GEOTEST
An RMA Company

1.888.251.5276
Bellingham | Arlington | Oak Harbor | Tacoma
www.geotest-inc.com

SUBSURFACE SURVEY GROUND PENETRATING RADAR (GPR) EVALUATION					
Project Name	Raplee Property - GPR	**Project No.**	24-2153	**Date**	9/12/2024
Project Address	9816 271st Street NW Stanwood, WA 98292				
Client Address	Maul Foster & Alongi, Inc. (MFA) 1329 North State Street, Suite 301 Bellingham, WA 98225				
Attention	Carolyn Wise, MFA Senior Hydrogeologist				

PROJECT DESCRIPTION					
GPR Scan Type	Subsurface	**Date of Scan**	9/11/2024	**Operator(s)**	AD
Site Plan	Yes	**Photo**	Yes	**GPR Cross-Sections**	Yes
Location	Remainder of Requested Area at the Site of Former Fuel Station				
Equipment	GSSI SIR 3000 w/ 270 MHz antenna				

GeoTest was on-site to perform a GPR subsurface investigation in the area noted above (see Image 1 for extent). This subsurface investigation was conducted to determine the presence of potential decommissioned underground storage tanks (USTs) within the requested area. The client requested this investigation in conjunction with their ongoing environmental work at the site. GeoTest's findings will aid in identifying potential sources of contamination in this area. The area scanned on this date was previously inaccessible due to dense vegetation. See GeoTest's GPR Report dated 7/19/2024 for results of a previous scan conducted at this location.

FINDINGS

Upon arrival, GeoTest was directed to the requested area by a Department of Ecology (DOE) representative. During the scan, indications of potential USTs were marked on the ground in pink spray paint, along with the observed depth of each identified anomaly. Findings are described below:

- Anomaly 1 (see Image 1 for approximate location) measured approximately 3' x 4' and was observed at approximately 2.5' below the scanned surface (BSS).
- Anomaly 2 measured approximately 5' x 5' and was observed at approximately 3' BSS.
- Anomaly 3 measured approximately 9' x 6' and was observed at approximately 5' BSS.
- Anomaly 4 measured approximately 6' x 5+' and was observed at approximately 4' BSS. The site fence line obstructed the GPR scan from identifying the western edge of this anomaly.
- Anomaly 5 measured approximately 3' x 4' and was observed at approximately 5' BSS.

The results of the scan were communicated to the DOE representative prior to departure. GPR cross-sections and images of each identified anomaly can be found in the images included in this report.

EQUIPMENT AND METHODOLOGY

GSSI SIR 3000 Ground Penetrating Radar

The GSSI SIR 3000 GPR is used to detect changes in subsurface composition and to identify features underground by interpreting reflected radar waves emitted from a scanning antenna. The reflected radar waves detect changes in dielectric properties of subsurface features such as metals, bedrock, varying soil, plastic, concrete, clay pipe, and organic material. The GSSI SIR 3000 unit displays cross-sectional images of the subsurface on a video monitor which can then be utilized to interpret underground features. Scanning was performed utilizing a 270 MHz antenna. Typical scan depth utilizing a 270 MHz antenna can range from 5 feet to 15 feet below the scanned surface depending on soil type and overlying mediums such as surface water, groundwater, concrete, and asphalt.

LIMITATIONS

GeoTest has prepared this report for the exclusive use of City of Stanwood and their representatives regarding the above-referenced project. Use of this report by others is at the user's sole risk.

Because depth of exploration is dependent upon the electrical properties of material(s) inspected and interpretations are opinions based on judgments made from those acquired radar signals and/or other data, GeoTest does not extend any warranties or guaranties as to the accuracy or correctness of interpretations and GeoTest will not accept liability or responsibility for any loss, damage, or expense that may be incurred or sustained by any services or interpretations performed by GeoTest, or others.

GPR scanning cannot distinguish the difference between utilities, anomalies, variable soil conditions, and/or subsurface target 100% of the time. It can only detect the center and approximate depth of targets. GeoTest recognizes that other conditions may vary from those encountered at the location where geophysical or other explorations are made. The data interpretations and recommendations made by GeoTest are based solely on the information available to them at the time of performance; and GeoTest shall not be responsible for the interpretation, by others, of the information developed.

Submitted By	 Alex Davis, G.I.T. GPR Operator

Image 1: Site map with the extent of the requested area bordered in yellow, and the approximate extent of the area scanned on this date bordered in red. The blue border indicates the approximate boundary of the fence line. The approximate location of subsurface anomalies identified on this date are marked and numbered in pink .

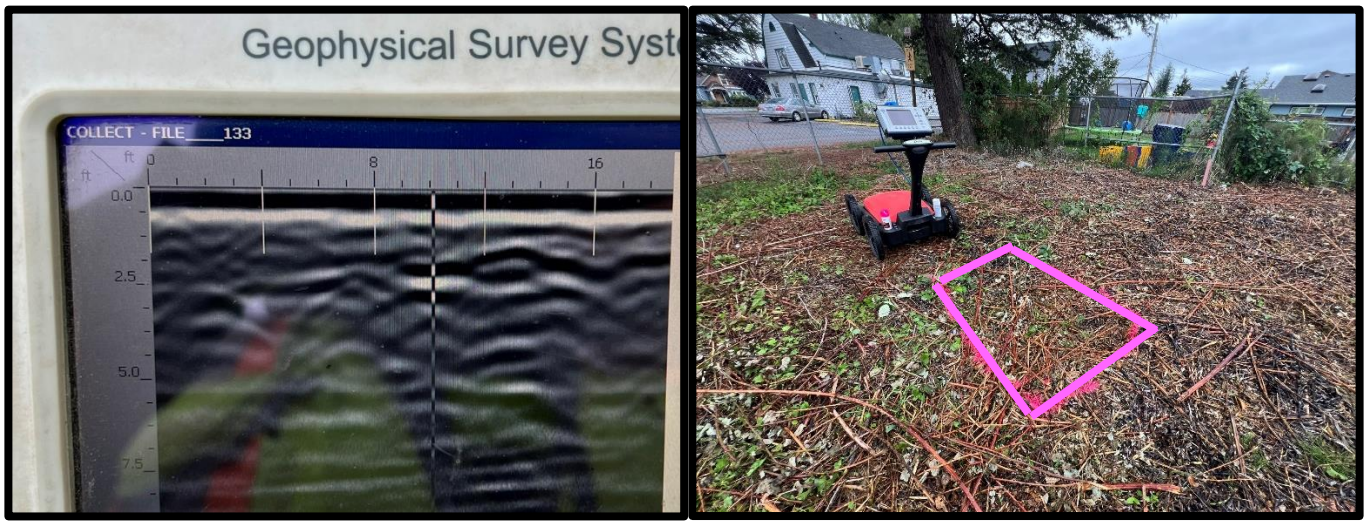

Image 2: GPR cross-section with vertical reference line centered on Anomaly 1 (left). Its observed extent is outlined in pink (right).

Image 3: GPR cross-section with vertical reference line centered on Anomaly 2 (left). Its observed extent is outlined in pink (right).

Image 4: GPR cross-section with vertical reference line centered on Anomaly 3 (left). Its observed extent is outlined in pink (right).

Image 5: GPR cross-section with vertical reference line centered on Anomaly 4 (left). Its observed extent is outlined in pink (right).

Image 6: GPR cross-section with vertical reference line centered on Anomaly 5 (left). Its observed extent is outlined in pink (right).