Facility Registry System (FRS)

FRS Facility Linkage Application Geospatial Site Location SOP

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Prepared for: ENVIRONMENTAL PROTECTION AGENCY

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REVISION HISTORY

Version Number	Date	Description of Changes
1.0	06/26/2013	Initial creation.

Adapted from <u>*EPA Region 8 CERCLIS Site Recording Guidelines v 0.1 November 23,2012*</u>*, and modified for use with Bing Maps, Google Maps and FRS Facility Linkage Application Geospatial Locator*

A. ACKNOWLEDGEMENTS (FROM R8 CERCLIS GUIDANCE)

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B. PURPOSE

The purpose of this document is to define a process for improving geospatial locations for facilities in FRS. High-quality spatial data is necessary for current, future, and project work and emergency response on these sites. The integrity of the data shall be verified when it is entered into FRS.

C. SCOPE

Individuals responsible for data stewardship in FRS are also responsible for providing accurate site location (spatial) data. The integrity of the data shall be verified when it is entered into FRS. Comprehensive guidelines on data to be entered are outlined in this document.

D. RESPONSIBILITIES

This process encourages a cooperative effort between the FRS team and data stewards responsible for improving data quality on sites in FRS. Both parties must make the contributions necessary to ensure that the spatial data provided are consistent with the EPA's missions and strategic goals. They must also strive to provide these services in a timely, efficient, and effective manner.

D.1 DATA STEWARD RESPONSIBILITIES: SEE APPENDIX A FOR DETAILED INSTRUCTIONS

- Provide coordinate data (Latitude /Longitude) in Decimal Degree format with 6 digits to the right of the decimal.
- Perform Quality control of Coordinates by viewing and inspecting aerial photography. Zoom in close enough to ensure the point is on the building front, or in approximately the center of a large facility or area.
- Provide the source of Latitude /Longitude verification.
  - Sources could be:
    - Google Earth Professional, Bing Maps, Google Maps
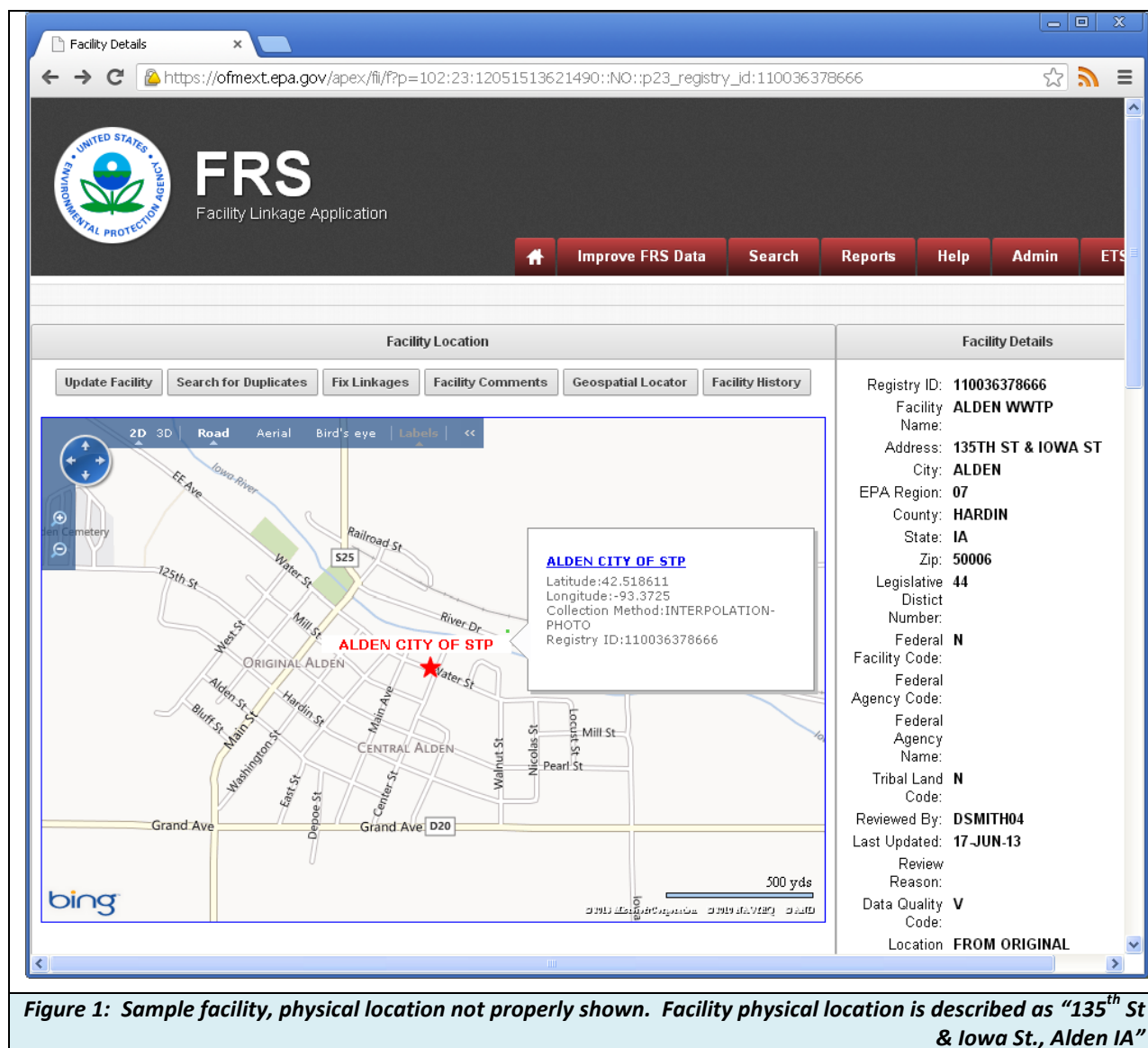- Enter information into FRS Facility Linkage Site Locator
- Submit data

D.2	**FRS SUPPORT TEAM RESPONSIBILITIES**

- Review GIS submissions to ensure they have been processed
- Run back-end validation to ensure submitted locations do not contain invalid information (reversed coordinates, missing agree with other location data
- Ensure that manually-verified locations hold priority in representative pick
- Visually verify data products for anomalies

E. PROCEDURES FOR VERIFICATION OF SITES USING GOOGLE MAPS AND BING MAPS

Below are outlined procedures which can be used to verify sites using Google Maps and Bing Maps.

Example: Improving location of a wastewater treatment plant located at 135th St & Iowa St., Alden IA

Figure 1: Sample facility, physical location not properly shown. Facility physical location is described as "135th St & Iowa St., Alden IA"

Bing Maps and Google Maps can help to find locations by simply entering the address in the search bar. For example, going to http://bing.com/maps shows the following view, where Bing Maps returns a map view corresponding to the area of interest:
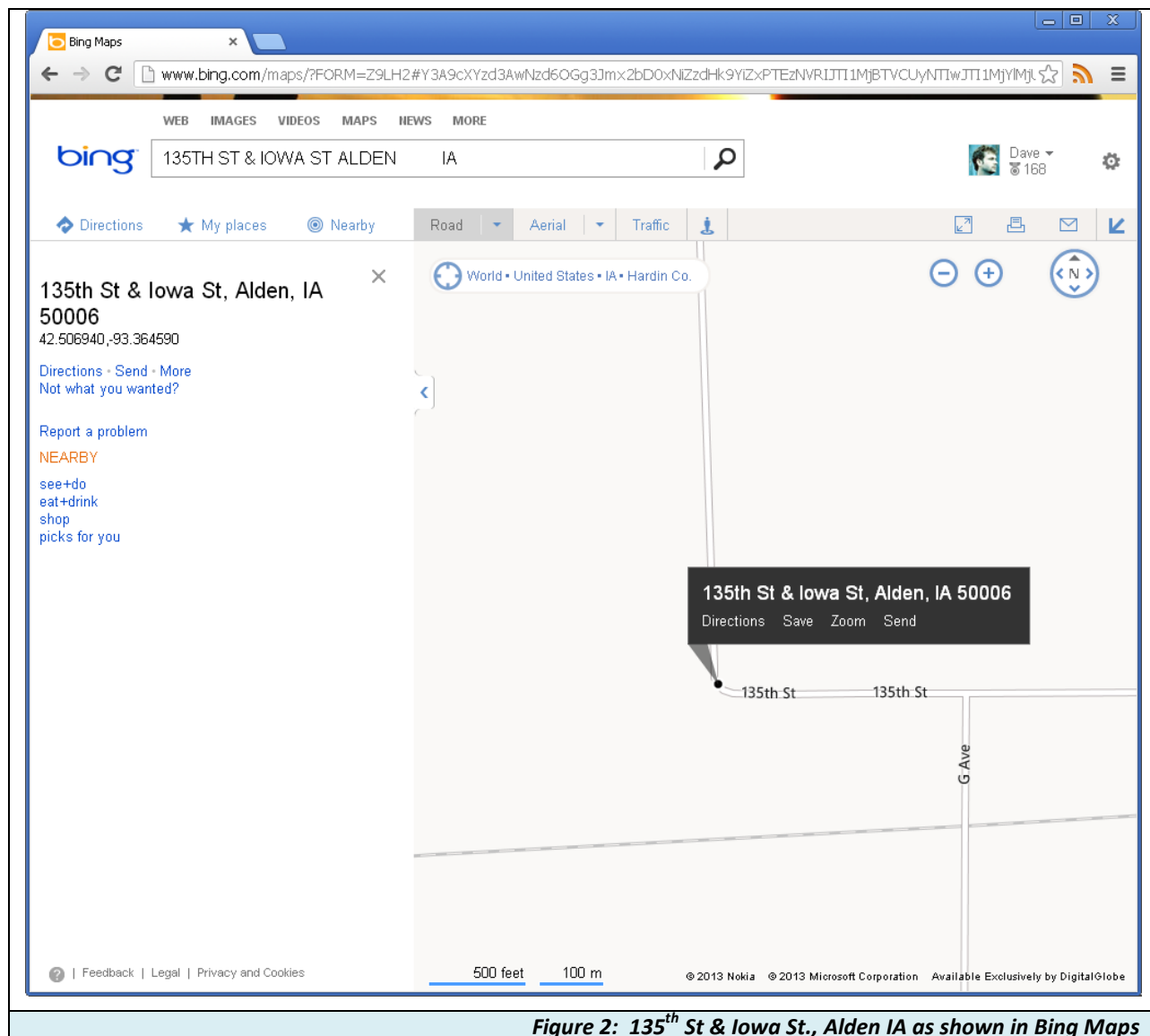
Figure 2: 135th St & Iowa St., Alden IA as shown in Bing Maps

Within Bing Maps, one can select "Aerial" to select aerial photo.   Note that one can easily identify the sewage lagoons on the aerial photo (Figure 2).
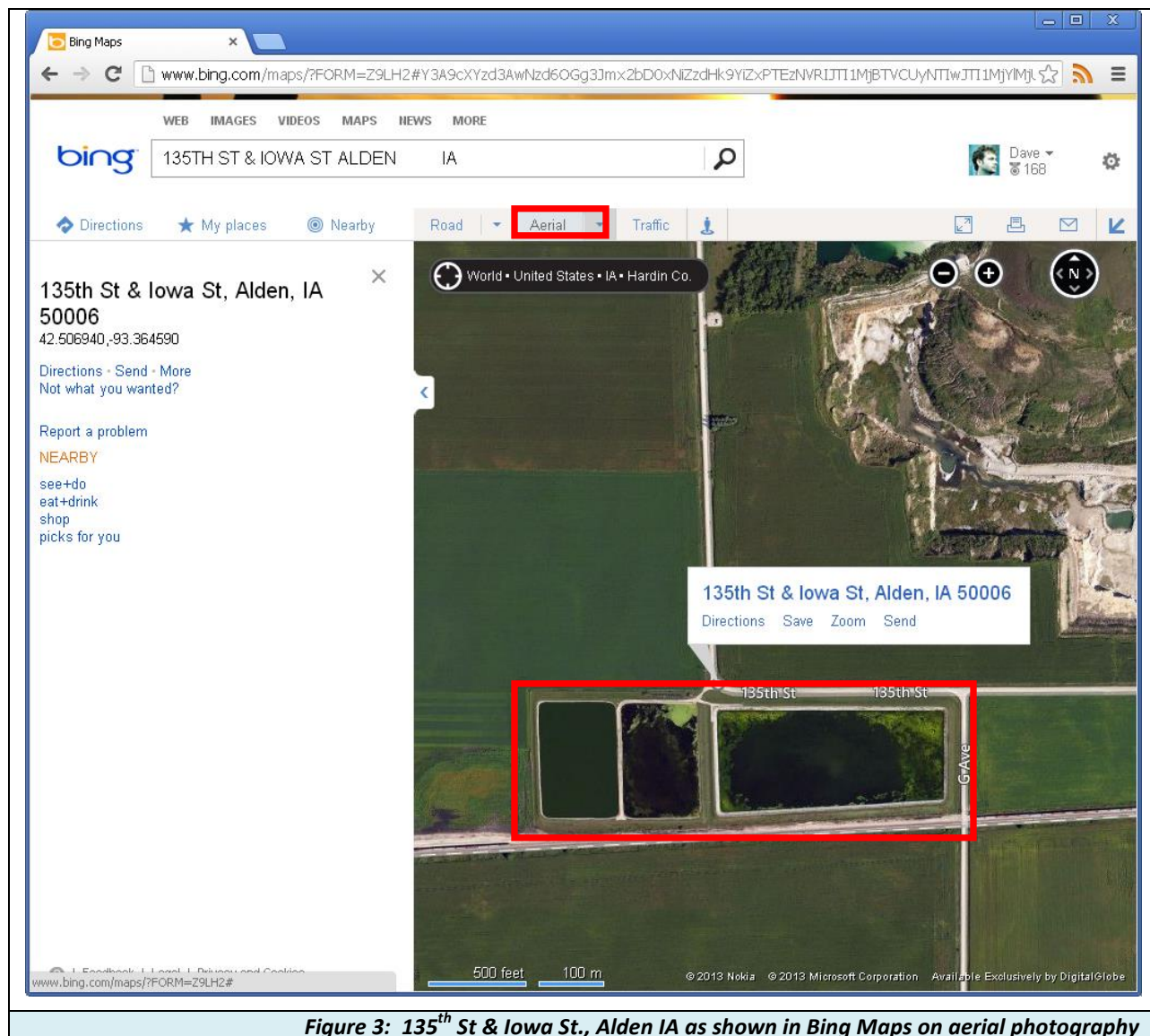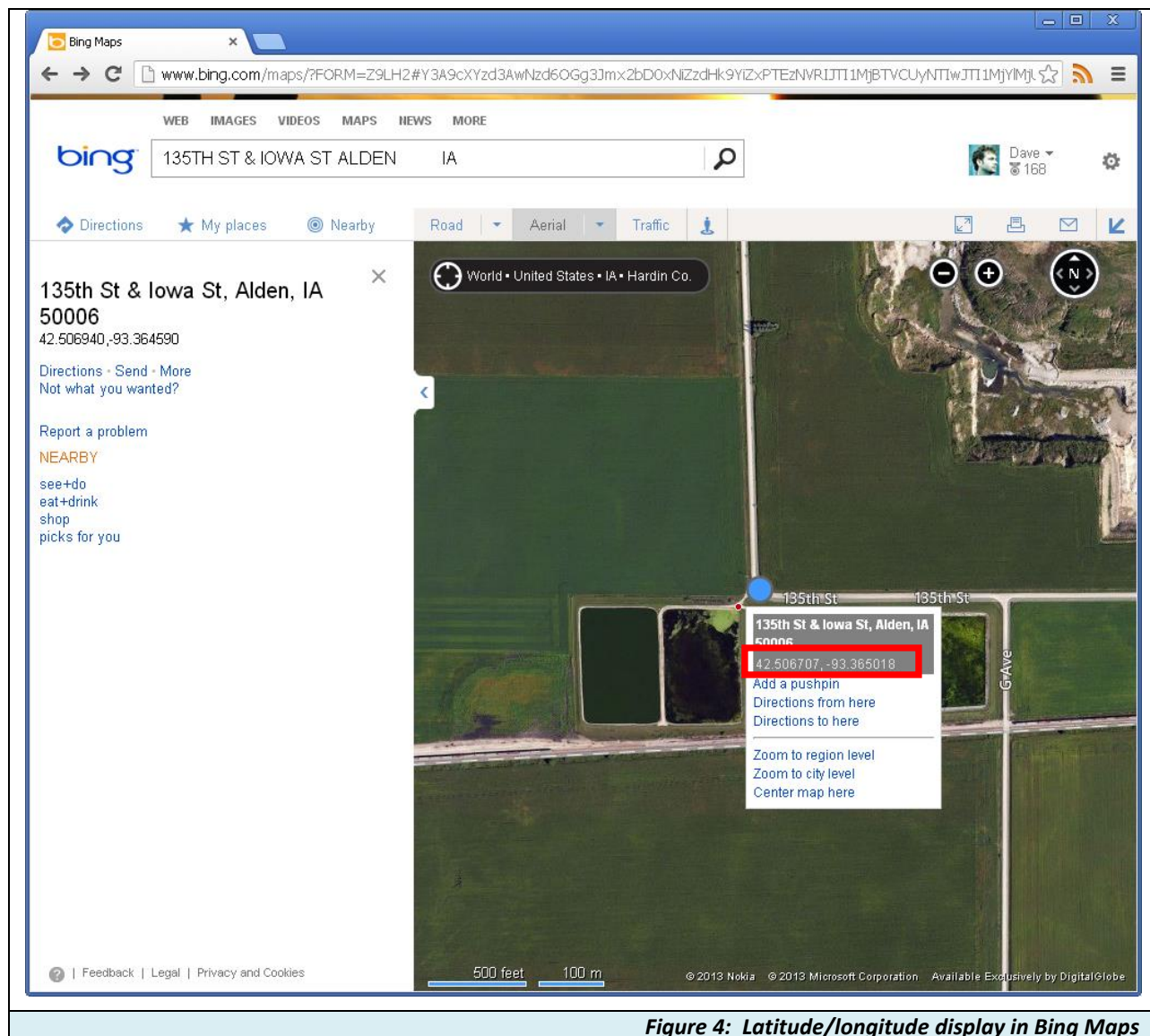
Figure 3: 135th St & Iowa St., Alden IA as shown in Bing Maps on aerial photography

Right-clicking on a location in Bing Maps will usually provide some additional identification, including WGS84 latitude and longitude, as seen in Figure 4.

Figure 4: Latitude/longitude display in Bing Maps

This can then be used toward locating the facility using the FLA Site Locator, by navigating to the Geospatial Viewer from the FLA "Facility Details" view and entering the displayed latitude and longitude using "Enter Lat/Long" and hitting "add point":

Figure 5: Latitude/longitude entry in FLA Site Locator

Note that you then have three options:

1. You could accept this location by and enter it into FRS (being sure to also populate the additional metadata, such as what the reference point represents, such as "Site Entrance" and collection method as "Photo Interpolation".

2. If there is an existing coordinate (blue square) which appears to be accurate, and which is a better default location than the currently selected as "best pick" (shown as a red star), you could hover on it and select "Change Best Pick" to select it instead (Figure 6)

3. Or, you could choose to place a totally new pushpin, using "Draw Point" – in which case the lat/long value and metadata will be prepopulated with default values.

Figure 6: Selecting an existing coordinate as "Best Pick"
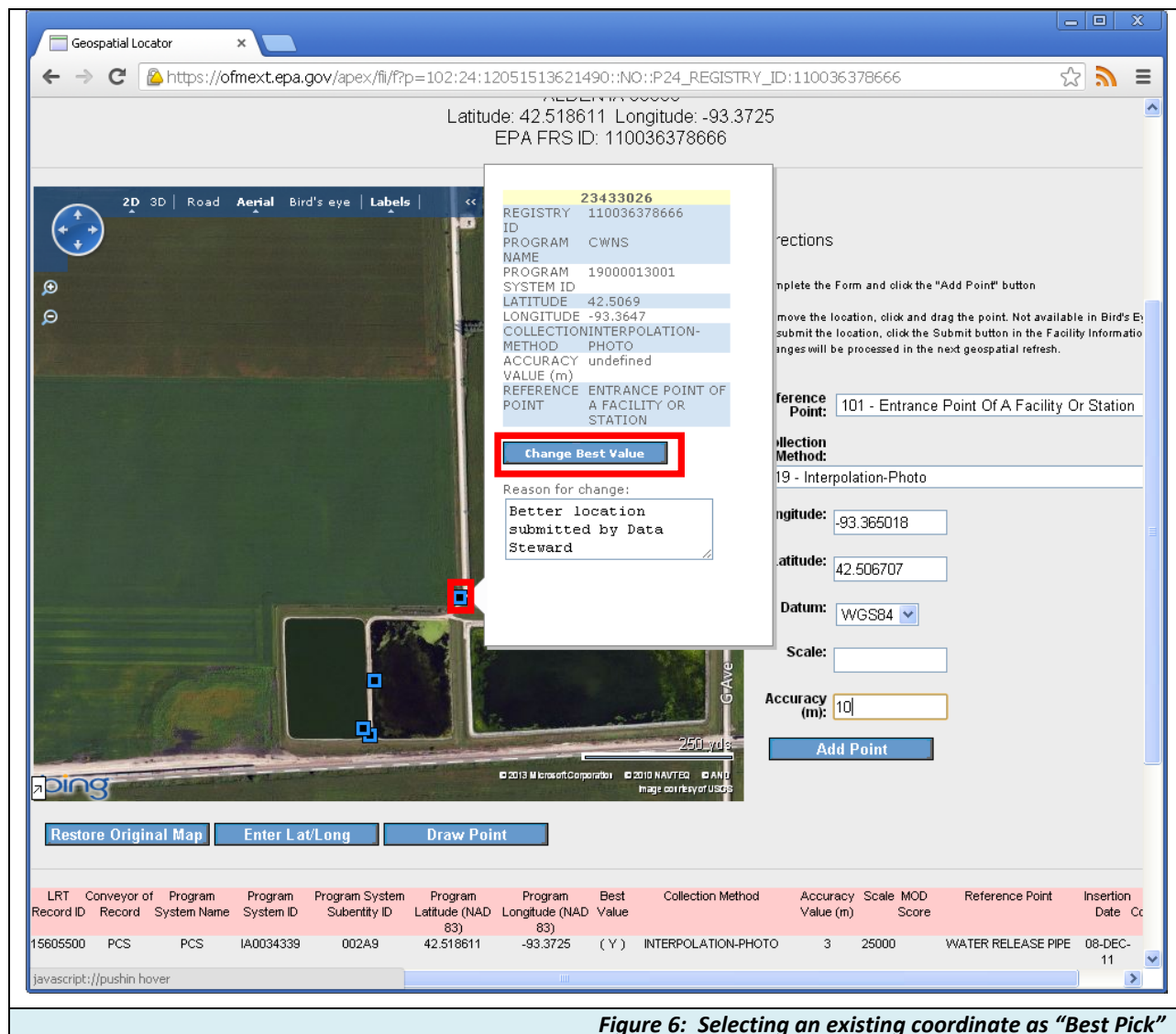
Another useful functionality in Bing Maps is that Bing Maps dynamically displays information about the county based on the view center, which can be useful for validating location and assumptions (Figure 7).
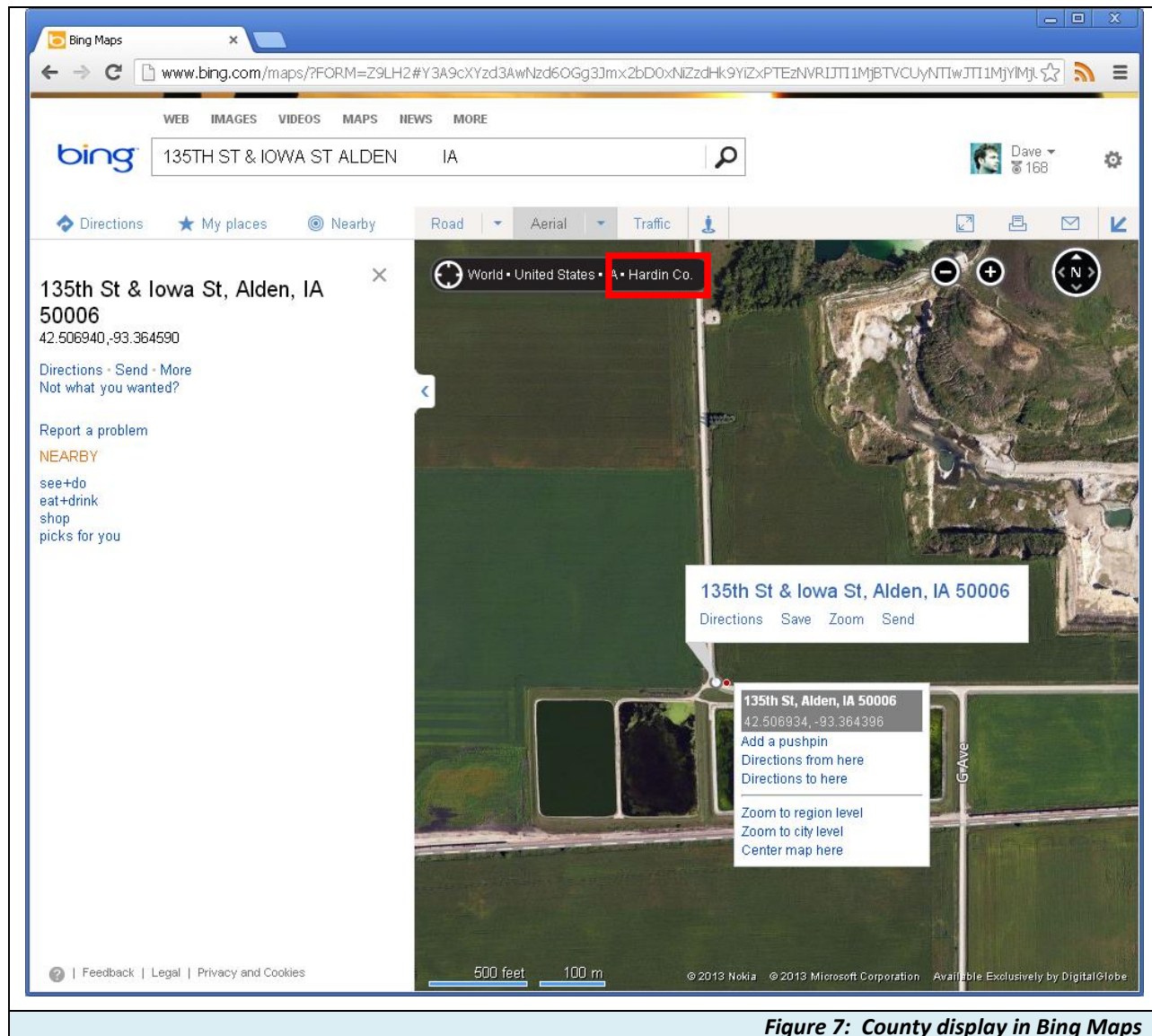
Figure 7: County display in Bing Maps

An additional capability in Bing Maps that is very helpful is the "Birdseye View" – this is accessible by selecting "Aerial" and then choosing "Birdseye" from the dropdown as shown in Figure 8. Birdseye view differs from standard aerial orthophotography views in that, where available, Bing Maps has oblique aerial photos that show facilities from an angle, revealing additional detail not always visible top-down. Additionally, you can rotate the oblique view to view the place of interest from different perspectives, using the arrows in the upper right of the aerial photo.
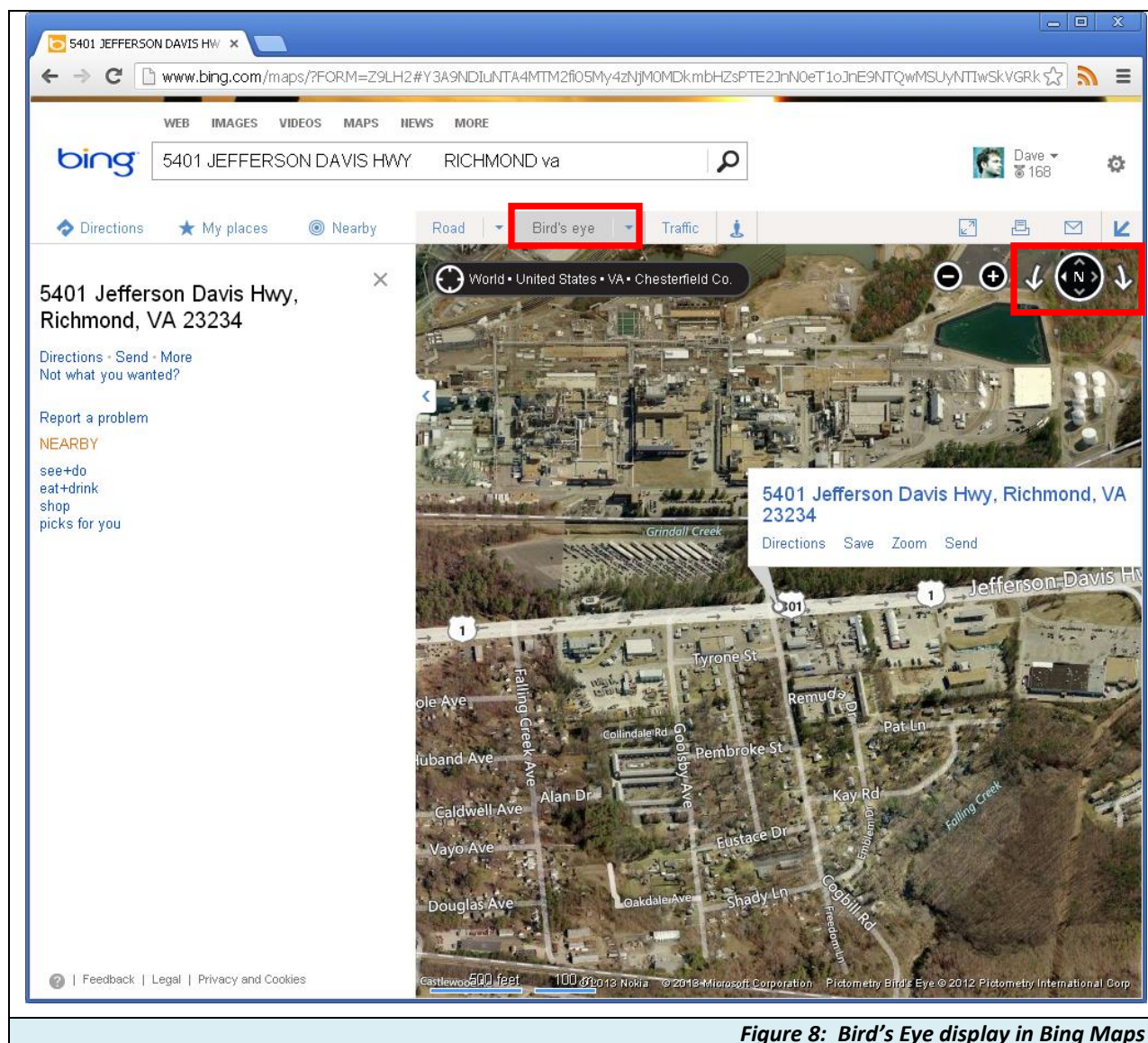
Figure 8: Bird's Eye display in Bing Maps

Google Maps provides many similar functionalities to Bing Maps, in that you can use the search bar to enter a location and the map view will zoom to that location, if found. Bing Maps and Google Maps use different street data providers, so if a search fails in one, it may succeed in the other.

Like Bing Maps, you can right-click on a location on the map or aerial photo and get back a latitude and longitude.

An additional, powerful capability in Google Maps is that in many locations, one can get a Street View, which has been collected by Google using vehicle-mounted panoramic cameras. To access Street View, select the icon of a little person above the zoom control on the right side of the screen, and drag him to the location of interest on the map. Areas which have StreetView data will highlight in blue.
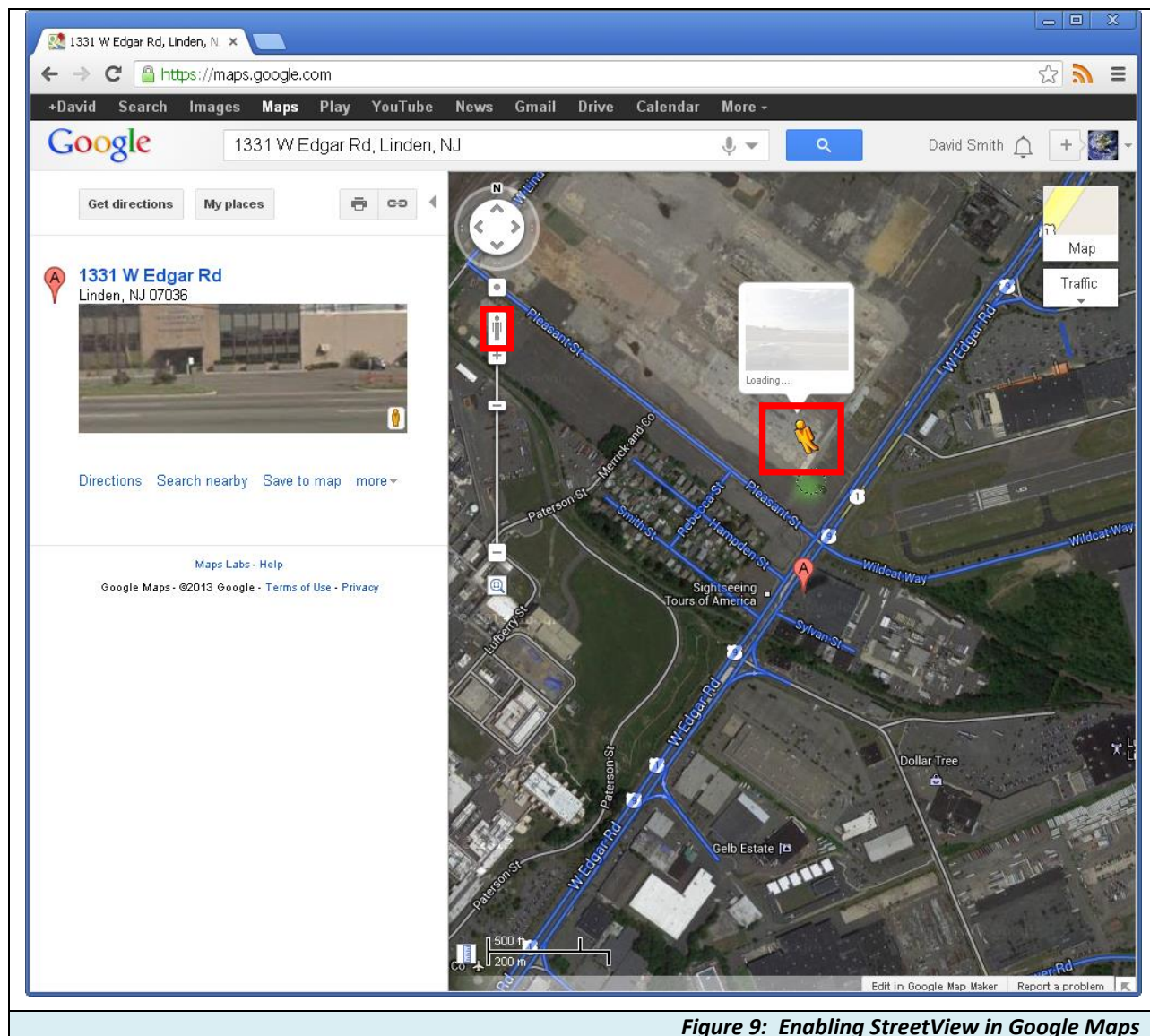
Figure 9: Enabling StreetView in Google Maps

Dropping the little orange person on the street segment will turn on street view – and within street view, one can navigate and turn around by using the arrows and by dragging the display around. Note that there is a little pointer on the inset map which shows direction being viewed (Figure 10).
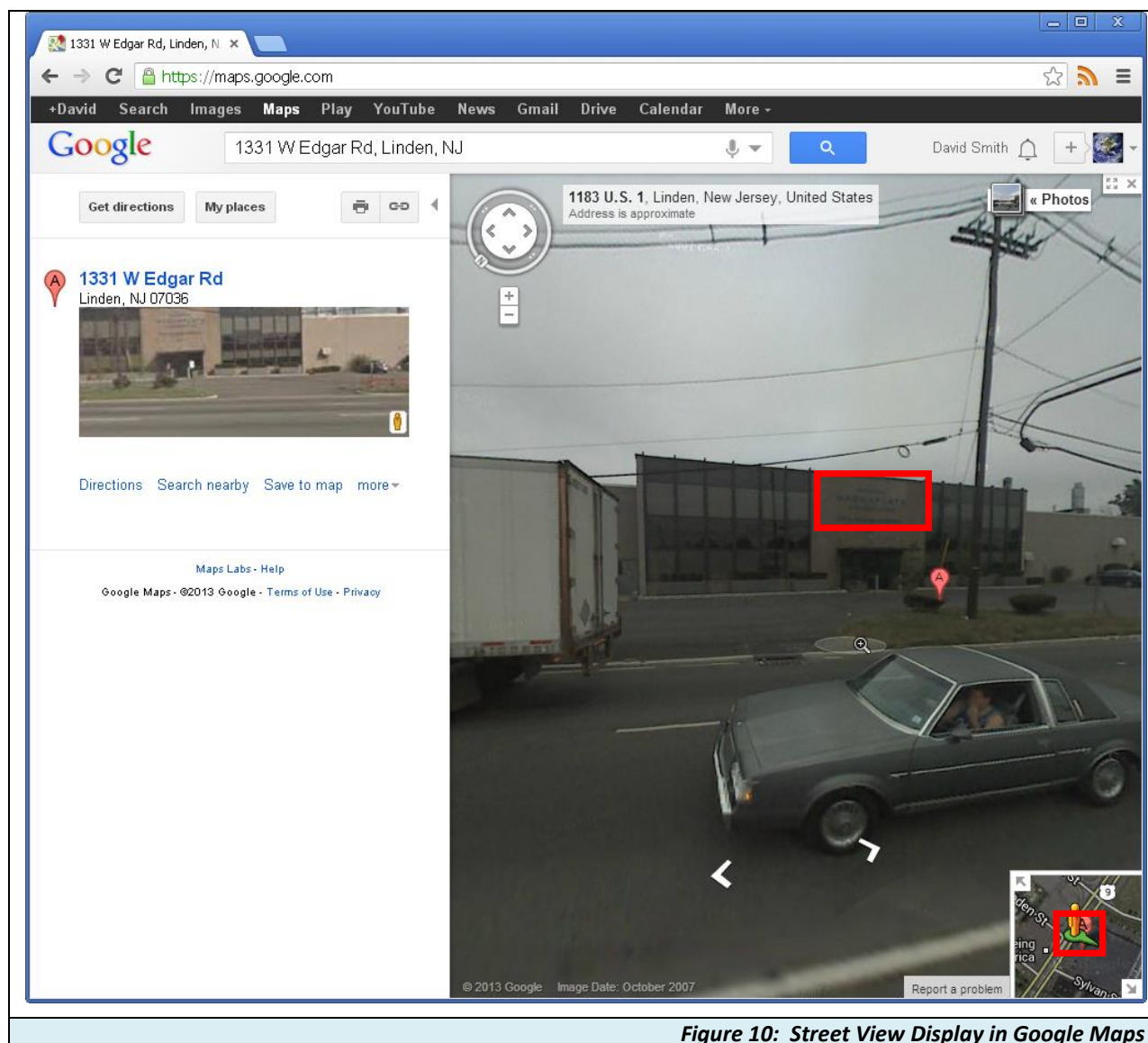
Figure 10: Street View Display in Google Maps

In this example, one is able to verify the location of MagnaPlate, as identified on the building sign, and as located at 1331 West Edgar Road in Linden NJ.   The user can exit streetview by clicking on the 'X' in the upper right corner of the streetview photo (located next to "photos" in the screenshot).

Summary

Bing Maps and Google Maps both serve as powerful tools which can be used to verify facilities and their locations. Each has its own strengths and capabilities, stewards are encouraged to explore these and leverage them for accurate site location.