

DIY Mapping for Librarians

Atlantic Provinces Library Association
Pre-Conference Workshop
May 14, 2013

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Agenda

- Introduction to OpenStreetMap
- Editing OpenStreetMap with web tools
- Editing OpenStreetMap with JOSM
- Making Indoor Maps with JOSM
- From OpenStreetMap to Google Earth

OpenStreetMap

- Like Wikipedia, but for a map of the world.
- “Open” means both the underlying data is available, and that anyone can contribute.
- Often this results in more current maps of better quality and coverage than commercial mapping companies.
- Rich set of map-making tools.



OpenStreetMap

The Free Wiki World Map



examples: 'Alkmaar', 'Regent Street, Cambridge', 'CB2 5AQ', or 'post offices near Lünen' [more examples...](#) [Where am I?](#)

OpenStreetMap is a free worldwide map, created by people like you.

The data is free to [download](#) and [use](#) under its [open license](#). [Create a user account](#) to improve the map.

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[Community Blogs](#)
[Foundation](#)
[User Diaries](#)

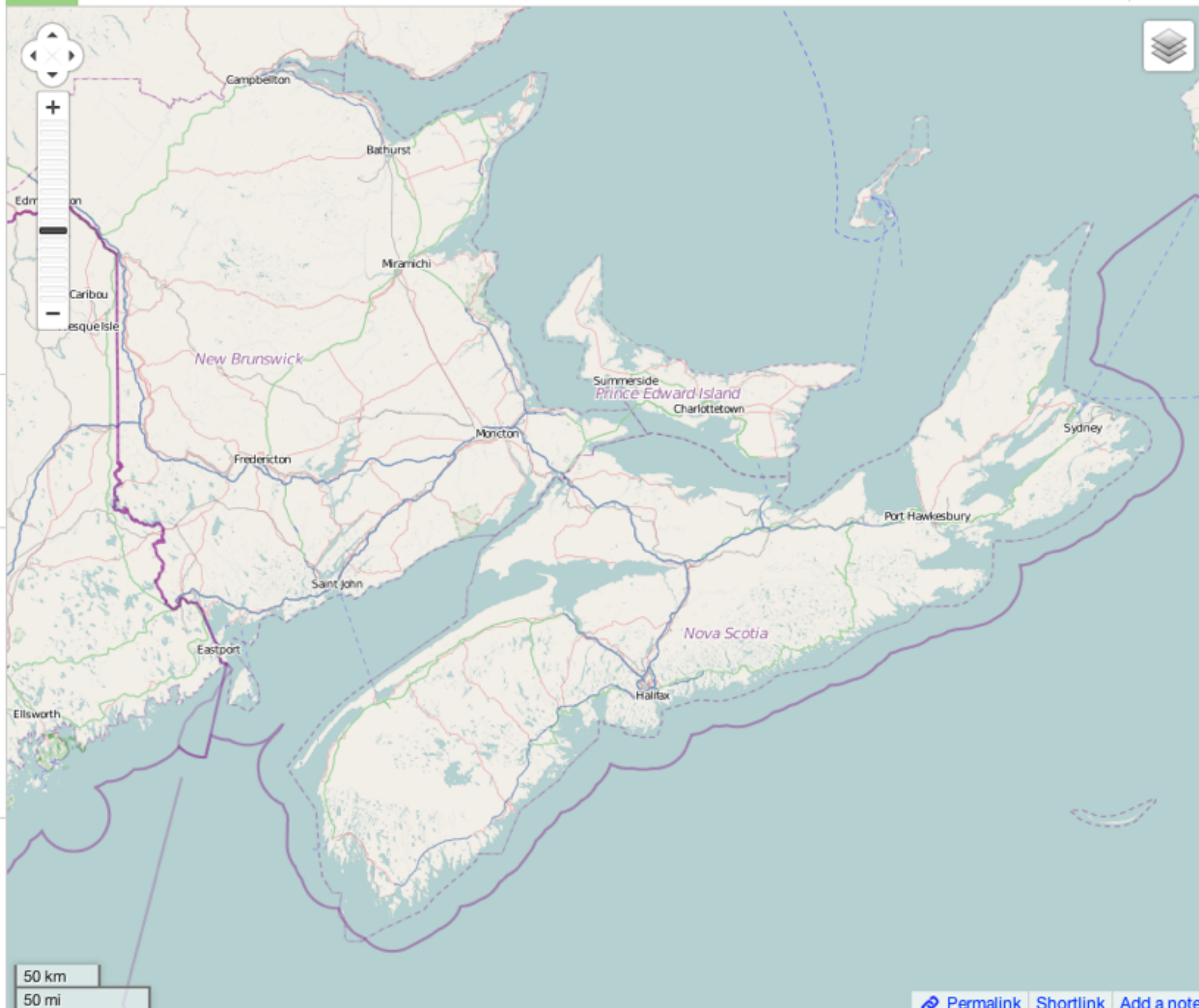
GPS Traces

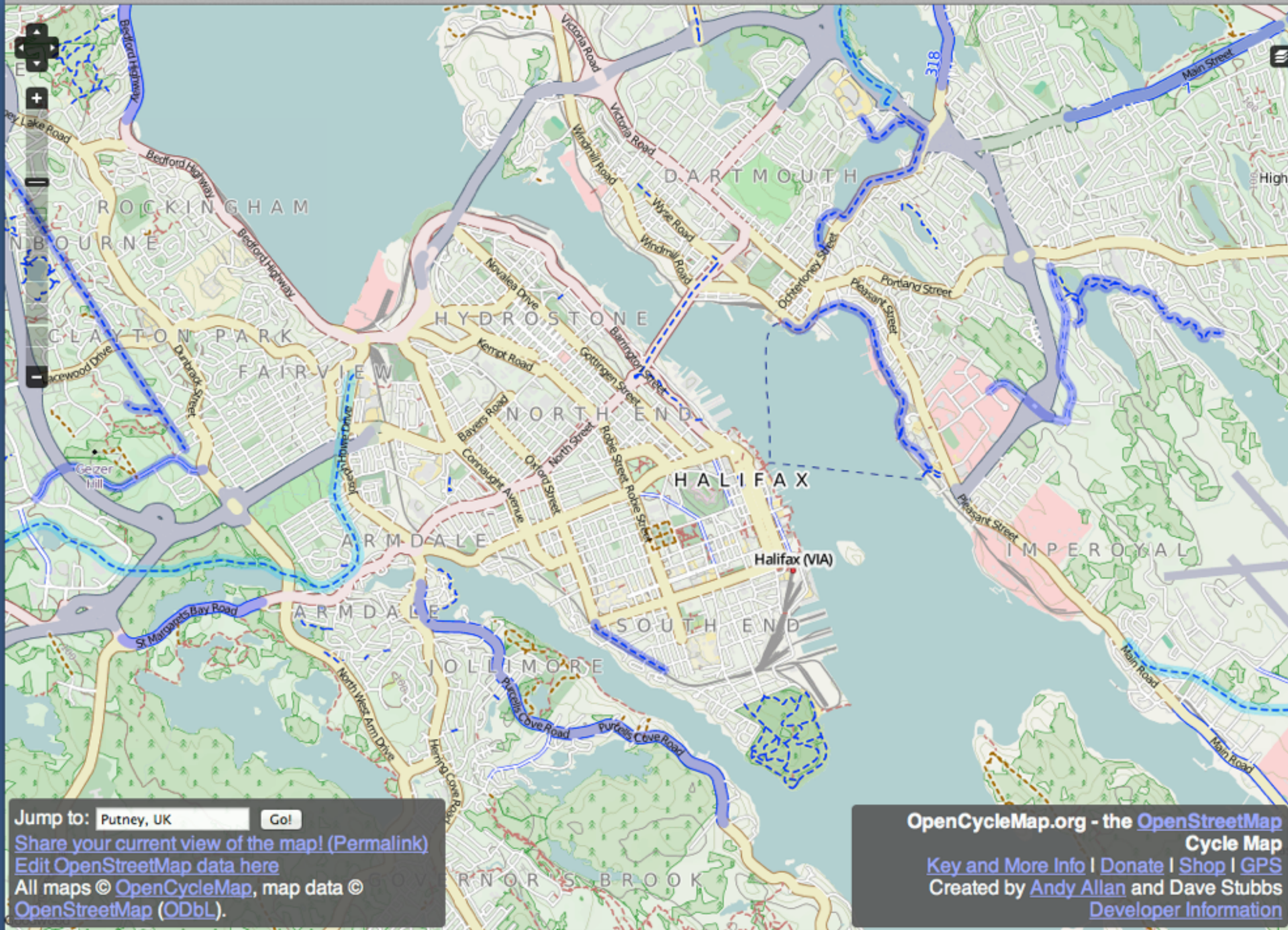
Map Key

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View

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Jump to:

[Share your current view of the map! \(Permalink\)](#)

[Edit OpenStreetMap data here](#)

All maps © [OpenCycleMap](#), map data © [OpenStreetMap](#) (ODbL).

OpenCycleMap.org - the [OpenStreetMap](#) Cycle Map

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Created by [Andy Allan](#) and [Dave Stubbs](#)

[Developer Information](#)

ISLAND TRAILS



Confederation Trail



Major Woodland Trails



Other Hiking / Biking Trails



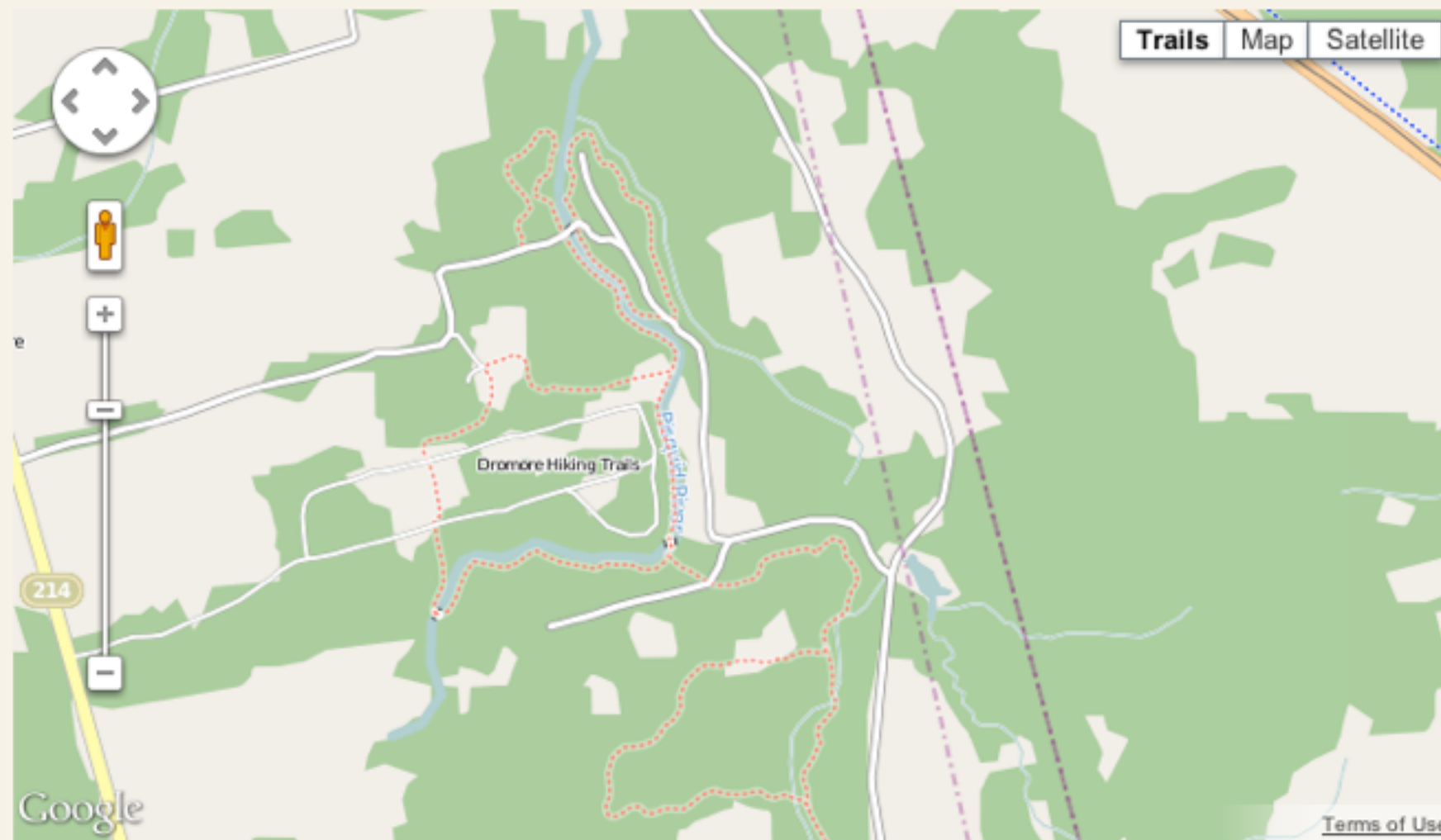
Parks Canada Trails



Heritage Roads



Good Citizen Checklist



Dromore Woodland Trails

Please click on the individual trail links below to learn more.

A. [SOUTH LOOP >](#)

D. [SOUTH CONNECTOR >](#)

B. [CENTRE LOOP >](#)

E. [CENTRE CONNECTOR >](#)

en



Start: University Avenue, Charlottetown

End: Euston Street, Charlottetown

Reset

Car (fastest)

Reverse

Route Description

(Belvedere Avenue - University Avenue)

Distance: 2.45 km

Duration: 3 min

[\[Generate Link\]](#)[\[GPX File\]](#)

- | | |
|---|---------|
| Head south | 20 m |
| Turn left | 41 m |
| Continue | 11 m |
| Continue | 0.20 km |
| Turn sharp right onto University of PEI Ring Road | 0.13 km |
| Enter roundabout and leave at first exit onto Belvedere Avenue | 0.30 km |
| Turn left onto University Avenue | 1.73 km |
| Turn left onto Euston Street | 13 m |
| You have reached your destination | |

Routing by [Project OSRM](#) - Geocoder by [Nominatim](#) - OSRM hosting by [KIT](#)

300 m



OpenStreetMap
The Free Wiki World Map



examples: 'Alkmaar', 'Regent Street, Cambridge', 'CB2 5AQ', or 'post offices near Lünen' [more examples...](#) [Where am I?](#)

Help

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GPS Traces

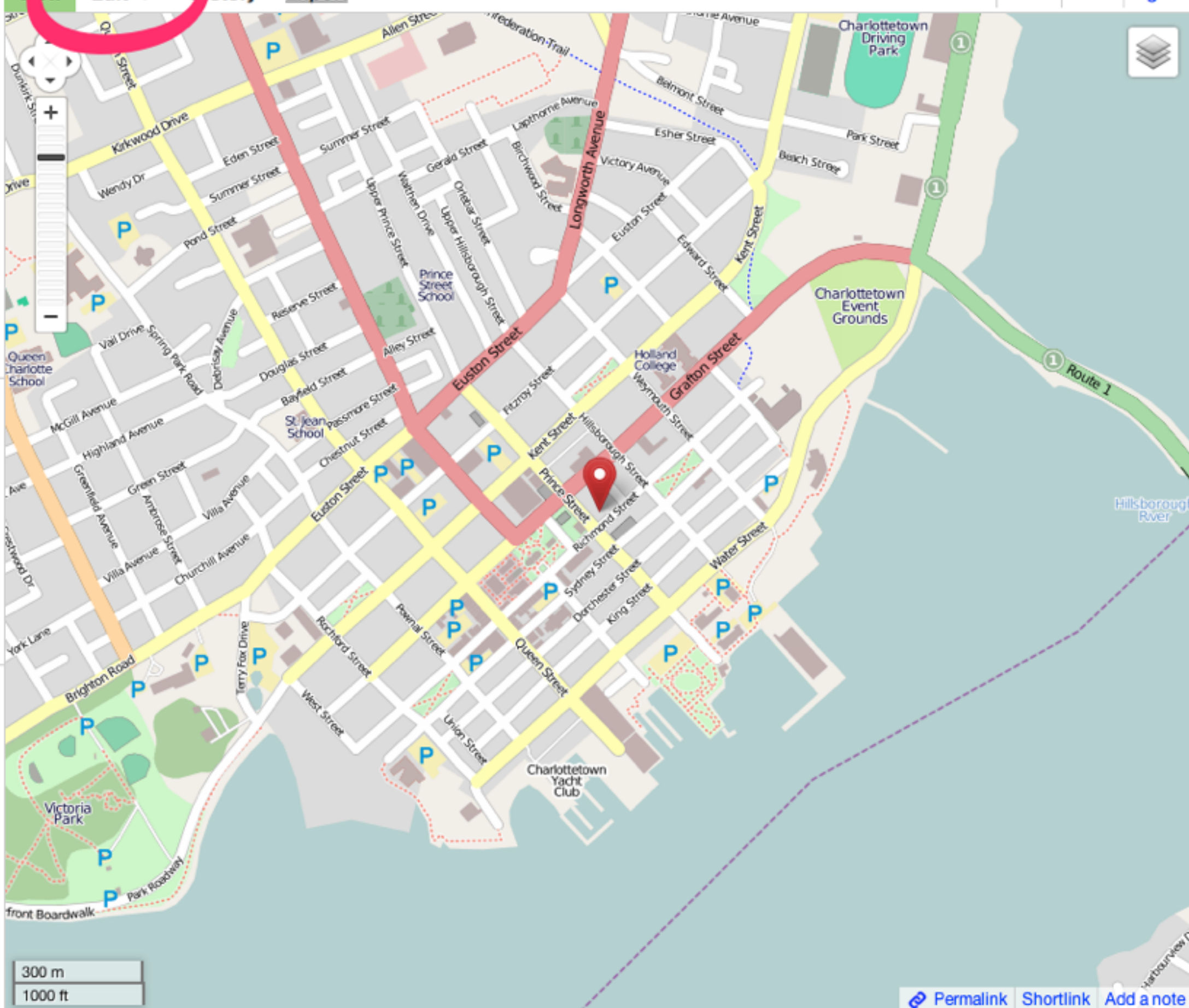
Map Key

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View **Edit ▼** **History** **Export**

Peter Rukavina [home](#) [inbox](#) [logout](#)



[Permalink](#) [Shortlink](#) [Add a note](#)

OpenStreetMap Concepts

- **Point** (a single point on the map)
- **Line** (road, path, etc.)
- **Area** (building, park, farm, etc.)
- **Lines** and **Areas** are also know as **ways** in OpenStreetMap parlance.

Editing OpenStreetMap

- Sign up for a free account and login.
- Find an area you'd like to map.
- Click **Edit | Edit with iD**
- Click on a feature to edit or,
- Add a point, line or area.
- Add metadata.
- **Save** (and add a comment about what you did)

Editing OpenStreetMap

- Sign up for a free account and login.
- Find an area you'd like to map.
- Click **Edit | Edit with Potlatch 2**
- Click on a feature to edit or,
- Starting drawing points or ways.
- Add metadata.
- **Save** (and add a comment about what you did)

Go Edit Something

Editing with JOSM

- JOSM is a “power editor” for OpenStreetMap.
- Runs as a standalone application on your computer, not in a web browser.
- Much more power; much more complexity.
- The best tool for creating detailed indoor maps.

JOSM Basics

- Drag map with the right mouse button down.
- Zoom in and out with mouse wheel.
- Use the OpenStreetMap wiki as a reference for metadata.
- Use OpenStreetMap itself as a guide: look at what others have done and follow suit.

JOSM Basics

- Click to start drawing a way or a point.
- ESC to stop drawing **or** double-click to close the way into an area.
- Use the “little cross marks” to add points to a way.

Select an Area on Startup

Java OpenStreetMap Editor

Tools Presets Imagery Windows PicLayer Audio Help

JOSM - Java OpenStreetMap Editor

- 2013-05-06 ([5932](#))
 - integrate restart plugin into core
 - right click menu "undo, cut, copy, paste, delete, select all" for each text component
 - improve performance of [purge command](#)
- 2013-04-08 ([5836](#))
 - major rework of context menus
 - add "clear buffer" button to remove incorrect buffer from "paste tag from text" action
 - remove support for the (deprecated)
- 2013-03-07 ([5759](#))
 - Ctrl-Shift-V now can paste tags from clipboard
 - multiple MapCSS rendering improvements
 - allow dragging nodes in [Extrude](#) dialog
 - context menus in Add/Edit properties
 - basic date-filtering of GPS traces
 - remote control: allow deleting tags
 - lots of minor enhancements and bug fixes

● You are using version '5939' of JOSM

● [More news...](#)

● Help [translating](#) JOSM into your language

Getting Started

- Download some existing data from [OpenStreetMap](#)
- Your username and password are saved

Getting Help

- Online help: [Help](#) on the [Help](#) menu
- Join the [forum](#) or the [Newbies mailing list](#)

Remember the golden rules of OpenStreetMap

- Don't copy from other maps
- Have fun!

Download

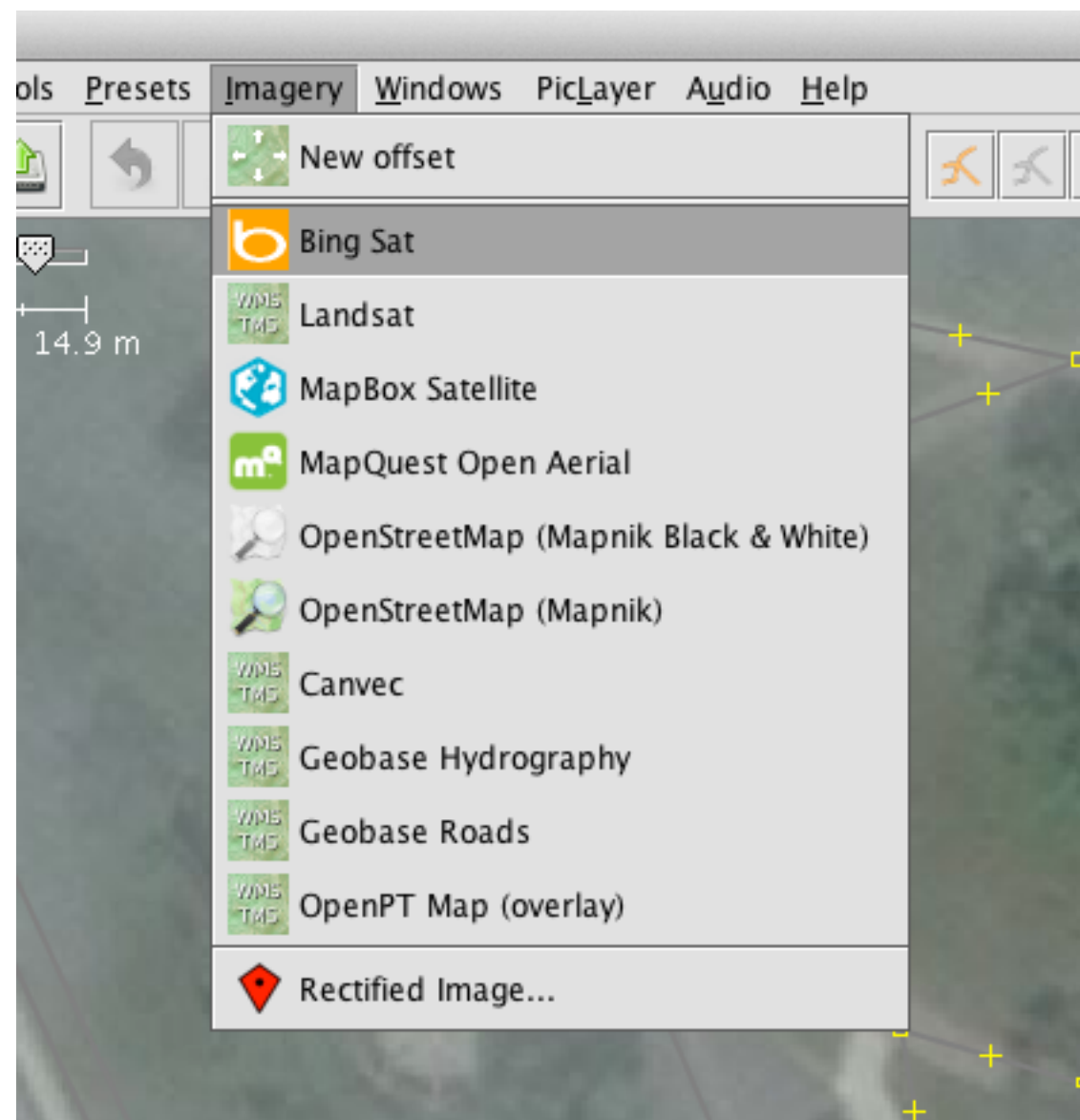
Data Sources and Types: ☒ OpenStreetMap data ☐ Raw GPS data

Slippy map Bookmarks Bounding Box Areas around places Tile Numbers

Download area ok, size probably acceptable to server

Use left click&drag to select area, arrows or right mouse button to scroll map, wheel or +/- to zoom.

Download Cancel Help



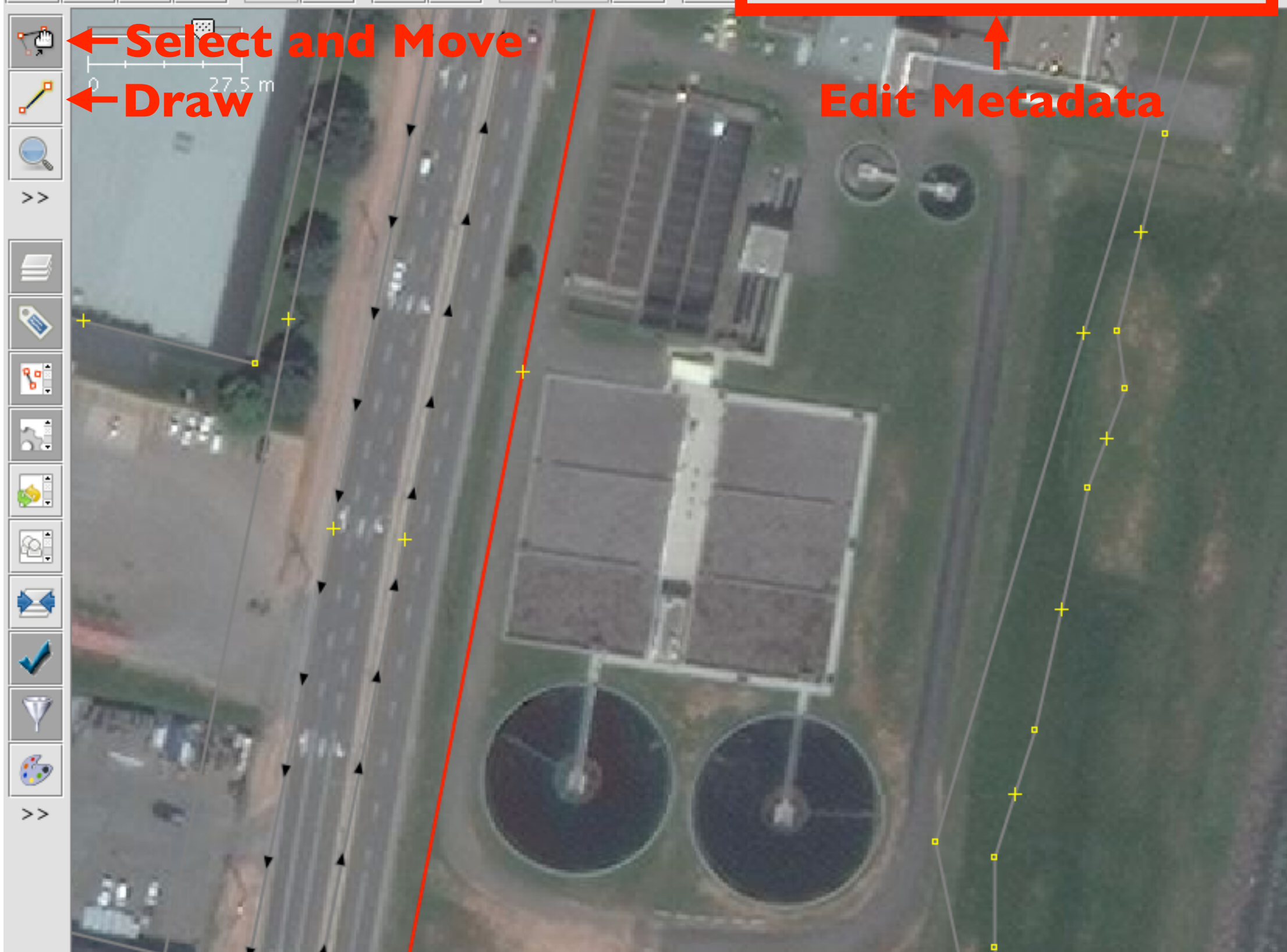
File Edit View Tools Presets Imagery Windows PicLayer Audio Help

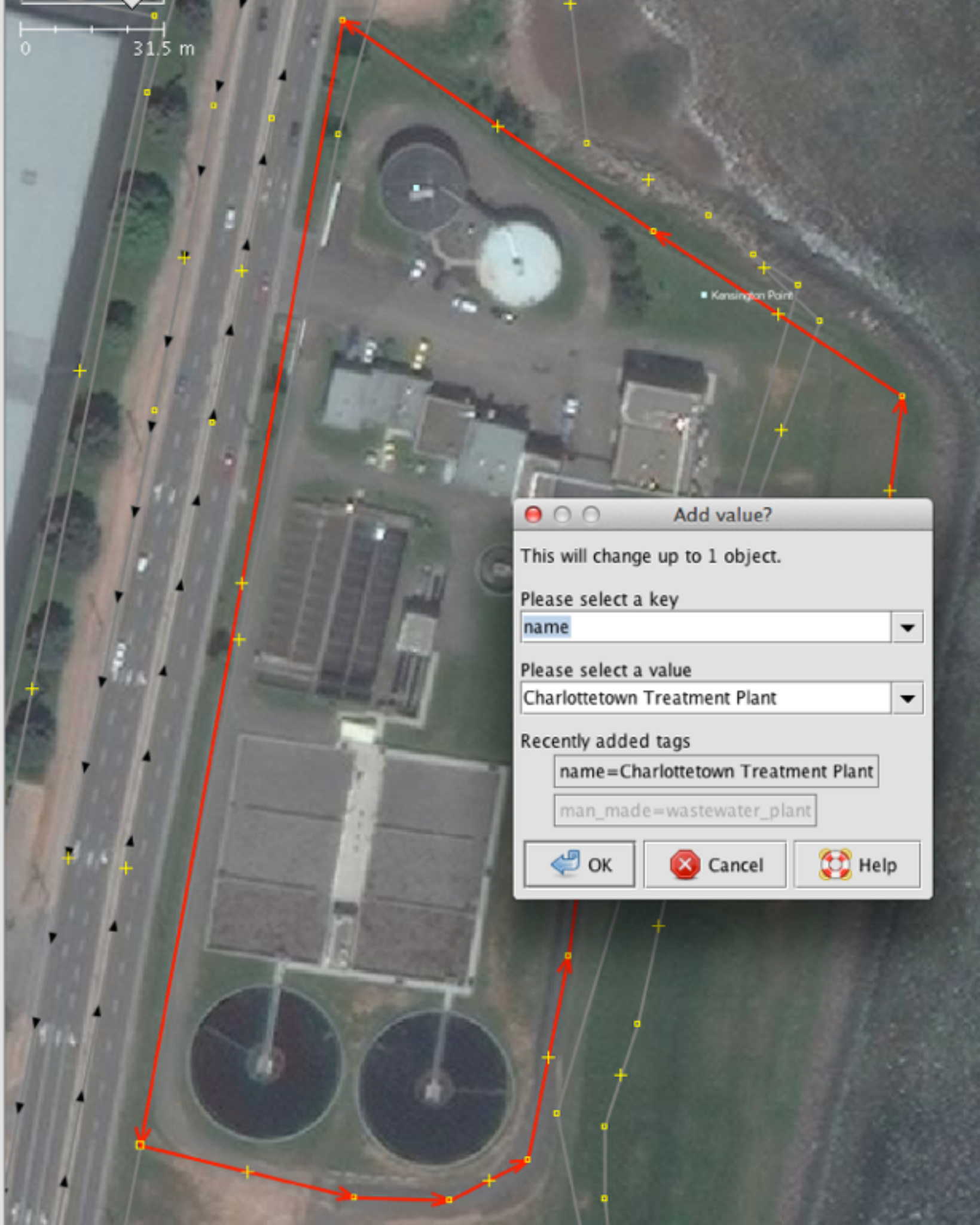


← Select and Move

← Draw

↑ Edit Metadata





Add value?

This will change up to 1 object.

Please select a key

Please select a value

Recently added tags

Data Layer 1

- Bing Sat

Properties: 1 / Memberships: 0

Man Made/Man Made/Wastewater Plant ...

Key	Value
man_made	wastewater_plant

Sel.: Rel.:0 / Ways:1 / Nodes:0

0 (11 nodes)

Relations: 2

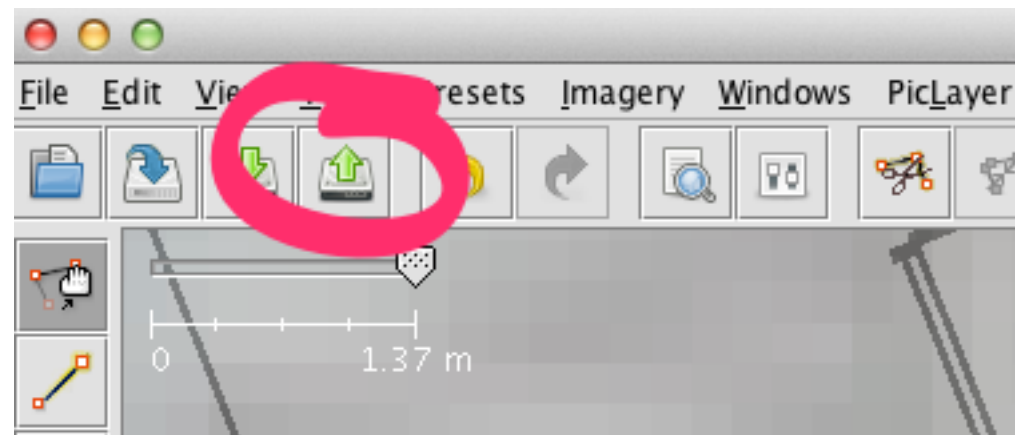
- route ("Trans-Canada Highway (PEI)", 133 members, incomplete)
- route ("Trans-Canada Highway (Super)", 11 members, incomplete)

Filter Hidden:0 Disabled:0

E	H	Text	I	M
<input type="checkbox"/>	<input type="checkbox"/>	footway	<input checked="" type="checkbox"/>	R
<input type="checkbox"/>	<input checked="" type="checkbox"/>	room corridor shell relation	<input checked="" type="checkbox"/>	A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	child role:level_1	<input type="checkbox"/>	A
<input type="checkbox"/>	<input type="checkbox"/>	footway	<input type="checkbox"/>	A
<input type="checkbox"/>	<input type="checkbox"/>	child role:level_0	<input type="checkbox"/>	A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	child role:level_1	<input type="checkbox"/>	A

When you're done...

- Click the “upload” icon to send your changes to OpenStreetMap.

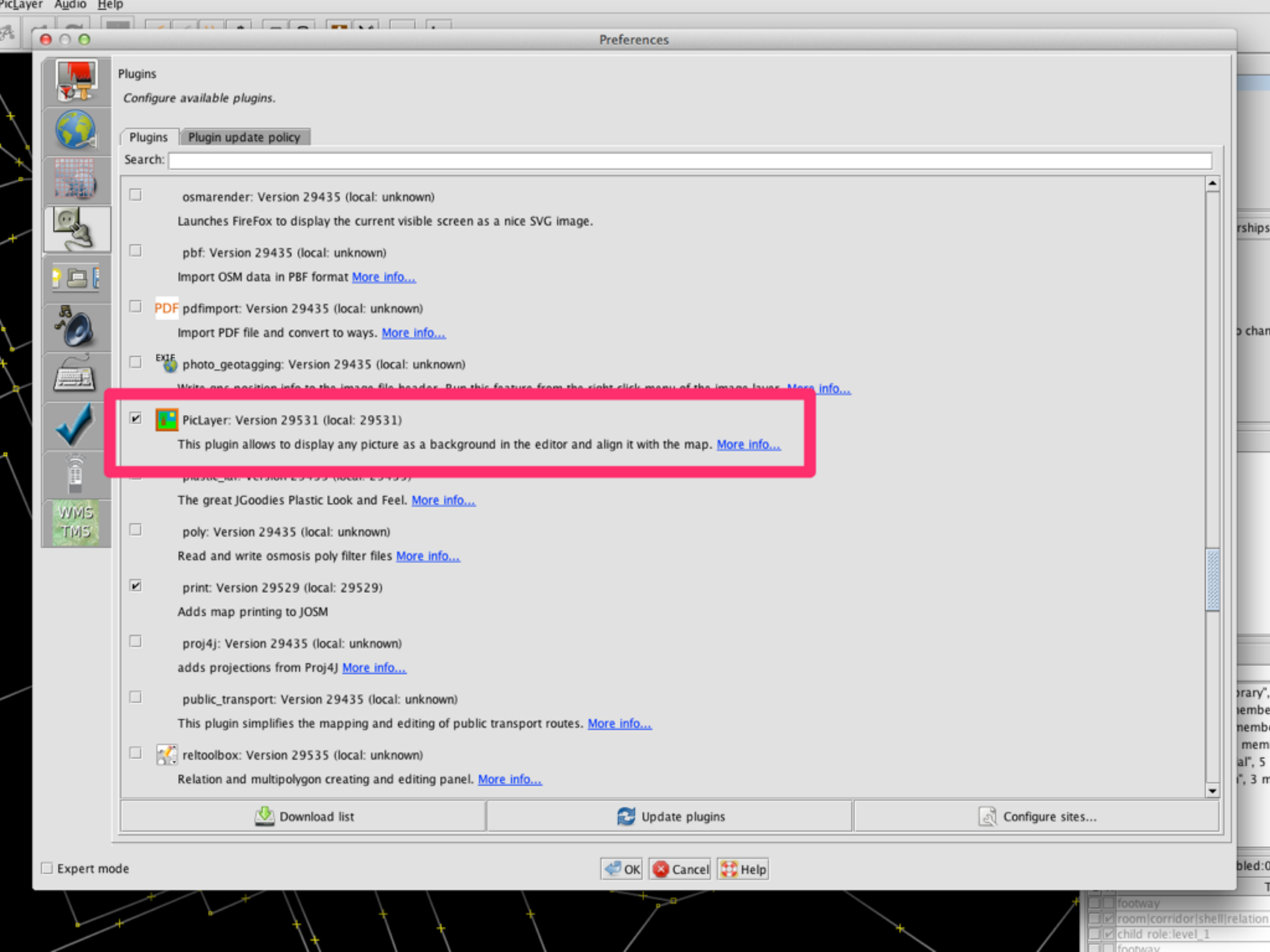


- Pay attention to any warnings you receive.

Go Edit Something

OSM Indoor Maps

- The “next frontier” for OpenStreetMap.
- Standards and approaches are “in flux.”
- The tools for outdoor mapping, mainly JOSM, are well-suited to indoor mapping.
- Rendering indoor maps still in its infancy.
- The “PicLayer” plugin is your friend.



Preferences



Plugins

Configure available plugins.


Plugins


Plugin update policy

Search:




- ☐ osmarender: Version 29435 (local: unknown)
Launches FireFox to display the current visible screen as a nice SVG image.
- ☐ pbf: Version 29435 (local: unknown)
Import OSM data in PBF format [More info...](#)
- ☐ PDF pdfimport: Version 29435 (local: unknown)
Import PDF file and convert to ways. [More info...](#)
- ☐ EXIF photo_geotagging: Version 29435 (local: unknown)
Write exif position info to the image file header. Run this feature from the right click menu of the image layer. [More info...](#)
- ☒  PicLayer: Version 29531 (local: 29531)
This plugin allows to display any picture as a background in the editor and align it with the map. [More info...](#)
- ☐ plastic_jan: Version 29435 (local: 29435)
The great JGoodies Plastic Look and Feel. [More info...](#)
- ☐ poly: Version 29435 (local: unknown)
Read and write osmosis poly filter files [More info...](#)
- ☒ print: Version 29529 (local: 29529)
Adds map printing to JOSM
- ☐ proj4j: Version 29435 (local: unknown)
adds projections from Proj4J [More info...](#)
- ☐ public_transport: Version 29435 (local: unknown)
This plugin simplifies the mapping and editing of public transport routes. [More info...](#)
- ☐  reltoolbox: Version 29535 (local: unknown)
Relation and multipolygon creating and editing panel. [More info...](#)

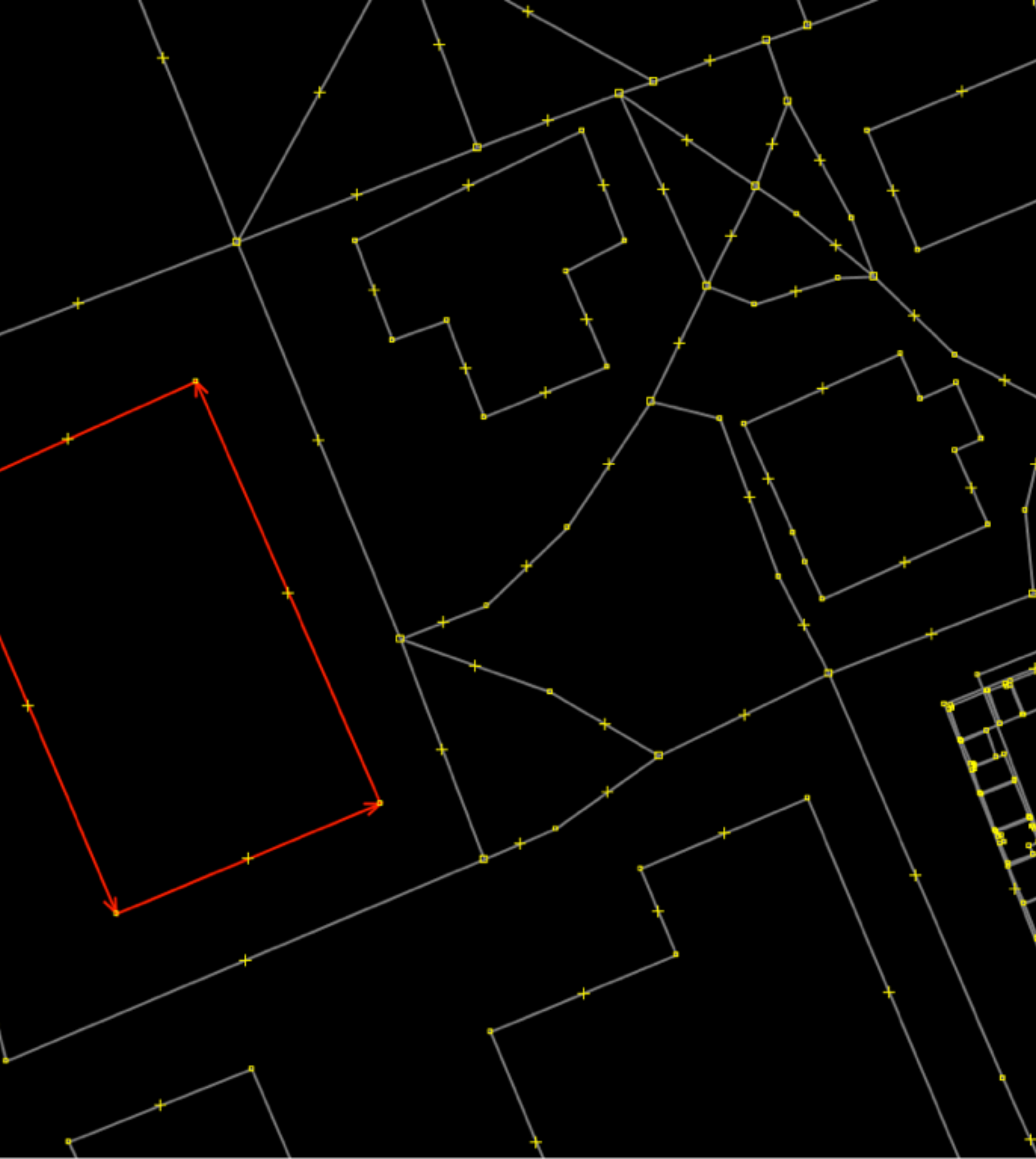
 Download list

 Update plugins

 Configure sites...

☐ Expert mode

 OK  Cancel  Help



Properties: 3 / Memberships: 0

Man Made/Man Made/Building ...

Key	Value
building	yes
created_by	Potlatch 0.10f
name	Kelley Memorial Building

Sel.: Rel.:0 / Ways:1 / Nodes:0

Kelley Memorial Building (4 nodes)

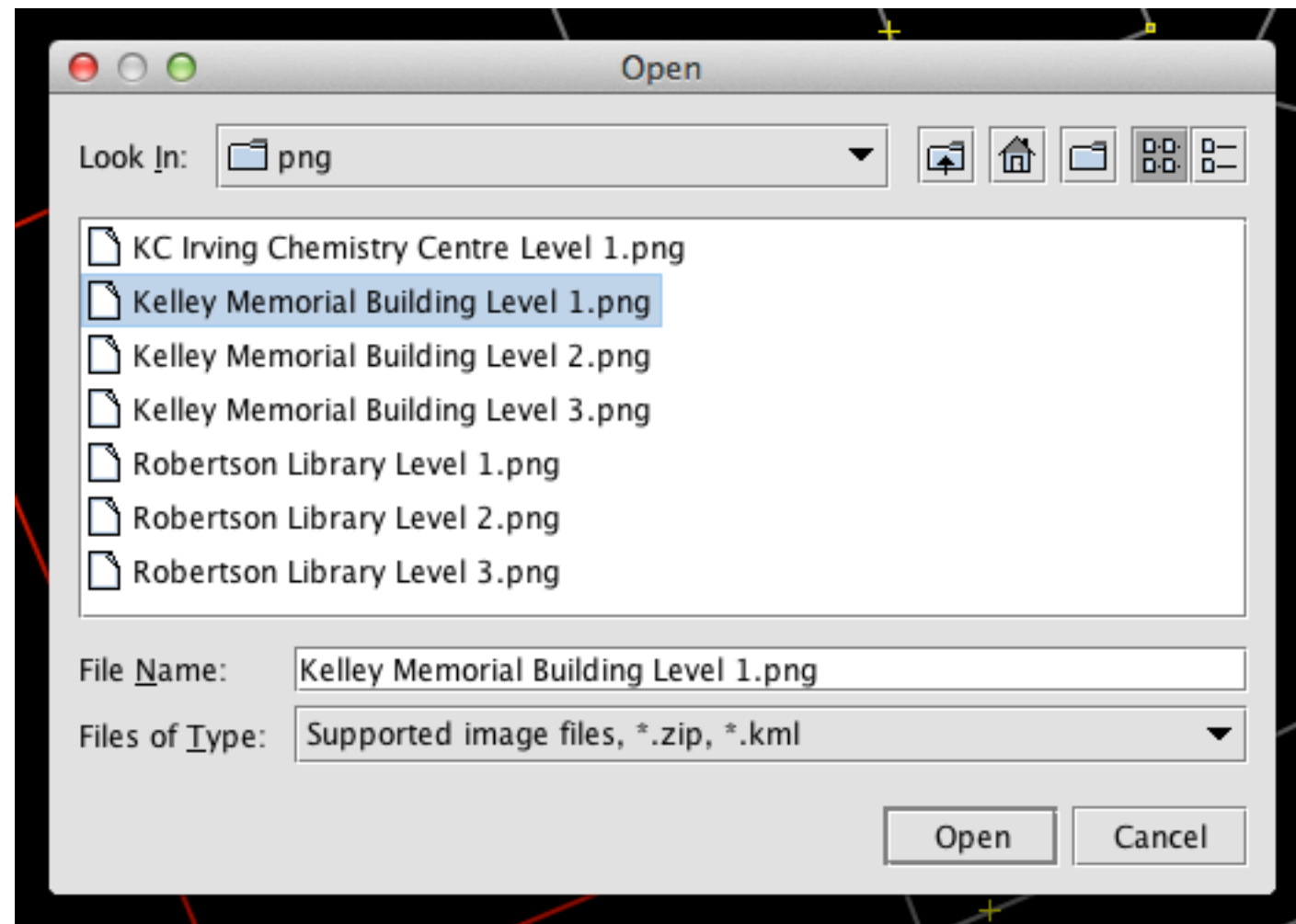
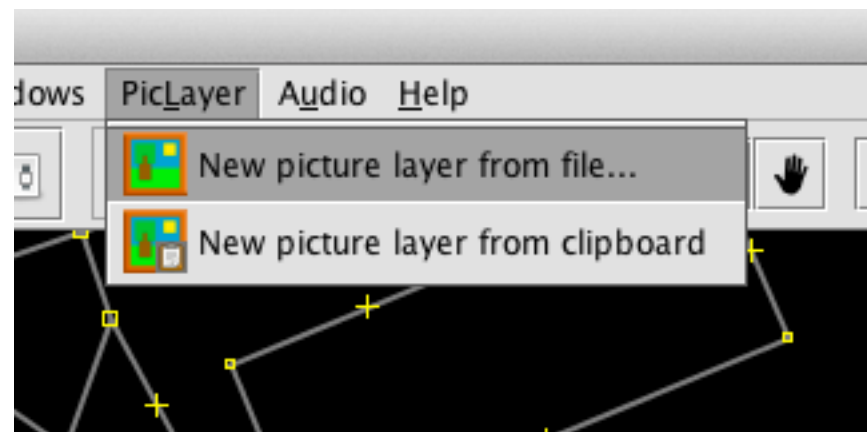
Relations: 6

- building ("Robertson Library", 3 members)
- level ("Basement", 21 members)
- level ("Main Level", 88 members)
- level ("Upper Level", 46 members)
- multipolygon ("residential", 5 members, incomplete)
- restriction ("no_left_turn", 3 members, incomplete)

Filter Hidden:0 Disabled:0

E	H	Text	I
<input type="checkbox"/>	<input type="checkbox"/>	footway	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	room corridor shell relation	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	child role:level_1	<input checked="" type="checkbox"/>



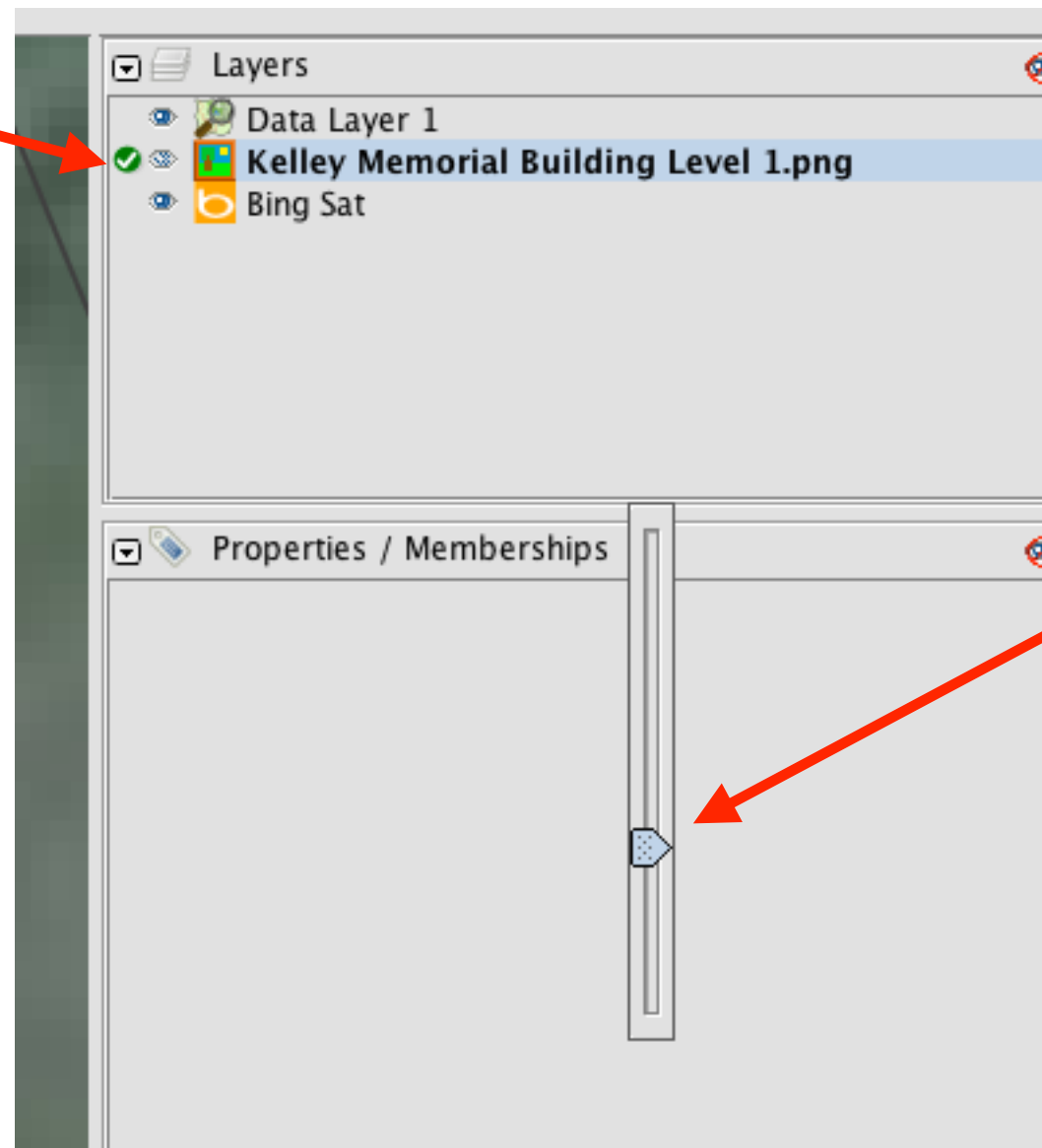




KELLEY MEMORIAL BUILDING
LEVEL 1

Adjust the Opacity

**Select the
PicLayer**



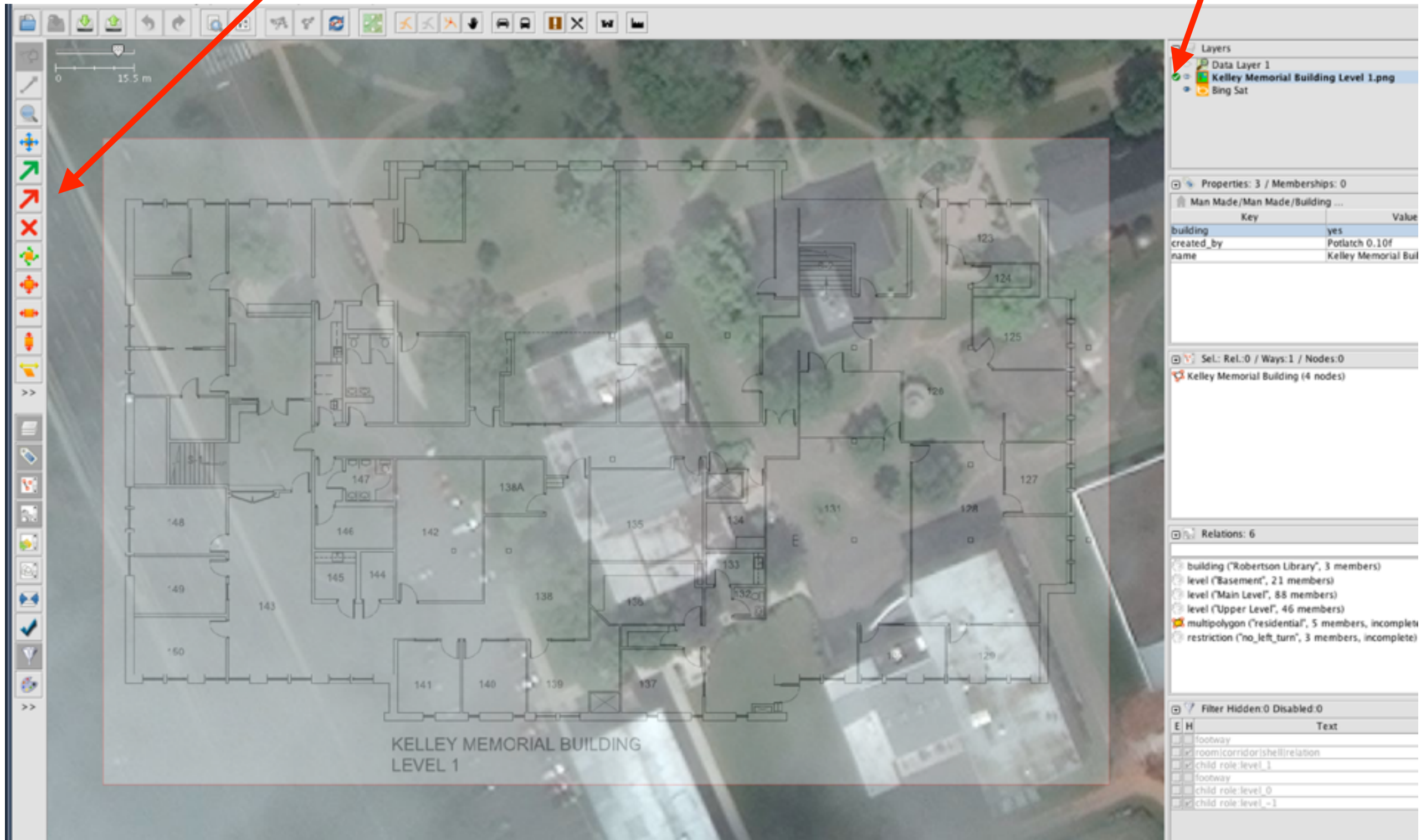
**Make it less
opaque**



KELLEY MEMORIAL BUILDING
LEVEL 1

PicLayer Tools Appear

Select the PicLayer



Click Green Arrow

Choose 3 points on PicLayer

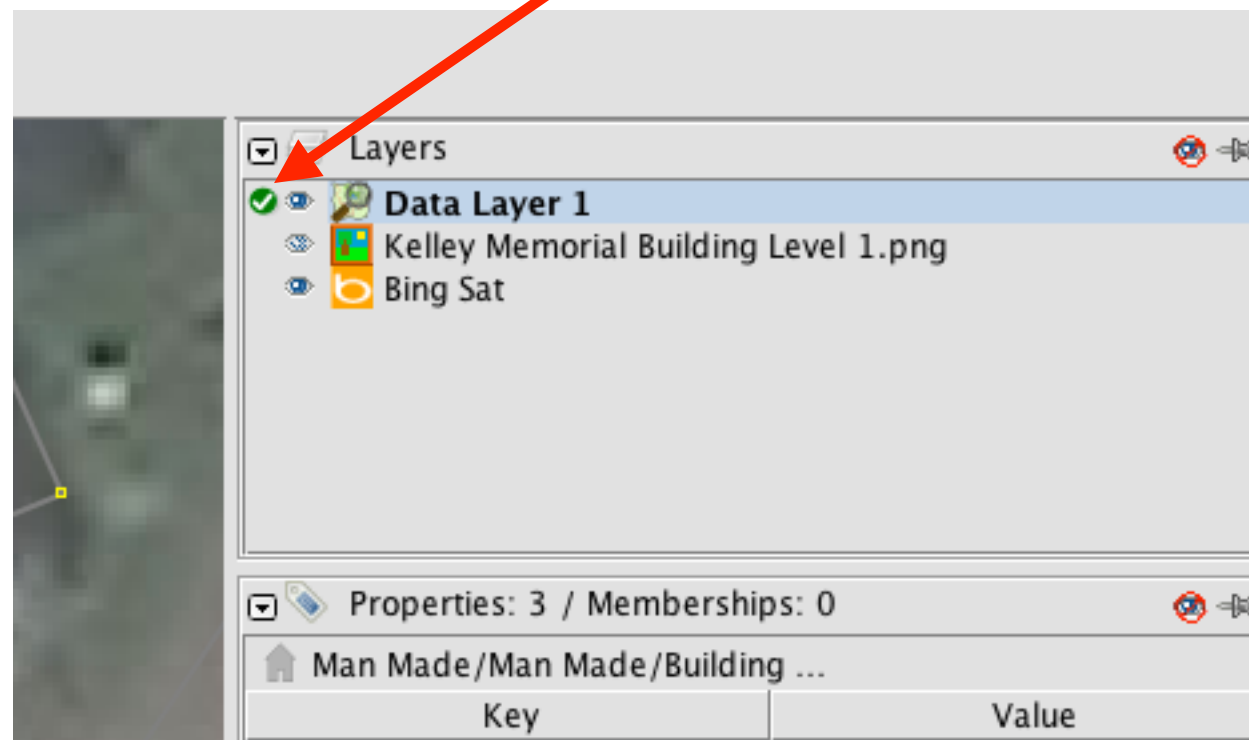


Click Red Arrow

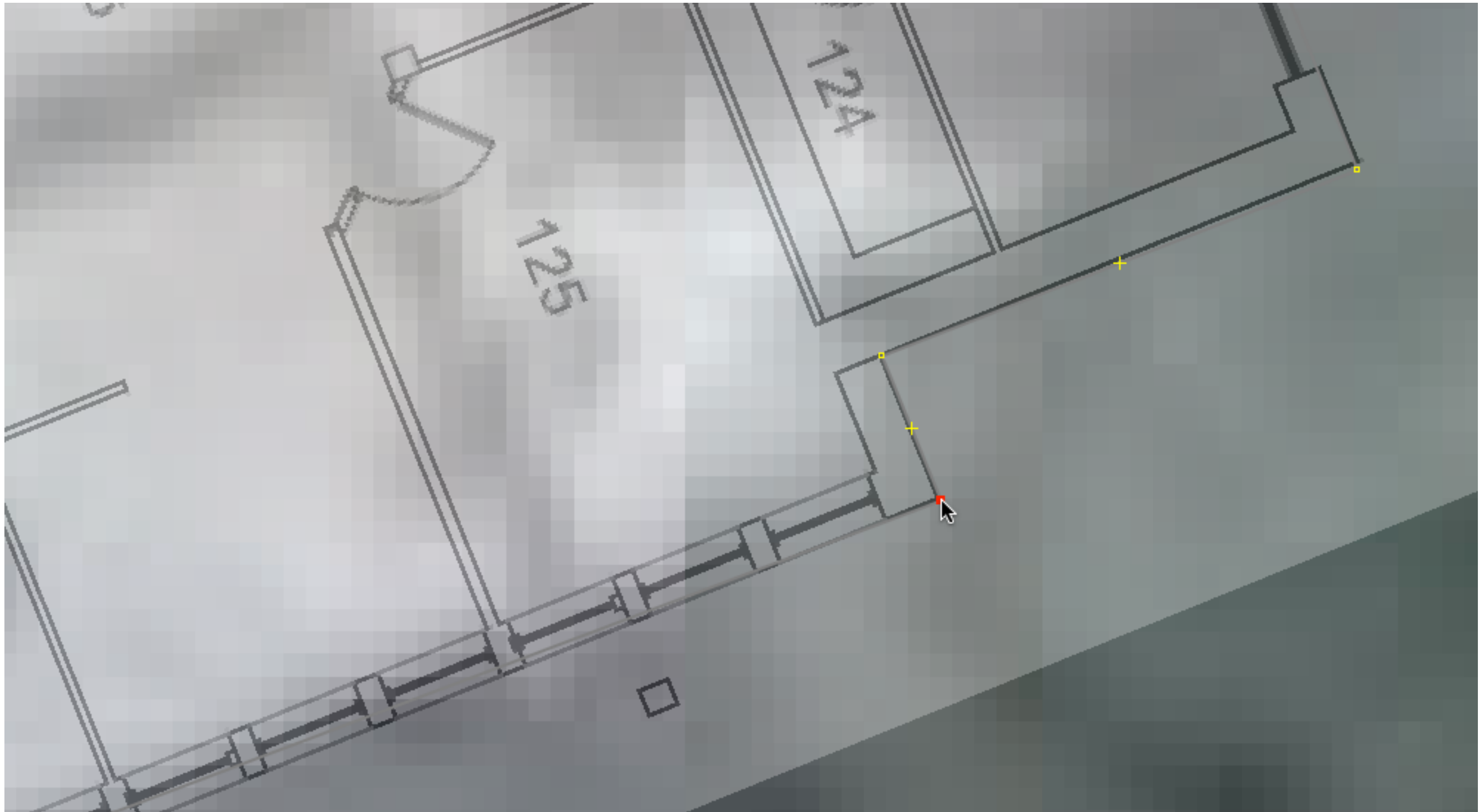
Drag 3 points to match building



Select the “Data Layer”



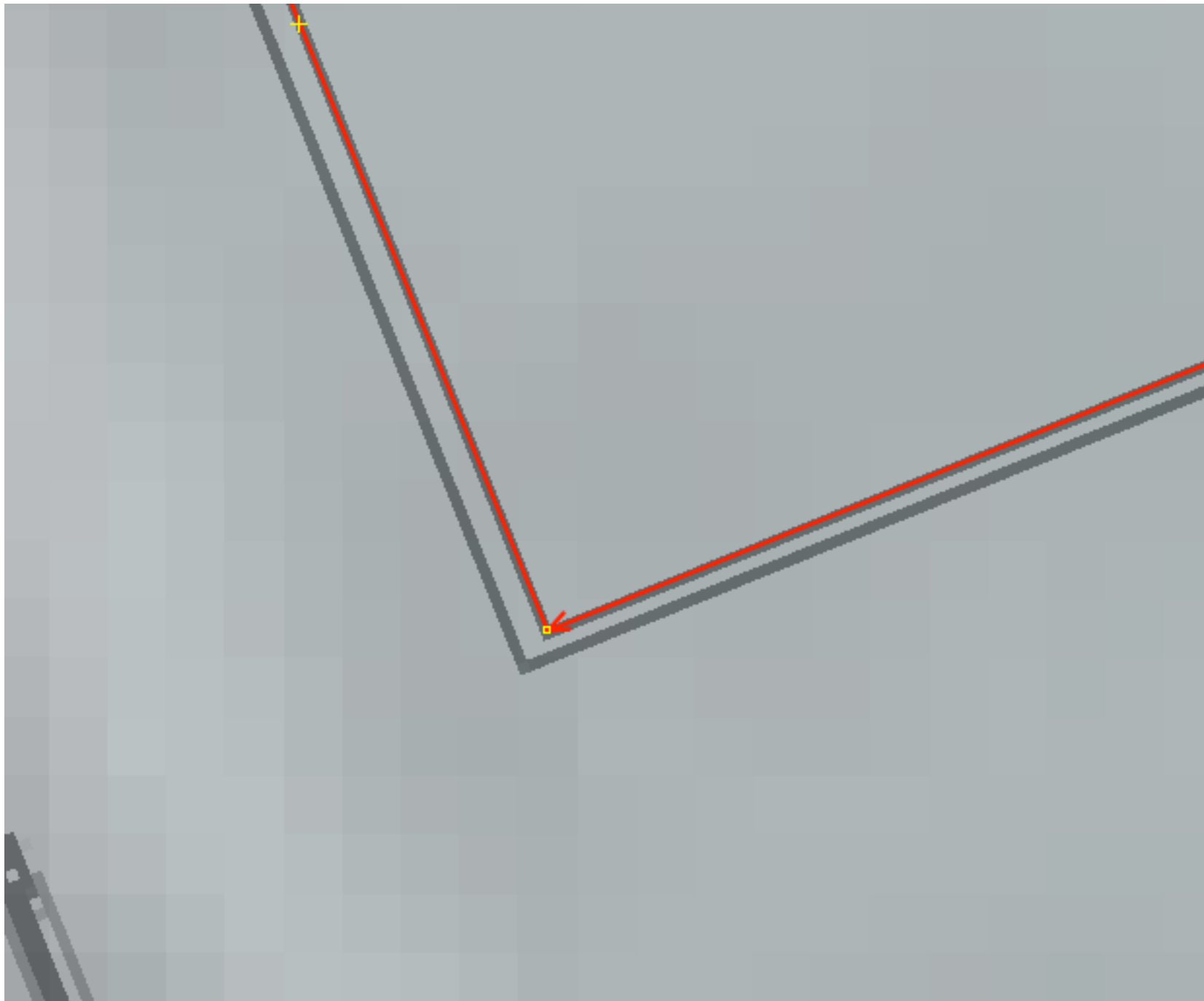
Edit the Building Shell



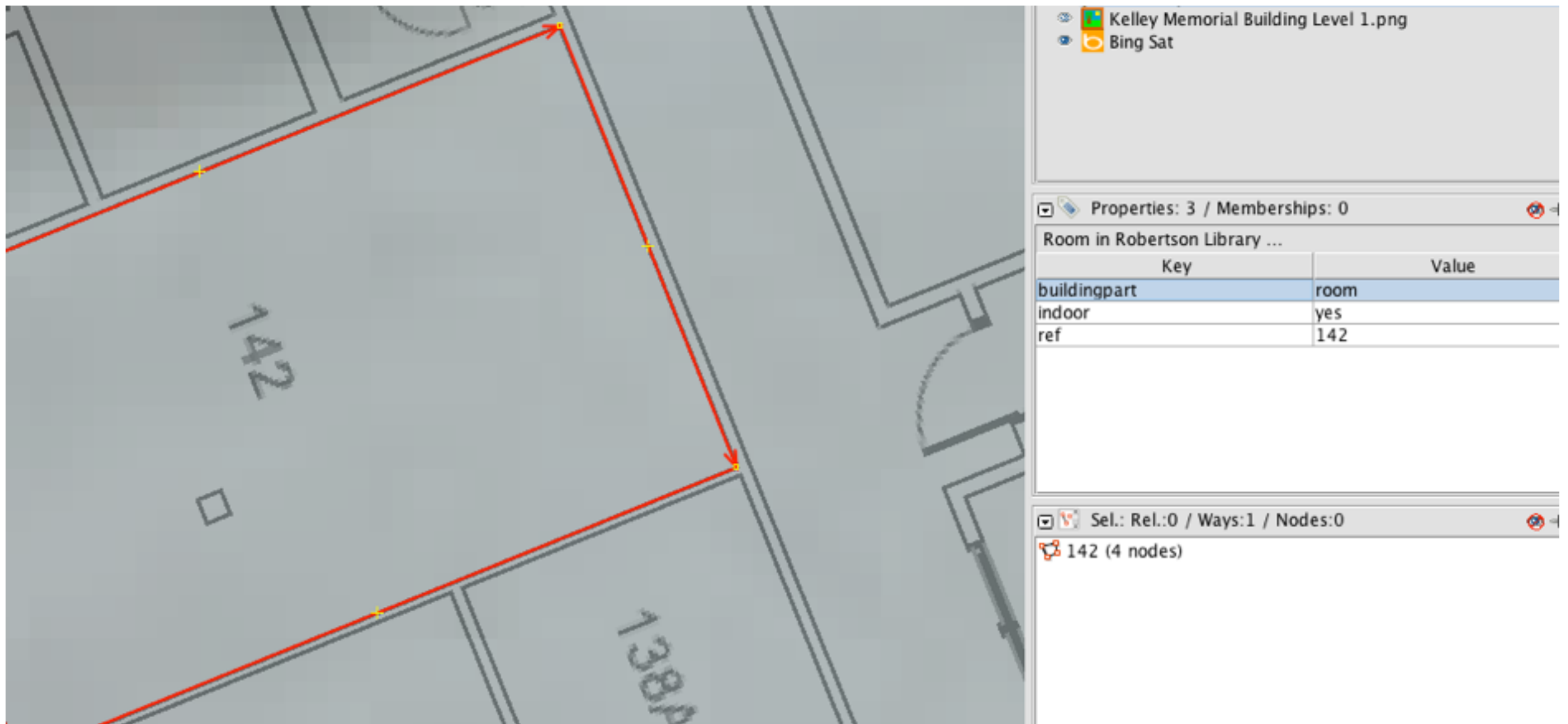
Draw a Room



Zoom in for Accuracy



Enter Metadata

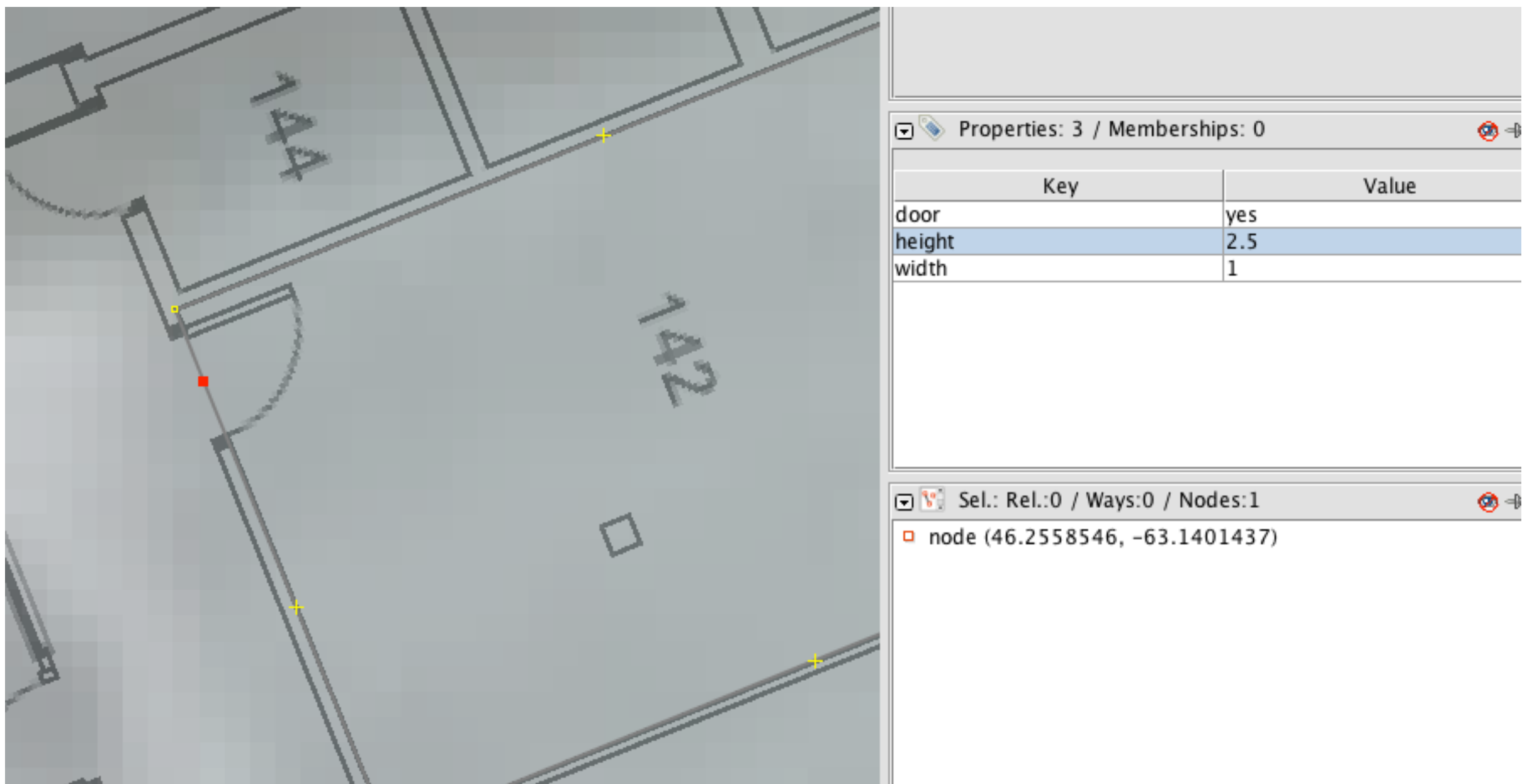


Room Metadata

- **buildingpart** → **room**
- **indoor** → **yes**
- **ref** → **[room #]**
- **name** → **[name of the room]**
- **height** → **[height of room in m]**

Draw a Door

(a single point on the room's way)

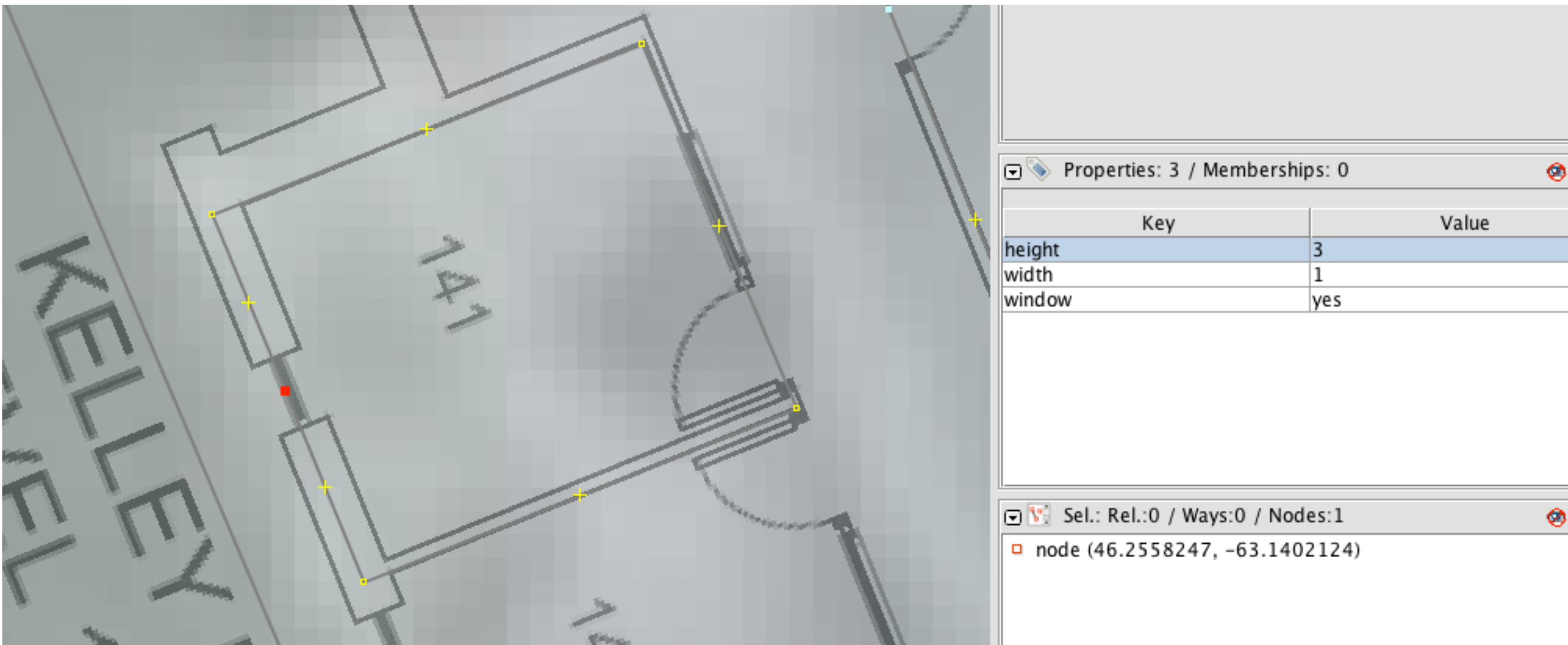


Door Metadata

- **door** → [yes | manual | automatic]
- **height** → [height of door in m]
- **width** → [width of door in m]

Draw a Window

(a single point on the room's way)



Window Metadata

- **window** → **yes**
- **height** → **[height of window in m]**
- **width** → **[width of window in m]**

Go Edit Something

What's Next?

- Assemble all the rooms, windows and doors on a level into a level “relation”.
- Assemble all the level relations into a “building” relation.



Tags and Members Parent Relations Child Relations

Tags

	Key	Value
+	level	-1
	ref	Basement
	type	level

Members

	Role	Refers to	
	buildingpart	105 (23 nodes)	<input type="checkbox"/>
	buildingpart	Basement (14 nodes)	<input type="checkbox"/>
	buildingpart	110 (6 nodes)	<input type="checkbox"/>
	buildingpart	106 (4 nodes)	<input type="checkbox"/>
	buildingpart	104B (8 nodes)	<input type="checkbox"/>
	buildingpart	116 (6 nodes)	<input type="checkbox"/>
	buildingpart	104A (6 nodes)	<input type="checkbox"/>
	buildingpart	115 (4 nodes)	<input type="checkbox"/>
	buildingpart	113 (4 nodes)	<input type="checkbox"/>
	buildingpart	104 (4 nodes)	<input type="checkbox"/>
	buildingpart	114 (4 nodes)	<input type="checkbox"/>
	buildingpart	Exam Room (4 nodes)	<input type="checkbox"/>
	buildingpart	100 (6 nodes)	<input type="checkbox"/>
	buildingpart	103 (4 nodes)	<input type="checkbox"/>
	buildingpart	111 (35 nodes)	<input type="checkbox"/>
	buildingpart	Sound Room (4 nodes)	<input type="checkbox"/>
	buildingpart	107 (10 nodes)	<input type="checkbox"/>
	buildingpart	108 (6 nodes)	<input type="checkbox"/>
	buildingpart	102 (8 nodes)	<input type="checkbox"/>
	buildingpart	109 (4 nodes)	<input type="checkbox"/>
	buildingpart	112 (4 nodes)	<input type="checkbox"/>

Apply Role: buildingpart ☒

Selection

	Selection
	level ("Basement", 21 members)



Tags and Members Parent Relations Child Relations

Tags

+ Facilities/Culture/Library ...
+ Man Made/Man Made/Building ...

Key	Value
amenity	library
building	yes
building:architect	Leslie R. Fairn & Assocs. Ltd.
building:buildyear	1975
building:cladding	brick
building:levels	3
building:max_level	1
building:min_level	-1
name	Robertson Library

Members

Role	Refers to
level_1	level ("Upper Level", 46 members)
level_-1	level ("Basement", 21 members)
level_0	level ("Main Level", 88 members)

Selection

Selection
level ("Basement", 21 members)
level ("Main Level", 88 members)
level ("Upper Level", 46 members)

Apply Role: buildingpart



The screenshot displays the indoorOSM web application. The main map area shows a floor plan with rooms numbered 101-109 and 111-125. A blue line indicates a route starting from room 101, passing through a corridor, and ending in room 117. The interface includes a map navigation toolbar on the top left, a level selector on the top right, a legend on the bottom right, and a route configuration panel at the bottom.

indoorOSM

Level Selector

2
1
0
-1

Legend

- room
- corridor
- stairs
- elevator
- escalator
- obstacles
- door

Start: Level 1 Room 101

Target: Level -1 Room Fachschaft

Compute Route Clear Route

☐ Show partial routes for each level?

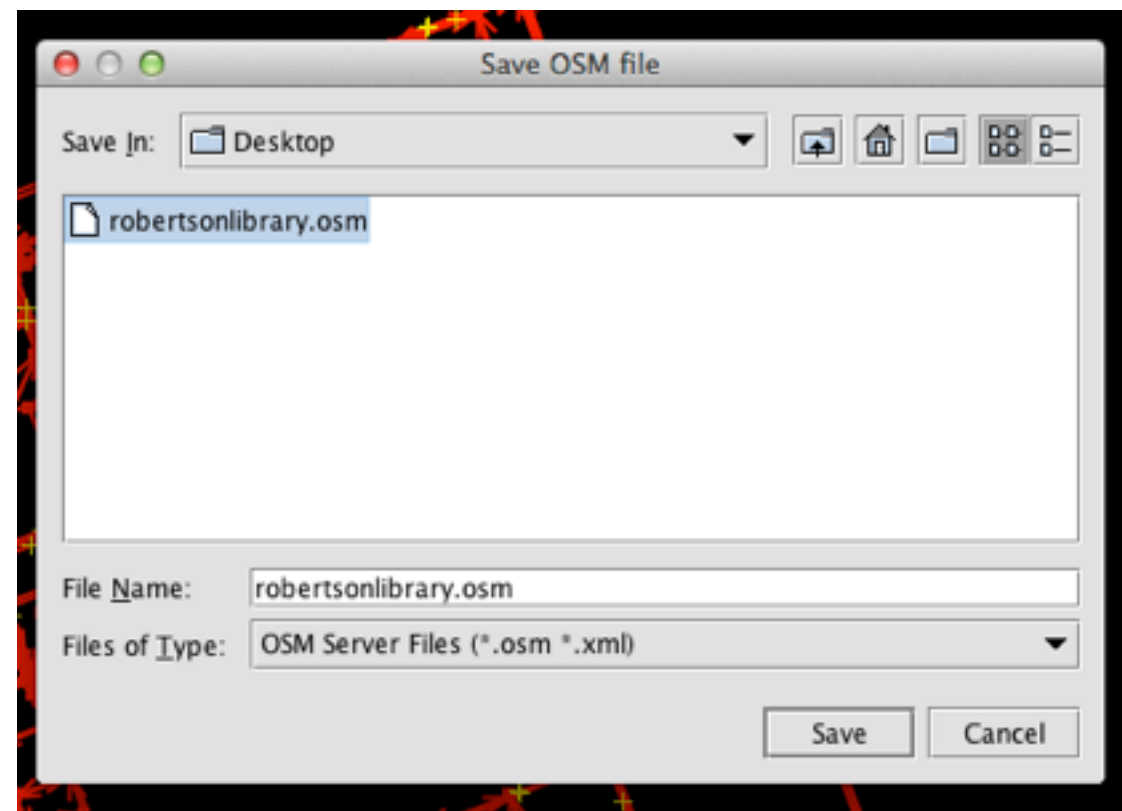
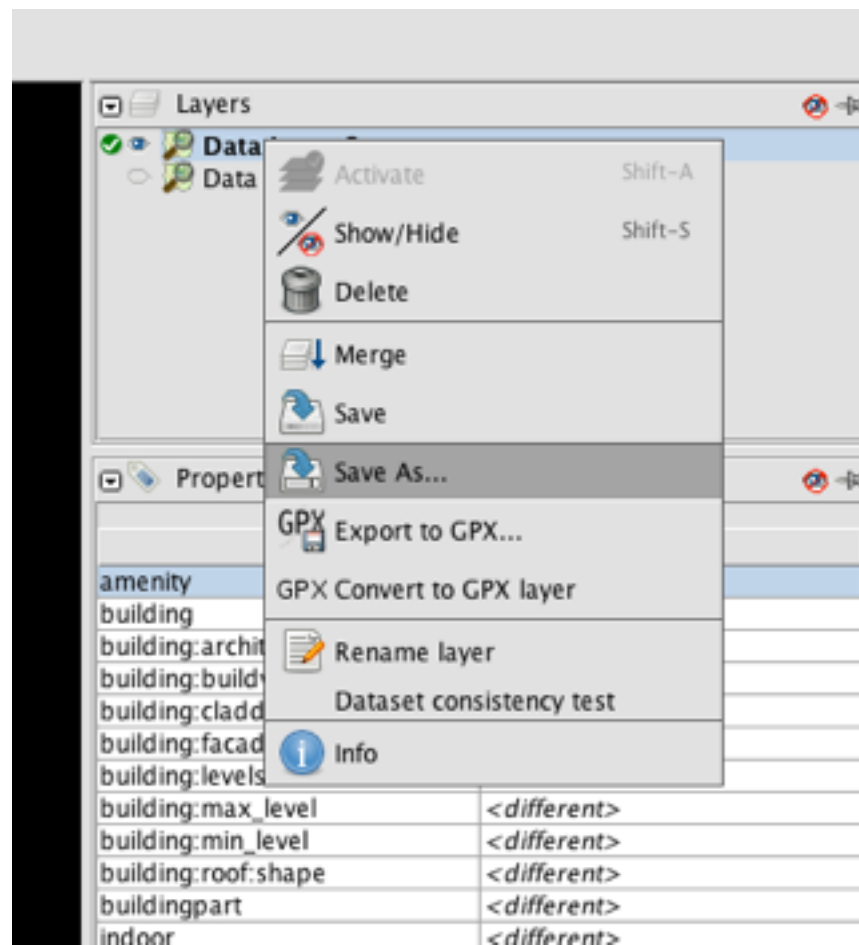
Copyright © 2011 - Map data CC-BY-SA by OpenStreetMap

<http://indoorosm.uni-hd.de>

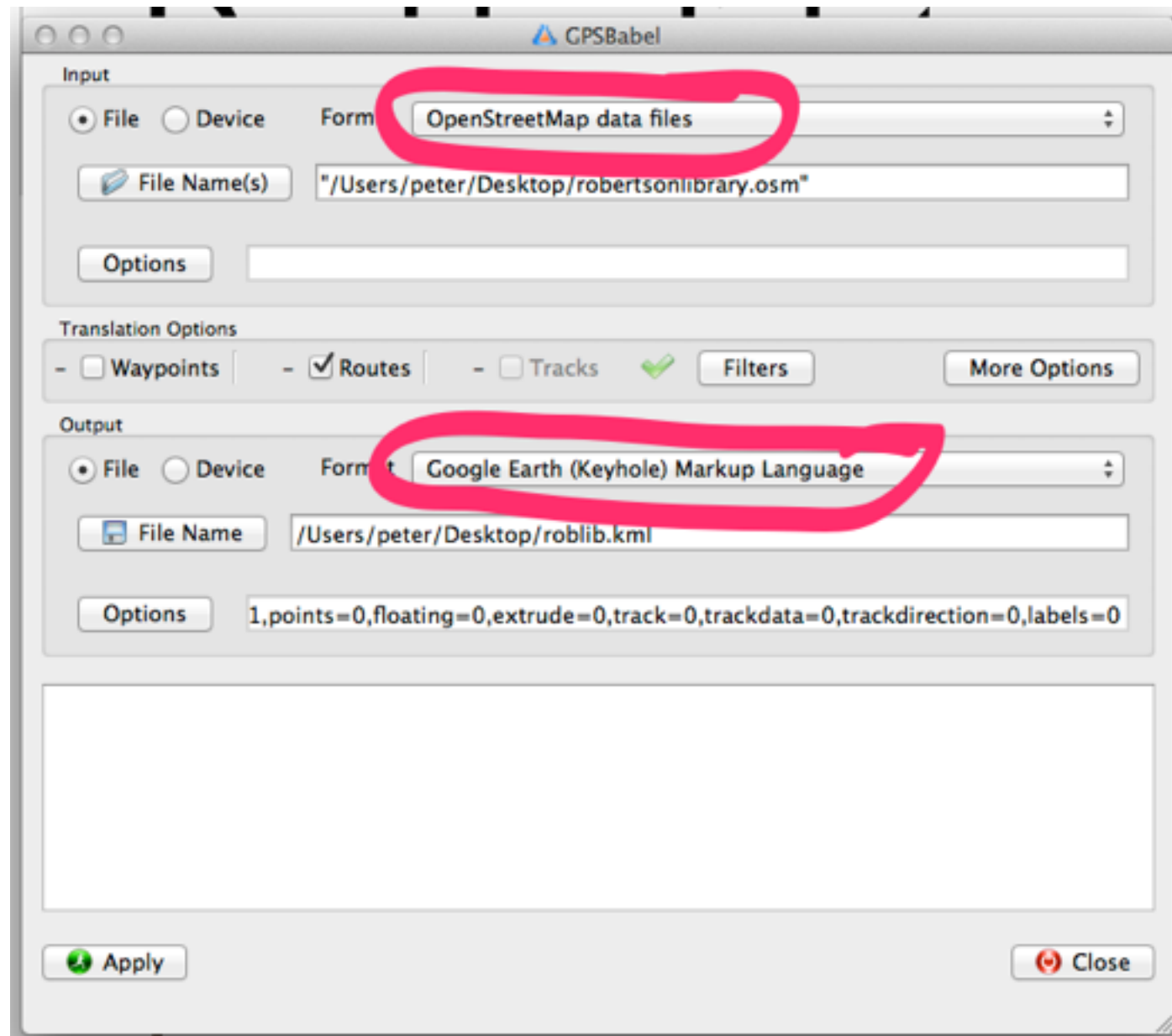
From OpenStreetMap to Google Earth

- Select the object(s) you want to export.
- **Edit | Copy**
- **File | New Layer**
- Select the new layer.
- **Edit | Paste**

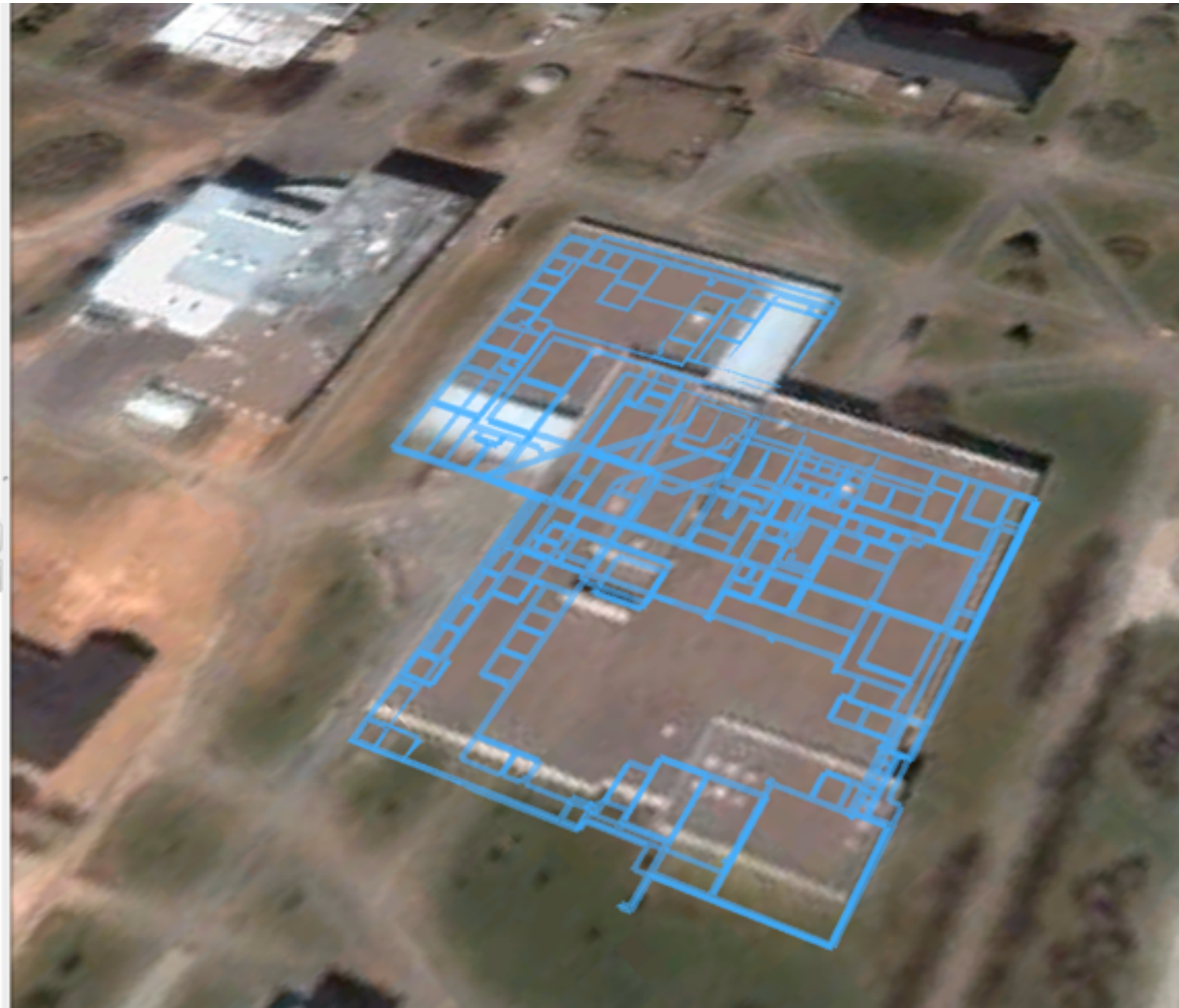
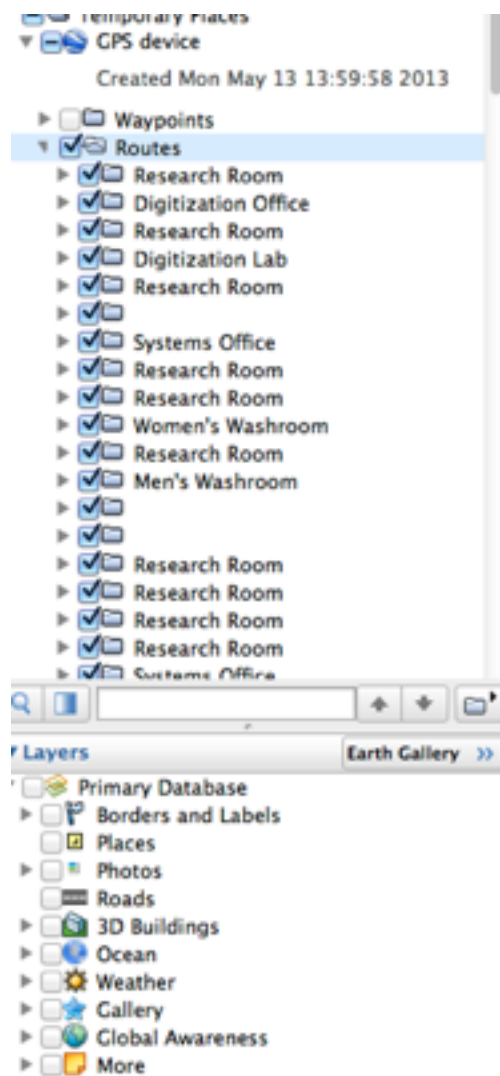
Save the Layer as a .osm file



Convert the .osm file with GPSTBabel



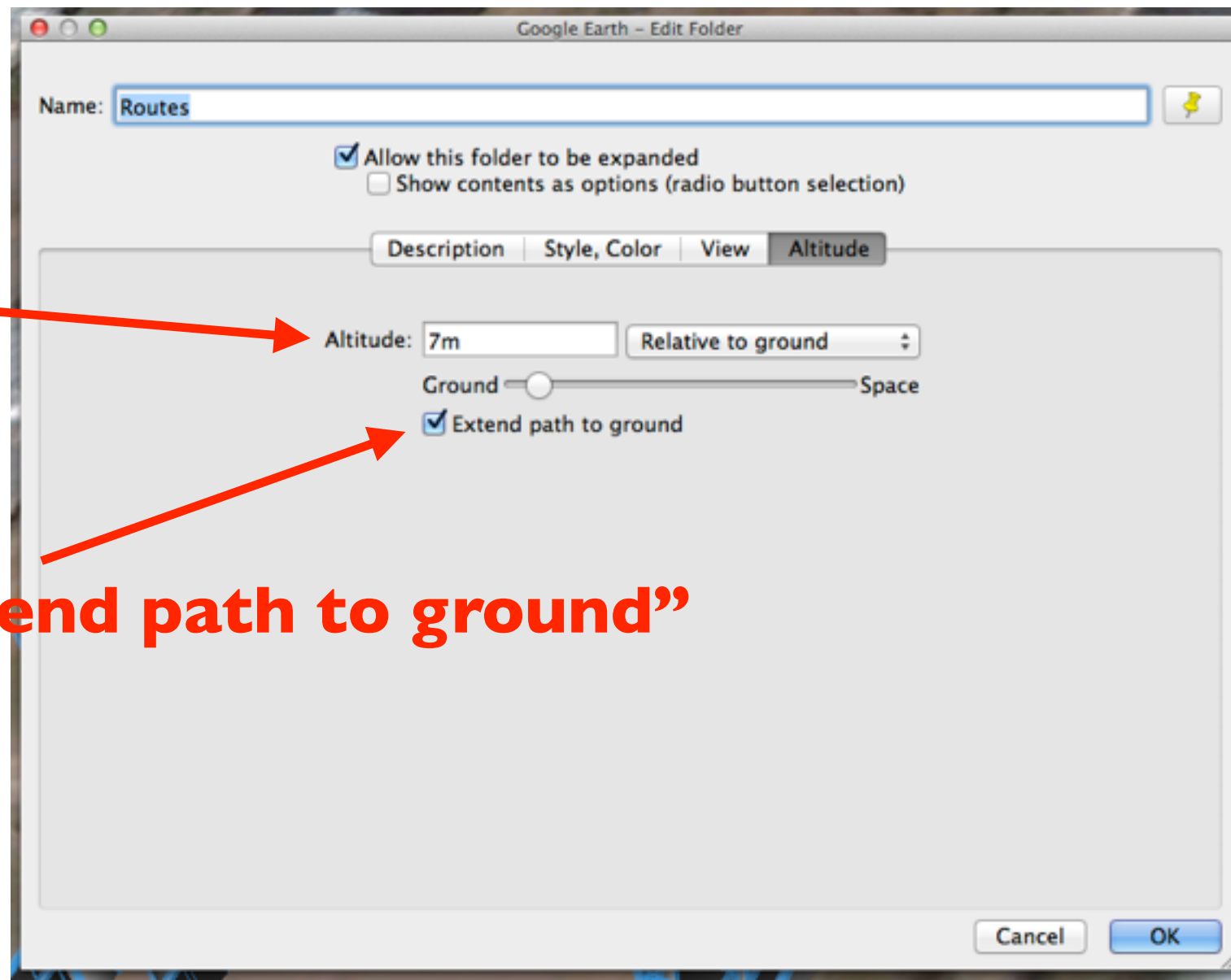
Load the .kml file into Google Earth

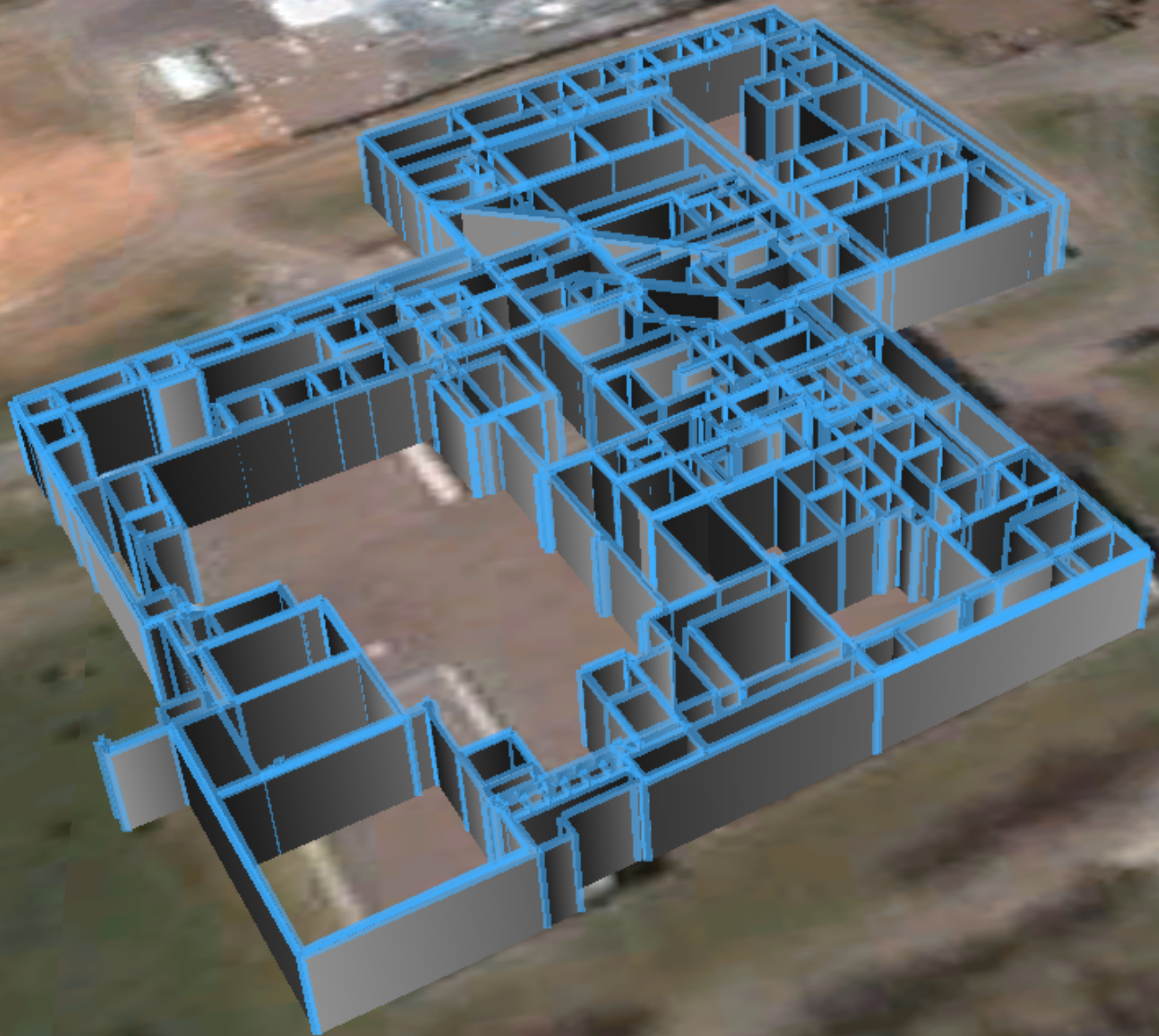


Edit the Routes

**Edit the
Altitude**

Check “Extend path to ground”





Google Sketchup

- Install the OpenStreetMap Plugin
- Import the .osm file you exported from JOSM

