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SITE MANAGEMENT PLAN

Park East Apartments

Prepared for

Bridger Development Company

141 East 1st Avenue, #101
Salt Lake City, UT 84103

Prepared by

Geosyntec Consultants, Inc.
215 South State Street, Suite 500
Salt Lake City, UT 84111

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Lonnie Mercer, P.G.
Project Manager

Brent C. Robinson, P.E.
Partner-in-Charge

April 13, 2020

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1. INTRODUCTION

On behalf of Bridger Development Company (Bridger), Geosyntec has prepared this Site Management Plan (SMP) to present the planned approach for managing groundwater impacts at the property occupied by the Park East Apartments (the Site). This SMP has been prepared in accordance with the requirements of Utah Administrative Code R315-101 (Cleanup Action and Risk-Based Closure Standards) based on the findings of environmental investigation activities conducted at the Site. The SMP has been prepared to establish risk-based controls and procedures that will be used to mitigate exposure to volatile organic compounds (VOCs) identified in groundwater at the Site and to manage site conditions in a manner that protects human health and the environment.

1.1 Site Location and Description

The Site is 2.8-acres in size and consists of one parcel (parcel number 22-09-201-014-0000) that is located at 1709 East Murray Holladay Road in Millcreek, Utah. The Site is zoned for medium to high-density residential development and is occupied by three apartment buildings with asphalt surface parking lots that were constructed in 2017. The Site is located in an area of mixed residential and commercial development, including a commercial property with a grocery store and strip mall that is located immediately east of the Site. Figures 1 and 2 depict the Site location and layout.

1.2 Site Background

In 2017, a Phase I Environmental Site Assessment (ESA) performed by EFI Global identified a former dry-cleaning facility that was located in the strip mall on the adjoining property to the east/southeast of the Site. Subsequent to the Phase I ESA and during November-December 2017, Wasatch Environmental (Wasatch) performed environmental investigation activities at the Site that included the advancement of soil borings to facilitate collection of soil, soil gas, and groundwater samples. The investigation results indicated that historical releases of solvents at the nearby former dry cleaner had impacted groundwater beneath a portion of the Site [Wasatch 2017]. Furthermore, some groundwater analytical results indicated the potential for trichloroethylene (TCE) and vinyl chloride (VC) to be present in indoor air at concentrations exceeding US EPA Regional Screening Levels (RSLs).

In March-April 2018, Wasatch collected sub-slab soil gas and indoor air samples to assess the potential for vapor intrusion of dry-cleaning solvents into Buildings B and C. Based on the sampling results, Wasatch concluded that indoor vapors did not contain VOCs at concentrations that would require mitigation [Wasatch 2018a]. The sampling activities conducted by Wasatch were summarized in a *Sampling and Analysis Plan Implementation Report* (dated May 9, 2018) and provided to the Utah Division of Waste Management and Radiation Control (DWMRC). Following review of this report, the DWMRC requested that a groundwater monitoring plan be prepared and submitted based on the potential vapor intrusion risk posed by groundwater impacts. Wasatch submitted the *Groundwater Monitoring Plan* to the DWMRC on July 17, 2018 [Wasatch 2018b]. The DWMRC approved the plan on July 30, 2018.

In accordance with the *Groundwater Monitoring Plan*, a groundwater monitoring well (MW-1) was installed at the Site on March 25, 2019. Well MW-1 was installed in the central portion of the Site and in the vicinity of sampling location GP-3 GW, which had the highest concentration of vinyl chloride for groundwater samples collected during site investigations conducted in 2017.

2. RISK ASSESSMENT

A qualitative risk assessment is presented herein to evaluate potential impacts to human and environmental receptors from VOCs in groundwater at the Site. A summary of exposure pathways and potential receptors is provided in this section.

2.1 Exposure Pathways

VOCs have migrated from the source area (upgradient former dry cleaner) to groundwater beneath a portion of the Site. Based on environmental investigation results collected to date, the following exposure pathways are potentially complete:

- Vapor inhalation, dermal contact, and incidental ingestion with VOC-impacted groundwater during on-site subsurface excavation or maintenance work.
- Migration of VOC-containing vapors to indoor air and subsequent inhalation.

The following exposure pathways are considered to be incomplete at the Site:

- Direct contact with VOC-impacted groundwater by Site residents and visitors based on the depth to groundwater (approximately 6 feet below ground surface) and the presence of paved surfaces and buildings that cover a large portion of the Site.
- Contact with VOC-impacted groundwater by ecological receptors.
- Ingestion of VOC-impacted groundwater as there are no current water supply wells at the Site and water is supplied to the Site by a municipal public water system.
- Migration of VOCs in groundwater to surface water, as surface water bodies are not present at the Site.

2.2 Risk Summary

Review of available data indicates that there are potential exposure risks to known receptors, as follows:

- Subsurface maintenance/excavation workers; and
- Residents by inhalation of impacted vapors.

These potential risks will be mitigated through groundwater monitoring and institutional controls, as described in Section 3. Although currently an incomplete exposure pathway, potential future ingestion of impacted groundwater will be further mitigated through implementation of an institutional control.

3. SITE MANAGEMENT

3.1 Activity and Use Limitations

The Site owner shall comply with this SMP.

3.1.1 Land Use Limitations

The Site is zoned for residential use consistent with applicable local zoning laws.

3.1.2 Groundwater Use Limitation

Groundwater from the shallow unconfined aquifer shall not be used for drinking water, irrigation, or bathing purposes. Other uses of groundwater from the shallow unconfined aquifer on the property shall be subject to review and approval by the Director prior to implementation.

3.1.3 Vapor Intrusion

Based on prior sampling [Wasatch 2018a], indoor air did not contain VOCs at concentrations that would require mitigation. If future groundwater monitoring identifies increasing concentration trends for VOCs (as determined by Mann-Kendall trend tests), a vapor intrusion assessment shall be evaluated.

If a vapor intrusion assessment demonstrates that mitigation is required, appropriate vapor mitigation measures will be evaluated and may include, but not be limited to, installation of a suitable barrier (if feasible), installation of a passive or active depressurization system, or installation of a positive pressure ventilation system. Vapor mitigation measures shall be subject to review and approval by the Director prior to implementation.

4. CONTROL AND MITIGATION MEASURES

An environmental covenant (EC) recorded against the Site imposes activity and use limitations. The EC is provided in Appendix A. The EC will remain in effect until such time as it is demonstrated that there are no longer conditions that present a potential risk and until the DWMRC approves the removal or modification of these measures.

4.1 Subsurface Maintenance/Excavation Workers

The exposure risk to subsurface maintenance/excavation workers has not been fully quantified. Risks are likely to be low due to the short-term nature of these activities. However, as a precautionary measure, the following controls will apply to maintenance/excavation work performed at the Site:

- Before work begins, subsurface maintenance/excavation workers will be briefed regarding potential exposure to VOC-impacted groundwater and the contents of this SMP.
- In addition to statutory or other requirements for working within excavations, personnel should only be permitted to work within excavations after vapor monitoring has demonstrated safe air within the excavation. Monitoring for VOCs by NIOSH-certified detector tubes or other direct reading devices (e.g., photo ionization detectors, PIDs) should be considered to evaluate whether vapor concentrations comply with Occupational Safety and Health Administration (OSHA) standards.
- If any work requires penetration of paved surfaces, the integrity of the pavement will be restored upon completion of the work.
- All workers directly handling contaminated materials will wear appropriate personal protective equipment (PPE).
- Appropriate decontamination procedures will be followed for any work that requires direct contact with VOC-impacted groundwater.

4.2 Construction Dewatering Limitations

Dewatering conducted during subsurface excavation activities at the Site may require that extracted groundwater be managed in an appropriate manner. Extracted groundwater may be treated prior to discharge or collected for off-site disposal. The discharge/disposal method will be determined prior to the commencement of dewatering activities. As needed, appropriate permit(s) will be obtained for discharge to the stormwater system (under a Utah Pollutant Discharge Elimination System permit obtained from the Utah Division of Water Quality) or to the sanitary sewer (under a wastewater discharge permit obtained from the sewer district).

4.3 Groundwater Extraction Limitations

Groundwater from the shallow unconfined aquifer will not be used for drinking water, irrigation, or bathing purposes. Other uses of groundwater beneath the Site will be subject to review and approval by the Utah DWMRC prior to implementation.

4.4 Groundwater Monitoring and Reporting Requirements

Groundwater monitoring will be performed to assess VOC concentrations in groundwater and the potential for vapor intrusion to indoor air. Monitoring will be conducted in accordance with the procedures outlined in the *Groundwater Monitoring Plan* [Wasatch 2018b] and will include the collection of groundwater samples from Well MW-1 (Figure 2), which was first installed and sampled in March 2019 [ERM 2019]. Installation of additional monitoring wells may be required to better evaluate migration of contaminated groundwater onto the Site. If required, installation and monitoring of additional monitoring wells will be coordinated with the owner of the adjacent property where the dry-cleaning facility was formerly located.

To date, groundwater sampling has been performed in March and November 2019. Future sampling will be conducted annually in 2020 through 2022. Following the three annual sampling events, groundwater concentration trends will be evaluated to assess the need for ongoing groundwater monitoring.

Groundwater monitoring reports will be prepared and submitted to the DWMRC after each sampling event. The reports will summarize the completed sampling activities and results.

5. REFERENCES

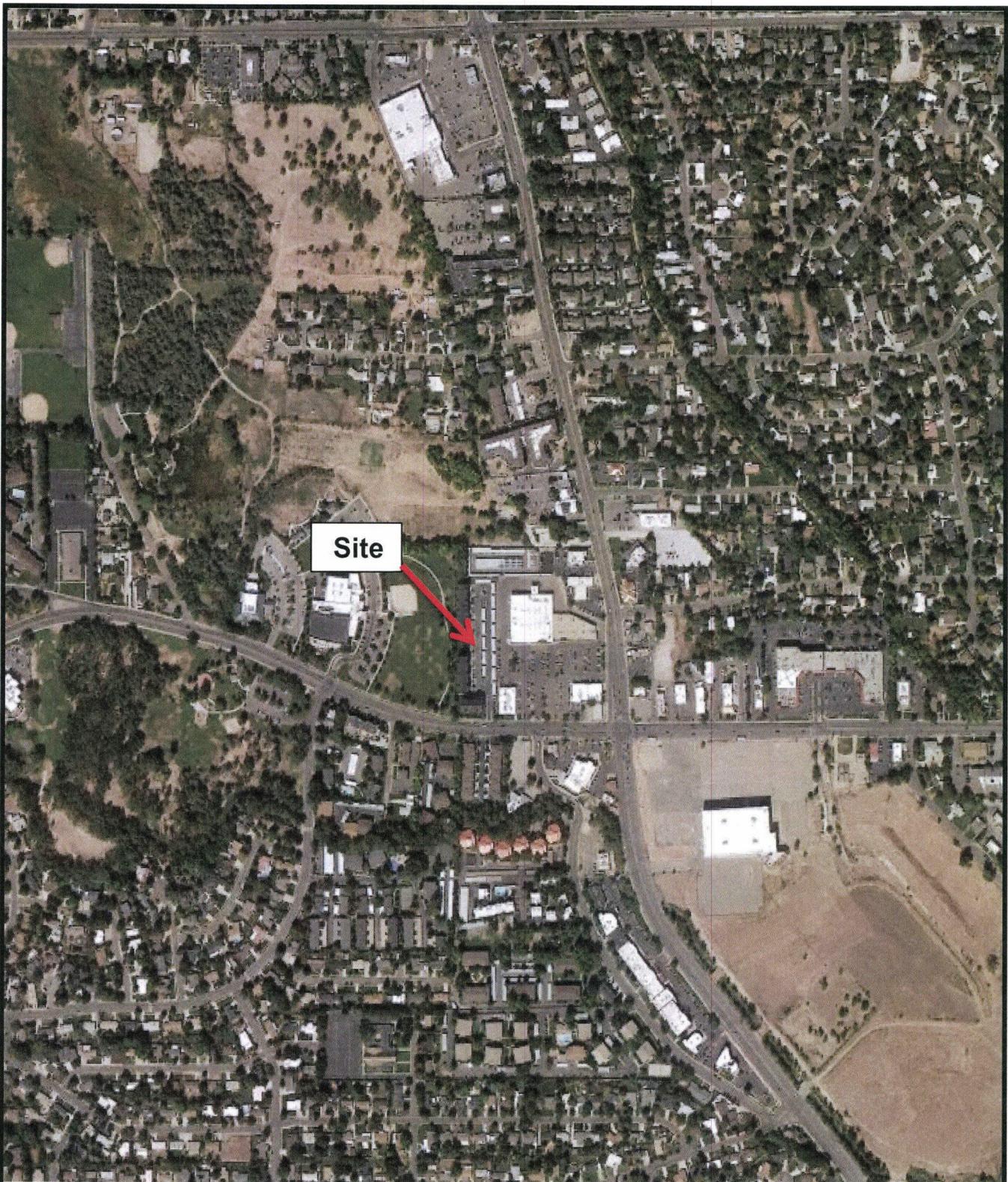
ERM 2019. *Groundwater Monitoring Well Installation Report – Park East Apartments*.
September 6.

Wasatch 2017. *Soil Gas and Groundwater Sampling Investigation – Park East Apartments*.
December 13.

Wasatch 2018a. *Sampling and Analysis Plan Implementation Report – Park East Apartments*.
May 9.

Wasatch 2018b. *Groundwater Monitoring Plan – Park East Apartments*. July 17.

FIGURES



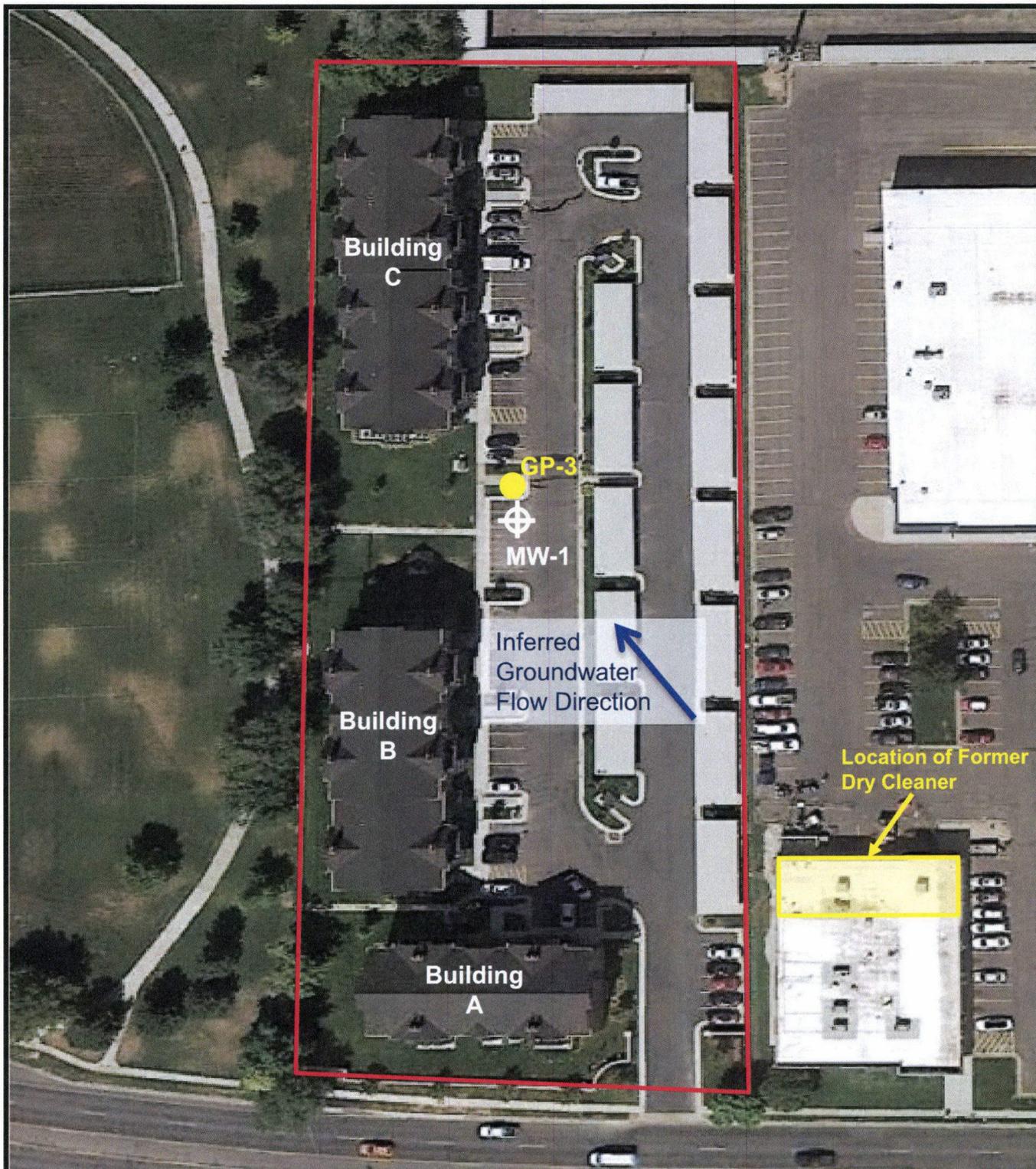
SOURCE: Google Earth Pro, 2018



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SITE LOCATION MAP
Park East Apartments
1709 East Murray Holladay Road
Millcreek, Utah

Figure
1



— Approximate Property Boundary

SOURCE: Google Earth Pro, 2018



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SITE LAYOUT MAP
Park East Apartments
1709 East Murray Holladay Road
Millcreek, Utah

Figure
2

APPENDIX A

Environmental Covenant