## NOVA GEOPHYSICAL SERVICES

SUBSURFACE MAPPING SOLUTIONS

67-25 Clyde Street, Suite 5-S, Forest Hills, New York 11375 Ph. 347-556-7787 Fax. 718-261-1527 www.nova-gsi.com

November 6, 2008

Craig Puerta, EIT
Project Manager
ENVIRONMENTAL LIABILITY MANAGEMENT, LLC
267 Broadway, Fifth Floor
New York, NY 10007
Tel: 212.962.4301 ext. 308

Fax: 212.962.4302

Email: cpuerta@elmofny.com

Re: Geophysical Survey Report

Commercial/Industrial Property

129-09 Jamaica Avenue

Jamaica, Queens County, New York 11418

Dear Mr. Puerta:

Nova Geophysical Services (NOVA) is pleased to provide findings of our geophysical survey at the above referenced project site located at 129-09 Jamaica Avenue, Jamaica, Queens County, New York (the "Site"). Please see Figure 1 for Site Location.

## INTRODUCTION TO GEOPHYSICAL SURVEY

NOVA performed a Geophysical survey consisting of Ground Penetrating Radar (GPR) and Electromagnetic (EM) surveys (where applicable) at the Site to locate and identify underground storage tanks (UST), underground utilities, cables and other anomalies that may be located at the project Site, on November 3<sup>rd</sup> and 4<sup>th</sup>, 2008. The equipment selected for this investigation included a Geonics EM-61 Pipe and Cable Locator (an electromagnetic (EM) metal detector), Ditch-Witch utility locator, and MALA 250 MHz ground-penetrating radar (GPR) units.

A GPR system consists of a radar control unit, control cable and a transducer (antenna). The control unit transmits a trigger pulse at a normal repetition rate of 250 MHz. The trigger pulse is sent to the transmitter electronics in the transducer via the control cable. The transmitter electronics amplify the trigger pulses into bipolar pulses that are radiated to the surface. The transformed pulses vary in shape and frequency according to the transducer used. In the subsurface, variations of the signal occur at boundaries where there is a dielectric contrast (void, steel, soil type, etc.). Signal reflections travel back to the control unit and are represented as color graphic images for interpolation.

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**GEOPHYSICAL METHODS** 

The project Site was first investigated using the Geonics EM-61 metal detector. The metal

detector was used in a reconnaissance investigation for evidence of metallic objects that could represent USTs or other major anomalies. The instrument was carried along bi-directional

traverses spaced approximately 4 feet apart across the project Site. The metal detector was also

carried along 5-foot traverses over the Site. Metal detector anomalies were marked on the

ground for further investigation with GPR.

GPR data profiles were collected over each metal-detector anomaly with a large enough areal

extent to represent an anomaly. These profiles were inspected for reflections that are indicative of

anomalies.

**PHYSICAL CONDITIONS** 

Nova observed following physical conditions at the time of the survey:

The weather: Cloudy with Scattered Rain.

**Temp:** 55 degrees (Monday) & 40 degrees (Tuesday)

Surface: Concrete paved within the building areas, concrete, asphalt paved and non-paved at the

remaining areas were observed. Additionally, Nova observed two reinforced concrete areas

located along the east side of the site building.

The Site Building: Attached commercial and industrial building. Front facing Jamaica Avenue

contained second floor areas (office spaces). The Site buildings contained concrete floor with

underground utility lines. The portions of the building contained basement (partial basement)

below.

RESULTS

The results of the geophysical survey identified the following anomalies located at the project Site:

• Nova identified an area with excessive disturbed soil/formation located along the

southwest portion of the site, (127<sup>th</sup> Street and Jamaica Avenue) underneath the parking lot. NOVA also observed two vent lines within this area with no connection to any major

anomaly.

Geophysical survey also identified areas with excessive disturbed soil/formation and fill

material located along the east side of the site building. Due to excessive mechanical

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components and reinforced concrete surface (rebar, etc.) within this area, NOVA was not able to verify subsurface composure of these areas.

- NOVA identified multiple floor drain lines located throughout of the site building. Please see site plan.
- The Geophysical survey also identified a concrete sub-structure (salt storage area) located along the east side of the Site building.
- The geophysical survey also identified scattered and minor anomalies located throughout the project Site.
- Anomalies appearing to be consistant with utility (floor drain) pipes located throughout the Site building. The Geophysical survey confirmed that these pipes were connected to the public sewer system.
- The geophysical survey also identified two separate supply water well located along the north and east side of the Site. Please see Site Plan.
- The Geophysical survey also confirmed that anomalies consistant with main water, and gas lines were located along Jamaica Avenue of the Site.
- No other subsurface anomalies were identified during this survey. The Geophysical Survey Plan portrays the areas investigated during the geophysical survey.

If you have any questions please do not hesitate to contact the undersigned.

Sincerely,

**NOVA Geophysical Services** 

Levent Eskicakit, P.G., E.P.

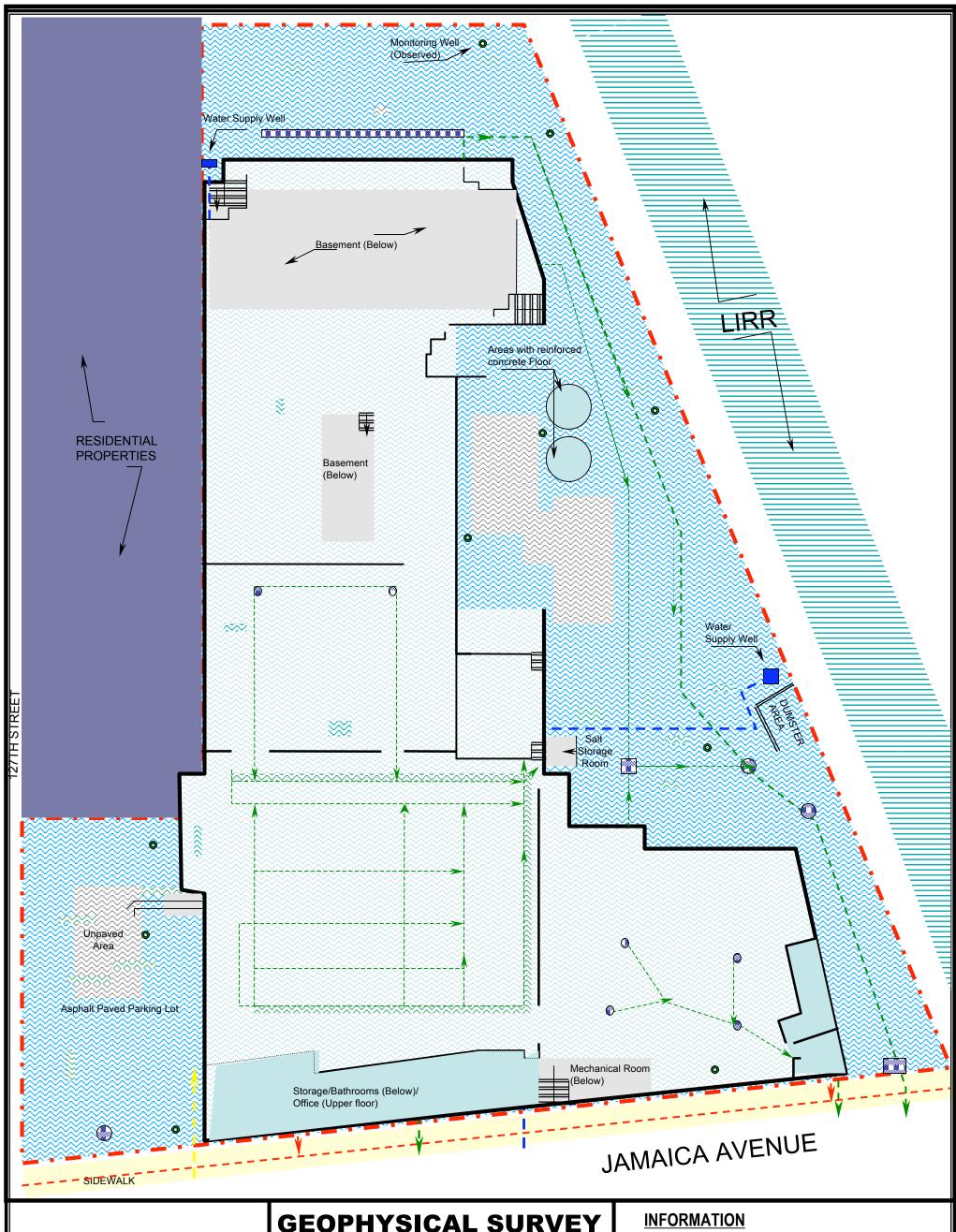
Senior Environmental Engineer

Attachments:

Site Location Map

Geophysical Survey Plan

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## GEOPHYSICAL SURVEY PLAN

SITE : Commercial Property 129-09 Jamaica Avenue

Jamaica, New York 11418

CLIENT: ELM, INC.
PROJECT: 08-0739
SCALE: SEE MAP
DATE: 11/4/2008



GPR/EM Surveyed Areas



Disturbed Soil Area



Underground Piping (Utilities- Gas, Sewer, Electric)



Scattered/Minor Anomaly



Floor Drain / Storm Darin

