



12D IMPORT WORKFLOWS

V1.5 May 2023.

Contents

Introduction and background information	3
1.Setting up a Project in TBC.....	4
TBC Template Setup.....	4
Launch a new project.....	4
Change the Project Settings.....	4
2.Colour.4d files	6
3.Importing Drainage Strings	7
Using “Create lines for Drainage Pipes” setting.....	9
4.Importing Super Strings with Pipes, Attributes and Vertex Text	11
5.Importing Super Alignments	13
6.Importing TIN’s	16
7.Importing Super Tins.....	18
8.Importing Trimesh	18
9.Detail Survey Import	20
10.Image Import	21

Introduction and background information

Trimble Business Centre (TBC) allows users to import and process 12d data. These following workflows show users how to import 12da files containing:

- Super Strings – with pipes, attributes, and Vertex text
- Super Alignments – with pipe data and attributes
- TIN's
- Trimesh objects
- General Detail surveys

The 12da data can be imported into TBC using a range of different settings which allow the user to choose to import features in different ways. The following workflows provide some examples of these different data types and how TBC handles them.

At the end of a 12da file being imported a box will appear that contains information on any errors or warnings that may have occurred during import. It is important to review these to understand if any data was not imported.

Using the 12da import settings the data can be given a layer prefix and a layer group at the time of import. These options are located at the top of the settings in the import pane and allow users to better manage and identify newly imported data. After import, the data layers can also be easily regrouped and renamed using the ANZ toolbox function "Regroup/Rename Layer". Users can select data in the plan view, using advanced select or in the project explorer, then the selected object layers can be grouped or renamed with a prefix or suffix. The tool also displays a list of all the current layers from which they can be easily selected.

We strongly recommend reading the help page for [Advanced 12D support](#) for better understanding.

Note: It is important to note that to access the extra settings you must go through the *Import* pane and not use *drag and drop*. The previously used settings in the import pane are also what you get when using the drag and drop method, and the import pane will hold the last used settings until changed again.

1. Setting up a Project in TBC

TBC Template Setup

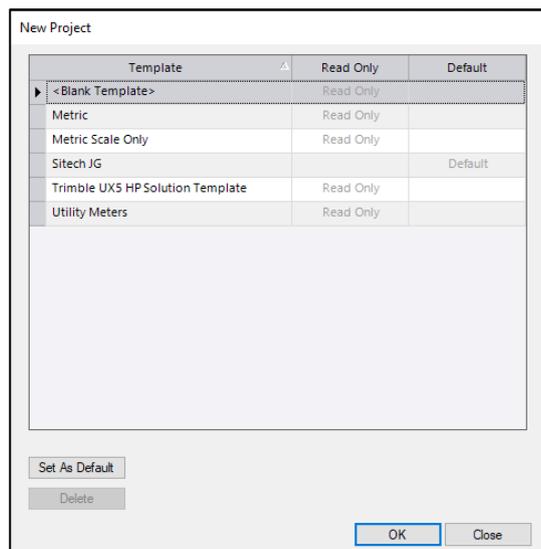
Before importing any data, it is important to get your project template setup.

Launch a new project

In Trimble Business Centre, do either of the following:

1. On the Start Page, click the **New Project** button.
2. In the TBC ribbon, select **File > New**.

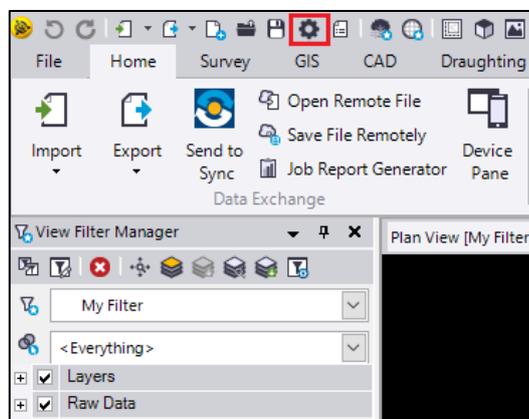
The **New Project** window will display.



Select *Metric* template or your own default template and click **OK**. The **Plan View** will then display.

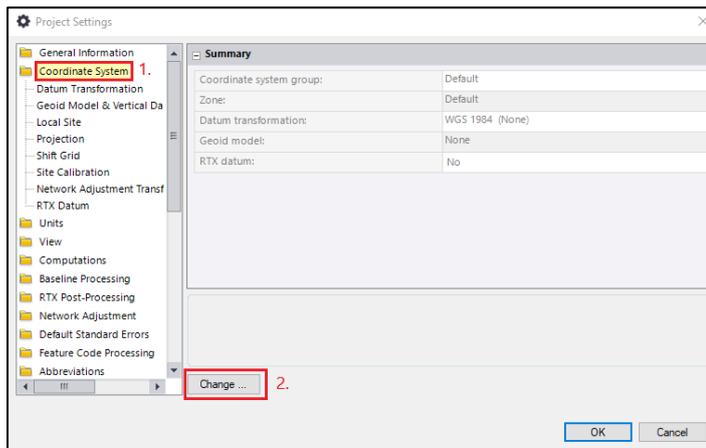
Change the Project Settings

1. In the top left corner of the **Quick Access** toolbar select project settings.



2. Fill out any of the **General Information** if necessary or skip this section.

3. If using a published **Coordinate System** select **Coordinate System**, then click **Change** and select from the list.



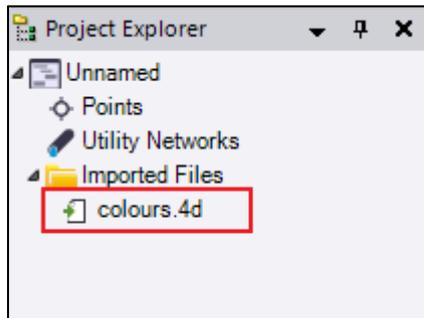
4. If using a **site calibration file** drag and drop into the Plan View.

A basic template has now been set up in TBC and the software is now ready to import data.

2.Colour.4d files

Before importing any 12da files it is possible to setup the same colour pallet that was used in 12d if you have the colour.4d file from 12d. To import a colour .4d file the drag and drop method can be used.

1. In the windows file explorer locate the **.4d colour file** you wish to import.
2. Select the file and **drag and drop the file in the Plan view** in your TBC project. The imported file should display in the imported files folder in the Project Explorer.



Note: To display the project explorer navigate to **Home > Data > Project Explorer**.

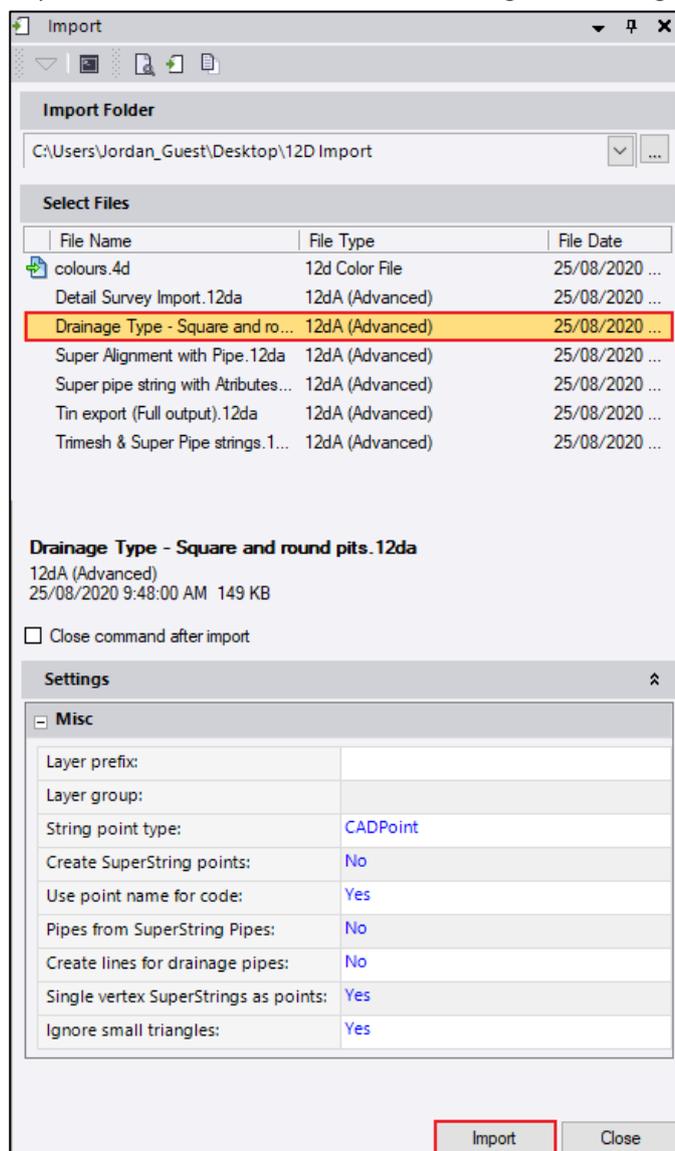
If you do not have the colour file used to create the data in 12d then TBC will assign the closest system colour. User-defined colours are assigned the **By layer** colour and reported as warnings in the **Import Report**.

3.Importing Drainage Strings

This data is imported as manholes and pipes with the naming conventions, models, attributes, and location data taken directly from the 12da file. Pipes are set to **Calculated “End type”** by default but can be edited in TBC after import.

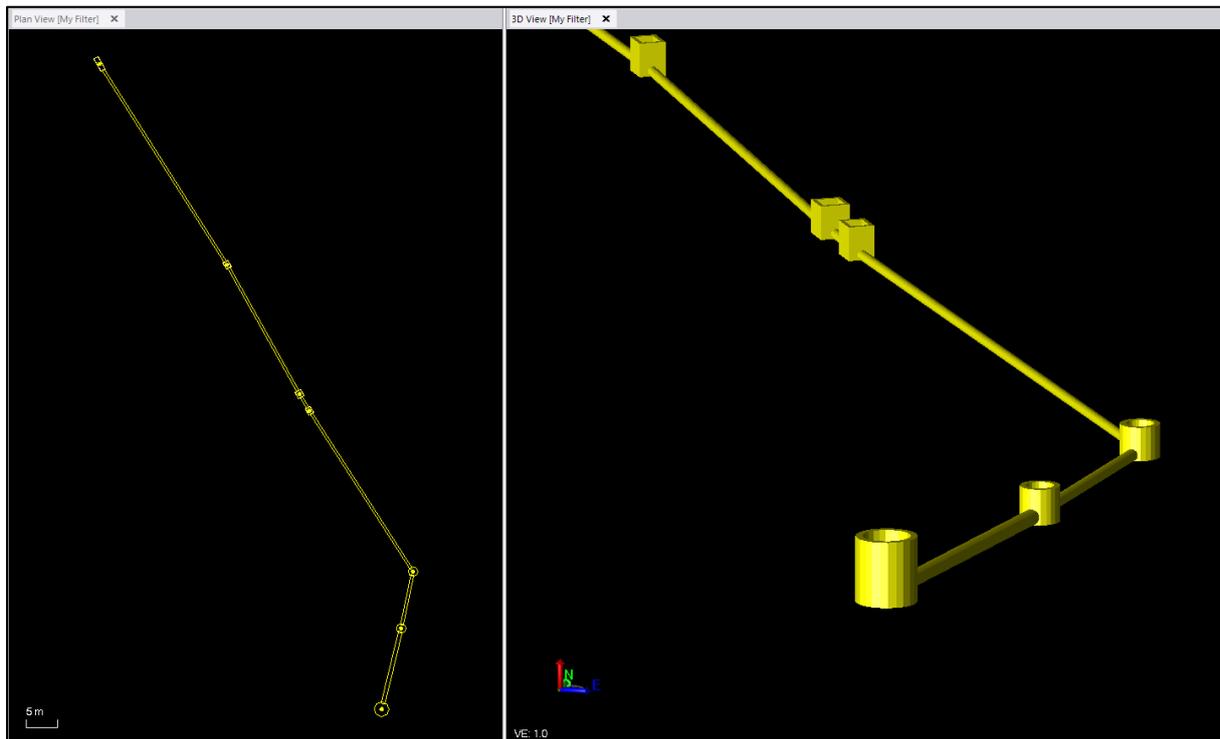
To import drainage pipes and manholes:

1. Start by opening the import window. Navigate to **Home > Data Exchange > Import**.
2. In the import window **click** the  **icon**. The Import Folder window should display.
3. Navigate to the folder containing the drainage data you wish to import. **Click OK**.
4. In the import window **select** the **12da file**. Change the settings if required. **Click Import**.



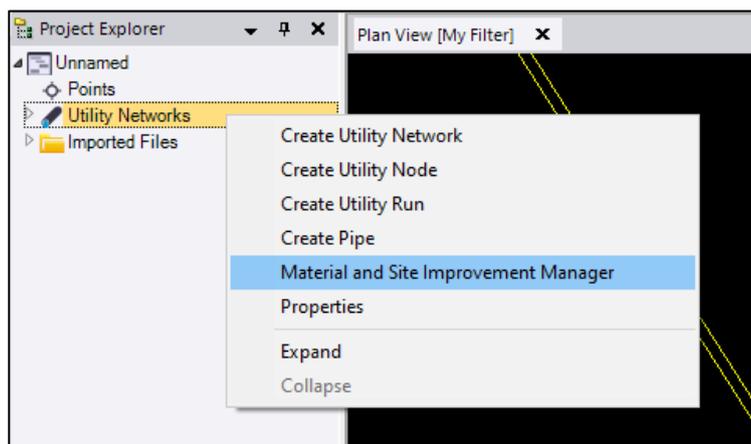
The Pipes and manholes should display in the Plan View. To view the data in 3D view, open a new 3D view by clicking the  icon in the quick access toolbar or navigate to **Home > View > 3D View**.

The image below displays an example of pipes and manholes that have been imported into TBC using the process described above.

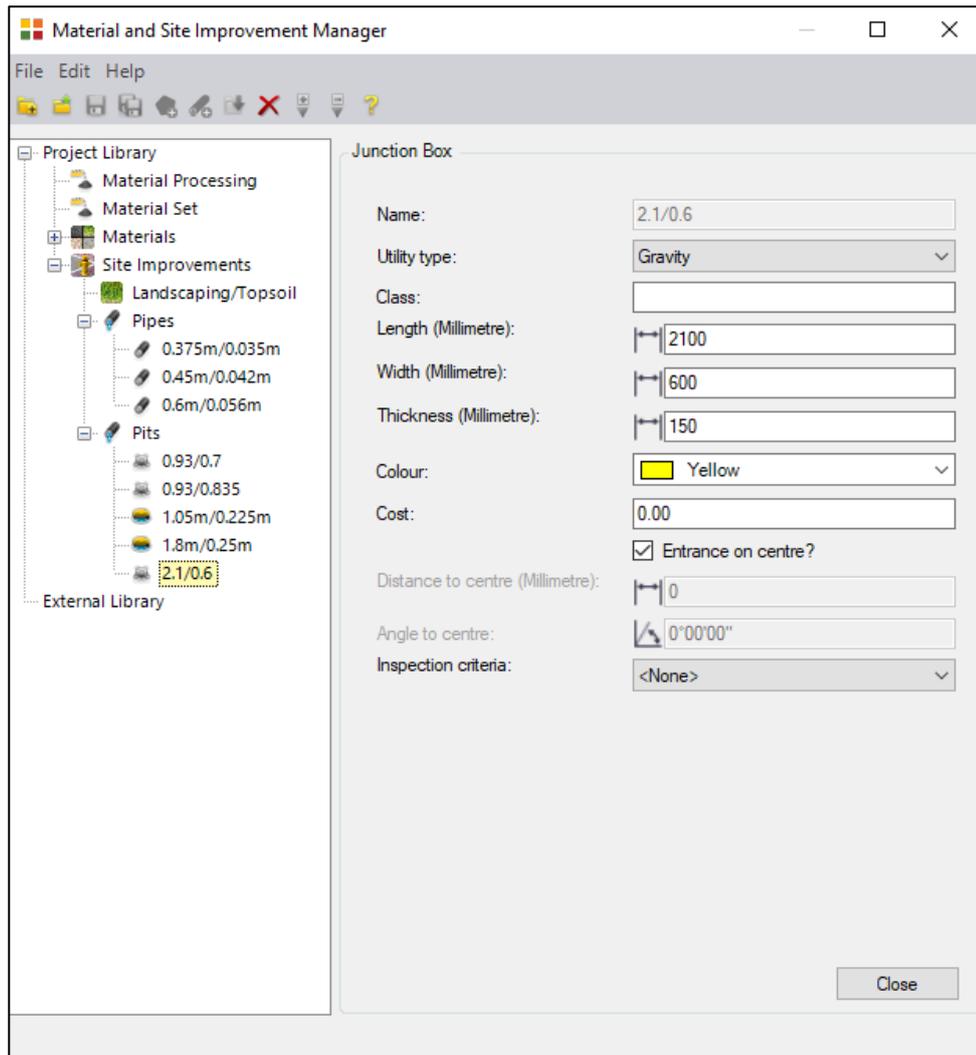


The 12D importer automatically imports both the pit and pipe objects into the **Material and Site Improvement (MSI) Manager**. The MSI Manager is where these objects are defined and can also be edited. To access the MSI manager:

1. **Right click** on the **Utility Networks** dropdown in the project explorer.
2. **Select Material and Site Improvement Manager**.



The MSI Manager should now be displayed and the defined pipe and pit objects that were created on import can be explored by expanding the **Site Improvements** list. An example is shown on the following page.



In the example above you can see all the information defining the Pit objects that was imported and the parameters such as Length, Width, Thickness, Colour and Name can be edited here.

The **properties** of individual Pits or Pipes can be displayed by:

1. **Selecting the feature** in the Plan View or in the Project Explorer
2. Then **pressing F11 or right clicking** in the Plan View and **selecting Properties**.

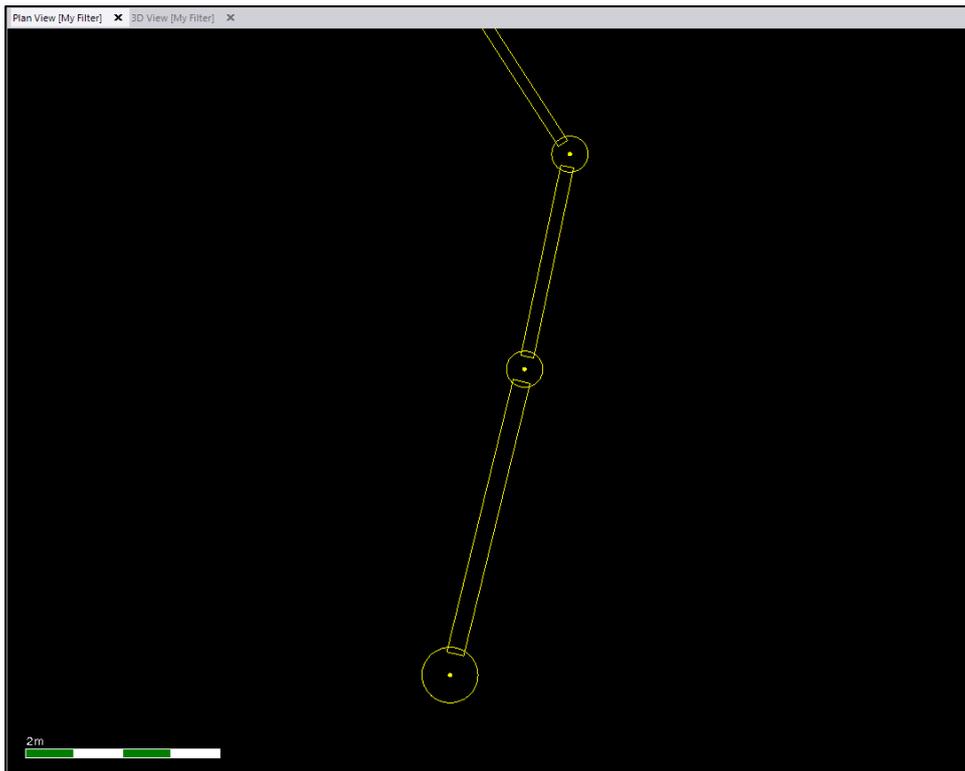
In the Properties tab information such as the Site Improvement Model, Layer, Colour and Location (Easting, Northing and Elevation) can be explored and edited.

Using “Create lines for Drainage Pipes” setting

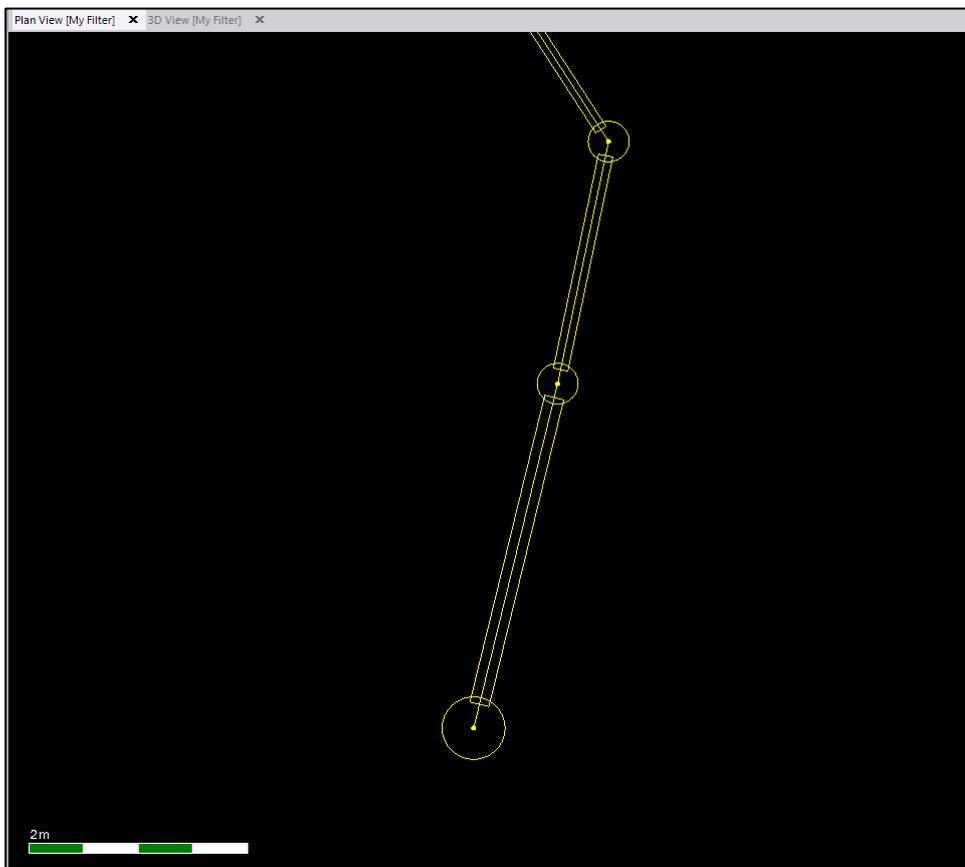
When importing Drainage pipes and pits follow the import process described above but change the import setting **Create lines for drainage points** to **Yes**. A line string is created between the manholes applying the pipe invert level at the centre of manholes and these strings are placed on a layer of the same name with **_lines** as a suffix. These line strings are handy for use in machines or survey controllers.

Note: A line string is created between the manholes applying the pipe invert level at the centre of manholes as the line created will go from centre to centre, not the inside of pit wall.

Before changing **Create lines for drainage points** to **Yes**.



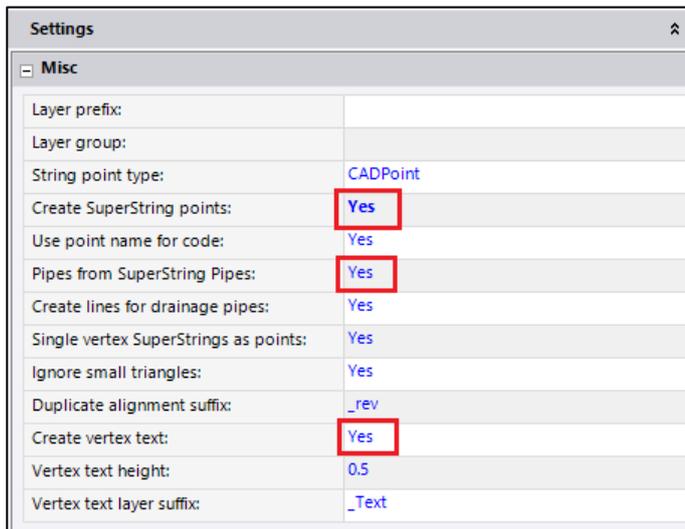
After changing **Create lines for drainage points** to **Yes**.



4.Importing Super Strings with Pipes, Attributes and Vertex Text

Super Strings are imported into TBC as line strings. In 12d, super strings can have attributes associated to the entire line and attributes associated with separate vertices. The Settings in the TBC import window allow users to choose whether they want to import the attribute data for both the line string and vertices associated with a line. Super strings can also have pipe data associated to them. To import super strings with both vertex and line attributes and pipe data:

1. Start by opening the import window. Navigate to **Home > Data Exchange > Import**.
2. In the import window **click** the  icon. The Import Folder window should display.
3. Navigate to the folder containing the data you wish to import. **Click OK**.
4. **Select** the 12da file that contains the **Super Strings**.
5. In the settings change the **Create SuperStrings points** setting to **Yes** and change the **Pipes from SuperString Pipes** to **Yes**. As shown below.
6. To create text from the vertex and segment text change the **Create Vertex text** setting to **Yes** and give it a height and layer suffix.



Settings	
Misc	
Layer prefix:	
Layer group:	
String point type:	CADPoint
Create SuperString points:	Yes
Use point name for code:	Yes
Pipes from SuperString Pipes:	Yes
Create lines for drainage pipes:	Yes
Single vertex SuperStrings as points:	Yes
Ignore small triangles:	Yes
Duplicate alignment suffix:	_rev
Create vertex text:	Yes
Vertex text height:	0.5
Vertex text layer suffix:	_Text

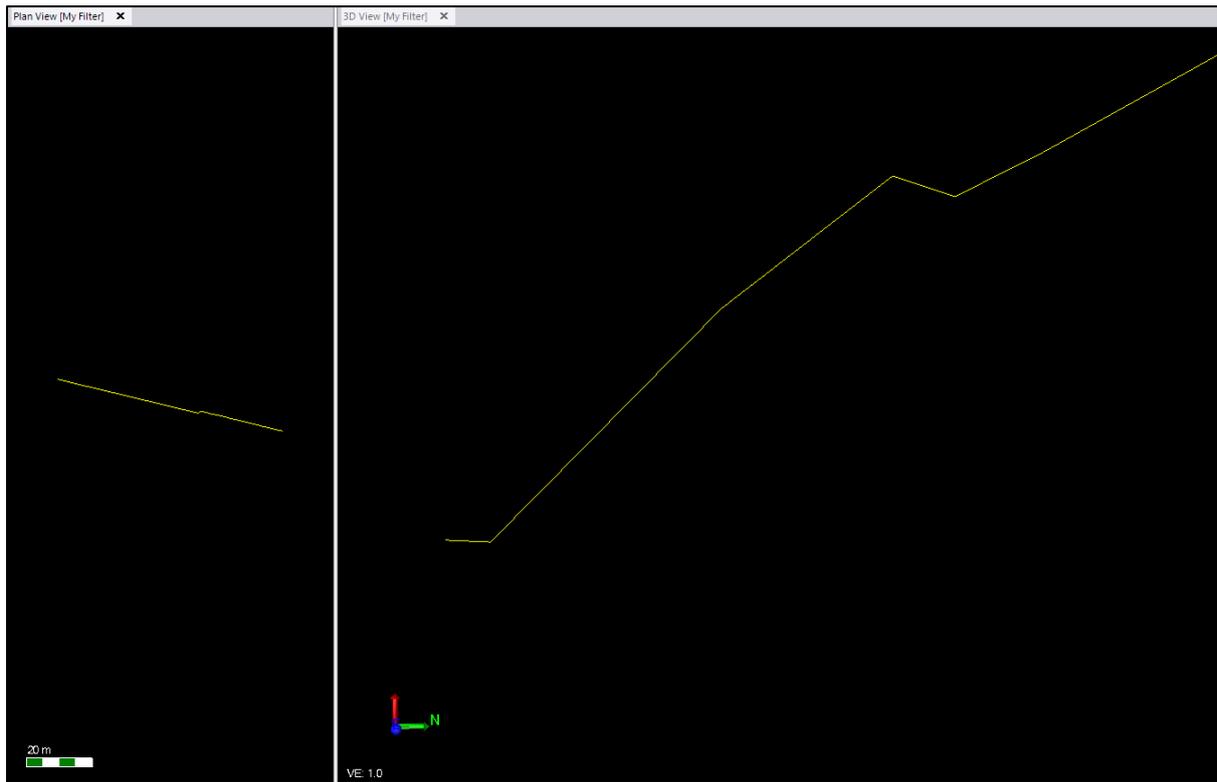
Notes:

By changing the **Create SuperStrings points** setting to **Yes**, points are created at the vertices with the attribute data that was defined in 12d.

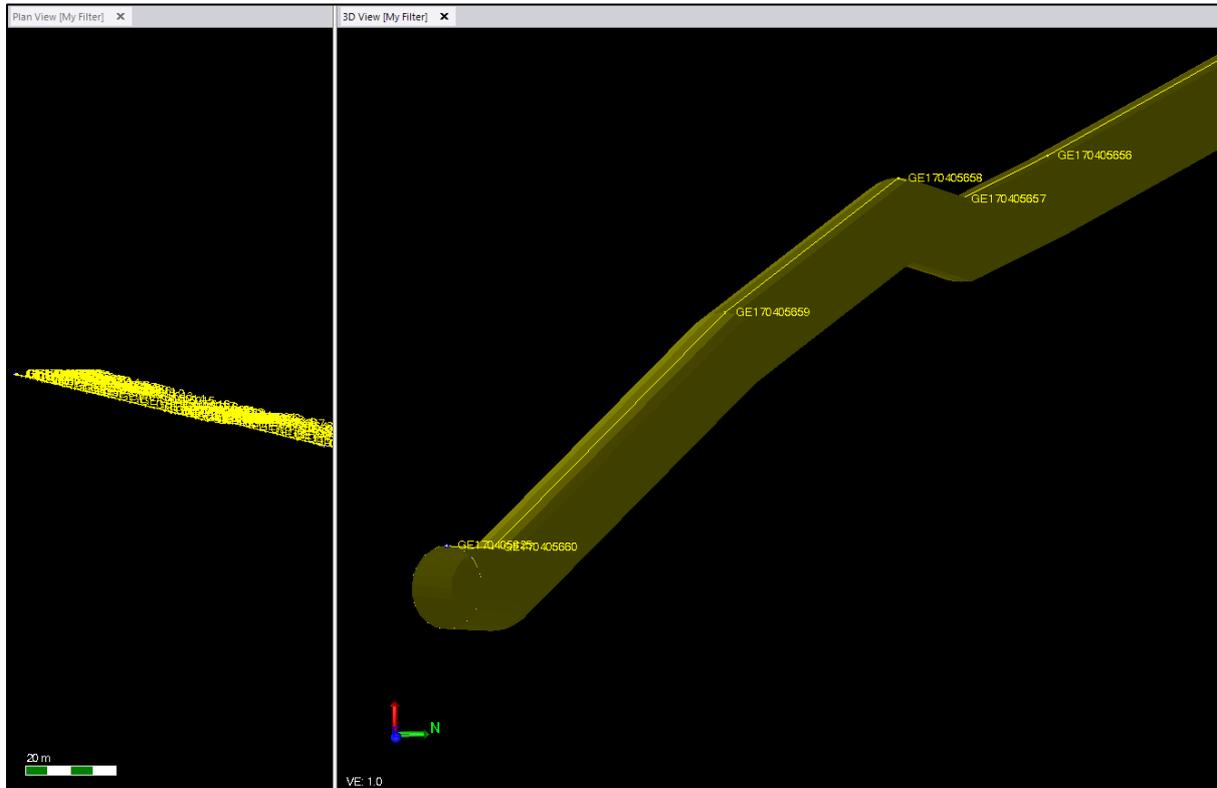
By changing **Pipes from SuperString Pipes** to **Yes**, a pipe object is created from the pipe data and placed on a layer of the same name with **_pipes** as a suffix.

By changing **Create vertex text** to **Yes**, text is created on screen at the height set and using the layer name from which the data came with a suffix set by the user. If this is set to **No**, then the data is still imported and can be seen in the properties pane under "12d Text Data".

Imported Super String using **default settings**.



Imported Super String with **changed settings**.

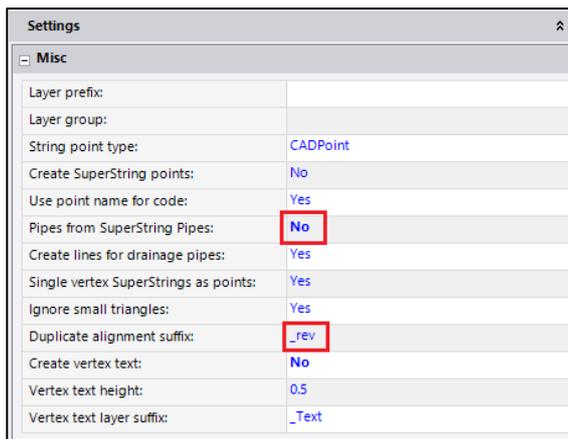


5.Importing Super Alignments

Super Alignments are imported as a segment-based horizontal alignment and as a PI based vertical alignment. In 12d they can have pipe data and attributes associated to them and by changing the **Pipes from SuperString Pipes** setting to **yes** on import it will create a Pipe model along the alignment if it is defined in the 12da file. The alignment attributes are also imported if available and if an alignment of the same name exists in the TBC project the new one being imported will be given a suffix of the users choice.

To import a basic Super Alignment:

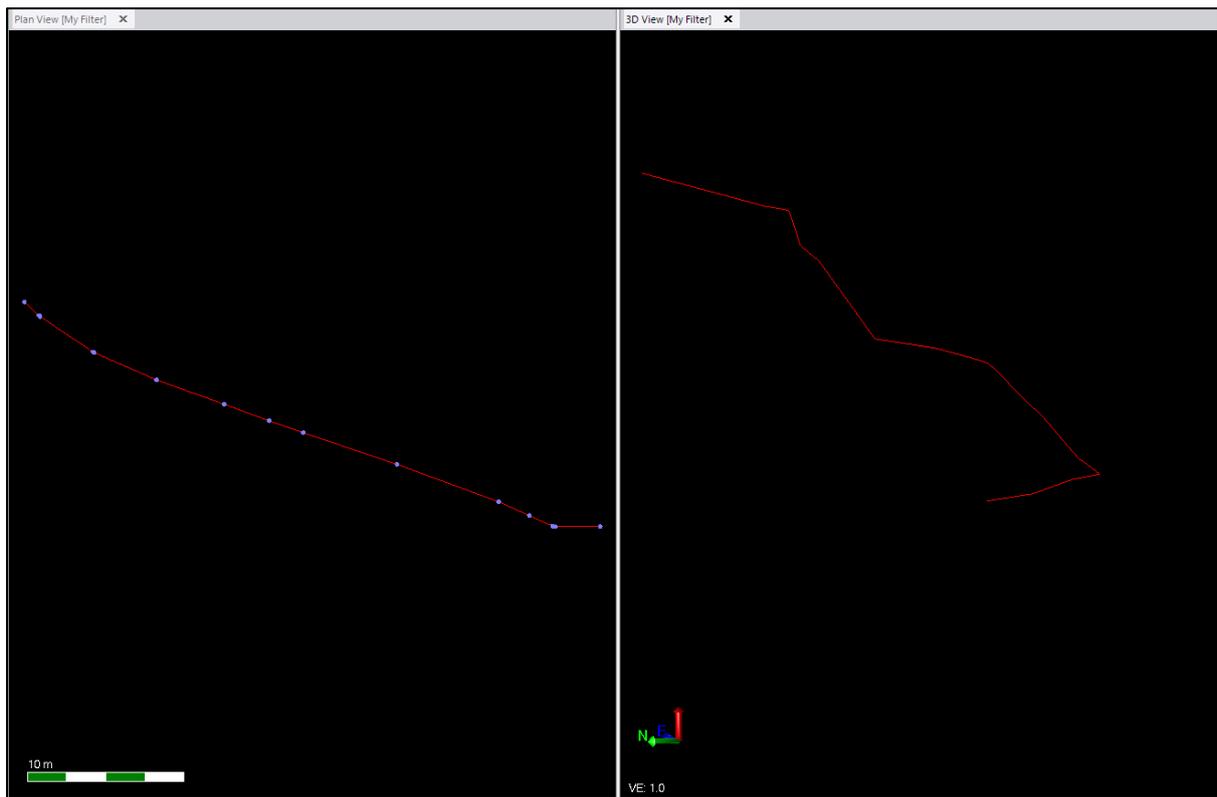
1. Open the import window, navigate to **Home > Data Exchange > Import**.
2. In the import window **click** the  **icon**. The Import Folder window should display.
3. Navigate to the folder containing the Super Alignment data you wish to import. **Click OK**.
4. In the import window **select** the **12da file**. Change the **Pipes from Superstring Pipes** setting to **No**.
5. Change the **Duplicate alignment suffix** name if required and **Click Import**.



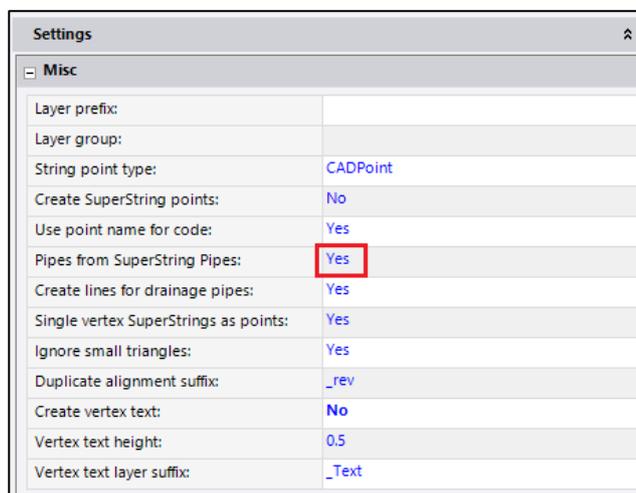
Settings	
Misc	
Layer prefix:	
Layer group:	
String point type:	CADPoint
Create SuperString points:	No
Use point name for code:	Yes
Pipes from SuperString Pipes:	No
Create lines for drainage pipes:	Yes
Single vertex SuperStrings as points:	Yes
Ignore small triangles:	Yes
Duplicate alignment suffix:	_rev
Create vertex text:	No
Vertex text height:	0.5
Vertex text layer suffix:	_Text

Note: If a super alignment has a spiral that is not supported you will get a message in the warnings “A spiral on segment ‘no.’ with unsupported geometry was replaced on alignment: ‘name’ with a straight”.

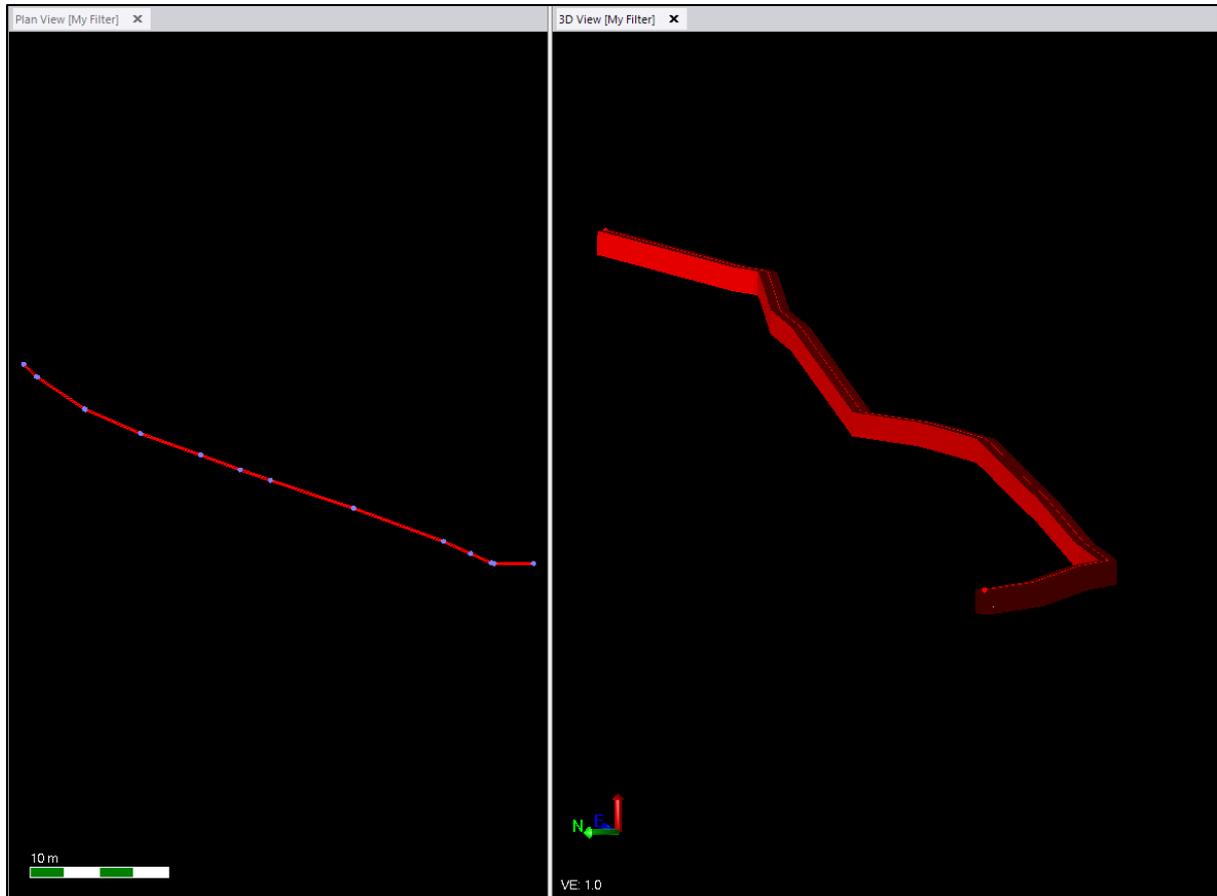
The image below shows an example of an imported Super Alignment without pipe data.



To import a **Super Alignment** with **Pipe Data**, follow the steps described above, however change the **Pipes from SuperString Pipes** setting to **Yes**.



By changing this setting, a Pipe object is created along the alignment as defined in the 12da file and placed on a layer of the same name with **_pipes** as a suffix. The image below displays the same data as the alignment used in the above image with the **Pipes from SuperString Pipes** setting changed to **Yes**.



6.Importing TIN's

TIN data is imported as a 3D surface with internal data, meaning the data is embedded in the surface on import and cannot be edited in TBC. To import a TIN:

1. Open the import window, navigate to **Home > Data Exchange > Import**.
2. In the import window **click** the  **icon**. The Import Folder window should display.
3. Navigate to the folder containing the TIN data you wish to import. **Click OK**.
4. In the import window **select** the **12da file**. The default settings are appropriate. **Click Import**.

Note: The “ignore small triangles” setting is set to **No** by default. It Stops the import of tiny triangles less than 1mm² from 12d that can cause problems in the surface and not import properly. You may need to test the import set to yes if the surface does not come in correctly to start with.

The imported Surface may have flags displaying and maybe holes. This is possibly due to small errors from vertices being on top of each other or very close to vertical. Prior to importing your surface file, you can go to the Project Settings and change the “**Duplicate point tolerance**” setting to **0.001mm**. (Only available in V5.40 and beyond) or we have also made this same option available in the 12da import pane called “**Duplicate surface point tolerance**”. You can use this setting here to be the default for every 12da file imported while leaving the “Project” setting at a different level.

Note: If for some reason the surface comes in empty try changing the setting back to 0.1mm.

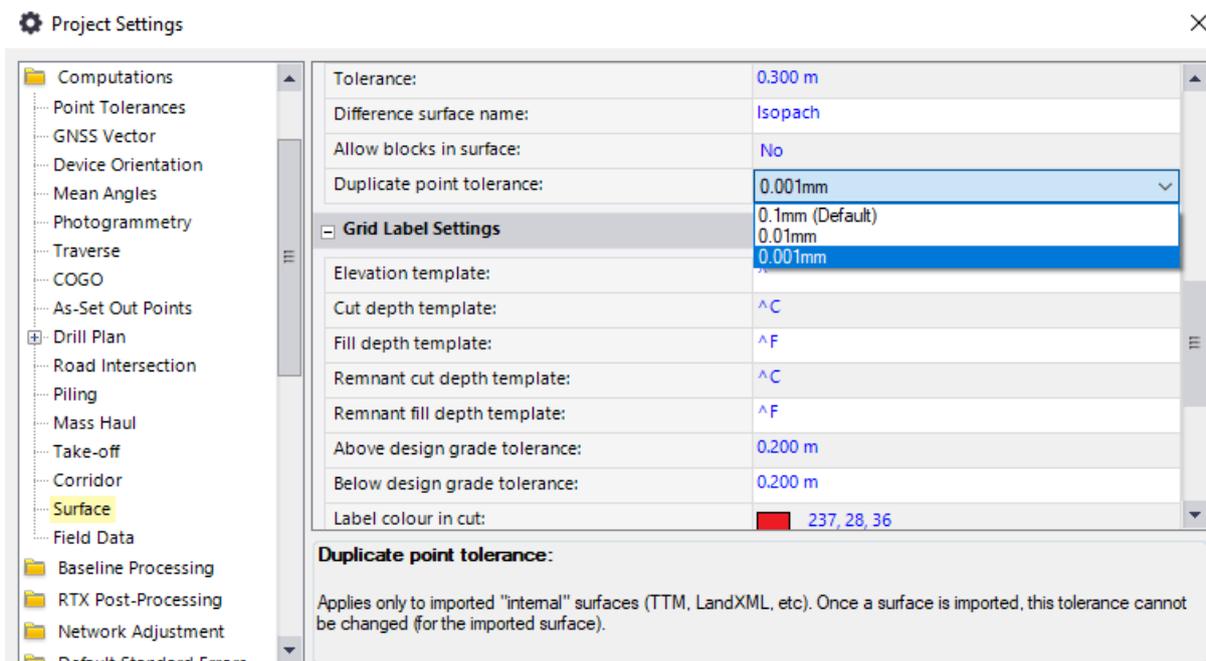
Option to add a surface prefix on import.

Surface prefix:

12d import pane option for duplicate points.

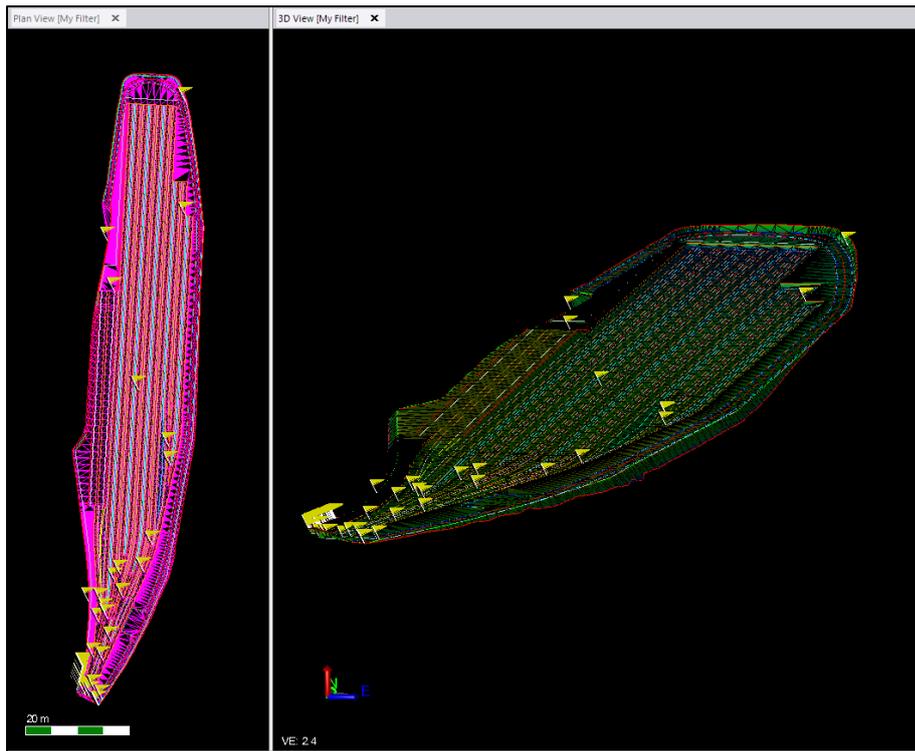
Duplicate surface point tolerance (mm):

Project Settings menu for duplicate points.

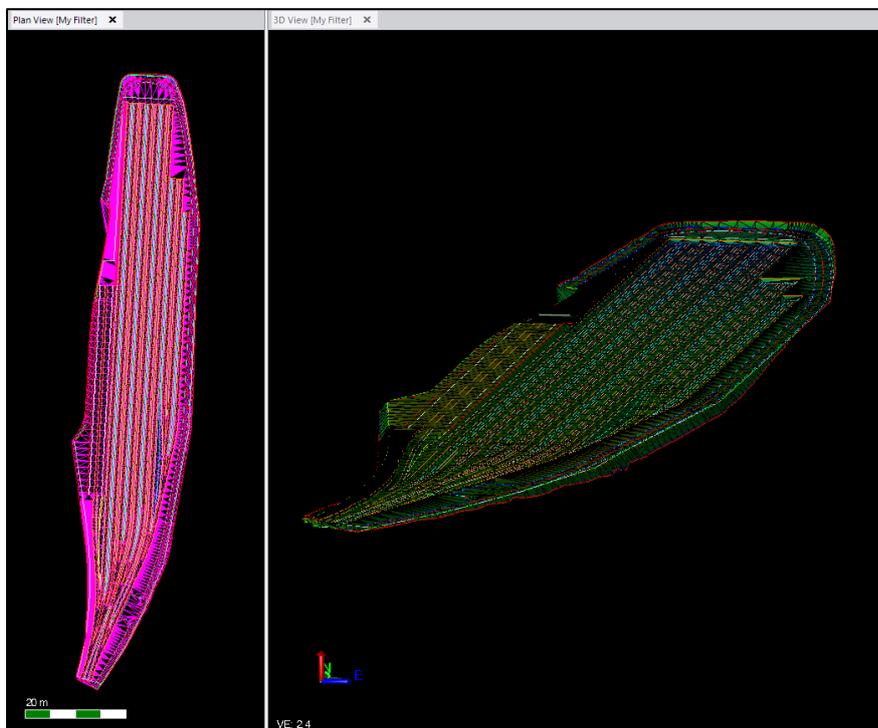


The screenshot shows the 'Project Settings' dialog box with the 'Surface' category selected in the left-hand tree. The 'Duplicate point tolerance' is set to '0.001mm'. Below this, the 'Grid Label Settings' section is expanded, showing a list of tolerance options: '0.1mm (Default)', '0.01mm', and '0.001mm' (which is currently selected). Other settings like 'Tolerance: 0.300 m', 'Difference surface name: Isopach', and 'Allow blocks in surface: No' are also visible.

This is what your surface may look like with using the **0.1mm** setting.

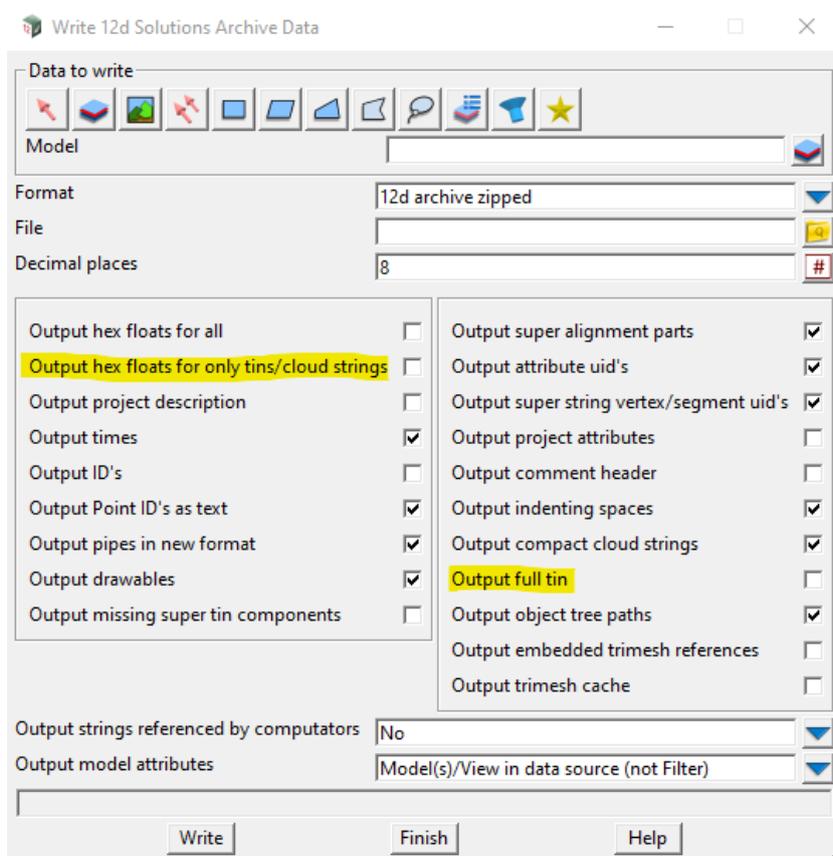


Review the flags by clicking on the little red flag at the bottom of the screen. The image below shows the surface when imported with the “**Duplicate surface point tolerance**” set to 0.001mm.



Note: It is recommended that when exporting a surface from 12d that you uncheck the “*Output full tin*” option as this can cause errors in the surface edges within TBC.

If importing files exported from 12d V15 then please check that the export settings used are as shown in the image below. By default, the 12d export panel is set to export surfaces as hexadecimal which cannot be read into TBC or Trimble Access.



7.Importing Super Tins

This data will be imported and turned into a “**Composite Surface**”. If the Super tin contains tins using the “*Remove*” mode, they will be ignored and flagged at import.

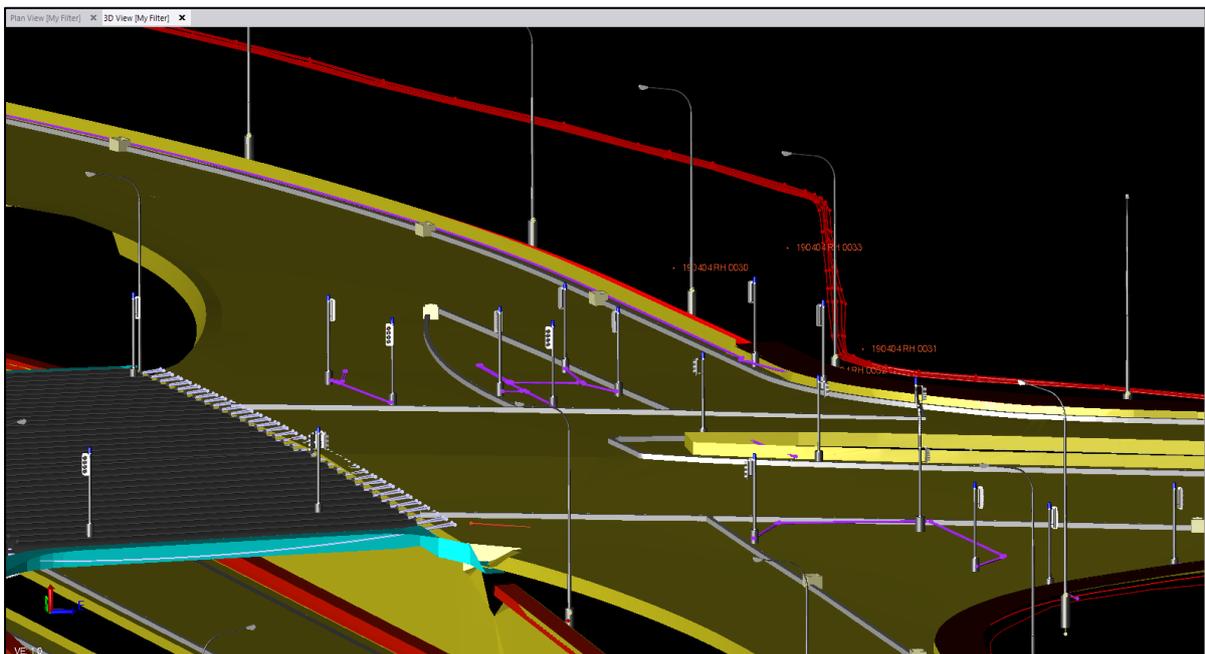
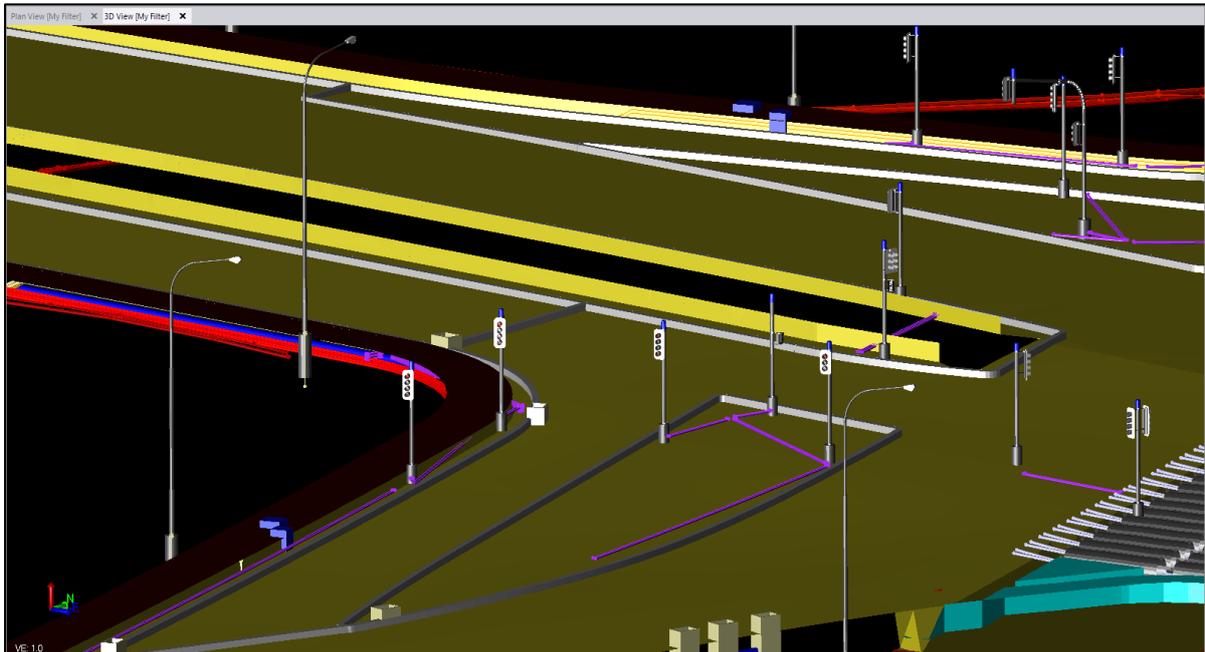
Note: If the composite surface does not form properly try recreating the surfaces that are being used in the composite surface within TBC using the original surfaces as the members for each surface.

8.Importing Trimesh

12d Trimesh data is imported as 3D BIM objects.

1. Ensure the colour .4d file has been imported (see p.g. 6) if you want to map them the same as it was in 12d. Open the import window. Navigate to **Home > Data Exchange > Import**.
2. In the import window **click** the  **icon**. The Import Folder window should display.
3. Navigate to the folder containing the Trimesh data you wish to import. **Click OK**.
4. **Select** the 12da file and **click Import**.

An example of Trimesh data imported into TBC is displayed below.



Note: Upon importing 12da files with Trimesh data TBC will (from V5.90) populate the **BIM Data** section in the Project explorer with these objects.

9.Detail Survey Import

This is an example of importing a detail survey from a 12da file. To allow the features such as colours, line styles and symbols to map correctly in TBC the associated colour 4d file and feature definition library in FXL format are required. To import a 12da file with general detail survey into TBC:

1. Start by **dragging and dropping** the associated **colour 4d file** in the plan view. If this step is not followed TBC may not recognise the colours of certain features created in 12d.
2. **Drag and drop** the appropriate FXL file (Feature Definition Library) into the plan view. This allows the symbols, line styles and layering to exist in TBC.
3. Open the **Import** window, **Home > Data Exchange > Import**.
4. In the settings change **String Point Type** to **“Point”**.
5. **Click Import**.

Note: TBC will not process CAD points therefore ensure the string point type is changed in the import pane if you want to get symbols.

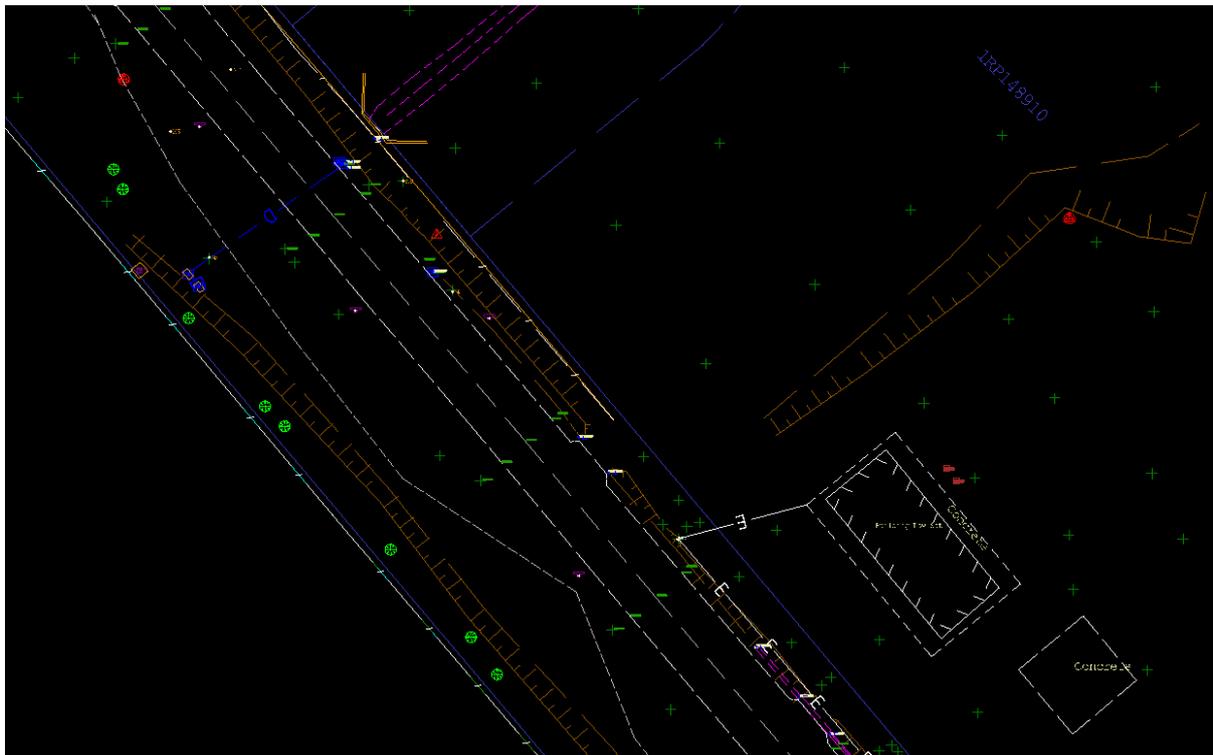
If the 12da file is correctly matched to the colour file and FXL then when the data comes in as described above, it will adopt the incoming colours and line styles automatically but will require the processing of the feature codes for the points to be assigned symbols.

To process feature codes:

1. Navigate to **Survey > Field Data > Process Feature Codes or GIS > Feature Definition > Process Feature Codes**.
2. In the Process Feature Codes tab **tick the box** containing the imported 12da file.
3. **Click Process Source(s)**.



In the below image is an example of a TMR detail survey brought in from a 12da file using the above process. It now displays as you would see it in 12d.



10. Image Import

Images attached to points and lines in a 12da file will be imported and shown in the “Media Files” folder in the project explorer. Images attached to lines in 12d will have points created for them to attach to in TBC. Plan Images shall be drawn in the plan view of TBC on the same layer as the point or line they came from.

Note: The Image files need to be in the same folder as the 12da file they are used in when importing into TBC for them to be used.

Below shows point 1001 with a “Plan” image and point 1000 with an “attached” image file.

