



**FRANZ  
ENVIRONMENTAL  
INC.**

♦ CONSULTING ♦ ENGINEERING ♦ TECHNOLOGIES ♦

December 17, 2002

Project No. 828-0201

To:

Idris Sadikoglu  
Ottawa Carleton District School Board  
133 Greenbank Road  
Nepean, ON  
K2H 6L3

**Re: Phase II Environmental Site Assessment  
3971 Greenbank Road, Ottawa, ON.**

Dear Mr. Sadikoglu

## **INTRODUCTION**

Franz Environmental Inc. (FEI), has prepared this report to summarize the results and conclusions of the soil and groundwater testing undertaken at the above noted site.

The scope of work performed by FEI included the following:

- The advancement of 4 boreholes on the subject site in the vicinity of the former heating oil underground storage tank (UST), chemical storage vault and septic bed.
- The collection of two surface soil samples in the vicinity of the PCB storage shed.
- The analysis of soil samples from the boreholes and surface soil samples for combustible vapour concentrations in accordance with industry accepted standards;
- The analysis of 6 soil samples collected during the drilling activities;
- The installation of four monitoring wells in the boreholes;
- An inspection of the monitoring wells for liquid phase hydrocarbons (LPH);

39 Robertson Road, Suite 220, Nepean, Ontario K2H 8R2  
Tel (613) 721-0555 Fax (613) 721-0029

Offices in Bolton, Ottawa, Montreal, Calgary, Vancouver

- The collection and analysis of groundwater samples from the monitoring wells in accordance with industry accepted standards; and,
- The preparation of this letter report

## REMEDIAL CRITERIA

The Ontario Ministry of Environment (MOE) *Guideline For Use At Contaminated Sites In Ontario, Revised September 1998*, provides numerical values for concentrations of chemical substances in soil, groundwater and sediments that relate to the suitability of a site for specific uses and land-use categories.

FEI reviewed the above guideline and have determined that the MOE Table A criteria for commercial/industrial land use under a non-potable groundwater condition for coarse grain soils would be applicable for use at the site based on the following:

- The site is not a sensitive site as defined by the guideline;
- Groundwater is used as potable water in the area;
- Existing land use is commercial; and,
- The native soils are sandy (coarse grained).

## SITE DESCRIPTION

The subject property is located at 3971 Greenbank Road in Ottawa, Ontario. The property is located to the east of Greenbank Road and is bounded by Barnsdale Road to the south, and vacant properties to the north and east. The property is approximately 1.6 acres in area and at the time of the site visit was occupied with a one storey vacant building, two portable classroom buildings, one storage shed, one metal PCB storage container and a concrete chemical storage vault. One former underground storage tank (UST) was located to the south of the one storey main building. Ground surface coverings consist of paved parking areas and grassed areas.

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## BOREHOLES AND MONITORING WELLS

FEI personnel were on site on December 5, 2002 to advance boreholes in the vicinity of the former heating oil UST, the chemical storage shed and the septic bed. The locations of the boreholes are provided in Figure 2 and the borehole logs are presented in Appendix 1.

The boreholes were completed with truck mounted drilling equipment under the direction of FEI personnel. Soil samples were collected at a rate of one to two per metre by the use of a split spoon sampling device. The soil samples were immediately split in half, with one half being placed in a laboratory supplied glass jar and the other half was placed in a plastic bag for vapour analysis.

All of the bagged soil samples were analysed for combustible vapours with a Gastech Model 1238 ME combustible gas indicator calibrated to hexane and operated in the methane elimination mode. The vapour readings were obtained by inserting the Gastech probe into the plastic bag and the greatest reading was recorded.

A total of 6 soil samples from the boreholes were submitted to Paracel Laboratories Ltd. for analysis. The samples were selected based on vapour analysis and field evidence of environmental impact. The soil samples were analysed for one or more of the following parameters: benzene, toluene, ethylbenzene, xylenes (BTEX), total petroleum hydrocarbons (TPH) in the gas, diesel and heavy oil ranges, polynuclear aromatic hydrocarbons (PAH) and volatile organic compounds (VOC).

In addition, two soil samples were obtained in the vicinity of the PCB storage container at a depth of approximately 15 cm and submitted to Paracel for PCB analysis.

Monitoring wells were installed in the boreholes and were constructed of appropriate lengths of SCH 40 PVC solid pipe and 10 slot screen. Washed silica sand was used as backfill around the screened portion of the well and a bentonite seal was placed above the sand pack.

On December 12, 2002, the monitoring wells were checked for LPH with a clear bailer and groundwater samples were collected from the wells with tubing and a foot valve once the

wells were purged of at least three well volumes. The water samples were placed in laboratory supplied jars, placed in a chilled cooler and transported to Paracel for analysis of one or more of the following parameters, BTEX, TPH, PAH and VOC.

## **BOREHOLE AND MONITORING WELL RESULTS**

The soils within the boreholes primarily consisted of coarse grained sand.

No hydrocarbon or chemical odours were noted in any of the boreholes and soil vapour analysis ranged from 5 ppm to 60 ppm as presented on the borehole logs in Appendix 1.

The soil laboratory analytical results for the BTEX and TPH analysis are presented on Table 1. As indicated, all parameters were either non-detectable or below the applicable MOE Table A.

The soil laboratory analytical results for the PAH analysis are presented on Table 2. As indicated, all soil samples analysed were non-detectable and below the applicable MOE Table A criteria.

The soil laboratory analytical results for the VOC analysis are presented on Table 3. As indicated, all soil samples analysed were non-detectable and below the applicable MOE Table A criteria.

The soil laboratory analytical results for the PCB analysis are presented on Table 4. As indicated, all soil samples analysed were non-detectable and below the applicable MOE Table A criteria.

The groundwater laboratory analytical results for the BTEX and TPH analysis are presented on Table 5. As indicated, all parameters were either non-detectable or below the applicable MOE Table A.

The groundwater laboratory analytical results for the PAH analysis are presented on Table 6. As indicated, all parameters were either non-detectable or below the applicable MOE Table A.

The groundwater laboratory analytical results for the VOC analysis are presented on Table 7. As indicated, all parameters were either non-detectable or below the applicable MOE Table A.

## CONCLUSIONS

Based on the results obtained by FEI during the above described soil and groundwater, FEI makes the following conclusions:

1. Four boreholes were advanced on-site in the vicinity of the former heating oil UST, the chemical storage shed and the septic bed. In addition, two surface soil samples were collected in the vicinity of the PCB storage shed.
2. The soils on-site generally consisted of coarse sand to the termination of the boreholes (5.3 m).
3. Soil analytical results from the above activities indicate that concentrations of BTEX, TPH, PAH, VOC and PCBs were below the applicable MOE Table A guideline criteria.
4. Groundwater analytical results from the above activities indicate that concentrations of BTEX, TPH, PAH and VOC were below the applicable MOE Table A guideline criteria.
5. Based on the above, no further work is recommended at this time with regard to potential subsurface chemical impacts.

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## CLOSING

The information provided in this report is based on testing conducted to determine the presence of petroleum hydrocarbon, PAH, VOC and PCB impacted soils and groundwater in the vicinity of existing on-site structures located at the site. This report was prepared for the use of the Ottawa Carleton District School Board and its entities for the purposes of determining soil and groundwater conditions. The content of this report cannot be relied upon by other parties without first obtaining consent from the Ottawa Carleton District School Board and FEI. In addition, an environmental sampling program is a limited sampling of a site and therefore the results of this testing can only be extrapolated to a limited area around the actual sample locations. FEI cannot warrant that other chemical compounds are not present since the sampling program was specifically designed to determine the presence of potential environmental impacts associated with heating oil, particular chemicals and PCBs.

We trust that the above is satisfactory for your purposes at this time. If you have any questions please feel free to contact the undersigned at your convenience.

Yours truly,

**Franz Environmental Inc.**



Marc MacDonald, P.Eng.  
Environmental Engineer

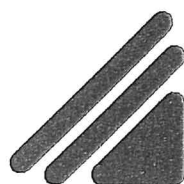
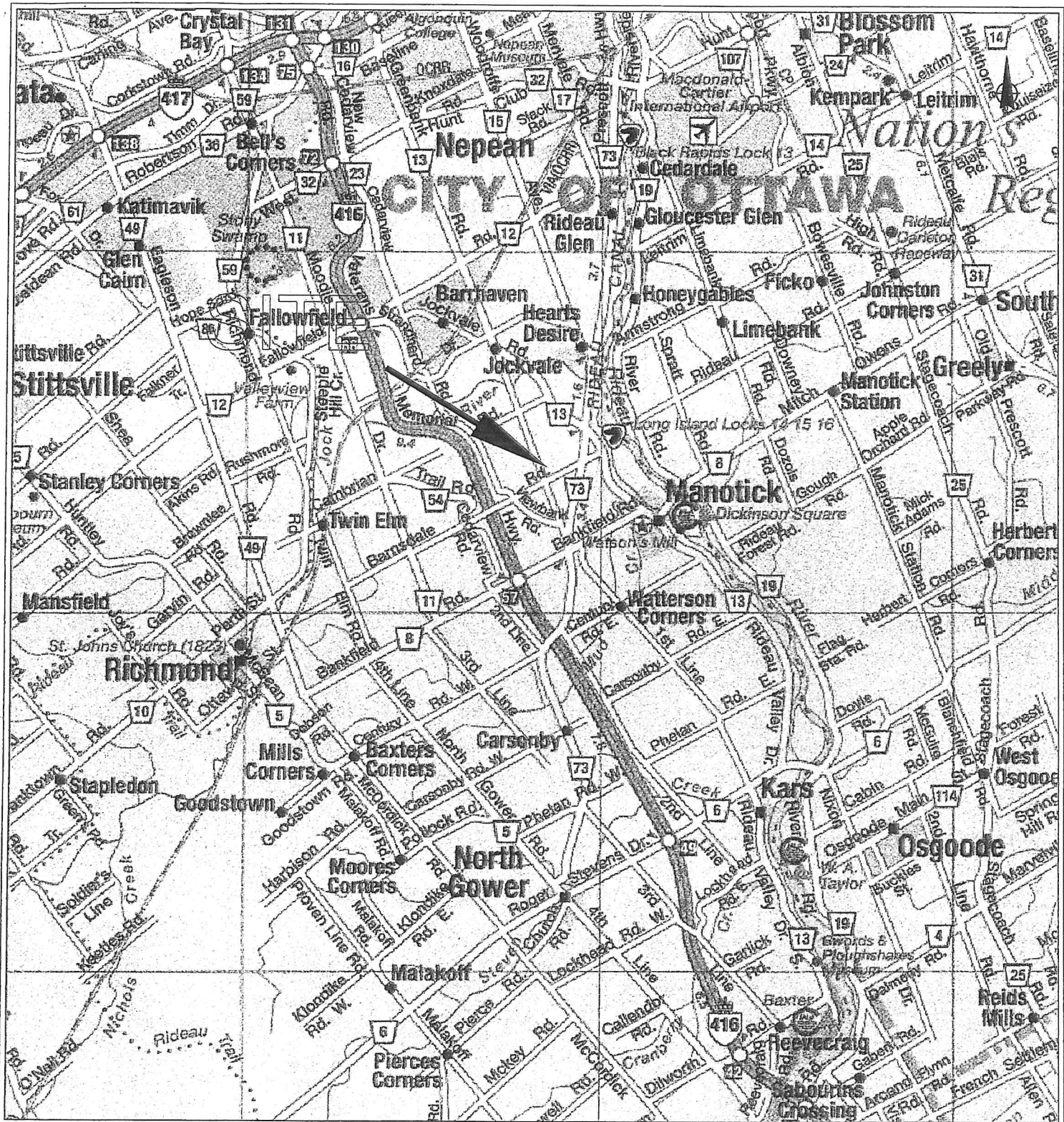


Bruce Cochrane, B.Sc.  
Remediation Specialist

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## FIGURES





FRANZ  
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INC.

Title:

SITE LOCATION

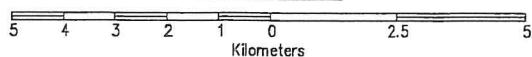
Project:

PHASE II ESA  
3917 GREENBANK RD.

Client:

OTTAWA CARLETON  
DISTRICT SCHOOL BOARD

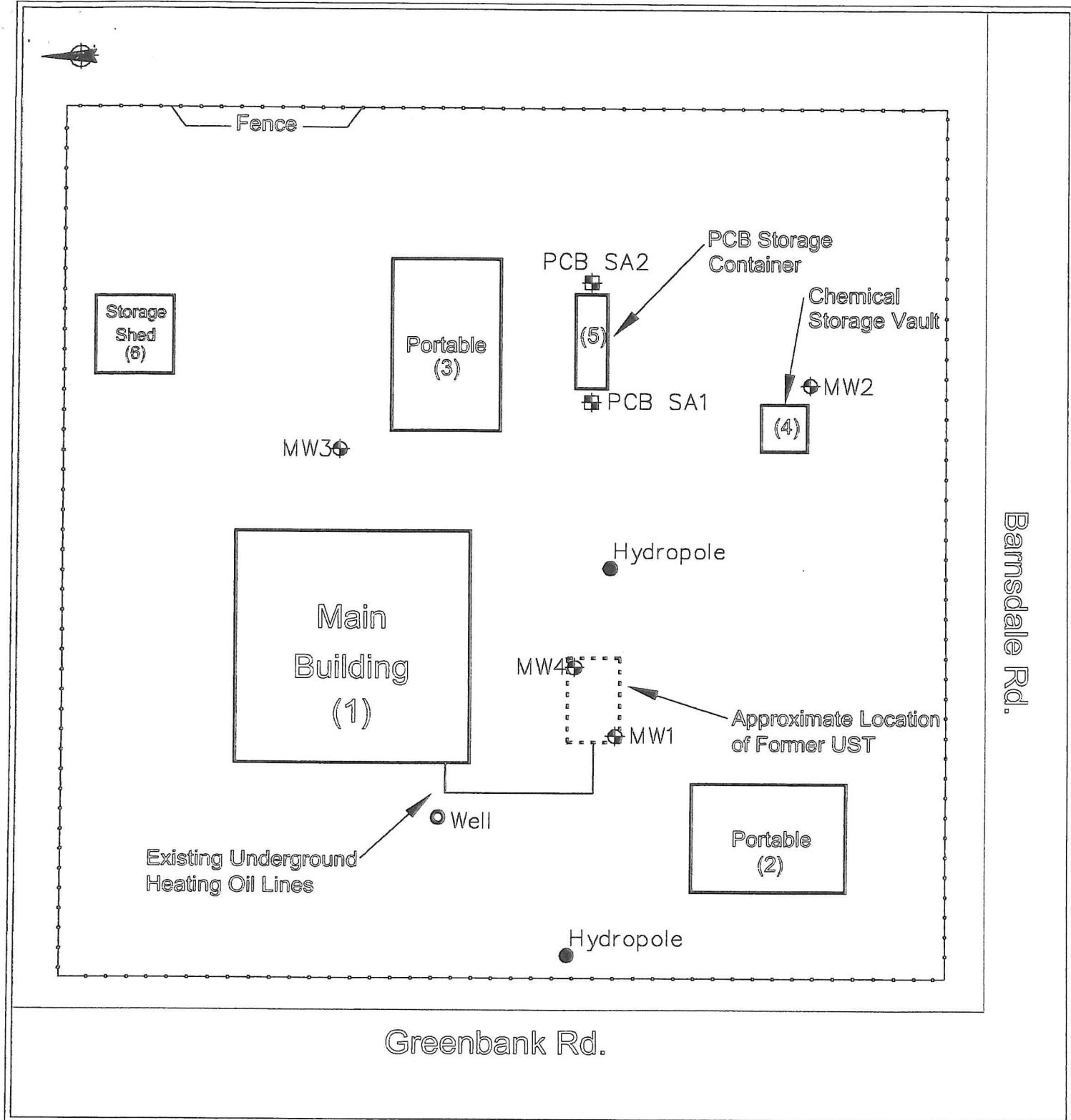
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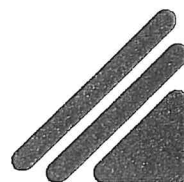
FIGURE 1





# LEGEND

- MW1 Monitoring Well
- PCB SA1 Surface Soil Sample



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Title:

SITE LAYOUT

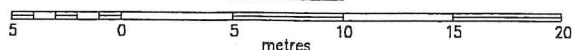
Project:

PHASE II ESA  
3917 GREENBANK RD.

Client:

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DISTRICT SCHOOL BOARD

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FIGURE 2

## TABLES

**Table 1**  
**Soil Sample Laboratory Analytical Results - BTEX/TPH**  
**OCDSB**  
**3971 Greenbank Road, Ottawa, ON**  
**mg/kg or ppm**

Parameter	MW1 SA5	MW2 SA1	MW2 SA4	MW3 SA2	MW3 SA5	MW4 SA5	MOE Criteria <sup>1</sup>
Benzene	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.24
Toluene	0.0040	0.0080	<0.0020	<0.0020	<0.0020	<0.0020	2.1
Ethyl Benzene	0.0040	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.28
Xylenes	0.0200	0.054	<0.0020	<0.0020	<0.0020	<0.0020	25
TPH Gas/Diesel	<20	na	na	na	na	<20	100
TPH Heavy Oils	<50	na	na	na	na	<50	1000

1. Table A criteria from the Ontario Ministry of Environment (MOE) *Guideline For Use At Contaminated Sites In Ontario, Revised September 1998*, for residential or industrial/commercial land use in a potable groundwater situation and coarse textured soils.

na Parameter not analysed.

**Table 2**  
**Soil Sample Laboratory Analytical Results - PAH**  
**OCDSB**  
**3971 Greenbank Road, Ottawa, ON**  
**mg/kg or ppm**

Parameter	MW2 SA4	MW3 SA5	MOE Criteria <sup>1</sup>
Acenaphthene	<0.020	<0.020	15
Acenaphthylene	<0.020	<0.020	130
Anthracene	<0.020	<0.020	28
Biphenyl	<0.020	<0.020	0.89
Benzo(a)anthracene	<0.020	<0.020	6.6
Benzo(a)pyrene	<0.020	<0.020	1.9
Benzo(b)fluoranthene	<0.020	<0.020	18
Benzo(g,h,i)perylene	<0.020	<0.020	40
Benzo(k)fluoranthene	<0.020	<0.020	18
Chrysene	<0.020	<0.020	17
Dibenzo(a,h)anthracene	<0.020	<0.020	1.9
Fluoranthene	<0.020	<0.020	40
Fluorene	<0.020	<0.020	340
Indeno(1,2,3-c,d)pyrene	<0.020	<0.020	19
1-Methylnaphthalene	<0.020	<0.020	1.2
2-Methylnaphthalene	<0.020	<0.020	1.2
Naphthalene	<0.020	<0.020	4.6
Phenanthrene	<0.020	<0.020	40
Pyrene	<0.020	<0.020	250

1. Table A criteria from the Ontario Ministry of Environment (MOE) *Guideline For Use At Contaminated Sites In Ontario, Revised September 1998*, for **industrial/commercial land use** in a potable groundwater situation and coarse textured soils.

**Table 3**  
**Soil Sample Laboratory Analytical Results - VOC**  
**OCDSB**  
**3971 Greenbank Road, Ottawa, ON**  
**mg/kg or ppm**

Parameter	MW2 SA1	MW2 SA4	MW3 SA2	MW3 SA5	MOE Criteria <sup>1</sup>
Bromodichloromethane	<0.0020	<0.0020	<0.0020	<0.0020	0.12
Bromoform	<0.0020	<0.0020	<0.0020	<0.0020	0.11
Bromomethane	<0.0030	<0.0030	<0.0030	<0.0030	0.061
Carbon Tetrachloride	<0.0020	<0.0020	<0.0020	<0.0020	0.10
Chlorobenzene	<0.0020	<0.0020	<0.0020	<0.0020	2.4
Chloroethane	<0.0050	<0.0050	<0.0050	<0.0050	nv
Chloroform	<0.0030	<0.0030	<0.0030	<0.0030	0.13
Chloromethane	<0.015	<0.015	<0.015	<0.015	nv
Dibromochloromethane	<0.0020	<0.0020	<0.0020	<0.0020	0.09
1,2 Dibromoethane	<0.0020	<0.0020	<0.0020	<0.0020	nv
m-Dichlorobenzene	<0.0020	<0.0020	<0.0020	<0.0020	30
o-Dichlorobenzene	<0.0020	<0.0020	<0.0020	<0.0020	0.88
p-Dichlorobenzene	<0.0020	<0.0020	<0.0020	<0.0020	0.32
1,1-Dichloroethane	<0.0020	<0.0020	<0.0020	<0.0020	3
1,2-Dichloroethane	<0.0020	<0.0020	<0.0020	<0.0020	0.022
1,1-Dichloroethylene	<0.0020	<0.0020	<0.0020	<0.0020	0.0024
c-1,2-Dichloroethylene	<0.0020	<0.0020	<0.0020	<0.0020	2.3
t-1,2-Dichloroethylene	<0.0030	<0.0030	<0.0030	<0.0030	4.1
1,2-Dichloropropane	<0.0020	<0.0020	<0.0020	<0.0020	0.019
c-1,3-Dichloropropene	<0.0020	<0.0020	<0.0020	<0.0020	nv
t-1,3-Dichloropropene	<0.0020	<0.0020	<0.0020	<0.0020	0.0066
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	1.1
Styrene	<0.0020	<0.0020	<0.0020	<0.0020	1.2
1,1,2,2-Tetrachloroethane	<0.0030	<0.0030	<0.0030	<0.0030	0.01
Tetrachloroethylene	<0.0020	<0.0020	<0.0020	<0.0020	0.45
1,1,1-Trichloroethane	<0.0020	<0.0020	<0.0020	<0.0020	26
1,1,2-Trichloroethane	<0.0020	<0.0020	<0.0020	<0.0020	0.28
Trichloroethylene	<0.0030	<0.0030	<0.0030	<0.0030	1.1

**Table 3 (Continued)**  
**Soil Sample Laboratory Analytical Results - VOC**  
**OCDSB**  
**3971 Greenbank Road, Ottawa, ON**  
**mg/kg or ppm**

Parameter	MW2 SA1	MW2 SA4	MW3 SA2	MW3 SA5	MOE Criteria <sup>1</sup>
Trichlorofluoromethane	<0.0050	<0.0050	<0.0050	<0.0050	nv
1,3,5-Trimethylbenzene	<0.0030	<0.0030	<0.0030	<0.0030	nv
Vinyl Chloride	<0.0020	<0.0020	<0.0020	<0.0020	0.003

1. Table A criteria from the Ontario Ministry of Environment (MOE) *Guideline For Use At Contaminated Sites In Ontario, Revised September 1998*, for **industrial/commercial land use** in a potable groundwater situation and coarse textured soils.

nv No value derived.



**Table 4**  
**Soil Sample Laboratory Analytical Results - PCB**  
**OCDSB**  
**3971 Greenbank Road, Ottawa, ON**  
**mg/kg or ppm**

Parameter	PCB SA1	PCB SA2	MOE Criteria <sup>1</sup>
Total PCBs	<0.050	<0.050	25

1. Table A criteria from the Ontario Ministry of Environment (MOE) *Guideline For Use At Contaminated Sites In Ontario, Revised September 1998*, for **industrial/commercial land use** in a potable groundwater situation and coarse textured soils.

**Table 5**  
**Groundwater Laboratory Analytical Results - BTEX/TPH**  
**OCDSB**  
**3971 Greenbank Road, Ottawa, ON**  
**mg/L or ppm**

Parameter	MW1	MW2	MW3	MW4	MOE Criteria <sup>1</sup>
Benzene	<0.0005	<0.0005	<0.0005	<0.0005	0.005
Toluene	<0.0005	<0.0005	<0.0005	<0.0005	0.024
Ethyl Benzene	<0.0005	<0.0005	<0.0005	<0.0005	0.0024
Xylenes	<0.001	<0.001	<0.001	<0.001	0.3
TPH Gas/Diesel	<0.1	na	na	<0.1	1
TPH Heavy Oils	<0.5	na	na	<0.5	1

1. Table A criteria from the Ontario Ministry of Environment (MOE) *Guideline For Use At Contaminated Sites In Ontario, Revised September 1998, for industrial/commercial land use* in a potable groundwater situation and coarse textured soils.

na Parameter not analysed.

**Table 6**  
**Groundwater Laboratory Analytical Results - PAH**  
**OCDSB**  
**3971 Greenbank Road, Ottawa, ON**  
**mg/L or ppm**

Parameter	MW2	MW3	MOE Criteria <sup>1</sup>
Acenaphthene	<0.00005	<0.00005	0.020
Acenaphthylene	<0.00005	<0.00005	0.310
Anthracene	<0.00001	<0.00001	0.012
Biphenyl	<0.00005	<0.00005	0.350
Benzo(a)anthracene	<0.00001	<0.00001	0.0002
Benzo(a)pyrene	<0.00001	<0.00001	0.00001
Benzo(b)fluoranthene	<0.00005	<0.00005	0.0002
Benzo(g,h,i)perylene	<0.00005	<0.00005	0.0002
Benzo(k)fluoranthene	<0.00005	<0.00005	0.0002
Chrysene	<0.00005	<0.00005	0.0005
Dibenzo(a,h)anthracene	<0.00005	<0.00005	0.0002
Fluoranthene	<0.00001	<0.00001	0.130
Fluorene	<0.00005	<0.00005	0.280
Indeno(1,2,3-c,d)pyrene	<0.00005	<0.00005	0.0002
1-Methylnaphthalene	<0.00005	<0.00005	0.010
2-Methylnaphthalene	<0.00005	<0.00005	0.010
Naphthalene	<0.00005	<0.00005	0.021
Phenanthrene	<0.00005	<0.00005	0.063
Pyrene	<0.00001	<0.00001	0.040

1. Table A criteria from the Ontario Ministry of Environment (MOE) *Guideline For Use At Contaminated Sites In Ontario, Revised September 1998*, for industrial/commercial land use in a potable groundwater situation and coarse textured soils.

**Table 7**  
**Groundwater Laboratory Analytical Results - VOC**  
**OCDSB**  
**3971 Greenbank Road, Ottawa, ON**  
**mg/L or ppm**

Parameter	MW1	MW2	MW3	MW4	MOE Criteria <sup>1</sup>
Bromodichloromethane	<0.0004	<0.0004	<0.0004	<0.0004	0.005
Bromoform	<0.0008	<0.0008	<0.0008	<0.0008	0.005
Bromomethane	<0.001	<0.001	<0.001	<0.001	0.0037
Carbon Tetrachloride	<0.0005	<0.0005	<0.0005	<0.0005	0.005
Chlorobenzene	<0.0004	<0.0004	<0.0004	<0.0004	0.030
Chloroethane	<0.001	<0.001	<0.001	<0.001	nv
Chloroform	<0.0006	<0.0006	<0.0006	<0.0006	0.005
Chloromethane	<0.003	<0.003	<0.003	<0.003	nv
Dibromochloromethane	<0.0005	<0.0005	<0.0005	<0.0005	0.005
1,2 Dibromoethane	<0.001	<0.001	<0.001	<0.001	nv
m-Dichlorobenzene	<0.0004	<0.0004	<0.0004	<0.0004	0.630
o-Dichlorobenzene	<0.0004	<0.0004	<0.0004	<0.0004	0.003
p-Dichlorobenzene	<0.0004	<0.0004	<0.0004	<0.0004	0.001
1,1-Dichloroethane	<0.0005	<0.0005	<0.0005	<0.0005	0.070
1,2-Dichloroethane	<0.0005	<0.0005	<0.0005	<0.0005	0.005
1,1-Dichloroethylene	<0.0006	<0.0006	<0.0006	<0.0006	0.00066
c-1,2-Dichloroethylene	<0.0004	<0.0004	<0.0004	<0.0004	0.070
t-1,2-Dichloroethylene	<0.001	<0.001	<0.001	<0.001	0.100
1,2-Dichloropropane	<0.0007	<0.0007	<0.0007	<0.0007	0.005
c-1,3-Dichloropropene	<0.0004	<0.0004	<0.0004	<0.0004	0.0014
t-1,3-Dichloropropene	<0.0005	<0.0005	<0.0005	<0.0005	0.0014
Methylene Chloride	<0.004	<0.004	<0.004	<0.004	0.050
Styrene	<0.0004	<0.0004	<0.0004	<0.0004	0.100
1,1,2,2-Tetrachloroethane	<0.0006	<0.0006	<0.0006	<0.0006	0.001
Tetrachloroethylene	<0.0005	<0.0005	<0.0005	<0.0005	0.005
1,1,1-Trichloroethane	<0.0004	<0.0004	<0.0004	<0.0004	0.200
1,1,2-Trichloroethane	<0.0006	<0.0006	<0.0006	<0.0006	0.005
Trichloroethylene	<0.0004	<0.0004	<0.0004	<0.0004	0.050

**Table 7 (Continued)**  
**Groundwater Laboratory Analytical Results - VOC**  
**OCDSB**  
**3971 Greenbank Road, Ottawa, ON**  
**mg/L or ppm**

Parameter	MW1	MW2	MW3	MW4	MOE Criteria <sup>1</sup>
Trichlorofluoromethane	<0.001	<0.001	<0.001	<0.001	nv
1,3,5-Trimethylbenzene	<0.0005	<0.0005	<0.0005	<0.0005	nv
Vinyl Chloride	<0.0005	<0.0005	<0.0005	<0.0005	0.0005

1. Table A criteria from the Ontario Ministry of Environment (MOE) *Guideline For Use At Contaminated Sites In Ontario, Revised September 1998*, for industrial/commercial land use in a potable groundwater situation and coarse textured soils.

nv No value derived.

# **APPENDIX 1**

## **Borehole and Monitoring Well Logs**



Project: OCDSB

Project No: 828-0201

Location: 3971 Greenbank Road

Ground Surface Elevation: na

TOC Elevation: na

Water Level: 4.75 btoc

Total Depth: 5.3

## Log of Monitoring Well: MW1

Date: December 5, 2002

Logged By: Marc MacDonald

Drilling Method: CME Drill Rig

Drilled By: OGS

Note: Relative elevation based on assumed benchmark of 100 masl.

SUBSURFACE PROFILE				SAMPLE			Vapour Measurement (ppm)	Well Data	Remarks
Depth	Symbol	Description	Elevation (m.a.s.l.)	Number	Sample Type	Recovery (%)			
0		Ground Surface	0				100 200 300 400		
0		<b>Grass</b> Medium grained, dark brown Topsoil and Sand, no odours/staining, dry		SA-1	SS	75			Bentonite Seal
1			-0.704						
2									
3		<b>Sand</b> Medium grained; dark brown; dry; no odours/staining.		SA-2	SS	75			Soil cuttings
4									
5			-1.58						
6		<b>Sand</b> Coarse grained; brown; dry; no odours/staining		SA-3	SS	80			Bentonite Seal
7									
8				SA-4	SS	80			
9									
10				SA-5	SS	80			2" dia. slotted screen with filter sands
11									
12									
13				SA-6	SS	100			
14									
15				SA-7	SS	90			
16									
17			-5.3						
18		End of Borehole							
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Project: OCDSB

Project No: 828-0201

Location: 3971 Greenbank Road

Ground Surface Elevation: na

TOC Elevation: na

Water Level: 3.29 btoc

Total Depth: 4.6 m

## Log of Monitoring Well: MW2

Date: December 5, 2002

Logged By: Marc MacDonald

Drilling Method: CME Drill Rig

Drilled By: OGS

Note: Relative elevation based on assumed benchmark of 100 masl.

### SUBSURFACE PROFILE

### SAMPLE

Depth ft m	Symbol	Description	Elevation (m.a.s.l.)	Number	Sample Type	Recovery (%)	Vapour Measurement (ppm)	Well Data	Remarks
0 0		Ground Surface	0				100 200 300 400 ppm		
1 0		<b>Grass</b> Medium grained, dark brown Topsoil and Sand, no odours/staining, dry	-0.607	SA-1	SS	100			Bentonite Seal
2 1		<b>Sand</b> Medium grained; dark brown; dry; no odours/staining.	-1.22	SA-2	SS	100			Soil cuttings
3 1		<b>Sand</b> Coarse grained; brown; dry; no odours/staining		SA-3	SS	100			Bentonite Seal
4 2				SA-4	SS	100			
5 2				SA-5	SS	100			
6 3				SA-6	SS	100			2" dia. slotted screen with filter sands
7 3									
8 4									
9 4									
10 5									
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Project: OCDSB

Project No: 828-0201

Location: 3971 Greenbank Road

Ground Surface Elevation: na

TOC Elevation: na

Water Level: 4.325 btoc

Total Depth: 5.3

## Log of Monitoring Well: MW3

Date: December 5, 2002

Logged By: Marc MacDonald

Drilling Method: CME Drill Rig

Drilled By: OGS

Note: Relative elevation based on assumed benchmark of 100 masl.

SUBSURFACE PROFILE				SAMPLE			Vapour Measurement (ppm)	Well Data	Remarks
Depth # m	Symbol	Description	Elevation (m.a.s.l.)	Number	Sample Type	Recovery (%)			
0		Ground Surface	0						
0		<b>Grass</b> Medium grained, dark brown Topsoil and Sand, no odours/staining, dry		SA-1	SS	75			Bentonite Seal
1			-0.641						
2		<b>Sand</b> Coarse grained; brown; dry; no odours/staining		SA-2	SS	100			Soil cuttings
3									
4				SA-3	SS	30			Bentonite Seal
5									
6				SA-4	SS	100			
7									
8				SA-5	SS	80			
9									
10				SA-6	SS	100			
11									
12				SA-7	SS	100			
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Project: OCDSB

Project No: 828-0201

Location: 3971 Greenbank Road

Ground Surface Elevation: na

TOC Elevation: na

Water Level: 5.65 m btoc

Total Depth: 5.3

## Log of Monitoring Well: MW4

Date: December 5, 2002

Logged By: Marc MacDonald

Drilling Method: CME Drill Rig

Drilled By: OGS

Note: Relative elevation based on assumed benchmark of 100 masl.

### SUBSURFACE PROFILE

### SAMPLE

Vapour Measurement  
(ppm)

Well  
Data

Remarks

Depth	Symbol	Description	Elevation (m.a.s.l.)	Number	Sample Type	Recovery (%)	Vapour Measurement (ppm)	Well Data	Remarks
0		Ground Surface	0				100 200 300 400		
1		<b>Grass</b> Medium grained, dark brown Topsoil and Sand, no odours/staining, dry		SA-1	SS	75			Bentonite Seal
2									
3									
4			-1.41	SA-2	SS	30			Soil cuttings
5		<b>Sand</b> Fine grained; brown; dry; no odours/staining							
6				SA-3	SS	100			Bentonite Seal
7			-2.27						
8		<b>Sand</b> Coarse grained; brown; dry; no odours/staining		SA-4	SS	60			
9									
10									
11		Wet at 3.8 m.		SA-5	SS	80			2" dia. slotted screen with filter sands
12									
13				SA-6	SS	75			
14									
15									
16				SA-7	SS	100			
17			-5.3						
18		End of Borehole							

Note: This borehole log was prepared for hydrogeological and/or environmental assessment purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data require interpretation by Franz Environmental Inc. personnel before use by others.

Franz Environmental Inc.  
39 Robertson Rd. Suite 220  
Nepean, ON. K2H 8R2  
Ph: (613) 721-0555  
Fax: (613) 721-0029