Q&A from 'Ask Me Anything (AMA) about Causeway Flow Drainage Design'

February 2023

Can longsections that are generated in Causeway Flow be exported to AutoCAD?

Yes, longsections, manhole and pipe schedules, annotated plan view and 3D BIM can be generated in Causeway Flow and exported to AutoCAD (and Civil 3D).

Clash detection: Is there a setting in Causeway Flow that gives the actual vertical separation distances at pipe crossovers?

This can be done in a parallel product called **Causeway PDS**, but Flow only shows crossings without separation distance.

What is the most efficient way to draw you proposed drainage layout into Causeway? Does Causeway have a tool to map designs accurately and efficiently?

Answer: This can be done in three parallel products Causeway makes, namely PDS, SmartTools and **Live Design**. All three products also allow detailed drawing production.

PDS allows users to draw the proposed drainage layout ready to be exported to Flow for hydraulic design and simulation. Live Design allows drainage networks to be specified which are automatically designed by Flow.

SmartTools is a set of software tools for drainage design that runs in standard AutoCAD and its vertical products such as Civil 3D:

- SmartSurface provides surface elevation data as spot levels and profiles to other applications in the SmartTools range. It provides seamless working across multiple surfaces, including overlapping grade-separated surfaces.
- SmartDrainage links AutoCAD with Causeway Flow to build or amend storm and foul networks, and to annotate and draw the results of the design and analysis.
- SmartDesign is a set of tools to define the positions of infrastructure components relative to grids, alignments and features. It enables 2D drawings and 3D BIM models to be kept up to date quickly and efficiently through the many changes that occur during design development.

For more information, **request a callback** from one of our Design specialists.

How can we add a landscape area (greenfield runoff) to a network system if we don't have the hydrograph?

You can use the ReFH2 hydrological method that works imbedded within Flow to generate runoffs from greenfield sites.

How can you get SmartTools to load up with CAD as a default?

If you open SmartTools either from the Start menu or open the .exe file, it will load with CAD automatically.

When modelling SWS, it does not allow multiple connections into a manhole. Any idea how to overcome this when modelling it?

Flow allows multiple branch connection into a manhole as well as bifurcation, parallel and multiple outfall. For further details, please **contact the Support team**.

Is there any possibility of integration with CAD programs such as Bricscad in addition to the AutoCAD integration that already exists?

Yes, that is in the backlog and is something we will consider for future deployment.

To design swales which are compliant with C753 the water needs to have a residence time in the swale of at least 9 minutes (residence time = length/velocity). How can we get that information within Causeway Flow? If this is not straightforward, with the increased use of SuDS could we please have the information easily available within Flow?

The best way to do this is to make sure the velocity generated for the swale provides the appropriate resident time, given Flow produces the velocity and the length of the swale is known.

If you don't have a flap valve how can you model a surcharged outfall (i.e. stull discharging some water when under surcharged conditions)?

The surcharge level and hydraulic head will determine if there is going to be a discharge of not for a surcharged outfall. It is possible to setup a surcharged outfall higher than the upstream hydraulic head so there is no outfall.

FEH, will that be catchments or only points?

It will be point based data as design assumes that it is localised small contributing area. However, we will consider adding catchment-based models in the future.

What actions we can apply if we obtain low "mass balance" in simulation results?

Answer: The result of the Time to half empty is available either in the Storage page, the approval results page or the Design report.

How do you add an outfall to the system?

The last pipe or pipes will be considered as outfall. It is possible to have multiple outfalls with the 'Enforce best practice design rules' switched off.

How do you design a soakaway? We have forced the soakaway sump to formulate the effective infiltration SA depth. The system says that the SA IL can't be lower than the node IL, which is attached to the incoming pipes, but that's not correct. We have forced the system, but it gives us an error. We managed anyway to run the simulation.

It is possible to the soakaways IL to be lower the outgoing link IL if 'Enforce best practice design rules' is switched off.

Where can we see simulations results don't indicate infiltrated volume associated with SA?

Infiltration rate can be generated and as you will have the inflow rate too, but not infiltration volume.

Storage Depth/Area/Inf Area module - doesn't indicate what is the volume within the pond

Storage volume for the pond is indicated if you hover over the schematic view.

Depth of the pipe is to the invert level not to soffit (would be better to indicate to soffit level to check the cover on the pipe)

Depth of pipe is to the soffit based of historical reason, but we can incorporate the depth based on invert too.

Doesn't automatically reorder the links when you make changes – would be good if it is automated

Automatically reordering the links is available by selecting the Reorder icon at the top. We deliberately don't reorder without the user's input as it could create unintended problems.

CAUSEWAY ★

M5-60; R Ratio; SAAR only by manual input, MicroDrainage have a map based application/For FSR rainfall methodology – is it possible to have the program automatically populate based on a map position?

We deliberately didn't include the graphical map as the original maps were only published in hard copy and HR Wallingford advised us against it because it will not be possible to create a digital version without introducing an error. The UKSUDS website does provide the FSR data at a click of a button, which we have incorporated in Flow too.

After importing a MicroDrainage .mdx file, why does the program not have each pipe connected to allow for AutoDesign or automatically updating pipe sizes/inverts based on upstream changes?

Answer: This is to avoid AutoDesign adjusting existing network. Users can switch on optimisation by selecting Design capacity or Design capacity + cover.

Is it possible to import an AutoCAD site plan?

Yes, it is possible to open a .dwg file or work embedded within AutoCAD using PDS, Live Design and SmartTools.

Is it possible to insert a manhole on a pipe, without having to delete the pipe?

This is something for the future and is in the backlog.

Is it possible to import a ground profile from Causeway PDS?

Yes, any drainage network will be automatically incorporated within PDS.

How to check what the critical rainfall intensity is?

The Design report incorporates the critical rainfall intensity.

I collected the surface water in 3 different ponds, After attenuation, I am planning to pump them to another pond. However, after adding pumps as flow control I cannot simulate the new pond. How can I put a linkage between ponds?

You can use a level control pump or regular pump. This can be either u=online or offline which allows loops to be created between nodes.

What is the key difference between the standard Flow package and Flow+?

Flow+ allows additional capability to design bifurcating network, parallel links, multiple outfalls, inverted siphons, negative slope, and throttle pipes.

Does Causeway Flow have the ability to check that the design is cost effective (i.e. not using more storage than is absolutely necessary)?

Yes, it is possible to load or create a full 3D BIM model that includes thickness, bedding, surround material, trench thickness etc., to provide a complete model of quantities and costs and reliable clash detection. This significantly simplifies the iterative design cycle, reducing errors, saving time, increasing productivity and profitability

Can freeform pond shapes be used be used within model or is it just depth, area and length. Local Authorities have been asking as it will better reflect the hydraulic behaviours of the pond.

It is possible to create a Flow Through Form which allows to model structures in its correct geographical location, the inlets and outlets also positioned in it correct location and with the added bonus of being of having the ability to mimic natural flow through structures.

Still have questions?

Speak to one of our Design specialists today about training courses.

Learn more