100 West 22nd Street C Suite 151 C Lombard, IL C 60148

REMEDIATION OBJECTIVES REPORT/ REMEDIAL ACTION PLAN

PRITZKER PARK
NORTHWEST CORNER OF STATE AND VAN BUREN STREETS
CHICAGO, ILLINOIS

LPC 0316325436

Prepared for:

Chicago Department of Environment
30 North LaSalle Street
Suite 2500
Chicago, Illinois 60602

Versar Job No. 111424.0001.025

February 2008

This document has been prepared in accordance with accepted scientific and engineering practices/procedures and the Versar Inc. Quality Assurance Program.

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ACRONYMS USED IN THIS REPORT

COC	constituent of concern
CSI	Comprehensive Site Investigation
IEPA	Illinois Environmental Protection Agency
GRO	groundwater remediation objective
NFR	no further remediation
PNAs	polynuclear aromatic hydrocarbons
RAP	Remedial Action Plan
RBCA	Risked Based Corrective Action (ASTM E1739-95)
REC	recognized environmental condition
ROR	Remediation Objectives Report
SRO	soil remediation objective
SRP	Site Remediation Program (35 IAC 740)
SVOCs	semi-volatile organic compounds
TACO	Tiered Approach to Corrective Action Objectives (35 IAC 742)
TAL	target analyte list (inorganics)
TCL	target compound list
VOCs	volatile organic compounds

1.0 INTRODUCTION

1.1 Purpose

This Remediation Objectives Report/Remedial Action Plan was prepared to address remediation of defined soil impacts at Pritzker Park, the northwest corner of State and Van Buren Streets in Chicago, Illinois (the Site). This report was prepared by Versar Inc. (Versar) for the Chicago Department of Environment (Remediation Applicant) in accordance with requirements outlined in the Illinois Environmental Protection Agency (IEPA) *Site Remediation Program* (SRP, Reference 1) and the IEPA *Tiered Approach to Corrective Action Objectives* (TACO, Reference 2).

The Site is owned by the City of Chicago, currently used as a small public park. A redeveloped municipal park is the intended future use of the Site. The Site was initially entered into the SRP in 2005. Chicago Department of Environment is seeking a draft Comprehensive "No Further Remediation" (NFR) letter for residential property from IEPA upon acceptance of the remedial action plan; and a final Comprehensive NFR letter for residential property at completion of this project.

1.2 Summary

Soil remediation objectives (SROs) will be determined for the Site in accordance with procedures outlined in TACO. Characterization activities were previously conducted to investigate soil and groundwater conditions at the Site, as well as lateral and vertical extent of constituents of concern (COCs), and are documented in the *Comprehensive Site Investigation Report*, prepared by Kowalenko & Bilotti Inc. (Reference 3). Results of the CSI are summarized in Tables following this narrative and Section 2.5.

The following remedial actions are proposed and discussed in detail in Sections 3 and 4 of this Report:

1. Remove impacted soil from select parts of the Site;
2. Place excavated soil into Soil Management Zone areas. Dispose of balance of impacted soil.
3. Backfill excavated areas with a combination of two feet of imported "clean" soil, 60-mil thick geotextile, CA-7 stone (or 210 PGB), and/or porous concrete; or nine inches to one foot of aggregate/poured concrete.

4. Implement site-specific migration to Class II groundwater Tier 2 SRO for benzo(a)anthracene.
5. Implement institutional controls using new engineered barriers and invoking Chicago groundwater ordinance prohibiting installation and use of on-site potable water wells.

2.0 BACKGROUND INFORMATION

2.1 Site Description

The Site is a 0.90-acre undeveloped public park with common addresses of 310-356 South State Street and 12-22 West Van Buren Street, located at the northwest corner of State and Van Buren Streets, Chicago, Cook County, Illinois. Figure 1 shows the Site located in Section 16, Township 39 North, Range 14 East on the United States Geological Survey (USGS) *Chicago Loop Quadrangle* topographic map. The legal description of the Site is:

THE SOUTH HALF OF LOT 10 IN G.W. SHOW'S SUBDIVISION OF BLOCK 139 IN SCHOOL SECTION ADDITION TO CHICAGO.

ALSO

LOTS 4 TO 14, BOTH INCLUSIVE, IN THE RESUBDIVISION OF PART OF BLOCK 139 IN SCHOOL SECTION ADDITION TO CHICAGO, BY SUPERIOR COURT, IN PARTITION OF LOTS 4, 9, 15, 16, 21, 22 AND THE NORTH HALF OF LOT 10 AND LOT 3 (EXCEPT THE NORTH 38 FEET THEREOF) IN SCHOOL SECTION ADDITION TO CHICAGO.

ALSO

LOTS 9, 10, 11, BOTH INCLUSIVE AND A STRIP OF LAND, IF ANY, BETWEEN THE WEST LINE OF LOT 9 AND THE EAST LINE OF PLYMOUTH STREET, AS RELOCATED, IN ASSESSOR'S SUBDIVISION OF LOTS 2, 5, 8, 11, 14, 17, 20 AND 23, IN BLOCK 139 IN SCHOOL SECTION ADDITION TO CHICAGO.

ALSO

THE STRIP OF LAND LYING EAST OF THE EAST LINE EXTENDED SOUTH, OF A 10 FEET ALLEY LYING EAST AND ADJOINING LOTS 3 TO 8, BOTH INCLUSIVE, IN SAID ASSESSOR'S SUBDIVISION AND WEST OF SAID LOTS 4 TO 14, BOTH INCLUSIVE, IN THE RESUBDIVISION OF PART OF BLOCK 139 IN SCHOOL SECTION ADDITION TO CHICAGO, ALL IN SECTION 16, TOWNSHIP 39 NORTH, RANGE 14 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS.

CONTAINING A TOTAL OF 39,253.6 SQ. FT.

2.2 Previous Environmental Assessments

A *Phase I Environmental Site Assessment Report* (Phase I) was completed by Kowalenko and Bilotti in March 2005 (Reference 3), to determine if recognized environmental conditions existed on-Site. The following recognized environmental condition (REC) was documented in the Phase I:

- Fill materials (consisting of building and demolition debris mixed in with native soil) originating from razed historic structures on the subject property (Rialto Theater, retail stores) underlie the Site at varying depths to a maximum thickness of 12 feet.

A *Comprehensive Site Investigation (CSI)* was completed by Kowalenko and Bilotti in October 2005 (Reference 4). The CSI included the advancement of ten soil borings at the Site with construction of monitoring wells within five soil borings (Figure 2). The maximum depth of soil borings was 20 feet. Soil and groundwater samples were collected and submitted for quantitative analysis. Samples were collected from shallow soils and subsurface soils to characterize potential impacts from fill material and suspected historic structures. An additional groundwater investigation included installation and groundwater sampling of five permanent monitoring wells. The CSI Report was accepted by the IEPA SRP in a letter dated December 7, 2005.

2.3 Site Geology and Hydrogeology

Soil borings were conducted in 2005 to investigate subsurface conditions at the Site (Figure 2). Fill materials consisting of brick, wood, gravel, and sand were encountered across the Site to a maximum thickness of 10 feet. Fill materials are underlain silty clay to at least 20 feet, the maximum depth investigated.

Groundwater classification at the Site is Class II, as described in Section 2.4. Based results of ASTM D 5084 analysis on a native soil sample obtained from monitoring well B-10, the shallow water-bearing unit has an estimated hydraulic conductivity of 7.35×10^{-7} centimeters per second (cm/sec). Groundwater flow direction was generally east-northeast with a calculated hydraulic gradient of 0.002 ft/ft.

2.4 Groundwater Classification

Groundwater classification at the Site is Class II based on depth of groundwater and encountered silty clay lithology. Groundwater was encountered approximately ten feet below grade in a silty clay aquifer that extended to at least 20 feet in depth. In accordance with 35 IAC 620.220, groundwater at the Site should be designated as Class II since the criteria of Class I (35 IAC 620.210), Class III (35 IAC 620.230), and Class IV (35 IAC 620.240) have not been satisfied. Specifically:

1) Potable water in the area is obtained from Lake Michigan and the site is not within a minimum setback zone. Wells in the region are completed within Silurian bedrock at least 100 feet below the base of the Site-specific unconsolidated zone aquifer;
2) No potable water wells are present within 0.5-mile of the Site (Appendix B);
3) Site is not located within the minimum setback zone of any well;

4) Sand and gravel are not present at a thickness greater than five feet;
5) Groundwater is present in unconsolidated material, therefore sandstone or fractured carbonate are not present within the local aquifer; and
6) The shallow aquifer is not capable of a sustained groundwater yield exceeding 150 gallons per day from a 12-inch borehole and saturated thickness of 15 feet or less.

Estimated hydraulic conductivity of 7.35×10^{-7} cm/sec yields approximately 0.73 gallons per day from a 12-inch diameter well. Therefore, Site groundwater classification is Class II.

2.5 Constituents of Concern

2.5.1 Soil

COCs are organic compounds or metals present in concentrations above residential/background Tier 1 soil remediation objectives (SROs). In surficial soil (0-3 feet in depth), only arsenic was identified as a COC across the entire site (Figure 3). Arsenic soil impacts exceeding the 13 mg/kg ingestion SRO are summarized as follows:

Arsenic COC Summary

COC	SRO	Sample Identification and Depth (feet)										
		B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-8	B-9	B-10
		0 - 3	0 - 3	0 - 3	0 - 3	0 - 3	0 - 3	0 - 3	0 - 3	3 - 6	0 - 3	0 - 3
Arsenic	13	**29**	**29**	**21**	**30**	**26**	**25**	**34**	**27**	**17**	**27**	**22**

Benzo(a)anthracene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene were identified in shallow soil obtained from soil boring B-10 (Figure 4).

COCs identified in subsurface soils (below three feet in depth) were benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene, and arsenic (Figures 4 and 3A respectively). PNA distribution is best described as follows:

PNA COC SUMMARY

PNA COC	Tier 1 SROs		Sample Identification, Date, and Depth (feet)						
			B-1	B-2	B-5	B-6	B-7	B-8	B-10
	Migration to	**Backgrd Soil**	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05
Analyte	**Class II GW**	**Chicago Metro**	3 - 6	6 - 9	3 - 6	6 - 9	3 - 6	3 - 6	**0 - 3**
Benzo(a)anthracene	**8**	1.1	***9.9***	**1.5**	**1.6**	**3.1**	**8**	**1.7**	**2.6**
Benzo(a)pyrene	82	1.3	**5.2**	**1.5**	**1.7**	**1.6**	**7.7**	0.72	1.3
Benzo(b)fluoranthene	25	1.5	**6.6**	1.4	1.5	**1.6**	**7**	0.79	1.5
Dibenzo(a,h)anthracene	7.6	0.20	**0.8**	0.15	0.15	**0.29**	**0.62**	0.16	**0.23**
Indeno(1,2,3-cd)pyrene	69	0.86	**3.7**	0.76	0.84	**1.4**	**3.8**	0.81	**1.2**

2.5.2 Groundwater

As noted in Section 2.2, permanent wells with filter packs were installed as a part of the CSI investigation. Initial sampling of groundwater from all wells revealed iron and lead as COCs. Re-sampling performed on permanent wells MW-3 and MW-4 (eliminating suspended particulate) indicates lead is not a COC in groundwater. The iron Class II GRO of 5 mg/L was exceeded in groundwater obtained for monitoring wells MW-1, MW-3, MW-4, and MW-5.

3.0 DETERMINATION OF REMEDIATION OBJECTIVES

3.1 Exposure Pathway Exclusion Requirements

TACO allows the Remediation Applicant the option of demonstrating that an actual or potential impact to a receptor or potential receptor for a COC can be excluded from consideration from one or more exposure pathways. If the Remediation Applicant demonstrates that applicable requirements for excluding an exposure route are met, then the exposure route is excluded and no remediation objective(s) need be developed for that exposure pathway.

Requirements outlined in Sections 742.300 and 742.305 of TACO must be met to exclude one or more exposure pathways. Concentrations and extent of Site COCs have been delineated as required by Section 742.300. Requirements of Section 742.305 of TACO include the following:

a) The sum of all organic compounds shall not exceed the attenuation capacity of the soil, defined by the Site-specific organic carbon content in subsurface soil.
b) Concentrations of COCs shall not exceed soil saturation limits.
c) Soil containing COCs shall not exhibit characteristics of reactivity for hazardous waste.
d) Soil containing COCs shall not exhibit a pH less than or equal to 2.0 or greater than or equal to 12.5.
e) Soil containing COCs shall not exhibit characteristics of toxicity for hazardous waste.
f) If COCs include polychlorinated biphenyls (PCBs), total PCB concentration shall not exceed 50 parts per million (ppm).

Pursuant to 35 IAC 742.310, the inhalation exposure route may be excluded from consideration if:

1. Requirements outlined in Sections 742.300 and 742.305 of TACO are met;
2. An engineered barrier is in place that (a) provides ten feet of vertical separation between the COCs and the land surface or any man-made pathways or (b) there is an engineered barrier in place; and
3. An institutional control is in place that requires safety precautions for construction workers where remediation objectives are exceeded.

Pursuant to 35 IAC 742.315, the soil ingestion exposure route may be excluded from consideration if:

1. Requirements outlined in Sections 742.300 and 742.305 of TACO are met;
2. An institutional control is in place that (a) provides three feet of vertical separation between the COCs and the land surface or any man-made pathways or (b) there is an engineered barrier in place;
3. An institutional control is in place that requires safety precautions for construction workers where remediation objectives are exceeded.

Pursuant to 35 IAC 742.320, the groundwater ingestion exposure route can be excluded from consideration if:

1. Requirements outlined in Sections 742.300 and 742.305 of TACO are met
2. Free product has been removed to the maximum extent possible;
3. The source of the release is not located within the minimum or designated maximum setback zone or within a regulated recharge area of a potable water supply well;
4. A local ordinance effectively prohibits the installation of potable water supply wells for any area within 2500 feet of the source of the release;
5. As demonstrated using TACO RBCA Equation R26, concentration of any COC in groundwater within the minimum or designated maximum setback zone of an existing potable water supply well will meet the applicable Tier 1 GRO; and
6. As demonstrated using TACO RBCA Equation R26, the concentration of any COC in groundwater discharging into a surface water will meet the applicable surface water quality standard under Title 35 Illinois Administrative Code Part 302.

3.2 Exposure Pathway Evaluation - Minimum Requirements

The following conditions of Section 742.305 of TACO have been met:

1. The sum of all organic compounds does not exceed the attenuation capacity of the soil, defined by the Site-specific level of 2% organic carbon content in subsurface soil. Fractional organic carbon content (f_{oc}) was determined for a silty clay soil sample collected on the north portion of the Site. The sample was collected from an area not suspected to have been impacted. The sample, collected from boring B-3, 9-12', exhibited an ash content of 3.45% (from American

Society for Testing and Materials Standard D2974-00). Based upon 35 IAC 742, Appendix C, Table F, ash content was adjusted to total organic carbon content by using a conversion factor of 0.58, yielding a 2% organic carbon content value for subsurface soil.

2. Concentrations of COCs do not exceed soil saturation limits;
3. Soil containing COCs does not exhibit characteristics of reactivity or toxicity for hazardous waste;
4. Analysis indicates pH of Site soil is 8.1 and meets requirements of this subpart (see CSI, Reference 3); and
5. PCBs were not detected above laboratory reporting limits.

3.3 Soil Ingestion and Inhalation Exposure Pathway Evaluation

To exclude the inhalation pathway, COCs must not exceed Tier 1 inhalation SROs within ten feet of land surface or within ten feet of any man-made migration pathways (e.g., utility conduit). The ten foot requirement can be modified by IEPA if an adequate engineered barrier is used. To exclude the soil ingestion pathway (at a minimum), COCs must not exceed the Tier 1 ingestion SROs within three feet of land surface. The three foot requirement can be modified by IEPA if an adequate engineered barrier is used.

3.3.1 Inhalation Exposure Pathway Exclusion

No COCs were identified at concentrations exceeding Tier 1 inhalation residential property SROs. Therefore, in accordance with 35 IAC 742, the residential property inhalation pathway is excluded from further consideration.

3.3.2 Soil Ingestion Exposure Pathway Evaluation

Arsenic exceeding the Tier 1 residential soil ingestion SRO was identified in surficial soils across the entire site (Figure 3). Arsenic exceeded the Tier 1 SRO in the deeper soil sample collected from soil boring B-8 (Figure 3A).

Several polynuclear aromatic hydrocarbons (PNAs) were identified at concentrations exceeding Tier 1 residential soil ingestion SROs. Deeper soil samples (below 3 feet in depth) collected from borings B-1, B-2, B-5, B-6, B-7, and B-8 (Figure 4) contained benzo(a)anthracene, benzo(a)pyrene, benzo(b) fluoranthene, dibenzo(a,h) anthracene, and indeno(1,2,3-c,d)pyrene exceeding Tier 1 SROs/ background concentrations (35 IAC 742, Appendix A, Table H).

Benzo(a)anthracene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene were identified in shallow soil in Boring B-10 (Tables 1 and 2).

Suggested remedial action to exclude this exposure pathway is a combination of excavation/disposal of shallow soils coupled with emplacement of proposed engineering barriers, as summarized in Section 4.0.

3.4 Groundwater Ingestion Pathway Evaluation

Requirements outlined in Sections 742.300 and 742.305 of TACO must be met to exclude one or more exposure pathways. Concentrations and extent of Site COCs have been delineated as required by Section 742.300 and conditions of 742.305 have been met. Groundwater sampling results (obtained from documentation within the 2005 *CSI*) are summarized in tables following the report narrative. Exclusion of the groundwater ingestion pathway from further evaluation is possible, since the following conditions of Section 742.320 of TACO have been met:

1. No free product was observed during investigation activities (soil borings).
2. Potable water obtained from Lake Michigan is supplied to the Site and surrounding areas by the City of Chicago Department of Water Management. Therefore, the minimum setback zone requirement for potable water supply well is not applicable.
3. An IEPA-approved groundwater ordinance prohibits use of groundwater for potable purposes within the City of Chicago. (Reference 5).
4. Iron concentrations exceeded Class II GROs. Modeling of this COC indicates potential iron groundwater migration of approximately 92 feet (R-26, Appendix B) is confined to the Site and municipally-owned rights of way (as mapped on Figure 6). Source of non-toxic iron is unknown and may be prevalent throughout this heavily developed Chicago Loop area.

3.5 Soil Component of Groundwater Ingestion Exposure Pathway Evaluation

Benzo(a)anthracene exceeded the Tier 1 SRO for the soil component of Class II groundwater ingestion (Figure 5). Soil sample analytical data and Tier 1 SROs for the soil component of the Class II groundwater ingestion exposure route are summarized in tables following the report narrative. Benzo(a)anthracene was modeled using Soil Screening Level (SSL) Equation S17. The developed benzo(a)anthracene Tier 2 SRO of 103 mg/kg exceeded the greatest concentration detected at the Site. Therefore, the soil component of Class II groundwater ingestion exposure route is excluded from further consideration.

4.0 REMEDIAL ACTION PLAN

4.1 Proposed Remedial Action

Impacted Site soils were delineated in the CSI. The Remediation Applicant proposes to address soil impacts at the Site using a combination of excavation, off-site soil disposal, engineered barriers, institutional controls, and use of a site-specific Tier 2 SRO for benzo(a)anthracene.

The soil ingestion exposure route can be addressed by traditional soil remediation activities such as excavation and removal of impacted materials and/or use of engineered barriers. Under 35 IAC 742, acceptable engineered barriers include: (1) caps or walls constructed of compacted clay, asphalt, concrete or other material approved by IEPA; (2) permanent structures, such as buildings or highways; and (3) soil, sand, gravel or other geologic materials that cover contaminated media, meet Tier 1 SROs for residential properties, and are a minimum of three feet.

Arsenic impacts shall be addressed through excavation of impacted soil and placement of "clean" backfill material. Excavation, sampling, and backfill placement details are discussed in detail below. Deeper PNA-impacted soil across the remainder of the Site will remain in situ, covered by engineered barriers with corresponding institutional controls.

4.2 Excavation

Versar proposes to excavate impacted fill materials to a depth sufficient to allow emplacement of IEPA-accepted engineered barriers as shown on Figures 7 and 8. The excavation shall extend to various depths of up to 24 inches below final grade. Since the entire site is being developed and capped with engineered barriers, no additional sampling should be required. However, if required by IEPA, Versar shall collect confirmation soil samples from a gridded excavation floor and analyze the samples for PNAs and arsenic. Remedial excavation activity in addition to the above will not be conducted beneath proposed engineered barriers (Figures 6 and 7).

Each excavation shall be backfilled with imported "clean" soil or native quarry stone. Imported soils proposed for use at the Site shall be quantitatively analyzed for constituents listed in 35 IAC 740, Appendix A. Specifically, imported soil shall be analyzed for volatile organic compounds, semi-volatile organic compounds, pesticides, PCBs, and Target Analyte List inorganic constituents. Identification of any analyte in the proposed backfill soil at a concentration exceeding the most stringent Tier 1 SRO shall preclude use of the soil as an engineered barrier at the Site. Imported

stone shall be native stone imported from a quarry of origin. Use of virgin quarry stone does not require quantitative analyses and a letter indicating origin of the stone (if used) shall be provided to IEPA.

4.3 Off-Site Disposal

Arsenic-impacted fill materials excavated from site will be transported by licensed haulers under manifest (or equivalent) to a facility permitted to accept such waste.

4.4 Engineered Barriers

4.4.1 Regulatory Requirements/Engineered Barrier

Per 35 IAC 742.1105, Engineered Barrier Requirements:

2) For the soil ingestion exposure route, the following engineered barriers are recognized if they prevent completion of the exposure pathway:

A) Caps or walls constructed of compacted clay, asphalt, concrete, or other material approved by the Agency;

B) Permanent structures such as buildings and highways; and

C) Soil, sand, gravel, or other geologic materials that:

i) Cover the contaminated media;

ii) Meet the soil remediation objectives under Subpart E for residential property for contaminants of concern; and

iii) Are a minimum of three feet in depth.

d) Unless otherwise prohibited under Section 742.1100, any other type of engineered barrier may be proposed if it will be as effective as the options listed in subsection A) of this Section.

4.4.2 Proposed Engineered Barrier

Pursuant to d) above, engineered barriers shall be placed as shown on Figures 7 and 8. The engineered barrier beneath sod and vegetation will consist of a 60-mil thickness nonwoven geotextile and two foot of aggregate stone/soil mixture (Appendix C). The geotextile mat (composed of non-degrading polypropylene fiber) will be emplaced over final excavation grade,

followed by at least one foot of aggregate (CA-7 and Vulcan 210 PGB, closer to a CA-6) and appropriate surfacing material (porous concrete or vegetation topsoil), with at least one foot of additional topsoil to ensure the proposed barrier prevents completion of the soil ingestion exposure route (Figure 8).

The chosen geotextile fabric has a grab tensile strength of 160 pounds, and is not penetrable with a spade or similar digging tool. A sample is included in Appendix C. The geotextile mat must be exposed and physically cut to break through to the underlying soil (after penetrating at least one foot of aggregate or equivalent). Water flow rate for the geotextile is 110 gallons/minute/square foot; allowing for reasonable drainage through the material while providing a physical barrier to ingestion of soil. The proposed barrier would allow for reasonable drainage with a tensile strength designed to turn a simple shovel should a non-authorized person attempt to penetrate the barrier and encounter PNA/arsenic impacted soil (probably only penetrable with a backhoe). Based on the above data, the proposed engineered barrier will be as effective as options listed in Section 4.4.1, and preclude ingestion of contaminants in covered soil.

4.5 Soil Management Zone

Impacted surficial soils excavated will be placed beneath planned above-ground areas as shown in the topographic depiction in Figure 9. Cut and fill areas are as shown. Emplacement of soils within this soil management zone will decrease the mass of soil transported and disposed off-site. Soils within the SMZ will then be covered by barriers as shown in Figure 8 and discussed in Section 4.4.

4.6 Institutional Controls

Groundwater use is prohibited by City ordinance. As a result, no water wells can be installed at the Site. Maintained engineered barriers are a condition of this remedial action. Future construction work shall be accompanied by a health and safety plan addressing site COCs.

4.7 Reporting

A Remedial Action Completion Report will be issued to IEPA upon conclusion of remedial activity. The report will include a summary of field activity, a tabular summary of analytical data (if required), and a discussion of results. The City of Chicago requests a Draft Comprehensive No Further Remediation (NFR) letter upon review of this report, and will seek a final Comprehensive NFR letter upon completion and documentation of remediation activities.

5.0 REFERENCES

1. Illinois Environmental Protection Agency, *Site Remediation Program*, Title 35, Subtitle G, Chapter I, Part 740

2. Illinois Environmental Protection Agency, *Tiered Approach to Corrective Action Objectives*, Title 35, Subtitle G, Chapter I, Subchapter f, Part 742

3. Kowalenko & Bilotti, March 2005, *Phase I Environmental Assessment.*

4. Kowalenko & Bilotti, October 2005, *Comprehensive Site Investigation*

5. City of Chicago Ordinance 097990, 2001, *Potable Water Supply Well Ordinance.*

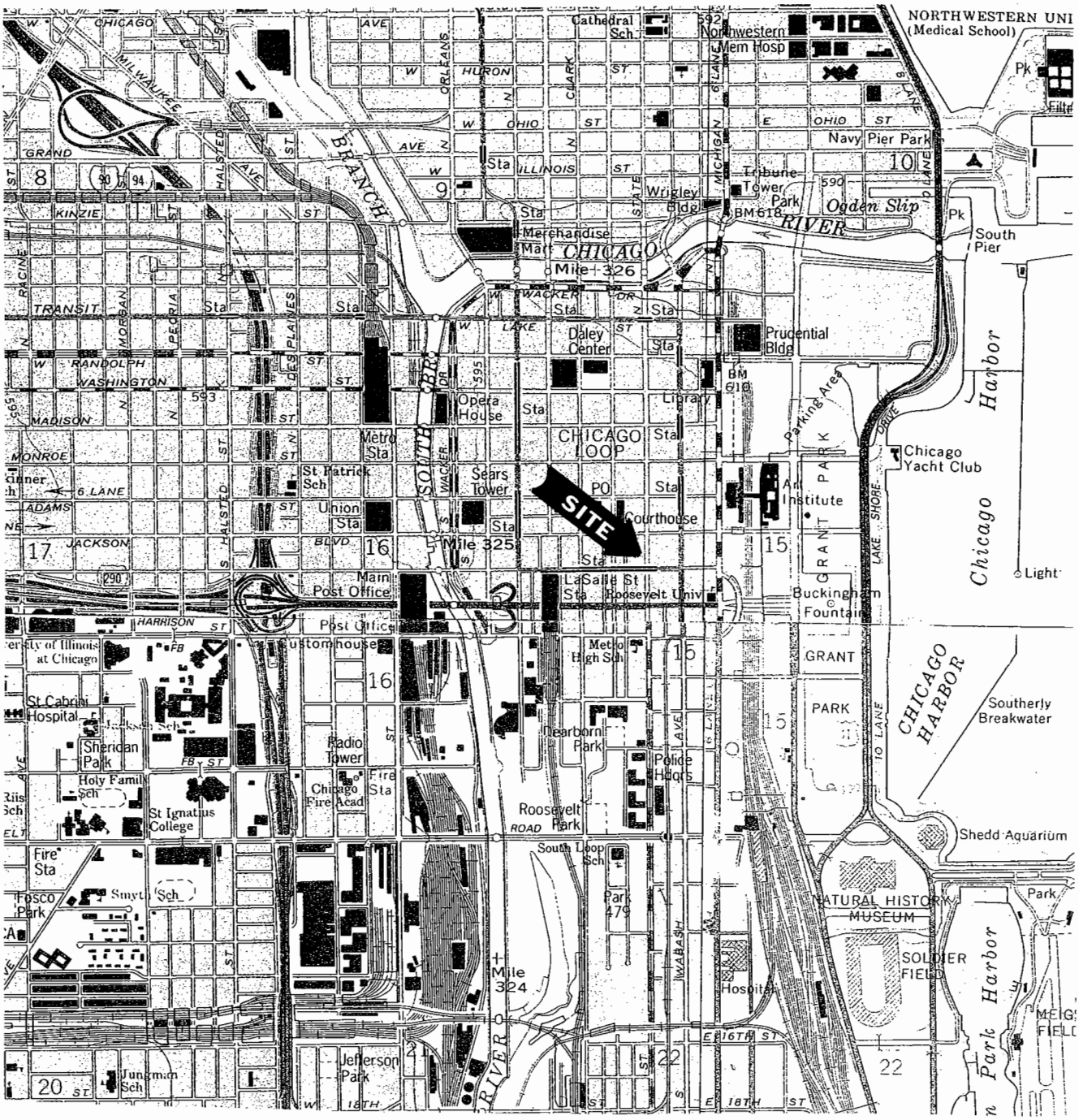
6.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Versar prepared this ROR/RAP to describe and propose remediation of soil and groundwater impacts at Pritzker Park, the northwest corner of State and Van Buren Streets in Chicago, Cook County, Illinois. Site Remediation Program Form (DRM-2) is in Appendix C. Signatures of individuals who prepared this report are included below.

Harvey D. Pokorny, P.G.
Senior Project Manager
Midwest Region

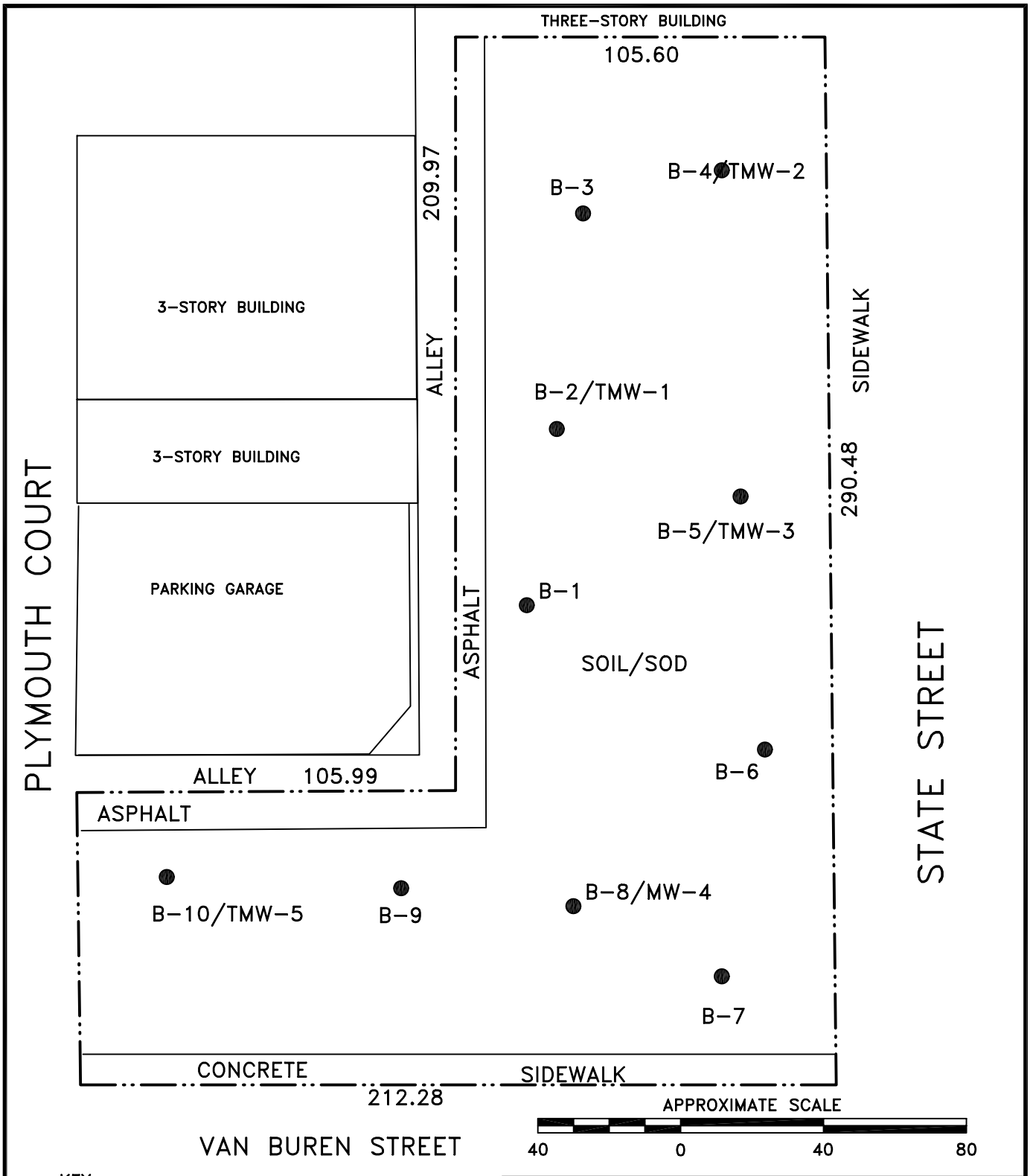
Stephen Schwartz, P.E.
Manager, Engineering Assessment

FIGURES



TITLE:	FIGURE 1 TOPOGRAPHIC LOCATION MAP PRITZKER PARK, CHICAGO, ILLINOIS		
CAD: HDP	DATE: 1/31/08	FOR:	
APPROVED: HDP	SCALE: 1"=2000'	CHICAGO DEPARTMENT OF ENVIRONMENT	
Versar INC. 200 W. 22nd STREET, SUITE 250 LOMBARD, IL 60148		PROJECT NO. 111424.0001.025	
		DRAWING NO. TOPO	

SOURCE: USGS CHICAGO LOOP QUADRANGLE, 1993



KEY:

VB8 SAMPLE IDENTIFICATION

PLAT OF SURVEY PROVIDED BY CDOE

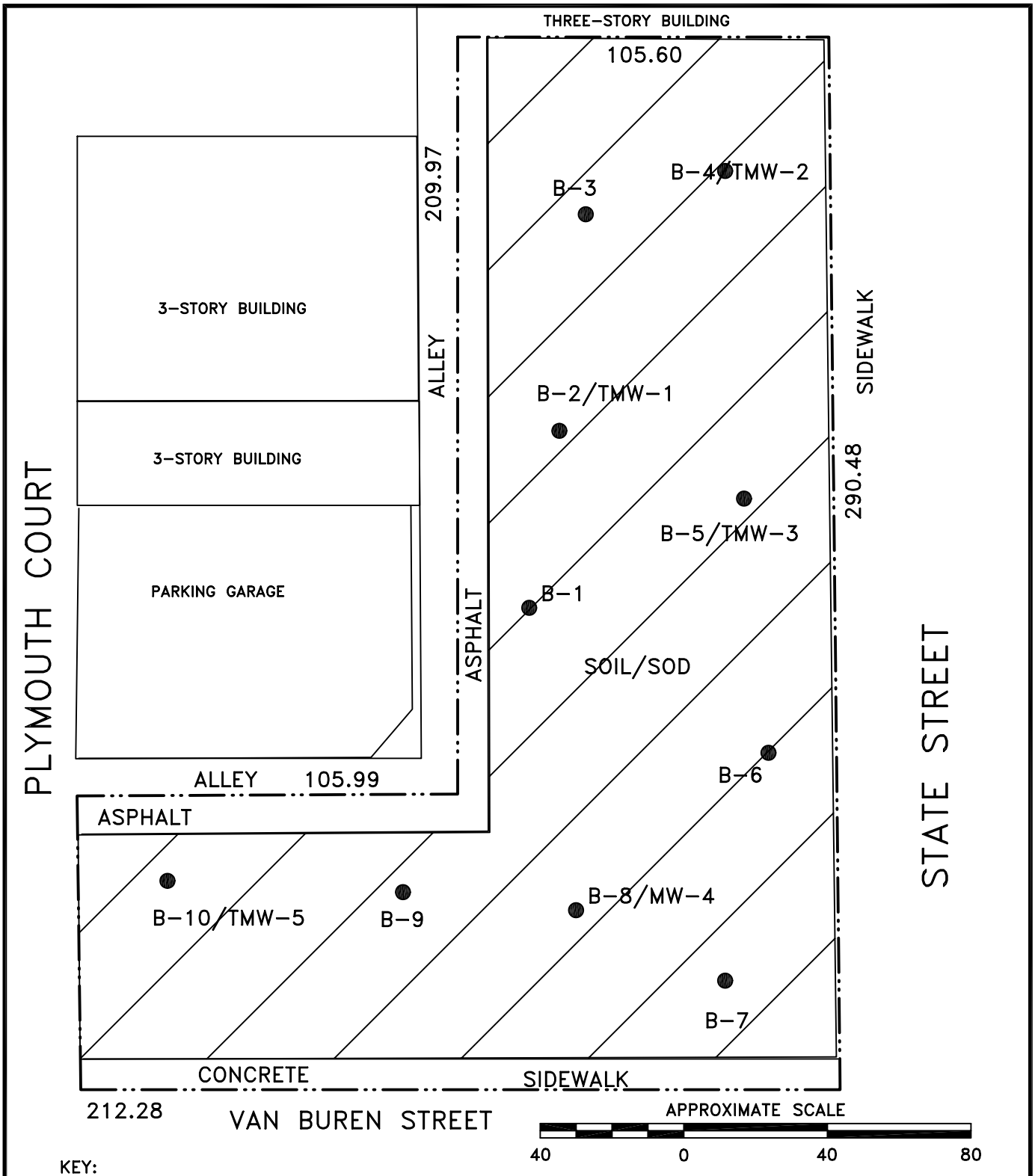
TITLE: FIGURE 2
SAMPLE LOCATION MAP
PRITZKER PARK, CHICAGO, ILLINOIS

CAD: HDP	DATE: 1/31/08
APPROVED: HDP	SCALE: 1"=40'

FOR: CHICAGO DEPARTMENT OF ENVIRONMENT

Versar INC.
200 W. 22nd STREET, SUITE 250
LOMBARD, IL 60148

PROJECT NO. 111424.0001.025
DRAWING NO. SITE



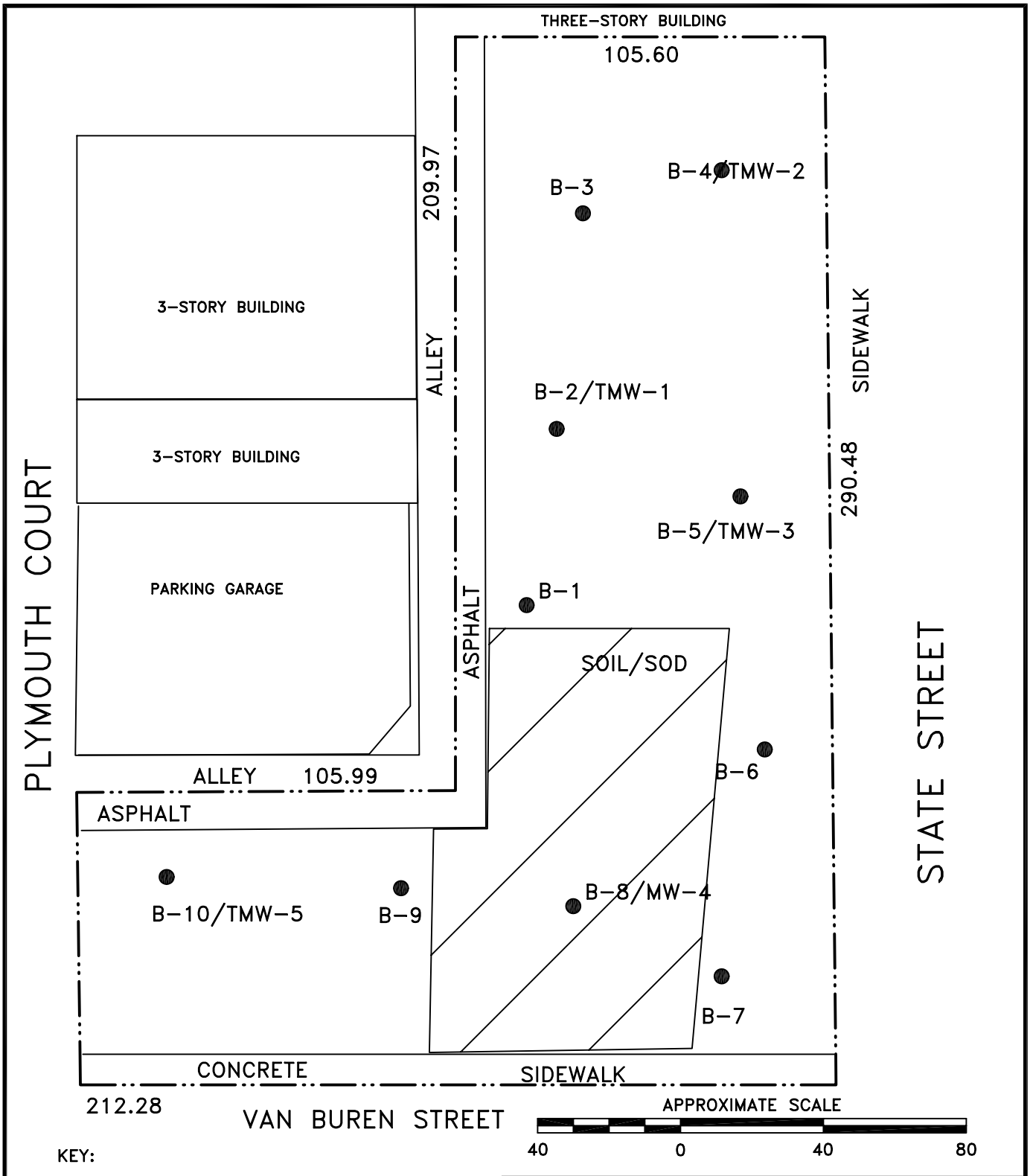
TITLE: FIGURE 3
SHALLOW SOIL ARSENIC IMPACTS (0-3')
PRITZKER PARK, CHICAGO, ILLINOIS

CAD: HDP	DATE: 1/31/08
APPROVED: HDP	SCALE: 1"=40'

FOR: CHICAGO DEPARTMENT OF ENVIRONMENT

Versar INC.
100 W. 22nd STREET, SUITE 151
LOMBARD, IL 60148

PROJECT NO. 111424.0001.025
DRAWING NO. SITE



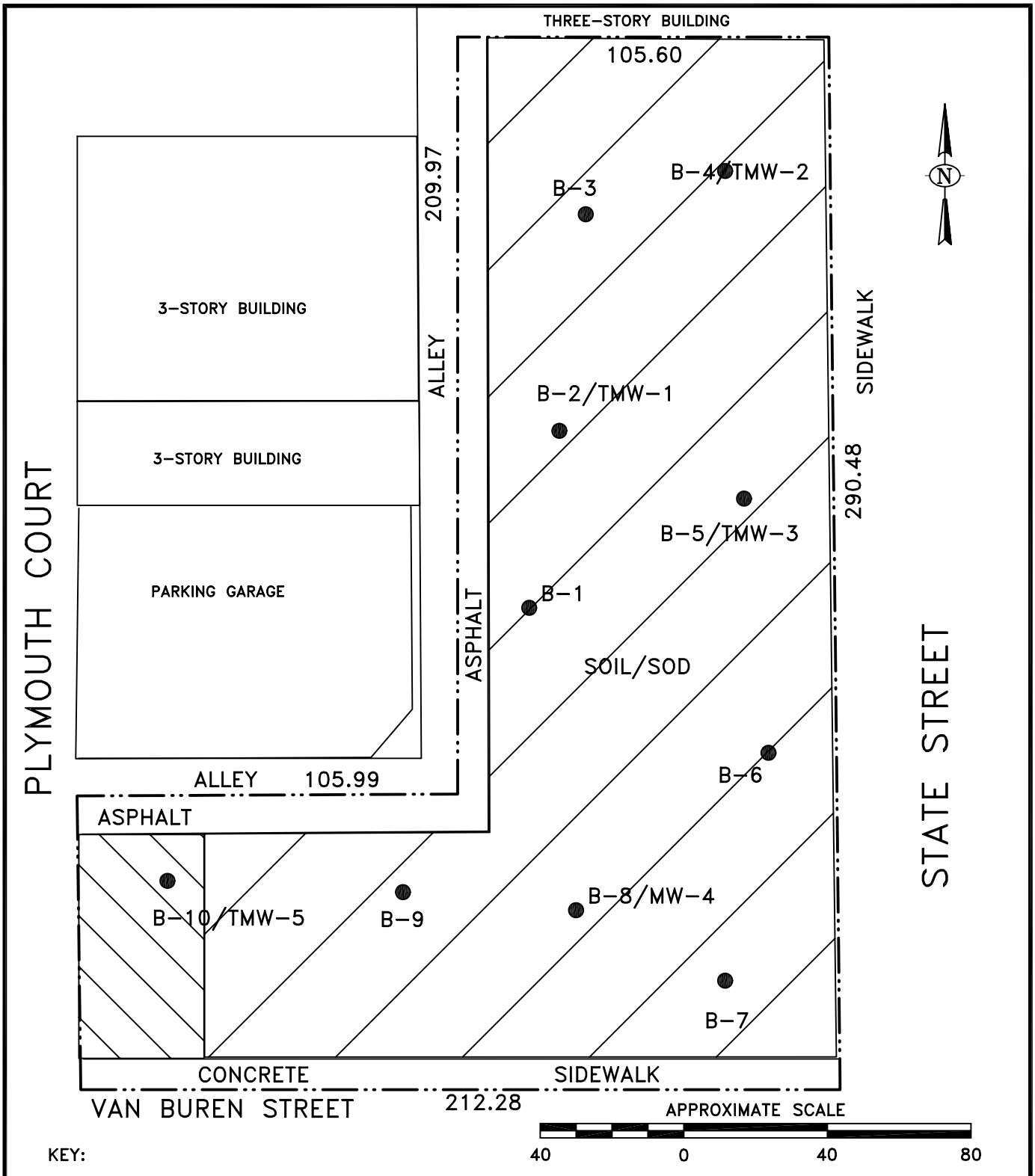
TITLE: FIGURE 3A
ARSENIC SOIL IMPACTS (3-9')
PRITZKER PARK, CHICAGO, ILLINOIS

CAD: HDP	DATE: 1/31/08
APPROVED: HDP	SCALE: 1"=40'

FOR: CHICAGO DEPARTMENT OF ENVIRONMENT

Versar INC.
100 W. 22nd STREET, SUITE 151
LOMBARD, IL 60148

PROJECT NO. 111424.0001.025
DRAWING NO. FIG3A



KEY:

VB8 ● SAMPLE IDENTIFICATION

PNA-IMPACTED SOIL (0-3 FEET)

PNA-IMPACTED FILL SOIL (3-9 FEET)

PLAT OF SURVEY PROVIDED BY CDOE

TITLE: FIGURE 4
PNA INGESTION IMPACTS
PRITZKER PARK, CHICAGO, ILLINOIS

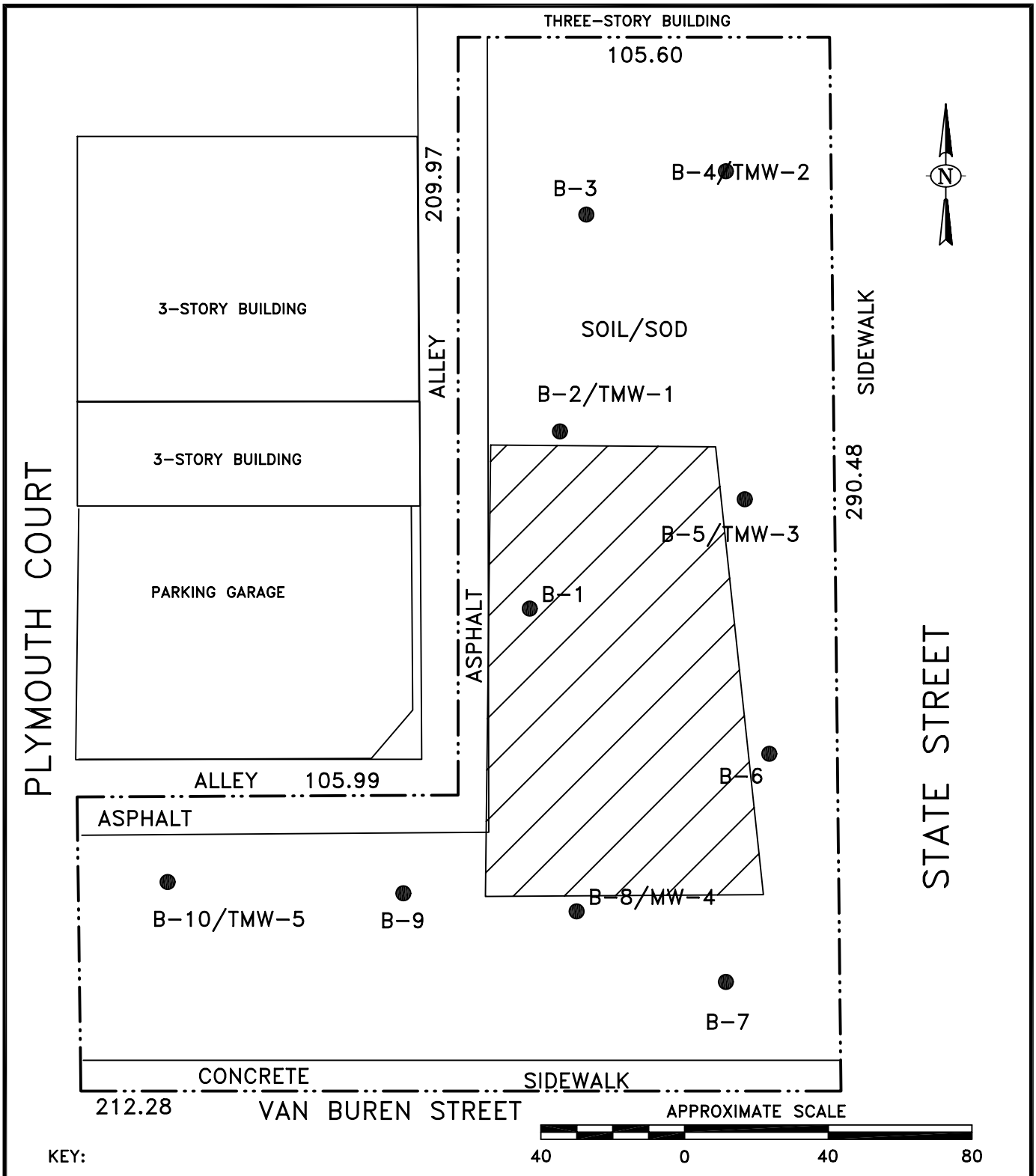
CAD: HDP	DATE: 2/12/08
APPROVED: HDP	SCALE: 1"=40'

Versar INC.
100 W. 22nd STREET, SUITE 151
LOMBARD, IL 60148

FOR: CHICAGO DEPARTMENT OF ENVIRONMENT

PROJECT NO. 111424.0001.025

DRAWING NO. FIG4



KEY:

VB8 ● SAMPLE IDENTIFICATION

▨ TIER 2 APPLICATION TO PNA-IMPACTED SOIL

PLAT OF SURVEY PROVIDED BY CDOE

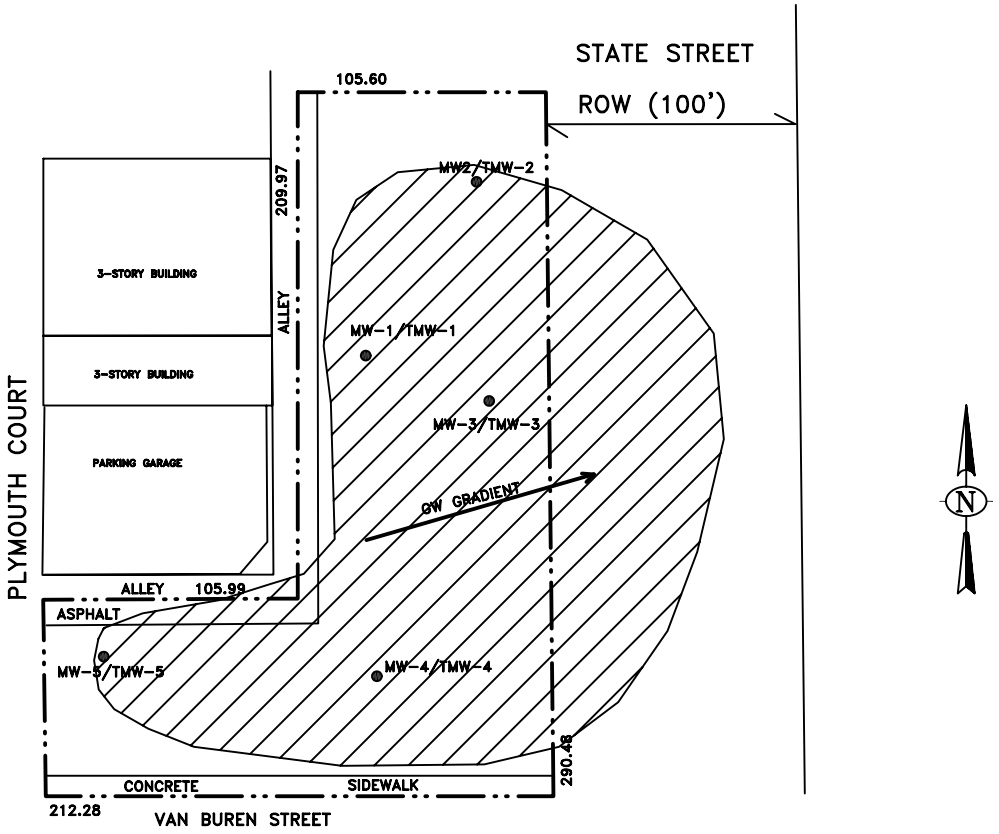
TITLE: FIGURE 5
BENZO(A)ANTHRACENE MIGRATION TO CLASS II GW IMPACT
PRITZKER PARK, CHICAGO, ILLINOIS

CAD: HDP	DATE: 2/12/08
APPROVED: HDP	SCALE: 1"=40'

FOR: CHICAGO DEPARTMENT OF ENVIRONMENT

Versar INC.
100 W. 22nd STREET, SUITE 151
LOMBARD, IL 60148

PROJECT NO. 111424.0001.025
DRAWING NO. FIG5



APPROXIMATE SCALE

80 0 80 160

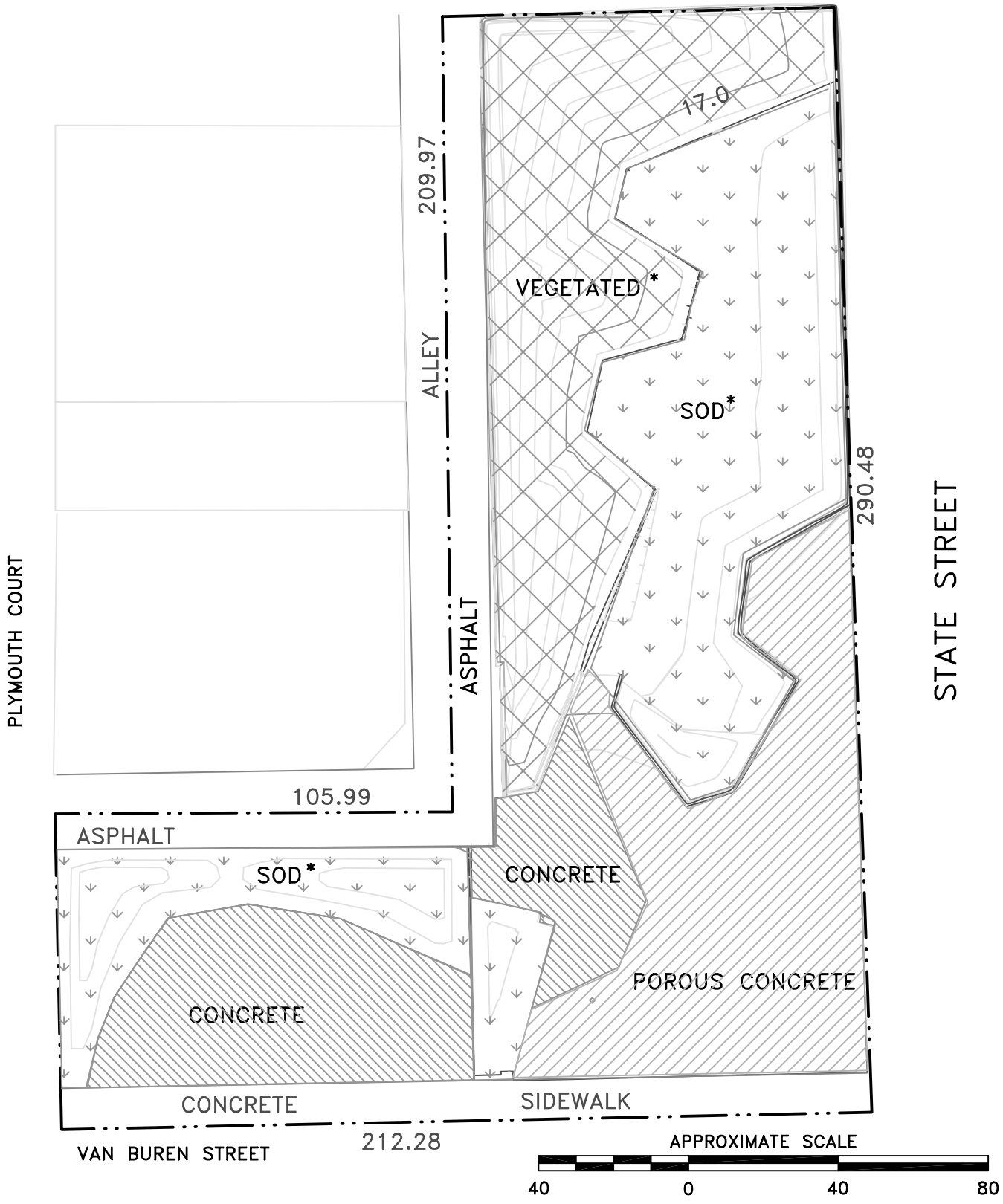
KEY:

MW-1 SAMPLE IDENTIFICATION

EXTENT OF MODELED GROUNDWATER

PLAT OF SURVEY PROVIDED BY CDOE

TITLE: FIGURE 6: EXTENT OF MODELED GROUNDWATER IRON GROUNDWATER IMPACTS PRITZKER PARK, CHICAGO, ILLINOIS		
CAD: HDP	DATE: 1/31/08	FOR: CHICAGO DEPARTMENT OF ENVIRONMENT
APPROVED: HDP	SCALE: 1"=80'	
Versar INC. 100 W. 22nd STREET, SUITE 151 LOMBARD, IL 60148		PROJECT NO. 111424.0001.025
		DRAWING NO. FIG6



KEY:

POROUS CONCRETE BARRIER

CONCRETE BARRIER

*OTHER AREAS HAVE 2' SOIL/ AGGREGATE/GEOTEXTILE COVER

N

TITLE: FIGURE 7
PROPOSED ENGINEERED BARRIER
PRITZKER PARK, CHICAGO, ILLINOIS

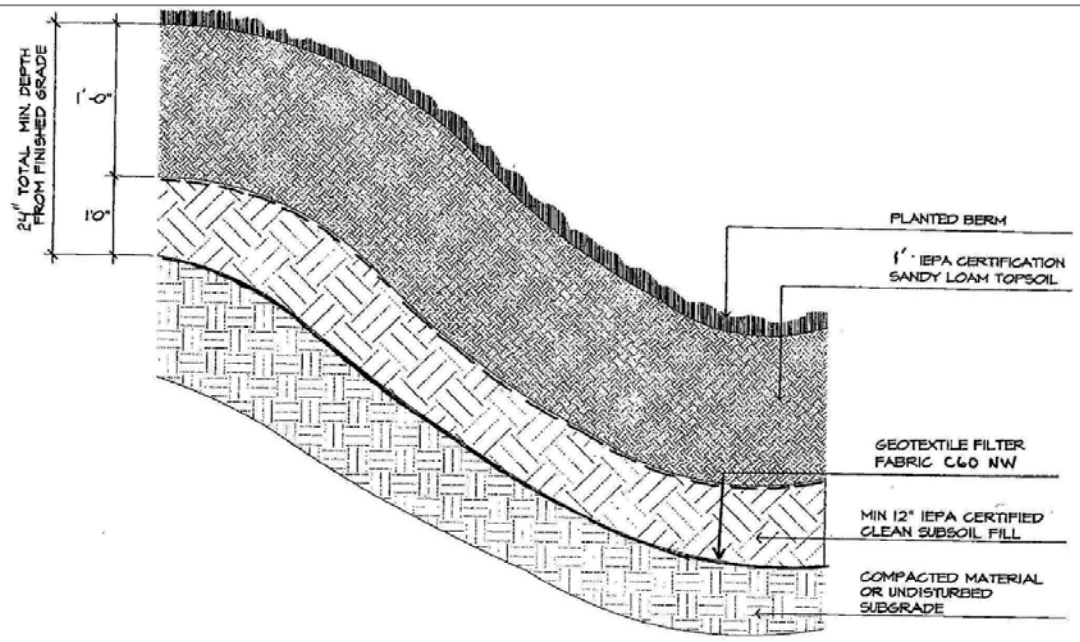
CAD: HDP	DATE: 1/31/08
APPROVED: HDP	SCALE: 1"=40'

Versar INC.
200 W. 22nd STREET, SUITE 250
LOMBARD, IL 60148

FOR:
CHICAGO DEPARTMENT
OF ENVIRONMENT

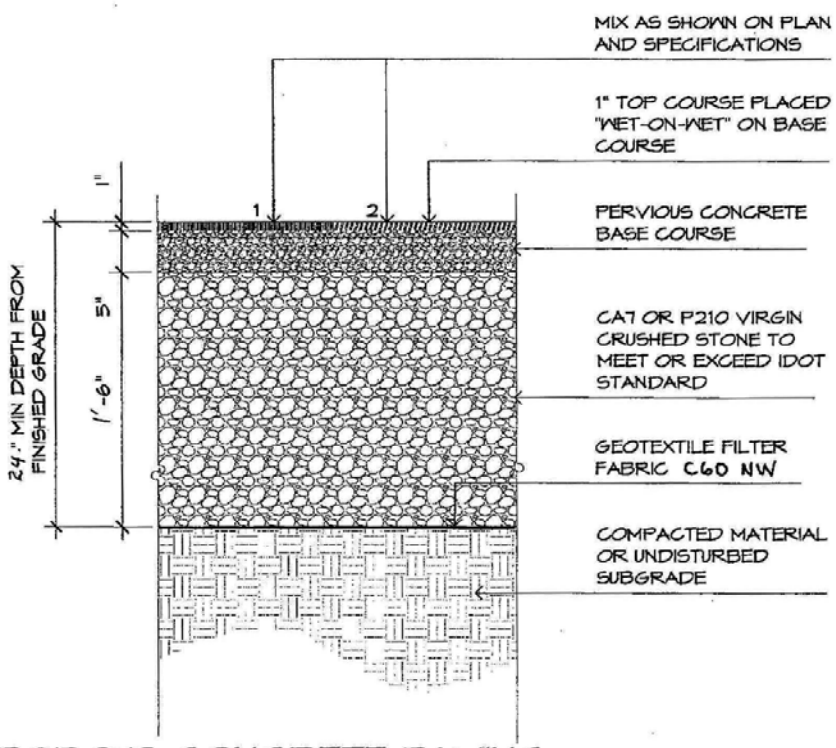
PROJECT NO. 111424.0001.025

DRAWING NO. BARRIER



TYPICAL RAISED MOUND PROFILE

N.T.S.

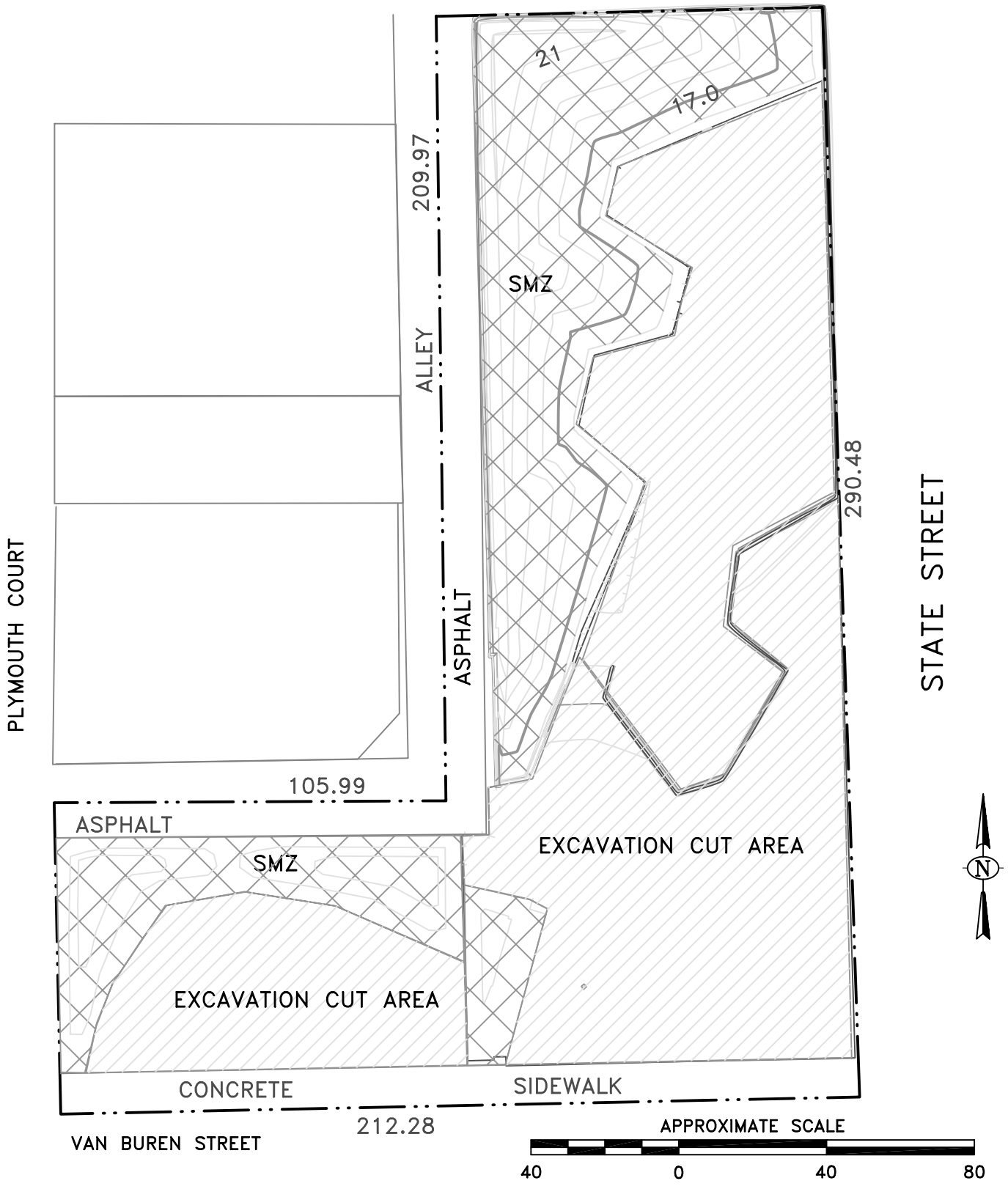


POROUS CONCRETE PAVING

N.T.S.

SOURCE: Architect–Provided Sections

TITLE:	FIGURE 8 PROPOSED ENGINEERED BARRIER CROSS–SECTIONS PRITZKER PARK, CHICAGO, ILLINOIS		
CAD: HDP	DATE: 2/4/08	FOR:	
APPROVED: HDP	SCALE: NTS	CHICAGO DEPARTMENT OF ENVIRONMENT	
Versar INC. 100 W. 22nd STREET, SUITE 151 LOMBARD, IL 60148		PROJECT NO. 111424.0001.025	
		DRAWING NO. FIG 8	



KEY:

CUT AREA

SOIL MANAGEMENT ZONE (SMZ)

ON-SITE NUMBERS REFER TO PROPOSED ELEVATION IN CHICAGO CITY DATUM (CCD)

TITLE:	FIGURE 9 PROPOSED SOIL MANAGMENT ZONE PRITZKER PARK, CHICAGO, ILLINOIS
CAD: HDP	DATE: 1/31/08
APPROVED: HDP	SCALE: 1"=40'
FOR:	CHICAGO DEPARTMENT OF ENVIRONMENT

Versar INC.
200 W. 22nd STREET, SUITE 250
LOMBARD, IL 60148

PROJECT NO.	111424.0001.025
DRAWING NO.	FIG9

TABLES

SOIL ANALYTICAL SUMMARY TABLES

Versar INC

Pritzker Park
Soil PCB/Pesticide Analytical Results
(mg/kg)

	Analyte	Tier 1 Soil Remediation Objective					Sample ID/Date/Depth	
		Residential Exposure Route		Construction Worker Exposure Route		Soil Comp. of GW Ingestion	B-2 03/03/05	B-2 03/03/05
		Ing	Inh.	Ingestion	Inhalation	Class II	0 - 3	6 - 9
PCBs	Aroclor 1016	1	---	1	---	---	<0.09	<0.095
	Aroclor 1221	1	---	1	---	---	<0.09	<0.095
	Aroclor 1232	1	---	1	---	---	<0.09	<0.095
	Aroclor 1242	1	---	1	---	---	<0.09	<0.095
	Aroclor 1248	1	---	1	---	---	<0.09	<0.095
	Aroclor 1254	1	---	1	---	---	<0.09	<0.095
	Aroclor 1260	1	---	1	---	---	<0.09	<0.095
PESTICIDES	4,4´-DDD	3	---	520	---	80	<0.0037	<0.0039
	4,4´-DDE	2	---	370	---	270	<0.0037	<0.0039
	4,4´-DDT	2	---	100	2,100	160	<0.0037	<0.0039
	Aldrin	0.04	3	6.1	9.3	2.5	<0.0018	<0.0019
	alpha-BHC	0.1	0.8	20	2.1	0.003	<0.0018	<0.0019
	alpha-Chlordane						<0.0018	<0.0019
	beta-BHC						<0.0018	<0.0019
	Chlordane	1.8	72	100	22	48	<0.09	<0.095
	delta-BHC						<0.0018	<0.0019
	Dieldrin	0.04	1	7.8	3.1	0.02	<0.0037	<0.0039
	Endosulfan I	470	---	1200	---	90	<0.0018	<0.0019
	Endosulfan II						<0.0037	<0.0039
	Endosulfan sulfate						<0.0037	<0.0039
	Endrin	23	---	61	---	5	<0.0037	<0.0039
	Endrin aldehyde						<0.0037	<0.0039
	Endrin ketone						<0.0037	<0.0039
	gamma-BHC	0.5	---	96	---	0.047	<0.0018	<0.0019
	gamma-Chlordane						<0.0018	<0.0019
	Heptachlor	0.1	0.1	28	16	110	<0.0018	<0.0019
	Heptachlor epoxide	0.07	5	2.7	13	3.3	<0.0018	<0.0019
	Methoxychlor	390	---	1,000	---	780	<0.0018	<0.0019
	Toxaphene	0.6	89	110	240	150	<0.11	<0.12

Versar INC

Pritzker Park
Soil PNA/SVOC Analytical Results
(mg/kg)

Analyte	Tier 1 Soil Remediation Objective						Sample Identification, Date, and Depth (feet)									
	Residential Exposure Route		Construction Worker		Soil Comp. GW Ingestion	Backgrd	B-1	B-1	B-2	B-2	B-3	B-3	B-4	B-4	B-5	B-5
							03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05
PNAs	**Ingestion**	**Inhal.**	**Ingestion**	**Inhal.**	**Class II**	**Chicago**	0 - 3	3 - 6	0 - 3	6 - 9	0 - 3	9 - 12	0 - 3	9 - 12	0 - 3	3 - 6
Acenaphthene	4,700	---	120,000	---	2,900	0.09	<0.028	1.7	<0.028	0.21	<0.029	<0.031	<0.028	<0.029	<0.028	0.18
Acenaphthylene	2,300	---	61,000	---	420	0.03	<0.028	0.28	<0.028	<0.03	<0.029	<0.031	<0.028	<0.029	<0.028	0.052
Anthracene	23,000	---	610,000	---	59,000	0.25	<0.028	5	<0.028	0.99	<0.029	<0.031	<0.028	<0.029	<0.028	0.62
Benzo(a)anthracene	0.9	---	170	---	8	1.1	<0.028	**9.9**	<0.028	**1.5**	<0.029	<0.031	<0.028	<0.029	<0.028	**1.6**
Benzo(a)pyrene	0.09	---	17	---	82	1.3	<0.028	**5.2**	<0.028	**1.5**	<0.029	<0.031	<0.028	<0.029	<0.028	**1.7**
Benzo(b)fluoranthene	0.9	---	170	---	25	1.5	<0.028	**6.6**	<0.028	1.4	<0.029	<0.031	<0.028	<0.029	<0.028	1.5
Benzo(g,h,i)perylene	2,300	---	61,000	---	130,000	0.68	<0.028	**3**	<0.028	0.79	<0.029	<0.031	<0.028	<0.029	<0.028	0.85
Benzo(k)fluoranthene	9	---	1,700	---	250	0.99	<0.028	**5.2**	<0.028	1.2	<0.029	<0.031	<0.028	<0.029	<0.028	1.2
Chrysene	88	---	17,000	---	800	1.2	<0.028	**9.9**	<0.028	1.6	<0.029	<0.031	<0.028	<0.029	<0.028	1.6
Dibenzo(a,h)anthracene	0.09	---	17	---	7.6	0.20	<0.028	**0.8**	<0.028	0.15	<0.029	<0.031	<0.028	<0.029	<0.028	0.15
Fluoranthene	3,100	---	82,000	---	21,000	2.7	<0.028	**24**	<0.028	3.2	<0.029	<0.031	<0.028	0.043	<0.028	3
Fluorene	3,100	---	82,000	---	2,800	0.10	<0.028	**2.5**	<0.028	0.34	<0.029	<0.031	<0.028	<0.029	<0.028	0.23
Indeno(1,2,3-cd)pyrene	0.9	---	170	---	69	0.86	<0.028	**3.7**	<0.028	0.76	<0.029	<0.031	<0.028	<0.029	<0.028	0.84
Naphthalene	1,600	170	4,100	1.8	18	0.04	<0.028	0.78	<0.028	0.061	<0.029	<0.031	<0.028	<0.029	<0.028	0.066
Phenanthrene	2,300	---	61,000	---	1,000	1.3	<0.028	17	<0.028	2	<0.029	<0.031	<0.028	<0.029	<0.028	1.9
Pyrene	2,300	---	61,000	---	21,000	1.9	<0.028	20	<0.028	2.7	<0.029	<0.031	<0.028	0.039	<0.028	2.6
OTHER SVOCs																
Aniline	110	81	1,400	8.4	0.063	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Benzidine	0.003	0.009	0.54	0.02	2.20E-06	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Benzoic acid	310,000	---	820,000	---	400	---	NA	NA	<1.8	<1.9	NA	NA	NA	NA	NA	NA
Benzyl alcohol	39,000	6,100	200,000	6,100	15	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	---	---	---	---	---	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl)ether	0.6	0.2	75	0.66	0.0004	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	46	31,000	4,100	31,000	31,000	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	---	---	---	---	---	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	16,000	930	410,000	930	930	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Carbazole	32	---	6,200	---	2.8	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
4-Chloroaniline	310	---	820	---	0.7	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	---	---	---	---	---	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	6,300	---	160,000	---	240	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
2-Chlorophenol	390	53,000	10,000	53,000	20	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	---	---	---	---	---	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Dibenzofuran	160	---	4,100	---	30	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	7,000	560	18,000	310	43	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	---	---	---	---	---	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	---	11,000	---	340	11	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
3,3´-Dichlorobenzidine	1	---	280	---	0.033	---	NA	NA	<0.74	<0.78	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	230	---	610	---	1	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Diethyl phthalate	63,000.0	2,000.0	1,000,000	2,000	470	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	1,600.0	---	41,000	---	9	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	---	---	---	---	---	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	7.8	---	820	---	pH	---	NA	NA	<1.8	<1.9	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	160	---	410	---	0.2	---	NA	NA	<1.8	<1.9	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	0.9	---	180	---	0.0008	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	0.9	---	180	---	0.0007	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	7,800	2,300	200,000	2,300	2,300	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	1,600	10,000	4,100	10,000	10,000	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	0.4	1	78	2.6	11	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	78	150	200	70	11	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	550	10	14,000	1.1	2,200	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Hexachloroethane	78	---	2,000	---	2.6	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Isophorone	15,600	4,600	410,000	4,600	8	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	310	---	820	---	9.5	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
2-Methylphenol	3,900	---	100,000	---	15	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
4-Methylphenol	390	---	1,000	---	0.20	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
2-Nitroaniline	230	35	610	3.6	0.14	---	NA	NA	<1.8	<1.9	NA	NA	NA	NA	NA	NA
3-Nitroaniline	23	250	61	26	0.010	---	NA	NA	<1.8	<1.9	NA	NA	NA	NA	NA	NA
4-Nitroaniline	230	1,000	610	110	0.10	---	NA	NA	<1.8	<1.9	NA	NA	NA	NA	NA	NA
2-Nitrophenol	---	---	---	---	---	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
4-Nitrophenol	630	---	16,000	---	pH	---	NA	NA	<1.8	<1.9	NA	NA	NA	NA	NA	NA
Nitrobenzene	39	92	1,000	9.4	0.1	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	0.09	---	18	---	0.00005	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	0.013	0.012	1.6	0.032	6.70E-06	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	130	---	25,000	---	5.6	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
2, 2'-oxybis(1-Chloropropar	---	---	---	---	---	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Pentachlorophenol	3	---	520	---	0.14	---	NA	NA	<1.8	<1.9	NA	NA	NA	NA	NA	NA
Phenol	23,000	---	61,000	---	100	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
Pyridine	78	200,000	2,000	200,000	pH	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	780	3,200	2,000	920	53	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	7,800	---	200,000	---	1,400	---	NA	NA	<0.74	<0.78	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	58	200	11,000	540	0.77	---	NA	NA	<0.37	<0.39	NA	NA	NA	NA	NA	NA

NOTES:

1. NA = Not analyzed.
2. **Bold** and highlighted = Concentration exceeds Tier 1 SRO.

Versar INC

Pritzker Park
Soil PNA/SVOC Analytical Results
(mg/kg)

Analyte	Tier 1 Soil Remediation Objective						Sample Identification, Date, and Depth (feet)									
	Residential Exposure Route		Construction Worker		Soil Comp. GW Ingestion	Backgrd	B-6	B-6	B-7	B-7	B-8	B-8	B-9	B-9	B-10	B-10
							03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05
PNAs	**Ingestion**	**Inhal.**	**Ingestion**	**Inhal.**	**Class II**	**Chicago**	0 - 3	6 - 9	0 - 3	3 - 6	0 - 3	3 - 6	0 - 3	9 - 11	0 - 3	6 - 9
Acenaphthene	4,700	---	120,000	---	2,900	0.09	<0.028	0.34	<0.029	0.98	<0.028	0.26	<0.029	<0.03	0.21	0.12
Acenaphthylene	2,300	---	61,000	---	420	0.03	<0.028	0.16	<0.029	0.29	<0.028	0.068	<0.029	<0.03	0.093	<0.029
Anthracene	23,000	---	610,000	---	59,000	0.25	<0.028	1.3	<0.029	3.8	<0.028	0.72	<0.029	<0.03	0.81	0.12
Benzo(a)anthracene	0.9	---	170	---	8	1.1	<0.028	**3.1**	<0.029	**8**	<0.028	**1.7**	<0.029	0.044	**2.6**	0.26
Benzo(a)pyrene	0.09	---	17	---	82	1.3	<0.028	**1.6**	<0.029	**7.7**	<0.028	0.72	<0.029	0.033	1.3	0.079
Benzo(b)fluoranthene	0.9	---	170	---	25	1.5	<0.028	**1.6**	<0.029	**7**	<0.028	0.79	<0.029	<0.03	1.5	0.098
Benzo(g,h,i)perylene	2,300	---	61,000	---	130,000	0.68	<0.028	**1.3**	<0.029	**4**	<0.028	0.7	<0.029	<0.03	1.2	0.062
Benzo(k)fluoranthene	9	---	1,700	---	250	0.99	<0.028	**1.4**	<0.029	**5.9**	<0.028	0.52	<0.029	0.032	0.95	0.074
Chrysene	88	---	17,000	---	800	1.2	<0.028	**3.1**	<0.029	**8.2**	<0.028	1.6	<0.029	0.043	2.5	0.25
Dibenzo(a,h)anthracene	0.09	---	17	---	7.6	0.20	<0.028	**0.29**	<0.029	**0.62**	<0.028	0.16	<0.029	<0.03	**0.23**	<0.029
Fluoranthene	3,100	---	82,000	---	21,000	2.7	<0.028	**6.3**	<0.029	**18**	<0.028	3.6	0.03	0.081	**4.7**	0.53
Fluorene	3,100	---	82,000	---	2,800	0.10	<0.028	**0.55**	<0.029	**1.9**	<0.028	0.35	<0.029	<0.03	**0.25**	0.12
Indeno(1,2,3-cd)pyrene	0.9	---	170	---	69	0.86	<0.028	**1.4**	<0.029	**3.8**	<0.028	0.81	<0.029	<0.03	**1.2**	0.063
Naphthalene	1,600	170	4,100	1.8	18	0.04	<0.028	0.19	<0.029	0.4	<0.028	0.1	<0.029	<0.03	0.078	0.2
Phenanthrene	2,300	---	61,000	---	1,000	1.3	<0.028	4.2	<0.029	14	<0.028	2.5	<0.029	0.07	2.8	0.58
Pyrene	2,300	---	61,000	---	21,000	1.9	<0.028	5.3	<0.029	15	<0.028	3	<0.029	0.067	4.2	0.46
OTHER SVOCs																
Aniline	110	81	1,400	8.4	0.063	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzidine	0.003	0.009	0.54	0.02	2.20E-06	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic acid	310,000	---	820,000	---	400	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl alcohol	39,000	6,100	200,000	6,100	15	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	---	---	---	---	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl)ether	0.6	0.2	75	0.66	0.0004	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	46	31,000	4,100	31,000	31,000	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	---	---	---	---	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	16,000	930	410,000	930	930	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	32	---	6,200	---	2.8	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	310	---	820	---	0.7	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	---	---	---	---	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	6,300	---	160,000	---	240	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	390	53,000	10,000	53,000	20	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	---	---	---	---	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	160	---	4,100	---	30	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	7,000	560	18,000	310	43	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	---	---	---	---	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	---	11,000	---	340	11	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3´-Dichlorobenzidine	1	---	280	---	0.033	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	230	---	610	---	1	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	63,000.0	2,000.0	1,000,000	2,000	470	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	1,600.0	---	41,000	---	9	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	---	---	---	---	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	7.8	---	820	---	pH	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	160	---	410	---	0.2	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	0.9	---	180	---	0.0008	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	0.9	---	180	---	0.0007	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	7,800	2,300	200,000	2,300	2,300	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	1,600	10,000	4,100	10,000	10,000	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	0.4	1	78	2.6	11	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	78	150	200	70	11	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	550	10	14,000	1.1	2,200	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	78	---	2,000	---	2.6	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	15,600	4,600	410,000	4,600	8	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	310	---	820	---	9.5	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	3,900	---	100,000	---	15	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	390	---	1,000	---	0.20	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	230	35	610	3.6	0.14	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	23	250	61	26	0.010	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	230	1,000	610	110	0.10	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	---	---	---	---	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	630	---	16,000	---	pH	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	39	92	1,000	9.4	0.1	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	0.09	---	18	---	0.00005	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	0.013	0.012	1.6	0.032	6.70E-06	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	130	---	25,000	---	5.6	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2, 2'-oxybis(1-Chloropropar	---	---	---	---	---	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	3	---	520	---	0.14	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	23,000	---	61,000	---	100	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyridine	78	200,000	2,000	200,000	pH	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	780	3,200	2,000	920	53	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	7,800	---	200,000	---	1,400	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	58	200	11,000	540	0.77	---	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

1. NA = Not analyzed.
2. **Bold** and highlighted = Concentration exceeds Tier 1 SRO.

Versar INC

Pritzker Park
Inorganic Soil Analytical Results
(mg/kg)

Analyte	Tier 1 Soil Remediation Objectives					Sample Identification, Date, and Depth (feet)																	
	Residential		Construction Worker		Soil Comp. of GW Ingestion	B-1	B-1	B-2	B-2	B-3	B-3	B-4	B-4	B-5	B-5	B-6	B-6	B-7	B-7	B-8	B-8	B-9	B-9	B-10	B-10
						03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05
	Ingestion	Inhalation	Ingestion	Inhalation	Class II	0 - 3	3 - 6	0 - 3	6 - 9	0 - 3	9 - 12	0 - 3	9 - 12	0 - 3	3 - 6	0 - 3	6 - 9	0 - 3	3 - 6	0 - 3	3 - 6	0 - 3	9 - 11	0 - 3	6 - 9
Arsenic	13	750	61	25,000	120	**29**	9.6	**29**	13	**21**	3.9	**30**	3	**26**	13	**25**	9.9	**34**	7.8	**27**	**17**	**27**	6.6	**22**	8.1
Barium	5,500	690,000	14,000	870,000	2,100	**64**	93	64	150	65	28	59	17	55	150	54	150	68	140	56	89	82	18	100	57
Beryllium	160	1,300	410	44,000	1,000,000	NA	NA	0.57	0.78	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	78	1,800	200	59,000	4,300	<0.55	0.61	<0.53	0.58	<0.56	<0.61	<0.55	<0.54	<0.57	<0.59	<0.54	0.73	<0.55	<0.56	<0.56	<0.57	<0.57	<0.56	<0.56	<0.55
Calcium	---	---	---	---	---	NA	NA	140000	74000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	230	270	4,100	690	---	12	17	12	21	11	10	12	6.9	11	21	11	18	12	20	12	18	13	7.3	16	21
Cobalt	4,700	---	12,000	---	---	NA	NA	13	8.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	2,900	---	8,200	---	330,000	NA	NA	43	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	1,600	---	4,100	---	120	NA	NA	<0.28	<0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	55,000	---	140,000	---	---	NA	NA	44000	24000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	---	700	---	1,420	31	120	32	67	30	9.1	33	13	28	57	28	210	37	79	30	71	32	8.2	69	29
Magnesium	325,000	---	730,000	---	---	NA	NA	78000	34000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	1,600	69,000	4,100	8,700	---	NA	NA	760	550	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	23	10	61	0.1	40	<0.028	0.27	<0.027	0.54	<0.029	<0.029	<0.029	<0.028	<0.026	0.059	<0.026	0.11	<0.029	0.26	<0.028	<0.03	<0.029	<0.029	0.04	0.031
Nickel	1,600	13,000	4,100	440,000	76,000	NA	NA	29	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	---	---	---	---	---	NA	NA	1100	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	390	---	1,000	---	2.4	<1.1	<1.1	<1.1	<1.1	<1.1	<1.2	<1.1	<1.1	<1.1	<1.2	<1.1	<1.1	<1.1	1.2	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Silver	390	---	1,000	---	---	<1.1	<1.1	<1.1	<1.1	<1.1	<1.2	<1.1	<1.1	<1.1	<1.2	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Sodium	---	---	---	---	---	NA	NA	230	510	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	6.3	---	160	---	38	NA	NA	1.1	<1.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	550	---	1,400	---	---	NA	NA	21	27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	23,000	---	61,000	---	110,000	NA	NA	79	93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Additional Analyses																									
pH	---	---	---	---	---	7.9	7.9	8.1	8.4	8.0	8.1	8.1	8.3	7.9	7.8	8.0	8.1	8.2	8.0	8.0	8.1	8.1	8.2	8.2	8.6
FOC	---	---	---	---	---	NA	NA	NA	NA	1.49	3.56	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

1. Analyses performed using EPA SW-846 methodology.
2. **Bold** and highlighted = Concentration exceeds Tier 1 SRO.
3. NA = Not analyzed.

Versar INC

Pritzker Park
Soil VOC Analytical Results
(mg/kg)

	Residential Exposure Route		Construction Worker Exposure Route		Soil Comp.of Gdwtr Ing.	B-1	B-1	B-2	B-2	B-3	B-3	B-4	B-4	B-5	B-5	B-6	B-6	B-7	B-7	B-8	B-8	B-9	B-9	B-10	B-10
						03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05	03/03/05
Analyte	Ingestion	Inhalation	Ingestion	Inhalation	Class II	0 - 3	3 - 6	0 - 3	6 - 9	0 - 3	9 - 12	0 - 3	9 - 12	0 - 3	3 - 6	0 - 3	6 - 9	0 - 3	3 - 6	0 - 3	3 - 6	0 - 3	9 - 11	0 - 3	6 - 9
Acetone	70,000	100,000	-----	100,000	25	NA	NA	0.027	0.071	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	12	0.8	2,300	2.2	0.17	<0.0045	<0.005	<0.0053	<0.0048	<0.0052	<0.0054	<0.0052	<0.0047	<0.005	<0.0053	<0.0051	<0.0049	<0.0054	<0.007	<0.0054	<0.0063	<0.0046	<0.0054	<0.0059	0.0058
Bromodichloromethane	10	3,000	2,000	3,000	0.6	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	81	53	16,000	140	0.8	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	110	10	1,000	3.9	1.2	NA	NA	<0.011	<0.0096	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	47,000	25,000	120,000	710	17	NA	NA	<0.011	0.015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	7,800	720	20,000	9	160	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5	0.3	410	0.9	0.33	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	1,600	130	4,100	1.3	6.5	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	---	1,500	20,000	95	---	NA	NA	<0.011	<0.0096	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	100	0.3	2,000	0.76	2.9	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	---	---	---	---	---	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	1,600	1,300	41,000	1,300	0.4	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	7,800	1,300	200,000	130	110	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	7	0.4	1,400	0.99	0.1	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	3,900	290	10,000	3	0.3	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	780	1,200	20,000	1,200	1.1	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	1,600	3,100	41,000	3,100	3.4	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	9	15	1,800	0.5	0.15	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	6.4	1.1	1,200	0.39	0.02	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	7,800	400	20,000	58	19	<0.0045	<0.005	<0.0053	<0.0048	<0.0052	<0.0054	<0.0052	<0.0047	<0.005	<0.0053	<0.0051	<0.0049	<0.0054	<0.007	<0.0054	<0.0063	<0.0046	<0.0054	<0.0059	<0.0047
2-Hexanone	---	---	---	---	---	NA	NA	<0.011	<0.0096	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	---	3,100	---	340	---	NA	NA	<0.011	<0.0096	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	85	13	12,000	34	0.2	NA	NA	<0.011	<0.0096	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tertiary-butyl ether	780	8,800	2,000	140	0.32	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	16,000	1,500	41,000	430	18	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	4,700	2,000	12,000	2,000	3.3	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	12	11	2,400	28	0.3	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	16,000	650	410,000	42	29	<0.0045	<0.005	0.0057	<0.0048	<0.0052	<0.0054	<0.0052	<0.0047	0.0055	<0.0053	0.0057	<0.0049	<0.0054	<0.007	<0.0054	<0.0063	<0.0046	<0.0054	<0.0059	<0.0047
1,1,1-Trichloroethane	---	1,200	---	1,200	9.6	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	310	1,800	8,200	1,800	0.3	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	58	5	1,200	12	0.3	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	0.46	0.28	170	1.1	0.07	NA	NA	<0.0053	<0.0048	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes, Total	16,000	320	41,000	5.6	150	<0.0091	<0.0099	<0.011	<0.0096	<0.01	<0.011	<0.01	<0.0094	<0.01	<0.011	<0.01	<0.0097	<0.011	<0.014	<0.011	<0.013	<0.0092	<0.011	<0.012	<0.0095

GROUNDWATER ANALYTICAL SUMMARY TABLES

Versar INC

Pritzker Park
Groundwater Inorganic Analytical Results
(mg/l)

Analyte	Tier 1 GW Remediation Objective Class II	Sample Identification and Date							
		MW-1	MW-2	TMW-3	MW-3	TMW-4	MW-4	TMW-5	MW-5
		07/20/05	07/20/05	03/03/05	07/20/05	03/03/05	07/20/05	03/03/05	07/20/05
Aluminum	5.0	NA	NA	NA	NA	2.5	NA	NA	NA
Antimony	0.024	NA	NA	NA	NA	<0.006	NA	NA	NA
Arsenic	0.2	NA	NA	0.046	NA	0.012	NA	NA	NA
Barium	2.0	NA	NA	1.6	NA	0.083	NA	NA	NA
Beryllium	0.5	NA	NA	NA	NA	<0.002	NA	NA	NA
Cadmium	0.05	NA	NA	0.0027	NA	<0.002	NA	NA	NA
Calcium	---	NA	NA	NA	NA	220	NA	NA	NA
Chromium	1.0	0.0095	0.012	0.11	0.011	0.013	0.011	NA	0.013
Cobalt	1.0	NA	NA	NA	NA	<0.004	NA	NA	NA
Copper	0.65	NA	NA	NA	NA	0.079	NA	NA	NA
Cyanide	0.6	NA	NA	NA	NA	<0.005	NA	NA	NA
Iron	5.0	**10**	3.8	NA	**8.1**	**5.7**	**6.8**	NA	**8.8**
Lead	0.1	0.0043	0.009	1*	0.0049	0.39*	0.032	NA	0.0036
Magnesium	---	NA	NA	NA	NA	170	NA	NA	NA
Manganese	10.0	0.4	0.26	NA	0.33	0.22	1.1	NA	1
Mercury	0.01	<0.00025	<0.00025	0.001	<0.00025	0.004	<0.00025	NA	<0.00025
Nickel	2.0	NA	NA	NA	NA	0.011	NA	NA	NA
Potassium	---	NA	NA	NA	NA	44	NA	NA	NA
Selenium	0.05	NA	NA	0.0045	NA	<0.004	NA	NA	NA
Silver	0.05	NA	NA	<0.004	NA	0.029	NA	NA	NA
Sodium	---	NA	NA	NA	NA	46	NA	NA	NA
Thallium	0.02	NA	NA	NA	NA	<0.004	NA	NA	NA
Vanadium	0.1	NA	NA	NA	NA	<0.001	NA	NA	NA
Zinc	10	NA	NA	NA	NA	0.27	NA	NA	NA

NOTES:

1. * Turbid Sample, resampled 7/20/05 from permanent well
2. NA = Not analyzed
3. **Bold** and highlighted = Concentration exceeds Tier 1 GRO.

Versar INC

Pritzker Park
Pesticide/PCB Groundwater Analytical Results
(mg/L)

			Sample ID/ Date
	Analyte	Tier 1 GRO	TMW-4
		Class II	03/03/05
PCBs	Aroclor 1016	0.0025	<0.0005
	Aroclor 1221	0.0025	<0.0005
	Aroclor 1232	0.0025	<0.0005
	Aroclor 1242	0.0025	<0.0005
	Aroclor 1248	0.0025	<0.0005
	Aroclor 1254	0.0025	<0.0005
	Aroclor 1260	0.0025	<0.0005
PESTICIDES	4,4´-DDD	0.07	<0.0001
	4,4´-DDE	0.05	<0.0001
	4,4´-DDT	0.03	<0.0001
	Aldrin	0.07	<0.00005
	alpha-BHC	0.00055	<0.00005
	alpha-Chlordane	---	0.00005
	beta-BHC	---	<0.00005
	Chlordane	0.01	<0.0005
	delta-BHC	---	<0.00005
	Dieldrin	0.045	<0.0001
	Endosulfan I	0.21	<0.00005
	Endosulfan II	---	<0.0001
	Endosulfan sulfate	---	<0.0001
	Endrin	0.01	<0.0001
	Endrin aldehyde	---	<0.0001
	Endrin ketone	---	<0.0001
	gamma-BHC	0.001	<0.00005
	gamma-Chlordane	---	<0.00005
	Heptachlor	0.002	<0.00005
	Heptachlor epoxide	0.001	<0.00005
	Methoxychlor	0.2	<0.00005
	Toxaphene	0.015	<0.001

Versar INC

Pritzker Park
Groundwater VOC Analytical Results
(mg/L)

Analyte	Tier 1 Groundwater Remediation Objective	Sample ID and Date		
		TMW-3	TMW-4	TMW-5
	Class II	03/03/05	03/03/05	03/03/05
Acetone	6.3	NA	<0.01	NA
Benzene	0.025	<0.005	<0.005	<0.005
Bromodichloromethane	0.0002	NA	<0.005	NA
Bromoform	0.001	NA	<0.005	NA
Bromomethane	0.049	NA	<0.01	NA
2-Butanone	4.2	NA	<0.01	NA
Carbon disulfide	3.5	NA	<0.005	NA
Carbon tetrachloride	0.025	NA	<0.005	NA
Chlorobenzene	0.5	NA	<0.005	NA
Chloroethane	---	NA	<0.01	NA
Chloroform	0.001	NA	<0.005	NA
Chloromethane	---	NA	<0.005	NA
Dibromochloromethane	0.14	NA	<0.005	NA
1,1-Dichloroethane	3.5	NA	<0.005	NA
1,2-Dichloroethane	0.025	NA	<0.005	NA
1,1-Dichloroethene	0.035	NA	<0.005	NA
cis-1,2-Dichloroethene	0.2	NA	<0.005	NA
trans-1,2-Dichloroethene	0.5	NA	<0.005	NA
1,2-Dichloropropane	0.025	NA	<0.005	NA
cis-1,3-Dichloropropene	0.005	NA	<0.005	NA
trans-1,3-Dichloropropene	0.005	NA	<0.005	NA
Ethylbenzene	1.0	<0.005	<0.005	<0.005
2-Hexanone	---	NA	<0.01	NA
4-Methyl-2-pentanone	---	NA	<0.01	NA
Methylene chloride	0.05	NA	<0.005	NA
Methyl tertiary-butyl ether	0.07	NA	<0.005	NA
Styrene	0.5	NA	<0.005	NA
1,1,2,2-Tetrachloroethane	0.42	NA	<0.005	NA
Tetrachloroethene	0.025	NA	<0.005	NA
Toluene	2.5	<0.005	<0.005	<0.005
1,1,1-Trichloroethane	1.0	NA	<0.005	NA
1,1,2-Trichloroethane	0.05	NA	<0.005	NA
Trichloroethene	0.025	NA	<0.005	NA
Vinyl chloride	0.01	NA	<0.005	NA
Xylenes, Total	10.0	<0.01	<0.01	<0.01

Versar INC

Pritzker Park
SVOC Groundwater Analytical Results
(mg/L)

Analyte	Tier 1 Groundwater Remediation Objective	Sample Identification and Date						
		MW-1	MW-2	TMW-3	MW-3	TMW-4	MW-4	MW-5
PNAs	**Class II**	07/21/05	07/21/05	03/03/05	07/21/05	03/03/05	07/21/05	07/21/05
Acenaphthene	2.1	<0.0002	<0.0002	0.00073	<0.0002	<0.0002	<0.0002	<0.0002
Acenaphthylene	1.05	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Anthracene	10.5	<0.0002	<0.0002	0.00029	<0.0002	<0.0002	<0.0002	<0.0002
Benzo(a)anthracene	0.00065	<0.00013	<0.00013	0.00027	<0.00013	<0.00013	<0.00013	<0.00013
Benzo(a)pyrene	0.002	<0.0002	<0.0002	0.00021	<0.0002	<0.0002	<0.0002	<0.0002
Benzo(b)fluoranthene	0.0009	<0.00018	<0.00018	0.00025	<0.00018	<0.00018	<0.00018	<0.00018
Benzo(g,h,i)perylene	1.05	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Benzo(k)fluoranthene	0.00085	<0.00017	<0.00017	0.00017	<0.00017	<0.00017	<0.00017	<0.00017
Chrysene	0.0075	<0.0001	<0.0001	0.00029	<0.0001	<0.0001	<0.0001	<0.0001
Dibenzo(a,h)anthracene	0.0015	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Fluoranthene	1.4	<0.0002	<0.0002	0.00082	<0.0002	<0.0002	<0.0002	<0.0002
Fluorene	1.4	<0.0002	<0.0002	0.00045	<0.0002	<0.0002	<0.0002	<0.0002
Indeno(1,2,3-cd)pyrene	0.00215	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Naphthalene	0.22	<0.0001	<0.0001	0.00068	<0.0001	0.00014	<0.0001	<0.0001
Phenanthrene	1.05	<0.0002	<0.0002	0.0013	<0.0002	<0.0002	<0.0002	<0.0002
Pyrene	1.05	<0.0002	<0.0002	0.00065	<0.0002	<0.0002	<0.0002	<0.0002
Other SVOCs								
Aniline	0.023	NA	NA	NA	NA	<0.012	NA	NA
Benzidine	---	NA	NA	NA	NA	<0.012	NA	NA
Benzoic acid	28	NA	NA	NA	NA	<0.012	NA	NA
Benzyl alcohol	3.5	NA	NA	NA	NA	<0.005	NA	NA
Bis(2-chloroethoxy)methane	---	NA	NA	NA	NA	<0.005	NA	NA
Bis(2-chloroethyl)ether	0.01	NA	NA	NA	NA	<0.005	NA	NA
Bis(2-ethylhexyl)phthalate	0.06	NA	NA	NA	NA	<0.005	NA	NA
4-Bromophenyl phenyl ether	---	NA	NA	NA	NA	<0.005	NA	NA
Butyl benzyl phthalate	7.0	NA	NA	NA	NA	<0.005	NA	NA
Carbazole	---	NA	NA	NA	NA	<0.012	NA	NA
4-Chloroaniline	0.028	NA	NA	NA	NA	<0.005	NA	NA
4-Chloro-3-methylphenol	---	NA	NA	NA	NA	<0.005	NA	NA
2-Chloronaphthalene	2.8	NA	NA	NA	NA	<0.005	NA	NA
2-Chlorophenol	0.175 / 0.035 *	NA	NA	NA	NA	<0.005	NA	NA
4-Chlorophenyl phenyl ether	---	NA	NA	NA	NA	<0.005	NA	NA
Dibenzofuran	0.07	NA	NA	NA	NA	<0.005	NA	NA
1,2-Dichlorobenzene	1.5	NA	NA	NA	NA	<0.005	NA	NA
1,3-Dichlorobenzene	---	NA	NA	NA	NA	<0.005	NA	NA
1,4-Dichlorobenzene	0.375	NA	NA	NA	NA	<0.005	NA	NA
3,3´-Dichlorobenzidine	0.1	NA	NA	NA	NA	<0.01	NA	NA
2,4-Dichlorophenol	0.021	NA	NA	NA	NA	<0.005	NA	NA
Diethyl phthalate	5.6	NA	NA	NA	NA	<0.005	NA	NA
2,4-Dimethylphenol	0.14	NA	NA	NA	NA	<0.005	NA	NA
Dimethyl phthalate	---	NA	NA	NA	NA	<0.005	NA	NA
4,6-Dinitro-2-methylphenol	0.0007	NA	NA	NA	NA	<0.012	NA	NA
2,4-Dinitrophenol	0.014	NA	NA	NA	NA	<0.012	NA	NA
2,4-Dinitrotoluene	0.00002	NA	NA	NA	NA	<0.005	NA	NA
2,6-Dinitrotoluene	0.00031	NA	NA	NA	NA	<0.005	NA	NA
Di-n-butyl phthalate	3.5	NA	NA	NA	NA	<0.005	NA	NA
Di-n-octyl phthalate	0.7	NA	NA	NA	NA	<0.005	NA	NA
Hexachlorobenzene	0.0003	NA	NA	NA	NA	<0.005	NA	NA
Hexachlorobutadiene	0.035	NA	NA	NA	NA	<0.005	NA	NA
Hexachlorocyclopentadiene	0.5	NA	NA	NA	NA	<0.005	NA	NA
Hexachloroethane	0.035	NA	NA	NA	NA	<0.005	NA	NA
Isophorone	1.4	NA	NA	NA	NA	<0.005	NA	NA
2-Methylnaphthalene	0.14	NA	NA	NA	NA	<0.005	NA	NA
2-Methylphenol	0.35	NA	NA	NA	NA	<0.005	NA	NA
4-Methylphenol	0.035	NA	NA	NA	NA	<0.005	NA	NA
2-Nitroaniline	0.021	NA	NA	NA	NA	<0.012	NA	NA
3-Nitroaniline	0.0021	NA	NA	NA	NA	<0.012	NA	NA
4-Nitroaniline	0.021	NA	NA	NA	NA	<0.012	NA	NA
2-Nitrophenol	---	NA	NA	NA	NA	<0.005	NA	NA
4-Nitrophenol	0.056	NA	NA	NA	NA	<0.012	NA	NA
Nitrobenzene	0.0035	NA	NA	NA	NA	<0.005	NA	NA
N-Nitrosodi-n-propylamine	0.0018	NA	NA	NA	NA	<0.005	NA	NA
N-Nitrosodimethylamine	0.0006	NA	NA	NA	NA	<0.005	NA	NA
N-Nitrosodiphenylamine	0.016	NA	NA	NA	NA	<0.005	NA	NA
2, 2'-oxybis(1-Chloropropan	---	NA	NA	NA	NA	<0.005	NA	NA
Pentachlorophenol	0.005	NA	NA	NA	NA	<0.005	NA	NA
Phenol	0.1	NA	NA	NA	NA	<0.005	NA	NA
Pyridine	0.007	NA	NA	NA	NA	<0.012	NA	NA
1,2,4-Trichlorobenzene	0.7	NA	NA	NA	NA	<0.005	NA	NA
2,4,5-Trichlorophenol	3.5 / 0.7 *	NA	NA	NA	NA	<0.005	NA	NA
2,4,6-Trichlorophenol	0.05 / 0.01 *	NA	NA	NA	NA	<0.005	NA	NA

NOTES:

1. NA = Not analyzed

Appendix A

Tier 2 Evaluation -
Soil Component of Class II Groundwater Ingestion

Benzo(a)anthracene Soil

Versar INC.

Tier 2 Evaluation
Soil Component of Class II Groundwater Ingestion

Parameter		Target Soil Leachate Concentration	Soil-Water Partition Coefficient	Water-Filled Soil Porosity	Air-Filled Soil Porosity	Henry's Law Constant	Dry Soil Bulk Density
Units		mg/L	cm3/g or L/kg	L_{water}/L_{soil}	L_{air}/L_{soil}	unitless	kg/L or g/cm^3
Source		Equation S18 in Appendix C, Table A	Equation S19 in Appendix C, Table A or Appendix C, Table J	SSL or Equation S20 in Appendix C, Table A	SSL or Equation S21 in Appendix C, Table A	Appendix C, Table E	SSL or Field Measurement (See Appendix C, Table F)
Value(s)		Groundwater Standard, Health Advisory concentration, or Calculated Value	Chemical and pH-Specific (see Appendix C, Table I) or Calculated Value	Surface Soil (top 1 meter) = 0.15, Subsurface Soil (below 1 meter) = 0.30, or Gravel = 0.20, Sand = 0.18, Silt = 0.16, Clay = 0.17, or Calculated Value	Surface Soil (top 1 meter) = 0.28, Subsurface Soil (below 1 meter) = 0.13, or Gravel = 0.05, Sand = 0.14, Silt = 0.24, Clay = 0.19, or Calculated Value	Chemical-Specific	1.5, or Gravel = 2.0, Sand = 1.8, Silt = 1.6, Clay = 1.7, or Site-Specific
COC	**SRO**	**C_w**	**K_d**	**θ_w**	**θ_a**	**H'**	**ρ_b**
Benzo(a)anthracene	103.4826002	0.013	7960	0.3	0.13	0.000137	1.5

Parameter	Target Soil Leachate Concentration	Dilution Factor	Groundwater Remediation Remediation Objective
Units	mg/L	unitless	mg/L
Source	Equation S18 in Appendix C, Table A	Equation S22 in Appendix C, Table A	Appendix B, Table E, 35 IAC 620.Subpart F, or Equation S23 in Appendix C, Table A
Value(s)	Groundwater Standard, Health Advisory concentration, or Calculated Value	20 or Calculated Value	Chemical-Specific or Calculated
COC	**C_w**	**DF**	**$GW_{obj\ (Class\ I)}$**
Benzo(a)anthracene	0.013	20	0.00065

Parameter	Soil-Water Partition Coefficient	Organic Carbon Partition Coefficient	Organic Carbon Content of Soil
Units	cm^3/g or L/kg	cm^3/g or L/kg	g/g
Source	Equation S19 in Appendix C, Table A or Appendix C, Table J	Appendix C, Table E or Appendix C, Table I	SSL or Field Measurement (See Appendix C, Table F)
Value(s)	Chemical and pH-Specific (see Appendix C, Table I) or Calculated Value	Chemical-Specific	Surface Soil = 0.006, Subsurface soil = 0.002, or Site-Specific
COC	**K_d**	**K_{oc}**	**f_{oc}**
Benzo(a)anthracene	7960	398000	0.02

Tier 2 Evaluation
Soil Component of Class II Groundwater Ingestion

Parameter	Dilution Factor	Aquifer Hydraulic Conductivity	Hydraulic Gradient	Mixing Zone Depth	Infiltration Rate	Source Length Parallel to Groundwater Flow
Units	unitless	m/yr	m/m	m	m/yr	m
Source	Equation S22 in Appendix C, Table A	Field Measurement (See Appendix C, Table F)	Field Measurement (See Appendix C, Table F)	SSL or Equation S25 in Appendix C, Table A	SSL	Field Measurement
Value(s)	20 or Calculated Value	Site-Specific	Site-Specific	2 m or Calculated Value	0.3	Site-Specific
COC	**DF**	**K (m/yr)**	**i**	**d**	**I**	**L**
Benzo(a)anthracene	1.000803541	0.2317896	0.0036	5.28668996	0.3	18.3

Parameter	Mixing Zone Depth	Source Length Parallel to Groundwater Flow	Aquifer Thickness	Infiltration Rate	Aquifer Hydraulic Conductivity	Hydraulic Gradient
Units	m	m	m	m/yr	m/yr	m/m
Source	SSL or Equation S25 in Appendix C, Table A	Field Measurement	Field Measurement	SSL	Field Measurement (See Appendix C, Table F)	Field Measurement (See Appendix C, Table F)
Value(s)	2 m or Calculated Value	Site-Specific	Site-Specific	0.3	Site-Specific	Site-Specific
COC	**d**	**L**	**da**	**I**	**K**	**i**
Benzo(a)anthracene	5.28668996	18.3	3.35	0.3	0.2317896	0.0036

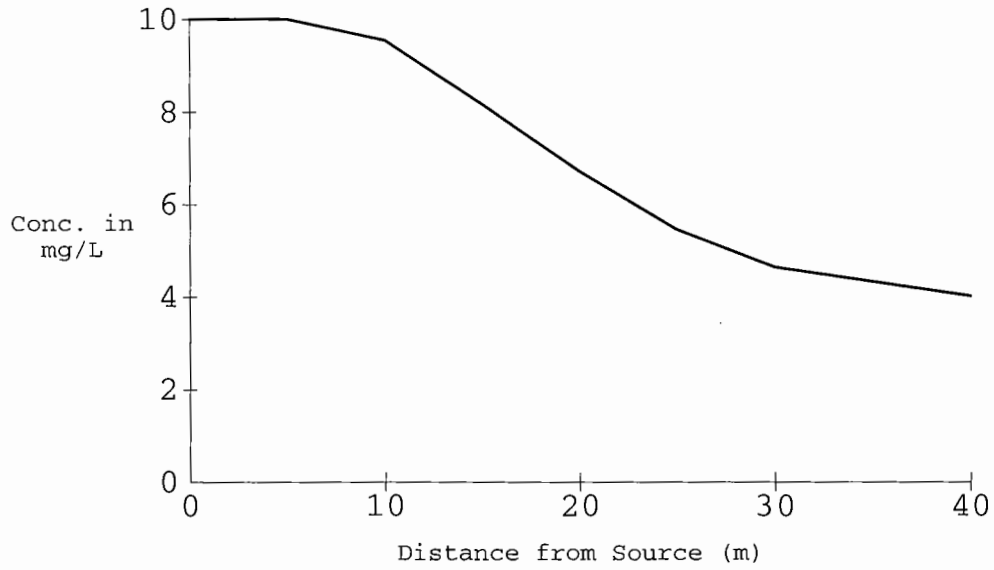
Parameter	Aquifer Hydraulic Conductivity	Aquifer Hydraulic Conductivity
Units	m/yr	m/yr
Source	Field Measurement (See Appendix C, Table F)	Field Measurement (See Appendix C, Table F)
Value(s)	Site-Specific	Site-Specific
All	**K (cm/s)**	**K (m/yr)**
	7.35E-07	0.2317896

Iron Groundwater Model

pritzker

Calculated Ground Water Information

Iron



Distance to Meet Ground Water Objectives

Class I	Class II
27.08 m.	27.08 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E+01
5	1.00E+01
10	9.54E+00
15	8.17E+00
20	6.72E+00
25	5.46E+00
30	4.65E+00
35	4.34E+00
40	4.03E+00

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	133
X (cm)	4,000.00	Sd (cm)	200
α_x (cm)*	400	α_z (cm)	20
λ (1/day)***	See below	K (cm/d)	0.06
U (cm/d)*	0.0003	i (unitless)	0.0020
Sw (cm)	2,500	θ_T (unitless)**	0.43

* α_x, α_y, α_z, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)

*** Chemical Properties (see Datasheet C)

Chemical Name	λ (1/day)	Csource* (mg/L)	C(x) (mg/L)
Iron		10.00000	4.03E+00

* Note: Csource is the measured concentration at the source for this form.

Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable:

Predominant Soil Type (e.g., clay, sand, silty clay, etc.):

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (Sxx=)] ar to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedures for obtaining these values are identified in Appendix C, Table F of TACO.

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.50
	Silt	1.6		Subsurface	1.50
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	gwater/gsoil (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
foc (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.006
	Subsurface Soils	0.002		Subsurface	0.002
θT (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³		

Datasheet B: Physical Soil Parameters for the RBCA Equations

	Gravel	0.25	(unitless)		
	Sand	0.32		Surface	0.43
	Silt	0.40		Subsurface	0.43
	Clay	0.36			
θas					
(Air-filled Soil Porosity)	Surface Soils	0.28	cm^3/cm^3		
	Subsurface Soils	0.13	(unitless)		
	Gravel	0.05			
	Sand	0.14		Surface	0.28
	Silt	0.24		Subsurface	0.13
	Clay	0.19			
θws					
(Water-filled Soil Porosity)	Surface	0.15	cm^3/cm^3		
	Subsurface Soils	0.30	(unitless)		
	Gravel	0.20		Surface	0.15
	Sand	0.18		Subsurface	0.30
	Silt	0.16			
	Clay	0.17			

Datasheet C: Chemical Properties

Chemical	Solubility in Water (S) (mg/L)	Diffusivity in Air (Di) (cm^2/s)	Diffusivity in Water (Dw) (cm^2/s)	Henry's Law Constant (H' @ 25°C)	Organic Carbon Partition Coefficient (Koc - L/kg)	First Order Decay Constant (λ - 1/day)
Iron						

Datasheet D: Toxicological Properties

Chemical	Carcinogenicity Information			Non-Carcinogenicity Information					
	Unit Risk Factor 1/(mg/m³)	Inhalation Slope Factor 1/(mg/kg•day)	Oral Slope Factor 1/(mg/kg•day)	Chronic Oral RfD (mg/kg•day)	Subchronic Oral RfD (mg/kg•day)	Chronic Inhalation RfD (mg/kg•day)	Subchronic Inhalation RfD (mg/kg•day)	Chronic RfC (mg/m³)	Subchronic RfC (mg/m³)
Iron			0.000						

Datasheet RBCA-V. Migration to Ground Water - Class 2

Datasheet RBCA-V is to be used to propose soil cleanup objectives for the migration to ground water exposure route calculated by the equation in Appendix C, Table C of TACO: Equation R12 (residential, industrial/commercial and construction worker scenarios). Equations described under RBCA-VI and RBCA-VIII as well as the equations in 35 Ill. Adm. Code 620, Subpart F may also be required to generate some of the input values for equation R12. Note; use 35 Ill. Code 620, Subpart F to calculate cleanup objectives for noncarcinogens. Since values listed in RBCA-XIII are used in this evaluation, this datasheet must be submitted. In cases where the target cancer risk (TR) exceeds 1 in 1,000,000, Datasheet -VI must also be submitted.

Land Use Scenario: **ALL**

Institutional Control YES NO

Engineered Barrier YES NO

GW_{source} (mg/L)	See below	X (cm)	4,000.00
LF_{sw} [(mg/L)/(mg/kg)]*	See below	α_x (cm)	400
GW_{comp} (mg/L)**	See below	α_y (cm)	133
$C(x)/C_{source}$ (unitless)***	See below	α_z (cm)	20
U (cm/d)	0.0003	S_w (cm)	2,500
K (cm/d)	0.060	λ (1/d)****	See below
i (cm/cm)	0.0020	S_d (cm)	200
θ_T (cm^3/cm^3-soil)*****	0.43		

* LF_{sw} reported on Datasheet RBCA-XIII

** GW_{comp} reported on Datasheet RBCA-VI

*** $C(x)/C_{source}$ reported on Datsheet RBCA-VI

**** Chemical Parameters (see Datasheet C)

***** Physical Soil Parameters (see Datashee

Chemical Name	GW_{source} (mg/L)	LF_{sw} (mg/L)/(mg/kg)	GW_{comp} (mg/L)	$C(x)/C_{source}$ (unitless)	λ (1/day)	Soil Cleanup Objective (mg/kg)
Iron			5	4.03E-01		

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	133
X (cm)	4,000.00	Sd (cm)	200
α_x (cm)*	400	α_z (cm)	20
λ (1/day)***	See below	K (cm/d)	0.06
U (cm/d)*	0.0003	i (unitless)	0.0020
Sw (cm)	2,500	θ_T (unitless)**	0.43

* α_x, α_y, α_z, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)

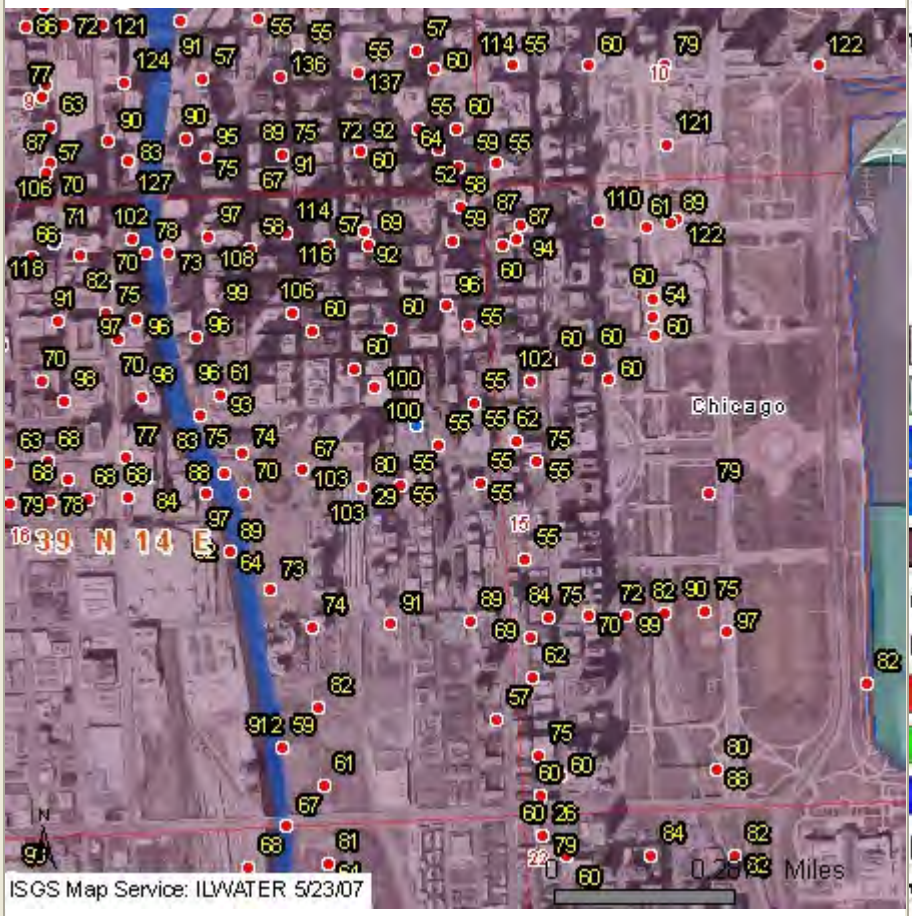
*** Chemical Properties (see Datasheet C)

Chemical Name	λ (1/day)	Csource* (mg/L)	C(x) (mg/L)
Iron		10.00000	4.03E+00

* Note: Csource is the measured concentration at the source for this form.

Appendix B
Water Well Survey

ISGS Water Well Map



Legend

Water and Related Wells

Well Status

- Outcrop
- Dry
- Engineering
- Stratigraphic
- Water
- Sections
- Townships
- Counties
- Lakes
- Municipalities

CUA 2005 UTM 16 (east)

RGB

- Red: Band_1
- Green: Band_2
- Blue: Band_3

DOQ 2005 UTM 16 (east)

Value

- High : 255
- Low : 0

DOQ 2005 UTM 15 (west)

Value

- High : 255
- Low : 0

Private Well Database

Illinois State Water Survey

Searchable ISWS Private Well Database

Contact Us

Please choose a **county** or try a Quick Search:

Quick Search: FIPS: 031 TWP: 39 RNG: 14 SEC: 15 Go

Adams 001	Cumberland 035	Hardin 069	Lee 103	Morgan 137	Scott 171
Alexander 003	DeKalb 037	Henderson 071	Livingston 105	Moultrie 139	Shelby 173
Bond 005	De Witt 039	Henry 073	Logan 107	Ogle 141	Stark 175
Boone 007	Douglas 041	Iroquois 075	McDonough 109	Peoria 143	Stephenson 177
Brown 009	DuPage 043	Jackson 077	McHenry 111	Perry 145	Tazewell 179
Bureau 011	Edgar 045	Jasper 079	McLean 113	Piatt 147	Union 181
Calhoun 013	Edwards 047	Jefferson 081	Macon 115	Pike 149	Vermilion 183
Carroll 015	Effingham 049	Jersey 083	Macoupin 117	Pope 151	Wabash 185
Cass 017	Fayette 051	Jo Daviess 085	Madison 119	Pulaski 153	Warren 187
Champaign 019	Ford 053	Johnson 087	Marion 121	Putnam 155	Washington 189
Christian 021	Franklin 055	Kane 089	Marshall 123	Randolph 157	Wayne 191
Clark 023	Fulton 057	Kankakee 091	Mason 125	Richland 159	White 193
Clay 025	Gallatin 059	Kendall 093	Massac 127	Rock Island 161	Whiteside 195
Clinton 027	Greene 061	Knox 095	Menard 129	St. Clair 163	Will 197
Coles 029	Grundy 063	Lake 097	Mercer 131	Saline 165	Williamson 199
Cook 031	Hamilton 065	La Salle 099	Monroe 133	Sangamon 167	Winnebago 201
Crawford 033	Hancock 067	Lawrence 101	Montgomery 135	Schuyler 169	Woodford 203

Please view our **Data Disclaimer**, Water Well Records Policies and Procedures, and Plot Location System

County Names are followed by fips code.

No Matching Records.

We are sorry, but no records match your search query. Please try your search again. If you still encounter problems, read our help page. You may also contact the Private Wells Database department at the Illinois State Water Survey for further assistance.

Thank You.

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State of Illinois | University of Illinois | Department of Natural Resources

Private Well Database

Illinois State Water Survey

Searchable ISWS Private Well Database

Contact Us

Please choose a **county** or try a Quick Search:

Quick Search: FIPS: 031 TWP: 39 RNG: 14 SEC: 16 Go

Adams 001	Cumberland 035	Hardin 069	Lee 103	Morgan 137	Scott 171
Alexander 003	DeKalb 037	Henderson 071	Livingston 105	Moultrie 139	Shelby 173
Bond 005	De Witt 039	Henry 073	Logan 107	Ogle 141	Stark 175
Boone 007	Douglas 041	Iroquois 075	McDonough 109	Peoria 143	Stephenson 177
Brown 009	DuPage 043	Jackson 077	McHenry 111	Perry 145	Tazewell 179
Bureau 011	Edgar 045	Jasper 079	McLean 113	Piatt 147	Union 181
Calhoun 013	Edwards 047	Jefferson 081	Macon 115	Pike 149	Vermilion 183
Carroll 015	Effingham 049	Jersey 083	Macoupin 117	Pope 151	Wabash 185
Cass 017	Fayette 051	Jo Daviess 085	Madison 119	Pulaski 153	Warren 187
Champaign 019	Ford 053	Johnson 087	Marion 121	Putnam 155	Washington 189
Christian 021	Franklin 055	Kane 089	Marshall 123	Randolph 157	Wayne 191
Clark 023	Fulton 057	Kankakee 091	Mason 125	Richland 159	White 193
Clay 025	Gallatin 059	Kendall 093	Massac 127	Rock Island 161	Whiteside 195
Clinton 027	Greene 061	Knox 095	Menard 129	St. Clair 163	Will 197
Coles 029	Grundy 063	Lake 097	Mercer 131	Saline 165	Williamson 199
Cook 031	Hamilton 065	La Salle 099	Monroe 133	Sangamon 167	Winnebago 201
Crawford 033	Hancock 067	Lawrence 101	Montgomery 135	Schuyler 169	Woodford 203

Please view our **Data Disclaimer**, Water Well Records Policies and Procedures, and Plot Location System

County Names are followed by fips code.

No Matching Records.

We are sorry, but no records match your search query. Please try your search again. If you still encounter problems, read our help page. You may also contact the Private Wells Database department at the Illinois State Water Survey for further assistance.

Thank You.

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State of Illinois | University of Illinois | Department of Natural Resources

Appendix C

Engineered Barrier
Material Specifications

CONTECH
CONSTRUCTION PRODUCTS INC.

Material Property Data Sheet

CONTECH C-60NW Nonwoven Geotextile

CONTECH® C-60NW is a polypropylene, staple fiber, needle punched nonwoven. The fibers are needled to form a stable network that retain dimensional stability relative to each other. The geotextile is resistant to ultraviolet degradation and to biological and chemical environments normally found in soils. CONTECH C-60NW meets the requirements for a Class 2 Subsurface Drainage, Separation and Stabilization geotextile per AASHTO M288-96. CONTECH C-60NW conforms to the property values listed below which have been derived from quality control testing.

PROPERTY	TEST METHOD	MINIMUM AVERAGE ROLL VALUES[2] *English*	*Metric*
Mechanical			
Grab Tensile Strength	ASTM D4632	160 lbs.	712 N
Grab Elongation	ASTM D4632	50 %	50 %
Puncture Strength	ASTM D4833	85 lbs.	378 N
Mullen Burst	ASTM D3786	280 psi	1931 kPa
Trapezoidal Tear	ASTM D4533	60 lbs.	267 N
Hydraulic			
Apparent Opening Size (AOS)	ASTM D4751	80 US Std Sieve	0.180 mm
Permittivity	ASTM D4491	1.30 sec^{-1}	1.30 sec^{-1}
Water Flow Rate	ASTM D4491	110 gpm/ft^2	4482 $l/pm/m^2$
Endurance			
UV Resistance (% retained after 500 hours)	ASTM D4355	70%	70%

NOTES:

1 The property values listed above are effective 3/01/04 and are subject to change without notice.

2 Values shown are in weaker principal direction. Minimum average rolls values are calculated as the typical minus two standard deviations. Statistically, it yields a 97.5% degree of confidence that any samples taken from quality assurance testing will exceed the value reported.

CONTECH
CONSTRUCTION PRODUCTS INC.

Properties of CONTECH® Nonwoven Geotextiles

PROPERTY	TEST METHOD	UNITS	ROLL VALUE	C-31NW	C-35NW	C-38NW (See note 3)	C-40NW	C-45NW	C-46NW (See note 3)	C-50NW	C-60NW	C-65NW	C-70NW	C-80NW	C-100NW	C-120NW	C-160NW
Grab Tensile Strength	ASTM D4632	lbs.	MARV	80	90	90	115	120	101	135	150	180	180	205	250	300	380
Grab Elongation	ASTM D4632	%	MARV	60	50	50	50	50	50	50	50	50	50	50	50	50	50
Puncture Strength	ASTM D4833	lbs.	MARV	40	55	55	65	65	60	80	85	100	100	110	150	175	235
Mullen Burst	ASTM D3786	psi	MARV	145	175	180	210	225	200	270	280	330	330	350	460	580	740
Trapezoidal Tear	ASTM D4533	lbs.	MARV	30	35	35	45	50	45	55	60	75	75	80	100	115	140
Apparent Opening Size (AOS)	ASTM D4751	US Sieve (mm)	MARV	100 (0.212)	70 (0.212)	n/a	70 (0.212)	70 (0.212)	n/a	80 (0.212)	80 (0.212)	80 (0.212)	80 (0.212)	80 (0.180)	100 (0.150)	100 (0.150)	100 (0.150)
Permittivity, ψ	ASTM D4491	sec^{-1}	MARV	1.4	2.0	n/a	1.7	1.5	n/a	1.4	1.4	1.4	1.4	1.2	1.0	0.8	0.7
Water Flow Rate	ASTM D4491	gpm/ft^2	MARV	150	110	n/a	140	120	n/a	110	110	100	100	90	75	65	50
Mass	ASTM D4533	oz/yd^2	Nominal	3.0	3.5	3.5	4.1	4.4	4.1	5.2	5.6	6.6	6.8	7.3	9.2	11.5	16.0
Thickness, τ	ASTM D5199	mils	MARV	30	40	30	50	45	35	55	60	80	70	70	100	105	145
UV Resistance	ASTM D4355 Xenon Arc	% Retained @ 500 hrs.	MARV	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Melting Point	ASTM D276	degrees F.	MARV	n/a	n/a	300	n/a	n/a	300	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Aslphalt Retention	Task Force 25 Method 8	gal.sy	MARV	n/a	n/a	0.2	n/a	n/a	0.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Roll Width	Measured	feet	Nominal	12.5/15.0	12.5/15.0	12.5	12.5/15.0	12.5/15.0	12.5	12.5/15.0	12.5/15.0	15.0	12.5/15.0	15.0	15.0	15.0	15.0
Roll Length	Measured	feet	Nominal	360	360	360	360	360	360	360	300	300	300	300	300	300	300
Roll Area	Calculated	sy	Nominal	500/600	500/600	500	500/600	500/600	500	500/600	417/500	500	417/500	500	500	500	500

Notes:

1. Values are reported for the weaker principle direction.

2. "MARV" indicates minimum average roll values, which is calculated as the mean minus two standard deviations, yielding a 97.5% confidence level.

3. C-38NW and C-46NW are for use in asphalt pavement overlay applications. Due to the relevancy of mass per unit area in paving applications, as acceptance/rejection criteria, the mass units are for C-38NW and C-46NW are reported as MARV.

This data sheet our CONTECH Regional office can advise if any values listed herein have changed since this data sheet was issued.

Vulcan
Materials Company

5500 Joliet Rd.

Technical Services Department
Midwest Division

Telephone 708 387-4760
Fax 708 387-4755

July 13, 2007

Clauss Bros., Inc.
360 W. Schaumburg Road
Streamwood, IL60107

Attn: Jim Stevenson

Re: 210 PGB Gradation Averages

Dear Jim

The certified 210 PGB (210) produced at the McCook Quarry meets all Illinois DOT and Tollway gradation and quality specifications. Below are the gradation averages for this product based on 2007 shipping samples at the McCook Quarry.

Product: Porous Granular BF
Code: 210

	1 1/2"	1"	3/4"	5/8"	1/2"	3/8"	1/4"	#4	#8	#16	#40	# 200
Spec	100-100	90-100	-	-	60-90	-	-	30-70	-	7-40	0-25	0-4
Ave	**100.0**	**99.7**	**92.2**	**84.7**	**74.2**	**63.8**	**50.8**	**44.0**	**29.5**	**18.5**	**9.1**	**3.6**

Please note the average gradations listed are based on shipping samples taken from our load out faces at the McCook Quarry. These gradations may change due to degradation and segregation during transportation, customer stockpiling, and handling.

Please contact Gerry Krzyzak at 847 / 437-4181 if you have any questions or comments.

Sincerely,

Daniel C. Barnstable
Quality Control Supervisor
McCook Quarry

Chicago Testing Laboratory, Inc.

1612 LANDMEIER ROAD, UNIT B, ELK GROVE VILLAGE, IL 60007 (847) 228-1079

SOIL COMPACTION TEST GRAPH

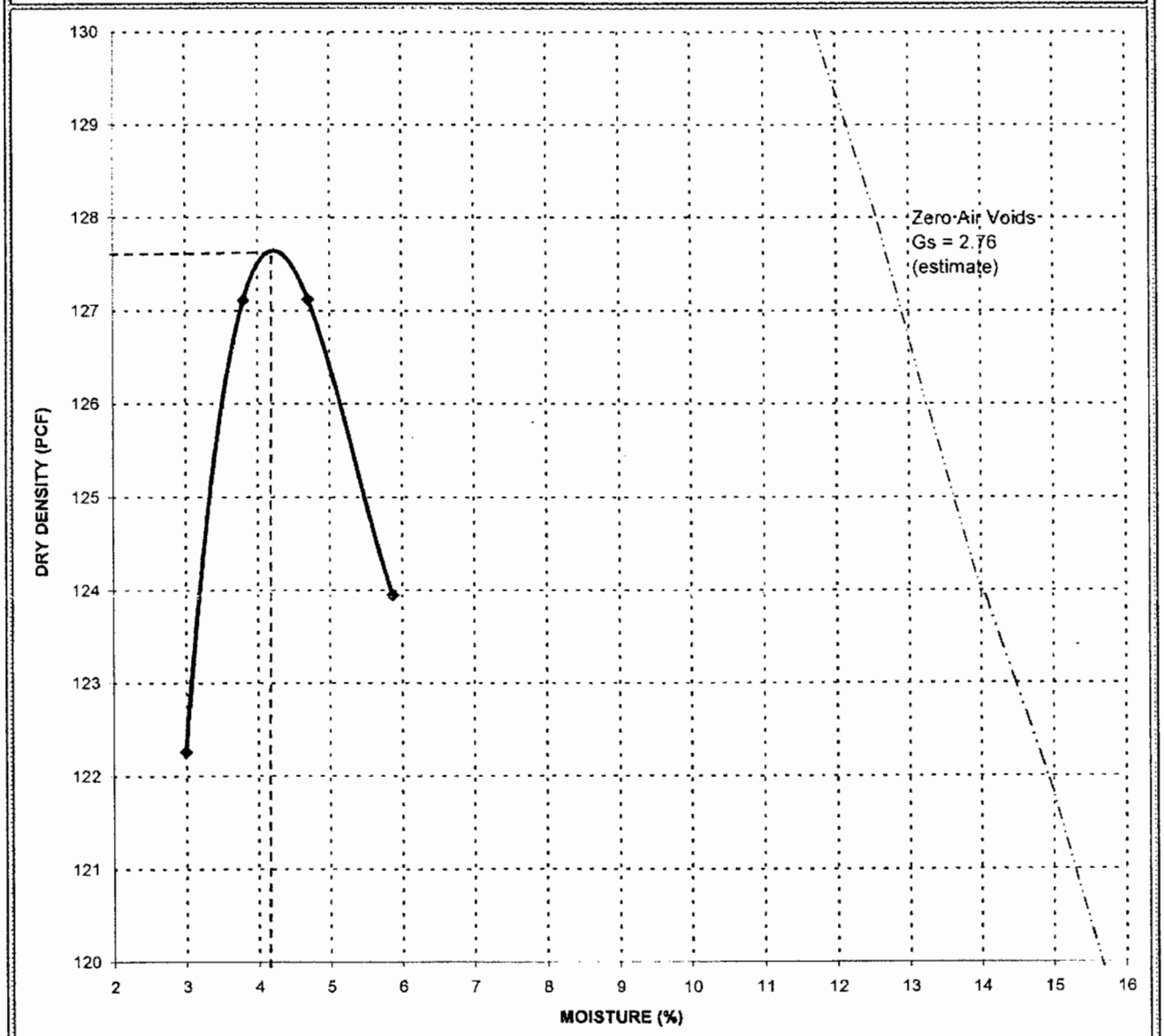
PROJECT:	Loyola Courtyard Project	**LAB NO.**	70151
LOCATION:	Chicago, IL	**DATE:**	7/27/2007
CLIENT:	Clauss Brothers Inc.	**OUR JOB NO.**	06EG430

DESCRIPTION OF SOIL: Crushed Limestone/Dolomite Porous Granular Base **RAMMER TYPE:** Mechanical

TEST PROCEDURE: ASTM D-1557 (Method C) **PREPARATION METHOD:** Dry

MATERIAL SOURCE: Vulcan, Pile # 21 **MOISTURE CONTENT AS RECEIVED:** -

TEST RESULTS: MAXIMUM DRY DENSITY 127.5 PCF **OPTIMUM MOISTURE** 4.0%



REMARKS: Supplier Product Code 210

Appendix D

Physical/Chemical Properties - COCs

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Arsenic **CAS Number: 007440-38-2**

TOXICITY

Parameter	Value		Unit	Source
Oral RfD:	3.0E-4		mg/kg/day	IRIS
Inhal RfD:			mg/kg/day	
Oral Slope:	1.5E+0		(mg/kg/day)^-1	IRIS
Oral Wt-of-Evid:	A			
Inhal Slope:	1.5E+1		(mg/kg/day)^-1	IRIS
Inhal Wt-of-Evid:	A			
Oral ED10:	7.0E-3		mg/kg/day	EPA_ED10
Oral ED10 Wgt:	A			
Inhal ED10:	7.0E-3		mg/kg/day	EPA_ED10
Inhal ED10 Wgt:	A			
Oral LD50:			mg/kg	
Dermal LD50:			mg/kg	
Gas Inhal LC50:			ppm	
Dust Inhal LC50:			mg/L	
ACUTE				
Fresh CMC:	3.4E+2	A, D, K	µg/L	WATCRIT
Salt CMC:	6.9E+1	A, D, bb	µg/L	WATCRIT
CHRONIC				
Fresh CCC:	1.5E+2	A, D, K	µg/L	WATCRIT
Salt CCC:	3.6E+1	A, D, bb	µg/L	WATCRIT
Fresh Ecol LC50:	1.5E+3		µg/L	ECOTOX
Salt Ecol LC50:	3.9E+2		µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:		days	
Photolysis:		days	
Biodeg:		days	
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:		days	
Photolysis:		days	
Biodeg:		days	
Radio:		days	
Log Kow:	6.8E-1		PHYSPROP

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	Yes		
Organic:	No		
Gas:	No		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	7.5E+1		
Density:	5.8E+0	g/mL @	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:		Torr	
Henry's Law:	7.7E-1	atm-m3/mol	PHYSPROP
Water Solub:		mg/L	
Distrib Coef:	2.9E+1	ml/g	SSG_KD
Geo Mean Sol:	1.2E+5	mg/L	CALC

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	4.0E+0		VER_BCF
Salt BCF:	3.5E+2		VER_BCF
ENVIRONMENTAL			
Fresh BCF:	8.7E+3		ECOTOX
Salt BCF:	3.5E+2		VER_BCF
Log Kow:	6.8E-1		PHYSPROP
Water Solub:			
Geo Mean Sol:	1.2E+5	mg/L	CALC

OTHER DATA

Melting Point:	8.2E+2	C
Boiling Point:	6.0E+2	C
Formula:	As	

CLASS INFORMATION

Class	Parent Substance

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Arsenic
CAS Number: 007440-38-2

ASSIGNED FACTOR VALUES

AIR PATHWAY

Parameter	Value
Toxicity:	10000
Gas Mobility:	
Gas Migration:	

GROUND WATER PATHWAY

Parameter		Value
Toxicity:		10000
Water Solub:		
Distrib:		2.9E+1
Geo Mean Sol:		1.2E+5
Mobility:		
Liquid	Karst:	1.0E+0
	Non Karst:	1.0E-2
Non Liq.	Karst:	1.0E+0
	Non Karst:	1.0E-2

SOIL EXPOSURE PATHWAY

Parameter	Value
Toxicity:	10000

SURFACE WATER PATHWAY

DRINKING WATER

Parameter	Value
Toxicity:	10000
Persistence	
River:	1.0000
Lake:	1.0000

HUMAN FOOD CHAIN

Parameter	Value
Toxicity:	10000
Persistence	
River:	1.0000
Lake:	1.0000
Bioaccumulation	
Fresh:	5.0
Salt:	500.0

ENVIRONMENTAL

Parameter	Value
Fresh Tox:	10
Salt Tox:	100
Persistence	
River:	1.0000
Lake:	1.0000
Bioaccumulation	
Fresh:	5000.0
Salt:	500.0

BENCHMARKS

AIR PATHWAY

Parameter	Value	Unit
NAAQS/NESHAPS:		µg/m3
Cancer Risk:	5.7E-7	mg/m3
Non Cancer Risk:		mg/m3

GROUND WATER PATHWAY

Parameter	Value	Unit
MCL/MCLG:	1.0E-2	mg/L
Cancer Risk:	5.7E-5	mg/L
Non Cancer Risk:	1.1E-2	mg/L

SOIL EXPOSURE PATHWAY

Parameter	Value	Unit
Cancer Risk:	4.3E-1	mg/kg
Non Cancer Risk:	2.3E+1	mg/kg

RADIONUCLIDE

Parameter	Value	Unit
MCL:		pCi/L
UMTRCA:		pCi/kg
CANCER RISK		
Air:		pCi/m3
DW:		pCi/L
FC:		pCi/kg
Soil Ing:		pCi/kg
Soil Gam:		pCi/kg

SURFACE WATER PATHWAY

DRINKING WATER

Parameter	Value	Unit
MCL/MCLG:	1.0E-2	mg/L
Cancer Risk:	5.7E-5	mg/L
Non Cancer Risk:	1.1E-2	mg/L

HUMAN FOOD CHAIN

Parameter	Value	Unit
FDAAL:		ppm
Cancer Risk:	2.1E-3	mg/kg
Non Cancer Risk:	4.1E-1	mg/kg

ENVIRONMENTAL

Parameter	Value	Unit
ACUTE		
Fresh CMC:	3.4E+2 [A, D, K]	µg/L
Salt CMC:	6.9E+1 [A, D, bb]	µg/L
CHRONIC		
Fresh CCC:	1.5E+2 [A, D, K]	µg/L
Salt CCC:	3.6E+1 [A, D, bb]	µg/L

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Benzo(a)pyrene **CAS Number:** 000050-32-8

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:	7.3E+0	(mg/kg/day)^-1	IRIS
Oral Wt-of-Evid:	B2		
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:	4.0E-3	mg/kg/day	EPA_ED10
Oral ED10 Wgt:	B2		
Inhal ED10:	4.0E-3	mg/kg/day	EPA_ED10
Inhal ED10 Wgt:	B2		
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	5.0E+0	µg/L	ECOTOX
Salt Ecol LC50:	1.0E+3	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.8E+2	days	THOMAS
Photolysis:	2.3E-2	days	CHEMFATE
Biodeg:	5.3E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	3.6E+1	days	THOMAS
Photolysis:	2.3E-2	days	CHEMFATE
Biodeg:	5.3E+2	days	FATERATE
Radio:		days	
Log Kow:	6.0E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	2.5E+2		
Density:		g/mL @	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	5.5E-9	Torr	CHEMFATE
Henry's Law:	1.1E-6	atm-m3/mol	CHEMFATE
Water Solub:	1.6E-3	mg/L	CHEMFATE
Distrib Coef:	1.6E+5	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	2.9E+5		ECOTOX
Salt BCF:	9.6E+5		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	2.9E+5		ECOTOX
Salt BCF:	9.6E+5		ECOTOX
Log Kow:	6.0E+0		CHEMFATE
Water Solub:	1.6E-3		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	1.8E+2	C
Boiling Point:	3.1E+2	C
Formula:	C20 H12	

CLASS INFORMATION

Class	Parent Substance

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Benzo(a)pyrene
CAS Number: 000050-32-8

ASSIGNED FACTOR VALUES

AIR PATHWAY

Parameter	Value
Toxicity:	10000
Gas Mobility:	0.0002
Gas Migration:	6

GROUND WATER PATHWAY

Parameter		Value
Toxicity:		10000
Water Solub:		1.6E-3
Distrib:		1.6E+5
Geo Mean Sol:		
Mobility:		
Liquid	Karst:	1.0E+0
	Non Karst:	1.0E-4
Non Liq.	Karst:	2.0E-5
	Non Karst:	2.0E-9

SOIL EXPOSURE PATHWAY

Parameter	Value
Toxicity:	10000

SURFACE WATER PATHWAY

DRINKING WATER

Parameter	Value
Toxicity:	10000
Persistence	
River:	1.0000
Lake:	1.0000

HUMAN FOOD CHAIN

Parameter	Value
Toxicity:	10000
Persistence	
River:	1.0000
Lake:	1.0000
Bioaccumulation	
Fresh:	50000.0
Salt:	50000.0

ENVIRONMENTAL

Parameter	Value
Fresh Tox:	10000
Salt Tox:	1000
Persistence	
River:	1.0000
Lake:	1.0000
Bioaccumulation	
Fresh:	50000.0
Salt:	50000.0

BENCHMARKS

AIR PATHWAY

Parameter	Value	Unit
NAAQS/NESHAPS:		µg/m3
Cancer Risk:		mg/m3
Non Cancer Risk:		mg/m3

GROUND WATER PATHWAY

Parameter	Value	Unit
MCL/MCLG:	2.0E-4	mg/L
Cancer Risk:	1.2E-5	mg/L
Non Cancer Risk:		mg/L

SOIL EXPOSURE PATHWAY

Parameter	Value	Unit
Cancer Risk:	8.8E-2	mg/kg
Non Cancer Risk:		mg/kg

RADIONUCLIDE

Parameter	Value	Unit
MCL:		pCi/L
UMTRCA:		pCi/kg
CANCER RISK		
Air:		pCi/m3
DW:		pCi/L
FC:		pCi/kg
Soil Ing:		pCi/kg
Soil Gam:		pCi/kg

SURFACE WATER PATHWAY

DRINKING WATER

Parameter	Value	Unit
MCL/MCLG:	2.0E-4	mg/L
Cancer Risk:	1.2E-5	mg/L
Non Cancer Risk:		mg/L

HUMAN FOOD CHAIN

Parameter	Value	Unit
FDAAL:		ppm
Cancer Risk:	4.3E-4	mg/kg
Non Cancer Risk:		mg/kg

ENVIRONMENTAL

Parameter	Value	Unit
ACUTE		
Fresh CMC:		µg/L
Salt CMC:		µg/L
CHRONIC		
Fresh CCC:		µg/L
Salt CCC:		µg/L

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Benz(a)anthracene **CAS Number: 000056-55-3**

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:	7.3E-1	(mg/kg/day)^-1	LIVECHEM
Oral Wt-of-Evid:	B2		
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:	4.7E-2	mg/kg/day	EPA_ED10
Oral ED10 Wgt:	B2		
Inhal ED10:	4.7E-2	mg/kg/day	EPA_ED10
Inhal ED10 Wgt:	B2		
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	1.0E+1	µg/L	ECOTOX
Salt Ecol LC50:		µg/L	

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.4E+2	days	THOMAS
Photolysis:	2.5E-2	days	CHEMFATE
Biodeg:	6.8E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	4.5E+0	days	THOMAS
Photolysis:	2.5E-2	days	CHEMFATE
Biodeg:	6.8E+2	days	FATERATE
Radio:		days	
Log Kow:	5.7E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	2.3E+2		
Density:		g/mL @	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	1.1E-7	Torr	CHEMFATE
Henry's Law:	3.4E-6	atm-m3/mol	CHEMFATE
Water Solub:	9.4E-3	mg/L	CHEMFATE
Distrib Coef:	6.0E+4	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	1.0E+4		ECOTOX
Salt BCF:			
Log Kow:	5.7E+0		CHEMFATE
Water Solub:	9.4E-3		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	8.4E+1	C
Boiling Point:		C
Formula:	C18 H12	

CLASS INFORMATION

Class	Parent Substance

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Benz(a)anthracene **CAS Number:** 000056-55-3

ASSIGNED FACTOR VALUES

AIR PATHWAY

Parameter	Value
Toxicity:	1000
Gas Mobility:	0.0020
Gas Migration:	6

GROUND WATER PATHWAY

Parameter		Value
Toxicity:		1000
Water Solub:		9.4E-3
Distrib:		6.0E+4
Geo Mean Sol:		
Mobility:		
Liquid	Karst:	1.0E+0
	Non Karst:	1.0E-4
Non Liq.	Karst:	2.0E-5
	Non Karst:	2.0E-9

SOIL EXPOSURE PATHWAY

Parameter	Value
Toxicity:	1000

SURFACE WATER PATHWAY

DRINKING WATER

Parameter	Value
Toxicity:	1000
Persistence	
River:	1.0000
Lake:	1.0000

HUMAN FOOD CHAIN

Parameter	Value
Toxicity:	1000
Persistence	
River:	1.0000
Lake:	1.0000
Bioaccumulation	
Fresh:	50000.0
Salt:	50000.0

ENVIRONMENTAL

Parameter	Value
Fresh Tox:	10000
Salt Tox:	10000
Persistence	
River:	1.0000
Lake:	1.0000
Bioaccumulation	
Fresh:	50000.0
Salt:	50000.0

BENCHMARKS

AIR PATHWAY

Parameter	Value	Unit
NAAQS/NESHAPS:		µg/m3
Cancer Risk:		mg/m3
Non Cancer Risk:		mg/m3

GROUND WATER PATHWAY

Parameter	Value	Unit
MCL/MCLG:		mg/L
Cancer Risk:	1.2E-4	mg/L
Non Cancer Risk:		mg/L

SOIL EXPOSURE PATHWAY

Parameter	Value	Unit
Cancer Risk:	8.8E-1	mg/kg
Non Cancer Risk:		mg/kg

RADIONUCLIDE

Parameter	Value	Unit
MCL:		pCi/L
UMTRCA:		pCi/kg
CANCER RISK		
Air:		pCi/m3
DW:		pCi/L
FC:		pCi/kg
Soil Ing:		pCi/kg
Soil Gam:		pCi/kg

SURFACE WATER PATHWAY

DRINKING WATER

Parameter	Value	Unit
MCL/MCLG:		mg/L
Cancer Risk:	1.2E-4	mg/L
Non Cancer Risk:		mg/L

HUMAN FOOD CHAIN

Parameter	Value	Unit
FDAAL:		ppm
Cancer Risk:	4.3E-3	mg/kg
Non Cancer Risk:		mg/kg

ENVIRONMENTAL

Parameter	Value	Unit
ACUTE		
Fresh CMC:		µg/L
Salt CMC:		µg/L
CHRONIC		
Fresh CCC:		µg/L
Salt CCC:		µg/L

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Dibenz(a,h)anthracene **CAS Number: 000053-70-3**

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:	7.3E+0	(mg/kg/day)^-1	LIVECHEM
Oral Wt-of-Evid:	B2		
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:	2.8E-3	mg/kg/day	SPHEM
Oral ED10 Wgt:	B2		
Inhal ED10:	2.8E-3	mg/kg/day	SPHEM
Inhal ED10 Wgt:	B2		
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:		µg/L	
Salt Ecol LC50:		µg/L	

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	5.1E+2	days	THOMAS
Photolysis:	3.3E+1	days	FATERATE
Biodeg:	9.4E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	3.3E+2	days	THOMAS
Photolysis:	3.3E+1	days	FATERATE
Biodeg:	9.4E+2	days	FATERATE
Radio:		days	
Log Kow:	6.5E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	No		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	2.8E+2		
Density:		g/mL @	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	1.0E-10	Torr	CHEMFATE
Henry's Law:	1.5E-8	atm-m3/mol	CHEMFATE
Water Solub:	2.5E-3	mg/L	CHEMFATE
Distrib Coef:	5.8E+5	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	5.0E+4		ECOTOX
Salt BCF:			
Log Kow:	6.5E+0		CHEMFATE
Water Solub:	2.5E-3		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	2.7E+2	C
Boiling Point:		C
Formula:	C22 H14	

CLASS INFORMATION

Class	Parent Substance

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Dibenz(a,h)anthracene **CAS Number:** 000053-70-3

ASSIGNED FACTOR VALUES

AIR PATHWAY

Parameter	Value
Toxicity:	10000
Gas Mobility:	
Gas Migration:	

GROUND WATER PATHWAY

Parameter		Value
Toxicity:		10000
Water Solub:		2.5E-3
Distrib:		5.8E+5
Geo Mean Sol:		
Mobility:		
Liquid	Karst:	1.0E+0
	Non Karst:	1.0E-4
Non Liq.	Karst:	2.0E-5
	Non Karst:	2.0E-9

SOIL EXPOSURE PATHWAY

Parameter	Value
Toxicity:	10000

SURFACE WATER PATHWAY

DRINKING WATER

Parameter	Value
Toxicity:	10000
Persistence	
River:	1.0000
Lake:	1.0000

HUMAN FOOD CHAIN

Parameter	Value
Toxicity:	10000
Persistence	
River:	1.0000
Lake:	1.0000
Bioaccumulation	
Fresh:	50000.0
Salt:	50000.0

ENVIRONMENTAL

Parameter	Value
Fresh Tox:	0
Salt Tox:	0
Persistence	
River:	1.0000
Lake:	1.0000
Bioaccumulation	
Fresh:	50000.0
Salt:	50000.0

BENCHMARKS

AIR PATHWAY

Parameter	Value	Unit
NAAQS/NESHAPS:		µg/m3
Cancer Risk:		mg/m3
Non Cancer Risk:		mg/m3

GROUND WATER PATHWAY

Parameter	Value	Unit
MCL/MCLG:		mg/L
Cancer Risk:	1.2E-5	mg/L
Non Cancer Risk:		mg/L

SOIL EXPOSURE PATHWAY

Parameter	Value	Unit
Cancer Risk:	8.8E-2	mg/kg
Non Cancer Risk:		mg/kg

RADIONUCLIDE

Parameter	Value	Unit
MCL:		pCi/L
UMTRCA:		pCi/kg
CANCER RISK		
Air:		pCi/m3
DW:		pCi/L
FC:		pCi/kg
Soil Ing:		pCi/kg
Soil Gam:		pCi/kg

SURFACE WATER PATHWAY

DRINKING WATER

Parameter	Value	Unit
MCL/MCLG:		mg/L
Cancer Risk:	1.2E-5	mg/L
Non Cancer Risk:		mg/L

HUMAN FOOD CHAIN

Parameter	Value	Unit
FDAAL:		ppm
Cancer Risk:	4.3E-4	mg/kg
Non Cancer Risk:		mg/kg

ENVIRONMENTAL

Parameter	Value	Unit
ACUTE		
Fresh CMC:		µg/L
Salt CMC:		µg/L
CHRONIC		
Fresh CCC:		µg/L
Salt CCC:		µg/L

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Indeno(1,2,3-cd)pyrene **CAS Number:** 000193-39-5

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:	7.3E-1	(mg/kg/day)^-1	LIVECHEM
Oral Wt-of-Evid:	B2		
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:		µg/L	
Salt Ecol LC50:		µg/L	

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	2.7E+2	days	THOMAS
Photolysis:	2.5E+2	days	FATERATE
Biodeg:	7.3E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	1.2E+2	days	THOMAS
Photolysis:	2.5E+2	days	FATERATE
Biodeg:	7.3E+2	days	FATERATE
Radio:		days	
Log Kow:	6.6E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	No		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	2.8E+2		
Density:		g/mL @	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	1.0E-10	Torr	CHEMFATE
Henry's Law:	1.6E-6	atm-m3/mol	CHEMFATE
Water Solub:	2.2E-5	mg/L	CHEMFATE
Distrib Coef:	5.3E+5	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:			
Salt BCF:			
Log Kow:	6.6E+0		CHEMFATE
Water Solub:	2.2E-5		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	1.6E+2	C
Boiling Point:	5.4E+2	C
Formula:	C22 H12	

CLASS INFORMATION

Class	Parent Substance

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Indeno(1,2,3-cd)pyrene **CAS Number:** 000193-39-5

ASSIGNED FACTOR VALUES

AIR PATHWAY

Parameter	Value
Toxicity:	1000
Gas Mobility:	
Gas Migration:	

GROUND WATER PATHWAY

Parameter		Value
Toxicity:		1000
Water Solub:		2.2E-5
Distrib:		5.3E+5
Geo Mean Sol:		
Mobility:		
Liquid	Karst:	1.0E+0
	Non Karst:	1.0E-4
Non Liq.	Karst:	2.0E-5
	Non Karst:	2.0E-9

SOIL EXPOSURE PATHWAY

Parameter	Value
Toxicity:	1000

SURFACE WATER PATHWAY

DRINKING WATER

Parameter	Value
Toxicity:	1000
Persistence	
River:	1.0000
Lake:	1.0000

HUMAN FOOD CHAIN

Parameter	Value
Toxicity:	1000
Persistence	
River:	1.0000
Lake:	1.0000
Bioaccumulation	
Fresh:	50000.0
Salt:	50000.0

ENVIRONMENTAL

Parameter	Value
Fresh Tox:	0
Salt Tox:	0
Persistence	
River:	1.0000
Lake:	1.0000
Bioaccumulation	
Fresh:	50000.0
Salt:	50000.0

BENCHMARKS

AIR PATHWAY

Parameter	Value	Unit
NAAQS/NESHAPS:		µg/m3
Cancer Risk:		mg/m3
Non Cancer Risk:		mg/m3

GROUND WATER PATHWAY

Parameter	Value	Unit
MCL/MCLG:		mg/L
Cancer Risk:	1.2E-4	mg/L
Non Cancer Risk:		mg/L

SOIL EXPOSURE PATHWAY

Parameter	Value	Unit
Cancer Risk:	8.8E-1	mg/kg
Non Cancer Risk:		mg/kg

RADIONUCLIDE

Parameter	Value	Unit
MCL:		pCi/L
UMTRCA:		pCi/kg
CANCER RISK		
Air:		pCi/m3
DW:		pCi/L
FC:		pCi/kg
Soil Ing:		pCi/kg
Soil Gam:		pCi/kg

SURFACE WATER PATHWAY

DRINKING WATER

Parameter	Value	Unit
MCL/MCLG:		mg/L
Cancer Risk:	1.2E-4	mg/L
Non Cancer Risk:		mg/L

HUMAN FOOD CHAIN

Parameter	Value	Unit
FDAAL:		ppm
Cancer Risk:	4.3E-3	mg/kg
Non Cancer Risk:		mg/kg

ENVIRONMENTAL

Parameter	Value	Unit
ACUTE		
Fresh CMC:		µg/L
Salt CMC:		µg/L
CHRONIC		
Fresh CCC:		µg/L
Salt CCC:		µg/L

APPENDIX E

DRM-2

Illinois Environmental Protection Agency
Bureau of Land
Remedial Project Management Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

FOR ILLINOIS EPA USE:
LOG NO. _____

Site Remediation Program Form (DRM-2)
(To Be Submitted with all Plans and Reports)

I. Site Identification:

Site Name: Pritzker Park
Street Address : 12-22 West Van Buren Street P.O. Box: NA
City: Chicago State: IL Zip: 60604 Phone: NA
Illinois Inventory I. D. Number: 0316325436 IEMA Incident Number: NA

II. Remediation Applicant:

Applicant's Name: Kimberly Worthington -as agent for Company: City of Chicago Department of Environment
Street Address: 30 North LaSalle, Suite 2500 P.O. Box: NA
City: Chicago State: IL ZIP Code: 60602 Phone: 312/744-3639

I hereby request that the Illinois EPA review and evaluate the attached project documents in accordance with the terms and conditions of the Environmental Protection Act (415 ILCS 5), implementing regulations, and the review and evaluation services agreement.

Remediation Applicant's Signature: Kimberly Worthington Date: 2/15/08

III. Contact Person:

Contact's Name: Harvey Pokorny
Company: Versar Inc.
Street Address: 100 West 22nd Street, Suite 151
P.O. Box: NA
City: Lombard State: IL ZIP Code: 60148
Phone: 630/268-8555, extension 229

Contact's Name: _____
Company: _____
Street Address: _____
P.O. Box: _____
City: _____ State: ___ ZIP Code: _____
Phone: _____

IV. Review & Evaluation Licensed Professional Engineer or Geologist ("RELPEG"), if applicable:

RELPEG's Name: _____ Company: _____
Street Address: _____ P.O. Box: _____
City: _____ State: ____ ZIP Code: _____ Phone: _____
Registration Number: _____ License Expiration Date: _____

All information submitted is available to the public except when specifically designated by the Remediation Applicant to be treated confidentially as a trade secret or secret process in accordance with the Illinois Compiled Statutes, Section 7(a) of the Environmental Protection Act, applicable Rules and Regulations of the Illinois Pollution Control Board and applicable Illinois EPA rules and guidelines. The Illinois EPA is authorized to require this information under Sections 415 ILCS 5/58 - 58.12 of the Environmental Protection Act and regulations promulgated thereunder. Disclosure of this information is required as a condition of participation in the Site Remediation Program. Failure to do so may prevent this form from being processed and could result in your plan(s) or report(s) being rejected. This form has been approved by the Forms Management Center.

V. Project Documents Being Submitted:

Document Title: Remedial Objectives Report/Remedial Action Plan Date of Preparation of Plan or Report: 02/08

Prepared by: Versar Inc. Prepared for: City of Chicago Department of Environment

Type of Document Submitted:

- [ ] Site Investigation Report - Comprehensive
- [ ] Site Investigation Report - Focused
- [x] Remediation Objectives Report-Tier 1or 2
- [ ] Remediation Objectives Report-Tier 3
- [x] Remedial Action Plan
- [ ] Remedial Action Completion Report
- [ ] Sampling Plan
- [ ] Health and Safety Plan
- [ ] Community Relations Plan
- [ ] Risk Assessment
- [ ] Contaminant Fate & Transport Modeling
- [ ] Other: _____

Document Title: _____ Date of Preparation of Plan or Report: _____

Prepared by: _____ Prepared for: _____

Type of Document Submitted:

- [ ] Site Investigation Report - Comprehensive
- [ ] Site Investigation Report - Focused
- [ ] Remediation Objectives Report-Tier 1or 2
- [ ] Remediation Objectives Report-Tier 3
- [ ] Remedial Action Plan
- [ ] Remedial Action Completion Report
- [ ] Sampling Plan
- [ ] Health and Safety Plan
- [ ] Community Relations Plan
- [ ] Risk Assessment
- [ ] Contaminant Fate & Transport Modeling
- [ ] Other: _____

VI. Professional Engineer's or Geologist's Seal or Stamp:

I attest that all site investigations or remedial activities that are the subject of this plan(s) or report(s) were performed under my direction, and this document and all attachments were prepared under my direction or reviewed by me, and to the best of my knowledge and belief, the work described in the plan and report has been designed or completed in accordance with the Illinois Environmental Protection Act (415 ILCS 5), 35 Ill. Adm. Code 740, and generally accepted engineering practices or principles of professional geology, and the information presented is accurate and complete.

Engineer or Geologist Name: Stephen M. Schwartz Professional Engineer's or Geologist's Seal or Stamp:

Company: Versar Inc. Phone: 630/268-8555

Registration Number: 062-034186

Signature: _____ License Expiration Date: 11/30/09

Note: The authority of a Licensed Professional Geologist to certify documents submitted to the Illinois Environmental Protection Agency for review and evaluation pursuant to Title XVII of the Environmental Protection Act is limited to Site Investigation Reports (415 ILCS 58.7(f), as amended by P.A. 92-0735, effective July 25, 2002). A Licensed Professional Geologist cannot certify Remediation Objectives Reports, Remedial Action Plans or Remedial Action Completion Reports.