110-2 地圖與地理資訊系統
LAB 02

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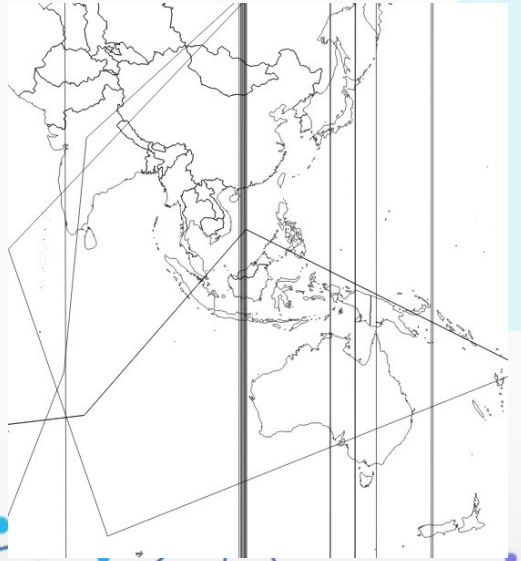
Lab 1 作業

TWD97 / TM2 EPSG: 3826

以下兩圖均為「正確」，而右圖由於 QGIS 在轉換投影中央經線時，polygon檔案格式的序位錯亂所致。
若使用QGIS 完成此項作業，繳交如右之圖檔，不予扣分。



今日實習

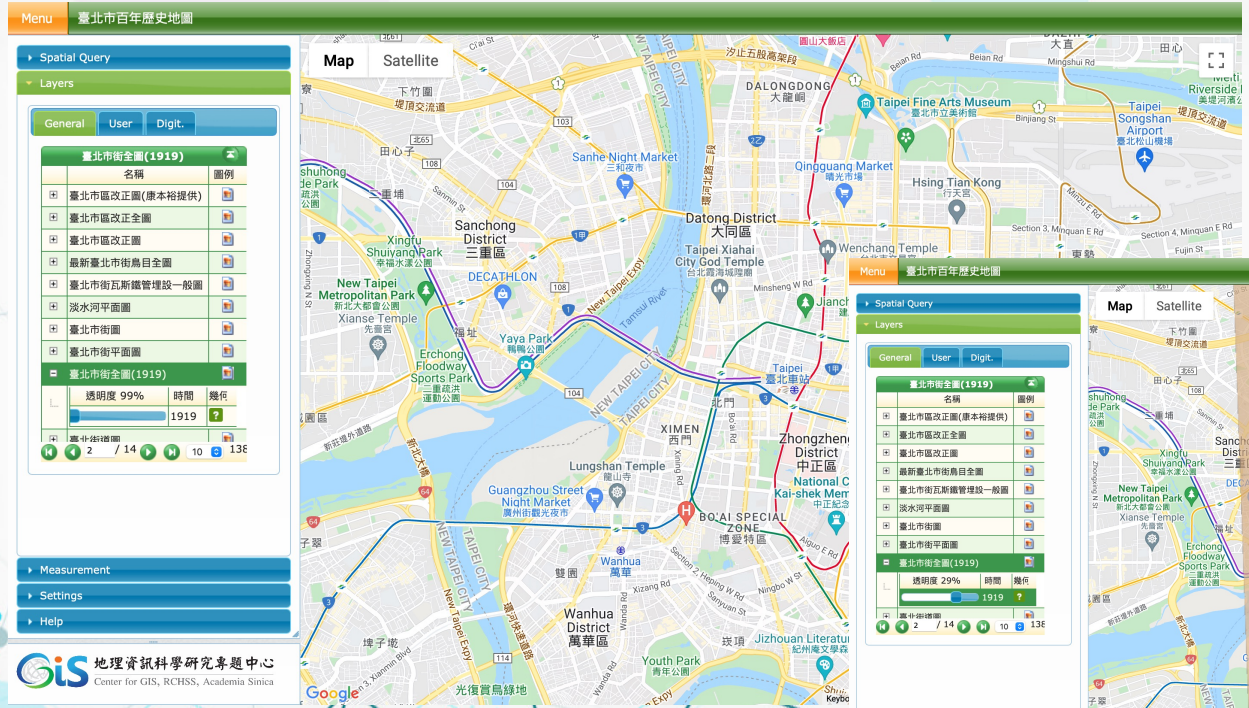
影像資料對位與數化

空間對位及數化之目的：

1. 原始資料若為網格資料(如真實正射影像)，轉為向量圖層會更易於描述道路、建物等資訊。
2. 雖然現在的網格資料大多也會有坐標定義，但若沒有或遺失了，就需要將該網格資料進行空間對位，使得該資料展示於正確位置上。
3. 有助於資訊的整合和互通性，可將只有紙本地圖上有的資訊,進行數位化，讓往後在電子平台上也能夠有正確的空間參照，並能被準確判讀(e.g. 臺灣百年歷史地圖)

臺灣百年歷史地圖

http://gissrv4.sinica.edu.tw/gis/twhgis/



實習使用材料

1. 104年真實正射影像.png
2. ctrl_points.csv（控制點）

	A	B	C	D
1	id	x	y	
2	0	305460.11	2770466.72	
3	1	305288.57	2770461.93	
4	2	305347.24	2770364.82	
5	3	305243.26	2770243.38	
6	4	305254.59	2770125.86	
7	5	305428.48	2769993.1	
8	6	305347.78	2769866.77	
9	7	305417.94	2769733.35	
10	8	305320.2	2769677.39	
11	9	305417.73	2769599.12	
12	10	305347.58	2769526.53	
13	11	305310.88	2769370.2	
14	12	305165.24	2769297.66	
15	13	305262.51	2769170.42	
16	14	305419.42	2769007.7	
17	15	305420.95	2768847.12	
18	16	305320.32	2768709.17	
19	17	305445.11	2768686.84	
20	18	305338.98	2768598.75	
21	19	305309.92	2768434.5	
22	20	305445.42	2768345.8	
23				

TWD97 / TM2 EPSG: 3826

對位與數化步驟

對位

務必了解其使用之坐標系統為何

1. 確認控制點所在位置及坐標
2. 在網格圖層上以相同位置建立這些點,並賦予已知控制點坐標
3. 執行坐標對位,並與真實的地圖/圖資作比對評估果的好壞

數化

網格資料和此新增向量圖層為兩個不同的圖層

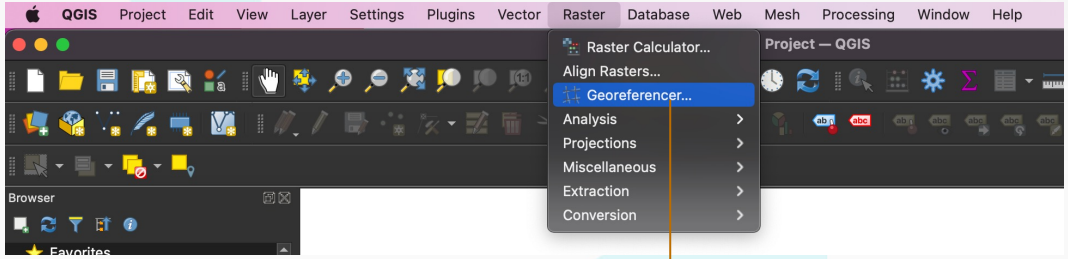
1. 新增向量圖層(點/線/面),並參考對位完成之網格資料,在此圖層上將建物輪廓描繪出來
2. 將這些建物輪廓存檔成向量資料,完成數化

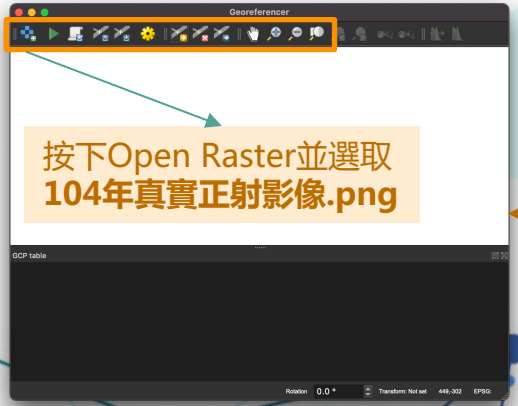
控制點細節詳見p.22

空間對位 - STEP 1　確認控制點

	A	B	C	D
1	id	x	y	
2	0	305460.11	2770466.72	
3	1	305288.57	2770461.93	
4	2	305347.24	2770364.82	
5	3	305243.26	2770243.38	
6	4	305254.59	2770125.86	
7	5	305428.48	2769993.1	
8	6	305347.78	2769866.77	
9	7	305417.94	2769733.35	
10	8	305320.2	2769677.39	
11	9	305417.73	2769599.12	
12	10	305347.58	2769526.53	
13	11	305310.88	2769370.2	
14	12	305165.24	2769297.66	
15	13	305262.51	2769170.42	
16	14	305419.42	2769007.7	
17	15	305420.95	2768847.12	
18	16	305320.32	2768709.17	
19	17	305445.11	2768686.84	
20	18	305338.98	2768598.75	
21	19	305309.92	2768434.5	
22	20	305445.42	2768345.8	
23				

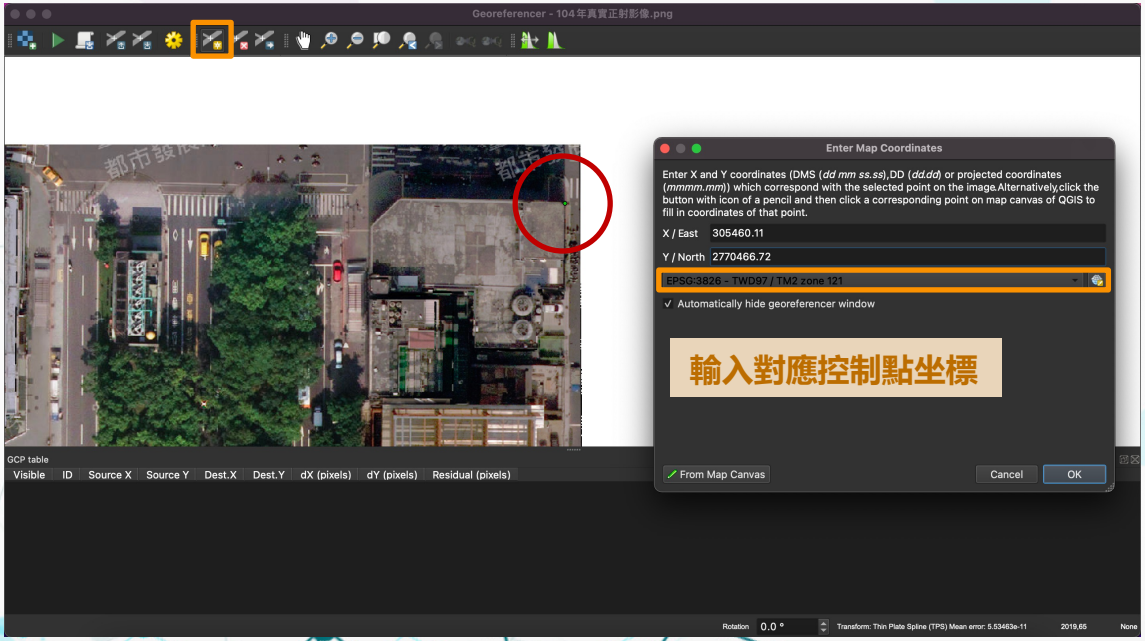
至少選擇4個控制點
(TWD97 / TM2　EPSG: 3826)

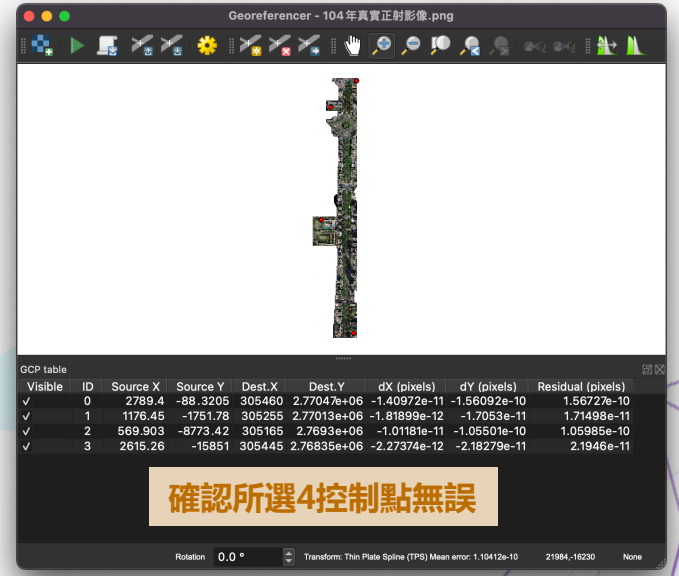




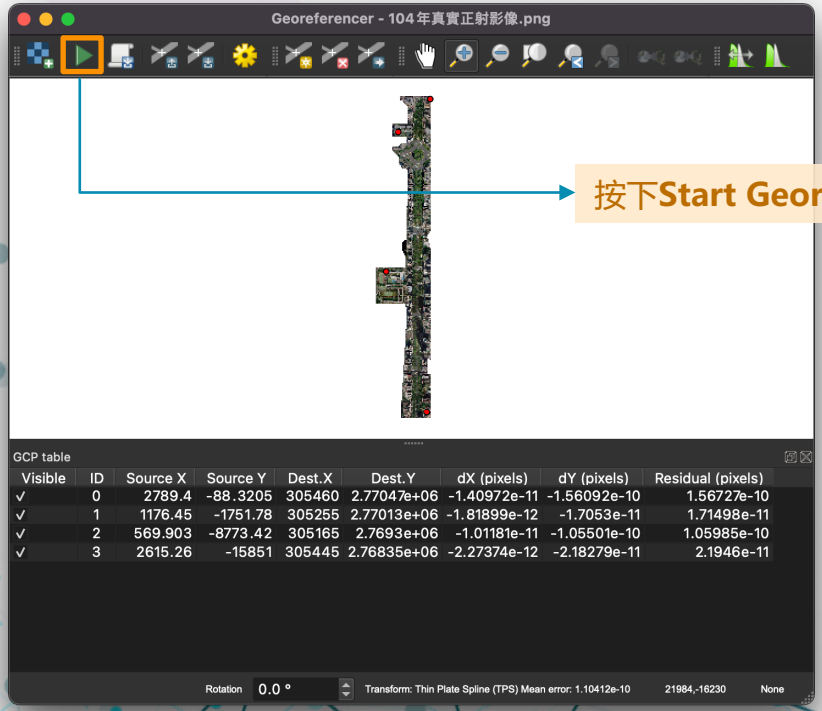
按下Open Raster並選取
104年真實正射影像.png

空間對位 - STEP 2　以控制點位置及坐標建立點

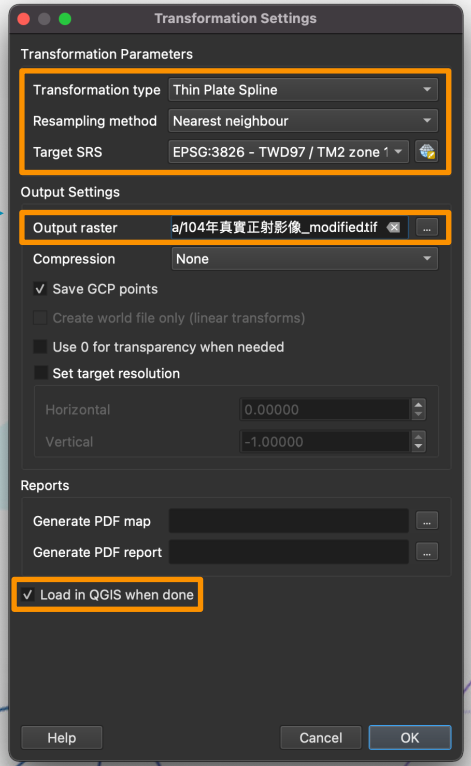




空間對位 - STEP 3　執行坐標對位



按下**Start Georeferencing**



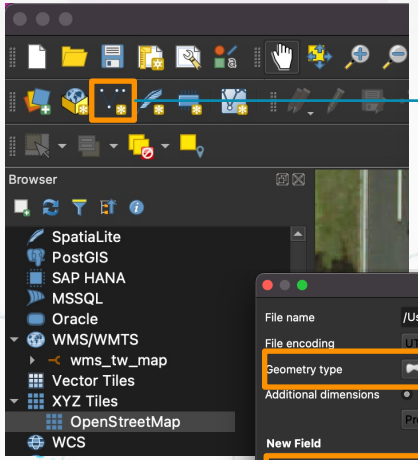
空間對位 - STEP 3　檢驗對位成果

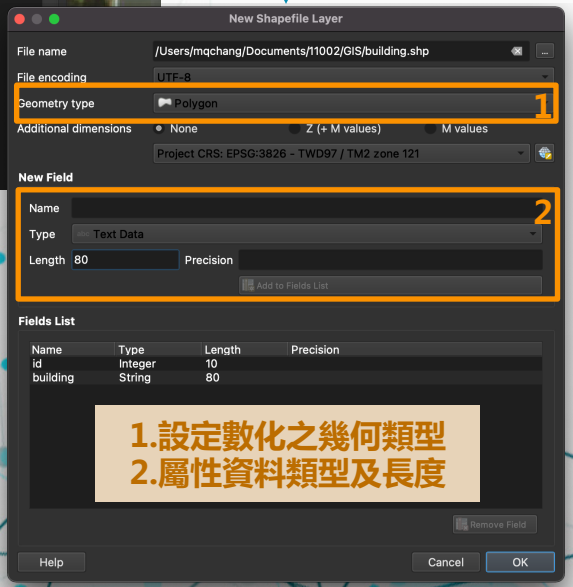
利用OSM檢視成果

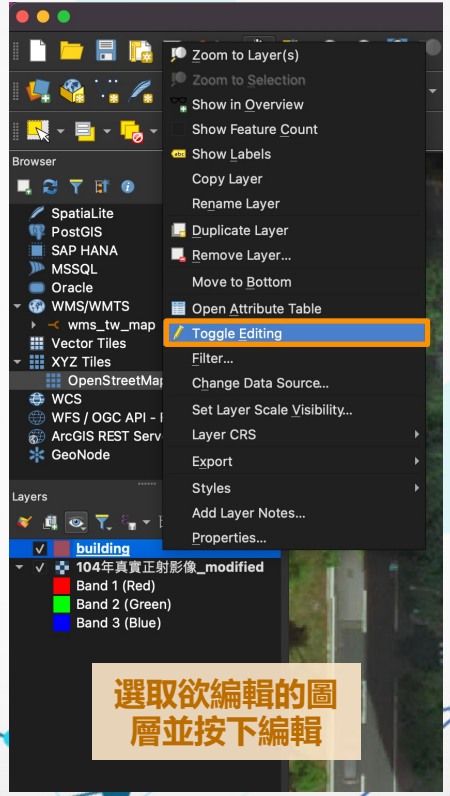
與對位成果疊加

透整透明度檢視

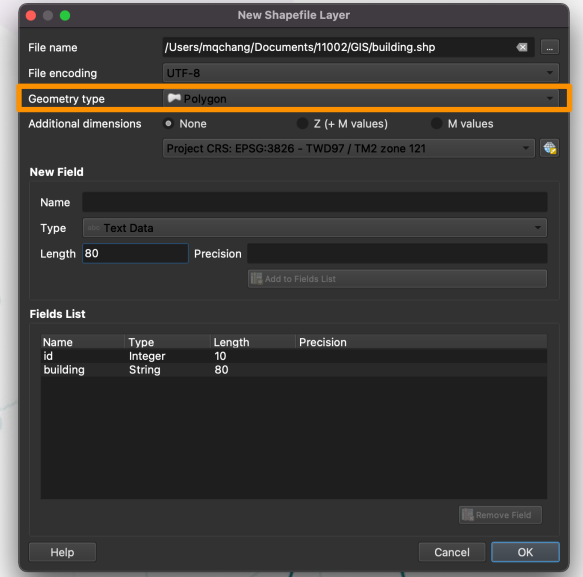
數化 - STEP 1　新增向量圖層（點/線/面）

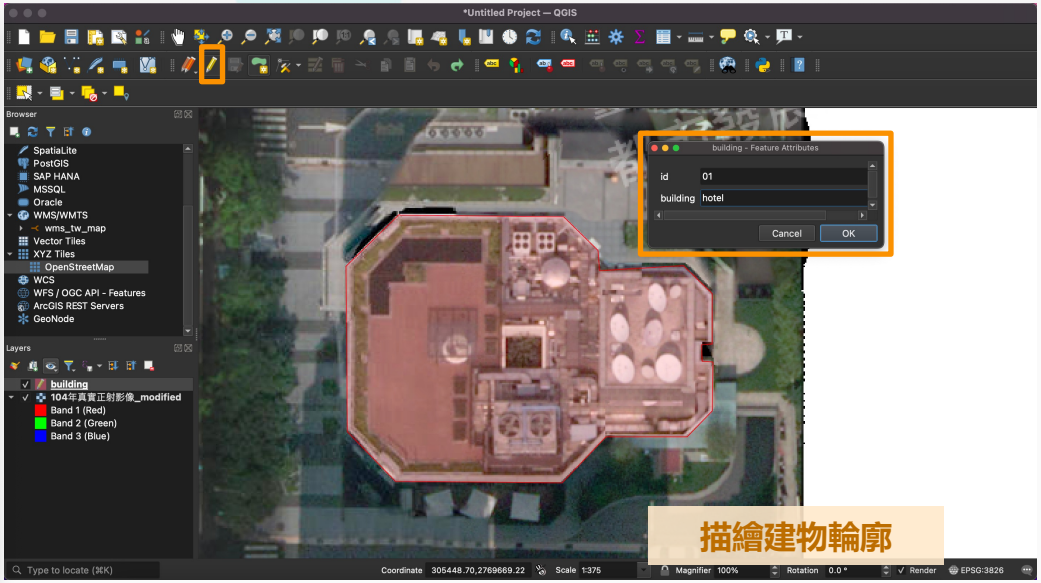


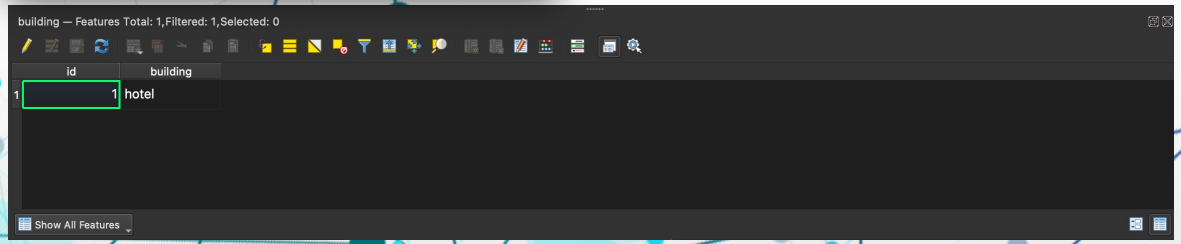


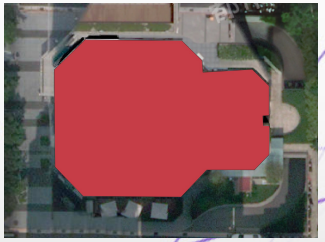


數化 - STEP 1　新增向量圖層（面）

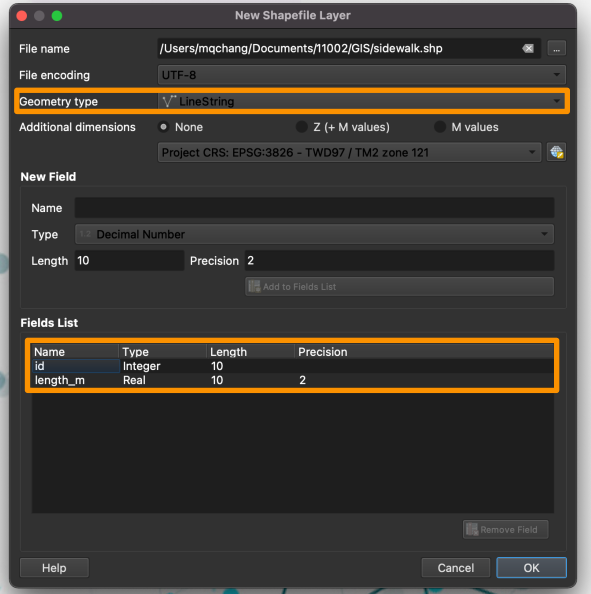


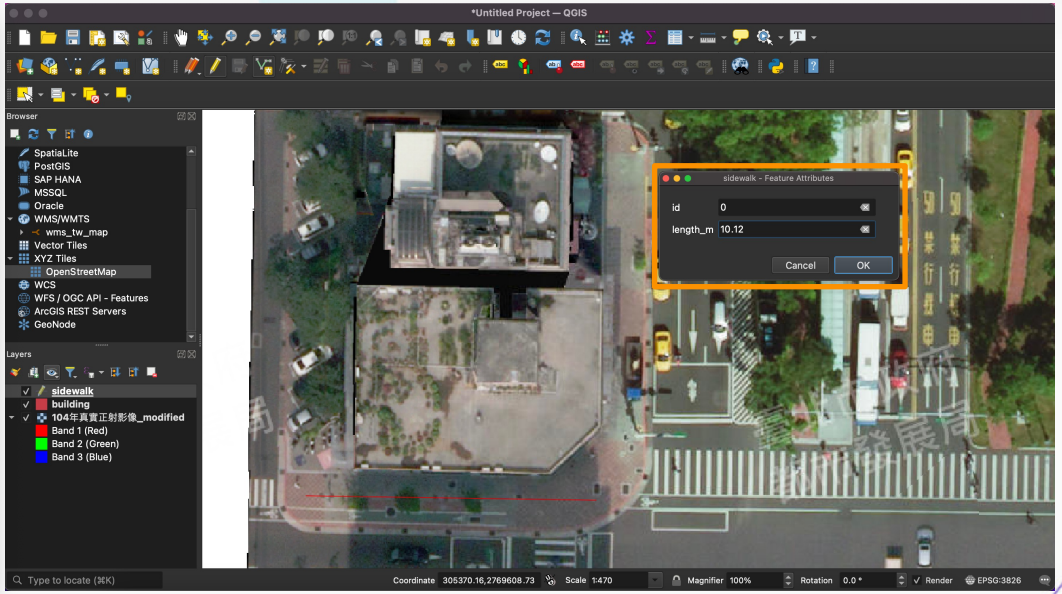


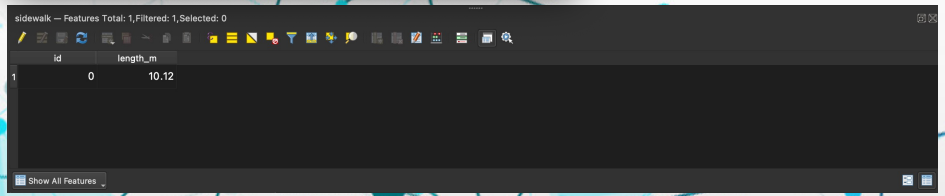




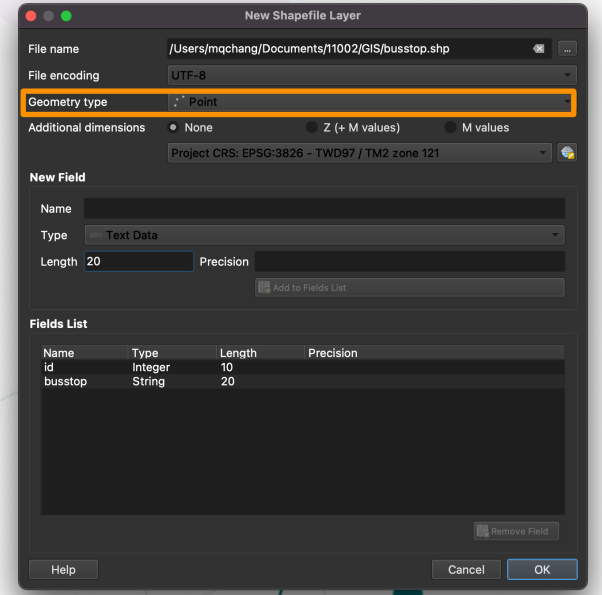
數化 - STEP 1　新增向量圖層（線）

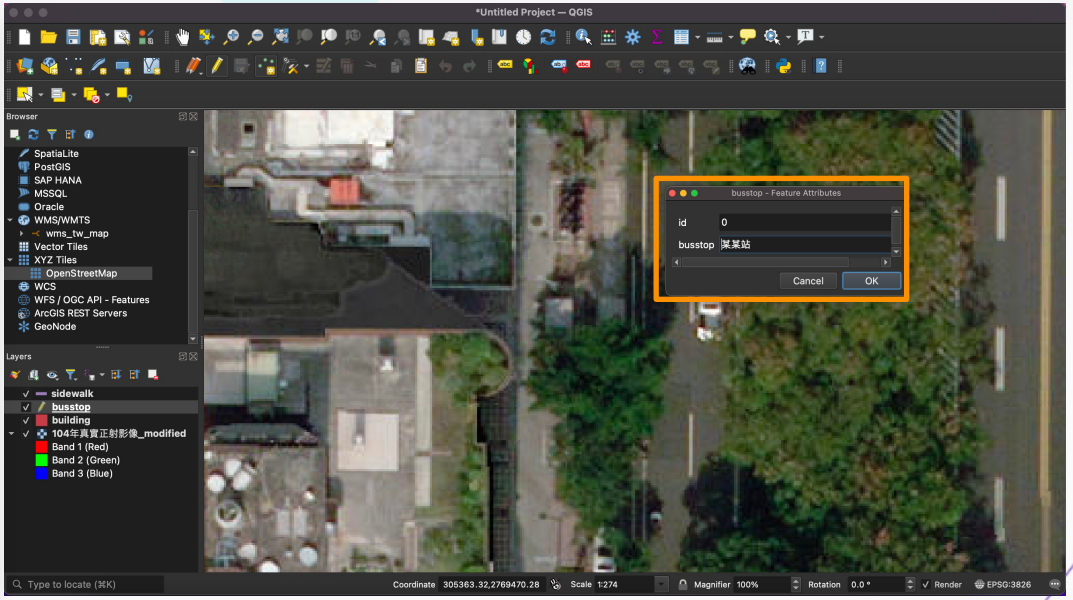


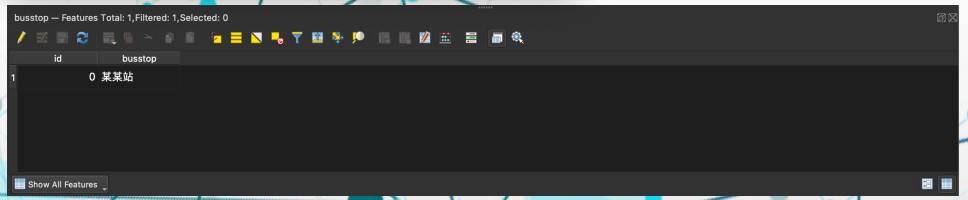


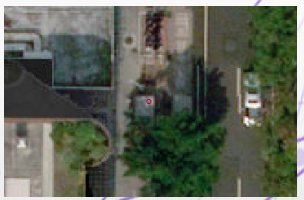


數化 - STEP 1　新增向量圖層（點）

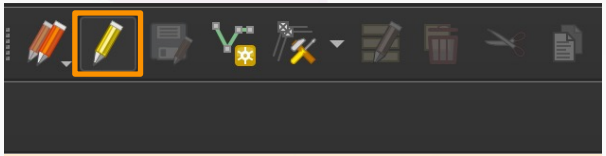




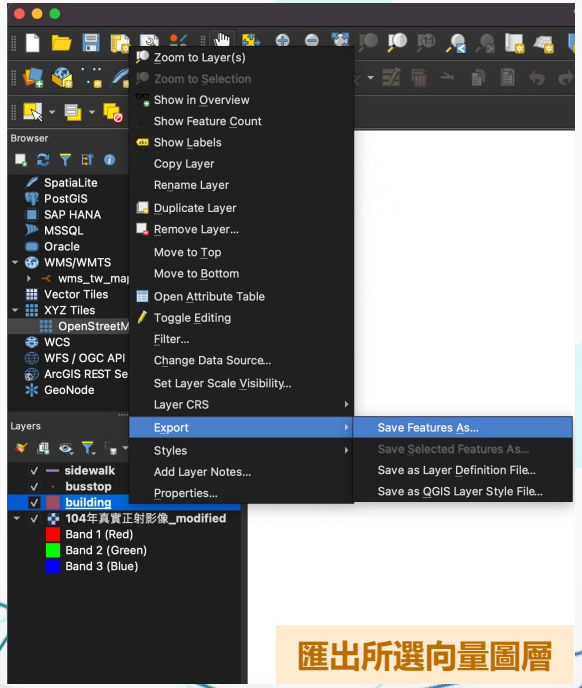




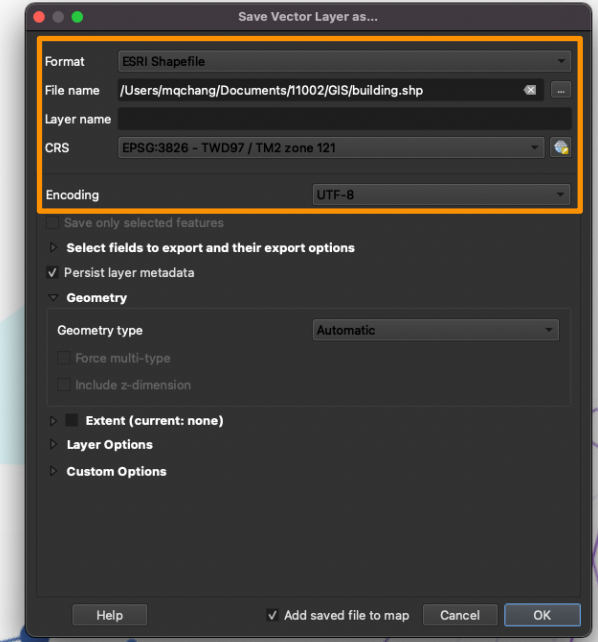
數化 - STEP 2　將建物輪廓以向量資料存檔



再按一次編輯模式以結束編輯
儲存編輯過的polygon

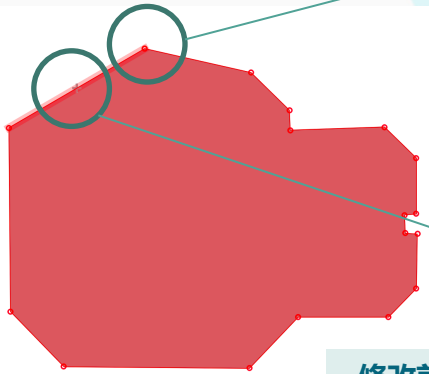


匯出所選向量圖層



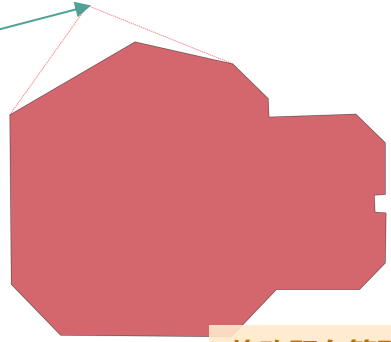
數化 – 幾何編修

修改或新增polygon中節點

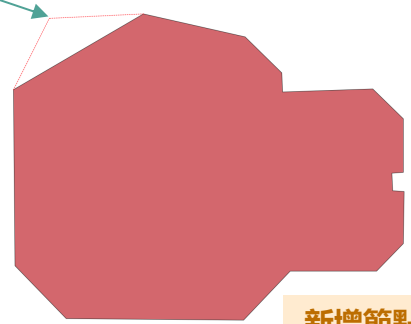


修改前

紅圓點為既有節點
紅十字則為可增加的節點



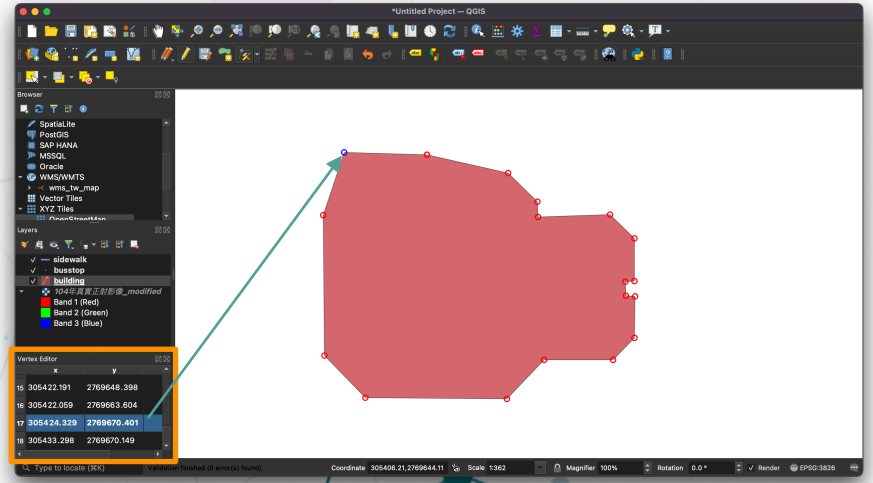
修改既有節點

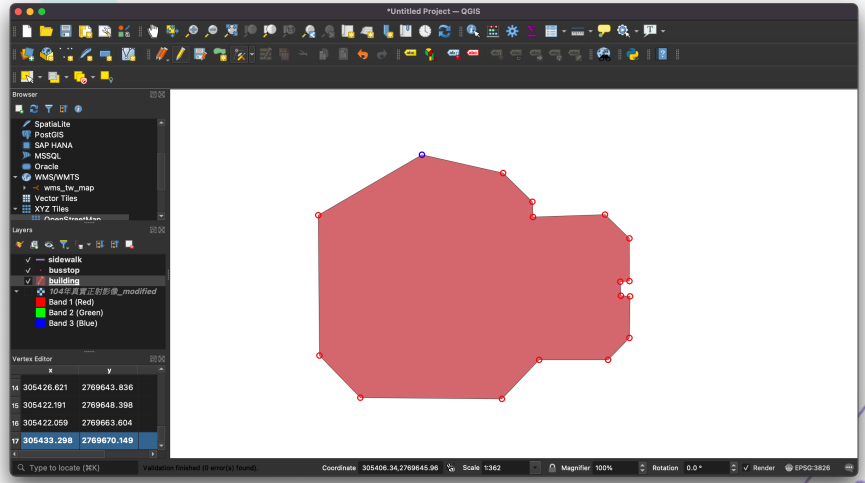


新增節點

數化 – 幾何編修

刪除polygon中的節點



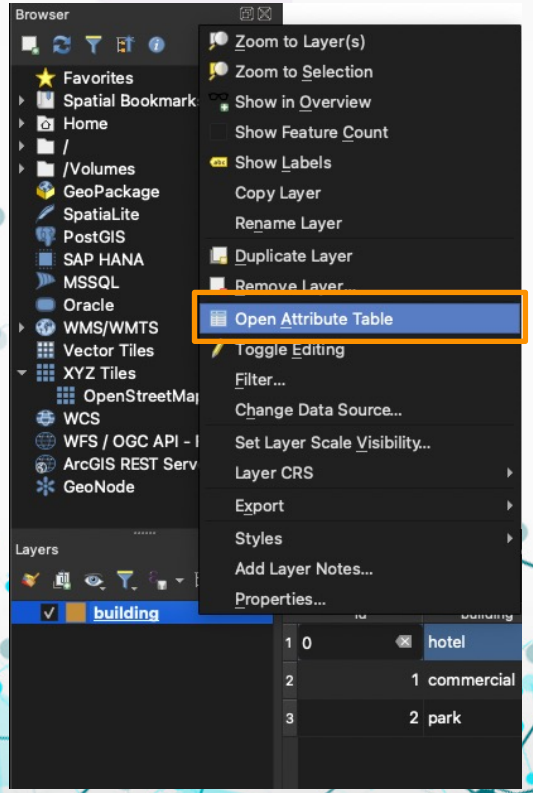


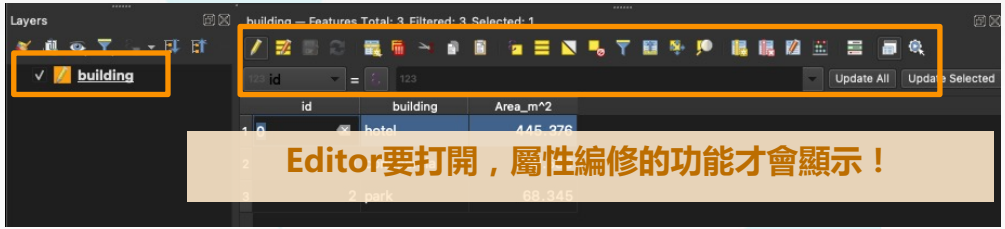
在polygon範圍內按右鍵，左下角會出現節點坐標（選取則顯示為藍色），按delete鍵即可刪除節點

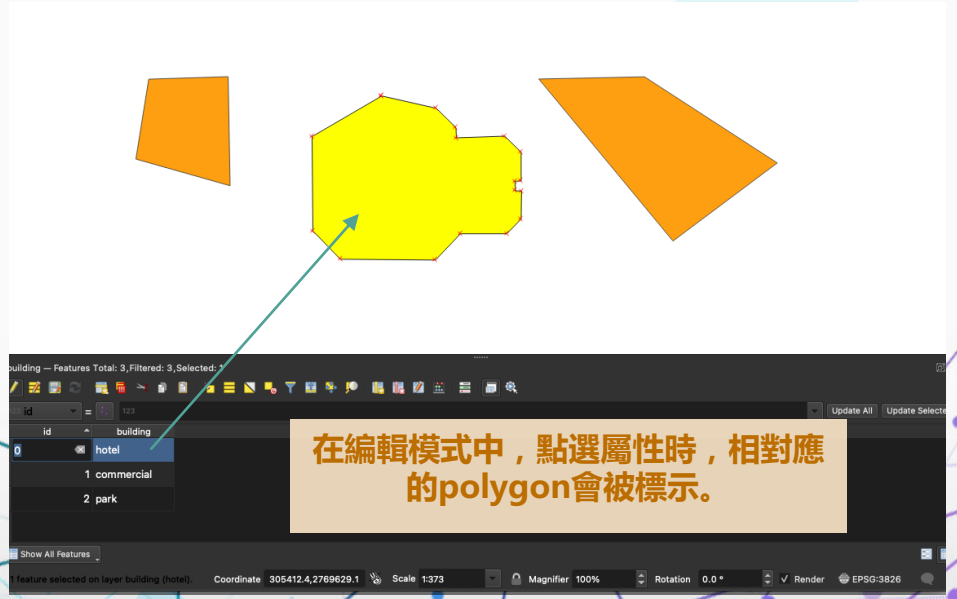
編修完成。

數化 – 屬性編修

編輯工具列與空間連結

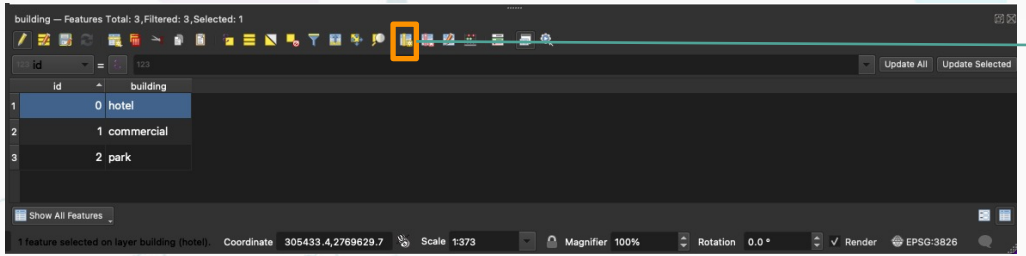


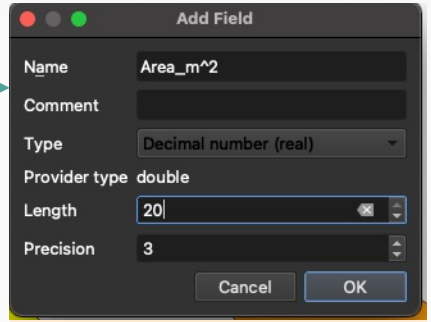




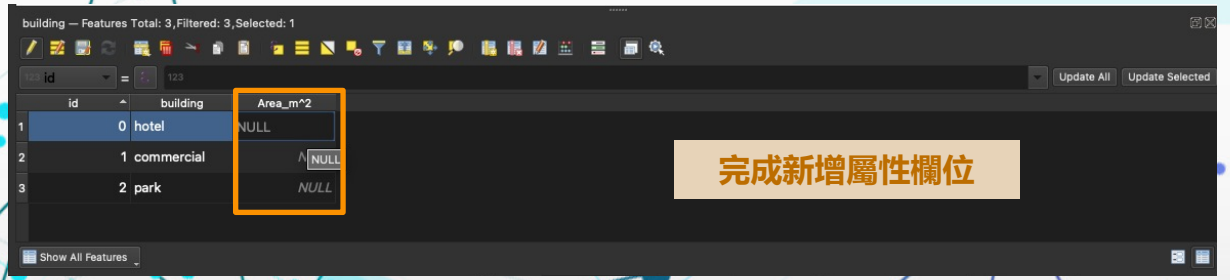
數化 – 屬性編修

新增屬性欄位





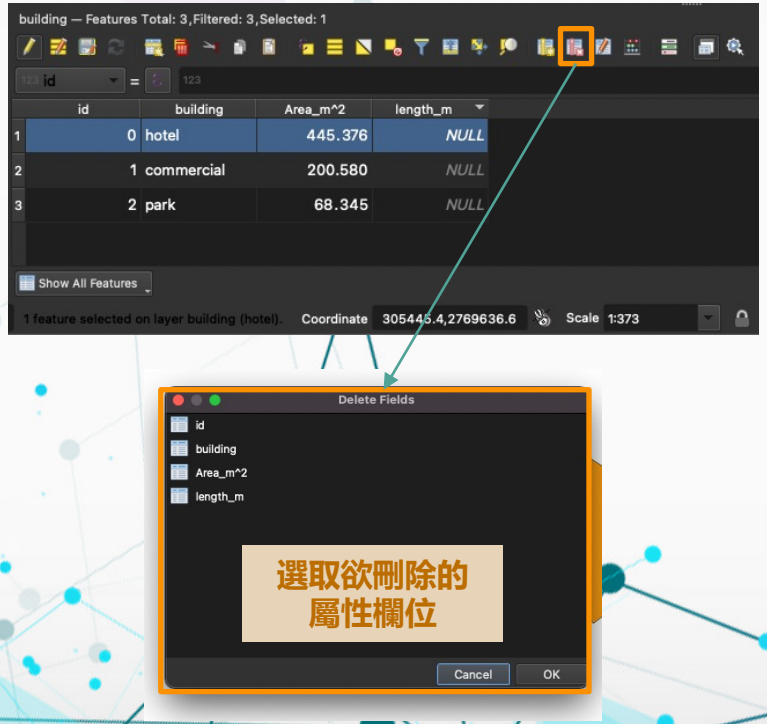
須先確定輸入欄位的值為何種類型及其數值位數



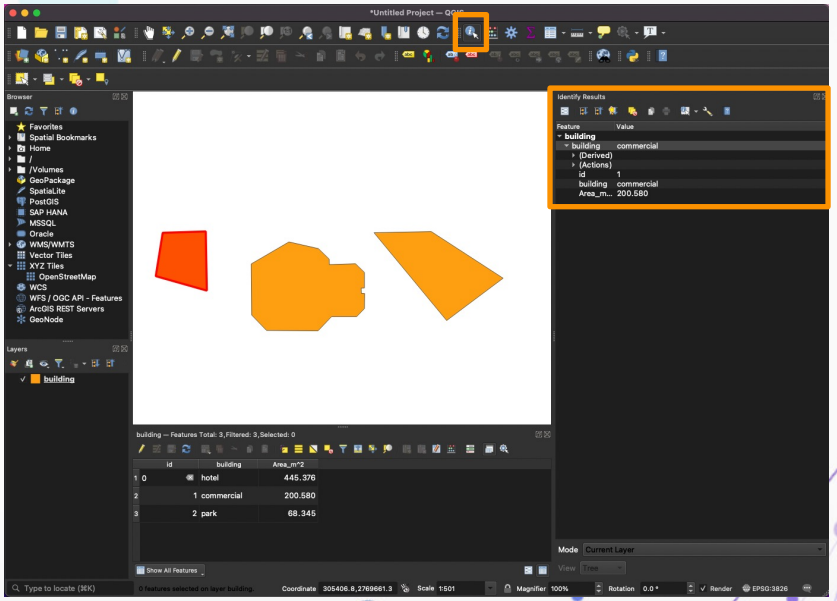
完成新增屬性欄位

數化 – 屬性編修

刪除屬性欄位



查看圖徵屬性



參考資料

- 臺北市百年歷史地圖 http://gissrv4.sinica.edu.tw/gis/taipei.aspx
- 臺北市地形圖資的建置（都發局 陳志丞）https://www-ws.gov.taipei/Download.ashx?u=LzAwMS9VcGxvYWQvcHVibGljL0F0dGFjaG1lbnQvNDYxMDExMjkyNDQ5LnBkZg%3D%3D&n=NDYxMDExMjkyNDQ5LnBkZg%3D%3D
- QGIS User Guide / Manual https://docs.qgis.org/2.2/fi/docs/user_manual/introduction/qgis_configuration.html

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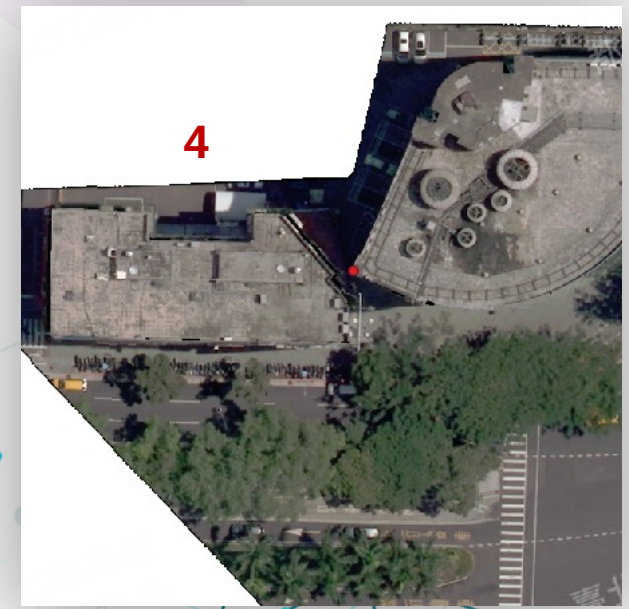

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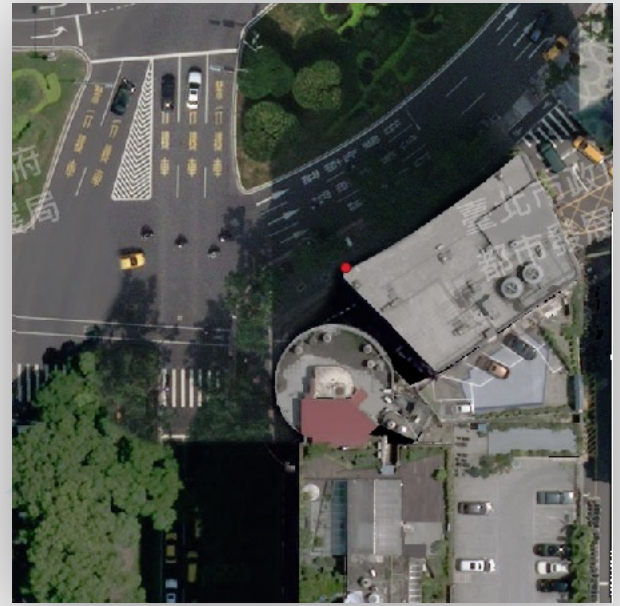

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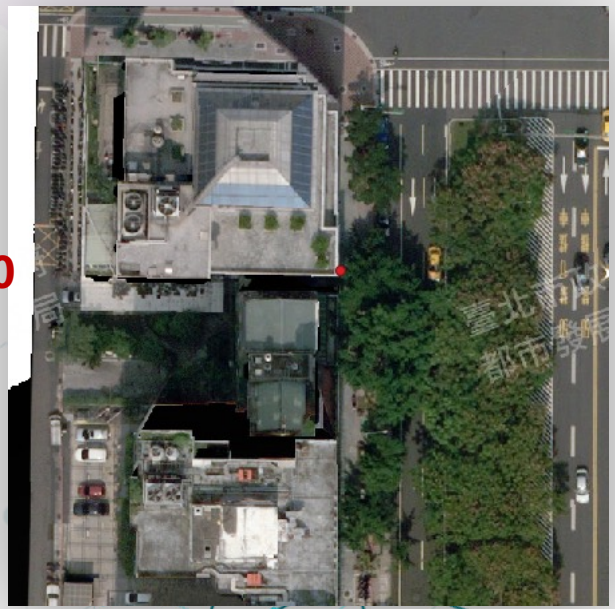

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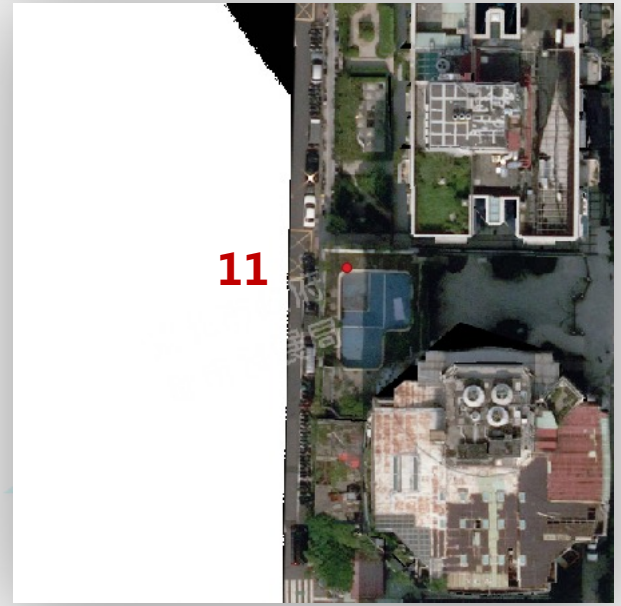

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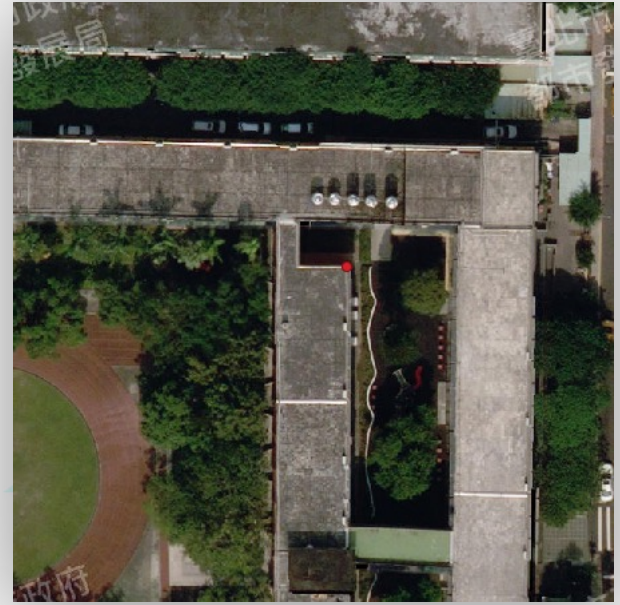

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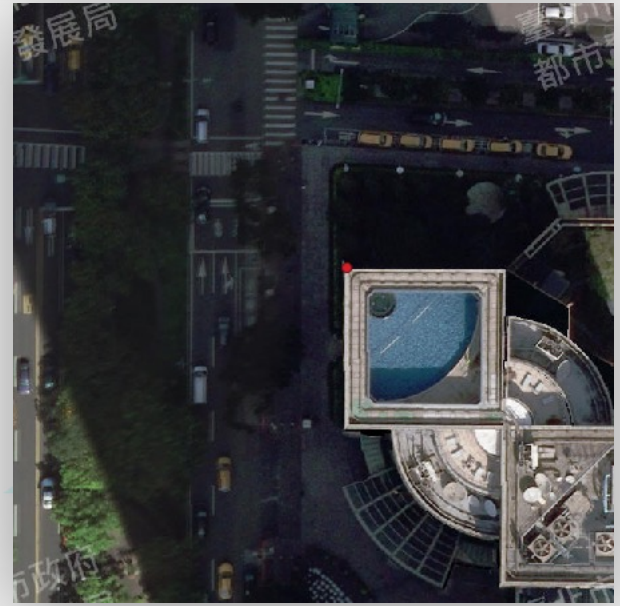

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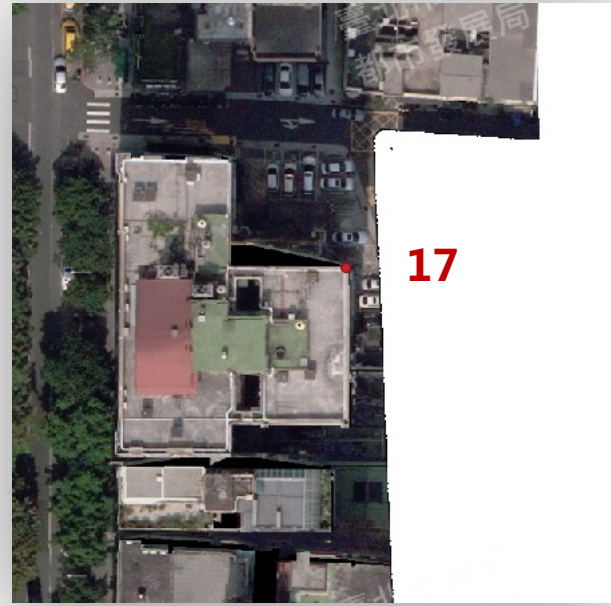

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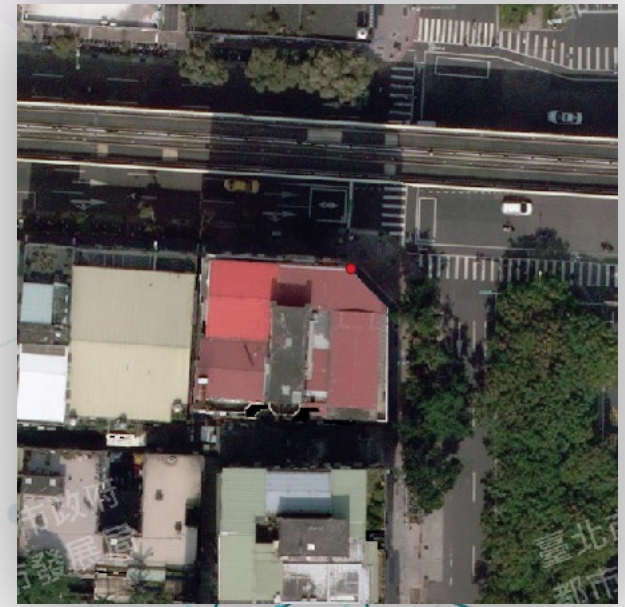

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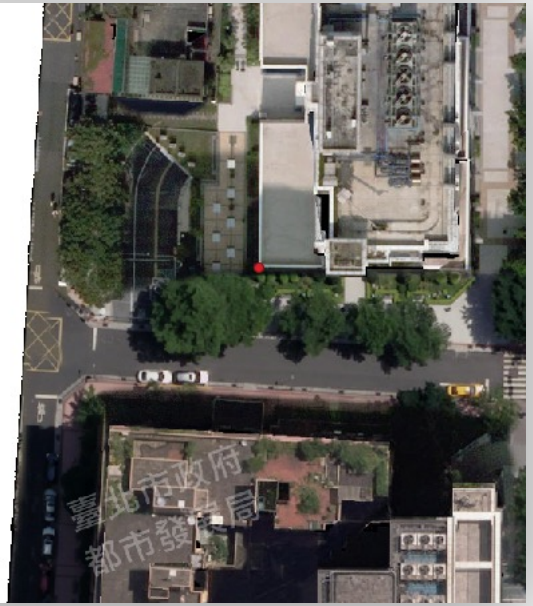

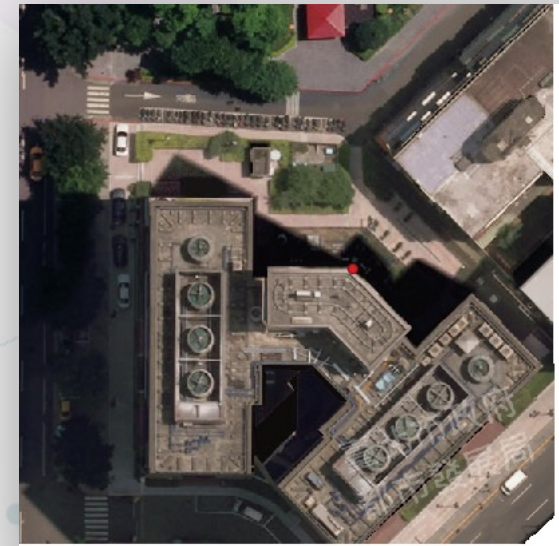

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