ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES

U.S. EPA Brownfield
Revolving Loan Fund Cooperative Agreement (CA)# BF-00E48101-B
Indiana Brownfields Program Site No. 4161215

Former Abe Sposeep & Sons, Inc. I
55 West Water Street
Wabash, Wabash County, Indiana
March 2019

This Analysis of Brownfield Cleanup Alternatives (ABCA) was cooperatively prepared by the Indiana Brownfields Program (Program), the City of Wabash, 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 Abe Sposeep & Sons, Inc. I (EPA ACRES ID: _____ and Indiana Brownfield Site ID: 4161215) located at 55 West Water Street in Wabash, Wabash County, Indiana (Site) is currently an unoccupied former junk shop and/or junk/scrap yard. The Site operations also included the storage of petroleum products and potentially hazardous substances. Three (3) underground storage tanks (USTs) for gasoline and diesel fuel were formerly located on the northwest portion of the Site. Former scrap metal storage, recycling, and processing operations at the Site are believed to be the primary source of heavy metals and poly-chlorinated biphenyl (PCB) contamination in soils at the Site. An aquifer located within unconsolidated, fractured limestone bedrock and the unconsolidated soil directly above the fractured bedrock surface is also impacted. This ABCA presents remedial alternatives considered to mitigate potential exposure to contaminated soil and groundwater associated with the historical release(s). Site redevelopment is expected to include renovating and/or remarketing of the property to existing or startup businesses as a component of ongoing downtown revitalization projects performed by the City of Wabash.

Site Details

Site Name:	Former Abe Sposeep & Sons, Inc. I 55 West Water Street Wabash, Wabash County, Indiana
Property Owner:	City of Wabash 202 South Wabash Street Wabash, Indiana 46992
Site Representative:	Mr. Scott A. Long Mayor, City of Wabash 202 South Wabash Street Wabash, Indiana 46992

Summary of Previous Site Activities

Site History

Historical review indicates the Site has been occupied since at least 1887. The basement, first floor, and second floor of the existing building were constructed in 1890, and Sanborn fire insurance maps show the third floor of the building was added between 1896 and 1901. Sanborn maps show the Site was part of a feed yard and was improved with warehouses, stables, and a blacksmith shop in 1887. The Sanborn maps show the Site was occupied by a junk shop with a warehouse for storing oil barrels and junk on the central portion of the Site from the 1890s to the early 1900s. The maps show the Site was occupied by a junk shop or a paper and rag warehouse from at least 1910 through 1931, and by a paper and rag warehouse and the Abe Sposeep & Sons junkyard from at least 1948 through 1961. Historical city directories and information provided by the Site owner indicate the Site was occupied by the Abe Sposeep & Sons scrap metal processing and recycling company from 1934 to 2003. The Site has been unoccupied since operations ceased in 2003. Site ownership was transferred from Abe Sposeep & Sons, Inc. to Spoco LLC in July 2003, and from Spoco LLC to the City of Wabash Redevelopment Commission in March 2018. The City of Wabash purchased the Site in July 2018.

Previous Environmental Assessments/Environmental Investigations

Environmental conditions at the Site were assessed between 2012 and 2018. Historical environmental assessments and investigations of the Site were documented in the following reports, which are described below.

1. Soil and Material Engineers, Inc., 2012, Phase I Environmental Site Assessment

2. Soil and Material Engineers, Inc., 2013, Phase II Environmental Site Assessment

3. IWM Consulting Group, LLC, 2017, Phase II Environmental Site Assessment

4. IWM Consulting Group, LLC, 2018, Phase I Environmental Site Assessment

Soil and Material Engineers, Inc., Phase I Environmental Assessment Report, December 21, 2012

The following Recognized Environmental Concerns (RECs) were identified by Soil and Materials Engineers, Inc. (SME) during a 2012 Phase I Environmental Site Assessment (ESA).

- The potential for environmental impact associated with unreported or undetected releases of hazardous substances or petroleum products associated with former scrap yard operations on the Property.

- The historical storage of drums of petroleum products and/or hazardous substances both inside and outside the building.

- The historical use of an underground storage tank system (UST) for storage and dispensing of gasoline and diesel fuel.

- The reported presence of contamination identified in a proposal from SES Environmental.
- The potential for environmental impact from unreported and/or undetected releases and subsequent migration of hazardous substances and/or petroleum products onto the Property from sites of current and/or historical automobile service, automotive painting, bulk petroleum storage and/or use, printing, and dry-cleaning operations located north, northeast, northwest, and south of the Property.

Additionally, a *Notification for Underground Storage Tanks* form dated May 9, 1992 indicating that one (1) 500-gallon gasoline tank, one (1) 1,000-gallon diesel tank, and one (1) 8,000-gallon diesel tank were closed through removal at the Site in April 1992 was included in the Phase I ESA Report completed by SME. According to SME, a UST Closure Assessment Report was not present in the Indiana Department of Environmental Management (IDEM) Virtual File Cabinet (VFC). Therefore, no analytical data for soil and/or groundwater samples collected during the UST closure was available for review.

Soil and Material Engineers, Inc., Report of Phase II Environmental Site Assessment, July 25, 2013

Site investigation activities were conducted by SME to further investigate the RECs identified in the December 2012 Phase I. Eleven (11) soil borings (SB1 through SB 11) and four (4) hand augers (HA1 through HA4) were proposed by SME for the Phase II ESA. Rationales for each sampling location were summarized in a *Sampling and Analysis Plan* (SAP) developed by SME and included in the Phase II ESA report. The order of RECs investigated correspond to the order of RECs presented in the Phase I ESA report (see above). Details of the investigation outlined by SME in the SAP are provided below.

- Borings SB2, SB3, SB5, SB7, SB8, and SB9 are intended to investigate historic salvage yard operations on the Property (REC No. 1) and the reported presence of contamination on the Property (REC No. 4). Borings SB3, SB5, and SB7 are also intended to investigate the historical storage of drums of petroleum products and/or hazardous substances outside the building (REC No. 2).

- Borings SB1, SB4, SB6, and SB10 are also intended to investigate historic salvage yard operations on the Property (REC No. 1) and potential migration of hazardous substances and/or petroleum products (via groundwater) onto the Property from off-site sources (REC No. 5).

- Boring SB11 is intended to investigate releases of petroleum products from the USTs that were located in the north central portion of the Property (REC No. 3).

- Hand auger borings HA1 through HA4 are intended to investigate the storage of drums in the basement of the building (REC No. 2).

According to the Phase II ESA report, the limited site investigation was conducted largely in accordance with the SAP, with the exception of two (2) hand auger borings instead of four (4) due to the construction of the basement, and the elimination of one (1) planned analyses from one (1) groundwater sample. Soil samples collected from the

soil borings were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), PCBs, and target metals (cadmium, trivalent and hexavalent chromium, lead, mercury, and zinc). Groundwater was encountered in seven (7) of the eleven (11) soil borings. Groundwater samples were analyzed for VOCs, SVOCs, and target metals. The following results and conclusions were provided by SME in the Phase II ESA report.

- Shallow soils are impacted with SVOCs, PCBs, cadmium, lead, and mercury at concentrations that exceeded one (1) or more of the IDEM *Remediation Closure Guide* (RCG) Direct Contact Screening Levels (Residential, Commercial/Industrial, Excavation Worker) and/or Soil Migration to Groundwater Levels.

- Hexavalent chromium and lead were detected in the soil samples collected from the soil piles in the basement of the building at concentrations exceeding their migration to groundwater screening levels; however, the soil piles were underlain by a concrete floor and, therefore, the hexavalent chromium and lead in the soil piles were not expected to impact groundwater.

- Groundwater is impacted with hexavalent chromium and lead at concentrations greater than the respective IDEM RCG Residential Screening Levels.

- Groundwater flow direction is towards the southeast.

- The lead concentrations exceeding the RCG Residential Tap Groundwater Screening Level were limited to the up-gradient portion of the site along the north site boundary.

- Hexavalent chromium was not detected in the soil samples from the borings where hexavalent chromium was detected in the groundwater samples at concentrations exceeding its RCG Residential Tap Groundwater Screening Level. Based on this information, SME concluded that the lead and hexavalent chromium detected in the groundwater samples may have originated from an off-site source.

- SME had been informed that redevelopment plans for the site were for use as a paved parking lot and did not include the use of groundwater for any purposes. SME recommended requesting a Comfort/Site Status Letter from the Indiana Finance Authority (IFA) Brownfields Program and indicated that an Environmental Restrictive Covenant (ERC) limiting the use of the site may have to be recorded for the site.

IWM Consulting Group, LLC, Phase II Environmental Site Assessment Report, August 16, 2017

A Phase II ESA was conducted by IWM Consulting to determine the presence/absence, nature and potential extent of contamination at the Site due to historical activities/operations. 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. Sixteen (16) surface soil borings (S1-GP1 through S1-GP16) and fourteen (14) subsurface borings (S1-GP17 through S1-GP30) were advanced, and ten (10)

temporary groundwater monitoring wells were installed. Statistical comparison of lead and other metals concentrations detected in the field by X-Ray Fluorescence (XRF) versus laboratory analytical results was performed to determine whether the XRF instrument could be used for field screening purposes and/or confirmation sampling. A professional survey was completed to better locate the horizontal and vertical position of subsurface boring locations and temporary monitoring wells. The following results and conclusions were provided by IWM Consulting in the Phase II ESA report.

- No buried objects were identified by the ground penetrating radar (GPR) survey; however, the presence of foundry sculls, metal fencing, metallic slag, and other metallic objects on or near the surface of the site limited the effectiveness of the GPR survey.

- Several surface soil samples contained concentrations of SVOC/polynuclear aromatic hydrocarbons (PAHs), arsenic, lead, mercury, and/or PCBs in excess of their respective RCG Residential Direct Contact Screening Levels (RDCSL) and/or Commercial/Industrial Direct Contact Screening Levels (IDCSL).

- Only two (2) subsurface soil samples contained arsenic, lead, and/or mercury at concentrations exceeding RCG IDCSLs.

- Only one (1) groundwater sample contained SVOCs/PAHs at concentrations exceeding RCG Residential Tap Groundwater Screening Levels (Res TAP GWSLs).

- Several groundwater samples contained PCBs, chromium, arsenic, cadmium, and/or lead.

The SVOC/PAH, PCB, and metals contaminants detected during the 2017 Phase II ESA and the spatial distribution of the contaminants were relatively consistent with the results obtained during the 2013 SME Phase II ESA. Surface soils with metals and PCB exceedances of RCG IDCSLs are located on the southern portion of the Site building and on the northwest side of the Site building. The groundwater flow direction was also determined to be similar to that identified in 2013. The surface soils on the site contain elevated concentrations of PCBs, arsenic, lead, and mercury, while the groundwater beneath the site contains elevated concentrations of PCBs, cadmium, total chromium, hexavalent chromium, and lead.

IWM Consulting Group, LLC, Phase I Environmental Site Assessment, April 3, 2018
The following RECs were identified by IWM Consulting during a 2018 Phase I ESA.

- Historical review shows the Site was occupied by junk shops and/or junk/scrap yards from at least 1893 to 2003. The Site operations included the storage of *petroleum products* and potentially *hazardous substances*. Three (3) USTs for gasoline and diesel fuel were formerly located on the northwest portion of the Site. No closure documents are available for the USTs. Environmental investigations conducted in 2013 and 2017 identified contaminants in the soil and groundwater at the Site at concentrations exceeding their current regulatory screening levels. Once redevelopment plans for the Site have been finalized,

further evaluation is necessary to determine the appropriate methods to manage and/or remediate the soil and groundwater contamination at the Site.

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 14, Township 27 North, Range 6 East in Wabash County as shown on **Figure 1**. The Site consists of 0.65 acres and is improved with a three-story commercial building with a basement, located on the north-central portion of the Site. The building contains approximately 9,828 square feet of floor space on the upper three (3) floors and 3,276 square feet of floor space in the basement. The remaining areas of the Site consist of a fenced storage yard, with a concrete drive and truck scale located along the east side of the building. Properties in the immediate Site vicinity are occupied by automobile dealerships, automobile service facilities, an automobile body shop, an insurance agent, government offices, and retail stores.

2. Historical review shows the Site was occupied by junk shops and/or junk/scrap yards from at least 1893 to 2003. The Site operations included the storage of petroleum products and potentially hazardous substances.

3. The nearest surface water feature to the Site is the Wabash River, located approximately 1,000 feet south-southeast, and down-gradient of the Site. Stone Creek and Treaty Creek converge approximately 0.7 mile to the southeast. Treaty Creek discharges to the Wabash River, approximately 0.3 mile east. Other surface water features near the Site include Charley Creek, located approximately 0.8 feet northwest of the Site.

4. Previous environmental investigations conducted at the Site indicate that shallow groundwater beneath the Site is present in clayey silt, silt, or sand present at depths of 11 to 15 feet below surface grade (bsg). Groundwater flow was determined to be southeast beneath the Site according to Phase II investigation activities completed by SME in 2013 and IWM in 2017. This groundwater is not used as a source of potable water for the Site or surrounding properties. Potable water for the City of Wabash is obtained mainly from groundwater wells located approximately half of a mile southeast of the convergence of Stone Creek and Treaty Creek. According to IDEM, the Site is not located within a regulated wellhead protection area.

5. The Site is registered as a UST facility for three (3) historical USTs storing gasoline and diesel fuel. The USTs were installed in 1978 and 1980 and were reportedly removed in 1992. No releases from the USTs were reported and no VOCs have been detected in soil or groundwater that indicate that a release occurred from the USTs.

6. Previous environmental assessments conducted at the Site in 2013 and 2017 identified several metals and PCBs in the soils on the Site at concentrations exceeding their respective RCG RDCSLs and/or IDCSLs and PAHs in the soil at

concentrations exceeding their respective RCG RDCSLs. The investigations also identified several metals (including hexavalent chromium), PCBs, and PAHs in the groundwater beneath the Site at concentrations exceeding their respective RCG Res TAP GWSLs.

Summary of Remedial Alternatives

1. Alternative 1 – No action.

2. Alternative 2 – Soil capping.

3. Alternative 3 – Targeted excavation and disposal following heavy metals stabilization as necessary.

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 soil, subsurface soil, or groundwater by on-site workers or future construction workers performing maintenance or excavation; and,

2. Ingestion of groundwater by future users of water wells that might be drilled at the Site.

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, and is expected to remain so for the foreseeable future. Soil or groundwater media exceeding applicable SLs include the following:

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

2. Subsurface soil media to variable depths that exceed one (1) or more RCG IDCSL.

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.

<u>Remedial Alternatives</u>

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 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 Wabash. This option is considered the least environmentally protective and the impacts to the environment will continue for years to come. This option does not include potential groundwater impacts.

   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) 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 onsite excavation workers at

the Site may be exposed to the contaminants left in place when the Site is redeveloped. Additionally, the elevation of the majority of the Site is already slightly higher than the surrounding properties. This option does not include potential groundwater impacts.

a. **Effectiveness** – Medium: This method is effective so long as the top two (2) feet of imported, clean clay soil is not disturbed. 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.
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.

3. *Alternative 3 – Targeted Soil Excavation and Disposal, and Groundwater Monitoring*: The advantage of the targeted excavation and disposal portion of this option is that it expeditiously addresses the environmental concerns with respect to the 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, lead, and/or mercury renders the soils hazardous. Consequently, toxicity characteristic leaching procedure (TCLP) analyses is required to determine the leachability of those specific metals in soils. No additional PCB sampling would be required as all historical PCB sampling results were less than 50 milligrams per kilogram (mg/kg). If the soils are determined to be hazardous based on TCLP analyses, the soils will be conditioned in order to change the leachability of the metals in the soil. The pH of the soil is altered by mixing a calcium silicate-based powder (pH soil amendment) with a pH between 11 and 12 (Blastox® 215) at a ratio of approximately three (3) to five (5) percent, depending on the TCLP results. Soil samples from the mixed materials will be re-analyzed for TCLP metals and those results will then be used to determine if the soils are still considered hazardous. If the soil stabilization 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 PCB-impacted soil (approximately 2,625 tons) will be removed from the majority of the Site. Soil samples collected from specific areas (see **Figure 2**) will be submitted for TCLP analysis and mixed with Blastox® 215 as necessary to modify soils sufficiently to dispose of them as non-hazardous solid waste. Confirmatory soil samples will be obtained from the base and sidewalls of the excavation to document the soil conditions post-excavation. Once the excavation has been adequately performed to appropriate screening levels, geotextile fabric will be

placed at the base of the excavation to serve as a demarcation barrier and the excavation will be backfilled with #53 crushed limestone and compacted to 95% of a Modified Proctor with a vibratory roller.

Additionally, four (4) monitoring wells will be installed to monitor groundwater conditions at the Site to determine whether elevated contaminant concentrations in previous groundwater samples were the result of bias due to high turbidity. The monitoring wells will be properly installed and developed and groundwater samples will be collected quarterly for four (4) consecutive quarters (one year) using low-flow sampling techniques and field-filtration.

a. **Effectiveness** – High: This method eliminates potential future direct contact risks with impacted surface soil.
b. **Implementability** – Easy: The Site is currently vacant, so no operations would be interrupted.
c. **Cost** – Moderate: Costs would include soil disposal, mixing with Blastox® 215 as necessary, TCLP analyses, geotextile fabric, imported limestone, compaction of imported limestone, and installation and monitoring of wells.

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.

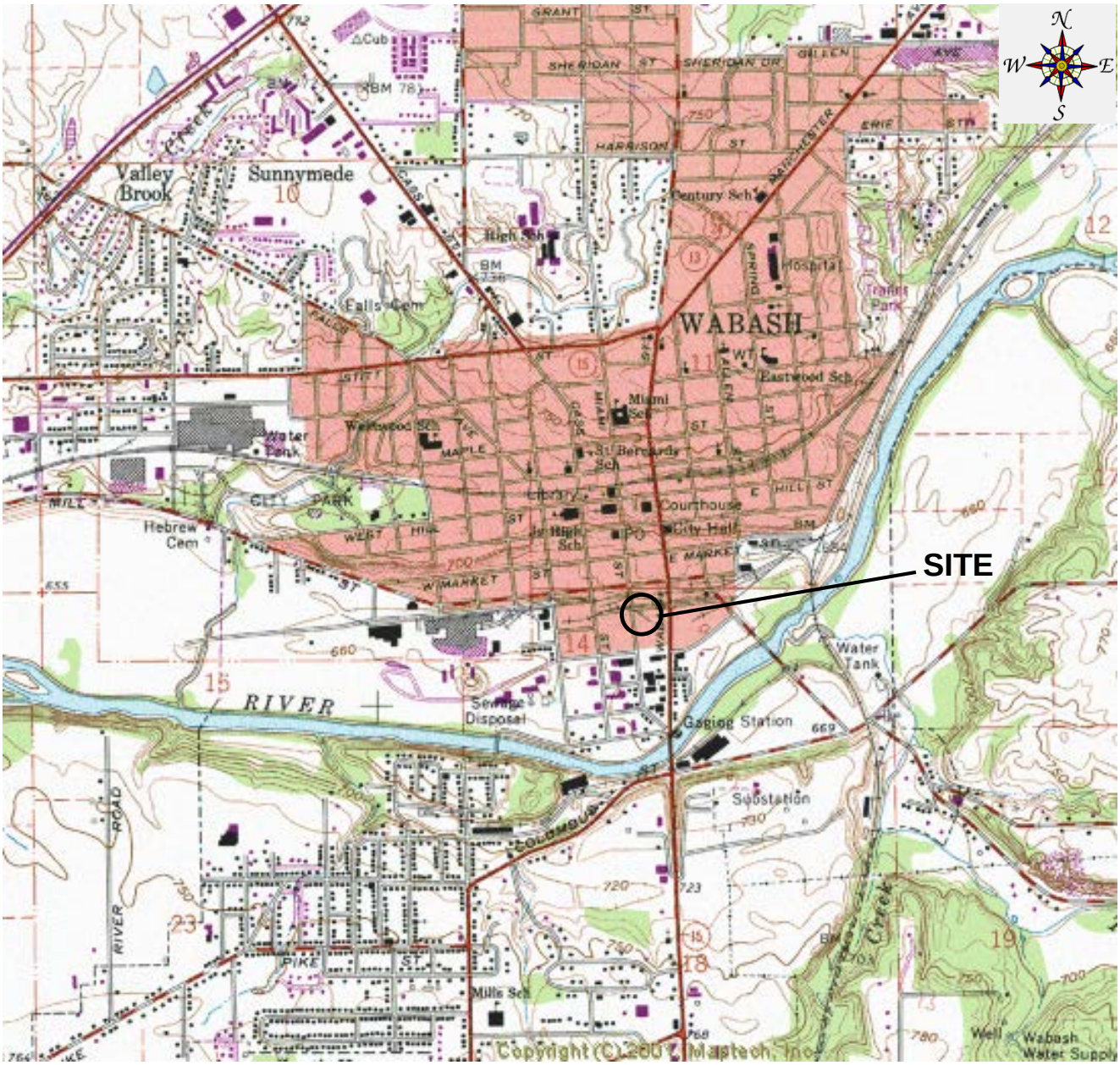
Recommendation for Site Remedy

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 IDCSLs 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 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



SCALE: 1 INCH = 2,000 FT

SOURCE: WABASH, INDIANA, USGS TOPOGRAPHIC QUADRANGLE MAP, 1963, REVISED 1981/1994

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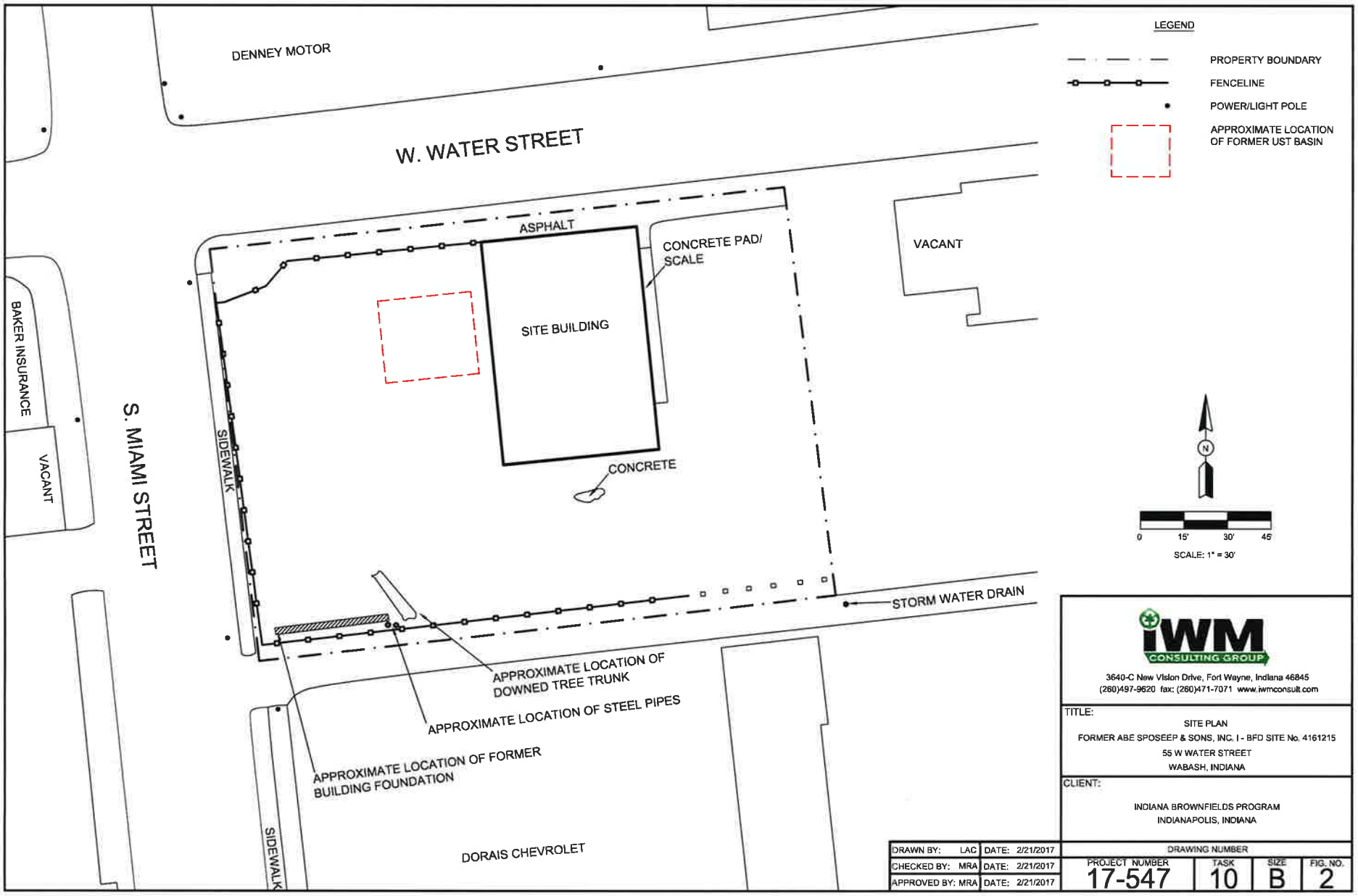
Project	Task	Size	Date
18-673	30	A	3/19/2019

TITLE **Figure 1 - Site Location Map**
Former Abe Sposeep & Sons, Inc. I
IBP Site No. 4161215
55 Water Street
Wabash, Wabash County, Indiana

CLIENT

Indiana Brownfields Program
Indianapolis, Indiana



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TITLE:
SITE PLAN
FORMER ABE SPOSEEP & SONS, INC. I - BFD SITE No. 4161215
55 W WATER STREET
WABASH, INDIANA

CLIENT:
INDIANA BROWNFIELDS PROGRAM
INDIANAPOLIS, INDIANA

DRAWN BY: LAC	DATE: 2/21/2017	DRAWING NUMBER	
CHECKED BY: MRA	DATE: 2/21/2017	PROJECT NUMBER: 17-547	TASK: 10
APPROVED BY: MRA	DATE: 2/21/2017	SIZE: B	FIG. NO.: 2