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COMBINING TWO TECHNOLOGIES TO HELP MAP WATER LINES AND REDUCE PROJECT COST

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ABSTRACT: This paper presents two separate but related technologies used together to reduce project cost and create accurate three-dimensional models of nonconductive water mains.

Computer Assisted Radar Tomography (CART), RT for short, was used on a utility mapping project in Hampton Roads area of Virginia. Conventional Subsurface Utility Engineering (SUE) Quality Level A services were proposed to be used to obtain the location of nonconductive water lines. An estimated 150 testholes would be necessary to map the water lines in an upscale waterfront subdivision. Many of these testholes were staked to be dug on some very expensive landscaping.

By using RT, many of the excavation sites were eliminated, preserving landscaping and neighborhood goodwill.

RT uses an array of ground-penetrating-radar (GPR) antennae and SUE Quality Level A uses non-destructive and minimally intrusive vacuum excavation methods coupled with conventional electromagnetic (EM) technology to expose utilities at critical points. Since EM technology could not be used on this site, RT proved to be a successful alternate solution. By choosing RT, the original estimate was reduced 66 percent. Not only was the job completed on time but the deliverable was accurate since both technologies were used together. In addition, concerned homeowners were pleased with the use of new technology to preserve their landscaping.