



REQUEST FOR PROPOSAL

1501 Broadway Street Site Redevelopment Plan



RFP #2025-002

Proposal Due Date and Time:

Monday, March 31, 2025 • 4:00 P.M. (CST)

Request for Proposal

LAND ACQUISITION, DESIGN, AND CONSTRUCTION

The City of Paducah owns real property located at 1501 Broadway Street, and is offering it for development. This Request for Proposal seeks to find a developer who would redevelop the site in accordance with an approved conceptual site plan and conceptual architectural drawings. Transfer of the property will be determined through a development agreement between the City of Paducah and chosen developer.

The City of Paducah will evaluate and make the final decision on the award. At the discretion of the City of Paducah, firms or developers submitting proposals may be requested to make oral presentations as part of the evaluation process.

The City of Paducah does not express or imply any obligation to reimburse responding firms or developers for any expenses incurred in preparing proposals in response to this request. If your firm or development company would like to consider this engagement, you must submit one paper and one digital copy (USB flash drive) of your proposal in a sealed envelope no later than Monday, March 31, 2025 at 4:00 p.m.* to the following address:

Nancy Upchurch - 1501 Broadway Street RFP
City of Paducah
300 South 5th Street
Paducah, Kentucky 42001

Phone: (270) 444-8690
Email: nupchurch@paducahky.gov
Website: www.paducahky.gov

Questions should be submitted in writing to nupchurch@paducahky.gov by Friday, February 28 at 4:00 p.m. All questions and answers will be posted on the City website once the deadline has passed.

<https://paducahky.gov/bids-and-proposals>

*All times are C.S.T.

SITE DETAILS

RFP: 2025-002

DESCRIPTION: Redevelopment of 1501 Broadway, Formerly known as the Katterjohn site.

RFP DUE DATE: Monday, March 31, 2025 at 4:00 p.m.

AVAILABLE UTILITIES: Cable TV, Electricity, Fiber Optics, Gas, Sewer, Telephone, Trash, and Water

INTRODUCTION

The 3.21 acres +/- is located in an historic overlay district with both commercial and residential uses surrounding the site. In most recent years, the Katterjohn building stood at this location. It was constructed in 1919 as an Illinois Central Railroad hospital. It was the largest ICR hospital between Chicago and New Orleans. The architect was Richard E. Schmidt, Garden & Martin based in Chicago. The building was brick and constructed in the Colonial Revival style. In 1924, there were 90 patient rooms, two operating rooms, a laboratory, X-ray facilities, laundry area and ice plant. The hospital closed in 1957.

The building received a new life after a conversion to office uses. However, in the early 2000's, the building was once again abandoned. After years of deferred maintenance, it reached a point that was irreversible. The City of Paducah obtained ownership of the property in December of 2023. The building was demolished in the spring of 2024.

SITE INFORMATION

Today, the 1501 Broadway site consists of approximately 3.21 acres +/- . At this time, the site is vacant and contains grass and trees. Jefferson Street forms the north boundary of the site and Broadway forms the south boundary. Single-family homes are located adjacent to the site on the northeast and northwest. Commercial businesses are located on the southeast and southwest.

The site consists of two zones, the R-1 Low Density Residential Zone and the B-3 General Business Zone. Each zone takes up half the site, with the R-1 located to the north along Jefferson Street and the B-3 on the south along Broadway.

This site previously had a land use that required underground storage tanks. In the fall of 2023, the City of Paducah had the tanks removed so the soil in and around the site could be tested through our Brownfield Grant. Attached you will find the Analysis of the Brownfield Cleanup Alternative (ABCA) which includes the outcomes and recommendations for addressing the findings. This document is attached as Exhibit 1. This Analysis highlights what would be deemed appropriate to work through the requirements presented.

INFORMATION RESOURCES:

See Exhibit 1 attached - Analysis of the Brownfield Clean Up Alternative

ADDITIONAL RESOURCES

- A. www.map-gis.org
- B. https://library.municode.com/ky/paducah/codes/code_of_ordinances
- C. www.paducahky.gov
- D. If additional GIS data is needed or requested, please contact Nancy Upchurch in Planning

SCOPE OF SERVICES

With an interest in addressing community needs, the City of Paducah is looking for a developer to erect infill development at 1501 Broadway. The property is currently zoned both Commercial (B-3 General Business Zone) and single family residential (R-1 Low Density Residential Zone). Because of the challenges of two zoning classifications on one lot, the Planning Commission will entertain any appropriate zoning changes requested in all submitted plans. We request all plans take into consideration the historic neighborhood in this location as well as the commercial corridor facing Broadway.

It should be noted the City of Paducah Board of Commissioners has made housing a top priority. In the best interest of our community, please consider this in your proposals for the future development and design of this property—from single-family residential to a more-dense commercial development with mixed use. We encourage creativity in your approach.

PROPOSED PROJECT SCHEDULE

Upon selection of a Vendor, a development agreement shall be executed. Once the Board of Commissioners approves the executed development agreement, the Vendor shall have six (6) months in which to submit an official site plan and architectural plans. Both shall be submitted through the City's EnerGov portal at <http://onlineportal.paducahky.gov>. The site plan shall be submitted in accordance with the City's checklist, found on the City's website. Then, staff shall review the plans within twenty-one (21) days. Both the City and Vendor understand changes may be requested on the final site plans. Both the City and Vendor shall consider time of the essence for this portion. Once the Vendor has fulfilled the requirements of the development agreement and received proper permits, the property can then be transferred.

SCHEDULE AND PROCESS

The City of Paducah is offering real property located at 1501 Broadway Street for sale through the request for proposals to review the offers in the context of the redevelopment proposals for the site. RFP and any other related documentation will be posted on the City of Paducah's website.

IMPORTANT DATES

Release of Request for Proposal	Thursday, February 6, 2025
RFP Deadline for Submittal	Monday, March 31, 2025

The following proposal requirements will serve to establish a developer's overall capacity to complete this project and their vision for the site:

- A. Letter of Interest - To include the following information (at a minimum)
 - a. Developer's name and mailing address
 - b. Contact person's name, title, phone number and email address
 - c. Project narrative and description
 - d. Development entity - project management plan and role of each development partner in the implementation of the development plan
- B. Schematic Drawings of the Proposed Project
 - a. Site Plan
 - b. Elevations
 - c. Floor Plan

- C. Financial
 - a. Proposed land acquisition price
 - b. Estimated Project Cost/Estimated Market Value of the Property
 - c. Funding sources including letter of commitment/credit
- D. Proposed Development Timeline
 - a. Schedule that identifies the duration of key tasks (i.e. due diligence, conceptual design, design development, permitting, final design, contract award, construction, occupancy, etc.)
- E. Relevant Developer Background
 - a. Resumes or Biographies of the proposed development team
 - b. Fact Sheets for similar projects (images, date, location, concept, funding sources, etc.)
 - c. Include any professional license of each person and/or corporation to be involved in the (a) site prep (b) the design of the building and (c) the construction of the building.
- F. Insurance
 - a. The successful contractor shall provide proof of general liability insurance in the amount of no less than \$1,000,000.00 coverage, and proof of worker's compensation insurance
- G. Compliance
 - a. The successful contractor must comply with all local, state and federal laws.
- H. Expectations the proposing party would have for the City of Paducah

Copies Required

Each proposal must include one (1) signed original and one (1) PDF file submitted on a USB flash drive.

Official Contact

Each proposal shall be sealed and addressed to:

Nancy Upchurch - 1501 Broadway Street

City of Paducah

300 South 5th Street

Paducah, Kentucky 42003

Questions should be submitted in writing to nupchurch@paducahky.gov by Friday, February 28 at 4:00 p.m.

PROPOSAL EVALUATION AND SELECTION

Selection Committee

A committee will review all valid submitted proposals. They reserve the right to waive any informalities or minor irregularities, reject any and all proposals which are incomplete, conditional, obscure, or which contain additions not allowed, accept or reject any proposals in whole or in part, with or without cause. Once proposals have been reviewed, the committee will select any potential developers for interviews or presentations. Once the committee has selected the final proposal, it will be presented to the Board of Commissioners for their approval.

Scoring Criteria

Compliant Professional Licenses	10 points
Subcontractors	10 points
Timeline for Turnaround	20 points
Design Appearance	20 points
Est. Market Value of Finished Project	20 points
Overall Proposal and Compliance with RFP	10 points
References	10 points
Total	100 points

RFP Advertisements

- *The Paducah Sun*
- City Website
- Social Media (Facebook, X, Instagram, LinkedIn, and Nextdoor)

ADDITIONAL INFORMATION

Subletting of Contract: The vendor will agree, after the contract is awarded, not to assign or sublet the contract, in whole or in part, without the prior consent of the City of Paducah.

Changes in Scope of Services: The developer will agree that any change of scope in the work to be performed after the original contract has been signed shall be documented as a written change order, be accepted by all parties and made a part of the original contract by addendum.

Right to Reject Proposals and Wave Informalities: The City reserves the right to reject any or all proposals, to waive any non-material irregularities or information in the RFP and to accept or reject any item or combination of items.

General Information: The City reserves the right to inspect and investigate the business reputation or other qualifications of any firm and to reject any proposal—irrespective of quoted prices—if it is determined to be lacking the capability to assure acceptable standards of performance. The City reserves the right to obtain financial data or other supplemental information concerning the firm and/or its subcontractors. Proposals submitted in response to the Request for Proposal shall constitute a binding offer and

require an authorized signature. The firm shall clearly and thoroughly identify any variations between its proposal and the City's Request for Proposal. Failure to do so shall be deemed a waiver of any rights to subsequently modify the terms and/or conditions.

AREA OVERVIEW


Paducah, the county seat of McCracken County, is situated in the northeastern portion of the county along the southwestern boundary of the Ohio River, just west of the confluence of the Tennessee and Ohio Rivers, only 50 miles upstream from the confluence of the Ohio and Mississippi Rivers, and some 20 miles downstream from the confluence of the Cumberland and Ohio Rivers. Paducah's location allowed for early development of Paducah as a significant river port, which continues today as the Paducah-McCracken County Port Authority operates a river port along the Ohio River. Furthermore, Paducah's location is 175 miles southwest of Louisville, Kentucky, 120 miles northwest of Nashville, Tennessee, and 135 miles southeast of St. Louis, Missouri.

McCracken County is one of the eight Kentucky counties located in the Jackson Purchase Region of Western Kentucky. McCracken County covers a land area of approximately 251 square miles, and the 2019 population of the county was approximately 65,418. Major highways serving McCracken County include Interstate 24 and US Highways 60, 62, and 45. Mainline rail service is provided to Paducah by the Paducah and Louisville Railway. The nearest substantial commercial airline service is available at the Nashville Metropolitan Airport in Nashville, Tennessee, 120 miles southeast of Paducah. There is also a small craft airport with paved runways located to the west of Paducah, known as Barkley Regional Airport (PAH), which offers regional jet flights to Charlotte, North Carolina and private plane services. The City of Paducah and McCracken County are in the construction stages of a outdoor sports complex. The athletic complex will consist of softball, baseball, and soccer fields. Additional amenities will be included in this development, that is anticipated to have a regional impact on tourism and sports.



EXHIBIT 1

Analysis of the Brownfield Cleanup Alternative





January 22, 2025

Ms. Carol Gault
Director of Planning
City of Paducah
300 South 5th Street
Paducah, KY 42003

**Subject: Draft Analysis of Brownfields Cleanup Alternatives
1501 Broadway
Paducah, McCracken County, Kentucky
Parcel No. 104-34-04-007**

Dear Ms. Gault:

Tetra Tech, Inc. (Tetra Tech) submits this draft Analysis of Brownfield Cleanup Alternatives (ABCA) report for the Subject Property located at 1501 Broadway in Paducah, McCracken County, Kentucky. This draft ABCA was prepared in support of the Phase II Environmental Site Assessment (ESA) activities conducted as part of the U.S. Environmental Protection Agency (EPA) Brownfield Assessment Grant awarded to the City of Paducah under the cooperative agreement number BF02D30422. The draft ABCA contains one enclosure, which includes a table presenting the cost assumptions associated with cleanup alternatives.

SUBJECT PROPERTY BACKGROUND

The Subject Property (parcel number 104-34-04-007) is 3.18 acres of developed, partly paved land, gravel, and vegetation, and hosts one approximately 1,600-square-foot, one-story metal shed. In May and June 2024, the City of Paducah razed three structures on the Subject Property: the main structure, which was an approximately 38,188 square-foot former railroad hospital built in 1919 with three stories and a basement, a 1,290 square-foot boiler house with a basement, and a 204 square-foot storage building. Geographic coordinates at the approximate center of the Subject Property are latitude 37.0808333 degrees north and longitude 88.6138889 degrees west.

The Subject Property has been developed since at least 1901 and was utilized as a hospital for the Illinois Central Railroad Company until 1957. The main structure was used as professional offices for a wide range of businesses from at least 1960 to the late 1990s. Since then, it was left vacant and fell into disrepair.

The Subject Property is bordered to the north by Jefferson Street followed by residential properties; to the east by local businesses and residential properties followed by North 14th Street; to the south by Broadway, followed by local and commercial businesses and the Paducah City Police Department; to the west by local businesses and residential properties followed by North 16th Street.

The City of Paducah is the current owner of the Subject Property. Future uses of the Subject Property may include development into residential and commercial properties.

PHASE I ESA ACTIVITIES

In December 2023, Tetra Tech performed a Phase I ESA at the Subject Property and identified the following recognized environmental conditions (RECs) for the Subject Property:

4910 Brownsboro Road, Suite 245
Louisville, KY 40222
Tel 502.569.9067
www.tetrattech.com

- Two suspected fill pipes, assessed as connections to one or more unregistered underground storage tanks (USTs), were observed during the site visit. The possibility for USTs to be located at the Subject Property and the potential for associated contamination relating to the USTs are both considered RECs to the Subject Property.

A review of the federal and state database information has revealed the following RECs:

- The Environmental Data Resources (EDR) report identified Colby Property at 1574 Jefferson Street, an upgradient property approximately 0.037 miles west-southwest of the Subject Property, in the EDR UST database. Based on proximity to the Subject Property, a lack of No Further Action (NFA) status, and the potential for contamination from an unknown or unreported release, this property is a REC to the Subject Property.
- The address 1537 Kentucky Avenue (Robertson Gulf Service) is approximately 0.093 miles south of the Subject Property. The property was identified in the EDR report as a Historical Auto site and as a former gasoline service station. Based on proximity to the Subject Property, an upgradient location, and lack of information regarding USTs, this property may pose a REC to the Subject Property. In addition, this property was listed on the Vapor Encroachment Screen and may pose a vapor encroachment condition (VEC) to the Subject Property.
- The address 1300 Kentucky Avenue (VMV TK#2 & #4 Area; NRE-PADUCAH; NRE Acquisition Co LLC - VMV PADUCAHBILT; VMV Blacksmith Shop) is approximately 0.109 miles southwest of the Subject Property. The property was identified in the EDR report in the Kentucky Senate Bill 193 (SB193) database for known soil contamination from leaky USTs, Facility IDs: 3636073 & 1021073. This property is also listed on the State Hazardous Waste Site (SHWS) database with an Active status and is a Resource Conservation and Recovery Act (RCRA) – Large Quantity Generator with multiple violations. Based on proximity to the Subject Property, an upgradient location, and lack of information regarding contamination cleanup or management, this property may pose a REC the Subject Property.

A review of the federal and state database information has revealed the following VECs:

- Based on the results of the initial vapor encroachment screening, six properties, including the Subject Property, were identified in the EDR report as being within the minimum search distances for the Tier 1 vapor encroachment screen. This initial vapor encroachment screening has identified six properties that may pose a VEC for the Subject Property.

Based on the findings of the Phase I ESA, Tetra Tech recommended performing a Phase II ESA to assess the presence or absence of RECs identified for the Subject Property. For more details about the Phase I investigation, see *Phase I Environmental Site Assessment Report – 1501 Broadway* prepared by Tetra Tech in December 2023.

PHASE II ESA ACTIVITIES

Based on the results of the initial site visit, the City of Paducah directed Tetra Tech to perform a Phase II ESA to assess the RECs and environmental hazards identified during the Phase I ESA and to identify whether contamination was present. Tetra Tech performed the Phase II ESA during the week of June 24, 2024, and collected 19 soil samples (including one duplicate), six groundwater samples (including two duplicates), eight soil gas samples (including one duplicate), and two investigation-derived waste (IDW) samples. Three additional soil gas and two ambient air (including one duplicate) samples were collected on October 1, 2024, as part of a supplementary sampling event.

For full details of the sampling event, see the *Phase II Environmental Site Assessment Reports – 1501 Broadway* prepared by Tetra Tech in December 2024. A summary of the Phase II ESA results is as follows:

- Nineteen soil samples (including the duplicate) contained various metals above the EPA Regional Screening Levels (RSLs) for residential soil and industrial soil.
- Four groundwater samples (including the duplicate) contained various metals above the EPA Maximum Containment Levels (MCLs).
- Seven out of the eight soil gas samples collected during the June 2024 sampling event and all three soil gas samples collected during the October 2024 sampling event contained concentrations of various volatile organic compounds (VOCs) that exceed the EPA residential VISLs. The three additional soil gas samples collected during the October 2024 and one soil gas sample from the June event (KB-03-SG) all contained concentrations of VOCs that exceed the respective EPA residential and commercial VISLs.
- One of the two ambient air samples collected in October 2024 contained VOCs above the EPA residential VISLs.

In addition to the Phase II ESA sampling outlined above, this Phase II included the identification and subsequent removal of an unregistered UST at the Subject Property. Tetra Tech procured Chase Environmental, Inc. of Paducah, KY to perform the UST removal before the Phase II sampling occurred. A vacuum truck extracted residual petroleum product from the approximately 8,000-gallon tank. The UST and all piping were excavated, removed, decontaminated, and disposed of in order to fully assess the potential contamination at the Subject Property. Eight soil samples (including one duplicate) and two pit water samples were collected (including one duplicate) from the excavation pit. Two pit soil samples contained semi-volatile organic compounds (SVOCs) above the Kentucky Department for Environmental Protection's (KDEP) UST Corrective Action Manual soil screening levels. Both pit water samples contained several SVOCs and polynuclear aromatic hydrocarbons (PAHs) above the KDEP UST Corrective Action Manual groundwater screening levels. In September of 2024, Chase Environmental, Inc. removed and disposed of 276.78 tons of contaminated soil, inside and outside the exclusion zone per KDEP UST Corrective Action Manual guidelines and replaced the excavated soil with 373.88 tons of clean backfill. A Petroleum Closure Report Form has been prepared and submitted to KDEP for review.

CLEANUP ALTERNATIVES

This section presents recommendations for addressing environmental concerns identified at the Subject Property. Enclosure 1 includes an overview of costs and assumptions associated with remedial options. To address the contamination at the Subject Property, various alternatives were considered depending on the media impacted. The effectiveness, the ability to implement, and cost associated with each cleanup option are discussed below.

Tetra Tech understands that future uses of the Subject Property may include redevelopment as residential or commercial property. This has been taken into consideration with the cleanup alternatives presented below. Additionally, Tetra Tech has considered guidance provided by the KDEP Superfund Branch Risk Assessment Section and KDEP Cleanup Standards and Guidance within KDEP's Voluntary Environmental Cleanup Program in regard to the below cleanup alternatives. Costs were generated from experience on similar sites and Robert Snow Means (RSMeans) Cost Data 2024.

SURFACE AND SUBSURFACE SOILS

Option 1: No action is a zero-cost option; however, it may not be effective in controlling or preventing future patrons or residents from encountering the contamination at the Subject Property.

According to the Phase II report, each surface and subsurface soil sample contained arsenic (ranging from 4.6 J- to 19 J- milligrams per kilogram [mg/kg]) and total chromium (ranging from 20 J- to 51 J- mg/kg) above their EPA RSLs for residential and industrial soils. Despite these RSL exceedances, all concentrations fell below EPA's Removal Management Levels (RMLs) for residential soils for arsenic (68 mg/kg) and chromium (95 mg/kg). Soil samples KB-13-SS-910 and KB-14-S contained cadmium (1.1 J- and 1.0 J- mg/kg, respectively) above the EPA residential RSL but below the EPA RML for residential soils of 21 mg/kg. Soil sample KB-14-S also contained mercury (1.9 J- mg/kg) above the EPA residential RSL but below EPA RML for residential soils of 21 mg/kg. RMLs are used to help identify areas, contaminants, and conditions where a removal action may be appropriate. Sites where contaminant concentrations fall below RMLs are not necessarily "clean" and, in some cases, further action may be warranted based on current or anticipated future land use. Further assessment decisions are at the discretion of EPA, KDEP, and the property owner (The City of Paducah) at the time of cleanup.

The following guidance was provided to Tetra Tech by the KDEP Risk Assessment Section in regard to the soil sample exceedances identified in the Phase II:

- The arsenic exceedances in the soil samples are within ambient background levels for the surrounding area and are not likely to represent an issue for the Subject Property.
- The chromium levels were reported for total chromium but the RSL used for comparison in the Phase II ESA was for hexavalent chromium. The total chromium soil exceedances were within range of the Kentucky ambient background levels. Because historic operations did not include the use of hexavalent chromium, these total chromium levels are not likely to represent an issue for the Subject Property.
- Cadmium was found in one subsurface soil sample above the residential RSL but below the industrial RSL. This subsurface sample was collected from the nine to ten foot bgs interval. Future residents or patrons of the site are not anticipated to come into contact with soil at that depth; therefore, this cadmium exceedance is not likely to represent an issue for the Subject Property.
- Mercury and cadmium levels exceeded the RSL for residential soil in one surface soil location on the Subject Property. It is anticipated that this soil hotspot will require removal during redevelopment; therefore, no action would not be protective of human health and environment at this sample location.

Option 2: Option 2 is the discreet excavation and disposal of the mercury- and cadmium-contaminated surface soil.

A limited, localized soil removal is recommended at station KB-14 to prevent future Subject Property residents and patrons from coming into contact with the surface soil containing mercury and cadmium above the residential RSLs. Tetra Tech recommends excavating soil in a 10 foot radius around the KB-14 soil boring location, to a depth of approximately 2 feet bgs, totaling approximately 628 cubic feet of soil to be removed. This excavation is expected to be able to be completed with hand tools and the waste soil should be containerized in 55-gallon drums for proper waste characterization and disposal.

As much as 628 cubic feet (approximately 24 cubic yards, estimated to require 86 55-gallon drums) of soil may require removal and disposal during Subject Property redevelopment. Field crews should wear protective gear to protect them from the contamination during removal activities. Soil excavation with hand tools is estimated at \$170 per cubic yard, totaling \$4,080. The containerized waste should be sampled and submitted to a laboratory for waste characterization analysis. One solid waste characterization sample is estimated at \$250. The results of the waste characterization analysis will determine the proper waste disposal pathway for the soil removed from the Subject Property. Transportation and disposal (at an appropriately certified hazardous waste landfill, if necessary) costs are estimated to be \$145 (for non-hazardous waste) to \$265 (for hazardous waste) per 55-gallon drum, translating to about \$12,470 to \$22,790. The cost for clean backfill, including hauling and spreading with a dozer, is estimated at \$28 to \$48 per cubic yard, translating to about \$672 to \$1,152.

Three confirmation grab samples should be collected from the excavation pit floor after soil removal is complete and before the pit is backfilled. The samples should be submitted to a laboratory for analysis of mercury and cadmium and is estimated to cost \$900. A cost of \$5,000 is estimated to conduct field work, including soil sampling during an 8-hour day and traveling to and from the Subject Property, and to prepare a report summarizing the findings.

Option 2 (discreet excavation and disposal) is the preferred option, as future Subject Property use is anticipated to be residential or mixed commercial and residential.

GROUNDWATER UNDERLYING THE SUBJECT PROPERTY

Option 1: No action is a zero-cost option; however, it is not effective in controlling or preventing future patrons or residents from encountering contamination at the Subject Property.

Option 2: Option 2 is an environmental covenant for the groundwater underlying the Subject Property.

Groundwater samples KB-14-GW and KB-16-GW contained arsenic above the EPA MCL, and samples KB-13-GW, KB-14-GW, KB-14-GW-DUP, and KB-16-GW contained lead above the EPA MCL.

According to the Environmental Data Resources (EDR) Radius Map Report with GeoCheck, no federal U.S. Geological Survey (USGS) wells, public water supply system, or state water supply wells are located on the Subject Property. Drinking water in the City of Paducah is sourced and treated from the Ohio River. To ensure that groundwater is not used as a source for drinking water or for other purposes at the Subject Property in the future and to comply with guidance provided by the KDEP Risk Assessment team, an environmental covenant should be implemented to restrict the use of the groundwater at the Subject Property. This covenant will minimize the risk of human exposure to the contaminants identified in the groundwater at the Subject Property. The environmental covenant will need to be prepared and filed with the State of Kentucky and McCracken County and will be recorded with the deed to the Subject Property. A cost of \$5,500 is estimated to assist in preparing the environmental covenant.

Option 2 (environmental covenant) is the preferred option to use as future Subject Property activities do not require the use of groundwater from the Subject Property.

SOIL VAPOR INTRUSION AND AMBIENT AIR

Option 1: No action is a zero-cost option; however, it is not effective in controlling or preventing future patrons or residents from encountering contamination at the Subject Property.

Option 2: Option 2 is designing and installing passive vapor mitigation systems (VMS) for newly constructed buildings on the Subject Property.

Seven out of the eight soil gas samples collected in June 2024 and all three soil gas samples collected in October 2024 contained various VOCs above their EPA residential VISLs. Nine soil gas samples contained VOCs (1,3-butadiene; 2-hexanone; benzene; 1,1,2,2-tetrachloroethane; 1,2,4-trimethylbenzene; and n-heptane) above EPA residential and industrial VISLs. One ambient air sample (KB-20-AMB) collected in October 2024 contained the VOCs 1,2-dichloroethane, 1,4-dioxane, and benzene above their respective EPA residential VISL. The laboratory analytical data for the soil, groundwater, and soil gas samples collected for the Phase II ESA did not indicate a source for the soil gas exceedances. Additionally, no elevated photo ionization detector (PID) readings were detected in any of the soil borings installed at the site while field screening for VOCs during the Phase II sampling event and no VOCs were detected in any of the soil samples sent for laboratory analysis for VOCs.

Proposed future uses of the Subject Property include redevelopment as residential or mixed residential and commercial use. To mitigate the potential for vapor intrusion into newly built structures on the Subject Property, KDEP's Risk Assessment team advised that VMSs should be designed and utilized in each new building. A VMS typically includes a physical vapor barrier (spray applied or plastic sheeting) and a passive ventilation system that is installed beneath the building to direct soil vapors towards the roof of the building where they can be safely vented outdoors. A design fee for each new structure's VMS is estimated to be around \$20,000 per unique building footprint. Installation is estimated to be between \$7 to \$12 per square foot of the building footprint. The design of each unique VMS will need to be submitted to KDEP for review and approval.

Confirmation samples should be collected upon completion of the installation of each VMS to ensure the system is operating effectively. Verification sampling based on federal and state regulations will need to be conducted for each new VMS to ensure the effectiveness of the system and to protect the health of potential residents. The costs for one VMS confirmation sampling event and associated reporting are estimated at \$10,000. Under the KDEP Brownfields Program, a one-time fee of \$2,500 is required to enroll the Subject Property in the program. Estimated at \$10,000, a project management plan (PMP) is also required as part of the KDEP Brownfields Program. The PMP will provide details on the requirements for design, installation, and management of the VMSs.

Alternatively, newly built structures that consist of an open air first floor (a parking lot, for example) and residences or businesses on floors above would not be subject to KDEP's guidance for installing VMSs into each new building. According to the KDEP Risk Assessment team, an open air first floor allows sufficient ventilation for the soil gas vapors to dissipate.

Option 2 (passive VMSs for new Subject Property structures) is the preferred option to address the soil vapor intrusion identified in the Phase II ESA. Enclosure 1 provides additional details on the estimated cost.

POTENTIAL CLIMATE CHANGE CONDITIONS

The remedial alternatives discussed above were evaluated for the Subject Property considering reasonably foreseeable changing climate conditions, including rising sea levels, increased frequency and intensity of flooding, and extreme weather events. Sources of information used to conduct this evaluation include:

- Scenarios for the National Climate Assessment at <https://scenarios.globalchange.gov/>
- Climate Explorer at <https://toolkit.climate.gov/tools/climate-explorer>

The Subject Property is located in Paducah, a city located in Western Kentucky along the Ohio River. The Subject Property is approximately 340 feet above mean sea level (msl). The Subject Property is relatively flat, with the elevation of the surrounding area ranging from 330 to 345 feet above msl. According to FEMA Flood Map No. 21145C0153F, effective November 02, 2011, the Subject Property is in Zone X, an area with reduced flood risk due to levee (FEMA 2011). The Subject Property is approximately 1.25 miles from the Ohio River to the east and is not expected to be tidally influenced. Other factors associated with climate change, including increases and decreases in temperature, potential for wildfires, and extreme weather events such as hurricanes, are not expected to adversely affect the recommended remedial alternatives.

CONCLUSION

Based on the Phase II ESA, the remedial alternatives presented, and climate change scenarios evaluated, Tetra Tech does not anticipate the need to modify the proposed cleanup alternatives to address changing climate conditions.

Disclaimer: This draft ABCA has been prepared in accordance with EPA and KDEP standards. The cleanup alternatives are based on our understanding of existing Subject Property conditions at the time field sampling was conducted. While every effort has been made to adequately characterize the Subject Property conditions, the full extent of contamination may prove to be greater or less than what is represented herein. As a result, the actual costs of implementing cleanup options may vary. Cleanup costs are based on anticipated future use of the Subject Property as residential or mixed-use residential and commercial.

If you have any questions regarding this draft ABCA, please call me at (502) 569-9067.

Sincerely,



Sherry Weedman
Tetra Tech Project Manager

Enclosures (1)

cc: Aditi Chakravarty Posek, EPA Brownfields Project Officer

ENCLOSURE 1

COSTS AND ASSUMPTIONS ASSOCIATED WITH CLEANUP ALTERNATIVES

(Two Pages)

**COSTS AND ASSUMPTIONS ASSOCIATED WITH CLEANUP ALTERNATIVES
1501 BROADWAY, PADUCAH, KENTUCKY**

Remedial Alternative	Cost (USD)	Assumptions
Surface and Subsurface Soils		
Option 1 – No Action	\$0	<p>No action is a zero-cost option; however, it may not be effective in controlling or preventing future patrons or residents from encountering the contamination at the Subject Property.</p> <p>According to the Phase II report, each surface and subsurface soil sample contained arsenic (ranging from 4.6 J- to 19 J- mg/kg) and total chromium (ranging from 20 J- to 51 J- mg/kg) above their respective EPA RSLs for residential and industrial soils. Despite these RSL exceedances, all concentrations fell below EPA’s RMLs for residential soils for arsenic (68 mg/kg) and chromium (95 mg/kg). Soil samples KB-13-SS-910 and KB-14-S contained concentrations of cadmium (1.1 J- and 1.0 J- mg/kg, respectively) above the EPA residential RSL but below the EPA RML for residential soils of 21 mg/kg. Soil sample KB-14-S also contained mercury (1.9 J- mg/kg) above the EPA residential RSL but below EPA residential soils RML of 21 mg/kg. RMLs are used to help identify areas, contaminants, and conditions where a removal action may be appropriate. Sites where contaminant concentrations fall below RMLs are not necessarily “clean” and, in some cases, further action may be warranted based on current or anticipated future land use. Further assessment decisions are at the discretion of EPA, KDEP, and the property owner (The City of Paducah) at the time of cleanup.</p> <p>The following guidance was provided to Tetra Tech by the KDEP Risk Assessment Section in regard to the soil sample exceedances identified in the Phase II:</p> <p>The arsenic exceedances in the soil samples are within ambient background levels for the surrounding area and are not likely to represent an issue for the Subject Property.</p> <p>The chromium levels were reported for total chromium but the RSL used for comparison in the Phase II ESA was for hexavalent chromium. The total chromium soil exceedances were within range of the Kentucky ambient background levels. Additionally, because historic operations did not include the use of hexavalent chromium, these total chromium levels are not likely to represent an issue for the Subject Property.</p> <p>Cadmium was found in one subsurface soil sample above the residential RSL but below the industrial RSL. This subsurface sample was collected from the 9 to 10 foot bgs interval. Future residents or patrons of the Subject Property are not anticipated to come into contact with soil at that depth; therefore, this cadmium exceedance is not likely to represent an issue for the Subject Property.</p> <p>Mercury and cadmium levels were exceeded for residential soil in one surface soil location on the Subject Property. It is anticipated that this soil hotspot will require removal during redevelopment; therefore, no action would not be protective of human health and environment at this sample location.</p>
Option 2 - Discreet Excavation and Disposal	\$23,372 to \$34,172	<p>A limited, localized soil removal is recommended at station KB-14 to prevent future site residents and/or patrons from coming into contact with the surface soil containing mercury and cadmium at concentrations that exceeded the residential RSLs. Tetra Tech recommends excavating soil in an approximate 10 foot radius around the KB-14 soil boring location, to a depth of approximately 2 feet bgs, totaling approximately 628 cubic feet of soil to be removed. This excavation is expected to be able to be completed with hand tools and the waste soil should be containerized in 55-gallon drums for proper waste characterization and disposal.</p> <p>As much as 628 cubic feet (approximately 24 cubic yards, estimated to require 86 55-gallon drums) of soil may require removal and disposal during Subject Property redevelopment. Field crews should wear protective gear to protect them from the contamination during removal activities. Soil excavation with hand tools is estimated at \$170 per cubic yard, totaling \$4,080. The containerized waste should be sampled and submitted to a laboratory for waste characterization analysis. One solid waste characterization sample is estimated at \$250. The results of the waste characterization analysis will determine the proper waste disposal pathway for the soil removed from the Subject Property. Transportation and disposal (at an appropriately certified hazardous waste landfill, if necessary) costs are estimated to be \$145 (for non-hazardous waste) to \$265 (for hazardous waste) per 55 gallon drum, translating to about \$12,470 to \$22,790. The cost for clean backfill, including hauling and spreading with a dozer, are estimated at \$28 to \$48 per cubic yard, translating to about \$672 to \$1,152.</p> <p>Three confirmation grab samples should be collected from the excavation pit floor after soil removal is complete and before the pit is backfilled. The samples should be submitted to a laboratory for analysis of mercury and cadmium and is estimated to cost \$900. A cost of \$5,000 is estimated to conduct field work, including soil sampling during an 8-hour day and traveling to and from the Subject Property; and to prepare a report summarizing the findings.</p>

**COSTS AND ASSUMPTIONS ASSOCIATED WITH CLEANUP ALTERNATIVES
1501 BROADWAY, PADUCAH, KENTUCKY**

Remedial Alternative	Cost (USD)	Assumptions
Groundwater Underlying the Subject Property		
Option 1 – No Action	\$0	No action is a zero-cost option; however, it is not effective in controlling or preventing future patrons or residents from encountering the contamination at the Subject Property.
Option 2 - Environmental Covenant	\$5,500	Groundwater samples KB-14-GW and KB-16-GW contained arsenic above the EPA MCLs, and samples KB-13-GW, KB-14-GW, KB-14-GW-DUP, and KB-16-GW contained lead above the EPA MCLs. According to the EDR Radius Map Report with GeoCheck, no federal USGS wells, public water supply system, or state water supply wells are located on the Subject Property. Drinking water in the City of Paducah is sourced and treated from the Ohio River. To ensure that groundwater is not used as a source for drinking water or for other purposes at the Subject Property in the future and to comply with guidance provided by the KDEP Risk Assessment team, an environmental covenant should be implemented to restrict the use of the groundwater at the Subject Property. This covenant will minimize the risk of human exposure to the contaminants identified in the groundwater at the Subject Property. The environmental covenant will need to be prepared and filed with the State of Kentucky and McCracken County and will be recorded with the deed to the Subject Property. A cost of \$5,500 is estimated to assist in preparing the environmental covenant.
Soil Vapor Intrusion and Ambient Air		
Option 1 – No Action	\$0	No action is a zero-cost option; however, it is not effective in controlling or preventing future patrons or residents from encountering contamination at the Subject Property.
Option 2 – Installing VMS in New Buildings	\$42,500 (Excluding installation costs due to unknown building footprint size)	Seven out of the eight soil gas samples collected in June 2024 and all three soil gas samples collected in October 2024 contained various VOCs above their EPA residential VISLs. Nine soil gas samples contained VOCs (1,3-butadiene; 2-hexanone; benzene; 1,1,2,2-tetrachloroethane; 1,2,4-trimethylbenzene; and n-heptane) above EPA residential and industrial VISLs. One ambient air sample (KB-20-AMB) collected in October 2024 contained the VOCs 1,2-dichloroethane, 1,4-dioxane, and benzene above their respective EPA residential VISL. The laboratory analytical data for the soil, groundwater, and soil gas samples collected for the Phase II ESA did not indicate a source for the soil gas exceedances. Additionally, no elevated PID readings were detected in any of the soil borings installed at the Subject Property during the Phase II sampling event, and no VOCs were detected in any of the soil samples sent for laboratory analysis for VOCs. Proposed future uses of the Subject Property include redevelopment as residential or mixed residential and commercial use. To mitigate the potential for vapor intrusion into newly built structures on the Subject Property, KDEP’s Risk Assessment team advised that VMSs should be designed and utilized in each new building. A VMS typically includes a physical vapor barrier (spray applied or plastic sheeting) and a passive ventilation system that is installed beneath the building to direct soil vapors towards the roof of the building where they can be safely vented outdoors. A design fee for each new structure’s VMS is estimated to be around \$20,000 per unique building footprint. Installation is estimated to be between \$7 to \$12 per square foot of the building footprint. The design of each unique VMS will need to be submitted to KDEP for review and approval. Confirmation samples should be collected upon completion of the installation of each VMS to ensure the system is operating effectively. Verification sampling based on state and federal regulations will need to be conducted for each new system to ensure the effectiveness of the system and to protect the health of potential residents. The costs for one VMS confirmation sampling event and associated reporting is estimated at \$10,000. Under the KDEP Brownfields Program, a one-time fee of \$2,500 is required to enroll the Subject Property in the program. Estimated at \$10,000, a PMP is also required as part of the KDEP Brownfields Program. The PMP will provide details on the requirements for design, installation, and management of the VMSs. Alternatively, newly built structures that consist of an open air first floor (a parking lot, for example) and residences or businesses on floors above would not be subject to KDEP’s guidance of installing VMSs into each new building. According to the KDEP Risk Assessment team, an open air first floor allows sufficient ventilation for the soil gas vapors to dissipate.

Notes:

ABCA	Analysis of Brownfield Cleanup Alternatives
bgs	Below Ground Surface
EDR	Environmental Data Resources
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
KDEP	Kentucky Department for Environmental Protection
MCL	Maximum Contaminant Level
mg/kg	Milligrams per kilogram
PID	Photo Ionization Detector
PMP	Property Management Plan
RML	Removal Management Level
RSL	Regional Screening Level
USGS	U.S. Geological Survey
VISLs	Vapor Intrusion Screening Levels
VMS	Vapor Mitigation System
VOC	Volatile organic compound
	United States Dollar (USD)

