USER NOTES and QUICK GUIDE
Web-Based Model Version

*A*NNUAL

*P*HOSPHORUS

*L*OSS

*E*STIMATOR

FOR WISCONSIN ANIMAL LOTS

Model Developers

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Acknowledgements

STEP 1 - Google Login
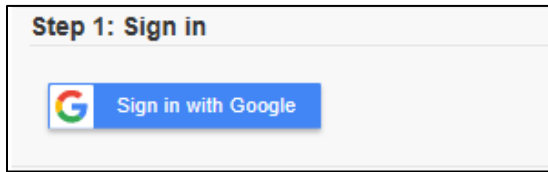
You will need to sign into Google. After selecting "Sign in with Google" you will be prompted to enter your email address then your password. If do not have a Google account you will need to create one. This can be done by clicking the blue words "Create account" (circled in red in the image below), then entering your information. When you see "Welcome: *Your Name*" in the lower left corner of the screen and the blue box by step one says "Signed in with Google," you are signed in.
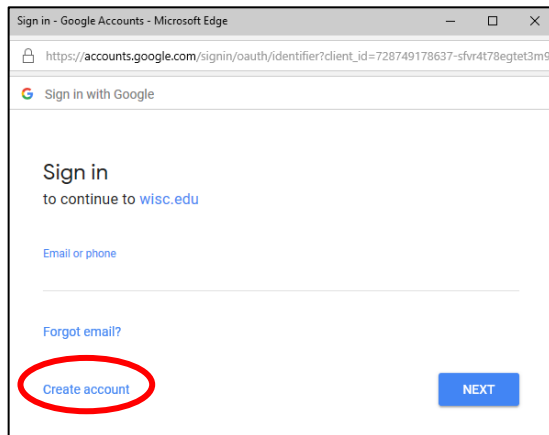
STEP 2 - Create/Open a Project

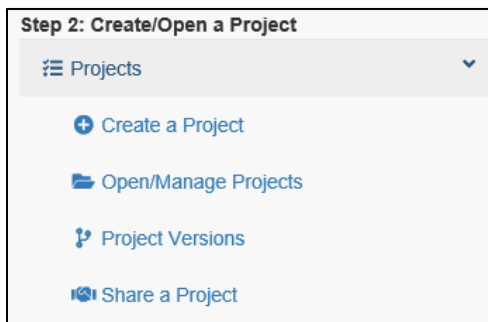If you don't already have projects made in APLE-Lots you will need to create one. You can do so by selecting "Create a Project." From there you need to give your project a name, then you can select "Create Project" to finish creating your project. In map mode there are four ways to locate your project area on the landscape. You can: (1) use the zoom slide bar located in the upper left corner of the map; (2) enter an address after pressing the looking glass button below the slide bar; (3) use the zoom to Township, Range and Section (Zoom to T-R-S) tool located in the upper right corner of the APLE-Lots window; or (4) you can click on the "+" on the slide bar to zoom in or the "- " to zoom out. To move around the map, press and hold the left mouse button and slide the map in the direction you want.

If you already have projects created, you can select "Open/Manage Projects." Next, select the project you want to work on from the drop down menu, then click "Open the Project."

In "Project Versions" you can create a version of a project, open a version, or delete a version. Creating a version makes a copy of the current status of everything you have created (lots, contributing areas, etc.). This can be helpful if things have changed in the project site, but you still want to have a copy of the original project. Just create a new version and record the changes in the new version. To create a new version, click "Create a Version" and give it a name. To open a version, select the version you would like to open in the drop down menu, then click "Open the Version." To delete a version, select the version you would like to delete in the drop down menu, then click "Delete the Version."

You can give someone else access to a project by selecting "Share a Project." Then select the project you want to share in the drop down menu, enter the Google email account of the person you want to share the project with (non-Google email accounts will <u>not</u> work), select the access level you want that person to have (edit or view and print report), and click "Share the Project." The project you shared will show up in the "Open/Manage Projects" drop down list of the person you shared it with. Edits made by either person in a project will show up for both people and there is no way to tell if someone is working on the project at the same time as you. There is no limit to how many people can share a project.

STEP 3 - Select Data Entry Mode

Step 3: Select Data Entry Mode	Step 3: Select Data Entry Mode
🌐 Switch to Mapless Mode	🌐 Switch to Map Mode
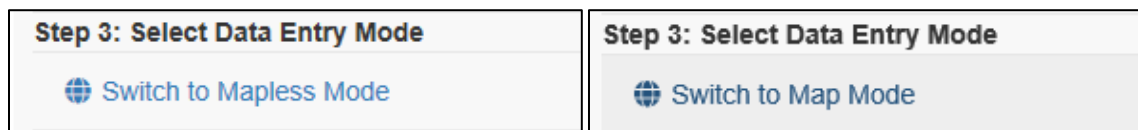
If you want to switch to mapless mode, select "Switch to Mapless Mode." If you do so and you want to switch back to map mode, select "Switch to Map Mode." You can change between the modes at any time; you are not restricted to the mode you choose at the beginning.

STEP 4 – Enter\Update Project Information
In Mapless Mode:

Step 4: Enter\Update Project Information
➕ Create a New Lot   ‹
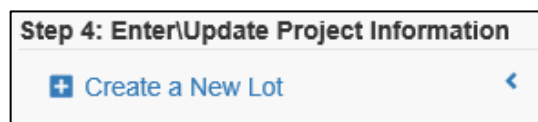
You can create a new lot by selecting "Create a New Lot" and filling in the following information:

Lot Information
In the lot information section you have to enter the lot name, select the county it is in, and enter the lot size in the paved lot or earth lot boxes, respectively. For a single lot that has both paved and earthen portions, enter the square footage of each portion.   For the earthen areas you will also have to enter the percent vegetated cover. If the lot has a functioning sediment basin, check the functioning sediment basin box and enter its volume in cubic feet. Finally, select the

number of days between cleanouts for paved lots that are regularly cleaned. If the lot has both paved and earthen surfaces, APLE-lots assumes only the paved portion will be scraped regularly.

Animals

You also have to enter the number and types of animals on the lot. One way to do this is by copying animals from an existing lot into your project. To do so, select the lot you want to copy the animals from in the drop down menu and click "Copy animals."

Another way to enter animals is to click "Add Animals to a Lot Using the Calendar." This will bring up the image below. Select the animal group that will be on the lot and the month/ season they will be there. The month/season options include Year Round, Spring (Apr-June), Summer (July-Sept), Fall (Oct-Nov), Winter (Dec-Mar), or just the individual months. The available Animal Groups include many options for dairy and beef cattle, and an option for goats, sheep, and horses. In the Number of Animals box, enter the number of animals that will be on the lot for the selected season and animal group, then use the drop down menu by "Hours on Lot" to select the number of hours per day the animals will be on the lot for all months. Once you have entered the month/season, the animal group, the number of animals, and the number of hours they are on the lot, select "Add Animals" to add them to the calendar. You can repeat this process as many times as needed to get the correct animals groups, and their numbers, on the lot for the correct month/season and number of hours. To edit an individual month, left mouse click on the animal entry to display the "Edit Animal Entry" screen (shown below), edit and save your changes. Once you have everything added, click "Close."

Soil Test (Optional)

This optional section is only available for earth lots. You can enter the soil test phosphorus (ppm) and soil organic matter (%) for a lot from a Wisconsin routine agronomic soil test in their respective boxes. The model default values for Bray soil test phosphorus and percent organic matter are 250 ppm and 6%, respectively.

Create a Contributing Area (Optional)

Creating a contributing area, an area outside of the lot which contributes overland flow to the lot, is optional. If you choose to include this, select "Create New Contributing Area." In the contributing area information box, enter its name, area in sq/ft, area cover type (roof, paved, cropland, grass, wooded, farmstead, or other), and the Hydrological Soil Group (A, B, C, or D). If flow from the contributing area is diverted by mitigation practices, select that box, enter the percentage of area diverted (0 – 100), and enter descriptive information into the mitigation practice notes box. After you finish entering the information, select "Save Contributing Area."

Does this lot runoff to another lot? (Optional)

This is another optional section. If the lot you are creating runs off to another lot, select the lot that runoff flows to in the lot drop down menu and then enter the percentage of the lot's runoff that flows to the downslope lot (0 - 100). To document that the selected percentage is less than what it could be due to diversions or other mitigation practices, check the "Mitigation Practices Present" box. Then you can enter information about those practices into the mitigation practice notes box.

Once you finish entering the above information, select "Save Lot."

If you want to edit or delete a lot select it from the list under **Lots**. To edit, make the desired changes and once complete, click "Save Lot." To delete, scroll down to the bottom and click "Delete this lot" then confirm "OK."

You can even edit/delete a lot you made in map mode in Mapless Mode. All the lots you have created will appear on the list.

You can also edit or delete contributing areas if the lot has one. Select the lot that contains the contributing area you want to edit/delete. Then select the desired contributing area in the "Create a Contributing Area (Optional)" section. From there, if you want to edit it, make the desired changes and then click "Save Contributing Area." If you want to delete it, select "Delete this Contributing Area" and then "OK."

In Map Mode:
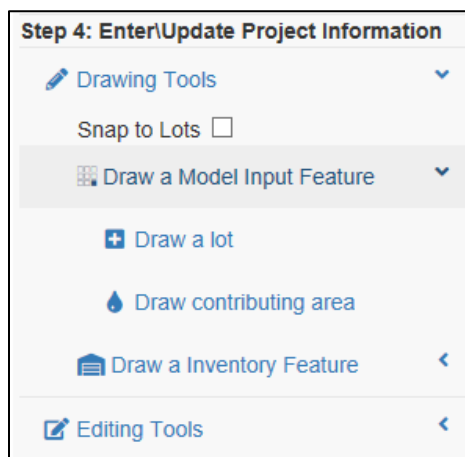
The "Snap to Lots" feature in Drawing Tools allows you to match the boundaries of the area you are drawing and an area that has already been drawn. When it is selected, and you are close enough to a drawn area, the blue dot will snap to the boundary of the previously drawn area and it will follow the boundary, making it easy to draw areas that are adjacent to one another.

Model input features are used in the calculations for the reports. These include lots and contributing areas. Inventory features are not used in the calculations for reports; they are just informational visuals. These include concentrated flow channels and points.

Model Input Features:

Creating a Lot
You can create a new lot by first selecting "Drawing Tools," then "Draw a Model Input Feature," then "Draw a lot." From there you can use the map to find your lot location and draw its boundaries. You will know that you are using the drawing tool if you see a blue dot by your mouse. Once the shape is complete, click to close the shape and enter in the following information:

Lot Information
In the lot information section you will need to enter the lot name and the number of days between cleanouts. The software's estimate of the size of the area you drew on the map will appear above the lot name box, and this can be used if you do not have a field measurement of lot size. Enter the square footage in the appropriate cells for earth or paved lots. For single lots that have both paved and earthen sections, enter the square footage of each type of surface. If it is an Earth lot, enter the vegetated cover percent. If it is a paved lot and it has a functioning sediment basin, you will also have to check the functioning sediment basin box and enter its volume in cubic feet. Finally, select the number of days between cleanouts if the lot is paved

and regularly cleaned. If the lot has both paved and earthen surfaces, only the paved portion is assumed to be scraped.

Animals
You also have to enter the number and types of animals on the lot. As previously discussed, one way you can do this is by copying animals from a lot that has already been created. To do so, select the lot you want to copy the animals from in the drop down menu and click "Copy animals."

Another way to enter animals is to click "Add Animals to a Lot Using the Calendar." This will bring up the image below. Select the animal group that will be on the lot and the month/season they will be there. The month/season options include Year Round, Spring (Apr-June), Summer (July-Sept), Fall (Aug-Nov), Winter (Dec-Mar), or just the individual months. The Animal Groups include many options for dairy and beef cattle, and an option for goats, sheep, and horses. In the "Number of Animals" box, enter the number of animals that will be on the lot for the selected season and animal group, then use the drop down menu by "Hours on Lot" to select the number of hours the animals will be on the lot each day. Once you have entered the month/season, the animal group, the number of animals, and the number of hours they are on the lot, select "Add Animals" to add them to the calendar. You can repeat this process as many times as needed to get the correct animals groups, and their numbers, on the lot for the correct month/season and number of hours. Once you have everything added, click "Close."

Soil Test (Optional)
This is an optional section only available for earth lots. You can enter the soil test phosphorus (ppm) and soil organic matter (%) from a Wisconsin routine agronomic soil test in their respective boxes. The model default values for Bray soil test phosphorus and percent organic matter are 250 ppm and 6%, respectively.

Does this lot runoff to another lot? (Optional)
This is another optional section. If the lot you are creating runs off to another lot, select the lot that runoff flows to in the lot drop down menu and then enter the percentage of the lot's runoff volume that flows to the downslope lot (0 – 100). To document that the selected percentage is less than what it could be due to diversions or other mitigation practices, check the "Mitigation Practices Present" box. Then you can enter information about those practices into the mitigation practice notes box.

Once you finish entering the above information, select "Save Lot."
You can stop using the drawing tool and remove the blue dot from the screen by clicking the "Reset Tool" button at the top of the menu.

Active Tool: Draw Contributing Area   Reset Tool
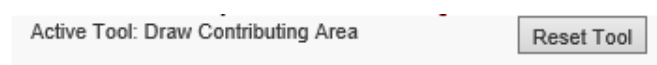
Creating a Contributing Area
To add a contributing area in map mode, select "Draw contributing area" under "Draw a Model Input Feature" in the drawing tools. From there you can use the map to find the contributing area and draw its boundaries. You will know that you are using the drawing tool if you see a blue dot by your mouse arrow. Once the shape is complete click to close the shape. Enter the contributing area's name and its size in square feet. The software's estimate of size of the area you drew will show up above the green contributing area information bar and you can enter it if you do not have a field measurement of the area. Next, select the lot it runs on to and its land cover type (roof, paved, cropland, grass, wooded, farmstead, or other). The Soil Hydrologic Group (A, B, C, or D) will fill in automatically based on the soils in the contributing area you drew on the map. If the runoff from the contributing area is diverted by mitigation practices, you can select that box. Then you can enter the percentage of the contributing area's runoff volume that is diverted (0 - 100) and enter information about that practice into the mitigation practice notes box. After you complete the information, select "Save Contributing Area." You can stop using the drawing tool and remove the blue dot from the screen by clicking the "Reset Tool" button at the top of the menu.

Active Tool: Draw a Lot   Reset Tool
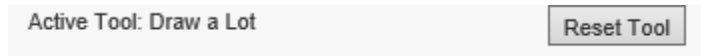
Inventory Features:

Documenting the Location of Wells and other "Point" Features
You can create a point by selecting "Point" under "Draw an Inventory Feature" in the drawing tools. Select the point type: private drinking well, irrigation well, sinkhole, fractured bedrock at surface, non-metallic mine, other direct conduit to groundwater, tile inlet, or tile outlet. From there you find the position of the point and click and it will appear on the map. If you are done with making one type of point and want to add another type to the map, simply use the drop down menu to select the new point type. Once you finish creating points, select "Stop creating point features." You can stop using the drawing tool and remove the blue dot from the screen by clicking the "Reset Tool" button at the top of the menu.

Active Tool: Draw a point feature   Reset Tool

Documenting the Flow Path of Lot Runoff

The Map Mode allows you to document the flow path of runoff from the lot to surface water or to a groundwater recharge zone. With the tools described below, you can map channelized flow, sheet flow, potential impediments to flow, and the locations with evidence of lot runoff.
Concentrated flow channel

Concentrated flow channel

You can draw a concentrated flow channel by first selecting "Drawing Tools," then "Draw an Inventory Feature," then "Concentrated flow channel." From there you can use the map to find the concentrated flow channel and draw it. You will know that you are using the drawing tool if you see a blue dot by your mouse. Double click once you are finished drawing. Then you can select what kind of concentrated flow channel it is (grassed waterway, ditch, gully, ephemeral erosion channel, non-eroding channel, or shallow concentrated flow) and how wide it is in feet. After that, select "Save Concentrated Flow Channel." You can stop using the drawing tool and remove the blue dot from the screen by clicking the "Reset Tool" button at the top of the menu.

Active Tool: Draw Concentrated Flow Channel   Reset Tool

Potential flow deterrents

You can create a flow path by selecting "Drawing Tools," then "Draw an Inventory Feature," then "Potential flow deterrents" Next find the flow path and draw it. You will know you are using the drawing tool if you see a blue dot by your mouse. Double click once you are finished drawing. You then can select the type of "Potential flow deterrent" (grass filter area, vegetated buffer, impoundment, or other obstacle to flow) then, select "Save Flow Deterrent." You can stop using the drawing tool and remove the blue dot from the screen by clicking the "Reset Tool" button at the top of the menu.

Active Tool: Draw Flow Deterrent   Reset Tool

Sheet flow direction arrow

You can document the area and direction of sheet flow with sheet flow direction arrows. Select "Drawing Tools," then "Draw an Inventory Feature," then "Sheet flow direction arrow." Next find the area you want to indicate the flow direction and draw it. You will know you are using the drawing tool if you see a blue dot by your mouse. Double click once you are finished drawing the line where you want the arrow. The arrow point will be where you double-clicked. Select "Save Sheet Flow Arrow". You can then continue on to make another arrow or you can click the "Reset Tool" button at the top of the menu to stop drawing arrows.

Active Tool: Draw Sheet Flow Direction Arrow   Reset Tool

Evidence of runoff point

This tool allows you to locate areas that show evidence of lot runoff on the map. Select "Drawing Tools," then "Draw an Inventory Feature," then "Evidence of runoff point." Locate where you want to indicate evidence of lot runoff and left click. You will know you are using the drawing tool if you see a blue dot by your mouse. You can stop using the drawing tool and remove the blue dot from the screen by clicking the "Reset Tool" button at the top of the menu.

Active Tool: Draw Evidence of Runoff   Reset Tool

Editing Tools allow you to edit and delete Model Input Features and Inventory Features.

Edit a Model Input Feature:

Edit a Lot
You can edit a lot by selecting "Editing Tools," then "Edit a Model Input Feature," then "Edit a lot." In Map Mode all features to be edited are located using the mouse and selected by pressing the left mouse button. Select the lot you want to edit and make the desired changes. Click "Save Lot" once you are done.

Edit a contributing area
To edit a contributing area select "Edit a contributing area" under "Edit a Model Input Feature" in the editing tools. From there, select the contributing area you want to edit and make the desired changes. Click "Save Contributing Area" once you are done.

Edit an Inventory Feature:

Edit points
You can edit a point by selecting "Editing Tools," then "Edit an Inventory Feature," then "Edit points." From there, select the point you want to edit and make the desired changes. Click "Save the point feature" once you are done.

Edit concentrated flow channels
To edit a concentrated flow channel, select "Edit concentrated flow channels" under "Edit an Inventory Feature" in the editing tools. From there, select the concentrated flow channel you want to edit and make the desired changes. Click "Save Concentrated Flow Channel" once you are done.

Edit potential flow deterrents
To edit a potential flow deterrent, select "Edit a potential flow deterrent" under "Edit an Inventory Feature" in the editing tools. From there, select the flow path you want to edit and make the desired changes. Click "Save Flow Deterrent" once you are done.

Delete a Model Input Feature:

Delete Lot
You can delete a lot by selecting "Editing Tools," then "Delete a Model Input Feature," then "Delete Lot." From there, select the lot(s) you want to delete. You can select more than one lot to delete. The lot is

selected for deletion when its border turns yellow. You can click a yellow lot again to de-select it if you decide you don't want to delete it. Once you have the lot(s) you want to delete selected, click "Delete lot/s."

Delete contributing area
To delete a contributing area, select "Delete contributing area" under "Delete a Model Input Feature" in the editing tools. From there, select the contributing area(s) you want to delete. You can select more than one contributing area to delete. The contributing area is selected for deletion when its border turns yellow. You can click a yellow contributing area again to de-select it if you decide you don't want to delete it. Once you have the contributing area(s) you want to delete selected, click "Delete Contributing Area/s."

Delete an Inventory Feature:

Delete points
You can delete a point by selecting "Editing Tools," then "Delete an Inventory Feature," then "Delete a point." From there, select the point(s) you want to delete. You can select more than one point to delete by holding down the CTRL key and clicking on each point. The point is selected for deletion when there is a yellow dot over the point. You can click a yellow point again to de-select it if you decide you don't want to delete it. Once you have the point(s) you want to delete selected, click "Delete Point/s."

Delete concentrated flow channels
To delete a concentrated flow channel, select "Delete a concentrated flow channel" under "Delete an Inventory Feature" in the editing tools. From there, select the concentrated flow channel(s) you want to delete. You can select more than one concentrated flow channel to delete. The concentrated flow channel is selected for deletion when its border turns yellow. You can click a yellow concentrated flow channel again to de-select it if you decide you don't want to delete it. Once you have the concentrated flow channel(s) you want to delete selected, click "Delete concentrated flow channel/s."

Delete flow deterrents
To delete a flow path, select "Delete a flow deterrent" under "Delete an Inventory Feature" in the editing tools. From there, select the flow path(s) you want to delete. You can select more than one flow path to delete. The flow path is selected for deletion when its border turns yellow. You can click on a yellow flow path again to de-select it if you decide you don't want to delete it. Once you have the flow path(s) you want to delete selected, click "Delete flow path/s."

Delete sheet flow direction arrow
To delete a sheet flow direction arrow, select "Delete Sheet flow direction arrow" under "Delete an Inventory Feature" in the editing tools. From there, select the sheet flow direction arrow(s) you want to delete. You can select more than one direction arrow to delete. The direction arrow is selected for deletion when a yellow line runs through it. You can click on a yellow direction arrow again to de-select it if you decide you don't want to delete it. Once you have the direction arrow(s) you want to delete selected, click "Delete sheet flow direction arrow/s."

Delete Evidence of runoff point

To delete an evidence of runoff point, select the "Delete Evidence of runoff point" under "Delete an Inventory Feature" in the editing tools. From there, select the runoff point(s) you want to delete. You

can select more than one to delete. The runoff point is selected for deletion when there is a yellow dot over the point. You can click on a yellow point again to de-select it if you decide you don't want to delete it. Once you have the runoff point(s) you want to delete selected, click "Delete evidence of runoff point /s."

STEP 5 – Reports
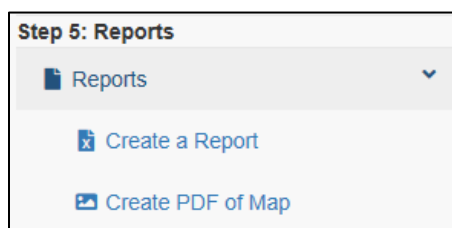
To get a report, select "Reports" then "Create a Report." In the drop down menu select the lot you want to create a report for, then click "Create a report." The model results report is a folder containing an MS Excel file that is placed in the Downloads subdirectory on your computer. Open the Excel file to view and/or print your results. A PDF map of the screen that is currently active can be generated and will also be placed in the down loads subdirectory.

Other Tools

The Other Tools option allows you to (1) display soils information by locating a point of interest and left clicking the mouse button; (2) measure a length by defining a line segment on the map and; (3) measure an area by defining the boundaries of an area on the map. If you want to remove the blue dot, double left mouse click or select "Clear Active Tool".

Map Legend

The Map Legend Tab is located at the top of the tools menu box, to the right of the Tools Tab and can be accessed by clicking on the tab. A large number of map features are displayed using this expanded legend. Available map features are grouped into 4 groups that include (1) Base Layers; (2) Surface Water Flow Layers; (3) Groundwater Layers and (4) Farm Layers. Within each group features can be turned on by placing a check in the check box above the feature title. The slide bar to the right of the feature name will change the brightness of that feature on the map.

Panel 1:

Active Tool: Navigation

Tools | Map Legend

Legend

Base Layers

Turn on/off all ☐
- ☑ Aerial (USGS)
- ☐ Hillshade
- ☐ 5ft contours
- ☑ Counties
- ☑ Township/Range
- ☐ Roads
- ☐ Soils

Surface Water Flow Layers

Groundwater Layers

Farm Layers

Panel 2:

Tools | Map Legend

Surface Water Flow Layers

Turn on/off all ☐
- ☑ Sheet flow direction arrows
- ☐ DNR Wetland
- ☐ 590 SWQMA 300FT
- ☐ SWQMA 1000FT
- ☐ Perennial Streams
- ☐ Intermittent Streams
- ☐ Waterbodies
- ☐ HUC 12 Watershed
- ☐ HUC 8 Basin
- ☑ Evidence of runoff
- ☐ Impaired Waters (303d)
- ☐ Outstanding/Exceptional Waters
- ☐ Flow Deterrents
  - Grass filter area
  - Vegetated buffer
  - Impoundment
  - Other obstacle to flow
- ☐ Concentrated flow channels

Panel 3:

Tools | Map Legend

Legend

Base Layers

Surface Water Flow Layers

Groundwater Layers

Turn on/off all ☐
- ☑ Municipal well 1000ft buffers
- ☐ Groundwater < 2ft
- ☐ Bedrock < 2ft
- ☐ Bedrock depth <5ft
- ☐ P - High Permeability
- ☑ Runoff to direct conduits to gw
- ☑ Direct conduit to groundwater 300ft
- ☑ County Defined Karst Features

Farm Layers

Panel 4:

Tools | Map Legend

Legend

Base Layers

Surface Water Flow Layers

Groundwater Layers

Farm Layers

Turn on/off all ☐
- ☑ Lots
- ☑ Contributing areas
- ☑ Points
  - Drinking Well
  - Public well
  - Irrigation well
  - Sinkhole
  - Non-metallic mine
  - Fractured bedrock at surface
  - Other conduit to groundwater
  - Tile outlet
  - Tile inlet