

Geospatially Correct SUE

Geospatially Correct SUE Global Raymac Surveys Inc.(GRSI) & T2ue joined forces to solve a client's problem of 'what are their assets above and below ground?'. This case took place in Hardisty, Alberta.

As all survey companies think they can designate, GRSI recognises the intricacies of SUE and the advanced geophysics required to properly execute in determining the subsurface utilities. With GRSI gaining a thorough understanding of the CI/ASCE Standard 38-02, T2ue was engaged. As such, there was a teaming agreement put in place between GRSI & T2ue in order to execute for the client. High-Level Project Scope & Overview:

PHASE I – HORIZONTAL VERIFICATION

- Complete a utility circulation and review information received from the client and the Utility Owners (QL-D).
- Verify and establish site survey control for coordination with geophysical utility locating techniques to determine the true horizontal position of conductive utilities within the project area. Tools utilized were GNSS, Conventional Total Station, Digital Level, UAV, Laser Scanning along with single/multi-frequency electromagnetic cable locating equipment. Verified utilities were marked in pink paint/flags/stakes which is the standard industry color for temporary markings (QL-B). o Conductive utilities within the project limits were included in the field investigation and o As an additional step, T2ue used inductive scanning techniques in critical areas in an attempt to verify any conductive undocumented utilities.
- GRSI surveyed the results from the utility designating in parallel with T2ue.
- Collected all data and compiled a utility drawing as per ASCE 38-02, showing the horizontal location of the underground utilities at the described quality level over the project area. The deliverable was a 2D plan overlaid on current aerial imagery from the UAV flights.

PHASE II – MULTI-CHANNEL GROUND PENETRATING RADAR (MCGPR) AND SURVEY

- T2ue completed a scan of the area using Multi-Channel Ground Penetrating Radar (MCGPR) Equipment. This system was georeferenced with GRSI's site control and equipped with a GNSS receiver to correlate the data mitigating the need of any transformations when processing the files.
- The STREAM-C system is a multi-channel ground penetrating radar solution dedicated to utility locating and mapping. It utilizes 32 separate channels, with double polarized (VV and HH) antennas operating at 600 MHz to cover wide surfaces in a single path. All data was collected 'spatially correct' and identified using survey grade GNSS correlating to the client's site control. The end deliverable and goal of the project for the client was a 3D geospatially correct model of above and below ground infrastructure. This idea came about when listening about the previously failed companies that promised an investigation as described and couldn't deliver what was promised. The true problem was that the previous attempts were executed by survey companies that did not have the skillset to deliver the proper sub-surface investigation. GRSI's relationship with T2ue is what started the initial thoughts of this project to solve the client's problem and with the expertise of both teams working as one, a successful project was completed and delivered to our client.