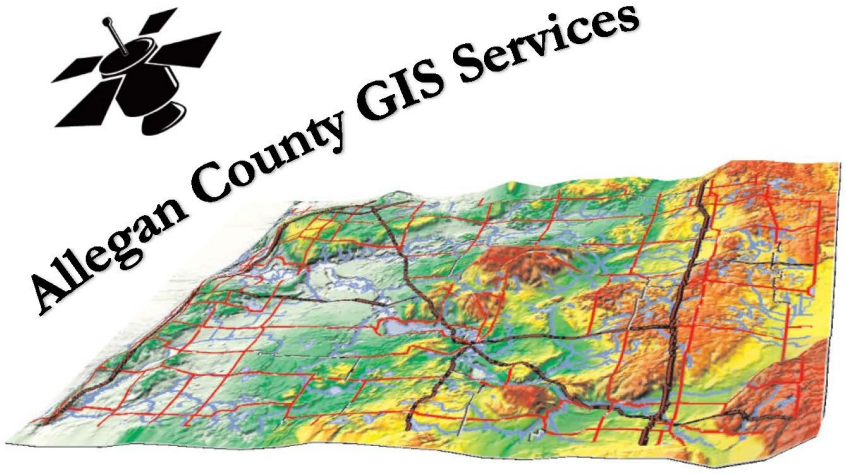

Parcel Editing with COGO Tools in QGIS

www.alleganCounty.org/gis

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COGO Tools in QGIS

Problem and Analysis

Transfers of real property typically involve a Metes and Bounds description:

Commencing at Southeast corner of Section 1, Town 2 North, Range 11 West, Martin Township, Allegan County, Michigan; thence North 88 degrees 32 minutes 05 seconds West 1338.44 feet along the south line of said section to the point of beginning; thence North 01 degrees 27 minutes 55 seconds East 388 feet; thence South 88 degrees 32 minutes 05 seconds East 584 feet, more or less, to the centerline of the Gun River: thence southerly along said centerline to the south section line; thence West along said section line to the point of beginning.

Figure 0.1: Description From Deed

Background

Coordinate Geometry or **COGO** tools are GIS tools that assist the user in conversion of written descriptions of real property into digital map features. Users in several departments of the county use COGO tools in their regular workflow. In the past ACGIS provided COGO tools from the MapInfo Suite. ArcGIS provides COGO tools at the advanced license level.

Statement of Problem

A tool is needed to convert between written descriptions of real property and digital map data. MapInfo is no longer supported within the county. Without purchasing an advanced license for ArcGIS some users need a COGO Tool.

Analysis

QGIS is an open source software that provides a COGO toolset. QGIS works in shapefiles, a common GIS data type.

General QGIS Setup

Set Snapping Properties

To avoid errors in editing, Snap settings can be used.

Settings ⇒ Snapping Options

Enable snapping to:

- Sections
- Quarter Sections
- Parcels
- etc.

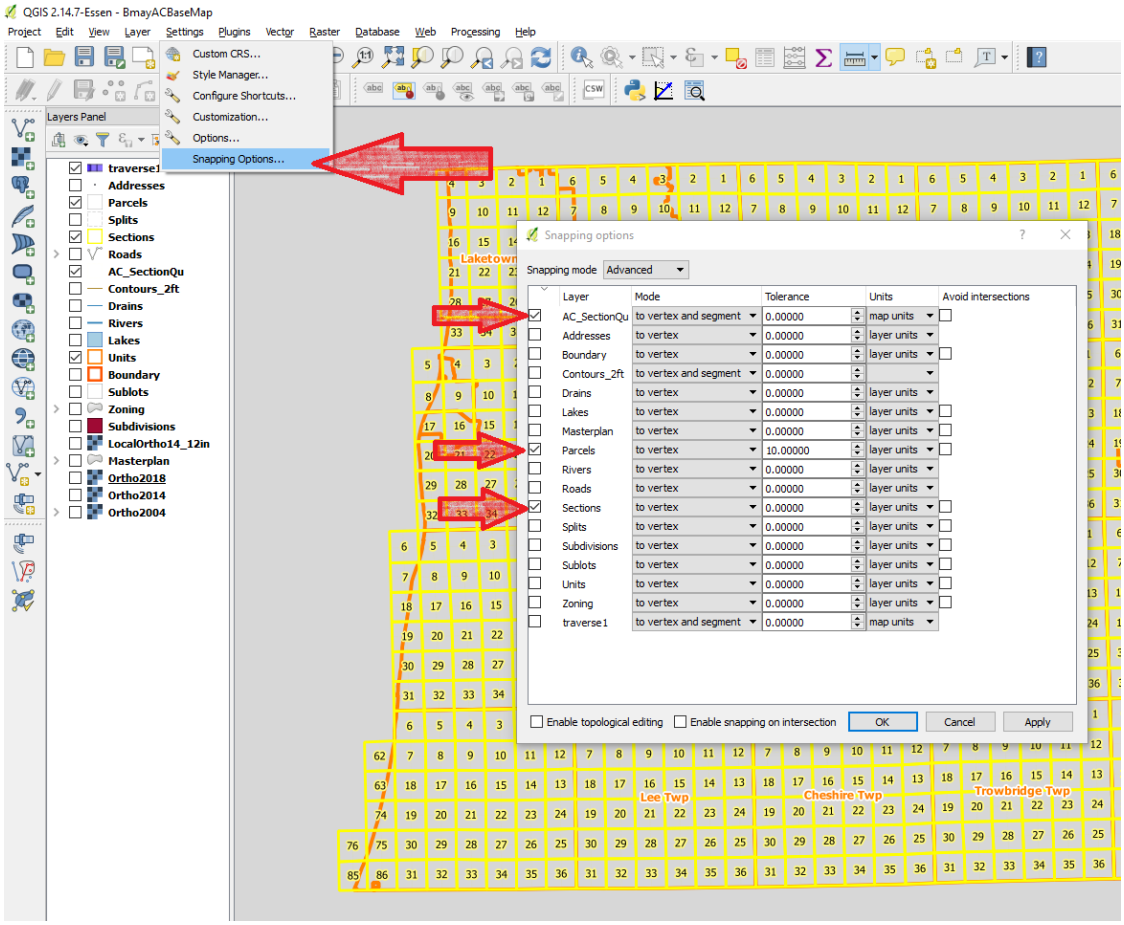

Figure 0.2: Configure Editing Environment

Azimuth and Distance Plugin Setup

Install Azimuth and Distance Plugin

Plugins *(1)* ⇒ Topography Group

Select the Azimuth and Distance Plugin *(2)*

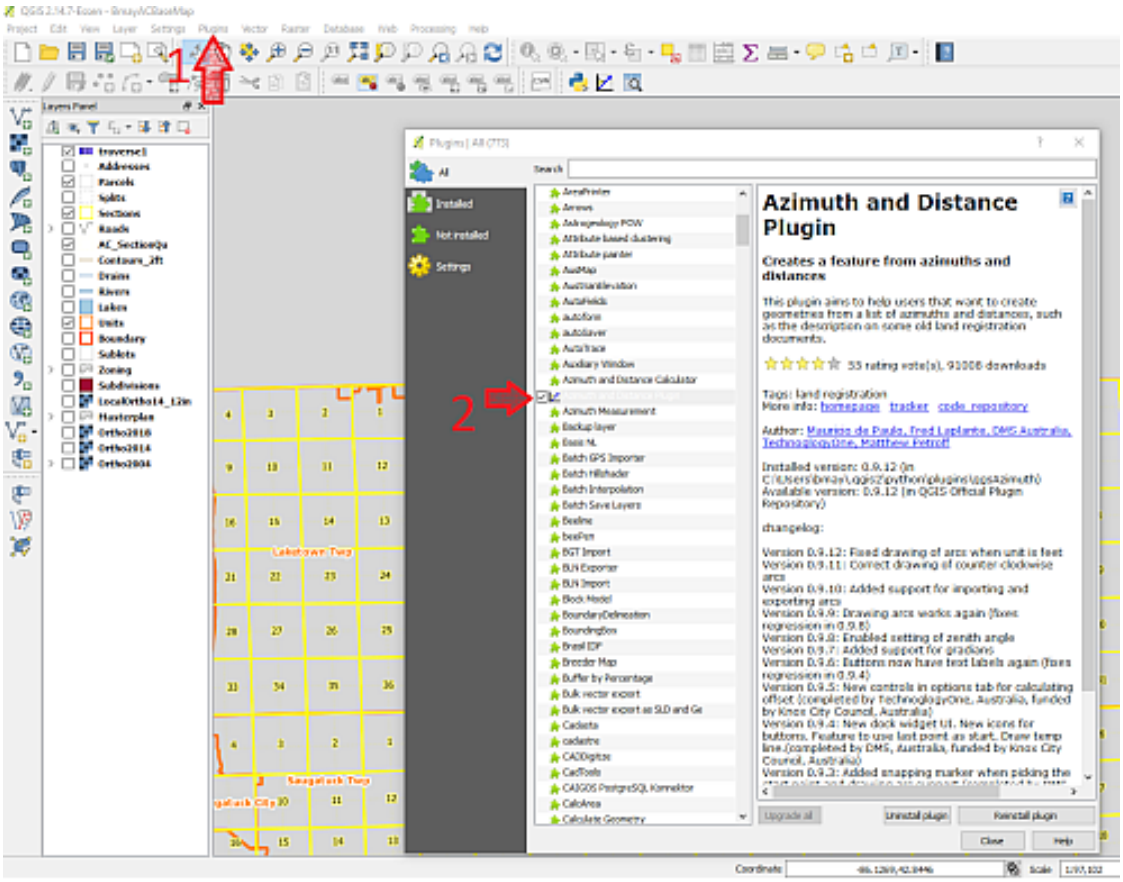

Figure 0.3: Launch Plugin

Launch Azimuth and Distance Plugin

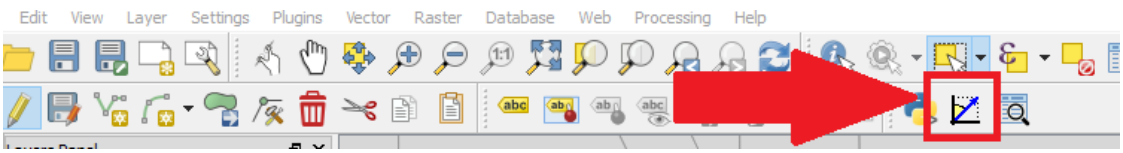

Figure 0.4: COGO Icon

Note Active Layer in Plugin

This tool can be used to draw in a temporary layer or in an active map layer.

Select traverse1 as active layer in the tool.

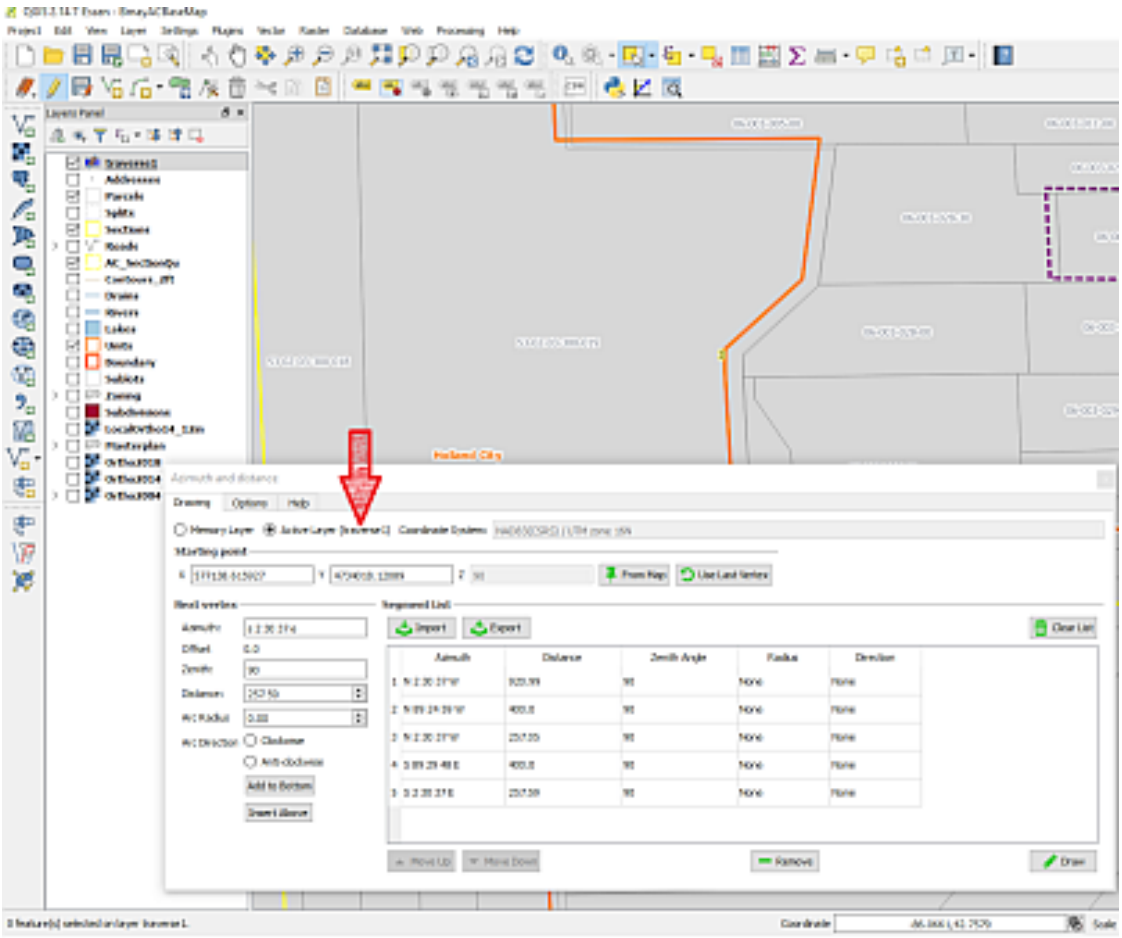

Figure 0.5: Check Active Layer

Activate traverse layer in map

For a map layer to be editable, it must be activated in the Layers Panel.

(If necessary) left click the layer ***traverse1*** in Layer Panel to activate it.

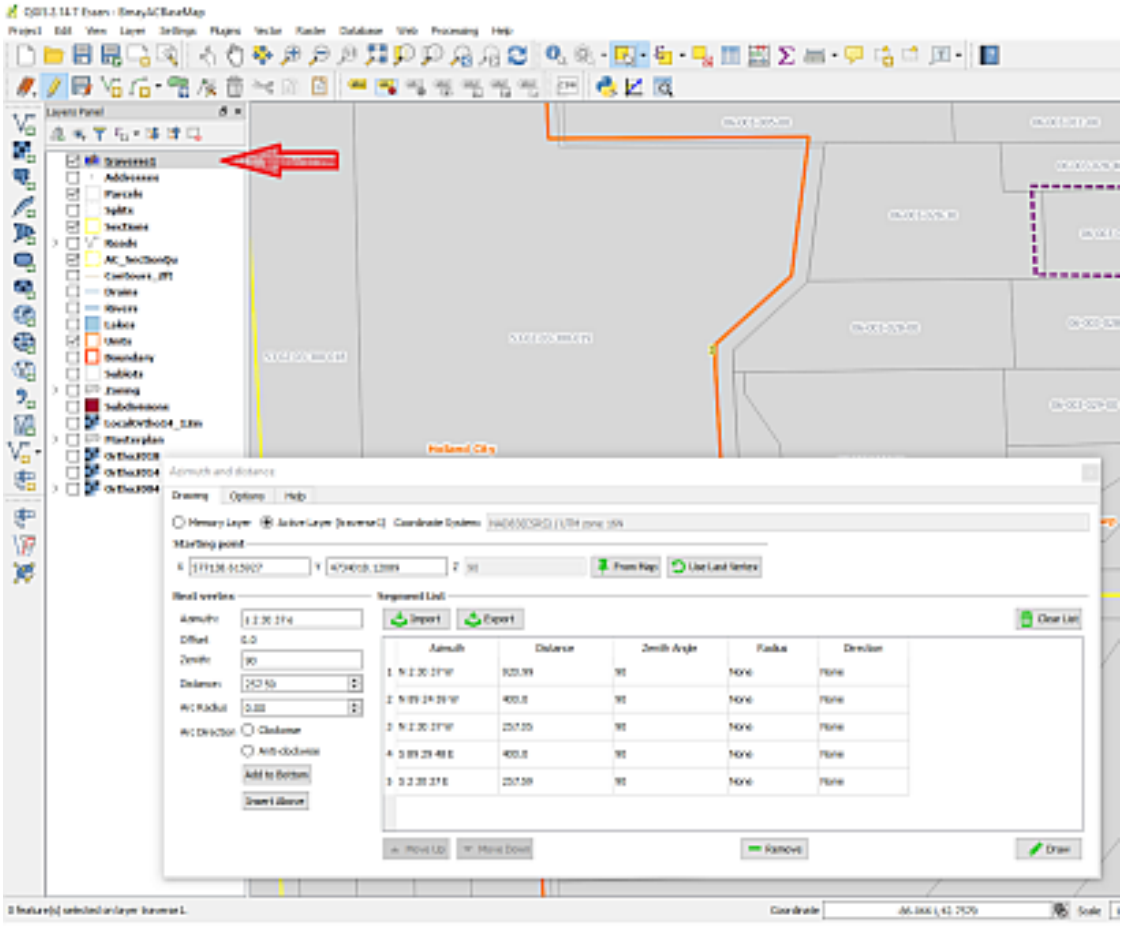

Figure 0.6: activate layer

Configure Options in Plugin

On the **Options Tab:** Select these radio buttons;

- Boundary
- Bearing
- Feet
- Degree

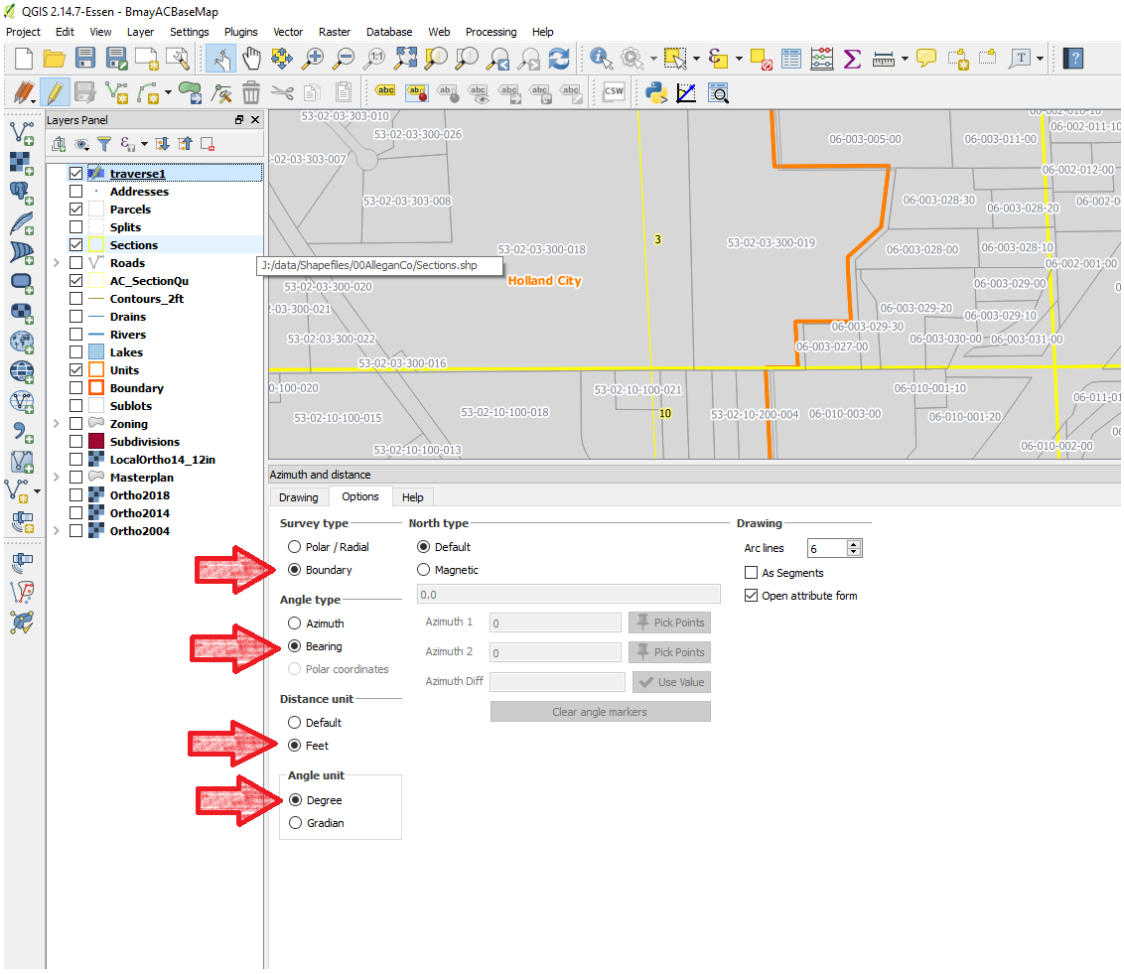

Figure 0.7: Plugin Options

Using the AZ and D Plugin

On the **Drawing Tab:**

- Azimuth (bearing): Enter Bearing in format: *N 2 30 37 W*
- Distance: Enter Distance
- Offset: Set to *0*
- Zenith: Set to *90*

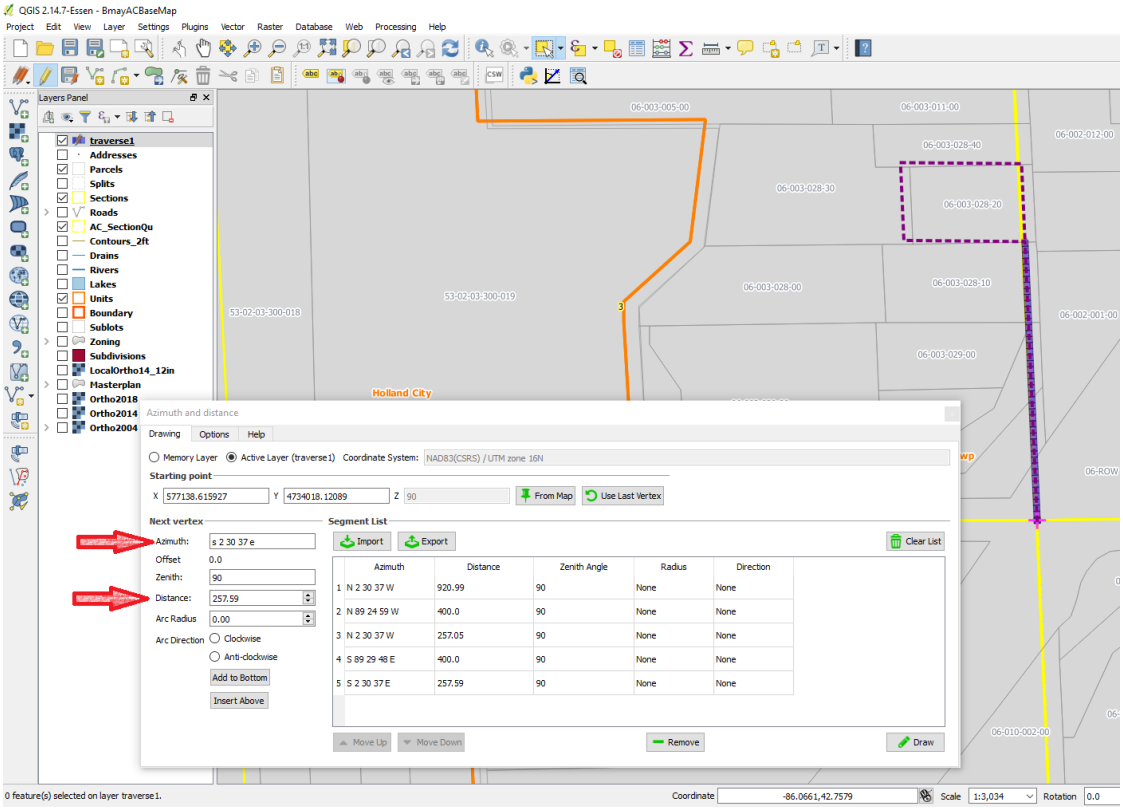

Figure 0.8: Entering Bounds

Locate Point of Commencement

To get to the Point of Commencement,

Use **any combination** of the following methods:

- Using Reference Layers
- Using Measuring Tool
- Search by Parcel Number (Search Layers Plugin)
- Draw COGO lines (Azd Plugin)(as described earlier)

Using Reference Layers

Use layers such as; Units, Quarter Sections, Sections, and Parcels. Toggle layers on and off in Layers Panel and zoom in and out with mouse wheel.

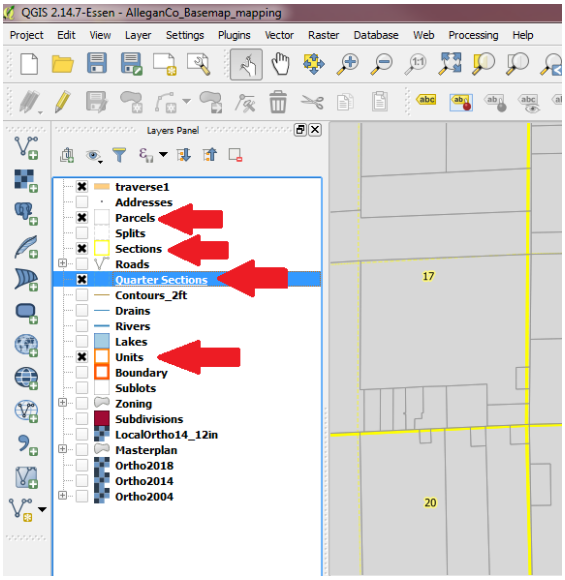

Figure 0.9: Select Reference Layers

Using The Measuring Tool

Measuring can be used to estimate a point of beginning

- ➢ Use the Measure Line Tool
- ➢ Units must be in feet
- ➢ To exit current measurement, right click

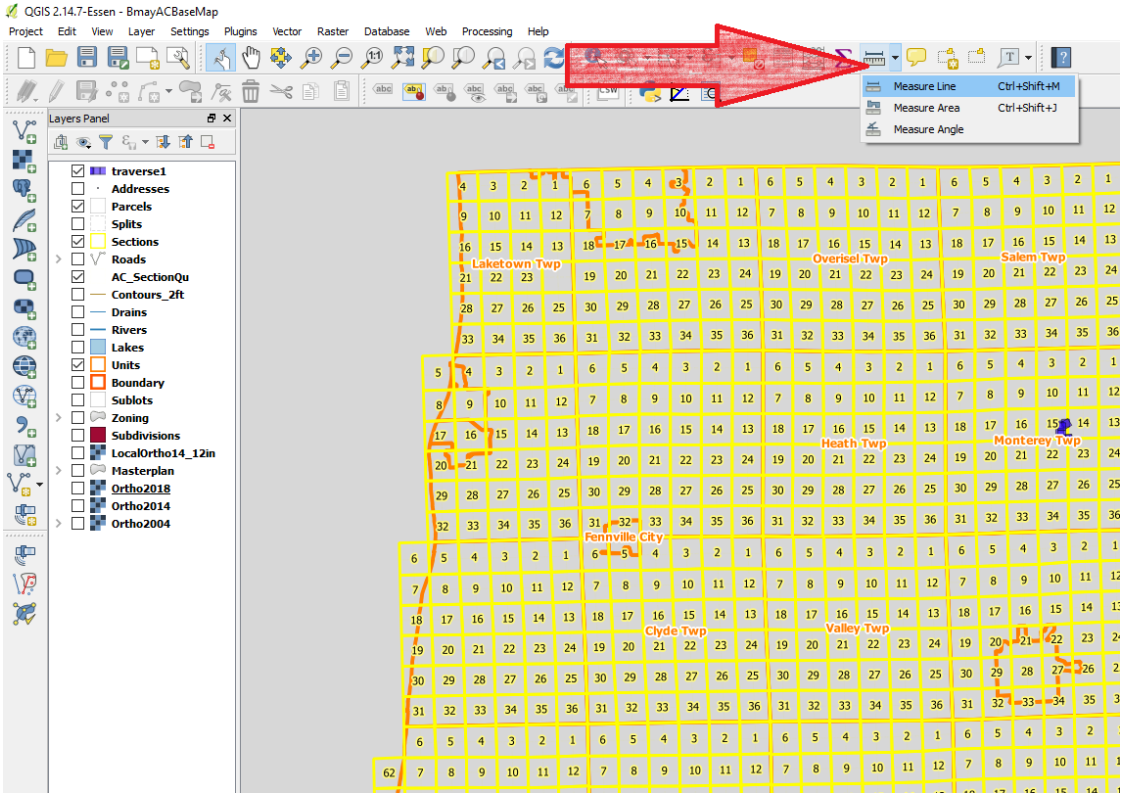

Figure 0.10: Measuring Tool

Install Search Layers Plugin

To install: Plugins ⇒ Search Layers Plugin

➢ Install or open the **Search Layers** Plugin

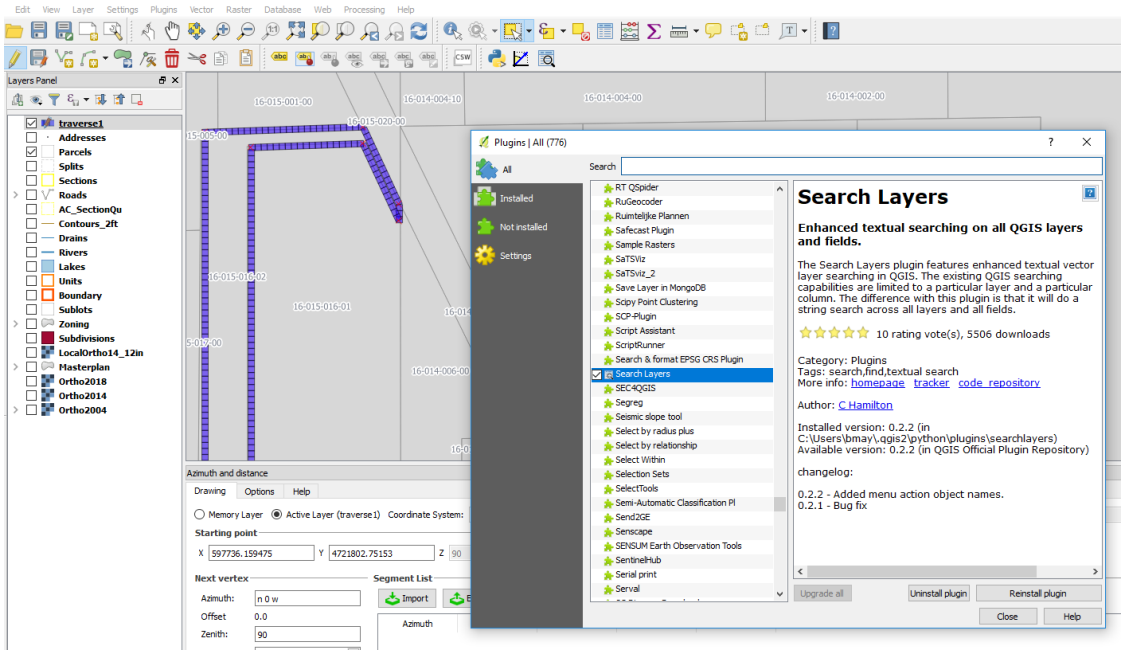

Figure 0.11: Search Layers Plugin

Launch Search Layers Plugin

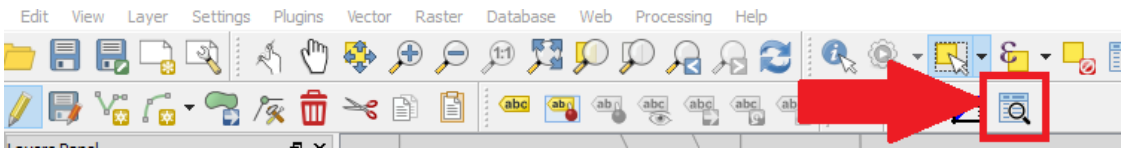

Figure 0.12: Search Layer Icon

Enter Parcel Search Data

In The **Search Layers Plugin:**

- ➢ Enter **parcel number** (with dashes) into *Search String*
- ➢ Select **Parcels** in *Search Layers*
- ➢ Select **PARCELID** in *Search Fields*

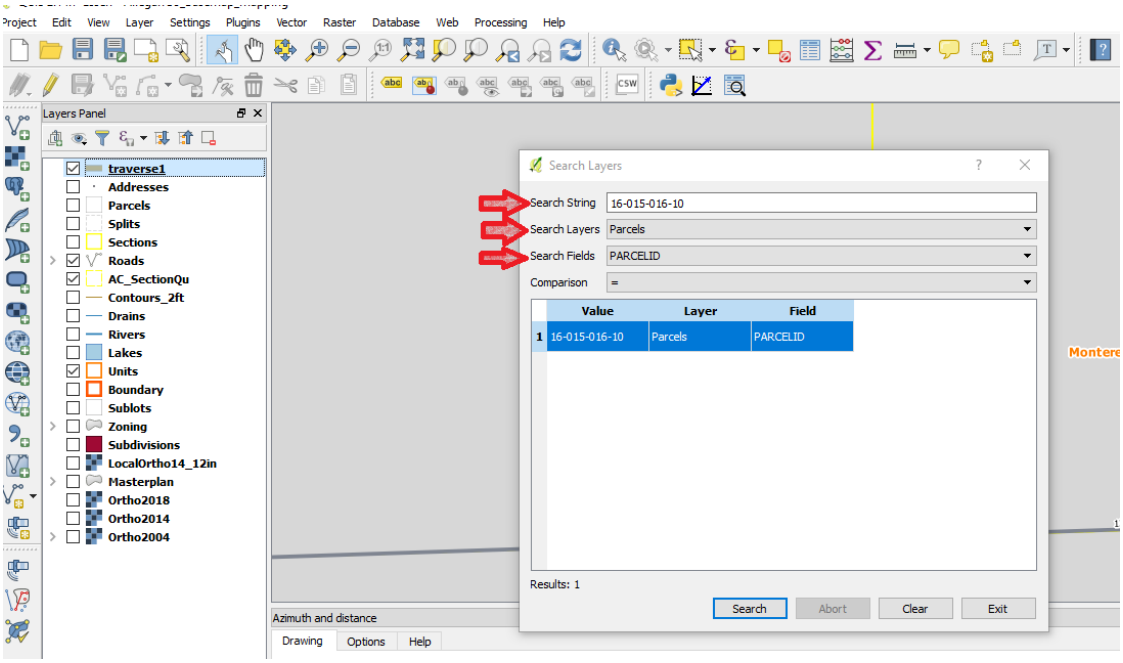

Figure 0.13: Search Layers Setup

- ➢ click on result in table

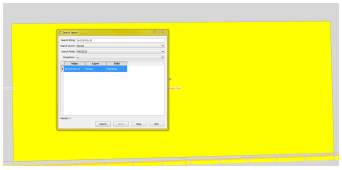

Figure 0.14: Search Results

Zoom Out

Zoom out far enough to find a reference point.

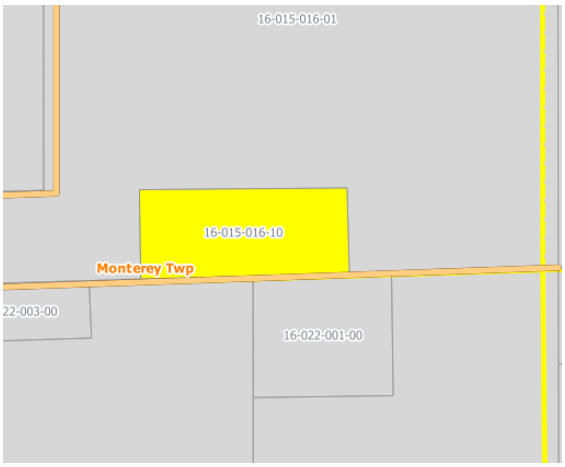

Figure 0.15: Search Results Zoomed Out