Gravity Pipe Network Synchronization: Guide for Sewerage & Drainage

Gravity and Pressure Networks · https://mes100.com/docs/gravity-pipe-network-synchronization-guide-for-sewerage-drainage/

Required Mapping Definition

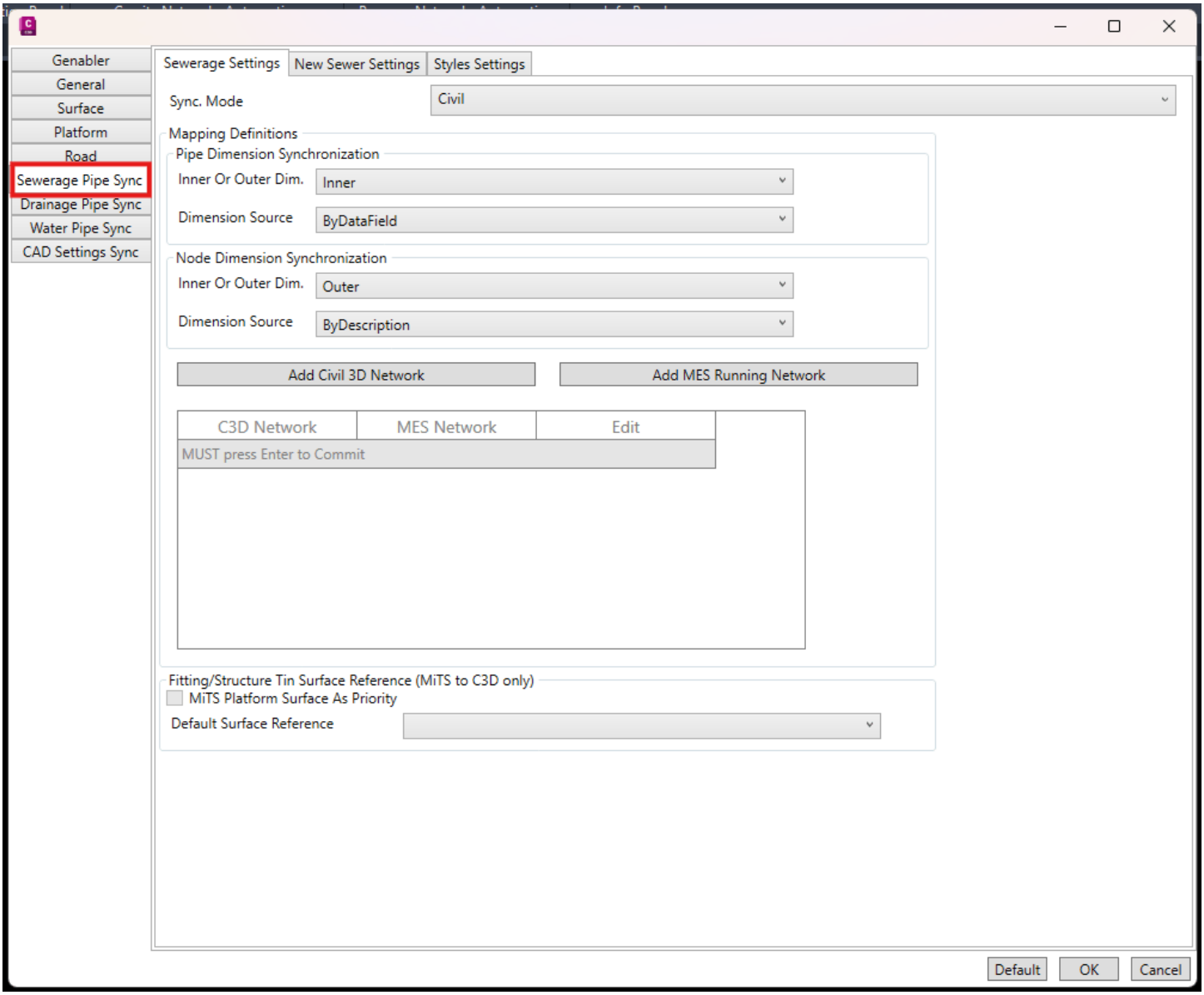
Sewerage or Drainage (Gravity Pipe Networks) Settings:

Sync Mode

Users may opt for **NoSync**, **CAD Sync**, or **Civil Sync**.

For further explanations of each mode, please refer to the article **here**.

Pipe & Node Dimension Synchronization


Genabler
General
Surface
Platform
Road
Sewerage Pipe Sync
Drainage Pipe Sync
Water Pipe Sync
CAD Settings Sync
Sewerage Settings
New Sewer Settings
Styles Settings
Sync. Mode
Civil
Mapping Definitions
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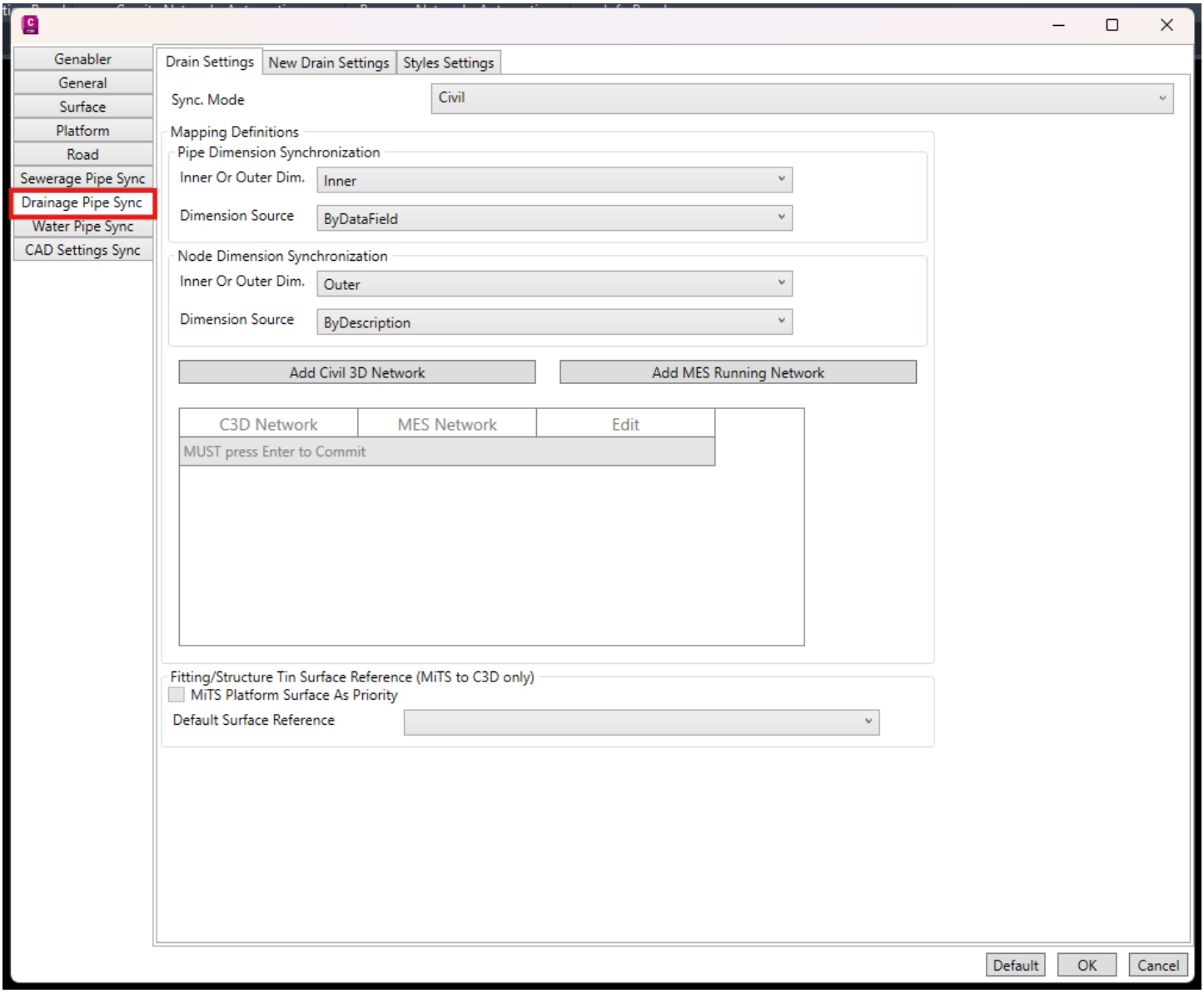
Inner Or Outer Dim.
Inner
Dimension Source
ByDataField
Node Dimension Synchronization
Inner Or Outer Dim.
Outer
Dimension Source
ByDescription
Add Civil 3D Network
Add MES Running Network
C3D Network
MES Network
Edit
MUST press Enter to Commit
Fitting/Structure Tin Surface Reference (MiTS to C3D only)
MiTS Platform Surface As Priority
Default Surface Reference
Default
OK
Cancel



Parameters	Descriptions
Diameter	

Inner Diameter	Refers to the **inner diameter (nominal diameter) of the entities in MiTS and Civil 3D**. The **diameter should match** between the two software programs for a successful sync. **Gravity Pipes:** The configuration should always be set to **Inner Diameter** . This is essential for gravity pipes that lack outer diameter data in the Civil 3D catalog.
Outer Diameter	Refer to the **outer diameter (nominal diameter + thickness) of the entities in MiTS and Civil 3D**. **A matching diameter is required** for a successful sync between the two software programs.
Dimension Source	
ByDataField	An instruction to Civil 3D, during the integration, to **read the numerical diameter value in MiTS** and **compare it with the numerical diameter information** of the pipes or structures in the active Civil 3D part lists. If the read MiTS diameter does not match the available diameter in part lists, the integration will fail with a verification error, as shown **here**. This source **should always be the default for Gravity Pipe Dimension Mapping**, or else a verification error will be received.
ByDescription	During integration, Civil 3D will be instructed to **read the numerical diameter value in MiTS** and **compare it with the part's description of the active Civil 3D part lists**. If the read MiTS diameter does not match the diameter description of the Civil 3D parts, the integration will fails with a verification error, as shown **here**. *This should be the backup option if the ByDataField fails to work*.

Network Mapping

Parameter	Description
Add Civil 3D Network	Allow users to define **a new Civil 3D Network**. Typically required when **trying to sync from a MiTS file to a new Civil 3D drawing file**. Users will be **required to input Name and select the correct Part Lists** (where parts needed have been added to it)
Add MES Running Network	Allow users to define **a new MiTS Running Network**, which can also be set to the default that is available under the dropdown. Typically required when trying to **sync from a Civil 3D drawing file to a new MiTS file**.
C3D Network Column	The available Civil 3D Network will be listed for users to select.
MES Network Column	The available MES Network will be listed for users to select.
Edit Column/Button	
Sync. Material Coefficient	The user can check or uncheck to include the Material Coefficient in the integration. (*This feature is not yet available at the moment*)

Default Mapping	**Civil 3D:** The software **automatically maps** the drains/pipes and manholes/sumps categories in MiTS to the Part Families in the Civil 3D Default Catalog. For a successful mapping, the **drains/pipes and manholes/sumps categories in MiTS must be set** to Civil 3D, i.e., Sump Type: *Rectangle, Concrete Rect* ***Civil3D*** or Drain Type: *Concrete Box Culvert* ***SI Civil3D***.
	Genabler: The software **automatically maps** the drains/pipes and manholes/sumps categories in MiTS to the Part Families in the Genieko Catalog. For a successful mapping, the **drains/pipes and manholes/sumps categories in MiTS must be set** to Genieko, i.e., Manhole Type: *Circle, Cylinder* ***Genieko*** or Pipe Type: *Corrugated HDPE* ***Genieko***.
Structure/Node Mapping	**MES Category:** Should be set **according to the Sump or Manhole Type used in MiTS** (It can be more than one, depending on the types used for the analysis in MiTS). If any of the types are not defined, a **verification error** will be received.
	C3D Part Family: Should be set **according to the Structure Part Family added in the Part Lists**, depending on the structures used in the network. If not defined correctly, users will receive an error as in **here**.
Pipe/Edge Mapping	**MES Category:** Should be set **according to the Pipe Type used in MiTS** (It can be more than one, depending on the types used for the analysis in MiTS).
	C3D Part Family: Should be set **according to the Pipe Part Family added in the Part Lists**, depending on the structures used in the network.

Surface

This feature is only applicable when we sync from MiTS to Civil 3D. The purpose of this feature is to read the Ground Level at each node in MiTS, which will be used in defining the Reference Surface of the corresponding structures in Civil 3D.

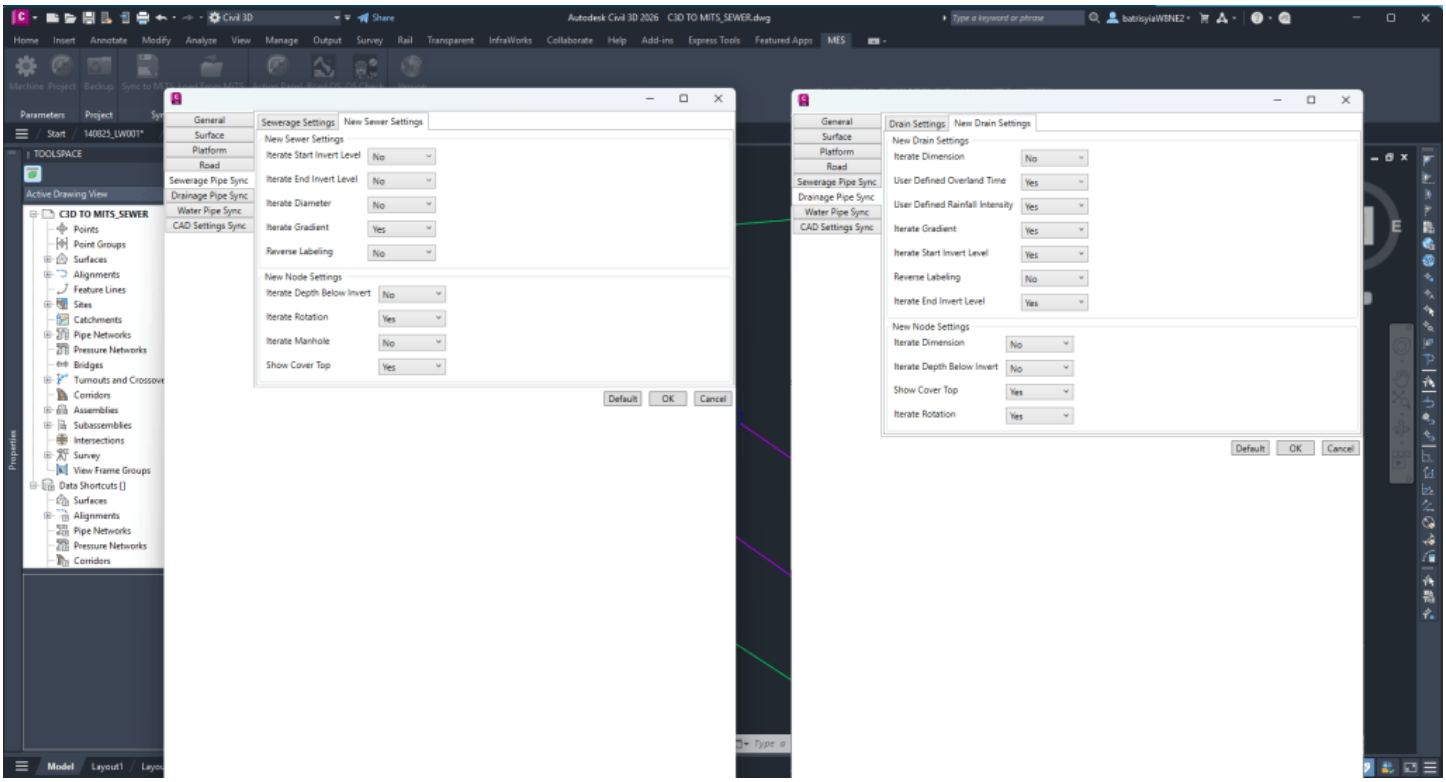
This feature will ensure that the Insertion Rim Level and Structure Depth computed are equivalent in both software programs.

Parameter	Description
Sync Using Current Platform Surface	Should be checked or ticked by users, ensuring the Reference Level of the corresponding structures is set to the Platform Surface synced.
Reference Surface for Non-User Defined Nodes	This is to define the Ground Level for nodes in MiTS that are not on any platforms, and the value detected is based on the survey points data. The user should select the survey point group that represents the terrain level.

New Sewerage or Drain Settings

applicable **to synchronization from Civil 3D to MiTS****

The feature allows users to configure the iteration settings for node and pipe parameters before synchronizing the network with MiTS. This is important to ensure that MiTS does not overwrite the parameters during analysis, especially for Diameter and Invert Levels.

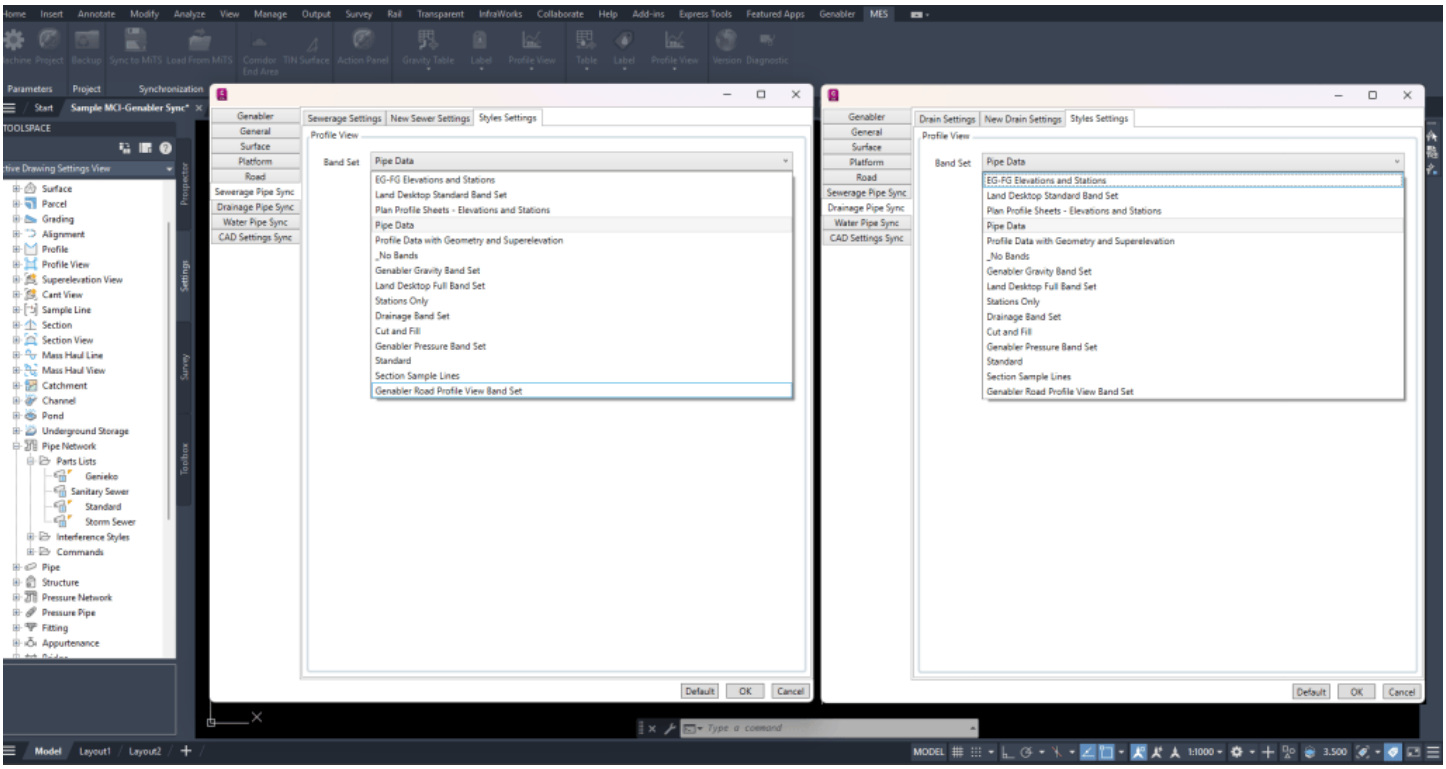


Styles Settings

****Applicable to synchronization from MiTS to Civil 3D ****

This feature allows users to set the **Profile Band Sets** to automatically format and display design information of the sewerage or drainage network profile views (the long sections synced from MiTS).

Note: Profile Band Set selection is *only available when the 'Apply Genabler Stylings' setting is disabled*. When enabled, the profile band sets default automatically to the dedicated Genabler band sets.



MiTS to Civil 3D

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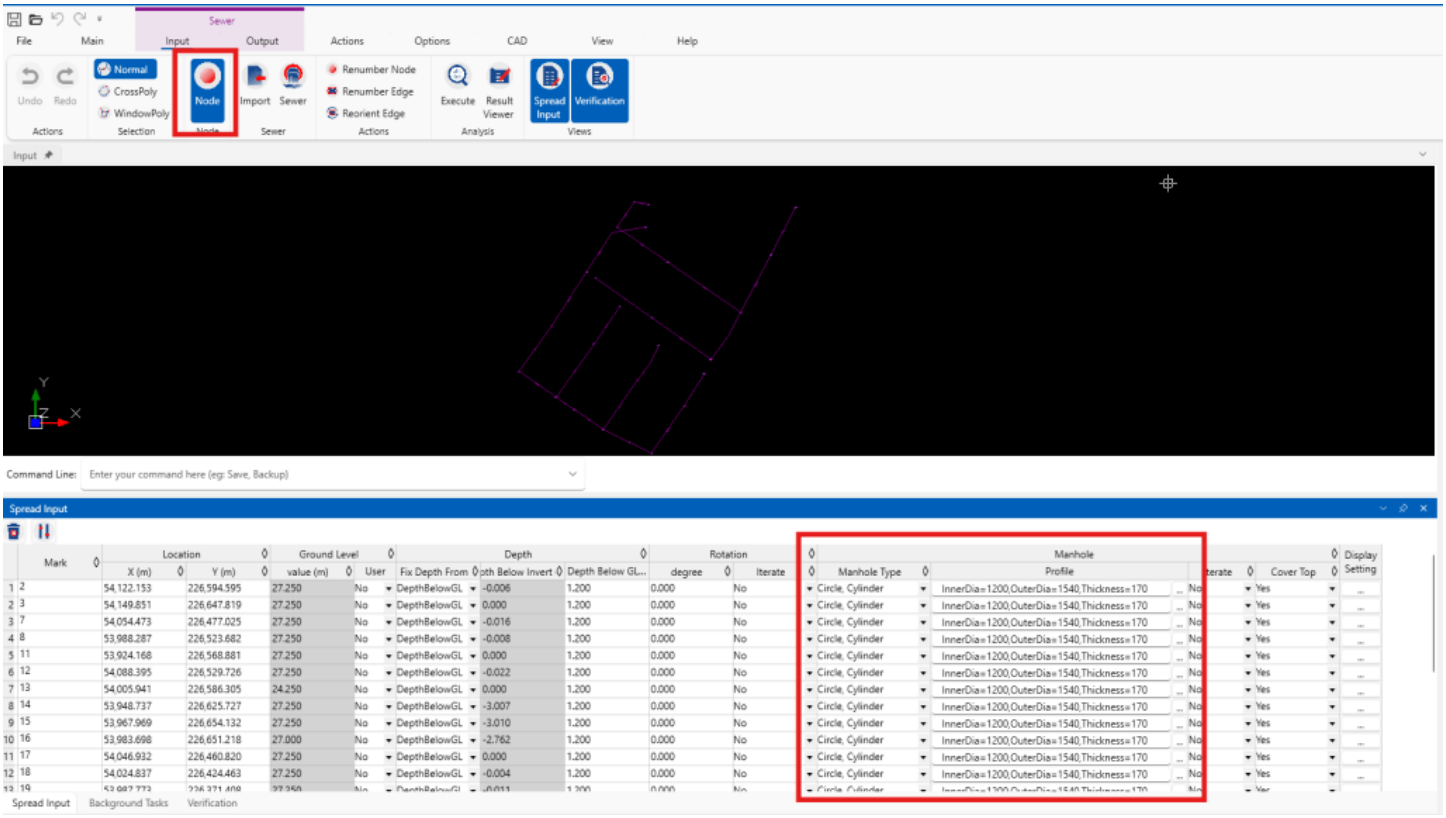
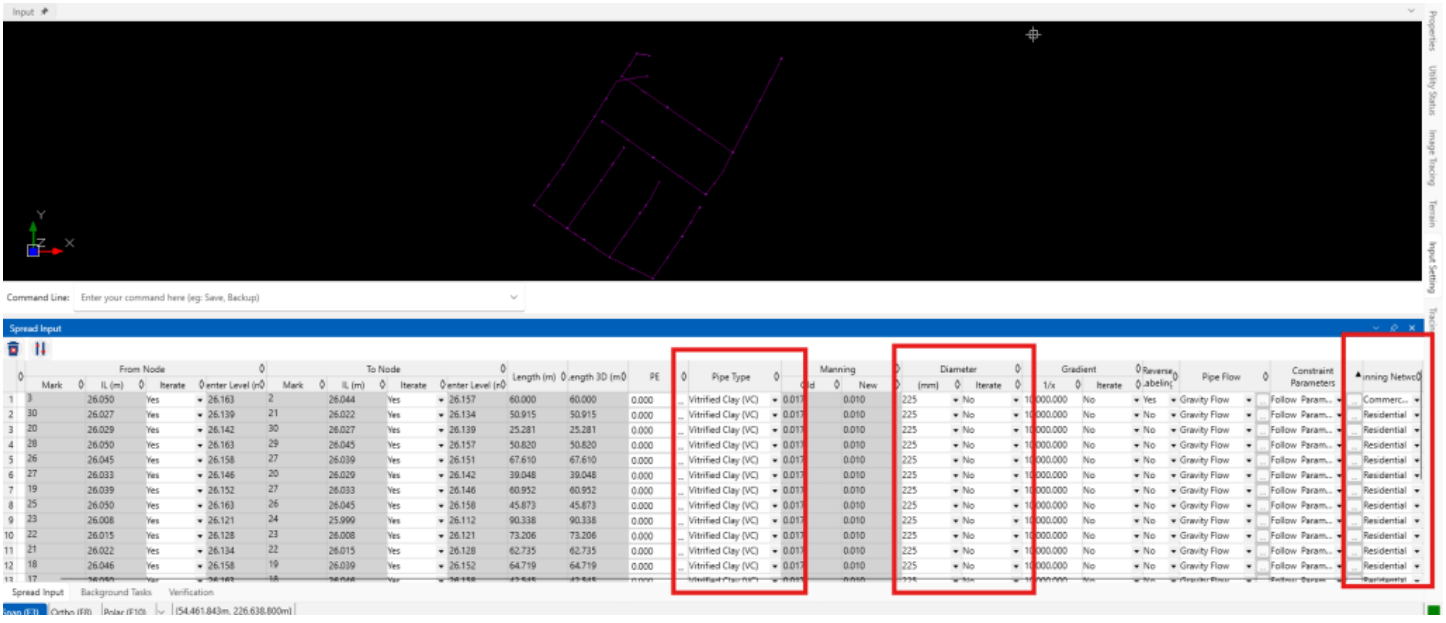
Steps:

In MiTS

1. Go to the utility module (sewerage/drainage) and check on the Nodes and Pipes information below:
    - Manhole/Sump Type

- Manhole/Sump Diameter
- Pipe/Drain Types & Diameters
- Running Network





In Civil 3D

1. Open the Civil 3D drawing file, go to the MES Toolbar, and click on Machine Settings.

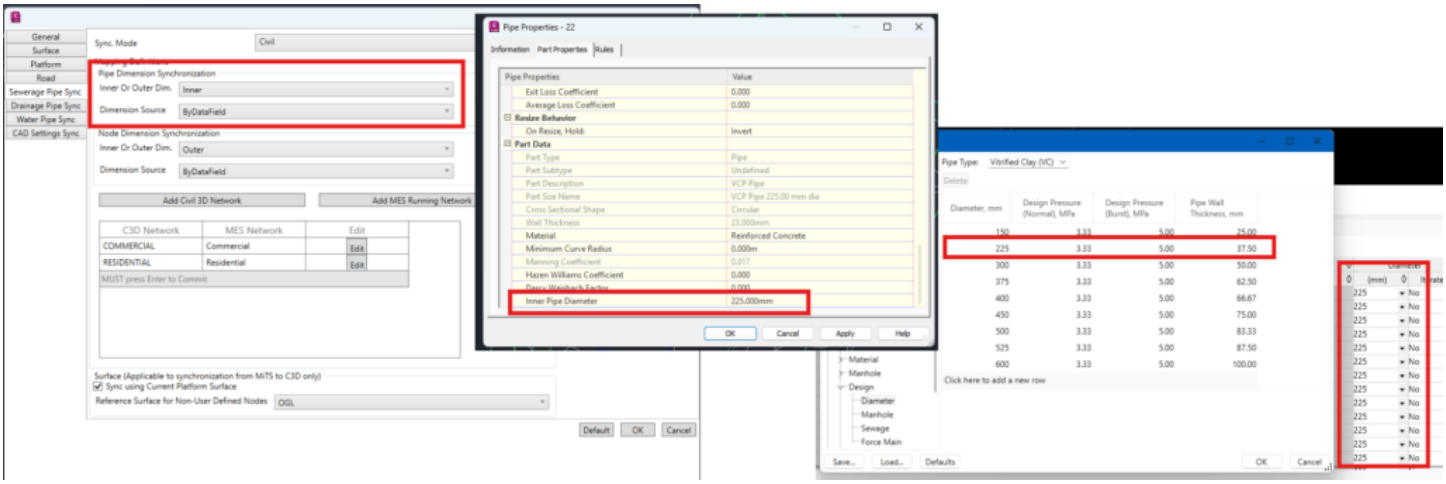
2. The drawing file should be set up with the correct Network Catalog and Part Lists, following the steps **here**.

3. Click on Project. The drawing file will need to be bound to a MiTS file following the steps **here**.

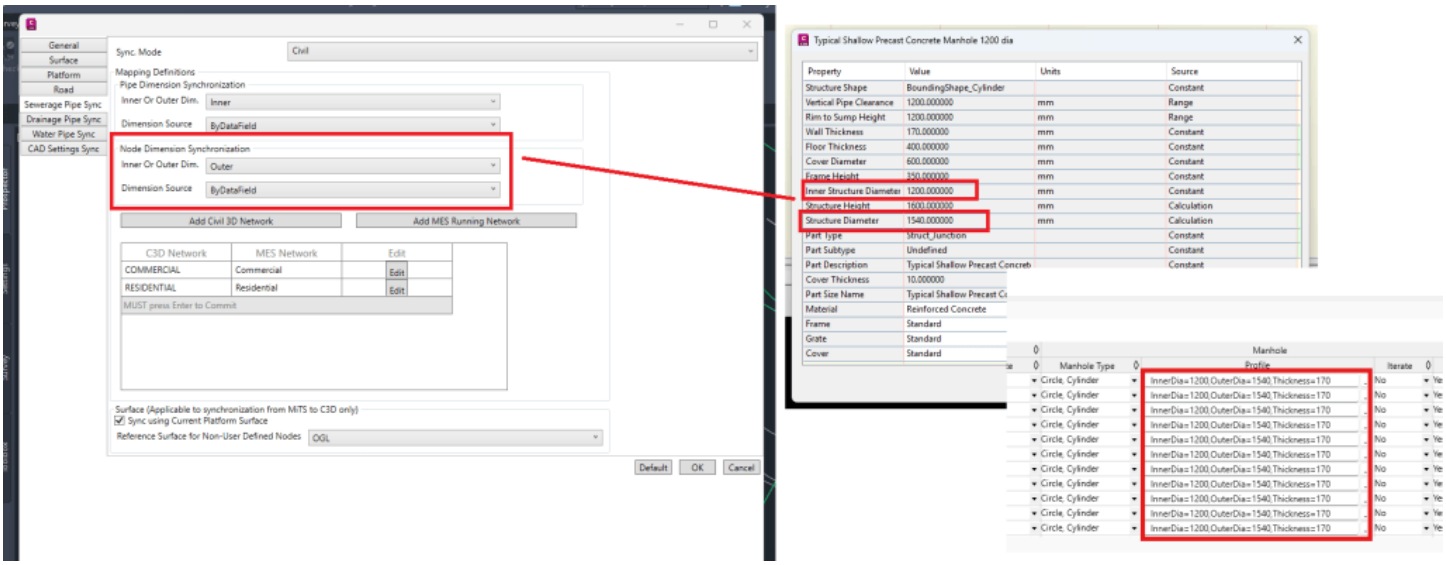
4. For network sync, it is **highly recommended for users to sync the Surface and Platform as well**, to define the Reference Surface of the structures.

5. Click on the Sewerage Pipe Sync tab/Drainage Pipe Sync tab and define the parameters above.

- Set the sync mode to Civil Sync to ensure the entities are integrated as Civil objects in the drawing file.
- Set the Pipe and Node Dimension Synchronization according to the numerical diameter value in MiTS and the Civil 3D parts' diameter. Shown below is an example of how the dimension mapping can be done.

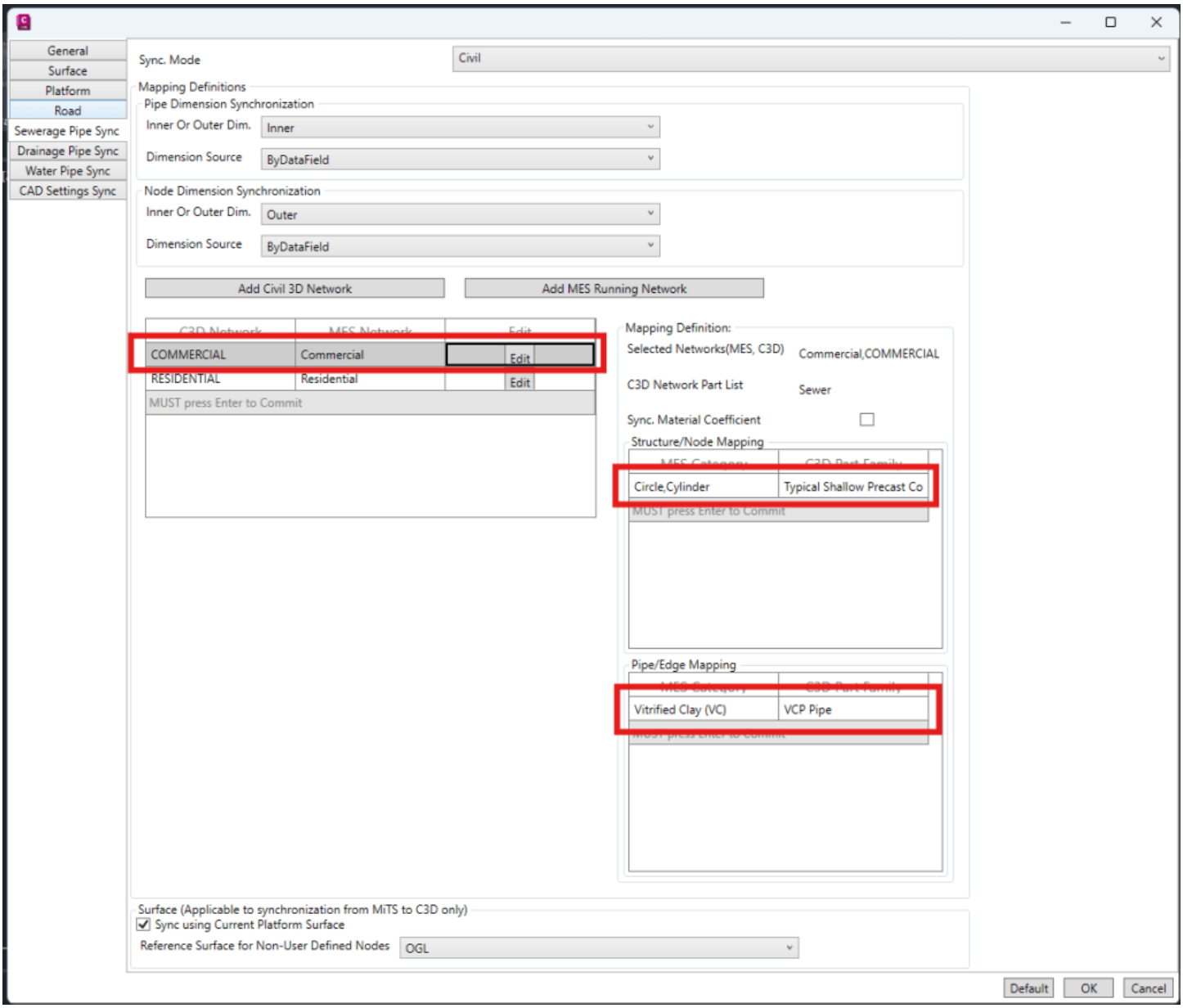


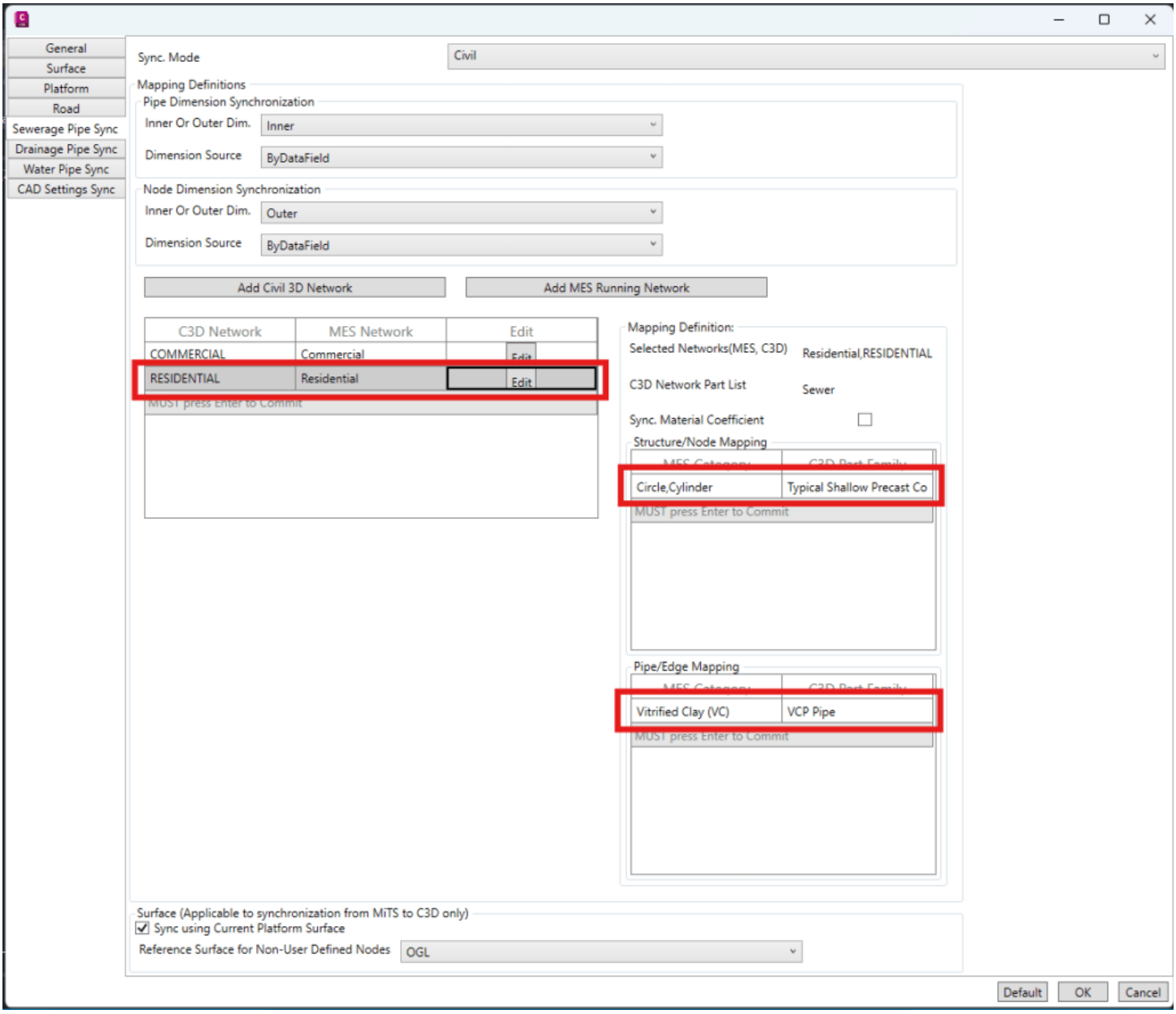
Example: For Pipe Dimension Synchronization



Example: For Node Dimension Synchronization

- Define Civil 3D Networks, corresponding to the MES Network available. Users will need to define the matching MES Category and Civil 3D Part Family as well.

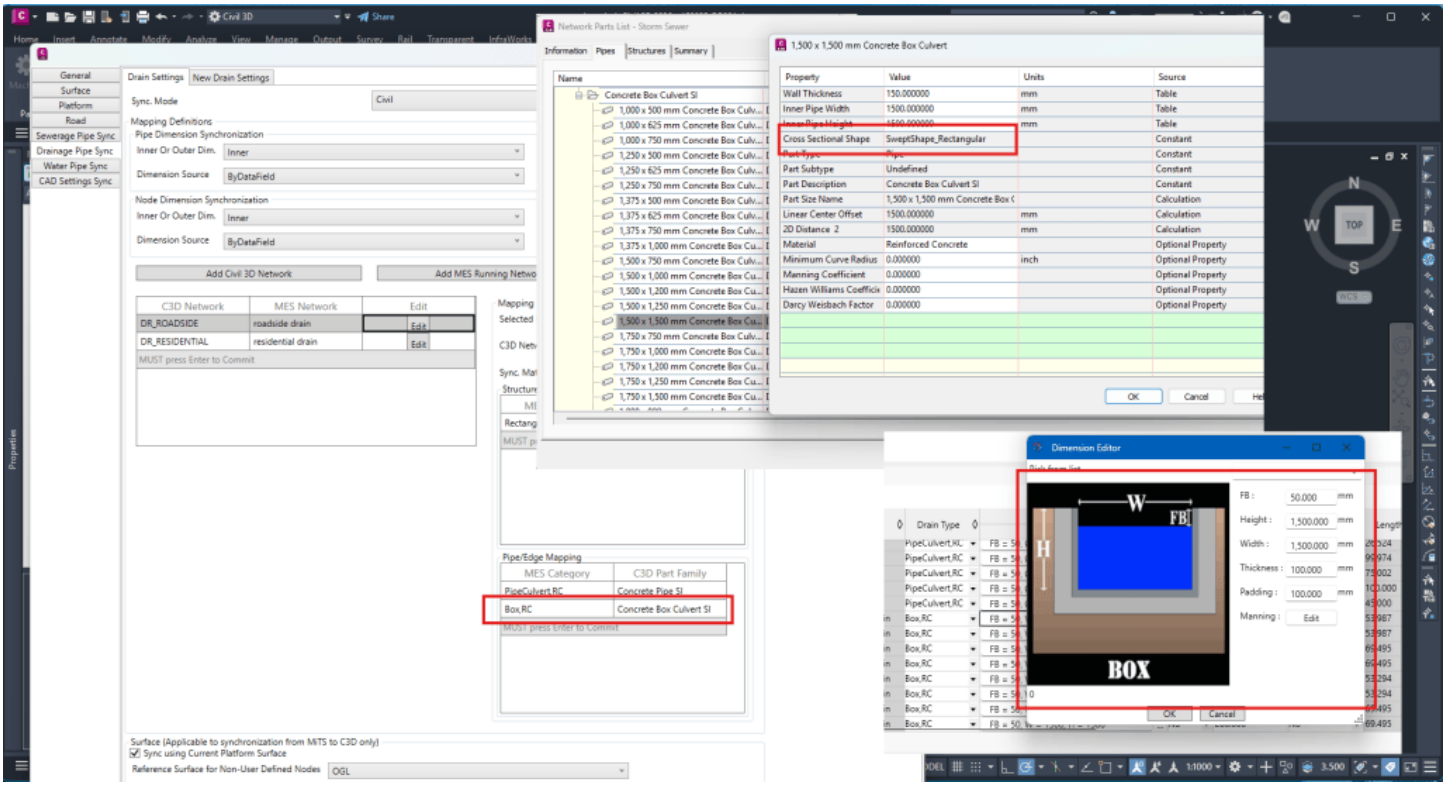

General
Surface
Platform
Road
Sewerage Pipe Sync
Drainage Pipe Sync
Water Pipe Sync
CAD Settings Sync
Sync. Mode
Civil
Mapping Definitions
Pipe Dimension Synchronization
Inner Or Outer Dim.
Inner
Dimension Source
ByDataField
Node Dimension Synchronization
Inner Or Outer Dim.
Outer
Dimension Source
ByDataField
Add Civil 3D Network
Add MES Running Network
C3D Network
MES Network
Edit
COMMERCIAL
Commercial
Edit
RESIDENTIAL
Residential
Edit
MUST press Enter to Commit
Mapping Definition:
Selected Networks(MES, C3D)
Commercial,COMMERCIAL
C3D Network Part List
Sewer
Sync. Material Coefficient
Structure/Node Mapping
MES Category
C3D Part Family
Circle,Cylinder
Typical Shallow Precast Co
MUST press Enter to Commit
Pipe/Edge Mapping
MES Category
C3D Part Family
Vitrified Clay (VC)
VCP Pipe
Surface (Applicable to synchronization from MiTS to C3D only)
Sync using Current Platform Surface
Reference Surface for Non-User Defined Nodes
OGL
Default
OK
Cancel



Note:

For synchronization **involving open drains**, there are no exact components in Civil 3D that can represent them. This is due to Civil 3D's limitation with surface modeling and complex channel shapes of open drains.

Therefore, users **should map MES's open drains to any components in Civil 3D that have a rectangular cross-sectional shape**.



- **Default mapping - Civil3D:** If you are using the **Default Civil 3D Catalog** in the synchronization, you may click on the '**Default mapping - Civil3D**' button to automatically pair the MiTS node (sump/manhole) and pipe/drain categories with the Default Civil 3D Part Families.
  - **Prerequisite**: To use the '**Default mapping - Civil3D**', the MiTS node and pipe/drain categories *must be assigned to the dedicated Civil 3D category* available in the software (e.g., Manhole Type: Circle, Cylinder ***Civil3D*** or Sewer Pipe Type: HDPE ***Civil3D***)

- Tick on the ‘Sync using Current Platform Surface’ and select the ‘Reference Surface for Non-User Defined Nodes’ accordingly.

- Click OK.

6. If you **only need to sync the gravity network (sewerage/drainage) in MiTS**, you may proceed to set the Sync. Mode for other entities to NoSync.

7. If you wish to sync other entities as well, you may proceed to follow the guides available on our website.

8. Click OK to close the Project Dialog. Then, click on **Load from MiTS** and click OK to sync the entity.

Civil 3D to MiTS

Embedded media:
https://www.youtube.com/embed/rnmuYuR_Cjg?version=3&rel=1&showsearch=0&showinfo=1&iv_load_policy=1&fs=1&hl=en-US&autohide=2&wmode=transparent&enablejsapi=1

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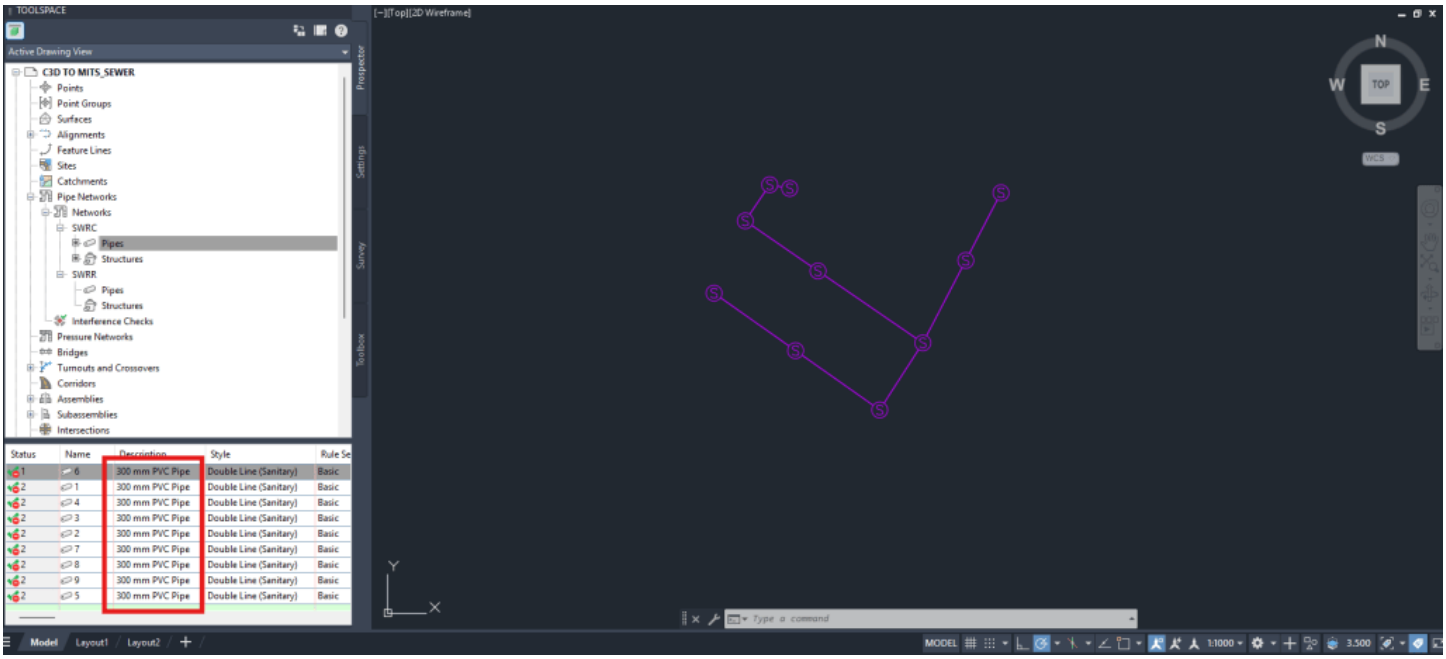
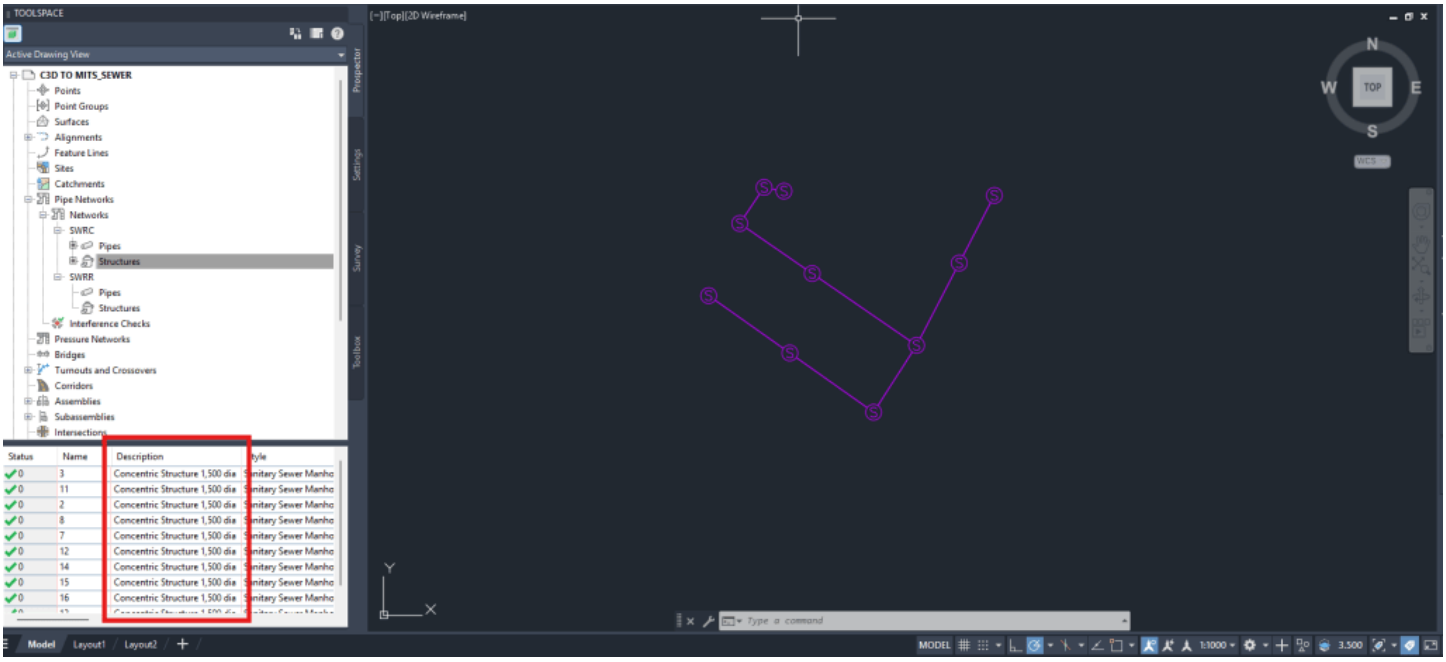
Steps:

In Civil 3D

1. Open the Civil 3D drawing file, check the parts (pipes and structures) in the network available.





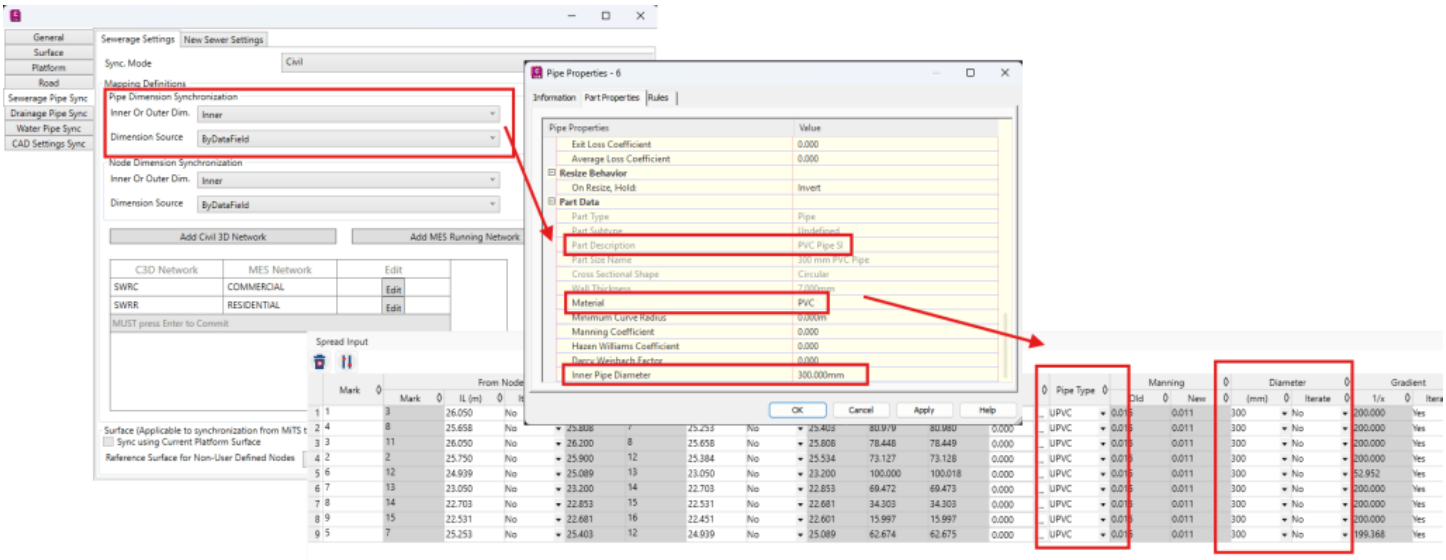
2. Go to the MES Toolbar, and click on Machine Settings.

3. Click on Project. The drawing file will need to be bound to a MiTS file following the steps **here**.

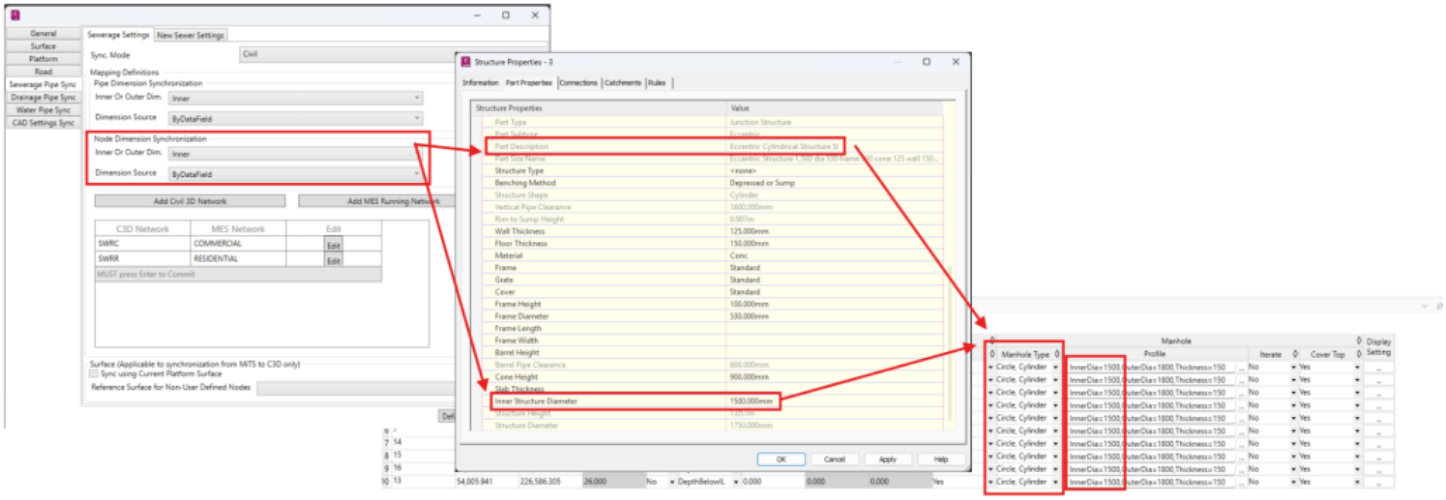
4. When syncing a network from Civil 3D to MiTS, we do not recommend syncing the **Surface** and **Platform**. Syncing these will **overwrite any existing platforms and survey point groups** in your MiTS file. **You should only sync these if you are working with a new, empty MiTS file (here).**

5. Click on the Sewerage Pipe Sync tab/Drainage Pipe Sync tab and define the parameters above.

- Set the sync mode to Civil Sync. This is required for synchronization from Civil 3D to MiTS.
- Set the Pipe and Node Dimension Synchronization accordingly. To prevent verification errors on **PartSizeCorrupted**, we strongly recommend setting the diameter parameter for both nodes and pipes to **Inner**.

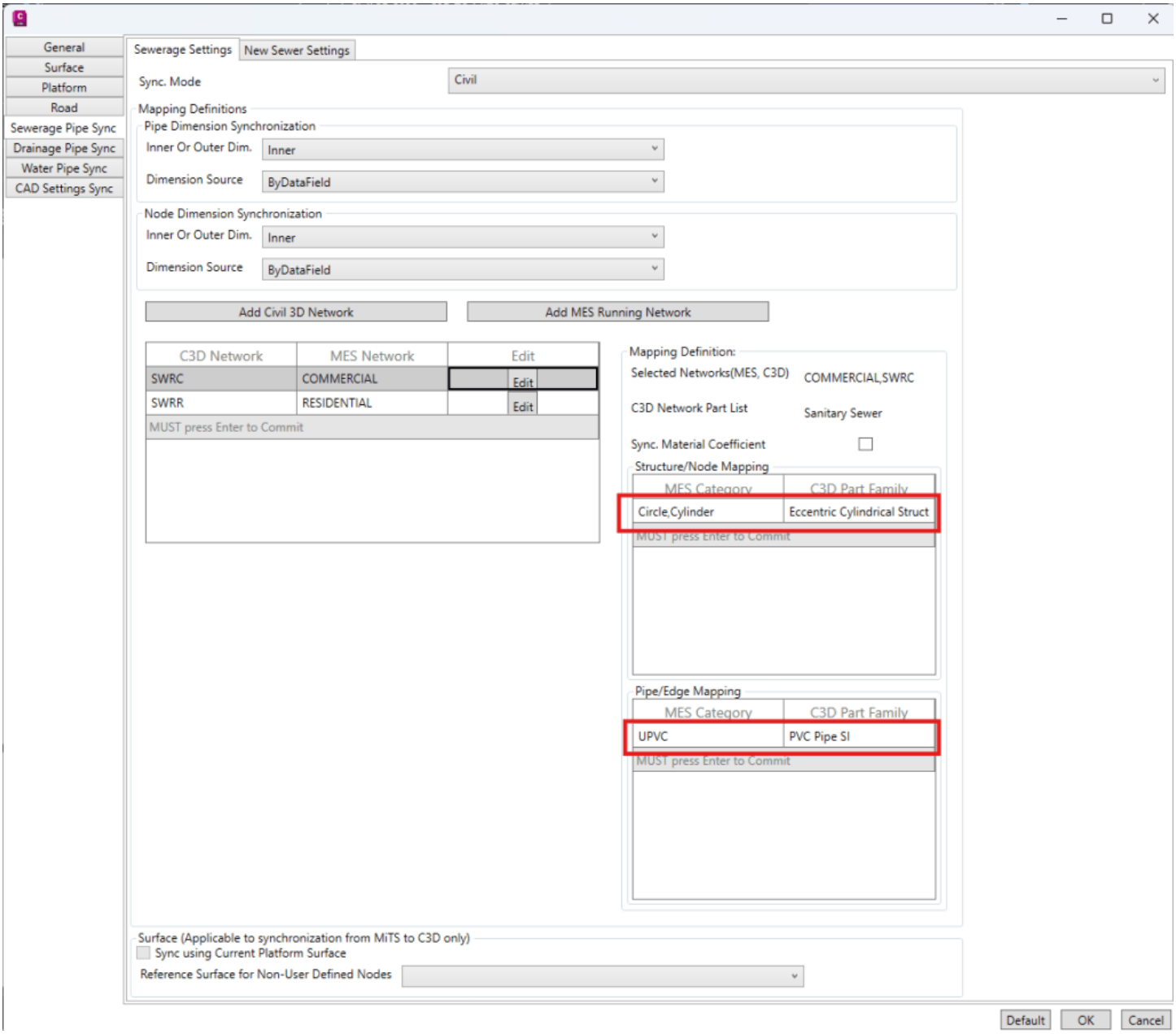


Example: For Pipe Dimension Synchronization

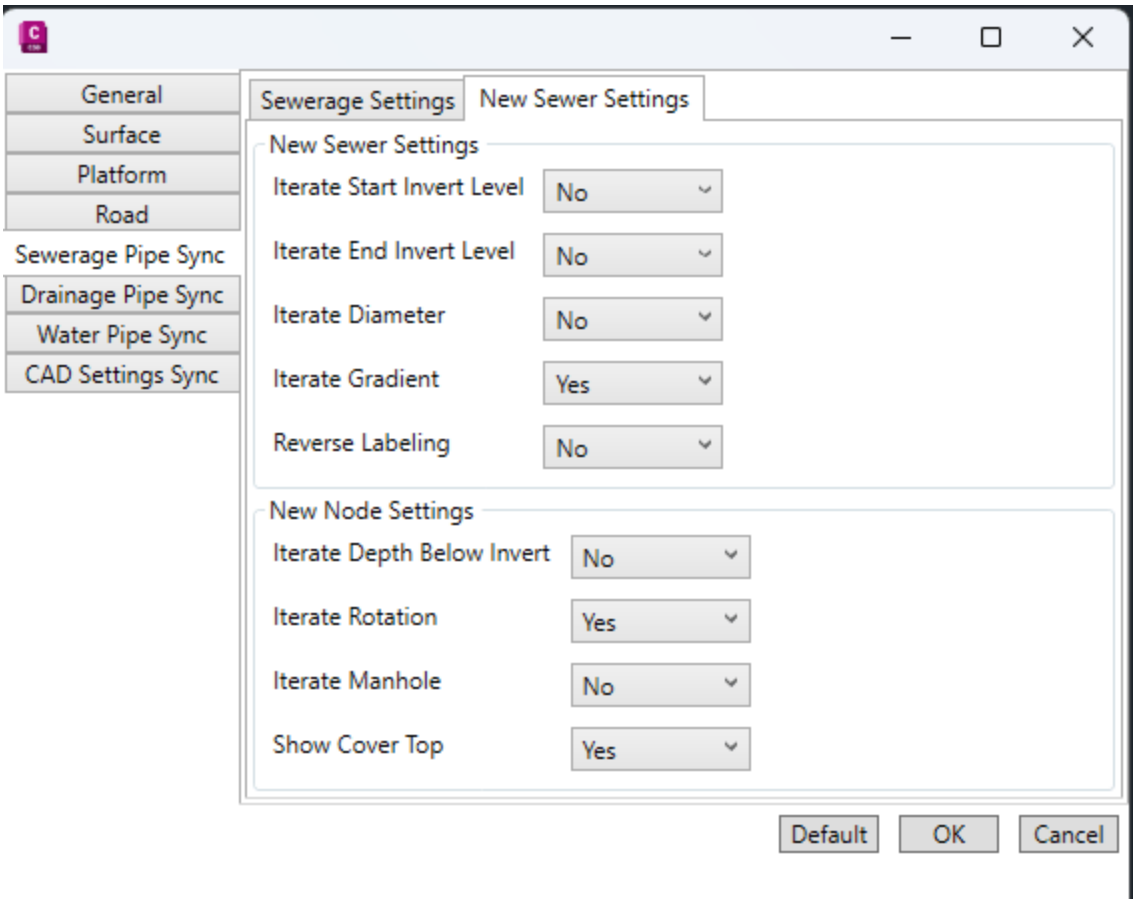


Example: For Node Dimension Synchronization

- Define MES Networks, corresponding to the Civil 3D Networks available. Users will need to define the matching MES Category and Civil 3D Part Family as well.



- Set the iteration settings for the MiTS file under the New Sewerage Settings or New Drainage Settings, as in **here**.



- Click OK.

6. If you **only need to sync the gravity network (sewerage/drainage) in Civil 3D**, you may proceed to set the Sync. Mode for other entities to NoSync.

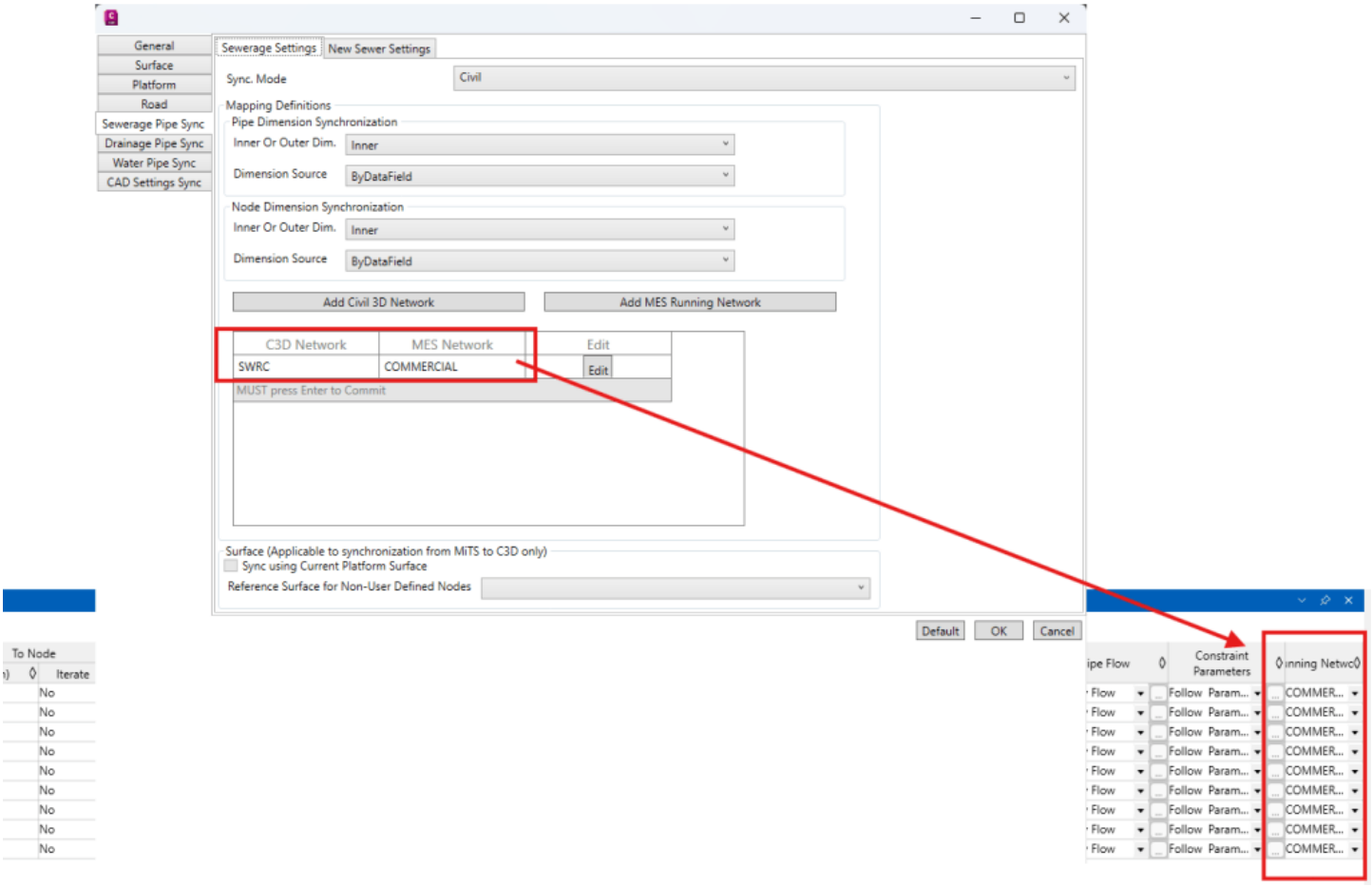
7. If you wish to sync other entities as well, you may proceed to follow the guides available on our website.

8. Click OK to close the Project Dialog. Then, click on **Sync to MiTS** and click OK to sync the entity.

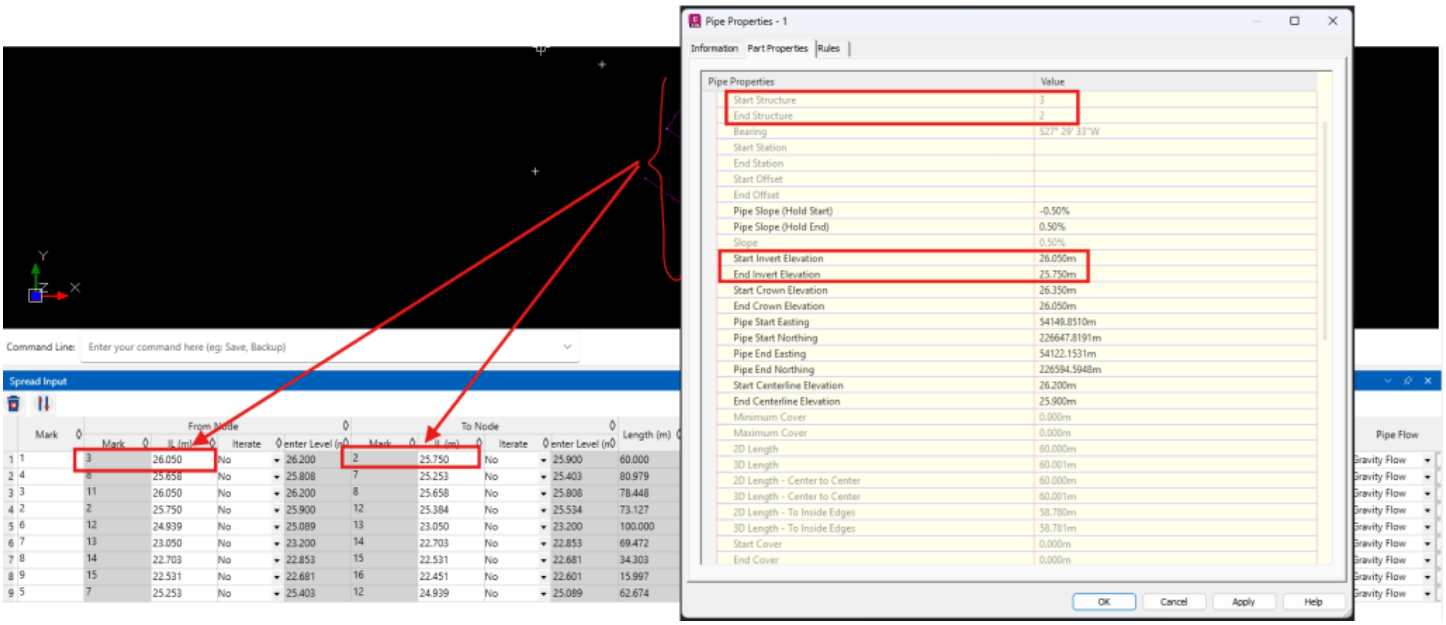
In MiTS

1. Open the newly created project file in MiTS.

2. The pipes and structures from Civil 3D will be available in MiTS. The Running Network in MiTS will match the network defined under the Project Settings in Civil 3D.



3. Both the sizes of the Part Family and the invert levels of each pipe will be synced to MiTS during synchronization. To further understand which parameters will be affected or untouched during the synchronization, you may refer to the article **here**.



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I'm the Benevolent Dictator for Life for MiTS Software cum Editor of this website. Read more here.

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