

# Using Google Earth to Estimate Shoreline Erosion History



# Introduction

The background of the slide is an aerial photograph of a coastal area. On the right side, there is a residential or commercial development with several buildings and parking lots. To the left of the buildings, there is a dark, irregular shape that appears to be a body of water or a wetland area. The overall scene is viewed from a high angle, showing the layout of the land and its proximity to the water.

When evaluating a shoreline for possible implementation of a living shoreline project, one of the most important site characteristics to assess is the erosion history of the site. An easy and free way to do this is to use Google Earth and Microsoft PowerPoint.

Using these tools, you should be able to quickly determine if a site has been experiencing erosion or if it is relatively stable. You may also be able to determine the cause of erosion at a site using this activity alone or in combination with property owner interviews.

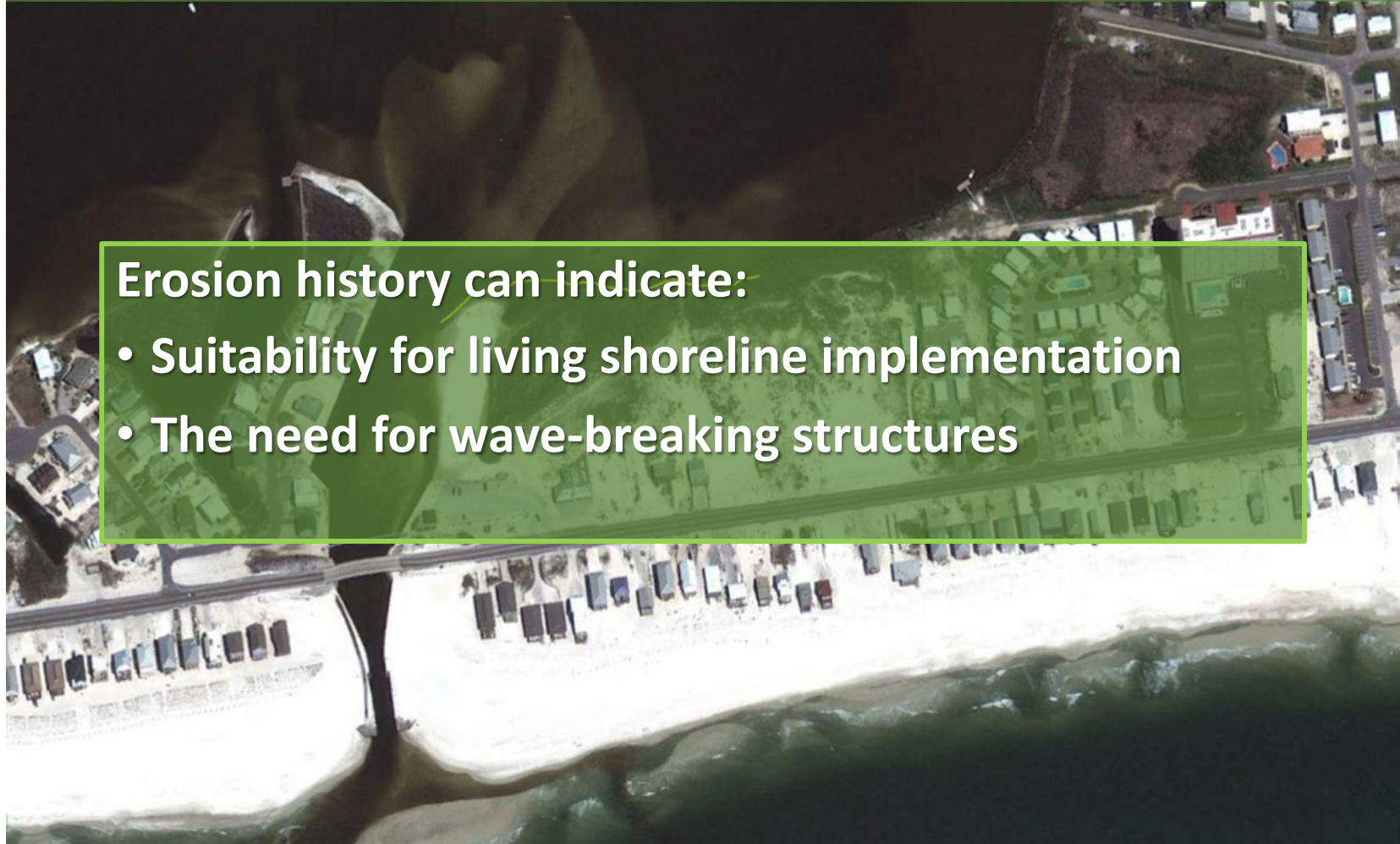
This guide serves as a step-by-step tutorial to help anyone to be able to do shoreline erosion assessments using this common software. However, this is a rough evaluation of erosion at a site. It should not be used to measure exact erosion rates or amount of land lost.



# How is this exercise helpful for living shoreline decisions?

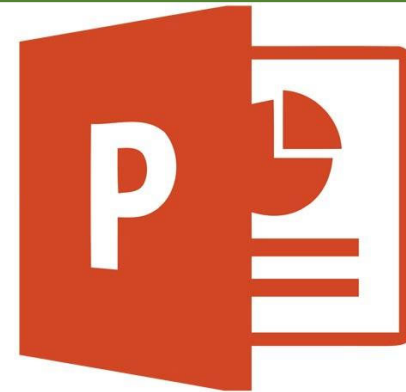
Erosion history can indicate:

- Suitability for living shoreline implementation
- The need for wave-breaking structures



# Programs Needed

Google Earth





# How to download Google Earth

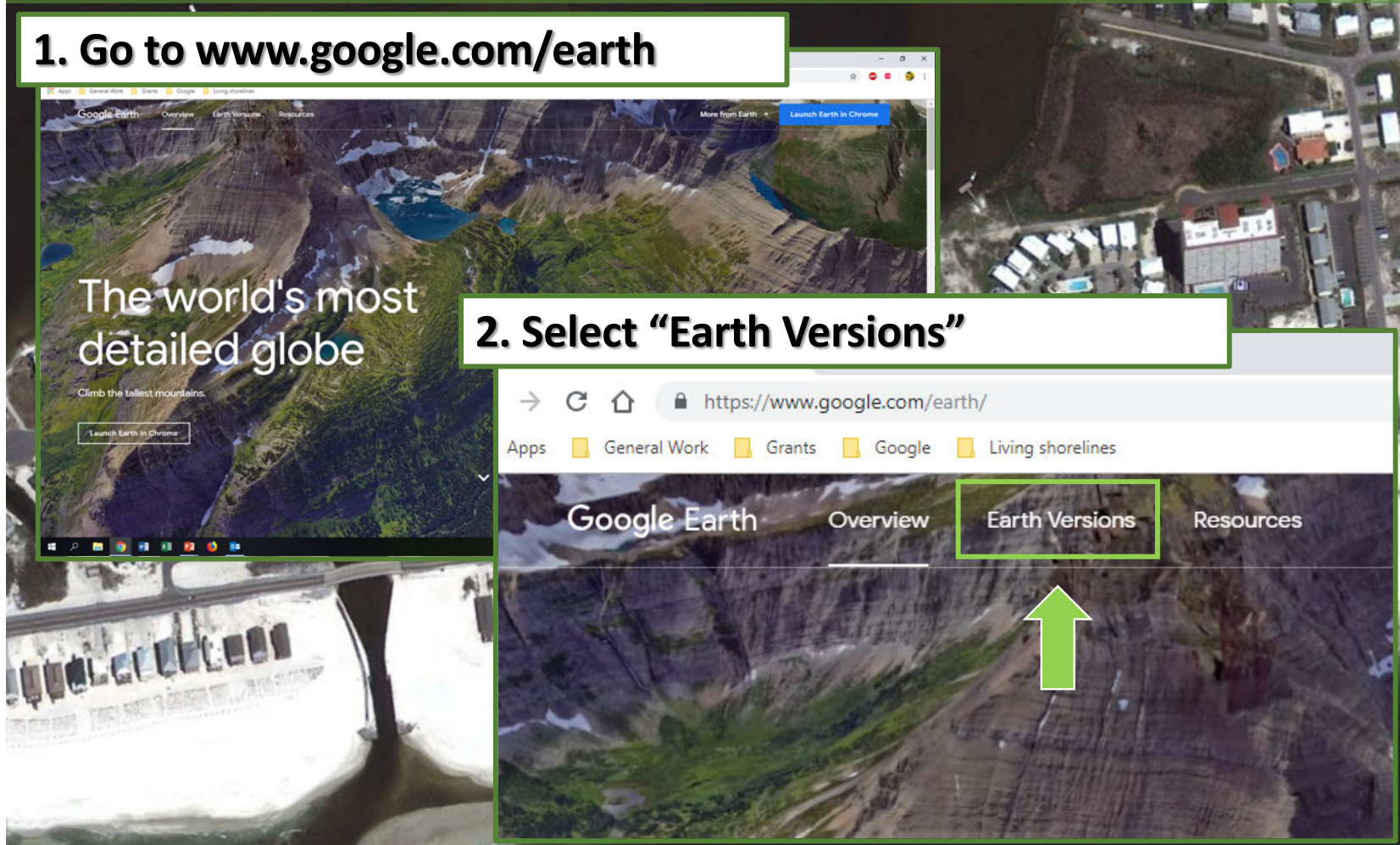
**1. Go to [www.google.com/earth](http://www.google.com/earth)**



**\*This example uses Google Chrome, but other browsers will also work.**

# How to download Google Earth

**1. Go to [www.google.com/earth](https://www.google.com/earth)**

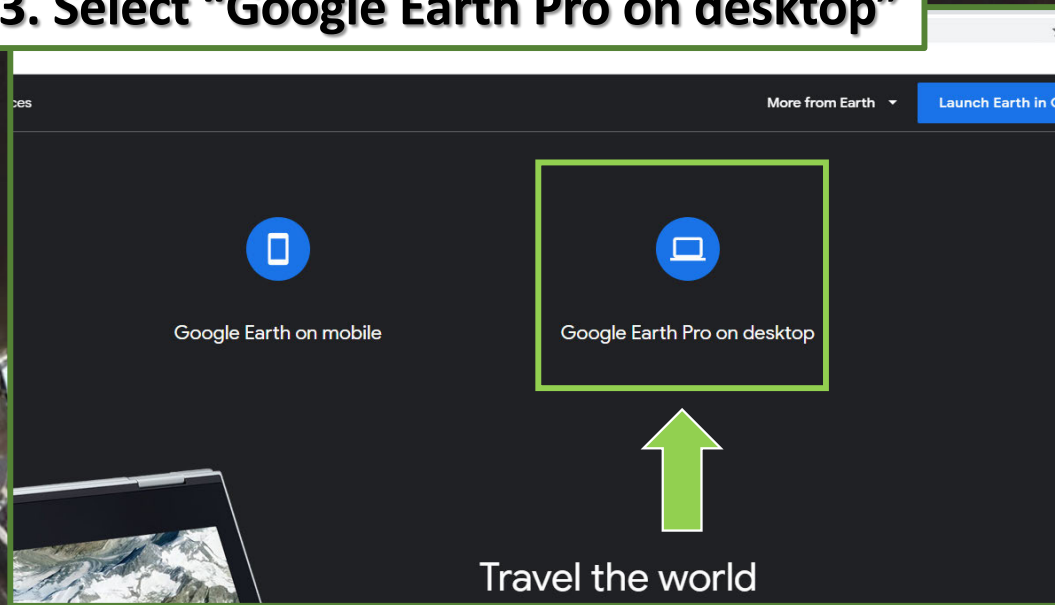


**2. Select “Earth Versions”**



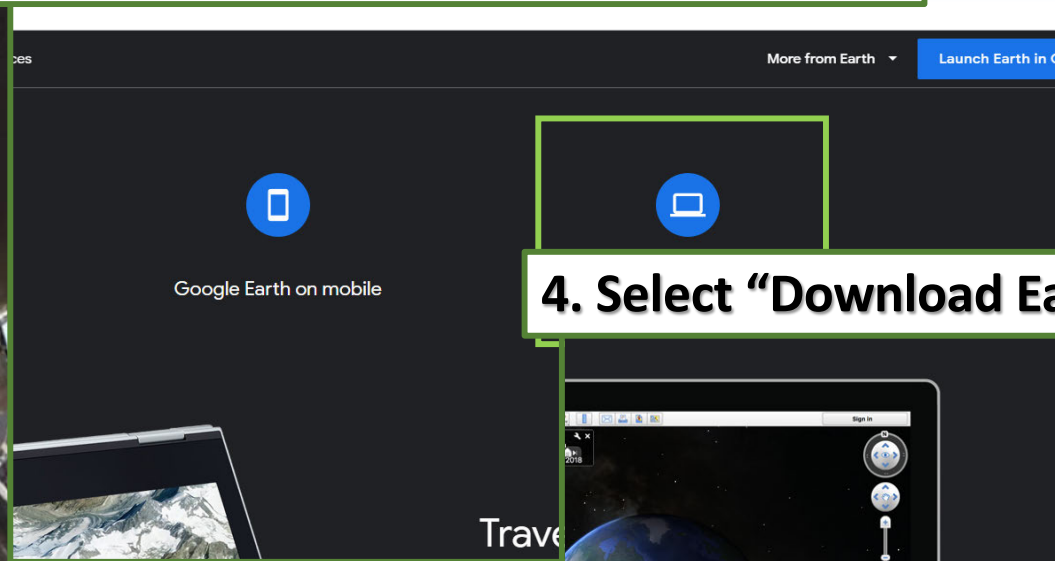
# How to download Google Earth

## 3. Select “Google Earth Pro on desktop”



# How to download Google Earth

## 3. Select "Google Earth Pro on desktop"



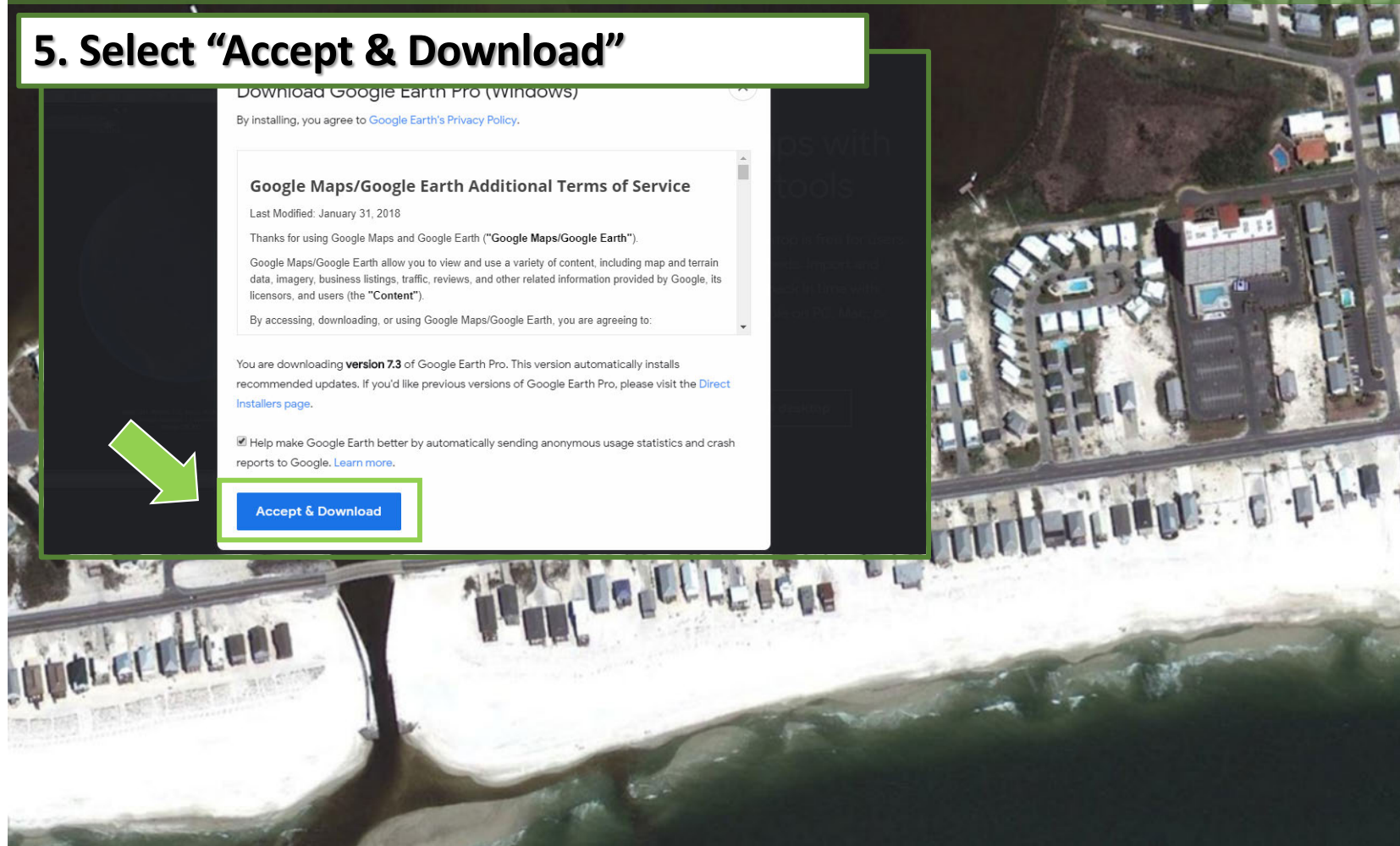
## 4. Select "Download Earth Pro on desktop"





# How to download Google Earth

## 5. Select “Accept & Download”



# How to download Google Earth

## 5. Select "Accept & Download"

Download Google Earth Pro (windows)

By installing, you agree to [Google Earth's Privacy Policy](#).

### Google Maps/Google Earth Additional Terms of Service

Last Modified: January 31, 2018

Thanks for using Google Maps and Google Earth ("Google Maps/Google Earth").

Google Maps/Google Earth allow you to view and use a variety of content, including map and terrain data, imagery, business listings, traffic, real-time data, and other information ("Content").

By accessing, downloading, or using Google Maps/Google Earth, you agree to these terms.

You are downloading **version 7.3** of Google Earth Pro. We recommend updates. If you'd like pre-release versions, see our [Installers page](#).

☒ Help make Google Earth better by automatically sending usage reports to Google. [Learn more](#).

[Accept & Download](#)

## 6. Click the execute command and select "Yes" to allow changes to your computer



Try Google Earth for Chrome

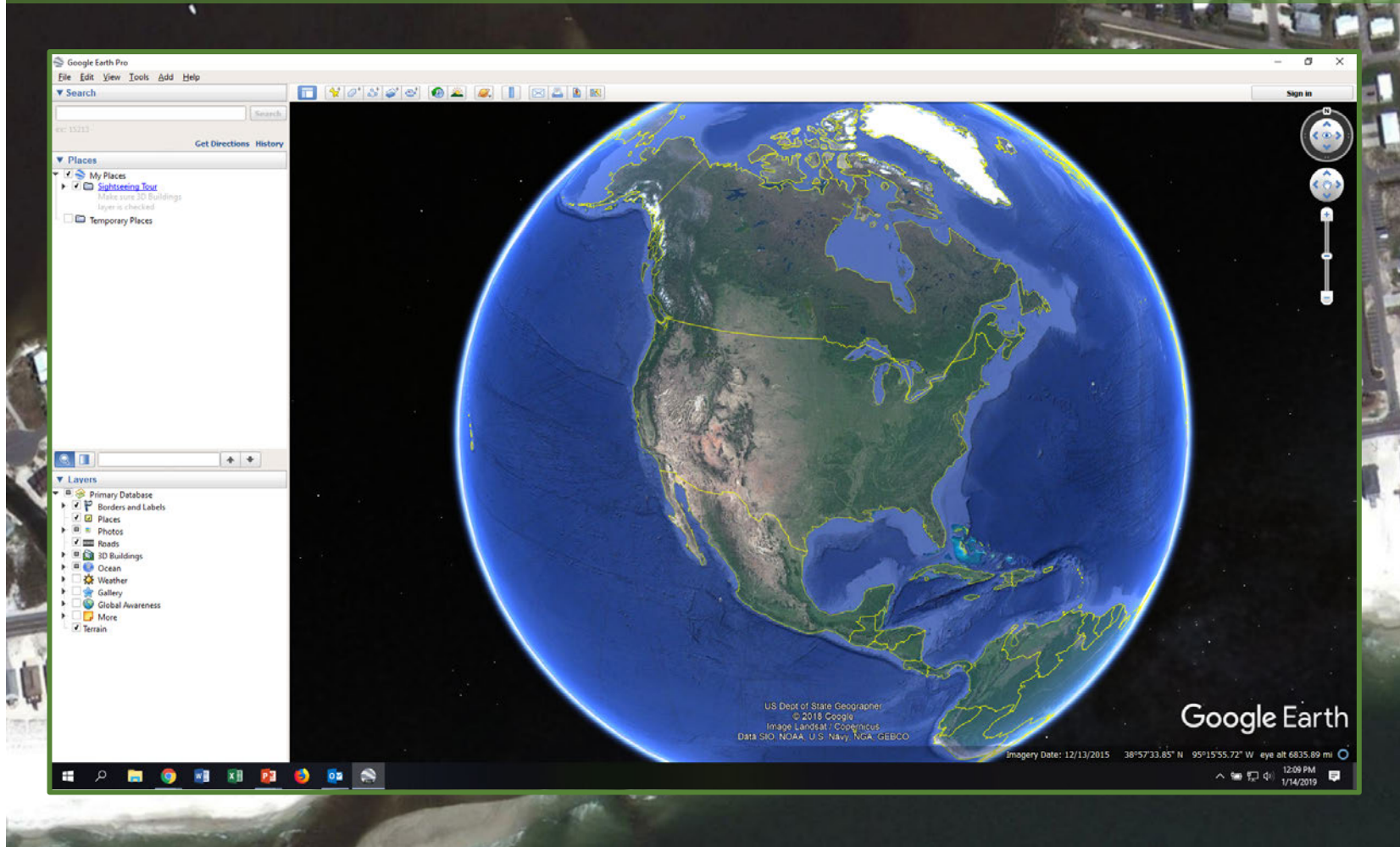
With Google Earth for Chrome, fly around cities right in your browser. Roll the camera with Voyager, and measure distance



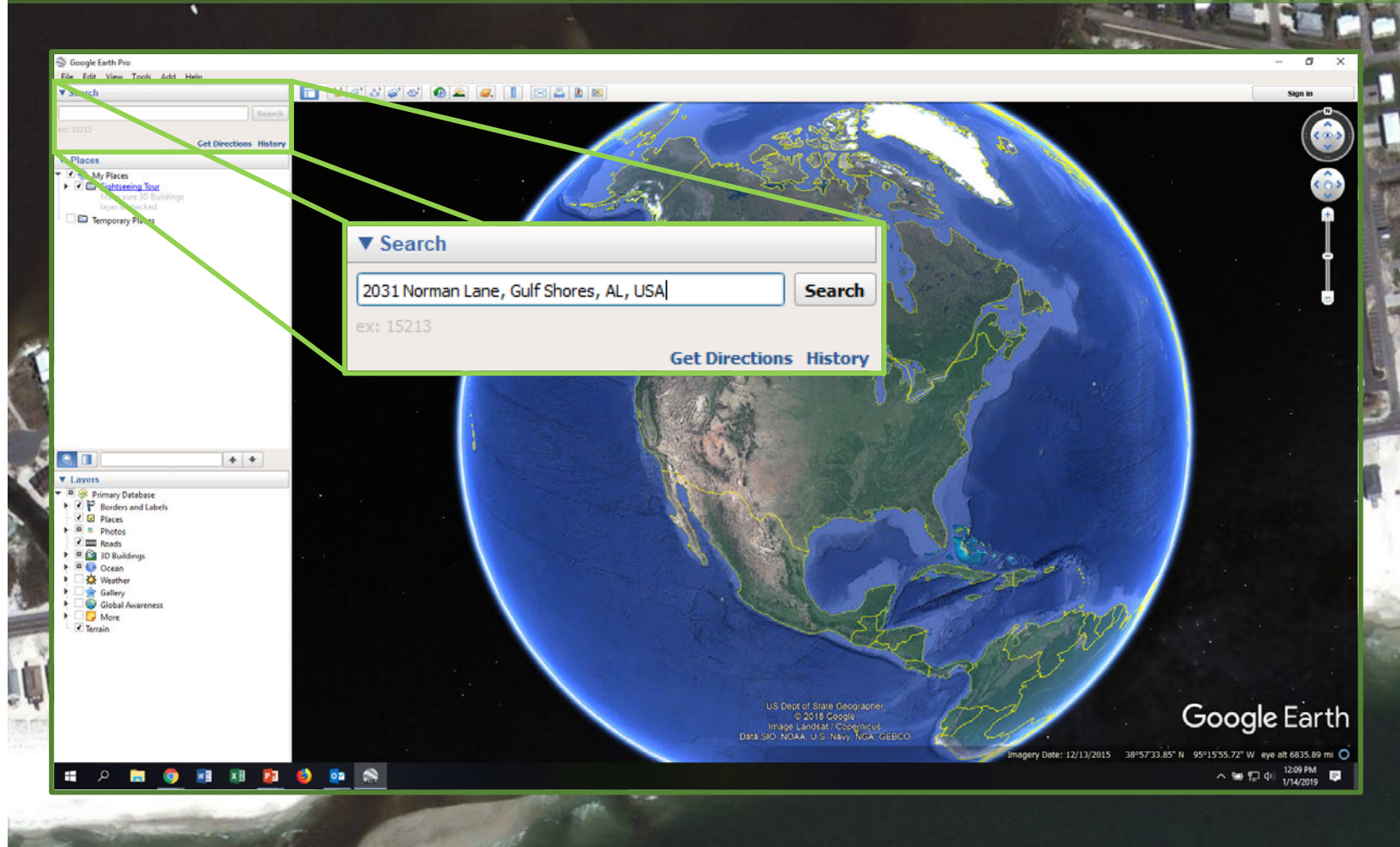
GoogleEarthProSe....exe



# Welcome to Google Earth!

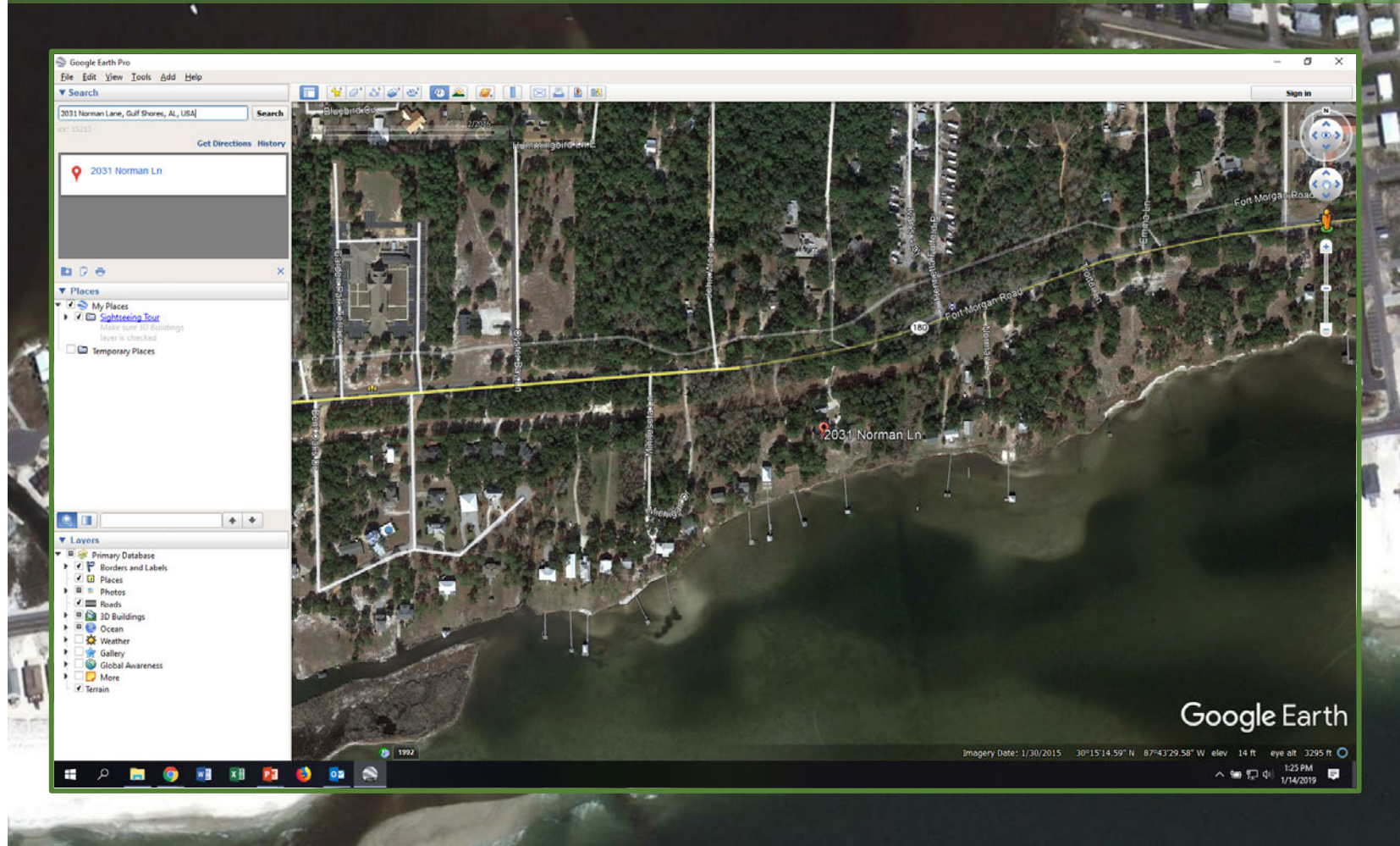


# Step 1: Enter location into search bar

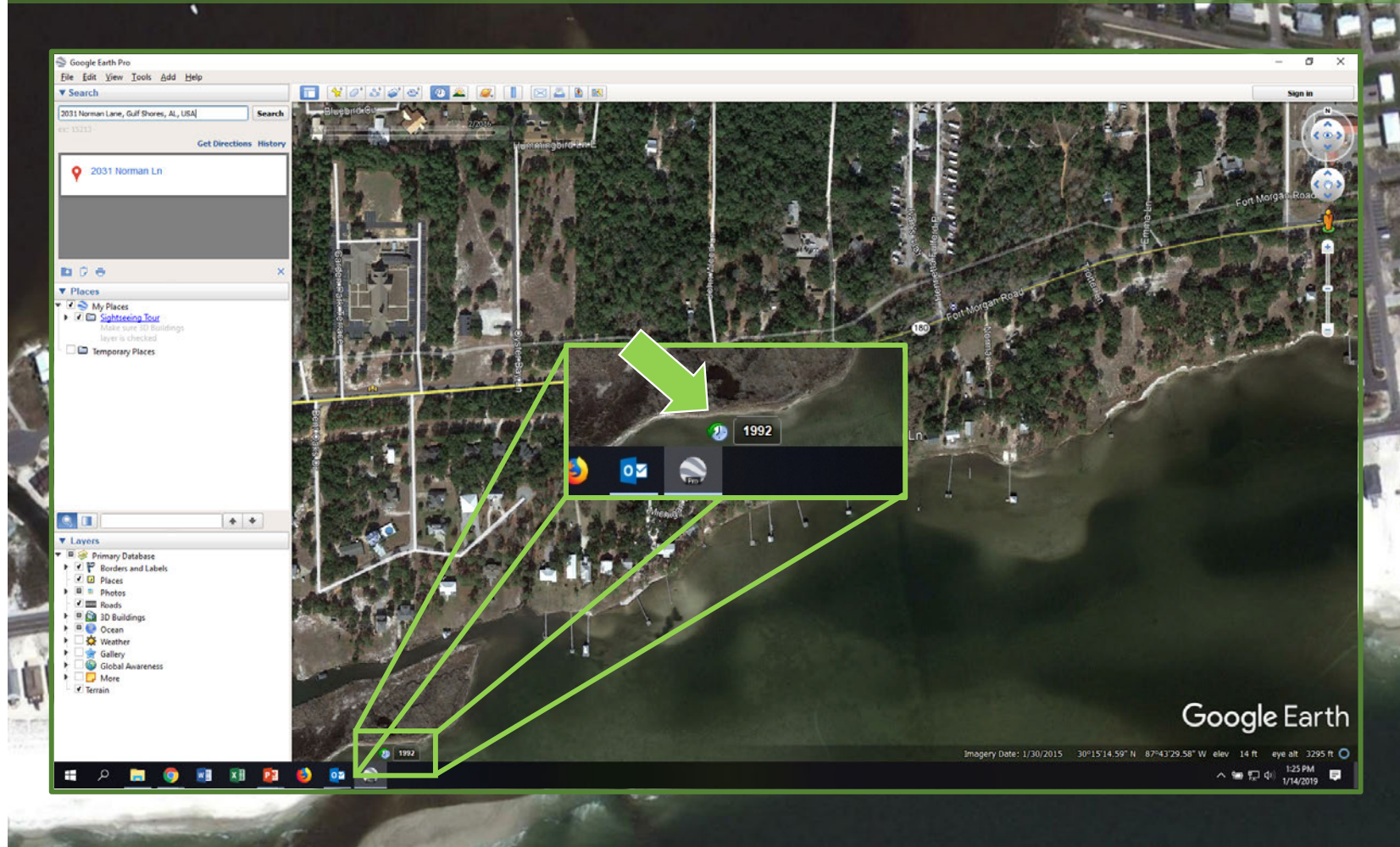




# 1. Enter location into search bar

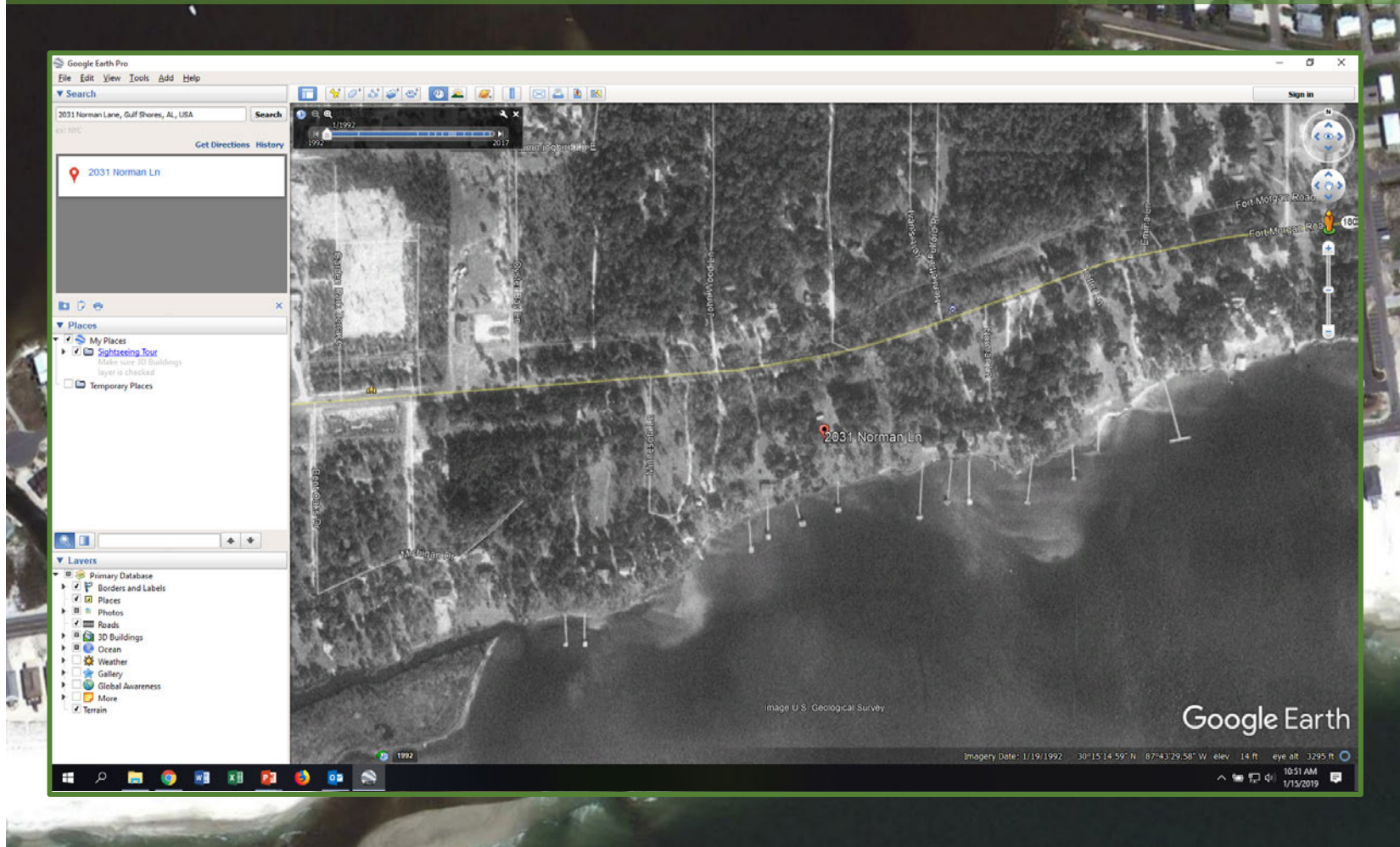


## 2. Go back in time

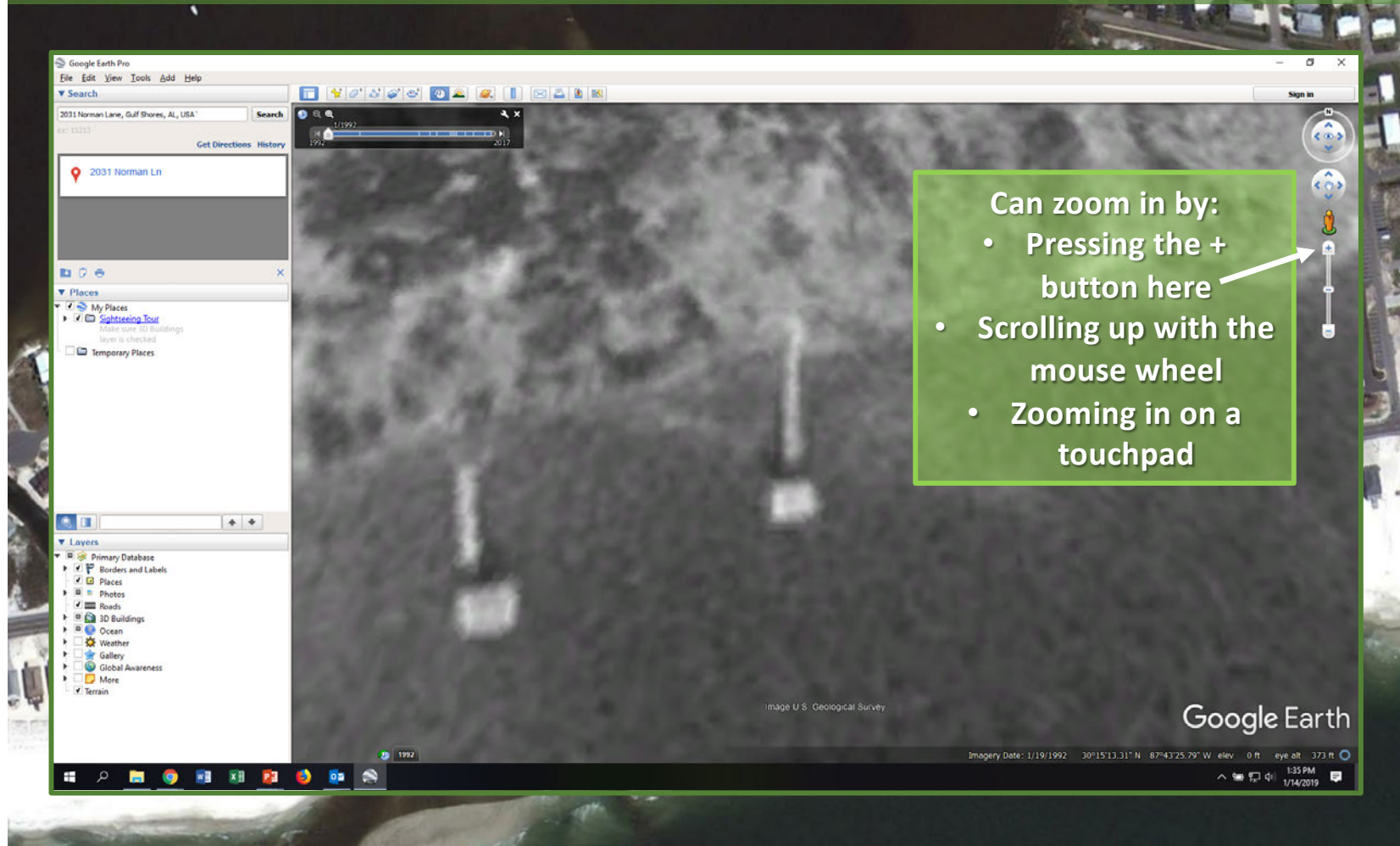




## 2. Go back in time



### 3. Zoom in as much as possible while still being able to discern the shoreline

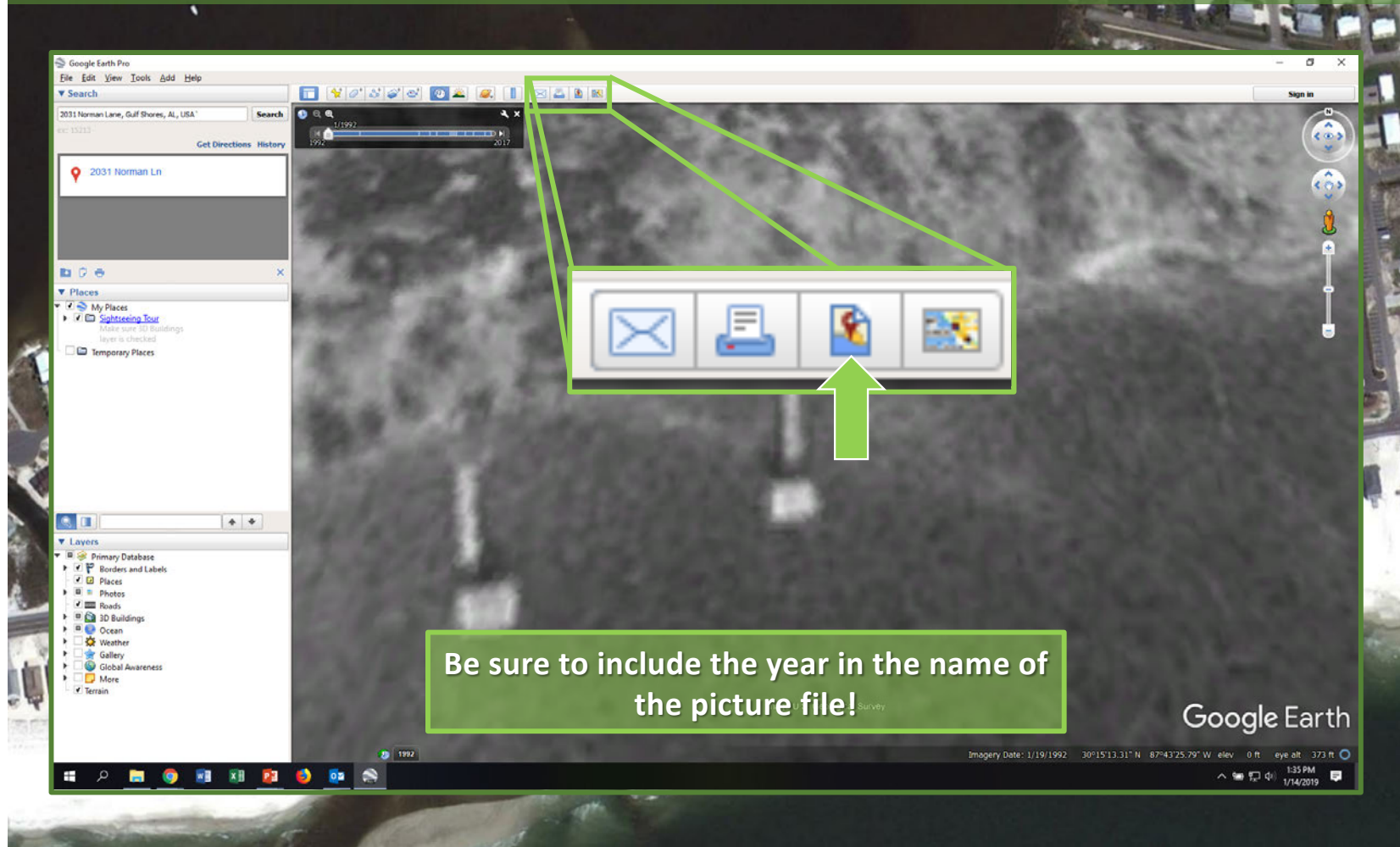




3. Zoom in as much as possible while still being able to discern the shoreline

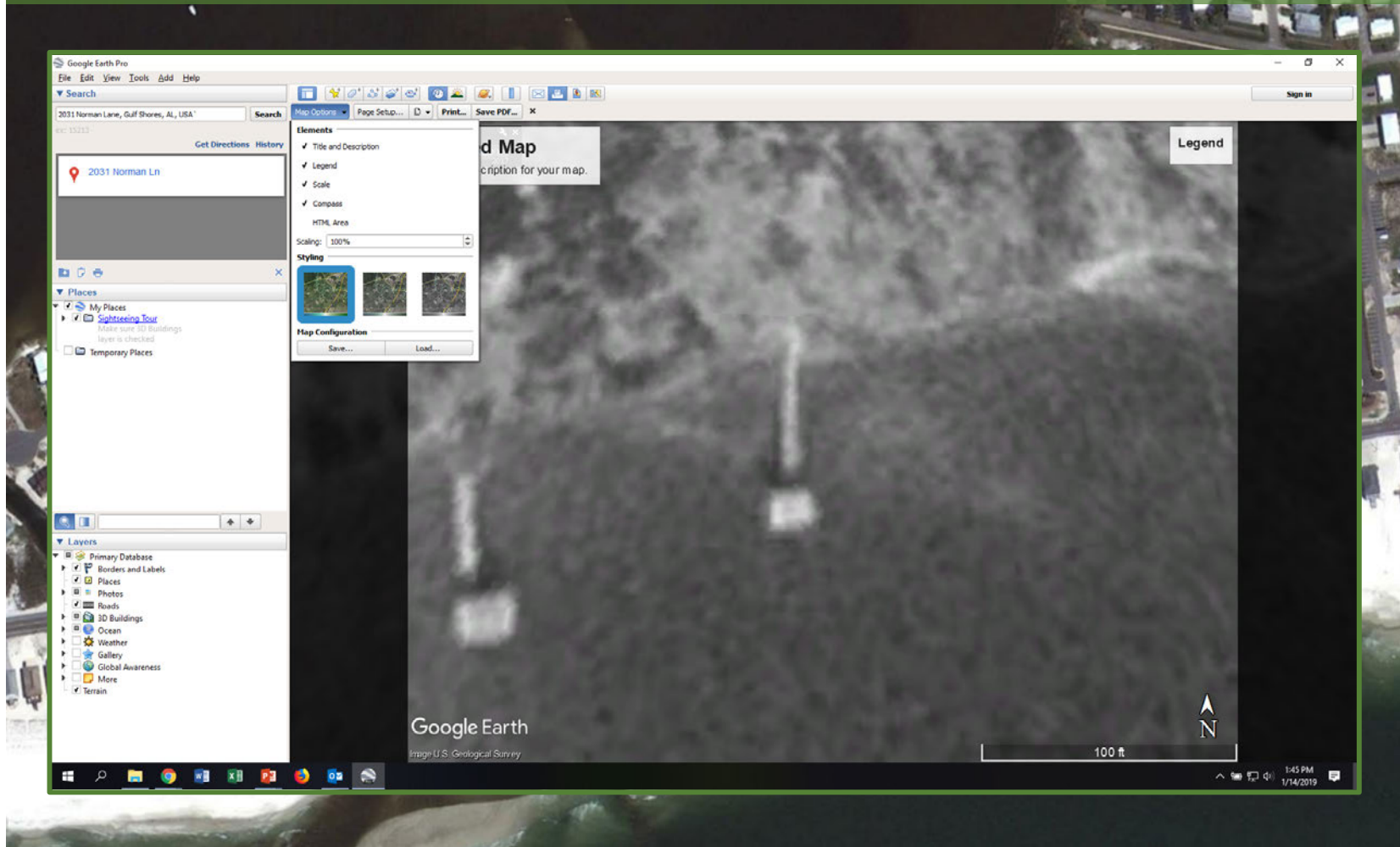


## 4. Save the zoomed-in image

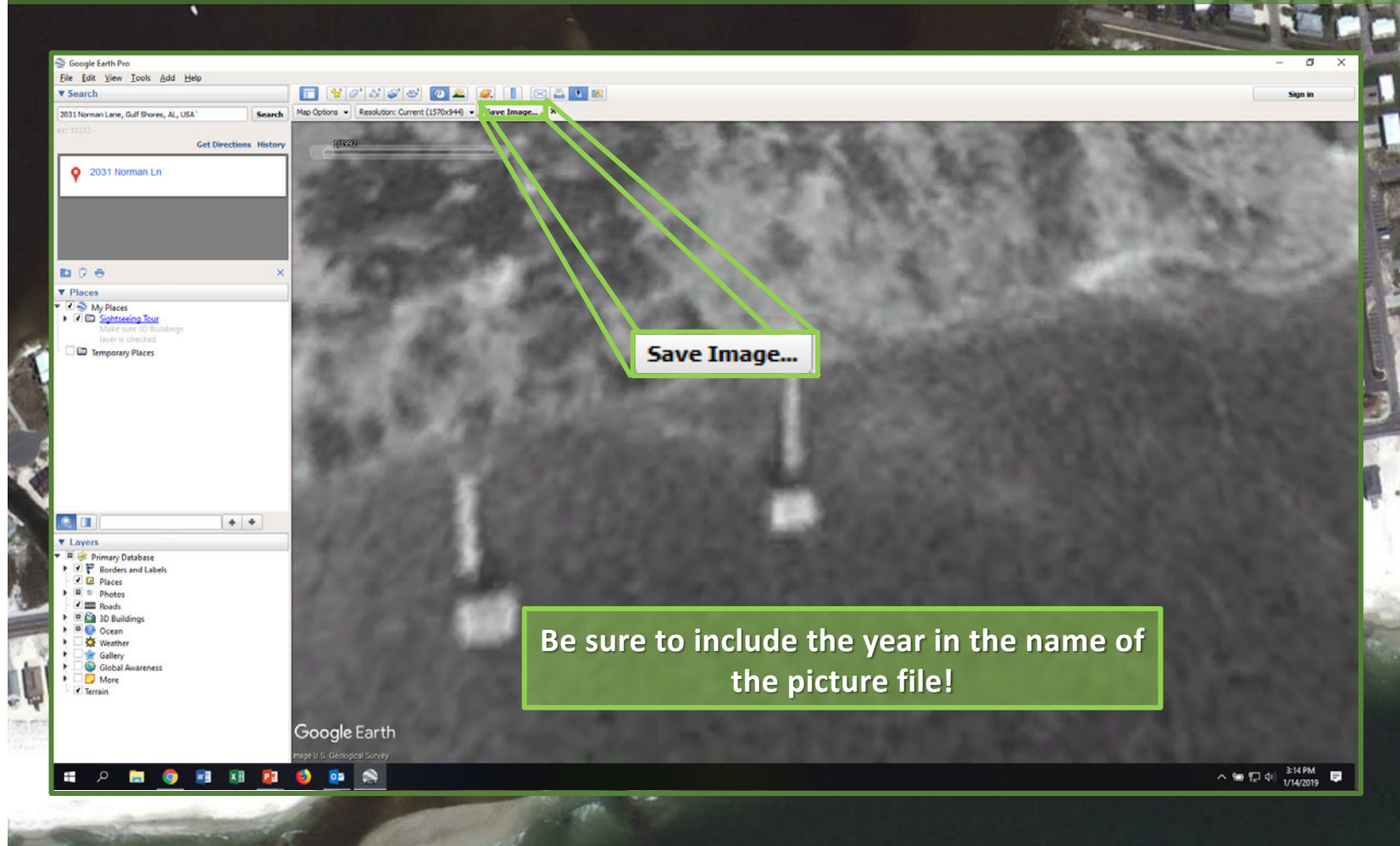




## 4. Save the zoomed-in image

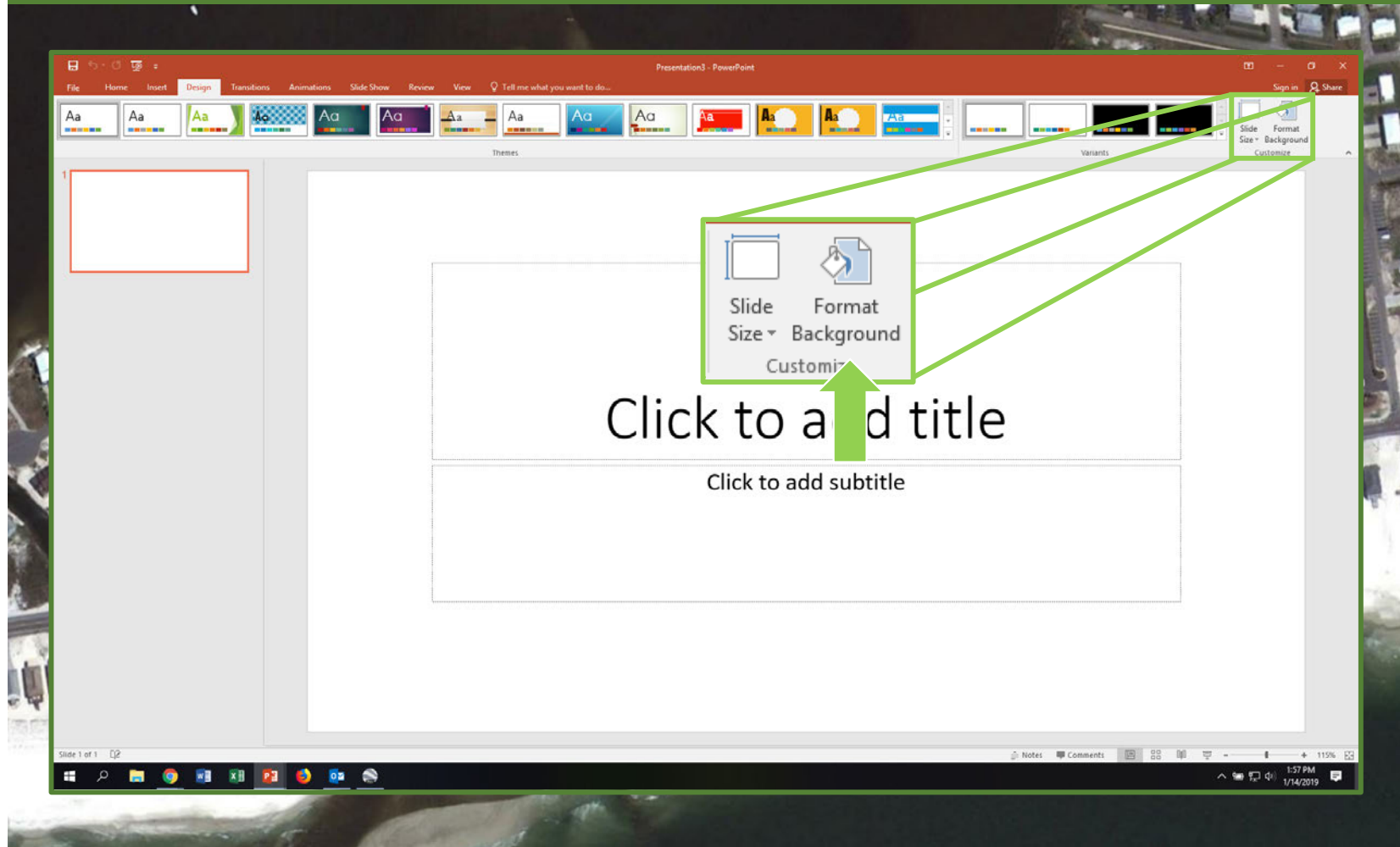


## 4. Save the zoomed-in image

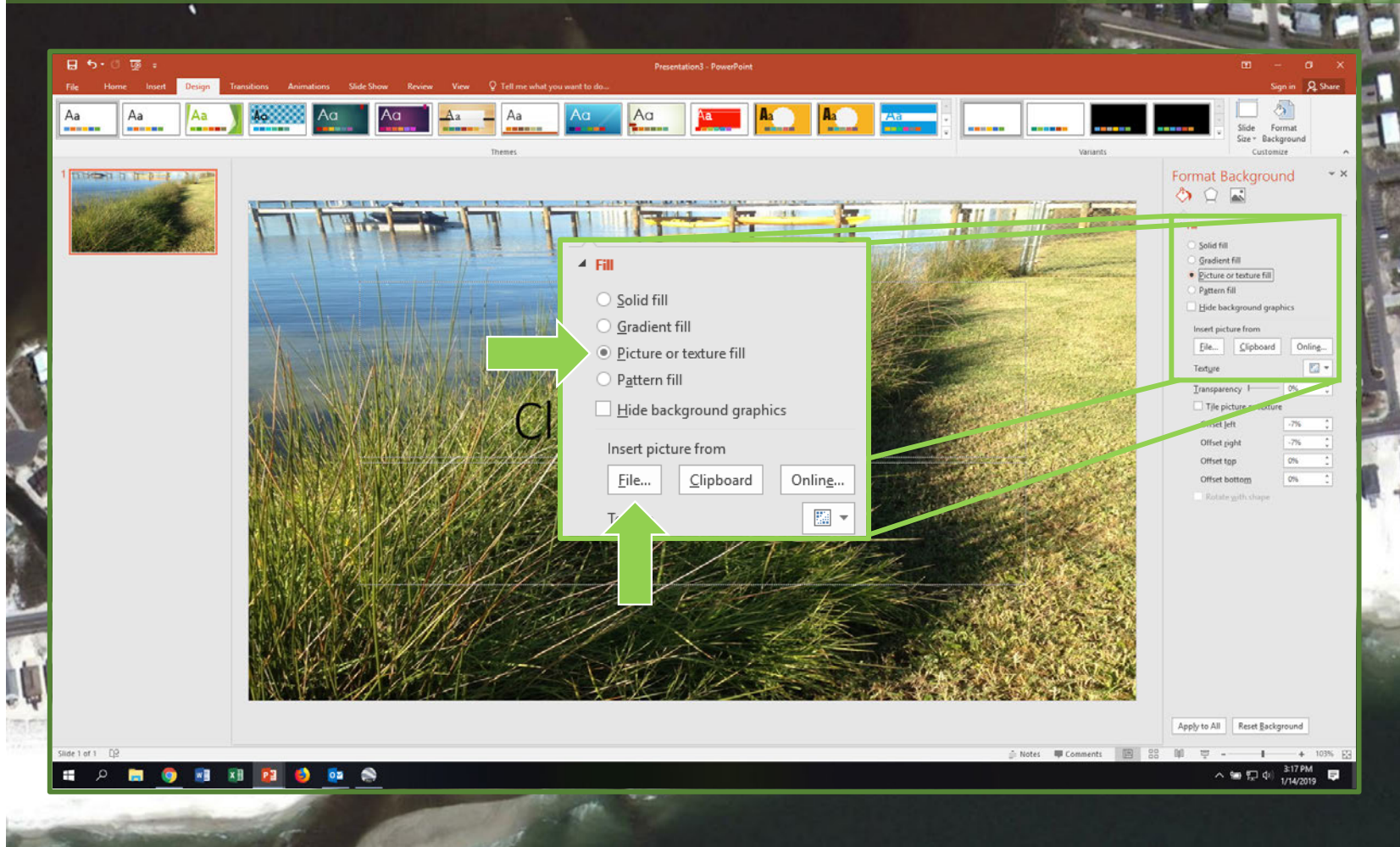




# 5. Set picture as slide background in PowerPoint

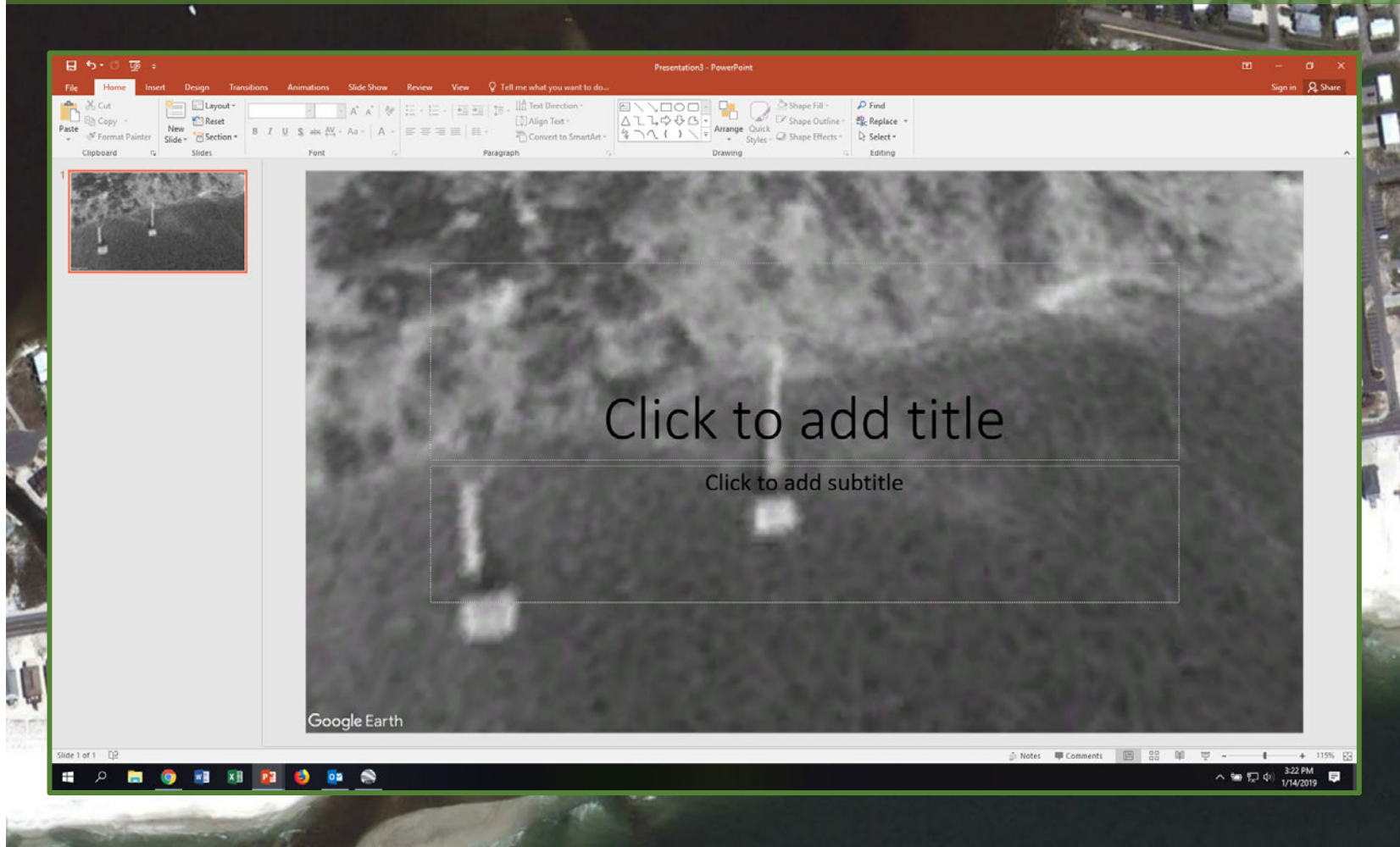


# 5. Set picture as slide background in PowerPoint

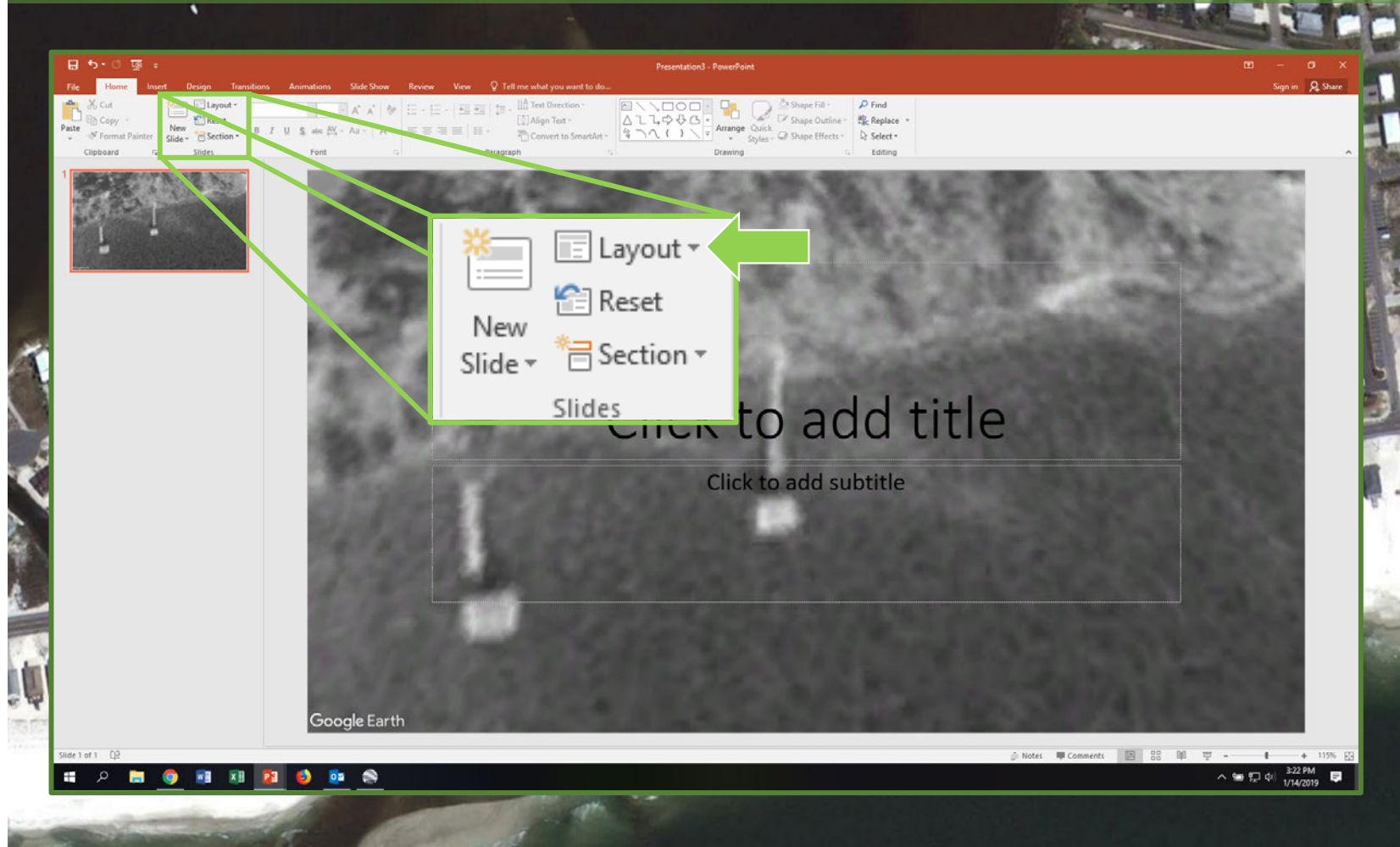




# 5. Set picture as slide background in PowerPoint

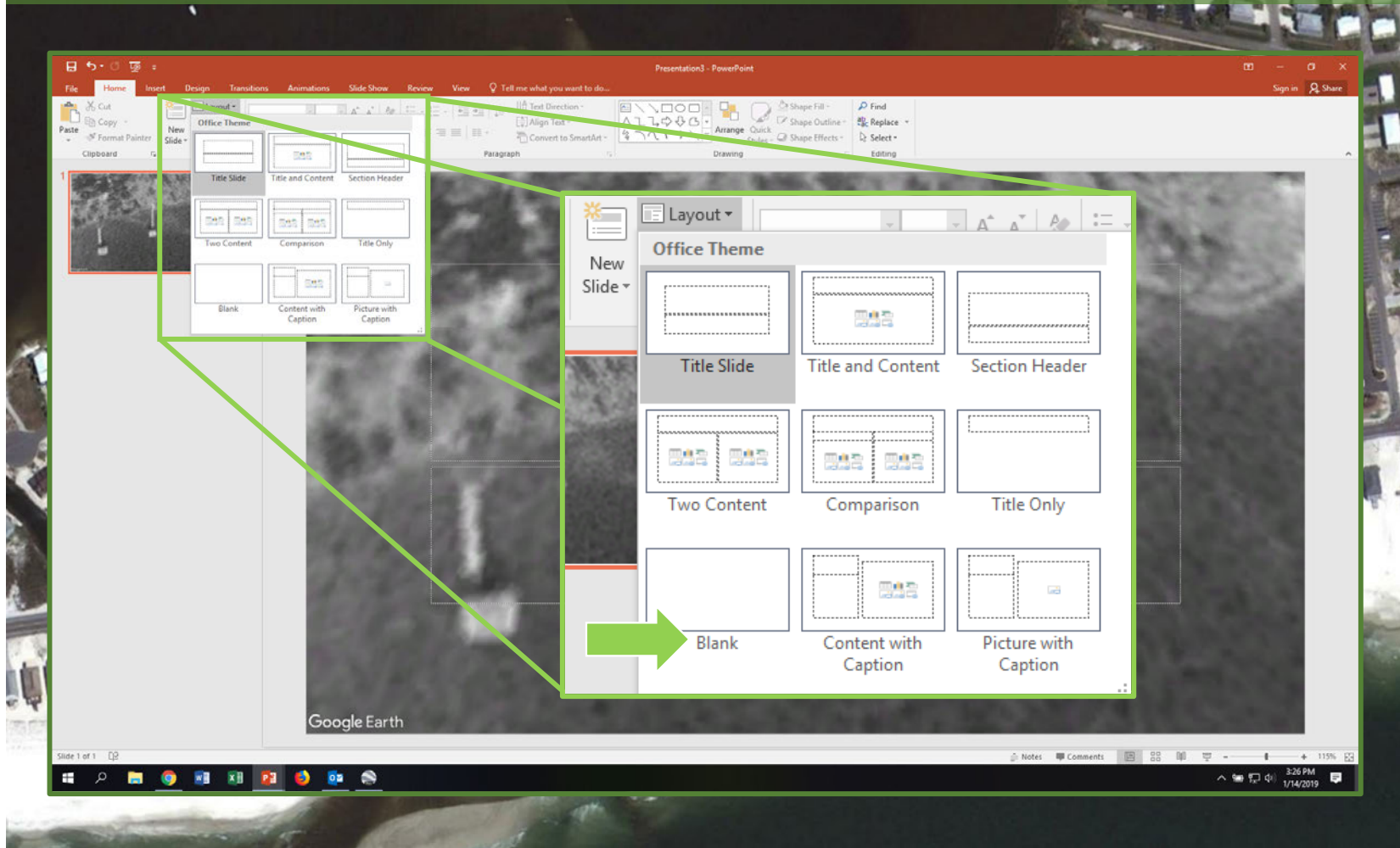


## 6. Get rid of text boxes





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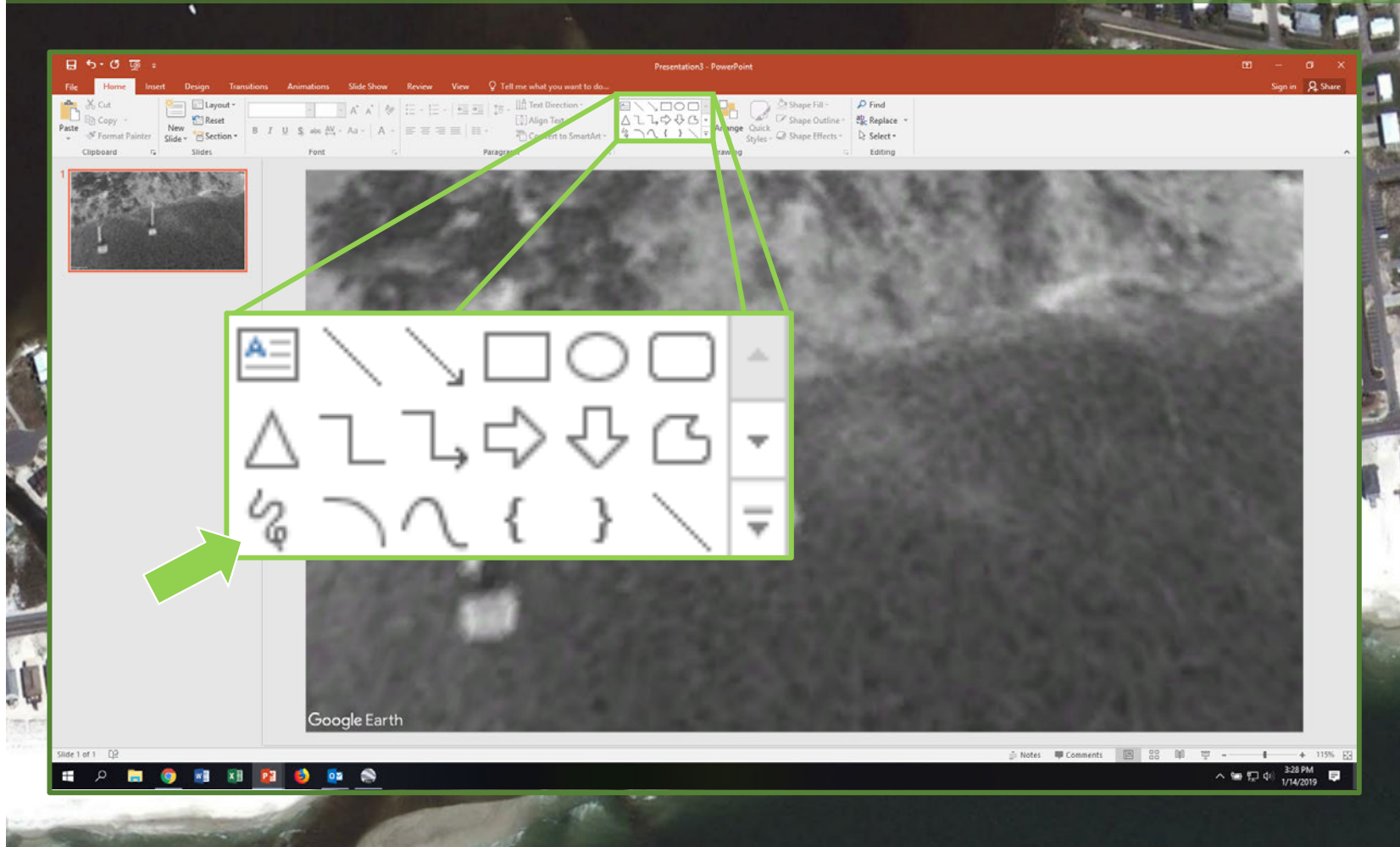


## 6. Get rid of text boxes

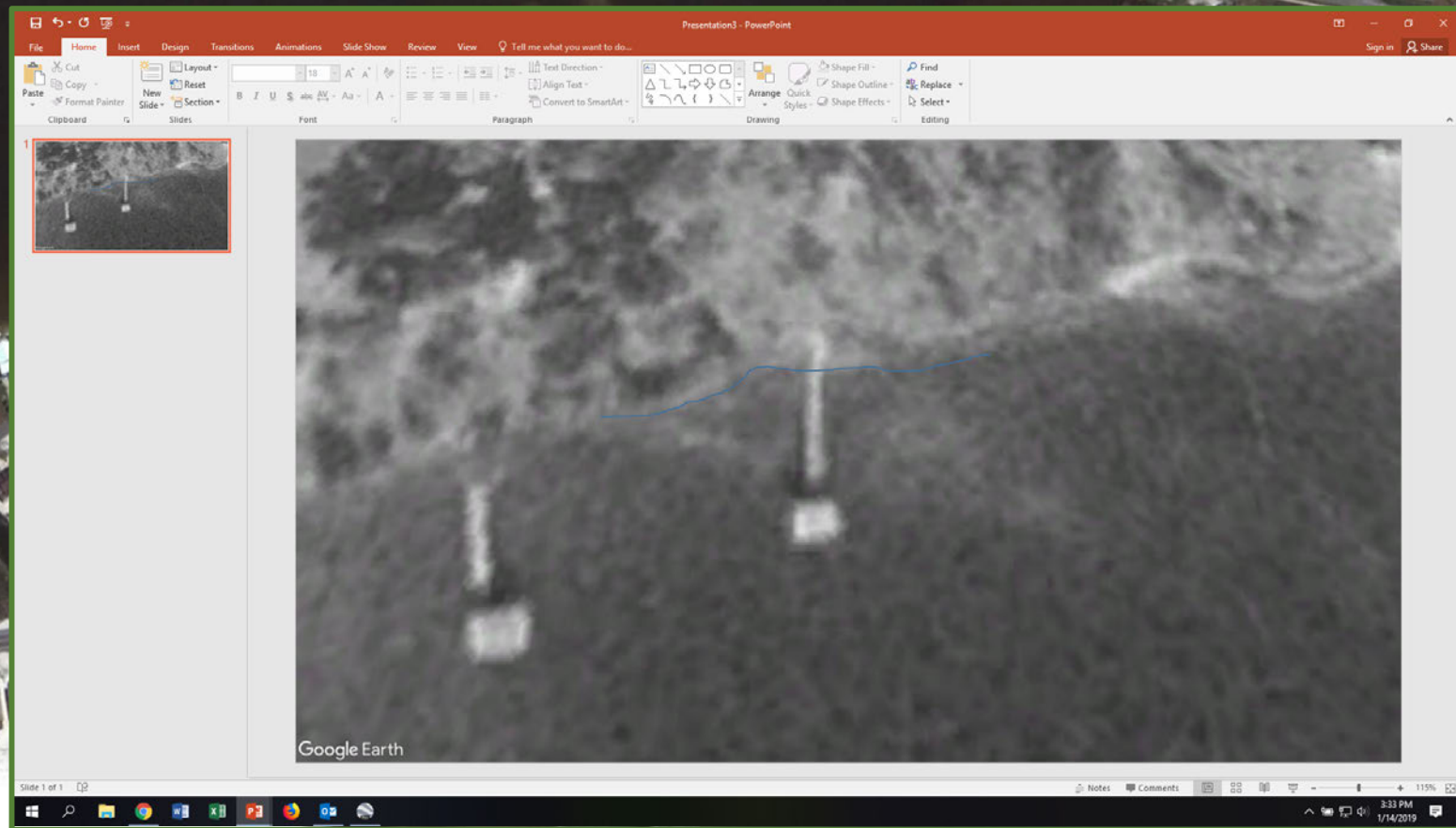




# 7. Trace shoreline

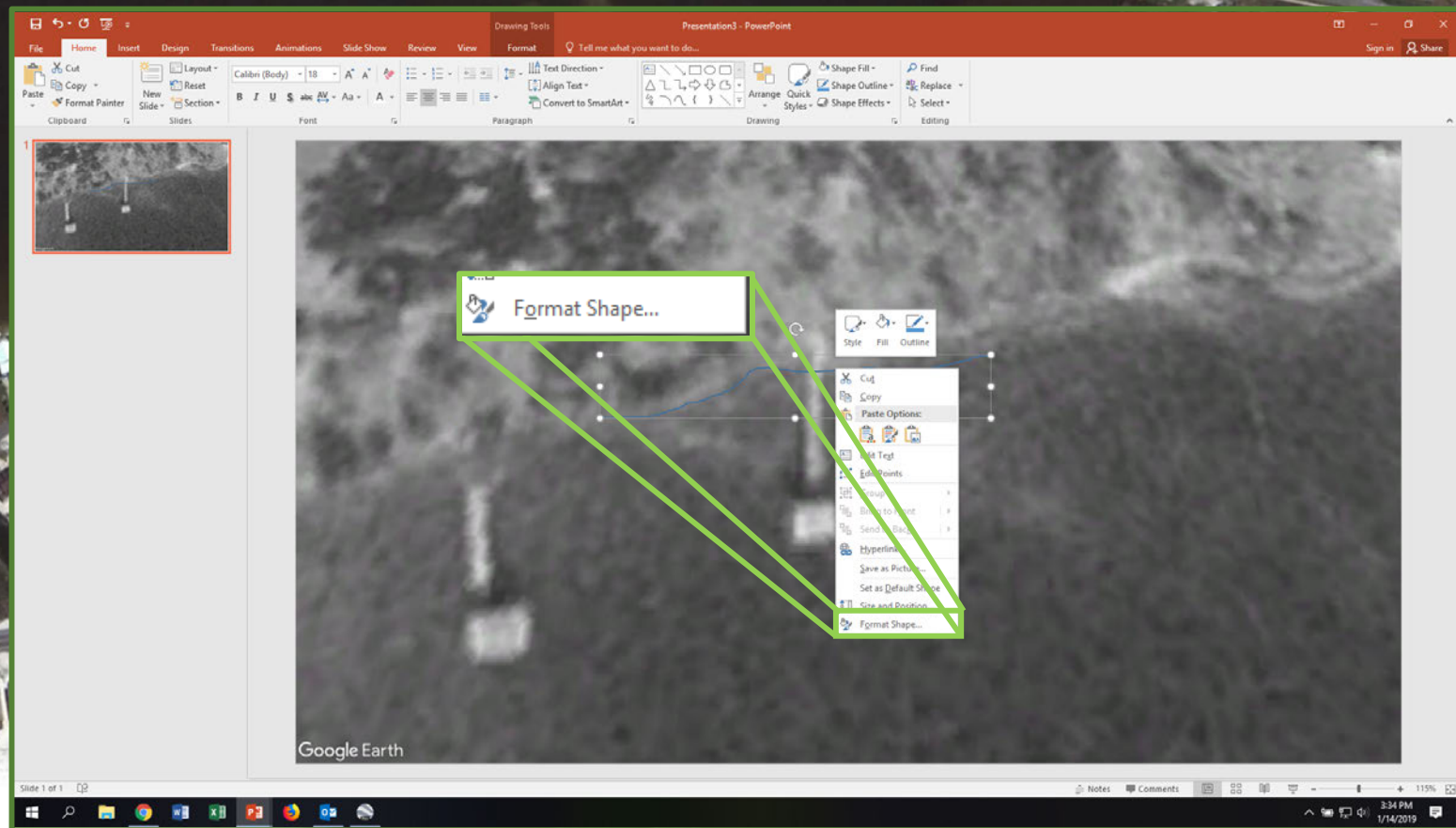


# 7. Trace shoreline





# 7. Trace shoreline



# 7. Trace shoreline

To change line color

To change line width

**Line**

- ☐ No line
- ☒ Solid line
- ☐ Gradient line

Color

Transparency 0%

Width 3 pt

Compound type

Dash type

Cap type Flat

Join type Miter

Begin Arrow type

Begin Arrow size

End Arrow type

End Arrow size

**Format Shape**

Shape Options Text Options

**Fill**

- ☒ No fill
- ☐ Solid fill
- ☐ Gradient fill
- ☐ Picture or texture fill
- ☐ Pattern fill
- ☐ Slide background fill

**Line**

- ☐ No line
- ☒ Solid line
- ☐ Gradient line

Color

Transparency 0%

Width 3 pt

Compound type

Dash type

Cap type Flat

Join type Miter

Begin Arrow type

Begin Arrow size

End Arrow type

End Arrow size

Google Earth

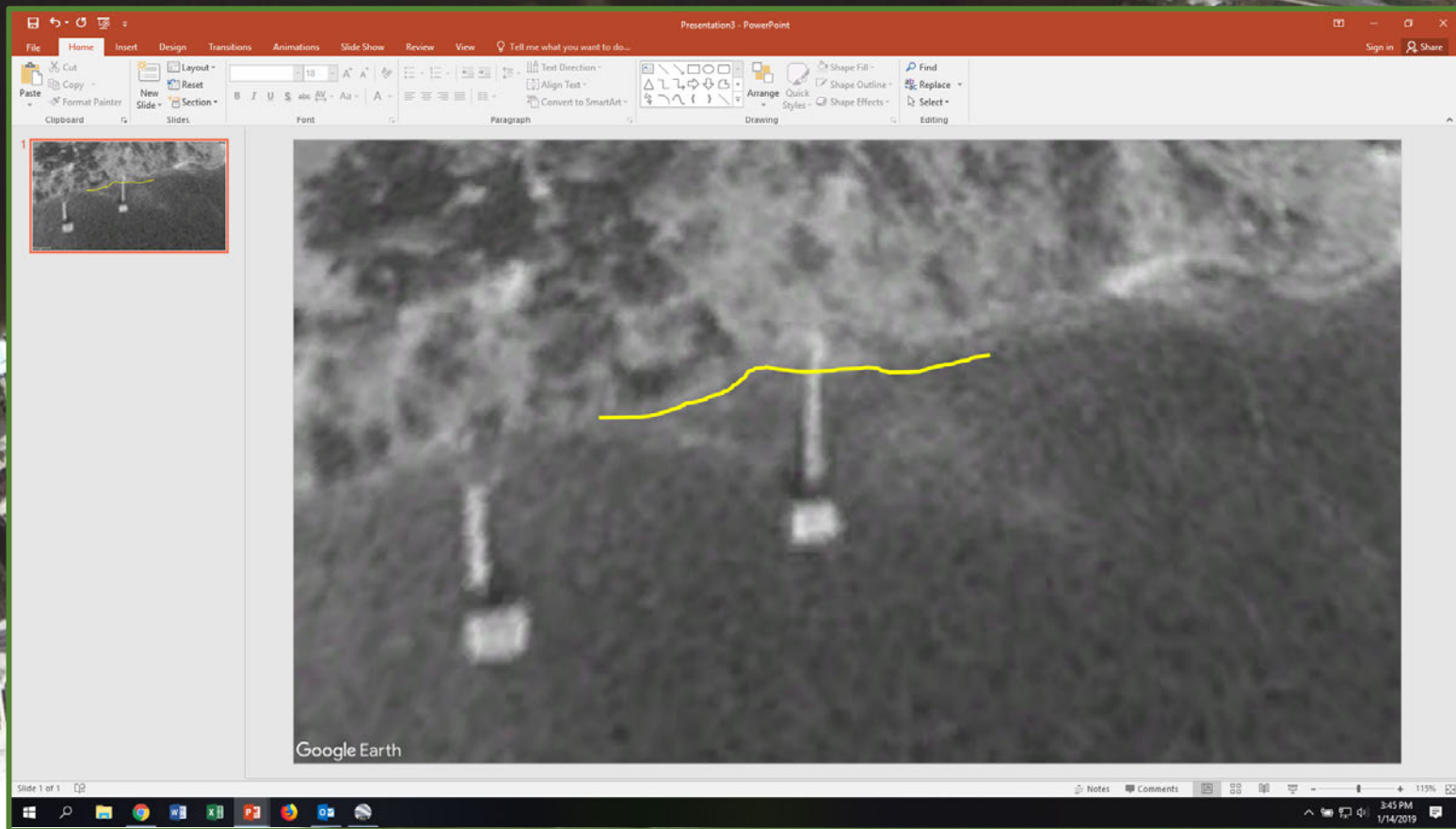
Slide 1 of 1

Notes Comments

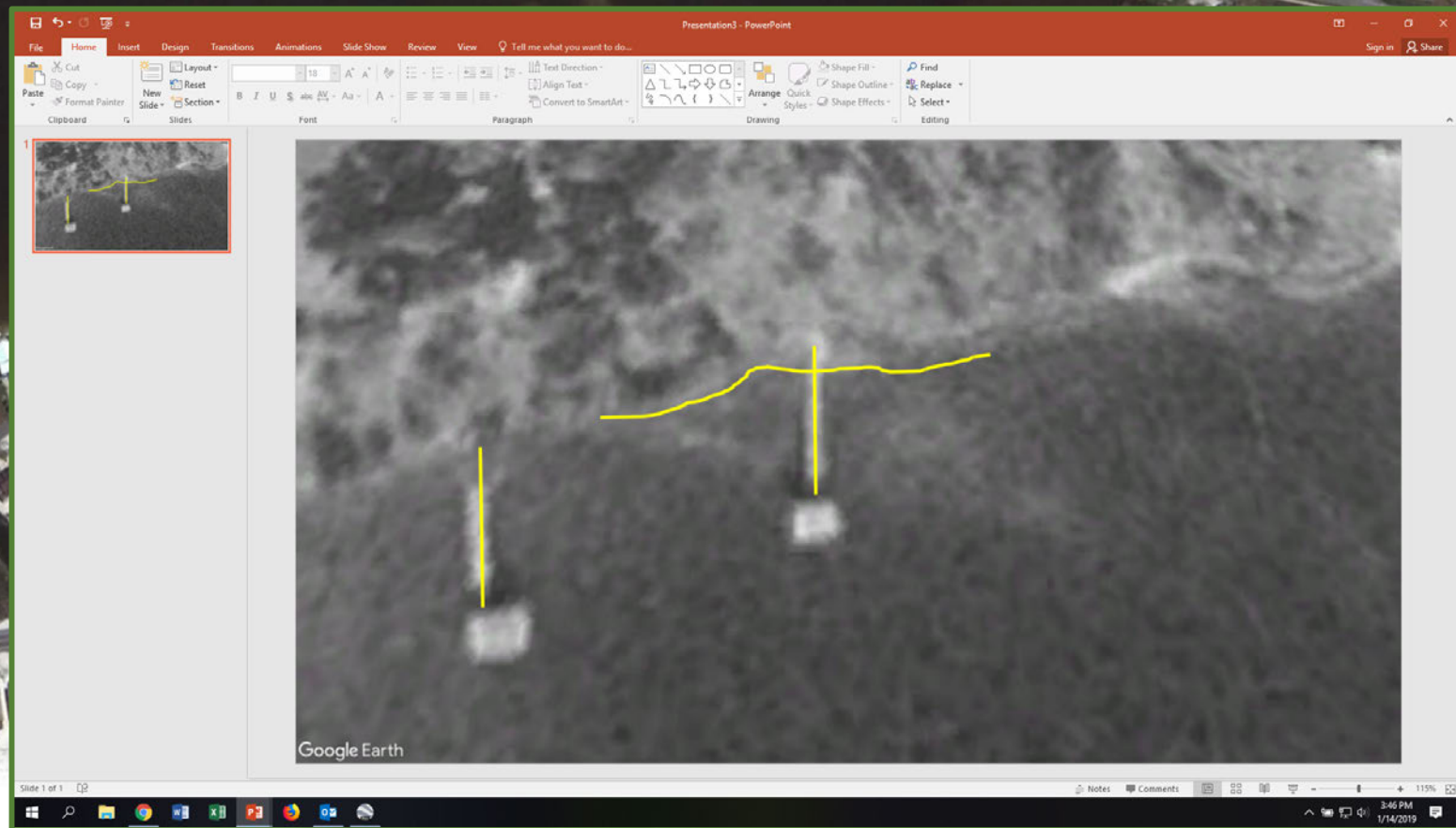
3:40 PM 1/14/2019



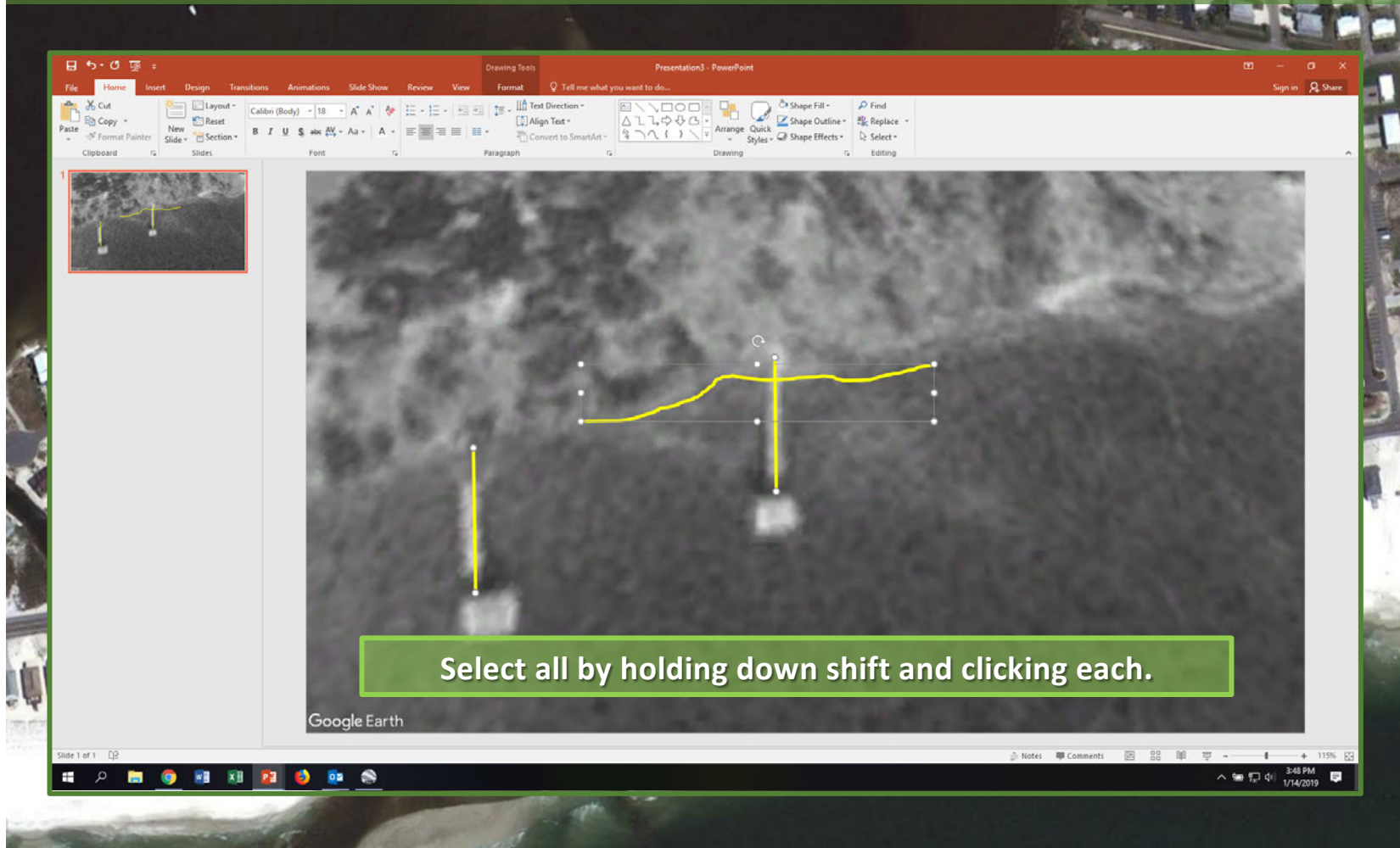
# 7. Trace shoreline



## 8. Trace reference line

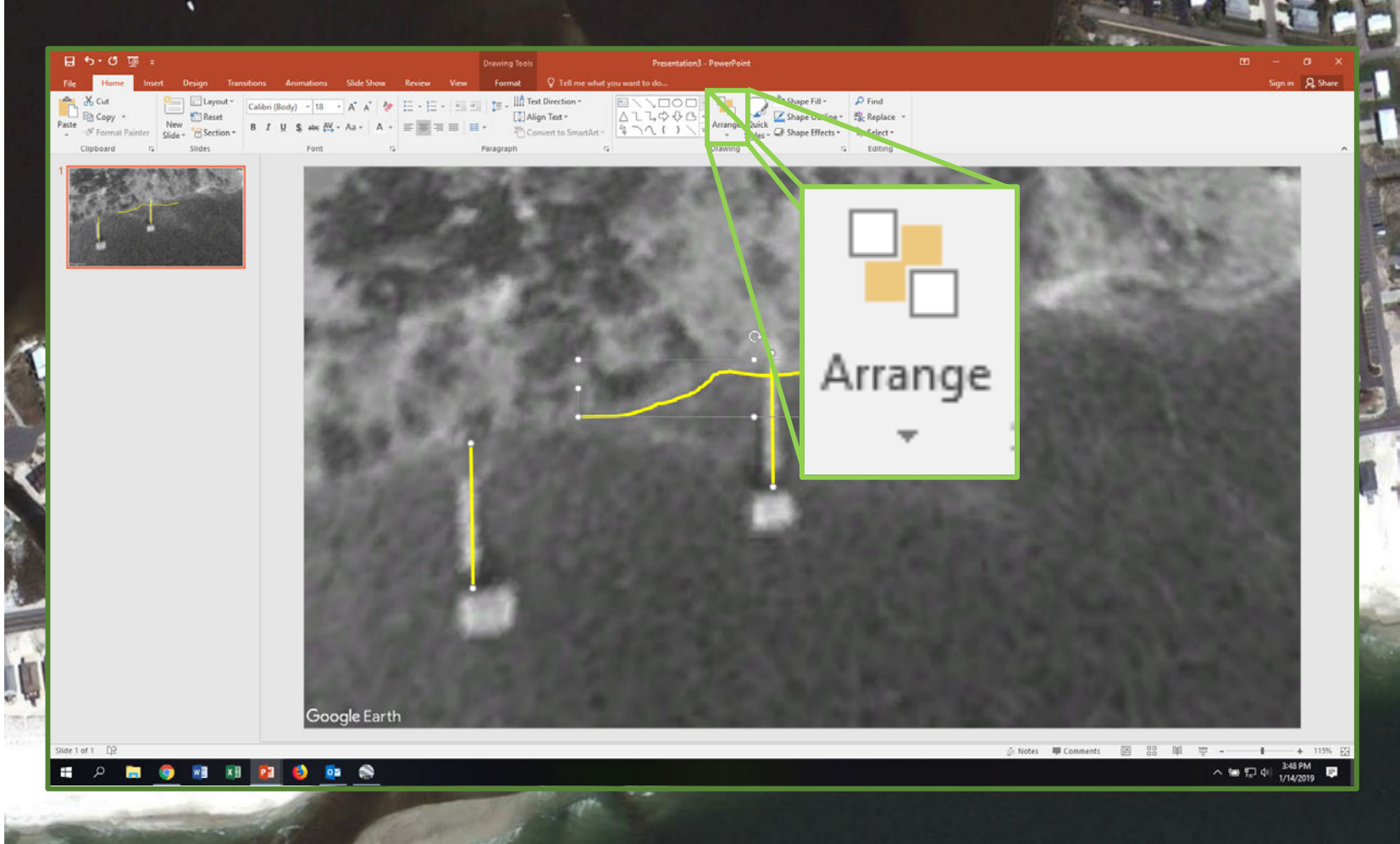


## 9. Group the tracings together

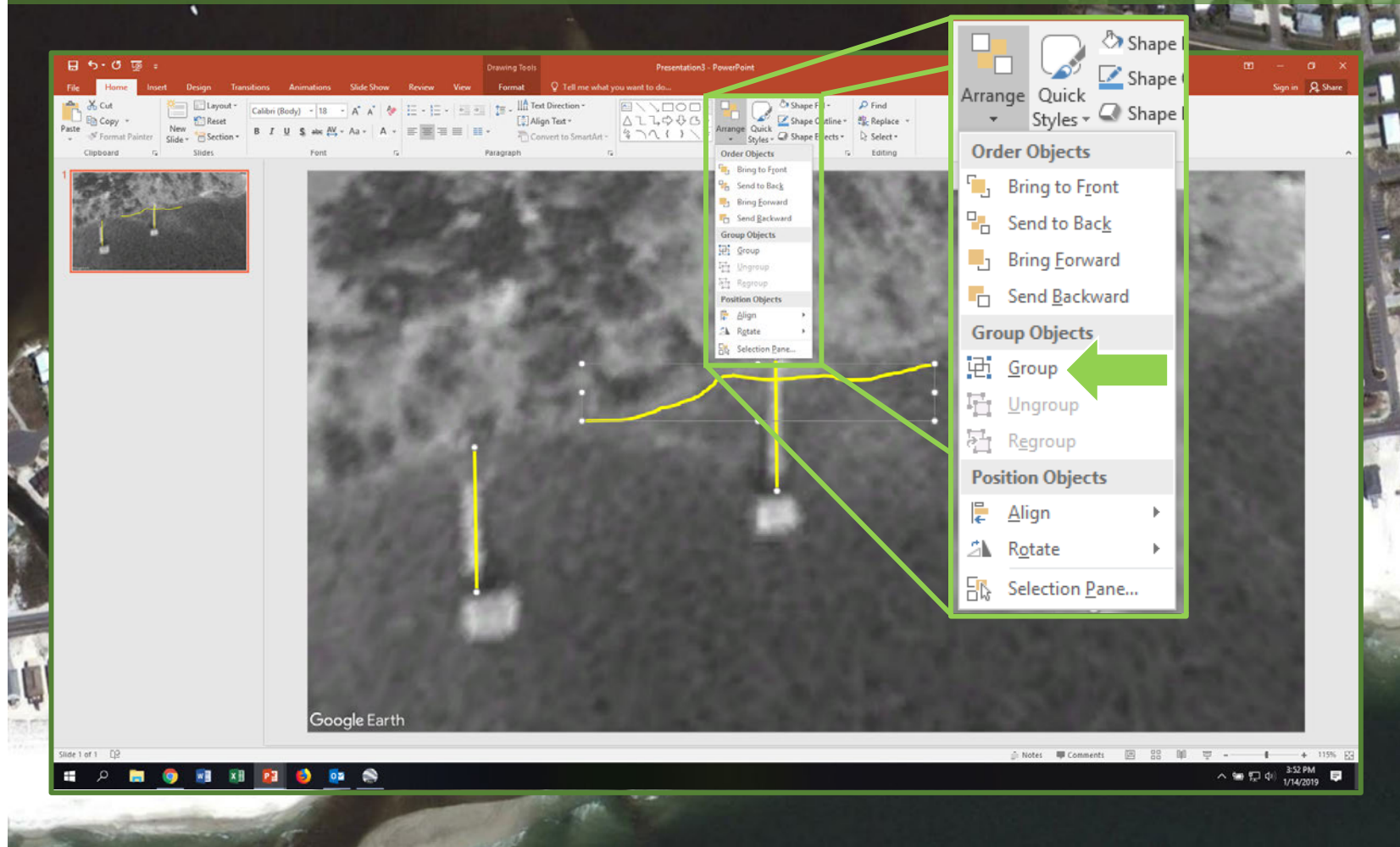




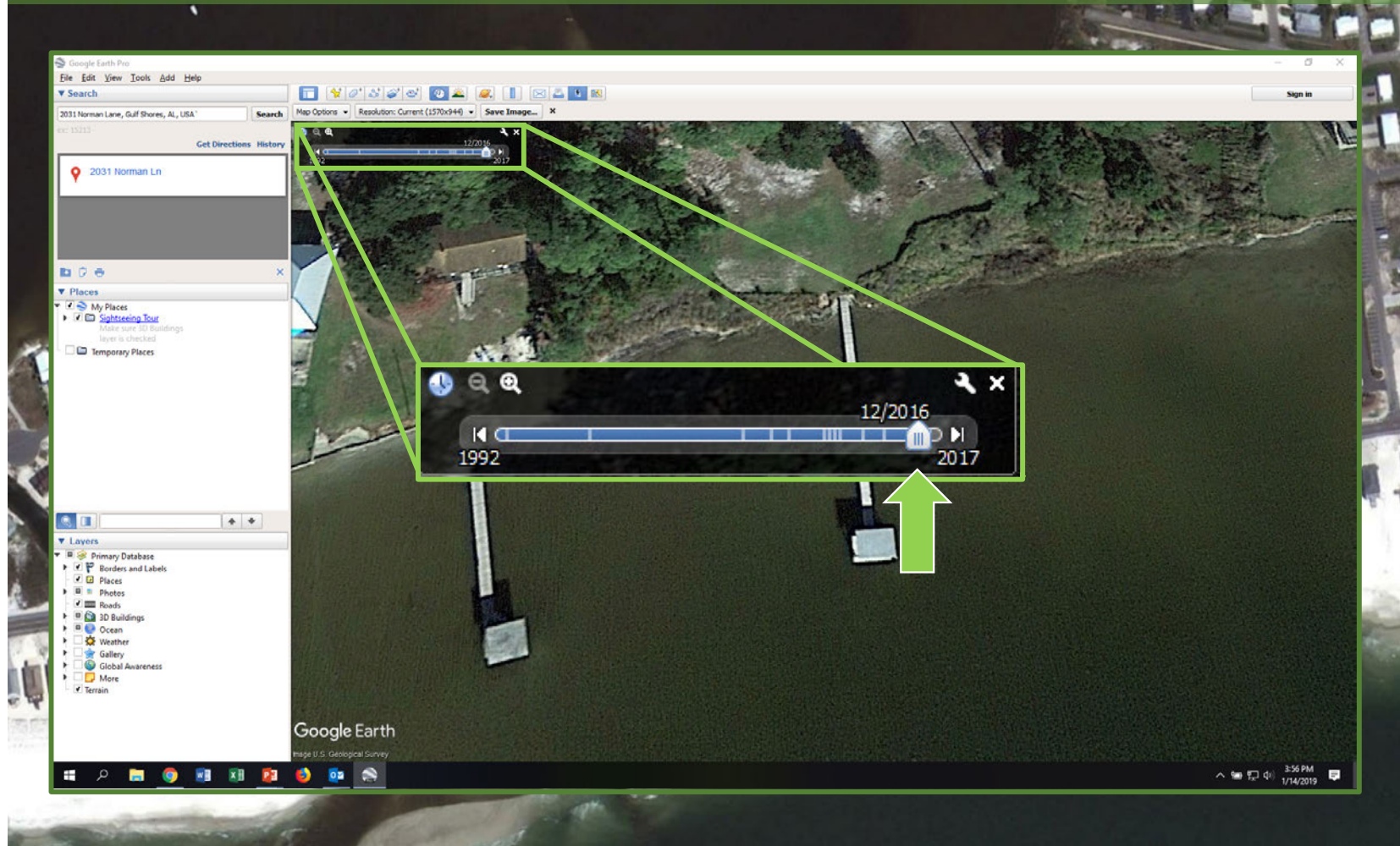
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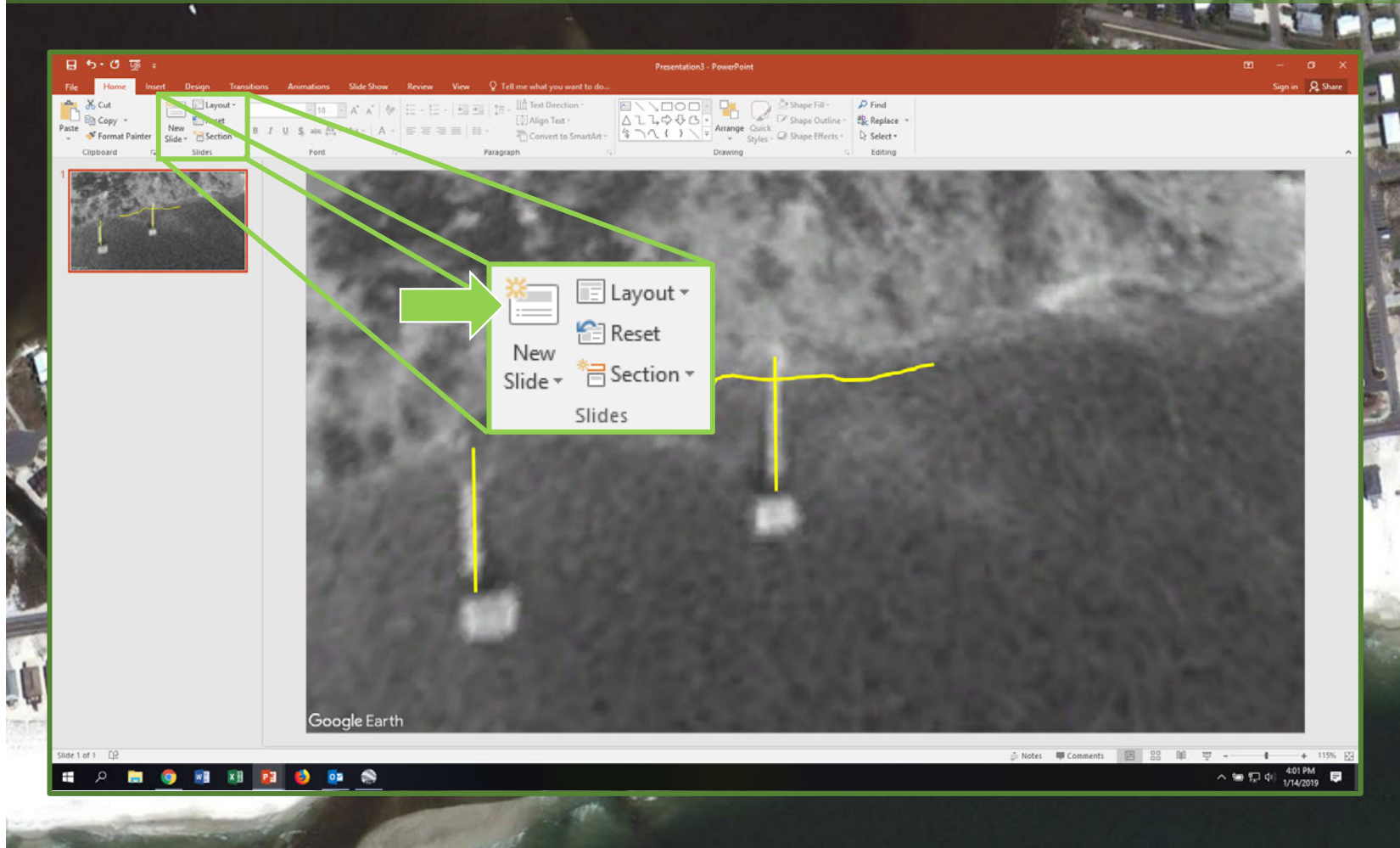


# 10. Save later image from Google Earth

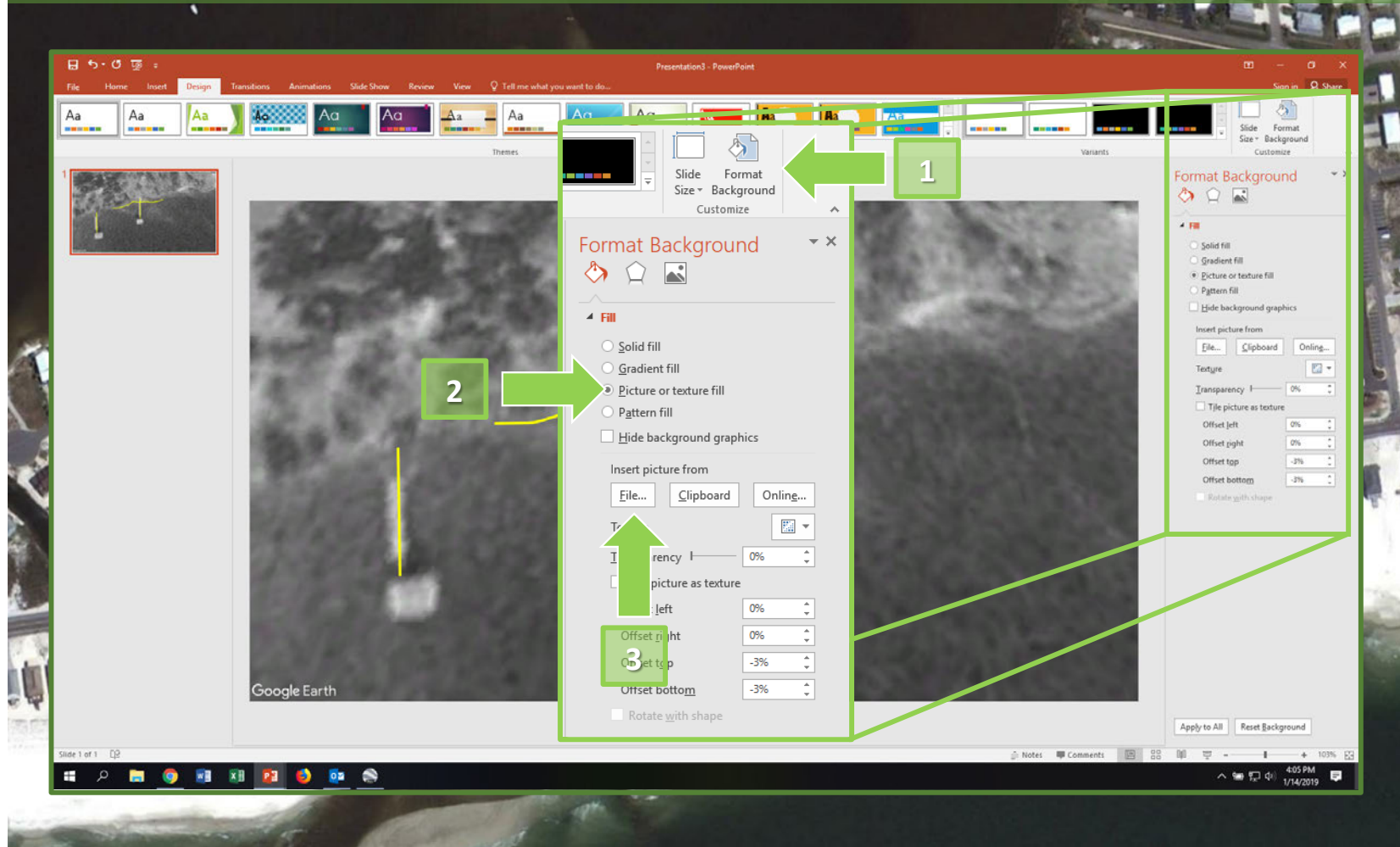




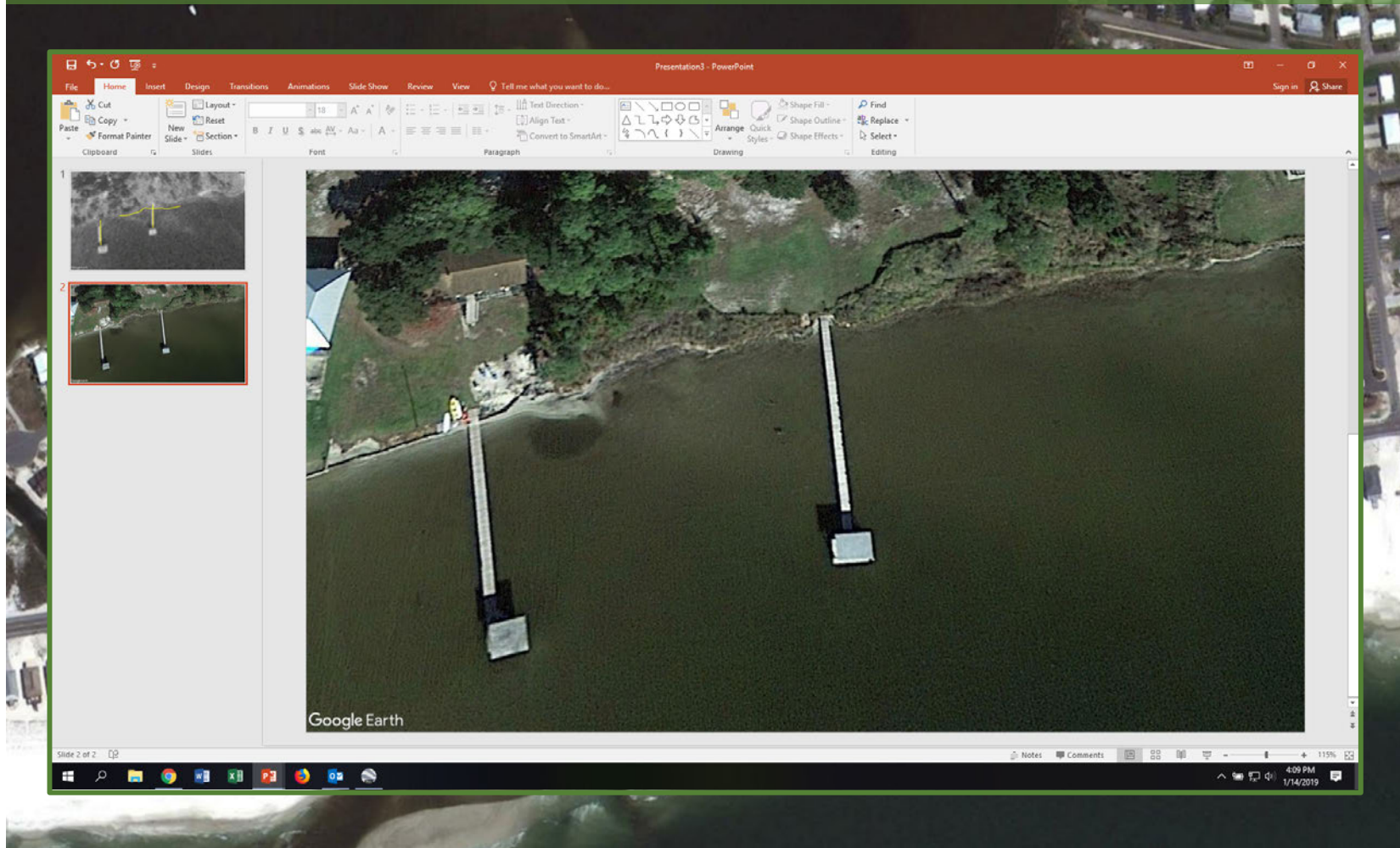
# 11. Set second image as background on a new PowerPoint slide



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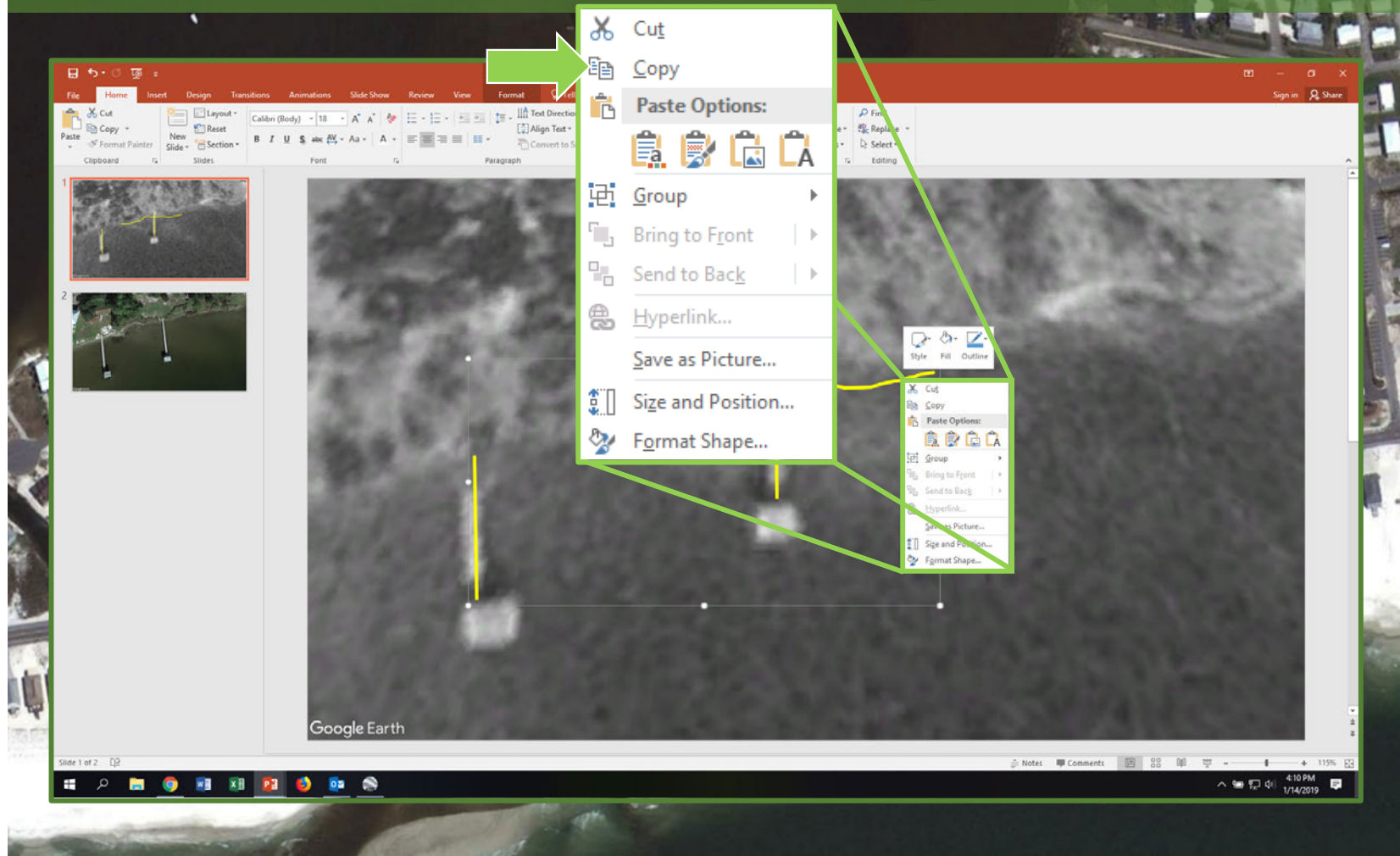


# 11. Set second image as background on a new PowerPoint slide

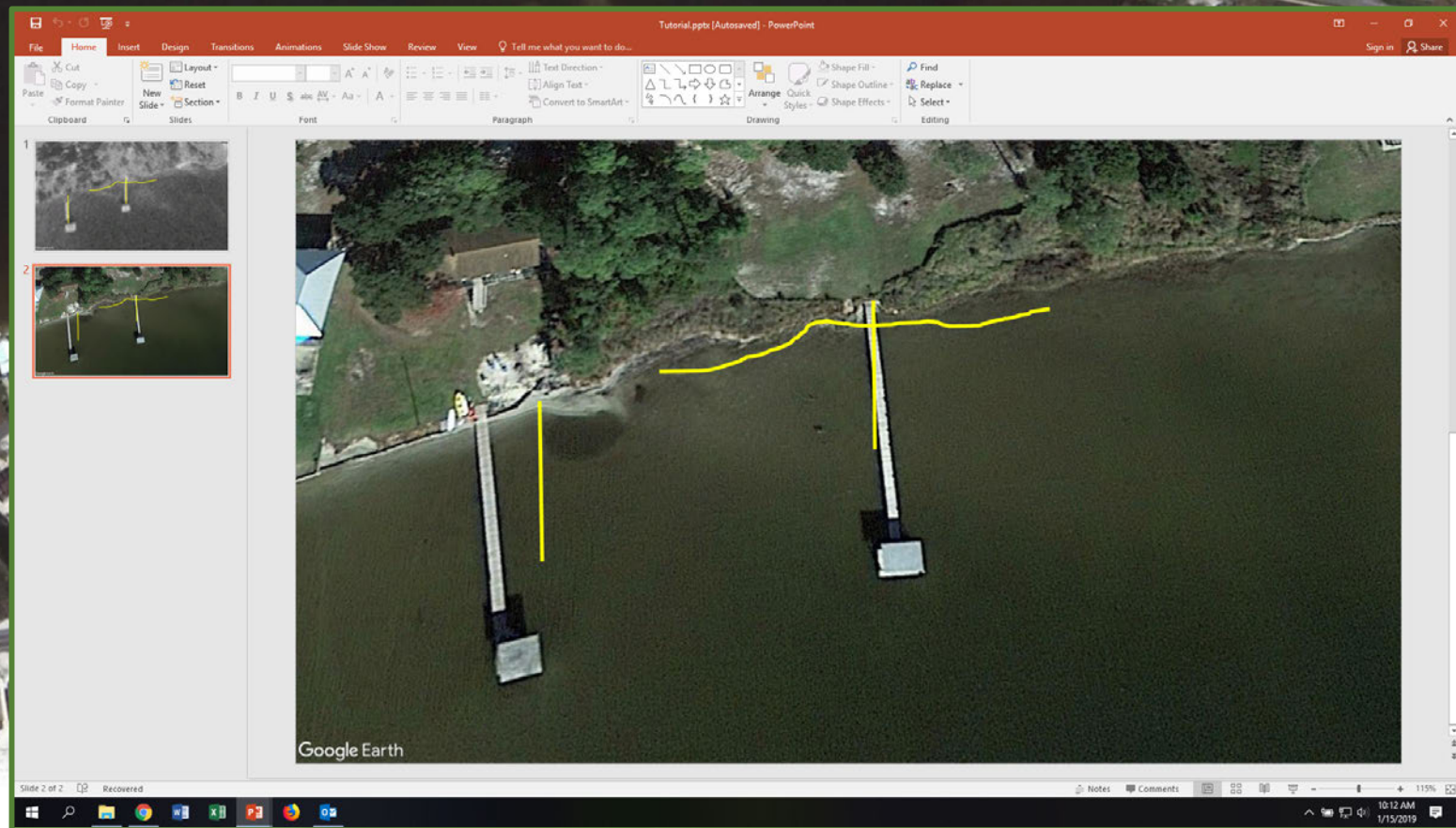




## 12. Add tracings from first image to second image

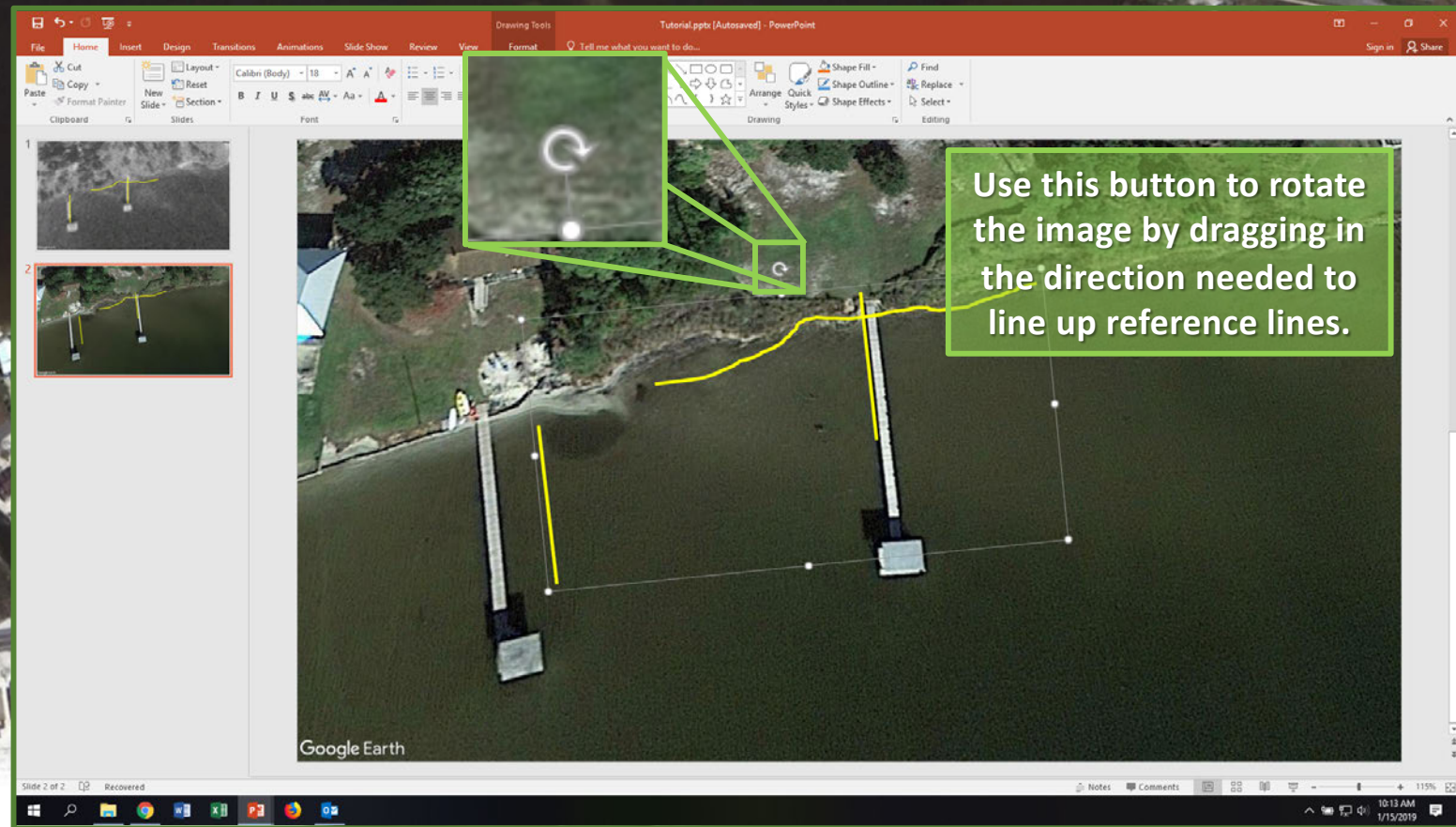


## 12. Add tracings from first image to second image



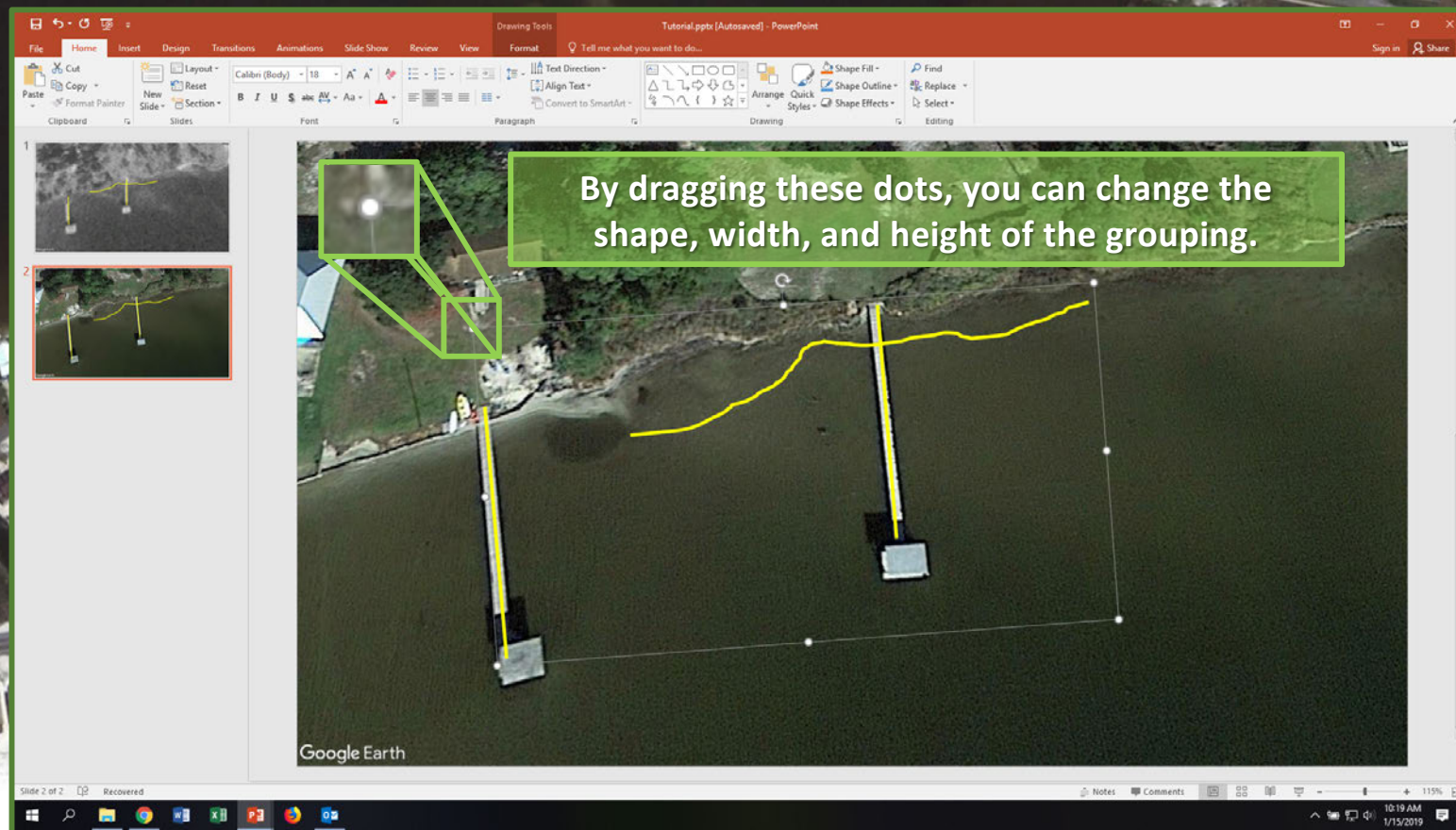


# 13. Use reference lines to adjust shoreline tracing

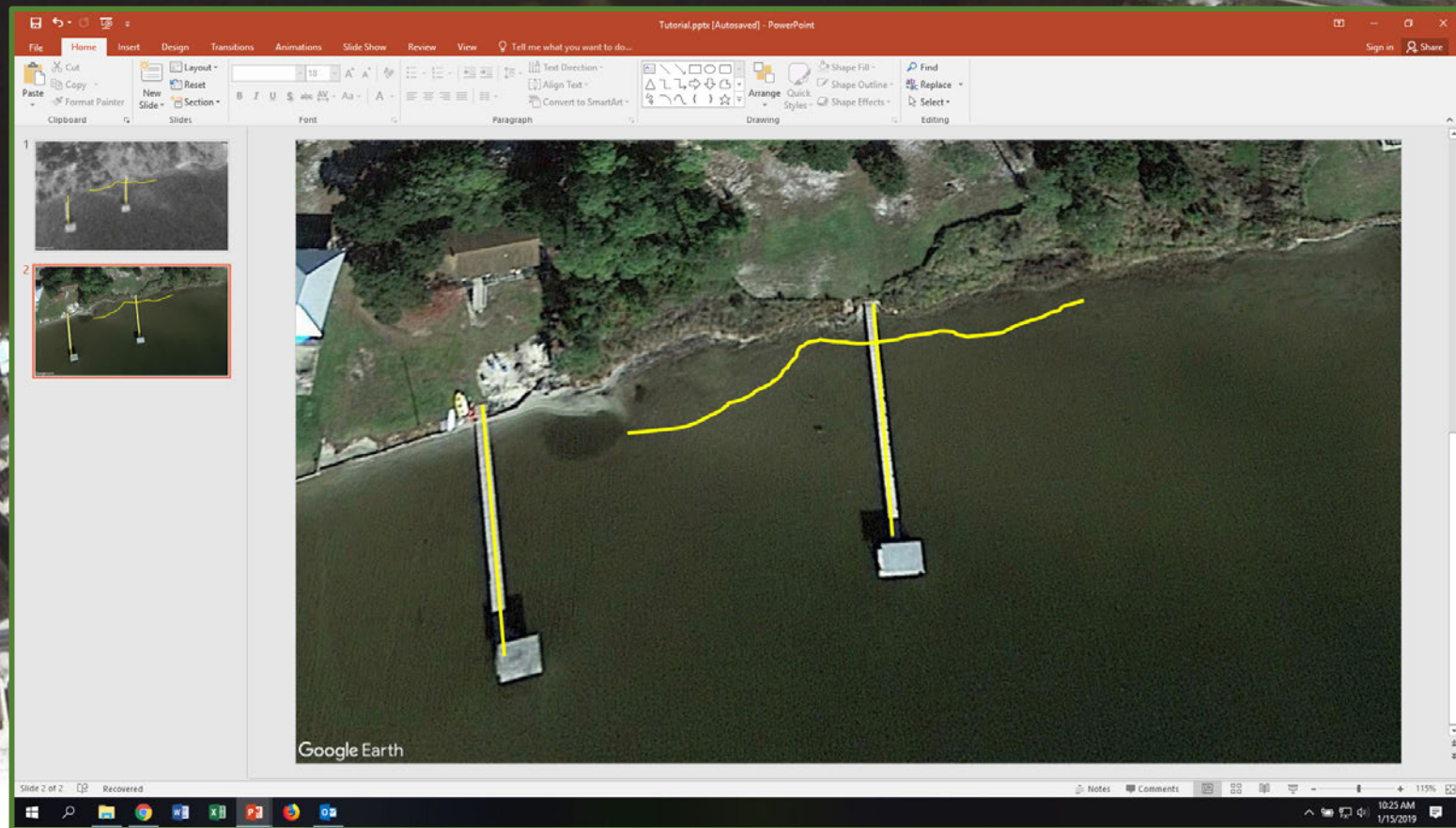




# 13. Use reference lines to adjust shoreline tracing

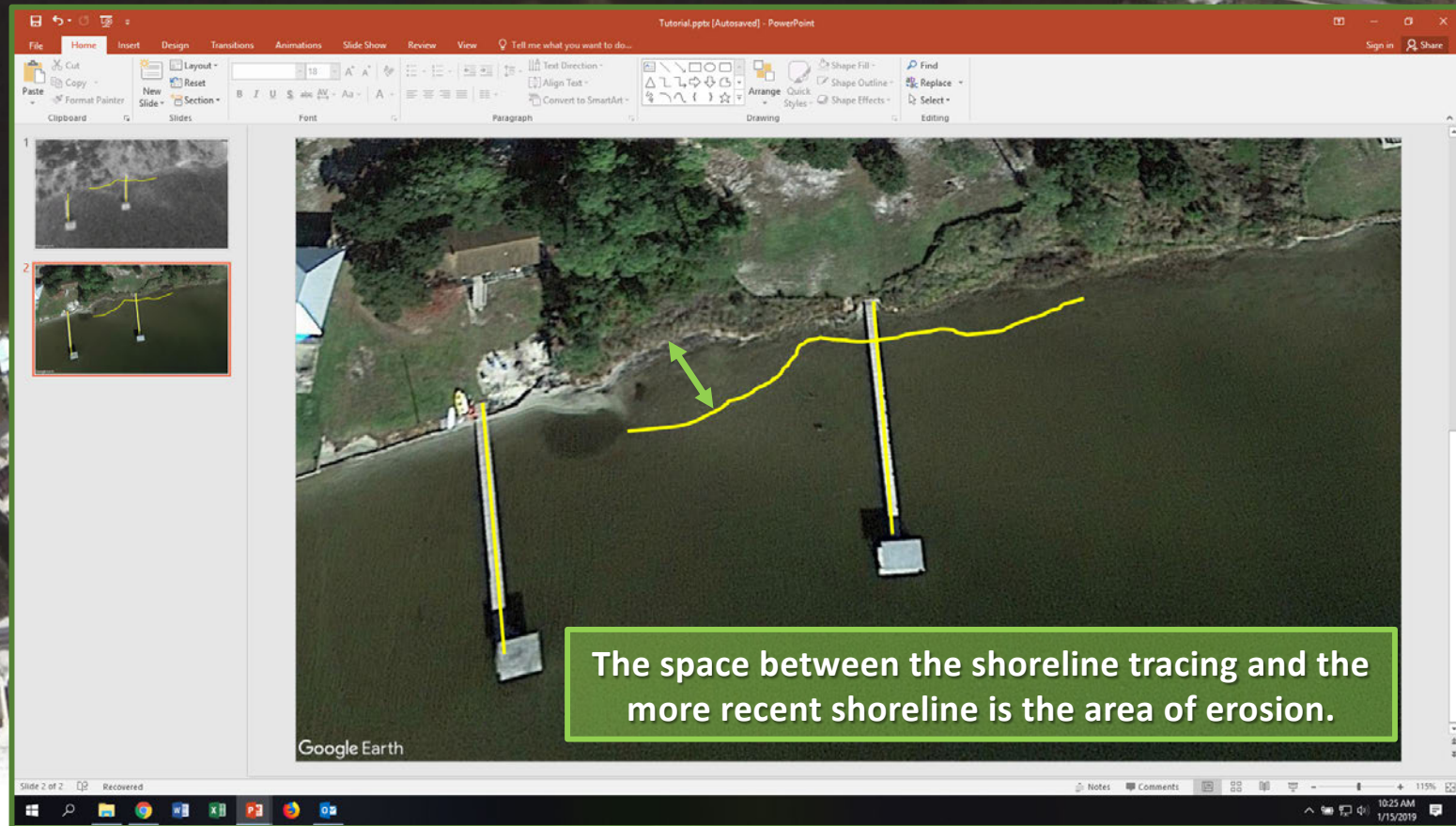


# 13. Use reference lines to adjust shoreline tracing





# 14. How to interpret the pictures





# 14. How to interpret the pictures



For more information:

Visit <http://masgc.org/living-shorelines>  
or  
email [eric.sparks@msstate.edu](mailto:eric.sparks@msstate.edu)







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