GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF GENERAL SERVICES

Furnish and Install Standby Generators at four shelters

Addendum No. 1
Issued: July 07, 2017

This Addendum No. 1 is issued on July 7, 2017 via email to add to the scope of work per attachment A. Except as modified hereby, the Invitation for Bid ("IFB") remains unmodified.

Additional Scope of Work

Please see Attachment A which contains additional information to be included in the Scope of Work.

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.

By: Brenda Allen
Chief Contracting Officer

Date: 7/7/17

- End of Amendment No. 1 –

ATTACHMENT A

ECS Capitol Service, PLLC

Subsurface Exploration and Geotechnical Engineering Report

342 37th Street, SE Shelter

342 37th Street, SE
Washington, DC 20019

ECS Project Number 37:2005

June 23, 2017

ECS CAPITOL SERVICES, PLLC "Setting the Standard for Service"
Geotechnical • Construction Materials • Environmental • Facilities
CBE #LZ43872022019

June 23, 2017

Mr. Dave Antoine
Project Manager
Department of General Services
District of Columbia Government
1250 U Street, NW, Floor 3
Washington, DC 20009

ECS Project No. 37:2005

Reference: Subsurface Exploration and Geotechnical Engineering Report
342 37th Street, SE Shelter
342 37th Street, SE
Washington, DC 20019

Dear Mr. Antoine:

ECS Capitol Services, PLLC (ECS) has completed the subsurface exploration, laboratory testing, and geotechnical engineering analyses for the above-referenced project. Our services were performed in general accordance with our Proposal No. 37:1708-GP, dated February 24, 2017. This report presents our understanding of the geotechnical aspects of the project along, the results of the field exploration and laboratory testing conducted.

It has been our pleasure to be of service to the Department of General Services during the design phase of this project. We would appreciate the opportunity to remain involved during the continuation of the design phase, and we would like to provide our services during construction phase operations as well to verify the assumptions of subsurface conditions made for this report. Should you have any questions concerning the information contained in this report, or if we can be of further assistance to you, please contact us.

Respectfully submitted,

ECS Capitol Services, PLLC,

FOR

Keven M. Hurley, E.I.T.
Staff Project Manager
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DISTRICT OF COLUMBIA
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EXECUTIVE SUMMARY

The following summarizes the main findings of the exploration, particularly those that may have a cost impact on the design and construction of the concrete pad supporting the proposed emergency generator to be installed adjacent to the existing building. Information gleaned from the executive summary should not be utilized in lieu of reading the entire geotechnical report.

The recent geotechnical exploration performed for the planned construction included 2 hand auger/wildcat DCP borings performed to depths ranging between 5 and 8 feet below existing grades. Hand auger refusal on gravels was encountered at the end of each of the borings.

Beneath the surficial topsoil, existing fills were encountered in each of the hand auger borings and generally consisted of SILT (ML FILL) with varying amounts of gravel, and appeared to extend to depths ranging from 1 to 2 feet below existing grades. Natural soils generally consisting of SILT (ML) with varying amounts of sand and gravel, and CLAYEY SAND (SM) with varying amounts of gravel were then encountered, and extended to the hand auger termination depths.

Although limited information regarding the design of the pad and associated equipment was provided, we understand the proposed construction will consist of the construction of a new concrete pad at about existing grades (between EL +122.0 and +124.0 feet) to support the emergency generator. Based on our findings and the available project information, we recommend the concrete pad on-grade bear on firm natural soils. Some existing fills were encountered and we recommend they be removed from under the proposed pad, therefore, the owner/contractor should budget for removal of the materials (anticipated 1 to 2 food undercut).

1.0 INTRODUCTION

1.1 GENERAL

The purpose of this study was to provide geotechnical information to assist with the design of the concrete pad to support the proposed generator. The proposed project will consist of the construction of a new concrete slab supporting the proposed emergency generator which is to be installed adjacent to the existing building at 342 37th Street, SE in Washington, DC.

The recommendations developed for this report are based on project information supplied by the design team. This report contains the results of our subsurface explorations and laboratory testing programs, site characterization, engineering analyses, and recommendations for the design and construction of the planned slab on-grade

1.2 SCOPE OF SERVICES

To obtain geotechnical information to assist in the design of the proposed generator pad, the following exploration was performed:

- 2 hand auger/wildcat DCP (HA/WDCP) borings performed to depths ranging between approximately 5 to 8 feet below existing grades for the proposed emergency generator pad

The HA/WDCP borings associated with the proposed slab on-grade were performed at locations selected by your office. We understand these borings were located within or near the footprint of the proposed concrete pad. A laboratory-testing program was also implemented to characterize the physical and engineering properties of the subsurface soils.

This report discusses our exploratory and testing procedures, presents our findings and evaluations and includes the following.

- Observations from our site reconnaissance including current site conditions, surface drainage features, and surface topographic conditions.
- A review of the published geologic conditions and their relevance to the planned emergency shelter building.
- A subsurface characterization and a description of the field exploration and laboratory tests performed.
- Final logs of the HA/WDCP borings and records of the field exploration prepared in general accordance with the standard practice for geotechnical engineering.
- Recommendations for construction of the proposed generator pad, including recommendations for subgrade improvements.
- Evaluation of the on-site soil characteristics encountered in the soil borings. Specifically, the suitability of the on-site materials for reuse as engineered fill to support grade slabs and pavements is discussed. Compaction requirements and suitable material guidelines are also included.
- Recommendations for the temporary and permanent control of groundwater.

1.3 AUTHORIZATION

Our services were provided in accordance with our Proposal No. 37:1708-GP, dated March 28, 2017, as authorized by the purchase order issued by your office dated May 25, 2017.

2.0 PROJECT INFORMATION

2.1 PROJECT LOCATION AND CURRENT SITE CONDITIONS

The project site is located at the physical address of 342 37th Street in SE, Washington, DC. The site is currently occupied by a multi-family residential building, which is surrounded by an asphalt parking lot to the north, 37th Street SE to the south, and multi-family residential buildings to the west and east. The site generally slopes from a topographical high of EL +134.0 feet in the northeastern portion of the site to a topographical low of EL +114.0 feet in the southwest corner of the site.

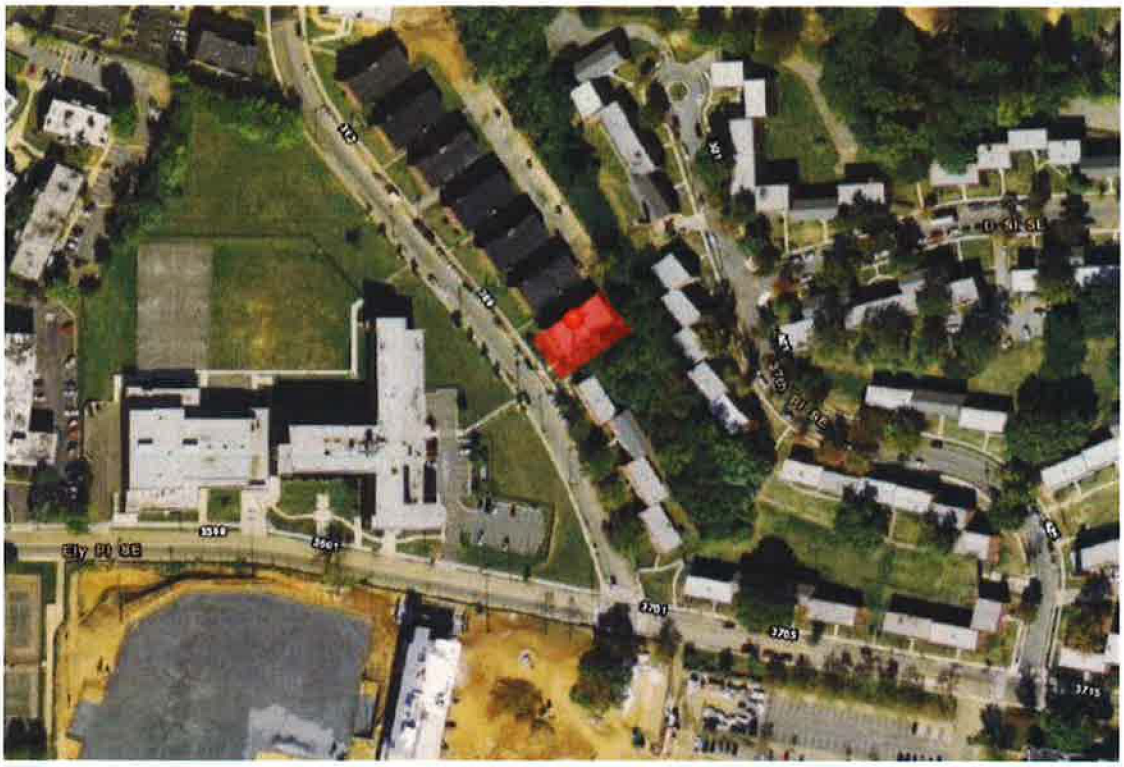

Figure 2.1.1. Site Location

2.2 PROPOSED CONSTRUCTION

We understand the project will consist of the installation of an emergency generator and pad east of the existing building at 342 37th Street, SE. Specific information regarding the generator and pad were unavailable at the time this report was prepared; however for the purposes of this report we assume the proposed generator will weigh approximately 10,000 pounds.

3.0 FIELD EXPLORATION

3.1 FIELD EXPLORATION PROGRAM

The field exploration was planned with the objective of characterizing the project site in general geotechnical and geological terms and to evaluate subsequent field and laboratory data to assist in the determination of geotechnical recommendations.

3.1.1 Hand Auger/Wildcat DCP Borings

An approximately three-inch diameter hand auger was used to collect soil samples at test locations HA-1 and HA-2. The hand augers were scheduled to be advanced to 10 feet below existing grades; however, hand auger refusal on gravels was encountered in HA-1 and HA-2 at approximately 5 and 8 feet below existing grades, respectively. A representative of ECS recorded the soil types encountered at the hand auger locations and obtained soil samples for visual classification and testing in our soils laboratory. The hand auger boring logs are included in Appendix B. Following hand auger operations, the auger holes were backfilled with the auger spoils generated during the drilling process. In addition, "WILDCAT" Dynamic Cone Penetrometer (WDCP) testing was performed to continually test the relative density or consistency of the soils at each boring location. The number of blows of the 35-pound hammer required to drive the penetrometer through continuous 10 cm (4-inch) increments are recorded. The results of the "WILDCAT" soundings produce an approximate 1:1 relationship when compared to the Standard Penetration Test (N-value).

3.2 REGIONAL/SITE GEOLOGY

The proposed site is located in the Coastal Plain Physiographic Province of Washington, D.C. This Coastal Plain Province is characterized by a series of south-easterly dipping layers of relatively consolidated sand and clay deposits, with lesser amounts of gravel. These Coastal Plain deposits are underlain by the eastward continuation of the crystalline rock of the Piedmont Physiographic Province.

In general, the upper, natural soils at the site consist of Alluvial deposits of Quarternary age. These alluvial soils typically consist of interbedded layers of silt, sand, clay, and gravel. The Quaternary age deposits are typically underlain by the Potomac Group sediments of the older Cretaceous age. The Cretaceous age Potomac Group deposits generally consist of interbedded, discontinuous, sand and clay layers that generally slope to the southeast at roughly 50 to 80 feet per mile or approximately 0.5 to 0.8 degrees. The sand layers generally consist of fine to medium sand with variable amounts of clay and silt. In isolated areas, gravel can also be encountered, particularly in the basal layers of Potomac Group sands.

The upper soil conditions in the developed portions of the District of Columbia often include man-placed fill soils. In many cases, the thickness of existing fill corresponds to the depth of old basement slabs of structures that have been demolished or grading that was performed to establish street grades many years ago. Existing man-made fill can be quite variable in depth, composition and consistency, and the engineering properties of such material can be difficult to assess. An overview of the general site geology is illustrated in Figure 3.2.1 below.

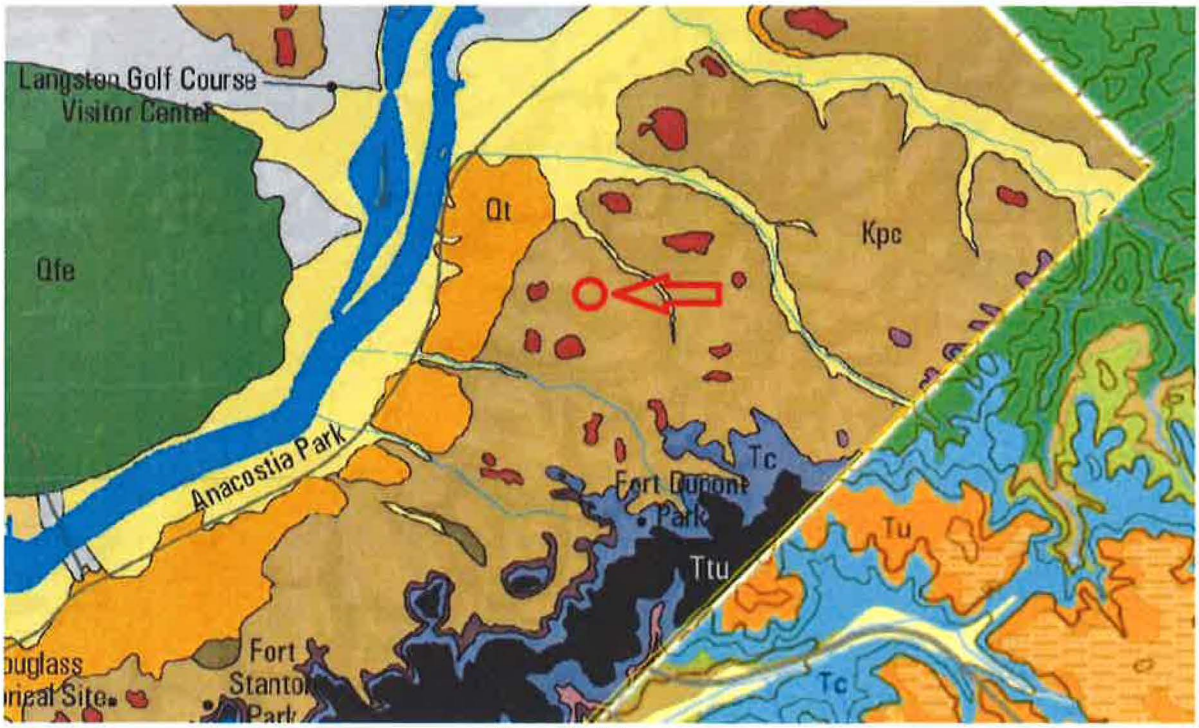

Figure 3.2.1

Geologic map for Figure 3.2.1 obtained from the U.S. Geologic Service website, https://ngmdb.usgs.gov/maps/mapview/

3.3 SUBSURFACE CHARACTERIZATION

The subsurface conditions encountered were generally consistent with published geological mapping. The following sections provide generalized characterizations of the soil and rock strata encountered during our subsurface exploration. For Subsurface information at a specific location, refer to the Boring Logs in Appendix B and the The *Generalized Subsurface Profile Diagram* included in Appendix A.

Table 3.3.1 Subsurface Stratigraphy

Approximate Depth Range (ft)	Elevation (ft)	Stratum	Material Description	Ranges of SPT[(1)] N-values (bpf)
0-0.1 ft (Surface cover)	EL. +121.9 to +119.9	n/a	**Surficial Materials** - Approximately 2 inches of topsoil at each location	N/A
0.1-2 ft	EL. +121.9 to +118.0	I	**Existing Fills** - Generally, SANDY SILT (ML FILL) - Varying amounts of gravel - Loose to very dense relative densities	10 to 25+
2-8 ft	EL. +121.0 to +114.0	II	**Alluvial Soils** - Generally SILT (ML), CLAYEY SAND (SC), and SILTY SAND (SM) - Varying amounts of gravel - Medium dense to very dense relative densities	11 to 25+

Notes: (1) Standard Penetration Test

3.4 GROUNDWATER OBSERVATIONS

Groundwater seepage into the hand auger was not observed during our exploration to the depths explored. Variations in the location of the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, and other factors not immediately apparent at the time of this exploration. Free and/or "perched" water may also be encountered at the interface of fill materials and natural soils.

4.0 LABORATORY TESTING

The laboratory testing performed by ECS for this project consisted of selected tests performed on samples obtained during our field exploration operations. The following paragraphs briefly discuss the results of the completed laboratory testing program. Classification and index property tests were performed on representative soil samples obtained from the test borings in order to aid in classifying soils according to the Unified Soil Classification System and to quantify and correlate engineering properties.

An experienced geotechnical engineer/engineering geologist visually classified each soil sample from the test borings on the basis of texture and plasticity in general accordance with the Unified Soil Classification System (USCS) and ASTM D-2488 (Description and Identification of Soils-Visual/Manual Procedures). After classification, the geotechnical engineer/engineering geologist grouped the various soil types into the major zones noted on the boring logs in Appendix B. The group symbols for each soil type are indicated in parentheses following the soil descriptions on the boring logs. The stratification lines designating the interfaces between earth materials on the boring logs are approximate; in situ, the transitions may be gradual.

The soil samples will be retained in our laboratory for a period of 60 days, after which they will be discarded unless other instructions are received as to their disposition.

5.0 DESIGN RECOMMENDATIONS

5.1 GENERAL

Based on our review of the subsurface conditions encountered in the recently completed hand auger/wildcat DCP borings and our experience in the project area, the site appears suited for the proposed emergency generator pad from a geotechnical perspective. The recommendations presented in this report should be incorporated in the design and construction planning of the project to reduce possible soil related problems during construction; ECS has been provided the following project design documents at the time this report was written:

- Request for Task Order Proposal (RFTOP) – Emergency Generator Installation (dated February 17, 2017)

Specific information regarding the proposed generator and proposed support pad (weight of generator, dimensions of pad, top of pad elevation) were not available at the time this report was written. Therefore; we have made the following assumptions

- Weight of generator – approximately 10,000 pounds
- Dimensions of pad – approximately 10 feet by 10 feet minimum
- Top of pad elevation – EL +120.0 feet

If any of these assumptions are invalid, ECS should be notified so the recommendations contained herein can be revised (if necessary). The following sections present more specific recommendations with regard to the design of the proposed slab on-grade, as well as additional recommendations regarding design and construction at the project site are included below.

We recommend ECS review the final design and specifications to check the recommendations presented in this report have been properly interpreted and implemented in the design and specifications.

5.1.1 Generator Pad Design

Based on our assumptions above, a ground supported slab appears to be feasible to support the proposed emergency generator. Based on the assumed top of slab elevation discussed above, the slab subgrade will bear in either the Stratum I – Existing Fills or Stratum II – Alluvial soils. Please note, the existing fill are NOT suitable for support and should be removed from under the slab. For pad bearing on the natural soil Stratum II materials, the pad can be designed assuming a modulus of subgrade reaction 75 kcf and the slab thickness should be based on structural analysis. We also recommend the slab be underlain by a minimum of 12 inches of granular material having a maximum aggregate size of 1.5 inches and no more than 2% soil fines passing the No. 200 sieve. This granular layer will facilitate the fine grading of the subgrade and drainage of water from under the proposed pad. Welded-wire mesh reinforcement should be placed in the upper half of the slab and attention should be given to the surface curing of the slab in order to minimize uneven drying of the slab and associated cracking. If a turn down slab edge is used for frost protection, we recommend it extend a minimum of 30 inches below the ground surface. Please see the pictorial representation of these recommendations on the following page.