



Designing Rain Gardens for Stormwater Solutions

Using ArcGIS to Identify Potential Rain Garden Sites

Background: Rain gardens are shallow, planted depressions that capture runoff from impervious surfaces like rooftops, driveways, and roads. They are best placed near downspouts, low-lying areas, or along paved surfaces where water naturally flows. Proper site selection requires understanding elevation and drainage patterns to ensure infiltration and prevent excessive pooling. ArcGIS helps users analyze these factors through detailed topographic maps, displaying elevation, contour lines, and drainage pathways. By layering geographic data, it allows for visualizing water movement and refining rain garden placement.

1. **Find a topographic map** of your area on ArcGIS by either:
 - a. Search for your town and the term “topographic” in the Layers menu on [ArcGIS](#). In the drop-down menu, be sure to select “ArcGIS Online”.
 - b. On a search platform, enter your town name and state, along with the terms “ArcGIS” and “topographic.” Usually, an ArcGIS map or map gallery will be at the top of the search. Select the best fit.
2. **Navigate the map** once you are in an ArcGIS map of your state with your cursor or with the plus and minus buttons on the screen. Ensure that your area of interest (e.g., your school or a community site) is visible.
3. **Adjust map layers** by selecting the layers button  on the left sidebar. Each map will have different layers. Browse through the selections that are available to you. For this purpose, find a topographic map that has high resolution, preferably with contour intervals with 5 ft or less.

4. **Add additional layers** to learn more about the area by selecting “Add layer.” Browse through the options or search for your town, state, or country. If you add layers you don't find useful, select “x Remove.” To return to the previous Layers menu, select the < arrow at the top of the Add Layer menu.

Example: If searching for Fort Thomas High School in Kentucky, the default map might have 10-foot contour lines. Searching for “Kentucky” in the Add Layer menu might provide a more detailed 5-foot contour interval option.

5. **Customize layer visibility** using the eye icon  to turn layers on and off. Adjust the layers to compare different map features (e.g., elevation, land cover, and water flow patterns).
6. **Explore other areas on the map** by clicking on specific points. This will open a pop-up window with more information. If you're viewing an elevation layer, the pop-up will display the exact elevation of that location. Move around the map and click on different areas to compare elevations and identify low-lying areas for potential rain garden locations.