

## **USE OF GROUND PENETRATING RADAR TO EVALUATE HISTORICAL SITE GEOLOGIC DATA**

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Historical site investigation strategies have typically involved the installation of intrusive borings that are used to make decisions towards site characterization and modelling. The number of borings installed is a function of the site objectives; however, the information gathered comes at a large time and budgetary expense. Digital geophysical mapping (DGM) has become a time-proven process to provide qualitative and quantitative subsurface information for environmental investigations and used to develop site investigation and remediation strategies. With increasing redevelopment and reuse of former industrial sites, cost effective methods to adequately assess existing data sets have become increasingly more valuable. This can be achieved through the use of geophysical methods to validate existing data and models (e.g. geologic cross sections) and to fill data gaps that may exist from previous investigations. At a site in southeast New Hampshire, a geophysical investigation was employed to validate existing geologic cross sections in areas where information between existing borings was needed and cross sections were available. These cross sections were developed from intrusive borings to develop a conceptual site model of a complex geologic environment. The complexity is due, in part, from structural faulting and high lateral and vertical heterogeneity within overburden sediments. The employed ground penetrating radar investigation was effective in validating multiple geologic interpretations with detail difficult to achieve using standard drilling or sampling techniques. When properly integrated and sequenced, these surveys can reduce costs, improve project efficiency, and enhance subsurface detail without the use of additional intrusive means of site characterization.