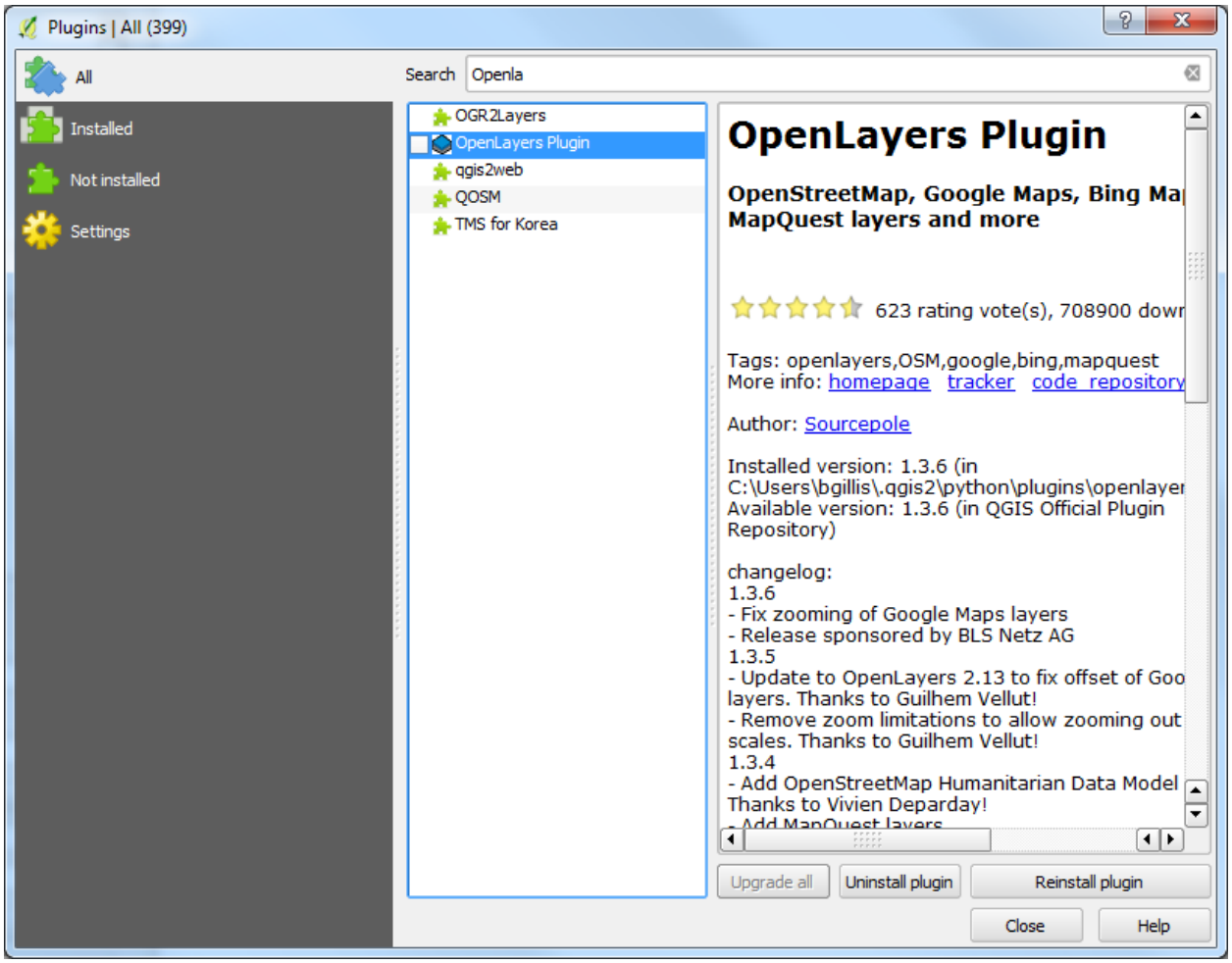
# QGIS Georectification Guide

## Introduction:

This guide will demonstrate how to associate a scanned map with its location in the real world, using QGIS. The output will be a GeoTiff file that stores the image, the coordinates of the area it occupies and the orientation.

### 1. Adding a Basemap to QGIS

a. If the "OpenLayers" plugin isn't installed already select Plugins > Manage and Install Plugins. Search for OpenLayers and install it.

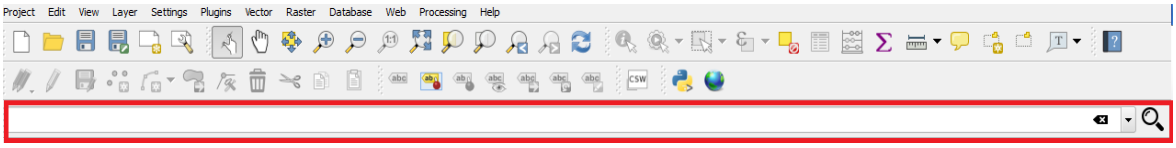



b. Once the plugin is installed select Web > OpenLayers plugin > OpenStreetMaps > OpenStreetMaps.

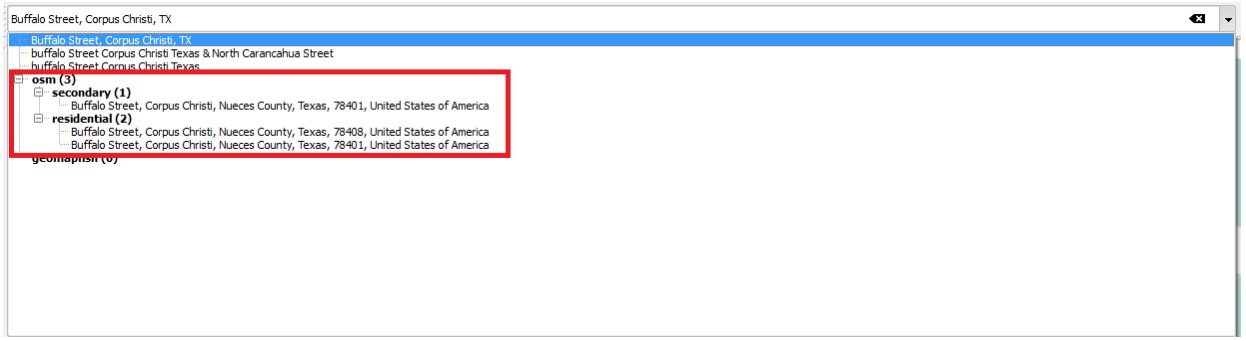
## 2. Navigating to Area Depicted in Map to be Rectified

a. If the "Quick Finder" plugin isn't already installed follow the same method as used to install OpenLayers in step 1 to download it.

b. Once installed a search bar should be visible somewhere on the toolbar.




c. In this search bar type the name of one of the streets or the place of interest depicted in the map to be rectified. Hit Enter. A dropdown menu should appear with the results that matched the search. Select an option under the "osm" header that best matches what you are looking for.




d. When you click on one of the options in the drop down menu above the area will be highlighted and the QGIS view window will zoom into that area.

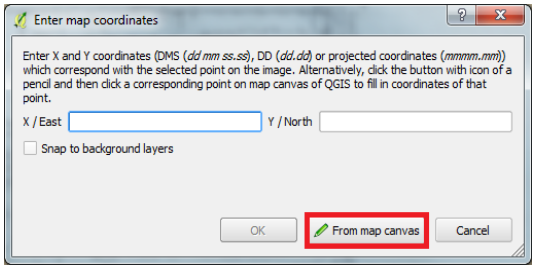
e. After you have found this area, some manual tracing of the street until you find the intersection depicted in the map to be rectified is found may be necessary. Once you have found the correct location you are ready to georeferenced the scanned map.

## 3. Georectification

a. Select Raster > Georeferencer > Georeferencer. This will open up the Georeferencer Window.

b. From the Georeferencer window select File > Open Raster. Navigate to the map to be rectified and select it. The scanned map should now be visible in the viewer of the Georeferencer window.

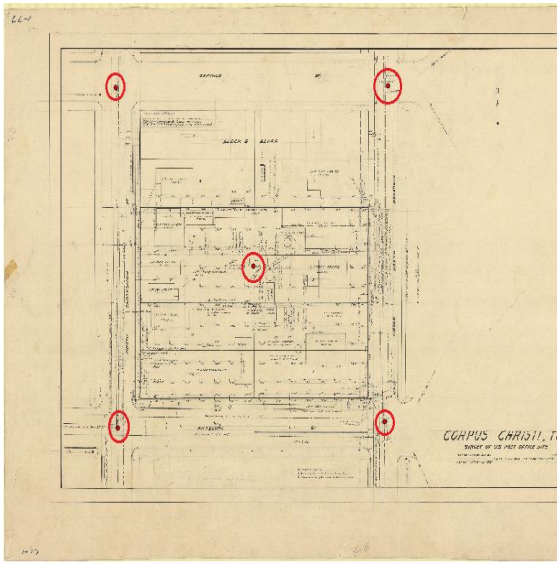
c. Select the "Add Point" option from the toolbar(highlighted in red below). Your cursor should now be a crosshair.

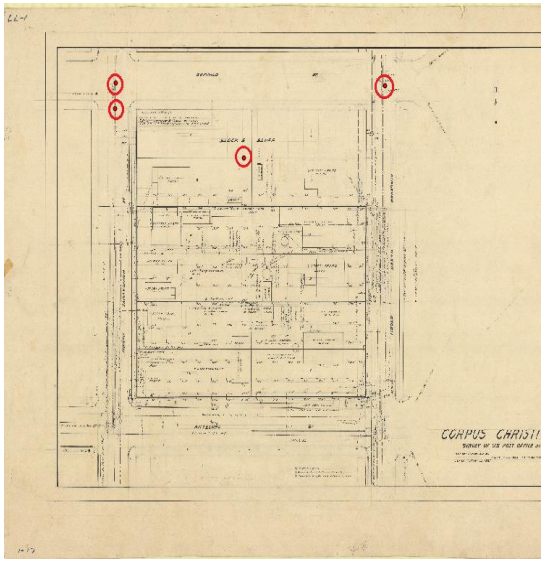

d. Using the crosshair select a point on the scanned map that can be referenced to the Open Street Maps depiction of it ( usually an intersection, or the middle of a block). Once you have selected a point this box should appear. →

e. Choose the “From map canvas” button (highlighted in red above) . This will close the Georeferencer window and display the QGIS view window. Using the crosshair select the location that corresponds to the location you selected on the scanned map. Once you’ve selected a point the Georeferencer window will be reopened. Select the “OK” option. You’ve just georeferenced a point of our scanned map.

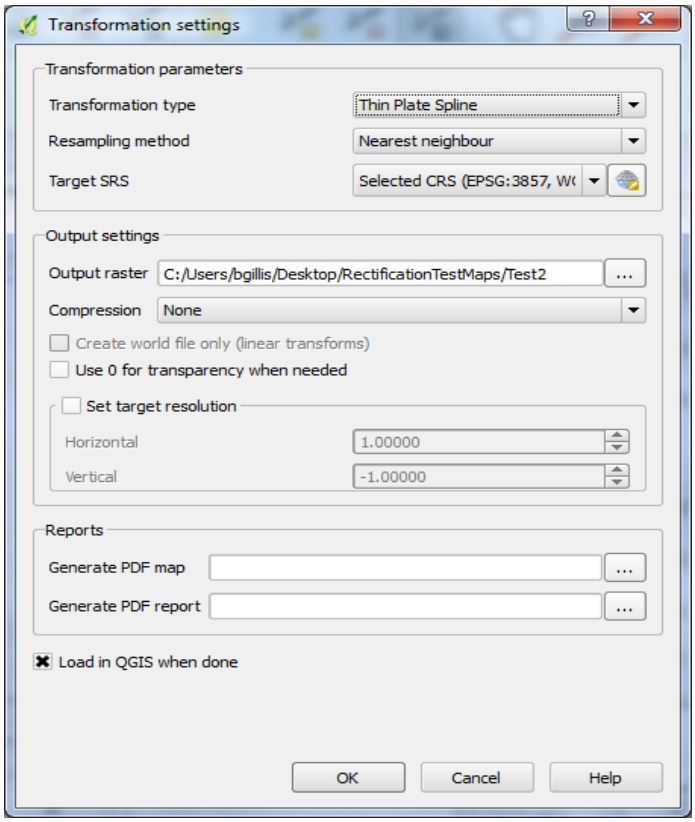
f. Repeat steps c, d, and e until you have an acceptable distribution of georeferenced points on the map.



Good Distribution



Bad Distribution




g. Before we warp our map, in the Georeferencer window select Settings > Transformation Settings. The image below shows how the setting should be configured. The "Target SRS" should be set as "WGS 84 Pseudo Mercator". In the "Output Raster" box select wherever it is you want to save the output to. The output file type should be set to a GeoTiff.

h. Once you have all the settings correct hit "OK" and then select File > Start Georeferencing.

i. If you selected the "Load in QGIS when done" option in the transformation setting then your freshly georeferenced image should be visible in your layers panel. If it isn't already, make it visible in the viewer by checking the box next to its name.

j. Analyze the correctness of the rectification by observing if things line up where they're supposed to and checking for unnatural distortion.

k. You can change the transparency of layers by right clicking them in the layers panel and selecting properties. In the "Transparency" Section there is a slider titled "Global Transparency" use this.

## 4. Proceeding to the Next Map

a. After you have verified the validity of the georeferencing job, in the Georeferencing window select File > Reset Georeferencer. Now you can load another scanned map into the Georeferencer and begin again.

b. There is no need to remove the basemap or install any of the plugins more than once.

c. Repeat until you're tired of rectifying