



COMUNE DI PESCARA

-GEOMETRIA FOSSO GRANDE POST OPERE DI REGIMAZIONE IDRAULICA DEL 2015-

**OGGETTO :DITTA CALVARESI ANTONIO E ORLANDO COSTANTINA MARIA-
REALIZZAZIONE DI UN NUOVO IMPIANTO SPORTIVO NEL COMUNE DI PESCARA COMPORTANTE
VARIANTE ALLO STRUMENTO URBANISTICO-**

RICHIESTA INTEGRAZIONI SULLO STUDIO DEL REGIME IDRAULICO DEL "FOSSO GRANDE"

IL PROGETTISTA

HEC-RAS Version 4.1.0 Jan 2010
 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
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 in SI units

GEOMETRY DATA

Geometry Title: Geometria fosso grande PROGETTO
 Geometry File : C:\Users\ARKINI\Desktop\Fosso Grande-Hec ras\Fosso grandePROGET.g02

CROSS SECTION

RIVER: Fosso grande
 REACH: Asta principale RS: 413

INPUT

Description:
 Station Elevation Data num= 7
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 0 27.11 9.91 23.36 16.62 20.37 19.66 19.57 23 19.86
 27.68 23.37 31.58 26.59

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 0 .038 16.62 .038 23 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 16.62 23 40 40 40 .1 .3

CROSS SECTION

RIVER: Fosso grande
 REACH: Asta principale RS: 412

INPUT

Description:
 Station Elevation Data num= 7
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 0 26.54 9.91 22.79 16.62 18.8 19.66 18 23 18.29
 27.68 22.8 31.58 26.02

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 0 .038 16.62 .038 23 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 16.62 23 20 20 20 .1 .3

BRIDGE

RIVER: Fosso grande
 REACH: Asta principale RS: 411

INPUT

Description:
 Distance from Upstream XS = 7.6
 Deck/Roadway width = 4.8
 weir Coefficient = 1.4
 Upstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord

 0 21.9 21.4 30 21.9 21.4

Upstream Bridge Cross Section Data
 Station Elevation Data num= 7
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 0 26.54 9.91 22.79 16.62 18.8 19.66 18 23 18.29
 27.68 22.8 31.58 26.02

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 0 .038 16.62 .038 23 .038

Bank Sta: Left Right Coeff Contr. Expan.
 16.62 23 .1 .3

Downstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord

 0 21.9 21.4 30 21.9 21.4

Downstream Bridge Cross Section Data
 Station Elevation Data num= 7
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 0 26.38 9.91 22.63 16.62 18 19.66 18 23 18

27.68 22.64 31.58 25.86
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .038 16.62 .038 23 .038
Bank Sta: Left Right Lengths: Left Channel Right
16.62 23
Coeff Contr. Expan.
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 num= 2
Upstream Sta Elev Sta Elev
12.37 21.4 17.47 21.4
Downstream Sta Elev Sta Elev
11.54 21.4 17.47 21.4
Abutment Data num= 2
Upstream Sta Elev Sta Elev
21.67 21.4 26.16 21.4
Downstream Sta Elev Sta Elev
21.67 21.4 26.42 21.4
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
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 407

11 19.26 40 40 40 .1 .3
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 407

INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21.56 4.6 20.9 11 20.28 15.51 17.71 19.26 21.56
25.78 21.61 50 21.62
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .038 11 .038 19.26 .038
Bank Sta: Left Right Lengths: Left Channel Right
11 19.26 40 40
Coeff Contr. Expan.
1 .3
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 406

INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21.28 4.6 20.62 11 20 15.51 17.43 19.26 21.28
25.78 21.33 50 21.34
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .038 11 .038 19.26 .038
Bank Sta: Left Right Lengths: Left Channel Right
11 19.26 40 40
Coeff Contr. Expan.
1 .3
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 405

INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21 4.6 20.34 11 19.72 15.51 17.15 19.26 21
25.78 21.05 50 21.06
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 402

Distance from upstream XS = 5.35
Deck/Roadway width = 6
Weir Coefficient = 1.4
Upstream Deck/Roadway Coordinates num= 2
Sta HI Cord Lo Cord Sta HI Cord Lo Cord
0 20.1 55 20.1
Upstream Bridge Cross Section Data num= 6
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21.09 10.42 21.09 13.6 17 17.83 17 17.84 21.09
20 21.29
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .0301 13.6 .0277 17.83 .0301
Bank Sta: Left Right Lengths: Left Channel Right
13.6 17.83 6 6
Coeff Contr. Expan.
1 .3
Downstream Deck/Roadway Coordinates num= 2
Sta HI Cord Lo Cord Sta HI Cord Lo Cord
0 20.1 55 20.1
Downstream Bridge Cross Section Data num= 20
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 20.01 3.51 19.982 5.057 19.97 7.17 19.89 7.427 19.88
9.16 19.57 10.53 19.1 11.53 19.08 14.52 16.282 16.78 15.94
18.46 16.42 20.36 17.4 22.94 18.42 25.21 18.72 26.21 19.06
29.15 19.12 36.43 19.64 38.12 19.41 43.97 19.62 54.56 19.7
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .0301 11.53 .027 16.79 .0301
Bank Sta: Left Right Lengths: Left Channel Right
11.53 16.79 6 6
Coeff Contr. Expan.
1 .3
Blocked Obstructions num= 2
Sta L Sta R Elev Sta L Sta R Elev
10.53 11.53 19.8 25.2 26.2 19.8
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 400

INPUT Description:
Station Elevation Data num= 14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 18.9 2 18.9 2.01 16.9 3.5 16.9 3.51 16.1
7.17 16.1 7.18 16.35 10.17 16.35 10.18 16.9 11.17 16.9
11.18 17.84 12.17 17.84 12.18 18.9 14.18 18.9
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .0301 3.51 .0277 7.17 .0301
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 401

INPUT Description:
Station Elevation Data num= 20
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 20.01 3.51 19.982 5.057 19.97 7.17 19.89 7.427 19.88
9.16 19.57 10.53 19.1 11.53 19.08 14.52 16.282 16.79 15.94
18.46 16.42 20.36 17.4 22.94 18.42 25.21 18.72 26.21 19.06
29.15 19.12 36.43 19.64 38.12 19.41 43.97 19.62 54.56 19.7
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .0301 11.53 .027 16.79 .0301
Bank Sta: Left Right Lengths: Left Channel Right
11.53 16.79 6 6
Coeff Contr. Expan.
1 .3
Blocked Obstructions num= 2
Sta L Sta R Elev Sta L Sta R Elev
10.53 11.53 19.8 25.2 26.2 19.8
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 402

INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21.37 10.42 21.37 13.6 16.87 17.83 16.87 17.84 21.37
20 21.57
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .0301 13.6 .038 17.83 .0301
Bank Sta: Left Right Lengths: Left Channel Right
13.6 17.83 40 40
Coeff Contr. Expan.
1 .3
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 404

INPUT Description:
Station Elevation Data num= 6
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21.37 10.42 21.37 13.6 16.87 17.83 16.87 17.84 21.37
20 21.57
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .0301 13.6 .038 17.83 .0301
Bank Sta: Left Right Lengths: Left Channel Right
13.6 17.83 40 40
Coeff Contr. Expan.
1 .3
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 403

REACH: Asta principale RS: 410
INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 26.38 9.91 22.63 16.62 18 19.66 18 23 18
27.68 22.64 31.58 25.86
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .038 16.62 .038 23 .038
Bank Sta: Left Right Lengths: Left Channel Right
16.62 23 20 20
Coeff Contr. Expan.
1 .3
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 409

INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 22.12 4.6 21.46 11 17.8 15.51 17.8 19.26 22.12
25.78 22.17 50 22.18
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .038 11 .038 19.26 .038
Bank Sta: Left Right Lengths: Left Channel Right
11 19.26 40 40
Coeff Contr. Expan.
1 .3
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 408

INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21.84 4.6 21.18 11 20.56 15.51 17.99 19.26 21.84
25.78 21.89 50 21.9
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .038 11 .038 19.26 .038
Bank Sta: Left Right Lengths: Left Channel Right
11 19.26 40 40
Coeff Contr. Expan.
1 .3
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 408

INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21.84 4.6 21.18 11 20.56 15.51 17.99 19.26 21.84
25.78 21.89 50 21.9
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .038 11 .038 19.26 .038
Bank Sta: Left Right Lengths: Left Channel Right
11 19.26 40 40
Coeff Contr. Expan.
1 .3
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 408

INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21.84 4.6 21.18 11 20.56 15.51 17.99 19.26 21.84
25.78 21.89 50 21.9
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .038 11 .038 19.26 .038
Bank Sta: Left Right Lengths: Left Channel Right
11 19.26 40 40
Coeff Contr. Expan.
1 .3
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 404

INPUT Description:
Station Elevation Data num= 6
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21.37 10.42 21.37 13.6 16.87 17.83 16.87 17.84 21.37
20 21.57
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .0301 13.6 .038 17.83 .0301
Bank Sta: Left Right Lengths: Left Channel Right
13.6 17.83 40 40
Coeff Contr. Expan.
1 .3
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 403

INPUT Description:
Station Elevation Data num= 6
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21.09 10.42 21.09 13.6 17 17.83 17 17.84 21.09
20 21.29
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .0301 13.6 .0277 17.83 .0301
Bank Sta: Left Right Lengths: Left Channel Right
13.6 17.83 40 40
Coeff Contr. Expan.
1 .3
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 403

INPUT Description:
Station Elevation Data num= 6
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21.09 10.42 21.09 13.6 17 17.83 17 17.84 21.09
20 21.29
Manning's n values num= 3
Sta n Val sta n Val Sta n Val
0 .0301 13.6 .0277 17.83 .0301
Bank Sta: Left Right Lengths: Left Channel Right
13.6 17.83 40 40
Coeff Contr. Expan.
1 .3
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 402

INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21 4.6 20.34 11 19.72 15.51 17.15 19.26 21
25.78 21.05 50 21.06
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 402

INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21 4.6 20.34 11 19.72 15.51 17.15 19.26 21
25.78 21.05 50 21.06
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 402

INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21 4.6 20.34 11 19.72 15.51 17.15 19.26 21
25.78 21.05 50 21.06
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 402

INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21 4.6 20.34 11 19.72 15.51 17.15 19.26 21
25.78 21.05 50 21.06
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 402

INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21 4.6 20.34 11 19.72 15.51 17.15 19.26 21
25.78 21.05 50 21.06
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 402

INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21 4.6 20.34 11 19.72 15.51 17.15 19.26 21
25.78 21.05 50 21.06
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 402

INPUT Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 21 4.6 20.34 11 19.72 15.51 17.15 19.26 21
25.78 21.05 50 21.06
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 402

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
3.51 7.17 8.53 8.53 8.53 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 399

INPUT
Description:

Station Elevation Data num= 14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 18.41 2 18.41 2.01 16.41 3.5 16.41 3.51 15.61
7.17 15.61 7.18 15.86 10.17 15.86 10.18 16.41 11.17 16.41
11.18 17.35 12.17 17.35 12.18 18.41 14.18 18.41

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .0301 3.51 .0277 7.17 .0301

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
3.51 7.17 12.87 12.87 12.87 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 398

INPUT
Description:

Station Elevation Data num= 14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 18.56 2 18.56 2.01 16.56 3.5 16.56 3.51 15.76
7.17 15.76 7.18 16.01 10.17 16.01 10.18 16.56 11.17 16.56
11.18 17.5 12.17 17.5 12.18 18.56 14.18 18.56

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .0301 3.51 .0277 7.17 .0301

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
3.51 7.17 19.12 19.12 19.12 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 397

INPUT
Description:

Station Elevation Data num= 14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 18.56 2 18.56 2.01 16.56 3.5 16.56 3.51 15.76
7.17 15.76 7.18 16.01 10.17 16.01 10.18 16.56 11.17 16.56
11.18 17.5 12.17 17.5 12.18 18.56 14.18 18.56

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .0301 3.51 .0277 7.17 .0301

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
3.51 7.17 19.12 19.12 19.12 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 394

INPUT
Description:

Station Elevation Data num= 10
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 16.98 5.47 16.25 27 16.12 27.69 15.33 30.67 15.33
31.5 16.22 34.15 16.75 48.69 17.26 53.55 19.27 65.64 19.76

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 27 .04 31.5 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
27 31.5 15.14 15.14 15.14 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 393

INPUT
Description:

Station Elevation Data num= 9
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 16.69 5.53 16.03 17.96 15.7 19.33 15.18 21.95 15.18
22.45 15.99 26.09 16.79 42.46 17.43 56.55 19.63

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 17.96 .04 22.45 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17.96 22.45 48.08 48.08 48.08 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 392

INPUT
Description:

Station Elevation Data num= 8
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 17.84 7.61 17.41 12.05 16.72 13.88 14.48 16.89 14.48
17.18 14.76 19.69 17.18 32.67 18.66

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 17.09 .04 23.23 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17.09 23.23 44.83 44.83 44.83 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 389

INPUT
Description:

Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 17.84 7.61 17.41 12.05 16.72 13.88 14.48 16.89 14.48
17.18 14.76 19.69 17.18 32.67 18.66

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 17.09 .04 23.23 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17.09 23.23 44.83 44.83 44.83 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 388

INPUT
Description:

Station Elevation Data num= 10
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 14.91 10.7 14.91 38.32 13.78 41.08 12.79 45.79 11.81
48.3 11.81 49.43 12.71 51.7 13.56 60.69 14.48 77 15.06

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 41.08 .04 49.43 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
41.08 49.43 51.53 51.53 51.53 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 387

INPUT
Description:

Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 13.82 23.81 12.24 24.67 11.16 27.71 11.16 29.39 12.8
36.23 13.35 55.66 13.86

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 23.81 .04 29.39 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
23.81 29.39 77.45 77.45 77.45 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 386

INPUT
Description:

Station Elevation Data num= 11
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 11.44 9.69 11.28 13.83 10.8 14.93 9.71 15.37 9.18
17.95 9.18 18.36 9.71 18.82 10.46 20.2 10.92 39.02 12.08
42.46 12.16

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 14.93 .025 18.36 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
14.93 18.36 20.2 20.2 20.2 .1 .3

CROSS SECTION

0 18.57 2 18.57 2.01 16.57 3.5 16.57 3.51 15.77
7.17 15.77 7.18 16.02 10.17 16.02 10.18 16.57 11.17 16.57
11.18 17.51 12.17 17.51 12.18 18.57 14.18 18.57

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .0301 3.51 .0277 7.17 .0301

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
3.51 7.17 18.49 18.49 18.49 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 396

INPUT
Description:

Station Elevation Data num= 14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 18.39 2 18.39 2.01 16.39 3.5 16.39 3.51 15.59
7.17 15.59 7.18 15.84 10.17 15.84 10.18 16.39 11.17 16.39
11.18 17.33 12.17 17.33 12.18 18.39 14.18 18.39

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .0301 3.51 .0277 7.17 .0301

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
3.51 7.17 24.24 24.24 24.24 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 395

INPUT
Description:

Station Elevation Data num= 14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 18.29 2 18.29 2.01 16.29 3.5 16.29 3.51 15.49
7.17 15.49 7.18 15.74 10.17 15.74 10.18 16.29 11.17 16.29
11.18 17.23 12.17 17.23 12.18 18.29 14.18 18.29

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 3.51 .04 7.17 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
3.51 7.17 21.34 21.34 21.34 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 391

INPUT
Description:

Station Elevation Data num= 8
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 17.21 16.44 16.96 23.28 16.85 26.87 16.43 28.8 13.9
31 13.9 35.28 16.44 48.83 16.66

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 26.87 .04 35.28 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
26.87 35.28 55.94 55.94 55.94 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 391

INPUT
Description:

Station Elevation Data num= 8
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 17.21 16.44 16.96 23.28 16.85 26.87 16.43 28.8 13.9
31 13.9 35.28 16.44 48.83 16.66

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 26.87 .04 35.28 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
26.87 35.28 55.94 55.94 55.94 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 390

INPUT
Description:

Station Elevation Data num= 8
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 16.85 15.08 16.18 17.09 15.42 18.6 13.2 21.82 13.2
23.23 14.46 25.53 15.7 44.38 17.68

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 17.09 .04 23.23 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17.09 23.23 44.83 44.83 44.83 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 389

INPUT
Description:

Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 17.84 7.61 17.41 12.05 16.72 13.88 14.48 16.89 14.48
17.18 14.76 19.69 17.18 32.67 18.66

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 17.09 .04 23.23 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17.09 23.23 44.83 44.83 44.83 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 388

INPUT
Description:

Station Elevation Data num= 8
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 15.76 32.76 15.07 36.93 14.68 38.86 12.52 41.74 12.52
45.53 14.83 66.6 15.82

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 36.93 .04 45.53 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
36.93 45.53 55.22 55.22 55.22 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 385

INPUT
Description:

Station Elevation Data num= 10
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 14.91 10.7 14.91 38.32 13.78 41.08 12.79 45.79 11.81
48.3 11.81 49.43 12.71 51.7 13.56 60.69 14.48 77 15.06

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 41.08 .04 49.43 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
41.08 49.43 51.53 51.53 51.53 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 385

INPUT
Description:

Station Elevation Data num= 10
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 11.61 10.19 11.16 11.48 10.35 12.24 9.76 15 9.76
15.27 10.35 16.75 11.62 21.92 12.23 28.83 12.37 34.1 12.37

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 11.48 .04 15.27 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
11.48 15.27 28 28 28 .1 .3

CROSS SECTION

RIVER: Fosso grande
REACH: Asta principale RS: 384

INPUT
Description:

Station Elevation Data num= 11
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 11.44 9.69 11.28 13.83 10.8 14.93 9.71 15.37 9.18
17.95 9.18 18.36 9.71 18.82 10.46 20.2 10.92 39.02 12.08
42.46 12.16

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .038 14.93 .025 18.36 .038

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
14.93 18.36 20.2 20.2 20.2 .1 .3

CROSS SECTION

14.93 18.36 45.77 45.77 45.77 .1 .3

CROSS SECTION

RIVER: Fosso grande
 REACH: Asta principale RS: 383

INPUT Description:
 Station Elevation Data num= 10
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 11 14.34 10.43 17.11 9 18.13 8.47 20.94 8.47
 21.55 9 23.55 10.75 26.82 11.43 30.42 13.03 35.39 13

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .038 17.11 .025 21.55 .038

Bank Sta: Left Right Lengths: Left Channel Right
 17.11 21.55 60.08 60.08

Coeff Contr. .1 Expan. .3

CROSS SECTION

RIVER: Fosso grande
 REACH: Asta principale RS: 382

INPUT Description:
 Station Elevation Data num= 11
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 11.14 11.04 10.88 15.33 9.81 17.21 8.19 17.83 7.66
 20.47 7.66 21.41 8.19 22.81 9.22 24.62 10.86 27.72 12.02
 36.61 12.16

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .038 17.21 .025 21.41 .038

Bank Sta: Left Right Lengths: Left Channel Right
 17.21 21.41 48.35 48.35

Coeff Contr. .1 Expan. .3

CROSS SECTION

RIVER: Fosso grande
 REACH: Asta principale RS: 381

INPUT Description:
 Station Elevation Data num= 9
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 11.05 11.8 10.56 16.28 7.91 16.72 7.57 17.46 7.28
 19.86 7.91 22.25 8.71 25.03 9.97 30.48 10.16

Bank Sta: Left Right Coeff Contr. Expan.
 8.73 13.22 .1 .3

Downstream Deck/Roadway Coordinates
 num= 2
 Sta H Cord Lo Cord Sta H Cord Lo Cord
 0 11.59 11.39 21.5 11.59 11.39

Downstream Bridge Cross Section Data
 Station Elevation Data num= 9
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 9.94 4.28 9.94 8.73 7.59 9.23 7.06 11.18 7.06
 13.22 7.59 17.58 9.94 21 9.97 21.5 9.97

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .038 8.73 .025 13.22 .038

Bank Sta: Left Right Coeff Contr. Expan.
 8.73 13.22 .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 Piers = 2

Pier Data
 Pier Station upstream= 4.18 Downstream= 4.18
 num= 2
 width Elev width Elev
 2 9.97 6.94 11.39
 num= 2
 width Elev width Elev
 2 9.97 6.94 11.39

Pier Data
 Pier Station upstream= 17.68 Downstream= 17.68
 num= 2
 width Elev width Elev
 2 9.97 6.94 11.39
 num= 2
 width Elev width Elev
 2 9.97 6.94 11.39

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
 Energy

RIVER: Fosso grande
 REACH: Asta principale RS: 378

INPUT Description:
 Station Elevation Data num= 10
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 9.07 10.1 8.89 12.73 6.85 13.36 6.25 15.76 6.25
 16.51 6.85 20.56 8.63 22.77 10.36 33.53 10.46 33.54 13.46

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .038 12.73 .025 16.51 .038

Bank Sta: Left Right Lengths: Left Channel Right
 12.73 16.51 42.04 42.04

Coeff Contr. .1 Expan. .3

CROSS SECTION

RIVER: Fosso grande
 REACH: Asta principale RS: 377

INPUT Description:
 Station Elevation Data num= 9
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 8.94 21.31 8.94 23.82 8.24 23.85 6.5 25.39 5.97
 27.89 5.97 28.42 6.5 29.25 8.32 36.45 8.63

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .038 23.85 .025 28.42 .038

Bank Sta: Left Right Lengths: Left Channel Right
 23.85 28.42 56.93 56.93

Coeff Contr. .1 Expan. .3

CROSS SECTION

RIVER: Fosso grande
 REACH: Asta principale RS: 376

INPUT Description:
 Station Elevation Data num= 8
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 8.7 23.03 8.26 24.7 5.66 25.23 5.13 27.73 5.13
 27.94 5.66 30.27 7.66 42.61 7.65

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .038 24.7 .025 27.94 .038

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .038 16.28 .025 19.86 .038

Bank Sta: Left Right Lengths: Left Channel Right
 16.28 19.86 35.42 35.42

Coeff Contr. .1 Expan. .3

CROSS SECTION

RIVER: Fosso grande
 REACH: Asta principale RS: 380.1

INPUT Description:
 Station Elevation Data num= 9
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 9.94 4.28 9.94 8.73 7.59 9.23 7.06 11.18 7.06
 13.22 7.59 17.58 9.94 21 9.97 21.5 10

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .038 8.73 .025 13.22 .038

Bank Sta: Left Right Lengths: Left Channel Right
 8.73 13.22 4 4

Coeff Contr. .1 Expan. .3

BRIDGE

RIVER: Fosso grande
 REACH: Asta principale RS: 380

INPUT Description:
 Distance from Upstream XS = 1.5
 Deck/Roadway width = 1
 Weir Coefficient = 1.4
 num= 2
 Sta H Cord Lo Cord Sta H Cord Lo Cord
 0 11.59 11.39 21.5 11.59 11.39

Upstream Bridge Cross Section Data
 Station Elevation Data num= 9
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 9.94 4.28 9.94 8.73 7.59 9.23 7.06 11.18 7.06
 13.22 7.59 17.58 9.94 21 9.97 21.5 10

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .038 8.73 .025 13.22 .038

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 8 Flow critical depth computations use critical depth
 inside the bridge at the upstream end
 Criteria to check for pressure Flow = Upstream energy grade line

CROSS SECTION

RIVER: Fosso grande
 REACH: Asta principale RS: 379.9

INPUT Description:
 Station Elevation Data num= 9
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 9.94 4.28 9.94 8.73 7.59 9.23 7.06 11.18 7.06
 13.22 7.59 17.58 9.94 21 9.97 21.5 9.97

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .038 8.73 .025 13.22 .038

Bank Sta: Left Right Lengths: Left Channel Right
 8.73 13.22 59.04 59.04

Coeff Contr. .1 Expan. .3

CROSS SECTION

RIVER: Fosso grande
 REACH: Asta principale RS: 379

INPUT Description:
 Station Elevation Data num= 12
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 10.36 19.74 9.9 22.75 7.79 23.04 7.03 23.57 6.5
 26.07 6.5 26.4 7.03 26.87 7.03 28.07 9.27 33.13 9.27
 33.13 11.12 37.33 11.12

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .038 23.04 .025 26.87 .038

Bank Sta: Left Right Lengths: Left Channel Right
 23.04 26.87 55.05 55.05

Coeff Contr. .1 Expan. .3

CROSS SECTION

Bank Sta: Left Right Lengths: Left channel Right
 24.7 27.94 46.8 46.8

Coeff Contr. .1 Expan. .3

CROSS SECTION

RIVER: Fosso grande
 REACH: Asta principale RS: 375

INPUT Description:
 Station Elevation Data num= 10
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 8.2 5.55 8.2 6.12 7.91 7.75 5.41 6.28 4.89
 10.78 4.89 11.31 5.41 13.52 7.2 16.31 7.81 21.45 7.81

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .038 7.75 .025 11.31 .0301

Bank Sta: Left Right Lengths: Left channel Right
 7.75 11.31 53.3 53.3

Coeff Contr. .1 Expan. .3

CROSS SECTION

RIVER: Fosso grande
 REACH: Asta principale RS: 374

INPUT Description:
 Station Elevation Data num= 4
 Sta Elev Sta Elev Sta Elev Sta Elev
 0 6.96 0 4.76 5 4.76 5 6.96

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .025 0 .025 5 .025

Bank Sta: Left Right Lengths: Left channel Right
 0 5 13.94 13.94

Coeff Contr. .1 Expan. .3

Cross Section Lid
 num= 2
 Sta H Cord Lo Cord Sta H Cord Lo Cord
 0 7.46 6.96 5 7.46 6.96

CROSS SECTION

RIVER: Fosso grande
 REACH: Asta principale RS: 373

INPUT Description:
 Station Elevation Data num= 4

```

sta Elev sta Elev sta Elev sta Elev
0 6.71 0 4.51 4.9 4.51 4.9 6.71
Manning's n Values num= 3
sta n Val sta n Val sta n Val
0 .025 0 .025 4.9 .025
Bank Sta: Left Right Lengths: Left Channel Right
0 4.9 76 76
Coeff Contr. Expan.
.1 .3
Cross Section Lid
num= 2
Sta HI Cord Lo Cord Sta HI Cord Lo Cord
0 7.21 6.71 4.9 7.21 6.71
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 372
INPUT
Description:
Station Elevation Data num= 4
sta Elev sta Elev sta Elev sta Elev
0 2.91 0 .91 4.26 .91 4.26 2.91
Manning's n Values num= 3
sta n Val sta n Val sta n Val
0 .025 0 .025 4.26 .025
Bank Sta: Left Right Lengths: Left Channel Right
0 4.4 3.9 3.25 4.4 3.9
Coeff Contr. Expan.
.1 .3
Cross Section Lid
num= 2
Sta HI Cord Lo Cord Sta HI Cord Lo Cord
0 3.41 2.91 4.26 3.41 2.91
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 369
INPUT
Description:
Station Elevation Data num= 4
sta Elev sta Elev sta Elev sta Elev
0 2.6 0 .8 5 .8 5 2.6
Manning's n Values num= 3
sta n Val sta n Val sta n Val
0 .025 0 .025 5 .025
Bank Sta: Left Right Lengths: Left Channel Right
0 5 5.21 5.21 5.21
Coeff Contr. Expan.
.1 .3
Cross Section Lid
num= 2
Sta HI Cord Lo Cord Sta HI Cord Lo Cord
0 3.1 2.6 5 3.1 2.6
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 371
INPUT
Description:
Station Elevation Data num= 4
sta Elev sta Elev sta Elev sta Elev
0 3.9 0 1.9 3.25 1.9 3.25 3.9
Manning's n Values num= 3
sta n Val sta n Val sta n Val
0 .025 0 .025 3.25 .025

```

```

Bank Sta: Left Right Lengths: Left Channel Right
0 3.25 47.76 47.76
Coeff Contr. Expan.
.1 .3
Cross Section Lid
num= 2
Sta HI Cord Lo Cord Sta HI Cord Lo Cord
0 4.4 3.9 3.25 4.4 3.9
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 370
INPUT
Description:
Station Elevation Data num= 4
sta Elev sta Elev sta Elev sta Elev
0 2.91 0 .91 4.26 .91 4.26 2.91
Manning's n Values num= 3
sta n Val sta n Val sta n Val
0 .025 0 .025 4.26 .025
Bank Sta: Left Right Lengths: Left Channel Right
0 4.4 3.9 3.25 4.4 3.9
Coeff Contr. Expan.
.1 .3
Cross Section Lid
num= 2
Sta HI Cord Lo Cord Sta HI Cord Lo Cord
0 3.41 2.91 4.26 3.41 2.91
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 369
INPUT
Description:
Station Elevation Data num= 4
sta Elev sta Elev sta Elev sta Elev
0 2.6 0 .8 5 .8 5 2.6
Manning's n Values num= 3
sta n Val sta n Val sta n Val
0 .025 0 .025 5 .025
Bank Sta: Left Right Lengths: Left Channel Right
0 5 5.21 5.21 5.21
Coeff Contr. Expan.
.1 .3
Cross Section Lid
num= 2
Sta HI Cord Lo Cord Sta HI Cord Lo Cord
0 3.1 2.6 5 3.1 2.6
CROSS SECTION

```

```

CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 368
INPUT
Description:
Station Elevation Data num= 4
sta Elev sta Elev sta Elev sta Elev
0 2.99 0 .69 5.25 .69 5.25 2.99
Manning's n Values num= 3
sta n Val sta n Val sta n Val
0 .025 0 .025 5.25 .025
Bank Sta: Left Right Lengths: Left Channel Right
0 5.25 123.01 123.01 123.01
Coeff Contr. Expan.
.1 .3
Cross Section Lid
num= 2
Sta HI Cord Lo Cord Sta HI Cord Lo Cord
0 3.49 2.99 5.25 3.49 2.99
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 367
INPUT
Description:
Station Elevation Data num= 4
sta Elev sta Elev sta Elev sta Elev
0 .74 0 -1.86 3.2 -1.86 3.2 .74
Manning's n Values num= 3
sta n Val sta n Val sta n Val
0 .025 0 .025 3.2 .025
Bank Sta: Left Right Lengths: Left Channel Right
0 3.2 15.73 15.73
Coeff Contr. Expan.
.1 .3
Cross Section Lid
num= 2
Sta HI Cord Lo Cord Sta HI Cord Lo Cord
0 1.24 .74 3.2 1.24 .74
CROSS SECTION
RIVER: Fosso grande
REACH: Asta principale RS: 366
INPUT

```

```

Description:
Station Elevation Data num= 4
sta Elev sta Elev sta Elev sta Elev
0 .54 0 -2.09 3.75 -2.09 3.75 .54
Manning's n Values num= 3
sta n Val sta n Val sta n Val
0 .025 0 .025 5 .025
Bank Sta: Left Right Lengths: Left Channel Right
0 3.75 3.75 3.75
Coeff Contr. Expan.
.1 .3
Cross Section Lid
num= 2
Sta HI Cord Lo Cord Sta HI Cord Lo Cord
0 .94 .54 3.75 .94 .54
CROSS SECTION

```