Digital Research Hub

RECAP SLIDES: INTRO. TO SKETCHUP & CITYENGINE

BY DIGITAL RESEARCH HUB, 2023

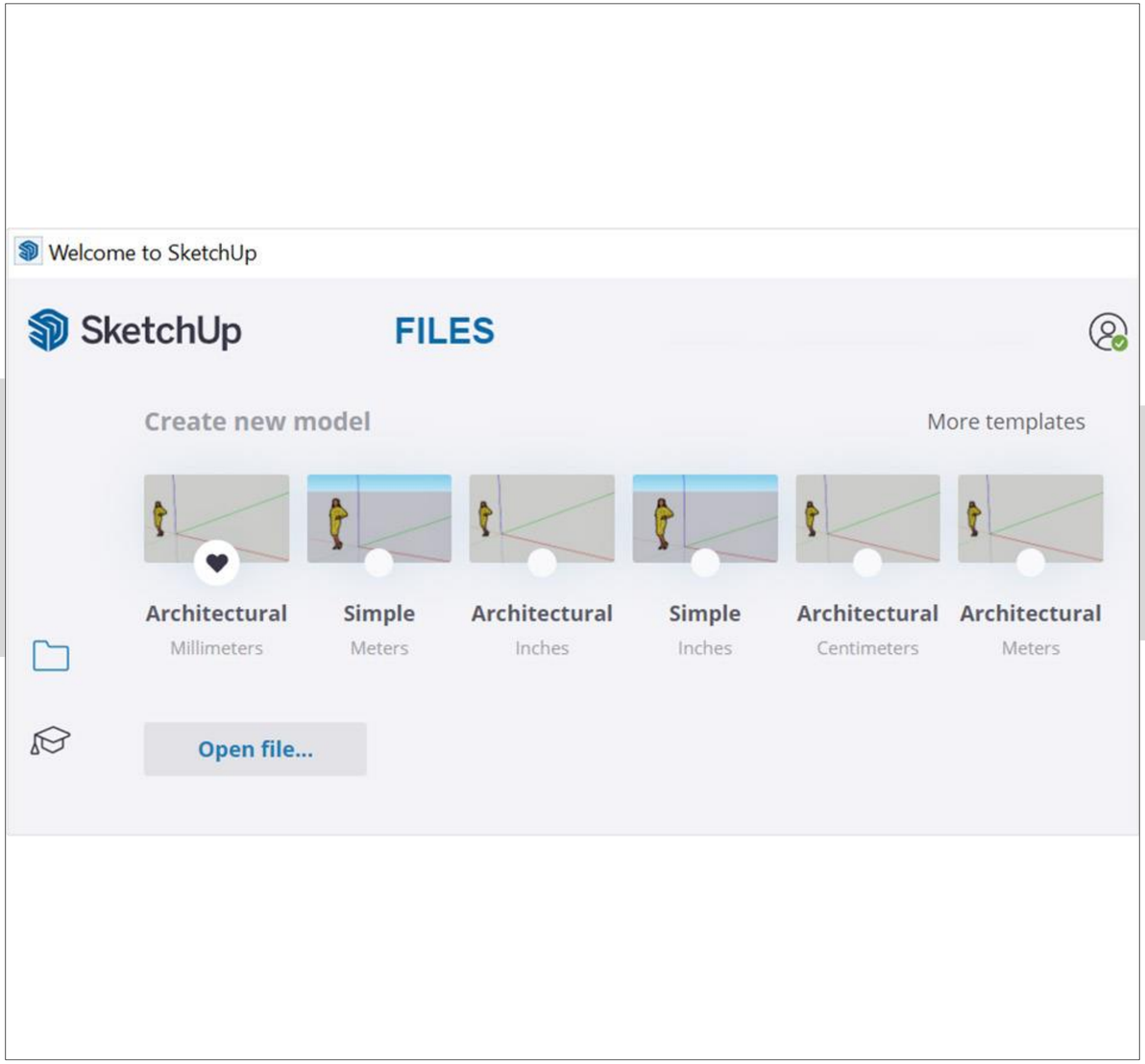
What we'll cover

- Intro to the SketchUp U.I
- Using SketchUp’s main tools
- Importing GIS data

- Intro to the CityEngine U.I
- Navigating in CityEngine
- Getting Map Data

Opening SketchUp

Start with opening SketchUp 1). After opening SketchUp - you can choose a template. Architectural Meters or Millimeters is recommended.

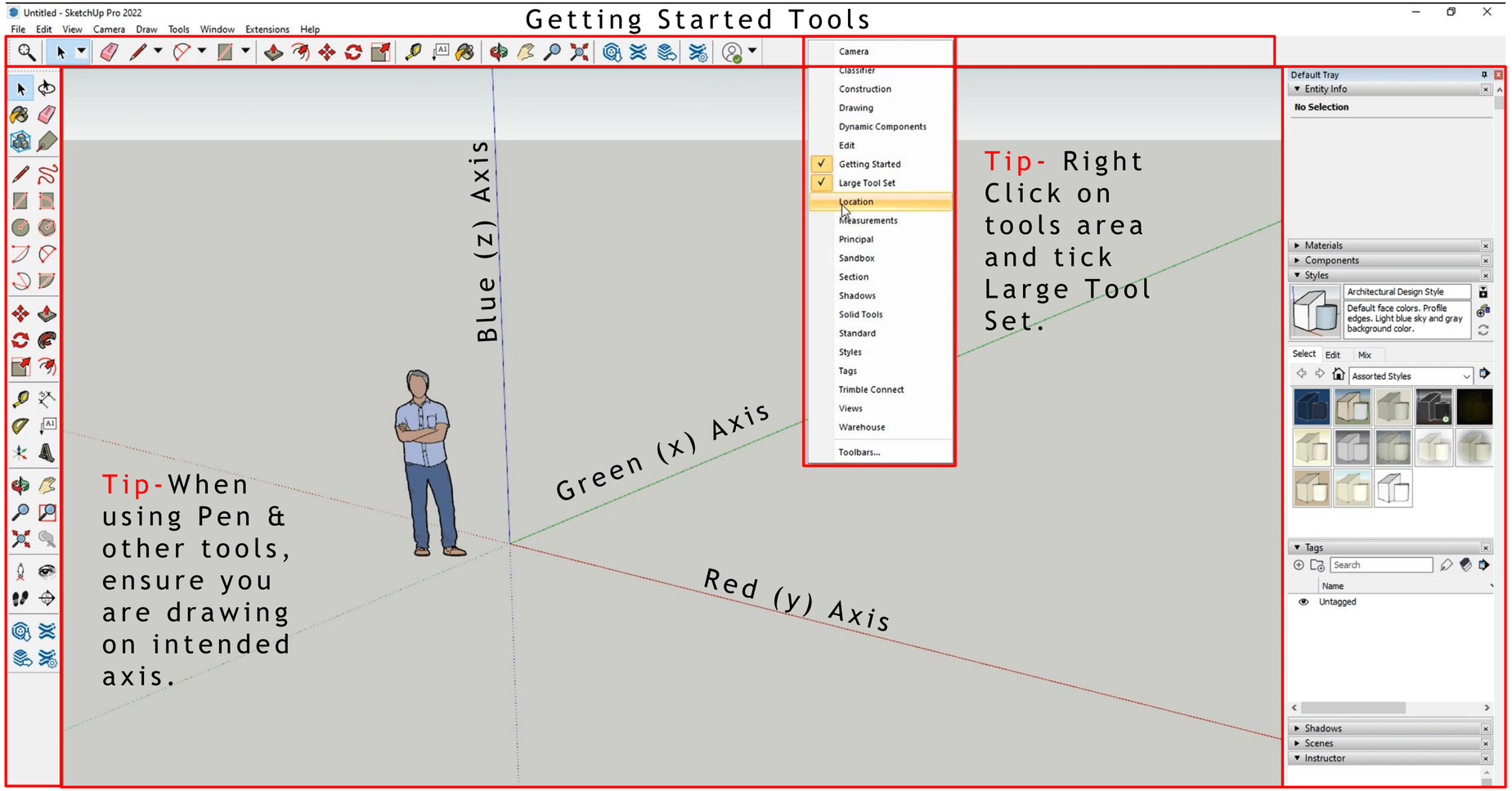


Always remember the template you choose will affect the scale of your model and it's measurements!

SketchUp U.I

Large Tool Set

Getting Started Tools

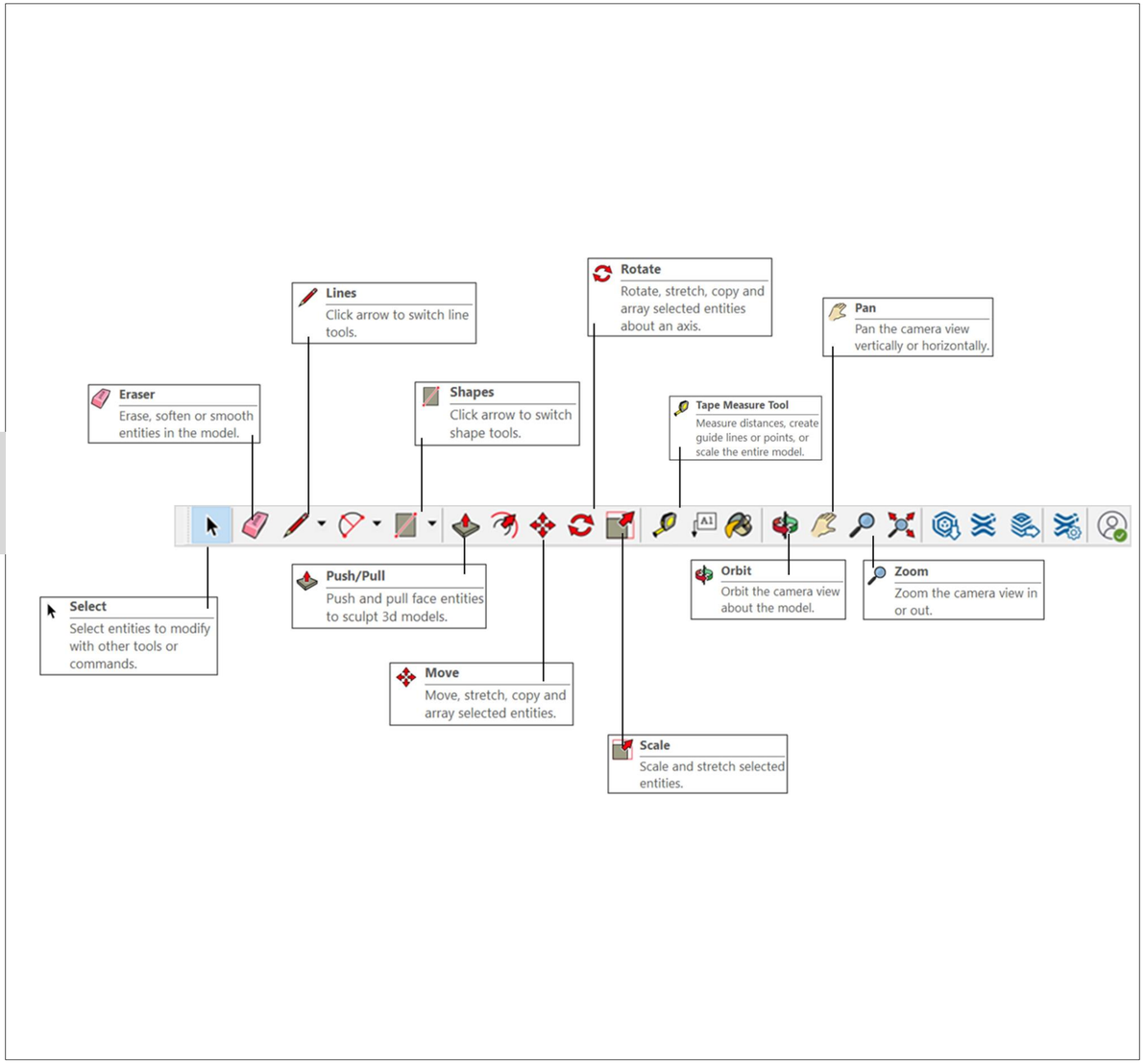


Default Tray- Tags,styles and more.

Workspace

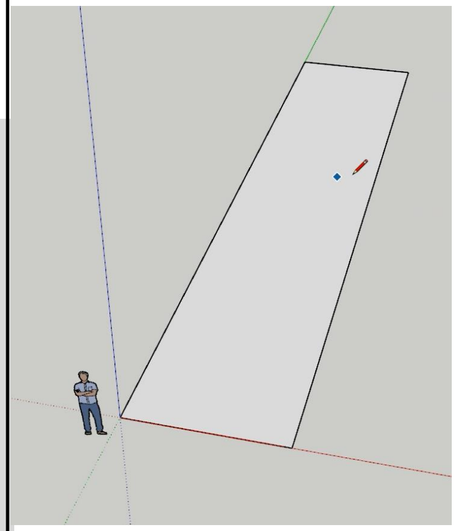
Tools and their functions

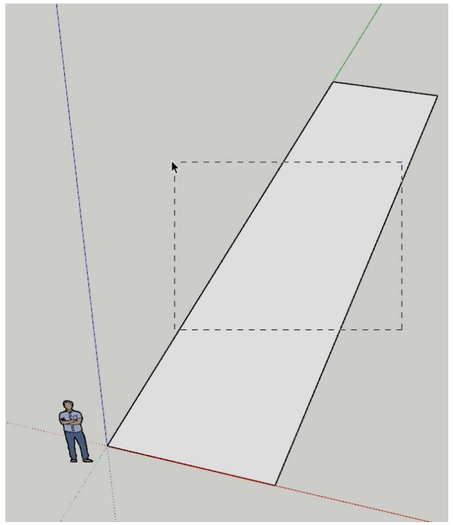
Here are the basic tools that are in SketchUp.

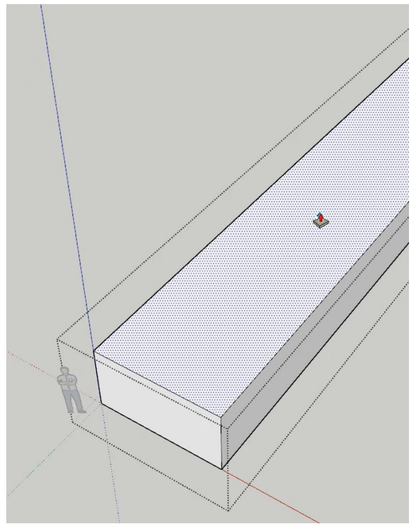


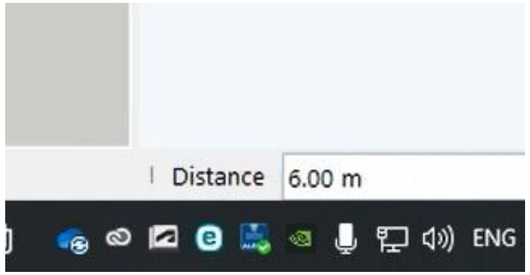
Pen Tool and Push-Pull Tool

- Use the pen tool to create a building footprint.
- Select the entire drawing and right click on it. Select Make Group.
- **Now double click** on the face to go into isolation mode. Now use the push-pull tool to extrude the footprint.





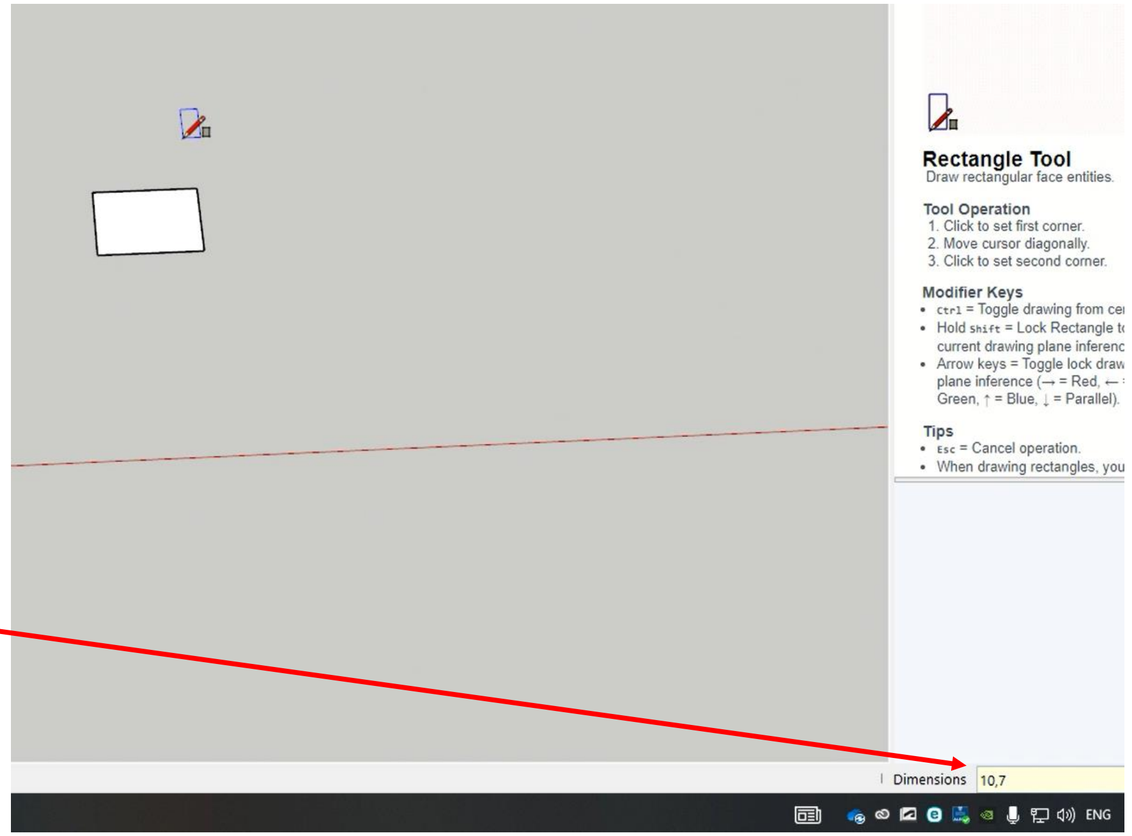




- To specify a height, pull to a random height and simply type in the value.
- It should appear in the distance text box at the bottom-conor of SketchUp.

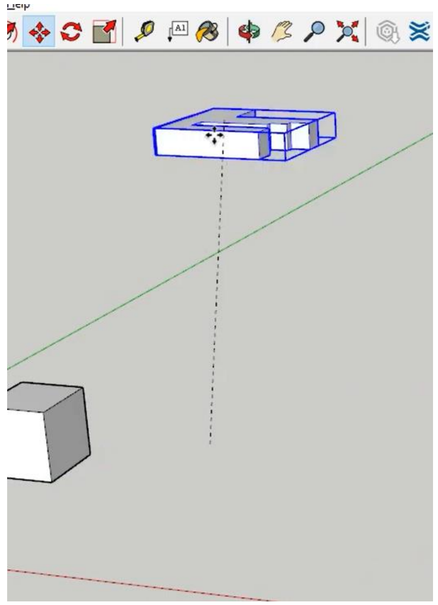
Rectangle Tool

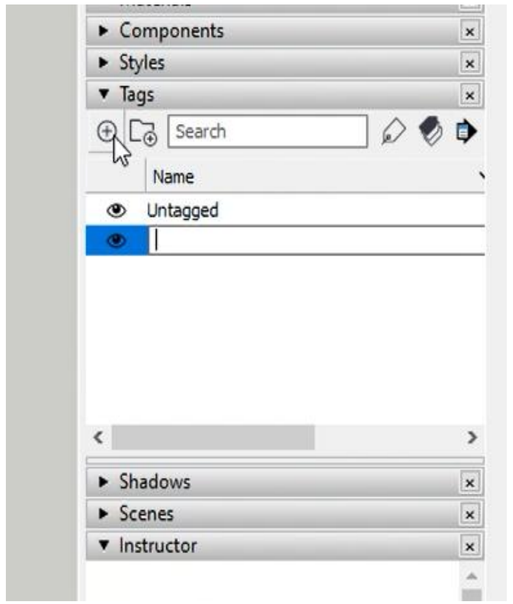
- Use the rectangle tool to create perfect rectangular shapes.
- How to specify dimensions:
- Click once to specify first point of rectangle and then use the format to type: #, #

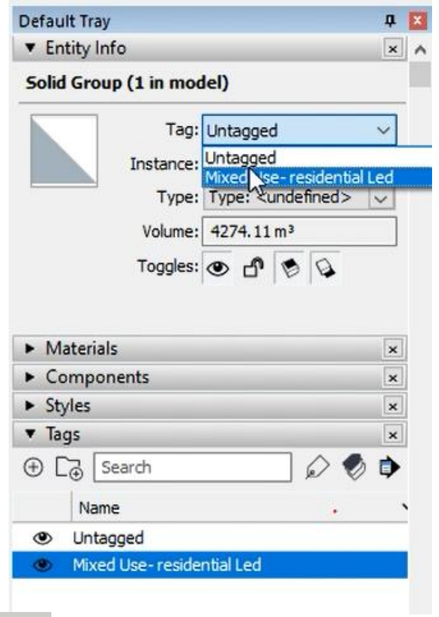


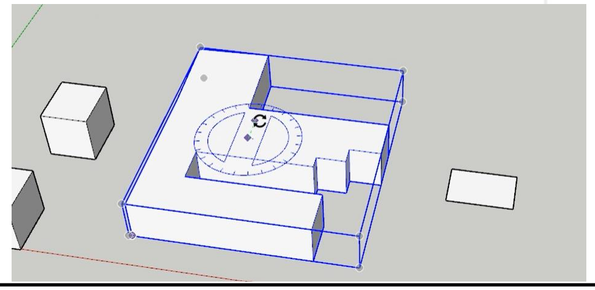
Move Tool, Tags (layers) & Rotate Tool

- Use the move tool to move models in any direction.
- Create a new tag by clicking on the plus icon
- The blue colour indicates the tag (layer) you are working on.









- To move models into tags, click on them and change their tag in the entity info.
- Use the rotate tool to rotate models.

Importing a DWG into SketchUp

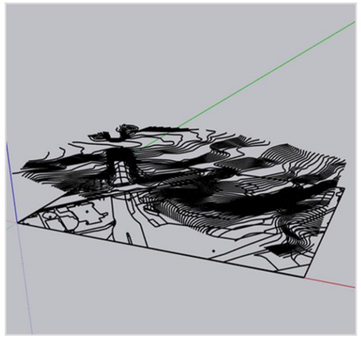
Placing the DWG from GeoMaps (extract with needed layers)

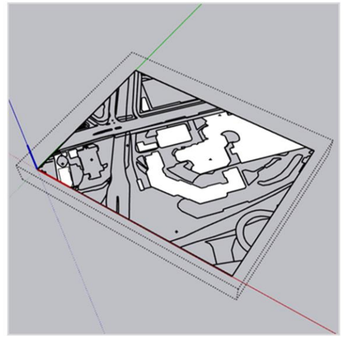
1) File > Import > Choose the file you want to import, DWG or JPG

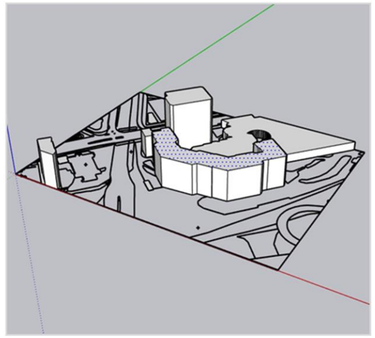
2). Select DWG >Import into Model. Remove contour (If needed) or hide it in tags>Right Click > Explode DWG >

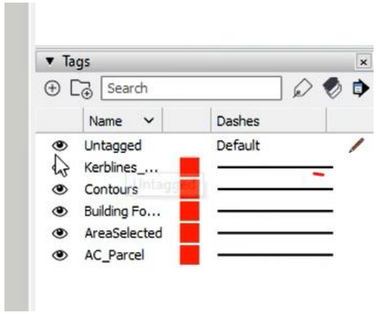
Use line tool to draw over lines which will fill the shape. Group face first.

3. Select faces > Right Click > Pull/Push to the desired height









- Use the tags to turn off or on the layers you imported.
- **Please note:** Due to the nature of SketchUp, it is recommended:

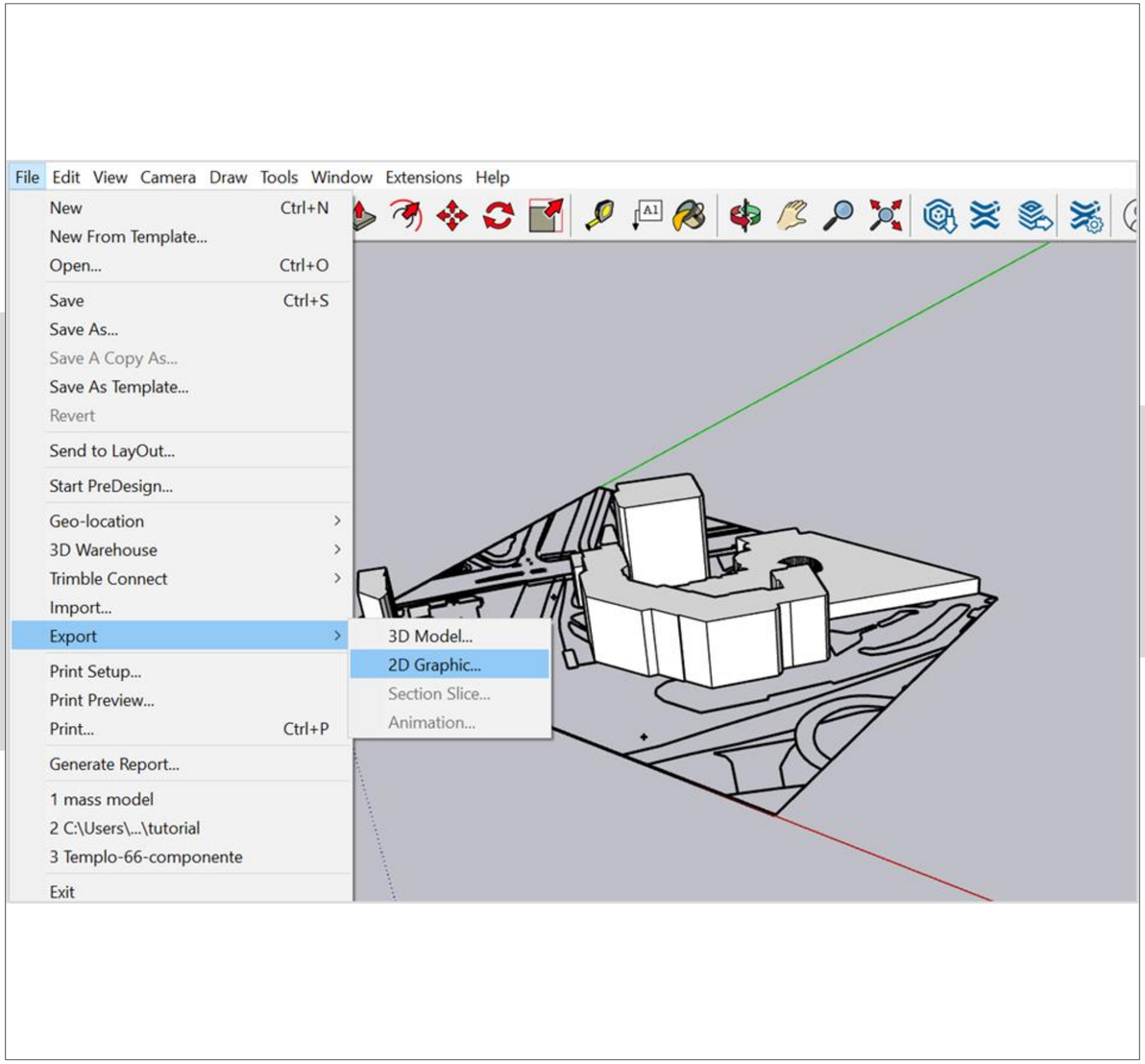
To import DWGs, generally stay below 1:5000 for footprints, parcels etc. (also depends on P.C)

For contours, 1:1000 or below is recommended.

Exporting as PDF, JPEG, PNG or DWG

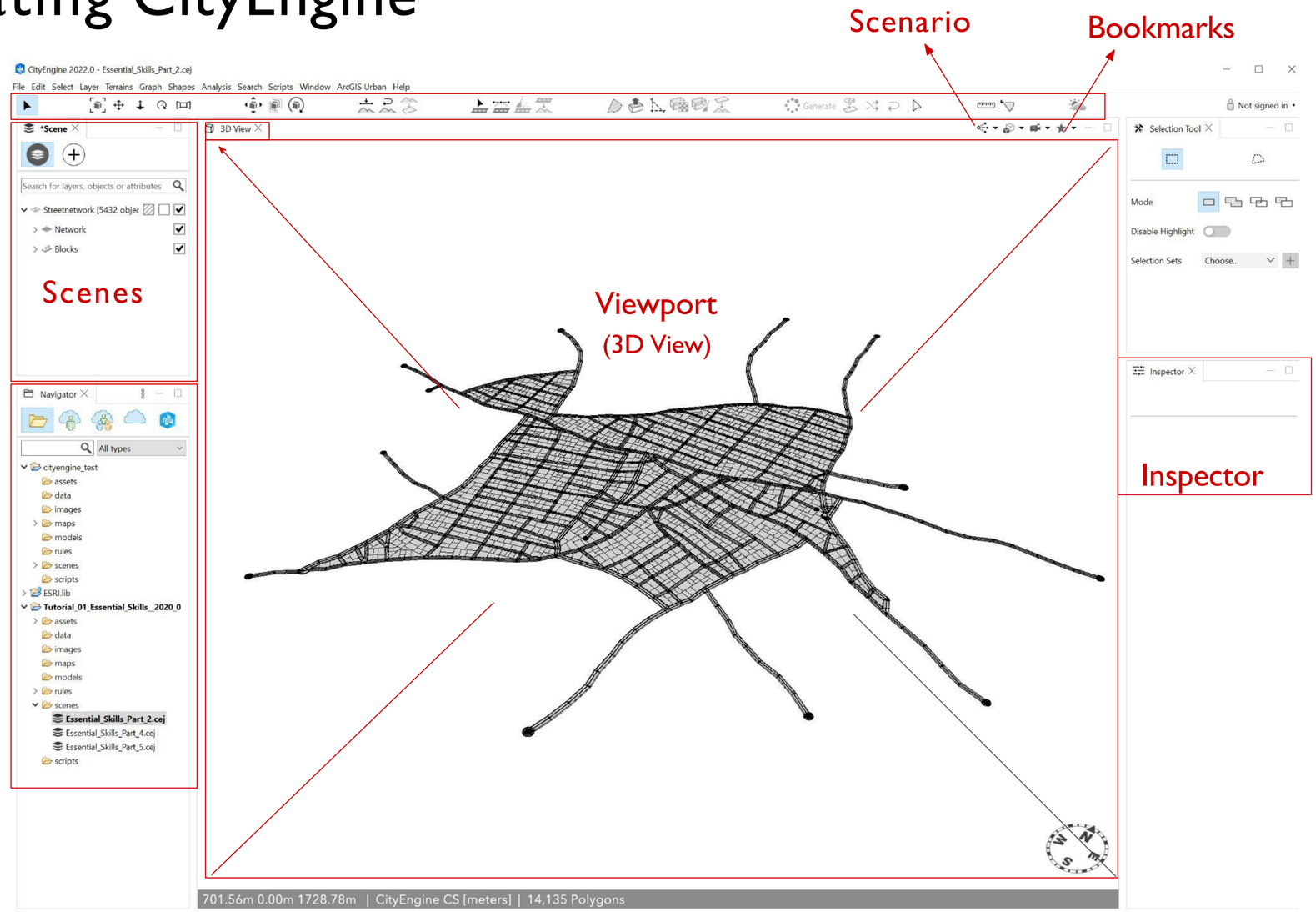
Exporting the Model:
1) File > Export > 2D Graphic
2). Save as a PDF / JPEG / PNG (2D images for editing on Photoshop and Illustrator) or save as a

DWG (for modelling software)



Exporting the Model (3D)
1) File > Export > 3D Model
2) Save to the desired file format you want, (OBJ, 3DS, DWG, DXF, etc)

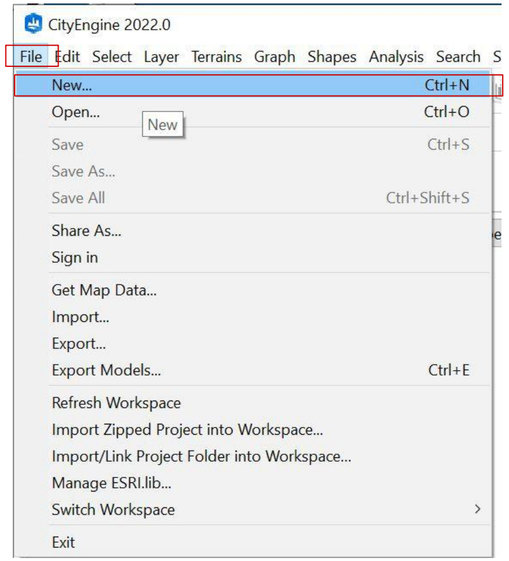
Navigating CityEngine

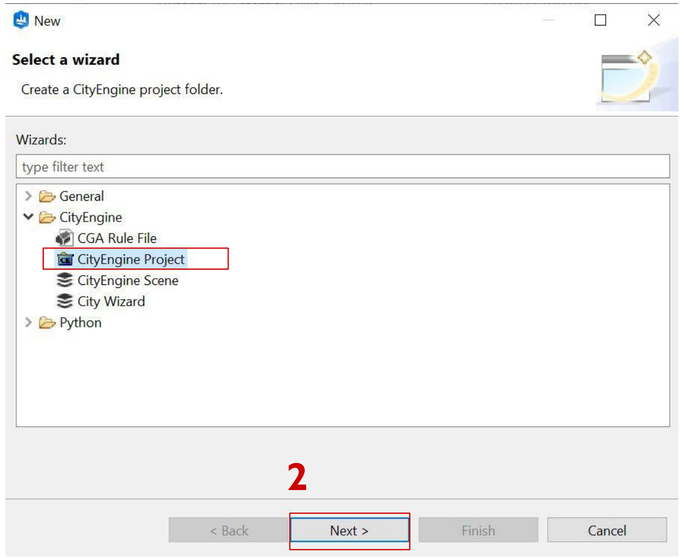


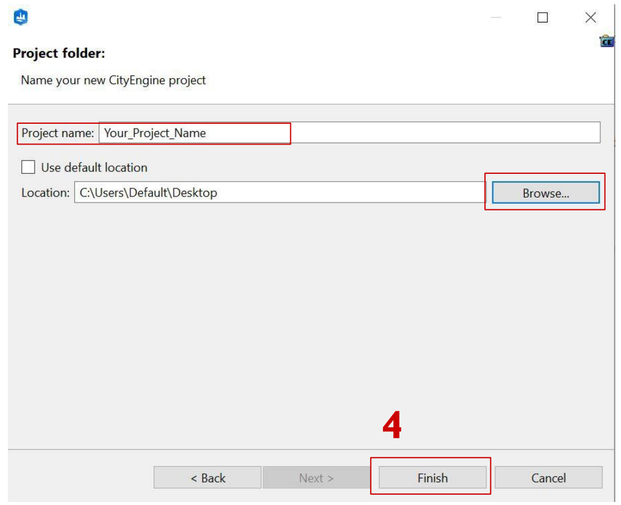
Create a project

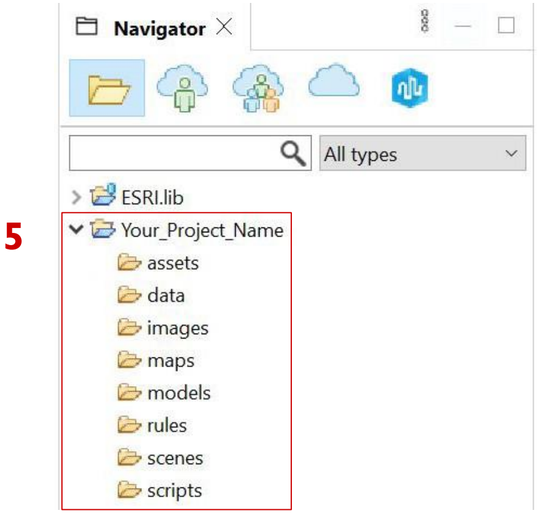
1. Click **File > New > CityEngine > CityEngine Project** to open the Select a wizard dialog box.
2. Click **Next**.
3. In the **Project name** box, type Your_Project_Name.
    a. Click **Browse** to select a folder location or *Use default location*

    * *make sure to remember where you saved*
4. Click **Finish**.
5. The project is created in the *Navigator*.

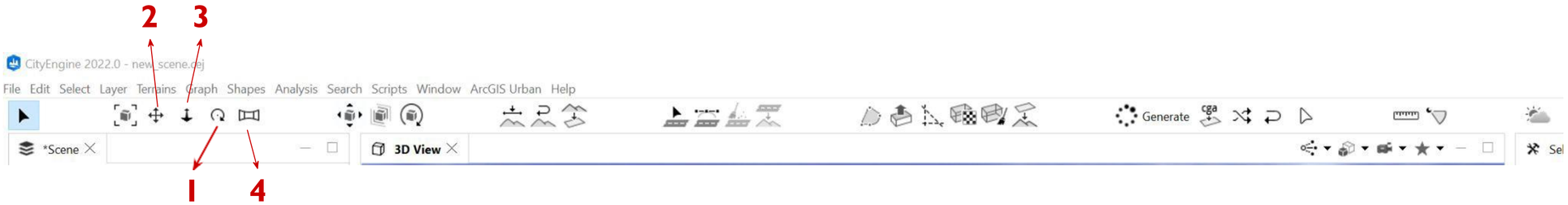








Navigating CityEngine



1 Tumble or rotate the scene.	• Click the Tumble/Rotate button  • Press **Alt+click**.
2 Move the view left, right, up, or down.	• Click the Pan/Track button  • Press **Alt+click** the wheel button. • Press the arrow keys.
3 Dolly/zoom the camera toward or away from the point of interest.	• Click the Dolly/Zoom button  • Press **Alt and right-click**.
4 Rotate the view from the current camera position. This can help create bookmarks that 360 VR exports.	• Click the Look around button  • Press **B+click**.

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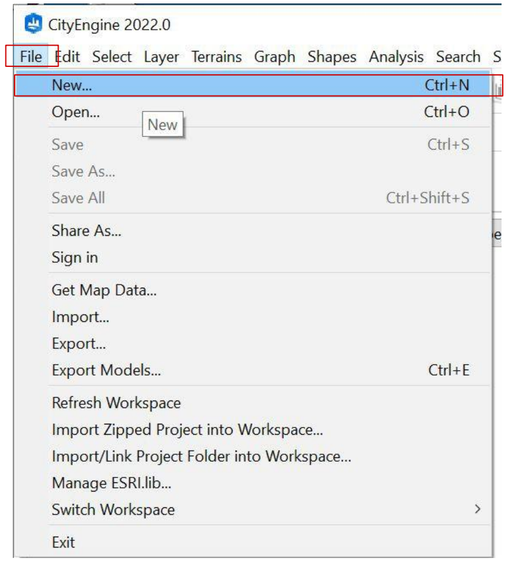
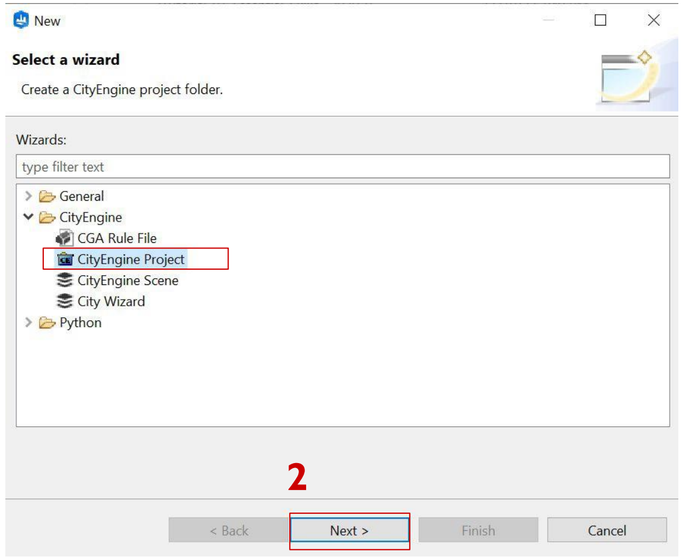
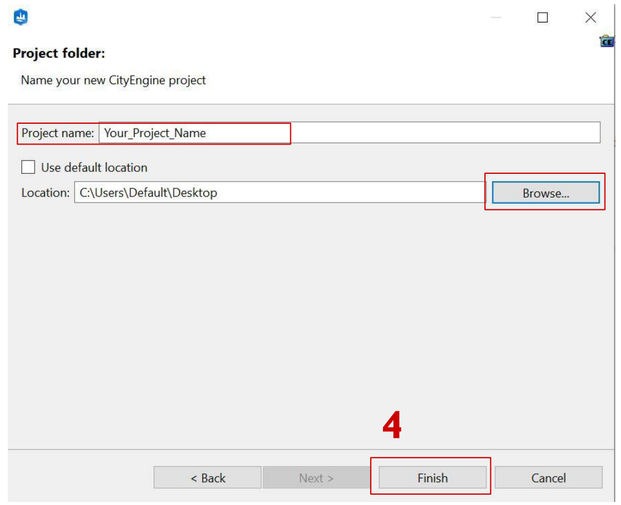
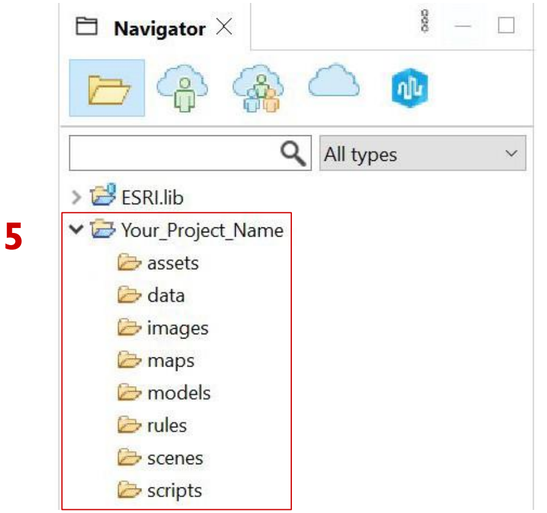


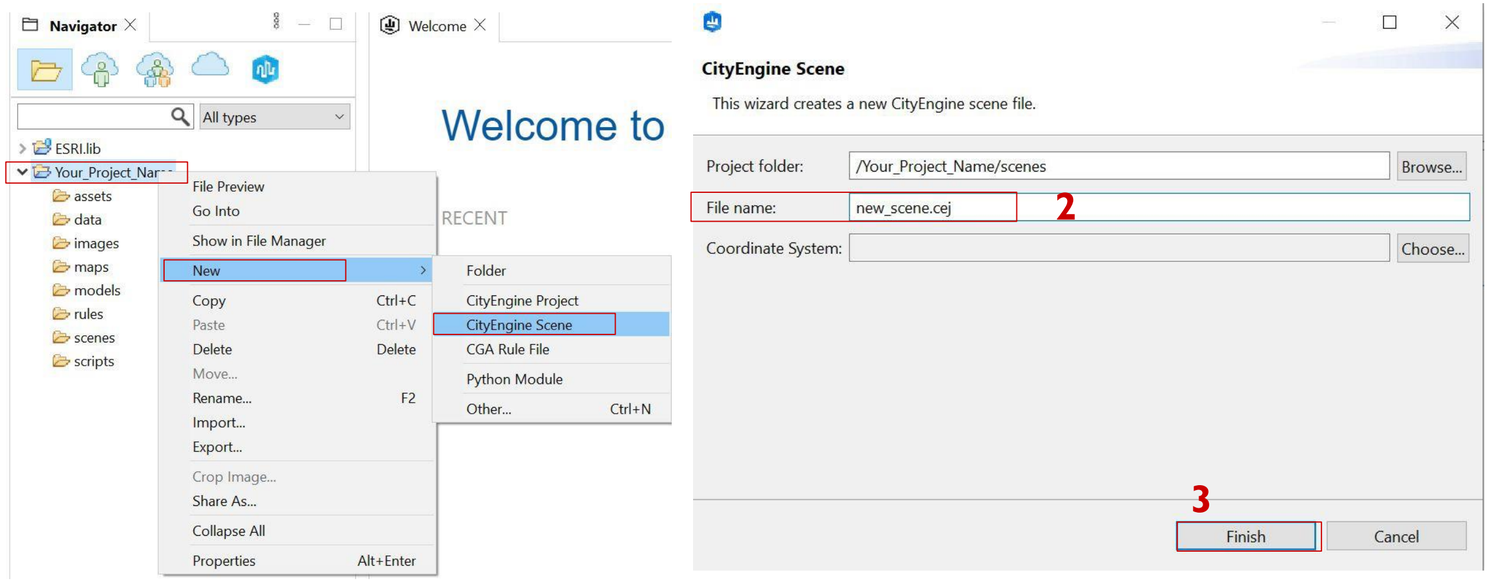


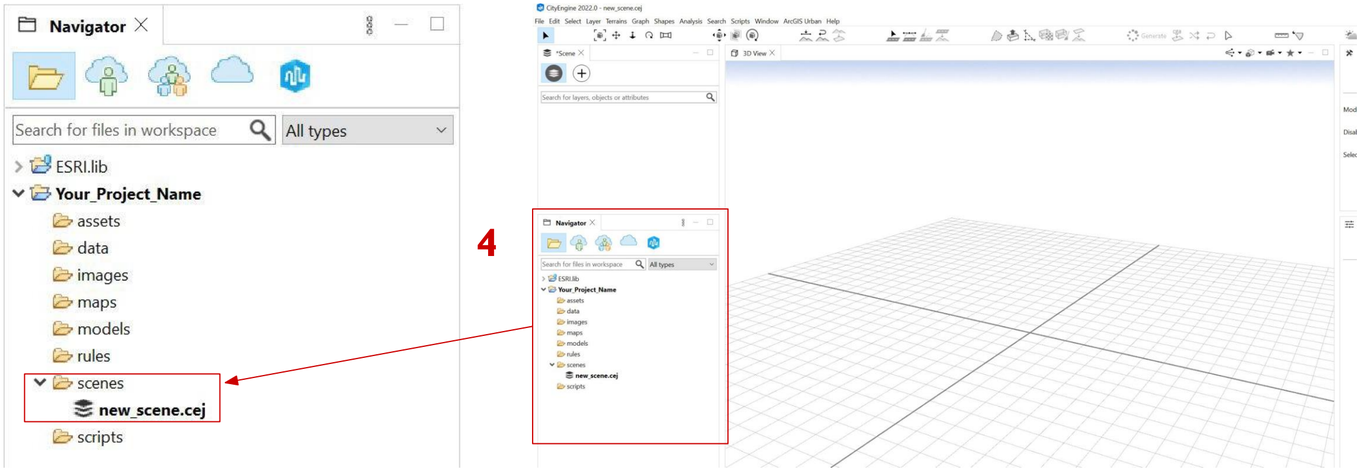




Create a scene

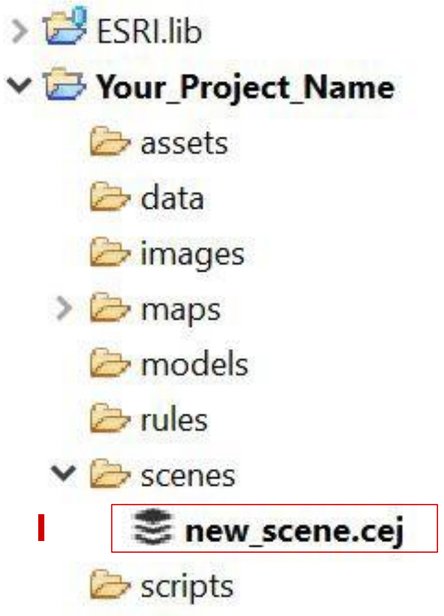
1. Click **File > New > CityEngine > CityEngine Scene** or **right-click** the Your_Project_Name folder and select **New > CityEngine Scene** to open the Select a wizard dialog box again.
2. In the **File name** box, type Your_Scene_Name.cej. Keep the Coordinate System box empty.
3. Click **Finish**.
4. The new scene is created under the project folder.

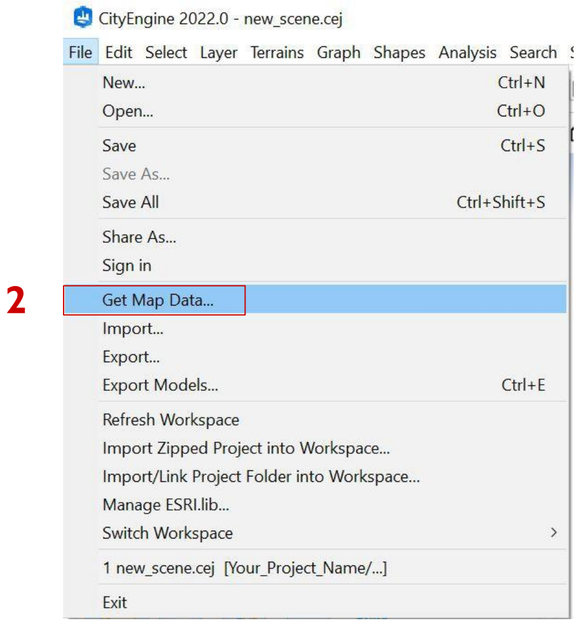


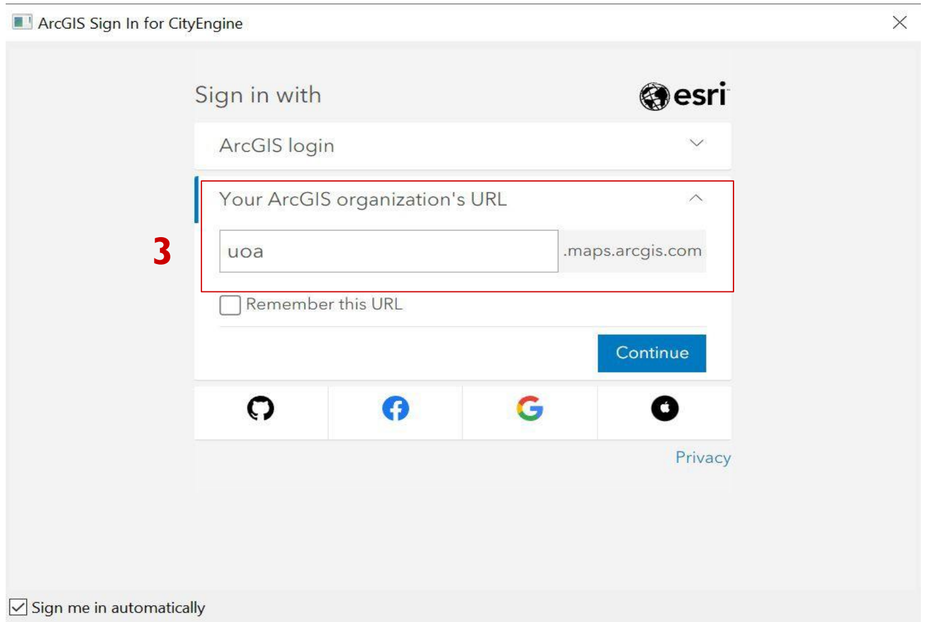


Get map data

1. Select an existing scene
2. Click **File > Get map data…**
3. ‘Your ArcGIS organization’s URL’ **>** Type “***uoa***” and Click **Continue**
4. Sign in with your UPI *Please email drh022@aucklanduni.ac.nz if you have any issue with sign in*

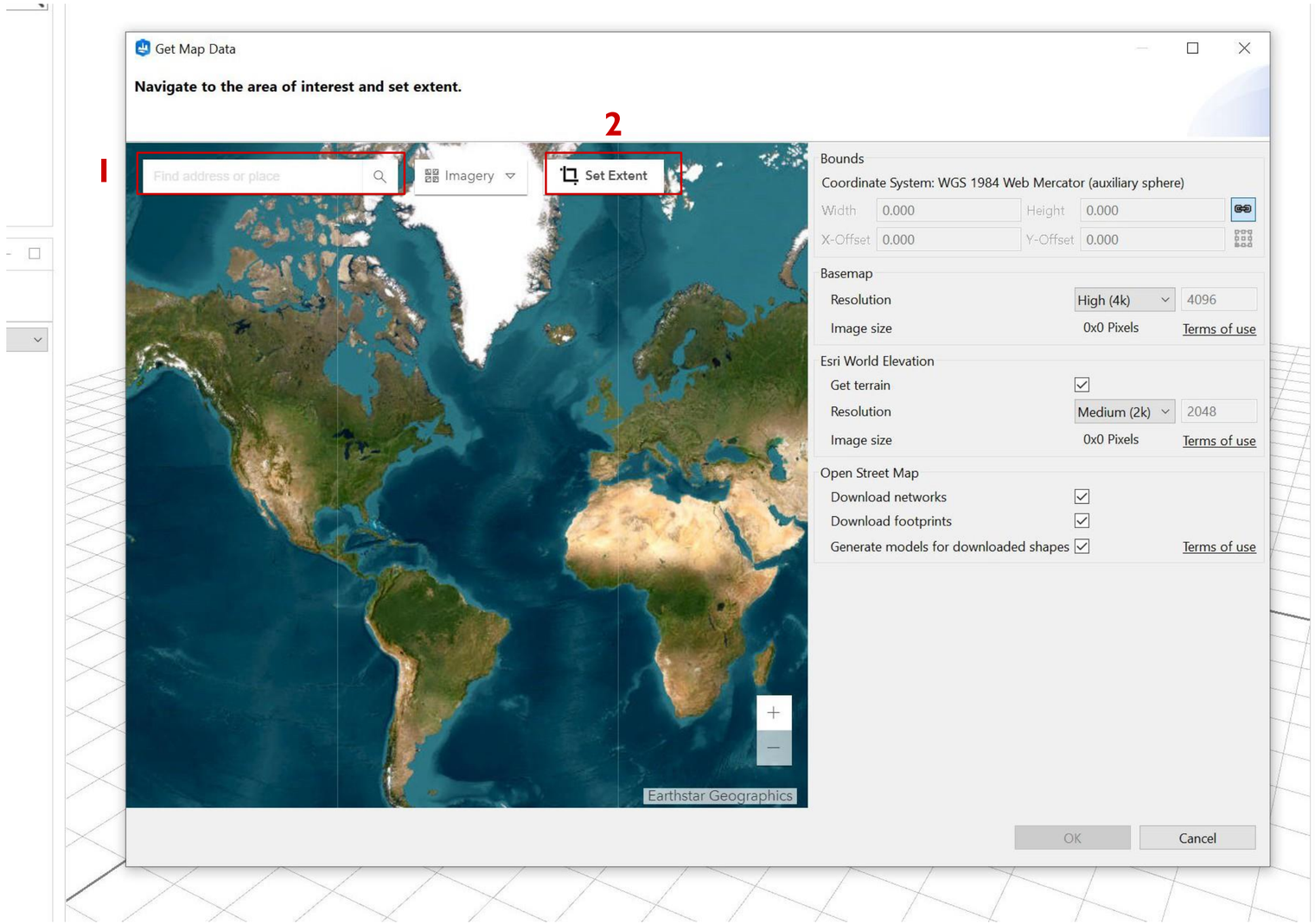






Get map data (con.)

1. The **Get map data** dialog opens.
   - Search for an area and then zoom in or out *OR*
   - Pan with the left mouse button to navigate around the map.
2. Click **Set extent**.



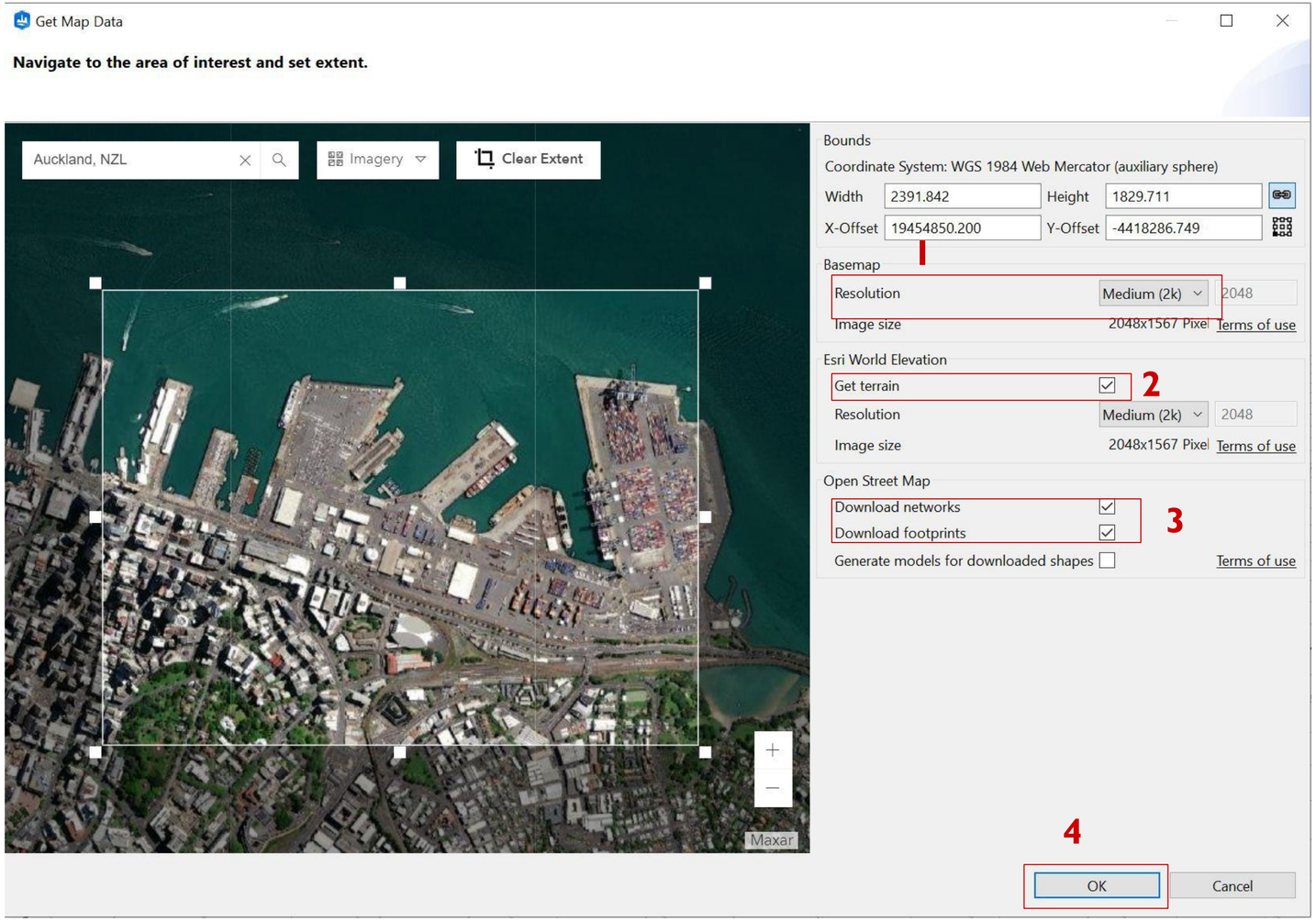
More Information CityEngine Help:
https://doc.arcgis.com/en/cityengine/2019.0/help/cityengine-help-get-map-data.htm

Get map data (con.)

1. Select the basemap resolution.

*Note: Recommend to select **Medium (2k)** for smooth downloading.*

2. Tick **Get Terrain** to include elevation data with your map.
3. Add **Open Street Map (OSM)** data to your scene.
   - Select **Download networks** for street data
   - **Download footprints** for building footprints data.
4. Click **OK**.

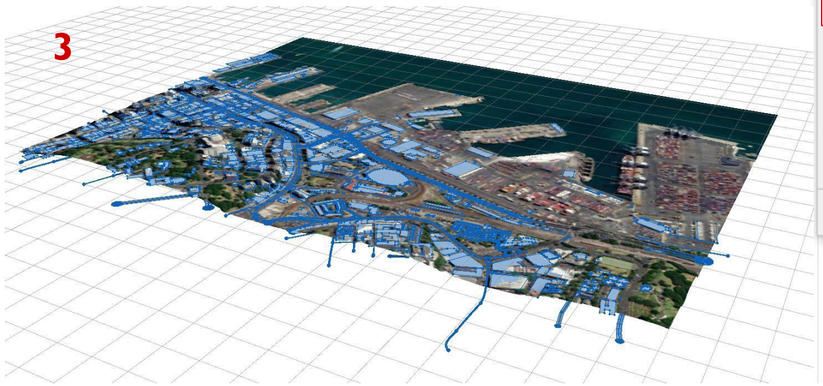


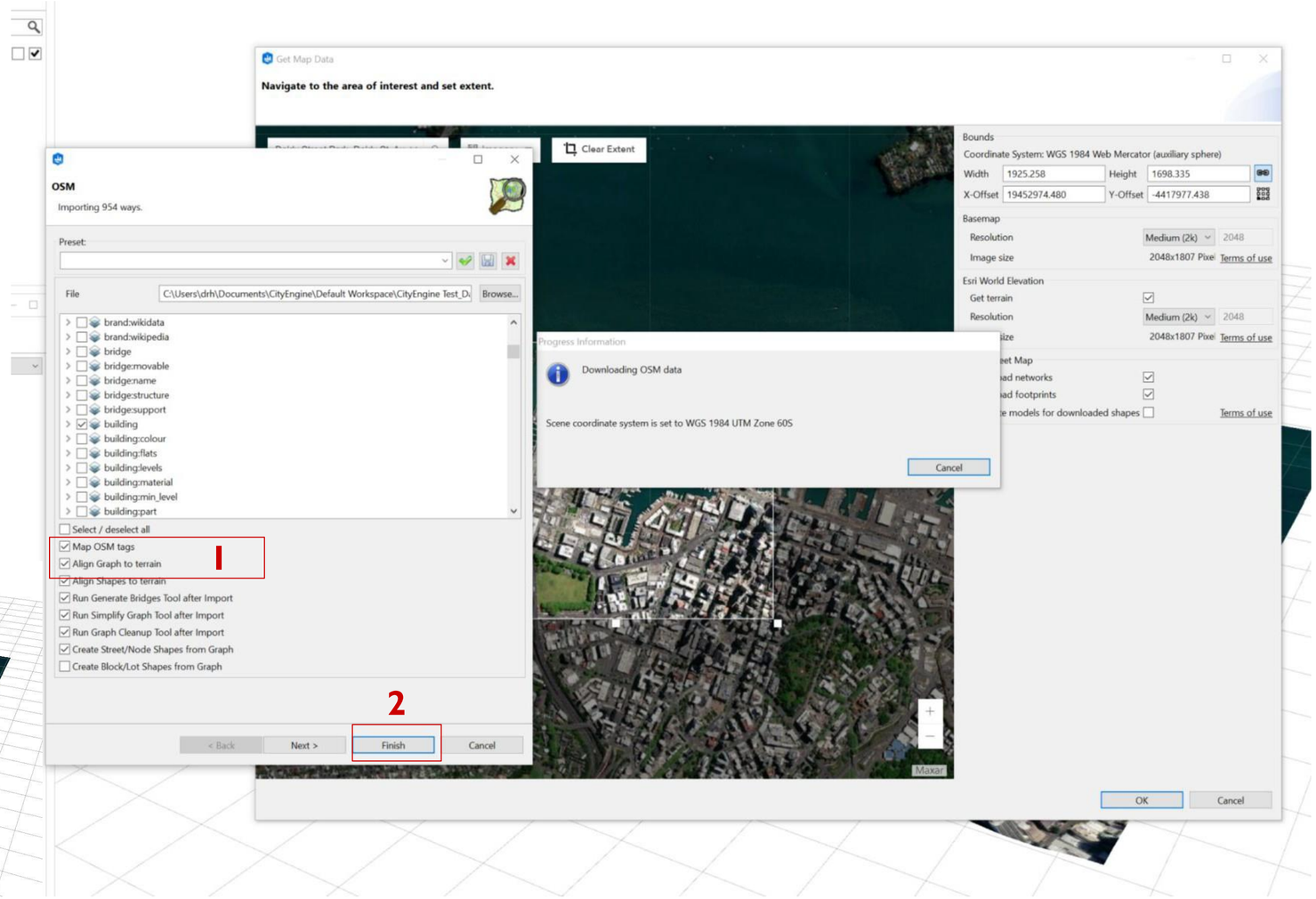
Get map data (con.)

1. OSM dialog opens

We recommend to tick all the boxes highlighted.

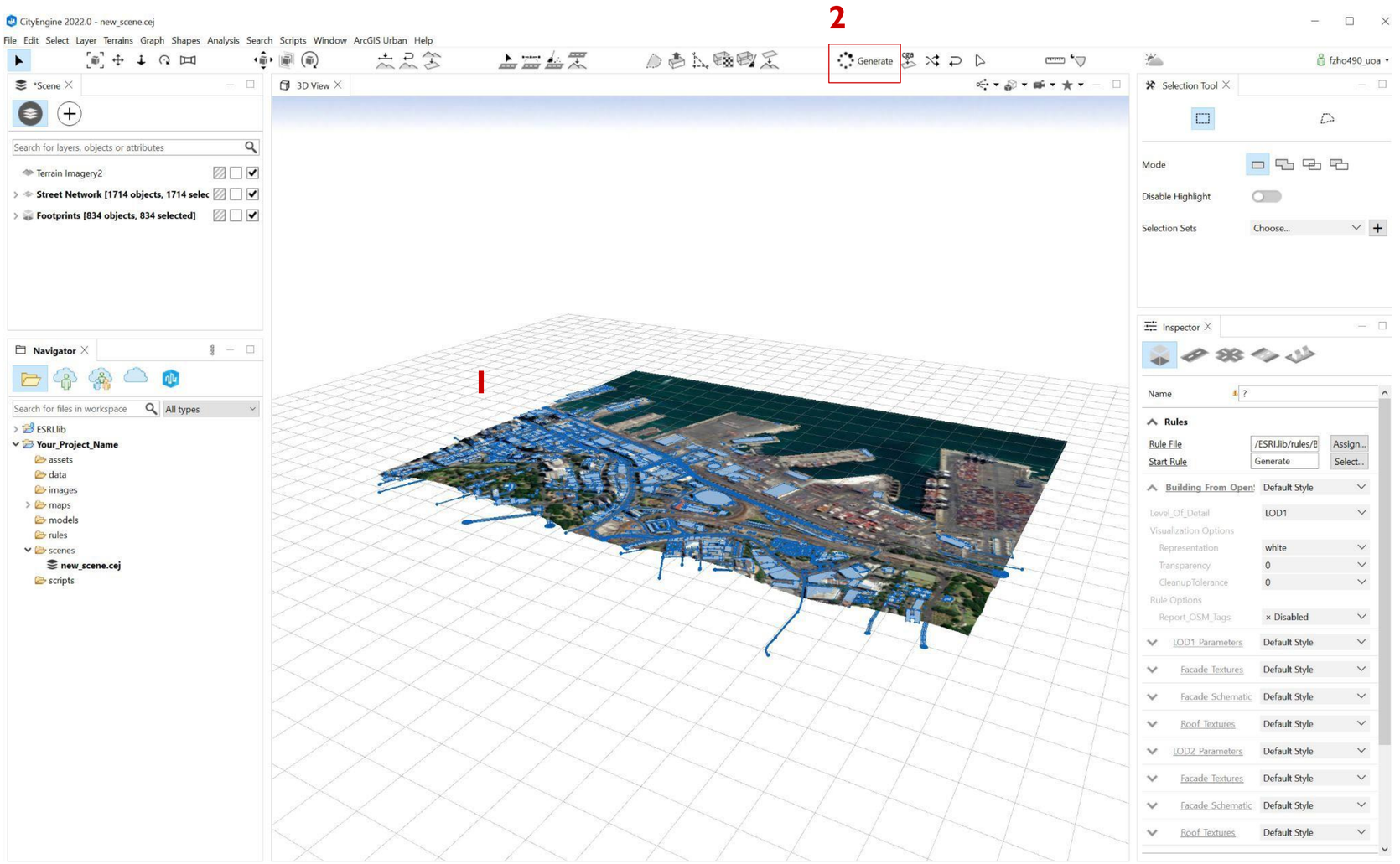
2. Click **Finish**.
3. The map with *terrain, streets, and building footprints* aligned to the elevation data is added to your CityEngine scene.





Building Generation

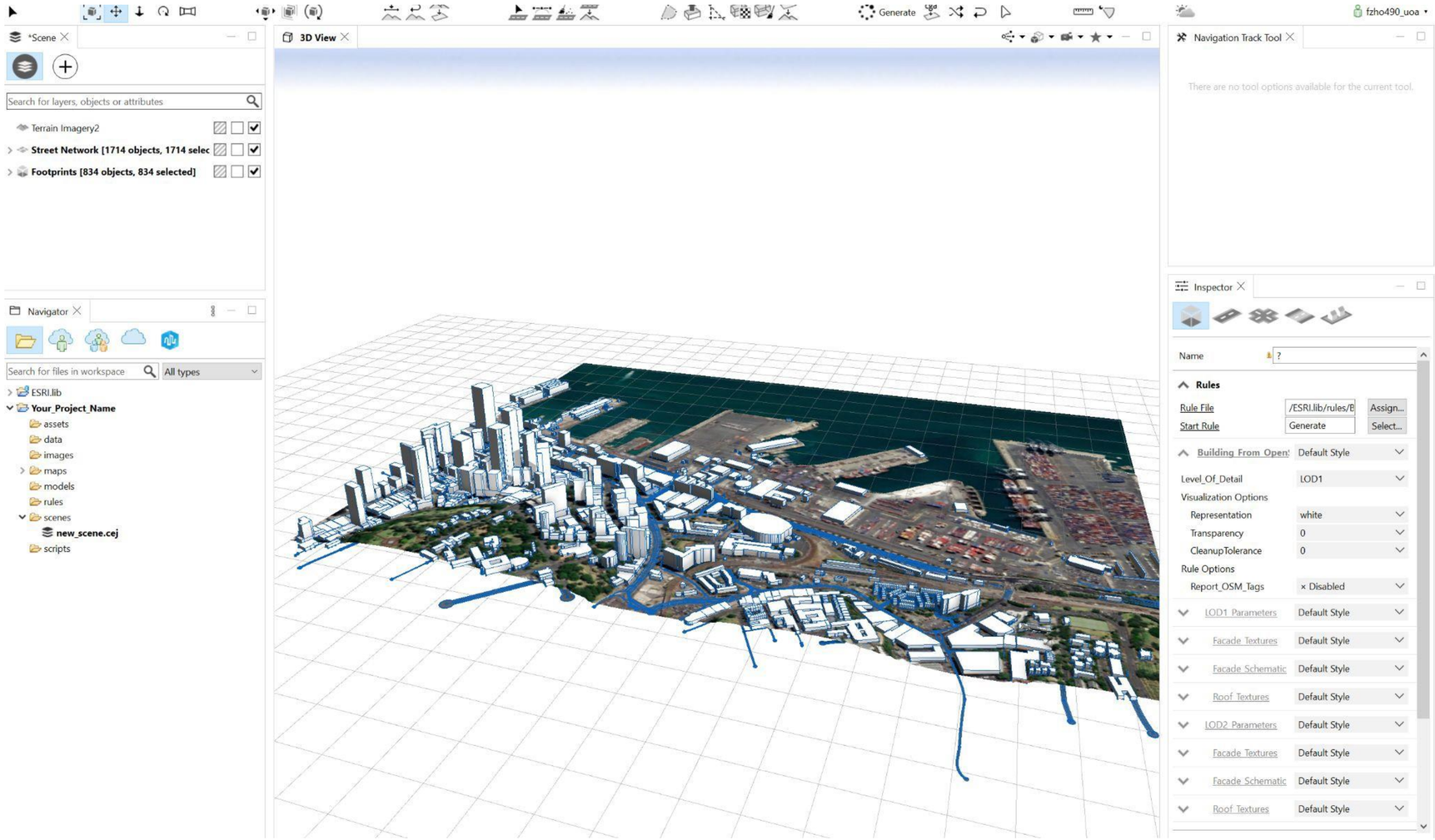
1. Select all shapes and objects in your scene. (Drag and select *OR* Control + A)
2. Click **Generate**
   - This will create buildings and street networks based on the ArcGIS data AND CityEngine own built in algorithm.



Building Generation

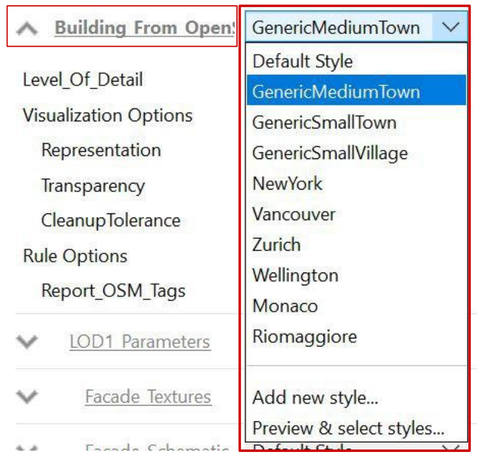
Note:

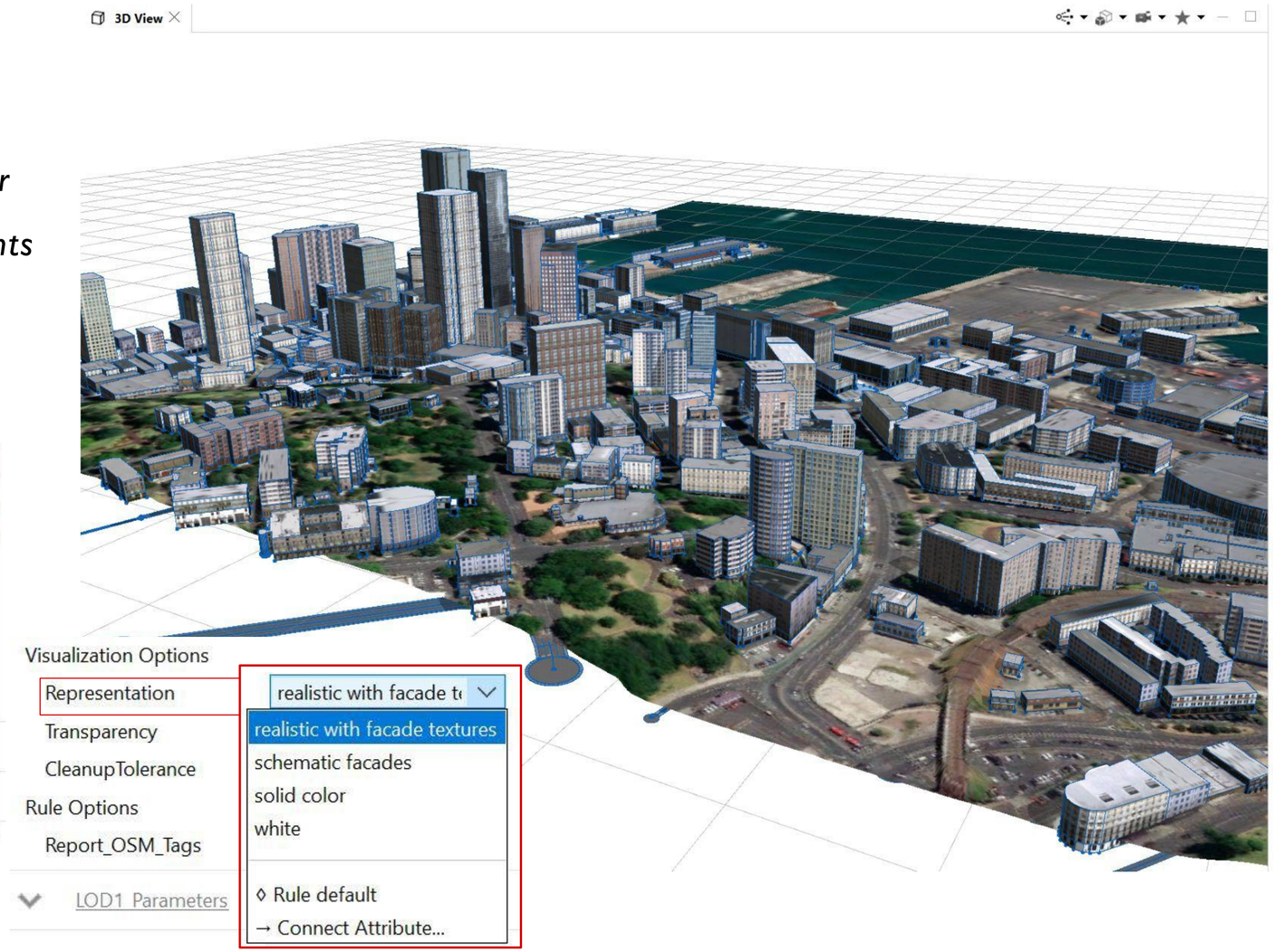
- *The heights and sizes of the building footprints* ***are NOT 100% accurate****.*
- This is designed to help you with generating quick, conceptual context and shadow studies for your works.

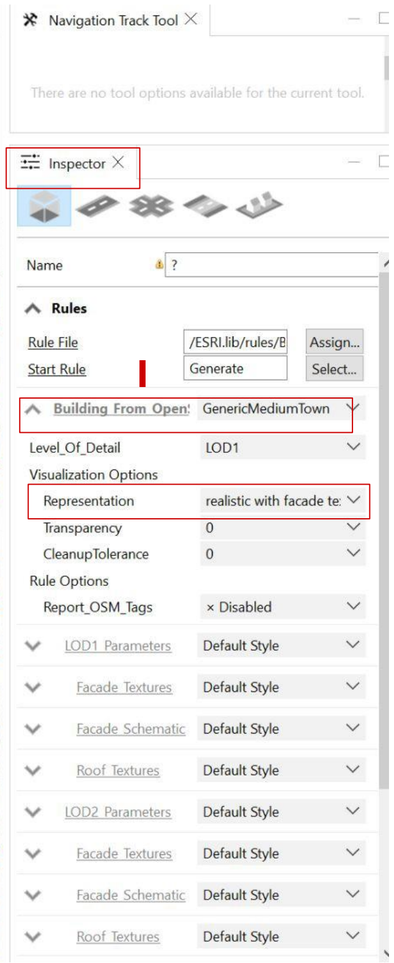


Building Generation

1. *For more realistic buildings, select an appropriate style for the building footprints in the* ***Inspector****.*







Building Height

1. Select a specific building
2. Change *building height* from **Building Settings**