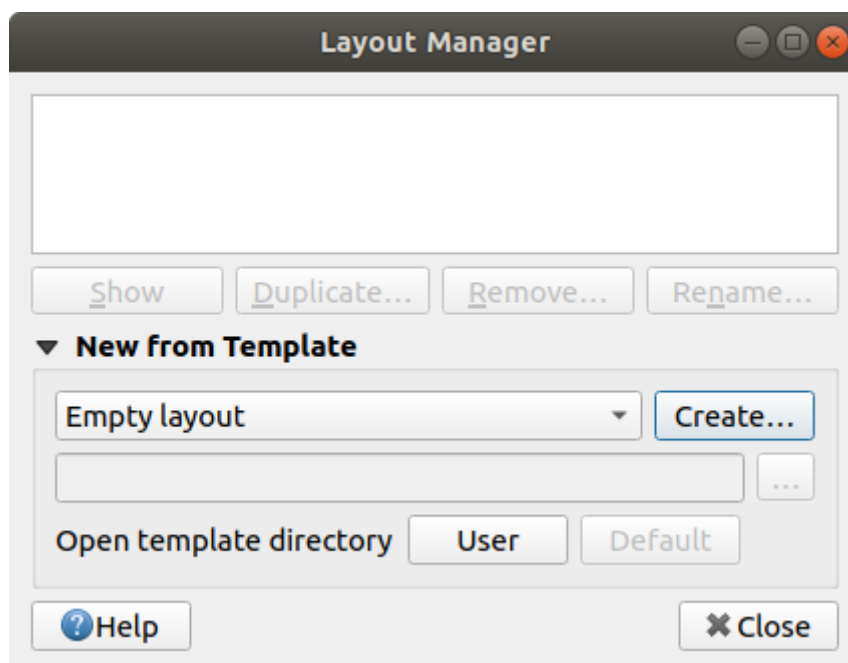# 4.1. Lesson: Using Print Layout

Now that you've got a map, you need to be able to print it or to export it to a document. The reason is, a GIS map file is not an image. Rather, it saves the state of the GIS program, with references to all the layers, their labels,colors, etc. So for someone who doesn't have the data or the same GIS program (such as QGIS), the map file will be useless. Luckily, QGIS can export its map file to a format that anyone's computer can read, as well as printing out the map if you have a printer connected. Both exporting and printing is handled via the *Print Layout*.

The goal for this lesson: To use the QGIS *Print Layout* to create a basic map with all the required settings.
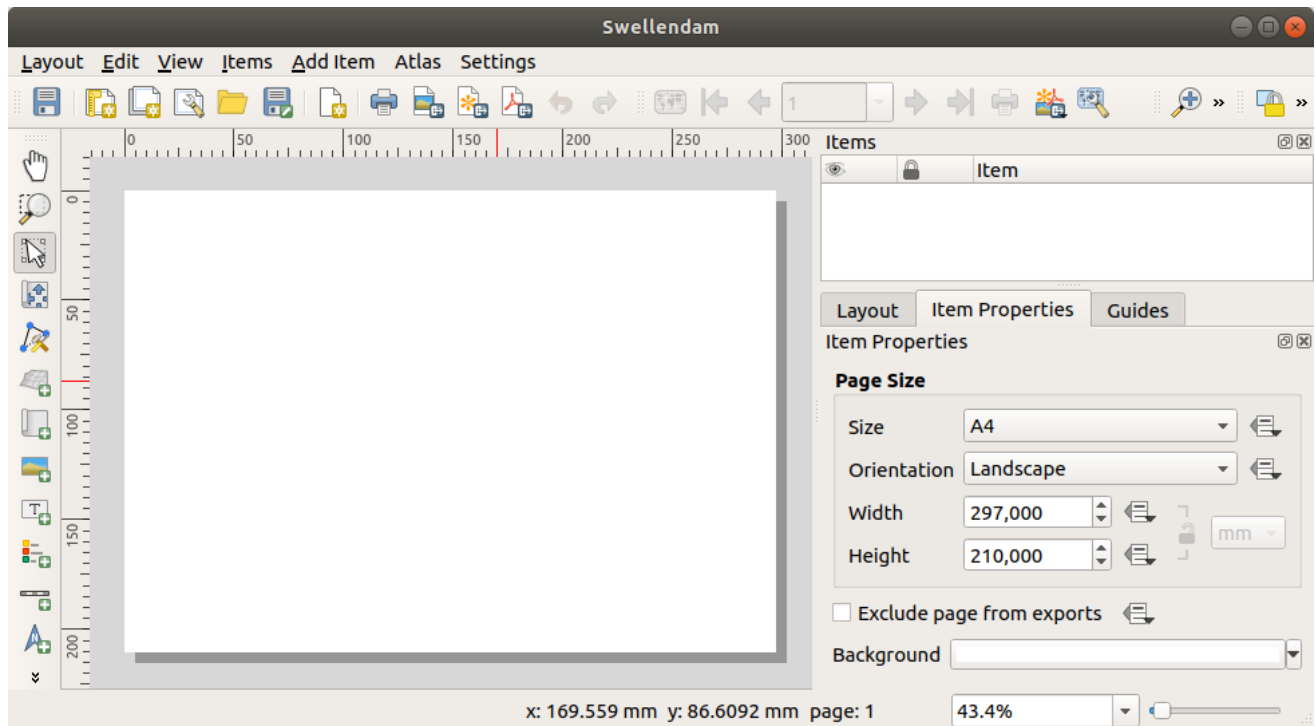
4.1.1. 🔺 Follow Along: The Layout Manager

QGIS allows you to create multiple maps using the same map file. For this reason, it has a tool called the *Layout Manager*.

1. Click on the Project ▶ Layout Manager... menu entry to open this tool. You'll see a blank Layout manager dialog appear.
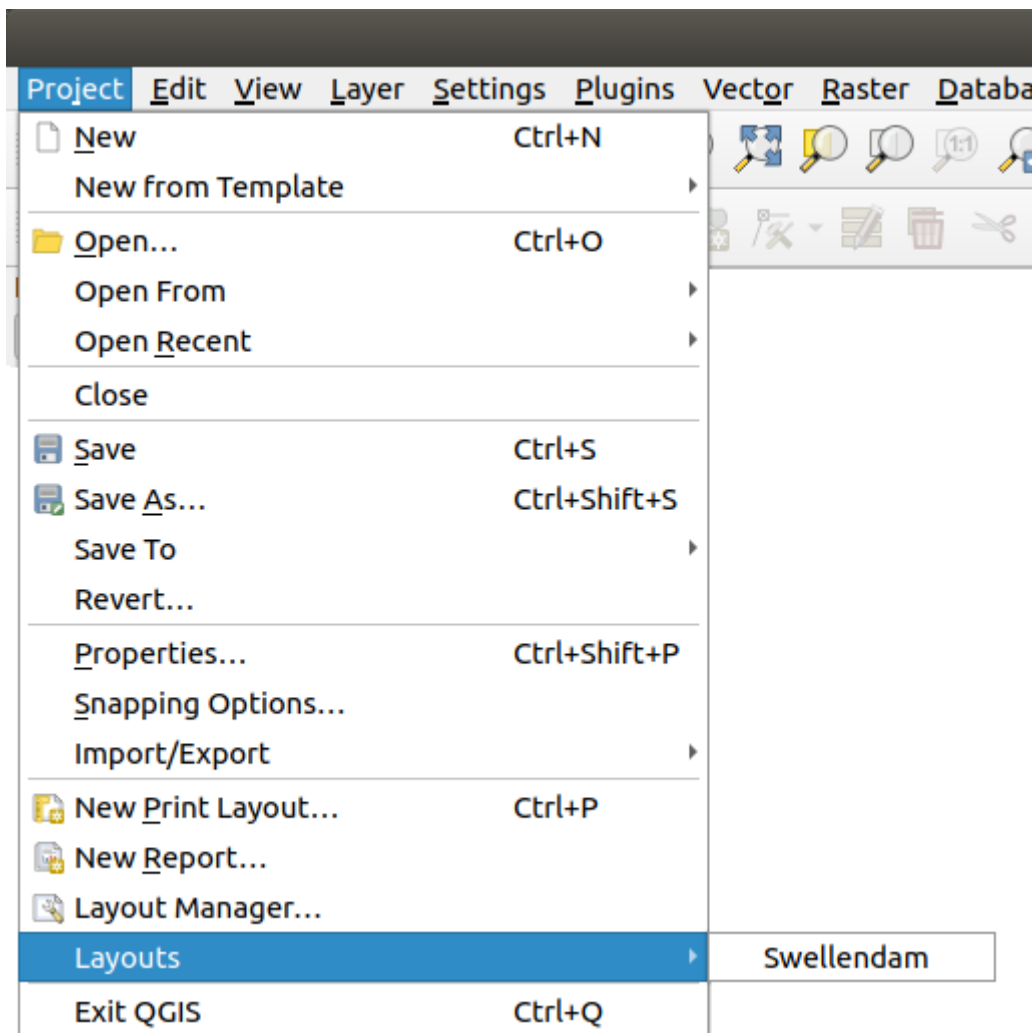

2. Under New from Template , select Empty layout and press the Create... button.
3. Give the new layout the name of Swellendam and click OK .

4.

You could also create this new layout via the Project ▶ New Print Layout... menu.

Whichever route you take, the new print layout is now accessible from the Project ▶ Layouts ▶ menu, as in the image below.

Project	Edit	View	Layer	Settings	Plugins	Vector	Raster	Databa

New   Ctrl+N

New from Template   ▶

Open...   Ctrl+O

Open From   ▶

Open Recent   ▶

Close

Save   Ctrl+S

Save As...   Ctrl+Shift+S

Save To   ▶

Revert...

Properties...   Ctrl+Shift+P

Snapping Options...

Import/Export   ▶

New Print Layout...   Ctrl+P

New Report...

Layout Manager...

Layouts   ▶   Swellendam

Exit QGIS   Ctrl+Q

4.1.2. 🎿 Follow Along: Basic Map Composition

In this example, the composition was already the way we wanted it. Ensure that yours is as well.

1. Right-click on the sheet in the central part of the layout window and choose Page properties... in the context menu.
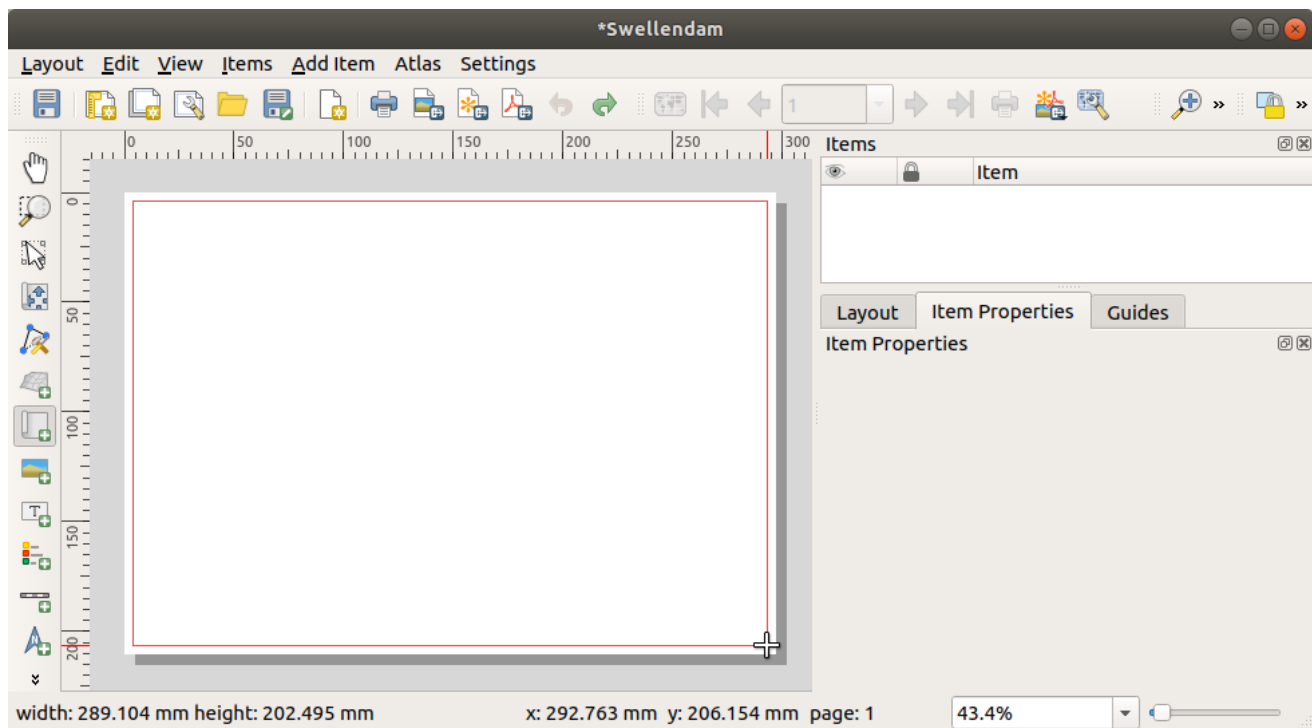2. Check that the values in the Item Properties tab are set to the following:

   - Size : A4
   - Orientation : Landscape

   Now you've got the page layout the way you wanted it, but this page is still blank. It clearly lacks a map. Let's fix that!
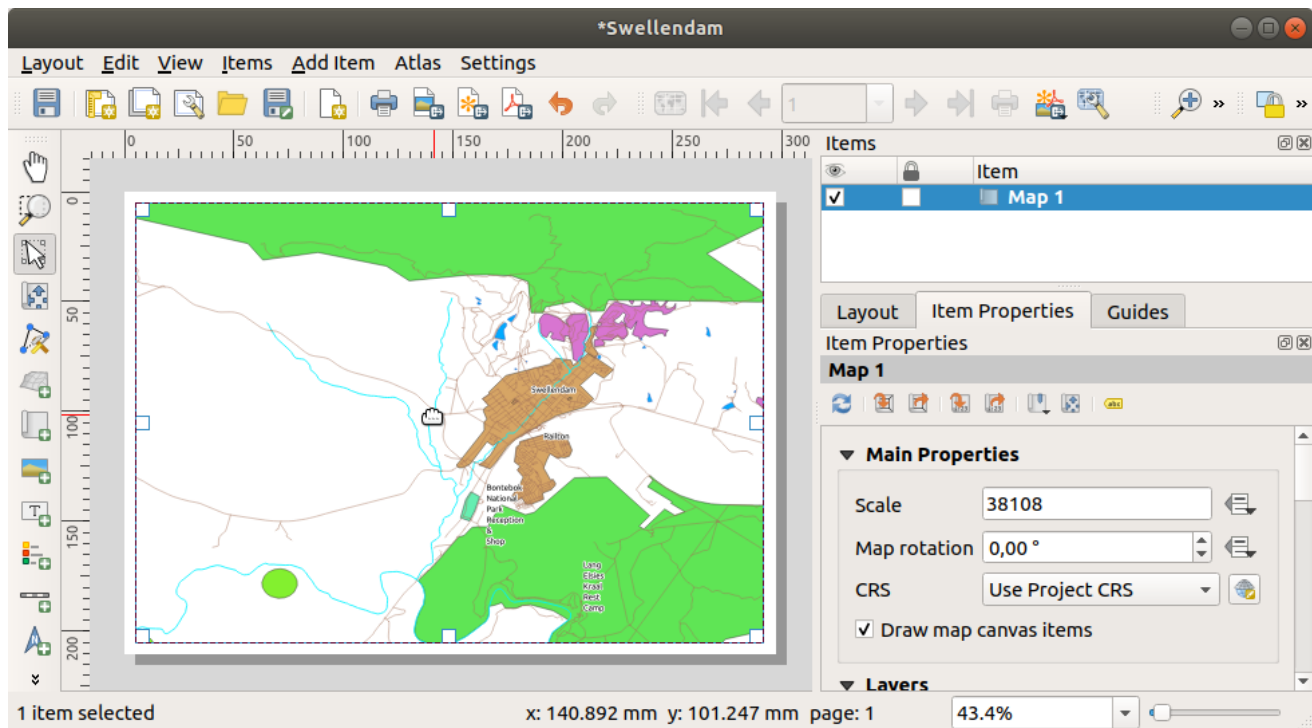
3. Click on the Add Map button.

   With this tool activated, you will be able to place a map on the page.
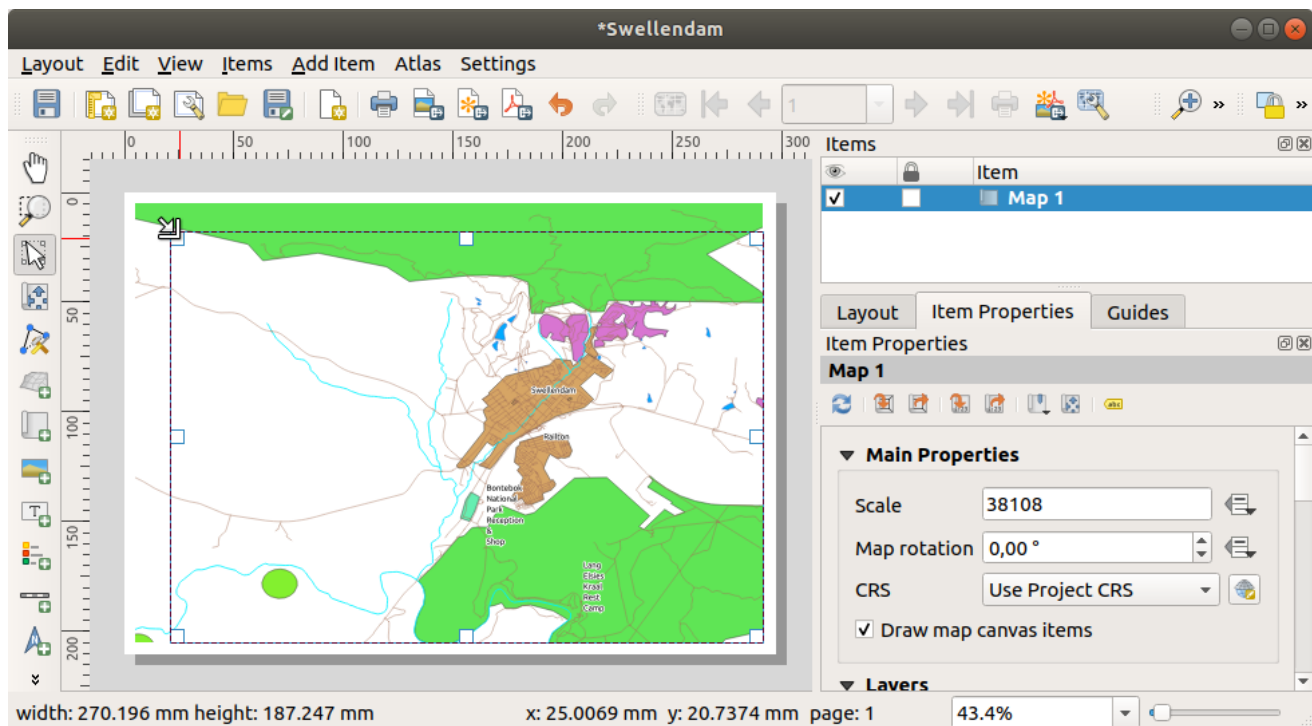
4. Click and drag a box on the blank page:

The map will appear on the page.

5. Move the map by clicking and dragging it around:

6. Resize it by clicking and dragging the boxes on the edges:

> **ⓘ Note**
>
> Your map may look a lot different, of course! This depends on how your own project is set up. But not to worry! These instructions are general, so they will work the same regardless of what the map itself looks like.

7. Be sure to leave margins along the edges, and a space along the top for the title.
8. Zoom in and out on the page (but not the map!) by using these buttons:

9. Zoom and pan the map in the main QGIS window. You can also pan the map using the Move item content tool.

   The map view updates as you zoom in or zoom out.

10. If, for any reason, the map view does not refresh correctly, you can force the map to refresh by clicking the Refresh view button.

   Remember that the size and position you've given the map doesn't need to be final. You can always come back and change it later if you're not satisfied. For now, you need to ensure that you've saved your work on this map. Because a *Print Layout* in QGIS is part of the main map file, you must save your project.

11. Go to the 〔 Layout ▶ 〕 🖫 〔 Save Project 〕. This is a convenient shortcut to the one in the main dialog.

4.1.3. 🌄 Follow Along: Adding a Title

Now your map is looking good on the page, but your readers/users are not being told what's going on yet. They need some context, which is what you'll provide for them by adding map elements. First, let us add a title.
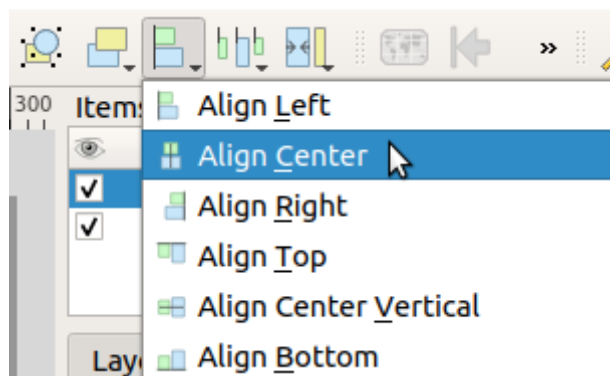
1. Click on the [T] Add Label button
2. Click on the page, above the map, accept the suggested values in the [New Item Properties] dialog, and a label will appear at the top of the map.
3. Resize it and place it in the top center of the page. It can be resized and moved in the same way that you resized and moved the map.

   As you move the title, you'll notice that guidelines appear to help you position the title in the center of the page.

   However, there is also a tool in the Actions Toolbar to help position the title relative to the map (not the page):
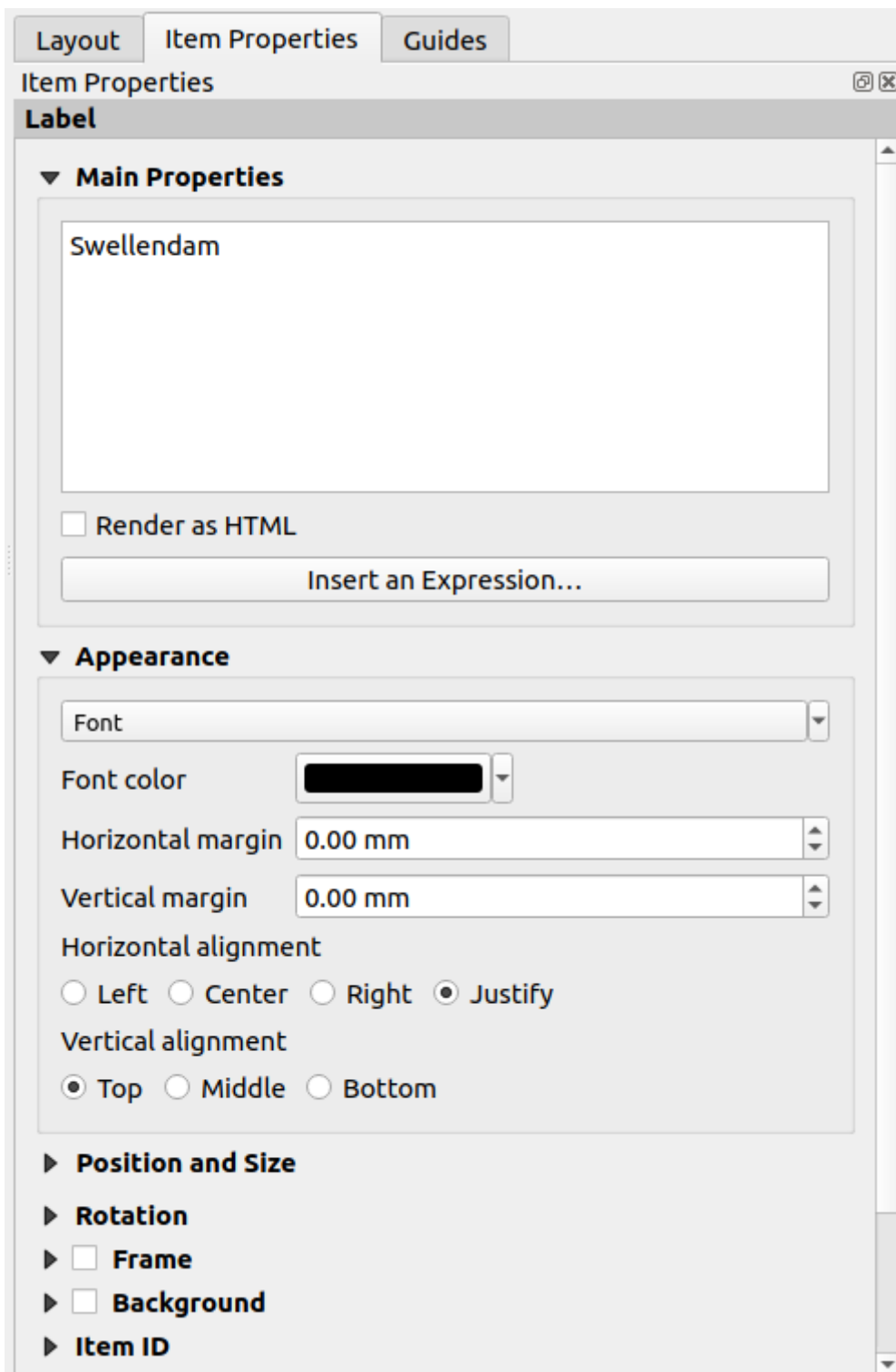
   🔲

4. Click the map to select it
5. Hold in [Shift] on your keyboard and click on the label so that both the map and the label are selected.
6. Look for the 🔲 Align selected items left button and click on the dropdown arrow next to it to reveal the positioning options and click 🔲 [Align center]:

   Now the label frame is centered on the map, but not the contents. To center the contents of the label:

   1. Select the label by clicking on it.
   2. Click on the [Item Properties] tab in the side panel of the layout window.
   3. Change the text of the label to "Swellendam":

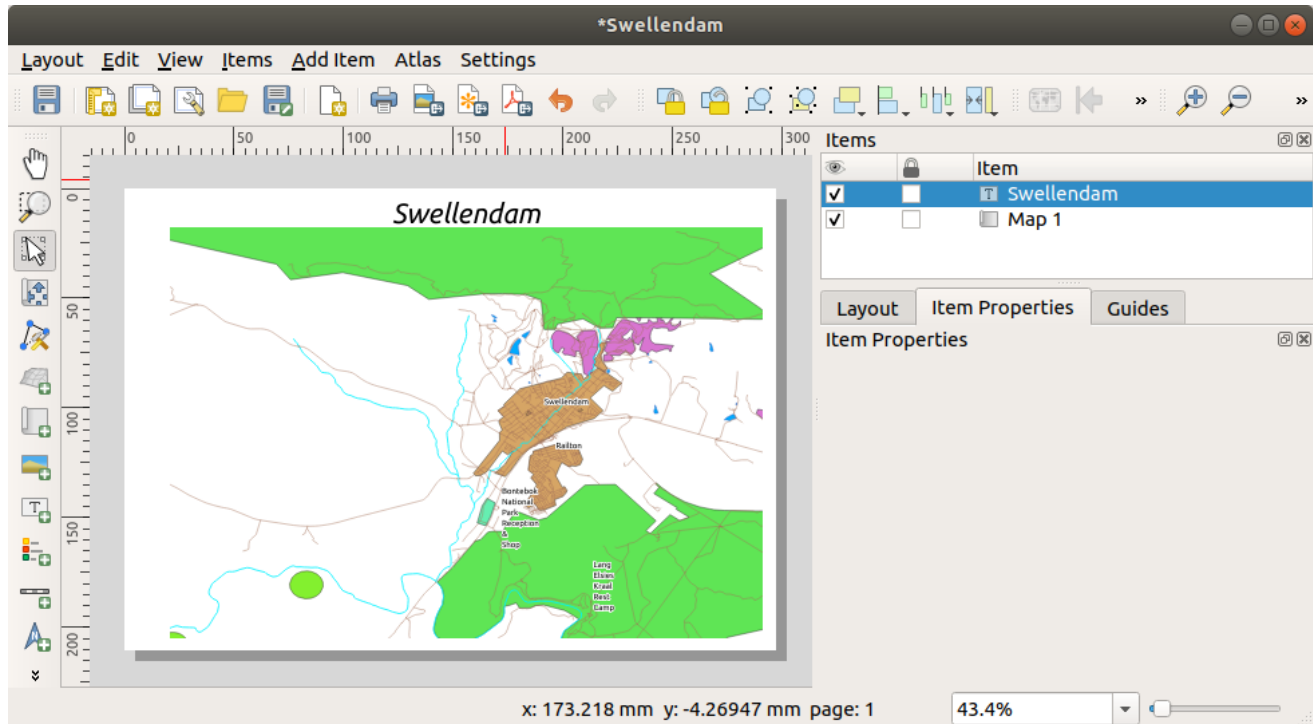4. Use this interface to set the font and alignment options under the Appearance section:

   1. Choose a large but sensible font (the example will use the default font with a size of 36)

   2. Set the Horizontal Alignment to Center .

   You can also change the font color, but it's probably best to keep it black as per the default.

5. The default setting is not to add a frame to the title's text box. However, if you wish to add a frame, you can do so:

1. In the Item Properties tab, scroll down until you see the Frame option.
2. Click the Frame checkbox to enable the frame. You can also change the frame's color and width.

In this example, we won't enable the frame, so here is our page so far:

To make sure that you don't accidentally move these elements around now that you've aligned them, you can lock items into place:

1. Select both the label and the map items
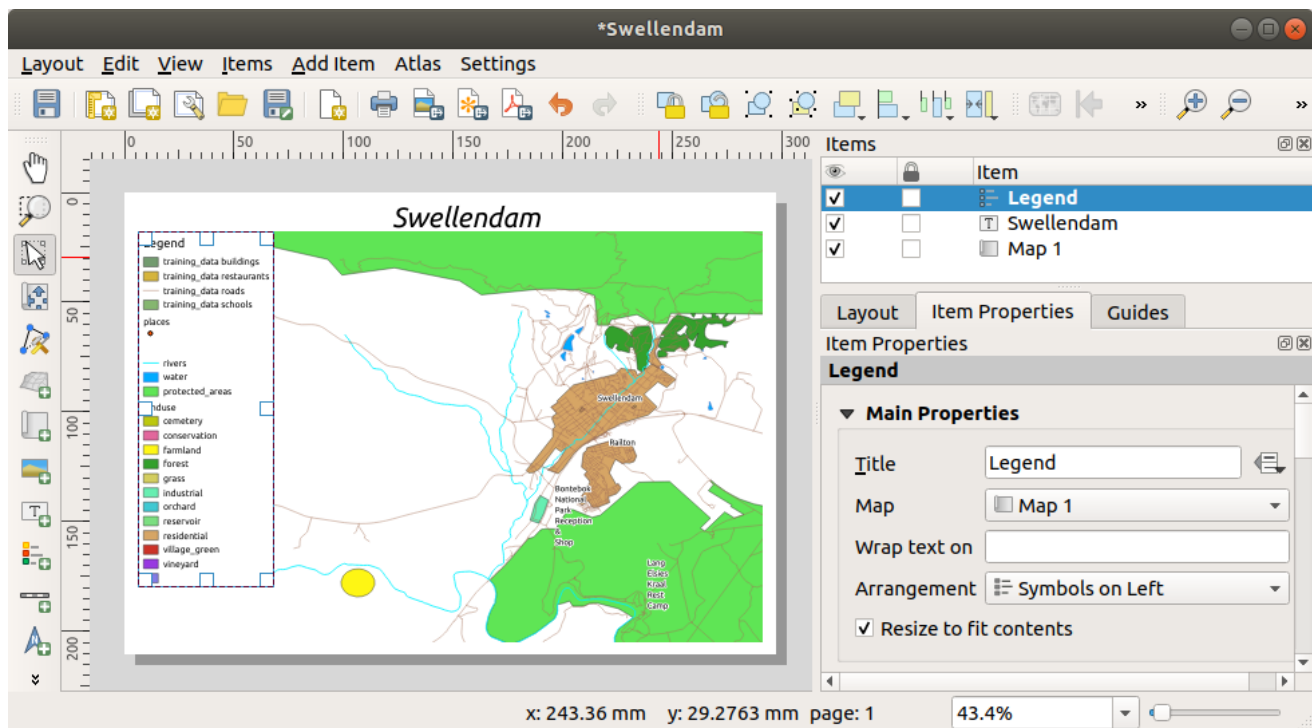2. Click the Lock Selected Items button in the *Actions* Toolbar.

> **❶ Note**
>
> Click the Unlock All Items button in the *Actions* Toolbar to be able to edit the items again.

4.1.4. Follow Along: Adding a Legend

The map reader also needs to be able to see what various things on the map actually mean. In some cases, like the place names, this is quite obvious. In other cases, it's more difficult to guess, like the colors of the forests. Let's add a new legend.

1. Click on the Add Legend button
2. Click on the page to place the legend, accept the suggested values in the New Item Properties dialog,
3. A legend is added to the layout page, showing layers symbology as set in the main dialog.
4. As usual, you can click and move the item to where you want it:
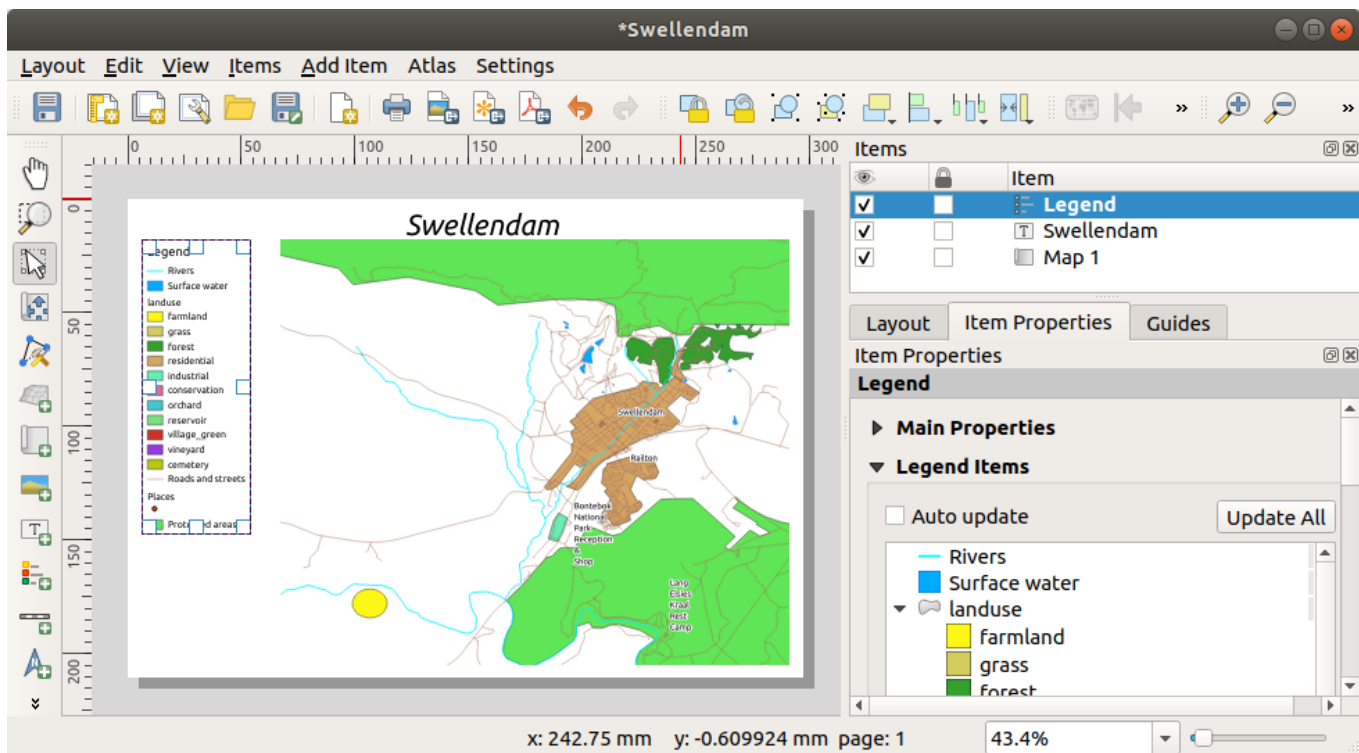
4.1.5. 🖌️ Follow Along: Customizing Legend Items

Not everything on the legend is necessary, so let's remove some unwanted items.

1. In the Item Properties tab, you'll find the Legend items group.
2. Uncheck the ☐ Auto update box, allowing you to directly modify the legend items
3. Select the entry with buildings
4. Delete it from the legend by clicking the ▭ button
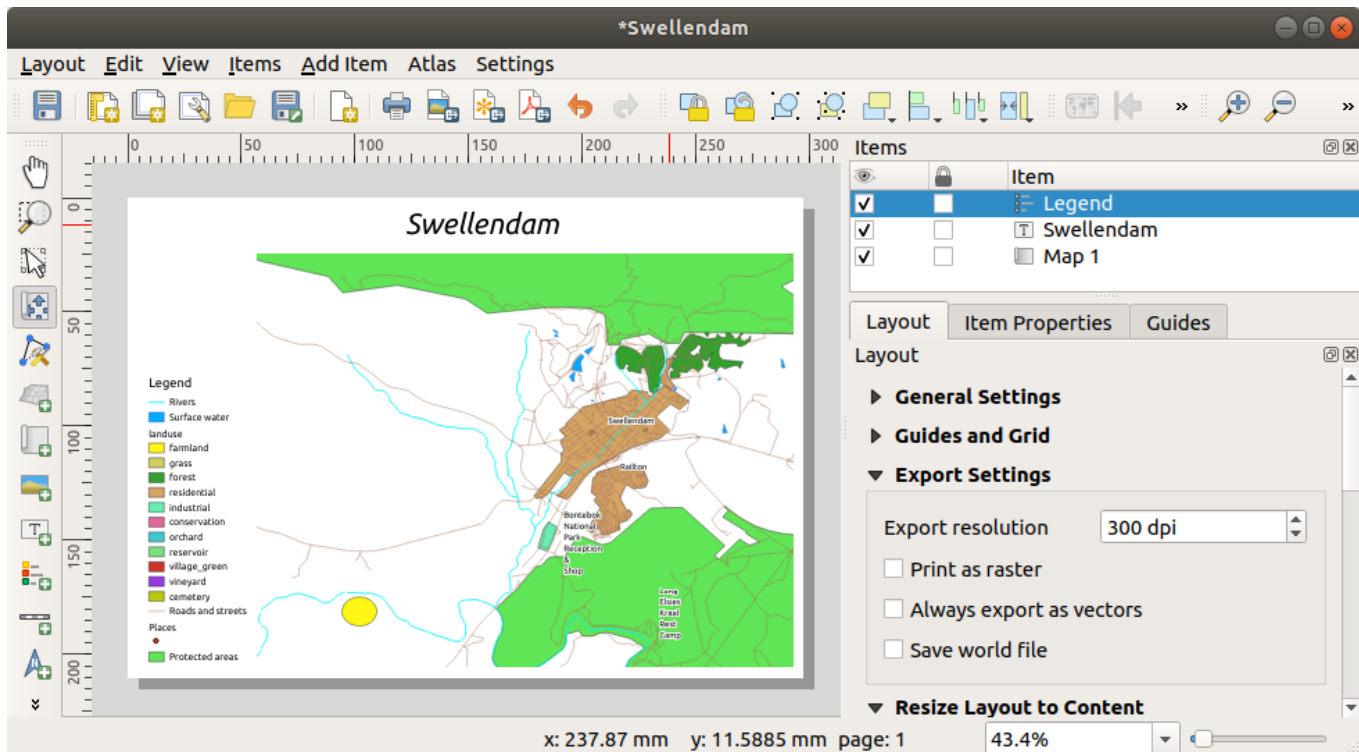
You can also rename items.

1. Select a layer from the same list.
2. Click the 🖊️ Edit selected item properties button.
3. Rename the layers to Places , Roads and Streets , Surface Water , and Rivers .

You can also reorder the items:

As the legend will likely be widened by the new layer names, you may wish to move and resize the legend and or map. This is the result:

4.1.6. Follow Along: Exporting Your Map

> ⓘ **Note**
>
> Did you remember to save your work often?

Finally the map is ready for export! You'll see the export buttons near the top left corner of the layout window:
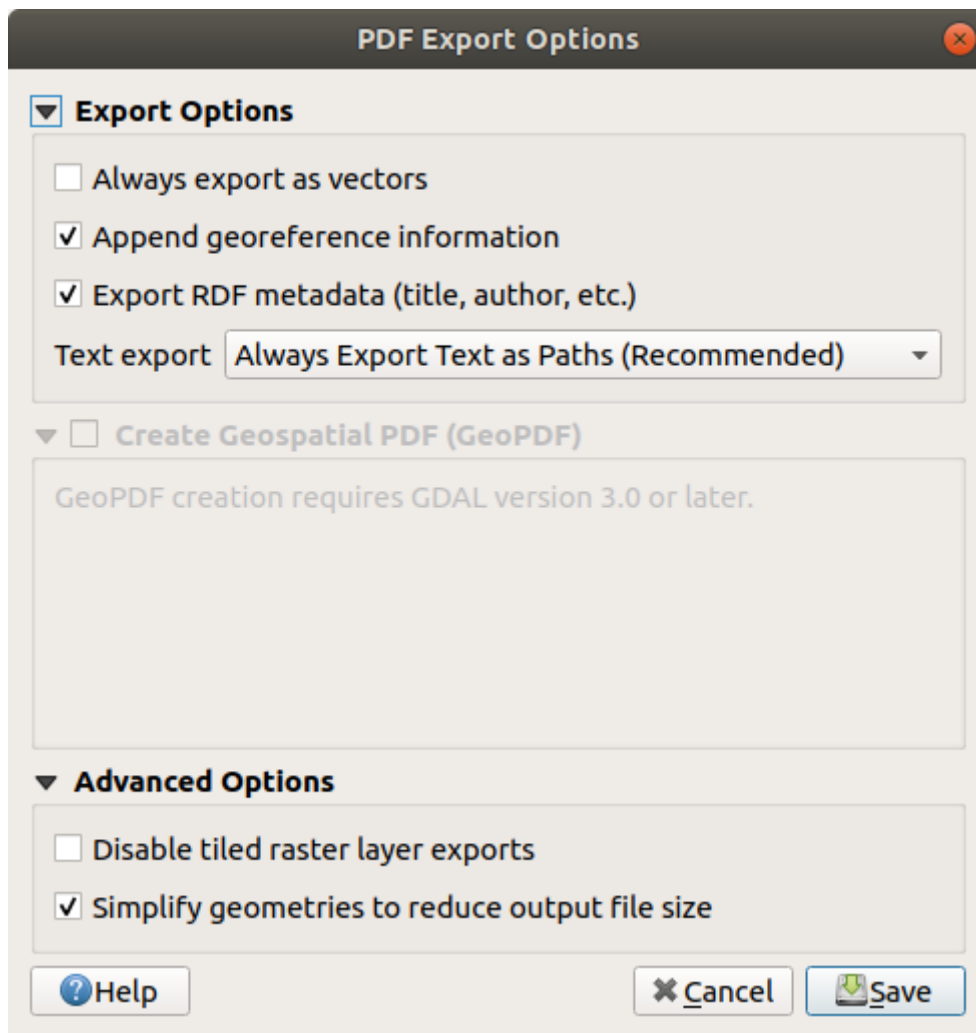
- ![printer icon] Print Layout: interfaces with a printer. Since the printer options will differ depending on the model of printer that you're working with, it's probably better to consult the printer manual or a general guide to printing for more information on this topic.

  The other buttons allow you to export the map page to a file.

- ![image icon] Export as Image: gives you a selection of various common image formats to choose from. This is probably the simplest option, but the image it creates is "dead" and difficult to edit.
- ![svg icon] Export as SVG: If you're sending the map to a cartographer (who may want to edit the map for publication), it's best to export as an SVG. SVG stands for "Scalable Vector Graphic", and can be imported to programs like Inkscape or other vector image editing software.
- ![pdf icon] Export as PDF: If you need to send the map to a client, it's most common to use a PDF, because it's easier to set up printing options for a PDF. Some cartographers may prefer PDF as well, if they have a program that allows them to import and edit this format.

For our purposes, we're going to use PDF.

1. Click the ![pdf icon] Export as PDF button
2. Choose a save location and a file name as usual. The following dialog will show up.

3. You can safely use the default values now and click Save .

   QGIS will proceed to the map export and push a message on top of the print layout dialog as soon as it finishes.

4. Click the hyperlink in the message to open the folder in which the PDF has been saved in your system's file manager

5. Open it and see how your layout looks.

   Everything is OK? Congratulations on your first completed QGIS map project!

6. Anything unsatisfying? Go back to the QGIS window, do the appropriate modifications and export again.

7. Remember to save your project file.

4.1.7. In Conclusion

Now you know how to create a basic static map layout. We can go a step further and create a map layout that adapts dynamically, with more layout items.