

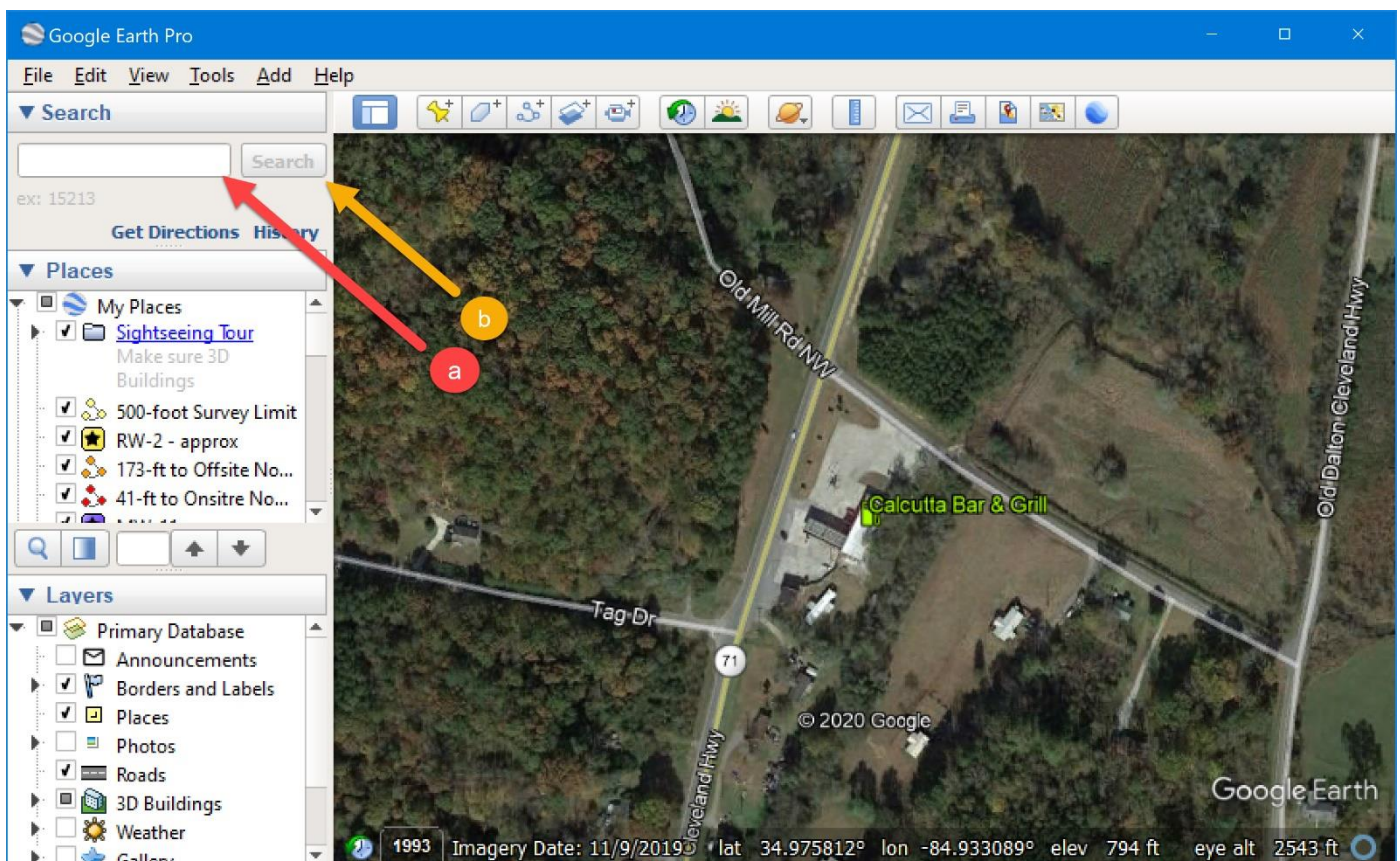
USTMP Staff Receptor Map Construction Tutorial:

Using Google Earth to view the release site and the 500-foot surrounding survey area is a useful and necessary step to completing the risk evaluation process. A satellite image, viewed at ~ 1,500-foot elevation, will provide clear surface details to visually locate the reported release source and the 500-foot survey radius of the release location and any visible receptors. This helps to establish an estimated risk level/case priority. Also, when verifying a submitted GRBCA report or completing the risk evaluation using submitted Local Water Resource Survey data, including Receptor Field Survey data assembled from within 500-feet of the release point, an accurate receptor map can be constructed including installed monitoring well (MW) locations to provide the measured distances between source areas and receptors evaluated in the GRBCA workbook.

Complete the following steps to create the Receptor Map:

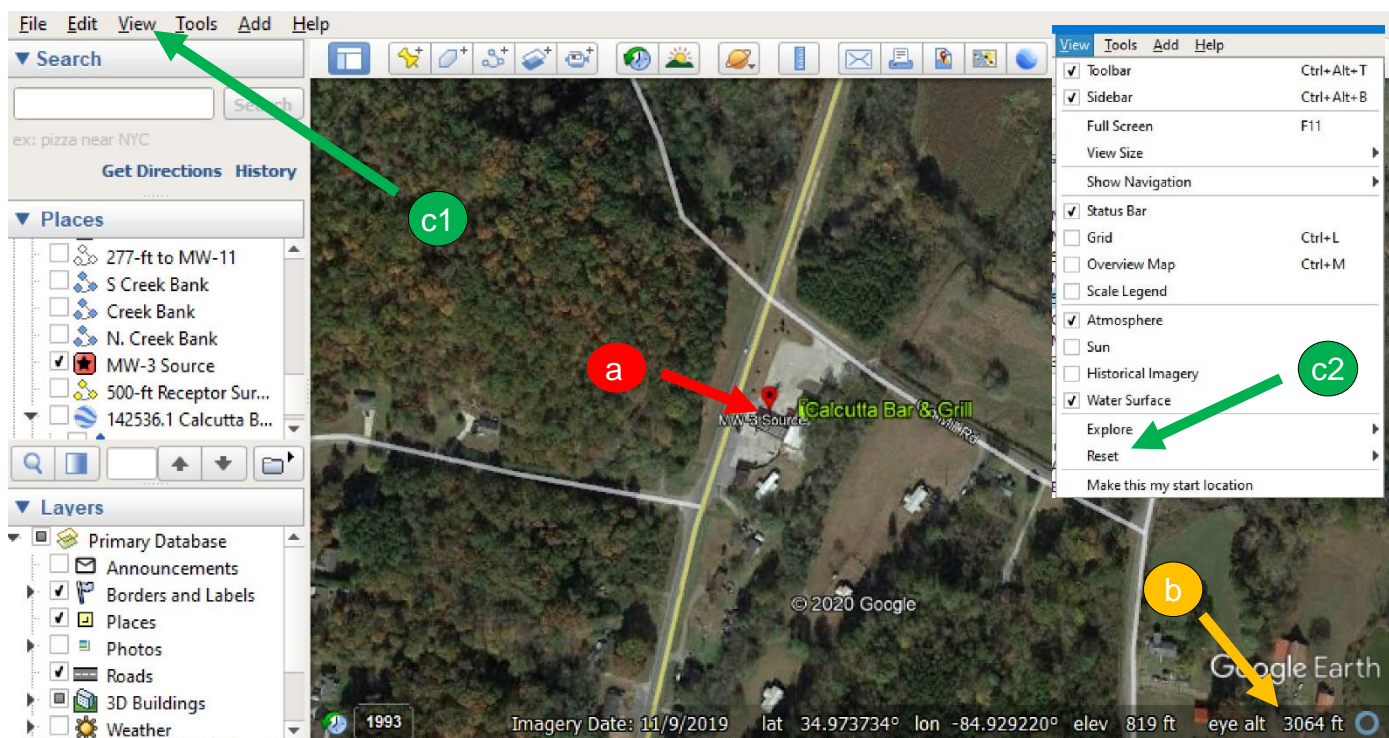
1. Open Google Earth Pro (<http://earth.google.com>)
(*Note: If you do not have Google Earth, download and install the appropriate free, Pro 32-bit or 64-bit version to your computer. After installation, restart your computer before using the program.*)

a Enter the full facility address in the search bar. **b** Click **Search**.



2. Key Google Earth Centering the Site:

- a** The site will be identified by a pin. Roll the mouse wheel forward to zoom in to the site.
- b** Zoom to 1,500-foot elevation by using the “eye alt” which is displayed in the lower right corner. Re-center the pin by using the mouse to click and hold the map and drag the pin to center screen.
- c** Select the toolbar “View” tab, “Reset” option and click the “Tilt and Compass” option. The satellite view will be reset directly overhead of the site.

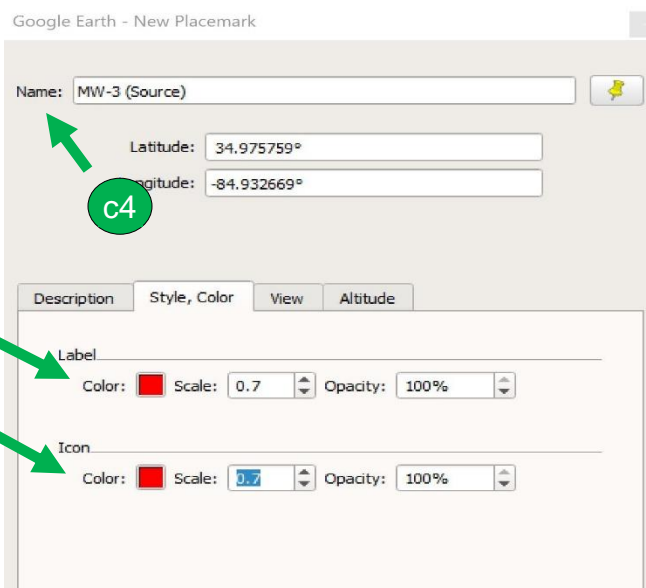
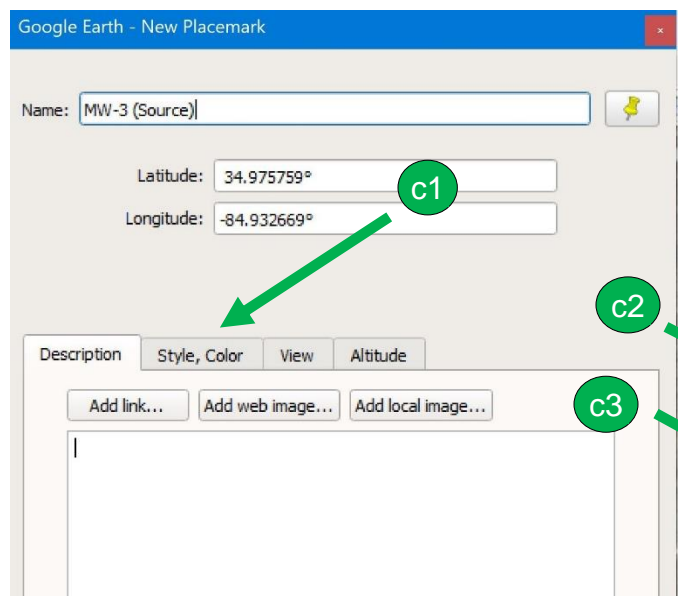
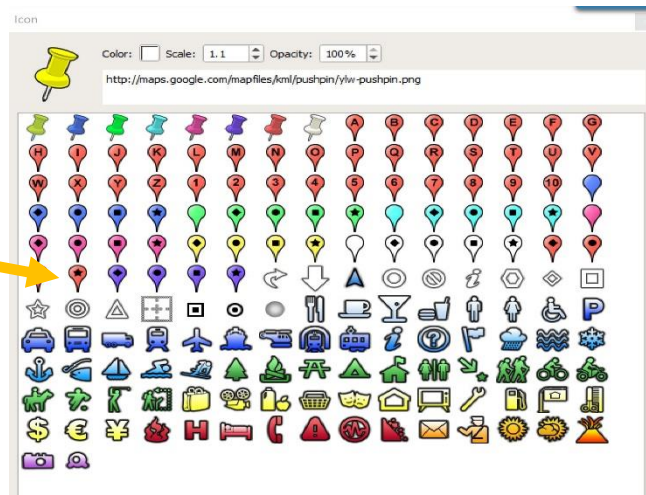
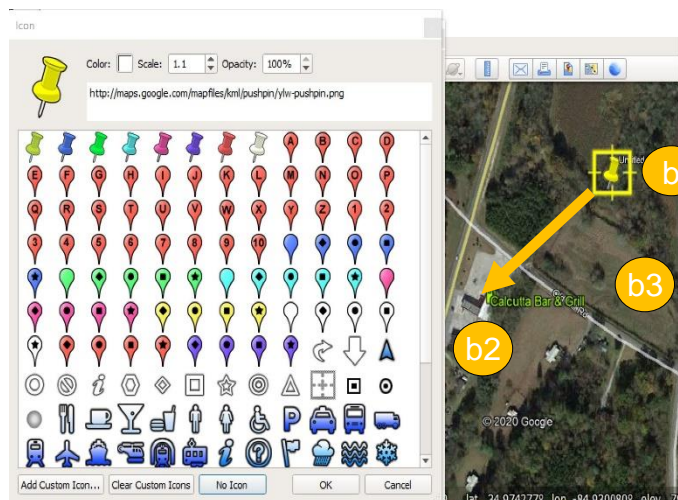
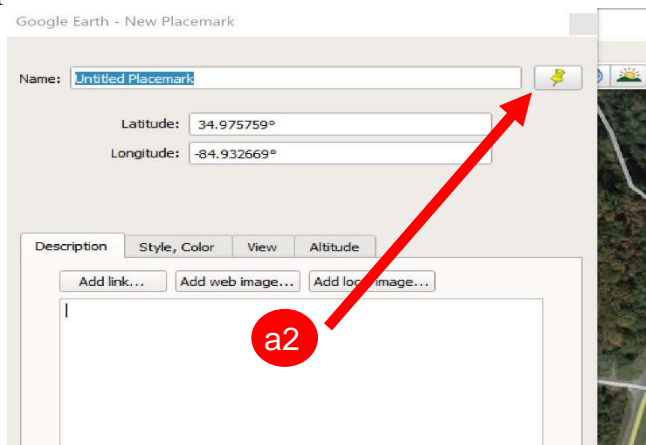
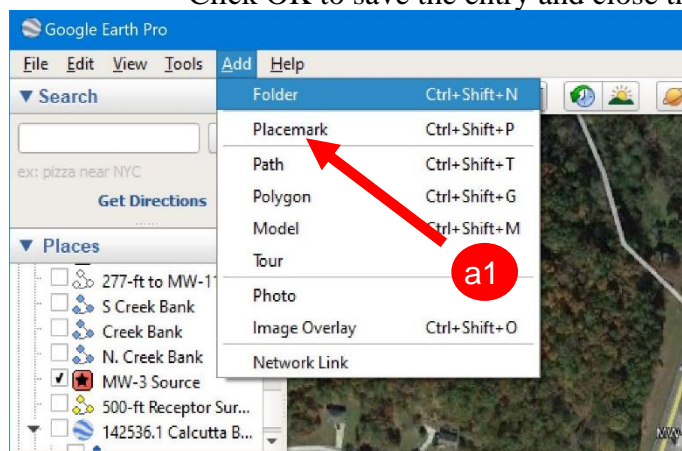


3. Release Source Identification (screenshots are on next page):

On the map, identify the release source which will be **the maximum groundwater (GW) benzene concentration MW**. Note: in some instances, the maximum GW benzene concentration MW is not exactly at the point of release.

- a** Select the “Add” from the toolbar and click “Placemark”. A display box will appear. Click on the image of a Push Pin to open the Icon menu.
- b** Drag the flashing icon image located on the map over to the release source or max. GW benzene MW location. Next from the icon table, select an Icon image. Close the icon table.
- c** The Placemark display box will be open. Click the “Style, Color” tab and for both the Icon and the Label, choose a color and reduce the Scale from 1.1 to **0.7**. At the top of the New Placemark userform, change the “Name” to the appropriate title (i.e., MW-3 Source). **NOTE:**

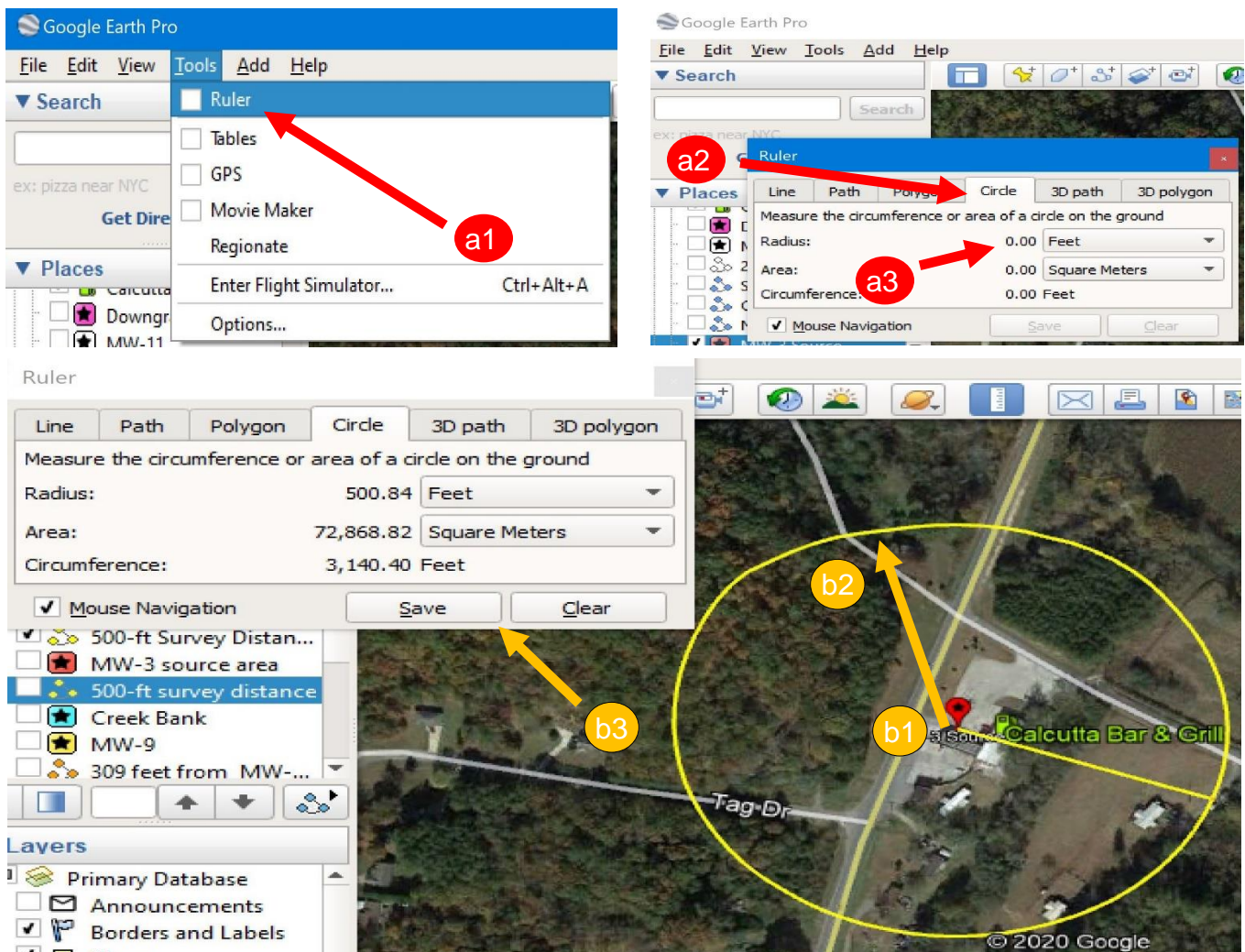
*Adding a few spaces before the name will ensure that it is fully visible next to the placemark.
Click OK to save the entry and close the placemark userform.*

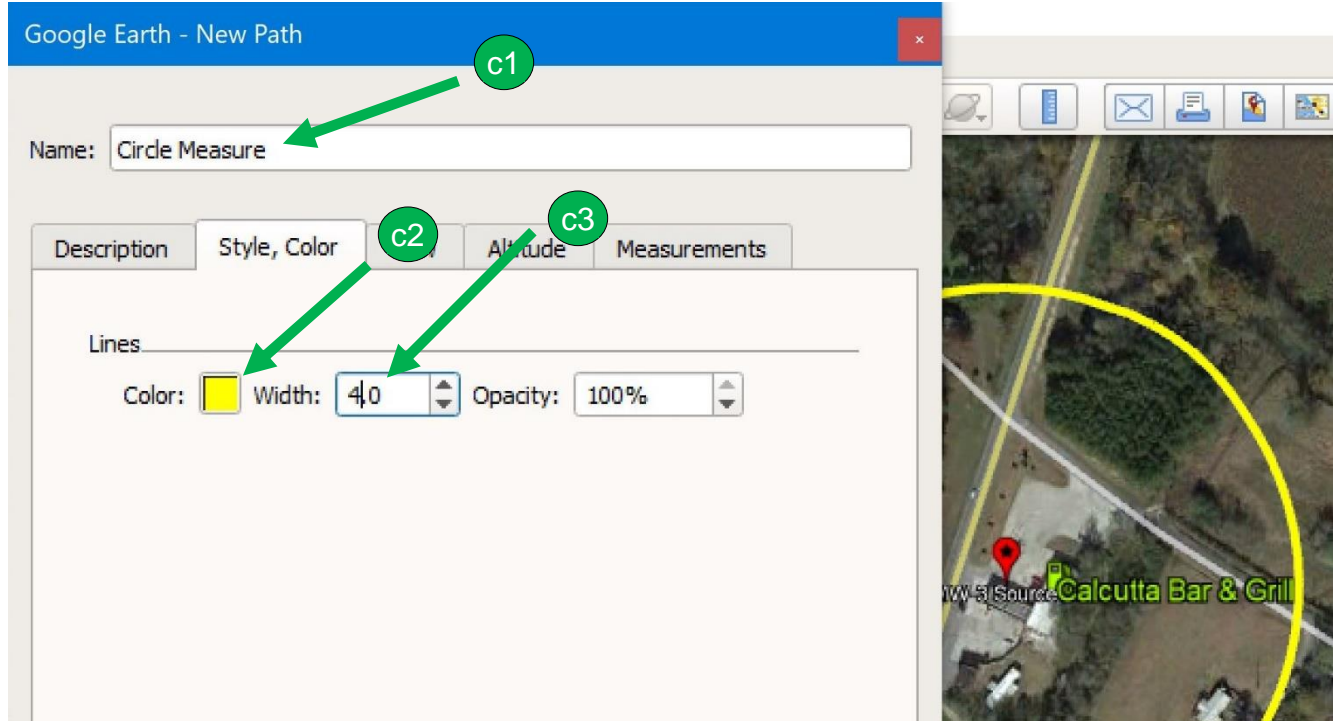


4. **500-foot Receptor Survey Radius Placement:**

Zoom out to an elevation of ~ 2,500-feet and reset tilt and compass by scrolling the mouse wheel towards you.

- a** Select the “Tools” from the toolbar and click “Ruler.” A display box will appear. Select the “Ruler” tab and then the “Circle” tab. If the “Radius” distance unit is not already “Feet”, then use the dropdown menu to make the selection.
- b** Click the release source (i.e., MW-3 Source) and with finger off the mouse button drag away from the release point expanding the visible circle until “500-feet” is depicted in the Ruler display box. Click the mouse to set the circle distance. Click “Save” to close the display box.
- c** A Google Earth- New Path display box will appear. **Name** the radius (i.e., 500-ft Receptor Survey Distance). Click “Style, Color” to choose radius line color, click **OK**. Change line Width (i.e., from the standard “2.0”, select “3.0” or “4.0”). Click “OK” to save the entry and close userform.



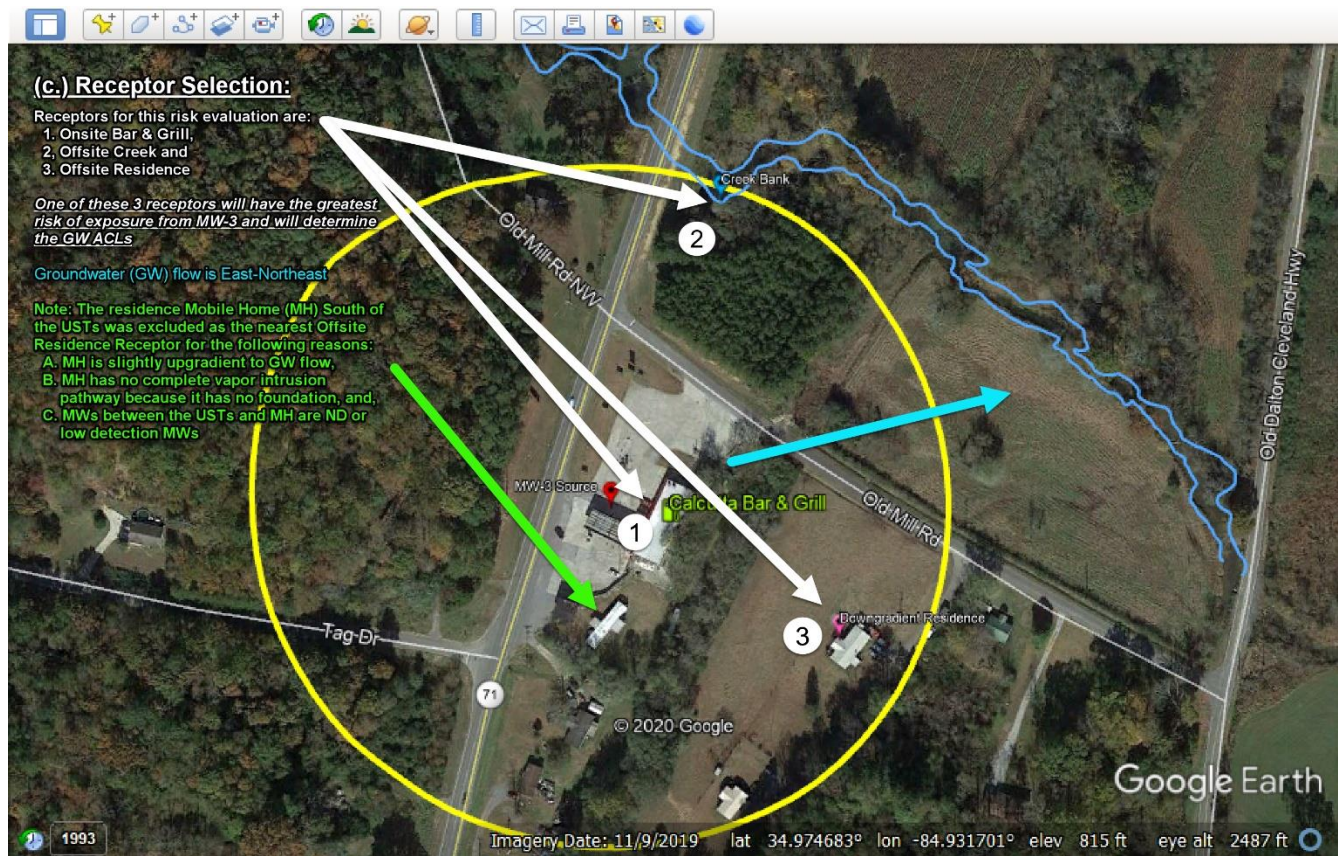
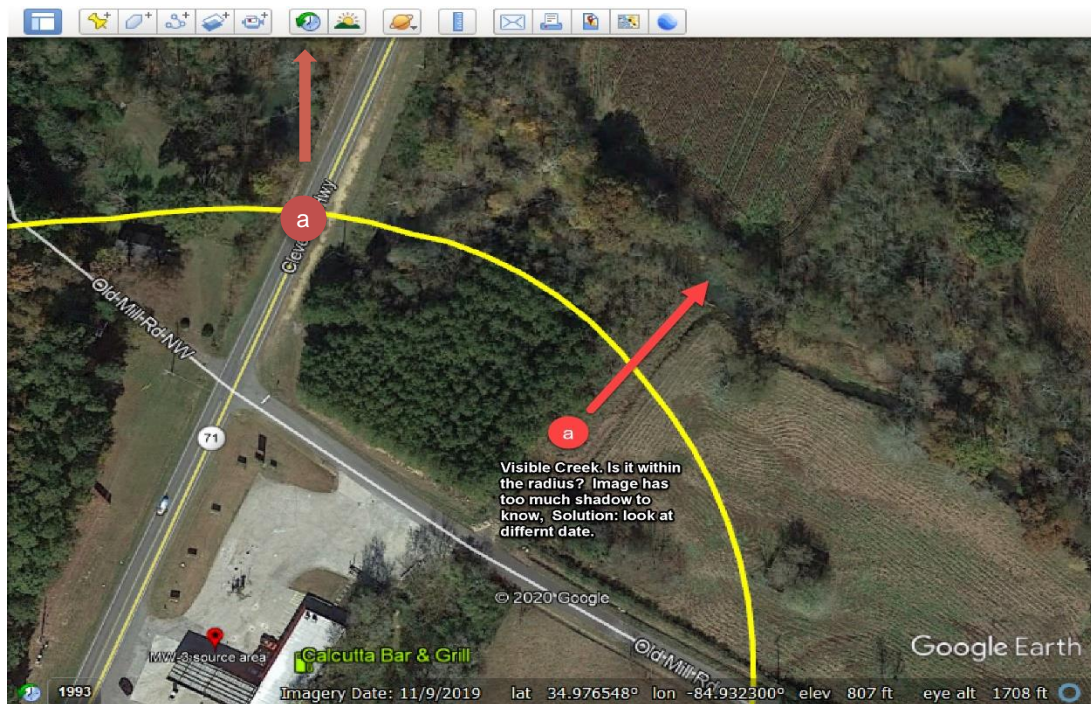


5. **Receptor Selection within the 500-ft Radius:**

From the satellite image, locate and evaluate the visible and/or reported receptors (i.e. water wells) per the LWRS and Receptor Field Survey sheets. Receptors will be one of the following five (5 types: Water well, Surface water intake, Perennial water body, Offsite residence, Offsite non-residence. For each receptor type, select the closest to the release source. If GW flow direction is unknown or variable, then the closest of each receptor type in any direction is to be selected for evaluation.

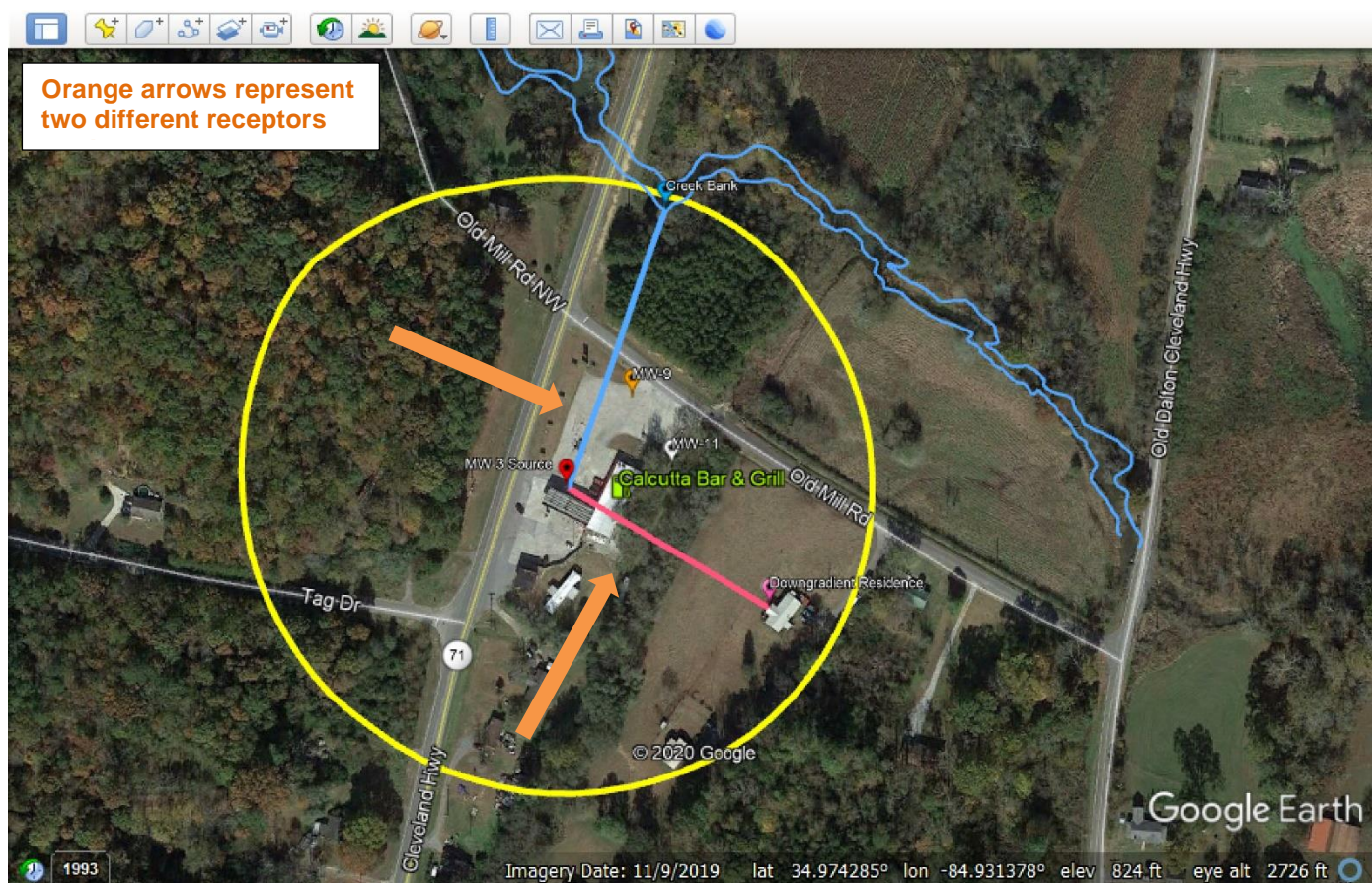
- (a) **Optional:** If the current image is blurry or objects shaded, to improve the quality of the satellite image, Click the “Clock” icon on the toolbar. Slide the date bar to change the year the image was taken. Close the display bar.
- (b) Using Step 3, above, add placemarks, then color, and label each placemark added. (*NOTE: Making each placemark a different color will ensure that the icon will be uniquely listed in the Map Legend*)

(screenshots continue on the next page)



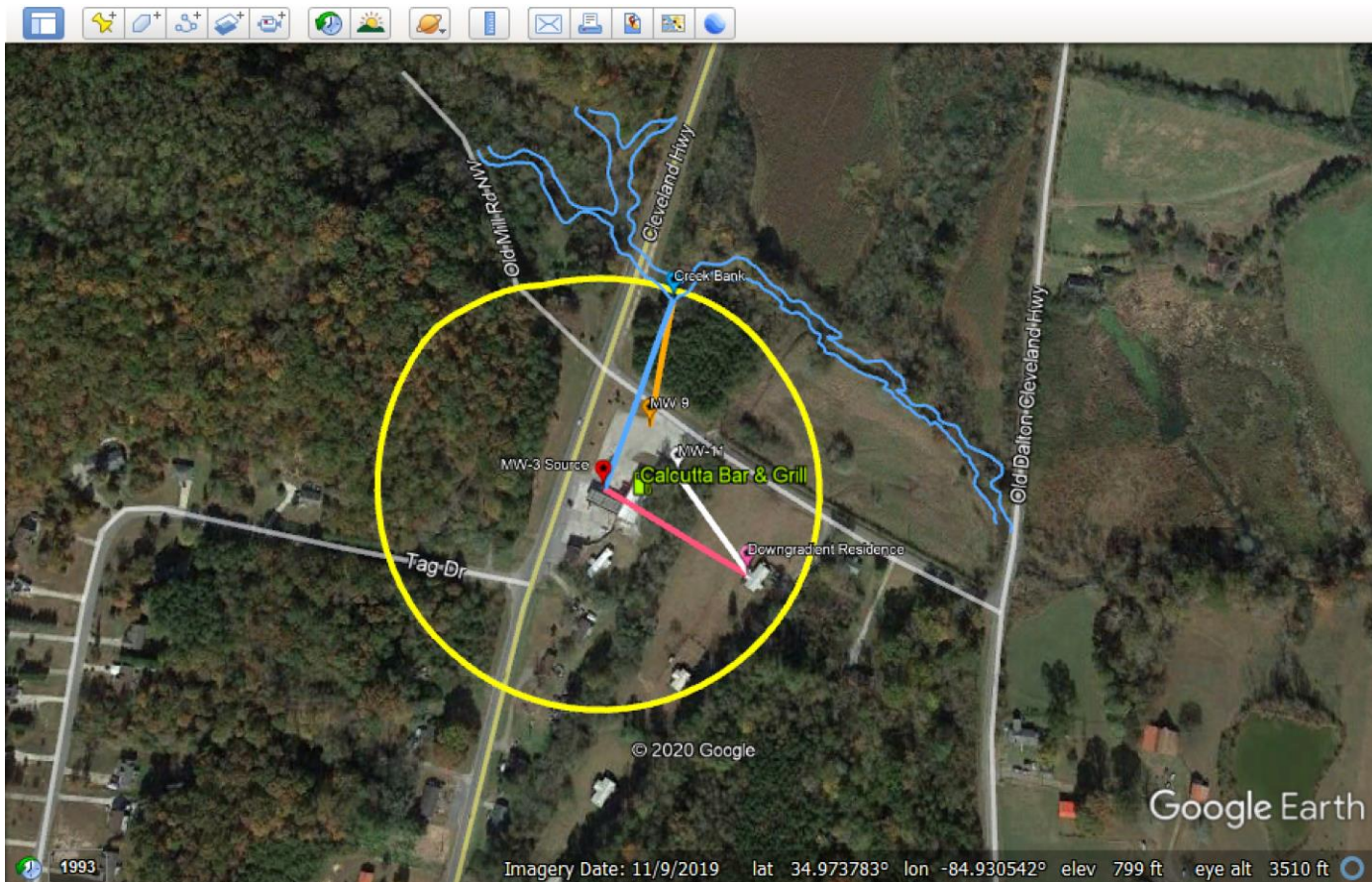
6. Measuring Distance between Release Source and Receptors:

- (a) Select the “Tools” from the toolbar and click “Ruler.” A display box will appear. Select the “Line” tab. If the “Map Length” distance unit is not already “Feet,” then use the dropdown menu to make the selection.
- (b) Add distance lines between the max GW benzene source MW and each evaluated receptor. Click “Save” to close the display box.
- (c) A Google Earth- New Path display box will appear. **Name** each entry (*i.e.*, “384-feet from MW-3 source to AOPC Residence”). Select the “Style, Color” tab to match the receptor placemark color and size, as well as line color and width (*i.e.*, from the standard “2.0” to “4.0”). Click “OK” to save the entry and close the display box.



7. Measuring Distance between near Receptor MW(s) and Receptors:

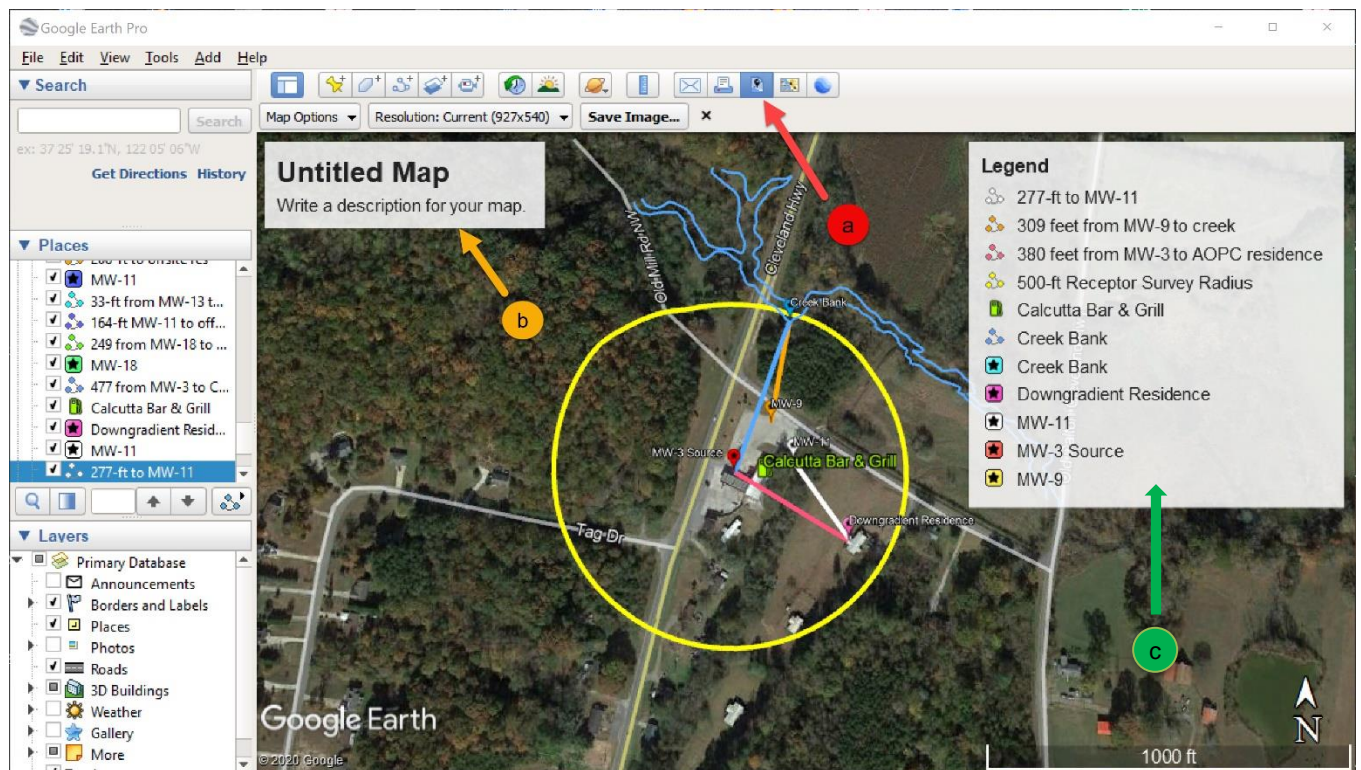
Complete Step 7 for each receptor. Select a near receptor MW (orange MW-9 & white MW-11), with a moderately detectable GW benzene value, if possible. This refers to the closest monitoring well to the receptor with 50% of the maximum GW benzene value at the site. Using Example 4, add an orange line between MW-9 and the downgradient creek receptor. Add a white line between MW-11 and the offsite down gradient receptor).



8. Naming and Saving the Receptor Map:

- (a) Set the “eye alt” value to 2500 feet (refer to Section 2b for instructions. The value is located in the bottom right frame). Select the icon labeled “Save Image” in the Google Earth icon toolbar located above the satellite image map, (usually located 3rd from the right-side last icon, looks like a paper page with a balloon pin).
- (b) An additional toolbar will appear below the icon toolbar and two (2) white dialogue boxes populate on the map. Select the upper left “Untitled Map” box and enter relevant facility information: **Facility Name/ Facility Address/ County/ and Facility ID #/Release #**. The facility name should populate the space of the title “Untitled Map.”

- (c) Select the upper right “**Legend**” box, and deselect all populated entries not related to the new receptor entries. The legend box displays all new entries made on the receptor map; distances will be used in the workbook model.
- (d) In the newly displayed toolbar (located below the Google Earth icon toolbar and above the satellite image map), select the “**Save Image**” box and a “Save As” dialogue box appears to save a .png or .jpg image of the map to the project officer’s selected location.
- (e) Close Google Earth- a display pop-up box states to save the data before the program closes. Select “**Yes.**” This may allow Google Earth to retrieve the information for editing if reopened and the facility address is entered. *Note: The “saved” Title Map box will not appear but the Legend will.*



9. **Printing the Receptor Map:** Choose the desired print options which may include, but not be limited to, scale, size centering, image quality, paper size, etc. to generate the desired map appearance.

The Receptor Map Construction Training is now complete.