

ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES

USEPA Brownfield Cleanup Revolving Loan Fund
Cooperative Agreement BF-00E00793
4401 Rosa Parks Redevelopment Project
Detroit, Michigan

PREPARED FOR Detroit Wayne County Port Authority
130 E. Atwater Street
Detroit, Michigan 48226

and

4401 Rosa Parks LDHA LP
2111 Woodward Avenue Suit 600
Detroit, Michigan 48201

PROJECT # 19812f

DATE March 4, 2025

Table of Contents

1.0 INTRODUCTION.....1

2.0 BACKGROUND.....1

 2.1 SITE DESCRIPTION..... 1

 2.2 SITE HISTORY..... 2

 2.3 PREVIOUS ENVIRONMENTAL INVESTIGATIONS 2

 2.4 CURRENT ENVIRONMENTAL CONCERNS 4

3.0 PROPOSED CLEANUP OBJECTIVES4

 3.1 APPLICABLE REGULATIONS AND CLEANUP STANDARDS..... 4

 3.2 CLEANUP ALTERNATIVES..... 5

 3.2.1 Alternative #1 – No Action 5

 3.2.2 Alternative #2 – Comprehensive Cleanup to Achieve Compliance with Part 201
 Criteria 5

 3.2.3 Alternative #3 – Targeted Cleanup and Use of Engineering Controls 6

4.0 RECOMMENDED CLEANUP ALTERNATIVES.....8

5.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS8

FIGURES

Figure 1 Topographic Location Map

Figure 2 Sample Location Map

ATTACHMENTS

Attachment A..... Response Activity Plan and Approval Letter

ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES

4401 Rosa Parks Redevelopment Project

AKT Peerless Project: 19812f

1.0 Introduction

This Analysis of Brownfield Cleanup Alternatives (ABCA) was prepared by AKT Peerless for the Detroit-Wayne County Port Authority (DWCPA) and the 4401 Rosa Parks Limited Dividend Housing Association LP. The ABCA is a required element of the Brownfield Cleanup Revolving Loan Fund (RLF) Grant awarded to the DWCPA by the United States Environmental Protection Agency (USEPA).

The 4401 Rosa Parks Redevelopment site consists of 13 contiguous parcels comprising approximately two-acres in Detroit, Wayne County, Michigan (the subject property). Environmental cleanup activities at the subject property will be funded, in part, under the USEPA RLF program.

In preparing this ABCA for the Project, AKT Peerless, 4401 Rosa Parks LDHA (property owner), Cinnaire Solutions Corporation (RLF subgrantee) and DWCPA (RLF grantee) considered environmental factors, various site characteristics, surrounding property use, land use restrictions, potential future uses of the subject property and surrounding area, and applicable cleanup goals for the Project.

This ABCA provides a comparative analysis of the cleanup alternatives being considered using the criteria of effectiveness, ability to implement, and the cost of each alternative. This ABCA recommends the most appropriate cleanup alternative and enables the redevelopment of the subject property for commercial use which is a direct benefit to the public.

2.0 Background

2.1 Site Description

The subject property is located at 4401-83 Rosa Parks Blvd., 1923-39 Lysander, 4400-04 Vermont St., and 1922 W. Canfield St. in Detroit, Wayne County, Michigan (see **Figure 1**). The site consists of 13 contiguous parcels comprising approximately 1.8 acres. The subject property contains a mix of grassland and an asphalt parking lot. The subject property boundaries and features are shown on **Figure 2**. The surrounding areas are developed with the Michigan Veterans Foundation to the west and Greater Faith Missionary Baptist Church across the street to the east. The areas to the north and south consist of grasslands. Rosa Parks Boulevard and W. Canfield Street adjoin the subject property to the east and south, respectively.

Subject Property Identifiers

Address	Tax Identification Number	Approximate Acreage
4401 Rosa Parks Boulevard	08008122-3	.065
4407 Rosa Parks Boulevard	08008121	.065
4415 Rosa Parks Boulevard	08008120	.068
4419 Rosa Parks Boulevard	08008119	.068
4429 Rosa Parks Boulevard	08008118	.068
4431 Rosa Parks Boulevard	08008117	.068
4483 Rosa Parks Boulevard	08008116	.133
1923 Lysander Street	08001256	.064
1929 Lysander Street	08001257	.077
1939 Lysander Street	08001258	.077
4400 Vermont Street	08008398.001	.188
4404 Vermont Street	08008398.002	.223
1922 West Canfield Street	08001243	.223

2.2 Site History

The subject property was developed with a cattle yard in 1889 and between 1897 and the 1970s, it consisted of residential development with associated outbuildings. Commercial development on the subject property between 1919 and the 1960s consisted of sales barns, automobile parking, and a printing operation on the south portion of the subject property as well as an insecticide company and a chemical laboratory near the southeast corner of the subject property. Between the 1970s and 1980s, the structures on the subject property were demolished and have remained undeveloped since that time. The eastern portion of the subject property was paved land, and the western portion was grass-covered. Currently, the eastern portion of the subject property consists of a dilapidated asphalt-paved parking lot, while the western portion is grass-covered land. Soil piles and a general household wood and plastic debris pile were present on the northern portion of the subject property and have since been removed.

2.3 Previous Environmental Investigations

Several previous environmental assessments have been completed at the subject property. The following is a summary of the environmental investigations that are relevant to the redevelopment project and proposed remedial activities.

Phase I Environmental Site Assessment (ESA), prepared in October 2024 by SME

SME completed a Phase I ESA of the subject property in October 2024, on behalf of Rosa Parks LDHA LP in conformance with the scope and limitations of ASTM International Standard Practice E 1527-13 without exceptions or deletions. The following recognized environmental condition (REC) was identified in connection with the subject property:

- The known presence of volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and metals in the soil on the subject property exceeding Part 201 Generic Residential Cleanup Criteria (GRCC) and/or Site-Specific Volatilization to Indoor Air Criteria (SSVIAC).

The following vapor encroachment conditions were also identified on the subject property and considered to be an REC:

- The known presence of VOC and PAH impacted soil on the subject property exceeding SSVIAC.

Response Activity Plan to Comply with Section 20107a(1)(b), prepared in June 2024 by SME

On June 4, 2024, SME prepared a Response Activity Plan to Comply with Section 20107a(1)(b) (ResAP) on behalf of 4401 Rosa Parks LDHA LP for response activities proposed for 4401 Rosa Parks Boulevard in Detroit, Wayne County, Michigan, “the subject property.” 4401 Rosa Parks LDHA LP plans to develop the property with one mixed-use commercial/residential structure. 4401 Rosa Parks LDHA LP plans to fund the redevelopment of the property with funding provided by Michigan State Housing Development Authority (MSHDA). Therefore, SME prepared a ResAP under Section 20114b of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act (NREPA), Public Act 451 of 1994, as amended (NREPA).

According to the ResAP, 13 soil borings were advanced at the subject property to evaluate the subsurface conditions. Soil samples were submitted for laboratory analysis of VOCs, PNAs, PCBS, and metals. Concentrations of arsenic, lead, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene were detected above the Residential Direct Contact (DC) Cleanup Criteria. Concentrations of phenanthrene and mercury were detected above the Volatilization to Indoor Air Pathway (VIAP) Screening Levels.

The ResAP identified complete pathways or pathways that would become complete, which included the DC pathway and VIAP. Therefore, response activities are necessary to eliminate exposure risk. SME proposed installation of direct contact barriers at the subject property and installation of a vapor mitigation system to address the DC pathway and VIAP, respectively.

On June 11, 2024, EGLE issued a notice of approval for the ResAP to comply with 7a(1)(b) of Part 201 of NREPA.

October 2024 Baseline Environmental Assessment, prepared in October 2014 by SME

On October 14, 2024, SME prepared a BEA on behalf of 4401 Rosa Parks LDHA LP and 4401 Rosa Parks 4 LDHA LP. The BEA was based on a BEA prepared in 2019 by ASTI Environmental, a Phase II ESA prepared in 2022 by SME, and SME’s October 2024 Phase I ESA summarized above.

Based on subsurface investigations conducted by NTH in December 2004, NTH in March 2004, and SME in October 2022, concentrations of trichloroethylene, PNAs, and metals exceeded the EGLE GRCC and/or SSVIAC. Therefore, the subject property meets the definition of a *facility* as defined in Part 201 of NREPA.

Refer to Attachment A for a copy of the June 2024 Response Activity Plan and EGLE approval letter. Copies of remaining previous investigations are maintained on file with 4401 Rosa Parks LDHA LP.

2.4 Current Environmental Concerns

Based on the results of the environmental assessment completed for the property, the presence of contaminants of concern that exceed the applicable Part 201 criteria present the following exposure pathways are complete or likely to become complete based on the proposed use of the subject property:

- Direct Contact (with soil)
- Soil Particulate Inhalation
- Soil Volatilization to Ambient Air
- Soil Volatilization to Indoor Air

Therefore, environmental cleanup and response activities will be necessary to abate, prevent, minimize, mitigate or eliminate these pathways during site development.

3.0 Proposed Cleanup Objectives

Rosa Parks LDHA LP intends to the construct a four-story, mixed-income new construction building that will bring residential units in the Woodbridge Neighborhood in Detroit, Michigan. The project will include a total of 60 residential units, with 48 affordable units and 12 market rate units. A new public plaza in front of the building along Canfield Street, in addition to a community space and fitness room, is also proposed as part of this project. The intent is to anchor the corner and create an inviting space for the residents and the community. Surface parking will be adjacent to the building along Canfield Street, strategically placed behind a large open space that faces Canfield.

As part of the proposed redevelopment of the subject property, the developer intends to remove existing soils requiring excavation for construction of the building, pave surfaces, and install landscaping. Excavated contaminated soils will be characterized and transported for disposal at a licensed facility. For areas not occupied by the building footprint or by paved surfaces, contaminated soils will be covered by a demarcation fabric followed by at least 12-30 inches of clean engineered fill and/or topsoil and stabilized by seed, sod, or mulch. Within the proposed building, the developer will install an active sub-slab depressurization (ASSD) system to mitigate potential vapor intrusion concerns. RLF specific activities to accomplish brownfield redevelopment for this Project may include:

- Preparing necessary work plans
- Preparing bid specifications for hazardous materials mitigation/removal
- Soil excavation, transportation, and disposal
- Vapor mitigation system design and installation
- Oversight and monitoring during eligible activities
- Sampling and reporting to verify and document achievement of cleanup goals and objectives
- Final reporting
- Other eligible cleanup activities, as necessary to accomplish brownfield redevelopment goals

3.1 Applicable Regulations and Cleanup Standards

Laws and regulations that are applicable to this cleanup include the Federal Small Business Liability Relief and Brownfields Revitalization Act, the Brownfields Utilization, Investment, and Local Development (BUILD) Act, and the Federal Davis-Bacon Act. Federal, state, and local laws regarding procurement of contractors to conduct the cleanup will be followed. As described herein, all cleanup will be in

accordance with the State of Michigan regulations. All applicable permits and documentation will be obtained prior to the work commencing, and all work will be conducted in accordance with the conditions for approval.

Remediation activities will be undertaken in a manner compliant with protocols established by EGLE pursuant to Part 201 of NREPA, federal Occupational Safety and Health Administration (OSHA), and/or Michigan Occupational Safety and Health Administration (MIOSHA), as applicable. An environmental professional will oversee remediation activities and will include reporting to the EGLE upon completion, as necessary.

3.2 Cleanup Alternatives

To verify that the use of the USEPA RLF for the Project is appropriate and warranted, Rosa Parks LHDA, DWCPA, and AKT Peerless conducted an evaluation of the proposed development activities to ensure that they are the best and appropriate environmental activities based on a combination of efficacy, implementation, and cost.

Remedial alternatives included in this portion of the ABCA were developed based on the nature and extent of contamination, planned development activities and schedule, and technological feasibility.

3.2.1 Alternative #1 – No Action

The “no action” cleanup alternative is included in the evaluation as a standard to compare other remedial action in order to compare and contrast any significant reduction in site risk, as necessary. For the “no action” alternative, no action to remediate the issues identified at the site would remain in place. This alternative does not include a means to mitigate or eliminate potential exposure both during and following redevelopment and does not meet the objectives of the project.

Effectiveness

This alternative is not effective in controlling the release of contaminants or achieving project goals. Contamination will remain in the ground and potentially cause issues related to the development activities as well as present a vapor intrusion concern.

Ability to Implement

This option would be the simplest to implement since no activities will be conducted.

Cost

No direct costs are associated with this alternative; however, due care responsibilities would not be addressed and may result in additional management costs during development and future use.

3.2.2 Alternative #2 – Comprehensive Cleanup to Achieve Compliance with Part 201 Criteria

Alternative #2 involves the complete removal of all contamination from the site that represents unacceptable exposure risk to future occupants. A comprehensive cleanup approach would facilitate unrestricted use of the property and eliminate the exposure risk via direct contact, soil particulate inhalation, soil volatilization to ambient air, and soil volatilization to indoor air pathways. In addition, this alternative would eliminate the need for engineering controls (i.e., an active vapor mitigation system and direct contact barriers) as well as the associated future operation and maintenance activities that are required.

Effectiveness

This alternative is effective as it completely eliminates contamination from the subject property, allowing the construction of the proposed mixed-use development to proceed. A comprehensive cleanup approach would mitigate the threat to human health and the environment, will not require long term operation and maintenance, and will support future development of the subject property. This option would also be protective of public health, the community or workers at the site and would improve the general environmental quality of the subject property and the area by removing the contaminated media, as well as addressing vapor intrusion concerns. Therefore, this alternative is the most effective option for this Project. Drawbacks from this alternative include (1) creating potential off-site safety concerns associated with transportation of waste materials and (2) using landfill capacity.

Ability to Implement

The excavation, transport and disposal of contaminated soil are generally routine, and easily implemented. Based on the results of the previous investigations, the disposal of contaminated soils will likely be characterized as non-hazardous. The site is accessible for field equipment and field personnel, licensed disposal facilities are available to accept the contaminated soil and located a reasonable distance from the subject property; however, this alternative would present implementation challenges with regard to project scope. There is insufficient environmental data to horizontally and vertically delineate the contaminated areas on the subject property. Acquiring sufficient data would require the collection of numerous soil samples at multiple boring locations across the property, which would cause project delays. Once the horizontal and vertical extent of the contamination is defined, the extent of excavation needed to remove contaminated soil can be estimated; however, it's likely that the volume of contaminated soil requiring removal will be extensive and involve adjacent parcels that are not part of the subject property.

Additional health and safety concerns will need to be addressed for the management, monitoring and construction worker exposure to the contaminated soil and groundwater. In addition, open excavations will need to be properly maintained and barricaded to protect the surrounding areas and prevent undue access to the property.

Cost

Although the exposure pathways would be addressed by this alternative, the cost of implementing a comprehensive cleanup approach would not be financially feasible. The approach would involve complete excavation, transport and disposal of contaminated soil to achieve Part 201 criteria and would add significant costs to the project.

3.2.3 Alternative #3 – Targeted Cleanup and Use of Engineering Controls

A targeted cleanup approach involves the excavation and removal of existing contaminated soils that are required for construction of the proposed building, installation of hard surfaces, and landscaping. Once excavated, the contaminated soils would be characterized and transported for disposal at a licensed facility. Under this alternative, the excavation, transportation and disposal of contaminated soil will not be sufficient to achieve Part 201 criteria. Therefore, the use of engineering controls will be implemented. For areas not occupied by the building footprint or by paved surfaces, contaminated soils will be covered by a direct contact barrier that includes a demarcation fabric followed by at least 12-30 inches of clean engineered fill and/or topsoil and stabilized by seed, sod, or mulch. Within the proposed building, the developer will install an active sub-slab depressurization (ASSD) system to mitigate potential vapor intrusion concerns. These features will be maintained under an operations and maintenance program.

Effectiveness

The excavation and removal of existing contaminated soils to facilitate the construction of the proposed building, installation of hard surfaces, and landscaping in conjunction with installation of an active vapor mitigation system within the proposed building, and a direct contact barrier for areas not occupied by the building or paved surfaces is protective of public health, the community or workers at the site and would improve the general environmental quality of the subject property and the area by providing protection from the vapor intrusion concern. Therefore, this alternative is an effective option for this Project. Drawbacks from this alternative include (1) creating potential off-site safety concerns associated with transportation of waste materials, (2) using landfill capacity and, (3) require ongoing operation and maintenance.

Ability to Implement

The excavation, transport and disposal of contaminated soil are generally routine, and easily implemented. Based on the results of the previous investigations, the disposal will likely be non-hazardous. The site is accessible for field equipment and field personnel, licensed disposal facilities are available to accept the contaminated soil and located a reasonable distance from the subject property. Additional health and safety concerns will need to be addressed for the management, monitoring and construction worker exposure to the contaminated soil and groundwater. In addition, open excavations will need to be properly maintained and barricaded to protect the surrounding areas and prevent undue access to the property.

The installation of a demarcation barrier and cap for areas are also routine and easily implemented. Demarcation fabric materials are readily available, and sources of clean fill materials are located within a reasonable distance from the property. Sampling of imported fill materials will need to be conducted to verify the material is not originating from a contaminated source, prior to delivery to the site. Additional health and safety concerns will need to be addressed for the management, monitoring and construction worker exposure to the contaminated soil and groundwater.

The installation of an active vapor mitigation system is routinely used, easily implemented and can be installed as part of the initial construction of the building; however, ongoing testing and monitoring of the system would be required to ensure effectiveness.

The targeted removal of contaminated soils, in conjunction with the use of engineering controls, would allow the construction of the proposed mixed-use development to proceed. This option would also be protective of public health, the community or workers at the site and would improve the general environmental quality of the subject property and the area by providing protection from the potential vapor intrusion concern posed by the volatiles detected in soil at the subject property.

Cost

The costs to load, transport and dispose of the contaminated soil (estimated at 6,240 cubic yards) that may need to be removed from the subject property, and providing all requisite management, sampling, and monitoring, are estimated to be \$290,000 to \$315,000.

The costs to install the demarcation barrier (approximately 29,750 square feet), as well as the import of approximately 2,450 cubic yards of engineered fill and 1,100 cubic yards of topsoil, backfilling and providing all requisite management, sampling, and monitoring, are estimated to be \$150,000 to \$200,000.

The costs for installation, monitoring, and reporting of the active vapor mitigation system are estimated to be \$200,000 to \$300,000.

4.0 Recommended Cleanup Alternatives

Alternative #3, the targeted cleanup and use of engineering controls at the subject property is recommended. Alternatives were evaluated based on effectiveness, ability to implement, cost, and the proposed redevelopment of the subject property. The results of the analyses of each of these factors for each option were evaluated as a whole and between options to arrive at the recommendation presented below.

The “no action” alternative was included in this ABCA for comparative purposes only and is not a feasible option for the management of soil contamination at the subject property, nor does it address concerns to human health, safety, welfare and the environment. Further, the proposed redevelopment of the property cannot be completed without remediation measures. Consequently, the “no action” option was eliminated from further discussion.

While still a viable option for remediation, Alternative #2 is not implementable due to the lack of sampling data needed to adequately delineate the contaminated areas horizontally and vertically. In addition, the costs to conduct an additional assessment to obtain the necessary sampling data, as well as the anticipated cost to remediate the site to achieve Part 201 criteria are not economical as the total anticipated remediation costs would make the project financially not feasible.

Therefore, Alternative #3, the targeted cleanup and use of engineering controls is recommended for implementation at the subject property. This cost-effective approach will: (1) mitigate the threat to human health and the environment, (2) support future development of the subject property, and (3) will remove the vapor intrusion concern. This alternative is the most effective option for this Project.

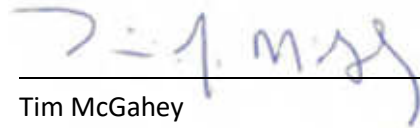
This cleanup alternative has also been presented the project’s Response Activity Plan to Comply with Section 20107a(1)(b), prepared in September 2023 by SME, which was subsequently approved by EGLE on June 11, 2024. Refer to **Attachment A**.

5.0 Signatures of Environmental Professionals

This ABCA was prepared by the following individuals:

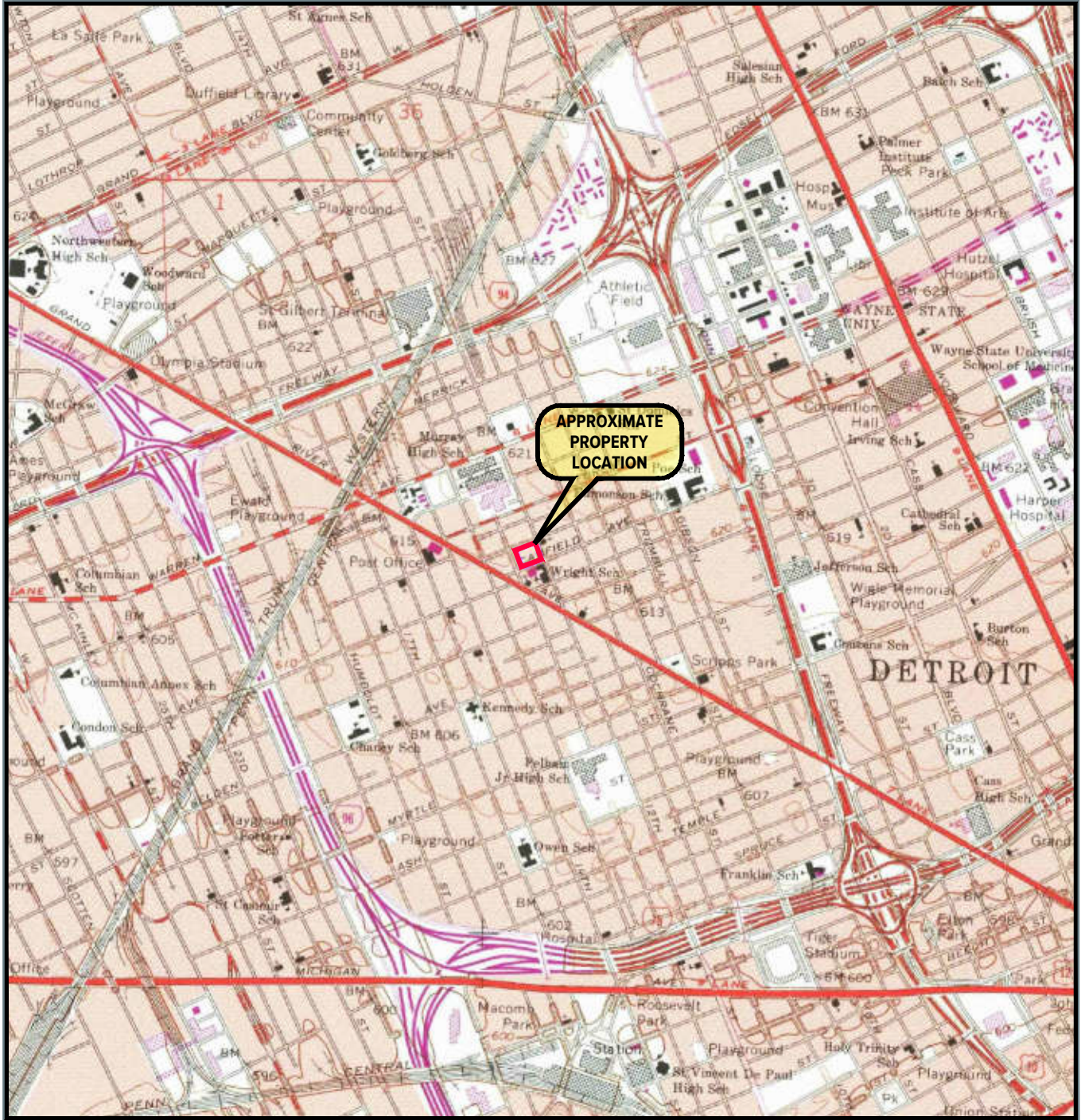


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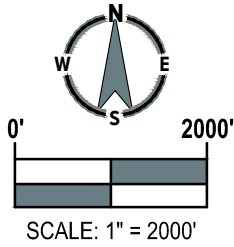
Figures



Base map obtained from ERIS®

USGS QUADRANGLE(S) REFERENCED

DETROIT (MI) 1980



No.	Revision Date	Date
		3/17/2022
	Drawn By	JAB
	Designed By	KMP
	Scale	1" = 2000'
	Project	088822.00.001

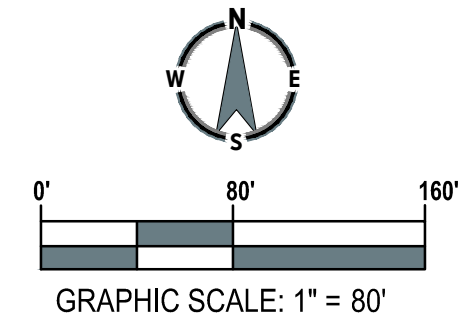
PROPERTY LOCATION MAP
GRASS-COVERED AND PAVED LAND
AREA NORTHWEST OF ROSA PARKS BOULEVARD
AND WEST CANFIELD STREET
DETROIT, MICHIGAN



Figure No. 1

\\Sme-inc\p\WIP\088822.00\CAD\Design Files\ENV\Rev\088822.00.001-PH1.dwg

PLOT DATE: Mar 17, 2022 - 11:26am - julie.blake



LEGEND

--- APPROXIMATE PROPERTY BOUNDARY

NOTE:
AERIAL IMAGE TAKEN FROM GOOGLE EARTH PRO WITH AN
IMAGE DATE OF 7-15-2017 AND SITE RECONNAISSANCE.



Project
**GRASS-COVERED
AND PAVED LAND**

Project Location
**AREA NORTHWEST
OF ROSA PARKS
BOULEVARD AND
WEST CANFIELD
STREET
DETROIT, MICHIGAN**

Sheet Name
**PROPERTY FEATURES
DIAGRAM**

No.	Revision Date

Date	3/17/2022
CADD	JAB
Designer	KMP
Scale	AS NOTED
Project	088822.00.001

Figure No.
2

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17"
AND WILL SCALE INCORRECTLY IF PRINTED ON ANY
OTHER SIZE MEDIA
NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR
CONSENT OF SME
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Attachment A



GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING



PHILLIP D. ROOS
DIRECTOR

June 11, 2024

VIA EMAIL

Liliana Gonzalez, Development Manager
4401 Rosa Parks LDHA LP
2111 Woodward Avenue, Suite 600
Detroit, Michigan 48201

Dear Liliana Gonzalez:

SUBJECT: Notice of Approval of Response Activity Plan to Comply with 7a(1)(b)
4401 Rosa Parks Boulevard, Detroit, Wayne County, Michigan
Property Tax ID Numbers: 08008122-3, 08008121, 08008120, 08008119,
08008118, 08008117, 08008116, 08001256, 08001257, 08001258,
08008398.001, 08008396.02, and 08001243
Facility ID Number: 82008833

On May 31, 2024, the Department of Environment, Great Lakes, and Energy (EGLE), Remediation and Redevelopment Division (RRD) conditionally approved the Response Activity Plan (ResAP) to Comply with 7a(1)(b) of Part 201 Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA) for the above-referenced address. The ResAP was submitted under Section 20114b(3) of the NREPA on April 15, 2024, by Brett Stuntz of SME. The ResAP was approved with the following conditions:

- The entry provided in the Property Tax ID box within Section B of the submittal cover sheet (Form EQP4380) states “see table within attached survey.” The actual parcel number or property tax identification number representing the subject property must be entered into this box.
- Section 8.1.3 of the ResAP states that visual inspections of the landscaped and paved areas will be performed on a quarterly basis. This inspection frequency for paved areas is acceptable, and for landscaped areas is acceptable only after vegetation is fully established. Immediately following construction, and until vegetation is fully established, more frequent inspections (e.g., at least weekly) are required.

Documentation regarding the conditions was submitted on your behalf by Bret Stuntz of SME on June 6, 2024. EGLE has completed its review of the submittal and concurs that the conditions have been met and the ResAP is approved.

This approval of the ResAP is based upon the representations and information contained in the submittal, therefore EGLE expresses no opinion as to whether other conditions that may exist will be adequately addressed by the response activities that are proposed in the plan. If environmental contamination is found to exist that is not addressed by the ResAP and you are otherwise liable for the contamination, additional response activities may be necessary.

The owner and operator of this property may also have responsibility under applicable state and federal laws, including but not limited to, Part 201, Environmental Remediation; Part 111, Hazardous Waste Management; Part 211, Underground Storage Tank Regulations; Part 213, Leaking Underground Storage Tanks; Part 615, Supervisor of Wells, of the NREPA; and the Michigan Fire Prevention Code, 1941 PA 207, as amended.

This approval is pursuant to the applicable requirements of the NREPA. The Michigan State Housing Development Authority may have additional site selection requirements beyond the NREPA statutory obligations for site characterization and remedial actions or response activities necessary to prevent, minimize, or mitigate injury to public health, safety, or welfare, or to the environment.

If you should have further questions or concerns, please contact Martha Thompson, RRD, Brownfield Assessment and Redevelopment Section, at 517-285-3461.

Sincerely,



Carrier Geyer, Manager
Brownfield Assessment and Redevelopment
Section
Remediation and Redevelopment Division
GeyerC1@Michigan.gov

cc: Paul Glasser, SME
Brett Stuntz, SME
Paul Owens, EGLE
Martha Thompson, EGLE
Jarrett McFeters, EGLE



RESPONSE ACTIVITY PLAN TO COMPLY WITH SECTION 20107a(1)(b)

4401 ROSA PARKS BOULEVARD
DETROIT, MICHIGAN 48208

SME Project Number: 088822.00.005
June 4, 2024



TABLE OF CONTENTS

1. INTRODUCTION	1
2. DETAILED PROPERTY DESCRIPTION	1
3. PROPERTY USE	1
3.1 CURRENT AND INTENDED PROPERTY USE.....	1
3.2 HISTORICAL PROPERTY USE.....	2
3.3 PROPERTY GEOLOGY/HYDROGEOLOGY/TOPOGRAPHY	3
4. IDENTIFICATION OF COMPLETE/LIKELY TO BECOME COMPLETE EXPOSURE PATHWAYS	3
5. ASSESSMENT OF APPLICABILITY OF GENERIC CRITERIA	4
6. IDENTIFICATION OF THE APPLICABLE CLEANUP CATEGORY	4
7. CONTAMINANT INFORMATION	4
7.1 LOCATION AND CONCENTRATIONS OF CONTAMINANTS OF CONCERN ...	4
7.1.1 SOIL.....	5
8. IDENTIFICATION OF COMPLETE OR LIKELY TO BECOME COMPLETE EXPOSURE PATHWAYS REQUIRING RESPONSE ACTIVITIES TO MITIGATE UNACCEPTABLE EXPOSURES	6
8.1 DIRECT CONTACT – SOIL	6
8.1.1 PROTECTION DURING REDEVELOPMENT ACTIVITIES.....	6
8.1.2 PROPOSED EXPOSURE BARRIERS	6
8.1.2.1 BUILDING FOOTPRINT	6
8.1.2.2 HARDSCAPE (PAVEMENT, SIDEWALKS, ETC.).....	6
8.1.2.3 LANDSCAPED AND RECREATIONAL AREAS	7
8.1.2.4 STORMWATER POND	8
8.1.3 OPERATIONS, MAINTENANCE AND MONITORING PLAN	8
8.2 VOLATILIZATION TO INDOOR AIR – SOIL.....	8
8.2.1 OPERATIONS, MAINTENANCE AND MONITORING PLAN	9
9. SIGNATURES	9
10. REFERENCES	10

FIGURES

FIGURE 1: PROPERTY LOCATION MAP

FIGURE 2: PROPERTY FEATURES AND SAMPLE LOCATION DIAGRAM

FIGURE 3: PROPOSED SITE PLAN AND SAMPLE LOCATION DIAGRAM

FIGURE 4: RECOGNIZED ENVIRONMENTAL CONDITIONS

FIGURE 5: SOIL ANALYTICAL EXCEEDANCE DIAGRAM

FIGURE 6A: CROSS SECTION A-A' DIRECT CONTACT EXCEEDANCES

FIGURE 6B: CROSS SECTION B-B' DIRECT CONTACT EXCEEDANCES

FIGURE 7A: CROSS SECTION A-A' SSVIAC EXCEEDANCES

FIGURE 7B: CROSS SECTION B-B' SSVIAC EXCEEDANCES

TABLES

TABLE 1: SUMMARY OF ANALYSIS RESULTS – SOIL

APPENDIX A

SME'S 2022 PHASE I ESA REPORT

APPENDIX B

SOIL BORING LOGS

APPENDIX C

SITE-SPECIFIC VOLATILIZATION TO INDOOR AIR CRITERIA

APPENDIX D

LABORATORY REPORTS

APPENDIX E

RESIDENT ACKNOWLEDGMENT FORM

APPENDIX F

EXPOSURE BARRIER AREAS

APPENDIX G

EXPOSURE BARRIER INSPECTION FORMS

APPENDIX H

ASSD SYSTEM DESIGN

1. INTRODUCTION

SME has prepared this Response Activity Plan to Comply with Section 20107a(1)(b) (ResAP) on behalf of 4401 Rosa Parks LDHA LP for response activities proposed for 4401 Rosa Parks Boulevard in Detroit, Wayne County, Michigan, “the Property.” 4401 Rosa Parks LDHA LP plans to purchase the Property in 2023 and develop the Property with one mixed-use commercial/residential structure.

4401 Rosa Parks LDHA LP plans to fund the redevelopment of the Property with funding provided by Michigan State Housing Development Authority (MSHDA). The Michigan Department of Environment, Great Lakes and Energy (EGLE) approval of this ResAP is required to satisfy MSHDA financing requirements. We are requesting review and approval under Section 20114b of Part 201, *Environmental Remediation*, of the Natural Resources and Environmental Protection Act (NREPA), Public Act 451 of 1994, as amended (Part 201).

2. DETAILED PROPERTY DESCRIPTION

The Property consists of approximately 1.8 acres of land in the southern portion of the City of Detroit. The Property location is shown on Figure 1. Figure 1 is a scaled area map showing the location of the Property and surrounding areas. The Property contains a mix of grassland and an asphalt parking lot. The Property boundaries and features are shown on Figure 2. The surrounding areas are developed with the Michigan Veterans Foundation to the west and Greater Faith Missionary Baptist Church across the street to the east. The areas to the north and south consist of grasslands. Rosa Parks Boulevard and West Canfield Street adjoin the Property to the east and south, respectively.

Municipal water and municipal sanitary sewer are available in the area of the Property. Stormwater in the area infiltrates into the ground surface or flows overland to parking lot catch basins or adjoining roadways.

No underground storage tanks (USTs), other “belowground containers”, aboveground storage tanks (ASTs), or discarded or abandoned containers are known to be present on the Property.

The ground surface in the unpaved portions of the Property is covered by grass, bushes, and trees. Therefore, the erosion of surface soils does not present a risk to surrounding sites.

3. PROPERTY USE

3.1 CURRENT AND INTENDED PROPERTY USE

The Property is developed with asphalt pavement and grass-covered land. The existing Property features are shown on Figure 2.

4401 Rosa Parks LDHA LP plans to redevelop the Property with one four-story mixed-use structure. The structure will be 14,516 square feet in size. The remainder of the Property will be developed with paved parking and landscaped areas, including a recreational area. The proposed site layout and utilities are shown on Figure 3. The proposed buildings will be supported by shallow foundations. Post development, storm water will be detained on-site in a pond located in the northwestern portion of the Property. Residents and visitors will presumably live and recreate on the Property, both inside and outside the structures.

The ground surface in the portions of the Property outside of the building footprints will be covered by pavement or at least 12 to 30 inches of clean fill/topsoil (depending on future use and proposed landscaping), as described further in Section 8.1.2. Therefore, the erosion of surface soils will not present a risk to surrounding sites.

No land or resource use restrictions are currently being relied upon to manage environmental conditions on the Property, and there are no current response activities or corrective actions being undertaken on the Property by a liable or non-liable party.

3.2 HISTORICAL PROPERTY USE

SME's project team conducted a Phase I Environmental Site Assessment (ESA) and prepared a Phase I ESA report dated April 1, 2022, included in Appendix B.

Based on our historical research, the Property was developed with a cattle yard in 1889. Between 1897 and the 1970s, it consisted of residential development with associated outbuildings. Commercial development on the Property between 1919 and the 1960s consisted of sales barns, automobile parking, and a printing operation on the south portion of the Property, and a market, insecticide company, and chemical laboratory near the southeast corner of the Property. Between the 1970s and 1980s, the structures on the Property were demolished. The eastern portion was paved land, and grass-covered land was on the west portion of the Property. In 2019, a Phase II ESA of the Property and surrounding area identified various volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and metals exceeding Part 201 standards in the soil on the Property. At the time of the Phase I ESA site reconnaissance, paved land was present on the east portion of the Property, grass-covered land was present on the west portion of the Property. Soil piles and a general household wood and plastic debris pile were present on the north portion of the Property.

The Property was bordered by Lysander Street, Rosa Parks Boulevard, and West Canfield Street to the north, east, and south, respectively. In the late 1890s, the surrounding area consisted primarily of residential development with a cattle yard to the west, a carpenter shop to the south, a church to the east, and storefronts to the north. By 1921, a school was present south of the Property and in 1950, an automobile repair facility was present to the south. By the 1980s, the surrounding area consisted primarily of vacant land with an automobile repair facility and school to the south, and a church and residential development to the east. Lysander Street no longer bordered the Property to the north. At the time of the site reconnaissance, the surrounding area consisted of grass-covered land to the north, west, and south, and a church and grass-covered land to the east.

The following recognized environmental conditions (RECs) were identified in the Phase I ESA report:

- The known presence of VOCs, PAHs, and metals in the soil on the Property exceeding Part 201 standards.
- The potential for release of contaminants associated with the former use of the Property as a printing operation, insecticide company, and chemical laboratory.
- The potential for unknown contaminants to be present in the soil mounds/piles at the Property.
- The potential for contaminants associated with buried demolition debris and/or fill of unknown origin in the location of the former structures and basements on the Property.

We identified no other significant data gaps or limiting conditions representing significant data gaps in connection with the Phase I ESA.

Note: In Section 5.4.2 of the Phase I ESA, a statement that underground storage tanks (USTs) were no longer depicted on fire insurance maps (FIMs) was made. No USTs were depicted on the FIMs or are known to have existed on the Property.

3.3 PROPERTY GEOLOGY/HYDROGEOLOGY/TOPOGRAPHY

The Property is relatively flat at an elevation of approximately 615 feet above mean sea level. The surface materials consisted of grass and topsoil in the west half of the Property and consisted of asphalt pavement in the east half of the Property. The surface materials were generally underlain by sand and clay fill materials. The fill contained varying amounts of silt, clay, brick, wood, and gravel. The fill materials generally extended to depths ranging from 1 foot to 4.5 feet bgs. The fill materials were underlain by native clay that extended to the explored depths of the soil borings. The fill material at SB106 was underlain by sand fill to a depth of 7 feet bgs, where concrete was encountered, and where we experienced advancement refusal. It is believed this concrete was the basement of the demolished printing operation building.

Descriptions of the soil conditions encountered are documented on the soil boring logs in Appendix B. Figures 6A through 7B are cross-section diagrams that show the geological information beneath/adjacent to the proposed structures.

Groundwater was not encountered at any of the soil boring locations. If groundwater is present in the local area, the presumed flow direction is toward the Detroit River located approximately 2 miles to the south-southeast.

4. IDENTIFICATION OF COMPLETE/LIKELY TO BECOME COMPLETE EXPOSURE PATHWAYS

An evaluation of complete or likely to become complete exposure pathways at the Property is presented in the table below.

EXPOSURE PATHWAY	COMPLETE PATHWAY?	RELEVANT PROPERTY CONDITIONS AND EXPLANATION
Drinking Water	No	The Property will be serviced by a municipal water supply, and no potable water wells are currently present on the Property.
Direct Contact	Yes	A person could come into contact with soil.
Soil Particulate Inhalation	Yes	A person could inhale particulates in ambient air from substances present in soil via wind erosion of contaminated soil and vehicle traffic if portions of the pavements were removed or if vegetation was disturbed.
Soil Volatilization to Ambient Air	Yes	A person could inhale ambient air that contains vapors from volatile substances present in soil.
Soil Volatilization to Indoor Air	Yes	A person could inhale indoor air within the proposed buildings that contains vapors from volatile substances present in soil.
Groundwater-Surface Water Interface	No	No surface water exists at or adjacent to the Property.

Based on the above evaluation, the following exposure pathways are complete or likely to become complete based on the proposed use of the Subject Property:

- Direct Contact (with soil)
- Soil Particulate Inhalation

- Soil Volatilization to Ambient Air
- Soil Volatilization to Indoor Air

5. ASSESSMENT OF APPLICABILITY OF GENERIC CRITERIA

Site conditions were evaluated to determine whether the Part 201 generic residential criteria for all complete pathways are applicable. Soil samples were not analyzed for diesel range organics (DRO) or gasoline range organics (GRO); therefore, it is not possible to conclude that residual non-aqueous phase liquid (NAPL) is not present within the soil matrix at concentrations that would preclude the use of the generic residential criteria for either the volatilization to indoor air inhalation pathway or the direct contact pathway due to the presence of residual NAPL. However, other multiple lines of evidence indicate that residual NAPL may not be present: no PID readings greater than 1 ppm were measured, and no odors noted, except for a petroleum odor at SB111. Soil stained black was observed at borings SB107, SB108, SB112, and SB113; but no sheen was observed.

The applicability of the generic soil volatilization to indoor air criteria was also evaluated in accordance with Appendix C.1 of the EGLE Guidance Document for the Vapor Intrusion Pathway (May 2013 and updated 2022). The proposed building will primarily consist of poured slab-on-grade concrete floors, that includes an elevator pit with a sump, which precludes the use of the generic soil volatilization to indoor air criteria.

Site-specific volatilization to indoor air criteria (SSVIAC) were developed and provided by EGLE on February 6, 2023. A copy of the SSVIAC memo is included in Appendix C.

The subject property area is approximately 1.8 acres; therefore, a modifier of 0.77 was used in the development of the criteria for the soil particulate inhalation and soil volatilization to ambient air pathways, as outlined in the 2007 EGLE – Remediation and Redevelopment Operational Memorandum #1 Technical Support Document – Attachment 7 Part 201 Generic Soil Inhalation Criteria for Ambient Air.

6. IDENTIFICATION OF THE APPLICABLE CLEANUP CATEGORY

4401 Rosa Parks LDHA LP plans to develop the Property with one multitenant, mixed-use residential building; therefore, the residential land use cleanup category is applicable.

7. CONTAMINANT INFORMATION

SME completed environmental assessments at the Property in October 2022 to evaluate the potential for contaminants to be present in urban fill soils and to collect preliminary data for Due Care planning related to the proposed redevelopment.

The assessments included advancing 13 soil borings and collecting soil samples. The soil boring locations are shown on Figure 2. The soil samples were submitted for laboratory analysis of volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), arsenic, barium, cadmium, total chromium, hexavalent chromium, copper, lead (total, coarse, and fine fractions), mercury, selenium, silver and/or zinc. The laboratory reports are included in Appendix D.

7.1 LOCATION AND CONCENTRATIONS OF CONTAMINANTS OF CONCERN

The analytical results for the soil samples are detailed in Table 1. The sample locations and Part 201 Generic Residential Cleanup Criteria and Residential SSVIAC exceedances are shown on Figures 5. Laboratory reports are included in Appendix D.

7.1.1 SOIL

Benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, fluoranthene, phenanthrene, arsenic, copper, lead (total, coarse, and fine fractions), mercury, selenium, and zinc were measured in soil at concentrations exceeding Part 201 Generic Residential Cleanup Criteria.

Fluoranthene, phenanthrene, arsenic, copper, lead, mercury, selenium, and zinc were measured in soil at concentrations were measured at concentrations above drinking water protection criteria (DWPC) and/or groundwater surface water interface protection criteria (GSIPC).

Benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, arsenic, and lead (total, coarse, and fine fractions) were measured in soil at concentrations were measured at concentrations above the Part 201 Generic Residential Direct Contact Criterion (DCC). These exceedances are displayed on cross section diagrams 6A and 6B.

Phenanthrene and mercury were measured in soil at concentrations above Residential SSVIAC. These exceedances are displayed on cross section diagrams 7A and 7B.

PCBs were not measured above the laboratory reporting limit.

EXPOSURE PATHWAY	COMPLETE PATHWAY?	CONTAMINANTS WITH UNACCEPTABLE CONCENTRATIONS	HIGHEST MEASURED CONCENTRATION ON PROPERTY (UG/KG)	RESPONSE ACTIVITY REQUIRED?
Drinking Water	No	Arsenic Lead	110,000 3,100,000	No
Direct Contact	Yes	Benzo(a)pyrene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Arsenic Lead	19,000 22,000 3,400 110,000 3,100,000	Yes
Soil Particulate Inhalation	Yes	None	N/A	No
Soil Volatilization to Ambient Air	Yes	None	N/A	No
Volatilization to Indoor Air (VIAP)	Yes	Phenanthrene Mercury	12,000 1,500	Yes
Groundwater-Surface Water Interface	No	Fluoranthene Phenanthrene Arsenic Copper Mercury Selenium Zinc	17,000 20,000 110,000 1,400,000 1,500 25,000 290,000	No

8. IDENTIFICATION OF COMPLETE OR LIKELY TO BECOME COMPLETE EXPOSURE PATHWAYS REQUIRING RESPONSE ACTIVITIES TO MITIGATE UNACCEPTABLE EXPOSURES

The following subsections discuss the exposure pathways that were identified as complete in Section 4 and, as applicable, activities that will be completed to mitigate unacceptable exposures.

8.1 DIRECT CONTACT – SOIL

As indicated in Section 7.1.1, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, arsenic, and lead are present in soil at concentrations above the Part 201 Generic Residential Direct Contact Criterion. In order to mitigate unacceptable exposures, activities will be undertaken both during and after redevelopment activities. These activities are discussed in the following subsections.

8.1.1 PROTECTION DURING REDEVELOPMENT ACTIVITIES

An Environmental Management (EMP) will be prepared to provide written notice to all construction and utility contractors working at the Property during development regarding the presence of contaminated soils. Contractors and other authorized third parties will receive a copy of the EMP and will be required to sign an acknowledgment form and prepare their own site-specific Health and Safety Plan (HASP). 4401 Rosa Parks LDHA LP will also be responsible for communicating potential environmental hazards and risks to their employees and subcontractors in conformance with the OSHA Hazard Communication Standard (29 CFR 1910.1200).

An acknowledgment form will be prepared to provide written notice to future residents regarding restrictions on digging, planting, and other subgrade activities. The acknowledgment form will be included in the lease agreement and will be required to be signed by the Lessee. Acknowledgment forms will be retained by the property manager.

A copy of the acknowledgment form is provided as Appendix E.

8.1.2 PROPOSED EXPOSURE BARRIERS

Redevelopment of the Property will include the construction of buildings, installation of hard surfaces such as pavement, and landscaped areas. These will serve as exposure barriers and be maintained to mitigate direct contact with the known contaminated soil. All existing soils requiring excavation for construction of the building, installation of hard surfaces, and landscaping will be characterized and transported for disposal at a licensed disposal facility.

8.1.2.1 BUILDING FOOTPRINT

Contaminated soil will be covered with required subgrade material (i.e., vapor mitigation system aggregate and vapor barrier in the enclosed areas of the first floor) and a 5-inch concrete floor slab. These will serve an exposure barrier to mitigate contact with underlying contaminated soils in the building footprint areas.

8.1.2.2 HARDSCAPE (PAVEMENT, SIDEWALKS, ETC.)

These barriers will be comprised of:

- Hot-mix asphalt pavement

- Poured concrete pavement and sidewalks
- Poured concrete slab-on-grade

Hot-mix asphalt pavement will consist of 1.5 inches of asphalt wearing course, underlain by 2.5 to 3 inches of asphalt leveling course, underlain by 8 to 10 inches of 21AA crushed limestone, underlain by subgrade material or engineered fill.

Poured concrete slab, pavement, and sidewalks will consist of 4 to 6 inches of 6AA concrete, underlain by 6 inches of 21AA crushed limestone, underlain by subgrade material or engineered fill.

A diagram that depicts the proposed hardscape areas is included in Appendix F.

8.1.2.3 LANDSCAPED AND RECREATIONAL AREAS

Landscape areas will include any or all of the following:

- Trees
- Shrubs
- Perennial plants
- Grass (lawn)
- Mulch

Contaminated soil will be covered with a barrier comprised of three layers:

1. Visual demarcation fabric over the contaminated soils, such as MIRAFI 120NLO, TerraTex SD Orange, or similar fabric followed by,
2. At least 12 to 18 inches of clean engineered fill and/or clean topsoil installed over the demarcation fabric followed by,
3. Seed, sod, or mulch as specified by a landscape architect.

A recreation area is proposed for the southwest portion of the Property. The recreation area may contain lawn, picnic tables, or playground equipment. The ground surface in the recreation area may be finished with lawn, mulch, or a rubberized material. The total exposure barrier thickness in the recreation area will be 18 inches of clean engineered fill and/or topsoil.

A combined 12 inches of clean fill and topsoil will be placed in areas of grass and perennials. A combined 18 inches of clean fill and topsoil will be placed in areas of shrubs, a combined 30 inches of clean fill and topsoil will be placed in excavations for trees, and a combined 18 inches of clean fill and topsoil will be placed in recreation areas. The bottom of depth of clean fill placement in shrub and tree areas will be approximately 6 inches below the bottom depth of the root ball.

The site will be graded in a manner to provide an even surface for soil placement with at least a 2% slope to allow drainage and prevent ponding. Grading will not move contaminated soil beyond the horizontal extent defined in the design.

The demarcation fabric will be a nonbiodegradable, nonwoven, geotextile comprised of polypropylene fibers.

Clean soil will be placed in lifts, with each lift being compacted using heavy equipment to a compacted depth of 6 to 18 inches, depending on future use, as detailed below. Topsoil will be placed in a 6-inch lift above the clean soil, seeded and properly maintained until a good grass cover is established.

An estimated 10,000 cubic yards of engineered fill material and 7,000 cubic yards of topsoil will be imported to the site. Prior to importing soil to the Property, each soil type will be demonstrated to be clean by analytical testing of samples collected from the site of origin. The analytical testing will document that the material does not contain compounds at concentrations above the applicable generic direct contact criteria or background levels. Three discrete soil samples will be collected for each 500 cubic yards per soil type. The samples will be analyzed for total VOCs, PAHs, and the Michigan 10 metals.

Photographs will be taken to document the placement of the demarcation layer and clean soil layer in all greenspace areas at the Property. The thickness of the clean soil layer will be documented by direct measurement (e.g., a ruler or tape measure). After necessary compaction has been conducted, measurements will be collected at a minimum rate of one per 200 square feet. A photograph of the ruler at each location will be taken documenting a minimum depth of 12 to 30 inches of soil. Photographs will be taken to document the placement of the barrier in all greenspace areas. Approximately 150 confirmation measurements will be collected and documented. Following the completion of the installation of the exposure barriers, the areas will be surveyed to establish a baseline ground surface elevation. The ground surface elevation in these areas will be re-surveyed once every three years to ensure that the thickness is being maintained. Seed or sod will be placed over the topsoil layer to establish vegetative cover.

A diagram that depicts the proposed landscaped areas is included in Appendix F.

8.1.2.4 STORMWATER POND

Post development, storm water will be detained on-site in a pond located in the northwestern portion of the Property. The pond will have an approximate capacity of 7,200 cubic feet and an approximate depth of 5.5 feet. A majority of the Property's storm water will flow towards catch basins in the parking lot or recreational area and then flow into the pond. The storm water in the pond will then discharge to a sanitary sewer located north of the proposed building. The pond will be lined with a one-foot-thick layer of clay. Storm sewers joints will be solvent-welded and water-tight. Water-tight, flexible connectors will be used to connect storm sewer piped to manhole structures.

8.1.3 OPERATIONS, MAINTENANCE AND MONITORING PLAN

Immediately following construction, and until vegetation is fully established, visual inspections of the landscaped areas will be performed on a weekly basis. Once vegetation has been fully established, visual inspections of the landscaped and paved areas will be performed on a quarterly basis. If erosion or other damage that exposes the underlying dermal contact barrier (imported fill or demarcation fabric) or underlying fill is observed during routine grounds inspections, maintenance, or other site activities, the damaged area will be fenced, and access should be restricted until repaired. Fencing will remain in place and access will be restricted until the area is restored or repaired. Damage to the areas will be repaired/restored within two weeks or as soon as practical based on contractor availability. Copies of the inspection and repair logs that will be used are included in Appendix G.

8.2 VOLATILIZATION TO INDOOR AIR – SOIL

As indicated in Section 7.1.1, phenanthrene, and mercury were measured in soil at concentrations above Residential SSVIAC. The prospective Property owner has elected to install active sub-slab depressurization (ASSD) systems in the proposed building to mitigate the potential vapor intrusion concerns. Details of the vapor mitigation system design and performance objectives are included in Appendix H.

8.2.1 OPERATIONS, MAINTENANCE AND MONITORING PLAN

An Operations, Maintenance and Monitoring (OM&M) Plan will be developed for the active vapor mitigation systems at the Property once the system is proven and commissioned.

Unless additional assessment demonstrates that mitigation of the VIAP is unnecessary (per EGLE Evaluation of a Dispersed Vapor Source in Urban Fill guidance or methodology outlined in Appendix H, Section 5), within 90 days following completion of the ASSD installation and startup, a written report will be prepared to document the system installation. The report shall include as-built drawings, a summary of post-installation testing and performance measurement activities/results, and a Performance Monitoring Plan and Inspection Schedule, identifying activities that will be conducted to ensure the ASSD is operated in an effective manner consistent with its design specifications.

9. SIGNATURES

The conclusions in this ResAP are based on visual observations and analytical results for samples collected from the areas of referenced investigations only. If additional surface, subsurface, or chemical data become available after the date of issue of this report, the conclusions contained in this report may require modification after we have reviewed the additional information.

In the process of obtaining information in preparation of this ResAP, procedures were followed that represent reasonable practices and principles in a manner consistent with that level of care and skill ordinarily exercised by members of this profession currently practicing under similar conditions.

This ResAP was prepared by Mr. Paul A. Glasser and reviewed by Mr. Bret B. Stuntz. Contact information for Mr. Stuntz is included below.

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REPORT PREPARED BY:



Paul A. Glasser, CPG
Project Geologist

REPORT REVIEWED BY:



Bret B. Stuntz
Senior Consultant

10. REFERENCES

1. **Part 201 of 1994 PA 451, as amended, the Natural Resources and Environmental Protection Act**, and applicable portions of the associated Part 10 Rules in effect at the time this Response Activity Plan was prepared.
2. The Michigan Department of Environmental Quality, Promulgated Cleanup Criteria, R299.44, R299.46, R299.48, and R299.49, **Part 201 Generic Residential and Nonresidential Cleanup Criteria and Screening Levels**, December 30, 2013.
3. **Phase I Environmental Site Assessment, Grass-Covered and Paved Land, 13 Parcels at Rosa Parks Boulevard and West Canfield Street, Detroit, Michigan**, SME, April 1, 2022.
4. **Baseline Environmental Assessment Report, 4401 Rosa Parks Boulevard, Detroit, Michigan**, SME, January 25, 2023.

FIGURES

FIGURE 1: PROPERTY LOCATION MAP

FIGURE 2: PROPERTY FEATURES DIAGRAM

FIGURE 3: PROPOSED SITE PLAN AND SAMPLE LOCATION DIAGRAM

FIGURE 4: RECOGNIZED ENVIRONMENTAL CONDITIONS

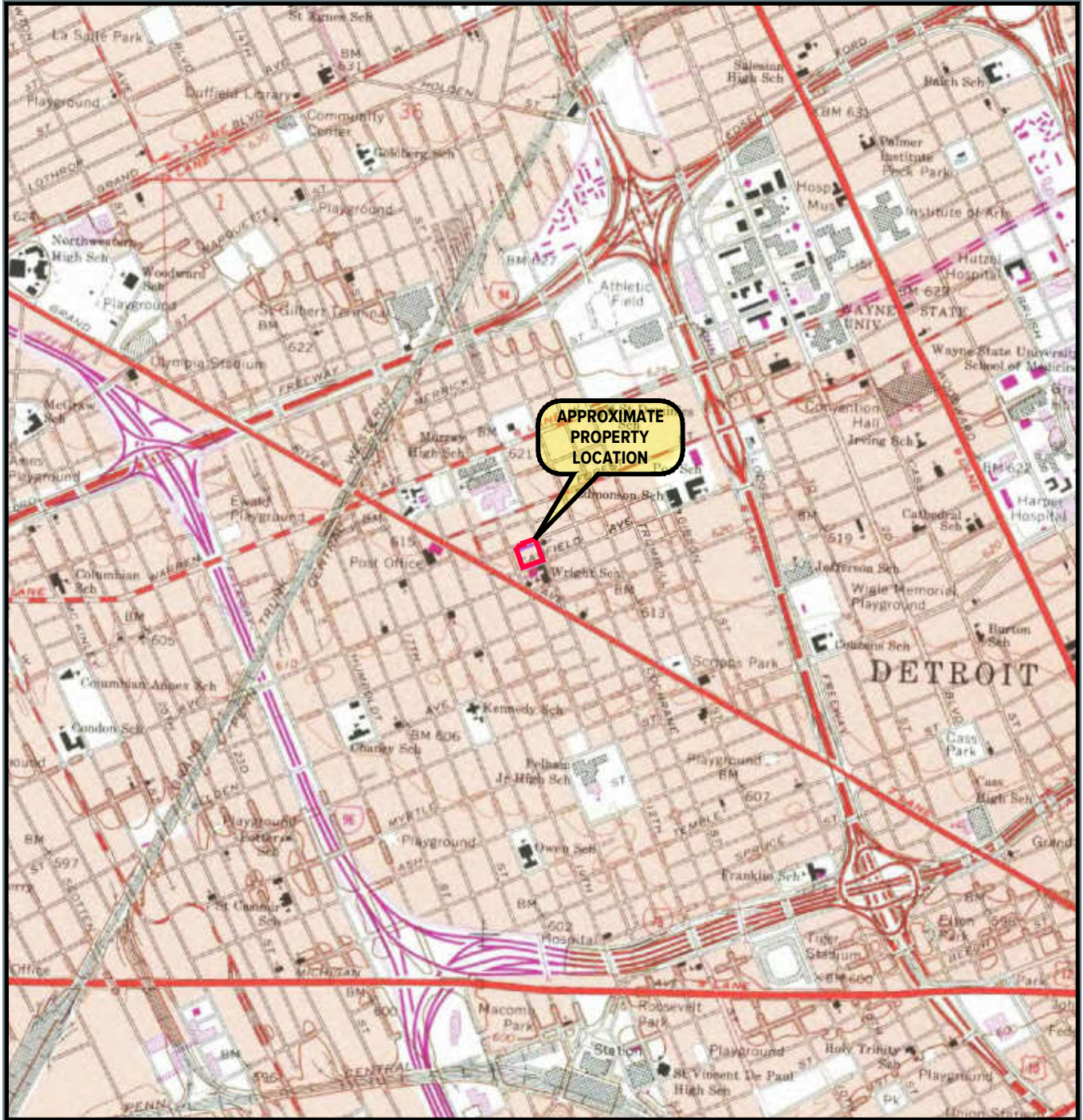
FIGURE 5: SOIL ANALYTICAL EXCEEDANCE DIAGRAM

FIGURE 6A: CROSS SECTION A-A' DIRECT CONTACT EXCEEDANCES

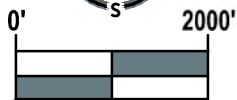
FIGURE 6B: CROSS SECTION B-B' DIRECT CONTACT EXCEEDANCES

FIGURE 7A: CROSS SECTION A-A' SSVIAC EXCEEDANCES

FIGURE 7B: CROSS SECTION B-B' SSVIAC EXCEEDANCES



**APPROXIMATE
PROPERTY
LOCATION**



SCALE: 1" = 2000'

Base map obtained from ERIS®

USGS QUADRANGLE(S) REFERENCED

DETROIT (MI) 1980

No.	Revision Date	Date
		1-27-2022
	Drawn By	JAB
	Designed By	KMP
	Scale	1" = 2000'
	Project	088822.00.005

**PROPERTY LOCATION MAP
4401 ROSA PARKS BOULEVARD
DETROIT, MICHIGAN**



www.sme-usa.com

Figure No. 1



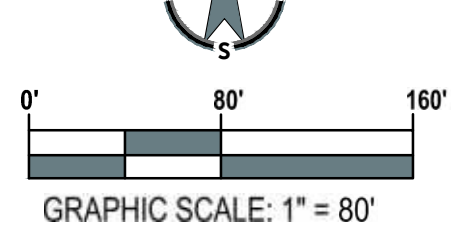
GRASS-COVERED
LAND WITH TREES

GREATER FAITH
MISSIONARY BAPTIST CHURCH
4438 ROSA PARKS BOULEVARD










GRASS-COVERED LAND

RESIDENTIAL
DEVELOPMENT
4334 ROSA PARKS
BOULEVARD

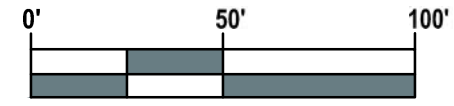
GRASS-COVERED LAND



LEGEND










-  APPROXIMATE PROPERTY BOUNDARY
-  APPROXIMATE SOIL BORING LOCATION
-  APPROXIMATE LOCATION OF EXPOSED MANHOLE
-  GAS
-  APPROXIMATE LOCATION OF EXPOSED GAS LINE
-  WTR
-  APPROXIMATE LOCATION OF EXPOSED WATER LINE
-  STM
-  APPROXIMATE LOCATION OF EXPOSED STORM SEWER

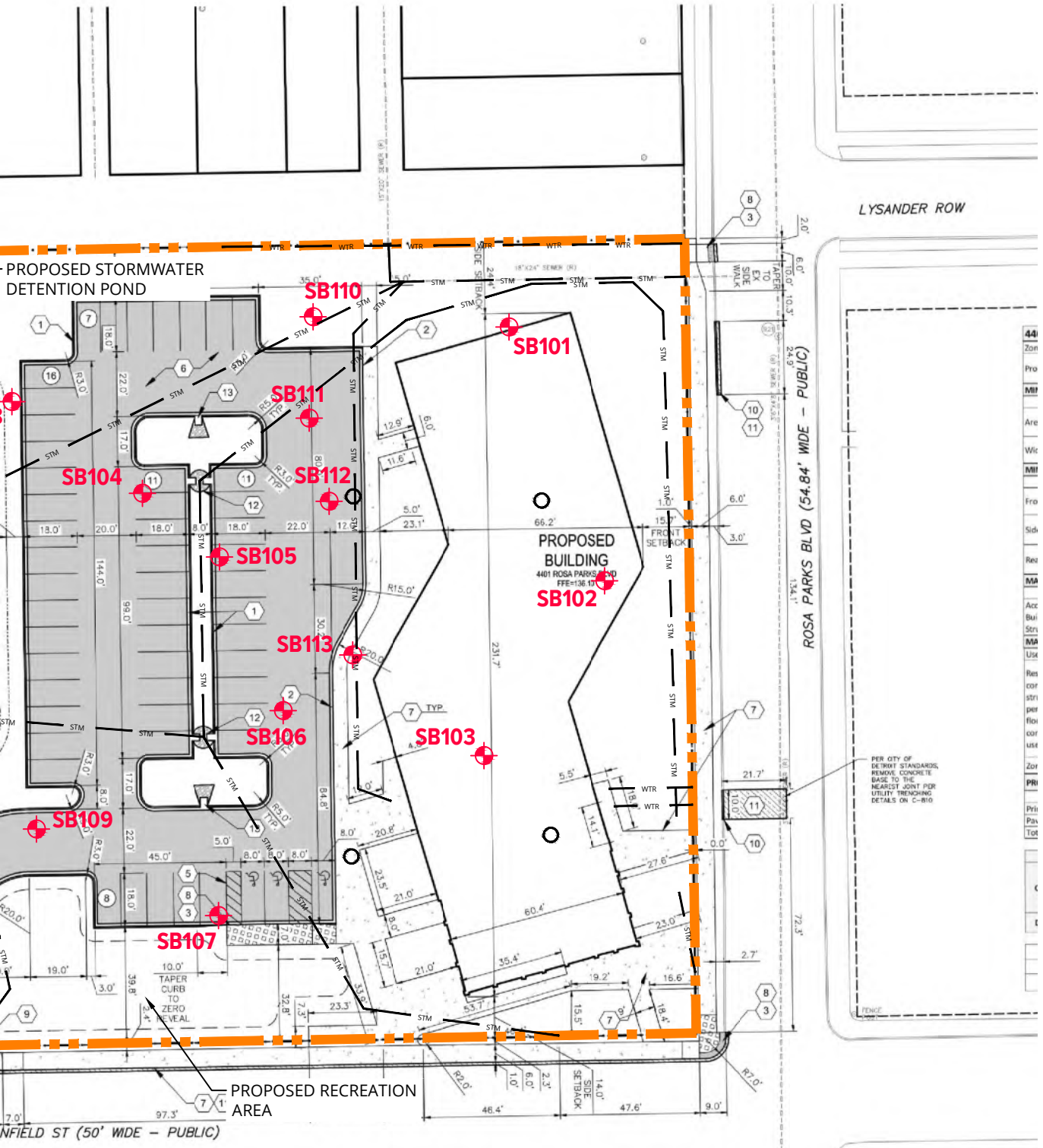
NOTE:



GRAPHIC SCALE: 1" = 50'

LEGEND

-  APPROXIMATE PROPERTY BOUNDARY
-  APPROXIMATE SOIL BORING LOCATION
-  APPROXIMATE LOCATION OF PUBLIC MANHOLE
-  GAS
-  APPROXIMATE LOCATION OF PUBLIC GAS LINE
-  WTR
-  APPROXIMATE LOCATION OF PUBLIC WATER LINE
-  STM
-  APPROXIMATE LOCATION OF PROPOSED STORM SEWER



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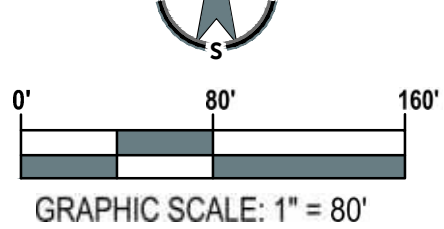
PER CITY OF DETROIT STANDARDS, REMOVE CONCRETE BASE TO THE NEAREST JOINT PER UTILITY TRENCHING DETAILS ON C-810

- NOTES:
1. BASE DRAWING INFORMATION TAKEN FROM A DRAWING TITLED "SITE PLAN" (SHEET C-500) WITH LATEST REVISION DATE OF 3-25-2023 PREPARED BY GIFFELS WEBSTER.

REC; THE KNOWN CONCENTRATIONS OF VOCs, PAHs, AND VARIOUS METALS IN SOIL IDENTIFIED IN PREVIOUS ASSESSMENTS AT THE PROPERTY EXCEEDING APPLICABLE STANDARDS.

REC; THE POTENTIAL FOR CONTAMINANTS ASSOCIATED WITH BURIED DEMOLITION DEBRIS AND/OR FILL OF UNKNOWN ORIGIN IN THE LOCATION OF FORMER STRUCTURES AND BASEMENTS ON THE PROPERTY.

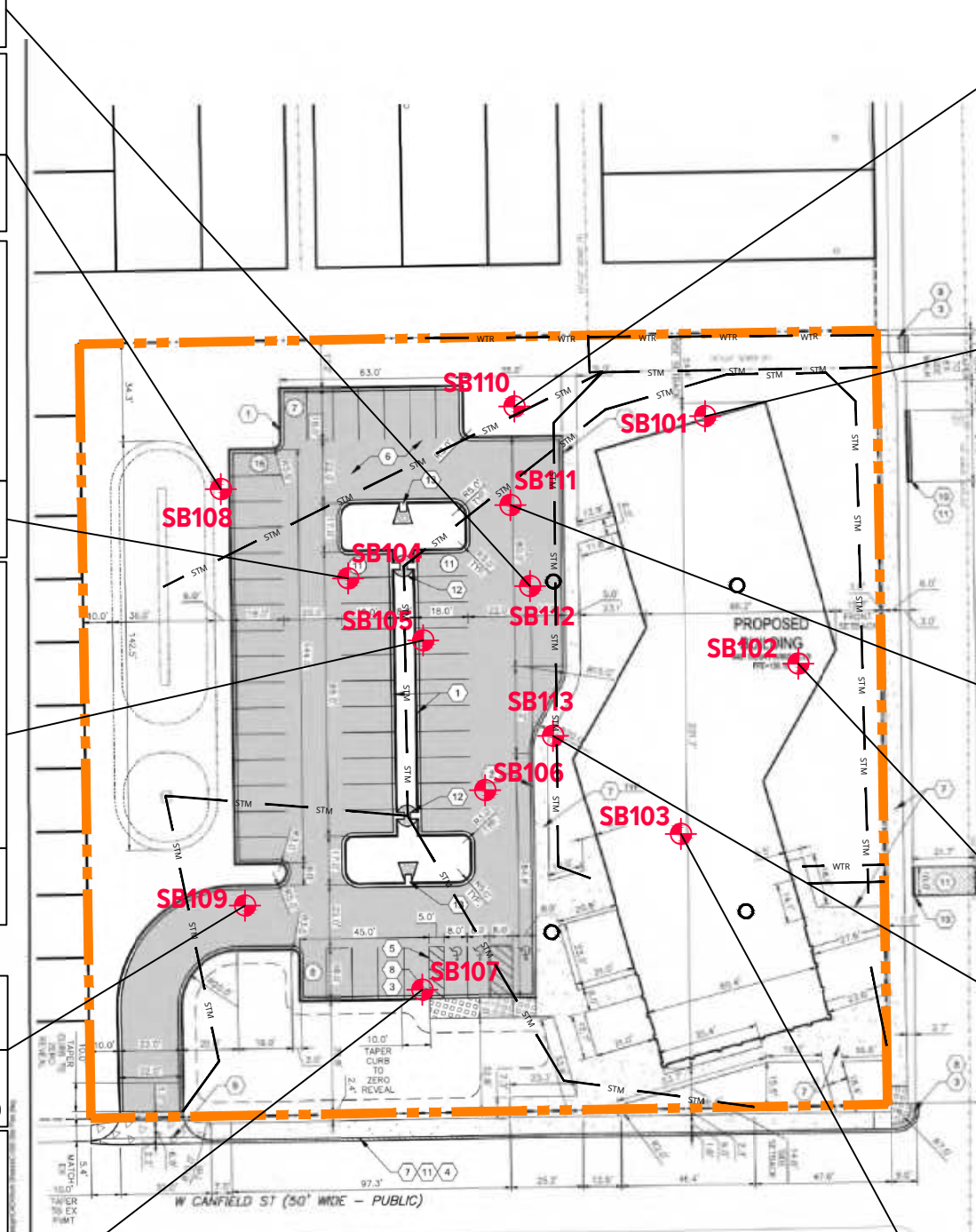
REC; THE POTENTIAL FOR RELEASE CONTAMINANTS ASSOCIATED WITH THE FORMER USE OF THE PROPERTY AS A PRINTING OPERATION, INSECTICIDE COMPANY, AND CHEMICAL LABORATORY.



LEGEND

--- APPROXIMATE PROPERTY BOUNDARY

NOTES:
1. AERIAL IMAGE TAKEN FROM GOOGLE EARTH PRO WITH AN IMAGE DATE OF 7-15-2017 AND SITE RECONNAISSANCE



Arsenic	11,000
Lead	540,000
Mercury	410
Selenium	590
Zinc	290,000

SB110 (5'-6')	
10-11-2022	
Arsenic	9,200

SB101 (1'-2')	
10-11-2022	
Arsenic	36,000
Copper	1,400,000
Lead	1,300,000
Lead, Total (Calculated)	1,180,000
Lead, Coarse Fraction	1,120,000
Lead, Fine Fraction	1,680,000
Mercury	1,500
Selenium	2,800
Zinc	670,000

SB101 (5'-6')	
10-11-2022	
Arsenic	9,400

SB111 (4'-5')	
10-11-2022	
Arsenic	7,000
Mercury	140
Selenium	530

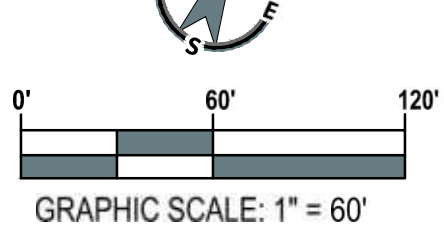
SB111 (5'-6')	
10-11-2022	
Arsenic	14,000

SB102 (2'-3')	
10-11-2022	
Arsenic	6,200
Selenium	550

SB102 (5'-6')	
10-11-2022	
Arsenic	7,500

SB113 (5'-6')	
10-11-2022	
Arsenic	9,700

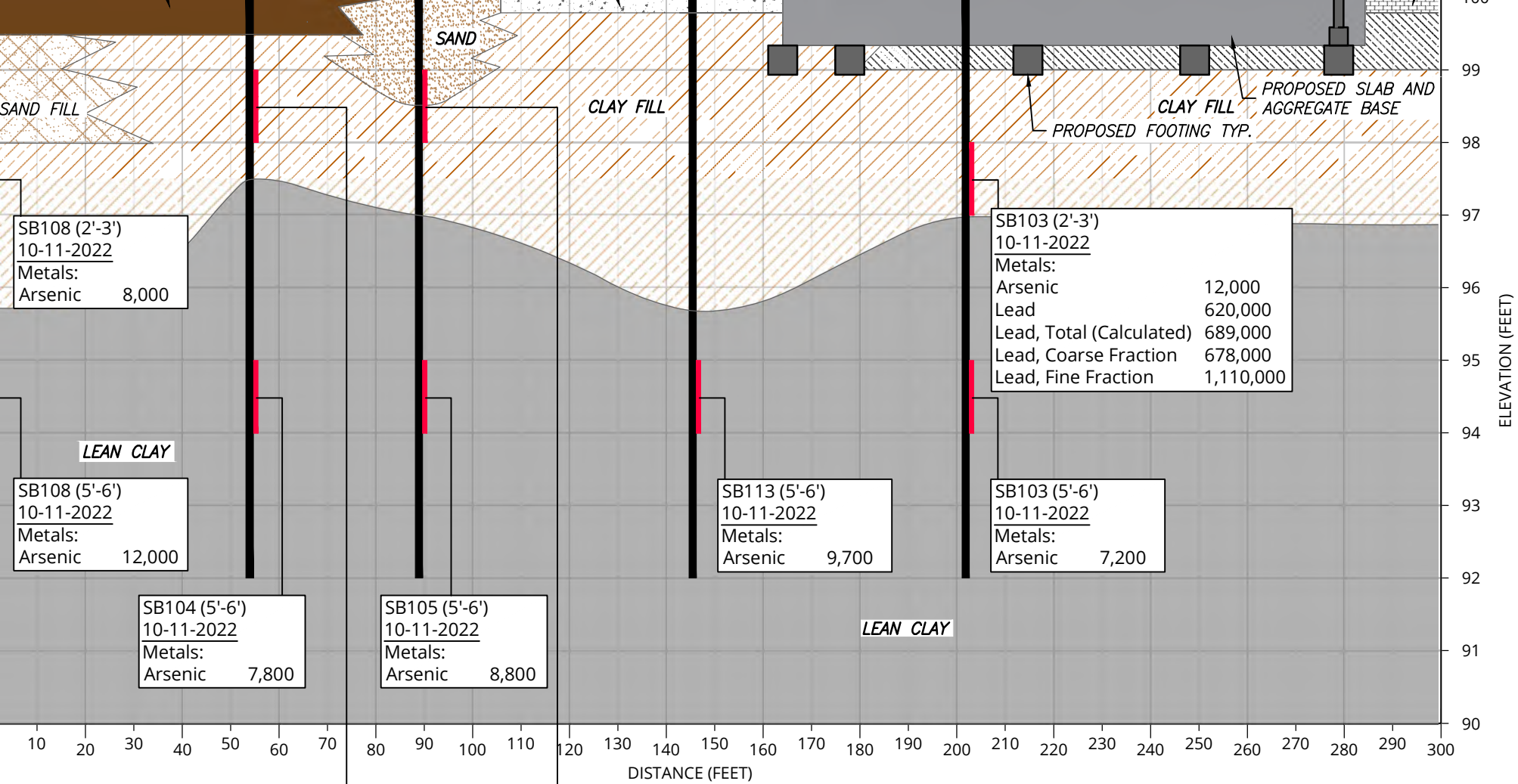
SB103 (2'-3')	
10-11-2022	
Arsenic	12,000
Lead	620,000
Lead, Total (Calculated)	689,000
Lead, Coarse Fraction	678,000
Lead, Fine Fraction	1,110,000
Mercury	470
Selenium	870



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE SOIL BORING LOCATION
- APPROXIMATE LOCATION OF PUBLIC MANHOLE
- APPROXIMATE LOCATION OF PUBLIC GAS LINE
- APPROXIMATE LOCATION OF PUBLIC WATER LINE
- APPROXIMATE LOCATION OF PROPOSED STORM SEWER

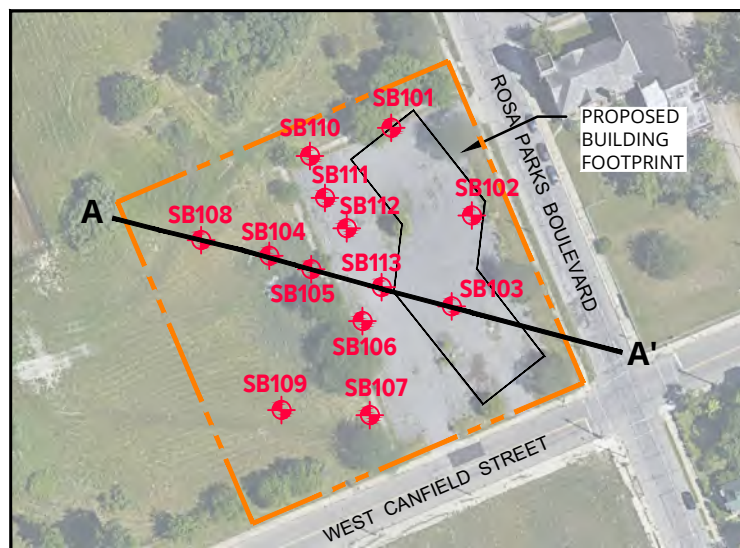
- NOTES:
- BASE DRAWING INFORMATION TAKEN FROM A DRAWING TITLED "SITE PLAN" (SHEET C-500) WITH LATEST REVISION DATE OF 8-21-2023 PREPARED BY GIFFELS WEBSTER.
 - CONCENTRATIONS ARE SHOWN IN MICROGRAMS PER KILOGRAM ($\mu\text{g}/\text{kg}$) AND EXCEED ONE OR MORE PARTS PER 1000 (PP1000) GENERIC RESIDENTIAL CLEANUP CRITERIA.
 - CONCENTRATIONS IN RED ALSO EXCEED SITE SPECIFIC VOLATILIZATION TO INDOOR AIR CRITERIA (SSVIAC).

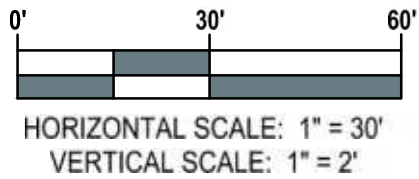
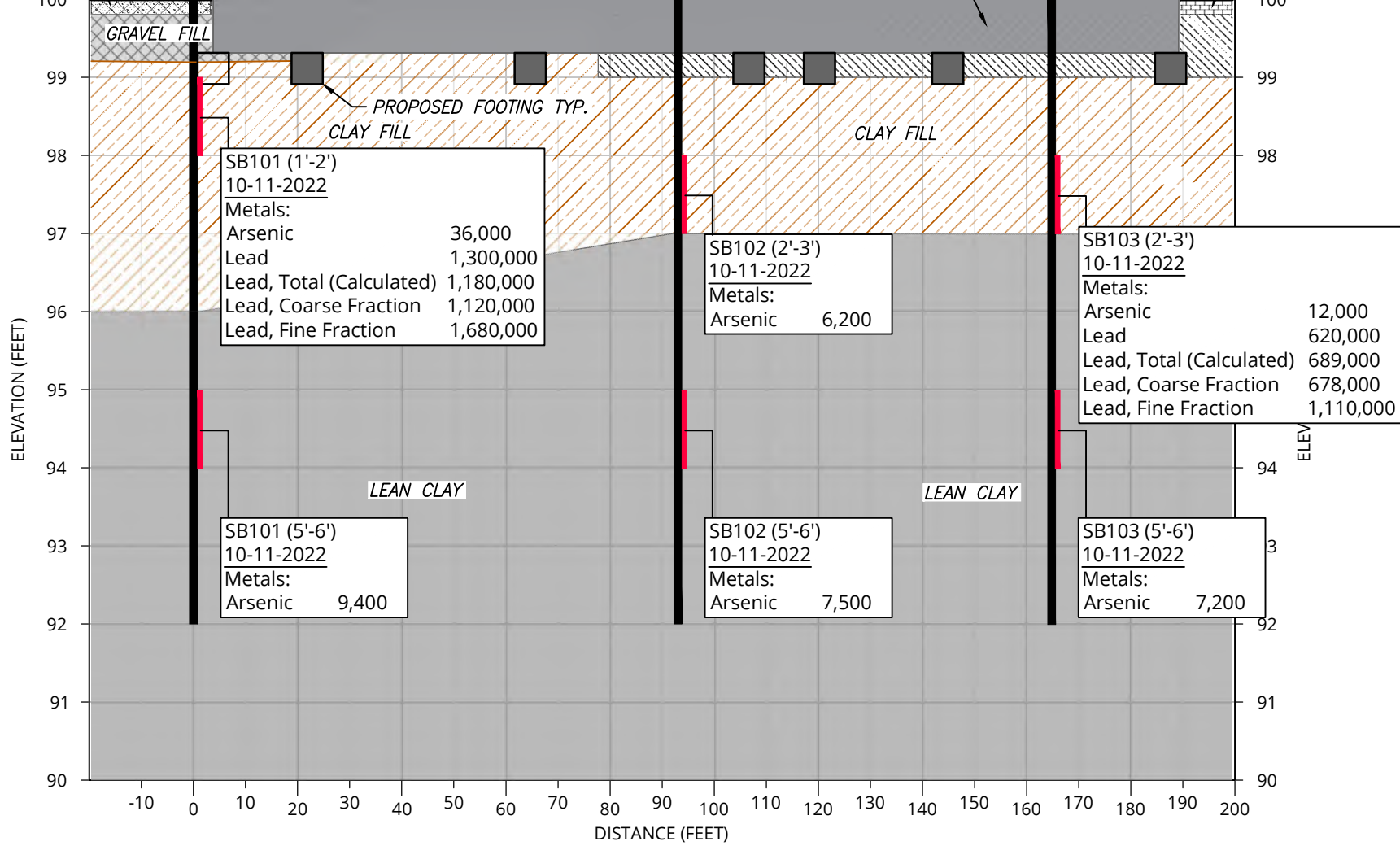


SB104 (1'-2')
10-11-2022
Metals:
Arsenic 11,000
Lead 450,000
Lead, Total (Calculated) 520,000
Lead, Coarse Fraction 514,000
Lead, Fine Fraction 542,000

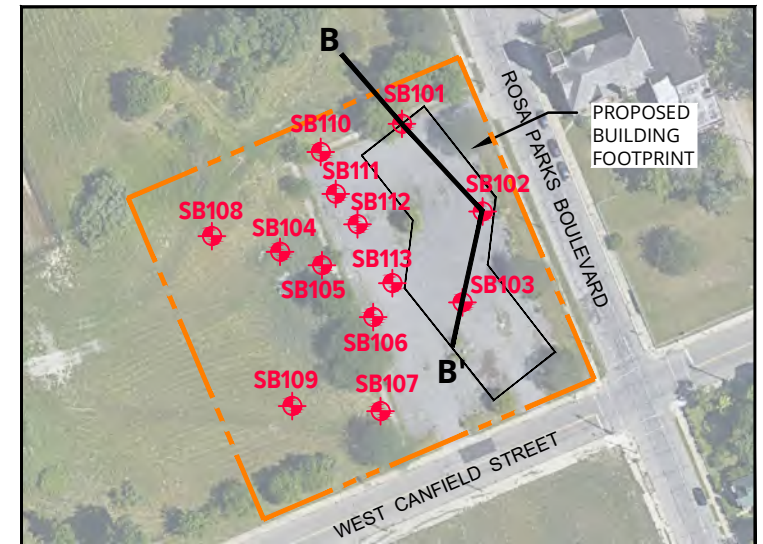
SB105 (1'-2')
10-11-2022
PAHs:
Benzo(a)pyrene 4,400
Metals:
Arsenic 11,000
Lead 3,100,000
Lead, Total (Calculated) 1,210,000
Lead, Coarse Fraction 1,070,000
Lead, Fine Fraction 1,710,000

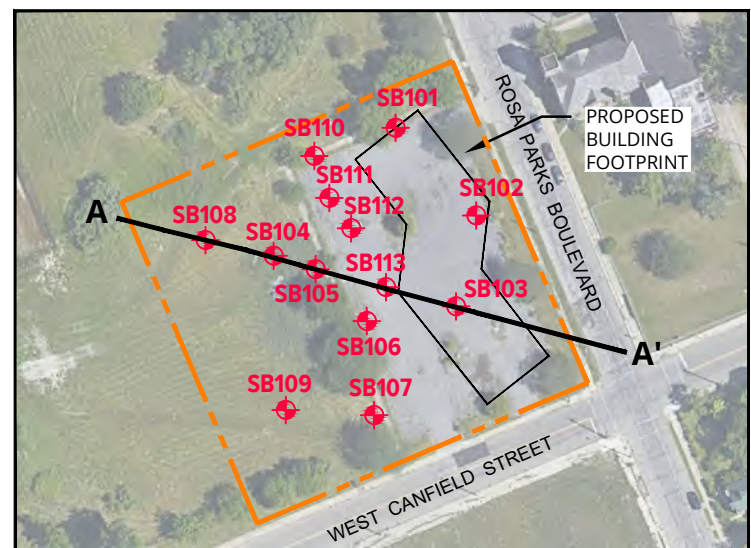
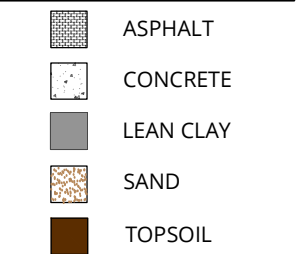
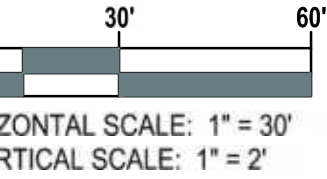
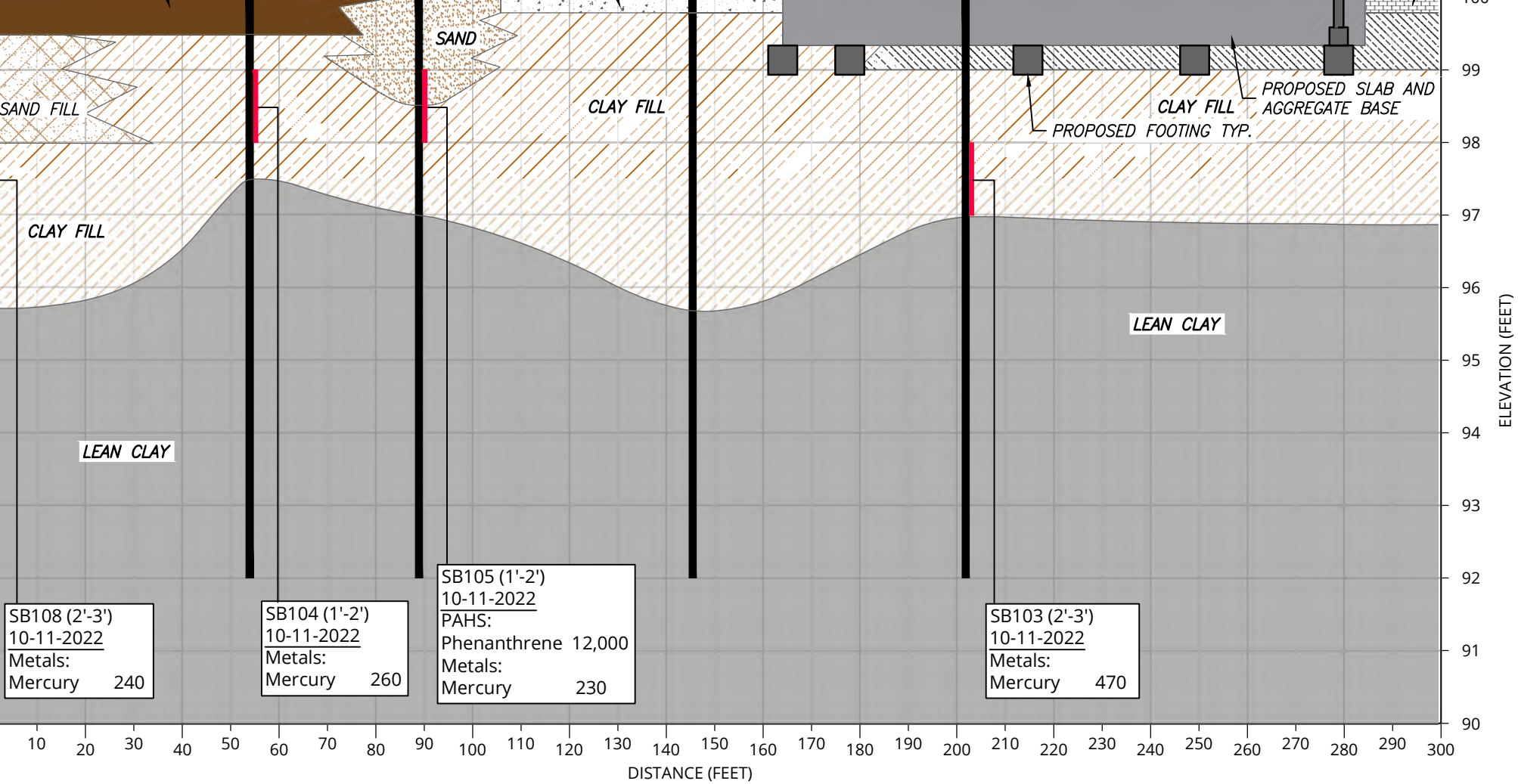
- FILL
- ASPHALT
- CONCRETE
- LEAN CLAY
- SAND
- TOPSOIL

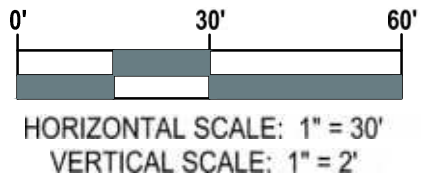
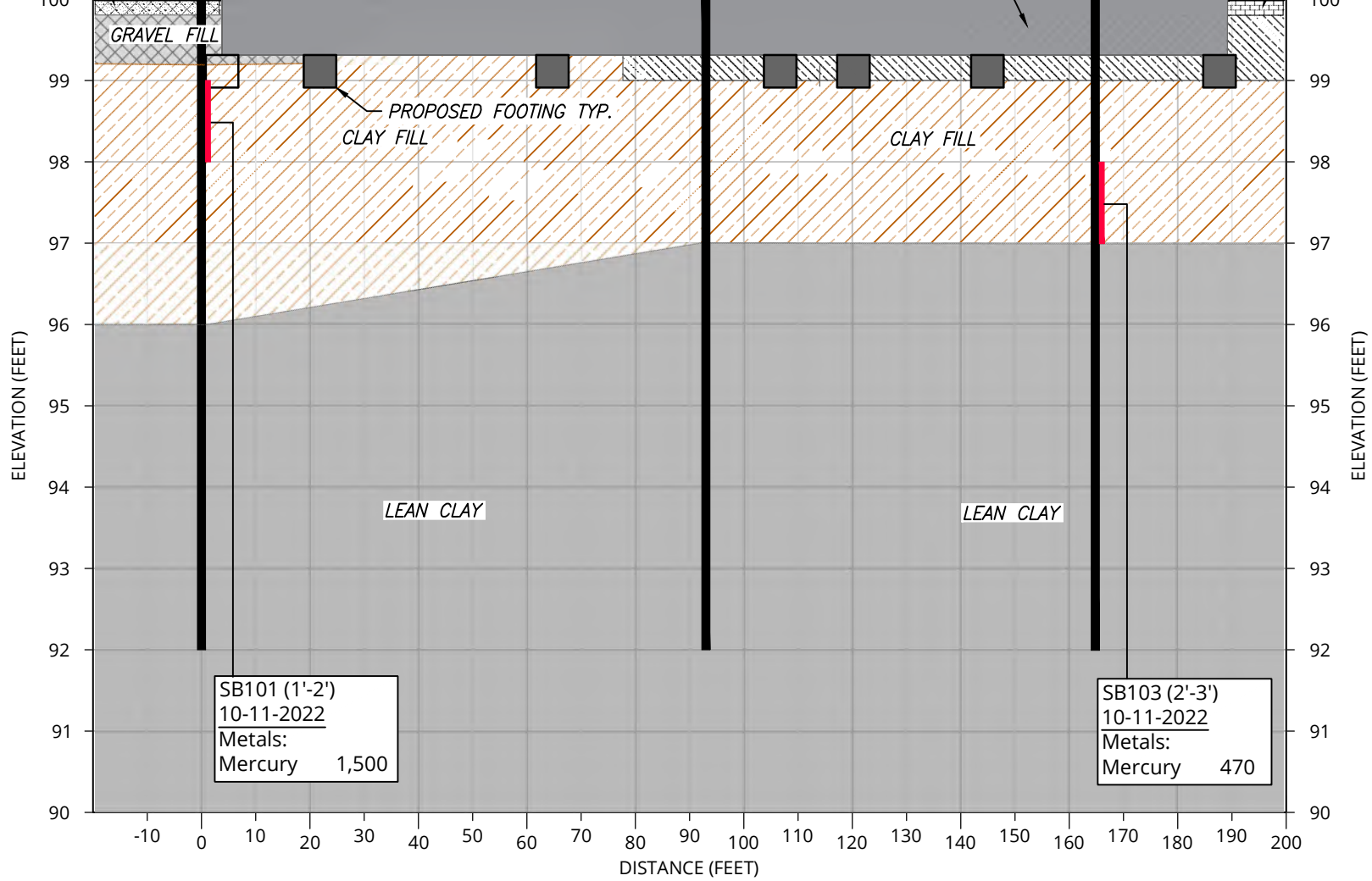









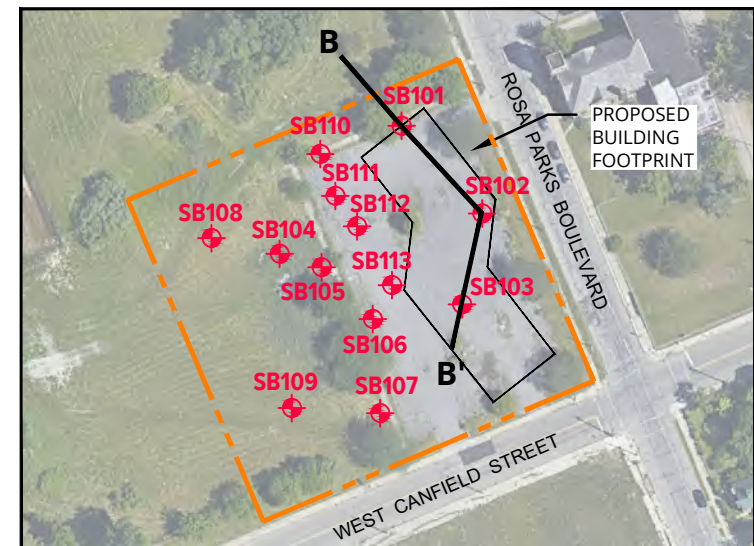
- ASPHALT
- CONCRETE
- LEAN CLAY
- SAND
- TOPSOIL





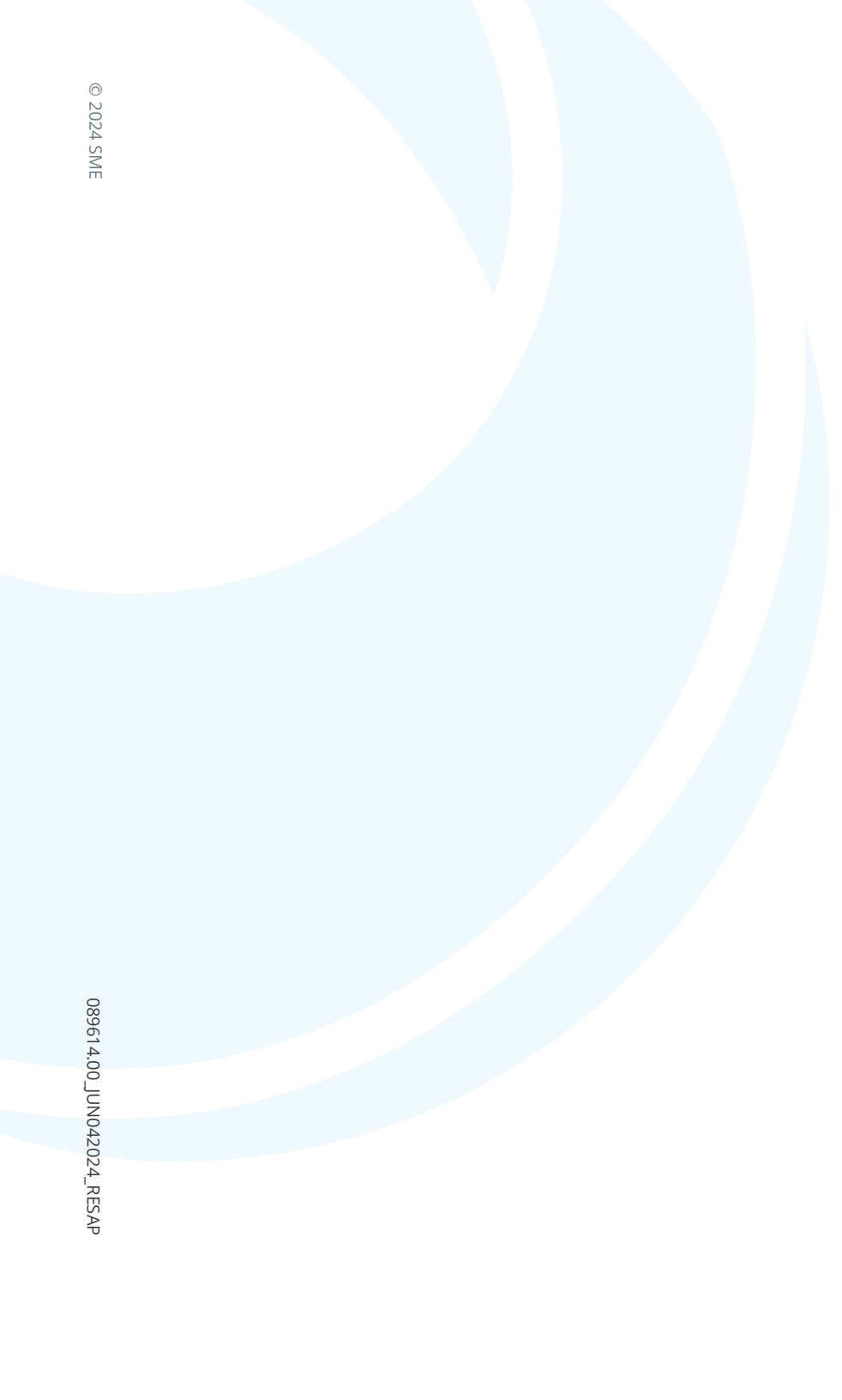


-  ASPHALT
-  CONCRETE
-  LEAN CLAY
-  SAND
-  TOPSOIL



TABLE

TABLE 1: SUMMARY OF ANALYSIS RESULTS – SOIL



CAS #	Part 201 Generic Residential Cleanup Criteria										VIAP Screening Levels	Statewide Default Background Levels	Chemical A Sample Dep Date		
	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels	Residential Part 201 Site-Specific Volatilization to Indoor Air Criteria			SB101	SB101	SB102
													(1'-2')	(5'-6')	(2'-3')
													10/11/2022	10/11/2022	10/11/2022
108-88-3	16,000	5,400	330,000	2,800,000	5,100,000	12,000,000	27,000,000,000	50,000,000	250,000	3,700	NA	<50	<50	<50	
1330-20-7	5,600	980	6,300,000	46,000,000	61,000,000	130,000,000	290,000,000,000	410,000,000	150,000	280	NA	<150	<150	<150	
CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS		<RL	<RL	<RL	
83-32-9	300,000	8,700	190,000,000	81,000,000	81,000,000	81,000,000	14,000,000,000	41,000,000	NA	210,000	NA	<330	<330	<330	
208-96-8	5,900	ID	1,600,000	2,200,000	2,200,000	2,200,000	2,300,000,000	1,600,000	NA	ID	NA	<330	<330	<330	
120-12-7	41,000	ID	1,000,000,000	1,400,000,000	1,400,000,000	1,400,000,000	67,000,000,000	230,000,000	NA	13,000,000	NA	<330	<330	<330	
56-55-3	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA	160,000	NA	<330	<330	<330	
50-32-8	NLL	NLL	NLV	NLV	NLV	NLV	1,500,000	2,000	NA	NA	NA	<330	<330	<330	
205-99-2	NLL	NLL	ID	ID	ID	ID	ID	20,000	NA	NA	NA	390	<330	<330	
191-24-2	NLL	NLL	NLV	NLV	NLV	NLV	800,000,000	2,500,000	NA	NA	NA	<330	<330	<330	
207-08-9	NLL	NLL	NLV	NLV	NLV	NLV	ID	200,000	NA	NA	NA	<330	<330	<330	
218-01-9	NLL	NLL	ID	ID	ID	ID	ID	2,000,000	NA	NA	NA	<330	<330	<330	
53-70-3	NLL	NLL	NLV	NLV	NLV	NLV	ID	2,000	NA	NA	NA	<330	<330	<330	
206-44-0	730,000	5,500	1,000,000,000	740,000,000	740,000,000	740,000,000	9,300,000,000	46,000,000	NA	NA	NA	400	<330	<330	
86-73-7	390,000	5,300	580,000,000	130,000,000	130,000,000	130,000,000	9,300,000,000	27,000,000	NA	470,000	NA	<330	<330	<330	
193-39-5	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA	NA	NA	<330	<330	<330	
91-57-6	57,000	4,200	2,700,000	1,500,000	1,500,000	1,500,000	670,000,000	8,100,000	NA	1,700	NA	<330	<330	<330	
85-01-8	56,000	2,100	2,800,000	160,000	160,000	160,000	6,700,000	1,600,000	NA	1,700	NA	<330	<330	<330	
129-00-0	480,000	ID	1,000,000,000 (D)	650,000,000	650,000,000	650,000,000	6,700,000,000	29,000,000	NA	250,000	NA	380	<330	<330	
1336-36-3	NLL	NLL	3,000,000	240,000	7,900,000	7,900,000	5,200,000	4,000	NA	NA	NA	<RL	NE	NE	
7440-38-2	5,800	5,800	NLV	NLV	NLV	NLV	720,000	7,600	NA	NA	5,800	36,000	9,400	6,200	
7440-39-3	1,300,000	440,000	NLV	NLV	NLV	NLV	330,000,000	37,000,000	NA	NA	75,000	280,000	69,000	51,000	
7440-43-9	6,000	3,600	NLV	NLV	NLV	NLV	1,700,000	550,000	NA	NA	1,200	1,800	150	210	
7440-47-3	1,000,000,000	2,900,000,000	NLV	NLV	NLV	NLV	330,000,000	790,000,000	NA	NA	18,000 (total)	21,000	20,000	15,000	
18540-29-9	30,000	3,300	NLV	NLV	NLV	NLV	260,000	2,500,000	NA	NA	NA	NE	NE	NE	
7440-50-8	5,800,000	75,000	NLV	NLV	NLV	NLV	130,000,000	20,000,000	NA	NA	32,000	1,400,000	11,000	8,900	
7439-92-1	700,000	5,100,000	NLV	NLV	NLV	NLV	100,000,000	400,000	NA	NA	21,000	1,300,000	11,000	15,000	
7439-92-1	700,000	5,100,000	NLV	NLV	NLV	NLV	100,000,000	400,000	NA	NA	21,000	1,180,000	NE	NE	
7439-92-1	NA	NA	NA	NA	NA	NA	100,000,000	400,000	NA	NA	21,000	1,120,000	NE	NE	
7439-92-1	NA	NA	NA	NA	NA	NA	100,000,000	400,000	NA	NA	21,000	1,680,000	NE	NE	
7439-97-6	1,700	130	48,000	52,000	52,000	52,000	20,000,000	160,000	NA	130	130	1,500	<50	82	
7782-49-2	4,000	410	NLV	NLV	NLV	NLV	130,000,000	2,600,000	NA	NA	410	2,800	300	550	
7440-22-4	4,500	1,000	NLV	NLV	NLV	NLV	6,700,000	2,500,000	NA	NA	1,000	600	<100	<100	
7440-66-6	2,400,000	170,000	NLV	NLV	NLV	NLV	ID	170,000,000	NA	NA	47,000	670,000	61,000	42,000	

CAS #	Part 201 Generic Residential Cleanup Criteria										VIAP Screening Levels	Statewide Default Background Levels	Chemical A Sample Dep Date		
	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels	Residential Part 201 Site-Specific Volatilization to Indoor Air Criteria			SB104	SB104	SB105
													(1'-2')	(5'-6')	(1'-2')
													10/11/2022	10/11/2022	10/11/2022
108-88-3	16,000	5,400	330,000	2,800,000	5,100,000	12,000,000	27,000,000,000	50,000,000	250,000	3,700	NA	<50	<50	<50	
1330-20-7	5,600	980	6,300,000	46,000,000	61,000,000	130,000,000	290,000,000,000	410,000,000	150,000	280	NA	<150	<150	<150	
CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS		<RL	<RL	<RL	
83-32-9	300,000	8,700	190,000,000	81,000,000	81,000,000	81,000,000	14,000,000,000	41,000,000	NA	210,000	NA	<330	<330	910	
208-96-8	5,900	ID	1,600,000	2,200,000	2,200,000	2,200,000	2,300,000,000	1,600,000	NA	ID	NA	<330	<330	<330	
120-12-7	41,000	ID	1,000,000,000	1,400,000,000	1,400,000,000	1,400,000,000	67,000,000,000	230,000,000	NA	13,000,000	NA	<330	<330	2,700	
56-55-3	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA	160,000	NA	1,100	<330	4,900	
50-32-8	NLL	NLL	NLV	NLV	NLV	NLV	1,500,000	2,000	NA	NA	NA	1,300	<330	4,400	
205-99-2	NLL	NLL	ID	ID	ID	ID	ID	20,000	NA	NA	NA	1,700	<330	5,900	
191-24-2	NLL	NLL	NLV	NLV	NLV	NLV	800,000,000	2,500,000	NA	NA	NA	810	<330	2,100	
207-08-9	NLL	NLL	NLV	NLV	NLV	NLV	ID	200,000	NA	NA	NA	620	<330	2,000	
218-01-9	NLL	NLL	ID	ID	ID	ID	ID	2,000,000	NA	NA	NA	1,200	<330	5,200	
53-70-3	NLL	NLL	NLV	NLV	NLV	NLV	ID	2,000	NA	NA	NA	<330	<330	590	
206-44-0	730,000	5,500	1,000,000,000	740,000,000	740,000,000	740,000,000	9,300,000,000	46,000,000	NA	NA	NA	1,700	<330	13,000	
86-73-7	390,000	5,300	580,000,000	130,000,000	130,000,000	130,000,000	9,300,000,000	27,000,000	NA	470,000	NA	<330	<330	1,100	
193-39-5	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA	NA	NA	860	<330	2,700	
91-57-6	57,000	4,200	2,700,000	1,500,000	1,500,000	1,500,000	670,000,000	8,100,000	NA	1,700	NA	<330	<330	400	
85-01-8	56,000	2,100	2,800,000	160,000	160,000	160,000	6,700,000	1,600,000	NA	1,700	NA	930	<330	12,000	
129-00-0	480,000	ID	1,000,000,000 (D)	650,000,000	650,000,000	650,000,000	6,700,000,000	29,000,000	NA	250,000	NA	1,900	<330	10,000	
1336-36-3	NLL	NLL	3,000,000	240,000	7,900,000	7,900,000	5,200,000	4,000	NA	NA	NA	NE	NE	<RL	
7440-38-2	5,800	5,800	NLV	NLV	NLV	NLV	720,000	7,600	NA	NA	5,800	11,000	7,800	11,000	
7440-39-3	1,300,000	440,000	NLV	NLV	NLV	NLV	330,000,000	37,000,000	NA	NA	75,000	150,000	57,000	210,000	
7440-43-9	6,000	3,600	NLV	NLV	NLV	NLV	1,700,000	550,000	NA	NA	1,200	930	180	1,600	
7440-47-3	1,000,000,000	2,900,000,000	NLV	NLV	NLV	NLV	330,000,000	790,000,000	NA	NA	18,000 (total)	20,000	16,000	25,000	
18540-29-9	30,000	3,300	NLV	NLV	NLV	NLV	260,000	2,500,000	NA	NA	NA	NE	NE	NE	
7440-50-8	5,800,000	75,000	NLV	NLV	NLV	NLV	130,000,000	20,000,000	NA	NA	32,000	51,000	15,000	48,000	
7439-92-1	700,000	5,100,000	NLV	NLV	NLV	NLV	100,000,000	400,000	NA	NA	21,000	450,000	8,500	3,100,000	
7439-92-1	700,000	5,100,000	NLV	NLV	NLV	NLV	100,000,000	400,000	NA	NA	21,000	520,000	NE	1,210,000	
7439-92-1	NA	NA	NA	NA	NA	NA	100,000,000	400,000	NA	NA	21,000	514,000	NE	1,070,000	
7439-92-1	NA	NA	NA	NA	NA	NA	100,000,000	400,000	NA	NA	21,000	542,000	NE	1,710,000	
7439-97-6	1,700	130	48,000	52,000	52,000	52,000	20,000,000	160,000	NA	130	130	260	<50	230	
7782-49-2	4,000	410	NLV	NLV	NLV	NLV	130,000,000	2,600,000	NA	NA	410	590	<200	390	
7440-22-4	4,500	1,000	NLV	NLV	NLV	NLV	6,700,000	2,500,000	NA	NA	1,000	210	<100	200	
7440-66-6	2,400,000	170,000	NLV	NLV	NLV	NLV	ID	170,000,000	NA	NA	47,000	290,000	46,000	460,000	

CAS #	Part 201 Generic Residential Cleanup Criteria										VIAP Screening Levels	Statewide Default Background Levels	Chemical A Sample Dep Date		
	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels	Residential Part 201 Site-Specific Volatilization to Indoor Air Criteria			SB107	SB108	SB108
													(5'-6')	(2'-3')	(5'-6')
													10/11/2022	10/11/2022	10/11/2022
108-88-3	16,000	5,400	330,000	2,800,000	5,100,000	12,000,000	27,000,000,000	50,000,000	250,000	3,700	NA	<50	<50	<50	
1330-20-7	5,600	980	6,300,000	46,000,000	61,000,000	130,000,000	290,000,000,000	410,000,000	150,000	280	NA	<150	<150	<150	
CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS		<RL	<RL	<RL	
83-32-9	300,000	8,700	190,000,000	81,000,000	81,000,000	81,000,000	14,000,000,000	41,000,000	NA	210,000	NA	<330	<330	<330	
208-96-8	5,900	ID	1,600,000	2,200,000	2,200,000	2,200,000	2,300,000,000	1,600,000	NA	ID	NA	<330	<330	<330	
120-12-7	41,000	ID	1,000,000,000	1,400,000,000	1,400,000,000	1,400,000,000	67,000,000,000	230,000,000	NA	13,000,000	NA	<330	<330	<330	
56-55-3	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA	160,000	NA	<330	940	<330	
50-32-8	NLL	NLL	NLV	NLV	NLV	NLV	1,500,000	2,000	NA	NA	NA	<330	1,000	<330	
205-99-2	NLL	NLL	ID	ID	ID	ID	ID	20,000	NA	NA	NA	<330	1,300	<330	
191-24-2	NLL	NLL	NLV	NLV	NLV	NLV	800,000,000	2,500,000	NA	NA	NA	<330	600	<330	
207-08-9	NLL	NLL	NLV	NLV	NLV	NLV	ID	200,000	NA	NA	NA	<330	440	<330	
218-01-9	NLL	NLL	ID	ID	ID	ID	ID	2,000,000	NA	NA	NA	<330	1,000	<330	
53-70-3	NLL	NLL	NLV	NLV	NLV	NLV	ID	2,000	NA	NA	NA	<330	<330	<330	
206-44-0	730,000	5,500	1,000,000,000	740,000,000	740,000,000	740,000,000	9,300,000,000	46,000,000	NA	NA	NA	<330	2,000	<330	
86-73-7	390,000	5,300	580,000,000	130,000,000	130,000,000	130,000,000	9,300,000,000	27,000,000	NA	470,000	NA	<330	<330	<330	
193-39-5	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA	NA	NA	<330	720	<330	
91-57-6	57,000	4,200	2,700,000	1,500,000	1,500,000	1,500,000	670,000,000	8,100,000	NA	1,700	NA	<330	<330	<330	
85-01-8	56,000	2,100	2,800,000	160,000	160,000	160,000	6,700,000	1,600,000	NA	1,700	NA	<330	870	<330	
129-00-0	480,000	ID	1,000,000,000 (D)	650,000,000	650,000,000	650,000,000	6,700,000,000	29,000,000	NA	250,000	NA	<330	1,700	<330	
1336-36-3	NLL	NLL	3,000,000	240,000	7,900,000	7,900,000	5,200,000	4,000	NA	NA	NA	NE	<RL	NE	
7440-38-2	5,800	5,800	NLV	NLV	NLV	NLV	720,000	7,600	NA	NA	5,800	11,000	8,000	12,000	
7440-39-3	1,300,000	440,000	NLV	NLV	NLV	NLV	330,000,000	37,000,000	NA	NA	75,000	73,000	89,000	78,000	
7440-43-9	6,000	3,600	NLV	NLV	NLV	NLV	1,700,000	550,000	NA	NA	1,200	90	390	140	
7440-47-3	1,000,000,000	2,900,000,000	NLV	NLV	NLV	NLV	330,000,000	790,000,000	NA	NA	18,000 (total)	22,000	15,000	21,000	
18540-29-9	30,000	3,300	NLV	NLV	NLV	NLV	260,000	2,500,000	NA	NA	NA	NE	NE	NE	
7440-50-8	5,800,000	75,000	NLV	NLV	NLV	NLV	130,000,000	20,000,000	NA	NA	32,000	22,000	35,000	21,000	
7439-92-1	700,000	5,100,000	NLV	NLV	NLV	NLV	100,000,000	400,000	NA	NA	21,000	19,000	170,000	13,000	
7439-92-1	700,000	5,100,000	NLV	NLV	NLV	NLV	100,000,000	400,000	NA	NA	21,000	NE	NE	NE	
7439-92-1	NA	NA	NA	NA	NA	NA	100,000,000	400,000	NA	NA	21,000	NE	NE	NE	
7439-92-1	NA	NA	NA	NA	NA	NA	100,000,000	400,000	NA	NA	21,000	NE	NE	NE	
7439-97-6	1,700	130	48,000	52,000	52,000	52,000	20,000,000	160,000	NA	130	130	<50	240	<50	
7782-49-2	4,000	410	NLV	NLV	NLV	NLV	130,000,000	2,600,000	NA	NA	410	330	280	<200	
7440-22-4	4,500	1,000	NLV	NLV	NLV	NLV	6,700,000	2,500,000	NA	NA	1,000	<100	150	<100	
7440-66-6	2,400,000	170,000	NLV	NLV	NLV	NLV	ID	170,000,000	NA	NA	47,000	61,000	120,000	53,000	

#	Part 201 Generic Residential Cleanup Criteria										Statewide Default Background Levels	Chemical Analysis Sample Identification Depth (Feet) Date Collected			
	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels	Residential Part 201 Site-Specific Volatilization to Indoor Air Criteria		SB110	SB111	SB111	SB111
												(5'-6')	(4'-5')	(5'-6')	(5'-6')
												10/11/2022	10/11/2022	10/11/2022	10/11/2022
3	16,000	5,400	330,000	2,800,000	5,100,000	12,000,000	27,000,000,000	50,000,000	250,000	3,700	NA	<50	<50	<50	<50
7	5,600	980	6,300,000	46,000,000	61,000,000	130,000,000	290,000,000,000	410,000,000	150,000	280	NA	<150	<150	<150	<150
	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS		<RL	<RL	<RL	<RL
9	300,000	8,700	190,000,000	81,000,000	81,000,000	81,000,000	14,000,000,000	41,000,000	NA	210,000	NA	<330	<330	<330	<330
8	5,900	ID	1,600,000	2,200,000	2,200,000	2,200,000	2,300,000,000	1,600,000	NA	ID	NA	<330	<330	<330	<330
7	41,000	ID	1,000,000,000	1,400,000,000	1,400,000,000	1,400,000,000	67,000,000,000	230,000,000	NA	13,000,000	NA	<330	<330	<330	<330
3	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA	160,000	NA	<330	590	<330	<330
8	NLL	NLL	NLV	NLV	NLV	NLV	1,500,000	2,000	NA	NA	NA	<330	610	<330	<330
2	NLL	NLL	ID	ID	ID	ID	ID	20,000	NA	NA	NA	<330	830	<330	<330
2	NLL	NLL	NLV	NLV	NLV	NLV	800,000,000	2,500,000	NA	NA	NA	<330	<330	<330	<330
9	NLL	NLL	NLV	NLV	NLV	NLV	ID	200,000	NA	NA	NA	<330	<330	<330	<330
9	NLL	NLL	ID	ID	ID	ID	ID	2,000,000	NA	NA	NA	<330	640	<330	<330
3	NLL	NLL	NLV	NLV	NLV	NLV	ID	2,000	NA	NA	NA	<330	<330	<330	<330
0	730,000	5,500	1,000,000,000	740,000,000	740,000,000	740,000,000	9,300,000,000	46,000,000	NA	NA	NA	<330	1,400	<330	<330
7	390,000	5,300	580,000,000	130,000,000	130,000,000	130,000,000	9,300,000,000	27,000,000	NA	470,000	NA	<330	<330	<330	<330
5	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA	NA	NA	<330	<330	<330	<330
6	57,000	4,200	2,700,000	1,500,000	1,500,000	1,500,000	670,000,000	8,100,000	NA	1,700	NA	<330	<330	<330	<330
8	56,000	2,100	2,800,000	160,000	160,000	160,000	6,700,000	1,600,000	NA	1,700	NA	<330	1,100	<330	<330
0	480,000	ID	1,000,000,000 (D)	650,000,000	650,000,000	650,000,000	6,700,000,000	29,000,000	NA	250,000	NA	<330	1,200	<330	<330
3-3	NLL	NLL	3,000,000	240,000	7,900,000	7,900,000	5,200,000	4,000	NA	NA	NA	<RL	NE	NE	NE
3-2	5,800	5,800	NLV	NLV	NLV	NLV	720,000	7,600	NA	NA	5,800	9,200	7,000	14,000	14,000
3-3	1,300,000	440,000	NLV	NLV	NLV	NLV	330,000,000	37,000,000	NA	NA	75,000	55,000	78,000	96,000	96,000
9-9	6,000	3,600	NLV	NLV	NLV	NLV	1,700,000	550,000	NA	NA	1,200	150	320	210	210
7-3	1,000,000,000	2,900,000,000	NLV	NLV	NLV	NLV	330,000,000	790,000,000	NA	NA	18,000 (total)	16,000	17,000	26,000	26,000
9-9	30,000	3,300	NLV	NLV	NLV	NLV	260,000	2,500,000	NA	NA	NA	NE	NE	NE	NE
8	5,800,000	75,000	NLV	NLV	NLV	NLV	130,000,000	20,000,000	NA	NA	32,000	19,000	18,000	25,000	25,000
2-1	700,000	5,100,000	NLV	NLV	NLV	NLV	100,000,000	400,000	NA	NA	21,000	7,500	32,000	16,000	16,000
2-1	700,000	5,100,000	NLV	NLV	NLV	NLV	100,000,000	400,000	NA	NA	21,000	NE	NE	NE	NE
2-1	NA	NA	NA	NA	NA	NA	100,000,000	400,000	NA	NA	21,000	NE	NE	NE	NE
2-1	NA	NA	NA	NA	NA	NA	100,000,000	400,000	NA	NA	21,000	NE	NE	NE	NE
7-6	1,700	130	48,000	52,000	52,000	52,000	20,000,000	160,000	NA	130	130	<50	140	<50	<50
2-2	4,000	410	NLV	NLV	NLV	NLV	130,000,000	2,600,000	NA	NA	410	<200	530	300	300
2-4	4,500	1,000	NLV	NLV	NLV	NLV	6,700,000	2,500,000	NA	NA	1,000	<100	<100	<100	<100
3-6	2,400,000	170,000	NLV	NLV	NLV	NLV	ID	170,000,000	NA	NA	47,000	45,000	76,000	68,000	68,000



TABLE 1
SUMMARY OF ANALYSIS RESULTS-SOIL
4401 ROSA PARKS BOULEVARD
DETROIT, MICHIGAN
SME PROJECT NO.: 088822.00

NOTES:

- Concentrations reported in micrograms per kilogram ($\mu\text{g}/\text{kg}$).
- Analytical results were compared to the December 30, 2013 Promulgated Cleanup Criteria, Residential and/or Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels, updated June 25, 2018.
- Analytical results were also compared to the EGLE September 4, 2020 Residential and/or Nonresidential Volatilization to Indoor Air Pathway (VIAP) Screening Levels.
- Results exceeding one or more criteria are shaded, as are the criteria exceeded.
- Refer to the analytical report for the full list of analytes.
- CS - Criterion is specific to individual constituent.
- <RL - Analytical result was below laboratory reporting limit.
- ID - Insufficient data to develop criteria.
- NA - Not applicable.
- NE - Not evaluated.
- NLV - Not likely to volatilize.
- NLL - Not likely to leach.
- * = GSI Protection was calculated for the indicated metals using the EGLE spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO_3 was used to calculate GSI. Results are presented for surface water receiving bodies not protected as a drinking water source.
- *Italicized* - the respective criterion was below the Statewide Default Background Level (SDBL) and therefore the value defaulted to the SDBL value.
- ** = Total chromium results compared to trivalent chromium criteria because hexavalent chromium was analyzed and not measured above the laboratory reporting limit in the soil sample that had the highest total chromium concentration.
- (M) - Calculated criterion is below the analytical target detection limit; therefore, the criterion defaults to the target detection limit.