HOW TO SAVE TIME ON YOUR PHASE 1 ESA GENERATION

HISTORIC
AERIALS

INTRODUCTION

A lot of work goes into a professional Phase 1 Environmental Site Assessment and there are a lot of important details to consider. When you're using aerial images as part of your research and due diligence for an ESA, taking advantage of state-of-the-art web tools and high-quality imagery can drastically simplify your process, reduce the time it takes you, and save money and headache in the long-run.

This guide highlights the difference in image qualities available and introduces you to one-of-a-kind tools and an amazingly versatile PDF report builder that will simplify your process, save you time, and allow you to produce the highest quality reports.

A PICTURE IS WORTH A THOUSAND WORDS (SOME ARE WORTH MORE)

There are a handful of different suppliers of aerial imagery out there that are available for ESAs, but be careful, not all images are created equal. While it may seem to the untrained eye that one picture of a location is as good as another, there are certain high-level details that can make a huge difference when it comes to professional assessments and the conclusions that are drawn from them. One specific difference that can make a significant impact on your ESA, based on the aerial photos involved, is a process called "orthorectification."

ORTHORECTIFICATION

An orthorectified image is a photograph that has been geometrically corrected to adjust for the shape of the earth's surface, the angle of the camera, and lens distortion. Orthorectified images, or 'orthos' for short, provide a consistent scale and viewpoint. This is important because the use of orthorectified imagery is vital in determining accurate, specific sampling locations and assessing the best way to conduct remediation work, especially when working on a site with significant elevation changes. The geometric corrections made during orthorectification make the scale of each photograph uniform, so that the image can be read like a map, measuring true positions, distances, areas, and angles.
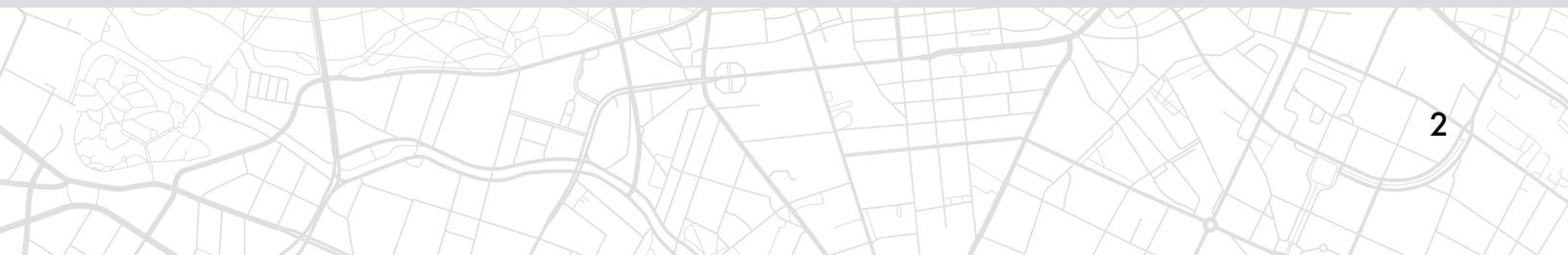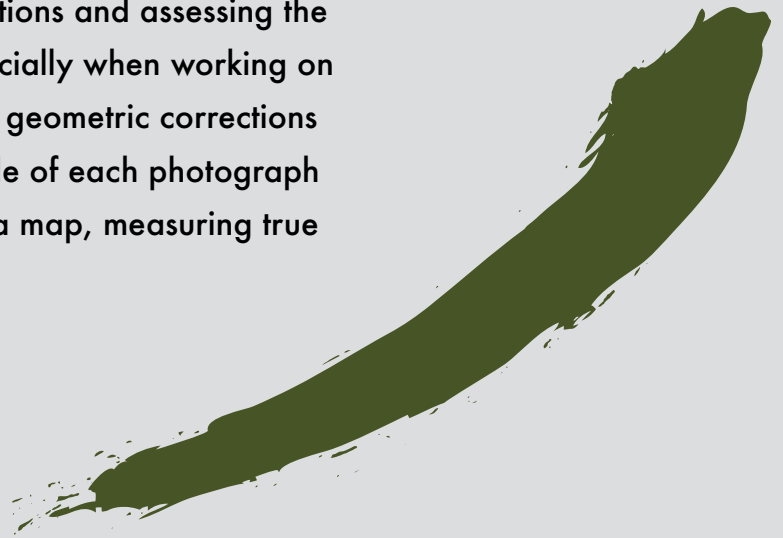
How Do They Do It?

Before a scanned image can be orthorectified, a spatial relationship must be established between the scanned image and a reference image with specific location information in it. Historic Aerials uses state-of-the-art software that incorporates facial recognition technology to perfectly align location points and correctly orthorectify every image in their collection.

To create a single, large-scale, seamless orthorectified image, overlapping images are processed at the same time and aligned to all shared location data-points.
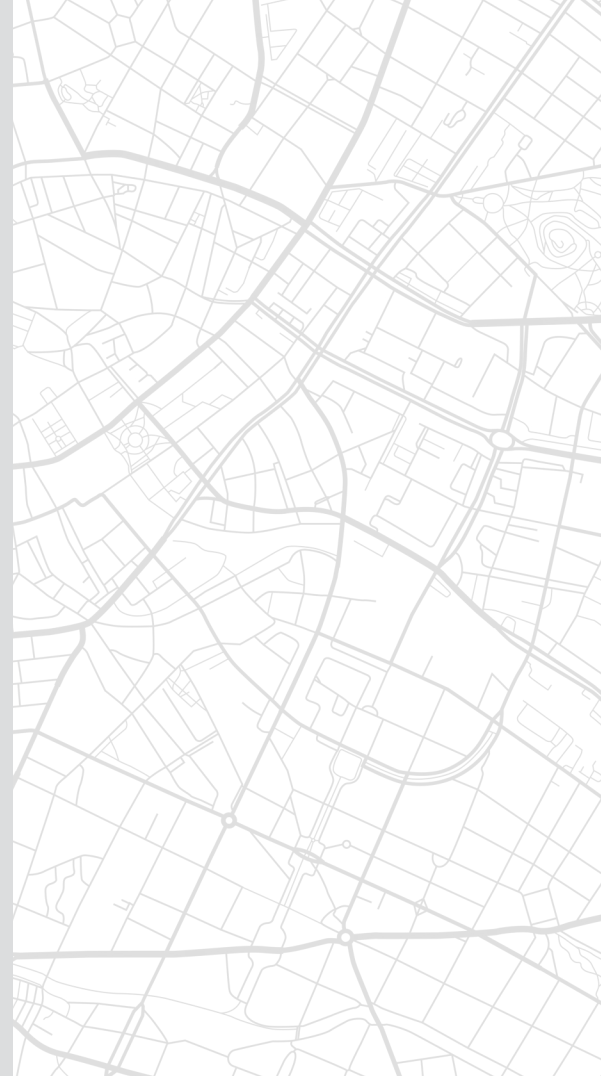
The blue and green "blob" in the upper left frame of the below figure shows over 4000 data-points collected for a set of 128 photos over White County, IL in 1938.

Historic Aerials' software uses complex mathematical equations to make sense of the location of each of these points while also considering other parameters, including altitude of image capture, focal length of the camera lens, angles of the camera relative to the ground, and the scan resolution used when the original photo was digitized.
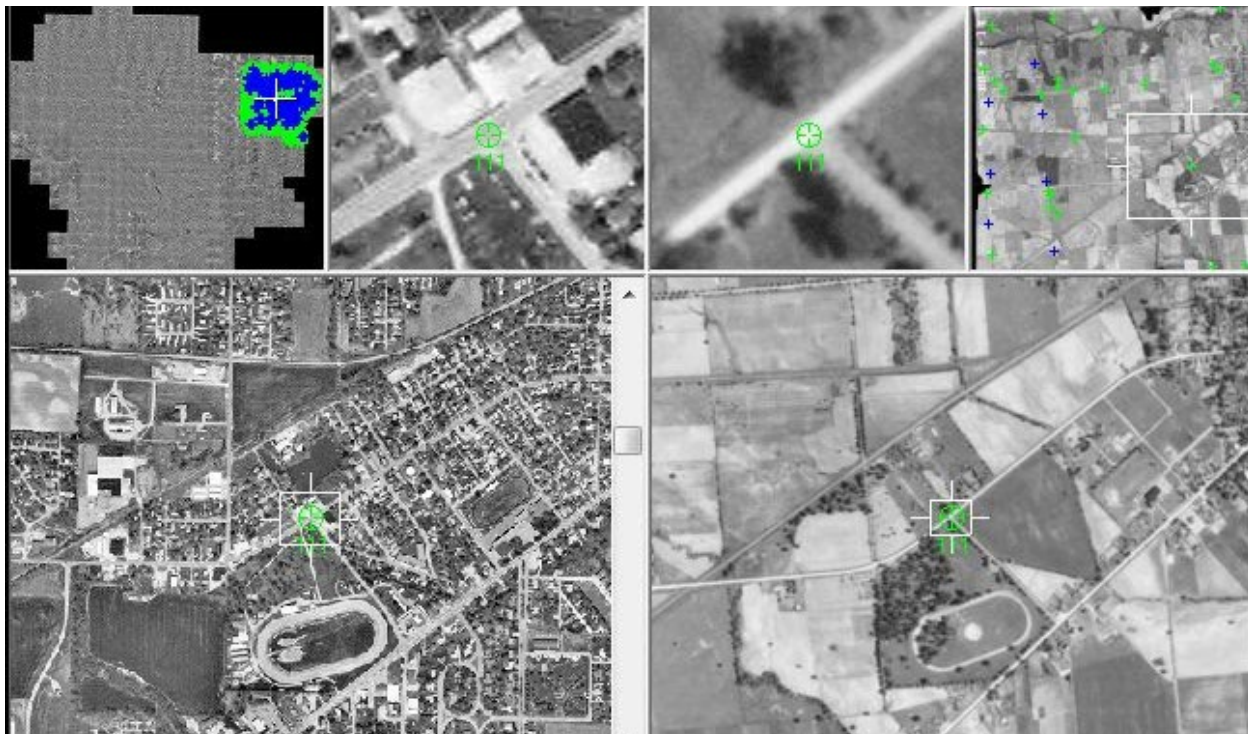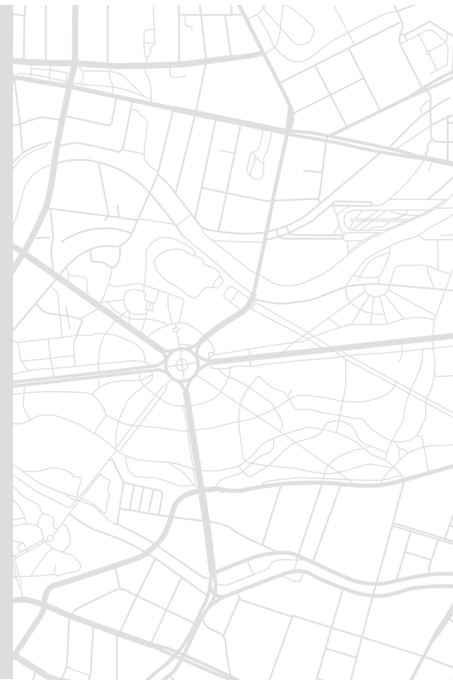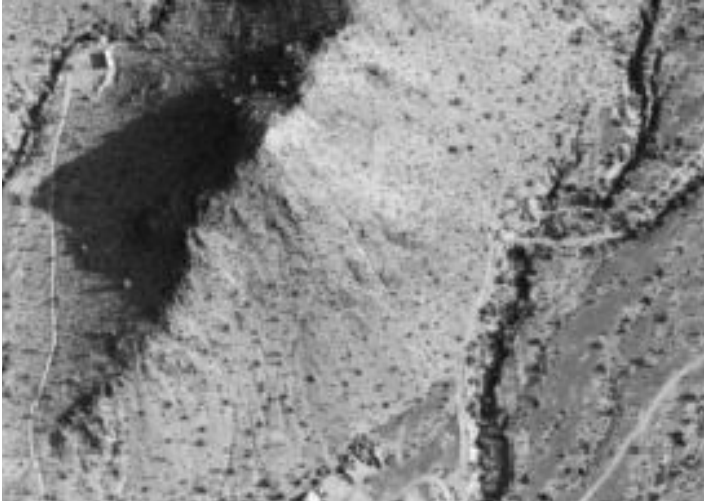
Raw Image
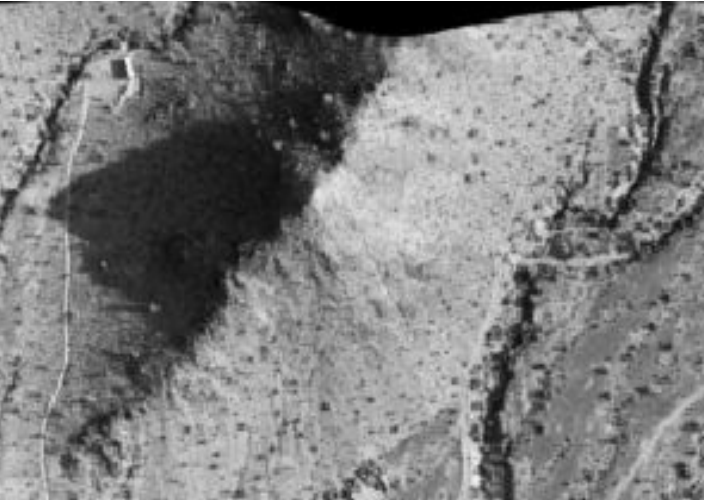
Orthorectified Image

In the orthorectification process, values of the pixels are rearranged to move objects closer together or farther apart to depict the space accurately. In the example to the left, look at the change in the shape and size of the large shadowed area in the raw image and the same area in the orthorectified image.

The raw image of Phoenix, AZ in 1982 is on the top and the ortho of the same image is shown below. Note the change around the edges of the photo and the shape of the shaded area to accurately account for the elevation.

Is "georeferenced" good enough?

A lot of aerial image suppliers will label their products as "georeferenced,'' but this isn't the same thing, nor is it an accurate representation of the site, like orthorectified images. Georeferenced imagery is always an approximation, leaving a margin for error in assessing a site. Orthorectification is a far more in-depth process that produces a superior, more accurate product to georeferenced imagery.

Orthorectification is typically cost-prohibitive for common use, but Historic Aerials technological innovation has set a new standard for the industry with a process that orthorecitifies ALL their imagery, without pushing any added cost to the end user. In fact, Historic Aerials surprisingly offers the most economical pricing of any aerial image service, despite authenticated higher-quality images.

POWER TOOLS

Having great imagery is a start, but when it comes to making assessments, being able to compare and contrast your images with topographical maps, atlases, and photos from previous years can be laborious, or sometimes not even possible with the resources available. Now, smart environmental consultants can skip all that work and headache by using some simple, high-tech online tools that make comparing imagery a snap, plus save time and money.

OVERLAYS

Unfortunately, photographs from the sky don't come with labels. County, city, and private property lines are rarely obvious, and roads an often be difficult to discern from above. Fortunately, with Historic Aerials, you can use a click of the mouse to access a complete library of overlays that automatically align to the aerial image you are viewing, and simplify identification of man-made boundaries, elevation contours, and roads.
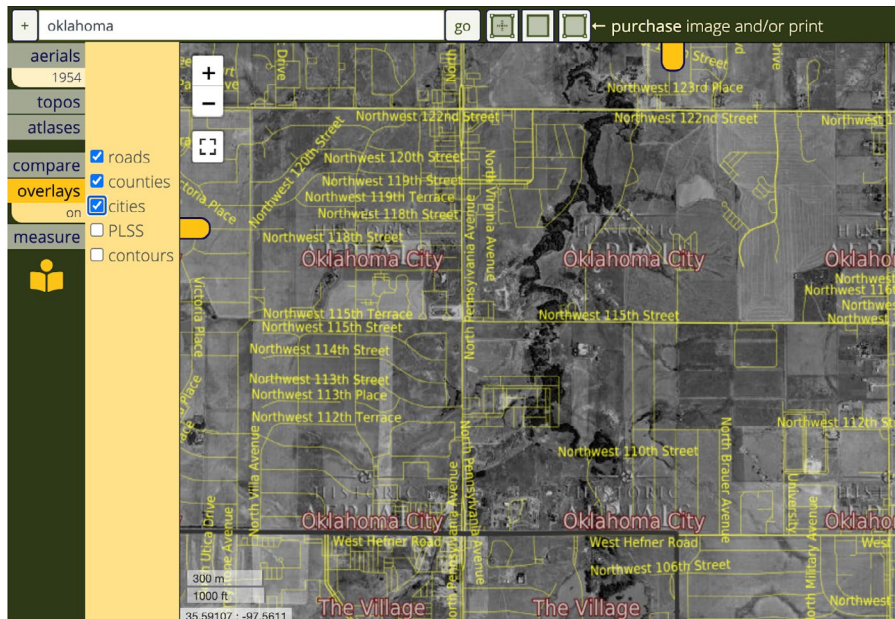
COMPARISON TOOLS

Being able to quickly analyze how a site has changed throughout the years can be important. The state-of-the-art comparison tools from Historic Aerials empower you with multiple viewing options that enable you to pinpoint areas of interest and meaningful change:

Slider Tool - The Slider Tool puts two images of the exact same location directly on top of one another and allows users to quickly and easily swipe the slider bar back and forth, revealing either the top or bottom image for quick and easy comparison of specific points or features. This allows you to compare images with topographic maps, atlases, and images from other years, allowing for easy recognition of changes in features.

Spotlight Tool - Like the Slider Tool, the Spotlight Tool places one image on top of another, then, like X-ray vision, the Spotlight Tool allows you to see through to the bottom image in a small circle of whatever area you move your cursor.

Transparency Tool - The Transparency Tool stacks two images on top of each other and allows you to fade back and forth between the images. This is a fantastic tool for pinpointing changes because you can dissolve between images from different years and notice differences immediately.
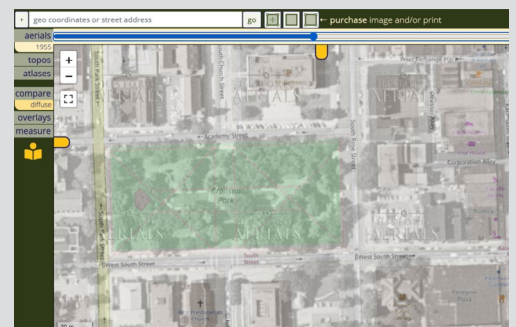
MEASURE

The incredible Measure Tool at HistoricAerials.com can be an environmental consultant's best friend because it calculates the real distance between points on your images (because they are orthorectified!), and it can even calculate the area of a specific building, area, or feature. The Measure Tool can be used in conjunction with every image in the Historic Aerials collection, so you can accurately measure distances, features, and buildings in the past or present, even if they no longer exist.

The Measure Tool also pinpoints reliable latitude and longitude coordinates for features both past and present. With this tool you can deliver findings and sample sites in your assessments with industry-leading precision.

Measure Tool

REPORT THIS!

In addition to finding and analyzing the right imagery, it's also important to mark and annotate your images for a fully executed, professional presentation. Typically, this means finding images, downloading them, then putting them into some other application, or even printing and marking them by hand (ugh), and going through the whole process of re-uploading, reconfiguring, or just plain wrestling with a clunky, inefficient process to create reports.

That's why more and more environmental consultants are turning to new, technologically advanced resources, like Historic Aerials. There's no doubt that when it comes to formatting and marking up aerial imagery for professional ESAs, nothing makes it simpler than the Historic Aerials PDF Builder!
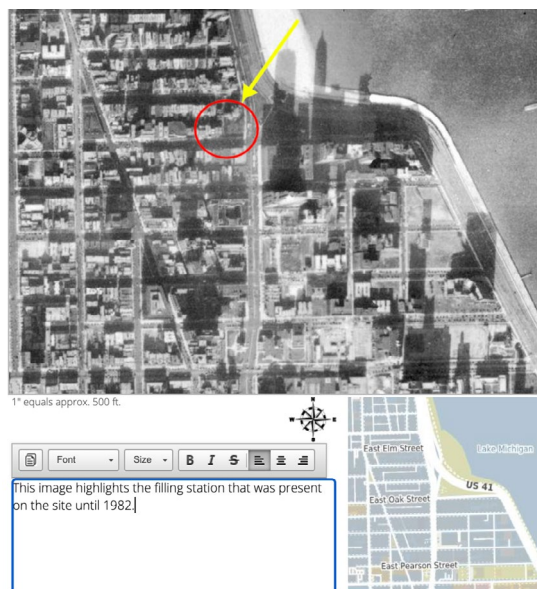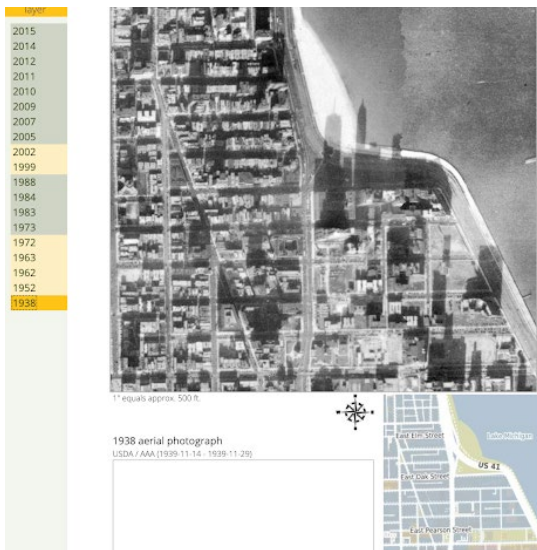
QUICK PDF BUILDER
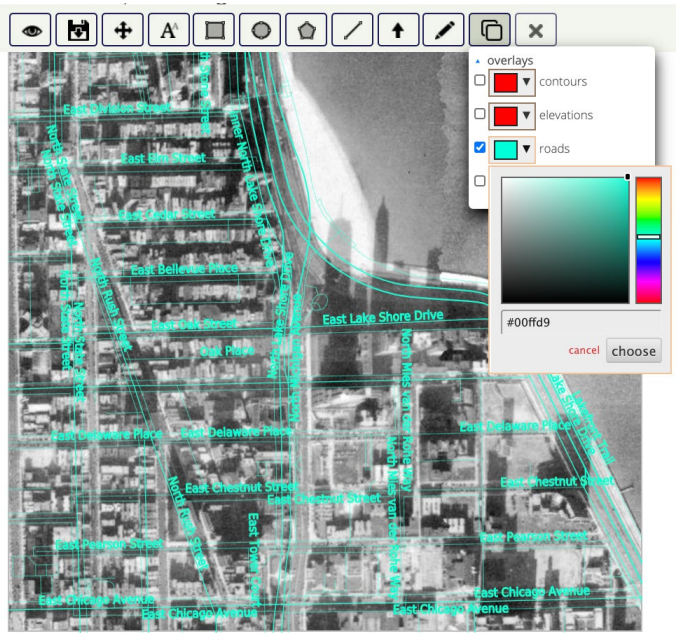
When it comes to saving time and energy on your reports, the Historic Aerials PDF Builder can be a game changer. This incredible time-saver provides a simple in-viewer way to easily annotate the images you find with text, shapes, arrows, and complete authenticated overlays, all without having to print out, transfer files, or even change screens. Use of all the Historic Aerials comparison tools, overlays, and orthorectified imagery, is contained within one easy-to-use, single viewer window. Once imagery is chosen, it can be annotated simply by accessing all the tools right there in the viewer, then exported as a final report-ready product.

2015
2014
2012
2011
2010
2009
2007
2005
2002
1999
1988
1984
1983
1973
1972
1963
1962
1952
1938

1" equals approx. 500 ft.

1938 aerial photograph
USDA / AAA (1939-11-14 - 1939-11-29)

East Elm Street
Lake Michigan
East Oak Street
US 41
East Pearson Street

1" equals approx. 500 ft.

Font   Size   B *I* S

This image highlights the filling station that was present on the site until 1982.

East Elm Street
Lake Michigan
East Oak Street
US 41
East Pearson Street

    Report PDFs are formatted automatically with a professional template showing the ortho and atlas view of a location alongside a box for customized text. Users can easily include or remove the label year from the photo and optionally include the automatic source citation and date range of the images included.

    All topographic maps in the Historic Aerials collection are seamlessly mosaiced so there's no issue if an area of investigation crosses the boundaries between multiple maps. The names of each map selected auto-populate, saving you time by citing the sources for you.

If you need to highlight how a feature has changed over time or showcase data from multiple years, the PDF builder allows you to add additional orthos and maps from every year available in the extensive collection, without having to hunt down and save each image separately. Simply click on the first image in your set and all of the available years will populate. All of your annotations, measurements, and notes will replicate onto any additional images you choose to add to your pdf report, so you only have to do the work once. The Historic Aerials PDF Builder is truly an amazing tool!
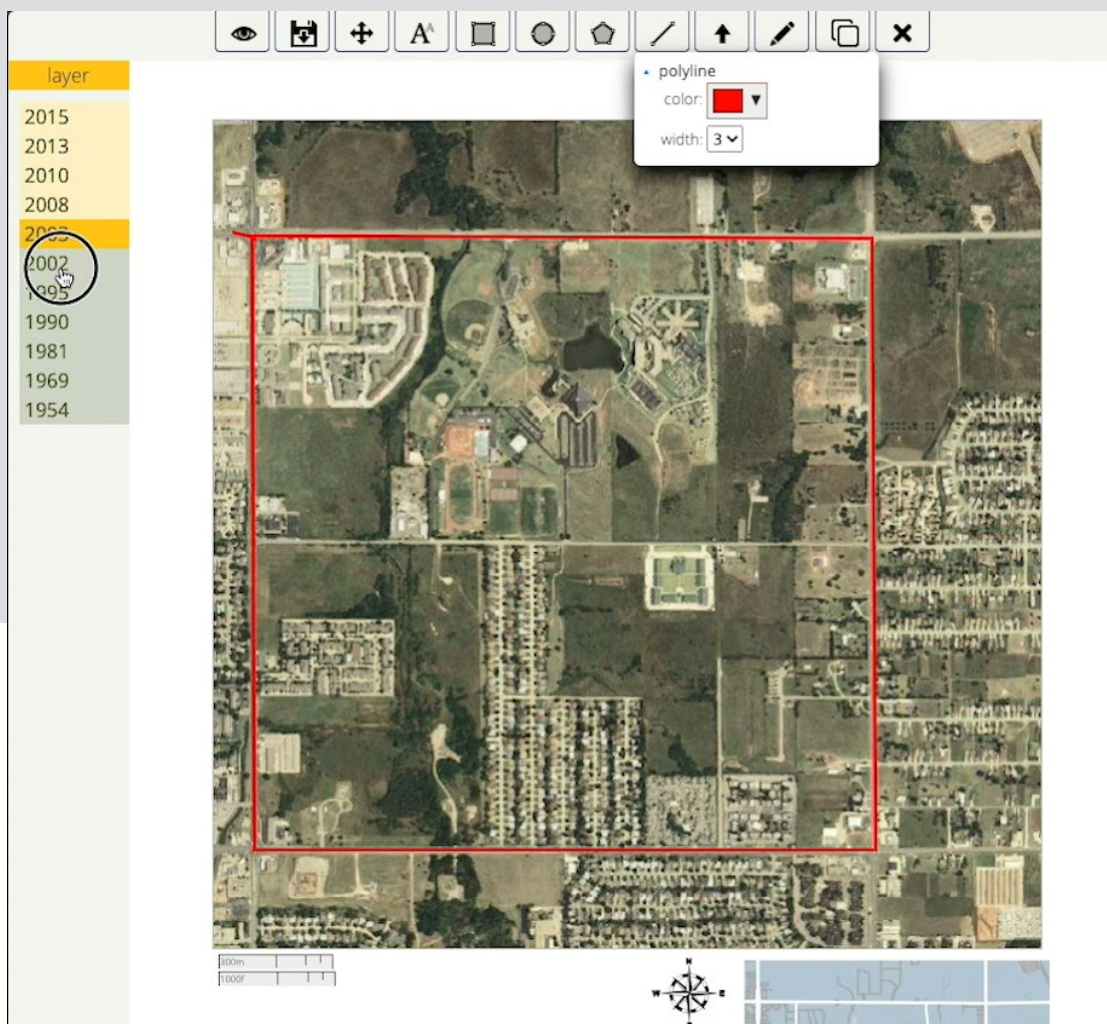
Using the highest quality imagery, having access to industry-leading comparison tools, and using the intuitive PDF Builder at HistoricAerials.com can all be huge time and money-savers for any environmental consultant or firm. Historic Aerials' ultra-low-cost subscriptions eliminate the need for additional GIS software and can save you thousands of dollars over other aerial image resources. Head to historicaerials.com today to check out their awesome image viewer and all these great tools for yourself! This site makes it extremely easy to save time and money, and deliver superior, professional work for Phase 1 ESAs.