

Georeferencing

AMST 3559/559

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What is Georeferencing?

Assigning spatial location to a dataset.

Datasets can be...

- Historic Maps

- Aerial Photographs

- Construction Drawings

- Architectural Plans

- ...



Image © 2010 Commonwealth of Virginia

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934 ft

38° 1' 218" N 78° 30' 500" W elev. 435 ft

Eye alt 4114 ft

Imagery Date: Feb 1, 2006



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COMMONWEALTH
MALCOLM EXHIBIT

934 ft

Imagery Date: Feb 1, 2006

38° 1' 218" N 78° 30' 500" W elev. 435 ft

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Eye alt 4114 ft



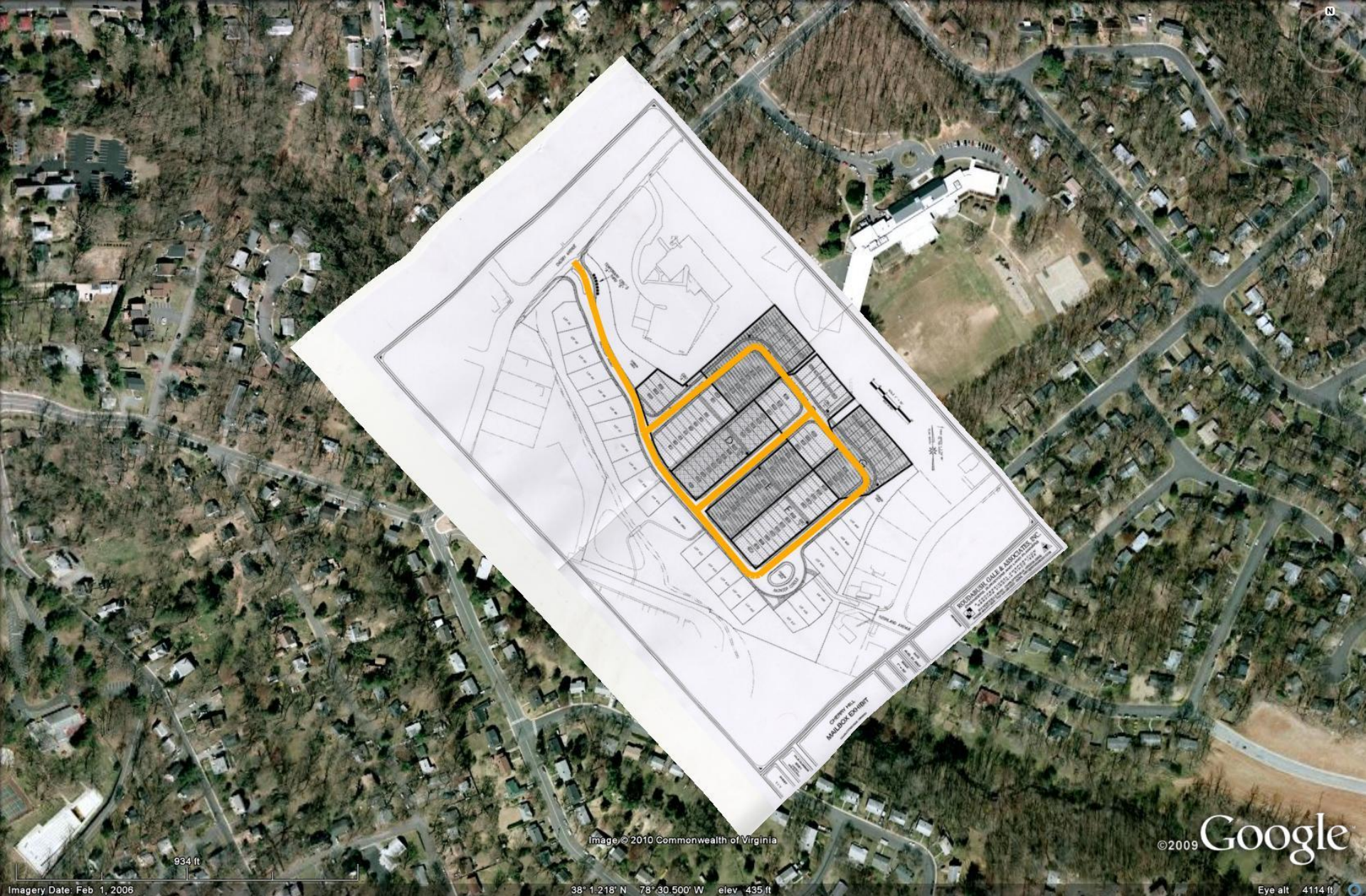


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COMMONWEALTH
MALDEN CENTER

934 ft

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38° 1' 21.8" N 78° 30' 50.0" W elev. 435 ft

Eye alt 4114 ft

Imagery Date: Feb 1, 2006



Image © 2010 Commonwealth of Virginia

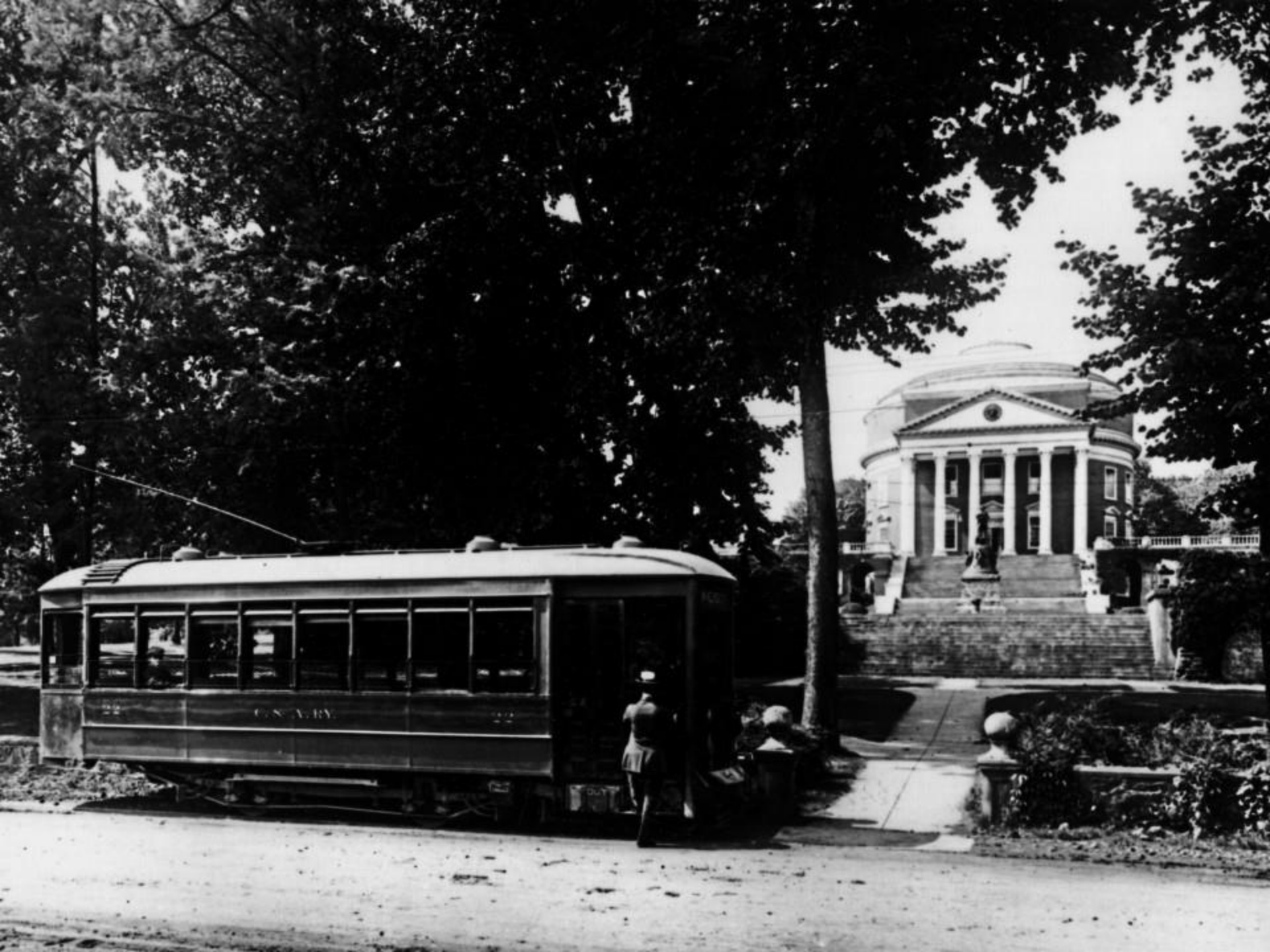
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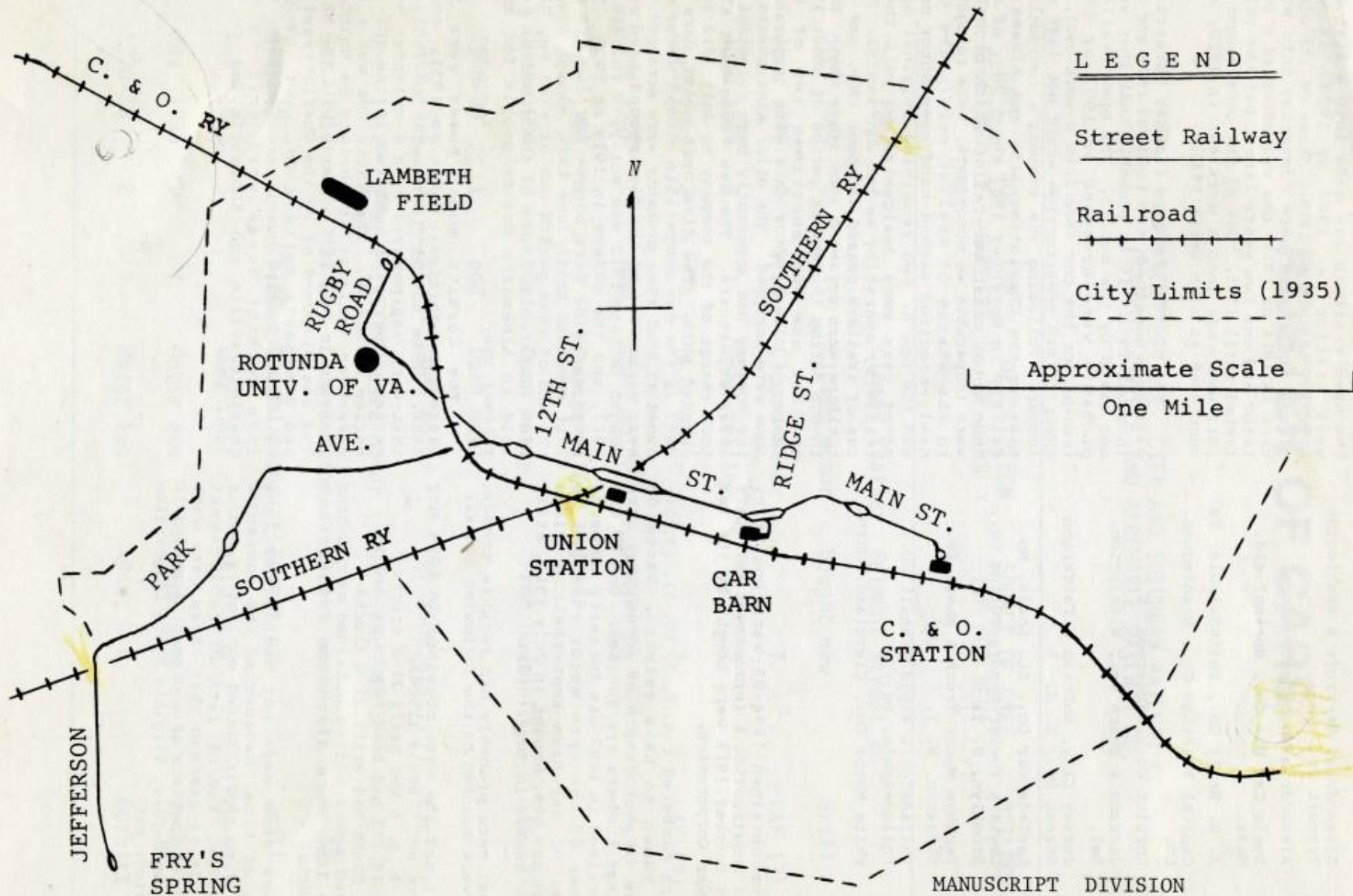
934 ft

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Imagery Date: Feb 1, 2006





LEGEND

Street Railway

Railroad

City Limits (1935)

Approximate Scale

One Mile

STREET RAILWAYS - 1920

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GAJ-1981



1468 Barracks

29

1482 1481

LEGEND

Street Railway

Railroad

City Limits (1935)

Approximate Scale

One Mile

STREET RAILWAYS - 1920

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1981

64

53

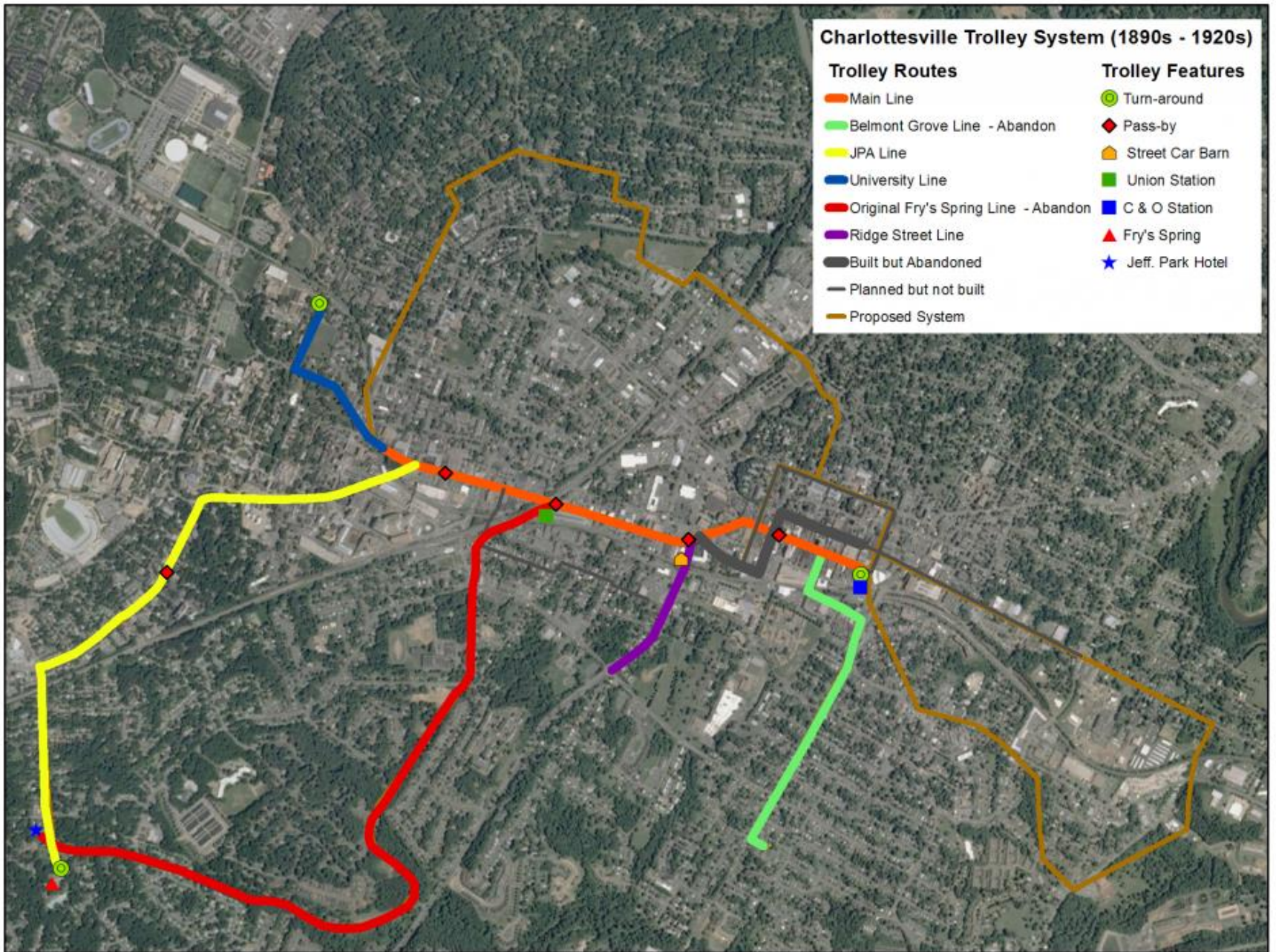
Charlottesville Trolley System (1890s - 1920s)

Trolley Routes

- Main Line
- Belmont Grove Line - Abandon
- JPA Line
- University Line
- Original Fry's Spring Line - Abandon
- Ridge Street Line
- Built but Abandoned
- Planned but not built
- Proposed System

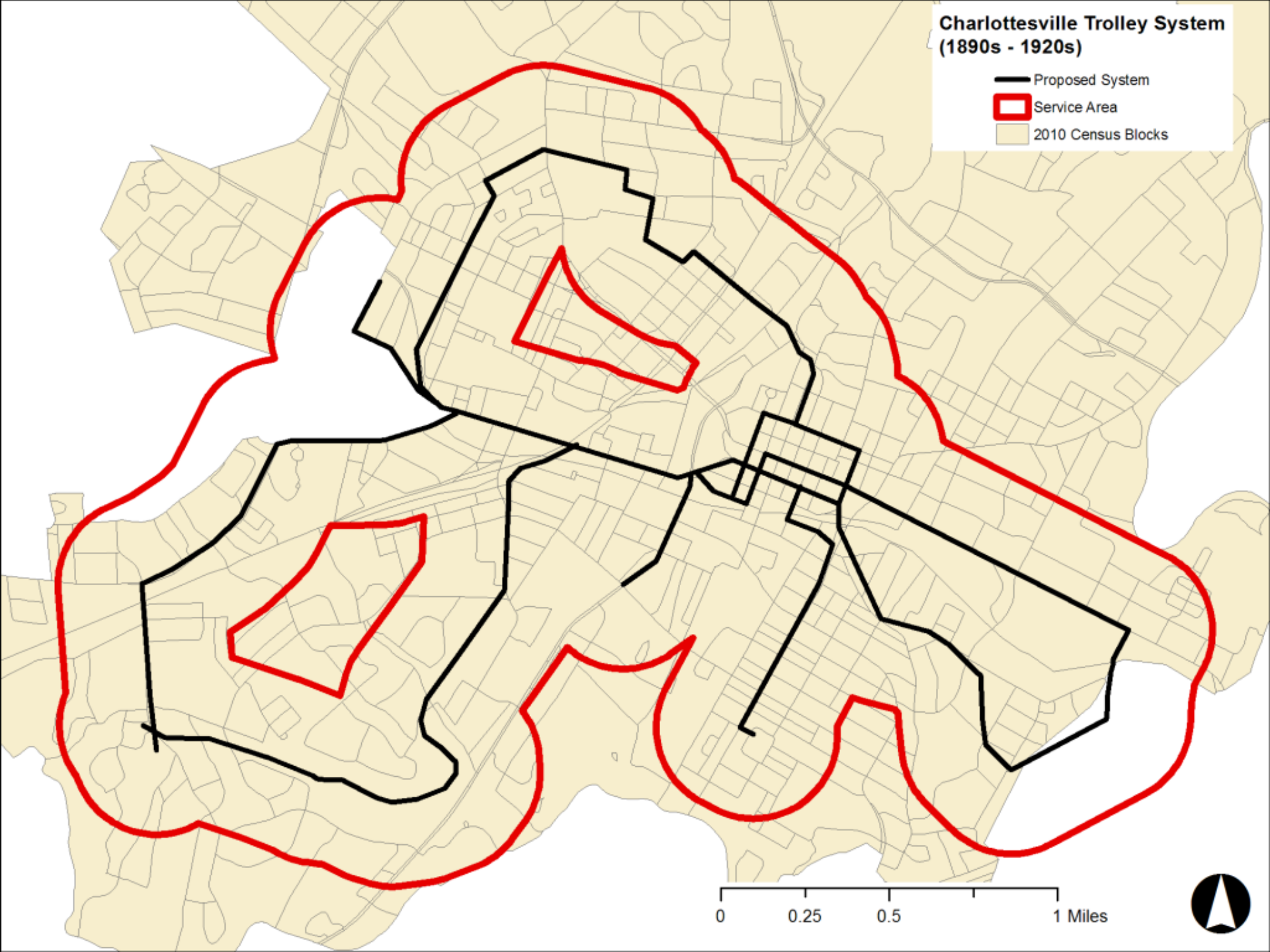
Trolley Features

- Turn-around
- Pass-by
- Street Car Barn
- Union Station
- C & O Station
- Fry's Spring
- Jeff. Park Hotel



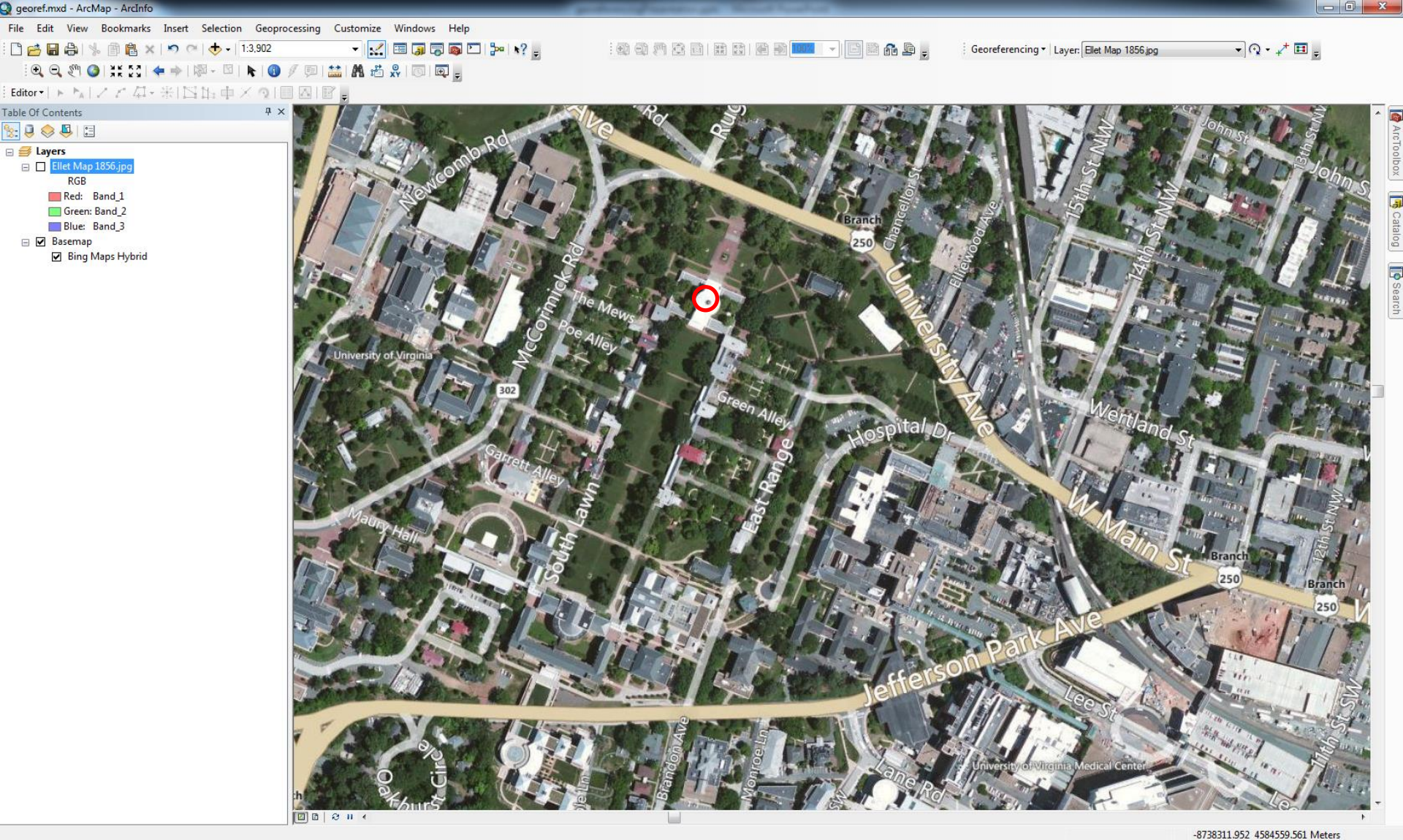
**Charlottesville Trolley System
(1890s - 1920s)**

- Proposed System
- ▭ Service Area
- 2010 Census Blocks



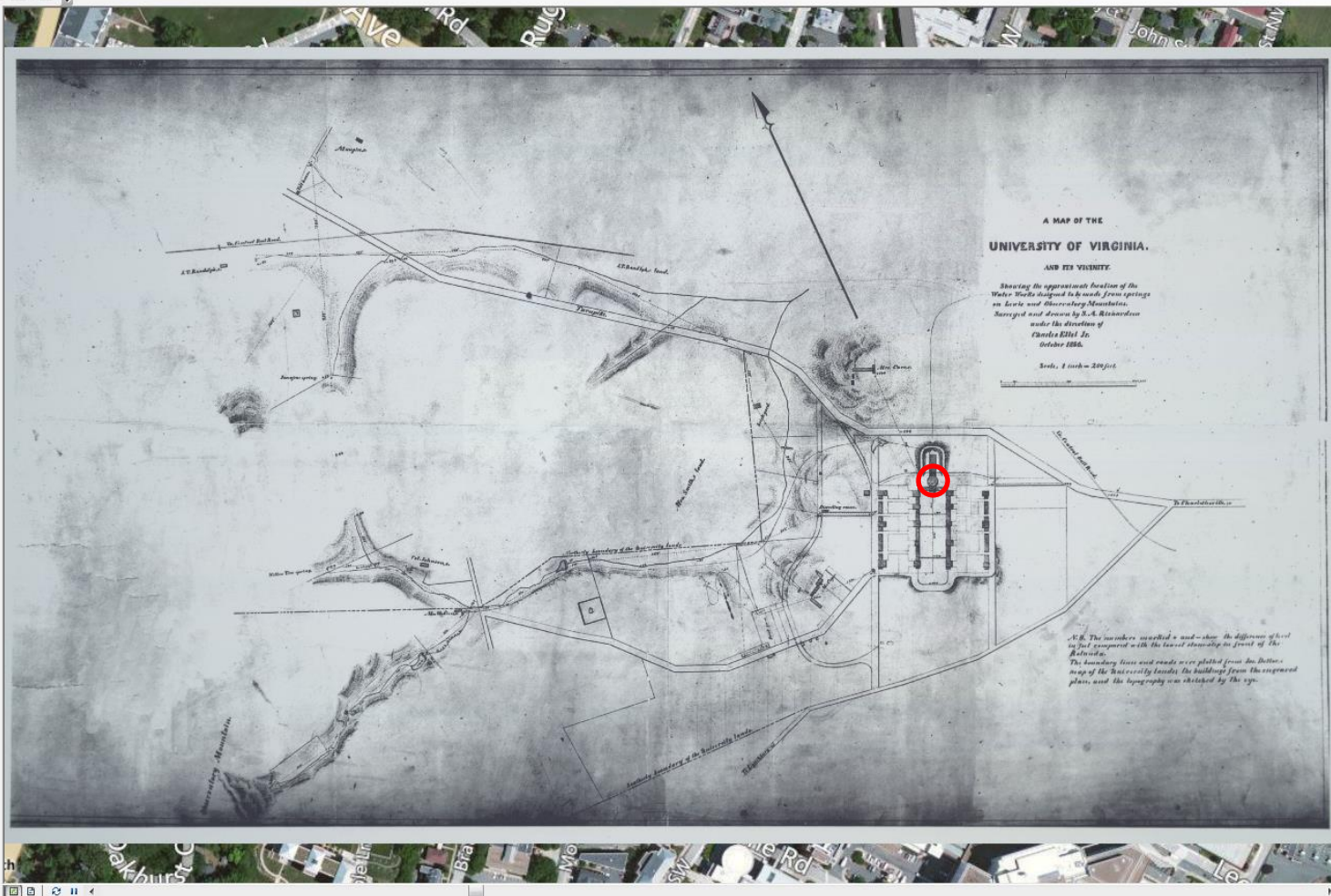
ArcMap Georeferencing Steps

1. Add the basemap
2. Add the raster dataset to be georeferenced
3. Add control points
4. Transform the raster dataset
5. Save (create georeferencing world files)
6. Rectify to create a new raster dataset (optional)

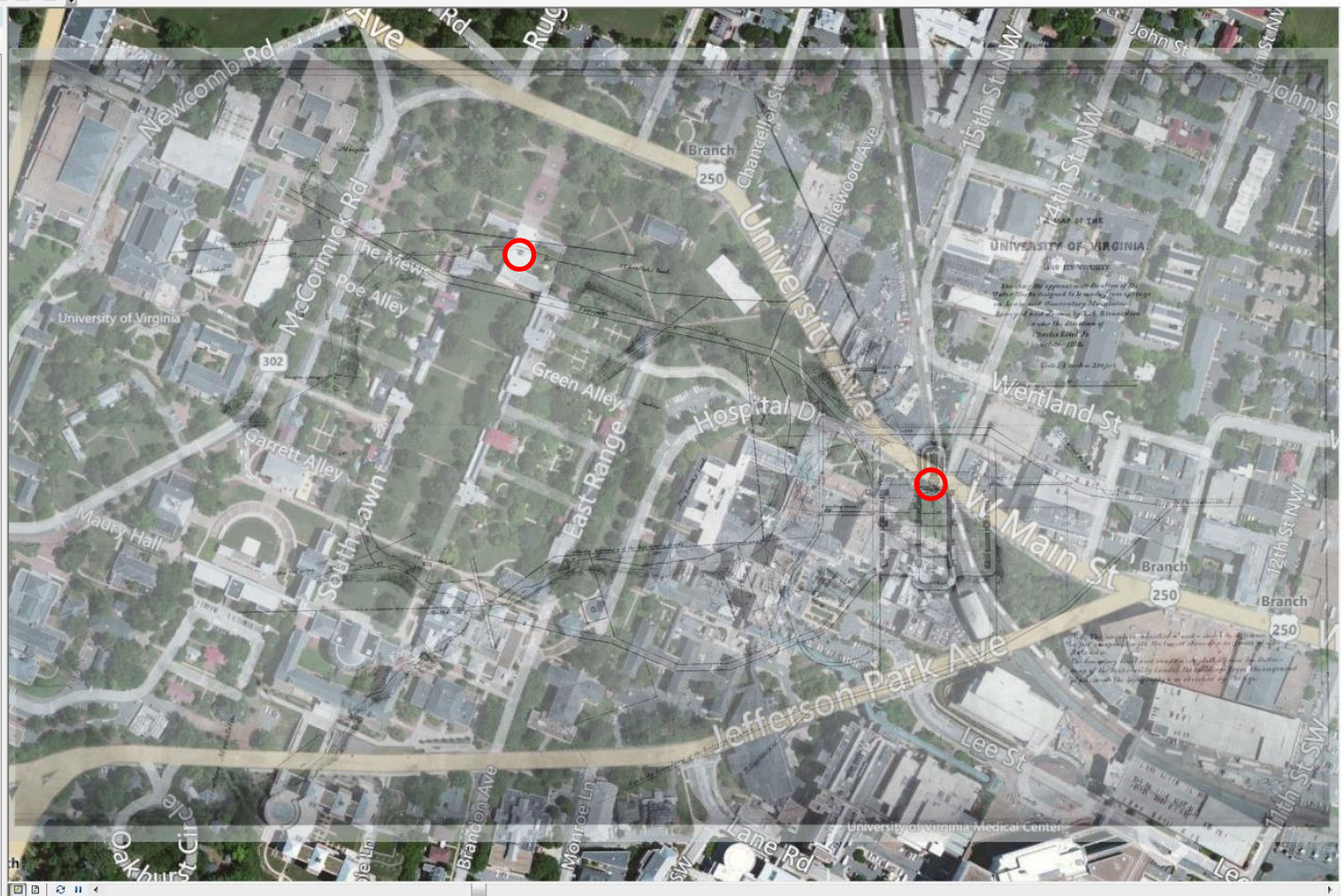


Layers

- ☒ Ellet Map 1856.jpg
 - RGB
 - ☐ Red: Band_1
 - ☐ Green: Band_2
 - ☐ Blue: Band_3
- ☒ Basemap
 - ☒ Bing Maps Hybrid

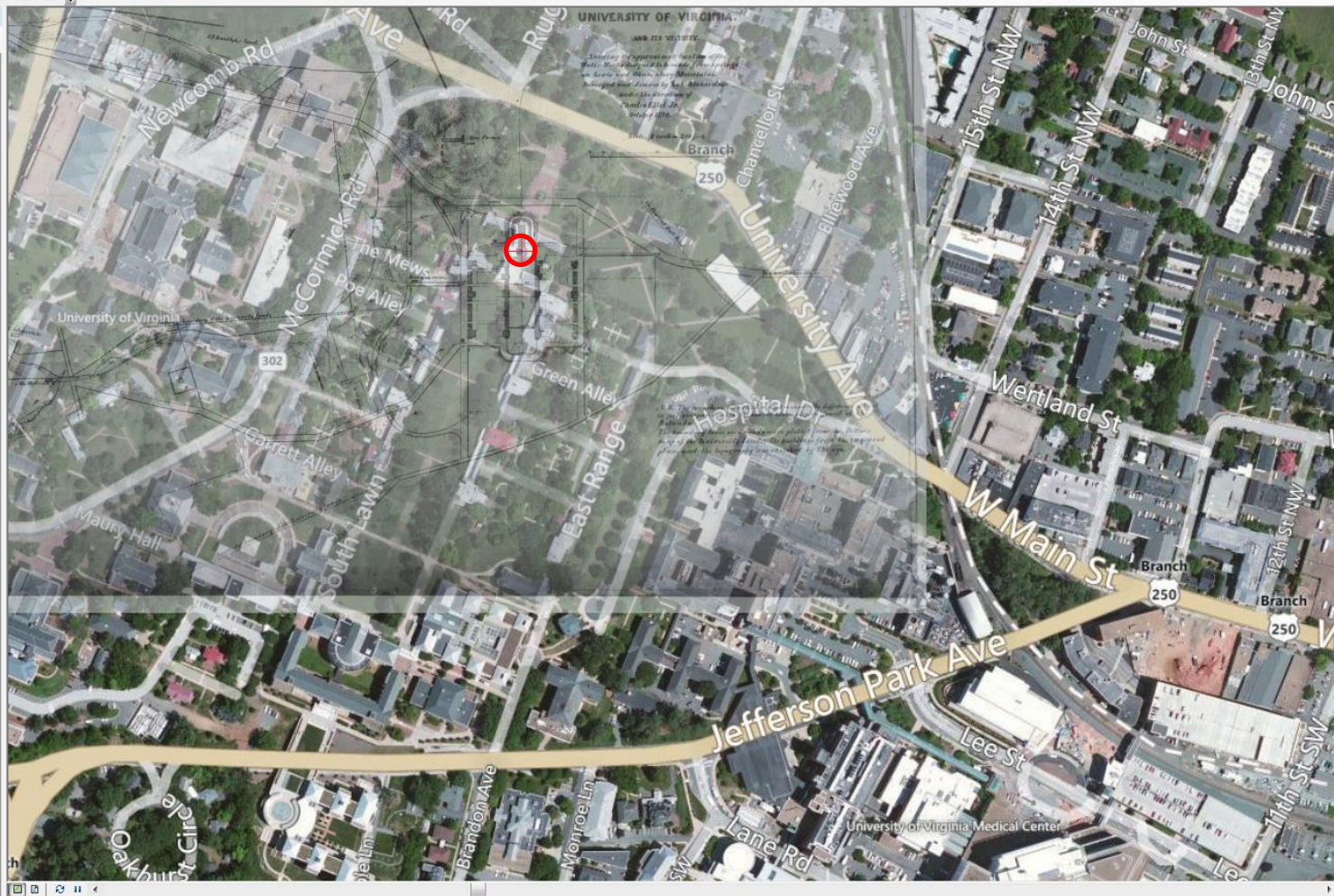


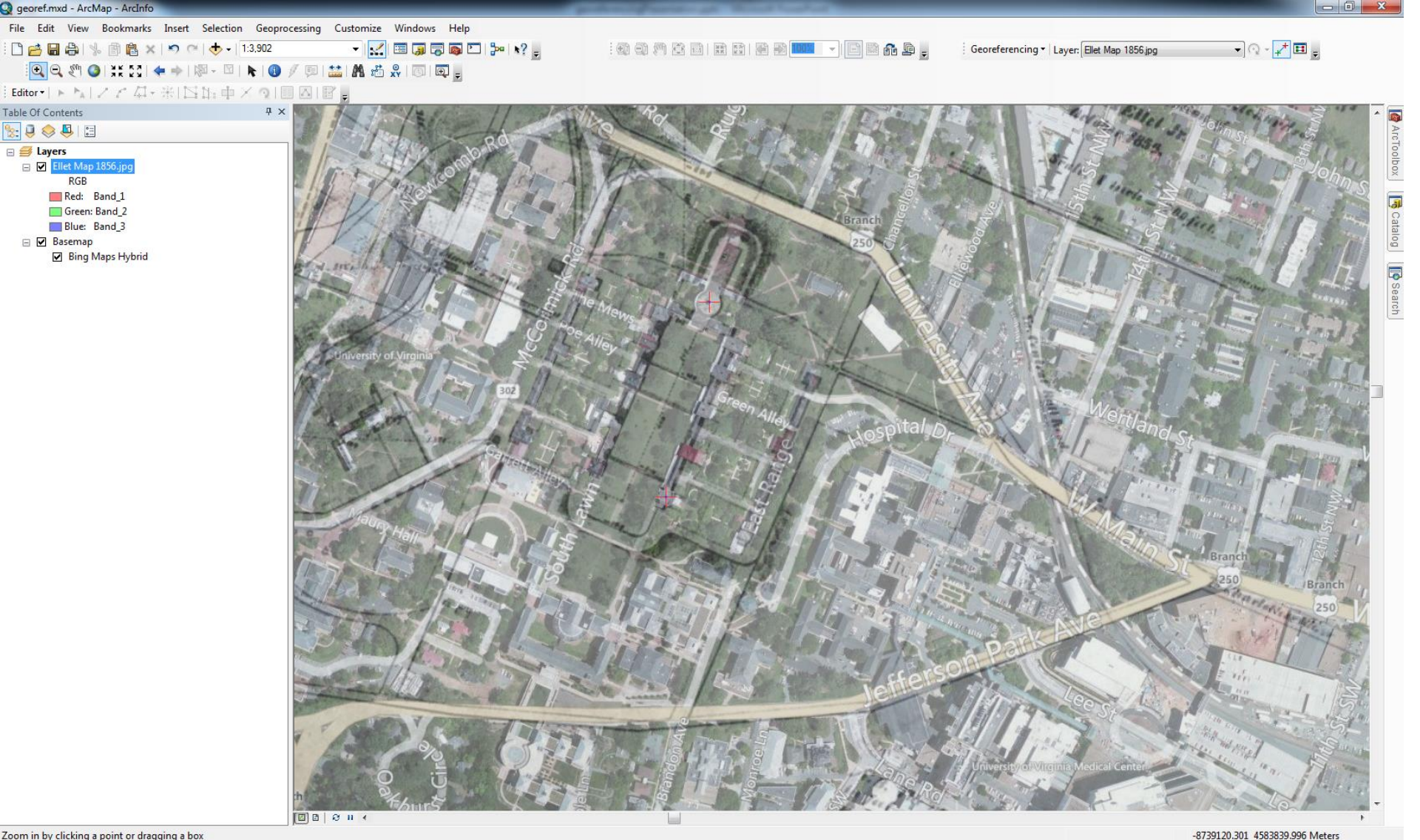
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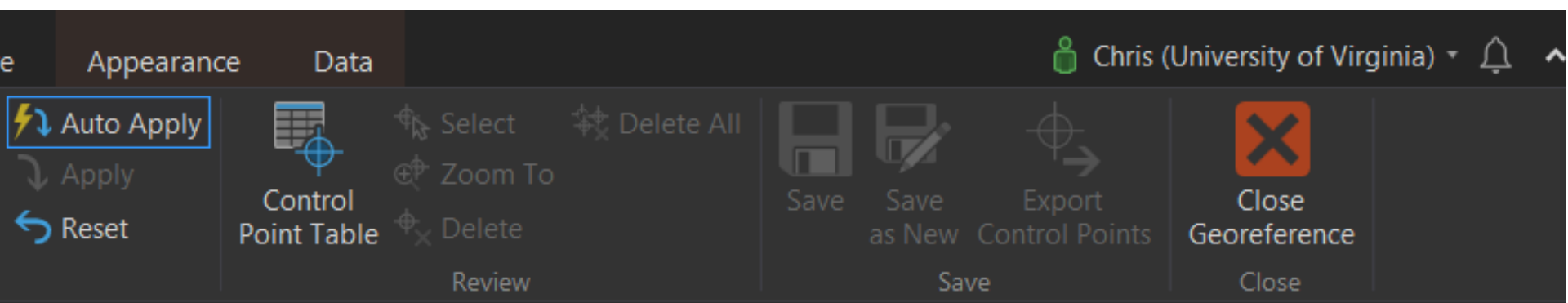
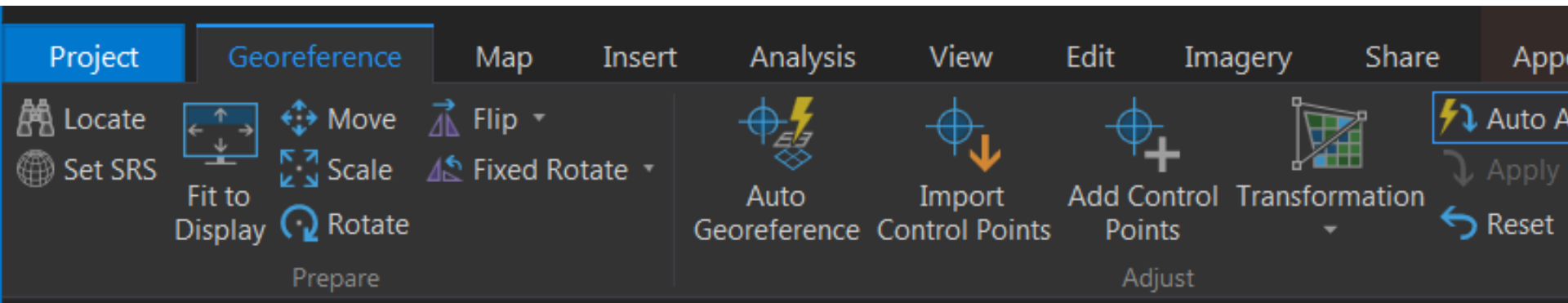
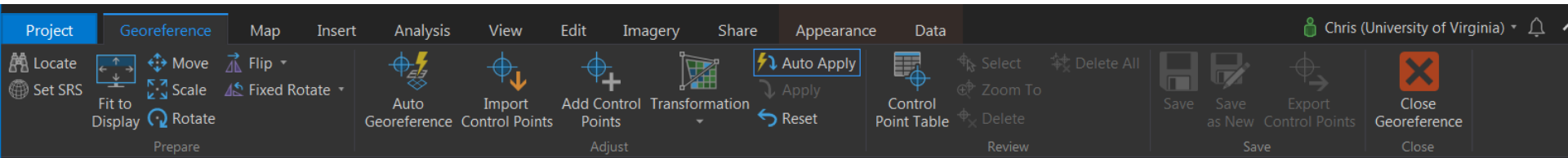




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ArcMap Georeferencing Toolbar



Transformation Types



Layer to be
georeferenced



1st Order / Affine
3 control points

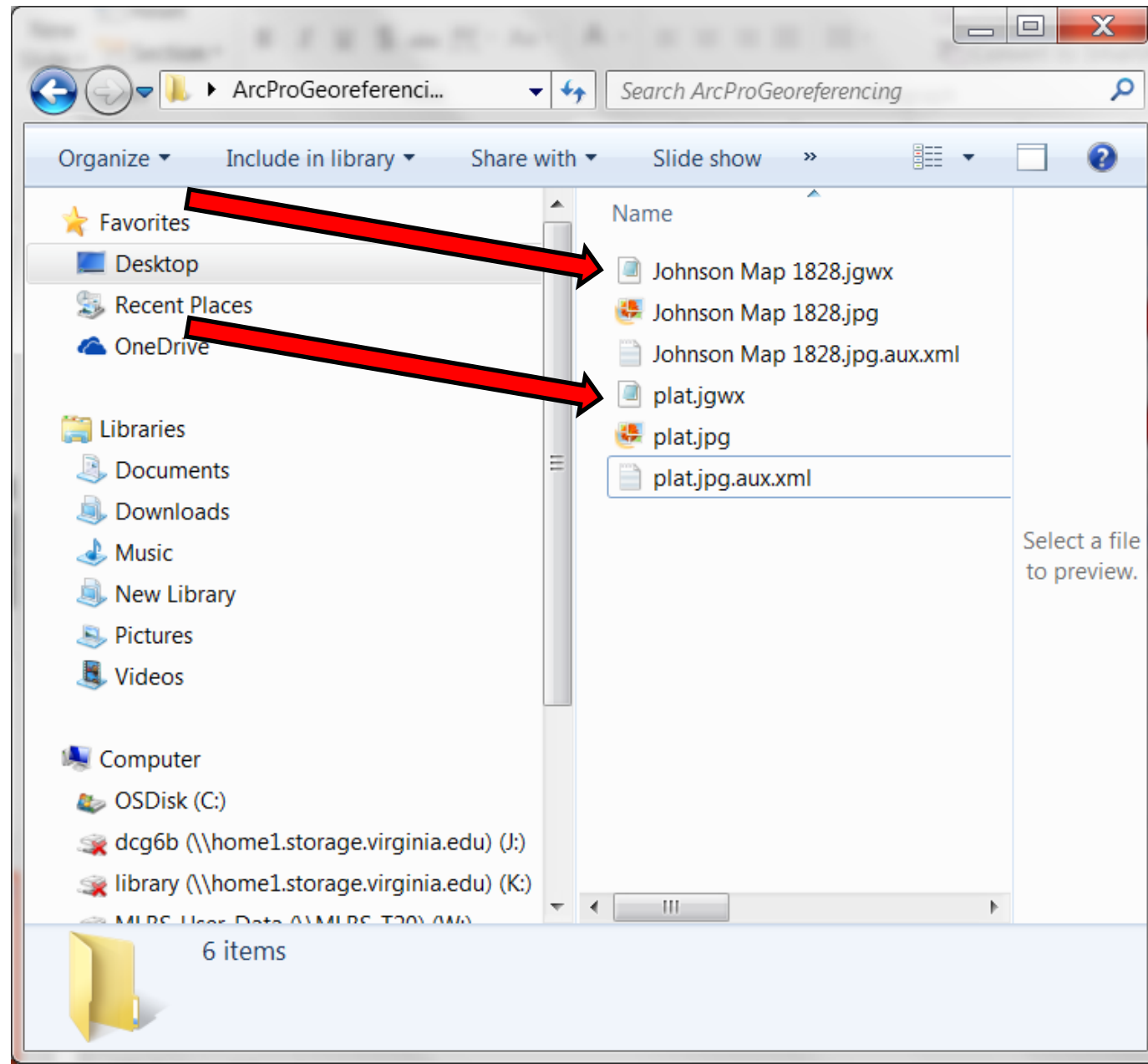


2nd Order
6 control points



3rd Order
10 control points

World File



UVa Georeferenced Layers

- Albemarle Aerials

<https://geoportal.lib.virginia.edu/UVAImageDiscovery/>

- Charlottesville Sanborn Maps

<https://geoportal.lib.virginia.edu/UVASanbornDiscovery/>

Today's Maps

