

GAMSBY AND MANNEROW Limited

CONSULTING PROFESSIONAL ENGINEERS
GUELPH- OWEN SOUND- LISTOWEL



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February 22, 2005
Our File: 104-185

James Keating Construction Limited
70 Mathieson Street
Elora, ON NOB 1S0

PHASE II ESA

Attention: Mr. Jim Keating

Re: Assessment of Environmental Impacts near
Former UST, Hill Property,
Centre Wellington, Ontario

Dear Mr. Keating:

Gamsby and Mannerow Limited (G&M) was retained by James Keating Construction Limited to document the presence or absence of environmental impact to soil and groundwater in the vicinity of a previously removed underground storage tank (UST) on the Hill Property. The general location of the property is shown on Figure 1. The estimated location of the former UST is presented on Figure 2.

BACKGROUND

The Hill property is located northeast of Elora in the Township of Centre Wellington (formerly Nichol Township) approximately 1,000 m east of Irvine Creek and approximately 1,000 m northwest of the Grand River. Mr. Hill indicated during the Phase I Environmental Site Assessment (ESA) site visit, conducted by G&M staff, that a 1100-litre (250 imperial gallon) gasoline storage tank was installed in the 1960s by ESSO near the northeast corner of the equipment shed beside a hydro pole. Mr. Hill also reported that the UST was removed by ESSO in the early 1980s and the tank was in good condition upon removal. Mr. Hill indicated that no impacts to the soil or groundwater were suspected; however, no report documenting the tank removal was available.

PURPOSE AND SCOPE

The purpose of this investigation was to assess soil and groundwater characteristics in the vicinity of the former UST. Impacts from other potential sources of environmental impact or risk on the property or from off site are deemed to be low and deemed not to warrant further investigation of a Phase II ESA. Investigation of those potential sources is not included in the scope of this investigation.

METHODOLOGY

Excavation and backfilling in the vicinity of the former UST was completed by Stumpf Bros Excavating Limited using a Daewoo 225 LCV Solar Excavator. Soil samples were collected approximately every 0.5 m until the water table was intercepted at a depth of 2.8 m below ground surface (bgs). Soil samples were examined for evidence of hydrocarbons by headspace analysis with a MiniRae photoionization detector (PID) as a field screening technique. These observations were logged in the field. Selected soil samples were placed in laboratory supplied jars and Zip-lock bags and stored in a cooler with freezer packs.

One soil sample collected near the water table was placed in a laboratory-supplied bottle and submitted to Maxxam Analytical Inc. (Maxxam) in Mississauga for analysis of F1 to F4 hydrocarbons.

Analytical results are compared to the potable groundwater Table 2 criteria of the *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*, MOE, 2004 (Standard).

Upon completion of the excavation and the collection of soil samples the excavation was backfilled with native soil. Selected photographs of the excavation are attached.

FINDINGS OF INVESTIGATION

Excavation in the vicinity of the former UST on February 14, 2005 revealed a thin layer of gravel overlying clay till to a depth of 1.5 m bgs. Below this, the soil consists of medium to fine brown sand, becoming coarser with depth. At the bottom of the excavation some gravel sized stones to cobbles were observed. The final depth of the excavation was 3.2 m bgs. The excavation was approximately 2.6 m by 2.3 m in size.

The filling pipe for the UST was found approximately 0.8 m bgs. A post and cement block presumed to be the anchoring mechanism for the UST were uncovered at approximately 1.2 m bgs. Neither the fill pipe nor the post and cement block had any hydrocarbon odour. A disused steel water line was uncovered at approximately 1 m bgs. No other pipes or connections for the UST were found.

The maximum depth of the excavation was 3.2 m bgs and the water table was encountered at 2.8 mbgs. The groundwater that entered the excavation appeared to have high iron content. No oily sheen was visible on the surface of the water. No visible evidence of hydrocarbon impacts to the soil or groundwater was observed.

Concentrations of TPH in the soil sample were below the detection limits and Table 2 criteria of the Standard, as indicated on Table 1. Complete laboratory Certificates of Analyses are attached.

Table 1. Concentration of Hydrocarbons in Soil

Component	Table 2 Standard (Jlg/g)	Sample 1-2.75 m bgs (Jlg/g)
Petroleum Hydrocarbons F1 (C6-C10)	30	<10
Petroleum Hydrocarbons F2 (C10-C16)	150	<10
Petroleum Hydrocarbons F1 (C16-C34)	400	<10
Petroleum Hydrocarbons F1 (>C34)	2800	<10
Benzene	0.24	<0.02
Toluene	2.1	<0.02
Ethylbenzene	0.28	<0.02
m-Xylene and p-Xylene	25*	<0.04
o-Xylene	25*	<0.02

* Combined m-Xylene, p-Xylene and o-Xylene concentration not to exceed 25 Jlg/g.

Based on the results of sampling and visual inspection of the soil and groundwater, it is our opinion that the site meets the remediation criteria of Table 2 of the Standard. No further investigations or remediation are warranted.

SUMMARY

The findings of the investigation at the subject property are summarized as follows:

- The soil encountered consists of clay till overlying medium to coarse sand with some gravel and cobbles.
- No visible evidence of hydrocarbon impacts to the soil or groundwater were observed in the vicinity of the former UST.
- The concentrations of petroleum hydrocarbons in the soil in the vicinity of the former UST are below the Table 2 criteria of the Standard.

Should you have any questions or comments, please contact the undersigned.

Yours very truly,

GAMSBY AND MANNEROW LIMITED

Per:



Mary Kennedy B.Sc.,
Junior Technologist

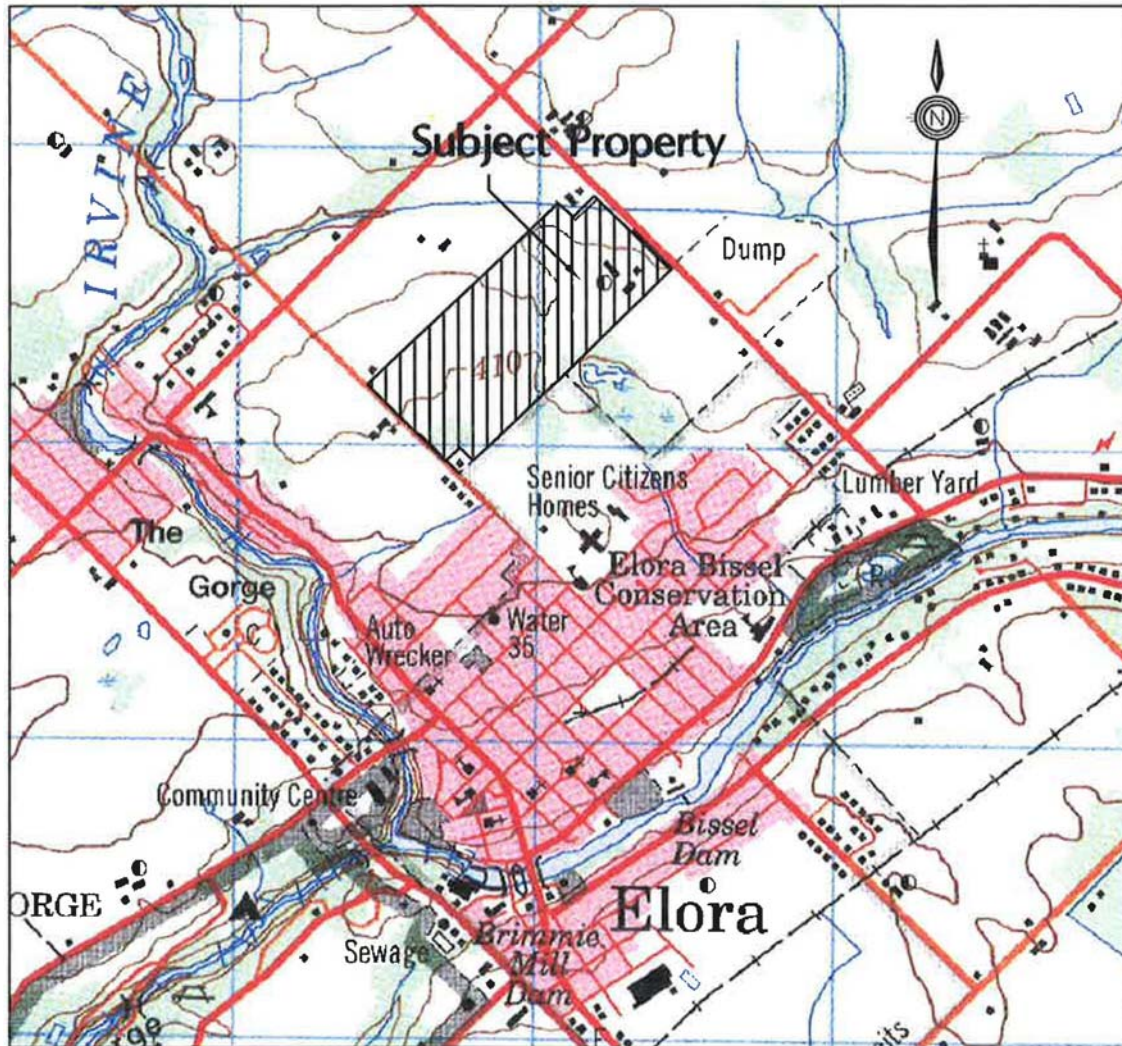
Per:



Dirk Gevaert, B.Sc., M. Sc., P.Ge
Senior Hydrogeologist

MK/mk

Attach:



Scale 1:25,000

0 500 1 000 1 500 metres

Figure 1 Site Location

Phase II ESA
Hill Property
Centre Wellington, Ontario
Project No. 104-185



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0 30 60m

Figure 2 Detailed Site Plan Hill Property

Phase II ESA
Hill Property
Centre Wellington, Ontario
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Photo 1
Location of former UST



Fill pipe

Photo 2
Fill pipe uncovered at 0.8 mbgs

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Hill Property, Phase II ESA
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Photo 3
Concrete block and post uncovered at 1.2 mbgs



Photo 4
Northeast wall of excavation

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Hill Property, Phase II ESA
104-185



Photo 5
Bottom of excavation
Water table intersected at 2.8 mbgs

PHOTOS TAKEN
February 14, 2005

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