City of Cleveland
Frank G. Jackson, Mayor

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January 10, 2013

Mark Durno
Section Chief
United States Environmental Protection Agency
Region 5
25089 Center Ridge Road
Westlake, OH 44145-4170

RE: ***Request for Clean-Up Removal/Response Assistance at W.C. Reed Playfield, Denison Avenue, Cleveland, Ohio***

Dear Mr. Durno:

I am writing on behalf of the City of Cleveland Department of Public Health to request the assistance of the US EPA in conducting removal and response action of the contamination that was recently discovered at the W.C. Reed Playfield, a community park in the City of Cleveland, Ohio. The contamination was found when the City hired Partners Environmental Consulting Inc., to conduct a Phase II environmental investigation as part of planned improvements, by the City, to the park (e.g., basketball court, garden area, etc.) The results of their sampling and analytical testing indicated that concentrations of PAHs present in certain areas warranted remedial actions in order to meet applicable standards for Recreational Land Use. Partners Environmental completed the study and issued a report on December 10, 2012. A copy of the body of the report and figures are attached. (For a complete copy of the 278 page report please let me know).

When the City received the report, the City immediately closed the park to public use to minimize any risk to the public health from those chemicals of concern. As Director of the City of Cleveland Department of Public Health, I am concerned that without the removal and response assistance of the US EPA, the City will likely not be able to reopen that important neighborhood park – a park that provides substantial benefits to the surrounding community and the City of Cleveland.

Accordingly I am requesting the response and removal assistance of the US EPA under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The assistance of the US EPA will ensure prompt site cleanup so that the City can continue to minimize any threat to the public health and environment and move forward with reopening the park, including the planned renovations.

The City believes that in addition to the reasons above that the site qualifies for CERCLA assistance, the City merits protection as the owner of the property because it meets the definition under the traditional CERCLA defense of an "innocent landowner." Our research has determined that when the City purchased the property from Cleveland Railway Company in 1942 it had no knowledge of contamination at the site. If the City had any knowledge, or reason to believe, that the site was contaminated it would not have used the property as a public park. In addition when the City hired Partners Environmental to do the environmental study, the City expected Partners Environmental to find what they found on the adjacent property, Denison Elderly, which did not present an imminent hazard and was designated for a stricter use.

In addition the City has never done anything that would have spread the previously unknown contamination. The City's research also shows that the site has always been used by the City as a public park since it was purchased – a recreational use that would not cause or spread contamination. The City's additional due diligence it conducted when it hired Partners Environmental, to do the Phase II study in 2012, was further appropriate activity and responsible steps on the part of the City to ensure that any potential contamination, although previously unknown, would not pose a risk or spread if the City conducted renovation on the site. Once the risk became known, the City refrained from conducting the renovation and also immediately closed the park.

US EPA's response and removal assistance is greatly needed in this matter. I would be happy to provide you with any more detailed information that you may need to support this request. You may contact me at 216-664-7414 (office) or at 216-857-1145 (cell) for further information. If you have any questions regarding the City's planned renovation of the site, you may also contact David Ebersole, Brownfield Program Manager, at (216) 664-2204, or Donald Kasych, Manager of Site Development, at (216) 664-3650.

I appreciate your office's serious attention and assistance in this important matter. Thank you.

Very truly yours,

Karen K. Butler, Director
Cleveland Department of Public Health

Cc:

Kurt Princic, Northeast Ohio District Chief, Ohio EPA
Rod Beales, Manager, Ohio EPA, DERR
Maureen Harper, Chief of Communications, City of Cleveland
Michael Cox, Director, Office of Parks, Public Works, City of Cleveland
Richard L. Silva, Commissioner, Office of Parks, Public Works, City of Cleveland
Donald A. Kasych, Manager of Site Development, Office of Capital Projects, City of Cleveland
Pam Cross, Commissioner, Div. of Env't, City of Cleveland,
Chantez Williams, Deputy Cmm'r, Div. of Env't, City of Cleveland
Shirley Tomasello, Assistant Law Director, City of Cleveland
James DeRosa, Commissioner of Real Estate, City of Cleveland

Encl.

PARTNERS
ENVIRONMENTAL

PROPERTY IMPROVEMENT ENVIRONMENTAL SUPPORT PHASE II INVESTIGATION & RISK EVALUATION

W. C. Reed Playfield
Denison Avenue
Cleveland, Ohio

December 10, 2012

PREPARED FOR: Mr. Robert Vilkas
Division of Architecture and Site Development Manager
Mayor's Office of Capital Projects
City of Cleveland
601 Lakeside Avenue, Room 517A
Suite 160
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1.0 INTRODUCTION

Partners Environmental Consulting, Inc. (Partners) was contracted by City of Cleveland (City, Client) to provide Property Improvement Environmental Support and to conduct a Phase II Investigation and Risk Evaluation at the W. C. Reed Playfield located on the north side of Denison Avenue in the City of Cleveland, Cuyahoga County, Ohio (Property). **Figure 1** is presented as a Property Location Map.

The purpose of the investigation was to evaluate the extent to which historical activities at and in the area of the Property have adversely impacted the Property, and what effect such impact might have on the planned improvements of the Property. Partners understands that the Client intends to complete improvements at the Property for continued recreational use.

1.1 Property Description

The irregularly shaped Property is approximately 12 acres in size and is bound to the north by a memorial park and residential development, to the south by residential and institutional development and Denison Avenue and West 15th Street, to the east by residential and commercial development, and to the west by residential and elderly housing development. The Property is currently occupied by tennis and basketball courts, two (2) baseball diamonds, and associated grass fields and concrete walkways and is used for recreational purposes. A gravel surfaced parking lot is located on the southeast portion of the Property. The attached Soil Boring Location Map depicts the Property and surrounding sites (**Figure 2**).

2.0 PROJECT BACKGROUND

Partners met with the City on December 19, 2011 to discuss site improvement plans for the Property. Based on that meeting, the current site improvement plans include the construction of a basketball court, garden area, playground, walking trail, baseball diamond, and parking lot. According to historic information, a deep ravine ran through a portion of the Property. Research of historic information gathered by Partners during the assessment of the adjoining Denison Elderly site indicated that the ravine was partially filled in the early 1950s. The source of the material to fill the deep ravine is unknown. Based on our research and involvement with the redevelopment of the Denison Elderly site, Partners does not believe that the ravine meets the definition of a solid waste facility under Ohio Administrative Code (OAC) 3745-27-13, but a formal determination by the Ohio Environmental Protection Agency (EPA) has not been made for the Property and we understand it is not desired by the City at this time.

3.0 PHASE II SITE INVESTIGATION ACTIVITIES

The Phase II Investigation and Risk Evaluation was conducted in order to provide analytical data necessary to evaluate potential human health risk based on Property-wide shallow soil conditions.

Based on the conceptual site improvement plans that Partners has reviewed, the recreational end-use of the Property, and potential presence of fill at the Property, the Phase II Investigation and Risk Evaluation activities included subsurface soil sampling and analytical testing, risk evaluation and derivation of recreational use standards, and limited statistical data evaluation.

Partners advanced a total of 56 soil borings (SB-01 through SB-56) and obtained soil samples from the Property. Sampling was initially conducted on June 13 and 14, 2012 and consisted of 20 borings (SB-01 through SB-20). Based on the results of soil analytical testing and subsequent discussions with the City, it was determined that additional soil sample points were needed to better assess potential concerns related to the presence of certain chemicals and the recreational end-use of the Property. An additional 36 soil borings (SB-21 through SB-56) were completed on the Property on September 27 and 28, 2012. **Figure 2** shows the locations of the soil borings.

3.1 Soil Sampling and Analyses

A total of 56 soil borings were advanced using a track-mounted, direct push technology (Geoprobe™) sampling system. The borings were sampled continuously from the surface to depths of four (4) feet below ground surface (bgs). The depth of exploration is based on the probable depth of excavation for the planned improvements. The Geoprobe™ drives a two (2)-inch outside diameter, stainless steel tube containing a new disposable acetate liner into the subsurface to continuously obtain soil samples. The soil is forced into the liner at continuous four (4)-foot intervals, and is then retrieved to the surface. Each four (4)-foot soil sample was visually observed, sampled, logged, and classified according to the Unified Soil Classification System (USCS) by a member of Partners' field staff.

Soil samples were divided into two (2) portions. One (1) portion was collected into new two (2)-ounce or four (4)-ounce, pre-cleaned glass jars with Teflon® septums, and the second portion was placed into a new re-sealable plastic bag for field screening purposes. Samples collected in the glass jars were labeled and placed into a cooler containing ice, pending submission to a qualified analytical laboratory for chemical analysis.

New disposable nitrile gloves were worn and changed between each sample to prevent possible cross-contamination. The stainless steel sampling equipment was decontaminated between sampling events with an Alconox® detergent rinse. The location of each boring is depicted on **Figure 2** and soil boring logs are provided in **Appendix A**.

Soil samples were field screened with a MiniRAE 2000 Photoionization Detector (PID), manufactured by RAE Systems, for the presence of organic vapors. The detector was calibrated prior to field activities using a known concentration of a gas standard in accordance with the manufacturers' specifications. Soil sample PID readings are included on the soil boring logs in **Appendix A**.

Borings were abandoned at the completion of field activities by filling each to grade with hydrated bentonite chips and excess cuttings.

Soil samples were submitted to the laboratory based on visual observations, odors, the specific area being assessed, and/or PID readings. Soil samples obtained in June 2012 were submitted for laboratory analysis of one (1) or more of the following parameters:

- Volatile Organic Compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method 8260 (eight [8] samples),
- Polynuclear Aromatic Hydrocarbons (PAHs) by USEPA Method 8270 (20 samples),
- Resource Conservation and Recovery Act (RCRA) Metals by USEPA Methods 6010 and 7471 (20 samples),
- Total Petroleum Hydrocarbons (TPH) (C_6-C_{34}) by USEPA Method 8015 (10 samples), and
- Polychlorinated Biphenyls (PCBs) by USEPA Method 8082 (eight [8] samples).

All soil samples submitted for analytical testing during the September 2012 phase of work were analyzed for PAHs by USEPA Method 8270 (44 samples).

Soil samples obtained in June 2012 were submitted for analysis in a cooler containing ice, under appropriate chain-of-custody control, to Precision Analytical, Inc. (Precision) located in Cleveland, Ohio. The laboratory analytical report is included in **Appendix B**.

Soil samples obtained in September 2012 were submitted for analysis in a cooler containing ice, under appropriate chain-of-custody control, to Environmental Sciences Corporation (ESC) located in Mt. Juliet, Tennessee. The laboratory analytical report is included in **Appendix B**.

3.2 Quality Assurance/Quality Control (QA/QC) Sampling and Testing

QA/QC samples consisted of one (1) duplicate sample and one (1) equipment blank per analytical method.

4.0 POTENTIALLY APPLICABLE COMPARISON STANDARDS

4.1 Ohio EPA Voluntary Action Program (VAP) Generic Direct Contact Soil Standards

The current and planned land use of the Property is a recreational park. The results of soil testing were compared to the VAP Generic Direct Contact Standards (GDCS) for Construction and Excavation Activities, as presented in Ohio Administrative Code (OAC) 3745-300-08, due to the planned construction activities. Initially, the results of soil analyses were also compared to the GDCS for Residential Land Use (OAC 3745-300-08) to determine if it would be necessary to develop recreational risk-based comparison standards. Constituents for which no GDCS has been derived were compared to the Ohio EPA VAP Chemical Information Database and Applicable Regulatory Standards (CIDARS), Supplemental Criteria. While the Property is not a VAP site, the comparisons are considered reasonable for initial discussion of site conditions.

TPH concentrations in soil were evaluated using the TPH Action Levels defined in OAC 1301: 7-9-13, as required by OAC 3745-300-08(B)(3), for Soil Class 1 (coarse grained soils).

4.2 Derived Recreational Standards

Based on the presence of chemicals of concern (COCs) (primarily PAHs including benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz[a,h]anthracene, and indeno[1,2,3-cd]pyrene) in the soil at concentrations exceeding the GDCS for Residential Land Use, it was determined that the development of recreational standards was necessary for these compounds.

Further assessment through risk evaluation and standard derivation was conducted to provide a complete evaluation of potential exposure pathways for the Property. Property-specific standards for the Recreational Visitor (child and adult) were developed for direct contact with soils impacted by COCs. The direct contact standard represents exposures through ingestion, dermal contact and inhalation. Exposure parameters associated with time of exposure, ingestion factors, dermal adsorption, and inhalation factors will be based on the default values presented in the Ohio EPA guidance titled *Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures (2008)*. The Property-specific standards are further discussed in **Section 7.0**.

4.3 Evaluation of Background Metal Concentrations

As arsenic is naturally occurring in all soils, the arsenic concentrations in the soil at the Property were evaluated by comparison to soil background levels from off-Property investigations. Appropriate off-Property investigations were used and include investigations with data demonstrated to be reliable and representative and the investigations were conducted on soil that is representative of the soil type in the Cleveland area for which the background level is being determined. The following two (2) studies were reviewed:

Background Soil Determination, Dike 14 Confined Disposal Facility, Cleveland, Ohio, prepared by Partners in partnership with the Ohio EPA and USEPA and dated October 1, 2008.

Background Soil Determination for Three Locations in Cuyahoga County, Ohio, prepared for the USEPA Region V and Ohio EPA and dated December 29, 2011.

These studies were completed in accordance with OAC 3745-300-07(H).

4.4 95% Upper Confidence Limit Calculations

To evaluate risk in a given exposure area, it is standard practice to use either the maximum detected concentration of a contaminant or a statistically representative concentration. Statistical evaluation was conducted for the following detected PAH compounds: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

This evaluation involved calculation of the 95% Upper Confidence Limit (UCL95) of the arithmetic mean concentration for each of the compounds utilizing the USEPA ProUCL Version 4.0, *Statistical Software*. These calculations were conducted in a manner consistent with Ohio VAP guidance. Calculations were completed following the guidance presented in Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002). ProUCL performs tests for normality, lognormality, and gamma distribution of a data set and computes a conservative and stable UCL95 of the population mean. The program computes the UCL95 using five (5) parametric methods and 10 non-parametric methods, and recommends the appropriate method to be used based on statistical properties of the data set (**Appendix C**).

5.0 SUBSURFACE CONDITIONS

Surface materials at most boring locations generally consisted of approximately one (1) to 14 inches of topsoil and grass. Approximately two (2) inches of asphalt was encountered at SB-08 through SB-10, SB-21 and SB-22, and 14 to 18-inches of brown fine sand with some gravel was encountered at the surface in the baseball infields (SB-14, SB-15, SB-40 and SB-46). Six (6) to 18 inches of gravel was encountered at the surface in the parking lot located on the southeastern portion of the Property (SB-19 and SB-20).

Fill material was encountered at all boring locations to depths of about four (4) feet bgs, except at SB-19, SB-33 and SB-41. Fill materials predominantly consisted of brown fine sand-silty sand, brown silty clay, and/or brown sandy clay with varying amounts of gravel, brick fragments, shale fragments, sandstone fragments, glass, coal fragments, and/or slag; brown, black, and/or gray fine to coarse slag; and/or black fine to medium foundry sand.

At boring SB-19, SB-33 and SB-41, fill materials extended to depths ranging from about one (1)-foot bgs (SB-41) to 3.5 feet bgs (SB-19), where undisturbed soils consisting of brown lean clay with some sand, brown silty fine sand and/or brown/gray silt were encountered to a terminal depth of four (4) feet bgs.

Creosote odors were evident in the soil samples from boring SB-20 and slight petroleum odors were noted at SB-32 (3.5 to 4 feet bgs). No chemical/petroleum odors and/or staining were observed in any of the remaining borings. PID readings ranged from zero (0) to 11.6 parts per million (ppm) except at SB-20, where PID readings ranged from 12.6 to 18.2 ppm.

Groundwater encounter was not apparent during drilling at any of the boring locations.

6.0 RESULTS OF ANALYTICAL TESTING

6.1 Soil Analytical Results

The results of soil analytical testing are presented in **Tables 1** through **3**, and the laboratory analytical reports are provided in **Appendix B**. The distribution of chemicals of concern (COCs) is depicted on **Figures 3** and **4**.

VOCs: Eight (8) soil samples were submitted for VOC analyses. The results of analytical testing indicate that no VOC analytes were detected at concentrations above the laboratory practical quantitation limits (PQLs) except at SB-20. At SB-20 (0-4 feet), five (5) VOC analytes were detected at concentrations below the GDCS for Residential Land Use and Construction and Excavation Activities. The VOC analytical results are summarized in **Table 1** and shown on **Figure 3**.

PAHs: A total of 64 soil samples were tested for PAHs. Analytical testing indicates that all 16 PAH analytes were detected in the soil at concentrations above laboratory PQLs. Six (6) PAHs, including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and naphthalene, were present at concentrations exceeding the GDCS for Residential Land Use.

At SB-20 (0-4 feet), benzo(a)pyrene and naphthalene were present in the soil at concentrations exceeding both the GDCS for Residential Land Use and Construction and Excavation Activities. The PAH analytical results are summarized in **Table 2** and depicted on **Figure 3**.

RCRA Metals: Twenty (20) soil samples were tested for RCRA metals. The analytical results indicate that six (6) RCRA metals, including arsenic, barium, cadmium, chromium, lead, and mercury, were present in the soil at concentrations above the laboratory PQLs. The detected concentrations were below the GDCS for Residential Land Use and Construction and Excavation Activities with the exception of arsenic and lead. The results of analytical testing are summarized in **Table 3** and depicted on **Figure 4**.

Concentrations of arsenic in soils ranged from 5.35 to 32 mg/kg and exceeded the GDCS for Residential Land Use (6.7 mg/kg) at SB-01 through SB-06 and SB-08 through SB-19. All detected concentrations of arsenic were below the GDCS for Construction and Excavation Activities.

Lead was detected at concentrations exceeding the GDCS for Residential Land Use (400 mg/kg) at SB-08, SB-09, SB-10, and SB-12. Further evaluation for lead was completed through the development of a Property-specific standard based on Recreational Land Use (**Section 7.3.1.1**).

TPH: 10 soil samples were tested for light (C_6-C_{12}), middle (C_{10}-C_{20}), and heavy (C_{20}-C_{34}) fraction TPH. The results of analytical testing indicate that no light fraction TPH (C_6-C_{12}) were present in the soil at concentrations above the PQLs, and detected concentrations of heavy fraction TPH (C_{20}-C_{34}) were below the VAP comparison standard. At SB-20 (0-4 feet), middle fraction TPH (C_{10}-C_{20}) was present in the soil at a concentration exceeding the TPH Action Levels. The TPH analytical results are summarized in **Table 3** and depicted on **Figure 4**.

PCBs: Eight (8) soil samples were tested for PCBs. Analytical results indicate that no PCBs were detected at concentrations above PQLs. The PCB analytical results are summarized in **Table 3** and depicted on **Figure 4**.

6.2 QA/QC Analytical Results

One (1) duplicate soil sample, identified as SB-20 Duplicate (0-4 feet), was submitted for VOC, PAH, RCRA Metals, TPH, and PCB analyses. The results of duplicate soil analytical testing indicate are consistent with the results from SB-20 (0-4 feet). One (1) aqueous equipment blank sample (Equipment Blank) was submitted for VOC, PAH, RCRA Metals, and PCB analyses. The results of analytical testing indicate that none of the parameters tested were present in the blank sample at concentrations above PQLs, suggesting that no cross contamination from field sampling equipment occurred.

6.3 Background Metal Evaluation

The distribution of the arsenic data set at the Property was further evaluated through the calculation of the UCL95 representative concentration using the USEPA ProUCL 4.0 statistical software. The UCL95 for arsenic was determined to be 14.84 mg/kg. The statistical output is included in **Appendix C.**

The UCL95 for arsenic was compared to values published in the studies described in **Section 4.3**. The studies were completed in accordance with the Ohio VAP Rules outlined in OAC 3745-300-07(H) to determine the background concentrations of metals in soil in Cleveland. The background value for arsenic in sandy soil was determined to be 23.1 mg/kg. The UCL95 value for arsenic in soil at the Property (14.84 mg/kg) is below the background value for the Cleveland area. Therefore, the concentrations present are not believed to be indicative of a release from a source.

7.0 RISK EVALUATION

The purpose of this Risk Evaluation is to determine if chemicals detected in soil in the upper four (4) feet at the Property are likely to pose an unacceptable human health risk. The Risk Evaluation provides an initial estimate of the carcinogenic and non-carcinogenic risks posed to receptor populations at the Property, based upon applicable standards and the acceptable risk goals established by the Ohio VAP. The Risk Evaluation is comprised of four (4) parts: the identification of COCs, the exposure assessment, the toxicity assessment, and the characterization of risk.

7.1 COCs Used in Risk Characterization

Risk calculations were completed for soil utilizing all COCs detected. This includes VOCs, PAHs, and Metals.

Arsenic and TPH were not assessed in the risk calculations. Arsenic concentrations in soil were documented to be within natural background levels and were, therefore, not considered in risk calculations. As TPH is made up of numerous petroleum factions, using cumulative risk adjustment is not appropriate. As indicated in **Section 6.1**, TPH (C_{10}-C_{20}) was found to exceed the TPH Action Levels at one (1) location at the Property (SB-20 [0-4 feet]).

7.2 Exposure Assessment

The objective of the exposure assessment is to determine the reasonably anticipated magnitude, frequency, duration and routes of exposure on the Property and on areas adjacent to the Property. Both Property specific data and intended land uses are considered.

7.2.1 Identification of Receptor Population and Complete Exposure Pathways

On-Property receptor populations and the associated potential exposure pathway were identified based on the planned use of the Property and include:

- On-Property Recreational Visitors (adults and children): Direct contact with soil via ingestion, dermal contact with soil, and inhalation of volatile and particulate emissions.
- On-Property Construction/Excavation Workers: Direct contact with soil within the upper four (4) feet via ingestion, dermal contact, and inhalation of volatile and particulate emissions.

The evaluation for direct contact exposure to soil for the Construction/Excavation Worker is quantified using data within a point of compliance of zero (0) to four (4) feet bgs. This is the depth equal to the maximum depth reasonably anticipated for excavation activities based on planned development at the Property.

7.2.2 Exposure Units

An exposure unit is a location within which an exposed receptor may reasonably be assumed to move at random and where contact with an environmental medium (e.g., soil) is equally likely at all sub-locations. Based on the distribution of COCs and the planned development, one (1) Property-wide exposure unit (EU) was established for this initial evaluation.

7.2.3 Exposure Point Concentrations

The exposure point concentrations (EPCs) for evaluating the risk posed to the potential receptors are described below:

On-Property Recreational Visitor: To evaluate risk in a given exposure area, it is standard practice to use either the maximum detected concentration of a contaminant or a statistically representative concentration. The EPC used for direct contact exposures to soil are the maximum detected values for VOCs, metals and several PAHs as shown on **Table 4**. Statistical evaluation was conducted in order to determine the representative EPC of the following detected PAH compounds: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. This evaluation involved calculation of the UCL95 of the arithmetic mean concentration as described in **Section 4.4**. Ohio VAP accepts a comparison to the UCL95 of the mean of the data set from the Property as a reasonably conservative and protective representation of the exposure point concentration.

On-Property Construction/Excavation Worker: The EPC for direct contact exposures to soil for the Construction/Excavation Worker were the maximum detected values of each compound (**Table 5**).

7.3 Property Specific Standards

7.3.1 Recreational Land Use Standards

Property-specific standards for the Recreational Visitor (child and adult) were developed for direct contact with soils. The direct contact standard represents exposures through ingestion, dermal contact and inhalation. The Recreational Visitors are assumed to visit a site two (2) days a week for 12 months of the year, resulting in approximately 90 days per year (USEPA, 1992). Exposure parameters associated with ingestion factors, dermal adsorption, and inhalation factors were based on the default values presented in the Ohio EPA guidance titled *Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures (2008).*

7.3.1.1 Recreational Land Use Standard for Lead

Toxicity factors for lead obtained from the Integrated Risk Information System (IRIS), the Health Effects Assessment Summary Tables (HEAST), or the National Center for Environmental

Assessment (NCEA). The toxicity criteria were determined in accordance OAC 3745-300-09 and are consistent with the toxicity criteria in Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures (Ohio EPA, 2008).

Development of standards for lead evaluates the risk of elevated blood lead levels in children and adults that are exposed to environmental lead from various sources and are based on risks that a typical child, exposed to incremental media lead concentrations, will have a lead level greater or equal to the level associated with adverse health effects (10 ug/dL). Typically, lead is evaluated for five (5) exposure pathways: dermal contact with site soil/dust, ingestion of site soil/dust, background air inhalation, dust inhalation from a site, ingestion of drinking water, ingestion of food, and ingestion of produce. All contributing sources to blood lead concentrations are then summed and defined as the geometric mean. A fixed value for the geometric standard deviation is imposed (1.6) and various percentiles of the distribution of expected blood lead levels for the overall blood lead concentration are calculated. By fixing all inputs but soil lead concentration, the soil lead level estimated to be associated with a limit of 10 ug/dL of lead in blood at a specified percentile of the above distribution is calculated.

These calculations were conducted using the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), Lead Risk Assessment Spreadsheet (LeadSpread). The model inputs and calculations are presented in **Appendix D**. The derived standard for lead in a recreational land use setting was determined to be 766 mg/kg.

For lead, the standard takes into account other factors and assumptions in addition to the carcinogenic or non-carcinogenic risks associated with lead so that the standard is used for direct comparison and using cumulative risk adjustment is not appropriate (OAC 3745-300-08).

7.3.1.2 Recreational Land Use Standards for Certain PAHs

Because they exceeded residential GDCS, standards for Recreational Land Use were developed for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. The toxicity criteria were determined in accordance OAC 3745-300-09 and are consistent with the toxicity criteria in the USEPA Integrated Risk Information System, the *Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures* (Ohio EPA, 2008), and those published in the Ohio EPA VAP Chemical Information Database and Applicable Regulatory Standards (CIDARS).

The standards were derived in general accordance with the algorithms for direct contact for adults and children used in the development of the direct contact standards described in the *Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures* (Ohio EPA, 2008). This includes calculations of intake from dermal contact, ingestion, and particulate inhalation. The standards for these compounds were developed with a defined cancer risk level of one (1) in 100,000 (1×10^{-5}) and non-cancer risk level of one (1). The calculations, applicable equations, and input parameters included in **Appendix D**.

The EPCs were compared to the Property specific developed standard for use in risk characterization and inclusion in the cumulative risk calculations for the Recreational Visitor (**Table 4**).

7.4 Toxicity Assessment

Qualitative and quantitative toxicity information was collected and appropriate toxicity values were determined during the toxicity assessment. The toxicity criteria were determined in accordance OAC 3745-300-09 and are consistent with the toxicity criteria in the USEPA IRIS, the *Support Document for the Development of Generic Numerical Standards and Risk Assessment Procedures* (Ohio EPA, 2008), and those published in the Ohio EPA VAP Chemical Information Database and Applicable Regulatory Standards (CIDARS).

7.5 Risk Characterization

Risk characterization integrates the EPCs of each COC, exposure routes, and toxicity values in order to determine the carcinogenic and non-carcinogenic health risks for the identified receptor populations.

7.5.1 Carcinogenic Risk

Carcinogenic risk is expressed in scientific notation as a unitless probability. Risk due to exposure to multiple chemicals is assumed to be additive. As presented in OAC 3745-300-09, the cumulative carcinogenic risk, attributable to the chemicals of concern on, underlying or emanating from a property, must not exceed an excess upper bound lifetime cancer risk to an individual of one (1) in 100,000 ($1x10^{-5}$). All final cumulative human health carcinogenic risk levels are based on one (1) significant figure.

7.5.2 Non-Carcinogenic Hazard Quotient

Non-carcinogenic hazards are expressed as hazard quotients. For a conservative determination the hazard quotients for individual chemicals are assumed to be additive. The sum of the hazard quotients is called a hazard index (HI). A hazard index above one (1) indicates that the potential for adverse effects cannot be ruled out. The cumulative non-carcinogenic hazard, attributable to the chemicals of concern on, underlying or emanating from a property, must not exceed one (1). All final cumulative human health non-carcinogenic hazard levels are based on one (1) significant figure.

7.5.3 Carcinogenic and Non-Carcinogenic Risk Ratio Calculations

The carcinogenic and non-carcinogenic incremental risk ratios were calculated for exposure scenarios associated with each receptor.

Direct Contact: The risk ratio calculations for direct contact were conducted by dividing the EPC of each COC by its associated GDCS or developed standard for either single chemical carcinogens or single chemical non-carcinogens, in accordance with the procedures described in OAC 3745-300-08 and OAC 3745-300-09. The resultant cancer ratios were summed as an expression of estimated cancer risk and the resultant non-cancer ratios were summed as an expression of estimated hazard index. The cancer risk ratio is converted into an excess upper bound lifetime cancer risk (ELCR) by multiplying the risk ratio value by $1x10^{-5}$. Therefore, a cancer risk ratio of one (1) represents a risk of $1x10^{-5}$.

7.6 Results of Risk Calculations

7.6.1 Recreational Land Use

The cumulative excess lifetime cancer risk and non-carcinogenic hazard index for Recreational Visitors are presented below and detailed on **Table 4**. Exposure includes direct contact with soil with a point of compliance of four (4) feet. Conservatively, Residential Land Use standards were used for evaluation of VOCs, metals, and several PAHs. As described in **Section 7.3.1.2**, Recreation Land Use standards were calculated for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

The highest concentrations of PAHs are present at SB-20 (0-4). This coincides with the one (1) location at which TPH exceeds the TPH Action Levels. Therefore, as a remedy would be required here, risk calculations were calculated assuming a remedy at SB-20 (i.e., this data point was not included). The risk calculations are presented on **Table 4**.

Recreational Land Use	*Excess Lifetime Cancer Risk*	*Hazard Index*
RISK GOAL	*1×10^{-5}*	*1*
Direct Contact with Soil (with remedy at SB-20) (Table 4)	5×10^{-5}	0.6

Excess lifetime cancer risks are above the stated risk goal for Recreational Land Use attributable to direct contact with soil. This exceedence is predominantly driven by the concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene.

Further statistical evaluation was conducted through iterative calculations of the UCL95. In this exercise, the highest concentrations of PAHs were successively removed from the data set and the UCL95 was recalculated until this procedure resulted in applicable standards being met for Recreational Land Use. Initial calculations show that with remedy in several areas of the Property, applicable standards for Recreational Land Use can be met. However, further evaluation and iterations will need to be conducted to refine the exact locations of soils that will need to be subject to remedy.

7.6.2 Construction and Excavation Activities

The cumulative excess lifetime cancer risk and non-carcinogenic hazard index for a construction and excavation workers are presented below. Exposure includes direct contact with soil within a point of compliance of four (4) feet.

The highest concentrations of PAHs are present at SB-20 (0-4). This coincides with the one (1) location at which TPH exceeds the TPH Action Levels. Therefore, as a remedy would be required here, risk calculations were calculated assuming a remedy at SB-20 (i.e., this data point was not included). The risk calculations are presented in **Table 5**.

Construction and Excavation Activities	*Excess Lifetime Cancer Risk*	*Hazard Index*
RISK GOAL	*1×10^{-5}*	*1*
Direct Contact with Soil with remedy at SB-20 (Table 5)	9×10^{-6}	0.07

With a remedy at SB-20, applicable standards are met for the Construction/Excavation Worker attributable to direct contact with soil.

8.0 LIMITATIONS

The analytical results and conclusions presented in this report are based on the installation of 56 soil borings to depths of four (4) feet bgs and limited soil analysis. Although the results presented above provide a reasonable indication of subsurface conditions in the areas evaluated, they may not be indicative of soil conditions in areas of the Property not evaluated by Partners. Groundwater was not evaluated during this investigation.

Assumptions and equations used in calculating risk are consistent with those specified by the USEPA and Ohio EPA. However, the assumptions, default values, and equations used in risk evaluation are inherently uncertain due to uncertainties in toxicity, exposure and the additive assumption used.

9.0 CONCLUSIONS AND RECOMMENDATIONS

The results of sampling and analytical testing indicate that concentrations of PAHs present in the surface soils (0-4 feet) in certain areas warrant remedial actions in order to meet applicable standards for Recreational Land Use due to the concentrations of several PAHs. As indicated in **Section 6.1**, TPH (C_{10}-C_{20}) was found to exceed the TPH Action Levels at one (1) location at the Property (SB-20 [0-4 feet]), which will also warrant remedial actions in order to meet applicable standards.

FIGURES

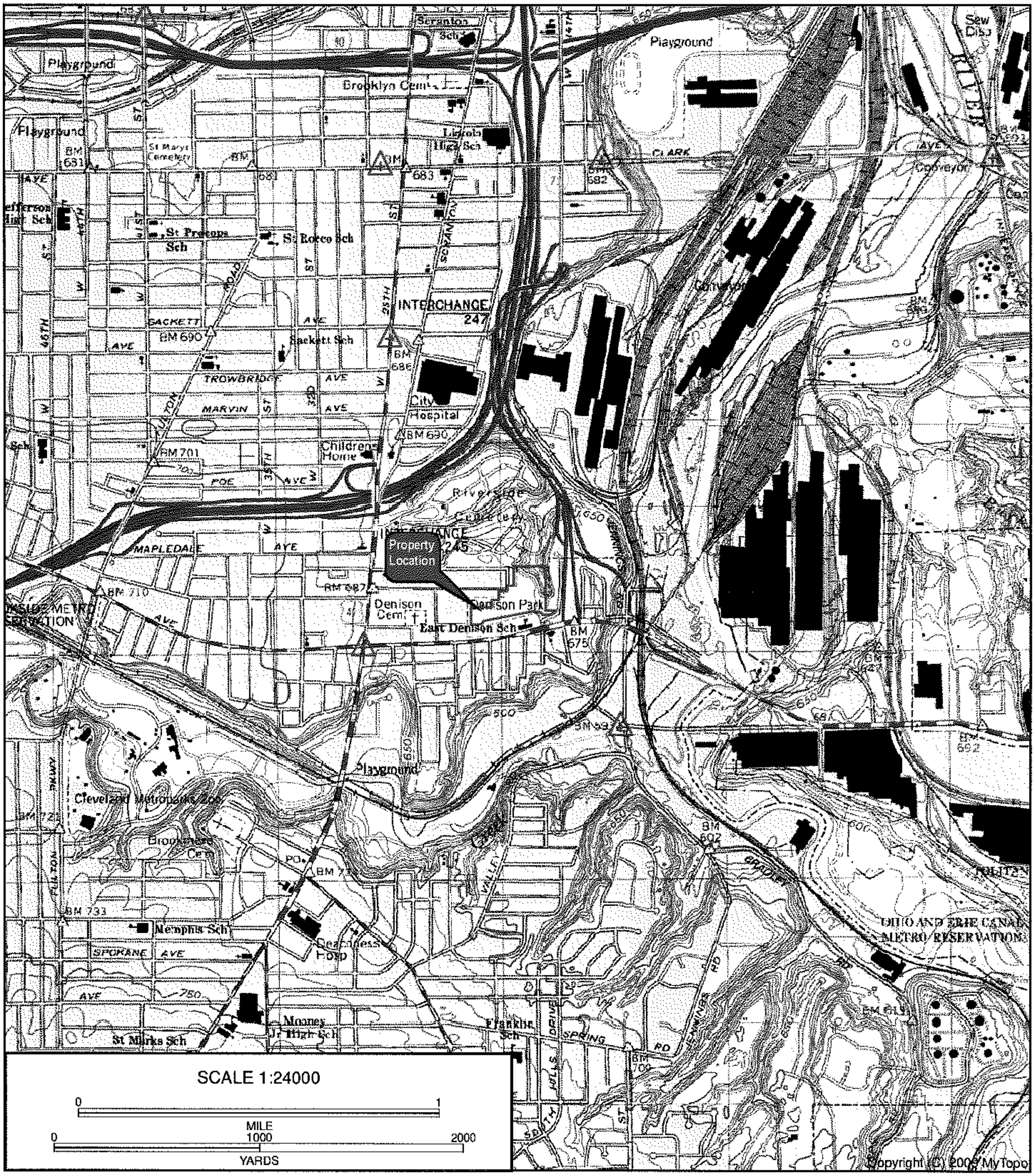
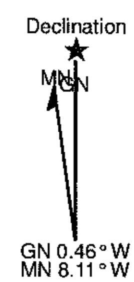
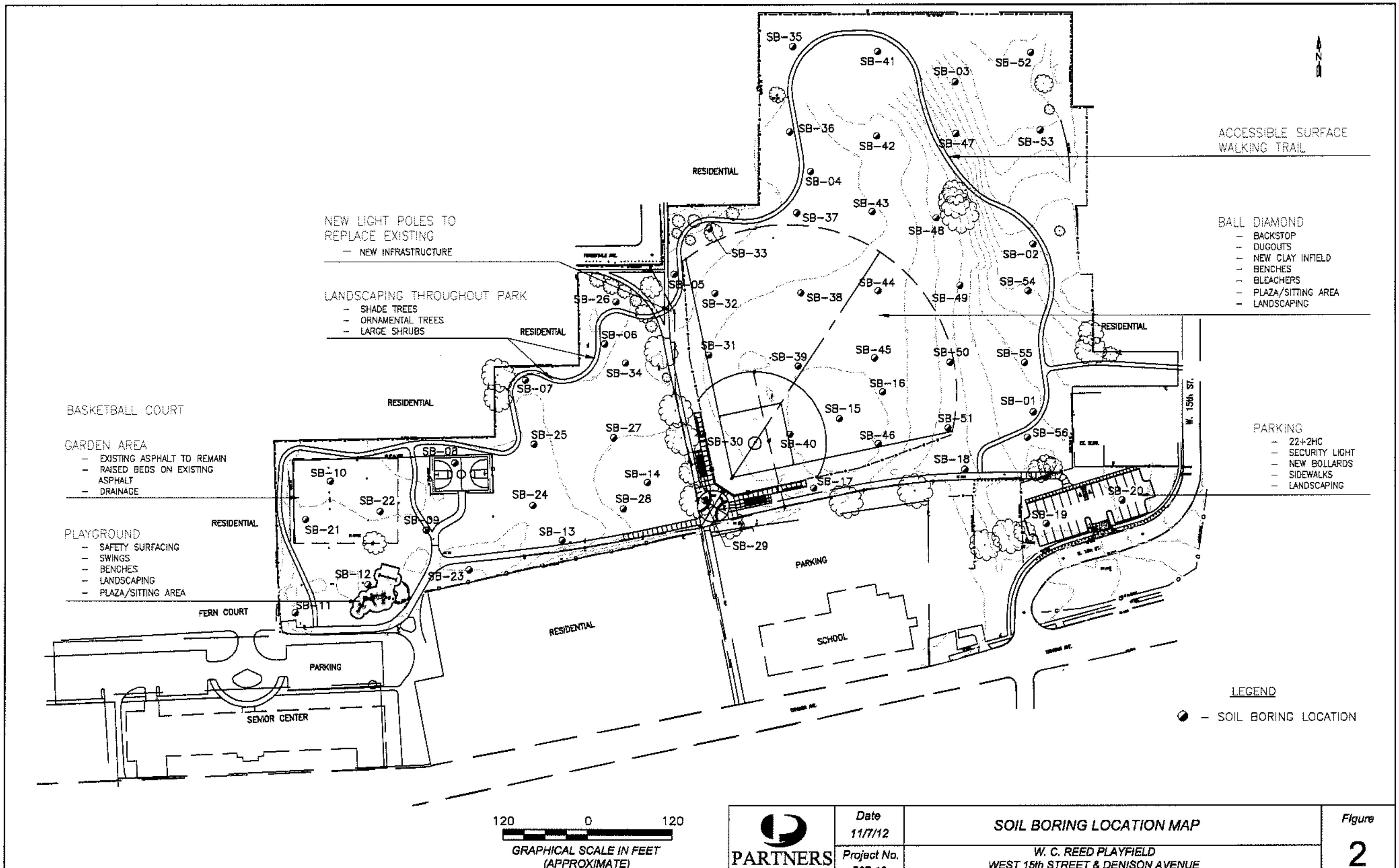


Figure 1: Property Location Map
W.C. Reed Playfield
Denison Ave, Cleveland, Ohio

Property Boundary



Map Name: CLEVELAND SOUTH
Print Date: 11/06/12
Map Center: 041° 27' 11.11" N 081° 41' 37.23" W



PARTNERS ENVIRONMENTAL	Date 11/7/12	SOIL BORING LOCATION MAP	Figure
	Project No. 567.13	W. C. REED PLAYFIELD WEST 15th STREET & DENISON AVENUE CLEVELAND, OHIO	2

SB-08 6/14/12	DEPTH 0-4'
PAHs	
Acenaphthene	<1.57
Acenaphthylene	<1.57
Anthracene	<1.57
Benzo(a)anthracene	4.19
Benzo(a)pyrene	1.93
Benzo(b)fluoranthene	3.34
Benzo(g,h,i)perylene	<1.57
Benzo(k)Fluoranthene	<1.57
Chrysene	3.98
Dibenz(a,h)anthracene	<1.57
Fluoranthene	7.5
Fluorene	<1.57
Indeno(1,2,3-cd)pyrene	<1.57
Naphthalene	<1.57
Phenanthrene	3.13
Pyrene	6.26
VOCs	ND

SB-07 6/13/12	DEPTH 0-4'
PAHs	
Acenaphthene	8.32
Acenaphthylene	<1.22
Anthracene	30.8
Benzo(a)anthracene	57.1
Benzo(a)pyrene	38.9
Benzo(b)fluoranthene	56.6
Benzo(g,h,i)perylene	8.03
Benzo(k)Fluoranthene	21
Chrysene	48.7
Dibenz(a,h)anthracene	2.73
Fluoranthene	127
Fluorene	9.9
Indeno(1,2,3-cd)pyrene	10.4
Naphthalene	2.22
Phenanthrene	103
Pyrene	101
VOCs	NT

SB-06 6/13/12	DEPTH 0-4'
PAHs	
Acenaphthene	5.19
Acenaphthylene	<1.06
Anthracene	15.9
Benzo(a)anthracene	24.4
Benzo(a)pyrene	9.33
Benzo(b)fluoranthene	23.9
Benzo(g,h,i)perylene	4.19
Benzo(k)Fluoranthene	<10.6
Chrysene	15.9
Dibenz(a,h)anthracene	1.27
Fluoranthene	57.2
Fluorene	5.75
Indeno(1,2,3-cd)pyrene	5.22
Naphthalene	1.87
Phenanthrene	55.2
Pyrene	46
VOCs	NT

SB-05 6/13/12	DEPTH 0-4'
PAHs	
Acenaphthene	<1.17
Acenaphthylene	<1.17
Anthracene	2.7
Benzo(a)anthracene	8.35
Benzo(a)pyrene	6.24
Benzo(b)fluoranthene	9.13
Benzo(g,h,i)perylene	2.79
Benzo(k)Fluoranthene	3.15
Chrysene	7.18
Dibenz(a,h)anthracene	<1.17
Fluoranthene	18.9
Fluorene	<1.17
Indeno(1,2,3-cd)pyrene	3.36
Naphthalene	<1.17
Phenanthrene	9.18
Pyrene	15.2
VOCs	ND

SB-04 6/13/12	DEPTH 0-4'
PAHs	
Acenaphthene	3.46
Acenaphthylene	<0.371
Anthracene	12.6
Benzo(a)anthracene	27.7
Benzo(a)pyrene	21.4
Benzo(b)fluoranthene	28.5
Benzo(g,h,i)perylene	10.3
Benzo(k)Fluoranthene	9.73
Chrysene	24.3
Dibenz(a,h)anthracene	1.45
Fluoranthene	59
Fluorene	<7.42
Indeno(1,2,3-cd)pyrene	12.1
Naphthalene	1.27
Phenanthrene	42.7
Pyrene	47.6
VOCs	NT

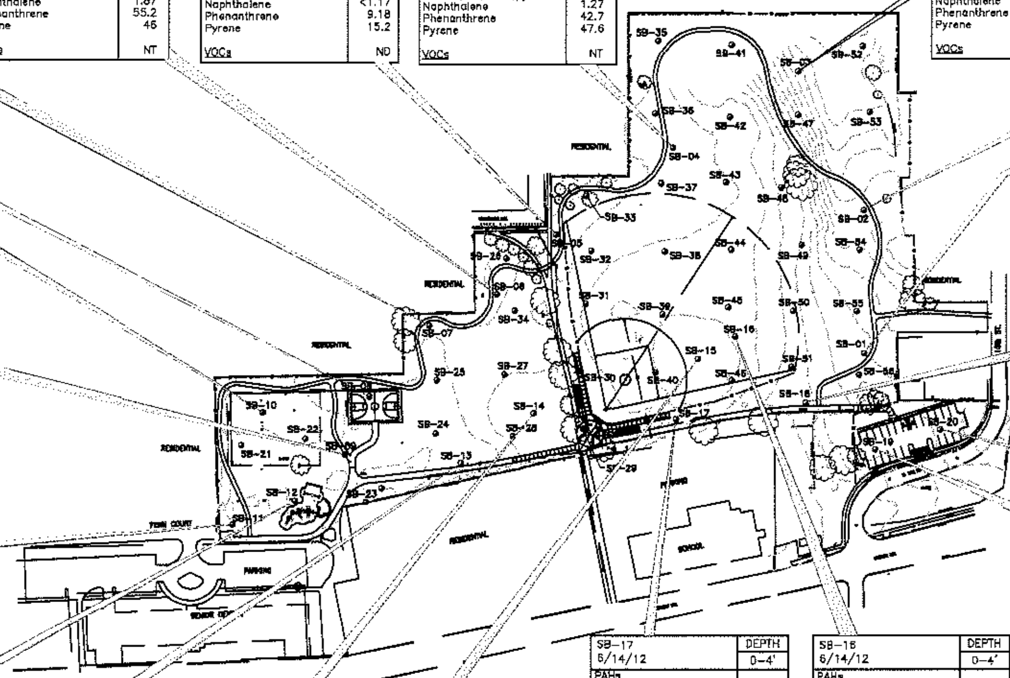
SB-03 6/13/12	DEPTH 0-4'
PAHs	
Acenaphthene	<0.692
Acenaphthylene	<0.692
Anthracene	<0.692
Benzo(a)anthracene	2.5
Benzo(a)pyrene	1.79
Benzo(b)fluoranthene	3.14
Benzo(g,h,i)perylene	1.16
Benzo(k)Fluoranthene	1.13
Chrysene	2.71
Dibenz(a,h)anthracene	<0.692
Fluoranthene	6.55
Fluorene	<0.692
Indeno(1,2,3-cd)pyrene	1.31
Naphthalene	<0.692
Phenanthrene	4.24
Pyrene	4.95
VOCs	ND

SB-02 6/13/12	DEPTH 0-4'
PAHs	
Acenaphthene	<1.62
Acenaphthylene	<1.62
Anthracene	<1.62
Benzo(a)anthracene	3.82
Benzo(a)pyrene	2.22
Benzo(b)fluoranthene	3.69
Benzo(g,h,i)perylene	<1.62
Benzo(k)Fluoranthene	<1.62
Chrysene	3.63
Dibenz(a,h)anthracene	<1.62
Fluoranthene	6.93
Fluorene	<1.62
Indeno(1,2,3-cd)pyrene	<16.2
Naphthalene	<1.62
Phenanthrene	3.08
Pyrene	5.39
VOCs	NT

SB-10 6/14/12	DEPTH 0-4'
PAHs	
Acenaphthene	<1.30
Acenaphthylene	7.92
Anthracene	7.17
Benzo(a)anthracene	29.5
Benzo(a)pyrene	11.6
Benzo(b)fluoranthene	34
Benzo(g,h,i)perylene	6.24
Benzo(k)Fluoranthene	<28.0
Chrysene	27.6
Dibenz(a,h)anthracene	1.84
Fluoranthene	58.7
Fluorene	1.42
Indeno(1,2,3-cd)pyrene	8.04
Naphthalene	<1.30
Phenanthrene	<28.0
Pyrene	46.3
VOCs	ND

SB-09 6/14/12	DEPTH 0-4'
PAHs	
Acenaphthene	<0.693
Acenaphthylene	<0.693
Anthracene	1.68
Benzo(a)anthracene	6.34
Benzo(a)pyrene	4.06
Benzo(b)fluoranthene	6.18
Benzo(g,h,i)perylene	1.62
Benzo(k)Fluoranthene	19.4
Chrysene	5.29
Dibenz(a,h)anthracene	<0.693
Fluoranthene	13.1
Fluorene	<0.693
Indeno(1,2,3-cd)pyrene	2.06
Naphthalene	<0.693
Phenanthrene	5.53
Pyrene	10.8
VOCs	NT

SB-11 6/13/12	DEPTH 0-4'
PAHs	
Acenaphthene	<0.374
Acenaphthylene	<0.374
Anthracene	<0.374
Benzo(a)anthracene	1.03
Benzo(a)pyrene	0.484
Benzo(b)fluoranthene	0.809
Benzo(g,h,i)perylene	<0.374
Benzo(k)Fluoranthene	<0.374
Chrysene	0.984
Dibenz(a,h)anthracene	<0.374
Fluoranthene	1.91
Fluorene	<0.374
Indeno(1,2,3-cd)pyrene	<0.374
Naphthalene	<0.374
Phenanthrene	1.05
Pyrene	1.57
VOCs	NT



SB-18 6/14/12	DEPTH 0-4'
PAHs	
Acenaphthene	1.28
Acenaphthylene	<0.431
Anthracene	3.72
Benzo(a)anthracene	10.6
Benzo(a)pyrene	3.21
Benzo(b)fluoranthene	11.2
Benzo(g,h,i)perylene	1.47
Benzo(k)Fluoranthene	<4.31
Chrysene	9.41
Dibenz(a,h)anthracene	0.544
Fluoranthene	22.1
Fluorene	1.37
Indeno(1,2,3-cd)pyrene	2.02
Naphthalene	<0.431
Phenanthrene	15.5
Pyrene	17.3
VOCs	ND

SB-01 6/13/12	DEPTH 0-4'
PAHs	
Acenaphthene	5.79
Acenaphthylene	>1.11
Anthracene	21.2
Benzo(a)anthracene	54.5
Benzo(a)pyrene	41.2
Benzo(b)fluoranthene	54.8
Benzo(g,h,i)perylene	8.21
Benzo(k)Fluoranthene	22.5
Chrysene	46.2
Dibenz(a,h)anthracene	2.66
Fluoranthene	101
Fluorene	5.96
Indeno(1,2,3-cd)pyrene	10.2
Naphthalene	3.69
Phenanthrene	61.4
Pyrene	84.6
VOCs	NT

SB-20 6/14/12	DEPTH 0-4'
PAHs	
Acenaphthene	109
Acenaphthylene	<17.7
Anthracene	218
Benzo(a)anthracene	404
Benzo(a)pyrene	124
Benzo(b)fluoranthene	405
Benzo(g,h,i)perylene	53.8
Benzo(k)Fluoranthene	<177
Chrysene	354
Dibenz(a,h)anthracene	21.8
Fluoranthene	873
Fluorene	106
Indeno(1,2,3-cd)pyrene	75
Naphthalene	85.2
Phenanthrene	831
Pyrene	867
VOCs	
1,2,4-Trimethylbenzene	0.0268
1,3,5-Trimethylbenzene	0.0128
Ethylbenzene	0.00799
Toluene	0.00571
Xylenes, total	0.0274

SB-19 6/14/12	DEPTH 0-4'
PAHs	
Acenaphthene	<0.499
Acenaphthylene	<0.499
Anthracene	<0.499
Benzo(a)anthracene	0.615
Benzo(a)pyrene	<0.499
Benzo(b)fluoranthene	0.717
Benzo(g,h,i)perylene	<0.499
Benzo(k)Fluoranthene	<0.499
Chrysene	0.577
Dibenz(a,h)anthracene	<0.499
Fluoranthene	1.23
Fluorene	<0.499
Indeno(1,2,3-cd)pyrene	<0.499
Naphthalene	<0.499
Phenanthrene	0.835
Pyrene	0.941
VOCs	NT

SB-12 6/13/12	DEPTH 0-4'
PAHs	
Acenaphthene	0.71
Acenaphthylene	<0.682
Anthracene	2.36
Benzo(a)anthracene	6.55
Benzo(a)pyrene	3.61
Benzo(b)fluoranthene	5.51
Benzo(g,h,i)perylene	1.41
Benzo(k)Fluoranthene	1.89
Chrysene	5.15
Dibenz(a,h)anthracene	<0.682
Fluoranthene	14.1
Fluorene	0.772
Indeno(1,2,3-cd)pyrene	1.84
Naphthalene	<0.682
Phenanthrene	9.25
Pyrene	11.7
VOCs	NT

SB-13 6/14/12	DEPTH 0-4'
PAHs	
Acenaphthene	1.4
Acenaphthylene	<0.588
Anthracene	4.4
Benzo(a)anthracene	6.46
Benzo(a)pyrene	2.66
Benzo(b)fluoranthene	4.23
Benzo(g,h,i)perylene	0.965
Benzo(k)Fluoranthene	1.42
Chrysene	4.58
Dibenz(a,h)anthracene	<0.588
Fluoranthene	14.3
Fluorene	2.29
Indeno(1,2,3-cd)pyrene	1.32
Naphthalene	1.46
Phenanthrene	16.4
Pyrene	10.8
VOCs	ND

SB-14 6/14/12	DEPTH 0-4'
PAHs	
Acenaphthene	5.19
Acenaphthylene	<0.544
Anthracene	14.5
Benzo(a)anthracene	25.6
Benzo(a)pyrene	18.5
Benzo(b)fluoranthene	24.5
Benzo(g,h,i)perylene	3.35
Benzo(k)Fluoranthene	<10.9
Chrysene	22.1
Dibenz(a,h)anthracene	1.17
Fluoranthene	58.6
Fluorene	5.33
Indeno(1,2,3-cd)pyrene	4.38
Naphthalene	2.28
Phenanthrene	52.2
Pyrene	45.2
VOCs	NT

SB-15 6/14/12	DEPTH 0-4'
PAHs	
Acenaphthene	<7.33
Acenaphthylene	<0.367
Anthracene	<0.367
Benzo(a)anthracene	32.6
Benzo(a)pyrene	23.4
Benzo(b)fluoranthene	31.4
Benzo(g,h,i)perylene	10.3
Benzo(k)Fluoranthene	11.1
Chrysene	28.3
Dibenz(a,h)anthracene	1.94
Fluoranthene	74.6
Fluorene	8.5
Indeno(1,2,3-cd)pyrene	12.6
Naphthalene	2.68
Phenanthrene	<0.367
Pyrene	59
VOCs	ND

SB-17 6/14/12	DEPTH 0-4'
PAHs	
Acenaphthene	1.09
Acenaphthylene	<0.601
Anthracene	2.25
Benzo(a)anthracene	3.96
Benzo(a)pyrene	2.16
Benzo(b)fluoranthene	3.19
Benzo(g,h,i)perylene	0.8
Benzo(k)Fluoranthene	1.25
Chrysene	3.33
Dibenz(a,h)anthracene	<0.601
Fluoranthene	9.6
Fluorene	1.03
Indeno(1,2,3-cd)pyrene	1.07
Naphthalene	<0.601
Phenanthrene	9.1
Pyrene	7.57
VOCs	NT

SB-16 6/14/12	DEPTH 0-4'
PAHs	
Acenaphthene	1.06
Acenaphthylene	<0.359
Anthracene	3.21
Benzo(a)anthracene	9.93
Benzo(a)pyrene	2.16
Benzo(b)fluoranthene	11
Benzo(g,h,i)perylene	1.36
Benzo(k)Fluoranthene	<7.17
Chrysene	9.01
Dibenz(a,h)anthracene	0.432
Fluoranthene	20.9
Fluorene	1.1
Indeno(1,2,3-cd)pyrene	1.69
Naphthalene	<0.359
Phenanthrene	13.3
Pyrene	16.6
VOCs	NT

LEGEND

- SOIL BORING LOCATION

NOTES:

1. VOC = VOLATILE ORGANIC COMPOUND
   PAH = POLYNUCLEAR AROMATIC HYDROCARBON
2. ALL CONCENTRATIONS IN PARTS PER MILLION (mg/kg).
3. ND = NOT DETECTED ABOVE LABORATORY DETECTION LIMITS
4. NT = NOT TESTED FOR THAT ANALYTE
5. SHADED SAMPLE LOCATIONS HAVE PAHs ABOVE RECREATIONAL COMPARISON STANDARDS.

N

200 0 200

GRAPHICAL SCALE IN FEET (APPROXIMATE)

PARTNERS ENVIRONMENTAL

Date 11/7/12

Project No. 567.13

SOIL ANALYTICAL DISTRIBUTION MAP - VOCs & PAHs

W. C. REED PLAYFIELD
WEST 15th STREET & DENISON AVENUE
CLEVELAND, OHIO

Figure 3

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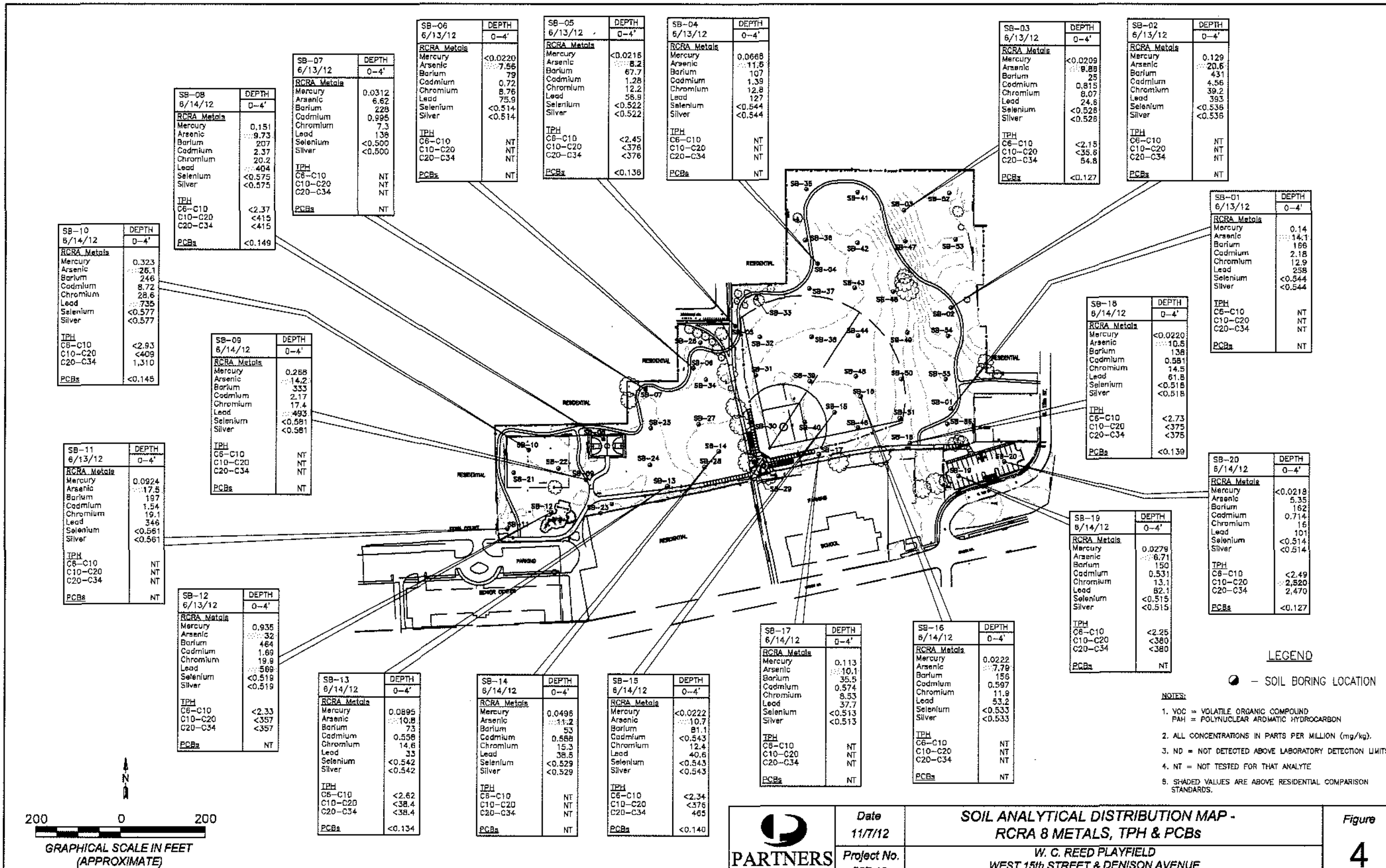

LEGEND

◕ – SOIL BORING LOCATION

NOTES:

1. VOC = VOLATILE ORGANIC COMPOUND
   PAH = POLYNUCLEAR AROMATIC HYDROCARBON
2. ALL CONCENTRATIONS IN PARTS PER MILLION (mg/kg).
3. ND = NOT DETECTED ABOVE LABORATORY DETECTION LIMITS
4. NT = NOT TESTED FOR THAT ANALYTE
5. SHADED VALUES ARE ABOVE RESIDENTIAL COMPARISON STANDARDS.

PARTNERS ENVIRONMENTAL	Date 11/7/12	SOIL ANALYTICAL DISTRIBUTION MAP - RCRA 8 METALS, TPH & PCBs	Figure 4
	Project No. 567.13	W. C. REED PLAYFIELD WEST 15th STREET & DENISON AVENUE CLEVELAND, OHIO	