

Archeological Site Investigation & Characterization

When historical sites are discovered, the standard operating procedure is to preserve and secure the area. Archeologists are only permitted to do the careful excavation work (layer-by-layer) looking for artifacts and documenting them. That was the old method. Modern archeologists now enlists the services of geophysicists to conduct shallow high-resolution geophysical surveys to gather reconnaissance or more detailed investigation of historical sites to provide a quick subsurface image of the area. The valuable information provided by these subsurface images can help guide the archeologists find the better places to dig or to exercise caution in delicate or sensitive areas.

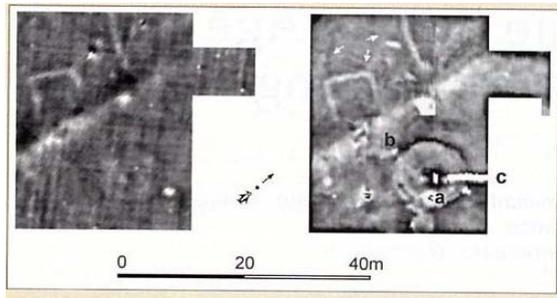


Figure 1.

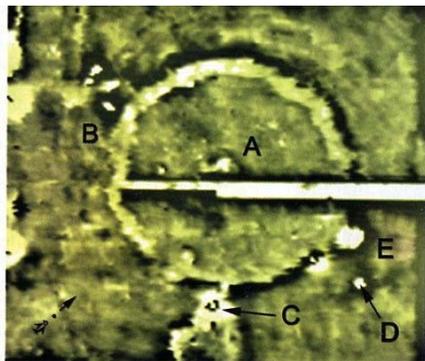


Figure 2.

For example, a case study from Europe is presented demonstrating the value of geophysics in archeological investigations (von der Osten-Woldenburg et. al., 2002). Imaging of a late Bronze Age tumulus (burial mound or grave) is shown in Figure 1 above.

The image on the left shows the initial image prior to digging. After removing a foot of topsoil, the survey was repeated over the same area. The image on the right shows a clearer image of a circular structure.

After removing another foot of soil, the magnetic image of the tumulus is more defined in Figure 2. The horizontal band across the circular structure is associated with the strip of walkway the archeologists left untouched & used to transport removed soil, minimizing their impact to the site.



Figure 3.

The two photographs in Figure 3 show different perspective views of the exposed tumulus which was a stone kerb, measuring about 13m in diameter.

LM Gochioco & Associates Inc. can provide two surveying methods (i.e. magnetometer and electromagnetics) that can enhance the subsurface imaging of historical sites prior to excavation. Depending on project objectives, the company can design a special program to simulate layer stripping via magnetic or EM imaging during intervals of excavation, as was demonstrated in this case study.

The founder, Lawrence M. Gochioco, P.G., has over 15 years of diverse near-surface geophysics experience. He has published over 25 technical papers and feature articles in various journals & magazines, and is an editor of his professional society (SEG). The company provides a wide spectrum of near-surface geophysics services and consulting.