Vapor Encroachment Screening

City of Tucson (COT) Container Maintenance Compound (CMC) and Water Stores Compound (WSC)

1402 South 10th Avenue (APNs 118-20-0374A, 118-20-0076A, 118-20-077A, 188-20-078A, 118-20-0750, and 118-20-036A)

Tucson, Pima County, AZ

December 21, 2022

Terracon Project No. 63227145A

Prepared for:
City of Tucson Environmental & General Services
Tucson, Arizona

Prepared by:
Terracon Consultants, Inc.
Tucson, Arizona

Decmeber 21, 2022

City of Tucson Environmental & General Services
4004 South Park Avenue, Building 1
Tucson, AZ 85726

Attn: Ms. Valerie Herman
P: (520) 837-2270
E: Valerie.Herman@tucsonaz.gov

Re: Vapor Encroachment Screening
City of Tucson Container Maintenance Compound and Water Stores Compound
1402 South 10th Avenue
Tucson, Pima County, Arizona 85713
Terracon Project No. 63227145A

Dear Ms. Herman:

Terracon Consultants, Inc. (Terracon) is pleased to submit the enclosed Vapor Encroachment Screening (VES) report for the above-referenced site. This assessment was performed in accordance with Terracon Proposal No. P63227145 dated September 19, 2022.

We appreciate the opportunity to be of service to you on this project. In addition to Phase I services, our professionals provide geotechnical, environmental, construction materials, and facilities services on a wide variety of projects locally, regionally and nationally. For more detailed information on all of Terracon's services please visit our website at www.terracon.com. If there are any questions regarding this report or if we may be of further assistance, please do not hesitate to contact us.

Sincerely,
Terracon Consultants, Inc.

Breana M. Quesada
Assistant Scientist

Derek D. Koller, CIH, CHMM
Office Manager / Principal

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1.0 INTRODUCTION

1.1 Site Description

Site Name	City of Tucson Container (COT) Maintenance and Water Stores Compound
Site Location/Address	1402 South 10th Avenue, 425 West 23rd Street, 1445 South 11th Avenue, and 1480 South 10th Avenue, Tucson, Pima County, Arizona
Land Area	Approximately 12.24-acres

Site Improvements			
APN	**Associated Address**	**Site Improvements**	**Acreage**
118-20-037A	1402 South 10th Avenue	Parcel consists of two non-contiguous area separated by the Downtown Airport Wash. The north portion is developed with a 1,617 structure (currently vacant) and the south portion is developed with an office trailer.	3.09
118-20-036A	425 West 23rd Street	Paved and landscaped areas.	0.22
118-20-076A	1445 South 11th Avenue	Two interconnected buildings collectively covering 3,569 square-feet and containing a wash-bay, welding shop, maintenance area, paint booth and office area.	3.79
118-20-0750	No assigned address	An aboveground storage tank (AST), fuel dispenser, and auxiliary equipment shed.	1.18
118-20-077A	1480 South 10th Avenue	A 14,098 square foot office building/warehouse occupied by Tucson Water and associated parking areas.	3.53
118-20-078A	No assigned address	Paved and landscaped areas.	0.43
		Total Acreage:	**12.24**

1.2 Reliance

This Vapor Encroachment Screening report is prepared for the exclusive use and reliance of City of Tucson. Use or reliance by any other party is prohibited without the written authorization of City of Tucson and Terracon Consultants, Inc. (Terracon).

Reliance on the VES by the client and all authorized parties will be subject to the terms, conditions and limitations stated in the proposal, VES report, and Terracon's Agreement. The limitation of liability defined in the Agreement is the aggregate limit of Terracon's liability to the client and all relying parties.

Continued viability of this report is subject to ASTM E 2600-22, *Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*. If the VES will be used by a different user (third party) than the user for whom the VES was originally prepared, the third party must also satisfy the user's responsibilities in ASTM E 2600-22.

2.0 ASTM E 2600-22 VAPOR ENCROACHMENT SCREENING

Terracon conducted a Tier 1 Vapor Encroachment Screening (VES), in general accordance with the procedures included in ASTM E 2600-22, *Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*. The purpose of the Tier 1 VES is to evaluate whether a vapor encroachment condition (VEC) may be present at the site. A VEC is defined by ASTM as the "presence or likely presence of chemical(s) of concern (COC) vapors in the subsurface of the target property caused by the release of vapors from contaminated soil or groundwater or both either on and/or near the target property as identified by the Tier I procedures in the *Guide."*

This purpose was pursued through use of information collected in conjunction with the Environmental Site Assessment Phase I (ESA), including existing/planned use of the site, type of structures located on the site, surrounding property description, user information, historical and physical records review, regulatory database review, manmade or natural conduits, as applicable, and a visual noninvasive reconnaissance of the site and adjoining properties. Limitations, ASTM deviations, and significant gaps (if identified) are evident from reviewing the applicable scope of services and the Phase I report.

The scope of work for the Tier 1 VES does not include regulatory file reviews (other than those performed as part of the Phase I ESA) or subsurface investigations to evaluate soil, soil gas, or groundwater quality, nor does it evaluate the potential for vapor intrusion into on-site structures or assess indoor air quality.

2.1.1 Existing / Planned Use of the Site/Structures

The site is an approximately 12.24-acres that is currently developed with a City of Tucson Container Maintenance Compound, Tucson Water, City of Tucson Refuse Transfer Center (an office trailer), and vacant office building. Each building is one-story with a slab on grade foundation with exception of the office trailer which is elevated.

2.1.2 Surrounding Area Description

The site is bound on the north by West 23rd Street followed by residences; on the east by South 10th Avenue followed by Southside Presbyterian Church (north), residential (central), and Arizona Cactus and Tree Service; on the south by West 25th Street followed by residences; and on the west by South 11th Avenue followed by residences.

2.1.3 User Specialized Knowledge

As noted in Section 1.6 in the corresponding Terracon Phase I Environmental Site Assessment (ESA) Report (Terracon Project No. 63227145, dated November 7, 2022), the client did provide

the requested User's information completed by Mr. Frank Bonillas, site representative. Mr. Bonillas indicated he has specialized knowledge or experience and commonly known or reasonably ascertainable information that is material to a REC to the site. Mr. Bonillas referenced a prior Phase I and II conducted at the site. He reported there was a Solid Waste Transfer Station with hydraulic tanks/oil without obvious contamination near the former compactors in the southern portion of the site. Other pertinent information gathered from this form has been incorporated into this Phase I ESA Report.

2.1.4 Historical Records

Please refer to Section 3.0 in corresponding Terracon Phase I ESA (Terracon Project No. 63227145, date November 3, 2022).

Based on review of the historical information, historical site uses of potential concern included a Sanitation Transfer Fuel Site from at least 1949 until 1987. Based on Terracon's review of the historical records, VECs were identified on the site or in the site vicinity. The known constituents of concern (COC) are petroleum hydrocarbons/VOCs, sourced from the former UST and leaking UST (LUST) on site.

2.1.5 Regulatory Records

Terracon reviewed the regulatory database in Terracon Phase I ESA (Terracon Project No. 63227145, date November 3, 2022, Section 4.0), for facilities potentially utilizing petroleum hydrocarbons within one-tenth of a mile (528-feet) of the site and facilities potentially using other volatile chemicals of concern within one-third of a mile (1,760-feet) of the site. Based on Terracon's review of the regulatory records, Terracon did identify potential facilities of concern. Based on Terracon's review of the regulatory records, VECs were identified on the site associated with the identified potential facilities of concern.

The known COCs are petroleum hydrocarbons/VOCs associated with the former on-site leaking UST (LUST) listing. The regulatory records did indicate that the COCs were below Risk-Based Corrective Action (RBCA) levels meeting Tier 1 standards for unrestricted land use.

Refer to Section 4.1 in corresponding Terracon Phase I ESA (Terracon Project No. 63227145, date November 3, 2022) for discussion for facilities located within a 100-foot radius of the site or 200-foot radius and up-gradient of the site. Facilities beyond 100-feet of the site or 200-feet and up-gradient are too far from the site to likely be a concern. Please note depth to groundwater is approximately 150-feet bgs.

2.1.6 Physical Setting Characteristics

The site is located within the Tucson Basin characterized by unconsolidated sands silts and clays deposited in the Pleistocene age. Cave Soils consists of very shallow and shallow to a lime-

cemented hardpan and well drained, formed in mixed alluvium. Typically, the surface layer is light brown gravelly fine sandy loam about 4 inches thick. Permeability of the profile is moderate. Runoff across the profile is medium to rapid and water and wind erosion are slight. Urban Land consists of areas so altered by construction or obscured by structures and pavement that identification is difficult or impossible. The Glendale series consists of very deep, well drained soils formed in stratified alluvium. Glendale soils are on alluvial fans, flood plains, and stream terraces and have slopes of 0 to 5 percent. These soils have a medium runoff and moderately slow permeability. Sahuarita Soils consist of very deep and well-drained soil. Permeability of the profile is moderately slow. Runoff across the profile is slow to rapid and water erosion is slight to moderate. Wind erosion is moderate across the profile. Mohave soils consist of very deep, well drained soils formed in mixed alluvium. Mohave soils are on fan terraces, basin floors, and stream terraces and have slopes of 0 to 8 percent. They formed in mixed alluvium from acid and basic igneous rocks. These soils are well drained; slow runoff; moderately slow permeability.

2.1.7 Natural or Man-made Conduits

The site is located in a developed area of Tucson containing utilities on and along the site. Based on the identification of potential vapor sources in the site vicinity there is the potential that man-made conduits, such as utility corridors, provide a potential path for vapor migration. Natural conduits, such as karst terrain/features, are not known to exist in the site vicinity.

2.1.8 Conclusions

The Tier 1 VES results are summarized herein, and the conclusion from the Tier I screening is presented below. Based on the findings from the historical and regulatory records review, the potential for a VEC exists at the site:

- On site LUST files 4540.01, 4540.02, 4540.03, and 4540.04 associated with a former diesel UST, were opened in August 1996 and closed in November 1996 to closed soil only levels meeting Risked Based Corrective Action (RBCA) Tier 1 standards. Please refer to Section 4.1, in corresponding Terracon Phase I ESA (Terracon Project No. 63227145, date November 3, 2022) for further discussion.

- A subsurface soil gas investigation should be conducted in the vicinity of the historic UST system. Additionally, if redevelopment plans indicate a building within a 60-foot radius of the historic UST system, subsurface soil gas investigation should be conducted.