Sample data can be downloaded from https://github.com/theloosegoat/Foss4gUK_2019

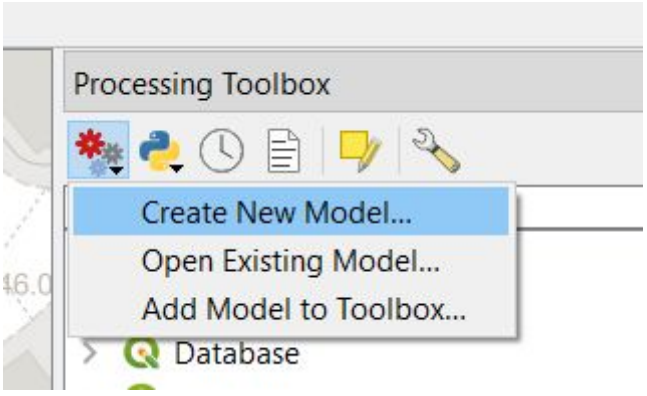
Extract the Foss4gUK_2019-master.zip that you download and rename the folder to **Foss4G**

Open QGIS and load in the project found in the project folder (master_project)

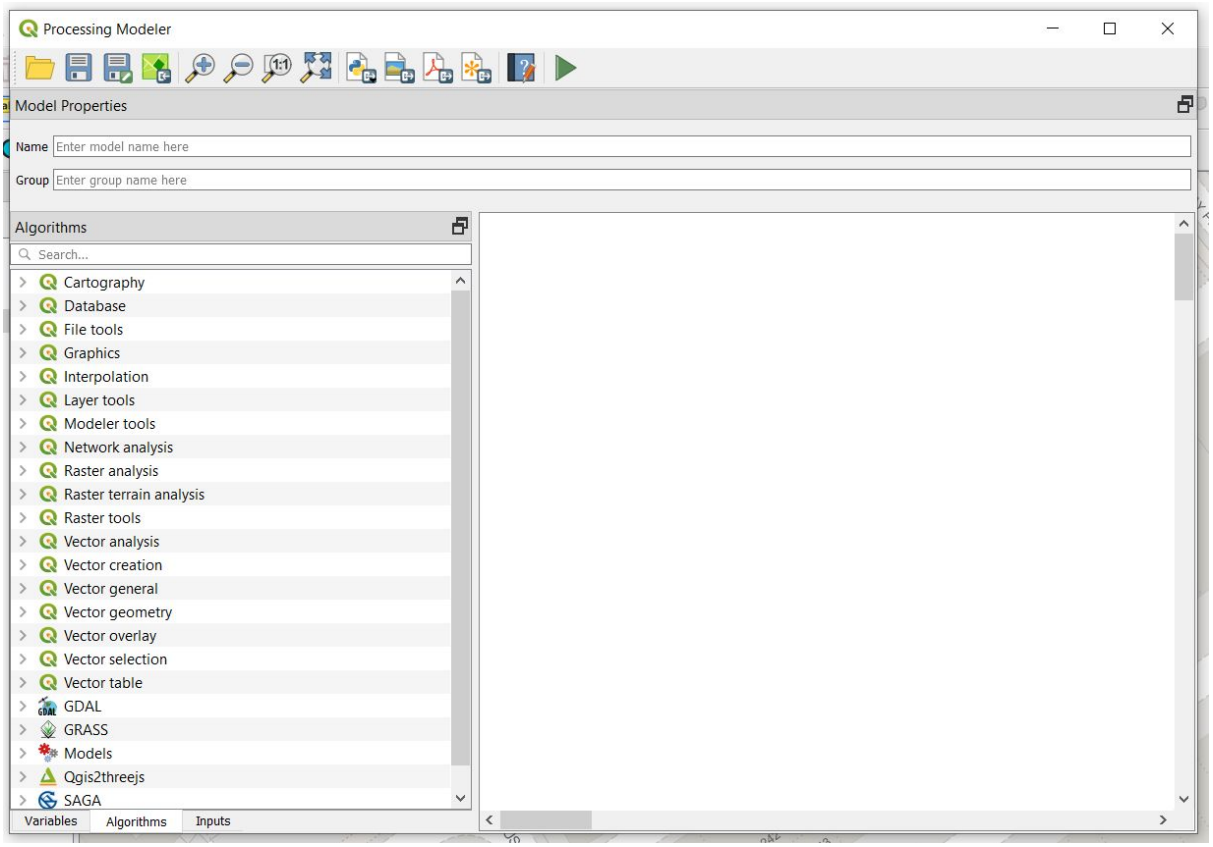
Processing >> Toolbox

Note - If you can't see Processing in the menu, go to Plugins >> Manage and Install. Then in the All Tab search on Processing, then tick it on. QGIS has a habit, from time to time of turning it off!

Click on the cogs icon on the Processing Toolbox and click on **Create New Model**…..



Processing Modeler



INPUTS - Paths, Values, Strings etc
ALGORITHMS - Processes or functions
New in 3.8 is a **VARIABLES** tab - not explored this yet, so don't ask questions!

Series of icons running along the top of the menu bar. Open, Save, Save as..

 Save Model to Project.

 Export the model to a Python script

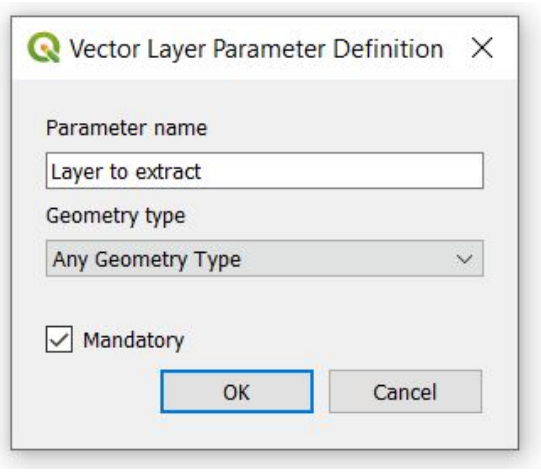
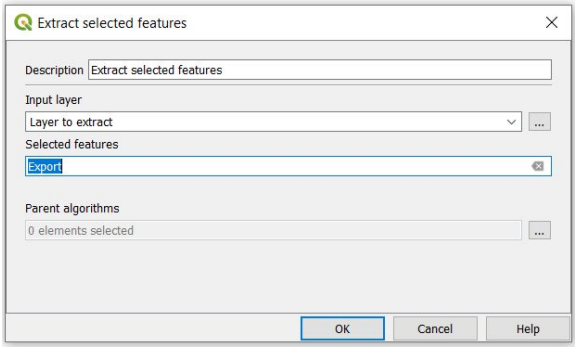
 Export the model diagram as an image, svg or pdf.

 Help Editor -

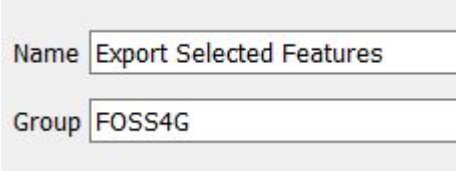
 Run Model - Open a model to set INPUTS/VARIABLES and then run it.

EXERCISE ONE

EXTRACT SELECTED FEATURES

Under **INPUTS** find **Vector Layer** Parameter Name: **Layer to extract** Geometry Type: **Any Geometry** Check **Mandatory *** * Mandatory if checked the model will not run until a value is added.	
Under **ALGORITHMS** find **Extract Selected Features** Description: **Extract Selected Features** Input Layer: Choose **Layer to extract** Selected Features: ***Export***.	

Give your model a Name and Group



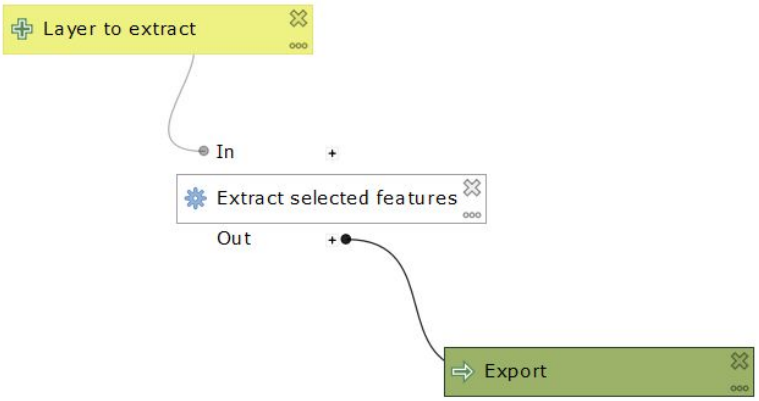
Click save and save as **Foss4gUK_part1**

On WIndows Models will be stored in

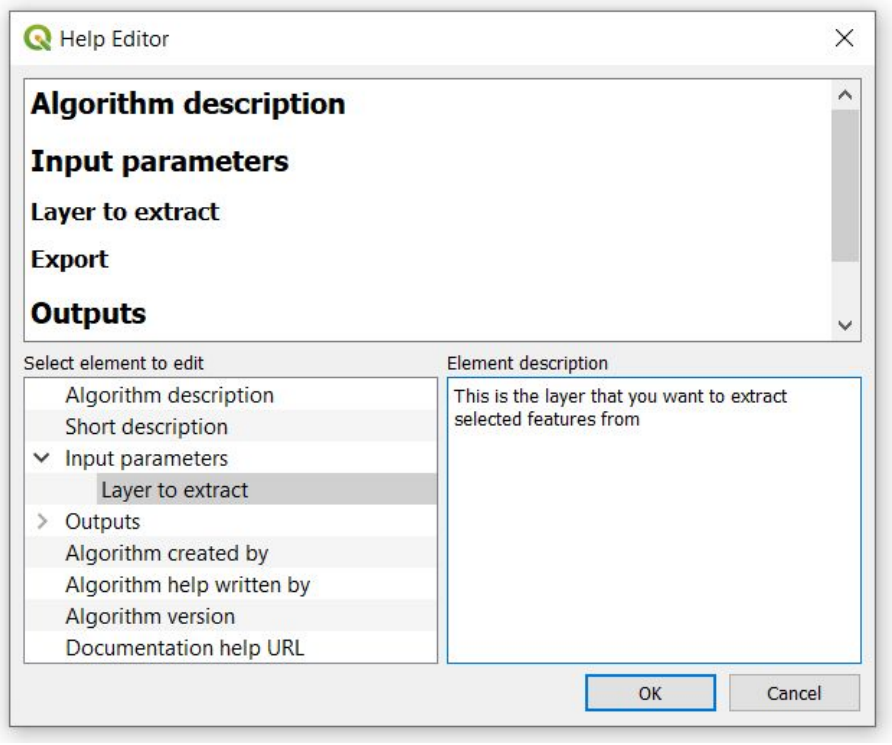
C:\Users**NAME**\AppData\Roaming\QGIS\QGIS3\profiles\default\processing\models

unless you want to store them somewhere else.

You should now have a model that looks like this!

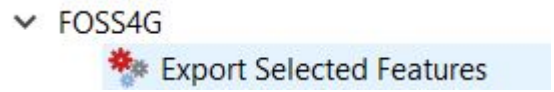


Click on the Help Editor  and go to Input Parameters and choose Layer to Extract
Add some text about what this part of the model does. e.g



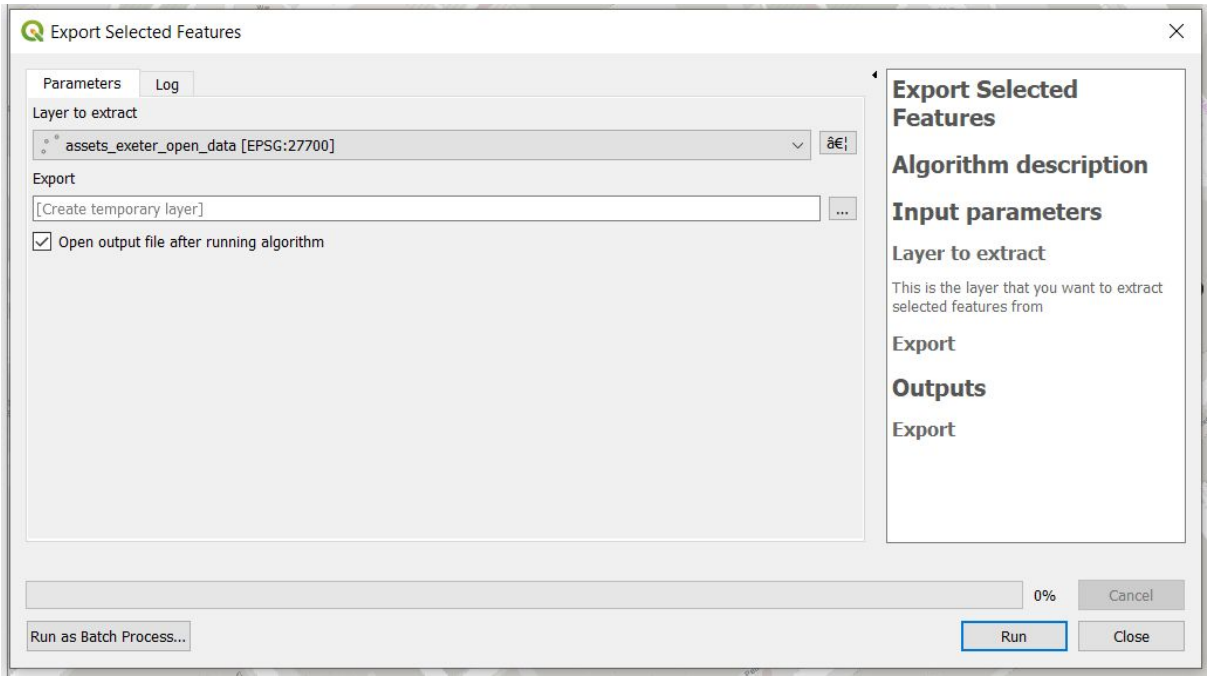
Click on the Save button again and close the model

In QGIS, Select some features that you want to export.
Then in the Models are of the Processing Toolbox you should see



Double Click on it.

Pick the layer that has the selected features and click Run! Once run click Close

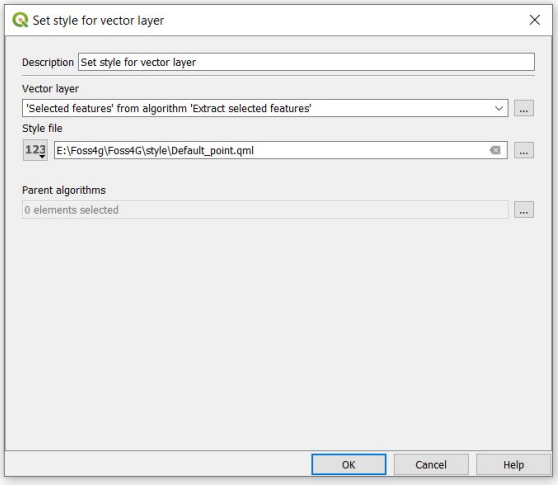
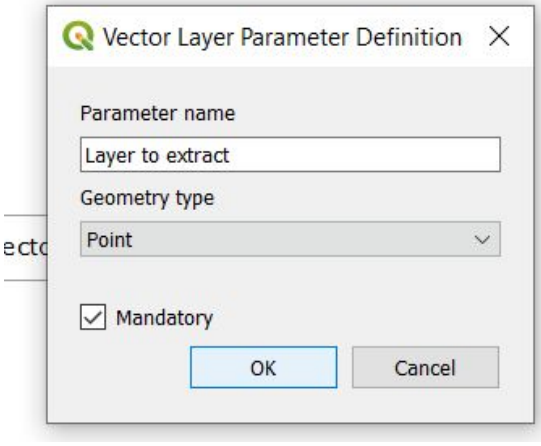


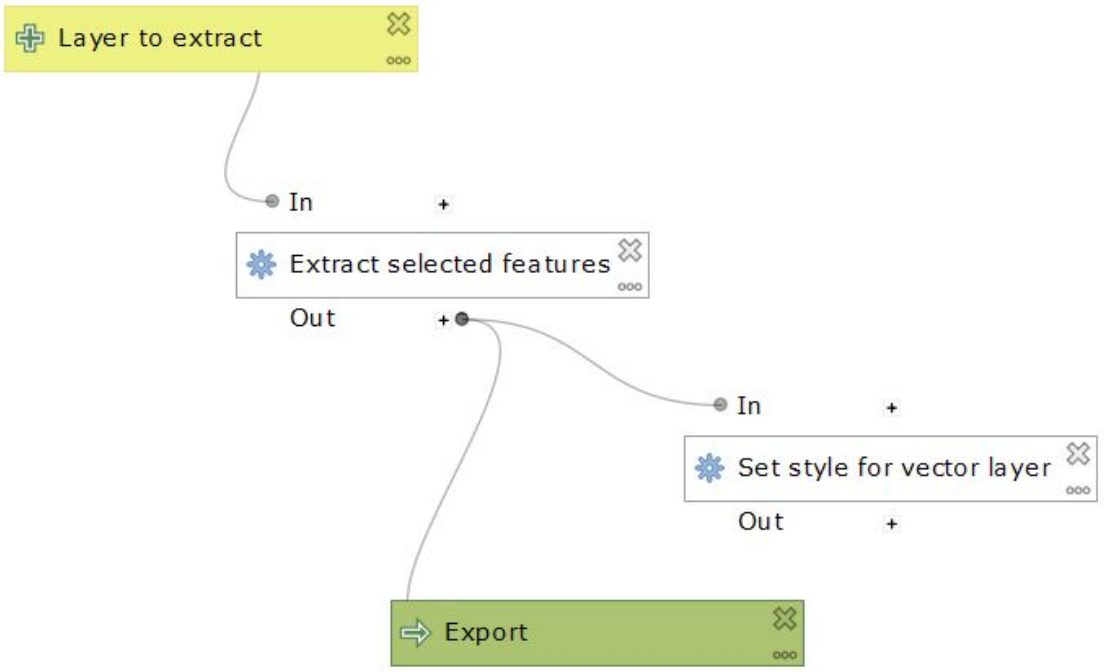
EXERCISE TWO - building on an existing model.
EXTRACT SELECTED FEATURES & STYLE THEM!

Open the model Export Selected Features (Right Mouse click on the model and choose edit)

Rename the model from
Export Selected Features
to
Export Selected Features with styles

Click **Save as** and name it **Foss4gUK_part2**

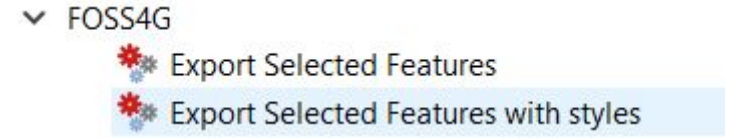
Under **ALGORITHMS** find **Set style for vector layer** Description: **Set style for vector layer** VectorLayer: Choose **'Selected features' from algorithm 'Extract selected features'** Style File: **...\Foss4G\style\Default_point.qml**	
Change the **Layer to Extract** input for **GeometryType** to **Point** **OK**	



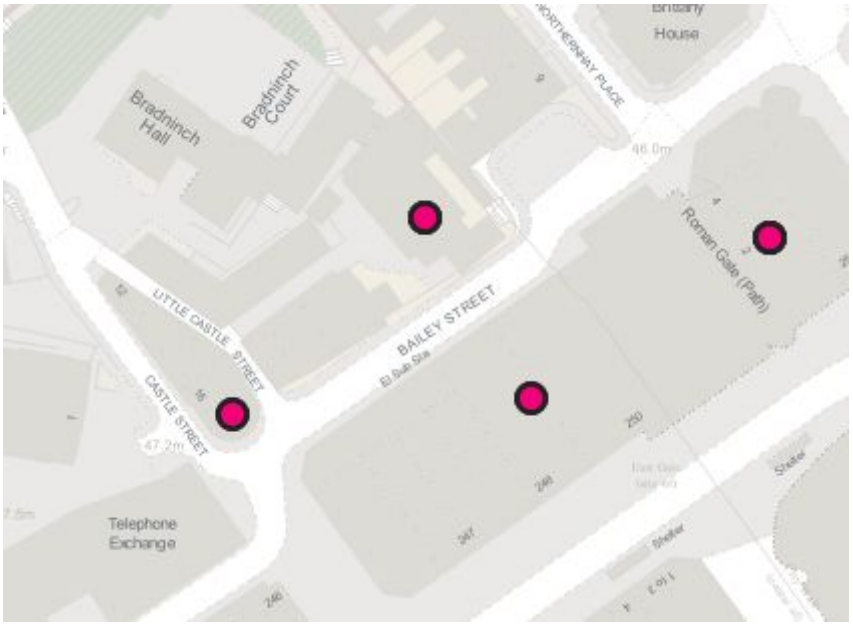
You should have a model that looks like this now!

Click **Save** and close the model

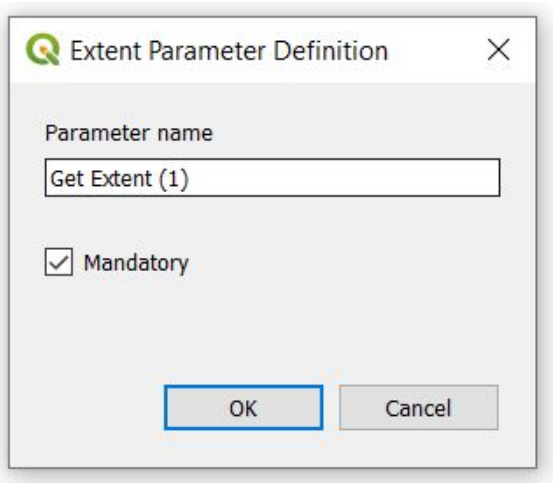
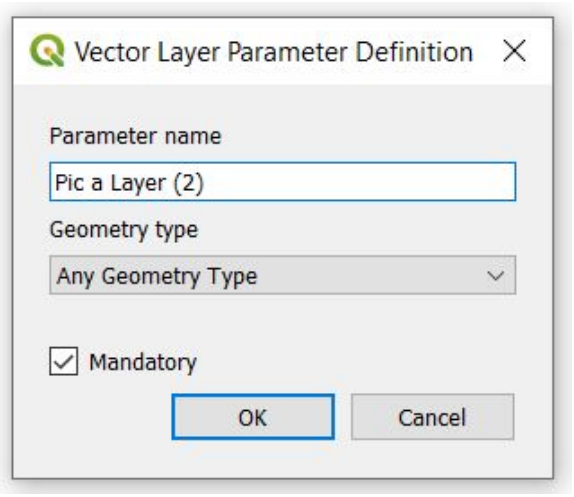
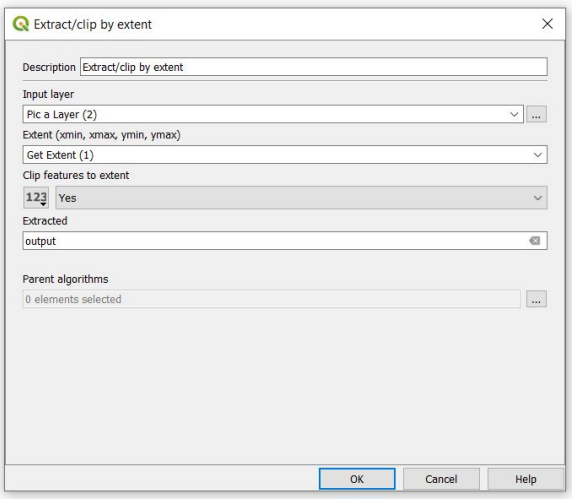
In QGIS select up some points
Go to the model in



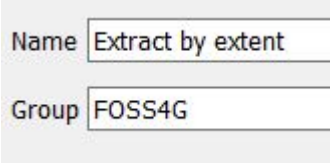
Double click on the mode, make sure that the right layer to export from is selected in the drop down and then click Run, once complete click close.



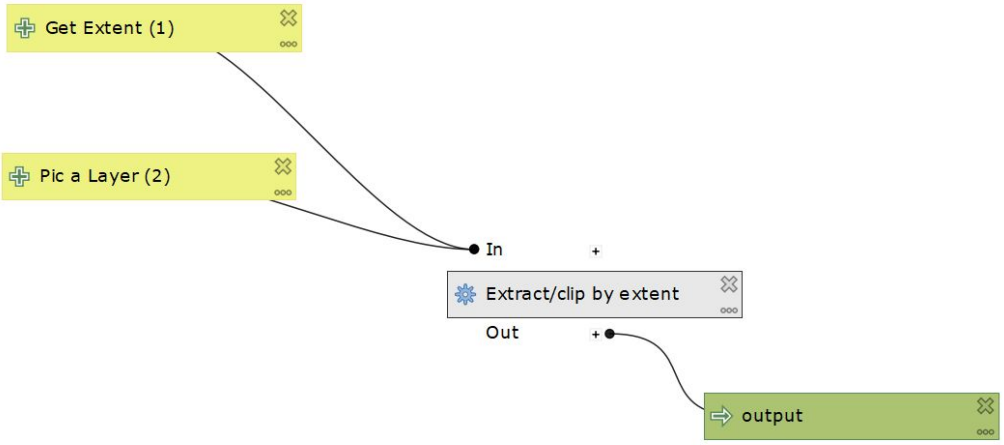
EXERCISE THREE
Extract by Extent

Under **INPUTS** find **Extent** Give it the name of: **Get Extent (1)**	
Under **INPUTS** find **Vector Layer** Give it a name of: **Pic a Layer (2)** Geometry Type: **Any Geometry Type**	
Under **ALGORITHMS** find **Extract Layer Extent** **Description:** Extract/Clip by Extent **Input Layer** = Pic a Layer (2) **Extent** = Get Extent (1) **Extracted** = Output	

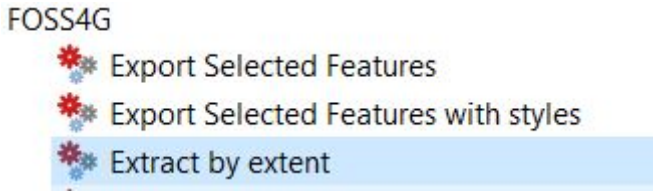
Give the Model a Name and Group



Click **Save** and name it **Foss4gUK_part3**



In QGIS select up some points
Go to the model in



Double click on the mode.
Click on the … at the end if Get Extent and choose **Select Extent on Canvas**

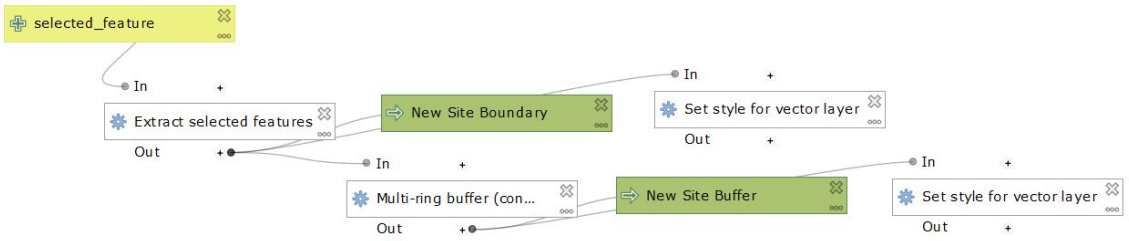
Draw an area on the map

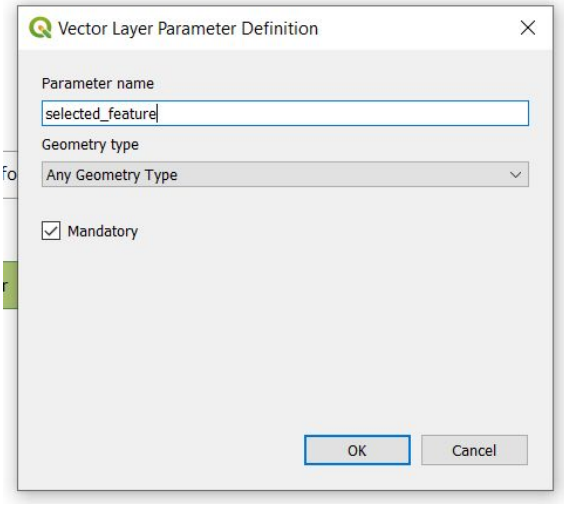
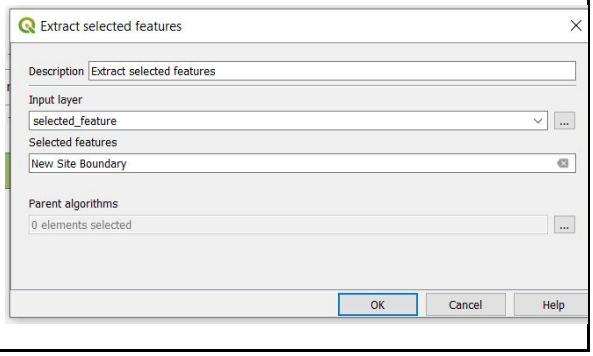
Next pick a layer from **Pic a Layer (2)** that you want to export.

Set an Output name if you wish
Click Run, and when complete click Close
Export done

EXERCISE FOUR
Create Site Boundary and Buffer

This is what we're going to create!



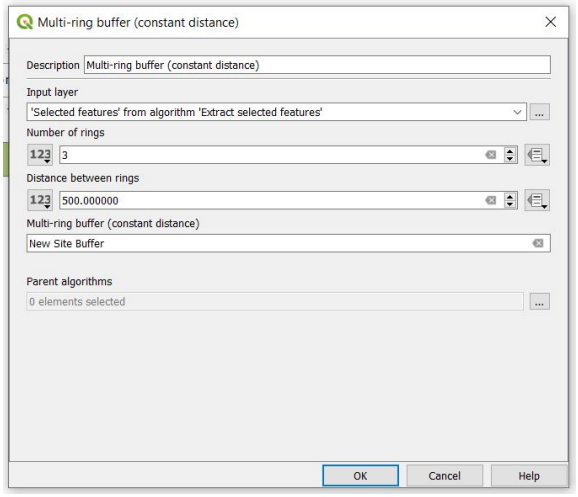
Add **INPUT** : Vector Layer Parameter name = selected_feature Geometry type = Any Geometry Type OK	
Add **ALGORITHMS** : Extract Selected Features Input Layer = **selected_feature** Selected Features = **New Site Boundary** **OK**	

Add **ALGORITHMS** :
Multi-ring buffer (constant distance)

Input Layer =
'Selected features' from algorithm 'Extract selected features'

Number of rings = **Go Crazy! e.g 3**
Distance between rings = **e.g 500**
Multi-ring Buffer = **New Site Buffer**

OK

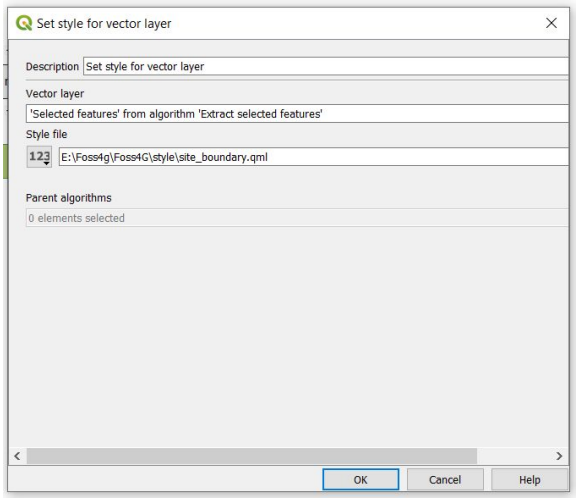


Add **ALGORITHMS** :

Vector layer =
'Selected features' from algorithm 'Extract selected features'

Style File =
...\Foss4G\style\site_boundary.qml

OK

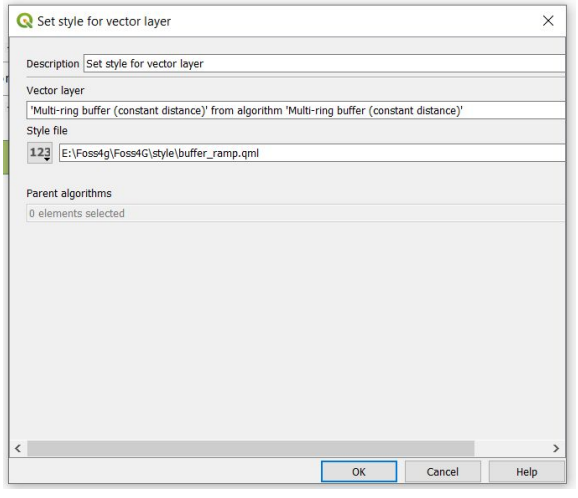


Add **ALGORITHMS** :

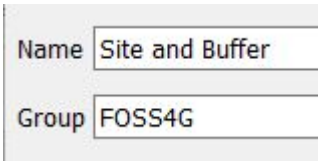
Vector layer =
'Multi-ring buffer (constant distance)' from algorithm 'Multi-ring buffer (constant distance)'

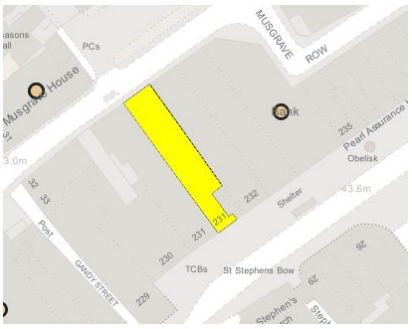
Style File =
...\Foss4G\style\buffer_ramp.qml

OK



Give the Model a Name and Group





Click **Save** and name it **Foss4gUK_part4**

In QGIS select a building from the topo_area layer

Go to the model in

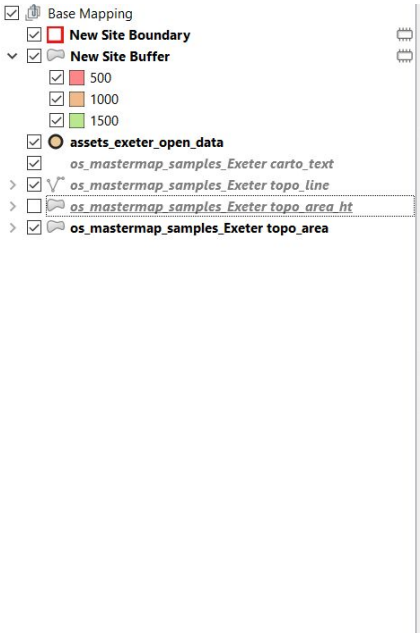
Double click on the model **Site and Buffer**

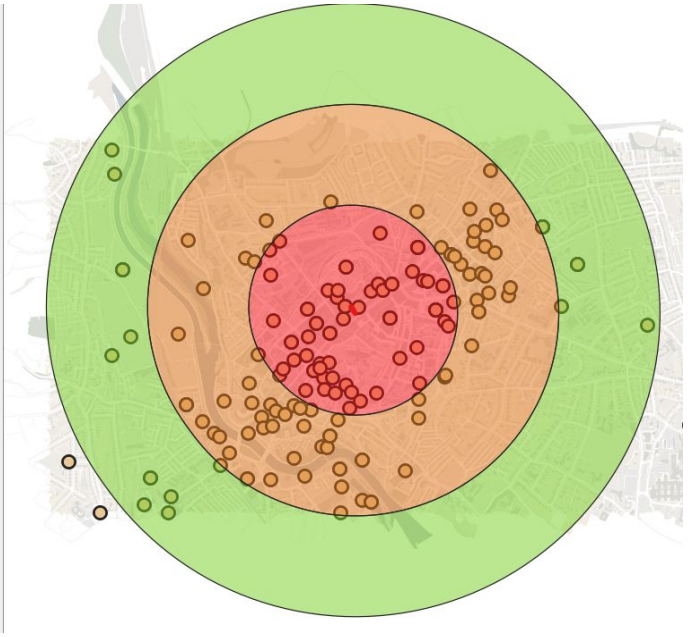
Set the **selected_layer** layer!

Leave everything else as is

Click **Run**, and when complete click **Close**

Export done



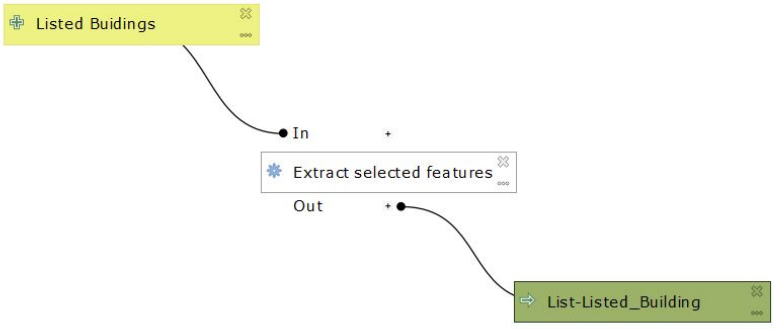


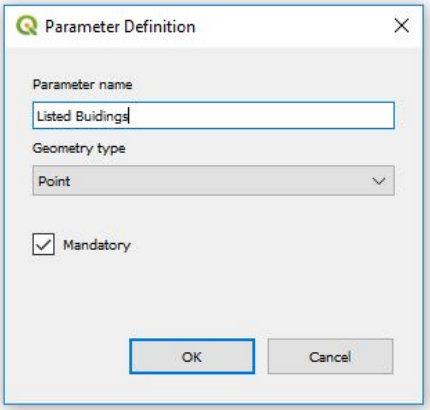
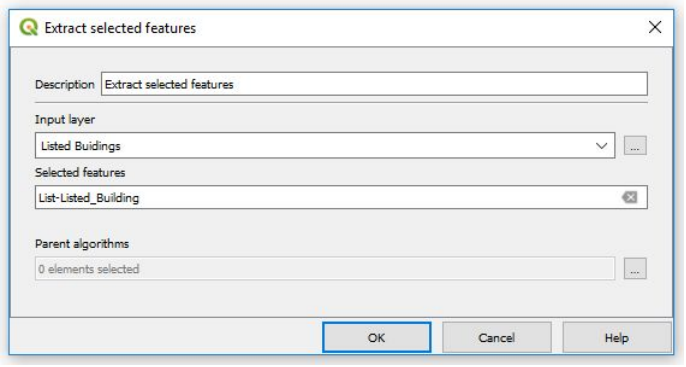
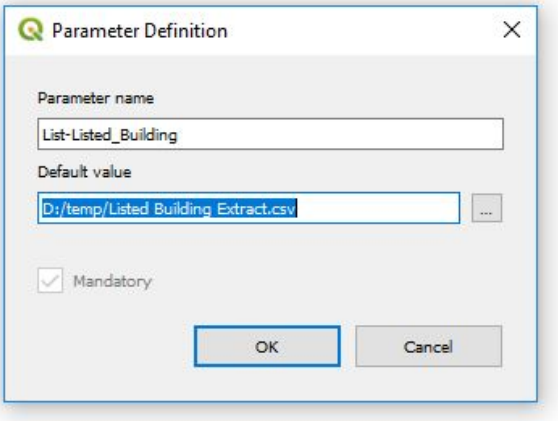
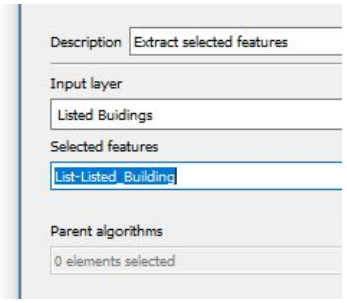
IF WE GET TIME EXERCISE!

EXTRACT SELECTED FEATURES TO FILE (csv)

Create a new model and give it a name and a group

This is what you'll be creating...



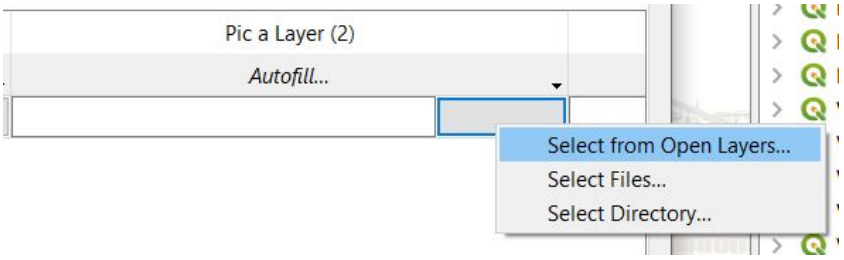
under **Inputs**: **Vector Layer** Parameter Name: **Listed Building** Geometry Type: **Point** Check **Mandatory**	
under **Algorithms**: Add **Extract Selected Features** Description: **Extract Selected Features** Input Layer: Choose **Listed Building** (created in step 1) Selected Features: ***Leave Blank***.	
under **Inputs**: Add **String** Parameter Name: **List-Listed_Building** Default value: **D:/temp/Listed Building Extract.csv** Check **Mandatory**	
Open **Extract Selected Features** **Assign** Selected Features: to **List-Listed_Buildings**	

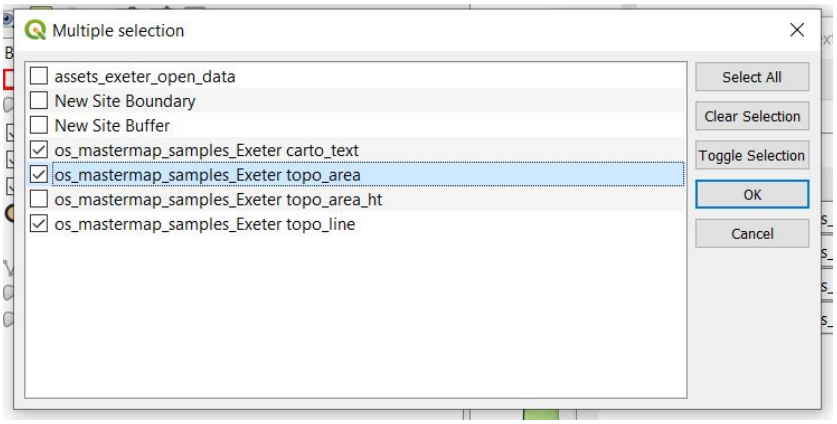
FOSS4G - Extract by extent Part II

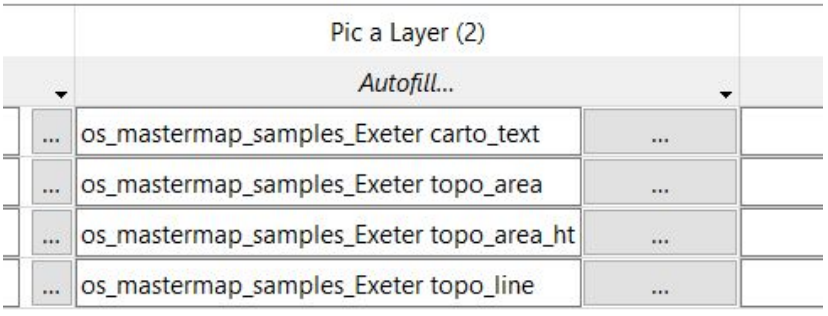
Using Batch Processing

Click Run as Batch Process..

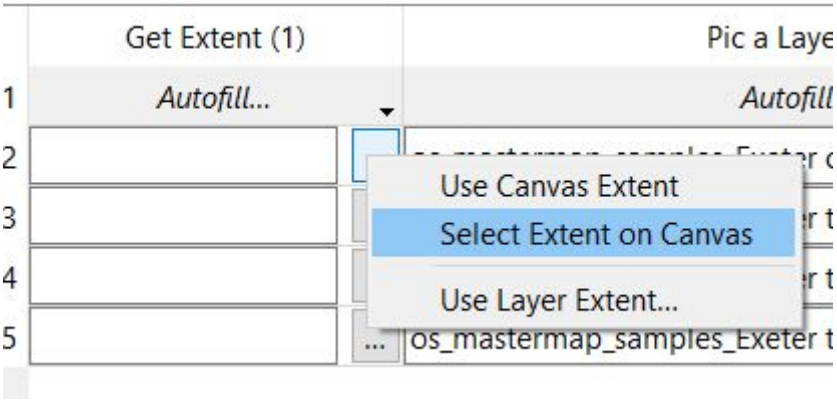
Set

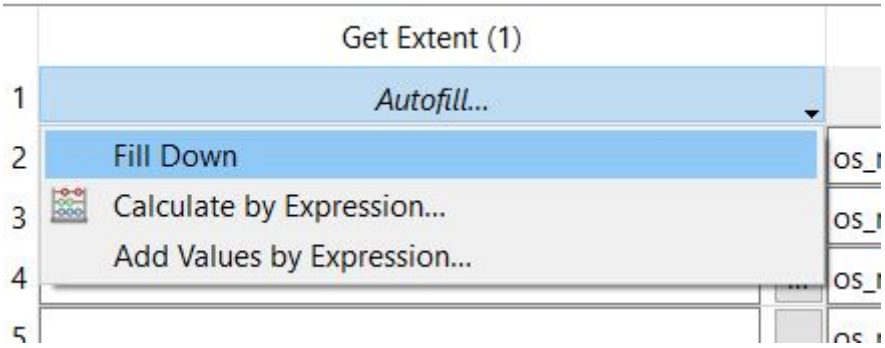




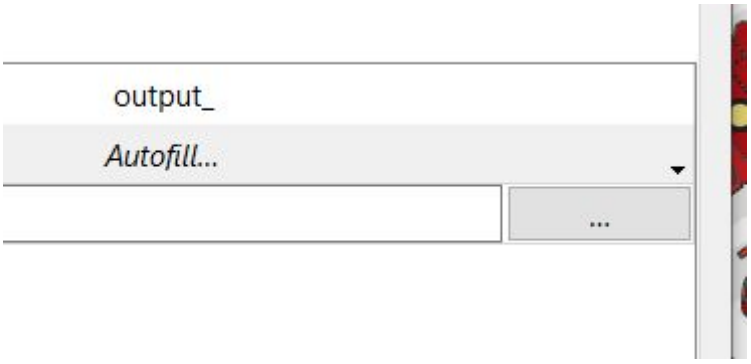


Set

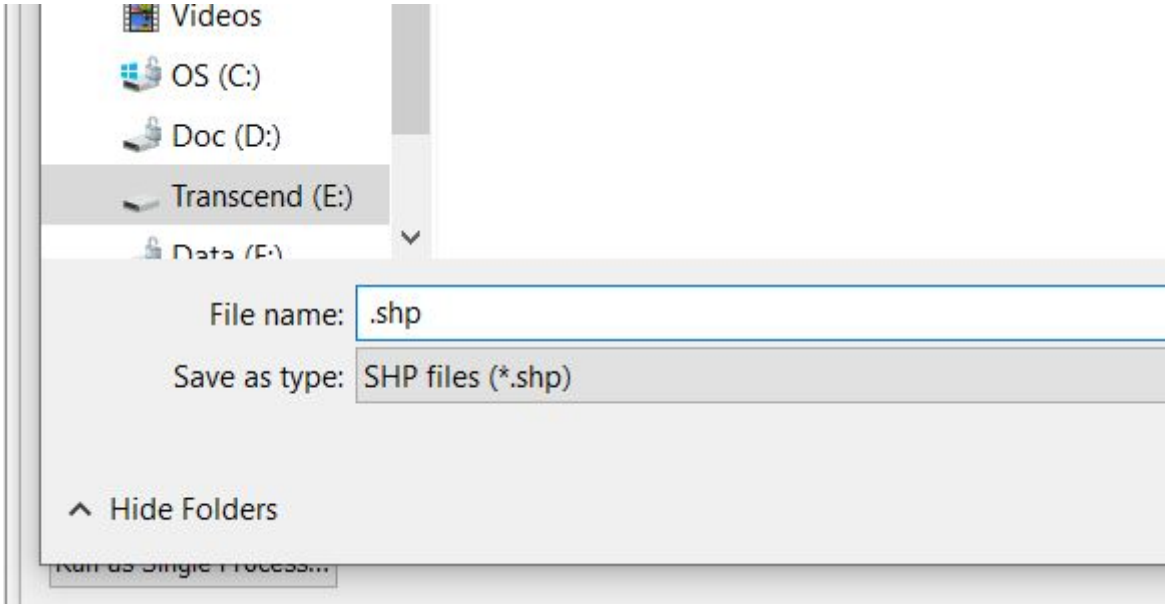

Get Extent (1)
Pic a Laye
1
Autofill...
Autofill
2
3
4
5
Use Canvas Extent
Select Extent on Canvas
Use Layer Extent...
os_mastermap_samples_Exeter t

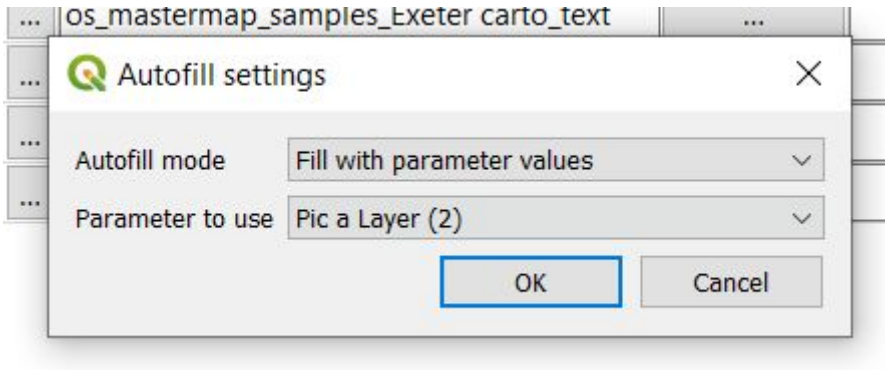

Get Extent (1)
1
Autofill...
2
Fill Down
3
Calculate by Expression...
4
Add Values by Expression...

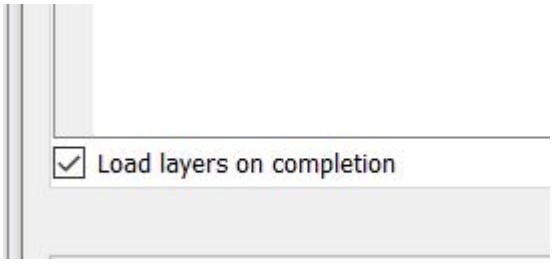
Set

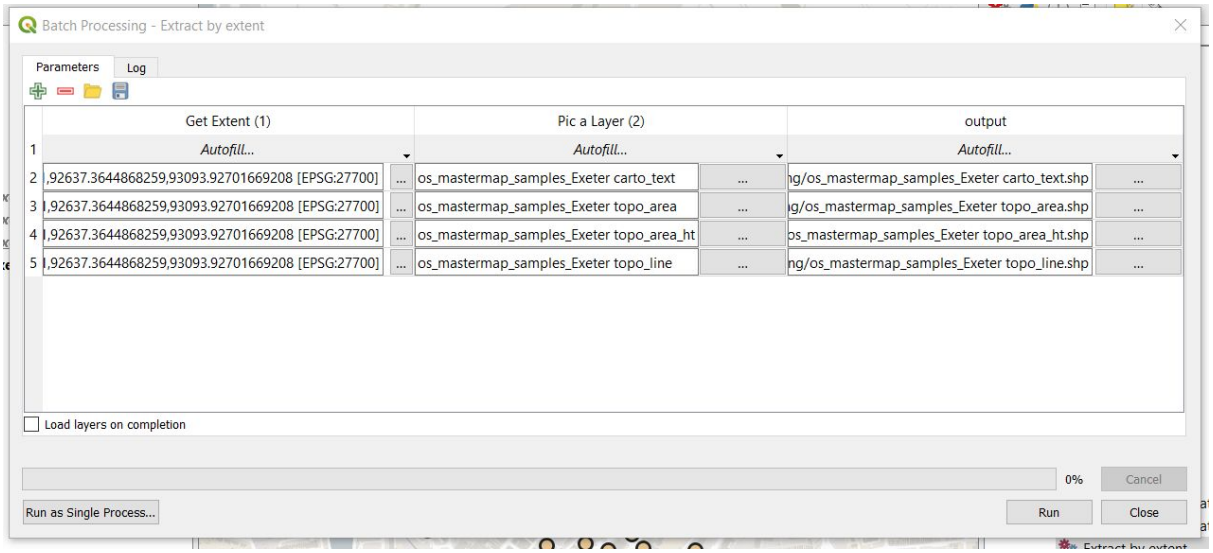


Got a network drive, for this example go to
\\Foss4G\export and create a file name of **.shp**









Click Run and when complete click Close

What is cool is if you put style files with the same name as the shp export in the same export folder, then data will render/style as per the style files!