**Analysis of Brownfields Cleanup Alternatives**

**Preliminary Evaluation**

**Ohio Street Dump**

**1411 North Frankfort Avenue**

**Louisville, Kentucky 40206**

**AI: 52215**

Prepared for:

Waterfront Botanical Gardens

PO Box 5056

Louisville, Kentucky 40255

## Introduction and Background

### **Site Location**

The Ohio Street Dump (hereinafter the site) is located at 1411 N. Frankfort Ave., Louisville, Jefferson County, Kentucky; Latitude 38.263987°, Longitude -85.724492°.

### Forecasted Climate Conditions

According to the US Global Change Research Program (USGCRP), climate trends for the

Southeast region of the United States include increased temperatures, increased precipitation with greater variability, increased extreme precipitation events, and rises in sea level (see attached summary included in *Attachment A*). Some of these factors, most specifically increased precipitation that may affect flood waters and storm water runoff, are most applicable to the cleanup of the site.

According to FEMA Flood Zone Map 21111C0026E, the Site is located within an area of the Ohio River (see *Attachment B*), where there is a 1% chance of annual flooding. The site is located at a higher elevation than the surrounding land and is less likely to flood. However, greater storm frequency and intensity in a changing climate may result in more frequent and more powerful flood waters within the Ohio River, which may result in changes to the flood zone and increased risk of flooding of the Site.

The Site is at a higher elevation than the surrounding property and thus does not receive storm water from off the site.

Based on the nature of the Site and its proposed reuse, changing temperature, rising sea levels, wildfires, changing dates of ground thaw/freezing, changing ecological zone, saltwater intrusion and changing groundwater table are not likely to significantly effect the Site.

### Previous Site Use(s) and any previous cleanup/remediation

The site lies within the boundaries of an area once known as “The Point.” Historically there were numerous homes and cottages located on the subject property. The area was reported to have been inundated by floodwaters numerous times, including in February 1883, January 1884, 1907, March 1913, and 1937. Following the 1937 flood, the City of Louisville decided to turn a portion of The Point into a city dump, which became the Ohio Street Dump.

### The site was reported to have operated as an open dump during the early years of its operation. Materials placed at the site when the dump was initially established were primarily building refuse from flood-damaged homes. Wild pigs reportedly scavenged the site for food. During World War II, residents of the area scavenged paper, cloth, and metal from the site to sell to recyclers. The City of Louisville allowed private haulers to place municipal waste from communities from outside of Jefferson County at the site beginning in the 1940s. Municipal waste was accepted at the site until the late 1950s or early 1960s. Following the opening of the Meriwether Street Incinerator by the City of Louisville in August 1957, the City of Louisville reportedly disposed of “street maintenance debris, street sweepings, waste soil from sewer/utility repairs, and possibly septic tank pumping’s” at the site.

### Fires are reported to have occurred at the site while it was in operation. The City of Louisville’s fire department is reported to have responded to numerous fires at the site in the late 1940s.

### Waste transported to the site prior to the 1960s often included hot coals from coal burning furnaces, which resulted in numerous fires at the site that often smoldered for days and were allowed to burn themselves out.

### Interstate 71 was constructed bisecting the site in the late 1960s or 1970. The construction divided the site into a north cell and a south cell. Waste along the interstate right of way was excavated and either used as fill off site or placed on top of the north cell. It is unknown whether the waste within the right of way was excavated to native soils or whether waste remains buried within the right of way.

The Louisville-Jefferson County Health Department closed the site during the early 1970s when a cap was constructed over the waste.

### Site Assessment Findings

In October of 1994 the Kentucky Division of Waste Management competed a Preliminary Assessment of the site which recommended a Site Investigation (SI). In the Kentucky Division of Waste Management completed the SI and recommended no further action under CERCLA. It was determined the site did not pose a significant threat to human health.

In April of 2013 Stantec Consulting Services prepared a Phase I Study of the site as part of Kentucky’s “Orphan Landfill” program. This comprehensive report provided the history of the site and made recommendations to manage the property as a solid waste landfill.

In November of 2013 Environmental Technology prepared a Site Characterization/Risk Management Plan for Botanica. This plan set out the process to redevelop the site as a botanical garden. This remedial work recommended was enhancing and maintaining the existing cap. Future development will include cap materials and engineered drainage control that will limit surface water infiltration into the landfill.

In April of 2017 the Kentucky Division of Waste Management prepared Phase I Environmental Site Assessment for Waterfront Botanical Gardens. The entire site was found to be a Controlled Recognized Environmental Condition. Based on the amount of data and sampling already conducted a Phase II ESA was not needed.

### Project Goal

The site is planned to be developed as a botanical garden, by a private organization known as “Botanica.” The proposed future use of the site is a public botanical garden. The garden features and public areas would be located mainly on the flat, upper part of the site. Conceptually, the facility would include a domed conservatory, outdoor gardens, greenhouses, a gift shop, library, auditorium, butterfly house and parking lot. Access to the facility would likely be from Frankfort Avenue. The final design of all park features will be based on engineering and geotechnical studies to avoid possible subsidence issues, methane gas, and any other potential hazards associated with the former use of the site.

The property is not zoned for single family dwellings and Botanica does not foresee any future residential use of the property.

## II. Applicable Regulations and Cleanup Standards

### Cleanup Oversight Responsibility

The cleanup will be overseen by the Kentucky Department for Environmental Protection (KDEP). All documents prepared for this site are submitted to the state environmental department under Agency Interest # 52215.

### Cleanup Standards for major contaminants

It is anticipated that risk-based cleanup standards will be generated for compounds of concern, in accordance with state regulations.

### Laws & Regulations Applicable to the Cleanup

Laws and regulations that are applicable to this cleanup include the Federal Small

Business Liability Relief and Brownfields Revitalization Act, the Federal Davis-Bacon Act, and state environmental laws. Federal, state, and local laws regarding procurement of contractors to conduct the cleanup will be followed.

In addition, all appropriate permits (e.g., notify before you dig, soil transport/disposal manifests) will be obtained prior to the work commencing.

## III. Cleanup Alternatives

a. Cleanup Alternatives Considered

To address contamination at the Site, three different alternatives were considered,

including Alternative #1: No Action, Alternative #2: Maintaining the existing cap with additional soil vapor protection, and Alternative #3: Excavation with Offsite Disposal.

b. Evaluation of Cleanup Alternatives

To satisfy EPA requirements, the effectiveness, implementability, and cost of each

alternative must be considered prior to selecting a recommended cleanup alternative.

Effectiveness – Including Climate Change Considerations

• Alternative #1: No Action is not effective in controlling or preventing the exposure of receptors to contamination at the Site.

• Alternative #2: Capping is an effective way to prevent recreational receptors from coming into direct contact with contaminated soils, if the cap is maintained. To address the vapor intrusion risk, the capping alternative must also include installation of a system to mitigate vapors in any structures on the site. In addition, an institutional control (an Environmental Covenant) would need to be recorded on the deed to prevent residential use of the property.

• Alternative #3: Excavation with Offsite Disposal is an effective way to eliminate risk at the Site, since contamination will be removed and the exposure pathways will no longer exist.

Implementability

* Alternative #1: No Action is easy to implement since no actions will be conducted.
* Alternative #2: Maintaining the existing cap with additional soil vapor protections is relatively easy to implement, although ongoing monitoring and maintenance of the cap will require periodic coordination and reporting.

In addition, this alternative requires the installation and monitoring of a vapor mitigation system on any buildings and the implementation of a land use restriction on the property.

* Alternative #3: Excavation with Offsite Disposal is moderately difficult to implement. Coordination (e.g., dust suppression and monitoring) during cleanup activities and short-term disturbance to the community (e.g., trucks transporting contaminated soils and backfill) are anticipated. However, ongoing monitoring and maintenance will not be required following excavation and offsite disposal. Due to the amount of waste material which would be removed an extremely large amount of clean fill would be needed. One consideration that may make excavation slightly more difficult to implement is the increased frequency of heavy rainfall events that has been experienced in recent years in Louisville, Kentucky. Although efforts will be made to schedule the work in the dry weather months, the amount of precipitation over a short period of time from one of these heavy rainfall events could raise the groundwater level and increase dewatering needs.

Cost

* There will be no costs under Alternative #1: No Action.

• It is estimated that Alternative #2: Maintaining the existing cap with additional soil vapor protections costs will be on the order of $150,000.

* Alternative #3: Excavation with Offsite Disposal is estimated to cost roughly $850,000. Costs for this alternative could increase if a heavy rainfall event occurs during remediation, increasing dewatering needs.

c. Recommended Cleanup Alternative

The recommended cleanup alternative is Alternative #2: Capping with additional soil vapor protections.

Alternative #1: No Action cannot be recommended since it does not address site risks.

Alternative #2: Maintaining the existing cap is less expensive than excavating soils and disposing them offsite.

Alternative #3: Excavation and Offsite Disposal will be the most expensive and the most difficult to implement. For these reasons, Alternative #2: Maintaining the existing cap with additional soil vapor protections is the recommended alternative.

Green and Sustainable Remediation Measures for Selected Alternative

To make the selected alternative greener, or more sustainable, several techniques are planned. The most recent Best Management Practices (BMPs) issued under ASTM Standard E-2893: Standard Guide for Greener Cleanups will be used as a reference in this effort. Botanica will require the cleanup contractor to follow an idle-reduction policy and use heavy equipment with advanced emissions controls operated on ultra-low sulfur diesel. The excavation work would be conducted during the dry-weather months (summertime) in order to minimize groundwater infiltration into the excavation area, in turn reducing dewatering needs and the amount of dewatering liquids requiring disposal/treatment. The number of mobilizations to the Site would be minimized and

erosion control measures would be used to minimize runoff into environmentally sensitive areas. In addition, Botanica plans to ask bidding cleanup contractors to propose additional green remediation techniques in their response to the Request for Proposals for the cleanup contract.