

Instructions on how to create GIS data for funding application project areas

Create DEECA required standard 'Shapefile' GIS data for project areas

Instructions

There are two stages to creating Shapefile data for project areas.

Stage 1 – Create a KML file using Google Earth. You will need to do this step before creating the shapefiles.

Stage 2 – KML to Shapefile conversion. There are two options for the data conversion and you can choose either one:

- Option 1 – the first method is using an online data converter site called **MyGeodata Cloud**.
- Option 2 – the second method is by using a desktop GIS application called **QGIS**

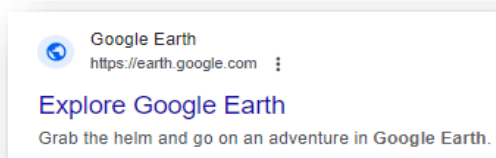
Stage 1 – Creating a KML file using Google Earth (web version)

The first stage is to create a KML file of the proposed project area.

Google search:

google earth web

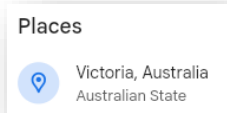
Click 'Explore Google Earth'



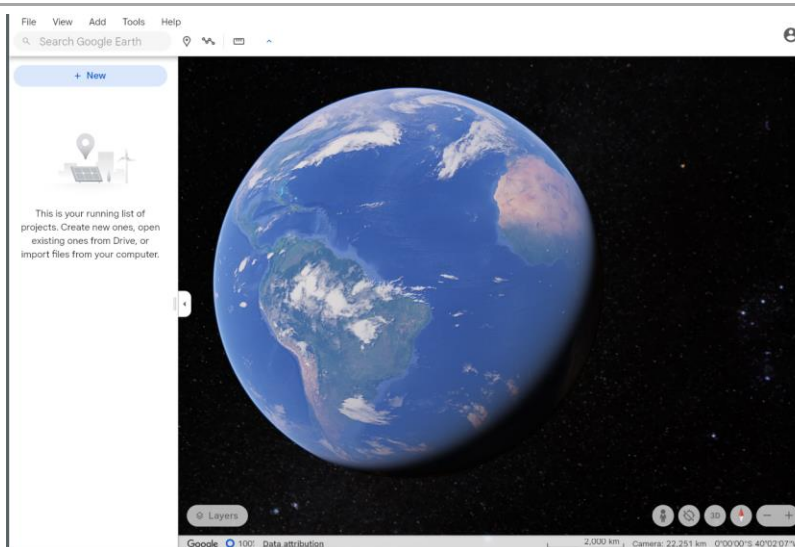
The screen may look like this:

In the grey 'Search Google Earth' box (top LHS) type:

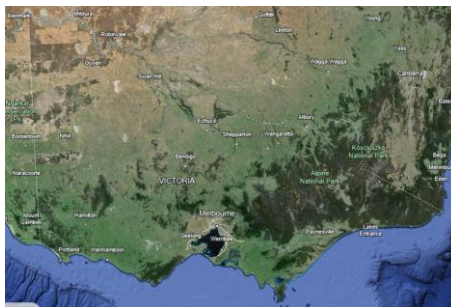
victoria, australia



click on the link

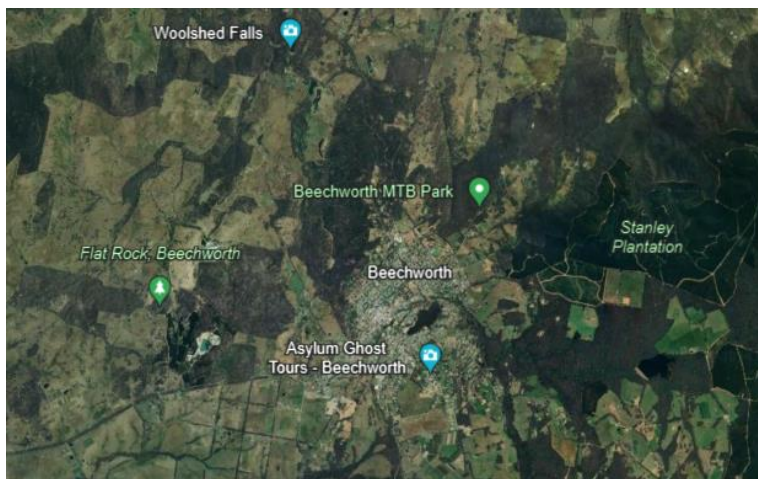


It will zoom in on Victoria



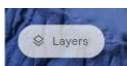
Again, in the grey 'Search Google Earth' box type the location of your project

(example: **Beechworth**)

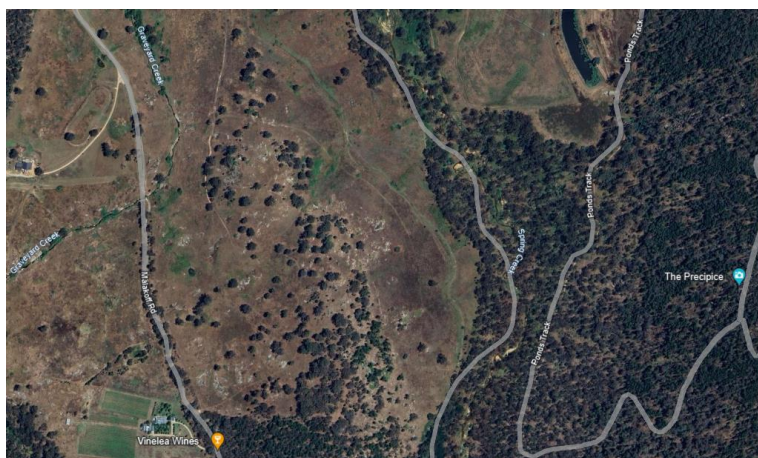


Zoom in or out until your project area is in the window

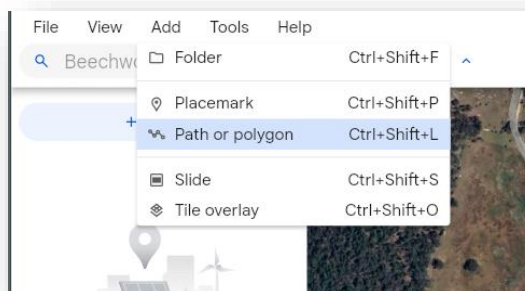
For more map information, use the 'Layers' settings (lower LHS) to turn on extra layers such as roads, etc.



The 'Custom' button will display most of the important info



To create a polygon of the project area, this can be done using the 'Add Path or Polygon' tool on the **Add** menu (top LHS)

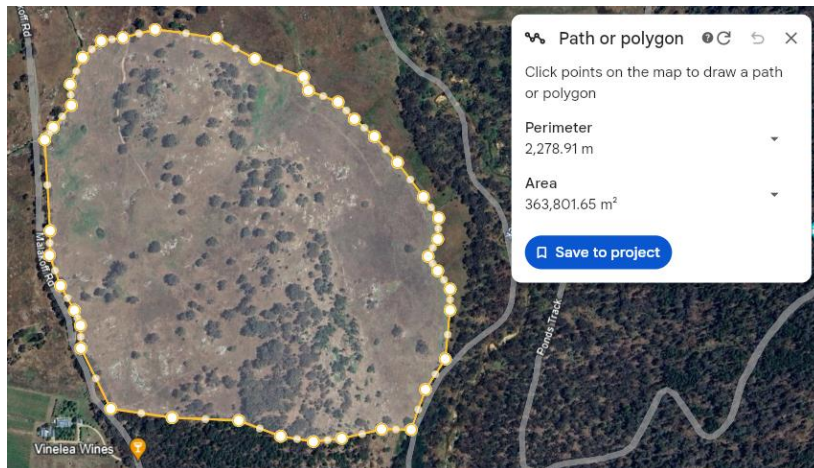


Using the mouse cursor, carefully click on the map to trace out the project extents

To complete the polygon, click on the first point

This will become the boundary to delineate the project extent

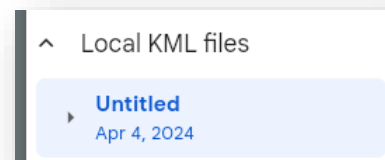
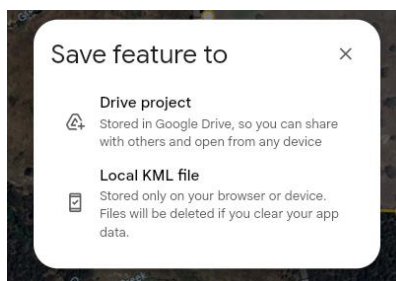
Click the down-arrow under Area to change the displayed area to hectares



Click the blue 'Save to project' button.

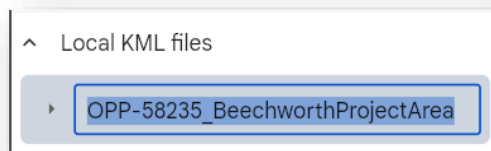
Choose the option to save to a 'Local KML file'

This will save the polygon to a project file ("Untitled"), and display on the LHS

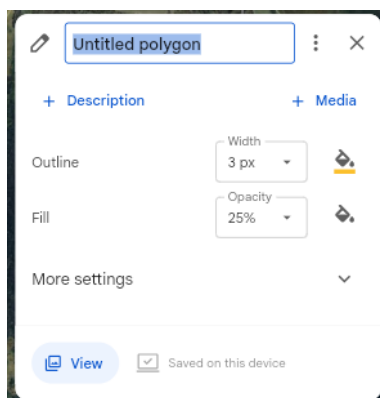


Right-click on the 'Untitled' link, and click 'Rename'

Rename this to an appropriate DEECA-related project name



Click the polygon, and on the pop-up window, choose 'Edit'



Rename the polygon to be the same as the KML file (as above)

The outline colour/thickness and fill colour and transparency can be changed for display purposes

To edit the polygon, zoom in to the area or boundary you want to amend

In Edit mode, the polygon will display white circles at each of the vertex points, and smaller ones at each line mid-point

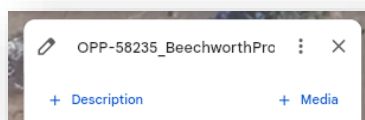
To move a vertex, use the mouse to hold and drag a vertex point



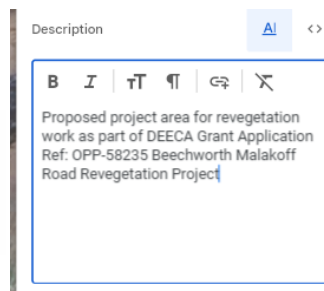
To insert a new vertex, grab a mid-point dot and drag it with the mouse



To add a description, click on the 'Description' link



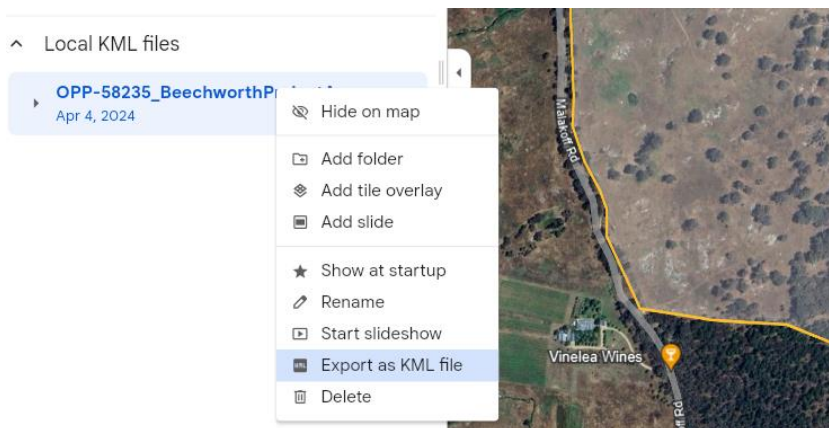
Close the dialog box



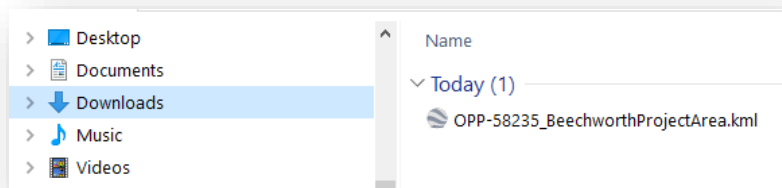
This polygon area can now be exported as a Google Earth KML file

Right-click to export

This will save the polygon in a format that can be converted to the 'Shapefile' format required by DEECA to define the project area for the Grant Application



After clicking the 'Export' command, the KML file will be saved to the 'Downloads' folder where downloaded files and data are normally saved



NOTE: two or more polygons can be saved in the same KML file



Stage 2 – KML to Shapefile conversion

The second stage is to create a Shapefile from the KML data.

These are two options to convert the KML file into a Shapefile (SHP)

- Option 1 – the first method is a procedure using an online data converter site (*MyGeodata Cloud*)
- Option 2 – the second method is by using a simple but powerful desktop GIS application (*QGIS*)

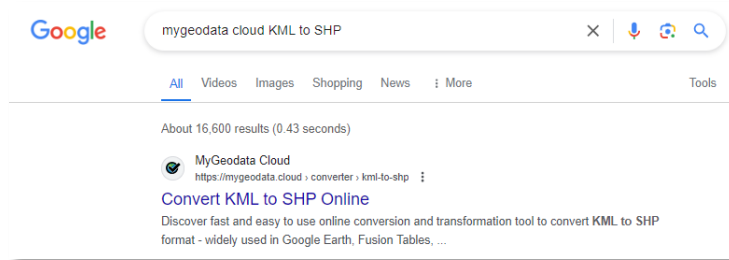
Option 1 – Using an online converter

This site is 'MyGeodata Cloud'. It's simple, fast, and free to use(*).

() allows up to 3 free conversions per month, with a cheap (\$7) monthly plan available if needed*

Do a Google search:

mygeodata cloud KML to SHP



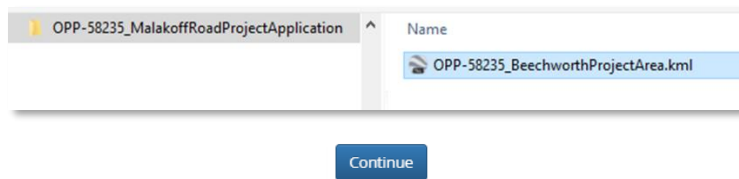
Click 'Convert KML to SHP online'

Click the 'browse files' (blue) button

Click the green 'Add files...' button



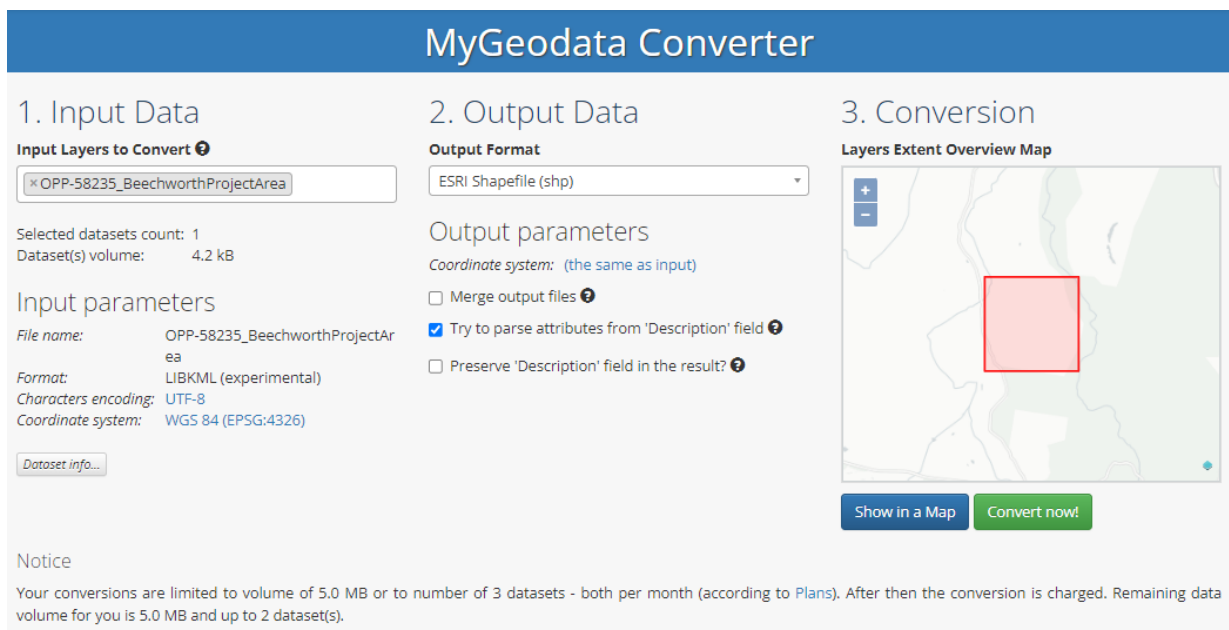
Navigate to the KML file, and double-click it



The filename will appear
Click Continue

The data is ready to convert.

There are 3 parts in this conversion process: 1. Input Data / 2. Output Data / 3. Conversion



1. Input data

This verifies that the KML file uploaded is the one to be converted

No input or changes needed here

1. Input Data

Input Layers to Convert

OPP-58235_BeechworthProjectArea

Selected datasets count: 1
Dataset(s) volume: 4.2 kB

Input parameters

File name: OPP-58235_BeechworthProjectArea
Format: LIBKML (experimental)
Characters encoding: UTF-8
Coordinate system: WGS 84 (EPSG:4326)

Dataset info...

2. Output data

Firstly, click on the lower tick-box, to ensure that the description entered will appear in the Shapefile data

To change the co-ordinate system, click on the blue link

2. Output Data

Output Format

ESRI Shapefile (shp)

Output parameters

Coordinate system: (the same as input)

Merge output files

Try to parse attributes from 'Description' field

Preserve 'Description' field in the result?

2. Output Data

Output Format

ESRI Shapefile (shp)

Output parameters

Coordinate system: (the same as input)

Merge output files

Try to parse attributes from 'Description' field

Preserve 'Description' field in the result?

Change the Co-ordinate Reference System (CRS)

In the search box, type **vicgrid**

Choose **GDA94 / Vicgrid94**

Then click button

Set selected

Coordinate reference system

Type name, EPSG code or location to filter:

vicgrid

EPSG	Name
3111	GDA94 / Vicgrid94
3110	AGD66 / Vicgrid66

Parameters should change accordingly

Output parameters

Coordinate system: GDA94 / Vicgrid94 (EPSG:3111)

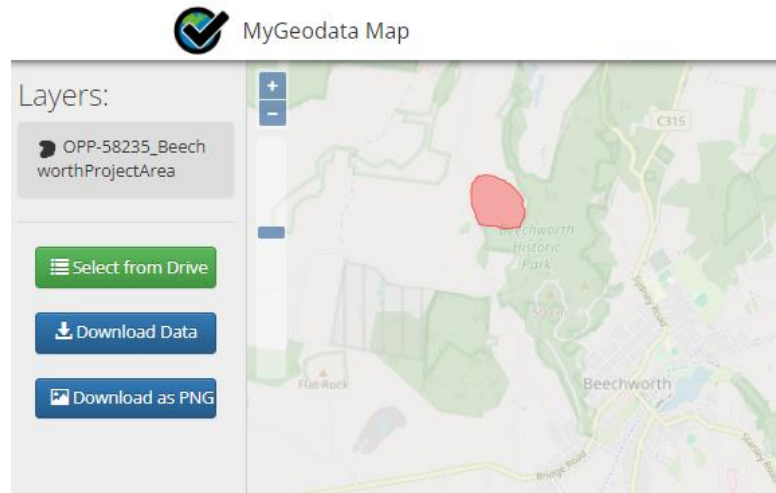
3. Conversion

This step allows the KML polygon to be viewed in a map first, then converted

Show in a Map

This opens a new tab, with the polygon displayed on a map

If needed, save this view as a PNG image file



Once you've verified the data using the map, go back to the first tab and click 'Convert now!'

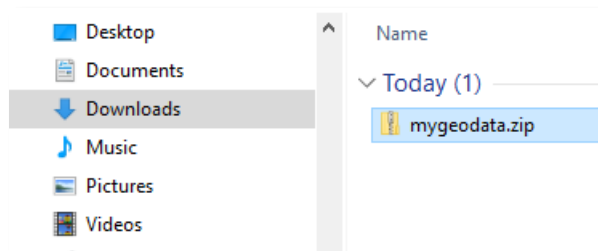
Convert now!

Your data were converted

- Output format: **ESRI Shapefile**
- Output coordinate system: **EPSG:3111**
- Total files: **6**
- Total size: **1.88 kB**

Download

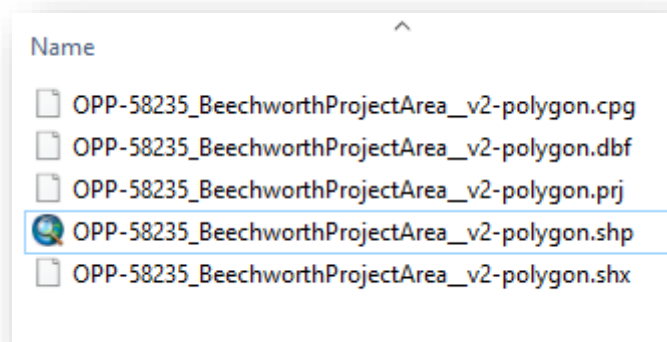
The Shapefile will be in the 'Downloads' folder, in a ZIPfile called **mygeodata.zip**



This ZIPfile contains all the necessary files that collectively make up a 'Shapefile'.

This ZIPfile can then be submitted with a Grant Application as the proposed project boundary area

The SHP data is in the correct format and correct map projection required by DEECA for grant application submissions.



Option 2 – Using a simple GIS desktop application (QGIS)

QGIS is simple, easy-to-use, functionally powerful, and free(*).

(*) QGIS is Open-Source GIS software, and is totally free

If QGIS already installed, go to **Step 2**

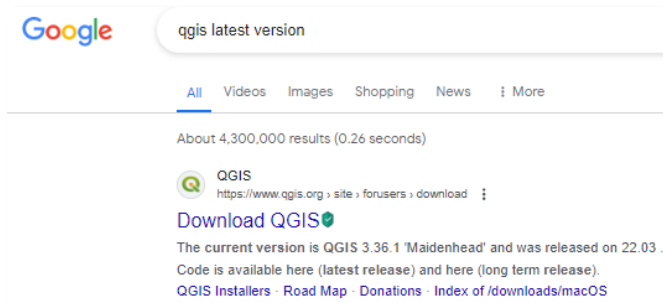
To install software generally requires Admin access to the computer

Step 1 – Install QGIS

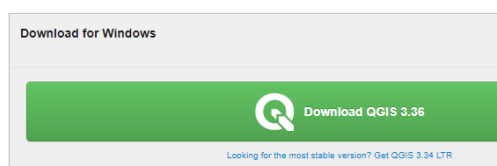
If QGIS is not installed, install it as follows:

Google search:

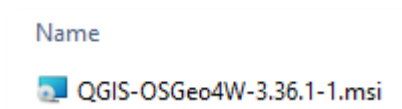
qgis latest version



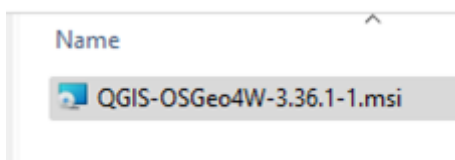
Download the latest version (may take a little time)



The installer MSI file will appear in the appropriate Downloads folder



Double-click the MSI file



Follow the Setup Wizard prompts

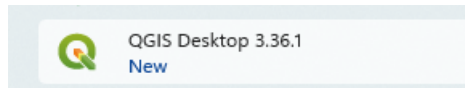


Click 'Finish' to complete the install

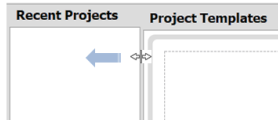


After installation, launch the program

From the desktop link or Start Menu, launch QGIS

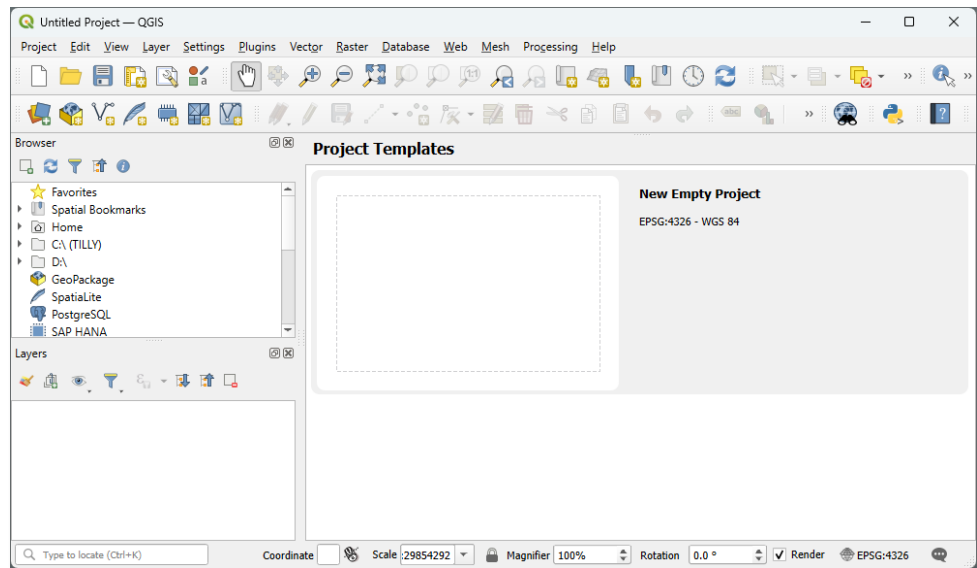


Close down any unwanted windows or News articles



Drag the vertical bar to the left, leaving only the **Project Templates** window

Double-click the rectangle to start a new project

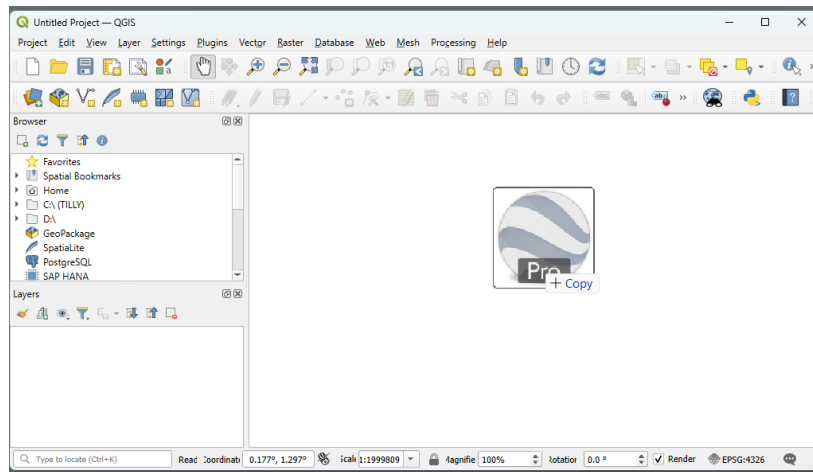


Step 2 – Converting KML to SHP using QGIS

The conversion steps are essentially the same as in the **Option 1** online method:

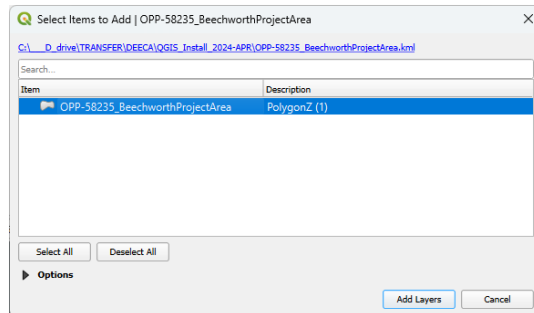
- Input of KML data
- Check data
- Output data parameter check for
 - Correct data format (Shapefile)
 - Correct co-ordinate projection (VicGrid 94)
- Export of Shapefile data

With a new project started, drag-and-drop the KML file into the map window

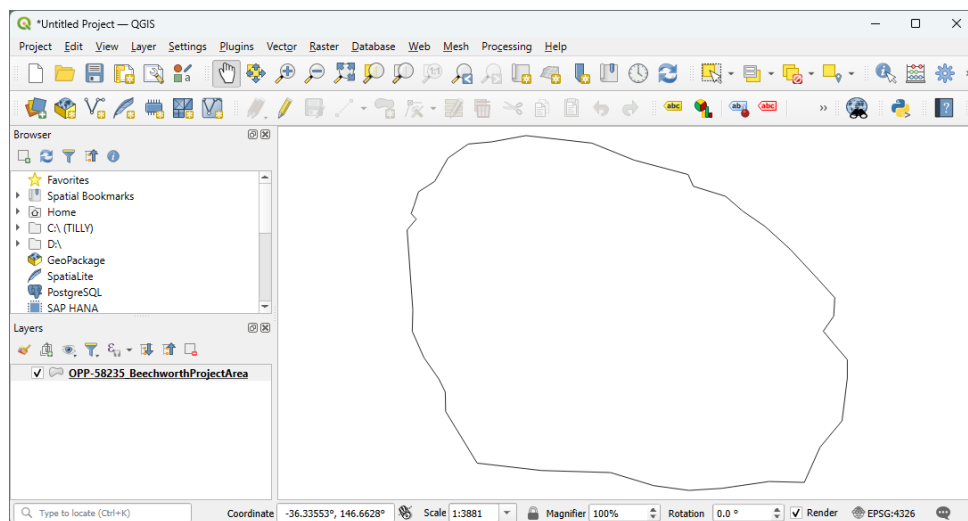


A dialog box appears

Select the file and click 'Add Layers' button

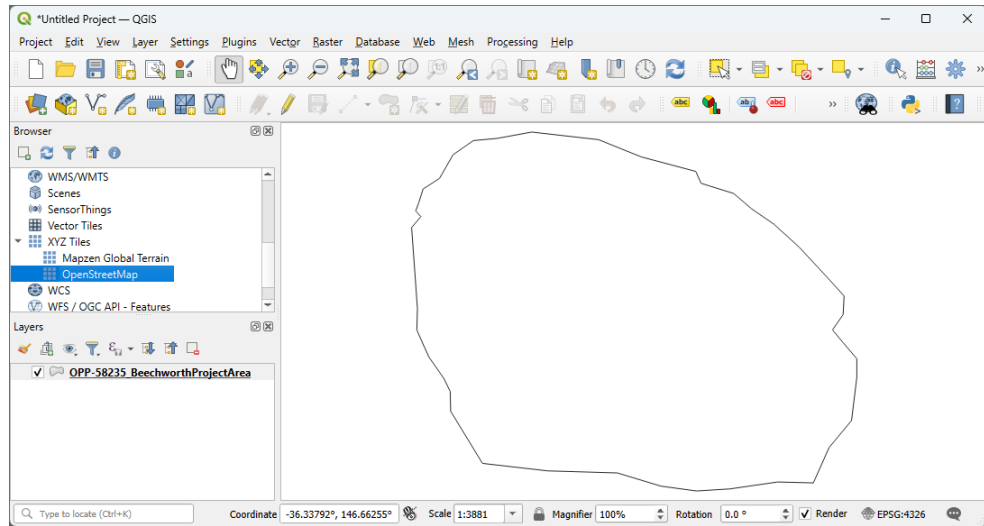


The project area polygon will appear in the map, and the data is listed under **Layers** on the LHS menu



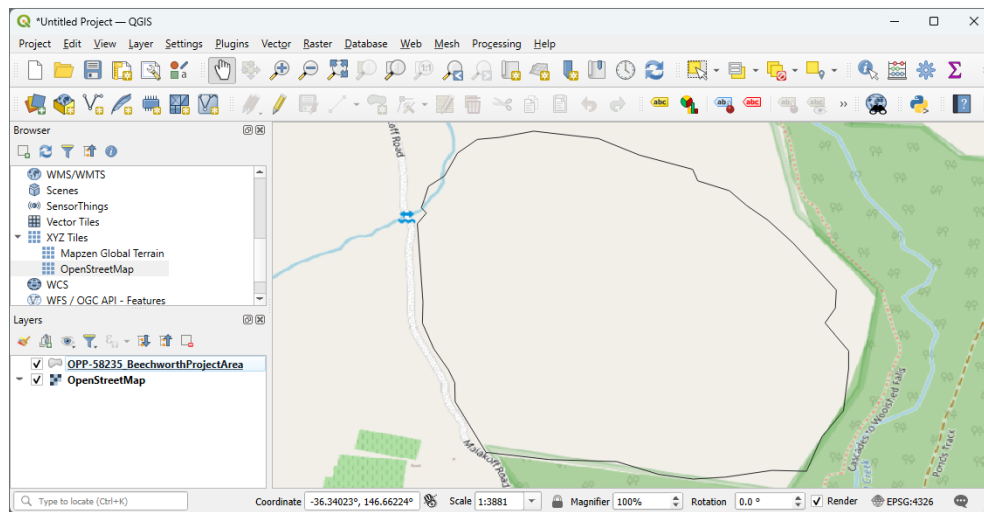
To check the data location, it can be overlaid on other map data

From the **Browser** window above, scroll down, expand **XYZ Tiles**, and drag-and-drop **OpenStreetMap** into the map window

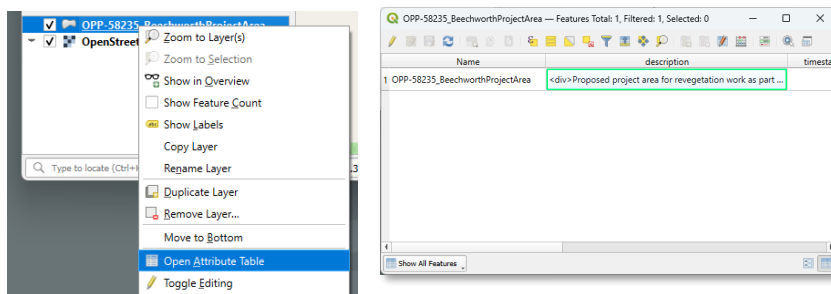


In the **Layers** window, drag the OpenStreetMap layer underneath the KML data so it's on the bottom

This visual check verifies that the polygon is in the correct location

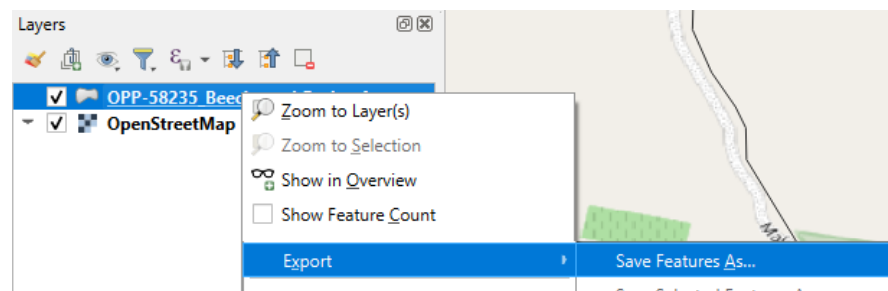


To ensure the description has been included, right-click the KML layer and choose **Open Attribute Table** to check



To convert to Shapefile, use the **Export** function from the right-click context menu

Right-click **Export** **Save Features as...**

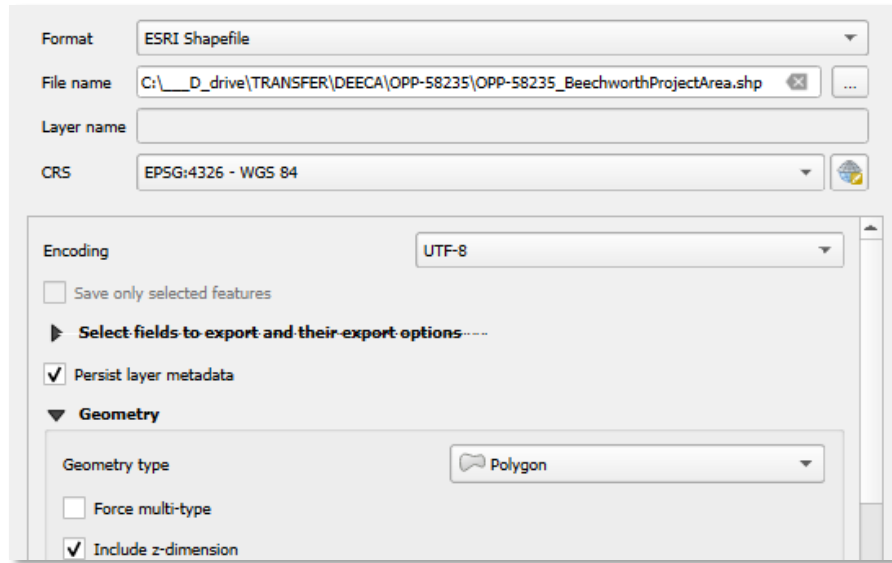


Change output parameters as follows

Format: ESRI Shapefile

File name:
Choose an **output folder** and choose a filename

For **Geometry type**, choose Polygon from the drop-down



The **CRS** is the Co-ordinate Reference System



The **CRS** must be set to 'VicGrid 94'

Click on the **globe icon** on the RHS

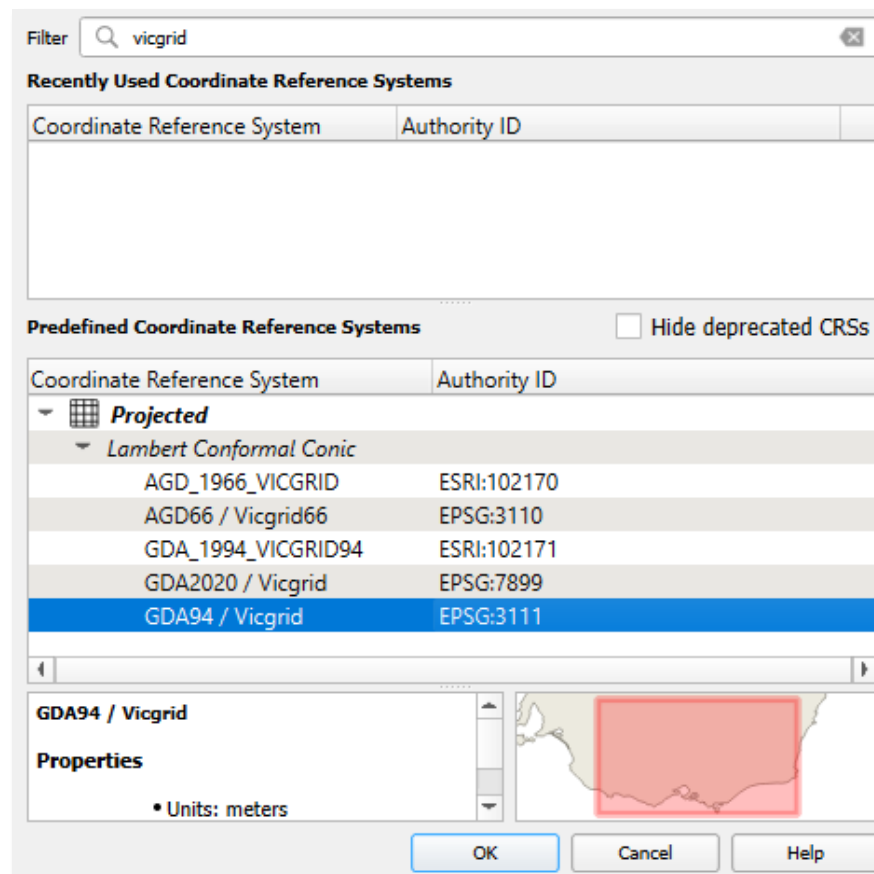


In the Filter box, type **vicgrid**

Expand '**Projected**'
Expand '**Lambert Conformal Conic**'

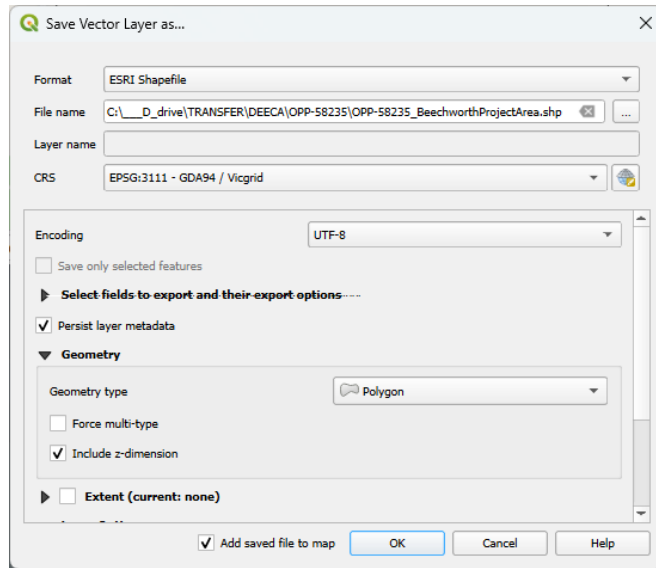
Choose **GDA94 / Vicgrid EPSG:3111**

Click **OK**



The KML data is now ready to be converted

Click **OK**



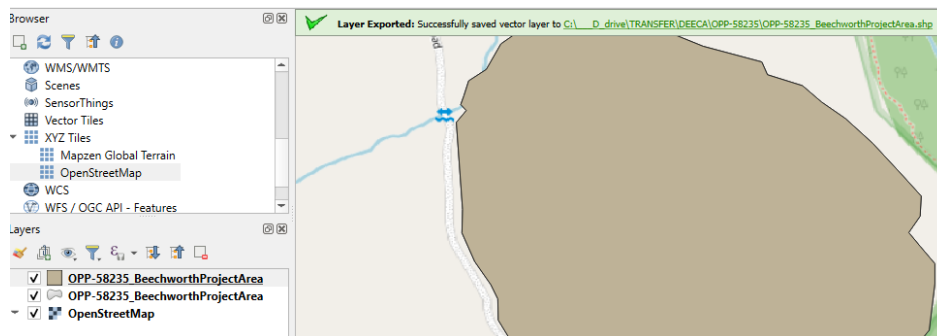
A dialog will appear with a choice of 3 grid transformations

Accept **Transformation 1** and click **OK**

Transformation	Accuracy (meters)	
1 Inverse of GDA94 to WGS 84 (1) + Vicgrid	3	Australia including Lord Howe Island, Macquarie Island
2 Inverse of GDA94 to WGS 84 (2) + Vicgrid	3	Australia including Lord Howe Island, Macquarie Island
3 Inverse of GDA94 to WGS 84 (3) + Vicgrid	3	Australia - Australian Capital Territory; New South Wales

A green box should appear at the top, confirming that the data has been successfully exported to Shapefile format

The new data will appear in the LHS **Layers** list



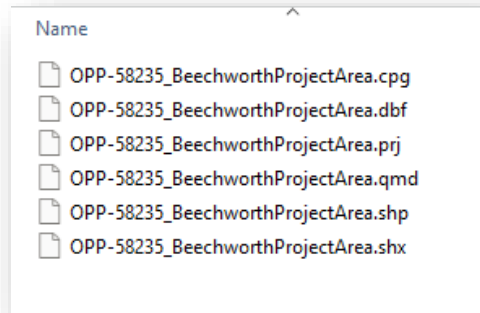
You can now exit QGIS, and save the project

Project / Exit QGIS

Navigate to the [output folder](#) chosen above and check the contents

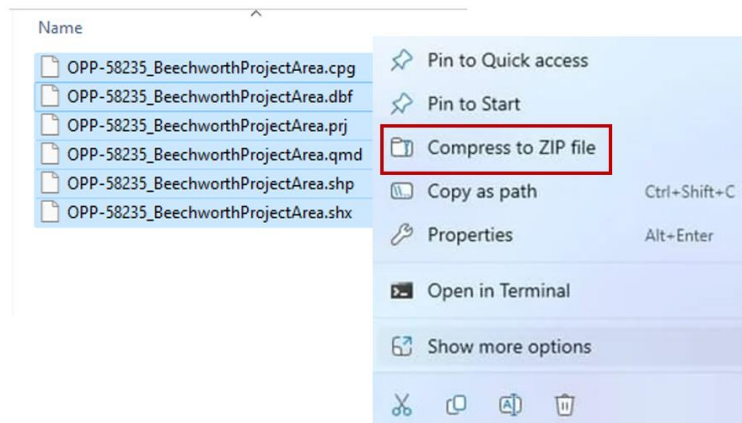
A 'Shapefile' actually consists of a number of files with the same name but different extensions. ALL these files are needed

These files need to be compressed to a ZIP file to be able to be used by DEECA

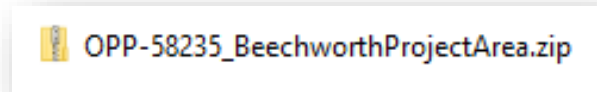


Select all the files, right-click and choose **Compress to ZIP file**

Accept the default name (same as other files)



The resulting ZIP file is the one that is required to be sent to DEECA as the **Project Area Boundary Shapefile**



Glossary

DEECA	Department of Energy, Environment and Climate Action, Victoria
Attribute Table	The table of text information included in GIS data
CRS	Co-ordinate Reference Syetem
GIS	Geographic Information System
Google Earth	3D imagery and map data visualization system
KML	Keyhole Markup Language (Google Earth data format)
MSI	Microsoft Software Installer
OpenStreetMap	A free, open geographic database updated and maintained by a community of volunteers (an alternative to Google Maps data)
PNG	Portable Network Graphics, a popular image file format
Polygon	Multi-sided shape

QGIS	Abbreviation for Quantum GIS
Shapefile	GIS data format (ESRI format, now a de-facto industry standard)
SHP	Abbreviation for Shapefile
Transformation	Formulae used to re-project GIS data
Vertex	The intersection point of two lines in a polygon
VicGrid 94	Co-ordinate projection system covering all of Victoria (Victorian government standard)
ZIP / ZIPfile	Compressed format for storage of multiple files

We acknowledge Victorian Traditional Owners and their Elders past and present as the original custodians of Victoria's land and waters and commit to genuinely partnering with them and Victoria's Aboriginal community to progress their aspirations.



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