

**EXCAVATION REPORT**

**HI-LAKE SHOPPING CENTER  
HIAWATHA AVENUE & LAKE STREET  
MINNEAPOLIS, MINNESOTA  
DELTA PROJECT NO. A004-154**

**Prepared for:**

**Minnesota Pollution Control Agency  
Petroleum & Closed Landfill Remediation Section  
520 Lafayette Road  
St. Paul, Minnesota 55155**

**Prepared on behalf of:**

**Wellington Management, Inc.  
1625 Energy Park Drive, Suite 100  
St. Paul, Minnesota 55108  
(651) 292-9844**

**Prepared by:**

**Delta Environmental Consultants, Inc.  
5910 Rice Creek Parkway, Suite 100  
Shoreview, Minnesota 55126  
(651) 639-9449**

**May 20, 2005**

## TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
1.1 Purpose and Authorization.....	1
1.2 Scope of Work.....	1
2.0 SUBJECT AREA DESCRIPTION AND HISTORY.....	2
2.1 Subject Area Location and Description.....	2
2.2 Subject Area History.....	2
3.0 SUMMARY OF EXCAVATION ACTIVITIES.....	2
3.1 Main Excavation.....	2
3.2 Swap Excavation and Backfilling.....	3
4.0 EXCAVATION SAMPLING RESULTS.....	4
5.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC).....	4
6.0 CONCLUSIONS.....	4
7.0 RECOMMENDATIONS.....	5
8.0 REMARKS.....	5

### List of Tables

Table 1	Soil Vapor Reading Summary
Table 2	Soil Analytical Results – Excavation
Table 3	Soil Analytical Results – Stockpile

### List of Figures

Figure 1	Site Location Map
Figure 2	Site Layout Map
Figure 3	Site Map with Sample Locations

### List of Appendices

Appendix A	Scope of Work Revision Documents
Appendix B	Laboratory Analytical Report – Main Excavation
Appendix C	Laboratory Analytical Report – Stockpile

## EXCAVATION REPORT

HI-LAKE SHOPPING CENTER  
HIAWATHA AVENUE & LAKE STREET  
MINNEAPOLIS, MINNESOTA  
DELTA PROJECT NO. A004-154

### 1.0 INTRODUCTION

#### 1.1 Purpose and Authorization

This document presents a summary of excavation activities completed by Delta Environmental Consultants, Inc. (Delta) at the property known as the Hi-Lake Shopping Center, Hiawatha Avenue and Lake Street, Minneapolis, Minnesota. For this report, "subject property" refers to the southwest corner of the Hi-Lake Shopping Center property. Excavation activities were performed by Delta at the request of Wellington Management, Inc. (Wellington) with the authorization of the Minnesota Pollution Control Agency (MPCA).

Delta was authorized to perform the work detailed herein by Ms. Tanya Bell of Wellington and Ms. Stacey VanPatten of the MPCA. This work was performed under the *Continuing Services Agreement*, dated October 30, 2000, between Delta and Wellington. The scope of work (SOW) was based on the *Development Response Action Plan and Construction Contingency Plan (DRAP)*, submitted to the MPCA on behalf of Wellington on July 7, 2004, and the subsequent e-mail revisions, with the final SOW approved via e-mail to Delta on November 15, 2004. Work was delayed until spring due to logistical issues at the site. Work commenced on April 22, 2005.

#### 1.2 Scope of Work

The excavation activities were designed to remove petroleum-impacted soils from the first 4 feet below ground surface (bgs) at the subject property, and exchange the impacted soils with soils removed from the donor excavation area. The purpose of the excavation of the first 4 feet bgs was to eliminate the potential for vapor intrusions at the structure proposed at the property.

The following scope of work was performed by Delta during this phase of the investigation:

- Conducted visual inspection of soils and collected soil grab samples from the main excavation area. Samples were field screened with a photoionization detector (PID) to determine the presence of volatile organic compounds (VOCs) every 20 cubic yards. Impacted soils, those with PID values of greater than 10 parts per million (ppm), were stockpiled for exchange with the donor soils. Analytical soil samples were collected from base and sidewall locations throughout the excavated area. These samples were analyzed for VOCs by Environmental Protection Agency (EPA) Method 8260.
- Conducted composite soil sampling of the stockpile. This sample was analyzed for VOCs (EPA 8260), gasoline range organics (GRO) (WI GRO), diesel range organics (DRO) (WI DRO), polyaromatic hydrocarbons (PAH), and lead (EPA 6010B).

- Conducted visual inspection of soils and collected soil grab samples from the donor excavation area. Samples were field screened with a PID to determine the presence of VOCs. No analytical samples were collected.

## **2.0 SUBJECT AREA DESCRIPTION AND HISTORY**

### **2.1 Subject Area Location and Description**

The subject property is located at 15 UTM 480909E and 4977288N, on the northeast corner of the intersection of Lake Street and 21<sup>st</sup> Avenue South, Minneapolis, Hennepin County, Minnesota. A site location map is attached as **Figure 1**. The subject property is located at the southwest corner of the Hi-Lake Shopping Center. The subject property is currently vacant and the donor area is currently an asphalt-covered parking area. The Hi-Lake Shopping Center is currently undergoing redevelopment. A site map is included as **Figure 2**.

### **2.2 Subject Area History**

Historically, the pertinent area of the subject property was operated as a gasoline station between 1950 and 1954, when two 4,000-gallon underground storage tanks (USTs) were removed from the site. The area was reconstructed as a gas station in 1957 with the installation of one 560-gallon used oil UST and two 6,000-gallon gasoline USTs at the site. The second gas station was demolished in 1974. A Burger King restaurant was developed on the property in 1977, but was demolished in December 2001. The site has been undeveloped since then.

## **3.0 SUMMARY OF EXCAVATION ACTIVITIES**

The activities described herein were conducted in general accordance with Delta's SOW submitted to the MPCA dated November 15, 2004. Ms. VanPatten of the MPCA approved the SOW. Copies of the SOW revisions and the e-mails are included in **Appendix A**.

### **3.1 Main Excavation**

A 110-foot by 110-foot area was excavated to a depth of 4 feet bgs on the southwest corner of the Hi-Lake Shopping Center property on April 22, 2005. The excavation was conducted at the subject property by Max Steininger, Inc. of Eagan, Minnesota. Please refer to **Figure 2** for the site layout map and **Figure 3** for a sampling location map.

Soil samples collected for field screening by headspace method were placed in self-sealing quart-size polyethylene bags and filled so that the soil samples occupied approximately half of each bag's volume. Any visible soil clumps were manually broken up. Following a headspace vapor development period of approximately 15 minutes, the soil samples were screened using a Thermo Environmental Instruments

Inc. Model 580B PID equipped with a 10.6 electron volt bulb. The PID is a trace gas analyzer capable of detecting total concentrations of VOCs to a minimum vapor concentration of approximately 1 ppm. Soils were screened by inserting the tip of the PID probe into the headspace of the bag samples and recording the highest meter readings. Headspace analysis was not performed on soil samples collected for laboratory analyses, but on replicate soil samples and grab samples from additional locations. PID results are shown on **Table 1**. The PID was operated in accordance with the manufacturer's instructions and calibrated daily with a standard calibration gas (100 ppm isobutylene) in a disposable cylinder.

Soils from areas exhibiting PID values above 10 ppm were segregated and stockpiled during excavation activities. The stockpile was constructed northwest of the excavated area. Approximately 150 cubic yards of soil were stockpiled from the excavation area; the soils with PID values below 10 ppm were immediately returned to the excavated area. Compaction occurred in 1-foot lifts.

An analytical soil sample was collected from predetermined base and sidewall locations prior to backfilling activities. Clean nitrile gloves were donned before the collection of each sample. Analytical samples from the sampling locations were submitted to Pace Analytical Services, Inc. (Pace) of Minneapolis, Minnesota, and analyzed for VOCs. An eight-point composite analytical sample was collected from the stockpile and submitted to Legend Technical Services, Inc. (Legend) of St. Paul, Minnesota, for analysis of VOCs, GRO, DRO, and lead. Please refer to **Tables 2 and 3** for a summary of soil analytical data. The analytical laboratory report for the base and sidewall samples is enclosed as **Appendix B**, and the stockpile soil analytical laboratory report is enclosed as **Appendix C**. The analytical results of the soil samples are discussed in **Section 4.0**.

### **3.2 Swap Excavation and Backfilling**

A donor excavation was conducted to supply fill to the main excavation area, and to provide a location for impacted soils to be placed without compromising existing or proposed structures on the property. The donor excavation and soil exchange was conducted on April 28, 2005. The donor excavation was approximately 80 feet by 40 feet by 7 feet deep, and was located approximately 100 feet northeast of the main excavation. The donor area was excavated to a depth of 7 feet to allow for 4 feet of clean fill above the stockpiled soil disposal depth. The donor area is an asphalt-covered parking area, and will continue to be following the completion of redevelopment activities. Please refer to **Figure 2** for the site layout map.

Soil samples were collected for headspace screening following the same methods utilized during main excavation activities and as detailed in **Section 3.1**. No organic vapors were detected by the PID from the donor excavation area. Consequently, no soil samples were collected for laboratory analysis.

#### **4.0 EXCAVATION SAMPLING RESULTS**

Soil samples from the base and sidewalls of the main excavation were submitted to Pace and analyzed for VOCs. The composite stockpile sample was submitted to Legend for analysis of VOCs, GRO, DRO, and lead.

No soil samples collected from the base and sidewalls reported concentrations of any VOCs above method detection limits. Soil analytical data are summarized on **Table 2**. The laboratory analytical report is included in **Appendix B**.

Analytical results from the stockpile sample indicated that the soils had no concentrations of VOCs above method detection limits. Concentrations of GRO and DRO were 47 milligrams per kilogram (mg/kg) and 82 mg/kg, respectively. PAH was detected, specifically as the following compounds: benzo(b)fluoranthene (0.39 mg/kg), fluoranthene (0.61 mg/kg), and pyrene (0.50 mg/kg). Lead was found in the stockpile at a concentration of 34 mg/kg. Soil analytical data from the stockpile are summarized on **Table 3**. The laboratory analytical report is included in **Appendix C**.

#### **5.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)**

The following methods and/or procedures varied from those specified in Delta's SOW submitted to the MPCA on November 15, 2004:

- Soil samples were originally collected for VOCs, GRO, DRO, Priority Pollutant Metals, and PAH at the base and sidewalls. Only VOC samples were submitted for analysis. The remaining samples were held pending approval from the MPCA.
- The soil sample from the stockpile was collected and analyzed for VOCs, GRO, DRO, PAH, and lead.

Both amendments from the original SOW were approved by Ms. VanPatten of the MPCA via e-mail on April 25, 2005 (**Appendix A**).

#### **6.0 CONCLUSIONS**

Analytical results for soil samples collected during the excavation were compared to the MPCA Tier 1 Soil Leaching Values (SLVs) and Soil Reference Values (SRVs). None of the soils in the excavation base or sidewalls or from within the stockpile exceeded SLVs or SRVs.

The main excavation and donor excavation were successful in removing soils from the subject property with soil vapor impacts. The donor excavation supplied fill to bring the subject property up to grade and provided a location for stockpiled soil disposal.

### 7.0 RECOMMENDATIONS

It is Delta's understanding that the subject property will be redeveloped as a grocery store with slab-on-grade ground completion. Based on the excavation results and the proposed use of the subject property, Delta makes the following recommendations:

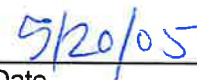
- Any future excavation work conducted below 4 feet bgs should be monitored for worker safety and to evaluate the potential for vapor intrusion to proposed buildings;
- A vapor barrier should be considered for installation beneath the proposed grocery building to ensure off-gassing from deep impacted soils will not impact air quality within the interior of the building; and
- The DRAP should be reviewed if future actions are taken at the Hi-Lake Shopping Center in areas where soil impacts have been detected historically.

### 8.0 REMARKS


The recommendations contained in this report represent Delta's professional opinions based upon the currently available information and are arrived at in accordance with currently accepted professional standards. This report is based upon a specific scope of work requested by the client. The contract between Delta and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Delta's client and anyone else specifically identified in writing by Delta as a user of this report. Delta will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Delta makes no express or implied warranty as to the contents of this report.

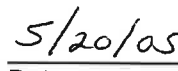
This report was prepared by **DELTA ENVIRONMENTAL CONSULTANTS, INC.**

  
\_\_\_\_\_  
Anna Blitz  
Staff Hydrogeologist

  
\_\_\_\_\_  
Date

Reviewed by:

  
\_\_\_\_\_  
Paul Lucas, P.G. – MN, WI  
Project Manager

  
\_\_\_\_\_  
Date

mjw.052005

## TABLES



**Table 1**  
**Soil Vapor Reading Summary**  
**Hi-Lake Shopping Center**  
**Minneapolis, Minnesota**  
**Delta Project No. A004-154**

Sample ID	Date	Depth (feet)	PID
1	4/22/2005	2	0.0
2	4/22/2005	2	0.0
3	4/22/2005	2	0.0
4	4/22/2005	3	0.0
5	4/22/2005	4	0.0
6	4/22/2005	4	41.8
7	4/22/2005	4	65.5
8	4/22/2005	4	1.2
9	4/22/2005	3	0.0
10	4/22/2005	3	0.3
11	4/22/2005	3	0.7
12	4/22/2005	3	0.0
13	4/22/2005	3	0.0
14	4/22/2005	3	0.1
15	4/22/2005	3	0.0
16	4/22/2005	3	0.0
17	4/22/2005	3	0.0
18	4/22/2005	3	0.0
19	4/22/2005	3	0.7
20	4/22/2005	3	0.8
21	4/22/2005	3	1.1
22	4/22/2005	3	1.1
23	4/22/2005	3	1.8
24	4/22/2005	3	1.4
25	4/22/2005	3	1.3
26	4/22/2005	3	0.9
27	4/22/2005	3	0.7
28	4/22/2005	3	0.7
29	4/22/2005	3	0.7
30	4/22/2005	3	0.4
31	4/22/2005	3	0.4
32	4/22/2005	3	0.5
33	4/22/2005	3	0.3
34	4/22/2005	3	0.2
35	4/22/2005	3	0.2
36	4/22/2005	3	0.5
37	4/22/2005	3	0.0
38	4/22/2005	3	0.0
39	4/22/2005	3	0.0
40	4/22/2005	3	8.6

Sample ID	Date	Depth (feet)	PID
41	4/22/2005	3	101
42	4/22/2005	3	31
43	4/22/2005	3	17.3
44	4/22/2005	3	8.8
45	4/22/2005	3	5.6
46	4/22/2005	3	5.3
47	4/22/2005	3	2.9
48	4/22/2005	3	2.3
49	4/22/2005	3	1.8
50	4/22/2005	3	1.4
51	4/22/2005	3	1.8
52	4/22/2005	3	0.0
53	4/22/2005	3	0.0
54	4/22/2005	3	0.0
55	4/22/2005	3	0.0
56	4/22/2005	3	0.0
57	4/22/2005	3	0.0
58	4/22/2005	3	0.0
59	4/22/2005	3	0.0
60	4/22/2005	3	0.0
61	4/22/2005	3	0.0
62	4/22/2005	3	1.2
63	4/22/2005	3	1.6
64	4/22/2005	3	1.3
65	4/22/2005	3	1.0
66	4/22/2005	3	0.8
67	4/22/2005	3	0.8
68	4/22/2005	3	0.6
69	4/22/2005	3	0.5
70	4/22/2005	3	0.7
71	4/22/2005	3	0.7
72	4/22/2005	3	0.7
73	4/22/2005	3	0.3
74	4/22/2005	3	0.0
75	4/22/2005	3	0.2
76	4/22/2005	3	0.4
77	4/22/2005	3	0.2
78	4/22/2005	3	0.1
79	4/22/2005	3	0.1

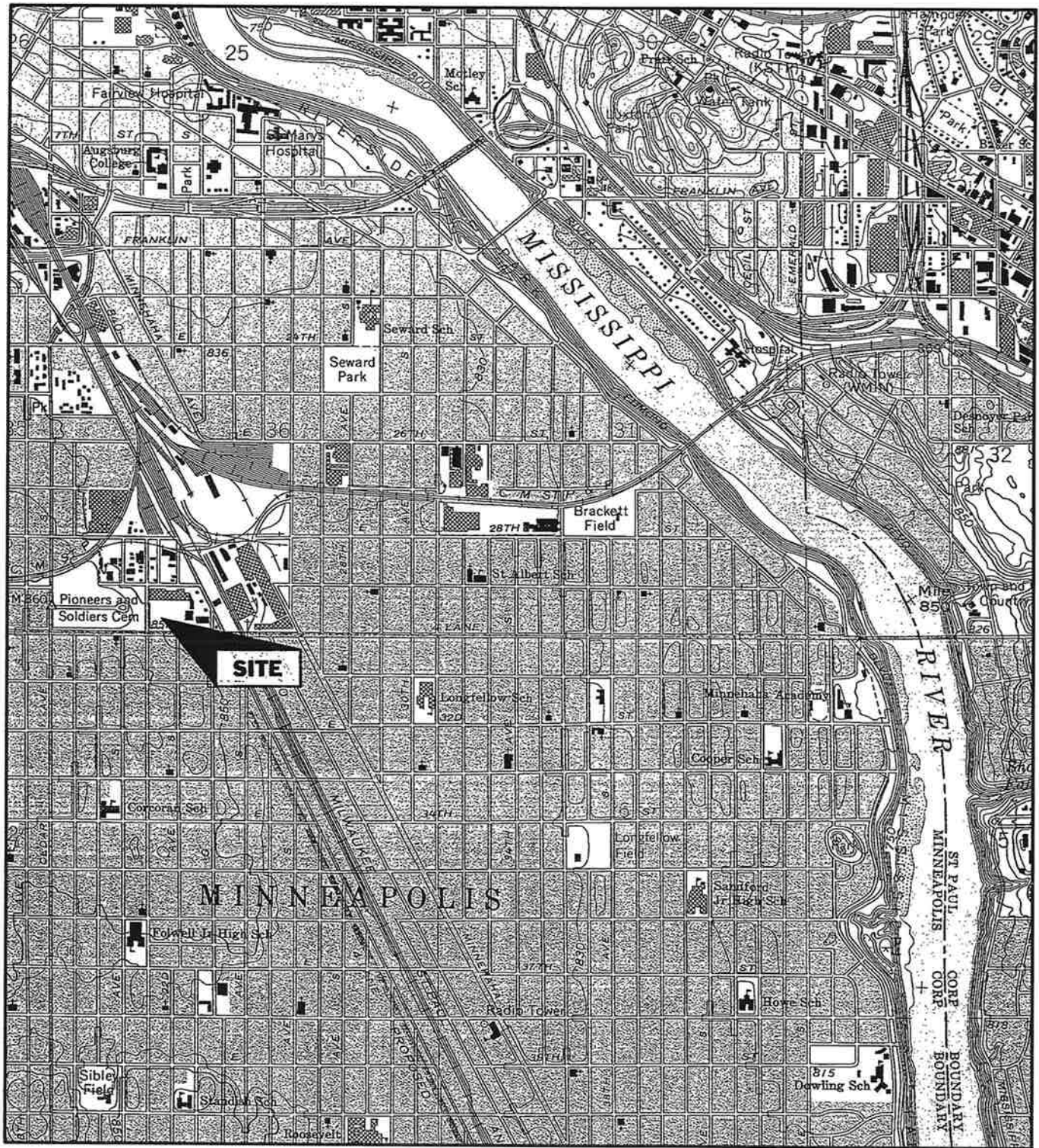
**Table 2**  
**Soil Analytical Results - Excavation**  
**Hi-Lake Shopping Center**  
**Minneapolis, Minnesota**  
**Delta Project No. A004-154**

Sample ID	Location	Date	Depth feet	Benzene ug/kg	Toluene ug/kg	Ethylbenzene ug/kg	Xylenes ug/kg	Naphthalene ug/kg
A6	Wall	4/22/2005	4	<52.1	<52.1	<52.1	<782	<261
B3	Wall	4/22/2005	3.5	<53.0	<53.0	<53.0	<795	<265
B6	Base	4/22/2005	4	<56.1	<56.1	<56.1	<841	<280
B10	Wall	4/22/2005	4	<50.0	<50.0	<50.0	<750	<250
C2	Wall	4/22/2005	3	<57.4	<57.4	<57.4	<861	<287
C3	Base	4/22/2005	4	<53.2	<53.2	<53.2	<798	<266
C11	Base	4/22/2005	4	<58.9	<58.9	<58.9	<883	<294
C11	Wall	4/22/2005	4	<58.6	<58.6	<58.6	<880	<293
F1	Wall	4/22/2005	3	<52.5	<52.5	<52.5	<787	<262
F3	Base	4/22/2005	4	<53.5	<53.5	<53.5	<802	<267
F6	Base	4/22/2005	4	<56.5	<56.5	<56.5	<847	<282
F9	Base	4/22/2005	4	<56.2	<56.2	<56.2	<843	<281
F11	Wall	4/22/2005	3.5	<58.7	<58.7	<58.7	<881	<294
I2	Wall	4/22/2005	3	<53.7	<53.7	<53.7	<806	<269
I11	Wall	4/22/2005	3	<57.9	<57.9	<57.9	<869	<290
J2	Base	4/22/2005	3	<57.3	<57.3	<57.3	<860	<287
J7	Base	4/22/2005	4	<55.2	<55.2	<55.2	<828	<276
J10	Base	4/22/2005	4	<55.4	<55.4	<55.4	<832	<277
K6	Wall	4/22/2005	3	<52.7	<52.7	<52.7	<790	<263
K9	Wall	4/22/2005	3	<57.0	<57.0	<57.0	<855	<285

**Table 3**  
**Soil Analytical Results - Stockpile**  
**Hi-Lake Shopping Center**  
**Minneapolis, Minnesota**  
**Delta Project No. A004-154**

Sample ID	Date	Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	Xylenes mg/kg	Naphthalene mg/kg	GRO mg/kg	DRO mg/kg	Lead mg/kg	Benzo(b)fluoranthene mg/kg	Fluoranthene mg/kg	Pyrene mg/kg
Stockpile	4/22/2005	<0.50	<0.50	<0.50	<1.49	<0.99	47	82	34	0.39	0.61	0.50

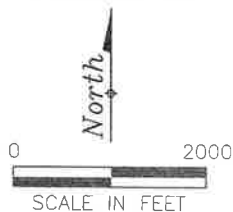
## FIGURES



ST. PAUL WEST QUADRANGLE  
 MINNESOTA  
 7.5 MINUTE SERIES (TOPOGRAPHIC)  
 1967 PHOTOREVISED 1972  
 PHOTOINSPECTED 1977



QUADRANGLE LOCATION



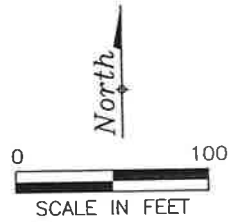
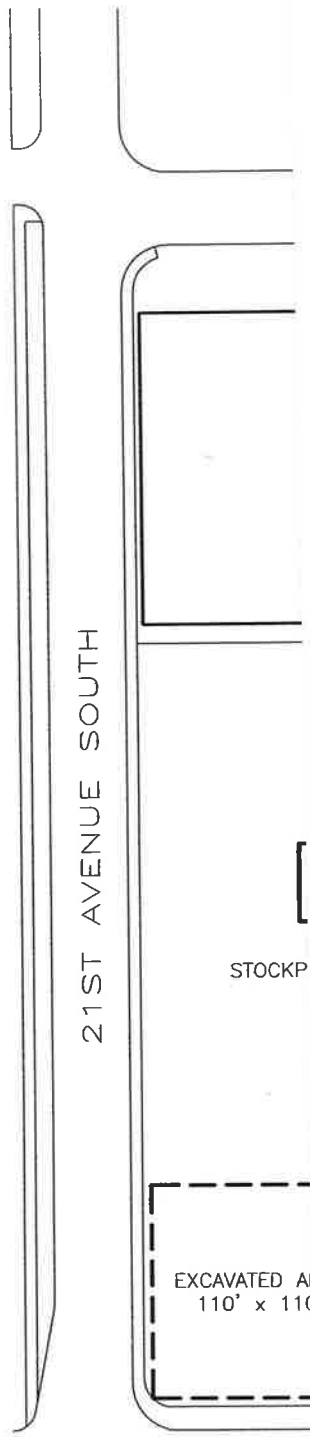
**FIGURE 1**  
**SITE LOCATION MAP**  
**HI-LAKE SHOPPING CENTER**  
**HIAWATHA AVENUE AND LAKE STREET**  
**MINNEAPOLIS, MINNESOTA**

PROJECT NO.  
 A094-154  
 DATE  
 5/8/05

PREPARED BY  
 AB  
 REVIEWED BY



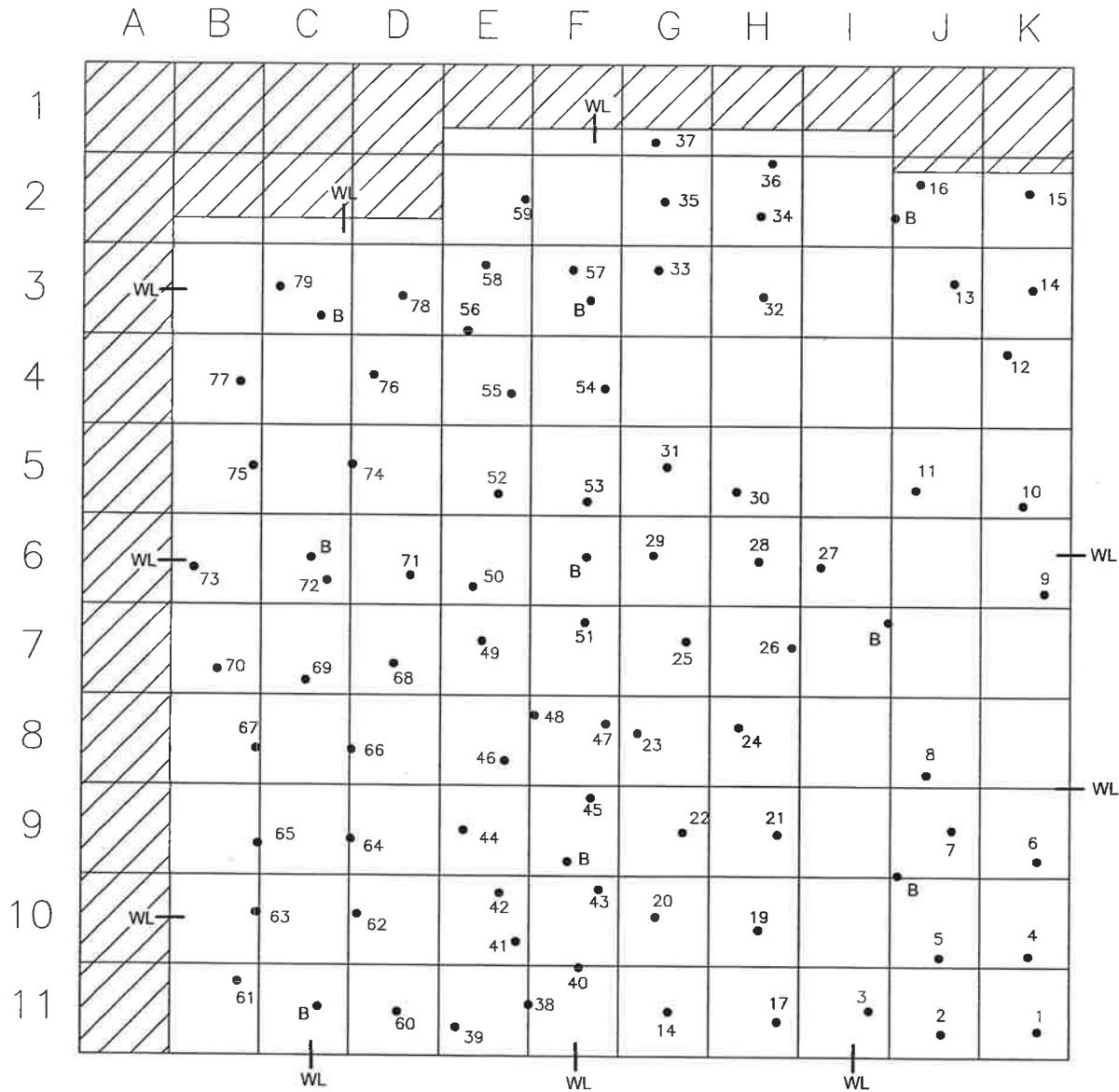
**Delta**  
 Environmental  
 Consultants, Inc.



**FIGURE 2**  
**SITE LAYOUT**  
**HI-LAKE SHOPPING CENTER**  
**HIAWATHA AVENUE AND LAKE STREET**  
**MINNEAPOLIS, MINNESOTA**

NO. 4	PREPARED BY AB	DRAWN BY DD
	REVIEWED BY	FILE NAME 154-2





**LEGEND:**



NOT EXCAVATED

B = BASE SAMPLE

WL = WALL SAMPLE

# = GRAB SAMPLE SCREENING LOCATION



**FIGURE 3**  
**SITE MAP**  
**HI-LAKE SHOPPING CENTER**  
**HIAWATHA AVENUE AND LAKE STREET**  
**MINNEAPOLIS, MINNESOTA**

PROJECT NO. A004-154	PREPARED BY AB	DRAWN BY DD
DATE 5/5/05	REVIEWED BY	FILE NAME 154-3

