Tips For Succeeding In The CLCA Water Certification Program

Read more about the topics most commonly preventing a successful performance program

Irrigation System Mapping

The purpose of this manual is to give you the basic information needed to produce both budget and high-end digital maps for your maintenance properties.

The first task is to identify the intended uses for the map you will be creating. If it is to be an internal document for use by your staff only, it need only be a "guide" to navigate your way around the site when doing maintenance tasks or repairs. If your client is receptive to purchasing these maps, the need for accuracy and quality becomes more important. There is a market for high-quality digital maps that are good for the life of the property. This is particularly true for industrial/commercial facilities managers who have an engineering background.

A. Data Collection

The following are some tips that will save you time in mapping any site:

- Efficient use of manpower mandates that the irrigation controller be remote capable and that you have a RainMaster ProMaxUA or a Remote Control Technologies "TRC Commander" remote control actuator. Remote actuation is needed to effectively manage water on any property.

- It is recommended that you visually check the controller for unused stations and use a volt-ohm meter to measure the electrical resistance between the common wire and every station to identify broken wires, spare wires, or any wire that is not activating a valve. The time spent doing this process will eliminate spending large blocks of time searching for non-existent or inoperative stations.

- Physically observe each valve in operation. Consider re-arranging the sequence into a logical progression or "walking order".

- To the best of your ability, using a pencil, mark the perimeter of the area covered by the valve. Repeat the process for all irrigation stations or zones in your system.

  — Be sure to indicate the station number alongside or within the drawn shape to show the area covered by each valve.

- Controller location, water meter, and backflow prevention device location are all needed pieces of information that should be included on your map(s). As discovered, isolation valves (if any) should be noted on the map.

B. Mapping

If no blueprint, site locator, or other type of map is available, you may have to draw a basic map with some simple drafting tools. Before manually drawing a map, you should view the property using the free version of Google Earth to see if the image can be used or traced to create a map.

Hand Drawn Maps

If there is no other option, a hand drawn map may be required.

Hand Colored Maps

Obtain from your client a copy of an irrigation plan, a site locator map, or other map that shows the "footprint" of the property. As you activate each station, using colored pencils, color in the area on the map that is watered by that station or zone. Identify the station numbers.

NOTE: This is not intended to be a training manual for the use of a computer or any software application. It is assumed that you have the basic knowledge and training needed to perform the required tasks. For digital mapping, Adobe Illustrator is our preferred software application.

Digital Mapping

The digital map is primarily intended for use as an irrigation zone map. The easiest way to create a digital map is to obtain an irrigation plan, site locator map (or other such map that shows the "footprint" of the property) from your customer. A map that shows hardscapes, including paths, sidewalks, parking lots and roads is best.

From A Blueprint: Assuming that a full-scale blueprint will be used, the first step is to take it to your local copy shop and have it reduced to 8.5x11". This will require several steps to make it that small. Make several copies, saving the intermediate size reductions.

From A Site Sketch: The size used for field artwork will depend upon the complexity of the site. For ease of mapping, you may want to split the site up into sections and create a separate map for each controller. If the site is complex, you may want to use one of the larger reductions for your field artwork and reduce it again following the field data collection.

Using a pencil, mark the perimeter of the area served by each controller station. Inside the shapes you've drawn, indicate the controller station number.

If the field copy of your map is larger than 8.5x11", go to a copy store and have it reduced to a size that can be scanned using a standard flatbed scanner at 188dpi or higher.

1. Place your scanned drawing into a new CMYK Adobe Illustrator document, making sure to select "link" and deselect "embed" checkboxes. Lock the layer.

2. Create a new layer for your editing on top of the image in the layer stack.

3. Using the Zoom tool, you can enlarge the document to fill your screen with the station you are mapping. The Hand tool will allow you to move within the document to get to the area you need.

4. Using the Pen tool, trace the outline you created in the field by clicking once at each corner. Curves can be made by click-and-dragging the point. 90° and 45° angles can be drawn by holding down the Shift key.

5. Once you have completed each shape, set the width and the color of the perimeter line suing the Stroke palette (Window > Stroke).
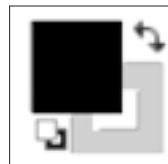
6. With the shape selected, toggle the stroke color in the toolbox to the Fill box, then choose a color swatch from the Swatches palette (Window > Stroke). We suggest that you name the color swatch "Station 1" etc. (double click the swatch icon to change the name and hue) so that the exact color can be accessed in the future. This will fill the interior of the shape with the color swatch.

Toggle these icons to Show/Hide and Lock elements and layers.
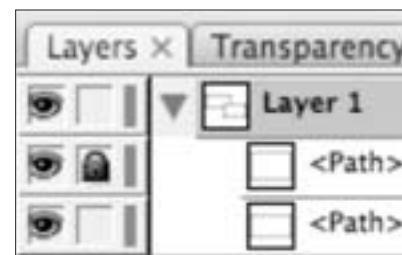
7. Continue drawing all the shapes needed to complete the drawing. It may help to lock each shape in the Layers panel as you work. When you've completed the drawing, lock that layer, then add another on top of the stack.

— Rather than delete the original drawing you traced, you can turn off the visibility of the original layer, leaving only your digital artwork showing, by using the Layers palette.

8. Using the Type tool, click and drag where you'd like to label each station number, controller and backflow preventer locations, etc.

9. After all of the stations have been completed, identify the property by name. You may want to include your logo and a copyright symbol.

10. Save the .ai file, then perform File > Save As to create an Adobe PDF straight from Illustrator, or print it to a postscript file and convert to an Adobe Acrobat file via Acrobat Distiller. PDFs can be opened by anyone using the free Adobe Reader program.

A copy of the map should always be kept in the job file in your office. We suggest that you retain the native Illustrator file (.ai) as proprietary and to retain control of your intellectual property.

The quality of a map is generally the result of the time commitment that you are willing to invest in the project. Any map is better than no map.

Meter Reading

Knowing how to read your performance site's water meter remains an important part of CLCA's Water Management Certification Performance Program. An improper initial meter reading can mean the difference between being 1 percent and 1000 percent of your site's water budget. A couple of things you should keep in mind when starting out:

1. Submitting a Photo
Use the "add" button under the "Water Meter Information" section on CLCA's Water Management Meter Reading Site to attach a picture of the meter. Submitting a photo of your meter can be very useful in determining the type of water meter and proper initial reading during the budget creation process.

Useful Meter Reading Resource

Having trouble with reading your site's water meter, determining whether the site is measured in gallons or cubic feet? The California Urban Water Council offers some useful tips on how to read your water meter at:
www.h2ouse.org/resources/meter/ads-read-meter.cfm

— Contact —

If you have any additional questions, you can call David Silva, CLCA's Water Management Program Administrator, at (916) 830-2780.

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Sample Maps

Hand-Drawn Map

Google Earth Site Image

Site Sketch

Digital Map, in progress
using Adobe Illustrator