

Geophysical Investigation Report

Location:

**White Plains Mall
200 Hamilton Avenue
White Plains, NY 10601
(AGInc. Job No. 1919933)**

Prepared for:

**SESI Consulting Engineers
12A Maple avenue
Pine Brook, NJ 07058**

Investigated and prepared by:

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Completed on:

March 26th and 29th, 2021

INTRODUCTION

American Geophysics, Inc. (AGInc.), is a geophysical survey and investigation services firm which provides Environmental & Engineering Geophysics (EEG) services to the environmental consulting, construction, and engineering communities. Led by over 20 years of field experience, AGInc. takes pride in providing the highest training for our technicians and the use of the most current and state-of-the-art equipment. This winning combination of experience and technology results in the most accurate findings.

METHODOLOGY

Geophysical surveys are typically accomplished by employing the following techniques; Ground-penetrating Radar (GPR), electromagnetic metal detector (Fisher TW6), radio frequency line locating (RF), Electromagnetic Profiler (EM). Underground storage tanks (USTs), utilities, and metallic anomalies are typically traced and mapped with RF, GPR, EM, and a magnetometer depending on the size, matrix and conductive properties of the targets. Site conditions and client specifications of the areas of concern (AOCs), determine the survey approach and equipment used to provide the most comprehensive data possible.

Equipment Used:

Radiodetection RD1100 250MHz ground penetrating radar (GPR)

Radiodetection RD8000 PDL pipe and cable locator

GSSI Mini XT 2.7 GHz GPR concrete scanner

SCOPE OF WORK

On March 26th, 2021 and March 29th, 2021, a geophysical survey and concrete investigation was performed and completed at the above mentioned location. The scope of work was to identify subsurface utilities and reinforcement in the nineteen interior client directed boring locations, along with a full utility markout of the front parking lot area of the mall. The surface conditions consisted of asphalt, reinforced concrete, and bare-soils. The property was investigated using the RD1100 250MHz (GPR), the RD8000 pipe/cable locator, and the GSSI Mini XT 2.7GHz (GPR).

SURVEY RESULTS

All the equipment was used in an octagonal-grid pattern over each of the AOCs. 3D data was collected and 2D locations were logged. The RD 8000 was also used in many different modes, directly and passively. All neighboring utility access points, as well as all pipes/conduits going in or out of the ground were directly induced. Please note that all depths are estimated below ground surface (BGS). The best possible data points were collected and all findings are estimated and dependent upon soil types/conditions, weather conditions and the dielectric properties of the subsurface during the time of the investigation. All findings were discussed with the client and marked on site in APWA color-coded paints and flags. All unknown subsurface anomalies were painted pink.

LISTED SURVEY RESULTS (Concrete Investigation):

- 1) All detected reinforcement in the concrete was marked with white paint or blue crayon. All detected anomalies in the concrete were marked with pink paint.
- 2) The slab thickness estimated ~(6-12 inches) and was slab on grade.

LISTED SURVEY RESULTS (Utility Markout/Investigation):

- 1) All utility access points were induced to where accessible.
- 2) The gas, water, and sanitary sewer lines were seen and detected exiting from the mechanical/boiler room on the south side of the building.
- 3) An electric vault on the south side of the parking lot was opened and induced to. All electric was marked with red paint and flags, at depths ~(2-4ft) below ground surface (BGS).
- 4) Two detected communication trenches were detected running east/west from the building to the street, on the south and north sides of the parking lot. They were marked with orange paint and flags.
- 5) Storm sewer was detected running parallel to the street along the inside curb of the parking lot. This was marked with green paint.
- 6) An electrical conduit was detected running through the grocery area of the mall at an estimated depth of 6" BGS. This conduit was marked in red paint
- 7) All floor drains were marked in green paint on the interior of the property. The floor drains were detected at an estimated depth of ~(3-5feet) BGS

LIMITATIONS

Areas within ~3 feet of any wall and/or any other vertical obstruction can not be fully investigated and confirmed due to the physical inability to get the center of any GPR antenna flush to the wall. Subsurface congestion can lead to coupling. This also can lead to distortion, attenuation, "bleed-off" and sympathetic signals. Due to surface conditions and the dielectric properties of the subsurface and properties of concrete, plastic polymer, and fiberglass, not all subsurface anomalies and utilities may have been detected. Buildings, concrete barriers, wet soils, saturated conditions, cracked surfaces, curb lines, and metal structures may have affected survey results near and immediately beneath them.

GPR signal penetration depth during survey/investigation: ~(2-9ft) BGS

- 1) Parked and moving vehicles

Figures



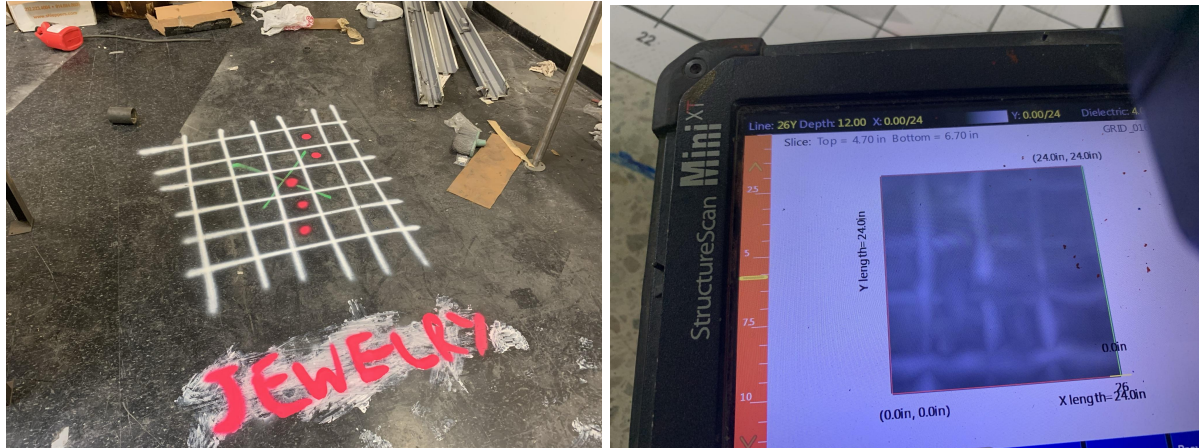


Fig. 1: Images of the interior locations investigated.





Fig. 2: Images of the electric detected around the parking lot.



Fig. 3: Images of the two communications trenches detected.



Fig. 4: Images of the storm sewer investigated/detected.

**Geophysical Investigation
and Utility Markout**

SESI Consulting Engineers
03/29/2021
White Plains, NY
AGInc. Job No. 1919933



UST Investigations
Geophysical Surveys
Concrete Scanning
Private Utility Markouts



- Gas
- Water
- Electric
- Sewer
- Communications

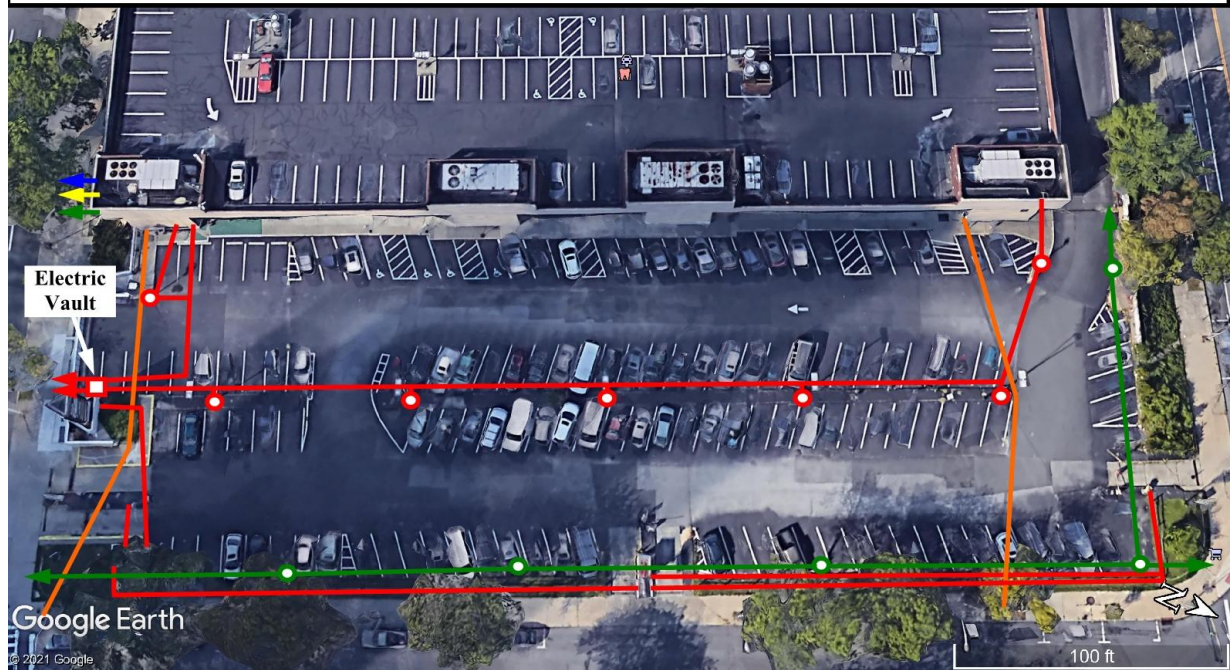


Diagram **please note this is for illustration purposes only**

- █ Red: Electric Power Lines, Cables, Conduit & Lighting Cables
- █ Yellow: Gas Oil, Steam, Petroleum or Gaseous Materials
- █ Orange: Communication, Cable TV, Alarm or Signal Lines, Cables or Conduit
- █ Blue: Potable Water
- █ Green: Sewers and Drain Lines
- █ Purple: Reclaimed Water, Irrigation and Slurry Lines
- █ Pink: Temporary Survey Markings
- White: Proposed Excavation

*All field services were conducted in compliance with the industry standard of care guidelines found in ASCE 38-02 (Level B) and marked in appropriate colors as per the APWA (American Public Works Association).

WARRANTIES

- ***American Geophysics, Inc. does not guarantee that utilities, conduit, and steel reinforcement will be avoided during drilling, cutting, trenching, and coring.***
- ***All utility designating will be in compliance with ASCE 38-02 (level B).***
- ***All field services were conducted in compliance with the industry standard of care guidelines found in CSDA-BP-007 and marked in appropriate colors as per the APWA (American Public Works Association).***
- ***The GPR unit must have direct contact with the concrete in order to collect quality data.***
- ***Any areas covered with debris cannot be scanned correctly with GPR.***
- ***Wet floors will not allow proper marking with paint and/or permanent marker.***
- ***All concrete slabs must be monolithic pours.***
- ***Dairy brick and some types of tile may cause signal interference.***
- ***New concrete can adversely affect the signal penetration and should be given a minimum of one month curing time.***
- ***All areas should be clear for scanning and marking.***

The field observations and measurements reported herein are considered sufficient in detail and scope for this project. American Geophysics, Inc. warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted geophysical methods. There is a possibility that conditions may exist which could not be identified within the scope of this project and were not apparent during the site activities performed for this project.

American Geophysics, Inc. represents that the services were performed in a manner consistent with that level of care and skill ordinarily exercised by geophysical consultants under similar circumstances. No other representations to Client, express or implied, and no warranty or guarantee is included or intended in this agreement, or in any report, document, or otherwise.

American Geophysics, Inc. believes that the information provided in this report is reliable. However, American Geophysics, Inc. cannot warrant or guarantee that the information provided by others is complete or accurate. No other warranties or guarantees are implied or expressed.

GPR data is subject to signal anomalies and operator interpretation. The GPR data is intended to provide the locations of areas of concern requiring additional investigation or the approximate location of underground structures and utilities. Great care must be utilized when excavating, drilling, and cutting around subsurface structures and utilities, since GPR data can only be used for estimation purposes and GPR data, is subject to misinterpretation. American Geophysics, Inc. cannot guarantee that utilities, post-tension cables, and/or rebar will not be incurred during drilling, cutting, coring, and excavation activities.

Hand clearing or vacuum-excavation should be performed within 2.5' of any marks. American Geophysics, Inc. does not guarantee that utilities will not be encountered during drilling and/or excavation. Mark-out services performed by American Geophysics, Inc. do not satisfy state mark out requirements. By law, the appropriate state mark-out service must be notified prior to any digging activities (i.e. NJ one-call, PA one-call, CT call before you dig, MD & VA miss utility, dig safely NY, FL one-call, 811 one-call, call before you dig, Sunshine State One-Call).

This report was prepared pursuant to the contract American Geophysics, Inc. has with the Client. That contractual relationship included an exchange of information about the property that was unique and between American Geophysics, Inc. and its client and serves as the basis upon which this report was prepared. Because of the importance of the communication between American Geophysics, Inc. and its client, reliance or any use of this

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