

How to Map Your Cemetery

Preserving Historic Cemeteries Workshop

SC Department of Archives and History

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Introduction (Haley) **SLIDE 1**

Good afternoon! Today, we'd like to share how to map your cemetery in a way that is both straightforward and practical. It will be similar to what we would normally do as archaeologists, but the tools and software are more accessible to those who don't have access to expensive equipment and mapping software.

Just starting off, I'd like to mention the map shown here on our title page. This map was found in our files. It has been drawn on a paper towel piece and is a good example of a type of map we all do when we discover a site or cemetery and need to quickly jot down the location. A more formalized and detailed map was created for our files, but I wanted to share with you that even us professionals make do with what we have at times. **SLIDE**

Our program, the Savannah River Archaeological Research Program, is a cultural resources management program located on the Department of Energy's Savannah River Site in western South Carolina. **SLIDE**

Our purpose is to provide DOE with recommendations concerning the cultural resources found on site through compliance actions as well as research and educational outreach. In doing this, we keep DOE in compliance with several federal

laws pertaining to the protection of historic and archaeological sites found on the Savannah River Site. **SLIDE**

When the site began construction in 1951, the then Atomic Energy Commission acquisitioned over 320 square miles and nearly 6000 people and 6000 graves were displaced. **SLIDE**

A total of 123 cemeteries were moved off site between 1951 to 1954. **SLIDE**
35 cemeteries with a total of 681 known graves, remain.

These cemeteries are considered protected sites and fall under our jurisdiction. **SLIDE**
We also research cemeteries outside of the site that received reinterments from the moved cemeteries. **SLIDE**

For us, when mapping cemeteries, we approach it how we would approach mapping any archaeological site. This means utilizing a standardized grid with a surveyor's total station for precise measurements. The total station takes coordinate points on the grid and then we use those measurements to create an accurate layout of the survey area and the objects within. With a total station, your survey area coordinates will have a higher rate of accuracy.

However, not everyone has a total station, but this is okay—you can still achieve an accurate map of your survey area without the expensive equipment. **SLIDE** One of the best examples we have found is from Glen Wallace with Preservation Maryland. We will have a link to his instructional video at the end. **SLIDE**

Some of the tools and resources that we commonly use as archaeologists for mapping include the aforementioned total stations, geographic information systems (GIS),

ground penetrating radar (GPR), LIDAR (Light Detection and Ranging), 3-D Scanners, and **SLIDE** historical data.

For those who don't have access to such equipment, the following tools are what you will need to map your cemetery: **SLIDE**

1. 20 Fiberglass rods
2. (2) 300 feet of nylon rope
3. 100-foot measuring tape
4. Whiteboard with erasable marker
5. Graph paper and pencil
6. Compass

SLIDE Importance of Mapping Your Cemetery (Haley)

But first, let's talk about why we should map and record a cemetery.

- Mapping is necessary for finding, logging, and maintaining a record of cemeteries-
- Your reasons for mapping won't be much different from ours. Largely, we map cemeteries to create a permanent record of the cemetery and those buried there.

For us, this is one of the ways we preserve and protect the cemeteries at Savannah River Site. We use this information to communicate with site contractors, so they know to avoid the cemetery location when planning their project. Whether it be for county planning, researchers, genealogists, family members, or cultural resources management, mapping a cemetery adds to the available historical resources of your area and can be used to educate local landowners and planning officials.

But why do we need a permanent record of the cemetery?

- As families age and move away and family land is sold, many family cemeteries are forgotten.
- Municipal cemeteries change ownership or fall into neglect. Records and gravestones are lost- leaving unmarked graves and unclear titles. **SLIDE**
- When cemeteries are lost and forgotten- only memories of the cemetery remain with a select few local citizens.
- Mapping and documenting your cemetery are two of the basic steps in preserving your cemetery and its history. For us, when we map a cemetery or archaeological site, that map is then put in a site file and is available for future reference and research.
- So how do we map a cemetery? **SLIDE**

How to Lay Out a Grid for Mapping (Brian)

- Start by figuring out if the graves were laid out in a normalized order. If they are, you can use this to your advantage and align your grid in the same orientation which you can determine by using your compass. You do not need to orient your grid to a true north/south or east/west grid but noting where it falls will help later when making your map. This can make laying out the grid much easier. If the graves do not appear to follow a consistent pattern you can still use a grid to map in these features. It is helpful to find a point that will not be moved and can be used for future reference, such as a cemetery corner marker or plot marker. **(Advance)**
With your first point decided, you will then pull your tape in the direction of your

second corner whatever distance you have decided to make your grid (example: a 50ft grid would be taken to 50ft). We will call these points A and B. (Advance)

- Next you will pull your second tape perpendicular from point A to point C. (Advance)
- With the two tapes pulled you use a third tape to pull a diagonal line between the point B and C (known as a hypotenuse) You can calculate the distance of the hypotenuse by using the Pythagorean Theorem ($c = \sqrt{a^2 + b^2}$).
 - For a 50' x 50' square your diagonal will measure 70'-9"
 - (70.71 is truly 70ft 8.52 inches though 10th of feet is only accurate to about half an inch so you would round up) (Advance)
- With that point laid in, you will move your perpendicular tape to the other end of your baseline and pull to the desired length between point B and D. (Advance)
- Now you will repeat the process before by pulling the diagonal tape between points A and D. (Advance)
- The last step is to pull a tape between points C and D.
 - If your points are laid out square, then the distance should be the same as your baseline (50' in this case).
 - If your distance is longer or shorter repeat pulling the diagonal to reset your pins to bring the grid into square.
- If your cemetery extends past your grid, you can expand it by repeating the process from before. (Advance)

- You already have two corners of your extension laid in so you would now pull your second tape (Advance) and diagonal from one corner. (Advance)
- Now pull the opposite diagonal to lay in your last point. (Advance)

The last step would be to measure between the two points to see if they are 50' apart.

If they are the same distance as your first line then it is square. (Advance)

Once The Grid Is Laid Out (Brian)

- Once you have your four corner points set in you can begin laying out the grid. (Advance)
- Set in stakes at your desired spacing along your four baselines. (Advance)
- Next take the nylon rope and starting in one corner run the rope around the stake and pull it up the line to the other corner. (Advance)
- From there pull the rope to next stake and loop it around it. (Advance) Then pull the rope back down to the starting baseline. (Advance)
- Continue this zig-zag pattern until you reach the last corner.
- You can then repeat this pattern with the second rope on the opposite face.
- So now that you have your grid area set up, what do you do? (Advance)
- With the rope pulled you have an easy way to see the grid on the ground. I would then assign each row a letter and number. (Advance)
- On a piece of graph paper I would lay out a grid representing the one I had laid out in the cemetery.
- Take the white board and label it with the corresponding Letter/Number for each square.

- Hold up the whiteboard or place it in the square and photograph the square.
(Advance) From here you would just move square to square until the grid area is done. (Advance)
- Once each square is photographed note the relative location of each headstone, marker, unmarked grave, trees, or other important objects on your the newly created map. (Advance)

What to Record (Brian)

- Depending on how detailed you want your map to be, you should at the very least record names, dates, and gravestone locations on your map.
- You can record other markers, corner markers, prominent landscaping like trees and hedges, ground depressions, coping, and fences.
- You can record more information in your notes if you want that will help with the creation of your map.
- The next step is to take your field map and turn it into a final copy that is more polished and readable. (Advance)

Create Your Map (Haley)

Remember the paper towel map at the start? **SLIDE** This is the end result for that site. For us, a tidy and hand-drawn map on sturdy graph paper is acceptable for our site files. This could also be your final product if you so choose. However, if you want to create something more finished and illustrated, there are many software programs that are available to the general public. **SLIDE**

Programs like Adobe Illustrator, Excel, and Power Point are options that need to be purchased. Programs like Inkscape, Gravit, and GIMP, are free to download and use. When we want something more than a hand-drawn map, our office uses Adobe and Inkscape. **SLIDE** I'm partial to Power Point for my basic graphic design needs- there are many great online tutorials for using these programs and I urge you to check them out and have fun learning the applications. **SLIDE**

Tips on Map Design (Haley)

If you are going to illustrate or hand-draw your cemetery map, there are design choices you need to think about. Graphic design of your map is an entire presentation in itself, so I'll just speak to the very basics of design choice. If our cemetery map is supposed to be a permanent record, then we need to ensure that our map is easily read and understood. Things to be aware of when creating your map: **SLIDE**

1. **Don't clutter your map.** Keep the main focus of your map to the cemetery and its immediate surroundings. These may include cemetery access roads and contributing landscape features. **SLIDE**
2. **Clarity of shapes.** Make sure the shapes you choose to represent the cemetery features are clear, distinguishable, and consistent. If hand drawn, use available drawing tools, like a ruler and drafting compass, to maintain clean lines. **SLIDE**
3. **Include Reference Point.** Include or indicate at least one nearby permanent feature like roads or waterways as a clear point of reference. This helps pinpoint your cemetery's location using features that most likely won't change. **SLIDE**

4. **Clarity of text.** Text and numbers should be neatly written or typed in a size that's easily readable for all ages and abilities. I'm partial to a font size of 12 to 20 for typed text in my map- but use whatever makes sense for your document size. Consider using dark grey text instead of black- it is still easy to read but doesn't detract from the other map elements. **SLIDE**
5. **Accessibility.** Ensuring that as many people as possible can understand your map is important. This includes considering those with color blindness, dyslexia, and other visual or reading impairments and how they may perceive your map. Luckily, there are many online guides available for your consideration and they aren't complicated. San-serif fonts are less cluttered and easier to read in general than fancier serif fonts. Arial, Calibri, and Candara are good san-serif examples. Keeping complimentary colors can create a more cohesive visual, but for those with blue, red, or green color blindness, they may not be able to discern between the colors. There are color blind safe color combinations, but the simplest tip is to focus on how your colors are shaded. Simply make sure that the lightness is different for each color. Those who are blue-blind, green-blind, or red-blind will still be able to differentiate the shading. **SLIDE** To check, just convert your image to black and white **SLIDE** and if you can tell the difference in shapes based on the shading, you've done it. **SLIDE**
6. **Include Title, Date, Location, Name of Surveyor, Key and Compass.** Keep your title simple. Always include the date the cemetery was mapped. The location should include the nearest road, if not shown on the map, and the town and

state. The surveyor's name should be noted. Map keys can be basic but are necessary to contextualize your map elements. You may want to include a scale, but I'm of the opinion that you don't need a scale all the time, simply note that the map is not to scale in the key or lower corner. Always include the orientation of your cemetery by noting which way North is. **SLIDE**

You have a map! Now what?

We not only put our maps and cemetery/site data into our files for future reference and research, but we share our findings with the public. You can do this too by sharing your map with local museums, cemetery groups, historical societies, genealogists, and municipal offices. **SLIDE**

Hopefully, we've helped you understand how mapping your cemetery doesn't have to be overly complicated. It just takes a bit of time, organization, and consideration.

Please feel free to contact us with any questions.

Thank you.