

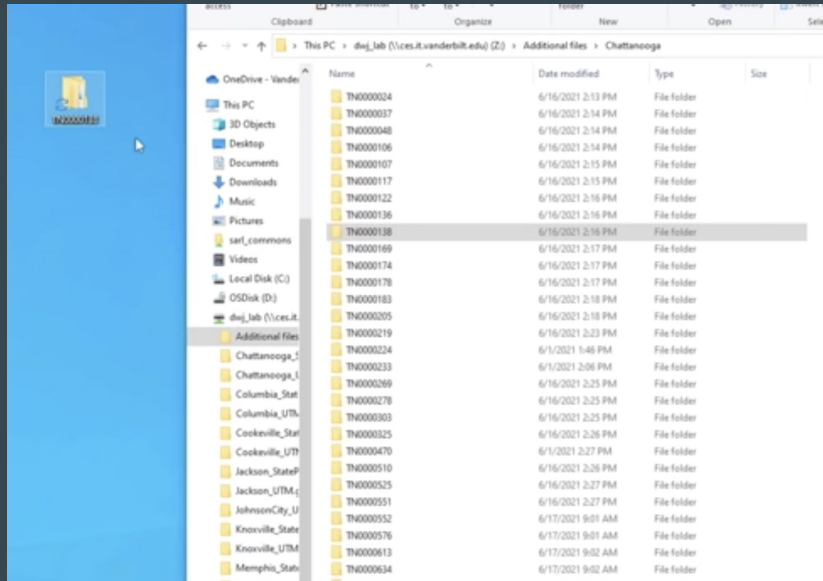
Creating ESABs in ArcMap



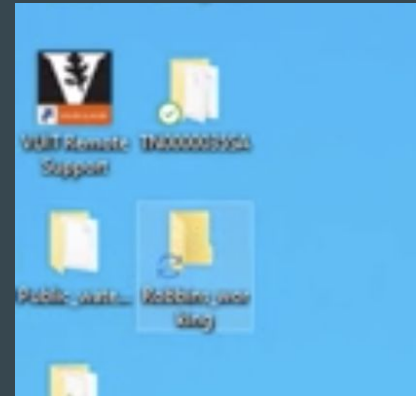
DWJ LAB

Creating a Working Folder

- Locate the desired PWSID file on the dwj_lab server & **copy** this PWSID folder onto your Desktop



- Create a new folder on the Desktop with the following label: “LastName_working”
example: Kim_working
- Copy the contents of the PWSID folder into this new folder



Connecting to Server

Server: smb://ces.it.vanderbilt.edu/dwj_lab/

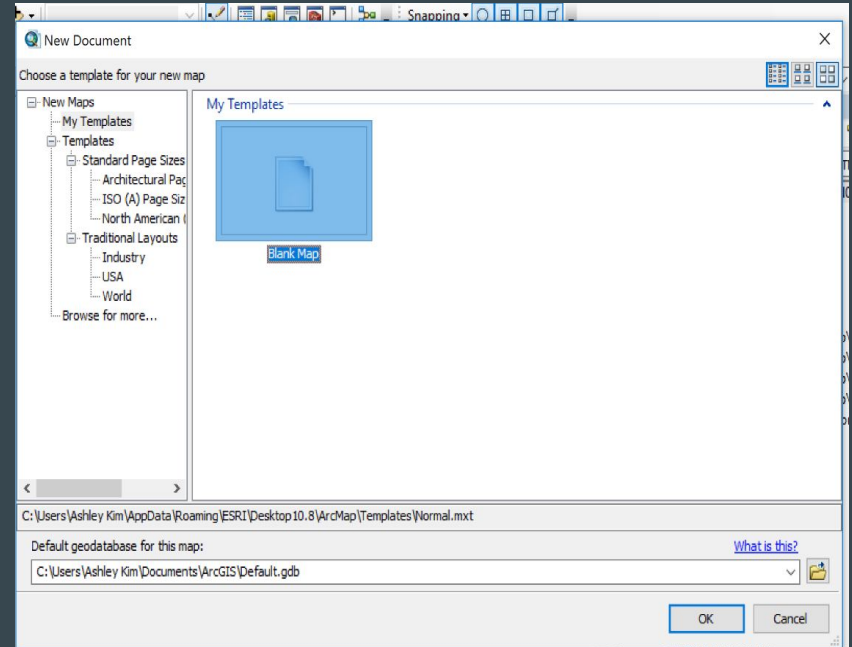
- Open Pulse Secure
- 1st password: your vunetid password
- 2nd password: push (and then will direct to duomobile)

File path:

Geospatial Water Sanitation → WaterDatabase_United_States →
Tennessee → QA_Restructure → Public_water_systems → Field office

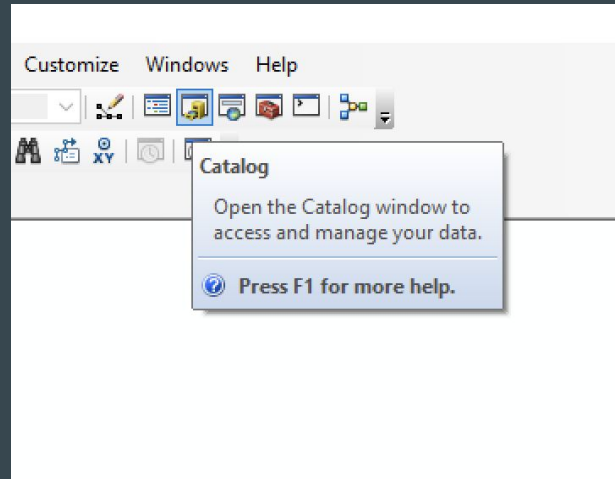
Creating your ArcMap Project

- Create a separate working project for every single PWSID you digitize with the Blank Map template
 - Naming: TN(PWSID#)_working
- Save your new project into the folder of your PWSID on your desktop



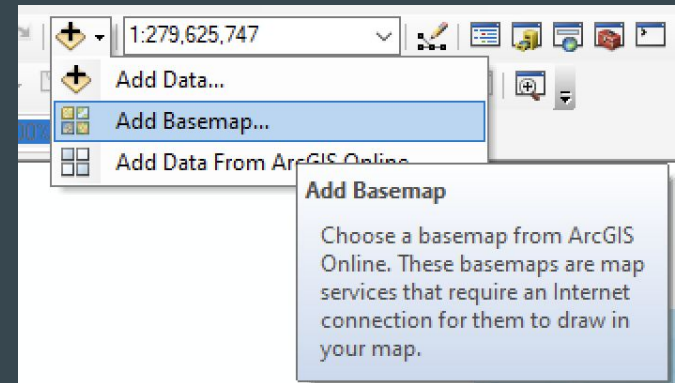
Creating a Personal Folder Connection

- Now, we are going to open our map and if this your first time digitizing for the DWJ Lab, go to “Catalog” → “Connect Folder” → locate the newly created “LastName_working” folder from your Desktop



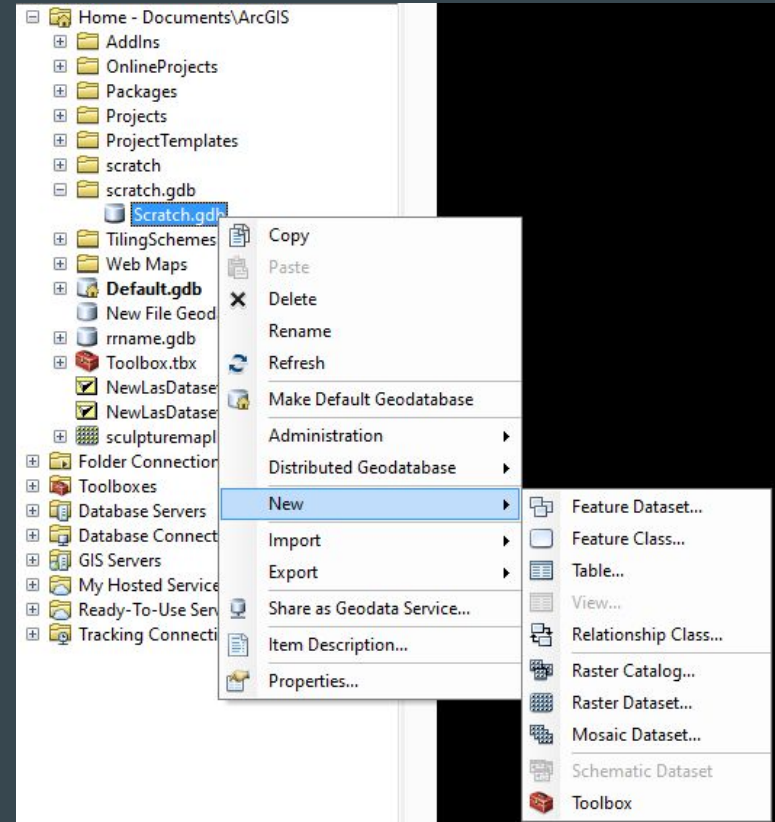
Add a Basemap

- Use the “Add Data” Icon, which prompts a pop-up box and select “Add Basemap” → select “OpenStreetMap (OSM)” (for georeferencing WLs and associated characteristics)
- Selecting this basemap, might prompt a “Geographic Coordinate Systems Warning”. Ensure the raster is WGS 1984 (EPSG 4326)
- If it is not in WGS 1984, fix the misaligning GCS by clicking “Transformation”, which will prompt a new window, and convert into WGS 1984



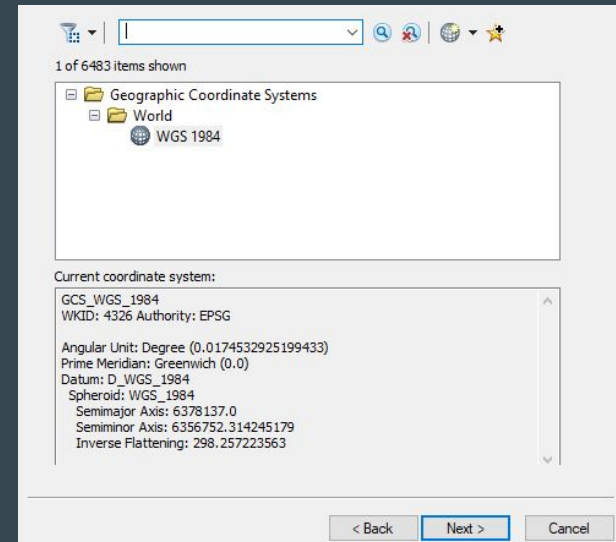
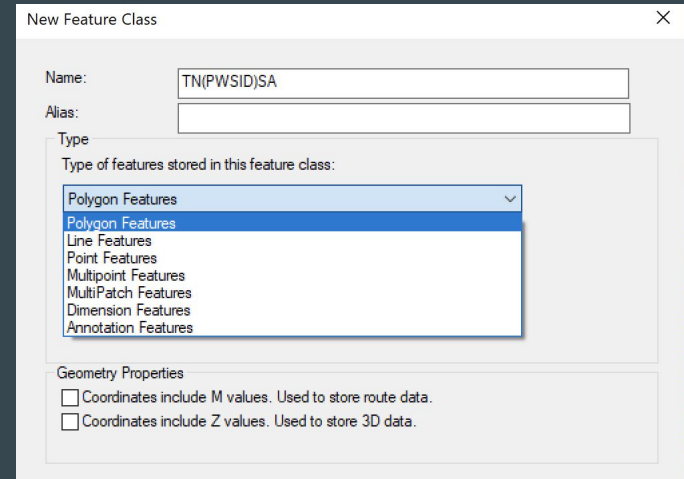
Creating a Feature Class

- Within the **working folder** connection you set up, navigate to the respective Field Office of the CWS→ Drag the georeferenced map (double check that the map is in WGS 1984)
- **IMPORTANT:** Make sure when creating a boundary for a map in WGS 1984 to save it in the “...”_Scratch.gdb of that respective Field Office
- Now... Create the digitization layers
 - In the Catalog Panel → Right click on the “...”_Scratch.gdb
 - Create new feature class



Creating a Feature Class Pt. 2

- Create a “New Feature Class”
- Select the “Polygon Features”
- Set the projection to WGS 1984
- Then, continue through the next two “pages” with all the defaults selected



Attribute Data

- We want to record attribute data, so we are going to add attribute names and their respective data types (this is part of the “Create New Feature Class” process)

1. *Name: dateRec- Data Type: Date*
2. *Name: pwsid- Data Type: Text*
3. *Name: fieldOffice- Data Type: Text*
4. *Name: initials- Data Type: Text*

- Once you have entered the attributes, select

“Finish”

NOTE: It is extremely important that you copy the naming EXACTLY as shown, including the lowercase and uppercase of the words

New Feature Class

Field Name	Data Type
OBJECTID	Object ID
SHAPE	Geometry
New_Attribute	Text
	Short Integer
	Long Integer
	Float
	Double
	Text
	Date
	Blob
	Guid
	Raster

Click any field to see its properties.

Field Properties	
Alias	New_Attribute
Allow NULL values	Yes
Default Value	
Length	50

Import...

To add a new field, type the name into an empty row in the Field Name column, click in the Data Type column to choose the data type, then edit the Field Properties.

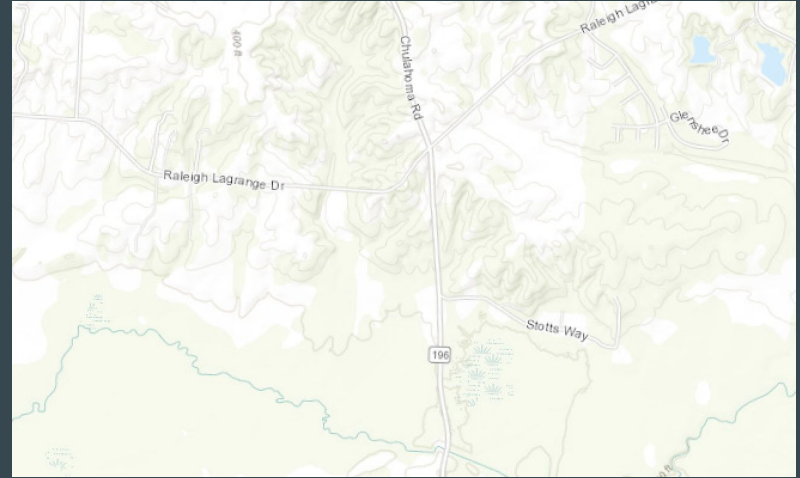
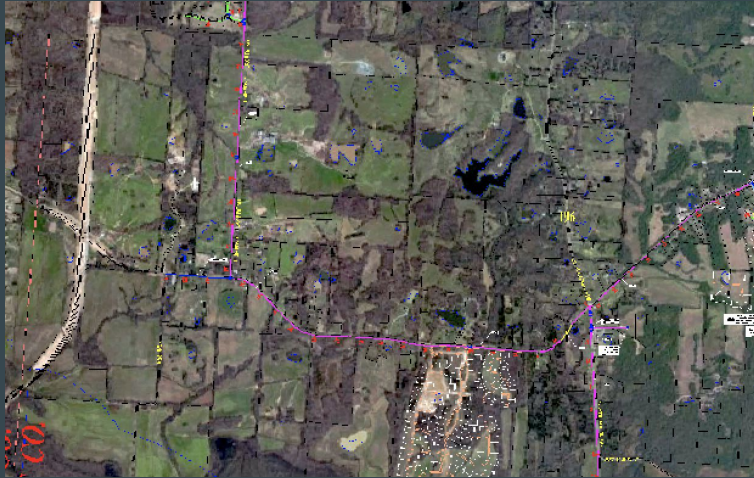
< Back Finish Cancel

Add the Map to Create your Boundary

- Use the “Add Data” Icon, which prompts a pop-up box and select “Add Data”, and locate the DWJ folder you connected previously
 - Within this folder connection, locate the georeferenced map you want to digitize (Field Office/PWSID/RawData)
 - Remember this map is now in a .shp file format
- Now the .tif file and the .shp file (the feature class you created) will both be in the “Table the Contents”
 - You will be editing the feature class

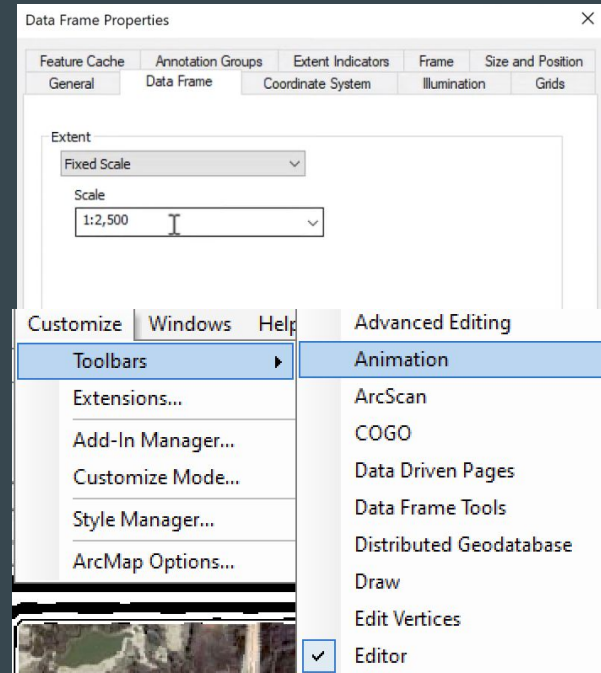
Start to Create the ESAB

- Go to the “Table of Contents” and right-click on the map, and select “Zoom to Layer”
- Ensure the map is geospatially in the correct place (ex. look below)



Process

- Right-click on “Layers” in the “Table of Contents”, and scroll down to “Properties”
- Go to “Customize” → “Tools” → Add “Editor” if not already added

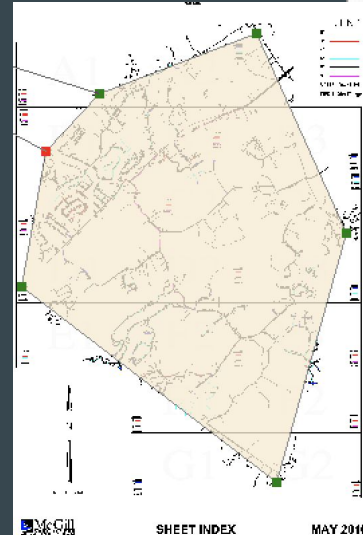
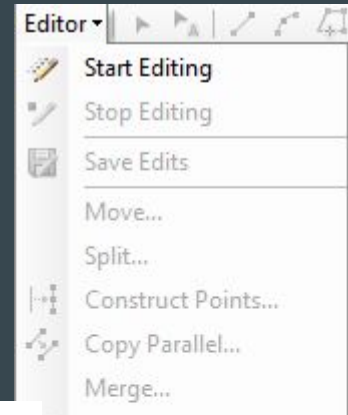


Process

- Click on the dropdown arrow on the editor tool and select “Start Editing”
 - The editor tools should now be available

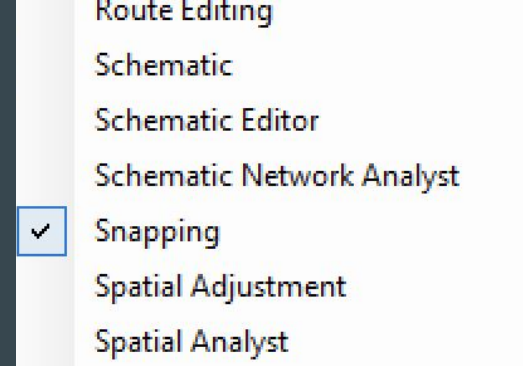
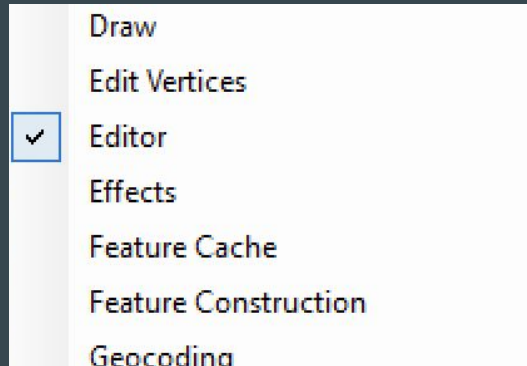
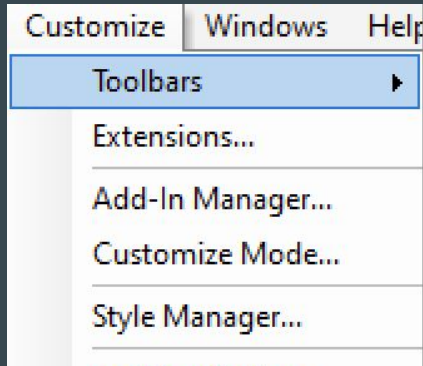


- Select the “Create Feature” tool
- Start outlining the water system like so →
- Make sure you are covering all of the pipe lines
 - Try your best to not cover the white space of map



Adding Tools

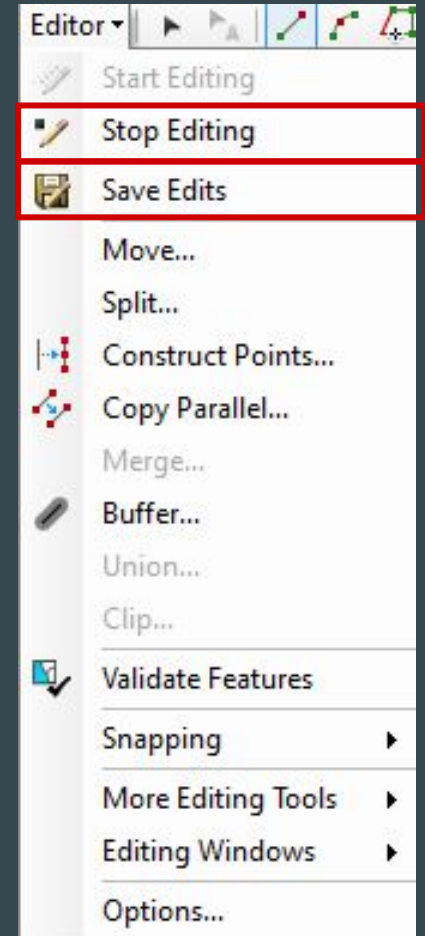
- To begin the digitization process, go to “Customize” on the top bar, and select “Toolbar”, which will prompt a pop-up box with all the tools
- Select the “Editor” and “Snapping” tools



Process

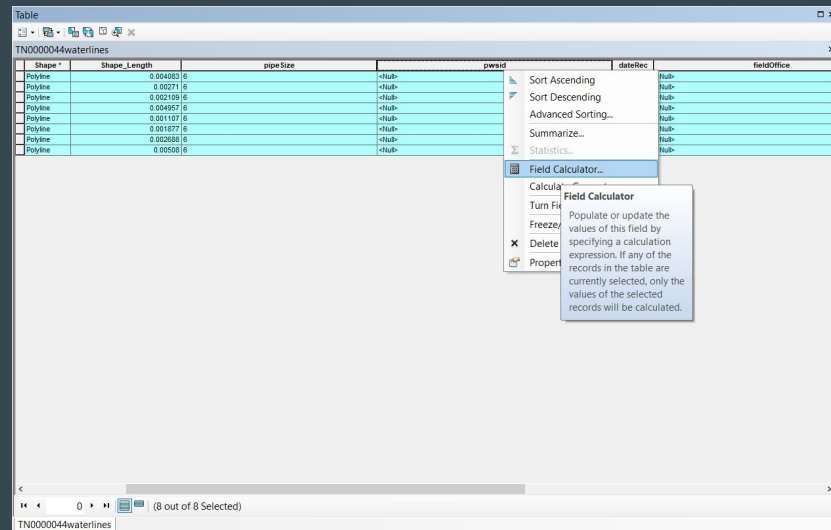
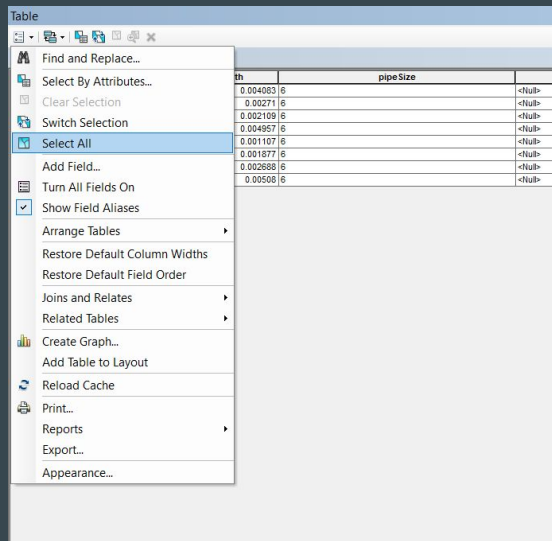
Once, you drawn the boundary and wish to complete the boundary, you can either:

- Double click the end point
- OR Right click → “Finish Sketch”
- OR Hit F2
- If you make a mistake, you can complete the line and then, hit “Delete”
- REMEMBER: **Save your edits often!**
- On the “Editor” toolbar, go to “Attributes” and fill them in accordingly
- When you have completed digitization the map, select “Save Edits” and “Stop Editing”



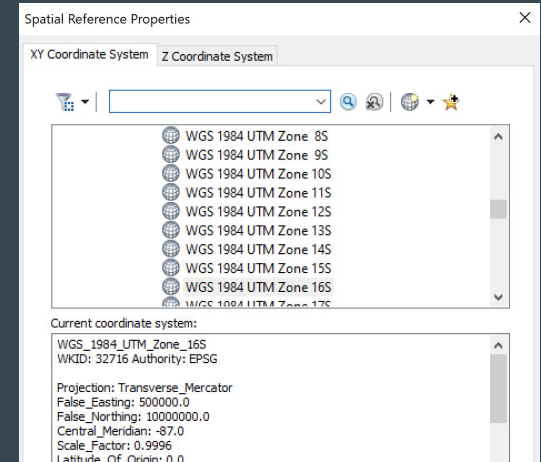
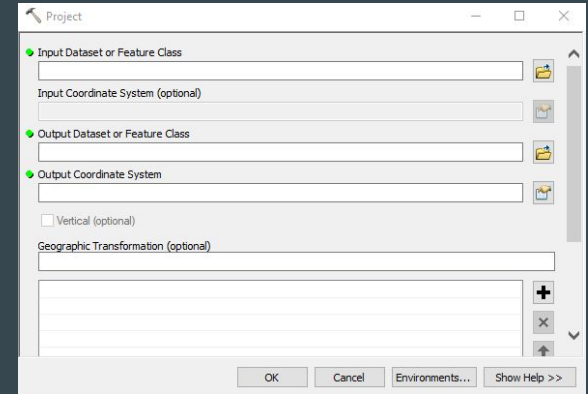
Filling in the Remaining Attributes Part I

- After you have completed digitizing the map, you are going to fill in the remaining attributes following these steps:
 - Open Attribute Table → Select the icon in uppermost right corner → “Select All”
 - Once all the attributes are selected, open the Field Calculator



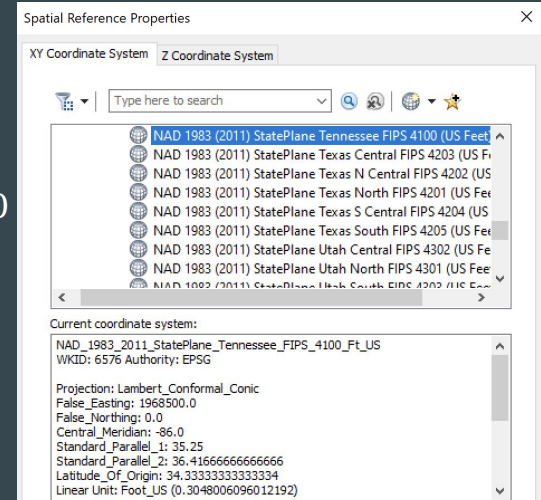
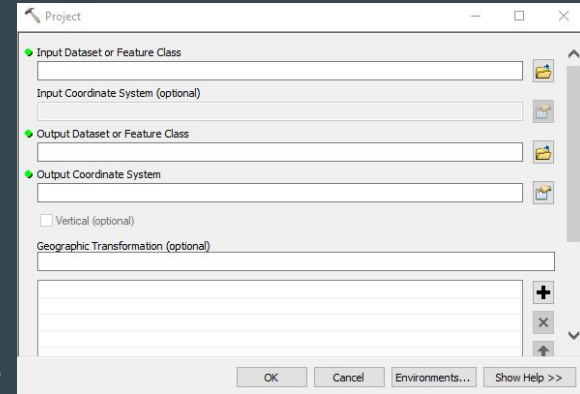
Setting PCS for Lab Use

- Once the map is fully digitized and saved (will be in “..._Scratch.gdb of its respective Field Office), use the “Projection Tool” to project the map into UTM Zone 16N (Lab Use)
- “Windows” → “Search” → “Project (Data Management)” Tool
- This will prompt a pop-up window, select the “Input” (i.e. the digitized map) and the desired Coordinate System (UTM Zone 16N)- Projection: **WGS_1984_UTM_Zone_16N**
- **Favorite** the projection so you don’t have to search for it next time
- Once the projection is set, move the map to the “...”_UTM.gdb of its respective Field Office



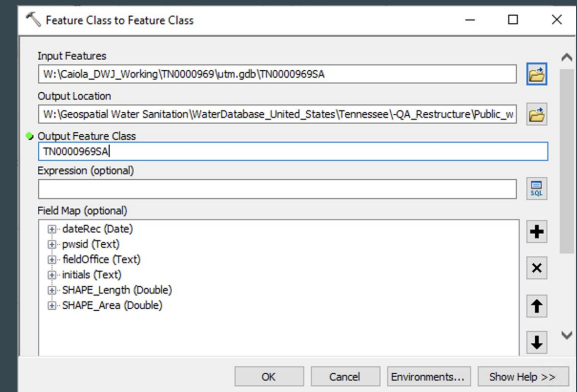
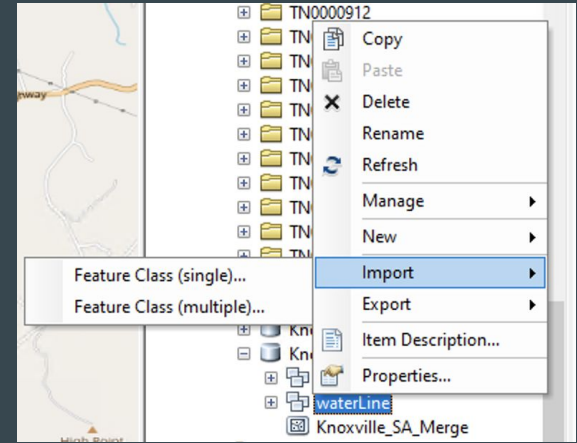
Setting PCS for Stakeholder Use

- Now, you are going to set the projection of the map, so it is appropriate for stakeholder use
- Locate the digitized feature class in its respective “..._Scratch.gdb, and use the “Projection Tool” to project the map into NAD 1983 StatePlane Tennessee FIPS 4100 Feet (Stakeholder Use)
- “Windows” → “Search” → “Project (Data Management)” Tool
- This will prompt a pop-up window, select the “Input” (i.e. the digitized map) and the desired Coordinate System (NAD 1983 StatePlane Tennessee FIPS 4100 Feet)- Projection: **NAD_1983__StatePlane_Tennessee_FIPS_4100 (US Feet)**
- **Favorite** the projection so you don’t have to search for it next time
- Once the projection is set, move the map to the “...”_StatePlane.gdb of its respective Field Office



Import the Feature Class to its Appropriate Feature Dataset

- Once the two different projections are set, you can import the feature classes into their respective feature datasets
- In the Catalog bar, navigate to the your DWJL Server connection (“Geospatial Water Sanitation”/“WaterDatabase_United_States”/“Tennessee”/ “-QA_Restructure”/“Public_water_systems”)
 - Locate the appropriate Field Office and open the “UTM.gdb” (i.e. Knoxville_UTM.gdb)
 - Right-click the “” feature database, and select Import (Feature Class (single))
 - This prompt a pop-up box -- locate the input (the feature class in your Working Folder), name the Output Feature Class (TNXXXXXXXXSA), and then select “OK”
- **Complete this same process for the feature class in StatePlane, but in the “State plane.gdb → waterLine feature database”**



Saving Work in ACCRE

- If you have *ACCRE* on a personal mount, the digitized map should already be saved in their respective “..._UTM.gdb” and “..._StatePlane.gdb” geodatabase because you created a direction folder connection to ArcMap
- Although, if you use *ACCRE* through their website, you will need to download the digitized maps (in both projections for lab and stakeholder use), and upload these maps to their appropriate geodatabase location via the website
 - Once in ACCRE, enter the PWSID folder of the map and go to the appropriate geodatabase (StatePlane or UTM). Go to “Upload” → “Choose File” → locate the digitized map file → select the file → “OK”.

Remember....

- If you are not 100% sure about any of the steps, please ASK QUESTIONS!
- Make sure to constantly save your work while you are working. ARC can crash from time to time.
- If possible, it is best to do work at Vanderbilt. Working through Pulse Secure at home tends to be a lot slower.
 - This is why copying the work onto your desktop is going to make things a lot easier!