Practice Workbook

This workbook is designed for use in Live instructor-led training and for OnDemand selfstudy.
The explanations and demonstrations are provided by the instructor in the classroom, or in the OnDemand eLectures of this course available on the Bentley LEARN Server (*learn.bentley.com*).

This practice workbook is formatted for on-screen viewing using a PDF reader.
It is also available as a PDF document in the dataset for this course.

Customizing OpenPlant Support Engineering

This workbook contains exercises to customize a drawing border and control the level names, colors, styles and weights.

TRNC01938-1/0001

Description and Objectives

Course Description

This workbook contains exercises to customize a drawing border and control the level names, colors, styles and weights.

Skills Taught

- Customizing the Drawing Border
- Customize the Drawing Border Data in the Dashboard
- Customizing the Levels

Getting Started

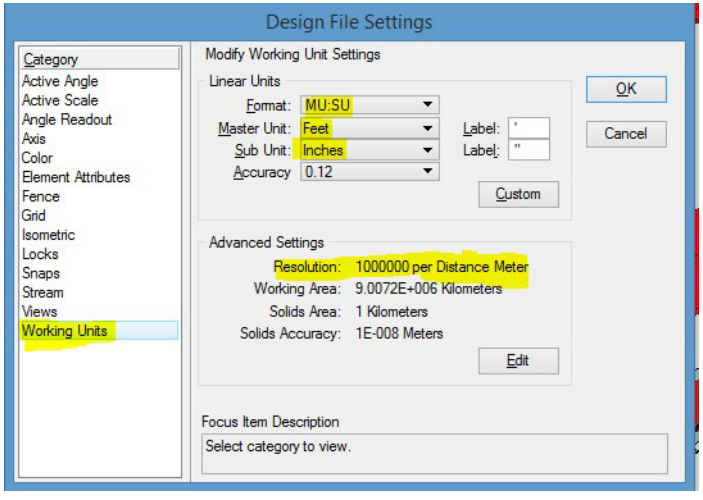
Each company has its own drawing border and style so supplying a standard drawing border is out of the question. We supply a drawing border in the sample data set to get started. Creating and customizing the drawing border needs to be done with some tools in MicroStation, OpenPlant Support Engineering (OPSE) in the user interface and OPSE Dashboard settings.

OPSE does not depend on the user to place components on the correct project level with the correct symbology. For OPSE elements the user doesn't have to set the symbology or use Element templates. OPSE controls all of this through the project Dashboard in the Visual Manager.

A few rules to follow:

There are a few rules that must be followed for the program to work correctly. If these rules are not followed then then the drawing production will not work correctly.

- The *Design File Settings* and *Working Units* of the sheet must be the same as the Design file.
  - Format
  - Master Unit
  - Sub Unit
  - Resolution (Note: If there is geometry in a design file the Resolution cannot be changed without scaling the geometry.) We will show you how to deal with this issue.
- The Border Seed file must be a 3D sheet model. (Do not use a 2D sheet model.



Creating a Border Base File

Creating the base file to match the Design file units can be done with MicroStation tools. At this point OPSE will not be adding anything to the design file. We will grab the graphics of a design file and get this in the correct scale and units settings by referencing in the graphics into a known good file and coping the graphics into the file.

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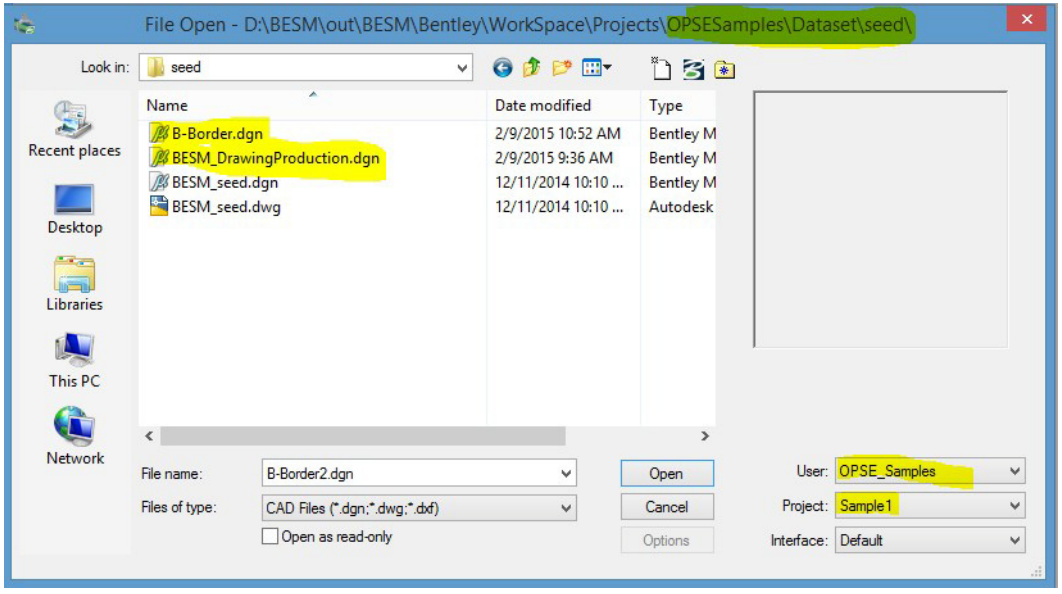
1. Start OpenPlant Support Engineering.
2. In the File Open dialog, set the following:

   User: **OPSE_Samples**

   Project: **Sample 1**

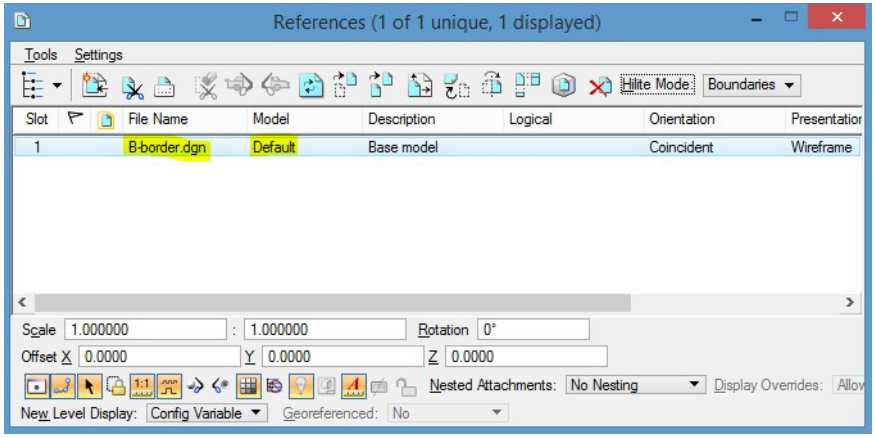
3. Navigate to the *..\\OPSESamples\Dataset\seed* folder.



4. Copy **BESM_DrawingProduction.dgn**.
5. Paste and rename to **B-Border.dgn**.

So far we have been using the *BESM_DrawingProduction.dgn* as the seed file for the earlier lessons so we know this file is set correctly for this project.

6. Highlight **B-Border.dgn** and click **Open**.
7. In the *Reference* dialog, attach the **B-border** file **Default** model from **\\Systems\Borders\ANSI** folder.



The file should be attached coincident and the bottom left corner should be at 0,0,0.

8. Navigate to **Edit > Select All**. Delete everything in the design file. This will delete all the elements in the file except the referenced data.
9. With the MicroStation *Copy* tool select all the referenced elements through to the master file.
10. Detach the *Reference* file.

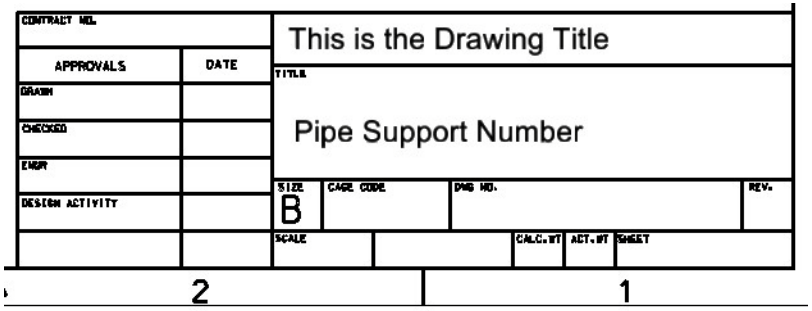
Note: The reface file attachment compensates for any difference in the resolution when attached. Note the Scale is set 1:1 but the resolution was different in the reference file than the master. The graphics now has the correct settings from the master file.

Setting up the Title Block:

1. Open the MicroStation **Text Tools > Attach Tags** tool.
2. Select the **TitleBlockApprovals** tag set and place the tags in the drawing.
3. Move the **This is the Drawing Title** text as shown.
4. Move the **Pipe Support Number** text as shown.

   Note: For now the only Tag Set that can be used must be named *TitleBlockApprovals*. This will change in the future.

5. The Title Block should look like this:



Creating Areas for Graphics, Bill of Material, and General Info

In this exercise the areas for different parts of the drawing will be created. This will involve using a few MicroStation tools and some tools in OPSE that will be exposed to only the administrator in the final product.

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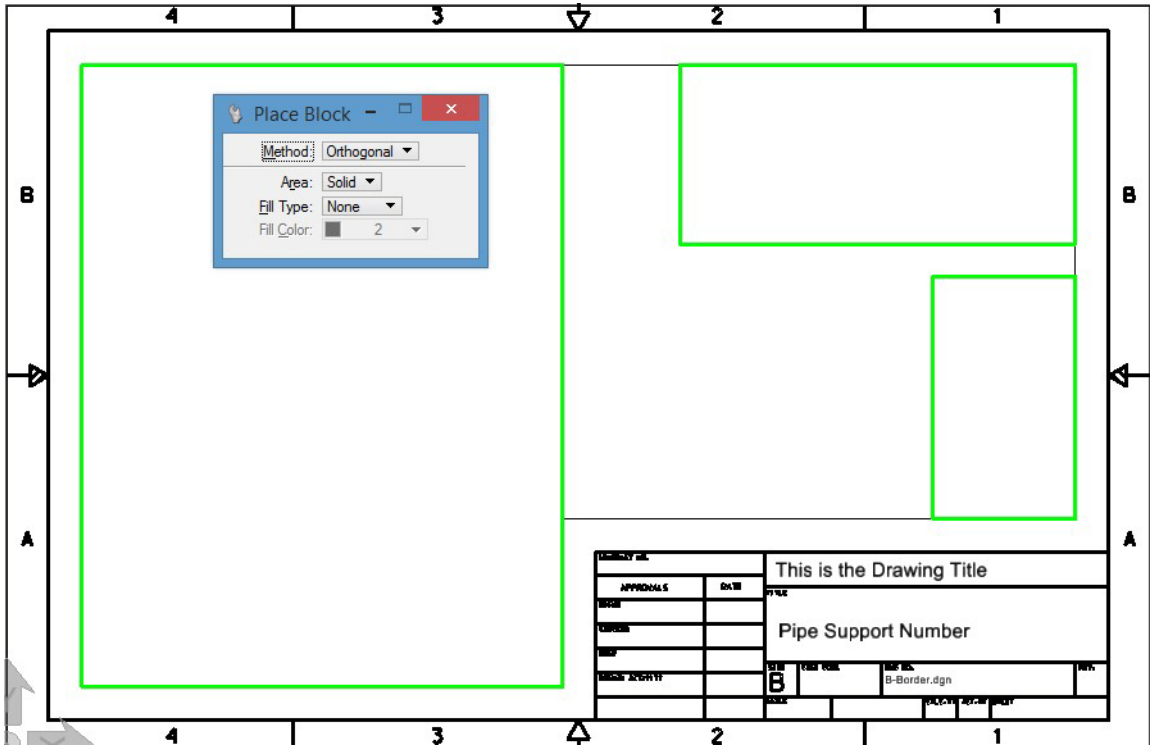
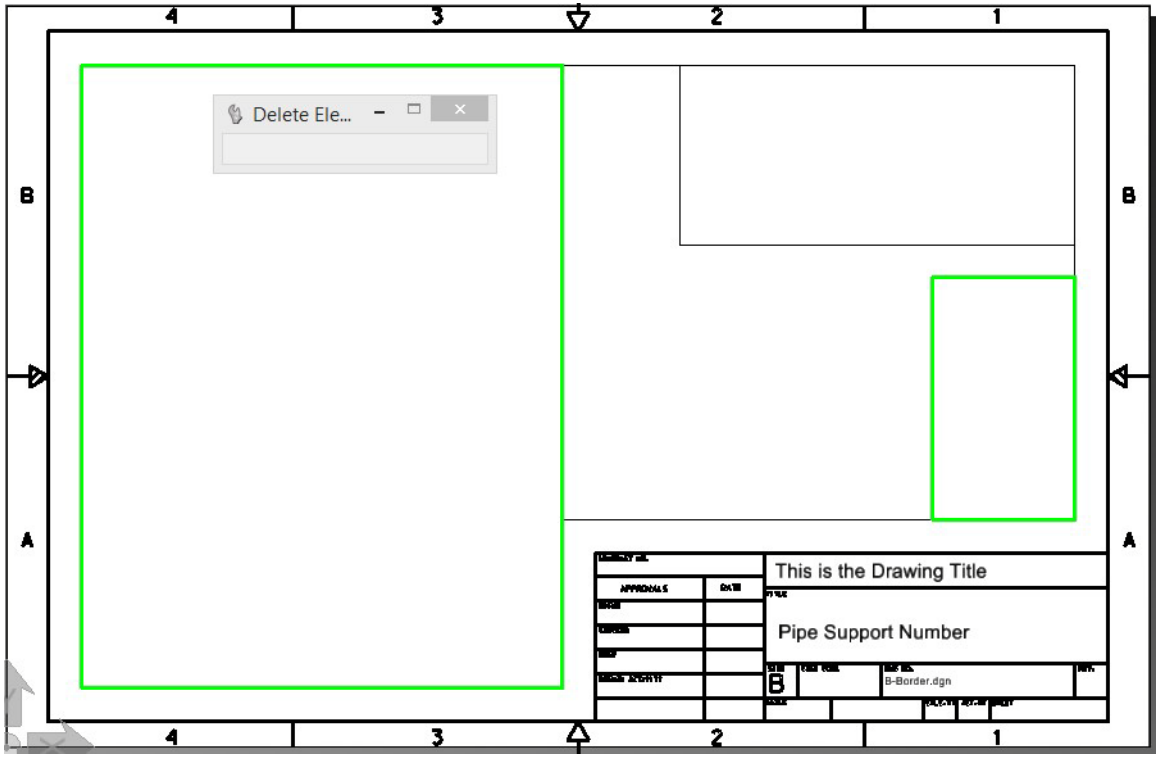
1. Continue working on file **B-Border.dgn**. All levels should be on.
2. Create three rectangles with the *Place block* tool as shown. I set the color to Green and the weight to 2 to make it easy to see. These are temporary shapes and will be deleted.



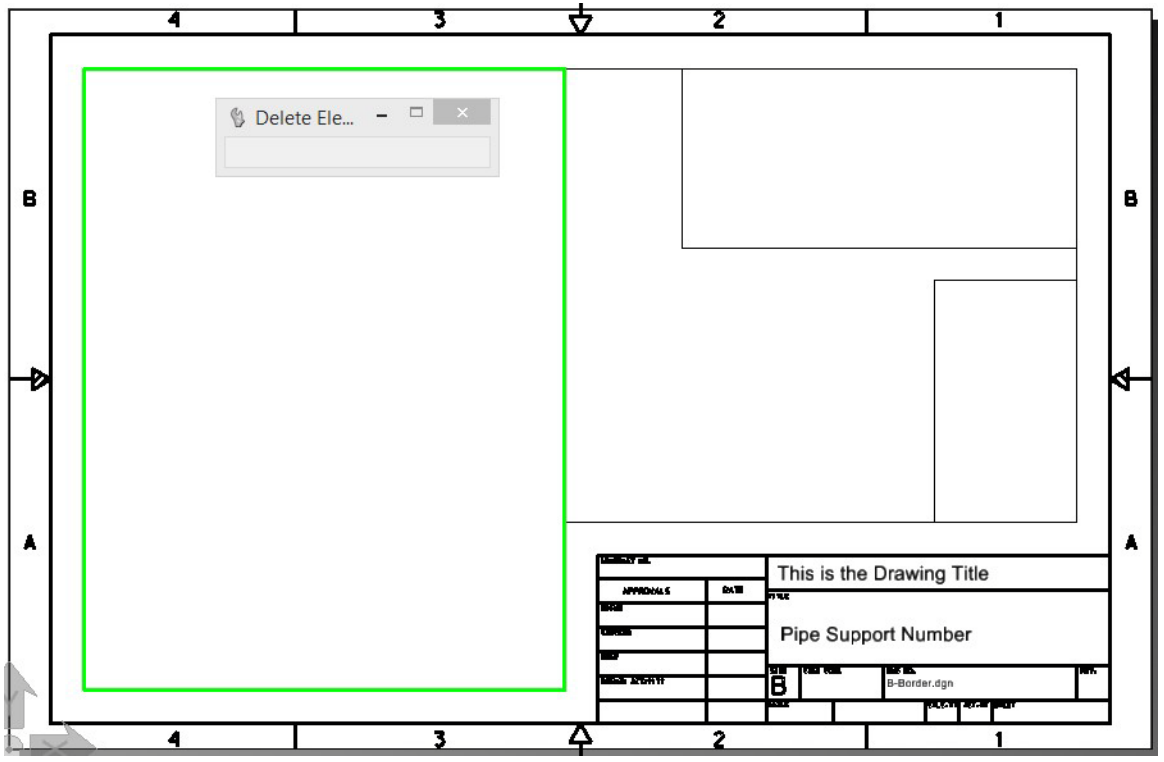
3. In the *Support Drawing* drawer select the **BOM** tool.
4. Select the rectangle in the upper right.
5. Place the **BOM** rectangle over the green shape.

6. Delete the green shape.

   You should have something like this:



7. Do the same to the smaller rectangle below.

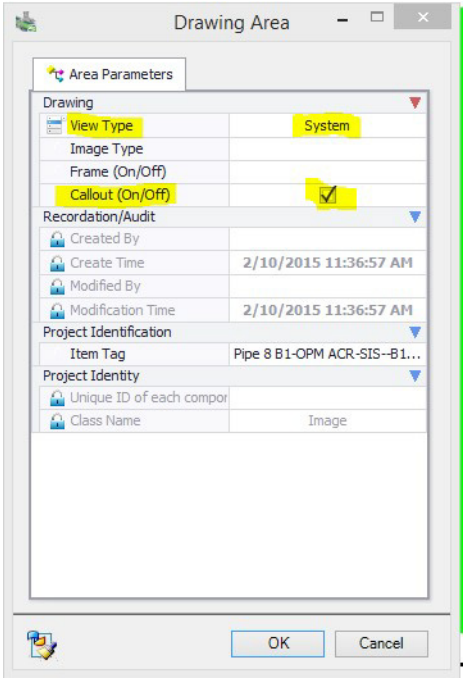


Defining the Graphic Area

1. From the *Support Drawing* drawer select the **Graphic Area** icon.
2. In the *Drawing Area* dialog set the following:

   View Type: **System**

   Callout (On/Off): **Checked**



3. Click **OK**.
4. Place graphic shape in the upper left corner.
5. Delete the green shape.

Customize the Data in the Dashboard

Now that the three areas have been defined the next step is to set some parameters in the Dashboard. As you may have noticed there are three cells in the seed file, Graphic Area, General Info and Bill Of Material.

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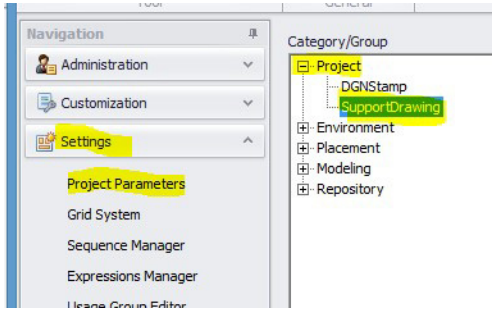
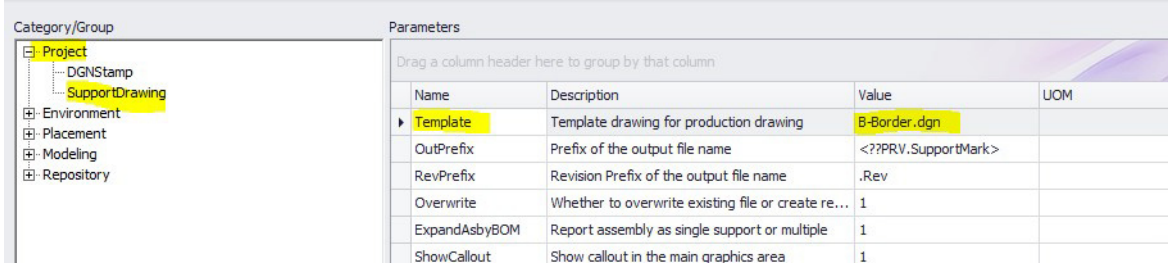
1. Open the **Project Dashboard** from the *Support Modeler* menu.
2. Expand **Settings > Project Parameters** in the *Navigation* panel.
3. In the *Category/Group* tree expand the **Project > SupportDrawing** section.



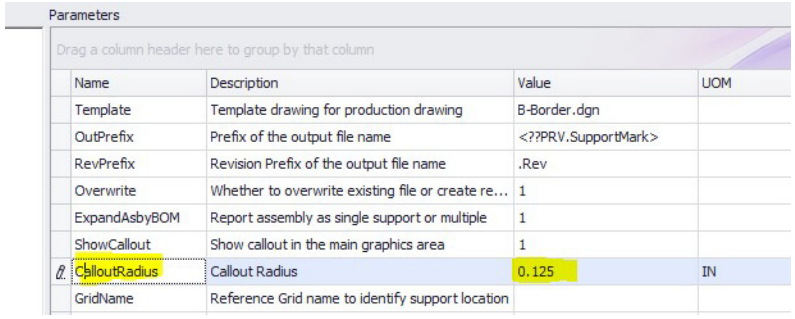
We want to use the seed file that we have created so we need to tell OPSE what file we want to use.

4. Change the *Template* value to **B-Border.dgn**.



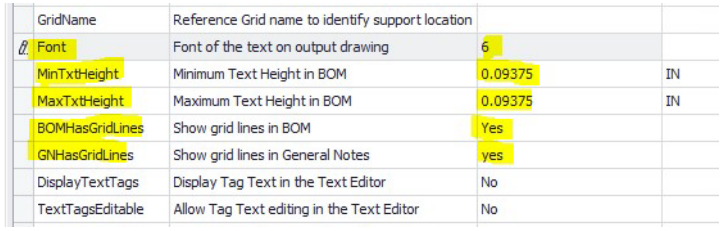
We want to define the Balloon size or Callout Radius.

5. Change the *CalloutRadius* value to **0.125**.



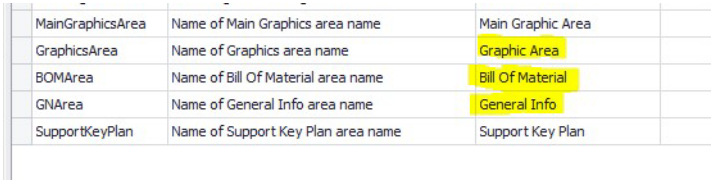
Next we will set the text and display of grid lines in the BOM and Info area.

6. The fonts used in OPSE only support numbered fonts and not TTF fonts. Set the *Font* to **6**.
7. Set the *MinTxtHeith* and the *MaxTextHeigt* to **0.09375** (3/32”).
8. Set the *BOMHasGridLines* to **Yes**.
9. Set the *GNHasGridLines* to **yes**.



10. Click **Save**.

For Reference: Before we close this panel notice at the bottom of the cells in the seed file match the value of the *BOMArea*, *GNArea* and so on.



11. Navigate back to the **OPSE ToolCabinet**.
12. Click on **Refresh ToolCabinet**.
13. Save the Settings.

How the Tags are Populated

The Tag information can be filled in by OPSE and or ProjectWise. For the ProjectWise integration of tags and sign-off please refer to ProjectWise documentation. ProjectWise will want to know some of the tag information that OPSE needs to supply like the Project Name and Pipe support number.

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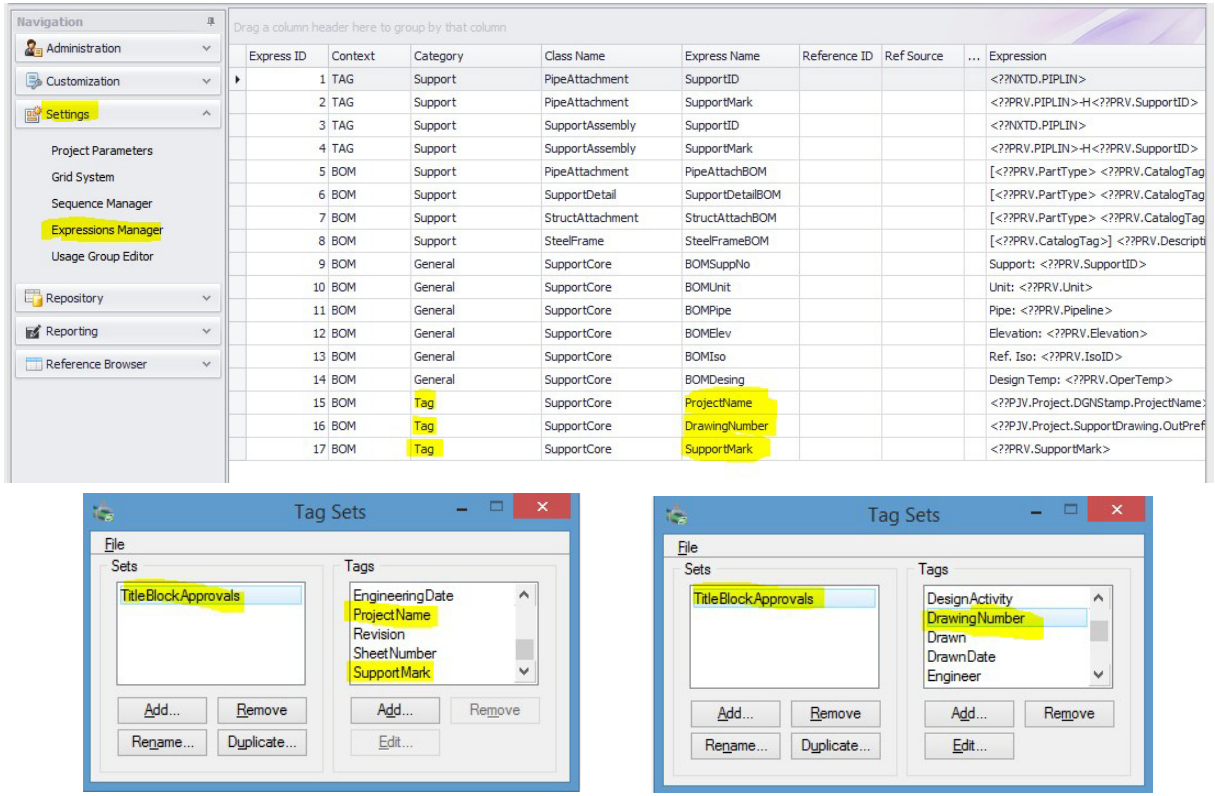
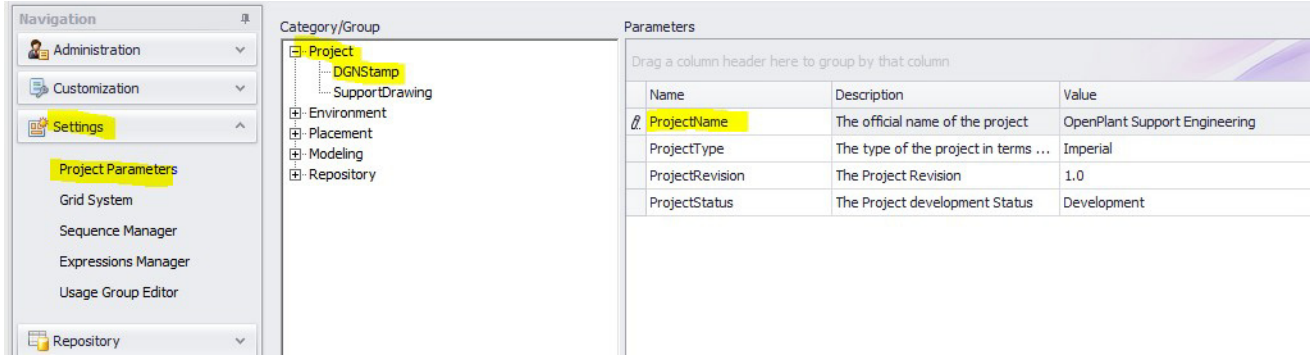
1. Open the *Project Dashboard* from within the session from **Support Modeler > Project Dashboard**.
2. Navigate in the Dashboard to **Settings > Expressions Manager**.
3. Notice that there are three items that refer to Tags, *Express ID 15*, *16*, and *17*.
4. Notice that the *Express Name* is the *Tag Name*.



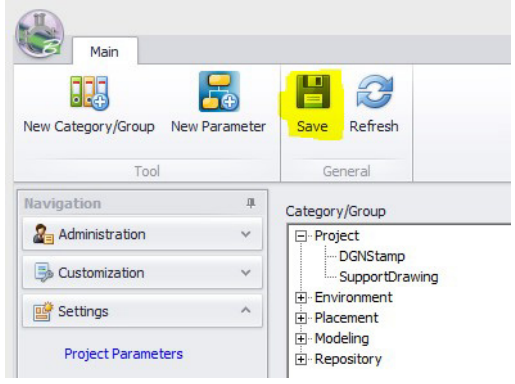
Note: Remember The *Tag Set* must be named **TitleBlockApporvals** for now.

For now we will change the name of the project to be populated in the drawing.

5. Note the *Expression* will tell you where to make this change. *Expression*: **<??PJV.Project.DGNStamp.ProjectName>**.
6. Navigate in the Dashboard to **Settings > Project Parameters**.
7. Expand **Project > DGNStamp**.
8. Select **ProjectName**.



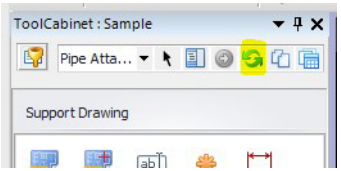
9. Change the *Value* to: **OpenPlant Support Engineering**.
10. In the Ribbon select **Save**.



Note: The *Save* saves the changes to the Dashboard database.

A good habit to get into when making changes in the Dashboard is to refresh the ToolCabinet.

11. Click the **Refresh** icon in the *ToolCabinet*.



Testing the Results

If you have followed everything correctly up to this point you should have good results. If not then more than likely you have forgotten to do a *Save* in the Dashboard or a *Refresh* in the ToolCabinet.

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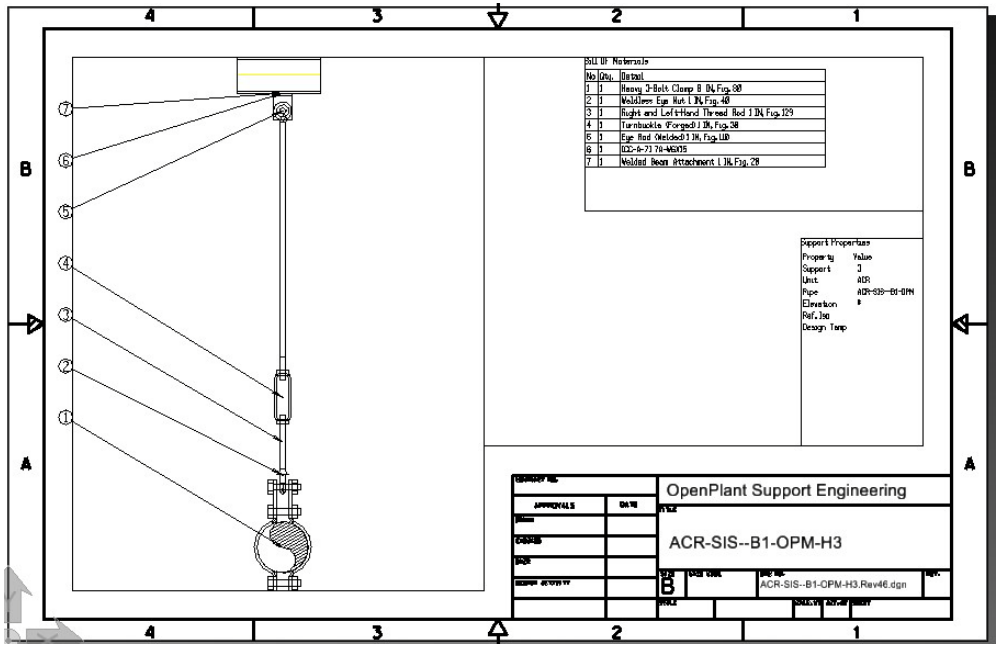
1. Navigate to the **Support Model.dgn** file.
2. Select one of the supports that were created earlier.
3. Create a **Drawing**.

   The results should look like this:

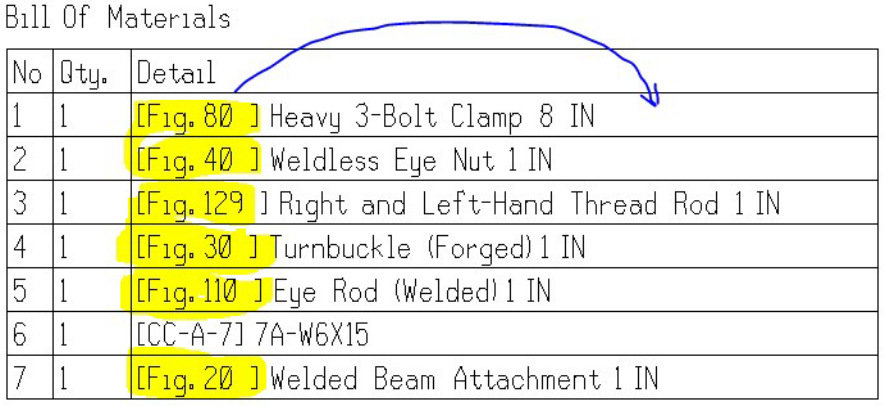


Notice that the shapes are displayed. What we should have done is turned off the levels for the shapes. Note where the callout balloons are located and the graphics are located in the Graphic Area. This will give you a feel how the program logic is setup. Notice that the BOM grows from the Top Left so there is space to the right.

Customizing the BOM & General Notes:

In this lesson we will customize the BOM and add some general notes. The BOM will be customized in the Dashboard and the General Notes is just MicroStation text but may be a refresher on how to do this.

- **General Notes**: General notes are just MicroStation text. Many companies will put generic notes that will apply to all supports and let the support designer append as needed. In the example there is a text style that will allow you place text at 1/8 if you like.
- **Modifying the BOM**: We will make a change to the "Detail" area of the BOM. By default "Fig. 80" for example is in brackets and at the front of the line. We will move this to the end of the line with a comma and remove the brackets.



Bill Of Materials

No	Qty.	Detail
1	1	[Fig. 80] Heavy 3-Bolt Clamp 8 IN
2	1	[Fig. 40] Weldless Eye Nut 1 IN
3	1	[Fig. 129] Right and Left-Hand Thread Rod 1 IN
4	1	[Fig. 30] Turnbuckle (Forged) 1 IN
5	1	[Fig. 110] Eye Rod (Welded) 1 IN
6	1	[CC-A-7] 7A-W6X15
7	1	[Fig. 20] Welded Beam Attachment 1 IN

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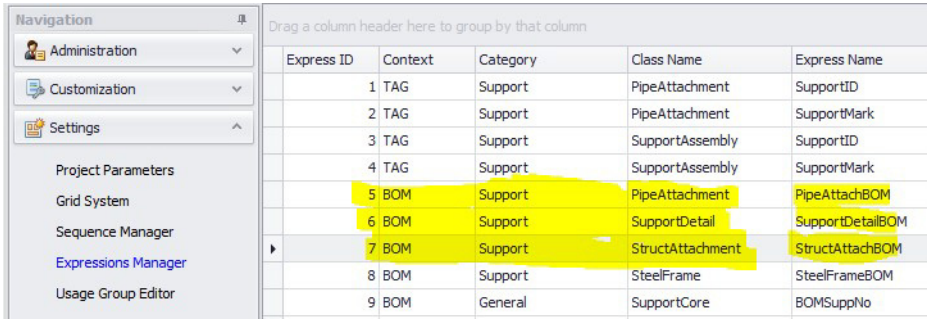
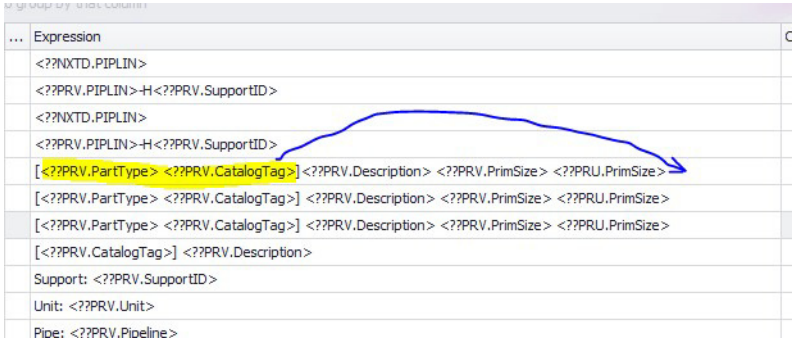
1. Open the **B-Border.dgn** file.
2. Open the **Project Dashboard**.
3. Open the **Settings > Expressions Manager**.

We will modify the *ID 5*, *6*, & *7*.

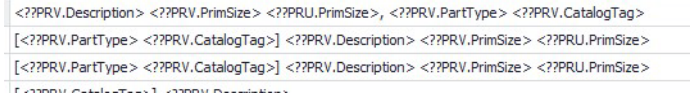


4. In the *Expression* column copy and paste the information in the brackets **[ ]** from the front of the line to the back.



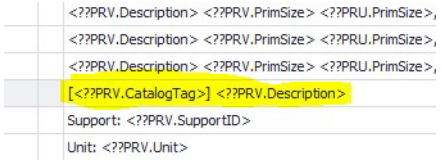
5. Delete the Brackets **[ ]** and add a comma.

   The line should look like this:



6. Repeat for the next two lines.

7. Next we will modify *ID 8* and add some text to explain what this item is.



8. Delete the two Brackets and replace the right bracket with a comma.
9. At the front of the line add the following text: **Standard Detail:**.

   The line should look like this:

10. Click **Save**.

    Note: To get around a bug you will have to close the Dashboard. In the ToolCabinet do a **Refresh** ToolCabinet. Exit OPSE and restart.
11. Open the **Support Model.dgn** file.
12. Test your changes by creating a support drawing.
13. If all has gone well this is what you should see:

Bill Of Materials

No	Qty.	Detail
1	1	Heavy 3-Bolt Clamp 8 IN, Fig. 80
2	1	Weldless Eye Nut 1 IN, Fig. 40
3	1	Right and Left-Hand Thread Rod 1 IN, Fig. 129
4	1	Turnbuckle (Forged) 1 IN, Fig. 30
5	1	Eye Rod (Welded) 1 IN, Fig. 110
6	1	Standard Detail: CC-A-7, 7A-W6X15
7	1	Welded Beam Attachment 1 IN, Fig. 20

Controlling the Levels

In OPSE the Level Name, Color, Style, and Weight are controlled by the Visual Manager in the Project Dashboard. In this lesson we will make a few changes in the level names used.

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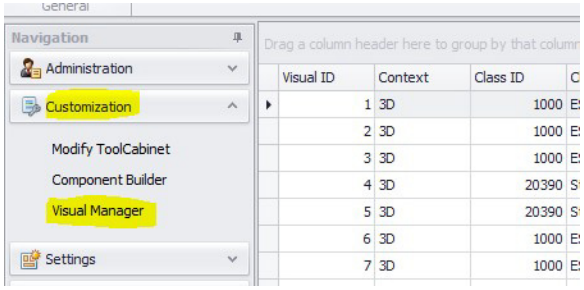
1. Start OpenPlant Support Engineering.
2. In the File Open dialog, set the following:

   User: **OPSE_Samples**

   Project: **Sample 1**

   File: **Support Model.dgn**
3. From the *Support Modeler* menu open the **Project Dashboard**.
4. Navigate to **Customization > Visual Manager**.



5. Locate **Visual ID 16** and **17**.
6. In *Visual ID* line *16* change the *Level* name to **Support Frame**.
7. In *Visual ID* line *17* change the *Level* name to **Catalog Item**.
8. Click **Save**.
9. Exit OPSE and restart.
10. Place a Support Frame like a Cantilever.

11. Check the *Level* name.
12. Place a **Pipe Clamp**.
13. Check the level.

    Note: Refresh ToolCabinet does not work with the Visuals so a full restart of OPSE is required.