

## Case Study:

# Locating Historic African American Graves Using Ground Penetrating Radar

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Geologist, Matt Turner, of *GeoModel*, conducted a Ground Penetrating Radar (GPR) Survey of the **Historic Stanton Family Cemetery in Buckingham County**, Virginia, to locate known marked and unmarked graves in this historic cemetery using Ground Penetrating Radar (GPR). In conducting grave detection surveys, the located graves are marked on the ground with paint and are subsequently plotted on a map of the cemetery which is referred to as grave mapping or cemetery mapping.

Many of the cemeteries investigated by GeoModel, like the Stanton Family Cemetery, are hundreds of years old and unmarked graves are common. There is often no visible surface expression of the burial location and misplaced or poorly positioned headstones or markers can further complicate matters. Records are often vague, lost, or incomplete and there may also be questions about the precise extent of a cemetery. Due to the sensitivity of these sites, the challenge is to explore the subsurface without disturbing the soil and burials. GPR is the most viable non-destructive method used for this highly sensitive grave detection.

Ground Penetrating Radar (GPR) cemetery surveys are non-intrusive and ideal for locating cemetery features and for detection of unmarked graves. GPR can detect several features that help identify a grave, including, coffins, caskets or vaults, and its disturbed ground structures, excavation features, and even movement or voids caused by collapse of a coffin or casket.

More recent interments up to 50 years old generally produce very distinct grave anomalies identified in the GPR profile and are most easily detected. Older graves—50 to 200 years old or more produce less distinct or minimal anomalies and are more difficult to detect. Remains of burials are easier to locate in sandy soils that are free of tree roots or stones. In cases where a vault or casket does not exist, or where the casket has completely deteriorated, the GPR data can detect disturbed soil, grave trenches, or other indications of the existence of a burial.

When descendants of the Sidney Stanton, Jr. Estate prepared the National Register for Historic Places nomination in 1992 for the Stanton Family Cemetery, it was estimated that there were at least 36 burial sites. With the use of innovative Ground Penetrating Radar, an additional 13 unmarked graves were identified, raising the total number to 49 burials.

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