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13 July 2021
File No. 133815-003

TO: Cambridge Redevelopment Authority
Thomas Evans

FROM: Haley & Aldrich, Inc.
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SUBJECT: Environmental Conditions and Next Steps
Building Renovation and Site Improvements
93-99 Bishop Allen Drive
Cambridge, Massachusetts 02139

This memorandum provides a brief summary of the environmental conditions encountered following removal of the unknown 2,000 gallon UST beneath the building courtyard of the existing four-story building located at 93-99 Bishop Allen Drive and recommended next steps.

PREVIOUS INVESTIGATION

Haley & Aldrich drilled a single test boring in November 2020 to obtain geotechnical information on subsurface conditions for project design and construction and to collect a shallow soil sample to a depth of 5 ft for environmental chemical analysis to classify soils for off-site disposal in the area of the stormwater infiltration structures. A groundwater observation well was installed in the completed borehole to determine the depth to groundwater which was needed for design of the stormwater infiltration system. No sampling of groundwater was conducted.

UNKNOWN UST

An unknown UST was encountered beneath the courtyard area on 1 June 2021 during site improvement work. The tank appeared to be decommissioned in-place and filled with sand. No documentation exists regarding the presence of the UST or its decommissioning, therefore, the UST required removal and assessment per MassDEP regulations 310 CMR 40.0080.

The UST was removed on 21 June 2021. Haley & Aldrich, Inc. (Haley & Aldrich) observed the UST removal and collected soil samples from the bottom and side walls of the tank grave following removal for headspace screening and laboratory testing. Headspace readings were below the 100 parts per million by volume (ppmv) threshold for 72-hour reporting to MassDEP; however, the results of the soil testing indicate that we exceed applicable reportable concentrations of volatile petroleum hydrocarbons

(VPH) carbon range C9-C10 aromatic hydrocarbons in the bottom sample obtained at a depth of 8 ft at the depth of the groundwater table. Polycyclic aromatic hydrocarbon (PAH) compound 2-methylnaphthalene (a common fuel oil constituent) was also detected at reportable concentrations. Extractable petroleum hydrocarbon (EPH) carbon ranges are below applicable reportable concentrations. Side wall samples were clean.

The contamination levels in soil are low but reportable, which means that we can leave these levels in place and still achieve regulatory closure without conducting additional soil removal activities. Given the depth of the excavation required to remove the UST and the proximity of the building foundations it is not feasible to remove additional soil.

NEXT STEPS

The renovated building will be for commercial use. The main environmental concern in any occupied building is the quality of the groundwater and its potential impact for off-gassing volatile constituents to indoor air, therefore we recommend the following work be undertaken:

- Determine groundwater quality in the courtyard area to assess whether the release has the potential to impact indoor air in the renovated building. This will involve installation of a groundwater monitoring well and sampling of groundwater.
- Additional soil samples will also be obtained below a depth of 8 ft to assess the extent of the soil contamination. Information on extent of contamination is needed for regulatory closure discussed below.
- Determine potential impacts to indoor air by conducting a soil gas assessment inside the building near the former UST location.

REGULATORY IMPLICATIONS

- Conditions must be reported to MassDEP within 120 days to report the petroleum contamination in soil (**by October 30, 2021**).
- The path to regulatory closure will depend on the outcome of the additional assessment outlined above. Assuming that groundwater and soil gas is not adversely impacted (i.e. does not exceed regulatory threshold criteria for commercial use) regulatory closure will be straight-forward.

MITIGATION OPTIONS

If groundwater or soil gas criteria is exceeded, in-situ treatment of groundwater or installation of a sub-slab vapor mitigation system may be necessary. In-situ treatment of groundwater alone takes time which the project doesn't have. Sub-slab mitigation would likely be a more effective and quicker however we understand that the new slab and underslab utilities has been installed which will complicate the process. The need to install a system would depend on the results of indoor air sampling

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conducted prior to occupancy assuming soil gas threshold criteria is exceeded beneath the slab. Alternatively, a combination of the two options could be employed.

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