

PROJECT PROFILE

GEOPHYSICAL SURVEY AT THE HILL HISTORICAL CEMETERY, BADEN, PA

Client: Municipality of Baden

The Hill Historical Cemetery is located adjacent to a highway (Route 65) on a small hill on the eastern bank of the Ohio River about 21 miles downstream from Pittsburgh. The cemetery was created by the Hill family in the early 1800's, and contains the graves of many of the original settlers of Baden, including several veterans from the Revolutionary and Civil Wars.

In 1792 Gen. Wayne established a military training camp known as Legion Ville, now part of the Borough of Baden. Although detailed maps of the camp are not known to exist, a sketch map prepared by Joseph Strong, one of the soldiers stationed at the camp, suggests that camp structures, possibly one of the old blockhouses or "Redoubt No. 4," is present in the cemetery.

The scope of the investigation was twofold, to use geophysical methods to identify graves that are either unmarked or have inaccurate tombstone placement and also to delineate buildings and related structures associated with Fort Legion Ville. Another factor that needed to be considered in the interpretation of the data was that the site is near Logstown, a well-known settlement of Native Americans that was the location of early contact with European traders.

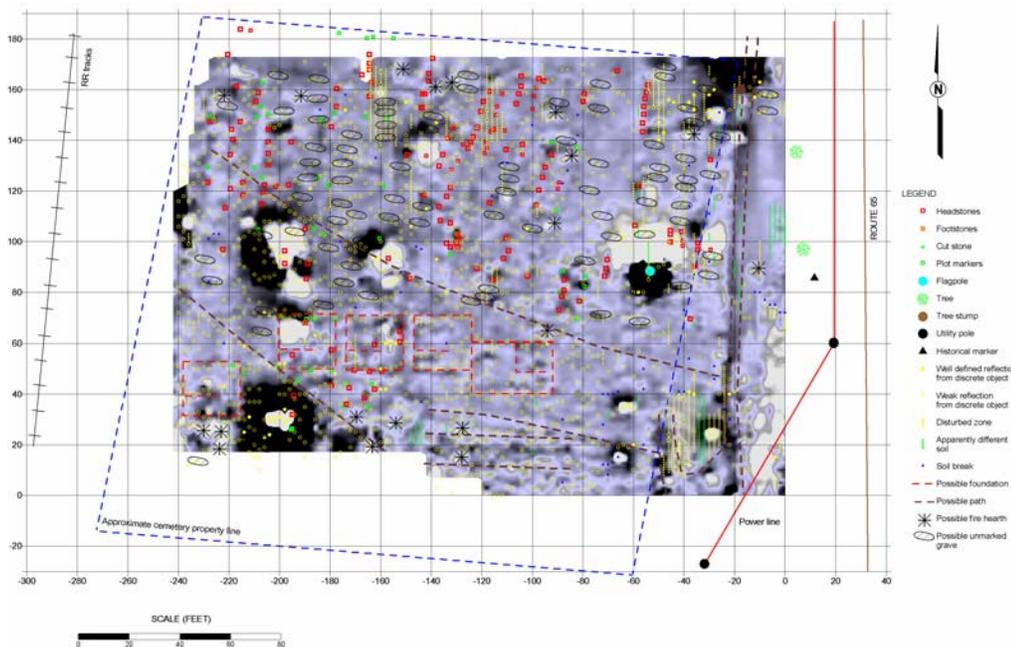
Several geophysical techniques including time-domain EM for deep metal detection, magnetic gradiometry, and ground penetrating radar (GPR) were applied at the cemetery. Magnetic data acquired with a Scintrex Smartmag cesium vapor gradiometer were interpreted in terms of



Ground penetrating radar (GPR) survey at the Hill Historical Cemetery

subtle soil changes, such as associated with buried roads, graves, building foundations, or fire hearths. Finally ground penetrating radar (GPR) was conducted using a RAMAC system to identify graves based on images from the coffins or on the basis of disturbances to soil horizons. The GPR data also provided supplementary information regarding structures and building foundations.

For the most part with few exceptions, the grave markers were found to correspond to burials, but there appear to be more than approximately 50 unmarked graves. Building foundations do appear to be present in the southern portion of the cemetery, but there is no clear identification of a structure that has the form of what was expected to be associated with one of the Legion Ville redoubts. Rather, the data indicate the presence of a series of similar small structures that have the appearance of being barracks or stables. The data indicate the presence of at least 20 locations that are likely to be fire hearths or pits.



Interpretation of geophysical data from the Hill Cemetery superimposed over the results of the magnetic gradient mapping.