March 20, 2023
Our File: 105172

City of Guelph Engineering and
Transportation Services
1 Carden St.
Guelph, ON N1H 3A1

Attention: Mr. Jim Hall, P.Eng.
Development and Infrastructure Engineer

Re: Phase Two Environmental Site Assessment
20 Cityview Drive North, Guelph, ON
File No. 16.152.357 – 23T-12502 – ZC1208

Dear Mr. Hall,

In 2011, GM BluePlan Engineering Limited (GM BluePlan), formerly Gamsby and Mannerow Limited, was retained by Carson Reid Homes Ltd. to complete a Phase One and Two Environmental Site Assessment (ESA) as well as to document subsequent remediation at a property located at 20 Cityview Drive North in Guelph, Ontario. Site location is shown in Figure 1.

GM BluePlan completed the following documents pertaining to the subject property:

> *Phase I ESA 20 Cityview Drive North, City of Guelph, County of Wellington (Gamsby and Mannerow Engineering Ltd., May 3, 2011)*
>
> *Phase II ESA 20 Cityview Drive North, City of Guelph, County of Wellington (Gamsby and Mannerow Engineering Ltd., May 4, 2011)*

We have reviewed the preliminary engineering comments on Draft Plan 4th Submission for Cityview Ridge Subdivision dated June 8, 2022, File No. 16.152.357 – 23T-12502 – ZC1208, particularly the comments related to Phase One and Two ESA reports previously submitted for 20 Cityview Drive North property.

This letter is specifically in response to Comments No. 7, 8, 11, 13 and 14 related to the Phase One and Two ESA for 20 Cityview Drive North property. The comments state:

*Comment No. 7:*

> *The Phase II ESA was not identified to be prepared in accordance with either O. Reg. 153/04 (as amended) or CSA Z769-00 (as amended) as is required by the Guidelines.*

*Comment No. 8:*

> *The current Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (2011 Standards) were published by the Ministry of the Environment, Conservation, and Parks (formerly Ministry of the Environment) in April 16, 2011, after the Phase II ESA was prepared.*

*Comment No. 11:*

*QPs responsible for drafting the Phase I and II ESAs must submit updated Phase I and Phase II ESAs to indicate an accurate environmental assessment of the current site condition to current standards, as applicable to the proposed development.*

*Comment No. 13:*

*The updated Phase II ESA must be prepared in accordance with either O. Reg. 153/04 (as amended) or CSA Z769-00 (as amended) as is required by the Guidelines.*

*Comment No. 14:*

*The updated Phase II ESA must compare analytical results to the 2011 Standards.*

**RESPONSE TO COMMENTS NO. 7 AND 13: PHASE TWO ESA AND REMEDIATION**

**To address Comments No. 7 and 13,** by means of this letter, GM BluePlan confirms that the 2011 Phase Two ESA for 20 Cityview Drive North property was conducted as a due diligence investigation in general accordance with the standard set by Canadian Standards Association (CSA) *Report No. Z769-00, Phase II Environmental Site Assessment (2000)* (as amended) and using industry accepted protocols.

The Phase Two ESA was completed based on the findings of the Phase One ESA conducted by GM BluePlan (formerly Gamsby and Mannerow Limited) for the subject property in general accordance with with the guidelines of the Canadian CSA *Report No. Z768-01, Phase I Environmental Site Assessment (2001*), as stated in our report.

The Phase Two ESA included a test pit investigation and subsequent soil sampling program to investigate the identified area of potential concern related to reports of fill of unknown quality imported to the subject property. Based on a test pit investigation conducted during the Phase Two ESA on December 15, 2010, and January 6, 2011, exceedances of the applicable Standard for one or more of polycyclic aromatic hydrocarbons (PAHs) and metals (lead, copper, zinc and arsenic) were reported in the investigative soil samples (locations shown in Figure 2 and summary of results in Table 1 and 2 (Enclosure 1 and 2)).

Consequently, remediation of the impacted fill material took place through excavation and off-site disposal of impacted soils. A confirmation soil sampling program was conducted by GM BluePlan on February 22, 2011, to confirm remedial efforts. Based on analytical results of confirmation soil samples, which identified remaining concentrations above the applicable Standards in a localized area, supplemental excavation took place with additional material transported for off-site disposal. Following excavation, additional confirmation soil samples were collected on March 4, 2011 (locations shown in Figure 3).

Based on subsequent confirmation soil sampling completed on March 4, 2011, in the remaining native soils, concentrations of PAHs, lead, copper and arsenic parameters were reported below the applicable Standards for these parameters (refer to Table 3 and 4 in Enclosure 1 and 2). Minor zinc exceedance in the remaining native silty soils, beneath the excavated fill material, was reported in one soil sample (Sample ID E Wall 3). The zinc exceedance is considered to be isolated in nature, as the remaining soil samples contained zinc concentrations below the applicable MECP Standard. Based on project experience in Guelph area, elevated zinc (and other metals) concentrations are sometimes encountered in native soils and thus are inferred to be naturally occurring and not considered to pose an environmental concern for the subject property. The Phase Two ESA concluded that based on visual observations and analytical results, the suspect soils appear to have been removed and no further environmental work was recommended at that time.

Please refer to the Phase Two ESA report dated May 4, 2011, for additional details.

**RESPONSE TO COMMENTS NO. 8, 11, 13 AND 14: APPLICABLE CRITERIA – REGULATORY SETTING**

For the purpose of environmental investigations, impacts are determined by comparing laboratory results to the criteria identified in the *Soil, Ground Water, and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (April 15, 2011), under Ontario Regulation 153/04 (as amended), hereafter referred to as the Standard.

In determining the applicable regulatory criteria of the Standard, the property use, groundwater use scenario, and soil texture must be selected.

A review of the Site conditions indicates the following:

1. The Site is located within the City of Guelph, which receives its water supply from groundwater.
2. The Site is under residential land use.

As part of the determination of the soil Standards under the O. Reg. 153/04 (as amended), the soil must be defined as “fine and medium textured” or “coarse textured” based on Site conditions. By definition, fine and medium textured fill and soils contain less than 50 percent by mass of particles greater than or equal to 75 µm in diameter.

Based on the test pit investigation, the soils were observed to be silt and clay till with gravel and cobbles with observations of concrete and brick debris. A grain size analysis was not conducted; therefore, the more conservative coarse soil texture criteria have been selected as the applicable Standard for this Site.

In determining the applicable regulatory criteria, the depth of soil (overburden) must also be taken into account. Sites containing less than 2 m of overburden over 1/3 of the property or more are defined by O. Reg. 153/04 (as amended) as “environmentally sensitive” and as a result there is a more stringent set of criteria associated with these environmental settings. The depth of soil (overburden) at the Site was observed to be greater than 2 m and therefore, the Site is not considered to be a shallow soil property.

Where all or part of the Site lies within 30 m of a waterbody, separate criteria were derived with the objective of protecting surface water bodies. No water bodies were noted within 30 m of the Site. Based on Grand River Conservation (GRCA) mapping Clythe Creek and Hadati Creek are located more than 150 m away from the subject property.

Therefore, to assess compliance, the Table 2 Standards (i.e., for a potable groundwater scenario) for coarse textured soils with a Residential/Parkland/Institutional property use have been selected as the applicable Standards for the purposes of the Phase Two ESA and post-remediation conformation soil samples.

The soil confirmation sample results from 2011 remediation (Table 3 and 4, Enclosure 1), were reviewed and compared to the currently applicable MECP Standards (MECP April 15, 2011) (Table 3 and 4, Enclosure 2). Based on comparison to the current applicable Standards, no new exceedances have been identified and the assessment of the previously reported results of confirmation soil samples and conclusions of the 2011 Phase Two ESA report remain unchanged.

Based on the findings of recently completed Phase One ESA for the subject property (GM BluePlan 2023), no new Areas of Potential Environmental Concern (APEC) have been identified at the subject property. Previously identified APEC related to the quality of the imported fill material at 20 Cityview Drive North property is considered to have been addressed as part of previous investigations and remediation of impacted imported fill material.

We trust that this is sufficient for your use at this time. Please do not hesitate to contact us if you have any questions, or should you wish to discuss this further.

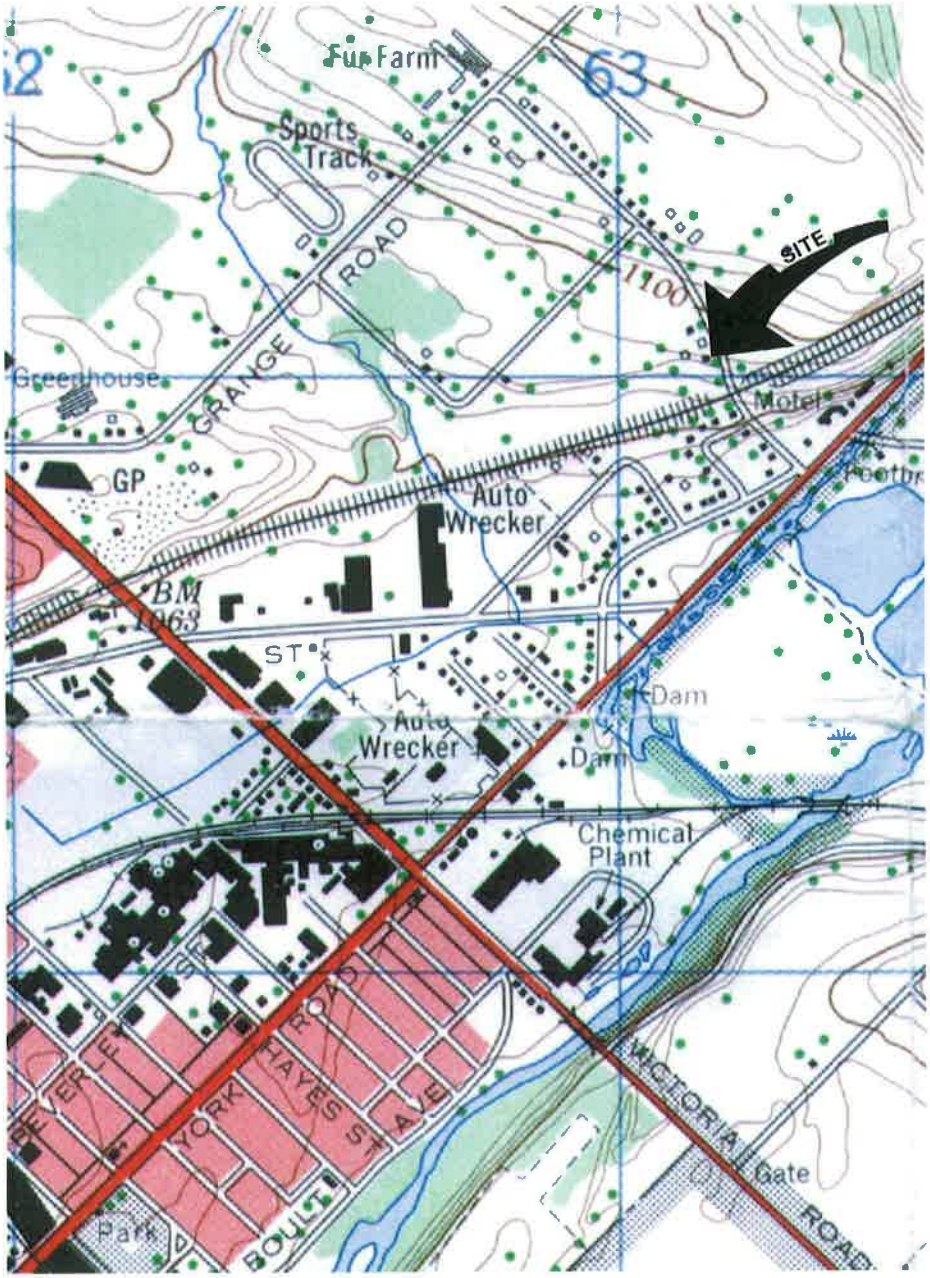
GM BLUEPLAN ENGINEERING LIMITED

Per:

Matthew Nelson M.Sc., P.Eng., P.Geo.

MN/jo

410085
Phase II ESA




SCALE = N.T.S.
MAY 2011

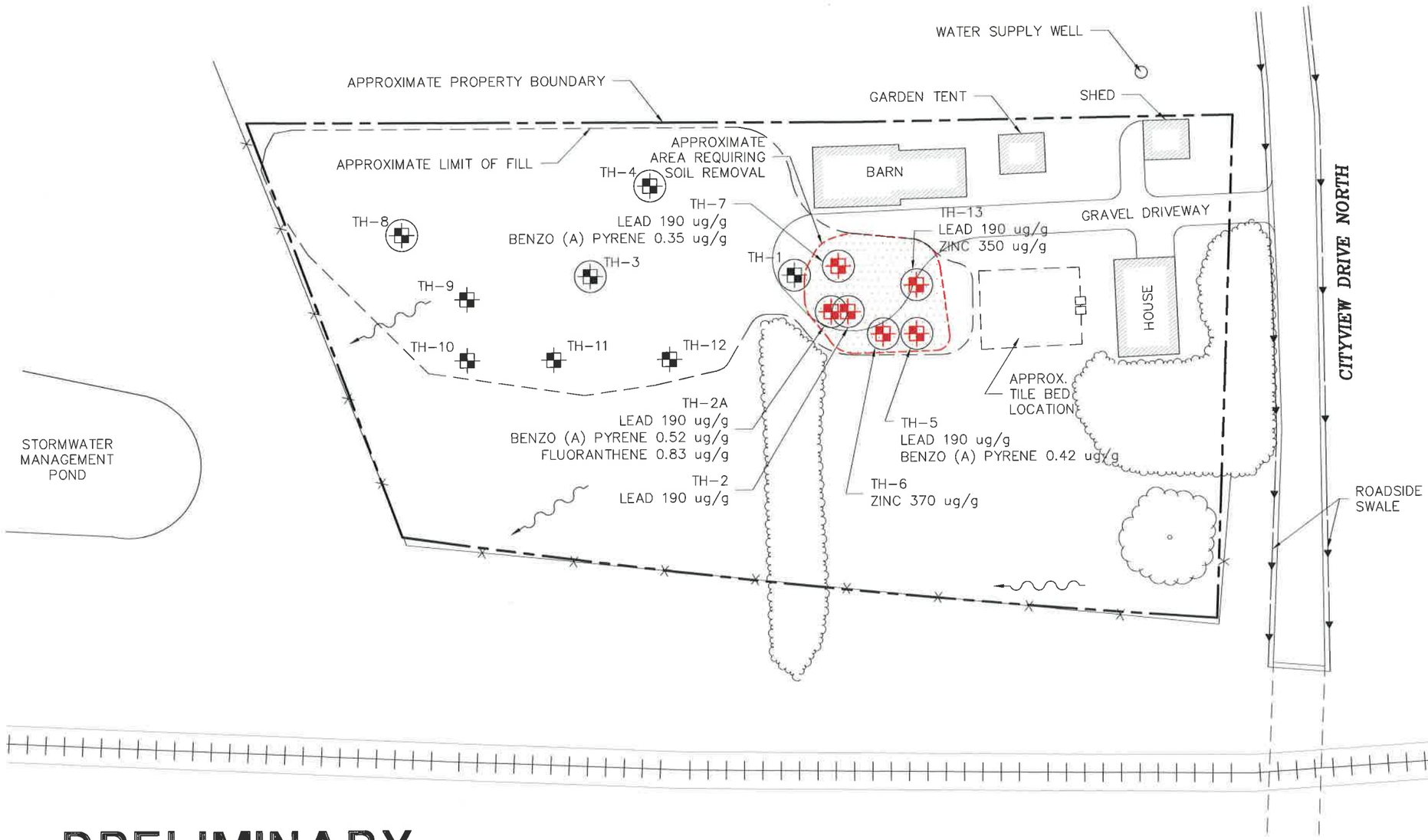
# SITE LOCATION MAP

## 20 Cityview Drive North
## Guelph, ON
## County of Wellington

## Figure No. 1

Gamsby and Mannerow
ENGINEERS

# 410085
# Phase II ESA




LEGEND

- SAMPLE COLLECTED FOR LABORATORY ANALYSIS
- TH-1 APROXIMATE TESTHOLE LOCATION
- SAMPLE EXCEEDS TABLE 2 CRITERIA OF THE 2009 STANDARD WHICH COMES INTO EFFECT ON JULY 1, 2011

[ LEAD = 120 ug/g
ZINC = 340 ug/g
BENZO (A) PYRENE = 0.3 ug/g
FLUORONTHENE = 0.69 ug/g ]

NOTE:
ALL SAMPLES FROM ALL TESTHOLES MEET THE CURRENT TABLE 2 CRITERIA OF THE 2004 STANDARD

SCALE 1:750

MAY 2011

## TESTHOLE LOCATION PLAN

## 20 Cityview Drive North
## Guelph, ON
## County of Wellington

## Figure No. 2

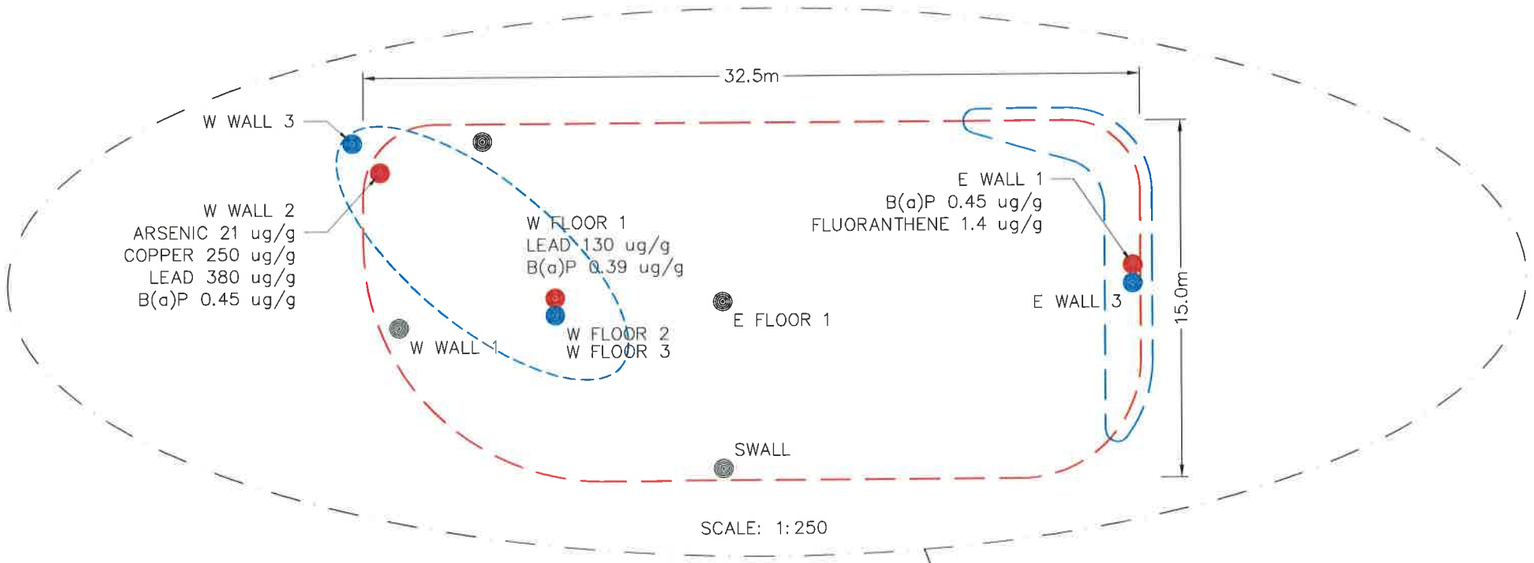
Gamsby and Mannerow ENGINEERS

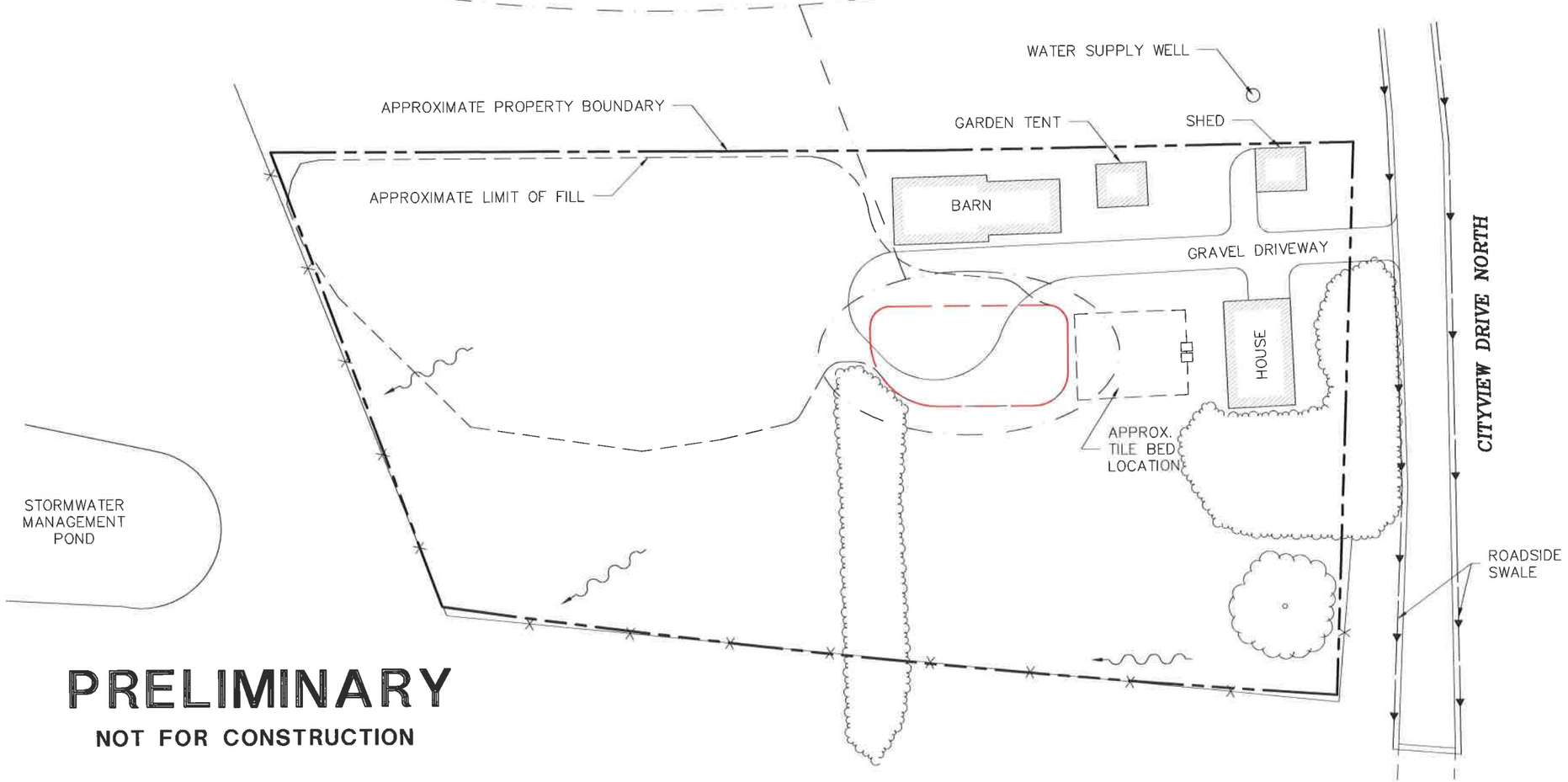
**PRELIMINARY**

**NOT FOR CONSTRUCTION**

Plotted on: May 4, 2011 410085 TH-B (Phase II).dwg

**410085**
**Phase II ESA**




LEGEND

| | |
|---|---|
| E WALL 1 | INVESTIGATIVE SAMPLE COLLECTED FEB. 22, 2011 |
| S WALL 2 | CONFIRMATORY SAMPLE COLLECTED FEB. 22, 2011 |
| E WALL 3 | CONFIRMATORY SAMPLE COLLECTED MARCH 4, 2011 |
| – – – | LIMIT OF EXCAVATION COMPLETED ON FEB. 22, 2011 |
| – – – | FURTHER EXCAVATION COMPLETED ON MARCH 3&4, 2011 |

SCALE 1:750
MAY 2011

# APPROXIMATE EXCAVATION & CONFIRMATION SAMPLE LOCATION PLAN

## 20 Cityview Drive North
## Guelph, ON
## County of Wellington

## Figure No. 3

Gamsby and Mannerow ENGINEERS

**PRELIMINARY**
**NOT FOR CONSTRUCTION**

Plotted on: May 4, 2011 410085 TH-B (Phase II).dwg

# ENCLOSURE 1:

# 2011 Summary of Laboratory Results

**Table 1: Concentration of Metals in Soil - Testhole Investigation**

| Matrix: | Table 2: Criteria for Potable Groundwater | Table 2: Criteria for Potable Groundwater | Soil | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | | | TH-1 | TH-2 | TH-3 | TH-4 | TH-2A | TH-5 | TH-6 | TH-7 | TH-8 | TH-13 |
| Date Sampled | µg/g (2004)[1] | µg/g (2009)[2] | Dec-15-10 | Dec-15-10 | Dec-15-10 | Dec-15-10 | Jan-6-11 | Jan-6-11 | Jan-6-11 | Jan-6-11 | Jan-6-11 | Jan-6-11 |
| Antimony | 13 | 8 | 0.5 | 0.8 | <0.2 | 0.3 | 0.8 | 0.8 | 0.3 | 2.9 | <0.2 | 0.6 |
| Arsenic | (25) 20 | 18 | 5 | 7 | 2 | 4 | 7 | 7 | 5 | 6 | 3 | 5 |
| Barium | (1000) 750 | 390.0 | 48 | 77 | 14 | 39 | 110 | 93 | 50 | 62 | 34 | 64 |
| Beryllium | 1.2 | (5) 4 | 0.3 | 0.4 | <0.2 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.2 | 0.4 |
| Boron (Hot water soluble) | 1.5 | 1.5 | 1.2 | 0.4 | 0.18 | 1.3 | 6 | 5 | 6 | 6 | <5 | 6 |
| Cadmium | 12 | 1.2 | 0.8 | 0.6 | 0.30 | 0.8 | 0.7 | 0.7 | 0.5 | 1.0 | 0.3 | 1.0 |
| Chromium | (1000) 750 | 160 | 12 | 13 | 4 | 10 | 13 | 14 | 10 | 12 | 10 | 13 |
| Chromium VI | (10) 8 | (10) 8 | <2 | <2 | <0.4 | <0.4 | - | - | - | - | - | - |
| Cobalt | (50) 40 | 22 | 4.2 | 4.3 | 1.6 | 4.0 | 4.1 | 4.2 | 3.6 | 4.6 | 4.2 | 5.0 |
| Copper | (300) 225 | (180) 140 | 32 | 27 | 7.2 | 21 | 38 | 33 | 18 | 36 | 12 | 33 |
| Lead | 200 | 120 | 87 | **140** | 27 | 73 | **190** | **190** | 88 | **190** | 23 | **130** |
| Mercury | 10 | (1.8) 0.27 | <0.05 | 0.19 | <0.05 | 0.06 | - | - | - | - | - | - |
| Molybdenum | 40 | 6.9 | 0.6 | 0.5 | <0.5 | 0.6 | 0.6 | 0.6 | <0.5 | 0.5 | <0.5 | 0.7 |
| Nickel | (200) 150 | (130) 100 | 9.9 | 10 | 3.6 | 9.3 | 10 | 11 | 8.1 | 11 | 8.5 | 12 |
| Selenium | 10 | 2.4 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Silver | (25) 20 | (25) 20 | <0.2 | <0.2 | <0.2 | <0.2 | 0.3 | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Thallium | 4.1 | 1 | 0.08 | 0.09 | <0.05 | 0.08 | 0.12 | 0.12 | 0.07 | <0.05 | 0.06 | <0.05 |
| Uranium | - | 23 | - | - | - | - | 0.59 | 0.65 | 0.49 | 0.43 | 0.41 | 0.51 |
| Vanadium | (250) 200 | 86 | 19 | 21 | 9 | 17 | 21 | 22 | 19 | 20 | 18 | 22 |
| Zinc | (800) 600 | 340 | 270 | 230 | 140 | 310 | 230 | 250 | **370** | 320 | 110 | **350** |

**Notes:**

- [1]Criteria are from the *Soil, Groundwater, and Sediment Standards* for Use Under Part XV.1 of the Environmental Protection Act, March 2004 Table 2 - Potable Groundwater Scenario
- [2]Criteria are from the Updated *Soil, Groundwater and Sediment Standards* for use Under Part XV.1 of the Environmental Protection Act, July 2009, Table 2 - Potable Groundwater Scenario which comes into effect on July 1, 2011.
- Concentrations in µg/g (ppm)
- Concentrations shaded exceed the 2004 criteria and concentrations in bold exceed the 2009 criteria
- values in brackets represent medium and fine-grained soils

**Table 2: Concentration of PAHs in Soil - Testhole Investigation**

| Matrix: | Table 2: Criteria for Potable Groundwater µg/g (2004)[1] | Table 2: Criteria for Potable Groundwater µg/g (2009)[2] | Soil | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | | | TH-1 | TH-2 | TH-3 | TH-4 | TH-2A | TH-5 | TH-6 | TH-7 | TH-8 | TH-13 |
| Date Sampled | | | Dec-15-10 | Dec-15-10 | Dec-15-10 | Dec-15-10 | Jan-6-11 | Jan-6-11 | Jan-6-11 | Jan-6-11 | Jan-6-11 | Jan-6-11 |
| Acenaphthene | 15 | (29) 7.9 | <0.01 | 0.02 | <0.01 | <0.02 | 0.02 | 0.01 | <0.02 | <0.02 | 0.01 | <0.02 |
| Acenaphthylene | 100 | (0.17) 0.15 | 0.008 | 0.03 | <0.005 | 0.02 | 0.081 | 0.061 | 0.050 | 0.073 | 0.073 | 0.02 |
| Anthracene | 28 | (0.74) 0.67 | 0.021 | 0.07 | <0.005 | 0.02 | 0.11 | 0.086 | 0.057 | 0.073 | 0.18 | 0.03 |
| Benzo(a)anthracene | 6.6 | (0.63) 0.5 | 0.06 | 0.30 | 0.01 | 0.07 | 0.41 | 0.32 | 0.18 | 0.25 | 0.12 | 0.08 |
| Benzo(a)pyrene | 1.2 | 0.3 | 0.05 | 0.29 | 0.010 | 0.06 | **0.52** | **0.42** | 0.22 | **0.35** | 0.15 | 0.10 |
| Benzo(b/j)fluoranthene | 12 | 0.78 | 0.08 | 0.39 | 0.01 | 0.09 | 0.69 | 0.55 | 0.27 | 0.46 | 0.25 | 0.15 |
| Benzo(ghi)perylene | 40 | (7.8) 6.6 | 0.05 | 0.24 | <0.02 | 0.06 | 0.36 | 0.32 | 0.13 | 0.21 | 0.10 | 0.08 |
| Benzo(k)fluoranthene | 12 | 0.78 | 0.03 | 0.14 | <0.01 | 0.03 | 0.24 | 0.19 | 0.09 | 0.15 | 0.09 | 0.05 |
| Chrysene | 12 | (7.8) 7 | 0.05 | 0.26 | <0.01 | 0.05 | 0.36 | 0.29 | 0.15 | 0.24 | 0.13 | 0.08 |
| Dibenzo(a,h)anthracene | 1.2 | 0.1 | <0.02 | <0.04 | <0.02 | <0.04 | 0.09 | 0.08 | 0.03 | 0.06 | 0.02 | <0.04 |
| Fluoranthene | 40 | 0.69 | 0.12 | 0.66 | 0.020 | 0.10 | **0.83** | 0.66 | 0.38 | 0.52 | 0.44 | 0.19 |
| Fluorene | 340 | (69) 62 | 0.006 | 0.02 | <0.005 | <0.01 | 0.015 | 0.012 | 0.010 | 0.010 | 0.009 | <0.01 |
| Indeno(1,2,3-cd)pyrene | 12 | (0.48) 0.38 | 0.04 | 0.24 | <0.02 | 0.05 | 0.42 | 0.34 | 0.16 | 0.25 | 0.11 | 0.08 |
| 1-Methylnaphthalene[3] / 2-Methylnaphthalene[3] | 1.2 | (3.4) 0.99 | <0.005 | 0.03 | <0.005 | <0.01 | 0.047 | 0.029 | <0.01 | <0.01 | <0.01 | <0.02 |
| Naphthalene | 4.6 | (0.75) 0.6 | <0.005 | 0.01 | <0.005 | <0.01 | 0.021 | 0.018 | <0.01 | 0.007 | <0.01 | <0.01 |
| Phenanthrene | 40 | (7.8) 6.2 | 0.069 | 0.29 | 0.010 | 0.05 | 0.31 | 0.22 | 0.14 | 0.18 | 0.094 | 0.08 |
| Pyrene | 250 | 78 | 0.10 | 0.56 | 0.018 | 0.09 | 0.78 | 0.61 | 0.32 | 0.41 | 0.34 | 0.17 |

**Notes:**

- [1]Criteria are from the *Soil, Groundwater, and Sediment Standards* for Use Under Part XV.1 of the Environmental Protection Act, March 2004 Table 2 - Potable Groundwater Scenario
- [2]Criteria are from the Updated *Soil, Groundwater and Sediment Standards* for use Under Part XV.1 of the Environmental Protection Act, July 2009, Table 2 - Potable Groundwater Scenario which comes into effect on July 1, 2011.
- [3] The sum of 1- and 2- Methylnaphthalene must not exceed the standard.
- Concentrations in µg/g (ppm)
- Concentrations shaded exceed the 2004 criteria and concentrations in bold exceed the 2009 criteria
- values in brackets represent medium and fine-grained soils

**Table 3: Concentration of Metals in Soil - Confirmation of Suspect Fill Removal**

| Matrix: Soil | Table 2: Criteria for Potable Groundwater | Table 2: Criteria for Potable Groundwater | Investigative | | | Confirmatory | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | | | E Wall 1 | W Floor 1 | W Wall 2 | N Wall 1 | E Floor 1 | S Wall 2 | W Wall 1 | W Wall 3 | W Floor 2 | W Floor 3[3] | E Wall 3 |
| Date Sampled | µg/g (2004)[1] | µg/g (2009)[2] | Feb-22-11 | Feb-22-11 | Feb-22-11 | Feb-22-11 | Feb-22-11 | Feb-22-11 | Feb-22-11 | Mar-04-11 | Mar-04-11 | Mar-04-11 | Mar-04-11 |
| Antimony | 13 | 8 | <0.2 | 1.1 | 6 | 0.3 | <0.2 | <0.2 | 0.2 | 0.4 | <0.2 | <0.2 | <0.2 |
| Arsenic | (25) 20 | 18 | 4 | 6 | **21** | 4 | 4 | 3 | 4 | 7 | 2 | 2 | 3 |
| Barium | (1000) 750 | 390.0 | 38 | 60 | 130 | 43 | 35 | 30 | 40 | 87 | 19 | 20 | 33 |
| Beryllium | 1.2 | (5) 4 | 0.3 | 0.3 | 0.2 | 0.3 | 0.5 | 0.3 | 0.3 | 0.3 | <0.2 | <0.2 | 0.4 |
| Boron (Hot water soluble) | 1.5 | 1.5 | 0.92 | 1.5 | 1.9 | 0.97 | 0.44 | 0.37 | 0.78 | 0.83 | 0.4 | 0.4 | 0.23 |
| Cadmium | 12 | 1.2 | 0.5 | 1 | 2.1 | 0.6 | 0.7 | 0.5 | 0.5 | 0.8 | 6 | 6 | 0.7 |
| Chromium | (1000) 750 | 160 | 10 | 14 | 29 | 11 | 11 | 10 | 12 | 11 | 2.6 | 2.7 | 31 |
| Chromium VI | (10) 8 | (10) 8 | <0.2 | <0.2 | <0.2 | <0.2 | 0.3 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Cobalt | (50) 40 | 22 | 4.0 | 5 | 3.8 | 4.2 | 4.6 | 3.8 | 3.7 | 5.0 | 2.6 | 2.7 | 6.0 |
| Copper | (300) 225 | (180) 140 | 12 | 41 | **250** | 16 | 11 | 14 | 21 | 29 | 8.2 | 8.6 | 18 |
| Lead | 200 | 120 | 46 | **130** | **380** | 51 | 63 | 48 | 61 | 100 | 43 | 45 | 46 |
| Mercury | 10 | (1.8) 0.27 | <0.05 | 0.21 | 0.09 | 0.05 | <0.05 | <0.05 | <0.05 | 0.14 | <0.05 | <0.05 | <0.05 |
| Molybdenum | 40 | 6.9 | <0.5 | 0.6 | 1.7 | <0.5 | <0.5 | <0.5 | <0.5 | 0.9 | <0.5 | <0.5 | <0.5 |
| Nickel | (200) 150 | (130) 100 | 7.5 | 13 | 34 | 10 | 11 | 8.0 | 8.1 | 12 | 6.1 | 6.3 | 15 |
| Selenium | 10 | 2.4 | <0.5 | 0.8 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Silver | (25) 20 | (25) 20 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Thallium | 4.1 | 1 | 0.07 | 0.07 | <0.05 | 0.08 | 0.09 | 0.07 | 0.07 | 0.10 | 0.06 | 0.06 | 0.09 |
| Uranium | - | 23 | 0.36 | 0.39 | 0.35 | 0.49 | 0.48 | 0.46 | 0.42 | 0.43 | 0.40 | 0.40 | 0.37 |
| Vanadium | (250) 200 | 86 | 22 | 20 | 17 | 22 | 22 | 22 | 20 | 19 | 12 | 12 | 40 |
| Zinc | (800) 600 | 340 | 170 | 310 | **680** | 190 | 340 | 220 | 190 | 340 | 300 | 310 | **360** |

**Notes:**

- [1]Criteria are from the *Soil, Groundwater, and Sediment Standards* for Use Under Part XV.1 of the Environmental Protection Act, March 2004 Table 2 - Potable Groundwater Scenario
- [2]Criteria are from the Updated *Soil, Groundwater and Sediment Standards* for use Under Part XV.1 of the Environmental Protection Act, July 2009, Table 2 - Potable Groundwater Scenario which comes into effect on July 1, 2011.
- [3] W Floor 3 was collected as a field duplicate sample of W Floor 2.
- Concentrations in µg/g (ppm)
- Concentrations shaded exceed the 2004 criteria and concentrations in bold exceed the 2009 criteria
- values in brackets represent medium and fine-grained soils

**Table 4: Concentration of PAHs in Soil - Confirmation of Suspect Fill Removal**

| Matrix: Soil | Table 2: Criteria for Potable Groundwater µg/g (2004)[1] | Table 2: Criteria for Potable Groundwater µg/g (2009)[2] | Investigative | | | Confirmatory | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | | | W Wall 2 | W Floor 1 | E Wall 1 | N Wall 1 | W Wall 1 | S Wall 2 | E Floor 1 | W Wall 3 | W Floor 2 | W Floor 3[3] | E Wall 3 |
| Date Sampled | | | Feb-22-11 | Feb-22-11 | Feb-22-11 | Feb-22-11 | Feb-22-11 | Feb-22-11 | Feb-22-11 | Mar-04-11 | Mar-04-11 | Mar-04-11 | Mar-04-11 |
| Acenaphthene | 15 | (29) 7.9 | <0.02 | <0.01 | 0.06 | <0.02 | 0.02 | <0.01 | <0.01 | ND | <0.01 | <0.01 | <0.01 |
| Acenaphthylene | 100 | (0.17) 0.15 | 0.08 | 0.025 | ND | <0.01 | 0.03 | <0.005 | <0.005 | 0.007 | <0.005 | <0.005 | <0.005 |
| Anthracene | 28 | (0.74) 0.67 | 0.15 | 0.14 | 0.081 | 0.03 | 0.07 | <0.005 | <0.005 | 0.009 | <0.005 | <0.005 | <0.005 |
| Benzo(a)anthracene | 6.6 | (0.63) 0.5 | 0.41 | 0.36 | 0.30 | 0.12 | 0.20 | <0.01 | <0.01 | 0.03 | <0.01 | <0.01 | <0.01 |
| Benzo(a)pyrene | 1.2 | 0.3 | **0.45** | **0.39** | **0.36** | 0.12 | 0.27 | 0.009 | <0.005 | 0.029 | <0.005 | <0.005 | <0.005 |
| Benzo(b/j)fluoranthene | 12 | 0.78 | 0.62 | 0.49 | 0.46 | 0.16 | 0.33 | 0.01 | <0.01 | 0.04 | <0.01 | <0.01 | <0.01 |
| Benzo(ghi)perylene | 40 | (7.8) 6.6 | 0.27 | 0.21 | 0.22 | 0.08 | 0.15 | <0.02 | <0.02 | 0.03 | <0.02 | <0.02 | <0.02 |
| Benzo(k)fluoranthene | 12 | 0.78 | 0.2 | 0.16 | 0.15 | 0.05 | 0.10 | <0.01 | <0.01 | 0.01 | <0.01 | <0.01 | <0.01 |
| Chrysene | 12 | (7.8) 7 | 0.39 | 0.35 | 0.31 | 0.10 | 0.16 | <0.01 | <0.01 | 0.03 | <0.01 | <0.01 | <0.01 |
| Dibenzo(a,h)anthracene | 1.2 | 0.1 | 0.07 | 0.06 | 0.05 | <0.04 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 |
| Fluoranthene | 40 | 0.69 | 0.84 | 0.95 | **1.4** | 0.29 | 0.40 | 0.017 | 0.008 | 0.058 | <0.005 | <0.005 | <0.005 |
| Fluorene | 340 | (69) 62 | 0.01 | 0.012 | 0.054 | 0.02 | 0.03 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Indeno(1,2,3-cd)pyrene | 12 | (0.48) 0.38 | 0.32 | 0.26 | 0.25 | 0.08 | 0.16 | <0.02 | <0.02 | 0.03 | <0.02 | <0.02 | <0.02 |
| 1-Methylnaphthalene[4] / 2-Methylnaphthalene[4] | 1.2 | (3.4) 0.99 | 0.01 | <0.005 | 0.013 | <0.001 | 0.03 | <0.005 | <0.005 | 0.012 | <0.005 | <0.005 | <0.005 |
| Naphthalene | 4.6 | (0.75) 0.6 | 0.02 | <0.005 | 0.033 | <0.001 | 0.02 | <0.005 | <0.005 | 0.006 | <0.005 | <0.005 | <0.005 |
| Phenanthrene | 40 | (7.8) 6.2 | 0.22 | 0.34 | 0.68 | 0.17 | 0.20 | 0.007 | <0.005 | 0.036 | <0.005 | <0.005 | <0.005 |
| Pyrene | 250 | 78 | 0.71 | 0.73 | 0.99 | 0.23 | 0.35 | 0.014 | 0.007 | 0.048 | <0.005 | <0.005 | <0.005 |

**Notes:**

- [1]Criteria are from the *Soil, Groundwater, and Sediment Standards* for Use Under Part XV.1 of the Environmental Protection Act, March 2004 Table 2 - Potable Groundwater Scenario
- [2]Criteria are from the Updated *Soil, Groundwater and Sediment Standards* for use Under Part XV.1 of the Environmental Protection Act, July 2009, Table 2 - Potable Groundwater Scenario which comes into effect on July 1, 2011.
- [3] W Floor 3 was collected as a field duplicate sample of W Floor 2.
- [4] The sum of 1- and 2- Methylnaphthalene must not exceed the standard.
- Concentrations in µg/g (ppm)
- Concentrations shaded exceed the 2004 criteria and concentrations in bold exceed the 2009 criteria
- values in brackets represent medium and fine-grained soils

# ENCLOSURE 2:

# Summary of 2011 Laboratory Results with Comparison to MECP Standards (April 15, 2011)

**Table 1**
**Metals and Inorganics in Soil**
**(Phase Two ESA Test Pit Investigation Samples)**

| *Parameter* | *Criteria* [1] | *Units* | *RDL* | TH-1 12/15/10 | TH-2 12/15/10 | TH-3 12/15/10 | TH-4 12/15/10 | TH2A-1.0 01/06/11 08:30 AM | TH5-0.5 01/06/11 08:45 AM | TH6-1.0 01/06/11 10:00 AM | THD 01/06/11 10:15 AM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metals (including Hydride-Forming Metals)** | | | | | | | | | | | |
| Acid Extractable Antimony (Sb) | 7.5 | ug/g | 0.20 | 0.48 | 0.83 | <0.20 | 0.29 | 0.83 | 0.81 | 0.35 | 0.34 |
| Acid Extractable Arsenic (As) | 18 | ug/g | 1.0 | 5.5 | 6.6 | 2.4 | 4 | 7.1 | 6.8 | 5.3 | 5.1 |
| Acid Extractable Barium (Ba) | 390 | ug/g | 0.50 | 48 | 77 | 14 | 39 | 110 | 93 | 50 | 50 |
| Acid Extractable Beryllium (Be) | 4 | ug/g | 0.20 | 0.28 | 0.43 | <0.20 | 0.28 | 0.37 | 0.33 | 0.28 | 0.23 |
| Acid Extractable Boron (B) | 120 | ug/g | 5.0 | - | - | - | - | 6.3 | 5.3 | 5.5 | <5.0 |
| Acid Extractable Cadmium (Cd) | 1.2 | ug/g | 0.10 | 0.75 | 0.59 | 0.28 | 0.82 | 0.65 | 0.73 | 0.52 | 0.52 |
| Acid Extractable Chromium (Cr) | 160 | ug/g | 1.0 | 12 | 13 | 4.5 | 10 | 13 | 14 | 10 | 10 |
| Acid Extractable Cobalt (Co) | 22 | ug/g | 0.10 | 4.2 | 4.3 | 1.6 | 4 | 4.1 | 4.2 | 3.6 | 3.6 |
| Acid Extractable Copper (Cu) | 140 | ug/g | 0.50 | 32 | 27 | 7.2 | 21 | 38 | 33 | 18 | 18 |
| Acid Extractable Lead (Pb) | 120 | ug/g | 1.0 | 87 | **140** | 27 | 73 | **190** | **190** | 88 | 91 |
| Acid Extractable Molybdenum (Mo) | 6.9 | ug/g | 0.50 | 0.58 | 0.54 | <0.50 | 0.6 | 0.64 | 0.6 | <0.50 | <0.50 |
| Acid Extractable Nickel (Ni) | 100 | ug/g | 0.50 | 9.9 | 10 | 3.6 | 9.3 | 10 | 11 | 8.1 | 8 |
| Acid Extractable Selenium (Se) | 2.4 | ug/g | 0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Acid Extractable Silver (Ag) | 20 | ug/g | 0.20 | <0.20 | <0.20 | <0.20 | <0.20 | 0.25 | 0.22 | <0.20 | <0.20 |
| Acid Extractable Thallium (Tl) | 1 | ug/g | 0.050 | 0.078 | 0.092 | <0.050 | 0.085 | 0.12 | 0.12 | 0.073 | 0.053 |
| Acid Extractable Uranium (U) | 23 | ug/g | 0.050 | - | - | - | - | 0.59 | 0.65 | 0.49 | 0.5 |
| Acid Extractable Vanadium (V) | 86 | ug/g | 5.0 | 19 | 21 | 9.4 | 17 | 21 | 22 | 19 | 19 |
| Acid Extractable Zinc (Zn) | 340 | ug/g | 5.0 | 270 | 230 | 140 | 310 | 230 | 250 | **370** | **410** |
| **Other Regulated Parameters** | | | | | | | | | | | |
| Hot Water Extractable Boron | 1.5 | ug/g | 0.050 | 1.2 | 0.43 | 0.18 | 1.3 | - | - | - | - |
| Soluble (20:1) Chloride (Cl-) | | ug/g | | - | - | - | - | - | - | - | - |
| WAD Cyanide (Free) | | ug/g | | 0.01 | 0.01 | <0.01 | <0.01 | - | - | - | - |
| Electrical Conductivity | | mS/cm | | 0.36 | 0.21 | 0.26 | 0.32 | - | - | - | - |
| Hexavalent Chromium (CrVI) | 8 | ug/g | 0.20 | <2.0 | <2.0 | <0.40 | <0.40 | - | - | - | - |
| Acid Extractable Mercury (Hg) | 0.27 | ug/g | 0.050 | <0.050 | 0.19 | <0.050 | 0.058 | - | - | - | - |
| Available (CaCl2) pH | | pH | | 7.52 | 7.32 | 7.81 | 7.64 | - | - | - | - |
| Sodium Adsorption Ratio | | N/A | | 0.79 | 0.4 | **5.8** | 1.3 | - | - | - | - |

| **Legend** | |
|---|---|
| Exceeds Criteria | **Result** |
| Criteria 1 | Reg153/04 T2-Soil/Res-Coarse (MECP April 15, 2011) |

**Table 1**
**Metals and Inorganics in Soil**
**(Phase Two ESA Test Pit Investigation Samples)**

| *Parameter* | *Criteria* [1] | *Units* | *RDL* | TH7-1.5<br>01/06/11<br>10:30 AM | TH8-2.5<br>01/06/11<br>10:45 AM | TH8-2.5 Lab-Duplicate<br>01/06/11<br>10:45 AM | TH13-0.5<br>01/06/11<br>11:30 AM |
|---|---|---|---|---|---|---|---|
| **Metals (including Hydride-Forming Metals)** | | | | | | | |
| Acid Extractable Antimony (Sb) | 7.5 | ug/g | 0.20 | 2.9 | <0.20 | <0.20 | 0.57 |
| Acid Extractable Arsenic (As) | 18 | ug/g | 1.0 | 5.6 | 3.1 | 3 | 5.2 |
| Acid Extractable Barium (Ba) | 390 | ug/g | 0.50 | 62 | 34 | 34 | 64 |
| Acid Extractable Beryllium (Be) | 4 | ug/g | 0.20 | 0.35 | 0.25 | 0.29 | 0.35 |
| Acid Extractable Boron (B) | 120 | ug/g | 5.0 | 5.9 | <5.0 | <5.0 | 5.7 |
| Acid Extractable Cadmium (Cd) | 1.2 | ug/g | 0.10 | 1 | 0.33 | 0.31 | 1 |
| Acid Extractable Chromium (Cr) | 160 | ug/g | 1.0 | 12 | 10 | 10 | 13 |
| Acid Extractable Cobalt (Co) | 22 | ug/g | 0.10 | 4.6 | 4.2 | 4.1 | 5 |
| Acid Extractable Copper (Cu) | 140 | ug/g | 0.50 | 36 | 12 | 11 | 33 |
| Acid Extractable Lead (Pb) | 120 | ug/g | 1.0 | **190** | 23 | 22 | **130** |
| Acid Extractable Molybdenum (Mo) | 6.9 | ug/g | 0.50 | 0.54 | <0.50 | <0.50 | 0.68 |
| Acid Extractable Nickel (Ni) | 100 | ug/g | 0.50 | 11 | 8.5 | 7.9 | 12 |
| Acid Extractable Selenium (Se) | 2.4 | ug/g | 0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Acid Extractable Silver (Ag) | 20 | ug/g | 0.20 | <0.20 | <0.20 | <0.20 | <0.20 |
| Acid Extractable Thallium (Tl) | 1 | ug/g | 0.050 | <0.050 | 0.062 | 0.061 | <0.050 |
| Acid Extractable Uranium (U) | 23 | ug/g | 0.050 | 0.43 | 0.41 | 0.4 | 0.51 |
| Acid Extractable Vanadium (V) | 86 | ug/g | 5.0 | 20 | 18 | 18 | 22 |
| Acid Extractable Zinc (Zn) | 340 | ug/g | 5.0 | 320 | 110 | 110 | **350** |
| **Other Regulated Parameters** | | | | | | | |
| Hot Water Extractable Boron | 1.5 | ug/g | 0.050 | - | - | - | - |
| Soluble (20:1) Chloride (Cl-) | | ug/g | | - | - | - | - |
| WAD Cyanide (Free) | | ug/g | | - | - | - | - |
| Electrical Conductivity | | mS/cm | | - | - | - | - |
| Hexavalent Chromium (CrVI) | 8 | ug/g | 0.20 | - | - | - | - |
| Acid Extractable Mercury (Hg) | 0.27 | ug/g | 0.050 | - | - | - | - |
| Available (CaCl2) pH | | pH | | - | - | - | - |
| Sodium Adsorption Ratio | | N/A | | - | - | - | - |

| **Legend** | |
|---|---|
| Exceeds Criteria | **Result** |
| Criteria 1 | Reg153/04 T2-Soil/Res-Coarse (MECP April 15, 2011) |

**Table 2**
**Polycyclic Aromatic Hydrocarbons in Soil**
**(Phase Two ESA Test Pit Investigation Samples)**

| *Parameter* | *Criteria* [1] | *Units* | *RDL* | TH-1 12/15/10 | TH-2 12/15/10 | TH-2 Lab-Dup 12/15/10 | TH-3 12/15/10 | TH-4 12/15/10 | TH2A-1.0 01/06/11 08:30 AM |
|---|---|---|---|---|---|---|---|---|---|
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | |
| Acenaphthene | 7.9 | ug/g | 0.010 - 0.020 | <0.010 | 0.021 | 0.021 | <0.010 | <0.020 | 0.021 |
| Acenaphthylene | 0.15 | ug/g | 0.0050 - 0.010 | 0.0085 | 0.029 | 0.03 | <0.0050 | 0.019 | 0.081 |
| Anthracene | 0.67 | ug/g | 0.0050 - 0.010 | 0.021 | 0.073 | 0.075 | <0.0050 | 0.019 | 0.11 |
| Benzo(a)anthracene | 0.5 | ug/g | 0.010 - 0.020 | 0.058 | 0.3 | 0.33 | 0.01 | 0.068 | 0.41 |
| Benzo(a)pyrene | 0.3 | ug/g | 0.0050 - 0.010 | 0.052 | 0.29 | **0.31** | 0.0096 | 0.062 | **0.52** |
| Benzo(b/j)fluoranthene | 0.78 | ug/g | 0.010 - 0.020 | 0.08 | 0.39 | 0.44 | 0.014 | 0.086 | 0.69 |
| Benzo(g,h,i)perylene | 6.6 | ug/g | 0.020 - 0.040 | 0.046 | 0.24 | 0.25 | <0.020 | 0.057 | 0.36 |
| Benzo(k)fluoranthene | 0.78 | ug/g | 0.010 - 0.020 | 0.027 | 0.14 | 0.15 | <0.010 | 0.032 | 0.24 |
| Chrysene | 7 | ug/g | 0.010 - 0.020 | 0.048 | 0.26 | 0.29 | <0.010 | 0.051 | 0.36 |
| Dibenzo(a,h)anthracene | 0.1 | ug/g | 0.020 - 0.040 | <0.020 | <0.040 | <0.040 | <0.020 | <0.040 | 0.092 |
| Fluoranthene | 0.69 | ug/g | 0.0050 - 0.010 | 0.12 | 0.66 | **0.73** | 0.02 | 0.1 | **0.83** |
| Fluorene | 62 | ug/g | 0.0050 - 0.010 | 0.0055 | 0.016 | 0.021 | <0.0050 | <0.010 | 0.015 |
| Indeno(1,2,3-cd)pyrene | 0.38 | ug/g | 0.020 - 0.040 | 0.044 | 0.24 | 0.24 | <0.020 | 0.053 | **0.42** |
| 1-Methylnaphthalene | 0.99 | ug/g | 0.0050 - 0.010 | <0.0050 | 0.013 | 0.013 | <0.0050 | <0.010 | 0.022 |
| 2-Methylnaphthalene | 0.99 | ug/g | 0.0050 - 0.010 | <0.0050 | 0.016 | 0.016 | <0.0050 | <0.010 | 0.025 |
| 1+2-Methylnaphthalene | | ug/g | | - | - | - | - | - | - |
| Naphthalene | 0.6 | ug/g | 0.0050 - 0.010 | <0.0050 | 0.014 | 0.015 | <0.0050 | <0.010 | 0.021 |
| Phenanthrene | 6.2 | ug/g | 0.0050 - 0.010 | 0.069 | 0.29 | 0.32 | 0.01 | 0.047 | 0.31 |
| Pyrene | 78 | ug/g | 0.0050 - 0.010 | 0.1 | 0.56 | 0.6 | 0.018 | 0.091 | 0.78 |

| **Legend** | |
|---|---|
| Exceeds Criteria | **Result** |
| Criteria 1 | Reg153/04 T2-Soil/Res-Coarse (MECP April 15, 2011) |

**Table 2**
**Polycyclic Aromatic Hydrocarbons in Soil**
**(Phase Two ESA Test Pit Investigation Samples)**

| *Parameter* | *Criteria* [1] | *Units* | *RDL* | TH5-0.5<br>01/06/11<br>08:45 AM | TH6-1.0<br>01/06/11<br>10:00 AM | THD<br>01/06/11<br>10:15 AM | TH7-1.5<br>01/06/11<br>10:30 AM | TH8-2.5<br>01/06/11<br>10:45 AM | TH13-0.5<br>01/06/11<br>11:30 AM |
|---|---|---|---|---|---|---|---|---|---|
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | | | |
| Acenaphthene | 7.9 | ug/g | 0.010 - 0.020 | 0.014 | <0.010 | <0.010 | <0.010 | 0.01 | <0.020 |
| Acenaphthylene | 0.15 | ug/g | 0.0050 - 0.010 | 0.061 | 0.05 | 0.062 | 0.073 | 0.073 | 0.023 |
| Anthracene | 0.67 | ug/g | 0.0050 - 0.010 | 0.086 | 0.057 | 0.066 | 0.073 | 0.18 | 0.028 |
| Benzo(a)anthracene | 0.5 | ug/g | 0.010 - 0.020 | 0.32 | 0.18 | 0.22 | 0.25 | 0.12 | 0.079 |
| Benzo(a)pyrene | 0.3 | ug/g | 0.0050 - 0.010 | **0.42** | 0.22 | 0.25 | **0.35** | 0.15 | 0.099 |
| Benzo(b/j)fluoranthene | 0.78 | ug/g | 0.010 - 0.020 | 0.55 | 0.27 | 0.32 | 0.46 | 0.25 | 0.15 |
| Benzo(g,h,i)perylene | 6.6 | ug/g | 0.020 - 0.040 | 0.32 | 0.13 | 0.15 | 0.21 | 0.096 | 0.077 |
| Benzo(k)fluoranthene | 0.78 | ug/g | 0.010 - 0.020 | 0.19 | 0.095 | 0.12 | 0.15 | 0.088 | 0.05 |
| Chrysene | 7 | ug/g | 0.010 - 0.020 | 0.29 | 0.15 | 0.18 | 0.24 | 0.13 | 0.079 |
| Dibenzo(a,h)anthracene | 0.1 | ug/g | 0.020 - 0.040 | 0.075 | 0.034 | 0.041 | 0.06 | 0.023 | <0.040 |
| Fluoranthene | 0.69 | ug/g | 0.0050 - 0.010 | 0.66 | 0.38 | 0.45 | 0.52 | 0.44 | 0.19 |
| Fluorene | 62 | ug/g | 0.0050 - 0.010 | 0.012 | 0.0096 | 0.011 | 0.01 | 0.0091 | <0.010 |
| Indeno(1,2,3-cd)pyrene | 0.38 | ug/g | 0.020 - 0.040 | 0.34 | 0.16 | 0.18 | 0.25 | 0.11 | 0.08 |
| 1-Methylnaphthalene | 0.99 | ug/g | 0.0050 - 0.010 | 0.013 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.010 |
| 2-Methylnaphthalene | 0.99 | ug/g | 0.0050 - 0.010 | 0.016 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.010 |
| 1+2-Methylnaphthalene | | ug/g | | - | - | - | - | - | - |
| Naphthalene | 0.6 | ug/g | 0.0050 - 0.010 | 0.018 | <0.0050 | 0.0061 | 0.007 | <0.0050 | <0.010 |
| Phenanthrene | 6.2 | ug/g | 0.0050 - 0.010 | 0.22 | 0.14 | 0.16 | 0.18 | 0.094 | 0.081 |
| Pyrene | 78 | ug/g | 0.0050 - 0.010 | 0.61 | 0.32 | 0.4 | 0.41 | 0.34 | 0.17 |

| **Legend** | |
|---|---|
| Exceeds Criteria | **Result** |
| Criteria 1 | Reg153/04 T2-Soil/Res-Coarse (MECP April 15, 2011) |

**Table 3**
**Metals and Inorganics in Soil**
**(Remediation Confirmation Samples)**

| *Parameter* | *Criteria* [1] | *Units* | *RDL* | INVESTIGATIVE | | |
|---|---|---|---|---|---|---|
| | | | | E WALL 1<br>02/22/11 | W FLOOR1<br>02/22/11<br>08:00 AM | W WALL2<br>02/22/11<br>08:00 AM |
| **Metals (including Hydride-Forming Metals)** | | | | | | |
| Acid Extractable Antimony (Sb) | 7.5 | ug/g | 0.20 | <0.20 | 1.1 | 6 |
| Acid Extractable Arsenic (As) | 18 | ug/g | 1.0 | 4.2 | 5.5 | **21** |
| Acid Extractable Barium (Ba) | 390 | ug/g | 0.50 | 38 | 60 | 130 |
| Acid Extractable Beryllium (Be) | 4 | ug/g | 0.20 | 0.27 | 0.31 | 0.21 |
| Acid Extractable Boron (B) | 120 | ug/g | 5.0 | <5.0 | <5.0 | 14 |
| Acid Extractable Cadmium (Cd) | 1.2 | ug/g | 0.10 | 0.54 | 1 | **2.1** |
| Acid Extractable Chromium (Cr) | 160 | ug/g | 1.0 | 10 | 14 | 29 |
| Acid Extractable Cobalt (Co) | 22 | ug/g | 0.10 | 4 | 5 | 3.8 |
| Acid Extractable Copper (Cu) | 140 | ug/g | 0.50 | 12 | 41 | **250** |
| Acid Extractable Lead (Pb) | 120 | ug/g | 1.0 | 46 | **130** | **380** |
| Acid Extractable Molybdenum (Mo) | 6.9 | ug/g | 0.50 | <0.50 | 0.62 | 1.7 |
| Acid Extractable Nickel (Ni) | 100 | ug/g | 0.50 | 7.5 | 13 | 34 |
| Acid Extractable Selenium (Se) | 2.4 | ug/g | 0.50 | <0.50 | 0.76 | <0.50 |
| Acid Extractable Silver (Ag) | 20 | ug/g | 0.20 | <0.20 | <0.20 | <0.20 |
| Acid Extractable Thallium (Tl) | 1 | ug/g | 0.050 | 0.067 | 0.07 | <0.050 |
| Acid Extractable Uranium (U) | 23 | ug/g | 0.050 | 0.36 | 0.39 | 0.35 |
| Acid Extractable Vanadium (V) | 86 | ug/g | 5.0 | 22 | 20 | 17 |
| Acid Extractable Zinc (Zn) | 340 | ug/g | 5.0 | 170 | 310 | **680** |
| **Other Regulated Parameters** | | | | | | |
| Hot Water Extractable Boron | 1.5 | ug/g | 0.050 | 0.92 | 1.5 | **1.9** |
| Soluble (20:1) Chloride (Cl-) | | ug/g | | - | - | - |
| WAD Cyanide (Free) | | ug/g | | - | - | - |
| Electrical Conductivity | | mS/cm | | - | - | - |
| Hexavalent Chromium (CrVI) | 8 | ug/g | 0.20 | <0.20 | <0.20 | <0.20 |
| Acid Extractable Mercury (Hg) | 0.27 | ug/g | 0.050 | <0.050 | 0.21 | 0.089 |
| Available (CaCl2) pH | | pH | | - | - | - |
| Sodium Adsorption Ratio | | N/A | | - | - | - |

| **Legend** | |
|---|---|
| Exceeds Criteria | **Result** |
| Criteria 1 | Reg153/04 T2-Soil/Res-Coarse (MECP April 15, 2011) |

**Table 3**
**Metals and Inorganics in Soil**
**(Remediation Confirmation Samples)**

| *Parameter* | *Criteria* [1] | *Units* | *RDL* | CONFIRMATORY | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | W WALL 1<br>02/22/11 | N WALL 1<br>02/22/11 | S WALL 2<br>02/22/11 | E FLOOR 1<br>02/22/11 | W WALL3<br>03/04/11<br>05:00 PM | W FLOOR2<br>03/04/11<br>05:00 PM | W FLOOR3 (Field Duplicate of W FLOOR 2)<br>03/04/11<br>05:00 PM | E WALL3<br>03/04/11<br>05:00 PM |
| **Metals (including Hydride-Forming Metals)** | | | | | | | | | | | |
| Acid Extractable Antimony (Sb) | 7.5 | ug/g | 0.20 | 0.22 | 0.25 | <0.20 | <0.20 | 0.37 | <0.20 | <0.20 | <0.20 |
| Acid Extractable Arsenic (As) | 18 | ug/g | 1.0 | 4 | 4.3 | 3.3 | 3.6 | 6.8 | 2.2 | 2.2 | 2.6 |
| Acid Extractable Barium (Ba) | 390 | ug/g | 0.50 | 40 | 43 | 30 | 35 | 87 | 19 | 20 | 33 |
| Acid Extractable Beryllium (Be) | 4 | ug/g | 0.20 | 0.33 | 0.33 | 0.26 | 0.46 | 0.3 | <0.20 | <0.20 | 0.38 |
| Acid Extractable Boron (B) | 120 | ug/g | 5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| Acid Extractable Cadmium (Cd) | 1.2 | ug/g | 0.10 | 0.47 | 0.55 | 0.48 | 0.73 | 0.82 | 0.44 | 0.42 | 0.68 |
| Acid Extractable Chromium (Cr) | 160 | ug/g | 1.0 | 12 | 11 | 10 | 11 | 11 | 6.5 | 6.2 | 31 |
| Acid Extractable Cobalt (Co) | 22 | ug/g | 0.10 | 3.7 | 4.2 | 3.8 | 4.6 | 5 | 2.6 | 2.7 | 6 |
| Acid Extractable Copper (Cu) | 140 | ug/g | 0.50 | 21 | 16 | 14 | 11 | 29 | 8.2 | 8.6 | 18 |
| Acid Extractable Lead (Pb) | 120 | ug/g | 1.0 | 61 | 51 | 48 | 63 | 100 | 43 | 45 | 46 |
| Acid Extractable Molybdenum (Mo) | 6.9 | ug/g | 0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.89 | <0.50 | <0.50 | <0.50 |
| Acid Extractable Nickel (Ni) | 100 | ug/g | 0.50 | 8.1 | 10 | 8 | 11 | 12 | 6.1 | 6.3 | 15 |
| Acid Extractable Selenium (Se) | 2.4 | ug/g | 0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Acid Extractable Silver (Ag) | 20 | ug/g | 0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |
| Acid Extractable Thallium (Tl) | 1 | ug/g | 0.050 | 0.07 | 0.076 | 0.065 | 0.089 | 0.097 | 0.056 | 0.055 | 0.091 |
| Acid Extractable Uranium (U) | 23 | ug/g | 0.050 | 0.42 | 0.49 | 0.46 | 0.48 | 0.43 | 0.4 | 0.4 | 0.37 |
| Acid Extractable Vanadium (V) | 86 | ug/g | 5.0 | 20 | 22 | 22 | 22 | 19 | 12 | 12 | 40 |
| Acid Extractable Zinc (Zn) | 340 | ug/g | 5.0 | 190 | 190 | 220 | 340 | 340 | 300 | 310 | **360** |
| **Other Regulated Parameters** | | | | | | | | | | | |
| Hot Water Extractable Boron | 1.5 | ug/g | 0.050 | 0.78 | 0.97 | 0.37 | 0.44 | 0.83 | 0.12 | 0.13 | 0.23 |
| Soluble (20:1) Chloride (Cl-) | | ug/g | | - | - | - | - | - | - | - | - |
| WAD Cyanide (Free) | | ug/g | | - | - | - | - | - | - | - | - |
| Electrical Conductivity | | mS/cm | | - | - | - | - | - | - | - | - |
| Hexavalent Chromium (CrVI) | 8 | ug/g | 0.20 | <0.20 | <0.20 | <0.20 | 0.35 | <0.20 | <0.20 | <0.20 | <0.20 |
| Acid Extractable Mercury (Hg) | 0.27 | ug/g | 0.050 | <0.050 | 0.053 | <0.050 | <0.050 | 0.14 | <0.050 | <0.050 | <0.050 |
| Available (CaCl2) pH | | pH | | - | - | - | - | - | - | - | - |
| Sodium Adsorption Ratio | | N/A | | - | - | - | - | - | - | - | - |

| **Legend** | |
|---|---|
| Exceeds Criteria | **Result** |
| Criteria 1 | Reg153/04 T2-Soil/Res-Coarse (MECP April 15, 2011) |

**Table 4**
**Polycyclic Aromatic Hydrocarbons in Soil**
**(Remediation Confirmation Samples)**

| *Parameter* | *Criteria* [1] | *Units* | *RDL* | INVESTIGATIVE | | |
|---|---|---|---|---|---|---|
| | | | | E WALL 1<br>02/22/11 | W WALL2<br>02/22/11<br>08:00 AM | W FLOOR1<br>02/22/11<br>08:00 AM |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | |
| Acenaphthene | 7.9 | ug/g | 0.010 - 0.020 | 0.055 | <0.020 | <0.010 |
| Acenaphthylene | 0.15 | ug/g | 0.0050 - 0.010 | <0.0050 | 0.081 | 0.025 |
| Anthracene | 0.67 | ug/g | 0.0050 - 0.010 | 0.081 | 0.15 | 0.14 |
| Benzo(a)anthracene | 0.5 | ug/g | 0.010 - 0.020 | 0.3 | 0.41 | 0.36 |
| Benzo(a)pyrene | 0.3 | ug/g | 0.0050 - 0.010 | **0.36** | **0.45** | **0.39** |
| Benzo(b/j)fluoranthene | 0.78 | ug/g | 0.010 - 0.020 | 0.46 | 0.62 | 0.49 |
| Benzo(g,h,i)perylene | 6.6 | ug/g | 0.020 - 0.040 | 0.22 | 0.27 | 0.21 |
| Benzo(k)fluoranthene | 0.78 | ug/g | 0.010 - 0.020 | 0.15 | 0.2 | 0.16 |
| Chrysene | 7 | ug/g | 0.010 - 0.020 | 0.31 | 0.39 | 0.35 |
| Dibenzo(a,h)anthracene | 0.1 | ug/g | 0.020 - 0.040 | 0.046 | 0.075 | 0.055 |
| Fluoranthene | 0.69 | ug/g | 0.0050 - 0.010 | **1.4** | **0.84** | **0.95** |
| Fluorene | 62 | ug/g | 0.0050 - 0.010 | 0.054 | 0.012 | 0.012 |
| Indeno(1,2,3-cd)pyrene | 0.38 | ug/g | 0.020 - 0.040 | 0.25 | 0.32 | 0.26 |
| 1-Methylnaphthalene | 0.99 | ug/g | 0.0050 - 0.010 | 0.0051 | <0.010 | <0.0050 |
| 2-Methylnaphthalene | 0.99 | ug/g | 0.0050 - 0.010 | 0.0082 | 0.012 | <0.0050 |
| Naphthalene | 0.6 | ug/g | 0.0050 - 0.010 | 0.033 | 0.015 | <0.0050 |
| Phenanthrene | 6.2 | ug/g | 0.0050 - 0.010 | 0.68 | 0.22 | 0.34 |
| Pyrene | 78 | ug/g | 0.0050 - 0.010 | 0.99 | 0.71 | 0.73 |

| **Legend** | |
|---|---|
| Exceeds Criteria | **Result** |
| Criteria 1 | Reg153/04 T2-Soil/Res-Coarse (MECP April 15, 2011) |

**Table 4**
**Polycyclic Aromatic Hydrocarbons in Soil**
**(Remediation Confirmation Samples)**

| *Parameter* | *Criteria* [1] | *Units* | *RDL* | CONFIRMATORY | | | |
|---|---|---|---|---|---|---|---|
| | | | | W WALL 1<br>02/22/11 | N WALL 1<br>02/22/11 | S WALL 2<br>02/22/11 | E FLOOR 1<br>02/22/11 |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | |
| Acenaphthene | 7.9 | ug/g | 0.010 - 0.020 | 0.024 | <0.020 | <0.010 | <0.010 |
| Acenaphthylene | 0.15 | ug/g | 0.0050 - 0.010 | 0.029 | <0.010 | <0.0050 | <0.0050 |
| Anthracene | 0.67 | ug/g | 0.0050 - 0.010 | 0.068 | 0.032 | <0.0050 | <0.0050 |
| Benzo(a)anthracene | 0.5 | ug/g | 0.010 - 0.020 | 0.2 | 0.12 | <0.010 | <0.010 |
| Benzo(a)pyrene | 0.3 | ug/g | 0.0050 - 0.010 | 0.27 | 0.12 | 0.0094 | <0.0050 |
| Benzo(b/j)fluoranthene | 0.78 | ug/g | 0.010 - 0.020 | 0.33 | 0.16 | 0.014 | <0.010 |
| Benzo(g,h,i)perylene | 6.6 | ug/g | 0.020 - 0.040 | 0.15 | 0.077 | <0.020 | <0.020 |
| Benzo(k)fluoranthene | 0.78 | ug/g | 0.010 - 0.020 | 0.1 | 0.051 | <0.010 | <0.010 |
| Chrysene | 7 | ug/g | 0.010 - 0.020 | 0.16 | 0.096 | <0.010 | <0.010 |
| Dibenzo(a,h)anthracene | 0.1 | ug/g | 0.020 - 0.040 | <0.040 | <0.040 | <0.020 | <0.020 |
| Fluoranthene | 0.69 | ug/g | 0.0050 - 0.010 | 0.4 | 0.29 | 0.017 | 0.0078 |
| Fluorene | 62 | ug/g | 0.0050 - 0.010 | 0.03 | 0.015 | <0.0050 | <0.0050 |
| Indeno(1,2,3-cd)pyrene | 0.38 | ug/g | 0.020 - 0.040 | 0.16 | 0.085 | <0.020 | <0.020 |
| 1-Methylnaphthalene | 0.99 | ug/g | 0.0050 - 0.010 | 0.012 | <0.010 | <0.0050 | <0.0050 |
| 2-Methylnaphthalene | 0.99 | ug/g | 0.0050 - 0.010 | 0.015 | <0.010 | <0.0050 | <0.0050 |
| Naphthalene | 0.6 | ug/g | 0.0050 - 0.010 | 0.024 | <0.010 | <0.0050 | <0.0050 |
| Phenanthrene | 6.2 | ug/g | 0.0050 - 0.010 | 0.2 | 0.17 | 0.0067 | <0.0050 |
| Pyrene | 78 | ug/g | 0.0050 - 0.010 | 0.35 | 0.23 | 0.014 | 0.0066 |

| **Legend** | |
|---|---|
| Exceeds Criteria | **Result** |
| Criteria 1 | Reg153/04 T2-Soil/Res-Coarse (MECP April 15, 2011) |

**Table 4**
**Polycyclic Aromatic Hydrocarbons in Soil**
**(Remediation Confirmation Samples)**

| *Parameter* | *Criteria* [1] | *Units* | *RDL* | CONFIRMATORY | | | |
|---|---|---|---|---|---|---|---|
| | | | | W WALL3<br>03/04/11<br>05:00 PM | W FLOOR2<br>03/04/11<br>05:00 PM | W FLOOR3 (Field Duplicate of W FLOOR 2)<br>03/04/11<br>05:00 PM | E WALL3<br>03/04/11<br>05:00 PM |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | | | | |
| Acenaphthene | 7.9 | ug/g | 0.010 - 0.020 | <0.010 | <0.010 | <0.010 | <0.010 |
| Acenaphthylene | 0.15 | ug/g | 0.0050 - 0.010 | 0.0069 | <0.0050 | <0.0050 | <0.0050 |
| Anthracene | 0.67 | ug/g | 0.0050 - 0.010 | 0.0091 | <0.0050 | <0.0050 | <0.0050 |
| Benzo(a)anthracene | 0.5 | ug/g | 0.010 - 0.020 | 0.031 | <0.010 | <0.010 | <0.010 |
| Benzo(a)pyrene | 0.3 | ug/g | 0.0050 - 0.010 | 0.029 | <0.0050 | <0.0050 | <0.0050 |
| Benzo(b/j)fluoranthene | 0.78 | ug/g | 0.010 - 0.020 | 0.042 | <0.010 | <0.010 | <0.010 |
| Benzo(g,h,i)perylene | 6.6 | ug/g | 0.020 - 0.040 | 0.029 | <0.020 | <0.020 | <0.020 |
| Benzo(k)fluoranthene | 0.78 | ug/g | 0.010 - 0.020 | 0.014 | <0.010 | <0.010 | <0.010 |
| Chrysene | 7 | ug/g | 0.010 - 0.020 | 0.029 | <0.010 | <0.010 | <0.010 |
| Dibenzo(a,h)anthracene | 0.1 | ug/g | 0.020 - 0.040 | <0.020 | <0.020 | <0.020 | <0.020 |
| Fluoranthene | 0.69 | ug/g | 0.0050 - 0.010 | 0.058 | <0.0050 | <0.0050 | <0.0050 |
| Fluorene | 62 | ug/g | 0.0050 - 0.010 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Indeno(1,2,3-cd)pyrene | 0.38 | ug/g | 0.020 - 0.040 | 0.027 | <0.020 | <0.020 | <0.020 |
| 1-Methylnaphthalene | 0.99 | ug/g | 0.0050 - 0.010 | 0.0051 | <0.0050 | <0.0050 | <0.0050 |
| 2-Methylnaphthalene | 0.99 | ug/g | 0.0050 - 0.010 | 0.0066 | <0.0050 | <0.0050 | <0.0050 |
| Naphthalene | 0.6 | ug/g | 0.0050 - 0.010 | 0.0061 | <0.0050 | <0.0050 | <0.0050 |
| Phenanthrene | 6.2 | ug/g | 0.0050 - 0.010 | 0.036 | <0.0050 | <0.0050 | <0.0050 |
| Pyrene | 78 | ug/g | 0.0050 - 0.010 | 0.048 | <0.0050 | <0.0050 | <0.0050 |

| **Legend** | |
|---|---|
| Exceeds Criteria | **Result** |
| Criteria 1 | Reg153/04 T2-Soil/Res-Coarse (MECP April 15, 2011) |