ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES

RLF Subgrant – LaPorte Redevelopment Project/Verma
US HWY 35 & SR 39 (a.k.a. 408 Truesdell Avenue)
Laporte, Laporte County, Indiana 46350
BFD #4030051
RLF BF-00E48101-D

May 2021

Prepared for:

City of LaPorte
801 Michigan Avenue
LaPorte, Indiana 46350

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 former manufacturing properties located within the LaPorte Redevelopment Project/Verma Property, located at US HWY 35 & SR 39 (a.k.a. 408 Truesdell Avenue), Laporte, Laporte County, Indiana (project area/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 LaPorte (City), and SES Environmental (SES) contracted by IBP. The City will utilize U.S. EPA brownfield funding – Revolving Loan Fund (RLF) subgrant from the IFA through the IBP – to conduct remediation of hazardous substances (lead-contaminated soils) at a portion of the project area. Cleanup will help revitalize approximately two acres of blighted property north of downtown LaPorte, Indiana. The City intends to redevelop the project area/site for commercial use.

The ABCA is prepared in accordance with the public notice requirements of the IFA Brownfield Cooperative Agreement with the U.S. EPA (RLF #BF-00E48101-D).

2.0 GENERAL PROJECT SITE INFORMATION

The project area is located southeast of Truesdell Avenue and Chalmers Street, in the City of LaPorte in LaPorte County, Indiana. The project area is further located on the U.S.G.S. 7.5-Minute Series Topographic map of LaPorte East, Indiana (see Figure 1 in Appendix A) in the northeast quarter of Section 35, Township 37 North, Range 3 West.

The project area includes approximately 15 acres of mostly unimproved land; however, a medical office building was constructed over the south-southwest portion in 2020. Truesdell Avenue and Chalmers Street border the project area to the north and west, respectively, with unimproved land and baseball parks (Fox Memorial Park) beyond to the north. South of the project area is Clear Lake Boulevard and unimproved land. A roundabout is located immediately south of the medical building. East of the project area are two ponds followed by Hoelocker Drive and Clear Lake.

Historical review indicates the project area consisted of unimproved land and contained a portion of a pond (at the southeast corner) from 1912 to the 1960s. From approximately 1920 through the 1960s, the northwest portion of the project area was a drum storage area associated with a southwest adjoining foundry. The southwest portion of the project area appeared to be a staging/material storage area during this time. By 1970, a rectangular structure was constructed in the northeast corner of the project area, and by 1981, areas that were part of the pond to the southeast appeared to have been partially backfilled. From approximately 1992 through 2016, the northwest portion of the project area included various operations such as storage for wooden pallets and skids. Several environmental and subsurface investigations have taken place at the project area from 1995 through 2016 and have discovered potential contaminant impacts from historic activities that took place on the project area and adjoining properties. In 2019, a Remediation Work Plan (RWP), which included findings of new impacts on the project area, was drafted and issued to the Indiana Department of Environmental Management (IDEM) and a Revised RWP was issued in March 2020.

Remedial action began in 2019 and has/will include various efforts including soil excavation, soil stabilization, disposal, backfilling, and restoration activities. Remediation and restoration are ongoing throughout the central and north portions of the area. A project area map showing conceptual redevelopment plans is included as Figure 2 in Appendix A (sourced from Geosyntec's RWP).

Around 2020, a portion of the area was redeveloped with a large medical office building over the south-southwest portion (Figure 3 in Appendix A for site map showing waste pile). A large soil stockpile (approximate 0.6-acre area) remains southeast of the medical office building. The stockpile contains a mixture of soil and foundry sand that exhibits various concentrations primarily of heavy metals, polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbon (PAHs). Volatile organic compounds (VOCs) are also present in soils (at the project area). The stockpiled soil is considered a waste pile, and disposal at an approved solid waste landfill is proposed.

Contact information for involved parties are as follows:

Owner	**Indiana Brownfields Program / Indiana Finance Authority**	**Consultant**
City of LaPorte	Indiana Brownfields Program / Indiana Finance Authority	SES Environmental
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3.0 PREVIOUS INVESTIGATIONS

Several environmental and subsurface investigations have taken place at the project area from 1995 through 2016 and have discovered potential contaminant impacts from historic activities that took place on the project area and adjoining properties. In 2019, a Remediation Work Plan (RWP), which included findings of new impacts on the project area, was drafted and issued to IDEM, and a Revised RWP was issued in March 2020. Details concerning investigation results were provided in A&W's Phase I Environmental Site Assessment dated March 6, 2020, citing this assessment report:

> In November of 2014, Entact LLC (Entact) issued a draft investigation report, which included historic and subsurface data collection for the southeast portion of the project area and southwest adjoining properties. The purpose of the report was to present a summary of investigative data collected from the properties and identify data gaps that would be addressed prior to closure of the parcel through the Indiana Brownfields Program and IDEM. The report summarized several previous investigations at the facility between 1995 and 2007. Reportedly, a subsurface investigation was performed in 1995; however, analytical data for this investigation were not available for review. In 2002, the facility and surrounding properties were found to include historic waste disposal and chemical handling operations, in addition to identifying railroad sidings and railroad spurs associated with industrial activities. The currently vacant facility formally adjoining the project area to the southwest was also found to contain brass foundry, chemical laboratory, machine shop and paint booth operations. In 2002, a report also identified fill material, consisting of foundry sand, located in the northeast portion of the southwest adjoining facility, and a 200,000-gallon above-ground storage tank (AST) that historically stored waste solvents and fuel oil mixtures was located further south of the project area and southeast of the southwest adjoining facility. Historic plans also identified paint storage areas, a paint line, several electrical transformers and an oil and brine pit. The former facility personnel also

reported dumping hazardous waste near the railroad tracks; and approximately 300, 55-gallon waste paint, solvent and oil drums were identified to be stored in the south portion of the former foundry. Rusted drums (some visible and partially buried) were observed within and along the west pond, which is located abutting the project area to the southeast.

A total of 56 soil samples were collected from the southeast portion of the project area and southwest adjoining properties and were analyzed for Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), Polychlorinated Biphenyls (PCBs), metals and pesticides/herbicides. Several VOCs, SVOCs, PCBs, metals and pesticides/herbicides were detected in all soil samples. Groundwater was collected from four (4) permanent monitoring wells for analysis of VOCs, SVOCs, PCBs and total metals. VOCs, SVOCs and several metals were detected in each of the groundwater samples exceeding the residential groundwater screening levels at the time. It should be noted that filtered, dissolved phase metal concentrations were not analyzed to determine if concentrations were related to metals sample turbidity. Eight (8) sediment samples, collected from the ponds adjoining the project area to the southeast were analyzed for VOCs, metals, PCBs and SVOCs. VOCs, SVOCs, PCBs, total metals and pesticides were detected in some or all of the sediment samples above United States Environmental Protection Agency (USEPA) Screening Levels at the time. Surface water from the ponds was also collected and analyzed for VOCs, SVOCs, PCBs, total metals and pesticides, and identified the SVOC bis(2-ethylhexyl)phthalate and copper above then applicable USEPA Screening Levels.

In April of 2015, Entact issued a Sampling and Analysis Plan for the southeast portion of the project area and southwest adjoining properties. The purpose of the plan was to further provide data for the closure of the hazardous waste management units, release of identified solid waste management units and areas of concern identified during the previous investigation (November 2014 report).

In August of 2015, Geosyntec Consultants (Geosyntec) issued a Supplemental Site Investigation (SSI) Report for the southeast portion of the project area and southwest adjoining properties to further evaluate previously identified impacts and address data gaps that were identified in the Entact April 2015 Sampling and Analysis Plan. During the investigation, two (2) waste/debris piles were sampled, in addition to 43 concrete samples and 33 soil borings, 14 of which were converted to temporary groundwater monitoring wells, which were also sampled. Soil and groundwater were sampled for VOCs, SVOCs, PCBs, Target Analyte List (TAL) Metals and Total Mercury. Impacts to soil and groundwater were identified in the majority of areas sampled during the investigation. In regard to the southeast portion of the project area, several of the surface soil samples indicated metal concentrations above then applicable IDEM commercial/industrial screening levels, in addition to various VOCs and SVOCs. Groundwater analytical results from the southeast portion of the project area also indicated naphthalene and trimethylbenzene to be above the 2015 Groundwater Residential Tap Screening Levels.

In November of 2019, Geosyntec issued a Draft Remediation Work Plan (RWP) on behalf of the City of LaPorte, for approximately 15 acres of land, which included the entirety of the project area and surrounding properties. The RWP included details of a Site Characterization Report (SCR), performed by Geosyntec in August of 2017. Results of the August 2017 SCR identified project areas where soil was contaminated with lead, arsenic and PCBs above 2019 IDEM Remediation Closure Guide (RCG) Residential Screening Levels. Groundwater impacts were identified in temporary wells installed at the project area with chlorinated VOCs (cVOCs) trichloroethene (TCE) and vinyl chloride exceeding the 2018 Residential Vapor Exposure Screening Levels. TCE also exceeded the Commercial/Industrial Groundwater Vapor Exposure Screening Levels of

2019. The PCB Aroclor 1250 and VOCs 1,4-dioxane and m&p-xylene also exceeded the 2018 IDEM RCG Residential Tap Screening Levels in groundwater sampled from the project area.

The RWP remediation objectives included preventing the direct contact of contaminated soil, sediment and groundwater, in addition to preventing vapor exposure from groundwater. The RWP also indicated that an Environmental Restrictive Covenant (ERC) should be implemented for the requirements to obtain a Site Status Letter (SSL). Additionally, for the north portion of the project area (formally known as the Blalack Property), excavation and off-site disposal of impacted material was proposed for the remediation of the surface and subsurface soil impacted with VOCs, Polycyclic Aromatic Hydrocarbons (PAHs), PCBs and metals. Surface and subsurface confirmatory soil sampling was recommended post excavation activities. For additional areas impacted with lead on the southeast portion of the project area, chemical fixation/stabilization (CFS) was proposed to reduce lead and VOC concentrations and allow excavation and disposal as non-hazardous waste, the import of clean backfill and implementation of a future ERC, if needed. After the CFS, the graded surface of the areas outside of paving cover would use a minimum of 6-inch layer of clean sand and seed mixture composed of native grasses. Post-remediation groundwater monitoring was proposed for the entirety of the project area and surrounding areas and would include a permanent area-wide groundwater monitoring system, with three years of subsequent bi-annual groundwater sampling to evaluate groundwater conditions. Potential residential and commercial/industrial vapor exposure impacts from groundwater were proposed to be addressed by post-remediation monitoring to verify if cVOCs are present at concentrations above groundwater vapor exposure screening levels following excavation of soils at the project area. Soil gas sampling, if necessary, was proposed pending post-remedial activities.

Review of the provided previous assessments has indicated that surface and subsurface soil, in addition to groundwater at the project area, have been impacted with VOCs, PAHs, various metals, and PCBs above the current 2019 IDEM RCG Screening Levels; therefore, identified contaminants are a REC and potential VEC to the project area.

4.0 PROJECT'S CONCEPTUAL MODEL (IN RWP)

The immediate redevelopment area is composed of two currently vacant and undeveloped properties (Blalack and Verma), as well as one stormwater retention basin (West Basin on the Verma Property). Furthermore, as previously noted, a portion of the area (Verma) was redeveloped with a large medical office building (Figure 3). The subject stockpiled soil is located over the Verma Property (herein identified as the site). The Verma Property is described as follows:

- Verma Property – An irregular-shaped parcel that was historically used for the manufacture of oil-pull tractors, office furniture, and electric heaters from 1912 until the early 2000's (IDEM, 1992; ENTACT, 2014). Approximately 15 acres of the east Verma Property lies within the project boundaries. It includes the upland area to the northeast of Clear Lake Boulevard, as well as the East Pond and West Basin that extend to Hoelocker Drive. Six upland areas of concern (AOCs) for soil and/or groundwater were identified on the east Verma Property in a Sampling and Analysis Plan (SAP) (ENTACT, 2015).

- West Basin – A smaller stormwater basin on the Verma Property that was identified as an AOC in the SAP (ENTACT, 2015). The interior floor drains and storm drains from the former manufacturing area at the adjacent NewPorte Landing Phase 1 Development Area (Phase 1 Area) reportedly discharged to the stormwater basin. Rusted-out and partially buried drums are reportedly located within and along the edges of West Basin. Additionally, historical

aerial photographs indicated the potential of the pond to have been used for disposal of materials prior to environmental regulations prohibiting such activities.

4.1 Topography and Drainage

Project area topography is relatively flat with elevations ranging from approximately 800 to 802 feet (ft) above mean sea level (amsl) across much of the project area, except at the Blalack Property, where the ground surface reaches 804 ft amsl. An approximately 15,000 square feet, three to four feet high waste pile borders the West Basin to the northwest.

Surface water drainage percolates into the local soils or drains across the ground surface towards low elevations in the West Basin, East Pond, or Clear Lake. Wetlands have been identified adjacent to all three water bodies at the project area. Based on recent bathymetric surveys, the sediment surface elevations at the West Basin decreases towards the middle of the basin in a concentric manner that mirrors the basin perimeter. West Basin bottom elevation changes are relatively uniform, ranging from 797 ft amsl on the perimeter to 792 ft amsl in the middle.

4.2 Soils

Per the RWP, the following soils and materials have been identified at the project area:

- Foundry Waste Fill – This fill material, a byproduct of historical metal casting operations in the region, was placed near West Basin in the mid-1900's prior to any State or Federal regulations regarding waste disposal. The fill consists of black to red, very fine-grained, poorly graded, and well-rounded sand, and it is occasionally associated with well-rounded fine gravel-sized material (potentially an artificial foundry waste). Foundry waste extends up to 75 ft laterally from the western, southern, and eastern shorelines of West Basin with an average thickness of approximately 2.5 ft. This material is the most prominent to the northwest of West Basin where it extends approximately 250 ft beyond the shoreline and reaches a maximum depth of 8.5 feet below ground surface (ft bgs) beneath an estimated 15,000-ft2 pile that is up to 5 feet higher than the surrounding surface grade.

- Urban Fill – A sandy urban fill material with varying amounts of gravel, slag, cinders, bricks, and construction debris (e.g., metals, concrete, glass, rubber, etc.) is present at ground surface across most of the project area, except in areas where foundry waste is located, in which the urban fill at times is located beneath the foundry waste. The thickness is variable, ranging from less than 1 ft on the Blalack Property to a maximum of 18 ft on the Verma Property to the north of the West Basin. During the 2019 pre-construction treatability study, six to eight 55-gallon steel drums were observed within the urban fill. Two of the drums contained orange-ish red paint or paint sludge. The drums were found in three locations and do not appear to be distributed throughout the urban fill.

- Upper Sand – Tan to brown, fine-grained, poorly-graded native sand with varying minor constituents of clay, silt, and gravel is the most widespread lithology at the project area. Sand layers up to 46-ft thick were observed in areas of the project area where no fine-grained soils (e.g., sandy clay and peat) were present and the Upper Sand was in direct contact with the Lower Sand material (described below).

- Sandy Clay – This grayish-brown material is present underneath the Blalack Property and along the west Verma Property boundary that runs northwest-southeast (parallel to Clear Lake Boulevard). Varying amounts of sand and clay are present in the material, although clay is typically the predominant soil type. It ranges in thickness between 1 ft on the southwest Verma Property to 12 ft at the Verma-Blalack border.

- Peat – The peat ranges in silt/clay content and plasticity and is often being described as silty or clayey peat with abundant visible organic matter. The material is only present in certain upland parts of the project area and has

been identified adjacent to West Basin, and at the northwest corner of the Verma Property. Historical photographs show that many of these areas were extensions of West Basin as early as the 1970's. When encountered, peat thickness ranges from 1 to 12 ft.

- Lower Sand – A tan to gray, fine-grained, poorly-graded sand layer was often detected across the project area underlaying fine-grained soils, or in direct contact with the Upper Sand.

- In West Basin, a lacustrine organic silt layer (4-8 feet thick) occurs at the surface; followed by sand with varying amounts of gravel and silt extending to approximately 5 feet below the sediment surface; followed by organic peat, and then a fine-grained light gray sand with lenses of stiff clay (light gray to brown) that extend to a depth of at least 10 feet below the sediment surface.

4.3 Groundwater

Groundwater at the project area typically flows northeast towards Clear Lake, although groundwater flow at the northwest Verma Property is east towards the West Basin and East Pond. Groundwater elevations for 2017 varied from 798.3 ft to 800.4 ft amsl on the Verma Property with an average area-wide elevation of 799.2 ft amsl (depth to water of 2.7 ft bgs).

4.4 Current and Future Land Use

The Verma Property has been vacant since the early 2000s; the other properties were vacated in 2015 to 2016. The Verma and Blalack properties are currently zoned as general commercial district. Future use of the Blalack and Verma properties includes potential mixed-use residential and commercial redevelopment as well as recreational trails.

4.5 Surrounding Land Use

The immediate project area is characterized as commercial/industrial. The project area is bounded to the north by Truesdell Avenue beyond which are the vacant AC Trust Property and Fox Memorial Park baseball fields; to the east by Clear Lake; to the south by the Basso Industrial Property and the Pine Lakes Shopping Center; and to the west by the vacant, commercially zoned Phase 1 Area of NewPorte Landing.

4.6 Soil Impacts

Soil concentrations of the following analytes have been detected in project area soils greater than the applicable 2018 IDEM RCG SLs.

- Residential: 1,2,4-trimethylbenzene, ethylbenzene, m&p-xylene, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz[a,h]anthracene, naphthalene, polychlorinated biphenyl (PCB) Aroclors 1254 and 1260, antimony, arsenic, cobalt, iron, lead, manganese, thallium, and zinc
- Commercial/industrial: 1,2,4-trimethylbenzene, m&p-xylene, naphthalene, antimony, arsenic, cobalt, iron, lead, manganese, and thallium
- Excavation: 1,2,4-trimethylbenzene, m&p-xylene, iron, and lead

Twenty soil sample locations are on the South Verma Property (area of the subject stockpile/site). Chemical analysis was performed for surface and subsurface samples and indicates the following:

- Asbestos and arsenic are present in surface debris and the upper-most surface soil (0 to 0.5 ft bgs) at SB74, as well as near the adjacent boring SB01 on the North Verma Property.
- The highest concentrations of arsenic (120 mg/kg; commercial/industrial exceedance), iron (150,000 mg/kg; excavation exceedance) and lead (590 mg/kg; residential exceedance) on the South Verma Property are present in surface and near-surface soils at SB73 and SB74 along the west shoreline of West Basin.
- Arsenic exceeds residential screening levels from 0 to 1 ft bgs (25.5 mg/kg) and from 3 to 4 ft bgs (17.2 mg/kg) at SB11.
- Other notable Contaminants of Concern (COCs) for remedial action that exceed 2018 IDEM RCG residential SLs are PCB Aroclor 1254 (surface sample SS02 from 1995), iron, lead, manganese, and thallium; these exceedances are primarily observed in surface or near-surface soils.
- Foundry waste was observed in SB12, SB73, and SB74 directly west and southeast of West Basin. Samples of foundry waste in this area contain the following COCs at concentrations above 2018 IDEM RCG residential SLs: benzo[a]pyrene, lead, manganese, and thallium. In addition, a foundry waste sample at SB73 exceeds the 2018 IDEM RCG excavation SL for iron.

In the West Basin there are exceedances of 2018 IDEM RCG SLs for arsenic, lead, and PAHs at various sample locations that will require remedial action. West Basin received water from an outfall (currently inactive), specifically from the manufacturing facilities previously occupying the Phase 1 Area to the west of the project area. This outfall represents a historical source of contaminants to the basin.

4.7 Groundwater Impacts

Groundwater sampling results were compared to 2018 IDEM RCG SLs for residential tap water ingestion and residential and commercial/industrial vapor exposure routes. Analytes that exceed these screening criteria from 2015 to 2017 are considered potential project area COCs and are listed below.

- Residential tap water ingestion: trichloroethene, cis-1,2-dichloroethene, vinyl chloride, 1,4-dioxane, m&p-xylene, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, bis-[2-ethylhexyl] phthalate, indeno[1,2,3-c,d]pyrene, naphthalene, PCB Aroclor 1260, arsenic, cobalt, iron, lead, and manganese
- Residential vapor exposure: trichloroethene and vinyl chloride
- Commercial/industrial vapor exposure: trichloroethene

4.8 Potential Receptors

The spotted turtle was identified as an endangered/threatened species. In addition, wetlands have been identified adjacent to the West Basin. The impacts to wetlands during remediation and restoration are to be discussed in a Wetland Mitigation Plan with oversight from the USACE and IDEM.

Potable water is provided by the City of LaPorte through municipal wells and residential drinking water is obtained from private wells. The municipal wells are located over 1,000 ft from the project area to the southwest, and groundwater at the project area flows east-northeast towards Clear Lake. The migration of contaminants present in on-site groundwater to municipal and private wells is not considered as a completed exposure pathway.

The four properties on the project area are currently vacant and undeveloped. As the project area will be likely used for residential and commercial development, the following human receptor groups have been identified as potential exposed receptors:

- Potential Future Residents

- Future Commercial/Industrial Workers
- Future Excavation (Construction) Workers

4.9 Potential Exposure

Given the environmental conditions, the proposed future redevelopment presents a potential risk for the following human exposure pathways:

- Surface and Subsurface Soil: Residential, Commercial/Industrial, and Excavation direct contact
- Surface and Subsurface Sediment: Residential, Commercial/Industrial, and Excavation direct contact
- Groundwater: Soil migration to groundwater for residential ingestion, residential tap water ingestion, and residential and commercial/industrial vapor exposure

4.10 Remediation Objectives

The project area remediation goal is to obtain SSLs for the Blalack and Verma properties by preventing human exposure to COCs in media. The default IDEM RCG SLs are proposed, depending on the future property use, to prevent completion of the exposure pathways through:

- Preventing direct contact of contaminated surface and subsurface soil, surface and subsurface sediment, and groundwater;
- Preventing the ingestion of groundwater; and
- Preventing vapor exposure from groundwater.

5.0 SUMMARY OF CORRECTIVE ACTION ALTERNATIVES

5.1 Corrective Action Objective and Proposed Remedial Approach

The subject waste pile (herein identified as the site/Verma Property) and shown in the aerial photograph on next page) represents a potential exposure risk to human health and the environment and soil barrier installation or removal is necessary.

- Given the planned redevelopment of the subject project area 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, SES recommends proceeding under the premise that contamination concentrations will only need to be reduced to IDCSLs in order to obtain site closure status from IDEM. Removal of stockpile of impacted soil and foundry material should be considered, or a surface barrier should be constructed to prevent direct contact with contaminants.

- Cleanup will help revitalize approximately two acres of blighted property north of downtown LaPorte, Indiana. The City intends to redevelop the site for commercial or recreational use.

Aerial View of Waste Pile (arrow points to pile)

Remediation alternatives for the stockpiled soil 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 – Stockpiled Soils

5.3.1 Alternative 1 – No Action

If no corrective action is conducted at the site, impacted soil will remain in-place hindering redevelopment of the site. The direct contact exposure issue will remain a potential liability for the City of LaPorte. 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 a legitimate reuse determination/approval, an 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: Significant. While the site is currently vacant and barrier installation is feasible, attaining a legitimate reuse determination for an existing waste pile would be problematic. Presently, the waste pile has no function, and would not serve as a replacement for a function that was otherwise needed.
3. Cost: Moderate $400,000. The estimated cost includes federal documentation, an estimate to construct a soil barrier over a two-acre area, monitoring, testing, and completion reporting, along with preparing and ERC and O&M plan for the soil barrier.

5.3.3 Alternative 3 – Extraction/Removal

Extraction is a process that consists of removing contaminated soil, followed by treatment or disposal. Typically, off-site 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 contaminant occurrence.

As conceptually applied at this site, contaminated stockpiled soils would be removed to address the concern of direct human contact and exposure to contaminants. The stockpiled soil would be extracted and transported offsite to a local landfill. The surface of the site would be vegetated to prevent erosion and the topsoil/grass surface.

Given that this scenario only addresses the stockpiled soil removal and not the underlying impacted soils and/or groundwater, an Environmental Restrictive Covenant (ERC) would still be required.

1. Effectiveness: Moderate. Extraction would eliminate the industrial direct contact exposure issue of the stockpiled soil.
2. Implementation: Easy. The site is currently vacant and complete removal of the stockpiled soil could be completed.
3. Cost: Moderate $366,642. This cost includes removal and disposal as well as RWP addendum preparations. Other associated costs, not tabulated here, could include possible change orders/increased costs because of project complexities and closure reporting.

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 the stockpile of soil contamination at this particular site, given the known conditions and proposed redevelopment, extraction/removal (Alternative 3) would be the most effective corrective action alternative to achieve conditional closure.

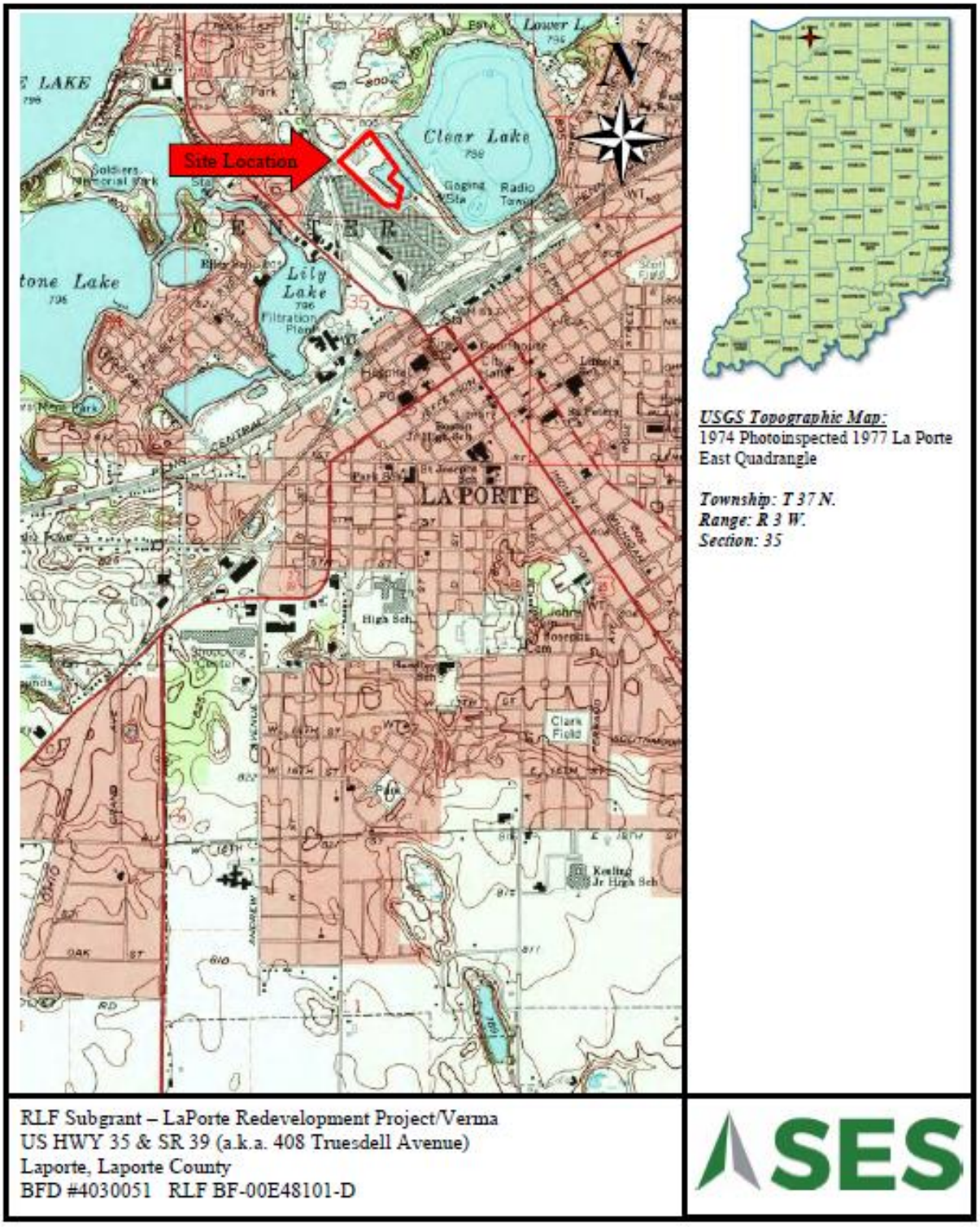
Corrective Alternative	***Effective***	***Estimated Cost***
1. No Action	Impractical	$0
2. Isolation *Soil Barrier*	Impractical	$400,000
3. Extraction *Removal/Disposal*	Yes – *Includes Restrictions on Property Deed*	$366,642

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 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

FIGURE 1: TOPOGRAPHIC MAP



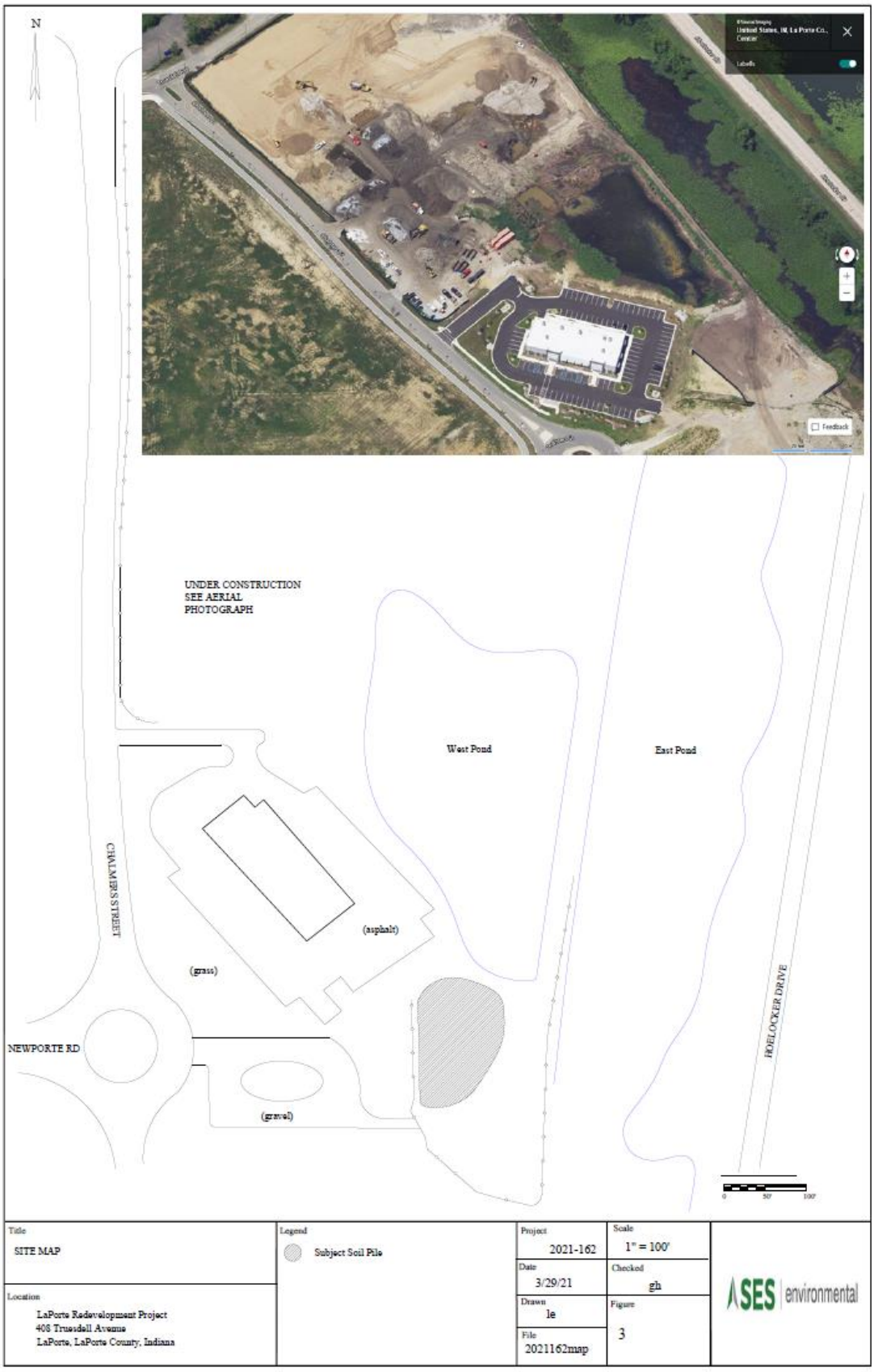
USGS Topographic Map:
1974 Photoinspected 1977 La Porte East Quadrangle

Township: T 37 N.
Range: R 3 W.
Section: 35

RLF Subgrant – LaPorte Redevelopment Project/Verma
US HWY 35 & SR 39 (a.k.a. 408 Truesdell Avenue)
Laporte, Laporte County
BFD #4030051 RLF BF-00E48101-D

SES


PROPOSED BUILDING 2
PROPOSED BUILDING 1
GARAGE
PROPOSED FUTURE BUILDING
GARAGE
PROPOSED BUILDING 3
FUTURE DEVELOPMENT
PROPOSED PARK / OPENSPACE
PROPOSED MEDICAL OFFICE BUILDING
PROPOSED PARKING & TRAILHEAD
Proposed Holladay Development Project (Industrial/Commercial Closure)
Proposed Public Access/Park (Recreational Closure)
Wetland Buffer
Proposed Flaherty & Collins Project (Residential Closure)
Proposed Fixation/Stabilization Area
Phase 2A Area
Conceptual Clear Lake Boundary
New Upland Area
Notes:
1) Site Plan based on Proposed Site Plan drawing from the City of LaPorte dated October 1 2019.
0 50 100 200
Ft.
OAK BROOK, IL
NOVEMBER 2019
Geosyntec consultants
Conceptual Redevelopment Plans
NewPorte Landing
Phase 2A Development Area
La Porte, Indiana
Figure
-2



Title: SITE MAP	Legend: Subject Soil Pile	Project: 2021-162	Scale: 1" = 100'
Location: LaPorte Redevelopment Project, 408 Truesdell Avenue, LaPorte, LaPorte County, Indiana		Date: 3/29/21	Checked: gh
		Drawn: le	Figure: 3
		File: 2021162map	ASES environmental