



Analysis of Brownfields Cleanup Alternatives

**Former Standard Oil and Incinerator/Transfer Station Sites
BLOCK 1181, LOT 1; BLOCK 116, LOT 15
CAMDEN, NJ 08104**

Prepared by BRS, Inc. for the

New Jersey Economic Development Authority
36 West State Street
Trenton, New Jersey

on behalf of

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

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- B. Summary of Public Comments and Responses



1 INTRODUCTION & BACKGROUND

The Federal Street sites are located near the Marlton neighborhood at the intersection of River Avenue & Federal Street in Camden, New Jersey. The former Standard Oil site consists of approximately 0.78 acres at the intersection of Federal Street and River Avenue on Block 1181, Lot 1. The former incinerator/transfer station site consists of approximately 1.53 acres on Block 116, Lot 15 with an address of 1401 Federal Street. Both properties are owned by the City of Camden, will require a similar level of effort for remedial action planning, and are therefore combined in this submittal.

The New Jersey Economic Development Authority (NJEDA) on behalf of 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 (NJDEP) community notification requirements (N.J.A.C. 7:26E-1.4). The CRA will publish a notice of availability of the draft ABCA in the local newspapers with general circulation in the target community.
- The CRA will provide an opportunity for members of the public to comment on the ABCA in a public meeting. Additional details regarding the public notification process will be presented in a *Community Relations Plan* for the site.
- The CRA will prepare written responses to the comments received and document 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

The two properties formerly operated as several industrial uses. In the late 1800s the southern portion of the Standard Oil lot was developed as a coal shed and part of a larger coal yard. In 1906 the northern portion of the Standard Oil lot is named Standard Oil Company and included a large oil tank, two small oil tanks, a lubricating oil cellar, and several oil storage sheds. In 1926 the lot is named Standard Oil Company and the northern portion contains a loading shed and the southern portion contains a pumping house and eight gasoline and oil tanks with a concrete base. In 1950 an additional oil tank has been constructed at the center of the Site. The southern portion of the Standard Oil site contains four gasoline and oil tanks with a concrete base. The tanks appear to have been removed in 1957. In 1977 the northern portion of the Standard Oil lot contains a warehouse indicated as commercial storage, and a loading shed with a concrete floor and tile walls. The southern portion is vacant, except for a small vacant structure at the southwestern corner, corresponding to the location of the former pumping house.

The former Camden City Transfer Station site has been industrial since at least 1894 with a railroad spur located on the northwestern portion of the property since that time. Historic aerial photographs and topographic maps for the general property vicinity show six former structures, one nearest the railroad spur, four centrally located and one nearest the Cooper River on the east side of the property in map years 1949 - 1984. Historic aerial photographs from years 1940, 1954, 1965, and 1970 show the railroad spur, a smokestack connected to the building nearest the Cooper River and six or seven buildings scattered across the site. The structures look to be demolished in the 1986 and 1995 aerials.

1.2 Surrounding Land Use

The sites are located in an area that includes industrial uses and some residential housing within the city of Camden, New Jersey. The Cooper River flows between these two sites; Federal Street is located to the south, railroad tracks are located to the north, and River Avenue is located to the east, with Admiral Wilson Boulevard to the west.

1.3 Project Goal (Reuse Plan)

The redevelopment activities for the property will include removal of impacted soils and replacement with clean fill material, allowing for restricted future use as open space or commercial/industrial use.

Before any site work can be done, a Licensed Site Remediation Professional (LSRP) will need to be retained for the sites. As no prior reporting has been completed for either site, a Preliminary Assessment (PA) and Site Investigation (SI) will be required and reports submitted to NJDEP.

No further action (site closure) with restricted use has been recommended for the sites.



1.4 Summary of Environmental Conditions

The sites are not currently active cases with NJDEP. According to NJDEP case files no LSRP has been retained on either site. The former Camden City Transfer Station is listed under Program Interest (PI) No. G000008948 (Camden Transfer Station) with Case #s AA 9203108 (CMS-33), AA 9303100 (AA#67; CMS-03), and 91-4-12-1130-16. The former operations at both sites were known to utilize hazardous substances and petroleum, though former industrial practices utilized for operations pre-dating the Camden City Transfer Station are unknown.

Reports of discharges to the Cooper River and on-going sheen in the Cooper River emanating from the river bank near River Avenue and Federal Street date back to 1988. NJDEP inspected the transfer station site in 1988 and observed a discharge of oil from land to the Cooper River. A follow up inspection observed that the release was still on-going. A Notice of Violation was issued to the City in 1988 by NJDEP. A follow up inspection was again completed in 1989 and soil samples were collected in banks along the river, at the “waste oil recycling center ” and water samples were collected from the river. The soil sample collected from the transfer station reported results of petroleum hydrocarbon at 168,699 parts per million (ppm). Other sample locations were listed as “trash and dirt berm”, “automobile heap,” and “tire and salt pile.” All locations were listed with elevated results of petroleum hydrocarbons. Another Notice of Violation was issued to the City at this time. An internal NJDEP record notes that groundwater may be contaminated with leachate from the waste pile. The recommended next steps indicate a consent order was issued to the City requiring installation of groundwater monitoring wells.

An internal NJDEP record memo notes that City officials and Hargrove Construction were investigated for waste dumping crimes at the transfer station site. One area under the Federal Street overpass is noted as heavily contaminated by petroleum substances and that the whole site has varying levels of polycyclic aromatic hydrocarbon (PAH) impacts from the former City use of the site as an incinerator. The memo notes that the Federal Street overpass Area of Concern should at least be investigated due to the threat of impact to groundwater.

The former Standard Oil site historically stored coal and petroleum products in tanks and included a pump house and loading dock along the Cooper River.

Surficial soils at both sites are presumed to be impacted with various metals including lead, mercury, and cadmium, petroleum compounds from gasoline and lubricating oils as well as former incinerator use.

At this time, it is assumed that a groundwater investigation will be required. The outcome of assessment efforts will determine whether or not groundwater is contaminated and will require remediation. This may require revisiting the ABCA at a future time should EPA funding be used for groundwater remediation.



1.5 Physical Setting

The sites are flat. The elevation at the subject property is approximately 16 feet above mean sea level, according to the United States Geological Survey (USGS) 2014 Camden, NJ 7.5 Minute topographic quadrangle map. Soils at the subject site are identified as urban land. The parent material for soils at the subject site consist of surface covered by pavement, concrete, buildings and other structures underlain by disturbed and natural soil material.

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. The Cooper River is located between and adjacent to the sites. Groundwater is expected to be tidally influenced and flow towards the Cooper River.

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.** Reports of discharges to the Cooper River, which flows between the two sites, as well sheen in the river emanating from the river bank near the sites date back to 1988. River water might come into contact with children, nearby residents, occasional on-site construction workers or trespassers. Implementation of the proposed cleanup activities, which include excavation and offsite disposal of certain contaminated soils along the river banks will improve local surface water quality. Further investigation is required to determine the level of risk and associated mitigation requirements based on the proposed site reuse.



- **Direct Contact with, or Ingestion of, Groundwater.** According to prior reports for the adjacent Former Port-A-Pot site at 1601 Federal Street to the east, groundwater is less than 10 feet below grade and is considered influenced by tidal fluctuations given the proximity to the tidal Cooper River and Delaware River. An internal NJDEP record notes that groundwater beneath the former incinerator site may be contaminated with leachate from waste piles and petroleum may be impacting groundwater beneath the Standard Oil site. There are no current or anticipated future uses of onsite groundwater. Further investigation is required to determine the level of risk and associated mitigation requirements based on the proposed site reuse.
- **Vapor intrusion risk.** Vapor intrusion risk is possible given the possible petroleum and waste pile impacts to groundwater. Further investigation is required to determine the level of risk and associated mitigation requirements based on the proposed site reuse.

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 NJDEP's Residential Ingestion/Dermal Soil Remedial Standard (RIDSRS), Non-Residential Ingestion/Dermal Soil Remedial Standard (NRIDSRS), Residential Inhalation Soil Remediation Standards (RISRS), Non-Residential Inhalation Soil Remediation Standards (NRISRS), and Migration to Groundwater Soil Remediation Standard (MGWSRS).

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), should future assessment activities indicate the need for groundwater cleanup.

The effective implementation of the applicable laws and guidance will be managed and overseen by an 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 Two Feet Across Site
- Alternative No. 3) Site-wide Soil 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 or commercial/industrial use would not be possible.

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 Two Feet Across Site

Under this alternative, the remedial action will include the removal of the top two feet of soil and replacement with Clean Fill as defined by NJDEP SRP guidance. The work is being streamlined with assessment and remediation performed in parallel. The assessment work and subsequent remedial investigation will delineate the extent of impacts as well as assess the groundwater conditions.

This remediation will include soil excavation, emplacement of clean fill, engineering/institutional controls, and recording of a deed notice. A virtual groundwater classification exemption area (CEA) as institutional controls may be conducted under the remediation (to be determined).

The remedy will prevent exposure to shallow site contaminants. Further details of the remediation plan would include:

- Site preparation and clearing.
- Concrete demolition, characterization, crushing, stockpiling and subsequent removal of approximately 1,750 tons of concrete from concrete slabs of former structures.
- Approximately 11,132 tons of contaminated soil 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 post-excavation sampling and analysis, and the emplacement of clean backfill (a soil cap).
- 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 the 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 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 of site soil and transport by truck to offsite disposal facilities, thereby reducing the fossil fuel energy use, and associated greenhouse gas discharges associated with that task.

3.2.3 Implementability

Removal of impacted soil 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 remediation efforts is required because contaminants above the applicable 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 11,132 tons of impacted soil and 1,750 tons of concrete;
- 6) Procurement and testing of clean fill cap materials;
- 7) Site restoration, including vegetative cover and geotextile fabric as demarcation layer;
- 8) Prepare Soil Remediation Permit;
- 9) Prepare CEA;
- 10) Prepare Remedial Action Report and other regulatory reporting requirements;
- 11) Prepare Quality Assurance, and Health and Safety deliverables.

The estimated cost for this cleanup alternative is \$1,624,419.

3.3 Alternative No. 3 – Site-wide Soil Removal

Under this alternative, the remedial activities will include removal of contaminated soils to the assumed depth to groundwater, at or around 8 feet below grade. Approximately 44,528 tons of impacted soils will be removed, disposed of off-site and replaced with clean fill. Groundwater encountered during soil removal will be pumped from the excavation cavity to an onsite holding tank for characterization analysis and disposal off-site.

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, dewatering may be required and 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. If a CEA is deemed to be required upon completion of a groundwater investigation, than a groundwater CEA may still be required, as noted under other scenario.

3.3.6 Cost

To implement this strategy, a total of approximately 44,528 tons of soil would be excavated, disposed, and replaced with clean fill. Total project costs for this alternative are estimated at \$4,888,683.

3.4 Preferred Alternative

The preferred alternative is Alternative No. 2 – Soil Removal of Top Two Feet 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 and removes the source of any impacted groundwater. Although limited contamination may still exist, the eventual cap and CEA (if determined to be required) 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.



Attachment A
Site Location Map



Notes:

- 1) Aerial sourced from Google Earth Pro (8/23/2022)
- 2) Parcels Included: Block 116, Lot 15; Block 1181 Lot 1; Block 1182, Lots 5 & 21; Block 1186, Lot 25
- 3) NJEDA - New Jersey Economic Development Authority

Legend

- Former Standard Oil Site
- Federal Street Parcels

Scale 1:3,000	0 125 250 500 Feet
Figure Title Former Standard Oil Site	
Client NJEDA	Figure No. 1
Address Federal Street Block 1181 Lot 1 Camden, New Jersey	
Print Date 10/31/2022	



Notes:

- 1) Aerial sourced from Google Earth Pro (8/23/2022)
- 2) Parcels Included: Block 116, Lot 15; Block 1181 Lot 1; Block 1182, Lots 5 & 21; Block 1186, Lot 25
- 3) NJEDA - New Jersey Economic Development Authority

Legend

- Former Incinerator Site
- Federal Street Parcels

Scale	1:3,000	0 125 250 500 Feet
Figure Title	Former Incinerator Site	
Client	NJEDA	Figure No.
Address	Federal Street Block 116 Lot 15 Camden, New Jersey	2
		Print Date 10/31/2022

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ATTACHMENT B
Summary of Public Comments and Responses