

EXECUTIVE SUMMARY

EnSafe Inc. conducted a Phase I Environmental Site Assessment (ESA) of tax parcels 005018 00011 to 00014 (subject property) in Memphis, Shelby County, Tennessee. The Phase I ESA was conducted in support of the Wolf River Brownfields Assessment Project for the Shelby County Division of Planning and Development and Inner Vision Development Company dba Inner Vision Memphis (Inner Vision), the current property owner who plans to redevelop the site. A Phase I ESA is an integral part of all appropriate inquiry (AAI), as codified in Title 40 Code of Federal Regulations Part 312, into the previous ownership and uses of the property consistent with good commercial or customary practice. The ASTM International (ASTM) Standard E 1527-05 is the industry standard used to comply with the AAI requirements.

SITE LOCATION, DESCRIPTION, AND CURRENT USES

The 1.23-acre subject property is comprised of four tax parcels oriented in a clockwise direction: 005018 00011 (northeast 0.22 acre), 005018 00012 (southeast 0.56 acre), 005018 00013 (southwest 0.28 acre), and 005018 00014 (northwest 0.17 acre). The parcels form a square bordered by Abel Street on the east, East Butler Avenue on the south, South Third Street on the west, and Tax Parcels 005018 00015 (394 South Third Street) and 005018 00010 (381 Abel Street) on the north. The subject property is in downtown Memphis within the South Central Business Improvement District (CBID) near the center of the South Main Historic District Association.

Parcels 005018 00011 and 00014 are undeveloped and grass-covered lots with a history of residential development and use dating back to the early 1880s. Residents of the north-adjointing apartment building use Parcel 005018 00011 to stage garbage cans (along the west side) and toys and a bar-b-que grill along the north side. The ground surface in the southeast portion (that fronts Abel Street) has pieces of brick and concrete (remnants from former buildings and a cobblestone driveway).

Remnants of recent residences at Parcel 005018 00014 are concrete stairs that provided pedestrian access from the west-adjointing South Third Street sidewalk, a narrow concrete driveway, and portions of wood and chain-link fences. Observed amidst heavy vegetation and tall grass throughout Parcel 005018 00014 were wood slats and pieces, sticks, metal piping, concrete, and household garbage, most of which was along the east border shared with Parcel 005018 00011 and appeared to be from the neighboring apartment residents or remained from demolition of this parcel's residences in 2004. The wood slats and pieces appeared to be from the shared fence.

A partial concrete-block wall, subgrade piping, and portions of fencing, foundations and concrete pads remain from demolition of a light industrial building (234 East Butler Avenue) on Parcel 005018 00012. Several one- and two-story additions were constructed onto the original (circa 1925) building, which formed an L-shape that opened toward the northeast. Areas of uneven topography (sinkholes or where demolition removed deeper portions of the foundation/paved areas) were observed in the southeast portion of this parcel. The ground surfaces were covered with piles of brick, organic matter, dirt, pieces of floor tile (primarily in the southwest portion), and roadside trash, a plastic bucket, and partial bags of garbage (primarily along Abel Street).

Parcel 005018 00013 is developed with a 3,514-square-foot building at 410 South Third Street. The original portion of the building was constructed in 1923 for retail gas sales, and expanded to include commercial (office) space and a two-vehicle maintenance garage. The garage was

constructed over three gasoline underground storage tanks (USTs). Concrete pavement west and south of the building provides parking space and access from South Third Street and East Butler Avenue. This parcel is vacant and unused.

Visual observations and interviews did not confirm whether a grated drain observed within a painted/coated curbed area inside the garage portion of the 410 South Third Street building (indicated by two roll-up doors) was covering a sump associated with historical vehicle maintenance or a drain that discharges to the city storm water or sanitary sewer system. The feature was almost full of fluid and stains decreased in size with distance from the grated drain. Stains consistent with use of petroleum products in association with fueling and vehicle maintenance activities were observed throughout the garage portion of the 410 South Third building. Additional staining and/or discoloration that appeared to be paint or ink was observed on floors in a room in the southeast portion of the building.

SITE HISTORY

Historical sources reviewed indicate the subject property's first developed use was residential. In the early to mid-1920s, the south parcels were redeveloped commercially with a filling station at 410 South Third Street and Lummus Cotton Gin at 234 East Butler Avenue. The 410 South Third Street parcel changed ownership and occupancy/use (vehicle maintenance and repair, radio and electronics repair, printing, offices) in the early 1960s, after several additions had been constructed. Lummus Cotton Gin manufactured gin machines through the mid-1970s, with several building expansions during that time. A fuel oil tank was in the open portion of the property formed by the L-shaped building. Subsequent businesses that owned and/or operated at this parcel included Horn & Gladden Lint Cleaner Company (1977 to 1979) then Air Compressors Sales and Service of Tennessee (from 1979 to 2006), which manufactured industrial equipment and textile machines and parts, and repaired air and gas compressors. The residences on Parcels 005018 00011 and 005018 00014 were razed in the early 1970s and 2004, respectively. Inner Vision purchased the subject property parcels between June and September 2007, and razed the commercial building at 234 East Butler Avenue in late 2008.

REGULATORY RESEARCH

410 South Third Street

Based on review of Sanborn maps, the USTs were north of the original gas station building and the canopy (under which dispensers would have been situated) was to the west, necessitating approximately 50 feet of piping to transfer fuel from the tanks to the dispensers. The three gasoline USTs shown on Sanborn fire insurance maps were not registered with the Tennessee Department of Environment and Conservation (TDEC), and there are no files regarding their closure or removal at TDEC's Memphis Environmental Field Office. The tanks were reportedly closed in place (contents removed, tanks pressure washed, and filled with an inert substance) circa 2005 but there is no documentation as to the tank locations, method of determining tank contents, soil sampling results to confirm the tanks, piping, or dispensers had not leaked, content/rinsate analytical, or disposal records, even though the contents were reportedly disposed of through a commercial hazardous waste storage and treatment facility.

EnSafe requested information from the City of Memphis Fire Department (MFD), which had no files or records of hazardous material storage, spills, releases, or storage tanks. City of Memphis Fire Code regulations require anyone closing or removing USTs, or removing previously closed USTs to obtain a permit from the MFD. MFD Inspector Kelvin McGowan, who is one of the inspectors responsible for permitting and observing tank closures and removals, confirmed that the MFD had not been notified of the previous tank closure and a permit had not been obtained.

234 East Butler Avenue

Air Compressors Sales and Service of Tennessee removed a 1,000-gallon gasoline UST (Facility ID 9-790020) installed February 26, 1971. The UST closure application submitted to TDEC showed the tank in the former fuel oil tank location. The tank was removed in December 1989 at which time soil contamination was discovered. After over-excavation, additional soil samples were collected that showed a reduction of gasoline constituent concentrations, for which TDEC issued a closure letter on March 15, 1990. Files provided by TDEC did not indicate the reason the tank was registered as containing gasoline (as opposed to fuel oil as shown on Sanborn maps). Laboratory analyses required for gasoline and fuel oil tanks differed in 1990; therefore, fuel oil contamination may have been unidentified. In addition, UST closure requirements in 1990 did not require emptying or removal of piping or dispensers, or sampling to confirm releases had not occurred along those portions of the UST system. The MFD was not notified of this tank removal.

Prior Environmental Assessments

EnSafe reviewed Phase I ESAs of each parcel conducted prior to Inner Vision's purchase and documented in a July 5, 2007, report (for Parcels 005018 00011 and 00012), a June 29, 2007, report (for Parcel 005018 00013), and a June 15, 2007 (for Parcel 005018 00014) report. The Phase I ESA for Parcels 005018 00011 and 00012 included photographs of the 234 East Butler Avenue building that showed the brick building exterior, a hazardous material placard, roof vents, a coal bin, paint booth, metal equipment cleaning area with staining, drum, and floor drain. The Phase I ESAs identified *recognized environmental conditions* associated with USTs and/or historical gas station uses at the subject (Parcel 005018 00013) and adjoining (510 South Third Street) properties; and historical operations involving the use of hazardous substances, a paint booth, and metal degreasing, and tank closure in accordance with older guidelines at Parcel 005018 00012. The Phase I ESA for Parcel 005018 00013 also recommended an asbestos survey prior to demolition activities, based on the age of the building.

Suspect asbestos-containing material (ACM) was sampled from buildings at 410 South Third Street and 234 East Butler Avenue in August 2008. Asbestos was not detected in samples collected from 410 South Third Street. Several types of ACM were identified and subsequently abated at 234 East Butler Avenue prior to demolition. Damaged, loose floor tile was removed prior to demolition. Asbestos regulations allow for floor tile and mastic in good condition and that would not be made friable by demolition activities to remain onsite during demolition. However, the remaining floor tile and mastic were not maintained under an Operations and Maintenance Program to ensure they did not deteriorate/become friable. Given the condition of the ACM observed during EnSafe's site visit, the floor tile and possibly mastic require abatement in accordance with Shelby County Health Department (SCHD) requirements.

REGULATORY RESEARCH

Standard and additional federal, state, and local environmental records sources were researched for the subject property and properties within 1 mile. Regulatory research identified subject property addresses (410 South Third Street and 234 East Butler Avenue) and prior occupants (Air Compressor Sales and Service) on regulatory databases and with environmental/regulatory permits.

Primarily residential initially, the South CBID transitioned into a mixed-use area (with businesses and development associated with entertainment, retail stores, service, offices, gas stations, hotels, warehouses, and manufacturing) as emphasis on railroad transportation increased because of the proximity to railroad depots and the Mississippi River. Over the second half of the 20th century, this portion of downtown Memphis became abandoned and neglected. The most prevalent historical

businesses with operations commonly associated with use, storage, disposal, and releases of hazardous substances and petroleum products include gas stations and drycleaners, followed by various manufacturing and automobile maintenance and repair operations. Adjoining properties' development and uses are consistent with the surrounding area: to the north and east were residences and a church; to the west and south, beyond city streets, residences have been replaced with increasing commercial and light industrial use. One south-adjoining property — 510 South Third Street — was occupied by a gas station with an unregistered petroleum UST for which no regulatory documentation (regarding closure, removal, sampling, etc.), is available. In the 1960s and 1970s, many of the west-adjoining properties were redeveloped and/or occupied by businesses that provided machinery and automobile repair services.

Review of environmental databases identified the following within 0.25 mile: 27 sites where automobiles have been repaired, serviced, and/or fueled; six sites with registered USTs; five sites where releases from USTs have been reported; 32 facilities that have reported generating hazardous waste; and 21 sites where dry cleaning may have been conducted. Within 0.5 mile are five additional sites with reported releases from USTs; two sites that have been assessed through state voluntary cleanup programs; and one site assessed for inclusion on the National Priorities List that is a State Superfund Site encumbered with an environmental lien for emergency response action). Site-specific information for these facilities identified on environmental databases, with permits or other environmental records, and/or with reported releases were researched through city, county, state, and federal sources; most information was obtained from reviewing files at and interviewing personnel with TDEC. However, the incompleteness of existing files, lack of available files, and number of sites with decades of historical operations expected to involve the use, storage, and/or disposal of hazardous substances or petroleum products and that have not been regulated or investigated is considered a *data gap*¹. Additional investigation recommended to fill the *data gap* is a Phase II ESA of soil and groundwater at the subject property.

CONCLUSIONS AND ENVIRONMENTAL PROFESSIONAL OPINION

EnSafe's Phase I ESA has identified *recognized environmental conditions*², *historical recognized environmental conditions*³, and *business environmental risks*⁴ in connection with the subject property.

The *historical recognized environmental conditions* identified in the 2007 Phase I ESAs remain *recognized environmental conditions* in the absence of additional (subsurface) investigation. EnSafe's Phase I ESA identified additional *recognized environmental conditions* associated with the sump/drain and staining in the garage portion of the 410 South Third Street building, and "disposal" of the asbestos-containing floor tile at the 234 East Butler Avenue. EnSafe recommends a Phase II ESA of the subject property, primarily focusing on subsurface soil and groundwater conditions at Parcels 005018 00012 and 00013.

1 A *data gap* is the lack off or inability to obtain information required by ASTM E 1527-05 despite good faith efforts and may result from incompleteness in any of the activities (e.g., interviews, file review).

2 ASTM defines a *recognized environmental condition* as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws.

3 A *historical recognized environmental condition* is an "environmental condition which in the past would have been considered a *recognized environmental condition*, but which may or may not be considered a *recognized environmental condition* currently."

4 A *business environmental risk* can have a material environmental or environmentally driven impact on the business associated with the current or planned use of a parcel of commercial real estate, and may involve addressing one or more non-scope considerations (such as asbestos, lead-based paint, radon, wetlands, etc.).

Business environmental risks related to costs and potential liability remain associated with noncompliance with SCHD asbestos regulations at Parcel 005018 00012, and noncompliance with MFD and/or TDEC UST closure regulations and characterizing and disposing of the contents of the sump/drain at Parcel 005018 00013. EnSafe recommends collecting a sample of the material in the sump to determine disposal options and properly disposing of any remaining ACM.

PHASE II ENVIRONMENTAL SITE ASSESSMENT

The following summarize the specific activities a Phase II ESA of the sites may entail based on the Phase I ESA findings. Corresponding cost estimates⁵ and timeframes for conducting the Phase II ESA are included. EnSafe recommends the Phase II ESA be conducted with the intention of entering into a Brownfields Agreement with the State of Tennessee, which may limit the liability of a party (and certain future parties) who is willing and able to conduct an investigation and remediation of a hazardous substances site or Brownfields Project and who did not generate, transport or release the contamination that is to be addressed at the subject property.

Site-Specific Work Plan, Health and Safety Plan, and Quality Assurance Project Plan\$2,750/21 Days

Waste Characterization\$1,800/45 Days

- Asbestos sampling of the remaining floor tile(s) and mastic at 234 East Butler Street.
- Characterize contents of the sump/drain inside the former garage at 410 South Third Street. If material is disposed of during the Phase II ESA process, inspect sump for evidence of releases (staining) or conduits (cracks, deteriorated concrete, drains, etc.).

The waste characterization portion of the Phase II ESA would be conducted to determine disposal options for contaminants of concern (COCs) asbestos, petroleum hydrocarbons, and volatile organic compounds (VOCs).

Subsurface Investigation\$22,000/90 Days

- **234 East Butler Avenue** — Direct-push technology (DPT) soil borings and soil and groundwater sampling (1) in the area of the former heating oil UST and along expected piping route for analytical parameters currently accepted by TDEC Division of Underground Storage Tanks and (2) in the west portion of the site where degreasing operations, painting operations, and mechanical rooms were historically located.
- **410 South Third Street** — Combinations of hand-auger and DPT borings to collect soil and/or groundwater samples from inside the garage portion of the building in the location of the USTs, sump, and along piping, and outside (west and southwest) of the building.

The subsurface investigation would be designed to focus on impact from historical onsite and offsite operations; COCs are petroleum hydrocarbons/polynuclear aromatic hydrocarbons, VOCs, polychlorinated biphenyls, and metals.

⁵ This cost estimate has been prepared using rates and fees specific to EnSafe's contract with the Shelby County DPD for the Wolf River Brownfields Assessment Project. This general cost estimate has been prepared for informational purposes only. An updated cost estimate should be prepared once a final scope of work is determined by all involved parties.