Upstream Embankment side slope	=	0 horiz. to 1.0 vertical
Downstream Embankment side slope	=	0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2
Sta	Elev	Sta Elev
16.48	12.38	21.15 12.38
Downstream	num=	2
Sta	Elev	Sta Elev
16.4	12.38	21.07 12.38

Abutment Data

Upstream	num=	2
Sta	Elev	Sta Elev
33.65	12.38	38.03 12.38
Downstream	num=	2
Sta	Elev	Sta Elev
33.57	12.38	37.95 12.38

Number of Piers = 2

Pier Data

Pier Station	Upstream=	24.8	Downstream=	24.72
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.34	.4	12.38	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.34	.4	12.38	

Pier Data

Pier Station	Upstream=	30	Downstream=	29.92
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.34	.4	12.38	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.34	.4	12.38	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.53	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.53	E.G. Elev (m)	11.53
11.53			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.53
11.53			
Q Bridge (m3/s)	7.06	Crit W.S. (m)	9.69
9.70			
Q Weir (m3/s)		Max Chl Dpth (m)	2.29
2.30			
Weir Sta Lft (m)		Vel Total (m/s)	0.21
0.22			
Weir Sta Rgt (m)		Flow Area (m2)	47.85
44.99			
Weir Submerg		Froude # Chl	0.06
0.06			
Weir Max Depth (m)		Specif Force (m3)	46.62
40.93			
Min El Weir Flow (m)	10.08	Hydr Depth (m)	1.69
1.50			
Min El Prs (m)	12.38	W.P. Total (m)	45.14
45.58			
Delta EG (m)	0.00	Conv. Total (m3/s)	2563.4
2409.2			
Delta WS (m)	0.00	Top Width (m)	28.27
29.98			
BR Open Area (m2)	35.97	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.27	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.16
0.17			
BR Sel Method	Energy only	Power Total (N/m s)	0.03
0.04			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.02	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.02	E.G. Elev (m)	12.02
12.02			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.02
12.02			
Q Bridge (m3/s)	6.62	Crit W.S. (m)	9.69
9.70			
Q Weir (m3/s)		Max Chl Dpth (m)	2.77
2.78			
Weir Sta Lft (m)		Vel Total (m/s)	0.16
0.17			
Weir Sta Rgt (m)		Flow Area (m2)	62.00
60.07			
Weir Submerg		Froude # Chl	0.04
0.04			
Weir Max Depth (m)		Specif Force (m3)	73.16
66.32			
Min El Weir Flow (m)	10.08	Hydr Depth (m)	2.06
1.87			
Min El Prs (m)	12.38	W.P. Total (m)	51.08
51.84			
Delta EG (m)	0.00	Conv. Total (m3/s)	3520.9
3387.1			
Delta WS (m)	0.00	Top Width (m)	30.09
32.14			
BR Open Area (m2)	35.97	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.21	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.10
0.10			
BR Sel Method	Energy only	Power Total (N/m s)	0.02
0.02			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.51	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.51	E.G. Elev (m)	12.51

12.51			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.51
12.51			
Q Bridge (m3/s)	5.58	Crit W.S. (m)	9.69
9.70			
Q Weir (m3/s)		Max Chl Dpth (m)	3.27
3.28			
Weir Sta Lft (m)		Vel Total (m/s)	0.13
0.13			
Weir Sta Rgt (m)		Flow Area (m2)	75.82
75.00			
Weir Submerg		Froude # Chl	0.02
0.02			
Weir Max Depth (m)		Specif Force (m3)	107.47
99.94			
Min El Weir Flow (m)	10.00	Hydr Depth (m)	3.75
3.31			
Min El Prs (m)	12.38	W.P. Total (m)	68.06
69.13			
Delta EG (m)	0.00	Conv. Total (m3/s)	3919.5
3828.0			
Delta WS (m)	0.00	Top Width (m)	20.24
22.65			
BR Open Area (m2)	35.97	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.16	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.07
0.07			
BR Sel Method	Energy only	Power Total (N/m s)	0.01
0.01			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.70	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.69	E.G. Elev (m)	11.70
11.70			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.68
11.68			
Q Bridge (m3/s)	18.67	Crit W.S. (m)	10.09
10.12			
Q Weir (m3/s)		Max Chl Dpth (m)	2.44
2.45			
Weir Sta Lft (m)		Vel Total (m/s)	0.52
0.55			
Weir Sta Rgt (m)		Flow Area (m2)	52.16

49.49	Weir Submerg		Froude # Ch1	0.14
0.15	Weir Max Depth (m)		Specif Force (m3)	55.49
49.37	Min El Weir Flow (m)	10.08	Hydr Depth (m)	1.81
1.62	Min El Prs (m)	12.38	W.P. Total (m)	46.99
47.49	Delta EG (m)	0.01	Conv. Total (m3/s)	2849.4
2694.0	Delta WS (m)	0.01	Top Width (m)	28.84
30.64	BR Open Area (m2)	35.97	Frctn Loss (m)	0.00
0.01	BR Open Vel (m/s)	0.67	C & E Loss (m)	0.00
0.00	BR Sluice Coef		Shear Total (N/m2)	0.98
1.03	BR Sel Method	Energy only	Power Total (N/m s)	0.51
0.56				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.11	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.09	E.G. Elev (m)	12.10
12.10		W.S. Elev (m)	12.09
Q Total (m3/s)	27.00	Crit W.S. (m)	10.09
12.09		Max Ch1 Dpth (m)	2.85
Q Bridge (m3/s)	17.72	Vel Total (m/s)	0.42
10.12		Flow Area (m2)	64.31
Q Weir (m3/s)		Froude # Ch1	0.10
2.86		Specif Force (m3)	79.06
Weir Sta Lft (m)		Hydr Depth (m)	2.12
0.43		W.P. Total (m)	52.02
Weir Sta Rgt (m)		Conv. Total (m3/s)	3681.5
62.50			
Weir Submerg			
0.11			
Weir Max Depth (m)			
72.06			
Min El Weir Flow (m)	10.08		
1.92			
Min El Prs (m)	12.38		
52.81			
Delta EG (m)	0.01		

3550.6			
Delta WS (m)	0.01	Top Width (m)	30.37
32.48			
BR Open Area (m2)	35.97	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.54	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.65
0.67			
BR Sel Method	Energy only	Power Total (N/m s)	0.27
0.29			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.57	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.56	E.G. Elev (m)	12.56
12.56			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.56
12.56			
Q Bridge (m3/s)	14.86	Crit W.S. (m)	10.09
10.12			
Q Weir (m3/s)		Max Chl Dpth (m)	3.32
3.33			
Weir Sta Lft (m)		Vel Total (m/s)	0.35
0.35			
Weir Sta Rgt (m)		Flow Area (m2)	76.78
76.06			
Weir Submerg		Froude # Chl	0.06
0.07			
Weir Max Depth (m)		Specif Force (m3)	111.90
104.32			
Min El Weir Flow (m)	10.08	Hydr Depth (m)	3.76
3.33			
Min El Prs (m)	12.38	W.P. Total (m)	68.35
69.45			
Delta EG (m)	0.00	Conv. Total (m3/s)	3976.1
3889.4			
Delta WS (m)	0.00	Top Width (m)	20.42
22.86			
BR Open Area (m2)	35.97	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.41	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.51
0.52			
BR Sel Method	Energy only	Power Total (N/m s)	0.18

0.18

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 10

INPUT

Description:

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.2406	12.7458	12.3129	12.9484	14.5562	13.0021	16.6558	12.9485	19.7782	10.77
21.9821	9.2324	32.4186	9.2319	34.6596	10.77	37.5561	12.7579	37.6287	12.989
38.0647	13.1409	39.9559	13.1998	42.3096	13.1153				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.2406	.03	16.6558	.015	37.6287	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
Expan.

16.6558	37.6287	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	7.09	31.59
11.74				
E.G. Slope (m/m)	0.000008	Area (m2)	7.09	31.59
11.74				
Q Total (m3/s)	10.00	Flow (m3/s)	0.55	8.36
1.09				
Top Width (m)	35.35	Top Width (m)	8.27	17.07
10.00				
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.08	0.26
0.09				
Max Chl Dpth (m)	2.30	Hydr. Depth (m)	0.86	1.85
1.17				
Conv. Total (m3/s)	3597.1	Conv. (m3/s)	196.1	3008.4
392.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.38	18.51

11.68				
Min Ch El (m)	9.23	Shear (N/m2)	0.06	0.13
0.08				
Alpha	1.52	Stream Power (N/m s)	0.00	0.03
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	6.76	56.58
6.56				
C & E Loss (m)	0.00	Cum SA (1000 m2)	10.09	30.26
7.63				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.01	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	11.40	40.23
16.84				
E.G. Slope (m/m)	0.000004	Area (m2)	11.40	40.23
16.84				
Q Total (m3/s)	10.00	Flow (m3/s)	0.73	8.03
1.24				
Top Width (m)	38.92	Top Width (m)	9.46	18.48
10.98				
Vel Total (m/s)	0.15	Avg. Vel. (m/s)	0.06	0.20
0.07				
Max Chl Dpth (m)	2.78	Hydr. Depth (m)	1.21	2.18
1.53				
Conv. Total (m3/s)	5287.4	Conv. (m3/s)	385.5	4243.7
658.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.15	20.22
13.26				
Min Ch El (m)	9.23	Shear (N/m2)	0.04	0.07
0.04				
Alpha	1.54	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	12.64	72.35
10.64				
C & E Loss (m)	0.00	Cum SA (1000 m2)	14.23	32.63
10.05				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the

computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.38	49.74
22.53				
E.G. Slope (m/m)	0.000002	Area (m2)	16.38	49.74
22.53				
Q Total (m3/s)	10.00	Flow (m3/s)	0.87	7.78
1.35				
Top Width (m)	42.56	Top Width (m)	10.67	19.91
11.98				
Vel Total (m/s)	0.11	Avg. Vel. (m/s)	0.05	0.16
0.06				
Max Chl Dpth (m)	3.28	Hydr. Depth (m)	1.54	2.50
1.88				
Conv. Total (m3/s)	7347.9	Conv. (m3/s)	638.5	5719.1
990.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.95	21.96
14.87				
Min Ch El (m)	9.23	Shear (N/m2)	0.02	0.04
0.03				
Alpha	1.55	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	19.85	89.99
15.51				
C & E Loss (m)	0.00	Cum SA (1000 m2)	16.38	34.99
11.66				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.69	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.67	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.29	34.06
13.19				
E.G. Slope (m/m)	0.000044	Area (m2)	8.29	34.06

13.19				
Q Total (m3/s)	27.00	Flow (m3/s)	1.63	22.28
3.09				
Top Width (m)	36.40	Top Width (m)	8.62	17.49
10.29				
Vel Total (m/s)	0.49	Avg. Vel. (m/s)	0.20	0.65
0.23				
Max Chl Dpth (m)	2.44	Hydr. Depth (m)	0.96	1.95
1.28				
Conv. Total (m3/s)	4059.2	Conv. (m3/s)	245.7	3349.2
464.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.90	19.01
12.15				
Min Ch El (m)	9.23	Shear (N/m2)	0.36	0.78
0.47				
Alpha	1.53	Stream Power (N/m s)	0.07	0.51
0.11				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	7.77	59.14
7.44				
C & E Loss (m)	0.00	Cum SA (1000 m2)	10.49	30.65
7.94				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.10	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.09	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	12.08	41.57
17.64				
E.G. Slope (m/m)	0.000024	Area (m2)	12.08	41.57
17.64				
Q Total (m3/s)	27.00	Flow (m3/s)	2.03	21.56
3.41				
Top Width (m)	39.45	Top Width (m)	9.63	18.69
11.13				
Vel Total (m/s)	0.38	Avg. Vel. (m/s)	0.17	0.52
0.19				
Max Chl Dpth (m)	2.86	Hydr. Depth (m)	1.25	2.22
1.58				
Conv. Total (m3/s)	5565.6	Conv. (m3/s)	418.5	4444.4
702.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.41	20.47
13.50				
Min Ch El (m)	9.23	Shear (N/m2)	0.24	0.47

0.30				
Alpha	1.55	Stream Power (N/m s)	0.04	0.24
0.06				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	13.21	73.68
11.13				
C & E Loss (m)	0.00	Cum SA (1000 m2)	14.39	32.81
10.17				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.85	50.61
23.05				
E.G. Slope (m/m)	0.000013	Area (m2)	16.85	50.61
23.05				
Q Total (m3/s)	27.00	Flow (m3/s)	2.38	20.97
3.66				
Top Width (m)	42.88	Top Width (m)	10.77	20.04
12.07				
Vel Total (m/s)	0.30	Avg. Vel. (m/s)	0.14	0.41
0.16				
Max Chl Dpth (m)	3.32	Hydr. Depth (m)	1.56	2.53
1.91				
Conv. Total (m3/s)	7547.2	Conv. (m3/s)	663.9	5860.6
1022.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	13.11	22.11
15.01				
Min Ch El (m)	9.23	Shear (N/m2)	0.16	0.29
0.19				
Alpha	1.56	Stream Power (N/m s)	0.02	0.12
0.03				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	20.26	90.93
15.86				
C & E Loss (m)	0.00	Cum SA (1000 m2)	16.47	35.10
11.74				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 9

INPUT

Description:

Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.4314	13.018	13.3335	13.1326	15.2253	13.0712	16.4615	12.9551	19.4535	10.75
21.5258	9.2227	32.0723	9.2222	34.3142	10.75	37.6519	13.0247	39.4008	13.1217
40.5583	13.0678	42.1715	13.0078						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.4314	.03	16.4615	.015	37.6519	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.	16.4615	37.6519		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	7.61	31.81
10.96				
E.G. Slope (m/m)	0.000008	Area (m2)	7.61	31.81
10.96				
Q Total (m3/s)	10.00	Flow (m3/s)	0.60	8.40
1.00				
Top Width (m)	34.69	Top Width (m)	8.29	17.06
9.34				
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.08	0.26
0.09				
Max Chl Dpth (m)	2.31	Hydr. Depth (m)	0.92	1.87
1.17				
Conv. Total (m3/s)	3621.2	Conv. (m3/s)	218.6	3041.2
361.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.51	18.52
11.13				
Min Ch El (m)	9.22	Shear (N/m2)	0.06	0.13
0.07				
Alpha	1.52	Stream Power (N/m s)	0.00	0.03
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	5.29	50.23
4.29				
C & E Loss (m)	0.00	Cum SA (1000 m2)	8.43	26.85

5.70

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.01	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	11.90	40.45
15.72				
E.G. Slope (m/m)	0.000004	Area (m2)	11.90	40.45
15.72				
Q Total (m3/s)	10.00	Flow (m3/s)	0.78	8.07
1.14				
Top Width (m)	37.96	Top Width (m)	9.32	18.43
10.21				
Vel Total (m/s)	0.15	Avg. Vel. (m/s)	0.07	0.20
0.07				
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	1.28	2.19
1.54				
Conv. Total (m3/s)	5303.5	Conv. (m3/s)	414.4	4282.6
606.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.13	20.21
12.62				
Min Ch El (m)	9.22	Shear (N/m2)	0.04	0.07
0.04				
Alpha	1.53	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	10.31	64.29
7.39				
C & E Loss (m)	0.00	Cum SA (1000 m2)	12.36	28.94
7.93				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015

0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.77	49.93
20.99				
E.G. Slope (m/m)	0.000002	Area (m2)	16.77	49.93
20.99				
Q Total (m3/s)	10.00	Flow (m3/s)	0.91	7.85
1.24				
Top Width (m)	41.29	Top Width (m)	10.36	19.83
11.09				
Vel Total (m/s)	0.11	Avg. Vel. (m/s)	0.05	0.16
0.06				
Max Chl Dpth (m)	3.29	Hydr. Depth (m)	1.62	2.52
1.89				
Conv. Total (m3/s)	7342.6	Conv. (m3/s)	670.0	5761.2
911.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.78	21.92
14.12				
Min Ch El (m)	9.22	Shear (N/m2)	0.02	0.04
0.03				
Alpha	1.54	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	16.53	80.03
11.16				
C & E Loss (m)	0.00	Cum SA (1000 m2)	14.28	31.01
9.35				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.68	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.66	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.75	34.14
12.23				
E.G. Slope (m/m)	0.000044	Area (m2)	8.75	34.14
12.23				
Q Total (m3/s)	27.00	Flow (m3/s)	1.78	22.40
2.82				
Top Width (m)	35.60	Top Width (m)	8.58	17.44
9.58				
Vel Total (m/s)	0.49	Avg. Vel. (m/s)	0.20	0.66
0.23				
Max Chl Dpth (m)	2.44	Hydr. Depth (m)	1.02	1.96

1.28				
Conv. Total (m3/s)	4056.2	Conv. (m3/s)	267.4	3364.8
423.9				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.96	18.99
11.54				
Min Ch El (m)	9.22	Shear (N/m2)	0.38	0.78
0.46				
Alpha	1.52	Stream Power (N/m s)	0.08	0.51
0.11				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	6.06	52.32
4.90				
C & E Loss (m)	0.00	Cum SA (1000 m2)	8.77	27.16
5.96				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.09	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.08	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	12.53	41.71
16.41				
E.G. Slope (m/m)	0.000024	Area (m2)	12.53	41.71
16.41				
Q Total (m3/s)	27.00	Flow (m3/s)	2.16	21.70
3.13				
Top Width (m)	38.42	Top Width (m)	9.46	18.62
10.33				
Vel Total (m/s)	0.38	Avg. Vel. (m/s)	0.17	0.52
0.19				
Max Chl Dpth (m)	2.86	Hydr. Depth (m)	1.32	2.24
1.59				
Conv. Total (m3/s)	5563.1	Conv. (m3/s)	446.1	4472.1
645.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.36	20.44
12.82				
Min Ch El (m)	9.22	Shear (N/m2)	0.25	0.47
0.30				
Alpha	1.54	Stream Power (N/m s)	0.04	0.25
0.06				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	10.75	65.36
7.73				
C & E Loss (m)	0.00	Cum SA (1000 m2)	12.48	29.08
8.03				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	17.20	50.75
21.46				
E.G. Slope (m/m)	0.000013	Area (m2)	17.20	50.75
21.46				
Q Total (m3/s)	27.00	Flow (m3/s)	2.49	21.14
3.37				
Top Width (m)	41.56	Top Width (m)	10.45	19.95
11.17				
Vel Total (m/s)	0.30	Avg. Vel. (m/s)	0.14	0.42
0.16				
Max Chl Dpth (m)	3.33	Hydr. Depth (m)	1.65	2.54
1.92				
Conv. Total (m3/s)	7528.8	Conv. (m3/s)	694.0	5895.3
939.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	12.92	22.07
14.25				
Min Ch El (m)	9.22	Shear (N/m2)	0.17	0.29
0.19				
Alpha	1.54	Stream Power (N/m s)	0.02	0.12
0.03				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	16.85	80.79
11.41				
C & E Loss (m)	0.00	Cum SA (1000 m2)	14.35	31.10
9.42				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 8

INPUT

Description:

Station Elevation Data				num=	14				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.8418	13.0138	13.8341	13.1333	14.6952	13.1055	15.8898	13.0847	16.8296	12.8871
19.9343	10.75	22.157	9.22	32.6209	9.22	34.8362	10.75	38.0872	12.9954
39.4886	13.0422	40.5613	13.0218	41.2261	12.9264	42.0612	12.8908		

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
11.8418	.03	16.8296	.015	38.0872	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	16.8296	38.0872		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.53	Reach Len. (m)	96.30	96.30
96.30				
Crit W.S. (m)	9.66	Flow Area (m2)	9.00	31.84
8.76				
E.G. Slope (m/m)	0.000008	Area (m2)	9.00	31.84
8.76				
Q Total (m3/s)	10.00	Flow (m3/s)	0.76	8.50
0.74				
Top Width (m)	34.04	Top Width (m)	9.08	17.15
7.81				
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.08	0.27
0.08				
Max Chl Dpth (m)	2.31	Hydr. Depth (m)	0.99	1.86
1.12				
Conv. Total (m3/s)	3576.5	Conv. (m3/s)	271.9	3038.8
265.8				
Length Wtd. (m)	96.30	Wetted Per. (m)	10.43	18.59
10.08				
Min Ch El (m)	9.22	Shear (N/m2)	0.07	0.13
0.07				
Alpha	1.51	Stream Power (N/m s)	0.01	0.04
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	3.63	43.87
2.32				
C & E Loss (m)	0.00	Cum SA (1000 m2)	6.69	23.43
3.98				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.01	Reach Len. (m)	96.30	96.30
96.30				
Crit W.S. (m)	9.66	Flow Area (m2)	13.65	40.55
12.81				
E.G. Slope (m/m)	0.000004	Area (m2)	13.65	40.55
12.81				
Q Total (m3/s)	10.00	Flow (m3/s)	0.95	8.18
0.87				
Top Width (m)	37.37	Top Width (m)	9.98	18.57
8.82				
Vel Total (m/s)	0.15	Avg. Vel. (m/s)	0.07	0.20
0.07				
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	1.37	2.18
1.45				
Conv. Total (m3/s)	5237.9	Conv. (m3/s)	497.0	4286.6
454.2				
Length Wtd. (m)	96.30	Wetted Per. (m)	11.95	20.31
11.69				
Min Ch El (m)	9.22	Shear (N/m2)	0.04	0.07
0.04				
Alpha	1.54	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	7.76	56.19
4.53				
C & E Loss (m)	0.00	Cum SA (1000 m2)	10.43	25.24
6.02				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	96.30	96.30
96.30				
Crit W.S. (m)	9.66	Flow Area (m2)	18.83	50.11
17.44				
E.G. Slope (m/m)	0.000002	Area (m2)	18.83	50.11
17.44				
Q Total (m3/s)	10.00	Flow (m3/s)	1.08	7.96

0.96				
Top Width (m)	40.76	Top Width (m)	10.90	20.00
9.85				
Vel Total (m/s)	0.12	Avg. Vel. (m/s)	0.06	0.16
0.06				
Max Chl Dpth (m)	3.29	Hydr. Depth (m)	1.73	2.50
1.77				
Conv. Total (m3/s)	7253.6	Conv. (m3/s)	783.6	5774.1
696.0				
Length Wtd. (m)	96.30	Wetted Per. (m)	13.49	22.05
13.32				
Min Ch El (m)	9.22	Shear (N/m2)	0.03	0.04
0.02				
Alpha	1.55	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	12.97	70.02
7.32				
C & E Loss (m)	0.00	Cum SA (1000 m2)	12.15	27.03
7.26				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.67	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.65	Reach Len. (m)	96.30	96.30
96.30				
Crit W.S. (m)	10.07	Flow Area (m2)	10.17	34.04
9.77				
E.G. Slope (m/m)	0.000046	Area (m2)	10.17	34.04
9.77				
Q Total (m3/s)	27.00	Flow (m3/s)	2.21	22.69
2.11				
Top Width (m)	34.91	Top Width (m)	9.31	17.52
8.08				
Vel Total (m/s)	0.50	Avg. Vel. (m/s)	0.22	0.67
0.22				
Max Chl Dpth (m)	2.43	Hydr. Depth (m)	1.09	1.94
1.21				
Conv. Total (m3/s)	3978.4	Conv. (m3/s)	325.0	3343.2
310.2				
Length Wtd. (m)	96.30	Wetted Per. (m)	10.83	19.03
10.50				
Min Ch El (m)	9.22	Shear (N/m2)	0.42	0.81
0.42				
Alpha	1.52	Stream Power (N/m s)	0.09	0.54

0.09				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	4.17	45.50
2.70				
C & E Loss (m)	0.00	Cum SA (1000 m2)	6.98	23.66
4.19				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.09	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.08	Reach Len. (m)	96.30	96.30
96.30				
Crit W.S. (m)	10.07	Flow Area (m2)	14.28	41.73
13.38				
E.G. Slope (m/m)	0.000024	Area (m2)	14.28	41.73
13.38				
Q Total (m3/s)	27.00	Flow (m3/s)	2.61	22.01
2.38				
Top Width (m)	37.81	Top Width (m)	10.10	18.75
8.95				
Vel Total (m/s)	0.39	Avg. Vel. (m/s)	0.18	0.53
0.18				
Max Chl Dpth (m)	2.86	Hydr. Depth (m)	1.41	2.23
1.49				
Conv. Total (m3/s)	5477.2	Conv. (m3/s)	530.5	4464.4
482.3				
Length Wtd. (m)	96.30	Wetted Per. (m)	12.15	20.53
11.89				
Min Ch El (m)	9.22	Shear (N/m2)	0.28	0.48
0.27				
Alpha	1.54	Stream Power (N/m s)	0.05	0.26
0.05				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	8.07	57.01
4.75				
C & E Loss (m)	0.00	Cum SA (1000 m2)	10.52	25.34
6.10				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.55	Reach Len. (m)	96.30	96.30
96.30				
Crit W.S. (m)	10.07	Flow Area (m2)	19.25	50.90
17.83				
E.G. Slope (m/m)	0.000013	Area (m2)	19.25	50.90
17.83				
Q Total (m3/s)	27.00	Flow (m3/s)	2.94	21.45
2.61				
Top Width (m)	41.03	Top Width (m)	10.98	20.12
9.93				
Vel Total (m/s)	0.31	Avg. Vel. (m/s)	0.15	0.42
0.15				
Max Chl Dpth (m)	3.33	Hydr. Depth (m)	1.75	2.53
1.80				
Conv. Total (m3/s)	7426.9	Conv. (m3/s)	808.6	5901.0
717.2				
Length Wtd. (m)	96.30	Wetted Per. (m)	13.62	22.19
13.45				
Min Ch El (m)	9.22	Shear (N/m2)	0.18	0.30
0.17				
Alpha	1.55	Stream Power (N/m s)	0.03	0.13
0.03				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	13.21	70.62
7.48				
C & E Loss (m)	0.00	Cum SA (1000 m2)	12.21	27.09
7.31				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 7.5

INPUT

Description: \

Distance from Upstream XS = 96.3

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
14.79	14.96	12.89	39.44	14.96	12.89				

Upstream Bridge Cross Section Data

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.8418	13.0138	13.8341	13.1333	14.6952	13.1055	15.8898	13.0847	16.8296	12.8871
19.9343	10.75	22.157	9.22	32.6209	9.22	34.8362	10.75	38.0872	12.9954
39.4886	13.0422	40.5613	13.0218	41.2261	12.9264	42.0612	12.8908		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.8418	.03	16.8296	.015	38.0872	.03

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	16.8296	38.0872		.0015	.01

Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
12.37	14.96	12.88	36.84	14.96	12.88				

Downstream Bridge Cross Section Data

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.7498	12.7358	11.6644	12.9223	12.4735	12.8869	14.0914	12.8729	17.3986	10.71
19.6768	9.22	29.9128	9.22	32.1735	10.71	35.4543	12.8723	37.037	12.889
37.6584	12.9258	38.1783	12.9391	38.569	12.8322	40.1499	12.758		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.7498	.03	14.0914	.015	35.4543	.03

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	14.0914	35.4543		.0015	.01

Upstream Embankment side slope = 1.8 horiz. to 1.0 vertical
Downstream Embankment side slope = 1.8 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev
14.97	12.89	20.39	12.89

Downstream num= 2

Sta	Elev	Sta	Elev
12.37	12.89	17.79	12.89

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev
-----	------	-----	------

34.17	12.89	39.44	12.89
Downstream	num=	2	
Sta	Elev	Sta	Elev
31.57	12.89	36.84	12.89

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.53	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.53	E.G. Elev (m)	11.53
11.53			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.52
11.52			
Q Bridge (m3/s)	8.45	Crit W.S. (m)	9.66
9.67			
Q Weir (m3/s)		Max Chl Dpth (m)	2.30
2.30			
Weir Sta Lft (m)		Vel Total (m/s)	0.21
0.27			
Weir Sta Rgt (m)		Flow Area (m2)	47.60
37.64			
Weir Submerg		Froude # Chl	0.06
0.07			
Weir Max Depth (m)		Specif Force (m3)	44.28
35.71			
Min El Weir Flow (m)	10.55	Hydr Depth (m)	1.55
1.43			
Min El Prs (m)	12.89	W.P. Total (m)	37.32
31.38			
Delta EG (m)	0.00	Conv. Total (m3/s)	3455.4
3072.5			
Delta WS (m)	0.00	Top Width (m)	30.67
26.34			
BR Open Area (m2)	48.37	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.28	C & E Loss (m)	0.00
0.00			

BR Sluice Coef		Shear Total (N/m2)	0.10
0.12			
BR Sel Method	Energy only	Power Total (N/m s)	0.02
0.03			

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.02	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.01	E.G. Elev (m)	12.01
12.01			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.01
12.01			
Q Bridge (m3/s)	8.06	Crit W.S. (m)	9.66
9.67			
Q Weir (m3/s)		Max Chl Dpth (m)	2.79
2.79			
Weir Sta Lft (m)		Vel Total (m/s)	0.16
0.20			
Weir Sta Rgt (m)		Flow Area (m2)	63.03
51.05			
Weir Submerg		Froude # Chl	0.04
0.05			
Weir Max Depth (m)		Specif Force (m3)	71.18
57.26			
Min El Weir Flow (m)	10.55	Hydr Depth (m)	1.93
1.79			
Min El Prs (m)	12.89	W.P. Total (m)	41.42
35.76			
Delta EG (m)	0.00	Conv. Total (m3/s)	4894.1
4345.5			
Delta WS (m)	0.00	Top Width (m)	32.58
28.55			
BR Open Area (m2)	48.37	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.22	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.06
0.07			
BR Sel Method	Energy only	Power Total (N/m s)	0.01
0.01			

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.51	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.51	E.G. Elev (m)	12.51
12.51			

Q Total (m3/s)	10.00	W.S. Elev (m)	12.51
12.51			
Q Bridge (m3/s)	7.74	Crit W.S. (m)	9.66
9.67			
Q Weir (m3/s)		Max Chl Dpth (m)	3.29
3.29			
Weir Sta Lft (m)		Vel Total (m/s)	0.13
0.15			
Weir Sta Rgt (m)		Flow Area (m2)	79.68
65.78			
Weir Submerg		Froude # Chl	0.03
0.04			
Weir Max Depth (m)		Specif Force (m3)	106.49
86.17			
Min El Weir Flow (m)	10.55	Hydr Depth (m)	2.31
2.14			
Min El Prs (m)	12.89	W.P. Total (m)	45.59
40.20			
Delta EG (m)	0.00	Conv. Total (m3/s)	6539.3
5813.2			
Delta WS (m)	0.00	Top Width (m)	34.53
30.80			
BR Open Area (m2)	48.37	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.18	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.04
0.05			
BR Sel Method	Energy only	Power Total (N/m s)	0.01
0.01			

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.67	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.65	E.G. Elev (m)	11.67
11.67			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.65
11.64			
Q Bridge (m3/s)	22.52	Crit W.S. (m)	10.07
10.07			
Q Weir (m3/s)		Max Chl Dpth (m)	2.43
2.42			
Weir Sta Lft (m)		Vel Total (m/s)	0.53
0.66			
Weir Sta Rgt (m)		Flow Area (m2)	51.32
40.64			
Weir Submerg		Froude # Chl	0.15
0.17			
Weir Max Depth (m)		Specif Force (m3)	51.73
41.93			

Min El Weir Flow (m)	10.55	Hydr Depth (m)	1.65
1.51			
Min El Prs (m)	12.89	W.P. Total (m)	38.33
32.39			
Delta EG (m)	0.01	Conv. Total (m3/s)	3793.5
3350.5			
Delta WS (m)	0.02	Top Width (m)	31.14
26.85			
BR Open Area (m2)	48.37	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.72	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.67
0.80			
BR Sel Method	Energy only	Power Total (N/m s)	0.35
0.53			

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.09	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.08	E.G. Elev (m)	12.09
12.09			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.07
12.07			
Q Bridge (m3/s)	21.64	Crit W.S. (m)	10.07
10.07			
Q Weir (m3/s)		Max Chl Dpth (m)	2.85
2.85			
Weir Sta Lft (m)		Vel Total (m/s)	0.42
0.51			
Weir Sta Rgt (m)		Flow Area (m2)	64.97
52.61			
Weir Submerg		Froude # Chl	0.11
0.13			
Weir Max Depth (m)		Specif Force (m3)	76.16
61.52			
Min El Weir Flow (m)	10.55	Hydr Depth (m)	1.98
1.83			
Min El Prs (m)	12.89	W.P. Total (m)	41.92
36.24			
Delta EG (m)	0.01	Conv. Total (m3/s)	5081.6
4498.2			
Delta WS (m)	0.01	Top Width (m)	32.82
28.80			
BR Open Area (m2)	48.37	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.58	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.43
0.51			

BR Sel Method	Energy only	Power Total (N/m s)	0.18
0.26			

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.56	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.55	E.G. Elev (m)	12.55
12.55			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.55
12.54			
Q Bridge (m3/s)	20.84	Crit W.S. (m)	10.07
10.07			
Q Weir (m3/s)		Max Chl Dpth (m)	3.33
3.32			
Weir Sta Lft (m)		Vel Total (m/s)	0.33
0.40			
Weir Sta Rgt (m)		Flow Area (m2)	80.94
66.81			
Weir Submerg		Froude # Chl	0.08
0.10			
Weir Max Depth (m)		Specif Force (m3)	110.37
89.52			
Min El Weir Flow (m)	10.55	Hydr Depth (m)	2.33
2.16			
Min El Prs (m)	12.89	W.P. Total (m)	45.90
40.50			
Delta EG (m)	0.00	Conv. Total (m3/s)	6666.9
5917.5			
Delta WS (m)	0.01	Top Width (m)	34.67
30.95			
BR Open Area (m2)	48.37	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.48	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.28
0.34			
BR Sel Method	Energy only	Power Total (N/m s)	0.09
0.14			

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 7

INPUT
 Description:
 Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.7498	12.7358	11.6644	12.9223	12.4735	12.8869	14.0914	12.8729	17.3986	10.71
19.6768	9.22	29.9128	9.22	32.1735	10.71	35.4543	12.8723	37.037	12.889
37.6584	12.9258	38.1783	12.9391	38.569	12.8322	40.1499	12.758		

Manning's n Values			num= 3		
Sta	n Val	Sta	n Val	Sta	n Val
9.7498	.03	14.0914	.015	35.4543	.03

Bank Sta:	Left	Right	Lengths:		Left Channel	Right	Coeff Contr.	
Expan.								
	14.0914	35.4543			200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	4.27	31.65
3.69				
E.G. Slope (m/m)	0.000010	Area (m2)	4.27	31.65
3.69				
Q Total (m3/s)	10.00	Flow (m3/s)	0.29	9.44
0.26				
Top Width (m)	29.81	Top Width (m)	7.02	17.25
5.53				
Vel Total (m/s)	0.25	Avg. Vel. (m/s)	0.07	0.30
0.07				
Max Chl Dpth (m)	2.30	Hydr. Depth (m)	0.61	1.83
0.67				
Conv. Total (m3/s)	3181.4	Conv. (m3/s)	93.8	3004.3
83.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.00	18.63
6.63				
Min Ch El (m)	9.22	Shear (N/m2)	0.05	0.16
0.05				
Alpha	1.32	Stream Power (N/m s)	0.00	0.05
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	2.30	37.72
1.08				
C & E Loss (m)	0.00	Cum SA (1000 m2)	5.08	20.34
2.65				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.01	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	7.98	40.45
6.67				
E.G. Slope (m/m)	0.000005	Area (m2)	7.98	40.45
6.67				
Q Total (m3/s)	10.00	Flow (m3/s)	0.50	9.09
0.41				
Top Width (m)	33.51	Top Width (m)	8.12	18.74
6.65				
Vel Total (m/s)	0.18	Avg. Vel. (m/s)	0.06	0.22
0.06				
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	0.98	2.16
1.00				
Conv. Total (m3/s)	4680.2	Conv. (m3/s)	233.6	4255.0
191.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.69	20.41
8.33				
Min Ch El (m)	9.22	Shear (N/m2)	0.04	0.09
0.04				
Alpha	1.40	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	5.60	48.50
2.59				
C & E Loss (m)	0.00	Cum SA (1000 m2)	8.62	22.01
4.48				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	12.29	50.13
10.25				
E.G. Slope (m/m)	0.000002	Area (m2)	12.29	50.13
10.25				
Q Total (m3/s)	10.00	Flow (m3/s)	0.66	8.81
0.53				

Top Width (m)	37.27	Top Width (m)	9.24	20.25
7.78				
Vel Total (m/s)	0.14	Avg. Vel. (m/s)	0.05	0.18
0.05				
Max Chl Dpth (m)	3.29	Hydr. Depth (m)	1.33	2.48
1.32				
Conv. Total (m3/s)	6525.5	Conv. (m3/s)	430.3	5749.2
346.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.41	22.22
10.07				
Min Ch El (m)	9.22	Shear (N/m2)	0.02	0.05
0.02				
Alpha	1.45	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	9.87	60.69
4.56				
C & E Loss (m)	0.00	Cum SA (1000 m2)	10.14	23.66
5.50				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.66	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.63	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.07	33.58
4.32				
E.G. Slope (m/m)	0.000060	Area (m2)	5.07	33.58
4.32				
Q Total (m3/s)	27.00	Flow (m3/s)	0.93	25.26
0.81				
Top Width (m)	30.65	Top Width (m)	7.27	17.59
5.79				
Vel Total (m/s)	0.63	Avg. Vel. (m/s)	0.18	0.75
0.19				
Max Chl Dpth (m)	2.41	Hydr. Depth (m)	0.70	1.91
0.75				
Conv. Total (m3/s)	3494.2	Conv. (m3/s)	120.7	3269.3
104.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.38	19.03
7.01				
Min Ch El (m)	9.22	Shear (N/m2)	0.35	1.03
0.36				
Alpha	1.35	Stream Power (N/m s)	0.07	0.78
0.07				

Frctn Loss (m)	0.01	Cum Volume (1000 m3)	2.66	38.99
1.30				
C & E Loss (m)	0.00	Cum SA (1000 m2)	5.32	20.54
2.81				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.08	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.07	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	8.42	41.48
7.04				
E.G. Slope (m/m)	0.000031	Area (m2)	8.42	41.48
7.04				
Q Total (m3/s)	27.00	Flow (m3/s)	1.40	24.45
1.15				
Top Width (m)	33.93	Top Width (m)	8.25	18.91
6.77				
Vel Total (m/s)	0.47	Avg. Vel. (m/s)	0.17	0.59
0.16				
Max Chl Dpth (m)	2.85	Hydr. Depth (m)	1.02	2.19
1.04				
Conv. Total (m3/s)	4867.0	Conv. (m3/s)	252.5	4408.1
206.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	9.88	20.61
8.52				
Min Ch El (m)	9.22	Shear (N/m2)	0.26	0.61
0.25				
Alpha	1.41	Stream Power (N/m s)	0.04	0.36
0.04				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	5.81	49.14
2.72				
C & E Loss (m)	0.00	Cum SA (1000 m2)	8.69	22.09
4.53				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	12.60	50.82
10.52				
E.G. Slope (m/m)	0.000016	Area (m2)	12.60	50.82
10.52				
Q Total (m3/s)	27.00	Flow (m3/s)	1.81	23.74
1.45				
Top Width (m)	37.53	Top Width (m)	9.32	20.36
7.86				
Vel Total (m/s)	0.37	Avg. Vel. (m/s)	0.14	0.47
0.14				
Max Chl Dpth (m)	3.32	Hydr. Depth (m)	1.35	2.50
1.34				
Conv. Total (m3/s)	6664.5	Conv. (m3/s)	445.9	5860.3
358.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	11.53	22.34
10.18				
Min Ch El (m)	9.22	Shear (N/m2)	0.18	0.37
0.17				
Alpha	1.46	Stream Power (N/m s)	0.03	0.17
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	10.03	61.18
4.65				
C & E Loss (m)	0.00	Cum SA (1000 m2)	10.18	23.71
5.53				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 6

INPUT

Description:

Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.7833	12.6581	11.0506	12.9745	13.7912	12.8842	16.9002	10.71	19.0308	9.22
29.8144	9.22	31.9367	10.71	34.8917	12.7846	36.1799	12.7846	37.5157	12.7906
39.6586	12.6524								

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.7833	.03	13.7912	.015	34.8917	.03

Bank Sta:	Left	Right	Lengths:			Left Channel	Right	Coeff Contr.	
Expan.	13.7912	34.8917		200	200	200		.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	3.62	32.37
2.14				
E.G. Slope (m/m)	0.000010	Area (m2)	3.62	32.37
2.14				
Q Total (m3/s)	10.00	Flow (m3/s)	0.24	9.63
0.12				
Top Width (m)	28.04	Top Width (m)	6.13	17.35
4.56				
Vel Total (m/s)	0.26	Avg. Vel. (m/s)	0.07	0.30
0.06				
Max Chl Dpth (m)	2.30	Hydr. Depth (m)	0.59	1.87
0.47				
Conv. Total (m3/s)	3217.9	Conv. (m3/s)	78.8	3099.2
39.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.87	18.80
5.16				
Min Ch El (m)	9.22	Shear (N/m2)	0.05	0.16
0.04				
Alpha	1.24	Stream Power (N/m s)	0.00	0.05
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	1.51	31.32
0.50				
C & E Loss (m)	0.00	Cum SA (1000 m2)	3.77	16.88
1.64				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.01	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)	6.83	41.21
4.66				
E.G. Slope (m/m)	0.000005	Area (m2)	6.83	41.21
4.66				
Q Total (m3/s)	10.00	Flow (m3/s)	0.42	9.32
0.25				
Top Width (m)	31.41	Top Width (m)	6.98	18.75
5.69				
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.06	0.23
0.05				
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	0.98	2.20
0.82				
Conv. Total (m3/s)	4694.2	Conv. (m3/s)	199.5	4375.1
119.7				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.34	20.51
6.88				
Min Ch El (m)	9.22	Shear (N/m2)	0.04	0.09
0.03				
Alpha	1.33	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	4.12	40.33
1.46				
C & E Loss (m)	0.00	Cum SA (1000 m2)	7.11	18.26
3.24				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.71	50.88
7.77				
E.G. Slope (m/m)	0.000002	Area (m2)	10.71	50.88
7.77				
Q Total (m3/s)	10.00	Flow (m3/s)	0.56	9.07
0.37				
Top Width (m)	35.44	Top Width (m)	8.44	20.17
6.83				
Vel Total (m/s)	0.14	Avg. Vel. (m/s)	0.05	0.18
0.05				
Max Chl Dpth (m)	3.29	Hydr. Depth (m)	1.27	2.52
1.14				
Conv. Total (m3/s)	6495.4	Conv. (m3/s)	364.3	5889.5
241.5				

Length Wtd. (m)	200.00	Wetted Per. (m)	10.39	22.24
8.62				
Min Ch El (m)	9.22	Shear (N/m2)	0.02	0.05
0.02				
Alpha	1.40	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	7.57	50.59
2.75				
C & E Loss (m)	0.00	Cum SA (1000 m2)	8.37	19.61
4.04				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.65	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.62	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	4.25	34.12
2.61				
E.G. Slope (m/m)	0.000060	Area (m2)	4.25	34.12
2.61				
Q Total (m3/s)	27.00	Flow (m3/s)	0.77	25.82
0.41				
Top Width (m)	28.73	Top Width (m)	6.30	17.64
4.79				
Vel Total (m/s)	0.66	Avg. Vel. (m/s)	0.18	0.76
0.16				
Max Chl Dpth (m)	2.40	Hydr. Depth (m)	0.67	1.93
0.55				
Conv. Total (m3/s)	3495.5	Conv. (m3/s)	99.8	3342.8
53.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	7.17	19.15
5.51				
Min Ch El (m)	9.22	Shear (N/m2)	0.35	1.04
0.28				
Alpha	1.26	Stream Power (N/m s)	0.06	0.79
0.04				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	1.73	32.22
0.61				
C & E Loss (m)	0.00	Cum SA (1000 m2)	3.97	17.01
1.75				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.08	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.06	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	7.18	42.13
4.94				
E.G. Slope (m/m)	0.000031	Area (m2)	7.18	42.13
4.94				
Q Total (m3/s)	27.00	Flow (m3/s)	1.18	25.09
0.72				
Top Width (m)	31.81	Top Width (m)	7.13	18.89
5.80				
Vel Total (m/s)	0.50	Avg. Vel. (m/s)	0.16	0.60
0.15				
Max Chl Dpth (m)	2.84	Hydr. Depth (m)	1.01	2.23
0.85				
Conv. Total (m3/s)	4856.2	Conv. (m3/s)	212.9	4513.6
129.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.55	20.68
7.05				
Min Ch El (m)	9.22	Shear (N/m2)	0.25	0.62
0.21				
Alpha	1.34	Stream Power (N/m s)	0.04	0.37
0.03				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	4.25	40.77
1.52				
C & E Loss (m)	0.00	Cum SA (1000 m2)	7.15	18.32
3.27				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.97	51.51
7.98				

E.G. Slope (m/m)	0.000017	Area (m2)	10.97	51.51
7.98				
Q Total (m3/s)	27.00	Flow (m3/s)	1.54	24.44
1.02				
Top Width (m)	35.67	Top Width (m)	8.51	20.26
6.90				
Vel Total (m/s)	0.38	Avg. Vel. (m/s)	0.14	0.47
0.13				
Max Chl Dpth (m)	3.32	Hydr. Depth (m)	1.29	2.54
1.16				
Conv. Total (m3/s)	6617.8	Conv. (m3/s)	376.6	5990.7
250.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.50	22.35
8.73				
Min Ch El (m)	9.22	Shear (N/m2)	0.17	0.38
0.15				
Alpha	1.40	Stream Power (N/m s)	0.02	0.18
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	7.67	50.94
2.80				
C & E Loss (m)	0.00	Cum SA (1000 m2)	8.40	19.65
4.06				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 5

INPUT

Description:

Station Elevation Data		num=	16						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.9983	12.7591	10.1522	13.0405	12.5764	13.0218	13.2685	12.732	13.3527	12.573
16.1491	10.7	18.3588	9.22	29.0388	9.22	31.2022	10.7	34.0056	12.6179
34.0918	12.8593	34.4253	12.9628	36.5793	13.0174	37.5384	12.8876	38.2379	12.8443
38.6366	12.734								

Manning's n Values		num=	3		
Sta	n Val	Sta	n Val	Sta	n Val
7.9983	.03	12.5764	.015	34.4253	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	12.5764	34.4253		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.52	Reach Len. (m)	41.35	41.35
41.35				
Crit W.S. (m)	9.66	Flow Area (m2)	1.47	32.35
1.22				
E.G. Slope (m/m)	0.000010	Area (m2)	1.47	32.35
1.22				
Q Total (m3/s)	10.00	Flow (m3/s)	0.07	9.88
0.06				
Top Width (m)	26.22	Top Width (m)	4.88	17.47
3.87				
Vel Total (m/s)	0.29	Avg. Vel. (m/s)	0.05	0.31
0.05				
Max Chl Dpth (m)	2.30	Hydr. Depth (m)	0.30	1.85
0.32				
Conv. Total (m3/s)	3126.9	Conv. (m3/s)	20.8	3088.6
17.5				
Length Wtd. (m)	41.35	Wetted Per. (m)	5.27	18.88
4.31				
Min Ch El (m)	9.22	Shear (N/m2)	0.03	0.17
0.03				
Alpha	1.13	Stream Power (N/m s)	0.00	0.05
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	1.01	24.85
0.16				
C & E Loss (m)	0.00	Cum SA (1000 m2)	2.67	13.40
0.80				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.01	Reach Len. (m)	41.35	41.35
41.35				
Crit W.S. (m)	9.66	Flow Area (m2)	4.28	41.29
3.34				
E.G. Slope (m/m)	0.000005	Area (m2)	4.28	41.29
3.34				

Q Total (m3/s)	10.00	Flow (m3/s)	0.22	9.61
0.17				
Top Width (m)	30.24	Top Width (m)	6.54	18.92
4.78				
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.05	0.23
0.05				
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	0.65	2.18
0.70				
Conv. Total (m3/s)	4547.0	Conv. (m3/s)	98.3	4371.8
76.9				
Length Wtd. (m)	41.35	Wetted Per. (m)	7.50	20.63
5.84				
Min Ch El (m)	9.22	Shear (N/m2)	0.03	0.09
0.03				
Alpha	1.25	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	3.01	32.08
0.66				
C & E Loss (m)	0.00	Cum SA (1000 m2)	5.76	14.49
2.20				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	41.35	41.35
41.35				
Crit W.S. (m)	9.66	Flow Area (m2)	7.78	51.07
5.95				
E.G. Slope (m/m)	0.000003	Area (m2)	7.78	51.07
5.95				
Q Total (m3/s)	10.00	Flow (m3/s)	0.37	9.36
0.27				
Top Width (m)	33.60	Top Width (m)	7.51	20.39
5.70				
Vel Total (m/s)	0.15	Avg. Vel. (m/s)	0.05	0.18
0.05				
Max Chl Dpth (m)	3.29	Hydr. Depth (m)	1.04	2.50
1.04				
Conv. Total (m3/s)	6302.5	Conv. (m3/s)	233.9	5896.9
171.7				
Length Wtd. (m)	41.35	Wetted Per. (m)	9.08	22.41

7.38				
Min Ch El (m)	9.22	Shear (N/m2)	0.02	0.06
0.02				
Alpha	1.32	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	5.72	40.40
1.38				
C & E Loss (m)	0.00	Cum SA (1000 m2)	6.77	15.56
2.78				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.64	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.61	Reach Len. (m)	41.35	41.35
41.35				
Crit W.S. (m)	10.05	Flow Area (m2)	1.91	33.89
1.56				
E.G. Slope (m/m)	0.000065	Area (m2)	1.91	33.89
1.56				
Q Total (m3/s)	27.00	Flow (m3/s)	0.25	26.55
0.20				
Top Width (m)	26.94	Top Width (m)	5.18	17.73
4.03				
Vel Total (m/s)	0.72	Avg. Vel. (m/s)	0.13	0.78
0.13				
Max Chl Dpth (m)	2.39	Hydr. Depth (m)	0.37	1.91
0.39				
Conv. Total (m3/s)	3356.9	Conv. (m3/s)	30.7	3300.8
25.5				
Length Wtd. (m)	41.35	Wetted Per. (m)	5.67	19.19
4.58				
Min Ch El (m)	9.22	Shear (N/m2)	0.21	1.12
0.22				
Alpha	1.16	Stream Power (N/m s)	0.03	0.88
0.03				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	1.11	25.42
0.19				
C & E Loss (m)	0.00	Cum SA (1000 m2)	2.82	13.48
0.87				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.07	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.05	Reach Len. (m)	41.35	41.35
41.35				
Crit W.S. (m)	10.05	Flow Area (m2)	4.56	42.09
3.54				
E.G. Slope (m/m)	0.000033	Area (m2)	4.56	42.09
3.54				
Q Total (m3/s)	27.00	Flow (m3/s)	0.62	25.90
0.48				
Top Width (m)	30.53	Top Width (m)	6.63	19.05
4.85				
Vel Total (m/s)	0.54	Avg. Vel. (m/s)	0.14	0.62
0.14				
Max Chl Dpth (m)	2.83	Hydr. Depth (m)	0.69	2.21
0.73				
Conv. Total (m3/s)	4682.3	Conv. (m3/s)	107.8	4491.0
83.5				
Length Wtd. (m)	41.35	Wetted Per. (m)	7.63	20.78
5.97				
Min Ch El (m)	9.22	Shear (N/m2)	0.19	0.66
0.19				
Alpha	1.26	Stream Power (N/m s)	0.03	0.41
0.03				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	3.07	32.35
0.67				
C & E Loss (m)	0.00	Cum SA (1000 m2)	5.78	14.52
2.21				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.53	Reach Len. (m)	41.35	41.35
41.35				
Crit W.S. (m)	10.05	Flow Area (m2)	7.98	51.63
6.10				
E.G. Slope (m/m)	0.000018	Area (m2)	7.98	51.63
6.10				
Q Total (m3/s)	27.00	Flow (m3/s)	1.02	25.23
0.75				
Top Width (m)	33.78	Top Width (m)	7.56	20.47
5.75				
Vel Total (m/s)	0.41	Avg. Vel. (m/s)	0.13	0.49
0.12				
Max Chl Dpth (m)	3.31	Hydr. Depth (m)	1.06	2.52
1.06				
Conv. Total (m3/s)	6406.7	Conv. (m3/s)	242.7	5986.2
177.9				
Length Wtd. (m)	41.35	Wetted Per. (m)	9.17	22.51
7.46				
Min Ch El (m)	9.22	Shear (N/m2)	0.15	0.40
0.14				
Alpha	1.33	Stream Power (N/m s)	0.02	0.20
0.02				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	5.78	40.63
1.40				
C & E Loss (m)	0.00	Cum SA (1000 m2)	6.79	15.57
2.79				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 4.5

INPUT

Description:

Distance from Upstream XS = 41.35

Deck/Roadway Width = 4

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord

12.62 12.8 11.45 34.31 12.8 11.45

Upstream Bridge Cross Section Data

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.9983	12.7591	10.1522	13.0405	12.5764	13.0218	13.2685	12.732	13.3527	12.573
16.1491	10.7	18.3588	9.22	29.0388	9.22	31.2022	10.7	34.0056	12.6179
34.0918	12.8593	34.4253	12.9628	36.5793	13.0174	37.5384	12.8876	38.2379	12.8443
38.6366	12.734								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.9983	.03	12.5764	.015	34.4253	.03

Bank Sta:	Left	Right	Coeff Contr.	Expan.
	12.5764	34.4253	.0015	.01

Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
16.03	12.8	11.45	37.73	12.8	11.45				

Downstream Bridge Cross Section Data

Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.1118	12.9705	13.2088	13.068	13.3301	13.0209	13.4177	12.7716	16.2721	10.9791
19.2774	10.8159	19.4008	10.72	21.3316	9.22	32.612	9.22	34.7824	10.72
37.4062	12.5333	37.4234	12.642	37.5836	12.8078	37.9498	12.968	38.1786	13.0652
38.7679	13.1282	39.4888	13.0881	40.9332	13.1703	42.5608	13.0422	43.5536	12.919

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.1118	.03	13.3301	.015	38.1786	.03

Bank Sta:	Left	Right	Coeff Contr.	Expan.
	13.3301	38.1786	.1	.3

Upstream Embankment side slope = 0 horiz. to 1.0 vertical

Downstream Embankment side slope = 0 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Energy head used in spillway design =

Spillway height used in design =

Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev
12.63	11.45	19.59	11.45

Downstream num= 2

Sta	Elev	Sta	Elev
16.03	11.45	23.01	11.45

Abutment Data

Upstream num= 2
 Sta Elev Sta Elev
 27.74 11.45 34.31 11.45
 Downstream num= 2
 Sta Elev Sta Elev
 31.16 11.45 37.73 11.45

Number of Piers = 1

Pier Data

Pier Station Upstream= 23.67 Downstream= 27.09
 Upstream num= 2
 Width Elev Width Elev
 .35 9.32 .35 11.45
 Downstream num= 2
 Width Elev Width Elev
 .35 9.32 .35 11.45

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
 inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.52	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.52	E.G. Elev (m)	11.52
11.52			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.51
11.51			
Q Bridge (m3/s)	9.62	Crit W.S. (m)	9.77
9.77			
Q Weir (m3/s)		Max Chl Dpth (m)	2.29
2.29			
Weir Sta Lft (m)		Vel Total (m/s)	0.50
0.56			
Weir Sta Rgt (m)		Flow Area (m2)	19.98
17.73			
Weir Submerg		Froude # Chl	0.11

0.12			
Weir Max Depth (m)		Specif Force (m3)	21.36
20.99			
Min El Weir Flow (m)	11.13	Hydr Depth (m)	2.30
12.20			
Min El Prs (m)	11.45	W.P. Total (m)	34.02
27.12			
Delta EG (m)	0.01	Conv. Total (m3/s)	958.7
908.1			
Delta WS (m)	0.00	Top Width (m)	8.69
1.45			
BR Open Area (m2)	17.40	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.55	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.63
0.78			
BR Sel Method	Energy only	Power Total (N/m s)	0.31
0.44			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.01	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.01	E.G. Elev (m)	12.01
12.01			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.00
12.00			
Q Bridge (m3/s)	8.43	Crit W.S. (m)	9.77
9.77			
Q Weir (m3/s)		Max Chl Dpth (m)	2.78
2.78			
Weir Sta Lft (m)		Vel Total (m/s)	0.40
0.48			
Weir Sta Rgt (m)		Flow Area (m2)	24.93
20.73			
Weir Submerg		Froude # Chl	0.09
0.10			
Weir Max Depth (m)		Specif Force (m3)	32.31
30.25			
Min El Weir Flow (m)	11.13	Hydr Depth (m)	2.21
2.39			
Min El Prs (m)	11.45	W.P. Total (m)	37.80
36.09			
Delta EG (m)	0.00	Conv. Total (m3/s)	1094.5
956.0			
Delta WS (m)	0.00	Top Width (m)	11.29

8.66			
BR Open Area (m2)	17.40	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.48	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.54
0.62			
BR Sel Method	Energy only	Power Total (N/m s)	0.22
0.30			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)		Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.51	E.G. Elev (m)	12.51
12.51			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.50
12.50			
Q Bridge (m3/s)	6.96	Crit W.S. (m)	9.77
9.77			
Q Weir (m3/s)		Max Chl Dpth (m)	3.28
3.28			
Weir Sta Lft (m)		Vel Total (m/s)	0.32
0.39			
Weir Sta Rgt (m)		Flow Area (m2)	31.06
25.81			
Weir Submerg		Froude # Chl	0.06
0.08			
Weir Max Depth (m)		Specif Force (m3)	46.18
41.76			
Min El Weir Flow (m)	11.13	Hydr Depth (m)	2.35
2.23			
Min El Prs (m)	11.45	W.P. Total (m)	40.95
40.89			
Delta EG (m)	0.00	Conv. Total (m3/s)	1325.3
1116.7			
Delta WS (m)	0.00	Top Width (m)	13.19
11.59			
BR Open Area (m2)	17.40	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.40	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.42
0.50			
BR Sel Method	Energy only	Power Total (N/m s)	0.14
0.19			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.64	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.61	E.G. Elev (m)	11.63
11.63			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.52
11.51			
Q Bridge (m3/s)	25.91	Crit W.S. (m)	10.29
10.29			
Q Weir (m3/s)		Max Chl Dpth (m)	2.30
2.29			
Weir Sta Lft (m)		Vel Total (m/s)	1.34
1.52			
Weir Sta Rgt (m)		Flow Area (m2)	20.11
17.73			
Weir Submerg		Froude # Chl	0.31
0.32			
Weir Max Depth (m)		Specif Force (m3)	25.07
24.65			
Min El Weir Flow (m)	11.13	Hydr Depth (m)	2.29
12.17			
Min El Prs (m)	11.45	W.P. Total (m)	34.12
27.12			
Delta EG (m)	0.04	Conv. Total (m3/s)	961.3
908.1			
Delta WS (m)	0.03	Top Width (m)	8.76
1.46			
BR Open Area (m2)	17.40	Frctn Loss (m)	0.00
0.03			
BR Open Vel (m/s)	1.49	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	4.56
5.67			
BR Sel Method	Energy only	Power Total (N/m s)	6.12
8.63			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.07	Element	Inside BR US
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Inside BR DS			
W.S. US. (m)	12.05	E.G. Elev (m)	12.07
12.06			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.99
11.96			
Q Bridge (m3/s)	22.85	Crit W.S. (m)	10.29
10.29			
Q Weir (m3/s)		Max Chl Dpth (m)	2.77
2.74			
Weir Sta Lft (m)		Vel Total (m/s)	1.09
1.32			
Weir Sta Rgt (m)		Flow Area (m2)	24.79
20.41			
Weir Submerg		Froude # Chl	0.24
0.27			
Weir Max Depth (m)		Specif Force (m3)	34.86
32.83			
Min El Weir Flow (m)	11.13	Hydr Depth (m)	2.20
2.42			
Min El Prs (m)	11.45	W.P. Total (m)	37.73
35.73			
Delta EG (m)	0.02	Conv. Total (m3/s)	1090.0
948.2			
Delta WS (m)	0.02	Top Width (m)	11.24
8.44			
BR Open Area (m2)	17.40	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	1.31	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	3.95
4.54			
BR Sel Method	Energy only	Power Total (N/m s)	4.31
6.01			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.55	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.53	E.G. Elev (m)	12.54
12.54			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.50
12.47			
Q Bridge (m3/s)	18.84	Crit W.S. (m)	10.29
10.29			
Q Weir (m3/s)		Max Chl Dpth (m)	3.28
3.25			
Weir Sta Lft (m)		Vel Total (m/s)	0.87

1.06			
Weir Sta Rgt (m)		Flow Area (m2)	30.98
25.50			
Weir Submerg		Froude # Ch1	0.17
0.21			
Weir Max Depth (m)		Specif Force (m3)	48.23
43.79			
Min El Weir Flow (m)	11.13	Hydr Depth (m)	2.35
2.23			
Min El Prs (m)	11.45	W.P. Total (m)	40.91
40.63			
Delta EG (m)	0.01	Conv. Total (m3/s)	1322.1
1105.3			
Delta WS (m)	0.01	Top Width (m)	13.17
11.43			
BR Open Area (m2)	17.40	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	1.08	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	3.10
3.67			
BR Sel Method	Energy only	Power Total (N/m s)	2.70
3.89			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 4.4

INPUT

Description:

Station Elevation Data	num=	20
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
8.1118 12.9705 13.2088 13.068 13.3301 13.0209 13.4177 12.7716 16.2721 10.9791		
19.2774 10.8159 19.4008 10.72 21.3316 9.22 32.612 9.22 34.7824 10.72		
37.4062 12.5333 37.4234 12.642 37.5836 12.8078 37.9498 12.968 38.1786 13.0652		
38.7679 13.1282 39.4888 13.0881 40.9332 13.1703 42.5608 13.0422 43.5536 12.919		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
8.1118 .03 13.3301 .015 38.1786 .03		

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
13.3301	38.1786	30	30	30	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	11.51	Reach Len. (m)	5.00	5.00
5.00				
Crit W.S. (m)	9.64	Flow Area (m2)		34.83
0.23				
E.G. Slope (m/m)	0.000010	Area (m2)		34.83
0.23				
Q Total (m3/s)	10.00	Flow (m3/s)		9.99
0.01				
Top Width (m)	21.38	Top Width (m)		20.51
0.87				
Vel Total (m/s)	0.29	Avg. Vel. (m/s)		0.29
0.03				
Max Chl Dpth (m)	2.29	Hydr. Depth (m)		1.70
0.26				
Conv. Total (m3/s)	3163.1	Conv. (m3/s)		3161.0
2.1				
Length Wtd. (m)	5.00	Wetted Per. (m)		21.93
1.54				
Min Ch El (m)	9.22	Shear (N/m2)		0.16
0.01				
Alpha	1.01	Stream Power (N/m s)		0.04
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.94	19.71
0.08				
C & E Loss (m)	0.00	Cum SA (1000 m2)	2.46	11.40
0.50				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.01	Reach Len. (m)	5.00	5.00
5.00				
Crit W.S. (m)	9.64	Flow Area (m2)	1.95	45.32
0.86				
E.G. Slope (m/m)	0.000005	Area (m2)	1.95	45.32
0.86				
Q Total (m3/s)	10.00	Flow (m3/s)	0.06	9.91
0.03				

Top Width (m)	29.33	Top Width (m)	5.63	22.01
1.69				
Vel Total (m/s)	0.21	Avg. Vel. (m/s)	0.03	0.22
0.03				
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	0.35	2.06
0.51				
Conv. Total (m3/s)	4694.1	Conv. (m3/s)	30.1	4651.4
12.5				
Length Wtd. (m)	5.00	Wetted Per. (m)	6.14	23.73
2.99				
Min Ch El (m)	9.22	Shear (N/m2)	0.01	0.09
0.01				
Alpha	1.10	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	2.53	25.90
0.38				
C & E Loss (m)	0.00	Cum SA (1000 m2)	4.59	12.29
1.73				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	5.00	5.00
5.00				
Crit W.S. (m)	9.64	Flow Area (m2)	5.07	56.67
1.91				
E.G. Slope (m/m)	0.000002	Area (m2)	5.07	56.67
1.91				
Q Total (m3/s)	10.00	Flow (m3/s)	0.19	9.76
0.06				
Top Width (m)	32.96	Top Width (m)	6.91	23.53
2.52				
Vel Total (m/s)	0.16	Avg. Vel. (m/s)	0.04	0.17
0.03				
Max Chl Dpth (m)	3.29	Hydr. Depth (m)	0.73	2.41
0.76				
Conv. Total (m3/s)	6588.6	Conv. (m3/s)	124.6	6427.7
36.3				
Length Wtd. (m)	5.00	Wetted Per. (m)	8.02	25.54
4.46				
Min Ch El (m)	9.22	Shear (N/m2)	0.01	0.05

0.01				
Alpha	1.17	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	4.60	33.07
0.83				
C & E Loss (m)	0.00	Cum SA (1000 m2)	5.37	13.14
2.14				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.57	Reach Len. (m)	5.00	5.00
5.00				
Crit W.S. (m)	10.03	Flow Area (m2)	0.00	36.03
0.28				
E.G. Slope (m/m)	0.000066	Area (m2)	0.00	36.03
0.28				
Q Total (m3/s)	27.00	Flow (m3/s)	0.00	26.98
0.02				
Top Width (m)	22.21	Top Width (m)	0.56	20.69
0.97				
Vel Total (m/s)	0.74	Avg. Vel. (m/s)	0.01	0.75
0.08				
Max Chl Dpth (m)	2.35	Hydr. Depth (m)	0.01	1.74
0.29				
Conv. Total (m3/s)	3326.3	Conv. (m3/s)	0.0	3323.5
2.8				
Length Wtd. (m)	5.00	Wetted Per. (m)	0.57	22.14
1.71				
Min Ch El (m)	9.22	Shear (N/m2)	0.01	1.05
0.11				
Alpha	1.01	Stream Power (N/m s)	0.00	0.79
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	1.04	20.15
0.09				
C & E Loss (m)	0.00	Cum SA (1000 m2)	2.56	11.46
0.55				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.05	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.03	Reach Len. (m)	5.00	5.00
5.00				
Crit W.S. (m)	10.03	Flow Area (m2)	2.09	45.87
0.90				
E.G. Slope (m/m)	0.000032	Area (m2)	2.09	45.87
0.90				
Q Total (m3/s)	27.00	Flow (m3/s)	0.19	26.74
0.08				
Top Width (m)	29.51	Top Width (m)	5.69	22.08
1.73				
Vel Total (m/s)	0.55	Avg. Vel. (m/s)	0.09	0.58
0.08				
Max Chl Dpth (m)	2.81	Hydr. Depth (m)	0.37	2.08
0.52				
Conv. Total (m3/s)	4779.9	Conv. (m3/s)	33.5	4733.1
13.3				
Length Wtd. (m)	5.00	Wetted Per. (m)	6.23	23.82
3.07				
Min Ch El (m)	9.22	Shear (N/m2)	0.10	0.60
0.09				
Alpha	1.10	Stream Power (N/m s)	0.01	0.35
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	2.59	26.12
0.39				
C & E Loss (m)	0.00	Cum SA (1000 m2)	4.62	12.32
1.74				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	5.00	5.00

5.00				
Crit W.S. (m)	10.03	Flow Area (m2)	5.19	57.08
1.96				
E.G. Slope (m/m)	0.000016	Area (m2)	5.19	57.08
1.96				
Q Total (m3/s)	27.00	Flow (m3/s)	0.52	26.33
0.15				
Top Width (m)	33.09	Top Width (m)	6.96	23.58
2.55				
Vel Total (m/s)	0.42	Avg. Vel. (m/s)	0.10	0.46
0.08				
Max Chl Dpth (m)	3.30	Hydr. Depth (m)	0.75	2.42
0.77				
Conv. Total (m3/s)	6660.2	Conv. (m3/s)	128.9	6494.0
37.4				
Length Wtd. (m)	5.00	Wetted Per. (m)	8.08	25.60
4.51				
Min Ch El (m)	9.22	Shear (N/m2)	0.10	0.36
0.07				
Alpha	1.18	Stream Power (N/m s)	0.01	0.17
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	4.65	33.26
0.84				
C & E Loss (m)	0.00	Cum SA (1000 m2)	5.39	13.16
2.15				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 4.3

INPUT
Description:
Distance from Upstream XS = 5
Deck/Roadway Width = 4
Weir Coefficient = 1.4
Upstream Deck/Roadway Coordinates
num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
15.36 13.5 12.65 38.91 13.5 12.65

Upstream Bridge Cross Section Data
Station Elevation Data num= 20
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

```
Pier Data
Pier Station      Upstream=  31.11      Downstream=  31.11
Upstream          num=      2
```


Width	Elev	Width	Elev
.5	9.22	.5	12.65
Downstream	num=	2	
Width	Elev	Width	Elev
.5	9.22	.5	12.65

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.52	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.51	E.G. Elev (m)	11.52
11.52			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.51
11.51			
Q Bridge (m3/s)	9.99	Crit W.S. (m)	9.67
9.67			
Q Weir (m3/s)		Max Chl Dpth (m)	2.29
2.29			
Weir Sta Lft (m)		Vel Total (m/s)	0.31
0.31			
Weir Sta Rgt (m)		Flow Area (m2)	32.75
32.75			
Weir Submerg		Froude # Chl	0.08
0.08			
Weir Max Depth (m)		Specif Force (m3)	33.41
33.41			
Min El Weir Flow (m)	10.99	Hydr Depth (m)	1.61
1.61			
Min El Prs (m)	12.65	W.P. Total (m)	31.64
31.64			
Delta EG (m)	0.00	Conv. Total (m3/s)	2285.2
2285.1			
Delta WS (m)	0.00	Top Width (m)	20.38
20.38			
BR Open Area (m2)	55.70	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.31	C & E Loss (m)	0.00

0.00			
BR Sluice Coef		Shear Total (N/m2)	0.19
0.19			
BR Sel Method	Energy only	Power Total (N/m s)	0.06
0.06			

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.01	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.01	E.G. Elev (m)	12.01
12.01			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.01
12.01			
Q Bridge (m3/s)	9.87	Crit W.S. (m)	9.67
9.67			
Q Weir (m3/s)		Max Chl Dpth (m)	2.79
2.79			
Weir Sta Lft (m)		Vel Total (m/s)	0.22
0.22			
Weir Sta Rgt (m)		Flow Area (m2)	45.33
45.33			
Weir Submerg		Froude # Chl	0.05
0.05			
Weir Max Depth (m)		Specif Force (m3)	52.45
52.44			
Min El Weir Flow (m)	10.99	Hydr Depth (m)	1.60
1.60			
Min El Prs (m)	12.65	W.P. Total (m)	43.46
43.46			
Delta EG (m)	0.00	Conv. Total (m3/s)	3312.9
3312.8			
Delta WS (m)	0.00	Top Width (m)	28.33
28.33			
BR Open Area (m2)	55.70	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.23	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.09
0.09			
BR Sel Method	Energy only	Power Total (N/m s)	0.02
0.02			

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.51	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.51	E.G. Elev (m)	12.51

12.51			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.51
12.51			
Q Bridge (m3/s)	9.62	Crit W.S. (m)	9.67
9.67			
Q Weir (m3/s)		Max Chl Dpth (m)	3.29
3.29			
Weir Sta Lft (m)		Vel Total (m/s)	0.17
0.17			
Weir Sta Rgt (m)		Flow Area (m2)	60.37
60.37			
Weir Submerg		Froude # Chl	0.04
0.04			
Weir Max Depth (m)		Specif Force (m3)	78.68
78.68			
Min El Weir Flow (m)	10.99	Hydr Depth (m)	1.89
1.89			
Min El Prs (m)	12.65	W.P. Total (m)	51.11
51.11			
Delta EG (m)	0.00	Conv. Total (m3/s)	4576.0
4575.9			
Delta WS (m)	0.00	Top Width (m)	31.96
31.96			
BR Open Area (m2)	55.70	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.18	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.06
0.06			
BR Sel Method	Energy only	Power Total (N/m s)	0.01
0.01			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.60	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.57	E.G. Elev (m)	11.60
11.60			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.57
11.57			
Q Bridge (m3/s)	26.97	Crit W.S. (m)	10.07
10.07			
Q Weir (m3/s)		Max Chl Dpth (m)	2.35
2.35			
Weir Sta Lft (m)		Vel Total (m/s)	0.80
0.80			
Weir Sta Rgt (m)		Flow Area (m2)	33.86

33.85			
Weir Submerg		Froude # Ch1	0.20
0.20			
Weir Max Depth (m)		Specif Force (m3)	37.11
37.09			
Min El Weir Flow (m)	10.99	Hydr Depth (m)	1.61
1.61			
Min El Prs (m)	12.65	W.P. Total (m)	32.63
32.61			
Delta EG (m)	0.00	Conv. Total (m3/s)	2388.4
2387.4			
Delta WS (m)	0.00	Top Width (m)	21.02
21.00			
BR Open Area (m2)	55.70	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.80	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.30
1.30			
BR Sel Method	Energy only	Power Total (N/m s)	1.04
1.04			

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)		Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.03	E.G. Elev (m)	12.05
12.05			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.03
12.03			
Q Bridge (m3/s)	26.61	Crit W.S. (m)	10.07
10.07			
Q Weir (m3/s)		Max Ch1 Dpth (m)	2.81
2.81			
Weir Sta Lft (m)		Vel Total (m/s)	0.59
0.59			
Weir Sta Rgt (m)		Flow Area (m2)	45.97
45.96			
Weir Submerg		Froude # Ch1	0.14
0.14			
Weir Max Depth (m)		Specif Force (m3)	54.93
54.91			
Min El Weir Flow (m)	10.99	Hydr Depth (m)	1.61
1.61			
Min El Prs (m)	12.65	W.P. Total (m)	43.80
43.80			
Delta EG (m)	0.00	Conv. Total (m3/s)	3365.2
3364.5			
Delta WS (m)	0.00	Top Width (m)	28.49
28.49			
BR Open Area (m2)	55.70	Frctn Loss (m)	0.00

0.00	BR Open Vel (m/s)	0.62	C & E Loss (m)	0.00
0.00	BR Sluice Coef		Shear Total (N/m2)	0.66
0.66	BR Sel Method	Energy only	Power Total (N/m s)	0.39
0.39				

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.53	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.52	E.G. Elev (m)	12.53
12.53			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.52
12.52			
Q Bridge (m3/s)	25.94	Crit W.S. (m)	10.07
10.07			
Q Weir (m3/s)		Max Chl Dpth (m)	3.30
3.30			
Weir Sta Lft (m)		Vel Total (m/s)	0.44
0.44			
Weir Sta Rgt (m)		Flow Area (m2)	60.89
60.89			
Weir Submerg		Froude # Chl	0.10
0.10			
Weir Max Depth (m)		Specif Force (m3)	80.78
80.77			
Min El Weir Flow (m)	10.99	Hydr Depth (m)	1.90
1.90			
Min El Prs (m)	12.65	W.P. Total (m)	51.36
51.36			
Delta EG (m)	0.00	Conv. Total (m3/s)	4620.7
4620.3			
Delta WS (m)	0.00	Top Width (m)	32.08
32.08			
BR Open Area (m2)	55.70	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.49	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.40
0.40			
BR Sel Method	Energy only	Power Total (N/m s)	0.18
0.18			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 4

INPUT

Description:

Station Elevation Data	num=	20
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
8.1118 12.9705 13.2088 13.068 13.3301 13.0209 13.4177 12.7716 16.2721 10.9791		
19.2774 10.8159 19.4008 10.72 21.3316 9.22 32.612 9.22 34.7824 10.72		
37.4062 12.5333 37.4234 12.642 37.5836 12.8078 37.9498 12.968 38.1786 13.0652		
38.7679 13.1282 39.4888 13.0881 40.9332 13.1703 42.5608 13.0422 43.5536 12.919		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
8.1118 .03 13.3301 .015 38.1786 .03		

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr.
Expan.		
13.3301 38.1786	200 200 200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	11.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.82
0.23				
E.G. Slope (m/m)	0.000010	Area (m2)		34.82
0.23				
Q Total (m3/s)	10.00	Flow (m3/s)		9.99
0.01				
Top Width (m)	21.38	Top Width (m)		20.51
0.87				
Vel Total (m/s)	0.29	Avg. Vel. (m/s)		0.29
0.03				
Max Chl Dpth (m)	2.29	Hydr. Depth (m)		1.70
0.26				
Conv. Total (m3/s)	3161.3	Conv. (m3/s)		3159.1
2.1				
Length Wtd. (m)	200.00	Wetted Per. (m)		21.93
1.54				
Min Ch El (m)	9.22	Shear (N/m2)		0.16
0.01				
Alpha	1.01	Stream Power (N/m s)		0.04
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.94	18.70
0.07				

C & E Loss (m)	0.00	Cum SA (1000 m2)	2.46	10.80
0.47				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.01	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	1.94	45.31
0.86				
E.G. Slope (m/m)	0.000005	Area (m2)	1.94	45.31
0.86				
Q Total (m3/s)	10.00	Flow (m3/s)	0.06	9.91
0.03				
Top Width (m)	29.33	Top Width (m)	5.63	22.01
1.69				
Vel Total (m/s)	0.21	Avg. Vel. (m/s)	0.03	0.22
0.03				
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	0.35	2.06
0.51				
Conv. Total (m3/s)	4693.0	Conv. (m3/s)	30.1	4650.4
12.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.14	23.73
2.99				
Min Ch El (m)	9.22	Shear (N/m2)	0.01	0.09
0.01				
Alpha	1.10	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	2.47	24.59
0.36				
C & E Loss (m)	0.00	Cum SA (1000 m2)	4.42	11.65
1.68				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.07	56.67
1.91				
E.G. Slope (m/m)	0.000002	Area (m2)	5.07	56.67
1.91				
Q Total (m3/s)	10.00	Flow (m3/s)	0.19	9.76
0.06				
Top Width (m)	32.96	Top Width (m)	6.91	23.52
2.52				
Vel Total (m/s)	0.16	Avg. Vel. (m/s)	0.04	0.17
0.03				
Max Chl Dpth (m)	3.29	Hydr. Depth (m)	0.73	2.41
0.76				
Conv. Total (m3/s)	6588.0	Conv. (m3/s)	124.6	6427.1
36.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.02	25.54
4.46				
Min Ch El (m)	9.22	Shear (N/m2)	0.01	0.05
0.01				
Alpha	1.17	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	4.44	31.42
0.77				
C & E Loss (m)	0.00	Cum SA (1000 m2)	5.16	12.46
2.07				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	0.00	35.94
0.28				
E.G. Slope (m/m)	0.000066	Area (m2)	0.00	35.94
0.28				
Q Total (m3/s)	27.00	Flow (m3/s)	0.00	26.98
0.02				
Top Width (m)	22.04	Top Width (m)	0.40	20.67
0.96				
Vel Total (m/s)	0.75	Avg. Vel. (m/s)	0.01	0.75
0.08				

Max Chl Dpth (m)	2.35	Hydr. Depth (m)	0.01	1.74
0.29				
Conv. Total (m3/s)	3313.0	Conv. (m3/s)	0.0	3310.2
2.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	0.42	22.13
1.70				
Min Ch El (m)	9.22	Shear (N/m2)	0.00	1.06
0.11				
Alpha	1.01	Stream Power (N/m s)	0.00	0.79
0.01				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	1.04	19.11
0.08				
C & E Loss (m)	0.00	Cum SA (1000 m2)	2.54	10.86
0.52				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.05	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.03	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	2.07	45.82
0.90				
E.G. Slope (m/m)	0.000032	Area (m2)	2.07	45.82
0.90				
Q Total (m3/s)	27.00	Flow (m3/s)	0.19	26.74
0.08				
Top Width (m)	29.50	Top Width (m)	5.69	22.08
1.73				
Vel Total (m/s)	0.55	Avg. Vel. (m/s)	0.09	0.58
0.08				
Max Chl Dpth (m)	2.81	Hydr. Depth (m)	0.36	2.08
0.52				
Conv. Total (m3/s)	4771.9	Conv. (m3/s)	33.2	4725.5
13.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	6.22	23.81
3.06				
Min Ch El (m)	9.22	Shear (N/m2)	0.10	0.60
0.09				
Alpha	1.10	Stream Power (N/m s)	0.01	0.35
0.01				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	2.53	24.79
0.37				
C & E Loss (m)	0.00	Cum SA (1000 m2)	4.45	11.67
1.68				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.18	57.05
1.95				
E.G. Slope (m/m)	0.000016	Area (m2)	5.18	57.05
1.95				
Q Total (m3/s)	27.00	Flow (m3/s)	0.52	26.33
0.15				
Top Width (m)	33.08	Top Width (m)	6.96	23.57
2.55				
Vel Total (m/s)	0.42	Avg. Vel. (m/s)	0.10	0.46
0.08				
Max Chl Dpth (m)	3.30	Hydr. Depth (m)	0.75	2.42
0.77				
Conv. Total (m3/s)	6655.5	Conv. (m3/s)	128.6	6489.6
37.3				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.08	25.60
4.51				
Min Ch El (m)	9.22	Shear (N/m2)	0.10	0.36
0.07				
Alpha	1.17	Stream Power (N/m s)	0.01	0.17
0.01				
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	4.50	31.61
0.78				
C & E Loss (m)	0.00	Cum SA (1000 m2)	5.18	12.47
2.07				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 3

INPUT

Description:

Station Elevation Data				num=	19
Sta	Elev	Sta	Elev	Sta	Elev
14.2626	13.0101	15.989	13.1109	18.5082	13.1205
19.7342	12.6246	19.7997	12.503	22.3322	10.75
37.7517	10.75	39.9723	12.3417	40.2158	12.7655
41.945	13.0223	42.7315	12.9791	43.895	12.9357
				45.7495	12.7625

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
14.2626	.03	18.5082	.015	41.0161	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	18.5082	41.0161		200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	11.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	4.58	32.82
E.G. Slope (m/m)	0.000010	Area (m2)	4.58	32.82
Q Total (m3/s)	10.00	Flow (m3/s)	0.26	9.74
Top Width (m)	28.30	Top Width (m)	10.72	17.58
Vel Total (m/s)	0.27	Avg. Vel. (m/s)	0.06	0.30
Max Chl Dpth (m)	2.29	Hydr. Depth (m)	0.43	1.87
Conv. Total (m3/s)	3231.1	Conv. (m3/s)	84.2	3146.9
Length Wtd. (m)	200.00	Wetted Per. (m)	11.18	19.03
Min Ch El (m)	9.22	Shear (N/m2)	0.04	0.16
Alpha	1.20	Stream Power (N/m s)	0.00	0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.48	11.94
0.05				
C & E Loss (m)	0.00	Cum SA (1000 m2)	1.39	6.99
0.38				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the

computed water surface.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.01	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.18	41.87
E.G. Slope (m/m)	0.000004	Area (m2)	10.18	41.87
Q Total (m3/s)	10.00	Flow (m3/s)	0.61	9.39
Top Width (m)	30.88	Top Width (m)	11.89	18.99
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.06	0.22
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	0.86	2.21
Conv. Total (m3/s)	4746.6	Conv. (m3/s)	289.0	4457.6
Length Wtd. (m)	200.00	Wetted Per. (m)	12.95	20.75
Min Ch El (m)	9.22	Shear (N/m2)	0.03	0.09
Alpha	1.29	Stream Power (N/m s)	0.00	0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	1.25	15.87
0.27				
C & E Loss (m)	0.00	Cum SA (1000 m2)	2.67	7.55
1.51				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.41	51.70
E.G. Slope (m/m)	0.000002	Area (m2)	16.41	51.70

Q Total (m3/s)	10.00	Flow (m3/s)	0.89	9.11
Top Width (m)	33.34	Top Width (m)	13.07	20.27
Vel Total (m/s)	0.15	Avg. Vel. (m/s)	0.05	0.18
Max Chl Dpth (m)	3.29	Hydr. Depth (m)	1.26	2.55
Conv. Total (m3/s)	6608.0	Conv. (m3/s)	588.0	6020.0
Length Wtd. (m)	200.00	Wetted Per. (m)	14.72	22.39
Min Ch El (m)	9.22	Shear (N/m2)	0.03	0.05
Alpha	1.32	Stream Power (N/m s)	0.00	0.01
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	2.29	20.58
0.58				
C & E Loss (m)	0.00	Cum SA (1000 m2)	3.16	8.08
1.81				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the
computed water surface.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	11.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	5.03	33.56
E.G. Slope (m/m)	0.000065	Area (m2)	5.03	33.56
Q Total (m3/s)	27.00	Flow (m3/s)	0.79	26.21
Top Width (m)	28.52	Top Width (m)	10.82	17.70
Vel Total (m/s)	0.70	Avg. Vel. (m/s)	0.16	0.78
Max Chl Dpth (m)	2.33	Hydr. Depth (m)	0.46	1.90
Conv. Total (m3/s)	3346.7	Conv. (m3/s)	97.6	3249.1
Length Wtd. (m)	200.00	Wetted Per. (m)	11.33	19.18
Min Ch El (m)	9.22	Shear (N/m2)	0.28	1.12

Alpha	1.21	Stream Power (N/m s)	0.04	0.87
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.53	12.16
0.05				
C & E Loss (m)	0.00	Cum SA (1000 m2)	1.42	7.02
0.43				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.02	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	10.38	42.20
E.G. Slope (m/m)	0.000032	Area (m2)	10.38	42.20
Q Total (m3/s)	27.00	Flow (m3/s)	1.67	25.33
Top Width (m)	30.97	Top Width (m)	11.93	19.03
Vel Total (m/s)	0.51	Avg. Vel. (m/s)	0.16	0.60
Max Chl Dpth (m)	2.80	Hydr. Depth (m)	0.87	2.22
Conv. Total (m3/s)	4804.8	Conv. (m3/s)	297.8	4507.0
Length Wtd. (m)	200.00	Wetted Per. (m)	13.01	20.81
Min Ch El (m)	9.22	Shear (N/m2)	0.25	0.63
Alpha	1.29	Stream Power (N/m s)	0.04	0.38
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	1.28	15.99
0.28				
C & E Loss (m)	0.00	Cum SA (1000 m2)	2.68	7.56
1.51				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	16.59	51.97
E.G. Slope (m/m)	0.000016	Area (m2)	16.59	51.97
Q Total (m3/s)	27.00	Flow (m3/s)	2.42	24.58
Top Width (m)	33.38	Top Width (m)	13.10	20.28
Vel Total (m/s)	0.39	Avg. Vel. (m/s)	0.15	0.47
Max Chl Dpth (m)	3.30	Hydr. Depth (m)	1.27	2.56
Conv. Total (m3/s)	6664.9	Conv. (m3/s)	597.3	6067.7
Length Wtd. (m)	200.00	Wetted Per. (m)	14.77	22.42
Min Ch El (m)	9.22	Shear (N/m2)	0.18	0.37
Alpha	1.33	Stream Power (N/m s)	0.03	0.18
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	2.32	20.70
0.59				
C & E Loss (m)	0.00	Cum SA (1000 m2)	3.17	8.08
1.82				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 2

INPUT

Description:

Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.1446	13.0105	13.0049	12.9897	13.8015	12.9792	14.3256	12.8849	14.5143	12.7906
14.7029	12.6753	14.8707	12.5076	17.3255	10.73	19.4108	9.22	30.62	9.22
32.7503	10.73	35.1082	12.4014	35.311	12.7371	35.7355	12.9462	36.198	13.0728
36.4325	13.1235	36.9267	13.1425	37.3196	13.1679	37.9532	13.1995	40.4342	13.107

41.0828 12.8528

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
11.1446	.03	14.3256	.015	35.7355	.03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	14.3256	35.7355		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	9.64	Flow Area (m2)	0.27	32.97
0.48				
E.G. Slope (m/m)	0.000010	Area (m2)	0.27	32.97
0.48				
Q Total (m3/s)	10.00	Flow (m3/s)	0.01	9.97
0.02				
Top Width (m)	21.08	Top Width (m)	1.57	17.60
1.91				
Vel Total (m/s)	0.30	Avg. Vel. (m/s)	0.03	0.30
0.04				
Max Chl Dpth (m)	2.29	Hydr. Depth (m)	0.17	1.87
0.25				
Conv. Total (m3/s)	3173.9	Conv. (m3/s)	2.6	3165.7
5.6				
Length Wtd. (m)	200.00	Wetted Per. (m)	1.77	19.07
2.29				
Min Ch El (m)	9.22	Shear (N/m2)	0.01	0.17
0.02				
Alpha	1.04	Stream Power (N/m s)	0.00	0.05
0.00				
Frctn Loss (m)		Cum Volume (1000 m3)		5.36
C & E Loss (m)		Cum SA (1000 m2)	0.16	3.48
0.19				

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.00	Reach Len. (m)	200.00	200.00

200.00				
Crit W.S. (m)	9.64	Flow Area (m2)	2.37	42.04
2.70				
E.G. Slope (m/m)	0.000005	Area (m2)	2.37	42.04
2.70				
Q Total (m3/s)	10.00	Flow (m3/s)	0.08	9.81
0.11				
Top Width (m)	31.95	Top Width (m)	7.42	18.98
5.55				
Vel Total (m/s)	0.21	Avg. Vel. (m/s)	0.03	0.23
0.04				
Max Chl Dpth (m)	2.78	Hydr. Depth (m)	0.32	2.21
0.49				
Conv. Total (m3/s)	4568.7	Conv. (m3/s)	34.8	4483.9
50.0				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.09	20.77
6.52				
Min Ch El (m)	9.22	Shear (N/m2)	0.01	0.10
0.02				
Alpha	1.19	Stream Power (N/m s)	0.00	0.02
0.00				
Frctn Loss (m)		Cum Volume (1000 m3)		7.48
C & E Loss (m)		Cum SA (1000 m2)	0.74	3.75
0.95				

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.50	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	9.64	Flow Area (m2)	6.54	51.87
5.79				
E.G. Slope (m/m)	0.000002	Area (m2)	6.54	51.87
5.79				
Q Total (m3/s)	10.00	Flow (m3/s)	0.25	9.51
0.24				
Top Width (m)	36.38	Top Width (m)	9.27	20.30
6.81				
Vel Total (m/s)	0.16	Avg. Vel. (m/s)	0.04	0.18
0.04				
Max Chl Dpth (m)	3.28	Hydr. Depth (m)	0.71	2.56
0.85				
Conv. Total (m3/s)	6356.9	Conv. (m3/s)	158.8	6047.3
150.8				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.51	22.43
8.38				
Min Ch El (m)	9.22	Shear (N/m2)	0.02	0.06

0.02				
Alpha	1.32	Stream Power (N/m s)	0.00	0.01
0.00				
Frctn Loss (m)		Cum Volume (1000 m3)		10.23
C & E Loss (m)		Cum SA (1000 m2)	0.93	4.02
1.13				

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	11.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.03	Flow Area (m2)	0.31	33.46
0.54				
E.G. Slope (m/m)	0.000069	Area (m2)	0.31	33.46
0.54				
Q Total (m3/s)	27.00	Flow (m3/s)	0.03	26.92
0.05				
Top Width (m)	21.51	Top Width (m)	1.70	17.68
2.14				
Vel Total (m/s)	0.79	Avg. Vel. (m/s)	0.08	0.80
0.10				
Max Chl Dpth (m)	2.32	Hydr. Depth (m)	0.19	1.89
0.25				
Conv. Total (m3/s)	3243.7	Conv. (m3/s)	3.1	3234.1
6.5				
Length Wtd. (m)	200.00	Wetted Per. (m)	1.92	19.17
2.54				
Min Ch El (m)	9.22	Shear (N/m2)	0.11	1.19
0.14				
Alpha	1.04	Stream Power (N/m s)	0.01	0.95
0.01				
Frctn Loss (m)		Cum Volume (1000 m3)		5.46
C & E Loss (m)		Cum SA (1000 m2)	0.17	3.48
0.21				

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.01	Reach Len. (m)	200.00	200.00

200.00				
Crit W.S. (m)	10.03	Flow Area (m2)	2.44	42.22
2.75				
E.G. Slope (m/m)	0.000034	Area (m2)	2.44	42.22
2.75				
Q Total (m3/s)	27.00	Flow (m3/s)	0.21	26.48
0.30				
Top Width (m)	32.03	Top Width (m)	7.45	19.01
5.57				
Vel Total (m/s)	0.57	Avg. Vel. (m/s)	0.09	0.63
0.11				
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	0.33	2.22
0.49				
Conv. Total (m3/s)	4598.8	Conv. (m3/s)	36.4	4511.0
51.4				
Length Wtd. (m)	200.00	Wetted Per. (m)	8.14	20.80
6.56				
Min Ch El (m)	9.22	Shear (N/m2)	0.10	0.69
0.14				
Alpha	1.19	Stream Power (N/m s)	0.01	0.43
0.02				
Frctn Loss (m)		Cum Volume (1000 m3)		7.55
C & E Loss (m)		Cum SA (1000 m2)	0.75	3.75
0.95				

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.030	0.015
0.030				
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.03	Flow Area (m2)	6.63	52.06
5.85				
E.G. Slope (m/m)	0.000018	Area (m2)	6.63	52.06
5.85				
Q Total (m3/s)	27.00	Flow (m3/s)	0.68	25.67
0.65				
Top Width (m)	36.45	Top Width (m)	9.30	20.31
6.84				
Vel Total (m/s)	0.42	Avg. Vel. (m/s)	0.10	0.49
0.11				
Max Chl Dpth (m)	3.29	Hydr. Depth (m)	0.71	2.56
0.86				
Conv. Total (m3/s)	6394.9	Conv. (m3/s)	161.9	6079.8
153.2				
Length Wtd. (m)	200.00	Wetted Per. (m)	10.56	22.46
8.42				
Min Ch El (m)	9.22	Shear (N/m2)	0.11	0.41

0.12				
Alpha	1.32	Stream Power (N/m s)	0.01	0.20
0.01				
Frctn Loss (m)		Cum Volume (1000 m3)		10.30
C & E Loss (m)		Cum SA (1000 m2)	0.93	4.02
1.14				

INLINE STRUCTURE

RIVER: SNM
 REACH: Canale SNM RS: 1.5

INPUT

Description:

Distance from Upstream XS = 150
 Deck/Roadway Width = 4
 Weir Coefficient = 1.4
 Weir Embankment Coordinates num = 2
 Sta Elev Sta Elev
 13.47 13.76 36.48 13.76

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins =
 Weir crest shape = Broad Crested

INLINE STRUCTURE GATE Gate #1
 Height = 4
 Width = 3
 Invert = 9.32
 Gate Type = Sluice Slice Coefficient = .6
 Weir Coefficient = 1.67
 Weir crest shape = Broad Crested
 Number of Gate Openings = 3
 Sta Sta Sta
 21.58 25.04 28.38

INLINE STRUCTURE OUTPUT Profile #PF 1 Gate Group: Gate #1

E.G. Elev (m)	11.51	Weir Sta Lft (m)	4.00
W.S. Elev (m)	11.51	Weir Sta Rgt (m)	46.41
Q Total (m3/s)	10.00	Min El Weir Flow (m)	10.95
Q Weir (m3/s)	0.30	Wr Top Wdth (m)	3.53
Q Gates (m3/s)	9.70	Weir Max Depth (m)	0.57
Q Culv (m3/s)		Weir Avg Depth (m)	0.22
Q Inline RC (m3/s)		Weir Flow Area (m2)	0.77
Q Outlet TS (m3/s)		Weir Coef (m^1/2)	1.402
Q Breach (m3/s)		Weir Submerg	0.95

Breach Avg Velocity (m/s)	Q Gate Group (m3/s)	9.70
Breach Flow Area (m2)	Gate Open Ht (m)	4.00
Breach WD (m)	Gate #Open	3
Breach Top El (m)	Gate Area (m2)	6.57
Breach Bottom El (m)	Gate Submerg	0.99
Breach SSL (m)	Gate Invert (m)	9.32
Breach SSR (m)	Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 2 Gate Group: Gate #1

E.G. Elev (m)	12.01	Weir Sta Lft (m)	0.00
W.S. Elev (m)	12.00	Weir Sta Rgt (m)	48.78
Q Total (m3/s)	10.00	Min El Weir Flow (m)	10.95
Q Weir (m3/s)	2.18	Wr Top Wdth (m)	12.98
Q Gates (m3/s)	7.82	Weir Max Depth (m)	1.06
Q Culv (m3/s)		Weir Avg Depth (m)	0.39
Q Inline RC (m3/s)		Weir Flow Area (m2)	5.10
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	1.402
Q Breach (m3/s)		Weir Submerg	0.99
Breach Avg Velocity (m/s)		Q Gate Group (m3/s)	7.82
Breach Flow Area (m2)		Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	8.05
Breach Bottom El (m)		Gate Submerg	1.00
Breach SSL (m)		Gate Invert (m)	9.32
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 3 Gate Group: Gate #1

E.G. Elev (m)	12.51	Weir Sta Lft (m)	0.00
W.S. Elev (m)	12.50	Weir Sta Rgt (m)	48.78
Q Total (m3/s)	10.00	Min El Weir Flow (m)	10.95
Q Weir (m3/s)	3.92	Wr Top Wdth (m)	16.09
Q Gates (m3/s)	6.08	Weir Max Depth (m)	1.56
Q Culv (m3/s)		Weir Avg Depth (m)	0.77
Q Inline RC (m3/s)		Weir Flow Area (m2)	12.35
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	1.402
Q Breach (m3/s)		Weir Submerg	0.99
Breach Avg Velocity (m/s)		Q Gate Group (m3/s)	6.08
Breach Flow Area (m2)		Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	9.55
Breach Bottom El (m)		Gate Submerg	1.00
Breach SSL (m)		Gate Invert (m)	9.32
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 4 Gate Group: Gate #1

E.G. Elev (m)	11.57	Weir Sta Lft (m)	3.95
W.S. Elev (m)	11.54	Weir Sta Rgt (m)	48.78
Q Total (m3/s)	27.00	Min El Weir Flow (m)	10.95

Q Weir (m3/s)	0.72	Wr Top Wdth (m)	4.53
Q Gates (m3/s)	26.28	Weir Max Depth (m)	0.62
Q Culv (m3/s)		Weir Avg Depth (m)	0.22
Q Inline RC (m3/s)		Weir Flow Area (m2)	0.99
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	1.402
Q Breach (m3/s)		Weir Submerg	0.75
Breach Avg Velocity (m/s)		Q Gate Group (m3/s)	26.28
Breach Flow Area (m2)		Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	6.65
Breach Bottom El (m)		Gate Submerg	0.97
Breach SSL (m)		Gate Invert (m)	9.32
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 5 Gate Group: Gate #1

E.G. Elev (m)	12.03	Weir Sta Lft (m)	0.00
W.S. Elev (m)	12.01	Weir Sta Rgt (m)	48.78
Q Total (m3/s)	27.00	Min El Weir Flow (m)	10.95
Q Weir (m3/s)	4.26	Wr Top Wdth (m)	13.15
Q Gates (m3/s)	22.74	Weir Max Depth (m)	1.09
Q Culv (m3/s)		Weir Avg Depth (m)	0.41
Q Inline RC (m3/s)		Weir Flow Area (m2)	5.45
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	1.402
Q Breach (m3/s)		Weir Submerg	0.94
Breach Avg Velocity (m/s)		Q Gate Group (m3/s)	22.74
Breach Flow Area (m2)		Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	8.08
Breach Bottom El (m)		Gate Submerg	0.99
Breach SSL (m)		Gate Invert (m)	9.32
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 6 Gate Group: Gate #1

E.G. Elev (m)	12.53	Weir Sta Lft (m)	0.00
W.S. Elev (m)	12.51	Weir Sta Rgt (m)	48.78
Q Total (m3/s)	27.00	Min El Weir Flow (m)	10.95
Q Weir (m3/s)	7.50	Wr Top Wdth (m)	16.22
Q Gates (m3/s)	19.50	Weir Max Depth (m)	1.58
Q Culv (m3/s)		Weir Avg Depth (m)	0.78
Q Inline RC (m3/s)		Weir Flow Area (m2)	12.67
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	1.402
Q Breach (m3/s)		Weir Submerg	0.98
Breach Avg Velocity (m/s)		Q Gate Group (m3/s)	19.50
Breach Flow Area (m2)		Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	9.58
Breach Bottom El (m)		Gate Submerg	0.99
Breach SSL (m)		Gate Invert (m)	9.32
Breach SSR (m)		Gate Weir Coef	3.020

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 1

INPUT

Description:

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5.0479	13.4225	6.8108	13.4731	8.6701	13.4376	9.7166	13.3168	12.2572	11.45
15.292	9.22	26.2355	9.22	29.2918	11.45	30.9441	12.6555	31.0605	12.919
32.1534	13.4656	32.5824	13.5575	34.1977	13.57	36.4529	13.521		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5.0479	.03	9.7166	.015	32.1534	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.	9.7166	32.1534	200	200	200		.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	11.50	Reach Len. (m)		
Crit W.S. (m)	9.65	Flow Area (m2)		32.05
E.G. Slope (m/m)	0.000011	Area (m2)		32.05
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.17	Top Width (m)		17.17
Vel Total (m/s)	0.31	Avg. Vel. (m/s)		0.31
Max Chl Dpth (m)	2.28	Hydr. Depth (m)		1.87
Conv. Total (m3/s)	3064.7	Conv. (m3/s)		3064.7
Length Wtd. (m)		Wetted Per. (m)		18.66
Min Ch El (m)	9.22	Shear (N/m2)		0.18
Alpha	1.00	Stream Power (N/m s)		0.06
Frctn Loss (m)		Cum Volume (1000 m3)		

C & E Loss (m)

Cum SA (1000 m2)

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.00	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	12.00	Reach Len. (m)		
Crit W.S. (m)	9.65	Flow Area (m2)		40.98
0.62				
E.G. Slope (m/m)	0.000005	Area (m2)		40.98
0.62				
Q Total (m3/s)	10.00	Flow (m3/s)		9.99
0.01				
Top Width (m)	22.50	Top Width (m)		18.54
3.97				
Vel Total (m/s)	0.24	Avg. Vel. (m/s)		0.24
0.02				
Max Chl Dpth (m)	2.78	Hydr. Depth (m)		2.21
0.16				
Conv. Total (m3/s)	4361.3	Conv. (m3/s)		4355.6
5.7				
Length Wtd. (m)		Wetted Per. (m)		20.35
4.31				
Min Ch El (m)	9.22	Shear (N/m2)		0.10
0.01				
Alpha	1.03	Stream Power (N/m s)		0.03
0.00				
Frctn Loss (m)		Cum Volume (1000 m3)		
C & E Loss (m)		Cum SA (1000 m2)		

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.50	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	12.50	Reach Len. (m)		
Crit W.S. (m)	9.65	Flow Area (m2)		50.59
2.74				

E.G. Slope (m/m)	0.000003	Area (m2)	50.59
2.74			
Q Total (m3/s)	10.00	Flow (m3/s)	9.90
0.10			
Top Width (m)	24.42	Top Width (m)	19.90
4.52			
Vel Total (m/s)	0.19	Avg. Vel. (m/s)	0.20
0.04			
Max Chl Dpth (m)	3.28	Hydr. Depth (m)	2.54
0.61			
Conv. Total (m3/s)	5923.4	Conv. (m3/s)	5866.5
56.9			
Length Wtd. (m)		Wetted Per. (m)	22.05
5.56			
Min Ch El (m)	9.22	Shear (N/m2)	0.06
0.01			
Alpha	1.08	Stream Power (N/m s)	0.01
0.00			
Frctn Loss (m)		Cum Volume (1000 m3)	
C & E Loss (m)		Cum SA (1000 m2)	

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.50	Reach Len. (m)		
Crit W.S. (m)	10.04	Flow Area (m2)		32.05
E.G. Slope (m/m)	0.000078	Area (m2)		32.05
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.17	Top Width (m)		17.17
Vel Total (m/s)	0.84	Avg. Vel. (m/s)		0.84
Max Chl Dpth (m)	2.28	Hydr. Depth (m)		1.87
Conv. Total (m3/s)	3064.7	Conv. (m3/s)		3064.7
Length Wtd. (m)		Wetted Per. (m)		18.66
Min Ch El (m)	9.22	Shear (N/m2)		1.31

Alpha	1.00	Stream Power (N/m s)	1.10
Frctn Loss (m)		Cum Volume (1000 m3)	
C & E Loss (m)		Cum SA (1000 m2)	

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
0.030				
W.S. Elev (m)	12.00	Reach Len. (m)		
Crit W.S. (m)	10.04	Flow Area (m2)		40.98
0.62				
E.G. Slope (m/m)	0.000038	Area (m2)		40.98
0.62				
Q Total (m3/s)	27.00	Flow (m3/s)		26.96
0.04				
Top Width (m)	22.50	Top Width (m)		18.54
3.97				
Vel Total (m/s)	0.65	Avg. Vel. (m/s)		0.66
0.06				
Max Chl Dpth (m)	2.78	Hydr. Depth (m)		2.21
0.16				
Conv. Total (m3/s)	4361.3	Conv. (m3/s)		4355.6
5.7				
Length Wtd. (m)		Wetted Per. (m)		20.35
4.31				
Min Ch El (m)	9.22	Shear (N/m2)		0.76
0.05				
Alpha	1.03	Stream Power (N/m s)		0.50
0.00				
Frctn Loss (m)		Cum Volume (1000 m3)		
C & E Loss (m)		Cum SA (1000 m2)		

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
0.030				

W.S. Elev (m)	12.50	Reach Len. (m)	
Crit W.S. (m)	10.04	Flow Area (m2)	50.59
2.74			
E.G. Slope (m/m)	0.000021	Area (m2)	50.59
2.74			
Q Total (m3/s)	27.00	Flow (m3/s)	26.74
0.26			
Top Width (m)	24.42	Top Width (m)	19.90
4.52			
Vel Total (m/s)	0.51	Avg. Vel. (m/s)	0.53
0.09			
Max Chl Dpth (m)	3.28	Hydr. Depth (m)	2.54
0.61			
Conv. Total (m3/s)	5923.4	Conv. (m3/s)	5866.5
56.9			
Length Wtd. (m)		Wetted Per. (m)	22.05
5.56			
Min Ch El (m)	9.22	Shear (N/m2)	0.47
0.10			
Alpha	1.08	Stream Power (N/m s)	0.25
0.01			
Frctn Loss (m)		Cum Volume (1000 m3)	
C & E Loss (m)		Cum SA (1000 m2)	

Warning: Divided flow computed for this cross-section.

SUMMARY OF MANNING'S N VALUES

River:SNM

Reach	River Sta.	n1	n2	n3
Canale SNM	73	.03	.015	.03
Canale SNM	72	.03	.015	.03
Canale SNM	71	.03	.015	.03
Canale SNM	70	.03	.015	.03
Canale SNM	69	.03	.015	.03
Canale SNM	68.5	Bridge		
Canale SNM	68	.03	.015	.03
Canale SNM	67	.03	.015	.03
Canale SNM	66.5	Bridge		
Canale SNM	66	.03	.015	.03
Canale SNM	65	.03	.015	.03
Canale SNM	64	.03	.015	.03
Canale SNM	63	.03	.015	.03
Canale SNM	62	.03	.015	.03
Canale SNM	61	.03	.015	.03

Canale SNM	60.5	Bridge		
Canale SNM	60	.03	.015	.03
Canale SNM	59	.03	.015	.03
Canale SNM	58.5	Bridge		
Canale SNM	58	.03	.015	.03
Canale SNM	57	.03	.015	.03
Canale SNM	56	.03	.015	.03
Canale SNM	55	.03	.015	.03
Canale SNM	54.5	Bridge		
Canale SNM	54	.03	.015	.03
Canale SNM	53	.03	.015	.03
Canale SNM	52	.03	.015	.03
Canale SNM	51	.03	.015	.03
Canale SNM	50	.03	.015	.03
Canale SNM	49	.03	.015	.03
Canale SNM	48	.03	.015	.03
Canale SNM	47	.03	.015	.03
Canale SNM	46.5	Bridge		
Canale SNM	46	.03	.015	.03
Canale SNM	45	.03	.015	.03
Canale SNM	44	.03	.015	.03
Canale SNM	43	.03	.015	.03
Canale SNM	42	.03	.015	.03
Canale SNM	41.5	Bridge		
Canale SNM	41	.03	.015	.03
Canale SNM	40	.03	.015	.03
Canale SNM	39	.03	.015	.03
Canale SNM	38.8	Inl Struct		
Canale SNM	38.7	.03	.015	.03
Canale SNM	38.4	Bridge		
Canale SNM	38	.03	.015	.03
Canale SNM	37	.03	.015	.03
Canale SNM	36	.03	.015	.03
Canale SNM	35	.03	.015	.03
Canale SNM	34	.03	.015	.03
Canale SNM	33	.03	.015	.03
Canale SNM	32	.03	.015	.03
Canale SNM	31.5	Bridge		
Canale SNM	31	.03	.015	.03
Canale SNM	30	.03	.015	.03
Canale SNM	29	.03	.015	.03
Canale SNM	28	.03	.015	.03
Canale SNM	27	.03	.015	.03
Canale SNM	26	.03	.015	.03
Canale SNM	25.5	Bridge		
Canale SNM	25	.03	.015	.03
Canale SNM	24	.03	.015	.03
Canale SNM	23	.03	.015	.03
Canale SNM	22.5	Bridge		
Canale SNM	22	.03	.015	.03
Canale SNM	21	.03	.015	.03
Canale SNM	20	.03	.015	.03
Canale SNM	19	.03	.015	.03
Canale SNM	18.5	Bridge		

Canale SNM	18		.03	.015	.03
Canale SNM	17		.03	.015	.03
Canale SNM	16		.03	.015	.03
Canale SNM	15.5	Bridge			
Canale SNM	15		.03	.015	.03
Canale SNM	14.5	Bridge			
Canale SNM	14		.03	.015	.03
Canale SNM	13		.03	.015	.03
Canale SNM	12		.03	.015	.03
Canale SNM	11		.03	.015	.03
Canale SNM	10.5	Bridge			
Canale SNM	10		.03	.015	.03
Canale SNM	9		.03	.015	.03
Canale SNM	8		.03	.015	.03
Canale SNM	7.5	Bridge			
Canale SNM	7		.03	.015	.03
Canale SNM	6		.03	.015	.03
Canale SNM	5		.03	.015	.03
Canale SNM	4.5	Bridge			
Canale SNM	4.4		.03	.015	.03
Canale SNM	4.3	Bridge			
Canale SNM	4		.03	.015	.03
Canale SNM	3		.03	.015	.03
Canale SNM	2		.03	.015	.03
Canale SNM	1.5	Inl Struct			
Canale SNM	1		.03	.015	.03

SUMMARY OF REACH LENGTHS

River: SNM

Reach	River Sta.	Left	Channel	Right
Canale SNM	73	200	200	200
Canale SNM	72	200	200	200
Canale SNM	71	200	200	200
Canale SNM	70	200	200	200
Canale SNM	69	200	200	200
Canale SNM	68.5	Bridge		
Canale SNM	68	200	200	200
Canale SNM	67	200	200	200
Canale SNM	66.5	Bridge		
Canale SNM	66	200	200	200
Canale SNM	65	200	200	200
Canale SNM	64	200	200	200
Canale SNM	63	200	200	200
Canale SNM	62	200	200	200
Canale SNM	61	200	200	200
Canale SNM	60.5	Bridge		
Canale SNM	60	200	200	200
Canale SNM	59	200	200	200

Canale SNM	58.5	Bridge		
Canale SNM	58	200	200	200
Canale SNM	57	200	200	200
Canale SNM	56	200	200	200
Canale SNM	55	200	200	200
Canale SNM	54.5	Bridge		
Canale SNM	54	200	200	200
Canale SNM	53	200	200	200
Canale SNM	52	200	200	200
Canale SNM	51	200	200	200
Canale SNM	50	200	200	200
Canale SNM	49	200	200	200
Canale SNM	48	200	200	200
Canale SNM	47	200	200	200
Canale SNM	46.5	Bridge		
Canale SNM	46	200	200	200
Canale SNM	45	200	200	200
Canale SNM	44	200	200	200
Canale SNM	43	200	200	200
Canale SNM	42	200	200	200
Canale SNM	41.5	Bridge		
Canale SNM	41	200	200	200
Canale SNM	40	200	200	200
Canale SNM	39	200	200	200
Canale SNM	38.8	Inl Struct		
Canale SNM	38.7	35	35	35
Canale SNM	38.4	Bridge		
Canale SNM	38	200	200	200
Canale SNM	37	200	200	200
Canale SNM	36	200	200	200
Canale SNM	35	200	200	200
Canale SNM	34	200	200	200
Canale SNM	33	200	200	200
Canale SNM	32	200	200	200
Canale SNM	31.5	Bridge		
Canale SNM	31	200	200	200
Canale SNM	30	200	200	200
Canale SNM	29	200	200	200
Canale SNM	28	200	200	200
Canale SNM	27	200	200	200
Canale SNM	26	200	200	200
Canale SNM	25.5	Bridge		
Canale SNM	25	200	200	200
Canale SNM	24	200	200	200
Canale SNM	23	200	200	200
Canale SNM	22.5	Bridge		
Canale SNM	22	200	200	200
Canale SNM	21	200	200	200
Canale SNM	20	200	200	200
Canale SNM	19	200	200	200
Canale SNM	18.5	Bridge		
Canale SNM	18	200	200	200
Canale SNM	17	200	200	200
Canale SNM	16	200	200	200

Canale SNM	15.5	Bridge			
Canale SNM	15	200	200	200	
Canale SNM	14.5	Bridge			
Canale SNM	14	150	150	150	
Canale SNM	13	200	200	200	
Canale SNM	12	200	200	200	
Canale SNM	11	200	200	200	
Canale SNM	10.5	Bridge			
Canale SNM	10	200	200	200	
Canale SNM	9	200	200	200	
Canale SNM	8	200	200	200	
Canale SNM	7.5	Bridge			
Canale SNM	7	200	200	200	
Canale SNM	6	200	200	200	
Canale SNM	5	200	200	200	
Canale SNM	4.5	Bridge			
Canale SNM	4.4	30	30	30	
Canale SNM	4.3	Bridge			
Canale SNM	4	200	200	200	
Canale SNM	3	200	200	200	
Canale SNM	2	200	200	200	
Canale SNM	1.5	Inl Struct			
Canale SNM	1	200	200	200	

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: SNM

Reach	River Sta.	Contr.	Expan.
Canale SNM	73	.1	.3
Canale SNM	72	.0015	.01
Canale SNM	71	.0015	.01
Canale SNM	70	.0015	.01
Canale SNM	69	.0015	.01
Canale SNM	68.5	Bridge	
Canale SNM	68	.0015	.01
Canale SNM	67	.0015	.01
Canale SNM	66.5	Bridge	
Canale SNM	66	.0015	.01
Canale SNM	65	.0015	.01
Canale SNM	64	.0015	.01
Canale SNM	63	.0015	.01
Canale SNM	62	.0015	.01
Canale SNM	61	.0015	.01
Canale SNM	60.5	Bridge	
Canale SNM	60	.0015	.01
Canale SNM	59	.0015	.01
Canale SNM	58.5	Bridge	
Canale SNM	58	.0015	.01
Canale SNM	57	.0015	.01

Canale SNM	56	.0015	.01
Canale SNM	55	.0015	.01
Canale SNM	54.5	Bridge	
Canale SNM	54	.0015	.01
Canale SNM	53	.0015	.01
Canale SNM	52	.0015	.01
Canale SNM	51	.0015	.01
Canale SNM	50	.0015	.01
Canale SNM	49	.0015	.01
Canale SNM	48	.0015	.01
Canale SNM	47	.0015	.01
Canale SNM	46.5	Bridge	
Canale SNM	46	.0015	.01
Canale SNM	45	.0015	.01
Canale SNM	44	.0015	.01
Canale SNM	43	.0015	.01
Canale SNM	42	.0015	.01
Canale SNM	41.5	Bridge	
Canale SNM	41	.0015	.01
Canale SNM	40	.0015	.01
Canale SNM	39	.0015	.01
Canale SNM	38.8	Inl Struct	
Canale SNM	38.7	.1	.3
Canale SNM	38.4	Bridge	
Canale SNM	38	.0015	.01
Canale SNM	37	.0015	.01
Canale SNM	36	.0015	.01
Canale SNM	35	.0015	.01
Canale SNM	34	.0015	.01
Canale SNM	33	.0015	.01
Canale SNM	32	.0015	.01
Canale SNM	31.5	Bridge	
Canale SNM	31	.0015	.01
Canale SNM	30	.0015	.01
Canale SNM	29	.0015	.01
Canale SNM	28	.0015	.01
Canale SNM	27	.0015	.01
Canale SNM	26	.0015	.01
Canale SNM	25.5	Bridge	
Canale SNM	25	.0015	.01
Canale SNM	24	.0015	.01
Canale SNM	23	.0015	.01
Canale SNM	22.5	Bridge	
Canale SNM	22	.0015	.01
Canale SNM	21	.0015	.01
Canale SNM	20	.0015	.01
Canale SNM	19	.0015	.01
Canale SNM	18.5	Bridge	
Canale SNM	18	.0015	.01
Canale SNM	17	.0015	.01
Canale SNM	16	.0015	.01
Canale SNM	15.5	Bridge	
Canale SNM	15	.0015	.01
Canale SNM	14.5	Bridge	

Canale SNM	14	.0015	.01
Canale SNM	13	.0015	.01
Canale SNM	12	.0015	.01
Canale SNM	11	.0015	.01
Canale SNM	10.5	Bridge	
Canale SNM	10	.0015	.01
Canale SNM	9	.0015	.01
Canale SNM	8	.0015	.01
Canale SNM	7.5	Bridge	
Canale SNM	7	.0015	.01
Canale SNM	6	.0015	.01
Canale SNM	5	.0015	.01
Canale SNM	4.5	Bridge	
Canale SNM	4.4	.1	.3
Canale SNM	4.3	Bridge	
Canale SNM	4	.0015	.01
Canale SNM	3	.0015	.01
Canale SNM	2	.0015	.01
Canale SNM	1.5	Inl Struct	
Canale SNM	1	.0015	.01

HEC-RAS HEC-RAS 6.1.0 September 2021
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```

X      X  XXXXXX   XXXX       XXXX       XX       XXXX
X      X  X        X   X       X   X       X   X       X
X      X  X        X        X   X   X       X   X       X
XXXXXXXX XXXX      X          XXX XXXX      XXXXXX      XXXX
X      X  X        X          X   X       X   X          X
X      X  X        X   X       X   X       X   X          X
X      X  XXXXXX   XXXX       X   X       X   X       XXXXX

```

PROJECT DATA

Project Title: CanaleSNM_PRG_REV01-A
Project File : CanaleSNM_PRG_REV01.prj
Run Date and Time: 22/12/2021 12:53:52

Project in SI units

PLAN DATA

Plan Title: Plan 12
Plan File : C:\Users\Tecnico1\Documents\CanaleSNM_PRG_REV01.p12

Geometry Title: CanalsNM_SP_REV01
Geometry File : C:\Users\Tecnico1\Documents\CanaleSNM_PRG_REV01.g09

Flow Title : CanaleSNM-A
Flow File : C:\Users\Tecnico1\Documents\CanaleSNM_PRG_REV01.f02

Plan Summary Information:

Number of: Cross Sections	=	75	Multiple Openings	=	0
Culverts	=	0	Inline Structures	=	2
Bridges	=	18	Lateral Structures	=	0

Computational Information

Water surface calculation tolerance	=	0.003
Critical depth calculation tolerance	=	0.003
Maximum number of iterations	=	20
Maximum difference tolerance	=	0.1
Flow tolerance factor	=	0.001

Computation Options

Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only

Friction Slope Method: Average Conveyance
 Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: CanaleSNM-A

Flow File : C:\Users\Tecnico1\Documents\CanaleSNM_PRG_REV01.f02

Flow Data (m3/s)

River	Reach	RS	PF 1	PF 2
PF 3	PF 4	PF 5	PF 6	
SNM	Canale SNM	73	10	10
10	27	27	27	

Boundary Conditions

River	Reach	Profile	Upstream
Downstream			
SNM	Canale SNM	PF 1	
Known WS = 11.5			
SNM	Canale SNM	PF 2	
Known WS = 12			
SNM	Canale SNM	PF 3	
Known WS = 12.5			
SNM	Canale SNM	PF 4	
Known WS = 11.5			
SNM	Canale SNM	PF 5	
Known WS = 12			
SNM	Canale SNM	PF 6	
Known WS = 12.5			

Inline Structure Gate Openings

River = SNM

Reach = Canale SNM RS = 38.8

Gate = Gate #1

# Open	Open	Ht	# Open	Open	Ht	# Open	Open	Ht	# Open	Open	Ht	# Open	Open	Ht
4		3	4		3	4		3	4		3	4		3
4		3												

River = SNM

Reach = Canale SNM RS = 1.5

Gate = Gate #1

# Open	Open	Ht	# Open	Open	Ht	# Open	Open	Ht	# Open	Open	Ht	# Open	Open	Ht
4		3	4		3	4		3	4		3	4		3

GEOMETRY DATA

Geometry Title: CanalsNM_SP_REV01

Geometry File : C:\Users\Tecnico1\Documents\CanaleSNM_PRG_REV01.g09

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 73

INPUT

Description: Opera n. 1

Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.2543	14.0079	12.7658	13.864	12.769	13.9639	13.2977	13.947	18.6544	10.3177
24.273	10.3181	29.8916	10.3177	35.7047	14.2563	36.8201	14.1575	36.8201	14.2563
39.8701	14.1652	41.2069	13.926						

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.2543	.015	13.2977	.015	35.7047	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	13.2977	35.7047		200	200	200	.1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.89	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.87	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.07
E.G. Slope (m/m)	0.000037	Area (m2)		21.07
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.83	Top Width (m)		15.83
Vel Total (m/s)	0.47	Avg. Vel. (m/s)		0.47
Max Chl Dpth (m)	1.56	Hydr. Depth (m)		1.33
Conv. Total (m3/s)	1634.7	Conv. (m3/s)		1634.7

Length Wtd. (m)	200.00	Wetted Per. (m)	16.79
Min Ch El (m)	10.32	Shear (N/m2)	0.46
Alpha	1.00	Stream Power (N/m s)	0.22
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	355.56
C & E Loss (m)	0.00	Cum SA (1000 m2)	225.60

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.20	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.19	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		26.27
E.G. Slope (m/m)	0.000020	Area (m2)		26.27
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.77	Top Width (m)		16.77
Vel Total (m/s)	0.38	Avg. Vel. (m/s)		0.38
Max Chl Dpth (m)	1.88	Hydr. Depth (m)		1.57
Conv. Total (m3/s)	2259.4	Conv. (m3/s)		2259.4
Length Wtd. (m)	200.00	Wetted Per. (m)		17.93
Min Ch El (m)	10.32	Shear (N/m2)		0.28
Alpha	1.00	Stream Power (N/m s)		0.11
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		453.85
C & E Loss (m)	0.00	Cum SA (1000 m2)		240.91

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.61	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.61	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.47
E.G. Slope (m/m)	0.000010	Area (m2)		33.47
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.00	Top Width (m)		18.00
Vel Total (m/s)	0.30	Avg. Vel. (m/s)		0.30
Max Chl Dpth (m)	2.29	Hydr. Depth (m)		1.86
Conv. Total (m3/s)	3209.4	Conv. (m3/s)		3209.4
Length Wtd. (m)	200.00	Wetted Per. (m)		19.40
Min Ch El (m)	10.32	Shear (N/m2)		0.16
Alpha	1.00	Stream Power (N/m s)		0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	569.08
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	255.65

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.74	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.71	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.30
E.G. Slope (m/m)	0.000061	Area (m2)		35.30
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.29	Top Width (m)		18.29
Vel Total (m/s)	0.76	Avg. Vel. (m/s)		0.76
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3464.9	Conv. (m3/s)		3464.9

Length Wtd. (m)	200.00	Wetted Per. (m)	19.76
Min Ch El (m)	10.32	Shear (N/m2)	1.06
Alpha	1.00	Stream Power (N/m s)	0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	470.00
C & E Loss (m)	0.00	Cum SA (1000 m2)	243.66

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.86	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.83	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.61
E.G. Slope (m/m)	0.000051	Area (m2)		37.61
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.66	Top Width (m)		18.66
Vel Total (m/s)	0.72	Avg. Vel. (m/s)		0.72
Max Chl Dpth (m)	2.52	Hydr. Depth (m)		2.02
Conv. Total (m3/s)	3793.8	Conv. (m3/s)		3793.8
Length Wtd. (m)	200.00	Wetted Per. (m)		20.21
Min Ch El (m)	10.32	Shear (N/m2)		0.92
Alpha	1.00	Stream Power (N/m s)		0.66
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		535.74
C & E Loss (m)	0.00	Cum SA (1000 m2)		253.12

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	13.09	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	13.07	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		42.08
E.G. Slope (m/m)	0.000037	Area (m2)		42.08
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.36	Top Width (m)		19.36
Vel Total (m/s)	0.64	Avg. Vel. (m/s)		0.64
Max Chl Dpth (m)	2.75	Hydr. Depth (m)		2.17
Conv. Total (m3/s)	4451.7	Conv. (m3/s)		4451.7
Length Wtd. (m)	200.00	Wetted Per. (m)		21.05
Min Ch El (m)	10.32	Shear (N/m2)		0.72
Alpha	1.00	Stream Power (N/m s)		0.46
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	625.48
0.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	256.49
1.01				

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 72

INPUT

Description:

Station Elevation Data		num= 11							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.3461	14.0844	13.7461	14.1547	13.7461	14.2547	15.0311	14.2547	20.8611	10.3055
26.3614	10.3052	31.9199	10.3048	37.2608	14.0761	38.6744	14.0761	38.6744	13.9761
42.2032	13.9966								

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
11.3461	.015	15.0311	.015	37.2608	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	15.0311	37.2608		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.88	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.87	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		20.80
E.G. Slope (m/m)	0.000038	Area (m2)		20.80
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.58	Top Width (m)		15.58
Vel Total (m/s)	0.48	Avg. Vel. (m/s)		0.48
Max Chl Dpth (m)	1.56	Hydr. Depth (m)		1.34
Conv. Total (m3/s)	1614.5	Conv. (m3/s)		1614.5
Length Wtd. (m)	200.00	Wetted Per. (m)		16.55
Min Ch El (m)	10.30	Shear (N/m2)		0.47
Alpha	1.00	Stream Power (N/m s)		0.23
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		351.37
C & E Loss (m)	0.00	Cum SA (1000 m2)		222.46

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.20	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.19	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		25.97
E.G. Slope (m/m)	0.000020	Area (m2)		25.97
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.51	Top Width (m)		16.51
Vel Total (m/s)	0.39	Avg. Vel. (m/s)		0.39

Max Chl Dpth (m)	1.88	Hydr. Depth (m)	1.57
Conv. Total (m3/s)	2236.8	Conv. (m3/s)	2236.8
Length Wtd. (m)	200.00	Wetted Per. (m)	17.68
Min Ch El (m)	10.30	Shear (N/m2)	0.29
Alpha	1.00	Stream Power (N/m s)	0.11
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	448.63
C & E Loss (m)	0.00	Cum SA (1000 m2)	237.58

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.61	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.09
E.G. Slope (m/m)	0.000010	Area (m2)		33.09
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.71	Top Width (m)		17.71
Vel Total (m/s)	0.30	Avg. Vel. (m/s)		0.30
Max Chl Dpth (m)	2.30	Hydr. Depth (m)		1.87
Conv. Total (m3/s)	3177.2	Conv. (m3/s)		3177.2
Length Wtd. (m)	200.00	Wetted Per. (m)		19.15
Min Ch El (m)	10.30	Shear (N/m2)		0.17
Alpha	1.00	Stream Power (N/m s)		0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	562.43
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	252.08

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.73	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.70	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.69
E.G. Slope (m/m)	0.000063	Area (m2)		34.69
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.97	Top Width (m)		17.97
Vel Total (m/s)	0.78	Avg. Vel. (m/s)		0.78
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3399.8	Conv. (m3/s)		3399.8
Length Wtd. (m)	200.00	Wetted Per. (m)		19.46
Min Ch El (m)	10.30	Shear (N/m2)		1.10
Alpha	1.00	Stream Power (N/m s)		0.86
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		463.00
C & E Loss (m)	0.00	Cum SA (1000 m2)		240.03

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.85	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.82	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.00
E.G. Slope (m/m)	0.000052	Area (m2)		37.00
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.34	Top Width (m)		18.34
Vel Total (m/s)	0.73	Avg. Vel. (m/s)		0.73

Max Chl Dpth (m)	2.52	Hydr. Depth (m)	2.02
Conv. Total (m3/s)	3728.1	Conv. (m3/s)	3728.1
Length Wtd. (m)	200.00	Wetted Per. (m)	19.91
Min Ch El (m)	10.30	Shear (N/m2)	0.96
Alpha	1.00	Stream Power (N/m s)	0.70
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	528.28
C & E Loss (m)	0.00	Cum SA (1000 m2)	249.42

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	13.08	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	13.06	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		41.45
E.G. Slope (m/m)	0.000038	Area (m2)		41.45
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.03	Top Width (m)		19.03
Vel Total (m/s)	0.65	Avg. Vel. (m/s)		0.65
Max Chl Dpth (m)	2.76	Hydr. Depth (m)		2.18
Conv. Total (m3/s)	4382.5	Conv. (m3/s)		4382.5
Length Wtd. (m)	200.00	Wetted Per. (m)		20.75
Min Ch El (m)	10.30	Shear (N/m2)		0.74
Alpha	1.00	Stream Power (N/m s)		0.48
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	617.13
0.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	252.65
1.01				

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 71

INPUT

Description:

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.0545	13.8827	10.3965	14.0515	10.864	14.0941	11.805	14.0181	11.805	14.1941
12.7766	14.1941	18.5522	10.2926	24.0852	10.2922	29.6736	10.2918	35.1844	14.159
36.2672	14.159	36.2672	14.059	39.7812	14.059	41.5387	13.8966		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.0545	.015	12.7766	.015	35.1844	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	12.7766	35.1844	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.87	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.86	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.00
E.G. Slope (m/m)	0.000037	Area (m2)		21.00
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.67	Top Width (m)		15.67
Vel Total (m/s)	0.48	Avg. Vel. (m/s)		0.48
Max Chl Dpth (m)	1.57	Hydr. Depth (m)		1.34
Conv. Total (m3/s)	1634.2	Conv. (m3/s)		1634.2
Length Wtd. (m)	200.00	Wetted Per. (m)		16.65
Min Ch El (m)	10.29	Shear (N/m2)		0.46
Alpha	1.00	Stream Power (N/m s)		0.22
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		347.19
C & E Loss (m)	0.00	Cum SA (1000 m2)		219.33

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.19	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.19	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		26.26
E.G. Slope (m/m)	0.000019	Area (m2)		26.26
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.62	Top Width (m)		16.62
Vel Total (m/s)	0.38	Avg. Vel. (m/s)		0.38
Max Chl Dpth (m)	1.89	Hydr. Depth (m)		1.58
Conv. Total (m3/s)	2269.3	Conv. (m3/s)		2269.3
Length Wtd. (m)	200.00	Wetted Per. (m)		17.80
Min Ch El (m)	10.29	Shear (N/m2)		0.28
Alpha	1.00	Stream Power (N/m s)		0.11
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		443.40
C & E Loss (m)	0.00	Cum SA (1000 m2)		234.26

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.60	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.47
E.G. Slope (m/m)	0.000010	Area (m2)		33.47
Q Total (m3/s)	10.00	Flow (m3/s)		10.00

Top Width (m)	17.84	Top Width (m)	17.84
Vel Total (m/s)	0.30	Avg. Vel. (m/s)	0.30
Max Chl Dpth (m)	2.31	Hydr. Depth (m)	1.88
Conv. Total (m3/s)	3223.5	Conv. (m3/s)	3223.5
Length Wtd. (m)	200.00	Wetted Per. (m)	19.27
Min Ch El (m)	10.29	Shear (N/m2)	0.16
Alpha	1.00	Stream Power (N/m s)	0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00 555.77
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00 248.52

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.71	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.68	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.89
E.G. Slope (m/m)	0.000062	Area (m2)		34.89
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.07	Top Width (m)		18.07
Vel Total (m/s)	0.77	Avg. Vel. (m/s)		0.77
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3422.0	Conv. (m3/s)		3422.0
Length Wtd. (m)	200.00	Wetted Per. (m)		19.55
Min Ch El (m)	10.29	Shear (N/m2)		1.09
Alpha	1.00	Stream Power (N/m s)		0.84
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		456.04
C & E Loss (m)	0.00	Cum SA (1000 m2)		236.43

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.84	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.81	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.25
E.G. Slope (m/m)	0.000052	Area (m2)		37.25
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.44	Top Width (m)		18.44
Vel Total (m/s)	0.72	Avg. Vel. (m/s)		0.72
Max Chl Dpth (m)	2.52	Hydr. Depth (m)		2.02
Conv. Total (m3/s)	3757.9	Conv. (m3/s)		3757.9
Length Wtd. (m)	200.00	Wetted Per. (m)		20.01
Min Ch El (m)	10.29	Shear (N/m2)		0.94
Alpha	1.00	Stream Power (N/m s)		0.68
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		520.86
C & E Loss (m)	0.00	Cum SA (1000 m2)		245.74

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	13.07	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	13.05	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		41.78
E.G. Slope (m/m)	0.000037	Area (m2)		41.78
Q Total (m3/s)	27.00	Flow (m3/s)		27.00

Top Width (m)	19.14	Top Width (m)		19.14
Vel Total (m/s)	0.65	Avg. Vel. (m/s)		0.65
Max Chl Dpth (m)	2.76	Hydr. Depth (m)		2.18
Conv. Total (m3/s)	4425.3	Conv. (m3/s)		4425.3
Length Wtd. (m)	200.00	Wetted Per. (m)		20.86
Min Ch El (m)	10.29	Shear (N/m2)		0.73
Alpha	1.00	Stream Power (N/m s)		0.47
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	608.80
0.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	248.84
1.01				

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 70

INPUT

Description:

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.0727	13.7347	13.029	13.8531	16.2507	13.7946	16.2507	13.8903	16.7809	13.8903
22.2069	10.2796	27.8481	10.2792	33.5557	10.2789	39.1127	14.152	40.3373	14.152
40.3373	14.052	43.5317	14.0614	44.8566	13.854	46.339	13.819		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12.0727	.015	16.7809	.015	39.1127	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	16.7809	39.1127		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.86	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.85	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.49

E.G. Slope (m/m)	0.000035	Area (m2)	21.49
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	15.97	Top Width (m)	15.97
Vel Total (m/s)	0.47	Avg. Vel. (m/s)	0.47
Max Chl Dpth (m)	1.57	Hydr. Depth (m)	1.35
Conv. Total (m3/s)	1679.5	Conv. (m3/s)	1679.5
Length Wtd. (m)	200.00	Wetted Per. (m)	16.94
Min Ch El (m)	10.28	Shear (N/m2)	0.44
Alpha	1.00	Stream Power (N/m s)	0.21
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	342.94
C & E Loss (m)	0.00	Cum SA (1000 m2)	216.17

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.19	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.18	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		26.91
E.G. Slope (m/m)	0.000018	Area (m2)		26.91
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.94	Top Width (m)		16.94
Vel Total (m/s)	0.37	Avg. Vel. (m/s)		0.37
Max Chl Dpth (m)	1.90	Hydr. Depth (m)		1.59
Conv. Total (m3/s)	2336.6	Conv. (m3/s)		2336.6
Length Wtd. (m)	200.00	Wetted Per. (m)		18.11
Min Ch El (m)	10.28	Shear (N/m2)		0.27
Alpha	1.00	Stream Power (N/m s)		0.10

Frctn Loss (m)	0.00	Cum Volume (1000 m3)	438.08
C & E Loss (m)	0.00	Cum SA (1000 m2)	230.91

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.60	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.29
E.G. Slope (m/m)	0.000009	Area (m2)		34.29
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.17	Top Width (m)		18.17
Vel Total (m/s)	0.29	Avg. Vel. (m/s)		0.29
Max Chl Dpth (m)	2.32	Hydr. Depth (m)		1.89
Conv. Total (m3/s)	3318.2	Conv. (m3/s)		3318.2
Length Wtd. (m)	200.00	Wetted Per. (m)		19.60
Min Ch El (m)	10.28	Shear (N/m2)		0.16
Alpha	1.00	Stream Power (N/m s)		0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	549.00
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	244.92

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.70	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.67	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.56

E.G. Slope (m/m)	0.000060	Area (m2)	35.56
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	18.38	Top Width (m)	18.38
Vel Total (m/s)	0.76	Avg. Vel. (m/s)	0.76
Max Chl Dpth (m)	2.39	Hydr. Depth (m)	1.94
Conv. Total (m3/s)	3497.0	Conv. (m3/s)	3497.0
Length Wtd. (m)	200.00	Wetted Per. (m)	19.85
Min Ch El (m)	10.28	Shear (N/m2)	1.05
Alpha	1.00	Stream Power (N/m s)	0.80
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	448.99
C & E Loss (m)	0.00	Cum SA (1000 m2)	232.79

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.83	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.80	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.00
E.G. Slope (m/m)	0.000049	Area (m2)		38.00
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.76	Top Width (m)		18.76
Vel Total (m/s)	0.71	Avg. Vel. (m/s)		0.71
Max Chl Dpth (m)	2.52	Hydr. Depth (m)		2.03
Conv. Total (m3/s)	3845.4	Conv. (m3/s)		3845.4
Length Wtd. (m)	200.00	Wetted Per. (m)		20.32
Min Ch El (m)	10.28	Shear (N/m2)		0.90
Alpha	1.00	Stream Power (N/m s)		0.64

Frctn Loss (m)	0.01	Cum Volume (1000 m3)	513.33
C & E Loss (m)	0.00	Cum SA (1000 m2)	242.02

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	13.07	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	13.05	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		42.66
E.G. Slope (m/m)	0.000035	Area (m2)		42.66
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.48	Top Width (m)		19.48
Vel Total (m/s)	0.63	Avg. Vel. (m/s)		0.63
Max Chl Dpth (m)	2.77	Hydr. Depth (m)		2.19
Conv. Total (m3/s)	4534.7	Conv. (m3/s)		4534.7
Length Wtd. (m)	200.00	Wetted Per. (m)		21.18
Min Ch El (m)	10.28	Shear (N/m2)		0.70
Alpha	1.00	Stream Power (N/m s)		0.44
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	600.36
0.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	244.97
1.01				

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 69

INPUT

Description:

Station Elevation Data	num=	14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
7.7781 13.8282 8.8099 13.9313 10.3625 13.9725 11.8006 13.9309 11.8006 14.0164		

12.6628 14.0164 18.2119 10.2667 23.817 10.2663 29.5027 10.2659 34.0852 13.5318
 34.8427 13.5318 34.8427 13.4775 36.5016 13.629 39.5623 13.539

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 7.7781 .015 12.6628 .015 34.0852 .015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan.
 12.6628 34.0852 200 200 200 .0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.86	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.85	Reach Len. (m)	168.76	168.76
168.76				
Crit W.S. (m)	10.69	Flow Area (m2)		21.43
E.G. Slope (m/m)	0.000036	Area (m2)		21.43
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.84	Top Width (m)		15.84
Vel Total (m/s)	0.47	Avg. Vel. (m/s)		0.47
Max Chl Dpth (m)	1.58	Hydr. Depth (m)		1.35
Conv. Total (m3/s)	1677.7	Conv. (m3/s)		1677.7
Length Wtd. (m)	168.76	Wetted Per. (m)		16.83
Min Ch El (m)	10.27	Shear (N/m2)		0.44
Alpha	1.00	Stream Power (N/m s)		0.21
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		338.65
C & E Loss (m)	0.00	Cum SA (1000 m2)		212.99

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.19	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015

W.S. Elev (m)	12.18	Reach Len. (m)	168.76	168.76
168.76				
Crit W.S. (m)	10.69	Flow Area (m2)		26.86
E.G. Slope (m/m)	0.000018	Area (m2)		26.86
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.80	Top Width (m)		16.80
Vel Total (m/s)	0.37	Avg. Vel. (m/s)		0.37
Max Chl Dpth (m)	1.91	Hydr. Depth (m)		1.60
Conv. Total (m3/s)	2338.2	Conv. (m3/s)		2338.2
Length Wtd. (m)	168.76	Wetted Per. (m)		18.00
Min Ch El (m)	10.27	Shear (N/m2)		0.27
Alpha	1.00	Stream Power (N/m s)		0.10
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		432.71
C & E Loss (m)	0.00	Cum SA (1000 m2)		227.53

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.60	Reach Len. (m)	168.76	168.76
168.76				
Crit W.S. (m)	10.69	Flow Area (m2)		34.20
E.G. Slope (m/m)	0.000009	Area (m2)		34.20
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.02	Top Width (m)		18.02
Vel Total (m/s)	0.29	Avg. Vel. (m/s)		0.29
Max Chl Dpth (m)	2.33	Hydr. Depth (m)		1.90
Conv. Total (m3/s)	3318.8	Conv. (m3/s)		3318.8
Length Wtd. (m)	168.76	Wetted Per. (m)		19.48

Min Ch El (m)	10.27	Shear (N/m2)		0.16
Alpha	1.00	Stream Power (N/m s)		0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	542.15
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	241.30

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.69	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.66	Reach Len. (m)	168.76	168.76
168.76				
Crit W.S. (m)	11.07	Flow Area (m2)		35.27
E.G. Slope (m/m)	0.000061	Area (m2)		35.27
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.19	Top Width (m)		18.19
Vel Total (m/s)	0.77	Avg. Vel. (m/s)		0.77
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.94
Conv. Total (m3/s)	3469.1	Conv. (m3/s)		3469.1
Length Wtd. (m)	168.76	Wetted Per. (m)		19.69
Min Ch El (m)	10.27	Shear (N/m2)		1.06
Alpha	1.00	Stream Power (N/m s)		0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		441.91
C & E Loss (m)	0.00	Cum SA (1000 m2)		229.13

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.82	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015

W.S. Elev (m)	12.79	Reach Len. (m)	168.76	168.76
168.76				
Crit W.S. (m)	11.07	Flow Area (m2)		37.73
E.G. Slope (m/m)	0.000050	Area (m2)		37.73
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.57	Top Width (m)		18.57
Vel Total (m/s)	0.72	Avg. Vel. (m/s)		0.72
Max Chl Dpth (m)	2.53	Hydr. Depth (m)		2.03
Conv. Total (m3/s)	3819.8	Conv. (m3/s)		3819.8
Length Wtd. (m)	168.76	Wetted Per. (m)		20.16
Min Ch El (m)	10.27	Shear (N/m2)		0.92
Alpha	1.00	Stream Power (N/m s)		0.66
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		505.76
C & E Loss (m)	0.00	Cum SA (1000 m2)		238.28

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	13.06	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	13.04	Reach Len. (m)	168.76	168.76
168.76				
Crit W.S. (m)	11.07	Flow Area (m2)		42.39
E.G. Slope (m/m)	0.000036	Area (m2)		42.39
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.28	Top Width (m)		19.28
Vel Total (m/s)	0.64	Avg. Vel. (m/s)		0.64
Max Chl Dpth (m)	2.77	Hydr. Depth (m)		2.20
Conv. Total (m3/s)	4511.2	Conv. (m3/s)		4511.2
Length Wtd. (m)	168.76	Wetted Per. (m)		21.02

Min Ch El (m)	10.27	Shear (N/m2)		0.71
Alpha	1.00	Stream Power (N/m s)		0.45
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	591.85
0.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	241.10
1.01				

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 68.5

INPUT
Description:
Distance from Upstream XS = 168.76
Deck/Roadway Width = 5
Weir Coefficient = 1.4
Upstream Deck/Roadway Coordinates
num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
7.43 15.08 13.83 36.58 15.08 13.83

Upstream Bridge Cross Section Data
Station Elevation Data num= 14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
7.7781 13.8282 8.8099 13.9313 10.3625 13.9725 11.8006 13.9309 11.8006 14.0164
12.6628 14.0164 18.2119 10.2667 23.817 10.2663 29.5027 10.2659 34.0852 13.5318
34.8427 13.5318 34.8427 13.4775 36.5016 13.629 39.5623 13.539

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
7.7781 .015 12.6628 .015 34.0852 .015

Bank Sta: Left Right Coeff Contr. Expan.
12.6628 34.0852 .0015 .01

Downstream Deck/Roadway Coordinates
num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
2.629 15.08 13.74 31.78 15.08 13.74

Downstream Bridge Cross Section Data
Station Elevation Data num= 12
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
3.3828 13.5619 7.2999 13.6619 7.2999 13.5619 8.3937 13.6619 13.5751 10.2537
19.0106 10.2533 24.5373 10.253 30.0209 14.0273 30.9051 13.9379 30.9051 14.0273
32.0475 13.9621 34.6509 13.8786

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3.3828	.015	8.3937	.015	30.0209	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	8.3937	30.0209		.0015	.01

Upstream Embankment side slope	=	2 horiz. to 1.0 vertical
Downstream Embankment side slope	=	2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2
Sta	Elev	Sta Elev
7.43	13.83	15.39 13.83
Downstream	num=	2
Sta	Elev	Sta Elev
2.63	13.8	10.59 13.8

Abutment Data

Upstream	num=	2
Sta	Elev	Sta Elev
32.39	13.83	36.58 13.83
Downstream	num=	2
Sta	Elev	Sta Elev
27.59	13.8	31.78 13.8

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.86	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.85	E.G. Elev (m)	11.85

11.85			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.84
11.84			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.69
10.68			
Q Weir (m3/s)		Max Chl Dpth (m)	1.57
1.59			
Weir Sta Lft (m)		Vel Total (m/s)	0.47
0.47			
Weir Sta Rgt (m)		Flow Area (m2)	21.33
21.12			
Weir Submerg		Froude # Chl	0.13
0.13			
Weir Max Depth (m)		Specif Force (m3)	16.32
16.24			
Min El Weir Flow (m)	13.88	Hydr Depth (m)	1.35
1.35			
Min El Prs (m)	13.83	W.P. Total (m)	16.81
16.64			
Delta EG (m)	0.01	Conv. Total (m3/s)	1666.5
1650.4			
Delta WS (m)	0.01	Top Width (m)	15.83
15.68			
BR Open Area (m2)	53.14	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.47	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.45
0.46			
BR Sel Method	Energy only	Power Total (N/m s)	0.21
0.22			

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.19	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.18	E.G. Elev (m)	12.18
12.18			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.18
12.18			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.69
10.68			
Q Weir (m3/s)		Max Chl Dpth (m)	1.91
1.92			
Weir Sta Lft (m)		Vel Total (m/s)	0.37
0.38			
Weir Sta Rgt (m)		Flow Area (m2)	26.81
26.56			
Weir Submerg		Froude # Chl	0.09
0.10			
Weir Max Depth (m)		Specif Force (m3)	24.30

24.14			
Min El Weir Flow (m)	13.88	Hydr Depth (m)	1.60
1.59			
Min El Prs (m)	13.83	W.P. Total (m)	17.99
17.85			
Delta EG (m)	0.00	Conv. Total (m3/s)	2331.7
2307.4			
Delta WS (m)	0.00	Top Width (m)	16.79
16.68			
BR Open Area (m2)	53.14	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.38	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.27
0.27			
BR Sel Method	Energy only	Power Total (N/m s)	0.10
0.10			

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)		Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.60	E.G. Elev (m)	12.60
12.60			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.60
12.60			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.69
10.68			
Q Weir (m3/s)		Max Chl Dpth (m)	2.33
2.35			
Weir Sta Lft (m)		Vel Total (m/s)	0.29
0.30			
Weir Sta Rgt (m)		Flow Area (m2)	33.99
33.73			
Weir Submerg		Froude # Chl	0.07
0.07			
Weir Max Depth (m)		Specif Force (m3)	37.08
36.83			
Min El Weir Flow (m)	13.88	Hydr Depth (m)	2.00
1.98			
Min El Prs (m)	13.83	W.P. Total (m)	18.94
18.87			
Delta EG (m)	0.00	Conv. Total (m3/s)	3346.1
3312.7			
Delta WS (m)	0.00	Top Width (m)	17.00
17.00			
BR Open Area (m2)	53.14	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.30	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.16

0.16			
BR Sel Method	Energy only	Power Total (N/m s)	0.05
0.05			

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.69	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.66	E.G. Elev (m)	12.68
12.68			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.65
12.65			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	11.07
11.07			
Q Weir (m3/s)		Max Chl Dpth (m)	2.38
2.39			
Weir Sta Lft (m)		Vel Total (m/s)	0.78
0.78			
Weir Sta Rgt (m)		Flow Area (m2)	34.84
34.57			
Weir Submerg		Froude # Chl	0.17
0.17			
Weir Max Depth (m)		Specif Force (m3)	40.63
40.35			
Min El Weir Flow (m)	13.88	Hydr Depth (m)	2.05
2.03			
Min El Prs (m)	13.83	W.P. Total (m)	19.04
18.96			
Delta EG (m)	0.01	Conv. Total (m3/s)	3473.8
3438.4			
Delta WS (m)	0.01	Top Width (m)	17.00
17.00			
BR Open Area (m2)	53.14	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.78	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.08
1.10			
BR Sel Method	Energy only	Power Total (N/m s)	0.84
0.86			

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.82	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.79	E.G. Elev (m)	12.81
12.81			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.78

12.78			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	11.07
11.07			
Q Weir (m3/s)		Max Chl Dpth (m)	2.52
2.53			
Weir Sta Lft (m)		Vel Total (m/s)	0.73
0.73			
Weir Sta Rgt (m)		Flow Area (m2)	37.13
36.86			
Weir Submerg		Froude # Chl	0.16
0.16			
Weir Max Depth (m)		Specif Force (m3)	45.36
45.04			
Min El Weir Flow (m)	13.88	Hydr Depth (m)	2.18
2.17			
Min El Prs (m)	13.83	W.P. Total (m)	19.31
19.24			
Delta EG (m)	0.01	Conv. Total (m3/s)	3827.6
3791.9			
Delta WS (m)	0.01	Top Width (m)	17.00
17.00			
BR Open Area (m2)	53.14	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.73	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.94
0.95			
BR Sel Method	Energy only	Power Total (N/m s)	0.68
0.70			

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	13.06	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	13.04	E.G. Elev (m)	13.05
13.05			
Q Total (m3/s)	27.00	W.S. Elev (m)	13.03
13.03			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	11.07
11.07			
Q Weir (m3/s)		Max Chl Dpth (m)	2.77
2.78			
Weir Sta Lft (m)		Vel Total (m/s)	0.65
0.66			
Weir Sta Rgt (m)		Flow Area (m2)	41.36
41.10			
Weir Submerg		Froude # Chl	0.13
0.13			
Weir Max Depth (m)		Specif Force (m3)	54.91
54.54			
Min El Weir Flow (m)	13.88	Hydr Depth (m)	2.43

2.42			
Min El Prs (m)	13.83	W.P. Total (m)	19.81
19.73			
Delta EG (m)	0.01	Conv. Total (m3/s)	4504.1
4467.8			
Delta WS (m)	0.01	Top Width (m)	17.00
17.00			
BR Open Area (m2)	53.14	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.66	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.74
0.75			
BR Sel Method	Energy only	Power Total (N/m s)	0.48
0.49			

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 68

INPUT

Description:

Station Elevation Data				num=	12
Sta	Elev	Sta	Elev	Sta	Elev
3.3828	13.5619	7.2999	13.6619	7.2999	13.5619
19.0106	10.2533	24.5373	10.253	30.0209	14.0273
32.0475	13.9621	34.6509	13.8786	30.9051	13.9379
				30.9051	14.0273

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
3.3828	.015	8.3937	.015	30.0209	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	8.3937	30.0209		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.85	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.84	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.11
E.G. Slope (m/m)	0.000037	Area (m2)		21.11
Q Total (m3/s)	10.00	Flow (m3/s)		10.00

Top Width (m)	15.67	Top Width (m)	15.67
Vel Total (m/s)	0.47	Avg. Vel. (m/s)	0.47
Max Chl Dpth (m)	1.59	Hydr. Depth (m)	1.35
Conv. Total (m3/s)	1648.6	Conv. (m3/s)	1648.6
Length Wtd. (m)	200.00	Wetted Per. (m)	16.64
Min Ch El (m)	10.25	Shear (N/m2)	0.46
Alpha	1.00	Stream Power (N/m s)	0.22
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	334.38
C & E Loss (m)	0.00	Cum SA (1000 m2)	209.82

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.18	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.17	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		26.55
E.G. Slope (m/m)	0.000019	Area (m2)		26.55
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.67	Top Width (m)		16.67
Vel Total (m/s)	0.38	Avg. Vel. (m/s)		0.38
Max Chl Dpth (m)	1.92	Hydr. Depth (m)		1.59
Conv. Total (m3/s)	2306.4	Conv. (m3/s)		2306.4
Length Wtd. (m)	200.00	Wetted Per. (m)		17.85
Min Ch El (m)	10.25	Shear (N/m2)		0.27
Alpha	1.00	Stream Power (N/m s)		0.10
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		427.35
C & E Loss (m)	0.00	Cum SA (1000 m2)		224.18

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.60	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.88
E.G. Slope (m/m)	0.000009	Area (m2)		33.88
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.93	Top Width (m)		17.93
Vel Total (m/s)	0.30	Avg. Vel. (m/s)		0.30
Max Chl Dpth (m)	2.35	Hydr. Depth (m)		1.89
Conv. Total (m3/s)	3279.8	Conv. (m3/s)		3279.8
Length Wtd. (m)	200.00	Wetted Per. (m)		19.37
Min Ch El (m)	10.25	Shear (N/m2)		0.16
Alpha	1.00	Stream Power (N/m s)		0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	535.34
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	237.81

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.68	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.65	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.75
E.G. Slope (m/m)	0.000063	Area (m2)		34.75
Q Total (m3/s)	27.00	Flow (m3/s)		27.00

Top Width (m)	18.08	Top Width (m)	18.08
Vel Total (m/s)	0.78	Avg. Vel. (m/s)	0.78
Max Chl Dpth (m)	2.39	Hydr. Depth (m)	1.92
Conv. Total (m3/s)	3400.1	Conv. (m3/s)	3400.1
Length Wtd. (m)	200.00	Wetted Per. (m)	19.54
Min Ch El (m)	10.25	Shear (N/m2)	1.10
Alpha	1.00	Stream Power (N/m s)	0.85
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	434.91
C & E Loss (m)	0.00	Cum SA (1000 m2)	225.62

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.81	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.78	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.23
E.G. Slope (m/m)	0.000052	Area (m2)		37.23
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.48	Top Width (m)		18.48
Vel Total (m/s)	0.73	Avg. Vel. (m/s)		0.73
Max Chl Dpth (m)	2.53	Hydr. Depth (m)		2.01
Conv. Total (m3/s)	3752.2	Conv. (m3/s)		3752.2
Length Wtd. (m)	200.00	Wetted Per. (m)		20.02
Min Ch El (m)	10.25	Shear (N/m2)		0.94
Alpha	1.00	Stream Power (N/m s)		0.68
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		498.29
C & E Loss (m)	0.00	Cum SA (1000 m2)		234.73

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	13.05	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	13.03	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		41.93
E.G. Slope (m/m)	0.000037	Area (m2)		41.93
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.22	Top Width (m)		19.22
Vel Total (m/s)	0.64	Avg. Vel. (m/s)		0.64
Max Chl Dpth (m)	2.78	Hydr. Depth (m)		2.18
Conv. Total (m3/s)	4444.1	Conv. (m3/s)		4444.1
Length Wtd. (m)	200.00	Wetted Per. (m)		20.92
Min Ch El (m)	10.25	Shear (N/m2)		0.73
Alpha	1.00	Stream Power (N/m s)		0.47
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	583.49
0.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	237.48
1.01				

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 67

INPUT

Description:

Station Elevation Data		num=		13					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.0987	13.4793	7.6054	13.6348	11.2226	13.6432	11.2226	13.7444	12.1366	13.7444
17.2298	10.2407	22.7228	10.2404	28.2211	10.24	32.9954	13.5376	34.2181	13.5376
34.2181	13.4452	35.7586	13.4683	37.894	13.2374				

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
7.0987 .015	12.1366 .015	32.9954 .015

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
12.1366	32.9954	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.84	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.83	Reach Len. (m)	25.22	25.22
25.22				
Crit W.S. (m)	10.67	Flow Area (m2)		21.15
E.G. Slope (m/m)	0.000036	Area (m2)		21.15
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.61	Top Width (m)		15.61
Vel Total (m/s)	0.47	Avg. Vel. (m/s)		0.47
Max Chl Dpth (m)	1.59	Hydr. Depth (m)		1.36
Conv. Total (m3/s)	1657.3	Conv. (m3/s)		1657.3
Length Wtd. (m)	25.22	Wetted Per. (m)		16.60
Min Ch El (m)	10.24	Shear (N/m2)		0.45
Alpha	1.00	Stream Power (N/m s)		0.22
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		330.15
C & E Loss (m)	0.00	Cum SA (1000 m2)		206.69

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.18	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.17	Reach Len. (m)	25.22	25.22
25.22				
Crit W.S. (m)	10.67	Flow Area (m2)		26.62

E.G. Slope (m/m)	0.000019	Area (m2)	26.62
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	16.59	Top Width (m)	16.59
Vel Total (m/s)	0.38	Avg. Vel. (m/s)	0.38
Max Chl Dpth (m)	1.93	Hydr. Depth (m)	1.60
Conv. Total (m3/s)	2322.0	Conv. (m3/s)	2322.0
Length Wtd. (m)	25.22	Wetted Per. (m)	17.79
Min Ch El (m)	10.24	Shear (N/m2)	0.27
Alpha	1.00	Stream Power (N/m s)	0.10
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	422.03
C & E Loss (m)	0.00	Cum SA (1000 m2)	220.85

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.60	Reach Len. (m)	25.22	25.22
25.22				
Crit W.S. (m)	10.67	Flow Area (m2)		33.95
E.G. Slope (m/m)	0.000009	Area (m2)		33.95
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.83	Top Width (m)		17.83
Vel Total (m/s)	0.29	Avg. Vel. (m/s)		0.29
Max Chl Dpth (m)	2.36	Hydr. Depth (m)		1.90
Conv. Total (m3/s)	3299.0	Conv. (m3/s)		3299.0
Length Wtd. (m)	25.22	Wetted Per. (m)		19.29
Min Ch El (m)	10.24	Shear (N/m2)		0.16
Alpha	1.00	Stream Power (N/m s)		0.05

Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	528.55
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	234.23

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.66	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.63	Reach Len. (m)	25.22	25.22
25.22				
Crit W.S. (m)	11.06	Flow Area (m2)		34.61
E.G. Slope (m/m)	0.000063	Area (m2)		34.61
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.93	Top Width (m)		17.93
Vel Total (m/s)	0.78	Avg. Vel. (m/s)		0.78
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3391.1	Conv. (m3/s)		3391.1
Length Wtd. (m)	25.22	Wetted Per. (m)		19.42
Min Ch El (m)	10.24	Shear (N/m2)		1.11
Alpha	1.00	Stream Power (N/m s)		0.86
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		427.97
C & E Loss (m)	0.00	Cum SA (1000 m2)		222.01

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.80	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.77	Reach Len. (m)	25.22	25.22
25.22				
Crit W.S. (m)	11.06	Flow Area (m2)		37.11

E.G. Slope (m/m)	0.000052	Area (m2)	37.11
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	18.34	Top Width (m)	18.34
Vel Total (m/s)	0.73	Avg. Vel. (m/s)	0.73
Max Chl Dpth (m)	2.53	Hydr. Depth (m)	2.02
Conv. Total (m3/s)	3747.5	Conv. (m3/s)	3747.5
Length Wtd. (m)	25.22	Wetted Per. (m)	19.91
Min Ch El (m)	10.24	Shear (N/m2)	0.95
Alpha	1.00	Stream Power (N/m s)	0.69
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	490.85
C & E Loss (m)	0.00	Cum SA (1000 m2)	231.05

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	13.05	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	13.02	Reach Len. (m)	25.22	25.22
25.22				
Crit W.S. (m)	11.06	Flow Area (m2)		41.84
E.G. Slope (m/m)	0.000037	Area (m2)		41.84
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.07	Top Width (m)		19.07
Vel Total (m/s)	0.65	Avg. Vel. (m/s)		0.65
Max Chl Dpth (m)	2.78	Hydr. Depth (m)		2.19
Conv. Total (m3/s)	4444.4	Conv. (m3/s)		4444.4
Length Wtd. (m)	25.22	Wetted Per. (m)		20.80
Min Ch El (m)	10.24	Shear (N/m2)		0.73
Alpha	1.00	Stream Power (N/m s)		0.47

Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.04	575.12
0.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	233.65
1.01				

BRIDGE

RIVER: SNM
 REACH: Canale SNM RS: 66.5

INPUT

Description:

Distance from Upstream XS = 25.22

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
8.8258		13.8		13.01	37.054		13.8		13.01

Upstream Bridge Cross Section Data

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.0987	13.4793	7.6054	13.6348	11.2226	13.6432	11.2226	13.7444	12.1366	13.7444
17.2298	10.2407	22.7228	10.2404	28.2211	10.24	32.9954	13.5376	34.2181	13.5376
34.2181	13.4452	35.7586	13.4683	37.894	13.2374				

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.0987	.015	12.1366	.015	32.9954	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	12.1366	32.9954		.0015	.01

Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
11.27		13.8		12.9	39.5027		13.8		12.9

Downstream Bridge Cross Section Data

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.6427	13.1969	8.98	13.5803	11.2654	13.2958	13.6663	13.2958	13.6663	13.3958
14.8016	13.3958	19.6719	10.2278	25.1759	10.2274	30.794	10.2271	35.9229	13.7601
37.2414	13.7601	37.2414	13.6713	38.2901	13.6947	39	13.6029	40.0439	13.6446
40.557	13.5157								

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.6427	.015	14.8016	.015	35.9229	.015

Bank Sta:	Left	Right	Coeff Contr.	Expan.
	14.8016	35.9229	.0015	.01

Upstream Embankment side slope	=	1.9 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.9 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2
Sta	Elev	Sta Elev
8.82	13.02	16.85 13.02
Downstream	num=	2
Sta	Elev	Sta Elev
11.2746	13.02	19.2 13.02

Abutment Data

Upstream	num=	2
Sta	Elev	Sta Elev
28.85	13.02	37.05 13.02
Downstream	num=	2
Sta	Elev	Sta Elev
31.2	12.94	39.5 12.94

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.84	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.83	E.G. Elev (m)	11.84
11.84			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.83

11.83			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.67
10.65			
Q Weir (m3/s)		Max Chl Dpth (m)	1.59
1.60			
Weir Sta Lft (m)		Vel Total (m/s)	0.53
0.52			
Weir Sta Rgt (m)		Flow Area (m2)	18.85
19.06			
Weir Submerg		Froude # Chl	0.14
0.13			
Weir Max Depth (m)		Specif Force (m3)	15.37
15.69			
Min El Weir Flow (m)	13.24	Hydr Depth (m)	1.57
1.59			
Min El Prs (m)	13.01	W.P. Total (m)	14.69
14.79			
Delta EG (m)	0.01	Conv. Total (m3/s)	1483.8
1505.4			
Delta WS (m)	0.01	Top Width (m)	12.00
12.00			
BR Open Area (m2)	31.94	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.53	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.57
0.56			
BR Sel Method	Energy only	Power Total (N/m s)	0.30
0.29			

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.18	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.17	E.G. Elev (m)	12.18
12.18			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.17
12.17			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.67
10.65			
Q Weir (m3/s)		Max Chl Dpth (m)	1.93
1.94			
Weir Sta Lft (m)		Vel Total (m/s)	0.44
0.43			
Weir Sta Rgt (m)		Flow Area (m2)	22.94
23.16			
Weir Submerg		Froude # Chl	0.10
0.10			
Weir Max Depth (m)		Specif Force (m3)	22.40
22.80			
Min El Weir Flow (m)	13.24	Hydr Depth (m)	1.91

1.93			
Min El Prs (m)	13.01	W.P. Total (m)	15.38
15.47			
Delta EG (m)	0.00	Conv. Total (m3/s)	1997.2
2019.9			
Delta WS (m)	0.00	Top Width (m)	12.00
12.00			
BR Open Area (m2)	31.94	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.44	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.37
0.36			
BR Sel Method	Energy only	Power Total (N/m s)	0.16
0.16			

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.60	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.60	E.G. Elev (m)	12.60
12.60			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.59
12.59			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.67
10.65			
Q Weir (m3/s)		Max Chl Dpth (m)	2.35
2.37			
Weir Sta Lft (m)		Vel Total (m/s)	0.36
0.35			
Weir Sta Rgt (m)		Flow Area (m2)	28.06
28.27			
Weir Submerg		Froude # Ch1	0.07
0.07			
Weir Max Depth (m)		Specif Force (m3)	33.19
33.68			
Min El Weir Flow (m)	13.24	Hydr Depth (m)	2.34
2.36			
Min El Prs (m)	13.01	W.P. Total (m)	16.23
16.33			
Delta EG (m)	0.00	Conv. Total (m3/s)	2694.8
2718.3			
Delta WS (m)	0.00	Top Width (m)	12.00
12.00			
BR Open Area (m2)	31.94	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.36	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.23
0.23			
BR Sel Method	Energy only	Power Total (N/m s)	0.08

0.08

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.66	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.63	E.G. Elev (m)	12.66
12.66			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.62
12.62			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	11.06
11.04			
Q Weir (m3/s)		Max Chl Dpth (m)	2.38
2.39			
Weir Sta Lft (m)		Vel Total (m/s)	0.95
0.95			
Weir Sta Rgt (m)		Flow Area (m2)	28.32
28.54			
Weir Submerg		Froude # Chl	0.20
0.20			
Weir Max Depth (m)		Specif Force (m3)	36.07
36.55			
Min El Weir Flow (m)	13.24	Hydr Depth (m)	2.36
2.38			
Min El Prs (m)	13.01	W.P. Total (m)	16.27
16.37			
Delta EG (m)	0.02	Conv. Total (m3/s)	2732.0
2755.9			
Delta WS (m)	0.01	Top Width (m)	12.00
12.00			
BR Open Area (m2)	31.94	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.95	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.67
1.64			
BR Sel Method	Energy only	Power Total (N/m s)	1.59
1.55			

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.80	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.77	E.G. Elev (m)	12.80
12.80			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.76
12.76			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	11.06

11.04			
Q Weir (m3/s)		Max Chl Dpth (m)	2.52
2.53			
Weir Sta Lft (m)		Vel Total (m/s)	0.90
0.89			
Weir Sta Rgt (m)		Flow Area (m2)	29.99
30.21			
Weir Submerg		Froude # Chl	0.18
0.18			
Weir Max Depth (m)		Specif Force (m3)	39.99
40.50			
Min El Weir Flow (m)	13.24	Hydr Depth (m)	2.50
2.52			
Min El Prs (m)	13.01	W.P. Total (m)	16.55
16.65			
Delta EG (m)	0.01	Conv. Total (m3/s)	2972.3
2996.3			
Delta WS (m)	0.01	Top Width (m)	12.00
12.00			
BR Open Area (m2)	31.94	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.90	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.47
1.44			
BR Sel Method	Energy only	Power Total (N/m s)	1.32
1.29			

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)		Element	Inside BR US
Inside BR DS			
W.S. US. (m)	13.02	E.G. Elev (m)	13.04
13.04			
Q Total (m3/s)	27.00	W.S. Elev (m)	13.01
13.01			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	11.06
11.04			
Q Weir (m3/s)		Max Chl Dpth (m)	2.77
2.78			
Weir Sta Lft (m)		Vel Total (m/s)	0.82
0.85			
Weir Sta Rgt (m)		Flow Area (m2)	33.05
31.94			
Weir Submerg		Froude # Chl	0.16
0.16			
Weir Max Depth (m)		Specif Force (m3)	47.78
48.28			
Min El Weir Flow (m)	13.24	Hydr Depth (m)	2.75
Min El Prs (m)	13.01	W.P. Total (m)	17.06

28.94			
Delta EG (m)	0.01	Conv. Total (m3/s)	3424.0
2274.6			
Delta WS (m)	0.01	Top Width (m)	12.00
BR Open Area (m2)	31.94	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.85	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.18
1.53			
BR Sel Method	Energy only	Power Total (N/m s)	0.97
1.29			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 66

INPUT

Description:

Station Elevation Data		num= 16							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.6427	13.1969	8.98	13.5803	11.2654	13.2958	13.6663	13.2958	13.6663	13.3958
14.8016	13.3958	19.6719	10.2278	25.1759	10.2274	30.794	10.2271	35.9229	13.7601
37.2414	13.7601	37.2414	13.6713	38.2901	13.6947	39	13.6029	40.0439	13.6446
40.557	13.5157								

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
7.6427	.015	14.8016	.015	35.9229	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	14.8016	35.9229		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.83	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.82	Reach Len. (m)	200.00	200.00

200.00			
Crit W.S. (m)		Flow Area (m2)	21.56
E.G. Slope (m/m)	0.000035	Area (m2)	21.56
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	15.89	Top Width (m)	15.89
Vel Total (m/s)	0.46	Avg. Vel. (m/s)	0.46
Max Chl Dpth (m)	1.60	Hydr. Depth (m)	1.36
Conv. Total (m3/s)	1692.7	Conv. (m3/s)	1692.7
Length Wtd. (m)	200.00	Wetted Per. (m)	16.86
Min Ch El (m)	10.23	Shear (N/m2)	0.44
Alpha	1.00	Stream Power (N/m s)	0.20
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	326.11
C & E Loss (m)	0.00	Cum SA (1000 m2)	203.92

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.17	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.17	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		27.19
E.G. Slope (m/m)	0.000018	Area (m2)		27.19
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.92	Top Width (m)		16.92
Vel Total (m/s)	0.37	Avg. Vel. (m/s)		0.37
Max Chl Dpth (m)	1.94	Hydr. Depth (m)		1.61
Conv. Total (m3/s)	2378.3	Conv. (m3/s)		2378.3
Length Wtd. (m)	200.00	Wetted Per. (m)		18.10
Min Ch El (m)	10.23	Shear (N/m2)		0.26

Alpha	1.00	Stream Power (N/m s)	0.10
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	417.02
C & E Loss (m)	0.00	Cum SA (1000 m2)	217.98

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.59	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.70
E.G. Slope (m/m)	0.000009	Area (m2)		34.70
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.20	Top Width (m)		18.20
Vel Total (m/s)	0.29	Avg. Vel. (m/s)		0.29
Max Chl Dpth (m)	2.37	Hydr. Depth (m)		1.91
Conv. Total (m3/s)	3381.7	Conv. (m3/s)		3381.7
Length Wtd. (m)	200.00	Wetted Per. (m)		19.64
Min Ch El (m)	10.23	Shear (N/m2)		0.15
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	522.28
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	231.23

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.65	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.62	Reach Len. (m)	200.00	200.00

200.00

Crit W.S. (m)		Flow Area (m2)	35.14
E.G. Slope (m/m)	0.000061	Area (m2)	35.14
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	18.27	Top Width (m)	18.27
Vel Total (m/s)	0.77	Avg. Vel. (m/s)	0.77
Max Chl Dpth (m)	2.39	Hydr. Depth (m)	1.92
Conv. Total (m3/s)	3443.6	Conv. (m3/s)	3443.6
Length Wtd. (m)	200.00	Wetted Per. (m)	19.72
Min Ch El (m)	10.23	Shear (N/m2)	1.07
Alpha	1.00	Stream Power (N/m s)	0.83
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	421.63
C & E Loss (m)	0.00	Cum SA (1000 m2)	219.01

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.79	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.76	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.74
E.G. Slope (m/m)	0.000050	Area (m2)		37.74
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.69	Top Width (m)		18.69
Vel Total (m/s)	0.72	Avg. Vel. (m/s)		0.72
Max Chl Dpth (m)	2.53	Hydr. Depth (m)		2.02
Conv. Total (m3/s)	3813.5	Conv. (m3/s)		3813.5
Length Wtd. (m)	200.00	Wetted Per. (m)		20.23
Min Ch El (m)	10.23	Shear (N/m2)		0.92

Alpha	1.00	Stream Power (N/m s)	0.66
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	484.09
C & E Loss (m)	0.00	Cum SA (1000 m2)	228.00

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	13.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	13.01	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		42.56
E.G. Slope (m/m)	0.000036	Area (m2)		42.56
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.45	Top Width (m)		19.45
Vel Total (m/s)	0.63	Avg. Vel. (m/s)		0.63
Max Chl Dpth (m)	2.79	Hydr. Depth (m)		2.19
Conv. Total (m3/s)	4524.8	Conv. (m3/s)		4524.8
Length Wtd. (m)	200.00	Wetted Per. (m)		21.14
Min Ch El (m)	10.23	Shear (N/m2)		0.70
Alpha	1.00	Stream Power (N/m s)		0.45
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	567.68
0.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	231.57
1.01				

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 65

INPUT
Description:

Station Elevation Data				num=	14				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.1795	13.4739	10.8146	13.877	14.8208	13.8212	14.8208	13.9143	15.6543	13.9143
20.6945	10.2149	26.4513	10.2145	32.1737	10.2141	36.9354	13.6356	37.4676	13.6356
37.4676	13.5356	40.179	13.5356	42.5877	13.6221	43.0624	13.4873		

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
9.1795	.015	15.6543	.015	36.9354	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	15.6543	36.9354		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.83	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.82	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.93
E.G. Slope (m/m)	0.000033	Area (m2)		21.93
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.89	Top Width (m)		15.89
Vel Total (m/s)	0.46	Avg. Vel. (m/s)		0.46
Max Chl Dpth (m)	1.60	Hydr. Depth (m)		1.38
Conv. Total (m3/s)	1736.9	Conv. (m3/s)		1736.9
Length Wtd. (m)	200.00	Wetted Per. (m)		16.93
Min Ch El (m)	10.21	Shear (N/m2)		0.42
Alpha	1.00	Stream Power (N/m s)		0.19
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		321.76
C & E Loss (m)	0.00	Cum SA (1000 m2)		200.74

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.17	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.16	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		27.61
E.G. Slope (m/m)	0.000017	Area (m2)		27.61
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.85	Top Width (m)		16.85
Vel Total (m/s)	0.36	Avg. Vel. (m/s)		0.36
Max Chl Dpth (m)	1.95	Hydr. Depth (m)		1.64
Conv. Total (m3/s)	2437.5	Conv. (m3/s)		2437.5
Length Wtd. (m)	200.00	Wetted Per. (m)		18.11
Min Ch El (m)	10.21	Shear (N/m2)		0.25
Alpha	1.00	Stream Power (N/m s)		0.09
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		411.54
C & E Loss (m)	0.00	Cum SA (1000 m2)		214.60

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.59	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.09
E.G. Slope (m/m)	0.000008	Area (m2)		35.09
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.03	Top Width (m)		18.03
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.95
Conv. Total (m3/s)	3452.5	Conv. (m3/s)		3452.5

Length Wtd. (m)	200.00	Wetted Per. (m)		19.57
Min Ch El (m)	10.21	Shear (N/m2)		0.15
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	515.30
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	227.61

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.64	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.61	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.35
E.G. Slope (m/m)	0.000060	Area (m2)		35.35
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.07	Top Width (m)		18.07
Vel Total (m/s)	0.76	Avg. Vel. (m/s)		0.76
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.96
Conv. Total (m3/s)	3488.6	Conv. (m3/s)		3488.6
Length Wtd. (m)	200.00	Wetted Per. (m)		19.62
Min Ch El (m)	10.21	Shear (N/m2)		1.06
Alpha	1.00	Stream Power (N/m s)		0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		414.58
C & E Loss (m)	0.00	Cum SA (1000 m2)		215.37

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.78	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.75	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.96
E.G. Slope (m/m)	0.000049	Area (m2)		37.96
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.46	Top Width (m)		18.46
Vel Total (m/s)	0.71	Avg. Vel. (m/s)		0.71
Max Chl Dpth (m)	2.54	Hydr. Depth (m)		2.06
Conv. Total (m3/s)	3864.6	Conv. (m3/s)		3864.6
Length Wtd. (m)	200.00	Wetted Per. (m)		20.11
Min Ch El (m)	10.21	Shear (N/m2)		0.90
Alpha	1.00	Stream Power (N/m s)		0.64
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		476.52
C & E Loss (m)	0.00	Cum SA (1000 m2)		224.29

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	13.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	13.01	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		42.76
E.G. Slope (m/m)	0.000035	Area (m2)		42.76
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.17	Top Width (m)		19.17
Vel Total (m/s)	0.63	Avg. Vel. (m/s)		0.63
Max Chl Dpth (m)	2.79	Hydr. Depth (m)		2.23
Conv. Total (m3/s)	4583.4	Conv. (m3/s)		4583.4

Length Wtd. (m)	200.00	Wetted Per. (m)		20.98
Min Ch El (m)	10.21	Shear (N/m2)		0.69
Alpha	1.00	Stream Power (N/m s)		0.44
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	559.15
0.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	227.71
1.01				

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 64

INPUT

Description:

Station Elevation Data		num=		16					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.2828	13.505	12.8166	13.4499	13.7105	13.5363	15.0801	13.4787	15.5749	13.5499
15.5749	13.4643	16.5231	13.5499	21.1724	10.2019	26.8835	10.2015	32.5682	10.2012
37.3097	13.562	38.7786	13.4733	38.7786	13.562	39.9629	13.5003	41.8923	13.5167
42.9871	13.435								

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
11.2828	.015	16.5231	.015	37.3097	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	16.5231	37.3097		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.82	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.81	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.95
E.G. Slope (m/m)	0.000033	Area (m2)		21.95
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.90	Top Width (m)		15.90

Vel Total (m/s)	0.46	Avg. Vel. (m/s)	0.46
Max Chl Dpth (m)	1.61	Hydr. Depth (m)	1.38
Conv. Total (m3/s)	1740.4	Conv. (m3/s)	1740.4
Length Wtd. (m)	200.00	Wetted Per. (m)	16.93
Min Ch El (m)	10.20	Shear (N/m2)	0.42
Alpha	1.00	Stream Power (N/m s)	0.19
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	317.37
C & E Loss (m)	0.00	Cum SA (1000 m2)	197.56

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.17	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.16	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		27.69
E.G. Slope (m/m)	0.000017	Area (m2)		27.69
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.88	Top Width (m)		16.88
Vel Total (m/s)	0.36	Avg. Vel. (m/s)		0.36
Max Chl Dpth (m)	1.96	Hydr. Depth (m)		1.64
Conv. Total (m3/s)	2448.1	Conv. (m3/s)		2448.1
Length Wtd. (m)	200.00	Wetted Per. (m)		18.13
Min Ch El (m)	10.20	Shear (N/m2)		0.25
Alpha	1.00	Stream Power (N/m s)		0.09
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		406.01
C & E Loss (m)	0.00	Cum SA (1000 m2)		211.23

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.59	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.23
E.G. Slope (m/m)	0.000008	Area (m2)		35.23
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.09	Top Width (m)		18.09
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.95
Conv. Total (m3/s)	3469.4	Conv. (m3/s)		3469.4
Length Wtd. (m)	200.00	Wetted Per. (m)		19.62
Min Ch El (m)	10.20	Shear (N/m2)		0.15
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	508.27
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	224.00

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.62	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.59	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.29
E.G. Slope (m/m)	0.000060	Area (m2)		35.29
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.10	Top Width (m)		18.10

Vel Total (m/s)	0.77	Avg. Vel. (m/s)	0.77
Max Chl Dpth (m)	2.39	Hydr. Depth (m)	1.95
Conv. Total (m3/s)	3478.6	Conv. (m3/s)	3478.6
Length Wtd. (m)	200.00	Wetted Per. (m)	19.63
Min Ch El (m)	10.20	Shear (N/m2)	1.06
Alpha	1.00	Stream Power (N/m s)	0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	407.52
C & E Loss (m)	0.00	Cum SA (1000 m2)	211.76

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.77	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.74	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.95
E.G. Slope (m/m)	0.000049	Area (m2)		37.95
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.50	Top Width (m)		18.50
Vel Total (m/s)	0.71	Avg. Vel. (m/s)		0.71
Max Chl Dpth (m)	2.54	Hydr. Depth (m)		2.05
Conv. Total (m3/s)	3860.5	Conv. (m3/s)		3860.5
Length Wtd. (m)	200.00	Wetted Per. (m)		20.13
Min Ch El (m)	10.20	Shear (N/m2)		0.90
Alpha	1.00	Stream Power (N/m s)		0.64
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		468.93
C & E Loss (m)	0.00	Cum SA (1000 m2)		220.59

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	13.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	13.00	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		42.82
E.G. Slope (m/m)	0.000035	Area (m2)		42.82
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.23	Top Width (m)		19.23
Vel Total (m/s)	0.63	Avg. Vel. (m/s)		0.63
Max Chl Dpth (m)	2.80	Hydr. Depth (m)		2.23
Conv. Total (m3/s)	4588.1	Conv. (m3/s)		4588.1
Length Wtd. (m)	200.00	Wetted Per. (m)		21.02
Min Ch El (m)	10.20	Shear (N/m2)		0.69
Alpha	1.00	Stream Power (N/m s)		0.44
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	550.59
0.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	223.87
1.01				

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 63

INPUT

Description:

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.3115	13.7004	10.8696	13.6482	11.7974	13.5961	13.5964	13.6051	13.5964	13.7075
15.4219	13.7075	20.2421	10.189	26.0331	10.1886	31.8245	10.1883	36.5265	13.582
37.547	13.582	37.547	13.507	41.7604	13.7176	42.8838	13.2828		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.3115	.015	15.4219	.015	36.5265	.015

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
15.4219	36.5265	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.81	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.80	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		22.31
E.G. Slope (m/m)	0.000032	Area (m2)		22.31
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.03	Top Width (m)		16.03
Vel Total (m/s)	0.45	Avg. Vel. (m/s)		0.45
Max Chl Dpth (m)	1.62	Hydr. Depth (m)		1.39
Conv. Total (m3/s)	1776.6	Conv. (m3/s)		1776.6
Length Wtd. (m)	200.00	Wetted Per. (m)		17.08
Min Ch El (m)	10.19	Shear (N/m2)		0.41
Alpha	1.00	Stream Power (N/m s)		0.18
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		312.94
C & E Loss (m)	0.00	Cum SA (1000 m2)		194.37

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.16	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.16	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		28.14
E.G. Slope (m/m)	0.000016	Area (m2)		28.14

Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	17.01	Top Width (m)	17.01
Vel Total (m/s)	0.36	Avg. Vel. (m/s)	0.36
Max Chl Dpth (m)	1.97	Hydr. Depth (m)	1.65
Conv. Total (m3/s)	2500.9	Conv. (m3/s)	2500.9
Length Wtd. (m)	200.00	Wetted Per. (m)	18.29
Min Ch El (m)	10.19	Shear (N/m2)	0.24
Alpha	1.00	Stream Power (N/m s)	0.09
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	400.42
C & E Loss (m)	0.00	Cum SA (1000 m2)	207.84

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.59	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.76
E.G. Slope (m/m)	0.000008	Area (m2)		35.76
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.20	Top Width (m)		18.20
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.40	Hydr. Depth (m)		1.96
Conv. Total (m3/s)	3539.8	Conv. (m3/s)		3539.8
Length Wtd. (m)	200.00	Wetted Per. (m)		19.76
Min Ch El (m)	10.19	Shear (N/m2)		0.14
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	501.17

C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	220.37
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CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.64
E.G. Slope (m/m)	0.000059	Area (m2)		35.64
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.18	Top Width (m)		18.18
Vel Total (m/s)	0.76	Avg. Vel. (m/s)		0.76
Max Chl Dpth (m)	2.40	Hydr. Depth (m)		1.96
Conv. Total (m3/s)	3523.5	Conv. (m3/s)		3523.5
Length Wtd. (m)	200.00	Wetted Per. (m)		19.74
Min Ch El (m)	10.19	Shear (N/m2)		1.04
Alpha	1.00	Stream Power (N/m s)		0.79
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		400.43
C & E Loss (m)	0.00	Cum SA (1000 m2)		208.13

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.76	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.73	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.35
E.G. Slope (m/m)	0.000048	Area (m2)		38.35

Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	18.59	Top Width (m)	18.59
Vel Total (m/s)	0.70	Avg. Vel. (m/s)	0.70
Max Chl Dpth (m)	2.54	Hydr. Depth (m)	2.06
Conv. Total (m3/s)	3915.1	Conv. (m3/s)	3915.1
Length Wtd. (m)	200.00	Wetted Per. (m)	20.24
Min Ch El (m)	10.19	Shear (N/m2)	0.88
Alpha	1.00	Stream Power (N/m s)	0.62
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	461.30
C & E Loss (m)	0.00	Cum SA (1000 m2)	216.88

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	13.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.99	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		43.30
E.G. Slope (m/m)	0.000034	Area (m2)		43.30
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.31	Top Width (m)		19.31
Vel Total (m/s)	0.62	Avg. Vel. (m/s)		0.62
Max Chl Dpth (m)	2.80	Hydr. Depth (m)		2.24
Conv. Total (m3/s)	4657.5	Conv. (m3/s)		4657.5
Length Wtd. (m)	200.00	Wetted Per. (m)		21.13
Min Ch El (m)	10.19	Shear (N/m2)		0.68
Alpha	1.00	Stream Power (N/m s)		0.42
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	541.98
0.10				

C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	220.02
1.01				

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 62

INPUT
 Description:
 Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.0003	13.7188	11.463	13.7353	14.4447	13.6185	14.4447	13.6989	14.9779	13.6989
19.7144	10.1766	25.581	10.1762	31.3299	10.1759	36.226	13.5695	36.759	13.5695
36.759	13.4968	40.9824	13.7275	41.9461	13.58	42.4235	13.4026		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.0003	.015	14.9779	.015	36.226	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan.

14.9779	36.226	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.81	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.80	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		22.50
E.G. Slope (m/m)	0.000031	Area (m2)		22.50
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.14	Top Width (m)		16.14
Vel Total (m/s)	0.44	Avg. Vel. (m/s)		0.44
Max Chl Dpth (m)	1.62	Hydr. Depth (m)		1.39
Conv. Total (m3/s)	1795.8	Conv. (m3/s)		1795.8
Length Wtd. (m)	200.00	Wetted Per. (m)		17.18
Min Ch El (m)	10.18	Shear (N/m2)		0.40

Alpha	1.00	Stream Power (N/m s)	0.18
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	308.46
C & E Loss (m)	0.00	Cum SA (1000 m2)	191.15

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.16	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.15	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		28.43
E.G. Slope (m/m)	0.000016	Area (m2)		28.43
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.13	Top Width (m)		17.13
Vel Total (m/s)	0.35	Avg. Vel. (m/s)		0.35
Max Chl Dpth (m)	1.98	Hydr. Depth (m)		1.66
Conv. Total (m3/s)	2532.6	Conv. (m3/s)		2532.6
Length Wtd. (m)	200.00	Wetted Per. (m)		18.40
Min Ch El (m)	10.18	Shear (N/m2)		0.24
Alpha	1.00	Stream Power (N/m s)		0.08
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		394.77
C & E Loss (m)	0.00	Cum SA (1000 m2)		204.42

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.59	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)		36.12
E.G. Slope (m/m)	0.000008	Area (m2)		36.12
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.34	Top Width (m)		18.34
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.41	Hydr. Depth (m)		1.97
Conv. Total (m3/s)	3584.9	Conv. (m3/s)		3584.9
Length Wtd. (m)	200.00	Wetted Per. (m)		19.89
Min Ch El (m)	10.18	Shear (N/m2)		0.14
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	493.99
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	216.71

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.83
E.G. Slope (m/m)	0.000058	Area (m2)		35.83
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.29	Top Width (m)		18.29
Vel Total (m/s)	0.75	Avg. Vel. (m/s)		0.75
Max Chl Dpth (m)	2.40	Hydr. Depth (m)		1.96
Conv. Total (m3/s)	3542.6	Conv. (m3/s)		3542.6
Length Wtd. (m)	200.00	Wetted Per. (m)		19.84
Min Ch El (m)	10.18	Shear (N/m2)		1.03

Alpha	1.00	Stream Power (N/m s)	0.78
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	393.28
C & E Loss (m)	0.00	Cum SA (1000 m2)	204.48

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.75	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.72	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.60
E.G. Slope (m/m)	0.000047	Area (m2)		38.60
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.71	Top Width (m)		18.71
Vel Total (m/s)	0.70	Avg. Vel. (m/s)		0.70
Max Chl Dpth (m)	2.55	Hydr. Depth (m)		2.06
Conv. Total (m3/s)	3942.7	Conv. (m3/s)		3942.7
Length Wtd. (m)	200.00	Wetted Per. (m)		20.35
Min Ch El (m)	10.18	Shear (N/m2)		0.87
Alpha	1.00	Stream Power (N/m s)		0.61
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		453.60
C & E Loss (m)	0.00	Cum SA (1000 m2)		213.15

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	13.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.99	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)		43.63
E.G. Slope (m/m)	0.000033	Area (m2)		43.63
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.45	Top Width (m)		19.45
Vel Total (m/s)	0.62	Avg. Vel. (m/s)		0.62
Max Chl Dpth (m)	2.81	Hydr. Depth (m)		2.24
Conv. Total (m3/s)	4698.6	Conv. (m3/s)		4698.6
Length Wtd. (m)	200.00	Wetted Per. (m)		21.26
Min Ch El (m)	10.18	Shear (N/m2)		0.66
Alpha	1.00	Stream Power (N/m s)		0.41
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	533.29
0.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	216.14
1.01				

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 61

INPUT											
Description:											
Station Elevation Data			num=		13						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.4523	3.4016	13.4523	4.174	13.3942	4.174	13.4825	4.7055	13.4825		
9.4441	10.1642	14.8199	10.1639	20.4254	10.1635	25.5655	13.7295	26.0968	13.7295		
26.0968	13.6241	31.8363	13.5626	32.611	13.4153						
Manning's n Values			num=		3						
Sta	n Val	Sta	n Val	Sta	n Val						
0	.015	4.7055	.015	25.5655	.015						
Bank Sta:	Left	Right	Lengths:		Left	Channel	Right	Coeff Contr.			
Expan.											
	4.7055	25.5655			200	200	200		.0015	.01	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.80	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.01	Wt. n-Val.	0.015
W.S. Elev (m)	11.79	Reach Len. (m)	8.95
8.95			
Crit W.S. (m)	10.59	Flow Area (m2)	21.66
E.G. Slope (m/m)	0.000034	Area (m2)	21.66
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	15.65	Top Width (m)	15.65
Vel Total (m/s)	0.46	Avg. Vel. (m/s)	0.46
Max Chl Dpth (m)	1.63	Hydr. Depth (m)	1.38
Conv. Total (m3/s)	1719.4	Conv. (m3/s)	1719.4
Length Wtd. (m)	8.95	Wetted Per. (m)	16.67
Min Ch El (m)	10.16	Shear (N/m2)	0.43
Alpha	1.00	Stream Power (N/m s)	0.20
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	304.05
C & E Loss (m)	0.00	Cum SA (1000 m2)	187.97

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.16	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.15	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.59	Flow Area (m2)		27.48
E.G. Slope (m/m)	0.000017	Area (m2)		27.48
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.68	Top Width (m)		16.68
Vel Total (m/s)	0.36	Avg. Vel. (m/s)		0.36

Max Chl Dpth (m)	1.99	Hydr. Depth (m)	1.65
Conv. Total (m3/s)	2435.0	Conv. (m3/s)	2435.0
Length Wtd. (m)	8.95	Wetted Per. (m)	17.93
Min Ch El (m)	10.16	Shear (N/m2)	0.25
Alpha	1.00	Stream Power (N/m s)	0.09
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	389.18
C & E Loss (m)	0.00	Cum SA (1000 m2)	201.04

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.59	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.59	Flow Area (m2)		35.02
E.G. Slope (m/m)	0.000008	Area (m2)		35.02
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.93	Top Width (m)		17.93
Vel Total (m/s)	0.29	Avg. Vel. (m/s)		0.29
Max Chl Dpth (m)	2.42	Hydr. Depth (m)		1.95
Conv. Total (m3/s)	3455.1	Conv. (m3/s)		3455.1
Length Wtd. (m)	8.95	Wetted Per. (m)		19.45
Min Ch El (m)	10.16	Shear (N/m2)		0.15
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	486.87
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	213.09

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.56	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.98	Flow Area (m2)		34.51
E.G. Slope (m/m)	0.000064	Area (m2)		34.51
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.85	Top Width (m)		17.85
Vel Total (m/s)	0.78	Avg. Vel. (m/s)		0.78
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3382.6	Conv. (m3/s)		3382.6
Length Wtd. (m)	8.95	Wetted Per. (m)		19.35
Min Ch El (m)	10.16	Shear (N/m2)		1.11
Alpha	1.00	Stream Power (N/m s)		0.87
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		386.25
C & E Loss (m)	0.00	Cum SA (1000 m2)		200.87

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.74	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015

W.S. Elev (m)	12.71	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.98	Flow Area (m2)		37.26
E.G. Slope (m/m)	0.000051	Area (m2)		37.26
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.29	Top Width (m)		18.29
Vel Total (m/s)	0.72	Avg. Vel. (m/s)		0.72
Max Chl Dpth (m)	2.55	Hydr. Depth (m)		2.04
Conv. Total (m3/s)	3775.4	Conv. (m3/s)		3775.4
Length Wtd. (m)	8.95	Wetted Per. (m)		19.89
Min Ch El (m)	10.16	Shear (N/m2)		0.94
Alpha	1.00	Stream Power (N/m s)		0.68
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		446.02
C & E Loss (m)	0.00	Cum SA (1000 m2)		209.45

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	13.00	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.98	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.98	Flow Area (m2)		42.25
E.G. Slope (m/m)	0.000036	Area (m2)		42.25
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.05	Top Width (m)		19.05
Vel Total (m/s)	0.64	Avg. Vel. (m/s)		0.64
Max Chl Dpth (m)	2.81	Hydr. Depth (m)		2.22

Conv. Total (m3/s)	4515.2	Conv. (m3/s)		4515.2
Length Wtd. (m)	8.95	Wetted Per. (m)		20.82
Min Ch El (m)	10.16	Shear (N/m2)		0.71
Alpha	1.00	Stream Power (N/m s)		0.45
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.04	524.70
0.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	212.29
1.01				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
 REACH: Canale SNM RS: 60.5

INPUT
 Description:
 Distance from Upstream XS = 8.95
 Deck/Roadway Width = 5
 Weir Coefficient = 1.4
 Upstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 4.53 13.55 12.82 25.73 13.55 12.82

Upstream Bridge Cross Section Data
 Station Elevation Data num= 13
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 13.4523 3.4016 13.4523 4.174 13.3942 4.174 13.4825 4.7055 13.4825
 9.4441 10.1642 14.8199 10.1639 20.4254 10.1635 25.5655 13.7295 26.0968 13.7295
 26.0968 13.6241 31.8363 13.5626 32.611 13.4153

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .015 4.7055 .015 25.5655 .015

Bank Sta: Left Right Coeff Contr. Expan.
 4.7055 25.5655 .0015 .01

Downstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 17.83 13.55 12.83 39.03 13.55 12.83

Downstream Bridge Cross Section Data

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.7989	13.5854	14.0193	13.6641	16.5231	13.5224	17.0536	13.5475	17.0536	13.4838
17.5854	13.5475	22.3826	10.1518	28.1133	10.1515	33.7828	10.1511	38.743	13.5416
39.6044	13.4746	39.6044	13.5416	40.0226	13.5023	42.1057	13.5024	44.4809	13.3051

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.7989	.015	17.5854	.015	38.743	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	17.5854	38.743		.0015	.01

Upstream Embankment side slope = 1.4 horiz. to 1.0 vertical
Downstream Embankment side slope = 1.4 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev
4.54	12.83	8.76	12.83

Downstream num= 2

Sta	Elev	Sta	Elev
17.83	12.83	22.06	12.83

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev
20.67	12.83	25.73	12.83

Downstream num= 2

Sta	Elev	Sta	Elev
33.96	12.83	39.03	12.83

Number of Piers = 2

Pier Data

Pier Station	Upstream=	Downstream=
	12.43	25.73

Upstream num= 2

Width	Elev	Width	Elev
.5	10.05	.5	12.85128

Downstream num= 2

Width	Elev	Width	Elev
.5	10.05	.5	12.83

Pier Data

Pier Station	Upstream=	Downstream=
	17.61	30.7739

Upstream num= 2

Width	Elev	Width	Elev
.5	10.06	.5	13.2
Downstream	num=	2	
Width	Elev	Width	Elev
.5	10.06	.5	13.2

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth

inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.80	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.79	E.G. Elev (m)	11.80
11.80			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.78
11.78			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.62
10.60			
Q Weir (m3/s)		Max Chl Dpth (m)	1.62
1.63			
Weir Sta Lft (m)		Vel Total (m/s)	0.57
0.56			
Weir Sta Rgt (m)		Flow Area (m2)	17.50
17.75			
Weir Submerg		Froude # Chl	0.14
0.14			
Weir Max Depth (m)		Specif Force (m3)	14.64
15.03			
Min El Weir Flow (m)	13.40	Hydr Depth (m)	1.60
1.63			
Min El Prs (m)	12.82	W.P. Total (m)	20.19
20.46			
Delta EG (m)	0.01	Conv. Total (m3/s)	1060.2
1076.7			
Delta WS (m)	0.01	Top Width (m)	10.91
10.90			
BR Open Area (m2)	28.79	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.57	C & E Loss (m)	0.00

0.00	BR Sluice Coef	Shear Total (N/m2)	0.76
0.73	BR Sel Method	Energy only	Power Total (N/m s)
0.41			0.43

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.16	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.15	E.G. Elev (m)	12.16
12.16			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.15
12.15			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.62
10.60			
Q Weir (m3/s)		Max Chl Dpth (m)	1.98
1.99			
Weir Sta Lft (m)		Vel Total (m/s)	0.47
0.46			
Weir Sta Rgt (m)		Flow Area (m2)	21.44
21.69			
Weir Submerg		Froude # Chl	0.11
0.10			
Weir Max Depth (m)		Specif Force (m3)	21.57
22.06			
Min El Weir Flow (m)	13.40	Hydr Depth (m)	1.97
1.99			
Min El Prs (m)	12.82	W.P. Total (m)	22.36
22.63			
Delta EG (m)	0.01	Conv. Total (m3/s)	1389.9
1406.1			
Delta WS (m)	0.00	Top Width (m)	10.91
10.90			
BR Open Area (m2)	28.79	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.47	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.49
0.48			
BR Sel Method	Energy only	Power Total (N/m s)	0.23
0.22			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.59	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.59	E.G. Elev (m)	12.59
12.59			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.58
12.58			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.62
10.60			
Q Weir (m3/s)		Max Chl Dpth (m)	2.42
2.43			
Weir Sta Lft (m)		Vel Total (m/s)	0.38
0.38			
Weir Sta Rgt (m)		Flow Area (m2)	26.21
26.46			
Weir Submerg		Froude # Chl	0.08
0.08			
Weir Max Depth (m)		Specif Force (m3)	31.89
32.50			
Min El Weir Flow (m)	13.40	Hydr Depth (m)	2.40
2.43			
Min El Prs (m)	12.82	W.P. Total (m)	24.98
25.25			
Delta EG (m)	0.00	Conv. Total (m3/s)	1804.0
1819.6			
Delta WS (m)	0.00	Top Width (m)	10.91
10.90			
BR Open Area (m2)	28.79	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.38	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.32
0.31			
BR Sel Method	Energy only	Power Total (N/m s)	0.12
0.12			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.59	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.56	E.G. Elev (m)	12.59
12.59			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.53

12.53			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	11.04
11.01			
Q Weir (m3/s)		Max Chl Dpth (m)	2.37
2.38			
Weir Sta Lft (m)		Vel Total (m/s)	1.05
1.04			
Weir Sta Rgt (m)		Flow Area (m2)	25.64
25.89			
Weir Submerg		Froude # Chl	0.22
0.22			
Weir Max Depth (m)		Specif Force (m3)	33.06
33.63			
Min El Weir Flow (m)	13.40	Hydr Depth (m)	2.35
2.38			
Min El Prs (m)	12.82	W.P. Total (m)	24.67
24.94			
Delta EG (m)	0.02	Conv. Total (m3/s)	1754.3
1769.9			
Delta WS (m)	0.02	Top Width (m)	10.91
10.90			
BR Open Area (m2)	28.79	Frctn Loss (m)	0.00
0.02			
BR Open Vel (m/s)	1.05	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.41
2.37			
BR Sel Method	Energy only	Power Total (N/m s)	2.54
2.47			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.74	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.71	E.G. Elev (m)	12.74
12.73			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.69
12.69			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	11.04
11.01			
Q Weir (m3/s)		Max Chl Dpth (m)	2.52
2.54			
Weir Sta Lft (m)		Vel Total (m/s)	0.99
0.98			
Weir Sta Rgt (m)		Flow Area (m2)	27.33
27.58			
Weir Submerg		Froude # Chl	0.20

0.20			
Weir Max Depth (m)		Specif Force (m3)	36.99
37.59			
Min El Weir Flow (m)	13.40	Hydr Depth (m)	2.51
2.53			
Min El Prs (m)	12.82	W.P. Total (m)	25.60
25.87			
Delta EG (m)	0.02	Conv. Total (m3/s)	1903.8
1919.0			
Delta WS (m)	0.02	Top Width (m)	10.91
10.90			
BR Open Area (m2)	28.79	Frctn Loss (m)	0.00
0.02			
BR Open Vel (m/s)	0.99	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.11
2.07			
BR Sel Method	Energy only	Power Total (N/m s)	2.08
2.03			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	13.00	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.98	E.G. Elev (m)	13.00
13.00			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.95
12.95			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	11.04
11.01			
Q Weir (m3/s)		Max Chl Dpth (m)	2.79
2.80			
Weir Sta Lft (m)		Vel Total (m/s)	0.94
0.93			
Weir Sta Rgt (m)		Flow Area (m2)	28.79
29.15			
Weir Submerg		Froude # Chl	0.18
0.18			
Weir Max Depth (m)		Specif Force (m3)	44.43
45.10			
Min El Weir Flow (m)	13.40	Hydr Depth (m)	
Min El Prs (m)	12.82	W.P. Total (m)	37.31
37.63			
Delta EG (m)	0.02	Conv. Total (m3/s)	1615.0
1639.0			
Delta WS (m)	0.01	Top Width (m)	

BR Open Area (m2)	28.79	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.94	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.12
2.06			
BR Sel Method	Energy only	Power Total (N/m s)	1.98
1.91			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 60

INPUT
 Description:
 Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.7989	13.5854	14.0193	13.6641	16.5231	13.5224	17.0536	13.5475	17.0536	13.4838
17.5854	13.5475	22.3826	10.1518	28.1133	10.1515	33.7828	10.1511	38.743	13.5416
39.6044	13.4746	39.6044	13.5416	40.0226	13.5023	42.1057	13.5024	44.4809	13.3051

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.7989	.015	17.5854	.015	38.743	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	17.5854	38.743		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.79	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.78	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		22.40
E.G. Slope (m/m)	0.000031	Area (m2)		22.40
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.09	Top Width (m)		16.09

Vel Total (m/s)	0.45	Avg. Vel. (m/s)	0.45
Max Chl Dpth (m)	1.63	Hydr. Depth (m)	1.39
Conv. Total (m3/s)	1787.2	Conv. (m3/s)	1787.2
Length Wtd. (m)	200.00	Wetted Per. (m)	17.11
Min Ch El (m)	10.15	Shear (N/m2)	0.40
Alpha	1.00	Stream Power (N/m s)	0.18
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	300.05
C & E Loss (m)	0.00	Cum SA (1000 m2)	185.29

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.15	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.15	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		28.45
E.G. Slope (m/m)	0.000016	Area (m2)		28.45
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.13	Top Width (m)		17.13
Vel Total (m/s)	0.35	Avg. Vel. (m/s)		0.35
Max Chl Dpth (m)	1.99	Hydr. Depth (m)		1.66
Conv. Total (m3/s)	2537.8	Conv. (m3/s)		2537.8
Length Wtd. (m)	200.00	Wetted Per. (m)		18.39
Min Ch El (m)	10.15	Shear (N/m2)		0.24
Alpha	1.00	Stream Power (N/m s)		0.08
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		384.18
C & E Loss (m)	0.00	Cum SA (1000 m2)		198.26

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		36.24
E.G. Slope (m/m)	0.000008	Area (m2)		36.24
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.40	Top Width (m)		18.40
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.43	Hydr. Depth (m)		1.97
Conv. Total (m3/s)	3600.0	Conv. (m3/s)		3600.0
Length Wtd. (m)	200.00	Wetted Per. (m)		19.92
Min Ch El (m)	10.15	Shear (N/m2)		0.14
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	480.63
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	210.18

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.38
E.G. Slope (m/m)	0.000060	Area (m2)		35.38
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.26	Top Width (m)		18.26

Vel Total (m/s)	0.76	Avg. Vel. (m/s)	0.76
Max Chl Dpth (m)	2.39	Hydr. Depth (m)	1.94
Conv. Total (m3/s)	3478.1	Conv. (m3/s)	3478.1
Length Wtd. (m)	200.00	Wetted Per. (m)	19.76
Min Ch El (m)	10.15	Shear (N/m2)	1.06
Alpha	1.00	Stream Power (N/m s)	0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	380.15
C & E Loss (m)	0.00	Cum SA (1000 m2)	197.97

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.72	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.69	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.27
E.G. Slope (m/m)	0.000048	Area (m2)		38.27
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.71	Top Width (m)		18.71
Vel Total (m/s)	0.71	Avg. Vel. (m/s)		0.71
Max Chl Dpth (m)	2.54	Hydr. Depth (m)		2.05
Conv. Total (m3/s)	3892.7	Conv. (m3/s)		3892.7
Length Wtd. (m)	200.00	Wetted Per. (m)		20.30
Min Ch El (m)	10.15	Shear (N/m2)		0.89
Alpha	1.00	Stream Power (N/m s)		0.63
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		439.46
C & E Loss (m)	0.00	Cum SA (1000 m2)		206.51

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.98	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.96	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		43.41
E.G. Slope (m/m)	0.000034	Area (m2)		43.41
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.48	Top Width (m)		19.48
Vel Total (m/s)	0.62	Avg. Vel. (m/s)		0.62
Max Chl Dpth (m)	2.81	Hydr. Depth (m)		2.23
Conv. Total (m3/s)	4659.8	Conv. (m3/s)		4659.8
Length Wtd. (m)	200.00	Wetted Per. (m)		21.25
Min Ch El (m)	10.15	Shear (N/m2)		0.67
Alpha	1.00	Stream Power (N/m s)		0.42
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	517.49
0.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	210.40
1.01				

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 59

INPUT

Description:

Station Elevation Data	num=	15
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
13.2994 13.2671 14.676 13.4157 16.0111 13.4157 16.8992 13.4059 16.8992 13.3455		
18.6668 13.4059 23.2086 10.1392 29.0767 10.1387 34.8611 10.1381 39.7363 13.4766		
40.2672 13.3906 40.2672 13.4766 42.11 13.4408 42.7243 13.4567 44.57 13.3532		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		

13.2994 .015 18.6668 .015 39.7363 .015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.	18.6668	39.7363		200	200	200
						.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.79	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.78	Reach Len. (m)	16.89	16.89
16.89				
Crit W.S. (m)	10.55	Flow Area (m2)		22.89
E.G. Slope (m/m)	0.000030	Area (m2)		22.89
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.32	Top Width (m)		16.32
Vel Total (m/s)	0.44	Avg. Vel. (m/s)		0.44
Max Chl Dpth (m)	1.64	Hydr. Depth (m)		1.40
Conv. Total (m3/s)	1836.0	Conv. (m3/s)		1836.0
Length Wtd. (m)	16.89	Wetted Per. (m)		17.35
Min Ch El (m)	10.14	Shear (N/m2)		0.38
Alpha	1.00	Stream Power (N/m s)		0.17
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		295.52
C & E Loss (m)	0.00	Cum SA (1000 m2)		182.05

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.15	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.14	Reach Len. (m)	16.89	16.89

16.89			
Crit W.S. (m)	10.55	Flow Area (m2)	29.08
E.G. Slope (m/m)	0.000015	Area (m2)	29.08
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	17.37	Top Width (m)	17.37
Vel Total (m/s)	0.34	Avg. Vel. (m/s)	0.34
Max Chl Dpth (m)	2.00	Hydr. Depth (m)	1.67
Conv. Total (m3/s)	2608.6	Conv. (m3/s)	2608.6
Length Wtd. (m)	16.89	Wetted Per. (m)	18.63
Min Ch El (m)	10.14	Shear (N/m2)	0.22
Alpha	1.00	Stream Power (N/m s)	0.08
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	378.43
C & E Loss (m)	0.00	Cum SA (1000 m2)	194.81

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.58	Reach Len. (m)	16.89	16.89
16.89				
Crit W.S. (m)	10.55	Flow Area (m2)		36.99
E.G. Slope (m/m)	0.000007	Area (m2)		36.99
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.62	Top Width (m)		18.62
Vel Total (m/s)	0.27	Avg. Vel. (m/s)		0.27
Max Chl Dpth (m)	2.44	Hydr. Depth (m)		1.99
Conv. Total (m3/s)	3695.5	Conv. (m3/s)		3695.5

Length Wtd. (m)	16.89	Wetted Per. (m)		20.16
Min Ch El (m)	10.14	Shear (N/m2)		0.13
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	473.31
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	206.48

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	16.89	16.89
16.89				
Crit W.S. (m)	10.93	Flow Area (m2)		35.94
E.G. Slope (m/m)	0.000058	Area (m2)		35.94
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.46	Top Width (m)		18.46
Vel Total (m/s)	0.75	Avg. Vel. (m/s)		0.75
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.95
Conv. Total (m3/s)	3546.1	Conv. (m3/s)		3546.1
Length Wtd. (m)	16.89	Wetted Per. (m)		19.97
Min Ch El (m)	10.14	Shear (N/m2)		1.02
Alpha	1.00	Stream Power (N/m s)		0.77
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		373.02
C & E Loss (m)	0.00	Cum SA (1000 m2)		194.30

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.71	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.68	Reach Len. (m)	16.89	16.89
16.89				
Crit W.S. (m)	10.93	Flow Area (m2)		38.91
E.G. Slope (m/m)	0.000046	Area (m2)		38.91
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.91	Top Width (m)		18.91
Vel Total (m/s)	0.69	Avg. Vel. (m/s)		0.69
Max Chl Dpth (m)	2.55	Hydr. Depth (m)		2.06
Conv. Total (m3/s)	3973.7	Conv. (m3/s)		3973.7
Length Wtd. (m)	16.89	Wetted Per. (m)		20.52
Min Ch El (m)	10.14	Shear (N/m2)		0.86
Alpha	1.00	Stream Power (N/m s)		0.60
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		431.75
C & E Loss (m)	0.00	Cum SA (1000 m2)		202.75

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.98	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.96	Reach Len. (m)	16.89	16.89
16.89				
Crit W.S. (m)	10.93	Flow Area (m2)		44.16

E.G. Slope (m/m)	0.000032	Area (m2)		44.16
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.69	Top Width (m)		19.69
Vel Total (m/s)	0.61	Avg. Vel. (m/s)		0.61
Max Chl Dpth (m)	2.82	Hydr. Depth (m)		2.24
Conv. Total (m3/s)	4761.3	Conv. (m3/s)		4761.3
Length Wtd. (m)	16.89	Wetted Per. (m)		21.47
Min Ch El (m)	10.14	Shear (N/m2)		0.65
Alpha	1.00	Stream Power (N/m s)		0.40
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.04	508.73
0.10				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	206.48
1.01				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
 REACH: Canale SNM RS: 58.5

INPUT
 Description:
 Distance from Upstream XS = 16.89
 Deck/Roadway Width = 5
 Weir Coefficient = 1.4
 Upstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 15.45 13.4 11.92 40.45 13.4 11.92

Upstream Bridge Cross Section Data
 Station Elevation Data num= 15
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 13.2994 13.2671 14.676 13.4157 16.0111 13.4157 16.8992 13.4059 16.8992 13.3455
 18.6668 13.4059 23.2086 10.1392 29.0767 10.1387 34.8611 10.1381 39.7363 13.4766
 40.2672 13.3906 40.2672 13.4766 42.11 13.4408 42.7243 13.4567 44.57 13.3532

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
13.2994	.015	18.6668	.015	39.7363	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	18.6668	39.7363		.0015	.01

Downstream Deck/Roadway Coordinates

num=	2								
Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
13.16	13.4	11.92	38.17	13.4	11.92				

Downstream Bridge Cross Section Data

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.8144	13.1041	13.9394	13.0502	15.8053	13.1064	15.8053	13.2215	16.3347	13.2215
21.137	10.1212	26.8145	10.1207	32.4912	10.1202	36.9367	13.0797	37.4669	13.0797
37.4669	13.0089	38.4892	13.0687	40.3888	13.0414	41.4145	12.8136	42.0615	12.7541

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.8144	.015	16.3347	.015	36.9367	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	16.3347	36.9367		.0015	.01

Upstream Embankment side slope	=	5 horiz. to 1.0 vertical
Downstream Embankment side slope	=	5 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev
15.46	11.92	24.06	11.92

Downstream num= 2

Sta	Elev	Sta	Elev
13.16	11.92	21.77	11.92

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev
34.26	11.92	40.45	11.92

Downstream num= 2

Sta	Elev	Sta	Elev
31.97	11.92	38.16	11.92

Number of Piers = 1

Pier Data

Pier Station	Upstream=	29.07	Downstream=	26.78
Upstream	num=	2		
Width	Elev	Width	Elev	
1	10.14	1	11.92	
Downstream	num=	2		
Width	Elev	Width	Elev	
1	10.14	1	11.92	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.79	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.78	E.G. Elev (m)	11.78
11.78			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.76
11.76			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.63
10.62			
Q Weir (m3/s)		Max Chl Dpth (m)	1.62
1.64			
Weir Sta Lft (m)		Vel Total (m/s)	0.67
0.66			
Weir Sta Rgt (m)		Flow Area (m2)	14.93
15.10			
Weir Submerg		Froude # Chl	0.17
0.17			
Weir Max Depth (m)		Specif Force (m3)	12.79
13.06			
Min El Weir Flow (m)	13.27	Hydr Depth (m)	1.62
1.64			
Min El Prs (m)	11.92	W.P. Total (m)	15.69
15.76			
Delta EG (m)	0.01	Conv. Total (m3/s)	962.7
977.7			
Delta WS (m)	0.01	Top Width (m)	9.20
9.20			
BR Open Area (m2)	16.39	Frctn Loss (m)	0.00

0.01	BR Open Vel (m/s)	0.67	C & E Loss (m)	0.00
0.00	BR Sluice Coef		Shear Total (N/m2)	1.01
0.98	BR Sel Method	Energy only	Power Total (N/m s)	0.67
0.65				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.15	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.14	E.G. Elev (m)	12.15
12.15			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.13
12.13			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.63
10.62			
Q Weir (m3/s)		Max Chl Dpth (m)	1.99
2.01			
Weir Sta Lft (m)		Vel Total (m/s)	0.61
0.60			
Weir Sta Rgt (m)		Flow Area (m2)	16.39
16.55			
Weir Submerg		Froude # Chl	0.14
0.14			
Weir Max Depth (m)		Specif Force (m3)	18.64
18.97			
Min El Weir Flow (m)	13.27	Hydr Depth (m)	
Min El Prs (m)	11.92	W.P. Total (m)	25.52
25.60			
Delta EG (m)	0.01	Conv. Total (m3/s)	813.0
825.4			
Delta WS (m)	0.01	Top Width (m)	
BR Open Area (m2)	16.39	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.61	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.95
0.93			
BR Sel Method	Energy only	Power Total (N/m s)	0.58
0.56			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.59	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.58	E.G. Elev (m)	12.59
12.59			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.57
12.57			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.63
10.62			
Q Weir (m3/s)		Max Chl Dpth (m)	2.43
2.45			
Weir Sta Lft (m)		Vel Total (m/s)	0.61
0.60			
Weir Sta Rgt (m)		Flow Area (m2)	16.39
16.55			
Weir Submerg		Froude # Chl	0.13
0.12			
Weir Max Depth (m)		Specif Force (m3)	25.81
26.21			
Min El Weir Flow (m)	13.27	Hydr Depth (m)	
Min El Prs (m)	11.92	W.P. Total (m)	25.52
25.60			
Delta EG (m)	0.00	Conv. Total (m3/s)	813.0
825.4			
Delta WS (m)	0.00	Top Width (m)	
BR Open Area (m2)	16.39	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.61	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.95
0.93			
BR Sel Method	Energy only	Power Total (N/m s)	0.58
0.56			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.55	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.53	E.G. Elev (m)	12.55

12.55			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.41
12.41			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	11.10
11.08			
Q Weir (m3/s)		Max Chl Dpth (m)	2.28
2.29			
Weir Sta Lft (m)		Vel Total (m/s)	1.65
1.63			
Weir Sta Rgt (m)		Flow Area (m2)	16.39
16.55			
Weir Submerg		Froude # Chl	0.35
0.34			
Weir Max Depth (m)		Specif Force (m3)	27.22
27.51			
Min El Weir Flow (m)	13.27	Hydr Depth (m)	
Min El Prs (m)	11.92	W.P. Total (m)	25.52
25.60			
Delta EG (m)	0.04	Conv. Total (m3/s)	813.0
825.4			
Delta WS (m)	0.04	Top Width (m)	
BR Open Area (m2)	16.39	Frctn Loss (m)	0.01
0.03			
BR Open Vel (m/s)	1.65	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	6.94
6.79			
BR Sel Method	Energy only	Power Total (N/m s)	11.44
11.07			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.71	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.68	E.G. Elev (m)	12.71
12.70			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.57
12.57			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	11.10
11.08			
Q Weir (m3/s)		Max Chl Dpth (m)	2.43
2.45			
Weir Sta Lft (m)		Vel Total (m/s)	1.65
1.63			
Weir Sta Rgt (m)		Flow Area (m2)	16.39

16.55	Weir Submerg		Froude # Ch1	0.34
0.33	Weir Max Depth (m)		Specif Force (m3)	29.76
30.07	Min El Weir Flow (m)	13.27	Hydr Depth (m)	
	Min El Prs (m)	11.92	W.P. Total (m)	25.52
25.60	Delta EG (m)	0.03	Conv. Total (m3/s)	813.0
825.4	Delta WS (m)	0.03	Top Width (m)	
	BR Open Area (m2)	16.39	Frctn Loss (m)	0.01
0.02	BR Open Vel (m/s)	1.65	C & E Loss (m)	0.00
0.00	BR Sluice Coef		Shear Total (N/m2)	6.94
6.79	BR Sel Method	Energy only	Power Total (N/m s)	11.44
11.07				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.98	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.96	E.G. Elev (m)	12.97
12.97		W.S. Elev (m)	12.84
12.83		Crit W.S. (m)	11.10
11.08		Max Ch1 Dpth (m)	2.70
2.71		Vel Total (m/s)	1.65
1.63		Flow Area (m2)	16.39
16.59		Froude # Ch1	0.32
0.32		Specif Force (m3)	34.13
34.50		Hydr Depth (m)	
22.58		W.P. Total (m)	25.52
26.42		Conv. Total (m3/s)	813.0

825.6			
Delta WS (m)	0.03	Top Width (m)	
0.73			
BR Open Area (m2)	16.39	Frctn Loss (m)	0.01
0.02			
BR Open Vel (m/s)	1.65	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	6.94
6.59			
BR Sel Method	Energy only	Power Total (N/m s)	11.44
10.72			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 58

INPUT

Description:

Station Elevation Data		num=		15	
Sta	Elev	Sta	Elev	Sta	Elev
11.8144	13.1041	13.9394	13.0502	15.8053	13.1064
21.137	10.1212	26.8145	10.1207	32.4912	10.1202
37.4669	13.0089	38.4892	13.0687	40.3888	13.0414
				41.4145	12.8136
				42.0615	12.7541

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
11.8144	.015	16.3347	.015	36.9367	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	16.3347	36.9367		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.77	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.76	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		22.79
E.G. Slope (m/m)	0.000030	Area (m2)		22.79
Q Total (m3/s)	10.00	Flow (m3/s)		10.00

Top Width (m)	16.37	Top Width (m)	16.37
Vel Total (m/s)	0.44	Avg. Vel. (m/s)	0.44
Max Chl Dpth (m)	1.64	Hydr. Depth (m)	1.39
Conv. Total (m3/s)	1822.2	Conv. (m3/s)	1822.2
Length Wtd. (m)	200.00	Wetted Per. (m)	17.35
Min Ch El (m)	10.12	Shear (N/m2)	0.39
Alpha	1.00	Stream Power (N/m s)	0.17
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	291.75
C & E Loss (m)	0.00	Cum SA (1000 m2)	179.51

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.14	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.14	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		29.07
E.G. Slope (m/m)	0.000015	Area (m2)		29.07
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.50	Top Width (m)		17.50
Vel Total (m/s)	0.34	Avg. Vel. (m/s)		0.34
Max Chl Dpth (m)	2.02	Hydr. Depth (m)		1.66
Conv. Total (m3/s)	2599.7	Conv. (m3/s)		2599.7
Length Wtd. (m)	200.00	Wetted Per. (m)		18.70
Min Ch El (m)	10.12	Shear (N/m2)		0.23
Alpha	1.00	Stream Power (N/m s)		0.08
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		373.90
C & E Loss (m)	0.00	Cum SA (1000 m2)		193.10

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.11
E.G. Slope (m/m)	0.000007	Area (m2)		37.11
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.85	Top Width (m)		18.85
Vel Total (m/s)	0.27	Avg. Vel. (m/s)		0.27
Max Chl Dpth (m)	2.46	Hydr. Depth (m)		1.97
Conv. Total (m3/s)	3696.2	Conv. (m3/s)		3696.2
Length Wtd. (m)	200.00	Wetted Per. (m)		20.32
Min Ch El (m)	10.12	Shear (N/m2)		0.13
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	468.00
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	204.64

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.49	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.42
E.G. Slope (m/m)	0.000061	Area (m2)		35.42
Q Total (m3/s)	27.00	Flow (m3/s)		27.00

Top Width (m)	18.58	Top Width (m)	18.58
Vel Total (m/s)	0.76	Avg. Vel. (m/s)	0.76
Max Chl Dpth (m)	2.37	Hydr. Depth (m)	1.91
Conv. Total (m3/s)	3457.9	Conv. (m3/s)	3457.9
Length Wtd. (m)	200.00	Wetted Per. (m)	19.99
Min Ch El (m)	10.12	Shear (N/m2)	1.06
Alpha	1.00	Stream Power (N/m s)	0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	367.86
C & E Loss (m)	0.00	Cum SA (1000 m2)	192.49

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.68	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.65	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.52
E.G. Slope (m/m)	0.000048	Area (m2)		38.52
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.08	Top Width (m)		19.08
Vel Total (m/s)	0.70	Avg. Vel. (m/s)		0.70
Max Chl Dpth (m)	2.53	Hydr. Depth (m)		2.02
Conv. Total (m3/s)	3898.4	Conv. (m3/s)		3898.4
Length Wtd. (m)	200.00	Wetted Per. (m)		20.59
Min Ch El (m)	10.12	Shear (N/m2)		0.88
Alpha	1.00	Stream Power (N/m s)		0.62
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		426.29
C & E Loss (m)	0.00	Cum SA (1000 m2)		200.89

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.95	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
0.015				
W.S. Elev (m)	12.93	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		43.96
0.13				
E.G. Slope (m/m)	0.000033	Area (m2)		43.96
0.13				
Q Total (m3/s)	27.00	Flow (m3/s)		26.99
0.01				
Top Width (m)	21.11	Top Width (m)		19.93
1.18				
Vel Total (m/s)	0.61	Avg. Vel. (m/s)		0.61
0.08				
Max Chl Dpth (m)	2.81	Hydr. Depth (m)		2.21
0.11				
Conv. Total (m3/s)	4707.1	Conv. (m3/s)		4705.4
1.7				
Length Wtd. (m)	200.00	Wetted Per. (m)		21.61
1.37				
Min Ch El (m)	10.12	Shear (N/m2)		0.66
0.03				
Alpha	1.00	Stream Power (N/m s)		0.40
0.00				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	502.75
0.09				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	204.54
0.84				

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 57

INPUT

Description:

Station Elevation Data	num=	12							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

14.7165	13.2463	15.6433	13.3607	17.6535	13.3922	17.6535	13.3059	19.175	13.3922
24.2412	10.1033	29.8704	10.1027	35.5497	10.1022	40.576	13.4597	41.5511	13.3388
41.5511	13.4597	45.2997	13.1819						

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
14.7165	.015	19.175	.015	40.576	.015

Bank Sta:	Left	Right	Lengths:			Left Channel	Right	Coeff Contr.	
Expan.									
	19.175	40.576		200	200	200		.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.77	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.76	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		22.89
E.G. Slope (m/m)	0.000030	Area (m2)		22.89
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.34	Top Width (m)		16.34
Vel Total (m/s)	0.44	Avg. Vel. (m/s)		0.44
Max Chl Dpth (m)	1.66	Hydr. Depth (m)		1.40
Conv. Total (m3/s)	1837.6	Conv. (m3/s)		1837.6
Length Wtd. (m)	200.00	Wetted Per. (m)		17.33
Min Ch El (m)	10.10	Shear (N/m2)		0.38
Alpha	1.00	Stream Power (N/m s)		0.17
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		287.18
C & E Loss (m)	0.00	Cum SA (1000 m2)		176.24

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.14	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015

W.S. Elev (m)	12.13	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		29.21
E.G. Slope (m/m)	0.000015	Area (m2)		29.21
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.47	Top Width (m)		17.47
Vel Total (m/s)	0.34	Avg. Vel. (m/s)		0.34
Max Chl Dpth (m)	2.03	Hydr. Depth (m)		1.67
Conv. Total (m3/s)	2622.5	Conv. (m3/s)		2622.5
Length Wtd. (m)	200.00	Wetted Per. (m)		18.69
Min Ch El (m)	10.10	Shear (N/m2)		0.22
Alpha	1.00	Stream Power (N/m s)		0.08
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		368.07
C & E Loss (m)	0.00	Cum SA (1000 m2)		189.60

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.27
E.G. Slope (m/m)	0.000007	Area (m2)		37.27
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.82	Top Width (m)		18.82
Vel Total (m/s)	0.27	Avg. Vel. (m/s)		0.27
Max Chl Dpth (m)	2.47	Hydr. Depth (m)		1.98
Conv. Total (m3/s)	3724.1	Conv. (m3/s)		3724.1
Length Wtd. (m)	200.00	Wetted Per. (m)		20.30

Min Ch El (m)	10.10	Shear (N/m2)		0.13
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	460.56
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	200.87

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.48	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.38
E.G. Slope (m/m)	0.000061	Area (m2)		35.38
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.51	Top Width (m)		18.51
Vel Total (m/s)	0.76	Avg. Vel. (m/s)		0.76
Max Chl Dpth (m)	2.37	Hydr. Depth (m)		1.91
Conv. Total (m3/s)	3457.2	Conv. (m3/s)		3457.2
Length Wtd. (m)	200.00	Wetted Per. (m)		19.94
Min Ch El (m)	10.10	Shear (N/m2)		1.06
Alpha	1.00	Stream Power (N/m s)		0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		360.78
C & E Loss (m)	0.00	Cum SA (1000 m2)		188.78

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.67	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015

W.S. Elev (m)	12.64	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.52
E.G. Slope (m/m)	0.000048	Area (m2)		38.52
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.02	Top Width (m)		19.02
Vel Total (m/s)	0.70	Avg. Vel. (m/s)		0.70
Max Chl Dpth (m)	2.54	Hydr. Depth (m)		2.02
Conv. Total (m3/s)	3904.0	Conv. (m3/s)		3904.0
Length Wtd. (m)	200.00	Wetted Per. (m)		20.54
Min Ch El (m)	10.10	Shear (N/m2)		0.88
Alpha	1.00	Stream Power (N/m s)		0.62
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		418.59
C & E Loss (m)	0.00	Cum SA (1000 m2)		197.08

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.94	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.92	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		44.00
E.G. Slope (m/m)	0.000033	Area (m2)		44.00
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.88	Top Width (m)		19.88
Vel Total (m/s)	0.61	Avg. Vel. (m/s)		0.61
Max Chl Dpth (m)	2.82	Hydr. Depth (m)		2.21
Conv. Total (m3/s)	4718.8	Conv. (m3/s)		4718.8
Length Wtd. (m)	200.00	Wetted Per. (m)		21.57

Min Ch El (m)	10.10	Shear (N/m2)		0.65
Alpha	1.00	Stream Power (N/m s)		0.40
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	493.95
0.07				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	200.56
0.72				

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 56

INPUT									
Description:									
Station Elevation Data			num=	14					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.6055	13.1333	12.4057	13.2208	14.1271	13.1959	14.1271	13.2886	14.7582	13.2886
19.9787	10.0852	24.9801	10.0848	30.0069	10.0845	35.4197	13.4517	35.8012	13.4517
35.8012	13.3492	36.9548	13.3436	38.9095	13.2915	40.9734	13.1528		
Manning's n Values			num=	3					
Sta	n Val	Sta	n Val	Sta	n Val				
9.6055	.015	14.7582	.015	35.4197	.015				
Bank Sta:	Left	Right	Lengths:		Left Channel	Right	Coeff Contr.		
Expan.									
	14.7582	35.4197		200	200	200		.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.76	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.75	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.20
E.G. Slope (m/m)	0.000035	Area (m2)		21.20
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.42	Top Width (m)		15.42
Vel Total (m/s)	0.47	Avg. Vel. (m/s)		0.47
Max Chl Dpth (m)	1.67	Hydr. Depth (m)		1.37

Conv. Total (m3/s)	1679.0	Conv. (m3/s)	1679.0
Length Wtd. (m)	200.00	Wetted Per. (m)	16.37
Min Ch El (m)	10.08	Shear (N/m2)	0.45
Alpha	1.00	Stream Power (N/m s)	0.21
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	282.77
C & E Loss (m)	0.00	Cum SA (1000 m2)	173.06

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.14	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.13	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		27.25
E.G. Slope (m/m)	0.000017	Area (m2)		27.25
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.64	Top Width (m)		16.64
Vel Total (m/s)	0.37	Avg. Vel. (m/s)		0.37
Max Chl Dpth (m)	2.04	Hydr. Depth (m)		1.64
Conv. Total (m3/s)	2412.9	Conv. (m3/s)		2412.9
Length Wtd. (m)	200.00	Wetted Per. (m)		17.80
Min Ch El (m)	10.08	Shear (N/m2)		0.26
Alpha	1.00	Stream Power (N/m s)		0.09
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		362.43
C & E Loss (m)	0.00	Cum SA (1000 m2)		186.19

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.99
E.G. Slope (m/m)	0.000008	Area (m2)		34.99
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.09	Top Width (m)		18.09
Vel Total (m/s)	0.29	Avg. Vel. (m/s)		0.29
Max Chl Dpth (m)	2.49	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3445.0	Conv. (m3/s)		3445.0
Length Wtd. (m)	200.00	Wetted Per. (m)		19.50
Min Ch El (m)	10.08	Shear (N/m2)		0.15
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	453.34
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	197.18

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.49	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.46	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.90
E.G. Slope (m/m)	0.000073	Area (m2)		32.90
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.71	Top Width (m)		17.71
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.37	Hydr. Depth (m)		1.86

Conv. Total (m3/s)	3156.8	Conv. (m3/s)	3156.8
Length Wtd. (m)	200.00	Wetted Per. (m)	19.06
Min Ch El (m)	10.08	Shear (N/m2)	1.24
Alpha	1.00	Stream Power (N/m s)	1.02
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	353.96
C & E Loss (m)	0.00	Cum SA (1000 m2)	185.16

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.66	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.63	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.98
E.G. Slope (m/m)	0.000057	Area (m2)		35.98
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.26	Top Width (m)		18.26
Vel Total (m/s)	0.75	Avg. Vel. (m/s)		0.75
Max Chl Dpth (m)	2.54	Hydr. Depth (m)		1.97
Conv. Total (m3/s)	3582.5	Conv. (m3/s)		3582.5
Length Wtd. (m)	200.00	Wetted Per. (m)		19.71
Min Ch El (m)	10.08	Shear (N/m2)		1.02
Alpha	1.00	Stream Power (N/m s)		0.76
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		411.14
C & E Loss (m)	0.00	Cum SA (1000 m2)		193.35

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.94	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.91	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		41.34
E.G. Slope (m/m)	0.000038	Area (m2)		41.34
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.19	Top Width (m)		19.19
Vel Total (m/s)	0.65	Avg. Vel. (m/s)		0.65
Max Chl Dpth (m)	2.83	Hydr. Depth (m)		2.15
Conv. Total (m3/s)	4357.6	Conv. (m3/s)		4357.6
Length Wtd. (m)	200.00	Wetted Per. (m)		20.80
Min Ch El (m)	10.08	Shear (N/m2)		0.75
Alpha	1.00	Stream Power (N/m s)		0.49
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	485.41
0.07				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	196.65
0.72				

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 55

INPUT

Description:

Station Elevation Data	num=	15
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
7.9963 13.1214 12.147 13.2529 12.147 13.3688 12.6751 13.3688 18.066 10.0673		
23.0404 10.0668 28.1174 10.0665 33.4304 13.4951 34.0202 13.4951 34.0202 13.4073		
34.5413 13.42 34.9539 13.3463 37.2608 13.3798 38.2128 13.2597 39.3712 13.2318		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
7.9963 .015 12.6751 .015 33.4304 .015		

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.
Expan.					

12.6751 33.4304

200

200

200

.0015

.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.76	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.74	Reach Len. (m)	187.00	187.00
187.00				
Crit W.S. (m)	10.52	Flow Area (m2)		21.33
E.G. Slope (m/m)	0.000035	Area (m2)		21.33
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.39	Top Width (m)		15.39
Vel Total (m/s)	0.47	Avg. Vel. (m/s)		0.47
Max Chl Dpth (m)	1.68	Hydr. Depth (m)		1.39
Conv. Total (m3/s)	1697.5	Conv. (m3/s)		1697.5
Length Wtd. (m)	187.00	Wetted Per. (m)		16.36
Min Ch El (m)	10.07	Shear (N/m2)		0.44
Alpha	1.00	Stream Power (N/m s)		0.21
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		278.52
C & E Loss (m)	0.00	Cum SA (1000 m2)		169.98

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.13	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.13	Reach Len. (m)	187.00	187.00
187.00				
Crit W.S. (m)	10.52	Flow Area (m2)		27.43
E.G. Slope (m/m)	0.000017	Area (m2)		27.43
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.60	Top Width (m)		16.60

Vel Total (m/s)	0.36	Avg. Vel. (m/s)	0.36
Max Chl Dpth (m)	2.06	Hydr. Depth (m)	1.65
Conv. Total (m3/s)	2440.4	Conv. (m3/s)	2440.4
Length Wtd. (m)	187.00	Wetted Per. (m)	17.79
Min Ch El (m)	10.07	Shear (N/m2)	0.25
Alpha	1.00	Stream Power (N/m s)	0.09
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	356.96
C & E Loss (m)	0.00	Cum SA (1000 m2)	182.87

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.57	Reach Len. (m)	187.00	187.00
187.00				
Crit W.S. (m)	10.52	Flow Area (m2)		35.18
E.G. Slope (m/m)	0.000008	Area (m2)		35.18
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.03	Top Width (m)		18.03
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.51	Hydr. Depth (m)		1.95
Conv. Total (m3/s)	3478.7	Conv. (m3/s)		3478.7
Length Wtd. (m)	187.00	Wetted Per. (m)		19.47
Min Ch El (m)	10.07	Shear (N/m2)		0.15
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	446.32
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	193.57

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.48	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.44	Reach Len. (m)	187.00	187.00
187.00				
Crit W.S. (m)	10.92	Flow Area (m2)		32.86
E.G. Slope (m/m)	0.000073	Area (m2)		32.86
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.61	Top Width (m)		17.61
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.87
Conv. Total (m3/s)	3158.3	Conv. (m3/s)		3158.3
Length Wtd. (m)	187.00	Wetted Per. (m)		18.98
Min Ch El (m)	10.07	Shear (N/m2)		1.24
Alpha	1.00	Stream Power (N/m s)		1.02
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		347.38
C & E Loss (m)	0.00	Cum SA (1000 m2)		181.63

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.65	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.62	Reach Len. (m)	187.00	187.00
187.00				
Crit W.S. (m)	10.92	Flow Area (m2)		35.98
E.G. Slope (m/m)	0.000057	Area (m2)		35.98
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.17	Top Width (m)		18.17

Vel Total (m/s)	0.75	Avg. Vel. (m/s)	0.75
Max Chl Dpth (m)	2.55	Hydr. Depth (m)	1.98
Conv. Total (m3/s)	3591.3	Conv. (m3/s)	3591.3
Length Wtd. (m)	187.00	Wetted Per. (m)	19.64
Min Ch El (m)	10.07	Shear (N/m2)	1.02
Alpha	1.00	Stream Power (N/m s)	0.76
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	403.95
C & E Loss (m)	0.00	Cum SA (1000 m2)	189.71

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.93	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.91	Reach Len. (m)	187.00	187.00
187.00				
Crit W.S. (m)	10.92	Flow Area (m2)		41.39
E.G. Slope (m/m)	0.000038	Area (m2)		41.39
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.09	Top Width (m)		19.09
Vel Total (m/s)	0.65	Avg. Vel. (m/s)		0.65
Max Chl Dpth (m)	2.84	Hydr. Depth (m)		2.17
Conv. Total (m3/s)	4375.0	Conv. (m3/s)		4375.0
Length Wtd. (m)	187.00	Wetted Per. (m)		20.73
Min Ch El (m)	10.07	Shear (N/m2)		0.75
Alpha	1.00	Stream Power (N/m s)		0.49
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	477.14
0.07				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	192.82
0.72				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

REACH: Canale SNM

RS: 54.5

INPUT

Description:

Distance from Upstream XS = 187

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num=	2										
	Sta	Hi	Cord	Lo	Cord		Sta	Hi	Cord	Lo	Cord
	11.74	15.11	12.69				34.31	15.11	12.69		

Upstream Bridge Cross Section Data

Station	Elevation	Data	num=	15							
	Sta	Elev		Sta	Elev		Sta	Elev		Sta	Elev
	7.9963	13.1214		12.147	13.2529		12.147	13.3688		12.6751	13.3688
	23.0404	10.0668		28.1174	10.0665		33.4304	13.4951		34.0202	13.4951
	34.5413	13.42		34.9539	13.3463		37.2608	13.3798		38.2128	13.2597
										39.3712	13.2318

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.9963	.015	12.6751	.015	33.4304	.015

Bank Sta: Left Right Coeff Contr. Expan.

12.6751	33.4304	.0015	.01
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Downstream Deck/Roadway Coordinates

num=	2										
	Sta	Hi	Cord	Lo	Cord		Sta	Hi	Cord	Lo	Cord
	4.09	15.11	12.69				26.66	15.11	12.69		

Downstream Bridge Cross Section Data

Station	Elevation	Data	num=	15							
	Sta	Elev		Sta	Elev		Sta	Elev		Sta	Elev
	0	13.2824		2.8808	13.3607		4.7562	13.3153		4.7562	13.4032
	10.2294	10.0494		15.3893	10.0489		20.4178	10.0484		26.0979	13.6533
	27.1413	13.5767		27.1965	13.5793		29.4211	13.5276		33.6337	13.5276
										38.442	13.2757

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.015	5.2869	.015	26.0979	.015

Bank Sta: Left Right Coeff Contr. Expan.

5.2869	26.0979	.0015	.01
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Upstream Embankment side slope = 1.87 horiz. to 1.0 vertical
Downstream Embankment side slope = 1.87 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.76	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.74	E.G. Elev (m)	11.75
11.75			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.74
11.74			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.52
10.50			
Q Weir (m3/s)		Max Chl Dpth (m)	1.67
1.69			
Weir Sta Lft (m)		Vel Total (m/s)	0.47
0.46			
Weir Sta Rgt (m)		Flow Area (m2)	21.23
21.55			
Weir Submerg		Froude # Chl	0.13
0.13			
Weir Max Depth (m)		Specif Force (m3)	16.97
17.44			
Min El Weir Flow (m)	13.28	Hydr Depth (m)	1.38
1.41			
Min El Prs (m)	12.69	W.P. Total (m)	16.33
16.35			
Delta EG (m)	0.01	Conv. Total (m3/s)	1685.7
1727.4			
Delta WS (m)	0.01	Top Width (m)	15.37
15.34			

BR Open Area (m2)	37.31	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.47	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.45
0.43			
BR Sel Method	Energy only	Power Total (N/m s)	0.21
0.20			

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.13	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.13	E.G. Elev (m)	12.13
12.13			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.12
12.12			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.52
10.50			
Q Weir (m3/s)		Max Chl Dpth (m)	2.06
2.07			
Weir Sta Lft (m)		Vel Total (m/s)	0.37
0.36			
Weir Sta Rgt (m)		Flow Area (m2)	27.37
27.67			
Weir Submerg		Froude # Chl	0.09
0.09			
Weir Max Depth (m)		Specif Force (m3)	26.20
26.79			
Min El Weir Flow (m)	13.28	Hydr Depth (m)	1.65
1.68			
Min El Prs (m)	12.69	W.P. Total (m)	17.78
17.75			
Delta EG (m)	0.00	Conv. Total (m3/s)	2433.7
2480.8			
Delta WS (m)	0.00	Top Width (m)	16.59
16.51			
BR Open Area (m2)	37.31	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.37	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.25
0.25			
BR Sel Method	Energy only	Power Total (N/m s)	0.09
0.09			

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.58	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.57	E.G. Elev (m)	12.58
12.58			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.57
12.57			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.52
10.50			
Q Weir (m3/s)		Max Chl Dpth (m)	2.50
2.52			
Weir Sta Lft (m)		Vel Total (m/s)	0.28
0.28			
Weir Sta Rgt (m)		Flow Area (m2)	35.15
35.40			
Weir Submerg		Froude # Chl	0.07
0.06			
Weir Max Depth (m)		Specif Force (m3)	40.13
40.85			
Min El Weir Flow (m)	13.28	Hydr Depth (m)	1.95
1.98			
Min El Prs (m)	12.69	W.P. Total (m)	19.46
19.39			
Delta EG (m)	0.00	Conv. Total (m3/s)	3474.7
3525.2			
Delta WS (m)	0.00	Top Width (m)	18.02
17.88			
BR Open Area (m2)	37.31	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.28	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.15
0.14			
BR Sel Method	Energy only	Power Total (N/m s)	0.04
0.04			

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.48	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.44	E.G. Elev (m)	12.46
12.46			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.43
12.43			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.93
10.91			
Q Weir (m3/s)		Max Chl Dpth (m)	2.36
2.38			
Weir Sta Lft (m)		Vel Total (m/s)	0.83
0.82			
Weir Sta Rgt (m)		Flow Area (m2)	32.61
32.88			

Weir Submerg		Froude # Ch1	0.19
0.19			
Weir Max Depth (m)		Specif Force (m3)	37.29
37.96			
Min El Weir Flow (m)	13.28	Hydr Depth (m)	1.86
1.88			
Min El Prs (m)	12.69	W.P. Total (m)	18.93
18.87			
Delta EG (m)	0.01	Conv. Total (m3/s)	3123.9
3174.1			
Delta WS (m)	0.01	Top Width (m)	17.57
17.44			
BR Open Area (m2)	37.31	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.83	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.26
1.24			
BR Sel Method	Energy only	Power Total (N/m s)	1.04
1.02			

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)		Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.62	E.G. Elev (m)	12.63
12.63			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.61
12.61			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.93
10.91			
Q Weir (m3/s)		Max Ch1 Dpth (m)	2.54
2.56			
Weir Sta Lft (m)		Vel Total (m/s)	0.75
0.75			
Weir Sta Rgt (m)		Flow Area (m2)	35.78
36.02			
Weir Submerg		Froude # Ch1	0.17
0.17			
Weir Max Depth (m)		Specif Force (m3)	43.16
43.88			
Min El Weir Flow (m)	13.28	Hydr Depth (m)	1.97
2.00			
Min El Prs (m)	12.69	W.P. Total (m)	19.60
19.52			
Delta EG (m)	0.01	Conv. Total (m3/s)	3563.3
3614.0			
Delta WS (m)	0.01	Top Width (m)	18.13
17.99			
BR Open Area (m2)	37.31	Frctn Loss (m)	0.00
0.00			

BR Open Vel (m/s)	0.75	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.03
1.01			
BR Sel Method	Energy only	Power Total (N/m s)	0.78
0.76			

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.93	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.91	E.G. Elev (m)	12.92
12.92			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.89
12.89			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.93
10.91			
Q Weir (m3/s)		Max Chl Dpth (m)	2.82
2.84			
Weir Sta Lft (m)		Vel Total (m/s)	0.72
0.72			
Weir Sta Rgt (m)		Flow Area (m2)	37.31
37.55			
Weir Submerg		Froude # Chl	0.14
0.14			
Weir Max Depth (m)		Specif Force (m3)	53.63
54.40			
Min El Weir Flow (m)	13.28	Hydr Depth (m)	
Min El Prs (m)	12.69	W.P. Total (m)	38.31
38.06			
Delta EG (m)	0.01	Conv. Total (m3/s)	2444.3
2480.3			
Delta WS (m)	0.01	Top Width (m)	
BR Open Area (m2)	37.31	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.72	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.17
1.15			
BR Sel Method	Energy only	Power Total (N/m s)	0.84
0.82			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 54

INPUT

Description:

Station Elevation Data									
Sta		Elev		Sta		Elev		Sta	
0	13.2824	2.8808	13.3607	4.7562	13.3153	4.7562	13.4032	5.2869	13.4032
10.2294	10.0494	15.3893	10.0489	20.4178	10.0484	26.0979	13.6533	27.1413	13.6533
27.1413	13.5767	27.1965	13.5793	29.4211	13.5276	33.6337	13.5276	38.442	13.2757

Manning's n Values					
Sta		n Val		Sta	
0	.015	5.2869	.015	26.0979	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	5.2869	26.0979	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.75	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.74	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.55
E.G. Slope (m/m)	0.000034	Area (m2)		21.55
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.34	Top Width (m)		15.34
Vel Total (m/s)	0.46	Avg. Vel. (m/s)		0.46
Max Chl Dpth (m)	1.69	Hydr. Depth (m)		1.40
Conv. Total (m3/s)	1726.9	Conv. (m3/s)		1726.9
Length Wtd. (m)	200.00	Wetted Per. (m)		16.35
Min Ch El (m)	10.05	Shear (N/m2)		0.43
Alpha	1.00	Stream Power (N/m s)		0.20
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		274.26
C & E Loss (m)	0.00	Cum SA (1000 m2)		166.91

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.13	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.12	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		27.67
E.G. Slope (m/m)	0.000016	Area (m2)		27.67
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.51	Top Width (m)		16.51
Vel Total (m/s)	0.36	Avg. Vel. (m/s)		0.36
Max Chl Dpth (m)	2.07	Hydr. Depth (m)		1.68
Conv. Total (m3/s)	2480.5	Conv. (m3/s)		2480.5
Length Wtd. (m)	200.00	Wetted Per. (m)		17.75
Min Ch El (m)	10.05	Shear (N/m2)		0.25
Alpha	1.00	Stream Power (N/m s)		0.09
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		351.48
C & E Loss (m)	0.00	Cum SA (1000 m2)		179.55

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.40
E.G. Slope (m/m)	0.000008	Area (m2)		35.40
Q Total (m3/s)	10.00	Flow (m3/s)		10.00

Top Width (m)	17.88	Top Width (m)	17.88
Vel Total (m/s)	0.28	Avg. Vel. (m/s)	0.28
Max Chl Dpth (m)	2.52	Hydr. Depth (m)	1.98
Conv. Total (m3/s)	3525.0	Conv. (m3/s)	3525.0
Length Wtd. (m)	200.00	Wetted Per. (m)	19.39
Min Ch El (m)	10.05	Shear (N/m2)	0.14
Alpha	1.00	Stream Power (N/m s)	0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00 439.28
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00 189.97

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.46	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.43	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.87
E.G. Slope (m/m)	0.000072	Area (m2)		32.87
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.44	Top Width (m)		17.44
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3172.6	Conv. (m3/s)		3172.6
Length Wtd. (m)	200.00	Wetted Per. (m)		18.87
Min Ch El (m)	10.05	Shear (N/m2)		1.24
Alpha	1.00	Stream Power (N/m s)		1.02
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		340.83
C & E Loss (m)	0.00	Cum SA (1000 m2)		178.11

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.63	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.61	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		36.02
E.G. Slope (m/m)	0.000056	Area (m2)		36.02
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.99	Top Width (m)		17.99
Vel Total (m/s)	0.75	Avg. Vel. (m/s)		0.75
Max Chl Dpth (m)	2.56	Hydr. Depth (m)		2.00
Conv. Total (m3/s)	3612.9	Conv. (m3/s)		3612.9
Length Wtd. (m)	200.00	Wetted Per. (m)		19.51
Min Ch El (m)	10.05	Shear (N/m2)		1.01
Alpha	1.00	Stream Power (N/m s)		0.76
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		396.77
C & E Loss (m)	0.00	Cum SA (1000 m2)		186.08

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.92	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.89	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		41.34
E.G. Slope (m/m)	0.000038	Area (m2)		41.34
Q Total (m3/s)	27.00	Flow (m3/s)		27.00

Top Width (m)	18.87	Top Width (m)		18.87
Vel Total (m/s)	0.65	Avg. Vel. (m/s)		0.65
Max Chl Dpth (m)	2.85	Hydr. Depth (m)		2.19
Conv. Total (m3/s)	4389.0	Conv. (m3/s)		4389.0
Length Wtd. (m)	200.00	Wetted Per. (m)		20.57
Min Ch El (m)	10.05	Shear (N/m2)		0.75
Alpha	1.00	Stream Power (N/m s)		0.49
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	469.28
0.07				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	190.96
0.72				

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 53

INPUT

Description: Opera 6

Station Elevation Data		num=		14							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.1091	2.4601	13.2515	4.5795	13.3156	4.5795	13.2225	5.1087	13.3156		
10.2503	10.0335	15.2603	10.0332	20.1936	10.0329	25.588	13.3532	26.1867	13.2532		
26.1867	13.3532	26.2212	13.2532	26.5698	13.2377	30.7179	13.0321				

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
0	.015	5.1087	.015	25.588	.015

Bank Sta:	Left	Right	Lengths:		Left Channel	Right	Coeff Contr.	
Expan.								
	5.1087	25.588			200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.74	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.73	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.47

E.G. Slope (m/m)	0.000034	Area (m2)	21.47
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	15.36	Top Width (m)	15.36
Vel Total (m/s)	0.47	Avg. Vel. (m/s)	0.47
Max Chl Dpth (m)	1.70	Hydr. Depth (m)	1.40
Conv. Total (m3/s)	1717.6	Conv. (m3/s)	1717.6
Length Wtd. (m)	200.00	Wetted Per. (m)	16.34
Min Ch El (m)	10.03	Shear (N/m2)	0.44
Alpha	1.00	Stream Power (N/m s)	0.20
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	269.96
C & E Loss (m)	0.00	Cum SA (1000 m2)	163.84

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.13	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.12	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		27.68
E.G. Slope (m/m)	0.000016	Area (m2)		27.68
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.60	Top Width (m)		16.60
Vel Total (m/s)	0.36	Avg. Vel. (m/s)		0.36
Max Chl Dpth (m)	2.09	Hydr. Depth (m)		1.67
Conv. Total (m3/s)	2476.5	Conv. (m3/s)		2476.5
Length Wtd. (m)	200.00	Wetted Per. (m)		17.80
Min Ch El (m)	10.03	Shear (N/m2)		0.25
Alpha	1.00	Stream Power (N/m s)		0.09

Frctn Loss (m)	0.00	Cum Volume (1000 m3)	345.94
C & E Loss (m)	0.00	Cum SA (1000 m2)	176.24

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.48
E.G. Slope (m/m)	0.000008	Area (m2)		35.48
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.04	Top Width (m)		18.04
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.54	Hydr. Depth (m)		1.97
Conv. Total (m3/s)	3526.4	Conv. (m3/s)		3526.4
Length Wtd. (m)	200.00	Wetted Per. (m)		19.50
Min Ch El (m)	10.03	Shear (N/m2)		0.14
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	432.20
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	186.38

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.45	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.41	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.70

E.G. Slope (m/m)	0.000074	Area (m2)	32.70
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	17.54	Top Width (m)	17.54
Vel Total (m/s)	0.83	Avg. Vel. (m/s)	0.83
Max Chl Dpth (m)	2.38	Hydr. Depth (m)	1.86
Conv. Total (m3/s)	3140.9	Conv. (m3/s)	3140.9
Length Wtd. (m)	200.00	Wetted Per. (m)	18.91
Min Ch El (m)	10.03	Shear (N/m2)	1.25
Alpha	1.00	Stream Power (N/m s)	1.03
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	334.27
C & E Loss (m)	0.00	Cum SA (1000 m2)	174.61

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.62	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.59	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.93
E.G. Slope (m/m)	0.000057	Area (m2)		35.93
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.12	Top Width (m)		18.12
Vel Total (m/s)	0.75	Avg. Vel. (m/s)		0.75
Max Chl Dpth (m)	2.56	Hydr. Depth (m)		1.98
Conv. Total (m3/s)	3589.4	Conv. (m3/s)		3589.4
Length Wtd. (m)	200.00	Wetted Per. (m)		19.59
Min Ch El (m)	10.03	Shear (N/m2)		1.02
Alpha	1.00	Stream Power (N/m s)		0.76

Frctn Loss (m)	0.01	Cum Volume (1000 m3)	389.57
C & E Loss (m)	0.00	Cum SA (1000 m2)	182.47

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.91	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.89	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		41.37
E.G. Slope (m/m)	0.000038	Area (m2)		41.37
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.05	Top Width (m)		19.05
Vel Total (m/s)	0.65	Avg. Vel. (m/s)		0.65
Max Chl Dpth (m)	2.85	Hydr. Depth (m)		2.17
Conv. Total (m3/s)	4376.9	Conv. (m3/s)		4376.9
Length Wtd. (m)	200.00	Wetted Per. (m)		20.69
Min Ch El (m)	10.03	Shear (N/m2)		0.75
Alpha	1.00	Stream Power (N/m s)		0.49
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	461.01
0.07				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.63	187.17
0.72				

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 52

INPUT

Description:

Station Elevation Data	num=	14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
9.4302 12.8249 12.0545 13.1916 12.4092 13.203 12.9813 13.1687 14.6668 13.1864		

14.6668 13.2916 15.1951 13.2916 20.5172 10.0201 25.3979 10.0198 30.4346 10.0194
 35.6015 13.4411 36.0841 13.4411 36.0841 13.3423 40.697 13.1284

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 9.4302 .015 15.1951 .015 35.6015 .015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan. 15.1951 35.6015 200 200 200 .0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.73	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.72	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.45
E.G. Slope (m/m)	0.000034	Area (m2)		21.45
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.26	Top Width (m)		15.26
Vel Total (m/s)	0.47	Avg. Vel. (m/s)		0.47
Max Chl Dpth (m)	1.70	Hydr. Depth (m)		1.41
Conv. Total (m3/s)	1720.3	Conv. (m3/s)		1720.3
Length Wtd. (m)	200.00	Wetted Per. (m)		16.26
Min Ch El (m)	10.02	Shear (N/m2)		0.44
Alpha	1.00	Stream Power (N/m s)		0.20
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		265.67
C & E Loss (m)	0.00	Cum SA (1000 m2)		160.78

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.12	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015

W.S. Elev (m)	12.12	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		27.67
E.G. Slope (m/m)	0.000016	Area (m2)		27.67
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.49	Top Width (m)		16.49
Vel Total (m/s)	0.36	Avg. Vel. (m/s)		0.36
Max Chl Dpth (m)	2.10	Hydr. Depth (m)		1.68
Conv. Total (m3/s)	2483.5	Conv. (m3/s)		2483.5
Length Wtd. (m)	200.00	Wetted Per. (m)		17.71
Min Ch El (m)	10.02	Shear (N/m2)		0.25
Alpha	1.00	Stream Power (N/m s)		0.09
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		340.41
C & E Loss (m)	0.00	Cum SA (1000 m2)		172.93

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.45
E.G. Slope (m/m)	0.000008	Area (m2)		35.45
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.91	Top Width (m)		17.91
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.55	Hydr. Depth (m)		1.98
Conv. Total (m3/s)	3533.3	Conv. (m3/s)		3533.3
Length Wtd. (m)	200.00	Wetted Per. (m)		19.40

Min Ch El (m)	10.02	Shear (N/m2)		0.14
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	425.10
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	182.78

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.43	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.40	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.45
E.G. Slope (m/m)	0.000075	Area (m2)		32.45
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.38	Top Width (m)		17.38
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.87
Conv. Total (m3/s)	3116.5	Conv. (m3/s)		3116.5
Length Wtd. (m)	200.00	Wetted Per. (m)		18.76
Min Ch El (m)	10.02	Shear (N/m2)		1.27
Alpha	1.00	Stream Power (N/m s)		1.06
Frctn Loss (m)	0.02	Cum Volume (1000 m3)		327.76
C & E Loss (m)	0.00	Cum SA (1000 m2)		171.12

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015

W.S. Elev (m)	12.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.72
E.G. Slope (m/m)	0.000057	Area (m2)		35.72
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.96	Top Width (m)		17.96
Vel Total (m/s)	0.76	Avg. Vel. (m/s)		0.76
Max Chl Dpth (m)	2.56	Hydr. Depth (m)		1.99
Conv. Total (m3/s)	3570.3	Conv. (m3/s)		3570.3
Length Wtd. (m)	200.00	Wetted Per. (m)		19.45
Min Ch El (m)	10.02	Shear (N/m2)		1.03
Alpha	1.00	Stream Power (N/m s)		0.78
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		382.41
C & E Loss (m)	0.00	Cum SA (1000 m2)		178.86

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.90	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.015	0.015
W.S. Elev (m)	12.88	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	0.01	41.18
E.G. Slope (m/m)	0.000038	Area (m2)	0.01	41.18
Q Total (m3/s)	27.00	Flow (m3/s)	0.00	27.00
Top Width (m)	19.27	Top Width (m)	0.39	18.89
Vel Total (m/s)	0.66	Avg. Vel. (m/s)	0.03	0.66
Max Chl Dpth (m)	2.86	Hydr. Depth (m)	0.03	2.18
Conv. Total (m3/s)	4362.4	Conv. (m3/s)	0.1	4362.3
Length Wtd. (m)	200.00	Wetted Per. (m)	0.45	20.56

Min Ch El (m)	10.02	Shear (N/m2)	0.01	0.75
Alpha	1.00	Stream Power (N/m s)	0.00	0.49
Frctn Loss (m) 0.07	0.01	Cum Volume (1000 m3)	0.04	452.76
C & E Loss (m) 0.72	0.00	Cum SA (1000 m2)	0.59	183.38

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 51

INPUT

Description:

Station Elevation Data		num=		16					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.6938	13.1175	9.8664	13.4467	11.6666	13.4469	12.7629	13.3968	12.7629	13.4739
13.3125	13.4739	18.8654	10.0066	23.7806	10.0063	28.7677	10.006	34.0718	13.4296
34.9219	13.4296	34.9219	13.3232	36.4717	13.3035	37.4686	13.2946	37.9539	13.2064
39.5419	13.2417								

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
7.6938	.015	13.3125	.015	34.0718	.015

Bank Sta:	Left	Right	Lengths:		Left Channel	Right	Coeff Contr.	
Expan.								
	13.3125	34.0718		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.73	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.72	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.55
E.G. Slope (m/m)	0.000033	Area (m2)		21.55
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.29	Top Width (m)		15.29

Vel Total (m/s)	0.46	Avg. Vel. (m/s)	0.46
Max Chl Dpth (m)	1.71	Hydr. Depth (m)	1.41
Conv. Total (m3/s)	1731.4	Conv. (m3/s)	1731.4
Length Wtd. (m)	200.00	Wetted Per. (m)	16.29
Min Ch El (m)	10.01	Shear (N/m2)	0.43
Alpha	1.00	Stream Power (N/m s)	0.20
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	261.37
C & E Loss (m)	0.00	Cum SA (1000 m2)	157.72

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.12	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.11	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		27.84
E.G. Slope (m/m)	0.000016	Area (m2)		27.84
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.54	Top Width (m)		16.54
Vel Total (m/s)	0.36	Avg. Vel. (m/s)		0.36
Max Chl Dpth (m)	2.11	Hydr. Depth (m)		1.68
Conv. Total (m3/s)	2504.4	Conv. (m3/s)		2504.4
Length Wtd. (m)	200.00	Wetted Per. (m)		17.76
Min Ch El (m)	10.01	Shear (N/m2)		0.25
Alpha	1.00	Stream Power (N/m s)		0.09
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		334.86
C & E Loss (m)	0.00	Cum SA (1000 m2)		169.63

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.67
E.G. Slope (m/m)	0.000008	Area (m2)		35.67
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.97	Top Width (m)		17.97
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.56	Hydr. Depth (m)		1.99
Conv. Total (m3/s)	3562.8	Conv. (m3/s)		3562.8
Length Wtd. (m)	200.00	Wetted Per. (m)		19.46
Min Ch El (m)	10.01	Shear (N/m2)		0.14
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	417.99
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	179.19

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.42	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.38	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.42
E.G. Slope (m/m)	0.000075	Area (m2)		32.42
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.39	Top Width (m)		17.39

Vel Total (m/s)	0.83	Avg. Vel. (m/s)	0.83
Max Chl Dpth (m)	2.38	Hydr. Depth (m)	1.86
Conv. Total (m3/s)	3111.8	Conv. (m3/s)	3111.8
Length Wtd. (m)	200.00	Wetted Per. (m)	18.77
Min Ch El (m)	10.01	Shear (N/m2)	1.28
Alpha	1.00	Stream Power (N/m s)	1.06
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	321.27
C & E Loss (m)	0.00	Cum SA (1000 m2)	167.64

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.76
E.G. Slope (m/m)	0.000057	Area (m2)		35.76
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.98	Top Width (m)		17.98
Vel Total (m/s)	0.76	Avg. Vel. (m/s)		0.76
Max Chl Dpth (m)	2.57	Hydr. Depth (m)		1.99
Conv. Total (m3/s)	3574.9	Conv. (m3/s)		3574.9
Length Wtd. (m)	200.00	Wetted Per. (m)		19.47
Min Ch El (m)	10.01	Shear (N/m2)		1.03
Alpha	1.00	Stream Power (N/m s)		0.78
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		375.26
C & E Loss (m)	0.00	Cum SA (1000 m2)		175.27

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.89	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.87	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		41.30
E.G. Slope (m/m)	0.000038	Area (m2)		41.30
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.93	Top Width (m)		18.93
Vel Total (m/s)	0.65	Avg. Vel. (m/s)		0.65
Max Chl Dpth (m)	2.87	Hydr. Depth (m)		2.18
Conv. Total (m3/s)	4379.0	Conv. (m3/s)		4379.0
Length Wtd. (m)	200.00	Wetted Per. (m)		20.59
Min Ch El (m)	10.01	Shear (N/m2)		0.75
Alpha	1.00	Stream Power (N/m s)		0.49
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	444.51
0.07				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	179.60
0.72				

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 50

INPUT

Description:

Station Elevation Data		num= 15	
Sta	Elev	Sta	Elev
6.0099	13.0715	7.5778	13.3439
12.2394	13.5642	17.8005	9.9932
33.4634	13.37	33.4634	13.4656

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val

6.0099 .015 12.2394 .015 32.9332 .015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	12.2394	32.9332		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.72	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.71	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.52
E.G. Slope (m/m)	0.000033	Area (m2)		21.52
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.16	Top Width (m)		15.16
Vel Total (m/s)	0.46	Avg. Vel. (m/s)		0.46
Max Chl Dpth (m)	1.72	Hydr. Depth (m)		1.42
Conv. Total (m3/s)	1734.9	Conv. (m3/s)		1734.9
Length Wtd. (m)	200.00	Wetted Per. (m)		16.18
Min Ch El (m)	9.99	Shear (N/m2)		0.43
Alpha	1.00	Stream Power (N/m s)		0.20
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		257.06
C & E Loss (m)	0.00	Cum SA (1000 m2)		154.67

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.12	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.11	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		27.81
E.G. Slope (m/m)	0.000016	Area (m2)		27.81

Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	16.38	Top Width (m)	16.38
Vel Total (m/s)	0.36	Avg. Vel. (m/s)	0.36
Max Chl Dpth (m)	2.12	Hydr. Depth (m)	1.70
Conv. Total (m3/s)	2511.4	Conv. (m3/s)	2511.4
Length Wtd. (m)	200.00	Wetted Per. (m)	17.64
Min Ch El (m)	9.99	Shear (N/m2)	0.25
Alpha	1.00	Stream Power (N/m s)	0.09
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	329.29
C & E Loss (m)	0.00	Cum SA (1000 m2)	166.33

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.60
E.G. Slope (m/m)	0.000008	Area (m2)		35.60
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.78	Top Width (m)		17.78
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.57	Hydr. Depth (m)		2.00
Conv. Total (m3/s)	3567.7	Conv. (m3/s)		3567.7
Length Wtd. (m)	200.00	Wetted Per. (m)		19.31
Min Ch El (m)	9.99	Shear (N/m2)		0.14
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	410.86

C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	175.62
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CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.40	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.37	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.13
E.G. Slope (m/m)	0.000077	Area (m2)		32.13
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.17	Top Width (m)		17.17
Vel Total (m/s)	0.84	Avg. Vel. (m/s)		0.84
Max Chl Dpth (m)	2.37	Hydr. Depth (m)		1.87
Conv. Total (m3/s)	3085.9	Conv. (m3/s)		3085.9
Length Wtd. (m)	200.00	Wetted Per. (m)		18.59
Min Ch El (m)	9.99	Shear (N/m2)		1.30
Alpha	1.00	Stream Power (N/m s)		1.09
Frctn Loss (m)	0.02	Cum Volume (1000 m3)		314.82
C & E Loss (m)	0.00	Cum SA (1000 m2)		164.19

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.50
E.G. Slope (m/m)	0.000058	Area (m2)		35.50

Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	17.76	Top Width (m)	17.76
Vel Total (m/s)	0.76	Avg. Vel. (m/s)	0.76
Max Chl Dpth (m)	2.57	Hydr. Depth (m)	2.00
Conv. Total (m3/s)	3553.6	Conv. (m3/s)	3553.6
Length Wtd. (m)	200.00	Wetted Per. (m)	19.29
Min Ch El (m)	9.99	Shear (N/m2)	1.04
Alpha	1.00	Stream Power (N/m s)	0.79
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	368.14
C & E Loss (m)	0.00	Cum SA (1000 m2)	171.70

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.89	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.86	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		41.05
E.G. Slope (m/m)	0.000038	Area (m2)		41.05
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.70	Top Width (m)		18.70
Vel Total (m/s)	0.66	Avg. Vel. (m/s)		0.66
Max Chl Dpth (m)	2.87	Hydr. Depth (m)		2.20
Conv. Total (m3/s)	4360.5	Conv. (m3/s)		4360.5
Length Wtd. (m)	200.00	Wetted Per. (m)		20.40
Min Ch El (m)	9.99	Shear (N/m2)		0.76
Alpha	1.00	Stream Power (N/m s)		0.50
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	436.27

0.07				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	175.83
0.72				

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 49

INPUT
 Description:
 Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6.1878	13.2676	8.6556	13.3672	9.1701	13.4707	9.5248	13.4592	10.0511	13.3563
11.3064	13.3651	11.3064	13.4687	12.1527	13.4687	17.3226	9.9798	22.3478	9.9794
27.3745	9.9791	32.5194	13.2578	33.0485	13.2578	33.0485	13.1126	33.8772	13.1913
34.3772	13.1716	34.8838	13.2439	35.2325	13.2373	38.7572	13.1241		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6.1878	.015	12.1527	.015	32.5194	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	12.1527	32.5194		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.71	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.70	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.87
E.G. Slope (m/m)	0.000032	Area (m2)		21.87
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.31	Top Width (m)		15.31
Vel Total (m/s)	0.46	Avg. Vel. (m/s)		0.46
Max Chl Dpth (m)	1.72	Hydr. Depth (m)		1.43
Conv. Total (m3/s)	1770.6	Conv. (m3/s)		1770.6
Length Wtd. (m)	200.00	Wetted Per. (m)		16.34

Min Ch El (m)	9.98	Shear (N/m2)	0.42
Alpha	1.00	Stream Power (N/m s)	0.19
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	252.72
C & E Loss (m)	0.00	Cum SA (1000 m2)	151.63

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.11	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.11	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		28.28
E.G. Slope (m/m)	0.000015	Area (m2)		28.28
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.54	Top Width (m)		16.54
Vel Total (m/s)	0.35	Avg. Vel. (m/s)		0.35
Max Chl Dpth (m)	2.13	Hydr. Depth (m)		1.71
Conv. Total (m3/s)	2565.3	Conv. (m3/s)		2565.3
Length Wtd. (m)	200.00	Wetted Per. (m)		17.81
Min Ch El (m)	9.98	Shear (N/m2)		0.24
Alpha	1.00	Stream Power (N/m s)		0.08
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		323.68
C & E Loss (m)	0.00	Cum SA (1000 m2)		163.04

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015

W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		36.16
E.G. Slope (m/m)	0.000008	Area (m2)		36.16
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.93	Top Width (m)		17.93
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.58	Hydr. Depth (m)		2.02
Conv. Total (m3/s)	3640.6	Conv. (m3/s)		3640.6
Length Wtd. (m)	200.00	Wetted Per. (m)		19.48
Min Ch El (m)	9.98	Shear (N/m2)		0.14
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	403.69
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	172.05

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.39	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.35	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.44
E.G. Slope (m/m)	0.000075	Area (m2)		32.44
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.29	Top Width (m)		17.29
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83
Max Chl Dpth (m)	2.37	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3120.8	Conv. (m3/s)		3120.8
Length Wtd. (m)	200.00	Wetted Per. (m)		18.71

Min Ch El (m)	9.98	Shear (N/m2)	1.27
Alpha	1.00	Stream Power (N/m s)	1.06
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	308.36
C & E Loss (m)	0.00	Cum SA (1000 m2)	160.74

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.89
E.G. Slope (m/m)	0.000056	Area (m2)		35.89
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.89	Top Width (m)		17.89
Vel Total (m/s)	0.75	Avg. Vel. (m/s)		0.75
Max Chl Dpth (m)	2.57	Hydr. Depth (m)		2.01
Conv. Total (m3/s)	3602.4	Conv. (m3/s)		3602.4
Length Wtd. (m)	200.00	Wetted Per. (m)		19.42
Min Ch El (m)	9.98	Shear (N/m2)		1.02
Alpha	1.00	Stream Power (N/m s)		0.77
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		361.00
C & E Loss (m)	0.00	Cum SA (1000 m2)		168.13

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.88	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015

W.S. Elev (m)	12.86	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		41.54
E.G. Slope (m/m)	0.000037	Area (m2)		41.54
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.83	Top Width (m)		18.83
Vel Total (m/s)	0.65	Avg. Vel. (m/s)		0.65
Max Chl Dpth (m)	2.88	Hydr. Depth (m)		2.21
Conv. Total (m3/s)	4428.4	Conv. (m3/s)		4428.4
Length Wtd. (m)	200.00	Wetted Per. (m)		20.55
Min Ch El (m)	9.98	Shear (N/m2)		0.74
Alpha	1.00	Stream Power (N/m s)		0.48
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	428.01
0.07				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	172.08
0.72				

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 48

INPUT

Description:

Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.3427	2.0574	13.3427	3.4663	13.4407	3.4663	13.5407	4.8751	13.5407
10.1739	9.9617	15.2167	9.9609	20.0416	9.9606	26.0839	13.6782	27.7184	13.6782
27.7184	13.5757	29.4802	13.5669	31.1161	13.6122	31.7125	13.511	32.579	13.286
34.9421	13.3647	38.5292	13.3765						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.015	4.8751	.015	26.0839	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	4.8751	26.0839		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.71	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.70	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.82
E.G. Slope (m/m)	0.000032	Area (m2)		21.82
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.26	Top Width (m)		15.26
Vel Total (m/s)	0.46	Avg. Vel. (m/s)		0.46
Max Chl Dpth (m)	1.74	Hydr. Depth (m)		1.43
Conv. Total (m3/s)	1767.7	Conv. (m3/s)		1767.7
Length Wtd. (m)	200.00	Wetted Per. (m)		16.28
Min Ch El (m)	9.96	Shear (N/m2)		0.42
Alpha	1.00	Stream Power (N/m s)		0.19
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		248.35
C & E Loss (m)	0.00	Cum SA (1000 m2)		148.57

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.11	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.10	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		28.26
E.G. Slope (m/m)	0.000015	Area (m2)		28.26
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.52	Top Width (m)		16.52
Vel Total (m/s)	0.35	Avg. Vel. (m/s)		0.35
Max Chl Dpth (m)	2.14	Hydr. Depth (m)		1.71

Conv. Total (m3/s)	2565.9	Conv. (m3/s)	2565.9
Length Wtd. (m)	200.00	Wetted Per. (m)	17.78
Min Ch El (m)	9.96	Shear (N/m2)	0.24
Alpha	1.00	Stream Power (N/m s)	0.08
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	318.03
C & E Loss (m)	0.00	Cum SA (1000 m2)	159.74

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		36.17
E.G. Slope (m/m)	0.000008	Area (m2)		36.17
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.94	Top Width (m)		17.94
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.60	Hydr. Depth (m)		2.02
Conv. Total (m3/s)	3642.5	Conv. (m3/s)		3642.5
Length Wtd. (m)	200.00	Wetted Per. (m)		19.48
Min Ch El (m)	9.96	Shear (N/m2)		0.14
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	396.46
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	168.46

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.37	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.34	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.20
E.G. Slope (m/m)	0.000076	Area (m2)		32.20
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.24	Top Width (m)		17.24
Vel Total (m/s)	0.84	Avg. Vel. (m/s)		0.84
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.87
Conv. Total (m3/s)	3090.1	Conv. (m3/s)		3090.1
Length Wtd. (m)	200.00	Wetted Per. (m)		18.64
Min Ch El (m)	9.96	Shear (N/m2)		1.29
Alpha	1.00	Stream Power (N/m s)		1.08
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		301.90
C & E Loss (m)	0.00	Cum SA (1000 m2)		157.29

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.72
E.G. Slope (m/m)	0.000057	Area (m2)		35.72
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.87	Top Width (m)		17.87
Vel Total (m/s)	0.76	Avg. Vel. (m/s)		0.76
Max Chl Dpth (m)	2.58	Hydr. Depth (m)		2.00

Conv. Total (m3/s)	3578.7	Conv. (m3/s)	3578.7
Length Wtd. (m)	200.00	Wetted Per. (m)	19.38
Min Ch El (m)	9.96	Shear (N/m2)	1.03
Alpha	1.00	Stream Power (N/m s)	0.78
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	353.84
C & E Loss (m)	0.00	Cum SA (1000 m2)	164.55

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.87	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.85	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		41.45
E.G. Slope (m/m)	0.000037	Area (m2)		41.45
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.84	Top Width (m)		18.84
Vel Total (m/s)	0.65	Avg. Vel. (m/s)		0.65
Max Chl Dpth (m)	2.89	Hydr. Depth (m)		2.20
Conv. Total (m3/s)	4412.3	Conv. (m3/s)		4412.3
Length Wtd. (m)	200.00	Wetted Per. (m)		20.54
Min Ch El (m)	9.96	Shear (N/m2)		0.74
Alpha	1.00	Stream Power (N/m s)		0.48
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	419.71
0.07				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	168.31
0.72				

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 47

INPUT

Description:

Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.3642	13.8709	12.1018	13.9021	13.0504	13.9896	14.758	13.9458	15.6445	13.9738
15.6445	14.0896	16.8882	14.0896	22.5598	9.9315	28.0289	9.9307	33.197	9.9299
39.4389	13.9271	40.5235	13.9271	40.5235	13.8474	40.9529	13.8648	43.5961	13.8852
44.0076	13.9417	45.3039	14.0292	49.4045	14.1706				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.3642	.015	16.8882	.015	39.4389	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	16.8882	39.4389		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.70	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.69	Reach Len. (m)	97.50	97.50
97.50				
Crit W.S. (m)	10.37	Flow Area (m2)		23.29
E.G. Slope (m/m)	0.000027	Area (m2)		23.29
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.79	Top Width (m)		15.79
Vel Total (m/s)	0.43	Avg. Vel. (m/s)		0.43
Max Chl Dpth (m)	1.76	Hydr. Depth (m)		1.47
Conv. Total (m3/s)	1923.7	Conv. (m3/s)		1923.7
Length Wtd. (m)	97.50	Wetted Per. (m)		16.89
Min Ch El (m)	9.93	Shear (N/m2)		0.37
Alpha	1.00	Stream Power (N/m s)		0.16
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		243.84
C & E Loss (m)	0.00	Cum SA (1000 m2)		145.46

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.11	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.10	Reach Len. (m)	97.50	97.50
97.50				
Crit W.S. (m)	10.37	Flow Area (m2)		29.98
E.G. Slope (m/m)	0.000013	Area (m2)		29.98
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.99	Top Width (m)		16.99
Vel Total (m/s)	0.33	Avg. Vel. (m/s)		0.33
Max Chl Dpth (m)	2.17	Hydr. Depth (m)		1.76
Conv. Total (m3/s)	2773.6	Conv. (m3/s)		2773.6
Length Wtd. (m)	97.50	Wetted Per. (m)		18.33
Min Ch El (m)	9.93	Shear (N/m2)		0.21
Alpha	1.00	Stream Power (N/m s)		0.07
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		312.21
C & E Loss (m)	0.00	Cum SA (1000 m2)		156.39

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.56	Reach Len. (m)	97.50	97.50
97.50				
Crit W.S. (m)	10.37	Flow Area (m2)		38.10
E.G. Slope (m/m)	0.000007	Area (m2)		38.10
Q Total (m3/s)	10.00	Flow (m3/s)		10.00

Top Width (m)	18.33	Top Width (m)	18.33
Vel Total (m/s)	0.26	Avg. Vel. (m/s)	0.26
Max Chl Dpth (m)	2.63	Hydr. Depth (m)	2.08
Conv. Total (m3/s)	3907.3	Conv. (m3/s)	3907.3
Length Wtd. (m)	97.50	Wetted Per. (m)	19.96
Min Ch El (m)	9.93	Shear (N/m2)	0.12
Alpha	1.00	Stream Power (N/m s)	0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00 389.03
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00 164.83

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.36	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.33	Reach Len. (m)	97.50	97.50
97.50				
Crit W.S. (m)	10.76	Flow Area (m2)		33.86
E.G. Slope (m/m)	0.000067	Area (m2)		33.86
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.64	Top Width (m)		17.64
Vel Total (m/s)	0.80	Avg. Vel. (m/s)		0.80
Max Chl Dpth (m)	2.40	Hydr. Depth (m)		1.92
Conv. Total (m3/s)	3303.7	Conv. (m3/s)		3303.7
Length Wtd. (m)	97.50	Wetted Per. (m)		19.13
Min Ch El (m)	9.93	Shear (N/m2)		1.16
Alpha	1.00	Stream Power (N/m s)		0.92
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		295.29
C & E Loss (m)	0.00	Cum SA (1000 m2)		153.80

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	97.50	97.50
97.50				
Crit W.S. (m)	10.76	Flow Area (m2)		37.51
E.G. Slope (m/m)	0.000050	Area (m2)		37.51
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.24	Top Width (m)		18.24
Vel Total (m/s)	0.72	Avg. Vel. (m/s)		0.72
Max Chl Dpth (m)	2.60	Hydr. Depth (m)		2.06
Conv. Total (m3/s)	3822.2	Conv. (m3/s)		3822.2
Length Wtd. (m)	97.50	Wetted Per. (m)		19.85
Min Ch El (m)	9.93	Shear (N/m2)		0.92
Alpha	1.00	Stream Power (N/m s)		0.67
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		346.51
C & E Loss (m)	0.00	Cum SA (1000 m2)		160.94

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.86	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.84	Reach Len. (m)	97.50	97.50
97.50				
Crit W.S. (m)	10.76	Flow Area (m2)		43.40
E.G. Slope (m/m)	0.000033	Area (m2)		43.40
Q Total (m3/s)	27.00	Flow (m3/s)		27.00

Top Width (m)	19.16	Top Width (m)	19.16	
Vel Total (m/s)	0.62	Avg. Vel. (m/s)	0.62	
Max Chl Dpth (m)	2.91	Hydr. Depth (m)	2.27	
Conv. Total (m3/s)	4699.3	Conv. (m3/s)	4699.3	
Length Wtd. (m)	97.50	Wetted Per. (m)	20.97	
Min Ch El (m)	9.93	Shear (N/m2)	0.67	
Alpha	1.00	Stream Power (N/m s)	0.42	
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.04	411.23
0.07				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	164.52
0.72				

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 46.5

INPUT
Description:
Distance from Upstream XS = 97.5
Deck/Roadway Width = 5
Weir Coefficient = 1.4
Upstream Deck/Roadway Coordinates
num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
14.8 15.46 14.37 41.81 15.46 14.37

Upstream Bridge Cross Section Data
Station Elevation Data num= 18
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
9.3642 13.8709 12.1018 13.9021 13.0504 13.9896 14.758 13.9458 15.6445 13.9738
15.6445 14.0896 16.8882 14.0896 22.5598 9.9315 28.0289 9.9307 33.197 9.9299
39.4389 13.9271 40.5235 13.9271 40.5235 13.8474 40.9529 13.8648 43.5961 13.8852
44.0076 13.9417 45.3039 14.0292 49.4045 14.1706

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
9.3642 .015 16.8882 .015 39.4389 .015

Bank Sta: Left Right Coeff Contr. Expan.
16.8882 39.4389 .0015 .01

Downstream Deck/Roadway Coordinates
num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
4.73	15.47	14.37			31.73	15.47	14.37		

Downstream Bridge Cross Section Data

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	14.1921	2.8482	14.1921	5.6804	13.9548	5.6804	14.0129	7.0139	14.0129
12.3601	9.9013	17.9542	9.9005	23.393	9.8996	28.714	13.6883	29.5195	13.6883
29.5195	13.6405	31.0744	13.803	32.0986	13.8591	36.9403	14.136		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.015	7.0139	.015	28.714	.015

Bank	Sta: Left	Right	Coeff	Contr.	Expan.
	7.0139	28.714	.0015		.01

Upstream Embankment side slope = 1.6 horiz. to 1.0 vertical
Downstream Embankment side slope = 1.6 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Piers = 2

Pier Data

Pier Station Upstream= 22.36 Downstream= 12.29

Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.91	.4	14.37	

Downstream	num=	2		
Width	Elev	Width	Elev	
.4	10.14	.4	14.37	

Pier Data

Pier Station Upstream= 33.97 Downstream= 23.9

Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.94	.4	14.37	

Downstream	num=	2		
Width	Elev	Width	Elev	
.4	10.14	.4	14.37	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.70	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.69	E.G. Elev (m)	11.70
11.70			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.69
11.69			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.37
10.34			
Q Weir (m3/s)		Max Chl Dpth (m)	1.76
1.79			
Weir Sta Lft (m)		Vel Total (m/s)	0.45
0.44			
Weir Sta Rgt (m)		Flow Area (m2)	22.07
22.80			
Weir Submerg		Froude # Chl	0.12
0.11			
Weir Max Depth (m)		Specif Force (m3)	18.70
19.67			
Min El Weir Flow (m)	13.87	Hydr Depth (m)	1.47
1.51			
Min El Prs (m)	14.37	W.P. Total (m)	21.65
22.31			
Delta EG (m)	0.01	Conv. Total (m3/s)	1490.3
1542.0			
Delta WS (m)	0.01	Top Width (m)	14.98
15.07			
BR Open Area (m2)	74.38	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.45	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.45
0.42			
BR Sel Method	Energy only	Power Total (N/m s)	0.20
0.18			

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.11	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.10	E.G. Elev (m)	12.10
12.10			

Q Total (m3/s)	10.00	W.S. Elev (m)	12.10
12.10			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.37
10.34			
Q Weir (m3/s)		Max Chl Dpth (m)	2.17
2.20			
Weir Sta Lft (m)		Vel Total (m/s)	0.35
0.34			
Weir Sta Rgt (m)		Flow Area (m2)	28.46
29.20			
Weir Submerg		Froude # Chl	0.08
0.08			
Weir Max Depth (m)		Specif Force (m3)	28.95
30.22			
Min El Weir Flow (m)	13.87	Hydr Depth (m)	1.76
1.81			
Min El Prs (m)	14.37	W.P. Total (m)	24.74
25.33			
Delta EG (m)	0.00	Conv. Total (m3/s)	2082.8
2140.6			
Delta WS (m)	0.00	Top Width (m)	16.18
16.18			
BR Open Area (m2)	74.38	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.35	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.26
0.25			
BR Sel Method	Energy only	Power Total (N/m s)	0.09
0.08			

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.56	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.56	E.G. Elev (m)	12.56
12.56			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.56
12.56			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.37
10.34			
Q Weir (m3/s)		Max Chl Dpth (m)	2.63
2.66			
Weir Sta Lft (m)		Vel Total (m/s)	0.28
0.27			
Weir Sta Rgt (m)		Flow Area (m2)	36.23
36.95			
Weir Submerg		Froude # Chl	0.06
0.06			
Weir Max Depth (m)		Specif Force (m3)	43.75
45.36			

Min El Weir Flow (m)	13.87	Hydr Depth (m)	2.07
2.12			
Min El Prs (m)	14.37	W.P. Total (m)	28.22
28.72			
Delta EG (m)	0.00	Conv. Total (m3/s)	2852.7
2913.0			
Delta WS (m)	0.00	Top Width (m)	17.53
17.43			
BR Open Area (m2)	74.38	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.28	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.15
0.15			
BR Sel Method	Energy only	Power Total (N/m s)	0.04
0.04			

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.36	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.33	E.G. Elev (m)	12.35
12.35			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.31
12.31			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.78
10.74			
Q Weir (m3/s)		Max Chl Dpth (m)	2.38
2.41			
Weir Sta Lft (m)		Vel Total (m/s)	0.84
0.82			
Weir Sta Rgt (m)		Flow Area (m2)	31.99
32.75			
Weir Submerg		Froude # Chl	0.20
0.19			
Weir Max Depth (m)		Specif Force (m3)	37.38
38.80			
Min El Weir Flow (m)	13.87	Hydr Depth (m)	1.90
1.95			
Min El Prs (m)	14.37	W.P. Total (m)	26.36
26.92			
Delta EG (m)	0.02	Conv. Total (m3/s)	2426.9
2488.0			
Delta WS (m)	0.02	Top Width (m)	16.81
16.76			
BR Open Area (m2)	74.38	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.84	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.47
1.41			

BR Sel Method	Energy only	Power Total (N/m s)	1.24
1.16			

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.56	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.53	E.G. Elev (m)	12.55
12.55			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.52
12.52			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.78
10.74			
Q Weir (m3/s)		Max Chl Dpth (m)	2.59
2.62			
Weir Sta Lft (m)		Vel Total (m/s)	0.76
0.74			
Weir Sta Rgt (m)		Flow Area (m2)	35.52
36.26			
Weir Submerg		Froude # Chl	0.17
0.16			
Weir Max Depth (m)		Specif Force (m3)	44.11
45.68			
Min El Weir Flow (m)	13.87	Hydr Depth (m)	2.04
2.09			
Min El Prs (m)	14.37	W.P. Total (m)	27.92
28.43			
Delta EG (m)	0.01	Conv. Total (m3/s)	2780.8
2842.2			
Delta WS (m)	0.01	Top Width (m)	17.41
17.32			
BR Open Area (m2)	74.38	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.76	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.18
1.13			
BR Sel Method	Energy only	Power Total (N/m s)	0.89
0.84			

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.86	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.84	E.G. Elev (m)	12.86
12.86			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.84
12.84			

Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.78
10.74			
Q Weir (m3/s)		Max Chl Dpth (m)	2.91
2.94			
Weir Sta Lft (m)		Vel Total (m/s)	0.66
0.64			
Weir Sta Rgt (m)		Flow Area (m2)	41.21
41.89			
Weir Submerg		Froude # Chl	0.14
0.14			
Weir Max Depth (m)		Specif Force (m3)	56.02
57.81			
Min El Weir Flow (m)	13.87	Hydr Depth (m)	2.25
2.30			
Min El Prs (m)	14.37	W.P. Total (m)	30.31
30.77			
Delta EG (m)	0.01	Conv. Total (m3/s)	3370.8
3430.7			
Delta WS (m)	0.01	Top Width (m)	18.34
18.18			
BR Open Area (m2)	74.38	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.66	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.86
0.83			
BR Sel Method	Energy only	Power Total (N/m s)	0.56
0.53			

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 46

INPUT

Description:

Station Elevation Data				num=	14				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	14.1921	2.8482	14.1921	5.6804	13.9548	5.6804	14.0129	7.0139	14.0129
12.3601	9.9013	17.9542	9.9005	23.393	9.8996	28.714	13.6883	29.5195	13.6883
29.5195	13.6405	31.0744	13.803	32.0986	13.8591	36.9403	14.136		

Manning's n Values				num=	3		
Sta	n Val	Sta	n Val	Sta	n Val		
0	.015	7.0139	.015	28.714	.015		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	7.0139	28.714		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.70	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.69	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		24.02
E.G. Slope (m/m)	0.000025	Area (m2)		24.02
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.86	Top Width (m)		15.86
Vel Total (m/s)	0.42	Avg. Vel. (m/s)		0.42
Max Chl Dpth (m)	1.79	Hydr. Depth (m)		1.51
Conv. Total (m3/s)	2013.5	Conv. (m3/s)		2013.5
Length Wtd. (m)	200.00	Wetted Per. (m)		17.04
Min Ch El (m)	9.90	Shear (N/m2)		0.34
Alpha	1.00	Stream Power (N/m s)		0.14
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		239.24
C & E Loss (m)	0.00	Cum SA (1000 m2)		142.38

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.10	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.10	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		30.77
E.G. Slope (m/m)	0.000012	Area (m2)		30.77
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.98	Top Width (m)		16.98
Vel Total (m/s)	0.32	Avg. Vel. (m/s)		0.32

Max Chl Dpth (m)	2.20	Hydr. Depth (m)	1.81
Conv. Total (m3/s)	2888.0	Conv. (m3/s)	2888.0
Length Wtd. (m)	200.00	Wetted Per. (m)	18.43
Min Ch El (m)	9.90	Shear (N/m2)	0.20
Alpha	1.00	Stream Power (N/m s)	0.06
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	306.29
C & E Loss (m)	0.00	Cum SA (1000 m2)	153.07

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.89
E.G. Slope (m/m)	0.000006	Area (m2)		38.89
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.22	Top Width (m)		18.22
Vel Total (m/s)	0.26	Avg. Vel. (m/s)		0.26
Max Chl Dpth (m)	2.66	Hydr. Depth (m)		2.13
Conv. Total (m3/s)	4042.4	Conv. (m3/s)		4042.4
Length Wtd. (m)	200.00	Wetted Per. (m)		19.98
Min Ch El (m)	9.90	Shear (N/m2)		0.12
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	381.53
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	161.26

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.34	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.31	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.42
E.G. Slope (m/m)	0.000063	Area (m2)		34.42
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.55	Top Width (m)		17.55
Vel Total (m/s)	0.78	Avg. Vel. (m/s)		0.78
Max Chl Dpth (m)	2.41	Hydr. Depth (m)		1.96
Conv. Total (m3/s)	3393.3	Conv. (m3/s)		3393.3
Length Wtd. (m)	200.00	Wetted Per. (m)		19.14
Min Ch El (m)	9.90	Shear (N/m2)		1.12
Alpha	1.00	Stream Power (N/m s)		0.88
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		288.64
C & E Loss (m)	0.00	Cum SA (1000 m2)		150.36

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.11
E.G. Slope (m/m)	0.000047	Area (m2)		38.11
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.11	Top Width (m)		18.11
Vel Total (m/s)	0.71	Avg. Vel. (m/s)		0.71

Max Chl Dpth (m)	2.62	Hydr. Depth (m)	2.10
Conv. Total (m3/s)	3927.3	Conv. (m3/s)	3927.3
Length Wtd. (m)	200.00	Wetted Per. (m)	19.83
Min Ch El (m)	9.90	Shear (N/m2)	0.89
Alpha	1.00	Stream Power (N/m s)	0.63
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	339.15
C & E Loss (m)	0.00	Cum SA (1000 m2)	157.39

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.85	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.84	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		44.03
E.G. Slope (m/m)	0.000031	Area (m2)		44.03
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.97	Top Width (m)		18.97
Vel Total (m/s)	0.61	Avg. Vel. (m/s)		0.61
Max Chl Dpth (m)	2.94	Hydr. Depth (m)		2.32
Conv. Total (m3/s)	4822.4	Conv. (m3/s)		4822.4
Length Wtd. (m)	200.00	Wetted Per. (m)		20.91
Min Ch El (m)	9.90	Shear (N/m2)		0.65
Alpha	1.00	Stream Power (N/m s)		0.40
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	402.71
0.07				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	160.78
0.72				

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 45

INPUT

Description:

Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.1084	3.0077	13.2882	3.9165	13.9261	4.9996	13.7818	5.4882	13.7097
5.9688	13.6937	7.1783	13.7017	8.2305	13.7001	8.2305	13.7993	10.0789	13.7993
15.3058	9.8711	20.8811	9.8702	26.3434	9.8699	31.6224	13.6355	33.2983	13.6355
33.2983	13.5546	34.5535	13.6023	37.8426	13.5784	38.2678	13.7302	38.6686	13.6027
38.863	13.5238	41.4526	12.677	42.1492	12.677	42.5192	12.9272	43.1613	13.1122
43.7491	13.2319	44.3694	13.3081						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.015	10.0789	.015	31.6224	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	10.0789	31.6224		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.69	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.68	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		24.48
E.G. Slope (m/m)	0.000023	Area (m2)		24.48
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.99	Top Width (m)		15.99
Vel Total (m/s)	0.41	Avg. Vel. (m/s)		0.41
Max Chl Dpth (m)	1.81	Hydr. Depth (m)		1.53
Conv. Total (m3/s)	2067.6	Conv. (m3/s)		2067.6
Length Wtd. (m)	200.00	Wetted Per. (m)		17.17
Min Ch El (m)	9.87	Shear (N/m2)		0.33
Alpha	1.00	Stream Power (N/m s)		0.13
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		234.39

C & E Loss (m)	0.00	Cum SA (1000 m2)	139.20
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CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.10	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.10	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		31.33
E.G. Slope (m/m)	0.000011	Area (m2)		31.33
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.12	Top Width (m)		17.12
Vel Total (m/s)	0.32	Avg. Vel. (m/s)		0.32
Max Chl Dpth (m)	2.23	Hydr. Depth (m)		1.83
Conv. Total (m3/s)	2959.2	Conv. (m3/s)		2959.2
Length Wtd. (m)	200.00	Wetted Per. (m)		18.57
Min Ch El (m)	9.87	Shear (N/m2)		0.19
Alpha	1.00	Stream Power (N/m s)		0.06
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		300.08
C & E Loss (m)	0.00	Cum SA (1000 m2)		149.66

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		39.53
E.G. Slope (m/m)	0.000006	Area (m2)		39.53

Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	18.38	Top Width (m)	18.38
Vel Total (m/s)	0.25	Avg. Vel. (m/s)	0.25
Max Chl Dpth (m)	2.69	Hydr. Depth (m)	2.15
Conv. Total (m3/s)	4131.8	Conv. (m3/s)	4131.8
Length Wtd. (m)	200.00	Wetted Per. (m)	20.14
Min Ch El (m)	9.87	Shear (N/m2)	0.11
Alpha	1.00	Stream Power (N/m s)	0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00 373.68
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00 157.60

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.33	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.30	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.83
E.G. Slope (m/m)	0.000061	Area (m2)		34.83
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.67	Top Width (m)		17.67
Vel Total (m/s)	0.78	Avg. Vel. (m/s)		0.78
Max Chl Dpth (m)	2.43	Hydr. Depth (m)		1.97
Conv. Total (m3/s)	3447.2	Conv. (m3/s)		3447.2
Length Wtd. (m)	200.00	Wetted Per. (m)		19.26
Min Ch El (m)	9.87	Shear (N/m2)		1.09
Alpha	1.00	Stream Power (N/m s)		0.84
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		281.72

C & E Loss (m)	0.00	Cum SA (1000 m2)	146.84
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CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.61
E.G. Slope (m/m)	0.000046	Area (m2)		38.61
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.24	Top Width (m)		18.24
Vel Total (m/s)	0.70	Avg. Vel. (m/s)		0.70
Max Chl Dpth (m)	2.64	Hydr. Depth (m)		2.12
Conv. Total (m3/s)	3994.8	Conv. (m3/s)		3994.8
Length Wtd. (m)	200.00	Wetted Per. (m)		19.97
Min Ch El (m)	9.87	Shear (N/m2)		0.87
Alpha	1.00	Stream Power (N/m s)		0.61
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		331.48
C & E Loss (m)	0.00	Cum SA (1000 m2)		153.76

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.85	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
0.015				
W.S. Elev (m)	12.83	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		44.63
0.16				
E.G. Slope (m/m)	0.000030	Area (m2)		44.63

0.16				
Q Total (m3/s)	27.00	Flow (m3/s)		26.99
0.01				
Top Width (m)	20.51	Top Width (m)		19.12
1.39				
Vel Total (m/s)	0.60	Avg. Vel. (m/s)		0.60
0.08				
Max Chl Dpth (m)	2.96	Hydr. Depth (m)		2.33
0.11				
Conv. Total (m3/s)	4910.8	Conv. (m3/s)		4908.4
2.4				
Length Wtd. (m)	200.00	Wetted Per. (m)		21.06
1.46				
Min Ch El (m)	9.87	Shear (N/m2)		0.63
0.03				
Alpha	1.01	Stream Power (N/m s)		0.38
0.00				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	393.84
0.06				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	156.98
0.58				

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 44

INPUT

Description:

Station Elevation Data		num=	15						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.9744	13.2472	15.6986	13.4013	16.0718	13.4444	17.9335	13.4885	17.9335	13.4004
19.1601	13.4885	24.186	9.8408	29.6745	9.8404	35.1636	9.84	40.203	13.4381
40.9251	13.3819	40.9251	13.4381	42.053	13.4806	43.5413	13.4806	45.7601	13.3015

Manning's n Values		num=	3		
Sta	n Val	Sta	n Val	Sta	n Val
12.9744	.015	19.1601	.015	40.203	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	19.1601	40.203		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.69	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015

W.S. Elev (m)	11.68	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		24.86
E.G. Slope (m/m)	0.000022	Area (m2)		24.86
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.08	Top Width (m)		16.08
Vel Total (m/s)	0.40	Avg. Vel. (m/s)		0.40
Max Chl Dpth (m)	1.84	Hydr. Depth (m)		1.55
Conv. Total (m3/s)	2113.7	Conv. (m3/s)		2113.7
Length Wtd. (m)	200.00	Wetted Per. (m)		17.27
Min Ch El (m)	9.84	Shear (N/m2)		0.32
Alpha	1.00	Stream Power (N/m s)		0.13
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		229.45
C & E Loss (m)	0.00	Cum SA (1000 m2)		135.99

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.10	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.09	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		31.79
E.G. Slope (m/m)	0.000011	Area (m2)		31.79
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.24	Top Width (m)		17.24
Vel Total (m/s)	0.31	Avg. Vel. (m/s)		0.31
Max Chl Dpth (m)	2.25	Hydr. Depth (m)		1.84
Conv. Total (m3/s)	3019.6	Conv. (m3/s)		3019.6
Length Wtd. (m)	200.00	Wetted Per. (m)		18.69

Min Ch El (m)	9.84	Shear (N/m2)	0.18
Alpha	1.00	Stream Power (N/m s)	0.06
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	293.77
C & E Loss (m)	0.00	Cum SA (1000 m2)	146.23

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		40.07
E.G. Slope (m/m)	0.000006	Area (m2)		40.07
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.53	Top Width (m)		18.53
Vel Total (m/s)	0.25	Avg. Vel. (m/s)		0.25
Max Chl Dpth (m)	2.72	Hydr. Depth (m)		2.16
Conv. Total (m3/s)	4207.4	Conv. (m3/s)		4207.4
Length Wtd. (m)	200.00	Wetted Per. (m)		20.28
Min Ch El (m)	9.84	Shear (N/m2)		0.11
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	365.72
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	153.91

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.32	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015

W.S. Elev (m)	12.29	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.15
E.G. Slope (m/m)	0.000060	Area (m2)		35.15
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.77	Top Width (m)		17.77
Vel Total (m/s)	0.77	Avg. Vel. (m/s)		0.77
Max Chl Dpth (m)	2.45	Hydr. Depth (m)		1.98
Conv. Total (m3/s)	3488.8	Conv. (m3/s)		3488.8
Length Wtd. (m)	200.00	Wetted Per. (m)		19.35
Min Ch El (m)	9.84	Shear (N/m2)		1.07
Alpha	1.00	Stream Power (N/m s)		0.82
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		274.72
C & E Loss (m)	0.00	Cum SA (1000 m2)		143.30

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.50	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		39.01
E.G. Slope (m/m)	0.000044	Area (m2)		39.01
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.36	Top Width (m)		18.36
Vel Total (m/s)	0.69	Avg. Vel. (m/s)		0.69
Max Chl Dpth (m)	2.66	Hydr. Depth (m)		2.12
Conv. Total (m3/s)	4048.7	Conv. (m3/s)		4048.7
Length Wtd. (m)	200.00	Wetted Per. (m)		20.08

Min Ch El (m)	9.84	Shear (N/m2)	0.85
Alpha	1.00	Stream Power (N/m s)	0.59
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	323.72
C & E Loss (m)	0.00	Cum SA (1000 m2)	150.10

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.84	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.82	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		45.12
E.G. Slope (m/m)	0.000029	Area (m2)		45.12
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.27	Top Width (m)		19.27
Vel Total (m/s)	0.60	Avg. Vel. (m/s)		0.60
Max Chl Dpth (m)	2.98	Hydr. Depth (m)		2.34
Conv. Total (m3/s)	4978.7	Conv. (m3/s)		4978.7
Length Wtd. (m)	200.00	Wetted Per. (m)		21.19
Min Ch El (m)	9.84	Shear (N/m2)		0.61
Alpha	1.00	Stream Power (N/m s)		0.37
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	384.87
0.04				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	153.14
0.44				

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 43

INPUT

Description:

Station Elevation Data									
Sta		Elev		Sta		Elev		Sta	
10.4423	13.3874	12.8126	13.452	14.59	13.3844	14.59	13.4654	15.6462	13.4654
20.7893	9.84	26.2947	9.84	31.8487	9.84	36.8963	13.4775	37.6016	13.4775
37.6016	13.3775	38.5521	13.4351	40.3481	13.4665	41.0998	13.3883	41.9291	13.3727

Manning's n Values					
Sta		n Val		Sta	
10.4423	.015	15.6462	.015	36.8963	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	15.6462	36.8963	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.68	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.67	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		25.00
E.G. Slope (m/m)	0.000022	Area (m2)		25.00
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.21	Top Width (m)		16.21
Vel Total (m/s)	0.40	Avg. Vel. (m/s)		0.40
Max Chl Dpth (m)	1.83	Hydr. Depth (m)		1.54
Conv. Total (m3/s)	2123.8	Conv. (m3/s)		2123.8
Length Wtd. (m)	200.00	Wetted Per. (m)		17.38
Min Ch El (m)	9.84	Shear (N/m2)		0.31
Alpha	1.00	Stream Power (N/m s)		0.13
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		224.46
C & E Loss (m)	0.00	Cum SA (1000 m2)		132.76

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.10	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.09	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.02
E.G. Slope (m/m)	0.000011	Area (m2)		32.02
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.38	Top Width (m)		17.38
Vel Total (m/s)	0.31	Avg. Vel. (m/s)		0.31
Max Chl Dpth (m)	2.25	Hydr. Depth (m)		1.84
Conv. Total (m3/s)	3041.8	Conv. (m3/s)		3041.8
Length Wtd. (m)	200.00	Wetted Per. (m)		18.82
Min Ch El (m)	9.84	Shear (N/m2)		0.18
Alpha	1.00	Stream Power (N/m s)		0.06
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		287.39
C & E Loss (m)	0.00	Cum SA (1000 m2)		142.76

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		40.39
E.G. Slope (m/m)	0.000006	Area (m2)		40.39
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.68	Top Width (m)		18.68
Vel Total (m/s)	0.25	Avg. Vel. (m/s)		0.25
Max Chl Dpth (m)	2.72	Hydr. Depth (m)		2.16

Conv. Total (m3/s)	4242.8	Conv. (m3/s)		4242.8
Length Wtd. (m)	200.00	Wetted Per. (m)		20.42
Min Ch El (m)	9.84	Shear (N/m2)		0.11
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	357.68
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	150.19

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.30	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.27	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.23
E.G. Slope (m/m)	0.000060	Area (m2)		35.23
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.89	Top Width (m)		17.89
Vel Total (m/s)	0.77	Avg. Vel. (m/s)		0.77
Max Chl Dpth (m)	2.43	Hydr. Depth (m)		1.97
Conv. Total (m3/s)	3490.3	Conv. (m3/s)		3490.3
Length Wtd. (m)	200.00	Wetted Per. (m)		19.45
Min Ch El (m)	9.84	Shear (N/m2)		1.06
Alpha	1.00	Stream Power (N/m s)		0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		267.68
C & E Loss (m)	0.00	Cum SA (1000 m2)		139.73

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.49	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		39.17
E.G. Slope (m/m)	0.000044	Area (m2)		39.17
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.50	Top Width (m)		18.50
Vel Total (m/s)	0.69	Avg. Vel. (m/s)		0.69
Max Chl Dpth (m)	2.65	Hydr. Depth (m)		2.12
Conv. Total (m3/s)	4061.8	Conv. (m3/s)		4061.8
Length Wtd. (m)	200.00	Wetted Per. (m)		20.19
Min Ch El (m)	9.84	Shear (N/m2)		0.84
Alpha	1.00	Stream Power (N/m s)		0.58
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		315.90
C & E Loss (m)	0.00	Cum SA (1000 m2)		146.41

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.84	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.82	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		45.39
E.G. Slope (m/m)	0.000029	Area (m2)		45.39
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.42	Top Width (m)		19.42
Vel Total (m/s)	0.59	Avg. Vel. (m/s)		0.59
Max Chl Dpth (m)	2.98	Hydr. Depth (m)		2.34

Conv. Total (m3/s)	5007.3	Conv. (m3/s)		5007.3
Length Wtd. (m)	200.00	Wetted Per. (m)		21.32
Min Ch El (m)	9.84	Shear (N/m2)		0.61
Alpha	1.00	Stream Power (N/m s)		0.36
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	375.82
0.04				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	149.27
0.44				

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 42

INPUT

Description:

Station Elevation Data				num=		15			
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.7843	13.0995	11.7388	13.2992	13.4938	13.3586	15.4208	13.2772	15.4208	13.3561
16.0748	13.3561	21.1001	9.84	26.6467	9.84	32.417	9.84	37.024	13.4203
38.1268	13.4203	38.1268	13.3472	38.9925	13.3937	40.3942	13.3832	42.1619	13.2274

Manning's n Values		num=	3			
Sta	n Val	Sta	n Val	Sta	n Val	
10.7843	.015	16.0748	.015	37.024	.015	

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	16.0748	37.024		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.68	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.67	Reach Len. (m)	190.00	190.00
190.00				
Crit W.S. (m)	10.26	Flow Area (m2)		25.25
E.G. Slope (m/m)	0.000022	Area (m2)		25.25
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.29	Top Width (m)		16.29

Vel Total (m/s)	0.40	Avg. Vel. (m/s)	0.40
Max Chl Dpth (m)	1.83	Hydr. Depth (m)	1.55
Conv. Total (m3/s)	2150.4	Conv. (m3/s)	2150.4
Length Wtd. (m)	190.00	Wetted Per. (m)	17.49
Min Ch El (m)	9.84	Shear (N/m2)	0.31
Alpha	1.00	Stream Power (N/m s)	0.12
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	219.44
C & E Loss (m)	0.00	Cum SA (1000 m2)	129.51

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.09	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.09	Reach Len. (m)	190.00	190.00
190.00				
Crit W.S. (m)	10.26	Flow Area (m2)		32.33
E.G. Slope (m/m)	0.000011	Area (m2)		32.33
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.43	Top Width (m)		17.43
Vel Total (m/s)	0.31	Avg. Vel. (m/s)		0.31
Max Chl Dpth (m)	2.25	Hydr. Depth (m)		1.86
Conv. Total (m3/s)	3082.3	Conv. (m3/s)		3082.3
Length Wtd. (m)	190.00	Wetted Per. (m)		18.91
Min Ch El (m)	9.84	Shear (N/m2)		0.18
Alpha	1.00	Stream Power (N/m s)		0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		280.95

C & E Loss (m)	0.00	Cum SA (1000 m2)	139.28
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Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.55	Reach Len. (m)	190.00	190.00
190.00				
Crit W.S. (m)	10.26	Flow Area (m2)		40.74
E.G. Slope (m/m)	0.000005	Area (m2)		40.74
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.69	Top Width (m)		18.69
Vel Total (m/s)	0.25	Avg. Vel. (m/s)		0.25
Max Chl Dpth (m)	2.72	Hydr. Depth (m)		2.18
Conv. Total (m3/s)	4295.6	Conv. (m3/s)		4295.6
Length Wtd. (m)	190.00	Wetted Per. (m)		20.48
Min Ch El (m)	9.84	Shear (N/m2)		0.11
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	349.56
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	146.45

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.29	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.26	Reach Len. (m)	190.00	190.00
190.00				
Crit W.S. (m)	10.64	Flow Area (m2)		35.38
E.G. Slope (m/m)	0.000059	Area (m2)		35.38
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.90	Top Width (m)		17.90
Vel Total (m/s)	0.76	Avg. Vel. (m/s)		0.76
Max Chl Dpth (m)	2.42	Hydr. Depth (m)		1.98
Conv. Total (m3/s)	3510.0	Conv. (m3/s)		3510.0
Length Wtd. (m)	190.00	Wetted Per. (m)		19.49
Min Ch El (m)	9.84	Shear (N/m2)		1.05
Alpha	1.00	Stream Power (N/m s)		0.80
Frctn Loss (m)	0.02	Cum Volume (1000 m3)		260.62
C & E Loss (m)	0.00	Cum SA (1000 m2)		136.15

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.48	Reach Len. (m)	190.00	190.00
190.00				
Crit W.S. (m)	10.64	Flow Area (m2)		39.38
E.G. Slope (m/m)	0.000044	Area (m2)		39.38
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.49	Top Width (m)		18.49
Vel Total (m/s)	0.69	Avg. Vel. (m/s)		0.69

Max Chl Dpth (m)	2.64	Hydr. Depth (m)	2.13
Conv. Total (m3/s)	4092.7	Conv. (m3/s)	4092.7
Length Wtd. (m)	190.00	Wetted Per. (m)	20.23
Min Ch El (m)	9.84	Shear (N/m2)	0.83
Alpha	1.00	Stream Power (N/m s)	0.57
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	308.04
C & E Loss (m)	0.00	Cum SA (1000 m2)	142.71

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.83	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.81	Reach Len. (m)	190.00	190.00
190.00				
Crit W.S. (m)	10.64	Flow Area (m2)		45.65
E.G. Slope (m/m)	0.000029	Area (m2)		45.65
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.39	Top Width (m)		19.39
Vel Total (m/s)	0.59	Avg. Vel. (m/s)		0.59
Max Chl Dpth (m)	2.97	Hydr. Depth (m)		2.35
Conv. Total (m3/s)	5051.1	Conv. (m3/s)		5051.1
Length Wtd. (m)	190.00	Wetted Per. (m)		21.35
Min Ch El (m)	9.84	Shear (N/m2)		0.60
Alpha	1.00	Stream Power (N/m s)		0.35
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	366.71
0.04				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	145.39

0.44

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 41.5

INPUT

Description:

Distance from Upstream XS = 190

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num=	2										
	Sta	Hi	Cord	Lo	Cord		Sta	Hi	Cord	Lo	Cord
	15.49		13.47		12.66		37.46		13.47		12.66

Upstream Bridge Cross Section Data

Station	Elevation	Data	num=	15							
	Sta	Elev		Sta	Elev		Sta	Elev		Sta	Elev
	10.7843	13.0995		11.7388	13.2992		13.4938	13.3586		15.4208	13.2772
	16.0748	13.3561		21.1001	9.84		26.6467	9.84		32.417	9.84
	38.1268	13.4203		38.1268	13.3472		38.9925	13.3937		40.3942	13.3832
										42.1619	13.2274

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
10.7843	.015	16.0748	.015	37.024	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	16.0748	37.024		.0015	.01

Downstream Deck/Roadway Coordinates

num=	2										
	Sta	Hi	Cord	Lo	Cord		Sta	Hi	Cord	Lo	Cord
	15.95		13.47		12.67		37.93		13.47		12.67

Downstream Bridge Cross Section Data

Station	Elevation	Data	num=	13							
	Sta	Elev		Sta	Elev		Sta	Elev		Sta	Elev
	0	12.8365		11.1437	13.1503		15.9781	13.3394		15.9781	13.4015
	21.7523	9.84		27.1458	9.84		32.5387	9.84		38.0283	13.6524
	38.5596	13.2526		40.2341	13.2177		53.6107	12.6105			

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.015	16.5089	.015	38.0283	.015

Bank Sta:	Left	Right	Coeff Contr.	Expan.
	16.5089	38.0283	.0015	.01

Upstream Embankment side slope	=	1.5 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.5 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
15.49	12.66	20.62	12.66
Downstream	num=	2	
Sta	Elev	Sta	Elev
15.95	12.66	21.09	12.66

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
33.01	12.66	37.46	12.66
Downstream	num=	2	
Sta	Elev	Sta	Elev
33.48	12.66	37.93	12.66

Number of Piers = 2

Pier Data

Pier Station	Upstream=	24.06	Downstream=	24.53
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.84	.4	12.66	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.84	.4	12.66	

Pier Data

Pier Station	Upstream=	29.56	Downstream=	30.03
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.74	.4	12.66	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.74	.4	12.66	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

Additional Bridge Parameters

Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.68	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.67	E.G. Elev (m)	11.67
11.67			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.66
11.66			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.28
10.30			
Q Weir (m3/s)		Max Chl Dpth (m)	1.82
1.82			
Weir Sta Lft (m)		Vel Total (m/s)	0.48
0.48			
Weir Sta Rgt (m)		Flow Area (m2)	20.87
20.63			
Weir Submerg		Froude # Chl	0.11
0.12			
Weir Max Depth (m)		Specif Force (m3)	19.31
18.93			
Min El Weir Flow (m)	13.10	Hydr Depth (m)	1.80
1.78			
Min El Prs (m)	12.66	W.P. Total (m)	21.98
21.74			
Delta EG (m)	0.01	Conv. Total (m3/s)	1344.6
1327.6			
Delta WS (m)	0.01	Top Width (m)	11.59
11.59			
BR Open Area (m2)	32.42	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.48	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.52
0.53			
BR Sel Method	Energy only	Power Total (N/m s)	0.25
0.26			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.09	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.09	E.G. Elev (m)	12.09
12.09			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.08
12.08			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.28
10.30			
Q Weir (m3/s)		Max Chl Dpth (m)	2.24
2.24			
Weir Sta Lft (m)		Vel Total (m/s)	0.39
0.39			
Weir Sta Rgt (m)		Flow Area (m2)	25.79
25.54			
Weir Submerg		Froude # Chl	0.08
0.08			
Weir Max Depth (m)		Specif Force (m3)	29.11
28.63			
Min El Weir Flow (m)	13.10	Hydr Depth (m)	2.22
2.20			
Min El Prs (m)	12.66	W.P. Total (m)	24.52
24.29			
Delta EG (m)	0.00	Conv. Total (m3/s)	1777.9
1761.1			
Delta WS (m)	0.00	Top Width (m)	11.59
11.59			
BR Open Area (m2)	32.42	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.39	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.33
0.33			
BR Sel Method	Energy only	Power Total (N/m s)	0.13
0.13			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.56	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.55	E.G. Elev (m)	12.56
12.56			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.55
12.55			

Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.28
10.30			
Q Weir (m3/s)		Max Chl Dpth (m)	2.71
2.71			
Weir Sta Lft (m)		Vel Total (m/s)	0.32
0.32			
Weir Sta Rgt (m)		Flow Area (m2)	31.21
30.96			
Weir Submerg		Froude # Chl	0.06
0.06			
Weir Max Depth (m)		Specif Force (m3)	42.36
41.77			
Min El Weir Flow (m)	13.10	Hydr Depth (m)	2.69
2.67			
Min El Prs (m)	12.66	W.P. Total (m)	27.32
27.10			
Delta EG (m)	0.00	Conv. Total (m3/s)	2273.0
2256.3			
Delta WS (m)	0.00	Top Width (m)	11.59
11.59			
BR Open Area (m2)	32.42	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.32	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.22
0.22			
BR Sel Method	Energy only	Power Total (N/m s)	0.07
0.07			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.29	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.26	E.G. Elev (m)	12.27
12.27			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.22
12.22			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.68
10.70			
Q Weir (m3/s)		Max Chl Dpth (m)	2.38
2.38			
Weir Sta Lft (m)		Vel Total (m/s)	0.99
0.99			
Weir Sta Rgt (m)		Flow Area (m2)	27.41
27.15			
Weir Submerg		Froude # Chl	0.20
0.21			

Weir Max Depth (m)		Specif Force (m3)	35.15
34.61			
Min El Weir Flow (m)	13.10	Hydr Depth (m)	2.36
2.34			
Min El Prs (m)	12.66	W.P. Total (m)	25.36
25.12			
Delta EG (m)	0.02	Conv. Total (m3/s)	1924.6
1906.1			
Delta WS (m)	0.02	Top Width (m)	11.59
11.59			
BR Open Area (m2)	32.42	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.99	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.09
2.13			
BR Sel Method	Energy only	Power Total (N/m s)	2.05
2.11			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.51	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.48	E.G. Elev (m)	12.49
12.49			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.45
12.45			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.68
10.70			
Q Weir (m3/s)		Max Chl Dpth (m)	2.61
2.61			
Weir Sta Lft (m)		Vel Total (m/s)	0.90
0.91			
Weir Sta Rgt (m)		Flow Area (m2)	30.04
29.78			
Weir Submerg		Froude # Chl	0.18
0.18			
Weir Max Depth (m)		Specif Force (m3)	41.43
40.85			
Min El Weir Flow (m)	13.10	Hydr Depth (m)	2.59
2.57			
Min El Prs (m)	12.66	W.P. Total (m)	26.72
26.48			
Delta EG (m)	0.02	Conv. Total (m3/s)	2165.4
2147.3			
Delta WS (m)	0.02	Top Width (m)	11.59
11.59			

BR Open Area (m2)	32.42	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.91	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.71
1.74			
BR Sel Method	Energy only	Power Total (N/m s)	1.54
1.58			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.83	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.81	E.G. Elev (m)	12.82
12.82			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.78
12.78			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.68
10.70			
Q Weir (m3/s)		Max Chl Dpth (m)	2.94
2.94			
Weir Sta Lft (m)		Vel Total (m/s)	0.83
0.82			
Weir Sta Rgt (m)		Flow Area (m2)	32.47
32.75			
Weir Submerg		Froude # Chl	0.15
0.15			
Weir Max Depth (m)		Specif Force (m3)	51.82
51.18			
Min El Weir Flow (m)	13.10	Hydr Depth (m)	
8.62			
Min El Prs (m)	12.66	W.P. Total (m)	39.57
58.20			
Delta EG (m)	0.01	Conv. Total (m3/s)	1897.1
1538.0			
Delta WS (m)	0.01	Top Width (m)	
3.80			
BR Open Area (m2)	32.42	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.83	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.63
1.70			
BR Sel Method	Energy only	Power Total (N/m s)	1.36
1.40			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 41

INPUT

Description: Opera 8

Station Elevation Data		num=		13	
Sta	Elev	Sta	Elev	Sta	Elev
0	12.8365	11.1437	13.1503	15.9781	13.3394
21.7523	9.84	27.1458	9.84	32.5387	9.84
38.0283	13.6524	38.5596	13.6524		

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
0	.015	16.5089	.015	38.0283	.015

Bank Sta:	Left	Right	Lengths:		Left Channel	Right	Coeff Contr.	
Expan.	16.5089	38.0283	200	200	200	.0015	.01	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.67	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.	0.015	
W.S. Elev (m)	11.66	Reach Len. (m)	200.00	200.00
200.00		Flow Area (m2)	24.49	
Crit W.S. (m)		Area (m2)	24.49	
E.G. Slope (m/m)	0.000023	Flow (m3/s)	10.00	
Q Total (m3/s)	10.00	Top Width (m)	16.09	
Top Width (m)	16.09	Avg. Vel. (m/s)	0.41	
Vel Total (m/s)	0.41	Hydr. Depth (m)	1.52	
Max Chl Dpth (m)	1.82	Conv. (m3/s)	2064.7	
Conv. Total (m3/s)	2064.7	Wetted Per. (m)	17.22	
Length Wtd. (m)	200.00	Shear (N/m2)	0.33	
Min Ch El (m)	9.84			

Alpha	1.00	Stream Power (N/m s)	0.13
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	214.84
C & E Loss (m)	0.00	Cum SA (1000 m2)	126.73

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.09	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.09	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		31.57
E.G. Slope (m/m)	0.000011	Area (m2)		31.57
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.33	Top Width (m)		17.33
Vel Total (m/s)	0.32	Avg. Vel. (m/s)		0.32
Max Chl Dpth (m)	2.25	Hydr. Depth (m)		1.82
Conv. Total (m3/s)	2981.9	Conv. (m3/s)		2981.9
Length Wtd. (m)	200.00	Wetted Per. (m)		18.72
Min Ch El (m)	9.84	Shear (N/m2)		0.19
Alpha	1.00	Stream Power (N/m s)		0.06
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		275.16
C & E Loss (m)	0.00	Cum SA (1000 m2)		136.40

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.55	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)		39.98
E.G. Slope (m/m)	0.000006	Area (m2)		39.98
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.69	Top Width (m)		18.69
Vel Total (m/s)	0.25	Avg. Vel. (m/s)		0.25
Max Chl Dpth (m)	2.71	Hydr. Depth (m)		2.14
Conv. Total (m3/s)	4178.1	Conv. (m3/s)		4178.1
Length Wtd. (m)	200.00	Wetted Per. (m)		20.37
Min Ch El (m)	9.84	Shear (N/m2)		0.11
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	342.40
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	143.44

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.27	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.24	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.27
E.G. Slope (m/m)	0.000065	Area (m2)		34.27
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.77	Top Width (m)		17.77
Vel Total (m/s)	0.79	Avg. Vel. (m/s)		0.79
Max Chl Dpth (m)	2.40	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3354.4	Conv. (m3/s)		3354.4
Length Wtd. (m)	200.00	Wetted Per. (m)		19.26
Min Ch El (m)	9.84	Shear (N/m2)		1.13

Alpha	1.00	Stream Power (N/m s)	0.89
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	254.37
C & E Loss (m)	0.00	Cum SA (1000 m2)	133.22

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.49	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.47	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.35
E.G. Slope (m/m)	0.000047	Area (m2)		38.35
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.43	Top Width (m)		18.43
Vel Total (m/s)	0.70	Avg. Vel. (m/s)		0.70
Max Chl Dpth (m)	2.63	Hydr. Depth (m)		2.08
Conv. Total (m3/s)	3938.4	Conv. (m3/s)		3938.4
Length Wtd. (m)	200.00	Wetted Per. (m)		20.06
Min Ch El (m)	9.84	Shear (N/m2)		0.88
Alpha	1.00	Stream Power (N/m s)		0.62
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		301.13
C & E Loss (m)	0.00	Cum SA (1000 m2)		139.72

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.82	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
0.015				
W.S. Elev (m)	12.80	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)		44.67
0.39				
E.G. Slope (m/m)	0.000030	Area (m2)		44.67
0.39				
Q Total (m3/s)	27.00	Flow (m3/s)		26.97
0.03				
Top Width (m)	23.55	Top Width (m)		19.40
4.15				
Vel Total (m/s)	0.60	Avg. Vel. (m/s)		0.60
0.07				
Max Chl Dpth (m)	2.96	Hydr. Depth (m)		2.30
0.09				
Conv. Total (m3/s)	4893.0	Conv. (m3/s)		4887.8
5.2				
Length Wtd. (m)	200.00	Wetted Per. (m)		21.24
4.34				
Min Ch El (m)	9.84	Shear (N/m2)		0.63
0.03				
Alpha	1.01	Stream Power (N/m s)		0.38
0.00				
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	358.94
0.04				
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	143.50
0.42				

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 40

INPUT									
Description:									
Station Elevation Data				num=	16				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.5101	13.2149	16.1458	13.3732	16.8336	13.3667	16.8336	13.462	17.646	13.462
23.0067	9.84	28.2015	9.84	33.2582	9.84	38.5587	13.217	39.1721	13.217
39.1721	13.1478	40.9546	13.2576	41.9618	13.1806	42.3907	13.2439	43.1531	13.2159
44.2162	13.2019								
Manning's n Values				num=	3				
Sta	n Val	Sta	n Val	Sta	n Val				
12.5101	.015	17.646	.015	38.5587	.015				
Bank Sta:	Left	Right	Lengths: Left Channel			Right	Coeff Contr.		
Expan.									
	17.646	38.5587		200	200	200		.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.67	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.66	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		23.66
E.G. Slope (m/m)	0.000026	Area (m2)		23.66
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.79	Top Width (m)		15.79
Vel Total (m/s)	0.42	Avg. Vel. (m/s)		0.42
Max Chl Dpth (m)	1.82	Hydr. Depth (m)		1.50
Conv. Total (m3/s)	1975.5	Conv. (m3/s)		1975.5
Length Wtd. (m)	200.00	Wetted Per. (m)		16.88
Min Ch El (m)	9.84	Shear (N/m2)		0.35
Alpha	1.00	Stream Power (N/m s)		0.15
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		210.03
C & E Loss (m)	0.00	Cum SA (1000 m2)		123.55

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.09	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.08	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		30.67
E.G. Slope (m/m)	0.000012	Area (m2)		30.67
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.09	Top Width (m)		17.09
Vel Total (m/s)	0.33	Avg. Vel. (m/s)		0.33

Max Chl Dpth (m)	2.24	Hydr. Depth (m)	1.79
Conv. Total (m3/s)	2871.1	Conv. (m3/s)	2871.1
Length Wtd. (m)	200.00	Wetted Per. (m)	18.43
Min Ch El (m)	9.84	Shear (N/m2)	0.20
Alpha	1.00	Stream Power (N/m s)	0.06
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	268.93
C & E Loss (m)	0.00	Cum SA (1000 m2)	132.96

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		39.01
E.G. Slope (m/m)	0.000006	Area (m2)		39.01
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.52	Top Width (m)		18.52
Vel Total (m/s)	0.26	Avg. Vel. (m/s)		0.26
Max Chl Dpth (m)	2.71	Hydr. Depth (m)		2.11
Conv. Total (m3/s)	4040.9	Conv. (m3/s)		4040.9
Length Wtd. (m)	200.00	Wetted Per. (m)		20.14
Min Ch El (m)	9.84	Shear (N/m2)		0.12
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	334.50
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	139.72

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.26	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.22	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.11
E.G. Slope (m/m)	0.000071	Area (m2)		33.11
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.52	Top Width (m)		17.52
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.89
Conv. Total (m3/s)	3201.8	Conv. (m3/s)		3201.8
Length Wtd. (m)	200.00	Wetted Per. (m)		18.95
Min Ch El (m)	9.84	Shear (N/m2)		1.22
Alpha	1.00	Stream Power (N/m s)		0.99
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		247.63
C & E Loss (m)	0.00	Cum SA (1000 m2)		129.69

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.48	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.45	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.21
E.G. Slope (m/m)	0.000051	Area (m2)		37.21
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.22	Top Width (m)		18.22
Vel Total (m/s)	0.73	Avg. Vel. (m/s)		0.73

Max Chl Dpth (m)	2.61	Hydr. Depth (m)	2.04
Conv. Total (m3/s)	3780.5	Conv. (m3/s)	3780.5
Length Wtd. (m)	200.00	Wetted Per. (m)	19.78
Min Ch El (m)	9.84	Shear (N/m2)	0.94
Alpha	1.00	Stream Power (N/m s)	0.68
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	293.57
C & E Loss (m)	0.00	Cum SA (1000 m2)	136.05

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.81	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.79	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		43.54
E.G. Slope (m/m)	0.000033	Area (m2)		43.54
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.25	Top Width (m)		19.25
Vel Total (m/s)	0.62	Avg. Vel. (m/s)		0.62
Max Chl Dpth (m)	2.95	Hydr. Depth (m)		2.26
Conv. Total (m3/s)	4717.9	Conv. (m3/s)		4717.9
Length Wtd. (m)	200.00	Wetted Per. (m)		21.02
Min Ch El (m)	9.84	Shear (N/m2)		0.67
Alpha	1.00	Stream Power (N/m s)		0.41
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	350.12
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	139.63

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 39

INPUT

Description:

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.8725	13.226	17.5286	13.226	17.5286	13.326	19.1395	13.326	24.2549	9.8237
29.5667	9.823	34.8792	9.8227	39.7455	13.1579	40.2764	13.1579	40.2764	13.0579
40.614	13.0579	43.8237	13.0911	45.3194	12.9698				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
13.8725	.015	19.1395	.015	39.7455	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.	19.1395	39.7455		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.66	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.65	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.26	Flow Area (m2)		24.32
E.G. Slope (m/m)	0.000024	Area (m2)		24.32
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.96	Top Width (m)		15.96
Vel Total (m/s)	0.41	Avg. Vel. (m/s)		0.41
Max Chl Dpth (m)	1.83	Hydr. Depth (m)		1.52
Conv. Total (m3/s)	2050.2	Conv. (m3/s)		2050.2
Length Wtd. (m)	200.00	Wetted Per. (m)		17.10
Min Ch El (m)	9.82	Shear (N/m2)		0.33
Alpha	1.00	Stream Power (N/m s)		0.14
Frctn Loss (m)		Cum Volume (1000 m3)		205.23
C & E Loss (m)		Cum SA (1000 m2)		120.37

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.09	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.08	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.26	Flow Area (m2)		31.43
E.G. Slope (m/m)	0.000011	Area (m2)		31.43
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.22	Top Width (m)		17.22
Vel Total (m/s)	0.32	Avg. Vel. (m/s)		0.32
Max Chl Dpth (m)	2.26	Hydr. Depth (m)		1.83
Conv. Total (m3/s)	2971.2	Conv. (m3/s)		2971.2
Length Wtd. (m)	200.00	Wetted Per. (m)		18.61
Min Ch El (m)	9.82	Shear (N/m2)		0.19
Alpha	1.00	Stream Power (N/m s)		0.06
Frctn Loss (m)		Cum Volume (1000 m3)		262.72
C & E Loss (m)		Cum SA (1000 m2)		129.52

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.26	Flow Area (m2)		39.83
E.G. Slope (m/m)	0.000006	Area (m2)		39.83
Q Total (m3/s)	10.00	Flow (m3/s)		10.00

Top Width (m)	18.59	Top Width (m)	18.59
Vel Total (m/s)	0.25	Avg. Vel. (m/s)	0.25
Max Chl Dpth (m)	2.73	Hydr. Depth (m)	2.14
Conv. Total (m3/s)	4165.5	Conv. (m3/s)	4165.5
Length Wtd. (m)	200.00	Wetted Per. (m)	20.28
Min Ch El (m)	9.82	Shear (N/m2)	0.11
Alpha	1.00	Stream Power (N/m s)	0.03
Frctn Loss (m)		Cum Volume (1000 m3)	0.00 326.61
C & E Loss (m)		Cum SA (1000 m2)	0.00 136.01

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.24	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.21	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.66	Flow Area (m2)		33.70
E.G. Slope (m/m)	0.000068	Area (m2)		33.70
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.60	Top Width (m)		17.60
Vel Total (m/s)	0.80	Avg. Vel. (m/s)		0.80
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.91
Conv. Total (m3/s)	3282.6	Conv. (m3/s)		3282.6
Length Wtd. (m)	200.00	Wetted Per. (m)		19.08
Min Ch El (m)	9.82	Shear (N/m2)		1.17
Alpha	1.00	Stream Power (N/m s)		0.94
Frctn Loss (m)		Cum Volume (1000 m3)		240.95
C & E Loss (m)		Cum SA (1000 m2)		126.18

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.47	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.44	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.66	Flow Area (m2)		37.89
E.G. Slope (m/m)	0.000048	Area (m2)		37.89
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.28	Top Width (m)		18.28
Vel Total (m/s)	0.71	Avg. Vel. (m/s)		0.71
Max Chl Dpth (m)	2.62	Hydr. Depth (m)		2.07
Conv. Total (m3/s)	3879.5	Conv. (m3/s)		3879.5
Length Wtd. (m)	200.00	Wetted Per. (m)		19.90
Min Ch El (m)	9.82	Shear (N/m2)		0.90
Alpha	1.00	Stream Power (N/m s)		0.64
Frctn Loss (m)		Cum Volume (1000 m3)		286.06
C & E Loss (m)		Cum SA (1000 m2)		132.40

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.80	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.79	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.66	Flow Area (m2)		44.29
E.G. Slope (m/m)	0.000031	Area (m2)		44.29
Q Total (m3/s)	27.00	Flow (m3/s)		27.00

Top Width (m)	19.27	Top Width (m)	19.27
Vel Total (m/s)	0.61	Avg. Vel. (m/s)	0.61
Max Chl Dpth (m)	2.96	Hydr. Depth (m)	2.30
Conv. Total (m3/s)	4839.2	Conv. (m3/s)	4839.2
Length Wtd. (m)	200.00	Wetted Per. (m)	21.11
Min Ch El (m)	9.82	Shear (N/m2)	0.64
Alpha	1.00	Stream Power (N/m s)	0.39
Frctn Loss (m)		Cum Volume (1000 m3)	0.04 341.33
C & E Loss (m)		Cum SA (1000 m2)	0.55 135.78

INLINE STRUCTURE

RIVER: SNM
 REACH: Canale SNM RS: 38.8

INPUT
 Description:
 Distance from Upstream XS = 156.65
 Deck/Roadway Width = 5
 Weir Coefficient = 1.4
 Weir Embankment Coordinates num = 2
 Sta Elev Sta Elev
 18.53 14.05 40.65 14.05

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins =
 Weir crest shape = Broad Crested

INLINE STRUCTURE GATE Gate #1
 Height = 4
 Width = 3
 Invert = 9.72
 Gate Type = Sluice Slice Coefficient = .6
 Weir Coefficient = 1.67
 Weir crest shape = Broad Crested
 Number of Gate Openings = 3
 Sta Sta Sta
 26.16 29.58 33.07

INLINE STRUCTURE OUTPUT Profile #PF 1 Gate Group: Gate #1

E.G. Elev (m)	11.66	Weir Sta Lft (m)	
W.S. Elev (m)	11.65	Weir Sta Rgt (m)	
Q Total (m3/s)	10.00	Min El Weir Flow (m)	12.97
Q Weir (m3/s)		Wr Top Wdth (m)	
Q Gates (m3/s)	10.00	Weir Max Depth (m)	
Q Culv (m3/s)		Weir Avg Depth (m)	
Q Inline RC (m3/s)		Weir Flow Area (m2)	
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	
Q Breach (m3/s)	0.00	Weir Submerg	
Breach Avg Velocity (m/s)	0.00	Q Gate Group (m3/s)	10.00
Breach Flow Area (m2)	0.00	Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	5.80
Breach Bottom El (m)		Gate Submerg	0.99
Breach SSL (m)		Gate Invert (m)	9.72
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 2 Gate Group: Gate #1

E.G. Elev (m)	12.09	Weir Sta Lft (m)	
W.S. Elev (m)	12.08	Weir Sta Rgt (m)	
Q Total (m3/s)	10.00	Min El Weir Flow (m)	12.97
Q Weir (m3/s)		Wr Top Wdth (m)	
Q Gates (m3/s)	10.00	Weir Max Depth (m)	
Q Culv (m3/s)		Weir Avg Depth (m)	
Q Inline RC (m3/s)		Weir Flow Area (m2)	
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	
Q Breach (m3/s)	0.00	Weir Submerg	
Breach Avg Velocity (m/s)	0.00	Q Gate Group (m3/s)	10.00
Breach Flow Area (m2)	0.00	Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	7.08
Breach Bottom El (m)		Gate Submerg	0.99
Breach SSL (m)		Gate Invert (m)	9.72
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 3 Gate Group: Gate #1

E.G. Elev (m)	12.55	Weir Sta Lft (m)	
W.S. Elev (m)	12.55	Weir Sta Rgt (m)	
Q Total (m3/s)	10.00	Min El Weir Flow (m)	12.97
Q Weir (m3/s)		Wr Top Wdth (m)	
Q Gates (m3/s)	10.00	Weir Max Depth (m)	
Q Culv (m3/s)		Weir Avg Depth (m)	
Q Inline RC (m3/s)		Weir Flow Area (m2)	
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	
Q Breach (m3/s)	0.00	Weir Submerg	
Breach Avg Velocity (m/s)	0.00	Q Gate Group (m3/s)	10.00
Breach Flow Area (m2)	0.00	Gate Open Ht (m)	4.00

Breach WD (m)	Gate #Open	3
Breach Top El (m)	Gate Area (m2)	8.49
Breach Bottom El (m)	Gate Submerg	1.00
Breach SSL (m)	Gate Invert (m)	9.72
Breach SSR (m)	Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 4 Gate Group: Gate #1

E.G. Elev (m)	12.24	Weir Sta Lft (m)	
W.S. Elev (m)	12.21	Weir Sta Rgt (m)	
Q Total (m3/s)	27.00	Min El Weir Flow (m)	12.97
Q Weir (m3/s)		Wr Top Width (m)	
Q Gates (m3/s)	27.00	Weir Max Depth (m)	
Q Culv (m3/s)		Weir Avg Depth (m)	
Q Inline RC (m3/s)		Weir Flow Area (m2)	
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	
Q Breach (m3/s)	0.00	Weir Submerg	
Breach Avg Velocity (m/s)	0.00	Q Gate Group (m3/s)	27.00
Breach Flow Area (m2)	0.00	Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	7.47
Breach Bottom El (m)		Gate Submerg	0.97
Breach SSL (m)		Gate Invert (m)	9.72
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 5 Gate Group: Gate #1

E.G. Elev (m)	12.47	Weir Sta Lft (m)	
W.S. Elev (m)	12.44	Weir Sta Rgt (m)	
Q Total (m3/s)	27.00	Min El Weir Flow (m)	12.97
Q Weir (m3/s)		Wr Top Width (m)	
Q Gates (m3/s)	27.00	Weir Max Depth (m)	
Q Culv (m3/s)		Weir Avg Depth (m)	
Q Inline RC (m3/s)		Weir Flow Area (m2)	
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	
Q Breach (m3/s)	0.00	Weir Submerg	
Breach Avg Velocity (m/s)	0.00	Q Gate Group (m3/s)	27.00
Breach Flow Area (m2)	0.00	Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	8.17
Breach Bottom El (m)		Gate Submerg	0.98
Breach SSL (m)		Gate Invert (m)	9.72
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 6 Gate Group: Gate #1

E.G. Elev (m)	12.80	Weir Sta Lft (m)	
W.S. Elev (m)	12.79	Weir Sta Rgt (m)	
Q Total (m3/s)	27.00	Min El Weir Flow (m)	12.97
Q Weir (m3/s)		Wr Top Width (m)	
Q Gates (m3/s)	27.00	Weir Max Depth (m)	

Q Culv (m3/s)		Weir Avg Depth (m)	
Q Inline RC (m3/s)		Weir Flow Area (m2)	
Q Outlet TS (m3/s)		Weir Coef (m^1/2)	
Q Breach (m3/s)	0.00	Weir Submerg	
Breach Avg Velocity (m/s)	0.00	Q Gate Group (m3/s)	27.00
Breach Flow Area (m2)	0.00	Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	9.20
Breach Bottom El (m)		Gate Submerg	0.99
Breach SSL (m)		Gate Invert (m)	9.72
Breach SSR (m)		Gate Weir Coef	3.020

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 38.7

INPUT
 Description:
 Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3.1998	12.8459	4.0819	12.9823	5.5591	13.1833	6.4958	13.2833	7.4143	13.2287
7.66	13.2377	7.66	13.356	11.4946	13.356	16.7243	9.7981	21.3334	9.7975
26.0125	9.7972	31.1787	13.4831	32.1048	13.4831	32.1048	13.384	33.1614	13.3875
33.4901	13.4313	33.7267	13.4357	34.1211	13.4269	34.4104	13.3963	34.6821	13.3744
35.1441	13.3521	35.3282	13.3828	35.6043	13.3521	36.0162	13.2032		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3.1998	.015	11.4946	.015	31.1787	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	11.4946	31.1787		35	35	35	.1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.65	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.64	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.27	Flow Area (m2)		22.04
E.G. Slope (m/m)	0.000030	Area (m2)		22.04
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	14.59	Top Width (m)		14.59

Vel Total (m/s)	0.45	Avg. Vel. (m/s)	0.45
Max Chl Dpth (m)	1.85	Hydr. Depth (m)	1.51
Conv. Total (m3/s)	1838.8	Conv. (m3/s)	1838.8
Length Wtd. (m)	8.95	Wetted Per. (m)	15.75
Min Ch El (m)	9.80	Shear (N/m2)	0.41
Alpha	1.00	Stream Power (N/m s)	0.18
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	201.12
C & E Loss (m)	0.00	Cum SA (1000 m2)	117.32

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.08	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.07	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.27	Flow Area (m2)		28.56
E.G. Slope (m/m)	0.000014	Area (m2)		28.56
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.82	Top Width (m)		15.82
Vel Total (m/s)	0.35	Avg. Vel. (m/s)		0.35
Max Chl Dpth (m)	2.28	Hydr. Depth (m)		1.81
Conv. Total (m3/s)	2664.2	Conv. (m3/s)		2664.2
Length Wtd. (m)	8.95	Wetted Per. (m)		17.25
Min Ch El (m)	9.80	Shear (N/m2)		0.23
Alpha	1.00	Stream Power (N/m s)		0.08
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		257.53

C & E Loss (m)	0.00	Cum SA (1000 m2)	126.22
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Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.54	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.27	Flow Area (m2)		36.31
E.G. Slope (m/m)	0.000007	Area (m2)		36.31
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.17	Top Width (m)		17.17
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.75	Hydr. Depth (m)		2.11
Conv. Total (m3/s)	3742.4	Conv. (m3/s)		3742.4
Length Wtd. (m)	8.95	Wetted Per. (m)		18.89
Min Ch El (m)	9.80	Shear (N/m2)		0.13
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	320.18
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	132.43

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.22	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.04	Wt. n-Val.	0.015
W.S. Elev (m)	12.17	Reach Len. (m)	8.95
8.95			
Crit W.S. (m)	10.70	Flow Area (m2)	30.19
E.G. Slope (m/m)	0.000088	Area (m2)	30.19
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	16.11	Top Width (m)	16.11
Vel Total (m/s)	0.89	Avg. Vel. (m/s)	0.89
Max Chl Dpth (m)	2.38	Hydr. Depth (m)	1.87
Conv. Total (m3/s)	2883.7	Conv. (m3/s)	2883.7
Length Wtd. (m)	8.95	Wetted Per. (m)	17.61
Min Ch El (m)	9.80	Shear (N/m2)	1.47
Alpha	1.00	Stream Power (N/m s)	1.32
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	235.42
C & E Loss (m)	0.00	Cum SA (1000 m2)	122.81

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.45	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.42	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.70	Flow Area (m2)		34.22
E.G. Slope (m/m)	0.000062	Area (m2)		34.22
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	16.82	Top Width (m)		16.82
Vel Total (m/s)	0.79	Avg. Vel. (m/s)		0.79

Max Chl Dpth (m)	2.62	Hydr. Depth (m)	2.04
Conv. Total (m3/s)	3442.7	Conv. (m3/s)	3442.7
Length Wtd. (m)	8.95	Wetted Per. (m)	18.46
Min Ch El (m)	9.80	Shear (N/m2)	1.12
Alpha	1.00	Stream Power (N/m s)	0.88
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	279.92
C & E Loss (m)	0.00	Cum SA (1000 m2)	128.90

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.79	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.77	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.70	Flow Area (m2)		40.23
E.G. Slope (m/m)	0.000039	Area (m2)		40.23
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.81	Top Width (m)		17.81
Vel Total (m/s)	0.67	Avg. Vel. (m/s)		0.67
Max Chl Dpth (m)	2.97	Hydr. Depth (m)		2.26
Conv. Total (m3/s)	4319.7	Conv. (m3/s)		4319.7
Length Wtd. (m)	8.95	Wetted Per. (m)		19.68
Min Ch El (m)	9.80	Shear (N/m2)		0.78
Alpha	1.00	Stream Power (N/m s)		0.53
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.04	334.26
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	132.07

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
 REACH: Canale SNM RS: 38.4

INPUT

Description:

Distance from Upstream XS = 8.95
 Deck/Roadway Width = 5
 Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
10.14	14.55	12.86	32.55	14.55	12.86				

Upstream Bridge Cross Section Data

Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3.1998	12.8459	4.0819	12.9823	5.5591	13.1833	6.4958	13.2833	7.4143	13.2287
7.66	13.2377	7.66	13.356	11.4946	13.356	16.7243	9.7981	21.3334	9.7975
26.0125	9.7972	31.1787	13.4831	32.1048	13.4831	32.1048	13.384	33.1614	13.3875
33.4901	13.4313	33.7267	13.4357	34.1211	13.4269	34.4104	13.3963	34.6821	13.3744
35.1441	13.3521	35.3282	13.3828	35.6043	13.3521	36.0162	13.2032		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3.1998	.015	11.4946	.015	31.1787	.015

Bank Sta: Left Right Coeff Contr. Expan.
 11.4946 31.1787 .1 .3

Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
10.14	14.55	12.86	32.55	14.55	12.86				

Downstream Bridge Cross Section Data

Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3.1998	12.8459	4.0819	12.9823	5.5591	13.1833	6.4958	13.2833	7.4143	13.2287
7.66	13.2377	7.66	13.356	11.4946	13.356	16.7243	9.7981	21.3334	9.7975
26.0125	9.7972	31.1787	13.4831	32.1048	13.4831	32.1048	13.384	33.1614	13.3875
33.4901	13.4313	33.7267	13.4357	34.1211	13.4269	34.4104	13.3963	34.6821	13.3744
35.1441	13.3521	35.3282	13.3828	35.6043	13.3521	36.0162	13.2032		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3.1998	.015	11.4946	.015	31.1787	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	11.4946	31.1787		.0015	.01

Upstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
10.14	12.85	16.51	12.85
Downstream	num=	2	
Sta	Elev	Sta	Elev
10.14	12.85	16.51	12.85

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
26.51	12.86	32.54	12.86
Downstream	num=	2	
Sta	Elev	Sta	Elev
26.51	12.86	32.54	12.86

Number of Piers = 2

Pier Data

Pier Station	Upstream=	19.56	Downstream=	19.56
Upstream	num=	2		
Width	Elev	Width	Elev	
.55	9.69	.55	12.85	
Downstream	num=	2		
Width	Elev	Width	Elev	
.55	9.69	.55	12.85	

Pier Data

Pier Station	Upstream=	23.01	Downstream=	23.01
Upstream	num=	2		
Width	Elev	Width	Elev	
.55	9.69	.55	12.85	
Downstream	num=	2		
Width	Elev	Width	Elev	
.55	9.69	.55	12.85	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.65	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.64	E.G. Elev (m)	11.65
11.65			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.63
11.63			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.31
10.31			
Q Weir (m3/s)		Max Chl Dpth (m)	1.84
1.84			
Weir Sta Lft (m)		Vel Total (m/s)	0.62
0.62			
Weir Sta Rgt (m)		Flow Area (m2)	16.24
16.23			
Weir Submerg		Froude # Chl	0.15
0.15			
Weir Max Depth (m)		Specif Force (m3)	15.45
15.44			
Min El Weir Flow (m)	12.85	Hydr Depth (m)	1.82
1.82			
Min El Prs (m)	12.86	W.P. Total (m)	19.58
19.57			
Delta EG (m)	0.01	Conv. Total (m3/s)	955.8
955.4			
Delta WS (m)	0.01	Top Width (m)	8.90
8.90			
BR Open Area (m2)	27.21	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.62	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.89
0.89			
BR Sel Method	Energy only	Power Total (N/m s)	0.55
0.55			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.08	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.07	E.G. Elev (m)	12.08
12.08			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.06
12.06			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.31
10.31			
Q Weir (m3/s)		Max Chl Dpth (m)	2.27
2.27			
Weir Sta Lft (m)		Vel Total (m/s)	0.50
0.50			
Weir Sta Rgt (m)		Flow Area (m2)	20.08
20.07			
Weir Submerg		Froude # Chl	0.11
0.11			
Weir Max Depth (m)		Specif Force (m3)	23.16
23.16			
Min El Weir Flow (m)	12.85	Hydr Depth (m)	2.26
2.26			
Min El Prs (m)	12.86	W.P. Total (m)	22.16
22.16			
Delta EG (m)	0.00	Conv. Total (m3/s)	1253.1
1252.9			
Delta WS (m)	0.00	Top Width (m)	8.90
8.90			
BR Open Area (m2)	27.21	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.50	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.57
0.57			
BR Sel Method	Energy only	Power Total (N/m s)	0.28
0.28			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.55	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.54	E.G. Elev (m)	12.55

12.55			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.54
12.54			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.31
10.31			
Q Weir (m3/s)		Max Chl Dpth (m)	2.74
2.74			
Weir Sta Lft (m)		Vel Total (m/s)	0.41
0.41			
Weir Sta Rgt (m)		Flow Area (m2)	24.28
24.28			
Weir Submerg		Froude # Chl	0.08
0.08			
Weir Max Depth (m)		Specif Force (m3)	33.55
33.55			
Min El Weir Flow (m)	12.85	Hydr Depth (m)	2.73
2.73			
Min El Prs (m)	12.86	W.P. Total (m)	25.00
24.99			
Delta EG (m)	0.00	Conv. Total (m3/s)	1587.6
1587.4			
Delta WS (m)	0.00	Top Width (m)	8.90
8.90			
BR Open Area (m2)	27.21	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.41	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.38
0.38			
BR Sel Method	Energy only	Power Total (N/m s)	0.16
0.16			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.22	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.17	E.G. Elev (m)	12.21
12.21			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.12
12.12			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.79
10.79			
Q Weir (m3/s)		Max Chl Dpth (m)	2.32
2.32			
Weir Sta Lft (m)		Vel Total (m/s)	1.31
1.31			
Weir Sta Rgt (m)		Flow Area (m2)	20.58

20.56	Weir Submerg		Froude # Ch1	0.28
0.28	Weir Max Depth (m)		Specif Force (m3)	27.42
27.37	Min El Weir Flow (m)	12.85	Hydr Depth (m)	2.31
2.31	Min El Prs (m)	12.86	W.P. Total (m)	22.50
22.49	Delta EG (m)	0.03	Conv. Total (m3/s)	1292.8
1291.2	Delta WS (m)	0.03	Top Width (m)	8.90
8.90	BR Open Area (m2)	27.21	Frctn Loss (m)	0.00
0.00	BR Open Vel (m/s)	1.31	C & E Loss (m)	0.00
0.01	BR Sluice Coef		Shear Total (N/m2)	3.91
3.92	BR Sel Method	Energy only	Power Total (N/m s)	5.13
5.15				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.45	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.42	E.G. Elev (m)	12.45
12.44		W.S. Elev (m)	12.38
Q Total (m3/s)	27.00	Crit W.S. (m)	10.79
12.37		Max Ch1 Dpth (m)	2.58
Q Bridge (m3/s)	27.00	Vel Total (m/s)	1.18
10.79		Flow Area (m2)	22.84
Q Weir (m3/s)		Froude # Ch1	0.24
2.58		Specif Force (m3)	32.56
Weir Sta Lft (m)		Hydr Depth (m)	2.57
1.18		W.P. Total (m)	24.02
Weir Sta Rgt (m)		Conv. Total (m3/s)	1471.8
22.82			
Weir Submerg			
0.24			
Weir Max Depth (m)			
32.52			
Min El Weir Flow (m)	12.85		
2.56			
Min El Prs (m)	12.86		
24.01			
Delta EG (m)	0.02		

1470.6			
Delta WS (m)	0.02	Top Width (m)	8.90
8.90			
BR Open Area (m2)	27.21	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	1.18	C & E Loss (m)	0.00
0.01			
BR Sluice Coef		Shear Total (N/m2)	3.14
3.14			
BR Sel Method	Energy only	Power Total (N/m s)	3.71
3.72			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.79	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.77	E.G. Elev (m)	12.79
12.78			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.73
12.73			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.79
10.79			
Q Weir (m3/s)		Max Chl Dpth (m)	2.93
2.93			
Weir Sta Lft (m)		Vel Total (m/s)	1.04
1.04			
Weir Sta Rgt (m)		Flow Area (m2)	26.00
25.99			
Weir Submerg		Froude # Chl	0.19
0.19			
Weir Max Depth (m)		Specif Force (m3)	40.84
40.81			
Min El Weir Flow (m)	12.85	Hydr Depth (m)	2.92
2.92			
Min El Prs (m)	12.86	W.P. Total (m)	26.15
26.15			
Delta EG (m)	0.02	Conv. Total (m3/s)	1726.3
1725.4			
Delta WS (m)	0.02	Top Width (m)	8.90
8.90			
BR Open Area (m2)	27.21	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	1.04	C & E Loss (m)	0.00
0.01			
BR Sluice Coef		Shear Total (N/m2)	2.38
2.39			
BR Sel Method	Energy only	Power Total (N/m s)	2.48

2.48

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 38

INPUT

Description:

Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3.1998	12.8459	4.0819	12.9823	5.5591	13.1833	6.4958	13.2833	7.4143	13.2287
7.66	13.2377	7.66	13.356	11.4946	13.356	16.7243	9.7981	21.3334	9.7975
26.0125	9.7972	31.1787	13.4831	32.1048	13.4831	32.1048	13.384	33.1614	13.3875
33.4901	13.4313	33.7267	13.4357	34.1211	13.4269	34.4104	13.3963	34.6821	13.3744
35.1441	13.3521	35.3282	13.3828	35.6043	13.3521	36.0162	13.2032		

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3.1998	.015	11.4946	.015	31.1787	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
Expan.

11.4946	31.1787	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.65	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.64	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		21.96
E.G. Slope (m/m)	0.000030	Area (m2)		21.96
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	14.57	Top Width (m)		14.57
Vel Total (m/s)	0.46	Avg. Vel. (m/s)		0.46
Max Chl Dpth (m)	1.84	Hydr. Depth (m)		1.51
Conv. Total (m3/s)	1828.8	Conv. (m3/s)		1828.8

Length Wtd. (m)	200.00	Wetted Per. (m)	15.73
Min Ch El (m)	9.80	Shear (N/m2)	0.41
Alpha	1.00	Stream Power (N/m s)	0.19
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	200.46
C & E Loss (m)	0.00	Cum SA (1000 m2)	116.92

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.07	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.07	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		28.50
E.G. Slope (m/m)	0.000014	Area (m2)		28.50
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.81	Top Width (m)		15.81
Vel Total (m/s)	0.35	Avg. Vel. (m/s)		0.35
Max Chl Dpth (m)	2.27	Hydr. Depth (m)		1.80
Conv. Total (m3/s)	2656.5	Conv. (m3/s)		2656.5
Length Wtd. (m)	200.00	Wetted Per. (m)		17.24
Min Ch El (m)	9.80	Shear (N/m2)		0.23
Alpha	1.00	Stream Power (N/m s)		0.08
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		256.71
C & E Loss (m)	0.00	Cum SA (1000 m2)		125.81

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		36.27
E.G. Slope (m/m)	0.000007	Area (m2)		36.27
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.16	Top Width (m)		17.16
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.74	Hydr. Depth (m)		2.11
Conv. Total (m3/s)	3736.1	Conv. (m3/s)		3736.1
Length Wtd. (m)	200.00	Wetted Per. (m)		18.89
Min Ch El (m)	9.80	Shear (N/m2)		0.13
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	319.15
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	132.00

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.19	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.15	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		29.76
E.G. Slope (m/m)	0.000091	Area (m2)		29.76
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	16.04	Top Width (m)		16.04
Vel Total (m/s)	0.91	Avg. Vel. (m/s)		0.91
Max Chl Dpth (m)	2.35	Hydr. Depth (m)		1.86
Conv. Total (m3/s)	2825.3	Conv. (m3/s)		2825.3

Length Wtd. (m)	200.00	Wetted Per. (m)	17.51
Min Ch El (m)	9.80	Shear (N/m2)	1.52
Alpha	1.00	Stream Power (N/m s)	1.38
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	234.56
C & E Loss (m)	0.00	Cum SA (1000 m2)	122.39

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.43	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.40	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.86
E.G. Slope (m/m)	0.000063	Area (m2)		33.86
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	16.75	Top Width (m)		16.75
Vel Total (m/s)	0.80	Avg. Vel. (m/s)		0.80
Max Chl Dpth (m)	2.60	Hydr. Depth (m)		2.02
Conv. Total (m3/s)	3391.4	Conv. (m3/s)		3391.4
Length Wtd. (m)	200.00	Wetted Per. (m)		18.39
Min Ch El (m)	9.80	Shear (N/m2)		1.14
Alpha	1.00	Stream Power (N/m s)		0.91
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		278.95
C & E Loss (m)	0.00	Cum SA (1000 m2)		128.47

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.77	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.75	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		39.93
E.G. Slope (m/m)	0.000040	Area (m2)		39.93
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.76	Top Width (m)		17.76
Vel Total (m/s)	0.68	Avg. Vel. (m/s)		0.68
Max Chl Dpth (m)	2.95	Hydr. Depth (m)		2.25
Conv. Total (m3/s)	4275.2	Conv. (m3/s)		4275.2
Length Wtd. (m)	200.00	Wetted Per. (m)		19.62
Min Ch El (m)	9.80	Shear (N/m2)		0.80
Alpha	1.00	Stream Power (N/m s)		0.54
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	333.14
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	131.62

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 37

INPUT

Description:

Station Elevation Data		num=		16	
Sta	Elev	Sta	Elev	Sta	Elev
7.9031	13.2109	9.2779	13.3264	10.2351	13.3985
12.2435	13.4937	13.2576	13.4937	18.4896	9.7727
35.2311	13.4507	35.2311	13.3512	35.8967	13.3004
39.1084	13.3667				

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
7.9031	.015	13.2576	.015	34.3162	.015

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
13.2576	34.3162	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.64	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.64	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		24.50
E.G. Slope (m/m)	0.000023	Area (m2)		24.50
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.81	Top Width (m)		15.81
Vel Total (m/s)	0.41	Avg. Vel. (m/s)		0.41
Max Chl Dpth (m)	1.86	Hydr. Depth (m)		1.55
Conv. Total (m3/s)	2085.5	Conv. (m3/s)		2085.5
Length Wtd. (m)	200.00	Wetted Per. (m)		16.99
Min Ch El (m)	9.77	Shear (N/m2)		0.33
Alpha	1.00	Stream Power (N/m s)		0.13
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		195.81
C & E Loss (m)	0.00	Cum SA (1000 m2)		113.88

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.07	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.07	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		31.60
E.G. Slope (m/m)	0.000011	Area (m2)		31.60
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.05	Top Width (m)		17.05

Vel Total (m/s)	0.32	Avg. Vel. (m/s)	0.32
Max Chl Dpth (m)	2.30	Hydr. Depth (m)	1.85
Conv. Total (m3/s)	3011.6	Conv. (m3/s)	3011.6
Length Wtd. (m)	200.00	Wetted Per. (m)	18.49
Min Ch El (m)	9.77	Shear (N/m2)	0.18
Alpha	1.00	Stream Power (N/m s)	0.06
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	250.69
C & E Loss (m)	0.00	Cum SA (1000 m2)	122.52

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		39.97
E.G. Slope (m/m)	0.000006	Area (m2)		39.97
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.40	Top Width (m)		18.40
Vel Total (m/s)	0.25	Avg. Vel. (m/s)		0.25
Max Chl Dpth (m)	2.77	Hydr. Depth (m)		2.17
Conv. Total (m3/s)	4208.6	Conv. (m3/s)		4208.6
Length Wtd. (m)	200.00	Wetted Per. (m)		20.14
Min Ch El (m)	9.77	Shear (N/m2)		0.11
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	311.53
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	128.44

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.17	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.14	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.84
E.G. Slope (m/m)	0.000072	Area (m2)		32.84
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.25	Top Width (m)		17.25
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.37	Hydr. Depth (m)		1.90
Conv. Total (m3/s)	3181.3	Conv. (m3/s)		3181.3
Length Wtd. (m)	200.00	Wetted Per. (m)		18.75
Min Ch El (m)	9.77	Shear (N/m2)		1.24
Alpha	1.00	Stream Power (N/m s)		1.02
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		228.30
C & E Loss (m)	0.00	Cum SA (1000 m2)		119.06

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.42	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.39	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.30
E.G. Slope (m/m)	0.000050	Area (m2)		37.30
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.98	Top Width (m)		17.98

Vel Total (m/s)	0.72	Avg. Vel. (m/s)	0.72
Max Chl Dpth (m)	2.62	Hydr. Depth (m)	2.07
Conv. Total (m3/s)	3814.7	Conv. (m3/s)	3814.7
Length Wtd. (m)	200.00	Wetted Per. (m)	19.63
Min Ch El (m)	9.77	Shear (N/m2)	0.93
Alpha	1.00	Stream Power (N/m s)	0.68
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	271.83
C & E Loss (m)	0.00	Cum SA (1000 m2)	124.99

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.77	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.75	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		43.84
E.G. Slope (m/m)	0.000032	Area (m2)		43.84
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.99	Top Width (m)		18.99
Vel Total (m/s)	0.62	Avg. Vel. (m/s)		0.62
Max Chl Dpth (m)	2.98	Hydr. Depth (m)		2.31
Conv. Total (m3/s)	4795.1	Conv. (m3/s)		4795.1
Length Wtd. (m)	200.00	Wetted Per. (m)		20.86
Min Ch El (m)	9.77	Shear (N/m2)		0.65
Alpha	1.00	Stream Power (N/m s)		0.40
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	324.76
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	127.95

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 36

INPUT

Description:

Station Elevation Data				num=	17				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18.9939	13.0055	20.3392	13.1866	21.3196	13.2193	22.2182	13.2357	23.7362	13.1506
23.7362	13.205	24.2683	13.205	29.1133	9.7472	39.7296	9.7458	44.8446	13.3513
45.3763	13.3513	45.3763	13.2553	49.0977	13.285	49.5105	13.3429	50.1509	13.3197
50.5907	13.1809	51.2158	13.0036						

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
18.9939	.015	24.2683	.015	44.8446	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	24.2683	44.8446		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.64	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.63	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		25.01
E.G. Slope (m/m)	0.000022	Area (m2)		25.01
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.93	Top Width (m)		15.93
Vel Total (m/s)	0.40	Avg. Vel. (m/s)		0.40
Max Chl Dpth (m)	1.89	Hydr. Depth (m)		1.57
Conv. Total (m3/s)	2146.2	Conv. (m3/s)		2146.2
Length Wtd. (m)	200.00	Wetted Per. (m)		17.13
Min Ch El (m)	9.75	Shear (N/m2)		0.31
Alpha	1.00	Stream Power (N/m s)		0.12
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		190.86

C & E Loss (m)	0.00	Cum SA (1000 m2)	110.71
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CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.07	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.07	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.20
E.G. Slope (m/m)	0.000010	Area (m2)		32.20
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.16	Top Width (m)		17.16
Vel Total (m/s)	0.31	Avg. Vel. (m/s)		0.31
Max Chl Dpth (m)	2.32	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3091.1	Conv. (m3/s)		3091.1
Length Wtd. (m)	200.00	Wetted Per. (m)		18.63
Min Ch El (m)	9.75	Shear (N/m2)		0.18
Alpha	1.00	Stream Power (N/m s)		0.06
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		244.31
C & E Loss (m)	0.00	Cum SA (1000 m2)		119.10

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		40.63
E.G. Slope (m/m)	0.000005	Area (m2)		40.63

Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	18.49	Top Width (m)	18.49
Vel Total (m/s)	0.25	Avg. Vel. (m/s)	0.25
Max Chl Dpth (m)	2.79	Hydr. Depth (m)	2.20
Conv. Total (m3/s)	4306.7	Conv. (m3/s)	4306.7
Length Wtd. (m)	200.00	Wetted Per. (m)	20.27
Min Ch El (m)	9.75	Shear (N/m2)	0.11
Alpha	1.00	Stream Power (N/m s)	0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00 303.47
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00 124.75

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.16	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.13	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.24
E.G. Slope (m/m)	0.000070	Area (m2)		33.24
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.33	Top Width (m)		17.33
Vel Total (m/s)	0.81	Avg. Vel. (m/s)		0.81
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.92
Conv. Total (m3/s)	3235.7	Conv. (m3/s)		3235.7
Length Wtd. (m)	200.00	Wetted Per. (m)		18.84
Min Ch El (m)	9.75	Shear (N/m2)		1.20
Alpha	1.00	Stream Power (N/m s)		0.98
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		221.69

C & E Loss (m)	0.00	Cum SA (1000 m2)	115.60
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CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.41	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.38	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.80
E.G. Slope (m/m)	0.000048	Area (m2)		37.80
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.05	Top Width (m)		18.05
Vel Total (m/s)	0.71	Avg. Vel. (m/s)		0.71
Max Chl Dpth (m)	2.64	Hydr. Depth (m)		2.09
Conv. Total (m3/s)	3886.2	Conv. (m3/s)		3886.2
Length Wtd. (m)	200.00	Wetted Per. (m)		19.73
Min Ch El (m)	9.75	Shear (N/m2)		0.91
Alpha	1.00	Stream Power (N/m s)		0.65
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		264.32
C & E Loss (m)	0.00	Cum SA (1000 m2)		121.39

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.76	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.74	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		44.43
E.G. Slope (m/m)	0.000031	Area (m2)		44.43

Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	19.06	Top Width (m)	19.06
Vel Total (m/s)	0.61	Avg. Vel. (m/s)	0.61
Max Chl Dpth (m)	3.00	Hydr. Depth (m)	2.33
Conv. Total (m3/s)	4886.3	Conv. (m3/s)	4886.3
Length Wtd. (m)	200.00	Wetted Per. (m)	20.97
Min Ch El (m)	9.75	Shear (N/m2)	0.63
Alpha	1.00	Stream Power (N/m s)	0.39
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04 315.93
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55 124.14

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 35

INPUT

Description:

Station Elevation Data		num=		16					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.8752	12.8333	12.1151	13.123	13.6448	13.3162	15.2228	13.4289	16.9064	13.3596
16.9064	13.4391	18.0191	13.4391	23.0754	9.7217	33.6246	9.7203	38.7991	13.3971
39.4313	13.3971	39.4313	13.297	40.1953	13.2967	42.5758	13.2267	44.9594	13.0167
45.4566	12.9466								

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
10.8752	.015	18.0191	.015	38.7991	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	18.0191	38.7991		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.63	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015

W.S. Elev (m)	11.63	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		25.13
E.G. Slope (m/m)	0.000021	Area (m2)		25.13
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.82	Top Width (m)		15.82
Vel Total (m/s)	0.40	Avg. Vel. (m/s)		0.40
Max Chl Dpth (m)	1.91	Hydr. Depth (m)		1.59
Conv. Total (m3/s)	2169.1	Conv. (m3/s)		2169.1
Length Wtd. (m)	200.00	Wetted Per. (m)		17.06
Min Ch El (m)	9.72	Shear (N/m2)		0.31
Alpha	1.00	Stream Power (N/m s)		0.12
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		185.85
C & E Loss (m)	0.00	Cum SA (1000 m2)		107.53

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.07	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.06	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.30
E.G. Slope (m/m)	0.000010	Area (m2)		32.30
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.03	Top Width (m)		17.03
Vel Total (m/s)	0.31	Avg. Vel. (m/s)		0.31
Max Chl Dpth (m)	2.34	Hydr. Depth (m)		1.90
Conv. Total (m3/s)	3116.9	Conv. (m3/s)		3116.9
Length Wtd. (m)	200.00	Wetted Per. (m)		18.55

Min Ch El (m)	9.72	Shear (N/m2)	0.18
Alpha	1.00	Stream Power (N/m s)	0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	237.86
C & E Loss (m)	0.00	Cum SA (1000 m2)	115.68

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		40.69
E.G. Slope (m/m)	0.000005	Area (m2)		40.69
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.34	Top Width (m)		18.34
Vel Total (m/s)	0.25	Avg. Vel. (m/s)		0.25
Max Chl Dpth (m)	2.82	Hydr. Depth (m)		2.22
Conv. Total (m3/s)	4331.0	Conv. (m3/s)		4331.0
Length Wtd. (m)	200.00	Wetted Per. (m)		20.17
Min Ch El (m)	9.72	Shear (N/m2)		0.11
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	295.34
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	121.07

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.15	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015

W.S. Elev (m)	12.11	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.13
E.G. Slope (m/m)	0.000070	Area (m2)		33.13
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.17	Top Width (m)		17.17
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3232.0	Conv. (m3/s)		3232.0
Length Wtd. (m)	200.00	Wetted Per. (m)		18.71
Min Ch El (m)	9.72	Shear (N/m2)		1.21
Alpha	1.00	Stream Power (N/m s)		0.99
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		215.06
C & E Loss (m)	0.00	Cum SA (1000 m2)		112.15

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.40	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.37	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.72
E.G. Slope (m/m)	0.000048	Area (m2)		37.72
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.89	Top Width (m)		17.89
Vel Total (m/s)	0.72	Avg. Vel. (m/s)		0.72
Max Chl Dpth (m)	2.65	Hydr. Depth (m)		2.11
Conv. Total (m3/s)	3889.3	Conv. (m3/s)		3889.3
Length Wtd. (m)	200.00	Wetted Per. (m)		19.61

Min Ch El (m)	9.72	Shear (N/m2)	0.91
Alpha	1.00	Stream Power (N/m s)	0.65
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	256.77
C & E Loss (m)	0.00	Cum SA (1000 m2)	117.80

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.75	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.73	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		44.36
E.G. Slope (m/m)	0.000030	Area (m2)		44.36
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.89	Top Width (m)		18.89
Vel Total (m/s)	0.61	Avg. Vel. (m/s)		0.61
Max Chl Dpth (m)	3.01	Hydr. Depth (m)		2.35
Conv. Total (m3/s)	4893.1	Conv. (m3/s)		4893.1
Length Wtd. (m)	200.00	Wetted Per. (m)		20.84
Min Ch El (m)	9.72	Shear (N/m2)		0.64
Alpha	1.00	Stream Power (N/m s)		0.39
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	307.05
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	120.35

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 34

INPUT

Description:

Station Elevation Data				num=	17				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.8322	13.202	16.1163	13.4847	17.683	13.3961	19.1246	13.308	19.1246	13.3774
19.6574	13.3774	24.664	9.6962	35.3082	9.6948	40.2778	13.3708	40.9289	13.3708
40.9289	13.2944	41.5074	13.3217	42.1993	13.3115	43.7292	13.2914	44.706	13.2202
45.3978	13.1999	46.5679	13.0168						

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
13.8322	.015	19.6574	.015	40.2778	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	19.6574	40.2778		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.63	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.62	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		25.55
E.G. Slope (m/m)	0.000020	Area (m2)		25.55
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.87	Top Width (m)		15.87
Vel Total (m/s)	0.39	Avg. Vel. (m/s)		0.39
Max Chl Dpth (m)	1.93	Hydr. Depth (m)		1.61
Conv. Total (m3/s)	2223.1	Conv. (m3/s)		2223.1
Length Wtd. (m)	200.00	Wetted Per. (m)		17.14
Min Ch El (m)	9.69	Shear (N/m2)		0.30
Alpha	1.00	Stream Power (N/m s)		0.12
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		180.78
C & E Loss (m)	0.00	Cum SA (1000 m2)		104.36

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.07	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.06	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.77
E.G. Slope (m/m)	0.000010	Area (m2)		32.77
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.06	Top Width (m)		17.06
Vel Total (m/s)	0.31	Avg. Vel. (m/s)		0.31
Max Chl Dpth (m)	2.37	Hydr. Depth (m)		1.92
Conv. Total (m3/s)	3185.3	Conv. (m3/s)		3185.3
Length Wtd. (m)	200.00	Wetted Per. (m)		18.62
Min Ch El (m)	9.69	Shear (N/m2)		0.17
Alpha	1.00	Stream Power (N/m s)		0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		231.36
C & E Loss (m)	0.00	Cum SA (1000 m2)		112.27

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		41.18
E.G. Slope (m/m)	0.000005	Area (m2)		41.18
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.35	Top Width (m)		18.35
Vel Total (m/s)	0.24	Avg. Vel. (m/s)		0.24
Max Chl Dpth (m)	2.84	Hydr. Depth (m)		2.24

Conv. Total (m3/s)	4411.9	Conv. (m3/s)		4411.9
Length Wtd. (m)	200.00	Wetted Per. (m)		20.22
Min Ch El (m)	9.69	Shear (N/m2)		0.10
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	287.15
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	117.40

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.13	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.10	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.41
E.G. Slope (m/m)	0.000068	Area (m2)		33.41
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.16	Top Width (m)		17.16
Vel Total (m/s)	0.81	Avg. Vel. (m/s)		0.81
Max Chl Dpth (m)	2.40	Hydr. Depth (m)		1.95
Conv. Total (m3/s)	3274.0	Conv. (m3/s)		3274.0
Length Wtd. (m)	200.00	Wetted Per. (m)		18.74
Min Ch El (m)	9.69	Shear (N/m2)		1.19
Alpha	1.00	Stream Power (N/m s)		0.96
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		208.40
C & E Loss (m)	0.00	Cum SA (1000 m2)		108.72

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.39	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.36	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.07
E.G. Slope (m/m)	0.000047	Area (m2)		38.07
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.88	Top Width (m)		17.88
Vel Total (m/s)	0.71	Avg. Vel. (m/s)		0.71
Max Chl Dpth (m)	2.67	Hydr. Depth (m)		2.13
Conv. Total (m3/s)	3945.5	Conv. (m3/s)		3945.5
Length Wtd. (m)	200.00	Wetted Per. (m)		19.64
Min Ch El (m)	9.69	Shear (N/m2)		0.89
Alpha	1.00	Stream Power (N/m s)		0.63
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		249.19
C & E Loss (m)	0.00	Cum SA (1000 m2)		114.22

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.75	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.73	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		44.76
E.G. Slope (m/m)	0.000030	Area (m2)		44.76
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.87	Top Width (m)		18.87
Vel Total (m/s)	0.60	Avg. Vel. (m/s)		0.60
Max Chl Dpth (m)	3.03	Hydr. Depth (m)		2.37

Conv. Total (m3/s)	4964.1	Conv. (m3/s)	4964.1
Length Wtd. (m)	200.00	Wetted Per. (m)	20.87
Min Ch El (m)	9.69	Shear (N/m2)	0.62
Alpha	1.00	Stream Power (N/m s)	0.38
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04 298.14
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55 116.57

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 33

INPUT									
Description:									
Station Elevation Data				num=	16				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14.6403	13.0685	15.0542	13.0833	17.1619	13.2321	18.6251	13.2173	19.3959	13.1705
19.3959	13.2401	19.9268	13.2401	25.1505	9.6707	35.625	9.67	40.6234	13.2941
41.3425	13.2941	41.3425	13.2378	41.698	13.2688	44.0041	13.2521	45.4253	13.1628
46.8659	12.973								
Manning's n Values				num=	3				
Sta	n Val	Sta	n Val	Sta	n Val				
14.6403	.015	19.9268	.015	40.6234	.015				
Bank Sta:	Left	Right	Lengths:			Left Channel	Right	Coeff Contr.	
Expan.									
	19.9268	40.6234		200	200	200		.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.63	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.62	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		25.81
E.G. Slope (m/m)	0.000020	Area (m2)		25.81
Q Total (m3/s)	10.00	Flow (m3/s)		10.00

Top Width (m)	16.01	Top Width (m)	16.01
Vel Total (m/s)	0.39	Avg. Vel. (m/s)	0.39
Max Chl Dpth (m)	1.95	Hydr. Depth (m)	1.61
Conv. Total (m3/s)	2250.7	Conv. (m3/s)	2250.7
Length Wtd. (m)	200.00	Wetted Per. (m)	17.25
Min Ch El (m)	9.67	Shear (N/m2)	0.29
Alpha	1.00	Stream Power (N/m s)	0.11
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	175.64
C & E Loss (m)	0.00	Cum SA (1000 m2)	101.17

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.06	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.06	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.14
E.G. Slope (m/m)	0.000010	Area (m2)		33.14
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.27	Top Width (m)		17.27
Vel Total (m/s)	0.30	Avg. Vel. (m/s)		0.30
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.92
Conv. Total (m3/s)	3225.9	Conv. (m3/s)		3225.9
Length Wtd. (m)	200.00	Wetted Per. (m)		18.78
Min Ch El (m)	9.67	Shear (N/m2)		0.17
Alpha	1.00	Stream Power (N/m s)		0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		224.77
C & E Loss (m)	0.00	Cum SA (1000 m2)		108.84

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		41.68
E.G. Slope (m/m)	0.000005	Area (m2)		41.68
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.62	Top Width (m)		18.62
Vel Total (m/s)	0.24	Avg. Vel. (m/s)		0.24
Max Chl Dpth (m)	2.87	Hydr. Depth (m)		2.24
Conv. Total (m3/s)	4468.7	Conv. (m3/s)		4468.7
Length Wtd. (m)	200.00	Wetted Per. (m)		20.43
Min Ch El (m)	9.67	Shear (N/m2)		0.10
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	278.86
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	113.70

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.12	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.09	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.58
E.G. Slope (m/m)	0.000067	Area (m2)		33.58
Q Total (m3/s)	27.00	Flow (m3/s)		27.00

Top Width (m)	17.34	Top Width (m)	17.34
Vel Total (m/s)	0.80	Avg. Vel. (m/s)	0.80
Max Chl Dpth (m)	2.42	Hydr. Depth (m)	1.94
Conv. Total (m3/s)	3288.0	Conv. (m3/s)	3288.0
Length Wtd. (m)	200.00	Wetted Per. (m)	18.87
Min Ch El (m)	9.67	Shear (N/m2)	1.18
Alpha	1.00	Stream Power (N/m s)	0.95
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	201.71
C & E Loss (m)	0.00	Cum SA (1000 m2)	105.27

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.38	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.36	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.37
E.G. Slope (m/m)	0.000046	Area (m2)		38.37
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.11	Top Width (m)		18.11
Vel Total (m/s)	0.70	Avg. Vel. (m/s)		0.70
Max Chl Dpth (m)	2.69	Hydr. Depth (m)		2.12
Conv. Total (m3/s)	3975.5	Conv. (m3/s)		3975.5
Length Wtd. (m)	200.00	Wetted Per. (m)		19.81
Min Ch El (m)	9.67	Shear (N/m2)		0.88
Alpha	1.00	Stream Power (N/m s)		0.62
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		241.55
C & E Loss (m)	0.00	Cum SA (1000 m2)		110.62

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.74	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.72	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		45.23
E.G. Slope (m/m)	0.000029	Area (m2)		45.23
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.15	Top Width (m)		19.15
Vel Total (m/s)	0.60	Avg. Vel. (m/s)		0.60
Max Chl Dpth (m)	3.05	Hydr. Depth (m)		2.36
Conv. Total (m3/s)	5014.4	Conv. (m3/s)		5014.4
Length Wtd. (m)	200.00	Wetted Per. (m)		21.09
Min Ch El (m)	9.67	Shear (N/m2)		0.61
Alpha	1.00	Stream Power (N/m s)		0.36
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	289.14
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	112.77

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 32

INPUT

Description:

Station Elevation Data		num=		18					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.8712	12.9796	15.9743	13.1659	17.9142	13.1527	17.9164	13.1524	17.9164	13.1911
18.8638	13.1911	23.8188	9.67	34.2892	9.67	39.5453	13.3868	40.0671	13.3868
40.0671	13.3347	40.4953	13.3757	41.3198	13.371	42.483	13.3711	42.7821	13.3662
43.4195	13.2633	44.2811	13.2701	45.1598	13.0694				

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
13.8712	.015	18.8638	.015
39.5453	.015		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	18.8638	39.5453		200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.62	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.61	Reach Len. (m)	191.00	191.00
191.00				
Crit W.S. (m)	10.11	Flow Area (m2)		25.70
E.G. Slope (m/m)	0.000020	Area (m2)		25.70
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.96	Top Width (m)		15.96
Vel Total (m/s)	0.39	Avg. Vel. (m/s)		0.39
Max Chl Dpth (m)	1.94	Hydr. Depth (m)		1.61
Conv. Total (m3/s)	2239.5	Conv. (m3/s)		2239.5
Length Wtd. (m)	191.00	Wetted Per. (m)		17.20
Min Ch El (m)	9.67	Shear (N/m2)		0.29
Alpha	1.00	Stream Power (N/m s)		0.11
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		170.49
C & E Loss (m)	0.00	Cum SA (1000 m2)		97.98

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.06	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015

W.S. Elev (m)	12.06	Reach Len. (m)	191.00	191.00
191.00				
Crit W.S. (m)	10.11	Flow Area (m2)		33.04
E.G. Slope (m/m)	0.000010	Area (m2)		33.04
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.21	Top Width (m)		17.21
Vel Total (m/s)	0.30	Avg. Vel. (m/s)		0.30
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.92
Conv. Total (m3/s)	3215.8	Conv. (m3/s)		3215.8
Length Wtd. (m)	191.00	Wetted Per. (m)		18.73
Min Ch El (m)	9.67	Shear (N/m2)		0.17
Alpha	1.00	Stream Power (N/m s)		0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		218.15
C & E Loss (m)	0.00	Cum SA (1000 m2)		105.39

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	191.00	191.00
191.00				
Crit W.S. (m)	10.11	Flow Area (m2)		41.57
E.G. Slope (m/m)	0.000005	Area (m2)		41.57
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.55	Top Width (m)		18.55
Vel Total (m/s)	0.24	Avg. Vel. (m/s)		0.24
Max Chl Dpth (m)	2.86	Hydr. Depth (m)		2.24

Conv. Total (m3/s)	4457.0	Conv. (m3/s)	4457.0
Length Wtd. (m)	191.00	Wetted Per. (m)	20.38
Min Ch El (m)	9.67	Shear (N/m2)	0.10
Alpha	1.00	Stream Power (N/m s)	0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00 270.54
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00 109.99

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.10	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.07	Reach Len. (m)	191.00	191.00
191.00				
Crit W.S. (m)	10.51	Flow Area (m2)		33.27
E.G. Slope (m/m)	0.000069	Area (m2)		33.27
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.24	Top Width (m)		17.24
Vel Total (m/s)	0.81	Avg. Vel. (m/s)		0.81
Max Chl Dpth (m)	2.40	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3247.8	Conv. (m3/s)		3247.8
Length Wtd. (m)	191.00	Wetted Per. (m)		18.77
Min Ch El (m)	9.67	Shear (N/m2)		1.20
Alpha	1.00	Stream Power (N/m s)		0.97
Frctn Loss (m)	0.02	Cum Volume (1000 m3)		195.02
C & E Loss (m)	0.00	Cum SA (1000 m2)		101.81

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.37	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.35	Reach Len. (m)	191.00	191.00
191.00				
Crit W.S. (m)	10.51	Flow Area (m2)		38.12
E.G. Slope (m/m)	0.000047	Area (m2)		38.12
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.02	Top Width (m)		18.02
Vel Total (m/s)	0.71	Avg. Vel. (m/s)		0.71
Max Chl Dpth (m)	2.68	Hydr. Depth (m)		2.12
Conv. Total (m3/s)	3942.5	Conv. (m3/s)		3942.5
Length Wtd. (m)	191.00	Wetted Per. (m)		19.72
Min Ch El (m)	9.67	Shear (N/m2)		0.89
Alpha	1.00	Stream Power (N/m s)		0.63
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		233.90
C & E Loss (m)	0.00	Cum SA (1000 m2)		107.01

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.74	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.72	Reach Len. (m)	191.00	191.00

191.00				
Crit W.S. (m)	10.51	Flow Area (m2)		45.01
E.G. Slope (m/m)	0.000029	Area (m2)		45.01
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.07	Top Width (m)		19.07
Vel Total (m/s)	0.60	Avg. Vel. (m/s)		0.60
Max Chl Dpth (m)	3.05	Hydr. Depth (m)		2.36
Conv. Total (m3/s)	4986.0	Conv. (m3/s)		4986.0
Length Wtd. (m)	191.00	Wetted Per. (m)		21.01
Min Ch El (m)	9.67	Shear (N/m2)		0.62
Alpha	1.00	Stream Power (N/m s)		0.37
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	280.12
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.55	108.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
 REACH: Canale SNM RS: 31.5

INPUT

Description: \
 Distance from Upstream XS = 191
 Deck/Roadway Width = 5
 Weir Coefficient = 1.4
 Upstream Deck/Roadway Coordinates
 num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
17.81	14.1	12.38	40.36	14.1	12.38				

Upstream Bridge Cross Section Data

Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.8712	12.9796	15.9743	13.1659	17.9142	13.1527	17.9164	13.1524	17.9164	13.1911
18.8638	13.1911	23.8188	9.67	34.2892	9.67	39.5453	13.3868	40.0671	13.3868
40.0671	13.3347	40.4953	13.3757	41.3198	13.371	42.483	13.3711	42.7821	13.3662

43.4195 13.2633 44.2811 13.2701 45.1598 13.0694

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
13.8712 .015 18.8638 .015 39.5453 .015

Bank Sta: Left Right Coeff Contr. Expan.
18.8638 39.5453 .0015 .01

Downstream Deck/Roadway Coordinates
num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
19.08 14.22 12.49 41.63 14.22 12.49

Downstream Bridge Cross Section Data
Station Elevation Data num= 28
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
9.4991 12.6252 13.2865 12.6464 13.9614 12.6612 14.3909 12.5279 14.8649 12.7945
15.1611 12.8833 15.6202 12.8537 16.1565 12.799 16.7153 12.8933 17.0056 12.9078
17.8257 12.9006 18.4426 12.8643 18.7909 12.9513 19.132 13.0021 19.1908 13.0021
19.1908 13.0659 19.72 13.0659 25.0488 9.67 35.6533 9.67 40.9268 13.0883
41.4564 13.0883 41.4564 12.9883 41.8237 12.9883 42.9488 12.8667 43.3665 12.9109
43.8283 12.8912 46.61 12.8407 47.2974 12.7907

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
9.4991 .015 19.72 .015 40.9268 .015

Bank Sta: Left Right Coeff Contr. Expan.
19.72 40.9268 .0015 .01

Upstream Embankment side slope = 1.8 horiz. to 1.0 vertical
Downstream Embankment side slope = 1.8 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data
Upstream num= 2
Sta Elev Sta Elev
17.81 12.38 22.78 12.38
Downstream num= 2
Sta Elev Sta Elev
19.08 12.49 24.06 12.49

Abutment Data
Upstream num= 2
Sta Elev Sta Elev
35.38 12.38 40.36 12.38
Downstream num= 2

Sta	Elev	Sta	Elev
36.65	12.49	41.64	12.49

Number of Piers = 2

Pier Data

Pier Station	Upstream=	26.38	Downstream=	27.65
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.57	.5	12.37	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.57	.5	12.49	

Pier Data

Pier Station	Upstream=	31.73	Downstream=	33
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.57	.5	12.38	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.57	.5	12.49	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.62	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.61	E.G. Elev (m)	11.62
11.62			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.61
11.61			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.14
10.14			
Q Weir (m3/s)		Max Chl Dpth (m)	1.94
1.94			
Weir Sta Lft (m)		Vel Total (m/s)	0.46
0.46			

Weir Sta Rgt (m)		Flow Area (m2)	21.65
21.80			
Weir Submerg		Froude # Ch1	0.11
0.11			
Weir Max Depth (m)		Specif Force (m3)	20.86
21.09			
Min El Weir Flow (m)	12.98	Hydr Depth (m)	1.87
1.88			
Min El Prs (m)	12.38	W.P. Total (m)	22.19
22.30			
Delta EG (m)	0.01	Conv. Total (m3/s)	1420.3
1431.8			
Delta WS (m)	0.01	Top Width (m)	11.60
11.59			
BR Open Area (m2)	30.64	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.46	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.47
0.47			
BR Sel Method	Energy only	Power Total (N/m s)	0.22
0.21			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.06	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.06	E.G. Elev (m)	12.06
12.06			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.05
12.05			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.14
10.14			
Q Weir (m3/s)		Max Ch1 Dpth (m)	2.38
2.38			
Weir Sta Lft (m)		Vel Total (m/s)	0.37
0.37			
Weir Sta Rgt (m)		Flow Area (m2)	26.83
26.98			
Weir Submerg		Froude # Ch1	0.08
0.08			
Weir Max Depth (m)		Specif Force (m3)	31.58
31.89			
Min El Weir Flow (m)	12.98	Hydr Depth (m)	2.31
2.33			
Min El Prs (m)	12.38	W.P. Total (m)	24.86
24.98			

Delta EG (m)	0.00	Conv. Total (m3/s)	1881.6
1892.8			
Delta WS (m)	0.00	Top Width (m)	11.60
11.59			
BR Open Area (m2)	30.64	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.37	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.30
0.30			
BR Sel Method	Energy only	Power Total (N/m s)	0.11
0.11			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.54	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.53	E.G. Elev (m)	12.54
12.54			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.53
12.53			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.14
10.14			
Q Weir (m3/s)		Max Chl Dpth (m)	2.86
2.86			
Weir Sta Lft (m)		Vel Total (m/s)	0.33
0.31			
Weir Sta Rgt (m)		Flow Area (m2)	30.64
32.05			
Weir Submerg		Froude # Chl	0.06
0.06			
Weir Max Depth (m)		Specif Force (m3)	45.55
46.04			
Min El Weir Flow (m)	12.98	Hydr Depth (m)	
Min El Prs (m)	12.38	W.P. Total (m)	39.41
39.20			
Delta EG (m)	0.00	Conv. Total (m3/s)	1726.8
1868.4			
Delta WS (m)	0.00	Top Width (m)	
BR Open Area (m2)	30.64	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.33	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.26
0.23			

BR Sel Method	Energy only	Power Total (N/m s)	0.08
0.07			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.10	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.07	E.G. Elev (m)	12.08
12.08			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.03
12.03			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.56
10.55			
Q Weir (m3/s)		Max Chl Dpth (m)	2.36
2.36			
Weir Sta Lft (m)		Vel Total (m/s)	1.02
1.01			
Weir Sta Rgt (m)		Flow Area (m2)	26.58
26.72			
Weir Submerg		Froude # Chl	0.21
0.21			
Weir Max Depth (m)		Specif Force (m3)	33.42
33.70			
Min El Weir Flow (m)	12.98	Hydr Depth (m)	2.29
2.31			
Min El Prs (m)	12.38	W.P. Total (m)	24.73
24.85			
Delta EG (m)	0.02	Conv. Total (m3/s)	1858.7
1869.5			
Delta WS (m)	0.02	Top Width (m)	11.60
11.59			
BR Open Area (m2)	30.64	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	1.02	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.22
2.20			
BR Sel Method	Energy only	Power Total (N/m s)	2.26
2.22			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.37	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.35	E.G. Elev (m)	12.36
12.36			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.31
12.31			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.56
10.55			
Q Weir (m3/s)		Max Chl Dpth (m)	2.64
2.64			
Weir Sta Lft (m)		Vel Total (m/s)	0.90
0.90			
Weir Sta Rgt (m)		Flow Area (m2)	29.88
30.02			
Weir Submerg		Froude # Chl	0.18
0.18			
Weir Max Depth (m)		Specif Force (m3)	41.13
41.46			
Min El Weir Flow (m)	12.98	Hydr Depth (m)	2.58
2.59			
Min El Prs (m)	12.38	W.P. Total (m)	26.44
26.56			
Delta EG (m)	0.02	Conv. Total (m3/s)	2160.7
2171.3			
Delta WS (m)	0.01	Top Width (m)	11.60
11.59			
BR Open Area (m2)	30.64	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.90	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.73
1.71			
BR Sel Method	Energy only	Power Total (N/m s)	1.56
1.54			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.74	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.72	E.G. Elev (m)	12.72
12.72			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.68
12.69			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.56
10.55			

Q Weir (m3/s)		Max Chl Dpth (m)	3.01
3.02			
Weir Sta Lft (m)		Vel Total (m/s)	0.88
0.84			
Weir Sta Rgt (m)		Flow Area (m2)	30.64
32.33			
Weir Submerg		Froude # Chl	0.16
0.15			
Weir Max Depth (m)		Specif Force (m3)	52.35
53.04			
Min El Weir Flow (m)	12.98	Hydr Depth (m)	
6.25			
Min El Prs (m)	12.38	W.P. Total (m)	39.41
44.50			
Delta EG (m)	0.01	Conv. Total (m3/s)	1726.8
1870.9			
Delta WS (m)	0.01	Top Width (m)	
5.17			
BR Open Area (m2)	30.64	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.88	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.86
1.48			
BR Sel Method	Energy only	Power Total (N/m s)	1.64
1.24			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 31

INPUT

Description: Opera 11
 Opera 11

Station Elevation Data		num= 28	
Sta	Elev	Sta	Elev
9.4991	12.6252	13.2865	12.6464
15.1611	12.8833	15.6202	12.8537
17.8257	12.9006	18.4426	12.8643
19.1908	13.0659	19.72	13.0659
41.4564	13.0883	41.4564	12.9883
43.8283	12.8912	46.61	12.8407

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
9.4991	.015	19.72	.015
		40.9268	.015

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.	19.72	40.9268	200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.62	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.61	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		26.42
E.G. Slope (m/m)	0.000019	Area (m2)		26.42
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.64	Top Width (m)		16.64
Vel Total (m/s)	0.38	Avg. Vel. (m/s)		0.38
Max Chl Dpth (m)	1.94	Hydr. Depth (m)		1.59
Conv. Total (m3/s)	2293.0	Conv. (m3/s)		2293.0
Length Wtd. (m)	200.00	Wetted Per. (m)		17.78
Min Ch El (m)	9.67	Shear (N/m2)		0.28
Alpha	1.00	Stream Power (N/m s)		0.10
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		165.77
C & E Loss (m)	0.00	Cum SA (1000 m2)		95.23

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.06	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.05	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.14
E.G. Slope (m/m)	0.000009	Area (m2)		34.14

Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	18.03	Top Width (m)	18.03
Vel Total (m/s)	0.29	Avg. Vel. (m/s)	0.29
Max Chl Dpth (m)	2.38	Hydr. Depth (m)	1.89
Conv. Total (m3/s)	3313.8	Conv. (m3/s)	3313.8
Length Wtd. (m)	200.00	Wetted Per. (m)	19.43
Min Ch El (m)	9.67	Shear (N/m2)	0.16
Alpha	1.00	Stream Power (N/m s)	0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	212.17
C & E Loss (m)	0.00	Cum SA (1000 m2)	102.52

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.	0.000	0.015
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	0.00	43.10
E.G. Slope (m/m)	0.000005	Area (m2)	0.00	43.10
Q Total (m3/s)	10.00	Flow (m3/s)	0.00	10.00
Top Width (m)	19.53	Top Width (m)	0.02	19.51
Vel Total (m/s)	0.23	Avg. Vel. (m/s)	0.00	0.23
Max Chl Dpth (m)	2.86	Hydr. Depth (m)	0.00	2.21
Conv. Total (m3/s)	4612.7	Conv. (m3/s)	0.0	4612.7
Length Wtd. (m)	200.00	Wetted Per. (m)	0.02	21.19
Min Ch El (m)	9.67	Shear (N/m2)		0.09
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	0.00	263.34

C & E Loss (m)	0.00	Cum SA (1000 m2)	0.00	108.17
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Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.08	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.05	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.04
E.G. Slope (m/m)	0.000067	Area (m2)		34.04
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.01	Top Width (m)		18.01
Vel Total (m/s)	0.79	Avg. Vel. (m/s)		0.79
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.89
Conv. Total (m3/s)	3300.4	Conv. (m3/s)		3300.4
Length Wtd. (m)	200.00	Wetted Per. (m)		19.41
Min Ch El (m)	9.67	Shear (N/m2)		1.15
Alpha	1.00	Stream Power (N/m s)		0.91
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		189.05
C & E Loss (m)	0.00	Cum SA (1000 m2)		98.94

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.36	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.33	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		39.24

E.G. Slope (m/m)	0.000045	Area (m2)	39.24
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	18.89	Top Width (m)	18.89
Vel Total (m/s)	0.69	Avg. Vel. (m/s)	0.69
Max Chl Dpth (m)	2.66	Hydr. Depth (m)	2.08
Conv. Total (m3/s)	4039.2	Conv. (m3/s)	4039.2
Length Wtd. (m)	200.00	Wetted Per. (m)	20.45
Min Ch El (m)	9.67	Shear (N/m2)	0.84
Alpha	1.00	Stream Power (N/m s)	0.58
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	227.12
C & E Loss (m)	0.00	Cum SA (1000 m2)	104.06

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.72	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.015	0.015
W.S. Elev (m)	12.70	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)	0.37	46.51
E.G. Slope (m/m)	0.000028	Area (m2)	0.37	46.51
Q Total (m3/s)	27.00	Flow (m3/s)	0.02	26.98
Top Width (m)	25.25	Top Width (m)	5.21	20.05
Vel Total (m/s)	0.58	Avg. Vel. (m/s)	0.06	0.58
Max Chl Dpth (m)	3.03	Hydr. Depth (m)	0.07	2.32
Conv. Total (m3/s)	5137.5	Conv. (m3/s)	4.2	5133.4
Length Wtd. (m)	200.00	Wetted Per. (m)	5.35	21.83
Min Ch El (m)	9.67	Shear (N/m2)	0.02	0.58
Alpha	1.01	Stream Power (N/m s)	0.00	0.33

Frctn Loss (m)	0.01	Cum Volume (1000 m3)	0.04	272.58
C & E Loss (m)	0.00	Cum SA (1000 m2)	0.52	107.09

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 30

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14.9274	12.9364	15.626	13.0546	16.436	13.0676	16.8572	13.1842	17.57	13.1518
17.9199	13.0935	18.5614	13.1583	18.901	13.1373	18.901	13.2065	19.4303	13.2065
24.9432	9.67	34.7827	9.67	39.9923	13.3794	40.7435	13.3794	40.7435	13.2912
41.2758	13.3037	41.8493	13.3027	42.0485	13.3465	42.6658	13.3306	42.9127	13.3027
43.1198	13.2788	43.4743	13.255	44.0726	13.2191	44.3913	13.1873	44.5546	13.1515

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
14.9274	.015	19.4303	.015	39.9923	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	19.4303	39.9923		200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.60	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		24.57
E.G. Slope (m/m)	0.000022	Area (m2)		24.57
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.57	Top Width (m)		15.57
Vel Total (m/s)	0.41	Avg. Vel. (m/s)		0.41

Max Chl Dpth (m)	1.93	Hydr. Depth (m)	1.58
Conv. Total (m3/s)	2114.2	Conv. (m3/s)	2114.2
Length Wtd. (m)	200.00	Wetted Per. (m)	16.76
Min Ch El (m)	9.67	Shear (N/m2)	0.32
Alpha	1.00	Stream Power (N/m s)	0.13
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	160.67
C & E Loss (m)	0.00	Cum SA (1000 m2)	92.01

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.06	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.05	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		31.84
E.G. Slope (m/m)	0.000011	Area (m2)		31.84
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.90	Top Width (m)		16.90
Vel Total (m/s)	0.31	Avg. Vel. (m/s)		0.31
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3064.8	Conv. (m3/s)		3064.8
Length Wtd. (m)	200.00	Wetted Per. (m)		18.36
Min Ch El (m)	9.67	Shear (N/m2)		0.18
Alpha	1.00	Stream Power (N/m s)		0.06
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		205.58
C & E Loss (m)	0.00	Cum SA (1000 m2)		99.03

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		40.28
E.G. Slope (m/m)	0.000005	Area (m2)		40.28
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.32	Top Width (m)		18.32
Vel Total (m/s)	0.25	Avg. Vel. (m/s)		0.25
Max Chl Dpth (m)	2.86	Hydr. Depth (m)		2.20
Conv. Total (m3/s)	4272.1	Conv. (m3/s)		4272.1
Length Wtd. (m)	200.00	Wetted Per. (m)		20.07
Min Ch El (m)	9.67	Shear (N/m2)		0.11
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		255.00
C & E Loss (m)	0.00	Cum SA (1000 m2)		104.39

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.07	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.03	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		31.46
E.G. Slope (m/m)	0.000080	Area (m2)		31.46
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	16.83	Top Width (m)		16.83
Vel Total (m/s)	0.86	Avg. Vel. (m/s)		0.86

Max Chl Dpth (m)	2.36	Hydr. Depth (m)	1.87
Conv. Total (m3/s)	3012.2	Conv. (m3/s)	3012.2
Length Wtd. (m)	200.00	Wetted Per. (m)	18.28
Min Ch El (m)	9.67	Shear (N/m2)	1.36
Alpha	1.00	Stream Power (N/m s)	1.16
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	182.50
C & E Loss (m)	0.00	Cum SA (1000 m2)	95.46

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.35	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.32	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		36.43
E.G. Slope (m/m)	0.000053	Area (m2)		36.43
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.68	Top Width (m)		17.68
Vel Total (m/s)	0.74	Avg. Vel. (m/s)		0.74
Max Chl Dpth (m)	2.65	Hydr. Depth (m)		2.06
Conv. Total (m3/s)	3709.2	Conv. (m3/s)		3709.2
Length Wtd. (m)	200.00	Wetted Per. (m)		19.31
Min Ch El (m)	9.67	Shear (N/m2)		0.98
Alpha	1.00	Stream Power (N/m s)		0.73
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		219.55
C & E Loss (m)	0.00	Cum SA (1000 m2)		100.40

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.72	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.70	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		43.34
E.G. Slope (m/m)	0.000033	Area (m2)		43.34
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.81	Top Width (m)		18.81
Vel Total (m/s)	0.62	Avg. Vel. (m/s)		0.62
Max Chl Dpth (m)	3.03	Hydr. Depth (m)		2.30
Conv. Total (m3/s)	4734.5	Conv. (m3/s)		4734.5
Length Wtd. (m)	200.00	Wetted Per. (m)		20.66
Min Ch El (m)	9.67	Shear (N/m2)		0.67
Alpha	1.00	Stream Power (N/m s)		0.42
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		263.60
C & E Loss (m)	0.00	Cum SA (1000 m2)		103.20

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 29

INPUT

Description:

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15.7202	12.7828	16.4739	12.8357	17.5054	12.915	18.1667	12.9295	18.7304	12.8712
19.157	12.8807	19.157	13.0101	20.1134	13.0101	25.0863	9.67	35.7864	9.67
40.7158	12.9169	41.2458	12.9169	41.2458	12.8169	41.7997	12.8169	42.714	12.8115
43.1452	12.8115								

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
15.7202	.015	20.1134	.015	40.7158	.015

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
20.1134	40.7158	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.60	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		26.27
E.G. Slope (m/m)	0.000019	Area (m2)		26.27
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.51	Top Width (m)		16.51
Vel Total (m/s)	0.38	Avg. Vel. (m/s)		0.38
Max Chl Dpth (m)	1.93	Hydr. Depth (m)		1.59
Conv. Total (m3/s)	2280.3	Conv. (m3/s)		2280.3
Length Wtd. (m)	200.00	Wetted Per. (m)		17.67
Min Ch El (m)	9.67	Shear (N/m2)		0.28
Alpha	1.00	Stream Power (N/m s)		0.11
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		155.58
C & E Loss (m)	0.00	Cum SA (1000 m2)		88.80

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.06	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.05	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.99
E.G. Slope (m/m)	0.000009	Area (m2)		33.99
Q Total (m3/s)	10.00	Flow (m3/s)		10.00

Top Width (m)	17.86	Top Width (m)	17.86
Vel Total (m/s)	0.29	Avg. Vel. (m/s)	0.29
Max Chl Dpth (m)	2.38	Hydr. Depth (m)	1.90
Conv. Total (m3/s)	3305.5	Conv. (m3/s)	3305.5
Length Wtd. (m)	200.00	Wetted Per. (m)	19.30
Min Ch El (m)	9.67	Shear (N/m2)	0.16
Alpha	1.00	Stream Power (N/m s)	0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	198.99
C & E Loss (m)	0.00	Cum SA (1000 m2)	95.56

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		42.91
E.G. Slope (m/m)	0.000005	Area (m2)		42.91
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.30	Top Width (m)		19.30
Vel Total (m/s)	0.23	Avg. Vel. (m/s)		0.23
Max Chl Dpth (m)	2.86	Hydr. Depth (m)		2.22
Conv. Total (m3/s)	4601.4	Conv. (m3/s)		4601.4
Length Wtd. (m)	200.00	Wetted Per. (m)		21.03
Min Ch El (m)	9.67	Shear (N/m2)		0.09
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		246.68
C & E Loss (m)	0.00	Cum SA (1000 m2)		100.63

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.05	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.02	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.42
E.G. Slope (m/m)	0.000070	Area (m2)		33.42
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.76	Top Width (m)		17.76
Vel Total (m/s)	0.81	Avg. Vel. (m/s)		0.81
Max Chl Dpth (m)	2.35	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3225.9	Conv. (m3/s)		3225.9
Length Wtd. (m)	200.00	Wetted Per. (m)		19.18
Min Ch El (m)	9.67	Shear (N/m2)		1.20
Alpha	1.00	Stream Power (N/m s)		0.97
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		176.01
C & E Loss (m)	0.00	Cum SA (1000 m2)		92.00

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.34	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.31	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.74
E.G. Slope (m/m)	0.000046	Area (m2)		38.74
Q Total (m3/s)	27.00	Flow (m3/s)		27.00

Top Width (m)	18.64	Top Width (m)	18.64
Vel Total (m/s)	0.70	Avg. Vel. (m/s)	0.70
Max Chl Dpth (m)	2.64	Hydr. Depth (m)	2.08
Conv. Total (m3/s)	3982.0	Conv. (m3/s)	3982.0
Length Wtd. (m)	200.00	Wetted Per. (m)	20.24
Min Ch El (m)	9.67	Shear (N/m2)	0.86
Alpha	1.00	Stream Power (N/m s)	0.60
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	212.04
C & E Loss (m)	0.00	Cum SA (1000 m2)	96.77

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.71	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.69	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		46.07
E.G. Slope (m/m)	0.000028	Area (m2)		46.07
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.79	Top Width (m)		19.79
Vel Total (m/s)	0.59	Avg. Vel. (m/s)		0.59
Max Chl Dpth (m)	3.02	Hydr. Depth (m)		2.33
Conv. Total (m3/s)	5086.4	Conv. (m3/s)		5086.4
Length Wtd. (m)	200.00	Wetted Per. (m)		21.61
Min Ch El (m)	9.67	Shear (N/m2)		0.59
Alpha	1.00	Stream Power (N/m s)		0.35
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		254.66
C & E Loss (m)	0.00	Cum SA (1000 m2)		99.34

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 28

INPUT

Description:

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2.9442	12.9894	4.0425	13.2292	6.0901	13.2846	8.1181	13.2599	8.1181	13.3538
8.6491	13.3538	14.0076	9.67	24.4336	9.6693	29.6847	13.3669	30.2164	13.3669
30.2164	13.2884	30.9792	13.3213	32.496	13.3432	33.9747	13.1918	34.8893	13.0403
35.4757	12.9156								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2.9442	.015	8.6491	.015	29.6847	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	8.6491	29.6847		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.60	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		25.42
E.G. Slope (m/m)	0.000021	Area (m2)		25.42
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.96	Top Width (m)		15.96
Vel Total (m/s)	0.39	Avg. Vel. (m/s)		0.39
Max Chl Dpth (m)	1.93	Hydr. Depth (m)		1.59
Conv. Total (m3/s)	2201.7	Conv. (m3/s)		2201.7
Length Wtd. (m)	200.00	Wetted Per. (m)		17.17
Min Ch El (m)	9.67	Shear (N/m2)		0.30

Alpha	1.00	Stream Power (N/m s)	0.12
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	150.42
C & E Loss (m)	0.00	Cum SA (1000 m2)	85.55

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.05	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.05	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.94
E.G. Slope (m/m)	0.000010	Area (m2)		32.94
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.26	Top Width (m)		17.26
Vel Total (m/s)	0.30	Avg. Vel. (m/s)		0.30
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.91
Conv. Total (m3/s)	3195.9	Conv. (m3/s)		3195.9
Length Wtd. (m)	200.00	Wetted Per. (m)		18.76
Min Ch El (m)	9.67	Shear (N/m2)		0.17
Alpha	1.00	Stream Power (N/m s)		0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		192.30
C & E Loss (m)	0.00	Cum SA (1000 m2)		92.04

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)	41.57
E.G. Slope (m/m)	0.000005	Area (m2)	41.57
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	18.65	Top Width (m)	18.65
Vel Total (m/s)	0.24	Avg. Vel. (m/s)	0.24
Max Chl Dpth (m)	2.86	Hydr. Depth (m)	2.23
Conv. Total (m3/s)	4448.2	Conv. (m3/s)	4448.2
Length Wtd. (m)	200.00	Wetted Per. (m)	20.44
Min Ch El (m)	9.67	Shear (N/m2)	0.10
Alpha	1.00	Stream Power (N/m s)	0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	238.23
C & E Loss (m)	0.00	Cum SA (1000 m2)	96.83

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.00	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.12
E.G. Slope (m/m)	0.000077	Area (m2)		32.12
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.13	Top Width (m)		17.13
Vel Total (m/s)	0.84	Avg. Vel. (m/s)		0.84
Max Chl Dpth (m)	2.33	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3083.3	Conv. (m3/s)		3083.3
Length Wtd. (m)	200.00	Wetted Per. (m)		18.59
Min Ch El (m)	9.67	Shear (N/m2)		1.30

Alpha	1.00	Stream Power (N/m s)	1.09
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	169.46
C & E Loss (m)	0.00	Cum SA (1000 m2)	88.51

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.33	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.30	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.36
E.G. Slope (m/m)	0.000050	Area (m2)		37.36
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.99	Top Width (m)		17.99
Vel Total (m/s)	0.72	Avg. Vel. (m/s)		0.72
Max Chl Dpth (m)	2.63	Hydr. Depth (m)		2.08
Conv. Total (m3/s)	3824.1	Conv. (m3/s)		3824.1
Length Wtd. (m)	200.00	Wetted Per. (m)		19.64
Min Ch El (m)	9.67	Shear (N/m2)		0.93
Alpha	1.00	Stream Power (N/m s)		0.67
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		204.43
C & E Loss (m)	0.00	Cum SA (1000 m2)		93.11

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.70	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.69	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)	44.51
E.G. Slope (m/m)	0.000030	Area (m2)	44.51
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	19.09	Top Width (m)	19.09
Vel Total (m/s)	0.61	Avg. Vel. (m/s)	0.61
Max Chl Dpth (m)	3.02	Hydr. Depth (m)	2.33
Conv. Total (m3/s)	4898.0	Conv. (m3/s)	4898.0
Length Wtd. (m)	200.00	Wetted Per. (m)	20.99
Min Ch El (m)	9.67	Shear (N/m2)	0.63
Alpha	1.00	Stream Power (N/m s)	0.38
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	245.60
C & E Loss (m)	0.00	Cum SA (1000 m2)	95.45

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 27

INPUT

Description:

Station Elevation Data		num=	16						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.0516	13.0334	12.4277	13.1172	14.0822	13.1809	15.9138	13.2217	15.9138	13.3328
16.7764	13.3328	22.2117	9.6434	32.7351	9.6419	34.8821	11.5215	35.1403	11.5593
37.5557	13.2706	38.415	13.2706	38.415	13.2164	40.4441	13.2392	41.8086	12.9928
42.6112	12.8201								

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
12.0516	.015	16.7764	.015	37.5557	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	16.7764	37.5557		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.60	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.59	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		25.50
E.G. Slope (m/m)	0.000020	Area (m2)		25.50
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.85	Top Width (m)		15.85
Vel Total (m/s)	0.39	Avg. Vel. (m/s)		0.39
Max Chl Dpth (m)	1.95	Hydr. Depth (m)		1.61
Conv. Total (m3/s)	2213.3	Conv. (m3/s)		2213.3
Length Wtd. (m)	200.00	Wetted Per. (m)		17.17
Min Ch El (m)	9.64	Shear (N/m2)		0.30
Alpha	1.00	Stream Power (N/m s)		0.12
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		145.32
C & E Loss (m)	0.00	Cum SA (1000 m2)		82.37

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.05	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.05	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.00
E.G. Slope (m/m)	0.000010	Area (m2)		33.00
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.16	Top Width (m)		17.16
Vel Total (m/s)	0.30	Avg. Vel. (m/s)		0.30
Max Chl Dpth (m)	2.40	Hydr. Depth (m)		1.92
Conv. Total (m3/s)	3205.1	Conv. (m3/s)		3205.1

Length Wtd. (m)	200.00	Wetted Per. (m)	18.76
Min Ch El (m)	9.64	Shear (N/m2)	0.17
Alpha	1.00	Stream Power (N/m s)	0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	185.71
C & E Loss (m)	0.00	Cum SA (1000 m2)	88.60

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		41.59
E.G. Slope (m/m)	0.000005	Area (m2)		41.59
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.55	Top Width (m)		18.55
Vel Total (m/s)	0.24	Avg. Vel. (m/s)		0.24
Max Chl Dpth (m)	2.89	Hydr. Depth (m)		2.24
Conv. Total (m3/s)	4451.3	Conv. (m3/s)		4451.3
Length Wtd. (m)	200.00	Wetted Per. (m)		20.45
Min Ch El (m)	9.64	Shear (N/m2)		0.10
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		229.92
C & E Loss (m)	0.00	Cum SA (1000 m2)		93.12

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.02	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.99	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		31.95
E.G. Slope (m/m)	0.000078	Area (m2)		31.95
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	16.98	Top Width (m)		16.98
Vel Total (m/s)	0.85	Avg. Vel. (m/s)		0.85
Max Chl Dpth (m)	2.34	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3060.9	Conv. (m3/s)		3060.9
Length Wtd. (m)	200.00	Wetted Per. (m)		18.54
Min Ch El (m)	9.64	Shear (N/m2)		1.31
Alpha	1.00	Stream Power (N/m s)		1.11
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		163.05
C & E Loss (m)	0.00	Cum SA (1000 m2)		85.10

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.32	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.29	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.24
E.G. Slope (m/m)	0.000050	Area (m2)		37.24
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.86	Top Width (m)		17.86
Vel Total (m/s)	0.72	Avg. Vel. (m/s)		0.72
Max Chl Dpth (m)	2.65	Hydr. Depth (m)		2.09
Conv. Total (m3/s)	3807.6	Conv. (m3/s)		3807.6

Length Wtd. (m)	200.00	Wetted Per. (m)	19.61
Min Ch El (m)	9.64	Shear (N/m2)	0.94
Alpha	1.00	Stream Power (N/m s)	0.68
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	196.97
C & E Loss (m)	0.00	Cum SA (1000 m2)	89.52

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.70	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.68	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		44.42
E.G. Slope (m/m)	0.000031	Area (m2)		44.42
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.98	Top Width (m)		18.98
Vel Total (m/s)	0.61	Avg. Vel. (m/s)		0.61
Max Chl Dpth (m)	3.04	Hydr. Depth (m)		2.34
Conv. Total (m3/s)	4883.0	Conv. (m3/s)		4883.0
Length Wtd. (m)	200.00	Wetted Per. (m)		20.98
Min Ch El (m)	9.64	Shear (N/m2)		0.63
Alpha	1.00	Stream Power (N/m s)		0.39
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		236.71
C & E Loss (m)	0.00	Cum SA (1000 m2)		91.65

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 26

INPUT

Description: Opera 12

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
23.9058	13.0337	25.6605	12.9775	26.7529	13.0049	28.2054	13.0392	28.2054	13.0859
28.2054	13.151	30.0603	13.151	35.3614	9.6161	45.766	9.6146	51.6906	13.4451
52.2201	13.4451	52.2201	13.219	52.7332	13.0895	53.9651	13.104	54.5489	13.0225
56.0928	12.9849								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
23.9058	.015	30.0603	.015	51.6906	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
Expan.

30.0603	51.6906	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.59	Reach Len. (m)	6.00	6.00
6.00				
Crit W.S. (m)	10.06	Flow Area (m2)		26.47
E.G. Slope (m/m)	0.000019	Area (m2)		26.47
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.42	Top Width (m)		16.42
Vel Total (m/s)	0.38	Avg. Vel. (m/s)		0.38
Max Chl Dpth (m)	1.97	Hydr. Depth (m)		1.61
Conv. Total (m3/s)	2316.5	Conv. (m3/s)		2316.5
Length Wtd. (m)	6.00	Wetted Per. (m)		17.60
Min Ch El (m)	9.61	Shear (N/m2)		0.27
Alpha	1.00	Stream Power (N/m s)		0.10
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		140.13
C & E Loss (m)	0.00	Cum SA (1000 m2)		79.15

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.05	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.05	Reach Len. (m)	6.00	6.00
6.00				
Crit W.S. (m)	10.06	Flow Area (m2)		34.27
E.G. Slope (m/m)	0.000009	Area (m2)		34.27
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.81	Top Width (m)		17.81
Vel Total (m/s)	0.29	Avg. Vel. (m/s)		0.29
Max Chl Dpth (m)	2.43	Hydr. Depth (m)		1.92
Conv. Total (m3/s)	3355.2	Conv. (m3/s)		3355.2
Length Wtd. (m)	6.00	Wetted Per. (m)		19.26
Min Ch El (m)	9.61	Shear (N/m2)		0.16
Alpha	1.00	Stream Power (N/m s)		0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		178.98
C & E Loss (m)	0.00	Cum SA (1000 m2)		85.11

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	6.00	6.00
6.00				

Crit W.S. (m)	10.06	Flow Area (m2)	43.22
E.G. Slope (m/m)	0.000005	Area (m2)	43.22
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	19.28	Top Width (m)	19.28
Vel Total (m/s)	0.23	Avg. Vel. (m/s)	0.23
Max Chl Dpth (m)	2.91	Hydr. Depth (m)	2.24
Conv. Total (m3/s)	4658.9	Conv. (m3/s)	4658.9
Length Wtd. (m)	6.00	Wetted Per. (m)	21.02
Min Ch El (m)	9.61	Shear (N/m2)	0.09
Alpha	1.00	Stream Power (N/m s)	0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	221.44
C & E Loss (m)	0.00	Cum SA (1000 m2)	89.33

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	12.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.97	Reach Len. (m)	6.00	6.00
6.00				
Crit W.S. (m)	10.46	Flow Area (m2)		32.99
E.G. Slope (m/m)	0.000072	Area (m2)		32.99
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.59	Top Width (m)		17.59
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.36	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3177.4	Conv. (m3/s)		3177.4

Length Wtd. (m)	6.00	Wetted Per. (m)	18.99
Min Ch El (m)	9.61	Shear (N/m2)	1.23
Alpha	1.00	Stream Power (N/m s)	1.01
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	156.56
C & E Loss (m)	0.00	Cum SA (1000 m2)	81.64

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.31	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.28	Reach Len. (m)	6.00	6.00
6.00				
Crit W.S. (m)	10.46	Flow Area (m2)		38.57
E.G. Slope (m/m)	0.000046	Area (m2)		38.57
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.53	Top Width (m)		18.53
Vel Total (m/s)	0.70	Avg. Vel. (m/s)		0.70
Max Chl Dpth (m)	2.67	Hydr. Depth (m)		2.08
Conv. Total (m3/s)	3967.1	Conv. (m3/s)		3967.1
Length Wtd. (m)	6.00	Wetted Per. (m)		20.12
Min Ch El (m)	9.61	Shear (N/m2)		0.87
Alpha	1.00	Stream Power (N/m s)		0.61
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		189.38
C & E Loss (m)	0.00	Cum SA (1000 m2)		85.88

Warning: The conveyance ratio (upstream conveyance divided by downstream

conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.69	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.67	Reach Len. (m)	6.00	6.00
6.00				
Crit W.S. (m)	10.46	Flow Area (m2)		46.08
E.G. Slope (m/m)	0.000028	Area (m2)		46.08
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.72	Top Width (m)		19.72
Vel Total (m/s)	0.59	Avg. Vel. (m/s)		0.59
Max Chl Dpth (m)	3.06	Hydr. Depth (m)		2.34
Conv. Total (m3/s)	5098.5	Conv. (m3/s)		5098.5
Length Wtd. (m)	6.00	Wetted Per. (m)		21.55
Min Ch El (m)	9.61	Shear (N/m2)		0.59
Alpha	1.00	Stream Power (N/m s)		0.34
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		227.66
C & E Loss (m)	0.00	Cum SA (1000 m2)		87.78

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 25.5

INPUT

Description: \

Distance from Upstream XS = 6

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
30.11	14.21	12.54	51.42	14.21	12.54				

Upstream Bridge Cross Section Data

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
23.9058	13.0337	25.6605	12.9775	26.7529	13.0049	28.2054	13.0392	28.2054	13.0859
28.2054	13.151	30.0603	13.151	35.3614	9.6161	45.766	9.6146	51.6906	13.4451
52.2201	13.4451	52.2201	13.219	52.7332	13.0895	53.9651	13.104	54.5489	13.0225
56.0928	12.9849								

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
23.9058	.015	30.0603	.015	51.6906	.015

Bank Sta: Left Right Coeff Contr. Expan.

30.0603	51.6906	.0015	.01
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Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
16.66	14.2	12.54	37.96	14.2	12.54				

Downstream Bridge Cross Section Data

Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.3523	13.0208	12.8532	13.0362	13.3346	13.1194	13.6215	13.1379	14.3158	13.1472
14.9004	13.0918	15.2706	13.0825	15.9097	13.1432	15.9097	13.2669	16.4404	13.2669
21.8613	9.5888	32.4929	9.5873	37.5889	13.2114	38.1208	13.2114	38.1208	13.1373
38.1565	13.1392	39.7496	13.1348	40.3073	13.1409	41.6661	12.8934	42.4878	12.7292

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12.3523	.015	16.4404	.015	37.5889	.015

Bank Sta: Left Right Coeff Contr. Expan.

16.4404	37.5889	.0015	.01
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Upstream Embankment side slope = 1.8 horiz. to 1.0 vertical

Downstream Embankment side slope = 1.8 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Energy head used in spillway design =

Spillway height used in design =

Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev
30.11	12.54	34.78	12.54

Downstream	num=	2	
Sta	Elev	Sta	Elev
16.66	12.54	21.33	12.54

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
47.29	12.54	51.42	12.54
Downstream	num=	2	
Sta	Elev	Sta	Elev
33.83	12.54	37.96	12.54

Number of Piers = 2

Pier Data

Pier Station	Upstream=	38.13	Downstream=	24.68
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.52	.5	12.54	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.52	.5	12.54	

Pier Data

Pier Station	Upstream=	43.94	Downstream=	30.48
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.52	.5	12.54	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.52	.5	12.54	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.60	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.59	E.G. Elev (m)	11.60

11.60			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.59
11.59			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.09
10.06			
Q Weir (m3/s)		Max Chl Dpth (m)	1.97
2.00			
Weir Sta Lft (m)		Vel Total (m/s)	0.46
0.45			
Weir Sta Rgt (m)		Flow Area (m2)	21.81
22.24			
Weir Submerg		Froude # Chl	0.11
0.10			
Weir Max Depth (m)		Specif Force (m3)	21.36
22.16			
Min El Weir Flow (m)	12.98	Hydr Depth (m)	1.90
1.93			
Min El Prs (m)	12.54	W.P. Total (m)	22.37
22.59			
Delta EG (m)	0.01	Conv. Total (m3/s)	1430.1
1467.6			
Delta WS (m)	0.01	Top Width (m)	11.51
11.50			
BR Open Area (m2)	32.80	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.46	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.47
0.45			
BR Sel Method	Energy only	Power Total (N/m s)	0.21
0.20			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.05	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.05	E.G. Elev (m)	12.05
12.05			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.04
12.04			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.09
10.06			
Q Weir (m3/s)		Max Chl Dpth (m)	2.43
2.46			
Weir Sta Lft (m)		Vel Total (m/s)	0.37
0.36			
Weir Sta Rgt (m)		Flow Area (m2)	27.07

27.50	Weir Submerg		Froude # Ch1	0.08
0.08	Weir Max Depth (m)		Specif Force (m3)	32.44
33.43	Min El Weir Flow (m)	12.98	Hydr Depth (m)	2.35
2.39	Min El Prs (m)	12.54	W.P. Total (m)	25.11
25.33	Delta EG (m)	0.00	Conv. Total (m3/s)	1897.8
1936.2	Delta WS (m)	0.00	Top Width (m)	11.51
11.50	BR Open Area (m2)	32.80	Frctn Loss (m)	0.00
0.00	BR Open Vel (m/s)	0.37	C & E Loss (m)	0.00
0.00	BR Sluice Coef		Shear Total (N/m2)	0.29
0.28	BR Sel Method	Energy only	Power Total (N/m s)	0.11
0.10				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.53	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.53	E.G. Elev (m)	12.53
12.53		W.S. Elev (m)	12.53
Q Total (m3/s)	10.00	Crit W.S. (m)	10.09
12.53		Max Ch1 Dpth (m)	2.91
10.06		Vel Total (m/s)	0.31
Q Weir (m3/s)		Flow Area (m2)	32.63
2.94		Froude # Ch1	0.06
Weir Sta Lft (m)		Specif Force (m3)	46.80
0.30		Hydr Depth (m)	2.84
Weir Sta Rgt (m)		W.P. Total (m)	28.01
33.05		Conv. Total (m3/s)	2408.9
Weir Submerg			
0.06			
Weir Max Depth (m)			
47.99			
Min El Weir Flow (m)	12.98		
2.87			
Min El Prs (m)	12.54		
28.23			
Delta EG (m)	0.00		

2447.7			
Delta WS (m)	0.00	Top Width (m)	11.51
11.50			
BR Open Area (m2)	32.80	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.31	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.20
0.19			
BR Sel Method	Energy only	Power Total (N/m s)	0.06
0.06			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	12.01	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.97	E.G. Elev (m)	12.01
12.00			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.95
11.95			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.51
10.48			
Q Weir (m3/s)		Max Chl Dpth (m)	2.34
2.36			
Weir Sta Lft (m)		Vel Total (m/s)	1.04
1.02			
Weir Sta Rgt (m)		Flow Area (m2)	26.02
26.45			
Weir Submerg		Froude # Chl	0.22
0.21			
Weir Max Depth (m)		Specif Force (m3)	32.50
33.42			
Min El Weir Flow (m)	12.98	Hydr Depth (m)	2.26
2.30			
Min El Prs (m)	12.54	W.P. Total (m)	24.56
24.79			
Delta EG (m)	0.02	Conv. Total (m3/s)	1802.9
1841.7			
Delta WS (m)	0.02	Top Width (m)	11.51
11.50			
BR Open Area (m2)	32.80	Frctn Loss (m)	0.00
0.02			
BR Open Vel (m/s)	1.04	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.33
2.25			
BR Sel Method	Energy only	Power Total (N/m s)	2.42

2.30

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.31	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.28	E.G. Elev (m)	12.31
12.31			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.26
12.26			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.51
10.48			
Q Weir (m3/s)		Max Chl Dpth (m)	2.65
2.68			
Weir Sta Lft (m)		Vel Total (m/s)	0.91
0.90			
Weir Sta Rgt (m)		Flow Area (m2)	29.62
30.04			
Weir Submerg		Froude # Chl	0.18
0.18			
Weir Max Depth (m)		Specif Force (m3)	40.84
41.91			
Min El Weir Flow (m)	12.98	Hydr Depth (m)	2.57
2.61			
Min El Prs (m)	12.54	W.P. Total (m)	26.43
26.66			
Delta EG (m)	0.02	Conv. Total (m3/s)	2130.0
2169.0			
Delta WS (m)	0.02	Top Width (m)	11.51
11.50			
BR Open Area (m2)	32.80	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.91	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.77
1.71			
BR Sel Method	Energy only	Power Total (N/m s)	1.61
1.54			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.69	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.67	E.G. Elev (m)	12.69
12.69			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.66
12.66			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.51
10.48			
Q Weir (m3/s)		Max Chl Dpth (m)	3.04
3.07			
Weir Sta Lft (m)		Vel Total (m/s)	0.82
0.81			
Weir Sta Rgt (m)		Flow Area (m2)	32.80
33.22			
Weir Submerg		Froude # Chl	0.15
0.15			
Weir Max Depth (m)		Specif Force (m3)	53.06
54.28			
Min El Weir Flow (m)	12.98	Hydr Depth (m)	
Min El Prs (m)	12.54	W.P. Total (m)	39.60
39.82			
Delta EG (m)	0.01	Conv. Total (m3/s)	1928.5
1962.7			
Delta WS (m)	0.01	Top Width (m)	
BR Open Area (m2)	32.80	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.82	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.59
1.55			
BR Sel Method	Energy only	Power Total (N/m s)	1.31
1.26			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 25

INPUT

Description:

Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.3523	13.0208	12.8532	13.0362	13.3346	13.1194	13.6215	13.1379	14.3158	13.1472
14.9004	13.0918	15.2706	13.0825	15.9097	13.1432	15.9097	13.2669	16.4404	13.2669

21.8613	9.5888	32.4929	9.5873	37.5889	13.2114	38.1208	13.2114	38.1208	13.1373
38.1565	13.1392	39.7496	13.1348	40.3073	13.1409	41.6661	12.8934	42.4878	12.7292

Manning's n Values			num= 3		
Sta	n Val	Sta	n Val	Sta	n Val
12.3523	.015	16.4404	.015	37.5889	.015

Bank Sta:	Left	Right	Lengths:			Left Channel	Right	Coeff Contr.	
Expan.									
	16.4404	37.5889		200	200	200		.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		26.95
E.G. Slope (m/m)	0.000018	Area (m2)		26.95
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.38	Top Width (m)		16.38
Vel Total (m/s)	0.37	Avg. Vel. (m/s)		0.37
Max Chl Dpth (m)	2.00	Hydr. Depth (m)		1.65
Conv. Total (m3/s)	2384.8	Conv. (m3/s)		2384.8
Length Wtd. (m)	200.00	Wetted Per. (m)		17.63
Min Ch El (m)	9.59	Shear (N/m2)		0.26
Alpha	1.00	Stream Power (N/m s)		0.10
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		135.22
C & E Loss (m)	0.00	Cum SA (1000 m2)		76.37

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.05	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015

W.S. Elev (m)	12.04	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.77
E.G. Slope (m/m)	0.000008	Area (m2)		34.77
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.70	Top Width (m)		17.70
Vel Total (m/s)	0.29	Avg. Vel. (m/s)		0.29
Max Chl Dpth (m)	2.46	Hydr. Depth (m)		1.96
Conv. Total (m3/s)	3439.0	Conv. (m3/s)		3439.0
Length Wtd. (m)	200.00	Wetted Per. (m)		19.24
Min Ch El (m)	9.59	Shear (N/m2)		0.15
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		172.78
C & E Loss (m)	0.00	Cum SA (1000 m2)		82.20

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		43.66
E.G. Slope (m/m)	0.000004	Area (m2)		43.66
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.09	Top Width (m)		19.09
Vel Total (m/s)	0.23	Avg. Vel. (m/s)		0.23
Max Chl Dpth (m)	2.94	Hydr. Depth (m)		2.29
Conv. Total (m3/s)	4752.3	Conv. (m3/s)		4752.3
Length Wtd. (m)	200.00	Wetted Per. (m)		20.93

Min Ch El (m)	9.59	Shear (N/m2)	0.09
Alpha	1.00	Stream Power (N/m s)	0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	213.79
C & E Loss (m)	0.00	Cum SA (1000 m2)	86.29

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.98	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.95	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.13
E.G. Slope (m/m)	0.000071	Area (m2)		33.13
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.43	Top Width (m)		17.43
Vel Total (m/s)	0.81	Avg. Vel. (m/s)		0.81
Max Chl Dpth (m)	2.36	Hydr. Depth (m)		1.90
Conv. Total (m3/s)	3210.0	Conv. (m3/s)		3210.0
Length Wtd. (m)	200.00	Wetted Per. (m)		18.91
Min Ch El (m)	9.59	Shear (N/m2)		1.22
Alpha	1.00	Stream Power (N/m s)		0.99
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		150.62
C & E Loss (m)	0.00	Cum SA (1000 m2)		78.76

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.29	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015

W.S. Elev (m)	12.27	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.80
E.G. Slope (m/m)	0.000045	Area (m2)		38.80
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.34	Top Width (m)		18.34
Vel Total (m/s)	0.70	Avg. Vel. (m/s)		0.70
Max Chl Dpth (m)	2.68	Hydr. Depth (m)		2.11
Conv. Total (m3/s)	4020.0	Conv. (m3/s)		4020.0
Length Wtd. (m)	200.00	Wetted Per. (m)		20.02
Min Ch El (m)	9.59	Shear (N/m2)		0.86
Alpha	1.00	Stream Power (N/m s)		0.60
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		182.53
C & E Loss (m)	0.00	Cum SA (1000 m2)		82.92

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.68	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.66	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		46.29
E.G. Slope (m/m)	0.000027	Area (m2)		46.29
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.48	Top Width (m)		19.48
Vel Total (m/s)	0.58	Avg. Vel. (m/s)		0.58
Max Chl Dpth (m)	3.07	Hydr. Depth (m)		2.38
Conv. Total (m3/s)	5160.1	Conv. (m3/s)		5160.1
Length Wtd. (m)	200.00	Wetted Per. (m)		21.41

Min Ch El (m)	9.59	Shear (N/m2)	0.58
Alpha	1.00	Stream Power (N/m s)	0.34
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	219.74
C & E Loss (m)	0.00	Cum SA (1000 m2)	85.88

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 24

INPUT
Description:

Station Elevation Data		num=	17						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.3044	13.2031	9.4739	13.3402	10.1978	13.381	11.5641	13.33	11.9817	13.3174
11.9817	13.4198	13.0299	13.4198	18.7089	9.5641	29.0158	9.5631	34.4955	13.3515
35.5532	13.3515	35.5532	13.2577	36.3916	13.2682	36.8458	13.3265	37.35	13.2266
38.4835	13.1557	39.1585	13.0058						

Manning's n Values		num=	3		
Sta	n Val	Sta	n Val	Sta	n Val
8.3044	.015	13.0299	.015	34.4955	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	13.0299	34.4955		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		26.72
E.G. Slope (m/m)	0.000018	Area (m2)		26.72
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.19	Top Width (m)		16.19
Vel Total (m/s)	0.37	Avg. Vel. (m/s)		0.37
Max Chl Dpth (m)	2.02	Hydr. Depth (m)		1.65

Conv. Total (m3/s)	2367.0	Conv. (m3/s)	2367.0
Length Wtd. (m)	200.00	Wetted Per. (m)	17.44
Min Ch El (m)	9.56	Shear (N/m2)	0.27
Alpha	1.00	Stream Power (N/m s)	0.10
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	129.86
C & E Loss (m)	0.00	Cum SA (1000 m2)	73.11

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.04	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.49
E.G. Slope (m/m)	0.000009	Area (m2)		34.49
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.54	Top Width (m)		17.54
Vel Total (m/s)	0.29	Avg. Vel. (m/s)		0.29
Max Chl Dpth (m)	2.48	Hydr. Depth (m)		1.97
Conv. Total (m3/s)	3412.2	Conv. (m3/s)		3412.2
Length Wtd. (m)	200.00	Wetted Per. (m)		19.07
Min Ch El (m)	9.56	Shear (N/m2)		0.15
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		165.85
C & E Loss (m)	0.00	Cum SA (1000 m2)		78.68

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		43.32
E.G. Slope (m/m)	0.000005	Area (m2)		43.32
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.95	Top Width (m)		18.95
Vel Total (m/s)	0.23	Avg. Vel. (m/s)		0.23
Max Chl Dpth (m)	2.96	Hydr. Depth (m)		2.29
Conv. Total (m3/s)	4712.7	Conv. (m3/s)		4712.7
Length Wtd. (m)	200.00	Wetted Per. (m)		20.79
Min Ch El (m)	9.56	Shear (N/m2)		0.09
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		205.10
C & E Loss (m)	0.00	Cum SA (1000 m2)		82.49

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.97	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.93	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.63
E.G. Slope (m/m)	0.000073	Area (m2)		32.63
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.23	Top Width (m)		17.23
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83
Max Chl Dpth (m)	2.37	Hydr. Depth (m)		1.89

Conv. Total (m3/s)	3153.1	Conv. (m3/s)	3153.1
Length Wtd. (m)	200.00	Wetted Per. (m)	18.69
Min Ch El (m)	9.56	Shear (N/m2)	1.26
Alpha	1.00	Stream Power (N/m s)	1.04
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	144.04
C & E Loss (m)	0.00	Cum SA (1000 m2)	75.30

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.28	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.26	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.33
E.G. Slope (m/m)	0.000046	Area (m2)		38.33
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.17	Top Width (m)		18.17
Vel Total (m/s)	0.70	Avg. Vel. (m/s)		0.70
Max Chl Dpth (m)	2.69	Hydr. Depth (m)		2.11
Conv. Total (m3/s)	3965.0	Conv. (m3/s)		3965.0
Length Wtd. (m)	200.00	Wetted Per. (m)		19.83
Min Ch El (m)	9.56	Shear (N/m2)		0.88
Alpha	1.00	Stream Power (N/m s)		0.62
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		174.81
C & E Loss (m)	0.00	Cum SA (1000 m2)		79.27

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.67	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.66	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		45.84
E.G. Slope (m/m)	0.000028	Area (m2)		45.84
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.34	Top Width (m)		19.34
Vel Total (m/s)	0.59	Avg. Vel. (m/s)		0.59
Max Chl Dpth (m)	3.09	Hydr. Depth (m)		2.37
Conv. Total (m3/s)	5101.3	Conv. (m3/s)		5101.3
Length Wtd. (m)	200.00	Wetted Per. (m)		21.25
Min Ch El (m)	9.56	Shear (N/m2)		0.59
Alpha	1.00	Stream Power (N/m s)		0.35
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		210.53
C & E Loss (m)	0.00	Cum SA (1000 m2)		81.99

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 23

INPUT

Description:

Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.6894	13.1462	14.2256	13.2925	15.8557	13.2441	16.7944	13.2282	16.7944	13.3198
17.3255	13.3198	22.797	9.5454	33.2301	9.5444	38.4591	13.2621	38.991	13.2621
38.991	13.2303	39.8827	13.2531	40.842	13.2481	41.5414	13.278	42.1678	13.1931
42.9321	13.1881	43.6865	13.1581						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12.6894	.015	17.3255	.015	38.4591	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.

Expan.	17.3255	38.4591	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.58	Reach Len. (m)	84.00	84.00
84.00				
Crit W.S. (m)	9.99	Flow Area (m2)		27.09
E.G. Slope (m/m)	0.000017	Area (m2)		27.09
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.24	Top Width (m)		16.24
Vel Total (m/s)	0.37	Avg. Vel. (m/s)		0.37
Max Chl Dpth (m)	2.03	Hydr. Depth (m)		1.67
Conv. Total (m3/s)	2415.6	Conv. (m3/s)		2415.6
Length Wtd. (m)	84.00	Wetted Per. (m)		17.52
Min Ch El (m)	9.54	Shear (N/m2)		0.26
Alpha	1.00	Stream Power (N/m s)		0.10
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		124.47
C & E Loss (m)	0.00	Cum SA (1000 m2)		69.87

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.04	Reach Len. (m)	84.00	84.00
84.00				
Crit W.S. (m)	9.99	Flow Area (m2)		34.90

E.G. Slope (m/m)	0.000008	Area (m2)	34.90
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	17.56	Top Width (m)	17.56
Vel Total (m/s)	0.29	Avg. Vel. (m/s)	0.29
Max Chl Dpth (m)	2.49	Hydr. Depth (m)	1.99
Conv. Total (m3/s)	3474.4	Conv. (m3/s)	3474.4
Length Wtd. (m)	84.00	Wetted Per. (m)	19.13
Min Ch El (m)	9.54	Shear (N/m2)	0.15
Alpha	1.00	Stream Power (N/m s)	0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	158.91
C & E Loss (m)	0.00	Cum SA (1000 m2)	75.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.52	Reach Len. (m)	84.00	84.00
84.00				
Crit W.S. (m)	9.99	Flow Area (m2)		43.76
E.G. Slope (m/m)	0.000004	Area (m2)		43.76
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.94	Top Width (m)		18.94
Vel Total (m/s)	0.23	Avg. Vel. (m/s)		0.23
Max Chl Dpth (m)	2.98	Hydr. Depth (m)		2.31
Conv. Total (m3/s)	4786.3	Conv. (m3/s)		4786.3
Length Wtd. (m)	84.00	Wetted Per. (m)		20.82

Min Ch El (m)	9.54	Shear (N/m2)	0.09
Alpha	1.00	Stream Power (N/m s)	0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	196.39
C & E Loss (m)	0.00	Cum SA (1000 m2)	78.70

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.95	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.92	Reach Len. (m)	84.00	84.00
84.00				
Crit W.S. (m)	10.39	Flow Area (m2)		32.83
E.G. Slope (m/m)	0.000072	Area (m2)		32.83
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.22	Top Width (m)		17.22
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.37	Hydr. Depth (m)		1.91
Conv. Total (m3/s)	3182.9	Conv. (m3/s)		3182.9
Length Wtd. (m)	84.00	Wetted Per. (m)		18.71
Min Ch El (m)	9.54	Shear (N/m2)		1.24
Alpha	1.00	Stream Power (N/m s)		1.02
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		137.50
C & E Loss (m)	0.00	Cum SA (1000 m2)		71.85

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.27	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.25	Reach Len. (m)	84.00	84.00
84.00				
Crit W.S. (m)	10.39	Flow Area (m2)		38.62
E.G. Slope (m/m)	0.000045	Area (m2)		38.62
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.15	Top Width (m)		18.15
Vel Total (m/s)	0.70	Avg. Vel. (m/s)		0.70
Max Chl Dpth (m)	2.70	Hydr. Depth (m)		2.13
Conv. Total (m3/s)	4012.2	Conv. (m3/s)		4012.2
Length Wtd. (m)	84.00	Wetted Per. (m)		19.86
Min Ch El (m)	9.54	Shear (N/m2)		0.86
Alpha	1.00	Stream Power (N/m s)		0.60
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		167.12
C & E Loss (m)	0.00	Cum SA (1000 m2)		75.63

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.67	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.65	Reach Len. (m)	84.00	84.00
84.00				
Crit W.S. (m)	10.39	Flow Area (m2)		46.18
E.G. Slope (m/m)	0.000027	Area (m2)		46.18

Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	19.30	Top Width (m)	19.30
Vel Total (m/s)	0.58	Avg. Vel. (m/s)	0.58
Max Chl Dpth (m)	3.11	Hydr. Depth (m)	2.39
Conv. Total (m3/s)	5163.6	Conv. (m3/s)	5163.6
Length Wtd. (m)	84.00	Wetted Per. (m)	21.26
Min Ch El (m)	9.54	Shear (N/m2)	0.58
Alpha	1.00	Stream Power (N/m s)	0.34
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	201.33
C & E Loss (m)	0.00	Cum SA (1000 m2)	78.13

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
 REACH: Canale SNM RS: 22.5

INPUT
 Description: \
 Distance from Upstream XS = 84
 Deck/Roadway Width = 5
 Weir Coefficient = 1.4
 Upstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 16.76 14.76 12.79 39.28 14.76 12.79

Upstream Bridge Cross Section Data
 Station Elevation Data num= 17
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 12.6894 13.1462 14.2256 13.2925 15.8557 13.2441 16.7944 13.2282 16.7944 13.3198
 17.3255 13.3198 22.797 9.5454 33.2301 9.5444 38.4591 13.2621 38.991 13.2621
 38.991 13.2303 39.8827 13.2531 40.842 13.2481 41.5414 13.278 42.1678 13.1931
 42.9321 13.1881 43.6865 13.1581

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 12.6894 .015 17.3255 .015 38.4591 .015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	17.3255	38.4591		.0015	.01

Downstream Deck/Roadway Coordinates

num=	2				
Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
13.62	14.76	12.79	36.14	14.76	12.79

Downstream Bridge Cross Section Data

Station	Elevation	Data	num=	17					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.5526	13.0992	10.164	13.1996	11.4306	13.284	12.6971	13.3051	13.0595	13.3243
13.0595	13.4508	14.0363	13.4508	19.6667	9.5267	30.0035	9.5257	35.9241	13.577
36.8875	13.577	36.8875	13.4992	37.0513	13.5065	40.4105	13.4501	40.8499	13.4653
41.4408	13.3441	41.956	13.132						

Manning's n	Values	num=	3		
Sta	n Val	Sta	n Val	Sta	n Val
9.5526	.015	14.0363	.015	35.9241	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	14.0363	35.9241		.0015	.01

Upstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
16.76	12.79	21.73	12.79
Downstream	num=	2	
Sta	Elev	Sta	Elev
13.62	12.79	18.59	12.79

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
34.22	12.79	39.28	12.79
Downstream	num=	2	
Sta	Elev	Sta	Elev
31.09	12.79	36.15	12.79

Number of Piers = 2

Pier Data

Pier Station	Upstream=	25.25	Downstream=	22.11
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Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.55	.5	12.79	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.55	.5	12.79	

Pier Data

Pier Station	Upstream=	30.7	Downstream=	27.56
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.53	.5	12.79	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.53	.5	12.79	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.58	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.58	E.G. Elev (m)	11.58
11.58			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.57
11.57			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.02
10.00			
Q Weir (m3/s)		Max Chl Dpth (m)	2.03
2.05			
Weir Sta Lft (m)		Vel Total (m/s)	0.44
0.44			
Weir Sta Rgt (m)		Flow Area (m2)	22.54
22.71			
Weir Submerg		Froude # Chl	0.10
0.10			
Weir Max Depth (m)		Specif Force (m3)	22.72
23.05			
Min El Weir Flow (m)	13.15	Hydr Depth (m)	1.96

1.97			
Min El Prs (m)	12.79	W.P. Total (m)	22.66
22.74			
Delta EG (m)	0.01	Conv. Total (m3/s)	1497.6
1512.8			
Delta WS (m)	0.01	Top Width (m)	11.49
11.50			
BR Open Area (m2)	36.55	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.44	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.43
0.43			
BR Sel Method	Energy only	Power Total (N/m s)	0.19
0.19			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.04	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.04	E.G. Elev (m)	12.04
12.04			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.04
12.04			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.02
10.00			
Q Weir (m3/s)		Max Chl Dpth (m)	2.49
2.51			
Weir Sta Lft (m)		Vel Total (m/s)	0.36
0.36			
Weir Sta Rgt (m)		Flow Area (m2)	27.87
28.05			
Weir Submerg		Froude # Chl	0.07
0.07			
Weir Max Depth (m)		Specif Force (m3)	34.33
34.74			
Min El Weir Flow (m)	13.15	Hydr Depth (m)	2.43
2.44			
Min El Prs (m)	12.79	W.P. Total (m)	25.45
25.53			
Delta EG (m)	0.00	Conv. Total (m3/s)	1974.7
1991.0			
Delta WS (m)	0.00	Top Width (m)	11.49
11.50			
BR Open Area (m2)	36.55	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.36	C & E Loss (m)	0.00

0.00	BR Sluice Coef	Shear Total (N/m2)	0.28
0.27	BR Sel Method	Energy only	Power Total (N/m s)
0.10			0.10

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.53	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.52	E.G. Elev (m)	12.53
12.53			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.52
12.52			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	10.02
10.00			
Q Weir (m3/s)		Max Chl Dpth (m)	2.98
3.00			
Weir Sta Lft (m)		Vel Total (m/s)	0.30
0.30			
Weir Sta Rgt (m)		Flow Area (m2)	33.46
33.64			
Weir Submerg		Froude # Chl	0.06
0.06			
Weir Max Depth (m)		Specif Force (m3)	49.18
49.68			
Min El Weir Flow (m)	13.15	Hydr Depth (m)	2.91
2.93			
Min El Prs (m)	12.79	W.P. Total (m)	28.36
28.44			
Delta EG (m)	0.00	Conv. Total (m3/s)	2490.6
2508.0			
Delta WS (m)	0.00	Top Width (m)	11.49
11.50			
BR Open Area (m2)	36.55	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.30	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.19
0.18			
BR Sel Method	Energy only	Power Total (N/m s)	0.06
0.05			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.95	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.92	E.G. Elev (m)	11.94
11.94			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.89
11.89			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.43
10.42			
Q Weir (m3/s)		Max Chl Dpth (m)	2.35
2.36			
Weir Sta Lft (m)		Vel Total (m/s)	1.03
1.02			
Weir Sta Rgt (m)		Flow Area (m2)	26.20
26.37			
Weir Submerg		Froude # Chl	0.22
0.22			
Weir Max Depth (m)		Specif Force (m3)	32.87
33.23			
Min El Weir Flow (m)	13.15	Hydr Depth (m)	2.28
2.29			
Min El Prs (m)	12.79	W.P. Total (m)	24.57
24.65			
Delta EG (m)	0.02	Conv. Total (m3/s)	1823.3
1838.9			
Delta WS (m)	0.02	Top Width (m)	11.49
11.50			
BR Open Area (m2)	36.55	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	1.03	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.29
2.26			
BR Sel Method	Energy only	Power Total (N/m s)	2.36
2.32			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.27	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.25	E.G. Elev (m)	12.27
12.26			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.22

12.22			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.43
10.42			
Q Weir (m3/s)		Max Chl Dpth (m)	2.68
2.70			
Weir Sta Lft (m)		Vel Total (m/s)	0.90
0.89			
Weir Sta Rgt (m)		Flow Area (m2)	30.05
30.22			
Weir Submerg		Froude # Chl	0.18
0.18			
Weir Max Depth (m)		Specif Force (m3)	41.92
42.34			
Min El Weir Flow (m)	13.15	Hydr Depth (m)	2.62
2.63			
Min El Prs (m)	12.79	W.P. Total (m)	26.58
26.66			
Delta EG (m)	0.02	Conv. Total (m3/s)	2173.8
2190.3			
Delta WS (m)	0.02	Top Width (m)	11.49
11.50			
BR Open Area (m2)	36.55	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.90	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.71
1.69			
BR Sel Method	Energy only	Power Total (N/m s)	1.54
1.51			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.67	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.65	E.G. Elev (m)	12.66
12.66			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.63
12.63			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.43
10.42			
Q Weir (m3/s)		Max Chl Dpth (m)	3.09
3.11			
Weir Sta Lft (m)		Vel Total (m/s)	0.78
0.77			
Weir Sta Rgt (m)		Flow Area (m2)	34.75
34.92			
Weir Submerg		Froude # Chl	0.14

0.14			
Weir Max Depth (m)		Specif Force (m3)	54.83
55.33			
Min El Weir Flow (m)	13.15	Hydr Depth (m)	3.02
3.04			
Min El Prs (m)	12.79	W.P. Total (m)	29.04
29.11			
Delta EG (m)	0.01	Conv. Total (m3/s)	2611.1
2628.6			
Delta WS (m)	0.01	Top Width (m)	11.49
11.50			
BR Open Area (m2)	36.55	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.78	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.25
1.24			
BR Sel Method	Energy only	Power Total (N/m s)	0.98
0.96			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 22

INPUT

Description:

Station Elevation Data		num= 17	
Sta	Elev	Sta	Elev
9.5526	13.0992	10.164	13.1996
13.0595	13.4508	14.0363	13.4508
36.8875	13.577	36.8875	13.4992
41.4408	13.3441	41.956	13.132

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
9.5526	.015	14.0363	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	14.0363	35.9241		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.58	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.01	Wt. n-Val.	0.015
W.S. Elev (m)	11.57	Reach Len. (m)	200.00
200.00			
Crit W.S. (m)		Flow Area (m2)	27.20
E.G. Slope (m/m)	0.000017	Area (m2)	27.20
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	16.26	Top Width (m)	16.26
Vel Total (m/s)	0.37	Avg. Vel. (m/s)	0.37
Max Chl Dpth (m)	2.05	Hydr. Depth (m)	1.67
Conv. Total (m3/s)	2429.7	Conv. (m3/s)	2429.7
Length Wtd. (m)	200.00	Wetted Per. (m)	17.54
Min Ch El (m)	9.53	Shear (N/m2)	0.26
Alpha	1.00	Stream Power (N/m s)	0.09
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	119.51
C & E Loss (m)	0.00	Cum SA (1000 m2)	67.11

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.04	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.07
E.G. Slope (m/m)	0.000008	Area (m2)		35.07
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.61	Top Width (m)		17.61
Vel Total (m/s)	0.29	Avg. Vel. (m/s)		0.29
Max Chl Dpth (m)	2.51	Hydr. Depth (m)		1.99
Conv. Total (m3/s)	3496.9	Conv. (m3/s)		3496.9

Length Wtd. (m)	200.00	Wetted Per. (m)	19.17
Min Ch El (m)	9.53	Shear (N/m2)	0.15
Alpha	1.00	Stream Power (N/m s)	0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	152.63
C & E Loss (m)	0.00	Cum SA (1000 m2)	72.27

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		43.98
E.G. Slope (m/m)	0.000004	Area (m2)		43.98
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.02	Top Width (m)		19.02
Vel Total (m/s)	0.23	Avg. Vel. (m/s)		0.23
Max Chl Dpth (m)	3.00	Hydr. Depth (m)		2.31
Conv. Total (m3/s)	4816.4	Conv. (m3/s)		4816.4
Length Wtd. (m)	200.00	Wetted Per. (m)		20.88
Min Ch El (m)	9.53	Shear (N/m2)		0.09
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		188.67
C & E Loss (m)	0.00	Cum SA (1000 m2)		75.67

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.93	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.03	Wt. n-Val.	0.015
W.S. Elev (m)	11.89	Reach Len. (m)	200.00
200.00			
Crit W.S. (m)		Flow Area (m2)	32.61
E.G. Slope (m/m)	0.000073	Area (m2)	32.61
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	17.20	Top Width (m)	17.20
Vel Total (m/s)	0.83	Avg. Vel. (m/s)	0.83
Max Chl Dpth (m)	2.37	Hydr. Depth (m)	1.90
Conv. Total (m3/s)	3152.6	Conv. (m3/s)	3152.6
Length Wtd. (m)	200.00	Wetted Per. (m)	18.67
Min Ch El (m)	9.53	Shear (N/m2)	1.26
Alpha	1.00	Stream Power (N/m s)	1.04
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	131.61
C & E Loss (m)	0.00	Cum SA (1000 m2)	69.00

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.26	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.23	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.56
E.G. Slope (m/m)	0.000046	Area (m2)		38.56
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.17	Top Width (m)		18.17
Vel Total (m/s)	0.70	Avg. Vel. (m/s)		0.70
Max Chl Dpth (m)	2.71	Hydr. Depth (m)		2.12
Conv. Total (m3/s)	4001.1	Conv. (m3/s)		4001.1

Length Wtd. (m)	200.00	Wetted Per. (m)	19.86
Min Ch El (m)	9.53	Shear (N/m2)	0.87
Alpha	1.00	Stream Power (N/m s)	0.61
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	160.27
C & E Loss (m)	0.00	Cum SA (1000 m2)	72.68

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.66	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.64	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		46.25
E.G. Slope (m/m)	0.000027	Area (m2)		46.25
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.36	Top Width (m)		19.36
Vel Total (m/s)	0.58	Avg. Vel. (m/s)		0.58
Max Chl Dpth (m)	3.12	Hydr. Depth (m)		2.39
Conv. Total (m3/s)	5169.6	Conv. (m3/s)		5169.6
Length Wtd. (m)	200.00	Wetted Per. (m)		21.30
Min Ch El (m)	9.53	Shear (N/m2)		0.58
Alpha	1.00	Stream Power (N/m s)		0.34
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		193.25
C & E Loss (m)	0.00	Cum SA (1000 m2)		75.07

CROSS SECTION

RIVER: SNM
REACH: Canale SNM

RS: 21

INPUT

Description:

Station Elevation Data	num=	13
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
8.8047 13.1806 10.3863 13.2696 12.5655 13.2501 12.5655 13.3456 13.5297 13.3456		
19.1345 9.5079 29.078 9.507 35.1353 13.622 35.9374 13.622 35.9374 13.5221		
37.509 13.5224 39.1205 13.4325 39.7474 13.3884		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
8.8047 .015 13.5297 .015 35.1353 .015		

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr.
Expan.		
13.5297 35.1353	200 200 200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		26.71
E.G. Slope (m/m)	0.000018	Area (m2)		26.71
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	15.99	Top Width (m)		15.99
Vel Total (m/s)	0.37	Avg. Vel. (m/s)		0.37
Max Chl Dpth (m)	2.06	Hydr. Depth (m)		1.67
Conv. Total (m3/s)	2382.7	Conv. (m3/s)		2382.7
Length Wtd. (m)	200.00	Wetted Per. (m)		17.26
Min Ch El (m)	9.51	Shear (N/m2)		0.27
Alpha	1.00	Stream Power (N/m s)		0.10
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		114.12
C & E Loss (m)	0.00	Cum SA (1000 m2)		63.88

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.03	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.49
E.G. Slope (m/m)	0.000008	Area (m2)		34.49
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.35	Top Width (m)		17.35
Vel Total (m/s)	0.29	Avg. Vel. (m/s)		0.29
Max Chl Dpth (m)	2.53	Hydr. Depth (m)		1.99
Conv. Total (m3/s)	3431.9	Conv. (m3/s)		3431.9
Length Wtd. (m)	200.00	Wetted Per. (m)		18.91
Min Ch El (m)	9.51	Shear (N/m2)		0.15
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		145.68
C & E Loss (m)	0.00	Cum SA (1000 m2)		68.78

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		43.29
E.G. Slope (m/m)	0.000004	Area (m2)		43.29
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.78	Top Width (m)		18.78
Vel Total (m/s)	0.23	Avg. Vel. (m/s)		0.23

Max Chl Dpth (m)	3.01	Hydr. Depth (m)	2.30
Conv. Total (m3/s)	4728.8	Conv. (m3/s)	4728.8
Length Wtd. (m)	200.00	Wetted Per. (m)	20.64
Min Ch El (m)	9.51	Shear (N/m2)	0.09
Alpha	1.00	Stream Power (N/m s)	0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	179.94
C & E Loss (m)	0.00	Cum SA (1000 m2)	71.89

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.91	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.88	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		31.81
E.G. Slope (m/m)	0.000078	Area (m2)		31.81
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	16.89	Top Width (m)		16.89
Vel Total (m/s)	0.85	Avg. Vel. (m/s)		0.85
Max Chl Dpth (m)	2.37	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3059.4	Conv. (m3/s)		3059.4
Length Wtd. (m)	200.00	Wetted Per. (m)		18.36
Min Ch El (m)	9.51	Shear (N/m2)		1.32
Alpha	1.00	Stream Power (N/m s)		1.12
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		125.17
C & E Loss (m)	0.00	Cum SA (1000 m2)		65.59

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.25	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.22	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.78
E.G. Slope (m/m)	0.000048	Area (m2)		37.78
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.90	Top Width (m)		17.90
Vel Total (m/s)	0.71	Avg. Vel. (m/s)		0.71
Max Chl Dpth (m)	2.71	Hydr. Depth (m)		2.11
Conv. Total (m3/s)	3903.8	Conv. (m3/s)		3903.8
Length Wtd. (m)	200.00	Wetted Per. (m)		19.58
Min Ch El (m)	9.51	Shear (N/m2)		0.91
Alpha	1.00	Stream Power (N/m s)		0.65
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		152.63
C & E Loss (m)	0.00	Cum SA (1000 m2)		69.08

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.65	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.63	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		45.44
E.G. Slope (m/m)	0.000028	Area (m2)		45.44
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.11	Top Width (m)		19.11
Vel Total (m/s)	0.59	Avg. Vel. (m/s)		0.59

Max Chl Dpth (m)	3.13	Hydr. Depth (m)	2.38
Conv. Total (m3/s)	5060.1	Conv. (m3/s)	5060.1
Length Wtd. (m)	200.00	Wetted Per. (m)	21.04
Min Ch El (m)	9.51	Shear (N/m2)	0.60
Alpha	1.00	Stream Power (N/m s)	0.36
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	184.08
C & E Loss (m)	0.00	Cum SA (1000 m2)	71.22

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 20

INPUT											
Description:											
Station Elevation Data				num=		12					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.0188	13.152	13.3653	13.2126	15.8339	13.2351	15.8339	13.3397	16.511	13.3397		
22.0312	9.4892	32.5918	9.4882	38.0883	13.3863	39.4777	13.3863	39.4777	13.2849		
41.0556	13.2806	42.7944	13.1821								
Manning's n Values				num=		3					
Sta	n Val	Sta	n Val	Sta	n Val						
12.0188	.015	16.511	.015	38.0883	.015						
Bank Sta: Left		Right	Lengths: Left Channel			Right	Coeff Contr.				
Expan.											
	16.511	38.0883		200	200	200		.0015		.01	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		28.06
E.G. Slope (m/m)	0.000016	Area (m2)		28.06
Q Total (m3/s)	10.00	Flow (m3/s)		10.00

Top Width (m)	16.47	Top Width (m)	16.47
Vel Total (m/s)	0.36	Avg. Vel. (m/s)	0.36
Max Chl Dpth (m)	2.08	Hydr. Depth (m)	1.70
Conv. Total (m3/s)	2535.5	Conv. (m3/s)	2535.5
Length Wtd. (m)	200.00	Wetted Per. (m)	17.78
Min Ch El (m)	9.49	Shear (N/m2)	0.24
Alpha	1.00	Stream Power (N/m s)	0.09
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	108.64
C & E Loss (m)	0.00	Cum SA (1000 m2)	60.64

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.03	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		36.08
E.G. Slope (m/m)	0.000008	Area (m2)		36.08
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.80	Top Width (m)		17.80
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.55	Hydr. Depth (m)		2.03
Conv. Total (m3/s)	3636.2	Conv. (m3/s)		3636.2
Length Wtd. (m)	200.00	Wetted Per. (m)		19.41
Min Ch El (m)	9.49	Shear (N/m2)		0.14
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		138.62
C & E Loss (m)	0.00	Cum SA (1000 m2)		65.26

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		45.10
E.G. Slope (m/m)	0.000004	Area (m2)		45.10
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.18	Top Width (m)		19.18
Vel Total (m/s)	0.22	Avg. Vel. (m/s)		0.22
Max Chl Dpth (m)	3.03	Hydr. Depth (m)		2.35
Conv. Total (m3/s)	4987.9	Conv. (m3/s)		4987.9
Length Wtd. (m)	200.00	Wetted Per. (m)		21.10
Min Ch El (m)	9.49	Shear (N/m2)		0.08
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		171.10
C & E Loss (m)	0.00	Cum SA (1000 m2)		68.09

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.90	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.87	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.14
E.G. Slope (m/m)	0.000070	Area (m2)		33.14
Q Total (m3/s)	27.00	Flow (m3/s)		27.00

Top Width (m)	17.32	Top Width (m)	17.32
Vel Total (m/s)	0.81	Avg. Vel. (m/s)	0.81
Max Chl Dpth (m)	2.38	Hydr. Depth (m)	1.91
Conv. Total (m3/s)	3221.1	Conv. (m3/s)	3221.1
Length Wtd. (m)	200.00	Wetted Per. (m)	18.83
Min Ch El (m)	9.49	Shear (N/m2)	1.21
Alpha	1.00	Stream Power (N/m s)	0.99
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	118.68
C & E Loss (m)	0.00	Cum SA (1000 m2)	62.17

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.24	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.21	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		39.34
E.G. Slope (m/m)	0.000043	Area (m2)		39.34
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.31	Top Width (m)		18.31
Vel Total (m/s)	0.69	Avg. Vel. (m/s)		0.69
Max Chl Dpth (m)	2.73	Hydr. Depth (m)		2.15
Conv. Total (m3/s)	4112.3	Conv. (m3/s)		4112.3
Length Wtd. (m)	200.00	Wetted Per. (m)		20.04
Min Ch El (m)	9.49	Shear (N/m2)		0.83
Alpha	1.00	Stream Power (N/m s)		0.57
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		144.92
C & E Loss (m)	0.00	Cum SA (1000 m2)		65.46

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.65	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.63	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		47.22
E.G. Slope (m/m)	0.000026	Area (m2)		47.22
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.50	Top Width (m)		19.50
Vel Total (m/s)	0.57	Avg. Vel. (m/s)		0.57
Max Chl Dpth (m)	3.14	Hydr. Depth (m)		2.42
Conv. Total (m3/s)	5321.1	Conv. (m3/s)		5321.1
Length Wtd. (m)	200.00	Wetted Per. (m)		21.48
Min Ch El (m)	9.49	Shear (N/m2)		0.55
Alpha	1.00	Stream Power (N/m s)		0.32
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		174.81
C & E Loss (m)	0.00	Cum SA (1000 m2)		67.36

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 19

INPUT

Description: Opera 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.8283	13.3719	10.5685	13.3517	11.3253	13.2982	11.9598	13.3135	13.2869	13.3246
13.2869	13.4288	14.1591	13.4288	19.8381	9.4705	30.362	9.4695	36.0204	13.5737
37.4246	13.5737	37.4246	13.488	40.8149	13.5846				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.8283	.015	14.1591	.015	36.0204	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	14.1591	36.0204		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.56	Reach Len. (m)	25.00	25.00
25.00				
Crit W.S. (m)	9.91	Flow Area (m2)		28.17
E.G. Slope (m/m)	0.000015	Area (m2)		28.17
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.41	Top Width (m)		16.41
Vel Total (m/s)	0.35	Avg. Vel. (m/s)		0.35
Max Chl Dpth (m)	2.09	Hydr. Depth (m)		1.72
Conv. Total (m3/s)	2556.2	Conv. (m3/s)		2556.2
Length Wtd. (m)	25.00	Wetted Per. (m)		17.75
Min Ch El (m)	9.47	Shear (N/m2)		0.24
Alpha	1.00	Stream Power (N/m s)		0.08
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		103.01
C & E Loss (m)	0.00	Cum SA (1000 m2)		57.35

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015

W.S. Elev (m)	12.03	Reach Len. (m)	25.00	25.00
25.00				
Crit W.S. (m)	9.91	Flow Area (m2)		36.19
E.G. Slope (m/m)	0.000007	Area (m2)		36.19
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.73	Top Width (m)		17.73
Vel Total (m/s)	0.28	Avg. Vel. (m/s)		0.28
Max Chl Dpth (m)	2.56	Hydr. Depth (m)		2.04
Conv. Total (m3/s)	3660.3	Conv. (m3/s)		3660.3
Length Wtd. (m)	25.00	Wetted Per. (m)		19.37
Min Ch El (m)	9.47	Shear (N/m2)		0.14
Alpha	1.00	Stream Power (N/m s)		0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		131.39
C & E Loss (m)	0.00	Cum SA (1000 m2)		61.71

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.52	Reach Len. (m)	25.00	25.00
25.00				
Crit W.S. (m)	9.91	Flow Area (m2)		45.19
E.G. Slope (m/m)	0.000004	Area (m2)		45.19
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.11	Top Width (m)		19.11
Vel Total (m/s)	0.22	Avg. Vel. (m/s)		0.22
Max Chl Dpth (m)	3.05	Hydr. Depth (m)		2.37

Conv. Total (m3/s)	5012.7	Conv. (m3/s)	5012.7
Length Wtd. (m)	25.00	Wetted Per. (m)	21.05
Min Ch El (m)	9.47	Shear (N/m2)	0.08
Alpha	1.00	Stream Power (N/m s)	0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	162.07
C & E Loss (m)	0.00	Cum SA (1000 m2)	64.26

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.89	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.85	Reach Len. (m)	25.00	25.00
25.00				
Crit W.S. (m)	10.31	Flow Area (m2)		33.04
E.G. Slope (m/m)	0.000071	Area (m2)		33.04
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.22	Top Width (m)		17.22
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.92
Conv. Total (m3/s)	3214.5	Conv. (m3/s)		3214.5
Length Wtd. (m)	25.00	Wetted Per. (m)		18.75
Min Ch El (m)	9.47	Shear (N/m2)		1.22
Alpha	1.00	Stream Power (N/m s)		1.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		112.06
C & E Loss (m)	0.00	Cum SA (1000 m2)		58.71

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.23	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.21	Reach Len. (m)	25.00	25.00
25.00				
Crit W.S. (m)	10.31	Flow Area (m2)		39.31
E.G. Slope (m/m)	0.000043	Area (m2)		39.31
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.22	Top Width (m)		18.22
Vel Total (m/s)	0.69	Avg. Vel. (m/s)		0.69
Max Chl Dpth (m)	2.74	Hydr. Depth (m)		2.16
Conv. Total (m3/s)	4116.7	Conv. (m3/s)		4116.7
Length Wtd. (m)	25.00	Wetted Per. (m)		19.97
Min Ch El (m)	9.47	Shear (N/m2)		0.83
Alpha	1.00	Stream Power (N/m s)		0.57
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		137.05
C & E Loss (m)	0.00	Cum SA (1000 m2)		61.80

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.64	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.63	Reach Len. (m)	25.00	25.00
25.00				

Crit W.S. (m)	10.31	Flow Area (m2)	47.22
E.G. Slope (m/m)	0.000026	Area (m2)	47.22
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	19.40	Top Width (m)	19.40
Vel Total (m/s)	0.57	Avg. Vel. (m/s)	0.57
Max Chl Dpth (m)	3.16	Hydr. Depth (m)	2.43
Conv. Total (m3/s)	5332.0	Conv. (m3/s)	5332.0
Length Wtd. (m)	25.00	Wetted Per. (m)	21.42
Min Ch El (m)	9.47	Shear (N/m2)	0.55
Alpha	1.00	Stream Power (N/m s)	0.32
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	165.37
C & E Loss (m)	0.00	Cum SA (1000 m2)	63.47

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
 REACH: Canale SNM RS: 18.5

INPUT
 Description: \
 Distance from Upstream XS = 25
 Deck/Roadway Width = 5
 Weir Coefficient = 1.4
 Upstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 14.13 14.46 12.56 36.05 14.46 12.56

Upstream Bridge Cross Section Data
 Station Elevation Data num= 13
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 9.8283 13.3719 10.5685 13.3517 11.3253 13.2982 11.9598 13.3135 13.2869 13.3246
 13.2869 13.4288 14.1591 13.4288 19.8381 9.4705 30.362 9.4695 36.0204 13.5737
 37.4246 13.5737 37.4246 13.488 40.8149 13.5846

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
9.8283 .015 14.1591 .015 36.0204 .015		

Bank Sta: Left Right	Coeff Contr.	Expan.
14.1591 36.0204	.0015	.01

Downstream Deck/Roadway Coordinates
num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
17.43 14.46 12.56 39.39 14.46 12.56

Downstream Bridge Cross Section Data
Station Elevation Data num= 15
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
13.0717 13.1055 14.7704 13.295 15.4462 13.3401 16.7484 13.269 16.7484 13.3418
17.6185 13.3418 23.0939 9.4514 33.5724 9.4504 38.8596 13.1054 39.3908 13.1054
39.3908 13.017 40.5159 13.0433 41.716 12.9756 42.2573 12.908 43.3658 12.8491

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
13.0717 .015 17.6185 .015 38.8596 .015		

Bank Sta: Left Right	Coeff Contr.	Expan.
17.6185 38.8596	.0015	.01

Upstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data
Upstream num= 2
Sta Elev Sta Elev
14.13 12.56 18.45 12.56
Downstream num= 2
Sta Elev Sta Elev
17.43 12.56 21.75 12.56

Abutment Data
Upstream num= 2
Sta Elev Sta Elev
31.45 12.56 36.02 12.56
Downstream num= 2
Sta Elev Sta Elev
34.75 12.56 39.35 12.56

Number of Piers = 2

Pier Data
Pier Station Upstream= 22.35 Downstream= 25.65
Upstream num= 2
Width Elev Width Elev
.4 9.37 .4 12.56
Downstream num= 2
Width Elev Width Elev
.4 9.37 .4 12.56

Pier Data
Pier Station Upstream= 27.65 Downstream= 30.95
Upstream num= 2
Width Elev Width Elev
.4 9.37 .4 12.56
Downstream num= 2
Width Elev Width Elev
.4 9.37 .4 12.56

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.57	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.56	E.G. Elev (m)	11.57
11.57			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.56
11.56			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.94
9.92			
Q Weir (m3/s)		Max Chl Dpth (m)	2.09
2.11			
Weir Sta Lft (m)		Vel Total (m/s)	0.41
0.41			
Weir Sta Rgt (m)		Flow Area (m2)	24.39
24.60			
Weir Submerg		Froude # Chl	0.09
0.09			
Weir Max Depth (m)		Specif Force (m3)	25.08

25.50			
Min El Weir Flow (m)	13.30	Hydr Depth (m)	2.00
2.02			
Min El Prs (m)	12.56	W.P. Total (m)	23.54
23.64			
Delta EG (m)	0.00	Conv. Total (m3/s)	1664.9
1684.4			
Delta WS (m)	0.00	Top Width (m)	12.20
12.20			
BR Open Area (m2)	36.60	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.41	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.37
0.36			
BR Sel Method	Energy only	Power Total (N/m s)	0.15
0.15			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.04	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.03	E.G. Elev (m)	12.04
12.04			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.03
12.03			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.94
9.92			
Q Weir (m3/s)		Max Chl Dpth (m)	2.56
2.58			
Weir Sta Lft (m)		Vel Total (m/s)	0.33
0.33			
Weir Sta Rgt (m)		Flow Area (m2)	30.13
30.34			
Weir Submerg		Froude # Chl	0.07
0.07			
Weir Max Depth (m)		Specif Force (m3)	37.82
38.34			
Min El Weir Flow (m)	13.30	Hydr Depth (m)	2.47
2.49			
Min El Prs (m)	12.56	W.P. Total (m)	26.36
26.46			
Delta EG (m)	0.00	Conv. Total (m3/s)	2195.5
2215.7			
Delta WS (m)	0.00	Top Width (m)	12.20
12.20			
BR Open Area (m2)	36.60	Frctn Loss (m)	0.00

0.00	BR Open Vel (m/s)	0.33	C & E Loss (m)	0.00
0.00	BR Sluice Coef		Shear Total (N/m2)	0.23
0.23	BR Sel Method	Energy only	Power Total (N/m s)	0.08
0.08				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.52	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.52	E.G. Elev (m)	12.52
12.52			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.52
12.52			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.94
9.92			
Q Weir (m3/s)		Max Chl Dpth (m)	3.05
3.07			
Weir Sta Lft (m)		Vel Total (m/s)	0.28
0.28			
Weir Sta Rgt (m)		Flow Area (m2)	36.09
36.31			
Weir Submerg		Froude # Chl	0.05
0.05			
Weir Max Depth (m)		Specif Force (m3)	53.95
54.58			
Min El Weir Flow (m)	13.30	Hydr Depth (m)	2.96
2.98			
Min El Prs (m)	12.56	W.P. Total (m)	29.30
29.40			
Delta EG (m)	0.00	Conv. Total (m3/s)	2765.4
2786.2			
Delta WS (m)	0.00	Top Width (m)	12.20
12.20			
BR Open Area (m2)	36.60	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.28	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.16
0.16			
BR Sel Method	Energy only	Power Total (N/m s)	0.04
0.04			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.89	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.85	E.G. Elev (m)	11.88
11.88			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.83
11.83			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.35
10.33			
Q Weir (m3/s)		Max Chl Dpth (m)	2.37
2.38			
Weir Sta Lft (m)		Vel Total (m/s)	0.97
0.97			
Weir Sta Rgt (m)		Flow Area (m2)	27.75
27.96			
Weir Submerg		Froude # Chl	0.21
0.20			
Weir Max Depth (m)		Specif Force (m3)	34.52
34.98			
Min El Weir Flow (m)	13.30	Hydr Depth (m)	2.27
2.29			
Min El Prs (m)	12.56	W.P. Total (m)	25.19
25.29			
Delta EG (m)	0.02	Conv. Total (m3/s)	1973.1
1992.8			
Delta WS (m)	0.02	Top Width (m)	12.20
12.20			
BR Open Area (m2)	36.60	Frctn Loss (m)	0.00
0.02			
BR Open Vel (m/s)	0.97	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.02
1.99			
BR Sel Method	Energy only	Power Total (N/m s)	1.97
1.92			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.23	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.21	E.G. Elev (m)	12.23

12.23			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.19
12.19			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.35
10.33			
Q Weir (m3/s)		Max Chl Dpth (m)	2.72
2.74			
Weir Sta Lft (m)		Vel Total (m/s)	0.84
0.84			
Weir Sta Rgt (m)		Flow Area (m2)	32.10
32.31			
Weir Submerg		Froude # Chl	0.17
0.16			
Weir Max Depth (m)		Specif Force (m3)	44.83
45.37			
Min El Weir Flow (m)	13.30	Hydr Depth (m)	2.63
2.65			
Min El Prs (m)	12.56	W.P. Total (m)	27.33
27.43			
Delta EG (m)	0.01	Conv. Total (m3/s)	2382.4
2402.6			
Delta WS (m)	0.01	Top Width (m)	12.20
12.20			
BR Open Area (m2)	36.60	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.84	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.48
1.46			
BR Sel Method	Energy only	Power Total (N/m s)	1.24
1.22			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.64	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.63	E.G. Elev (m)	12.64
12.64			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.61
12.61			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.35
10.33			
Q Weir (m3/s)		Max Chl Dpth (m)	3.14
3.16			
Weir Sta Lft (m)		Vel Total (m/s)	0.74
0.73			
Weir Sta Rgt (m)		Flow Area (m2)	36.60

36.81	Weir Submerg		Froude # Ch1	0.13
0.13	Weir Max Depth (m)		Specif Force (m3)	59.15
59.78	Min El Weir Flow (m)	13.30	Hydr Depth (m)	
	Min El Prs (m)	12.56	W.P. Total (m)	41.74
41.84	Delta EG (m)	0.01	Conv. Total (m3/s)	2234.9
2252.9	Delta WS (m)	0.01	Top Width (m)	
	BR Open Area (m2)	36.60	Frctn Loss (m)	0.00
0.01	BR Open Vel (m/s)	0.74	C & E Loss (m)	0.00
0.00	BR Sluice Coef		Shear Total (N/m2)	1.25
1.24	BR Sel Method	Energy only	Power Total (N/m s)	0.93
0.91				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 18

INPUT

Description:

Station Elevation Data	num=	15
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
13.0717 13.1055 14.7704 13.295 15.4462 13.3401 16.7484 13.269 16.7484 13.3418		
17.6185 13.3418 23.0939 9.4514 33.5724 9.4504 38.8596 13.1054 39.3908 13.1054		
39.3908 13.017 40.5159 13.0433 41.716 12.9756 42.2573 12.908 43.3658 12.8491		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
13.0717 .015 17.6185 .015 38.8596 .015		

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr.
Expan.		
17.6185 38.8596	200 200 200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.56	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		28.41
E.G. Slope (m/m)	0.000015	Area (m2)		28.41
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.49	Top Width (m)		16.49
Vel Total (m/s)	0.35	Avg. Vel. (m/s)		0.35
Max Chl Dpth (m)	2.11	Hydr. Depth (m)		1.72
Conv. Total (m3/s)	2584.7	Conv. (m3/s)		2584.7
Length Wtd. (m)	200.00	Wetted Per. (m)		17.82
Min Ch El (m)	9.45	Shear (N/m2)		0.23
Alpha	1.00	Stream Power (N/m s)		0.08
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		97.73
C & E Loss (m)	0.00	Cum SA (1000 m2)		54.49

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.03	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		36.51
E.G. Slope (m/m)	0.000007	Area (m2)		36.51
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.84	Top Width (m)		17.84
Vel Total (m/s)	0.27	Avg. Vel. (m/s)		0.27
Max Chl Dpth (m)	2.58	Hydr. Depth (m)		2.05
Conv. Total (m3/s)	3701.3	Conv. (m3/s)		3701.3

Length Wtd. (m)	200.00	Wetted Per. (m)	19.46
Min Ch El (m)	9.45	Shear (N/m2)	0.13
Alpha	1.00	Stream Power (N/m s)	0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	124.73
C & E Loss (m)	0.00	Cum SA (1000 m2)	58.72

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		45.58
E.G. Slope (m/m)	0.000004	Area (m2)		45.58
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.23	Top Width (m)		19.23
Vel Total (m/s)	0.22	Avg. Vel. (m/s)		0.22
Max Chl Dpth (m)	3.07	Hydr. Depth (m)		2.37
Conv. Total (m3/s)	5066.5	Conv. (m3/s)		5066.5
Length Wtd. (m)	200.00	Wetted Per. (m)		21.17
Min Ch El (m)	9.45	Shear (N/m2)		0.08
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		153.92
C & E Loss (m)	0.00	Cum SA (1000 m2)		61.14

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.86	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.83	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.99
E.G. Slope (m/m)	0.000071	Area (m2)		32.99
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.27	Top Width (m)		17.27
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.91
Conv. Total (m3/s)	3204.1	Conv. (m3/s)		3204.1
Length Wtd. (m)	200.00	Wetted Per. (m)		18.77
Min Ch El (m)	9.45	Shear (N/m2)		1.22
Alpha	1.00	Stream Power (N/m s)		1.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		105.98
C & E Loss (m)	0.00	Cum SA (1000 m2)		55.78

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.22	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.19	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		39.43
E.G. Slope (m/m)	0.000043	Area (m2)		39.43
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.30	Top Width (m)		18.30
Vel Total (m/s)	0.68	Avg. Vel. (m/s)		0.68
Max Chl Dpth (m)	2.74	Hydr. Depth (m)		2.15
Conv. Total (m3/s)	4129.1	Conv. (m3/s)		4129.1

Length Wtd. (m)	200.00	Wetted Per. (m)	20.03
Min Ch El (m)	9.45	Shear (N/m2)	0.83
Alpha	1.00	Stream Power (N/m s)	0.57
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	129.90
C & E Loss (m)	0.00	Cum SA (1000 m2)	58.77

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.63	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.62	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		47.44
E.G. Slope (m/m)	0.000025	Area (m2)		47.44
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.51	Top Width (m)		19.51
Vel Total (m/s)	0.57	Avg. Vel. (m/s)		0.57
Max Chl Dpth (m)	3.16	Hydr. Depth (m)		2.43
Conv. Total (m3/s)	5359.8	Conv. (m3/s)		5359.8
Length Wtd. (m)	200.00	Wetted Per. (m)		21.51
Min Ch El (m)	9.45	Shear (N/m2)		0.55
Alpha	1.00	Stream Power (N/m s)		0.31
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		156.98
C & E Loss (m)	0.00	Cum SA (1000 m2)		61.57

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 17

INPUT

Description:

Station Elevation Data		num=		15					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.424	13.1058	10.8222	13.1483	12.2475	13.1602	14.3022	13.1175	14.3022	13.2071
14.8326	13.2071	20.4654	9.4323	31.1763	9.4313	36.131	13.2067	36.8224	13.2067
36.8224	13.1602	37.3802	13.22	38.6894	13.2498	40.2636	13.0694	41.1409	12.9015

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
10.424	.015	14.8326	.015	36.131	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	14.8326	36.131		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		29.06
E.G. Slope (m/m)	0.000014	Area (m2)		29.06
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.67	Top Width (m)		16.67
Vel Total (m/s)	0.34	Avg. Vel. (m/s)		0.34
Max Chl Dpth (m)	2.12	Hydr. Depth (m)		1.74
Conv. Total (m3/s)	2663.8	Conv. (m3/s)		2663.8
Length Wtd. (m)	200.00	Wetted Per. (m)		18.03
Min Ch El (m)	9.43	Shear (N/m2)		0.22
Alpha	1.00	Stream Power (N/m s)		0.08
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		91.98
C & E Loss (m)	0.00	Cum SA (1000 m2)		51.18

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.03	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		37.26
E.G. Slope (m/m)	0.000007	Area (m2)		37.26
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.99	Top Width (m)		17.99
Vel Total (m/s)	0.27	Avg. Vel. (m/s)		0.27
Max Chl Dpth (m)	2.60	Hydr. Depth (m)		2.07
Conv. Total (m3/s)	3804.4	Conv. (m3/s)		3804.4
Length Wtd. (m)	200.00	Wetted Per. (m)		19.66
Min Ch El (m)	9.43	Shear (N/m2)		0.13
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		117.35
C & E Loss (m)	0.00	Cum SA (1000 m2)		55.14

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		46.42
E.G. Slope (m/m)	0.000004	Area (m2)		46.42
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.37	Top Width (m)		19.37
Vel Total (m/s)	0.22	Avg. Vel. (m/s)		0.22

Max Chl Dpth (m)	3.09	Hydr. Depth (m)	2.40
Conv. Total (m3/s)	5193.4	Conv. (m3/s)	5193.4
Length Wtd. (m)	200.00	Wetted Per. (m)	21.35
Min Ch El (m)	9.43	Shear (N/m2)	0.08
Alpha	1.00	Stream Power (N/m s)	0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	144.72
C & E Loss (m)	0.00	Cum SA (1000 m2)	57.28

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.85	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.82	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.51
E.G. Slope (m/m)	0.000068	Area (m2)		33.51
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.40	Top Width (m)		17.40
Vel Total (m/s)	0.81	Avg. Vel. (m/s)		0.81
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3269.8	Conv. (m3/s)		3269.8
Length Wtd. (m)	200.00	Wetted Per. (m)		18.93
Min Ch El (m)	9.43	Shear (N/m2)		1.18
Alpha	1.00	Stream Power (N/m s)		0.95
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		99.33
C & E Loss (m)	0.00	Cum SA (1000 m2)		52.31

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.21	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.18	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		40.09
E.G. Slope (m/m)	0.000041	Area (m2)		40.09
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.43	Top Width (m)		18.43
Vel Total (m/s)	0.67	Avg. Vel. (m/s)		0.67
Max Chl Dpth (m)	2.75	Hydr. Depth (m)		2.18
Conv. Total (m3/s)	4222.0	Conv. (m3/s)		4222.0
Length Wtd. (m)	200.00	Wetted Per. (m)		20.19
Min Ch El (m)	9.43	Shear (N/m2)		0.80
Alpha	1.00	Stream Power (N/m s)		0.54
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		121.95
C & E Loss (m)	0.00	Cum SA (1000 m2)		55.10

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.63	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.61	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		48.22
E.G. Slope (m/m)	0.000024	Area (m2)		48.22
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.63	Top Width (m)		19.63
Vel Total (m/s)	0.56	Avg. Vel. (m/s)		0.56

Max Chl Dpth (m)	3.18	Hydr. Depth (m)	2.46
Conv. Total (m3/s)	5479.1	Conv. (m3/s)	5479.1
Length Wtd. (m)	200.00	Wetted Per. (m)	21.67
Min Ch El (m)	9.43	Shear (N/m2)	0.53
Alpha	1.00	Stream Power (N/m s)	0.30
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	147.41
C & E Loss (m)	0.00	Cum SA (1000 m2)	57.65

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 16

INPUT

Description:

Station Elevation Data

num=16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.6972	12.9527	13.7064	13.0545	14.3855	12.9942	15.1906	13.1229	15.1906	13.0119
15.7209	13.1229	21.2836	9.4132	31.5976	9.4122	36.868	13.1384	37.4631	13.1255
37.4631	13.1384	37.6778	13.1418	39.7958	13.142	40.1767	13.0198	41.1336	12.9883
41.539	12.904								

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
11.6972	.015	15.7209	.015	36.868	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	15.7209	36.868		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.55	Reach Len. (m)	79.00	79.00
79.00				
Crit W.S. (m)	9.86	Flow Area (m2)		28.73
E.G. Slope (m/m)	0.000014	Area (m2)		28.73

Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	16.55	Top Width (m)	16.55
Vel Total (m/s)	0.35	Avg. Vel. (m/s)	0.35
Max Chl Dpth (m)	2.14	Hydr. Depth (m)	1.74
Conv. Total (m3/s)	2628.7	Conv. (m3/s)	2628.7
Length Wtd. (m)	79.00	Wetted Per. (m)	17.88
Min Ch El (m)	9.41	Shear (N/m2)	0.23
Alpha	1.00	Stream Power (N/m s)	0.08
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	86.20
C & E Loss (m)	0.00	Cum SA (1000 m2)	47.86

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.03	Reach Len. (m)	79.00	79.00
79.00				
Crit W.S. (m)	9.86	Flow Area (m2)		36.92
E.G. Slope (m/m)	0.000007	Area (m2)		36.92
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.93	Top Width (m)		17.93
Vel Total (m/s)	0.27	Avg. Vel. (m/s)		0.27
Max Chl Dpth (m)	2.61	Hydr. Depth (m)		2.06
Conv. Total (m3/s)	3759.4	Conv. (m3/s)		3759.4
Length Wtd. (m)	79.00	Wetted Per. (m)		19.55
Min Ch El (m)	9.41	Shear (N/m2)		0.13

Alpha	1.00	Stream Power (N/m s)	0.04
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	109.94
C & E Loss (m)	0.00	Cum SA (1000 m2)	51.55

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.52	Reach Len. (m)	79.00	79.00
79.00				
Crit W.S. (m)	9.86	Flow Area (m2)		46.07
E.G. Slope (m/m)	0.000004	Area (m2)		46.07
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.36	Top Width (m)		19.36
Vel Total (m/s)	0.22	Avg. Vel. (m/s)		0.22
Max Chl Dpth (m)	3.11	Hydr. Depth (m)		2.38
Conv. Total (m3/s)	5138.2	Conv. (m3/s)		5138.2
Length Wtd. (m)	79.00	Wetted Per. (m)		21.29
Min Ch El (m)	9.41	Shear (N/m2)		0.08
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		135.47
C & E Loss (m)	0.00	Cum SA (1000 m2)		53.41

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.84	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.80	Reach Len. (m)	79.00	79.00
79.00				
Crit W.S. (m)	10.26	Flow Area (m2)		32.95
E.G. Slope (m/m)	0.000071	Area (m2)		32.95
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.27	Top Width (m)		17.27
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.91
Conv. Total (m3/s)	3197.8	Conv. (m3/s)		3197.8
Length Wtd. (m)	79.00	Wetted Per. (m)		18.76
Min Ch El (m)	9.41	Shear (N/m2)		1.23
Alpha	1.00	Stream Power (N/m s)		1.01
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		92.68
C & E Loss (m)	0.00	Cum SA (1000 m2)		48.84

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.20	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.17	Reach Len. (m)	79.00	79.00
79.00				
Crit W.S. (m)	10.26	Flow Area (m2)		39.60
E.G. Slope (m/m)	0.000042	Area (m2)		39.60
Q Total (m3/s)	27.00	Flow (m3/s)		27.00

Top Width (m)	18.36	Top Width (m)	18.36
Vel Total (m/s)	0.68	Avg. Vel. (m/s)	0.68
Max Chl Dpth (m)	2.76	Hydr. Depth (m)	2.16
Conv. Total (m3/s)	4152.7	Conv. (m3/s)	4152.7
Length Wtd. (m)	79.00	Wetted Per. (m)	20.08
Min Ch El (m)	9.41	Shear (N/m2)	0.82
Alpha	1.00	Stream Power (N/m s)	0.56
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	113.98
C & E Loss (m)	0.00	Cum SA (1000 m2)	51.42

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.62	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.61	Reach Len. (m)	79.00	79.00
79.00				
Crit W.S. (m)	10.26	Flow Area (m2)		47.78
E.G. Slope (m/m)	0.000025	Area (m2)		47.78
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.62	Top Width (m)		19.62
Vel Total (m/s)	0.57	Avg. Vel. (m/s)		0.57
Max Chl Dpth (m)	3.19	Hydr. Depth (m)		2.44
Conv. Total (m3/s)	5408.1	Conv. (m3/s)		5408.1
Length Wtd. (m)	79.00	Wetted Per. (m)		21.60
Min Ch El (m)	9.41	Shear (N/m2)		0.54
Alpha	1.00	Stream Power (N/m s)		0.31

Frctn Loss (m)	0.00	Cum Volume (1000 m3)	137.81
C & E Loss (m)	0.00	Cum SA (1000 m2)	53.73

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
 REACH: Canale SNM RS: 15.5

INPUT
 Description: \
 Distance from Upstream XS = 79
 Deck/Roadway Width = 5
 Weir Coefficient = 1.4
 Upstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 15.96 16.08 14.43 36.79 16.08 14.43

Upstream Bridge Cross Section Data
 Station Elevation Data num= 16
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 11.6972 12.9527 13.7064 13.0545 14.3855 12.9942 15.1906 13.1229 15.1906 13.0119
 15.7209 13.1229 21.2836 9.4132 31.5976 9.4122 36.868 13.1384 37.4631 13.1255
 37.4631 13.1384 37.6778 13.1418 39.7958 13.142 40.1767 13.0198 41.1336 12.9883
 41.539 12.904

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 11.6972 .015 15.7209 .015 36.868 .015

Bank Sta: Left Right Coeff Contr. Expan.
 15.7209 36.868 .0015 .01

Downstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 17.13 13.76 12.11 37.96 13.76 12.11

Downstream Bridge Cross Section Data
 Station Elevation Data num= 11
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 12.0258 13.1777 16.1834 13.1676 16.1834 13.2664 16.7151 13.2664 22.1994 9.3941
 32.826 9.3931 38.3601 13.1612 39.3258 13.1612 39.3258 13.0469 40.6913 13.008
 42.7161 12.8334

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
12.0258	.015	16.7151	.015
38.3601	.015		

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	16.7151	38.3601		.0015	.01

Upstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2
Sta	Elev	Sta Elev
15.97	14.43	20.33 14.43
Downstream	num=	2
Sta	Elev	Sta Elev
17.14	12.11	21.49 12.11

Abutment Data

Upstream	num=	2
Sta	Elev	Sta Elev
32.83	14.43	36.79 14.43
Downstream	num=	2
Sta	Elev	Sta Elev
33.99	12.11	37.96 12.11

Number of Piers = 2

Pier Data

Pier Station	Upstream=	23.93	Downstream=	25.09
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.41	.4	14.43	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.39	.4	12.11	

Pier Data

Pier Station	Upstream=	29.22	Downstream=	30.39
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.41	.4	14.43	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.39	.4	12.11	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.56	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.55	E.G. Elev (m)	11.56
11.56			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.55
11.55			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.88
9.85			
Q Weir (m3/s)		Max Chl Dpth (m)	2.14
2.15			
Weir Sta Lft (m)		Vel Total (m/s)	0.41
0.41			
Weir Sta Rgt (m)		Flow Area (m2)	24.14
24.57			
Weir Submerg		Froude # Chl	0.09
0.09			
Weir Max Depth (m)		Specif Force (m3)	25.52
26.34			
Min El Weir Flow (m)	12.91	Hydr Depth (m)	2.06
2.10			
Min El Prs (m)	14.43	W.P. Total (m)	23.47
23.74			
Delta EG (m)	0.00	Conv. Total (m3/s)	1639.8
1675.8			
Delta WS (m)	0.00	Top Width (m)	11.70
11.70			
BR Open Area (m2)	31.14	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.41	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.38
0.36			
BR Sel Method	Energy only	Power Total (N/m s)	0.16
0.15			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.03	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.03	E.G. Elev (m)	12.03
12.03			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.02
12.02			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.88
9.85			
Q Weir (m3/s)		Max Chl Dpth (m)	2.61
2.63			
Weir Sta Lft (m)		Vel Total (m/s)	0.34
0.33			
Weir Sta Rgt (m)		Flow Area (m2)	29.71
30.13			
Weir Submerg		Froude # Chl	0.07
0.07			
Weir Max Depth (m)		Specif Force (m3)	38.25
39.28			
Min El Weir Flow (m)	12.91	Hydr Depth (m)	2.54
2.58			
Min El Prs (m)	14.43	W.P. Total (m)	26.33
26.59			
Delta EG (m)	0.00	Conv. Total (m3/s)	2146.8
2183.7			
Delta WS (m)	0.00	Top Width (m)	11.70
11.70			
BR Open Area (m2)	31.14	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.34	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.24
0.23			
BR Sel Method	Energy only	Power Total (N/m s)	0.08
0.08			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.52	Element	Inside BR US
Inside BR DS			

W.S. US. (m)	12.52	E.G. Elev (m)	12.52
12.52			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.52
12.51			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.88
9.85			
Q Weir (m3/s)		Max Chl Dpth (m)	3.10
3.12			
Weir Sta Lft (m)		Vel Total (m/s)	0.28
0.32			
Weir Sta Rgt (m)		Flow Area (m2)	35.46
31.14			
Weir Submerg		Froude # Chl	0.05
0.06			
Weir Max Depth (m)		Specif Force (m3)	54.22
54.49			
Min El Weir Flow (m)	12.91	Hydr Depth (m)	3.03
Min El Prs (m)	14.43	W.P. Total (m)	29.28
38.81			
Delta EG (m)	0.00	Conv. Total (m3/s)	2686.2
1793.0			
Delta WS (m)	0.00	Top Width (m)	11.70
BR Open Area (m2)	31.14	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.32	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.16
0.24			
BR Sel Method	Energy only	Power Total (N/m s)	0.05
0.08			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

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1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.84	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.80	E.G. Elev (m)	11.83
11.83			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.77
11.78			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.30
10.26			
Q Weir (m3/s)		Max Chl Dpth (m)	2.36

2.38			
Weir Sta Lft (m)		Vel Total (m/s)	1.01
0.99			
Weir Sta Rgt (m)		Flow Area (m2)	26.80
27.23			
Weir Submerg		Froude # Ch1	0.21
0.21			
Weir Max Depth (m)		Specif Force (m3)	33.65
34.55			
Min El Weir Flow (m)	12.91	Hydr Depth (m)	2.29
2.33			
Min El Prs (m)	14.43	W.P. Total (m)	24.84
25.10			
Delta EG (m)	0.02	Conv. Total (m3/s)	1879.4
1916.4			
Delta WS (m)	0.02	Top Width (m)	11.70
11.70			
BR Open Area (m2)	31.14	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	1.01	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.18
2.11			
BR Sel Method	Energy only	Power Total (N/m s)	2.20
2.09			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.20	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.17	E.G. Elev (m)	12.19
12.19			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.15
12.15			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.30
10.26			
Q Weir (m3/s)		Max Ch1 Dpth (m)	2.74
2.76			
Weir Sta Lft (m)		Vel Total (m/s)	0.86
0.87			
Weir Sta Rgt (m)		Flow Area (m2)	31.24
31.14			
Weir Submerg		Froude # Ch1	0.17
0.17			
Weir Max Depth (m)		Specif Force (m3)	44.29
45.33			
Min El Weir Flow (m)	12.91	Hydr Depth (m)	2.67

Min El Prs (m)	14.43	W.P. Total (m)	27.12
38.81			
Delta EG (m)	0.02	Conv. Total (m3/s)	2289.3
1793.0			
Delta WS (m)	0.01	Top Width (m)	11.70
BR Open Area (m2)	31.14	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.87	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.57
1.78			
BR Sel Method	Energy only	Power Total (N/m s)	1.36
1.55			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.62	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.61	E.G. Elev (m)	12.62
12.62			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.59
12.58			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.30
10.26			
Q Weir (m3/s)		Max Chl Dpth (m)	3.18
3.19			
Weir Sta Lft (m)		Vel Total (m/s)	0.74
0.87			
Weir Sta Rgt (m)		Flow Area (m2)	36.34
31.14			
Weir Submerg		Froude # Chl	0.13
0.16			
Weir Max Depth (m)		Specif Force (m3)	58.66
58.58			
Min El Weir Flow (m)	12.91	Hydr Depth (m)	3.11
Min El Prs (m)	14.43	W.P. Total (m)	29.73
38.81			
Delta EG (m)	0.01	Conv. Total (m3/s)	2769.4
1793.0			
Delta WS (m)	0.01	Top Width (m)	11.70
BR Open Area (m2)	31.14	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.87	C & E Loss (m)	0.00

0.00			
BR Sluice Coef		Shear Total (N/m2)	1.14
1.78			
BR Sel Method	Energy only	Power Total (N/m s)	0.85
1.55			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 15

INPUT

Description:

Station Elevation Data		num=		11					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.0258	13.1777	16.1834	13.1676	16.1834	13.2664	16.7151	13.2664	22.1994	9.3941
32.826	9.3931	38.3601	13.1612	39.3258	13.1612	39.3258	13.0469	40.6913	13.008
42.7161	12.8334								

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
12.0258	.015	16.7151	.015	38.3601	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	16.7151	38.3601		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.55	Reach Len. (m)	164.00	164.00
164.00				
Crit W.S. (m)	9.83	Flow Area (m2)		29.59
E.G. Slope (m/m)	0.000013	Area (m2)		29.59
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.84	Top Width (m)		16.84

Vel Total (m/s)	0.34	Avg. Vel. (m/s)	0.34
Max Chl Dpth (m)	2.16	Hydr. Depth (m)	1.76
Conv. Total (m3/s)	2728.5	Conv. (m3/s)	2728.5
Length Wtd. (m)	164.00	Wetted Per. (m)	18.19
Min Ch El (m)	9.39	Shear (N/m2)	0.21
Alpha	1.00	Stream Power (N/m s)	0.07
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	80.85
C & E Loss (m)	0.00	Cum SA (1000 m2)	45.03

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.02	Reach Len. (m)	164.00	164.00
164.00				
Crit W.S. (m)	9.83	Flow Area (m2)		37.94
E.G. Slope (m/m)	0.000007	Area (m2)		37.94
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.22	Top Width (m)		18.22
Vel Total (m/s)	0.26	Avg. Vel. (m/s)		0.26
Max Chl Dpth (m)	2.63	Hydr. Depth (m)		2.08
Conv. Total (m3/s)	3894.3	Conv. (m3/s)		3894.3
Length Wtd. (m)	164.00	Wetted Per. (m)		19.86
Min Ch El (m)	9.39	Shear (N/m2)		0.12
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		103.21

C & E Loss (m)	0.00	Cum SA (1000 m2)	48.58
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Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.52	Reach Len. (m)	164.00	164.00
164.00				
Crit W.S. (m)	9.83	Flow Area (m2)		47.24
E.G. Slope (m/m)	0.000004	Area (m2)		47.24
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.63	Top Width (m)		19.63
Vel Total (m/s)	0.21	Avg. Vel. (m/s)		0.21
Max Chl Dpth (m)	3.12	Hydr. Depth (m)		2.41
Conv. Total (m3/s)	5308.9	Conv. (m3/s)		5308.9
Length Wtd. (m)	164.00	Wetted Per. (m)		21.59
Min Ch El (m)	9.39	Shear (N/m2)		0.08
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		127.54
C & E Loss (m)	0.00	Cum SA (1000 m2)		51.01

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.81	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.03	Wt. n-Val.	0.015
W.S. Elev (m)	11.78	Reach Len. (m)	164.00
164.00			
Crit W.S. (m)	10.23	Flow Area (m2)	33.57
E.G. Slope (m/m)	0.000068	Area (m2)	33.57
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	17.51	Top Width (m)	17.51
Vel Total (m/s)	0.80	Avg. Vel. (m/s)	0.80
Max Chl Dpth (m)	2.39	Hydr. Depth (m)	1.92
Conv. Total (m3/s)	3270.4	Conv. (m3/s)	3270.4
Length Wtd. (m)	164.00	Wetted Per. (m)	19.00
Min Ch El (m)	9.39	Shear (N/m2)	1.18
Alpha	1.00	Stream Power (N/m s)	0.95
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	86.66
C & E Loss (m)	0.00	Cum SA (1000 m2)	45.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.18	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.	0.015	
W.S. Elev (m)	12.16	Reach Len. (m)	164.00	164.00
164.00				
Crit W.S. (m)	10.23	Flow Area (m2)	40.43	
E.G. Slope (m/m)	0.000040	Area (m2)	40.43	
Q Total (m3/s)	27.00	Flow (m3/s)	27.00	
Top Width (m)	18.61	Top Width (m)	18.61	
Vel Total (m/s)	0.67	Avg. Vel. (m/s)	0.67	

Max Chl Dpth (m)	2.77	Hydr. Depth (m)	2.17
Conv. Total (m3/s)	4262.1	Conv. (m3/s)	4262.1
Length Wtd. (m)	164.00	Wetted Per. (m)	20.34
Min Ch El (m)	9.39	Shear (N/m2)	0.78
Alpha	1.00	Stream Power (N/m s)	0.52
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	106.88
C & E Loss (m)	0.00	Cum SA (1000 m2)	49.12

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.60	Reach Len. (m)	164.00	164.00
164.00				
Crit W.S. (m)	10.23	Flow Area (m2)		48.81
E.G. Slope (m/m)	0.000024	Area (m2)		48.81
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.86	Top Width (m)		19.86
Vel Total (m/s)	0.55	Avg. Vel. (m/s)		0.55
Max Chl Dpth (m)	3.20	Hydr. Depth (m)		2.46
Conv. Total (m3/s)	5558.0	Conv. (m3/s)		5558.0
Length Wtd. (m)	164.00	Wetted Per. (m)		21.87
Min Ch El (m)	9.39	Shear (N/m2)		0.52
Alpha	1.00	Stream Power (N/m s)		0.29
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		129.68
C & E Loss (m)	0.00	Cum SA (1000 m2)		51.31

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 14.5

INPUT

Description:

Distance from Upstream XS = 164
Deck/Roadway Width = 4
Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
13.87 14.05 12.7 41.95 14.05 12.7

Upstream Bridge Cross Section Data

Station Elevation Data num= 11
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
12.0258 13.1777 16.1834 13.1676 16.1834 13.2664 16.7151 13.2664 22.1994 9.3941
32.826 9.3931 38.3601 13.1612 39.3258 13.1612 39.3258 13.0469 40.6913 13.008
42.7161 12.8334

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
12.0258 .015 16.7151 .015 38.3601 .015

Bank Sta: Left Right Coeff Contr. Expan.
16.7151 38.3601 .0015 .01

Downstream Deck/Roadway Coordinates

num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
13.87 14.05 12.7 41.95 14.05 12.7

Downstream Bridge Cross Section Data

Station Elevation Data num= 14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
11.5336 12.964 13.5937 13.1716 14.7938 13.1271 16.2829 13.044 16.2829 13.116
16.8132 13.116 22.4238 9.375 32.6979 9.374 38.3187 13.1214 38.849 13.1214
38.849 13.0128 40.5546 12.9834 41.2584 12.8304 42.3447 12.7616

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
11.5336 .015 16.8132 .015 38.3187 .015

Bank Sta: Left Right Coeff Contr. Expan.

16.8132 38.3187 .0015 .01

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Piers = 2

Pier Data

Pier Station	Upstream=	24.48	Downstream=	24.48
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.39	.5	12.7	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.39	.5	12.7	

Pier Data

Pier Station	Upstream=	31.68	Downstream=	31.68
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.39	.5	12.7	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.39	.5	12.7	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.55	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.55	E.G. Elev (m)	11.55
11.55			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.54

11.54			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.86
9.85			
Q Weir (m3/s)		Max Chl Dpth (m)	2.15
2.17			
Weir Sta Lft (m)		Vel Total (m/s)	0.37
0.37			
Weir Sta Rgt (m)		Flow Area (m2)	27.37
27.18			
Weir Submerg		Froude # Chl	0.09
0.09			
Weir Max Depth (m)		Specif Force (m3)	27.41
27.30			
Min El Weir Flow (m)	12.84	Hydr Depth (m)	1.73
1.72			
Min El Prs (m)	12.70	W.P. Total (m)	25.78
25.77			
Delta EG (m)	0.00	Conv. Total (m3/s)	1899.3
1877.0			
Delta WS (m)	0.00	Top Width (m)	15.83
15.78			
BR Open Area (m2)	47.43	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.37	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.29
0.29			
BR Sel Method	Energy only	Power Total (N/m s)	0.11
0.11			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.03	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.02	E.G. Elev (m)	12.03
12.03			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.02
12.02			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.86
9.85			
Q Weir (m3/s)		Max Chl Dpth (m)	2.63
2.65			
Weir Sta Lft (m)		Vel Total (m/s)	0.28
0.29			
Weir Sta Rgt (m)		Flow Area (m2)	35.28
35.07			
Weir Submerg		Froude # Chl	0.06

0.06			
Weir Max Depth (m)		Specif Force (m3)	42.29
42.08			
Min El Weir Flow (m)	12.84	Hydr Depth (m)	2.05
2.04			
Min El Prs (m)	12.70	W.P. Total (m)	29.37
29.41			
Delta EG (m)	0.00	Conv. Total (m3/s)	2657.2
2629.3			
Delta WS (m)	0.00	Top Width (m)	17.21
17.22			
BR Open Area (m2)	47.43	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.29	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.17
0.17			
BR Sel Method	Energy only	Power Total (N/m s)	0.05
0.05			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.52	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.52	E.G. Elev (m)	12.52
12.52			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.51
12.51			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.86
9.85			
Q Weir (m3/s)		Max Chl Dpth (m)	3.12
3.14			
Weir Sta Lft (m)		Vel Total (m/s)	0.23
0.23			
Weir Sta Rgt (m)		Flow Area (m2)	44.10
43.91			
Weir Submerg		Froude # Chl	0.05
0.05			
Weir Max Depth (m)		Specif Force (m3)	61.74
61.44			
Min El Weir Flow (m)	12.84	Hydr Depth (m)	2.37
2.35			
Min El Prs (m)	12.70	W.P. Total (m)	33.07
33.16			
Delta EG (m)	0.00	Conv. Total (m3/s)	3561.9
3530.8			
Delta WS (m)	0.00	Top Width (m)	18.63

18.69			
BR Open Area (m2)	47.43	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.23	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.10
0.10			
BR Sel Method	Energy only	Power Total (N/m s)	0.02
0.02			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.81	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.78	E.G. Elev (m)	11.80
11.80			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.76
11.76			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.28
10.28			
Q Weir (m3/s)		Max Chl Dpth (m)	2.36
2.38			
Weir Sta Lft (m)		Vel Total (m/s)	0.88
0.88			
Weir Sta Rgt (m)		Flow Area (m2)	30.82
30.60			
Weir Submerg		Froude # Chl	0.20
0.21			
Weir Max Depth (m)		Specif Force (m3)	35.67
35.50			
Min El Weir Flow (m)	12.84	Hydr Depth (m)	1.87
1.86			
Min El Prs (m)	12.70	W.P. Total (m)	27.38
27.39			
Delta EG (m)	0.02	Conv. Total (m3/s)	2223.3
2196.6			
Delta WS (m)	0.02	Top Width (m)	16.45
16.42			
BR Open Area (m2)	47.43	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.88	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.63
1.66			
BR Sel Method	Energy only	Power Total (N/m s)	1.43
1.46			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.18	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.16	E.G. Elev (m)	12.17
12.17			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.15
12.15			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.28
10.28			
Q Weir (m3/s)		Max Chl Dpth (m)	2.75
2.77			
Weir Sta Lft (m)		Vel Total (m/s)	0.72
0.73			
Weir Sta Rgt (m)		Flow Area (m2)	37.44
37.22			
Weir Submerg		Froude # Chl	0.16
0.16			
Weir Max Depth (m)		Specif Force (m3)	48.50
48.26			
Min El Weir Flow (m)	12.84	Hydr Depth (m)	2.13
2.12			
Min El Prs (m)	12.70	W.P. Total (m)	30.30
30.35			
Delta EG (m)	0.01	Conv. Total (m3/s)	2873.4
2843.4			
Delta WS (m)	0.01	Top Width (m)	17.57
17.59			
BR Open Area (m2)	47.43	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.73	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.07
1.08			
BR Sel Method	Energy only	Power Total (N/m s)	0.77
0.79			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.61	Element	Inside BR US
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Inside BR DS			
W.S. US. (m)	12.60	E.G. Elev (m)	12.61
12.61			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.59
12.59			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.28
10.28			
Q Weir (m3/s)		Max Chl Dpth (m)	3.19
3.21			
Weir Sta Lft (m)		Vel Total (m/s)	0.59
0.60			
Weir Sta Rgt (m)		Flow Area (m2)	45.46
45.27			
Weir Submerg		Froude # Chl	0.12
0.12			
Weir Max Depth (m)		Specif Force (m3)	66.40
66.07			
Min El Weir Flow (m)	12.84	Hydr Depth (m)	2.41
2.39			
Min El Prs (m)	12.70	W.P. Total (m)	33.61
33.71			
Delta EG (m)	0.01	Conv. Total (m3/s)	3706.3
3674.3			
Delta WS (m)	0.01	Top Width (m)	18.84
18.91			
BR Open Area (m2)	47.43	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.60	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.70
0.71			
BR Sel Method	Energy only	Power Total (N/m s)	0.42
0.42			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 14

INPUT

Description:

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.5336	12.964	13.5937	13.1716	14.7938	13.1271	16.2829	13.044	16.2829	13.116
16.8132	13.116	22.4238	9.375	32.6979	9.374	38.3187	13.1214	38.849	13.1214
38.849	13.0128	40.5546	12.9834	41.2584	12.8304	42.3447	12.7616		

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
11.5336 .015	16.8132 .015	38.3187 .015

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
16.8132	38.3187	150	150	150	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.54	Reach Len. (m)	150.00	150.00
150.00				
Crit W.S. (m)		Flow Area (m2)		29.35
E.G. Slope (m/m)	0.000014	Area (m2)		29.35
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.78	Top Width (m)		16.78
Vel Total (m/s)	0.34	Avg. Vel. (m/s)		0.34
Max Chl Dpth (m)	2.17	Hydr. Depth (m)		1.75
Conv. Total (m3/s)	2701.2	Conv. (m3/s)		2701.2
Length Wtd. (m)	150.00	Wetted Per. (m)		18.10
Min Ch El (m)	9.37	Shear (N/m2)		0.22
Alpha	1.00	Stream Power (N/m s)		0.07
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		75.17
C & E Loss (m)	0.00	Cum SA (1000 m2)		41.76

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.02	Reach Len. (m)	150.00	150.00
150.00				
Crit W.S. (m)		Flow Area (m2)		37.72

E.G. Slope (m/m)	0.000007	Area (m2)	37.72
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	18.22	Top Width (m)	18.22
Vel Total (m/s)	0.27	Avg. Vel. (m/s)	0.27
Max Chl Dpth (m)	2.65	Hydr. Depth (m)	2.07
Conv. Total (m3/s)	3862.4	Conv. (m3/s)	3862.4
Length Wtd. (m)	150.00	Wetted Per. (m)	19.82
Min Ch El (m)	9.37	Shear (N/m2)	0.13
Alpha	1.00	Stream Power (N/m s)	0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	95.90
C & E Loss (m)	0.00	Cum SA (1000 m2)	45.04

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.51	Reach Len. (m)	150.00	150.00
150.00				
Crit W.S. (m)		Flow Area (m2)		47.06
E.G. Slope (m/m)	0.000004	Area (m2)		47.06
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.69	Top Width (m)		19.69
Vel Total (m/s)	0.21	Avg. Vel. (m/s)		0.21
Max Chl Dpth (m)	3.14	Hydr. Depth (m)		2.39
Conv. Total (m3/s)	5272.7	Conv. (m3/s)		5272.7
Length Wtd. (m)	150.00	Wetted Per. (m)		21.60
Min Ch El (m)	9.37	Shear (N/m2)		0.08
Alpha	1.00	Stream Power (N/m s)		0.02

Frctn Loss (m)	0.00	Cum Volume (1000 m3)	118.41
C & E Loss (m)	0.00	Cum SA (1000 m2)	47.19

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.79	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.76	Reach Len. (m)	150.00	150.00
150.00				
Crit W.S. (m)		Flow Area (m2)		33.02
E.G. Slope (m/m)	0.000071	Area (m2)		33.02
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.43	Top Width (m)		17.43
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.89
Conv. Total (m3/s)	3197.1	Conv. (m3/s)		3197.1
Length Wtd. (m)	150.00	Wetted Per. (m)		18.87
Min Ch El (m)	9.37	Shear (N/m2)		1.22
Alpha	1.00	Stream Power (N/m s)		1.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		80.24
C & E Loss (m)	0.00	Cum SA (1000 m2)		42.55

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.17	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.15	Reach Len. (m)	150.00	150.00
150.00				
Crit W.S. (m)		Flow Area (m2)		40.03

E.G. Slope (m/m)	0.000041	Area (m2)	40.03
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	18.59	Top Width (m)	18.59
Vel Total (m/s)	0.67	Avg. Vel. (m/s)	0.67
Max Chl Dpth (m)	2.77	Hydr. Depth (m)	2.15
Conv. Total (m3/s)	4199.8	Conv. (m3/s)	4199.8
Length Wtd. (m)	150.00	Wetted Per. (m)	20.27
Min Ch El (m)	9.37	Shear (N/m2)	0.80
Alpha	1.00	Stream Power (N/m s)	0.54
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	99.10
C & E Loss (m)	0.00	Cum SA (1000 m2)	45.51

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.59	Reach Len. (m)	150.00	150.00
150.00				
Crit W.S. (m)		Flow Area (m2)		48.51
E.G. Slope (m/m)	0.000024	Area (m2)		48.51
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.91	Top Width (m)		19.91
Vel Total (m/s)	0.56	Avg. Vel. (m/s)		0.56
Max Chl Dpth (m)	3.21	Hydr. Depth (m)		2.44
Conv. Total (m3/s)	5501.8	Conv. (m3/s)		5501.8
Length Wtd. (m)	150.00	Wetted Per. (m)		21.86
Min Ch El (m)	9.37	Shear (N/m2)		0.52
Alpha	1.00	Stream Power (N/m s)		0.29

Frctn Loss (m)	0.00	Cum Volume (1000 m3)	120.27
C & E Loss (m)	0.00	Cum SA (1000 m2)	47.44

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 13

INPUT

Description:

Station Elevation Data				num=	12				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.8181	12.946	14.2061	13.0492	15.427	13.1039	15.9317	13.0936	15.9317	13.1835
17.2789	13.1835	22.7393	9.3616	33.1978	9.3611	38.7497	13.1201	39.5355	13.1201
39.5355	13.0299	42.8082	12.8908						

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
12.8181	.015	17.2789	.015	38.7497	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	17.2789	38.7497		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		29.72
E.G. Slope (m/m)	0.000013	Area (m2)		29.72
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.80	Top Width (m)		16.80
Vel Total (m/s)	0.34	Avg. Vel. (m/s)		0.34
Max Chl Dpth (m)	2.18	Hydr. Depth (m)		1.77
Conv. Total (m3/s)	2752.5	Conv. (m3/s)		2752.5
Length Wtd. (m)	200.00	Wetted Per. (m)		18.15

Min Ch El (m)	9.36	Shear (N/m2)	0.21
Alpha	1.00	Stream Power (N/m s)	0.07
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	70.74
C & E Loss (m)	0.00	Cum SA (1000 m2)	39.24

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.03	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.02	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.11
E.G. Slope (m/m)	0.000006	Area (m2)		38.11
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.19	Top Width (m)		18.19
Vel Total (m/s)	0.26	Avg. Vel. (m/s)		0.26
Max Chl Dpth (m)	2.66	Hydr. Depth (m)		2.10
Conv. Total (m3/s)	3925.0	Conv. (m3/s)		3925.0
Length Wtd. (m)	200.00	Wetted Per. (m)		19.84
Min Ch El (m)	9.36	Shear (N/m2)		0.12
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		90.21
C & E Loss (m)	0.00	Cum SA (1000 m2)		42.31

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015

W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		47.42
E.G. Slope (m/m)	0.000004	Area (m2)		47.42
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.62	Top Width (m)		19.62
Vel Total (m/s)	0.21	Avg. Vel. (m/s)		0.21
Max Chl Dpth (m)	3.15	Hydr. Depth (m)		2.42
Conv. Total (m3/s)	5343.5	Conv. (m3/s)		5343.5
Length Wtd. (m)	200.00	Wetted Per. (m)		21.58
Min Ch El (m)	9.36	Shear (N/m2)		0.08
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		111.33
C & E Loss (m)	0.00	Cum SA (1000 m2)		44.24

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.78	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.75	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.25
E.G. Slope (m/m)	0.000070	Area (m2)		33.25
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.40	Top Width (m)		17.40
Vel Total (m/s)	0.81	Avg. Vel. (m/s)		0.81
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.91
Conv. Total (m3/s)	3232.4	Conv. (m3/s)		3232.4
Length Wtd. (m)	200.00	Wetted Per. (m)		18.88

Min Ch El (m)	9.36	Shear (N/m2)	1.20
Alpha	1.00	Stream Power (N/m s)	0.98
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	75.27
C & E Loss (m)	0.00	Cum SA (1000 m2)	39.94

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.16	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.14	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		40.31
E.G. Slope (m/m)	0.000040	Area (m2)		40.31
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.54	Top Width (m)		18.54
Vel Total (m/s)	0.67	Avg. Vel. (m/s)		0.67
Max Chl Dpth (m)	2.78	Hydr. Depth (m)		2.17
Conv. Total (m3/s)	4250.8	Conv. (m3/s)		4250.8
Length Wtd. (m)	200.00	Wetted Per. (m)		20.27
Min Ch El (m)	9.36	Shear (N/m2)		0.79
Alpha	1.00	Stream Power (N/m s)		0.53
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		93.08
C & E Loss (m)	0.00	Cum SA (1000 m2)		42.72

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015

W.S. Elev (m)	12.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		48.81
E.G. Slope (m/m)	0.000024	Area (m2)		48.81
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.83	Top Width (m)		19.83
Vel Total (m/s)	0.55	Avg. Vel. (m/s)		0.55
Max Chl Dpth (m)	3.22	Hydr. Depth (m)		2.46
Conv. Total (m3/s)	5564.1	Conv. (m3/s)		5564.1
Length Wtd. (m)	200.00	Wetted Per. (m)		21.83
Min Ch El (m)	9.36	Shear (N/m2)		0.52
Alpha	1.00	Stream Power (N/m s)		0.29
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		112.97
C & E Loss (m)	0.00	Cum SA (1000 m2)		44.46

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 12

INPUT

Description:

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.2008	12.7565	13.8768	12.8396	17.5219	12.9368	17.5219	13.0501	18.0529	13.0501
23.4604	9.3519	33.8358	9.3514	39.3842	13.1249	40.1886	13.1249	40.1886	13.0251
41.1404	13.0254	41.9815	12.892	43.2053	12.7412				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
13.2008	.015	18.0529	.015	39.3842	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
Expan.

18.0529 39.3842 200 200 200 .0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		29.72
E.G. Slope (m/m)	0.000013	Area (m2)		29.72
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.79	Top Width (m)		16.79
Vel Total (m/s)	0.34	Avg. Vel. (m/s)		0.34
Max Chl Dpth (m)	2.19	Hydr. Depth (m)		1.77
Conv. Total (m3/s)	2753.7	Conv. (m3/s)		2753.7
Length Wtd. (m)	200.00	Wetted Per. (m)		18.14
Min Ch El (m)	9.35	Shear (N/m2)		0.21
Alpha	1.00	Stream Power (N/m s)		0.07
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		64.79
C & E Loss (m)	0.00	Cum SA (1000 m2)		35.88

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.02	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.13
E.G. Slope (m/m)	0.000006	Area (m2)		38.13
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.20	Top Width (m)		18.20
Vel Total (m/s)	0.26	Avg. Vel. (m/s)		0.26
Max Chl Dpth (m)	2.67	Hydr. Depth (m)		2.10

Conv. Total (m3/s)	3929.0	Conv. (m3/s)	3929.0
Length Wtd. (m)	200.00	Wetted Per. (m)	19.85
Min Ch El (m)	9.35	Shear (N/m2)	0.12
Alpha	1.00	Stream Power (N/m s)	0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	82.59
C & E Loss (m)	0.00	Cum SA (1000 m2)	38.67

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		47.47
E.G. Slope (m/m)	0.000003	Area (m2)		47.47
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.65	Top Width (m)		19.65
Vel Total (m/s)	0.21	Avg. Vel. (m/s)		0.21
Max Chl Dpth (m)	3.16	Hydr. Depth (m)		2.42
Conv. Total (m3/s)	5349.6	Conv. (m3/s)		5349.6
Length Wtd. (m)	200.00	Wetted Per. (m)		21.60
Min Ch El (m)	9.35	Shear (N/m2)		0.08
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		101.84
C & E Loss (m)	0.00	Cum SA (1000 m2)		40.31

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.77	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.73	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.04
E.G. Slope (m/m)	0.000071	Area (m2)		33.04
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.36	Top Width (m)		17.36
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.90
Conv. Total (m3/s)	3204.7	Conv. (m3/s)		3204.7
Length Wtd. (m)	200.00	Wetted Per. (m)		18.83
Min Ch El (m)	9.35	Shear (N/m2)		1.22
Alpha	1.00	Stream Power (N/m s)		1.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		68.64
C & E Loss (m)	0.00	Cum SA (1000 m2)		36.47

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.16	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.13	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		40.21
E.G. Slope (m/m)	0.000041	Area (m2)		40.21
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.53	Top Width (m)		18.53
Vel Total (m/s)	0.67	Avg. Vel. (m/s)		0.67
Max Chl Dpth (m)	2.78	Hydr. Depth (m)		2.17

Conv. Total (m3/s)	4235.6	Conv. (m3/s)	4235.6
Length Wtd. (m)	200.00	Wetted Per. (m)	20.25
Min Ch El (m)	9.35	Shear (N/m2)	0.79
Alpha	1.00	Stream Power (N/m s)	0.53
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	85.03
C & E Loss (m)	0.00	Cum SA (1000 m2)	39.01

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		48.78
E.G. Slope (m/m)	0.000024	Area (m2)		48.78
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.84	Top Width (m)		19.84
Vel Total (m/s)	0.55	Avg. Vel. (m/s)		0.55
Max Chl Dpth (m)	3.23	Hydr. Depth (m)		2.46
Conv. Total (m3/s)	5557.5	Conv. (m3/s)		5557.5
Length Wtd. (m)	200.00	Wetted Per. (m)		21.84
Min Ch El (m)	9.35	Shear (N/m2)		0.52
Alpha	1.00	Stream Power (N/m s)		0.29
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		103.21
C & E Loss (m)	0.00	Cum SA (1000 m2)		40.49

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 11

INPUT

Description:

Station Elevation Data	num=	15
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
11.2173 12.8045 13.0207 13.0146 14.5873 13.0467 15.2657 13.0353 15.2657 13.127		
16.5453 13.127 22.1085 9.3422 32.4568 9.3417 37.9623 13.0338 38.4927 13.0338		
38.4927 12.9521 38.8896 12.9666 40.0712 12.9666 41.2382 12.9146 41.778 12.8146		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
11.2173 .015 16.5453 .015 37.9623 .015		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.					
Expan.					
16.5453 37.9623 200 200 200 .0015 .01					

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.54	Reach Len. (m)	54.70	54.70
54.70				
Crit W.S. (m)	9.79	Flow Area (m2)		29.85
E.G. Slope (m/m)	0.000013	Area (m2)		29.85
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.85	Top Width (m)		16.85
Vel Total (m/s)	0.34	Avg. Vel. (m/s)		0.34
Max Chl Dpth (m)	2.20	Hydr. Depth (m)		1.77
Conv. Total (m3/s)	2768.4	Conv. (m3/s)		2768.4
Length Wtd. (m)	54.70	Wetted Per. (m)		18.19
Min Ch El (m)	9.34	Shear (N/m2)		0.21
Alpha	1.00	Stream Power (N/m s)		0.07
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		58.83
C & E Loss (m)	0.00	Cum SA (1000 m2)		32.52

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.02	Reach Len. (m)	54.70	54.70
54.70				
Crit W.S. (m)	9.79	Flow Area (m2)		38.32
E.G. Slope (m/m)	0.000006	Area (m2)		38.32
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.28	Top Width (m)		18.28
Vel Total (m/s)	0.26	Avg. Vel. (m/s)		0.26
Max Chl Dpth (m)	2.68	Hydr. Depth (m)		2.10
Conv. Total (m3/s)	3951.6	Conv. (m3/s)		3951.6
Length Wtd. (m)	54.70	Wetted Per. (m)		19.91
Min Ch El (m)	9.34	Shear (N/m2)		0.12
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		74.94
C & E Loss (m)	0.00	Cum SA (1000 m2)		35.02

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.51	Reach Len. (m)	54.70	54.70

54.70			
Crit W.S. (m)	9.79	Flow Area (m2)	47.70
E.G. Slope (m/m)	0.000003	Area (m2)	47.70
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	19.74	Top Width (m)	19.74
Vel Total (m/s)	0.21	Avg. Vel. (m/s)	0.21
Max Chl Dpth (m)	3.17	Hydr. Depth (m)	2.42
Conv. Total (m3/s)	5380.3	Conv. (m3/s)	5380.3
Length Wtd. (m)	54.70	Wetted Per. (m)	21.68
Min Ch El (m)	9.34	Shear (N/m2)	0.07
Alpha	1.00	Stream Power (N/m s)	0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	92.32
C & E Loss (m)	0.00	Cum SA (1000 m2)	36.37

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.75	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.72	Reach Len. (m)	54.70	54.70
54.70				
Crit W.S. (m)	10.19	Flow Area (m2)		32.98
E.G. Slope (m/m)	0.000072	Area (m2)		32.98
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.39	Top Width (m)		17.39
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.90
Conv. Total (m3/s)	3192.4	Conv. (m3/s)		3192.4

Length Wtd. (m)	54.70	Wetted Per. (m)	18.84
Min Ch El (m)	9.34	Shear (N/m2)	1.23
Alpha	1.00	Stream Power (N/m s)	1.01
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	62.04
C & E Loss (m)	0.00	Cum SA (1000 m2)	32.99

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.15	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.13	Reach Len. (m)	54.70	54.70
54.70				
Crit W.S. (m)	10.19	Flow Area (m2)		40.28
E.G. Slope (m/m)	0.000041	Area (m2)		40.28
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.59	Top Width (m)		18.59
Vel Total (m/s)	0.67	Avg. Vel. (m/s)		0.67
Max Chl Dpth (m)	2.78	Hydr. Depth (m)		2.17
Conv. Total (m3/s)	4240.6	Conv. (m3/s)		4240.6
Length Wtd. (m)	54.70	Wetted Per. (m)		20.29
Min Ch El (m)	9.34	Shear (N/m2)		0.79
Alpha	1.00	Stream Power (N/m s)		0.53
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		76.98
C & E Loss (m)	0.00	Cum SA (1000 m2)		35.30

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.58	Reach Len. (m)	54.70	54.70
54.70				
Crit W.S. (m)	10.19	Flow Area (m2)		48.94
E.G. Slope (m/m)	0.000023	Area (m2)		48.94
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.92	Top Width (m)		19.92
Vel Total (m/s)	0.55	Avg. Vel. (m/s)		0.55
Max Chl Dpth (m)	3.23	Hydr. Depth (m)		2.46
Conv. Total (m3/s)	5576.7	Conv. (m3/s)		5576.7
Length Wtd. (m)	54.70	Wetted Per. (m)		21.90
Min Ch El (m)	9.34	Shear (N/m2)		0.51
Alpha	1.00	Stream Power (N/m s)		0.28
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		93.44
C & E Loss (m)	0.00	Cum SA (1000 m2)		36.52

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 10.5

INPUT

Description:

Distance from Upstream XS = 54.7

Deck/Roadway Width = 4

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
16.48	14.12	12.38	38.03	14.12	12.38				

Upstream Bridge Cross Section Data

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.2173	12.8045	13.0207	13.0146	14.5873	13.0467	15.2657	13.0353	15.2657	13.127
16.5453	13.127	22.1085	9.3422	32.4568	9.3417	37.9623	13.0338	38.4927	13.0338
38.4927	12.9521	38.8896	12.9666	40.0712	12.9666	41.2382	12.9146	41.778	12.8146

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.2173	.015	16.5453	.015	37.9623	.015

Bank Sta: Left Right Coeff Contr. Expan.

16.5453	37.9623	.0015	.01
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Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
16.4	14.2	12.38	37.95	14.2	12.38				

Downstream Bridge Cross Section Data

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.2406	12.7458	12.3129	12.9484	14.5562	13.0021	16.1558	12.9612	16.1558	13.0485
16.6872	13.0485	22.0135	9.3324	32.3876	9.3319	38.0831	13.2409	38.5647	13.2409
38.5647	13.1565	39.9559	13.1998	42.3096	13.1153				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.2406	.015	16.6872	.015	38.0831	.015

Bank Sta: Left Right Coeff Contr. Expan.

16.6872	38.0831	.0015	.01
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Upstream Embankment side slope = 0 horiz. to 1.0 vertical

Downstream Embankment side slope = 0 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Energy head used in spillway design =

Spillway height used in design =

Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev
16.48	12.38	21.15	12.38

Downstream num= 2

Sta	Elev	Sta	Elev
16.4	12.38	21.07	12.38

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
33.65	12.38	38.03	12.38
Downstream	num=	2	
Sta	Elev	Sta	Elev
33.57	12.38	37.95	12.38

Number of Piers = 2

Pier Data

Pier Station	Upstream=	24.8	Downstream=	24.72
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.34	.4	12.38	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.34	.4	12.38	

Pier Data

Pier Station	Upstream=	30	Downstream=	29.92
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.34	.4	12.38	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.34	.4	12.38	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.54	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.54	E.G. Elev (m)	11.54
11.54			

Q Total (m3/s)	10.00	W.S. Elev (m)	11.53
11.53			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.81
9.80			
Q Weir (m3/s)		Max Chl Dpth (m)	2.19
2.20			
Weir Sta Lft (m)		Vel Total (m/s)	0.40
0.40			
Weir Sta Rgt (m)		Flow Area (m2)	24.85
24.97			
Weir Submerg		Froude # Chl	0.09
0.09			
Weir Max Depth (m)		Specif Force (m3)	26.97
27.22			
Min El Weir Flow (m)	12.81	Hydr Depth (m)	2.12
2.13			
Min El Prs (m)	12.38	W.P. Total (m)	23.84
23.90			
Delta EG (m)	0.00	Conv. Total (m3/s)	1703.2
1713.7			
Delta WS (m)	0.00	Top Width (m)	11.70
11.70			
BR Open Area (m2)	34.76	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.40	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.35
0.35			
BR Sel Method	Energy only	Power Total (N/m s)	0.14
0.14			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.02	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.02	E.G. Elev (m)	12.02
12.02			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.02
12.02			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.81
9.80			
Q Weir (m3/s)		Max Chl Dpth (m)	2.67
2.68			
Weir Sta Lft (m)		Vel Total (m/s)	0.33
0.33			
Weir Sta Rgt (m)		Flow Area (m2)	30.50
30.62			

Weir Submerg		Froude # Ch1	0.06
0.06			
Weir Max Depth (m)		Specif Force (m3)	40.27
40.57			
Min El Weir Flow (m)	12.81	Hydr Depth (m)	2.61
2.62			
Min El Prs (m)	12.38	W.P. Total (m)	26.74
26.80			
Delta EG (m)	0.00	Conv. Total (m3/s)	2220.2
2231.1			
Delta WS (m)	0.00	Top Width (m)	11.70
11.70			
BR Open Area (m2)	34.76	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.33	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.23
0.23			
BR Sel Method	Energy only	Power Total (N/m s)	0.07
0.07			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.52	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.51	E.G. Elev (m)	12.51
12.51			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.51
12.51			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.81
9.80			
Q Weir (m3/s)		Max Ch1 Dpth (m)	3.17
3.18			
Weir Sta Lft (m)		Vel Total (m/s)	0.29
0.29			
Weir Sta Rgt (m)		Flow Area (m2)	34.76
34.87			
Weir Submerg		Froude # Ch1	0.05
0.05			
Weir Max Depth (m)		Specif Force (m3)	56.63
56.99			
Min El Weir Flow (m)	12.81	Hydr Depth (m)	
Min El Prs (m)	12.38	W.P. Total (m)	40.62
40.68			
Delta EG (m)	0.00	Conv. Total (m3/s)	2088.3
2098.0			

Delta WS (m)	0.00	Top Width (m)	
BR Open Area (m2)	34.76	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.29	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.19
0.19			
BR Sel Method	Energy only	Power Total (N/m s)	0.06
0.05			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.75	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.72	E.G. Elev (m)	11.75
11.75			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.70
11.70			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.22
10.21			
Q Weir (m3/s)		Max Chl Dpth (m)	2.35
2.36			
Weir Sta Lft (m)		Vel Total (m/s)	1.01
1.01			
Weir Sta Rgt (m)		Flow Area (m2)	26.75
26.86			
Weir Submerg		Froude # Chl	0.21
0.21			
Weir Max Depth (m)		Specif Force (m3)	33.52
33.77			
Min El Weir Flow (m)	12.81	Hydr Depth (m)	2.29
2.30			
Min El Prs (m)	12.38	W.P. Total (m)	24.81
24.87			
Delta EG (m)	0.02	Conv. Total (m3/s)	1874.8
1885.1			
Delta WS (m)	0.02	Top Width (m)	11.70
11.70			
BR Open Area (m2)	34.76	Frctn Loss (m)	0.00
0.02			
BR Open Vel (m/s)	1.01	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.19
2.17			
BR Sel Method	Energy only	Power Total (N/m s)	2.21
2.18			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.15	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.13	E.G. Elev (m)	12.14
12.14			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.11
12.11			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.22
10.21			
Q Weir (m3/s)		Max Chl Dpth (m)	2.77
2.78			
Weir Sta Lft (m)		Vel Total (m/s)	0.86
0.85			
Weir Sta Rgt (m)		Flow Area (m2)	31.57
31.68			
Weir Submerg		Froude # Chl	0.17
0.17			
Weir Max Depth (m)		Specif Force (m3)	45.11
45.41			
Min El Weir Flow (m)	12.81	Hydr Depth (m)	2.70
2.71			
Min El Prs (m)	12.38	W.P. Total (m)	27.29
27.34			
Delta EG (m)	0.01	Conv. Total (m3/s)	2319.2
2330.0			
Delta WS (m)	0.01	Top Width (m)	11.70
11.70			
BR Open Area (m2)	34.76	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.86	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.54
1.53			
BR Sel Method	Energy only	Power Total (N/m s)	1.32
1.30			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.59	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.58	E.G. Elev (m)	12.59
12.59			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.56
12.56			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.22
10.21			
Q Weir (m3/s)		Max Chl Dpth (m)	3.22
3.23			
Weir Sta Lft (m)		Vel Total (m/s)	0.78
0.77			
Weir Sta Rgt (m)		Flow Area (m2)	34.76
34.87			
Weir Submerg		Froude # Chl	0.14
0.14			
Weir Max Depth (m)		Specif Force (m3)	60.10
60.44			
Min El Weir Flow (m)	12.81	Hydr Depth (m)	
Min El Prs (m)	12.38	W.P. Total (m)	40.62
40.68			
Delta EG (m)	0.01	Conv. Total (m3/s)	2088.3
2098.0			
Delta WS (m)	0.01	Top Width (m)	
BR Open Area (m2)	34.76	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.78	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.40
1.39			
BR Sel Method	Energy only	Power Total (N/m s)	1.09
1.08			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 10

INPUT

Description:

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.2406	12.7458	12.3129	12.9484	14.5562	13.0021	16.1558	12.9612	16.1558	13.0485
16.6872	13.0485	22.0135	9.3324	32.3876	9.3319	38.0831	13.2409	38.5647	13.2409
38.5647	13.1565	39.9559	13.1998	42.3096	13.1153				

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
11.2406 .015	16.6872 .015	38.0831 .015

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
16.6872	38.0831	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		29.83
E.G. Slope (m/m)	0.000013	Area (m2)		29.83
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.74	Top Width (m)		16.74
Vel Total (m/s)	0.34	Avg. Vel. (m/s)		0.34
Max Chl Dpth (m)	2.20	Hydr. Depth (m)		1.78
Conv. Total (m3/s)	2774.2	Conv. (m3/s)		2774.2
Length Wtd. (m)	200.00	Wetted Per. (m)		18.11
Min Ch El (m)	9.33	Shear (N/m2)		0.21
Alpha	1.00	Stream Power (N/m s)		0.07
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		53.37
C & E Loss (m)	0.00	Cum SA (1000 m2)		29.68

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.02	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)	38.27
E.G. Slope (m/m)	0.000006	Area (m2)	38.27
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	18.13	Top Width (m)	18.13
Vel Total (m/s)	0.26	Avg. Vel. (m/s)	0.26
Max Chl Dpth (m)	2.69	Hydr. Depth (m)	2.11
Conv. Total (m3/s)	3957.6	Conv. (m3/s)	3957.6
Length Wtd. (m)	200.00	Wetted Per. (m)	19.81
Min Ch El (m)	9.33	Shear (N/m2)	0.12
Alpha	1.00	Stream Power (N/m s)	0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	68.07
C & E Loss (m)	0.00	Cum SA (1000 m2)	32.05

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		47.59
E.G. Slope (m/m)	0.000003	Area (m2)		47.59
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.56	Top Width (m)		19.56
Vel Total (m/s)	0.21	Avg. Vel. (m/s)		0.21
Max Chl Dpth (m)	3.18	Hydr. Depth (m)		2.43
Conv. Total (m3/s)	5381.1	Conv. (m3/s)		5381.1
Length Wtd. (m)	200.00	Wetted Per. (m)		21.55
Min Ch El (m)	9.33	Shear (N/m2)		0.07

Alpha	1.00	Stream Power (N/m s)	0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	84.10
C & E Loss (m)	0.00	Cum SA (1000 m2)	34.45

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.73	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.70	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.59
E.G. Slope (m/m)	0.000074	Area (m2)		32.59
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.20	Top Width (m)		17.20
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83
Max Chl Dpth (m)	2.36	Hydr. Depth (m)		1.89
Conv. Total (m3/s)	3148.5	Conv. (m3/s)		3148.5
Length Wtd. (m)	200.00	Wetted Per. (m)		18.68
Min Ch El (m)	9.33	Shear (N/m2)		1.26
Alpha	1.00	Stream Power (N/m s)		1.04
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		56.10
C & E Loss (m)	0.00	Cum SA (1000 m2)		30.11

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.13	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.11	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)	39.99
E.G. Slope (m/m)	0.000041	Area (m2)	39.99
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	18.41	Top Width (m)	18.41
Vel Total (m/s)	0.68	Avg. Vel. (m/s)	0.68
Max Chl Dpth (m)	2.78	Hydr. Depth (m)	2.17
Conv. Total (m3/s)	4212.0	Conv. (m3/s)	4212.0
Length Wtd. (m)	200.00	Wetted Per. (m)	20.14
Min Ch El (m)	9.33	Shear (N/m2)	0.80
Alpha	1.00	Stream Power (N/m s)	0.54
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	69.82
C & E Loss (m)	0.00	Cum SA (1000 m2)	32.30

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.58	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		48.64
E.G. Slope (m/m)	0.000024	Area (m2)		48.64
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.72	Top Width (m)		19.72
Vel Total (m/s)	0.56	Avg. Vel. (m/s)		0.56
Max Chl Dpth (m)	3.23	Hydr. Depth (m)		2.47
Conv. Total (m3/s)	5547.3	Conv. (m3/s)		5547.3
Length Wtd. (m)	200.00	Wetted Per. (m)		21.74
Min Ch El (m)	9.33	Shear (N/m2)		0.52

Alpha	1.00	Stream Power (N/m s)	0.29
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	85.11
C & E Loss (m)	0.00	Cum SA (1000 m2)	34.58

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 9

INPUT

Description:

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.4314	13.018	13.3335	13.1326	14.7253	13.0874	14.7253	13.1712	16.3368	13.1712
21.5587	9.3227	32.0415	9.3222	37.6211	13.1247	38.1519	13.1247	38.1519	13.0524
39.4008	13.1217	40.5583	13.0678	42.1715	13.0078				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.4314	.015	16.3368	.015	37.6211	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	16.3368	37.6211		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		30.03
E.G. Slope (m/m)	0.000013	Area (m2)		30.03
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.72	Top Width (m)		16.72
Vel Total (m/s)	0.33	Avg. Vel. (m/s)		0.33
Max Chl Dpth (m)	2.21	Hydr. Depth (m)		1.80
Conv. Total (m3/s)	2803.3	Conv. (m3/s)		2803.3

Length Wtd. (m)	200.00	Wetted Per. (m)	18.13
Min Ch El (m)	9.32	Shear (N/m2)	0.21
Alpha	1.00	Stream Power (N/m s)	0.07
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	47.38
C & E Loss (m)	0.00	Cum SA (1000 m2)	26.34

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.02	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.48
E.G. Slope (m/m)	0.000006	Area (m2)		38.48
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.09	Top Width (m)		18.09
Vel Total (m/s)	0.26	Avg. Vel. (m/s)		0.26
Max Chl Dpth (m)	2.69	Hydr. Depth (m)		2.13
Conv. Total (m3/s)	3993.8	Conv. (m3/s)		3993.8
Length Wtd. (m)	200.00	Wetted Per. (m)		19.81
Min Ch El (m)	9.32	Shear (N/m2)		0.12
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		60.39
C & E Loss (m)	0.00	Cum SA (1000 m2)		28.43

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.00	Wt. n-Val.	0.015
W.S. Elev (m)	12.51	Reach Len. (m)	200.00
200.00			
Crit W.S. (m)		Flow Area (m2)	47.78
E.G. Slope (m/m)	0.000003	Area (m2)	47.78
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	19.49	Top Width (m)	19.49
Vel Total (m/s)	0.21	Avg. Vel. (m/s)	0.21
Max Chl Dpth (m)	3.19	Hydr. Depth (m)	2.45
Conv. Total (m3/s)	5421.2	Conv. (m3/s)	5421.2
Length Wtd. (m)	200.00	Wetted Per. (m)	21.52
Min Ch El (m)	9.32	Shear (N/m2)	0.07
Alpha	1.00	Stream Power (N/m s)	0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	74.56
C & E Loss (m)	0.00	Cum SA (1000 m2)	30.54

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.72	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.68	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.57
E.G. Slope (m/m)	0.000073	Area (m2)		32.57
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.14	Top Width (m)		17.14
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83
Max Chl Dpth (m)	2.36	Hydr. Depth (m)		1.90
Conv. Total (m3/s)	3149.9	Conv. (m3/s)		3149.9

Length Wtd. (m)	200.00	Wetted Per. (m)	18.65
Min Ch El (m)	9.32	Shear (N/m2)	1.26
Alpha	1.00	Stream Power (N/m s)	1.04
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	49.58
C & E Loss (m)	0.00	Cum SA (1000 m2)	26.67

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.13	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.10	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		40.07
E.G. Slope (m/m)	0.000041	Area (m2)		40.07
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.34	Top Width (m)		18.34
Vel Total (m/s)	0.67	Avg. Vel. (m/s)		0.67
Max Chl Dpth (m)	2.78	Hydr. Depth (m)		2.19
Conv. Total (m3/s)	4229.8	Conv. (m3/s)		4229.8
Length Wtd. (m)	200.00	Wetted Per. (m)		20.11
Min Ch El (m)	9.32	Shear (N/m2)		0.80
Alpha	1.00	Stream Power (N/m s)		0.54
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		61.82
C & E Loss (m)	0.00	Cum SA (1000 m2)		28.62

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.58	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.56	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		48.74
E.G. Slope (m/m)	0.000023	Area (m2)		48.74
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.63	Top Width (m)		19.63
Vel Total (m/s)	0.55	Avg. Vel. (m/s)		0.55
Max Chl Dpth (m)	3.24	Hydr. Depth (m)		2.48
Conv. Total (m3/s)	5574.9	Conv. (m3/s)		5574.9
Length Wtd. (m)	200.00	Wetted Per. (m)		21.69
Min Ch El (m)	9.32	Shear (N/m2)		0.52
Alpha	1.00	Stream Power (N/m s)		0.29
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		75.38
C & E Loss (m)	0.00	Cum SA (1000 m2)		30.65

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 8

INPUT

Description:

Station	Elevation	Data	num=	15							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.8418	13.0138	13.8341	13.1333	14.6952	13.1055	15.3898	13.0934	15.3898	13.1847		
16.5736	13.1847	22.1881	9.32	32.5897	9.32	38.0561	13.0954	38.5872	13.0954		
38.5872	13.0121	39.4886	13.0422	40.5613	13.0218	41.2261	12.9264	42.0612	12.8908		

Manning's n	Values	num=	3								
Sta	n Val	Sta	n Val	Sta	n Val						
11.8418	.015	16.5736	.015	38.0561	.015						

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.		
Expan.										
	16.5736	38.0561		200	200	200	.0015	.01		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.53	Reach Len. (m)	96.30	96.30
96.30				
Crit W.S. (m)	9.76	Flow Area (m2)		30.04
E.G. Slope (m/m)	0.000013	Area (m2)		30.04
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.81	Top Width (m)		16.81
Vel Total (m/s)	0.33	Avg. Vel. (m/s)		0.33
Max Chl Dpth (m)	2.21	Hydr. Depth (m)		1.79
Conv. Total (m3/s)	2798.7	Conv. (m3/s)		2798.7
Length Wtd. (m)	96.30	Wetted Per. (m)		18.18
Min Ch El (m)	9.32	Shear (N/m2)		0.21
Alpha	1.00	Stream Power (N/m s)		0.07
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		41.37
C & E Loss (m)	0.00	Cum SA (1000 m2)		22.99

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.01	Reach Len. (m)	96.30	96.30
96.30				
Crit W.S. (m)	9.76	Flow Area (m2)		38.56
E.G. Slope (m/m)	0.000006	Area (m2)		38.56
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.22	Top Width (m)		18.22
Vel Total (m/s)	0.26	Avg. Vel. (m/s)		0.26

Max Chl Dpth (m)	2.69	Hydr. Depth (m)	2.12
Conv. Total (m3/s)	3996.0	Conv. (m3/s)	3996.0
Length Wtd. (m)	96.30	Wetted Per. (m)	19.90
Min Ch El (m)	9.32	Shear (N/m2)	0.12
Alpha	1.00	Stream Power (N/m s)	0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	52.69
C & E Loss (m)	0.00	Cum SA (1000 m2)	24.80

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.51	Reach Len. (m)	96.30	96.30
96.30				
Crit W.S. (m)	9.76	Flow Area (m2)		47.95
E.G. Slope (m/m)	0.000003	Area (m2)		47.95
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.66	Top Width (m)		19.66
Vel Total (m/s)	0.21	Avg. Vel. (m/s)		0.21
Max Chl Dpth (m)	3.19	Hydr. Depth (m)		2.44
Conv. Total (m3/s)	5432.2	Conv. (m3/s)		5432.2
Length Wtd. (m)	96.30	Wetted Per. (m)		21.64
Min Ch El (m)	9.32	Shear (N/m2)		0.07
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		64.99
C & E Loss (m)	0.00	Cum SA (1000 m2)		26.63

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.70	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.67	Reach Len. (m)	96.30	96.30
96.30				
Crit W.S. (m)	10.16	Flow Area (m2)		32.38
E.G. Slope (m/m)	0.000075	Area (m2)		32.38
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.20	Top Width (m)		17.20
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83
Max Chl Dpth (m)	2.35	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3115.8	Conv. (m3/s)		3115.8
Length Wtd. (m)	96.30	Wetted Per. (m)		18.67
Min Ch El (m)	9.32	Shear (N/m2)		1.28
Alpha	1.00	Stream Power (N/m s)		1.07
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		43.09
C & E Loss (m)	0.00	Cum SA (1000 m2)		23.24

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.12	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.09	Reach Len. (m)	96.30	96.30
96.30				
Crit W.S. (m)	10.16	Flow Area (m2)		40.03
E.G. Slope (m/m)	0.000041	Area (m2)		40.03
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.45	Top Width (m)		18.45
Vel Total (m/s)	0.67	Avg. Vel. (m/s)		0.67

Max Chl Dpth (m)	2.78	Hydr. Depth (m)	2.17
Conv. Total (m3/s)	4213.8	Conv. (m3/s)	4213.8
Length Wtd. (m)	96.30	Wetted Per. (m)	20.18
Min Ch El (m)	9.32	Shear (N/m2)	0.80
Alpha	1.00	Stream Power (N/m s)	0.54
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	53.81
C & E Loss (m)	0.00	Cum SA (1000 m2)	24.95

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.56	Reach Len. (m)	96.30	96.30
96.30				
Crit W.S. (m)	10.16	Flow Area (m2)		48.84
E.G. Slope (m/m)	0.000023	Area (m2)		48.84
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.79	Top Width (m)		19.79
Vel Total (m/s)	0.55	Avg. Vel. (m/s)		0.55
Max Chl Dpth (m)	3.24	Hydr. Depth (m)		2.47
Conv. Total (m3/s)	5574.2	Conv. (m3/s)		5574.2
Length Wtd. (m)	96.30	Wetted Per. (m)		21.80
Min Ch El (m)	9.32	Shear (N/m2)		0.52
Alpha	1.00	Stream Power (N/m s)		0.28
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		65.62
C & E Loss (m)	0.00	Cum SA (1000 m2)		26.70

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 7.5

INPUT

Description: \

Distance from Upstream XS = 96.3

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
14.79	14.96	12.89	39.44	14.96	12.89				

Upstream Bridge Cross Section Data

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.8418	13.0138	13.8341	13.1333	14.6952	13.1055	15.3898	13.0934	15.3898	13.1847
16.5736	13.1847	22.1881	9.32	32.5897	9.32	38.0561	13.0954	38.5872	13.0954
38.5872	13.0121	39.4886	13.0422	40.5613	13.0218	41.2261	12.9264	42.0612	12.8908

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.8418	.015	16.5736	.015	38.0561	.015

Bank	Sta: Left	Right	Coeff	Contr.	Expan.
	16.5736	38.0561	.0015	.01	

Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
12.37	14.96	12.88	36.84	14.96	12.88				

Downstream Bridge Cross Section Data

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.7498	12.7358	11.6644	12.9223	12.4735	12.8869	13.5914	12.8773	13.5914	12.9729
14.1212	12.9729	19.7066	9.32	29.8828	9.32	35.4243	12.9723	35.9543	12.9723
35.9543	12.8776	37.037	12.889	37.6584	12.9258	38.1783	12.9391	38.569	12.8322
40.1499	12.758								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.7498	.015	14.1212	.015	35.4243	.015

Bank	Sta: Left	Right	Coeff	Contr.	Expan.
	14.1212	35.4243	.0015	.01	

Upstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	

Spillway height used in design =
Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
14.97	12.89	20.39	12.89
Downstream	num=	2	
Sta	Elev	Sta	Elev
12.37	12.89	17.79	12.89

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
34.17	12.89	39.44	12.89
Downstream	num=	2	
Sta	Elev	Sta	Elev
31.57	12.89	36.84	12.89

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.53	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.53	E.G. Elev (m)	11.53
11.53			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.53
11.53			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.77
9.77			
Q Weir (m3/s)		Max Chl Dpth (m)	2.21
2.21			
Weir Sta Lft (m)		Vel Total (m/s)	0.35
0.35			
Weir Sta Rgt (m)		Flow Area (m2)	28.43
28.26			

Weir Submerg		Froude # Ch1	0.08
0.08			
Weir Max Depth (m)		Specif Force (m3)	30.31
30.02			
Min El Weir Flow (m)	12.89	Hydr Depth (m)	2.06
2.05			
Min El Prs (m)	12.89	W.P. Total (m)	16.59
16.53			
Delta EG (m)	0.00	Conv. Total (m3/s)	2713.7
2693.3			
Delta WS (m)	0.00	Top Width (m)	13.78
13.78			
BR Open Area (m2)	46.92	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.35	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.23
0.23			
BR Sel Method	Energy only	Power Total (N/m s)	0.08
0.08			

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.02	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.01	E.G. Elev (m)	12.02
12.02			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.01
12.01			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.77
9.77			
Q Weir (m3/s)		Max Ch1 Dpth (m)	2.69
2.69			
Weir Sta Lft (m)		Vel Total (m/s)	0.28
0.29			
Weir Sta Rgt (m)		Flow Area (m2)	35.14
34.97			
Weir Submerg		Froude # Ch1	0.06
0.06			
Weir Max Depth (m)		Specif Force (m3)	45.72
45.36			
Min El Weir Flow (m)	12.89	Hydr Depth (m)	2.55
2.54			
Min El Prs (m)	12.89	W.P. Total (m)	17.56
17.51			
Delta EG (m)	0.00	Conv. Total (m3/s)	3719.6
3698.2			
Delta WS (m)	0.00	Top Width (m)	13.78
13.78			
BR Open Area (m2)	46.92	Frctn Loss (m)	0.00
0.00			

BR Open Vel (m/s)	0.29	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.14
0.14			
BR Sel Method	Energy only	Power Total (N/m s)	0.04
0.04			

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.51	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.51	E.G. Elev (m)	12.51
12.51			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.51
12.51			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.77
9.77			
Q Weir (m3/s)		Max Chl Dpth (m)	3.19
3.19			
Weir Sta Lft (m)		Vel Total (m/s)	0.24
0.24			
Weir Sta Rgt (m)		Flow Area (m2)	41.97
41.81			
Weir Submerg		Froude # Chl	0.04
0.04			
Weir Max Depth (m)		Specif Force (m3)	64.80
64.35			
Min El Weir Flow (m)	12.89	Hydr Depth (m)	3.05
3.03			
Min El Prs (m)	12.89	W.P. Total (m)	18.55
18.50			
Delta EG (m)	0.00	Conv. Total (m3/s)	4822.1
4800.0			
Delta WS (m)	0.00	Top Width (m)	13.78
13.78			
BR Open Area (m2)	46.92	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.24	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.10
0.10			
BR Sel Method	Energy only	Power Total (N/m s)	0.02
0.02			

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.70	Element	Inside BR US
Inside BR DS			

W.S. US. (m)	11.67	E.G. Elev (m)	11.69
11.69			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.65
11.65			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.17
10.18			
Q Weir (m3/s)		Max Chl Dpth (m)	2.33
2.33			
Weir Sta Lft (m)		Vel Total (m/s)	0.90
0.90			
Weir Sta Rgt (m)		Flow Area (m2)	30.17
29.99			
Weir Submerg		Froude # Chl	0.19
0.19			
Weir Max Depth (m)		Specif Force (m3)	36.12
35.80			
Min El Weir Flow (m)	12.89	Hydr Depth (m)	2.19
2.18			
Min El Prs (m)	12.89	W.P. Total (m)	16.84
16.78			
Delta EG (m)	0.02	Conv. Total (m3/s)	2966.4
2944.1			
Delta WS (m)	0.02	Top Width (m)	13.78
13.78			
BR Open Area (m2)	46.92	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.90	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.46
1.47			
BR Sel Method	Energy only	Power Total (N/m s)	1.30
1.33			

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.12	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.09	E.G. Elev (m)	12.11
12.11			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.09
12.08			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.17
10.18			
Q Weir (m3/s)		Max Chl Dpth (m)	2.77
2.76			
Weir Sta Lft (m)		Vel Total (m/s)	0.75
0.75			
Weir Sta Rgt (m)		Flow Area (m2)	36.13
35.96			
Weir Submerg		Froude # Chl	0.15
0.15			

Weir Max Depth (m)		Specif Force (m3)	50.06
49.68			
Min El Weir Flow (m)	12.89	Hydr Depth (m)	2.62
2.61			
Min El Prs (m)	12.89	W.P. Total (m)	17.71
17.65			
Delta EG (m)	0.01	Conv. Total (m3/s)	3875.4
3852.9			
Delta WS (m)	0.01	Top Width (m)	13.78
13.78			
BR Open Area (m2)	46.92	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.75	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.97
0.98			
BR Sel Method	Energy only	Power Total (N/m s)	0.73
0.74			

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.57	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.56	E.G. Elev (m)	12.57
12.57			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.55
12.55			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.17
10.18			
Q Weir (m3/s)		Max Chl Dpth (m)	3.23
3.23			
Weir Sta Lft (m)		Vel Total (m/s)	0.64
0.64			
Weir Sta Rgt (m)		Flow Area (m2)	42.51
42.34			
Weir Submerg		Froude # Chl	0.12
0.12			
Weir Max Depth (m)		Specif Force (m3)	67.94
67.48			
Min El Weir Flow (m)	12.89	Hydr Depth (m)	3.08
3.07			
Min El Prs (m)	12.89	W.P. Total (m)	18.63
18.58			
Delta EG (m)	0.01	Conv. Total (m3/s)	4911.0
4888.3			
Delta WS (m)	0.01	Top Width (m)	13.78
13.78			
BR Open Area (m2)	46.92	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.64	C & E Loss (m)	0.00
0.00			

BR Sluice Coef		Shear Total (N/m2)	0.68
0.68			
BR Sel Method	Energy only	Power Total (N/m s)	0.43
0.43			

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 7

INPUT
 Description:
 Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.7498	12.7358	11.6644	12.9223	12.4735	12.8869	13.5914	12.8773	13.5914	12.9729
14.1212	12.9729	19.7066	9.32	29.8828	9.32	35.4243	12.9723	35.9543	12.9723
35.9543	12.8776	37.037	12.889	37.6584	12.9258	38.1783	12.9391	38.569	12.8322
40.1499	12.758								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.7498	.015	14.1212	.015	35.4243	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	14.1212	35.4243		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		29.85
E.G. Slope (m/m)	0.000013	Area (m2)		29.85
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.89	Top Width (m)		16.89
Vel Total (m/s)	0.34	Avg. Vel. (m/s)		0.34
Max Chl Dpth (m)	2.21	Hydr. Depth (m)		1.77
Conv. Total (m3/s)	2766.3	Conv. (m3/s)		2766.3
Length Wtd. (m)	200.00	Wetted Per. (m)		18.21

Min Ch El (m)	9.32	Shear (N/m2)	0.21
Alpha	1.00	Stream Power (N/m s)	0.07
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	35.55
C & E Loss (m)	0.00	Cum SA (1000 m2)	19.93

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.01	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		38.46
E.G. Slope (m/m)	0.000006	Area (m2)		38.46
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.38	Top Width (m)		18.38
Vel Total (m/s)	0.26	Avg. Vel. (m/s)		0.26
Max Chl Dpth (m)	2.69	Hydr. Depth (m)		2.09
Conv. Total (m3/s)	3965.4	Conv. (m3/s)		3965.4
Length Wtd. (m)	200.00	Wetted Per. (m)		19.99
Min Ch El (m)	9.32	Shear (N/m2)		0.12
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		45.34
C & E Loss (m)	0.00	Cum SA (1000 m2)		21.60

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015

W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		47.95
E.G. Slope (m/m)	0.000003	Area (m2)		47.95
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.89	Top Width (m)		19.89
Vel Total (m/s)	0.21	Avg. Vel. (m/s)		0.21
Max Chl Dpth (m)	3.19	Hydr. Depth (m)		2.41
Conv. Total (m3/s)	5407.3	Conv. (m3/s)		5407.3
Length Wtd. (m)	200.00	Wetted Per. (m)		21.80
Min Ch El (m)	9.32	Shear (N/m2)		0.07
Alpha	1.00	Stream Power (N/m s)		0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		56.02
C & E Loss (m)	0.00	Cum SA (1000 m2)		23.29

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.68	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.65	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		31.95
E.G. Slope (m/m)	0.000078	Area (m2)		31.95
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.27	Top Width (m)		17.27
Vel Total (m/s)	0.84	Avg. Vel. (m/s)		0.84
Max Chl Dpth (m)	2.33	Hydr. Depth (m)		1.85
Conv. Total (m3/s)	3048.8	Conv. (m3/s)		3048.8
Length Wtd. (m)	200.00	Wetted Per. (m)		18.66

Min Ch El (m)	9.32	Shear (N/m2)	1.32
Alpha	1.00	Stream Power (N/m s)	1.11
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	36.87
C & E Loss (m)	0.00	Cum SA (1000 m2)	20.15

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.11	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.09	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		39.79
E.G. Slope (m/m)	0.000042	Area (m2)		39.79
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.60	Top Width (m)		18.60
Vel Total (m/s)	0.68	Avg. Vel. (m/s)		0.68
Max Chl Dpth (m)	2.77	Hydr. Depth (m)		2.14
Conv. Total (m3/s)	4161.6	Conv. (m3/s)		4161.6
Length Wtd. (m)	200.00	Wetted Per. (m)		20.25
Min Ch El (m)	9.32	Shear (N/m2)		0.81
Alpha	1.00	Stream Power (N/m s)		0.55
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		46.22
C & E Loss (m)	0.00	Cum SA (1000 m2)		21.73

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015

W.S. Elev (m)	12.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		48.76
E.G. Slope (m/m)	0.000024	Area (m2)		48.76
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	20.02	Top Width (m)		20.02
Vel Total (m/s)	0.55	Avg. Vel. (m/s)		0.55
Max Chl Dpth (m)	3.23	Hydr. Depth (m)		2.44
Conv. Total (m3/s)	5535.1	Conv. (m3/s)		5535.1
Length Wtd. (m)	200.00	Wetted Per. (m)		21.95
Min Ch El (m)	9.32	Shear (N/m2)		0.52
Alpha	1.00	Stream Power (N/m s)		0.29
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		56.51
C & E Loss (m)	0.00	Cum SA (1000 m2)		23.35

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 6

INPUT

Description:

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.7833	12.6581	11.0506	12.9745	13.2912	12.9007	13.2912	12.9842	13.8227	12.9842
19.0623	9.32	29.7828	9.32	34.8601	12.8846	35.3917	12.8846	35.3917	12.7846
36.1799	12.7846	37.5157	12.7906	39.6586	12.6524				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.7833	.015	13.8227	.015	34.8601	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
Expan.

13.8227 34.8601 200 200 200 .0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.52	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		30.54
E.G. Slope (m/m)	0.000012	Area (m2)		30.54
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.01	Top Width (m)		17.01
Vel Total (m/s)	0.33	Avg. Vel. (m/s)		0.33
Max Chl Dpth (m)	2.20	Hydr. Depth (m)		1.80
Conv. Total (m3/s)	2855.1	Conv. (m3/s)		2855.1
Length Wtd. (m)	200.00	Wetted Per. (m)		18.40
Min Ch El (m)	9.32	Shear (N/m2)		0.20
Alpha	1.00	Stream Power (N/m s)		0.07
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		29.51
C & E Loss (m)	0.00	Cum SA (1000 m2)		16.54

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.01	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		39.21
E.G. Slope (m/m)	0.000006	Area (m2)		39.21
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.40	Top Width (m)		18.40
Vel Total (m/s)	0.26	Avg. Vel. (m/s)		0.26
Max Chl Dpth (m)	2.69	Hydr. Depth (m)		2.13

Conv. Total (m3/s)	4079.8	Conv. (m3/s)	4079.8
Length Wtd. (m)	200.00	Wetted Per. (m)	20.10
Min Ch El (m)	9.32	Shear (N/m2)	0.11
Alpha	1.00	Stream Power (N/m s)	0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	37.58
C & E Loss (m)	0.00	Cum SA (1000 m2)	17.92

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		48.70
E.G. Slope (m/m)	0.000003	Area (m2)		48.70
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.82	Top Width (m)		19.82
Vel Total (m/s)	0.21	Avg. Vel. (m/s)		0.21
Max Chl Dpth (m)	3.19	Hydr. Depth (m)		2.46
Conv. Total (m3/s)	5542.6	Conv. (m3/s)		5542.6
Length Wtd. (m)	200.00	Wetted Per. (m)		21.83
Min Ch El (m)	9.32	Shear (N/m2)		0.07
Alpha	1.00	Stream Power (N/m s)		0.01
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		46.36
C & E Loss (m)	0.00	Cum SA (1000 m2)		19.32

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.67	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.63	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.45
E.G. Slope (m/m)	0.000075	Area (m2)		32.45
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.33	Top Width (m)		17.33
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83
Max Chl Dpth (m)	2.31	Hydr. Depth (m)		1.87
Conv. Total (m3/s)	3114.8	Conv. (m3/s)		3114.8
Length Wtd. (m)	200.00	Wetted Per. (m)		18.79
Min Ch El (m)	9.32	Shear (N/m2)		1.27
Alpha	1.00	Stream Power (N/m s)		1.06
Frctn Loss (m)	0.02	Cum Volume (1000 m3)		30.43
C & E Loss (m)	0.00	Cum SA (1000 m2)		16.69

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.10	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.08	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		40.43
E.G. Slope (m/m)	0.000040	Area (m2)		40.43
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.59	Top Width (m)		18.59
Vel Total (m/s)	0.67	Avg. Vel. (m/s)		0.67
Max Chl Dpth (m)	2.76	Hydr. Depth (m)		2.17

Conv. Total (m3/s)	4261.2	Conv. (m3/s)	4261.2
Length Wtd. (m)	200.00	Wetted Per. (m)	20.33
Min Ch El (m)	9.32	Shear (N/m2)	0.78
Alpha	1.00	Stream Power (N/m s)	0.52
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	38.20
C & E Loss (m)	0.00	Cum SA (1000 m2)	18.01

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		49.43
E.G. Slope (m/m)	0.000023	Area (m2)		49.43
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.93	Top Width (m)		19.93
Vel Total (m/s)	0.55	Avg. Vel. (m/s)		0.55
Max Chl Dpth (m)	3.23	Hydr. Depth (m)		2.48
Conv. Total (m3/s)	5660.0	Conv. (m3/s)		5660.0
Length Wtd. (m)	200.00	Wetted Per. (m)		21.96
Min Ch El (m)	9.32	Shear (N/m2)		0.50
Alpha	1.00	Stream Power (N/m s)		0.27
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		46.69
C & E Loss (m)	0.00	Cum SA (1000 m2)		19.36

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 5

INPUT

Description:

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.9983	12.7591	10.1522	13.0405	12.0764	13.0257	12.0764	13.1218	12.713	13.1218
18.3892	9.32	29.0079	9.32	34.4788	13.0628	34.9253	13.0628	34.9253	12.9754
36.5793	13.0174	37.5384	12.8876	38.2379	12.8443	38.6366	12.734		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.9983	.015	12.713	.015	34.4788	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
Expan.

12.713	34.4788	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.52	Reach Len. (m)	41.35	41.35
41.35				
Crit W.S. (m)	9.76	Flow Area (m2)		30.52
E.G. Slope (m/m)	0.000012	Area (m2)		30.52
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.12	Top Width (m)		17.12
Vel Total (m/s)	0.33	Avg. Vel. (m/s)		0.33
Max Chl Dpth (m)	2.20	Hydr. Depth (m)		1.78
Conv. Total (m3/s)	2844.0	Conv. (m3/s)		2844.0
Length Wtd. (m)	41.35	Wetted Per. (m)		18.47
Min Ch El (m)	9.32	Shear (N/m2)		0.20
Alpha	1.00	Stream Power (N/m s)		0.07
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		23.40
C & E Loss (m)	0.00	Cum SA (1000 m2)		13.13

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.01	Reach Len. (m)	41.35	41.35
41.35				
Crit W.S. (m)	9.76	Flow Area (m2)		39.27
E.G. Slope (m/m)	0.000006	Area (m2)		39.27
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.57	Top Width (m)		18.57
Vel Total (m/s)	0.25	Avg. Vel. (m/s)		0.25
Max Chl Dpth (m)	2.69	Hydr. Depth (m)		2.11
Conv. Total (m3/s)	4075.7	Conv. (m3/s)		4075.7
Length Wtd. (m)	41.35	Wetted Per. (m)		20.22
Min Ch El (m)	9.32	Shear (N/m2)		0.11
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		29.73
C & E Loss (m)	0.00	Cum SA (1000 m2)		14.22

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.51	Reach Len. (m)	41.35	41.35

41.35			
Crit W.S. (m)	9.76	Flow Area (m2)	48.87
E.G. Slope (m/m)	0.000003	Area (m2)	48.87
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	20.04	Top Width (m)	20.04
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.20
Max Chl Dpth (m)	3.19	Hydr. Depth (m)	2.44
Conv. Total (m3/s)	5548.3	Conv. (m3/s)	5548.3
Length Wtd. (m)	41.35	Wetted Per. (m)	21.99
Min Ch El (m)	9.32	Shear (N/m2)	0.07
Alpha	1.00	Stream Power (N/m s)	0.01
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	36.60
C & E Loss (m)	0.00	Cum SA (1000 m2)	15.33

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.65	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.62	Reach Len. (m)	41.35	41.35
41.35				
Crit W.S. (m)	10.15	Flow Area (m2)		32.21
E.G. Slope (m/m)	0.000077	Area (m2)		32.21
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.41	Top Width (m)		17.41
Vel Total (m/s)	0.84	Avg. Vel. (m/s)		0.84
Max Chl Dpth (m)	2.30	Hydr. Depth (m)		1.85
Conv. Total (m3/s)	3072.5	Conv. (m3/s)		3072.5

Length Wtd. (m)	41.35	Wetted Per. (m)	18.82
Min Ch El (m)	9.32	Shear (N/m2)	1.30
Alpha	1.00	Stream Power (N/m s)	1.09
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	23.96
C & E Loss (m)	0.00	Cum SA (1000 m2)	13.21

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.09	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.07	Reach Len. (m)	41.35	41.35
41.35				
Crit W.S. (m)	10.15	Flow Area (m2)		40.37
E.G. Slope (m/m)	0.000041	Area (m2)		40.37
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.74	Top Width (m)		18.74
Vel Total (m/s)	0.67	Avg. Vel. (m/s)		0.67
Max Chl Dpth (m)	2.75	Hydr. Depth (m)		2.15
Conv. Total (m3/s)	4238.6	Conv. (m3/s)		4238.6
Length Wtd. (m)	41.35	Wetted Per. (m)		20.43
Min Ch El (m)	9.32	Shear (N/m2)		0.79
Alpha	1.00	Stream Power (N/m s)		0.53
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		30.12
C & E Loss (m)	0.00	Cum SA (1000 m2)		14.27

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.56	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.54	Reach Len. (m)	41.35	41.35
41.35				
Crit W.S. (m)	10.15	Flow Area (m2)		49.54
E.G. Slope (m/m)	0.000023	Area (m2)		49.54
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	20.14	Top Width (m)		20.14
Vel Total (m/s)	0.55	Avg. Vel. (m/s)		0.55
Max Chl Dpth (m)	3.22	Hydr. Depth (m)		2.46
Conv. Total (m3/s)	5654.0	Conv. (m3/s)		5654.0
Length Wtd. (m)	41.35	Wetted Per. (m)		22.11
Min Ch El (m)	9.32	Shear (N/m2)		0.50
Alpha	1.00	Stream Power (N/m s)		0.27
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		36.80
C & E Loss (m)	0.00	Cum SA (1000 m2)		15.35

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 4.5

INPUT

Description:

Distance from Upstream XS = 41.35

Deck/Roadway Width = 4

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
12.62	12.8	11.45	34.31	12.8	11.45				

Upstream Bridge Cross Section Data

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.9983	12.7591	10.1522	13.0405	12.0764	13.0257	12.0764	13.1218	12.713	13.1218
18.3892	9.32	29.0079	9.32	34.4788	13.0628	34.9253	13.0628	34.9253	12.9754
36.5793	13.0174	37.5384	12.8876	38.2379	12.8443	38.6366	12.734		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.9983	.015	12.713	.015	34.4788	.015

Bank Sta: Left Right Coeff Contr. Expan.

12.713	34.4788	.0015	.01
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Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
16.03	12.8	11.45	37.73	12.8	11.45				

Downstream Bridge Cross Section Data

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.1118	12.9705	12.7088	13.0584	12.7088	13.168	12.9746	13.168	16.3034	11.0775
19.3141	10.914	21.3659	9.32	27.0916	9.32	32.5808	9.32	38.2358	13.2282
39.2679	13.2282	39.2679	13.1004	39.4888	13.0881	40.9332	13.1703	42.5608	13.0422
43.5536	12.919								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.1118	.015	12.9746	.015	38.2358	.015

Bank Sta: Left Right Coeff Contr. Expan.

12.9746	38.2358	.1	.3
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Upstream Embankment side slope = 0 horiz. to 1.0 vertical

Downstream Embankment side slope = 0 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Energy head used in spillway design =

Spillway height used in design =

Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev
12.63	11.45	19.59	11.45

Downstream	num=	2	
Sta	Elev	Sta	Elev
16.03	11.45	23.01	11.45

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
27.74	11.45	34.31	11.45
Downstream	num=	2	
Sta	Elev	Sta	Elev
31.16	11.45	37.73	11.45

Number of Piers = 1

Pier Data

Pier Station	Upstream=	23.67	Downstream=	27.09
Upstream	num=	2		
Width	Elev	Width	Elev	
.35	9.32	.35	11.45	
Downstream	num=	2		
Width	Elev	Width	Elev	
.35	9.32	.35	11.45	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.53	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.52	E.G. Elev (m)	11.52
11.52			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.51
11.51			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.87
9.87			
Q Weir (m3/s)		Max Chl Dpth (m)	2.19
2.19			
Weir Sta Lft (m)		Vel Total (m/s)	0.60
0.60			

Weir Sta Rgt (m)		Flow Area (m2)	16.62
16.67			
Weir Submerg		Froude # Ch1	0.13
0.13			
Weir Max Depth (m)		Specif Force (m3)	19.24
19.24			
Min El Weir Flow (m)	12.74	Hydr Depth (m)	
Min El Prs (m)	11.45	W.P. Total (m)	24.12
24.86			
Delta EG (m)	0.01	Conv. Total (m3/s)	864.0
851.3			
Delta WS (m)	0.01	Top Width (m)	
0.41			
BR Open Area (m2)	16.62	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.60	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.90
0.91			
BR Sel Method	Energy only	Power Total (N/m s)	0.54
0.54			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.01	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.01	E.G. Elev (m)	12.01
12.01			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.99
12.00			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.87
9.87			
Q Weir (m3/s)		Max Ch1 Dpth (m)	2.68
2.68			
Weir Sta Lft (m)		Vel Total (m/s)	0.60
0.59			
Weir Sta Rgt (m)		Flow Area (m2)	16.62
17.06			
Weir Submerg		Froude # Ch1	0.12
0.11			
Weir Max Depth (m)		Specif Force (m3)	27.36
27.47			
Min El Weir Flow (m)	12.74	Hydr Depth (m)	
14.36			
Min El Prs (m)	11.45	W.P. Total (m)	24.12
26.27			

Delta EG (m)	0.00	Conv. Total (m3/s)	864.0
852.9			
Delta WS (m)	0.00	Top Width (m)	
1.19			
BR Open Area (m2)	16.62	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.60	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.90
0.88			
BR Sel Method	Energy only	Power Total (N/m s)	0.54
0.51			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)	12.51	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.51	E.G. Elev (m)	12.51
12.51			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.49
12.49			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.87
9.87			
Q Weir (m3/s)		Max Chl Dpth (m)	3.17
3.17			
Weir Sta Lft (m)		Vel Total (m/s)	0.60
0.56			
Weir Sta Rgt (m)		Flow Area (m2)	16.62
17.85			
Weir Submerg		Froude # Chl	0.11
0.10			
Weir Max Depth (m)		Specif Force (m3)	35.61
36.12			
Min El Weir Flow (m)	12.74	Hydr Depth (m)	
9.01			
Min El Prs (m)	11.45	W.P. Total (m)	24.12
27.70			
Delta EG (m)	0.00	Conv. Total (m3/s)	864.0
887.6			
Delta WS (m)	0.00	Top Width (m)	
1.98			
BR Open Area (m2)	16.62	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.60	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.90
0.80			

BR Sel Method	Energy only	Power Total (N/m s)	0.54
0.45			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.65	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.62	E.G. Elev (m)	11.65
11.64			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.51
11.51			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.39
10.39			
Q Weir (m3/s)		Max Chl Dpth (m)	2.19
2.19			
Weir Sta Lft (m)		Vel Total (m/s)	1.62
1.62			
Weir Sta Rgt (m)		Flow Area (m2)	16.62
16.67			
Weir Submerg		Froude # Chl	0.35
0.35			
Weir Max Depth (m)		Specif Force (m3)	23.19
23.13			
Min El Weir Flow (m)	12.74	Hydr Depth (m)	
Min El Prs (m)	11.45	W.P. Total (m)	24.12
24.87			
Delta EG (m)	0.04	Conv. Total (m3/s)	864.0
851.2			
Delta WS (m)	0.04	Top Width (m)	
0.41			
BR Open Area (m2)	16.62	Frctn Loss (m)	0.00
0.03			
BR Open Vel (m/s)	1.62	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	6.60
6.61			
BR Sel Method	Energy only	Power Total (N/m s)	10.72
10.71			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.09	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.07	E.G. Elev (m)	12.09
12.08			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.95
11.96			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.39
10.39			
Q Weir (m3/s)		Max Chl Dpth (m)	2.63
2.64			
Weir Sta Lft (m)		Vel Total (m/s)	1.62
1.59			
Weir Sta Rgt (m)		Flow Area (m2)	16.62
17.01			
Weir Submerg		Froude # Chl	0.32
0.31			
Weir Max Depth (m)		Specif Force (m3)	30.53
30.56			
Min El Weir Flow (m)	12.74	Hydr Depth (m)	
15.13			
Min El Prs (m)	11.45	W.P. Total (m)	24.12
26.16			
Delta EG (m)	0.03	Conv. Total (m3/s)	864.0
851.5			
Delta WS (m)	0.02	Top Width (m)	
1.12			
BR Open Area (m2)	16.62	Frctn Loss (m)	0.00
0.02			
BR Open Vel (m/s)	1.62	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	6.60
6.41			
BR Sel Method	Energy only	Power Total (N/m s)	10.72
10.18			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.56	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.54	E.G. Elev (m)	12.55
12.55			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.42
12.43			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.39
10.39			

Q Weir (m3/s)		Max Chl Dpth (m)	3.10
3.11			
Weir Sta Lft (m)		Vel Total (m/s)	1.62
1.52			
Weir Sta Rgt (m)		Flow Area (m2)	16.62
17.73			
Weir Submerg		Froude # Chl	0.29
0.28			
Weir Max Depth (m)		Specif Force (m3)	38.27
38.63			
Min El Weir Flow (m)	12.74	Hydr Depth (m)	
9.42			
Min El Prs (m)	11.45	W.P. Total (m)	24.12
27.53			
Delta EG (m)	0.02	Conv. Total (m3/s)	864.0
881.4			
Delta WS (m)	0.01	Top Width (m)	
1.88			
BR Open Area (m2)	16.62	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	1.62	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	6.60
5.93			
BR Sel Method	Energy only	Power Total (N/m s)	10.72
9.03			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 4.4

INPUT

Description:

Station Elevation Data				num=	16				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.1118	12.9705	12.7088	13.0584	12.7088	13.168	12.9746	13.168	16.3034	11.0775
19.3141	10.914	21.3659	9.32	27.0916	9.32	32.5808	9.32	38.2358	13.2282
39.2679	13.2282	39.2679	13.1004	39.4888	13.0881	40.9332	13.1703	42.5608	13.0422
43.5536	12.919								

Manning's n Values				num=	3		
Sta	n Val	Sta	n Val	Sta	n Val		
8.1118	.015	12.9746	.015	38.2358	.015		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.
Expan.						

12.9746 38.2358

30

30

30

.1

.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	11.51	Reach Len. (m)	5.00	5.00
5.00				
Crit W.S. (m)	9.74	Flow Area (m2)		32.68
E.G. Slope (m/m)	0.000012	Area (m2)		32.68
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	20.15	Top Width (m)		20.15
Vel Total (m/s)	0.31	Avg. Vel. (m/s)		0.31
Max Chl Dpth (m)	2.19	Hydr. Depth (m)		1.62
Conv. Total (m3/s)	2879.9	Conv. (m3/s)		2879.9
Length Wtd. (m)	5.00	Wetted Per. (m)		21.51
Min Ch El (m)	9.32	Shear (N/m2)		0.18
Alpha	1.00	Stream Power (N/m s)		0.05
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		18.55
C & E Loss (m)	0.00	Cum SA (1000 m2)		11.18

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.01	Reach Len. (m)	5.00	5.00
5.00				
Crit W.S. (m)	9.74	Flow Area (m2)		42.98
E.G. Slope (m/m)	0.000005	Area (m2)		42.98
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	21.65	Top Width (m)		21.65

Vel Total (m/s)	0.23	Avg. Vel. (m/s)	0.23
Max Chl Dpth (m)	2.69	Hydr. Depth (m)	1.99
Conv. Total (m3/s)	4309.9	Conv. (m3/s)	4309.9
Length Wtd. (m)	5.00	Wetted Per. (m)	23.30
Min Ch El (m)	9.32	Shear (N/m2)	0.10
Alpha	1.00	Stream Power (N/m s)	0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	23.86
C & E Loss (m)	0.00	Cum SA (1000 m2)	12.07

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.51	Reach Len. (m)	5.00	5.00
5.00				
Crit W.S. (m)	9.74	Flow Area (m2)		54.15
E.G. Slope (m/m)	0.000003	Area (m2)		54.15
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	23.16	Top Width (m)		23.16
Vel Total (m/s)	0.18	Avg. Vel. (m/s)		0.18
Max Chl Dpth (m)	3.19	Hydr. Depth (m)		2.34
Conv. Total (m3/s)	6025.1	Conv. (m3/s)		6025.1
Length Wtd. (m)	5.00	Wetted Per. (m)		25.12
Min Ch El (m)	9.32	Shear (N/m2)		0.06
Alpha	1.00	Stream Power (N/m s)		0.01
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		29.61

C & E Loss (m)	0.00	Cum SA (1000 m2)	12.97
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Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.58	Reach Len. (m)	5.00	5.00
5.00				
Crit W.S. (m)	10.13	Flow Area (m2)		33.99
E.G. Slope (m/m)	0.000078	Area (m2)		33.99
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	20.35	Top Width (m)		20.35
Vel Total (m/s)	0.79	Avg. Vel. (m/s)		0.79
Max Chl Dpth (m)	2.26	Hydr. Depth (m)		1.67
Conv. Total (m3/s)	3052.3	Conv. (m3/s)		3052.3
Length Wtd. (m)	5.00	Wetted Per. (m)		21.75
Min Ch El (m)	9.32	Shear (N/m2)		1.20
Alpha	1.00	Stream Power (N/m s)		0.95
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		18.97
C & E Loss (m)	0.00	Cum SA (1000 m2)		11.25

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.07	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.05	Reach Len. (m)	5.00	5.00

5.00			
Crit W.S. (m)	10.13	Flow Area (m2)	43.84
E.G. Slope (m/m)	0.000037	Area (m2)	43.84
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	21.77	Top Width (m)	21.77
Vel Total (m/s)	0.62	Avg. Vel. (m/s)	0.62
Max Chl Dpth (m)	2.73	Hydr. Depth (m)	2.01
Conv. Total (m3/s)	4436.3	Conv. (m3/s)	4436.3
Length Wtd. (m)	5.00	Wetted Per. (m)	23.45
Min Ch El (m)	9.32	Shear (N/m2)	0.68
Alpha	1.00	Stream Power (N/m s)	0.42
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	24.17
C & E Loss (m)	0.00	Cum SA (1000 m2)	12.11

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	5.00	5.00
5.00				
Crit W.S. (m)	10.13	Flow Area (m2)		54.63
E.G. Slope (m/m)	0.000020	Area (m2)		54.63
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	23.22	Top Width (m)		23.22
Vel Total (m/s)	0.49	Avg. Vel. (m/s)		0.49
Max Chl Dpth (m)	3.21	Hydr. Depth (m)		2.35
Conv. Total (m3/s)	6100.9	Conv. (m3/s)		6100.9

Length Wtd. (m)	5.00	Wetted Per. (m)	25.19
Min Ch El (m)	9.32	Shear (N/m2)	0.42
Alpha	1.00	Stream Power (N/m s)	0.21
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	29.76
C & E Loss (m)	0.00	Cum SA (1000 m2)	12.99

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
 REACH: Canale SNM RS: 4.3

INPUT
 Description:
 Distance from Upstream XS = 5
 Deck/Roadway Width = 4
 Weir Coefficient = 1.4
 Upstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 15.36 13.5 12.65 38.91 13.5 12.65

Upstream Bridge Cross Section Data
 Station Elevation Data num= 16
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 8.1118 12.9705 12.7088 13.0584 12.7088 13.168 12.9746 13.168 16.3034 11.0775
 19.3141 10.914 21.3659 9.32 27.0916 9.32 32.5808 9.32 38.2358 13.2282
 39.2679 13.2282 39.2679 13.1004 39.4888 13.0881 40.9332 13.1703 42.5608 13.0422
 43.5536 12.919

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 8.1118 .015 12.9746 .015 38.2358 .015

Bank Sta: Left Right Coeff Contr. Expan.
 12.9746 38.2358 .1 .3

Downstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 15.36 13.5 12.65 38.91 13.5 12.65

Downstream Bridge Cross Section Data

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.1118	12.9705	12.7088	13.0584	12.7088	13.168	12.9746	13.168	16.3034	11.0775
19.3141	10.914	21.3659	9.32	27.0916	9.32	32.5808	9.32	38.2358	13.2282
39.2679	13.2282	39.2679	13.1004	39.4888	13.0881	40.9332	13.1703	42.5608	13.0422
43.5536	12.919								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.1118	.015	12.9746	.015	38.2358	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	12.9746	38.2358		.0015	.01

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Piers = 2

Pier Data

Pier Station Upstream= 23.11 Downstream= 23.11

Upstream	num=	2	Width	Elev	Width	Elev
			.5	9.22	.5	12.65

Downstream	num=	2	Width	Elev	Width	Elev
			.5	9.22	.5	12.65

Pier Data

Pier Station Upstream= 31.11 Downstream= 31.11

Upstream	num=	2	Width	Elev	Width	Elev
			.5	9.22	.5	12.65

Downstream	num=	2	Width	Elev	Width	Elev
			.5	9.22	.5	12.65

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.52	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.51	E.G. Elev (m)	11.52
11.52			
Q Total (m3/s)	10.00	W.S. Elev (m)	11.51
11.51			
Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.77
9.77			
Q Weir (m3/s)		Max Chl Dpth (m)	2.19
2.19			
Weir Sta Lft (m)		Vel Total (m/s)	0.33
0.33			
Weir Sta Rgt (m)		Flow Area (m2)	30.47
30.47			
Weir Submerg		Froude # Chl	0.08
0.08			
Weir Max Depth (m)		Specif Force (m3)	30.12
30.12			
Min El Weir Flow (m)	11.67	Hydr Depth (m)	1.59
1.59			
Min El Prs (m)	12.65	W.P. Total (m)	29.28
29.28			
Delta EG (m)	0.00	Conv. Total (m3/s)	2086.2
2086.0			
Delta WS (m)	0.00	Top Width (m)	19.15
19.15			
BR Open Area (m2)	53.42	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.33	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.23
0.23			
BR Sel Method	Energy only	Power Total (N/m s)	0.08
0.08			

BRIDGE OUTPUT Profile #PF 2

E.G. US. (m)	12.01	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.01	E.G. Elev (m)	12.01
12.01			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.01
12.01			

Q Bridge (m3/s)	10.00	Crit W.S. (m)	9.77
9.77			
Q Weir (m3/s)		Max Chl Dpth (m)	2.69
2.69			
Weir Sta Lft (m)		Vel Total (m/s)	0.25
0.25			
Weir Sta Rgt (m)		Flow Area (m2)	40.29
40.29			
Weir Submerg		Froude # Chl	0.06
0.06			
Weir Max Depth (m)		Specif Force (m3)	47.46
47.46			
Min El Weir Flow (m)	11.67	Hydr Depth (m)	1.95
1.95			
Min El Prs (m)	12.65	W.P. Total (m)	33.39
33.39			
Delta EG (m)	0.00	Conv. Total (m3/s)	3044.1
3044.0			
Delta WS (m)	0.00	Top Width (m)	20.65
20.65			
BR Open Area (m2)	53.42	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.25	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.13
0.13			
BR Sel Method	Energy only	Power Total (N/m s)	0.03
0.03			

BRIDGE OUTPUT Profile #PF 3

E.G. US. (m)		Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.51	E.G. Elev (m)	12.51
12.51			
Q Total (m3/s)	10.00	W.S. Elev (m)	12.51
12.51			
Q Bridge (m3/s)	9.97	Crit W.S. (m)	9.77
9.77			
Q Weir (m3/s)		Max Chl Dpth (m)	3.19
3.19			
Weir Sta Lft (m)		Vel Total (m/s)	0.20
0.20			
Weir Sta Rgt (m)		Flow Area (m2)	50.96
50.96			
Weir Submerg		Froude # Chl	0.04
0.04			
Weir Max Depth (m)		Specif Force (m3)	70.13
70.13			
Min El Weir Flow (m)	11.67	Hydr Depth (m)	2.30
2.30			

Min El Prs (m)	12.65	W.P. Total (m)	37.70
37.70			
Delta EG (m)	0.00	Conv. Total (m3/s)	4153.8
4153.8			
Delta WS (m)	0.00	Top Width (m)	22.16
22.16			
BR Open Area (m2)	53.42	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.20	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.08
0.08			
BR Sel Method	Energy only	Power Total (N/m s)	0.02
0.02			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE OUTPUT Profile #PF 4

E.G. US. (m)	11.61	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.58	E.G. Elev (m)	11.61
11.61			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.57
11.57			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.18
10.18			
Q Weir (m3/s)		Max Chl Dpth (m)	2.25
2.25			
Weir Sta Lft (m)		Vel Total (m/s)	0.85
0.85			
Weir Sta Rgt (m)		Flow Area (m2)	31.62
31.60			
Weir Submerg		Froude # Chl	0.21
0.21			
Weir Max Depth (m)		Specif Force (m3)	33.98
33.96			
Min El Weir Flow (m)	11.67	Hydr Depth (m)	1.64
1.64			
Min El Prs (m)	12.65	W.P. Total (m)	29.74
29.73			
Delta EG (m)	0.01	Conv. Total (m3/s)	2195.6
2194.5			
Delta WS (m)	0.01	Top Width (m)	19.33
19.33			
BR Open Area (m2)	53.42	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.85	C & E Loss (m)	0.00
0.00			

BR Sluice Coef		Shear Total (N/m2)	1.58
1.58			
BR Sel Method	Energy only	Power Total (N/m s)	1.35
1.35			

BRIDGE OUTPUT Profile #PF 5

E.G. US. (m)	12.07	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.05	E.G. Elev (m)	12.07
12.07			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.04
12.04			
Q Bridge (m3/s)	26.99	Crit W.S. (m)	10.18
10.18			
Q Weir (m3/s)		Max Chl Dpth (m)	2.72
2.72			
Weir Sta Lft (m)		Vel Total (m/s)	0.66
0.66			
Weir Sta Rgt (m)		Flow Area (m2)	41.05
41.04			
Weir Submerg		Froude # Chl	0.15
0.15			
Weir Max Depth (m)		Specif Force (m3)	50.51
50.50			
Min El Weir Flow (m)	11.67	Hydr Depth (m)	1.98
1.98			
Min El Prs (m)	12.65	W.P. Total (m)	33.71
33.71			
Delta EG (m)	0.00	Conv. Total (m3/s)	3120.9
3120.3			
Delta WS (m)	0.00	Top Width (m)	20.76
20.76			
BR Open Area (m2)	53.42	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.66	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.89
0.89			
BR Sel Method	Energy only	Power Total (N/m s)	0.59
0.59			

BRIDGE OUTPUT Profile #PF 6

E.G. US. (m)	12.54	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.53	E.G. Elev (m)	12.54
12.54			

Q Total (m3/s)	27.00	W.S. Elev (m)	12.52
12.52			
Q Bridge (m3/s)	26.91	Crit W.S. (m)	10.18
10.18			
Q Weir (m3/s)		Max Chl Dpth (m)	3.20
3.20			
Weir Sta Lft (m)		Vel Total (m/s)	0.53
0.53			
Weir Sta Rgt (m)		Flow Area (m2)	51.37
51.37			
Weir Submerg		Froude # Chl	0.11
0.11			
Weir Max Depth (m)		Specif Force (m3)	72.32
72.32			
Min El Weir Flow (m)	11.67	Hydr Depth (m)	2.31
2.31			
Min El Prs (m)	12.65	W.P. Total (m)	37.86
37.86			
Delta EG (m)	0.00	Conv. Total (m3/s)	4198.0
4198.0			
Delta WS (m)	0.00	Top Width (m)	22.22
22.22			
BR Open Area (m2)	53.42	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.53	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	0.55
0.55			
BR Sel Method	Energy only	Power Total (N/m s)	0.29
0.29			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 4

INPUT

Description:

Station Elevation Data				num=	16
Sta	Elev	Sta	Elev	Sta	Elev
8.1118	12.9705	12.7088	13.0584	12.7088	13.168
19.3141	10.914	21.3659	9.32	27.0916	9.32
39.2679	13.2282	39.2679	13.1004	39.4888	13.0881
43.5536	12.919				

Manning's n Values		num=	3
Sta	n Val	Sta	n Val

8.1118 .015 12.9746 .015 38.2358 .015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	12.9746	38.2358		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	11.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.67
E.G. Slope (m/m)	0.000012	Area (m2)		32.67
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	20.15	Top Width (m)		20.15
Vel Total (m/s)	0.31	Avg. Vel. (m/s)		0.31
Max Chl Dpth (m)	2.19	Hydr. Depth (m)		1.62
Conv. Total (m3/s)	2877.8	Conv. (m3/s)		2877.8
Length Wtd. (m)	200.00	Wetted Per. (m)		21.51
Min Ch El (m)	9.32	Shear (N/m2)		0.18
Alpha	1.00	Stream Power (N/m s)		0.06
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		17.60
C & E Loss (m)	0.00	Cum SA (1000 m2)		10.60

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.01	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		42.98
E.G. Slope (m/m)	0.000005	Area (m2)		42.98

Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	21.65	Top Width (m)	21.65
Vel Total (m/s)	0.23	Avg. Vel. (m/s)	0.23
Max Chl Dpth (m)	2.69	Hydr. Depth (m)	1.99
Conv. Total (m3/s)	4308.7	Conv. (m3/s)	4308.7
Length Wtd. (m)	200.00	Wetted Per. (m)	23.30
Min Ch El (m)	9.32	Shear (N/m2)	0.10
Alpha	1.00	Stream Power (N/m s)	0.02
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	22.62
C & E Loss (m)	0.00	Cum SA (1000 m2)	11.44

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		54.15
E.G. Slope (m/m)	0.000003	Area (m2)		54.15
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	23.16	Top Width (m)		23.16
Vel Total (m/s)	0.18	Avg. Vel. (m/s)		0.18
Max Chl Dpth (m)	3.19	Hydr. Depth (m)		2.34
Conv. Total (m3/s)	6024.3	Conv. (m3/s)		6024.3
Length Wtd. (m)	200.00	Wetted Per. (m)		25.12
Min Ch El (m)	9.32	Shear (N/m2)		0.06
Alpha	1.00	Stream Power (N/m s)		0.01
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		28.04

C & E Loss (m)	0.00	Cum SA (1000 m2)	12.29
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CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.88
E.G. Slope (m/m)	0.000079	Area (m2)		33.88
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	20.33	Top Width (m)		20.33
Vel Total (m/s)	0.80	Avg. Vel. (m/s)		0.80
Max Chl Dpth (m)	2.25	Hydr. Depth (m)		1.67
Conv. Total (m3/s)	3037.2	Conv. (m3/s)		3037.2
Length Wtd. (m)	200.00	Wetted Per. (m)		21.73
Min Ch El (m)	9.32	Shear (N/m2)		1.21
Alpha	1.00	Stream Power (N/m s)		0.96
Frctn Loss (m)	0.02	Cum Volume (1000 m3)		17.99
C & E Loss (m)	0.00	Cum SA (1000 m2)		10.65

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.06	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.04	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		43.78
E.G. Slope (m/m)	0.000037	Area (m2)		43.78

Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	21.76	Top Width (m)	21.76
Vel Total (m/s)	0.62	Avg. Vel. (m/s)	0.62
Max Chl Dpth (m)	2.72	Hydr. Depth (m)	2.01
Conv. Total (m3/s)	4427.4	Conv. (m3/s)	4427.4
Length Wtd. (m)	200.00	Wetted Per. (m)	23.44
Min Ch El (m)	9.32	Shear (N/m2)	0.68
Alpha	1.00	Stream Power (N/m s)	0.42
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	22.90
C & E Loss (m)	0.00	Cum SA (1000 m2)	11.48

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		54.59
E.G. Slope (m/m)	0.000020	Area (m2)		54.59
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	23.22	Top Width (m)		23.22
Vel Total (m/s)	0.49	Avg. Vel. (m/s)		0.49
Max Chl Dpth (m)	3.21	Hydr. Depth (m)		2.35
Conv. Total (m3/s)	6095.1	Conv. (m3/s)		6095.1
Length Wtd. (m)	200.00	Wetted Per. (m)		25.19
Min Ch El (m)	9.32	Shear (N/m2)		0.42
Alpha	1.00	Stream Power (N/m s)		0.21
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		28.18

C & E Loss (m)	0.00	Cum SA (1000 m2)	12.31
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CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 3

INPUT

Description:

Station Elevation Data				num=	14
Sta	Elev	Sta	Elev	Sta	Elev
14.2626	13.0101	15.989	13.1109	18.0082	13.1186
24.5738	9.32	35.585	9.32	40.8783	13.1142
41.945	13.0223	42.7315	12.9791	43.895	12.9357
				45.7495	12.7625

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
14.2626	.015	18.9389	.015	40.8783	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	18.9389	40.8783		200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		30.94
E.G. Slope (m/m)	0.000012	Area (m2)		30.94
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.23	Top Width (m)		17.23
Vel Total (m/s)	0.32	Avg. Vel. (m/s)		0.32
Max Chl Dpth (m)	2.19	Hydr. Depth (m)		1.80
Conv. Total (m3/s)	2894.3	Conv. (m3/s)		2894.3
Length Wtd. (m)	200.00	Wetted Per. (m)		18.62
Min Ch El (m)	9.32	Shear (N/m2)		0.19

Alpha	1.00	Stream Power (N/m s)	0.06
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	11.24
C & E Loss (m)	0.00	Cum SA (1000 m2)	6.86

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.01	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		39.82
E.G. Slope (m/m)	0.000006	Area (m2)		39.82
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.64	Top Width (m)		18.64
Vel Total (m/s)	0.25	Avg. Vel. (m/s)		0.25
Max Chl Dpth (m)	2.69	Hydr. Depth (m)		2.14
Conv. Total (m3/s)	4153.8	Conv. (m3/s)		4153.8
Length Wtd. (m)	200.00	Wetted Per. (m)		20.34
Min Ch El (m)	9.32	Shear (N/m2)		0.11
Alpha	1.00	Stream Power (N/m s)		0.03
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		14.34
C & E Loss (m)	0.00	Cum SA (1000 m2)		7.41

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00

200.00			
Crit W.S. (m)		Flow Area (m2)	49.48
E.G. Slope (m/m)	0.000003	Area (m2)	49.48
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	20.06	Top Width (m)	20.06
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.20
Max Chl Dpth (m)	3.19	Hydr. Depth (m)	2.47
Conv. Total (m3/s)	5649.3	Conv. (m3/s)	5649.3
Length Wtd. (m)	200.00	Wetted Per. (m)	22.07
Min Ch El (m)	9.32	Shear (N/m2)	0.07
Alpha	1.00	Stream Power (N/m s)	0.01
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	17.68
C & E Loss (m)	0.00	Cum SA (1000 m2)	7.97

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		31.67
E.G. Slope (m/m)	0.000081	Area (m2)		31.67
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.35	Top Width (m)		17.35
Vel Total (m/s)	0.85	Avg. Vel. (m/s)		0.85
Max Chl Dpth (m)	2.23	Hydr. Depth (m)		1.83
Conv. Total (m3/s)	2992.9	Conv. (m3/s)		2992.9
Length Wtd. (m)	200.00	Wetted Per. (m)		18.77
Min Ch El (m)	9.32	Shear (N/m2)		1.35

Alpha	1.00	Stream Power (N/m s)	1.15
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	11.43
C & E Loss (m)	0.00	Cum SA (1000 m2)	6.89

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.06	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.03	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		40.33
E.G. Slope (m/m)	0.000041	Area (m2)		40.33
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.72	Top Width (m)		18.72
Vel Total (m/s)	0.67	Avg. Vel. (m/s)		0.67
Max Chl Dpth (m)	2.71	Hydr. Depth (m)		2.15
Conv. Total (m3/s)	4230.5	Conv. (m3/s)		4230.5
Length Wtd. (m)	200.00	Wetted Per. (m)		20.44
Min Ch El (m)	9.32	Shear (N/m2)		0.79
Alpha	1.00	Stream Power (N/m s)		0.53
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		14.49
C & E Loss (m)	0.00	Cum SA (1000 m2)		7.43

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.52	Reach Len. (m)	200.00	200.00

200.00			
Crit W.S. (m)		Flow Area (m2)	49.74
E.G. Slope (m/m)	0.000023	Area (m2)	49.74
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	20.09	Top Width (m)	20.09
Vel Total (m/s)	0.54	Avg. Vel. (m/s)	0.54
Max Chl Dpth (m)	3.20	Hydr. Depth (m)	2.48
Conv. Total (m3/s)	5692.1	Conv. (m3/s)	5692.1
Length Wtd. (m)	200.00	Wetted Per. (m)	22.12
Min Ch El (m)	9.32	Shear (N/m2)	0.50
Alpha	1.00	Stream Power (N/m s)	0.27
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	17.75
C & E Loss (m)	0.00	Cum SA (1000 m2)	7.98

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 2

INPUT

Description:

Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.1446	13.0105	13.0049	12.9897	13.3015	12.9858	13.3015	13.0792	14.2518	13.0792
19.4432	9.32	30.5881	9.32	36.0951	13.2235	36.9325	13.2235	36.9325	13.1429
37.3196	13.1679								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.1446	.015	14.2518	.015	36.0951	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	14.2518	36.0951		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.51	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	9.75	Flow Area (m2)		31.08
E.G. Slope (m/m)	0.000012	Area (m2)		31.08
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	17.26	Top Width (m)		17.26
Vel Total (m/s)	0.32	Avg. Vel. (m/s)		0.32
Max Chl Dpth (m)	2.19	Hydr. Depth (m)		1.80
Conv. Total (m3/s)	2911.6	Conv. (m3/s)		2911.6
Length Wtd. (m)	200.00	Wetted Per. (m)		18.66
Min Ch El (m)	9.32	Shear (N/m2)		0.19
Alpha	1.00	Stream Power (N/m s)		0.06
Frctn Loss (m)		Cum Volume (1000 m3)		5.04
C & E Loss (m)		Cum SA (1000 m2)		3.41

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.00	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	9.75	Flow Area (m2)		39.98
E.G. Slope (m/m)	0.000006	Area (m2)		39.98
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	18.64	Top Width (m)		18.64
Vel Total (m/s)	0.25	Avg. Vel. (m/s)		0.25
Max Chl Dpth (m)	2.68	Hydr. Depth (m)		2.14
Conv. Total (m3/s)	4179.2	Conv. (m3/s)		4179.2

Length Wtd. (m)	200.00	Wetted Per. (m)	20.36
Min Ch El (m)	9.32	Shear (N/m2)	0.11
Alpha	1.00	Stream Power (N/m s)	0.03
Frctn Loss (m)		Cum Volume (1000 m3)	6.36
C & E Loss (m)		Cum SA (1000 m2)	3.68

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.50	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	9.75	Flow Area (m2)		49.65
E.G. Slope (m/m)	0.000003	Area (m2)		49.65
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	20.04	Top Width (m)		20.04
Vel Total (m/s)	0.20	Avg. Vel. (m/s)		0.20
Max Chl Dpth (m)	3.18	Hydr. Depth (m)		2.48
Conv. Total (m3/s)	5680.6	Conv. (m3/s)		5680.6
Length Wtd. (m)	200.00	Wetted Per. (m)		22.08
Min Ch El (m)	9.32	Shear (N/m2)		0.07
Alpha	1.00	Stream Power (N/m s)		0.01
Frctn Loss (m)		Cum Volume (1000 m3)		7.76
C & E Loss (m)		Cum SA (1000 m2)		3.96

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.57	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.13	Flow Area (m2)		31.56
E.G. Slope (m/m)	0.000082	Area (m2)		31.56
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.33	Top Width (m)		17.33
Vel Total (m/s)	0.86	Avg. Vel. (m/s)		0.86
Max Chl Dpth (m)	2.22	Hydr. Depth (m)		1.82
Conv. Total (m3/s)	2976.8	Conv. (m3/s)		2976.8
Length Wtd. (m)	200.00	Wetted Per. (m)		18.76
Min Ch El (m)	9.32	Shear (N/m2)		1.36
Alpha	1.00	Stream Power (N/m s)		1.16
Frctn Loss (m)		Cum Volume (1000 m3)		5.11
C & E Loss (m)		Cum SA (1000 m2)		3.42

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.05	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.03	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.13	Flow Area (m2)		40.37
E.G. Slope (m/m)	0.000041	Area (m2)		40.37
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.70	Top Width (m)		18.70
Vel Total (m/s)	0.67	Avg. Vel. (m/s)		0.67
Max Chl Dpth (m)	2.71	Hydr. Depth (m)		2.16
Conv. Total (m3/s)	4236.6	Conv. (m3/s)		4236.6

Length Wtd. (m)	200.00	Wetted Per. (m)	20.44
Min Ch El (m)	9.32	Shear (N/m2)	0.79
Alpha	1.00	Stream Power (N/m s)	0.53
Frctn Loss (m)		Cum Volume (1000 m3)	6.42
C & E Loss (m)		Cum SA (1000 m2)	3.69

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.53	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	12.51	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.13	Flow Area (m2)		49.84
E.G. Slope (m/m)	0.000022	Area (m2)		49.84
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	20.06	Top Width (m)		20.06
Vel Total (m/s)	0.54	Avg. Vel. (m/s)		0.54
Max Chl Dpth (m)	3.19	Hydr. Depth (m)		2.48
Conv. Total (m3/s)	5711.0	Conv. (m3/s)		5711.0
Length Wtd. (m)	200.00	Wetted Per. (m)		22.11
Min Ch El (m)	9.32	Shear (N/m2)		0.49
Alpha	1.00	Stream Power (N/m s)		0.27
Frctn Loss (m)		Cum Volume (1000 m3)		7.79
C & E Loss (m)		Cum SA (1000 m2)		3.96

INLINE STRUCTURE

RIVER: SNM

REACH: Canale SNM RS: 1.5

INPUT

Description:

Distance from Upstream XS = 150

Deck/Roadway Width = 4

Weir Coefficient = 1.4

Weir Embankment Coordinates num = 2

Sta	Elev	Sta	Elev
13.47	13.76	36.48	13.76

Upstream Embankment side slope = 0 horiz. to 1.0 vertical

Downstream Embankment side slope = 0 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Weir crest shape = Broad Crested

INLINE STRUCTURE GATE Gate #1

Height = 4

Width = 3

Invert = 9.32

Gate Type = Sluice Slice Coefficient = .6

Weir Coefficient = 1.67

Weir crest shape = Broad Crested

Number of Gate Openings = 3

Sta	Sta	Sta
21.58	25.04	28.38

INLINE STRUCTURE OUTPUT Profile #PF 1 Gate Group: Gate #1

E.G. Elev (m)	11.51	Weir Sta Lft (m)	
W.S. Elev (m)	11.51	Weir Sta Rgt (m)	
Q Total (m3/s)	10.00	Min El Weir Flow (m)	12.99
Q Weir (m3/s)		Wr Top Wdth (m)	
Q Gates (m3/s)	10.00	Weir Max Depth (m)	
Q Culv (m3/s)		Weir Avg Depth (m)	
Q Inline RC (m3/s)		Weir Flow Area (m2)	
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	
Q Breach (m3/s)	0.00	Weir Submerg	
Breach Avg Velocity (m/s)	0.00	Q Gate Group (m3/s)	10.00
Breach Flow Area (m2)	0.00	Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	6.57
Breach Bottom El (m)		Gate Submerg	0.99
Breach SSL (m)		Gate Invert (m)	9.32
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 2 Gate Group: Gate #1

E.G. Elev (m)	12.01	Weir Sta Lft (m)	
W.S. Elev (m)	12.00	Weir Sta Rgt (m)	
Q Total (m3/s)	10.00	Min El Weir Flow (m)	12.99

Q Weir (m3/s)		Wr Top Wdth (m)	
Q Gates (m3/s)	10.00	Weir Max Depth (m)	
Q Culv (m3/s)		Weir Avg Depth (m)	
Q Inline RC (m3/s)		Weir Flow Area (m2)	
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	
Q Breach (m3/s)	0.00	Weir Submerg	
Breach Avg Velocity (m/s)	0.00	Q Gate Group (m3/s)	10.00
Breach Flow Area (m2)	0.00	Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	8.05
Breach Bottom El (m)		Gate Submerg	1.00
Breach SSL (m)		Gate Invert (m)	9.32
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 3 Gate Group: Gate #1

E.G. Elev (m)	12.51	Weir Sta Lft (m)	
W.S. Elev (m)	12.50	Weir Sta Rgt (m)	
Q Total (m3/s)	10.00	Min El Weir Flow (m)	12.99
Q Weir (m3/s)		Wr Top Wdth (m)	
Q Gates (m3/s)	10.00	Weir Max Depth (m)	
Q Culv (m3/s)		Weir Avg Depth (m)	
Q Inline RC (m3/s)		Weir Flow Area (m2)	
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	
Q Breach (m3/s)	0.00	Weir Submerg	
Breach Avg Velocity (m/s)	0.00	Q Gate Group (m3/s)	10.00
Breach Flow Area (m2)	0.00	Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	9.55
Breach Bottom El (m)		Gate Submerg	1.00
Breach SSL (m)		Gate Invert (m)	9.32
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 4 Gate Group: Gate #1

E.G. Elev (m)	11.57	Weir Sta Lft (m)	
W.S. Elev (m)	11.54	Weir Sta Rgt (m)	
Q Total (m3/s)	27.00	Min El Weir Flow (m)	12.99
Q Weir (m3/s)		Wr Top Wdth (m)	
Q Gates (m3/s)	27.00	Weir Max Depth (m)	
Q Culv (m3/s)		Weir Avg Depth (m)	
Q Inline RC (m3/s)		Weir Flow Area (m2)	
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	
Q Breach (m3/s)	0.00	Weir Submerg	
Breach Avg Velocity (m/s)	0.00	Q Gate Group (m3/s)	27.00
Breach Flow Area (m2)	0.00	Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	6.65
Breach Bottom El (m)		Gate Submerg	0.97
Breach SSL (m)		Gate Invert (m)	9.32
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 5 Gate Group: Gate #1

E.G. Elev (m)	12.05	Weir Sta Lft (m)	
W.S. Elev (m)	12.03	Weir Sta Rgt (m)	
Q Total (m3/s)	27.00	Min El Weir Flow (m)	12.99
Q Weir (m3/s)		Wr Top Wdth (m)	
Q Gates (m3/s)	27.00	Weir Max Depth (m)	
Q Culv (m3/s)		Weir Avg Depth (m)	
Q Inline RC (m3/s)		Weir Flow Area (m2)	
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	
Q Breach (m3/s)	0.00	Weir Submerg	
Breach Avg Velocity (m/s)	0.00	Q Gate Group (m3/s)	27.00
Breach Flow Area (m2)	0.00	Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	8.12
Breach Bottom El (m)		Gate Submerg	0.98
Breach SSL (m)		Gate Invert (m)	9.32
Breach SSR (m)		Gate Weir Coef	3.020

INLINE STRUCTURE OUTPUT Profile #PF 6 Gate Group: Gate #1

E.G. Elev (m)	12.53	Weir Sta Lft (m)	
W.S. Elev (m)	12.51	Weir Sta Rgt (m)	
Q Total (m3/s)	27.00	Min El Weir Flow (m)	12.99
Q Weir (m3/s)		Wr Top Wdth (m)	
Q Gates (m3/s)	27.00	Weir Max Depth (m)	
Q Culv (m3/s)		Weir Avg Depth (m)	
Q Inline RC (m3/s)		Weir Flow Area (m2)	
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	
Q Breach (m3/s)	0.00	Weir Submerg	
Breach Avg Velocity (m/s)	0.00	Q Gate Group (m3/s)	27.00
Breach Flow Area (m2)	0.00	Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	9.58
Breach Bottom El (m)		Gate Submerg	0.99
Breach SSL (m)		Gate Invert (m)	9.32
Breach SSR (m)		Gate Weir Coef	3.020

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 1

INPUT

Description:

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	12.5779	3.4796	12.5779	5.0479	13.4225	6.8108	13.4731	8.1701	13.4472
8.1701	13.5376	9.5849	13.5376	15.3248	9.32	26.2029	9.32	32.1476	13.6575
33.0824	13.6575	33.0824	13.5614	34.1977	13.57	36.4529	13.521		

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
0 .015	9.5849 .015	32.1476 .015

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
9.5849	32.1476	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.01	Wt. n-Val.		0.015
W.S. Elev (m)	11.50	Reach Len. (m)		
Crit W.S. (m)	9.75	Flow Area (m2)		30.21
E.G. Slope (m/m)	0.000013	Area (m2)		30.21
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	16.83	Top Width (m)		16.83
Vel Total (m/s)	0.33	Avg. Vel. (m/s)		0.33
Max Chl Dpth (m)	2.18	Hydr. Depth (m)		1.79
Conv. Total (m3/s)	2817.2	Conv. (m3/s)		2817.2
Length Wtd. (m)		Wetted Per. (m)		18.26
Min Ch El (m)	9.32	Shear (N/m2)		0.20
Alpha	1.00	Stream Power (N/m s)		0.07
Frctn Loss (m)		Cum Volume (1000 m3)		
C & E Loss (m)		Cum SA (1000 m2)		

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (m)	12.00	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.00	Reach Len. (m)		

Crit W.S. (m)	9.75	Flow Area (m2)	38.96
E.G. Slope (m/m)	0.000006	Area (m2)	38.96
Q Total (m3/s)	10.00	Flow (m3/s)	10.00
Top Width (m)	18.20	Top Width (m)	18.20
Vel Total (m/s)	0.26	Avg. Vel. (m/s)	0.26
Max Chl Dpth (m)	2.68	Hydr. Depth (m)	2.14
Conv. Total (m3/s)	4058.6	Conv. (m3/s)	4058.6
Length Wtd. (m)		Wetted Per. (m)	19.95
Min Ch El (m)	9.32	Shear (N/m2)	0.12
Alpha	1.00	Stream Power (N/m s)	0.03
Frctn Loss (m)		Cum Volume (1000 m3)	
C & E Loss (m)		Cum SA (1000 m2)	

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (m)	12.50	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.00	Wt. n-Val.		0.015
W.S. Elev (m)	12.50	Reach Len. (m)		
Crit W.S. (m)	9.75	Flow Area (m2)		48.40
E.G. Slope (m/m)	0.000003	Area (m2)		48.40
Q Total (m3/s)	10.00	Flow (m3/s)		10.00
Top Width (m)	19.56	Top Width (m)		19.56
Vel Total (m/s)	0.21	Avg. Vel. (m/s)		0.21
Max Chl Dpth (m)	3.18	Hydr. Depth (m)		2.47
Conv. Total (m3/s)	5518.3	Conv. (m3/s)		5518.3
Length Wtd. (m)		Wetted Per. (m)		21.64
Min Ch El (m)	9.32	Shear (N/m2)		0.07

Alpha	1.00	Stream Power (N/m s)	0.01
Frctn Loss (m)		Cum Volume (1000 m3)	
C & E Loss (m)		Cum SA (1000 m2)	

CROSS SECTION OUTPUT Profile #PF 4

E.G. Elev (m)	11.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.50	Reach Len. (m)		
Crit W.S. (m)	10.14	Flow Area (m2)		30.21
E.G. Slope (m/m)	0.000092	Area (m2)		30.21
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	16.83	Top Width (m)		16.83
Vel Total (m/s)	0.89	Avg. Vel. (m/s)		0.89
Max Chl Dpth (m)	2.18	Hydr. Depth (m)		1.79
Conv. Total (m3/s)	2817.2	Conv. (m3/s)		2817.2
Length Wtd. (m)		Wetted Per. (m)		18.26
Min Ch El (m)	9.32	Shear (N/m2)		1.49
Alpha	1.00	Stream Power (N/m s)		1.33
Frctn Loss (m)		Cum Volume (1000 m3)		
C & E Loss (m)		Cum SA (1000 m2)		

CROSS SECTION OUTPUT Profile #PF 5

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.00	Reach Len. (m)		

Crit W.S. (m)	10.14	Flow Area (m2)	38.96
E.G. Slope (m/m)	0.000044	Area (m2)	38.96
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	18.20	Top Width (m)	18.20
Vel Total (m/s)	0.69	Avg. Vel. (m/s)	0.69
Max Chl Dpth (m)	2.68	Hydr. Depth (m)	2.14
Conv. Total (m3/s)	4058.6	Conv. (m3/s)	4058.6
Length Wtd. (m)		Wetted Per. (m)	19.95
Min Ch El (m)	9.32	Shear (N/m2)	0.85
Alpha	1.00	Stream Power (N/m s)	0.59
Frctn Loss (m)		Cum Volume (1000 m3)	
C & E Loss (m)		Cum SA (1000 m2)	

CROSS SECTION OUTPUT Profile #PF 6

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.02	Wt. n-Val.		0.015
W.S. Elev (m)	12.50	Reach Len. (m)		
Crit W.S. (m)	10.14	Flow Area (m2)		48.40
E.G. Slope (m/m)	0.000024	Area (m2)		48.40
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	19.56	Top Width (m)		19.56
Vel Total (m/s)	0.56	Avg. Vel. (m/s)		0.56
Max Chl Dpth (m)	3.18	Hydr. Depth (m)		2.47
Conv. Total (m3/s)	5518.3	Conv. (m3/s)		5518.3
Length Wtd. (m)		Wetted Per. (m)		21.64
Min Ch El (m)	9.32	Shear (N/m2)		0.53

Alpha	1.00	Stream Power (N/m s)	0.29
Frctn Loss (m)		Cum Volume (1000 m3)	
C & E Loss (m)		Cum SA (1000 m2)	

SUMMARY OF MANNING'S N VALUES

River:SNM

Reach	River Sta.	n1	n2	n3
Canale SNM	73	.015	.015	.015
Canale SNM	72	.015	.015	.015
Canale SNM	71	.015	.015	.015
Canale SNM	70	.015	.015	.015
Canale SNM	69	.015	.015	.015
Canale SNM	68.5	Bridge		
Canale SNM	68	.015	.015	.015
Canale SNM	67	.015	.015	.015
Canale SNM	66.5	Bridge		
Canale SNM	66	.015	.015	.015
Canale SNM	65	.015	.015	.015
Canale SNM	64	.015	.015	.015
Canale SNM	63	.015	.015	.015
Canale SNM	62	.015	.015	.015
Canale SNM	61	.015	.015	.015
Canale SNM	60.5	Bridge		
Canale SNM	60	.015	.015	.015
Canale SNM	59	.015	.015	.015
Canale SNM	58.5	Bridge		
Canale SNM	58	.015	.015	.015
Canale SNM	57	.015	.015	.015
Canale SNM	56	.015	.015	.015
Canale SNM	55	.015	.015	.015
Canale SNM	54.5	Bridge		
Canale SNM	54	.015	.015	.015
Canale SNM	53	.015	.015	.015
Canale SNM	52	.015	.015	.015
Canale SNM	51	.015	.015	.015
Canale SNM	50	.015	.015	.015
Canale SNM	49	.015	.015	.015
Canale SNM	48	.015	.015	.015
Canale SNM	47	.015	.015	.015
Canale SNM	46.5	Bridge		
Canale SNM	46	.015	.015	.015
Canale SNM	45	.015	.015	.015
Canale SNM	44	.015	.015	.015
Canale SNM	43	.015	.015	.015

Canale SNM	42	.015	.015	.015
Canale SNM	41.5	Bridge		
Canale SNM	41	.015	.015	.015
Canale SNM	40	.015	.015	.015
Canale SNM	39	.015	.015	.015
Canale SNM	38.8	Inl Struct		
Canale SNM	38.7	.015	.015	.015
Canale SNM	38.4	Bridge		
Canale SNM	38	.015	.015	.015
Canale SNM	37	.015	.015	.015
Canale SNM	36	.015	.015	.015
Canale SNM	35	.015	.015	.015
Canale SNM	34	.015	.015	.015
Canale SNM	33	.015	.015	.015
Canale SNM	32	.015	.015	.015
Canale SNM	31.5	Bridge		
Canale SNM	31	.015	.015	.015
Canale SNM	30	.015	.015	.015
Canale SNM	29	.015	.015	.015
Canale SNM	28	.015	.015	.015
Canale SNM	27	.015	.015	.015
Canale SNM	26	.015	.015	.015
Canale SNM	25.5	Bridge		
Canale SNM	25	.015	.015	.015
Canale SNM	24	.015	.015	.015
Canale SNM	23	.015	.015	.015
Canale SNM	22.5	Bridge		
Canale SNM	22	.015	.015	.015
Canale SNM	21	.015	.015	.015
Canale SNM	20	.015	.015	.015
Canale SNM	19	.015	.015	.015
Canale SNM	18.5	Bridge		
Canale SNM	18	.015	.015	.015
Canale SNM	17	.015	.015	.015
Canale SNM	16	.015	.015	.015
Canale SNM	15.5	Bridge		
Canale SNM	15	.015	.015	.015
Canale SNM	14.5	Bridge		
Canale SNM	14	.015	.015	.015
Canale SNM	13	.015	.015	.015
Canale SNM	12	.015	.015	.015
Canale SNM	11	.015	.015	.015
Canale SNM	10.5	Bridge		
Canale SNM	10	.015	.015	.015
Canale SNM	9	.015	.015	.015
Canale SNM	8	.015	.015	.015
Canale SNM	7.5	Bridge		
Canale SNM	7	.015	.015	.015
Canale SNM	6	.015	.015	.015
Canale SNM	5	.015	.015	.015
Canale SNM	4.5	Bridge		
Canale SNM	4.4	.015	.015	.015
Canale SNM	4.3	Bridge		
Canale SNM	4	.015	.015	.015

Canale SNM	3	.015	.015	.015
Canale SNM	2	.015	.015	.015
Canale SNM	1.5	Inl Struct		
Canale SNM	1	.015	.015	.015

SUMMARY OF REACH LENGTHS

River: SNM

Reach	River Sta.	Left	Channel	Right
Canale SNM	73	200	200	200
Canale SNM	72	200	200	200
Canale SNM	71	200	200	200
Canale SNM	70	200	200	200
Canale SNM	69	200	200	200
Canale SNM	68.5	Bridge		
Canale SNM	68	200	200	200
Canale SNM	67	200	200	200
Canale SNM	66.5	Bridge		
Canale SNM	66	200	200	200
Canale SNM	65	200	200	200
Canale SNM	64	200	200	200
Canale SNM	63	200	200	200
Canale SNM	62	200	200	200
Canale SNM	61	200	200	200
Canale SNM	60.5	Bridge		
Canale SNM	60	200	200	200
Canale SNM	59	200	200	200
Canale SNM	58.5	Bridge		
Canale SNM	58	200	200	200
Canale SNM	57	200	200	200
Canale SNM	56	200	200	200
Canale SNM	55	200	200	200
Canale SNM	54.5	Bridge		
Canale SNM	54	200	200	200
Canale SNM	53	200	200	200
Canale SNM	52	200	200	200
Canale SNM	51	200	200	200
Canale SNM	50	200	200	200
Canale SNM	49	200	200	200
Canale SNM	48	200	200	200
Canale SNM	47	200	200	200
Canale SNM	46.5	Bridge		
Canale SNM	46	200	200	200
Canale SNM	45	200	200	200
Canale SNM	44	200	200	200
Canale SNM	43	200	200	200
Canale SNM	42	200	200	200
Canale SNM	41.5	Bridge		
Canale SNM	41	200	200	200

Canale SNM	40	200	200	200
Canale SNM	39	200	200	200
Canale SNM	38.8	Inl Struct		
Canale SNM	38.7	35	35	35
Canale SNM	38.4	Bridge		
Canale SNM	38	200	200	200
Canale SNM	37	200	200	200
Canale SNM	36	200	200	200
Canale SNM	35	200	200	200
Canale SNM	34	200	200	200
Canale SNM	33	200	200	200
Canale SNM	32	200	200	200
Canale SNM	31.5	Bridge		
Canale SNM	31	200	200	200
Canale SNM	30	200	200	200
Canale SNM	29	200	200	200
Canale SNM	28	200	200	200
Canale SNM	27	200	200	200
Canale SNM	26	200	200	200
Canale SNM	25.5	Bridge		
Canale SNM	25	200	200	200
Canale SNM	24	200	200	200
Canale SNM	23	200	200	200
Canale SNM	22.5	Bridge		
Canale SNM	22	200	200	200
Canale SNM	21	200	200	200
Canale SNM	20	200	200	200
Canale SNM	19	200	200	200
Canale SNM	18.5	Bridge		
Canale SNM	18	200	200	200
Canale SNM	17	200	200	200
Canale SNM	16	200	200	200
Canale SNM	15.5	Bridge		
Canale SNM	15	200	200	200
Canale SNM	14.5	Bridge		
Canale SNM	14	150	150	150
Canale SNM	13	200	200	200
Canale SNM	12	200	200	200
Canale SNM	11	200	200	200
Canale SNM	10.5	Bridge		
Canale SNM	10	200	200	200
Canale SNM	9	200	200	200
Canale SNM	8	200	200	200
Canale SNM	7.5	Bridge		
Canale SNM	7	200	200	200
Canale SNM	6	200	200	200
Canale SNM	5	200	200	200
Canale SNM	4.5	Bridge		
Canale SNM	4.4	30	30	30
Canale SNM	4.3	Bridge		
Canale SNM	4	200	200	200
Canale SNM	3	200	200	200
Canale SNM	2	200	200	200
Canale SNM	1.5	Inl Struct		

Canale SNM	1	200	200	200
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SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: SNM

Reach	River Sta.	Contr.	Expan.
Canale SNM	73	.1	.3
Canale SNM	72	.0015	.01
Canale SNM	71	.0015	.01
Canale SNM	70	.0015	.01
Canale SNM	69	.0015	.01
Canale SNM	68.5	Bridge	
Canale SNM	68	.0015	.01
Canale SNM	67	.0015	.01
Canale SNM	66.5	Bridge	
Canale SNM	66	.0015	.01
Canale SNM	65	.0015	.01
Canale SNM	64	.0015	.01
Canale SNM	63	.0015	.01
Canale SNM	62	.0015	.01
Canale SNM	61	.0015	.01
Canale SNM	60.5	Bridge	
Canale SNM	60	.0015	.01
Canale SNM	59	.0015	.01
Canale SNM	58.5	Bridge	
Canale SNM	58	.0015	.01
Canale SNM	57	.0015	.01
Canale SNM	56	.0015	.01
Canale SNM	55	.0015	.01
Canale SNM	54.5	Bridge	
Canale SNM	54	.0015	.01
Canale SNM	53	.0015	.01
Canale SNM	52	.0015	.01
Canale SNM	51	.0015	.01
Canale SNM	50	.0015	.01
Canale SNM	49	.0015	.01
Canale SNM	48	.0015	.01
Canale SNM	47	.0015	.01
Canale SNM	46.5	Bridge	
Canale SNM	46	.0015	.01
Canale SNM	45	.0015	.01
Canale SNM	44	.0015	.01
Canale SNM	43	.0015	.01
Canale SNM	42	.0015	.01
Canale SNM	41.5	Bridge	
Canale SNM	41	.0015	.01
Canale SNM	40	.0015	.01
Canale SNM	39	.0015	.01
Canale SNM	38.8	Inl Struct	

Canale SNM	38.7	.1	.3
Canale SNM	38.4	Bridge	
Canale SNM	38	.0015	.01
Canale SNM	37	.0015	.01
Canale SNM	36	.0015	.01
Canale SNM	35	.0015	.01
Canale SNM	34	.0015	.01
Canale SNM	33	.0015	.01
Canale SNM	32	.0015	.01
Canale SNM	31.5	Bridge	
Canale SNM	31	.0015	.01
Canale SNM	30	.0015	.01
Canale SNM	29	.0015	.01
Canale SNM	28	.0015	.01
Canale SNM	27	.0015	.01
Canale SNM	26	.0015	.01
Canale SNM	25.5	Bridge	
Canale SNM	25	.0015	.01
Canale SNM	24	.0015	.01
Canale SNM	23	.0015	.01
Canale SNM	22.5	Bridge	
Canale SNM	22	.0015	.01
Canale SNM	21	.0015	.01
Canale SNM	20	.0015	.01
Canale SNM	19	.0015	.01
Canale SNM	18.5	Bridge	
Canale SNM	18	.0015	.01
Canale SNM	17	.0015	.01
Canale SNM	16	.0015	.01
Canale SNM	15.5	Bridge	
Canale SNM	15	.0015	.01
Canale SNM	14.5	Bridge	
Canale SNM	14	.0015	.01
Canale SNM	13	.0015	.01
Canale SNM	12	.0015	.01
Canale SNM	11	.0015	.01
Canale SNM	10.5	Bridge	
Canale SNM	10	.0015	.01
Canale SNM	9	.0015	.01
Canale SNM	8	.0015	.01
Canale SNM	7.5	Bridge	
Canale SNM	7	.0015	.01
Canale SNM	6	.0015	.01
Canale SNM	5	.0015	.01
Canale SNM	4.5	Bridge	
Canale SNM	4.4	.1	.3
Canale SNM	4.3	Bridge	
Canale SNM	4	.0015	.01
Canale SNM	3	.0015	.01
Canale SNM	2	.0015	.01
Canale SNM	1.5	Inl Struct	
Canale SNM	1	.0015	.01

HEC-RAS HEC-RAS 6.1.0 September 2021
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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X      X  XXXXXX   XXXX      XXXX      XX      XXXX
X      X  X        X      X      X  X      X  X      X
X      X  X        X        X  X      X  X      X
XXXXXXXX XXXX      X        XXX XXXX      XXXXXX   XXXX
X      X  X        X        X  X      X  X      X      X
X      X  X        X      X      X  X      X  X      X
X      X  XXXXXX   XXXX      X      X      X  X      XXXXX

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PROJECT DATA

Project Title: CanaleSNM_PRG_REV01-A_STRALCIO
Project File : CanaleSNM_PRG_REV01.prj
Run Date and Time: 03/01/2022 13:08:48

Project in SI units

PLAN DATA

Plan Title: Plan 12
Plan File : C:\Users\Tecnico1\Documents\CanaleSNM_PRG_REV01.p12

Geometry Title: CanalsNM_SP_REV01
Geometry File : C:\Users\Tecnico1\Documents\CanaleSNM_PRG_REV01.g09

Flow Title : CanaleSNM-A
Flow File : C:\Users\Tecnico1\Documents\CanaleSNM_PRG_REV01.f02

Plan Summary Information:

Number of: Cross Sections =	75	Multiple Openings =	0
Culverts =	0	Inline Structures =	2
Bridges =	18	Lateral Structures =	0

Computational Information

Water surface calculation tolerance =	0.003
Critical depth calculation tolerance =	0.003
Maximum number of iterations =	20
Maximum difference tolerance =	0.1
Flow tolerance factor =	0.001

Computation Options

Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only

Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: CanaleSNM-A
Flow File : C:\Users\Tecnico1\Documents\CanaleSNM_PRG_REV01.f02

Flow Data (m3/s)

River	Reach	RS	PF 1
SNM	Canale SNM	73	27

Boundary Conditions

River	Reach	Profile	Upstream
Downstream			
SNM	Canale SNM	PF 1	
Known WS = 11.5			

Inline Structure Gate Openings

River = SNM
Reach = Canale SNM RS = 38.8
Gate = Gate #1
 # Open Open Ht
 4 3
River = SNM
Reach = Canale SNM RS = 1.5
Gate = Gate #1
 # Open Open Ht
 4 3

GEOMETRY DATA

Geometry Title: CanalsNM_SP_REV01
Geometry File : C:\Users\Tecnico1\Documents\CanaleSNM_PRG_REV01.g09

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 73

INPUT

Description: Opera n. 1

Station Elevation Data		num= 12	
Sta	Elev	Sta	Elev
8.2543	14.0079	12.7658	13.864
12.769	13.9639	13.2977	13.947
18.6544	10.3177	24.273	10.3181
29.8916	10.3177	35.7047	14.2563
36.8201	14.1575	36.8201	14.2563
41.2069	13.926		

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
8.2543	.015	13.2977	.015
35.7047	.015		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	13.2977	35.7047	200	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.74	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.71	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.30
E.G. Slope (m/m)	0.000061	Area (m2)		35.30
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.29	Top Width (m)		18.29
Vel Total (m/s)	0.76	Avg. Vel. (m/s)		0.76
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3464.9	Conv. (m3/s)		3464.9
Length Wtd. (m)	200.00	Wetted Per. (m)		19.76
Min Ch El (m)	10.32	Shear (N/m2)		1.06
Alpha	1.00	Stream Power (N/m s)		0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		470.00
C & E Loss (m)	0.00	Cum SA (1000 m2)		243.66

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 72

INPUT

Description:

Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.3461	14.0844	13.7461	14.1547	13.7461	14.2547	15.0311	14.2547	20.8611	10.3055
26.3614	10.3052	31.9199	10.3048	37.2608	14.0761	38.6744	14.0761	38.6744	13.9761
42.2032	13.9966								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.3461	.015	15.0311	.015	37.2608	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.	15.0311	37.2608		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.73	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.70	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.69
E.G. Slope (m/m)	0.000063	Area (m2)		34.69
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.97	Top Width (m)		17.97
Vel Total (m/s)	0.78	Avg. Vel. (m/s)		0.78
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3399.8	Conv. (m3/s)		3399.8
Length Wtd. (m)	200.00	Wetted Per. (m)		19.46
Min Ch El (m)	10.30	Shear (N/m2)		1.10
Alpha	1.00	Stream Power (N/m s)		0.86
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		463.00
C & E Loss (m)	0.00	Cum SA (1000 m2)		240.03

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 71

INPUT

Description:

Station Elevation Data	num=	14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
9.0545 13.8827 10.3965 14.0515 10.864 14.0941 11.805 14.0181 11.805 14.1941		
12.7766 14.1941 18.5522 10.2926 24.0852 10.2922 29.6736 10.2918 35.1844 14.159		
36.2672 14.159 36.2672 14.059 39.7812 14.059 41.5387 13.8966		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
9.0545 .015 12.7766 .015 35.1844 .015		

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr.
Expan.		
12.7766 35.1844	200 200 200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.71	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.68	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.89
E.G. Slope (m/m)	0.000062	Area (m2)		34.89
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.07	Top Width (m)		18.07
Vel Total (m/s)	0.77	Avg. Vel. (m/s)		0.77
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3422.0	Conv. (m3/s)		3422.0
Length Wtd. (m)	200.00	Wetted Per. (m)		19.55
Min Ch El (m)	10.29	Shear (N/m2)		1.09
Alpha	1.00	Stream Power (N/m s)		0.84
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		456.04

C & E Loss (m)	0.00	Cum SA (1000 m2)	236.43
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CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 70

INPUT
 Description:
 Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.0727	13.7347	13.029	13.8531	16.2507	13.7946	16.2507	13.8903	16.7809	13.8903
22.2069	10.2796	27.8481	10.2792	33.5557	10.2789	39.1127	14.152	40.3373	14.152
40.3373	14.052	43.5317	14.0614	44.8566	13.854	46.339	13.819		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12.0727	.015	16.7809	.015	39.1127	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan.

16.7809	39.1127	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.70	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.67	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.56
E.G. Slope (m/m)	0.000060	Area (m2)		35.56
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.38	Top Width (m)		18.38
Vel Total (m/s)	0.76	Avg. Vel. (m/s)		0.76
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.94
Conv. Total (m3/s)	3497.0	Conv. (m3/s)		3497.0
Length Wtd. (m)	200.00	Wetted Per. (m)		19.85
Min Ch El (m)	10.28	Shear (N/m2)		1.05

Alpha	1.00	Stream Power (N/m s)	0.80
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	448.99
C & E Loss (m)	0.00	Cum SA (1000 m2)	232.79

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 69

INPUT

Description:

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.7781	13.8282	8.8099	13.9313	10.3625	13.9725	11.8006	13.9309	11.8006	14.0164
12.6628	14.0164	18.2119	10.2667	23.817	10.2663	29.5027	10.2659	34.0852	13.5318
34.8427	13.5318	34.8427	13.4775	36.5016	13.629	39.5623	13.539		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.7781	.015	12.6628	.015	34.0852	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	12.6628	34.0852		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.69	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.66	Reach Len. (m)	168.76	168.76
168.76				
Crit W.S. (m)	11.07	Flow Area (m2)		35.27
E.G. Slope (m/m)	0.000061	Area (m2)		35.27
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.19	Top Width (m)		18.19
Vel Total (m/s)	0.77	Avg. Vel. (m/s)		0.77
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.94
Conv. Total (m3/s)	3469.1	Conv. (m3/s)		3469.1

Length Wtd. (m)	168.76	Wetted Per. (m)	19.69
Min Ch El (m)	10.27	Shear (N/m2)	1.06
Alpha	1.00	Stream Power (N/m s)	0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	441.91
C & E Loss (m)	0.00	Cum SA (1000 m2)	229.13

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 68.5

INPUT
Description:
Distance from Upstream XS = 168.76
Deck/Roadway Width = 5
Weir Coefficient = 1.4
Upstream Deck/Roadway Coordinates
num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
7.43 15.08 13.83 36.58 15.08 13.83

Upstream Bridge Cross Section Data
Station Elevation Data num= 14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
7.7781 13.8282 8.8099 13.9313 10.3625 13.9725 11.8006 13.9309 11.8006 14.0164
12.6628 14.0164 18.2119 10.2667 23.817 10.2663 29.5027 10.2659 34.0852 13.5318
34.8427 13.5318 34.8427 13.4775 36.5016 13.629 39.5623 13.539

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
7.7781 .015 12.6628 .015 34.0852 .015

Bank Sta: Left Right Coeff Contr. Expan.
12.6628 34.0852 .0015 .01

Downstream Deck/Roadway Coordinates
num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
2.629 15.08 13.74 31.78 15.08 13.74

Downstream Bridge Cross Section Data
Station Elevation Data num= 12
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
3.3828 13.5619 7.2999 13.6619 7.2999 13.5619 8.3937 13.6619 13.5751 10.2537
19.0106 10.2533 24.5373 10.253 30.0209 14.0273 30.9051 13.9379 30.9051 14.0273
32.0475 13.9621 34.6509 13.8786

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
3.3828	.015	8.3937	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	8.3937	30.0209		.0015	.01

Upstream Embankment side slope	=	2 horiz. to 1.0 vertical
Downstream Embankment side slope	=	2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2
Sta	Elev	Sta Elev
7.43	13.83	15.39 13.83
Downstream	num=	2
Sta	Elev	Sta Elev
2.63	13.8	10.59 13.8

Abutment Data

Upstream	num=	2
Sta	Elev	Sta Elev
32.39	13.83	36.58 13.83
Downstream	num=	2
Sta	Elev	Sta Elev
27.59	13.8	31.78 13.8

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	12.69	Element	Inside BR US
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Inside BR DS			
W.S. US. (m)	12.66	E.G. Elev (m)	12.68
12.68			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.65
12.65			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	11.07
11.07			
Q Weir (m3/s)		Max Chl Dpth (m)	2.38
2.39			
Weir Sta Lft (m)		Vel Total (m/s)	0.78
0.78			
Weir Sta Rgt (m)		Flow Area (m2)	34.84
34.57			
Weir Submerg		Froude # Chl	0.17
0.17			
Weir Max Depth (m)		Specif Force (m3)	40.63
40.35			
Min El Weir Flow (m)	13.88	Hydr Depth (m)	2.05
2.03			
Min El Prs (m)	13.83	W.P. Total (m)	19.04
18.96			
Delta EG (m)	0.01	Conv. Total (m3/s)	3473.8
3438.4			
Delta WS (m)	0.01	Top Width (m)	17.00
17.00			
BR Open Area (m2)	53.14	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.78	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.08
1.10			
BR Sel Method	Energy only	Power Total (N/m s)	0.84
0.86			

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 68

INPUT

Description:

Station Elevation Data				num=	12				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3.3828	13.5619	7.2999	13.6619	7.2999	13.5619	8.3937	13.6619	13.5751	10.2537
19.0106	10.2533	24.5373	10.253	30.0209	14.0273	30.9051	13.9379	30.9051	14.0273
32.0475	13.9621	34.6509	13.8786						

Manning's n Values				num=	3		
Sta	n Val	Sta	n Val	Sta	n Val		
3.3828	.015	8.3937	.015	30.0209	.015		

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
8.3937	30.0209	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.68	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.65	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.75
E.G. Slope (m/m)	0.000063	Area (m2)		34.75
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.08	Top Width (m)		18.08
Vel Total (m/s)	0.78	Avg. Vel. (m/s)		0.78
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.92
Conv. Total (m3/s)	3400.1	Conv. (m3/s)		3400.1
Length Wtd. (m)	200.00	Wetted Per. (m)		19.54
Min Ch El (m)	10.25	Shear (N/m2)		1.10
Alpha	1.00	Stream Power (N/m s)		0.85
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		434.91
C & E Loss (m)	0.00	Cum SA (1000 m2)		225.62

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 67

INPUT

Description:

Station	Elevation	Data	num=	13
Sta	Elev	Sta	Elev	Sta
Sta	Elev	Sta	Elev	Sta
7.0987	13.4793	7.6054	13.6348	11.2226
13.6432	11.2226	13.7444	12.1366	13.7444
17.2298	10.2407	22.7228	10.2404	28.2211
10.24	32.9954	13.5376	34.2181	13.5376
34.2181	13.4452	35.7586	13.4683	37.894
13.2374				

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 7.0987 .015 12.1366 .015 32.9954 .015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan. 12.1366 32.9954 200 200 200 .0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.66	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.63	Reach Len. (m)	25.22	25.22
25.22				
Crit W.S. (m)	11.06	Flow Area (m2)		34.61
E.G. Slope (m/m)	0.000063	Area (m2)		34.61
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.93	Top Width (m)		17.93
Vel Total (m/s)	0.78	Avg. Vel. (m/s)		0.78
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3391.1	Conv. (m3/s)		3391.1
Length Wtd. (m)	25.22	Wetted Per. (m)		19.42
Min Ch El (m)	10.24	Shear (N/m2)		1.11
Alpha	1.00	Stream Power (N/m s)		0.86
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		427.97
C & E Loss (m)	0.00	Cum SA (1000 m2)		222.01

BRIDGE

RIVER: SNM
 REACH: Canale SNM RS: 66.5

INPUT

Description:
 Distance from Upstream XS = 25.22
 Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
8.8258	13.8	13.01	37.054	13.8	13.01				

Upstream Bridge Cross Section Data

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.0987	13.4793	7.6054	13.6348	11.2226	13.6432	11.2226	13.7444	12.1366	13.7444
17.2298	10.2407	22.7228	10.2404	28.2211	10.24	32.9954	13.5376	34.2181	13.5376
34.2181	13.4452	35.7586	13.4683	37.894	13.2374				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.0987	.015	12.1366	.015	32.9954	.015

Bank Sta: Left Right Coeff Contr. Expan.

12.1366	32.9954	.0015	.01
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Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
11.27	13.8	12.9	39.5027	13.8	12.9				

Downstream Bridge Cross Section Data

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.6427	13.1969	8.98	13.5803	11.2654	13.2958	13.6663	13.2958	13.6663	13.3958
14.8016	13.3958	19.6719	10.2278	25.1759	10.2274	30.794	10.2271	35.9229	13.7601
37.2414	13.7601	37.2414	13.6713	38.2901	13.6947	39	13.6029	40.0439	13.6446
40.557	13.5157								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.6427	.015	14.8016	.015	35.9229	.015

Bank Sta: Left Right Coeff Contr. Expan.

14.8016	35.9229	.0015	.01
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Upstream Embankment side slope = 1.9 horiz. to 1.0 vertical

Downstream Embankment side slope = 1.9 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Energy head used in spillway design =

Spillway height used in design =

Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev
8.82	13.02	16.85	13.02

Downstream	num=	2	
Sta	Elev	Sta	Elev
11.2746	13.02	19.2	13.02

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
28.85	13.02	37.05	13.02
Downstream	num=	2	
Sta	Elev	Sta	Elev
31.2	12.94	39.5	12.94

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth

inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	12.66	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.63	E.G. Elev (m)	12.66
12.66			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.62
12.62			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	11.06
11.04			
Q Weir (m3/s)		Max Chl Dpth (m)	2.38
2.39			
Weir Sta Lft (m)		Vel Total (m/s)	0.95
0.95			
Weir Sta Rgt (m)		Flow Area (m2)	28.32
28.54			
Weir Submerg		Froude # Chl	0.20
0.20			
Weir Max Depth (m)		Specif Force (m3)	36.07
36.55			
Min El Weir Flow (m)	13.24	Hydr Depth (m)	2.36
2.38			
Min El Prs (m)	13.01	W.P. Total (m)	16.27
16.37			
Delta EG (m)	0.02	Conv. Total (m3/s)	2732.0

2755.9			
Delta WS (m)	0.01	Top Width (m)	12.00
12.00			
BR Open Area (m2)	31.94	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.95	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.67
1.64			
BR Sel Method	Energy only	Power Total (N/m s)	1.59
1.55			

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 66

INPUT

Description:

Station Elevation Data				num=	16				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.6427	13.1969	8.98	13.5803	11.2654	13.2958	13.6663	13.2958	13.6663	13.3958
14.8016	13.3958	19.6719	10.2278	25.1759	10.2274	30.794	10.2271	35.9229	13.7601
37.2414	13.7601	37.2414	13.6713	38.2901	13.6947	39	13.6029	40.0439	13.6446
40.557	13.5157								

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
7.6427	.015	14.8016	.015	35.9229	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	14.8016	35.9229		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.65	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.62	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.14
E.G. Slope (m/m)	0.000061	Area (m2)		35.14
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.27	Top Width (m)		18.27

Vel Total (m/s)	0.77	Avg. Vel. (m/s)	0.77
Max Chl Dpth (m)	2.39	Hydr. Depth (m)	1.92
Conv. Total (m3/s)	3443.6	Conv. (m3/s)	3443.6
Length Wtd. (m)	200.00	Wetted Per. (m)	19.72
Min Ch El (m)	10.23	Shear (N/m2)	1.07
Alpha	1.00	Stream Power (N/m s)	0.83
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	421.63
C & E Loss (m)	0.00	Cum SA (1000 m2)	219.01

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 65

INPUT									
Description:									
Station Elevation Data				num=	14				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.1795	13.4739	10.8146	13.877	14.8208	13.8212	14.8208	13.9143	15.6543	13.9143
20.6945	10.2149	26.4513	10.2145	32.1737	10.2141	36.9354	13.6356	37.4676	13.6356
37.4676	13.5356	40.179	13.5356	42.5877	13.6221	43.0624	13.4873		
Manning's n Values				num=	3				
Sta	n Val	Sta	n Val	Sta	n Val				
9.1795	.015	15.6543	.015	36.9354	.015				
Bank Sta:	Left	Right	Lengths: Left Channel			Right	Coeff Contr.		
Expan.									
	15.6543	36.9354		200	200	200		.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.64	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.61	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.35
E.G. Slope (m/m)	0.000060	Area (m2)		35.35

Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	18.07	Top Width (m)	18.07
Vel Total (m/s)	0.76	Avg. Vel. (m/s)	0.76
Max Chl Dpth (m)	2.39	Hydr. Depth (m)	1.96
Conv. Total (m3/s)	3488.6	Conv. (m3/s)	3488.6
Length Wtd. (m)	200.00	Wetted Per. (m)	19.62
Min Ch El (m)	10.21	Shear (N/m2)	1.06
Alpha	1.00	Stream Power (N/m s)	0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	414.58
C & E Loss (m)	0.00	Cum SA (1000 m2)	215.37

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 64

INPUT

Description:

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.2828	13.505	12.8166	13.4499	13.7105	13.5363	15.0801	13.4787	15.5749	13.5499
15.5749	13.4643	16.5231	13.5499	21.1724	10.2019	26.8835	10.2015	32.5682	10.2012
37.3097	13.562	38.7786	13.4733	38.7786	13.562	39.9629	13.5003	41.8923	13.5167
42.9871	13.435								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.2828	.015	16.5231	.015	37.3097	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	16.5231	37.3097		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.62	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.59	Reach Len. (m)	200.00	200.00

200.00			
Crit W.S. (m)		Flow Area (m2)	35.29
E.G. Slope (m/m)	0.000060	Area (m2)	35.29
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	18.10	Top Width (m)	18.10
Vel Total (m/s)	0.77	Avg. Vel. (m/s)	0.77
Max Chl Dpth (m)	2.39	Hydr. Depth (m)	1.95
Conv. Total (m3/s)	3478.6	Conv. (m3/s)	3478.6
Length Wtd. (m)	200.00	Wetted Per. (m)	19.63
Min Ch El (m)	10.20	Shear (N/m2)	1.06
Alpha	1.00	Stream Power (N/m s)	0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	407.52
C & E Loss (m)	0.00	Cum SA (1000 m2)	211.76

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 63

INPUT											
Description:											
Station Elevation Data				num=	14						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.3115	13.7004	10.8696	13.6482	11.7974	13.5961	13.5964	13.6051	13.5964	13.7075		
15.4219	13.7075	20.2421	10.189	26.0331	10.1886	31.8245	10.1883	36.5265	13.582		
37.547	13.582	37.547	13.507	41.7604	13.7176	42.8838	13.2828				
Manning's n Values				num=	3						
Sta	n Val	Sta	n Val	Sta	n Val						
9.3115	.015	15.4219	.015	36.5265	.015						
Bank Sta:	Left	Right	Lengths: Left Channel				Right	Coeff Contr.			
Expan.											
	15.4219	36.5265		200	200	200		.0015	.01		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.61	Element	Left OB	Channel
---------------	-------	---------	---------	---------

Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.58	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.64
E.G. Slope (m/m)	0.000059	Area (m2)		35.64
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.18	Top Width (m)		18.18
Vel Total (m/s)	0.76	Avg. Vel. (m/s)		0.76
Max Chl Dpth (m)	2.40	Hydr. Depth (m)		1.96
Conv. Total (m3/s)	3523.5	Conv. (m3/s)		3523.5
Length Wtd. (m)	200.00	Wetted Per. (m)		19.74
Min Ch El (m)	10.19	Shear (N/m2)		1.04
Alpha	1.00	Stream Power (N/m s)		0.79
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		400.43
C & E Loss (m)	0.00	Cum SA (1000 m2)		208.13

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 62

INPUT

Description:

Station Elevation Data		num=		14					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.0003	13.7188	11.463	13.7353	14.4447	13.6185	14.4447	13.6989	14.9779	13.6989
19.7144	10.1766	25.581	10.1762	31.3299	10.1759	36.226	13.5695	36.759	13.5695
36.759	13.4968	40.9824	13.7275	41.9461	13.58	42.4235	13.4026		

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
9.0003	.015	14.9779	.015	36.226	.015

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
14.9779	36.226	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.60	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.83
E.G. Slope (m/m)	0.000058	Area (m2)		35.83
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.29	Top Width (m)		18.29
Vel Total (m/s)	0.75	Avg. Vel. (m/s)		0.75
Max Chl Dpth (m)	2.40	Hydr. Depth (m)		1.96
Conv. Total (m3/s)	3542.6	Conv. (m3/s)		3542.6
Length Wtd. (m)	200.00	Wetted Per. (m)		19.84
Min Ch El (m)	10.18	Shear (N/m2)		1.03
Alpha	1.00	Stream Power (N/m s)		0.78
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		393.28
C & E Loss (m)	0.00	Cum SA (1000 m2)		204.48

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 61

INPUT

Description:

Station Elevation Data		num= 13	
Sta	Elev	Sta	Elev
0	13.4523	3.4016	13.4523
9.4441	10.1642	14.8199	10.1639
26.0968	13.6241	31.8363	13.5626

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.015	4.7055	.015
		25.5655	.015

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.
Expan.				
4.7055	25.5655	200	200	200
				.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.56	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.98	Flow Area (m2)		34.51
E.G. Slope (m/m)	0.000064	Area (m2)		34.51
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.85	Top Width (m)		17.85
Vel Total (m/s)	0.78	Avg. Vel. (m/s)		0.78
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3382.6	Conv. (m3/s)		3382.6
Length Wtd. (m)	8.95	Wetted Per. (m)		19.35
Min Ch El (m)	10.16	Shear (N/m2)		1.11
Alpha	1.00	Stream Power (N/m s)		0.87
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		386.25
C & E Loss (m)	0.00	Cum SA (1000 m2)		200.87

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 60.5

INPUT

Description:
Distance from Upstream XS = 8.95
Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num=	2				
Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
4.53	13.55	12.82	25.73	13.55	12.82

Upstream Bridge Cross Section Data

Station Elevation Data	num=	13							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.4523	3.4016	13.4523	4.174	13.3942	4.174	13.4825	4.7055	13.4825
9.4441	10.1642	14.8199	10.1639	20.4254	10.1635	25.5655	13.7295	26.0968	13.7295
26.0968	13.6241	31.8363	13.5626	32.611	13.4153				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.015	4.7055	.015	25.5655	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	4.7055	25.5655		.0015	.01

Downstream Deck/Roadway Coordinates

num=	2				
Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
17.83	13.55	12.83	39.03	13.55	12.83

Downstream Bridge Cross Section Data

Station Elevation Data	num=	15							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.7989	13.5854	14.0193	13.6641	16.5231	13.5224	17.0536	13.5475	17.0536	13.4838
17.5854	13.5475	22.3826	10.1518	28.1133	10.1515	33.7828	10.1511	38.743	13.5416
39.6044	13.4746	39.6044	13.5416	40.0226	13.5023	42.1057	13.5024	44.4809	13.3051

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.7989	.015	17.5854	.015	38.743	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	17.5854	38.743		.0015	.01

Upstream Embankment side slope = 1.4 horiz. to 1.0 vertical

Downstream Embankment side slope = 1.4 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Energy head used in spillway design =

Spillway height used in design =

Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
4.54	12.83	8.76	12.83

Downstream	num=	2
------------	------	---

Sta	Elev	Sta	Elev
17.83	12.83	22.06	12.83

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
20.67	12.83	25.73	12.83
Downstream	num=	2	
Sta	Elev	Sta	Elev
33.96	12.83	39.03	12.83

Number of Piers = 2

Pier Data

Pier Station	Upstream=	12.43	Downstream=	25.73
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	10.05	.5	12.85	12.8
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	10.05	.5	12.83	

Pier Data

Pier Station	Upstream=	17.61	Downstream=	30.7739
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	10.06	.5	13.2	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	10.06	.5	13.2	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	12.59	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.56	E.G. Elev (m)	12.59
12.59			

Q Total (m3/s)	27.00	W.S. Elev (m)	12.53
12.53			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	11.04
11.01			
Q Weir (m3/s)		Max Chl Dpth (m)	2.37
2.38			
Weir Sta Lft (m)		Vel Total (m/s)	1.05
1.04			
Weir Sta Rgt (m)		Flow Area (m2)	25.64
25.89			
Weir Submerg		Froude # Chl	0.22
0.22			
Weir Max Depth (m)		Specif Force (m3)	33.06
33.63			
Min El Weir Flow (m)	13.40	Hydr Depth (m)	2.35
2.38			
Min El Prs (m)	12.82	W.P. Total (m)	24.67
24.94			
Delta EG (m)	0.02	Conv. Total (m3/s)	1754.3
1769.9			
Delta WS (m)	0.02	Top Width (m)	10.91
10.90			
BR Open Area (m2)	28.79	Frctn Loss (m)	0.00
0.02			
BR Open Vel (m/s)	1.05	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.41
2.37			
BR Sel Method	Energy only	Power Total (N/m s)	2.54
2.47			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 60

INPUT

Description:

Station Elevation Data				num=	15				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.7989	13.5854	14.0193	13.6641	16.5231	13.5224	17.0536	13.5475	17.0536	13.4838
17.5854	13.5475	22.3826	10.1518	28.1133	10.1515	33.7828	10.1511	38.743	13.5416
39.6044	13.4746	39.6044	13.5416	40.0226	13.5023	42.1057	13.5024	44.4809	13.3051

Manning's n Values				num=	3		
Sta	n Val	Sta	n Val	Sta	n Val		
11.7989	.015	17.5854	.015	38.743	.015		

Bank Sta:	Left	Right	Lengths:		Left Channel	Right	Coeff Contr.	
Expan.	17.5854	38.743		200	200	200	.0015	.01

E.G. Elev (m)	12.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.38
E.G. Slope (m/m)	0.000060	Area (m2)		35.38
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.26	Top Width (m)		18.26
Vel Total (m/s)	0.76	Avg. Vel. (m/s)		0.76
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.94
Conv. Total (m3/s)	3478.1	Conv. (m3/s)		3478.1
Length Wtd. (m)	200.00	Wetted Per. (m)		19.76
Min Ch El (m)	10.15	Shear (N/m2)		1.06
Alpha	1.00	Stream Power (N/m s)		0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		380.15
C & E Loss (m)	0.00	Cum SA (1000 m2)		197.97

RIVER: SNM
REACH: Canale SNM RS: 59

Description:

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
13.2994	.015	18.6668	.015
39.7363	.015		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	18.6668	39.7363		200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.55	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.53	Reach Len. (m)	16.89	16.89
16.89				
Crit W.S. (m)	10.93	Flow Area (m2)		35.94
E.G. Slope (m/m)	0.000058	Area (m2)		35.94
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.46	Top Width (m)		18.46
Vel Total (m/s)	0.75	Avg. Vel. (m/s)		0.75
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.95
Conv. Total (m3/s)	3546.1	Conv. (m3/s)		3546.1
Length Wtd. (m)	16.89	Wetted Per. (m)		19.97
Min Ch El (m)	10.14	Shear (N/m2)		1.02
Alpha	1.00	Stream Power (N/m s)		0.77
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		373.02
C & E Loss (m)	0.00	Cum SA (1000 m2)		194.30

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 58.5

INPUT

Description:

Distance from Upstream XS = 16.89

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
15.45	13.4	11.92	40.45	13.4	11.92				

Upstream Bridge Cross Section Data

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.2994	13.2671	14.676	13.4157	16.0111	13.4157	16.8992	13.4059	16.8992	13.3455
18.6668	13.4059	23.2086	10.1392	29.0767	10.1387	34.8611	10.1381	39.7363	13.4766
40.2672	13.3906	40.2672	13.4766	42.11	13.4408	42.7243	13.4567	44.57	13.3532

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
13.2994	.015	18.6668	.015	39.7363	.015

Bank Sta: Left Right Coeff Contr. Expan.

18.6668	39.7363	.0015	.01
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Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
13.16	13.4	11.92	38.17	13.4	11.92				

Downstream Bridge Cross Section Data

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.8144	13.1041	13.9394	13.0502	15.8053	13.1064	15.8053	13.2215	16.3347	13.2215
21.137	10.1212	26.8145	10.1207	32.4912	10.1202	36.9367	13.0797	37.4669	13.0797
37.4669	13.0089	38.4892	13.0687	40.3888	13.0414	41.4145	12.8136	42.0615	12.7541

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.8144	.015	16.3347	.015	36.9367	.015

Bank Sta: Left Right Coeff Contr. Expan.

16.3347	36.9367	.0015	.01
---------	---------	-------	-----

Upstream Embankment side slope = 5 horiz. to 1.0 vertical

Downstream Embankment side slope = 5 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Energy head used in spillway design =

Spillway height used in design =

Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2
 Sta Elev Sta Elev
 15.46 11.92 24.06 11.92
 Downstream num= 2
 Sta Elev Sta Elev
 13.16 11.92 21.77 11.92

Abutment Data

Upstream num= 2
 Sta Elev Sta Elev
 34.26 11.92 40.45 11.92
 Downstream num= 2
 Sta Elev Sta Elev
 31.97 11.92 38.16 11.92

Number of Piers = 1

Pier Data

Pier Station Upstream= 29.07 Downstream= 26.78
 Upstream num= 2
 Width Elev Width Elev
 1 10.14 1 11.92
 Downstream num= 2
 Width Elev Width Elev
 1 10.14 1 11.92

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
 inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	12.55	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.53	E.G. Elev (m)	12.55
12.55			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.41
12.41			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	11.10
11.08			

Q Weir (m3/s)		Max Chl Dpth (m)	2.28
2.29			
Weir Sta Lft (m)		Vel Total (m/s)	1.65
1.63			
Weir Sta Rgt (m)		Flow Area (m2)	16.39
16.55			
Weir Submerg		Froude # Chl	0.35
0.34			
Weir Max Depth (m)		Specif Force (m3)	27.22
27.51			
Min El Weir Flow (m)	13.27	Hydr Depth (m)	
Min El Prs (m)	11.92	W.P. Total (m)	25.52
25.60			
Delta EG (m)	0.04	Conv. Total (m3/s)	813.0
825.4			
Delta WS (m)	0.04	Top Width (m)	
BR Open Area (m2)	16.39	Frctn Loss (m)	0.01
0.03			
BR Open Vel (m/s)	1.65	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	6.94
6.79			
BR Sel Method	Energy only	Power Total (N/m s)	11.44
11.07			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 58

INPUT

Description:

Station Elevation Data				num=	15						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.8144	13.1041	13.9394	13.0502	15.8053	13.1064	15.8053	13.2215	16.3347	13.2215		
21.137	10.1212	26.8145	10.1207	32.4912	10.1202	36.9367	13.0797	37.4669	13.0797		
37.4669	13.0089	38.4892	13.0687	40.3888	13.0414	41.4145	12.8136	42.0615	12.7541		

Manning's n Values				num=	3		
Sta	n Val	Sta	n Val	Sta	n Val		
11.8144	.015	16.3347	.015	36.9367	.015		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	16.3347	36.9367		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.52	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.49	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.42
E.G. Slope (m/m)	0.000061	Area (m2)		35.42
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.58	Top Width (m)		18.58
Vel Total (m/s)	0.76	Avg. Vel. (m/s)		0.76
Max Chl Dpth (m)	2.37	Hydr. Depth (m)		1.91
Conv. Total (m3/s)	3457.9	Conv. (m3/s)		3457.9
Length Wtd. (m)	200.00	Wetted Per. (m)		19.99
Min Ch El (m)	10.12	Shear (N/m2)		1.06
Alpha	1.00	Stream Power (N/m s)		0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		367.86
C & E Loss (m)	0.00	Cum SA (1000 m2)		192.49

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 57

INPUT

Description:

Station Elevation Data				num=	12				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14.7165	13.2463	15.6433	13.3607	17.6535	13.3922	17.6535	13.3059	19.175	13.3922
24.2412	10.1033	29.8704	10.1027	35.5497	10.1022	40.576	13.4597	41.5511	13.3388
41.5511	13.4597	45.2997	13.1819						

Manning's n Values				num=	3		
Sta	n Val	Sta	n Val	Sta	n Val		
14.7165	.015	19.175	.015	40.576	.015		

Bank Sta: Left	Right	Lengths: Left Channel			Right	Coeff Contr.	
Expan.							
19.175	40.576	200	200	200	.0015	.01	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.51	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.48	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.38
E.G. Slope (m/m)	0.000061	Area (m2)		35.38
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.51	Top Width (m)		18.51
Vel Total (m/s)	0.76	Avg. Vel. (m/s)		0.76
Max Chl Dpth (m)	2.37	Hydr. Depth (m)		1.91
Conv. Total (m3/s)	3457.2	Conv. (m3/s)		3457.2
Length Wtd. (m)	200.00	Wetted Per. (m)		19.94
Min Ch El (m)	10.10	Shear (N/m2)		1.06
Alpha	1.00	Stream Power (N/m s)		0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		360.78
C & E Loss (m)	0.00	Cum SA (1000 m2)		188.78

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 56

INPUT

Description:

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.6055	13.1333	12.4057	13.2208	14.1271	13.1959	14.1271	13.2886	14.7582	13.2886
19.9787	10.0852	24.9801	10.0848	30.0069	10.0845	35.4197	13.4517	35.8012	13.4517
35.8012	13.3492	36.9548	13.3436	38.9095	13.2915	40.9734	13.1528		

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
9.6055 .015	14.7582 .015	35.4197 .015

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
14.7582	35.4197	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.49	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.46	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.90
E.G. Slope (m/m)	0.000073	Area (m2)		32.90
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.71	Top Width (m)		17.71
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.37	Hydr. Depth (m)		1.86
Conv. Total (m3/s)	3156.8	Conv. (m3/s)		3156.8
Length Wtd. (m)	200.00	Wetted Per. (m)		19.06
Min Ch El (m)	10.08	Shear (N/m2)		1.24
Alpha	1.00	Stream Power (N/m s)		1.02
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		353.96
C & E Loss (m)	0.00	Cum SA (1000 m2)		185.16

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 55

INPUT
Description:
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.9963	13.1214	12.147	13.2529	12.147	13.3688	12.6751	13.3688	18.066	10.0673
23.0404	10.0668	28.1174	10.0665	33.4304	13.4951	34.0202	13.4951	34.0202	13.4073
34.5413	13.42	34.9539	13.3463	37.2608	13.3798	38.2128	13.2597	39.3712	13.2318

Manning's n Values			num= 3		
Sta	n Val	Sta	n Val	Sta	n Val
7.9963	.015	12.6751	.015	33.4304	.015

Bank Sta:	Left	Right	Lengths: Left Channel			Right	Coeff Contr.	
Expan.								
	12.6751	33.4304		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.48	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.44	Reach Len. (m)	187.00	187.00
187.00				
Crit W.S. (m)	10.92	Flow Area (m2)		32.86
E.G. Slope (m/m)	0.000073	Area (m2)		32.86
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.61	Top Width (m)		17.61
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.87
Conv. Total (m3/s)	3158.3	Conv. (m3/s)		3158.3
Length Wtd. (m)	187.00	Wetted Per. (m)		18.98
Min Ch El (m)	10.07	Shear (N/m2)		1.24
Alpha	1.00	Stream Power (N/m s)		1.02
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		347.38
C & E Loss (m)	0.00	Cum SA (1000 m2)		181.63

BRIDGE

RIVER: SNM
 REACH: Canale SNM RS: 54.5

INPUT

Description:

Distance from Upstream XS = 187

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
11.74	15.11	12.69	34.31	15.11	12.69				

Upstream Bridge Cross Section Data

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.9963	13.1214	12.147	13.2529	12.147	13.3688	12.6751	13.3688	18.066	10.0673
23.0404	10.0668	28.1174	10.0665	33.4304	13.4951	34.0202	13.4951	34.0202	13.4073
34.5413	13.42	34.9539	13.3463	37.2608	13.3798	38.2128	13.2597	39.3712	13.2318

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.9963	.015	12.6751	.015	33.4304	.015

Bank Sta: Left Right Coeff Contr. Expan.

12.6751	33.4304	.0015	.01
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Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
4.09	15.11	12.69	26.66	15.11	12.69				

Downstream Bridge Cross Section Data

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.2824	2.8808	13.3607	4.7562	13.3153	4.7562	13.4032	5.2869	13.4032
10.2294	10.0494	15.3893	10.0489	20.4178	10.0484	26.0979	13.6533	27.1413	13.6533
27.1413	13.5767	27.1965	13.5793	29.4211	13.5276	33.6337	13.5276	38.442	13.2757

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.015	5.2869	.015	26.0979	.015

Bank Sta: Left Right Coeff Contr. Expan.

5.2869	26.0979	.0015	.01
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Upstream Embankment side slope = 1.87 horiz. to 1.0 vertical

Downstream Embankment side slope = 1.87 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Energy head used in spillway design =

Spillway height used in design =

Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	12.48	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.44	E.G. Elev (m)	12.46
12.46			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.43
12.43			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.93
10.91			
Q Weir (m3/s)		Max Chl Dpth (m)	2.36
2.38			
Weir Sta Lft (m)		Vel Total (m/s)	0.83
0.82			
Weir Sta Rgt (m)		Flow Area (m2)	32.61
32.88			
Weir Submerg		Froude # Chl	0.19
0.19			
Weir Max Depth (m)		Specif Force (m3)	37.29
37.96			
Min El Weir Flow (m)	13.28	Hydr Depth (m)	1.86
1.88			
Min El Prs (m)	12.69	W.P. Total (m)	18.93
18.87			
Delta EG (m)	0.01	Conv. Total (m3/s)	3123.9
3174.1			
Delta WS (m)	0.01	Top Width (m)	17.57
17.44			
BR Open Area (m2)	37.31	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.83	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.26
1.24			
BR Sel Method	Energy only	Power Total (N/m s)	1.04
1.02			

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 54

INPUT

Description:

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.2824	2.8808	13.3607	4.7562	13.3153	4.7562	13.4032	5.2869	13.4032
10.2294	10.0494	15.3893	10.0489	20.4178	10.0484	26.0979	13.6533	27.1413	13.6533
27.1413	13.5767	27.1965	13.5793	29.4211	13.5276	33.6337	13.5276	38.442	13.2757

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.015	5.2869	.015	26.0979	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	5.2869	26.0979	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.46	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.43	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.87
E.G. Slope (m/m)	0.000072	Area (m2)		32.87
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.44	Top Width (m)		17.44
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3172.6	Conv. (m3/s)		3172.6
Length Wtd. (m)	200.00	Wetted Per. (m)		18.87
Min Ch El (m)	10.05	Shear (N/m2)		1.24
Alpha	1.00	Stream Power (N/m s)		1.02
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		340.83
C & E Loss (m)	0.00	Cum SA (1000 m2)		178.11

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 53

INPUT

Description: Opera 6

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.1091	2.4601	13.2515	4.5795	13.3156	4.5795	13.2225	5.1087	13.3156
10.2503	10.0335	15.2603	10.0332	20.1936	10.0329	25.588	13.3532	26.1867	13.2532
26.1867	13.3532	26.2212	13.2532	26.5698	13.2377	30.7179	13.0321		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.015	5.1087	.015	25.588	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.	5.1087	25.588		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.45	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.41	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.70
E.G. Slope (m/m)	0.000074	Area (m2)		32.70
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.54	Top Width (m)		17.54
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.86
Conv. Total (m3/s)	3140.9	Conv. (m3/s)		3140.9
Length Wtd. (m)	200.00	Wetted Per. (m)		18.91
Min Ch El (m)	10.03	Shear (N/m2)		1.25
Alpha	1.00	Stream Power (N/m s)		1.03

Frctn Loss (m)	0.01	Cum Volume (1000 m3)	334.27
C & E Loss (m)	0.00	Cum SA (1000 m2)	174.61

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 52

INPUT

Description:

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.4302	12.8249	12.0545	13.1916	12.4092	13.203	12.9813	13.1687	14.6668	13.1864
14.6668	13.2916	15.1951	13.2916	20.5172	10.0201	25.3979	10.0198	30.4346	10.0194
35.6015	13.4411	36.0841	13.4411	36.0841	13.3423	40.697	13.1284		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.4302	.015	15.1951	.015	35.6015	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	15.1951	35.6015		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.43	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.40	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.45
E.G. Slope (m/m)	0.000075	Area (m2)		32.45
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.38	Top Width (m)		17.38
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.87
Conv. Total (m3/s)	3116.5	Conv. (m3/s)		3116.5
Length Wtd. (m)	200.00	Wetted Per. (m)		18.76

Min Ch El (m)	10.02	Shear (N/m2)	1.27
Alpha	1.00	Stream Power (N/m s)	1.06
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	327.76
C & E Loss (m)	0.00	Cum SA (1000 m2)	171.12

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 51

INPUT

Description:

Station Elevation Data

num=16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.6938	13.1175	9.8664	13.4467	11.6666	13.4469	12.7629	13.3968	12.7629	13.4739
13.3125	13.4739	18.8654	10.0066	23.7806	10.0063	28.7677	10.006	34.0718	13.4296
34.9219	13.4296	34.9219	13.3232	36.4717	13.3035	37.4686	13.2946	37.9539	13.2064
39.5419	13.2417								

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
7.6938	.015	13.3125	.015	34.0718	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	13.3125	34.0718		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.42	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.38	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.42
E.G. Slope (m/m)	0.000075	Area (m2)		32.42
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.39	Top Width (m)		17.39
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83

Max Chl Dpth (m)	2.38	Hydr. Depth (m)	1.86
Conv. Total (m3/s)	3111.8	Conv. (m3/s)	3111.8
Length Wtd. (m)	200.00	Wetted Per. (m)	18.77
Min Ch El (m)	10.01	Shear (N/m2)	1.28
Alpha	1.00	Stream Power (N/m s)	1.06
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	321.27
C & E Loss (m)	0.00	Cum SA (1000 m2)	167.64

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 50

INPUT									
Description:									
Station Elevation Data				num=	15				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6.0099	13.0715	7.5778	13.3439	9.0108	13.4642	11.051	13.5642	11.051	13.4642
12.2394	13.5642	17.8005	9.9932	22.7518	9.9929	27.7023	9.9925	32.9332	13.4656
33.4634	13.37	33.4634	13.4656	34.3334	13.3775	37.5717	13.317	37.9978	13.2728
Manning's n Values				num=	3				
Sta	n Val	Sta	n Val	Sta	n Val				
6.0099	.015	12.2394	.015	32.9332	.015				
Bank Sta:	Left	Right	Lengths:		Left Channel	Right	Coeff Contr.		
Expan.									
	12.2394	32.9332			200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.40	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.37	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.13
E.G. Slope (m/m)	0.000077	Area (m2)		32.13
Q Total (m3/s)	27.00	Flow (m3/s)		27.00

Top Width (m)	17.17	Top Width (m)	17.17
Vel Total (m/s)	0.84	Avg. Vel. (m/s)	0.84
Max Chl Dpth (m)	2.37	Hydr. Depth (m)	1.87
Conv. Total (m3/s)	3085.9	Conv. (m3/s)	3085.9
Length Wtd. (m)	200.00	Wetted Per. (m)	18.59
Min Ch El (m)	9.99	Shear (N/m2)	1.30
Alpha	1.00	Stream Power (N/m s)	1.09
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	314.82
C & E Loss (m)	0.00	Cum SA (1000 m2)	164.19

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 49

INPUT

Description:

Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6.1878	13.2676	8.6556	13.3672	9.1701	13.4707	9.5248	13.4592	10.0511	13.3563
11.3064	13.3651	11.3064	13.4687	12.1527	13.4687	17.3226	9.9798	22.3478	9.9794
27.3745	9.9791	32.5194	13.2578	33.0485	13.2578	33.0485	13.1126	33.8772	13.1913
34.3772	13.1716	34.8838	13.2439	35.2325	13.2373	38.7572	13.1241		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6.1878	.015	12.1527	.015	32.5194	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	12.1527	32.5194		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.39	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.35	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.44

E.G. Slope (m/m)	0.000075	Area (m2)	32.44
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	17.29	Top Width (m)	17.29
Vel Total (m/s)	0.83	Avg. Vel. (m/s)	0.83
Max Chl Dpth (m)	2.37	Hydr. Depth (m)	1.88
Conv. Total (m3/s)	3120.8	Conv. (m3/s)	3120.8
Length Wtd. (m)	200.00	Wetted Per. (m)	18.71
Min Ch El (m)	9.98	Shear (N/m2)	1.27
Alpha	1.00	Stream Power (N/m s)	1.06
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	308.36
C & E Loss (m)	0.00	Cum SA (1000 m2)	160.74

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 48

INPUT

Description:

Station Elevation Data

num=17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.3427	2.0574	13.3427	3.4663	13.4407	3.4663	13.5407	4.8751	13.5407
10.1739	9.9617	15.2167	9.9609	20.0416	9.9606	26.0839	13.6782	27.7184	13.6782
27.7184	13.5757	29.4802	13.5669	31.1161	13.6122	31.7125	13.511	32.579	13.286
34.9421	13.3647	38.5292	13.3765						

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
0	.015	4.8751	.015	26.0839	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	4.8751	26.0839		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.37	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.04	Wt. n-Val.	0.015
W.S. Elev (m)	12.34	Reach Len. (m)	200.00
200.00			
Crit W.S. (m)		Flow Area (m2)	32.20
E.G. Slope (m/m)	0.000076	Area (m2)	32.20
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	17.24	Top Width (m)	17.24
Vel Total (m/s)	0.84	Avg. Vel. (m/s)	0.84
Max Chl Dpth (m)	2.38	Hydr. Depth (m)	1.87
Conv. Total (m3/s)	3090.1	Conv. (m3/s)	3090.1
Length Wtd. (m)	200.00	Wetted Per. (m)	18.64
Min Ch El (m)	9.96	Shear (N/m2)	1.29
Alpha	1.00	Stream Power (N/m s)	1.08
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	301.90
C & E Loss (m)	0.00	Cum SA (1000 m2)	157.29

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 47

INPUT

Description:

Station	Elevation	Data	num=	18					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.3642	13.8709	12.1018	13.9021	13.0504	13.9896	14.758	13.9458	15.6445	13.9738
15.6445	14.0896	16.8882	14.0896	22.5598	9.9315	28.0289	9.9307	33.197	9.9299
39.4389	13.9271	40.5235	13.9271	40.5235	13.8474	40.9529	13.8648	43.5961	13.8852
44.0076	13.9417	45.3039	14.0292	49.4045	14.1706				

Manning's n	Values	num=	3		
Sta	n Val	Sta	n Val	Sta	n Val
9.3642	.015	16.8882	.015	39.4389	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	16.8882	39.4389		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.36	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.33	Reach Len. (m)	97.50	97.50
97.50				
Crit W.S. (m)	10.76	Flow Area (m2)		33.86
E.G. Slope (m/m)	0.000067	Area (m2)		33.86
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.64	Top Width (m)		17.64
Vel Total (m/s)	0.80	Avg. Vel. (m/s)		0.80
Max Chl Dpth (m)	2.40	Hydr. Depth (m)		1.92
Conv. Total (m3/s)	3303.7	Conv. (m3/s)		3303.7
Length Wtd. (m)	97.50	Wetted Per. (m)		19.13
Min Ch El (m)	9.93	Shear (N/m2)		1.16
Alpha	1.00	Stream Power (N/m s)		0.92
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		295.29
C & E Loss (m)	0.00	Cum SA (1000 m2)		153.80

BRIDGE

RIVER: SNM
 REACH: Canale SNM RS: 46.5

INPUT

Description:

Distance from Upstream XS = 97.5

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num=	2				
Sta	Hi	Cord	Lo	Cord	Sta
14.8	15.46	14.37	41.81	15.46	14.37

Upstream Bridge Cross Section Data

Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.3642	13.8709	12.1018	13.9021	13.0504	13.9896	14.758	13.9458	15.6445	13.9738
15.6445	14.0896	16.8882	14.0896	22.5598	9.9315	28.0289	9.9307	33.197	9.9299
39.4389	13.9271	40.5235	13.9271	40.5235	13.8474	40.9529	13.8648	43.5961	13.8852
44.0076	13.9417	45.3039	14.0292	49.4045	14.1706				

Manning's n Values			num=			3			
Sta	n Val	Sta	n Val	Sta	n Val				
9.3642	.015	16.8882	.015	39.4389	.015				

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	16.8882	39.4389		.0015	.01

Downstream Deck/Roadway Coordinates									
num=					2				
Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
4.73	15.47		14.37		31.73	15.47		14.37	

Downstream Bridge Cross Section Data									
Station Elevation Data			num=			14			
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	14.1921	2.8482	14.1921	5.6804	13.9548	5.6804	14.0129	7.0139	14.0129
12.3601	9.9013	17.9542	9.9005	23.393	9.8996	28.714	13.6883	29.5195	13.6883
29.5195	13.6405	31.0744	13.803	32.0986	13.8591	36.9403	14.136		

Manning's n Values			num=			3			
Sta	n Val	Sta	n Val	Sta	n Val				
0	.015	7.0139	.015	28.714	.015				

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	7.0139	28.714		.0015	.01

Upstream Embankment side slope	=	1.6 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.6 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Piers = 2

Pier Data						
Pier Station		Upstream=		22.36	Downstream=	12.29
Upstream		num=		2		
Width	Elev	Width	Elev			
.4	9.91	.4	14.37			
Downstream		num=		2		
Width	Elev	Width	Elev			
.4	10.14	.4	14.37			

Pier Data					
Pier Station	Upstream=	33.97	Downstream=	23.9	
Upstream	num=	2			

Width	Elev	Width	Elev
.4	9.94	.4	14.37
Downstream	num=	2	
Width	Elev	Width	Elev
.4	10.14	.4	14.37

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth

inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	12.36	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.33	E.G. Elev (m)	12.35
12.35			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.31
12.31			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.78
10.74			
Q Weir (m3/s)		Max Chl Dpth (m)	2.38
2.41			
Weir Sta Lft (m)		Vel Total (m/s)	0.84
0.82			
Weir Sta Rgt (m)		Flow Area (m2)	31.99
32.75			
Weir Submerg		Froude # Chl	0.20
0.19			
Weir Max Depth (m)		Specif Force (m3)	37.38
38.80			
Min El Weir Flow (m)	13.87	Hydr Depth (m)	1.90
1.95			
Min El Prs (m)	14.37	W.P. Total (m)	26.36
26.92			
Delta EG (m)	0.02	Conv. Total (m3/s)	2426.9
2488.0			
Delta WS (m)	0.02	Top Width (m)	16.81
16.76			
BR Open Area (m2)	74.38	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.84	C & E Loss (m)	0.00

0.00			
BR Sluice Coef		Shear Total (N/m2)	1.47
1.41			
BR Sel Method	Energy only	Power Total (N/m s)	1.24
1.16			

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 46

INPUT
 Description:
 Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	14.1921	2.8482	14.1921	5.6804	13.9548	5.6804	14.0129	7.0139	14.0129
12.3601	9.9013	17.9542	9.9005	23.393	9.8996	28.714	13.6883	29.5195	13.6883
29.5195	13.6405	31.0744	13.803	32.0986	13.8591	36.9403	14.136		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.015	7.0139	.015	28.714	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	7.0139	28.714		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.34	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.31	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.42
E.G. Slope (m/m)	0.000063	Area (m2)		34.42
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.55	Top Width (m)		17.55
Vel Total (m/s)	0.78	Avg. Vel. (m/s)		0.78
Max Chl Dpth (m)	2.41	Hydr. Depth (m)		1.96
Conv. Total (m3/s)	3393.3	Conv. (m3/s)		3393.3
Length Wtd. (m)	200.00	Wetted Per. (m)		19.14

Min Ch El (m)	9.90	Shear (N/m2)	1.12
Alpha	1.00	Stream Power (N/m s)	0.88
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	288.64
C & E Loss (m)	0.00	Cum SA (1000 m2)	150.36

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 45

INPUT

Description:

Station Elevation Data		num=		27							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.1084	3.0077	13.2882	3.9165	13.9261	4.9996	13.7818	5.4882	13.7097		
5.9688	13.6937	7.1783	13.7017	8.2305	13.7001	8.2305	13.7993	10.0789	13.7993		
15.3058	9.8711	20.8811	9.8702	26.3434	9.8699	31.6224	13.6355	33.2983	13.6355		
33.2983	13.5546	34.5535	13.6023	37.8426	13.5784	38.2678	13.7302	38.6686	13.6027		
38.863	13.5238	41.4526	12.677	42.1492	12.677	42.5192	12.9272	43.1613	13.1122		
43.7491	13.2319	44.3694	13.3081								

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
0	.015	10.0789	.015	31.6224	.015

Bank Sta:	Left	Right	Lengths:		Left Channel	Right	Coeff Contr.	
Expan.								
	10.0789	31.6224			200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.33	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.30	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.83
E.G. Slope (m/m)	0.000061	Area (m2)		34.83
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.67	Top Width (m)		17.67

Vel Total (m/s)	0.78	Avg. Vel. (m/s)	0.78
Max Chl Dpth (m)	2.43	Hydr. Depth (m)	1.97
Conv. Total (m3/s)	3447.2	Conv. (m3/s)	3447.2
Length Wtd. (m)	200.00	Wetted Per. (m)	19.26
Min Ch El (m)	9.87	Shear (N/m2)	1.09
Alpha	1.00	Stream Power (N/m s)	0.84
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	281.72
C & E Loss (m)	0.00	Cum SA (1000 m2)	146.84

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 44

INPUT											
Description:											
Station Elevation Data			num=		15						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.9744	13.2472	15.6986	13.4013	16.0718	13.4444	17.9335	13.4885	17.9335	13.4004		
19.1601	13.4885	24.186	9.8408	29.6745	9.8404	35.1636	9.84	40.203	13.4381		
40.9251	13.3819	40.9251	13.4381	42.053	13.4806	43.5413	13.4806	45.7601	13.3015		
Manning's n Values			num=		3						
Sta	n Val	Sta	n Val	Sta	n Val						
12.9744	.015	19.1601	.015	40.203	.015						
Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.											
Expan.											
	19.1601	40.203		200	200	200		.0015	.01		

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.32	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.29	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		35.15
E.G. Slope (m/m)	0.000060	Area (m2)		35.15

Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	17.77	Top Width (m)	17.77
Vel Total (m/s)	0.77	Avg. Vel. (m/s)	0.77
Max Chl Dpth (m)	2.45	Hydr. Depth (m)	1.98
Conv. Total (m3/s)	3488.8	Conv. (m3/s)	3488.8
Length Wtd. (m)	200.00	Wetted Per. (m)	19.35
Min Ch El (m)	9.84	Shear (N/m2)	1.07
Alpha	1.00	Stream Power (N/m s)	0.82
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	274.72
C & E Loss (m)	0.00	Cum SA (1000 m2)	143.30

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 43

INPUT									
Description:									
Station Elevation Data				num=	15				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.4423	13.3874	12.8126	13.452	14.59	13.3844	14.59	13.4654	15.6462	13.4654
20.7893	9.84	26.2947	9.84	31.8487	9.84	36.8963	13.4775	37.6016	13.4775
37.6016	13.3775	38.5521	13.4351	40.3481	13.4665	41.0998	13.3883	41.9291	13.3727
Manning's n Values				num=	3				
Sta	n Val	Sta	n Val	Sta	n Val				
10.4423	.015	15.6462	.015	36.8963	.015				
Bank Sta: Left		Right	Lengths: Left Channel		Right	Coeff Contr.			
Expan.									
15.6462		36.8963	200		200	200	.0015		.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.30	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.27	Reach Len. (m)	200.00	200.00
200.00				

Crit W.S. (m)		Flow Area (m2)	35.23
E.G. Slope (m/m)	0.000060	Area (m2)	35.23
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	17.89	Top Width (m)	17.89
Vel Total (m/s)	0.77	Avg. Vel. (m/s)	0.77
Max Chl Dpth (m)	2.43	Hydr. Depth (m)	1.97
Conv. Total (m3/s)	3490.3	Conv. (m3/s)	3490.3
Length Wtd. (m)	200.00	Wetted Per. (m)	19.45
Min Ch El (m)	9.84	Shear (N/m2)	1.06
Alpha	1.00	Stream Power (N/m s)	0.81
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	267.68
C & E Loss (m)	0.00	Cum SA (1000 m2)	139.73

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 42

INPUT											
Description:											
Station Elevation Data			num=		15						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.7843	13.0995	11.7388	13.2992	13.4938	13.3586	15.4208	13.2772	15.4208	13.3561		
16.0748	13.3561	21.1001	9.84	26.6467	9.84	32.417	9.84	37.024	13.4203		
38.1268	13.4203	38.1268	13.3472	38.9925	13.3937	40.3942	13.3832	42.1619	13.2274		
Manning's n Values			num=		3						
Sta	n Val	Sta	n Val	Sta	n Val						
10.7843	.015	16.0748	.015	37.024	.015						
Bank Sta:	Left	Right	Lengths:		Left	Channel	Right	Coeff Contr.			
Expan.											
	16.0748	37.024			200	200	200		.0015	.01	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.29	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.03	Wt. n-Val.	0.015
W.S. Elev (m)	12.26	Reach Len. (m)	190.00
190.00			
Crit W.S. (m)	10.64	Flow Area (m2)	35.38
E.G. Slope (m/m)	0.000059	Area (m2)	35.38
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	17.90	Top Width (m)	17.90
Vel Total (m/s)	0.76	Avg. Vel. (m/s)	0.76
Max Chl Dpth (m)	2.42	Hydr. Depth (m)	1.98
Conv. Total (m3/s)	3510.0	Conv. (m3/s)	3510.0
Length Wtd. (m)	190.00	Wetted Per. (m)	19.49
Min Ch El (m)	9.84	Shear (N/m2)	1.05
Alpha	1.00	Stream Power (N/m s)	0.80
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	260.62
C & E Loss (m)	0.00	Cum SA (1000 m2)	136.15

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 41.5

INPUT

Description:

Distance from Upstream XS = 190
Deck/Roadway Width = 5
Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
15.49 13.47 12.66 37.46 13.47 12.66

Upstream Bridge Cross Section Data

Station Elevation Data num= 15
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

10.7843	13.0995	11.7388	13.2992	13.4938	13.3586	15.4208	13.2772	15.4208	13.3561
16.0748	13.3561	21.1001	9.84	26.6467	9.84	32.417	9.84	37.024	13.4203
38.1268	13.4203	38.1268	13.3472	38.9925	13.3937	40.3942	13.3832	42.1619	13.2274

Manning's n Values			num= 3		
Sta	n Val	Sta	n Val	Sta	n Val
10.7843	.015	16.0748	.015	37.024	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	16.0748	37.024		.0015	.01

Downstream Deck/Roadway Coordinates					
num= 2					
Sta	Hi	Cord	Lo	Cord	Sta
15.95	13.47	12.67	37.93	13.47	12.67

Downstream Bridge Cross Section Data									
Station Elevation Data num= 13									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	12.8365	11.1437	13.1503	15.9781	13.3394	15.9781	13.4015	16.5089	13.4015
21.7523	9.84	27.1458	9.84	32.5387	9.84	38.0283	13.6524	38.5596	13.6524
38.5596	13.2526	40.2341	13.2177	53.6107	12.6105				

Manning's n Values			num= 3		
Sta	n Val	Sta	n Val	Sta	n Val
0	.015	16.5089	.015	38.0283	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	16.5089	38.0283		.0015	.01

Upstream Embankment side slope	=	1.5 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.5 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data			
Upstream num= 2			
Sta	Elev	Sta	Elev
15.49	12.66	20.62	12.66
Downstream num= 2			
Sta	Elev	Sta	Elev
15.95	12.66	21.09	12.66

Abutment Data			
Upstream num= 2			
Sta	Elev	Sta	Elev
33.01	12.66	37.46	12.66
Downstream num= 2			
Sta	Elev	Sta	Elev

33.48 12.66 37.93 12.66

Number of Piers = 2

Pier Data

Pier Station Upstream= 24.06 Downstream= 24.53

Upstream num= 2
Width Elev Width Elev
.4 9.84 .4 12.66
Downstream num= 2
Width Elev Width Elev
.4 9.84 .4 12.66

Pier Data

Pier Station Upstream= 29.56 Downstream= 30.03

Upstream num= 2
Width Elev Width Elev
.4 9.74 .4 12.66
Downstream num= 2
Width Elev Width Elev
.4 9.74 .4 12.66

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	12.29	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.26	E.G. Elev (m)	12.27
12.27			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.22
12.22			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.68
10.70			
Q Weir (m3/s)		Max Chl Dpth (m)	2.38
2.38			
Weir Sta Lft (m)		Vel Total (m/s)	0.99
0.99			
Weir Sta Rgt (m)		Flow Area (m2)	27.41

27.15	Weir Submerg		Froude # Ch1	0.20
0.21	Weir Max Depth (m)		Specif Force (m3)	35.15
34.61	Min El Weir Flow (m)	13.10	Hydr Depth (m)	2.36
2.34	Min El Prs (m)	12.66	W.P. Total (m)	25.36
25.12	Delta EG (m)	0.02	Conv. Total (m3/s)	1924.6
1906.1	Delta WS (m)	0.02	Top Width (m)	11.59
11.59	BR Open Area (m2)	32.42	Frctn Loss (m)	0.00
0.00	BR Open Vel (m/s)	0.99	C & E Loss (m)	0.00
0.00	BR Sluice Coef		Shear Total (N/m2)	2.09
2.13	BR Sel Method	Energy only	Power Total (N/m s)	2.05
2.11				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 41

INPUT

Description: Opera 8

Station Elevation Data	num=	13
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
0 12.8365 11.1437 13.1503 15.9781 13.3394 15.9781 13.4015 16.5089 13.4015		
21.7523 9.84 27.1458 9.84 32.5387 9.84 38.0283 13.6524 38.5596 13.6524		
38.5596 13.2526 40.2341 13.2177 53.6107 12.6105		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
0 .015 16.5089 .015 38.0283 .015		

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr.
Expan.		
16.5089 38.0283	200 200 200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.27	Element	Left OB	Channel
---------------	-------	---------	---------	---------

Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.24	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.27
E.G. Slope (m/m)	0.000065	Area (m2)		34.27
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.77	Top Width (m)		17.77
Vel Total (m/s)	0.79	Avg. Vel. (m/s)		0.79
Max Chl Dpth (m)	2.40	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3354.4	Conv. (m3/s)		3354.4
Length Wtd. (m)	200.00	Wetted Per. (m)		19.26
Min Ch El (m)	9.84	Shear (N/m2)		1.13
Alpha	1.00	Stream Power (N/m s)		0.89
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		254.37
C & E Loss (m)	0.00	Cum SA (1000 m2)		133.22

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 40

INPUT

Description:

Station Elevation Data		num=		16	
Sta	Elev	Sta	Elev	Sta	Elev
12.5101	13.2149	16.1458	13.3732	16.8336	13.3667
23.0067	9.84	28.2015	9.84	33.2582	9.84
39.1721	13.1478	40.9546	13.2576	41.9618	13.1806
44.2162	13.2019			42.3907	13.2439
				43.1531	13.2159

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
12.5101	.015	17.646	.015	38.5587	.015

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
17.646	38.5587	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.26	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.22	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.11
E.G. Slope (m/m)	0.000071	Area (m2)		33.11
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.52	Top Width (m)		17.52
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.89
Conv. Total (m3/s)	3201.8	Conv. (m3/s)		3201.8
Length Wtd. (m)	200.00	Wetted Per. (m)		18.95
Min Ch El (m)	9.84	Shear (N/m2)		1.22
Alpha	1.00	Stream Power (N/m s)		0.99
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		247.63
C & E Loss (m)	0.00	Cum SA (1000 m2)		129.69

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 39

INPUT

Description:

Station Elevation Data				num=	13				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.8725	13.226	17.5286	13.226	17.5286	13.326	19.1395	13.326	24.2549	9.8237
29.5667	9.823	34.8792	9.8227	39.7455	13.1579	40.2764	13.1579	40.2764	13.0579
40.614	13.0579	43.8237	13.0911	45.3194	12.9698				

Manning's n Values				num=	3		
Sta	n Val	Sta	n Val	Sta	n Val		
13.8725	.015	19.1395	.015	39.7455	.015		

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
19.1395	39.7455	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.24	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.21	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.66	Flow Area (m2)		33.70
E.G. Slope (m/m)	0.000068	Area (m2)		33.70
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.60	Top Width (m)		17.60
Vel Total (m/s)	0.80	Avg. Vel. (m/s)		0.80
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.91
Conv. Total (m3/s)	3282.6	Conv. (m3/s)		3282.6
Length Wtd. (m)	200.00	Wetted Per. (m)		19.08
Min Ch El (m)	9.82	Shear (N/m2)		1.17
Alpha	1.00	Stream Power (N/m s)		0.94
Frctn Loss (m)		Cum Volume (1000 m3)		240.95
C & E Loss (m)		Cum SA (1000 m2)		126.18

INLINE STRUCTURE

RIVER: SNM
 REACH: Canale SNM RS: 38.8

INPUT

Description:

Distance from Upstream XS = 156.65
 Deck/Roadway Width = 5
 Weir Coefficient = 1.4
 Weir Embankment Coordinates num = 2
 Sta Elev Sta Elev

18.53 14.05 40.65 14.05

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Weir crest shape = Broad Crested

INLINE STRUCTURE GATE Gate #1
Height = 4
Width = 3
Invert = 9.72
Gate Type = Sluice Slice Coefficient = .6
Weir Coefficient = 1.67
Weir crest shape = Broad Crested
Number of Gate Openings = 3
Sta Sta Sta
26.16 29.58 33.07

INLINE STRUCTURE OUTPUT Profile #PF 1 Gate Group: Gate #1

E.G. Elev (m)	12.24	Weir Sta Lft (m)	
W.S. Elev (m)	12.21	Weir Sta Rgt (m)	
Q Total (m3/s)	27.00	Min El Weir Flow (m)	12.97
Q Weir (m3/s)		Wr Top Wdth (m)	
Q Gates (m3/s)	27.00	Weir Max Depth (m)	
Q Culv (m3/s)		Weir Avg Depth (m)	
Q Inline RC (m3/s)		Weir Flow Area (m2)	
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	
Q Breach (m3/s)	0.00	Weir Submerg	
Breach Avg Velocity (m/s)	0.00	Q Gate Group (m3/s)	27.00
Breach Flow Area (m2)	0.00	Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	7.47
Breach Bottom El (m)		Gate Submerg	0.97
Breach SSL (m)		Gate Invert (m)	9.72
Breach SSR (m)		Gate Weir Coef	3.020

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 38.7

INPUT

Description:

Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3.1998	12.8459	4.0819	12.9823	5.5591	13.1833	6.4958	13.2833	7.4143	13.2287
7.66	13.2377	7.66	13.356	11.4946	13.356	16.7243	9.7981	21.3334	9.7975
26.0125	9.7972	31.1787	13.4831	32.1048	13.4831	32.1048	13.384	33.1614	13.3875
33.4901	13.4313	33.7267	13.4357	34.1211	13.4269	34.4104	13.3963	34.6821	13.3744

35.1441 13.3521 35.3282 13.3828 35.6043 13.3521 36.0162 13.2032

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 3.1998 .015 11.4946 .015 31.1787 .015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan.
 11.4946 31.1787 35 35 35 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.22	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.17	Reach Len. (m)	8.95	8.95
8.95				
Crit W.S. (m)	10.70	Flow Area (m2)		30.19
E.G. Slope (m/m)	0.000088	Area (m2)		30.19
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	16.11	Top Width (m)		16.11
Vel Total (m/s)	0.89	Avg. Vel. (m/s)		0.89
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.87
Conv. Total (m3/s)	2883.7	Conv. (m3/s)		2883.7
Length Wtd. (m)	8.95	Wetted Per. (m)		17.61
Min Ch El (m)	9.80	Shear (N/m2)		1.47
Alpha	1.00	Stream Power (N/m s)		1.32
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		235.42
C & E Loss (m)	0.00	Cum SA (1000 m2)		122.81

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

RS: 38.4

INPUT

Description:

Distance from Upstream XS = 8.95

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
10.14		14.55		12.86	32.55		14.55		12.86

Upstream Bridge Cross Section Data

```
Station Elevation Data      num=      24
```

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3.1998	12.8459	4.0819	12.9823	5.5591	13.1833	6.4958	13.2833	7.4143	13.2287
7.66	13.2377	7.66	13.356	11.4946	13.356	16.7243	9.7981	21.3334	9.7975
26.0125	9.7972	31.1787	13.4831	32.1048	13.4831	32.1048	13.384	33.1614	13.3875
33.4901	13.4313	33.7267	13.4357	34.1211	13.4269	34.4104	13.3963	34.6821	13.3744
35.1441	13.3521	35.3282	13.3828	35.6043	13.3521	36.0162	13.2032		

Manning's n Values num= 3

Sta	n	Val	Sta	n	Val	Sta	n	Val
3.1998		.015	11.4946		.015	31.1787		.015

Bank	Sta:	Left	Right	Coeff	Contr.	Expan.
------	------	------	-------	-------	--------	--------

11.4946 31.1787 .1 .3

Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
10.14		14.55		12.86	32.55		14.55		12.86

Downstream Bridge Cross Section Data

Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3.1998	12.8459	4.0819	12.9823	5.5591	13.1833	6.4958	13.2833	7.4143	13.2287
7.66	13.2377	7.66	13.356	11.4946	13.356	16.7243	9.7981	21.3334	9.7975
26.0125	9.7972	31.1787	13.4831	32.1048	13.4831	32.1048	13.384	33.1614	13.3875
33.4901	13.4313	33.7267	13.4357	34.1211	13.4269	34.4104	13.3963	34.6821	13.3744
35.1441	13.3521	35.3282	13.3828	35.6043	13.3521	36.0162	13.2032		

```
Manning's n Values      num=      3
```

Sta	n	Val	Sta	n	Val	Sta	n	Val
3.1998		.015	11.4946		.015	31.1787		.015

Bank	Sta:	Left	Right	Coeff	Contr.	Expan.
------	------	------	-------	-------	--------	--------

11.4946 31.1787 .0015 .01

Upstream Embankment side slope = 1.8 horiz. to 1.0 vertical

Downstream Embankment side slope = 1.8 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Energy head used in spillway design =

Spillway height used in design =
Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2		
Sta	Elev	Sta	Elev	
10.14	12.85	16.51	12.85	
Downstream	num=	2		
Sta	Elev	Sta	Elev	
10.14	12.85	16.51	12.85	

Abutment Data

Upstream	num=	2		
Sta	Elev	Sta	Elev	
26.51	12.86	32.54	12.86	
Downstream	num=	2		
Sta	Elev	Sta	Elev	
26.51	12.86	32.54	12.86	

Number of Piers = 2

Pier Data

Pier Station	Upstream=	19.56	Downstream=	19.56
Upstream	num=	2		
Width	Elev	Width	Elev	
.55	9.69	.55	12.85	
Downstream	num=	2		
Width	Elev	Width	Elev	
.55	9.69	.55	12.85	

Pier Data

Pier Station	Upstream=	23.01	Downstream=	23.01
Upstream	num=	2		
Width	Elev	Width	Elev	
.55	9.69	.55	12.85	
Downstream	num=	2		
Width	Elev	Width	Elev	
.55	9.69	.55	12.85	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth

inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	12.22	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.17	E.G. Elev (m)	12.21
12.21			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.12
12.12			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.79
10.79			
Q Weir (m3/s)		Max Chl Dpth (m)	2.32
2.32			
Weir Sta Lft (m)		Vel Total (m/s)	1.31
1.31			
Weir Sta Rgt (m)		Flow Area (m2)	20.58
20.56			
Weir Submerg		Froude # Chl	0.28
0.28			
Weir Max Depth (m)		Specif Force (m3)	27.42
27.37			
Min El Weir Flow (m)	12.85	Hydr Depth (m)	2.31
2.31			
Min El Prs (m)	12.86	W.P. Total (m)	22.50
22.49			
Delta EG (m)	0.03	Conv. Total (m3/s)	1292.8
1291.2			
Delta WS (m)	0.03	Top Width (m)	8.90
8.90			
BR Open Area (m2)	27.21	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	1.31	C & E Loss (m)	0.00
0.01			
BR Sluice Coef		Shear Total (N/m2)	3.91
3.92			
BR Sel Method	Energy only	Power Total (N/m s)	5.13
5.15			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 38

INPUT

Description:

Station Elevation Data										num=	24
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3.1998	12.8459	4.0819	12.9823	5.5591	13.1833	6.4958	13.2833	7.4143	13.2287		
7.66	13.2377	7.66	13.356	11.4946	13.356	16.7243	9.7981	21.3334	9.7975		
26.0125	9.7972	31.1787	13.4831	32.1048	13.4831	32.1048	13.384	33.1614	13.3875		
33.4901	13.4313	33.7267	13.4357	34.1211	13.4269	34.4104	13.3963	34.6821	13.3744		
35.1441	13.3521	35.3282	13.3828	35.6043	13.3521	36.0162	13.2032				

Manning's n Values						num=	3
Sta	n Val	Sta	n Val	Sta	n Val		
3.1998	.015	11.4946	.015	31.1787	.015		

Bank Sta:	Left	Right	Lengths:			Left Channel	Right	Coeff Contr.	
Expan.									
	11.4946	31.1787				200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.19	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.15	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		29.76
E.G. Slope (m/m)	0.000091	Area (m2)		29.76
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	16.04	Top Width (m)		16.04
Vel Total (m/s)	0.91	Avg. Vel. (m/s)		0.91
Max Chl Dpth (m)	2.35	Hydr. Depth (m)		1.86
Conv. Total (m3/s)	2825.3	Conv. (m3/s)		2825.3
Length Wtd. (m)	200.00	Wetted Per. (m)		17.51
Min Ch El (m)	9.80	Shear (N/m2)		1.52
Alpha	1.00	Stream Power (N/m s)		1.38
Frctn Loss (m)	0.02	Cum Volume (1000 m3)		234.56
C & E Loss (m)	0.00	Cum SA (1000 m2)		122.39

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 37

INPUT

Description:

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.9031	13.2109	9.2779	13.3264	10.2351	13.3985	11.5121	13.3264	12.2435	13.3664
12.2435	13.4937	13.2576	13.4937	18.4896	9.7727	28.9823	9.7714	34.3162	13.4507
35.2311	13.4507	35.2311	13.3512	35.8967	13.304	37.0132	13.3405	38.3946	13.3354
39.1084	13.3667								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.9031	.015	13.2576	.015	34.3162	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	13.2576	34.3162		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.17	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.14	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.84
E.G. Slope (m/m)	0.000072	Area (m2)		32.84
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.25	Top Width (m)		17.25
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.37	Hydr. Depth (m)		1.90
Conv. Total (m3/s)	3181.3	Conv. (m3/s)		3181.3
Length Wtd. (m)	200.00	Wetted Per. (m)		18.75
Min Ch El (m)	9.77	Shear (N/m2)		1.24
Alpha	1.00	Stream Power (N/m s)		1.02
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		228.30
C & E Loss (m)	0.00	Cum SA (1000 m2)		119.06

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 36

INPUT

Description:

Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18.9939	13.0055	20.3392	13.1866	21.3196	13.2193	22.2182	13.2357	23.7362	13.1506
23.7362	13.205	24.2683	13.205	29.1133	9.7472	39.7296	9.7458	44.8446	13.3513
45.3763	13.3513	45.3763	13.2553	49.0977	13.285	49.5105	13.3429	50.1509	13.3197
50.5907	13.1809	51.2158	13.0036						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18.9939	.015	24.2683	.015	44.8446	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.	24.2683	44.8446		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.16	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.13	Reach Len. (m)	200.00	200.00
200.00		Flow Area (m2)		33.24
Crit W.S. (m)		Area (m2)		33.24
E.G. Slope (m/m)	0.000070	Flow (m3/s)		27.00
Q Total (m3/s)	27.00	Top Width (m)		17.33
Top Width (m)	17.33	Avg. Vel. (m/s)		0.81
Vel Total (m/s)	0.81	Hydr. Depth (m)		1.92
Max Chl Dpth (m)	2.38	Conv. (m3/s)		3235.7
Conv. Total (m3/s)	3235.7	Wetted Per. (m)		18.84
Length Wtd. (m)	200.00	Shear (N/m2)		1.20
Min Ch El (m)	9.75			

Alpha	1.00	Stream Power (N/m s)	0.98
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	221.69
C & E Loss (m)	0.00	Cum SA (1000 m2)	115.60

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 35

INPUT

Description:

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.8752	12.8333	12.1151	13.123	13.6448	13.3162	15.2228	13.4289	16.9064	13.3596
16.9064	13.4391	18.0191	13.4391	23.0754	9.7217	33.6246	9.7203	38.7991	13.3971
39.4313	13.3971	39.4313	13.297	40.1953	13.2967	42.5758	13.2267	44.9594	13.0167
45.4566	12.9466								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
10.8752	.015	18.0191	.015	38.7991	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	18.0191	38.7991		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.15	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.11	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.13
E.G. Slope (m/m)	0.000070	Area (m2)		33.13
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.17	Top Width (m)		17.17
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3232.0	Conv. (m3/s)		3232.0

Length Wtd. (m)	200.00	Wetted Per. (m)	18.71
Min Ch El (m)	9.72	Shear (N/m2)	1.21
Alpha	1.00	Stream Power (N/m s)	0.99
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	215.06
C & E Loss (m)	0.00	Cum SA (1000 m2)	112.15

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 34

INPUT

Description:

Station Elevation Data

num=17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.8322	13.202	16.1163	13.4847	17.683	13.3961	19.1246	13.308	19.1246	13.3774
19.6574	13.3774	24.664	9.6962	35.3082	9.6948	40.2778	13.3708	40.9289	13.3708
40.9289	13.2944	41.5074	13.3217	42.1993	13.3115	43.7292	13.2914	44.706	13.2202
45.3978	13.1999	46.5679	13.0168						

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
13.8322	.015	19.6574	.015	40.2778	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	19.6574	40.2778		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.13	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.10	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.41
E.G. Slope (m/m)	0.000068	Area (m2)		33.41
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.16	Top Width (m)		17.16

Vel Total (m/s)	0.81	Avg. Vel. (m/s)	0.81
Max Chl Dpth (m)	2.40	Hydr. Depth (m)	1.95
Conv. Total (m3/s)	3274.0	Conv. (m3/s)	3274.0
Length Wtd. (m)	200.00	Wetted Per. (m)	18.74
Min Ch El (m)	9.69	Shear (N/m2)	1.19
Alpha	1.00	Stream Power (N/m s)	0.96
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	208.40
C & E Loss (m)	0.00	Cum SA (1000 m2)	108.72

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 33

INPUT

Description:

Station Elevation Data		num=		16					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14.6403	13.0685	15.0542	13.0833	17.1619	13.2321	18.6251	13.2173	19.3959	13.1705
19.3959	13.2401	19.9268	13.2401	25.1505	9.6707	35.625	9.67	40.6234	13.2941
41.3425	13.2941	41.3425	13.2378	41.698	13.2688	44.0041	13.2521	45.4253	13.1628
46.8659	12.973								

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
14.6403	.015	19.9268	.015	40.6234	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	19.9268	40.6234		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.12	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.09	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.58
E.G. Slope (m/m)	0.000067	Area (m2)		33.58

Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	17.34	Top Width (m)	17.34
Vel Total (m/s)	0.80	Avg. Vel. (m/s)	0.80
Max Chl Dpth (m)	2.42	Hydr. Depth (m)	1.94
Conv. Total (m3/s)	3288.0	Conv. (m3/s)	3288.0
Length Wtd. (m)	200.00	Wetted Per. (m)	18.87
Min Ch El (m)	9.67	Shear (N/m2)	1.18
Alpha	1.00	Stream Power (N/m s)	0.95
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	201.71
C & E Loss (m)	0.00	Cum SA (1000 m2)	105.27

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 32

INPUT									
Description:									
Station Elevation Data				num=	18				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.8712	12.9796	15.9743	13.1659	17.9142	13.1527	17.9164	13.1524	17.9164	13.1911
18.8638	13.1911	23.8188	9.67	34.2892	9.67	39.5453	13.3868	40.0671	13.3868
40.0671	13.3347	40.4953	13.3757	41.3198	13.371	42.483	13.3711	42.7821	13.3662
43.4195	13.2633	44.2811	13.2701	45.1598	13.0694				
Manning's n Values				num=	3				
Sta	n Val	Sta	n Val	Sta	n Val				
13.8712	.015	18.8638	.015	39.5453	.015				
Bank Sta:	Left	Right	Lengths:		Left	Channel	Right	Coeff Contr.	
Expan.									
	18.8638	39.5453			200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.10	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015

W.S. Elev (m)	12.07	Reach Len. (m)	191.00	191.00
191.00				
Crit W.S. (m)	10.51	Flow Area (m2)		33.27
E.G. Slope (m/m)	0.000069	Area (m2)		33.27
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.24	Top Width (m)		17.24
Vel Total (m/s)	0.81	Avg. Vel. (m/s)		0.81
Max Chl Dpth (m)	2.40	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3247.8	Conv. (m3/s)		3247.8
Length Wtd. (m)	191.00	Wetted Per. (m)		18.77
Min Ch El (m)	9.67	Shear (N/m2)		1.20
Alpha	1.00	Stream Power (N/m s)		0.97
Frctn Loss (m)	0.02	Cum Volume (1000 m3)		195.02
C & E Loss (m)	0.00	Cum SA (1000 m2)		101.81

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 31.5

INPUT

Description: \
Distance from Upstream XS = 191
Deck/Roadway Width = 5
Weir Coefficient = 1.4
Upstream Deck/Roadway Coordinates
num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
17.81 14.1 12.38 40.36 14.1 12.38

Upstream Bridge Cross Section Data

Station Elevation Data num= 18
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
13.8712 12.9796 15.9743 13.1659 17.9142 13.1527 17.9164 13.1524 17.9164 13.1911
18.8638 13.1911 23.8188 9.67 34.2892 9.67 39.5453 13.3868 40.0671 13.3868

40.0671	13.3347	40.4953	13.3757	41.3198	13.371	42.483	13.3711	42.7821	13.3662
43.4195	13.2633	44.2811	13.2701	45.1598	13.0694				

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
13.8712 .015	18.8638 .015	39.5453 .015

Bank Sta: Left	Right	Coeff Contr.	Expan.
18.8638	39.5453	.0015	.01

Downstream Deck/Roadway Coordinates	
num= 2	
Sta Hi Cord Lo Cord	Sta Hi Cord Lo Cord
19.08 14.22 12.49	41.63 14.22 12.49

Downstream Bridge Cross Section Data				
Station Elevation Data num= 28				
Sta Elev	Sta Elev	Sta Elev	Sta Elev	Sta Elev
9.4991 12.6252	13.2865 12.6464	13.9614 12.6612	14.3909 12.5279	14.8649 12.7945
15.1611 12.8833	15.6202 12.8537	16.1565 12.799	16.7153 12.8933	17.0056 12.9078
17.8257 12.9006	18.4426 12.8643	18.7909 12.9513	19.132 13.0021	19.1908 13.0021
19.1908 13.0659	19.72 13.0659	25.0488 9.67	35.6533 9.67	40.9268 13.0883
41.4564 13.0883	41.4564 12.9883	41.8237 12.9883	42.9488 12.8667	43.3665 12.9109
43.8283 12.8912	46.61 12.8407	47.2974 12.7907		

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
9.4991 .015	19.72 .015	40.9268 .015

Bank Sta: Left	Right	Coeff Contr.	Expan.
19.72	40.9268	.0015	.01

Upstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data	
Upstream num= 2	
Sta Elev	Sta Elev
17.81 12.38	22.78 12.38
Downstream num= 2	
Sta Elev	Sta Elev
19.08 12.49	24.06 12.49

Abutment Data	
Upstream num= 2	
Sta Elev	Sta Elev
35.38 12.38	40.36 12.38

Downstream	num=	2
Sta	Elev	Sta Elev
36.65	12.49	41.64 12.49

Number of Piers = 2

Pier Data

Pier Station	Upstream=	26.38	Downstream=	27.65
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.57	.5	12.37	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.57	.5	12.49	

Pier Data

Pier Station	Upstream=	31.73	Downstream=	33
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.57	.5	12.38	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.57	.5	12.49	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	12.10	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	12.07	E.G. Elev (m)	12.08
12.08			
Q Total (m3/s)	27.00	W.S. Elev (m)	12.03
12.03			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.56
10.55			
Q Weir (m3/s)		Max Chl Dpth (m)	2.36
2.36			
Weir Sta Lft (m)		Vel Total (m/s)	1.02

1.01			
Weir Sta Rgt (m)		Flow Area (m2)	26.58
26.72			
Weir Submerg		Froude # Ch1	0.21
0.21			
Weir Max Depth (m)		Specif Force (m3)	33.42
33.70			
Min El Weir Flow (m)	12.98	Hydr Depth (m)	2.29
2.31			
Min El Prs (m)	12.38	W.P. Total (m)	24.73
24.85			
Delta EG (m)	0.02	Conv. Total (m3/s)	1858.7
1869.5			
Delta WS (m)	0.02	Top Width (m)	11.60
11.59			
BR Open Area (m2)	30.64	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	1.02	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.22
2.20			
BR Sel Method	Energy only	Power Total (N/m s)	2.26
2.22			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 31

INPUT

Description: Opera 11

Opera 11

Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.4991	12.6252	13.2865	12.6464	13.9614	12.6612	14.3909	12.5279	14.8649	12.7945
15.1611	12.8833	15.6202	12.8537	16.1565	12.799	16.7153	12.8933	17.0056	12.9078
17.8257	12.9006	18.4426	12.8643	18.7909	12.9513	19.132	13.0021	19.1908	13.0021
19.1908	13.0659	19.72	13.0659	25.0488	9.67	35.6533	9.67	40.9268	13.0883
41.4564	13.0883	41.4564	12.9883	41.8237	12.9883	42.9488	12.8667	43.3665	12.9109
43.8283	12.8912	46.61	12.8407	47.2974	12.7907				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.4991	.015	19.72	.015	40.9268	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19.72 40.9268 200 200 200 .0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.08	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.05	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		34.04
E.G. Slope (m/m)	0.000067	Area (m2)		34.04
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	18.01	Top Width (m)		18.01
Vel Total (m/s)	0.79	Avg. Vel. (m/s)		0.79
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.89
Conv. Total (m3/s)	3300.4	Conv. (m3/s)		3300.4
Length Wtd. (m)	200.00	Wetted Per. (m)		19.41
Min Ch El (m)	9.67	Shear (N/m2)		1.15
Alpha	1.00	Stream Power (N/m s)		0.91
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		189.05
C & E Loss (m)	0.00	Cum SA (1000 m2)		98.94

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 30

INPUT

Description:

Station Elevation Data		num= 25							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14.9274	12.9364	15.626	13.0546	16.436	13.0676	16.8572	13.1842	17.57	13.1518
17.9199	13.0935	18.5614	13.1583	18.901	13.1373	18.901	13.2065	19.4303	13.2065
24.9432	9.67	34.7827	9.67	39.9923	13.3794	40.7435	13.3794	40.7435	13.2912
41.2758	13.3037	41.8493	13.3027	42.0485	13.3465	42.6658	13.3306	42.9127	13.3027
43.1198	13.2788	43.4743	13.255	44.0726	13.2191	44.3913	13.1873	44.5546	13.1515

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
14.9274 .015 19.4303 .015 39.9923 .015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
Expan. 19.4303 39.9923 200 200 200 .0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.07	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.03	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		31.46
E.G. Slope (m/m)	0.000080	Area (m2)		31.46
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	16.83	Top Width (m)		16.83
Vel Total (m/s)	0.86	Avg. Vel. (m/s)		0.86
Max Chl Dpth (m)	2.36	Hydr. Depth (m)		1.87
Conv. Total (m3/s)	3012.2	Conv. (m3/s)		3012.2
Length Wtd. (m)	200.00	Wetted Per. (m)		18.28
Min Ch El (m)	9.67	Shear (N/m2)		1.36
Alpha	1.00	Stream Power (N/m s)		1.16
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		182.50
C & E Loss (m)	0.00	Cum SA (1000 m2)		95.46

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 29

INPUT

Description:

Station Elevation Data num= 16
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

15.7202	12.7828	16.4739	12.8357	17.5054	12.915	18.1667	12.9295	18.7304	12.8712
19.157	12.8807	19.157	13.0101	20.1134	13.0101	25.0863	9.67	35.7864	9.67
40.7158	12.9169	41.2458	12.9169	41.2458	12.8169	41.7997	12.8169	42.714	12.8115
43.1452	12.8115								

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
15.7202	.015	20.1134	.015	40.7158	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	20.1134	40.7158		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.05	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	12.02	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.42
E.G. Slope (m/m)	0.000070	Area (m2)		33.42
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.76	Top Width (m)		17.76
Vel Total (m/s)	0.81	Avg. Vel. (m/s)		0.81
Max Chl Dpth (m)	2.35	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3225.9	Conv. (m3/s)		3225.9
Length Wtd. (m)	200.00	Wetted Per. (m)		19.18
Min Ch El (m)	9.67	Shear (N/m2)		1.20
Alpha	1.00	Stream Power (N/m s)		0.97
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		176.01
C & E Loss (m)	0.00	Cum SA (1000 m2)		92.00

CROSS SECTION

RIVER: SNM	
REACH: Canale SNM	RS: 28

INPUT

Description:

Station Elevation Data	num=	16
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
2.9442 12.9894 4.0425 13.2292 6.0901 13.2846 8.1181 13.2599 8.1181 13.3538		
8.6491 13.3538 14.0076 9.67 24.4336 9.6693 29.6847 13.3669 30.2164 13.3669		
30.2164 13.2884 30.9792 13.3213 32.496 13.3432 33.9747 13.1918 34.8893 13.0403		
35.4757 12.9156		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
2.9442 .015 8.6491 .015 29.6847 .015		

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr.
Expan.		
8.6491 29.6847	200 200 200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.04	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	12.00	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.12
E.G. Slope (m/m)	0.000077	Area (m2)		32.12
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.13	Top Width (m)		17.13
Vel Total (m/s)	0.84	Avg. Vel. (m/s)		0.84
Max Chl Dpth (m)	2.33	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3083.3	Conv. (m3/s)		3083.3
Length Wtd. (m)	200.00	Wetted Per. (m)		18.59
Min Ch El (m)	9.67	Shear (N/m2)		1.30
Alpha	1.00	Stream Power (N/m s)		1.09
Frctn Loss (m)	0.02	Cum Volume (1000 m3)		169.46
C & E Loss (m)	0.00	Cum SA (1000 m2)		88.51

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 27

INPUT

Description:

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.0516	13.0334	12.4277	13.1172	14.0822	13.1809	15.9138	13.2217	15.9138	13.3328
16.7764	13.3328	22.2117	9.6434	32.7351	9.6419	34.8821	11.5215	35.1403	11.5593
37.5557	13.2706	38.415	13.2706	38.415	13.2164	40.4441	13.2392	41.8086	12.9928
42.6112	12.8201								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12.0516	.015	16.7764	.015	37.5557	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.	16.7764	37.5557		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.02	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.99	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		31.95
E.G. Slope (m/m)	0.000078	Area (m2)		31.95
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	16.98	Top Width (m)		16.98
Vel Total (m/s)	0.85	Avg. Vel. (m/s)		0.85
Max Chl Dpth (m)	2.34	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3060.9	Conv. (m3/s)		3060.9
Length Wtd. (m)	200.00	Wetted Per. (m)		18.54
Min Ch El (m)	9.64	Shear (N/m2)		1.31
Alpha	1.00	Stream Power (N/m s)		1.11
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		163.05

C & E Loss (m)	0.00	Cum SA (1000 m2)	85.10
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CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 26

INPUT
 Description: Opera 12
 Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
23.9058	13.0337	25.6605	12.9775	26.7529	13.0049	28.2054	13.0392	28.2054	13.0859
28.2054	13.151	30.0603	13.151	35.3614	9.6161	45.766	9.6146	51.6906	13.4451
52.2201	13.4451	52.2201	13.219	52.7332	13.0895	53.9651	13.104	54.5489	13.0225
56.0928	12.9849								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
23.9058	.015	30.0603	.015	51.6906	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	30.0603	51.6906		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	12.01	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.97	Reach Len. (m)	6.00	6.00
6.00				
Crit W.S. (m)	10.46	Flow Area (m2)		32.99
E.G. Slope (m/m)	0.000072	Area (m2)		32.99
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.59	Top Width (m)		17.59
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.36	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3177.4	Conv. (m3/s)		3177.4
Length Wtd. (m)	6.00	Wetted Per. (m)		18.99
Min Ch El (m)	9.61	Shear (N/m2)		1.23

Alpha	1.00	Stream Power (N/m s)	1.01
Frctn Loss (m)	0.00	Cum Volume (1000 m3)	156.56
C & E Loss (m)	0.00	Cum SA (1000 m2)	81.64

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 25.5

INPUT

Description: \

Distance from Upstream XS = 6

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
30.11	14.21	12.54	51.42	14.21	12.54				

Upstream Bridge Cross Section Data

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
23.9058	13.0337	25.6605	12.9775	26.7529	13.0049	28.2054	13.0392	28.2054	13.0859
28.2054	13.151	30.0603	13.151	35.3614	9.6161	45.766	9.6146	51.6906	13.4451
52.2201	13.4451	52.2201	13.219	52.7332	13.0895	53.9651	13.104	54.5489	13.0225
56.0928	12.9849								

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
23.9058	.015	30.0603	.015	51.6906	.015

Bank Sta: Left Right Coeff Contr. Expan.

30.0603	51.6906	.0015	.01
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Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
16.66	14.2	12.54	37.96	14.2	12.54				

Downstream Bridge Cross Section Data

Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.3523	13.0208	12.8532	13.0362	13.3346	13.1194	13.6215	13.1379	14.3158	13.1472

14.9004	13.0918	15.2706	13.0825	15.9097	13.1432	15.9097	13.2669	16.4404	13.2669
21.8613	9.5888	32.4929	9.5873	37.5889	13.2114	38.1208	13.2114	38.1208	13.1373
38.1565	13.1392	39.7496	13.1348	40.3073	13.1409	41.6661	12.8934	42.4878	12.7292

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12.3523	.015	16.4404	.015	37.5889	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	16.4404	37.5889		.0015	.01

Upstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Downstream Embankment side slope	=	1.8 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2		
Sta	Elev	Sta	Elev	
30.11	12.54	34.78	12.54	
Downstream	num=	2		
Sta	Elev	Sta	Elev	
16.66	12.54	21.33	12.54	

Abutment Data

Upstream	num=	2		
Sta	Elev	Sta	Elev	
47.29	12.54	51.42	12.54	
Downstream	num=	2		
Sta	Elev	Sta	Elev	
33.83	12.54	37.96	12.54	

Number of Piers = 2

Pier Data

Pier Station	Upstream=	38.13	Downstream=	24.68
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.52	.5	12.54	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.52	.5	12.54	

Pier Data

Pier Station	Upstream=	43.94	Downstream=	30.48
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.52	.5	12.54	
Downstream	num=	2		

Width	Elev	Width	Elev
.5	9.52	.5	12.54

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	12.01	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.97	E.G. Elev (m)	12.01
12.00			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.95
11.95			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.51
10.48			
Q Weir (m3/s)		Max Chl Dpth (m)	2.34
2.36			
Weir Sta Lft (m)		Vel Total (m/s)	1.04
1.02			
Weir Sta Rgt (m)		Flow Area (m2)	26.02
26.45			
Weir Submerg		Froude # Chl	0.22
0.21			
Weir Max Depth (m)		Specif Force (m3)	32.50
33.42			
Min El Weir Flow (m)	12.98	Hydr Depth (m)	2.26
2.30			
Min El Prs (m)	12.54	W.P. Total (m)	24.56
24.79			
Delta EG (m)	0.02	Conv. Total (m3/s)	1802.9
1841.7			
Delta WS (m)	0.02	Top Width (m)	11.51
11.50			
BR Open Area (m2)	32.80	Frctn Loss (m)	0.00
0.02			
BR Open Vel (m/s)	1.04	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.33
2.25			

BR Sel Method	Energy only	Power Total (N/m s)	2.42
2.30			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 25

INPUT

Description:

Station Elevation Data		num=		20					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.3523	13.0208	12.8532	13.0362	13.3346	13.1194	13.6215	13.1379	14.3158	13.1472
14.9004	13.0918	15.2706	13.0825	15.9097	13.1432	15.9097	13.2669	16.4404	13.2669
21.8613	9.5888	32.4929	9.5873	37.5889	13.2114	38.1208	13.2114	38.1208	13.1373
38.1565	13.1392	39.7496	13.1348	40.3073	13.1409	41.6661	12.8934	42.4878	12.7292

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
12.3523	.015	16.4404	.015	37.5889	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	16.4404	37.5889		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.98	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.95	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.13
E.G. Slope (m/m)	0.000071	Area (m2)		33.13
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.43	Top Width (m)		17.43
Vel Total (m/s)	0.81	Avg. Vel. (m/s)		0.81
Max Chl Dpth (m)	2.36	Hydr. Depth (m)		1.90
Conv. Total (m3/s)	3210.0	Conv. (m3/s)		3210.0

Length Wtd. (m)	200.00	Wetted Per. (m)	18.91
Min Ch El (m)	9.59	Shear (N/m2)	1.22
Alpha	1.00	Stream Power (N/m s)	0.99
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	150.62
C & E Loss (m)	0.00	Cum SA (1000 m2)	78.76

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 24

INPUT

Description:

Station Elevation Data

num=17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.3044	13.2031	9.4739	13.3402	10.1978	13.381	11.5641	13.33	11.9817	13.3174
11.9817	13.4198	13.0299	13.4198	18.7089	9.5641	29.0158	9.5631	34.4955	13.3515
35.5532	13.3515	35.5532	13.2577	36.3916	13.2682	36.8458	13.3265	37.35	13.2266
38.4835	13.1557	39.1585	13.0058						

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
8.3044	.015	13.0299	.015	34.4955	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	13.0299	34.4955		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.97	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.93	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.63
E.G. Slope (m/m)	0.000073	Area (m2)		32.63
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.23	Top Width (m)		17.23

Vel Total (m/s)	0.83	Avg. Vel. (m/s)	0.83
Max Chl Dpth (m)	2.37	Hydr. Depth (m)	1.89
Conv. Total (m3/s)	3153.1	Conv. (m3/s)	3153.1
Length Wtd. (m)	200.00	Wetted Per. (m)	18.69
Min Ch El (m)	9.56	Shear (N/m2)	1.26
Alpha	1.00	Stream Power (N/m s)	1.04
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	144.04
C & E Loss (m)	0.00	Cum SA (1000 m2)	75.30

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 23

INPUT

Description:

Station Elevation Data		num=		17					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.6894	13.1462	14.2256	13.2925	15.8557	13.2441	16.7944	13.2282	16.7944	13.3198
17.3255	13.3198	22.797	9.5454	33.2301	9.5444	38.4591	13.2621	38.991	13.2621
38.991	13.2303	39.8827	13.2531	40.842	13.2481	41.5414	13.278	42.1678	13.1931
42.9321	13.1881	43.6865	13.1581						

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
12.6894	.015	17.3255	.015	38.4591	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	17.3255	38.4591		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.95	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.92	Reach Len. (m)	84.00	84.00
84.00				
Crit W.S. (m)	10.39	Flow Area (m2)		32.83
E.G. Slope (m/m)	0.000072	Area (m2)		32.83

Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	17.22	Top Width (m)	17.22
Vel Total (m/s)	0.82	Avg. Vel. (m/s)	0.82
Max Chl Dpth (m)	2.37	Hydr. Depth (m)	1.91
Conv. Total (m3/s)	3182.9	Conv. (m3/s)	3182.9
Length Wtd. (m)	84.00	Wetted Per. (m)	18.71
Min Ch El (m)	9.54	Shear (N/m2)	1.24
Alpha	1.00	Stream Power (N/m s)	1.02
Frctn Loss (m)	0.01	Cum Volume (1000 m3)	137.50
C & E Loss (m)	0.00	Cum SA (1000 m2)	71.85

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
 REACH: Canale SNM RS: 22.5

INPUT
 Description: \
 Distance from Upstream XS = 84
 Deck/Roadway Width = 5
 Weir Coefficient = 1.4
 Upstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 16.76 14.76 12.79 39.28 14.76 12.79

Upstream Bridge Cross Section Data
 Station Elevation Data num= 17
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 12.6894 13.1462 14.2256 13.2925 15.8557 13.2441 16.7944 13.2282 16.7944 13.3198
 17.3255 13.3198 22.797 9.5454 33.2301 9.5444 38.4591 13.2621 38.991 13.2621
 38.991 13.2303 39.8827 13.2531 40.842 13.2481 41.5414 13.278 42.1678 13.1931
 42.9321 13.1881 43.6865 13.1581

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

12.6894 .015 17.3255 .015 38.4591 .015

Bank Sta: Left Right Coeff Contr. Expan.
17.3255 38.4591 .0015 .01

Downstream Deck/Roadway Coordinates

num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
13.62 14.76 12.79 36.14 14.76 12.79

Downstream Bridge Cross Section Data

Station Elevation Data num= 17
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
9.5526 13.0992 10.164 13.1996 11.4306 13.284 12.6971 13.3051 13.0595 13.3243
13.0595 13.4508 14.0363 13.4508 19.6667 9.5267 30.0035 9.5257 35.9241 13.577
36.8875 13.577 36.8875 13.4992 37.0513 13.5065 40.4105 13.4501 40.8499 13.4653
41.4408 13.3441 41.956 13.132

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
9.5526 .015 14.0363 .015 35.9241 .015

Bank Sta: Left Right Coeff Contr. Expan.
14.0363 35.9241 .0015 .01

Upstream Embankment side slope = 1.8 horiz. to 1.0 vertical
Downstream Embankment side slope = 1.8 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2
Sta Elev Sta Elev
16.76 12.79 21.73 12.79
Downstream num= 2
Sta Elev Sta Elev
13.62 12.79 18.59 12.79

Abutment Data

Upstream num= 2
Sta Elev Sta Elev
34.22 12.79 39.28 12.79
Downstream num= 2
Sta Elev Sta Elev
31.09 12.79 36.15 12.79

Number of Piers = 2

Pier Data

Pier Station	Upstream=	25.25	Downstream=	22.11
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.55	.5	12.79	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.55	.5	12.79	

Pier Data

Pier Station	Upstream=	30.7	Downstream=	27.56
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.53	.5	12.79	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.53	.5	12.79	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.95	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.92	E.G. Elev (m)	11.94
11.94			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.89
11.89			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.43
10.42			
Q Weir (m3/s)		Max Chl Dpth (m)	2.35
2.36			
Weir Sta Lft (m)		Vel Total (m/s)	1.03
1.02			
Weir Sta Rgt (m)		Flow Area (m2)	26.20
26.37			
Weir Submerg		Froude # Ch1	0.22
0.22			
Weir Max Depth (m)		Specif Force (m3)	32.87
33.23			

Min El Weir Flow (m)	13.15	Hydr Depth (m)	2.28
2.29			
Min El Prs (m)	12.79	W.P. Total (m)	24.57
24.65			
Delta EG (m)	0.02	Conv. Total (m3/s)	1823.3
1838.9			
Delta WS (m)	0.02	Top Width (m)	11.49
11.50			
BR Open Area (m2)	36.55	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	1.03	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.29
2.26			
BR Sel Method	Energy only	Power Total (N/m s)	2.36
2.32			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 22

INPUT

Description:

Station Elevation Data		num= 17	
Sta	Elev	Sta	Elev
9.5526	13.0992	10.164	13.1996
11.4306	13.284	12.6971	13.3051
13.0595	13.4508	14.0363	13.4508
19.6667	9.5267	30.0035	9.5257
35.9241	13.577	36.8875	13.4992
37.0513	13.5065	40.4105	13.4501
40.8499	13.4653	41.4408	13.3441
41.956	13.132		

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
9.5526	.015	14.0363	.015
35.9241	.015		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	14.0363	35.9241		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.93	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.89	Reach Len. (m)	200.00	200.00

200.00			
Crit W.S. (m)		Flow Area (m2)	32.61
E.G. Slope (m/m)	0.000073	Area (m2)	32.61
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	17.20	Top Width (m)	17.20
Vel Total (m/s)	0.83	Avg. Vel. (m/s)	0.83
Max Chl Dpth (m)	2.37	Hydr. Depth (m)	1.90
Conv. Total (m3/s)	3152.6	Conv. (m3/s)	3152.6
Length Wtd. (m)	200.00	Wetted Per. (m)	18.67
Min Ch El (m)	9.53	Shear (N/m2)	1.26
Alpha	1.00	Stream Power (N/m s)	1.04
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	131.61
C & E Loss (m)	0.00	Cum SA (1000 m2)	69.00

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 21

INPUT											
Description:											
Station Elevation Data				num=	13						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.8047	13.1806	10.3863	13.2696	12.5655	13.2501	12.5655	13.3456	13.5297	13.3456		
19.1345	9.5079	29.078	9.507	35.1353	13.622	35.9374	13.622	35.9374	13.5221		
37.509	13.5224	39.1205	13.4325	39.7474	13.3884						
Manning's n Values				num=	3						
Sta	n Val	Sta	n Val	Sta	n Val						
8.8047	.015	13.5297	.015	35.1353	.015						
Bank Sta:	Left	Right	Lengths: Left Channel			Right	Coeff Contr.				
Expan.											
	13.5297	35.1353		200	200	200		.0015		.01	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.91	Element	Left OB	Channel
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Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.88	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		31.81
E.G. Slope (m/m)	0.000078	Area (m2)		31.81
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	16.89	Top Width (m)		16.89
Vel Total (m/s)	0.85	Avg. Vel. (m/s)		0.85
Max Chl Dpth (m)	2.37	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3059.4	Conv. (m3/s)		3059.4
Length Wtd. (m)	200.00	Wetted Per. (m)		18.36
Min Ch El (m)	9.51	Shear (N/m2)		1.32
Alpha	1.00	Stream Power (N/m s)		1.12
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		125.17
C & E Loss (m)	0.00	Cum SA (1000 m2)		65.59

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 20

INPUT

Description:

Station Elevation Data				num=	12
Sta	Elev	Sta	Elev	Sta	Elev
12.0188	13.152	13.3653	13.2126	15.8339	13.2351
22.0312	9.4892	32.5918	9.4882	38.0883	13.3863
41.0556	13.2806	42.7944	13.1821	39.4777	13.3863
				39.4777	13.2849

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
12.0188	.015	16.511	.015	38.0883	.015

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
16.511	38.0883	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.90	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.87	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.14
E.G. Slope (m/m)	0.000070	Area (m2)		33.14
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.32	Top Width (m)		17.32
Vel Total (m/s)	0.81	Avg. Vel. (m/s)		0.81
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.91
Conv. Total (m3/s)	3221.1	Conv. (m3/s)		3221.1
Length Wtd. (m)	200.00	Wetted Per. (m)		18.83
Min Ch El (m)	9.49	Shear (N/m2)		1.21
Alpha	1.00	Stream Power (N/m s)		0.99
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		118.68
C & E Loss (m)	0.00	Cum SA (1000 m2)		62.17

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 19

INPUT

Description: Opera 14

Station Elevation Data				num=	13				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.8283	13.3719	10.5685	13.3517	11.3253	13.2982	11.9598	13.3135	13.2869	13.3246
13.2869	13.4288	14.1591	13.4288	19.8381	9.4705	30.362	9.4695	36.0204	13.5737
37.4246	13.5737	37.4246	13.488	40.8149	13.5846				

Manning's n Values				num=	3				
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9.8283	.015	14.1591	.015	36.0204	.015				

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.
Expan.					
14.1591	36.0204	200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.89	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.85	Reach Len. (m)	25.00	25.00
25.00				
Crit W.S. (m)	10.31	Flow Area (m2)		33.04
E.G. Slope (m/m)	0.000071	Area (m2)		33.04
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.22	Top Width (m)		17.22
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.92
Conv. Total (m3/s)	3214.5	Conv. (m3/s)		3214.5
Length Wtd. (m)	25.00	Wetted Per. (m)		18.75
Min Ch El (m)	9.47	Shear (N/m2)		1.22
Alpha	1.00	Stream Power (N/m s)		1.00
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		112.06
C & E Loss (m)	0.00	Cum SA (1000 m2)		58.71

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
 REACH: Canale SNM RS: 18.5

INPUT

Description: \
 Distance from Upstream XS = 25
 Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
14.13	14.46	12.56	36.05	14.46	12.56

Upstream Bridge Cross Section Data

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.8283	13.3719	10.5685	13.3517	11.3253	13.2982	11.9598	13.3135	13.2869	13.3246
13.2869	13.4288	14.1591	13.4288	19.8381	9.4705	30.362	9.4695	36.0204	13.5737
37.4246	13.5737	37.4246	13.488	40.8149	13.5846				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.8283	.015	14.1591	.015	36.0204	.015

Bank Sta: Left Right Coeff Contr. Expan.

14.1591	36.0204	.0015	.01
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Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
17.43	14.46	12.56	39.39	14.46	12.56

Downstream Bridge Cross Section Data

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.0717	13.1055	14.7704	13.295	15.4462	13.3401	16.7484	13.269	16.7484	13.3418
17.6185	13.3418	23.0939	9.4514	33.5724	9.4504	38.8596	13.1054	39.3908	13.1054
39.3908	13.017	40.5159	13.0433	41.716	12.9756	42.2573	12.908	43.3658	12.8491

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
13.0717	.015	17.6185	.015	38.8596	.015

Bank Sta: Left Right Coeff Contr. Expan.

17.6185	38.8596	.0015	.01
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Upstream Embankment side slope = 1.8 horiz. to 1.0 vertical

Downstream Embankment side slope = 1.8 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Energy head used in spillway design =

Spillway height used in design =

Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev
14.13	12.56	18.45	12.56

Downstream num= 2

Sta	Elev	Sta	Elev
17.43	12.56	21.75	12.56

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
31.45	12.56	36.02	12.56
Downstream	num=	2	
Sta	Elev	Sta	Elev
34.75	12.56	39.35	12.56

Number of Piers = 2

Pier Data

Pier Station	Upstream=	22.35	Downstream=	25.65
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.37	.4	12.56	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.37	.4	12.56	

Pier Data

Pier Station	Upstream=	27.65	Downstream=	30.95
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.37	.4	12.56	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.37	.4	12.56	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.89	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.85	E.G. Elev (m)	11.88
11.88			

Q Total (m3/s)	27.00	W.S. Elev (m)	11.83
11.83			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.35
10.33			
Q Weir (m3/s)		Max Chl Dpth (m)	2.37
2.38			
Weir Sta Lft (m)		Vel Total (m/s)	0.97
0.97			
Weir Sta Rgt (m)		Flow Area (m2)	27.75
27.96			
Weir Submerg		Froude # Chl	0.21
0.20			
Weir Max Depth (m)		Specif Force (m3)	34.52
34.98			
Min El Weir Flow (m)	13.30	Hydr Depth (m)	2.27
2.29			
Min El Prs (m)	12.56	W.P. Total (m)	25.19
25.29			
Delta EG (m)	0.02	Conv. Total (m3/s)	1973.1
1992.8			
Delta WS (m)	0.02	Top Width (m)	12.20
12.20			
BR Open Area (m2)	36.60	Frctn Loss (m)	0.00
0.02			
BR Open Vel (m/s)	0.97	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.02
1.99			
BR Sel Method	Energy only	Power Total (N/m s)	1.97
1.92			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 18

INPUT

Description:

Station Elevation Data				num=	15				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.0717	13.1055	14.7704	13.295	15.4462	13.3401	16.7484	13.269	16.7484	13.3418
17.6185	13.3418	23.0939	9.4514	33.5724	9.4504	38.8596	13.1054	39.3908	13.1054
39.3908	13.017	40.5159	13.0433	41.716	12.9756	42.2573	12.908	43.3658	12.8491

Manning's n Values				num=	3		
Sta	n Val	Sta	n Val	Sta	n Val		
13.0717	.015	17.6185	.015	38.8596	.015		

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
17.6185	38.8596	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.86	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.83	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.99
E.G. Slope (m/m)	0.000071	Area (m2)		32.99
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.27	Top Width (m)		17.27
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.91
Conv. Total (m3/s)	3204.1	Conv. (m3/s)		3204.1
Length Wtd. (m)	200.00	Wetted Per. (m)		18.77
Min Ch El (m)	9.45	Shear (N/m2)		1.22
Alpha	1.00	Stream Power (N/m s)		1.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		105.98
C & E Loss (m)	0.00	Cum SA (1000 m2)		55.78

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 17

INPUT

Description:

Station	Elevation	Data	num=	15
Sta	Elev	Sta	Elev	Sta
Sta	Elev	Sta	Elev	Sta
10.424	13.1058	10.8222	13.1483	12.2475
13.1602	14.3022	13.1175	14.3022	13.2071
14.8326	13.2071	20.4654	9.4323	31.1763
9.4313	36.131	13.2067	36.8224	13.2067
36.8224	13.1602	37.3802	13.22	38.6894
13.2498	40.2636	13.0694	41.1409	12.9015

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
10.424	.015	14.8326	.015	36.131	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	14.8326	36.131		200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.85	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.82	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.51
E.G. Slope (m/m)	0.000068	Area (m2)		33.51
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.40	Top Width (m)		17.40
Vel Total (m/s)	0.81	Avg. Vel. (m/s)		0.81
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.93
Conv. Total (m3/s)	3269.8	Conv. (m3/s)		3269.8
Length Wtd. (m)	200.00	Wetted Per. (m)		18.93
Min Ch El (m)	9.43	Shear (N/m2)		1.18
Alpha	1.00	Stream Power (N/m s)		0.95
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		99.33
C & E Loss (m)	0.00	Cum SA (1000 m2)		52.31

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 16

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.6972	12.9527	13.7064	13.0545	14.3855	12.9942	15.1906	13.1229	15.1906	13.0119
15.7209	13.1229	21.2836	9.4132	31.5976	9.4122	36.868	13.1384	37.4631	13.1255
37.4631	13.1384	37.6778	13.1418	39.7958	13.142	40.1767	13.0198	41.1336	12.9883
41.539	12.904								

Manning's n Values		num=	3
Sta	n Val	Sta	n Val
11.6972	.015	15.7209	.015
		36.868	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	15.7209	36.868		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.84	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.80	Reach Len. (m)	79.00	79.00
79.00				
Crit W.S. (m)	10.26	Flow Area (m2)		32.95
E.G. Slope (m/m)	0.000071	Area (m2)		32.95
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.27	Top Width (m)		17.27
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.91
Conv. Total (m3/s)	3197.8	Conv. (m3/s)		3197.8
Length Wtd. (m)	79.00	Wetted Per. (m)		18.76
Min Ch El (m)	9.41	Shear (N/m2)		1.23
Alpha	1.00	Stream Power (N/m s)		1.01
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		92.68
C & E Loss (m)	0.00	Cum SA (1000 m2)		48.84

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 15.5

INPUT

Description: \

Distance from Upstream XS = 79

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
15.96	16.08	14.43	36.79	16.08	14.43				

Upstream Bridge Cross Section Data

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.6972	12.9527	13.7064	13.0545	14.3855	12.9942	15.1906	13.1229	15.1906	13.0119
15.7209	13.1229	21.2836	9.4132	31.5976	9.4122	36.868	13.1384	37.4631	13.1255
37.4631	13.1384	37.6778	13.1418	39.7958	13.142	40.1767	13.0198	41.1336	12.9883
41.539	12.904								

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.6972	.015	15.7209	.015	36.868	.015

Bank Sta: Left Right Coeff Contr. Expan.

15.7209	36.868	.0015	.01
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Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
17.13	13.76	12.11	37.96	13.76	12.11				

Downstream Bridge Cross Section Data

Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.0258	13.1777	16.1834	13.1676	16.1834	13.2664	16.7151	13.2664	22.1994	9.3941
32.826	9.3931	38.3601	13.1612	39.3258	13.1612	39.3258	13.0469	40.6913	13.008
42.7161	12.8334								

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12.0258	.015	16.7151	.015	38.3601	.015

Bank Sta: Left Right Coeff Contr. Expan.

16.7151	38.3601	.0015	.01
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Upstream Embankment side slope = 1.8 horiz. to 1.0 vertical

Downstream Embankment side slope = 1.8 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2		
Sta	Elev	Sta	Elev	
15.97	14.43	20.33	14.43	
Downstream	num=	2		
Sta	Elev	Sta	Elev	
17.14	12.11	21.49	12.11	

Abutment Data

Upstream	num=	2		
Sta	Elev	Sta	Elev	
32.83	14.43	36.79	14.43	
Downstream	num=	2		
Sta	Elev	Sta	Elev	
33.99	12.11	37.96	12.11	

Number of Piers = 2

Pier Data

Pier Station	Upstream=	23.93	Downstream=	25.09
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.41	.4	14.43	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.39	.4	12.11	

Pier Data

Pier Station	Upstream=	29.22	Downstream=	30.39
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.41	.4	14.43	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.39	.4	12.11	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.84	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.80	E.G. Elev (m)	11.83
11.83			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.77
11.78			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.30
10.26			
Q Weir (m3/s)		Max Chl Dpth (m)	2.36
2.38			
Weir Sta Lft (m)		Vel Total (m/s)	1.01
0.99			
Weir Sta Rgt (m)		Flow Area (m2)	26.80
27.23			
Weir Submerg		Froude # Chl	0.21
0.21			
Weir Max Depth (m)		Specif Force (m3)	33.65
34.55			
Min El Weir Flow (m)	12.91	Hydr Depth (m)	2.29
2.33			
Min El Prs (m)	14.43	W.P. Total (m)	24.84
25.10			
Delta EG (m)	0.02	Conv. Total (m3/s)	1879.4
1916.4			
Delta WS (m)	0.02	Top Width (m)	11.70
11.70			
BR Open Area (m2)	31.14	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	1.01	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.18
2.11			
BR Sel Method	Energy only	Power Total (N/m s)	2.20
2.09			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 15

INPUT

Description:

Station Elevation Data				num=	11				
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.0258	13.1777	16.1834	13.1676	16.1834	13.2664	16.7151	13.2664	22.1994	9.3941
32.826	9.3931	38.3601	13.1612	39.3258	13.1612	39.3258	13.0469	40.6913	13.008
42.7161	12.8334								

Manning's n Values				num=	3
Sta	n Val	Sta	n Val	Sta	n Val
12.0258	.015	16.7151	.015	38.3601	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	16.7151	38.3601		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.81	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.78	Reach Len. (m)	164.00	164.00
164.00				
Crit W.S. (m)	10.23	Flow Area (m2)		33.57
E.G. Slope (m/m)	0.000068	Area (m2)		33.57
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.51	Top Width (m)		17.51
Vel Total (m/s)	0.80	Avg. Vel. (m/s)		0.80
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.92
Conv. Total (m3/s)	3270.4	Conv. (m3/s)		3270.4
Length Wtd. (m)	164.00	Wetted Per. (m)		19.00
Min Ch El (m)	9.39	Shear (N/m2)		1.18
Alpha	1.00	Stream Power (N/m s)		0.95
Frctn Loss (m)	0.02	Cum Volume (1000 m3)		86.66
C & E Loss (m)	0.00	Cum SA (1000 m2)		45.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 14.5

INPUT

Description:

Distance from Upstream XS = 164

Deck/Roadway Width = 4

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
13.87	14.05	12.7	41.95	14.05	12.7

Upstream Bridge Cross Section Data

Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.0258	13.1777	16.1834	13.1676	16.1834	13.2664	16.7151	13.2664	22.1994	9.3941
32.826	9.3931	38.3601	13.1612	39.3258	13.1612	39.3258	13.0469	40.6913	13.008
42.7161	12.8334								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12.0258	.015	16.7151	.015	38.3601	.015

Bank Sta: Left Right Coeff Contr. Expan.

16.7151	38.3601	.0015	.01
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Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
13.87	14.05	12.7	41.95	14.05	12.7

Downstream Bridge Cross Section Data

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.5336	12.964	13.5937	13.1716	14.7938	13.1271	16.2829	13.044	16.2829	13.116
16.8132	13.116	22.4238	9.375	32.6979	9.374	38.3187	13.1214	38.849	13.1214
38.849	13.0128	40.5546	12.9834	41.2584	12.8304	42.3447	12.7616		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.5336	.015	16.8132	.015	38.3187	.015

Bank Sta: Left Right Coeff Contr. Expan.

16.8132	38.3187	.0015	.01
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Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =
 Energy head used in spillway design =
 Spillway height used in design =
 Weir crest shape = Broad Crested

Number of Piers = 2

Pier Data

Pier Station	Upstream=	24.48	Downstream=	24.48
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.39	.5	12.7	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.39	.5	12.7	

Pier Data

Pier Station	Upstream=	31.68	Downstream=	31.68
Upstream	num=	2		
Width	Elev	Width	Elev	
.5	9.39	.5	12.7	
Downstream	num=	2		
Width	Elev	Width	Elev	
.5	9.39	.5	12.7	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth

inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.81	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.78	E.G. Elev (m)	11.80
11.80			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.76
11.76			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.28
10.28			
Q Weir (m3/s)		Max Chl Dpth (m)	2.36
2.38			

Weir Sta Lft (m)		Vel Total (m/s)	0.88
0.88			
Weir Sta Rgt (m)		Flow Area (m2)	30.82
30.60			
Weir Submerg		Froude # Ch1	0.20
0.21			
Weir Max Depth (m)		Specif Force (m3)	35.67
35.50			
Min El Weir Flow (m)	12.84	Hydr Depth (m)	1.87
1.86			
Min El Prs (m)	12.70	W.P. Total (m)	27.38
27.39			
Delta EG (m)	0.02	Conv. Total (m3/s)	2223.3
2196.6			
Delta WS (m)	0.02	Top Width (m)	16.45
16.42			
BR Open Area (m2)	47.43	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.88	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.63
1.66			
BR Sel Method	Energy only	Power Total (N/m s)	1.43
1.46			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 14

INPUT

Description:

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.5336	12.964	13.5937	13.1716	14.7938	13.1271	16.2829	13.044	16.2829	13.116
16.8132	13.116	22.4238	9.375	32.6979	9.374	38.3187	13.1214	38.849	13.1214
38.849	13.0128	40.5546	12.9834	41.2584	12.8304	42.3447	12.7616		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.5336	.015	16.8132	.015	38.3187	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							

16.8132	38.3187	150	150	150	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.79	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.76	Reach Len. (m)	150.00	150.00
150.00				
Crit W.S. (m)		Flow Area (m2)		33.02
E.G. Slope (m/m)	0.000071	Area (m2)		33.02
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.43	Top Width (m)		17.43
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.89
Conv. Total (m3/s)	3197.1	Conv. (m3/s)		3197.1
Length Wtd. (m)	150.00	Wetted Per. (m)		18.87
Min Ch El (m)	9.37	Shear (N/m2)		1.22
Alpha	1.00	Stream Power (N/m s)		1.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		80.24
C & E Loss (m)	0.00	Cum SA (1000 m2)		42.55

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 13

INPUT

Description:

Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.8181	12.946	14.2061	13.0492	15.427	13.1039	15.9317	13.0936	15.9317	13.1835
17.2789	13.1835	22.7393	9.3616	33.1978	9.3611	38.7497	13.1201	39.5355	13.1201
39.5355	13.0299	42.8082	12.8908						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12.8181	.015	17.2789	.015	38.7497	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.

Expan.	17.2789	38.7497	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.78	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.75	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.25
E.G. Slope (m/m)	0.000070	Area (m2)		33.25
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.40	Top Width (m)		17.40
Vel Total (m/s)	0.81	Avg. Vel. (m/s)		0.81
Max Chl Dpth (m)	2.39	Hydr. Depth (m)		1.91
Conv. Total (m3/s)	3232.4	Conv. (m3/s)		3232.4
Length Wtd. (m)	200.00	Wetted Per. (m)		18.88
Min Ch El (m)	9.36	Shear (N/m2)		1.20
Alpha	1.00	Stream Power (N/m s)		0.98
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		75.27
C & E Loss (m)	0.00	Cum SA (1000 m2)		39.94

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 12

INPUT

Description:

Station Elevation Data	num=	13
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
13.2008 12.7565 13.8768 12.8396 17.5219 12.9368 17.5219 13.0501 18.0529 13.0501		
23.4604 9.3519 33.8358 9.3514 39.3842 13.1249 40.1886 13.1249 40.1886 13.0251		
41.1404 13.0254 41.9815 12.892 43.2053 12.7412		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
13.2008	.015	18.0529	.015	39.3842	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.	18.0529	39.3842		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.77	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.73	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.04
E.G. Slope (m/m)	0.000071	Area (m2)		33.04
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.36	Top Width (m)		17.36
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.90
Conv. Total (m3/s)	3204.7	Conv. (m3/s)		3204.7
Length Wtd. (m)	200.00	Wetted Per. (m)		18.83
Min Ch El (m)	9.35	Shear (N/m2)		1.22
Alpha	1.00	Stream Power (N/m s)		1.00
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		68.64
C & E Loss (m)	0.00	Cum SA (1000 m2)		36.47

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 11

INPUT

Description:

Station	Elevation	Data	num=	15					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.2173	12.8045	13.0207	13.0146	14.5873	13.0467	15.2657	13.0353	15.2657	13.127

16.5453	13.127	22.1085	9.3422	32.4568	9.3417	37.9623	13.0338	38.4927	13.0338
38.4927	12.9521	38.8896	12.9666	40.0712	12.9666	41.2382	12.9146	41.778	12.8146

Manning's n Values			num= 3		
Sta	n Val	Sta	n Val	Sta	n Val
11.2173	.015	16.5453	.015	37.9623	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	16.5453	37.9623		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.75	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.72	Reach Len. (m)	54.70	54.70
54.70				
Crit W.S. (m)	10.19	Flow Area (m2)		32.98
E.G. Slope (m/m)	0.000072	Area (m2)		32.98
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.39	Top Width (m)		17.39
Vel Total (m/s)	0.82	Avg. Vel. (m/s)		0.82
Max Chl Dpth (m)	2.38	Hydr. Depth (m)		1.90
Conv. Total (m3/s)	3192.4	Conv. (m3/s)		3192.4
Length Wtd. (m)	54.70	Wetted Per. (m)		18.84
Min Ch El (m)	9.34	Shear (N/m2)		1.23
Alpha	1.00	Stream Power (N/m s)		1.01
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		62.04
C & E Loss (m)	0.00	Cum SA (1000 m2)		32.99

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
REACH: Canale SNM RS: 10.5

INPUT

Description:

Distance from Upstream XS = 54.7

Deck/Roadway Width = 4

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
16.48	14.12	12.38	38.03	14.12	12.38				

Upstream Bridge Cross Section Data

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.2173	12.8045	13.0207	13.0146	14.5873	13.0467	15.2657	13.0353	15.2657	13.127
16.5453	13.127	22.1085	9.3422	32.4568	9.3417	37.9623	13.0338	38.4927	13.0338
38.4927	12.9521	38.8896	12.9666	40.0712	12.9666	41.2382	12.9146	41.778	12.8146

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.2173	.015	16.5453	.015	37.9623	.015

Bank	Sta: Left	Right	Coeff	Contr.	Expan.
	16.5453	37.9623	.0015	.01	

Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
16.4	14.2	12.38	37.95	14.2	12.38				

Downstream Bridge Cross Section Data

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.2406	12.7458	12.3129	12.9484	14.5562	13.0021	16.1558	12.9612	16.1558	13.0485
16.6872	13.0485	22.0135	9.3324	32.3876	9.3319	38.0831	13.2409	38.5647	13.2409
38.5647	13.1565	39.9559	13.1998	42.3096	13.1153				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.2406	.015	16.6872	.015	38.0831	.015

Bank	Sta: Left	Right	Coeff	Contr.	Expan.
	16.6872	38.0831	.0015	.01	

Upstream Embankment side slope	=	0 horiz. to 1.0 vertical
Downstream Embankment side slope	=	0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream	num=	2		
Sta	Elev	Sta	Elev	
16.48	12.38	21.15	12.38	
Downstream	num=	2		
Sta	Elev	Sta	Elev	
16.4	12.38	21.07	12.38	

Abutment Data

Upstream	num=	2		
Sta	Elev	Sta	Elev	
33.65	12.38	38.03	12.38	
Downstream	num=	2		
Sta	Elev	Sta	Elev	
33.57	12.38	37.95	12.38	

Number of Piers = 2

Pier Data

Pier Station	Upstream=	24.8	Downstream=	24.72
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.34	.4	12.38	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.34	.4	12.38	

Pier Data

Pier Station	Upstream=	30	Downstream=	29.92
Upstream	num=	2		
Width	Elev	Width	Elev	
.4	9.34	.4	12.38	
Downstream	num=	2		
Width	Elev	Width	Elev	
.4	9.34	.4	12.38	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.75	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.72	E.G. Elev (m)	11.75
11.75			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.70
11.70			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.22
10.21			
Q Weir (m3/s)		Max Chl Dpth (m)	2.35
2.36			
Weir Sta Lft (m)		Vel Total (m/s)	1.01
1.01			
Weir Sta Rgt (m)		Flow Area (m2)	26.75
26.86			
Weir Submerg		Froude # Chl	0.21
0.21			
Weir Max Depth (m)		Specif Force (m3)	33.52
33.77			
Min El Weir Flow (m)	12.81	Hydr Depth (m)	2.29
2.30			
Min El Prs (m)	12.38	W.P. Total (m)	24.81
24.87			
Delta EG (m)	0.02	Conv. Total (m3/s)	1874.8
1885.1			
Delta WS (m)	0.02	Top Width (m)	11.70
11.70			
BR Open Area (m2)	34.76	Frctn Loss (m)	0.00
0.02			
BR Open Vel (m/s)	1.01	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	2.19
2.17			
BR Sel Method	Energy only	Power Total (N/m s)	2.21
2.18			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 10

INPUT

Description:

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-----	------	-----	------	-----	------	-----	------	-----	------

11.2406 12.7458 12.3129 12.9484 14.5562 13.0021 16.1558 12.9612 16.1558 13.0485
 16.6872 13.0485 22.0135 9.3324 32.3876 9.3319 38.0831 13.2409 38.5647 13.2409
 38.5647 13.1565 39.9559 13.1998 42.3096 13.1153

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 11.2406 .015 16.6872 .015 38.0831 .015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.
 Expan. 16.6872 38.0831 200 200 200 .0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.73	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.70	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.59
E.G. Slope (m/m)	0.000074	Area (m2)		32.59
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.20	Top Width (m)		17.20
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83
Max Chl Dpth (m)	2.36	Hydr. Depth (m)		1.89
Conv. Total (m3/s)	3148.5	Conv. (m3/s)		3148.5
Length Wtd. (m)	200.00	Wetted Per. (m)		18.68
Min Ch El (m)	9.33	Shear (N/m2)		1.26
Alpha	1.00	Stream Power (N/m s)		1.04
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		56.10
C & E Loss (m)	0.00	Cum SA (1000 m2)		30.11

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 9

INPUT

Description:

Station Elevation Data	num=	13
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
11.4314 13.018 13.3335 13.1326 14.7253 13.0874 14.7253 13.1712 16.3368 13.1712		
21.5587 9.3227 32.0415 9.3222 37.6211 13.1247 38.1519 13.1247 38.1519 13.0524		
39.4008 13.1217 40.5583 13.0678 42.1715 13.0078		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
11.4314 .015 16.3368 .015 37.6211 .015		

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr.
Expan.		
16.3368 37.6211	200 200 200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.72	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.68	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.57
E.G. Slope (m/m)	0.000073	Area (m2)		32.57
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.14	Top Width (m)		17.14
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83
Max Chl Dpth (m)	2.36	Hydr. Depth (m)		1.90
Conv. Total (m3/s)	3149.9	Conv. (m3/s)		3149.9
Length Wtd. (m)	200.00	Wetted Per. (m)		18.65
Min Ch El (m)	9.32	Shear (N/m2)		1.26
Alpha	1.00	Stream Power (N/m s)		1.04
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		49.58
C & E Loss (m)	0.00	Cum SA (1000 m2)		26.67

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 8

INPUT

Description:

Station Elevation Data	num=	15
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
11.8418 13.0138 13.8341 13.1333 14.6952 13.1055 15.3898 13.0934 15.3898 13.1847		
16.5736 13.1847 22.1881 9.32 32.5897 9.32 38.0561 13.0954 38.5872 13.0954		
38.5872 13.0121 39.4886 13.0422 40.5613 13.0218 41.2261 12.9264 42.0612 12.8908		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
11.8418 .015 16.5736 .015 38.0561 .015		

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr.
Expan.		
16.5736 38.0561	200 200 200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.70	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.67	Reach Len. (m)	96.30	96.30
96.30				
Crit W.S. (m)	10.16	Flow Area (m2)		32.38
E.G. Slope (m/m)	0.000075	Area (m2)		32.38
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.20	Top Width (m)		17.20
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83
Max Chl Dpth (m)	2.35	Hydr. Depth (m)		1.88
Conv. Total (m3/s)	3115.8	Conv. (m3/s)		3115.8
Length Wtd. (m)	96.30	Wetted Per. (m)		18.67
Min Ch El (m)	9.32	Shear (N/m2)		1.28
Alpha	1.00	Stream Power (N/m s)		1.07
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		43.09
C & E Loss (m)	0.00	Cum SA (1000 m2)		23.24

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 7.5

INPUT

Description: \

Distance from Upstream XS = 96.3

Deck/Roadway Width = 5

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
14.79	14.96	12.89	39.44	14.96	12.89				

Upstream Bridge Cross Section Data

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.8418	13.0138	13.8341	13.1333	14.6952	13.1055	15.3898	13.0934	15.3898	13.1847
16.5736	13.1847	22.1881	9.32	32.5897	9.32	38.0561	13.0954	38.5872	13.0954
38.5872	13.0121	39.4886	13.0422	40.5613	13.0218	41.2261	12.9264	42.0612	12.8908

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.8418	.015	16.5736	.015	38.0561	.015

Bank Sta: Left Right Coeff Contr. Expan.

16.5736	38.0561	.0015	.01
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Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
12.37	14.96	12.88	36.84	14.96	12.88				

Downstream Bridge Cross Section Data

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.7498	12.7358	11.6644	12.9223	12.4735	12.8869	13.5914	12.8773	13.5914	12.9729
14.1212	12.9729	19.7066	9.32	29.8828	9.32	35.4243	12.9723	35.9543	12.9723
35.9543	12.8776	37.037	12.889	37.6584	12.9258	38.1783	12.9391	38.569	12.8322
40.1499	12.758								

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.7498	.015	14.1212	.015	35.4243	.015

Bank Sta: Left Right Coeff Contr. Expan.

14.1212	35.4243	.0015	.01
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Upstream Embankment side slope = 1.8 horiz. to 1.0 vertical

Downstream Embankment side slope = 1.8 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins =
 Energy head used in spillway design =
 Spillway height used in design =
 Weir crest shape = Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2
 Sta Elev Sta Elev
 14.97 12.89 20.39 12.89
 Downstream num= 2
 Sta Elev Sta Elev
 12.37 12.89 17.79 12.89

Abutment Data

Upstream num= 2
 Sta Elev Sta Elev
 34.17 12.89 39.44 12.89
 Downstream num= 2
 Sta Elev Sta Elev
 31.57 12.89 36.84 12.89

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy
 Selected Low Flow Methods = Highest Energy Answer

High Flow Method
 Energy Only

Additional Bridge Parameters

Add Friction component to Momentum
 Do not add Weight component to Momentum
 Class B flow critical depth computations use critical depth
 inside the bridge at the upstream end
 Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.70	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.67	E.G. Elev (m)	11.69
11.69			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.65
11.65			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.17
10.18			
Q Weir (m3/s)		Max Chl Dpth (m)	2.33
2.33			
Weir Sta Lft (m)		Vel Total (m/s)	0.90

0.90			
Weir Sta Rgt (m)		Flow Area (m2)	30.17
29.99			
Weir Submerg		Froude # Ch1	0.19
0.19			
Weir Max Depth (m)		Specif Force (m3)	36.12
35.80			
Min El Weir Flow (m)	12.89	Hydr Depth (m)	2.19
2.18			
Min El Prs (m)	12.89	W.P. Total (m)	16.84
16.78			
Delta EG (m)	0.02	Conv. Total (m3/s)	2966.4
2944.1			
Delta WS (m)	0.02	Top Width (m)	13.78
13.78			
BR Open Area (m2)	46.92	Frctn Loss (m)	0.00
0.01			
BR Open Vel (m/s)	0.90	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.46
1.47			
BR Sel Method	Energy only	Power Total (N/m s)	1.30
1.33			

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 7

INPUT

Description:

Station Elevation Data		num= 16	
Sta	Elev	Sta	Elev
9.7498	12.7358	11.6644	12.9223
12.4735	12.8869	13.5914	12.8773
13.5914	12.9729	12.9723	35.9543
12.9723	35.9543	12.9723	35.9543
35.9543	12.8776	37.037	12.889
37.037	12.889	37.6584	12.9258
12.9258	38.1783	12.9391	38.569
38.569	12.8322	40.1499	12.758

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
9.7498	.015	14.1212	.015
35.4243	.015		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	14.1212	35.4243		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.68	Element	Left OB	Channel
Right OB				

Vel Head (m)	0.04	Wt. n-Val.	0.015
W.S. Elev (m)	11.65	Reach Len. (m)	200.00
200.00			
Crit W.S. (m)		Flow Area (m2)	31.95
E.G. Slope (m/m)	0.000078	Area (m2)	31.95
Q Total (m3/s)	27.00	Flow (m3/s)	27.00
Top Width (m)	17.27	Top Width (m)	17.27
Vel Total (m/s)	0.84	Avg. Vel. (m/s)	0.84
Max Chl Dpth (m)	2.33	Hydr. Depth (m)	1.85
Conv. Total (m3/s)	3048.8	Conv. (m3/s)	3048.8
Length Wtd. (m)	200.00	Wetted Per. (m)	18.66
Min Ch El (m)	9.32	Shear (N/m2)	1.32
Alpha	1.00	Stream Power (N/m s)	1.11
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	36.87
C & E Loss (m)	0.00	Cum SA (1000 m2)	20.15

CROSS SECTION

RIVER: SNM

REACH: Canale SNM RS: 6

INPUT

Description:

Station	Elevation	Data	num=	13					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.7833	12.6581	11.0506	12.9745	13.2912	12.9007	13.2912	12.9842	13.8227	12.9842
19.0623	9.32	29.7828	9.32	34.8601	12.8846	35.3917	12.8846	35.3917	12.7846
36.1799	12.7846	37.5157	12.7906	39.6586	12.6524				

Manning's n	Values	num=	3		
Sta	n Val	Sta	n Val	Sta	n Val
8.7833	.015	13.8227	.015	34.8601	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
Expan.								
	13.8227	34.8601		200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.67	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.63	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		32.45
E.G. Slope (m/m)	0.000075	Area (m2)		32.45
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.33	Top Width (m)		17.33
Vel Total (m/s)	0.83	Avg. Vel. (m/s)		0.83
Max Chl Dpth (m)	2.31	Hydr. Depth (m)		1.87
Conv. Total (m3/s)	3114.8	Conv. (m3/s)		3114.8
Length Wtd. (m)	200.00	Wetted Per. (m)		18.79
Min Ch El (m)	9.32	Shear (N/m2)		1.27
Alpha	1.00	Stream Power (N/m s)		1.06
Frctn Loss (m)	0.02	Cum Volume (1000 m3)		30.43
C & E Loss (m)	0.00	Cum SA (1000 m2)		16.69

CROSS SECTION

RIVER: SNM

REACH: Canale SNM

RS: 5

INPUT

Description:

Station Elevation Data		num=		14					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.9983	12.7591	10.1522	13.0405	12.0764	13.0257	12.0764	13.1218	12.713	13.1218
18.3892	9.32	29.0079	9.32	34.4788	13.0628	34.9253	13.0628	34.9253	12.9754
36.5793	13.0174	37.5384	12.8876	38.2379	12.8443	38.6366	12.734		

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.9983	.015	12.713	.015	34.4788	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr.

Expan.	12.713	34.4788	200	200	200	.0015	.01
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.65	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.62	Reach Len. (m)	41.35	41.35
41.35				
Crit W.S. (m)	10.15	Flow Area (m2)		32.21
E.G. Slope (m/m)	0.000077	Area (m2)		32.21
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.41	Top Width (m)		17.41
Vel Total (m/s)	0.84	Avg. Vel. (m/s)		0.84
Max Chl Dpth (m)	2.30	Hydr. Depth (m)		1.85
Conv. Total (m3/s)	3072.5	Conv. (m3/s)		3072.5
Length Wtd. (m)	41.35	Wetted Per. (m)		18.82
Min Ch El (m)	9.32	Shear (N/m2)		1.30
Alpha	1.00	Stream Power (N/m s)		1.09
Frctn Loss (m)	0.01	Cum Volume (1000 m3)		23.96
C & E Loss (m)	0.00	Cum SA (1000 m2)		13.21

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

BRIDGE

RIVER: SNM
 REACH: Canale SNM RS: 4.5

INPUT

Description:
 Distance from Upstream XS = 41.35
 Deck/Roadway Width = 4
 Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
12.62	12.8	11.45	34.31	12.8	11.45				

Upstream Bridge Cross Section Data

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.9983	12.7591	10.1522	13.0405	12.0764	13.0257	12.0764	13.1218	12.713	13.1218
18.3892	9.32	29.0079	9.32	34.4788	13.0628	34.9253	13.0628	34.9253	12.9754
36.5793	13.0174	37.5384	12.8876	38.2379	12.8443	38.6366	12.734		

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.9983	.015	12.713	.015	34.4788	.015

Bank	Sta:	Left	Right	Coeff	Contr.	Expan.
	12.713	34.4788		.0015		.01

Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
16.03	12.8	11.45	37.73	12.8	11.45				

Downstream Bridge Cross Section Data

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.1118	12.9705	12.7088	13.0584	12.7088	13.168	12.9746	13.168	16.3034	11.0775
19.3141	10.914	21.3659	9.32	27.0916	9.32	32.5808	9.32	38.2358	13.2282
39.2679	13.2282	39.2679	13.1004	39.4888	13.0881	40.9332	13.1703	42.5608	13.0422
43.5536	12.919								

Manning's n Values

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.1118	.015	12.9746	.015	38.2358	.015

Bank	Sta:	Left	Right	Coeff	Contr.	Expan.
	12.9746	38.2358		.1		.3

Upstream Embankment side slope	=	0 horiz. to 1.0 vertical
Downstream Embankment side slope	=	0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow	=	.98
Elevation at which weir flow begins	=	
Energy head used in spillway design	=	
Spillway height used in design	=	
Weir crest shape	=	Broad Crested

Number of Abutments = 2

Abutment Data

Upstream num= 2

Sta	Elev	Sta	Elev
12.63	11.45	19.59	11.45

Downstream num= 2

Sta	Elev	Sta	Elev
16.03	11.45	23.01	11.45

Abutment Data

Upstream	num=	2	
Sta	Elev	Sta	Elev
27.74	11.45	34.31	11.45
Downstream	num=	2	
Sta	Elev	Sta	Elev
31.16	11.45	37.73	11.45

Number of Piers = 1

Pier Data

Pier Station	Upstream=	23.67	Downstream=	27.09
Upstream	num=	2		
Width	Elev	Width	Elev	
.35	9.32	.35	11.45	
Downstream	num=	2		
Width	Elev	Width	Elev	
.35	9.32	.35	11.45	

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.65	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.62	E.G. Elev (m)	11.65
11.64			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.51
11.51			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.39
10.39			
Q Weir (m3/s)		Max Chl Dpth (m)	2.19
2.19			
Weir Sta Lft (m)		Vel Total (m/s)	1.62
1.62			
Weir Sta Rgt (m)		Flow Area (m2)	16.62

16.67	Weir Submerg		Froude # Ch1	0.35
0.35	Weir Max Depth (m)		Specif Force (m3)	23.19
23.13	Min El Weir Flow (m)	12.74	Hydr Depth (m)	
	Min El Prs (m)	11.45	W.P. Total (m)	24.12
24.87	Delta EG (m)	0.04	Conv. Total (m3/s)	864.0
851.2	Delta WS (m)	0.04	Top Width (m)	
0.41	BR Open Area (m2)	16.62	Frctn Loss (m)	0.00
0.03	BR Open Vel (m/s)	1.62	C & E Loss (m)	0.00
0.00	BR Sluice Coef		Shear Total (N/m2)	6.60
6.61	BR Sel Method	Energy only	Power Total (N/m s)	10.72
10.71				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 4.4

INPUT

Description:

Station Elevation Data	num=	16
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
8.1118 12.9705 12.7088 13.0584 12.7088 13.168 12.9746 13.168 16.3034 11.0775		
19.3141 10.914 21.3659 9.32 27.0916 9.32 32.5808 9.32 38.2358 13.2282		
39.2679 13.2282 39.2679 13.1004 39.4888 13.0881 40.9332 13.1703 42.5608 13.0422		
43.5536 12.919		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
8.1118 .015 12.9746 .015 38.2358 .015		

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.
Expan.						
12.9746	38.2358	30	30	30	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.58	Reach Len. (m)	5.00	5.00
5.00				
Crit W.S. (m)	10.13	Flow Area (m2)		33.99
E.G. Slope (m/m)	0.000078	Area (m2)		33.99
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	20.35	Top Width (m)		20.35
Vel Total (m/s)	0.79	Avg. Vel. (m/s)		0.79
Max Chl Dpth (m)	2.26	Hydr. Depth (m)		1.67
Conv. Total (m3/s)	3052.3	Conv. (m3/s)		3052.3
Length Wtd. (m)	5.00	Wetted Per. (m)		21.75
Min Ch El (m)	9.32	Shear (N/m2)		1.20
Alpha	1.00	Stream Power (N/m s)		0.95
Frctn Loss (m)	0.00	Cum Volume (1000 m3)		18.97
C & E Loss (m)	0.00	Cum SA (1000 m2)		11.25

BRIDGE

RIVER: SNM

REACH: Canale SNM RS: 4.3

INPUT

Description:

Distance from Upstream XS = 5

Deck/Roadway Width = 4

Weir Coefficient = 1.4

Upstream Deck/Roadway Coordinates

num= 2

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
15.36	13.5	12.65	38.91	13.5	12.65				

Upstream Bridge Cross Section Data

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.1118	12.9705	12.7088	13.0584	12.7088	13.168	12.9746	13.168	16.3034	11.0775
19.3141	10.914	21.3659	9.32	27.0916	9.32	32.5808	9.32	38.2358	13.2282

39.2679 13.2282 39.2679 13.1004 39.4888 13.0881 40.9332 13.1703 42.5608 13.0422
43.5536 12.919

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
8.1118 .015 12.9746 .015 38.2358 .015

Bank Sta: Left Right Coeff Contr. Expan.
12.9746 38.2358 .1 .3

Downstream Deck/Roadway Coordinates
num= 2
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
15.36 13.5 12.65 38.91 13.5 12.65

Downstream Bridge Cross Section Data
Station Elevation Data num= 16
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
8.1118 12.9705 12.7088 13.0584 12.7088 13.168 12.9746 13.168 16.3034 11.0775
19.3141 10.914 21.3659 9.32 27.0916 9.32 32.5808 9.32 38.2358 13.2282
39.2679 13.2282 39.2679 13.1004 39.4888 13.0881 40.9332 13.1703 42.5608 13.0422
43.5536 12.919

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
8.1118 .015 12.9746 .015 38.2358 .015

Bank Sta: Left Right Coeff Contr. Expan.
12.9746 38.2358 .0015 .01

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Piers = 2

Pier Data
Pier Station Upstream= 23.11 Downstream= 23.11
Upstream num= 2
Width Elev Width Elev
.5 9.22 .5 12.65
Downstream num= 2
Width Elev Width Elev
.5 9.22 .5 12.65

Pier Data
Pier Station Upstream= 31.11 Downstream= 31.11
Upstream num= 2
Width Elev Width Elev
.5 9.22 .5 12.65

Downstream	num=	2
Width	Elev	Width Elev
.5	9.22	.5 12.65

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (m)	11.61	Element	Inside BR US
Inside BR DS			
W.S. US. (m)	11.58	E.G. Elev (m)	11.61
11.61			
Q Total (m3/s)	27.00	W.S. Elev (m)	11.57
11.57			
Q Bridge (m3/s)	27.00	Crit W.S. (m)	10.18
10.18			
Q Weir (m3/s)		Max Chl Dpth (m)	2.25
2.25			
Weir Sta Lft (m)		Vel Total (m/s)	0.85
0.85			
Weir Sta Rgt (m)		Flow Area (m2)	31.62
31.60			
Weir Submerg		Froude # Chl	0.21
0.21			
Weir Max Depth (m)		Specif Force (m3)	33.98
33.96			
Min El Weir Flow (m)	11.67	Hydr Depth (m)	1.64
1.64			
Min El Prs (m)	12.65	W.P. Total (m)	29.74
29.73			
Delta EG (m)	0.01	Conv. Total (m3/s)	2195.6
2194.5			
Delta WS (m)	0.01	Top Width (m)	19.33
19.33			
BR Open Area (m2)	53.42	Frctn Loss (m)	0.00
0.00			
BR Open Vel (m/s)	0.85	C & E Loss (m)	0.00
0.00			
BR Sluice Coef		Shear Total (N/m2)	1.58

1.58			
BR Sel Method	Energy only	Power Total (N/m s)	1.35
1.35			

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 4

INPUT
 Description:
 Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.1118	12.9705	12.7088	13.0584	12.7088	13.168	12.9746	13.168	16.3034	11.0775
19.3141	10.914	21.3659	9.32	27.0916	9.32	32.5808	9.32	38.2358	13.2282
39.2679	13.2282	39.2679	13.1004	39.4888	13.0881	40.9332	13.1703	42.5608	13.0422
43.5536	12.919								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.1118	.015	12.9746	.015	38.2358	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	12.9746	38.2358		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.61	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.03	Wt. n-Val.		0.015
W.S. Elev (m)	11.57	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		33.88
E.G. Slope (m/m)	0.000079	Area (m2)		33.88
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	20.33	Top Width (m)		20.33
Vel Total (m/s)	0.80	Avg. Vel. (m/s)		0.80
Max Chl Dpth (m)	2.25	Hydr. Depth (m)		1.67
Conv. Total (m3/s)	3037.2	Conv. (m3/s)		3037.2
Length Wtd. (m)	200.00	Wetted Per. (m)		21.73

Min Ch El (m)	9.32	Shear (N/m2)	1.21
Alpha	1.00	Stream Power (N/m s)	0.96
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	17.99
C & E Loss (m)	0.00	Cum SA (1000 m2)	10.65

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 3

INPUT									
Description:									
Station Elevation Data			num=	14					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14.2626	13.0101	15.989	13.1109	18.0082	13.1186	18.0082	13.2205	18.9389	13.2205
24.5738	9.32	35.585	9.32	40.8783	13.1142	41.5161	13.1142	41.5161	13.0186
41.945	13.0223	42.7315	12.9791	43.895	12.9357	45.7495	12.7625		
Manning's n Values			num=	3					
Sta	n Val	Sta	n Val	Sta	n Val				
14.2626	.015	18.9389	.015	40.8783	.015				
Bank Sta:	Left	Right	Lengths:		Left Channel	Right	Coeff Contr.		
Expan.									
	18.9389	40.8783		200	200	200		.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.59	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.55	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)		Flow Area (m2)		31.67
E.G. Slope (m/m)	0.000081	Area (m2)		31.67
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.35	Top Width (m)		17.35
Vel Total (m/s)	0.85	Avg. Vel. (m/s)		0.85
Max Chl Dpth (m)	2.23	Hydr. Depth (m)		1.83

Conv. Total (m3/s)	2992.9	Conv. (m3/s)	2992.9
Length Wtd. (m)	200.00	Wetted Per. (m)	18.77
Min Ch El (m)	9.32	Shear (N/m2)	1.35
Alpha	1.00	Stream Power (N/m s)	1.15
Frctn Loss (m)	0.02	Cum Volume (1000 m3)	11.43
C & E Loss (m)	0.00	Cum SA (1000 m2)	6.89

CROSS SECTION

RIVER: SNM
REACH: Canale SNM RS: 2

INPUT

Description:

Station Elevation Data		num=		11					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.1446	13.0105	13.0049	12.9897	13.3015	12.9858	13.3015	13.0792	14.2518	13.0792
19.4432	9.32	30.5881	9.32	36.0951	13.2235	36.9325	13.2235	36.9325	13.1429
37.3196	13.1679								

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
11.1446	.015	14.2518	.015	36.0951	.015

Bank Sta:	Left	Right	Lengths: Left Channel		Right	Coeff Contr.	
Expan.							
	14.2518	36.0951	200	200	200	.0015	.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.57	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.54	Reach Len. (m)	200.00	200.00
200.00				
Crit W.S. (m)	10.13	Flow Area (m2)		31.56
E.G. Slope (m/m)	0.000082	Area (m2)		31.56
Q Total (m3/s)	27.00	Flow (m3/s)		27.00
Top Width (m)	17.33	Top Width (m)		17.33

Vel Total (m/s)	0.86	Avg. Vel. (m/s)	0.86
Max Chl Dpth (m)	2.22	Hydr. Depth (m)	1.82
Conv. Total (m3/s)	2976.8	Conv. (m3/s)	2976.8
Length Wtd. (m)	200.00	Wetted Per. (m)	18.76
Min Ch El (m)	9.32	Shear (N/m2)	1.36
Alpha	1.00	Stream Power (N/m s)	1.16
Frctn Loss (m)		Cum Volume (1000 m3)	5.11
C & E Loss (m)		Cum SA (1000 m2)	3.42

INLINE STRUCTURE

RIVER: SNM
 REACH: Canale SNM RS: 1.5

INPUT

Description:
 Distance from Upstream XS = 150
 Deck/Roadway Width = 4
 Weir Coefficient = 1.4
 Weir Embankment Coordinates num = 2
 Sta Elev Sta Elev
 13.47 13.76 36.48 13.76

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins =
 Weir crest shape = Broad Crested

INLINE STRUCTURE GATE Gate #1
 Height = 4
 Width = 3
 Invert = 9.32
 Gate Type = Sluice Slice Coefficient = .6
 Weir Coefficient = 1.67
 Weir crest shape = Broad Crested
 Number of Gate Openings = 3
 Sta Sta Sta
 21.58 25.04 28.38

INLINE STRUCTURE OUTPUT Profile #PF 1 Gate Group: Gate #1

E.G. Elev (m)	11.57	Weir Sta Lft (m)	
W.S. Elev (m)	11.54	Weir Sta Rgt (m)	
Q Total (m3/s)	27.00	Min El Weir Flow (m)	12.99
Q Weir (m3/s)		Wr Top Wdth (m)	
Q Gates (m3/s)	27.00	Weir Max Depth (m)	
Q Culv (m3/s)		Weir Avg Depth (m)	
Q Inline RC (m3/s)		Weir Flow Area (m2)	
Q Outlet TS (m3/s)		Weir Coef (m ^{1/2})	
Q Breach (m3/s)	0.00	Weir Submerg	
Breach Avg Velocity (m/s)	0.00	Q Gate Group (m3/s)	27.00
Breach Flow Area (m2)	0.00	Gate Open Ht (m)	4.00
Breach WD (m)		Gate #Open	3
Breach Top El (m)		Gate Area (m2)	6.65
Breach Bottom El (m)		Gate Submerg	0.97
Breach SSL (m)		Gate Invert (m)	9.32
Breach SSR (m)		Gate Weir Coef	3.020

CROSS SECTION

RIVER: SNM
 REACH: Canale SNM RS: 1

INPUT

Description:

Station Elevation Data		num= 14									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	12.5779	3.4796	12.5779	5.0479	13.4225	6.8108	13.4731	8.1701	13.4472		
8.1701	13.5376	9.5849	13.5376	15.3248	9.32	26.2029	9.32	32.1476	13.6575		
33.0824	13.6575	33.0824	13.5614	34.1977	13.57	36.4529	13.521				

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.015	9.5849	.015	32.1476	.015

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.
Expan.							
	9.5849	32.1476		200	200	200	.0015 .01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (m)	11.54	Element	Left OB	Channel
Right OB				
Vel Head (m)	0.04	Wt. n-Val.		0.015
W.S. Elev (m)	11.50	Reach Len. (m)		
Crit W.S. (m)	10.14	Flow Area (m2)		30.21
E.G. Slope (m/m)	0.000092	Area (m2)		30.21
Q Total (m3/s)	27.00	Flow (m3/s)		27.00

Top Width (m)	16.83	Top Width (m)	16.83
Vel Total (m/s)	0.89	Avg. Vel. (m/s)	0.89
Max Chl Dpth (m)	2.18	Hydr. Depth (m)	1.79
Conv. Total (m3/s)	2817.2	Conv. (m3/s)	2817.2
Length Wtd. (m)		Wetted Per. (m)	18.26
Min Ch El (m)	9.32	Shear (N/m2)	1.49
Alpha	1.00	Stream Power (N/m s)	1.33
Frctn Loss (m)		Cum Volume (1000 m3)	
C & E Loss (m)		Cum SA (1000 m2)	

SUMMARY OF MANNING'S N VALUES

River:SNM

Reach	River Sta.	n1	n2	n3
Canale SNM	73	.015	.015	.015
Canale SNM	72	.015	.015	.015
Canale SNM	71	.015	.015	.015
Canale SNM	70	.015	.015	.015
Canale SNM	69	.015	.015	.015
Canale SNM	68.5	Bridge		
Canale SNM	68	.015	.015	.015
Canale SNM	67	.015	.015	.015
Canale SNM	66.5	Bridge		
Canale SNM	66	.015	.015	.015
Canale SNM	65	.015	.015	.015
Canale SNM	64	.015	.015	.015
Canale SNM	63	.015	.015	.015
Canale SNM	62	.015	.015	.015
Canale SNM	61	.015	.015	.015
Canale SNM	60.5	Bridge		
Canale SNM	60	.015	.015	.015
Canale SNM	59	.015	.015	.015
Canale SNM	58.5	Bridge		
Canale SNM	58	.015	.015	.015
Canale SNM	57	.015	.015	.015
Canale SNM	56	.015	.015	.015
Canale SNM	55	.015	.015	.015
Canale SNM	54.5	Bridge		

Canale SNM	54		.015	.015	.015
Canale SNM	53		.015	.015	.015
Canale SNM	52		.015	.015	.015
Canale SNM	51		.015	.015	.015
Canale SNM	50		.015	.015	.015
Canale SNM	49		.015	.015	.015
Canale SNM	48		.015	.015	.015
Canale SNM	47		.015	.015	.015
Canale SNM	46.5	Bridge			
Canale SNM	46		.015	.015	.015
Canale SNM	45		.015	.015	.015
Canale SNM	44		.015	.015	.015
Canale SNM	43		.015	.015	.015
Canale SNM	42		.015	.015	.015
Canale SNM	41.5	Bridge			
Canale SNM	41		.015	.015	.015
Canale SNM	40		.015	.015	.015
Canale SNM	39		.015	.015	.015
Canale SNM	38.8	Inl Struct			
Canale SNM	38.7		.015	.015	.015
Canale SNM	38.4	Bridge			
Canale SNM	38		.015	.015	.015
Canale SNM	37		.015	.015	.015
Canale SNM	36		.015	.015	.015
Canale SNM	35		.015	.015	.015
Canale SNM	34		.015	.015	.015
Canale SNM	33		.015	.015	.015
Canale SNM	32		.015	.015	.015
Canale SNM	31.5	Bridge			
Canale SNM	31		.015	.015	.015
Canale SNM	30		.015	.015	.015
Canale SNM	29		.015	.015	.015
Canale SNM	28		.015	.015	.015
Canale SNM	27		.015	.015	.015
Canale SNM	26		.015	.015	.015
Canale SNM	25.5	Bridge			
Canale SNM	25		.015	.015	.015
Canale SNM	24		.015	.015	.015
Canale SNM	23		.015	.015	.015
Canale SNM	22.5	Bridge			
Canale SNM	22		.015	.015	.015
Canale SNM	21		.015	.015	.015
Canale SNM	20		.015	.015	.015
Canale SNM	19		.015	.015	.015
Canale SNM	18.5	Bridge			
Canale SNM	18		.015	.015	.015
Canale SNM	17		.015	.015	.015
Canale SNM	16		.015	.015	.015
Canale SNM	15.5	Bridge			
Canale SNM	15		.015	.015	.015
Canale SNM	14.5	Bridge			
Canale SNM	14		.015	.015	.015
Canale SNM	13		.015	.015	.015
Canale SNM	12		.015	.015	.015

Canale SNM	11	.015	.015	.015
Canale SNM	10.5	Bridge		
Canale SNM	10	.015	.015	.015
Canale SNM	9	.015	.015	.015
Canale SNM	8	.015	.015	.015
Canale SNM	7.5	Bridge		
Canale SNM	7	.015	.015	.015
Canale SNM	6	.015	.015	.015
Canale SNM	5	.015	.015	.015
Canale SNM	4.5	Bridge		
Canale SNM	4.4	.015	.015	.015
Canale SNM	4.3	Bridge		
Canale SNM	4	.015	.015	.015
Canale SNM	3	.015	.015	.015
Canale SNM	2	.015	.015	.015
Canale SNM	1.5	Inl Struct		
Canale SNM	1	.015	.015	.015

SUMMARY OF REACH LENGTHS

River: SNM

Reach	River Sta.	Left	Channel	Right
Canale SNM	73	200	200	200
Canale SNM	72	200	200	200
Canale SNM	71	200	200	200
Canale SNM	70	200	200	200
Canale SNM	69	200	200	200
Canale SNM	68.5	Bridge		
Canale SNM	68	200	200	200
Canale SNM	67	200	200	200
Canale SNM	66.5	Bridge		
Canale SNM	66	200	200	200
Canale SNM	65	200	200	200
Canale SNM	64	200	200	200
Canale SNM	63	200	200	200
Canale SNM	62	200	200	200
Canale SNM	61	200	200	200
Canale SNM	60.5	Bridge		
Canale SNM	60	200	200	200
Canale SNM	59	200	200	200
Canale SNM	58.5	Bridge		
Canale SNM	58	200	200	200
Canale SNM	57	200	200	200
Canale SNM	56	200	200	200
Canale SNM	55	200	200	200
Canale SNM	54.5	Bridge		
Canale SNM	54	200	200	200
Canale SNM	53	200	200	200
Canale SNM	52	200	200	200

Canale SNM	51	200	200	200
Canale SNM	50	200	200	200
Canale SNM	49	200	200	200
Canale SNM	48	200	200	200
Canale SNM	47	200	200	200
Canale SNM	46.5	Bridge		
Canale SNM	46	200	200	200
Canale SNM	45	200	200	200
Canale SNM	44	200	200	200
Canale SNM	43	200	200	200
Canale SNM	42	200	200	200
Canale SNM	41.5	Bridge		
Canale SNM	41	200	200	200
Canale SNM	40	200	200	200
Canale SNM	39	200	200	200
Canale SNM	38.8	Inl Struct		
Canale SNM	38.7	35	35	35
Canale SNM	38.4	Bridge		
Canale SNM	38	200	200	200
Canale SNM	37	200	200	200
Canale SNM	36	200	200	200
Canale SNM	35	200	200	200
Canale SNM	34	200	200	200
Canale SNM	33	200	200	200
Canale SNM	32	200	200	200
Canale SNM	31.5	Bridge		
Canale SNM	31	200	200	200
Canale SNM	30	200	200	200
Canale SNM	29	200	200	200
Canale SNM	28	200	200	200
Canale SNM	27	200	200	200
Canale SNM	26	200	200	200
Canale SNM	25.5	Bridge		
Canale SNM	25	200	200	200
Canale SNM	24	200	200	200
Canale SNM	23	200	200	200
Canale SNM	22.5	Bridge		
Canale SNM	22	200	200	200
Canale SNM	21	200	200	200
Canale SNM	20	200	200	200
Canale SNM	19	200	200	200
Canale SNM	18.5	Bridge		
Canale SNM	18	200	200	200
Canale SNM	17	200	200	200
Canale SNM	16	200	200	200
Canale SNM	15.5	Bridge		
Canale SNM	15	200	200	200
Canale SNM	14.5	Bridge		
Canale SNM	14	150	150	150
Canale SNM	13	200	200	200
Canale SNM	12	200	200	200
Canale SNM	11	200	200	200
Canale SNM	10.5	Bridge		
Canale SNM	10	200	200	200

Canale SNM	9	200	200	200
Canale SNM	8	200	200	200
Canale SNM	7.5	Bridge		
Canale SNM	7	200	200	200
Canale SNM	6	200	200	200
Canale SNM	5	200	200	200
Canale SNM	4.5	Bridge		
Canale SNM	4.4	30	30	30
Canale SNM	4.3	Bridge		
Canale SNM	4	200	200	200
Canale SNM	3	200	200	200
Canale SNM	2	200	200	200
Canale SNM	1.5	Inl Struct		
Canale SNM	1	200	200	200

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: SNM

Reach	River Sta.	Contr.	Expan.
Canale SNM	73	.1	.3
Canale SNM	72	.0015	.01
Canale SNM	71	.0015	.01
Canale SNM	70	.0015	.01
Canale SNM	69	.0015	.01
Canale SNM	68.5	Bridge	
Canale SNM	68	.0015	.01
Canale SNM	67	.0015	.01
Canale SNM	66.5	Bridge	
Canale SNM	66	.0015	.01
Canale SNM	65	.0015	.01
Canale SNM	64	.0015	.01
Canale SNM	63	.0015	.01
Canale SNM	62	.0015	.01
Canale SNM	61	.0015	.01
Canale SNM	60.5	Bridge	
Canale SNM	60	.0015	.01
Canale SNM	59	.0015	.01
Canale SNM	58.5	Bridge	
Canale SNM	58	.0015	.01
Canale SNM	57	.0015	.01
Canale SNM	56	.0015	.01
Canale SNM	55	.0015	.01
Canale SNM	54.5	Bridge	
Canale SNM	54	.0015	.01
Canale SNM	53	.0015	.01
Canale SNM	52	.0015	.01
Canale SNM	51	.0015	.01
Canale SNM	50	.0015	.01
Canale SNM	49	.0015	.01

Canale SNM	48	.0015	.01
Canale SNM	47	.0015	.01
Canale SNM	46.5	Bridge	
Canale SNM	46	.0015	.01
Canale SNM	45	.0015	.01
Canale SNM	44	.0015	.01
Canale SNM	43	.0015	.01
Canale SNM	42	.0015	.01
Canale SNM	41.5	Bridge	
Canale SNM	41	.0015	.01
Canale SNM	40	.0015	.01
Canale SNM	39	.0015	.01
Canale SNM	38.8	Inl Struct	
Canale SNM	38.7	.1	.3
Canale SNM	38.4	Bridge	
Canale SNM	38	.0015	.01
Canale SNM	37	.0015	.01
Canale SNM	36	.0015	.01
Canale SNM	35	.0015	.01
Canale SNM	34	.0015	.01
Canale SNM	33	.0015	.01
Canale SNM	32	.0015	.01
Canale SNM	31.5	Bridge	
Canale SNM	31	.0015	.01
Canale SNM	30	.0015	.01
Canale SNM	29	.0015	.01
Canale SNM	28	.0015	.01
Canale SNM	27	.0015	.01
Canale SNM	26	.0015	.01
Canale SNM	25.5	Bridge	
Canale SNM	25	.0015	.01
Canale SNM	24	.0015	.01
Canale SNM	23	.0015	.01
Canale SNM	22.5	Bridge	
Canale SNM	22	.0015	.01
Canale SNM	21	.0015	.01
Canale SNM	20	.0015	.01
Canale SNM	19	.0015	.01
Canale SNM	18.5	Bridge	
Canale SNM	18	.0015	.01
Canale SNM	17	.0015	.01
Canale SNM	16	.0015	.01
Canale SNM	15.5	Bridge	
Canale SNM	15	.0015	.01
Canale SNM	14.5	Bridge	
Canale SNM	14	.0015	.01
Canale SNM	13	.0015	.01
Canale SNM	12	.0015	.01
Canale SNM	11	.0015	.01
Canale SNM	10.5	Bridge	
Canale SNM	10	.0015	.01
Canale SNM	9	.0015	.01
Canale SNM	8	.0015	.01
Canale SNM	7.5	Bridge	

Canale SNM	7	.0015	.01
Canale SNM	6	.0015	.01
Canale SNM	5	.0015	.01
Canale SNM	4.5	Bridge	
Canale SNM	4.4	.1	.3
Canale SNM	4.3	Bridge	
Canale SNM	4	.0015	.01
Canale SNM	3	.0015	.01
Canale SNM	2	.0015	.01
Canale SNM	1.5	Inl Struct	
Canale SNM	1	.0015	.01