AEI Consultants

May 30, 2019

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Property Information:
1171 Armstrong Avenue
Knoxville, Knox County, Tennessee 37917

Project Information:
AEI Project No. 382016
Client Reference Name: Love Towers
Site Assessment Date: February 28, 2019

Prepared For:
Knoxville's Community Development Corporation
901 North Broadway
Knoxville, Tennessee 37917

U.S. Department of Housing and Urban Development

Prepared By:
AEI Consultants
4255 Wade Green Road Suite 510
Kennesaw, Georgia 30144

Environmental Due Diligence

Building Assessments

Site Investigation & Remediation

Energy Performance & Benchmarking

Industrial Hygiene

Construction Risk Management

Zoning Analysis Reports & ALTA Surveys

AEI Consultants

May 30, 2019

Mr. Terry McKee
Knoxville's Community Development Corporation
901 North Broadway
Knoxville, Tennessee 37917

Subject: **Phase I Environmental Site Assessment**
1171 Armstrong Avenue
Knoxville, Tennessee 37917
AEI Project No. 382016
Client Reference Name: Love Towers

Dear Mr. McKee:

AEI Consultants is pleased to provide the *Phase I Environmental Site Assessment* of the above referenced property. This assessment was authorized and performed in accordance with the scope of services engaged.

We appreciate the opportunity to provide services to you. If you have any questions concerning this report, or if we can assist you in any other matter, please contact me at (617) 319-5711 or dolson@aeiconsultants.com.

Sincerely,

Douglas A. Olson
Senior Vice President
AEI Consultants

PROJECT SUMMARY

1171 Armstrong Avenue, Knoxville, Knox County, Tennessee 37917
AEI Project No. 382016

Report Section		REC	CREC	HREC	OEC	Recommended Action
1.0	Introduction					None
2.0	Site and Vicinity Description					None
3.0	Historical Review of Site and Vicinity				✔	None
4.0	Regulatory Agency Records Review					None
5.0	Regulatory Database Records Review					None
6.0	Interviews and User Provided Information					None
7.0	Site Reconnaissance					None
8.1	Asbestos-Containing Building Materials				✔	Adhere to 2019 Operations and Maintenance (O&M) Plan
8.2	Lead-Based Paint					None
8.3	Radon					None
8.4	Mold					None

TABLE OF CONTENTS

EXECUTIVE SUMMARY

AEI Consultants (AEI) was retained by Knoxville's Community Development Corporation to conduct a Phase I ESA in conformance with AEI's contract and the scope and limitations of ASTM Standard Practice E1527-13, the EPA Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), and Federal Housing Administration (FHA) Multifamily Accelerated Processing (MAP) Guidelines for the property located at 1171 Armstrong Avenue, Knoxville, Knox County, Tennessee (the "subject property"). Any exceptions to, or deletions from, this practice are described in Sections 1.4, 1.5, and 1.6 of this report.

Pertinent subject property information is noted below:

PROPERTY INFORMATION	
Site Address(es)	1171 Armstrong Avenue, Knoxville, Knox County, Tennessee 37917
Property ID (APN or Block/Lot)	081MD001
Location	Northern side of Cornelia Street, eastern side of East Anderson Avenue, southern side of Kern Place, and western side of Armstrong Avenue
Property Type	Multifamily
SITE AND BUILDING INFORMATION	
Approximate Site Acreage/Source	8.63 acres/Knox County Property Assessor's Office
Number of Buildings	Three
Building Construction Date(s)	Apartment buildings - 1966 Garage building - 1968-1973
Building Square Footage (SF)/Source	210,300 square feet/Property Manager
Number of Floors/Stories	Apartment buildings - 7 stories with basement Garage building - 1 story without basement
Basement or Subgrade Area(s)	Yes; full basements in apartment buildings
Number of Units	249
Additional Improvements	Activity room, common area kitchen, tenant mail centers, tenant laundry room, outdoor seating areas, garden boxes, emergency backup generator, concrete sidewalks, paved parking areas, and associated landscaping
On-site Occupant(s)	Love Towers
Current On-site Operations/Use	Age-restricted residential apartment complex and supportive maintenance garage
Current Use of Hazardous Substances	None identified
REGULATORY INFORMATION	
Regulatory Database Listing(s)	None identified

A chronological summary of historical subject property information is as follows:

Date Range	Subject Property Description and Use (Historical Addresses)	Source(s)
Prior to 1895	Unknown use	Data failure; refer to Section 1.6.1

Date Range	Subject Property Description and Use (Historical Addresses)	Source(s)
1895-1960	Several single-family residences and various non-residential buildings including four grocery stores, a barber, a church, a milk depot, a church mission, a furniture repair shop, a television repair shop, a home supply company, and an electrical contractor (historical addresses listed below)	Aerial photographs, Sanborn maps, city directories, topographic maps, interviews
1965	Vacant land cleared for construction of current apartments	City directory
1966-1968	Current high-rise apartment buildings (1161 & 1171 Armstrong Avenue)	Sanborn map, city directories, topographic map, interviews
1973-Present	Current high-rise apartment buildings (1161 & 1171 Armstrong Avenue) and current supportive maintenance garage building (302 East Anderson Avenue)	Aerial photographs, city directories, topographic maps, interviews, site observation

The immediately surrounding properties consist of the following:

Direction	Tenant/Use (Address)	Regulatory Database Listing(s)
North	Kern Place followed by: Single-family residences (205-233 Kern Place)	None identified
East	Armstrong Avenue followed by: First Lutheran Church (1207 North Broadway) Single-family residences (600 Wells Avenue and 1166 & 1168 Armstrong Avenue) Cellular tower (1158 Armstrong Avenue) Wright Place multi-tenant commercial building with the following tenants: Vinyard Floor Covering Company, Trojan Labor, Broadway Studios & Gallery, and Knoxville Arts & Fiine Crafts Center (1127 North Broadway) St. James Episcopal Church (1101 North Broadway)	None identified
South	Broadway Flooring (301 East Baxter Avenue) Knoxville Community Development Corporation Supportive Maintenance Garage (1126 Cornelia Street) Cornelia Street followed by: Single-family residences (1129 Cornelia Street and 250 East Anderson Avenue)	LUST, UST, HIST UST (301 East Baxter Avenue)
West	Intersection of Cornelia Street and East Anderson Avenue followed by: Elemental Design Company (1245 Cornelia Street) East Anderson Avenue followed by: Multi-tenant light industrial building with the following tenants: Southeast Studebaker and Swedish Car Parts & Service (301-319 East Anderson Avenue) Vacant commercial building (325 East Anderson Avenue) Single-family residences (403-421 East Anderson Avenue)	None identified

If the surrounding properties are listed in the regulatory database, please refer to Section 5.1 for discussion.

FINDINGS

Recognized Environmental Condition (REC) is defined by the ASTM Standard Practice E1527-13 as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.

- AEI did not identify evidence of RECs during the course of this assessment.

Controlled Recognized Environmental Condition (CREC) is defined by the ASTM Standard Practice E1527-13 as a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls.

- AEI did not identify evidence of CRECs during the course of this assessment.

Historical Recognized Environmental Condition (HREC) is defined by the ASTM Standard Practice E1527-13 as a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls.

- AEI did not identify evidence of HRECs during the course of this assessment.

Other Environmental Considerations (OEC) warrant discussion, but do not qualify as RECs as defined by the ASTM Standard Practice E1527-13. These include, but are not limited to, de minimis conditions and/or environmental considerations such as the presence of ACMs, LBP, radon, mold, and lead in drinking water, which can affect the liabilities and financial obligations of the client, the health and safety of site occupants, and the value and marketability of the subject property.

- *Former Onsite History* - Based on the review of historical sources, the Knoxville Community Development Corporation (KCDC) Supportive Maintenance Garage building at 302 East Anderson Avenue was originally constructed between 1968 and 1973. The adjacent KCDC Supportive Maintenance Garage at 1126 Cornelia Street was constructed in 1983. According to an employee, the adjacent garage performed maintenance on KCDC vehicles until approximately 2009, when vehicle maintenance was contracted out to the City of Knoxville main garage. Former auto repair operations at the adjacent garage included the use of hydraulic lifts, a solvent parts washer, and a waste oil AST. According to Mr. Jack Canada, Director of Supportive Maintenance, who has been associated with the subject property since approximately 1980, auto repair operations have not been performed in the onsite 302 East Anderson Avenue building. However, there is a potential that vehicle repair was conducted in the subject property building, which would have involved the use and storage of various quantities of hazardous materials, for approximately 10 to 15 years between its original construction and

the construction of the adjacent garage building. Additionally, AEI observed floor drains, an air compressor system, a shop sink, and two overhead bay doors in the subject property garage building. The subject property was not listed in the regulatory database. Based on interviews with knowledgeable personnel indicating that auto repair operations did not occur onsite, short duration of operations if they were performed onsite (10-15 years) and the time elapsed (approximately 35 years) since the adjacent garage was constructed for use by the KCDC, this finding is not considered a significant environmental condition and no further investigation is recommended.

- *Asbestos* - Per United States EPA Guidelines, buildings of any age may contain asbestos. The subject property was constructed in 1966 and 1968-1973. As part of previous environmental assessment activities, McCall & Spero Environmental, Inc completed an analysis of bulk samples for asbestos mineral fibers by Polarized Light Microscopy (PLM) with Dispersion Staining in October 2014 in Unit 303 at the subject property. A total of three samples of spray applied ceiling texture were collected from Unit 303 and were analyzed for the presence of asbestos fibers by McCall & Spero. Laboratory analysis determined that each of the samples contained 3% chrysotile asbestos. AEI was provided additional sampling data from ceiling texture samples collected at the 5th, 6th and 7th floor balconies in July 2013. Laboratory analysis by McCall & Spero determined that the ceiling texture samples contained 5% chrysotile asbestos. According to Mr. Jack Canada, Supportive Maintenance Manager, the subject property owners have contracted Heller & Associates to remove damaged ceiling texture from subject property units being turned. AEI was provided additional sampling data of six 9"x9" floor tiles and associated mastics from the stairwell and a 2nd floor apartment in November 2015. Laboratory analysis by McCall & Spero determined that the collected floor tile and mastic samples contain greater than 1% chrysotile asbestos.

  In accordance with the HUD MAP Guide, Ms. Kathryn Hubicki, a State of Tennessee Accredited Asbestos Inspector (Accreditation #A-I-73297-68364) conducted a Baseline Survey in general compliance with ASTM Standard Practice for Comprehensive Asbestos Building Surveys (ASTM E 2356-14). The scope of this investigation included the sampling and analysis of friable and damaged non-friable materials suspected of containing asbestos. As part of the survey, 11 samples were collected from the subject property and layered out to 23 samples for analysis . The samples collected and analyzed as part of this investigation are as follows: ceiling tiles, drywall, joint compound, tape, and mudded pipe fitting. The collected beige joint compound samples contained 2% chrysotile asbestos, while the white mudded pipe fitting contained 15% chrysotile asbestos. The joint compound is non-friable in its current condition. The mudded pipe fitting is a friable material; however, based on its location in the mechanical review which is not accessible to tenants and the current condition of the material, the mudded pipe fitting is not expected to pose a health and safety concern to the occupants of the subject property at this time. Presumed ACMs include but are not limited to resilient vinyl flooring and associated mastics, covebase and associated mastics, caulking and roofing materials. Additionally, the remaining sampled building components and/ or observed suspect ACMs were in an intact condition and are not expected to pose a health and safety concern to the occupants of the subject property at this time. As such, AEI recommends the property owner adhere to the 2019 Operations & Maintenance

(O&M) Plan that stipulates that the assessment, repair and maintenance of damaged materials be performed to protect the health and safety of the building occupants. Furthermore, in the event that building renovation or demolition activities are planned, a thorough asbestos survey to identify asbestos-containing building materials is required in accordance with the EPA NESHAP 40 CFR Part 61 prior to demolition or renovation activities that may disturb suspect ACMs.

CONCLUSIONS, OPINIONS, AND RECOMMENDATIONS

We have performed a Phase I ESA in conformance with the scope and limitations of ASTM Standard Practice E1527-13, the EPA Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), and Federal Housing Administration (FHA) Multifamily Accelerated Processing (MAP) Guidelines of 1171 Armstrong Avenue, Knoxville, Knox County, Tennessee, the *subject property*. Any exceptions to, or deletions from, this practice are described in Sections 1.4, 1.5, and 1.6 of this report.

AEI did not identify evidence of RECs or CRECs in connection with the subject property during the course of this assessment. AEI recommends no further investigation for the subject property at this time.

1.0 INTRODUCTION

This report documents the methods and findings of the Phase I ESA performed in conformance with AEI's contract and scope and limitations of ASTM Standard Practice E1527-13, the EPA Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), and Federal Housing Administration (FHA) Multifamily Accelerated Processing (MAP) Guidelines for the property located at 1171 Armstrong Avenue, Knoxville, Knox County, Tennessee (Appendix A: Figures and Appendix B: Property Photographs).

1.1 SCOPE OF WORK

The purpose of the Phase I ESA is to assist the client in identifying potential RECs, in accordance with ASTM E1527-13, associated with the presence of any hazardous substances or petroleum products, their use, storage, and disposal at and in the vicinity of the subject property. Property assessment activities focused on: 1) a review of federal, state, tribal, and local databases that identify and describe underground fuel tank sites, leaking underground fuel tank sites, hazardous waste generation sites, and hazardous waste storage and disposal facility sites within the ASTM approximate minimum search distance; 2) a property and surrounding site reconnaissance, and interviews with the past and present owners and current occupants and operators to identify potential environmental contamination; and 3) a review of historical sources to help ascertain previous land use at the site and in the surrounding area.

1.2 ADDITIONAL SERVICES

Other Environmental Considerations such as ACMs, LBP, lead in drinking water, radon, mold, and wetlands can result in business environmental risks for property owners which may disrupt current or planned operations or cash flow and are generally beyond the scope of a Phase I assessment as defined by ASTM E1527-13. Based upon the agreed-on scope of services this ESA did not include subsurface or other invasive assessments, business environmental risks, or other services not specifically identified and discussed herein.

1.3 SIGNIFICANT ASSUMPTIONS

The following assumptions are made by AEI in this report. AEI relied on information derived from secondary sources including governmental agencies, the client, designated representatives of the client, property contact, property owner, property owner representatives, computer databases, and personal interviews. AEI has reviewed and evaluated the thoroughness and reliability of the information derived from secondary sources including government agencies, the client, designated representatives of the client, property contact, property owner, property owner representatives, computer databases, or personal interviews. It appears that all information obtained from outside sources and reviewed for this assessment is thorough and reliable. However, AEI cannot guarantee the thoroughness or reliability of this information.

Groundwater flow, unless otherwise specified by on-site well data or well data from the subject property or nearby sites, is inferred from contour information depicted on the USGS topographic maps. AEI assumes the property has been correctly and accurately identified by the client, designated representative of the client, property contact, property owner, and property owner's representatives.

1.4 LIMITATIONS

Property conditions, as well as local, state, tribal, and federal regulations can change significantly over time. Therefore, the recommendations and conclusions presented as a result of this assessment apply strictly to the environmental regulations and property conditions existing at the time the assessment was performed. Available information has been analyzed using currently accepted assessment techniques and it is believed that the inferences made are reasonably representative of the property. AEI makes no warranty, expressed or implied, except that the services have been performed in accordance with generally accepted environmental property assessment practices applicable at the time and location of the assessment.

Considerations identified by ASTM as beyond the scope of a Phase I ESA that may affect business environmental risk at a given property include the following: ACMs, radon, LBP, lead in drinking water, wetlands, regulatory compliance, cultural and historical resources, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, mold, and high voltage lines. These environmental issues or conditions may warrant assessment based on the type of the property transaction; however, they are considered non-scope issues under ASTM Standard Practice E1527-13.

If requested by the client, these non-scope issues are discussed herein. Otherwise, the purpose of this assessment is solely to satisfy one of the requirements for qualification of the innocent landowner defense, contiguous property owner or bona fide prospective purchaser under CERCLA. ASTM Standard Practice E1527-13 and the United States EPA Standards and Practices for All Appropriate Inquiries (40 CFR Part 312) constitute the "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in:

1. 42 U.S.C. § 9601(35)(B), referenced in the ASTM Standard Practice E1527-13.
2. Sections 101(35)(B) (ii) and (iii) of CERCLA and referenced in the EPA Standards and Practices for All Appropriate Inquiries (40 CFR Part 312).
3. 42 U.S.C. § 9601(40) and 42 U.S.C. § 9607(q).

The Phase I ESA is not, and should not be construed as, a warranty or guarantee about the presence or absence of environmental contaminants that may affect the property. Neither is the assessment intended to assure clear title to the property in question. The sole purpose of assessment into property title records is to ascertain a historical basis of prior land use. All findings, conclusions, and recommendations stated in this report are based upon facts, circumstances, and industry-accepted procedures for such services as they existed at the time this report was prepared (i.e., federal, state, and local laws, rules, regulations, market conditions, economic conditions, political climate, and other applicable matters). All findings, conclusions, and recommendations stated in this report are based on the data and information provided, current subject property use, and observations and conditions that existed on the date and time of the property reconnaissance.

Responses received from local, state, or federal agencies or other secondary sources of information after the issuance of this report may change certain facts, findings, conclusions, or circumstances to the report. A change in any fact, circumstance, or industry-accepted procedure upon which this report was based may adversely affect the findings, conclusions, and recommendations expressed in this report.

AEI's limited radon screening, if included, is intended to provide a preliminary screening to evaluate the potential presence of elevated radon concentrations at the site. The proposed scope is not intended to define the full extent of the presence of radon at the subject property. As such, the results should be used for lending purposes only. The recommendations and conclusions presented as a result of the limited preliminary radon screening apply strictly to the property conditions existing at the time the sampling was performed. The sample analytical results are only valid for the time, place, and condition of the site at the time of collection and AEI does not warrant that the results will be repeatable or are representative of past or future conditions.

1.5 LIMITING CONDITIONS/DEVIATIONS

The performance of this Phase I ESA was limited by the following:

- While additional assessments may have been conducted on the subject property, these documents must be provided for AEI's review in order for the information to be summarized/included in this Phase I ESA. Please refer to Section 6.3 for a summary of previous reports and other documentation provided to AEI during this assessment.
- AEI contacted the City of Knoxville Office of Zoning Ordinance, Complaints, and Inspections for information on the subject property in order to identify historical tenants, property use and/or hazardous materials handling. Due to the time frame of this assessment, records at this agency were not available for review. However, based on the quality of information obtained from other sources, this limitation is not expected to significantly alter the findings of this assessment.

1.6 DATA FAILURE AND DATA GAPS

According to ASTM E1527-13, data gaps occur when the Environmental Professional is unable to obtain information required by the Standard, despite good faith efforts to gather such information. Pursuant to ASTM E1527-13, only significant data gaps, defined as those that affect the ability of the Environmental Professional to identify RECs, need to be documented.

Data failure is one type of data gap. According to ASTM E1527-13, data failure occurs when all of the standard historical sources that are reasonably ascertainable and likely to be useful have been reviewed and yet the objectives have not been met. Pursuant to ASTM E1527-13, historical sources are required to document property use back to the property's first developed use or back to 1940, whichever is earlier, or periods of five years or greater.

1.6.1 DATA FAILURE

The following data failure was identified during the course of this assessment:

Data Failure	The earliest historical resource obtained during this assessment was a city directory from 1895 indicating that the subject property was developed with several residences and a grocery store. The lack of historical sources for the subject property dating back to first developed use represents historical data source failure. However, as it is assumed that the subject property would have been previously used for residential or commercial retail purposes, if not undeveloped, this data failure is not expected to significantly alter the findings of this assessment.

Information/Sources Consulted	City directories, Sanborn fire insurance maps, aerial photographs, topographic maps, interviews

1.6.2 SIGNIFICANT DATA GAPS

AEI did not identify significant data gaps which affected our ability to identify RECs.

1.7 RELIANCE

All reports, both verbal and written, are for the benefit of Knoxville's Community Development Corporation and the U.S. Department of Housing and Urban Development. This report has no other purpose and may not be relied upon by any other person or entity without the written consent of AEI. Either verbally or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with AEI granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against AEI, its officers, employees, vendors, successors, or assigns. Reliance is provided in accordance with AEI's contract and Standard Terms and Conditions executed by Knoxville's Community Development Corporation on January 29, 2019. The limitation of liability defined in the Terms and Conditions is the aggregate limit of AEI's liability to the client and all relying parties.

2.0 SITE AND VICINITY DESCRIPTION

2.1 SITE LOCATION AND DESCRIPTION

PROPERTY INFORMATION	
Site Address(es)	1171 Armstrong Avenue, Knoxville, Knox County, Tennessee 37917
Property ID (APN or Block/Lot)	081MD001
Location	Northern side of Cornelia Street, eastern side of East Anderson Avenue, southern side of Kern Place, and western side of Armstrong Avenue
Property Type	Multifamily
SITE AND BUILDING INFORMATION	
Approximate Site Acreage/Source	8.63 acres/Knox County Property Assessor's Office
Number of Buildings	Three
Building Construction Date(s)	Apartment buildings - 1966 Garage building - 1968-1973
Building Square Footage (SF)/Source	210,300 square feet/Property Manager
Number of Floors/Stories	Apartment buildings - 7 stories with basement Garage building - 1 story without basement
Basement or Subgrade Area(s)	Yes; full basements in apartment buildings
Number of Units	249
Additional Improvements	Activity room, common area kitchen, tenant mail centers, tenant laundry room, outdoor seating areas, garden boxes, emergency backup generator, concrete sidewalks, paved parking areas, and associated landscaping
On-site Occupant(s)	Love Towers
Current On-site Operations/Use	Age-restricted residential apartment complex and supportive maintenance garage
Current Use of Hazardous Substances	None identified
REGULATORY INFORMATION	
Regulatory Database Listing(s)	None identified

2.2 ON-SITE UTILITIES

Utility	Source/System Information
Heating System	Electricity
Cooling System	Electricity
Potable Water	Knoxville Utility Board
Sewage Disposal/Treatment	Knoxville Utility Board

Utility source/system information listed in the table above is provided by Mr. Sean Gilbert, Owner's Representative, unless otherwise noted above.

2.3 SITE AND VICINITY CHARACTERISTICS

The subject property is located in a mixed commercial and residential area of Knoxville,

Tennessee. The immediately surrounding properties consist of the following:

Direction	Tenant/Use (Address)	Regulatory Database Listing(s)
North	Kern Place followed by: Single-family residences (205-233 Kern Place)	None identified
East	Armstrong Avenue followed by: First Lutheran Church (1207 North Broadway) Single-family residences (600 Wells Avenue and 1166 & 1168 Armstrong Avenue) Cellular tower (1158 Armstrong Avenue) Wright Place multi-tenant commercial building with the following tenants: Vinyard Floor Covering Company, Trojan Labor, Broadway Studios & Gallery, and Knoxville Arts & Fiine Crafts Center (1127 North Broadway) St. James Episcopal Church (1101 North Broadway)	None identified
South	Broadway Flooring (301 East Baxter Avenue) Knoxville Community Development Corporation Supportive Maintenance Garage (1126 Cornelia Street) Cornelia Street followed by: Single-family residences (1129 Cornelia Street and 250 East Anderson Avenue)	LUST, UST, HIST UST (301 East Baxter Avenue)
West	Intersection of Cornelia Street and East Anderson Avenue followed by: Elemental Design Company (1245 Cornelia Street) East Anderson Avenue followed by: Multi-tenant light industrial building with the following tenants: Southeast Studebaker and Swedish Car Parts & Service (301-319 East Anderson Avenue) Vacant commercial building (325 East Anderson Avenue) Single-family residences (403-421 East Anderson Avenue)	None identified

If the surrounding properties are listed in the regulatory database, please refer to Section 5.1 for discussion.

2.4 PHYSICAL SETTING

Geologic Unit: Description/Source	TNCAcr;10: Copper Ridge Dolomite, age Cambrian/USGS and United States Department of the Interior
Soil Series: Description/Source	Dewey-Udothents-Urban Land Complex, not prime farmland/USDA Soil Survey
Groundwater Flow Direction/Source	Northeast, Southwest/Topographic map interpretation
Estimated Depth to Groundwater/ Source	30-40 feet bgs/USGS Well Number 360307083484701

Surface waters on the subject property or adjacent sites	None

Note: Groundwater flow direction can be influenced locally and regionally by the presence of local wetland features, surface topography, recharge and discharge areas, horizontal and vertical inconsistencies in the types and location of subsurface soils, and proximity to water pumping wells. Depth and gradient of the water table can change seasonally in response to variation in precipitation and recharge, and over time, in response to urban development such as storm water controls, impervious surfaces, pumping wells, cleanup activities, dewatering, seawater intrusion barrier projects near the coast, and other factors.

3.0 HISTORICAL REVIEW OF SITE AND VICINITY

Reasonably ascertainable standard historical sources as outlined in ASTM Standard E1527-13 were used to determine previous uses and occupancies of the subject property that are likely to have led to RECs in connection with the subject property. A chronological summary of historical data found, including but not limited to aerial photographs, historical city directories, Sanborn fire insurance maps, and agency records, is as follows:

Date Range	Subject Property Description and Use (Historical Addresses)	Source(s)
Prior to 1895	Unknown use	Data failure; refer to Section 1.6.1
1895-1960	Several single-family residences and various non-residential buildings including four grocery stores, a barber, a church, a milk depot, a church mission, a furniture repair shop, a television repair shop, a home supply company, and an electrical contractor (historical addresses listed below)	Aerial photographs, Sanborn maps, city directories, topographic maps, interviews
1965	Vacant land cleared for construction of current apartments	City directory
1966-1968	Current high-rise apartment buildings (1161 & 1171 Armstrong Avenue)	Sanborn map, city directories, topographic map, interviews
1973-Present	Current high-rise apartment buildings (1161 & 1171 Armstrong Avenue) and current supportive maintenance garage building (302 East Anderson Avenue)	Aerial photographs, city directories, topographic maps, interviews, site observation

In addition to its main address of 1171 Armstrong Avenue, the current subject property developments also include the addresses of 1161 Armstrong Avenue and 302 East Anderson Avenue. The following historical addresses were also associated with the subject property: 400, 402, 404, 406, 408, 412, 414, 416, 418, 508, 512 & 514 East Anderson Avenue; 1151, 1153, 1155, 1157, 1159, 1163, 1169, 1171 & 1173 Armstrong Avenue; 1154, 1161, 1163 & 1165 Folsom Alley; 1160, 1161, 1170, 1173, 1174, 1177, 1178, 1179, 1180, 1185, 1187, 1188, 1191, 1197, 1199, 1200, 1203, 1205, 1207, 1208, 1210, 1209 & 1211 Folsom Avenue; 1103, 1104, 1105, 1106, 1107, 1109, 1109 1/2, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1118, 1120 & 1122 Hayden Place/Hellerd Place; 212, 216, 220, 222, 224, 228 & 232 Kern Street/Kern Place; 501, 503, 507, 511, 513, 514, 516, 519, 523 & 527 Wells Avenue; and 201, 207, 209, 213, 217, 221, & 225 West Wells Street. These addresses were also researched as part of this assessment.

Based on the review of historical sources, the Knoxville Community Development Corporation (KCDC) Supportive Maintenance Garage building at 302 East Anderson Avenue was originally constructed between 1968 and 1973. The adjacent KCDC Supportive Maintenance Garage at 1126 Cornelia Street was constructed in 1983. According to an employee, the adjacent garage performed maintenance on KCDC vehicles until approximately 2009, when vehicle maintenance was contracted out to the City of Knoxville main garage. Former auto repair operations at the adjacent garage included the use of hydraulic lifts, a solvent parts washer, and a waste oil AST. According to Mr. Jack Canada, Director of Supportive Maintenance, who has been associated with the subject property since approximately 1980, auto repair operations have not been performed in the onsite 302 East Anderson Avenue building. However, there is a potential that vehicle

repair was conducted in the subject property building, which would have involved the use and storage of various quantities of hazardous materials, for approximately 10 to 15 years between its original construction and the construction of the adjacent garage building. Additionally, AEI observed floor drains, an air compressor system, a shop sink, and two overhead bay doors in the subject property garage building. The subject property was not listed in the regulatory database. Based on interviews with knowledgeable personnel indicating that auto repair operations did not occur onsite, short duration of operations if they were performed onsite (10-15 years) and the time elapsed (approximately 35 years) since the adjacent garage was constructed for use by the KCDC, this finding is not considered a significant environmental condition and no further investigation is recommended.

If available, copies of historical sources are provided in the report appendices.

3.1 Aerial Photographs

AEI reviewed aerial photographs of the subject property and surrounding area. A search was made of the EDR collection of aerial photographs. Aerial photographs were reviewed for the following years:

Year(s)	Subject Property Description	Adjacent Site Descriptions
1939, 1940	Several residential, store, and church buildings and streets	NORTH: Roadway followed by residences EAST: Roadway followed by residences SOUTH: Residences and roadway followed by residences WEST: Roadway followed by church, commercial buildings, and residences
1953, 1956, 1960	No significant changes	NORTH: No significant changes EAST: Roadway followed by church and residences SOUTH: No significant changes WEST: No significant changes
1973, 1976, 1984	Current high-rise apartment buildings and garage building	NORTH: No significant changes EAST: Roadway followed by church, residences, and commercial buildings SOUTH: Warehouse building, residences, and roadway followed by residences WEST: No significant changes
1988, 1992, 1997, 2008, 2012, 2016	No significant changes	NORTH: No significant changes EAST: No significant changes SOUTH: Warehouse, residence, garage, and roadway followed by residences WEST: No significant changes

AEI did not identify potential environmental concerns in association with the historical use of the subject property during the aerial photograph review.

3.2 Sanborn Fire Insurance Maps

Sanborn Fire Insurance maps were developed in the late 1800s and early 1900s for use as

an assessment tool for fire insurance rates in urbanized areas. A search was made of the EDR collection of Sanborn Fire Insurance maps.

The following maps were reviewed:

Year(s)	Subject Property Description (Listed Address)	Adjacent Site Descriptions
1917	11 Single-family residences (400, 402, 404, 406, 408, 412, 414, 416, 418, 508 & 512 East Anderson Avenue) Store (1151 Armstrong Avenue) 7 Single-family residences (1153, 1155, 1157, 1159, 1163, 1169 & 1171 Armstrong Avenue) 3 Single-family residences (1154, 1163 & 1165 Folsom Alley) 15 Single-family residences (1161, 1170, 1173, 1177, 1179, 1185, 1187, 1188, 1191, 1197, 1199, 1200, 1205, 1207 & 1209 Folsom Avenue) Store (1211 Folsom Avenue) 15 Single-family residences (1103, 1105, 1106, 1107, 1109, 1109 1/2, 1110, 1111, 1113, 1114, 1115, 1116, 1118, 1120 & 1122 Hayden Place) 4 Single-family residences (216, 224, 228 & 232 Kern Street) 7 Single-family residences (201, 207, 209, 213, 217, 221, & 225 West Wells Street)	NORTH: Kern Street followed by residences EAST: Armstrong Avenue followed by residences SOUTH: Residences and Cornelia Street followed by residences WEST: East Anderson Avenue followed by Anderson Avenue Christian Church and residences

Year(s)	Subject Property Description (Listed Address)	Adjacent Site Descriptions
1950	12 Single-family residences (400, 402, 404, 406, 408, 412, 414, 416, 418, 508, 512, & 514 East Anderson Avenue) Paint storage shed (402 East Anderson Avenue) Store (1151 Armstrong Avenue/1160 Folsom Avenue) 7 Single-family residences (1153, 1155, 1157, 1159, 1163, 1169 & 1173 Armstrong Avenue) 2 Stores (1211 Armstrong Avenue) 3 Single-family residences (1161, 1163 & 1165 Folsom Alley) 16 Single-family residences (1161, 1170, 1173, 1174, 1177, 1178, 1179, 1180, 1185, 1187, 1188, 1197, 1203, 1205, 1207 & 1209 Folsom Avenue) Folsom Street Baptist Church (1191 Folsom Avenue) 3 Stores (1208, 1210 & 1211 Folsom Avenue) 15 Single-family residences (1103, 1104, 1106, 1109, 1109 1/2, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1118, 1120 & 1122 Hellerd Place) 7 Single-family residences (212, 216, 220, 222, 224, 228 & 232 Kern Place Northeast) 7 Single-family residences (501, 503, 507, 511, 513, 514, 516, 519, 523 & 527 Wells Avenue Northeast)	NORTH: Kern Place Northeast followed by store and residences EAST: Armstrong Avenue followed by First Lutheran Church & School, St. James Episcopal Church, used auto sales lot, and residences SOUTH: Residences and Cornelia Avenue followed by residences WEST: East Anderson Avenue followed by First Church of the Nazarene, Venetian blind manufacturer, store, and residences
1968	Two current seven-story public housing buildings for the elderly with 250 units reportedly constructed in 1965	NORTH: Kern Place Northeast followed by apartments and residences EAST: Armstrong Avenue followed by First Lutheran Church & School, St. James Episcopal Church, used auto sales lot, commercial building, and residences SOUTH: Auto parts warehouse, residences, and Cornelia Avenue followed by residences WEST: Anderson Avenue Northeast followed by First Church of the Nazarene, wholesale seed warehouse, wholesale tobacco warehouse, store, and residences

AEI did not identify potential environmental concerns in association with the historical use of the subject property during the Sanborn map review.

3.3 CITY DIRECTORIES

A search of historical city directories was conducted for the subject property at the East Tennessee Historical Center in Knoxville, Tennessee. The following table summarizes the results of the city directory search. Directories were reviewed in approximate five-year increments from 1895 to 2014. Prior to the construction of the current subject property age-restricted apartment structures, the subject property was occupied by numerous single-family residences several addresses including: 400, 402, 404, 406, 408, 412, 414, 416, 418, 508, 512 & 514 East Anderson Avenue; 1153, 1155, 1157, 1159, 1163, 1169, 1171 & 1173 Armstrong Avenue; 1154, 1161, 1163 & 1165 Folsom Alley; 1161, 1170, 1173, 1174, 1177, 1178, 1179, 1180, 1185, 1187, 1188, 1191, 1197, 1199, 1200, 1203, 1205, 1207 & 1209 Folsom Avenue; 1103, 1104, 1105, 1106, 1107, 1109, 1109 1/2, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1118, 1120 & 1122 Hayden Place/Hellerd Place; 212, 216, 220, 222, 224, 228 & 232 Kern Street/Kern Place; 501, 503, 507, 511, 513, 514, 516, 519, 523 & 527 Wells Avenue; and 201, 207, 209, 213, 217, 221, & 225 West Wells Street. The following table summarizes the subject property listings that are not single-family residential.

Year(s)	Address - Occupant Listed
1895, 1900, 1905, 1910	1211 Folsom Avenue - Grocer
1915	1154 Folsom Avenue - Grocer 1211 Folsom Avenue - Grocer
1920	1211 Folsom Avenue - Grocer
1925	1211 Armstrong Avenue - Grocer 1210 Folsom Avenue - Barber 1211 Folsom Avenue - Grocer
1930	1151 Armstrong Avenue - Grocer 1211 Armstrong Avenue - Grocer 1208 & 1210 Folsom Avenue - Grocer 1211 Folsom Avenue - Grocer
1935	1151 Armstrong Avenue - Grocer 1211 Armstrong Avenue - Grocer 1191 Folsom Avenue - Church 1210 Folsom Avenue - Milk depot 1211 Folsom Avenue - Grocer
1940	1211 Armstrong Avenue - Grocer 1160 Folsom Avenue - Grocer 1178 Folsom Avenue - Furniture repair 1191 Folsom Avenue - Church 1210 Folsom Avenue - Grocer 1211 Folsom Avenue - Grocer
1945	1211 Armstrong Avenue - Grocer 1160 Folsom Avenue - Grocer 1191 Folsom Avenue - Church 1210 Folsom Avenue - Grocer 1211 Folsom Avenue - Grocer

Year(s)	Address - Occupant Listed
1950	1211 Armstrong Avenue - Grocer 1160 Folsom Avenue - Grocer 1191 Folsom Avenue - Church 1211 Folsom Avenue - Grocer
1955	1211 Armstrong Avenue - Grocer 1160 Folsom Avenue - Church mission 1178 Folsom Avenue - Upholstery company 1187 & 1191 Folsom Avenue - Church 1208 Folsom Avenue - Home supply company 1211 Folsom Avenue - Grocer 232 Kern Place - Television service
1960	1211 Armstrong Avenue - Grocer 1211 1/2 Armstrong Avenue - Electrical contractor 1155 Folsom Avenue - Grocer 1163 Folsom Avenue - Church 1174 & 1176 Folsom Avenue - Home supply company 1179 Folsom Avenue - Grocer 232 Kern Place - Television service
1965	Various addresses - Torn down
1967, 1970, 1975	1161 & 1171 Armstrong Avenue - Guy B. Love Towers Apartments
1980, 1985, 1990, 1995	302 East Anderson Avenue - Knoxville Community Development Corporation Central Garage 1161 & 1171 Armstrong Avenue - Guy B. Love Towers Apartments
2000, 2005, 2010, 2014	1161 & 1171 Armstrong Avenue - Guy B. Love Towers Apartments

If listed above, XXXX indicates that the address is valid but there is no occupancy information available.

AEI did not identify potential environmental concerns in association with the historical use of the subject property during the city directory review.

3.4 HISTORICAL TOPOGRAPHIC MAPS

A search of historical topographic maps was conducted for the subject property utilizing NETR Online. Topographic maps were reviewed for the following years:

Year(s)	Subject Property Description	Adjacent Site Descriptions
1935, 1936	Cleared land crossed by roadways with numerous residential structures	NORTH: Roadway followed by residential structures EAST: Roadway followed by church and residential structures SOUTH: Residential structures and roadway followed by residential structures WEST: Roadway followed by church and residential structures

Year(s)	Subject Property Description	Adjacent Site Descriptions
1942	Cleared land crossed by roadways with church	NORTH: Roadway followed by cleared land with no mapped structures EAST: Roadway followed cleared land with church SOUTH: Cleared land with no mapped structures and roadway followed by cleared land with no mapped structures WEST: Roadway followed by cleared land with church
1955, 1959	Urban land crossed by roadways with church	NORTH: Roadway followed by urban land with no mapped structures EAST: Roadway followed cleared land with two churches SOUTH: Urban land with no mapped structures and roadway followed by urban land with no mapped structures WEST: Roadway followed by urban land with church
1968, 1974, 1979	Urban land with no mapped structures crossed by one roadway	NORTH: No significant changes EAST: No significant changes SOUTH: No significant changes WEST: No significant changes

AEI did not identify potential environmental concerns in association with the historical use of the subject property during the historic topographic map review.

3.5 CHAIN OF TITLE

Based on the quality of information obtained from other sources, a chain of title search was not performed as part of this assessment.

4.0 REGULATORY AGENCY RECORDS REVIEW

Local and state agencies, such as environmental health departments, fire prevention bureaus, and building and planning departments are contacted to identify any current or previous reports of hazardous substance use, storage, and/or unauthorized releases that may have impacted the subject property. In addition, information pertaining to AULs, defined as legal or physical restrictions, or limitations on the use of, or access to, a site or facility, is requested.

4.1 LOCAL ENVIRONMENTAL HEALTH DEPARTMENT AND/OR STATE ENVIRONMENTAL AGENCY

Agency	Date Contacted	Method of Contact	Name & Title of Contact	Agency Response
Knox County Environmental Health Division (KCEHD)	February 11, 2019	Email	Mr. Laurence Rochat, Environmental Specialist 3	No hazardous materials records on file

Agency	Date Contacted	Method of Contact	Name & Title of Contact	Agency Response
Tennessee Department of Environment and Conservation (TDEC)	February 11, 2019	Email	Mr. Lawrence Lowe, ASA; Mr. John Weakley, Environmental Specialist; and Ms. Sharon Buckingham, Administrative Manager	No hazardous materials records on file

4.2 FIRE DEPARTMENT

Agency	Date Contacted	Method of Contact	Name & Title of Contact	Agency Response
City of Knoxville Fire Prevention Bureau (COKFPB)	February 11, 2019	Email	Mr. David Bokenkamp, Fire Prevention Specialist	No hazardous materials records on file

4.3 BUILDING DEPARTMENT

Agency	Date Contacted	Method of Contact	Name & Title of Contact	Agency Response
City of Knoxville Office of Building Permits and Inspections (COKOOBPAI)	February 11, 2019	Email	Ms. Lori Hearl, Building Inspector	No records on file

4.4 PLANNING DEPARTMENT

Agency	Date Contacted	Method of Contact	Name & Title of Contact	Agency Response
City of Knoxville Office of Zoning Ordinance, Complaints, and Inspections (COKOOZOCAI)	February 11, 2019	Email	N/A	Response pending, refer to Section 1.5

4.5 Assessor's Office

Agency	Date Contacted	Method of Contact	Name & Title of Contact	Agency Response
Knox County Assessor's Office	February 11, 2019	Website	N/A	Information obtained is discussed below

Records Summary

APN	081MD001
Acreage	8.63 acres
Construction Date	Not provided
Building Square Footage	Not provided
Current Owner	Knoxville's Community Development Corporation
Additional Information	Not provided

4.6 Other Agencies Searched

No other agencies were contacted during the course of this assessment.

4.7 Oil and Gas Wells

Agency	Date Referenced	Resource	Oil or gas wells located within 500 feet of the subject property
Tennessee Department of Environment and Conservation (TDEC)	February 11, 2019	TDEC Map	No

4.8 Oil and Gas Pipelines

Agency	Date Referenced	Resource	Pipelines located within 500 feet of the subject property
National Pipeline Mapping System (NPMS)	February 11, 2019	NPMS Public Map Viewer	No

4.9 State Environmental Superliens

In accordance with our approved scope of services, AEI did not assess whether the subject property is subject to any state environmental superliens.

4.10 State Property Transfer Laws

In accordance with our approved scope of services, AEI did not assess whether the subject property is subject to any state property transfer laws.

5.0 REGULATORY DATABASE RECORDS REVIEW

AEI contracted EDR to conduct a search of publicly available information from federal, state, tribal, and local databases containing known and suspected sites of environmental contamination and sites of potential environmental significance. Data gathered during the current regulatory database search is compiled by EDR into one regulatory database report. Location information for listed sites is designated using geocoded information provided by federal, state, or local agencies and commonly used mapping databases with the exception of "Orphan" sites. Due to poor or inadequate address information, Orphan sites are identified but not geocoded/mapped by EDR, rather, information is provided based upon vicinity zip codes, city name, and state. The number of listed sites identified within the approximate minimum search distance from the federal and state environmental records database listings specified in ASTM Standard E1527-13 is summarized in Section 5.1, along with the total number of Orphan sites. A copy of the regulatory database report, which includes detailed descriptions of the databases noted below, is included in Appendix C of this report.

In determining if a listed site is a potential environmental concern to the subject property, AEI generally applies the following criteria to classify the site as lower potential environmental concern: 1) the site only holds an operating permit (which does not imply a release), 2) the site's distance from, and/or topographic position relative to, the subject property, and/or 3) the site has recently been granted "No Further Action" by the appropriate regulatory agency.

5.1 RECORDS SUMMARY

Database	Search Distance (Miles)	Listings Within Search Distance	Subject Property	Adjacent Site(s)	Other Nearby Sites of Concern
NPL	1.0	0			
DELISTED NPL	0.5	0			
SEMS/CERCLIS	0.5	0			
SEMS-ARCHIVE/CERCLIS NFRAP	0.5	1			
RCRA CORRACTS	1.0	1			
RCRA-TSDF	0.5	0			
RCRA LQG, SQG, CESQGs, NLR	SP/ADJ	0			
US ENG CONTROLS	SP	0			
US INST CONTROLS	SP	0			
ERNS	SP	0			
STATE/TRIBAL HWS	1.0	1			
STATE/TRIBAL SWLF	0.5	4			
STATE/TRIBAL REGISTERED STORAGE TANKS	SP/ADJ	2		✔	
STATE/TRIBAL LUST	0.5	23		✔	
STATE/TRIBAL EC and IC	SP	0			
STATE/TRIBAL VCP	0.5	6			✔
STATE/TRIBAL BROWNFIELD	0.5	0			

Database	Search Distance (Miles)	Listings Within Search Distance	Subject Property	Adjacent Site(s)	Other Nearby Sites of Concern
ORPHAN	N/A	2			
ADDITIONAL ENVIRONMENTAL RECORD SOURCES	SP/ADJ	0			

Facility Name	TVK Automotive Warehouse
Address	301 East Baxter Avenue
Distance & Direction	Adjoining to the south
Hydrologic Position	Cross-gradient
Databases Listed	LUST, UST, HIST UST
Comments	According to information on file with the Tennessee Department of Environment and Conservation (TDEC), this site formerly operated one 1,000-gallon steel UST for the storage of gasoline. The UST was reportedly installed in 1971 and was removed in 2003. The UST was located in the facility's loading dock area, which is located approximately 125 feet south of the subject property boundary. Three soil samples were collected from the tank pit and two soil samples were collected from the 40 cubic yard soil stockpile and analyzed for BTEX constituents, TPH-GRO, and MTBE. Groundwater was not encountered during removal activities. The highest levels of detected contamination in the tank pit were at the northwestern corner, which contained benzene at 3.02 mg/kg, toluene at 1.26 mg/kg, ethylbenzene at 13.8 mg/kg, xylenes at 3.65 mg/kg, TPH-GRO at 975 mg/kg. Benzene was detected at a maximum level of 0.65 mg/kg in the soil stockpile. Approximately 18 cubic yards of soil was overexcavated, and the soil stockpile received bio-treatment. Following overexcavation, two additional soil samples were collected from the tank pit. The highest levels of detected contamination in the additional samples were at the northeastern corner, which contained TPH-GRO at 3.78 mg/kg. The tank pit was backfilled with the treated soil stockpile and clean gravel. TDEC issued a No Further Action letter for the tank closure on August 18, 2003. Based on the site's current regulatory status, the identification of a responsible party, and completion of overexcavation, this site is not expected to represent a significant environmental concern at this time.

Facility Name	Boys and Girls Club TN Valley
Address	407 Caswell Avenue
Distance & Direction	300 feet south
Hydrologic Position	Cross-gradient
Databases Listed	VCP

Comments	According to information on file with TDEC, this site was enrolled in the TDEC Voluntary Cleanup Program following the discovery of an abandoned 8,000-gallon heating oil UST on the property during redevelopment in July 2015. The UST was located approximately 525 feet south of the subject property. Four soil samples were collected from the corners of the tank pit excavation, and three composite samples were collected from the excavation soil stockpile. The soil samples were analyzed by EPA Methods 8260B and 8270D. The tank pit samples contained maximum levels of contamination of 1670 mg/kg for EPH and 1450 mg/kg for naphthalene. The stockpile samples contained maximum levels of contamination of 1510 mg/kg for EPH and 8400 mg/kg for napthalene. These levels were above the TDEC Initial Screening Levels of 500 mg/kg for EPH and 135 mg/kg for naphthalene. The tank pit was overexcavated, and stockpiled soils were transported offsite for treatment and disposal. Four additional soil samples were collected from the tank pit following overexcavation. EPH was detected at a maximum concentration of 779 mg/kg. The environmental consultant overseeing closure activities requested NFA status from TDEC based on the residual contamination's slight exceedance of TDEC ISLs. Based on recent TDEC correspondence provided for review, the site is in the process of obtaining final NFA status from TDEC. Based on relative distance, the inferred direction of groundwater flow, source removal, and remediation under regulatory oversight, this site is not expected to represent a significant environmental concern.

5.2 VAPOR MIGRATION

Per HUD Guidelines, AEI conducted a "Tier I" (non-intrusive) Vapor Encroachment Screening (VES) on the subject property in accordance with the methodology set forth in ASTM E 2600-10 "Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions". The purpose of the Tier I VES was to conduct an initial screen to identify, to the extent feasible, the potential vapor encroachment condition (VEC) in connection with the subject property with respect to chemicals of concern that may migrate as vapors into existing or planned structures on a property due to contaminated soil and groundwater on the subject property or within close proximity to the subject property.

This VES utilized readily available data sources previously discussed in this Phase I ESA to include the type of soils, geology and groundwater characteristics of the subject property area as well as known or potentially contaminated sites as identified on Federal, State, tribal and local databases. AEI also utilized previously discussed standard historical sources of information to identify potential historical sources of contamination on the subject property and surrounding properties which may be indicative of a VEC. This data collection and analysis was coupled with our site reconnaissance of the subject property and surrounding properties.

Based upon the results of our data collection, reconnaissance and analysis, AEI did not identify a VEC at the subject property.

6.0 INTERVIEWS AND USER PROVIDED INFORMATION

6.1 INTERVIEWS

Pursuant to ASTM E1527-13, the following interviews were performed during this assessment in order to obtain information indicating RECs in connection with the subject property.

6.1.1 OWNER AND KEY SITE MANAGER

Relation to Property	Name	Date Interviewed	Method of Contact	Year First Associated w/ Property	Notes
Owner/Owner Representative	Mr. Sean Gilbert	February 8, 2019	Email	2014	Interviewed; see Interview Summary table below
Key Site Manager	Mr. Steve Ellis	February 28, 2019	In Person	2009	Interviewed; see Interview Summary table below

Interview Summary

Question	Owner (Representative) Response/ Comment	Key Site Manager Response/ Comment
Do you have any knowledge of USTs, clarifiers or oil/water separators, sumps, or other subsurface features?	No	No
Do you have any knowledge of previous environmental investigations conducted on site?	No	No
Do you have any knowledge of current or past industrial operations and/or other operations which would involve the use of hazardous substances and/or petroleum products?	No	No
Are you aware of any known plans for site redevelopment or change in site use?	No	No
Are you aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property?	No	No
Are you aware of any pending, threatened or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the property?	No	No
Are you aware of any notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products?	No	No
Are you aware of any incidents of flooding, leaks, or other water intrusion, and/or complaints related to indoor air quality?	No	No

Question	Owner (Representative) Response/ Comment	Key Site Manager Response/ Comment
Additional information provided:	N/A	According to Mr. Ellis, the complex uses a third party service provider to remove damaged popcorn ceilings from units being turned.

6.1.2 Past Owners, Operators, and Occupants

AEI did not attempt to interview past owners, operators, and occupants of the subject property because information from these sources would likely be duplicative of information already obtained from other sources.

6.1.3 Interview with Others

Information obtained during interviews with local government officials is incorporated into the appropriate segments of this report.

6.2 User Provided Information

User provided information is intended to help identify the possibility of RECs in connection with the subject property. According to ASTM E1527-13 and the EPA Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), certain items should be researched by the prospective landowner or grantee, and the results of such inquiries may be provided to the Environmental Professional. The responsibility for qualifying for LLPs by conducting the inquiries ultimately rests with the User, and providing the information to the Environmental Professional would be prudent if such information is available.

The User Questionnaire was completed by Mr. C. Sean Gilbert, Senior VP of Housing/KCDC. The following table represents information contained therein.

Question	Response/ Comment
1. Environmental liens that are filed or recorded against the property (40 CFR 312.25) Did a search of recorded land title records (or judicial records where appropriate) identify any environmental liens filed or recorded against the property under federal, tribal, state or local law?	No
2. Activity and use limitations that are in place on the property or that have been filed or recorded against the property (40 CFR 312.26(a)(1)(v) and vi)). Did a search of recorded land title records (or judicial records where appropriate) identify any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the property and/or have been filed or recorded against the property under federal, tribal, state or local law?	No

Question	Response/ Comment
3. Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28). Do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?	No
4. Relationship of the purchase price to the fair market value of the property if it were not contaminated (40 CFR 312.29). Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?	Information not provided
5. Commonly known or reasonably ascertainable information about the property (40 CFR 312.30). Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example: (a) Do you know the past uses of the property? (b) Do you know of specific chemicals that are present or once were present at the property? (c) Do you know of spills or other chemical releases that have taken place at the property? (d) Do you know of any environmental cleanups that have taken place at the property?	No
6. The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31). Based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of contamination at the property?	No

6.3 PREVIOUS REPORTS AND OTHER PROVIDED DOCUMENTATION

Documentation was provided to AEI by Mr. Sam Chambers, Property Managers during this assessment. A summary of this information follows:

Analysis of bulk samples for asbestos mineral fibers by Polarized Light Microscopy with Dispersion Staining, Love Towers Apartment #303, prepared by McCall and Spero Environmental, Inc (October 17, 2014)

This assessment was completed to investigate the potential presence of asbestos in the popcorn textured ceiling of Unit 303 at the subject property. Three samples of the ceiling texture were collected October 10, 2014. Laboratory analysis determined that each of the samples contained 3% chrysotile asbestos.

Analysis of bulk samples for asbestos mineral fibers by Polarized Light Microscopy with Dispersion Staining, Love Towers Balcony Ceilings, prepared by McCall and Spero Environmental, Inc (August 5, 2013)

This assessment was completed to investigate the potential presence of asbestos in the popcorn textured ceiling at the 5th, 6th and 7th floor balconies. Three samples of the ceiling texture were collected July 30, 2013. Laboratory analysis determined that each of the samples contained 5% chrysotile asbestos.

Analysis of bulk samples for asbestos mineral fibers by Polarized Light Microscopy with Dispersion Staining, Love Towers, prepared by McCall and Spero Environmental, Inc (November 25, 2015)

This assessment was completed to investigate the potential presence of asbestos in 9"x9" floor tiles and associated mastics at the stairwell and a 2nd floor apartment. Six samples of floor tile and associated mastics were collected November 20, 2015. Laboratory analysis determined that each of the samples contained greater than 1% chrysotile asbestos.

A copy of the reports is included in the appendices.

6.4 Environmental Lien Search

In accordance with our approved scope of services, an environmental lien search was not performed as part of this assessment.

7.0 SITE RECONNAISSANCE

Site Reconnaissance Date	February 28, 2019
AEI Site Assessor(s)	Hubert Clark
Property Escort(s)/ Relationship(s) to Property	Maintenance Director
Units/Areas Observed	Units: A101, A103, A201, A203, A207, A208, A210, A215, A216, A217, A218, A303, A305, A309, A312, A314, A318, A402, A403, A405, A406, A415, A417, A418, A506, A510, A512, A516, A517, A705, B122, B125, B131, B132, B220, B223, B225, B231, B234, B235, B320, B325, B327, B330, B335, B337, B338, B423, B434, B436, B437, B438, B634, B727 & B729 (22% of total units) as well as common, service, and exterior areas.
Area(s) not accessed and reason(s)	Refer to Section 1.5 for discussion of limiting condition(s).
Other Physical Constraints	None

Reconnaissance Findings Summary

Feature	Observed on Subject Property (see Section 7.1)	Observed on Adjacent Property (see Section 7.2)
Regulated Hazardous Substances/Wastes and/or Petroleum Products in Connection with Property Use		✔
Aboveground/Underground Hazardous Substance or Petroleum Product Storage Tanks (ASTs/USTs)	✔	
Hazardous Substance and Petroleum Product Containers Not in Connection with Property Use		
Unidentified Substance Containers		
Electrical or Mechanical Equipment Likely to Contain Fluids	✔	✔
Interior Stains or Corrosion		
Strong, Pungent, or Noxious Odors		
Pools of Liquid		
Drains, Sumps, and Clarifiers	✔	✔
Pits, Ponds, and Lagoons		
Stained Soil or Pavement		
Stressed Vegetation		
Solid Waste Disposal or Evidence of Fill Materials		
Waste Water Discharges		
Wells		
Septic Systems		
Biomedical Wastes		
Other	✔	

7.1 SUBJECT PROPERTY RECONNAISSANCE FINDINGS

During the site reconnaissance, AEI observed the items listed in the above Reconnaissance Findings Summary table, which are further discussed below.

7.1.1 ABOVEGROUND/UNDERGROUND HAZARDOUS SUBSTANCE OR PETROLEUM PRODUCT STORAGE TANKS (ASTS/USTS)

AST(s)

Size (gallons)	Contents	Installation Date	AST Condition	Location	Construction/ Secondary Containment	Product Piping (Aboveground/ Underground)	Staining/ Spills
~200	Diesel	Not provided	Good	Western exterior of apartment buildings	Single-walled	Aboveground	None

The subject property is equipped with an emergency generator. Approximately 200 gallons of diesel fuel are contained within the generator equipment. No evidence of leaks or spills was observed at the base of the generator. Based on the good condition of the equipment, the presence of the emergency generator and associated diesel fuel is not expected to represent a significant environmental concern.

7.1.2 ELECTRICAL OR MECHANICAL EQUIPMENT LIKELY TO CONTAIN FLUIDS

Toxic PCBs were commonly used historically in electrical equipment such as transformers, fluorescent lamp ballasts, and capacitors. According to United States EPA regulation 40 CFR Part 761, there are three categories for classifying such equipment: <50 ppm of PCBs is considered "Non-PCB"; between 50 and 500 ppm is considered "PCB-Contaminated"; and >500 ppm is considered "PCB-Containing". Pursuant to 15 U.S.C. 2605(e)(2)(A), the manufacture, process, or distribution in commerce or use of any polychlorinated biphenyl in any manner other than in a totally enclosed manner was prohibited after January 1, 1977.

Transformers

Type	Quantity	Owner	Presumed Date of Installation	Spills or Stains Observed (Yes/No)	Non-PCB Label (Yes/ No)
Pad-Mounted	2	Knoxville Utility Board	1966	No	No

The management of potential PCB-containing transformers is the responsibility of the local utility or the transformer owner. Actual material samples need to be collected to determine if transformers are PCB-containing.

Transformers installed prior to 1977 may be PCB containing while transformers installed after 1977 are unlikely to be PCB containing. Federal Regulations (40 CFR 761 Subpart G) require any release of material containing >50 ppm PCB and occurring after May 4, 1987, be cleaned up by the transformer owner following the United States EPA's PCB spill cleanup policy.

AEI did not observe evidence of spills, staining, or leaks on or around the transformers. Based on the good condition of the equipment, the transformers are not expected to represent a significant environmental concern.

Elevators

Each of the subject property's two apartment buildings is equipped with two traction passenger elevators that run from the basement to the seventh floor. Geared traction elevators are driven by alternating current (AC) or direct current (DC) electric motors. During AEI's site reconnaissance, the electrical and mechanical equipment for the traction elevators was observed within a penthouse on the building's roof. Based on the absence of hydraulic fluid used in association with the mechanical equipment of the elevators, the presence of these elevators is not expected to represent a significant environmental concern.

Air Compressors

One air compressor was observed in the subject property maintenance shop in Building B, and one air compressor was observed in the subject property supportive maintenance garage building. The air compressors contains small amounts of hydraulic oil. No spills, staining or leaks were observed on or around the compressors. Based on the good condition of the equipment, the compressors are not expected to represent a significant environmental concern.

7.1.3 DRAINS, SUMPS, AND CLARIFIERS

Floor Drains
Two interior floor drains were observed within the subject property supportive maintenance garage building. No hazardous substances or petroleum products were noted in the immediate vicinity of the drains, which appear to be used for housekeeping purposes. Based on site observations and discussion of the supportive maintenance garage building in Section 3.0, the presence of the drains is not expected to represent a significant environmental concern.

Several floor drains were observed in the restrooms and service areas of the subject property apartment buildings. No significant staining, spillage, or other indications of a release were observed in the vicinity of the drains. Based on these observations, the presence of the drains is not expected to represent a significant environmental concern.

Clarifier
The shop sink in the subject property supportive maintenance garage is attached to a small aboveground clarifier, which discharges to the municipal sanitary sewer. According to Mr. Jack Canada, Director of Supportive Maintenance, the clarifier was installed to intercept waste paint used in the department's general maintenance activities. Based on the clarifier's small size and aboveground location, this clarifier is not expected to represent a significant environmental concern.

Storm Drains
Several storm drains were observed in the parking areas of the subject property. AEI did not observe evidence of hazardous substances or petroleum products in the vicinity of the drains. Based on the use of the drains solely for storm water runoff, the presence of the drains is not expected to represent a significant environmental concern.

7.1.4 OTHER

Maintenance Supplies
Various maintenance products, such as paints, paint related products, WD-40, were observed in the maintenance shop. The containers were properly labeled and stored. No signs of spills

or leaks were observed in conjunction with the containers. No significant staining or evidence of release of any of the materials was observed during the site reconnaissance. Based on the relatively small quantities observed and the lack of evidence of the mismanagement of these materials, the use of these materials on site is not expected to represent a significant environmental concern. However, as discussed in Section 3.0, former potential auto repair operations in the garage represent a significant environmental concern.

7.2 Adjacent Property Reconnaissance Findings

During the site reconnaissance, AEI observed the items listed in the above Reconnaissance Findings Summary table, which are further discussed below.

7.2.1 Regulated Hazardous Substances/Wastes and/or Petroleum Products in Connection with Property Use

Adjacent sites to the west were observed to be occupied by auto repair facilities. Additionally, the adjacent KCDC Supportive Maintenance Garage formerly performed auto repairs. Based on the nature of use, hazardous substances have been likely utilized/stored on the sites. Based on the lack of a documented release, the adjacent sites are not expected to represent a significant environmental concern.

7.2.2 Electrical or Mechanical Equipment Likely to Contain Fluids

Transformers

Pad-mounted transformers were observed on the adjacent sites during the site reconnaissance. No spills, staining, or leaks were observed on or around the transformers. Based on the good condition of the equipment, the transformers are not expected to represent a significant environmental concern.

7.2.3 Drains, Sumps, and Clarifiers

Storm Drains
Several storm drains were observed in the parking areas of the adjacent properties and adjacent roadways. AEI did not observe evidence of hazardous substances or petroleum products in the vicinity of the drains. Based on the use of the drains solely for storm water runoff, the presence of the drains is not expected to represent a significant environmental concern.

8.0 NON-ASTM SERVICES

8.1 ASBESTOS-CONTAINING BUILDING MATERIALS

Asbestos is the name for a group of naturally occurring silicate minerals that are considered to be "fibrous" and through processing can be separated into smaller and smaller fibers. The fibers are strong, durable, chemical resistant, and resistant to heat and fire. They are also long, thin and flexible, so they can even be woven into cloth. Because of these qualities, asbestos was considered an ideal product and has been used in thousands of consumer, industrial, maritime, automotive, scientific, and building products.

At the federal level, asbestos is primarily regulated by the United States EPA primarily through the EPA's NESHAP (Standard 40 CFR Chapter 61, Subpart M), the OSHA through the General Industry Standard, and the Construction Industry Standard (29 CFR 1926.1101 and 29 CFR 1910.1001). Many states have regulations in place for the inspection, management, and remediation of asbestos including company and individual licensing requirements for all activities relating to asbestos. Under both federal and state regulations building owners and employers may be required to perform certain activities related to the in-place management of asbestos, and prior to renovations or demolition activities (i.e. asbestos inspections or remediation) that may disturb building materials suspected of containing asbestos.

The information below is for general informational purposes only and does not constitute an asbestos survey. In addition, the information is not intended to comply with federal, state, or local regulations in regards to ACM.

Per United States EPA Guidelines, buildings of any age may contain asbestos. The subject property was constructed in 1966 and 1968-1973. As part of previous environmental assessment activities, McCall & Spero Environmental, Inc completed an analysis of bulk samples for asbestos mineral fibers by Polarized Light Microscopy (PLM) with Dispersion Staining in October 2014 in Unit 303 at the subject property. A total of three samples of spray applied ceiling texture were collected from Unit 303 and were analyzed for the presence of asbestos fibers by McCall & Spero. Laboratory analysis determined that each of the samples contained 3% chrysotile asbestos. AEI was provided additional sampling data from ceiling texture samples collected at the 5th, 6th and 7th floor balconies in July 2013. Laboratory analysis by McCall & Spero determined that the ceiling texture samples contained 5% chrysotile asbestos. According to Mr. Jack Canada, Supportive Maintenance Manager, the subject property owners have contracted Heller & Associates to remove damaged ceiling texture from subject property units being turned. AEI was provided additional sampling data of six 9"x9" floor tiles and associated mastics from the stairwell and a 2nd floor apartment in November 2015. Laboratory analysis by McCall & Spero determined that the collected floor tile and mastic samples contain greater than 1% chrysotile asbestos.

In accordance with the HUD MAP Guide, Ms. Kathryn Hubicki, a State of Tennessee Accredited Asbestos Inspector (Accreditation #A-I-73297-68364) conducted a Baseline Survey in general compliance with ASTM Standard Practice for Comprehensive Asbestos Building Surveys (ASTM E 2356-14). The scope of this investigation included the sampling and analysis of friable and damaged non-friable materials suspected of containing asbestos. As part of the survey, 11

samples were collected from the subject property and layered out to 23 samples for analysis. The samples collected and analyzed as part of this investigation are as follows:

Material	Location	Result
Gray/White 12"x12" Ceiling Tile	1st Floor Hall, Building A	ND
Gray/White 12"x12" Ceiling Tile	1st Floor Hall, Building A	ND
Gray/White 12"x12" Ceiling Tile	1st Floor Hall, Building A	ND
Gray/White 12"x12" Ceiling Tile	Basement, Building B	ND
Gray/White 12"x12" Ceiling Tile	Basement, Building B	ND
Gray/White 12"x12" Ceiling Tile	Basement, Building B	ND
Gray Drywall	3rd Floor Janitor Closet, Building B	ND
Beige Joint Compound	3rd Floor Janitor Closet, Building B	2% Chrysotile
Gray Drywall	123 Bedroom Wall	ND
Beige Joint Compound	123 Bedroom Wall	2% Chrysotile
Brown/Gray Drywall	306 Bathroom Wall	ND
Beige Joint Compound	306 Bathroom Wall	2% Chrysotile
Beige Joint Compound	227 Living Room Wall	2% Chrysotile
Beige Joint Compound	123 Living Room Wall	2% Chrysotile
Beige Joint Compound	210 Bedroom Closet Wall	2% Chrysotile
Tan Tape	210 Bedroom Closet Wall	2% Chrysotile
White Joint Compound	1st Floor Bathroom Closet Wall, Building A	ND
White Mudded Pipe Fitting	Basement, Building B	15% Chrysotile
White Mudded Pipe Fitting	Basement, Building B	15% Chrysotile
White Mudded Pipe Fitting	Basement, Building B	15% Chrysotile
Brown 2'x4' Ceiling Tile	Map Room, Building B	ND
Brown 2'x4' Ceiling Tile	Map Room, Building B	ND
Brown 2'x4' Ceiling Tile	Map Room, Building B	ND

ND= None Detected

The collected beige joint compound samples contained 2% chrysotile asbestos, while the white mudded pipe fitting contained 15% chrysotile asbestos. The joint compound is non-friable in its current condition. The mudded pipe fitting is a friable material; however, based on its location in the mechanical review which is not accessible to tenants and the current condition of the material, the mudded pipe fitting is not expected to pose a health and safety concern to the occupants of the subject property at this time. Presumed ACMs include but are not limited to resilient vinyl flooring and associated mastics, covebase and associated mastics, caulking and roofing materials. Additionally, the remaining sampled building components and/or observed suspect ACMs were in an intact condition and are not expected to pose a health and safety concern to the occupants of the subject property at this time. As such, AEI recommends the property owner adhere to the 2019 Operations & Maintenance (O&M) Plan that stipulates that the assessment, repair and maintenance of damaged materials be performed to protect the health and safety of the building occupants. Furthermore, in the event that building renovation or demolition activities are planned, a thorough asbestos survey to identify asbestos-containing building materials is required in accordance with the EPA NESHAP 40 CFR Part 61 prior to demolition or renovation activities that may disturb suspect ACMs.

8.2 LEAD-BASED PAINT

LBP is defined as any paint, varnish, stain, or other applied coating that has ≥1 mg/cm² (5,000 µg/g or 5,000 ppm) or more of lead by federal guidelines; state and local definitions may differ from the federal definitions in amounts ranging from 0.5 mg/cm² to 2.0 mg/cm². Section 1017 of the Housing and Urban Development (HUD) Guidelines, Residential Lead-Based Paint Hazard Reduction Act of 1992, otherwise known as "Title X", defines a LBP hazard as "any condition that causes exposure to lead that would result in adverse human health effects" resulting from lead-contaminated dust, bare, lead-contaminated soil, and/or lead-contaminated paint that is deteriorated or present on accessible, friction, or impact surfaces. Therefore, under Title X, intact LBP on most walls and ceilings would not be considered a "hazard", although the paint should be maintained and its condition monitored to ensure that it does not deteriorate and become a hazard. Additionally, Section 1018 of this law directed HUD and EPA to require the disclosure of known information on LBP and LBP hazards before the sale or lease of most housing built before 1978. Most private housing, public housing, or federally owned or subsidized housing is affected by this rule.

Under OSHA, LCP is defined as any paint with any detectable amount of lead present in it. Therefore, all LBP is considered LCP. Conversely, LCP may not meet the criteria to be considered LBP in accordance with HUD guidelines or some states' definition of LBP.

It is important to note that LCP may create a lead hazard when being removed. The condition of these materials must be monitored when they are being disturbed. In the event LCP is subject to abrading, sanding, torching, and/or cutting during demolition or renovation activities, there may be regulatory issues that must be addressed.

The information below is for general informational purposes only and does not constitute a lead hazard evaluation. In addition, the information is not intended to comply with federal, state, or local regulations in regards to LBP.

In buildings constructed after 1978, it is unlikely that LBP is present; however, some paints utilized after 1978 will be LCP under OSHA. Structures built prior to 1978 and especially prior to the 1960s should be expected to contain LBP.

Due to the age of the subject property buildings, there is a potential that LBP is present. In accordance with the HUD MAP Guide, applicable protocols do not typically regulate facilities that are occupied by senior citizens and/or disabled individuals. All observed painted surfaces were in good condition at the time of the site reconnaissance and are not expected to pose a health and safety concern to the occupants of the subject property at this time.

8.3 RADON

Radon is a naturally-occurring, odorless, and invisible gas. Natural radon levels vary and are closely related to geologic formations. Radon may enter buildings through basement sumps or other openings.

The United States EPA has prepared a map to assist National, State, and local organizations to target their resources and to implement radon-resistant building codes. The map divides the country into three radon zones, with Zone 1 being those areas with the average predicted indoor

radon concentration in residential dwellings exceeding the EPA Action Limit of 4.0 pCi/L. It is important to note that the EPA has found homes with elevated levels of radon in all three zones, and the EPA recommends site specific testing in order to determine radon levels at a specific location. However, the map does give a valuable indication of the propensity of radon gas accumulation in structures.

Radon sampling was not requested as part of this assessment. According to the United States EPA, the radon zone level for the area is Zone 1, which has a predicted average indoor screening level above the action level of 4 pCi/L set forth by the EPA. Radon sampling would be necessary to determine site-specific radon conditions.

8.4 MOLD

Molds are simple microscopic organisms which can often be seen in the form of discoloration, frequently green, gray, white, brown, or black. When excessive moisture or water accumulates indoors, mold growth may occur, particularly if the moisture problem remains undiscovered or unaddressed. As such, interior areas of buildings characterized by poor ventilation and high humidity are the most common locations of mold growth. Building materials, including drywall, wallpaper, baseboards, wood framing, insulation, and carpeting, often play host to such growth. Mold spores primarily cause health problems through the inhalation of spores or the toxins they emit when they are present in large numbers. This can occur when there is active mold growth within places where people live or work.

Mold, if present, may or may not visually manifest itself. Neither the individual completing this inspection, nor AEI has any liability for the identification of mold-related concerns except as defined in applicable industry standards. In short, this Phase I ESA should not be construed as a mold survey or inspection.

This activity was not designed to discover all areas which may be affected by mold growth on the subject property. Rather, it is intended to give the client an indication if significant (based on observed areas) mold growth is present at the subject property. Potential areas of mold growth, such as in pipe chases, HVAC systems, and behind enclosed walls and ceilings, were not observed as part of this limited assessment.

AEI observed interior areas of the subject property buildings to identify the potential presence of mold. AEI did not note obvious visual or olfactory indications of the presence of mold, nor did AEI observe obvious indications of significant water damage. As such, no bulk sampling of suspect surfaces was conducted as part of this assessment and no additional action with respect to suspect mold appears to be warranted at this time.

9.0 HEROS PARTNER WORKSHEETS

9.1 COASTAL BARRIER RESOURCES

The Coastal Barrier Resources Act (CBRA), as amended (16 U.S.C. 3501 et seq.), prohibits using Federal financial assistance for properties if the properties are located within designated coastal barriers of the Atlantic Ocean, Gulf of Mexico, or the Great Lakes. For U.S. Department of Housing and Urban Development (HUD) policy, see 24 CFR 58.6(c) or 24 CFR 50.4(c)(1).

According to review of the U.S. Fish & Wildlife Service Coastal Barrier Resources System Mapper, the subject property is not located within a coastal barrier resource area. Therefore, this project has no potential to impact a CBRS Unit and is in compliance with the Coastal Barrier Resources Act.

9.2 FLOODPLAIN MANAGEMENT

Projects located within a flood hazard area or designated wetland are subject to Executive Order 11988 (Floodplain Management) and Executive Order 11990 (Protection of Wetlands), respectively.

Based on a review of the FEMA Flood Insurance Rate Map (FIRM) Community Panel Number 47093C0281G, dated August 5, 2013, the subject property is located in Zone X (unshaded), an area of minimal flood hazard outside the 100- and 500-year floodplains. FEMA's Preliminary & Pending National Flood Hazard Layer does not contain preliminary or pending FIRM panels for the subject property area. In addition, the subject property is located in the City of Knoxville (Community #475434), which is a participating community in the National Flood Insurance Program (NFIP). The structure or insurable property is not located in a FEMA-designated Special Flood Hazard Area. The project is in compliance with Executive Order 11988.

9.3 AIR QUALITY

The Clean Air Act (42 U.S.C. 7401 et seq.) prohibits federal assistance to projects that are not in conformance with the SIP. New construction and conversion, which are located in "non-attainment" or "maintenance" areas as determined by the EPA may need to be modified or mitigation measures developed and implemented to conform to the State Implementation Plan (SIP).

According to the U.S. EPA Green Book, the subject property is located in a non-attainment area for 2.5 Particulate Matter (2006 standard). However, based on the fact that the property is being refinanced with no proposed ground disturbance, the project is in conformance with the SIP.

9.4 HISTORIC PRESERVATION

If HUD assistance is proposed for property repair, rehabilitation of an existing structure, conversion of use, demolition, new construction, or the acquisition of undeveloped land, then the environmental review [24 CFR 58.5(a) or 24 CFR 50.4 (a)] requires evidence of consultation with the State Historic Preservation Officer (SHPO), the Tribal Historic Preservation Officer (THPO), and in some cases the Advisory Council on Historic Preservation (ACHP).

Based on review of the NEPAssist National Register of Historic Places (NRHP) map and Tennessee Historical Commission GIS Viewer, no listed individual historic properties are located on the subject property. The property is located within the Old North Knoxville Historic District and is surrounded by historic properties that have been surveyed as part of the district. However, the project as proposed does not include ground disturbance or exterior rehabilitation that would have the potential to affect historic resources.

AEI submitted the project to the Tennessee Historical Commission for review. The SHPO indicated in their response that the project area contains a cultural resource eligible for listing in the National Register of Historic Places. However, the SHPO also determined that the project as currently proposed will not adversely affect the Guy B. Love Towers on the subject property. A copy of the SHPO response can be found in the appendix.

9.5 NOISE ABATEMENT

HUD standards regarding the acceptability of noise impacts on residential properties are found at 24 CFR Part 51. For new construction and conversion from nonresidential to residential projects, these standards must be met. Where threshold criteria are met or exceeded, a noise analysis utilizing the methodology in HUD's Noise Guidebook (HUD-953-CPD) will be performed by HUD as part of HUD's environmental assessment. To determine if the project is located near a major noise source, the following threshold criteria have been established: FAA-controlled civil airports and military airfields (15 miles), major highways or busy roads (within 1,000 feet), or railroads (within 3000 feet).

The subject property is located within 15 miles of Knoxville Downtown Island Airport, McGhee Tyson Airport, and Powell Stolport. The subject property is located within 3,000-feet of two rail lines operated by Norfolk Southern. No busy roadways are located within 1,000 feet of the subject property. However, based on the project description, this project includes no activities that would require further evaluation under HUD's noise regulation. The project is in compliance with HUD's Noise regulation.

9.6 HAZARDOUS INDUSTRIAL OPERATIONS

Properties that are located near hazardous industrial operations handling fuels or chemicals of an explosive or flammable nature are subject to HUD safety standards (24 CFR 51, Subpart C). In the case of tanks containing common liquid fuels, the requirement for an acceptable separation distance (ASD) calculation only applies to storage tanks that have a capacity of more than 100 gallons.

Based on a review of the regulatory database report and results of the site reconnaissance, the subject property does not include hazardous industrial operations, handling fuel or chemicals of an explosive or flammable nature. However, based on the site reconnaissance, an emergency backup generator with a diesel belly containing approximately 250 gallons of diesel fuel is located to the western portion of the subject property. No other ASTs were identified on the subject property or adjacent properties.

Based on the fact that the unit density is not being increased at the subject property, the transaction does not involve changing the land use from non-residential to residential and no new construction activities are proposed, the subject property is in compliance with 24 CFR 50,

Subpart G.

Several large tanks were located approximately 0.62 miles to the west of the subject property. The tanks are rail cars and are therefore not required to be assessed per the Guidebook "Siting of HUD – Assisted Projects Near Hazardous Facilities".

In addition, an extraordinary tank is located approximately 0.57 mile to the northeast of the subject property, but this tank appears to be associated with a municipal water plant and therefore is not likely to contain explosive or flammable substances.The project is in compliance with explosive and flammable hazard requirements.

9.7 Airport Hazards

HUD policy as described in 24 CFR 51, Subpart D, is that assistance for construction or major rehabilitation of any real property located on a clear zone site is prohibited for a project to be frequently used or occupied by people. For properties located within 2,500 feet of the end of a civil airport runway or 15,000 feet of the end of a military airfield runway, the airport operator should make a finding stating whether or not the property is located within a runway clear zone for civil airports or a clear zone or accident potential zone at a military airfield.

The closest airport to the subject property, Knoxville Downtown Island Airport, is located approximately 14,675 feet southeast of the subject property. As such, the project site is not within 2,500 feet of a civilian airport. The subject property is not located within 15,000 feet of a military airport. The project is in compliance with Airport Hazards requirements.

9.8 Protection of Wetlands

Projects located within a floodplain and new construction located within a designated wetland are subject to Executive Order 11988 (Floodplain Management) and Executive Order 11990 (Protection of Wetlands), respectively. HUD's implementing regulations at 24 CFR Part 55--Floodplain Management, prescribe measures for protecting floodplains and wetlands. For proposed financial assistance for such activities, including "substantial improvement" of existing single-family properties within a floodplain, HUD will require 30 to 60 days in most cases to perform the required processing. Assisted new construction located within a designated wetland is subject to HUD's decision-making process under E.O. 11990.

Based on the site reconnaissance, no drainage ways, ponds, marshes, bogs, swamps, or wetlands were located on or adjacent to the subject property. The US Fish and Wildlife Service National Wetlands Inventory (NWI) map was also reviewed online to determine if the subject property was located within the boundaries. Based on a review of NWI maps, the subject property is not located within or near a national wetland. Therefore, the project is in compliance with Executive Order 11990.

9.9 Toxic Chemicals and Radioactive Materials

It is HUD policy, as described in §50.3(i), that

> (1)... all property proposed for use in HUD programs be free of hazardous materials, contamination, toxic chemicals and gasses, and radioactive substances, where a hazard

could affect the health and safety of occupants or conflict with the intended utilization of the property.
(2) HUD environmental review of multifamily and non-residential properties shall include evaluation of previous uses of the site and other evidence of contamination on or near the site, to assure that occupants of proposed sites are not adversely affected by the hazards...

Sites known or suspected to be contaminated by toxic chemicals or radioactive materials include but are not limited to sites: (i) listed on an EPA Superfund National Priorities or CERCLA List, or equivalent State list; (ii) located within 3,000 feet of a toxic or solid waste landfill site; or (iii) with an underground storage tank (which is not a residential fuel tank).

Based on review of the regulatory database report, the subject property (i) is not listed on an EPA Superfund National Priorities or CERCLA List, or equivalent State list; (ii) is not located within 3,000 feet of a toxic or solid waste landfill site; and (iii) does not have an underground storage tank (which is not a residential fuel tank); and (iv) is not known or suspected to be contaminated by toxic chemicals or radioactive materials. Please see Appendix C for a copy of the regulatory database report.

TVK Automotive Warehouse, located adjacent to the south and hydrologically cross-gradient from the subject property at 301 East Baxter Avenue, is listed as a LUST, UST and HIST UST facility. According to information on file with the Tennessee Department of Environment and Conservation (TDEC), this site formerly operated one 1,000-gallon steel UST for the storage of gasoline. The UST was reportedly installed in 1971 and was removed in 2003. The UST was located in the facility's loading dock area, which is located approximately 125 feet south of the subject property boundary. Three soil samples were collected from the tank pit and two soil samples were collected from the 40 cubic yard soil stockpile and analyzed for BTEX constituents, TPH-GRO, and MTBE. Groundwater was not encountered during removal activities. The highest levels of detected contamination in the tank pit were at the northwestern corner, which contained benzene at 3.02 mg/kg, toluene at 1.26 mg/kg, ethylbenzene at 13.8 mg/kg, xylenes at 3.65 mg/kg, TPH-GRO at 975 mg/kg. Benzene was detected at a maximum level of 0.65 mg/kg in the soil stockpile. Approximately 18 cubic yards of soil was overexcavated, and the soil stockpile received bio-treatment. Following overexcavation, two additional soil samples were collected from the tank pit. The highest levels of detected contamination in the additional samples were at the northeastern corner, which contained TPH-GRO at 3.78 mg/kg. The tank pit was backfilled with the treated soil stockpile and clean gravel. TDEC issued a No Further Action letter for the tank closure on August 18, 2003. Based on the site's current regulatory status, the identification of a responsible party, and completion of overexcavation, this site is not expected to represent a significant environmental concern at this time.

Boys and Girls Club TN Valley, located approximately 300 feet south of the subject property and hydrologically cross-gradient from the subject property at 407 Caswell Avenue, is listed as a VCP. According to information on file with TDEC, this site was enrolled in the TDEC Voluntary Cleanup Program following the discovery of an abandoned 8,000-gallon heating oil UST on the property during redevelopment in July 2015. The UST was located approximately 525 feet south of the subject property. Four soil samples were collected from the corners of the tank pit excavation, and three composite samples were collected from the excavation soil stockpile. The soil samples were analyzed by EPA Methods 8260B and 8270D. The tank pit samples contained maximum levels of contamination of 1670 mg/kg for EPH and 1450 mg/kg for naphthalene. The stockpile

samples contained maximum levels of contamination of 1510 mg/kg for EPH and 8,400 mg/kg for napthalene. These levels were above the TDEC Initial Screening Levels of 500 mg/kg for EPH and 135 mg/kg for naphthalene. The tank pit was overexcavated, and stockpiled soils were transported offsite for treatment and disposal. Four additional soil samples were collected from the tank pit following overexcavation. EPH was detected at a maximum concentration of 779 mg/kg. The environmental consultant overseeing closure activities requested NFA status from TDEC based on the residual contamination's slight exceedance of TDEC ISLs. Based on recent TDEC correspondence provided for review, the site is in the process of obtaining final NFA status from TDEC. Based on relative distance, the inferred direction of groundwater flow, source removal, and remediation under regulatory oversight, this site is not expected to represent a significant environmental concern.

In addition, four (4) SWF/LF listings were identified within 3,000 feet of the subject property. John Sevier Convenience Center, Forks of the River Convenience Center, Powell Convenience Center, and Tazewell Pike Convenience Center are all listed as inactive tire recycling. Based on the nature of the listings and the current regulatory status, the vicinity SWF/LF listings are not suspected to present environmental concerns to the subject property.

Please see Appendix C for a copy of the regulatory database report.

9.10 Other Section 50.4 Authorities

9.10.1 Endangered Species

The Endangered Species Act (ESA) of 1973 requires protection of listed or proposed endangered or threatened species or critical habitats. Projects that can affect listed endangered or threatened species or critical habitats require consultation with the Department of Interior in compliance with the procedure of Section 7 of the ESA. Only for new construction and conversion activities does the ESA authority apply.

According to the IPaC Resource list, eight (8) threatened or endangered species (Gray Bat, Indiana Bat, Northern Long-Eared Bat, Dromedary Pearlymussel, Finerayed Pigtoe, Orangefoot Pimpleback, Tubercled Blossom, and Anthony's Riversnail) may be located in the area. However, the subject property is currently developed as an age-restricted property with no proposed ground disturbing activities; therefore, the project should not negatively impact threatened or endangered species. In addition, there is no critical habitat in the project area. This project is in compliance with the Endangered Species Act.

9.10.2 Sole Source Aquifers

The Safe Drinking Water Act of 1974 requires protection of drinking water systems that are the sole or principal drinking water source for an area and which, if contaminated, would create a significant hazard to public health. Development, which can affect aquifers designated by the EPA, must be reviewed for impact on such designated aquifer sources. Only for new construction and conversion activities does the sole source aquifer (SSA) authority apply.

The subject property is not located on nor does it affect a sole source aquifer designated by the EPA. The project is in compliance with Sole Source Aquifer requirements.

9.10.3 FARMLANDS PROTECTION

A finding of compliance with the requirements of the Farmland Protection Policy Act of 1981 (7 U.S.C. 4201 et seq.) must be made for assisted new construction activities and the acquisition of undeveloped land.

The Farmland Protection Policy Act states, "'Farmland' does not include land already in or committed to urban development or water storage. Farmland 'already in' urban development or water storage includes all such land with a density of 30 structures per 40-area" (7 CFR 658.2(a)).

According to the NEPA Assist online tool, the subject property is located within an urbanized area. Additionally, this project does not include any activities that could potentially convert agricultural land to a non-agricultural use. The project is in compliance with the Farmland Protection Policy Act.

9.10.4 FLOOD INSURANCE

The Flood Disaster Protection Act of 1973, as amended, requires that property owners purchase flood insurance for buildings located within Special Flood Hazard Areas (SFHA), when Federal financial assistance is used to acquire, repair, improve, or construct a building.

Based on a review of the FEMA Flood Insurance Rate Map (FIRM) Community Panel Number 47093C0281G, dated August 5, 2013, the subject property is located in Zone X (unshaded), an area of minimal flood hazard outside the 100- and 500-year floodplains. FEMA's Preliminary & Pending National Flood Hazard Layer does not contain preliminary or pending FIRM panels for the subject property area. In addition, the subject property is located in the City of Knoxville (Community #475434), which is a participating community in the National Flood Insurance Program (NFIP). The structure or insurable property is not located in a FEMA-designated Special Flood Hazard Area. While flood insurance may not be mandatory in this instance, HUD recommends that all insurable structures maintain flood insurance under the National Flood Insurance Program (NFIP). The project is in compliance with flood insurance requirements.

9.10.5 ENVIRONMENTAL JUSTICE

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," applies in low-income or minority neighborhoods where the grantee proposes the acquisition of housing, the acquisition of land for development, and new construction. Environmental justice issues may include, but are not limited to new, continued or historically disproportionate potential for high and adverse human health and environmental effects on minority or low-income populations.

According to the EPA, the subject property is located in a low income or minority community as 35.34% of the subject property population resides below the poverty line and 23% of the population is described as minority. Based on the information gathered from the regulatory database report, the subject property is not directly affected by any nearby hazardous sites. Therefore, this subject property and its residents do not suffer from disproportionately adverse environmental effects relative to the community-at-large. The project is in compliance with Executive Order 12898.

10.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONALS

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR Part 312.

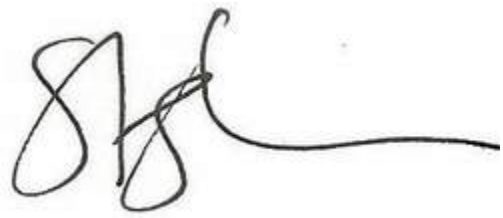
I have the specific qualifications based on education, training, and experience to assess a property of the nature, history and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Prepared By:

Hubert Clark
Project Manager

Reviewed By:

Kathleen McFatridge
Senior Author



Staige L. Miller
Vice President – HUD Environmental Services

I hereby certify under penalty of perjury that all of the information I have provided on this form and in any accompanying documentation is true and accurate. I acknowledge that if I knowingly have made any false, fictitious, or fraudulent statement, representation, or certification on this form or on any accompanying documents, I may be subject to criminal, civil, and/or administration sanctions, including fines, penalties, and/or imprisonment under applicable federal law, including but not limited to 12 U.S.C. §1833a; 18 U.S.C. §§1001, 1006, 1010, 1012, and 1014; 12 U.S.C. §1708 and 1735f-14; and 31 U.S.C. §§3729 and 3802.