## 2. Making New Shape Files from Existing Shape Files

I spent a fair amount of time trying to figure out which two datasets to use for this exercise. I finally decided to go with Hydrology and Farmlot, since you can easily tell their features apart. I also believed the two sets of data were relevant to each other.

Subcategorization of Hydrology- the original data showed the major waterways in Delaware. I wanted to narrow down the area of the data to just central/ downtown Delaware (not exactly sure what to call it). Once I adjusted the area and perimeter sliders, my data went from 24 waterways to three: Scioto River, Olentangy River, and Delaware Reservoir. After adjusting this data to only what was relevant to me, I saved the updated info as a shapefile.

Subcategorization of Farmlot- Similar to Hydrology, I wanted to narrow down my range from all of Delaware county to just farmlots in downtown Delaware. This dataset was separated by township, so I was easily able to select only the Delaware township. Same as the process for hydrology, I saved the updated data as a shapefile.

I opened the new shapefiles in ArcGIS, and adjusted the symbology to look nicer. My question for this exercise was to see which farmlots had direct access to a waterway, and what that waterway was. The farmlots had ID numbers which was not really helpful (telling people that Farmlot ID 28 connects to a waterway doesn't mean anything) so I figured the information derived from this exercise would be from the map itself. I highlighted the 30 farmlots that were directly bordering Olentangy River. Since farmlots are mainly utilized for agricultural purposes, knowing where they are located in relation to major waterways would be a benefit when it comes to events such as flooding and potential consequences of runoff.
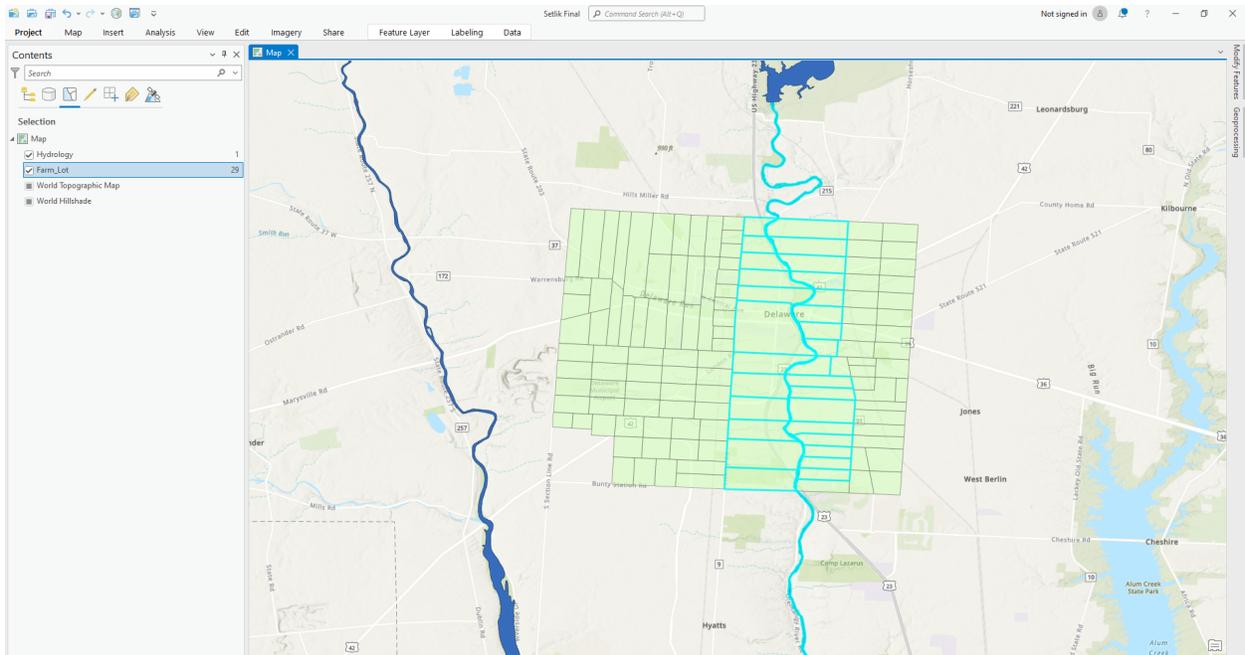
5. Mapping Change

I had a little bit of trouble at first figuring out how to go about this exercise. To be honest, the way the dates were formatted threw me off. I started by changing the symbology of the subdivision layer to REC_DATE. I then selected a nice teal (?) gradient using natural breaks. I then created five copies of this subdivision layer, each of which would serve to show the increase in subdivisions over time. I then definition queried each layer by putting the REC_date as less than or equal to >date<. I also decided to go back and completely isolate each layer by its designated time frame, so you could hypothetically look at the subdivisions added within each time frame by itself, or as a cohesive whole. To do this I just added another definition, this time with REC_DATE greater or equal to >date<. This way each layer only corresponded to the gradient within its time frame. The images I included show the progression of subdivision growth over ~130 years. The lightest shaded areas represent the subdivisions established before

1895, and the darkest areas represent the subdivisions established between 2008 and 2022 (most recent). I also included what the map looks like with only one layer selected- only subdivisions established between 1990 and 2008 are visible. This type of map is good for visualizing growth over a certain amount of years, and the gradient allows you to distinguish which properties were established at what point in time. It was interesting to see how subdivisions started in the middle of Delaware, and over the years moved more towards southern parts of Delaware County.