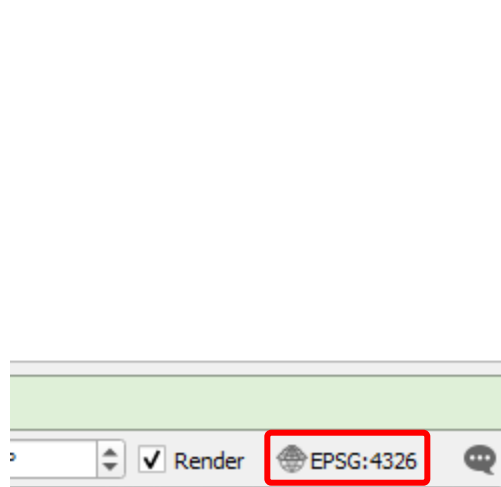


# CNHEAT: GENERATING FIXED BROADBAND AVAILABILITY LOCATION LISTS

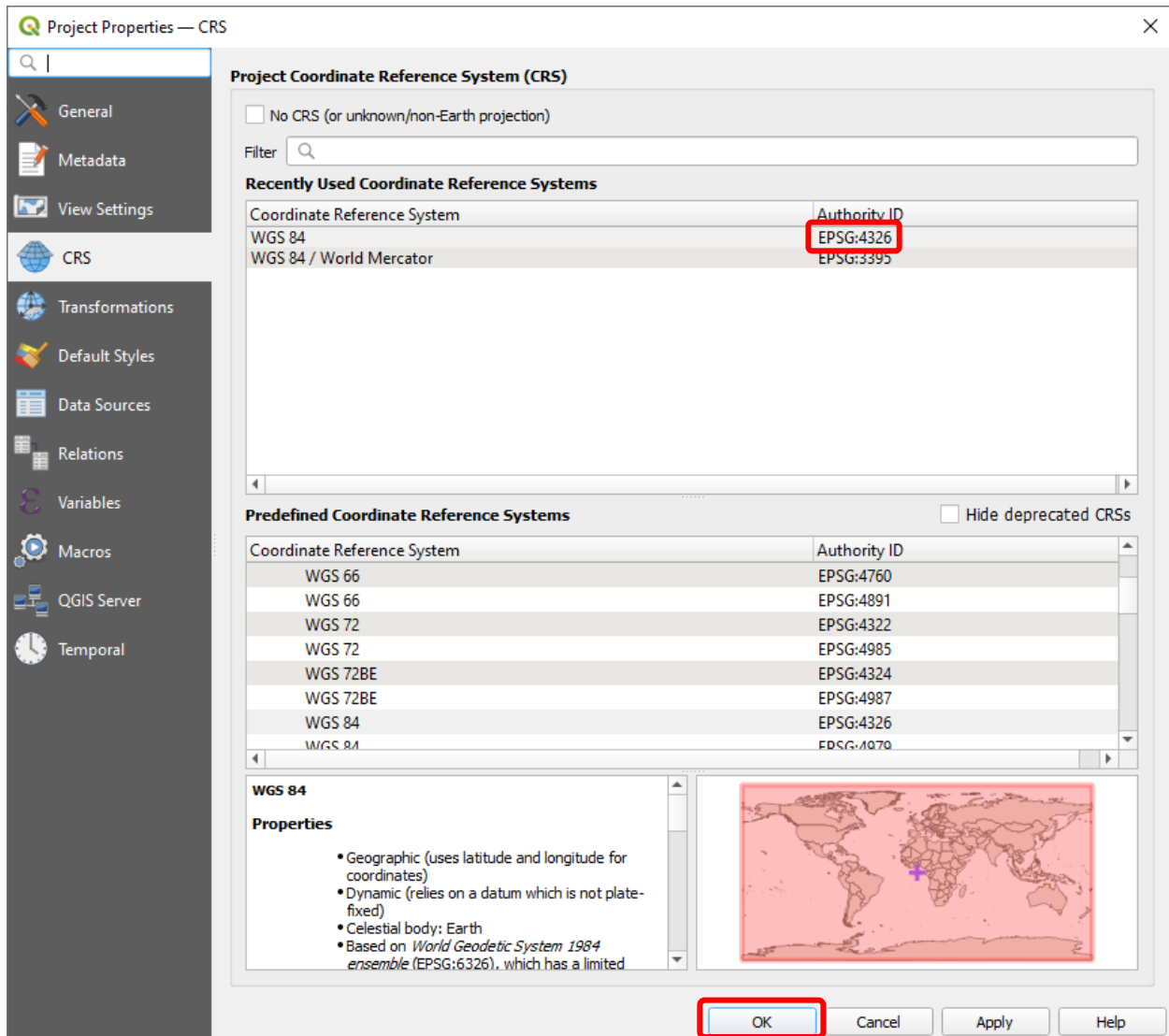
USING QGIS TO EXTRACT COSTQUEST LOCATIONS FROM COVERAGE POLYGONS

## SETTING UP QGIS

- Open QGIS. (For this walkthrough we are using QGIS 3.26.1.)
- Confirm that your Coordinate Reference System (CRS) is to EPSG:4326.
- Click the CRS in the bottom-right of the screen.



- Select EPSG:4326 and click OK



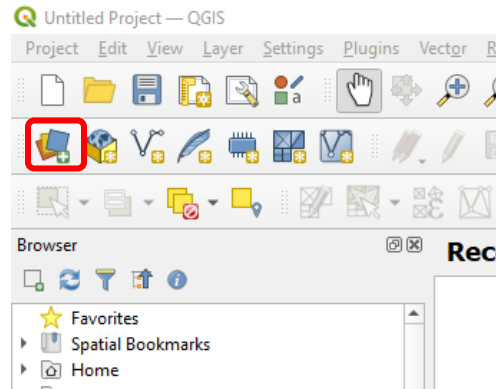
## LOADING THE DATA

Note: cnHeat has four steps under the Export > Coverage (477/BDC) feature. After going through all **four** steps a download of the final merged result will be available. Unzipping this file will present a .gpkg file of polygon coverage that can be used in this process. (Note: Do not use the .gpkg generated from Step 3. It is provided for reference and may be incomplete for this task.)

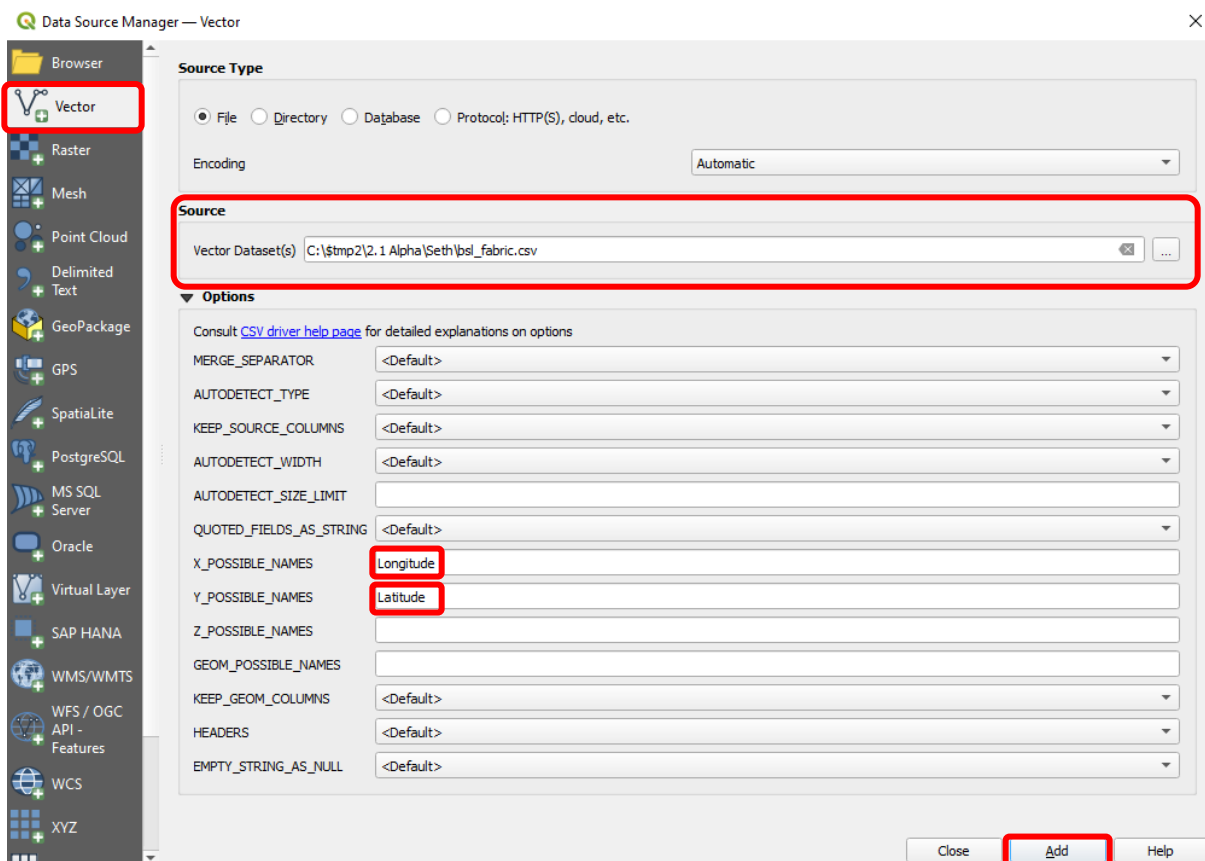
## LOAD THE COSTQUEST SERVICEABLE BROADBAND LOCATION FABRIC DATA

*Warning: If the CostQuest data has any rows with BSL\_Flag set to "False" then remove these records before proceeding. The BDC portal will reject these entries.*

- Open the Data Source Manager with either Ctrl+L or by clicking this icon in the toolbar.

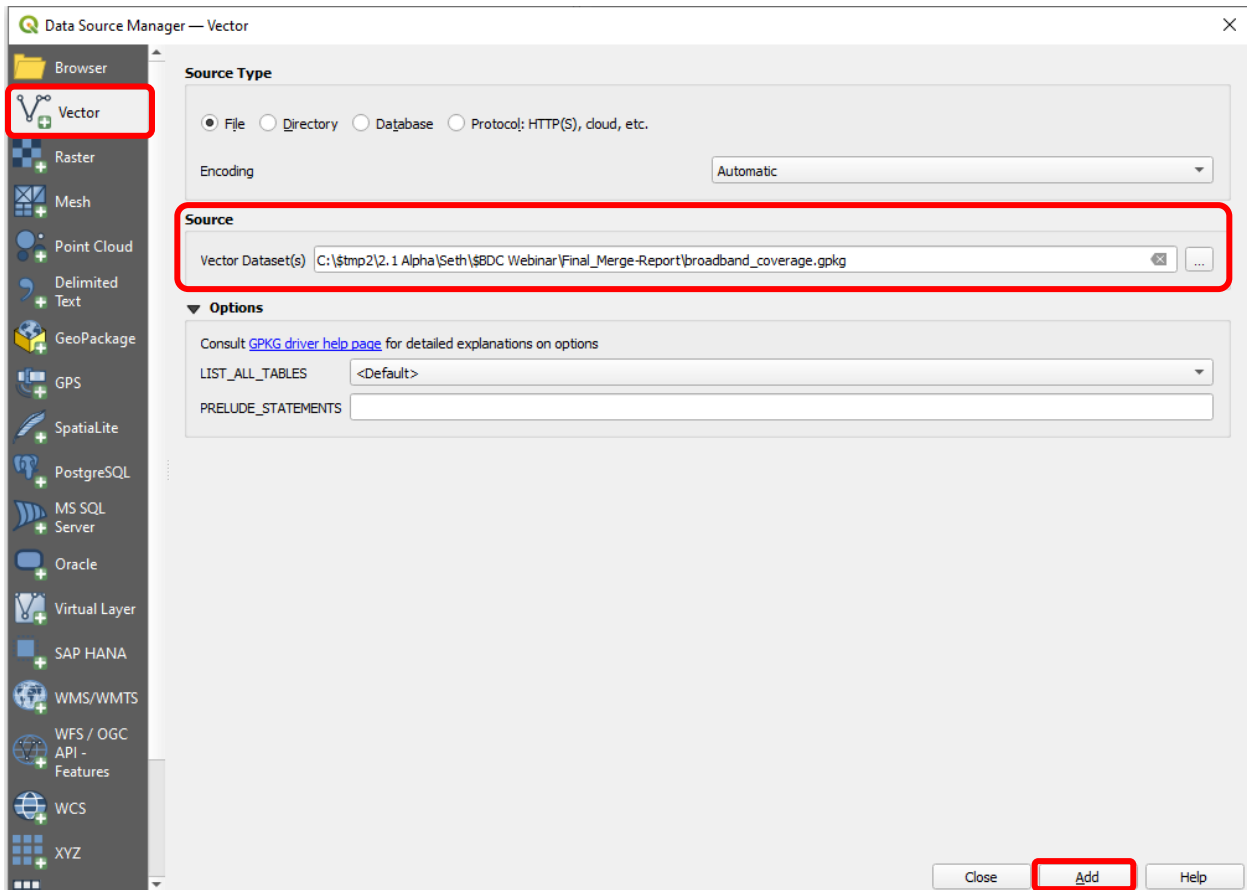


- Make sure "Vector" is selected from the left and load the locations received from CostQuest.
- Enter "Longitude" and "Latitude" as the names of your X and Y columns as shown below.
- Click Add.

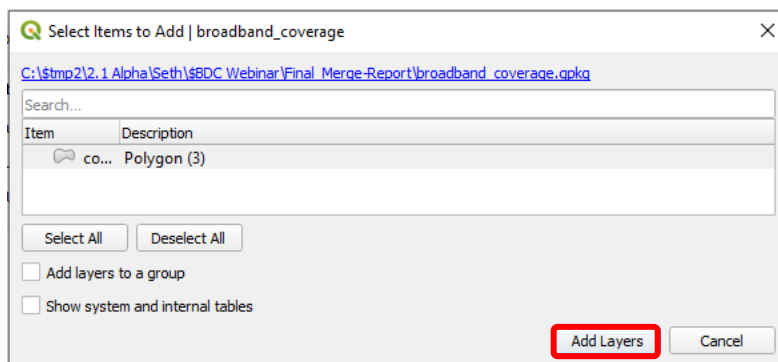


## LOAD THE CNHEAT BDC COVERAGE EXPORT

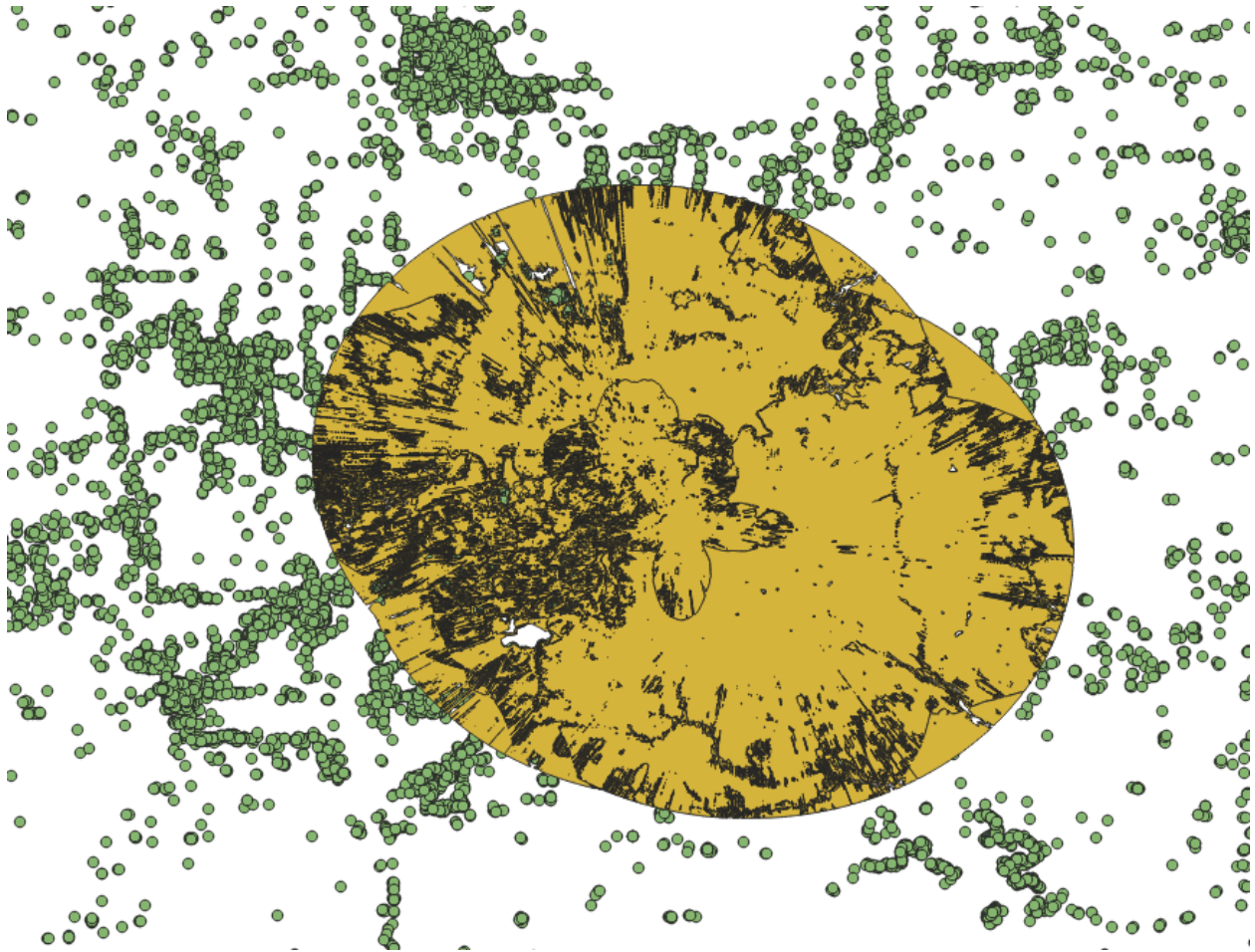
- Make sure “Vector” is selected from the left and load the .gpkg file from the zip file downloaded in Step 4 of the cnHeat Coverage Export tool.
- Click Add.



- Click Add Layers.



Results should look something like this.

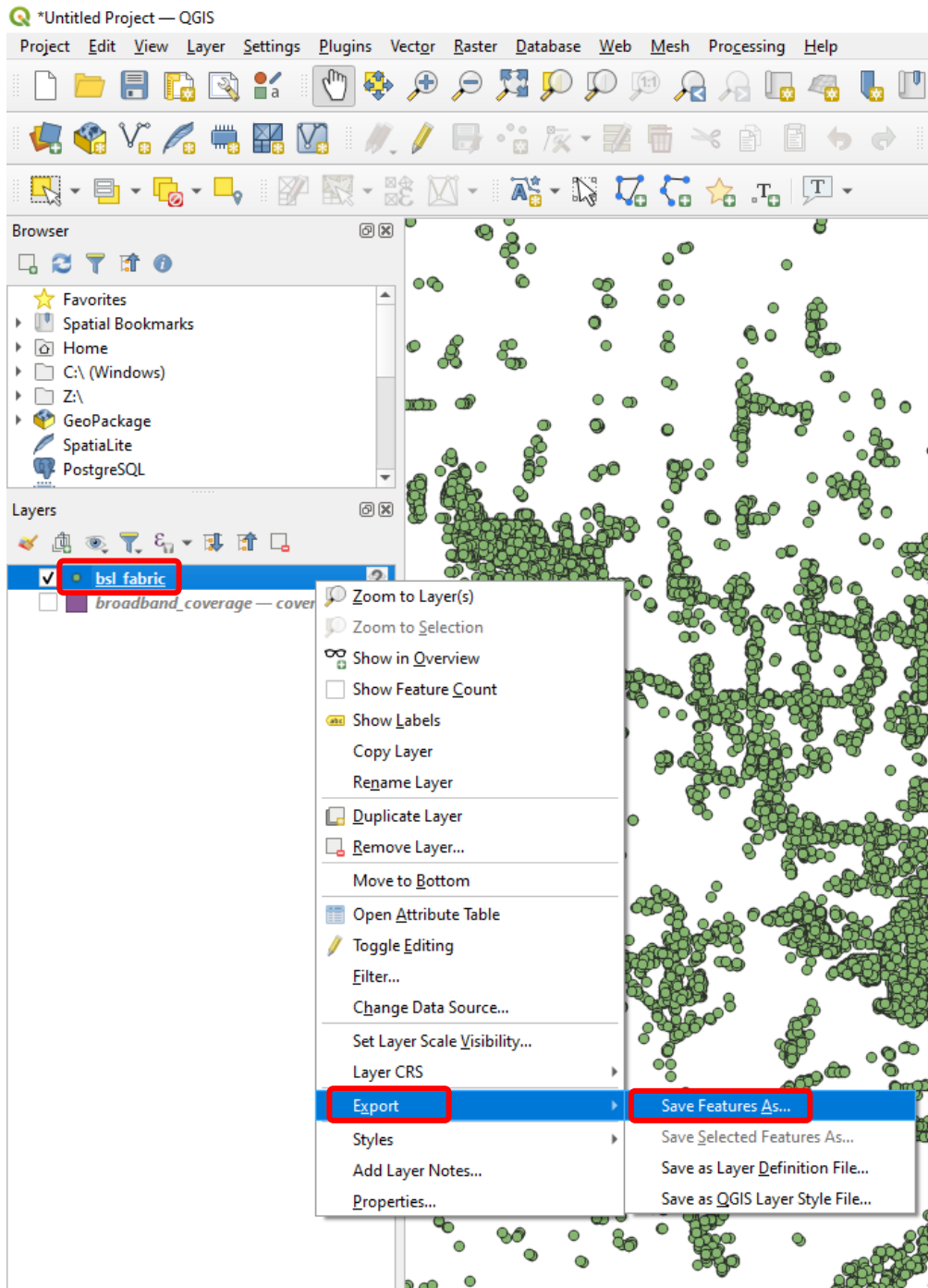


#### CREATING A SPATIAL INDEX (OPTIONAL)

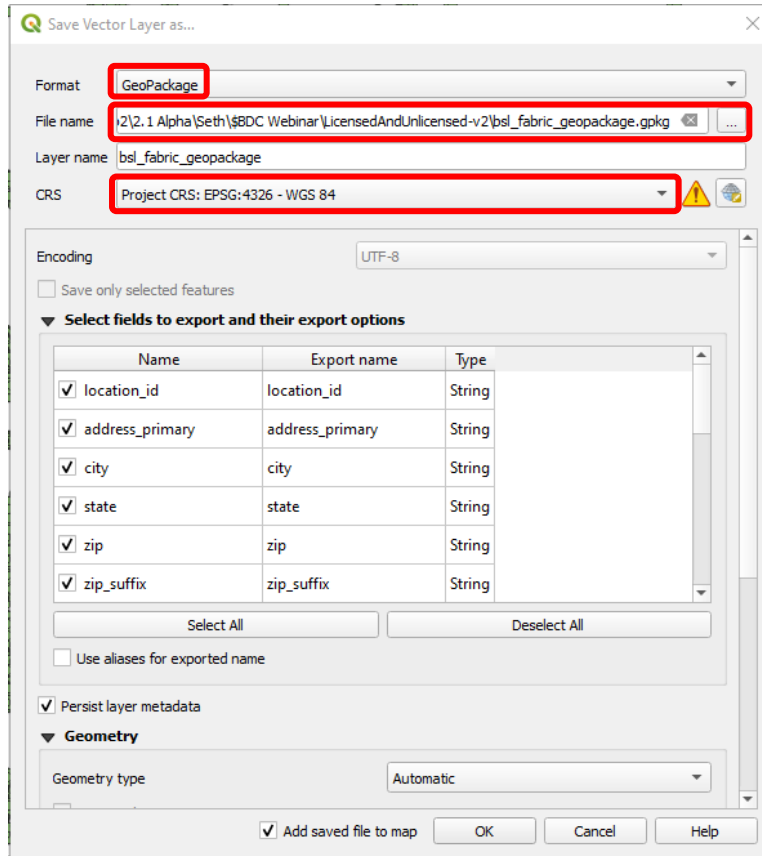
For very large datasets it may be necessary to create a spatial index for both the CostQuest Location data and the cnHeat Polygon Coverage export.

QGIS does not support generating a Spatial Index of .csv files so the CostQuest data will need to be saved as a .gpkg first and loaded into the tool.

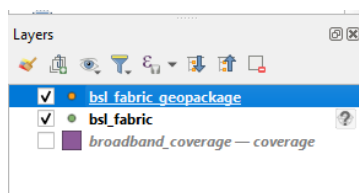
- To save as a .gpkg, right-click the Location row in the list of Layers. Select Export > Save Features As...



- Select 'GeoPackage' for Format. Provide a filename and set the CRS to EPSG:4326. Then click OK.

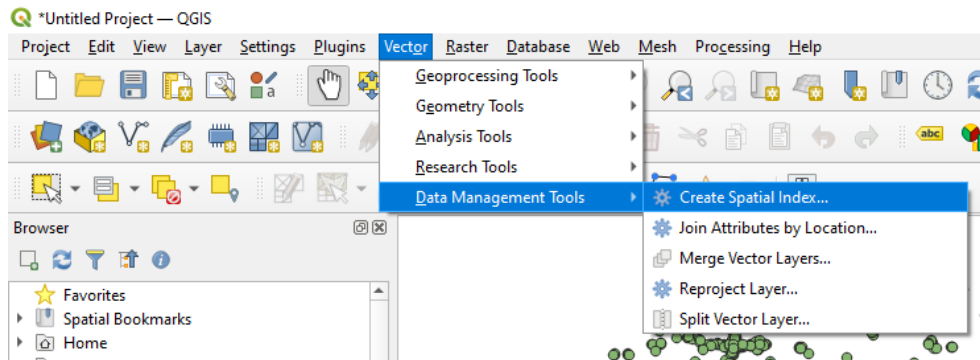


- The new layer will be loaded and the original layer can be removed by right-clicking the layer and choosing "Remove Layer".

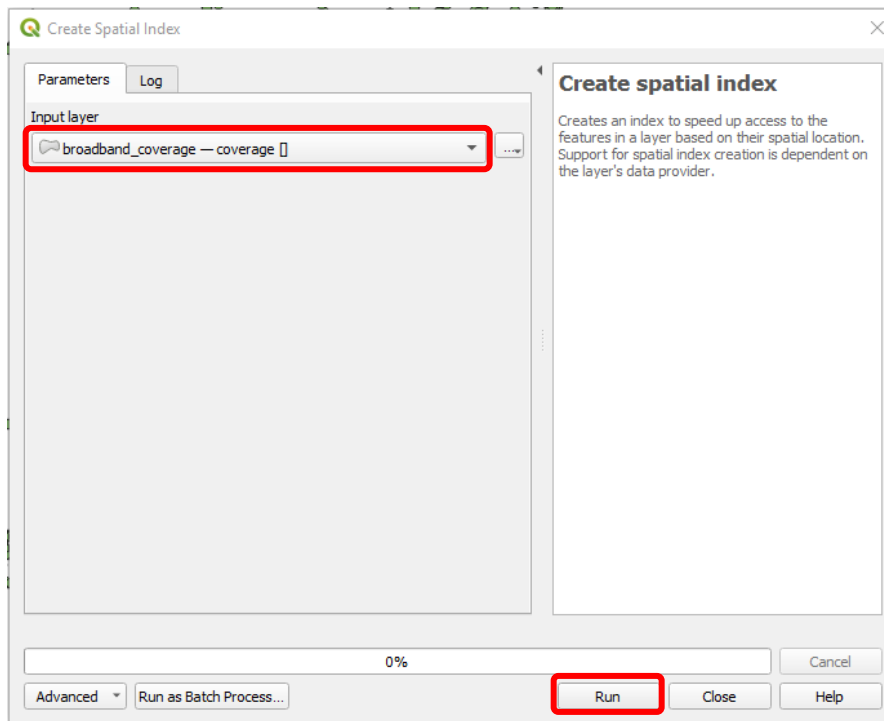


Create a Spatial Index to improve performance for the next step.

- Select Vector > Data Management Tools > Create Spatial Index... from the menu at the top.



- Select the cnHeat Polygon layer as the input and click “Run”.



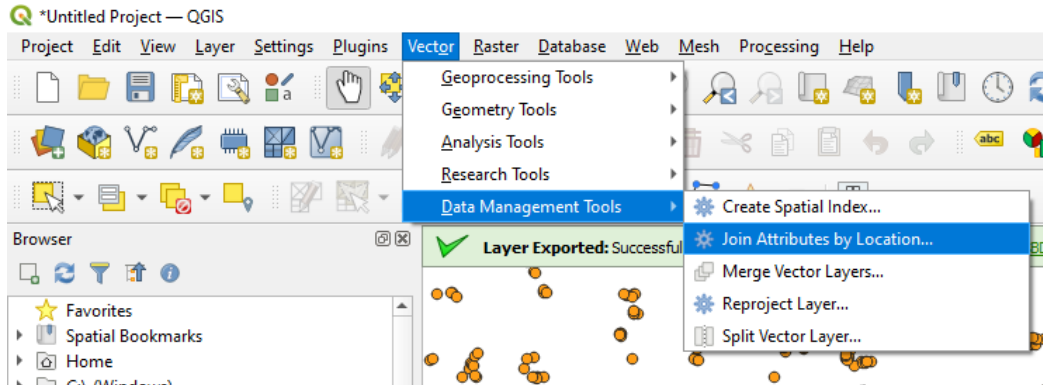
- Now select the CostQuest Locations layer as the input and click “Run” to create a spatial index for that layer as well.
- Once it is complete, click “Close”.



## SEARCH LOCATIONS WITHIN COVERAGE

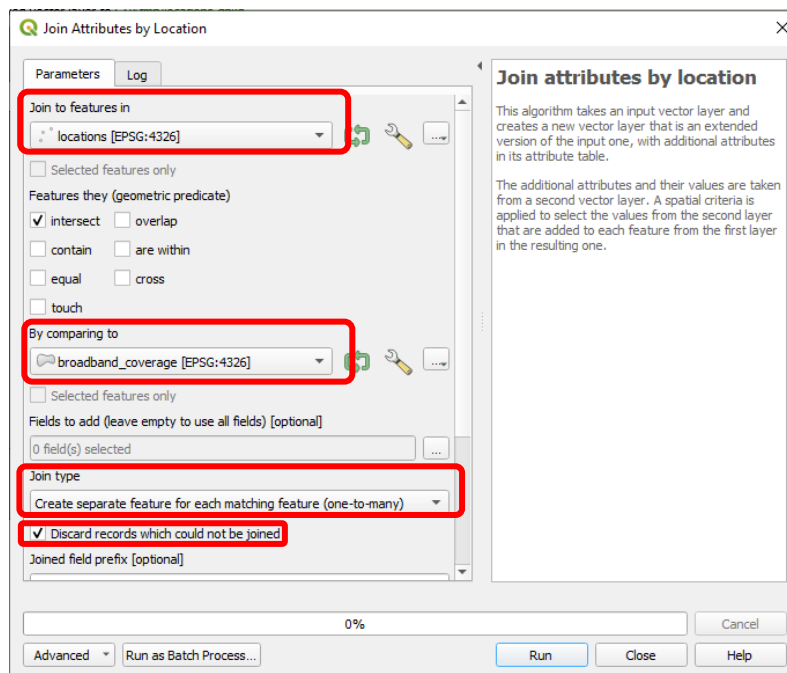
Run an intersection to identify all locations within coverage.

- From the toolbar select Vector > Data Management Tools > Join Attributes by Location...

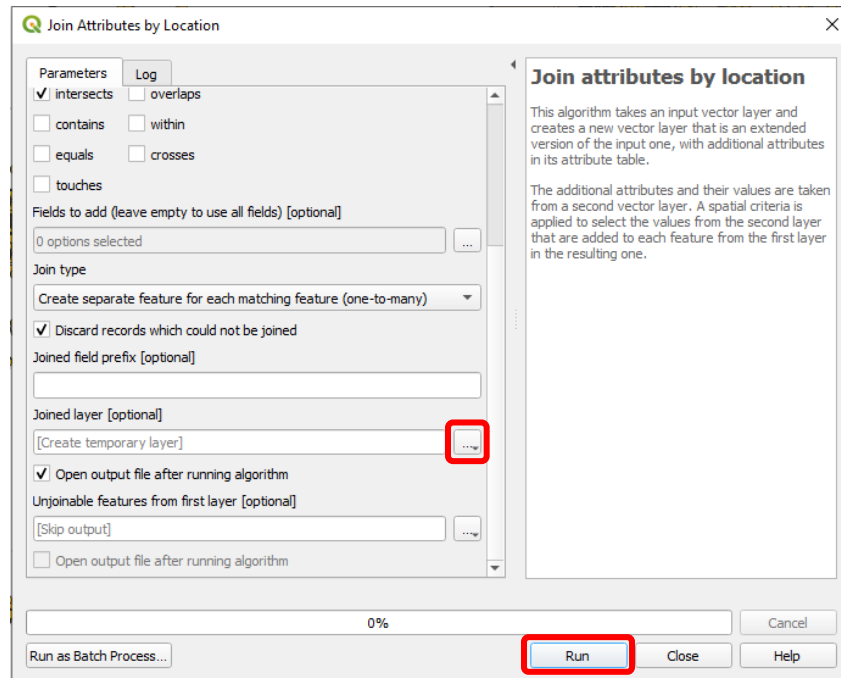


- Select the CostQuest Locations layer as the “Join to features in” field and the cnHeat Polygon coverage as the “By comparing to” field.
- For Join type ensure that “Create separate feature for each matching feature (one-to-many)” is selected.
- Check the “Discard records which could not be joined” option.

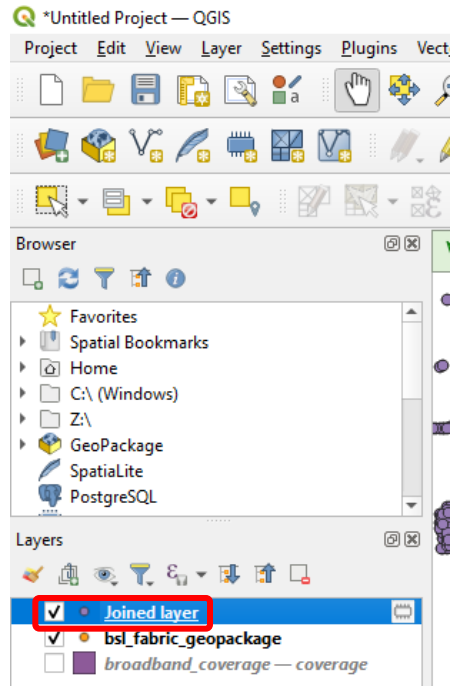
*(Scroll down for additional options.)*



- Click the 3 dots next to “Joined layer [optional]” and select “Create Temporary Layer”.
- Then click “Run”.

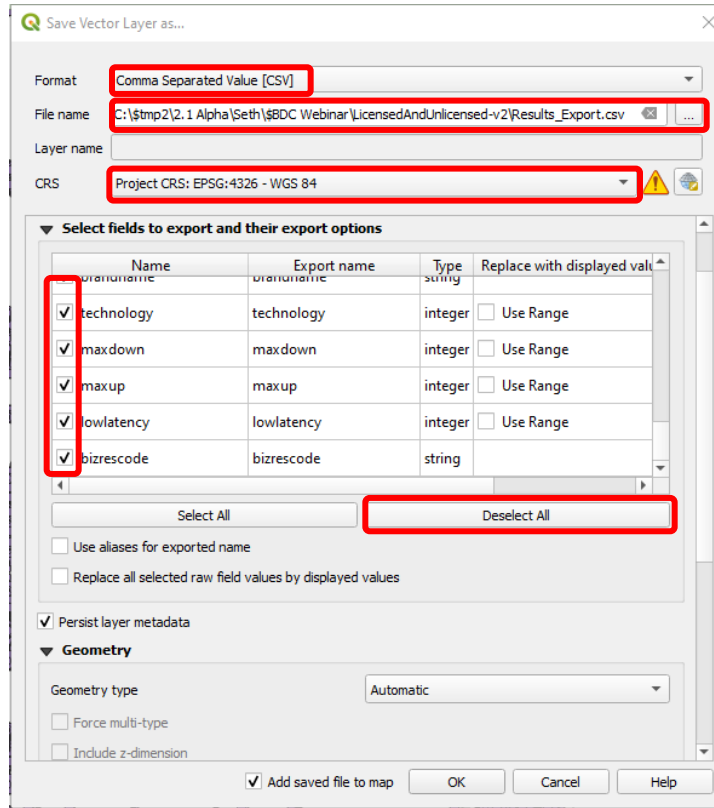


- Once the process is finished running click the “Close” button to close the “Join Attributes by Location” dialog box. The results will be shown on the left in Layers as “Joined layer”.



## EXPORT RESULTS TO .CSV

- Right-click the newly created “Joined layer” and select Export > Save Features As...
- Select ‘Comma Separated Value [CSV]’ for Format. Provide a filename and set the CRS to EPSG:4326.
- Next ‘Deselect All’ fields from the table with the ‘Deselect All’ fields button.
- Scroll through the list and checkmark only the following fields:
  - location\_id
  - providerid
  - brandname
  - technology
  - maxdown
  - maxup
  - lowlatency
  - bizrescode



- Then click "OK".