Works 2013

Open Trapezoid Section

WHITEPAPER

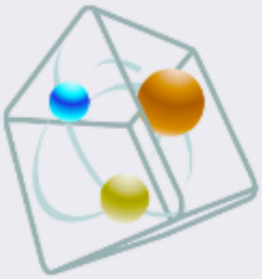

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Table of Contents

Chapter

1 About the whitepaper

1.1 Purpose

The purpose of this example is to solve an open trapezoid section for uniform flow depth. The section has the following properties:

Property	Value
Flow Rate	10 m^3/s
Bottom Slope	0.013
Bottom Width	3.5 m
Side Slope (H:V)	1:1

The solution will include all geometric and hydraulic characteristics.

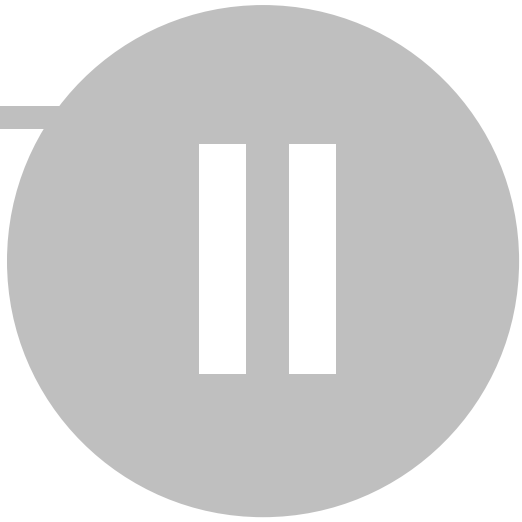
1.2 Software

In order to complete the example successfully, the following software is required:

- Hydraulic Solver v11.0.

Later versions of the aforementioned software may be incompatible with the structure of the example as it is presented herein.

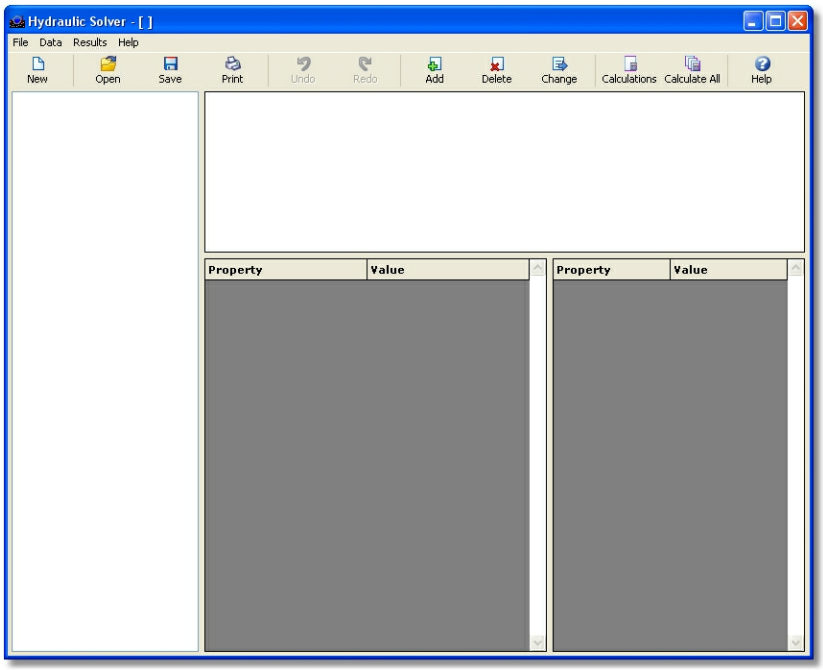
Chapter



2 Steps

2.1 Step 01: New Project

Select **New Project** from the **File** menu. The program will remove any data from memory and prepare to start a new project:



2.2 Step 02: Add Solution

Select **Add Solution** from the **Data** menu. The following form appears:

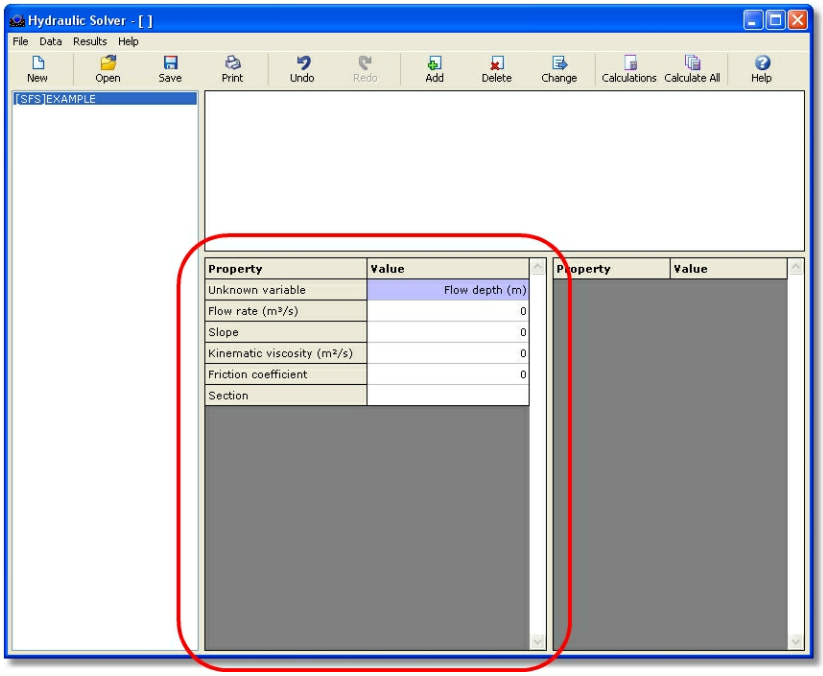
Enter the following data:

- **Name:** Enter "EXAMPLE".
- Select **Sections with free surface** from the drop-down list.
- Select **Hydraulic calculations will take place** from the drop down list.

Select **Ok.**

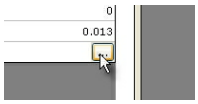
2.3 Step 03: Data input

Enter the data by typing directly into the left grid of the main form:

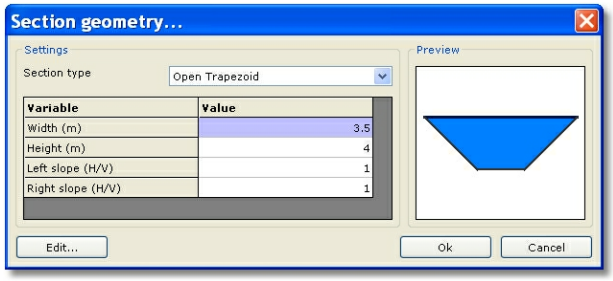


Enter the following data:

- **Unknown variable:** Select **Flow Depth (m)**.
- **Flow rate**: type "10" and hit ENTER. Note that the unit conversion button is displayed, with which you can enter the flow rate in another unit system.
- **Slope**: type "0.001" and hit ENTER.
- **Kinematic viscosity**: it is not required when Manning's friction formula is used; therefore, you can ignore this field.
- **Friction coefficient**: type "0.013" and hit ENTER. Alternatively, select the button with the ellipses (...) to invoke the corresponding database.
- **Section**: A button with ellipses (...) appears when you double-click into the cell:



Select this button to invoke the section type form:



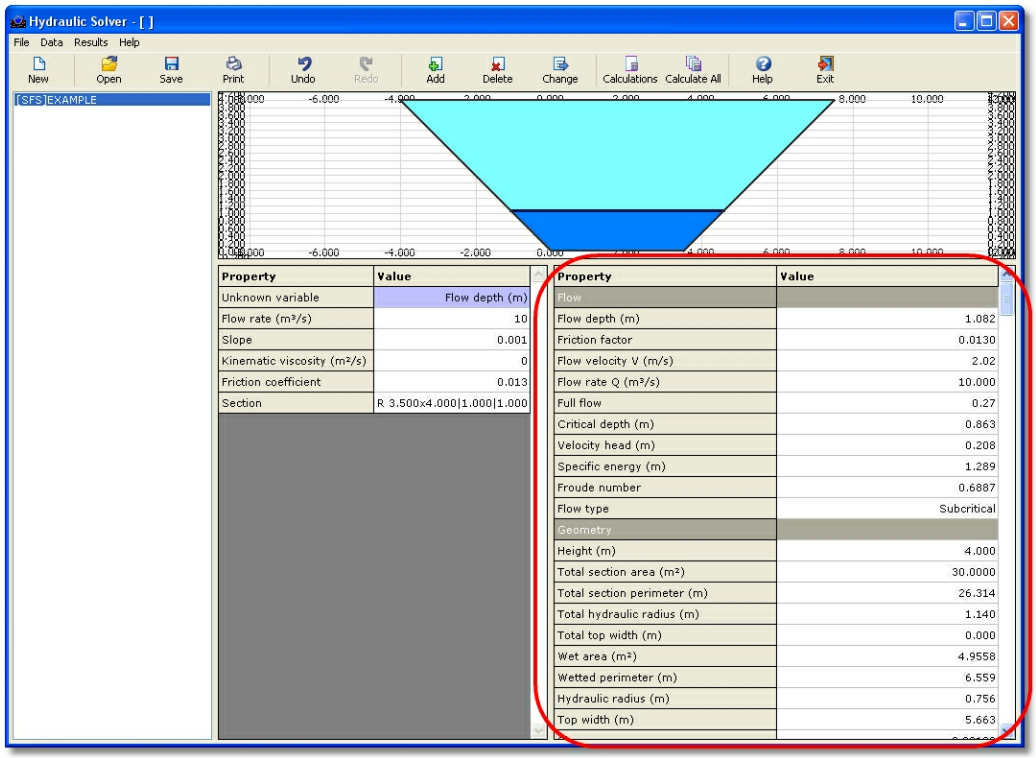
Enter the following data:

- **Section type**: Select **Open Trapezoid** from the drop-down list.
- **Width (m)**: type "3.5" and hit ENTER.
- **Height (m)**: type a large value, for example "4" and hit ENTER.
- **Left slope (H/V)**: type "1" and hit ENTER.
- **Right slope (H/V)**: type "1" and hit ENTER.

The program will display a preview of the section when it is 100% full. Select **Ok.**

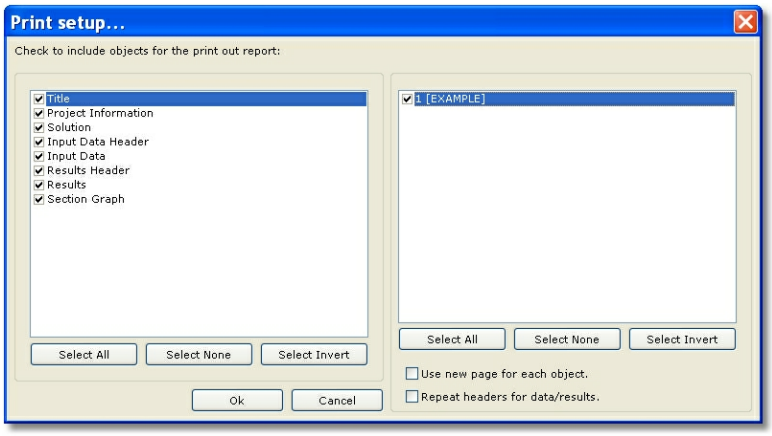
2.4 Step 04: Calculations

The calculations are performed automatically. The results are displayed in the right grid of the main form:



2.5 Step 05: Printing

Optionally, you may want to print the results to a printer, to Microsoft Word or Microsoft Excel. From the **File** menu select **Print setup:**



Select the solution "EXAMPLE" from the list on the right and select **Ok**.

From the **File** menu select **Print** or **Print To > Word** or **Print To > Excel** to invoke the corresponding print engine.

Chapter

3 Help

3.1 Technical support

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