ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES

The Butler Company
325 South Broadway Street
Butler, DeKalb County, Indiana 46721
BFD #4170705
MPG #AA 00E02780
RLF #BF-00E48101-C

August 2020

Prepared for:

City of Butler
215 South Broadway Street
Butler, Indiana 46721

Indiana Brownfields Program
Indiana Finance Authority
100 North Senate Avenue, Room 1275
Indianapolis, Indiana 46204

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1.0 INTRODUCTION

This *Analysis of Brownfield Cleanup Alternatives* (ABCA) outlines environmental cleanup alternatives that were evaluated for federally funded remediation work to be conducted at a former manufacturing property called *The Butler Company* located at 325 South Broadway Street, Butler, DeKalb County, Indiana 46721 (hereinafter collectively referred to as the site). This will help mitigate blight and facilitate potential redevelopment.

The ABCA, required by the U.S. Environmental Protection Agency (U.S. EPA), was prepared in cooperation among the Indiana Finance Authority (IFA)/Indiana Brownfields Program (IBP), the City of Butler (City), and SES Environmental (SES). The City will utilize U.S. EPA brownfield funding -- Multipurpose Grant (MPG) and Revolving Loan Fund (RLF) – from the IFA through the IBP via subgrants to conduct remediation of hazardous substances (lead-contaminated soils) at the site (with RLF #BF-00E48101-C funds), as well as to conduct asbestos abatement and chemical container removal and disposal (with MPG #AA 00E2780 funds). Cleanup will help revitalize approximately 3.5 acres of blighted property in downtown Butler, Indiana. The City intends to redevelop the site for commercial use.

The ABCA is prepared in accordance with the public notice requirements of the respective IFA Brownfield Cooperative Agreements with the U.S. EPA.

2.0 SITE INFORMATION

The site consists of a 3.55-acre fire-damaged property located at 325 South Broadway Street, Butler, DeKalb County, Indiana. The site is identified by the DeKalb County Assessor's Offices as Parcel ID 23-07-12-109-001. Geographically, the site is located at approximately 41.4267450° north latitude and 84.8704460° west longitude. The central and west portions are covered with concrete and brick rubble associated with former building structures. Two buildings remain partially intact on the north and east portions. Remaining areas are covered with grass, trees, and scrub vegetation.

The area surrounding the site includes commercial businesses and residences. Railroad tracks are located north of the site with a laundry and carwash facility beyond. A bulk petroleum storage facility is located east of the site. East Willow Street is located south of the site with residences beyond. South Broadway Street is located west of the site with the Butler Public Library and Hathaway Park beyond. A Topographic Map and Site Area Map are presented in Appendix A as Figures 1 and 2, respectively.

Historical review indicates the site was first developed by The Butler Manufacturing Company in 1888. The site was sold in 1894 and was renamed "The Butler Company." Expansions and reconfigurations occurred throughout the 1890's as windmills, bicycles, buggies and mail wagons were manufactured on-site. An additional factory was built in 1906. A new foundry was built in 1918. Oil-bath style windmills were then constructed on-site. By the 1930s, The Butler Company site included a machine shop, foundry, paint shop, pipe shed, lumber shed, tin shop and storage building. A major fire destroyed the three-story storage building on the southwest portion of the site in 1958. The site was then used as a distributor of plumbing, heating, and cooling parts.

The building closest to the railroad tracks to the north of the site was used by the Carbola Chemical Company in approximately the late 1950's and early 1960's. The Butler Company continued as a jobber of electrical, plumbing, heating, cooling, and well drilling supplies until the facility was closed in 1997. The site was acquired by FSPI 401K Employee Profit Sharing Plan at a tax sale in 2012. A massive fire destroyed the site buildings on

March 26, 2015. The City of Butler acquired the site via a tax sale in January 2020. Contact information for involved parties are as follows.

Owner	**Indiana Brownfields Program / Indiana Finance Authority**	**Consultant**
City of Butler	Indiana Brownfields Program / Indiana Finance Authority	SES Environmental
215 South Broadway Street	100 North Senate Avenue, Suite 1275	3807 Transportation Drive
Butler, IN 46721	Indianapolis, IN 46204	Fort Wayne, IN 46818
Mike Hartman, Mayor	Tracey Michael, Project Manager	Glen A. Howard, Project Manager
Office: (260) 7868-5200	Office: 317-232-4402	Office: (260) 497-7645
mayor@butler.in.us	tmichael@ifa.in.gov	g.howard@sesadvantage.com

3.0 PREVIOUS INVESTIGATIONS

Environmental site assessments were conducted at the site between October 2017 and June 2019 and included Phase I and Phase II Environmental Site Assessments (ESAs). A site inspection was completed in May 2020. At that time, asbestos and lead-based paint surveys were conducted on building materials within the debris piles, as well as accessible standing buildings. A chemical inventory of petroleum and/or hazardous substances remaining on site was completed. A summary of each event is provided below. Additional details concerning investigation results are provided in the following documents:

- SES Environmental, November 10, 2017, *Phase I Environmental Site Assessment*
- SES Environmental, June 13, 2018, *Phase II Environmental Screening Report*
- SES Environmental, October 2018, *Phase I Environmental Site Assessment*
- SES Environmental, January 2019, *Analysis of Brownfield Cleanup Alternatives*
- SES Environmental, April 10, 2020, *Health and Safety Plan*
- SES Environmental, April 24, 2020, *Sampling and Analysis Plan*
- SES Environmental, June 8, 2020, *Field Activity Report*
- IDEM, January 18, 2019, *BFPP Comfort Letter and Institutional Controls*
- IWM Consulting Group, July 31, 2019, *Phase II Environmental Site Assessment Report*

3.1 Phase I Environmental Site Assessment – November 2017

SES Environmental (SES) conducted Phase I Environmental Site Assessment (ESA) between October and November 2017. The ESA included a visual inspection of the site and limited observations of surrounding properties, a review of historic land use, a review of regulatory listings, and interviews with persons potentially knowledgeable concerning site conditions. SES identified the following *recognized environmental conditions* (RECs) associated with the site:

REC#1 Historic manufacturing operations conducted at the site from at least 1898 until 1997 included a machine shop, painting and varnishing shops, plating, a foundry, and a chemical company. Hazardous substances and petroleum products including but not limited to oil, petroleum fuels, solvents, and/or metals were likely stored and used at the site. The potential exists of releases of hazardous substances or petroleum products to have occurred during the long history of manufacturing operations at the site.

REC#2 During investigation of a petroleum release at the east adjacent bulk plant, chlorinated solvents including trichloroethylene (TCE) were detected in a groundwater sample obtained approximately 200 feet east of the site. While the Indiana Department of Environmental Management (IDEM) issued "No Further Action"

status for the petroleum release, the source and extent of chlorinated solvent impact in groundwater was not determined.

REC#3 Evidence of underground storage tanks was not observed during the site inspection; however, a 10-barrel buried oil tank is depicted on the central portion of the site on a historical map from 1897, a gasoline tank is shown on the northeast portion of the site on a map from 1914, and a gasoline tank is shown west of the site beneath South Broadway Street on a map from 1923.

Based on the ESA findings, SES recommended a Phase II ESA to evaluate the identified RECs.

3.2 Screening Investigation – June 2018

A Phase II environmental screening investigation was conducted in May 2018 to further assess soil and groundwater conditions and to screen for contaminants of concern. The screening investigation consisted of advancing seven soil borings within and around former manufacturing buildings/areas. Boring locations are identified as 'A' through 'G' on Figure 4. Samples were collected at each boring location and analyzed for volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs) and metals. A sample of black peat-like material was also analyzed for polychlorinated biphenyls (PCBs). Collectively, borings were used to evaluate overall site conditions. Screening results are summarized as follows:

- A mixture of sand, clay, gravel, cinders, debris, and brick fragments was present at the surface. At boring C, paint debris and chips were observed. This fill material extended to depths of approximately 3 to 9 feet, followed by clay that extended to a depth of at least 20 feet (depth of exploration).
- Sand seams were occasionally interspersed with the clay and where present yielded groundwater, except at boring A. Perched water was also observed in the fill material. Groundwater flow direction was not assessed.
- Field evidence of contamination such as elevated PID responses and/or black staining was associated with the fill material. PID responses associated with the fill material generally ranged between 2 and 8 ppmv; however, PID responses ranged up to 56 ppmv at boring B.
- Volatile organic compounds (VOCs) were not detected in soil samples or the fill sample. Polychlorinated biphenyls (PCBs) were not detected in the collected peat-like material sample. Polycyclic aromatic hydrocarbons (PAHs) were not detected in soil or fill samples, except for a trace concentration of benzo(a)pyrene in fill at boring C. The detected benzo(a)pyrene concentration did not exceed any *residential* or *commercial/industrial remediation screening level.*
- Metals including barium, chromium, copper, lead, and zinc were detected in clay soil samples. These metals are known to occur naturally in soils and detected concentrations in clay soil samples did not exceed any *residential* or *commercial/industrial remediation screening level.*
- Metals including barium, cadmium, chromium, copper, lead, zinc, and mercury were detected in surface fill samples. The lead concentration in surface fill at boring A exceeded the *migration to groundwater screening level* but did not exceed *direct contact screening levels.* The lead concentration in near surface fill at boring C was 7,160 mg/kg and exceeded *remediation screening levels* that range from the most conservative 270 mg/kg to 1,000 mg/kg. Cadmium and mercury were also detected in the surface fill at boring C, along with paint chips and a potentially elevated chromium concentration. The chromium concentrations in the BC and BH samples ranged between 56 and 249 mg/kg, while the maximum concentration in all other samples was 14 mg/kg. The duplicate sample collected at boring C exhibited barium, cadmium, copper, and lead concentrations exceeding *remediation screening levels.*
- Volatile organic compounds (VOCs) were not detected in perched water or groundwater samples. Polycyclic aromatic hydrocarbons (PAHs) were not detected in perched water or groundwater samples. Metals including barium, chromium, copper, lead, and/or zinc were detected in groundwater samples. The total lead concentration in

groundwater samples D and E exceeded the *tap water screening level.* However, dissolved lead was not detected in these samples.

- Metals including barium, cadmium, chromium, copper, lead, selenium, and zinc were detected in perched water samples. The total lead, selenium, copper, and/or zinc concentrations exceeded *tap water screening levels.* However, dissolved metal concentrations did not exceed *tap water screening levels.*

This screening found no evidence of chlorinated solvent contamination and no further assessment of REC #2 was recommended. The screening found no evidence of petroleum contamination (REC #3); however, this screening investigation did not rule-out the possibility of localized petroleum contamination at historical buried tank areas.

With respect to the various metals detected in native clay soil and groundwater during this screening investigation, metal concentrations in native soil were well below *residential screening levels* and dissolved metals were not detected in groundwater. Based on this firm's review of native clay soil and groundwater testing results, these detected metals are consistent with naturally occurring concentrations, and therefore do not pose a concern and no further inquiry is recommended, at this time. If a higher level of confidence is required, background samples and permanent monitor wells would need to be collected and installed to statistically establish naturally occurring metal concentrations.

With respect to metals in surface fill material, which appears to be distributed over most of the site, the barium, cadmium, chromium, copper, lead, zinc, and mercury concentrations are evidence of contamination that poses a concern. SES recommended establishing *remediation objectives,* and conducting additional investigation to characterize the fill material, extent of metals (in solids and perched water), and potential exposure pathways.

3.3 Phase I Environmental Site Assessment – October 2018

SES conducted another Phase I Environmental Site Assessment (ESA) between September and October 2018 in preparation of a U.S. EPA grant and funding opportunity number EPA-OLEM-OBLR-18-07. The ESA included a visual inspection of the site and limited observations of surrounding properties, a review of historic land use, a review of regulatory listings, and interviews with persons potentially knowledgeable concerning site conditions. SES identified the following *recognized environmental conditions* (RECs) associated with the site during the completion of this Phase I ESA:

REC#1 Historic manufacturing operations conducted at the site from at least 1898 until 1997 included a machine shop, painting and varnishing shops, plating, a foundry, and a chemical company. Hazardous substances and petroleum products including but not limited to oil, petroleum fuels, solvents, and/or metals were likely stored and used at the site. Environmental investigation conducted in May 2018 found no evidence of petroleum or solvent contamination at the site; however, concentrations of metals, including barium, cadmium, chromium, copper, lead, zinc, and mercury, exceeded *remediation screening levels* in surface fill materials, which appeared to be distributed over most of the site.

REC#2 Evidence of underground storage tanks was not observed during the site inspection; however, a 10-barrel buried oil tank is depicted on the central portion of the site on a historical map from 1897, a gasoline tank is shown on the northeast portion of the site on a map from 1914, and a gasoline tank is shown west of the site beneath South Broadway Street on a map from 1923. Environmental investigation conducted in May 2018 found no evidence of petroleum contamination; however, the screening investigation did not rule-out the possibility of localized petroleum contamination at historical buried tank areas.

SES recommended additional environmental investigation to further evaluate the identified RECs.

3.4 Analysis of Brownfield Cleanup Alternatives – January 2019

In preparation of a U.S. EPA grant and funding opportunity number EPA-OLEM-OBLR-18-07, SES prepared an *Analysis of Brownfield Cleanup Alternatives* (ABCA). The ABCA outlined environmental cleanup alternatives that were evaluated to mitigate blight and facilitate potential redevelopment. The analysis included an evaluation of alternatives with respect to effectiveness and cost.

Remediation alternatives for metals in soil included (1) isolation, (2) immobilization, (3) physical separation, or (4) extraction. Each alternative is summarized below, along with conceptual application of isolation and extraction at the site. This *ABCA* determined that while there may be alternatives for addressing contamination at this particular site, given the known conditions, extraction and isolation/soil barrier would be the most effective corrective action alternatives. And isolation/soil barrier appeared to be the most cost effective.

3.5 Comfort Letter – January 2019

A comfort letter request package was issued to the Indiana Brownfields Program (IBP) in October 2018 to confirm the City of Butler has an exemption of environmental liability. The request package included a *Phase I Environmental Site Assessment* dated October 2, 2018 and a *Phase II Environmental Screening Report* dated June 13, 2018.

On December 5, 2018, Mitchell Smith (IBP) requested an affected area map with the location of boring "B" being a corner of the western most and southern most extent of the area and the northeast point of the site boundary being another corner. On December 26, 2018, Mr. Smith indicated the proposed Environmental Restrictive Covenant (ERC) for the site will state if the soil in the affected area is not removed then it will need 2 feet of cover. A *BFPP Comfort Letter* along with an ERC was issued in correspondence dated January 18, 2019.

3.6 IWM, Phase II Assessment – July 2019

"In accordance with the Indiana Brownfields Program (IBP) and United States Environmental Protection Agency (U.S. EPA) approved Sampling and Analysis Plan (SAP) dated April 16, 2019, Industrial Waste Management Consulting Group, LLC (IWM Consulting) conducted a Phase II Environmental Site Assessment (Phase II ESA) of The Butler Company property located at 325 South Broadway Street in Butler, DeKalb County, Indiana (site). The objective of the investigation was to determine the presence/absence, nature, and potential extent of contamination at the Site due to historical activities/operations. The environmental investigation was completed between May 15, 2019 and June 18, 2019."

"IWM Consulting conducted Phase II ESA field activities between May 15, 2019 and June 18, 2019. During the course of this assessment the following investigative activities were completed: A geophysical survey of the Site was completed by Ground Penetrating Radar Systems Inc. (GPRS), to identify potential buried underground storage tanks (USTs) and/or other buried objects that may pose an environmental risk to the Site. An asbestos survey of the building materials contained in debris piles (previously razed building structures) and the buildings still standing on the Site. A lead paint survey of the building materials contained in debris piles and the buildings still standing on the Site was performed with a hand-held X-ray fluorescence (XRF) analyzer. A chemical inventory of potential containerized petroleum and/or hazardous substances remaining on the Site was completed. Installation of nine (9) subsurface soil borings (BC-GP1 through BC-GP9) to depths of one (1) to two (2) feet beneath previously identified fill material at depths ranging from two (2) to seven (7) feet below surface

grade (bsg). The collection and analysis of eighteen (18) soil samples from the fill and underlying clay material. Installation of six (6) subsurface soil borings (BC-GP10 through BC-GP15) at depths up to 20 feet bsg to collect soil and groundwater samples for analysis. Installation of fifteen (15) shallow soil borings to a depth of two (2) feet bsg to delineate lead impacts in near surface soils in the vicinity of BC-GP3 and SES Environmental (SES) boring location "BC". Groundwater was collected and analyzed from six (6) temporary groundwater monitoring wells installed in borings BC-GP10 through BC-GP15. Collection and analysis of five (5) soil and five (5) groundwater samples from BC-GP10, BC-GP11, BC-GP12, BC-GP13, and BC-GP14 for analysis of polyfluoroalkyl substances (PFOAs) and perfluoroalkyl substances (PFOS), collectively identified as PFAS, from areas of the Site possibly impacted from fire-fighting chemicals during previous fires at the Site. Installation of three (3) soil vapor probes adjacent to soil borings that displayed elevated vapor readings during field screening and the subsequent attempted collection of soil gas samples for laboratory analysis. A professional survey by Maxwell Surveying & Engineering to locate the horizontal position of subsurface boring locations and the horizontal and vertical location of the temporary monitoring wells."

- A geophysical survey was performed/attempted on the Site by GPRS on May 15, 2019 to determine the presence/absence of the USTs and/or product piping on the Site. Not all areas of the Site could be scanned due to interference from debris. No buried metallic objects were detected/identified; however, two (2) areas with relic utilities were identified.

- For asbestos-sampling purposes, due to the conditions of the buildings at the Site, building materials were divided into five (5) primary areas (West Central Building debris, East Central Building debris, Central Shed/Kiosk, North Building, and East Building). A total of thirty (30) bulk samples of suspect asbestos-containing materials (ACMs) from each homogeneous area were collected in accordance with the requirements of 40 CFR 763.86. The suspect ACM samples included roofing materials, brick façade mortar, electrical wire insulation, transite-like panels, fire brick mortar, fire brick, window sealant, and electrical board paper backing. Roofing material samples from several locations contained between <1 and 5% chrysotile. Two (2) transite panel samples (BC-AB13 and BC-AB14) collected from the East Central Building exhaust stack debris contained 15-20% chrysotile. One (1) friable sample of paper backing (BC-AB21) collected from an electrical panel located near the East Central Building stack debris contained 40% chrysotile.

- IWM Consulting collected one (1) representative paint chip sample from the building near the east Site boundary, where the XRF instrument indicated a positive reading (>1.0%). The paint chip sample (red paint) was collected from the doorframe on the east side of the building and had a lead concentration of 18,000 parts per million (ppm), or 1.8 percent by weight.

- Several containerized chemicals including paints, dyes, and water treatment chemicals were identified within Site buildings and on exterior portions of the Site.

- IWM Consulting obtained a total of twenty-four (24) soil samples, comprised of both surface and subsurface soil samples, for the analysis Resource Conservation and Recovery Act (RCRA) 8 metals including copper and zinc and percent moisture. Additional soil samples were also submitted from each soil boring location for laboratory analysis of the toxicity characteristic leaching procedure (TCLP) RCRA 8 metals and hexavalent chromium (Cr (VI)), if necessary. Based on analytical results, Cr (VI) analysis was performed on BC-GP6-SB1 (3-4'), BC-GP8-SS1 (2-3'), and BC-GP9-SS1 (1-2') and TCLP lead analysis was performed on BC-GP3-SS1 (1-2'). Two (2) subsurface soil samples were collected from BC-GP7-SB1 (3-4') and BC-GP8-SB1 (3-4') for the analysis of volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) analysis. Eight (8) additional shallow soil samples collected from the vicinity of BC-GP3 and SES boring "BC" were analyzed for lead and percent moisture. No VOCs, PAHs, or PCBs were detected at concentrations exceeding their respective Indiana Department of Environmental Management (IDEM) *Remediation Closure Guide* (RCG) Residential

Migration to Groundwater Screening Levels (Res MTGSLs) in any soil sample. Each of the RCRA 8 metals including copper and zinc, except silver, were detected above their respective laboratory reporting limits (LRLs) in soil samples analyzed from the Site. Arsenic and lead were each detected in excess of their respective RCG Res MTGSLs, Residential Direct Contact Screening Levels (RDCSLs), and/or Commercial/Industrial Direct Contact Screening Levels (IDCSLs) in several soil samples. Due to the elevated concentration of lead detected in BC-GP3-SS1 (1-2'), TCLP lead analysis was performed on the sample. The three (3) soil samples exhibiting the highest concentrations of total chromium were also submitted for analysis of Cr (VI). The results indicate that Cr VI is not present in soil at concentrations exceeding RCG RDCSLs. Due to the concentrations of lead detected in BC-GP3-SS1 (1-2') at 3,160 milligram per kilogram (mg/kg) and SES boring "BC" (7,160 mg/kg and 28,700 mg/kg in the duplicate), shallow soil samples from depths of 1 to 2 feet bsg were collected from 5- to 10-feet in each cardinal direction of the aforementioned borings. Analytical results for the shallow soil samples identified lead at concentrations exceeding RCG Excavation Worker Direct Contact Screening Levels (EX DCSLs) in soil near these borings. Five (5) soil samples and a duplicate were collected and analyzed for PFAS from borings BC-GP10, BC-GP11, BC-GP12, BC-GP13, and BC-GP14. The PFAS Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) were detected in some of the samples ranging between 0.46 and 0.61 µg/kg.

- IWM Consulting obtained a total of six (6) groundwater samples for the analysis of VOCs, PAHs, total and dissolved RCRA 8 metals including copper and zinc, PCBs, and/or PFAS. No VOCs, PAHs, RCRA 8 metals including copper and zinc, or PCBs were detected in any groundwater sample at concentrations exceeding their respective RCG Residential Tap Groundwater Screening Levels (Res TAP GWSLs). Five (5) groundwater samples and a duplicate were collected and analyzed for PFAS from borings BC-GP10, BC-GP11, BC-GP12, BC-GP13, and BC-GP14. Eight (8) different PFAS compounds were detected in groundwater samples collected from BC-GP12 and/or BC-GP13 ranging from between 3.0 and 23 ng/L. Total PFAS ranged from 30.3 to 48.6 ng/L in BC-GP12 and BC-GP13, respectively.

- IWM Consulting obtained one (1) soil gas sample (BC-SG2) and its duplicate (BC-SG-FD1) for the analysis of VOCs. No contaminants were detected in the soil gas samples at concentrations exceeding their respective calculated RCG Commercial/Industrial Soil Gas Vapor Exposure Screening Levels (Indus SGe VESLs). Water infiltration and/or tight clays prevented the collection of soil gas samples from BC-SG1 and BC-SG3.

- Groundwater flow beneath the site was determined based on groundwater elevations from the temporary wells to flow to the south-southeast. The groundwater present beneath the site appears to be located within sandy unconsolidated sediments at depths ranging from approximately 19.63 feet bsg (BC-GP11) to approximately 21.18 feet bsg (BC-GP14). Groundwater flow was determined by surveying the elevations of the six (6) temporary well casings to within 1/100th of a foot and the spatial well placement on the Site to within 1/10th of a foot. Groundwater elevations were calculated based on gauging data collected on May 22, 2019."

"Due to the significant debris and metallic objects on the ground surface at the Site, the geophysical survey could not be successfully completed with the equipment utilized at the time of the survey. No obvious buried metallic objects resembling USTs were identified during the geophysical survey. ACMs were identified in roofing materials and exhaust stack components in the vicinity of the East Central Building and North Building. Asbestos is present in some of the building materials and should be handled appropriately. Lead based paint (LBP) was identified (1.8 percent by weight) on the East Building associated with the red paint but is below actionable concentrations of 5 percent by weight. Disposal considerations for these materials should be discussed with the disposal facility. Several containerized chemicals were identified in the North Building and near the East Building. An inventory of these materials was performed. However, none of these materials were sampled and/or analyzed to determine disposal options. In general, the most significant lead and arsenic soil impacts are in surface soils ranging from 0- to 3-feet bsg. No contaminants were detected in groundwater at concentrations exceeding their respective RCG Res TAP GWSLs. PFAS were detected in both soil and groundwater. There are

currently no IDEM RCG screening levels for soil or groundwater impacted with PFAS. No contaminants were detected in soil gas at concentrations exceeding their respective calculated RCG Indus SGe VESLs."

3.7 Field Activity Report – June 2020

In preparation of redevelopment, a Sampling and Analysis Plan (SAP) dated April 24, 2020 was proposed to collect additional information for use in building demolition/removal and debris/chemical removal planning. The goal of this proposed inspection was to identify and quantify materials to be removed from the site. Indiana Brownfields Program (IBP) indicated the *SAP* had been approved by the U.S. EPA in e-correspondence dated May 1, 2020.

SES personnel conducted a visual inspection of the building remnants and debris piles on May 7, 2020. A Certified Hazardous Material Manager (CHMM) also inspected the interior and exterior of the site buildings and debris piles to identify and inventory chemical containers, drums, totes, tanks, pits, etc. SES notes that the riveted steel tank is actually a 'smokestack' that had fallen over and is included in the east central debris pile. SES field staff did not observe any pits, buried tanks, or sumps. SES field staff noted that all observed 'suspected lower than grade features' were related to foundations, or crawlspaces of structures. Inspection areas were generally characterized within the following six areas.

- North building; consisting of a collapsed portion in the west, a standing building portion in the east, and a concrete enclosure at the east end.
- West building; consisting of debris piles over and surrounding the west building foundation.
- East central building; consisting of debris piles over and surrounding the east center building foundation.
- East building; consisting of a standing building.
- Kiosk; consists of a wooden structure near the center of the site.
- Perimeter debris piles; consist of debris piles along the east property line of the site.

Historic finding regarding suspect asbestos containing building materials (ACBM) and lead based paint (LBP) were compared to current conditions. The previously identified and sampled suspect (ACBM) were located; however, in instances where additional suspect materials were identified, bulk samples of the above materials were collected in accordance with U.S. EPA guidelines. Screening for lead-based paint (LBP) was conducted utilizing a handheld and calibrated Delta Pro XRF with results reported in milligram per square centimeter.

A CHMM inventoried visible chemical containers and items. Small containers were inventoried as a 'lab pack' for potential disposal at a Tradebe disposal facility. Universal wastes and larger containers were also inventoried, and profiles were prepared. Totes containing sand/sludge filtration material were observed inside and outside of the north building. Representative samples of the materials were obtained (one sample inside and one sample outside) for laboratory analysis and profiling purposes.

The collapsed west portion of the north building could not be thoroughly inspected beyond the top layer of debris. Regulated materials could be present beneath the collapsed portion of the building that was not readily visible during this inspection. The debris piles at the west building and the east center building appeared to have been moved from their original collapse locations. The debris piles were compact, and inspection was limited to exposed materials.

Previous LBP analytical results indicated the red paint on wood at the east building as LBP with a result of 1.8 percent by weight. The corresponding XRF reading was 0.96 mg/cm2. The current XRF reading of the same paint indicated a reading of 0.83 mg/cm2. An extrapolation of XRF data to the known LBP concentration indicates all identified red paint in the north, east, and east central building are LBP.

Foundry material, including slag, is known to be distributed throughout the site and interspersed with fill material that extends to depths of four feet.

SES recommended the following actions to be considered.

1) Complete the profiling of containerized materials and universal wastes and offsite disposal at approved, licensed facilities.
2) Abatement of the identified transite panels in debris piles at and near 'smokestack' following proper notifications to IDEM. Roofing tar at the north building is ACM but characterized as non-friable and will not require abatement personnel.
3) Segregation of metal for scrap metal recycling. The red colored paint is considered LBP and abatement may be necessary, unless regulatory recycling exclusion is obtained via the *RCRA Scrap Metal Exemption*. Regardless of recycling exclusions, this task must include building demolition and demolition notifications.
4) Segregation of red colored paint on wood surfaces and disposal at an approved, licensed facility.
5) Segregation debris into either (1) bricks for restoration and preservation; or (2) demolition debris for offsite disposal. During debris removal an asbestos inspector must be onsite to visually inspect for suspect ACBM, as the debris piles are disturbed, and materials are segregated. This task will require building demolition and demolition notifications.
6) An abatement team will need to respond to the presence of any identified regulated materials.
7) Impacted soils and groundwater monitoring will be required after the above actions are completed and/or in concert with the site *Remediation Work Plan*.
    a. Lead and arsenic along with foundry material are distributed throughout the surface fill material; however, previous assessment has shown only three general areas where lead and/or arsenic concentrations exceed *commercial/industrial direct contact screening levels.* These three general areas are shown on Figure 4 and are targeted for monitoring and extraction. Approximately 4000 cubic yards of soils/fill extending from the surface to depths of 2 to 3 feet are targeted for monitoring and removal.
    b. Groundwater monitoring will be conducted at up to five (5) monitor wells for two quarters to confirm contaminants in soil have not leached to groundwater. Groundwater monitor wells and groundwater monitoring will be conducted at the three previously described general areas, as well as at the northwest and southeast portions of the site as shown on Figure 6 (Groundwater Monitoring Areas). The groundwater monitoring may be initiated prior to soil extraction/removal.

Bricks for restoration and preservation should be stored at an offsite location, if possible.

3.8 Contemplated Redevelopment and Cost Estimates

As part of the City's desired expansion of its storm sewer system on the south side of the City, storm sewers extending through the former Butler Company site were considered. The removal and offsite disposal of fire damaged debris/structures, chemical containers, and impacted soils would be required to facilitate pipeline construction. A cost estimate for removal was prepared; however, after further review, the City determined the potential routing of a storm sewer main through this site property was no longer an option, and hence, soil capping could be pursued (e-correspondence from City, dated July 1, 2020).

A cost estimate for soil capping and soil removal were presented to IBP in e-correspondence dated July 17, 2020. The estimate cost for soil capping was $158,649. However, please be advised the extended cost for clearing and grubbing was not included in this calculation and with clearing and grubbing included the estimated cost is $164,649. The estimated removal cost was $315,747. Both estimates included preparations and workplans, container removal, abatement, and groundwater monitoring.

4.0 SITE CHARACTERIZATION SUMMARY

This section provides general information concerning local and site-specific conditions. This information was obtained from published sources and site reconnaissance.

- Surface drainage at the site is directed to storm drains along South Broadway Street to the west and toward a low-lying wooded area northeast of the site.
- The nearest surface-water feature to the site is Big Run located approximately ¾ mile to the northeast. Two ponds are located along Big Run, approximately one mile to the northeast. A stream identified as Mason Ditch is located approximately one mile to the southwest.
- Surface water on the site or in its immediate vicinity is not a source of local drinking water. The site area receives water from the City of Butler. The site is included in a Wellhead Protection Area.
- Debris piles are distributed throughout the site. The surface debris piles are depicted on Figure 3 in Appendix A.
- A mixture of sand, clay, gravel, cinders, debris, and brick fragments was present at the surface of the site. This fill material extends to depths of approximately 3 to 9 feet, followed by clay that extends to a depth of at least 20 feet (depth of exploration). Sand seams are occasionally interspersed with the clay and where present yielded groundwater. Perched water was occasionally present in the fill material. The inferred thickness of fill material /foundry material is shown on Figure 4 (green blocked data).
- Groundwater flow beneath the site was determined based on groundwater elevations from the temporary wells to flow to the south-southeast (Figure 6). The groundwater present beneath the site appears to be located within sandy unconsolidated sediments at depths ranging from approximately 19.63 feet bgs (BC-GP11) to approximately 21.18 feet bgs (BC-GP14).
- Geologically susceptible areas (e.g., surface-water bodies, karstic bedrock areas, etc.) have not been identified at or immediately surrounding the site. The nearest surface-water feature to the site is Big Run located approximately ¾ mile to the northeast. A *Freshwater Forested/Shrub Wetland* extends onto the northeast portion of the site and this area may be a potentially susceptible ecological area and habitat for animal species.
- Potentially susceptible community areas located adjacent to the site include residences to the south and recreation to the west. SES notes that offsite contamination is not known to be present.
- Investigation results indicate constituents of concern are limited to arsenic and lead in soil/fill; however, asbestos containing materials are identified as concerns, as well as the containerized chemicals and red-colored lead-based paint.
- Based on these tabulated results and site mapping contaminant concentrations exceed *RCG Commercial/Industrial Direct Contact Screening Levels* at the following three generalized areas

  Area 1) Lead contamination at southwest portion of site at sampling locations BC-GP-3- SS1 (1-2) and BC-GP3-S10 (1-2).

Area 2) Arsenic contamination at east central portion of site at sampling locations BC-GP7-SS1 (1-2), BC-GP-8-SS1 (2-3) and BC-GP14-SS1 (0.5-1.5).

Area 3) Arsenic and lead contamination at northeast portion of site at sampling locations BC, BC-GP16-E10 (1-2), and BC-GP-16-W5 (1-2).

- Asbestos containing materials (ACMs) were identified in the East Central Building debris pile and the North Building. ACMs included transite panels and roofing materials.

- A chemical inventory of petroleum and/or hazardous substances remaining on site was completed. Totes, drums, small containers (<10 gallons) of paints, dyes, and water filtration chemicals were identified during the inventory.

5.0 SUMMARY OF CORRECTIVE ACTION ALTERNATIVES

5.1 Corrective Action Objective and Proposed Remedial Approach

Based on the identified contaminants and concentrations, as well as inferred distribution of constituents of concern and the potential exposure risk to human health and the environment, soil barrier installation or removal is proposed at three areas where previous investigation results indicate lead and/or arsenic concentrations exceed *industrial direct contact screening levels*.

- Given the planned redevelopment of the site property for commercial use, industrial direct contact screening levels (IDCSL) published in IDEM's Remediation Closure Guide (RCG) would represent appropriate cleanup standards and sufficiently protective of human health. While this conclusion is subject to review by IDEM and U.S. EPA, we recommend proceeding under the premise that contamination concentrations will only need to be reduced to IDCSLs in order to obtain site closure status from the agency. Removal of surface impact should be considered, or a surface barrier should be constructed to prevent direct contact with contaminants.

Site work will also include the removal and offsite disposal of fire damaged debris/structures by City personnel with hazardous materials awareness training, the disposal of red colored lead-based paint during demolition under the supervision of SES contracted by IBP, the removal/disposal of asbestos by a licensed abatement contractor, and the removal/disposal of chemical containers under the supervision of a CHMM.

Groundwater monitoring is also proposed to confirm contaminants in soil have not leached to groundwater. Finally, a risk-based environmental remedy is anticipated to address any residual contaminants in soil/fill pursuant to the *BFPP Comfort Letter* and *Environmental Restrictive Covenant (ERC)* issued in IBP correspondence dated January 18, 2019. SES anticipates IBP will prepare a revised ERC following implementation and completion of the RWP.

Remediation alternatives for metals in soil/fill include three options. Each alternative is summarized below, along with conceptual application of isolation and extraction at the site.

1. No Action
2. Isolation
3. Extraction

5.2 Analysis of Corrective Action Alternatives

Corrective action alternatives were evaluated based on the following criteria.

1. Effectiveness
    a. The degree in which toxicity, mobility, and contaminant volume is expected to be reduced.
    b. The degree in which a corrective action will protect human health and the environment over time.
    c. Consideration for any adverse impact to human health and the environmental during corrective action implementation.

2. Implementation
    a. Technical feasibility of corrective action at the site.
    b. Availability of materials, equipment, and services needed to carry out corrective action.
    c. Administrative feasibility of corrective action (access agreements, permits, approvals from municipal, state, and/or federal agencies).

3. Cost
    a. Initial costs – planning and implementation (contractors, laboratory, etc.)
    b. Annual operation and maintenance costs

5.3 Corrective Action Alternatives – Impacted Soils/Fill

5.3.1 Alternative 1 – No Action

If no corrective action is conducted at the site, impacted soil, containers, and asbestos will remain in-place hindering redevelopment of the site. The direct contact exposure issue will remain a potential liability for the City of Butler. This alternative is the least protective of human health and the environment and will continue to be an issue until addressed.

1. Effectiveness: None. This alternative does not reduce the impact or exposure issues.
2. Implementation: Easy. No actions are required to implement this alternative.
3. Cost: None $0. This alternative does not require initial costs or annual costs.

5.3.2 Alternative 2 - Isolation

Isolation involves establishing engineering controls (physical barriers) to prevent direct contact with contaminated media and to prevent further migration. Following establishment of the barrier, an administrative or institutional control (IC) consisting of an enforceable legal mechanism for restricting land use and maintaining the barrier would be required.

As conceptually applied at this site, a surface barrier (pavement, membrane, clean soil layer) could be applied over the currently known affected area to address the concern of direct human contact and exposure to contaminants. Implementation would consist of applying soil as a barrier at the affected area to prevent direct contact. Coordination with property developers would be required to ensure the affected area is properly addressed.

This scenario also requires an Environmental Restrictive Covenant (ERC), with the ERC prohibiting the use of the affected area for residential purposes, requiring that any excavated contaminated soils be managed in accordance with all applicable federal and state laws, and requiring the barrier to be maintained.

1. Effectiveness: Medium. Isolation is an effective alternative as long as the barrier is properly maintained. Redevelopment plans would need to incorporate barriers to ensure exposure risk is addressed.
2. Implementation: Easy. The site is currently vacant.

3. Cost: Estimated $89,813. This cost only includes barrier construction by a licensed contractor ($73,327) and monitoring and sampling by an environmental professional during barrier construction ($16,486). Other associated costs, not tabulated here, include RWP preparations, the abatement, implementation, and closure reporting, as well as groundwater monitoring.

5.3.3 Alternative 3 - Extraction

Extraction is a process that consists of removing contaminated soil, followed by treatment or disposal. Typically, offsite disposal at a landfill facility is selected following extraction. As applied to this site, extraction would be a suitable alternative given the nature of contaminants and relatively shallow depth of contaminant occurrence.

As conceptually applied at this site, contaminated soils/debris in the currently known affected area would be removed to address the concern of direct human contact and exposure to contaminants. Fill/soil would be extracted and transported offsite to a local landfill. The excavations would be backfilled and topped with aggregate or topsoil. The surface of the site would be vegetated to prevent erosion and the topsoil/grass surface.

Given that this scenario only addresses industrial direct contact issues, an Environmental Restrictive Covenant (ERC) would still be required.

1. Effectiveness: Moderate. Extraction would eliminate the industrial direct contact exposure issue; however, impacted soil would still remain at the site.
2. Implementation: Moderate. The site is currently vacant; however, the lead-impacted soil once extracted may require treatment and stabilization.
3. Cost: Significant $261,236. This cost includes removal, amendments to soil for stabilization, and disposal ($239,231) and monitoring and sampling by an environmental professional during removal ($22,023). Other associated costs, not tabulated here, include RWP preparations, the abatement, implementation, and closure reporting, as well as groundwater monitoring.

5.4 Corrective Action Alternatives with Respect to Climate Change

A review of potential climate change scenarios was evaluated including increased flooding and increase in extreme weather events (tornados, blizzards, etc.). Results indicate the site is not likely to be influenced by the scenarios.

6.0 RECOMMENDATION FOR SITE REMEDY

This ABCA determined that while there may be alternatives for addressing contamination at this particular site, given the known conditions and proposed redevelopment, isolation (soil barrier) would be the most effective corrective action alternative to achieve conditional closure.

Corrective Alternative	*Effective*	*Estimated Cost*	*Extended Estimated Costs***
1. No Action	Impractical	$0	
2. Isolation *Soil Barrier*	Yes – *Includes Restrictions on Property Deed*	$89,813	$164,649

3. Extraction *Removal/Disposal*	Yes – *Includes Restrictions on Property Deed*	$261,236	$315,747

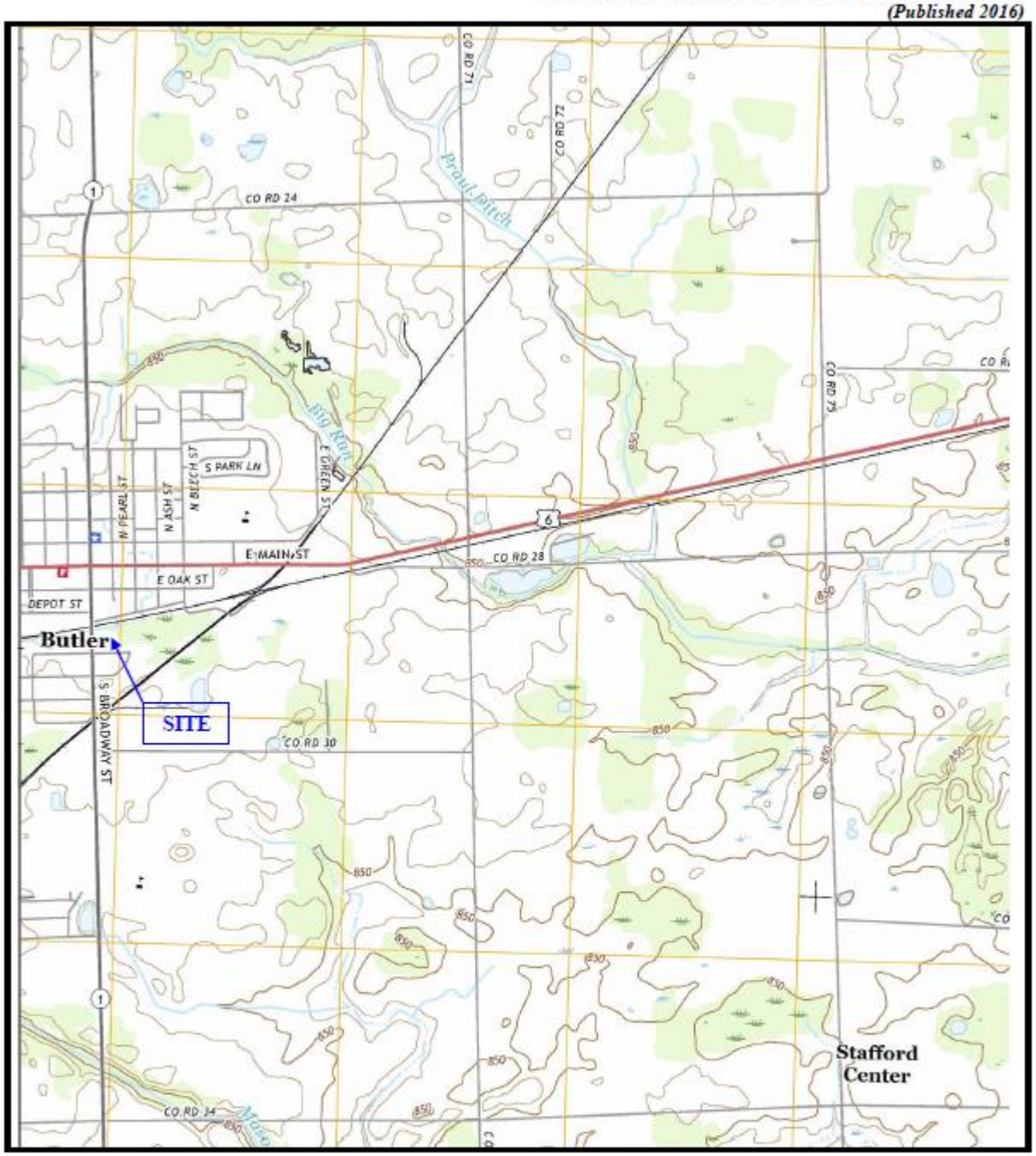
**As previously noted in Section 3.8, a cost estimate for soil capping and soil removal were presented to IBP. The cost estimates included preparations and workplans, container removal, abatement, and groundwater monitoring. Specifically, ABCA, CRP, RWP, QAPP, HASP, Davis Bacon, Container Material and Universal Waste Removal, Abatement, Monitoring, Implementation of Work Plans, and Groundwater Monitoring were included in these estimates.

A Decision Document will be provided at the end of the public comment period. It will provide additional details on the selected corrective action alternative. The document will serve as a notice to proceed with federally funded corrective action/remediation and will be provided to the public via the Information Repository indicated in the Community Relations Plan (CRP), along with this ABCA and other site documents.

APPENDIX A

FIGURES

Butler East, Indiana 7.5 Minute Quadrangle Map
(Published 2016)



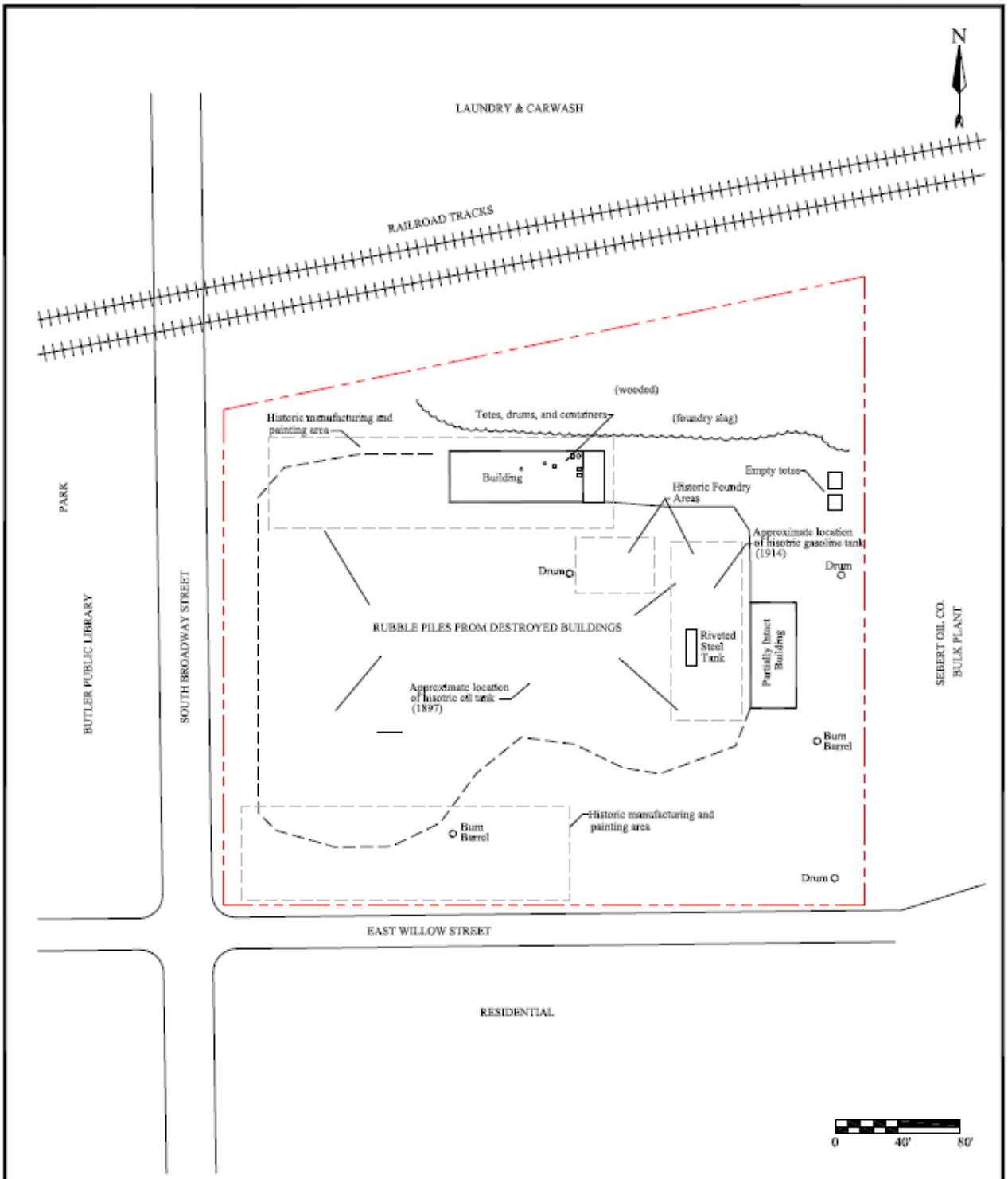
SCALE 1:24000 (1"=2,000')

1 ½ 0 1 Mile

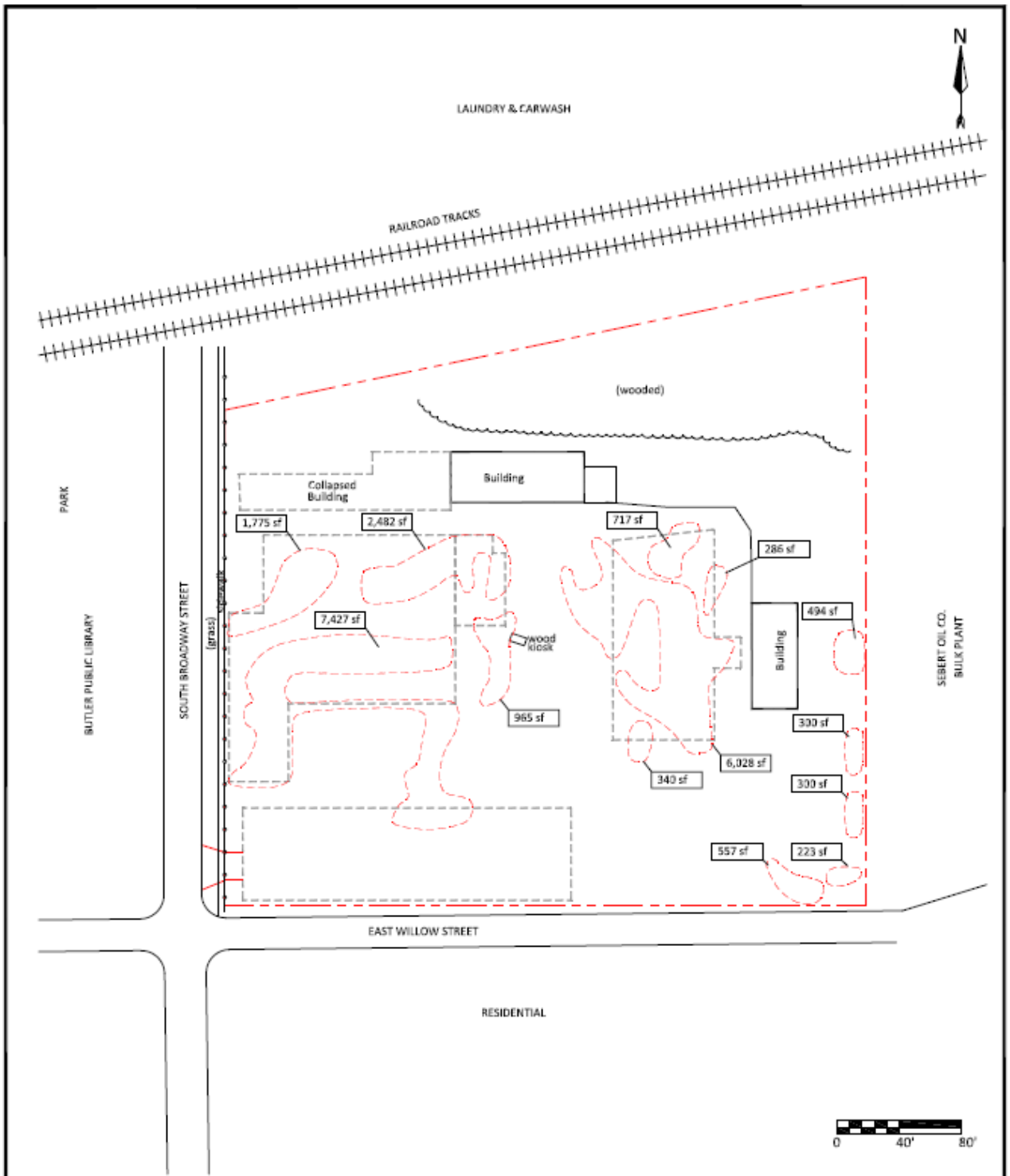
CONTOUR INTERVAL 10 FEET
Site Boundaries Shown are Approximate

Topographic Map **Figure 1**

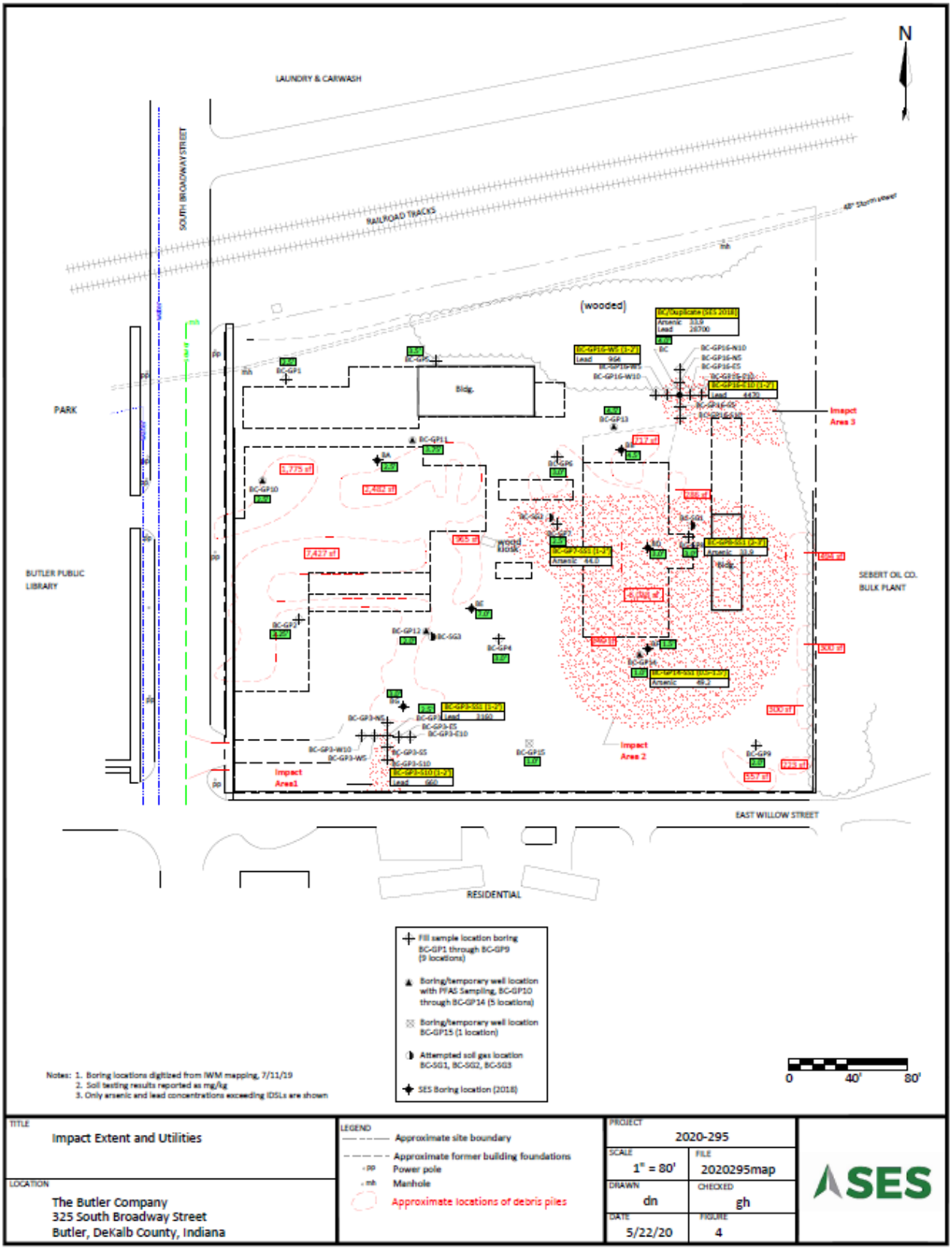
The Butler Company
325 South Broadway Street
Butler, DeKalb County, Indiana 46721
SES Project 2017-699



TITLE SITE AREA MAP Phase I Environmental Site Assessment	LEGEND Approximate site boundary	PROJECT 2017-699	
LOCATION The Butler Company 325 South Broadway Street Butler, DeKalb County, Indiana		SCALE 1" = 80'	FILE 2017699map
		DRAWN wg	CHECKED wg
		DATE 11/9/17	FIGURE 2



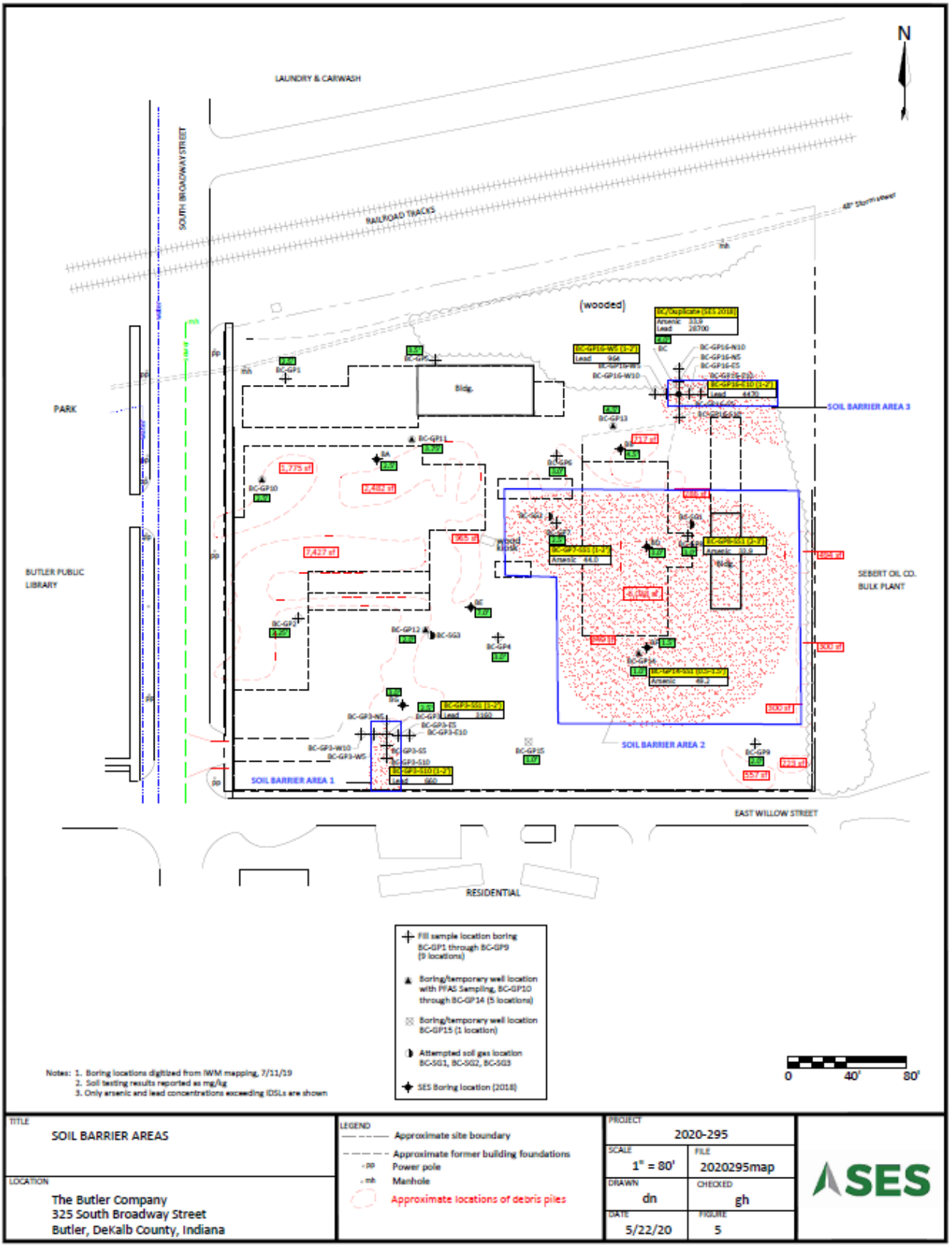
TITLE: **Debris Piles**	LEGEND: Approximate site boundary; Approximate location of former building walls/foundation; Approximate location of debris pile	PROJECT: 2020-295	
LOCATION: The Butler Company, 325 South Broadway Street, Butler, DeKalb County, Indiana		SCALE: 1" = 80' / FILE: 2020295map	
		DRAWN: wg / CHECKED: lk	
		DATE: 5/18/20 / FIGURE: 3	

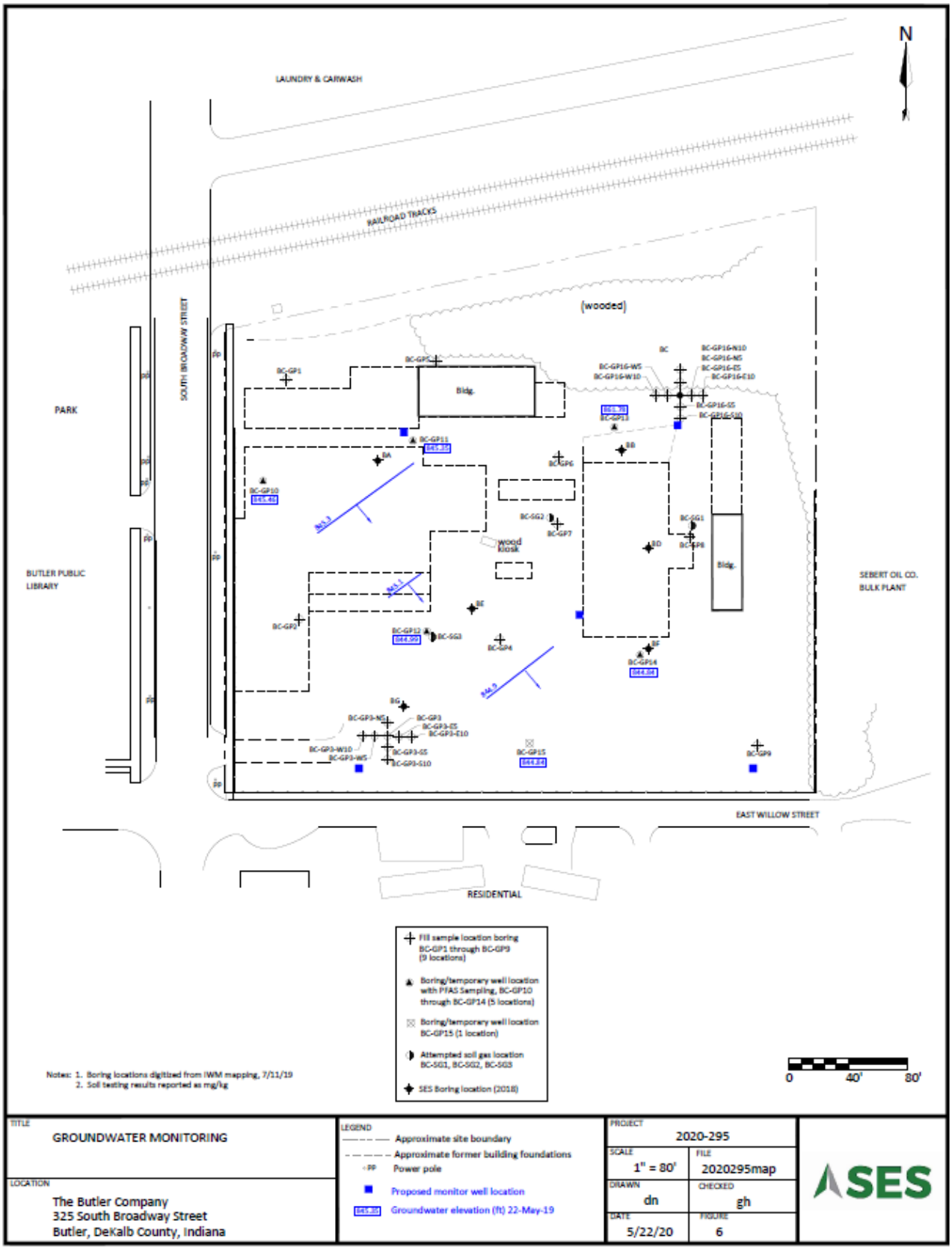


Notes: 1. Boring locations digitized from IWM mapping, 7/11/19
2. Soil testing results reported as mg/kg
3. Only arsenic and lead concentrations exceeding IDSLs are shown

TITLE: Impact Extent and Utilities	LEGEND: Approximate site boundary; Approximate former building foundations; pp Power pole; mh Manhole; Approximate locations of debris piles	PROJECT: 2020-295	
LOCATION: The Butler Company, 325 South Broadway Street, Butler, DeKalb County, Indiana		SCALE: 1" = 80'	FILE: 2020295map
		DRAWN: dn	CHECKED: gh
		DATE: 5/22/20	FIGURE: 4

SES


N
LAUNDRY & CARWASH
SOUTH BROADWAY STREET
RAILROAD TRACKS
48" Storm sewer
(wooded)
PARK
Bldg.
SOIL BARRIER AREA 3
BUTLER PUBLIC LIBRARY
SEBERT OIL CO. BULK PLANT
SOIL BARRIER AREA 2
SOIL BARRIER AREA 1
EAST WILLOW STREET
RESIDENTIAL
Fill sample location boring BC-GP1 through BC-GP9 (9 locations)
Boring/temporary well location with PFAS Sampling, BC-GP10 through BC-GP14 (5 locations)
Boring/temporary well location BC-GP15 (1 location)
Attempted soil gas location BC-SG1, BC-SG2, BC-SG3
SES Boring location (2018)
0
40'
80'
Notes: 1. Boring locations digitized from IWM mapping, 7/11/19
2. Soil testing results reported as mg/kg
3. Only arsenic and lead concentrations exceeding IDSLs are shown
TITLE
SOIL BARRIER AREAS
LOCATION
The Butler Company
325 South Broadway Street
Butler, DeKalb County, Indiana
LEGEND
Approximate site boundary
Approximate former building foundations
pp Power pole
mh Manhole
Approximate locations of debris piles
PROJECT
2020-295
SCALE
1" = 80'
FILE
2020295map
DRAWN
dn
CHECKED
gh
DATE
5/22/20
FIGURE
5
SES



TITLE: GROUNDWATER MONITORING	LEGEND: Approximate site boundary; Approximate former building foundations; PP Power pole; Proposed monitor well location; 845.00 Groundwater elevation (ft) 22-May-19	PROJECT: 2020-295	
LOCATION: The Butler Company, 325 South Broadway Street, Butler, DeKalb County, Indiana		SCALE: 1" = 80'	FILE: 2020295map
		DRAWN: dn	CHECKED: gh
		DATE: 5/22/20	FIGURE: 6

SES