Configuring QGIS plugins to create sampling points

These plugins can be used to create sampling points associated with the Apps base maps. Here we are going to show two of them. One creates regularly spaced points inside polygons e the Other creates point at drainage intersections (stream sediments)

The Plugins can be download from:

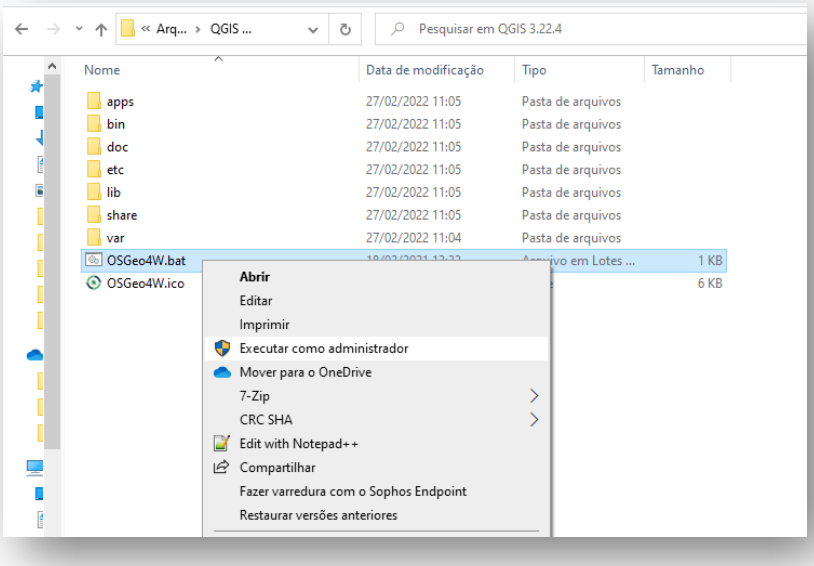
http://gdatasystems.com/gdbao/plugin.zip

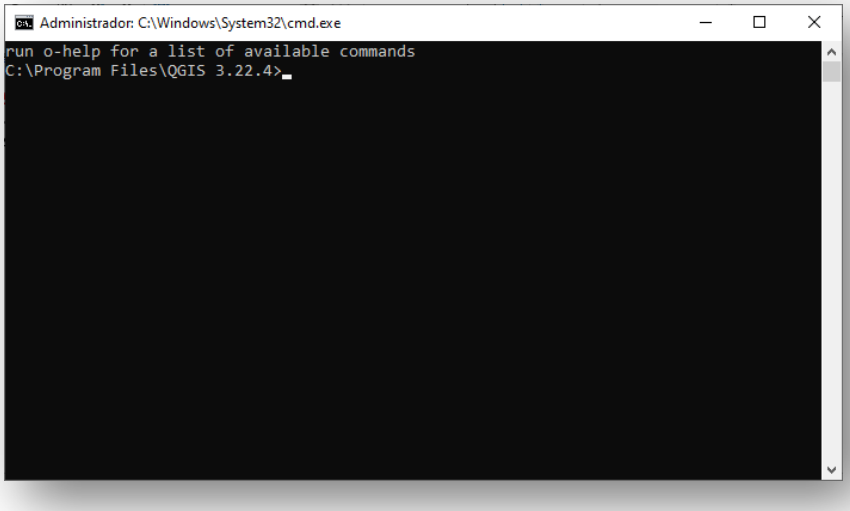
Unzip the file and install them at :

C:\Users\username\AppData\Roaming\QGIS\QGIS3\profiles\default\python\plugins

IMPORTANT – The procedure described below will be necessary to load the python libraries inside QGIS python:

1 - Execute asw4 shell as administrator (usually located at **C:\Program Files\QGIS 3.22.4)**

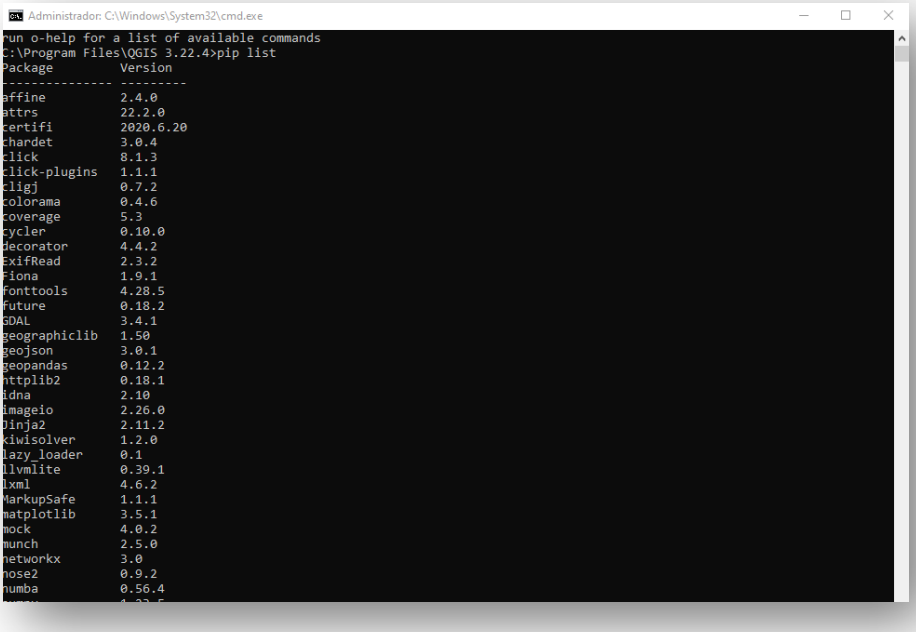




The following python libraries need to be installed:

numpy pysheds osgeo shapely fiona itertools pandas geopandas

2 – Check which library is already installed using **pip list**



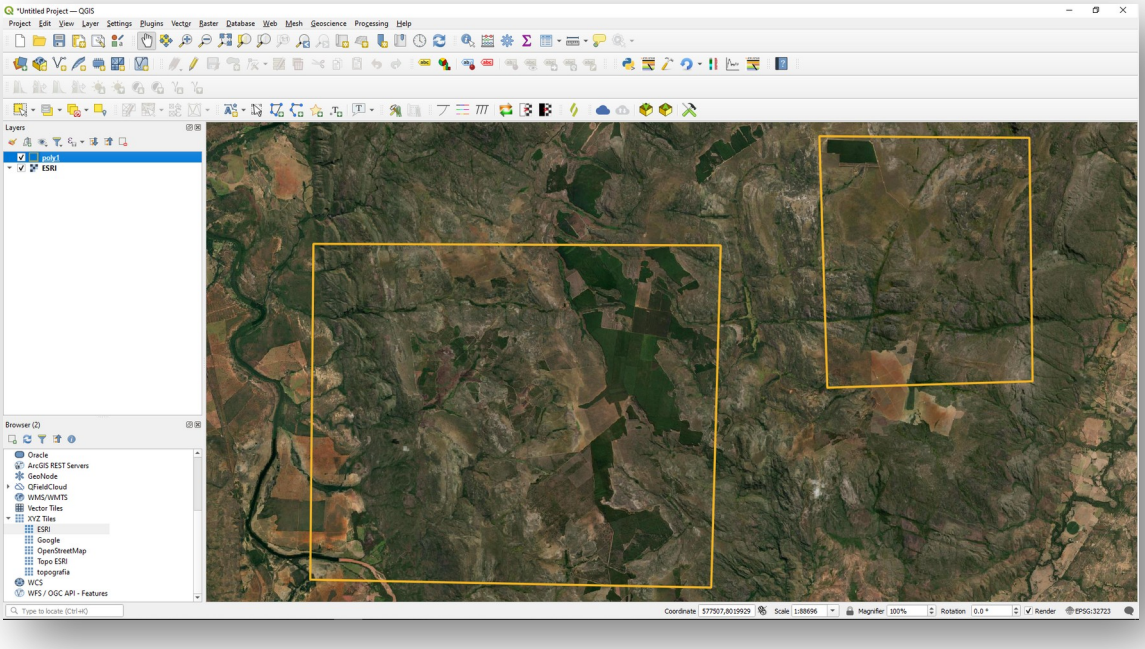
3 – If some or all libraries are not present in the list, install them using:

python -m pip install libraryName

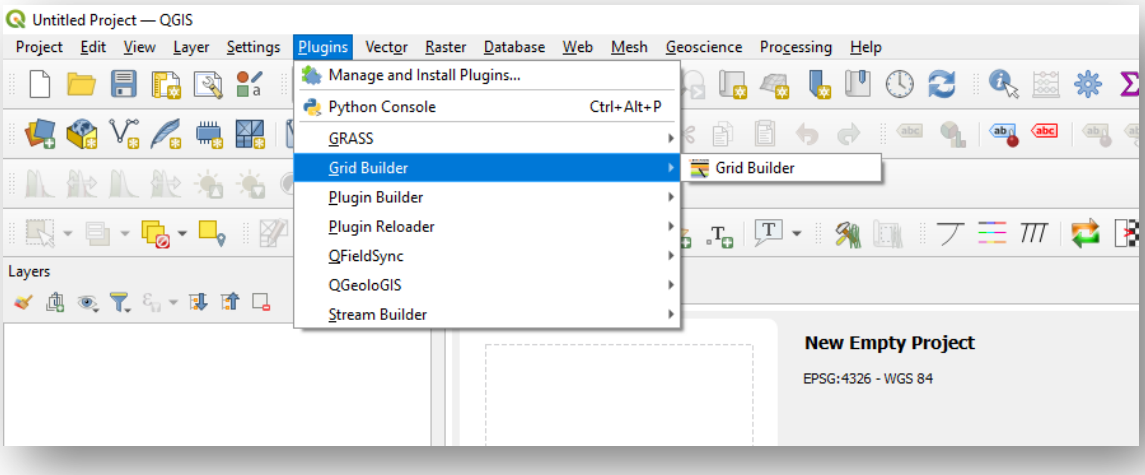
After installing the libraries needed, close the terminal, start QGIS and load the plugins using the menu **Plugins->Manage and Install Plugins**.

Points on a grid plugin

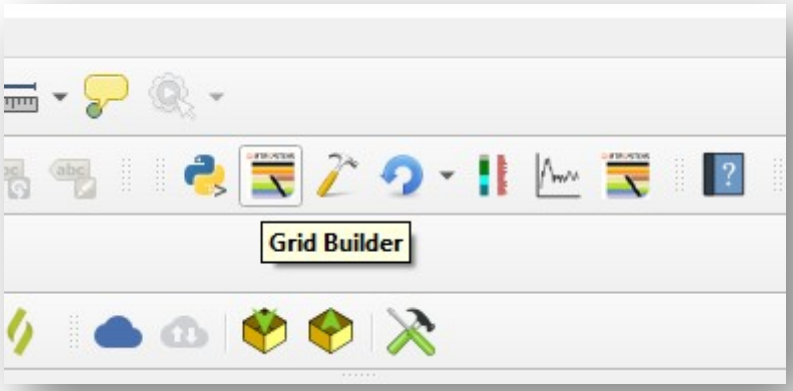
To begin with, open or create a polygon shapefile where we are going to populate with the point of the predefined grid using the coordinate system of your project in **UTM** WGS84 and no Z value.



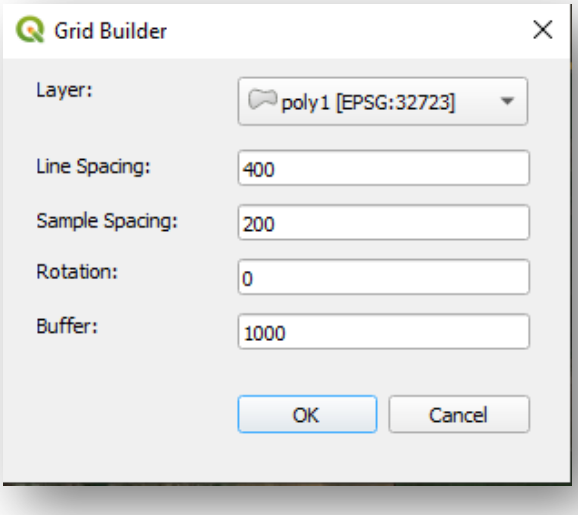
This plugin will assist you in creating a regularly spaced grid of points that can be used for soil sampling, mapping, and auger drilling. After enabling the plugin, start it up from the Plugin menu.



Or directly from the toolbar:

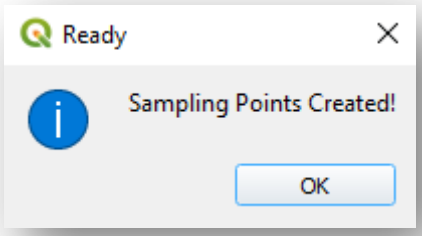


The following dialog will appear:

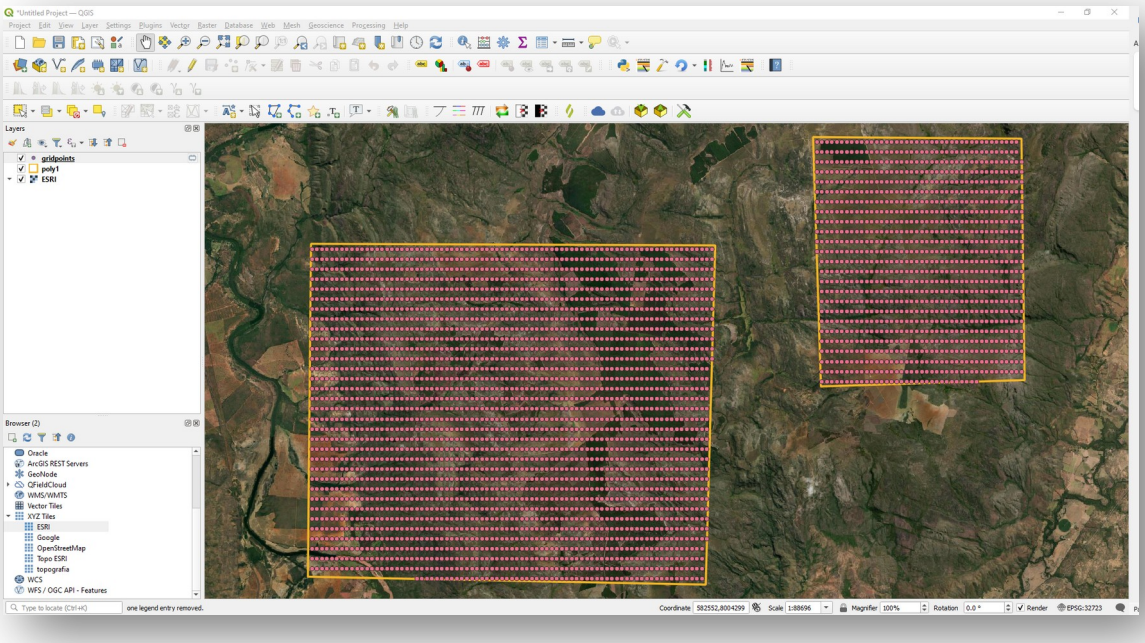


- Select the polygon layer that will be filled with the grid points,
- Select the line spacing,
- Select the sampling spacing,
- Select the grid rotation (degrees clockwise)
- Set a buffer dimension in metres (for irregular polygons)

The message bellow will appear once you execute the plugin:



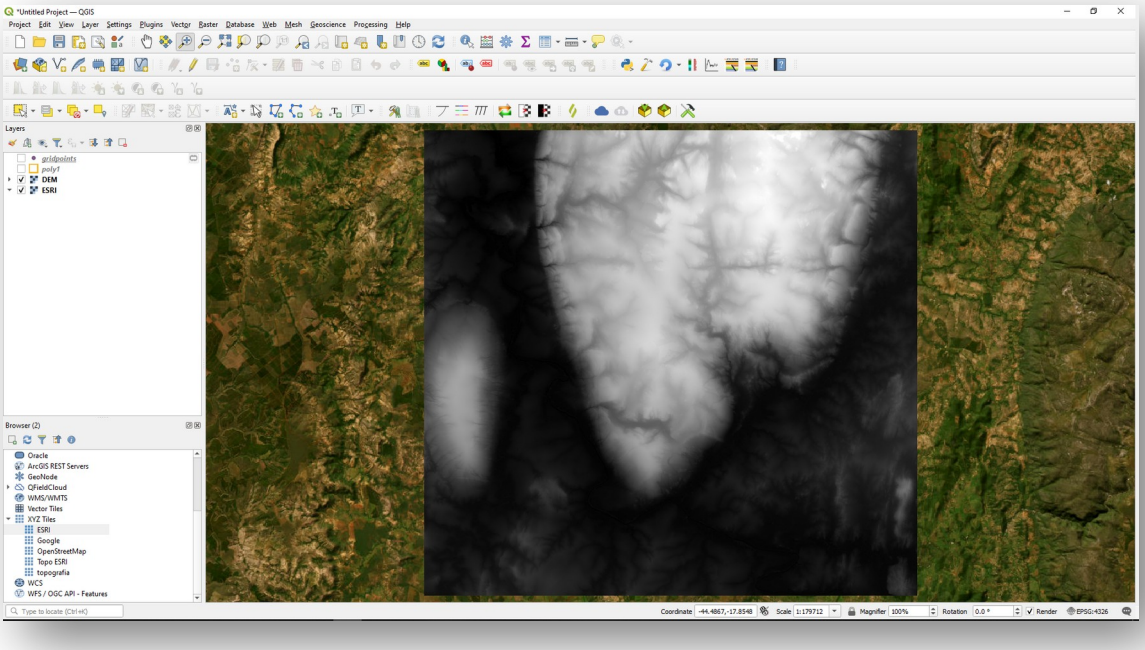
A temporary point shapefile called **gridpoints** is created containing the sampling points.



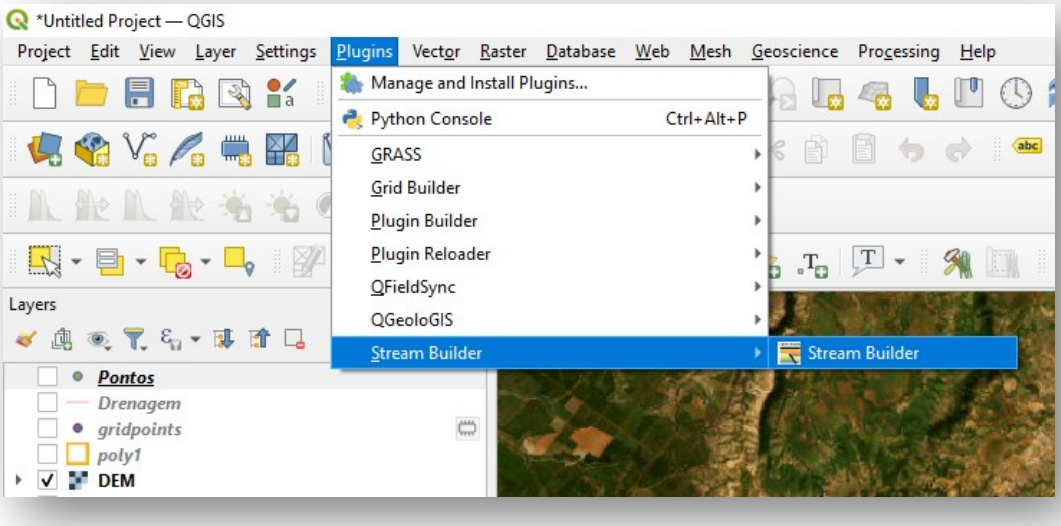
This file will used during the creation of base maps that will integrate the apps.

Creating stream sediment sampling points

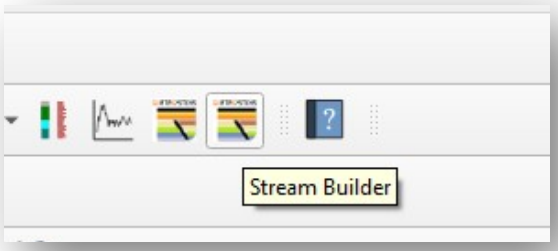
To extract drainage junction points for stream sediment sampling a DEM in WGS84 Lat-Long covering the Project area will be necessary.



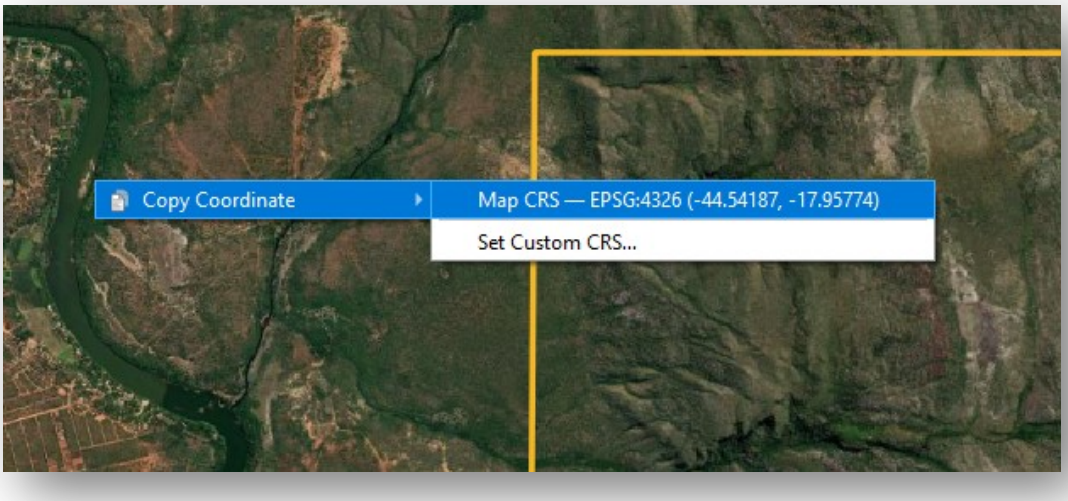
This plugin will assist you in creating sampling points at any drainage junction that will assist you during the stream sediment sampling process. Start it up from the Plugin menu.



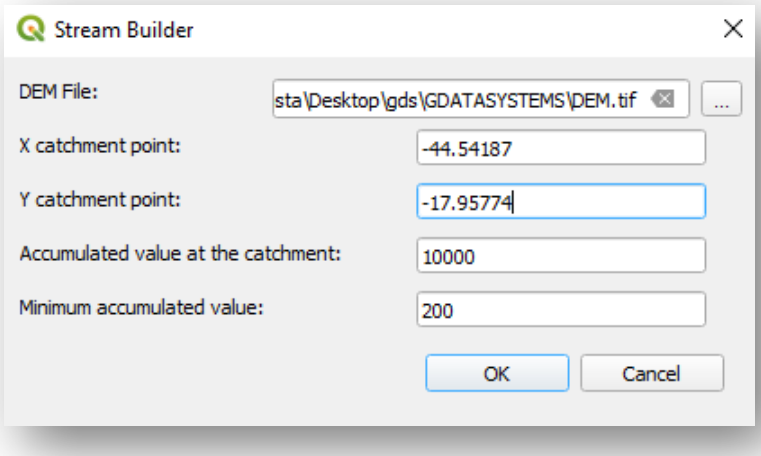
Or directly from the toolbar:



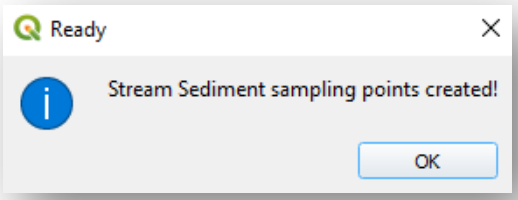
To start the processing a final catchment point must be selected and should trace back to the entire Project area. Sometimes this catchment point is outside the Project area. Just right click the image to get the catchment point coordinates (it must be lat-long format).



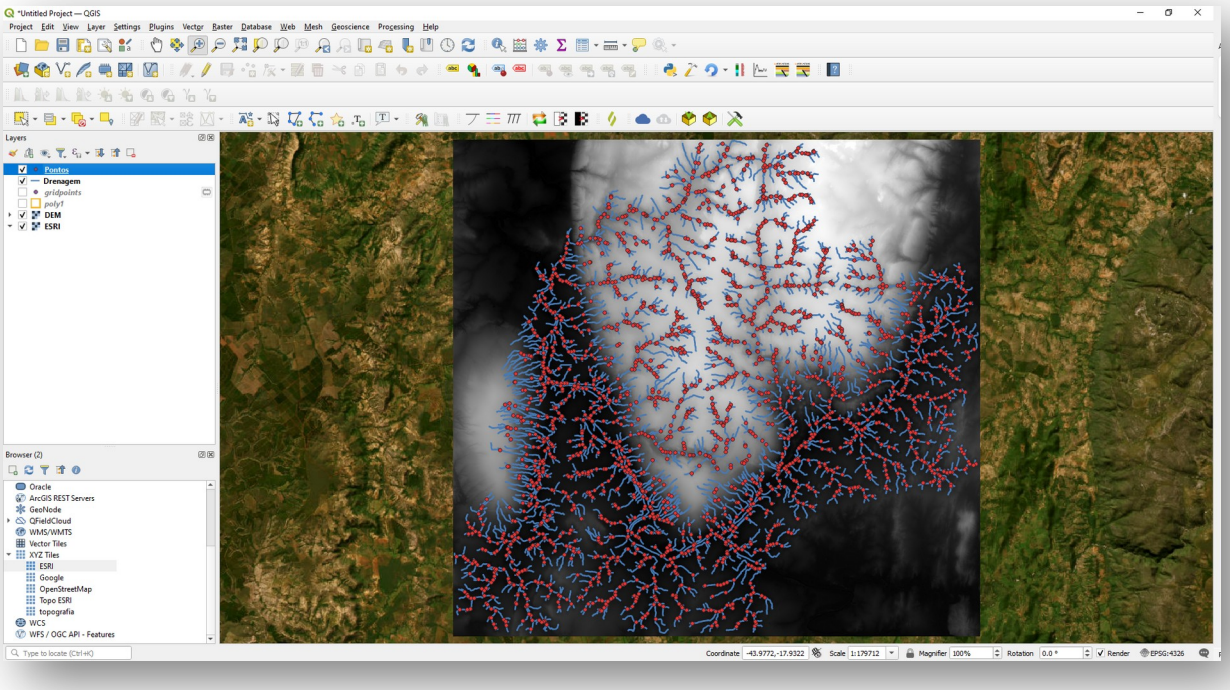
Run the plugin using the parameters necessary: catchment point coordinates and maximum value at the catchment and minimal value.



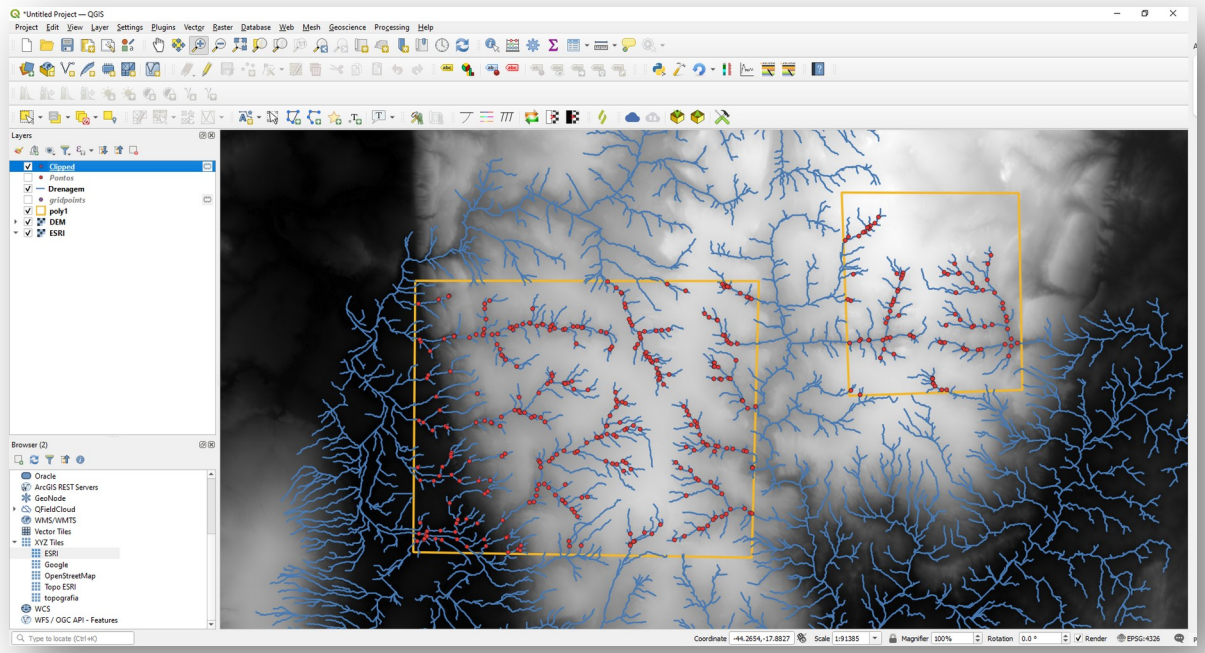
After executing the plugin, the following message will appear:



The result will be the drainage system interpreted by pyShed and the drainage junction points.



The resulting sampling points can be clipped using the project polygon if necessary. You can do this using **Vector→Geoprocessing Tools→Clip...** menu item.



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Several other plugins can be developed to facilitate and organize the data that will integrate the GDataSystems. These are simply some examples of how they can be used.