Devotech Group of Companies

WHAT'S NEW IN DEVOTECH iDAS v12.5 Update 1

Document version: 01

DEVOTED TO ENGINEERING EXCELLENCE

CONTENT

INTRODUCTION

The focus of this release is to make iDAS compatible with Civil 3D 2025. This release also includes bug fixes and improvements to surface channels analysis (Dynamic Wave routing support).

SUPPORTED CIVIL 3D VERSIONS

Civil 3D 2020-2025

OLD DRAWINGS COMPATIBILITY

Any old drawings are fully compatible with the new iDAS version however some adjustments might be needed, see further chapters.

COMMAND IMPROVEMENTS

Import Shapefile imports nothing

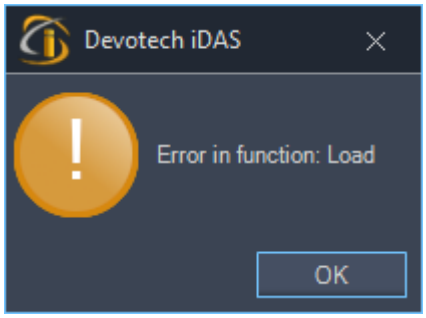
Some shapefiles store the field data with extra white spaces. These white spaces were causing the mapping of pipes and structure to fail. A fix has been implemented to account for the extra white spaces and the affected shapefiles will now import correctly.

Corridor Plan Wizard fatal error

The corridor plan wizard would cause a fatal error and Civil 3D would close. This has been resolved and the command functions properly.

Import network from CSV error dialog

The import network from CSV would display the error dialog below. This has been fixed and the dialog will no longer be displayed.

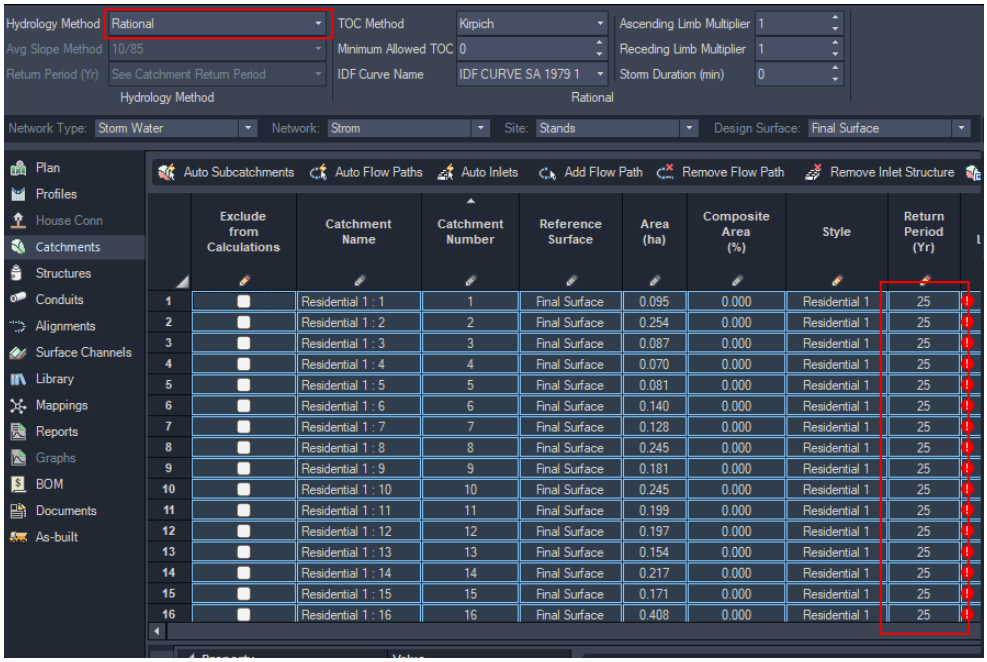


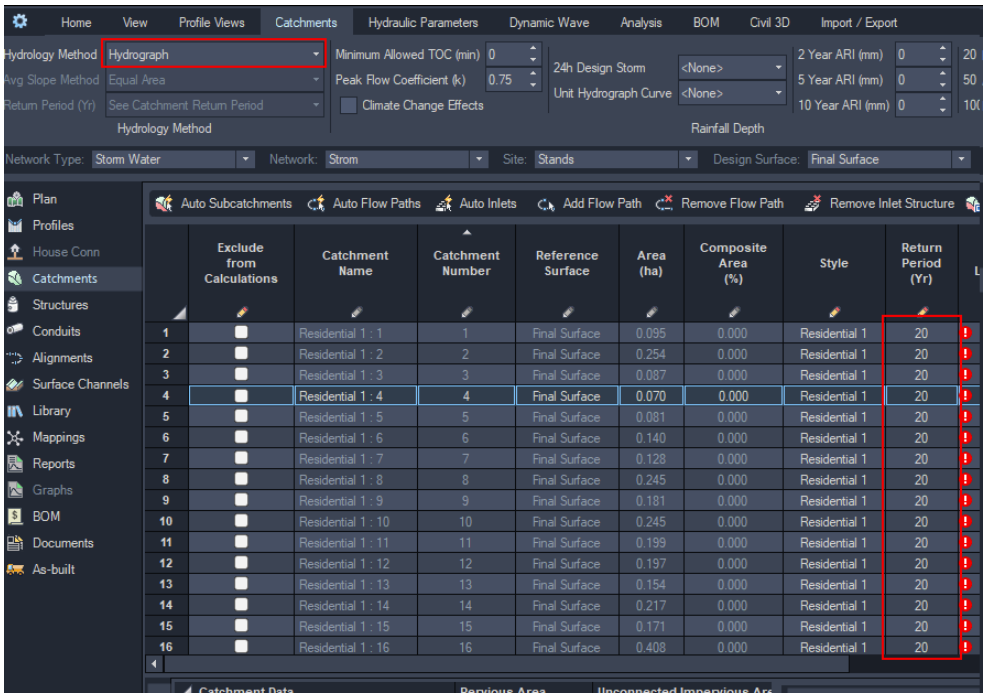
PIPE MANAGER IMPROVEMENTS

1:25 return period for Rational and EPA SWWM hydrology methods

When using Rational of EPA SWMM hydrology methods for analysing catchments the 1:25 return period would not be able to be set for each of the catchments. This has been fixed and the 1:25 return period is available for Rational and EPA SWMM methods but not for the Hydrograph method.

If the return period is set to 1:25 when either the Rational or EPA SWMM methods are active, and then the hydrology method is changed to Hydrograph, then the return period will automatically be changed from 1:25 to 1:20.

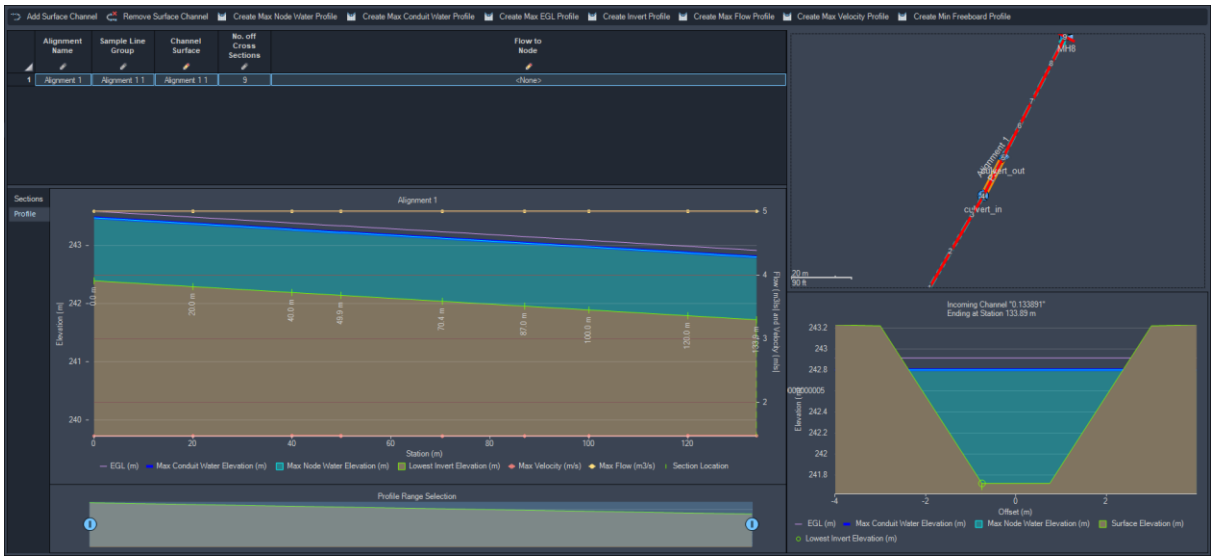


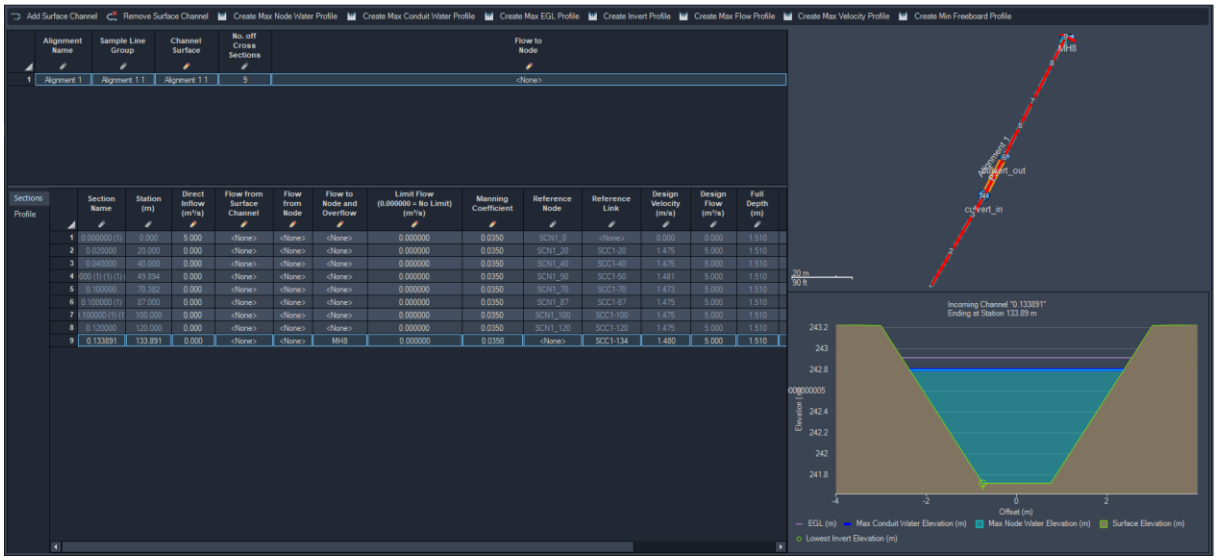


Surface channel additions and changes

The following was updated or changed in the surface channels tab:

1. Swapped and renamed the max depth and node depth profiles to be in line with EPA SWMM and SSA
2. Added a create profile button for node elevation
3. Changed the color of the conduit max elevation profile
4. Added a flow limit column to limit flow in a channel section (used when using the Dynamic Flow method because dividers cannot be used with Dynamic Flow)
5. Added a manning coefficient column so it can be set for each channel section
6. Removed the manning coefficient from the alignment (because it is now set per section).
7. Added right-click options to fill in manning coefficient and flow limit
8. Added units to profile chart axes

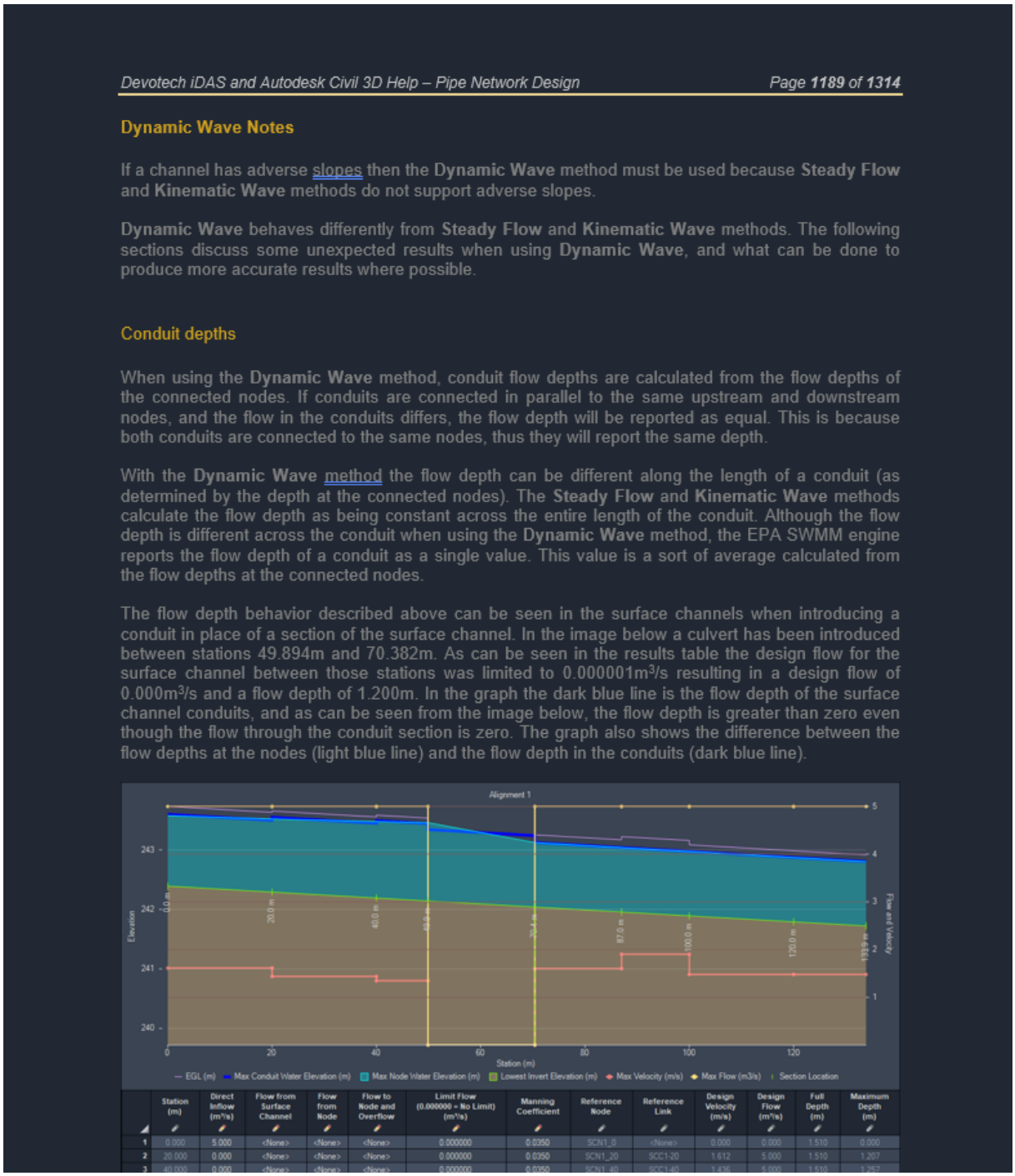




iDAS AND CIVIL 3D HELP IMPROVEMENTS
New chapters

Surface Channels Analysis – Dynamic Wave Notes

Since Dynamic Wave analysis can be used for surface channels with culverts, the new chapter was added to explain how to set up the model correctly. This chapter also provides explanations of specific results that may be obtained for certain model settings.



Devotech iDAS and Autodesk Civil 3D Help – Pipe Network Design *Page **1189** of **1314***

Dynamic Wave Notes

If a channel has adverse slopes then the **Dynamic Wave** method must be used because **Steady Flow** and **Kinematic Wave** methods do not support adverse slopes.

Dynamic Wave behaves differently from **Steady Flow** and **Kinematic Wave** methods. The following sections discuss some unexpected results when using **Dynamic Wave**, and what can be done to produce more accurate results where possible.

Conduit depths

When using the **Dynamic Wave** method, conduit flow depths are calculated from the flow depths of the connected nodes. If conduits are connected in parallel to the same upstream and downstream nodes, and the flow in the conduits differs, the flow depth will be reported as equal. This is because both conduits are connected to the same nodes, thus they will report the same depth.

With the **Dynamic Wave** method the flow depth can be different along the length of a conduit (as determined by the depth at the connected nodes). The **Steady Flow** and **Kinematic Wave** methods calculate the flow depth as being constant across the entire length of the conduit. Although the flow depth is different across the conduit when using the **Dynamic Wave** method, the EPA SWMM engine reports the flow depth of a conduit as a single value. This value is a sort of average calculated from the flow depths at the connected nodes.

The flow depth behavior described above can be seen in the surface channels when introducing a conduit in place of a section of the surface channel. In the image below a culvert has been introduced between stations 49.894m and 70.382m. As can be seen in the results table the design flow for the surface channel between those stations was limited to 0.000001m³/s resulting in a design flow of 0.000m³/s and a flow depth of 1.200m. In the graph the dark blue line is the flow depth of the surface channel conduits, and as can be seen from the image below, the flow depth is greater than zero even though the flow through the conduit section is zero. The graph also shows the difference between the flow depths at the nodes (light blue line) and the flow depth in the conduits (dark blue line).

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