Geoarchaeological Investigations in WNY Using Ground Penetrating Radar

Ground Penetrating Radar (GPR) is a geophysical tool used for studying the subsurface. An antenna dragged across the surface emits electromagnetic waves, which are then reflected back to the antenna and recorded. Interaction of the radar signals with subsurface materials and layers reveals features useful for many scientific applications including near-surface geology, archaeology, and engineering. In this study, GPR was used at 3 sites in WNY including Old Fort Niagara and two cemeteries. In order to better understand remaining archaeological features at Old Fort Niagara, a large GPR survey was conducted at the fort revealing foundations, hearths, and past topography associated with a seawall. To aid interpretation, data was compared to historic maps of the fort to create a GPR-based map of what archaeological features remain in the subsurface today. This map can now be used for the planning of excavations by the Buffalo State Archaeological Field School in the summer of 2015 and in subsequent years.

GPR surveys were also conducted at the Holy Mother of the Rosary Cemetery in Cheektowaga, NY, and Oakwood Cemetery in Niagara Falls, NY. At each of the sites, poor or lost records resulted in a plethora of lost or unknown locations of burials. As part of ongoing restoration projects at the sites, GPR was used to map the locations of lost burials providing accurate locations. At both sites, many lost graves were revealed, and in one 20 x 20 m grid at the Holy Mother of the Rosary Cemetery, roughly 60 graves were mapped. At both cemeteries and Old Fort Niagara, a non-invasive technique was required for collecting data and mapping the subsurface making GPR a favorable tool.