

ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES

U.S. EPA Brownfield Revolving Loan Fund Cooperative Agreement # BF-00E48101-B Indiana Brownfields Program Site No. 4000041

Former Colonial Bakery Property 920 East 24th Street and 2408-2444 North Winthrop Avenue Indianapolis, Marion County, Indiana June 2019

This Analysis of Brownfield Cleanup Alternatives (ABCA) was cooperatively prepared by the Indiana Brownfields Program (Program), the City of Indianapolis (City), and Industrial Waste Management Consulting Group, LLC (IWM Consulting) as a requirement for utilizing United States Environmental Protection Agency (U.S. EPA) Revolving Loan Fund (RLF) monies to remediate a brownfield. The Former Colonial Bakery Property (EPA ACRES ID: 53960 and Indiana Brownfield Site ID: 4000041) located at 920 East 24th Street and 2408-2444 North Winthrop Avenue in Indianapolis, Marion County, Indiana (Site) is currently an unoccupied former truck service garage and maintenance facility. The Site operations also included the storage of petroleum products and potentially hazardous substances. Four (4) underground storage tanks (USTs) for gasoline and diesel fuel were formerly located on the northwest portion of the Site, six (6) hydraulic lifts were formerly located on the north portion of the Site, and an oil/water separator (OWS) was formerly located on the northeast portion of the Site. The fill material historically utilized at the Site (primarily beneath the southern parking lot) is from an unknown origin and the fill appears to potentially have been contaminated prior to being imported to the Site, thus it is believed to be the primary source of heavy metals and polynuclear aromatic hydrocarbon (PAH) contamination in soils at the Site. This ABCA presents remedial alternatives considered to mitigate potential exposure to contaminated soil associated with the historical release(s). Site redevelopment is expected to include multi-family residences as part of a comprehensive community redevelopment project.

Site Details

Site Name: Former Colonial Bakery Property
920 East 24th Street and 2408-2444 North Winthrop Avenue
Indianapolis, Marion County, Indiana

Property Owner: 920 East 24th Street and 2408-2434 North Winthrop Avenue
City of Indianapolis
Department of Metropolitan Development
200 East Washington Street, Suite 2042
Indianapolis, Indiana 46204

2444 North Winthrop Avenue
Renew Indianapolis Properties, LLC
202 East Market Street
Indianapolis, Indiana 46204

Site Representative: Mr. Piers Kirby
Principal Program Manager
Brownfield Redevelopment Program
City of Indianapolis
Department of Metropolitan Development
200 East Washington Street, Suite 2042
Indianapolis, Indiana 46204

Summary of Previous Site Activities

Site History

Historical review indicates the Site use was residential from as early as 1915 up through the mid-1950s. Colonial Baking Company utilized the Site for warehouse storage, truck loading, and truck repair from the mid-1950s to at least the 1990s; however, trucking activities continued on the Site up until 2007. In general, the far northern portion of the Site was historically occupied by the former truck service garage and maintenance facility building. The remaining portions of the Site south of the building were used for parking and historical aerial photographs document heavy surface staining throughout the parking lot area south of the former building. The building on-Site was raised by 2008 and the Site has remained vacant since that time.

Previous Environmental Assessments/Environmental Investigations

Environmental conditions at the Site were assessed between 2007 and 2013. Historical environmental assessments and investigations of the Site were documented in the following reports, which are described below.

1. IWM Consulting Group, LLC, 2007, Phase I Environmental Site Assessment
2. Keramida Environmental, Inc., 2008, Soil Removal and Further Site Investigation
3. IWM Consulting Group, LLC, 2012, Phase II Environmental Site Assessment
4. IWM Consulting Group, LLC, 2013, Further Site Investigation

IWM Consulting Group, LLC, Phase I Environmental Assessment, February 28, 2007

The following Recognized Environmental Concerns (RECs) were identified by IWM Consulting during a 2007 Phase I Environmental Site Assessment (ESA).

- One (1) vent pipe was identified on the exterior, northwest area of the former truck service garage. One (1) additional vent pipe was identified on the west side of a former fuel dispenser island raised concrete pad. The former fuel dispenser island concrete pad is north of the former truck wash bays.
- Several hydraulic lines and vent lines were noted along the north interior wall of the former truck service garage. It appears that six (6) hydraulic lifts are located with the four (4) former service bays within the former truck service garage. Additional vent lines were noted in the southwest corner of the former truck

service garage. It appears that a former UST may have been excavated in this portion of the building. Heavy surface staining was also noted in the southwest corner of the building.

- Several 55-gallon drums containing used motor oil, used hydraulic oil, and used antifreeze were noted in the west storage room and throughout the interior of the former truck service garage building. Most of the drums are unlabeled. The former truck wash area contained approximately 100-150 used truck tires.
- The former truck service garage is littered with miscellaneous truck parts, truck assemblies, furniture, equipment, tools, batteries, and numerous partially full containers of gear oil, hydraulic oil, used oil, and antifreeze ranging in size from one (1) gallon to five (5) gallons. Most of these containers are unlabeled.
- The exterior south back lot contains numerous gasoline tanks, truck parts/assemblies, miscellaneous metal debris, batteries, and empty drums. Three (3) 55-gallon drums containing used oil are stored at the southwest corner of the former truck service garage building. One (1) of the drums was leaking used oil on the ground at this location. Additionally, one (1) empty 500-gallon aboveground storage tank (AST) and one (1) empty 1,000-gallon AST were noted further south of the building. Heavy surface staining was noted between the non-functional trucks closest to the former truck service garage. Additionally, one (1) dump pile of soil intermixed with three (3) crushed 55-gallon drums was noted adjacent to the empty 1,000-gallon AST.
- One (1) catch basin/grit pit was identified in the former truck wash bay building.

Keramida Environmental, Inc., Soil Removal and Further Site Investigation Report, August 6, 2008

Site investigation and remediation activities were conducted by Keramida Environmental, Inc. (Keramida) prior to and following demolition of the previously-mentioned former truck service garage building and former truck wash bay building. A geophysical survey of the Site was completed to try to identify buried USTs and/or other buried objects that may pose an environmental risk to the Site. Six (6) hydraulic lifts were removed from the Site in October 2007, prior to demolition of the buildings. Four (4) unregistered USTs, one (1) concrete OWS, and approximately 1,198 tons of petroleum- and hydraulic oil-impacted soil were removed from the Site in February 2008, following demolition of the buildings. Five (5) soil borings were advanced and five (5) monitoring wells (initially identified as MW-1 through MW-5 and subsequently identified as KMW-1 through KMW-5 beginning in 2012) were installed in the boring locations. Conclusions and recommendations provided by Keramida in the report are summarized below.

- Confirmation soil sample results indicated soil impacts around the hydraulic lifts and USTs were adequately removed to Indiana Department of Environmental Management (IDEM) Risk Integrated System of Closure (RISC) Industrial Default Closure Levels (IDCLs) and no further remediation of petroleum soil impacts is necessary for commercial/industrial land use. Total petroleum hydrocarbons (TPH)-extended range organics (ERO) impacts above RISC Residential Default Closure Levels (RDCLs) remain at two (2) locations in the vicinity of hydraulic lifts

#2 and #5. It is likely a small amount of additional soil could be excavated to achieve RDCLs. The TPH-ERO impacts at these lifts are below residential direct contact closure levels. The lack of detectable TPH-ERO in groundwater in the vicinity of the lifts (MW-1) indicates the TPH-ERO in soil is not leaching to groundwater. Therefore, there do not appear to be significant human health risks associated with this issue.

- Trichloroethene (TCE) was detected above the IDCL in soil above the water table in the eastern portion of the Site (MW-2) indicating the potential presence of an on-Site TCE source. TCE was detected in groundwater above the IDCL over most of the Site. A known TCE source exists upgradient of the Site on Yandes Street with comparable groundwater TCE concentrations. Additional investigation should be conducted to determine the source and extent of TCE in soil and groundwater at the Site, and to determine if any Site impacts are related to the upgradient source on Yandes Street. (Note: Later investigations of the Site and upgradient facility revealed that the TCE source was the upgradient facility.)
- TPH-ERO was detected above the IDCL and TPH-gasoline range organics (GRO) was detected above the RDCL in groundwater in the vicinity of the on-Site USTs (MW-3). Additional groundwater sampling at the western Site property boundary downgradient of MW-3 should be conducted to delineate their occurrence. Continued groundwater monitoring should also be conducted to determine the effect the soil removal has on reducing concentrations of these constituents in groundwater.

IWM Consulting Group, LLC, Phase II Environmental Site Assessment Report, December 20, 2012

A Phase II ESA was conducted by IWM Consulting between October 2012 and November 2012 to evaluate the near-surface soil on the Site and to further define the adsorbed and dissolved volatile organic compounds (VOCs) both vertically and horizontally through the Site and adjacent properties. Eight (8) surface soil borings (ISS-1 through ISS-8) and five (5) subsurface borings (ISB-18 through ISB-22) were advanced, and two (2) permanent groundwater monitoring wells (IMW-26 and IWM-27) were installed on the Site. Nineteen (19) other subsurface borings (ISB-1 through ISB-17, ISB-23, and ISB-24) and thirteen (13) other monitoring wells (IMW-15S, IMW-15D, IWM-16 through IMW-25, and IWM-28) were installed near the Site. The following results and conclusions for work conducted at the Site were provided by IWM Consulting in the Phase II ESA report.

- During the November 12, 2012 groundwater gauging event, the unconfined water table had an inferred groundwater flow direction toward the west/northwest, with a hydraulic gradient of approximately 0.004 feet/foot.
- A total of eight (8) near surface soil samples were obtained from the Site in order to evaluate the potential for near-surface soil impacts resulting from historical surface spills. It should be noted that since all of the areas sampled were beneath existing asphalt, the shallowest depth that the soil samples could be obtained was 0.5 -1.0 feet below surface grade (bsg). All of the soil samples had

adsorbed VOC concentrations less than the corresponding analytical reporting limit.

- One soil sample (ISS-2) had detectable adsorbed semi-volatile organic compound (SVOC) concentrations. Benzo(a) anthracene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene exceeded the corresponding IDEM *Remediation Closure Guide* (RCG) Residential Direct Contact Screening Levels (RDCSLs) (2.1 milligrams per kilogram (mg/kg), 2.1 mg/kg, and 2.1 mg/kg, respectively). Additionally, the benzo(a)pyrene and dibenzo(a,h)anthracene concentrations exceeded the corresponding RCG Commercial/Industrial Direct Contact Screening Levels (IDCSLs) (2.1 mg/kg and 2.1 mg/kg, respectively). Surface soil sample ISS-2 is located along the western portion of the Site and generally corresponds with an area which historically displayed surface staining.
- All of the soil samples had detectable concentrations of Priority Pollutant Metals (PPM). However, only the soil samples obtained from ISS-2 (arsenic and mercury in the duplicate soil sample from ISS-2), ISS-3 (arsenic), and ISS-7 (arsenic) had adsorbed metal concentrations exceeding the corresponding RCG IDCSLs.
- Prior to Site development, additional sampling activities should be completed in order to further define the extent of the near surface soil impacts and an evaluation should be made regarding the need for active remediation. Small targeted excavations in the vicinity of sample location ISS-2 and potentially sample locations ISS-3 or ISS-7 may be warranted prior to Site development based upon the current SVOC (ISS-2) and PPM concentrations (ISS-2, ISS-3, and ISS-7). Consideration should also be given to utilizing a statistical modeling program in order to develop a Site-specific exposure point concentration (EPC), once additional sampling points and analytical data have been obtained.
- All of the subsurface soil samples were obtained from the sampling interval immediately above the observed groundwater table. Adsorbed TCE is the only VOC detected at concentrations exceeding the corresponding RCG Screening Level at the Site.
- Adsorbed TCE was detected in two (2) of the subsurface soil samples (ISB-18 and ISB-19) at the Site at concentrations in excess of the corresponding RCG Residential Soil Migration to Groundwater Screening Level (Res MTGSL) (0.036 mg/kg). The adsorbed TCE concentrations ranged from 0.0527 mg/kg (ISB-18) to 0.0699 mg/kg (ISB-19). All of the soil samples had concentrations less than the corresponding RCG RDCSL (6.2 mg/kg) and RCG IDCSL (20 mg/kg).
- Although the soil samples obtained during this investigation were obtained from immediately above the groundwater table encountered during the drilling activities, historical fluctuations in the groundwater table has likely created a “smear zone” spanning depths both above and below the groundwater table encountered in October/November 2012.

- All of the subsurface soil samples with detectable concentrations of VOCs were obtained from depths greater than 20 feet bsg, suggesting that the VOCs have migrated laterally via the shallow groundwater.
- The lowest adsorbed TCE concentrations were detected along the eastern edge of the Site, west of Winthrop Avenue.
- Dissolved TCE is the only VOC detected at concentrations exceeding the corresponding RCG Residential Tap Groundwater Screening Level (Res TAP GWSL).
- Dissolved TCE was detected in four (4) discrete groundwater samples obtained from the shallow soil borings (ISB-18, ISB-19, ISB-21, and ISB-22) on the Site. The dissolved TCE concentrations ranged between 17.7 micrograms per liter ($\mu\text{g/L}$) (ISB-21W) and 598 $\mu\text{g/L}$ (ISB-18W). All of the discrete groundwater samples which exhibited the presence of TCE had concentrations exceeding the RCG Res TAP GWSL (5 $\mu\text{g/L}$) and RCG Residential Groundwater Vapor Exposure Screening Level (Res VE GWSL) (9.1 $\mu\text{g/L}$). Additionally, the groundwater samples obtained from soil borings ISB-18, ISB-19, and ISB-22 had dissolved TCE concentrations exceeding the corresponding RCG Commercial/Industrial Groundwater Vapor Exposure Screening Level (Indus VE GWSL) (38 $\mu\text{g/L}$).
- Dissolved TCE was detected in six (6) groundwater samples (IMW-26, IMW-27, KMW-1R, KMW-2, KMW-3, and KMW-4) obtained from the Site. The dissolved TCE concentrations ranged between 16 $\mu\text{g/L}$ (KMW-1R) and 600 $\mu\text{g/L}$ (IMW-26). All of the monitoring well groundwater samples which exhibited the presence of TCE had concentrations exceeding the RCG Res TAP GWSL (5 $\mu\text{g/L}$) and RCG Res VE GWSL (9.1 $\mu\text{g/L}$). Additionally, the groundwater samples obtained from monitoring wells IMW-26, IMW-27, KMW-2, KMW-3, and KMW-4 had dissolved TCE concentrations exceeding the corresponding RCG Indus VE GWSL (38 $\mu\text{g/L}$).
- The documented groundwater flow direction is west/northwest, which suggests that the dissolved VOCs detected on adjacent vacant lots to the west and on the Site may have originated from the hydraulically upgradient properties (Former Titan Industries property and Indiana Veneers property).

IWM Consulting Group, LLC, Further Site Investigation Report, May 13, 2013

Further site investigation (FSI) activities were conducted by IWM Consulting in April 2013 to further define the lateral and vertical extent of the adsorbed metals (arsenic, lead, and thallium) and select PAHs in the near-surface soil on the Site. Thirty-three (33) test trenches were completed at the Site around historical near-surface soil sampling locations ISS-2, ISS-3, ISS-7, and ISS-8 and in previously uninvestigated locations ISS-9 through ISS-13. Four (4) test trenches were completed near ISS-2 (ISS-2 N(1-2), ISS-2 E(1-2), ISS-2 E3, and ISS-2 S(1-2)); four (4) test trenches were completed near ISS-3 (ISS-3 N(1-8), ISS-3 E(1-5), ISS-3 S1, and ISS-W1); seven (7) test trenches were completed near ISS-7 (ISS-7 N1, ISS-7 S1, ISS-7 S2, ISS-7 S3, ISS-7 W1, ISS-7 W2, and ISS-7 W3); and three (3) test trenches were completed near ISS-8 (ISS-8 N1, ISS-8 E1, and ISS-8 W1). Seven (7) additional test trenches were also

completed near ISS-11 (ISS-11 N1, ISS-11 NE, ISS-11 E1, ISS-11 E2, ISS-11 SE, ISS-11 S1, and ISS-W1). The following results were provided by IWM Consulting in the FSI report.

- Confirmation soil samples obtained from ISS-7 S3, ISS-8 N1, ISS-11 (0.5-1), ISS-11 E1, and ISS-11 S1 exhibited arsenic concentrations above the RCG IDCSSL (16 mg/kg) and all other confirmation soil samples submitted for analysis exhibited arsenic concentrations above the RCG RDCSL (5.5 mg/kg), but below the RCG IDCSSL.
- Lead concentrations exceeded its RCG RDSL (400 mg/kg), but were below its RCG IDCSSL (1,300 mg/kg) in confirmation soil samples ISS-11 E2, ISS-11 S1, and ISS-11 SE. All other confirmation soil samples exhibited lead concentrations below the RCG RDCSL.
- Thallium concentrations were detected exceeding its RCG RDCSL (1.1 mg/kg), but below its RCG IDCSSL (10 mg/kg) in confirmation samples ISS-11 (0.5-1), ISS-11 E1, ISS-11 E2, ISS-11 S1, and ISS-11 SE. All other confirmation soil samples exhibited thallium concentrations below laboratory detection limits.
- Confirmation soil samples ISS-11 E1, ISS-11 E2, and ISS-11 SE exhibited mercury concentrations below its RCG RDCSL (3.1 mg/kg).
- Benzo(a)pyrene was detected above its RCG RDCSL (0.21 mg/kg) in confirmation soil samples ISS-2 E1 and ISS-11 (0.5-1). Dibenz(a,h)anthracene was detected above its RCG RDCSL (0.21 mg/kg) in confirmation soil sample ISS-11 (0.5-1). All other confirmation soil samples exhibited PAH concentrations below their corresponding RCG RDCSLs.

Summary of Site Characterization

The following summary of results and conclusions is supported by historical and recent Site investigations.

1. The Site is located in Section 25, Township 16 North, Range 3 East in Marion County as shown on **Figure 1**. The Site consists of ten (10) parcels encompassing approximately 1.33 acres combined and there are no Site structures present. The majority of the Site is improved with asphalt paving (poor condition) with vegetative cover present near the Site boundaries and northernmost portion of the Site. Properties in the immediate Site vicinity are occupied by a church (north), vacant (formerly industrial) land (east), and residences (south and west).
2. Historical review shows the Site was utilized for warehouse storage, truck loading, and truck repair from the mid-1950s up until 2007. The Site operations included the storage of petroleum products and potentially hazardous substances.

3. The nearest surface water feature to the Site is Fall Creek, located approximately 0.4 mile northwest, and down-gradient of the Site. Stone Creek and Treaty Creek converge approximately 0.7 mile to the southeast.
4. Previous environmental investigations conducted at the Site indicate that shallow groundwater beneath the Site is present in sand or silty sand present at depths of 22 to 26 feet bsg. Groundwater flow was determined to be west/northwest beneath the Site according to subsurface investigation activities completed by Keramida in 2008 and IWM in 2012 and 2013. This groundwater is not used as a source of potable water for the Site or surrounding properties. Potable water for the City of Indianapolis is obtained mainly from groundwater wells located approximately 1.75 miles southwest and 2.25 miles north-northeast of the Site. According to IDEM, the Site is not located within a regulated wellhead protection area.
5. Four (4) unregistered USTs storing gasoline and diesel fuel were historically operated facility for three (3) historical USTs. The installation date(s) of the USTs is unknown and they were removed in 2008. Two (2) additional unregistered USTs were reportedly removed from the Site in 1994.
6. Previous environmental assessments conducted at the Site between 2007 and 2013 identified several metals and PAHs in the near-surface soils on the Site at concentrations exceeding their respective RCG RDCSLs and/or IDCSLs.
7. Previous environmental assessments conducted at the Site between 2007 and 2013 identified dissolved TCE in the groundwater on the Site at concentrations exceeding its RCG Res TAP GWSL, RCG Res VE GWSL, and RCG Indus VE GWSL. The source of the TCE was identified as an up-gradient property. Groundwater at the up-gradient property and Site was treated by in-situ chemical injections during the first quarter 2017 and is monitored quarterly under Voluntary Remediation Program (VRP) No. 6140503.

Summary of Remedial Alternatives

1. Alternative 1 – No action.
2. Alternative 2 – Soil capping.
3. Alternative 3 – Targeted excavation and disposal.

Remedial Action Objectives

Environmental conditions at the Site and current land use suggest that the following human exposure routes represent potential risks for the indicated media and potentially exposed populations:

1. Direct contact with impacted surface and near-surface soil by future residents.

One (1) aspect of the Site is identified as needing corrective action based on the results of previous Site investigations. The IDEM RCG provides numeric remedial action objectives in the form of screening levels (SLs) for the relevant exposure routes and land uses. Land use at the Site is currently zoned commercial/industrial, but is anticipated to be rezoned to residential. Soil media exceeding applicable SLs include the following:

1. Surface and near surface soil media to depths of up to two (2) feet bsg exceed one (1) or more RCG RDCSL.

Analysis of Remedial Alternatives

The remedial action alternatives considered were evaluated using the following criteria:

(1) Effectiveness

- a. The degree to which the toxicity, mobility, and volume of the contamination is expected to be reduced.
- b. The degree to which a remedial action option, if implemented, will protect public health, safety and welfare and the environment over time.
- c. Taking into account any adverse impacts on public health, safety and welfare and the environment that may be posed during the construction and implementation period until case closure.

(2) Implementability

- a. The technical feasibility of constructing and implementing the remedial action option at the site or facility.
- b. The availability of materials, equipment, technologies and services needed to conduct the remedial action option.
- c. The administrative feasibility of the remedial action option, including activities and time needed to obtain any necessary licenses, permits or approvals; the presence of any federal or state, threatened or endangered species; and the technical feasibility of recycling, treatment, engineering controls, disposal or naturally occurring biodegradation; and the expected time frame needed to achieve the necessary restoration.

(3) Cost

- a. The following types of costs are generally associated with the remedial alternatives:
 - Capital costs, including both direct and indirect costs; Initial costs, including design and testing costs.
 - Annual operation and maintenance costs.

Remedial Alternatives

1. *Alternative 1 – No Action:* If no action is taken at the Site, the impacted soil will remain on the Site and it will not be a readily developable property. Additionally, if the Site is not secured, it is possible that the general public could come into direct contact with the impacted surface soils, thus creating a potential environmental, health, and welfare liability for the City of Indianapolis. This

option is considered the least environmentally protective and the impacts to the environment will continue for years to come.

- a. **Effectiveness** – None: This option does not decrease the toxicity, mobility, or volume of the contamination and does not protect human health, safety, welfare, or the environment.
 - b. **Implementability** – Easy: There are no required actions or technology necessary to implement this option.
 - c. **Cost** – None: This option does not require ongoing operation or maintenance costs. Any deficit incurred would be in the form of loss of potential income from redevelopment.
2. *Alternative 2 – Soil Capping*: The advantage of soil capping (importing two (2) feet of clean clay soil with a demarcation barrier) is that it quickly addresses the environmental and health risks associated with direct contact with contaminated surface soil located throughout portions of the Site. However, the contaminants are left in-situ at depths below two (2) feet and future construction or on-Site excavation workers at the Site may be exposed to the contaminants left in place when the Site is redeveloped or future residents at the Site may be exposed to the contaminants left in place if the soil is disturbed during redevelopment. Additionally, the elevation of the majority of the Site would be slightly higher than the surrounding properties.
- a. **Effectiveness** – Medium: This method is effective so long as the top two (2) feet of imported, clean clay soil is not disturbed at depths greater than 2 feet. There is a risk of exposure once disruption of the imported soil occurs during Site redevelopment.
 - b. **Implementability** – Easy: The Site is currently vacant, so no operations would be interrupted. However, the elevation of the Site would be raised 2 feet and thus the surface elevation would be much higher than the surrounding roadways and parcels. This would pose problems during future redevelopment activities. The time required to complete these activities is estimated to be 2 weeks.
 - c. **Cost** – Moderate: Costs would include clearing debris from the Site prior to installing geotextile fabric to serve as a demarcation barrier, importing up to 2-feet of clean clay soil and compacting, topping the clay soil with an impervious barrier and/or topsoil planted with a maintained grass surface. The estimated cost for this option is approximately \$200,000.
3. *Alternative 3 – Targeted Soil Excavation and Disposal*: The advantage of the targeted excavation and disposal portion of this option is that it expeditiously addresses the environmental concerns with respect to the petroleum products and/or hazardous substances adsorbed to the surface and near-surface soil and removes the impacted soil from the Site. The excavation areas can focus on source areas or only areas with the highest contaminant concentrations and alleviates any long-term effects with managing direct contact with the surface and near-surface soil.

In order to dispose of the Site soils at a local soil disposal facility as a non-hazardous solid waste, additional testing will be required to determine if the leachable arsenic and lead renders the soils characteristically hazardous.

Consequently, toxicity characteristic leaching procedure (TCLP) analyses is required to determine the leachability of those specific metals in soils. If the soils are determined to be hazardous based on TCLP analyses, the soils will be conditioned at an additional cost in order to change the leachability of the metals in the soil. If the soil conditioning is successful, the soils can be disposed of as non-hazardous solid waste instead of a hazardous waste.

Specifically, it is anticipated that the top two (2) feet of heavy metals and PAH-impacted soil (approximately 4,500 tons) will be removed from the majority of the Site (see **Proposed Excavation Area** figure). Soil samples collected from throughout the proposed excavation area will be pre-sampled and submitted for TCLP analysis for waste characterization. Confirmatory soil samples will be obtained from the base of the excavation to document the soil conditions post-excavation. A geotextile fabric may be placed at the base of the excavation to serve as a demarcation barrier prior to backfilling. Representatives from the Indiana Brownfields Program and IWM Consulting will review the results prior to backfilling in order to determine if the demarcation barrier is warranted. The excavation will then be backfilled with either granular fill or certified clean soil and compacted with the excavator bucket and tracks.

- a. **Effectiveness** – High: This method eliminates potential future direct contact risks with impacted surface/near surface soil (0-2 feet bgs).
- b. **Implementability** – Easy: The Site is currently vacant, so no operations would be interrupted. The time required to complete these activities is estimated to be 2-3 weeks.
- c. **Cost** – Moderate: Costs would include TCLP analyses, soil disposal, geotextile fabric, imported backfill, and general compaction of imported backfill. The projected cost to implement these activities is \$344,500.

Remedial Alternatives with Respect to Climate Change Conditions

An evaluation of several climate change consequences (e.g., rising sea level, increased frequency and intensity of flooding and/or extreme weather events, etc.) indicates that the Site is not likely to be materially affected by such conditions.

Recommendation for Site Remedy

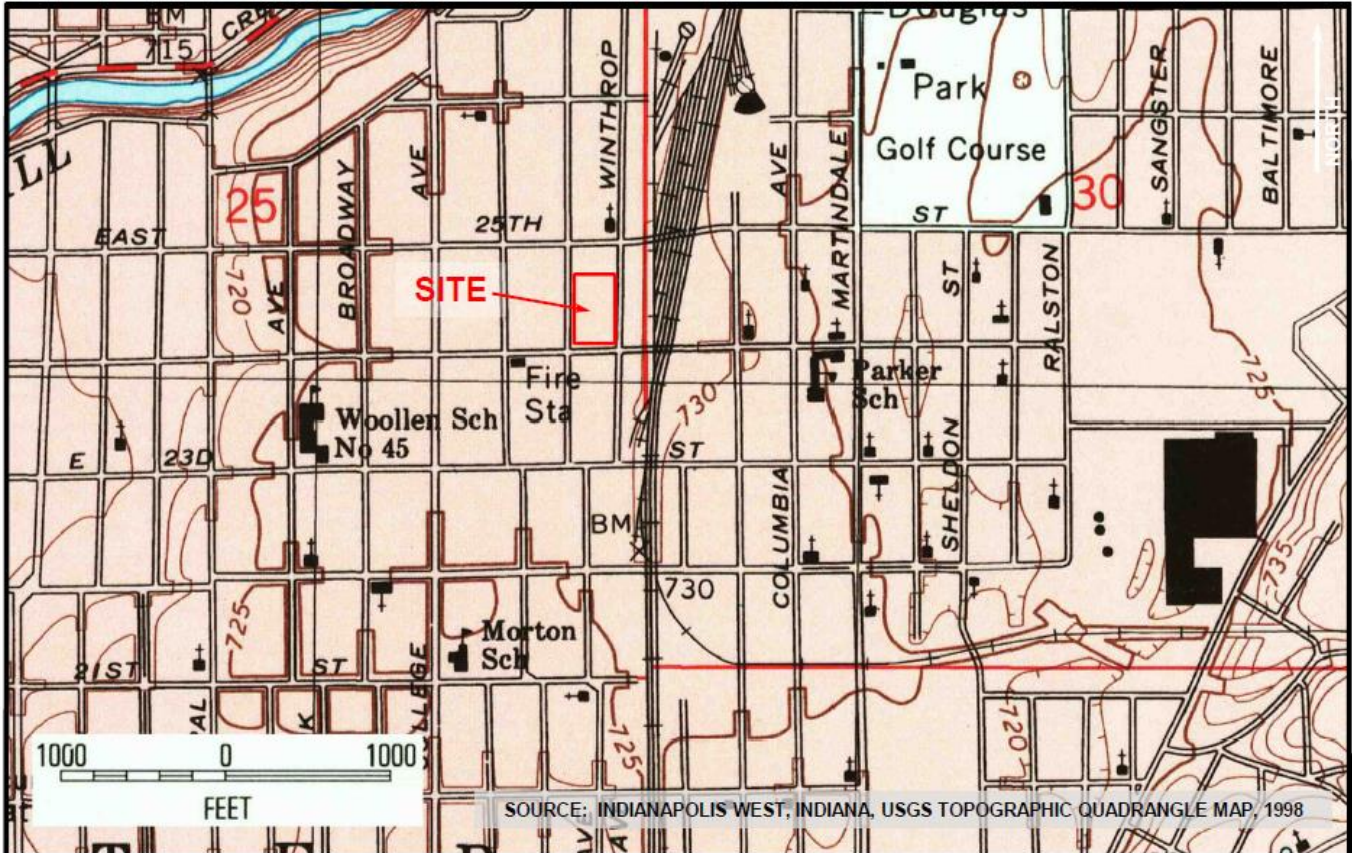
The most feasible and appropriate cleanup alternative is Alternative 3 (Targeted Excavation and Disposal). This remedial approach immediately remediates and removes areas with the highest contaminant concentrations and expeditiously minimizes potential exposure pathways. The approach promotes redevelopment of the Site by cleaning up the Site to levels below RCG RDCSLs and it is the most health protective option for future Site occupants and construction workers.


Decision Document

A decision document will be issued at the close of the designated public comment period with additional details on the selected alternative for Site remedy. The decision

document will serve as a notice to proceed with federally funded remediation activities and will be available in the local information repository for public review, along with this Site ABCA and other Site-related documents.

FIGURES



 <p>7428 Rockville Road Indianapolis, IN 46214 (317) 347-1111 Fax: (317) 347-9326</p>				TITLE	FIGURE 1 – Site Location Map Former Colonial Bakery Property 920 E. 24 th Street & 2408-2444 N. Winthrop Avenue Indianapolis, Indiana
				CLIENT	INDIANA BROWNFIELDS PROGRAM INDIANAPOLIS, INDIANA
Project	Task	Size	Date		
IN19016	01	A	04/29/2019		

