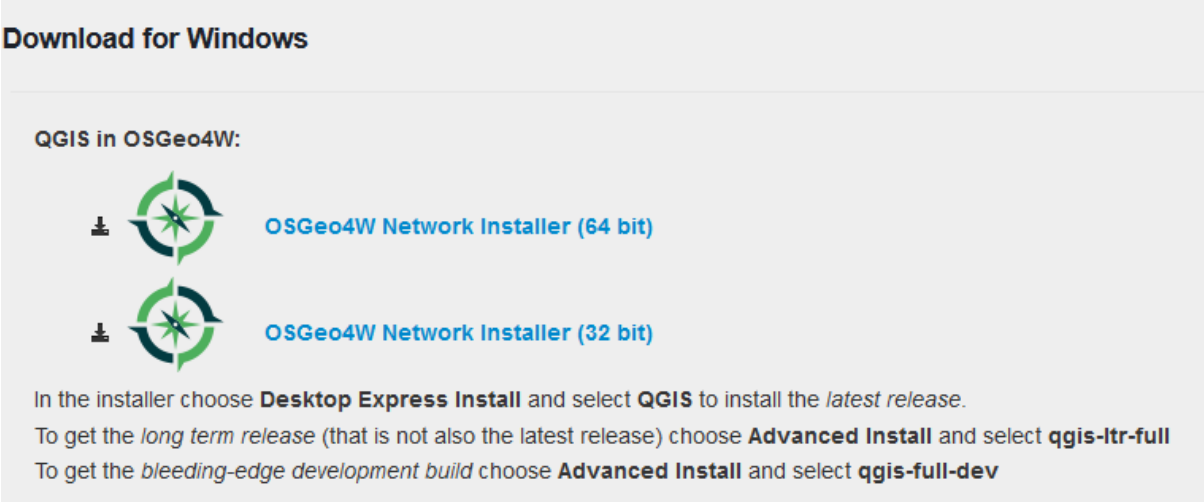
To install QGIS:

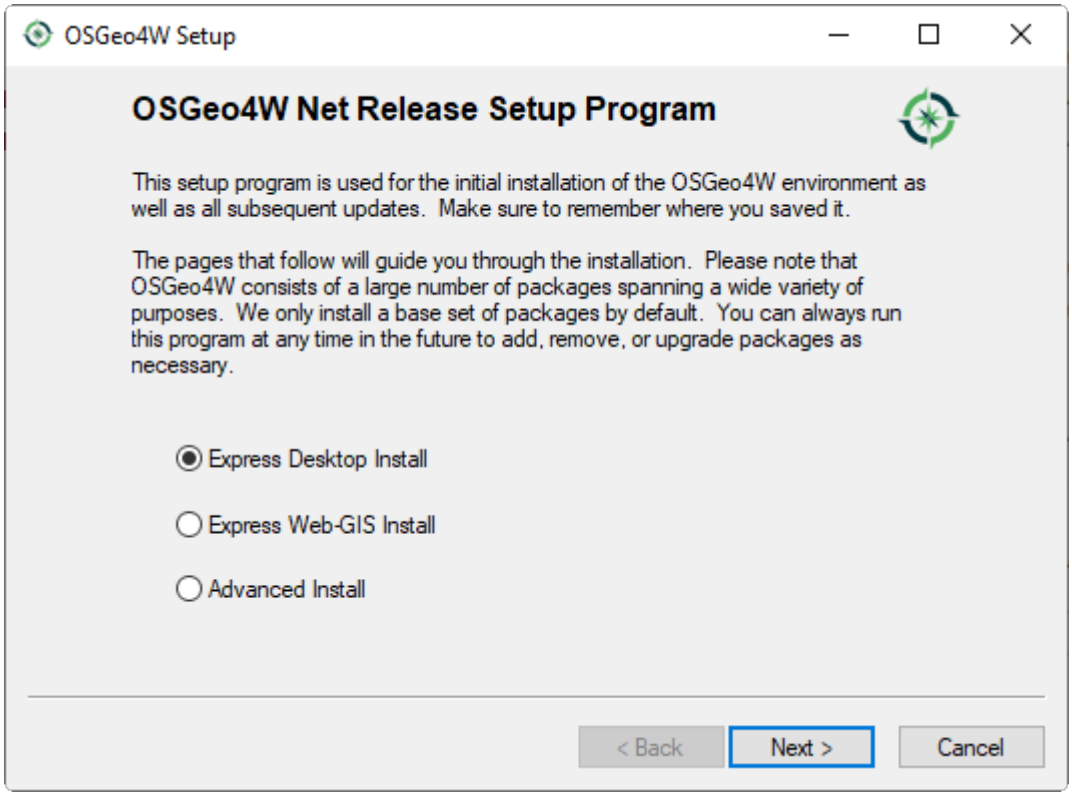
Go to https://qgis.org/en/site/forusers/download.html

For Windows

Select the OSGeo4W network installer, save and run the exe file.

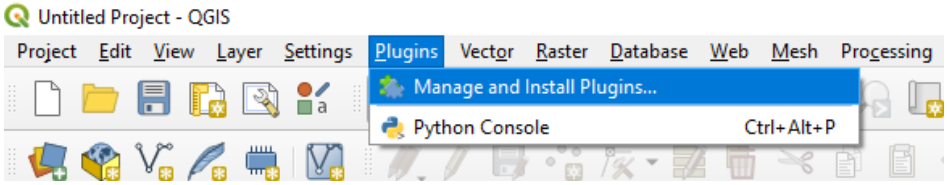
Choose Desktop Express Install option to install QGIS.



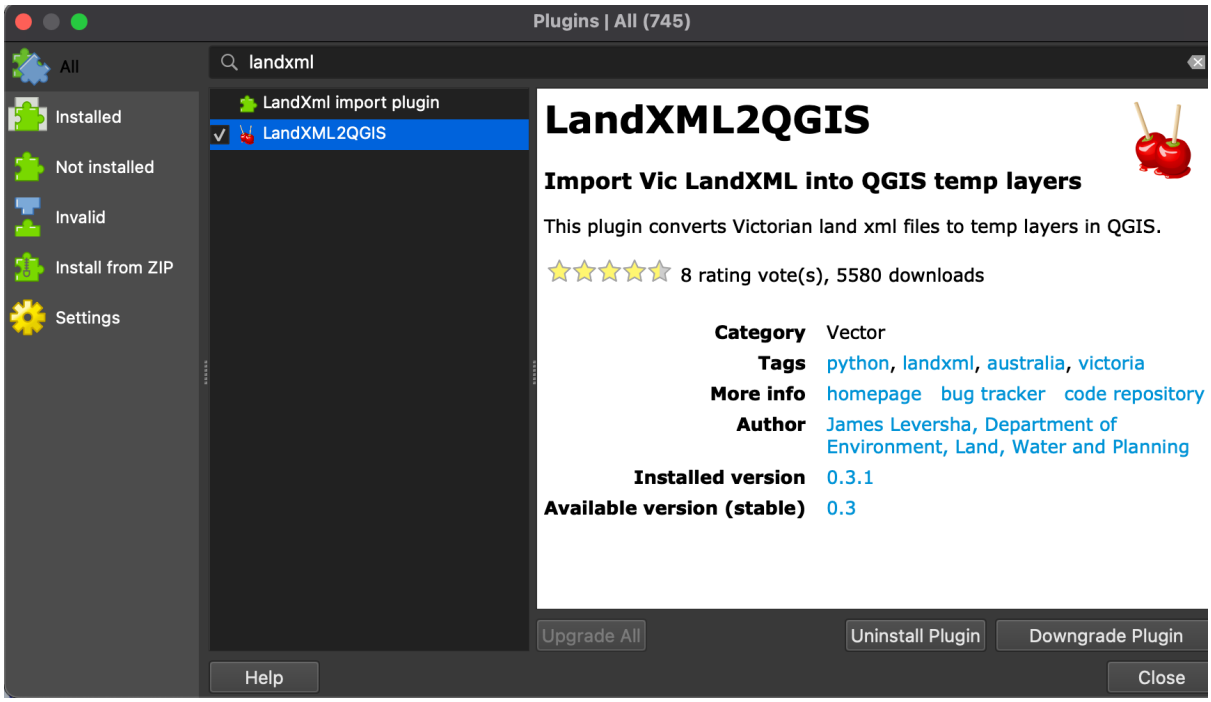


To install plugin:

Open QGIS and select Manage and Install Plugins from menu

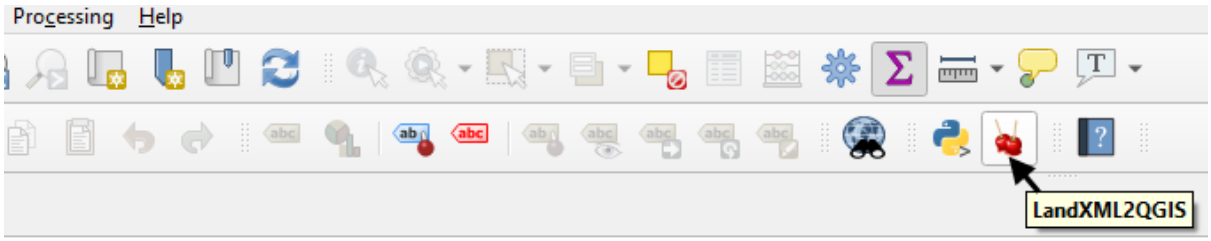


Search for the plugin in the “all” section



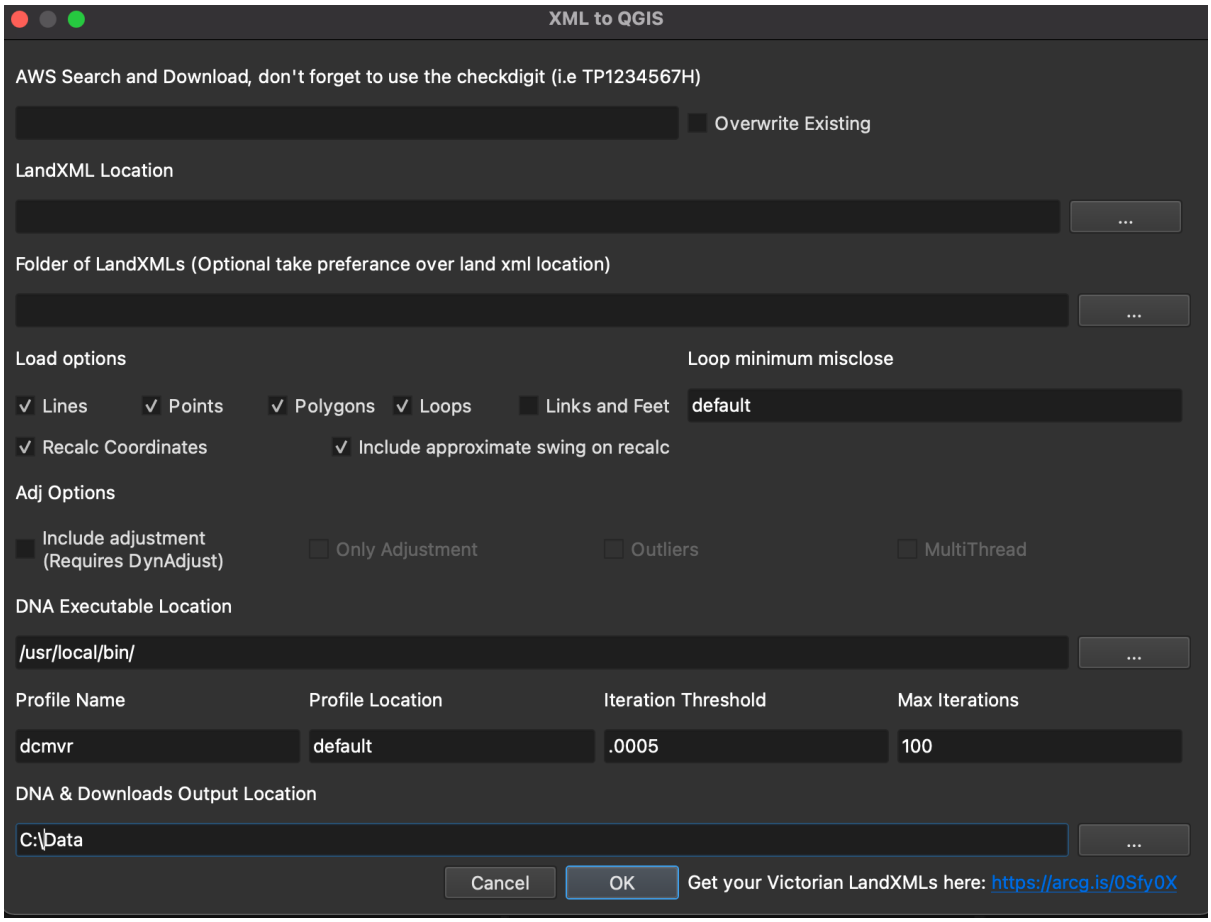
To insert a LandXML:

Once the plugin is installed, the LandXML2QGIS icon is added to toolbar:

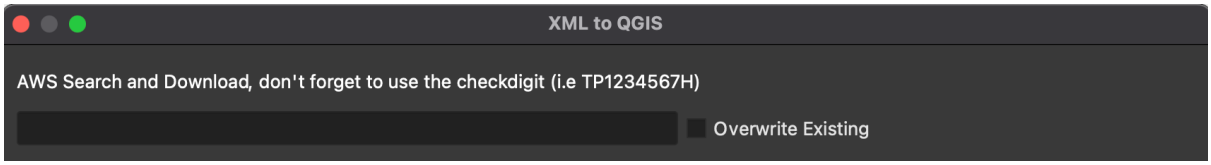


Click to bring up XML to QGIS interface. In the bottom field, add a location for outputs (e.g. C:\Data)

This will be the location MCA results, and downloaded xmls are saved to.



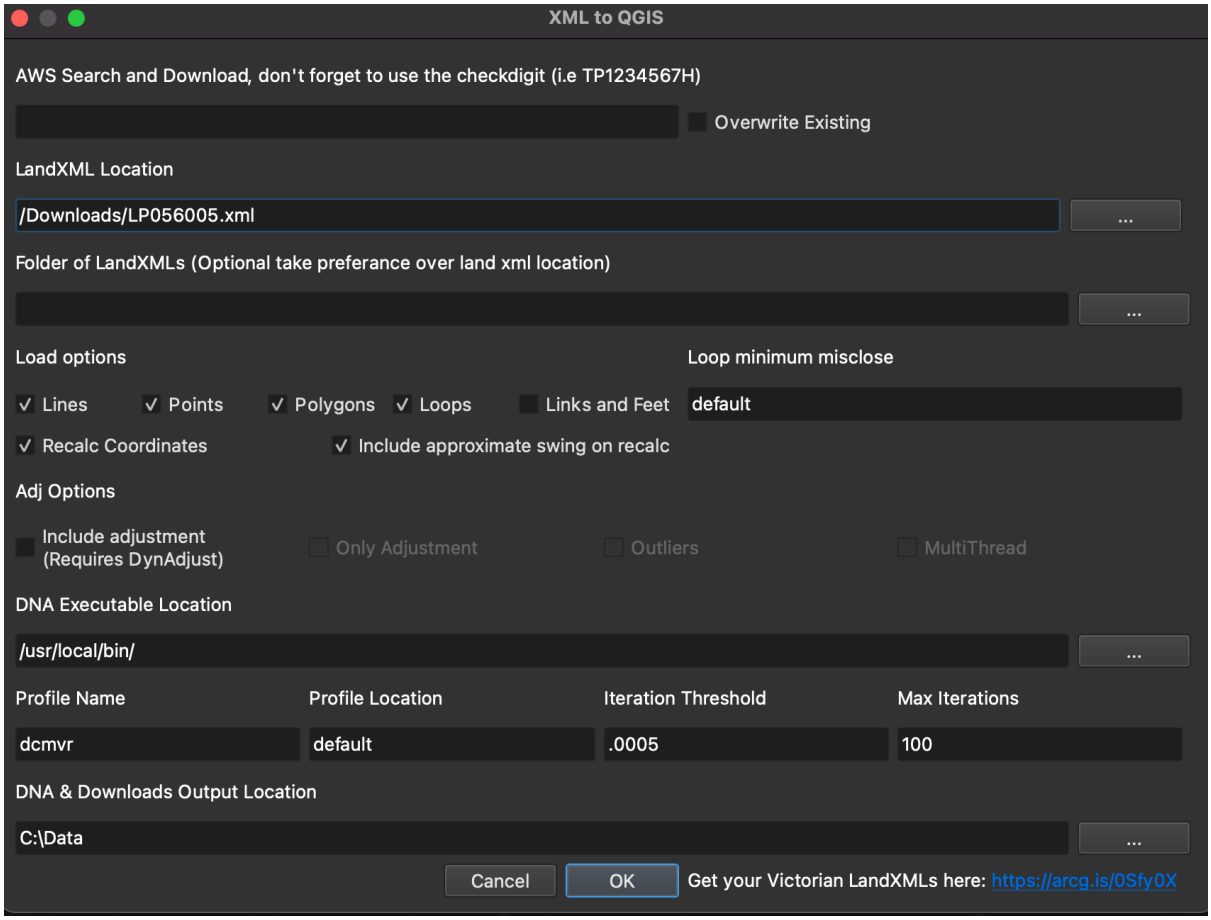
To search a landxml in the repository type a plan number into AWS search and download field



The plugin will search your download location for an existing file first, then look in the repository, it will then download the file. If overwrite existing checkbox is ticked, it will overwrite any existing landxml, this is good for getting the latest version of a file if you think it's been corrected.

To insert a Local LandXML, click the three dots next to LandXML location field:

Select the following fields for different outputs:



“recalc coordinates” can be selected along with the four layers of points, polygons, lines and arcs, which means that the software will calculate all other nodes from a single point using the bearings and distances in the file

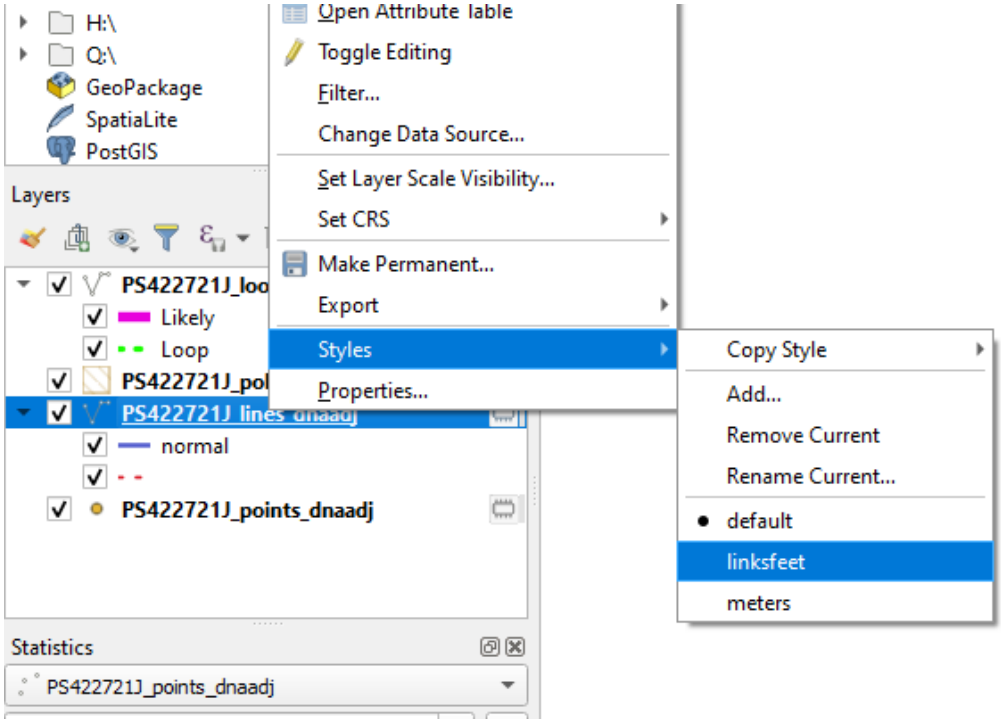
Loops: highlights the loop errors in the LandXML and likely candidates.

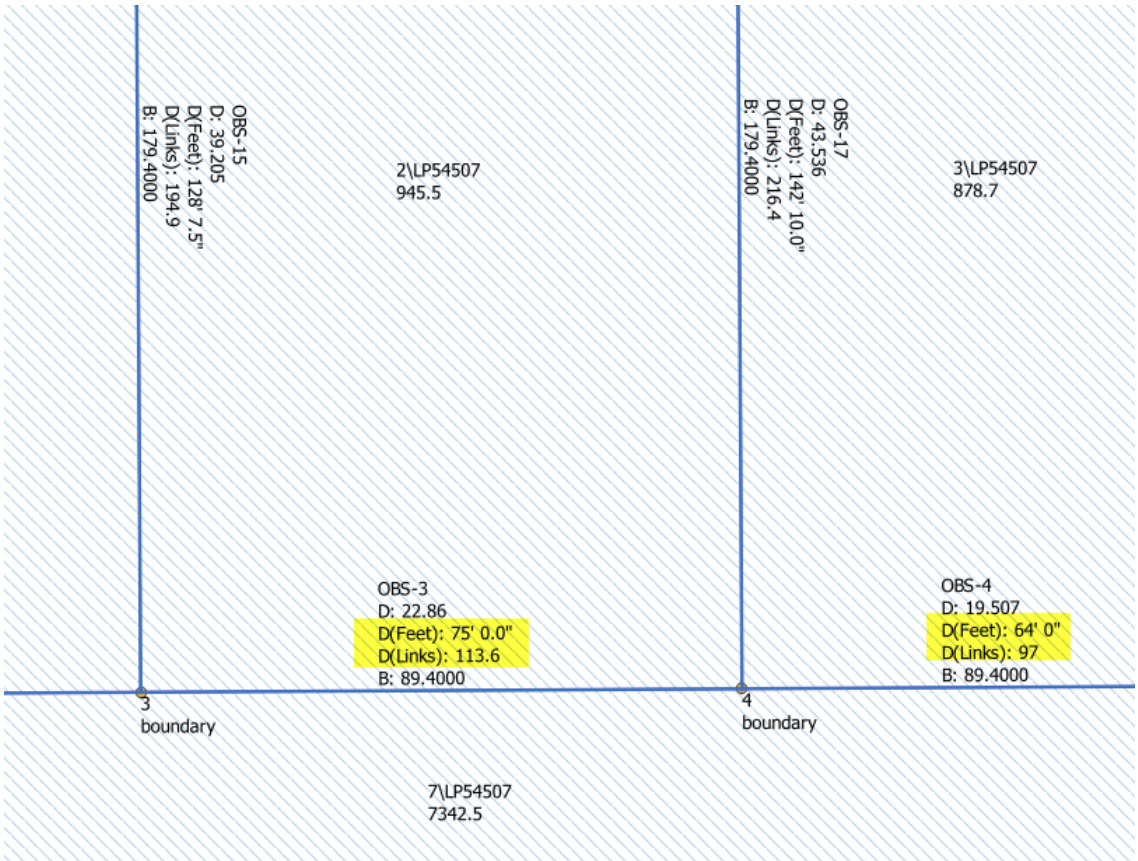
Include adjustment: runs MCA in file, adds an adj file (open with text editor) to data output folder.

Only adjustment: removes captured lines and polygons and shows final adjusted result. Leave unchecked to compare captured vs adjusted lines.

Links and Feet: select this option to add links and feet converted distances to each observation.

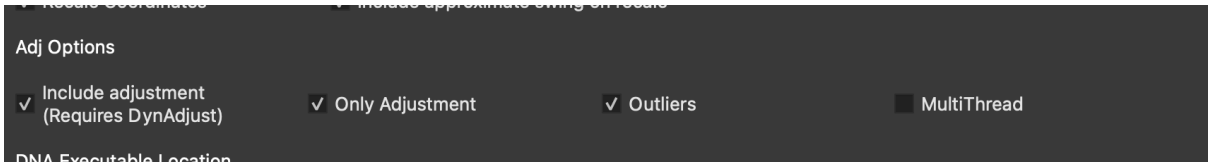
Note – selecting this adds the links and feet to the current landXML. If not selected, the option can be toggled on and off through right clicking on the relevant layer, selecting **Styles** and clicking on “**linksfeet**”.


H:\
Q:\
GeoPackage
SpatiaLite
PostGIS
Layers
PS422721J_loo
Likely
Loop
PS422721J_pol
PS422721J_lines_dnaadj
normal
PS422721J_points_dnaadj
Statistics
PS422721J_points_dnaadj
Open Attribute Table
Toggle Editing
Filter...
Change Data Source...
Set Layer Scale Visibility...
Set CRS
Make Permanent...
Export
Styles
Properties...
Copy Style
Add...
Remove Current
Rename Current...
default
linksfeet
meters


OBS-15
D: 39.205
D(Feet): 128' 7.5"
D(Links): 194.9
B: 179.4000
2\LP54507
945.5
OBS-17
D: 43.536
D(Feet): 142' 10.0"
D(Links): 216.4
B: 179.4000
3\LP54507
878.7
OBS-3
D: 22.86
D(Feet): 75' 0.0"
D(Links): 113.6
B: 89.4000
OBS-4
D: 19.507
D(Feet): 64' 0"
D(Links): 97
B: 89.4000
3
boundary
4
boundary
7\LP54507
7342.5

MCA results:

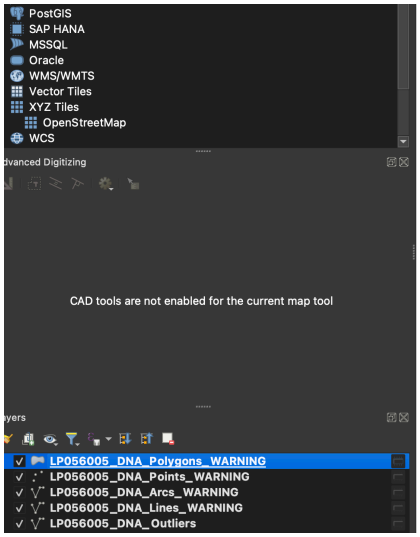
If you have dynadjust installed (see: https://github.com/icsm-au/DynAdjust) you can also run a least squares adjustment on the file. This will be a minimally constrained adjustment at this stage.



In the adj file, a “Solution” of “Converged” and a Chi-squared test of “passed” or “warning” indicate a passed MCA. “Failed” in either is a failed MCA. The overall status is also shown on the layer name suffix.

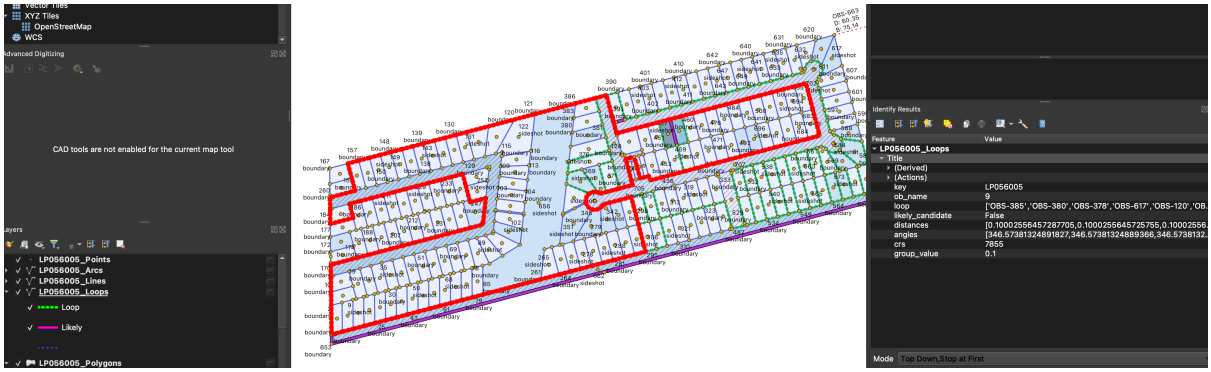
```
--------------------------------------------------------------------------------
SOLUTION                          Converged
Total time                        00:00:00

Number of unknown parameters      8
Number of measurements            10
Degrees of freedom                2
Chi squared                       0.94
Rigorous Sigma Zero               0.472
Global (Pelzer) Reliability       1.620    (excludes non redundant measurements)

Chi-Square test (95.0%)           0.025 < 0.472 < 3.689          *** PASSED ***
```

Outliers can be seen easily seen in the output if selected

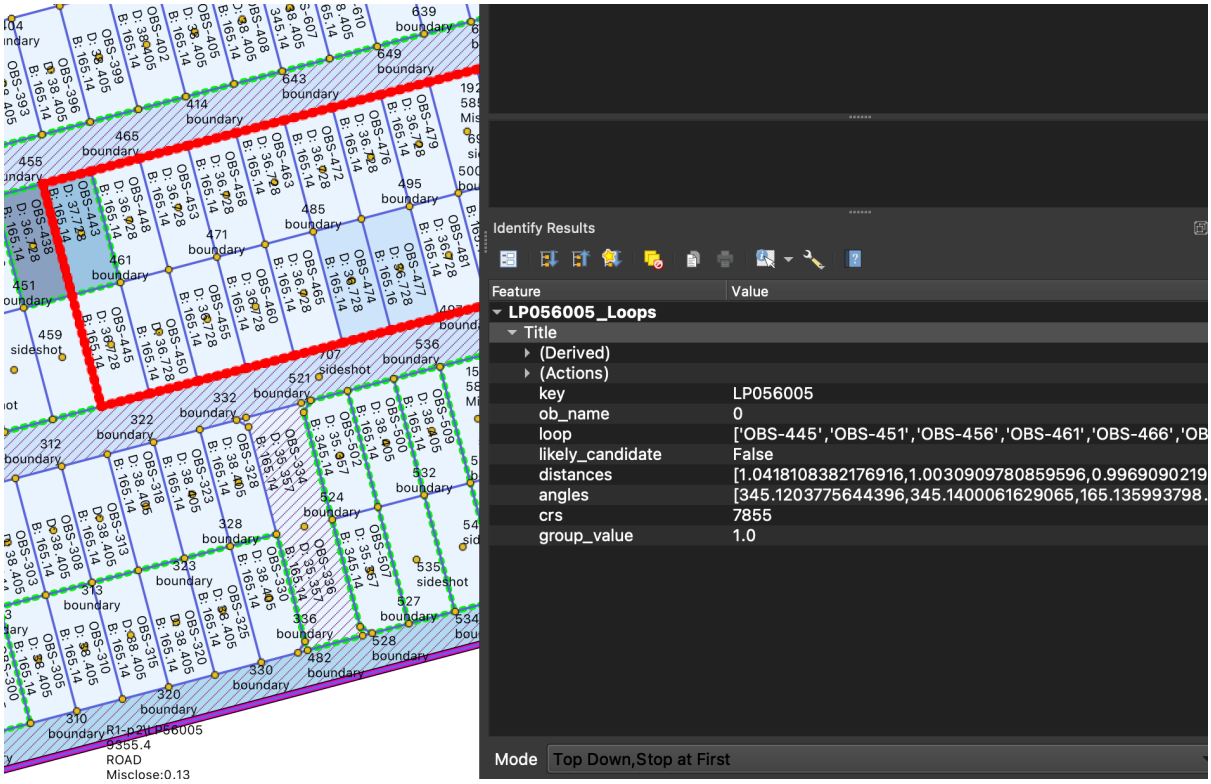


Identifying Loops:

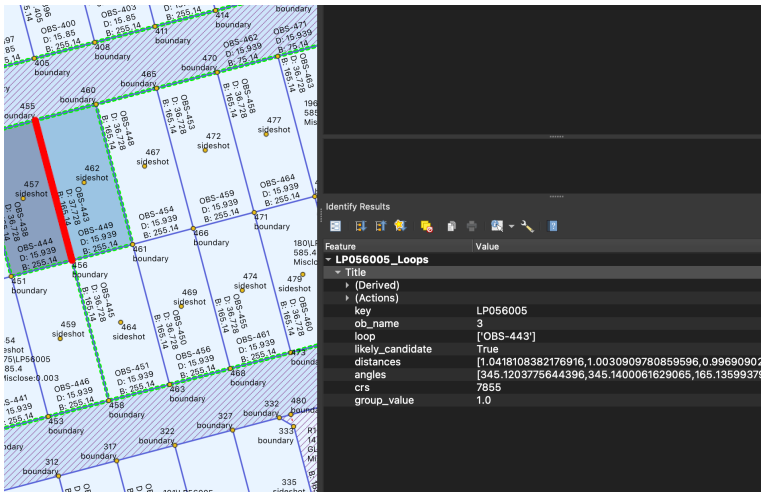
When a landXML contains loop errors, and you have selected the tickbox for loops, the loops with errors are displayed in green, and the likely candidates in purple. You can select the loops layers (in blue below) and click on the loop using the “Identify Features” button (highlighted below).



This will show the loop misclose results:



Likely Candidates are the more likely lines that are causing the misclose error.



The layers for loops, lines, polygons etc can be switched on and off as required.