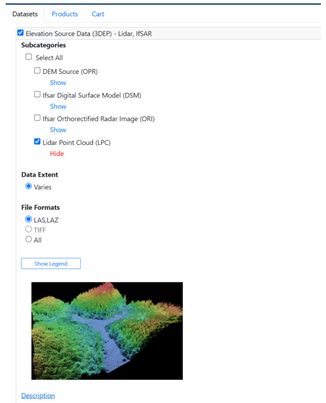
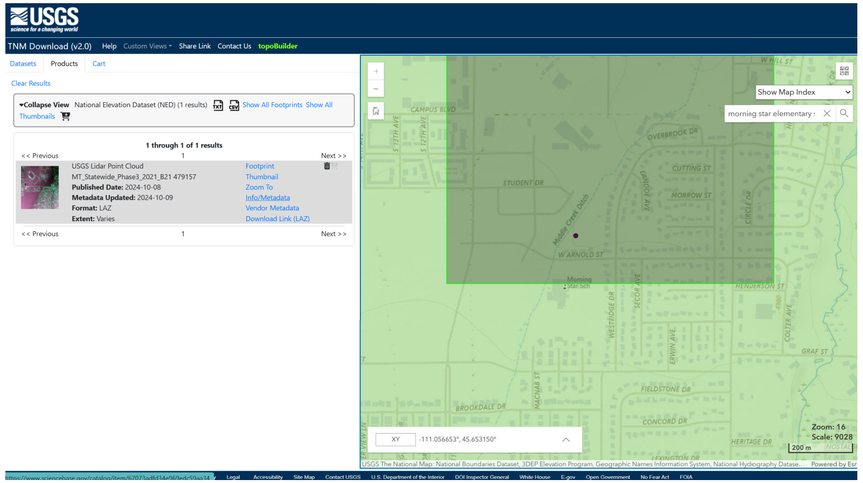
Site Data & Modeling

Data Sources

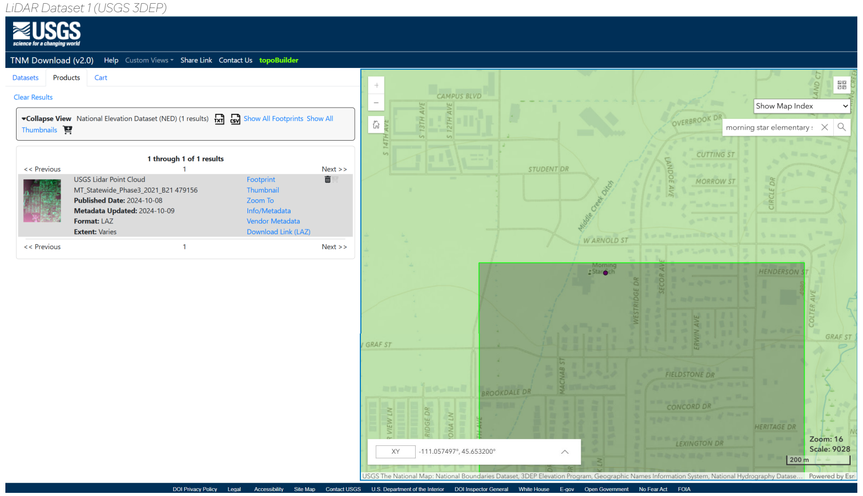


Datatypes included in search from USGS Data Map Tool

I was able to find LiDAR scan data from a project run by the United States Geological Survey that promotes free access to geodata. However, my site (Morning Star Elementary School in Bozeman, Montana) is on the border between two survey areas, so I had to use both datasets to get the complete site. At first this seemed to be fine, but as shown in my screenshot from rhino, it may have caused alignment issues that I will need to address eventually.



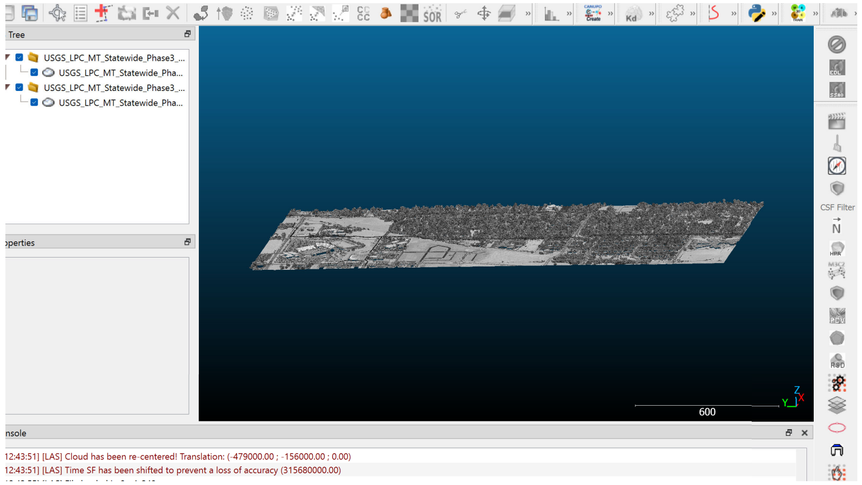
LiDAR Dataset 1 (USGS 3DEP)



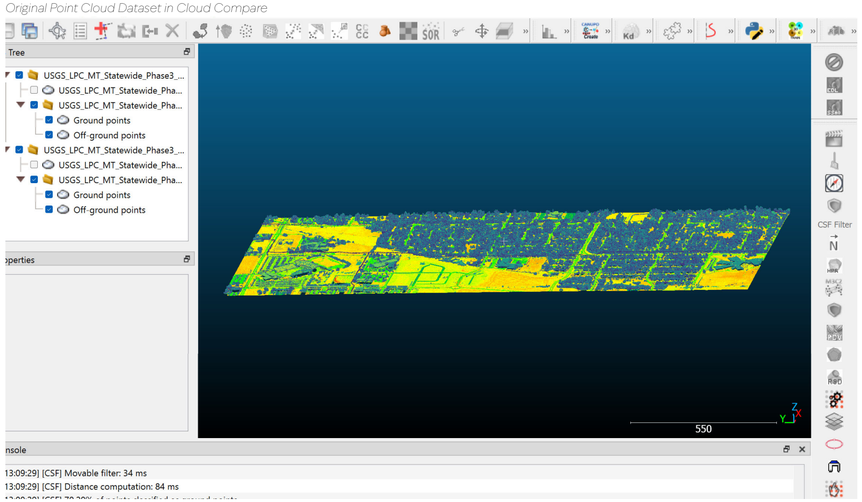
LiDAR Dataset 2 (USGS 3DEP)

Data Processing

After downloading both point clouds, I used Cloud Compare to see the quality of the data and classify it if need be. When I brought both datasets in, they seemed to align automatically, but the separation seemed to cause issues after I created meshes from the point clouds in Cloud Compare. Before making the meshes, I separated each point cloud into ground and off-ground points using the CSF filter plugin.



Original Point Cloud Dataset in Cloud Compare

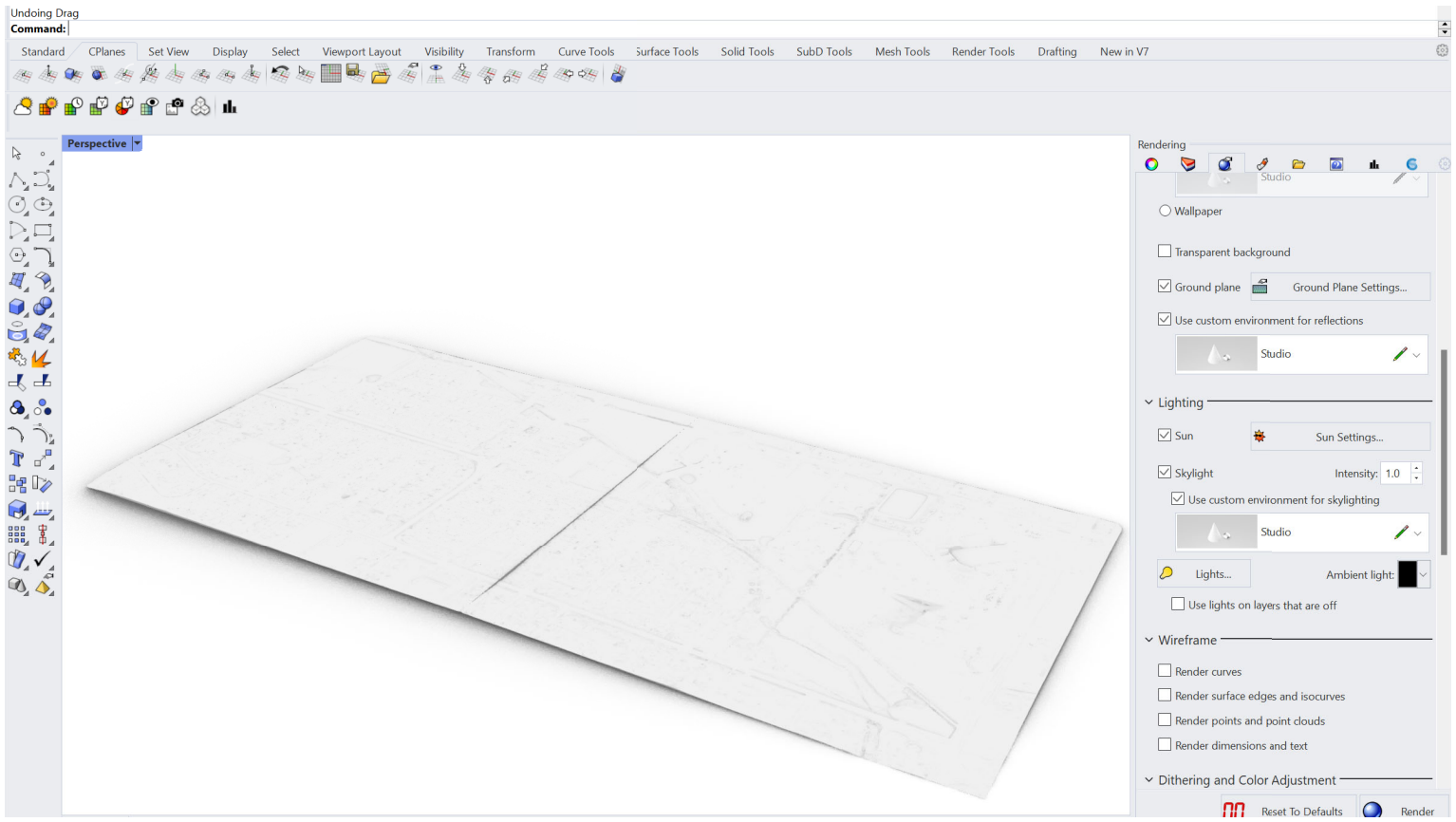


Classified Point Cloud Dataset in Cloud Compare

Site Data & Modeling

Rhino Site Model

Finally, I exported the meshes from Cloud Compare as obj. files, which I was then able to import into Rhino. However, after putting both meshes in the same Rhino file, the alignment was obviously off.



Initial Rhino Mesh Created from both Point Cloud Datasets- Ground Points Only