

WASATCH ENVIRONMENTAL, INC.
ENVIRONMENTAL SCIENCE AND ENGINEERING

**SITE MANAGEMENT PLAN
FORMER HENRIES DRY CLEANER
COTTONWOOD SQUARE
1781 EAST MURRAY-HOLLADAY ROAD
MILLCREEK, UTAH**

Project No. 2249-001D

To:

**Mr. Ty Howard, Director
Utah Department of Environmental Quality
Division of Waste Management and Radiation Control
195 North 1950 West
P.O. Box 144880
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**SITE MANAGEMENT PLAN
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MILLCREEK, UTAH**

1. INTRODUCTION

Wasatch Environmental, Inc., (Wasatch) has prepared this Site Management Plan (SMP) to present the planned long-term approach for managing residual chlorinated solvent impacts to soil, groundwater, and indoor air at the former Henries Dry Cleaner “Release Site” and area immediately surrounding the Release Site, which exhibit residual chlorinated solvent impacts; (herein collectively referred to as the “Restricted Property”) located at 1781 East Murray-Holladay Road, Millcreek, Utah, within the Cottonwood Square retail development.

This SMP has been prepared in accordance with the requirements of R315-101 “Cleanup Action and Risk-Based Closure Standards” that establish information requirements to support risk-based cleanup and closure standards at facilities for which remediation or removal of hazardous constituents to background levels is not expected to be achieved. The “Owner” (as defined in the Environmental Covenant (EC) shall comply with the SMP, including provisions relating to the Activity and Use Limitations pertaining to land use limitations, groundwater limitations, construction limitations, and disturbance limitations.

1.1 Site Description

The Restricted Property is an approximately 0.2120-acre tract of real property, which comprises a portion of a 4.31-acre parcel (Tax Parcel Number: 22-09-202-006-0000) occupied by the Cottonwood Square retail development (“Cottonwood Square”), located at the northwest corner of the intersection of Murray-Holladay Road and Highland Avenue, in Millcreek, Salt Lake County, Utah (as shown in Exhibit A). The legal description of the Restricted Property is:

NORTHEAST QUARTER of SECTION 9, T2S, R1E, SLB&M.

RESTRICTED PROPERTY

Beginning at a point on the east edge of a block fence, said point being S89°36'00"E 617.81 feet along the Section Line (Basis of Bearing) and S0°24'00"W 440.70 feet from the North Quarter Corner of Section 9, Township 2 South, Range 1 East, Salt Lake Base and Meridian;
thence N89°43'37"E 102.61 feet;
thence S0°16'23"E 90.00 feet;
thence S89°43'37"W 102.63 feet to said east edge of a block fence;
thence N0°15'35"W 90.00 feet along said east edge to the point of beginning. Contains 0.2120 acre.

1.2 Site Background

The current Owner acquired Cottonwood Square in December of 2017. The former Henries Dry Cleaner Release Site occupies a small portion (approximately 2,800 square feet) of Cottonwood Square. The Restricted Property includes the Release Site and an area immediately surrounding the Release Site that have been impacted by the release (as depicted on Exhibit A, Figure 2). The former Henries Dry Cleaner occupied the northernmost of four tenant spaces in the strip mall building (Southwest Building) located near the southwest corner of Cottonwood Square (as depicted on Exhibit A, Figure 2). Cottonwood Square and the Restricted Property are surrounded by mixed commercial and residential land use. Features and surrounding land use are shown on Exhibit A, Figure 2.

Henries Dry Cleaner occupied the Release Site from 1982 until 2007 and performed dry cleaning on-site. The results of subsurface investigations conducted between 2007 and 2017 indicated the presence of chlorinated solvent impacts to soil, groundwater, soil gas, and indoor air at the Restricted Property. The

results of these investigations also indicated the presence of two, relatively small, source areas; one under the western portion of the former Henries Dry Cleaner tenant space, and one just outside and northwest of the former Henries Dry Cleaner tenant space. The results of the subsurface investigations indicated that groundwater occurring in the shallow unconfined aquifer at the Release Site and areas immediately adjacent to the Release Site had been impacted with chlorinated solvents at concentrations above the United States Environmental Protection Agency (U.S. EPA) Maximum Contaminant Levels (MCLs).

The results of the subsurface investigations indicated that none of the chlorinated solvent concentrations detected in soil have exceeded the U.S. EPA Regional Screening Levels (RSLs) for Industrial Soil or the U.S. EPA RSLs for Residential Soil; however, the residual contaminant mass in soil was high enough to drive vapor intrusion risk and dissolved phase contaminant concentrations in groundwater exceeding the U.S. EPA MCLs and Vapor Intrusion Screening Level (VISL) Commercial Target Groundwater Concentrations.

The results of the subsurface investigations indicated that depth to groundwater in and around the Release Site varies from approximately 6 to 11 feet below ground surface with a hydraulic gradient of 0.007 feet per foot to the west. Groundwater sampling locations in and around the Release Site have exhibited chlorinated solvent concentrations in excess of the U.S. EPA MCLs for one or more of the following compounds: tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (DCE), *cis*-1,2-dichloroethene (*cis*-1,2-DCE), *trans*-1,2-dichloroethene (*trans*-1,2-DCE), and vinyl chloride (VC).

The results of the subsurface investigations indicated that PCE and TCE concentrations in sub-slab soil gas exceeded the U.S. EPA VISL Commercial Target Sub-slab and Exterior Concentration indicating a risk for vapor intrusion at the tenant space formerly occupied by Henries Dry Cleaner, as well as the tenant space two doors south of the former Henries Dry Cleaner. Although never sampled, a similar vapor intrusion risk was assumed for the nail salon tenant space located one door south of the former Henries Dry Cleaner.

The results of the subsurface investigations indicated that concentrations of PCE in indoor air in the tenant space formerly occupied by Henries Dry Cleaner exceeded the U.S. EPA RSLs for Industrial Indoor Air. The results of the subsurface investigations also indicated that concentrations of TCE in indoor air in the tenant space formerly occupied by Henries Dry Cleaner has exceeded the U.S. EPA RSLs for Industrial Indoor Air. No other instances of the U.S. EPA RSLs for Industrial Indoor Air having been exceeded have been documented for the other tenant spaces in the strip mall.

The Owner requested regulatory oversight from the Utah Department of Environmental Quality (DEQ), Division of Waste Management and Radiation Control (DWMRC) in June 2018. A Corrective Action Plan (CAP) was submitted to the DWMRC on July 17, 2018; followed by the submittal of a revised CAP on July 26, 2018. The DWMRC approved the revised CAP in a letter dated August 9, 2018.

Remediation and mitigation of chlorinated solvent impacts originating from the Release Site were completed in accordance with the approved CAP between September and November 2018. Remediation of soil and groundwater was performed using injections of zero valent iron to dechlorinate the chlorinated solvents present in soil and groundwater at the Release Site. Mitigation measures included the installation of a vapor barrier and passive sub-slab vapor mitigation system in the tenant space formerly occupied by Henries Dry Cleaner. Upon completion of the remediation and mitigation measures, analyte concentrations in soil remain below the U.S. EPA RSLs for Residential Soil, PCE concentrations in groundwater have dropped to concentrations below the laboratory detection limits in all monitoring wells except MW-10 (which at a concentration of 8.93 µg/L remained slightly above the MCL), TCE concentrations in groundwater have dropped to concentrations below the laboratory detection limits in all monitoring wells, and indoor air concentrations are below the U.S. EPA RSLs for Industrial Indoor Air. Although *cis*-1,2-DCE and VC concentrations in groundwater remain above the MCLs, and VC remains at concentrations above the U.S. EPA Commercial VISL Target Groundwater Concentrations, Wasatch anticipates that these concentrations will steadily decrease over time. The short-term accumulation of PCE daughter products such as *cis*-1,2-DCE and VC is a common occurrence related to remediation

approaches involving reductive dechlorination, as these compounds are created by the dechlorination of PCE and TCE. As the process of reductive dechlorination continues, the *cis*-1,2-DCE and VC concentrations in groundwater should decrease to concentrations below the U.S. EPA MCLs.

2. RISK ASSESSMENT

No formal human health risk assessment or ecological risk assessment have been performed for the Restricted Property. Residual exposure risk that may exist can be adequately managed through engineering controls and activity and use limitations. Therefore, formal risk assessments are not required for the Restricted Property.

3. SITE MANAGEMENT

3.1 Activity and Use Limitations

The EC to be recorded against the Restricted Property imposes the following activity and use limitations on the Restricted Property:

3.1.1 Site Management Plan

The Owner shall comply with this SMP.

3.1.2 Land Use Limitations

The Restricted Property is suitable for residential, commercial and industrial use consistent with applicable local zoning laws; provided that residential land use and land use involving sensitive populations is restricted to above the ground floor (with a parking structure, commercial, or industrial use on the ground floor). If future data demonstrate an acceptable level of exposure risk relative to the vapor intrusion pathway, future residential land use and land use involving sensitive populations on the ground floor may be permissible upon prior notification to, and approval by, the Director. Planting crops or fruit trees for consumption by humans or livestock is prohibited.

3.1.3 Groundwater Limitations

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 Restricted Property shall be subject to review and approval by the Director prior to implementation.

3.1.4 Disturbance Limitations

Appropriate care shall be exercised during construction, remodeling, and maintenance activities related to human-occupied structures on the Restricted Property so as to prevent damage to any vapor mitigation measures which have been installed, and to ensure appropriate repairs are promptly made in the event damage does occur. Appropriate care shall be exercised to protect groundwater monitoring wells on the Restricted Property, and to ensure appropriate repairs are promptly made, or replacement monitoring wells are promptly installed, in the event damage does occur. Repairs shall be made within a reasonable period of time from the discovery of the damage.

3.1.5 Construction Dewatering Limitation

Dewatering conducted to facilitate construction on the Restricted Property may require that the groundwater be treated to reduce contaminant concentrations prior to discharge. Prior to

commencement of dewatering activities, appropriate permit(s) shall be obtained for discharge to either 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). Testing and/or treatment of the groundwater may be required by the receiving facility.

3.1.6 Vapor Intrusion Limitations

For non-residential enclosed structures intended for human occupancy on the ground floor, appropriate vapor intrusion mitigation measures are required to mitigate exposure risks from the vapor intrusion pathway. Appropriate vapor mitigation measures may include, but are not limited to: installation of a suitable vapor barrier, installation of a passive or active sub-slab or sub-membrane depressurization system, or construction of occupied structures utilizing positive-pressure ventilation systems. Vapor mitigation measures shall be subject to review and approval by the Director prior to implementation. If future data demonstrate an acceptable level of exposure risk relative to the vapor intrusion pathway, future residential land use and land use involving sensitive populations on the ground floor may be permissible subject to prior notification to, and approval by, the Director.

3.2 Maintenance, Access, and Inspections

Under the EC, the Owner of any portion of the Restricted Property, shall be responsible for compliance with the SMP and EC.

The Holder under the EC and the Director and their respective authorized agents, employees, and contractors shall have rights of reasonable access to the Restricted Property at any time after the effective date of the EC for inspections and monitoring of the compliance with the EC, and for complying with the terms and conditions of the EC and this SMP. Nothing in this SMP shall be construed as expanding or limiting any access and inspection authorities of the Holder or Director under the law.

3.2.1 Notice

Any party or person desiring to access the Restricted Property under authority of the EC shall provide notice to the then current Owner of the affected portion of the Restricted Property not less than 48 hours in advance of accessing the Restricted Property, except in the event of an emergency condition which reasonably requires immediate access. In the event of any such emergency condition, the party exercising this access right will provide notice to the then current owner of the affected portion of the Restricted Property requiring access as soon thereafter as is reasonably possible.

3.2.2 Disruption

To the extent that the Holder, the Director or their authorized representatives, conduct any activities on or within any portion of the Restricted Property, they will use reasonable efforts to comply with the then current Owner's business operation and security needs and requirements, and will conduct such activities so as to cause the least amount of disruption to the use of the affected portion of the Restricted Property as may be reasonably possible. Any person who conducts any activities shall repair or replace any improvements or landscaping damaged on the affected portion of the Restricted Property by such activities. The Director will determine what needs, requirements, and activities are reasonable. Should the Director's activities cause damage to the affected portion of the Restricted Property improvements or landscaping that are not repaired or replaced, the injured party may present a claim against the State of Utah in accordance with Utah law.

3.3 Environmental Covenant

An EC containing the above referenced activity and use limitations will be recorded with the Office of the County Recorder of Salt Lake County, Utah.

3.4 Monitoring Requirements

The Owner shall comply with Utah Division of Air Quality requirements for monitoring emissions, if any, resulting from the vapor mitigation measures installed at the Restricted Property.

The Owner shall comply with the requirements for monitoring groundwater at the Restricted Property. Groundwater monitoring shall be performed on a quarterly basis for a minimum period of one year following completion of remediation at the Release Site. Groundwater monitoring shall be performed using monitoring wells MW-1, MW-2, MW-3, MW-6, MW-10, and MW-11. Groundwater monitoring shall be performed using low-flow sampling techniques to facilitate the collection of geochemical parameters including temperature, pH, specific conductivity, dissolved oxygen, oxidation reduction potential, and turbidity. Groundwater samples shall be analyzed for a full list of VOCs using laboratory analytical method 8260C. Groundwater monitoring reports shall be provided to the Director within a reasonable period following the completion of each groundwater monitoring event. After the first year of groundwater monitoring has been completed, the groundwater monitoring program may be re-evaluated, and appropriate adjustments made to the monitoring well network, sampling frequency, and sampling methods. Modifications to the groundwater monitoring program shall be subject to the review and approval of the Director. Groundwater monitoring shall continue until such time as the concentrations of the analytes attributable to the Release Site (PCE, TCE, DCE, *cis*-1,2-DCE, *trans*-1,2-DCE, and VC) in all of the monitoring wells have decreased to concentrations below the U.S. EPA MCLs, and have been demonstrated to remain below the MCLs for a period of one year. Cessation of groundwater monitoring is subject to review and approval by the Director.

3.5 Site Management Contacts

Inquiries concerning the SMP should be directed to the following:

Holladay Corner LLC

154 East Myrtle Avenue, Suite #303
Murray, Utah 84107
(801) 364-2602

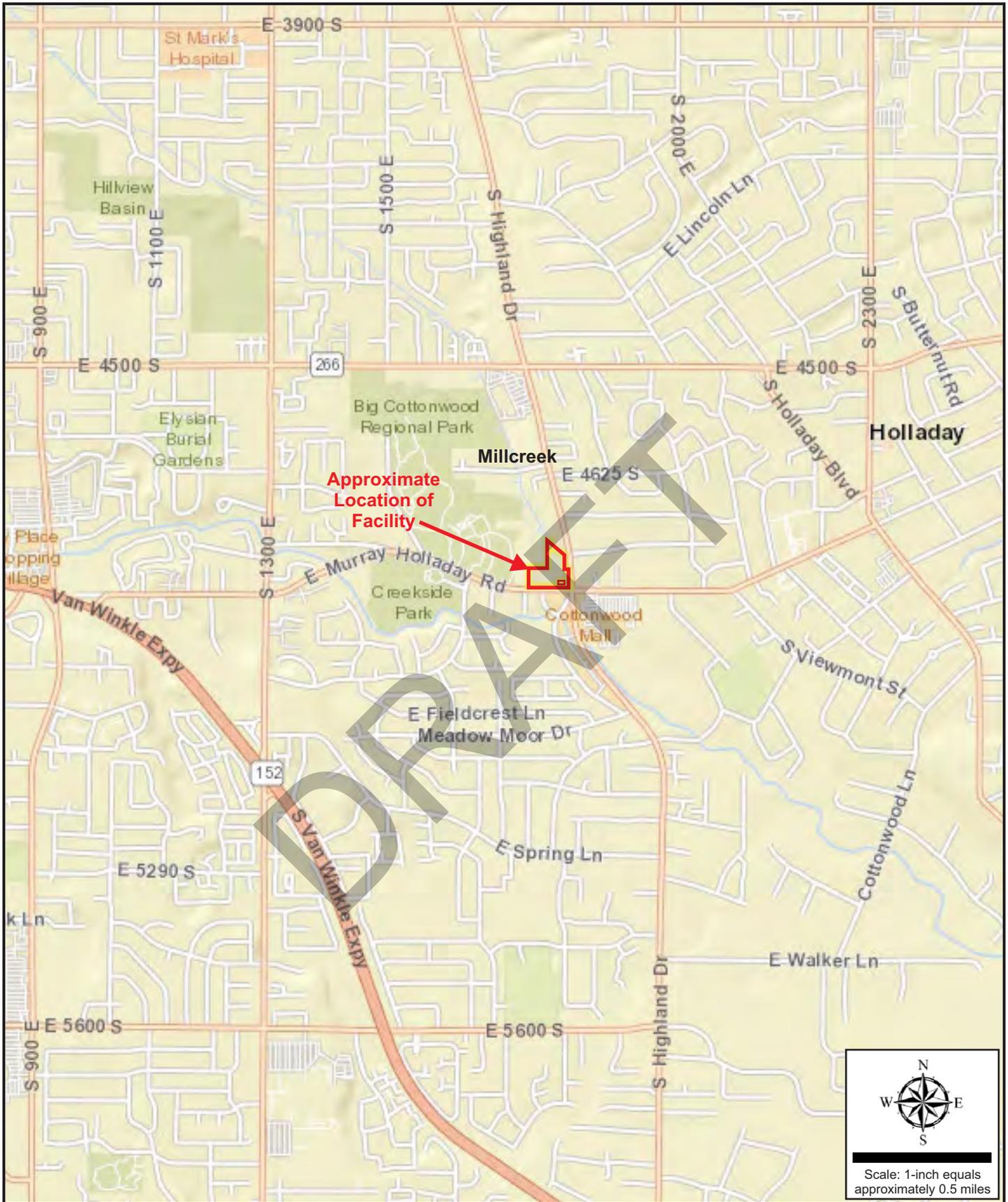
**Utah Department of Environmental Quality
Division of Waste Management and Radiation Control**

Director
P.O. Box 144880
Salt Lake City, Utah 84114-4880
(801) 536-0200

EXHIBIT A

Facility Location Map
Facility Feature Map
(2 pages)

DRAFT



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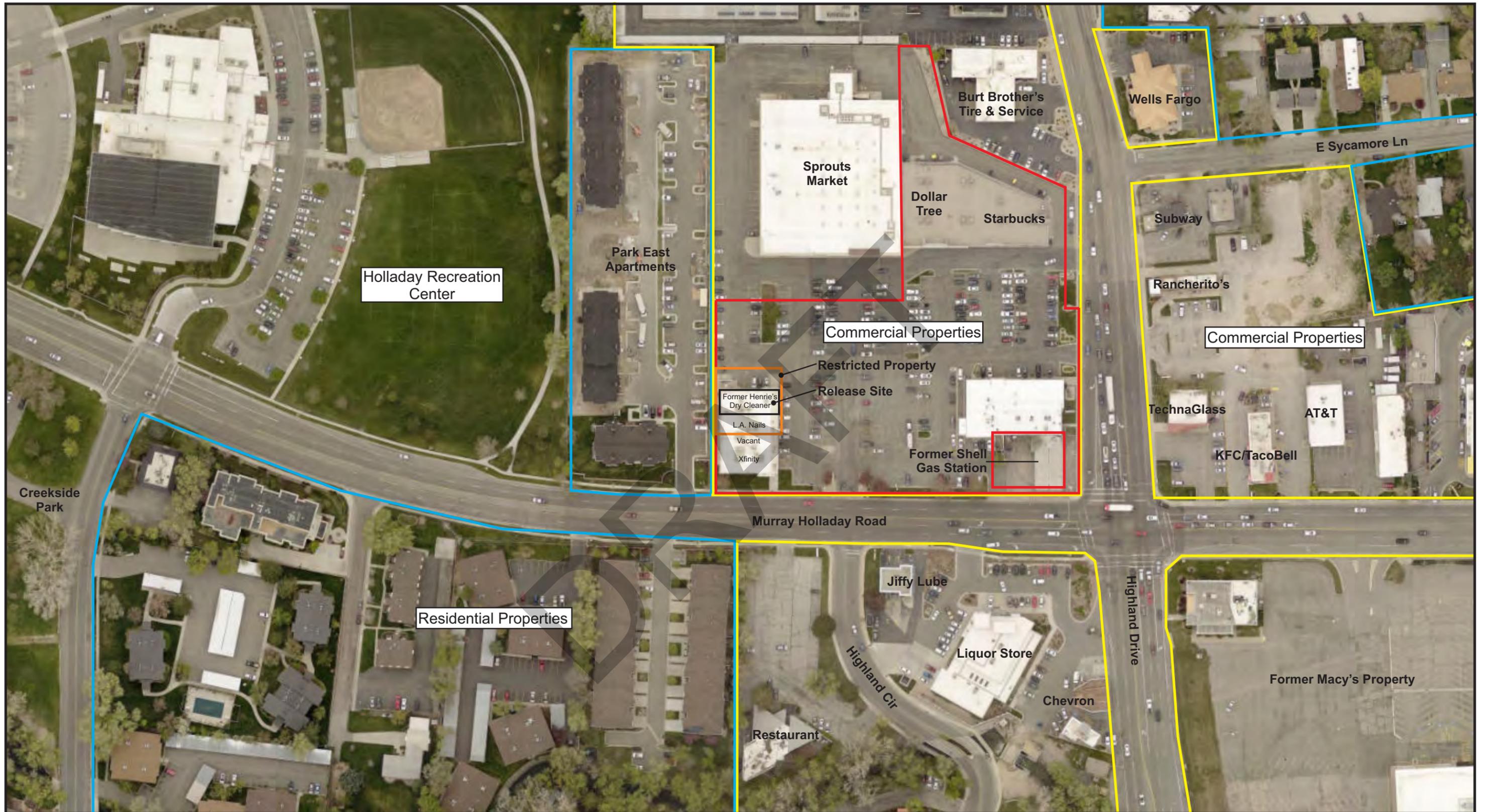
Facility Location Map

Former Henries Dry Cleaner, Cottonwood Square
1781 East Murray-Holladay Road
Millcreek, Utah

PROJECT NO.: 2249-001D

DATE: June 20, 2018

Figure 1



Scale: 1-inch equals approximately 125'

- Commercial Properties
- Residential Properties
- Release Site Boundary
- Cottonwood Square (Facility Boundary)



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Facility Feature Map

Former Henries Dry Cleaner
 Cottonwood Square
 1781 East Murray-Holladay Road
 Millcreek, Utah

PROJECT NO.	DRAWING DATE	FIGURE
2249-001D	March 15, 2019	2