**Introduction to QGIS Swedigarch Geotools plugin workflows**

Swedigarch Geotools is a QGIS plugin for working with data produced with the program Intrasis to export data to open formats (GPKG and CSV) and work with the GPKG in QGIS. The basic functions and how to export data from an Intrasis PostgreSQL/PostGIS server are described in the GitHub wiki. This tutorial is an introduction to QGIS workflow as a suggested way to explore the content of a GPKG with a few different techniques to make it easier to understand and access the information, based on an example GPKG available from GitHub.

Start QGIS and add the Geopackage uv2010041.gpkg. While not necessary, it is can be good to add all the layers to a group to keep track of the layers.
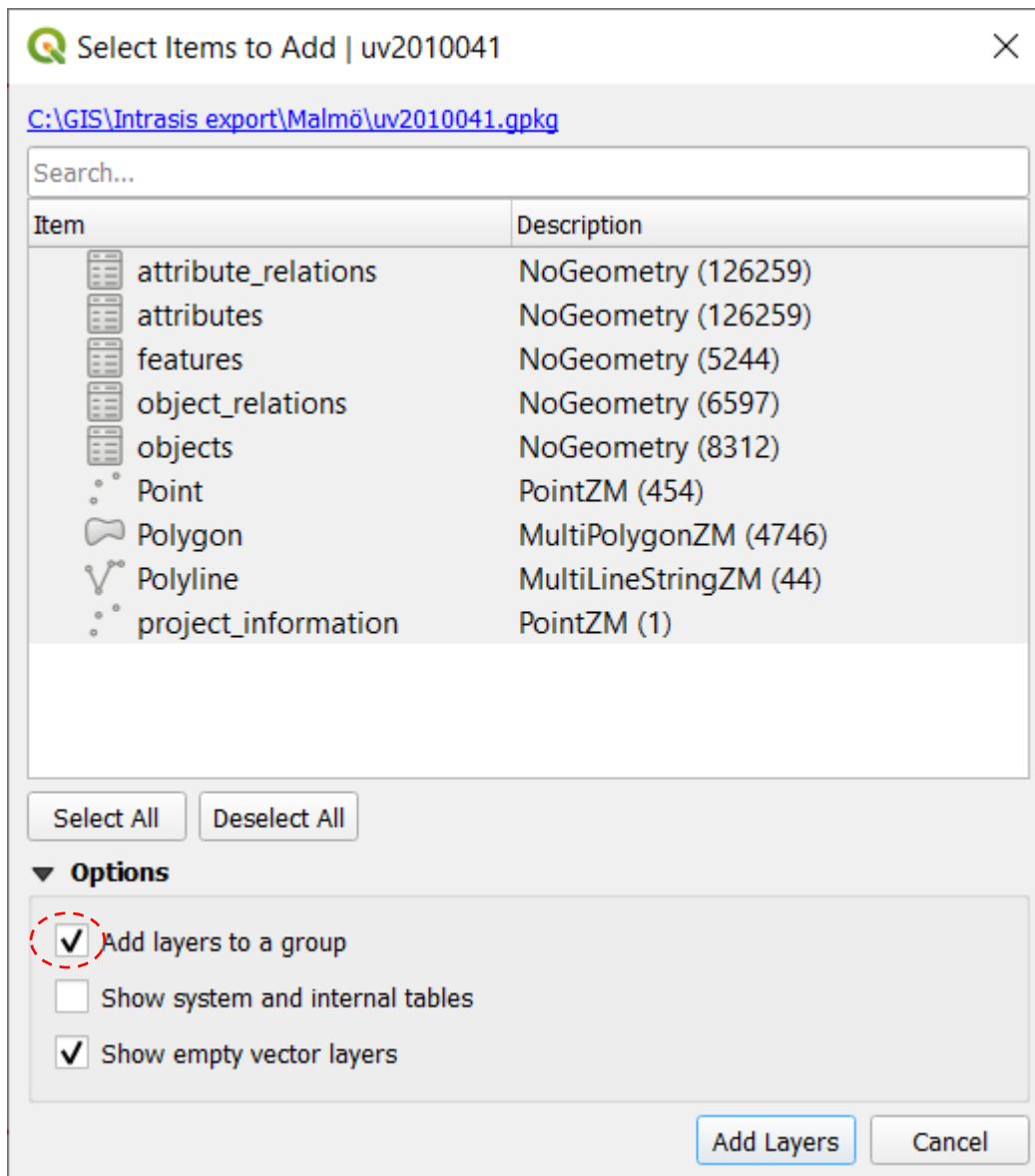
A default styling of the layers is stored in the gpkg and should automatically be applied to the geometry layers. Technically, these are layer views from the table features, but QGIS interpret these a regular geometry layers.

General information (metadata) is available in the point layer project information. Open the attribute table, and change to the form view.
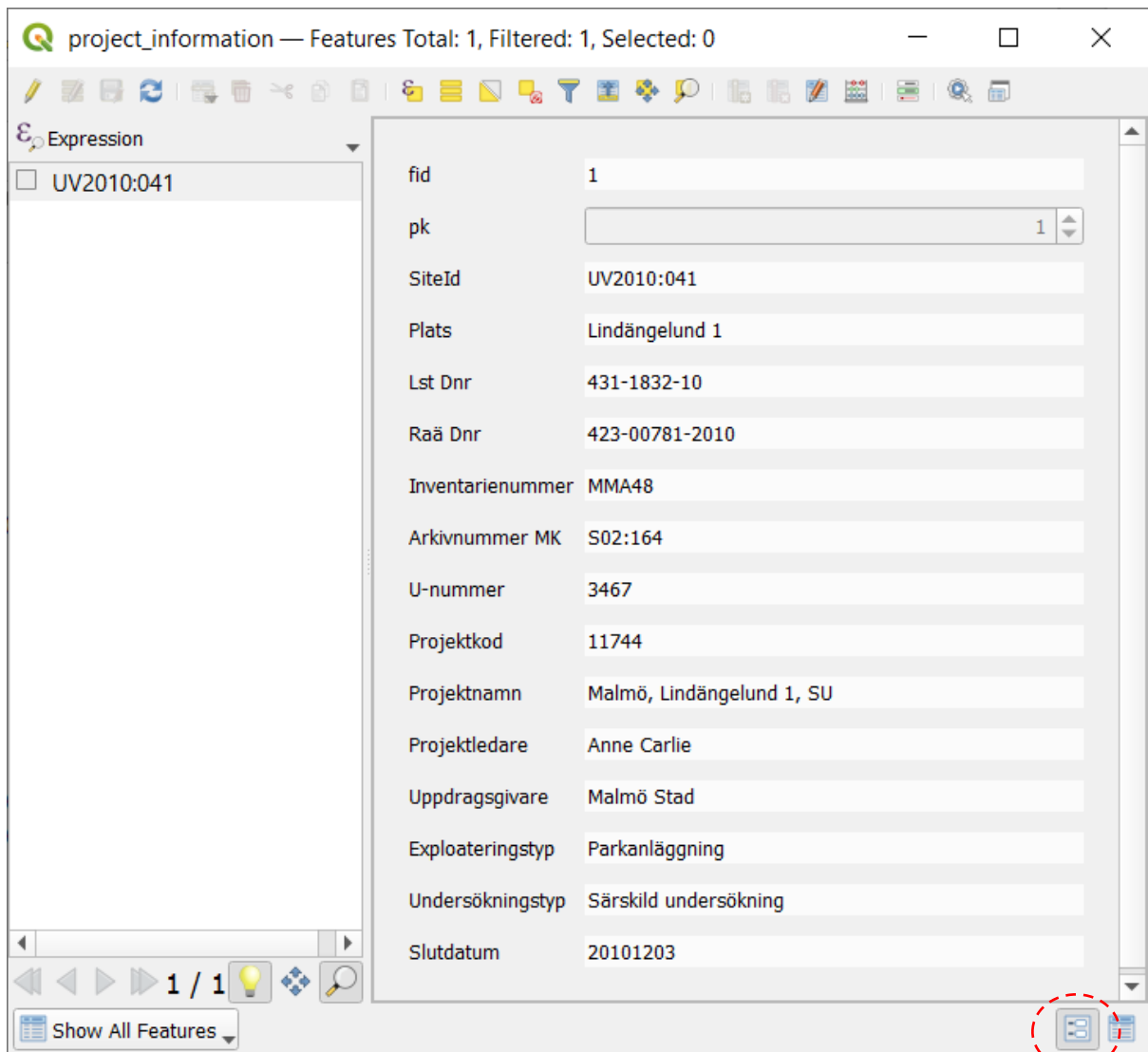
From the information we can identify the report for the excavation:
https://pub.raa.se/visa/dokumentation/1239ad7f-1d5c-42c6-bd08-afc66b05d941

Comparing the GIS layers to the plans in the report, we can confirm that is it the correct report.

Uncheck the layers box for the point and polyline layers so we only see the polygons in the QGIS map window. To start exploring the content we can apply a few filters. Right-click the *Polygon* layer and *Duplicate Layer* so that we get a copy.

Right-click the new copy and *Rename Layer* to "**Arkeologiska objekt - filter**".

Right-click the layer *Arkeologiska objekt – filter* and click *Filter*.

Set a filter as: *"Class" = 'Arkeologiskt objekt'* and click OK.

Open *Layer Styling* for *Arkeologiska objekt – filter* and, with a *Categorized* type of styling, set *Value* to *SubClass*, click *Classify* and *OK* to the question about deleting existing classification.
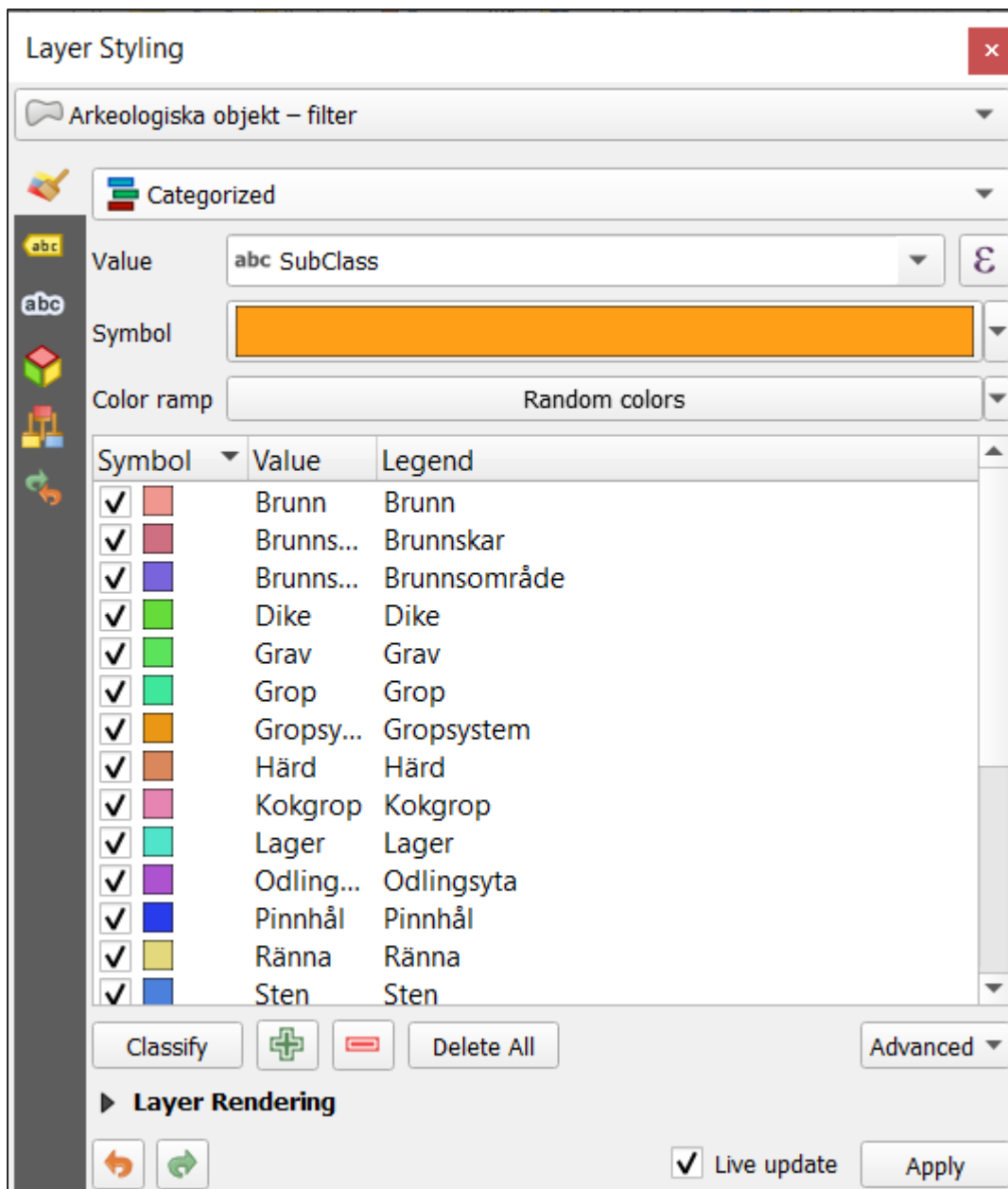
In the original *Polygon* layer, uncheck the box for the item *Arkeologiskt object (Default symbol)* so these are not visible in the view.

To make the view clearer, we can set another filter for trenches. Duplicate the original *Polygon* layer again, and rename this copy to "**Schakt – filter**".

Set a filter for this layer as: *"SubClass" = 'Schakt'*

Uncheck the box for the original *Polygon* layer so we only see the filtered layers. There should be no need to change the layer styling for the *Schakt – filter* layer.

You can explore the content of the layer *Arkeologiska objekt – filter* more by showing the feature count for the layer from the right-click menu from the layer. You can also right-click one of the items in the list, and *Hide All Items*, so you easily can set the visibility to the *SubClass* items you wish to see.
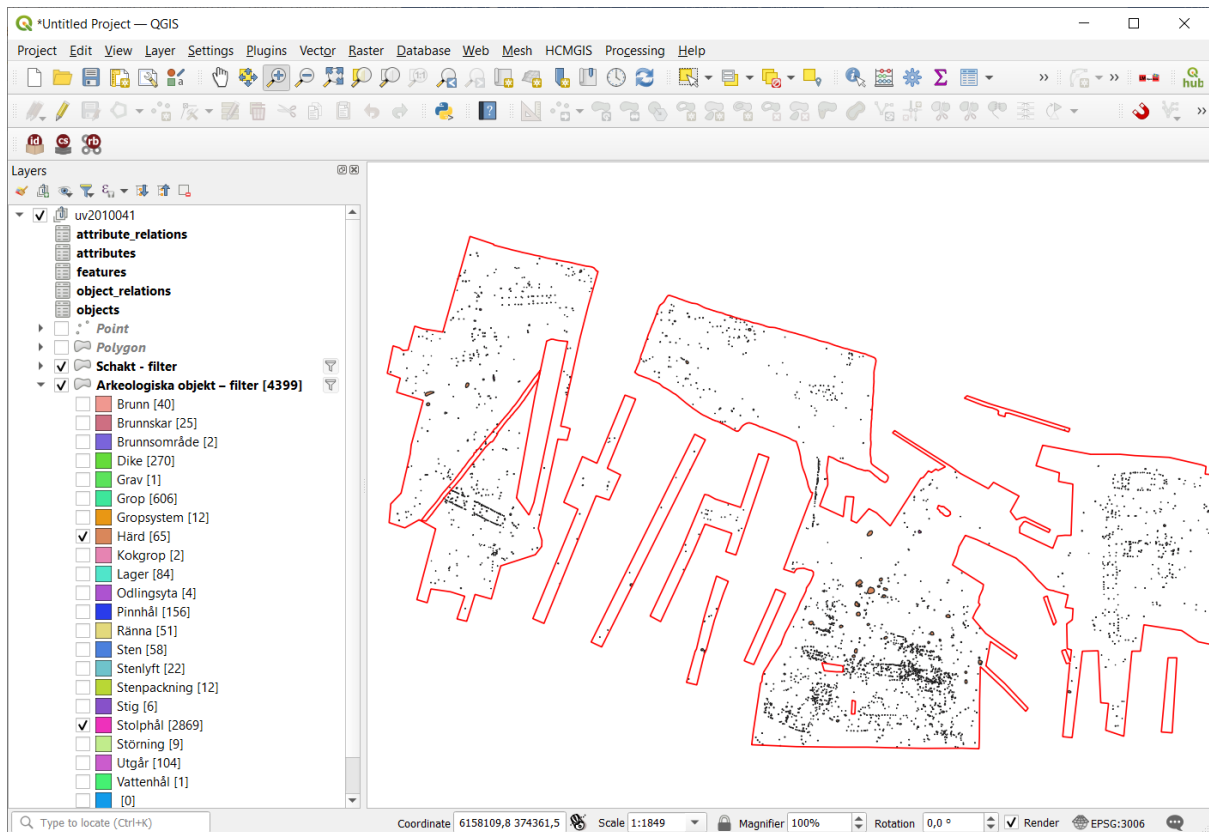
Not all objects in the database are represented by a geometry. A house, for example, can be constituted of a number of postholes that has been grouped together to an object, the house. To work with these we can use the plugin *Swedigarch Geotools*, available from the *Plugins Manager*.

In the *Swedigarch Geotools* toolbar, click the button to open the tool *Intrasis Class/SubClass Browser*.

Set *Class* (the first menu) to *Arkeologiskt objekt*, and *SubClass* (the second menu) to *Stolphus*. Click *Load table*.

This loads 22 houses with all the attributes associated to this *SubClass*. These attributes come from the table *attributes*, joined to the objects through the table *attribute_relations*.

Click *Create Layer* and close the tool.

Since none of the objects has a geometry, this only produces a table, named after the criteria used for *Class* and *SubClass*.

Open the *Attribute Table* for this table, and again use the form view. Scroll through the objects to see what information that has been recorded.
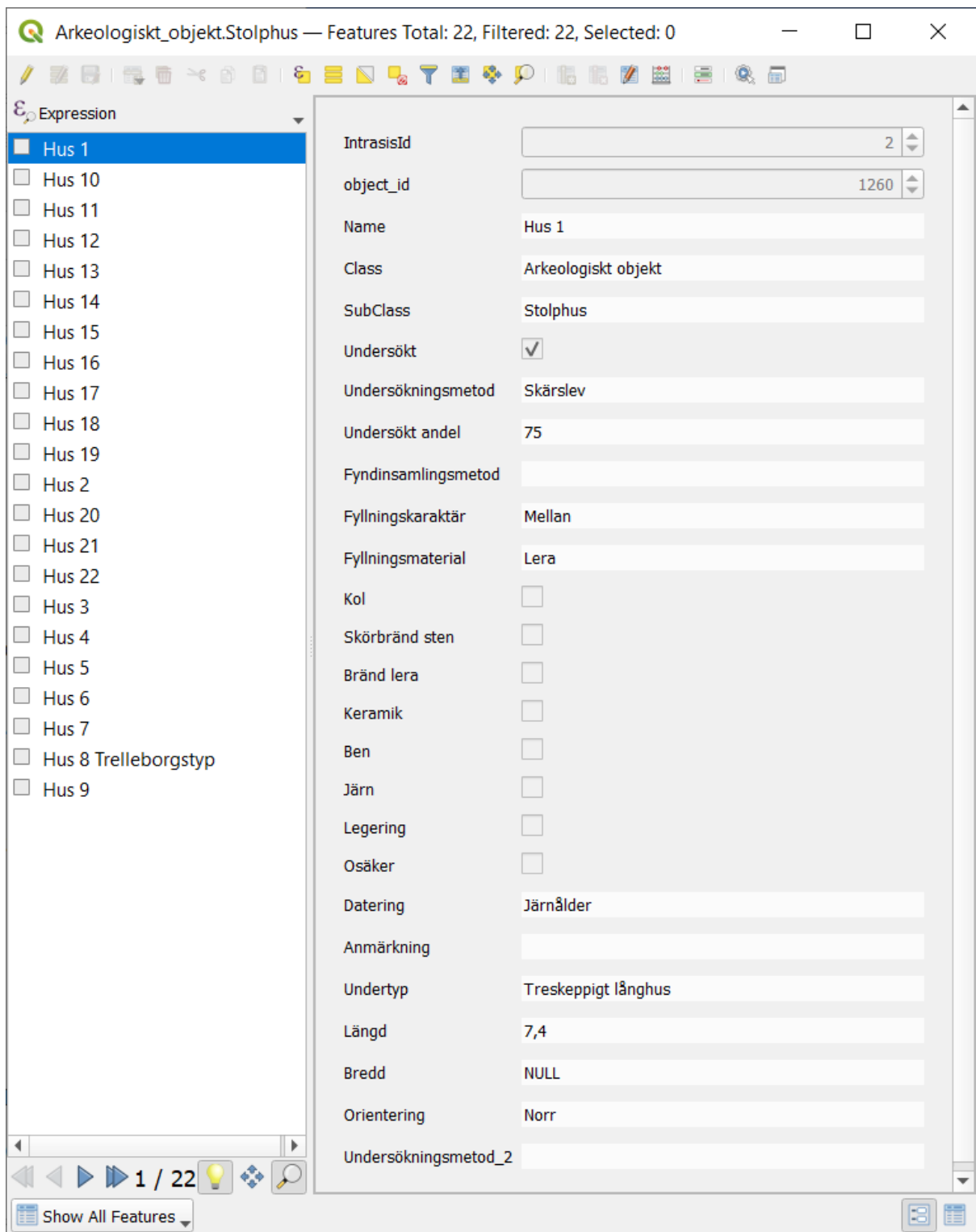
Close the *Attribute Table*.

To see the geometries associated to each house we first need to select them in the *object* table. Select this and use the tool *Select Features Through an Expression*, with the query:

"SubClass" = 'Stolphus'
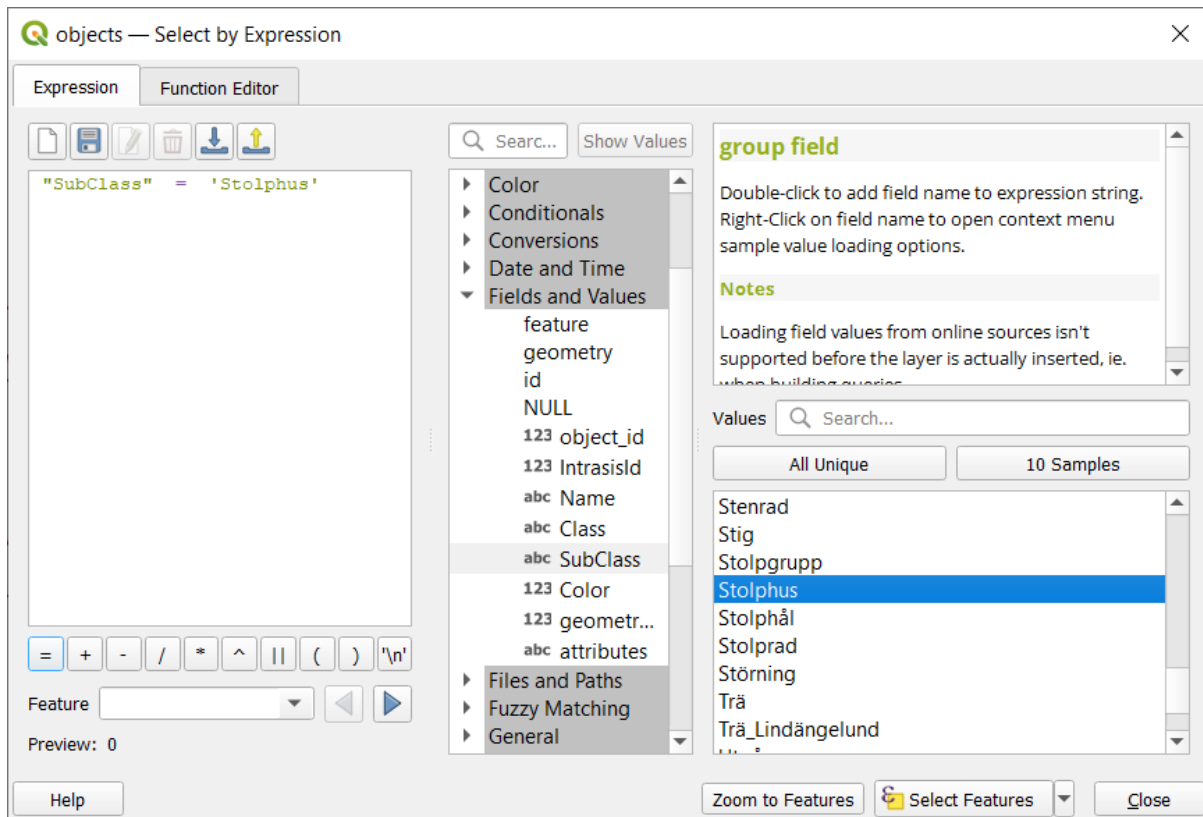
This should select 22 objects. Open the tool – *Intrasis Relationship Browser*. All selected objects are available from the menu, and browsing through these also shows their related objects; *Closest parents* and *Children*.

Hus 1 has no parents but a number of postholes and environmental samples associated as children. We can create layers of these either as flattened, hierarchical or both. To compare the differences, check both boxes and click *Create Layer from children*.

The next dialog allows you to remove nodes if you wish to limit the result. Click OK to keep all for now.

We get two new groups of layers. In the hierarchical version, we can see which object each sample (*miljöprov*) is related to. In the flattened version, all samples are merged to one point layer. This is enough for now, so remove the hierarchical group.

Zoom to the group, and make sure you can distinguish the postholes of the house to those in the layer *Arkeologiska objekt – filter* by setting appropriate styling to the layers. We can see that the points representing the samples are from the eastern row of postholes. You can also check the attribute table of the layers.
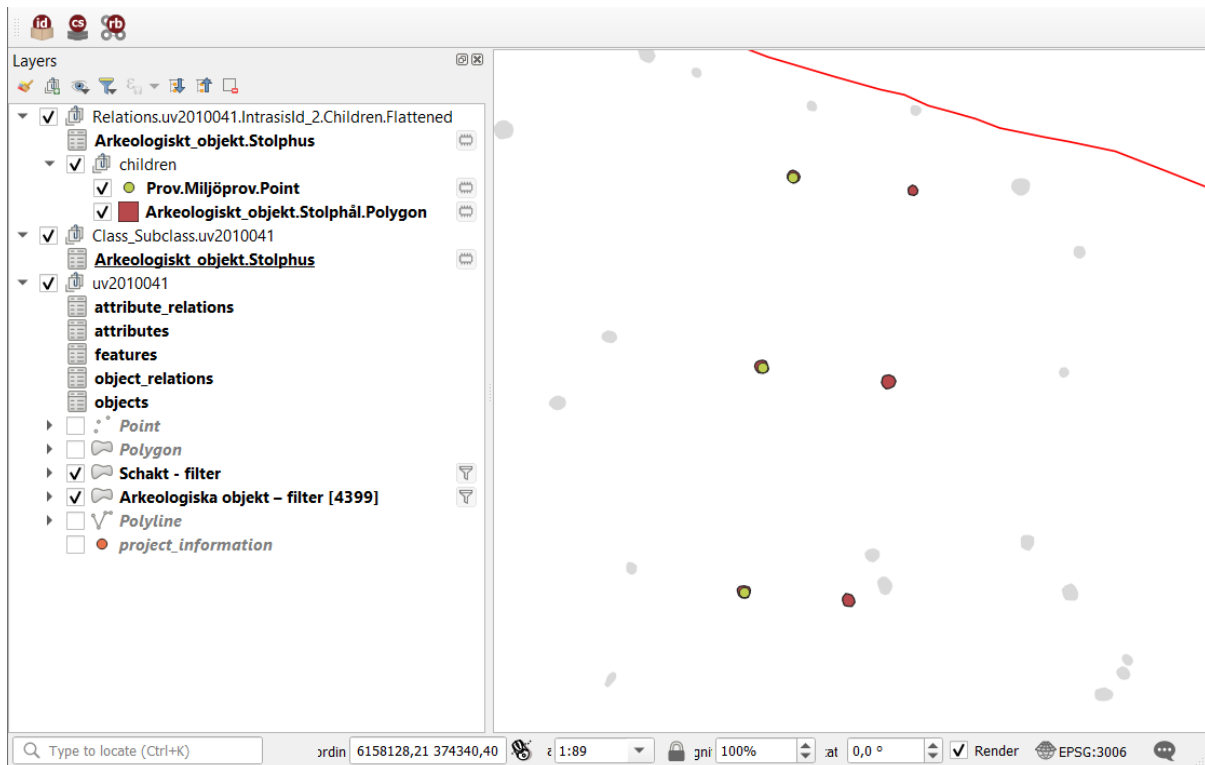
The group also has a new table *Arkeologiskt_objekt.Stolphus* for this house. Open the *Attribute Table* of *Arkeologiskt_objekt.Stolphus* that we created before. Compare these, and note that the information is slightly different. The CS tool structures the table as it was created in Intrasis, while the RB tool sorts the fields in alphabetical order. The RB tool also gives a NULL value for empty fields.

Compare the information of Hus 1 with the [excavation report](#). The first appendix (*Bilaga 1*) has information about the interpretation of the houses, and page 9 has an overview of house 1. This description is only partly the same as we have in the GIS data. It is important to note that there is only temporary interpretation (at best) in the documentation, made during the excavation phase, and this often changes during the post-excavation phase as results of analysis etc becomes available. For the final interpretation and full description, we need to refer to the published report.