

Outfalls

Outfalls are the location that water can leave the Site. These are identified by the software and can be given additional restriction options to reflect the outfall being surcharged, if needed.

Identifying Outfalls

A location is considered to be an outfall location if:

- It is a **Junctions** or **Stormwater Controls - SWC**, that has one or more **Outlets** with no downstream connection. i.e. each such Outlet has no downstream conditions.
- It is a **Junction** (or **Manhole**) with no **Outlets**.

Note

Where an outfall is a Manhole with no outlets the analysis will ignore the chamber dimensions as it is seen as free discharging (except where there is an surcharged level)

When a Junction or Stormwater Control has been determined to have an Outfall additional options will be shown on the data form, and Tables, to allow the outfall restrictions to be specified if needed.

Outfall Details

The set of Outfalls for the whole phase can be viewed and their restrictions specified on a storm by storm basis.

Note: all levels are above ordnance datum.

Outfalls Tab

This allows the outfalls to be viewed and the Type for each outfall to be specified.

Outfall Details

Outfalls | Level Curves

Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
[-] Porous Paving	Fixed Surcharged Level	-1.00	
[-] 100.0 years: 15 mins: Summer		-1.00	
[-] 100.0 years: 120 mins: Summer		-1.00	
[-] 100.0 years: 360 mins: Summer		-1.00	

OK Cancel Apply

Help

Outlet Type

This is the type of outfall restriction that is in place:

- **Free Discharge** - water will leave the outlets based on the depth of water in system alone. i.e. without considering any downstream conditions.
- **Fixed Surcharge Level** - Allows a level to be specified that the outlets will act against. i.e. the water level in the system must be above this level before water will leave any of the unconnected outlets.
- **Variable Surcharge Level** - Allows a level curve, that varies with time, to be specified that the outlets will act against. i.e. the water level in the system must be above this level before water will leave any of the unconnected outlets.



Note

Where a Junction/Manhole has not outlets the water will pass straight through for discharge. Where a Fixed Surcharge Level is specified the water will build up to this level before discharging

Once the Outfall Type has been selected the actually value can be varied on a Storm by Storm basis as needed. This can be useful if the level will be dependant on the storm being analysed.

Level Curves Tab

This allows the set of Level Curves (Hydrographs) that are required to be specified and edited.

Level Curves

Name	Duration (mins)	Max Level (ft)	Extension Option
Normal	21	37.7	Extend Last Level
High Return Period	21	39.2	Extend Last Level

Normal

Time (mins)	Level (ft)
0	32.07
1	32.81
6	37.73
10	36.09
12	29.53
15	28.87
21	29.53

Level (ft)

Time (mins)

OK Cancel Apply

Name Help

The (top) table provides a list of the Curves that are required to describe outfall restrictions for each outfall and/or storm.

This displays:

Name- The label given to the curve to aid identification.

Duration - The total length of the curve.

Max Level - The maximum level found in the curve.

Extension Option - Specify how the curve should be extended IF the analysis runtime exceeds the duration of the curve. The options are:

- **Extend Last Level** - The last entry in the curve will be used for the remaining duration of the analysis
- **Repeat Curve** - The entire curve will be repeated until the analysis is completed. Note: This option is best used when the curve is periodic. i.e. repeats at a regular interval such that it starts and ends at the same level.

Add/Remove Curves

The + and - buttons are used to add and remove curves from the table as needed. It is possible to select multiple rows and delete them at once.

Note

If a curve is currently being referenced on the Outfalls tab this will be reset to '(none)' if the curve is deleted, which will prevent the analysis from running until a new curve is selected.

Editing the Curve

When a curve is highlighted on the top table its details can be edited in the panel below. The values can be entered directly, pasted or loaded from file. The graph then shows a representation of the visual data that has been entered.

Load - Allows data to be loaded from: Level Hydrograph Files (IDHYLX), CSV, TXT or Excel formats using the Universal Importer.

Save - Allows the hydrograph to be saved to a Level Hydrograph File (IDHYLX) so it can be reused on another design.

Delete Row - The currently selected row(s) are removed.

Clear - The whole table is cleared.

Accessing the form

The Outfall Details can be accessed from the Tree View or the Analysis Ribbon.

Alternatively, when a Junction or SWC is an Outfall location an option that links to the Outfall Details form is shown on the Outlets tab.

The screenshot shows the 'Porous Paving' form with the 'Outlets' tab selected. The form has a title bar with a close button (X) and a name field containing 'Porous Paving'. Below the title bar are five tabs: 'Dimensions', 'Inlets', 'Outlets' (highlighted), 'Advanced', and 'Pollution'. A plus sign icon is visible below the tabs. The main content area is divided into two sections. On the left is a table with columns 'Name', 'Outgoing Connection', and 'Outlet Type'. The first row is 'Outlet' with '(None)' and 'Orifice', and the second row is 'Outlet (1)' with '(None)' and 'Weir'. The 'Outlet' row is highlighted with a red border. On the right is the 'Orifice' configuration panel with three input fields: 'Diameter (m)' set to 0.10, 'Coefficient of Discharge' set to 0.600, and 'Invert Level (ft)' set to -3.3. Below the table is the 'Outfall Details' section with a 'Free Discharge' label and an 'Edit Outfall Details' button. At the bottom left is a checkbox labeled 'Click to show image(s)'. At the bottom right are 'OK', 'Cancel', and 'Apply' buttons. The status bar at the very bottom shows 'Total Volume (m³): 600.000' and a 'Help' icon.

Name	Outgoing Connection	Outlet Type
Outlet	(None)	Orifice
Outlet (1)	(None)	Weir

Orifice

Diameter (m) 0.10

Coefficient of Discharge 0.600

Invert Level (ft) -3.3

Outfall Details

Free Discharge Edit Outfall Details

Click to show image(s)

OK Cancel Apply

Total Volume (m³): 600.000 Help

Results

The totals from the individual outfalls are considered together to produce the outflow rates and volumes shown on the [Phase Management](#).