



538 Broad Hollow Road, 4th Floor East
Melville, NY 11747 | tel 631.756.8000

February 11, 2019

Board of Fire Commissioners
Bedford Village Fire District
34 Village Green
Bedford, NY 10506

**Re: Sub-Surface Investigation Results and Impact
H2M Project No.: BEDF 1701**

Dear Commissioners:

Over the past few months, H2M has been coordinating with the Districts Geotechnical Engineer, JHB Engineering, PLLC, from Montebello, NY. During this time period, our companies have coordinated efforts throughout the soil boring investigation and production of a final Geotechnical Report dated January 2, 2019.

The Geotechnical Engineering Evaluation of the site produced findings that will unfortunately complicate the design and construction and significantly increase the cost of the project. The intent of this correspondence is to bring these complications to the attention of the Board and provide technical background.

H2M's Senior Structural Engineer has reviewed the information provided by JHB in detail and has determined the following:

- The soil conditions that exist on-site are poor.
- The majority of the site has 10-15 feet of loose soil that includes organics as an upper stratum, and approximately 60' of clay (clay-like soil) as a lower stratum. Compressed rock and potentially bedrock exist below that stratum.
- The site has a ground water elevation that ranges from 4-6 feet below grade and most of the soils have a higher moisture content.

These findings have a major effect on the design and construction of the building. Our Engineer has determined the following:

- Due to the poor soils, the building will now need to be built on a "Deep" Foundation System
- The existing soil classification, paired with the proposed facility type, puts the facility in a "Soil Classification" that is very stringent. The Soil Classification determines how the structural engineers design the building to withstand vertical and lateral loads. (vertical being gravity, and lateral being wind & seismic)
- The proposed facility will need to be designed to meet the requirements set forth by the 2015 International Building Code for an "Essential Facility"

H2M has coordinated the findings and effects they will have on the project with the third-party cost estimator, Triton Construction from New York, NY. At this time, we believe the following three issues will drive the cost of construction up by the amounts shown:

- Switching from shallow to deep foundation system
 - ~170 Piles @ \$10,000 ea. \$1,700,000
 - Concrete Pile Caps \$ 300,000
 - Concrete Grade Beams \$ 200,000
 - Sub-Total \$2,200,000
- Enhancing the structure to accommodate Soil Classification and Lateral Bracing
 - Building - Lateral Reinforcement \$ 150,000



- Enhancing paved areas of the site by replacing subsoils and installing a sturdy base material (typically not needed when in-situ soils are able to be compacted)
 - Replacement of Poor Soils (cut & fill) \$ 100,000
- Architectural Design, Structural Engineering and Civil Engineering associated with the subsurface conditions found. Also include the time needed to Value Engineer the design of the building and site to find the most economical approach
 - Additional Professional Fee's \$ 50,000

The total estimated increase to the project is **\$2,500,000**.

We fully understand that these findings and the cost increase to the project are unfortunate and will be a challenge for the District to overcome. Moving forward, H2M will continue to help the District identify cost savings throughout the design and provide recommendations for value engineering. In the near future, a revised cost estimate will be provided to outline revised total project cost.

Should you have questions or require further information, please feel free to contact our office at (631) 756-8000 extension 1325.

Very truly yours,

H2M architects + engineers

A handwritten signature in dark ink, appearing to read 'Patrick Stone'.

Patrick Stone, RA, LEED AP
Project Architect

Enclosure(s)

cc:	Heather Feldman	BVFD
	Chief Andy Klein	BVFD
	Lt. Jim Best	BVFD
	Joe Mottola	H2M
	Dennis Ross	H2M