

## **Penn's Trail Environmental, LLC**

**21 E. Lincoln Ave. - Suite 160**

**Hatfield, PA 19440**

**Phone: (215) 362-4610**

**e-mail: [staff@pennstrail.com](mailto:staff@pennstrail.com)**

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February 23, 2024

### **RE: Phase II Geophysical Investigation**

**1150 N. Broad Street Site  
Hatfield Township, Montgomery Co., PA  
PTE# 6739**

Penn's Trail Environmental, LLC has completed the Phase II Geophysical Investigation of the 1150 N. Broad Street site. The investigation did not identify metal anomalies on the site indicative of buried underground tank(s) or former tank excavations. The following provides details of the investigation.

The Phase II Geophysical Investigation work was initiated due to the findings of the Phase I Environmental Assessment of the Harris Site completed on May 21, 2019 by Boucher & James, Inc. The Phase I Environmental Assessment noted that two underground gasoline tanks, associated with a former gas station on the site, were reportedly removed from the property. Documentation of the removal was not provided.

The geophysical investigation primary investigative tools included a ground penetrating radar (GPR) scan and electromagnetic (EM) scan. The GPR scan is used to identify underground features such as previous excavations and utilities. The EM scan is used to identify underground metal anomalies. A copy of the geophysical report is attached and provides additional details.

The geophysical investigation focused on the areas to the side and front of the existing building. Numerous underground utilities were identified to the front and sides of the building. An apparent reinforced concrete pad, beneath the existing asphalt parking lot, was identified to front of the building. This pad appears to surround the former pump island. However, no excavations or metal anomalies indicative of a buried tank(s) was identified. The current structure covers the majority of the former structure's footprint as well as being significantly larger. Based on the reported removal of the tanks and no excavations being identified, the former underground storage tanks were likely located under the east portion of the current building's footprint.

If you require further details concerning our investigation, please feel free to contact me.

Sincerely;

**Penn's Trail Environmental, LLC by;**

Mr. Terry Harris  
Environmental Science Division Manager

Attachment



Summit Drilling, LLC  
81 Chimney Rock Road  
Bridgewater, NJ 08807  
Phone: (888)-204-3266  
Fax:

February 19, 2024  
Report number R4762

Terry Harris  
Penn's Trail Environmental, LLC  
21 E. Lincoln Ave.  
Suite 160  
Hatfield, PA

**Subject:** Geophysical Investigation Results  
1151 N Broad St, Lansdale, PA  
1150 N Broad St, Lansdale, PA

Dear Terry,

Summit Drilling, LLC (Summit), has prepared this report for Penn's Trail Environmental, LLC (PennTrail) of Hatfield, PA to describe the methods and results of a geophysical investigation conducted at the Lansdale sites. The sites consist of an auto dealership. The investigation area for this project was located throughout the two properties. The field work for this investigation was completed by Summit on January 30, 2024 and January 31, 2024.

## **Objectives**

The primary objective of this investigation was to locate metallic anomalies and anomalous features. Summit was also tasked with locating potential buried utility pipelines or anomalies directly below and in the immediate vicinity of twenty-two (22) proposed drilling locations. To meet this objective, Summit used a GSSI SIR 4000 GPR data acquisition system with a 350-megahertz (MHz) ground-penetrating radar (GPR) antenna, a hand-held electromagnetic (HHEM) Fisher TW-6 M-Scope and an RD8000 radio frequency (RF) device by Radiodetection, Inc.

## **Instrumentation**

### *Ground Penetrating Radar (GPR)*

Ground penetrating radar (GPR) is a near surface geophysical method based on the transmission of repetitive, high-frequency electromagnetic (EM) pulses emitted from a transmitting antenna to probe the Earth. The EM pulses emitted from the transmitting antenna propagate through the subsurface at a velocity that is directly related to the electrical properties of the subsurface. When an EM wave contacts an interface of differing electrical properties (e.g., dielectric constant), part of that energy is returned to the surface in the form of a reflected signal. The reflected signal is detected by a receiving transducer, displayed on the control screen, and recorded on an internal hard drive. The control unit records a continuous cross-section of the subsurface by plotting the two-way travel time of the EM pulse, relative to the distance traveled by the GPR antenna along to the ground surface. To determine depth, two-way travel time values are converted using known soil velocity functions. GPR field procedures include:

system calibration, test run completion, and profile collection and interpretation. GPR data collected in the field can be analyzed both in the field and in the office, should further analysis be required.

### *Radio Frequency Method (RF)*

The instrument consists of a receiver/tracer and a remote transmitter, which operates at frequencies between 8 kilohertz (kHz) and 200 kHz. The unit provides audio and visual feedback to the operator when a utility that is coupled with the transmitted signal is crossed. The transmitter provides a radio-frequency signal in the utility to be traced by either induction coupling or direct hookup. The receiver output provides measured field strength of the received signal and varies an audible pitch that is dependent upon the distance to the utility. By carefully adjusting the gain of the receiver, it is possible to determine the location of the utility and to separate it from possible adjacent utilities. In addition, the receiver can be used in 60kHz passive mode to identify active electrical lines or lines that possess an induced current.

### *Fisher TW-6 M-Scope*

The M-Scope is an EM instrument used to detect the presence of buried metallic objects such as buried drums, metallic conduits, or miscellaneous metallic debris buried within the upper 3 to 5 feet of the subsurface. The Fisher M-Scope uses the principles of electromagnetic induction. A primary coil broadcasts a radio signal from a transmitting antenna, and induces secondary electrical currents along buried metallic objects. The secondary electrical current in turn produces a secondary magnetic field, which is then detected by a receiving antenna. Peak responses are observed when the instrument is moved directly over a metallic object. Peak responses are observed by the operator in real time using the analog meter and audible output signals.

## **Results and Discussions**

### *Proposed Drilling Locations*

Summit investigated a total of twenty-two (22) proposed exterior drilling locations. All of the final boring locations displayed geophysical characteristics which did not indicate the presence of a buried utility pipeline/corridor or anomalous GPR features that may adversely impact drilling operations. Summit determined these locations as final when the RF and GPR instrument responses did not indicate the presence of potential buried objects. Proposed boring locations were marked on the ground with paint as a dot inside of a circle. The boring locations are indicated on **Figures 1-2**.

### *EM (Metallic) and GPR Anomalies*

Summit detected a total of four anomalous features within the survey areas. Of the four, two were found to contain elevated EM values (A1 and A2). The remaining anomalies (E1 and E2) did not contain any elevated metallic readings. The table below (**Table 1**) contains details of the anomalies including a brief description of noteworthy features identified on the date of the field survey. The anomalies were

delineated using the EM instruments, scanned using the GPR unit, and field marked using paint and pin flags. Summit also detected several areas containing steel-reinforced concrete. While no additional UST-style anomalies were detected under the reinforced slabs, the steel-reinforcement negates the use of the EM instrument and severely limits the effectiveness of GPR. As a result of this, Summit can never eliminate the possibility of a UST or any metallic structure beneath any steel-reinforced slab.

**Table 1: EM and GPR Anomaly Descriptions**

Anomaly	GPR and EM Description	Transect #
A1	5' x 3' EM anomaly containing a layer-style GPR anomaly at ~1.5' bgs	/
A2	4' x 4' EM anomaly containing a point-style GPR anomaly at ~1.5' bgs	/
E1	24' x 10' Nonmetallic excavation-style GPR anomaly	/
E2	24' x 21' Nonmetallic excavation-style GPR anomaly	/

*Buried Utilities*

Summit identified several buried utility pipelines throughout site including private electric, hydraulic lift piping, water, gas, storm sewer, and sanitary sewer drain lines. Additionally, several unknown linear pipe-style GPR anomalies were also detected within the survey areas. All detected piping was marked in the field using a combination of chalk, spray paint, and colored pin flags. The lines are annotated on the attached figures following the American Public Works Association (APWA) uniform color code standards for utility mark-outs. See **Table 2** below for APWA color code standards.

**Table 2: APWA Uniform Color Code Standards for Utility Mark-outs**

Color	Designation
Red	Electric power lines, cables or conduit
Orange	Telecommunication, alarm and signal lines
Green	Sanitary or storm sewer, drainage lines
Yellow	Gas, oil, steam, petroleum, or gaseous material
Blue	Potable water lines
White	Proposed intrusive work (drilling/ excavating)
Pink	Temporary survey markings/ geophysical anomaly
Purple	Reclaimed water, irrigation, and slurry lines

*Data Quality and Closing*

The GPR data quality for this project was poor. Penetration of GPR signals within the subsurface in the investigation areas on this project extended to a depth of approximately 3' below ground surface. The RF instrument encountered minimal interference throughout the property.

The interpretations made in this report are based on measured geophysical responses and visual observations made in the field using the best available equipment and techniques. The geophysical data collection and interpretation methods used in this investigation are consistent with standard practices applied to similar geophysical investigations. The correlation of geophysical responses is based on past results of similar surveys, although it is possible that some variation could exist at this site. Due to the nature of geophysical data, no guarantees have been made or inferred regarding the presence or

Penn's Trail Environmental, LLC  
21 E. Lincoln Ave.  
Suite 160  
Hatfield, PA  
February 19, 2024

absence of additional objects or targets beyond those identified or beyond the detection limits of the instrumentation used in this investigation. Summit does not accept responsibility for survey limitations due to inherent technological limitations or unforeseen and varying site-specific conditions. In practical terms, Summit serves to reduce the risk of encountering subsurface infrastructure during intrusive operations or greatly increase the chance of locating underground targets depending on the goal of the project.

If you should have any questions or concerns, please do not hesitate to contact us.

Sincerely,

**Summit Drilling, LLC**  
**Geophysics Group**

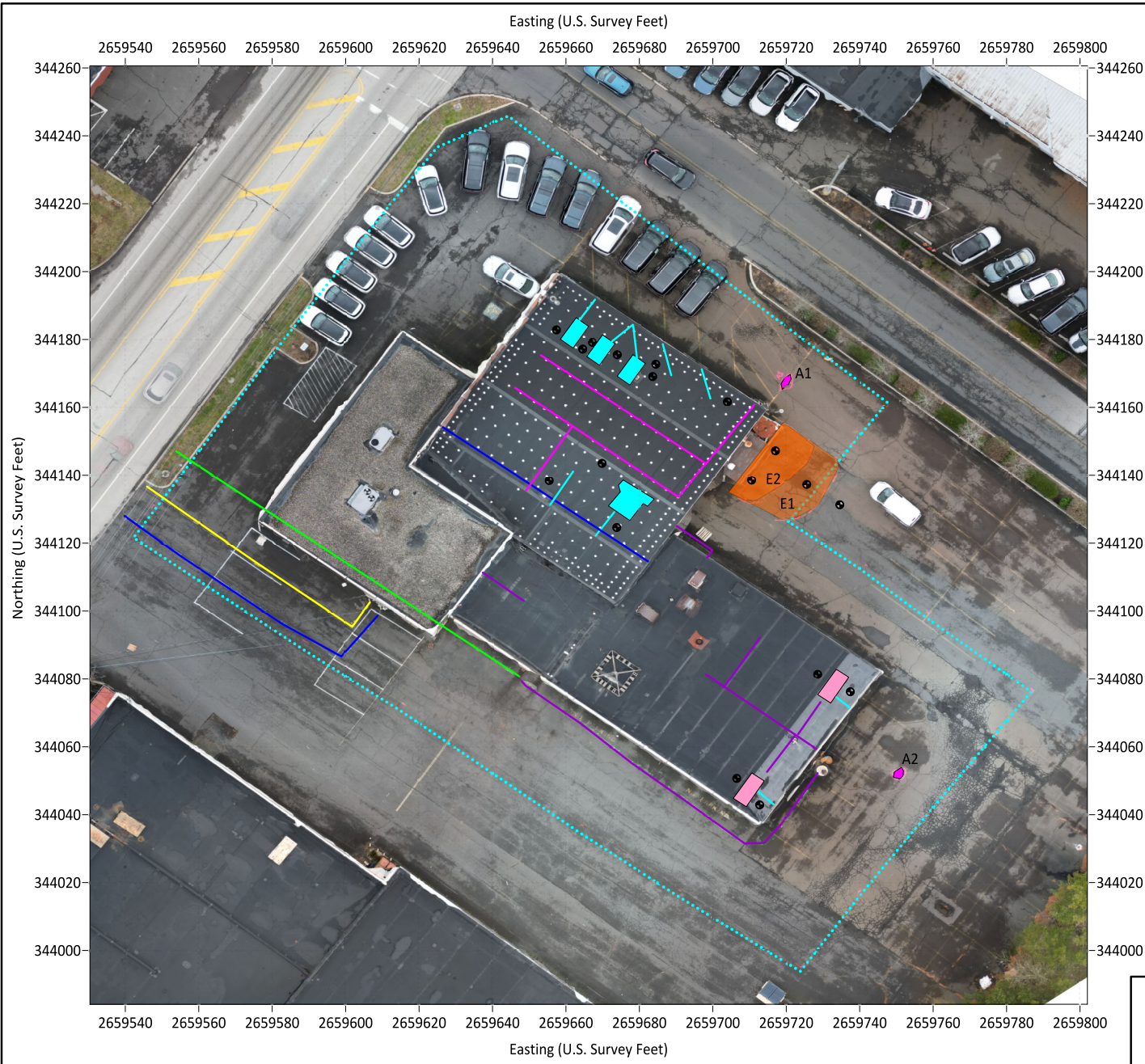


Andrew Supplee, B.S.  
Geophysicist

**Attachments:**

Figure 1: Annotated geo-referenced drone photo showing buried utilities and site features.

Figure 2: Annotated drone photo showing buried utilities and site features.

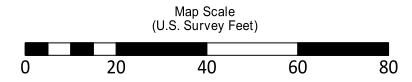


Site: 1151 N Broad St  
Lansdale, PA

**Legend:**

- Electric
- Telecommunication
- Water
- Sanitary Sewer
- Storm Sewer
- Natural Gas
- Linear pipe-style GPR anomaly
- Hydraulic lift piping
- Soil Borings
- - - TW-6 EM Survey Area
- EM anomaly
- Hydraulic lift grave
- Hydraulic lift
- Excavation-style GPR anomaly

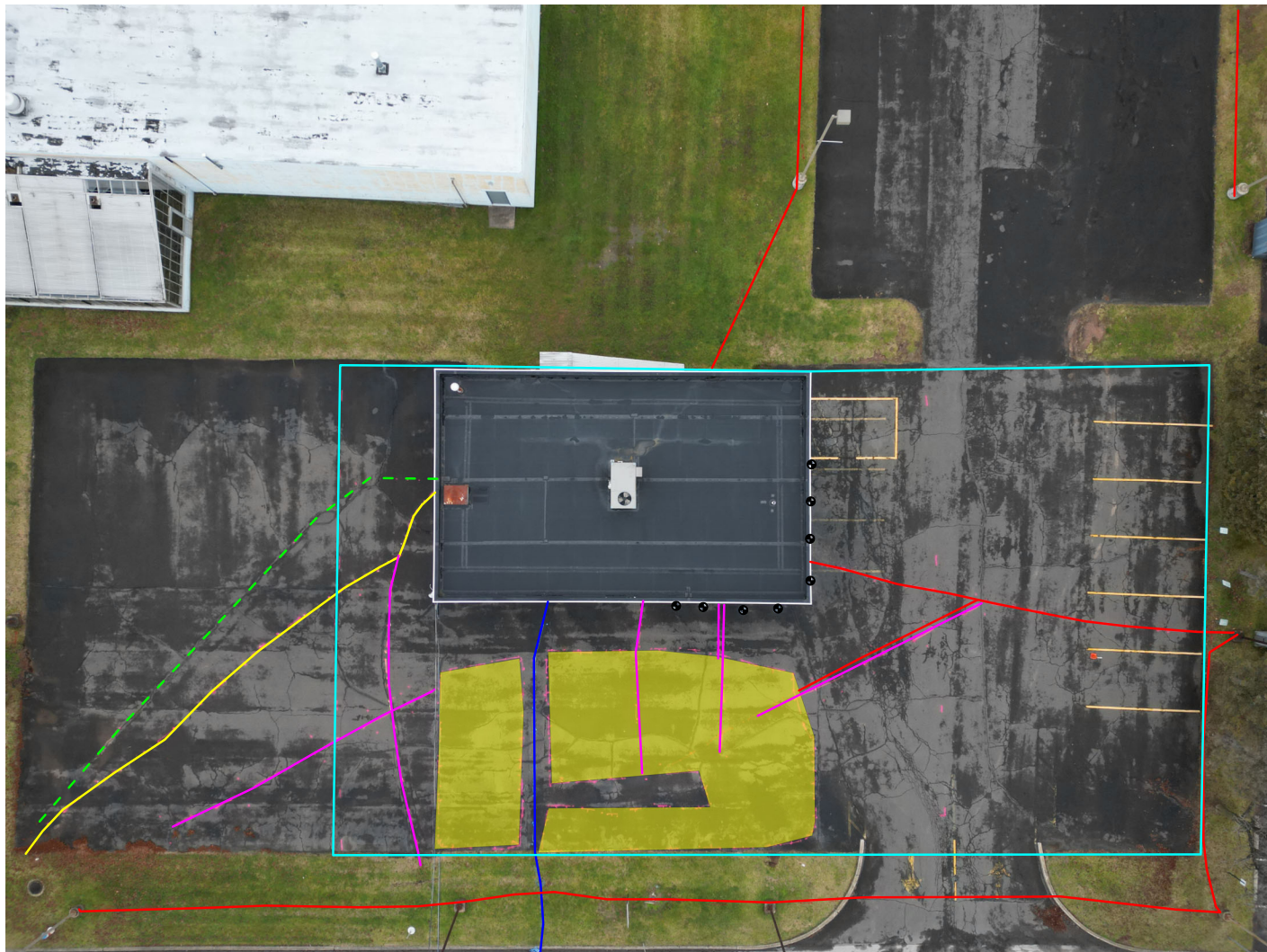
\*Dashed utility markings on the figure indicate inferred line locations



**Notes:**

- (1) The primary objective of this geophysical survey was to locate buried utilities within the vicinity of fourteen specific drill locations. Summit was also tasked with locating buried EM anomalies within the perimeter of the building as well as locating the graves of two previously removed USTs. To meet the objectives of the investigation, Summit used a GSSI SIR System 4000 Ground Penetrating Radar (GPR) unit with a 350 MHz antenna, a hand-held electromagnetic (HHEM) Fisher TW-6 M-Scope and a Radiofrequency (RF) device by Radiodetection, Inc.
- (2) Summit detected several buried utilities within the survey area. They are shown on the georeferenced drone photo in Figure 1 that was taken on the day of the survey. Summit also located two EM anomalies and two non-metallic excavation-style GPR anomalies.
- (3) The positions on this map should be considered approximate. They were not surveyed by a licensed surveyor.
- (4) The items on this figure may not be all inclusive. Summit does not warrant the fact that additional buried features may be present at this site.

		ANNOTATED GEO-REFERENCED DRONE PHOTO SHOWING BURIED UTILITIES AND SITE FEATURES	
		ADDRESS: 21 E. LINCOLN AVE. SUTIE 160, HATFIELD, PA 19440	
PROJECT #:	R4762	CLIENT: PENN'S TRAIL ENVIRONMENTAL, LLC	FIGURE 1
FIGURE DATE:	January 30, 2024	DRAWN BY: A. SUPPLEE, GEOPHYSICIST	



Site: 1150 N Broad St  
Lansdale, PA


**Legend:**

- Electric
- Telecommunication
- Water
- Sanitary Sewer
- Storm Sewer
- Natural Gas
- Linear pipe-style GPR anomaly
- Reinforced concrete pad
- TW-6 Survey area
- Soil Borings

\*Dashed utility markings on the figure indicate inferred line locations

**Notes:**

- (1) The primary objective of this geophysical survey was to locate buried utilities within the vicinity of eight specific drill locations. Summit was also tasked with locating buried EM anomalies within the perimeter of the building. To meet the objectives of the investigation, Summit used a GSSI SIR System 4000 Ground Penetrating Radar (GPR) unit with a 350 MHz antenna, a hand-held electromagnetic (HHEM) Fisher TW-6 M-Scope and a Radiofrequency (RF) device by Radiodetection, Inc.
- (2) Summit detected several buried utilities within the survey area. They are shown on the drone photo in Figure 2 that was taken on the day of the survey.
- (3) The positions on this map should be considered approximate. They were not surveyed by a licensed surveyor.
- (4) The items on this figure may not be all inclusive. Summit does not warrant the fact that additional buried features may be present at this site.

 724 S. 27TH STREET EASTON, PA 18045		ANNOTATED DRONE PHOTO SHOWING BURIED UTILITIES AND SITE FEATURES	
		ADDRESS: 21 E. LINCOLN AVE. SUITE 160, HATFIELD, PA 19440	
PROJECT #:	R4762	CLIENT:	PENN'S TRAIL ENVIRONMENTAL, LLC
FIGURE DATE:	JANUARY 31, 2024	SUMMIT DRILLING, LLC	
		DRAWN BY:	A. SUPPLEE, GEOPHYSICIST
			<b>2</b>