

December 8, 2016



JP Ilves  
JPI Associates, Inc.  
725 Market Street  
Gloucester City, NJ 08030

Re: Geophysical Utility Scan Summary  
889 Dekalb Pike  
Blue Bell, Pennsylvania  
GeoSeek Project No. 16205

Dear Mr. Ilves,

GeoSeek LLC (GeoSeek) is pleased to present the following summary report of the Geophysical Utility Scan conducted on December 6, 2016 at 889 Dekalb Pike, Blue Bell, Pennsylvania (the Site). The purpose of the scan was to determine and mark the locations of utilities at the Site.

#### **METHODOLOGY AND LIMITATIONS**

**A. *Metal Detector Scan:*** GeoSeek utilized a Fisher Model TW-6 Twinbox (transmitter/receiver) Metal Detector (TW-6) to assist in locating potential metallic objects in the accessible area at the site. The TW-6 transmitter produces an electromagnetic (EM) radio signal which creates a secondary current in subsurface metal objects. The secondary current creates an EM field which is detected by the receiver. The unit's audible signal will rise in pitch and the analog meter will indicate a rise in response when the unit is over a subsurface metallic object. The operator carried the TW-6 and scanned the accessible areas of the Site in a grid pattern. If the devices indicate the presence of metallic objects, the operator will mark the location with spray paint.

**B. *Ground-Penetrating Radar (GPR) Scan:*** GPR data were collected with a Sensors and Software Inc. Noggin SmartCart GPR System (SmartCart) utilizing a 250 MHz antenna. The antenna, containing both a transmitter and a receiver, is rolled along the ground surface during the GPR survey. The transmitter radiates short pulses of high-frequency EM energy into the ground. When the wave encounters the interface between two materials having different dielectric constants (dielectric permittivity), a portion of the energy is reflected back. The signal is transmitted to a control unit, displayed on a monitor, and digitally recorded. The Noggin<sup>plus</sup> system records an image of the subsurface by plotting two-way travel time of the reflected EM pulse on the vertical axis with the distance traveled along the ground surface plotted on the horizontal axis. The depth of the reflecting object or stratum is then determined by using known soil velocity functions and calculating two-way travel time values.

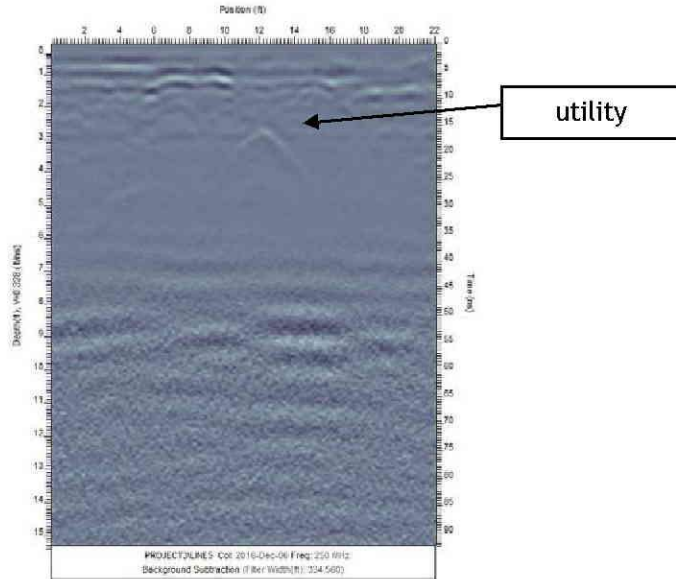
GPR data were collected in selected accessible areas at the Site. The maximum depth of investigation was approximately 4 feet at this Site. The data were processed using Ekko View software. Generally, the potential presence of USTs or other significant subsurface objects are indicated by the presence of large hyperbolic signatures at depth. Smaller objects such as utilities or other objects are indicated by the presence of smaller hyperbolic signatures.

**C. *Utility Locator Scan:*** GeoSeek utilized a Radiodetection Model RD8000 transmitter/receiver to identify underground utilities at the site. The RD8000 receiver will pick up the 60 Hz signal given off by live subsurface electrical lines in addition to radio and cable frequencies carried by other subsurface utilities. The RD8000 transmitter is also attached directly to exposed utility lines to allow conductive tracing of the lines at 65.5 kHz frequency with the receiver. Audio and visual signals from the receiver are observed to identify the location of the utility which is marked by the operator with spray paint and/or flags.

**D. *Limitations:*** Limitations encountered during the investigation included the structures on Site, reinforced concrete, vehicles and other obstructions. Please note that EM, GPR and utility locating are remote sensing methods and in some instances, due to interference or other geophysical limitations, do not reveal data which may be indicative of subsurface anomalies. The findings of this investigation should only be used as a tool in evaluating the possibility that USTs or other hazards are or were once present on the property and is not intended to be a guarantee or warranty regarding the presence or absence of USTs, subsurface hazards, location of utilities and/or the environmental condition of the site. Due to the limitations at this Site, the possibility exists that unidentified subsurface objects are present at the Site. Soft dig techniques are recommended for any intrusive activities.

## **FINDINGS**

On December 6, 2016 GeoSeek performed a geophysical scan with the TW-6, GPR and RD8000 to determine the location of utilities in the selected areas of the Site. Evidence of unknown USTs was not observed in the geophysical data collected at the Site. Water, electric, storm water, current UST related piping, and unidentified piping were identified and marked in the field with spray paint and shown to the Client's representative on Site. A representative GPR data scan collected at the Site is shown below.



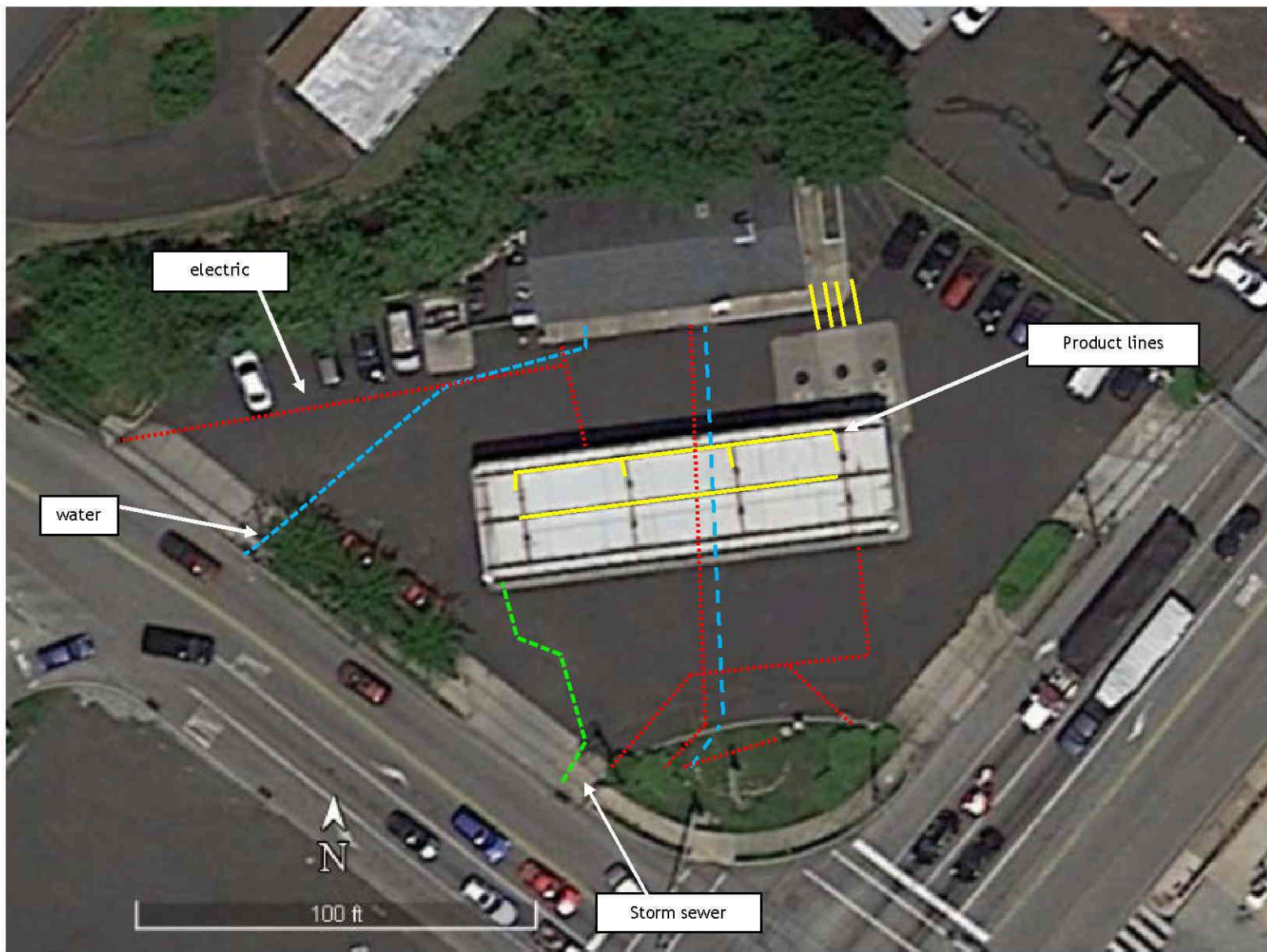
These findings are based upon interpretation of the geophysical data and visual observations at the Site, therefore, conclusive determination would require intrusive investigation. If there are any questions regarding this report, please contact the undersigned at 732-505-0990.

This report has been prepared and is respectfully submitted by

GEOSEEK LLC

Dru E. Wilbur, P.G.  
President





All utility locations are approximate and would need to be verified via visual observations. Soft dig techniques are recommended for any intrusive activities.

Prepared by



217 Henley Avenue  
Pine Beach, NJ 08741

### Figure 1 -Utility Map

889 Dekalb Pike  
Blue Bell, Pennsylvania

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for:

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