DRAFT
Analysis of Brownfields Cleanup Alternatives

ROBERT B. JOHNSON PARK
BLOCK 520, LOT 26; BLOCK 522, LOT 9 (PARTIAL); BLOCK 523, LOT 13

CAMDEN, NJ 08104

Prepared by BRS, Inc. for the

The City of Camden
520 Market Street
City Hall
Camden, New Jersey

November 11, 2022

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1 INTRODUCTION & BACKGROUND

Robert B. Johnson Park is located at 723 Carl Miller Boulevard, comprising approximately 14.7 acres across Block 520, Lot 26, Block 522, Lot 9 (partial), and Block 523, Lot 13 as described by the City of Camden for tax purposes ("Subject Property"). Robert B. Johnson Park is a public park in Camden owned by the City of Camden. The subject property is currently improved as a public park with open space, basketball courts, and ball fields.

The City of Camden Redevelopment Agency (CRA) has contracted Brownfield Redevelopment Solutions, Inc. (BRS), to prepare this Analysis of Brownfields Cleanup Alternatives (ABCA) in support of EPA grant funding. The purpose of the ABCA is to:

- Identify reasonable brownfields cleanup alternatives considered for addressing the contamination identified at the site;
- Analyze the various factors influencing the selection of a preferred cleanup method, including effectiveness, implementability, costs, and sustainability;
- Select the preferred cleanup method, based on the analyses performed; and
- Provide community outreach and solicit public participation and comment on the remedial selection process prior to the final decision.

The CRA on behalf of the City will promote and facilitate community involvement with the environmental cleanup and site redevelopment project with the activities itemized below.

- The CRA will perform targeted outreach to notify communities of the availability of this ABCA. This includes fulfillment of the New Jersey Department of Environmental Protection community notification requirements (N.J.A.C. 7:26E-1.4). The CRA has published a notice of availability of the draft ABCA in the local newspapers with general circulation in the target community.
- The CRA has provided an opportunity for members of the public to comment on the ABCA in a public meeting. Additional details regarding the public notification process are presented in a *Community Relations Plan* for the site.
- The CRA has prepared written responses to the comments received and documented any changes made to the cleanup plans and to the ABCA as a result of the comments.

A Brownfields Cleanup Decision Memo will be prepared at the end of the public comment process, which will describe the cleanup options selected for the site. The ABCA and the Decision Memo will be included with the Administrative Record. The Administrative Record repository is available on the CRA website (http://camdenredevelopment.org).

The expected outcome of the site is Restricted Use.

1.1 Site Description and Previous Uses

Currently, the City of Camden is listed as the owner of all three lots comprising the Subject

Property. According to review of historic aerial photographs and Sanborn® Fire Insurance Maps, the majority of the Subject Property has remained undeveloped since the late 1800's with the exception of the far southern end of the property fronting Carl Miller Boulevard. The southern end of the Subject Property was improved with primarily residential dwellings beginning around 1906. As the years progressed, some commercial and light industrial use structures were erected along Carl Miller Boulevard. In the late 1960's, all Site structures were razed to support the development of the existing Robert B. Johnson Park. The Park has been improved with various upgrades throughout the years. The Isabel Miller Community Center is located on the eastern portion of Block 522, Lot 9, which is a portion of the Lot not included as part of the Subject Property of this ABCA. The Subject Property is currently improved as a public park with open space, basketball courts, and ball fields.

1.2 Surrounding Land Use

The Subject Property encompasses 14.7 acres of playing fields, basketball courts and associated improvements, located in the Liberty Park neighborhood of Camden City, New Jersey. The site is located in a mixed use area consisting primarily of residential use with some light commercial use properties. The Subject Property is bordered by residential properties on the northeastern and southern sides and enclosed by Interstate 676 to the west, Thurman Street to the north, Carl Miller Boulevard to the south and South 8th Street to the east.

1.3 Project Goal (Reuse Plan)

The redevelopment activities for the property will be improvements for the public open space, green infrastructure and recreational ballfields. The park has been closed since the completion of Preliminary Assessment (PA) and Site Investigation (SI) activities were conducted in 2022. As this is a priority site affected solely by historic fill material found across the entire site, the proposed work described below is being streamlined. The prior reporting will be used as the required phase submittals to the NJDEP by the selected Licensed Site Remediation Professional (LSRP). This LSRP will be retained for the site once the contract is executed.

1.4 Summary of Environmental Conditions

The site is not currently an active case with NJDEP. A Preliminary Assessment (PA) was completed in September 2021 for the Camden County Department of Parks (CCDP). Subsequent assessment activities conducted on the site in 2022 identified 4 "Areas of Concern" or AOCs with potential to adversely impact soil and groundwater at the site.

- AOC-1 Historic Fill Material
- AOC-2 Historic Dumping
- AOC-3 Former Scrap Yard
- AOC-4 Potential Residential USTs

Based on a review of the historic aerial photographs and other research, it appears that dumping and/or or filling activities have occurred at the Subject Property since at least 1940 to approximately the mid 1950's, specifically in the rear two-thirds of the Site. The New Jersey Geologic Survey Historic Fill of the Camden Quadrangle shows the northern two-thirds of the Subject Property is mapped as containing historic fill. Further, prior reports note that the rear two-thirds of the property (where the filling is shown to have occurred) is situated at an elevation approximately 10 feet higher compared to the front portion of the property.

Based on these findings a Site investigation performed in February 2022 was focused on the historic filling and/or dumping activities, the presence of a former junkyard at the southern end of the Subject Property and the potential for heating oil underground storage tanks (USTs) associated with the structures formerly present along Carl Miller Boulevard. The AOCs investigated during the Site Investigation are presented on Drawing No. 4 – Area of Concern Map (Attachment A).

The majority of the soil borings completed as part of this Site Investigation contained evidence of historic fill material (HFM) (i.e., wood, brick, ceramic, metal, glass, and coal) mixed with varying grades of sand and silt. Soil boring logs indicate the thickness of the historic fill material reduces significantly at the toe of the slope where the elevation transitions from 17 feet above mean sea level (msl) to 7 feet above msl towards Carl Miller Boulevard. In most of the soil boring locations throughout the site, HFM was observed in the first 1 foot of soil below ground surface. Evidence of environmental impact in the form of petroleum staining or elevated Photoionization Detector (PID) readings was not observed.

The historic fill material is impacted with benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene, antimony, arsenic, cadmium, cobalt, lead, mercury, and silver. Polychlorinated Biphenyl's (PCBs) were detected in two samples above the Residential Ingestion Dermal Soil Remediation Standards (RIDSRS): HF-11 and HF-18. PCBs are considered a contaminant associated with historic fill in the geographic region where this park is located. No Volatile Organic Compounds (VOCs) or pesticides were detected above their respective standards.

The soil investigative work completed to date, specifically the number, location, depth, and laboratory analysis requested, provides sufficient data and information to develop a Remedial action plan and associated cost estimate. Prior reporting served to characterize cover soil conditions throughout the Site. In most of the soil boring locations throughout the site, HFM was observed in the first 1 foot of soil below ground surface. Remedial action will be required for only AOC-1: Historic Fill Material.

1.5 Physical Setting

There is a noticeable elevation difference between the rear (north end) of the Subject Property and the front (south end) of the Subject Property. The Subject Property has an approximate elevation of 17 feet above mean sea level (msl) at the north end and an average

elevation of 7 feet above msl at the southern end fronting Carl Miller Boulevard. The Subject Property is bordered to the west by the Interstate I-676 corridor. The elevation of the Subject Property is similar to the surrounding properties and area in general; however, the rear two-thirds of the Subject Property is situated at a higher elevation compared to the remainder of the property as previously indicated.

The site is located within the Coastal Plain physiographic province of New Jersey. The dominant formation in this province is the Potomac Formation, which consists of fine to coarse grained sand, interbedded with white, red or yellow clay. According to NJ-GeoWeb, surficial geology consists of salt-marsh and estuarine deposits, as well as Cape May formation. Surficial geology generally consists of sand, silt, peat clay cobble gravel and pebble gravel.

NJ-GeoWeb identifies the subject property as underlain by the Potomac-Raritan-Magothy aquifer system. No surface water bodies are located within 2,500 feet of the Subject Property. The nearest surface water body is the Delaware River, which is located approximately 3,500 feet west of the Subject Property. Based on topography, groundwater is expected to flow in a southerly direction. Groundwater was not encountered in any borings drilled to 20 feet below ground surface.

1.6 Exposure Pathways

In order for contaminants from a site to pose a human health or environmental risk, one or more completed exposure pathways must link the contaminant to a receptor (human or ecological). A completed exposure pathway consists of four elements:

- A source and mechanism of substance release;
- A transport medium;
- A point of potential human or ecological contact with the substance ("exposure point"); and
- An "exposure route", such as dermal contact, ingestion, etc.

Preliminary evaluation indicates the following potentially completed exposure pathways related to the site in its current condition (i.e., pre-remediation):

- **Direct contact with Soil**. Soil might be handled by children, nearby residents, occasional on-site construction workers or trespassers. This exposure pathway will be mitigated immediately by implementation of the proposed cleanup activities, which include excavation and offsite disposal of certain contaminated soils and installation of a soil cap.
- **Direct contact with surface water**. There is no surface water at the Site.
- **Direct Contact with, or Ingestion of, Groundwater.** There are no current or anticipated future uses of onsite groundwater.
- **Vapor intrusion risk**. Based on the absence of VOCs, a vapor intrusion risk is not possible.

2 APPLICABLE LAWS AND CLEANUP STANDARDS

All site remediation to be performed under this grant would be conducted in accordance with the New Jersey Site Remediation Reform Act, N.J.S.A. 58:10C-1 et seq.; the Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12 and implementing regulations in the Administrative Requirements for the Remediation of Contaminated Sites, N.J.A.C. 7:26C; and the Technical Requirements for Site Remediation, N.J.A.C. 7:26E.The most current versions of the NJDEP Technical Guidance documents will be referenced, including:

- *Soil SI/RI/RA*
- *Ground Water SI/RI/RA*
- *Capping of Sites Undergoing Remediation,*

The reference remediation standards for soil will be NJDEP's published numeric values for the Ingestion/Dermal Non-Residential exposure pathway (IDNR), Ingestion/Dermal Residential exposure pathway (IDR), Inhalation Residential exposure pathway (IHR), Inhalation Non-Residential exposure pathway (IHNR), and Migration to Ground Water exposure pathway (MGW) (NJAC 7:26D).

The reference remediation standards for groundwater will be the current version of Class II-A Groundwater Quality Criteria (GWQC) published in *Groundwater Quality Standards* (N.J.A.C 7:9C). The effective implementation of the applicable laws and guidance will be managed and overseen by a Licensed Site Remediation Professional (LSRP) to be retained for the site. Any Response Action Outcome (RAO, i.e., NFA-equivalent) for the site will be issued by the LSRP. Project reports, RAOs, etc. will be submitted on behalf of the City to the NJDEP, which retains the authority to audit the project and/or review and potentially reject any documents submitted.

3 EVALUATION OF CLEANUP ALTERNATIVES

This section identifies various reasonable remediation alternatives that were considered in response to the environmental contamination issues at the site. The following potential remedial alternatives were considered:

Alternative No. 1) No action

Alternative No. 2) Soil Removal of Top One Foot Across Site

Alternative No. 3) Site-wide Soil and Historic Fill Material Removal.

The following evaluation criteria were considered in comparing the remedial alternatives.

A. Effectiveness in providing compliance with NJDEP regulations and increased protectiveness to public health and the environment;

B. Implementability of the considered alternative;

C. Cost of the considered alternative; and

D. Sustainability and resilience considerations.

3.1 Alternative No. 1 - No Action

If no environmental cleanup remedy were performed at this site:

- The site would remain out of compliance with NJDEP's regulations;
- The intended reuse of the site as open space and ballfields would not be possible. Currently, the park is closed due to the encountered contamination.

3.1.1 Effectiveness

The "no action" alternative is not effective in that it does not provide for compliance with NJDEP regulations and it fails to provide for the beneficial reuse of the site.

3.1.2 Sustainability and Resilience

The "no action" approach would not meet project remediation goals because the contamination would remain in place, untreated, and without a barrier. As such, the "no action" approach would present a continuing risk to the public. Based on this, evaluation of the approach with regards to other sustainability criteria is not relevant.

3.1.3 Implementability

The "no action" alternative is technically feasible, although the presence of untreated soil and groundwater contaminants would not be in compliance with NJDEP regulations.

3.1.4 Operation and Maintenance

Because there is no remedy implemented, there would also be no operation and maintenance requirements at the site.

3.1.5 Institutional Controls

As no action is taking place under this alternative, no institutional controls are proposed.

3.1.6 Cost

There would be no costs associated with this alternative.

3.2 Alternative No. 2 – Soil Removal of Top One Foot Across Site

Under this alternative, the remedial action will include the removal of the top 1-foot of impacted material and replacement with Clean Fill per NJDEP SRP guidance. Conceptual/ preliminary designs plans for Site improvements will be used a starting point for developing specific cut and fill areas, as prescribed ground cover (ball courts, turf fields, parking) may provide opportunities to reduce the volume of clean fill to be imported for cover (cap) purposes.

The goals of this alternative will be to minimize construction and public disruptions at the park, minimize or eliminate the need to remove and dispose of impacted soil and HFM from

the Site, identify existing acceptable current or proposed (park development) cover conditions that may minimize the need to import clean fill, and minimize costs of removal and disposal.

This remediation will include an Engineering Control, and recording of a deed notice for HFM. A virtual groundwater classification exemption area (CEA) as Institutional Controls may also be required (to be determined).

This combination of remedies will prevent exposure to residual site contaminants. Further details of the remediation plan would include:

- Approximately 29,117 tons of soil and HFM will be removed and disposed of off-site.
- Excavated soils will be sampled and characterized in accordance with the requirements of the designated disposal facility. The tasks will also include clean fill sampling and analysis, and the emplacement of clean backfill.
- Restore site with topsoil and seed.
- In addition, an indefinite duration groundwater Classification Exception Area (CEA) may be established to prohibit groundwater use on the site (to be determined).

Selection of this alternative will result, upon completion of remediation activities, in restricted future use of the site.

3.2.1 Effectiveness

The Institutional and Engineering Controls approach does not physically remove all site soil and groundwater contaminants. However, this alternative would effectively achieve project remediation goals by:

- Achieving technical and administrative compliance with the NJDEP site remediation regulations.
- Disruption of the pathway of contaminated fill material to the outside environment. Although the contamination still exists, the cap and CEA will significantly reduce the potential of human exposure.
- Providing notice of site environmental conditions to future site owners, occupants, and the general public by means of the Deed Notice.

3.2.2 Sustainability and Resilience

This criterion evaluates the degree to which the remedial alternative may reduce greenhouse gas discharges, reduce energy use, employ alternative energy sources, reduce volume of wastewater to be disposed, reduce volume of materials to be taken to a landfill, and/or allow for the reuse or recycling of materials during cleanup is considered, where applicable.

This alternative limits the excavation and transport by truck to offsite disposal facilities to the first foot of site soil, thereby reducing the fossil fuel energy use, and associated greenhouse gas discharges associated with that task.

3.2.3 Implementability

Removal of historic fill material is a conventional means of addressing this type of contaminant. Cap placement as a type of remedy is a widely used and accepted practice for remediating the remaining fill impacted contaminated soils.

The City and/or its consultant will retain a contractor that is licensed, qualified, and OSHA-certified to perform work on hazardous materials sites. The deed notice and CEA, prepared in accordance with NJDEP guidance and template, are relatively routine administrative submissions.

3.2.4 Operation and Maintenance

Operation and Maintenance on the installed soil cap should include the following:

- Routine inspections;
- Vegetation maintenance (grass mowing and weed control); and
- Written O&M Plan that includes a discussion including but, not limited to; soil cover maintenance, reporting, maintenance agreement, a utility plan should future utilities or building be proposed at the Site, and fence maintenance (if applicable).

3.2.5 Institutional Controls

This alternative will require the following Institutional Controls:

- A Deed Notice as part of Phase II remediation efforts is required because contaminants above the Standards are expected to remain below the soil cap. A Deed Notice is required to document the extent of contamination and the engineering controls and will be issued pursuant to N.J.A.C 7:26E-6.1(B).
- All required NJDEP permits, reporting, and inspection requirements.
- A CEA for groundwater, if deemed to be required upon completion of a groundwater investigation.

3.2.6 Cost

The costs for completing remediation under this approach were estimated using the following elements and assumptions:

1) Retain environmental engineering firm and LSRP, and LSRP review of previous reporting;
2) Project and Grant Management tasks, including public notification;
3) Prepare project specifications and bid documents;
4) Conduct procurement process;

5) Removal of approximately 29,117 tons of soil and HFM;
6) Procurement and testing of clean fill cap materials;
7) Site restoration, including vegetative cover;
8) Prepare Soil Remediation Permit;
9) Prepare Remedial Action Report and other regulatory reporting requirements;
10) Prepare Quality Assurance, and Health and Safety deliverables.

The estimated cost for this cleanup alternative is $3,011,303. The Camden Redevelopment Agency has requested USEPA Brownfield Revolving Loan Fund (RLF) monies ($500,000) for remediation at the Johnson Park site, and to extend a subgrant to the City of Camden for the same. EPA subgrant funds, along with a pending State Hazardous Discharge Site Remediation Fund grant, will be used to remediate HFM.

3.3 Alternative No. 3 – Site-wide Soil and HFM Removal

Under this alternative, the remedial action will pertain to the entire site, with excavation extending to an average depth of 5 feet below grade. Most of the fill material was observed to end at about the 5 foot depth interval with locally deeper fill material observed in the northern portion of the site and shallower layers of fill material (0-2 feet) in the more southern portions of the site. Approximately 145,585 tons of impacted soils will be removed, disposed of off-site and replaced with clean fill.

Selection of this alternative is expected to result, upon completion, in unrestricted future use of the site. No engineered cap would be installed, as no contaminated materials would remain on site.

3.3.1 Effectiveness

This alternative would be immediately effective by removal of all contaminated soils. The remedial action should result in unrestricted future use of the site.

3.3.2 Sustainability and Resilience

The site-wide remediation alternative compares unfavorably to Alternative 2 (described in Section 3.2) with regard to sustainability metrics. The approach would result in increased energy use, greenhouse gas emissions, and landfill disposal volume.

This approach compares favorably to Alternatives 1 and 2 in resilience metrics, such as the continuing protectiveness of the remedy in light of reasonably foreseeable changing climate conditions and allows for no restrictions on future land use. This alternative would be ideal in that there would be unrestricted use of the site.

3.3.3 Implementability

This alternative is feasible and implementable. This approach will involve the work elements described in Section 3.2, with the exception of the emplacement of a clean soil cap, deed notice, and CEA. In addition, all excavated areas will be backfilled with clean soil.

3.3.4 Operation and Maintenance

This approach, upon successful implementation, would allow for unrestricted use of the site. No ongoing operation and maintenance of remedial systems would be required.

3.3.5 Institutional Controls

This approach, upon successful implementation, would provide for the removal of all contaminated soil from the site. No Deed Notice is required. As the current presence of HFM is the reason that a groundwater CEA may be required under other scenarios, a CEA would not be required if the HFM is removed from the site.

3.3.6 Cost

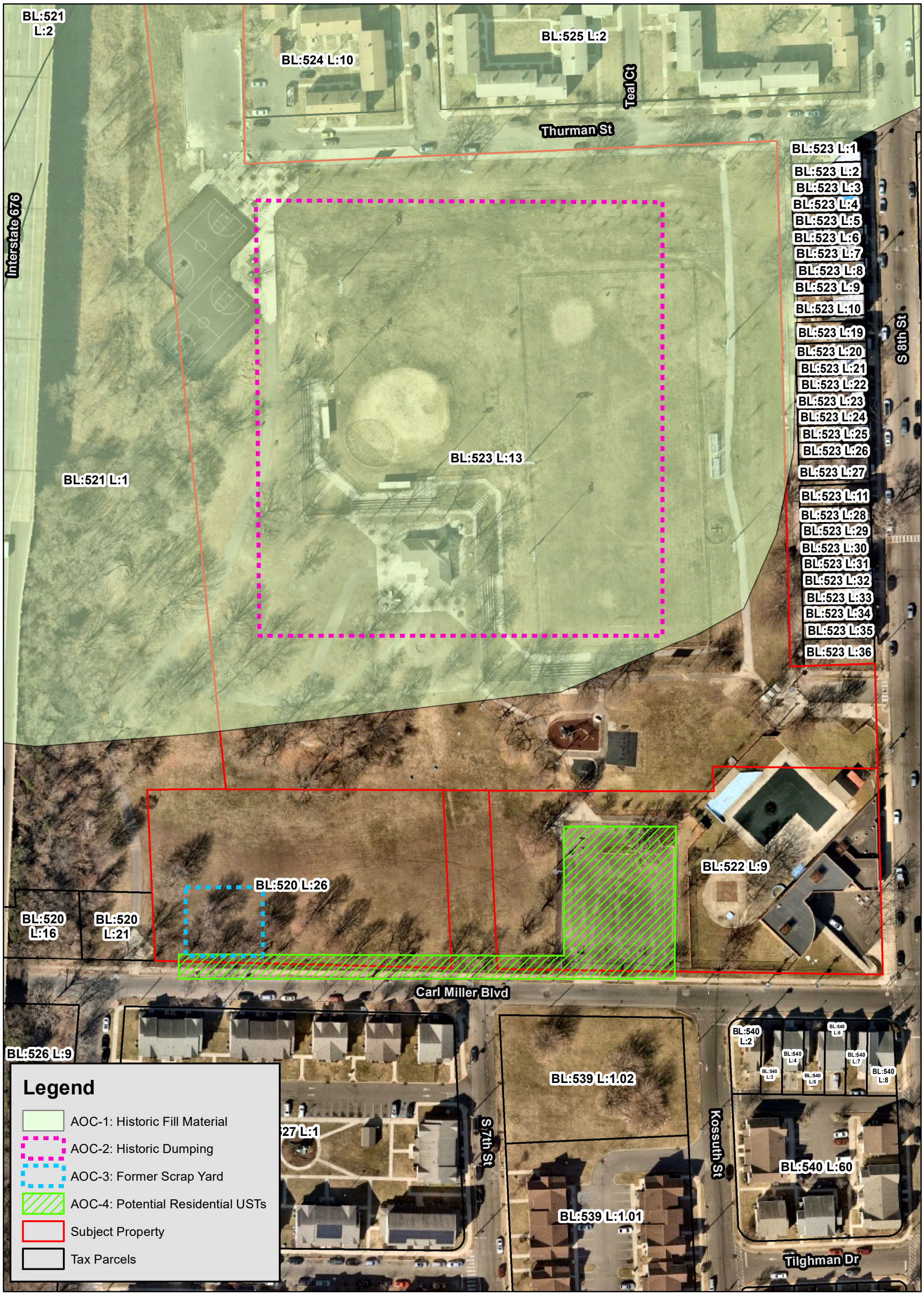
To implement this strategy, a total of approximately 145,585 tons of soil would be excavated, disposed, and replaced with clean fill. Total project costs for this alternative are estimated at $8,910,768.

3.4 Preferred Alternative

The preferred alternative is Alternative No. 2 – Soil Removal of Top One Foot Across Site. Soil excavation is a proven method, environmentally effective and productive for long term, community-wide use. Excavation equipment is readily available. Soil excavation as proposed eliminates direct contact with contaminants. Although limited contamination may still exist, the eventual cap and CEA will significantly reduce the potential of human exposure. Future site owners, occupants, and the general public will be provided notice of site environmental conditions by means of the Deed Notice upon completion of remediation activities.

The remedial remedy can be completed within the timeframe of the USEPA Brownfields RLF monies.

Attachment A
Site Location Map



NOTE:
THE AERIAL SHOWN WAS PPROVIDED BY NEARMAP US, INC. AND TAKEN MARCH 2021.

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Feet

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ROBERT B. JOHNSON
PARK IMPROVEMENT PROJECT
723 CARL MILLER BLVD., CITY OF CAMDEN
CAMDEN COUNTY, NEW JERSEY

AREA OF CONCERN MAP

SCALE:	BLOCK:	LOT:	DRAWING:
1 " = 100 '	520; 522; 523	26; 9; Portion of 13	4
DATE:	**DRAWN BY:**	**PROJECT NUMBER:**	
08/11/2021	T.M.	17087.006	

ATTACHMENT B
Summary of Public Comments and Responses