DEVELOPMENT RESPONSE ACTION IMPLEMENTATION REPORT HIAWATHA BUSINESS CENTER 2020 EAST 28TH STREET MINNEAPOLIS, MINNESOTA

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1.0 INTRODUCTION

Peer Engineering, Inc. (**Peer**), on behalf of 2800 Hiawatha, LLC and Ryan Companies US, Inc (**Ryan**), has prepared this Development Response Action Implementation Report (the **DRAP Implementation Report**) to document the implementation of development response actions conducted at the Hiawatha Business Center property addressed as 2020 East 28th Street in the City of Minneapolis (the **City**), County of Hennepin, State of Minnesota (the **Property**). The Property is located at the northwest corner of the intersection of East 28th Street and State Highway 55 (also known as Hiawatha Avenue). The Property is located in the southwest ¼ of Section 36, Township 29 North, Range 24 West. **Figure 1** in **Appendix A** shows the location of the Property, **Figure 2** in **Appendix A** is a Survey of the Property and **Figure 3** in **Appendix A** is an As-Built Site Plan for the Property.

The development response actions activities completed at the Property were conducted in accordance with that certain Development Response Action Plan prepared by Peer, dated March 31, 2005 (the **March 2005 Development RAP**) and amendments thereto dated August 4, 2005, August 5, 2005 and August 29, 2005 (collectively the **Development RAP**), which were approved by the Minnesota Department of Agriculture (**MDA**) Agricultural Voluntary Investigation and Cleanup (**AgVIC**) Program, the Minnesota Pollution Control Agency (**MPCA**) Voluntary Investigation and Cleanup (**VIC**) Program and the MPCA Petroleum Brownfields Program. Copies of the regulatory letters approving the Development RAP are included in **Appendix B**.

2.0 BACKGROUND INFORMATION

2.1 PROPERTY DESCRIPTION

The Property is located in a mixed use area of the City with commercial and industrial properties surrounding the Property and residential properties beyond to the west and north of the Property. The western edge of the Property is bordered by a Hennepin County Regional Railroad Authority (**HCRRA**) right-of-way parcel which is 100 feet wide (the **HCRRA Parcel**), with The Roof Depot building beyond followed by residential properties. To the east of the Property is State Highway 55 with a multi-tenant office/warehouse building and buildings occupied by Pro Floor Inc. and by DC Sales beyond. To the south of the Property is East 28th Street with vacant parcels that were formerly railroad right-of-ways beyond. Buildings for John Dalsin & Sons Roofing and Sheetmetal, Jadco Supply & Equipment and The Green Institute are located southeast of the Property with the Smith Iron Foundry located southwest of the Property across East 28th Street. To the north of the Property is the City Asphalt Plant and State Highway 55 with the Allweather Roof building beyond.

The Property consists of approximately 4.9 acres of land developed with a one-story, slab-on-grade office/warehouse building (the **Building**) with related improvements, including a storm water retention pond area. See **Figure 3** in **Appendix A**. 2800 Hiawatha, LLC, the current owner of the Property, acquired it from CMC Heartland Partners (**CMC**) August 15, 2005 and together with Ryan as its General Contractor, began construction of the Building in August 2005 and completed construction in February 2006. Exterior areas of the Property include paved parking and drive areas, and green areas in the southeastern and southwestern portions of the Property with the storm water retention pond area on the north portion of the Property.

The Property was originally part of a 7.7-acre parcel (the **Original Parcel**), which included a 2.8 acre parcel that extended approximately 100-feet east and parallel to the current eastern boundary line of the Property and that was acquired by the Minnesota Department of Transportation (**MnDOT**) in May 1998 (the **MnDOT Parcel**). MnDOT subsequently redeveloped the MnDOT Parcel as part of the Hiawatha Avenue realignment project. See **Figure 4** in **Appendix A** for the location of the MnDOT Parcel and the Original Parcel. The Property at one time included addresses of 2000 to 2100 East 28th Street. A Historical Land Use diagram, showing locations of former buildings on the Property is included as **Figure 4** in **Appendix A**. Historically seventeen ground water monitoring wells were installed on the Property by CMC. As of the date of this ESA, fifteen of the seventeen historic ground water monitoring wells were abandoned in place, one was removed and one remains active. In addition, four new ground water monitoring wells were installed on the Property in 2005 and 2006. **Figure 5** in **Appendix A** shows the locations of the historic and existing ground water monitoring wells on the Property and off-site ground water monitoring wells that are related to the Property. All active ground water monitoring wells on the Property and those off-site that are related to the Property are currently owned by 2800 Hiawatha, LLC.

2.2 PROPERTY HISTORY

Peer's historical research indicates the Property had been developed as a railroad yard from at least 1885 through the early 1970's. Information indicates former leaseholders (Reade Manufacturing, then U.S. Borax, Inc.) operated an agricultural chemical business on the south-central portion of the Property at 2100 East 28th Street. Arsenical-based herbicides were mixed and produced at this location as early as 1940 through 1968. Reade Manufacturing was the initial operator of the agricultural chemical business; U.S. Borax, Inc. (**U.S. Borax**) operated the business from 1963 until 1968. Two former bulk storage facilities were also previously located on the south-central portion of the Property. One of the storage facilities, 2000 East 28th Street, was operated by Rollins Oil Company (**Rollins**) (the **Rollins facility**) from as early as 1933 through the mid-1980s. The Rollins facility operated up to 5 ASTs and one UST containing petroleum

products at the Property. A second storage facility (Reade Manufacturing, then U.S. Borax) was located immediately east of the Rollins facility and contained up to 14 ASTs at various times between 1912 and the early 1970s. This facility was apparently used by Reade Manufacturing from no later than 1940 until 1963. U.S. Borax used the facility between 1963 through 1968. Use of the storage tanks prior to Reade Manufacturing operations is not known.

Following the identification of an agricultural chemical release at the Property in 1994, additional investigations were conducted through 2002 which identified arsenic and lead impacts to soil at the Property, and arsenic impacts to ground water at the Property and off-site to the west-southwest of the Property. The former agricultural chemical manufacturing operations at the Property were identified as the source of these impacts. The Property and the MNDOT Parcel are sometimes referred to as the "**CMC Heartland Lite Yard Site**". The CMC Heartland Lite Yard Site was placed on the Minnesota State Permanent List of Priorities (**PLP**) in early 2002. The U.S. Environmental Protection Agency (**EPA**) is also involved with the CMC Heartland Lite Yard Site and has identified CMC and U.S. Borax as Potentially Responsible Parties (**PRPs**). The MDA is and has served as the lead regulatory agency for the CMC Heartland Lite Yard Site since 1994 for purposes of oversight of investigation and cleanup of arsenic and lead impacts at the Property.

Petroleum releases at the Property were reported in 1989 and 1995 and were related to the two former bulk storage facilities at the Property. Although these petroleum releases were investigated and received closure from the MPCA, petroleum impacted soil and ground water contamination associated with the releases are still present at the Property.

CMC and U.S. Borax, as required by the MDA, conducted soil response actions at the Property and the adjoining HCRRA Parcel from October 2004 through July 2005 (hereafter referred to as the **RP Cleanup Actions**). The RP Cleanup Actions included removal of arsenic and lead impacted soil above the Site Cleanup Standards of 20 milligrams per kilogram (**mg/kg**) total arsenic and 525 mg/kg total lead within four feet of planned finished development grades to prevent direct-contact exposure to contaminated soil and to allow for commercial development of the Property. In addition, deep impacted soil was removed from the most contaminated area of the Property to the depth of the water table (24 feet to 27 feet) to minimize long term impacts to ground water quality. The RP Cleanup Actions were conducted in accordance with the Response Action Plan prepared by Exponent, Inc. for CMC dated March 12, 2004 (the **2004 RAP**); the Response Action Design and Implementation Plan prepared for CMC by Peer, dated June 21, 2004 (the **2004 RAD/IP**), and a letter to the MDA from Peer dated December 7, 2004 Re: Addendum to the 2004 RAD/IP, all of which were approved by the MDA and are collectively referred to as the **Approved Original RAP Documents**. Completion of the RP Cleanup Actions was documented in

the report entitled "Final Report - Response Action Documentation, Lite Yard Property and HCRRA Property" prepared for CMC by Peer dated July 29, 2005 (the **Original RAP Implementation Report**), which was approved by the MDA in a letter dated October 26, 2005.

Residual soil contamination exceeding the Site Cleanup Standards was left in place at depths of four feet and greater below finished development grades. An "Affidavit Concerning Real Property Contaminated with Hazardous Substances", by Charles J. Harrison, Affiant, Vice President of CMC, dated August 5, 2005 (the **CMC Affidavit**), was recorded with the Hennepin County Recorder's office September 16, 2005 as Document No. 8654892. The CMC Affidavit discloses the environmental condition of the Property as of the date of the CMC Affidavit.

Impacts to the ground water table aquifer are being managed through the removal of the source material during implementation of the RP Cleanup Actions and the Development RAP, the creation of a Special Well Construction Area established by the Minnesota Department of Health (**MDH**) effective April 1, 2005 and long term ground water quality monitoring. Peer, on behalf of CMC, prepared a Post Cleanup Ground Water Monitoring Plan dated October 18, 2005 and amendments thereto dated October 28, 2005 and November 22, 2005 (collectively the **2005 Ground Water Monitoring Plan**). The 2005 Ground Water Monitoring Plan, approved by the MDA in a letter dated October 26, 2005, includes 5-years of ground water quality monitoring of 18 existing ground water monitoring wells (the **Ground Water Monitoring Wells**) five of which are located on the Property. **Figure 5** in **Appendix A** shows the locations of the Ground Water Monitoring Wells. Ground water quality monitoring includes semi-annual sampling and testing for dissolved arsenic.

2.3 REGULATORY ASSURANCES AND APPROVALS

Due to the presence of residual soil and ground water contamination at the Property remaining after completion of the cleanup of the two historic petroleum releases and the RP Cleanup Actions, 2800 Hiawatha, LLC and Ryan enrolled the Property in the MDA AgVIC Program (**MDA Case File 95-0100E**), the MPCA VIC Program (**VP20770**) and the MPCA Petroleum Brownfields Program (**Site ID#: LEAK00009035**) to obtain available liability assurances and technical approvals related to acquisition and development of the Property. In addition, 2800 Hiawatha, LLC obtained a letter from U.S. EPA Region 5, dated June 24, 2005 which set forth clarifications for 2800 Hiawatha, LLC of potential legal obligations that might arise from its acquisition of the Property and steps to be taken to obtain and protect its status as a "Bona Fide Prospective Purchaser" (the **EPA Comfort Letter**). The EPA Comfort Letter relates to the Property and to other properties in the vicinity of the Property (the **Neighborhood**). The Neighborhood has also been identified in various other documents as being

residential properties in the Phillips Neighborhood located to the southwest, west and northwest of the Property (the **CMC Residential Site**).

Additional environmental response actions above and beyond the scope of the RP Cleanup Actions were required by the MDA and MPCA to be taken at the Property to address the residual soil and ground water contamination in connection with 2800 Hiawatha, LLC's development activities. Consequently, Ryan, on behalf of 2800 Hiawatha, LLC, retained Peer to prepare the Development RAP and to document implementation of the response actions conducted between August 2005 and November 2005 concurrent with development activities and in accordance with the Development RAP. The development response actions addressed residual arsenic, lead and petroleum soil contamination encountered during development excavation activities. The Development RAP also provided for prevention of potential petroleum vapor intrusion into the finished Building space by including a requirement to install an upgraded vapor barrier beneath the southwest footprint of the Building (see **Figure 3** in **Appendix A**). This DRAP Implementation Report documents the response actions completed under the Development RAP.

In addition to the Development RAP, and as required by the MPCA VIC Program, Peer prepared a Contingency Plan and Site Safety Plan dated August 10, 2005, which was amended September 7, 2005 (collectively the **2005 Contingency Plan**). The 2005 Contingency Plan was approved by the MPCA and described actions to be taken in the event unknown/unexpected impacts were encountered during completion of development activities and implementation of the Development RAP. As of the date of this DRAP Implementation Report no unknown/unexpected impacts have been encountered at the Property.

In accordance with the 2005 Development RAP, amendment No. 2 dated August 5, 2005, 2800 Hiawatha, LLC conducted two rounds of ground water monitoring from the five existing monitoring wells located on the Property. The ground water samples were analyzed for dissolved RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), polynuclear aromatic hydrocarbons (**PAHs**), polychlorinated biphenyls (**PCBs**), and volatile organic compounds (**VOCs**), (the **VIC Parameters**). The ground water monitoring data for VIC Parameters will be documented by Peer in a separate monitoring report (the **VIC Ground Water Monitoring Report**) which will be submitted to the MPCA with a courtesy copy submitted to the MDA.

3.0 RESPONSE ACTION IMPLEMENTATION

3.1 OVERVIEW

Peer performed environmental monitoring, testing and documentation activities under the Development RAP and the earthwork and contaminated soil disposal activities were conducted by Carl Bolander and Sons, Inc., of St. Paul, Minnesota (**Bolander**).

Response actions taken under the Development RAP were completed between August 2005 and November 2005, concurrent with development/construction activities, and included the following:

- Completion of the environmental due diligence activities, including preparation of a Phase I Environmental Site Assessment (ESA), and obtaining regulatory liability assurances.
- Completion of additional investigations in support and preparation of acquisition and development of the Property.
- Completion of required environmental monitoring, testing and documentation to facilitate proper identification, segregation and characterization of contaminated soil removed during completion of development-related excavation activities.
- Management of potentially contaminated and contaminated soil removed to complete development activities.
- Off-site disposal of arsenic, lead and petroleum contaminated soil encountered during development activities that exceeded the Site Cleanup Standards and/or Reuse Criteria.
- Collection and analytical testing of soil samples from development-related excavations to document the levels of arsenic, lead and petroleum contaminated soil remaining in-place.
- Installation of an upgraded vapor barrier beneath the southwest footprint of the Building to reduce the potential for petroleum vapor intrusion into the finished Building space. The vapor barrier beneath this portion of the Building, which is adjacent to an area of remaining petroleum contaminated soil, was upgraded from standard 6-mil thick polyethylene liner material to 10-mil thick reinforced polyethylene liner material.
- 2800 Hiawatha, LLC obtaining ownership of the Ground Water Monitoring Wells and assuming responsibilities described in the 2005 Ground Water Monitoring Plan as approved by the MCDA and MPCA.

The March 2005 Development RAP included chemical stabilization (i.e. treatment) of any contaminated soil identified with elevated concentrations of arsenic and lead to render the soil non-hazardous and allow for disposal as industrial waste. Since no soil with significantly elevated concentrations of arsenic or lead was encountered during completion of development activities

and implementation of the Development RAP, chemical stabilization was not required.

Specific details regarding implementation of the Development RAP are provided in the following sections.

3.2 ADDITIONAL INVESTIGATIONS

3.2.1 Geotechnical Investigation

In August 2005, Peer commenced with investigation of the Property for development purposes in accordance with a Geotechnical Investigation Work Plan prepared by Peer, dated June 14, 2005, which was amended July 14, 2005 (collectively the **2005 Development Work Plan**) and approved by the MDA and MPCA. This investigation included completion of sixteen soil borings to document subsurface geotechnical and environmental conditions at the Property prior to the start of development activities. The soil samples were analyzed for VIC Parameters (excluding VOCs) and/or total arsenic and total lead. No soil samples were analyzed for VOCs, gasoline range organics (**GRO**) or diesel range organics (**DRO**), because no elevated photoionization detector (**PID**) readings or visual/olfactory evidence of organic contamination were noted in any of the soil samples. The investigation results are documented in the Geotechnical Investigation Report prepared by Peer dated July 28, 2005 (the **2005 Development Work Plan Investigation Report**). Concentrations of total arsenic from samples collected from the anticipated base of the storm water retention pond area were below the MPCA Soil Leaching Values (**SLVs**). Total arsenic and lead concentrations detected in other soil samples from locations below four feet of planned finished development grade in the Building footprint, parking areas and green space areas were consistent with the documentation samples collected during the completion of the RP Cleanup Actions. No VIC Parameters were detected at concentrations above the respective MPCA Residential Soil Reference Values (**SRVs**) or SLVs in any of the soil samples.

3.2.2 Pre-Excavation Soil Sampling

In order to obtain approval for disposal and to better characterize the location and quantity of contaminated soil targeted for removal during development, pre-excavation environmental soil sampling was conducted on August 11 and 12, 2005 along all areas proposed for excavation for utility lines. The pre-excavation soil sampling included collection of four-part, in-place, composite soil samples taken at 50-foot intervals along the proposed utility routes. Thirty-three composite samples were collected and analyzed for total arsenic and lead; selected samples were also analyzed to TCLP arsenic and lead. In addition, two of the samples collected from a proposed water line excavation on the south side of the Building, in an area of known petroleum contamination, were analyzed for

VIC parameters. The pre-excavation soil sampling results are presented in a disposal request letter from Peer to SKB Industrial Waste Containment Facility, Rosemont, MN (**SKB**) dated August 25, 2005 requesting disposal of impacted soil (**Disposal Request Letter**). SKB issued a "Notification of Waste Acceptance" letter to 2800 Hiawatha, LLC dated August 30, 2005 approving disposal of the contaminated soil at SKB. In addition, Dakota County issued an approval letter to SKB dated September 6, 2005 allowing use of contaminated soil meeting appropriate requirements as alternative daily cover at SKB. Copies of the Disposal Request Letter and the approval letters from SKB and Dakota County are included in **Appendix C**.

3.3 SITE PREPARATION

Various activities were conducted in preparation for implementation of the development response actions including, obtaining required permits, establishing site control using a grid system, installing erosion control features, establishing a temporary staging area for soil stockpiling, and limiting access to contaminated portions of the Property to qualified and safety trained personnel.

3.3.1 Permitting

Storm Water Permitting

A "General Storm-Water Permit for Construction Activity" (**Storm Water Permit ID #C00013906**) was obtained by CMC for the Property in 2004 as part of the RP Cleanup Actions and was transferred to 2800 Hiawatha, LLC and Ryan August 9, 2005, prior to the start of development activities.

Sanitary Sewer Discharge Permit

A One Time Special Discharge Approval (**Permit #1961**) was obtained from the Metropolitan Council Environmental Services (**MCES**) on September 20, 2005 to allow discharge of accumulated storm water runoff from development-related excavations to the on-site sanitary sewer system. However, no discharge was required during completion of development activities, and the MCES permit was not used. Peer is in the process of canceling Permit #1961.

A One Time Special Discharge Approval (**Permit #2017**) was obtained from MCES on September 20, 2005, and amended by MCES on May 31, 2006 to allow discharge of development and purge water generated from sampling of the Ground Water Monitoring Wells. Sampling of the Ground Water Monitoring Wells is a requirement under the 2005 Ground Water Monitoring Plan.

3.3.2 Survey Control

Prior to implementation of the RP Cleanup Activities in 2004/2005, a 50-foot by 50-foot grid system was set up at the Property to establish horizontal control. Hakanson Anderson Associates, Inc., a registered land surveyor, located and staked control points for the grid system (see **Figure 6** in **Appendix A**). The grid system was re-established at the Property prior to the start of development activities to guide excavations in areas with residual soil contamination.

3.3.3 Erosion and Sediment Control Features

Erosion and sediment control features established for Storm Water Permit ID #C00013906 were installed and maintained at the Property during completion of development activities and included silt fencing, catch basin sediment traps, and crushed rock at vehicle entrances and exits.

3.3.4 Temporary Staging Area

Temporary Staging Areas for excavated soil were established on the southern portion of the Property. These areas were used for the temporary stockpiling of contaminated and potentially contaminated soil segregated during development excavation that required characterization prior to disposition. **Figure 7** in **Appendix A** identifies the location of the "**Temporary Staging Areas**".

3.3.5 Access and Work Zones

Access to the Property was maintained by Ryan's Site Superintendent. All visitors were required to check in at the Superintendent's office, complete the visitor/safety checklist and obtain clearance before entering the Property. Work zones, including a Contaminant Reduction Zone and Temporary Soil Stockpiling/Staging Areas, were established at the Property to assist in management of contaminated soil excavated during development activities. See **Figure 7** in **Appendix A** for locations of the work zones.

3.4 AIR MONITORING

An air monitoring program was conducted at the Property to ensure protection of both the general public and site workers during development response action activities. In general, the air monitoring program included the following elements:

- Perimeter monitoring
- Daily reporting

Air monitoring and sampling was conducted during the excavation of potentially contaminated and contaminated soil and handling of that soil on-site.

3.4.1 Exposure Standards

The Development RAP established short-term time-weighted averages for total particulates, arsenic, and lead. The established limits were:

Parameter	Established Limit
Total Particulates (real-time dust monitoring)	10 milligrams per cubic meter (**mg/m³**)
Total Arsenic (laboratory testing)	0.01 mg/m³
Total Lead (laboratory testing)	0.05 mg/m³

The above established limits were used to trigger action criteria related to airborne contaminants. Adherence to the established limits was assessed through a combination of real-time air monitoring of particulates and laboratory analysis of air samples collected at designated locations and intervals.

Additional information concerning the established exposure standards is presented in the Development RAP.

3.4.2 Perimeter Monitoring

Real-Time Measurements

Figure 8 in **Appendix A** identifies the location of the four established perimeter air monitoring locations. These monitoring locations were spaced to provide reasonable coverage of the air in all directions from the Property. The monitoring locations were identified as P-40, P-200, P-300, and P-355. Whereas "P" represents a perimeter monitoring location; the number following it, e.g. "40" represents the direction to the monitoring location in degrees relative to the center of the Property. Each monitoring location was equipped with a MIE DataRAM aerosol monitor (**Aerosol Monitor**) capable of monitoring and recording the average short-term exposure limit (**STEL**) and maximum concentration of particulates over the entire day. The Aerosol Monitor is capable of measuring particulates in the range from 0.001 mg/m³ to 400 mg/m³.

The concentration of air-borne contaminants at the Property boundary was determined each day as follows:

1. The current wind direction was measured and recorded in degrees relative to true north (0°).

2. The concentration of air-borne particulates was measured at the perimeter monitoring location closest to the upwind direction of the Property. This was considered the background particulate concentration.

3. Particulate concentrations were measured at the three downwind locations. The highest observed particulate concentration from those measurements was identified.

4. The background particulate concentration was subtracted from the highest downwind particulate concentration, and the resulting concentration was compared to the 1.6 mg/m^3 total particulate standard established for the Property.

In summary, the real-time monitoring detected no instances where the established particulate standard of 10 mg/m^3 was exceeded during any work day. Copies of the daily air monitoring reports are included in **Appendix D**.

Sampling for Laboratory Analysis

A MIE Active Sampling Conversion kit (**Active Sampler**) was used to collect daily particulate samples for laboratory analysis. The particulate samples were collected in mixed cellulose ester (**MCE**) filters, housed in plastic cassettes. The MCE filters were 37 millimeters (**mm**) in diameter and had a 0.8 micron pore size. Each sample collected represented approximately 500-liters of air taken over a 125-minute time period. To ensure that the air flow was properly measured, the Active Sampler was calibrated daily.

Air Samples for laboratory analysis were collected on the downwind side of the Property, as determined by a portable weather station. The air sampling for laboratory analysis was conducted as follows:

1. The current wind direction was measured and recorded in degrees relative to true north (0^o).

2. An air sample was collected from the downwind side of the Property as determined by wind direction measurements from the portable weather station. The air sample was obtained over a 125-minute period at a calibrated flow rate of approximately 4 liter per minute and consisted of a volume of approximately 500 liters of air.

3. The MCE filter was sealed and transferred to the analytical laboratory of Braun Intertec under chain-of-custody procedures (see **Section 3.7.3, page 20**).

4. The MCE filter was analyzed for arsenic and lead by NIOSH method 7300.

5. The analytical results for arsenic and lead, in units of mg/m^3, were reported to Peer by Braun Intertec within 48-hours of sample receipt.

The analytical results for the air samples collected are presented in **Section 3.7.3, page 20** of this DRAP Implementation Report. In summary, neither arsenic nor lead were detected at concentrations above laboratory reporting limits in the air samples collected at the Property.

Data Management and Reporting

The air monitoring results were maintained by Peer. At the end of each day Peer collected, calculated and analyzed the day's results. The results included:

- Wind speed and direction recorded at regular intervals.
- Daily average, STEL, and maximum particulate readings from each of the four perimeter air monitoring stations.
- Calculated daily highest potential arsenic and lead concentration in air.

At the end of the next work day after collection of the monitoring results and/or receipt of analytical test results, Peer compared the particulate, arsenic and lead concentrations to the appropriate standards. The following results were compiled:

- Hours of operation during the preceding work day.
- Average wind speed and direction during each hour of operation.
- Daily average, STEL and maximum particulate concentration from each of the four air monitoring locations (see **Section 3.4.2, pages 10 and 11**).
- Calculated arsenic and lead concentration at the perimeter.
- Comparison of observed and calculated particulate, arsenic and lead concentrations to standards.
- Actions taken to mitigate air borne contaminants, if any.
- Recommended future actions or changes in operation, if any.

3.4.3 Worker Monitoring

The March 2005 Development RAP indicated that work monitoring would be conducted during implementation of development response actions using a MIE pdm-3 Miniram aerosol. However, because contaminated soil concentrations encountered during development activities were significantly lower and significant particulate and arsenic/lead concentrations were not detected during the perimeter and worker monitoring conducted for the RP Cleanup Actions, worker monitoring was not conducted during implementation of development response activities.

3.5 EXCAVATION ACTIVITIES

3.5.1 Overview

As defined in the Development RAP, all soil at the Property, within four feet of planned finished development grades, consisted of either clean imported granular fill or native soil that did not require cleanup. This was verified through analytical testing of soil samples which were found to meet the Site Cleanup Standards of 20 mg/kg total arsenic and 525 mg/kg total lead. Thus, the upper four feet of soil was removed from all excavation areas and reused on-site as backfill for the Building foundation, parking areas, green space areas and to a lesser extent, utility trenches, depending on geotechnical suitability, without additional environmental monitoring or analytical testing at the time of development activities.

Bolander conducted all excavation work related to implementation of the Development RAP and development of the Property. Bolander also installed all underground utilities. Excavation work completed at depths below four feet from finished development grades proceeded in an orderly manner to allow for Peer's completion of environmental monitoring and sampling as required by the Development RAP. Environmental monitoring of the excavated soils included visual and olfactory observations, screening for arsenic and lead using a Niton XL-309 Spectrum Analyzer, a portable X-ray fluorescence instrument (**XRF**), and screening for organic vapors using a PID equipped with a 10.6 eV lamp. Peer's environmental monitoring and sampling methods and procedures are presented in **Appendix E**.

Horizontal and vertical control was maintained during all excavation activities. Dust suppression was conducted with water as-needed during all soil handling activities to minimize potential particulate emissions. All excavated soil that was not pre-approved for disposal or determined to be suitable for on-site reuse was placed in the Temporary Staging Areas (see **Figure 7** in **Appendix A**). Soil stockpiles were placed on and covered with 10-mil reinforced polyethylene sheeting until disposition options were evaluated.

The following sections provide specific details regarding excavations conducted at depths below four feet from finished development grades where contaminated soil was encountered. Disposition of the contaminated soil is documented in **Section 3.8, pages 20 and 21**.

3.5.2 Utility Excavations

Contaminated soil was encountered and removed during installation of the water main, storm sewer, and sanitary sewer lines, because excavations for these utilities extended to depths below four feet from finished development grades.

Figure 8 in **Appendix A** shows the locations of utility excavations. Excavation for and installation of utilities occurred on the following dates:

Utility Line	Excavation/Installation Dates
Water Main	August 25, 26, 27, 2005, September 12 and 13, 2005
Storm Sewer	August 29, 2005 through September 2, 2005, September 6 and 7, 2005 and September 9, 2005
Sanitary Sewer	August 29, 2005 and September 12, 2005

Approximately 887 cubic yards (**CY**) of soil was excavated from utility trenches at depths below four feet from finished development grades. Of this volume, approximately 33 CY (50 tons) of soil was reused on-site and 854 CY (1,281 tons) was disposed of at SKB (see **Section 3.8, pages 20 and 21**). The utility excavations were guided based on results of the pre-excavation soil sampling as presented in **Section 3.2.2, pages 7 and 8**. In summary, soil located below four feet that had arsenic concentrations above 20 mg/kg and/or lead concentrations greater than 525 mg/kg was excavated; and based on analytical data collected during the pre-excavation soil sampling, the soil was disposed off-site with no further testing. Soil excavated from utility trenches located below four feet from finished development grades that had arsenic concentrations below 20 mg/kg and lead concentrations below 525 mg/kg was reused in the utility trenches or as general backfill on-site.

3.5.3 Storm Water Retention Pond Excavation

The storm water retention pond was excavated on August 15, 2005, August 17, 2005 and August 18, 2005. See **Figure 9** in **Appendix A** for the location of the excavation. Approximately 4,000 CY of soil was excavated from the storm water retention pond. The excavated soil was stockpiled, sampled and tested to determine appropriate disposition options. Based on the analytical testing results, 3,307 CY (4,960 tons) of soil was reused on-site and 693 CY (1,040 tons) was disposed at SKB (see **Section 3.8, pages 20 and 21**).

3.5.4 Petroleum Contaminated Soil Excavation

The petroleum contaminated soil area on the south side of the Building was excavated on August 16, 2005, September 1, 2005, and September 9, 2005. See **Figure 9** in **Appendix A** for the location of the excavation. Approximately 627 CY (940 tons) of petroleum contaminated soil was excavated and disposed of at SKB (see **Section 3.8, pages 20 and 21**). The petroleum contaminated soil was excavated to accommodate utility installation and to reduce the potential for petroleum vapor migration/intrusion into the finished Building space. The excavation was advanced to a depth up to approximately 13 feet below finished development grade. Because it was not feasible to remove all petroleum

contaminated soil, an upgraded vapor barrier was installed beneath the portion of the Building footprint adjacent to the excavation area as further discussed in **Section 3.6, pages 15 and 16.**

3.5.5 Lead-Impacted Soil Excavation

Contaminated soil exceeding the SLV of 525 mg/kg for lead was excavated from the lead-impacted soil area (Grid Cell #4) in the southern portion of the Property on September 10, 2005. See **Figure 9** in **Appendix A** for location of the excavation. A one-foot thick lift of lead-impacted soil (approximately 92 CY or 138 tons) was excavated and based on existing analytical data taken during completion of the RP Cleanup Actions, it was removed and disposed at SKB with no further testing (see **Section 3.8, pages 20 and 21**).

3.5.6 Miscellaneous Excavations

Several small excavations were conducted below four feet from finished development grades at various locations on the Property. See **Figure 9** in **Appendix A** for location of the excavations. The miscellaneous excavations included areas for footings for the loading docks, two flammable liquid traps and 11 light poles. Based on existing analytical data from these areas, the soil was removed and disposed at SKB with no further testing (see **Section 3.8, pages 20 and 21**).

A description of the miscellaneous excavations areas, dates of excavation and volume of soil are noted below:

Area	Excavation Date	Volume
Loading Dock Footings	August 31, 2005 and September 14, 2005	140 CY or 210 tons
South and North Flammable Liquid Traps	September 6, 2005 and October 31, 2005	5 CY or 7.5 tons
Light Poles	October 2005	5 CY or 7.5 tons

3.6 UPGRADED VAPOR BARRIER

As specified in the Development RAP, amendment No. 3 dated August 29, 2005, the construction vapor barrier beneath the Building footprint was upgraded to reduce potential vapor intrusion into the finished Building space from residual petroleum contamination. Construction plans required installation of a standard vapor barrier consisting of 6-mil thick polyethylene liner material which was to be installed four inches below the base of the five inch thick concrete floor slab of the Building. The standard vapor barrier was upgraded as follows:

- The vapor barrier beneath the portion of the Building adjacent to the area of remaining petroleum contaminated soil as shown on **Figure 9** in **Appendix A** was constructed with 10-mil thick reinforced polyethylene liner material rather than 6-mil thick polyethylene liner material.
- The liner material seams were installed with a minimum of a five foot overlap and taped seams.
- The 10-mil thick reinforced polyethylene liner was attached, using adhesive, to the inside of the exterior Building wall at the base of the floor slab.
- Pipe penetrations through the 10-mil thick reinforced polyethylene liner were sealed using taped connections.

The upgraded vapor barrier was installed by Bolander between October 31, 2005 and November 8, 2005.

3.7 ANALYTICAL TESTING RESULTS

This section summarizes the air and soil samples collected and analytical testing performed. The field methods and procedures used for sample collection, preparation, and transport to the laboratory are included in **Appendix E**. Copies of the laboratory analytical reports and sample chain-of-custody forms are included on the computer "CD" in **Appendix F**.

All samples collected by Peer during response action implementation were submitted to one of the following analytical laboratories:

- Pace Analytical Services (**Pace**), Minneapolis, Minnesota (MDH Certification #027-053-137). Pace conducted the analytical testing on all soil samples collected as part of the Development RAP implementation.
- Braun Intertec, Minneapolis, Minnesota (MDH Certification #027-053-117). Braun conducted the analytical testing on all air particulate samples collected as part of the Development RAP implementation.

3.7.1 Stockpile Samples

Representative samples were collected from 20 of the 23 soil stockpiles staged for disposition evaluation at the Property. The stockpile samples were submitted for analytical testing of a combination of total arsenic and lead, and TCLP arsenic and TCLP lead using standard EPA methods. The remaining three soil stockpiles were characterized using existing analytical data from either the August 2005 Pre-Excavation Soil Sampling or the 2004/2005 RP Cleanup Actions documentation sampling.

Additional information pertaining to the disposition of the stockpiles is included in **Section 3.8, pages 20 and 21. Table 1** in **Appendix G** presents the analytical results for the soil stockpile samples and describes the location where the soil

was generated from on the Property. The following observations are provided regarding the soil stockpile sampling results:

- Total arsenic concentrations ranged from "not detected" at or above laboratory reporting limits to 105 mg/kg.
- Total lead concentrations ranged from 0.94 mg/kg to 28.1 mg/kg.
- TCLP analysis for arsenic and lead was completed on two of the stockpiles (SP-1 and SP-2). TCLP results for both samples were "not detected" at or above laboratory reporting limits.
- A total of six stockpiles identified as SP-9, SP-10, SP-11, SP-19, SP-20 and SP-21 had total arsenic concentrations above the Site Cleanup Standard of 20 mg/kg. Total lead was not identified above the Site Cleanup Standard of 525 mg/kg in any of the stockpile samples. Restrictions related to reuse of soil and off-site disposition are discussed further in **Section 3.8, pages 20 and 21.**

3.7.2 Documentation Samples

Soil documentation samples were collected upon completion of excavations to document the contamination levels remaining in-place after excavation. With the exception of the petroleum excavation, all documentation samples were submitted for analysis of total arsenic and total lead. The petroleum excavation documentation samples were submitted for a combination of DRO, GRO, benzene, toluene, ethylbenzene and xylenes (**BTEX**), methyl-t-Butyl ether (**MTBE**) and the VIC Parameters. **Table 2** in **Appendix G** presents the results of all documentation samples collected for total arsenic and total lead. Petroleum confirmation results are presented in **Table 3** in **Appendix G.** Sample collection and handling procedures are described in **Appendix E.** Documentation samples were collected from the following excavations as presented below.

Utility Trench and Loading Dock Excavation Samples

Four part composite samples representing the upper 4-inches of soil were collected at 25 foot intervals along the base of each utility trench and loading dock footing excavations. In general, one composite base sample was collected from every 100 linear feet of exposed excavation. A total of 25 soil samples were collected from the utility trench excavations and three samples were collected from the base of the loading dock footing excavation. The locations of the utility trench and loading dock footing excavation documentation samples are shown on **Figure 10** in **Appendix A**.

Total arsenic was detected above laboratory reporting limits in 14 of the 25 utility trench documentation samples at concentrations ranging from 1.2 mg/kg to 64.5 mg/kg. Eight of the 14 samples had arsenic concentrations above the Site Cleanup Standard of 20 mg/kg, and two of these eight samples, WTDOC 3 (55.6 mg/kg) and STDOC15 (64.5 mg/kg) had concentrations which exceeded the

Short Term Worker SRV of 55 mg/kg (*note: MPCA revised the Short Term Worker SRV for arsenic to 70 mg/kg as of January 2006*). Both samples were collected from the bases of the respective utility trenches and at depths which were below four feet of finished development grade.

The three loading dock footing excavation documentation samples had total arsenic concentrations ranging from 62.1 mg/kg to 267 mg/kg. All three samples were collected from a depth of at least 4 feet below the finished development grade. Note: documentation samples obtained as part of the RP Cleanup Actions indicated contaminated soil with arsenic concentrations greater than 20 mg/kg remains in this area at depths below 4 feet from finished development grade.

Total lead was detected in all of the utility trench and loading dock excavation documentation samples analyzed, at concentrations ranging from 0.61 mg/kg to 13.9 mg/kg; these concentrations are well below the Site Cleanup Standard for lead of 525 mg/kg.

Storm Water Retention Pond Samples

Eleven grab samples were collected from the base and sidewalls of the storm water retention pond to characterize the upper 4-inches of soil at the respective locations. One sample (**Pond Doc 9**) was collected as a four part composite representing the upper 4-inches of soil along the southern end of the storm water retention pond. A decorative concrete block retaining wall was built at the location of Pond Doc 9 as part of development activities and soil around Pond Doc 9 was covered by the retaining wall and adjacent bituminous pavement. The locations of where the storm water retention pond documentation samples were taken are shown on **Figure 11** in **Appendix A**.

All samples collected from the storm water retention pond area and analyzed for total arsenic and total lead were below the established Site Cleanup Standards of 20 mg/kg for total arsenic and 525 mg/kg for total lead. Sample Pond Doc 9 had a total arsenic concentration of 17.2 mg/kg, which exceeds the MPCA SLV of 15.1 mg/kg. However, as indicated above this sample location is not within the pond footprint and is now beneath the retaining wall and the adjacent area is covered by bituminous pavement.

Petroleum Contaminated Soil Excavation

Five base of excavation samples and four sidewall samples were collected to document the remaining petroleum contamination left in place within the petroleum contaminated soil excavation area on the south side of the Property. The samples were collected to characterize the upper 4-inches of soil at the respective locations. The locations of the petroleum contaminated soil

excavation documentation samples are shown on **Figure 10** in **Appendix A**. The following petroleum-related compounds were identified in the samples collected from the excavation:

Sidewall Samples

- Four sidewall samples identified as S-1 (10'), S-5 (8'), S-8 (10') and S-9 (11') were analyzed for DRO, GRO, BTEX, and MBTE. The sidewall samples identified DRO concentrations that ranged from 63.8 mg/kg to 5,020 mg/kg and GRO concentrations that ranged from "not detected" at or above laboratory reporting limits to 230 mg/kg. BTEX and MTBE were not detected in the samples at concentrations at or above the laboratory reporting limits.

Base of Excavation Samples

- One of the five samples identified as B-2 (13') was analyzed for VIC Parameters. The remaining four samples identified as B-1 (13'), B-3 (13') B-4 (13') and B-5 (13') were analyzed for DRO, GRO, BTEX, and MBTE compounds.
- Analytical testing results from soil sample B-2 (13') identified several VOCs and SVOCs in the sample. The concentrations of the identified VOCs and SVOCs were below established Residential SRVs. Three RCRA metals (barium, chromium, and lead) were detected in the sample, but at concentrations below Residential SRVs. No PCBs were detected in the sample.
- DRO was detected in the samples at concentrations ranging from 1,080 mg/kg to 16,000 mg/kg; GRO was detected at concentrations ranging from 107 mg/kg to 647 mg/kg. There currently are no established SRVs for DRO or GRO.
- BTEX or MTBE was not detected in the samples, with the exception of ethylbenzene at 2.5 mg/kg and total xylenes at 6.2 mg/kg in sample B-1 (13'). The ethylbenzene concentration is below its Residential SRV of 200 mg/kg; there is no established SRV for total xylenes.

Lead-Impacted Soil Excavation

One documentation sample, identified as G-4, was collected from the base of the lead-impacted soil excavation area (Grid Cell #4). The location of G-4 is shown on **Figure 10** in **Appendix A**. The sample was collected as a four part composite to represent the 0 to 6 inch depth interval from the excavation area. Total arsenic and total lead were detected in the documentation sample at concentrations of 154 mg/kg and 3.5 mg/kg, respectively. These concentrations meet the Site Cleanup Standards of 20 mg/kg total arsenic and 525 mg/kg total lead, because the base of the excavation was five feet below the finished development grade in this area. Note: the documentation sample obtained as part of the RP Cleanup

Actions for the area immediately to the east (Grid Cell #3) identified residual contaminated soil with arsenic concentration of 177 mg/kg at a depth of 4 feet from finished development grade.

Imported Clean Fill

Approximately 250 CY of clean granular fill material was imported from SKB to the Property for placement to meet finished development grades. One sample of imported clean fill identified as "**Clean Import Sample 1**" was analyzed for VOCs, SVOCs, PCBs and RCRA metals. The analytical results are summarized in **Table 4** of **Appendix G**. No VOCs, SVOCs or PCBs were detected in Clean Import Sample 1. Total arsenic, barium, chromium and lead were detected in Clean Import Sample 1, but at concentrations below the Residential SRVs and consistent with those in naturally occurring soil.

3.7.3 Air Particulate Samples

A total of 19 air particulate samples were collected on the downwind side of the Property during development response action implementation (see **Section 3.4.2, pages 10 - 12**) and analyzed for arsenic and lead. The arsenic air particulate analytical results are presented in **Table 5** of **Appendix G**, and the lead air particulate analytical results are presented in **Table 6** of **Appendix G**. Copies of the laboratory analytical reports and sample chain-of-custody forms are included on the computer "CD" in **Appendix F**.

In summary, no arsenic or lead was detected above laboratory reporting limits in any of the air particulate samples collected.

3.7.4 Quality Assurance Quality Control

Two duplicate soil samples identified as Pond Doc 12A and WTDOC7A were collected during documentation sampling for quality assurance/quality control (**QA/QC**) purposes. The sampling methods and procedures were consistent with those used for the soil documentation sampling. The results of the duplicate samples are identified in **Table 2** of **Appendix G**. In summary, the QA/QC sample analytical results were generally consistent with those from the original samples (i.e. Pond Doc 12 and WTDOC7). Differences in the results are attributed primarily to the physical limitations in obtaining an exact duplicate or split of a heterogeneous soil mixture.

3.8 DISPOSITION DOCUMENTATION

Disposition options for excavated soil were determined following review of analytical testing data, geotechnical quality, and landfill acceptance criteria. Soil that did not meet the approved reuse criteria was disposed off-site at SKB. Soil

that did achieve the reuse criteria was used as backfill on-site at pre-approved locations. **Table 7** in **Appendix G** summarizes the disposition of soil excavated during development response activities. The following sections provide additional information regarding soil disposition.

3.8.1 Off-Site Disposal

Contaminated soil requiring off-site disposal was manifested and transported to SKB for disposal as industrial waste or alternative daily cover, as appropriate. The following general procedures were used for loading, transporting and disposing of the soil excavated from the Property:

- Soil analytical testing results were provided to SKB in advance of excavation activities to obtain pre-approval for disposal as discussed in **Section 3.2.2, pages 7 and 8**.
- Following landfill approval, the soil was loaded directly into trucks.
- A Uniform Non-Hazardous Waste Manifest was filled out and signed for each truck. The manifest included the generator's name and address, property address, waste description, waste code, transporter information and disposal facility information.
- A tarp was placed over the truck bed and secured.

A total of 1,808.14 tons of soil was disposed as industrial waste and 1,865.13 tons of soil was disposed as alternative daily cover (see **Table 7** in **Appendix G**). A summary of manifest numbers, disposal quantities and dates provided by SKB is included in **Appendix H**. Copies of the manifests are on file a Peer.

3.8.2 On-Site Reuse

Analytical testing results of soil stockpiles (see **Table 1** in **Appendix G**) were reviewed to determine if the soil was suitable for on-site use as unrestricted fill. The review was completed by directly comparing the analytical results from each stockpile to the Site Cleanup Standards established for soil within the upper four feet of finished development grades at the Property. Soil was considered suitable for on-site use as unrestricted fill if it was geotechnically suitable for use and total arsenic and lead concentrations were below the Site Cleanup Standards of 20 mg/kg and 525 mg/kg, respectively.

Table 7 of **Appendix G** summarizes the locations and quantities of soil that was excavated and reused on-site. Approximately 3,500 CY of soil removed from the storm water retention pond and water main excavations was used as unrestricted fill on the Property for backfill of the Building foundation, parking areas and green spaces, and to a minor extent utility trenches. The soil reused on-site as unrestricted fill had an average total arsenic concentration of 4.3 mg/kg and an average total lead concentration of 6.7 mg/kg.

3.9 PHOTOGRAPHIC DOCUMENTATION

Photographs taken during development response action activities are included in **Appendix I**. The photographs were selected to provide a general overview of the various activities completed and site control elements.

3.10 DIESEL FUEL SPILL - 11/16/05

On November 16, 2005, during completion of development activities, a diesel fuel spill occurred at the Property due to a broken fuel line on a portable generator. Approximately 15 gallons of diesel fuel was released. The spill was located in the loading dock area approximately 8 feet west of the Building, in an unpaved area. The spill was reported to the State Duty Officer on November 16, 2005 and Spill #64562 was assigned to the release. On November 17, 2005, approximately 3.1 CY of contaminated soil from the spill was excavated and transported off-site for disposal at SKB. Peer conducted environmental monitoring and testing to document the spill cleanup and notified the MPCA Petroleum Brownfields Project Manager of the completed cleanup. A MPCA Excavation Report documenting the spill cleanup is included in **Appendix J** and is being submitted separately to the MPCA. Based on Peer's notification to the MPCA of the cleanup of the release, the MPCA listed Spill #64562 as "closed" on the MN SPILLS Database.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Development response actions have been completed at the Property in accordance with the Development RAP approved by the MDA AgVIC Program, MPCA VIC Program and MPCA Petroleum Brownfields Program. Documentation soil sampling conducted following completion of the response actions confirms the following:

- Total arsenic and lead concentrations for samples collected from the base of the utility trenches were below the MPCA Short Term Worker SRVs of 55 mg/kg and 700 mg/kg, respectively, with the exception of two samples (WTDOC3 and STDOC15) collected from utilities in the loading dock area west of the building which had arsenic concentrations of 55.6 mg/kg and 64.5 mg/kg. Note: as of January 2006, the MPCA revised the Short Term Worker SRV for arsenic to 70 mg/kg. WTDOC3 and STDOC15 were collected from depths of 7.5 feet and 4 feet below finished development grade, respectively, and thus meet the Site Cleanup Standard for arsenic.

- Total arsenic concentrations for samples collected from the base of excavation for the loading dock wall footings were greater than 20 mg/kg; however, these samples were from a depth of at least 5 feet below finished

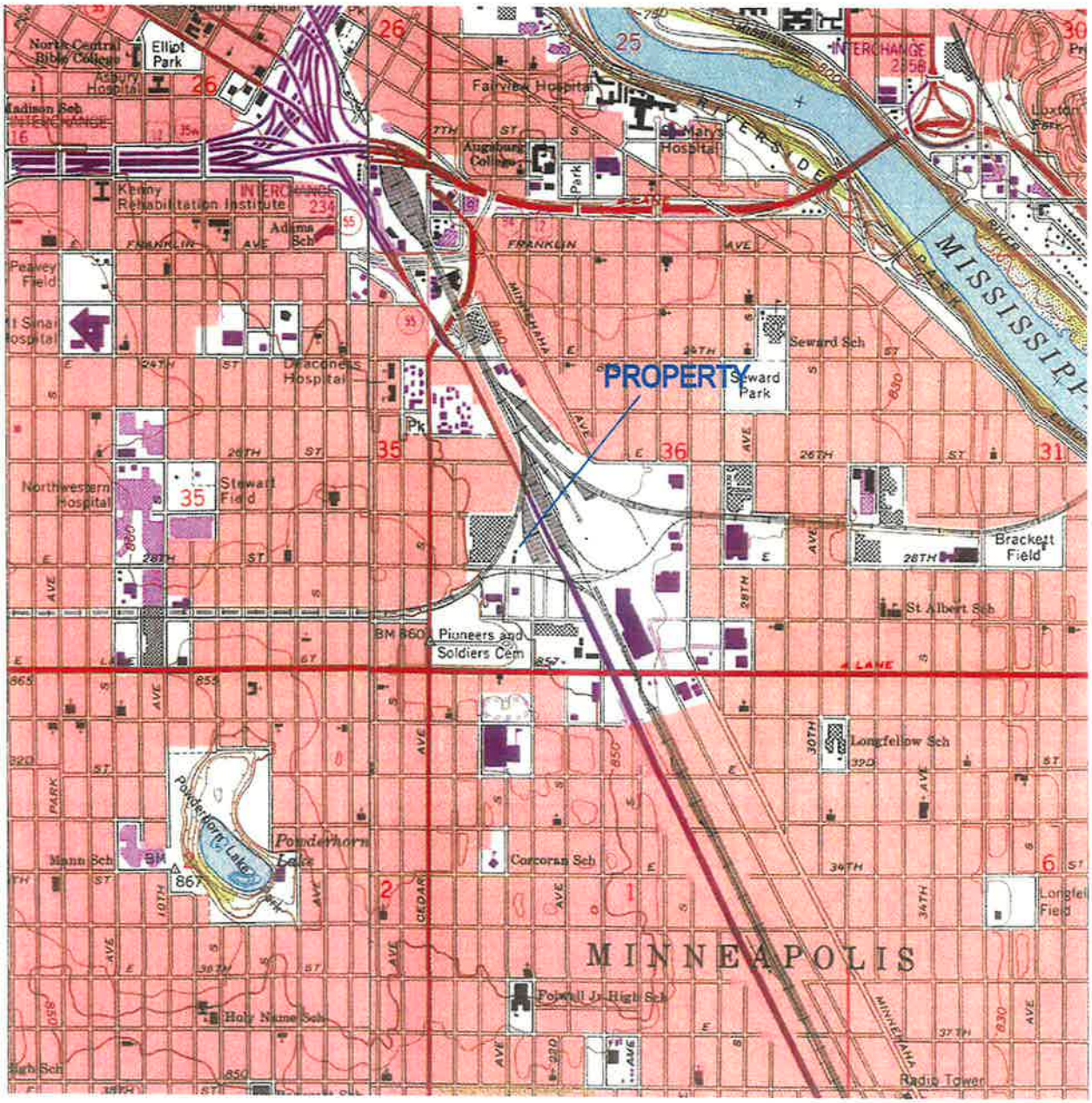
development grade and thus meet the Site Cleanup Standard for arsenic.

- Total arsenic and lead concentrations for samples collected from the base and side walls of the storm water retention pond were below the MPCA SLVs of 15.1 mg/kg and 525 mg/kg, respectively.

- Base and sidewall samples collected from the petroleum contaminated soil excavation area document that residual petroleum contaminated soil remains in place; however petroleum contaminated soil in the green space area on the south portion of the Property (see **Figure 10** in **Appendix A**) was removed within 4 feet of finished development grade and potential vapor intrusion impacts related to the remaining contaminated soil have been addressed through installation of an upgraded vapor barrier beneath the southwestern portion of the Building.

- The total lead concentration for the sample collected from the base of the lead-impacted soil area (see **Figure 10** in **Appendix A**) was below the MPCA SLV of 525 mg/kg; the total arsenic concentration from this sample however exceeds the SLV of 15.1 mg/kg, but is consistent with the concentration of arsenic detected in this area during the RP Cleanup Actions. In addition, this sample was collected at a depth of approximately 5 feet below finished development grade and thus meets the Site Cleanup Standard for arsenic.

Based on the documentation provided in this DRAP Implementation Report, Peer requests on behalf of 2800 Hiawatha, LLC that the MDA AgVIC Program, MPCA VIC Program and MPCA Petroleum Brownfields Program issue an approval of this DRAP Implementation Report. In addition, it is requested that the MDA AgVIC Program and MPCA VIC Program issue a No Further Action Letter and Certificate of Completion for the Property.



SCALE IN MILES

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SCALE IN FEET

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MAP LOCATION

TAKEN FROM:
ST. PAUL WEST, MN &
MINNEAPOLIS SOUTH, MN
7.5 MINUTE SERIES
TOPOGRAPHIC MAP
1967 (REVISED 1993)
UNITED STATES GEOLOGICAL SURVEY

Peer Engineering	**PROPERTY LOCATION MAP**	JULY 2006
PROJECT #: 5253.53	HIAWATHA BUSINESS CENTER 2020 EAST 28TH STREET MINNEAPOLIS, MINNESOTA	FIGURE 1

5253.53\5253.53 RAP Implementation report\5253.53 Figure 1.SKF