

OpenGround Template Studio User Guide

The material contained within this user guide is designed to provide an introduction and reference for the OpenGround Template Studio package.

What is OpenGround Template Studio?

Customising your template design helps you maintain your company brand whilst allowing you to present your geotechnical data to your clients in the best possible format.

The Template Studio Module has been designed so that users can pick up its simple design techniques quickly, giving you a shorter learning curve and ensuring you are not reliant on a single member of staff to change your template designs.

How to use this guide

Primarily, this document is structured to deal with concepts and functionality in a logical and theme-based manner. As such, the guide can be read progressively. At the start of each chapter you will find an introduction section that gives you an overview of the capabilities of the system related to the chapter. You may find it useful to start by reading these introductions only as this should give you an overview of what OpenGround Template Studio can do and which parts you need to learn more about. Further information can be found regarding a topic by the use of the related articles section of each page or elsewhere on Bentley Assist.

Conventions used in this Document

Numbered paragraphs are used to describe step by step instructions on a task or series of related tasks. **Italic** text denotes an item on the interface such as a menu option, command button, or listed item. Within this, the pipe (|) symbol denotes options on a cascading menu - as in Manage | Tests. Other **Italic** text is used to refer to proper names or emphasise a phrase, word or sentence. **Bold** text is used to indicate the actual contents of an editable field or box, or what the reader should type into a box

Table of Contents

Table of Contents	2
Interface Overview	6
Ribbons	6
System	6
Design	6
Help	7
Panels	8
Tree view	8
Grids	9
Previewing Templates	10
Loading and Saving	12
Opening an Existing Template	12
Loading in a OpenGround Professional Template File	12
Saving Templates	12
QuickSave	12
Save	13
Types of Templates	16
Borehole Log	16
Header sheet	16
Combined log	17
Site Plan	17
Strip	18
Section	18
Civils Section	19
Page setup	20
Borehole log	20
Header sheet	21
Site Plans	22
Strips	22
Sections	23
Civils Sections	24
Changing Template Page Settings	24
Master Templates	25
Set up Master Templates in Template Studio	25
How to Setup Strips	26

How to Setup a Strip Set	28
Hide and Show Conditions	28
Dynamic Logs	30
Setting up a Dynamic Log	30
Expression and Condition Examples	32
Dynamic Template Description Bars	33
End Text Mode	33
Continuation Text Mode	33
Dynamic Mode	33
Next Page Text	34
Previous Page Text	34
Designing Header and Footer Areas	35
Merging Grids into Cells	35
Cell Styles	35
Label Object	36
Logo Object	37
Company Address Object	38
Data Label Text Object	38
Point Symbol Object	39
Scale Object	39
Dynamic Text	40
Sheet Counter Object	40
Table Objects	41
Image Grid	41
Column Configuration	42
Adding	42
Adding Sub Columns	43
Removing	44
Moving	44
Continuation Text	45
Column Borders	45
Footer Areas	45
Depth Related Items	47
Header Data Text	47
Point Symbol Object	47
Range Symbol and Picklist Range Symbol	48

Straight Line Object	49
Point Data Text Object	49
Range Data Text and Range Data Box	50
Backfill Object	51
Installation Object	52
Description Bar Object	52
Graphics Bar Object	53
Vertical Scale Object	54
Water Strike Object	55
Discontinuity Fracture Spacing Library Item	56
Bar Chart Object	57
Bar Chart Editor - General tab	58
Bar Chart Editor - Appearance tab	58
Bar Chart Editor - Scale	59
Bar Chart Editor - Legend Appearance	59
Bar Chart Editor - Labels tab	60
NOTES	61
Graph object	62
Series tab	63
Scale tab	64
Legend tab	65
Grouping tab	65
NOTES	65
Site Plans	65
Legend	66
Plan	67
Scale	68
Strips	68
Sections and Civils Sections	68
Strip	69
Horizontal Scales	69
Vertical Scale Configuration	69
Legend	70
Description or Picklist Value?	70
Designing Tables	71
Title	72

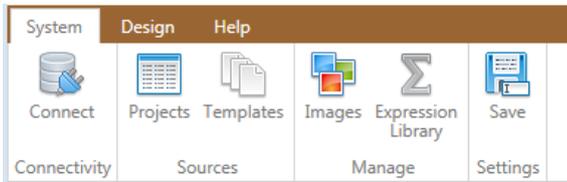
Group	72
Columns	73
Notes	74
Table Template Version	74
Combined Templates	76
Expressions	78
Expression library	78
Building your own expressions	78
Referencing columns in a grid.	78
Combining Columns	79
Changing display decimal places	79
Adding text to fields	79
Nesting functions	79
Adding an Expression to the Library	79
General rules for expressions	80
Mathematical Functions	80
Run Time Functions	81
Excel Functions	82
Log Only Functions	84
Text Styling	84
User Guide-Filter Groups	87
Creating a Filter Group	87
Adding a Filter	88
Adding a Grouping by Records	89
Adding a Grouping by Values	91
Using a Filter Group in an Object	93
Further help	95
Useful Web Links	96

Interface Overview

Ribbons

At the top of the Template Designer Interface there are three Ribbons: (1) System, (2) Design and (3) Help.

System



Connect - Allows for a connection to a different OpenGround Professional database.

Projects - Allows for a connection to a different OpenGround Professional project.

Templates - Allows for opening of a different template.

Images - Allows for the images assigned to the template to be changed (this is the same feature as in OpenGround Professional and any changes made here will be reflected in OpenGround Professional).

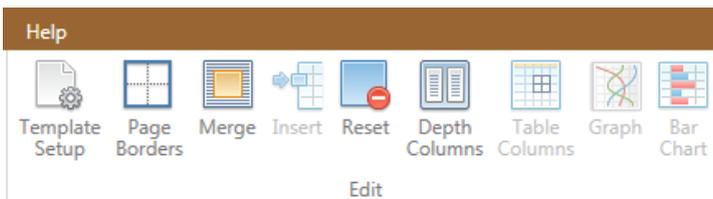
Expression Library - Allows for new expressions to be added to the OpenGround Template Studio Library.

Save - Allows for the Quick Save settings to be changed.

Design



Saving and Closing - Allows for saving and closing of the template



Template Setup - Allows for changes to the layout for the template including margins, header, footer and depth area sizes.

Page Borders - Allows for modification of the styling of the outer borders for the template.

Merge - Merges the currently selected cells in the grid.

Insert - Inserts the currently selected library item into the currently selected merged cell.

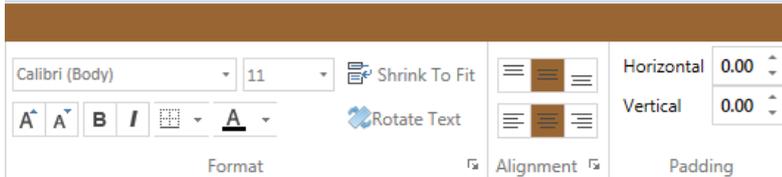
Reset - Clears the current contents of a merged cell

Depth Columns - This option allows for editing of the depth related columns that are in the template.

Table Columns - Allows for the configuration and styling for the selected table in the template.

Graph - Allows for the configuration and styling for the selected graph in the template.

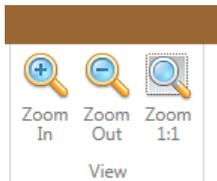
Bar Chart - Allows for the configuration and styling for the selected bar chart in the template.



Format - Allows for control of the formatting of the selected cell including font style, size, colour and position

Alignment - Allows for control of the alignment for the content of the selected cell

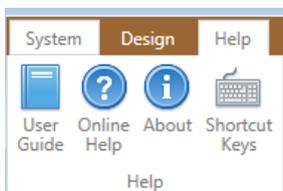
Padding - Used to specify the offset distance of the cell content from the cell borders



Zooming - When zooming, the application will zoom in on whatever section is currently selected, this can result in different zoom scales for each section. Select Zoom 1:1 to reset the Zoom on each pane.

Help

In this section on the ribbon there are four buttons



User Guide- Displays this user guide.

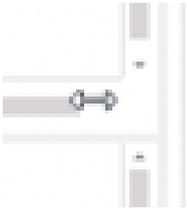
Online Help - Opens the online help for this guide.

About -Information regarding HB Template Studio build number and other information needed when contacting the Support team

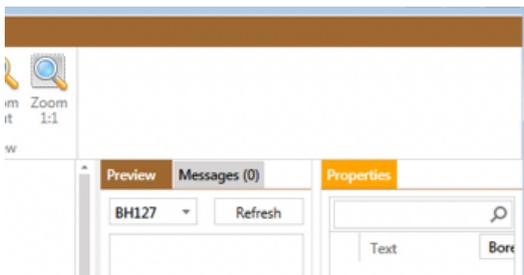
Shortcut Keys - Gives information on the shortcut keys that can be used in the program and their functionality.

Panels

All panels are movable and resizable. When the edge of a pane is hovered, the pointer changes to the resize mark shown below and can then be resized by pressing and holding down the left mouse button before moving it in the desired direction.

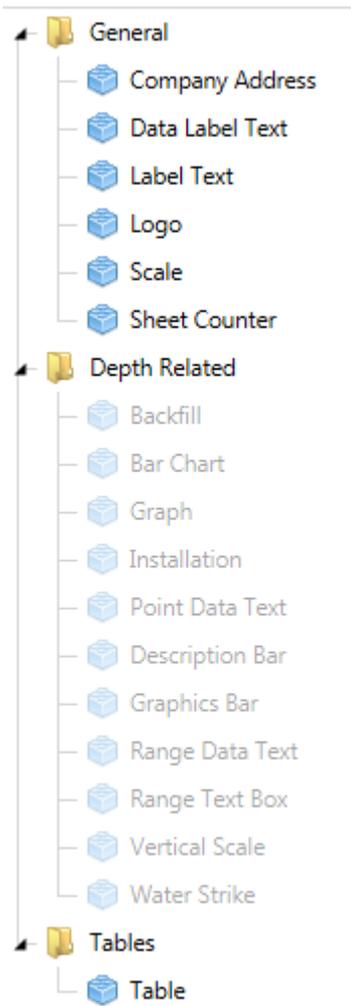


On the right hand side of the screen there are the Preview and the Properties windows. Both of them can be docked or moved. By clicking and dragging on the title of a panel it is possible to move the panel wherever is desired.



Tree view

On the left hand side of the screen there is a tree view of all the library items that can be used in the template creation. The General and Tables Group items apply (and activated) only when forming the Header and Footer area, whereas the Depth Related Group Items are activated and can be used on the Depth Related Area pane.



Grids

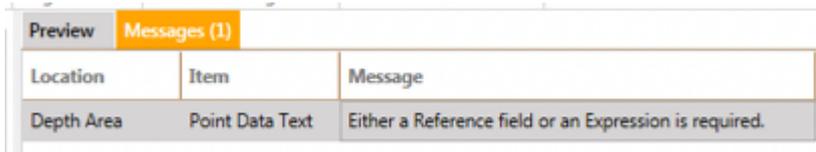
On the central area of the screen there are the three panes where the grid is applied according to the dimensions chosen in the Template Setup form (window - box).

In the preview window it is possible to select the borehole you want and by clicking the Refresh button on the right the Template will be populated with the data of the selected borehole.

On the bottom of the box there are the Detach Full Page, Print, Zoom In and Zoom Out buttons.

When a Log is refreshed sometimes a red message will display on the bottom left saying "Please review the messages". Clicking on the messages tab will display what the message error is e.g. In the Depth area there is a problem with a Point Data Text and Either a reference field or an expression is required.

Clicking on the message puts focus onto the cell that produced the error.



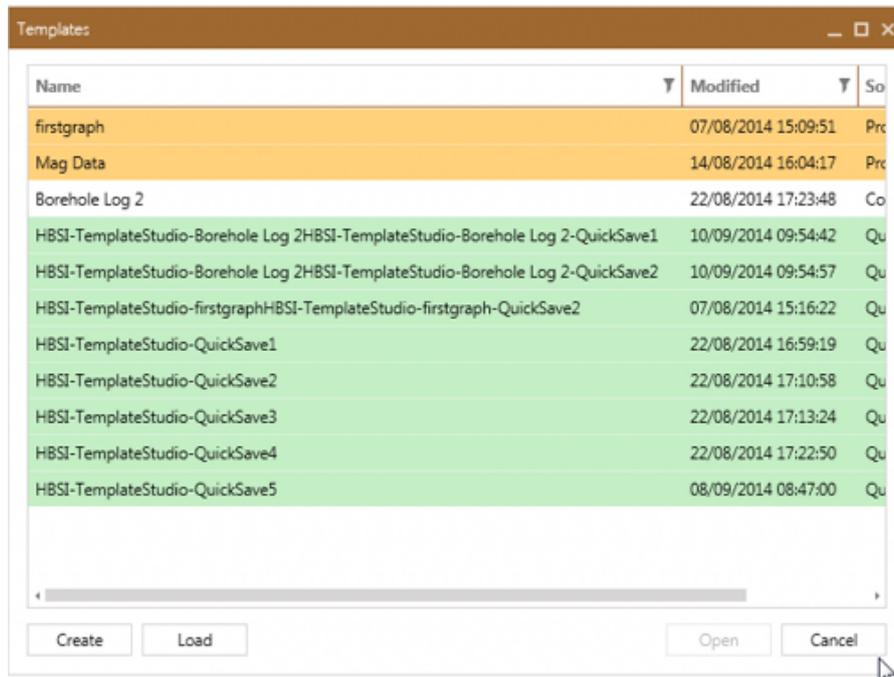
The screenshot shows a software interface with two tabs: 'Preview' and 'Messages (1)'. The 'Messages (1)' tab is active and displays a table with three columns: 'Location', 'Item', and 'Message'. The table contains one row of data.

Location	Item	Message
Depth Area	Point Data Text	Either a Reference field or an Expression is required.

Loading and Saving

Opening an Existing Template

After selecting a project, the Templates window opens up.



Items on this form are colour coded.

Orange: Templates attached to the specific project that has been selected.

White: Templates attached to a configuration pack.

Green: Templates that have been produced using the QuickSave feature. Quick Save logs can be used as a backup. Each log can be saved up to ten times.

Select a template and press the Open button for it to open (Open button activates only after a template has been selected).

Loading in a OpenGround Professional Template File

To load a template file that has been produced in a different installation of OpenGround Professional click the Load button. Template Studio will then request an '.hbt' file (OpenGround Professional Template) and will then load this template into Template Studio.

Loaded Templates are not saved to your OpenGround Professional system until you save them in the Template Studio interface.

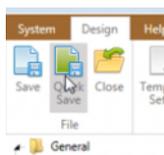
Saving Templates

There are two options for saving a template: QuickSave and Save.

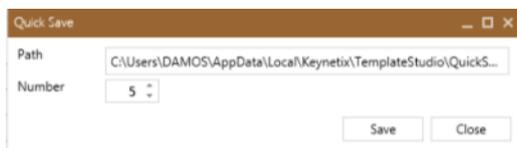
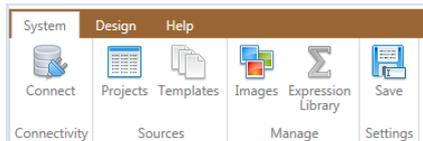
QuickSave

The Quick Save button saves without asking for any further information. This option can be used to quickly save information before a change or to ensure that no progress will be lost. It

can be equated to a manual version of the Autosave feature in Microsoft Office products.



This option saves a HBT file to a location on the local machine. This location can be located by browsing through to the System section on the ribbon and choose Save | Settings. (See image below).



On the Quick Save Setting Form, the number of QuickSaves stored can be changed (Default is 5 but up to 10 can be saved).

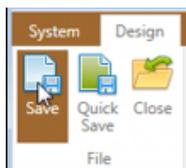
After reaching the maximum number of QuickSaves Template Studio starts saving using the first number. e.g. If the default is set to 5 the files would be called QuickSave1, QuickSave2, QuickSave3, QuickSave4, QuickSave5, and then overwrite QuickSave1, QuickSave2 etc.

This form also displays the location on the local machine that QuickSave is using. You are not able to change this location.

Save

You can save the template by following the steps below.

- The Save Options form can be displayed by clicking on the Save icon on the Ribbon.



- There are three options available when saving a template;

Save Options

Destination

Local File

Current Project (Quinley Test Project)

Configuration Pack

Report Name

Borehole Log

Save Cancel

- Local File - This this allows you to create an '.hbt' file (These are the files that can be loaded with the Load button on the Templates Form). This option is available to all users.

Work can be undertaken on a standalone version of the Template Studio and with the above procedure, a '.hbt' file can be created that can be loaded later into a network environment.

- Current Project - This will save the template so it appears on the Templates Form but will only be accessible for this project. If this option is selected, then the template is saved within the OpenGround Professional database. This option is only available to users with System Administrator or Project Manager status for the selected project.
- Configuration Pack - This will save the template so it appears on the Templates Form for all projects that have used the selected configuration pack. If this option is selected, then the template is saved within the OpenGround Professional database. This option is only available to users with System Administrator access. You can only save a Template to the selected Projects Configuration Pack.
- If Current Project or Configuration Pack is selected, then a name will need to be given to the template.
- Click Save to save the template

Once a template has been completed, it can then be closed by pressing the Close button. Once closed the Templates Form will be displayed to allow for selection of a new template. If the same Template is loaded from the Templates menu and you wish to save it again after making any changes you will only be able to save back into the Configuration Pack

Save Options

Destination

Local File

Current Project (Quinley Test Project)

Configuration Pack

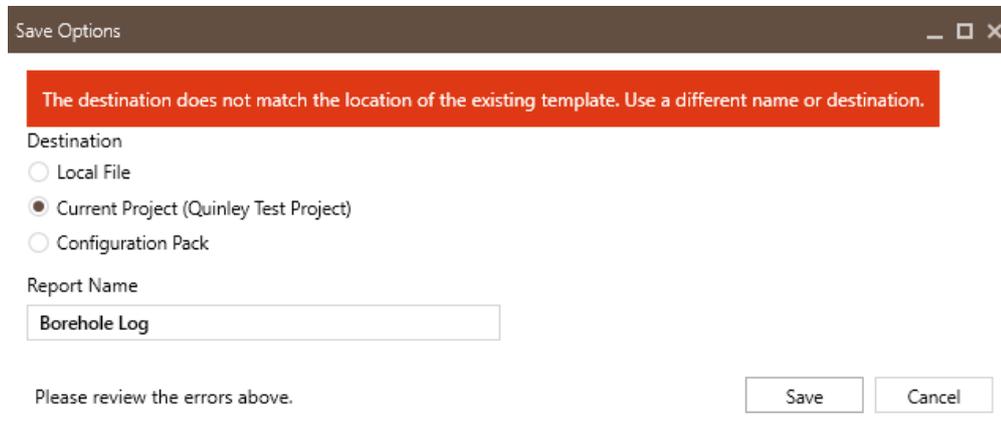
Report Name

Borehole Log

Save Cancel

You should keep Log names Unique when saving. Template Studio will prompt you to change the name of the Log in the following circumstance:

Loading a Log from a file and attempting to save the log with the same name as a log that already exists in the projects configuration pack but, saving it to the current project. You will see an information dialog confirming the name is currently in use and do you want to overwrite the existing table. If you select yes the following validation error message will be displayed



The screenshot shows a 'Save Options' dialog box with a dark header bar containing the title 'Save Options' and window control icons. Below the header is a red error message box: 'The destination does not match the location of the existing template. Use a different name or destination.' Underneath, there are three radio button options for 'Destination': 'Local File', 'Current Project (Quinley Test Project)' (which is selected), and 'Configuration Pack'. Below the radio buttons is a text input field for 'Report Name' containing the text 'Borehole Log'. At the bottom left, it says 'Please review the errors above.' and at the bottom right, there are 'Save' and 'Cancel' buttons.

In this circumstance you will need to either

- Rename the File and continue with saving to the Current Project
- Keep the name of the file but save to the Configuration Pack (which will overwrite the existing log)

Types of Templates

To create a new template, click on the Create button on the templates form. The first form that is displayed will ask what type of template should be created.

There are, at the moment, many available types of templates available. Namely: Borehole Log, Header Sheet, Site Plan, Strip, Civils Section, Quick Section and Combined Log.

Borehole Log

This is the most common type of template and is what the majority of users call a log. A Borehole Log has a Header Area, a Depth Related Area and a Footer Area. Everything presented on a Borehole Log within the depth related area is presented at the depth it was recorded.

Well		Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Water Strikes	Depth(m)	Type	Results					
	0.00	J	D	0.00	13.45		TOPSOIL	
	0.50	U	D				FILL	
	0.50	D	D	0.75	12.70		Sandy grey brown soil with many fragments of glass and plastic. MADE GROUND	
	1.45 - 1.50	D	D				FILL	
	1.80	D	D	1.10	12.35		Dense grey brown SAND with medium poorly graded gravel of mudstone.. SANDY STUFF	
	2.00 - 2.45	D	N-16 (2,3/4,4,4,4)				GLACIAL TILL	
	2.00	SPT	D					
	2.45 - 2.80	B	D					
	2.80 - 3.00	D	D				Firm brown very sandy CLAY with a little subangular to subrounded medium gravel subrounded medium gravel.. subrounded medium gravel subrounded medium... gravel	
	3.00 - 3.45	U	D				BOULDER CLAY	
	3.50 - 3.70	D	D					
	3.80 - 4.00	D	D					
	4.00 - 4.45	D	50 (25 for 50mm/50 for 30mm)					
	4.00	SPT	D					
	4.45 - 4.80	B	D					
	4.80 - 5.00	D	D					
	5.00 - 5.45	U	D					
	5.45 - 5.90	D	D					
	6.00 - 6.50	D	D	2.70	10.75			
	6.50 - 6.95	D	N-33 (5,8/6,10,8,9)					
	6.50	SPT	D					
	6.95 - 7.50	B	D					
	7.50	D	D					
	8.00 - 8.45	U	D					
	8.45 - 8.50	D	D					
	9.00 - 9.50	D	D					
	9.50 - 9.95	D	N-37 (2,9/7,11,9,10)				Brown CLAY with a little well rounded medium cobbles.	
	9.50	SPT	D				BOULDER CLAY	

Header sheet

A header sheet consists solely of a header area and is used to usually present tabular data not found on the Borehole Log. As the OpenGround Professional reporting function allows you to select more than one template for each location type, it is possible to print a header sheet for a borehole followed by a borehole log.

Combined log

A combined log allows you to define which templates to use if a location has been drilled using more than one method. The pictured combined log below shows a borehole drilled initially by Cable Percussion (CP) with Rotary Coring (RC) follow on. In this log the Cable Percussion part of the borehole will be presented using the Cable Percussion Log followed by a line going across the log at the change point. This is then followed on by the Rotary Core part of the borehole presented with the use of the Rotary Core Log.

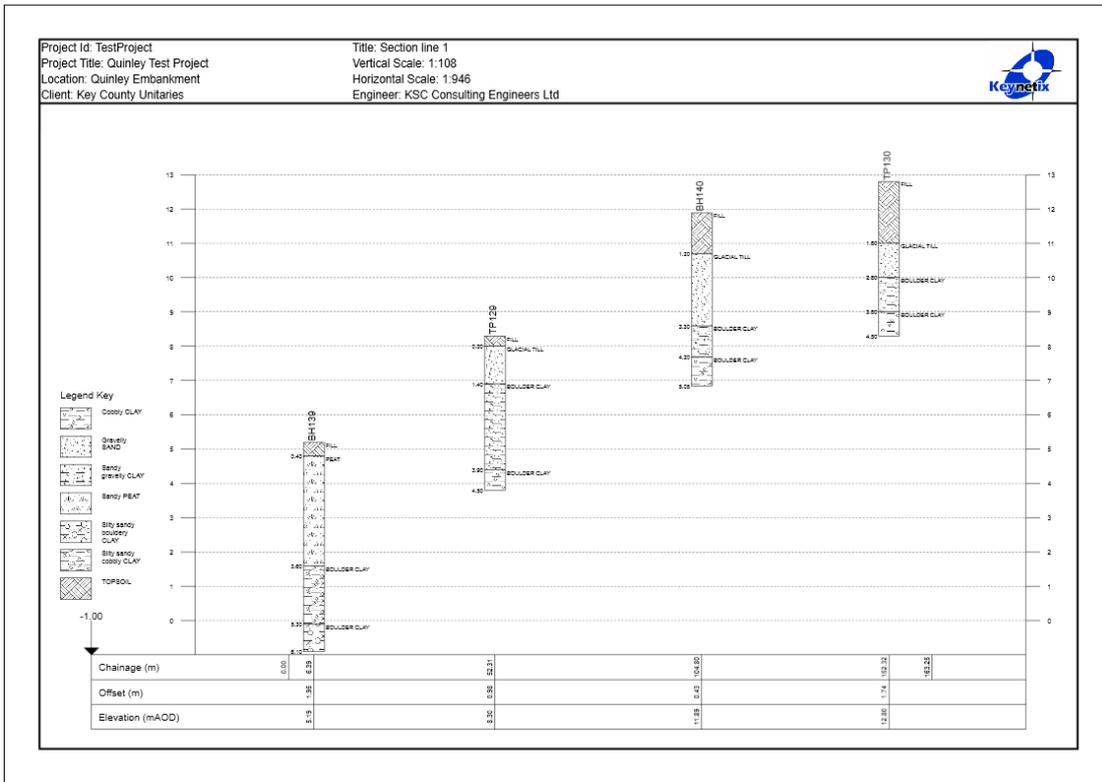
Water		Sample and In Situ Testing		Depth (m)	Level (m)	Legend	Stratum Description	Header
Strikes	Depth	Type	Results					
	20.00		N=52					
	20.45 - 21.50	B	(5,12/10,17,12,13)					21
	21.30	D	0					
	21.50 - 21.95	D	0					
	21.95	SPT	N=52 (25 for					
	21.50 - 21.75	B	145mm/9,12,14,17)					22
	21.75 - 22.80	B	0					
	22.80 - 23.25	D	0	25.45	-4.61			23
	23.25 - 22.80	SPT	N=54					
	22.80 - 22.80	B	(9,13/10,18,13,13)					
	25.00	SPT	N=58					25
	25.00 - 25.45	D	(11,14/11,19,14,14)					
	25.45 - 26.50	B	0				Limestone bedrock LIMESTONE	26
	26.50 - 26.95	U	0					
	26.95 - 27.10	D	0	28.00	-11.55			27
	27.70	D	0					
	28.00 - 29.00m	D	0				Sandstone bedrock SANDSTONE	28
	29.30 - 30.30m	NI	85 75 75					29
			94 40 50					30

Remarks
Cable tool boring to 28.50m. Then rotary cored with mud flush to recover core.



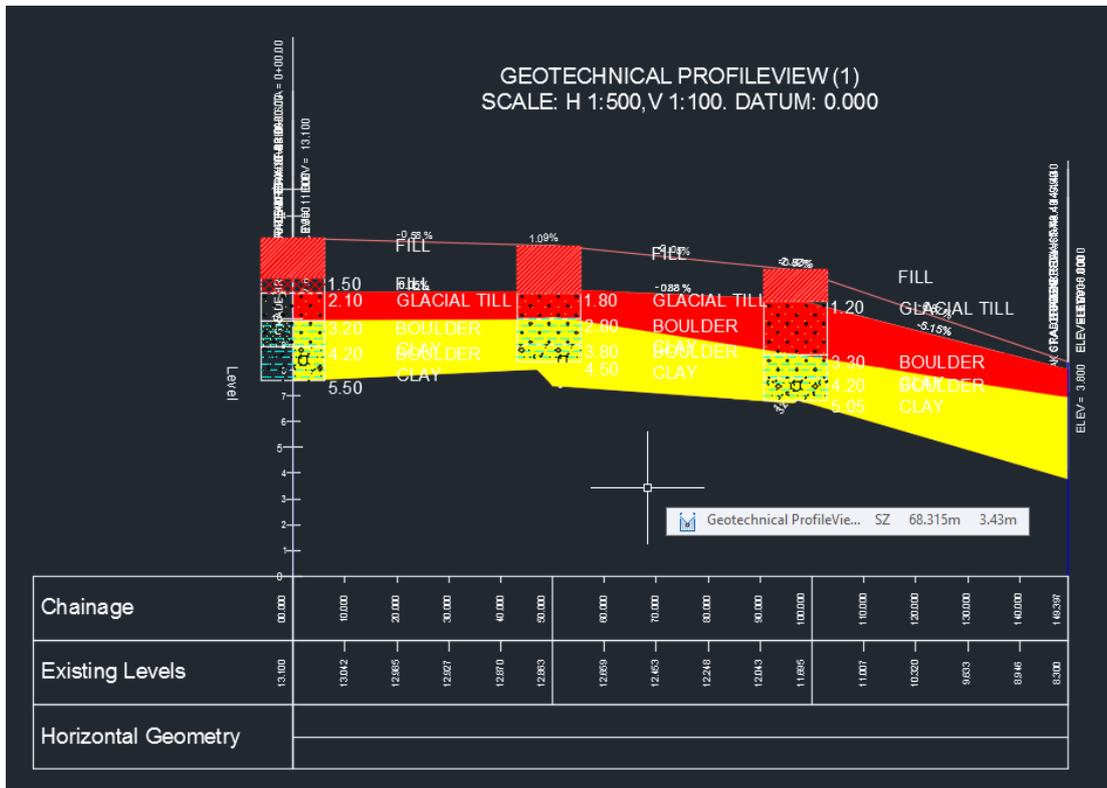
Site Plan

A site plan allows for a snapshot of the mapping interface to be placed on a template with other data relating to the project. The mapping component of the site plan can show everything from the location of boreholes, section lines, background mapping (Bing) to imported datasets.



Civils Section

Civils sections are similar to section templates, however they are designed solely for use within the OpenGround Professional Civils Extension. A strip that has been setup is required to show the data for the locations on the section.



Page setup

The template set up form is displayed once the template type has been selected. The contents of this form are different for each type of template.

Borehole log

There are four groups of settings for the creation of the new Borehole Log Template Sheet: General, Margins, Sections and Depth Area.

Template Setup

General

Paper Size: A4 (297mm x 210mm) | Orientation: Portrait

Use Master Font | Grid Size: Medium

Measurement Units: Metric (Millimetres/Metres)

Margins

Top: 10 mm | Bottom: 10 mm | Left: 10 mm | Right: 10 mm

Sections

Header: 20 mm (40mm) | Footer: 10 mm (20mm) | Depth Header: 3 mm (6mm) | Depth Footer: 3 mm (6mm)

Depth Area

Plot Area: 200 mm | Scale (1:n): 50 | Units per Page: 10 m

292mm of 297mm used | OK | Cancel

GENERAL: In this group the paper size and orientation of the new Borehole Log can be chosen.

It is possible to use the Master Font option. The Master Font option ensures that all text in the template will be the selected Master font type and overrides any font type selection used for each cell on a Log. It does not however override the font size, colour or any of the other attributes.

MARGINS: In this group it is possible to choose the margin areas around edge of the sheet as it appears on the printer. It is the distance between the edge of the grid and the edge of the paper.

SECTIONS:

Grid Size: There are three scales of the grid: Small, Medium and Large. In the small scale the dimensions of each square on the graph paper is 1X1mm, in the medium scale 2X2 mm and in the large scale 4X4 mm.

The default selection is the Medium scale which is the recommended scale.

If millimetre accuracy is needed on the Log then the small scale should be used but this will affect the performance.

Header - Footer: These are the areas above and below the Depth Header (Depth Related Area). Specify these in terms of number of grids in each area. (this will then be displayed in mm below each box)

Depth Header: Top above the Depth Area where column headers are listed. This is in effect the height of the area between the top of the depth related area and the header.

Depth Footer: Bottom area of the Depth Area where continuation headers or similar will sit.

DEPTH AREA:

Plot Area: Enter a specific value in here to ensure that the template fills this amount of space.

Scale: Enter a value in here to ensure that a template fits an exact scale such as 1:50 etc.

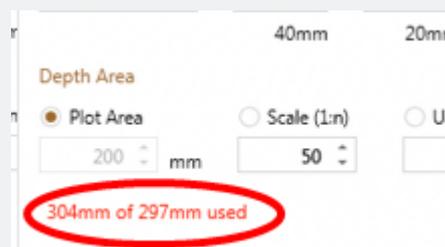
Units per Page: Enter a value in here to ensure that a certain amount of units are placed on each page such as 5m etc.

Each option has a radio button above it. The one that you select will be the one that will automatically apply changes depending on the values given to the other two.

At the bottom of the box the size of the Log you have created is displayed against the size of the selected paper. If the Log dimensions are too large for the paper size then this value is highlighted in red and the dimensions must be reduced before the template setup form can be saved.

Click OK to save the selections made.

If the paper size is exceeded by the entered values then the information at the bottom of the page will turn red.



Header sheet

There are two groups of settings for the creation of the new header sheet: General and Margins.

GENERAL: In this group the paper size and orientation of the new Borehole Log can be chosen.

It is possible to use the Master Font option. The Master Font option ensures that all text in the template will be the selected Master font type and overrides any font type selection used for each cell on a Log. It does not however override the font size, colour or any of the other attributes.

MARGINS: In this group it is possible to choose the margin areas around edge of the sheet as it appears on the printer. It is the distance between the edge of the grid and the edge of the paper.

Site Plans

Template Setup

General

Paper Size: A4 (297mm x 210mm) | Orientation: Portrait

Use Master Font | Grid Size: Medium

Measurement Units: Metric (Millimetres/Metres)

Margins

Top: 10 mm | Bottom: 10 mm | Left: 10 mm | Right: 10 mm

20mm of 297mm used | OK | Cancel

There are two groups of settings for the creation of the new site plan sheet: General and Margins.

GENERAL: In this group the paper size and orientation of the new Borehole Log can be chosen.

It is possible to use the Master Font option. The Master Font option ensures that all text in the template will be the selected Master font type and overrides any font type selection used for each cell on a Log. It does not however override the font size, colour or any of the other attributes.

MARGINS: In this group it is possible to choose the margin areas around edge of the sheet as it appears on the printer. It is the distance between the edge of the grid and the edge of the paper.

Strips

There are no page setup options for strips as they are used solely on Sections and Civils Sections.

Sections

The screenshot shows the 'Template Setup' dialog box with the following settings:

- General:**
 - Paper Size: A4 (297mm x 210mm)
 - Orientation: Portrait
 - Use Master Font
 - Grid Size: Medium
 - Measurement Units: Metric (Millimetres/Metres)
- Margins:**
 - Top: 10 mm
 - Bottom: 10 mm
 - Left: 10 mm
 - Right: 10 mm
- Sections:**
 - Header: 20 (40mm)
 - Footer: 10 (20mm)

At the bottom, it indicates '20mm of 297mm used' and has 'OK' and 'Cancel' buttons.

There are four groups of settings for the creation of the new Sections: General, Margins, Sections and Depth Area.

GENERAL: In this group the paper size and orientation of the new Borehole Log can be chosen.

It is possible to use the Master Font option. The Master Font option ensures that all text in the template will be the selected Master font type and overrides any font type selection used for each cell on a Log. It does not however override the font size, colour or any of the other attributes.

MARGINS: In this group it is possible to choose the margin areas around edge of the sheet as it appears on the printer. It is the distance between the edge of the grid and the edge of the paper.

SECTIONS:

Grid Size: There are three scales of the grid: Small, Medium and Large. In the small scale the dimensions of each square on the graph paper is 1X1mm, in the medium scale 2X2 mm and in the large scale 4X4 mm.

The default selection is the Medium scale which is the recommended scale.

If millimetre accuracy is needed on the Log then the small scale should be used but this will affect the performance.

Header - Footer: These are the areas above and below the Depth Header (Depth Related Area). Specify these in terms of number of grids in each area. (this will then be displayed in mm below each box)

Depth Header: Top above the Depth Area where column headers are listed. This is in effect the height of the area between the top of the depth related area and the header.

Depth Footer: Bottom area of the Depth Area where continuation headers or similar will sit.

DEPTH AREA:

Plot Area: Enter a specific value in here to ensure that the template fills this amount of space.

Scale: Enter a value in here to ensure that a template fits an exact scale such as 1:50 etc.

Units per Page: Enter a value in here to ensure that a certain amount of units are placed on each page such as 5m etc.

Each option has a radio button above it. The one that you select will be the one that will automatically apply changes depending on the values given to the other two.

At the bottom of the box the size of the Log you have created is displayed against the size of the selected paper. If the Log dimensions are too large for the paper size then this value is highlighted in red and the dimensions must be reduced before the template setup form can be saved.

Click OK to save the selections made.

Civils Sections

Civils sections function in exactly the same way as sections in regards to template setup. Therefore, see the above section on Sections for information on how to setup a Civils Section

Changing Template Page Settings

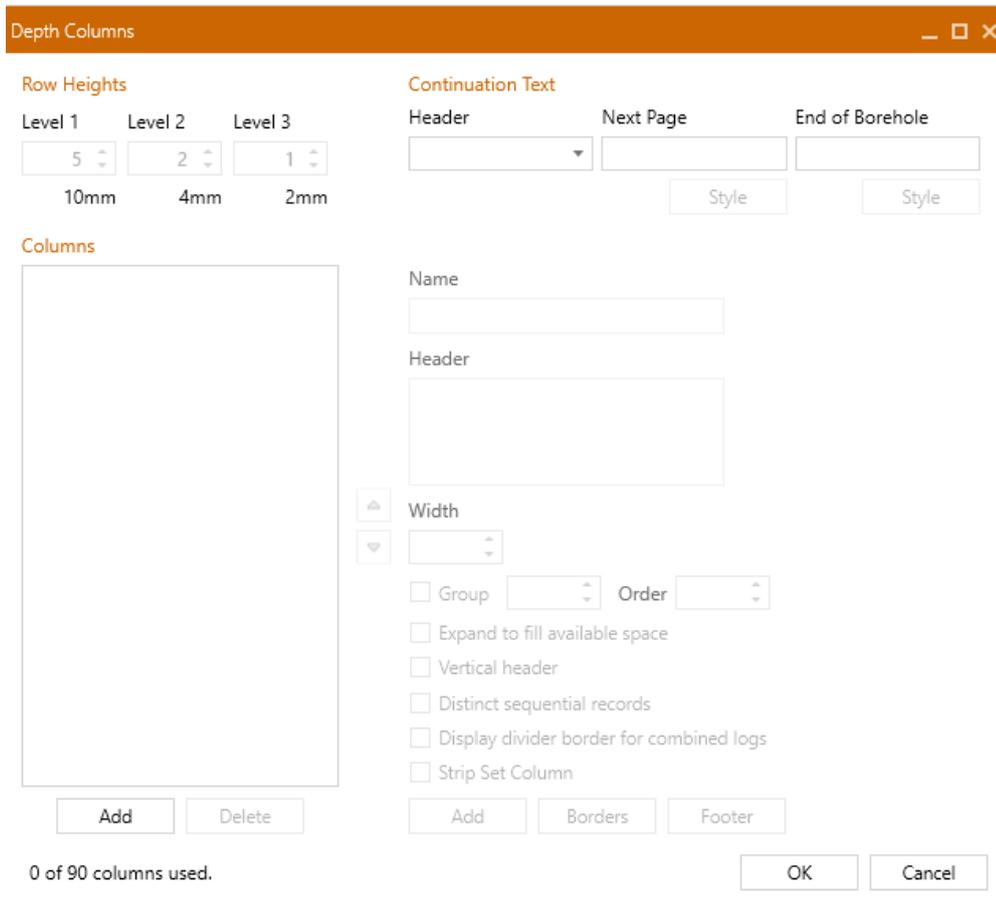
It is possible to change some of the settings on the Template Setup Form by pressing the Template Setup button on the Design section of the ribbon at any time during the log creation process but there are restrictions that apply which are detailed below.

- It is not possible to change the paper size and orientation
- It is not possible to change the Grid size
- If there are not enough rows at the bottom of the Header area that have not been merged then it is not possible to reduce the size of the Header area without unmerging the required amount of rows. The same restriction applies to the Footer area
- Increasing the size of the header or footer areas will add blank rows of grids to the bottom of the appropriate section.
- It is possible to change the Depth Header and Depth Footer headers as long as the overall log size does not exceed the paper size.
- It is possible to change the size of the margins e.g. .left and right, however, Template Studio will not allow for expansion greater than the width of the page. If the template is to be moved to the left or right you must therefore reduce one margin before expanding the opposite margin.

Master Templates

Set up Master Templates in Template Studio

To create a new Master Template, start by setting up a normal log template. Select the page size and the header and footer sizes as normal. Once you have a blank template you can create the header and footer you require for your template as normal using all the normal functionality of Template Studio. When it comes to creating the depth related areas you will need to add a depth column by going to the depth columns on the top ribbon.



If you want the hole depth area to be part of the strip set just add one column.

If you would like to have some standard columns, for example the scale, you can set these up as normal along with the depth related strip sets.

Once you have your column you can change the name by selecting the Strip Set Column box towards the bottom of the dialog.

Depth Columns
_ □ ×

Row Heights

Level 1	Level 2	Level 3
5	2	1
10mm	4mm	2mm

Continuation Text

Header	Next Page	End of Borehole
<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="button" value="Style"/>	<input type="button" value="Style"/>

Columns

Strip Set

Name

Header

Width

Group Order

Expand to fill available space

Vertical header

Distinct sequential records

Display divider border for combined logs

Strip Set Column

10 of 90 columns used.

This will make the columns you have selected for the area for the strip sets to be shown. Its always a good idea to select the expand the fill available space button as well to save time on resizing the space.

Once this is set up all you to do is create the strips which you will want to come across into the depth related area.

How to Setup Strips

The Master Template strips are the same as a quick section strip and can be set up for any depth related information.

You can select the Strip when you go to create the template.

Template Types

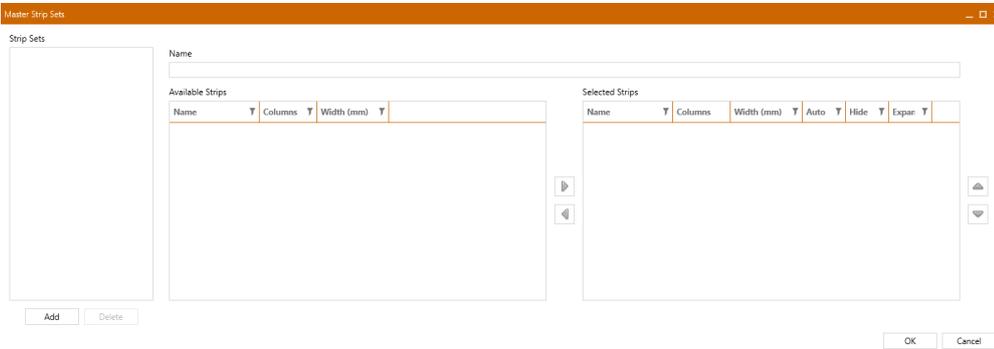
Name	Description:
Borehole Log	Strip
Header Sheet	
Combined Log	Preview:
Dynamic Log	
Site Plan	
Strip	
Quick Section	
Civils Section	

As with any other Strip you can add columns as you would normally, and you have all the functions you would expect.

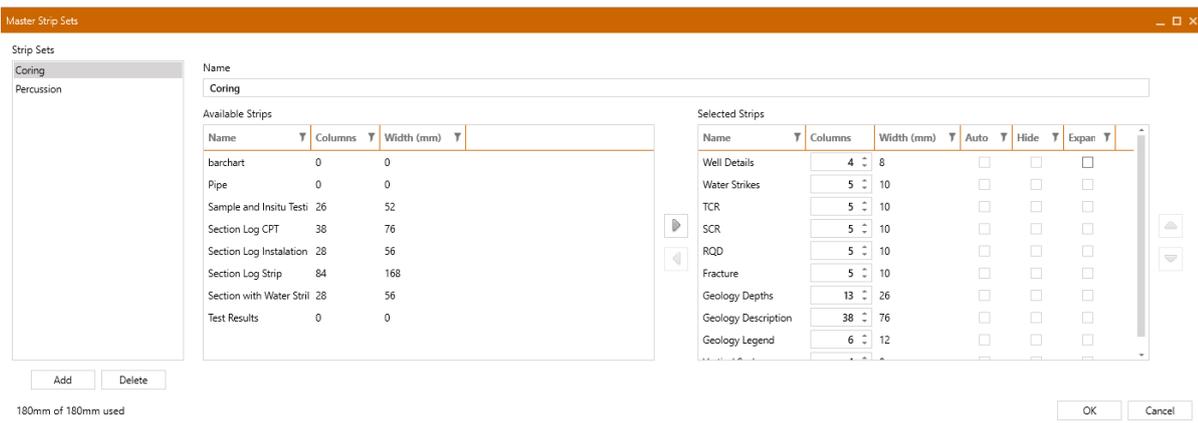
How to Setup a Strip Set

Once all the columns have been set up as strips you will need to combine them into Set of Strips or Strip Set so they are easier to select.

You will need to go back to your Master Template and select the Strip Set button in the top ribbon.

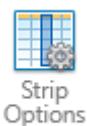


Continue by adding on the bottom left side and giving the Strip Set a name. When you do this, you will see all the compatible strips that you have set up in Template Studio.



Hide and Show Conditions

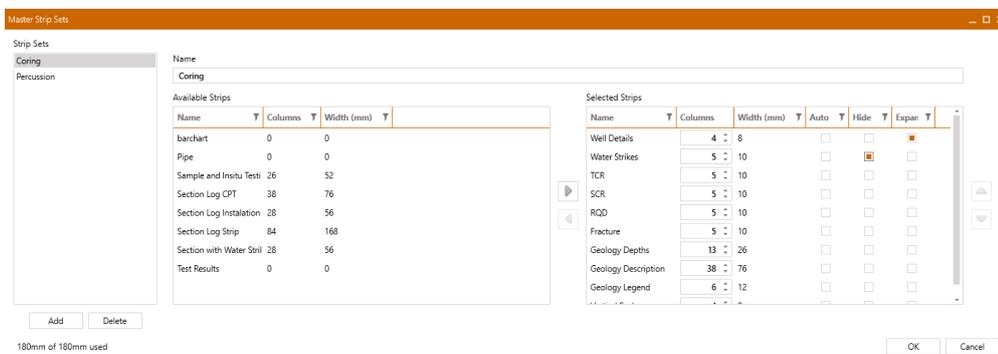
With the introduction of Dynamic Logs, the strips have had a number of updates to allow for multiple extra functionality when used in conjunction with these. When designing a strip, select the Strip Options button from the ribbon, where the Strip Options dialogue will then appear allowing for an expression to be entered that can be used to query whether the strip should be displayed or not on strip set output.





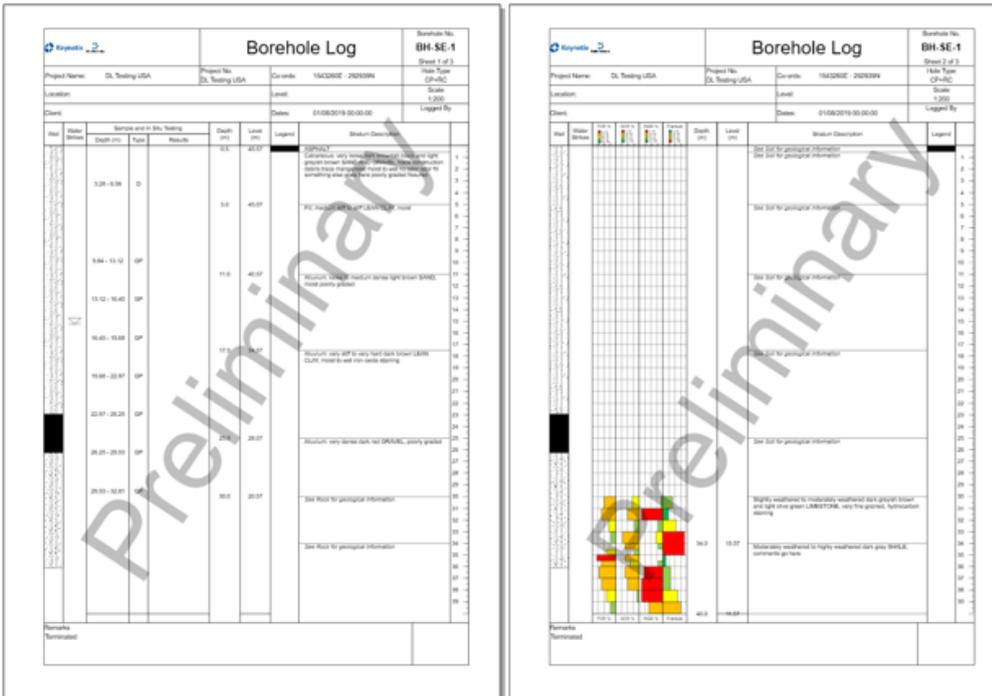
This expression is based off the location details table. In the example above, there is a query to find out if there are any water strikes within this location, if there are then this will return False, telling the application that the Hide option should not be invoked.

On the strip set dialogue, different strips can be selected to hide and show. If a strip is set to hide, and the expression in the strip options dialogue is False, then the strip will show on the output. If the condition is True than the strip will not show on the output and all of the other strips will be pulled into the space left by the missing strip, leaving a gap on the right-hand side of the template.



Dynamic Logs

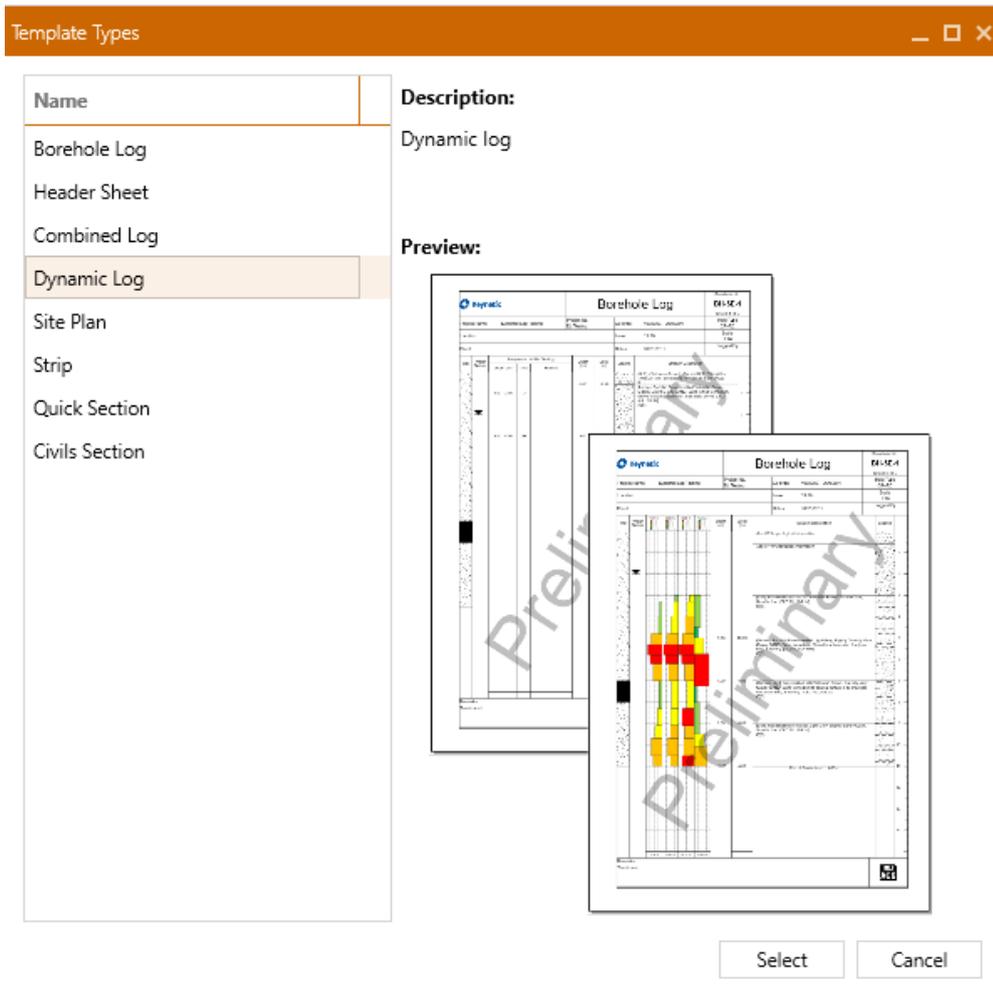
Dynamic Templates pull together different templates (including borehole logs and master templates) and pulls them together into one consolidated output. This allows for an output to show different data dynamically based on data in the database structure. For example, you could show soil data on one type of template and rock data on another (with different strip sets used as well).



Note that a dynamic log will always start a new page when a template type change is detected. This works differently to a combined log which will carry on the new template on the same page as the previous one. There are further settings to show different information in the space where a new page has been created explained further in this guide.

Setting up a Dynamic Log

To create a dynamic log, start by selecting the dynamic log template option when creating a new template within the Template Studio interface.



The Dynamic Log Editor window will then appear, allowing for selection of different template types based on different conditions, specified within the expression box (Note that the expression is based on the Group selected). The expression should be written in a way so that a value will be returned when that part of the expression is true. This allows for a more complex expression to be written that handles multiple conditions.

Once an expression has been written, conditions can be added by selecting the Add button. A new item will then appear within the window that allows the Type to be entered. The type is the result of the expression that you want to show a template for. Once a type is selected, a template can be selected for when that result is matched. A strip set can also be selected if the template selected is a master template.

To save the template, select the OK button, where the save template dialogue will then appear.

Save Options

Destination

Local File

Current Project (Dynamic Template Test Project)

Configuration Pack

Report Name

Dynamic Log

Save Cancel

Expression and Condition Examples

The following expression queries the Depth Related Exploratory Hole Information table and queries whether the current location type is Cable Percussion, if it is, it will return CP, if it isn't, it will then query if the location type is Rotary Core, if it is, it will return RC, else it will return other.

if([DepthRelatedExploratoryInformation.Type]='CP','CP',if([DepthRelatedExploratoryInformation.Type]='RC','RC','Other'))

Dynamic Log Editor

Type	Template	Strip Set
CP	Master Template	Percussion
RC	Master Template	Coring
Other	Master Template	Percussion

Group

Depth Related Exploratory Hole Information

Expression

if([DepthRelatedExploratoryInformation.Type]='CP','CP',if([DepthRelatedExploratoryInformation.Type]='RC','RC','Other'))

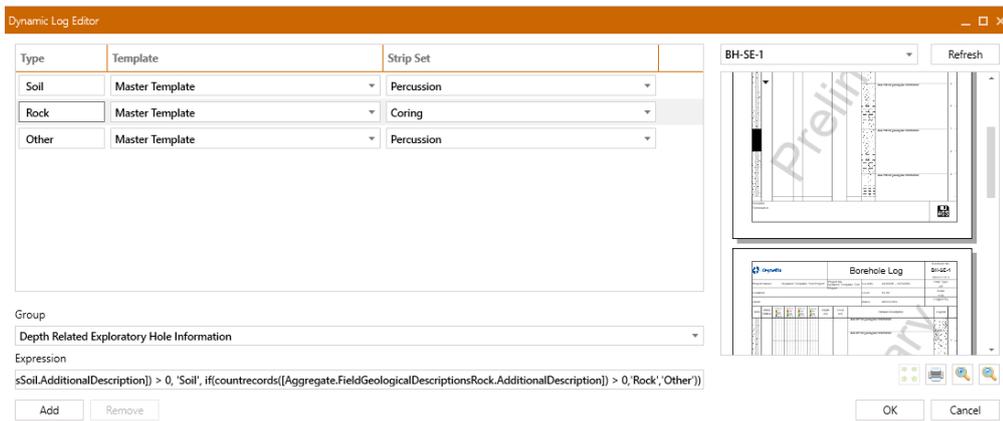
Add Remove

BH-SE-1 Refresh

OK Cancel

The following expression is slightly more complicated as it queries the Field Geological Descriptions table and queries whether the child record in the soil or rock tables is soil, if it is, it will return Soil, if it isn't, it will then query if the child record is Rock, if it is, it will return Rock, else it will return Other.

if(countrecords([Aggregate.FieldGeologicalDescriptionsSoil.AdditionalDescription]) > 0, 'Soil', if(countrecords([Aggregate.FieldGeologicalDescriptionsRock.AdditionalDescription]) > 0, 'Rock', 'Other'))



Dynamic Template Description Bars

With the introduction of Dynamic Logs, the description bars have had a number of updates to allow for multiple extra functionality when used in conjunction with these.

End Text Mode

When used in conjunction with the End of Borehole text found under the Depth Columns dialogue, allows for selection of a different option based on whether the template is the last page of the whole document (rather than just showing the end of the location).

ShowOnLastPageOnly Will show the end of borehole text on the last page in the whole output, not on every page showing the location final depth.

Show Will show the end of borehole text on every template that shows the location details final depth

Continuation Text Mode

When used in conjunction with the Next Page text found under the Depth Columns dialogue, allows for selection of a different option based on whether the current page is a page that is a page that has a different template type contained within or not.

Hide on Split Pages Stops the Next Page text from appearing on pages where a new template type is shown on that page (if the template changes from one to another on this page, it won't show the Next Page text).

Show Will show the Next Page text on every page, regardless of whether it is a split page or not.

Dynamic Mode

The dynamic mode allows for the selection of what should happen to the description data in the spaces of a page where the current template type does not match the current condition based on your dynamic template expression. There are 4 modes for this;

(Blank) Included here as an option and is the default. When no item is selected, description bars will work the same whether the description belongs to the current template or not.

Replace Allows for a different expression to be used compared to your default one and allows for a different styling to be applied. This is commonly used if the description should be changed to see next/previous page for example.

Merge Works the same way as Replace but combines all of the descriptions into one item instead of separate ones per geology boundary.

Restyle Will use the same expression as the default geology description but allows for it to be style in a different way (For example, greying out and italicising the description).

Next Page Text

Dynamic Next Text Allows for a different expression to be used to show data when used in conjunction with the Merge and Replace Dynamic modes.

Dynamic Next Text Font Allows for a different font to be used when used in conjunction with the Merge and Replace Dynamic modes.

Dynamic Next Text Size Allows for a different font size to be used when used in conjunction with the Merge and Replace Dynamic modes.

Dynamic Next Text Bold Allows for a different text weight to be used when used in conjunction with the Merge and Replace Dynamic modes.

Dynamic Next Text Italic Allows for the text be italicised or not when used in conjunction with the Merge and Replace Dynamic modes.

Dynamic Next Text Colour Allows for a different colour to be used when used in conjunction with the Merge and Replace Dynamic modes.

Dynamic Next Text Alignment Allows for a different horizontal alignment to be used when used in conjunction with the Merge and Replace Dynamic modes.

Previous Page Text

Dynamic Previous Text Allows for a different expression to be used to show data when used in conjunction with the Merge and Replace Dynamic modes.

Dynamic Previous Text Font Allows for a different font to be used when used in conjunction with the Merge and Replace Dynamic modes.

Dynamic Previous Text Size Allows for a different font size to be used when used in conjunction with the Merge and Replace Dynamic modes.

Dynamic Previous Text Bold Allows for a different text weight to be used when used in conjunction with the Merge and Replace Dynamic modes.

Dynamic Previous Text Italic Allows for the text be italicised or not when used in conjunction with the Merge and Replace Dynamic modes.

Dynamic Previous Text Colour Allows for a different colour to be used when used in conjunction with the Merge and Replace Dynamic modes.

Dynamic Previous Text Alignment Allows for a different horizontal alignment to be used when used in conjunction with the Merge and Replace Dynamic modes.

Designing Header and Footer Areas

This section of the user guide looks at formatting the Header and Footer Areas of a log by working through part of an example.

A blank form with a grid (like a graph paper) is initially shown when a new template is created. This form is divided into three areas:

- Header Area (Top)
- Septh Area (Middle)
- Footer Area (Bottom)

The size of the grid cells (small, medium, large) has already been set up on the Template Setup Form.

NOTE: It is not possible to put anything inside any individual grid items as the cells first need to be merged into merged cells.

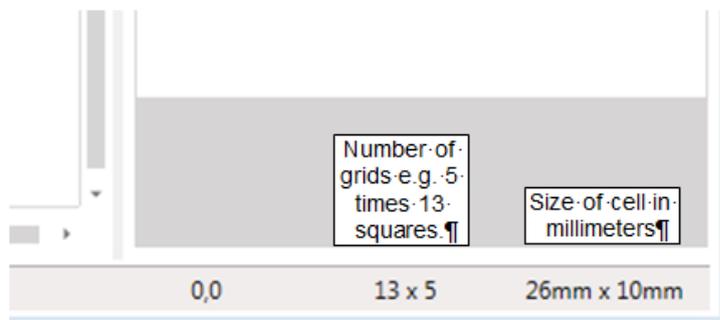
Merging Grids into Cells

The first thing that is needed is to merge (join) the individual cells together by selecting the cells and clicking the Merge button on the Design section of the ribbon (It is like the cell merge option in Microsoft Excel). The merged area is then changed to a cell.

By pressing the merge button again, this will unmerge the cell.

Instead of pressing the Merge button you can use the shortcut key F4. All shortcut keys can be found by pressing the Shortcut Keys button on the Help Section of the ribbon

The size, in terms of grid cells and actual dimensions of the created cell, can be viewed in the right hand corner of the screen as the grid squares are selected.

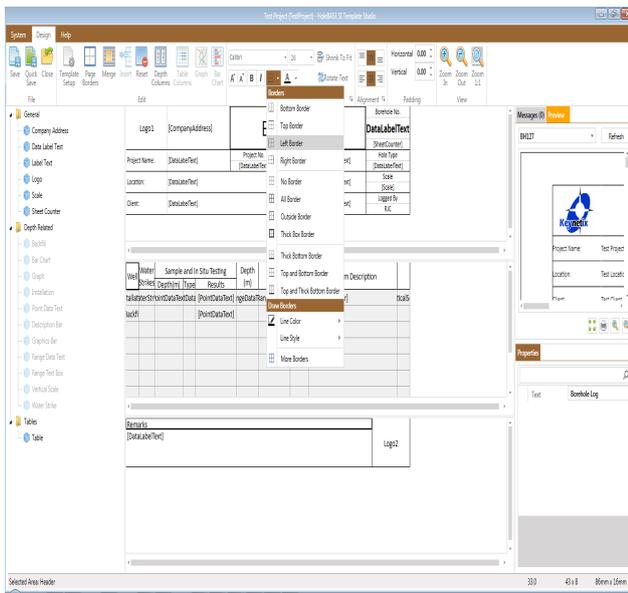


If there is data text inside the cell, it is always a good practice first to reset it by pressing the Reset button on the Design section of the ribbon BEFORE unmerging the cell.

Cell Styles

After creating cells on the Header and Footer area, it is possible to style them using the Microsoft Office like Ribbons and Forms.

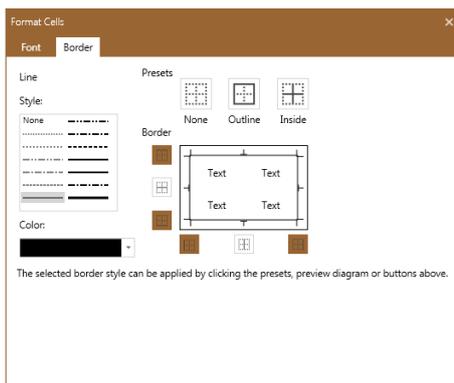
For example, there is the capacity to create borders, align both vertically (top, centre, bottom) and horizontally (centre, right, left), assign padding, rotate the inserted text etc.



Text inserted in the cells can be formatted as in any other Windows application. You can choose the desired font, font size, colour, rotation, if the text will be bold, in Italics etc. from the format area on the Design section of the ribbon.

It is important to note the following:

- Nothing is shown in terms of cell formatting in the **Preview window** until there is data within the cells.
- When a rotation is assigned to text this is **ONLY** visible in the Preview window, **NOT** on the Header or Footer working space of the Template.
- By pressing the little arrow on the right hand corner of the format area on the Design section of the ribbon the Format Cells window is shown where more options for cells formatting can be found.

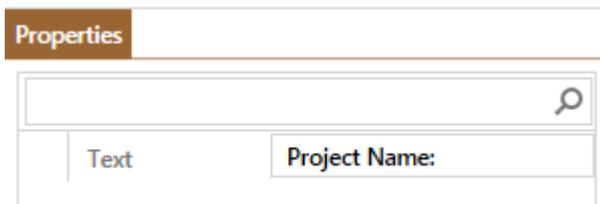
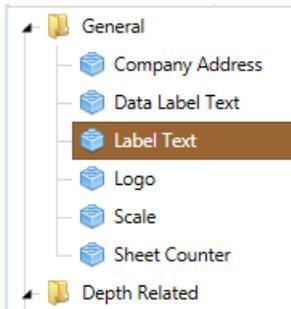


Label Object

Inside a cell the simplest object that can be inserted is a Label Object.

To insert a label object into any cell simply select the cell and double click on the Label Text object in the tree view. The term Text is assigned inside the cell and the wording of this label can be changed in the properties window (form), on the lower right area of the screen. Once

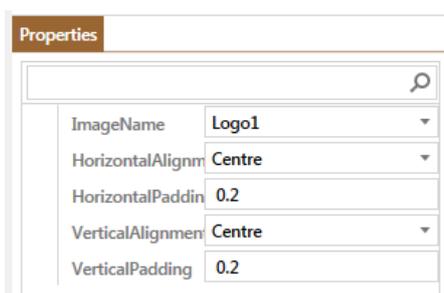
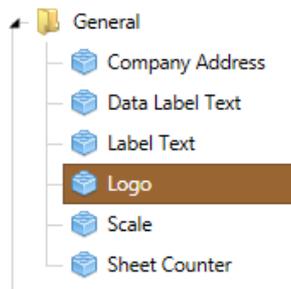
entered, the new information is assigned in the cell both on the working space and the preview window.

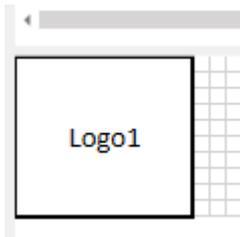


Logo Object

To insert one of the logo images from the OpenGround Professional system onto the Template, follow the steps below:

- Select the cell where the logo is to be inserted
- Double click the Logo Object on the Tree View on the left hand side of the screen
- Modify the properties in the properties window on the lower right area of the screen if required.





In the ImageName box a dropdown menu of available logos is displayed. The desired logo image can be selected and previewed in the Preview window.

The other logo properties that can be changed from the Properties windows are the Horizontal and Vertical Alignment and Padding.

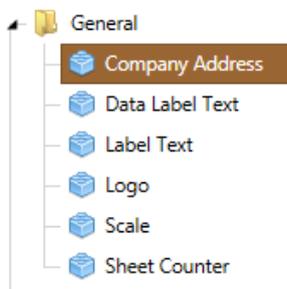
The logo names presented in the dropdown menu are the image names that have given in the OpenGround Professional Template Images in the selected Configuration pack.

They can be seen and edited by selecting the Images icon on the System Ribbon in Template Studio. Any changes made in Template Studio will be changed automatically in OpenGround Professional

Company Address Object

To insert the Company Address into the template, follow the steps below:

- Select the cell where the company address is to be inserted
- Double click the Company Address Object on the Tree View on the left hand side of the screen



If the Company Address has not been added for the project that has been selected then this cell will appear blank on the form. The company address for a project can be changed in OpenGround Professional

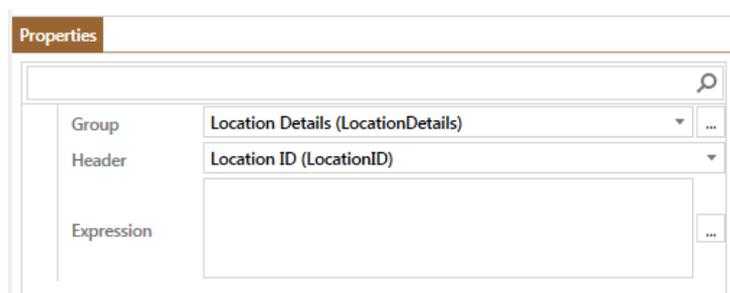
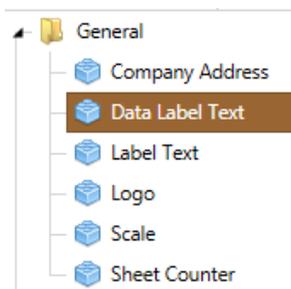
Data Label Text Object

Data Label Text objects connect a cell to the OpenGround Professional database dynamically. An example of that is the Borehole ID.

To insert a Data Label Text Object into the template, follow the steps below:

- Select the cell where the data is to be inserted
- Double click the Data Label Text Object on the Tree View on the left hand side of the screen

- Modify the properties in the properties window on the lower right area of the screen as detailed below:-
 - From the Group dropdown list box choose the group where the data that is to be displayed belongs e.g. Locations Details for the Borehole name
 - From the Header dropdown list box choose the database field from which the information will be retrieved e.g. Location ID



The expression box can be used instead of the Header dropdown. To add a predefined expression, click the ... button on the right hand side of the box. For more information on Expressions see the Expressions Chapter in this user guide)

Text and font format can be changed from the general cell format on the Design section of the ribbon.

Point Symbol Object

A point symbol object is used to display a symbol in the header. This can be used to show as a key item.

To insert a Point Symbol Object into a cell, follow the steps below:

- Select the cell that the item is to be added to.
- Double click on the Point Symbol Object in the General section of the left hand side tree view.
- The Point Symbol Object will now be added and the text "[PointSymbol]" is inserted in the cell.

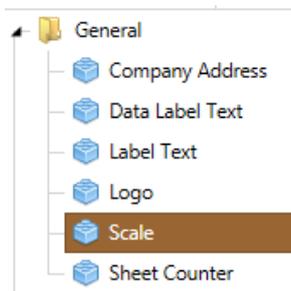
Scale Object

A Scale Object displays the current scale of the log in a cell i.e. 1:50

To insert a Scale Object into the template follow the steps below:-

- Select the cell where the Scale is to be inserted.
- Double click the Scale Object on the Tree View on the left hand side of the screen

The only properties that can be changed for the Scale Object are the text and font format and must be changed in the General Cell Format on the Design section of the ribbon.



Dynamic Text

A Dynamic Text item is used to allow for extra data to be input by the user when the log is generated. For example, it may be necessary for a user to type in comments about a section in the header area. These are used to populate the parameters in the OpenGround Professional application when producing a quick section, quick log or site plan output.

- Select the cell where you want to insert the Dynamic Text
- Double click the Dynamic Text on the Tree View on the left hand side of the screen
- Enter the values as necessary;
 - Initial Value - This is the default value that will be shown if the user does not edit the cell on log production.
 - Key - This is what the cell is called and is used to tell the user which cell this information will be linked to.

Sheet Counter Object

A Sheet Counter object displays the current sheet number in the cell in "[Sheet] 1 [of] 3" format. To insert a Sheet Counter object into your template, follow the steps below:

- Select the cell where you want to insert the Sheet Counter
- Double click the Sheet Counter Object on the Tree View on the left hand side of the screen

The properties that can be changed for the Sheet Counter Object are the text and font format and must be changed in the General Cell Format on the Design section of the ribbon. It is however, also possible to change the Leading text and separating text that appears within the item and also turn off the page count if needed.

DisplayTotal	<input checked="" type="checkbox"/>
Prefix	Sheet
Separator	of

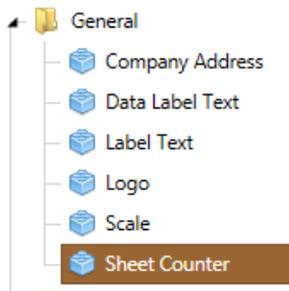


Table Objects

Table Objects are added in a slightly different way. The process has been covered in more detail further in this user guide. For more information, see the Designing Tables Section of this User Guide.

Image Grid

Image Grids function to allow for images stored within OpenGround Professional against certain data to be shown on a template.

To insert an Image Grid into your template, follow the steps below:

- Select the cell where you want to insert the Image Grid
- Double click the Image Grid on the Tree View on the left hand side of the screen

The following properties effect how the Image Grid Functions;

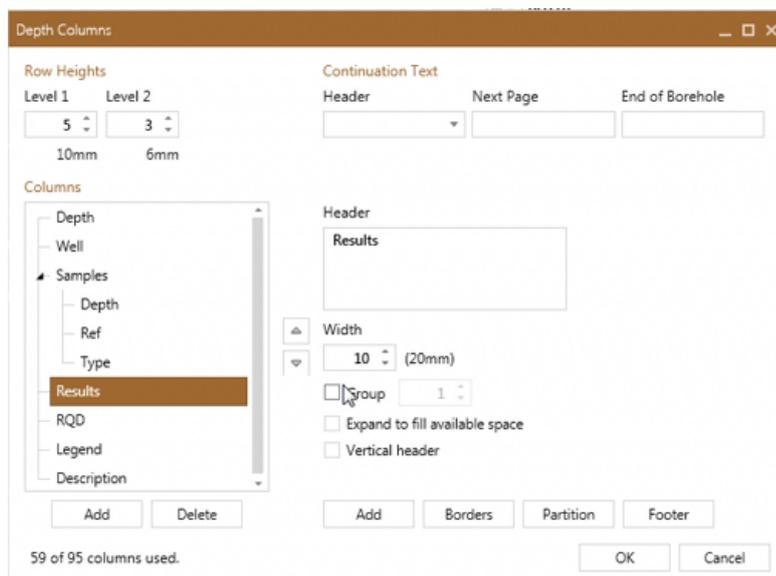
- Category Filter - This allows for filtering of images to show only when they belong to a certain category in OpenGround Professional. For example, there may be many images attached to a location, but only trial pit photos should be shown.
- Image Width - This is the maximum width that the images should show.
- Image Height - This is the maximum height that the images should show. OpenGround Professional will fit the image in at the biggest size before it hits the limits of the height or width without skewing the image.
- Image Margins - These effect the spacing that surrounds the images.
- Image Borders - These controls effect the appearance (if any) of the borders that surround the image.
- Display Header - This shows the option for showing the Name of the images.
- Image Text Mode - This allows for control of what is showing in the Header (Name, Name and Description etc).

Column Configuration

Adding

To add columns into the Depth Area follow the steps below:-

- Select the Depth Columns button on the Design section of the ribbon to set up the area.



- Click Add below the Columns Group to add a column to the bottom of the Columns list. This will add a column with a default "Header" heading. The following properties can be changed.
 - The Header text displayed at the top of the Column
 - The width (in grid spaces). Note: at the bottom left hand side of the window it is possible to see the total number of grid spaces that have been used and the grid spaces remaining (e.g. 5 of 95 columns used for a 5 grids column width).
 - The group number (this is covered in more detail below)
 - Select expand to fill available space if any leftover width is to be used by this column. This parameter is usually only used on graphs and description fields. Only one column in a log can have this parameter set
 - Vertical header - tick this if the text is to be rotated on the header. This is useful for narrow columns
- If additional columns are needed, click the Add button and repeat the process.
- By clicking OK it is now possible to see in the Depth area a column named Depth and if you refresh the Preview window you will see it in the Log as well.

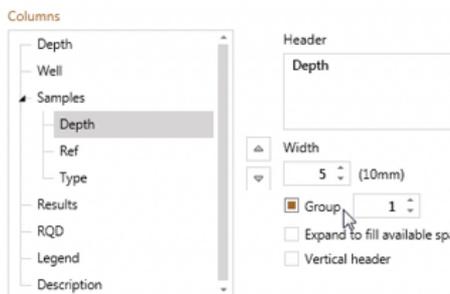
Adding Sub Columns

A single column can be sub divided into many sub columns. The image below shows the Sample and Testing column having 3 sub columns; Depth, Type and Results.

Sample and In Situ Testing		
Depth(m)	Type	Results

To add a sub-column click the Add button below the column properties - this is different from the add button that is used to add a main column.

A tree like view starts below the selected column with a new Header name for the added sub-column. It is possible to define the name in the Header text box and all other properties the same way that is possible with the main columns.

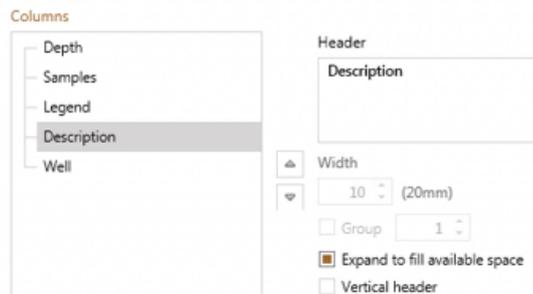


If there are some columns that require their data to match up (e.g. Sample Depth, Sample Ref, Sample Type and the Result of the test) then you have to "link" these columns.

For each sub-column and main column, choose the Group option on the right of the Column box and assign them the same group number e.g. 1 or 2.

Data in columns will ensure that text collision does not occur. If text is moved down the Log to avoid collision, then all the text in the group's columns will also be moved down

To ensure that the full width of the log is used you can tick the "Expand to fill available space" check box under the Width box. By doing that Template Studio will take all empty columns and will complete them with the selected field information. This option can be used with any column but is most commonly used with a graph or description column.



It is possible to put borders on the headers by using the Border command from the Design section of the ribbon.

All column headers can be formatted as in any other windows application. It is possible to select your desired font, font size, colour, rotation, if the text will be bold, in Italics etc. from the format area on the Design section of the ribbon.

There are two Levels on the Row Heights Group namely; Level 1 and Level 2.

Level 1 height designates the total height of the columns header area. The maximum height can be changed from the Template Setup window under the Depth Header title.

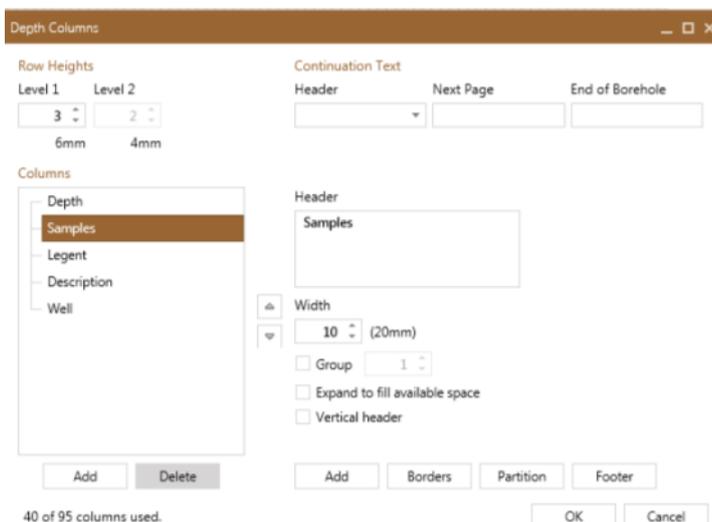
Level 2 height is the height of the child columns headers. The height left for the parent column header is calculated by subtracting the Level 1 height from the Level 2 height For example, if Level 1 height is set at 10mm and Level 2 height at 6mm the Sample row below will be 4mm and the Depth, Type and Results row will be 6mm

Sample and In Situ Testing		
Depth(m)	Type	Results

Removing

To remove columns from the depth area, follow the steps below:

- Click the Depth Columns button on the Design section of the ribbon.
- The Depth Column window opens and under the Columns Group, select the column name that is to be deleted.
- Press the Delete button below the Columns box and then OK to return to the design screen.



Moving

To move columns around the depth area, follow the steps below:

- Click the Depth Columns button on the Design section of the ribbon.
- The Depth Column window opens and under the Columns Group, choose the column name that is to be moved.

- Click the up and down arrows on the right of the columns' list to move the selected column up or down to the desired position.

Continuation Text

It is possible to add Continuation text at the bottom of one of the columns on the log as long as the column has a description bar contained within it. This is usually set to "Continued on next sheet" or "Borehole finished at 4.5m"

To define continuation text follow the steps below:-

- Click the Depth Columns button on the Design section of the ribbon.
- Select the column that will contain the continuation text from the dropdown list in the Continuation text part of the form
- Add the Continuation text and end of borehole text in the form. To use this feature both of these boxes have to be completed.

To include the final depth in the continuation text you can use the {0} syntax. e.g. "Borehole finished at {0}m" would create a following text "Borehole finished at 4.50m"

Column Borders

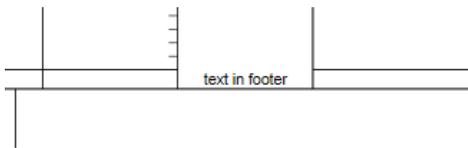
To change the column borders, follow the steps below:

- Click the Depth Columns button on the Design section of the ribbon.
- The Depth Column window opens and under the Columns Group select the column name that the borders are going to be changed in.
- Click the Borders button to display the Edit Border form.
- On this form it is possible to specify the colour and type of border in the top half and then the thickness in the bottom half. If no borders are required, then set the style to None. If only one or two of the sides will not have a border, then set the appropriate side to zero thickness.

Footer Areas

The footer area of a column can seem confusing as it has multiple purposes. The image below shows a footer area sitting below the depth related area and the main footer for the Log. The footer serves two purposes:

- To allow text to be placed at the bottom of the Log without spilling into the footer
- To add "Footer" text at the base of the column as well as the top. This is especially useful for combined logs.



To change the column footer settings, follow the steps below:

- Click the Depth Columns button on the Design section of the ribbon.
- The Depth Column window opens and under the Columns Group select the column name where the changes are to be made.
- Click the Footers button to display the Column Footer Setup form.
- Change the required settings and click OK.

The screenshot shows the 'Column Footer Setup' dialog box with the following settings:

- General**
 - Text: text in footer
 - Font: Arial
 - Size: 12
 - Weight: Normal
 - Colour: A
 - Show for combined pages only
- Padding**
 - Horizontal: 0.00
 - Vertical: 0.00
 - Alignment: Centre
- Border**
 - Style: Solid
 - Offset: 0.00
 - Colour: A
- Thickesses**
 - Top: 0.0
 - Bottom: 0.5
 - Left: 0.5
 - Right: 0.5

Buttons: OK, Cancel

Depth Related Items

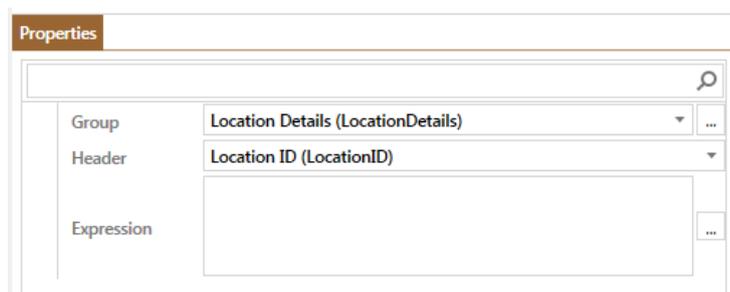
Header Data Text

Header Data Text objects connect a cell to the OpenGround Professional database dynamically. An example of that is the Borehole ID.

To insert a Header DataText Object into your template, follow the steps below:

- Select the cell where the data is to be inserted.
- Double click the Header Data Text Object on the Tree View on the left hand side of the screen
- Modify the properties in the properties window on the lower right area of the screen as detailed below:
 - From the Group dropdown list box choose the group where the data that is displayed belongs e.g. Locations Details for the Borehole name.

From the Header dropdown list box choose the database field from which the information will be retrieved e.g. Location ID.



The expression box can be used instead of the Header dropdown. To add a predefined expression, click the ... button on the right hand side of the box. For more information on Expressions see the Expressions Chapter in this user guide)

Text and font format can be changed from the general cell format on the Design section of the ribbon.

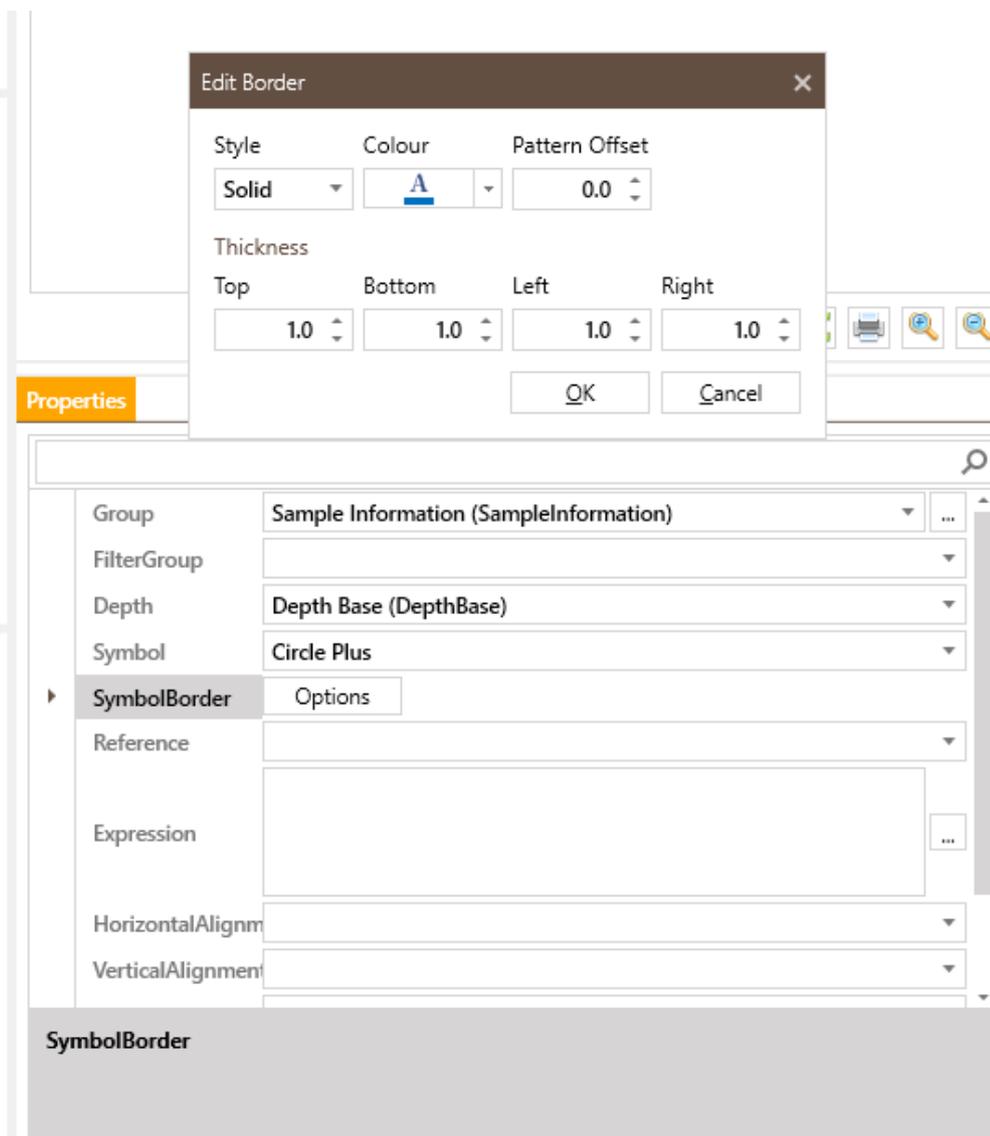
Point Symbol Object

A point symbol object is used to display a symbol at a specific depth based on certain criteria. An example of this would be wanted to show a symbol on the log every time there is a remark for further reading.

To insert a Point Symbol Object into a column, follow the steps below:

- Select the first empty box below the column headers that the item is to be added to.
- Double click on the Point Symbol Object in the Depth Related section of the left hand side tree view.
- The Point Symbol Object will now be added and the text "[PointSymbol]" is inserted in the cell.
- Define the additional properties for the object in the properties form

- Group - the grid that the data is being linked to.
- Depth - the field that defines the depth at which the object will be plotted
- Expression - Enter a valid expression into this section to manipulate the what should be shown. For example, it is possible to show a Circle if this is true or a Square if this other value is true. If this field is completed, then the symbol field must be blank.
- Symbol - Which symbol should be shown.
- Symbol Border- Options button for styling a border surrounding the Point Symbol . See image below.



Range Symbol and Picklist Range Symbol

Range Symbols and Picklist Range Symbols are very similar so will be placed together in this guide. The goal of these items is to show graphical information on a template when a condition is met. These will have a top image, a connector image and a bottom image.

To insert a Range Symbol Object into a column, follow the steps below:

- Select the first empty box below the column headers that the item is to be added to.
- Double click on the Range Symbol Object in the Depth Related section of the left hand side tree view.
- The Range Symbol Object will now be added and the text "[RangeSymbol]" is inserted in the cell.
 - It is then necessary to choose either a top symbol and a base symbol or a middle symbol. If a top symbol and base symbol is used, then a connector can also be used to join these up (like the standard water strike item does).
 - Symbol Border- Options button to style a border surrounding the Range Symbol.

A Picklist Range Symbol works the same way as above but uses the images defined against a picklist that is stored within OpenGround Professional.

Straight Line Object

A straight line item is used to place a straight horizontal line across the length of a column when a condition is met. This is useful for items such as shift information.

To insert a Straight Line Object into a column, follow the steps below:

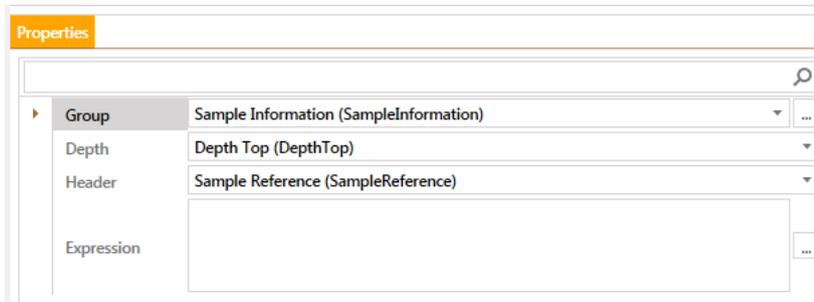
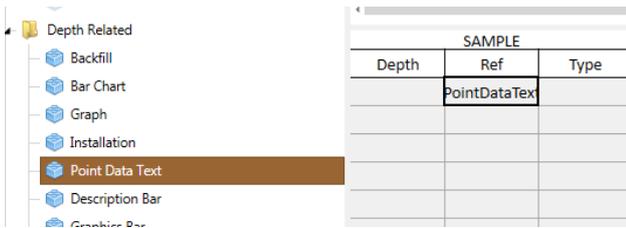
- Select the first empty box below the column headers that the item is to be added to.
- Double click on the Straight Line Object in the Depth Related section of the left hand side tree view.
- The Straight Line Object will now be added and the text "[StraightLine]" is inserted in the cell.
- Define the additional properties for the object in the properties form
 - Group - the grid that the data is being linked to.
 - Depth - the field that defines the depth at which the object will be plotted

Point Data Text Object

The Point Data Text Object inserts a text value from any data table at a specified height on the Log.

To insert a Point Data Text Object into a column, follow the steps below:

- Select the first empty box below the column headers that the item is to be added to.
- Double click on the Point Data Text Object in the Depth Related section of the left hand side tree view.
- The Point Data Text Object will now be added and the text "[PointDatatext]" is inserted in the cell.
- Define the additional properties for the object in the properties form
 - Group - the grid that the data is being linked to.
 - Depth - the field that defines the depth at which the object will be plotted
 - Header - The value to plot at the depth
 - Expression - Enter a valid expression into this section to manipulate the value before it is added to the Log. If this field is completed, then the header field must be blank. For more information on expressions see Expressions sections of this guide
- Refresh the borehole preview to see the changes.



If the name of the table is known, then type the first letter of the table in the box it jumps to the list at the first instance of that letter.

If table name is unknown, then press the



button on the right of the Group box and the Project Explorer opens as it appears in HBSI from where you can make the selection.

Range Data Text and Range Data Box

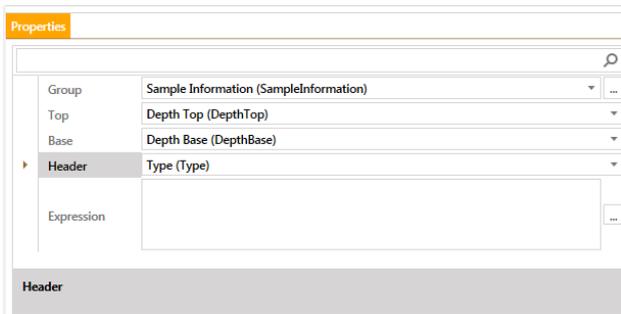
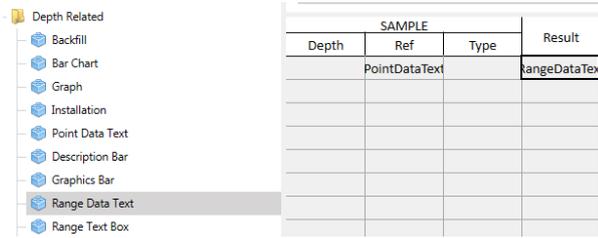
The Range Data Text Object inserts a text value from any data table at a mid-point between two heights on the log. The Range Data Box Object does the same but places the text inside a box and if needed reduces the text size of the object to fit in the box. The instructions for both objects are the same and included below.

To insert a Range Data Text Object into a column, follow the steps below:

- Select the first empty box below the column headers that the item is to be added to.
- Double click on the Range Data Text Object in the Depth Related section of the left hand side tree view.
- The Range Data Text Object will now be added and the text "[RangeDataText]" is inserted in the cell.
- Define the additional properties for the object in the properties form
 - Group - the grid that the data is being linked to.
 - Top - the field that defines the top depth of the range
 - Base - the field that defines the base depth of the range
 - Header - The value to plot at the mid depth
 - Expression - Enter a valid expression into this section to manipulate the value before it is added to the Log. If this field is completed, then the header field must

be blank. For more information on expressions see Expressions sections of this guide

- Refresh the borehole preview to see the changes.



If the name of the table is known, then type the first letter of the table in the box it jumps to the list at the first instance of that letter.

If table name is unknown, then press the



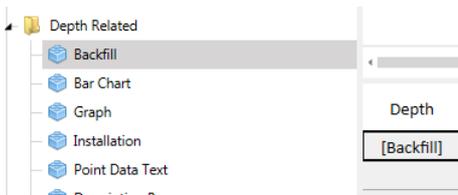
button on the right of the Group box and the Project Explorer opens as it appears in HBSI from where you can make the selection.

Backfill Object

The backfill object displays a hatching pattern across the log. The data is pulled from the Backfill table

To insert a backfill object into a column, follow the steps below:

- Select the first empty box below the column headers that the item is to be added to.
- Double click on the Backfill Object in the Depth Related section of the left hand side tree view.
- The Backfill object will now be added and the text "[Backfill]" is inserted in the cell. The backfill object has no additional properties to define.
- Refresh the borehole preview to see the changes.

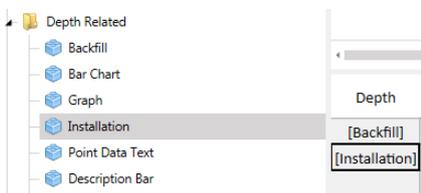


Installation Object

The Installation Object displays well information in the column.

To insert an Installation Object into a column, follow the steps below:

- Select the first empty box below the column headers that the item is to be added to.
- Double click on the Installation Object in the Depth Related section of the left hand side tree view.
- The Installation Object will now be added and the text "[Installation]" is inserted in the cell. The installation object has no additional properties to define.
- Refresh the borehole preview to see the changes.



Installation object can also be combined with the graphics bar but the order that the items are placed in are important, always place the installation below the backfill or graphics item.

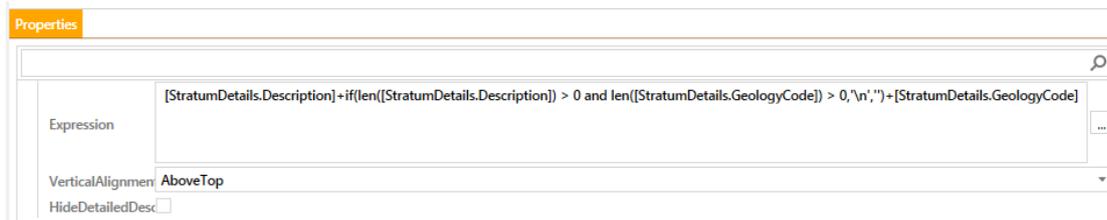
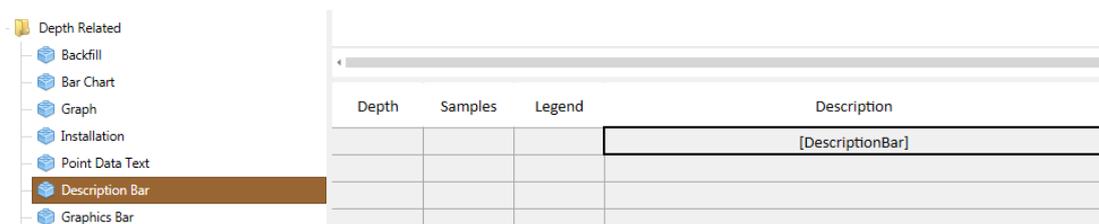
When there are two or more objects in the same column then the item which is first in the column (at the top) will be drawn on top, in the log output. Items are then draw in descending order, for instance the second item will be drawn behind the first.

Description Bar Object

The Description Bar object displays the geology description in the column.

To insert a Description Bar object into a column, follow the steps below:

- Select the first empty box below the column headers that the item is to be added to.
- Double click on the Description Bar in the Depth Related section of the left hand side tree view.
- The Description Bar will now be added and the text "[DescriptionBar]" is inserted in the cell.
- Define the additional properties for the object in the properties form
 - Expression - Enter a valid expression into this section to manipulate the value before it is added to the Log. A default value is added to the expression when it is added but this can be modified if required
 - HideDetailDescription - tick this item if the detailed descriptions are not to be added to the log.



The description is centrally aligned by default but it is possible to use the Alignment Area on the Design section of the ribbon to right or left align it.

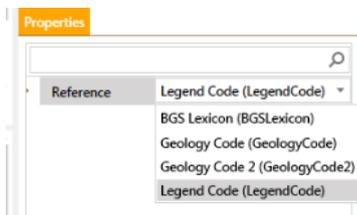
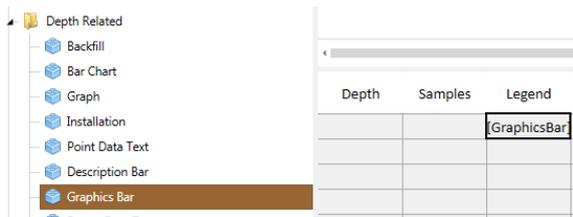
Use the horizontal padding to create some space to the column border from the Padding Area on the Design section of the ribbon.

Graphics Bar Object

The Graphics Bar object displays the geology hatching and other hatching in the column.

To insert a Graphics Bar object into a column, follow the steps below:

- Select the first empty box below the column headers that the item is to be added to.
- Double click on the Graphics Bar in the Depth Related section of the left hand side tree view.
- The Graphics Bar will now be added and the text "[GraphicsBar]" is inserted in the cell.
- Define the additional properties for the object in the properties form
 - Reference - Select the field that will control the hatching in the column. The default value is the Geology Legend field but any pick list field can be used.



It is possible to have a second column with a Graph object, e.g. Formation where the hatching will be defined by another code e.g. Geology Code as long as there are hatching images specified in the pick list manager in OpenGround Professional.

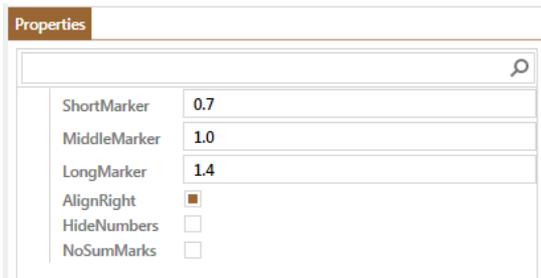
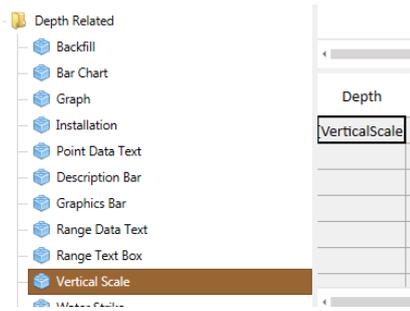
The Graphics Bar can be combined with the Installation Object, but the Installation has to be first in the row and the Graphics Bar second.

Vertical Scale Object

The Vertical Scale object displays a vertical scale bar down one edge of the column.

To insert a Vertical Scale Object into a column, follow the steps below:

- Select the first empty box below the column headers that the item is to be added to.
- Double click on the Vertical Scale in the Depth Related section of the left hand side tree view.
- The Vertical Scale will now be added and the text "[VerticalScale]" is inserted in the cell.
- Define the additional properties for the object in the properties form
 - Short Marker - This is the length of the tick marks for the marks every tenth units.
 - Middle Marker - This is the length of the tick mark for the mark at every half unit.
 - Long Marker - This is the length of the tick mark for each major unit on the scale.
 - Align Right - ON for the scale bar to be drawn down the right hand side and OFF for the scale bar to be drawn down the left hand side.
 - Hide Numbers - ON for no numbers added to the scale bar - OFF for numbers at each major unit
 - No Sum Marks - tick this item for the markers to not appear on the scale bar.
 - Hide Extremity Value -ON to hide the last number on the scale bar
 - Show First marker - tick this item to show the first number on the scale bar.



It is possible to have as many scale bars as required and you can combine them with other bars in the same column if needed.

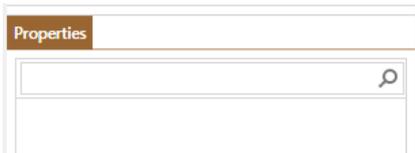
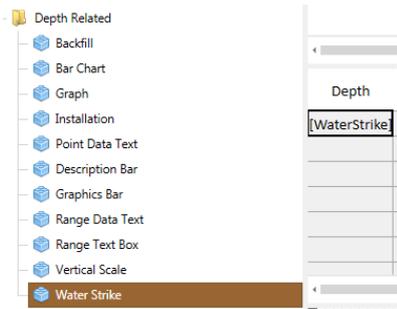
The font for vertical scale bars is controlled by the font items on the main ribbon bar.

Water Strike Object

The Water Strike Object displays water strike symbols in the Log.

To insert a Water Strike Object into a column, follow the steps below:

- Select the first empty box below the column headers that the item is to be added to.
- Double click on the Water Strike in the Depth Related section of the left hand side tree view.
- The Water Strike will now be added and the text "[WaterStrike]" is inserted in the cell.
- There are no additional properties for the water strike object



Discontinuity Fracture Spacing Library Item

The Discontinuity Fracture Spacing Library Item allows for a fracture image to appear down a column depending on the angle of fracture in the data. The following settings are present in this item;

Group	Discontinuity Data (Discontinuities)
FilterGroup	
Base	Depth Base (DepthBase)
Top	Depth Top (DepthTop)
Angle	Dip (Dip)
Colour	#FF000000
Thickness	0.5
Pattern	Solid
PatternOffset	0

Group - This is the table that the data will come from. For standard use this should be set to Discontinuity Data.

Filter Group - If a filter group is being applied to the data to filter out certain data then set this here.

Base - This is where the bottom of the data will appear on the template.

Top - This is where the top of the data will appear on the template.

Angle - This is the data that will be used to determine the angle of the line used. This value is set from horizontal, so a value of 0 or 180 will appear as a horizontal line with 90 being vertical.

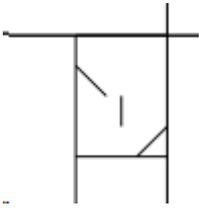
Colour - This is the colour the data selected underneath Angle will appear as.

Thickness - This is how thick the lines drawn under Angle are displayed.

Pattern - This is how the lines drawn under Angle are displayed.

Offset -This works alongside Pattern Offset to show the lines selected under Angle.

Pattern Offset - This works alongside Offset to show the lines selected under Angle.

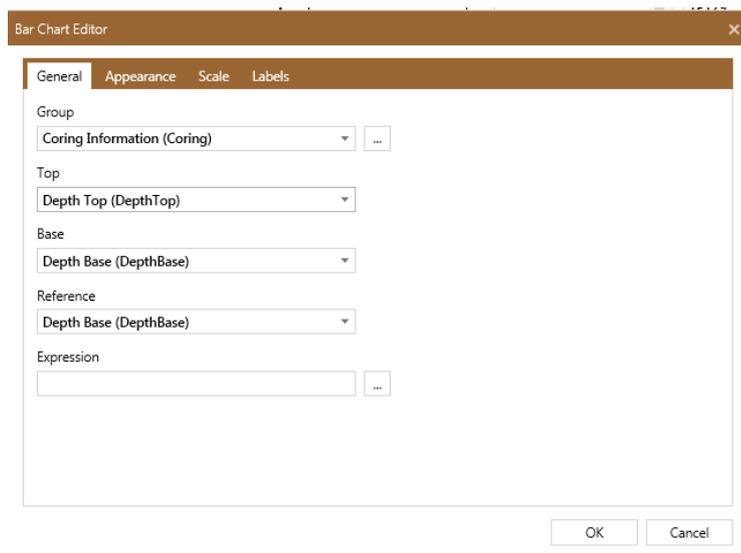
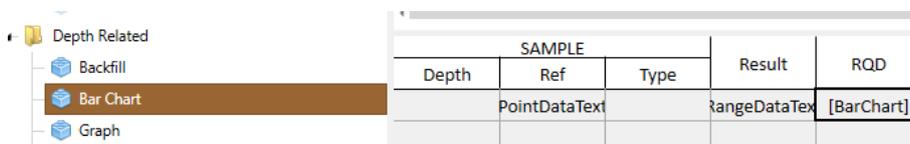


Bar Chart Object

The Bar Chart Object displays a bar chart or coloured box in the column. This is one of the complete objects that can be added to the Log.

To insert Bar Chart Object into a column, follow the steps below:

- Select the first empty box below the column headers that the item is to be added.
- Double click on the Bar Chart in the Depth Related section of the left hand side tree view.
- The Bar Chart Object will now be added and the text "[BarChart]" is inserted in the cell.



There is no properties window to use as there are too many properties and therefore the Bar Chart Editor opens up.

Bar Chart Editor - General tab

- Choose the table name (Group) from the editors' General tab. The down arrow opens a drop down list with all the tables in an alphabetic order from where the correct table can be chosen e.g. Coring Information.
- Select the Top and Base depths from the Top and Base boxes (e.g. Depth Top and Depth Bottom) as you want the bar to go from top to the base. (note: if a fixed width bar is needed then this is specified on the next tab.)
- Choose the value that will be plotted e.g. RQD from the Reference drop down list. Or add an expression to the expression box
- The expression `numberordefault(100,100)` can be used to ensure that a bar is drawn at a fixed length no matter what parameter you are plotting. This is useful if you want a coloured box across a column to indicate an item was present. The 100,100 values would be the maximum value as specified in the grid box.

Bar Chart Editor - Appearance tab

The screenshot shows the 'Appearance' tab of the Bar Chart Editor. It features a tabbed interface with 'General', 'Appearance', 'Scale', and 'Labels' tabs. The 'Appearance' tab is active and contains the following controls:

- Limits** section:
 - Minimum: 10.00
 - Maximum: 100.00
- Invert
- Fixed Bar Height
 - Value: 1.00
- Style button

In this tab it is possible to select the limits for the bar chart.

A fixed bar height may be needed (this is usually used for Dynamic Probe Testing) and in that case check the Fixed Bar Height check box and add a value.

It is also possible to set the style by pressing the Style button that opens up a new window with two tabs: Borders and Background. This is the style of the bar itself, so the Borders can be changed e.g. set the border colour to red and/or change its thickness. In the Background tab it is possible to select a wide range of colours.

In the background tab it is possible to choose a transparency for the bar so that multiple bars can be shown on top of each other etc.

Bar Chart Editor - Scale

General Appearance **Scale** Labels

Initial Value
0.00

Increment 10.00 Count 10.00

Marker Height
0.50

Display Format
2 Decimal Places

Display Numbers
 Display Grid
 Display Extreme Values

Style

This tab sets up the scale bar at the top of the bar chart. The physical scale is set up using the initial value, increment and count. For example, a scale from 0 - 100 with gridlines every 20 units would be set up as Initial Value = 0 Increment = 20 Count = 5

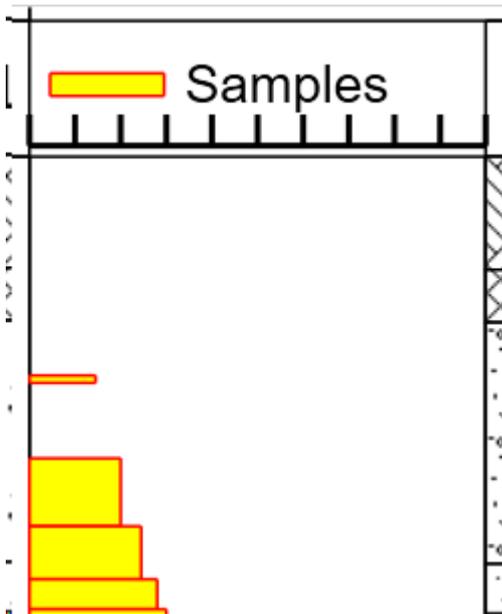
The Marker Height is the height of the ticks on the scale bar and the display format is the number of decimal places to display the numbers on the scale.

The final sets of options are self-explanatory.

The scale is displayed in the header cell. To include a bar chart header on the Log, it is necessary to include the bar chart in a sub column.

Bar Chart Editor - Legend Appearance

The Legend option allows for control of how the legend appears at the top of the column when a bar chart is shown. In the example below, the legend has been set to show the legend with the default values.



The following options are available to edit the legend;

Text - This is the value that will display next to the legend, describing what is appearing.

Width - This is the length of the legend horizontally.

Height - This is the height of the legend vertically.

Style - This allows for formatting of the text that appears next to the legend.

General
Appearance
Scale
Labels
Legend

Text

Samples

Width

5.00

5mm

Height

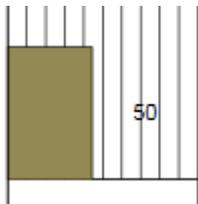
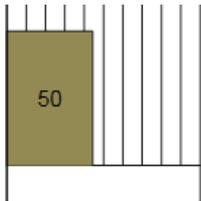
1.00

1mm

Style

Bar Chart Editor - Labels tab

In this tab, it is possible to define the labels for the bar. Below the box, press the Add button and it adds a label. It is possible to change the name in the Name box to whatever is needed e.g. RQD. It is also possible to select the value to be plotted from the reference drop down list and choose the location of the label e.g. inside or outside

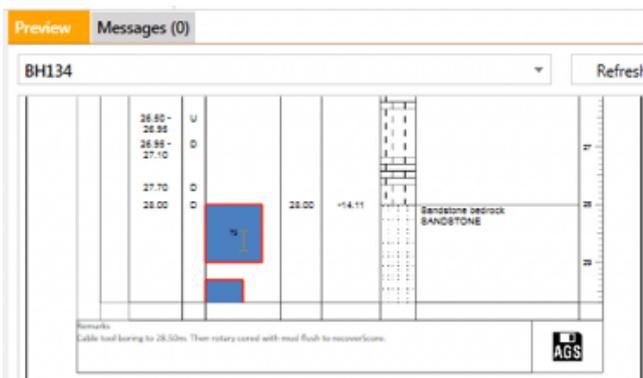


Inside

Outside

Using the Style button in this tab it is possible to change the Fonts and the positioning of the labels.

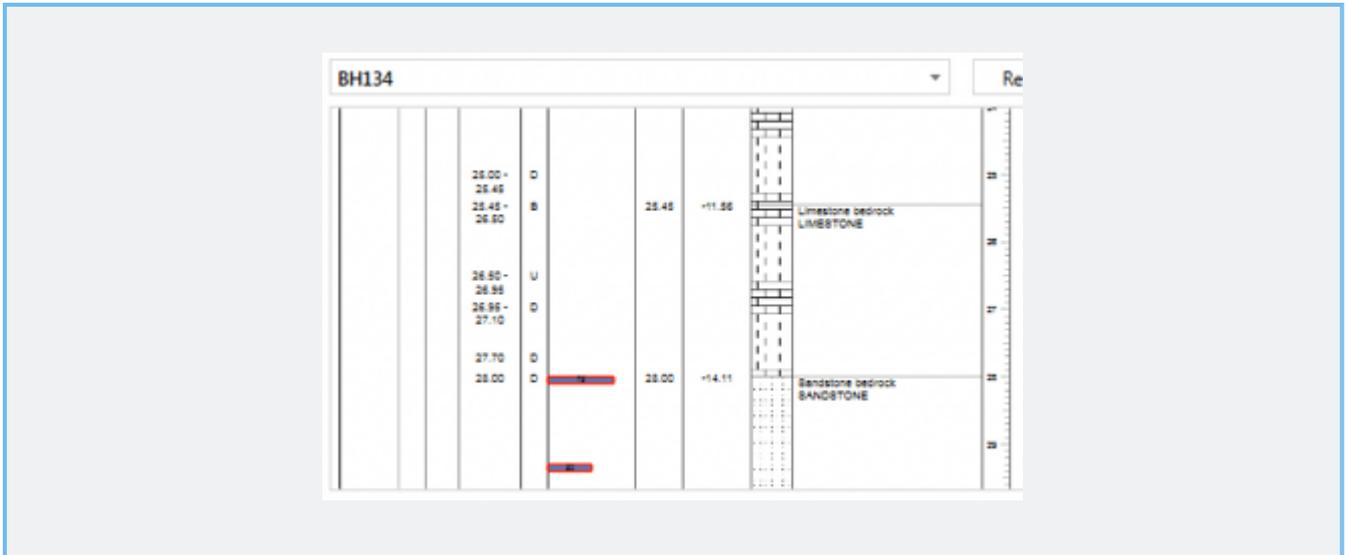
An example of the result appears, as in the following picture.



The Bar Chart Editor can be accessed by pressing the Bar Chart button on the Edit area of the Design section on the ribbon.

NOTES

When the Fixed Bar Height has been selected the Base box of the general tab deactivates as the height is controlled by the value added in this field. The picture below shows the result of a 0.1m fixed bar height selection.

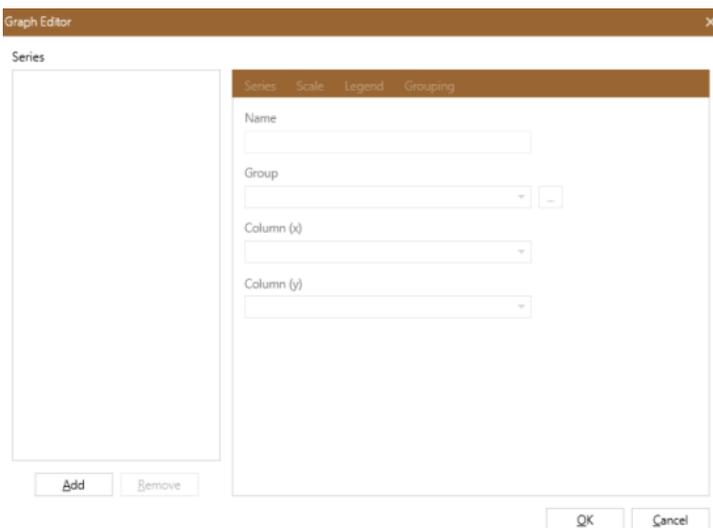
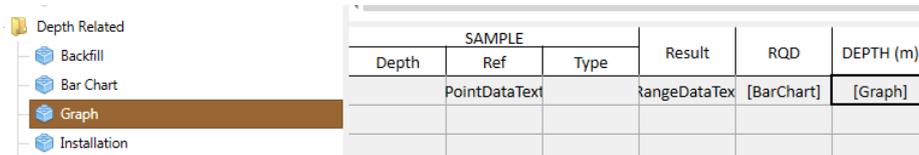


Graph object

The Graph Object displays a bar chart or coloured box in the column. This is one of the complete objects that can be added to the Log.

To insert a Graph Object into a column, follow the steps below:

- Select the first empty box below the column headers that the item is to be added to.
- Double click on the Graph in the Depth Related section of the left hand side tree view.
- The Graph Object will now be added and the text "[Graph]" is inserted in the cell.



There are no properties window to use as there are too many properties and therefore the Bar Chart Editor opens up.

A graph comprises of three things: (1) Series, (2) Scale and (3) Legend (These are the three first tabs on the right of the series text box).

Series tab

- The first item that can be added is a Series by pressing the Add button below the Series text box.
- The Series tab activates and then it is possible to type the name of the Series into the Name Box e.g. RQD.
- It is then possible to choose the Table Name (Group) e.g. Coring Information (Coring) and the column X and column Y values e.g. Depth Top and RQD respectively.
- There is an option to display the results as a scatter graph. If this option is selected you can configure the following
 - Point Symbol- Drop down option for choosing a range of point symbols to be represented on the graph
 - Symbol Scale X and Y %- can manipulate size of the point symbols displayed on the scatter graph.

The screenshot shows the 'Graph Editor' window with the 'Series' tab selected. The window title is 'Graph Editor' with a close button. On the left, there is a 'Series' list containing 'Graph Series' and buttons for 'Add' and 'Remove'. The main configuration area has four tabs: 'Series', 'Scale', 'Legend', and 'Grouping'. The 'Series' tab is active and contains the following fields:

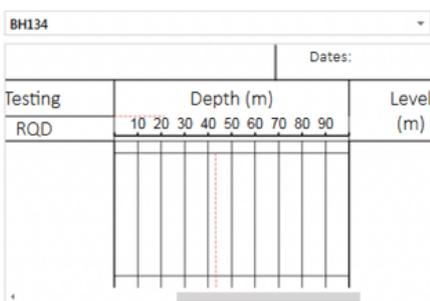
- Name: Graph Series
- Group: Sample Information (SampleInformation) [dropdown]
- Filter Group: (None) [dropdown]
- Column (x): Depth Top (DepthTop) [dropdown]
- Expression (x): [text box]
- Column (y): Depth Base (DepthBase) [dropdown]
- Vertical Break: 0.00 [spin box]
- Scatter Graph
- Point Symbol: Circle Cross [dropdown]
- Symbol Scale X (%): 150 [spin box]
- Symbol Scale Y (%): 150 [spin box]

At the bottom right of the configuration area are 'OK' and 'Cancel' buttons.

Scale tab

Series	Scale	Legend	Grouping
<input type="checkbox"/> Share with series			
Initial Value			
0.00			
Increment		Count	
10.00		10.00	
Marker Height			
0.50			
Display Format			
2 Decimal Places			
<input checked="" type="checkbox"/> Display Numbers			
<input checked="" type="checkbox"/> Display Grid			
<input checked="" type="checkbox"/> Display Extreme Values			
Style			

- This tab set up the scale bar at the top of the graph.
- The physical scale is set up using the initial value, increment and count. For example, a scale from 0 - 100 with gridlines every 20 units would be set up as Initial Value = 0 Increment = 20 Count = 5



- The Marker Height is the height of the ticks on the scale bar and the display format is the number of decimal places to display the numbers on the scale.
- The final sets of options are self-explanatory.

Legend tab

Series Scale Legend Grouping

Text
PID

Line Length
3.00

Thickness
0.50

Pattern Offset
Solid 0.00

Colour
A

Style

- It is possible to choose to have a legend or not if it is not required.
- It is possible to edit the styling of the Legend as required.
- By pressing the Style button on the bottom you can set the text properties i.e. font, colour, size, style, positioning etc.

Grouping tab

The grouping tab allows for any items that are being shown on the graph to be grouped together based on another field. For example it may be needed to show multiple core runs down a location, therefore you would group on a core number.

NOTES

In order to change any of the properties set up in the Graph Editor press the Graph button in the Edit area of the Design section on the ribbon and the Graph Editor will open.

The graph scale that draws on the header area of the column needs a box of its own. In order to achieve that in the Depth columns window (form-box) set a column header e.g. Depth (m) and add a sub-column with no header on it.

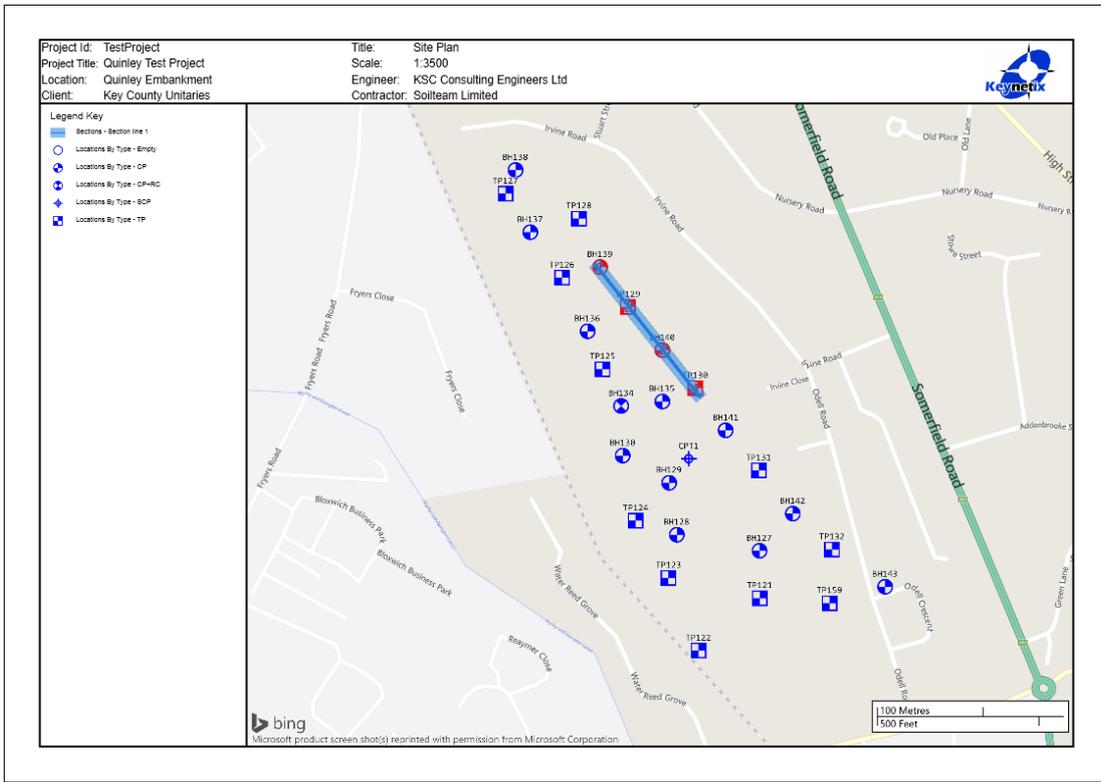
If this sub-column does not exist then the graph scale will take over the column header space and no header will display.

It is possible to add a second (or as many as required) dataset into the same graph.

When you have more than one series, then a legend must be added for each item.

Site Plans

Site plans work similarly to header sheets although they also use some other items. When designing site plans, many of the items available under the General category are available and work the same as with normal borehole and header templates. The way that Site plans are setup for use is also very similar.



Site plans also have certain items available that are specific to site plans only.

Legend

The legend item is used as a key to define which items are placed inside of the mapping area within the site plan.

Client: Key County Unitaries

Legend Key	
	Sections - Section line 1
	Locations By Type - Empty
	Locations By Type - CP
	Locations By Type - CP+RC
	Locations By Type - SCP
	Locations By Type - TP

To insert a Legend Object into a merged cell area, follow the steps below:

- Select the merged area that the item is to be inserted into.
- Double click on the Legend item in the Site Plans section of the left hand side tree view.
- The Legend Object will now be added and the text "[SitePlanLegend]" is inserted in the cell.

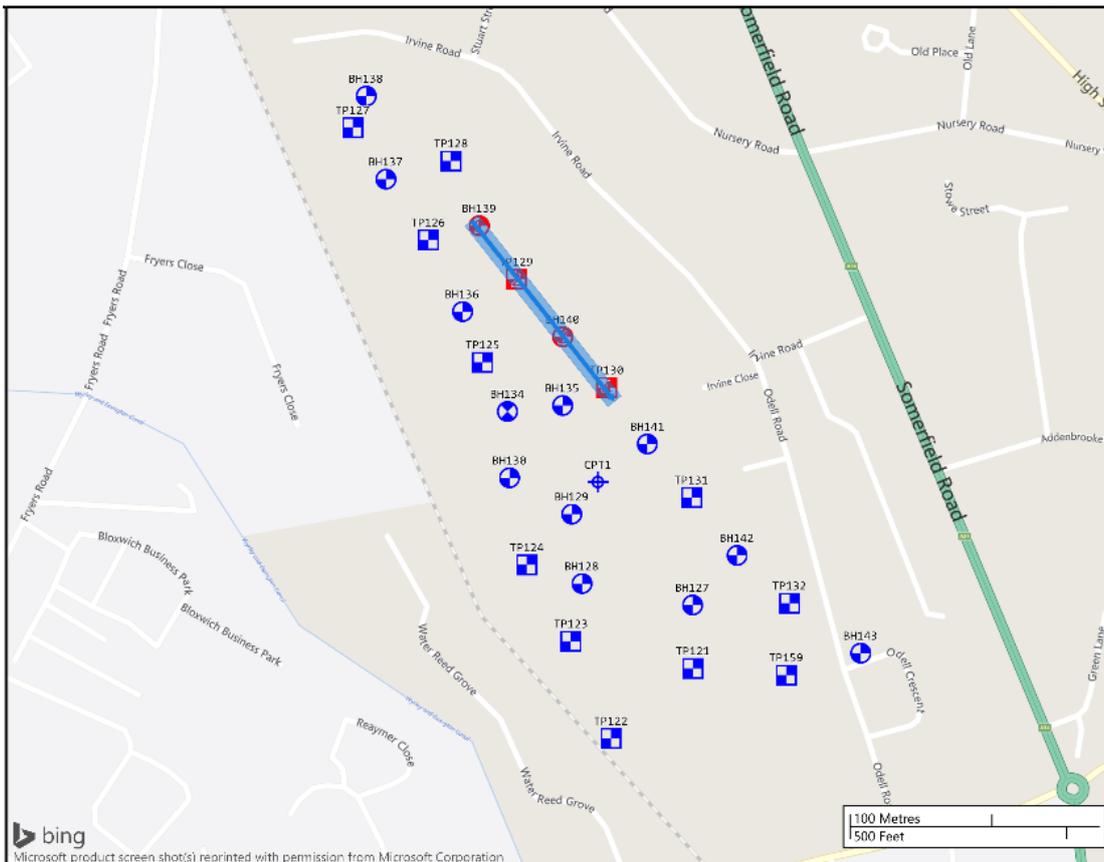
The legend item allows for some control over the way that the data shows;

Properties	
EntryFontSize	10
HeaderFontSize	10
HeaderText	Legend Key
HorizontalAlignm	
ImageHeight	1.1
ImageWidth	1.5

- EntryFontSize- This is the size of the text that appears next to the example image.
- HeaderFontSize - This is the size of the header text that is specified in HeaderText.
- HeaderText - This is the text that appears at the top of the legend.
- HorizontalAlignment - Specify how the text will be aligned within the column.
- ImageHeight - Specify the height of the example images.
- ImageWidth - Specify the width of the example image.

Plan

The Plan item is the area of the template where the map will appear.



To insert a Plan Object into a merged cell area, follow the steps below:

- Select the merged area where the item is to be inserted.
- Double click on the Plan item in the Site Plans section of the left hand side tree view.
- The Plan Object will now be added and the text "[SitePlanMainPlan]" is inserted in the cell.

Scale

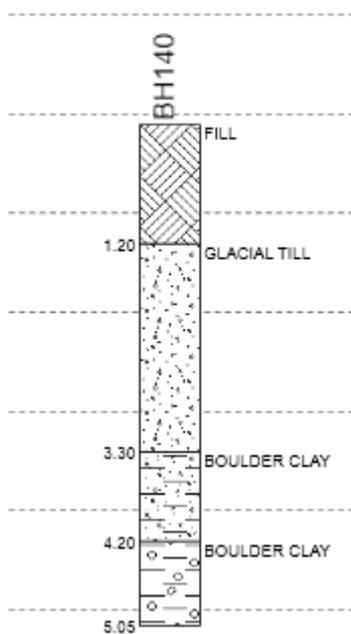
The Scale item shows the scale of the mapping that is shown within the Plan.

To insert a Scale Object into a merged cell area, follow the steps below:

- Select the merged area where the item is to be inserted.
- Double click on the Scale in the Site Plans section of the left hand side tree view.
- The Scale Object will now be added and the text "[SitePlanScale]" is inserted in the cell.

Strips

Strips are setup in the same way as a depth related area within a borehole template. Therefore, for more information on how any of the depth related items work, please see the relevant section in the guide.



Remember that strips are solely used to create the template for the depth related items that appear within Sections and Civils Sections.

Sections and Civils Sections

Sections and Civils Section work similarly to header sheets although they also use some other items. When designing sections, many of the items available under the General category are available and work the same as with normal borehole and header templates. The way that Sections are setup for use is also very similar. For more information on these please find the corresponding section in the guide.

The section templates do not have a depth related area. The area used to plot the strips will be whatever is left after the header and footer have been setup

The way that Sections and Civils Sections are setup are identical, therefore this guide will combine the details of the two items below.

When creating a section, a new item under the Design ribbon of the interface appears labelled Section Items. This area stores all of the section properties that can be defined.

Strip

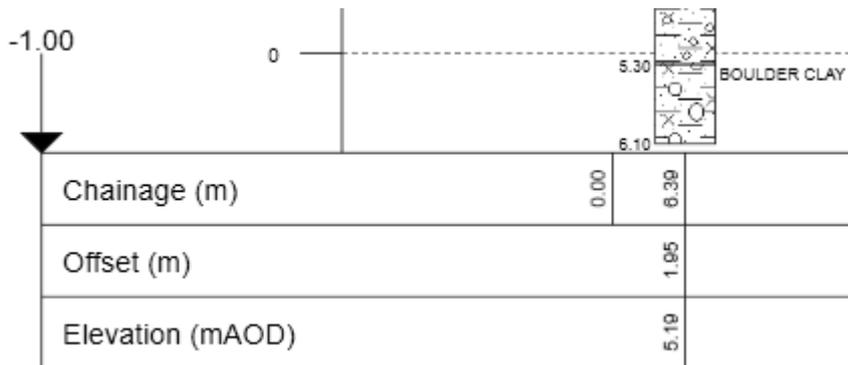
This option is used to select which strip will be used on the section template.

Remember that a strip needs to have been setup for use before a section can be created.

Horizontal Scales

The following items can be shown on the section template along the horizontal scale. If an item is unchecked, then it will not appear on the template. An example of these items is shown below

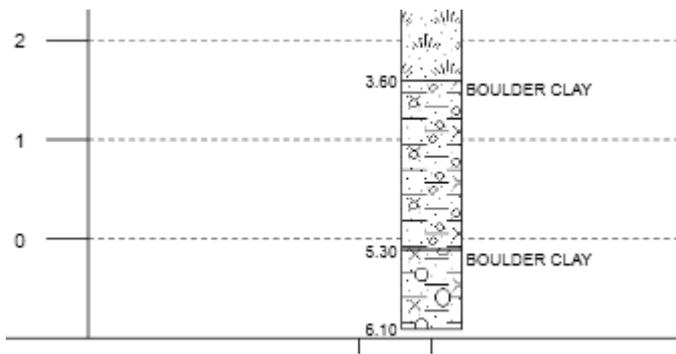
- Chainage
- Elevation
- Offset



Vertical Scale Configuration

The following items can be defined and their properties edited on the section template;

- Font Size - This sets how large the font appears on the vertical scale.
- Long Marker Length - This sets how large the marker size that appears next to the depths are.
- Display Minor Ticks - This sets whether there will be a marker every 0.1 meters or if turned off, every meter.
- Display Markers on Right - This sets whether the vertical scale will be repeated on the right hand side of the page or not.



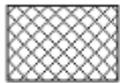
Legend

The Legend option allows for different picklist images to be used within the legend that appears on the template.

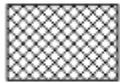
Legend Key



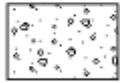
TOPSOIL



MADE
GROUND



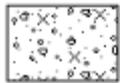
Bituminous
Material



Sandy cobbly
GRAVEL



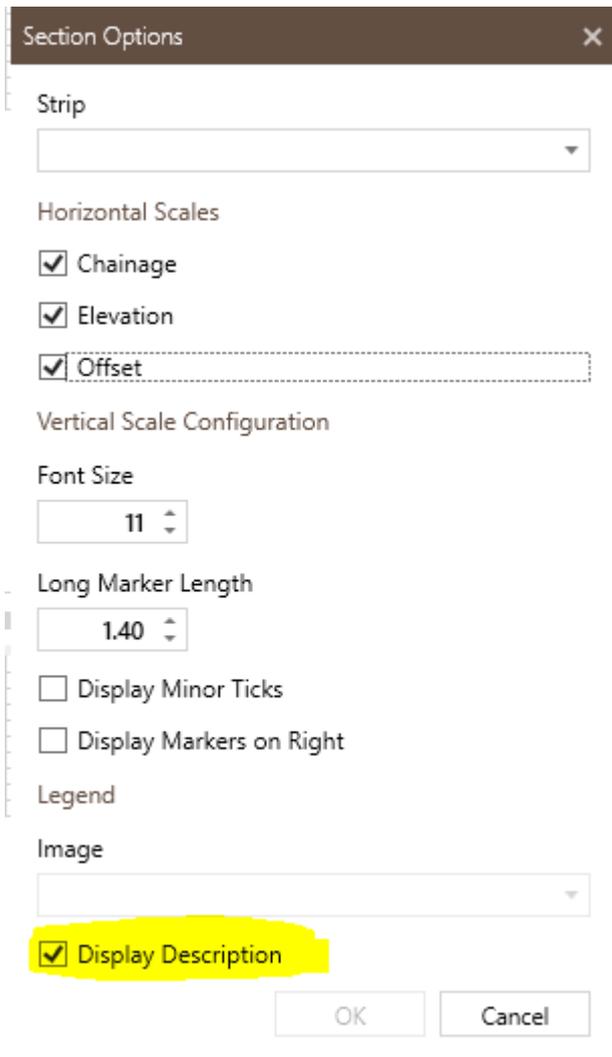
Sandy
gravelly SILT



Silty sandy
cobbly
GRAVEL

Description or Picklist Value?

In version 1.30+ of Template Studio, a new function has been added that allows for a user to select whether the Picklist value is displayed or whether the actual description for that picklist is displayed instead. For example, in the above image, the Picklist description is displayed, however, by changing the option below to be not the Geology Code would be displayed instead.

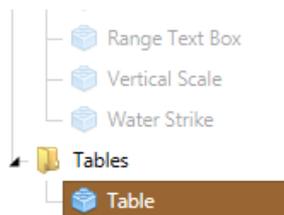


Designing Tables

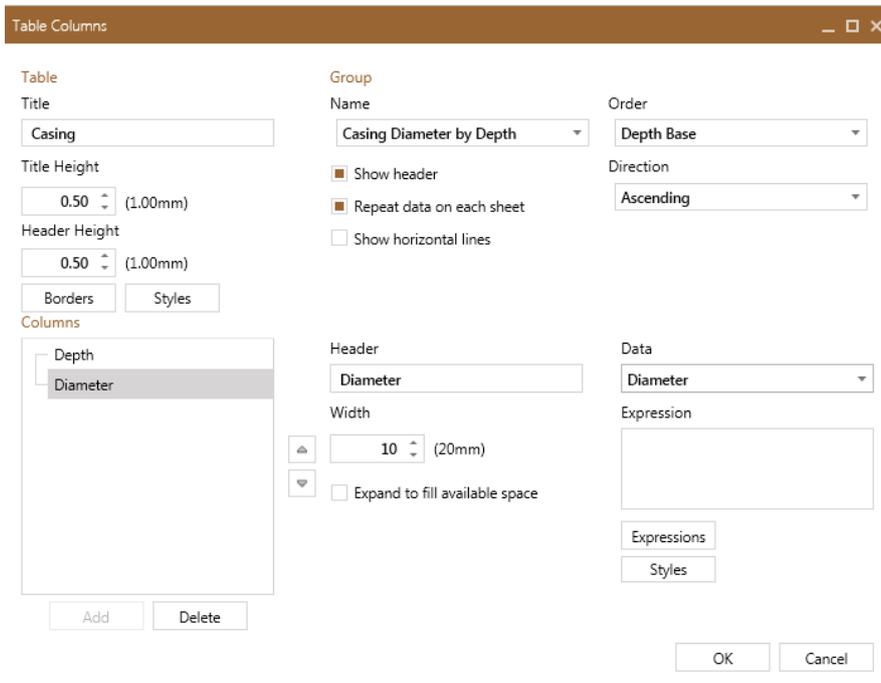
Tables can only be inserted in the Header and Footer areas.

To add a table, follow the steps below:

- Choose the grid area where the table will be inserted and create a cell by merging the grids.
- Select the cell and on the left hand side tree view and double click the Table option



There are three groups of settings for the creation of the table: Table, Group, and Columns.



Title

Under the Title Group put a Title for the Table e.g. Casing (for displaying casing information). It is also possible to define the Title and Header heights. Below the Header heights there are the Borders and Title Style buttons.

Borders button (for everything): To set up borders (for the table, header and Data Columns) press the Borders button above the Columns box and selecting the appropriate values.

Styles (Title Style only) button: In order to change the Title style, press the Styles button above the Columns box.

Group

In this group, choose the Group from which the data will be retrieved from e.g. Casing Diameter by Depth, and how to order the data e.g. Depth Base and the direction (Ascending or descending). There is also the following tick select options.

"Show header" option: Select (selected by default) or deselect depending on whether a header is required for the table.

"Repeat data on each sheet" option: It is possible to select (selected by default) or deselect it. If deselected, the table will only appear on the first page of the Log. It will continue to the second sheet only if the table lines are too many and they do not fit on one sheet. If for example there are 7 rows of data and the table space can only fit five rows, the remaining two will print on the second page even if this option is deselected.

"Show horizontal lines" option: This can also be selected (not selected by default) if there should be horizontal lines between the rows of data.

- Show header
- Repeat data on each sheet
- Show horizontal lines

Columns

It is possible to add some columns in the table by pressing the Add button below the Columns box e.g. Depth Base and Diameter.

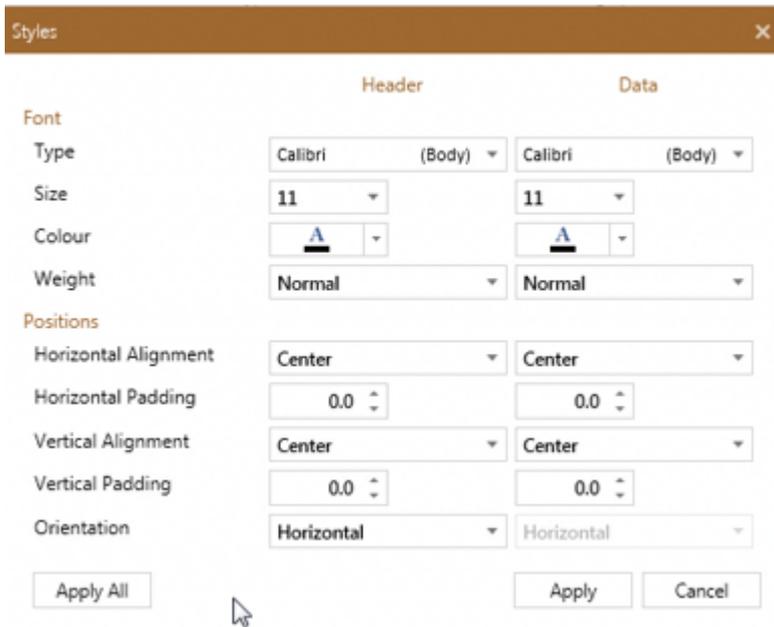
Continue by pressing Add, select from the Data box dropdown list an option and type the column name in the Header box. For each column created, it is possible to apply expressions and styles.

Expression: Add an expression for the column data in the Expression Box.

Expressions button: Add a predefined expression for the column data.

Styles (for data) button: Change the style (font type, size, colour alignments etc.) of the column data by pressing the Styles button below the Expressions button. Select one column, set the styles required and press Apply. By doing this it is possible to have different styles for each column.

If you require the same style to be applied to all columns, press the Apply All button.



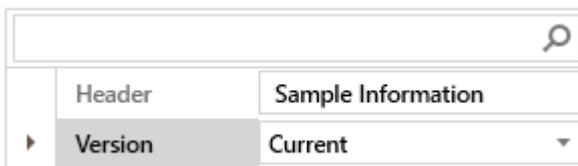
Notes

After pressing OK on the Tables Window, the cell populates with the Title name typed i.e. Cas-ing in the above example. In the properties window it is possible to change the name of the Header by typing a new name in the Header Box.

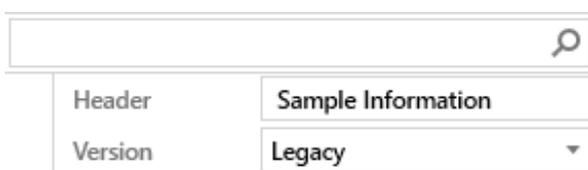
WARNING: It is important to allocate the total amount of required space for the table (based on the target merged cells in the grid) before setting up the table content.

Table Template Version

When working with Tables you may have noticed there is a version drop down selector under-neath the properties section.



This option was introduced in the 1.14 release of Template Studio. By default, it is set as cur-rent when designing new templates, however if a template was created in a previous version of Template Studio it will be set to Legacy by default.



The Version drop down is present to correct a previous issue where the table title and header heights were not being correctly plotted. For example, if the title and header height were set to 4mm each when the log was previewed it would show greater than the amount specified. This would be noticeable if cells with text were merged outside the table area at the same heights in order to obtain perfect alignment, See the below example.

Table Title and Header height were set to 4mm

Two text boxes are set adjacent to the table at the same heights as both the title and the header.

Text	Sample Information
Text	

60,0 11 x 2 22mm x 4mm

Under the previous Legacy Version, the Log would not look correct on preview.

Text	Sample Information	
Text	Depth Top	Type
	0.00	J
	0.50	U
	0.50	D
	1.45	D
	1.80	D

Under the Current Version the table title and header height are correct as per the heights specified

Text	Sample Information	
Text	Depth Top	Type
	0.00	J
	0.50	U
	0.50	D
	1.45	D
	1.80	D
	2.00	D
	2.45	B

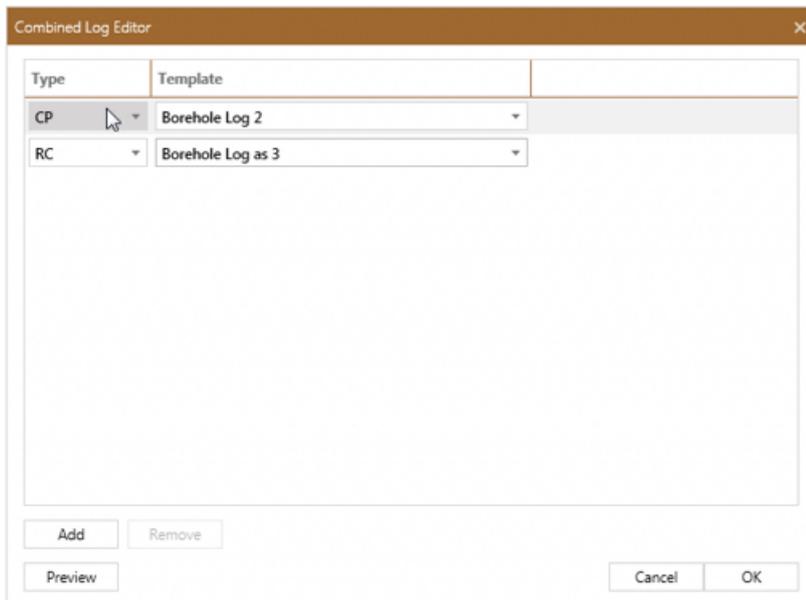
If you are loading a template created from the legacy version of Template Studio as the heights look incorrect then switch to the current from the drop down to correct the issue.

It is important when working with new log templates to use the Current Version.

Combined Templates

When you select the Combined Log option on the Templates Type Form (window) the Template Setup form (window) appears. It is possible to choose the paper size (A4, A3, etc.), the orientation of the Log (Portrait, Landscape) and the margins.

After that the Combined Log Editor form (Window) opens, press the Add button at the bottom of the form and select the template that is required to be associated with a given type of borehole (CP, RC, TP etc.).



The above pictured log (assuming that there is a borehole drilled initially by CP and later on with RC method) will create a log where the Cable Percussion part of the borehole will be presented with the use of the Cable Percussion Log then a line is drawn across the log at the change point and it will split from Cable Percussion to Rotary Core part of the borehole presented with the use of the Rotary Core Log.

The first page footer will be from the CP log and on the second page the footer will be from the RC Log.

There are three options available when saving a combined log.

- Local File - This is the same as a standard save in Microsoft products. (These are the files that can be loaded with the Load button on the Templates Form). This option is available to all users.
- Current Project - This will save your templates so it appears on the Templates Form but will only be accessible for this project. If this option is selected, then the template is saved within the OpenGround Professional database. This option is only available to users with Project Manager status for the selected project.
- Configuration Pack - Add a name for the report e.g. Combined CP+RC. This will save the combined log so it appears on the Templates Form for all projects that have used the selected configuration pack. If this option is selected, then the template is saved within the OpenGround Professional database. This option is only available to users with System Administrator status.

Expressions

Expression library

Expression Builder: On the right of any Expression Text box there is the



button. When you press it the expression builder opens up. There are five columns in the newly opened Window namely: Name, Group, Description, Source and Active.

You can start by ordering the data by group. There are around 100 expressions ready made in the builder and you can put new ones anywhere you like.

You can create new ones, edit existing ones or you can copy them (clone button).

If one of the existing expressions suits your needs you can choose it, press the Select button and it will be copied in the Expression Text box.

Building your own expressions

You can build your own expressions to work within the data grids of OpenGround Professional or as part of an object within template studio. Expressions can be tricky to set up when you first start building them and we recommend you work through the examples in this section of the user guide before attempting your own.

It is best to try expressions out in template studio first as you can get instant feedback on the results of each equation.

The general syntax for expressions is similar to Excel. We have not been able to fully mirror all the functions in Excel but hopefully the syntax is similar enough to make a lot of the functions in OpenGround Professional seem familiar with users who are able to write Equations in Excel.

Referencing columns in a grid.

The first thing you need to know is how to reference a column within a OpenGround Professional data grid. To do this you need to use the syntax [Group.Field] and ensure that both the Group name and field name are capitalised correctly and the combination is surrounded by square brackets.

[SampleInformation.DepthTop]

Group	Sample Information (SampleInformation)
FilterGroup	
FilterValueName	
Header	Depth Top (DepthTop)

It is important to note that the names used are the field and group names and not their header titles. So in the example above you will see the SampleInformation and DepthTop values are the values in brackets in the Template Studio interface.

Combining Columns

If you want to join data together from more than one column in OpenGround Professional then you can use the "+" function.

The following expression joins the sample type together with the sample reference.

```
[SampleInformation.Type] + [SampleInformation.SampleReference]
```

If the two columns are in a number format, then the system would do a mathematical addition. Therefore, text would need to be inserted between the two values. See the section on Adding text to fields for more information.

Changing display decimal places

When you are joining numbers together you may find that the number of decimal places displayed is not as you require.

You can control the number of decimal places displayed using the Fixed function as shown below:-

```
fixed([SampleInformation.DepthTop],1,false)
```

Fixed has 3 parameters, the field name to get the data from, the number of decimal places, and False (True would place a comma separator value every 3 digits such as 1,000,000, where as false will display 1000000)

Adding text to fields

You can add text to fields by adding the text within single quote marks. You cannot add text to the end of a number, so if you require this you must first turn the number into text by using the text() function.

```
text([SampleInformation.DepthTop]) + 'm'
```

Nesting functions

The majority of functions in OpenGround Professional can be nested. For example the expression below says "take the sample top depth, report it to 1DP, turn it into text and add 'm' on the end.

```
Text(fixed([SampleInformation.DepthTop],1,false)) + 'm'
```

Adding an Expression to the Library

In order to add a new expression to the library follow the steps below:

- Click the Create button and the new expression window opens.
- Enter a name for the expression, choose the group and add a description of the functionality of the expression
- Add the expression. After inserting an expression the save button activates and when you press it to save the expression a validation of the expression takes place. If the expression is not valid it will give you a message and will not save.

Template Studio comes with over 100 standard expressions included and you may find it is easier to copy and paste an existing expression and then edit it rather than starting from scratch for each one.

General rules for expressions

- Referencing a field in the database is done using the following syntax [group.Header]. The group and header name are displayed in brackets in the properties interface. E.g. the following field would be referred to as [LocationDetails.ApprovedBy] The use of capital letters and the square brackets is important.

- To add numbers to a text expression you must wrap the value with the text() command.
- You can use the Fixed() command to fix the number of decimal places within the number before it is
- To add two strings together you can use the + operator and to add text to parameters the text must be in single quotes
- A Carriage return can be added to an expression using the '\n'

The following expression shows all of these rules to show the Easting to 2DP followed by the letter E followed by a carriage return and then the Northing to 2DP followed by the letter N
`text(fixed([LocationDetails.Easting], 2, false)) + 'E' + '\n' + text(fixed([LocationDetails.Northing], 2, false)) + 'N'`

Mathematical Functions

Function	Description	Example
Abs	Returns the absolute value of a specified number.	Abs(-1)
Acos	Returns the angle whose cosine is the specified number.	Acos(1)
Asin	Returns the angle whose sine is the specified number.	Asin(0)
Atan	Returns the angle whose tangent is the specified number.	Atan(0)

Function	Description	Example
Ceiling	Returns the smallest integer greater than or equal to the specified number.	Ceiling(1.5)
Cos	Returns the cosine of the specified angle.	Cos(0)
Exp	Returns e raised to the specified power.	Exp(0)
Floor	Returns the largest integer less than or equal to the specified number.	Floor(1.5)
IEEERemainder	Returns the remainder resulting from the division of a specified number by another specified number.	IEEERemainder(3, 2)
Log	Returns the logarithm of a specified number.	Log(1, 10)
Log10	Returns the base 10 logarithm of a specified number.	Log10(1)
Max	Returns the larger of two specified numbers.	Max(1, 2)
Min	Returns the smaller of two numbers.	Min(1, 2)
Pow	Returns a specified number raised to the specified power.	Pow(3, 2)
Round	Rounds a value to the nearest integer or specified number of decimal places. The mid number behaviour can be changed by using EvaluateOption.RoundAwayFromZero during construction of the Expression object.	Round(3.222, 2)
Sign	Returns a value indicating the sign of a number.	Sign(-10)
Sin	Returns the sine of the specified angle.	Sin(0)
Sqrt	Returns the square root of a specified number.	Sqrt(4)
Tan	Returns the tangent of the specified angle.	Tan(0)
Truncate	Calculates the integral part of a number.	Truncate(1.7)

Run Time Functions

Run time functions allow for different parts of the output to be queries on production, rather than from data within the database as is common with normal expressions. These expressions can be combined with other expressions and are calculatable. The following run time expressions are currently available;

[Paging.SheetIndex] Gives the current page number of the page that is being displayed.

[Paging.SheetCount] Gives the total number of pages in the produced output.

[Paging.CurrentSheetStartDepth] Gives the depth at the start of the current page.

[Paging.CurrentSheetEndDepth] Gives the depth at the end of the current page.

[Paging.CurrentSheetStartElevation] Gives the elevation at the start of the current page.

[Paging.CurrentSheetEndElevation] Gives the elevation at the end of the current page.

[Paging.Scale] Gives the page scale of the current page (note that on dynamic logs, different templates, collated together, may use different paging scales)

[Paging.PreviousTemplateType] Used in Description Bars and displays what the previous template type is when used on a dynamic template on a split page.

[Paging.NextTemplateType] Used in Description Bars and displays what the next template type is when used on a dynamic template on a split page.

Paging.CurrentTemplateType] Used in Description Bars and displays what the current template type is when used on a dynamic template on a split page.

Excel Functions

Function	Description	Example
concatenate	Adds text strings together. Any number of arguments can be specified when multiple strings need to be concatenated.	concatenate(value,value)
concatenatewith	Adds any string of values together (can be any kind of value). Any number of arguments can be specified when multiple values need to be joined together.	concatenatewith(<delimitr,-value1,value2,etc)
trim	Removes leading and trailing whitespace from a string.	trim(value)
if	Evaluates the condition and returns a value depending on its result.	if(expression, True value, False value)
in	Returns whether an element is in a set of values.	in(expression, value1, value2, value3)
text	Converts any value to its string representation. Optional arguments can be used to specify the format. Version 1.26.0.X and higher versions of OpenGround Professional now support the processing of null values.	text(value) text(value, format)
value	Attempts to convert a given value to its numeric equivalent. This is useful when a function requires a numeric typed argument and only a string is available.	value(string)
mid	Extracts a substring at a given position within a string. The position and length cannot exceed the number of characters which the string has.	mid(string, 2, 3)
left	Extracts the substring from the beginning of a string with a specific length.	left(string, 3)
right	Extracts the substring from the end of a string with a specific length.	right(string, 3)
find	Locates the position of a substring within a string. The initial search position begins the search at a specific index.	find(substring, string, start position)
search	Locates the position of a substring within a string. The initial search position begins the search at a specific index. This is an alias for	search(substring, string, start position)

Function	Description	Example
	find().	
replace	Replaces all occurrences of a substring with an alternate value.	replace(string, old, new)
substitute	Replaces all occurrences of a substring with an alternate value. This is an alias for replace ()	substitute(string, old, new)
chr	Returns the character for an ASCII value. For example 97 returns 'a'.	chr(97)
not	Inverts the Boolean truth of an argument. If the argument is not a Boolean, false is returned.	not(True)
and	Returns the truth of applying the logical AND operator on two Boolean arguments.	and(True, False)
or	Returns the truth of applying the logical OR operator on two Boolean arguments.	or(True, False)
exact	Returns True if two string arguments are identical. Otherwise, False is returned.	exact(string, string)
fixed	Returns a numeric value to a fixed number of decimal places. An option exists to include commas if required.	fixed(value, decimal places, False)
len	Determines the length of a string.	len(string)
isblank	Determines whether a parameter is blank / empty or null. This checks whether a cell has whether a cell has no value or is empty.	isblank(value)
isnumber	Determines if a value is numeric. Version 1.26.0.X and higher versions of OpenGround Professional now support the processing of null values as False.	isnumber(value)
isnull	Determines if a value is 'null'. A null value indicates the absence of a value.	isnull(value)
numberordefault	Returns a specified value if it does not equal null. If the value is null, a default value is returned instead.	numberordefault ([SPT.NValue],0)
now	Returns the current date and time.	now() text(now(),'dd/mm/yyyy') text(now(),'HH:mm')
today	Returns the current date and time. An alias for now().	today () text(today(),'dd/mm/yyyy') text(today(),'HH:mm')

Log Only Functions

The following functions require the use of the 'Aggregate' or 'AggregateAll' prefixes in the following format.

- [Aggregate.Group.Property]
- [AggregateAll.Group.Property]

'Aggregate' performs an aggregation of the values for a single instance whereas 'AggregateAll' joins instances to their parent group(s). An example of their use follows.

- `joinDistinct([AggregateAll.DepthRelatedExploratoryInformation.PitLength], ", ' ')`
- `joinDistinct([Aggregate.DepthRelatedExploratoryInformation.PitLength], 'F2', '+')+m'`

Function	Description	Example
average	Calculates the average of the values.	average(values)
count	Counts the number of entries.	count(values)
join	Concatenates all values and separates them with a delimiter. A format can be specified to present numeric values in a desired format.	join(values, format, delimiter)
joinDistinct	Concatenates unique values and separates them with a delimiter. A format can be specified to present numeric values in a desired format.	joinDistinct(values, format, delimiter)
max	Determines the maximum value from a list of values.	max(values)
min	Determines the minimum value from a list of values.	min(values)
orderAsc	Orders a list such that the elements are in an ascending order.	orderAsc(values)
orderDsc	Orders a list such that the elements are in a descending order.	orderDsc(values)
sum	Returns the sum of all values.	sum(values)
first	Determines the first value from a list of values.	first(values)
last	Determines the last value from a list of values.	last(values)

Text Styling

Template Studio allows for text to be styled within an expression. This allows for more than one style to be applied to one item (separating parts of the text) and also allows finer control than is available from within the ribbon interface. This function is the `textStyle` function.

The format for this is as follows;

```
textStyle('My Text','Font Weight','Font Style','Font Colour')
```

e.g;

```
textStyle('My Text','900','Italic','FF0000')
```

The parts of this function work as follows;

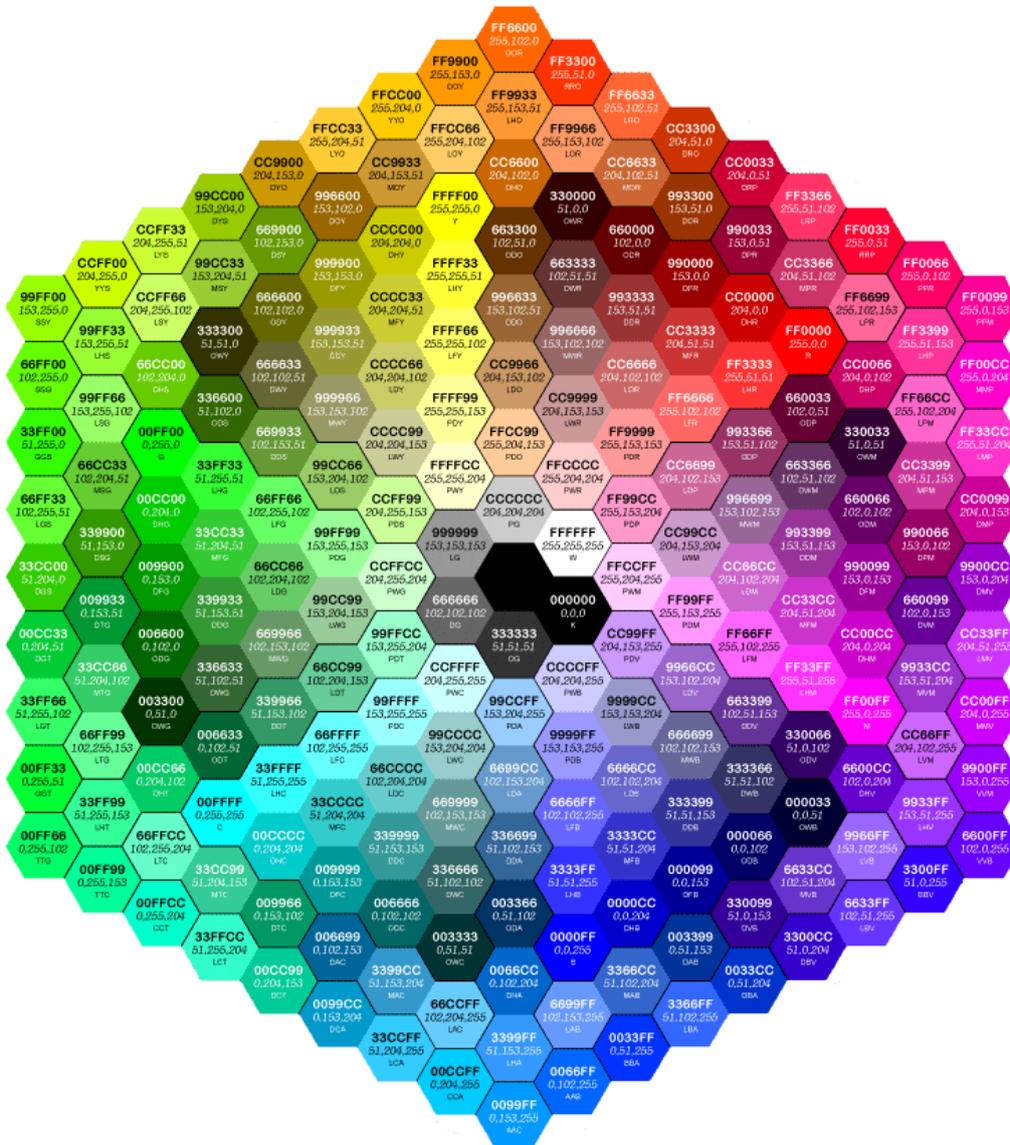
My Text - This is the text that is to be displayed on the log, this can be either plain text or can be any function that is compatible with Template Studio.

Font Weight - This is how heavy the text appears, on a scale 1 to 999, where 300 is Normal and 700 is Bold.

Font Style - This is the style of the text; Normal/Italic/Oblique.

15 May 2020

Font Colour - This is the colour of the text in hexadecimal format (This includes transparency). Patterns supported are either RGB or ARGB formats such as FF0000 - red 00FF00 - green, 0000FF - blue and 880000FF is half transparent blue. An explanation of how this works can be found on Wikipedia [here](#) and a colour chart, useful for finding codes can be seen below.



Examples can be seen below;

```
textStyle(ConcatenateWith('-',[SampleInformation.Type],[SampleInformation.SampleReference]),'900','Italic','FF0000')
```

Would combine the sample type and reference in bold, italic, red text.

AU-1



```
textStyle('Client: ', '100', 'Oblique', '0000FF')+textStyle([Project.ClientName], '900', 'Italic', 'FF0000')
```

Would show the text 'Client:' in blue oblique text and then the client name in bold, red, italic text.

*Client: **USACE***

User Guide-Filter Groups

Filter groups are needed to do one of (or a combination of) three things with the data within a template.

Firstly, they can be used to filter out data so that only data that matches the criteria that is set will display (This is called Filtering). For example, filtering out all sample data other than those that have a type of 'U'.

Secondly, they can then be used to group data under certain conditions, such as grouping all of the Moisture Content Tests and showing them all at the Sample Information depth (This is called Grouping by Records).

And finally, they can be used to filter out one particular aggregate record based on a group of data (This is called Grouping by Values. For example, pulling out the maximum moisture content value that belongs to a particular sample.

The examples in this section of the user guide use the sample British Standard project and will show how to display the data as follows;

U - Filter Group showing only U samples.

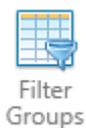
25, 40 - Filter By Records showing all values in a list

25 - Filter By Values showing only minimum value

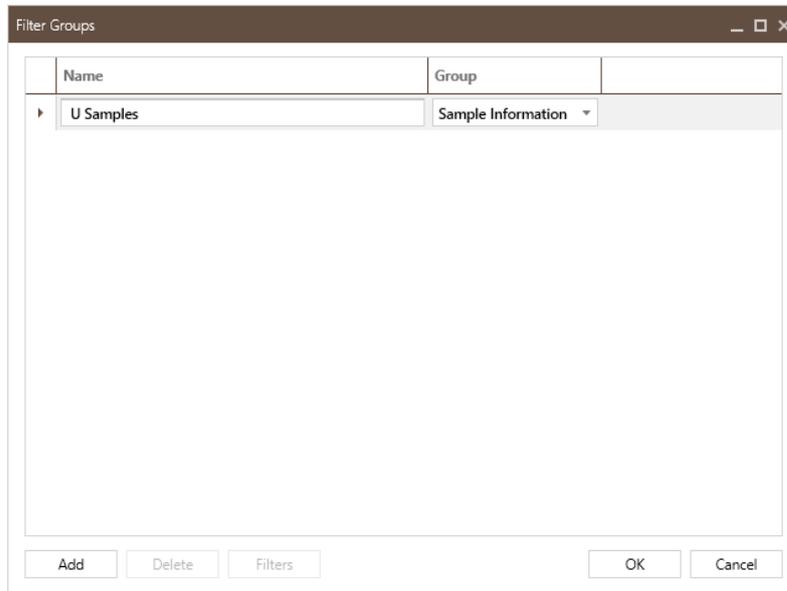
Creating a Filter Group

To create a filter group, follow the following steps;

- Open the required Template in Template Studio.
- Select the Design Ribbon and Select the Filter Groups button as below;



- The New Filter Groups window will then appear, enter a name for the Filter Group and select the group that the Filter Group is to be based upon.



- Once this has been done, select the Filters button to then add either a grouping or a filter as needed.

Adding a Filter

It is possible to add a filter that applies a condition based on any data from either the source table or any of its parent records. Follow the steps in the Adding a Filter section, then follow the below steps;

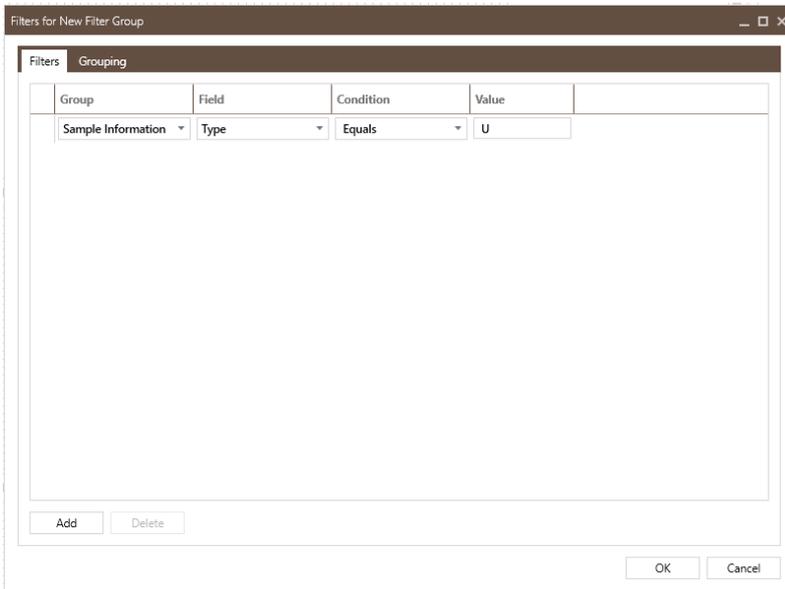
- Ensure that the Filters tab is selected.



- Click on the Add button at the bottom of the window to add a new filter.



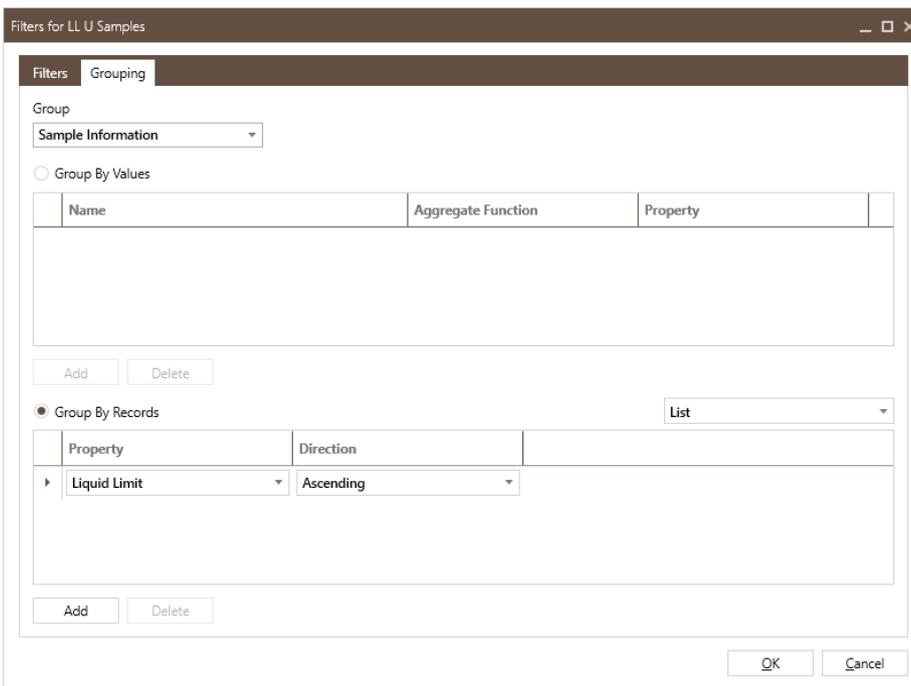
- Select the Group that the filter condition is going to be based upon.
- Select the Field from the Group that the filter condition is going to be based upon.
- Select the condition and the value that the condition is going to be based upon. For example, to filter out all records other than U samples, select Equals as the condition and enter a value of U.



- Select OK to close the dialogue.

Adding a Grouping by Records

It is possible to add a grouping to the data based on the records that will appear in the data. This can be done either in conjunction with a filter or without depending on the need.



Follow the steps in the Adding a Filter section, then follow the below steps;

- If required, create a Filter Group, else skip this step.
- Select the Grouping tab.

- Select the group that the data will be grouped by. This will either be the source table or one of its parent records. In the example below, a list of Liquid Limit Records will be displayed, grouped by the Sample that the test was recorded against.

Group

Sample Information ▾

- Ensure that Group By Records is selected.

Group By Records

- Select the Add button.

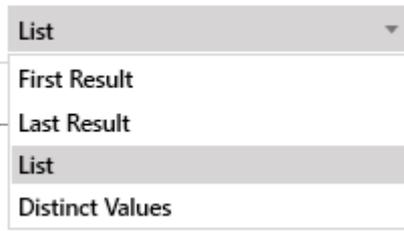
Add

- Select the field from the source table that the data is to be ordered by. In this example we will select the Liquid Limit field and display these in ascending order.

Group By Records

	Property	Direction
▶	Liquid Limit ▾	Ascending ▾

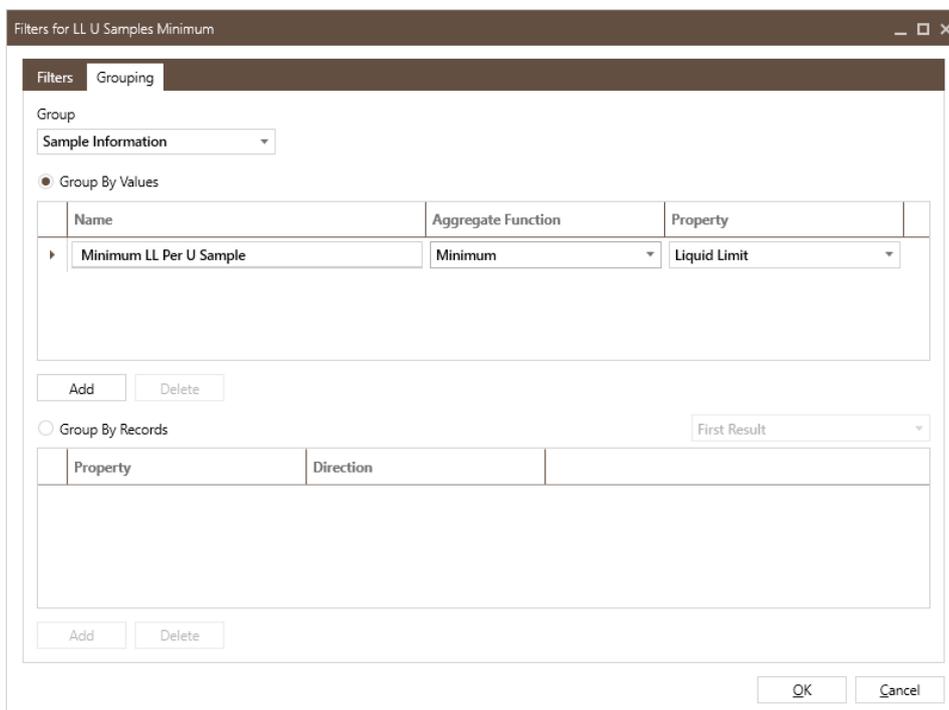
- Select how the data should be displayed as follows;
 - First Result - Will take the order given in the above step and show the first record that appears in that list.
 - Last Result - Will take the order given in the above step and show the last record that appears in that list.
 - List - Will list all of the data that matches the criteria and will display them in the order given in the above step.
 - Distinct Values - Functions the same way as List but only shows a record if it has not appeared before. Therefore, if there were to records that were of a value of 2, then 2 would only be shown once.



- Select OK to close the dialogue.

Adding a Grouping by Values

It is possible to group the data and then apply an aggregate function to get a subset of data as required. This can be done either in conjunction with a filter or without depending on the need.



Follow the steps in the Adding a Filter section, then follow the below steps;

- If required, create a Filter Group, else skip this step.
- Select the Grouping tab.



- Select the group that the data will be grouped by (Note that it is not possible to group records on the source table). In the example below, a list of Liquid Limit Records will be displayed, grouped by the Sample that the test was recorded against.

Group
Sample Information ▼

- Ensure that the Group By Values option is selected.

Group By Values

- Select the Add button to add a new grouping.

Add

- Give the Group a Name by entering a value into the Name column. In this example, the minimum Liquid Limit value will be shown (filtered to only U Samples).

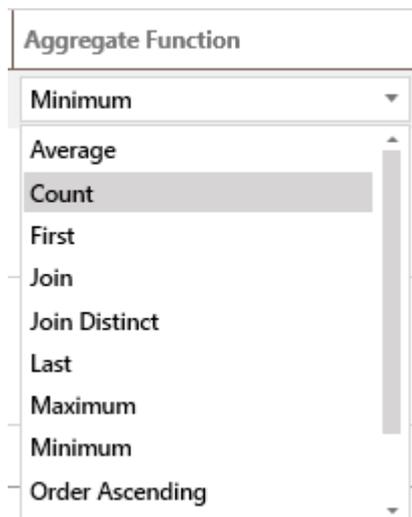
Name
Minimum LL Per U Sample

- Select the field from the source table that the data is to be taken from.

Property
Liquid Limit ▼

- Select the Aggregate function that the data will be grouped by as follows;
 - Average -Average value of the data.
 - Count - Number of records
 - First - Initial value from the list of records
 - Join -Lists all of the records which match the criteria and will display them in the order given in the above step.
 - Join Distinct - Functions the same way as Join but only shows a record if it has not appeared before. Therefore, if there were to records that were of a value of 2, then 2 would only be shown once.
 - Last - Final value from the list of records
 - Maximum - Determines the maximum numeric value
 - Minimum - Determines the lowest numeric value

- Order Ascending - Records are shown in an ascending order
- Order Descending - Records are shown in a descending order
- Sum - Calculates the sum of the values in a list of records

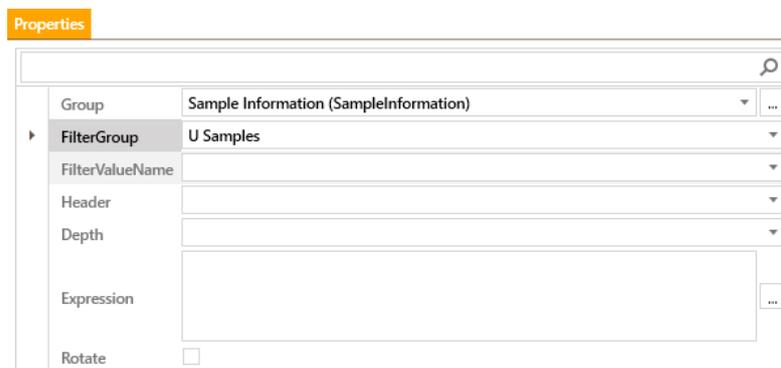


- Select OK to close the dialogue.

Using a Filter Group in an Object

To add a Filter Group to any data object within Template Studio, follow the following steps;

- Add the required data object to a cell within Template Studio.
- Select the required Data Table from the Group selection.
- Select the required Filter Group from the FilterGroup selection.



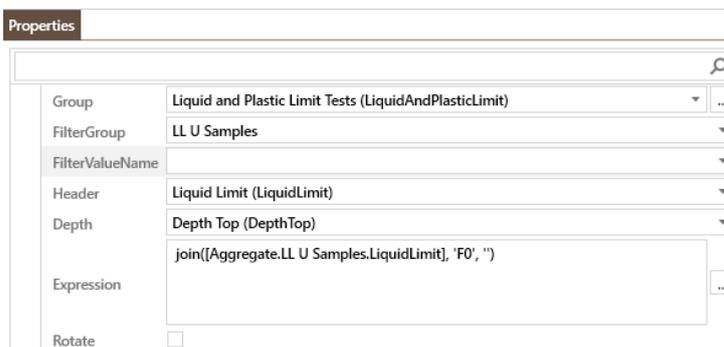
- Select the required Header that is to be displayed.
- Select the required Depth that is to be used.
- Skip this step if using the Group by Values function. Select the FilterValueName option and select the name of the Group given. The Expression will then update with the

required values. This expression may need further formatting to fit the required styling.

The screenshot shows a 'Properties' panel with the following settings:

- Group: Liquid and Plastic Limit Tests (LiquidAndPlasticLimit)
- FilterGroup: LL U Samples Minimum
- FilterValueName: Minimum LL Per U Sample
- Header: (empty)
- Depth: Depth Top (DepthTop)
- Expression: `min([Aggregate.LL U Samples Minimum.LiquidLimit])`
- Rotate:

- In this example it is then possible to format this so that the data appears to zero decimal places using the following;
`text(min([Aggregate.LL U Samples Minimum.LiquidLimit]),0)`
- If you are not using the Group by Values function, the Expression will then update with the required values. This expression may need further formatting to fit the required styling.



The screenshot shows a 'Properties' panel with the following settings:

- Group: Liquid and Plastic Limit Tests (LiquidAndPlasticLimit)
- FilterGroup: LL U Samples
- FilterValueName: (empty)
- Header: Liquid Limit (LiquidLimit)
- Depth: Depth Top (DepthTop)
- Expression: `join([Aggregate.LL U Samples.LiquidLimit], 'F0', ' ')`
- Rotate:

- In this example it is possible to format this so that the data appears to zero decimal places and have a separator of a comma and a blank space (', ') using the following;
`join([Aggregate.LL U Samples.LiquidLimit], 'F0', ', ')`

Further help

For further assistance, please consult our help site at the following link;

<https://communities.bentley.com/products/geotechnical1/w/wiki/48099/openground-cloud>

This includes a variety of helpful resources, including instruction videos, downloadable test definitions and support articles.

Queries can be raised directly with us via one of the following methods:

Email: support.gim@bentley.com

Raise a Service Request: <https://apps.bentley.com/srmanager/ProductSupport>

Telephone: +44 (0)1527 68888

Useful Web Links

Bentley homepage - <https://www.bentley.com/en/products/brands/openground>

This site acts as our shop window to the world, keeping users informed of changes and events relating to Bentley products. New users are advised to provide their password details to allow them access to the site. Other pages of the site also provide access to details of our training courses, support articles and account management.

Association of Geotechnical and Geo-environmental Specialists (AGS) - www.ags.org.uk/aboutus/welcome.cfm

This can be particularly useful for those who are working with the AGS format. The site allows the download of the AGS Notes for Guidance that outlines the correct use of the format. We recommend that all users obtain this document (and are unable to distribute ourselves for copyright reasons). Additionally, the site includes discussion areas to debate AGS related issues.

Geotechnical Data Hub- www.geotechnicaldatahub.com

An open forum for geotechnical professionals, engineering geologists, data producers, data managers and GIS professionals to talk about data management subjects.

www.twitter.com/Bentley

www.linkedin.com/company/Bentley